2024 $PM_{2.5}$ NAAQS Designation Recommendation
Informal Public Comments

Contents

RESOLUTION NO. 20240829-219

WHEREAS, the Texas Commission on Environmental Quality (TCEQ) is holding an informal comment period closing August 30, 2024, to solicit information relevant to the development of a designations submission for the 2024 primary annual $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS) of 9.0 micrograms per cubic meter ($\mu g/m^3$); **NOW, THEREFORE,**

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF AUSTIN:

The City of Austin requests TCEQ and the Environmental Protection Agency (EPA) prioritize the protection of public health and the environment in their evaluation of Travis County as potentially receiving a non-attainment designation for the 2024 primary annual $PM_{2.5}$ NAAQS. The air quality monitors for Travis County are located within or adjacent to densely populated neighborhoods in the City of Austin. Accordingly, data from these monitors are critical to include in TCEQ's analysis and recommendation for the Travis County $PM_{2.5}$ NAAQS designation. Furthermore, the City of Austin encourages TCEQ and EPA to recognize the increasing frequency of extreme heat and drought events that lead to wildfires in Central Texas, the current and ongoing highway construction due to the I-35 Capital Express expansion project that is expected to last the next ten years, and the current and future transportation emissions generated by a widened I-35 and other Austin-area highways, which will add to the particulate pollution in the region. These are realities facing Austinites, and any $PM_{2.5}$ monitor data that have been elevated due to these causes should not be immediately dismissed as unrepresentative or exceptional, but likely may, in fact, represent the new normal for Travis County and our residents. Finally, the City of Austin requests that if TCEQ recommends, and EPA designates, Travis County as attainment for the $PM_{2.5}$ NAAQS, that it is because our air is safe and healthy to

breathe, rather than because we have disregarded valid monitor data that shows our air is polluted.

BE IT FURTHER RESOLVED:

The City Manager is directed to submit a copy of this resolution to the TCEQ as official comment from the City of Austin for the current informal public comment period that closes August 30, 2024.

BE IT FURTHER RESOLVED:

The City Manager is directed to keep the City Council informed via memoranda as the Travis County $PM_{2.5}$ designation process progresses throughout 2024, 2025, and 2026, ensuring Council is made aware of all additional comment opportunities with enough time to prepare an appropriate response.

ADOPTED: August 29, 2024 **ATTEST:** Stephanie Hall for
Myrna Rios
City Clerk

Comments to TCEQ on PM2.5 Designation and Sandow Lakes Energy

Contacts:

Travis Brown, 512-560-0341, travisbrown983@gmail.com

Michele Gangnes 512-461-3179 mggangnes@aol.com

The following comments on potential new PM2.5 non-attainment designations by the TCEQ are submitted by the "Move the Gas Plant" steering committee.

This steering committee is a group of landowners and residents of the unincorporated Blue community in northwest Lee County. We organized this summer in opposition to a proposal by Sandow Lakes Energy (SL Energy Power Plant I, LLC) to locate a 1,200-megawatt natural gas power generation plant in our community.

If built, the Sandow Lakes Energy plant would be among the largest such power plants in Texas. It likely would be considered a major new source under the Clean Air Act and be required to comply with an extensive air permitting process at the TCEQ, according to air permitting experts we have consulted.

We urge TCEQ to make special note of this proposed gas plant, since air emissions from it would not only affect the air quality of residents of Lee County, but likely would impact air quality in the Austin area.

According to the EPA and the TCEQ, Travis County, including the City of Austin, is on track to be nonattainment for PM2.5 (fine particulate matter).

Air emissions from the Sandow Lakes Energy plant likely would negatively impact the Austin-Travis County metro area ability to meet federal clean air standards for both PM2.5 and NOx (ozone).

The proposed location of the Sandow Lakes Energy gas plant would be less than 40 miles from downtown Austin. That location is near the intersections of CR 306 and 309 in Lee County.

Not surprisingly, rural Lee County typically is not considered part of the Austin metro area. *However, if you look at a state map, you will see that the northwest corner of the county, where the gas plant would be located, is closer to downtown Austin than are many portions of Hays, Caldwell, Williamson and Bastrop counties, whose air emissions are already considered to contribute to the Austin metro area.*

Lee County is identified as a rural county of Texas by the Office of Management and Budget and is currently not included in any nonattainment or potential nonattainment area under Environmental Protection Agency standards.

However, if this plant is built, Lee County may fit EPA's definition of a nonattainment area, if it contributes to Travis County-Austin nonattainment.

The EPA has determined that any area that does not meet national primary or secondary National Ambient Air Quality Standards *or that contributes to ambient air quality in a nearby area that does not meet those standards* is a nonattainment area. https://www.epa.gov/green-book/ozone-designation-and-classification-information#:~:text=Nonattainment:%20Any%20area%20that%20does,not%20including%200.111%20ppm%20Serious

As TCEQ has noted, Travis County is among the one percent of all counties in the nation that currently fails to meet the new PM2.5 standards set by the U.S. Environmental Protection Agency.

We believe it is imperative that the TCEQ conduct an extensive investigation of expected air emissions from the proposed Sandow Lakes Energy gas plant to determine their impact on the Austin area's air quality.

We also request that TCEQ permit engineers require Sandow Lakes Energy to provide projection, calculation and modeling of the expected NOx-PM2.5 fine particle emissions. TCEQ should also consider requiring the company to install NOx controls.

As of the date of submission of these comments, Sandow Lakes Energy had yet to file its application for an air permit from TCEQ. (It did apparently file an application earlier this summer, but later withdrew that application.)

You might note that Sandow Lakes Energy also filed a letter of intent in May with the Public Utility Commission of Texas to seek $295 million from the new Texas Energy Fund to help build its proposed plant. However, a company representative recently told us it decided not to seek TEF loans.

Among our concerns about the proposed gas plant is the effect of its air emissions on the health of our community's residents. Our immediate goal is for Sandow Lakes Energy to move the location of its proposed power plant from a populated area of Lee County to a location that is more remote.

A less damaging and certainly feasible location for its plant is the site of the old Alcoa smelter and coal plant in Milam County. That site is part of the 33,000-acre Sandow Lakes Ranch, owned by an affiliate of Sandow Lakes Energy.

Until an air permit application is submitted, we have little data on which our experts can evaluate those emissions and their impact on human health and their impact on the Austin area's ability to meet EPA air quality standards. However, there is extensive documentation, by governmental entities including the TCEQ and EPA, of the impacts on human health of air emissions produced by natural gas power plants.

We anticipate Sandow Lakes Energy will claim in its air permit application that air emissions from its proposed plant will have little or no impact on *any* human health or on the Austin area's air quality.

We urge the TCEQ to view those expected claims with great skepticism.

In July, more than 150 people attended a community meeting in Blue regarding the proposed Sandow Lakes Energy gas plant. (See news story from our local weekly paper at the end of these comments.)

A representative from Sandow Lakes Energy spoke at the meeting and was asked repeatedly by concerned residents about air emissions from the proposed plant.

His response to those questions was, "There will be no visible emissions."

After the meeting one member of our steering committee asked the company representative what he meant by saying there would be "no visible emissions."

The representative reportedly replied, "That's what they told me to say."

We are considering opposing Sandow Lakes Energy's application for an air permit from TCEQ, along with other possible legal challenges.

We also are working with several national and local environmental groups, including the Sierra Club and Public Citizen, concerning this gas plant, particularly regarding its impact on the Austin area's air quality.

Due to phenomenal growth, the Austin metro area has experienced a steady increase in ozone, fine particulate matter and other harmful air quality factors.

The Sandow Lakes Energy gas plant, if built so close to Austin, will only exacerbate and worsen those air quality problems. And, it could force governmental, business and industrial entities in the Austin metro area to adopt economically burdensome steps to meet federal clean air standards.

Submitted by these members of the "Move the Gas Plant" Steering Committee:

Travis Brown	Jeri Matthys
Michele Gangnes	Hugh Brown
Sheril Smith	Georgia Canfield
Don Goerner	Serena Formby
Ward Taylor	Mariah Holton
Lynn Cain	Clark Johnson
Rachel Cain Bailey	David Goodwin
Lisa Moore	Sylvia Soto
Cathy Cambell	Ed Harvey
Trish Siler	Donna Westbrook

From the Lexington Leader:

Blue residents speak out against power plant

July 17, 2024

by Philip Concan

Lee County Judge Frank Malinak III addresses the crowd in Blue. PHOTO BY PHILIP CONCAN.

Last Wednesday, July 10, a capacity crowd of more than 150 residents of Blue came out to hear what Sandow Lakes Energy (SLE) had to say about the proposed 1200 megawatt power plant proposed to be built in Lee County. To help pay for the project, SLE is applying for $295 million from the $10 billion Texas Energy Fund, which the legislature created and voters approved last year to help private companies build new natural gas power generation plants in Texas.

Travis Brown, a Blue resident and an outspoken opponent to the project who organized Wednesday's meeting, said, "Taxpayer dollars should not go to gas plants that destroy rural communities when there are logical and feasible alternatives," Brown said. "In this case, Sandow Lakes Energy has a more suitable site readily available – at the old Alcoa site in Milam County."

The SLE power plant has been rumored to be built on a 33 acre site just west of Adina Church near the intersection of CR 309 and CR 312. Brown urged local stated elected officials to tell the Texas Public Utility

Commission it should not provide any Texas Energy Fund money to Sandow Lakes Energy unless it agrees to move the location of the plant from Blue to the old Alcoa industrial site.

Blue residents peppered SLE's Vice President Ned Ross with questions about air pollution and other negative impacts from the proposed plant. "There will be no visible emissions," Ross told the crowd. He stated that the only emission from the plant would be CO2 and water and he would give no numbers on how much CO2 would be pumped into the atmosphere in Blue nor how much water would be needed.

Ross also said the plant's noise, lighting and traffic impacts would be minimal. He said the noise from the facility would be 85 decibels 10 feet from the door. Eighty-five decibels is considered the maximum safe noise level for humans over an eight hour period.

Ross would not confirm or deny that the Adina/ Blue area is the proposed site for the project. When asked about specifics, Ross stated that it would have four power units generating 1200 megawatts of power and that the generators were two gas and two steam generators. When pressed, Ross said water usage would be minimal and that he was not at liberty to disclose how much water they would need.

Ross declined to answer many questions, saying he could not do so because the company is still preparing its application for a state air emissions permit.

Attendees complained that Ross would not explain why SLE could not build the plant at the old Alcoa industrial facility. Many people were fired up because the planning and placement of the proposed project was done

without any public input. SLE made the plans for the power plant and secured the land with no transparency as to what they were planning.

Residents spoke out loudly against the power plant, demanding that it be built at the site of the old Alcoa smelter, with the public arguing that the infrastructure was already in place to accommodate such a large endeavor. The response from Ross was that SLE was tapping into the just completed Matterhorn Pipeline, which is roughly two miles from the proposed power plant, minimizing other infrastructure built outside the SLE property.

Brown said, " Blue residents spoke out with a loud and unified voice at the meeting. We demand Sandow Lakes Energy build this gas plant at the old Alcoa smelter and coal plant site in Milam County. Not in the Blue community. Our elected officials should insist Sandow Lakes Electric take steps to make sure that happens. Let rural Blue remain rural. Don't turn it into an industrial area."

"The most important thing right now is for our elected officials to stand up for their constituents in Blue," Brown said. "We need them to publicly oppose putting this plant in our community."

He said State Senator Louis Kolkhorst recently spoke out against a proposed wind farm in Fayette County, quoting her as saying, "This wind farm will have long term impacts to some of the most beautiful lands in Fayette County and could have negative financial impact to surrounding landowners due to potential property devaluation." Mr. Brown added that Kolkhorst's statement could be changed to Lee County and have the same impact. Brown told the crowd that if Kolkhorst was going to publicly oppose the wind farm, she should do the same for the proposed gas plant. Kolkhorst was invited to Wednesday's meeting, but she did not attend, nor did she have a representative there.

Lee County Judge Frank Malinak III told the crowd that the county had little authority to stop the plant. But Brown said that if the county passed a resolution opposing the plant in Blue, that action could have an impact on whether the Public Utility Commission approves Sandow Lakes Energy's application on Texas Energy Fund dollars. He encouraged Lee Countians to contact their representatives and let them know it is not wanted in Blue and urge them to to oppose the construction.

Near the end of the meeting Judge Malinak spoke about the reclamation of the area around the Alcoa lakes and said that if they were to keep to their word, then trees should be transplanted as part of the reclamation of the land. He also said his opinion is that SLE didn't want the power plant at the old Alcoa site because Sandow Lakes Ranch wanted to make the lakes on the property a Woodlands style Riverwalk area.

Also in attendance was Sarah Ceraldi, a staffer for State Rep. Stan Gerdes.

The residents of Blue left feeling more betrayed by another large corporation that through their lack of transparency showed they didn't care for the residents or their well being.

August 30, 2024

TO:
SIPrules@tceq.texas.gov

CC: City of Austin Mayor Kirk Watson
City of Austin Council Member Natasha Harper-Madison
City of Austin Council Member Vanessa Fuentes
City of Austin Council Member Jose Velasquez
City of Austin Council Member Chito Vela
City of Austin Council Member Ryan Alter
City of Austin Council Member Mackenzie Kelly
City of Austin Council Member Leslie Pool
City of Austin Council Member Paige Ellis
City of Austin Council Member Zo Qadri
City of Austin Council Member Alison Alter
Travis County Judge Andy Brown
Travis County Commissioner Jeff Travillion
Travis County Commissioner Brigid Shea
Travis County Commissioner Ann Howard
Travis County Commissioner Margaret Gomez
TxDOT District Engineer Tucker Ferguson
TxDOT Environmental Affairs Director Doug Booher
FHWA Texas Division Director Carl Highsmith

REGARDING:
TCEQ is holding an informal comment period from July 30, 2024, through August 30, 2024, to solicit information relevant to the development of a designations submission for the 2024 primary annual $PM_{2.5}$ NAAQS of 9.0 micrograms per cubic meter.

Dear Texas Commission on Environmental Quality,

Reconnect Austin appreciates this opportunity to comment on the potential nonattainment designation of Travis County for $PM_{2.5}$ following the EPA's issuance of the lowered Particulate Matter 2.5 National Ambient Air Quality Standards ($PM_{2.5}$ NAAQS).

The EPA recognizes that $PM_{2.5}$ is a health concern. Small particles are dangerous in their ability to penetrate the lungs and bloodstream. This can cause: premature death, heart attacks, heartbeat irregularity, asthma and respiratory malfunction, coughing, and difficulty breathing (EPA). "Air pollution poses a great environmental risk to health. Outdoor fine particulate matter (particulate matter with an aerodynamic diameter < 2.5 μm [also referred to as $PM_{2.5}$]) exposure is the fifth leading risk factor for death in the world, accounting for 4.2 million deaths and > 103 million disability-adjusted life years lost according to the Global Burden of Disease Report. Air pollution can harm acutely, usually manifested by respiratory or cardiac symptoms, as well as chronically, potentially affecting every organ in the body. It can cause, complicate, or exacerbate many adverse health conditions" (Schraufnagel et. al 2019). Research has also found that exposure to air pollution including $PM_{2.5}$ can damage fetal health during pregnancy. A study in London found that "air pollution from road traffic is having a detrimental impact upon babies' health, before they are born. We estimate that 3% of term LBW [low birth weight] cases in London are directly attributable to residential exposure during pregnancy to $PM_{2.5}$" (BMJ 2017). Low birth weight can pose health and survival risks during infancy and can predict lifelong chronic illness (*The Guardian* 2017). Particulate matter air pollution has also been linked to reduced cognitive performance, especially in less educated populations and elderly populations (Zhang et. al 2018).

Roads are a major source of particulate matter pollution. $PM_{2.5}$ comes from both tailpipe exhaust and from non-exhaust emission sources including tire, brake, and road surface wear (Kole et.al 2017). "Up to 55% of roadside traffic pollution is made of non-exhaust particles, with around 20% of that pollution coming from brake dust" (Selley 2020, Air Quality Expert Group 2019). These non-exhaust particles, such as from brake dust, are incredibly damaging to human health and immune response (Selley et.al 2020). People living in close proximity to major roads are at greater risk of health consequences from breathing polluted air. These populations are disproportionately low income and communities of color (Samuels and Freemark 2022, EPA).

Reconnect Austin cautions against overreliance on a shift to electric vehicles as a method of reducing particulate matter pollution. Electric vehicles contribute to particulate matter pollution in the form of tire, brake, and road surface wear, which can be worse in electric vehicles compared to internal combustion engine vehicles due to heavier vehicle weights from electric

batteries. “While electric vehicles emit no exhaust fumes, they still produce large amounts of tiny pollution particles from brake and tyre dust” (*The Guardian* 2017). According to Dr. Ian Mudway at the MRC Centre for Environment and Health at King's College London, “There is no such thing as a zero-emission vehicle” (UK Research and Innovation, 2020).

Reconnect Austin has followed closely the EPA’s guidance on particulate matter pollution, as well as the consequences felt by both Dallas and Houston being in nonattainment for ozone. We recognize the impact of the potential nonattainment designation for Travis County.

Travis County has a preliminary 2023 $PM_{2.5}$ design value (averaged over 3 years of monitor data) of 9.6 micrograms per cubic meter ($\mu g/m^3$). The new lowered Particulate Matter 2.5 National Ambient Air Quality Standard ($PM_{2.5}$ NAAQS), finalized in February of 2024 at 9.0 $\mu g/m^3$, was set by the EPA “to protect millions of Americans from harmful and costly health impacts, such as heart attacks and premature death. Particle or soot pollution is one of the most dangerous forms of air pollution, and an extensive body of science links it to a range of serious and sometimes deadly illnesses. EPA is setting the level of the primary (health-based) annual PM2.5 standard at 9.0 micrograms per cubic meter to provide increased public health protection, consistent with the available health science.” Travis County’s 2023 $PM_{2.5}$ design value exceeds the NAAQS of 9.0 $\mu g/m^3$, meaning Travis County may be officially designated nonattainment as early as 2026.

$PM_{2.5}$ is a public health issue that must be analyzed and addressed fully. Each of the three monitors in the Central Texas region, including on North I-35, is located in a densely populated area. Requests to consider removing data from said North I-35 monitor, due to construction activities near the site and “unrepresentative” values from highway emissions, would remove from consideration important public health data given that there are people living and working near the site whose health is impacted by high levels of $PM_{2.5}$. The “temporary” nature of those construction activities does not negate their impact on population health for people living and working nearby. The “unrepresentative” nature of highway emissions does not negate their impact for people living and working nearby. An extensive body of scientific research has shown that proximity to roads and to roadway construction has real and documented health impacts on those living and working nearby. In many instances these are low income and/or communities of color, who are already health-burdened and more susceptible to health consequences from air pollution (Samuels and Freemark 2022).

“Qualified exceptional events,” such as wildfire events from Central and South America and Saharan dust events, are likewise impactful to population health and thus must be considered when reviewing $PM_{2.5}$. We have seen a recent rise in these so-called “exceptional” events, which are becoming more routine and less exceptional by the day. Their “temporary” or “exceptional” nature does not apply to their impacts to population health.

$PM_{2.5}$ has been causing health impacts to our residents for many years, and now that the EPA has lowered the NAAQS, we must recognize how poor our air quality has gotten and the responsibility on us to rectify it for the benefit of our population. All current $PM_{2.5}$ monitors should remain in place to create a robust historical and future record of air quality levels. An inappropriately granted attainment designation due to removing a monitor, and skewing the data, will do nothing to improve our population health and prevent our children, elderly, and vulnerable residents from experiencing air pollution induced illnesses and comorbidities.

Thank you for your consideration of our comments and for your work to keep Texas air clean and healthy. We hope that TCEQ will act in favor of our population's health and in accordance with the scientific data provided by the region's three $PM_{2.5}$ monitors. If our area is designated attainment for $PM_{2.5}$ it should be because our air quality has improved and meets the health-based standard.

Thank you,

Heyden Black Walker

Co-Founder and Chair of the Board of Directors
Reconnect Austin

92 Navasota St
Austin, TX 78702

www.rethink35.com
rethink35atx@gmail.com

August 30, 2024

Re: Rethink35's comments regarding Potential State Designations for the 2024 Primary Annual Fine Particulate Matter (PM2.5) National Ambient Air Quality Standard (NAAQS)

Dear TCEQ Staff,

Thank you for the opportunity to comment on the TCEQ's appraisal of Travis County's designation concerning the EPA's PM2.5 NAAQS. The EPA's new NAAQS reflects scientific consensus about the profound risks and impacts associated with particulate matter.[1] According to the EPA, "Particle or soot pollution is one of the most dangerous forms of air pollution, and an extensive body of science links it to a range of serious and sometimes deadly illnesses."[2]

Travis County has a preliminary 2023 PM2.5 Design Value (based on a three year average) of 9.6 micrograms per cubic meter, which fails to meet the new federal standard of 9.0 µg/m3. We are deeply concerned about our region's air quality, especially as Austin residents already suffer from the impacts of poor air.[3] We believe that the preliminary 2023 design value reflects longstanding trends in the region that must be planned for, and controlled, going forward.

Because all three regulatory monitors in Travis County are located in densely populated areas and measure air that hundreds of thousands of Austinites breathe on a daily basis, it is crucial that their data be incorporated into the Commission's assessment. Soot pollution comes from a variety of sources, and while any given source may vary from year to year, the fact that the three year average exceeds EPA's threshold indicates a consistent pattern.

We also want to emphasize that, considering these values' likely causes, there is nothing exceptional or unrepresentative about them: Even prior to planned roadway expansions, Austin has more lane miles per capita than any other large Texas city.[4] Traffic levels, given TxDOT's current expansion plans, will only increase (and, as we know from decades of evidence, congestion will not improve as a result). Construction on I-35 alone, if allowed to proceed, is projected to last about a decade, the majority of a childhood. And, unfortunately, we have every reason to think that the kind of weather events impacting our air - both here and abroad - will only increase in frequency.

We urge the Commission to take these air quality problems with the seriousness they deserve when considering the designation for Travis County and we appreciate your commitment to protecting the environment and public health.

Sincerely,

Miriam Schoenfield
Board Member, *Rethink35*

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[1] https://pubmed.ncbi.nlm.nih.gov/38153542/ and https://pubmed.ncbi.nlm.nih.gov/37734693/
[2] https://www.epa.gov/pm-pollution/final-reconsideration-national-ambient-air-quality-standards-particulate-matter-pm
[3] https://dellmed.utexas.edu/news/air-pollution-in-austin-neighborhoods-linked-to-asthma-disparities-ut-study-finds
[4] https://farmandcity.org/wp-content/uploads/2020/03/FarmAndCity_JustTheFactsAbouttheCAMPORegion.pdf

August 30, 2024

Via Electronic Delivery
SIPrules@tceq.texas.gov

Cory Chism, Director
Office of Air Quality
Texas Commission on Environmental Quality

RE: Potential State Designations for the 2024 Primary Annual Fine Particulate Matter (PM2.5) National Ambient Air Quality Standard (NAAQS)

Director Chism and TCEQ Air Quality Team,

Thank you for your efforts to protect Texas air quality and for allowing us to comment on TCEQ's appraisal of Travis County's designation regarding the EPA's PM2.5 NAAQS. While SOS's primary focus is water quality, we recognize the intrinsic link between protecting air quality and water quality. Both are essential to human health and our region's ecosystems.

The EPA's updated NAAQS highlight the severe risks of particulate matter exposure, linking it to serious illnesses. Travis County's preliminary 2023 PM2.5 Design Value of 9.6 µg/m³ exceeds the new federal standard of 9.0 µg/m³, reflecting ongoing air quality issues. This is concerning for Travis County residents already affected by poor air quality.

Growth in the Central Texas region is concentrated primarily around highways, particularly the I-35 corridor. Exposure to the public health and safety risks posed by living, working, and spending much of our daily lives commuting on major highways is part of our reality. PM 2.5 generated by vehicular emissions, brake and tire wear, and resuspended road dust are a major source of PM 2.5 on the chronic health concerns we experience. The (mere) three regulatory monitors accurately depict this reality—consistent, prolonged exposure to PM 2.5, attributable to highway-related traffic, construction, and the concentration of business/industry.

The data shows that the air in Travis County is unhealthy, and we request that the TCEQ accurately reflect this situation in its designation. This will only lead to better policy choices and better human health outcomes, so that one day soon, we can return to an "attainment" status based on clean air, not excuses for inaction.

Thank you,

Bobby Levinski
Staff Attorney,
Save Our Springs Alliance
bobby@sosalliance.org

TRAVIS COUNTY COMMISSIONERS COURT COMMENTS FOR SUBMISSION TO THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY DURING THE INFORMAL PUBLIC COMMENT PERIOD: POTENTIAL STATE DESIGNATIONS FOR THE 2024 PRIMARY ANNUAL FINE PARTICULATE MATTER ($PM_{2.5}$) NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS), OF JULY 30, 2024 THROUGH AUGUST 30, 2024

Travis County Commissioners Court appreciates the opportunity to submit comments regarding the potential designations for the 2024 primary annual fine particulate matter ($PM_{2.5}$) National Ambient Air Quality Standards (NAAQS). Travis County has been and will continue to be a leader in improving clean air and protecting public health and the environment. We are an ardent champion of the Capital Area Council of Governments (CAPCOG) Air Quality Regional Plan, and have made significant strides in efforts to improve air quality over the past few years, including:

- Implementing an emissions and testing vehicle program,
- Encouraging public transportation and teleworking for employees and residents,
- Installing EV charging stations for our vehicle fleet and public use,
- Promoting clean energy by transitioning to renewable energy sources,
- Increasing green spaces by expanding parks,
- Designing our roadways to reduce traffic congestion and pollution by creating more bike-friendly paths and implementing traffic flow improvements,
- Educating the public about particulate matter and ways to reduce their personal emissions,
- Adopting a Memorandum of Agreement with TCEQ to enforce heavy duty vehicle idling rules,
- Supporting additional monitors in our area to track PM2.5 levels and identify sources of pollution, and
- Creating a Clean Air Task Force consisting of Constables to investigate and prevent illegal vehicle emissions testing.

We acknowledge that due to the new, more protective federal standard of 9.0 µg/m3, Travis County will likely be declared a nonattainment area for $PM_{2.5}$. According to the Texas Comptroller, counties in Central Texas are some of the fastest growing areas in the country. With this growth, we understand the importance and urgency of reducing $PM_{2.5}$ in our region to protect human health, and ask that TCEQ provide additional support to Travis County and the Central Texas region to help us do that. Specifically, we ask TCEQ to:

1. Provide increased support to local jurisdictions throughout the CAPCOG region in their implementation of the Air Quality Regional Plan.
2. Substantially improve air quality controls on rock quarries, rock crushers, concrete and cement batch plants, and similar activities currently authorized under permits by rule with minimal controls and oversight. This includes requiring best available control technology for improved air quality controls for these and all similar operations and more frequent inspections.
3. Support local controls on outdoor burning in the region.
4. Place additional PM2.5 regulatory monitors in counties outside Travis County but within the CAPCOG region to gain a better understanding of PM2.5 pollution in the region.
5. Increase Texas Emissions Reduction Plan grants allocated to Travis County and the CAPCOG region.
6. Increase Texas Volkswagen Environmental Mitigation Program grant funding to the region.

Travis County will continue to implement strategies to improve air quality for our region to improve the health and well-being of our residents. We look forward to robust state support and partnership in the effort to reduce harmful fine particulate matter pollution in Central Texas.

DocuSigned by:
Andy Brown
821917DB291D47D...

Andy Brown

Travis County Judge

DocuSigned by:
Jeffrey Travillion
38D10DAB088649F...

Jeffrey W. Travillion, Sr.

Commissioner, Precinct 1

DocuSigned by:
Brigid Shea
49E111C68FCC406...

Brigid Shea

Commissioner, Precinct 2

DocuSigned by:
Ann Howard
C9FFD0713B4148F...

Ann Howard

Commissioner, Precinct 3

DocuSigned by:
C46630EAEF2B43A...

Margaret J. Gómez

Commissioner, Precinct 4

From: [redacted]
To: SIPRULES
Subject: Austin Air Quality
Date: Wednesday, August 28, 2024 9:06:53 AM

Texas Commission on Environmental Quality,

Air quality is important to me because increased car density / highway expansion is the biggest polluter no matter where I've lived. I know too many people that have asthma, lung problems, congestion issues etc. because cities refuse to prioritize people + MORE efficient public transport.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin Air Quality Concerns
Date: Wednesday, August 28, 2024 12:51:10 PM

Texas Commission on Environmental Quality,

Living in northeast Austin, we are well aware of air quality issues. We are next door to a landfill that should be closing, but is fighting to continue operations.

I am concerned with contamination from the old acl landfill and from the current waste management landfill. Johnny morris north of 290 is often a white cloud of particulates from the trucks that are always headed to and from the landfill.

Is there a clean and easy way for us to monitor the air quality in our area? Daily, we check for warnings against outdoor activities before we go for bike rides and runs. We deserve to have the same clean air that is on the west side of town where your offices are.

[redacted]

From: [redacted]
To: SIPRULES
Subject: Austin"s air quality
Date: Thursday, August 29, 2024 9:52:43 AM

Texas Commission on Environmental Quality,

To whom it may concern,

TxDot's expansion of I-35 and CTRMA's expansion of multiple other freeways in Austin and central Texas will greatly increase traffic levels and associated pollution. This will impact health and mortality in Austin and central Texas for decades. Please raise this issue with lawmakers and stop the massive expansion of highways.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: I-35 expansion hurts everyone living in Austin
Date: Tuesday, August 27, 2024 10:53:19 AM

Texas Commission on Environmental Quality,

It is common knowledge that highway expansions lead to increased emissions of pollutants. And it is common knowledge that these pollutants decrease the quality of life and increase health issues of those living near the highway. Why is it acceptable for Tx DOT and the government to decide to widen I-35 without the proper impact studies? As someone who suffers from asthma, I find it disheartening and frustrating that TxDOT and the government of Texas continue to make decisions that will lead to more sickness for me and my neighbors. I urge them to reconsider their plans and to CONSIDER what the people need and want.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin, TX Air Quality will have increased pollution from expansion of I-35
Date: Thursday, August 29, 2024 3:31:38 PM

Texas Commission on Environmental Quality,

Having TxDOT only focused on expanding all the freeways lanes and highway lanes is RUINING the environment. Making people drive vehicles everywhere makes huge air pollution, making concrete everywhere, and making traffic all the time.
TxDOT needs to have public transportation, with trains, trams, and dedicated bus lanes.
Climate change is getting worse because of expanding I-35 and other focused vehicles, instead of multi-modal transportation.
I ride my bike 99 percent of the time and that is scary, btw.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality & I35 Expansion
Date: Tuesday, August 27, 2024 10:52:41 AM

Texas Commission on Environmental Quality,

People in Travis County already experience negative health impacts from bad air quality. It does not make any sense to have such a large interstate through the middle of our city instead of as a loop around it. The proposed expansion will make the air quality in central Austin even worse. Please listen to the people who live, work, raise their kids here, and have made Austin the desirable place it is to live in. We want better. Better is possible. The proposed expansion is a step backwards not forwards.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality Concerns
Date: Tuesday, August 27, 2024 11:37:15 AM

Texas Commission on Environmental Quality,

My husband and I have lived in the same house in the Cherrywood neighborhood for over 30 years. We're less than 3/4 mi from the interstate. Our house is white and for 20 of those years, keeping it white was never a concern. We now have to power wash it yearly to remove the black dust that collects as a result of the increased traffic along IH35. This pollution isn't abstract numbers reflected in parts per million — it is tangible. I can see it. I can wipe it off with my fingers. And if it is on our house, it is also in my lungs. The proposed expansion to 35 is wrong on so many levels, but the most insidious threat it poses is to the quality of the air and the health of the residents in the immediate area.

Unfortunately, I have little faith that any study conducted will cause TxDOT to reconsider their foregone conclusions.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality
Date: Wednesday, August 28, 2024 12:31:39 PM

Texas Commission on Environmental Quality,

TxDOT has insidiously avoided the issues of air quality by ignoring the misc. evidence that the problem exists and is growing. What is at stake here however is the Austin area response to the larger issue of climate change. TxDOT/DOT will enjoy the legacy of contributing directly to climate change but Austin does not need to be guilty of the same crime.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air pollution in Austin
Date: Thursday, August 29, 2024 8:11:38 PM

Texas Commission on Environmental Quality,

I am writing to express my deep concerns regarding the ongoing expansion of Highway 35 in Austin, Texas, and its potential negative impacts on the environment and public health. As a resident of this community, I am increasingly worried about the cumulative effects of this highway expansion, especially when combined with the limited public transportation options and the rise in air traffic at our local airport.

Health and Environmental Concerns:
Air Quality Deterioration: The expansion of Highway 35 is expected to lead to increased vehicular traffic, contributing to higher emissions of pollutants such as nitrogen oxides (NOx), carbon monoxide (CO), and particulate matter (PM). These pollutants are known to exacerbate respiratory conditions such as asthma and bronchitis, particularly among vulnerable populations like children and the elderly. The worsening air quality poses a significant public health risk and could lead to an increase in hospital visits and long-term health issues for residents living near the highway.

Noise Pollution: The expansion of the highway will undoubtedly result in increased noise levels, affecting the quality of life for residents in the surrounding neighborhoods. Prolonged exposure to high noise levels has been linked to a range of health issues, including stress, sleep disturbances, and cardiovascular diseases. The constant noise from additional traffic could also disrupt local wildlife habitats, leading to a decline in biodiversity.

Limited Public Transportation: Despite the growing population and urban sprawl, Austin's public transportation system remains inadequate. The lack of robust public transit options forces residents to rely heavily on personal vehicles, further contributing to traffic congestion and air pollution. A more comprehensive and efficient public transportation system could mitigate some of the environmental and health impacts associated with highway expansion by reducing the number of cars on the road.

Increased Air Traffic: The increase in air traffic at Austin-Bergstrom International Airport has also raised concerns about air quality and noise pollution. The combination of expanded highway traffic and more frequent flights is creating a perfect storm of environmental degradation that threatens the health and well-being of our community. Jet emissions contribute to air pollution, and the noise from frequent takeoffs and landings can have similar health impacts as those from highway traffic.

Recommendations:
Given these concerns, I urge your agency to:

Conduct a Comprehensive Environmental Impact Assessment: It is crucial that a thorough assessment is carried out to evaluate the cumulative impacts of the highway expansion, limited public transportation, and increased air traffic on air quality, noise pollution, and public health.

Promote Sustainable Transportation Solutions: I encourage the promotion and expansion of sustainable transportation options, such as electric buses, light rail, and bike-sharing programs. These alternatives can reduce the dependency on personal vehicles and help mitigate the environmental impacts of the highway expansion.

Implement Mitigation Measures: To address the noise and air pollution concerns, please consider implementing noise barriers, green spaces, and buffer zones around the expanded highway. Additionally, stricter emissions standards for vehicles and aircraft can help reduce the environmental footprint of these developments.

Engage the Community: It is vital to involve the local community in the decision-making process. Public hearings and forums where residents can voice their concerns and provide input on proposed mitigation strategies are essential for ensuring that the needs of the community are met.

In conclusion, while infrastructure development is important for economic growth, it must not come at the expense of public health and environmental integrity. I hope that your agency will take these concerns seriously and work towards solutions that protect both the environment and the well-being of Austin’s residents.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Let"s not make it worse
Date: Tuesday, August 27, 2024 1:59:17 PM

Texas Commission on Environmental Quality,

This is a critical issue for me. I live within 200 feet of I-35, so increasing the amount of cars passing right by my house will absolutely have negative impacts on the health of my family. My wife and I are considering having children but I suffered from debilitating asthma as a child, and I'd be worried about any health consequences for my potential children living so close to an expanded 35 with even more cars.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality is so important to our children"s health
Date: Friday, August 30, 2024 5:33:35 PM

Texas Commission on Environmental Quality,

Hi there,
I grew up in Houston, where poor air quality led to my developing childhood asthma. As an active and athletic child, this had a significant impact on my life. My husband and I moved back to Texas so we could raise our children near our family, but we are concerned about air quality impacting their health and development. Much like Houston or Los Angeles, it looks like Austin will be circled and striped and criss-crossed by highways. We need to focus on getting cars off of our roadways, broadening public transit availability, and providing new public transit options like electrified rail throughout our region to ensure that Austin doesn't become the next smoky, smoggy metropolitan area.
Thanks,
[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Stop the expansion of I-35
Date: Friday, August 30, 2024 9:22:24 AM

Texas Commission on Environmental Quality,

Studies show that adding lanes creates more traffic. Induced demand causes folks to perceive that traffic is not so bad, causing them to drive during peak traffic. Let's be smart and not waste over 5 billion dollars on this project. Additionally, road construction emits water and air pollution. Although construction gives people a job, let's instead protect them as well as residents that live near the highway such as myself.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Let us breathe!!
Date: Thursday, August 29, 2024 10:12:42 PM

Texas Commission on Environmental Quality,

It is amazing that this city that is known for outdoor activities, is in jeopardy of continue this trend. I love to see that we commute thru bus, walking and biking. However, it is a lifestyle that can cause long-term health issues. Why does this city has so much traffic and construction that cause cars to linger longer on the road ways. Take action and not increase the lanes in downtown because it will instead increase more car usage. I resided in Houston, Texas and guess what? I-10 still have jammed traffic with 10 lanes. More lanes are not the solution. Plus I dread the havoc that constructions will cause. More traffic and delays. Japan has innovated transportation with bullet trains. I also enjoyed my travels in South Korea with subways and buses.
Aren't you tired of the horrible heat in Texas cause by global warming. It is time to find a better solution for air quality and overall living quality.

Thank you,

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality
Date: Tuesday, August 27, 2024 10:24:57 AM

Texas Commission on Environmental Quality,

Air quality is important to me because it affects everybody's health, including my family and myself. It also contributes to the well being of the city's ecology (animals and plants).

People in Travis County already experience negative health impacts when the low air quality deprives them from the outdoors.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin Air Quality
Date: Tuesday, August 27, 2024 3:28:21 PM

Texas Commission on Environmental Quality,

Expanding I-35 would increase the number of cars cutting through the city, and further worsen the air quality in many neighborhoods in Austin. Studies have shown a significant linkage between ER visits triggered by asthma symptoms and higher pollution areas in Austin.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin Area Air Quality
Date: Tuesday, August 27, 2024 7:25:04 PM

Texas Commission on Environmental Quality,

Dear, Texas Commission on Environmental Quality

Air quality is important to me because breathing clean air should be a basic human right but also because I suffer from asthma and as the population grows in Austin that means more cars and more air pollution. I live a block away from I35 on Broadmoor Dr where the expansion is taking place. My asthma has progressively gotten worse over the years in Austin. My doctor keeps prescribing new inhalers for my asthma bc prescriptions stop working as the air quality worsens in Austin. Thank you for taking this into account as you work to keep our air clean for our residents and the next generation. Thank you! [redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality Concerns
Date: Tuesday, August 27, 2024 1:18:15 PM

Texas Commission on Environmental Quality,

Hello,
I grew up in Round Rock, Texas and spent much of my childhood in Austin. An expansion of I35 would be horrible for the air quality in the area. I want the area I grew up in to be a quality place to bring my children back to in the future. I am very concerned that the expansion of I35 would make the Austin area a worse place to live.
Thank you,
[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality
Date: Tuesday, August 27, 2024 4:54:51 PM

Texas Commission on Environmental Quality,

As the world continues its trajectory of becoming unlivable due to human causes, I wish we didn't have to fight our own government to convince it to do the right thing. To believe research that adding lanes does nothing to solve the issue. Adding viable public transport is the future of America and it starts with cool cities like Austin to start investing in that future. Keep Austin weird and make it weirder by investing heavily into MetroRail. I love riding the train into work, it reminds me of Japan, a place that's said to be years in the future. It isn't, they just have trains. Please don't cave into Big Car and Big Oil! I want to go outside and enjoy the nature that exists in my backyard and throughout Austin, and that includes the air I breathe, the animals breathe, the birds and bees breathe, the plants breathe. Please do what's right.
Thank you.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin air quality
Date: Tuesday, August 27, 2024 11:50:55 AM

Texas Commission on Environmental Quality,

Air quality in Austin seems to have gotten exponentially worse since I moved here 15 years ago. The number of large polluting trucks on both the highways and city streets has grown, and their resulting pollution with it. The threat of wildfires and their resulting impacts on air quality are also a concern. I am fortunate that at 42, I don't yet experience negative health impacts from poor air quality, but how much longer can that last if things continue to grow worse, given that lots of people in Travis County already experience health problems. Please take steps to preserve our health and positive city experience.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality
Date: Wednesday, August 28, 2024 10:35:41 AM

Texas Commission on Environmental Quality,

Exhaust from cars is terrible for our health and literally degrades our bodies. Even with electric cars, tires produce pollution that poisons our city and our bodies. We need to invest in public transportation as well as bike and walking infrastructure instead of endlessly expanding out highways.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin Air Quality
Date: Tuesday, August 27, 2024 11:14:40 AM

Texas Commission on Environmental Quality,

Hello,
as an avid cyclist in Austin and somebody who has had breathing problems in the past I feel very strongly about air quality in Austin. Those of us who ride frequently will usually check air quality before commuting on our bicycles and will attempt to avoid riding when the air quality is bad. I don't smoke and personally I only have these one set of lungs. Many Travis County residents aren't even aware of the main reason why we have poor air quality at all. Today on my ride I didn't cough even once.
Thanks!

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality Concerns
Date: Tuesday, August 27, 2024 10:47:14 AM

Texas Commission on Environmental Quality,

Air quality is important to me because I've seen firsthand the negative health impacts poor air quality can have. Coming from Houston, where air quality issues are well-documented, I've watched friends and family struggle with respiratory problems linked to pollution. Now, living near I-35 in Austin, I'm concerned that similar issues are arising here. The increased traffic and potential expansion of I-35 could make things even worse.

I urge the Texas environmental quality agency to ensure an accurate record of our air quality. The truth about our air quality should drive action, just as it did in Houston, where revealing the extent of the problem unlocked funding for improvements. We need the same level of transparency and commitment in Austin to protect our health and our community.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality
Date: Tuesday, August 27, 2024 12:47:03 PM

Texas Commission on Environmental Quality,

Expansion of i35 will drastically worsen air quality, let's invest that money in our light rail which is underutilized

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality Needs Improvement
Date: Tuesday, August 27, 2024 12:42:54 PM

Texas Commission on Environmental Quality,

Air quality is incredibly important to me because I spend so much time outside, as walking and biking are my two main modes of transportation. I can feel the difference when I'm close to a high traffic roadway vs when I'm far away. We need more people using public transportation, less cars on the roads, and fewer highways in our city if I'm going to feel good about the air quality safety of Austin residents for years to come.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Concerns About the Expansion of I-35 and Its Environmental Impact
Date: Thursday, August 29, 2024 12:21:26 PM

Texas Commission on Environmental Quality,

Dear Texas Commission on Environmental Quality,

I am writing to express my serious concerns about the planned expansion of the I-35 highway in Austin. While I understand the desire to address traffic congestion, I believe the consequences of this project will have a far-reaching impact on air quality, the environment, and public health in our city. Expanding highways encourages more vehicular traffic, which leads to increased emissions of greenhouse gases and air pollutants. In a city like Austin, where we are already facing serious air quality issues, this decision will further exacerbate pollution levels, impacting not only our local environment but also contributing to the larger crisis of climate change.

The expansion of I-35 will lead to higher concentrations of particulate matter (PM2.5) and nitrogen dioxide (NO2) in the air, pollutants that are known to be harmful to human health. These pollutants can cause respiratory issues, cardiovascular diseases, and other severe health conditions. My concerns are personal, as I have a friend who was recently diagnosed with lung cancer. I fear that projects like these, which increase the amount of vehicle emissions in our air, are directly contributing to the rise in such illnesses among our citizens. We should be taking steps to reduce air pollution, not adding to it.

Beyond the impact on public health, the expansion will affect our environment. Increased traffic will lead to more runoff of oil, gasoline, and other harmful chemicals into our waterways, impacting local ecosystems and contaminating our water supply. This is not just an Austin problem; it is a global issue. The United States has been seen as a leader on the world stage, but projects like this continue to show how irresponsible we can be when it comes to protecting the environment.

Instead of investing billions of dollars in expanding highways, we should be putting those resources into sustainable and environmentally-friendly alternatives, such as public transit, bike lanes, and pedestrian-friendly infrastructure. These are the kinds of projects that not only reduce our carbon footprint but also promote a healthier, more livable city for all.

It is time we take responsibility for the choices we make and recognize the impact they have on both our local community and the global environment. I urge the Texas Commission on Environmental Quality to reconsider this expansion project and instead advocate for solutions that align with a sustainable and healthy future.

Thank you for your attention to this matter.

Sincerely,

[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: City if Austin Air Quality Concerns, Requests & Solutions
Date: Wednesday, August 28, 2024 11:58:36 AM

Texas Commission on Environmental Quality,

I grew up in Austin when you could still see a clear sky daily, was even born at St. Davids (which is directly in the path of the I-35 expansion). Not only are the clear skies gone, they are plauged by neverending exhaust fumes so you don't even wanna go out and look at the greyish sky much less walk, ride a bike, play sports....because it is hard to breathe. Each year, it is getting hotter as well, which is not helped in any way with projects focused on a vast reduction of impervious cover, exponential increase of, and even an implied open invitation of, more air pollution. (!?)
My request is this, do not approve one more project that redirects more pollution to the heart of the city where I was born. Encourage, empower, even incentivize projects that support less pollution any way you are able, especially where our AIR and our WATER are concerned.

Soultions? Reroute traffic from the city center to city traffic. Use the current infasctructure more efficiently. Incentivize businesses to have employees commuting in off hours. Incentivize corporations to use distribution on the edges of town rather than through it. Buy back the rights to the toll fees so the money made is self funding to other projects, because others making money off of it is assinine. Incentivize pollution free transportation, possibly in the form of safe public bicycle, scooter, skateboard parking, lockers. Make it safe for people to enjoy the air.

I know that if you checked the air quality from now to any uear of my childhood (however far backmyou have data) you will see drastic changes. I see what has happened to Houston, anddo not want that to happen here. Please do the research and see how this will make it unhealthy for the people to live, wotk and play here. There are so many solutions that do notmake the current problem exponetially worse.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality!
Date: Tuesday, August 27, 2024 12:03:01 PM

Texas Commission on Environmental Quality,

Hello,

My family is from Texas, but since my dad is in the military, we moved around a lot and I've seen many regions of the country. As an adult, I decided to move back to Texas — I love it here! — but the truth is, the air quality is holding this city back! I've developed difficulty breathing that I haven't experienced anywhere else. There are solutions — pedestrian and bike friendly public infrastructure, more public transit options, less cars on the road! Austin is my favorite city in the country, and we could make it world-class with these common sense solutions.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: air quality
Date: Tuesday, August 27, 2024 11:02:37 AM

Texas Commission on Environmental Quality,

I've been tracking with fear the increasingly bad air quality around Austin this summer, with multiple days in the "unhealthy" or "very unhealthy" range due to ozone in particular. This is terrible for young Texans, whose developing lungs need clean air. Please take the time to address this problem before it gets out of hand.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: PLEASE Don"t Worsen Austin"s Air Quality Problem
Date: Tuesday, August 27, 2024 11:16:58 AM

Texas Commission on Environmental Quality,

Air Quality is something that everyone is affected by whether they want to be or not. Nobody should be allowed to pollute the air that my family and I breathe, and the State of Texas should be proving that they care about the citizens of Austin (literally the capital) by investigating the air quality problems! Don't let the I35 expansion make it even harder to breathe.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality Concerns for I-35 Investigation
Date: Tuesday, August 27, 2024 11:45:49 AM

Texas Commission on Environmental Quality,

As an Austin resident I'm deeply concerned about the air quality impacts that the new I-35 expansion will have. I'm sending this email as a request that the State of Texas do an air quality investigation.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality
Date: Thursday, August 29, 2024 11:18:16 PM

Texas Commission on Environmental Quality,

Spending time outdoors is one of my favorite things in the world, and it's becoming more and more jeopardized by air pollution. Austin (and surrounding areas) has great places to hunt, fish, and boat, but what's the point if it becomes dangerous to breathe there? Ensuring air quality standards are upheld is absolutely critical to ensuring that Austin and the state of Texas remain places that people flock to rather than flee from.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality and IH35 in Austin
Date: Tuesday, August 27, 2024 2:57:45 PM

Texas Commission on Environmental Quality,

I'm a marathoner. Until 2020, when I got a stage 4 lung cancer diagnosis, I ran 7 days a week from Mopac to IH35 and back, a 7 mi loop. I thought I was doing a healthy thing for over a decade. I've since learned that everyday, I was deeply inhaling 800 feet of the most polluted air in Austin, adjacent to IH35.

One of my doctor's offices near St David's hospital, is on the access road of IH35 and 32nd St. I've stood there and observed the black grit on the concrete walls and overhangs of IH35. That pollution is visible on concrete, and invisible in Austinites' lungs.

People in businesses, homes, daycares, schools and on the University of Texas campus have been breathing that polluted air for decades.

Please right the health wrong, demolish IH35 through the middle of Austin. Instead, please buyout the SH130 toll road and turn it into an Austin bi-pass IH35. It will be less costly to bypass. It will be healthier to bipass.

If you don't do this, the health issues from pollution will get worse in the coming decades as more people use and live near IH35 in Austin.

Thank you for listening.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Car Free America
Date: Tuesday, August 27, 2024 10:43:24 AM

Texas Commission on Environmental Quality,

Hi,

Please rethink I-35 expansion, and consider air quality.

Air quality impacts everyone, it is a matter of public health.

Increase walkability and public transit in our neighborhoods. Highways should have less entrances and exits, not more lanes.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: The Future of Our World
Date: Tuesday, August 27, 2024 4:41:47 PM

Texas Commission on Environmental Quality,

I oppose this expansion because I believe that it will cause more pollution. Pollution is part of what is making our world more and more uninhabitable, so I oppose this expansion. I personally haven't had asthma until I moved to Austin and it is only getting worse. Many others in Travis county have reported negative health impacts. Air quality is very important to me and I hope you take what I said to heart.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Start measuring and take action on Air pollution on I35
Date: Wednesday, August 28, 2024 9:08:31 AM

Texas Commission on Environmental Quality,

Hello,

I live 3 blocks from I-35 in North Austin. The amount of traffic and pollution from the highway are very concerning to me- the last thing I want is to breathe in toxic fumes while sitting in my backyard.

Please start measuring and tracking the pollution impact of I-35 and take action to protect me and my family, and other Texans who live in Austin. Our lives depend on it!

Best,
[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: stop expanding i35
Date: Tuesday, August 27, 2024 10:27:34 AM

Texas Commission on Environmental Quality,

Please stop spending money on i35 to expand it. It is the most reckless thing a city can do, do some research for godsake

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: IH 35 Austin
Date: Tuesday, August 27, 2024 11:26:08 AM

Texas Commission on Environmental Quality,

To whom it may concern. I'm highly concerned with the widing project of IH 35 through Austin. I live near by and there have been historical concerns with air quality in the Austin area. I use to run air quality studies so do not dismiss this. Widing of a freeway never solves the traffic problem. Public transportation does. Those who live in central Austin are going bare the brunt of suburban choices to commute. I live work and play all within 1.5 miles of my house. I'm not rich I choose to live near my daughter's school, my work, and shops. We live in a 2 bedroom 1 bath house that way we don't have commute and add to air quality problems of Austin.

Please consider what IH 35 is going to do those living along this corridor. We do not benefit from this expansion.

Besides air quality it is also going increase noise.

Thank you

[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Concerned about air quality near I-35 corridor
Date: Tuesday, August 27, 2024 11:18:39 AM

Texas Commission on Environmental Quality,

Hello. I have been concerned about the air quality in central Austin for some time, and I appreciate that this is being investigated.

I live off of Manor road, blocks away from I-35. My apartment gets incredibly dusty, requiring constant cleaning. My car window gets clouded over with particulate matter to the point of being a driving hazard, requiring weekly carwashes for safety reasons. At first I chalked it up to construction down the street until I noticed it getting progressively worse each year. Most concerning is the observation that, 100% of the time, my car gets dirty when it rains. I can see how the rain droplets are catching various forms of brown/grey matter that must have been in the air.

This year, I have been wondering what the implications of this must be for the air quality of Austin, and what this could mean for my health. I love the area I live in, and I believe we deserve to breathe clean, healthy air.

Thank you for the hard work you do! I look forward to reading the results of this investigation

[redacted]
Texas

From: [redacted]
To:
Subject: Air quality
Date: Tuesday, August 27, 2024 5:43:29 PM

Texas Commission on Environmental Quality,

I'm worried about the expansion of IH35 because we know it affects air quality in Austin. Expanding it will cause more traffic and more trucks.
Many children are already being affected by poor air quality with asthma. Do we want to out our children's health at risk?

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: We deserve air we can breathe
Date: Thursday, August 29, 2024 10:02:43 AM

Texas Commission on Environmental Quality,

Increasingly, our living areas are built for cars, with no regard for what that means to be a human existing in that space. Air quality is a huge concern for health and wellness, and I'm extremely concerned about how poor air quality has been in Austin. As a mother of four children, I want to do everything I can to make sure that they have clean air to breathe as they go to school, play, and grow up here in Texas. We adults need to take a serious look at what our car-heavy infrastructure is doing to our health, and make some hard choices about potentially funneling funds from unnecessary highway expansion towards environment- saving public transit efforts.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality in Austin
Date: Thursday, August 29, 2024 9:01:30 PM

Texas Commission on Environmental Quality,

If you can't breathe clean air you can't enjoy the beauty of nature. Please help us to keep good air quality in Austin. I have to check air quality everyday before I go out. I love nature and I love working at my community garden. Thank you.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Please investigate our poor air quality
Date: Thursday, August 29, 2024 3:44:09 PM

Texas Commission on Environmental Quality,

To whom it may concern:
As a longtime Austin resident, I have witnessed the decreasing quality of Austin's air due to rapid growth. Air quality is important to me because I want my daughter to grow up without lung disease.
Thank you!

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin air quality concerns
Date: Tuesday, August 27, 2024 10:53:37 PM

Texas Commission on Environmental Quality,

Please hear my concerns regarding Austin's current air quality and think for our future. After moving to Austin four years ago, I developed year-round allergies and am currently on daily compound drops to try to reduce my symptoms. My doctor said that after three years, my allergies would have only gotten worse without treatment. On days with bad AQI, due to dust clouds or toxic plumes from other countries, I have to stay inside. We should do everything we can to minimize our own impacts to worsen air quality - cut emissions, plan more CO2 neutralizing environments - to stay an outdoor friendly city in Texas.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: I want better air quality in the Austin area
Date: Tuesday, August 27, 2024 10:22:58 AM

Texas Commission on Environmental Quality,

I live three blocks from I-35 in Austin and am very concerned about air quality. My neighbors regularly wipe soot from their trees and the sides of their homes and a good friend's young son developed asthma living next to I-35.

I know many people are impacted by air quality and that our air pollution levels now exceed what the EPA considers safe for human health. We need full information about the Austin area's air pollution levels so we can take appropriate action to address the problem.

Please fully study Austin's air quality levels, including by installing air quality monitors at regular intervals in the area, including along major highways like I-35.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: More Lanes More Pollution
Date: Tuesday, August 27, 2024 3:59:33 PM

Texas Commission on Environmental Quality,

I completely object to Texas DOT's plan to expand I-35 through Austin. Increasing the lanes will increase pollution and contribute to poor air quality in our city. Not enough is being proposed to mitigate pollution or support pollution reduction strategies including multimodal and active transit.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin Air quality
Date: Wednesday, August 28, 2024 12:50:23 PM

Texas Commission on Environmental Quality,

I have emphasima. I am supposed to walk for my health, But when the air quality is bad, I get out of breath when walking. Please try to Make Our citizens healthier and not sicker.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: 35 corridor air quality
Date: Tuesday, August 27, 2024 10:21:19 AM

Texas Commission on Environmental Quality,

As a lifelong resident of the 35 corridor (Austin and San Marcos) I've seen increasingly worse and worse air pollution along the 35 corridor, and am concerned for the health of my daughter who deserves to grow up with clean air. Please do what you can to decrease lanes, and increase trains! We must act now to improve air quality. Thank you

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Addressing Austin"s Air Quality Crisis for Health and Equity
Date: Tuesday, August 27, 2024 12:12:10 PM

Texas Commission on Environmental Quality,

Air quality in Austin is a major concern for me, especially as someone who rides a bike and walks around the city. I'm worried about how pollution affects my health and the health of those living closest to pollution sources. Historically, these areas are often underserved, highlighting issues of environmental racism.

This morning, while biking on a prominent trail, I noticed a toxic smell coming from a nearby plant. It was distressing to feel powerless and forced to breathe in harmful air.

Many in Travis County are already suffering from the impacts of poor air quality. We need urgent action to address and improve our air quality for everyone's health and well-being.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin Air Pollution
Date: Tuesday, August 27, 2024 1:54:10 PM

Texas Commission on Environmental Quality,

It's time to move in a different direction. More and wider roads just means more pollution. We need fewer roads and more public transportation. Doing more of what we're doing now won't solve our issues with pollution. It's time for a change.

Thank you,
[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Even electric cars pollute
Date: Tuesday, August 27, 2024 11:13:26 AM

Texas Commission on Environmental Quality,

ICE’s pollute but also BEV’s as tires still hit the pavement and brakes create dust. Large trucks aren’t changing anytime soon either so with an expanding I-35 freeway we will see more pollution in downtown and surrounding parts of Austin. It’s time to change this madness and stop the growth of cars. One way, as done in Europe, is to reduce or eliminate roads. It can be done and done right. Please reconsider the expansion.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality in areas East of Interstate 35
Date: Wednesday, August 28, 2024 6:54:38 AM

Texas Commission on Environmental Quality,

I have lived East of I35 most of my life. The City's incinerator was placed here. Since the increase of traffic on the interstate, people in my neighborhood are experiencing and will continue to experience the negative health impacts from bad air quality.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality near I-35
Date: Tuesday, August 27, 2024 11:32:40 AM

Texas Commission on Environmental Quality,

Since moving into this new development I have been living much closer to I-35 than I did before. The air quality here is pretty bad. Soot on the windows and coming in between the cracks in the seals. I have had to get an inhaler prescribed. I live only 1/3rd of a mile from I-35 so any increase in traffic is going to be bad for my health. Please come and do a survey in our Edgewick neighborhood.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Extremely poor air quality due to I35 corridor
Date: Saturday, August 31, 2024 7:20:13 AM

Texas Commission on Environmental Quality,

I am a 71 year old woman who has lived within blocks of I35 in Austin for over 40 years. In my 40s I developed asthma. Without a doubt, it is the result of emission pollution emanating from I35. I especially feel that my asthma has become debilitating in the last 20 years because of increased traffic on the roadway. Expansion of I35 will only make it worse. I truly don't understand why Austin cannot enjoy the standard approach to highway construction and placement that is used in urban areas all over the country -- the use of loops. I consider the conflict that prohibits connection between federal projects (Interstate 35) and state loops like TX 45 ridiculous. Both are overseen by TXDOT and the solution is to move the interstate out of the city. My asthma is bad but think of the children who will live their whole life with this disability as a result of I35. Move I35 out of city limits now!

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin Air Quality
Date: Tuesday, August 27, 2024 12:10:55 PM

Texas Commission on Environmental Quality,

Austin's air quality is already impacted by pollution and it has serious consequences for residents, particularly children. Multiple studies have found that the pollution in our air has caused Austin to have higher rates of childhood asthma and more asthma related ER visits than the national average (for example, a study by UT Austin published in 2024 in the American Journal of Respiratory and Critical Care Medicine, "The Role of Neighborhood Air Pollution in Disparate Racial and Ethnic Asthma Acute Care Use"). On a personal level, my neighbors have a two year old son who recently had to stay overnight at the hospital for asthma-caused breathing problems, and I worry about having a child while living in Austin given the high instance of asthma for children here. Reducing air pollution air pollution in Austin should be considered an emergency-level priority for our state and local leadership.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Concerns for I-35 expansion
Date: Tuesday, August 27, 2024 10:24:18 AM

Texas Commission on Environmental Quality,

Air quality is a critical issue for me because it directly affects the health of our community. As a student, I used to commute to school and work using the highway. But I have realized how highways like I-35 has led to my increased respiratory problems. Expanding I-35 will only worsen this situation, adding more harmful emissions into our air. The State of Texas must take responsibility by revealing the true extent of our air quality problems and investing in sustainable solutions that prioritize public health over short-term gains.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality and I-35
Date: Friday, August 30, 2024 10:16:16 AM

Texas Commission on Environmental Quality,

Please consider all the data regarding air quality and major highways. I live very close to I-35 and 183 and am concerned about my health. Expansion of I-35 would further harm the health of all the people who live within a mile. Thank you.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin's Air Quality is Hurting Us
Date: Tuesday, August 27, 2024 2:00:57 PM

Texas Commission on Environmental Quality,

I have had season allergies since I was a child. My allergies have gotten worse since moving to Austin 11 years ago. Now I have three young boys, the oldest of which has started to struggle with season allergy-induced asthma. He has missed a few days of school because of it, and I worry about how much worse his health may continue to get. The pollution in Austin's atmosphere has only gotten worse and I worry about the health of all three of my young sons as well as my elderly parents who are especially sensitive when the air quality is poor. Please do something to save us— not hurt us. Thank you.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Concerned
Date: Friday, August 30, 2024 9:53:25 PM

Texas Commission on Environmental Quality,

I am concerned about air quality in Austin area. Particularly in vicinity of I-35 highway, levels of pollution are very unhealthy, to a degree where I have to avoid opening my window facing the freeway, as air quality in my home also suffers from it. Actions need to be taken to improve air quality including monitoring levels of pollution, reducing amount of automobiles etc.

Kindly

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin area"s air quality problems
Date: Tuesday, August 27, 2024 11:23:42 AM

Texas Commission on Environmental Quality,

I am an Electric Unicyclist (EUC) in Austin. I share a car with my wife and primarily use my EUC to get around, often driving alongside cars at car speeds. When sitting in traffic, I am often surrounded by vehicle exhaust and feel the toxins going directly into my lungs. Please do not increase car traffic downtown, and invest in multi-modal transportation.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin Air Quality
Date: Tuesday, August 27, 2024 1:03:10 PM

Texas Commission on Environmental Quality,

There is no reason that a state that rails against New York and California should have 2x worse Air Quality, actively killing its citizens. There is no conceivable way this state can say it cares about the health and welfare of its citizenry while actively poisoning them. Perhaps instead of creating more lanes and thus more traffic (see Los Angeles), the state should pull its head out of its ass and create better public transportation. Thank you for doing literally nothing as you will continue to do, because you are bought and paid for.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Please Protect the Health of Austin"s Residents; Include the Data
Date: Tuesday, August 27, 2024 10:30:38 AM

Texas Commission on Environmental Quality,

I am writing to request that the Texas Commission on Environmental Quality (TCEQ) include all data from active monitors that have measured the Austin region's air quality, specifically regarding PM2.5 levels, which have been found to exceed federal limits established to protect human health. The background levels of PM2.5 attributable to highway construction is a normal and constant condition in Austin.

A recent study titled "The Role of Neighborhood Air Pollution in Disparate Racial and Ethnic Asthma Acute Care Use," published in the American Journal of Respiratory and Critical Care Medicine, provides compelling evidence on the health impacts of air pollution. The study examined census tract asthma visit incidence rates, average levels of fine and coarse particulate matter (PM2.5, PM10), nitrogen dioxide (NO2), and sulfur dioxide (SO2), while controlling for socioeconomic and housing variables. The researchers found that higher rates of both PM2.5 and SO2 were significantly associated with increased asthma-related emergency visits.

Moreover, the study highlighted that neighborhoods with higher proportions of Black and Latinx residents experienced significantly higher levels of air pollution compared to neighborhoods with higher proportions of White residents. This disparity directly correlates with increased rates of asthma exacerbations among Black and Latinx Austinites due to their heightened exposure to harmful air pollutants.

Given these findings, it is important that TCEQ includes all relevant data from active air quality monitors in the Austin region. This data is essential for accurately assessing the public health risks and ensuring that all communities, particularly those disproportionately affected by air pollution, receive the necessary protections and interventions. Designations for clean air should be based on clean air; skewing the decisions related to non-attainment will lead to false policy choices and exacerbate the health consequences already being experienced by Austin residents, especially Black and Latinx Austinites.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality for Kids and Elders
Date: Thursday, August 29, 2024 10:22:26 PM

Texas Commission on Environmental Quality,

To: The State of Texas
Subject: Air Quality Concerns in the Austin Area

I am writing to express my deep concerns regarding the air quality in the Austin area. As a resident of this city, I believe that clean air is essential for the health and well-being of all citizens.

Air quality is important to me because I enjoy spending time outdoors, and I want to be able to do so without worrying about the potential health risks associated with breathing polluted air. Additionally, I am concerned about the long-term health impacts of air pollution, such as respiratory problems, heart disease, and cancer.

I have personally experienced the negative effects of poor air quality in Austin. For example, on days when the air pollution is high, I often experience difficulty breathing and have to limit my outdoor activities. I have also heard from friends and family members who have experienced similar health problems.

According to the Travis County Environmental Health Department, people in Travis County already experience negative health impacts from bad air quality. These impacts include increased rates of asthma, bronchitis, and other respiratory illnesses.

I urge the State of Texas to take immediate action to address the air quality problems in the Austin area. This could include implementing stricter emissions standards for vehicles and factories, investing in renewable energy sources, and promoting public transportation.

Thank you for your attention to this important issue.
Sincerely,

[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: I - 35 Expansion / Not Good at all
Date: Friday, August 30, 2024 3:12:29 PM

Texas Commission on Environmental Quality,

Dear TCEQ,
I have lived here in Austin for 22 years and our air quality is getting worse! The I-35 expansion will devistate our air quality and Austin neighborhoods. I have recently started coughing more over the last two years. Coughing when I am driving and while I am outside. And, I cannot roll down my windows while I am driving in the city. I live here in the city. Please stop this expansion!
Thank You
[redacted]
[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin Air Quality Concerns
Date: Tuesday, August 27, 2024 10:21:58 AM

Texas Commission on Environmental Quality,

Hello,

I've been a resident of Austin since 2014. I am currently pregnant with my first child and the past few years' data of Austin air quality have been increasingly concerning. I am very worried about how expanding I35 will negatively impact my health and the health of my family in years to come.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality in Austin
Date: Friday, August 30, 2024 5:52:31 PM

Texas Commission on Environmental Quality,

We should be doing everything we can to improve local air quality. Building sprawl-inducing highways to being in more drivers from areas surrounding Austin will bring smog and more particulate matter, which will decrease the health of our air and waterways.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Please Improve Our Environmental Quality
Date: Thursday, August 29, 2024 10:40:44 AM

Texas Commission on Environmental Quality,

My asthma is already bad enough with current poor air quality in Austin. Please don't exacerbate this by expanding 35. Expand better public transport instead! Reduce the need for EVERYONE to have to drive…

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Classify Austin as "noncompliant" with the EPA air quality recommendations
Date: Friday, August 30, 2024 4:27:19 PM

Texas Commission on Environmental Quality,

The air quality in Austin is poor. I noticed this when I visited Cambridge, UK recently and went on a few runs -- I could run much faster and was far less out of breath than when I run in Austin. I love this city and want it to be safe in the future. I think classifying Austin as noncompliant with the EPA air quality recommendations and keeping air-quality monitors close to the population centers is a step in the right direction.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: air pollution and health in the Austin metro area
Date: Wednesday, August 28, 2024 7:14:58 AM

Texas Commission on Environmental Quality,

We know that what is in the air we breathe differs from neighborhood to neighborhood in the Austin metropolitan area and that these differences translate to greater health impacts in affected neighborhoods. Sources of air pollution in and near neighborhoods, including highways, are a major reason for air quality differences across neighborhoods. To protect the health of central Texans, there must be a thorough investigation of air quality in the Austin metro area and invest in strategies to protect air quality.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: I live near I-35 and air quality is important to my family and neighbors...
Date: Tuesday, August 27, 2024 6:52:42 PM

Texas Commission on Environmental Quality,

We like to be outside, and we're concerned about the particulate matter and emissions increasing due to the I-35 expansion. I'm especially concerned because our neighborhood is not getting a cap or stitch (near St. David's Hospital, too!), and all that bad air in what will essentially be a tunnel will be coming up near my neighborhood. We already have a tough lot in Austin with Saharan sands and allergens. I would ask that the TECQ, TxDOT, and other agencies please think of a comprehensive solution to I-35 air pollution before making our air quality worse.
Thanks,
[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality over I-35
Date: Friday, August 30, 2024 8:41:35 AM

Texas Commission on Environmental Quality,

I live within a few hundred yards of I-35, in the Boggy Creek neighborhood just east of the interstate. Hardly a day goes by when I don't think about the negative impact having thousands upon thousands of cars emitting exhaust so nearby.

It's not just the exhaust, but the extremely high levels of particulate from brake dust and tire rubber. All of this settles in the areas surrounding large freeways such as I-35.

I can't help but think about the children in my neighborhood, the elementary school that I live across the street from, and the negative effects of living so close to a large and dirty highway. There are countless studies concerning the effects of proximity to high volume traffic on kids.

I strongly encourage the state of Texas to perform a robust and thorough examination of the air quality within Austin, particularly around I-35. As I citizen, I demand clean air to breathe.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Make air quality a priority, please.
Date: Wednesday, August 28, 2024 9:37:11 AM

Texas Commission on Environmental Quality,

My family lives just East of I35, within a few blocks, and in the last few years have become increasingly concerned with the air quality in our neighborhood and city generally.
Who's idea was it to build a highway *right through* the middle of the city?!
And why on Earth would we think expanding the highway would solve *any* problems, be they traffic flow or environmental.
We need to start taking better care of the air and water we all depend on.
More public transit please!

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality deterioration from expanding I-35
Date: Tuesday, August 27, 2024 12:46:07 PM

Texas Commission on Environmental Quality,

I spend a lot of time outdoors and am concerned about the air quality in the Austin area. Expanding I-35 will likely makes things worse by creating induced demand for even more motor vehicles. According to new EPA standards (from the news reports I have access to) air quality is already poor in the Austin area.

[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality in Austin
Date: Thursday, August 29, 2024 5:00:04 PM

Texas Commission on Environmental Quality,

It doesn't matter whether the air quality is considered "bad" due to car pollution, weather, or nearby factories, the scientific evidence is clear that poor air quality is linked with severe health impacts, from cancers, to breathing and heart problems, even to mental health problems (https://pubmed.ncbi.nlm.nih.gov/?term=air+quality+and+health&filter=pubt.review&sort=date&size=100). If we want to continue to be an amazing city, we need to care about whether we can remain healthy in it. I want to be able to go on walks with my dog and breathe without fear of inhaling toxins. I want all of our children to be able to play outside without asthma attacks from poor air quality. Please take air quality seriously and ensure that we are adequately measuring air quality and doing what is best for our health and our future.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: I -35
Date: Tuesday, August 27, 2024 11:50:59 AM

Texas Commission on Environmental Quality,

Pls help stop expansion.
Air quality is so important to us all.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Poor Air Quality in Austin
Date: Tuesday, August 27, 2024 11:26:29 AM

Texas Commission on Environmental Quality,

As traffic on our highways in and around Austin worsens, our air quality suffers. This is especially true in neighborhoods on the east side of our city, which have fewer trees and green spaces to naturally filter toxins out of the air. The city needs to do more to promote green spaces and public transit options to cool our neighborhoods and clean our air. Children, elderly citizens, and those with health issues should not suffer because of our addiction to cars. We need solutions focused on the health of our neighbors!

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: 1-35 does not need to be expanded
Date: Thursday, August 29, 2024 12:50:45 PM

Texas Commission on Environmental Quality,

It is possible to reduce traffic, air pollution, and improve the quality of life for everyone living near 1-35 by investing in infrastructure like railroads and sustainably powered public transportation. It is evident all over the world that public transportation is crucial in the development of major cities.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Urgent Call for Transit Investment to Address Austin"s Air Quality Crisis
Date: Wednesday, August 28, 2024 12:42:15 PM

Texas Commission on Environmental Quality,

I am writing to express my deep concern about the deteriorating air quality in Austin and to urge immediate action to address this critical issue. The current state of our air is unacceptable and poses significant risks to public health and our quality of life.

The ongoing expansion of highways and continued emphasis on car-dependent development are exacerbating this alarming trend. These projects not only fail to solve our transportation problems but actively contribute to increased pollution and reduced air quality. The more we expand our roads, the more we encourage single-occupancy vehicle use, leading to a vicious cycle of congestion and emissions.

It is clear that we cannot pave our way out of this problem. The only viable path forward is a significant investment in public transit. A robust, efficient, and widely accessible transit system would:

1. Reduce the number of vehicles on our roads, directly cutting emissions
2. Decrease traffic congestion, further lowering pollution levels
3. Provide equitable transportation options for all residents
4. Support more sustainable, higher-density urban development

We must prioritize projects that move people, not just cars. This means investing in light rail, bus rapid transit, and improved pedestrian and cycling infrastructure. These solutions not only address our air quality concerns but also provide numerous co-benefits, including reduced carbon emissions, improved public health, and enhanced urban livability.

The time for half-measures has passed. I urge you to take bold action to protect the health of Austin's residents and the future of our city. Redirect funds from highway expansion to comprehensive public transit solutions. Our air quality—and the well-being of our community—depend on it.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality for I-35
Date: Wednesday, August 28, 2024 12:27:42 PM

Texas Commission on Environmental Quality,

I'm a concerned citizen regarding the I-35 expansion and the future air quality of our city. I firmly believe that appropriate testing must be done by an outside group and analysis NOT TxDOT itself to ensure that we know exactly what this expansion project will do to the health of our citizens.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin air Quality
Date: Monday, September 2, 2024 7:39:44 AM

Texas Commission on Environmental Quality,

Bad air quality poses significant risks to both current and future generations, with immediate and long-term health implications. Exposure to polluted air can lead to respiratory and cardiovascular diseases, reduced lung function, and increased mortality rates. For children and the elderly, the risks are even greater, as their immune systems are more vulnerable. In the long term, chronic exposure to pollutants can cause lasting damage to lung development in children, reduce life expectancy, and exacerbate global health disparities. Additionally, poor air quality contributes to environmental degradation, impacting ecosystems and food security, which further jeopardizes the well-being of future generations. Addressing air pollution is therefore critical to safeguarding public health and ensuring a sustainable and equitable future.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Concerns about air quality
Date: Thursday, August 29, 2024 8:54:04 PM

Texas Commission on Environmental Quality,

I am very concerned about the air quality in the Austin area, and in particular I am worried that the expansion of IH-35 will make air quality worse. I live very close to that highway, I can hear traffic on it all day long, and I am the parent of two children who attend schools nearby. We frequently walk to school or nearby restaurants and I worry about what my children are breathing. My husband has asthma and it has gotten worse since we have lived near the highway. It's very scary to think that going outside could be bad for our health. Please consider making changes to the plan to widen IH-35 to mitigate the effects on air quality.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality Standards for PM2.5
Date: Tuesday, August 27, 2024 4:26:27 PM

Texas Commission on Environmental Quality,

Particulate matter is a serious health concern. Please ensure that you do extensive monitoring and evaluate data from all available monitors to ensure that we are getting an accurate reading of PM 2.5 levels in the central Texas region. Accurate data reporting and emission reduction measures are essential for ensuring that health impacts from breathing particulate matter are reduced.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality in Austin
Date: Thursday, August 29, 2024 8:05:13 AM

Texas Commission on Environmental Quality,

Before I came to Austin, I lived in Los Angeles for a year. That year, I experienced the effects that smog and air pollution from highways, cars, and other sources had on the breathability of the air. With the amount of cars driving around Austin, I worry that the air quality of Texas's beautiful capital will worsen to similarly dangerous levels. It is important for me to feel like I can leave my house and walk around a city without feeling like I am endangering my health. We should do everything we can to protect the right to breathe clean air for our fellow citizens, and especially the children of Travis county. There is a significant link between air pollution and health problems for children such as asthma.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: air quality in Austin
Date: Tuesday, August 27, 2024 10:48:48 AM

Texas Commission on Environmental Quality,

I think the air quality should be a big factor in how and why we develop more roads. It affects everyone and will have consequences to our future generation. Air quality should not be comprised just bc we need to increase travel. Instead of just building more roads you need to educate the public and build more sustainable transit options. Our American countries are getting left behind when you look around the world.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality Concerns
Date: Wednesday, August 28, 2024 5:47:15 AM

Texas Commission on Environmental Quality,

I love to run outside when the weather allows. Nothing like training for a 5k or a 10k on the sloping hills of Austin to provide a killer workout. But bad air quality will reduce my ability to enjoy Texas' open sky. On top of that, lung disease runs in my family. If the air quality gets worse, I might have to stop running, even indoors.

I want to keep enjoying the nature Austin has to offer, without worrying about my or my family's lung health. Please help keep Austin's air clean!

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin air quality concerns
Date: Tuesday, August 27, 2024 11:46:27 AM

Texas Commission on Environmental Quality,

As a native Texan, I urge you to more carefully and honestly measure the impact of relentless highway expansion. I have loved ones who cannot tolerate “bad air days.” Beyond that, evidence shows that highway expansions do not necessarily alleviate traffic issues though they certainly make cities uglier and more polluted.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin air quality
Date: Wednesday, August 28, 2024 8:20:10 PM

Texas Commission on Environmental Quality,

I live in Travis county and air quality is important to me because I am a bicycle commuter and I spend 6 hours a week commuting outdoors. I also spend lots of time outdoors on the weekends and walking my dog on during the week. My home was built in the early 80s and as such it is far from air tight. As a result air pollutants easily make it into my living environment. . My daughter was born with congenital emphysema and require a partial lung lobectomy at age 5. Despite the surgery she remains highly sensitive to poor air quality. I am also a geriatrics physician and many of my patients have chronic lung disease. Poor air quality is directly correlated with worse outcomes for such patients.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality
Date: Tuesday, August 27, 2024 1:08:51 PM

Texas Commission on Environmental Quality,

My mother is autoimmune compromised and cannot go outside when the air quality dips. So much air pollutions stems from transpiration emissions, especially those on I-35 during peak traffic hours.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Concerns about air quality along the I-35 corridor
Date: Tuesday, August 27, 2024 10:30:21 AM

Texas Commission on Environmental Quality,

As a resident of East Austin, I am deeply concerned about the impact of air quality on our community, particularly with the proposed I-35 expansion. My family and I are invested in the health of our neighborhood; we spend a significant amount of time outdoors, whether tending to our community garden, walking, or biking. Poor air quality directly threatens our way of life, and I worry about the potential increase in pollution from this project.

My children deserve to grow up in an environment where they can play outside without health risks. I urge you to prioritize air quality research and consider the long-term effects of infrastructure projects like I-35 on communities like ours. We need more studies on how these expansions affect air quality and public health.

I appreciate your attention to this critical issue and look forward to your support in ensuring a healthier future for Austin and Texas residents.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin air quality
Date: Tuesday, August 27, 2024 12:21:48 PM

Texas Commission on Environmental Quality,

Air quality is important to me because I live in Austin near I35, and I worry air quality in my neighborhood of Windsor Park is only going to get worse with its expansion. Between the traffic and construction projects everywhere, though, there are few places in Austin to get a respite from bad air quality. I have an irritated throat most of the year, and often wake up coughing at night. It isn't just in a limited allergy season like when I first moved here a decade ago—there are more and more extremely bad air quality days in Austin.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin deserves the BEST
Date: Tuesday, August 27, 2024 12:08:27 PM

Texas Commission on Environmental Quality,

I am deeply concerned about the state of air quality in the Austin area, and I urge you to take decisive action to address the growing health crisis caused by polluting highways like I-35.

Every day, highways such as I-35 pump toxic airborne soot into our lungs. This isn't just an inconvenience — it's a matter of life and death for many in our community. With the proposed expansion of I-35, we are on the brink of making an already dangerous situation even worse. Our air is thick with harmful pollutants that aggravate respiratory conditions, threaten the health of vulnerable populations, and impact the overall quality of life for everyone in Austin.

I know firsthand the toll that poor air quality can take. My family and friends regularly suffer from the effects — the coughing, the shortness of breath, the constant worry about long-term health risks. It's heartbreaking to witness our children playing outside, knowing they are inhaling particles that could damage their developing lungs.

We need an accurate record of our air quality so that we can make informed decisions about our future. The truth is clear: unless we take steps now, the consequences will only grow more severe. Revealing the full extent of this issue could be the key to unlocking the necessary funding for public transit improvements and other critical interventions. We've seen this happen in Houston, where alarming revelations about air quality finally spurred meaningful action and investment. Austin deserves the same.

I strongly urge you to use this investigation to paint a full and honest picture of the air we breathe. The health and future of our community depend on it. Please, do not allow this opportunity for change to slip away.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Please get an accurate air quality reading!
Date: Tuesday, August 27, 2024 2:25:22 PM

Texas Commission on Environmental Quality,

My name is [redacted] and I'm a local Austinite. I live and breathe here and want to continue being able to do that - having clean air is an important part to my being here. I was fortunate to visit Beijing a few years back and was shocked how many people have to wear masks outside just because the air is so bad. Please make sure to track our air quality and work to keep it healthy so we can enjoy this beautiful city we live in.
Thank you,
[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: 1-35 Expansion and Poor Air Quality
Date: Tuesday, August 27, 2024 5:08:29 PM

Texas Commission on Environmental Quality,

Air quality is important to me because I want to live in Austin and raise a family here! Air quality is crucial for all humans and animals, and especially our children. Poor air quality has many risk factors that are increasingly risky for children and pregnant people. Both of my grandmothers suffered from lung diseases at the end of their lives and I would not wish that upon anyone.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air and Noise pollution
Date: Tuesday, August 27, 2024 1:02:09 PM

Texas Commission on Environmental Quality,

Austin is (by Texas standards) a fairly compact and easily-traversed city, with many of the streets being local in nature and thus quiet, with slow traffic and occasional city buses. Notable exceptions to this are where most Austinites' gripes come from: loops 1 and 360, highways 71 and 183 and the biggest offender— Interstate Highway 35. I grew up two hours away, a mile from I-35 in Devine and now have to cross it to get from my home in East Austin to the many destinations in Downtown. While it does allow vehicles to move quickly, it also brings undesirable hazards into the middle of the metropolitan downtown areas of both Austin and San Antonio.
The dependence on personal vehicles as the primary or sole means of transportation in our state imposes direct and indirect risks to citizens of all ages: direct meaning hazards borne by individuals—auto crashes (driver-driver, driver-object, driver-pedestrian/cyclist), lost time in the day and cost of ownership (AAA determined that Americans on average spend $10k/yr on auto ownership)
And indirect, meaning risks borne by society (exhaust air pollution, tire rubber microplastic pollution, road and engine noise pollution, lost productivity, cost of road maintenance not covered by auto user fees like taxes (the TX highway fund siphons money from the rainy day fund and still can't cover its bills completely), higher insurance premiums, hotter neighborhoods due to pavement, and social ills like uprooting/splitting neighborhoods for highway construction, road rage and stress from traffic.

We can not reduce these by adding lanes. We have spent billions each year attempting to do so.

Private automobiles are the least efficient way to transport people, and the equation is worse in urban areas where entire city blocks of valuable land have to be demolished to create freeways, ramps, parking lots and wider local streets to accommodate the two tons of metal and plastic each driver chooses to haul around. By encouraging people to drive to their jobs in town, I-35 increases each of the factors I mentioned above through "Induced Demand" which was first mentioned in the 1930s and has been studied since.
We can follow science to mitigate our our direct and indirect hazards or we can say "it's too bad for all those children and adults but I need to ensure I can commute by car each day"

It is in the hands of TXDOT whether Austinites are forced to breathe the fumes from out of towners on our major thoroughfares, or if more logical modes of transport (and better routes for an interstate highway) are pursued.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality? Bad.
Date: Tuesday, August 27, 2024 9:30:13 PM

Texas Commission on Environmental Quality,

Please fix our air quality. The constant notifications of bad air quality is concerning. Public transit is so fun! One of my favorite things about NYC is the subway!! I'm serious!! It makes trips that are 30 minutes feel like 5. You have so much life and community around you it is so heart and soul expanding. Fund that instead of the I-35 expansion. Fund community connection through public transit. Make it easy. Make it accessible. It will be so much better for our souls and bodies in the long run to connect with our community and reduce the pollution in the air while doing it. Please. Thank you.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin air quality
Date: Tuesday, August 27, 2024 11:11:32 AM

Texas Commission on Environmental Quality,

My family lives in Austin's Cherrywood neighborhood, within a 1/3 of a mile from I-35. Every morning when I step outside to take my kids to school, I can smell exhaust smoke in the air and feel my throat start to itch and iterate. I've lived in much bigger cities, such as New York City and Berlin, Germany,, but nowhere have I experienced such bad air quality year round. I very much hope that the State of Texas will take steps to improve Austin's air quality, for the sake of my children and all children in the city.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality
Date: Friday, August 30, 2024 9:28:59 PM

Texas Commission on Environmental Quality,

Hello,

Any freeway, especially an urban freeway, can pollute the air (https://www.sciencedirect.com/science/article/pii/S0966692324000267). Expanding I-35 will make the already-polluted air worse. I urge you to reconsider any expansions to I-35 for the sake of our air.

A study has found that Austin has higher-than-acceptable air pollution levels (https://dellmed.utexas.edu/news/air-pollution-in-austin-neighborhoods-linked-to-asthma-disparities-ut-study-finds). For our future and the next generations, please consider and decide against allowing I-35 expansion to continue.

This is not about traffic; this is about our wellbeing and health. I can't think of anyone who wants to breath in particulate matter and develop breathing issues. We should reduce or eliminate harm, and the facts already show that we're being harmed by the current state of I-35.

As a final note, I ask that you consider more than just capping the freeway. Capping covers the problem; it doesn't get rid of it.

Thank you.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Concerned about Travis County Air Quality
Date: Friday, August 30, 2024 12:01:56 AM

Texas Commission on Environmental Quality,

I live in Travis County. A family in my neighborhood had to leave b/c their child's asthma was so bad as a result of our neighborhood's proximity to the highway. After they left their child's breathing problems resolved entirely. This is just one example, but there are plenty of other people suffering from the impacts of Austin's poor air quality. I understand the TCEQ is evaluating Travis County's designation for PM2.5. Please take our concerns about air quality and public health seriously. Include data from all monitors as those monitors are accurate representations of what Austinites are breathing on a daily basis. It should be safe to breathe in Austin, and right now, especially for many children, it isn't. Thank you for the opportunity to provide comment on this important issue.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Opposition of I35 Expansion
Date: Sunday, September 1, 2024 11:17:34 PM

Texas Commission on Environmental Quality,

Please take air quality concerns in Austin seriously.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin Air Quality Investigation
Date: Tuesday, August 27, 2024 11:46:50 AM

Texas Commission on Environmental Quality,

People in Travis County already experience negative health impacts from bad air quality. Expanding 1-35 and implementing other car first infrastructure will exacerbate the problem and continue to worsen the effects of climate change in central Texas. I want to continue living a healthy life in Austin, Texas. As a farm worker who spends the majority of her days outside I don't have the privilege to stay indoors to keep myself safe from unhealthy air conditions.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality
Date: Wednesday, August 28, 2024 5:44:53 PM

Texas Commission on Environmental Quality,

I'm concerned about air quality in Austin

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Central Texas Air Quality
Date: Tuesday, August 27, 2024 1:51:26 PM

Texas Commission on Environmental Quality,

The air quality in central texas is not good, there is no doubt about it. Please include the entire central texas area including Hays County in the investigations to capture the air quality issues throughout the region. The air we breathe must and can be better.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin"s Air Quality
Date: Friday, August 30, 2024 10:36:19 AM

Texas Commission on Environmental Quality,

Since construction began I have had to wake up and spit up mucus every single day, my nose is constantly constantly congested. People around me who don't normally get sick are getting sick.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin Air Quality
Date: Wednesday, August 28, 2024 2:54:31 PM

Texas Commission on Environmental Quality,

Air quality is important to me because I love to be outside - I love to walk around my neighborhood and eat on patios at restaurants and work out in the fresh air. However, air pollution turns these simple pleasures into hazards. My friend Wendy has been on a lung transplant list for many years and is on oxygen. Air pollution drives her and many others indoors where they would otherwise be able to be active outside. Worse air pollution in Austin neighborhoods has been proven by a UT study to drive asthma rate disparities. Keep our air clean so we can keep breathing it!

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality getting worse
Date: Wednesday, August 28, 2024 6:11:10 PM

Texas Commission on Environmental Quality,

Hello There,

I wanted to reach out about how I am noticing a shift in air quality here in Austin. I work outside a lot and this past summer has been rougher than the last when it comes to the air in which we are breathing. I've been sick after working outside a few of these days which has never happened to me. I've gotten the notices on my phone saying the air quality has been lacking a few times in the past month as well which is alarming!

Austin has always prided itself in keeping our air clean, and I think we need to continue that. It's better for everyone's lungs especially children. It's terrible how many more cases of child asthma there are now, and as a mom with a 4 year old, this is very important to me. I believe a helpful solution would be to take more cars off the streets and focus on the metro rail public transportation route. This would be a win win for our city and it's lack of public transportation and in keeping our air quality in check!

Thank you & hope you have a beautiful day,
[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Save Clean Air
Date: Tuesday, August 27, 2024 2:15:45 PM

Texas Commission on Environmental Quality,

Air quality is possibly the most direct human caused climate crisis. Austin is a clear current example of how poorly directed growth exponentially impacts air quality in a negative way. From the conception of I-35 it has been a physical tool to segregate marginalized communities to an area with industry and introduce air pollution into the heart of the city. Today I-35 and east Austin are the hottest and most polluted areas. Expanding I-35 just clearly furthers this issue and will damage our city's future.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: air quality
Date: Wednesday, August 28, 2024 8:46:43 PM

Texas Commission on Environmental Quality,

Hello,
I'm worried that the air quality in Austin will get worse if the highway expands and also that the construction itself will impact the air quality. I'm a frequent cyclist and pedestrian and already it's unpleasant to breathe the air whenever I cross I35. If it's worse I might just avoid crossing the highway altogether.
Thank you,

[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Breathing Difficulties
Date: Tuesday, August 27, 2024 11:45:25 AM

Texas Commission on Environmental Quality,

I live in the Mueller Neighborhood. I have noticed an increase in breathing difficulties over the past few years. I am concerned that the proximity to IH 35 is contributing to this and worry about the expansion. Please make sure thorough testing is performed.

[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality for residents near I-35
Date: Tuesday, August 27, 2024 12:02:53 PM

Texas Commission on Environmental Quality,

The noise and air pollution from I-35 is intolerable for residents in my neighborhood west of the interstate. My address is [redacted] TEQ should prohibit any enlargement of I-35, which will result in increased traffic and hence increased air and noise pollution.

[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: The health of my family and community
Date: Wednesday, August 28, 2024 12:06:26 PM

Texas Commission on Environmental Quality,

I am deeply concerned with the air quality in Austin. I live less then 2 blocks from the highway and I can tell it affect me and my children's lives. My daughter has developed terrible asthma and even if we move much of Austin had equal terrible air. We need more public transit and less through traffic in our city.
Idealy i35 would be rerouted via one fo the existing highways now only would this save the state money it would greatly improve the health of the city

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin air quality and I-35
Date: Wednesday, August 28, 2024 12:29:47 PM

Texas Commission on Environmental Quality,

People in Austin already experience bad health problems due to air quality in Austin. The upcoming I-35 expansion will only exacerbate an already dire problem as it will only encourage more driving and create more traffic congestion that will release even more air pollution. Please speak out against the I-35 expansion set to begin this fall if you can.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Austin Air Quality
Date: Tuesday, August 27, 2024 2:36:07 PM

Texas Commission on Environmental Quality,

Air is essential to life. In fact, the Hebrew word for ‘life’ comes from their word for ‘breath.’ We need to guard our air like we guard or lives. Millions already suffer from health issues related to poor air quality and continual roadway expansion projects which do nothing but encourage more traffic are a sever detrement to our health, our communities, and our lives. Please take the utmost care in guarding our air. We all need to breathe.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: I-35 expansion
Date: Tuesday, August 27, 2024 6:58:55 PM

Texas Commission on Environmental Quality,

Please do not waste the tax payers money on more roads .... specifically the I-35 expansion. More roads, as proven by the experience of other cities, do not stop crazy traffic.

More roads only bring more traffic, more bad air ... and negative health impacts.

Please be proactive about the way our folks move around - not by adding to the car culture - but by putting your energy where it actually might be beneficial in the future - that is mass transit.

If we keep falling down the same hole over and over and over again, we will get the same results: more traffic and more unhealthy air.

[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Potential State Designations for the 2024 Primary Annual Fine Particulate Matter
Date: Tuesday, August 27, 2024 11:25:01 AM

Regarding the **Informal Public Comment Period: Potential State Designations for the 2024 Primary Annual Fine Particulate Matter (PM2.5) National Ambient Air Quality Standard (NAAQS)**

I have been a resident of Austin since 2009 though I am originally from the Dallas/Fort Worth area and visited Austin multiple times before relocating. Expanding MoPac and 183/Research Blvd has been a disaster for the environment. I35 is and always has been congested through downtown Austin. Adding more lanes or layers, doing an expansion, or anything other than diversifying public transit options will not fix the problem.

Air quality has gotten so bad in my south Austin neighborhood that I recently purchased Aranet CO2 monitors for my home and places that I frequent like the gym. My hope in writing this comment is to draw attention to the need to reduce commuter traffic in Austin and surrounding areas.

Sincerely,
[redacted]

From: [redacted]
To: SIPRULES
Subject: Asthma and other issues
Date: Tuesday, August 27, 2024 10:34:36 AM

Texas Commission on Environmental Quality,

Hi,

Since I moved to Austin in 2015, I have noticed that I have experienced an increase in my asthma and asthma-related illnesses. Throughout this time, I have lived within 1 mile of I-35, and every year especially during the dry parts, my skin itches, my asthma increases and generally have a worse quality of life.

There may also be a correlation between the tree cover (leaves) that can mitigate the impact during the spring/summer months, and when the leaves are gone, my asthma and associated impacts increase.

I would appreciate an air-quality study being done in the area, and even moreso, removing I-35 or burying the whole thing underground!

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality in Austin along I-35 corridor.
Date: Tuesday, August 27, 2024 11:16:01 AM

Texas Commission on Environmental Quality,

Air quality around I-35 is so poor at times when I blow my nose it comes out dirty and full of dust and soot and rubber particulate. I understand that I 35 is to be expanded but even with reduced tailpipe emissions from electric vehicles, the added weight will increase tire wear and particulate emissions. This is a problem for myself and my pets. I'm also concerned for my neighbors' and friends' children. This is unacceptable and feels like a no brainer that we should divert as much traffic as possible away from areas of high population density.
Thanks,
[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality Concerns from I-35
Date: Thursday, August 29, 2024 9:58:44 AM

Texas Commission on Environmental Quality,

Air quality is important to me as someone with asthma I know too well what it's like to lose the ability to take a breath. It is hard enough in the summer when it's so hot to go outside - now we are getting more and more warnings about air quality.

I think a major contributor is the amount of cars we have on the road. I am concerned that we're trying to expand the highway through our city rather than push traffic to the outside. I understand that is not the main objective of the Texas Commission on Environmental Quality but finding ways to limit cars on the road or direct them outside of the urban core is one way we can all improve air quality.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality
Date: Tuesday, August 27, 2024 8:10:10 PM

Texas Commission on Environmental Quality,

Hello,
With rising temperatures, we have more poor air quality days in Austin than we used to. Increased highways, traffic and cars (and the planned 1-35 expansion through town) will only make this worse. Concurrently, with COVID in our lives, clean air for proper lung function is even more important. I suffer form asthma, so I am at particular risk for respiratory illnesses which can be exacerbated by poor air quality. Please consider the health impacts of cars, roads and traffic. thank you. Best, [redacted] Austin, TX

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality in Travis County must be taken seriously
Date: Wednesday, August 28, 2024 9:49:36 AM

Texas Commission on Environmental Quality,

I am a homeowner, gardener, and aunt living in 78723. I am deeply concerned about the proposed I-35 widening that will make our already poor air quality worse. I frequently get warnings from the weather app on my phone telling me to stay inside due to dangerous air quality in my area. My favorite thing to do and one of the major reasons I chose to buy a home in Austin is to be outside in my garden and in nature - walking, biking or swimming. My other favorite and most important thing is to spend time with my family. My nephews- youngest 5 and oldest 10- have asthma. Of course we can't prove the cause but considering they are growing up in a place with particulate matter levels beyond the health limit, it's clear that the pollution is a major problem if not a also a major contributing cause. Watching my 5 year old nephew use his inhaler is heartbreaking. No kid or adult should have to deal with this bug there is something especially tender and wrong about a five year old having to deal with it. These issues make me consider leaving my native state of Texas. It is very upsetting that no one seems to be taking the air quality seriously, particularly illustrated by the pending construction on I-35 to widen it. This is a project that we know is guaranteed to make the air worse, and it's already unfit for human health.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality concerns for Austin and the Lone Star State where we all reside
Date: Thursday, August 29, 2024 7:03:50 PM

Texas Commission on Environmental Quality,

I am writing to express my significant concerns regarding the expansion of Interstate Highway 35 near our neighborhoods in Austin. This proposed expansion raises serious questions about its potential impacts on air quality, public health, wildlife, and the environment.

Our community is already grappling with air quality challenges, including elevated levels of nitrogen oxides (NOx) and particulate matter (PM2.5). The increase in vehicular traffic associated with the highway expansion is likely to exacerbate these issues. Long-term exposure to poor air quality is known to cause or aggravate a range of health problems, including respiratory and cardiovascular diseases. Vulnerable groups, such as children, the elderly, and individuals with pre-existing health conditions, are particularly at risk. I personally have pre-existing health conditions and increased air pollution would have a significant impact on my life.

The flight paths to Austin-Bergstrom International Airport (AUS) have largely followed the I-35 corridor, a major north-south highway running through Austin. This corridor is a densely populated and heavily trafficked area, contributing to significant pollution concerns. Austin's population and economic growth have led to a rise in air travel, concentrating flight paths along the I-35 corridor. This has resulted in more noise and air pollution over densely populated areas. As air traffic has increased, the concentration of flight paths along the I-35 corridor has grown, particularly due to the airport's location and the need to navigate airspace efficiently. This concentration means more planes are flying over the same areas, leading to higher levels of noise and air pollution.

Aircraft emit various pollutants, including nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOCs), and particulate matter (PM). These emissions contribute to ground-level ozone formation, worsen air quality, and impact public health. The noise from increased flight operations can affect residents' quality of life, causing stress, sleep disturbances, and other health issues. Noise pollution is often concentrated along these flight paths.

The Highway 183 and Highway 290 Expansions has increased traffic capacity, encouraging more vehicles on the road. This has led to higher emissions of CO2, NOx, and other pollutants from cars and trucks, exacerbating air quality issues in the area. The proposed expansion of I-35 is expected to further increase vehicle traffic along the corridor. This expansion will likely result in more congestion and higher pollution levels due to the expected increase in vehicular emissions.

The increased air traffic and highway expansions have significantly raised pollution levels. As

these projects progress, their combined impact is expected to further degrade air quality.

The mix of aircraft emissions and vehicle exhaust along these busy corridors has led to a sharp rise in ground-level ozone and particulate matter, posing serious risks to respiratory and cardiovascular health, especially for vulnerable populations.

As a native Texan and Austinite for over 17 years, I have noticed a significant decrease in Austin's air quality. There are more days were I am unable to go outside of my own backyard due to respiratory issues from the particulate matter being too high.

Moreover, the economic implications of deteriorating air quality are substantial. Increased healthcare costs for treating pollution-related illnesses, reduced workforce productivity, and diminished quality of life all contribute to a significant economic burden on both individuals and public health systems.

A pertinent example of what we should strive to avoid is the expansion of Katy Freeway in Houston. This project, while intended to alleviate congestion, led to a phenomenon known as "induced demand," where increased road capacity resulted in more vehicles on the road and a subsequent dramatic increase in air pollution. The Katy Freeway expansion illustrates how such projects can inadvertently worsen air quality, contradicting their intended benefits and causing long-term harm to public health and the environment.

In addition to the health and economic concerns, the expansion of Interstate Highway 35 will also have adverse effects on local wildlife and ecosystems. Increased traffic can lead to habitat fragmentation, disrupting wildlife corridors and negatively impacting species that depend on these areas. The construction process itself may result in soil erosion, water pollution, and other environmental disturbances that further threaten local flora and fauna.

Given these considerations, I urge the Texas Commission on Environmental Quality to conduct a thorough and transparent environmental impact assessment of the proposed highway expansion. This assessment should not only address air quality and health impacts but also evaluate potential effects on wildlife and ecosystems. Furthermore, I encourage the implementation of robust mitigation strategies to minimize these adverse effects, such as adopting cleaner technologies, enhancing public transportation options, and incorporating green infrastructure solutions.

Without effective intervention, the ongoing infrastructure expansions will likely continue to worsen air quality and public health outcomes in Austin.

Thank you for your attention to these critical issues. I trust that your commitment to protecting Texas’s environmental quality will guide your decisions and ensure that future infrastructure projects are managed in a way that safeguards public health and the environment.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Concerns about Air Quality
Date: Tuesday, August 27, 2024 11:25:46 AM

Texas Commission on Environmental Quality,

Air quality in Austin is especially important to me now that I have an 18-month-old son. We live in the city near major state highways and not too distant from I-35. The more I learn about the harmful effects of living close to roadways due to the air, water, and ground pollution from vehicles, the more I fear my son will develop health issues, including asthma and other breathing-related problems. I know it harmed my parents, who lived in similar situations. Thank you for your concern.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality
Date: Tuesday, August 27, 2024 11:09:31 PM

Texas Commission on Environmental Quality,

A big concern i have for air quality is the expansion of I-35. The infinite construction and unpreventable pollution to both the ground and sky will surely worsen the air quality in austin, among with other negative environmental impacts.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Tires Too
Date: Tuesday, August 27, 2024 4:49:45 PM

Texas Commission on Environmental Quality,

Air quality isn't just about emissions. EVs release MORE tire particulates due to higher weights.

we need to invest in infrastructure for trains, bikes, and multi-use zoning rather than cars.

the best parts of Austin are because of its people - not cars - let's choose to prioritize people first.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality
Date: Tuesday, August 27, 2024 10:49:00 AM

Texas Commission on Environmental Quality,

Air quality in Austin has deteriorated and it's affecting the lives of Texans by increasing deaths related to lung disease, heart attacks and even dementia. Austin has had 103 days of bad air quality this year, third worst in Texas.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Expanding 35 will not help
Date: Wednesday, August 28, 2024 11:53:21 AM

Texas Commission on Environmental Quality,

When you expand a highway traffic will increase, not decrease. The more area that cars are given to fill will be filled up. Changing 35 will not improve things in the long run.

[redacted]
Texas

MIDLOTHIANBREATHE

ELLIS COUNTY, TEXAS, SHOULD RECEIVE PM 2.5 NONATTAINMENT DESIGNATION

Midlothian Breathe is an air quality citizens group with members located primarily in Midlothian, Texas, part of the greater Dallas/Fort Worth Metropolitan area. Midlothian is directly south of Dallas and southeast of Fort Worth and includes some of the largest point-source polluters in the North Central Texas area.

Oversight of local industry's compliance with the federal Clean Air Act and reducing harmful PM 2.5 pollution are primary goals of our group. Heavy industry in Midlothian includes the Gerdau steel mill, as well as three cement plants — Holcim, Ash Grove and Martin Marietta. This is the highest concentration of point-source polluters in North Central Texas, so Midlothian Breathe feels it is particularly important that Midlothian residents are knowledgeable and action-oriented about air quality issues in our area.

Midlothian Breathe is seeking to prevent injury to area citizens and the local environment from harmful levels of PM 2.5 pollution by requesting that TCEQ ensures Ellis County is designated as being in **NONATTAINMENT** of the revised PM 2.5 standards, thereby necessitating inclusion in the State Implementation Plan (SIP).

There are two primary reasons why this is indicated, which will be detailed below.

1) Our regulatory monitor was decommissioned more than two years ago making it impossible to accurately classify Ellis County's ambient PM 2.5 levels at this time.
2) Meanwhile, the emissions data that is currently known indicates that Midlothian's highly concentrated, highly polluting industrial point sources of PM 2.5 contribute more to nonattainment of PM 2.5 in North Central Texas counties than any other county or other point source of emissions in this region.

About Ellis County's Current "Unclassifiable" Designation

In long-awaited action, the EPA revised the PM 2.5 Primary Annual Standard, lowering it from 12.0 $\mu g/m^3$ to 9.0 $\mu g/m^3$ on February 7, 2024.

TCEQ currently lists Ellis County as "Unclassifiable." This is because our area has been without any regulatory air quality monitoring since April 2022, when OFW 481390016 was decommissioned after losing its lease spot to impending construction. The data from that monitor, and the one that will finally replace it at year-end 2024, provides the only information we have to determine our PM 2.5 nonattainment status and the resulting impact on the health of our environment and our people.

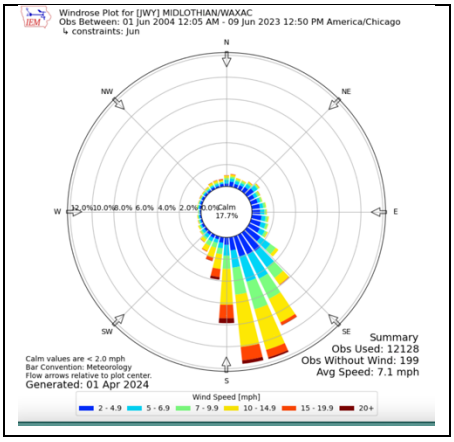
The consequence? Not only have we already been without protective monitoring of PM 2.5 levels for the past two and a half years, but if Ellis County is excluded from PM 2.5 nonattainment action, public health will likely be further compromised for generations to come — not only in Ellis County, but also for the large population of people who live downwind of our pollution.

Other Factors Validating Nonattainment Designation

In the absence of monitoring data, Ellis County has no "valid 2023/24 Design Value" for determining nonattainment. However, Midlothian Breathe would like to point out other information that validates a PM 2.5 nonattainment designation for Ellis County.

EPA's acknowledgement of the effects of transported air pollution
The EPA defines nonattainment as any area that "does not meet (or that contributes to ambient air quality *in a nearby area that does not meet*) the national primary or secondary ambient air quality standard for a NAAQS."

The super plume effect on Tarrant and Dallas Counties
Predominant wind patterns blow Midlothian pollution into Tarrant and Dallas Counties, both listed as potential nonattainment counties on TCEQ's website. Most of the year, and specifically during the summer when DFW traditionally experiences its highest PM days, the winds are out of the south/southeast (coming up from Houston and the coast). This is a National Weather Service fact that EPA recognized 20 years ago in its own findings about Ellis County's influence on DFW smog levels.



Because the steel mill and cement plants are located so close to one another, they create a "super plume," a fire hose of pollution that can significantly impact the air quality downwind wherever it blows. This has been proven time and again, by EPA and by UNT engineers using TCEQ's own model in regard to smog. Nothing has changed — the winds or the proximity — to make the PM fallout behave much differently.

Sheer volume of pollution
Midlothian has the highest volume of PM 2.5 pollution in North Texas.

Just the steel mill and three cement plants alone released 550.0375 tons of PM 2.5 in 2022 according to the EPA Emissions Inventory. Compare that to ALL sources of polluters in Dallas County that released 382.4338 tons of PM 2.5 in 2022. ALL sources within Tarrant County released only 204.6736 tons. In other words, *just four facilities in Midlothian release 94% of the combined total of all sources of PM in both Tarrant and Dallas Counties*.

If you combine ALL the PM 2.5 sources in Ellis County, which include other big emitters like the Owens Corning fiberglass plant in Waxahachie and Midlothian Energy, you come up with a total of **1025.7636 tons of PM 2.5 pollution released in 2022, or almost twice the amount of Dallas and Tarrant County PM totals COMBINED.**

Also of note:

- Ellis County's 2022 PM 2.5 emissions have increased since 2021.
- Despite being categorized as "unclassifiable," the figure listed on TCEQ's Map of Texas Preliminary PM 2.5 Design Values (DV) shows Ellis County in the red, with PM 2.5 at 9.2 µg/m^3.
- Midlothian's biggest polluter is the Holcim cement plant. When its Permit 8996, PSDTX454M5, was approved by TCEQ in February 2020, the associated air modeling studies predicted that Holcim's shift to burning more pet coke would increase average annual PM 2.5 levels in the ambient air to 11.6µg/m^3. While this already seemed dangerously close to the NAAQS maximum standard of 12 µg/m^3 at that time, it is now obviously well above the current standard of 9µg/m^3. Since our regulatory air monitor has been decommissioned, it is not possible to demonstrate that ambient PM 2.5 levels are lower than projected. Therefore, the most rational and safe conclusion is to trust the modeling studies that TCEQ verified and approved at that time, which leaves Ellis County in **NONATTAINMENT** for the current NAAQS standard of 9µg/m^3.

Supporting Information

For more background on the factors just listed, see the following resources.

Proximity and transported air pollution

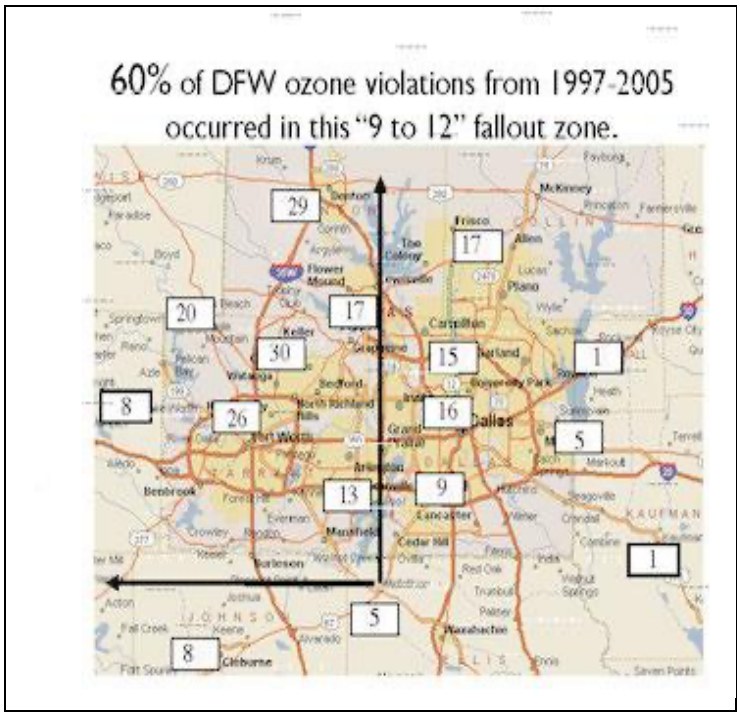
- The plain terms of the Clean Air Act have long required that the boundaries for a nonattainment designation must include not only the area that does not meet the standard but also any nearby area that contributes to nonattainment. CAA §107(d)(1)(A)(i)
- The Clean Air Act identifies an area's propensity to contribute transported air pollution to other areas experiencing air pollution problems as an independent basis for designation to nonattainment status. See § 107(d)(1)(A)(i) (nonattainment designation appropriate for areas that "contribute to ambient air quality in a nearby area that does not meet" a national ambient air quality standard). See also § 107(d)(4)(A)(v), requiring the EPA and the State to "consider factors such as . . . pollution transport."
- See generally *Ohio v. Ruckelshaus*, 776 F.2d 1333, 1336 (6th Cir. 1985) (the EPA rejected designating an upwind county whose monitors showed attainment because pollutants originating there added significantly to the ozone levels in a downwind urban area, of which the upwind county was a part).

Impact of Midlothian wind patterns on DFW air quality

There is ample evidence that Ellis County stationary sources emit air pollution that is transported by prevailing winds into the DFW area.

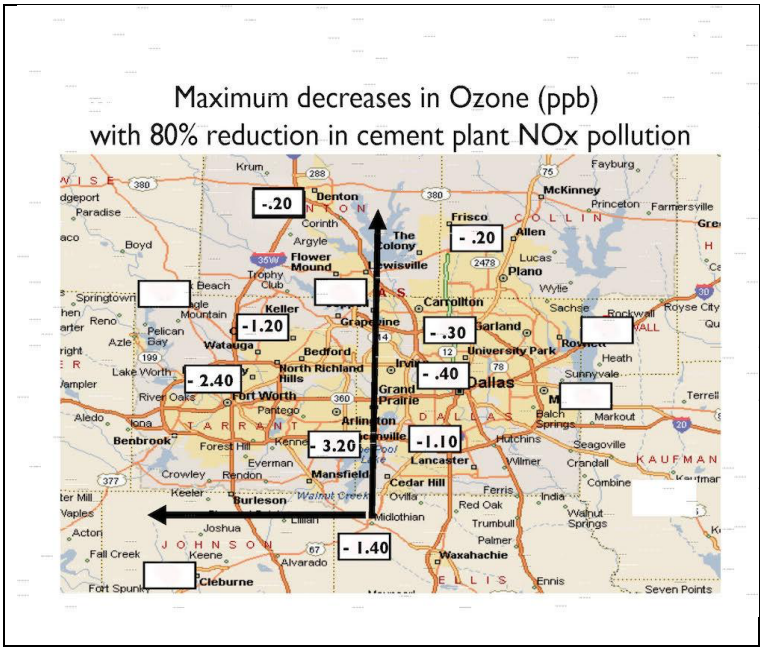
Midlothian Breathe does not know of any impact modeling for PM 2.5 specifically, but a 2016 University of North Texas (UNT) report using TCEQ's own air model shows how a reduction in Midlothian's three cement plant NOx emissions could lower smog levels in Tarrant County.

The report looked at ozone violations in the North Texas area and identified a "9 to 12 zone" that corresponded to prevailing wind patterns in Midlothian.



From the North Texas Nonattainment Ozone Initiative Study*, published April 2016, prepared by Mahdi Ahmadi and Dr. Kuruvilla John, Department of Mechanical and Energy Engineering, University of North Texas*

UNT modeled how reducing NOx emissions from the Midlothian cement plants by 80% could result in a reduction of 1–3 ppb at monitor sites in Tarrant and southern Dallas Counties.



There is a direct correlation between prevailing winds and the impact of transported pollution from Midlothian. As stated earlier, nothing has changed — the winds or the proximity — to make PM 2.5 fallout behave much differently than the NOx fallout that UNT modeled.

Reported levels of pollution

The most recent figures for PM 2.5 emissions are from 2022. Midlothian Breathe used the 2022 Point Source Emissions Inventory prepared by TCEQ and submitted to the EPA for comparisons between Ellis, Dallas and Tarrant Counties. [2010-2022statesum.xlsx (4566K)].

Request for Nonattainment Designation

Midlothian citizens and Tarrant and Dallas County residents downwind of Midlothian are depending on TCEQ to ensure Ellis County is included in the State Implementation Plan for PM 2.5 nonattainment. We believe that this is a legal duty TCEQ must fulfill to safeguard public health in light of the severity of Texas' air pollution problems.

With this submission, we are participating in the public comment period of the state designation process and understand the following timetable applies.

- The public comment period ends on August 31, 2024.
- TCEQ will submit its recommendations on county designations to Governor Abbott, and a Commissioner's Agenda Meeting will consider those recommended designations in December 2024.
- The State's designation submittal is due to the EPA on February 7, 2025.

If TCEQ uses the current "Unclassifiable" data status to exclude Ellis County from PM 2.5 nonattainment plans, Midlothian Breathe will petition the EPA to act under the authority of § 107(d)(3)(A) to reverse that decision.

The Act provides a specific process for EPA's Administrator to pursue in this situation.

- Immediately designate Ellis County as a nonattainment area for PM 2.5 under Section 107(d)(4)(A)(iv) of the Clean Air Act through the § 110(k)(6) error correction authority;
- Immediately, and no later than 30 days from the State's submission, notify the governor of Texas under § 107(d)(3)(A) of the information establishing that the Ellis County designation under the Clean Air Act should be revised to PM 2.5 nonattainment;
- In the absence of timely action by the State, promptly promulgate redesignation of Ellis County to nonattainment status pursuant to § 107(d)(3)(C).

As a citizen group representing thousands of individuals throughout the region affected by this action, Midlothian Breathe will request that the EPA use their overriding authority if TCEQ fails to designate Ellis County in PM 2.5 nonattainment.

However, we hope this measure will not be necessary. Even without valid 2023/2024 Design Values, the evidence of Ellis County's effect on downwind nonattainment areas, as well as its regionally high PM 2.5 emissions, should ensure a nonattainment designation from TCEQ.

Respectfully,

Dr. Laura Hunt, founder Midlothian Breathe

Jane Voisard, volunteer Midlothian Breathe

OFFICE OF THE
HARRIS COUNTY ATTORNEY
CHRISTIAN D. MENEFEE

August 28, 2024

Via Email: SIPrules@tceq.texas.gov
Texas Commission on Environmental Quality
Air Division
12100 Park 35 Circle
Austin, Texas 78753

Re: Potential State Designations for the 2024 Primary Annual Fine Particulate Matter ($PM_{2.5}$) National Ambient Air Quality Standard (NAAQS)

Harris County Attorney's Office (HCAO) appreciates the opportunity to comment on Texas' designations for the 2024 $PM_{2.5}$ NAAQS. Harris County is the largest county in Texas and has long struggled with the presence of air pollution. Increasingly, Harris County and its residents have raised concerns about an upward trend in $PM_{2.5}$ and its impact on community health. As anticipated, the Texas Commission on Environmental Quality (TCEQ) has indicated Harris County will be designated nonattainment for the 2024 $PM_{2.5}$ NAAQS based on 2023 design values. Nonattainment areas are any areas that do not meet the NAAQS or that contribute to ambient air quality in a nearby area that does not meet the NAAQS.[1] When an area is designated as nonattainment, extra regulation is required by the Federal Clean Air Act to ensure that the area begins trending towards attainment of the applicable NAAQS. For example, regulations require additional state and local planning and require New Source Review permits (required for a new major stationary source to become operational) to incorporate emissions control technology that achieves the Lowest Achievable Emission Rate (LAER). 42 U.S.C. § 7503. As such, HCAO has an interest in Texas' air quality designations and provides comment to promote health, environmental stewardship, and a strong regional economy.

HCAO asks TCEQ to open a formal comment period regarding the new area designations.

Particulate matter exposure can cause a plethora of health and environmental effects. Some of the health effects include, but are not limited to, premature death in people with heart or lung disease; nonfatal heart attacks; irregular heartbeat; aggravated asthma, decreased lung function; and increased rates of respiratory symptoms.[2] As such, this matter is of great interest to our residents,

[1] 42 U.S.C.A. § 7407 (West)
[2] U.S. EPA, Health and Environmental Effects of Particulate Matter (PM). https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm; Fine particulate pollution can "cause early death; cardiovascular harm (heart attacks, strokes, heart disease, congestive heart failure); and is likely to cause respiratory harm (worsen asthma, worsen COPD, inflammation); cancer; harm to the nervous system (reduced brain volume,

especially those living in fence-line communities near heavy industry, which proliferate Harris County. Particulate matter pollution is often an issue in fence-line communities, given that industry emits large amounts of air pollution, including particulates. Undoubtedly, this concern extends to residents throughout the State of Texas.

Harris County is home to 4.7 million people and is the most populous county in Texas and along the Gulf of Mexico. In addition to containing Houston, the fourth largest city in the United States, Harris County is home to a large concentration of industry, oil refineries, and a large port. Heavy commuter traffic, heightened presence of industry, emissions events and chemical disasters, as well as other factors all contribute to poor air quality. Houston is also the largest city in the United States without zoning laws, which further compounds air quality issues for certain communities, some of which are at the fence-line of industry.

Harris County contains several environmental justice (EJ) communities. The Environmental Protection Agency (EPA) has noted the high pollution burdens our EJ communities face. In denying Texas' request for a 1-year extension of the ozone NAAQS attainment date for the HGB Ozone Nonattainment Area, EPA in part based their decision on their "consideration of existing pollution burdens for some communities within the area."[3] EPA has noted that communities residing and working near violating ozone monitors in the Houston area and the Houston Ship Channel are exposed to "a significant and disproportionate burden of ozone pollution and other sources of pollution (e.g., vehicle traffic and *particulate matter emissions*) compared to the greater Houston area and the U.S. as a whole."[4]

Given the seriousness and pervasiveness of particulate matter pollution in Harris County, HCAO asks that TCEQ open a formal rulemaking and comment period to solicit feedback on area designations to assure stakeholders that their comments are being taken into consideration by TCEQ. Stakeholders and residents in Harris County, especially those in EJ communities, deserve to have their comments taken into consideration in a formal comment period and to receive the response to comments TCEQ provides in a formal rulemaking. TCEQ's response to comments would also be helpful to interested stakeholders when drafting comments to EPA regarding the designations. Since EPA is not required to engage in a formal notice and comment period for NAAQS area designations,[5] holding a formal rulemaking at the state level would ensure all Texans have ample opportunity to engage in meaningful public participation during the designation process.

TCEQ's current plan is to solicit informal comments. If TCEQ intends to follow through with this, HCAO would appreciate clarification as to what TCEQ plans to do with the informal comments it receives. For example, will TCEQ compile the comments into a PDF and publish them on the TCEQ website, as it has done before? Will the informal comments be attached to the Governor's

cognitive effects); and may cause reproductive and developmental harm." American Lung Association, Particle Pollution. https://www.lung.org/clean-air/outdoors/what-makes-air-unhealthy/particle-pollution.

[3] Determinations of Attainment by the Attainment Date, Extensions of the Attainment Date, and Reclassification of Areas Classified as Serious for the 2008 Ozone National Ambient Air Quality Standards, 87 Fed. Reg. 60,926, 60,927 (2022).

[4] *Id*. at 60,928 (emphasis added).

[5] 42 U.S.C.A. § 7407(d)(2)(B) (West).

recommendation to EPA? Any information TCEQ can provide on this matter would be appreciated.

Measures should be taken to monitor Brazoria and Montgomery Counties to ensure these counites are not contributing to Harris County's nonattainment.

According to TCEQ, Brazoria and Montgomery counties will potentially be designated as "unclassifiable." Brazoria and Montgomery counties border Harris County and are also a part of the Houston metropolitan area.

Montgomery County has a preliminary annual design value of 10.0µg/m^3, which is over the 2024 $PM_{2.5}$ NAAQS. However, according to TCEQ, Montgomery County is unlikely to generate a valid design value for 2023. There is only one TCEQ $PM_{2.5}$ monitor in Montgomery County. Brazoria County has a preliminary annual design value of 8.3µg/m^3, with two TCEQ $PM_{2.5}$ monitors in the County. According to TCEQ, Brazoria is also unlikely to generate a valid design value for both 2023 and 2024. The Houston metropolitan area, along with both Montgomery and Brazoria counties, are facing rapid development and population growth.[6] As such, there is a potential for these design values to increase in the coming years.

HCAO is concerned that these counties are currently contributing to Harris County's nonattainment or may do so in the near future. If this is the case, these counties should also be designated nonattainment, based on the statutory definition. HCAO asks TCEQ to place additional air monitors in both Brazoria and Montgomery counties to ensure more accurate data is made available to create accurate design values and designations.

Respectfully,

CHRISTIAN D. MENEFEE
Harris County Attorney

Elizabeth Hidalgo

Elizabeth Hidalgo
Assistant County Attorney

[6] *See generally*, Madeleine Rubin, Hous. Chron., (Mar. 14, 2024) https://www.texastribune.org/2024/03/14/texas-counties-rapid-population-growth/ ("Texas also holds eight out of the ten counties across the country that added the most residents from 2022 to 2023. *Harris*, Collin and *Montgomery* counties led the pack.") (emphasis added); Adam Zuvanich, *Houston region saw second-largest population surge in U.S. in 2021-2022, census analysis finds*, Hous. Public Media (Apr. 11, 2023) https://www.houstonpublicmedia.org/articles/news/houston/2023/04/11/448852/houston-region-second-largest-population-surge-u-s-2022-census-analysis-finds/; Brad Johnson, *Brazoria County Monkey Testing Facility Highlights Clash Over Texas Growth*, The Texan (Jan. 5, 2024), https://thetexan.news/state/texas-state-news/brazoria-county-monkey-testing-facility-highlights-clash-over-texas-growth/article_4ab09224-ab4e-11ee-987f-db676b864bc5.html.

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August 30, 2024
1940108706

Analysis of Issues Related to Defining Boundaries for the Potential Houston Nonattainment Area under the 2024 Annual PM2.5 NAAQS

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Executive Summary

The Texas Commission on Environmental Quality (TCEQ) has requested comments on whether Harris County should be recommended to be designated nonattainment for purposes of the 2024 annual $PM_{2.5}$ NAAQS. Many elevated daily $PM_{2.5}$ concentrations at monitors in Harris County are impacted by Exceptional Events that include Saharan dust and fires in the U.S. and Mexico. Our analysis indicates that conducting an Exceptional Events Demonstration for the highest $PM_{2.5}$ monitors in Harris County (i.e., North Wayside and North Loop) may not be feasible given the large number of days (~350) because finding convincing evidence of Exceptional Events for so many days is difficult. However, it would be beneficial to conduct Exceptional Event Demonstrations for Tier 1 and 2 days during 2022-2024 for sites near the boundaries of Harris County that are attaining the 2024 NAAQS based on 2021-2023 observations as it appears there may be higher $PM_{2.5}$ concentrations in 2024 that could possibly push them over the NAAQS. Many of the high $PM_{2.5}$ concentrations in 2024 are likely due to emissions from fires in Mexico that can be considered Exceptional Events based on the analysis of Rodriguez and Morris (2024). This analysis included citing statistics from the Mexico government that a majority (~70%) of the fires and a vast majority of the smoke from fires in Mexico are not burns for agriculture and do not recur so qualify as Exceptional Events.

TCEQ is justified in limiting the $PM_{2.5}$ nonattainment area boundaries to just Harris County or less than Harris County given that the monitors near the edges of Harris County are attaining the $PM_{2.5}$ NAAQS so sources outside of the county do not have a major contribution. TCEQ may be justified in recommending just a portion of Harris County be designated nonattainment given the limited area of violating monitors and such sub-county $PM_{2.5}$ nonattainment areas have been justified in the past (e.g., Liberty-Clairton, Pennsylvania) and Imperial County, California). Limiting the $PM_{2.5}$ nonattainment to Harris County is also justified by the Baylor Houston North Wayside PMF receptor modeling analysis that found most (84%) of the Factors that contributed to $PM_{2.5}$ were identified as mobile sources ("traffic" and "road dust"), biomass burning (U.S. and Mexico), buildings, and long range transport ("Saharan dust" and "aged" sulfate). Thus, sources outside of Harris County have a minor contribution. There is little evidence that sources outside of Harris County, other than international emissions (e.g., Mexican fires and Sahara dust) and fires, are contributing substantially to potential violations of the NAAQS in Harris County. The North Wayside PMF analysis also indicated that NOx emissions had an extremely low contribution to $PM_{2.5}$ concentrations as the PMF nitrate factor only contributed 1.9%.

The Conroe monitoring site in Montgomery County had insufficient data capture to have a valid 2021-2023 annual $PM_{2.5}$ Design Value but may have sufficient data for a valid 2022-2024 Design Value. The Conroe monitor is also impacted by Exceptional Events and should be subjected to an Exceptional Events analysis to determine whether an approvable Exceptional Events Demonstration could be conducted for days from 2022-2024.

Chapter 1 of this report provides an overview of the procedures for defining NAA boundaries and conducting Exceptional Event Demonstrations. An analysis of the $PM_{2.5}$ concentrations in

the Houston area is provided in Chapter 2. The feasibility of conducting an EED for each monitor in the Houston area is presented in Chapter 3. Chapter 4 has references.

1.0 INTRODUCTION

This report discusses considerations and issues related to defining the nonattainment area boundaries for the Houston area under the new 2024 annual $PM_{2.5}$ NAAQS.

1.1 Requirements of the 2024 $PM_{2.5}$ NAAQS

On February 7, 2024, EPA announced they were lowering the annual $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) from 12.0 to 9.0 $\mu g/m^3$ with the rule published in the Federal Register on Wednesday March 6, 2024. EPA intends to define the nonattainment area (NAA) boundaries under the 2024 $PM_{2.5}$ NAAQS by February 6, 2026 using observed 2022-2024 $PM_{2.5}$ concentrations. States are to submit their recommendations for NAA boundaries and Exceptional Events days under the 2024 $PM_{2.5}$ NAAQS by February 7, 2025. EPA will define the NAA boundaries to include violating monitors and potentially nearby regions that contribute to the violating monitors. EPA will issue "120-day letters" with initial NAA designations on or about October 9, 2025 and finalize the NAAs by February 6, 2026, although EPA has an option to extend the NAA designation process by up to one year.

States will need to submit Infrastructure State Implementation Plans (SIPs) to EPA within 3 years of promulgation of the NAAQS (i.e., by February 7, 2027). The requirements of an Infrastructure SIP are outlined in Section 110(a) of the Clean Air Act (CAA) and include an assessment of interstate transport and whether Texas has a significant contribution to or interferes in the maintenance of the 2024 $PM_{2.5}$ NAAQS in downwind states. Nonattainment SIPs are due within 18 months of nonattainment area designations, such that if designation occurred in February 2026 as expected, initial submittals would be due by July 2027. The Nonattainment SIPs would need to demonstrate that the state achieves the 2024 $PM_{2.5}$ NAAQS by 2032.

1.2 Procedures for Defining $PM_{2.5}$ Nonattainment Area Boundaries

As noted above, EPA intends to define the nonattainment area boundaries under the 2024 $PM_{2.5}$ NAAQS by February 6, 2026 using observed 2022-2024 $PM_{2.5}$ concentrations and a Five Factor analysis as outlined in their February 7, 2024 Initial Area Designations under the 2024 $PM_{2.5}$ NAAQS Memorandum. EPA has identified Five Factors that should be considered for identifying regions that should be a nonattainment area that includes "any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet)" the 2024 $PM_{2.5}$ NAAQS:

1. Air Quality Data
    a. Identify monitors that violate the 2024 annual PM2.5 NAAQS using data from 2022-2024 Federal Reference Method (FRM) or Federal Equivalent Method (FEM) monitors that have sufficient data to calculate a valid 2022-2024 annual $PM_{2.5}$ Design Value ($DV_{2022\text{-}2024}$; i.e., the violating monitors).
2. Emissions and Emissions-Related Data
    a. Analyze the emissions and emission-related (e.g., population, traffic) that may contribute to the violating monitors.
3. Meteorology
    a. Analyze meteorology and which sources may be transported to the violating monitors when elevated PM2.5 concentrations are observed.
4. Geography/Topography

   a. Analyze the geography/topography to see whether there are any physical barriers that can interfere with the transport from emission sources to the violating monitors.
5. Jurisdictional Boundaries
   a. Once the violating monitors and nearby areas contributing to the violating monitors have been identified, EPA considers jurisdictional boundaries in defining the nonattainment area. Typically, EPA uses counties to define NAA boundaries, but has defined $PM_{2.5}$ NAAs at a sub-county levels in the past (e.g., Imperial County).

1.3 Exceptional Event Demonstration Procedures

The requirements for what constitutes an Exceptional Event are described in Section 319(b)(1)(A) of the Clean Air Act as follows:

> **(b) Air quality monitoring data influenced by exceptional events**
>
> **(1) Definition of exceptional event**
>
> In this section:
>
> **(A) In general**
>
> The term "exceptional event" means an event that—
>
> (i) affects air quality;
>
> (ii) is not reasonably controllable or preventable;
>
> (iii) is an event caused by human activity that is unlikely to recur at a particular location or a natural event; and
>
> (iv) is determined by the Administrator through the process established in the regulations promulgated under paragraph (2) to be an exceptional event.
>
> **(B) Exclusions**
>
> In this subsection, the term "exceptional event" does not include—
>
> (i) stagnation of air masses or meteorological inversions;
>
> (ii) a meteorological event involving high temperatures or lack of precipitation; or
>
> (iii) air pollution relating to source noncompliance.

The most common exceptional events for $PM_{2.5}$ are windblown dust (WBD) and wildland fires (e.g., wildfires and prescribed burns). The Final 2016 Exceptional Events Rule included documents related to wildfire and prescribed burn impacts on air quality, such as analytical tools for EED for wildfire events on ozone and particulate matter and a guidance document for preparing wildfire EED for ozone. More recently (April 30, 2024), EPA posted additional information on "Treatment of Air Quality Monitoring Data Influenced by Exceptional Events" and defined exceptional events as follows:

> *"Exceptional events are unusual or naturally occurring events that can affect air quality but are not reasonably controllable using techniques that tribal, state or local air agencies may implement in order to attain and maintain the National Ambient Air Quality Standards (NAAQS). Exceptional events may include wildfires, high wind dust events, prescribed fires, stratospheric ozone intrusions, and volcanic and seismic activities."*

A technical description showing the clear causal relationship between a specific event and the monitoring exceedance is required by sections 40 CFR 50.14(c)(3)(iv)(B) and (C). Due to the varying degree in which wildland fires can affect $PM_{2.5}$ concentrations, USEPA $PM_{2.5}$ Wildland Fire Exception Events Tiering Document provide a three-tiered approach for event

demonstrations with each successive Tier requiring more evidence that smoke from wildland fires contributed to the elevated measured $PM_{2.5}$ concentration.

Table 1-1 from EPA's April 30, 2024 $PM_{2.5}$ Wildland Fire Exceptional Events Tiering Document summarizes the procedures for each of the three Tiers to demonstrate a causal relationship between a wildland fire and an observed 24-hour $PM_{2.5}$ concentration. EPA has developed a $PM_{2.5}$ Tiering Tool for Exceptional Events Analysis that calculates which daily $PM_{2.5}$ observations are classified as Tier 1 or 2 following the procedures in the Tiering Document, which helps inform the amount of evidence needed as identified in Table 1-1 in order to prove that the daily $PM_{2.5}$ concentrations were Exceptional Events.

Table 1-1. EPA recommended procedures for Tier 1, 2 and 3 clear causal relationship between fires and $PM_{2.5}$ concentrations (Source: PM2.5 Wildland Fire Tiering Document, EPA April 30, 2024)

Table 4. Clear Causal Relationship Technical Demonstration Components Recommended for Tier 1, Tier 2, and Tier 3 Demonstrations.

Tier 1 Analyses Should Include	Tier 2 Analyses Should Include	Tier 3 Analyses Should Include
The tiering threshold used for the event day, which calculation methodology was used, and comparison of the 24-hour PM value to the tiering threshold.	The tiering threshold used for the event day, which calculation methodology was used, and comparison of the 24-hour PM value to the tiering threshold.	The tiering threshold used for the event day, which calculation methodology was used, and comparison of the 24-hour PM value to the tiering threshold.
Comparison of the fire-influenced exceedance with historical concentrations, by providing two data plots appropriate to the chosen tiering threshold calculation methodology (R qualified data removed, R and I qualified data removed).	Comparison of the fire-influenced exceedance with historical concentrations, by providing two data plots appropriate to the chosen tiering threshold calculation methodology (R qualified data removed, R and I qualified data removed).	Comparison of the fire-influenced exceedance with historical concentrations, by providing two data plots appropriate to the chosen tiering threshold calculation methodology (R qualified data removed, R and I qualified data removed).
Evidence of transport of fire emissions from fire to the monitor (**one** of these): • Trajectories linking fire with the monitor (forward and backward), considering height of trajectories, or • Satellite evidence in combination with surface measurements.	Evidence of transport of fire emissions from fire to the monitor (**one** of these): • Trajectories linking fire with the monitor (forward and backward), considering height of trajectories, or • Satellite evidence in combination with surface measurements.	Evidence of transport of fire emissions from fire to the monitor (one of these): • Trajectories linking fire with the monitor (forward and backward), considering height of trajectories, or • Satellite evidence in combination with surface measurements.
	Two additional pieces of evidence demonstrating that the fire emissions affected the monitor, as identified for Tier 2 analyses.	At least three additional pieces of evidence demonstrating that the fire emissions affected the monitor, which could include the items in the next box.
		Additional evidence to add to the weight of evidence demonstration, or other evidence as appropriate for the event, including: • Backward and forward trajectories from the wildland fire to the affected monitor, • Analysis of hourly PM, meteorological, or other available data, and • a vertical $PM_{2.5}$ profile or model simulations.

2.0 $PM_{2.5}$ CONCENTRATIONS IN THE HOUSTON AREA

2.1 $PM_{2.5}$ Monitors in the Houston CBSA

Figure 2-1 displays the locations of currently operating $PM_{2.5}$ FRM/FEM monitoring sites in the greater Houston area from EPA's interactive map of air quality monitors tool. There are 12 $PM_{2.5}$ FRM/FEM monitoring sites operating in the Houston 2023 10-county Core Based Statistical Area (CBSA) of which most have sufficient data to calculate 2021-2023 annual $PM_{2.5}$ $DV_{2021\text{-}2023}$, 9 in Harris County, one in Galveston County and one in Montgomery County. Note that there may be insufficient data for a valid annual $PM_{2.5}$ $DV_{2021\text{-}2023}$ for the Conroe monitor in Montgomery County as the EPA $PM_{2.5}$ Designations Mapping Tool does not list it as a valid monitor, but the EPA $PM_{2.5}$ Tiering Tool does provide a $DV_{2021\text{-}2023}$.

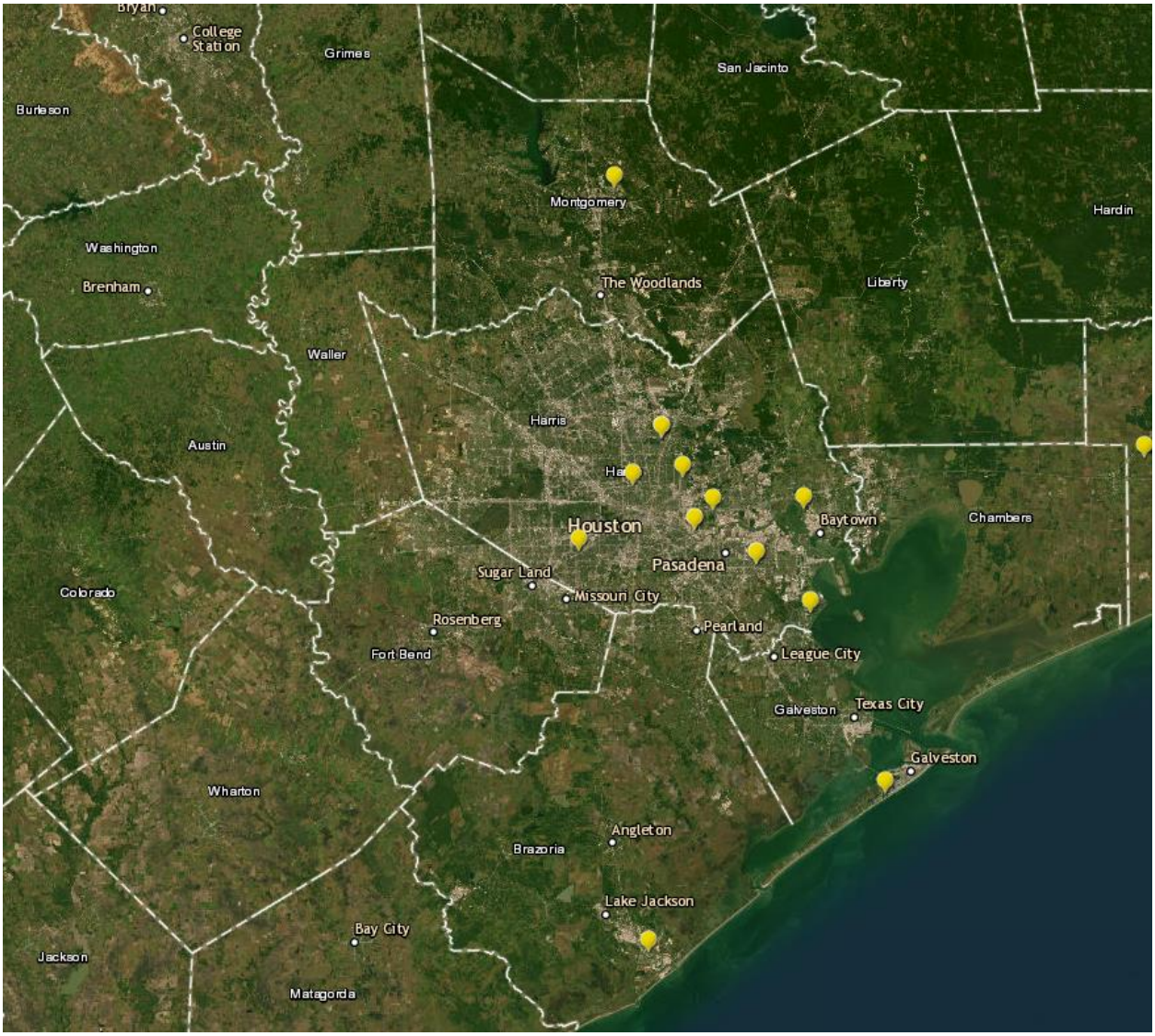

Figure 2-1. Currently operating $PM_{2.5}$ monitoring sites in the greater Houston area (Source: EPA Interactive Map of Air Quality Monitors).

Figure 2-2 lists the air quality monitoring sites in Harris County with sites that collect $PM_{2.5}$ colored purple.

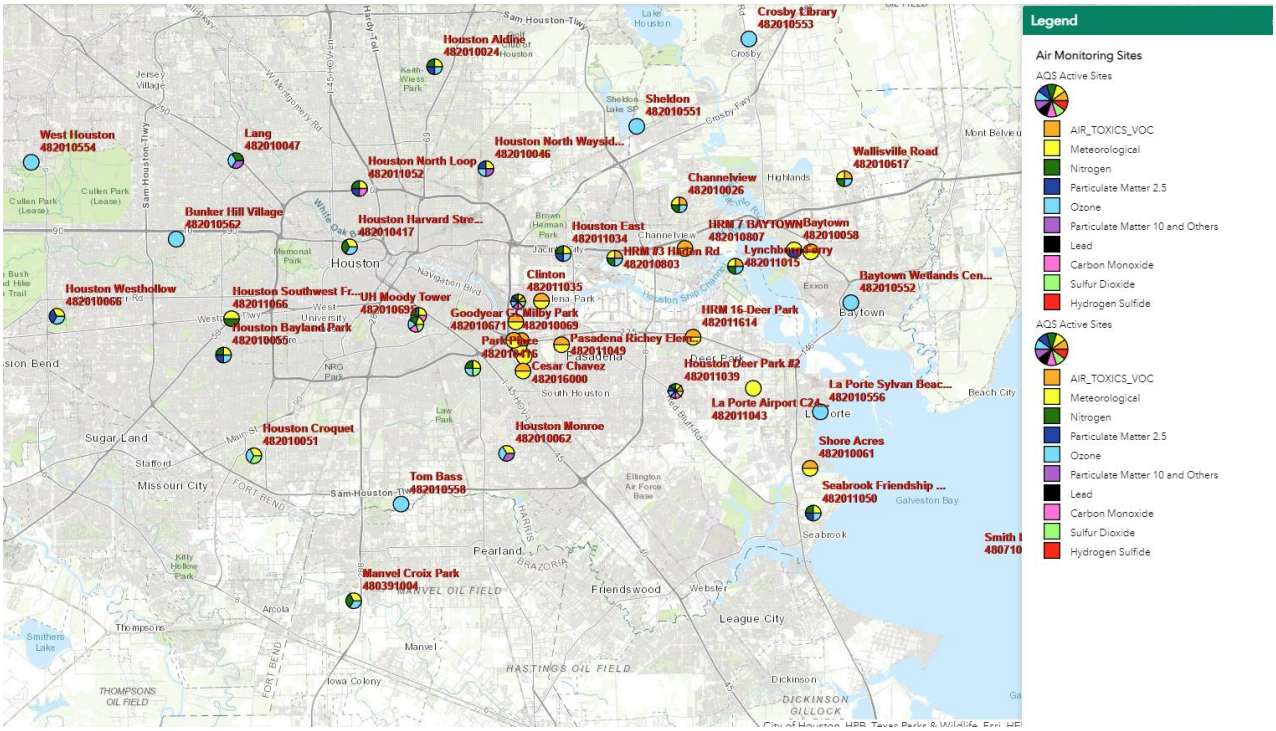

Figure 2-2. Air quality monitoring sites in the Houston area. PM2.5 monitors are dark blue. (Source: TCEQ AQ Monitoring Siter Mapping Tool).

2.2 Current (2021-2023) $PM_{2.5}$ Annual Design Values in the Houston CBSA

We used three sources of $PM_{2.5}$ air quality data and calculated 2021-2023 annual $PM_{2.5}$ Design Values ($DV_{2021\text{-}2023}$): (1) EPA's $PM_{2.5}$ Designations Mapping Tool that is shown in Figure 2-3; (2) EPA's $PM_{2.5}$ Tiering Tool for exceptional events analysis whose results are shown in Appendix A; and (3) downloaded data from the EPA Design Value website. When examining the $PM_{2.5}$ $DV_{2021\text{-}2023}$ from EPA's Mapping and Tiering Tools we found several discrepancies for sites in the Houston area. In early August 2024, the Tiering Tool was down for data corrections and when it came online again there were less discrepancies between the two tools but a few discrepancies remained as follows:

- The $PM_{2.5}$ $DV_{2021\text{-}2023}$ in the Mapping (8.9 µg/m^3) and Tiering (8.8 µg/m^3) Tools are slightly different at the Deer Park #2 site;
- The Tiering Tool had a $PM_{2.5}$ $DV_{2021\text{-}2023}$ at Houston Westhollow (8.6 µg/m^3) and it was missing in the Mapping Tool.
- The Tiering Tool had a $PM_{2.5}$ $DV_{2021\text{-}2023}$ at Houston Seabrook Friendship Park (7.9 µg/m^3) and it was missing in the Mapping Tool.
- The Tiering Tool had a $PM_{2.5}$ $DV_{2021\text{-}2023}$ at Houston Conroe (Montgomery County) (10.0 µg/m^3) and it was missing in the Mapping Tool.

The EPA Design Value website $DV_{2021\text{-}2023}$ matches the Designations Tool data. We are unclear why the Designations and Tiering Tools $DV_{2021\text{-}2023}$ at the Deer Park #2 are slightly

different but believe the reporting of the invalid $DV_{2021-2023}$ in the Tiering Tool is due to its intended use for exceptional events rather than nonattainment area designations.

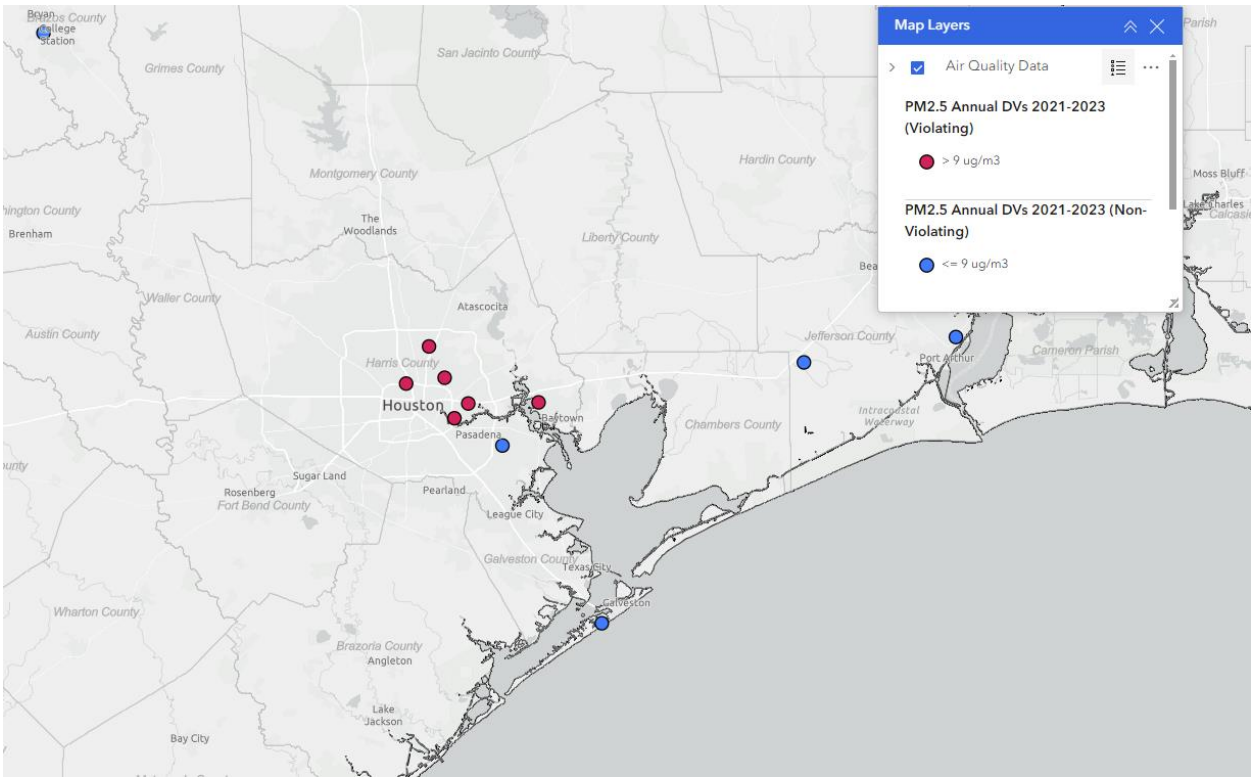

Figure 2-3. EPA $PM_{2.5}$ Designations Mapping Tool showing valid $PM_{2.5}$ DV2021-2023 that are above (red) and below (blue) the 2024 annual $PM_{2.5}$ NAAQS.

Table 2-1 lists the $PM_{2.5}$ $DV_{2021-2023}$ for sites in the greater Houston area for both the valid $DV_{2021-2023}$ from the Designation Tool and EPA Design Value website and $DV_{2021-2023}$ from EPA's $PM_{2.5}$ Tiering Tool that calculates $DV_{2021-2023}$ even if there is incomplete data to calculate a valid DV. The $DV_{2021-2023}$ in Table 2-1 are shaded red and yellow if they are above the 9.0 µg/m^3 NAAQS and green if they are below the NAAQS; the red shading is used when the DV is above 10.5 µg/m^3.

The highest $DV_{2021-2023}$ is in central Harris County at the North Wayside (12.5 µg/m^3) and North Loop (11.7 µg/m^3) monitoring sites with a gradient of lowering DVs as one moves away from these two sites; values near the western (e.g., Westhollow) and eastern (e.g., Deer Park #2 and Seabrook Friendship Park) boundaries of Harris County are below the NAAQS. This is shown graphically in Figure 2-4 with the highest $PM_{2.5}$ $DV_{2021-2023}$ colored red in the center of Harris County with concentrations being reduced as you head to the edges of Harris County including sites colored green that attain the 2024 NAAQS near the edges of the county.

This dynamic supports that there is little evidence indicating that sources on the periphery of Harris County or outside of Harris County, other than international fires and Sahara Dust, contribute substantially to potential nonattainment within Harris County.

Table 2-1. 2021-2023 PM2.5 Design Values at monitors in the greater Houston area.

Monitor site	AQS Site ID	Valid $PM_{2.5}$ $DV_{2021-2023}$	Tiering Tool $PM_{2.5}$ $DV_{2021-2023}$
Galveston 99th Street	48-167-1034	8.3	8.3
Houston Aldine	48-201-0024	10.2	10.2
Houston North Wayside	48-201-0046	12.5	12.5
Houston Bayland Park	48-201-0055	NA	NA
Baytown	48-201-0058	10.5	10.5
Houston Westhollow	48-201-0066	NA	8.6
Houston East	48-201-1034	10.4	10.4
Clinton	48-201-1035	10.7	10.7
Houston Deer Park #2	48-201-1039	8.9	8.8
Seabrook Friendship Park	48-201-1050	NA	7.9
Houston North Loop	48-201-1052	11.7	11.7
Conroe Relocated	48-339-0078	NA	10.0

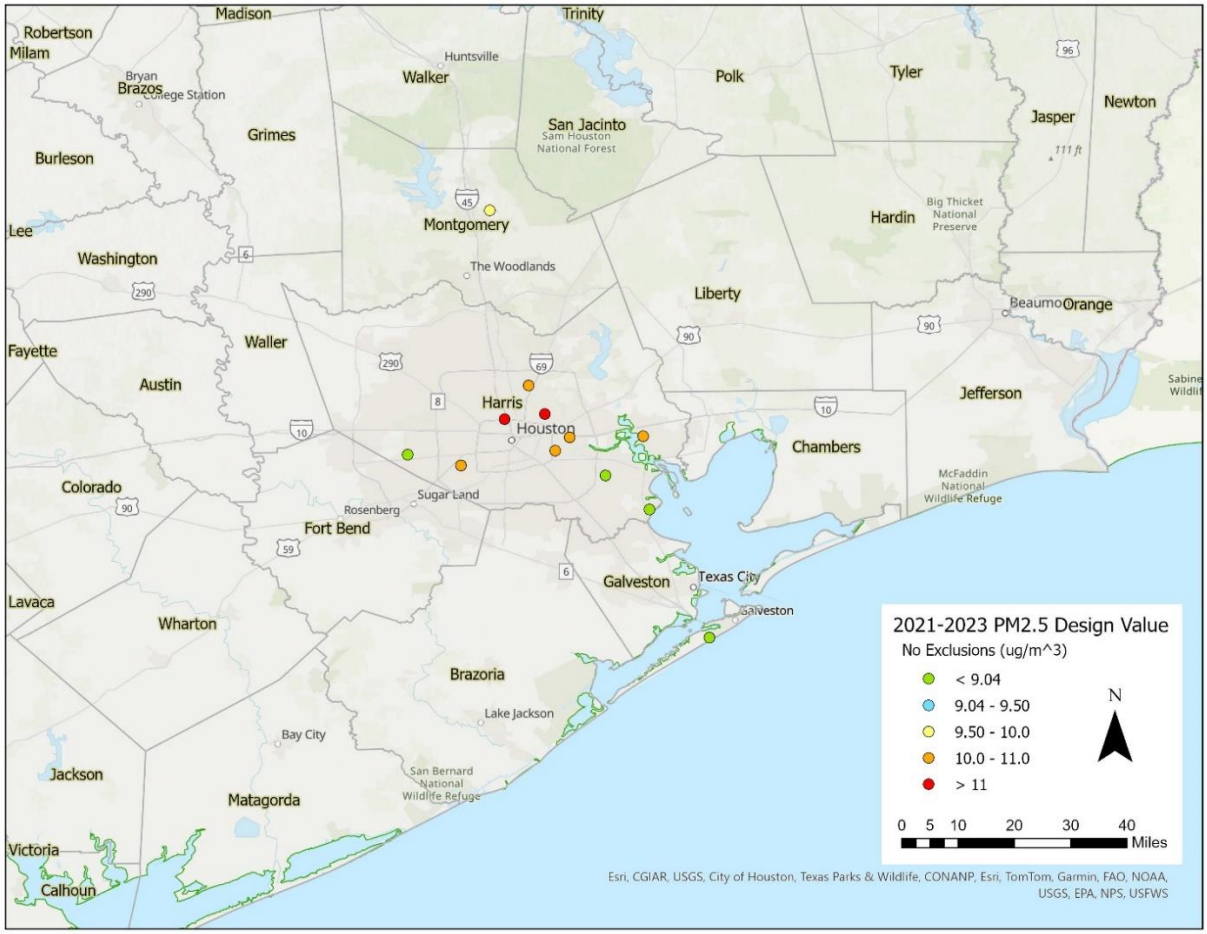

Figure 2-4. Spatial map of 2021-2023 $PM_{2.5}$ Design Values from the EPA Tiering Tool showing concentration levels.

For the sites in the greater Houston area that did not have a valid $PM_{2.5}$ $DV_{2021\text{-}2023}$ we made an assessment on whether they may have a valid $PM_{2.5}$ DV in 2022-2024 ($DV_{2022\text{-}2024}$) and thus would be included in EPA's 2024 $PM_{2.5}$ NAAQS nonattainment area boundary designations expected to occur in February 2026. Assuming that there is sufficient data capture in 2024, below is our assessment of which of the five monitoring sites have an invalid $DV_{2021\text{-}2023}$ but may have a valid $DV_{2022\text{-}2024}$ that EPA will use to inform its position on boundaries:

1. **Houston Westhollow (482010066) in Harris County**: 2021 Q3 is incomplete. The site will likely have a valid 2022-2024 DV.
2. **Houston Bayland Park (482010005) in Harris County**: 2021 Q1 to Q4 is incomplete. The site started in April 2022, so there is incomplete data capture in 2022. However, as per Appendix N 4.1(d) and a decision by the EPA administrator, the site may have a valid DV for 2022-2024. (For reference, the Houston North Wayside site started in May 2021 and has a valid DV for 2021-2023.)
3. **Seabrook Friendship Park (482011050)**: 2021 Q1 to Q3 is incomplete. The site will likely have a valid DV for 2022-2024.
4. **Conroe (483390078)**: 2021 Q1 to Q3 is incomplete. The site will likely have a valid DV for 2022-2024.
5. **Freeport, Brazoria County (480391020)**: 2021 and 2022 Q1 to Q4 are incomplete. The site started in February 2023, so there will likely not be a valid DV for 2022-2024.

When making recommendations on nonattainment area boundaries, TCEQ should consider both the valid and not valid $DV_{2021\text{-}2023}$ since the sites with invalid $DV_{2021\text{-}2023}$ may have valid $DV_{2022\text{-}2024}$.

3.0 FEASIBILITY OF EXCEPTIONAL EVENT DEMONSTRATIONS FOR MONITORS IN THE HOUSTON CBSA

Exceptional Event Demonstrations (EED) are performed for individual monitoring sites and can be used to bring violating monitors into attainment of the NAAQS. It may be advantageous to conduct an EED for some monitors in a county to bring them into attainment even if there are still other violating monitors in the county as it will provide a more accurate assessment of which sites are truly violating monitors and which sources are contributing to the violating monitors. Demonstrating regulatory significance is done on a monitor-by-monitor basis. In Section 1.3 the four requirements or prongs for determining an Exception Events from the CAA were described. For sites in the Houston area, there are potential Exceptional Events due to windblown dust (WBD; e.g., Saharan Dust), wildfires and prescribed burns in the U.S., and international fires.

3.1 Validity of Mexico Fires Qualifying as Exceptional Events

Southeast Texas occasionally observes elevated fine particulate matter ($PM_{2.5}$) concentrations due to smoke from fires in Mexico and elsewhere in Central America. Rodriguez and Morris (2024) analyzed the causes of fires in Mexico and prepared an August 2024 report "Fires in Mexico as Exceptional Events: Documentation and Implications." This document provides evidence that the vast majority of the fires in Mexico (more than 70%) and even more of the smoke from the fires in Mexico are not caused by agricultural burning or burns for livestock, that they do not recur at the same location, and that they therefore satisfy the third prong of the statutory test and can be considered as Exceptional Events. This evidence includes statistics on the source of fires from the Mexican government and other sources.

The Mexican Government has collected detailed statistics and information about the incidences and area burned by fires since the 1970s. This publicly available information has been used by several Mexican agencies to guide policies for fire management, fire mitigation and to establish programs to reduce fire incidences. Among the data provided by the Mexican Government are the activities reported to be likely causes of fires.[1] These statistics are reported every year and indicate that 98% of the fires are due to anthropogenic activities with only 2% due to natural causes. Since 2020, agricultural and livestock activities accounted for only about 30% of the fires each year in Mexico. This means that about 70% of the fires experienced every year are caused by human activity other than agricultural. These non-agricultural causes vary, but none appear to be recurring at a particular location.

Furthermore, several programs have been established since 2020 with the intent to educate farmers to modify practices and decrease the number of fires started by agricultural and livestock activities. These programs appear to be successful at reducing the number of fires due to agricultural practices in more recent years (e.g., 2021-2024). Accordingly, the minority of historic fires that might be expected to recur at a location has been reduced over time and can be expected to continue to decline. Although the number of fires in Mexico per year has been fairly steady over the last two decades, the acreage burned has increased, which indicates more larger fires (e.g., forest fires) in recent years. Forest fires tend to be larger than agricultural fires and generate more smoke. Rodriguez and Morris report numerous articles and websites documenting the types of fires in Mexico that do not

[1] https://snif.cnf.gob.mx/incendios/

recur. This includes the Global Forest Watch website[2] that documents the deforestation due to fires, which are particularly prevalent in southeastern Mexican states (e.g., Yucatan and Veracruz) that are right across the Gulf of Mexico from Texas.

3.2 Estimated Number of Days Needed to Qualify as Exceptional Events for Houston Monitors to Attain the 2024 Annual $PM_{2.5}$ NAAQS

We analyzed the 2021-2023 $PM_{2.5}$ concentrations at monitoring sites in the greater Houston area to determine the number of days that if shown to be Exceptional Events and removed from the $PM_{2.5}$ $DV_{2021\text{-}2023}$ calculation would achieve the 2024 9 µg/m^3 annual $PM_{2.5}$ NAAQS. The unofficial $DV_{2021\text{-}2023}$ were used in the analysis as used in EPA's Exceptional Event $PM_{2.5}$ Tiering Tool (Appendix A). Table 3-1 displays the $DV_{2021\text{-}2023}$ with all data, with Tier 1 days removed, with Tier 1 and 2 days removed, and with Tier 1 and 2 days and sufficient Tier 3 days removed to achieve a 9.04 µg/m^3 annual $PM_{2.5}$ $DV_{2021\text{-}2023}$.

Four sites achieve the 2024 $PM_{2.5}$ NAAQS without removing any days (Galveston, Houston Westhollow, Houston Deer Park#2 and Seabrook Friendship Park). On the other hand, the Houston North Wayside and North Loop sites would need to eliminate approximately 350 days from 2021-2023 for the $PM_{2.5}$ $DV_{2021\text{-}2023}$ to achieve the 2024 NAAQS; it is likely not possible to provide convincing evidence of an Exceptional Event for so many days. More feasible is conducting EED to achieve attainment for the Houston Bayland Park (65 days) and Montgomery County Conroe (56 days) sites with the other sites having 100s to 200s days needed to be eliminated to achieve attainment (Table 3-1).

[2] https://www.globalforestwatch.org/

Table 3-1. Annual PM2.5 DV2021-2022 using all data, after removing Tier 1 and Tier 1 and 2 days and removing additional Tier 3 days to achieve the NAAQS.

Monitor site	2021-2023 DV	No. Tier 1 Days	2021-2023 DV w/o Tier 1 Days	No. Tier 1&2 Days	2021-2023 DV w/o Tier 1&2 Days	No. Tier 3 Days To Attain	Final DV* All Days Excluded	Total Days Needed to be Excluded*
Galveston 99th Street	8.3	-	-	-	-	-	-	0
Houston Aldine	10.2	6	10.1	37	9.7	84	9.05	121
Houston North Wayside	12.5	2	12.4	30	12.0	320	9.06	350
Houston Bayland Park	10.2	1	10.2	18	9.7	47	9.04	65
Baytown	10.5	9	10.4	60	9.9	124	9.04	184
Houston Westhollow	8.6	-	-	-	-	-	-	0
Houston East	10.4	4	10.3	38	9.8	105	9.06	143
Clinton	10.7	7	10.7	53	10.0	200	9.06	253
Houston Deer Park #2	8.9	-	-	-	-	-	-	0
Seabrook Friendship Park	7.9	-	-	-	-	-	-	0
Houston North Loop	11.7	6	11.6	65	10.9	278	9.07	343
Conroe Relocated	10.0	6	9.9	30	9.4	26	9.02	56

* For Houston Aldine, Houston North Wayside, Houston East, and Houston North Loop, multiple days have the same 24-hr PM2.5 concentration and a subset of those days would need to be excluded from the DV calculation to achieve 9.04 ug/m3. In this table those days are not excluded so the DV > 9.04 ug/m3. Currently all those days are included in the count of days. So the actual number of days could be fewer by up to 7 days.

Figure 3-1 displays graphically the $DV_{2021\text{-}2023}$ at sites in the greater Houston area after the removal of Tier 1 days and Tier 1 and 2 days that can be compared with Figure 2-4 that includes the Tier 1 and 2 days. The highest $DV_{2021\text{-}2023}$ at the Houston North Wayside and North Loop monitors occur in the center of Harris County with most sites on the edges of Harris County and along the ship channel having $DV_{2021\text{-}2023}$ attaining the 2024 NAAQS when Tier 1 and 2 days are removed.

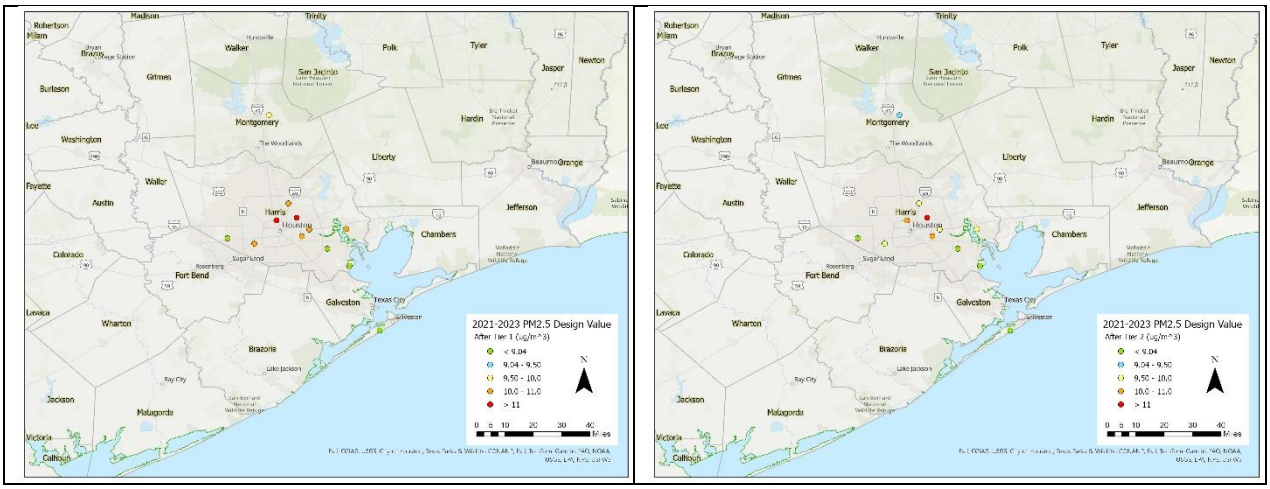

Figure 3-1. Houston area 2021-2023 $PM_{2.5}$ Design Values after removing days identified as Tier 1 (left) and Tiers 1 and 2 (right) from EPA's $PM_{2.5}$ Tiering Tool.

3.3 Effects of 2024 Observations on $PM_{2.5}$ Design Values

Although only a partial year is available, preliminary indications are that $PM_{2.5}$ concentrations in the Houston area may be higher in 2024. This is likely due in part to a more active fire season in Mexico in 2024 than previous years. This could result in monitoring sites whose $DV_{2021\text{-}2023}$ attain the 2024 NAAQS (e.g., Deer Park and Westhollow) becoming violating monitors based on the 2022-2024 $PM_{2.5}$ observations that EPA will use for making nonattainment area boundary designations. We analyzed this issue for the Houston Westhollow monitor that had 2024 $PM_{2.5}$ measurement data available through August 20 that is shown in Figure 3-2. Although the 2024 $PM_{2.5}$ measurement data has not been certified, it does provide an indication of whether 2024 $PM_{2.5}$ data are higher than previous years. Shown in Figure 3-2 are the 2021-2024 quarterly averages for Q1, Q2 and Q3 (2024 Q3 through August 20) and the three year average of the quarterly averages for 2021-2023 (blue) and 2022-2024 (red). The 2021-2023 and 2022-2024 3-year averages for Q1 are comparable. However, for Q2 and Q3, the 2022-2024 3-year average is over 1 $\mu g/m^3$ higher than 2021-2023. Additionally, Q2 and Q3 include the period that historically have the highest amounts of fires in Mexico as well as Saharan dust.

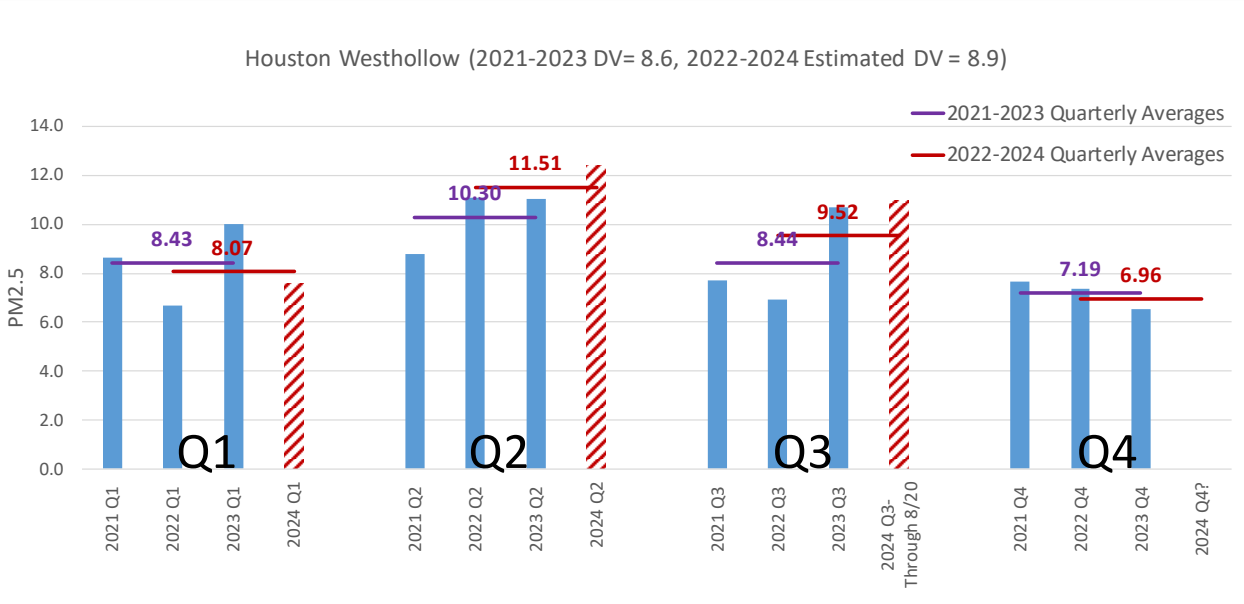

Figure 3-2. Comparison of 2021-2024 quarterly average $PM_{2.5}$ concentrations at Houston Westhollow monitoring site and 2021-2023 and 2022-2024 3-year quarterly average concentrations (2024 Q3 through August 20 and 2022-2024 3-year average Q4 based on 2-years of 2022-2023 data).

3.4 Assessment of the Feasibility of using Exceptional Events for Houston Monitors Annual $PM_{2.5}$ Attainment

There may not be sufficient evidence of Exceptional Events for ~350 days during 3-years to bring the Houston North Wayside and North Loop violating monitors into attainment of the 2024 $PM_{2.5}$ NAAQS. However, 2024 may have higher $PM_{2.5}$ concentrations than previous years, so it may be important to conduct Exceptional Event Demonstrations for 2022-2024 Tier 1 and 2 days at the following monitoring sites:

- Galveston
- Houston Westhollow
- Deer Park #2
- Seabrook Friendship Park
- Conroe

EPA's April 30, 2024 $PM_{2.5}$ Tiering Document have streamlined the Exceptional Events Demonstrations where only one and two pieces of evidence are needed for, respectively, Tier 1 and Tier 2 days (see Table 1-1). Note that Tier 3 days will also likely be needed for the $DV_{2022\text{-}2024}$ to attain the 2024 NAAQS at the Conroe monitor depending on the measured $PM_{2.5}$ concentrations in 2024 (26 Tier 3 days were needed to bring the $DV_{2021\text{-}2023}$ into attainment). However, the extra work would be worth it as Conroe is the only monitoring site in Montgomery County.

4.0 SOURCES THAT CONTRIBUTE TO VIOLATING MONITORS

While the sources that contribute to monitors that violate the 2024 $PM_{2.5}$ NAAQS in the greater Houston area have not been extensively studied as this is the first $PM_{2.5}$ NAAQS that sites in Houston have ever violated, there is reason to believe that sources are highly localized or of an international nature (e.g., Mexican fires and Sahara dust), such that there is little evidence to suggest that sources on the periphery of Harris County or in counties surrounding Harris County are contributing substantially to potential nonattainment within Harris County.

4.1 EPA $PM_{2.5}$ Designations Mapping Tool

The EPA $PM_{2.5}$ Designation Mapping Tool currently can plot 2021-2023 attaining and violating monitors and locations of emission sources. Figure 4-1 displays the results for Harris County and nearby areas. Since the tool uses official 2021-2023 design values, we have added the results for the Houston Westhollow and Seabrook Friendship Park monitors from the EPA Tiering Tool using star symbols. The highest $PM_{2.5}$ DVs are in north Houston with sites near the edges of Harris County being in attainment of the 2024 NAAQS (e.g., Westhollow, Deer Park #2 and Seabrook Friendship Park. This supports a possible nonattainment boundary less than the full Harris County.

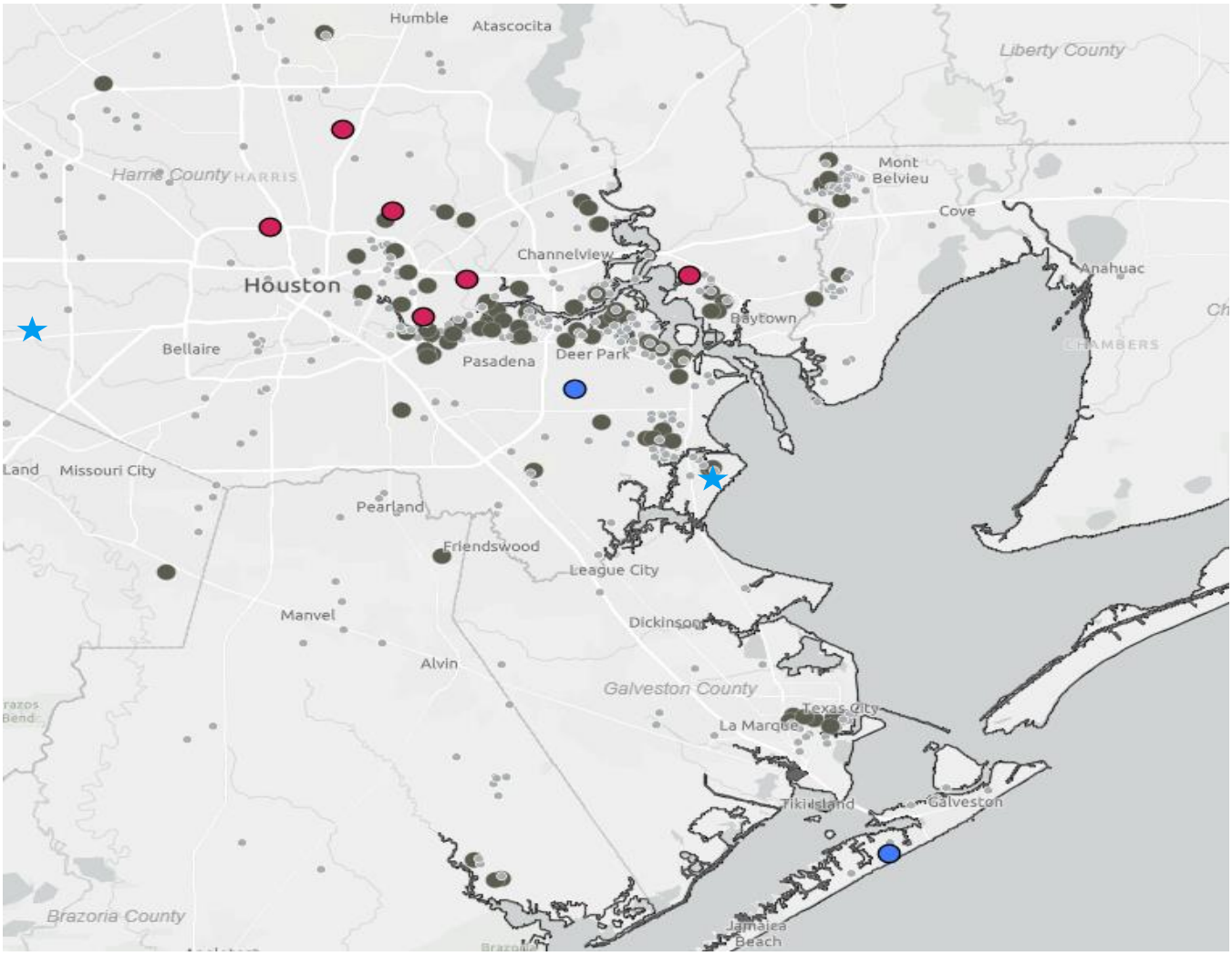

Figure 4-1. Locations of facility sources (black circles) and attaining (blue) and violating (red) monitors in the greater Houston area from EPA's Designations Mapping Tool with Houston Westhollow and Seabrook Friendship Park attaining monitors added (stars).

4.2 Source Factors at Houston North Wayside Monitoring Site

The TCEQ funded Baylor University to apply the Positive Matrix Factorization (PMF) receptor model to 116 days of speciated daily $PM_{2.5}$ measurements at the Houston North Wayside monitoring site that occurred between July 2022 and June 2023. The results were documented in a March 2024 report "Source Apportionment by Positive Matrix Factorization at Houston North Wayside." Although the title of the report includes the term "Source Apportionment," PMF does not identify emission source contributions and is not a source apportionment tool. Rather, it identifies Factors that an analyst may infer contributions by sources based on the $PM_{2.5}$ species contributions in the Factors. This is explained in the text of the Baylor Houston North Wayside PMF report as follows:

> "It should be noted here that factors are not emission sources. Factors indicate species that trend together in time during the sample period, which can indicate co-emission from the same source but may also indicate co-transport within an urban area or co-production from precursor species. Therefore, these will be called source factors, but not called emission sources."

Baylor ran PMF with different numbers of factors and found the 8 factor PMF results performed best. Figure 4-3 is a reproduction of Figure 13 from the Baylor North Wayside PMF report and shows the relative contribution of the 8 Factors to average $PM_{2.5}$ concentrations across the 116 daily speciated $PM_{2.5}$ measurements at North Wayside. Most notably is the very low contribution (1.9%) of nitrate indicating that NOx emissions do not contribute to $PM_{2.5}$ concentrations at North Wayside. The Baylor PMF report attributes these factors to sources as follows, although as noted above PMF is not an emission source apportionment tool.

- The Urban Biomass Burning (Urban BB) was the largest factor (34.8%) accounting for over a third of the $PM_{2.5}$ at North Wayside. The Urban BB Factor was the dominant factor for Organic Carbon and occurred year round. Baylor attributes this factor to multiple sources including "urban structures," "building material and consumer products within" and fires.
- The second largest Factor at 22.4% was Ammonium Sulfate that Baylor designated as "aged" (NH4 SO4 aged). Presumably, Baylor designated this factor as "aged" since sulfate typically has a slow formation rate from emissions of SO_2 (0-5%) so is likely primarily from long range transport. Koo and Morris (2013) used measurements from the TexAQS 2006 field study and estimated a sulfate formation rate in the Houston ship channel of 4% per hour.
- There are two Crustal Factors: Crustal 1 (7.4%) is dominated by natural occurring elements and occurs predominately during July – August; the Baylor PMF reports notes that this is when Saharan dust impacts occur. Crustal 2 Urban Factor (19.3%) occurs after the Saharan dust period and is dominated by calcium that the Baylor report attributed to local sources (e.g., "road dust" and "traffic").
- The above four Factors contribute a vast majority (84%) of the $PM_{2.5}$ at North Wayside that the Baylor report attributes to Biomass Burning, likely from the U.S. and Mexico, mobile sources ("traffic" and "road dust"), and long range transport ("aged"). The remaining four Factors (16%) have minor contributions (less than 6%

each). For example, the Nitrate factor due to NOx emissions contributes less than 2%.

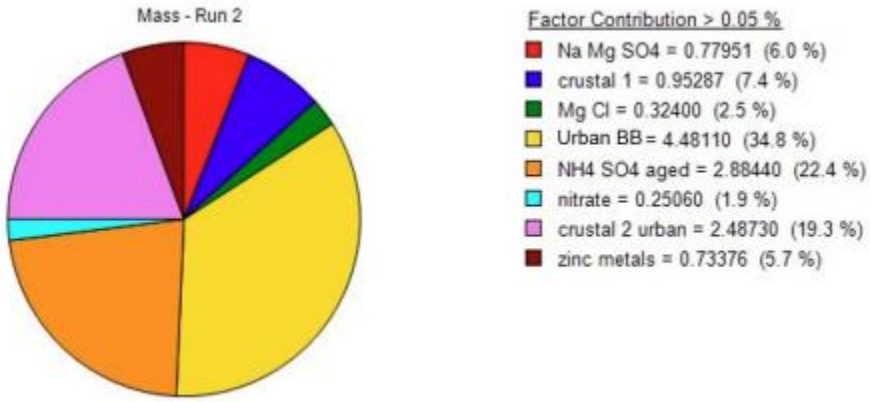

Figure 4-2. Baylor Houston North Wayside PMF 8 Factor result (Source: Baylor North Wayside PMF report, Figure 13).

5.0 REFERENCES

Koo, B. and R. Morris. Development of Transformation Rate of SO2 to Sulfate for the Houston Ship Channel using the TexAQS 2006 Field Study Data. Texas Air Quality Research Program (AQRP) Project 12-013. Prepared by ENVIRON, Novato, CA. October. (https://aqrp.ceer.utexas.edu/research/projects/fy-2012-2013/117-project-number-12-013).

Rodriguez, M. and R. Morris, 2024. Fires in Mexico as Exceptional Events: Documentation and Implications. Ramboll, Novato, California and Fort Collins, Colorado. August.

APPENDIX A

Houston Monitoring Sites $PM_{2.5}$ Tiering Tool Results

APPENDIX A. HOUSTON MONITORING SITES PM2.5 TIERING TOOL RESULTS

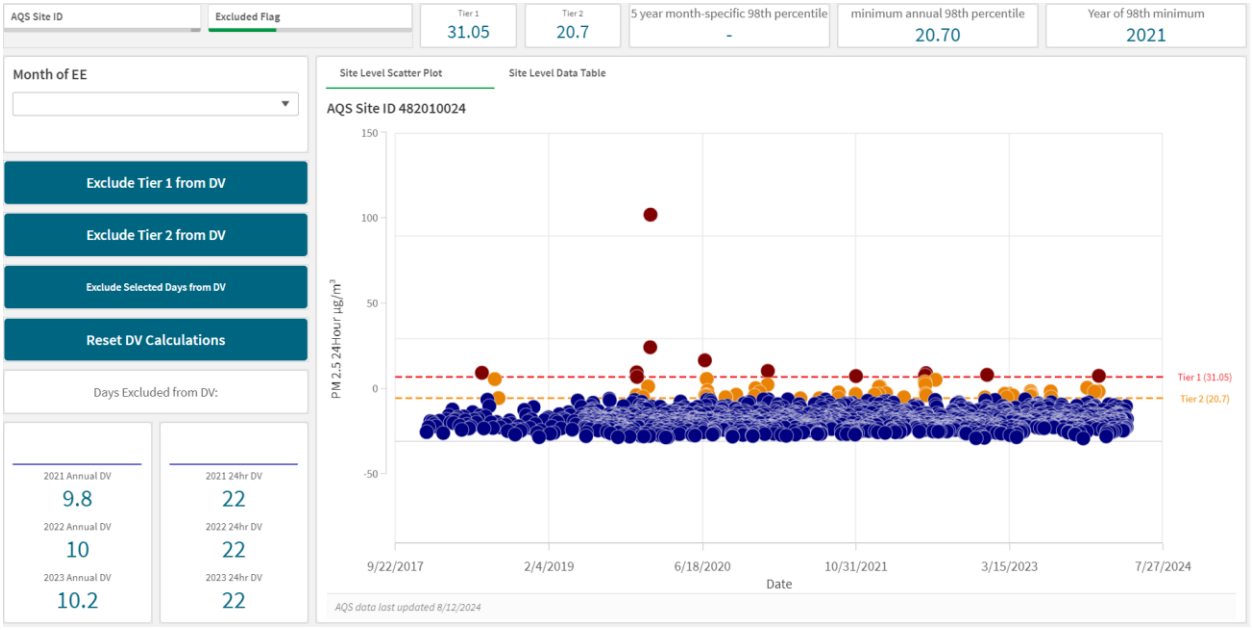

Figure A1. EPA $PM_{2.5}$ Tiering Tool results for Houston Aldine (482010024) monitoring site (accessed August 18, 2024).

Figure A2. EPA $PM_{2.5}$ Tiering Tool results for Houston North Wayside (482010046) monitoring site (accessed August 18, 2024).

Figure A3. EPA $PM_{2.5}$ Tiering Tool results for Houston Bayland Park (482010055) monitoring site (accessed August 18, 2024) (Houston Bayland Park started April 22, 2022 so will not have enough data to have a valid $DV_{2021\text{-}2023}$ or $DV_{2022\text{-}2024}$).

Figure A4. EPA $PM_{2.5}$ Tiering Tool results for Houston Baytown (482010058) monitoring site (accessed August 18, 2024).

Figure A5. EPA $PM_{2.5}$ Tiering Tool results for Houston Westhollow (482010066) monitoring site (accessed August 18, 2024).

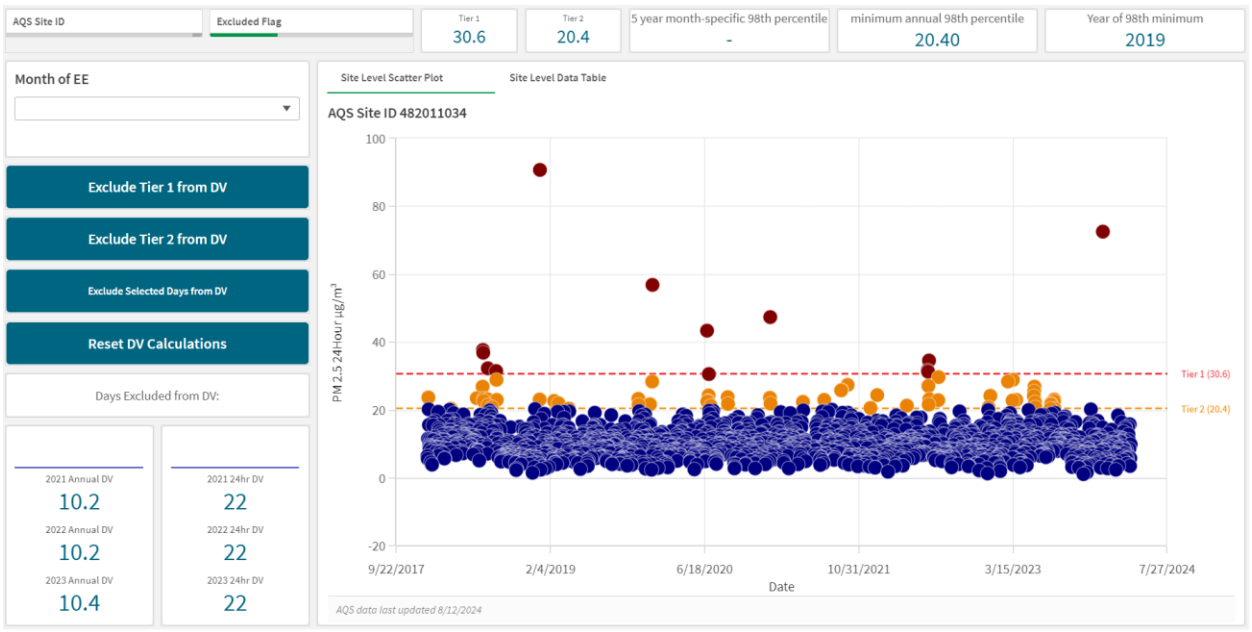

Figure A5. EPA $PM_{2.5}$ Tiering Tool results for Houston East (482011034) monitoring site (accessed August 18, 2024).

Figure A6. EPA $PM_{2.5}$ Tiering Tool results for Clinton (482011035) monitoring site (accessed August 18, 2024).

Figure A6. EPA $PM_{2.5}$ Tiering Tool results for Houston Deer Park#2 (482011039) monitoring site (accessed August 18, 2024).

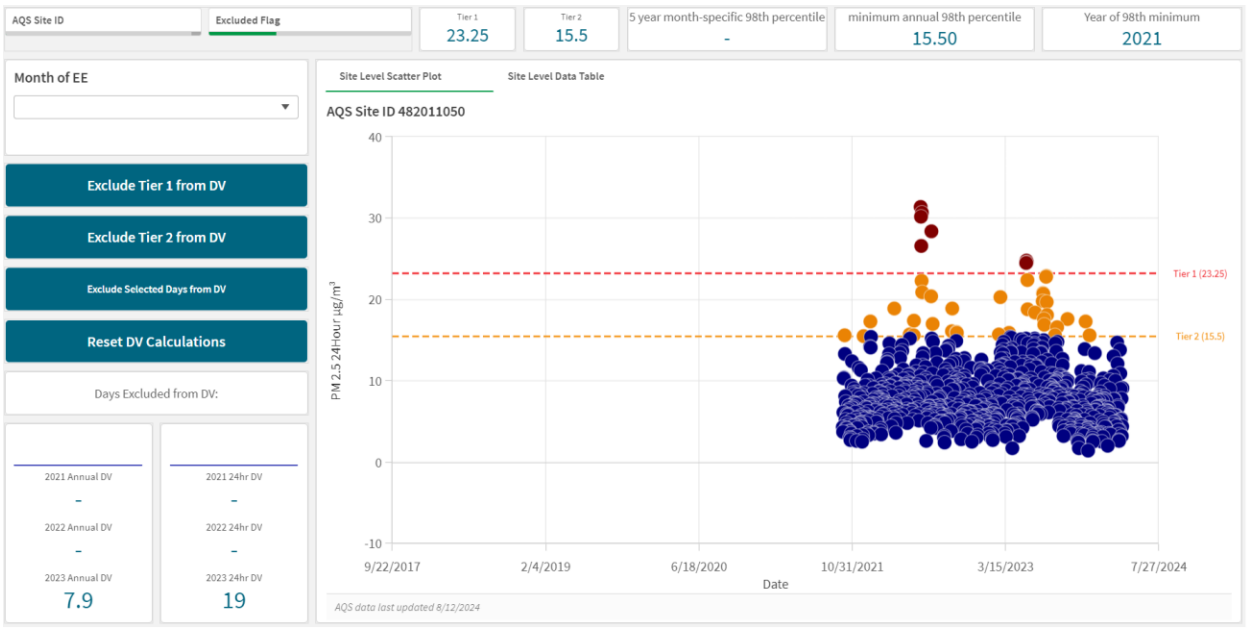

Figure A7. EPA $PM_{2.5}$ Tiering Tool results for Houston Seabrook Friendship Park (482011050) monitoring site (accessed August 18, 2024).

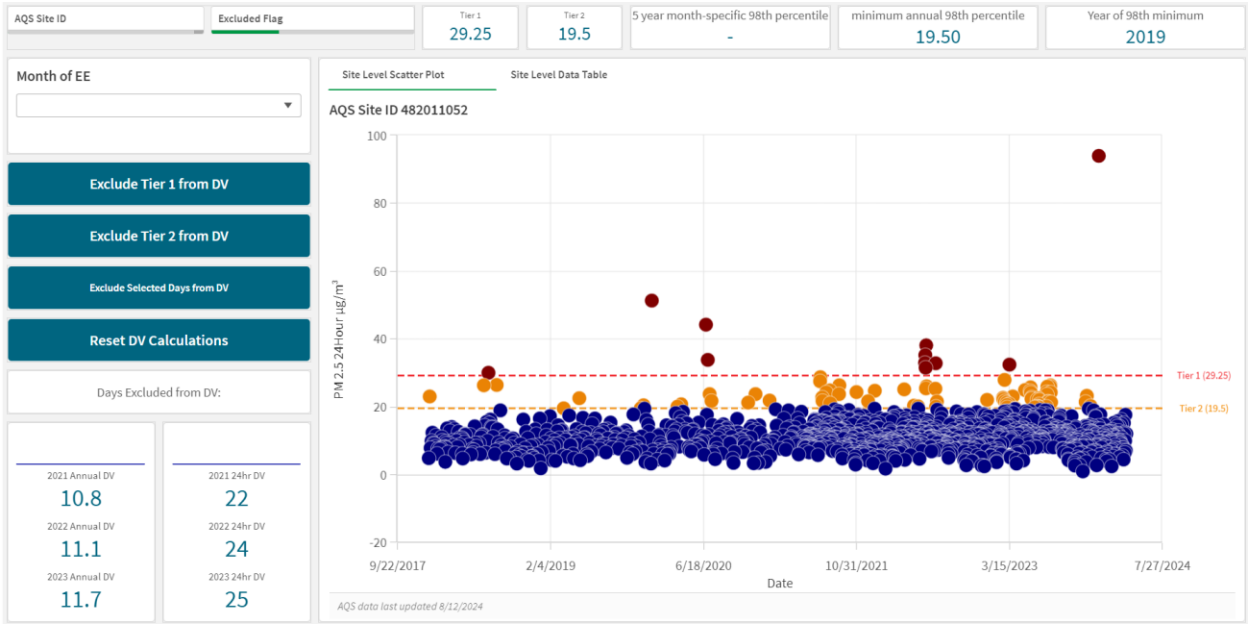

Figure A8. EPA $PM_{2.5}$ Tiering Tool results for Houston North Loop (482011052) monitoring site (accessed August 18, 2024).

Figure A8. EPA $PM_{2.5}$ Tiering Tool results for Galveston 99th Street (481671034) monitoring site (accessed August 18, 2024).

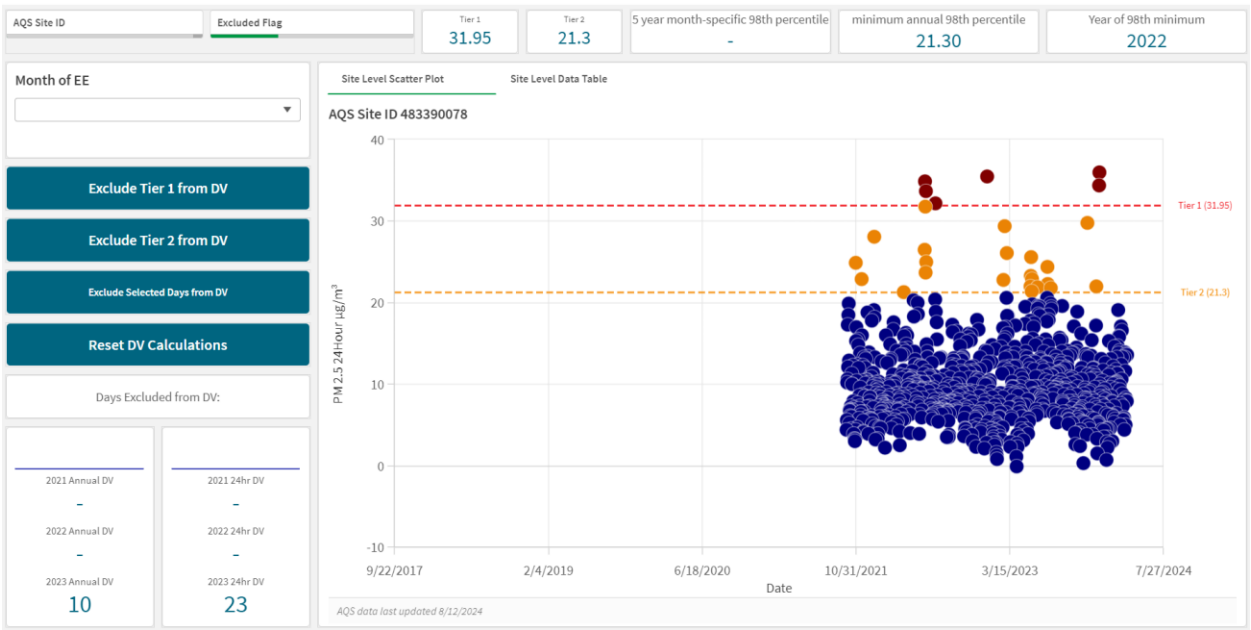

Figure A9. EPA $PM_{2.5}$ Tiering Tool results for Conroe (Montgomery County; 483390078) monitoring site (accessed August 18, 2024).

From: [redacted]
To: SIPRULES
Subject: Air Quality in Texas must improve
Date: Wednesday, August 28, 2024 11:59:25 AM

Texas Commission on Environmental Quality,

Growing up as a child, I lived in the suburbs of Houston. My childhood home was surrounded by chemical plants so it is no surprise that I grew up to have asthma. Children who are from the Houston area have a much higher incidence of respiratory illness than many American cities with better air quality. Now, myself and much of my community are also experiencing respiratory symptoms from repeated Covid infections. If our goal is to continue to have a productive, able bodied population, Texas leaders need to radically reduce the amount of emissions that our citizens are inhaling every day.

[redacted]
Texas

Prepared by:
Ramboll
7250 Redwood Blvd., Suite 105
Novato, California 94945

September 6, 2024
1940109167

JUSTIFICATION AND EVIDENCE FOR AN EXCEPTIONAL EVENTS DEMONSTRATION

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Executive Summary

The Texas Commission of Environmental Quality (TCEQ) will make recommendations on potential nonattainment area (NAA) boundaries for the 2024 Primary Annual Fine Particulate Matter ($PM_{2.5}$) National Ambient Air Quality Standard (NAAQS) using 2021-2023 $PM_{2.5}$ measurement data in February 2025. EPA is expected to finalize NAA boundaries in February 2026 using $PM_{2.5}$ measurement data from 2022-2024.

TCEQ's June 25, 2024 presentation *PM NAAQS Revision – Border & South Texas* discussed Exceptional Events as

> unusual or natural occurrences (such as wildfires, certain prescribed fires, high dust events, etc.) that can affect air quality, and are not reasonably controllable or preventable. These events are either natural events or caused by human activity unlikely to recur at a particular location.

In response to TCEQ's request for informal comment on potential state designations for the 2024 $PM_{2.5}$ NAAQS, this submittal provides information describing how Exceptional Events impact a monitor in Texas, the National Seashore monitor. The National Seashore monitoring site in Kleberg County, Texas has a 2021-2023 3-year annual $PM_{2.5}$ Design Value of 9.9 $\mu g/m^3$ that exceeds the new 9.0 $\mu g/m^3$ 2024 annual $PM_{2.5}$ NAAQS. This monitor is impacted by smoke from fires from the U.S. and Mexico and dust from Africa (Saharan Dust). EPA's 2016 Exceptional Events Rule allow the exclusion of daily $PM_{2.5}$ observations from the Design Value calculation if they can be demonstrated to be an Exceptional Event. The Clean Air Act defines four prongs that must be satisfied in order for an event to be considered as an Exceptional Event:

1. Affects air quality;
2. Is not reasonably controllable;
3. Is an event caused by human activity that is unlikely to recur at a particular location or a natural event; and
4. Is determined by the Administrator through the process established in the regulations to be an Exceptional Event.

The most common Exceptional Events for particulate matter (PM) are smoke from wildland fires (i.e., wildfires and prescribed burns) and windblown dust (WBD).

The Mexican government reports on the causes of fires in Mexico and in more recent years (e.g., 2021-2024) approximately 20% of the fires are agricultural burning with approximately 10% due to burning for livestock (Rodriguez and Morris, 2024). Of the roughly 30% that are agricultural or livestock-related, many are for one-time clearing and there is no evidence that they recur in the same location. The remaining 70% of the fires are wildland fires that also do not recur at the same location. This is supported by statistics on deforestation by fires that show a particularly high rate of such deforestation in the states of Yucatan, Tabasco and Veracruz on the Gulf Coast in southeast Mexico just across the Gulf of Mexico from southeast Texas. Mexico has had a campaign since 2020 to reduce the amount of agricultural burning (slash and burn) since 2020 and although the number of fires over the years remains similar, in more recent years the average acreage burned has increased providing further evidence for the preponderance of likely out-of-control wildland

fires. Although the Mexican government reports that the non-recuring wildland fires are ~70% of the fires, wildland fires will contribute even more of the smoke from fires in Mexico that impact Texas as they can be larger and burn much more biomass than that slash and burn agricultural burning that clears the previous seasons crop residue. As documented by Rodriguez and Morris (2024), a vast majority of the smoke from fires in Mexico are due to fires that do not recur so that elevated $PM_{2.5}$ concentrations at the National Seashore monitoring site due to fires in Mexico can qualify as Exceptional Events.

On April 30, 2024, EPA released a Tiering Document and a Tiering Tool that streamlines the $PM_{2.5}$ Exceptional Event Demonstrations for days at a monitor with elevated $PM_{2.5}$ concentrations above a monitor-specific and monthly-specific tiering threshold. Tier 1 days are days with $PM_{2.5}$ concentrations greater than 1.5 times the tiering threshold and Tier 2 days are days with $PM_{2.5}$ concentrations above the tiering threshold but below the Tier 1 threshold. EPA Tiering guidance states that Exceptional Event Demonstrations must present at least one piece and three pieces of evidence that smoke contributed to the daily $PM_{2.5}$ concentrations for, respectively, Tier 1 and 2 days.

During 2021-2023, the National Seashore monitor had 91 Tier 1 and 2 days. We examined four pieces of evidence to determine whether an Exceptional Events contribute to the elevated $PM_{2.5}$ concentrations on the Tier 1 and 2 days:

1. Hazard Mapping System (HMS) spatial maps of integrated daily smoke polygons along with visible satellite imagery. The HMS smoke maps were used to determine whether smoke from fires impacted the location of the National Seashore monitor and the visual imagery was used to identify when clouds were present so the smoke could not be detected in the HMS smoke maps.
2. HYSPLIT back trajectories for each hour (24 hours) of the Tier 1 and 2 daily $PM_{2.5}$ events ending at the National Seashore site superimposed on the locations of fires for the day to determine whether air parcels traveled over fires and arrived at the National Seashore monitor on the Tier 1 or 2 day being analyzed.
3. Pollution Roses at National Seashore showing the hourly wind direction and $PM_{2.5}$ concentrations for each Tier 1 and 2 day at National Seashore.
4. Spatial maps of observed surface $PM_{2.5}$ concentrations for each Tier 1 and 2 day at National Seashore to see if widespread elevated $PM_{2.5}$ concentrations occur at the surface across multiple monitoring sites in southeast Texas as would occur in a regional smoke event.

The above four pieces of evidence were examined for each of the 91 Tier 1 and 2 days from 2021-2023 at the National Seashore monitor and are shown in the Appendices of this report. The evidence supported the identification of 80 of the 91 Tier 1 and 2 days as potential Exceptional Event days due to either fires in Mexico, U.S. wildfires or impacts from Saharan Dust. When these 80 Exceptional Event days are excluded from the calculation of the 2021-2023 annual $PM_{2.5}$ Design Value it is reduced to 8.7 $\mu g/m^3$, which is below the 2024 $PM_{2.5}$ NAAQS. When accounting for Exceptional Events, National Seashore would not be a violating monitor and not included within any boundaries of a NAA for the 2024 $PM_{2.5}$ NAAQS.

Since EPA will be determining NAA boundaries based on 2022-2024 Design Values, this same exercise needs to be undertaken for potential Exceptional Events at the National Seashore monitoring site during 2024 Tier 1 and 2 days.

1.0 INTRODUCTION

In response to TCEQ's request for informal comment on potential state designations for the 2024 $PM_{2.5}$ NAAQS, this submittal provides information describing how Exceptional Events impact a monitor in Texas, the National Seashore monitor. This submittal presents the evidence needed to support an Exceptional Events Demonstration (EED) for the National Seashore monitor in Kleberg County, Texas and the 2021-2023 period to address attainment of the 2024 annual $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS).

1.1 Requirements of the 2024 $PM_{2.5}$ NAAQS

On February 7, 2024, EPA announced they were lowering the annual $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) from 12.0 to 9.0 $\mu g/m^3$ with the rule published in the Federal Register on Wednesday March 6, 2024. EPA intends to define the nonattainment area (NAA) boundaries under the 2024 $PM_{2.5}$ NAAQS by February 6, 2026 using observed 2022-2024 $PM_{2.5}$ concentrations and a Five Factor analysis as outlined in their February 7, 2024 Initial Area Designations under the 2024 $PM_{2.5}$ NAAQS Memorandum. States are to submit their recommendations for NAA boundaries and Exceptional Events days under the 2024 $PM_{2.5}$ NAAQS by February 7, 2025 using $PM_{2.5}$ observations from 2021-2023. Using 2022-2024 observations, EPA will define the NAA boundaries to include violating monitors and potentially nearby regions that contribute to the violating monitors. EPA has identified Five Factors that should be considered for identifying nonattainment area boundaries that includes "any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the 2024 $PM_{2.5}$ NAAQS":

1. Air Quality Data
2. Emissions and Emissions-Related Data
3. Meteorology
4. Geography/Topography
5. Jurisdictional Boundaries

EPA will issue "120-day letters" with initial NAA designations on or about October 9, 2025 and finalize the NAAs by February 6, 2026, although EPA has an option to extend the NAA designation process by up to one year.

1.2 Overview of Exceptional Event Demonstration Procedures

The requirements for what constitutes an Exceptional Event is described in Section 319(b)(1)(A) of the Clean Air Act as follows:

(b) Air quality monitoring data influenced by exceptional events

(1) Definition of exceptional event

In this section:

(A) In general

The term "exceptional event" means an event that—

(i) affects air quality;

(ii) is not reasonably controllable or preventable;

(iii) is an event caused by human activity that is unlikely to recur at a particular location or a natural event; and

(iv) is determined by the Administrator through the process established in the regulations promulgated under paragraph (2) to be an exceptional event.

(B) Exclusions

In this subsection, the term "exceptional event" does not include—

(i) stagnation of air masses or meteorological inversions;

(ii) a meteorological event involving high temperatures or lack of precipitation; or

(iii) air pollution relating to source noncompliance.

The most common exceptional events for $PM_{2.5}$ are windblown dust (WBD) and wildland fires (e.g., wildfires and prescribed burns). The Final 2016 Exceptional Events Rule included documents related to wildfire and prescribed burn impacts on air quality, such as analytical tools for EED for wildfire events on ozone and particulate matter and a guidance document for preparing wildfire EED for ozone. More recently (April 30, 2024), EPA posted additional information on "Treatment of Air Quality Monitoring Data Influenced by Exceptional Events" and defined exceptional events as follows:

> *"Exceptional events are unusual or naturally occurring events that can affect air quality but are not reasonably controllable using techniques that tribal, state or local air agencies may implement in order to attain and maintain the National Ambient Air Quality Standards (NAAQS). Exceptional events may include wildfires, high wind dust events, prescribed fires, stratospheric ozone intrusions, and volcanic and seismic activities."*

A technical description showing the clear causal relationship between a specific event and the monitoring exceedance is required by sections 40 CFR 50.14(c)(3)(iv)(B) and (C). Due to the varying degree in which wildland fires can affect $PM_{2.5}$ concentrations, EPA $PM_{2.5}$ Wildland Fire Exception Events Tiering Document provide a three-tiered approach for event demonstrations with each successive Tier requiring more evidence that smoke from wildland fires contributed to the elevated measured $PM_{2.5}$ concentration.

Table 1-1 from EPA's April 30, 2024 $PM_{2.5}$ Wildland Fire Exceptional Events Tiering Document summarizes the procedures for each of the three Tiers to demonstrate a causal relationship between a wildland fire and an observed 24-hour $PM_{2.5}$ concentration. EPA has developed a $PM_{2.5}$ Tiering Tool for Exceptional Events Analysis that calculates which daily $PM_{2.5}$ observations are classified as Tier 1 or 2 following the procedures in the Tiering Document. The amount of evidence needed to support an Exceptional Event increase with each Tier as identified in Table 1-1.

Table 1-1. EPA recommended procedures for Tier 1, 2 and 3 clear causal relationship between fires and $PM_{2.5}$ concentrations (Source: $PM_{2.5}$ Wildland Fire Tiering Document, EPA April 30, 2024)

Table 4. Clear Causal Relationship Technical Demonstration Components Recommended for Tier 1, Tier 2, and Tier 3 Demonstrations.

Tier 1 Analyses Should Include	Tier 2 Analyses Should Include	Tier 3 Analyses Should Include
The tiering threshold used for the event day, which calculation methodology was used, and comparison of the 24-hour PM value to the tiering threshold.	The tiering threshold used for the event day, which calculation methodology was used, and comparison of the 24-hour PM value to the tiering threshold.	The tiering threshold used for the event day, which calculation methodology was used, and comparison of the 24-hour PM value to the tiering threshold.
Comparison of the fire-influenced exceedance with historical concentrations, by providing two data plots appropriate to the chosen tiering threshold calculation methodology (R qualified data removed, R and I qualified data removed).	Comparison of the fire-influenced exceedance with historical concentrations, by providing two data plots appropriate to the chosen tiering threshold calculation methodology (R qualified data removed, R and I qualified data removed).	Comparison of the fire-influenced exceedance with historical concentrations, by providing two data plots appropriate to the chosen tiering threshold calculation methodology (R qualified data removed, R and I qualified data removed).
Evidence of transport of fire emissions from fire to the monitor (**one** of these): • Trajectories linking fire with the monitor (forward and backward), considering height of trajectories, or • Satellite evidence in combination with surface measurements.	Evidence of transport of fire emissions from fire to the monitor (**one** of these): • Trajectories linking fire with the monitor (forward and backward), considering height of trajectories, or • Satellite evidence in combination with surface measurements.	Evidence of transport of fire emissions from fire to the monitor (one of these): • Trajectories linking fire with the monitor (forward and backward), considering height of trajectories, or • Satellite evidence in combination with surface measurements.
	Two additional pieces of evidence demonstrating that the fire emissions affected the monitor, as identified for Tier 2 analyses.	At least three additional pieces of evidence demonstrating that the fire emissions affected the monitor, which could include the items in the next box.
		Additional evidence to add to the weight of evidence demonstration, or other evidence as appropriate for the event, including: • Backward and forward trajectories from the wildland fire to the affected monitor, • Analysis of hourly PM, meteorological, or other available data, and • a vertical $PM_{2.5}$ profile or model simulations.

1.3 Purpose and Organization of Report

In response to TCEQ's request for informal comment on potential state designations for the 2024 $PM_{2.5}$ NAAQS, this submittal provides information describing how Exceptional Events impact a monitor in Texas, the National Seashore monitor site. The National Seashore monitor (482730314) on the coast of southeast Texas near Corpus Christi has a valid 2021-2023 annual $PM_{2.5}$ Design Value ($DV_{2021\text{-}2023}$) of 9.9 µg/m^3 that is above 9.0 µg/m^3 and so is a potentially violating monitor under the 2024 $PM_{2.5}$ NAAQS. $PM_{2.5}$ concentrations at the

National Seashore monitoring site are known to be impacted by emissions from fires in Mexico and Central America on occasion, as well as dust from Africa.

In this submittal it is demonstrated that the National Seashore should be determined to be in attainment of the 2024 annual $PM_{2.5}$ NAAQS after elimination of observed elevated daily $PM_{2.5}$ concentrations that are due to Exceptional Events. Chapter 2 of the report analyzes $PM_{2.5}$ observations at the National Seashore monitoring site including the application of EPA's $PM_{2.5}$ Tiering Tool to determine which daily $PM_{2.5}$ observations are classified as Tier 1 days and Tier 2 days. The applicability of Exceptional Events to National Seashore Tier 1 and 2 days is discussed in Chapter 3 that includes evidence that fires in Mexico are mostly not due to agricultural burning and do not recur at the same location, and thus satisfy the criteria for being defined as Exceptional Events. Chapter 4 provides the evidence to support that a sufficient number of the National Seashore Tier 1 and 2 days in 2021-2022 can be classified as Exceptional Events resulting in a 2021-2023 $PM_{2.5}$ Design Value below the 9.0 $\mu g/m^3$ 2024 NAAQS after the Exceptional Events days are removed. Chapter 5 contains references.

2.0 NATIONAL SEASHORE MONITOR $PM_{2.5}$ CONCENTRATIONS

2.1 $PM_{2.5}$ Concentrations at the National Seashore Monitor Site

Figure 2-1 presents 24-hour $PM_{2.5}$ concentration data for the National Seashore monitor from the EPA's $PM_{2.5}$ Tiering Tool. Tiering thresholds are based on 2019-2023 data and are based on the lesser value of: (a) the most recent 5-year month-specific 98th percentile for 24-hour $PM_{2.5}$ data; or (b) the minimum annual 98th percentile for 24-hour $PM_{2.5}$ data for the most recent 5-year period. In calculating (a) and (b) any $PM_{2.5}$ days with "Requested Exclusion" (R) or fire-related "Informational Only" (I) qualifiers are excluded. The monthly tiering thresholds for the National Seashore monitor are shown in Table 2-1 and the annual one (i.e., b above) was used for all months except October and November which have month specific thresholds that are lower than the annual values. This data is from the EPA file: "r_fire_excluded_tiers2019_2023_20240814.csv." Tier 1 days are ones with $PM_{2.5}$ concentrations above 1.5x the tiering threshold, whereas Tier 2 days have $PM_{2.5}$ concentrations between the tiering threshold and the Tier 1 threshold. The Tiering Tool shows the annual tiering threshold (Figure 2-1).

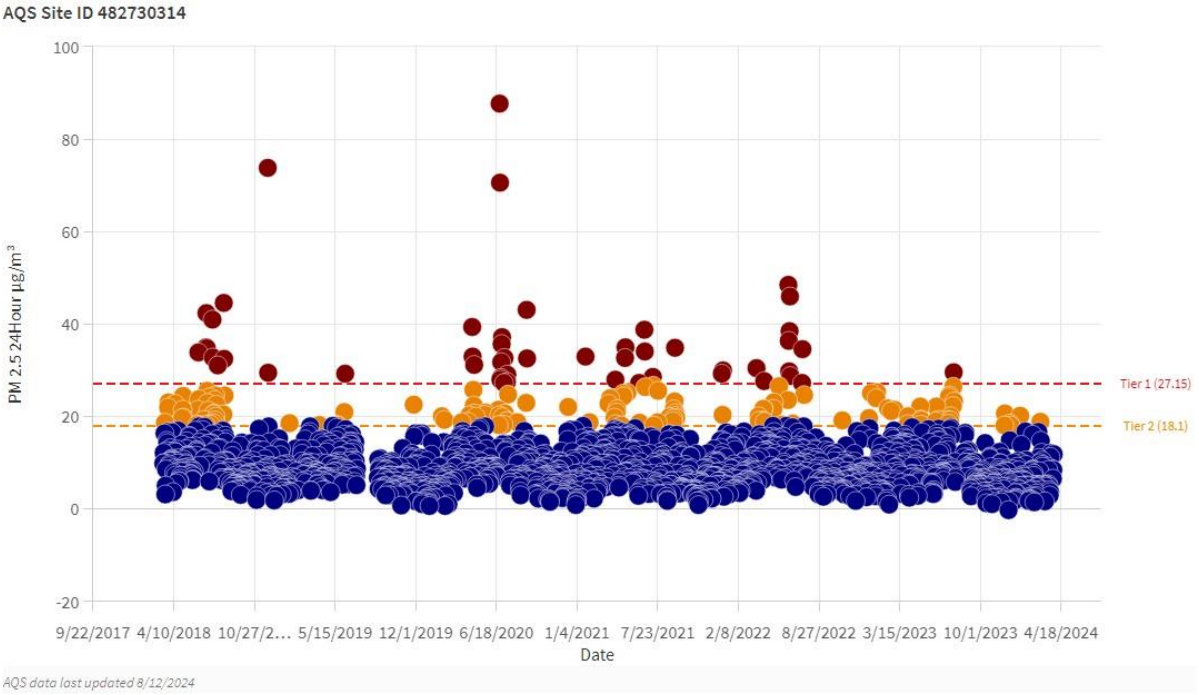


Figure 2-1. EPA $PM_{2.5}$ Tiering Tool results for the National Seashore monitor site (482730314).

Table 2-1. EPA $PM_{2.5}$ Tiering Tool Thresholds for National Seashore monitor site (482730314) based on analysis of 5 years of $PM_{2.5}$ measurement data.

month	Monthly_98th	Excluded Flag	annual_98th_minimum	Year of annual minimum	Tier 2	Tier 1
1	25.1	R and I Wildfire Flags	18.1	2019	18.1	27.15
2	20.1	R and I Wildfire Flags	18.1	2019	18.1	27.15
3	21.5	R and I Wildfire Flags	18.1	2019	18.1	27.15
4	28	R and I Wildfire Flags	18.1	2019	18.1	27.15
5	25.2	R and I Wildfire Flags	18.1	2019	18.1	27.15
6	46	R and I Wildfire Flags	18.1	2019	18.1	27.15
7	34.6	R and I Wildfire Flags	18.1	2019	18.1	27.15
8	19.6	R and I Wildfire Flags	18.1	2019	18.1	27.15
9	23.3	R and I Wildfire Flags	18.1	2019	18.1	27.15
10	14.2	R and I Wildfire Flags	18.1	2019	14.2	21.3
11	16.4	R and I Wildfire Flags	18.1	2019	16.4	24.6
12	20.4	R and I Wildfire Flags	18.1	2019	18.1	27.15

2.2 2021 – 2023 Tier 1 and 2 Days $PM_{2.5}$ Concentrations at the National Seashore Monitor Site

Figure 2-2 focuses on the three-year period that is the basis for the 2021-2023 Design Value and displays the 24-hour $PM_{2.5}$ concentrations for the 3 year period with the month-specific Tier 1 and Tier 2 thresholds shown. At the National Seashore monitoring site, there are 91 days over 2021-2023 that are either Tier 1 or Tier 2.

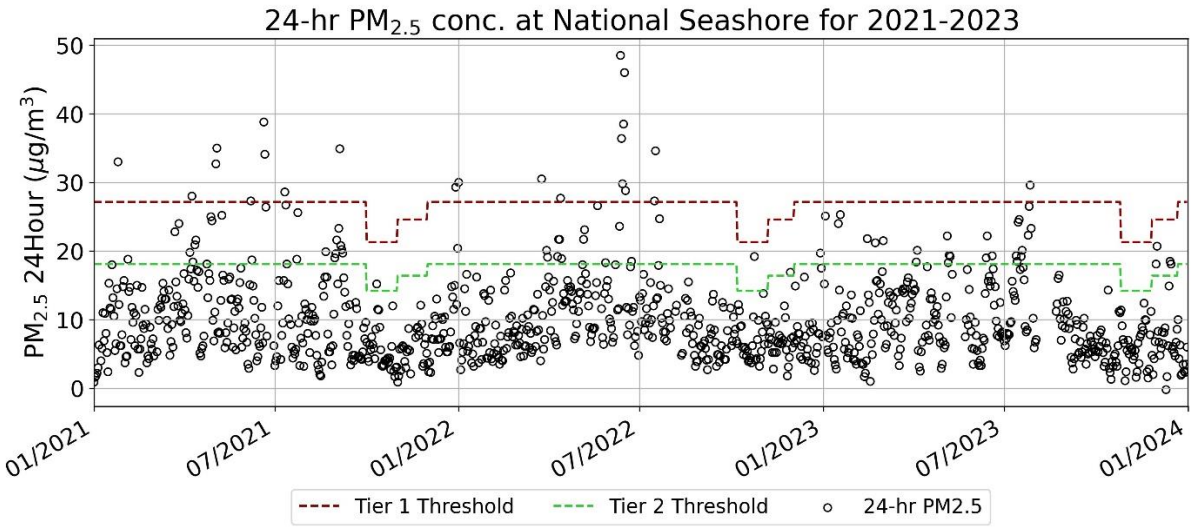


Figure 2-2. 2021-2023 24-hr average $PM_{2.5}$ concentration and month-specific Tier 1 and Tier 2 thresholds.

2.3 National Seashore Current (2021-2023) $PM_{2.5}$ Annual Design Values

Table 2-2. Official 2021-2023 Design Value for National Seashore monitor reports the 2021-2023 official design value that was made available by EPA on 8/9/2024 and is 9.9 µg/m³ which exceeds the revised 2024 annual NAAQS of 9.0 µg/m³.

Table 2-2. Official 2021-2023 Design Value for National Seashore monitor.

AQS Site ID	Local Site Name	Valid 2021-2023 Design Value (µg/m³) [1,2]	2021 Annual Mean Value (µg/m³)	2022 Annual Mean Value (µg/m³)	2023 Annual Mean Value (µg/m³)
482730314	National Seashore	9.9	10.09	10.10	9.42

1. The level of the 2024 Annual $PM_{2.5}$ NAAQS is 9.0 micrograms per cubic meter (µg/m³). The design value is the annual mean concentration, averaged over three consecutive years. Monitoring sites must meet the data completeness requirements listed in Appendix N to 40 CFR Part 50 in order to have a valid design value.

2. The design values shown here are computed using Federal Reference Method or equivalent data reported by State, Tribal, and Local monitoring agencies to EPA's Air Quality System (AQS) as of August 8, 2024. Concentrations flagged by State, Tribal, or Local monitoring agencies as having been affected by an exceptional event (e.g., wildfire, volcanic eruption) and concurred by the associated EPA Regional Office are not included in these calculations.

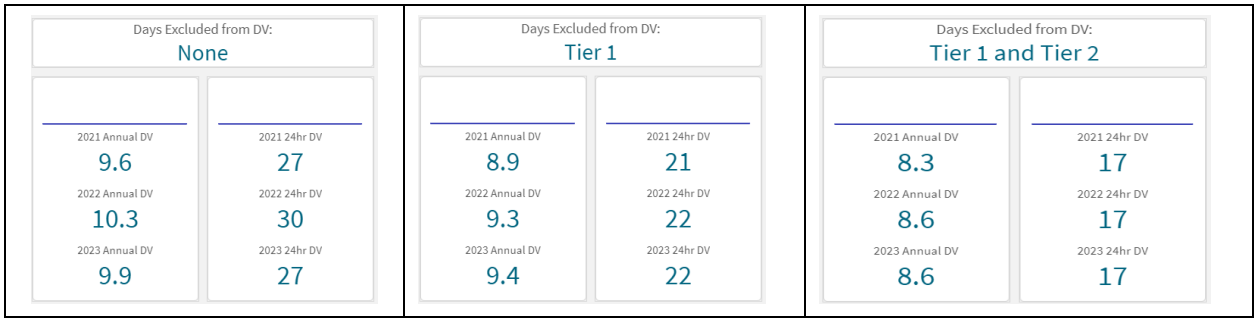
Table 2-3 reports design values trends for the prior three years from the Tiering Tool in addition to the most recent year and shows values between 9.6 to 10.3 µg/m³ over the trend period. Due to incomplete data capture, the 2018-2020 and 2019-2021 annual $PM_{2.5}$ design values at National Seashore are not valid but are reported by the Tiering Tool since its purpose is for Exceptional Events.

Table 2-3. Design Values for National Seashore monitor for duration of the monitoring at this location. Monitoring started on March 14, 2018.

AQS Site ID	Local Site Name	2018-2020 Invalid Annual Design Value (µg/m³)	2019-2021 Invalid Annual Design Value (µg/m³)	2020-2022 Valid Annual Design Value (µg/m³)	2021-2023 Valid Annual Design Value (µg/m³)
482730314	National Seashore	10.2	9.6	10.3	9.9

EPA's $PM_{2.5}$ Tiering Tool has functionality to recalculate the annual $PM_{2.5}$ design values based on exclusion of Tier 1 days or Tier 1 and 2 days. This calculation is useful to assess the impact that removing potential Exceptional Event days may have on monitor design values. Results of the application of this tool for the National Seashore monitor are presented in Table 2-4. This table reproduces the official 2021-2023 design value of 9.9 µg/m³ when the "Days Excluded" setting is set to "None" and very closely replicates the official 2020-2022 design value (i.e., difference of 0.1 µg/m³) and reproduces exactly the unofficial 2019-2021 design value as shown in the left column of Table 2-4. Slight differences between EPA's $PM_{2.5}$ Tiering Tool results and official data have been observed due to unknown reasons. The middle and right panels in Table 2-4 show the EPA's $PM_{2.5}$ Tiering Tool predictions when excluding Tier 1 days, and then Tier 1 and 2 days, respectively, and report that if all Tier 1 and 2 days are excluded from the design value calculation for 2021-2023 the design value is reduced to 8.6 µg/m³, which is below the 2024 annual NAAQS of 9.0 µg/m³. In fact, for the three design value periods analyzed in Table 2-4 all have annual design values below the NAAQS when Tier 1 and 2 days are excluded. In Section 4.0, we perform a similar analysis for the 2021-2023 design value except we exclude the Tier 1 and Tier 2 days where the evidence clearly demonstrates that the day's value is likely due to exceptional events.

Table 2-4. Application of the EPA $PM_{2.5}$ Tiering Tool that recalculates the 2021, 2022, and 2023 annual $PM_{2.5}$ design values after the exclusion of Tier 1 days and Tier 1 and 2 days (Accessed August 20, 2024).



3.0 NATIONAL SEASHORE AND EXCEPTIONAL EVENTS DEMONSTRATION APPLICABILITY

The Texas Commission on Environmental Quality (TCEQ) has performed several Exceptional Event Demonstrations (EED) for Particulate Matter (PM) that are documented on the TCEQ EED for PM website. The Texas PM Exceptional Events were mostly due to either local windblown dust (WBD) or long-range transport of dust from Africa (Saharan Dust) but also mentions wildfires as an example Exceptional Event.

3.1 Potential $PM_{2.5}$ Exceptional Events at the National Seashore Monitor Site

We analyzed several satellite, air quality and meteorological products for the National Seashore monitor 2021-2023 Tier 1 and 2 days to produce evidence for several types of Exceptional Events:

- Local Windblown Dust (WBD);
- Saharan Dust;
- U.S. Open Land Fires (i.e., wildfires and prescribed burns); or
- International Open Land Fires.

3.2 Requirements for an Exceptional Event Demonstration

The website for the Final 2016 Exceptional Event Rule provides numerous guidance and reference documents that document the requirements of an Exceptional Event Demonstration (EED). An EED must provide evidence of the first three prongs of the requirements for an Exceptional Event that convinces the EPA that the event is an Exceptional Event (the fourth prong):

1. Affects air quality;
2. Is not reasonably controllable;
3. Is an event caused by human activity that is unlikely to recur at a particular location or a natural event; and
4. Is determined by the EPA through a process established in the regulations.

3.3 Validity of Mexico Fires Qualifying for Exceptional Events

Elevated PM concentrations due to windblown dust, Saharan dust, wildfires and prescribed burns have in the past all been identified as Exceptional Events. U.S. agricultural fires typically are not determined to be Exceptional Events because they are reasonably controllable (e.g., agencies can call for no burns days when dispersion conditions are not favorable) and are manmade and can recur at the same location (i.e., do not satisfy prongs 2 and 3).

Rodriguez and Morris (2024) researched the causes of fires in Mexico and documented the results in an August 2024 report "Fires in Mexico as Exceptional Events: Documentation and Implications." The Mexican government reports on the causes of fires in Mexico and in more recent years (e.g., 2021-2024) approximately 20% of the fires are agricultural burning with approximately 10% due to burning for livestock. Of the roughly 30% that are agricultural or livestock-related, many are for one-time clearing and there is no evidence that they recur in the same location. The remaining 70% of the fires are wildland fires that also do not recur

at the same location. Furthermore, since wildland fires can be larger and burn more biomass than agricultural burning, they produce more of the smoke from the fires in Mexico that impact $PM_{2.5}$ concentrations in southeast Texas. The Mexican government found that most fires in Mexico are started by human activity. Figure 3-1 shows the probable causes of fires in Mexico from 2019 to 2023 and partial data for 2024 (January to August) as reported by the Mexican government. These are the main factors in the figure that contribute to occurrence of fires:

- Unknown: Includes accidental ignitions and fires started with no specific or unknown causes.
- Intentional: Includes efforts to clear land for development or other land use changes, vandalism and fires started by disputes over land.
- Agricultural: Includes fires started by traditional slash-and-burn farming methods (roza y quema) where the crop residue from the previous year is burned to provide fertilizer and prepare the field for planting. Farmers also clear small plots of land by cutting down vegetation and burning it to develop a new field for planting of crops. This land-clearing is not recurring. Once the land is in agricultural use, the clearing is not a recurring need. Sometimes these agricultural fires can get out of control and spread to larger areas and become wildfires.
- Livestock: Similar to agricultural fires for land clearing, but the land is cleared to support livestock. This land-clearing is also likely not recurring. Once the land is in livestock use, the clearing is no longer needed on a recuring basis.
- Other Anthropogenic Causes: Includes fires caused by improper disposal of cigarette butts, campfires left unattended, or burning debris during windy conditions that can spread flames to unintended areas. It also includes fires started by hunters, fireworks at festivities, clearing land for other economic reasons or to open and clean roads from debris. It also includes prescribed fires.
- Natural: Includes fires started mostly by lightning during storms, but also volcanic activity in central Mexico (Popocatépetl, Volcán de Colima).

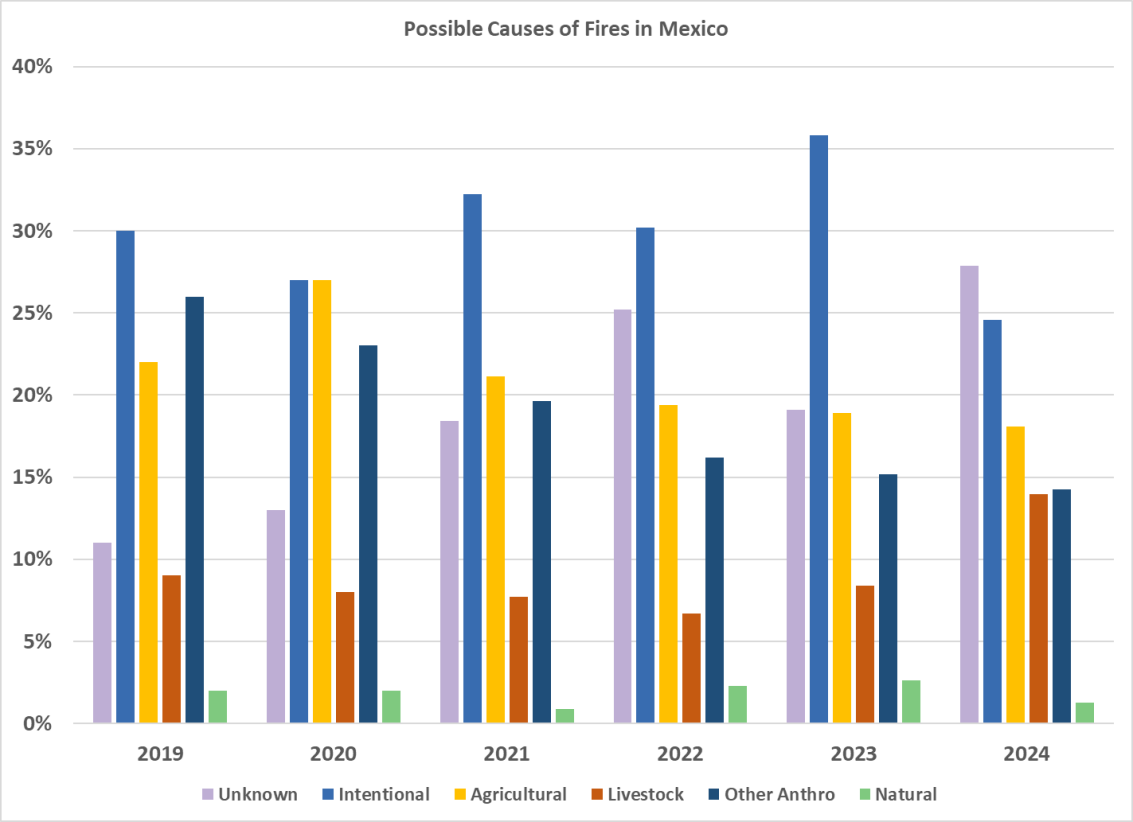


Figure 3-1. Possible causes of fires in Mexico from 2019 to 2024. Partial data for 2024 (January to August).

Figure 3-1 shows that agricultural fires are 18-21% of the fires in most recent years (2021-2024). About 10% of fires are to clear land for use by livestock are likely non-recurring as once the land is cleared it does not need to be burned again. In the past for at least one case EPA has classified burns for livestock as prescribed fires and approved them as Exceptional Events.[1] However, both agricultural and livestock activities account for approximately 30% of the fires each year in Mexico and would be much less than 30% of the smoke produced by fires in Mexico as they tend to be smaller and burn less biomass than many other types of fires (e.g., forest fires). This means that over 70% of the fires and well over 70% of the smoke produced by fires in Mexico every year are caused by human activity but they are not "reasonably controllable or preventable" and are "unlikely to recur at a particular location."

The Mexican Government has set goals with the intent to reduce the recurring burning of agricultural land by 40 percent by 2024[2]. The Secretaría de Agricultura y Desarrollo Rural (SADER) is the Mexican Ministry of Agriculture and Rural Development and launched the

[1] https://www.kdhe.ks.gov/DocumentCenter/View/2209/Environmental-Protection-Agency-Region-7-Exceptional-Event-Flag-Concurrence-Letter-PDF

[2] Mexico Business. SADER to Reduce Recurring Burning of Agricultural Land. Accessed August 2024 at: https://mexicobusiness.news/agribusiness/news/sader-reduce-recurring-burning-agricultural-land

program "Mi Parcela no se quema" (my plot does not burn) in 2020[3] to promote the use of sustainable alternatives that reduce agricultural burning, such as waste management practices. Thus, the amount of agricultural burns in Mexico has been reduced in more recent years (e.g., 2021-2024).

Forest fires in Mexico are mainly caused by human activities either on purpose (e.g., to clear land for development) or by accident. In either event, such forest fires will not recur as once the forest is burned at a specific location the biomass is consumed. Global Forest Watch[4] is a website that documents deforestation due to forest fires across the globe, including Mexico. Figure 3-2 from the Global Forest Watch website shows areas in Mexico with tree loss due to forest fires in pink with the east coast states adjacent to the Gulf of Mexico (e.g., Yucatán, Veracruz, and Tabasco) having some of the highest rate of tree loss due to forest fires. These states are right across the Gulf of Mexico from southwest Texas and the smoke from these wildland fires are transported north by the prevailing winds to contribute to $PM_{2.5}$ concentrations in southeast Texas

Rodriguez and Morris (2024) provide additional evidence that a vast majority of the smoke from fires in Mexico are not agricultural burns and do not recur and thus satisfy the requirements of being an Exceptional Event.

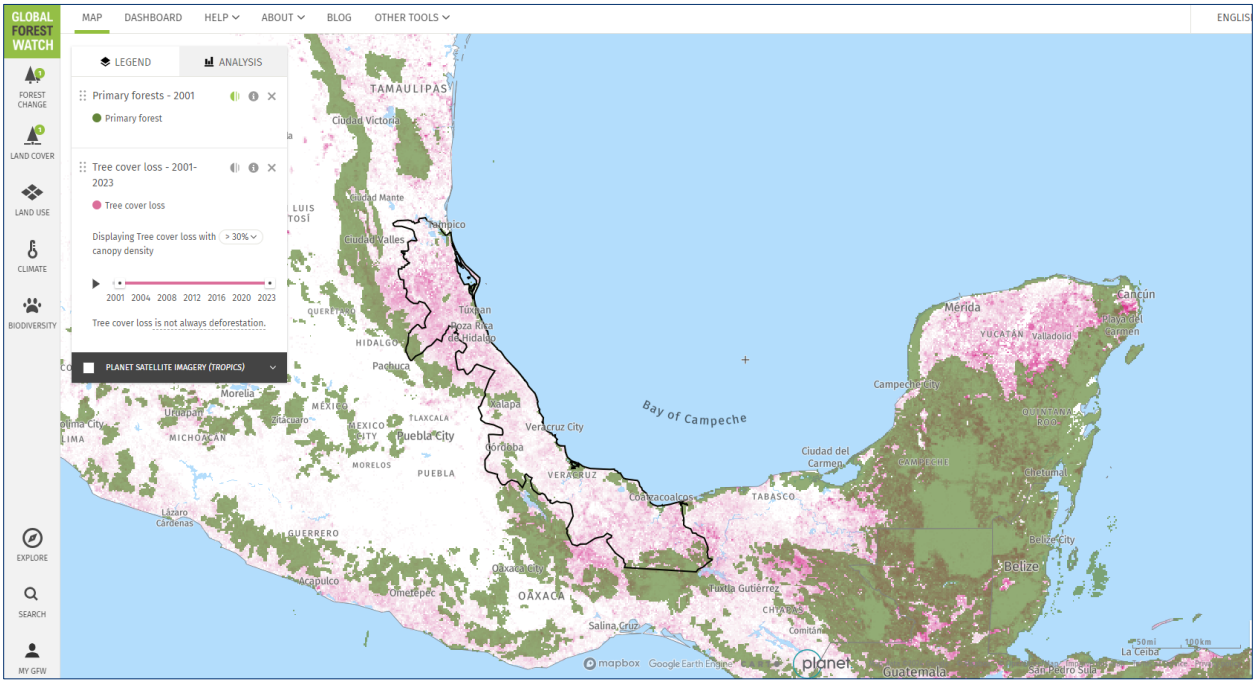


Figure 3-2. Locations of tree cover loss in southeastern Mexico (pink areas) that is primarily caused by forest fires.

[3] Secretaria de Agricultura y Desarrollo Rural (SADER). Mi Parcela No Se Quema. Accessed August 2024 at: https://www.gob.mx/agricultura/acciones-y-programas/miparcelanosequema

[4] https://www.globalforestwatch.org/

4.0 EVIDENCE FOR EXCEPTIONAL EVENT DEMONSTRATION FOR NATIONAL SEASHORE

EPA's April 30, 2024 tiering document has streamlined the Exceptional Events Demonstration requirements for Tier 1 and 2 days as discussed in Table 1-1 earlier.

4.1 Pieces of Evidence to Support Exceptional Event Demonstration for 2021-2023 Tier 1 and 2 Days at National Seashore

During 2021-2023 there are 91 Tier 1 and 2 days at the National Seashore monitoring site that are listed in Table 4-1. For each National Seashore Tier 1 and 2 day during 2021-2023, we tabulated the daily 24-hour $PM_{2.5}$ concentration and present four pieces of evidence that will indicate whether the elevated daily $PM_{2.5}$ concentration is due to emissions from fires in Mexico and/or Central America or other types of Exceptional Events. The four pieces of evidence are as follows:

1. NOAA Hazard Mapping System (HMS) smoke maps and satellite imagery to assess cloud cover[5]
2. HYSPLIT back-trajectories superimposed on smoke/fires[6]
3. Daily pollution roses[7]
4. AirNow surface monitoring data and contours[8]

[5] https://www.ospo.noaa.gov/products/land/hms.html
[6] https://www.ready.noaa.gov/HYSPLIT.php
[7] https://www.airnowtech.org/index.cfm?page=login
[8] https://www.airnowtech.org/

Table 4-1. 2021-2023 Days that exceed the Tier 1 and/or Tier 2 Thresholds

National Seashore Tier 1& Tier 2 Days (91 total days, includes 22 Tier 1 days)					
48-273-0314					
2021		2022		2023	
1/25/2021	33.0	1/1/2022	30.0	1/3/2023	25.1
2/4/2021	18.8	3/25/2022	30.5	1/16/2023	24
3/23/2021	22.8	3/30/2022	20.1	1/18/2023	25.3
3/27/2021	24.0	3/31/2022	19.1	2/14/2023	21.8
4/7/2021	19.8	4/10/2022	19.2	2/22/2023	21.2
4/9/2021	28.0	4/11/2022	21.7	3/2/2023	21.5
4/10/2021	18.4	4/12/2022	21.7	4/4/2023	18.4
4/12/2021	20.9	4/13/2022	27.7	4/5/2023	20.1
4/13/2021	21.6	4/14/2022	18.9	5/5/2023	22.2
4/28/2021	25.0	5/6/2022	21.7	5/6/2023	18.3
4/29/2021	24.4	5/7/2022	23.1	5/7/2023	19.4
5/3/2021	32.7	5/20/2022	26.6	5/8/2023	19.2
5/4/2021	35.0	5/28/2022	18.3	6/13/2023	19
5/9/2021	25.2	6/11/2022	23.6	6/14/2023	22.2
6/7/2021	27.3	6/12/2022	48.5	6/19/2023	19.3
6/8/2021	18.7	6/13/2022	36.4	7/13/2023	19.3
6/20/2021	38.8	6/14/2022	29.8	7/14/2023	18.5
6/21/2021	34.1	6/15/2022	38.5	7/15/2023	24.2
6/22/2021	26.4	6/16/2022	46.0	7/16/2023	24.6
7/11/2021	28.6	6/17/2022	28.8	7/18/2023	19.2
7/12/2021	26.7	6/23/2022	18.5	7/19/2023	20.1
7/23/2021	18.8	7/16/2022	27.3	7/25/2023	22.3
7/24/2021	25.6	7/17/2022	34.6	7/26/2023	26.5
8/21/2021	19.9	7/21/2022	24.7	7/27/2023	29.6
8/30/2021	19.0	10/24/2022	19.2	7/28/2023	23.3
8/31/2021	19.6	11/29/2022	16.9	10/13/2023	14.3
9/1/2021	21.6	12/29/2022	19.7	11/30/2023	18.1
9/3/2021	23.3			12/1/2023	20.7
9/4/2021	34.9			12/14/2023	18.5
9/5/2021	20.8				
9/6/2021	20.2				
9/7/2021	19.7				
10/11/2021	15.2				
12/29/2021	29.3				
12/31/2021	20.4				

4.2 Example Exceptional Events Demonstration for June 12, 2022

This section presents the set of evidence for June 12, 2022, as a sample day. The same analysis is provided in Appendices A through C for all Tier 1 and 2 days at National Seashore monitor in, respectively, 2021, 2022 and 2023.

Table 4-2 shows the format of the tabulated $PM_{2.5}$ concentration for the specific analysis day with the Tier 1 and Tier 2 thresholds for that day, and it also serves as section header for each analysis day in the Appendices.

Table 4-2. Measured 24-hour $PM_{2.5}$ concentrations above the Tier 1 Threshold.

Date	24-hour $PM_{2.5}$ conc. ($\mu g/m^3$)	Tier 2 Threshold ($\mu g/m^3$)	Tier 1 Threshold ($\mu g/m^3$)
06/12/2022	48.5	18.1	27.15

4.2.1 Evidence #1: HMS Smoke and Visual Satellite Image Maps

Figure 4-1 presents the Evidence #1 listed above that includes the integrated daily HMS smoke maps and visual satellite imagery. The HMS smoke maps are generated daily by trained analysts at NOAA that draw polygons of light, medium and heavy smoke based on satellite observations. They are posted daily on the HMS Fire and Smoke website with kml files of the smoke polygons for historical days archived that we downloaded for display using Goggle Earth as in the top map in Figure 4-1. Because clouds can obscure the NOAA analysis from seeing the smoke in the satellite data, we also displays the satellite visual imagery in the bottom map in Figure 4-1 to determine whether smoke could be present but could not be seen by the NOAA analyst to generate the smoke polygons. For example, for the first day in Appendix A (1/25/2021), the NOAA analysts locates a clear plume of smoke emanating from fires in Mexico heading north that stops just south of Texas in the HMS smoke product. An examination of the visual satellite imagery reveals that clouds were obscuring the smoke so the evidence on this day is ruled inconclusive (I) rather than indicating that smoke was or was not present. Other evidence on this day, such as all of the most southern monitors in Texas exhibited elevated $PM_{2.5}$ concentrations, indicated that the smoke from fires in Mexico did influence $PM_{2.5}$ concentrations at the National Seashore monitoring site.

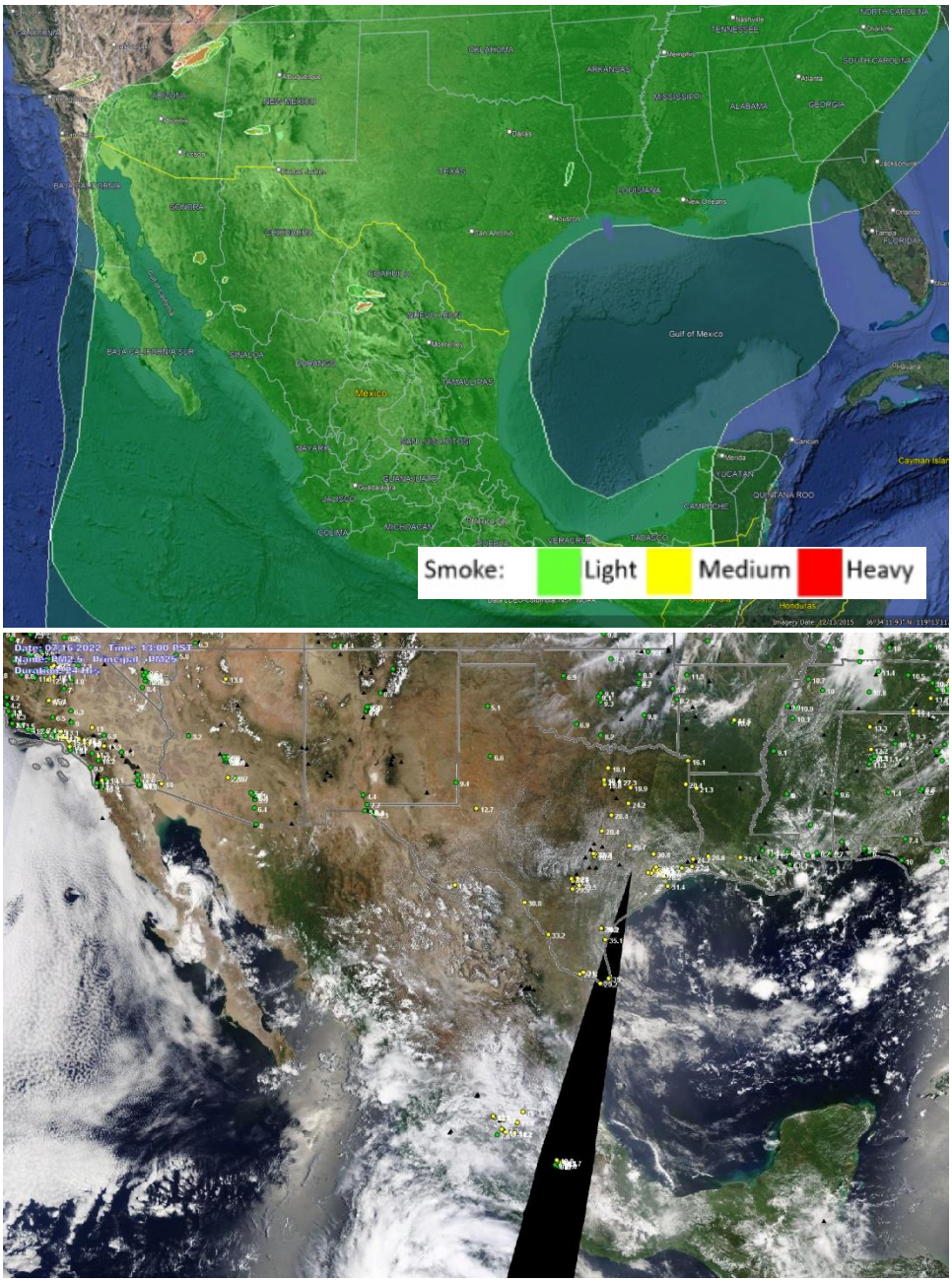


Figure 4-1. Sample day evidence #1: Satellite HMS smoke polygon and visual imagery to assess cloud cover (06/12/2022).

4.2.2 Evidence #2: Back Trajectories Overlaid on Fire Locations

Figure 4-2 to 4-4 are presentations for Evidence #2. These plots are HYSPLIT back-trajectories for a 4-day (96-hour) duration that are initiated from the National Seashore monitor location at 1-hour intervals for 24-hours. The 24-hours represent the 24-hours that are the basis of the daily average $PM_{2.5}$ concentration on the Tier 1 or 2 day being analyzed. The first plot uses a back trajectory with an ending height over the National Seashore monitor of 50 m (Figure 4-2), the second plot has an ending height of 100 m (Figure 4-3) and the third at 500 m (Figure 4-4). Although back trajectories in general may have some uncertainty, on this day they do show that air parcels from fires in Mexico are advected to the National Seashore monitor arriving on the day with the Tier 1 or 2 day. Note that the back trajectories on June 12, 2022 pass right over the Mexican states of Yucatán, Veracruz, and Tabasco that had some of the highest amounts of forest lost due to fires as shown in Figure 3-2.

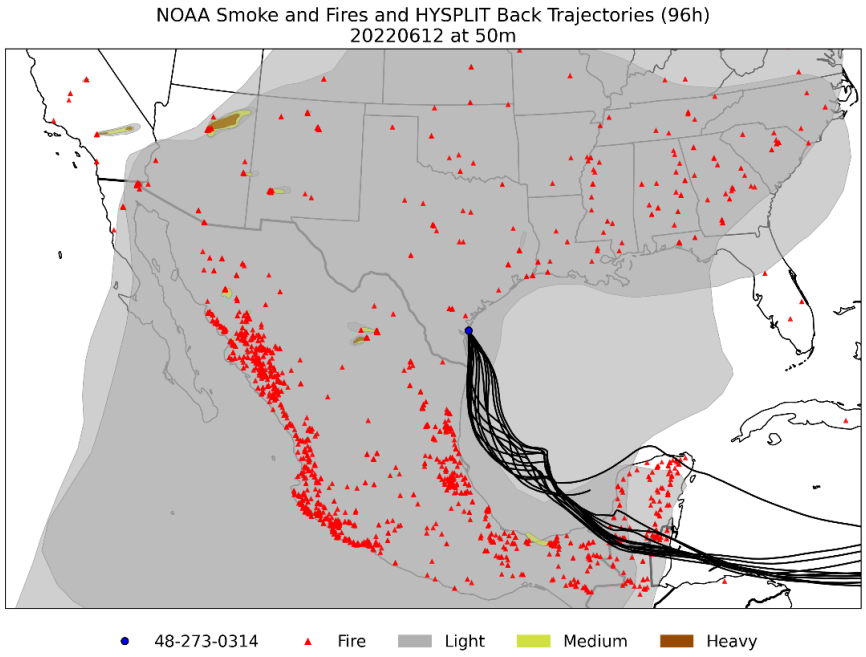


Figure 4-2. Sample day evidence #2a: HYSPLIT back-trajectories for 4-day duration superimposed on HMS smoke and fires at 50 meters ending height above the National Seashore monitor (06/12/2022).

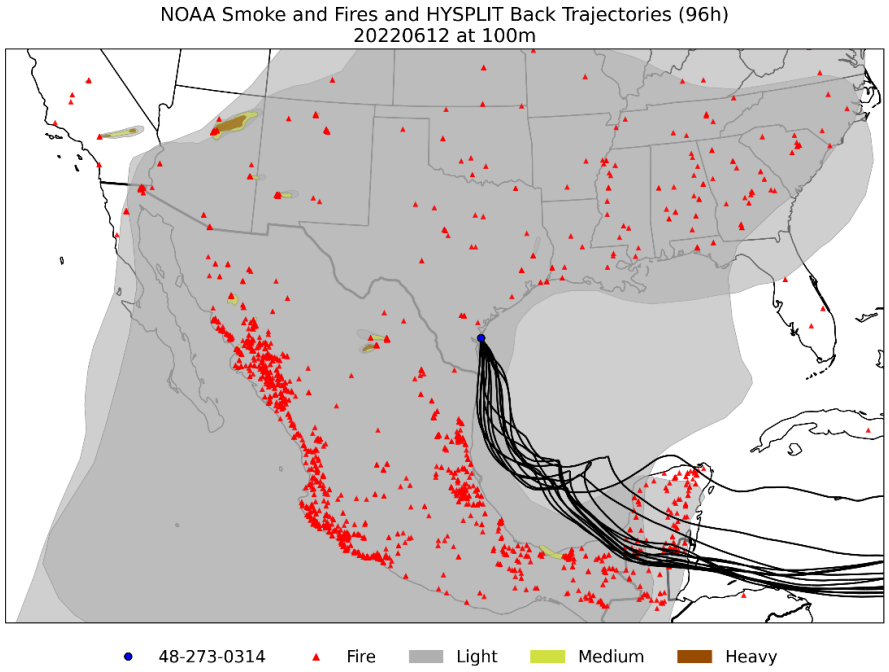


Figure 4-3. Sample day evidence #2b: HYSPLIT back-trajectories for 4-day duration superimposed on HMS smoke and fires at 100 m ending height above the National Seashore monitor (06/12/2022).

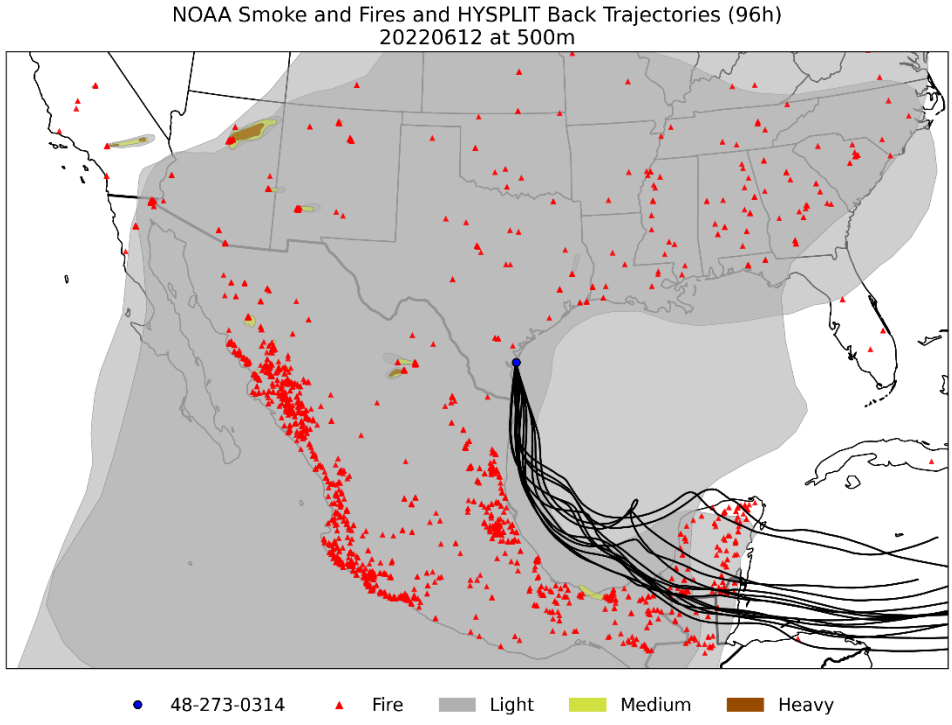


Figure 4-4. Sample day evidence #2c: HYSPLIT back-trajectories for 4-day duration superimposed on HMS smoke and fires at 500 m ending height above the National Seashore monitor (06/12/2022).

4.2.3 Evidence #3: Pollution Roses

The third piece of evidence in Figure 4-5 is a pollution rose that is based on hourly data for the 24-hours of the potential Exceptional Event day and highlights directions from which the hourly $PM_{2.5}$ concentration arrived at the monitor. The example pollution rose for the National Seashore monitor on June 12, 2022 is shown in Figure 4-5. The pollution rose plots the frequency of occurrence the hourly wind direction is blowing from as petals with the hourly $PM_{2.5}$ concentrations as shading of the petals. On this day the pollution rose shows winds were coming from the southwest and south-southwest in the direction of Mexico with hourly $PM_{2.5}$ concentrations in excess of 50 µg/m^3 for some hours.

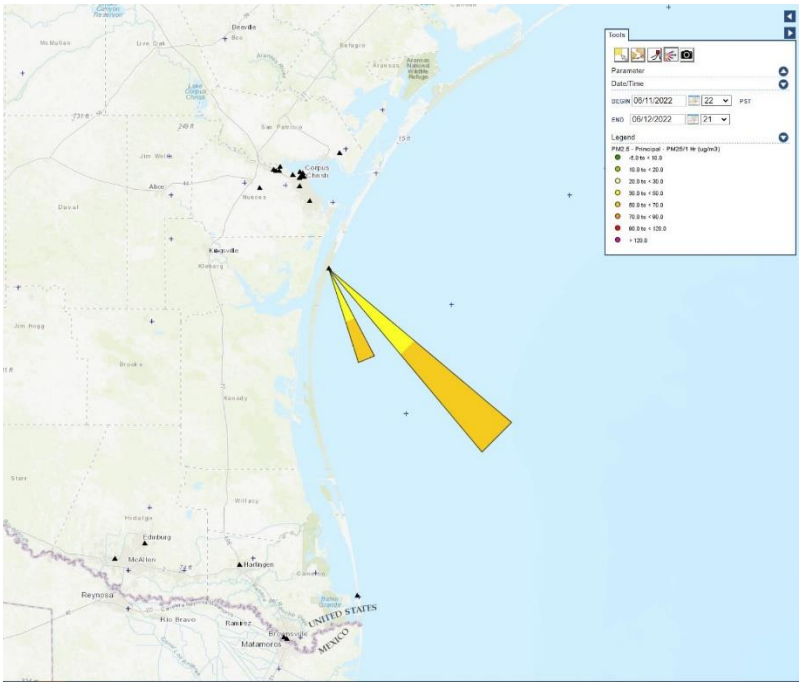


Figure 4-5. Sample day evidence #3: Pollution rose based on hourly data for the 24-hrs of the daily $PM_{2.5}$ concentration (06/12/2022).

4.2.4 Evidence #4: AirNow Regional $PM_{2.5}$ Concentrations

Figure 4-6 shows regional surface-level daily $PM_{2.5}$ Air Quality Index (AQI) values that are related to the 24-hour $PM_{2.5}$ concentrations and are based on AirNow surface monitoring data and indict the spatial extent of high surface-level $PM_{2.5.}$ for the fourth piece of evidence. This is provided since the satellite smoke maps cannot differentiate smoke plumes aloft from surface-level smoke so these maps show that the smoke was at ground level and impacted numerous surface monitoring sites along the Gulf Coast in southeast Texas.

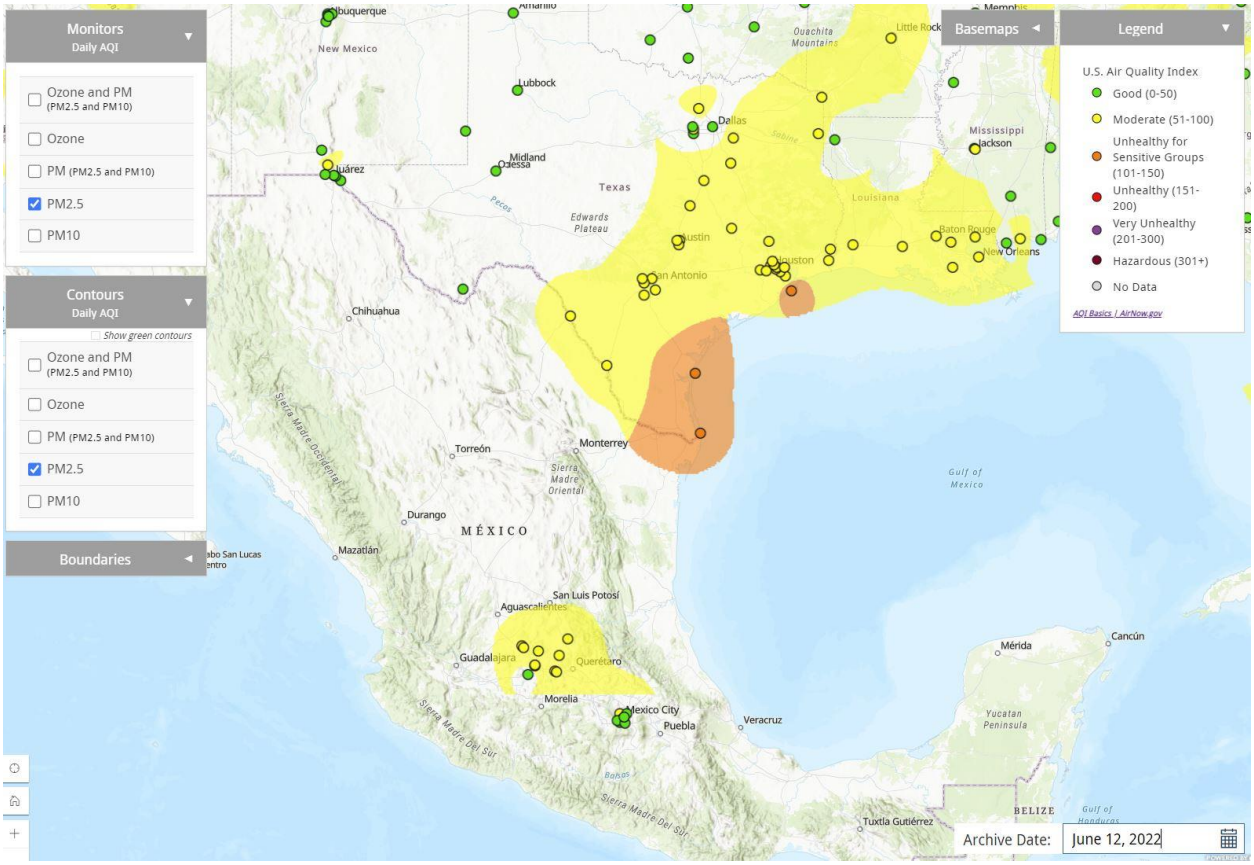


Figure 4-6. Sample day evidence #4: EPA AirNow $PM_{2.5}$ surface monitor data and contours to illustrate regional extent of surface impacts (06/12/2022).

4.3 Exceptional Event Demonstration Evidence Summary for National Seashore 2021 to 2023

This section presents a summary of the Exceptional Event evidence to assess whether the high $PM_{2.5}$ concentrations on Tier 1 and Tier 2 days could be due to exceptional events. The set of analysis products is analogous to the sample set for 6/12/2022 that was shown in the previous section. The full set of exceptional event analysis products is compiled into Appendices A through C and are summarized in the tables below. Table 4-3 is a listing of the codes and their interpretations that are used in the subsequent Tables. Table 4-4 through 4-6 present a summary of the results of the Exceptional Event analysis for the years 2021, 2022, and 2023, respectively using the evidence presented in Appendices A through C. The final column indicates whether the day could be classified as an Exceptional Event, and the type of Exceptional Event. In this preliminary analysis we determined that, 80 of the 91 Tier 1 and 2 days at National Seashore in 2021-2023 have sufficient evidence to classify them as Exceptional Events. In the next section, we re-calculate the 2021-2023 design value with those 80 Exceptional Event days excluded.

Table 4-3. Codes for the summary of evidence for Exceptional Events tables.

Code	Interpretation
#1 HMS Smoke Maps	
I	Inconclusive due to cloud cover that is obscuring the smoke
Y-MX	Smoke plume covering or close to the National Seashore monitor and extends from Mexico and/or Gulf of Mexico region
Y-N	Smoke plume covering or close to the National Seashore monitor that primarily extends to the north
Y-N + MX	Smoke plume covering or close to the National Seashore monitor that extends to the north and also plumes from Mexico region
N	Clear conditions and no evidence of smoke near the National Seashore monitor
#2 HYSPLIT Back Trajectories	
Y-MX	Back-trajectory extends to Mexico or Gulf of Mexico region and there is evidence of smoke and fires along the path
L	Trajectories suggest local impacts
Y(S)	Direction consistent with Saharan dust
i	Inconsistent with smoke plume direction
#3 Pollution Rose	
Y	Indicates direction is consistent with back trajectories and/or direction of smoke plumes
i	Indicates direction is inconsistent with back trajectories and/or direction of smoke plumes
#4 AirNow PM2.5 Regional Extent	
Y	$PM_{2.5}$ AQI for National Seashore AND regional monitors is high (yellow, orange, red, purple, etc.) to indicate high surface-level PM2.5 is a regional
n	$PM_{2.5}$ AQI for National Seashore AND regional monitors is low to indicate a local phenomenon or relatively low PM2.5
Dust	
w	Windblown dust, per NOAA HMS text product
S	Saharan dust, per NOAA text product.
Exceptional. Event Day	
Yes (MX)	Potential exceptional event day from Mexico fires
Yes (Sahara)	Potential exceptional event day from Saharan dust
Yes (US fire)	Potential exceptional event day from US wildfires
Yes (MX + LOC)	Potential exceptional event day from Mexico fires and/or local fires
No (ag)	Evidence does not suggest Mexico fire, US wildfire, nor dust exceptional event. High $PM_{2.5}$ appears to be due to US agricultural burning
No (Local)	Evidence does not suggest Mexico fire, US wildfire, nor dust exceptional event. High $PM_{2.5}$ appears to be localized
No	Evidence does not suggest Mexico fire or US wildfire exceptional event nor dust exceptional event. No apparent cause of high $PM_{2.5}$

Table 4-4. Summary of evidence for preliminary exceptional events for 2021.

Date	24-hour $PM_{2.5}$	Tier Level	#1 HMS Smoke	#2 Back Trajectory	#3 Pollution Rose	#4 AirNow PM2.5	Dust	Except. Event Day
1/25/2021	33.0	1	I	Y-MX	Y	Y		**Yes (MX)**
2/4/2021	18.8	2	I	Y-MX	Y	Y		**Yes (MX)**
3/23/2021	22.8	2	Y-MX	Y-MX	i	Y	w	**Yes (MX)**
3/27/2021	24.0	2	Y-MX	Y-MX	Y	Y		**Yes (MX)**
4/7/2021	19.8	2	I	Y-MX	Y	Y		**Yes (MX)**
4/9/2021	28.0	1	Y-MX	Y-MX	Y	Y		**Yes (MX)**
4/10/2021	18.4	2	Y-MX	Y-MX	i	Y		**Yes (MX)**
4/12/2021	20.9	2	Y-MX	Y-MX	i	Y		**Yes (MX)**
4/13/2021	21.6	2	Y-MX	Y-MX	i	Y		**Yes (MX)**
4/28/2021	25.0	2	Y-MX	Y-MX	Y	Y		**Yes (MX)**
4/29/2021	24.4	2	Y-MX	Y-MX	Y	Y		**Yes (MX)**
5/3/2021	32.7	1	Y-MX	Y-MX	Y	Y		**Yes (MX)**
5/4/2021	35.0	1	Y-MX	Y-MX	i	Y		**Yes (MX)**
5/9/2021	25.2	2	Y-MX	Y-MX	Y	Y		**Yes (MX)**
6/7/2021	27.3	1	Y-MX	Y-MX	Y	Y		**Yes (MX)**
6/8/2021	18.7	2	Y-MX	Y-MX	Y	Y		**Yes (MX)**
6/20/2021	38.8	1	I	L	Y	Y		**No (Local)**
6/21/2021	34.1	1	Y-N	L	Y	Y		**No (Local)**
6/22/2021	26.4	2	Y-MX	Y	Y	Y		**Yes (MX)**
7/11/2021	28.6	1	Y-N	Y(S)	Y	Y	S	**Yes (Sahara)**
7/12/2021	26.7	2	Y-N	i	Y	Y		**Yes (US fire)**
7/23/2021	18.8	2	Y-N	Y(S)	Y	Y	S	**Yes (Sahara)**
7/24/2021	25.6	2	Y-N	Y(S)	Y	Y	S	**Yes (Sahara)**
8/21/2021	19.9	2	I	i	Y	Y		**No**
8/30/2021	19.0	2	Y-MX	Y	i	Y		**Yes (MX)**
8/31/2021	19.6	2	Y-MX	Y	Y	Y		**Yes (MX)**
9/1/2021	21.6	2	Y-MX	Y	Y	Y		**Yes (MX)**
9/3/2021	23.3	2	Y-N	Y	Y	Y	S	**Yes (Sahara)**
9/4/2021	34.9	1	Y-N	Y(S)	Y	Y	S	**Yes (Sahara)**
9/5/2021	20.8	2	Y-N	Y(S)	Y	Y	S	**Yes (Sahara)**
9/6/2021	20.2	2	Y-N	i	Y	Y		**No (ag)**
9/7/2021	19.7	2	Y-N	i	i	Y		**No (ag)**
10/11/2021	15.2	2	Y-MX	Y	Y	Y		**Yes (MX)**
12/29/2021	29.3	1	Y-MX	Y	Y	Y		**Yes (MX)**
12/31/2021	20.4	2	Y-MX	Y	Y	Y		**Yes (MX)**

Table 4-5. Summary of evidence for preliminary exceptional events for 2022.

Date	24-hour $PM_{2.5}$	Tier Level	#1 HMS Smoke	#2 Back Trajectory	#3 Pollution Rose	#4 AirNow PM2.5	Dust	Except. Event Day
1/1/2022	30	1	Y-MX	Y	Y	Y		**Yes (MX)**
3/25/2022	30.5	1	Y	Y	Y	Y		**Yes (MX + LOC)**
3/30/2022	20.1	2	Y	Y	Y	Y	W	**Yes (MX + LOC)**
3/31/2022	19.1	2	Y	Y	Y	Y		**Yes (MX + LOC)**
4/10/2022	19.2	2	Y-MX	Y	Y	Y		**Yes (MX)**
4/11/2022	21.7	2	Y-MX	Y	Y	Y		**Yes (MX)**
4/12/2022	21.7	2	Y-MX	Y	Y	Y		**Yes (MX)**
4/13/2022	27.7	1	Y-MX	Y	Y	Y		**Yes (MX)**
4/14/2022	18.9	2	Y-MX	Y		Y		**Yes (MX)**
5/6/2022	21.7	2	Y-MX	Y	Y	Y		**Yes (MX)**
5/7/2022	23.1	2	Y-MX	Y	Y	Y		**Yes (MX)**
5/20/2022	26.6	2	Y-MX	Y	Y	Y		**Yes (MX)**
5/28/2022	18.3	2	Y-MX	Y	Y	Y		**Yes (MX)**
6/11/2022	23.6	2	Y-MX	Y	Y	Y		**Yes (MX)**
6/12/2022	48.5	1	Y-MX	Y	Y	Y		**Yes (MX)**
6/13/2022	36.4	1	Y-MX	Y	Y	Y		**Yes (MX)**
6/14/2022	29.8	1	Y-N	i	i	Y		**Yes (US fire)**
6/15/2022	38.5	1	Y-N	i	i	Y		**Yes (US fire)**
6/16/2022	46	1	Y-N	i	i	Y		**Yes (US fire)**
6/17/2022	28.8	1	Y-N	Y	Y	Y		**Yes (US fire)**
6/23/2022	18.5	2	Y-N	Y	Y	Y		**Yes (US fire)**
7/16/2022	27.3	1	Y-N	Y(S)	Y	Y	S	**Yes (Sahara)**
7/17/2022	34.6	1	Y-N	Y(S)	Y	Y	S	**Yes (Sahara)**
7/21/2022	24.7	2	Y-N + MX	Y	Y	Y		**Yes (MX)**
10/24/2022	19.2	2	I	i	i	Y		**No**
11/29/2022	16.9	2	Y-MX	Y	Y	Y		**Yes (MX)**
12/29/2022	19.7	2	Y-MX	Y	Y	Y		**Yes (MX)**

Table 4-6. Summary of evidence for preliminary exceptional events for 2023.

Date	24-hour $PM_{2.5}$	Tier Level	#1 HMS Smoke	#2 Back Trajectory	#3 Pollution Rose	#4 AirNow PM2.5	Dust	Except. Event Day
1/3/2023	25.1	2	Y-MX	Y	Y	Y		**Yes (MX)**
1/16/2023	24	2	Y-MX	Y	Y	Y		**Yes (MX)**
1/18/2023	25.3	2	Y-MX	Y	Y	Y	W	**Yes (MX)**
2/14/2023	21.8	2	Y-MX	Y	Y	Y	W	**Yes (MX)**
2/22/2023	21.2	2	Y-MX	Y	Y	Y		**Yes (MX)**
3/2/2023	21.5	2	Y-MX	Y	Y	Y		**Yes (MX)**
4/4/2023	18.4	2	Y-MX	Y	Y	Y		**Yes (MX)**
4/5/2023	20.1	2	Y-MX	Y	Y	Y		**Yes (MX)**
5/5/2023	22.2	2	Y-MX	Y	Y	Y		**Yes (MX)**
5/6/2023	18.3	2	Y-MX	Y	Y	Y		**Yes (MX)**
5/7/2023	19.4	2	Y-MX	Y	Y	Y		**Yes (MX)**
5/8/2023	19.2	2	Y-MX	Y	Y	Y		**Yes (MX)**
6/13/2023	19	2	Y-MX	Y	Y	Y		**Yes (MX)**
6/14/2023	22.2	2	Y-MX	Y	Y	Y		**Yes (MX)**
6/19/2023	19.3	2	Y-MX	Y	Y	Y		**Yes (MX)**
7/13/2023	19.3	2	Y-N	i	i	Y		No
7/14/2023	18.5	2	Y-MX	Y	Y	Y		**Yes (MX)**
7/15/2023	24.2	2	Y-MX	Y	Y	Y		**Yes (MX)**
7/16/2023	24.6	2	Y-MX	Y	Y	Y		**Yes (MX)**
7/18/2023	19.2	2	Y-MX	Y	Y	Y		**Yes (MX)**
7/19/2023	20.1	2	Y-MX	Y	Y	Y		**Yes (MX)**
7/25/2023	22.3	2	Y-N	Y(S)	Y	Y	S	**Yes (Sahara)**
7/26/2023	26.5	2	Y-N	Y(S)	Y	Y	S	**Yes (Sahara)**
7/27/2023	29.6	1	Y-N	Y(S)	Y	Y	S	**Yes (Sahara)**
7/28/2023	23.3	2	Y-N	Y(S)	Y	Y	S	**Yes (Sahara)**
10/13/2023	14.3	2	Y-MX	i	i	n		**No**
11/30/2023	18.1	2	I	i	i	n		**No**
12/1/2023	20.7	2	I	i	i	i		**No**
12/14/2023	18.5	2	I	i	i	Y		**No (ag)**

4.4 Recalculation of 2021-2023 Design Value with Potential 2021-2023 Exceptional Event Days Excluded

This section presents the 2021-2023 design value recalculation with consideration of the 80 potential Exceptional Event days. Table 4-7 reports the 2021-2023 $PM_{2.5}$ design values and annual average $PM_{2.5}$ concentrations for 2021–2023, with and without the 80 days that were assessed to be Exceptional Events. The 2021-2023 design value is reduced to 8.7 µg/m^3 when the 80 potential exceptional event days are excluded. For each year, the annual mean is reduced to less than 9.0 µg/m^3. The analogous quarterly average results are presented in Table 4-8 which show a reduction for all quarters except 2023 Q4.

Table 4-7. Impact of 80 potential EE Days on 2021-2023 Design Value and Annual Averages.

Scenario	2021-2023 Design Value (µg/m^3)	2021 Annual Mean Value (µg/m^3)	2022 Annual Mean Value (µg/m^3)	2023 Annual Mean Value (µg/m^3)
No consideration of exceptional event days	9.9	10.09	10.10	9.42
80 exceptional event days excluded	8.7	8.82	8.86	8.43

Table 4-8. Impact of 80 potential EE Days on 2021-2023 Quarterly Means (µg/m^3)

Scenario	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2023 Q2	2023 Q3	2023 Q4
Without EEs	9.72	13.31	10.31	7.01	8.63	14.69	9.63	7.46	9.98	10.60	10.69	6.41
80 EEs	9.00	11.16	8.61	6.50	7.86	11.47	8.89	7.22	9.02	9.38	8.91	6.41

5.0 REFERENCES

Rodriguez, M. and R. Morris, 2024. Fires in Mexico as Exceptional Events: Documentation and Implications. Ramboll, Novato, California and Fort Collins, Colo0rado. August.

APPENDIX A

Evidence for Exception Events at National Seashore for 2021 Tier 1 and 2 Days

APPENDIX B

Evidence for Exception Events at National Seashore for 2022 Tier 1 and 2 Days

APPENDIX C

Evidence for Exception Events at National Seashore for 2023 Tier 1 and 2 Days

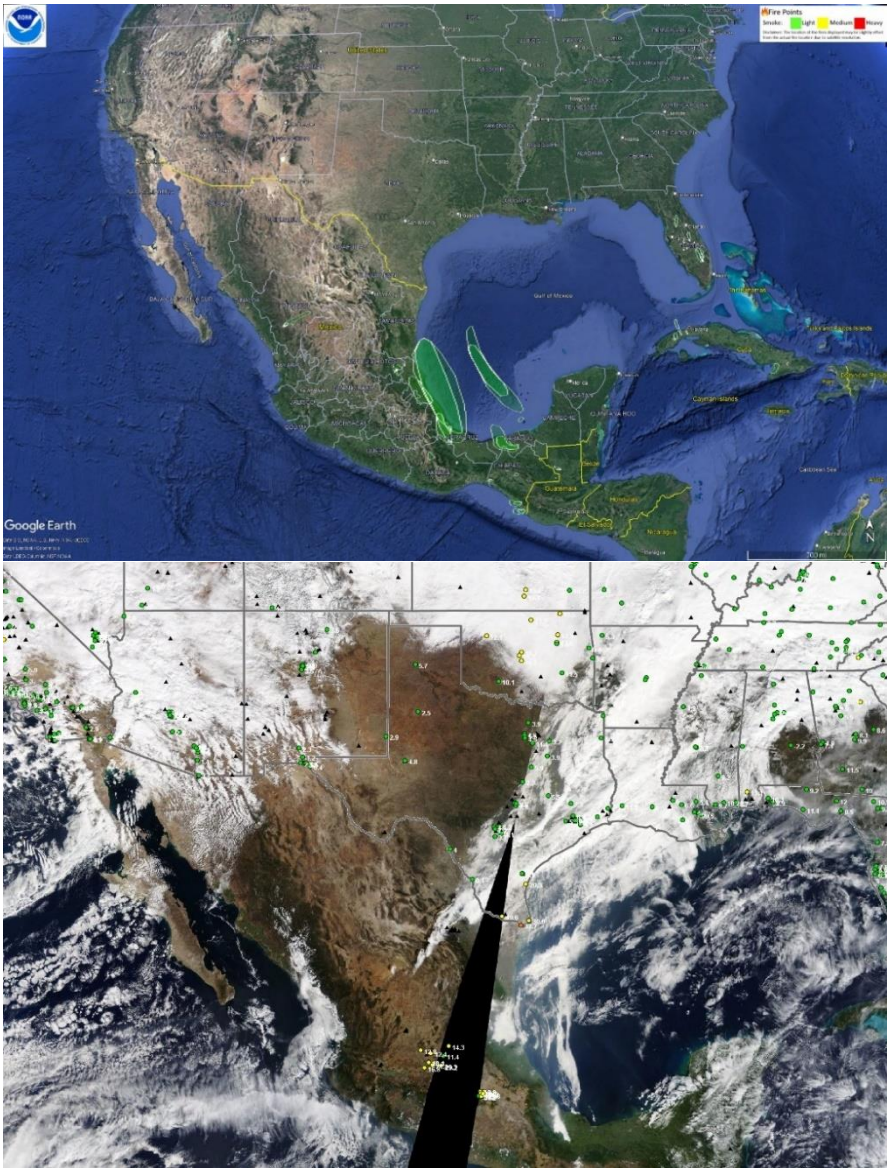
Appendix A: Evidence for Exceptional Events at National Seashore for 2021 Tier 1 and 2 Days

1. 1/25/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

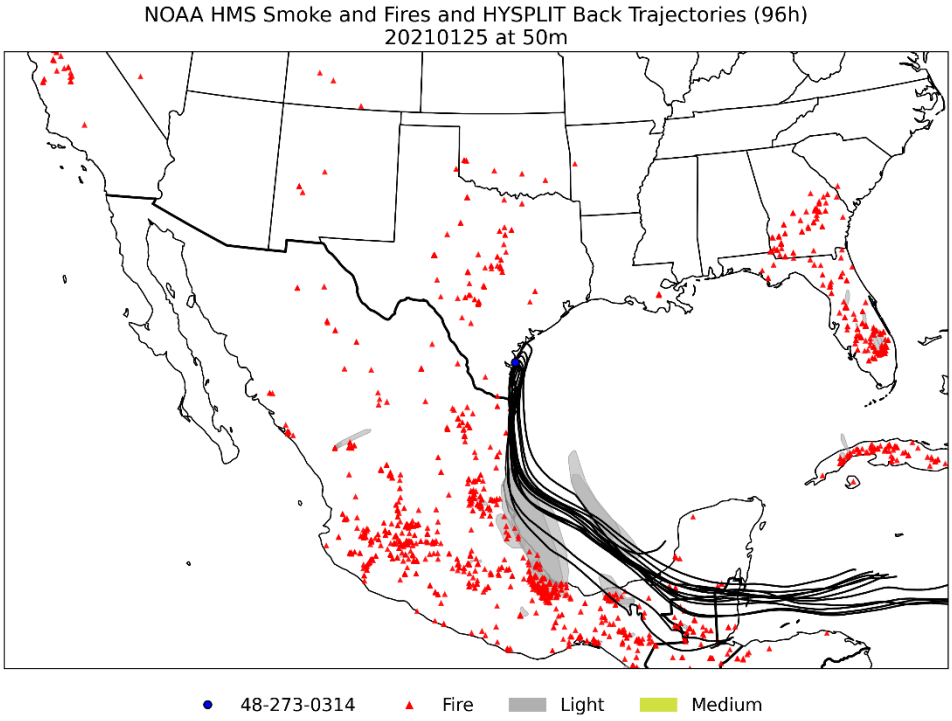
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
1/25/2021	33.0	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml) and visual imagery.

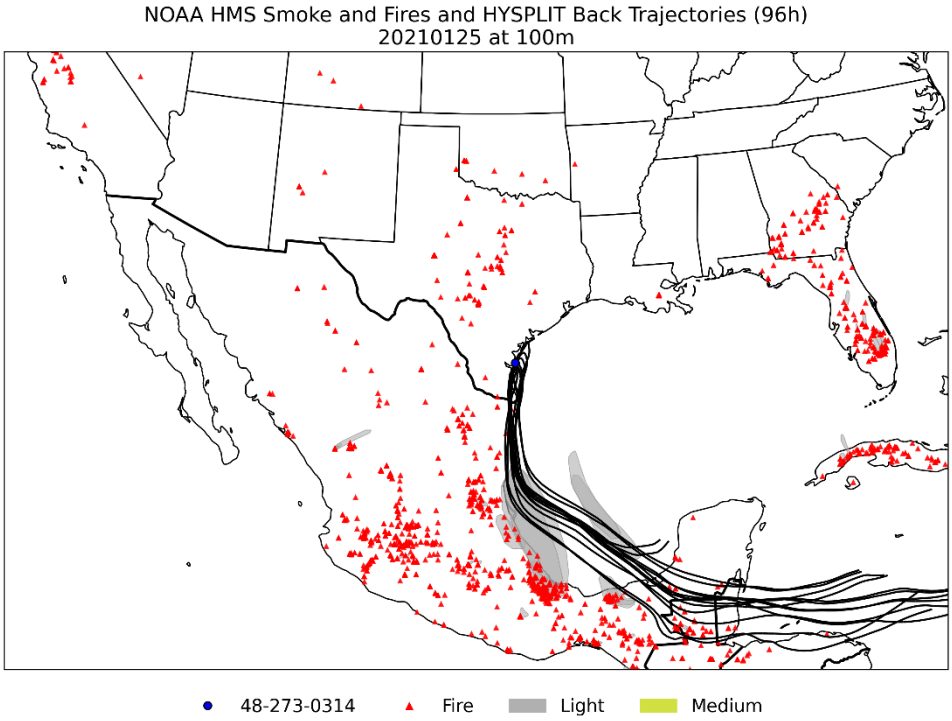


c. **Evidence #2**– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

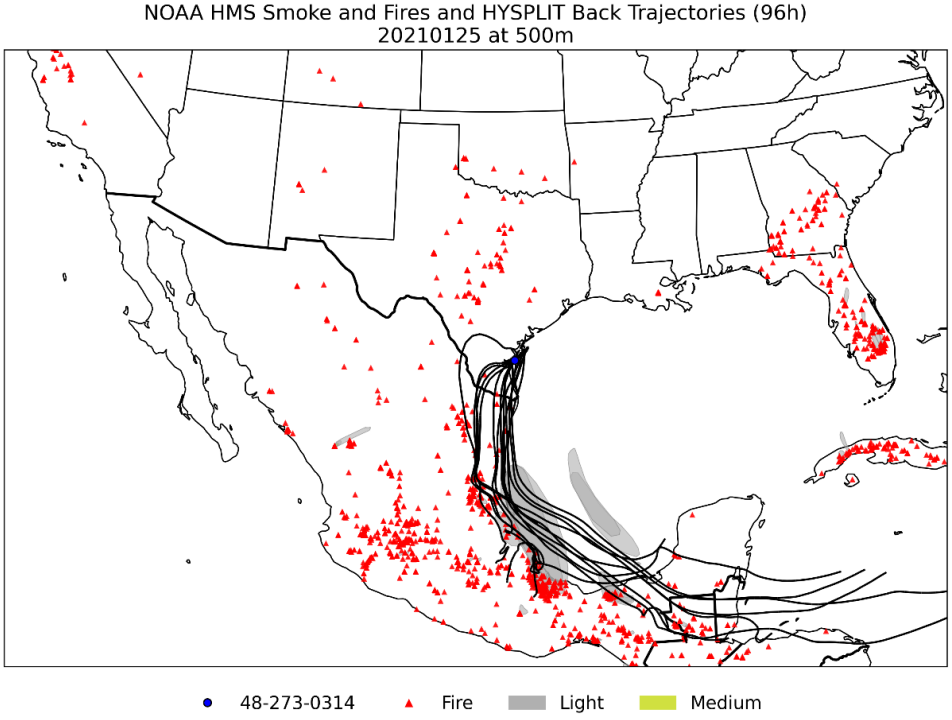
- 50m



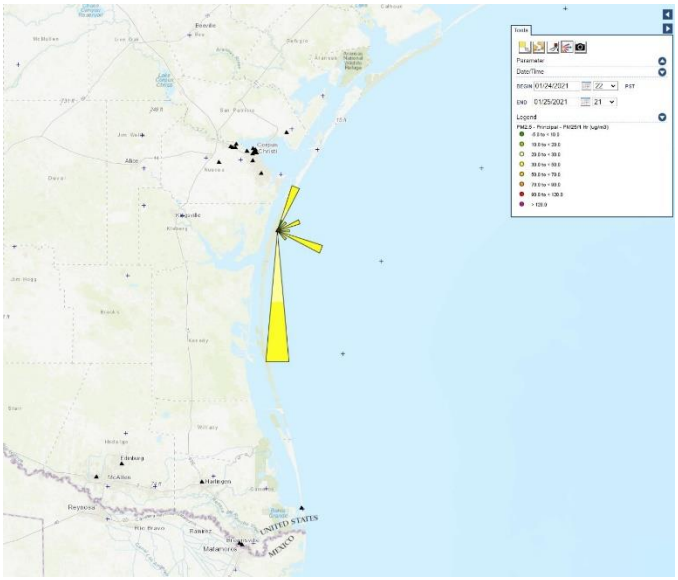
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210125 at 100m
48-273-0314
Fire
Light
Medium

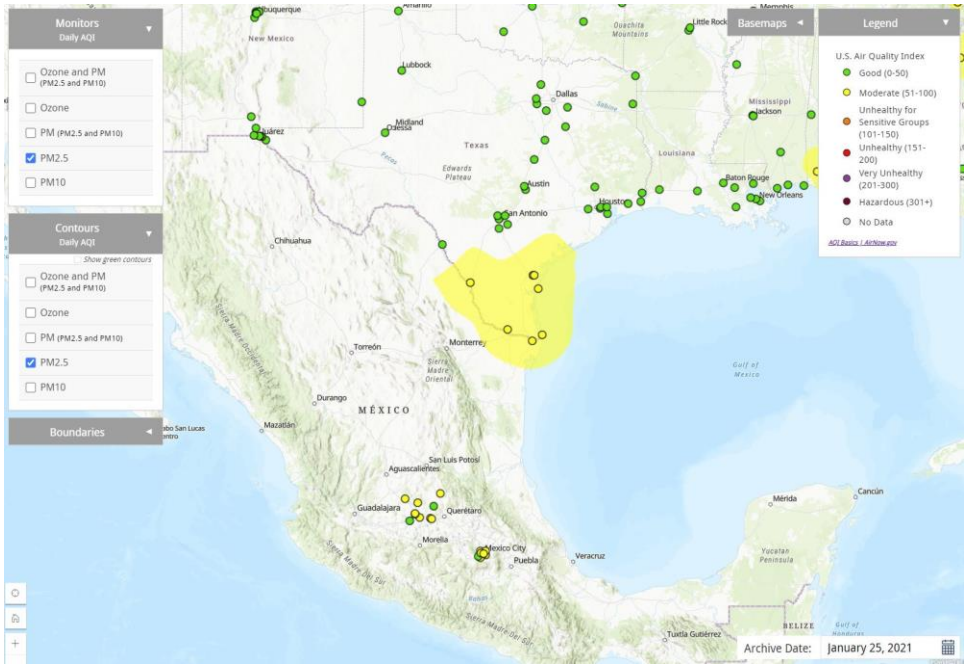
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210125 at 500m
48-273-0314
Fire
Light
Medium

d. **Evidence #3 -** Pollution rose for 1/25/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4 –** EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 1/25/2021

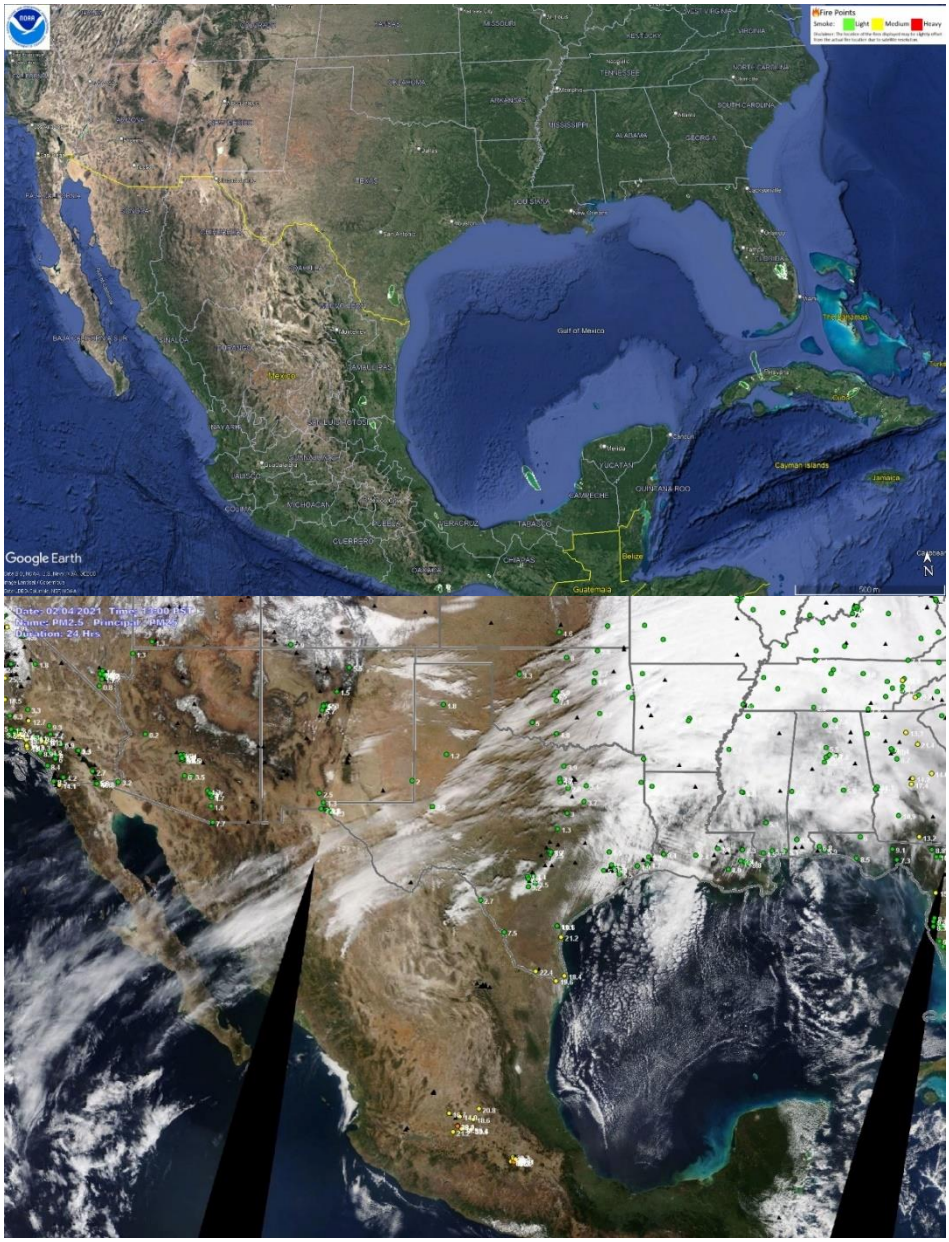


2. 2/4/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

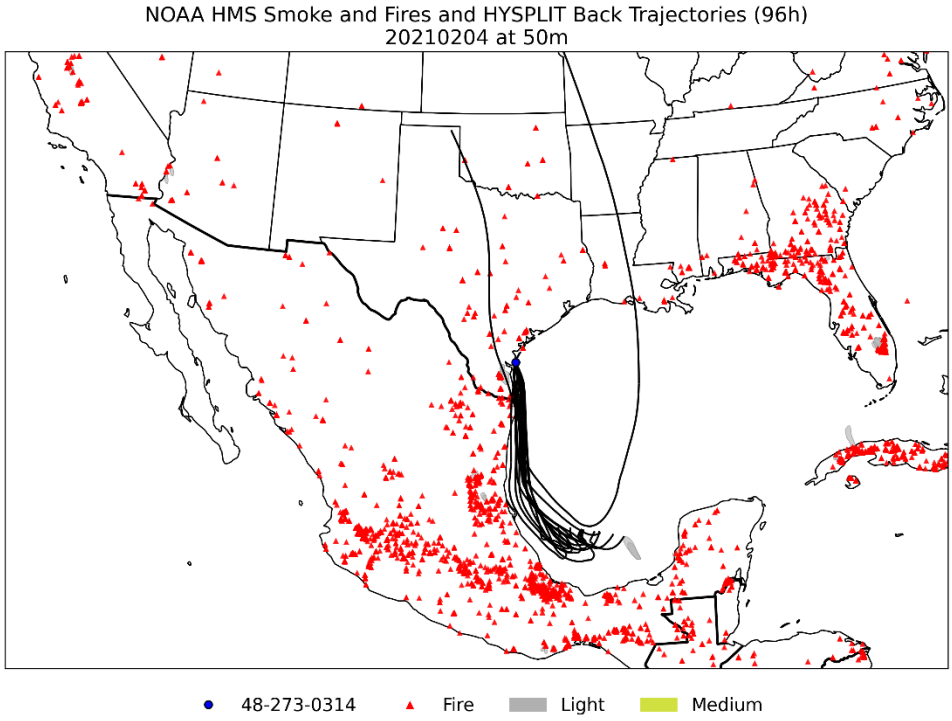
Date	24-hour $PM_{2.5}$ (µg/m³)	Tier 2 Threshold	Tier 1 Threshold
2/4/2021	18.8	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml) and visual imagery.

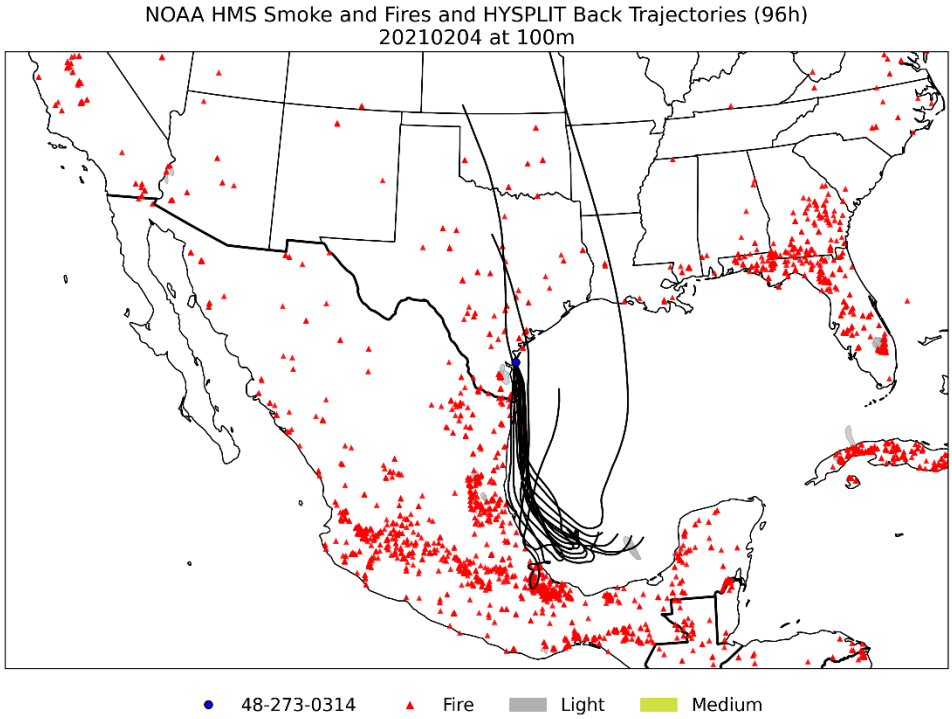


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

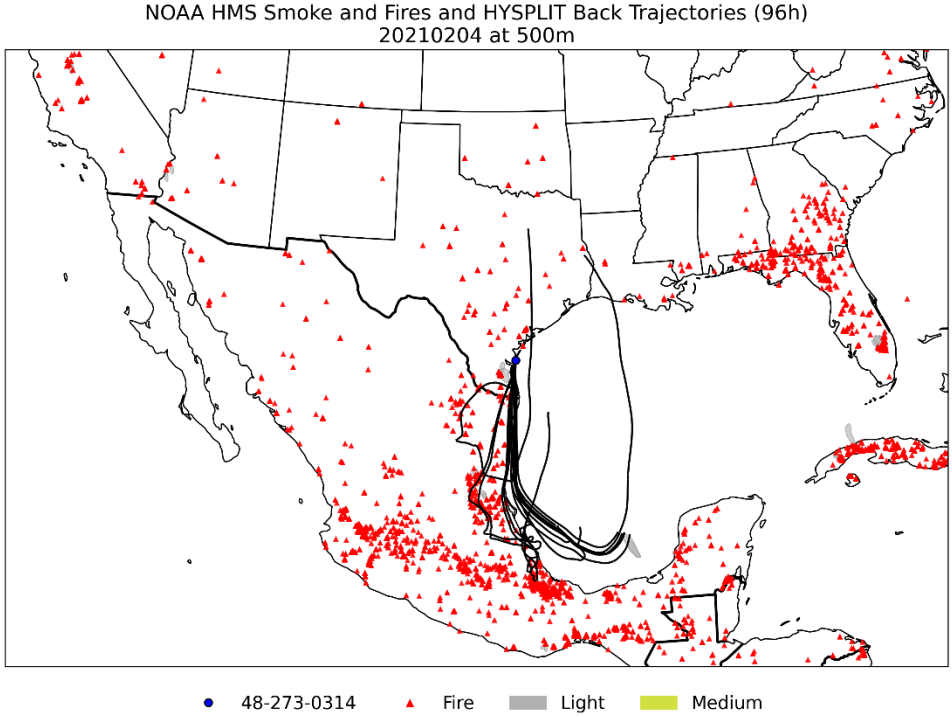
- 50m



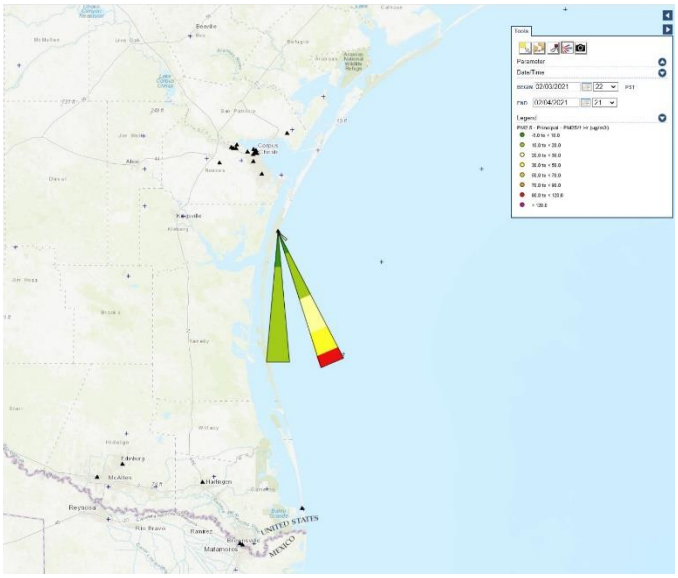
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210204 at 100m
48-273-0314
Fire
Light
Medium

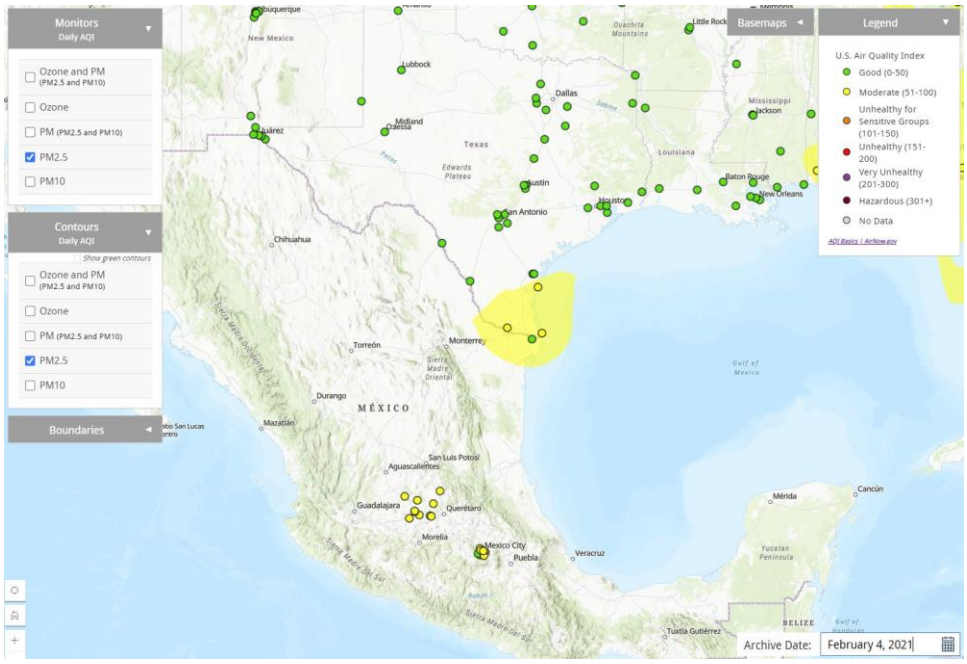
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210204 at 500m
48-273-0314
Fire
Light
Medium

d. Evidence #3 - Pollution rose for 2/4/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 2/4/2021

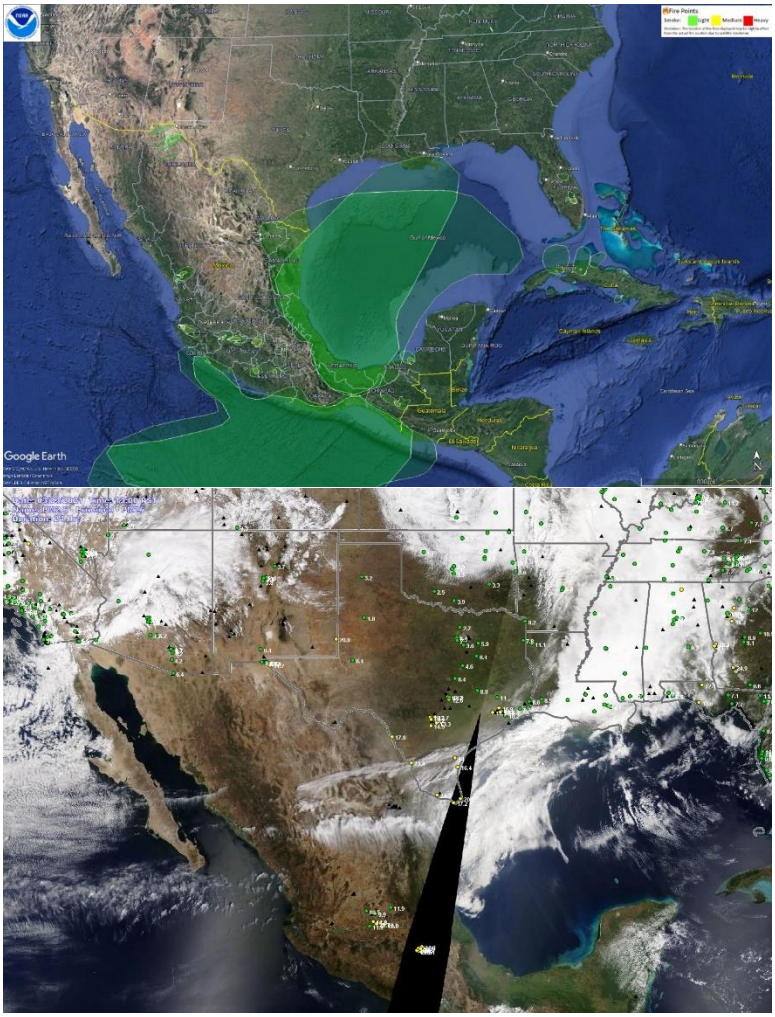


3. 3/23/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

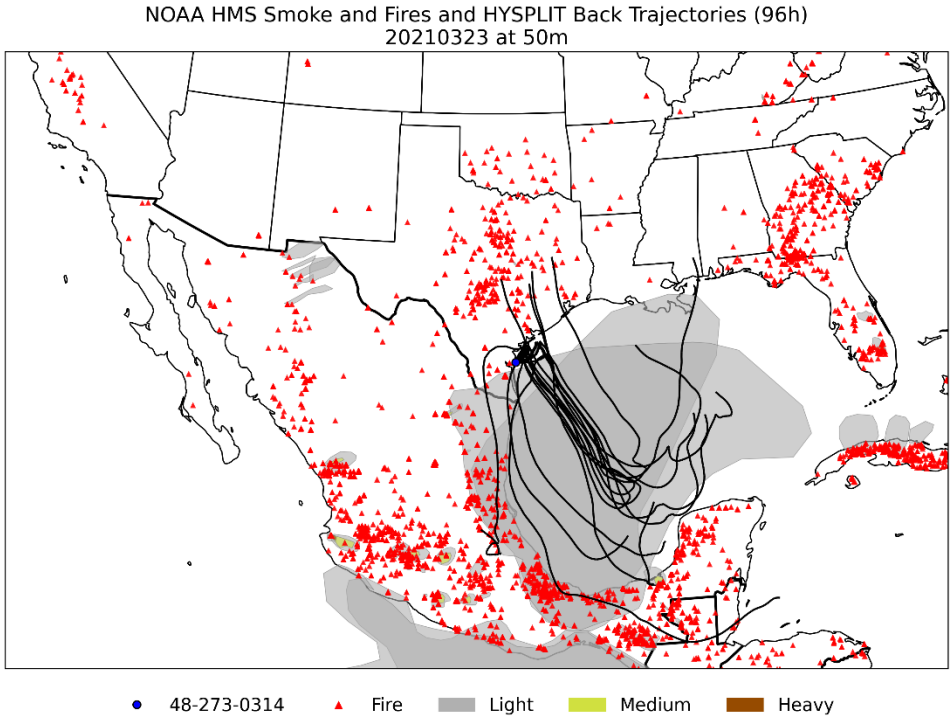
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
3/23/2021	22.8	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

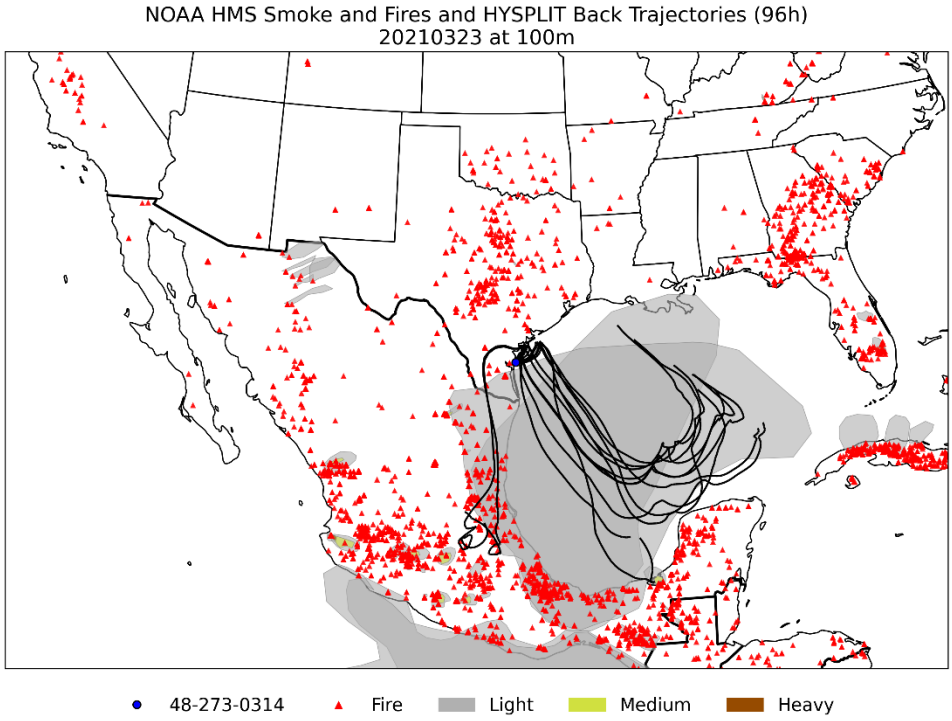


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

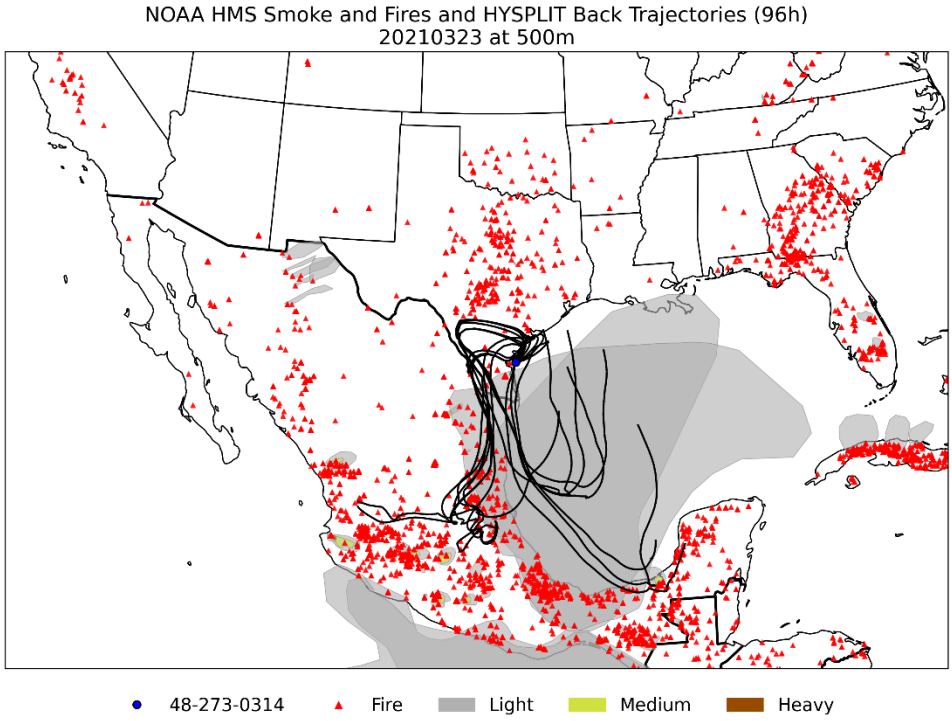
- 50m



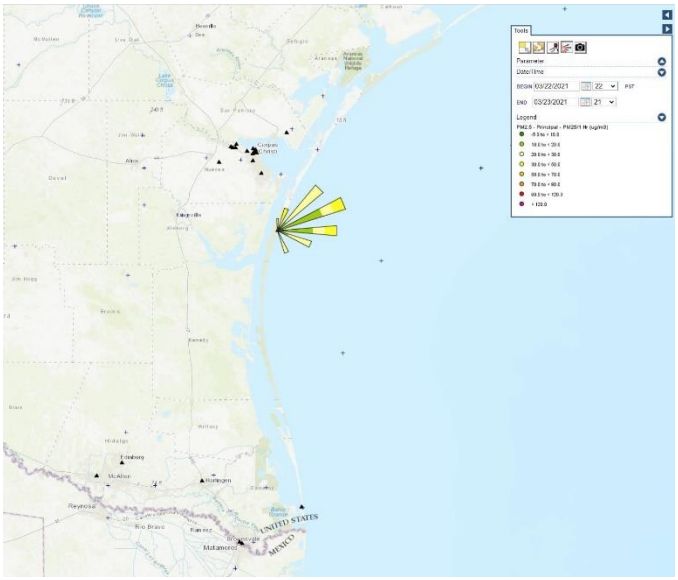
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210323 at 100m
48-273-0314
Fire
Light
Medium
Heavy

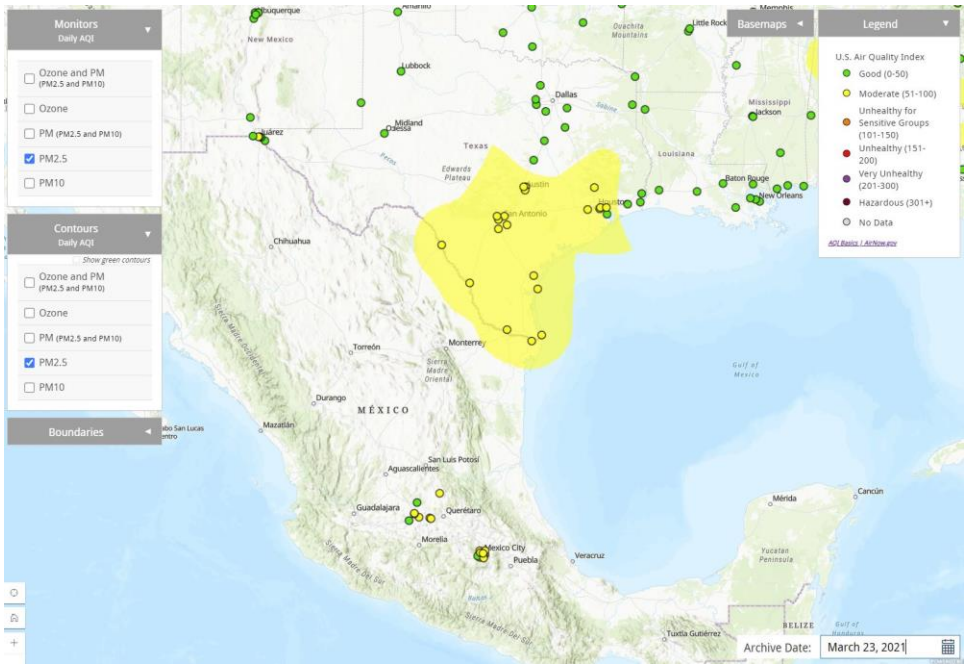
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210323 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 3/23/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4 -** EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 3/23/2021

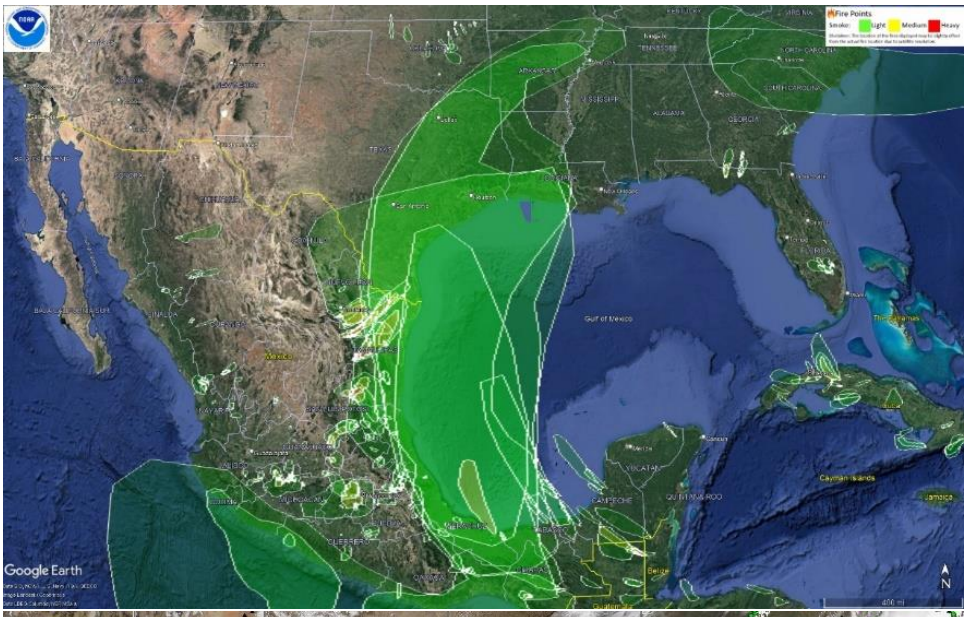


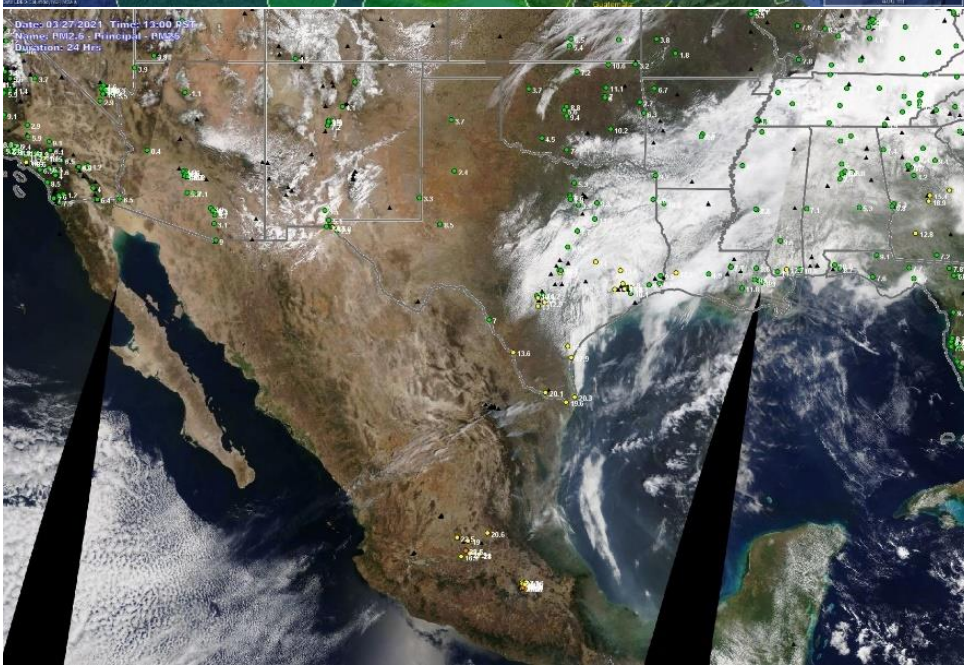
4. 3/27/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
3/27/2021	24.0	18.1	27.15

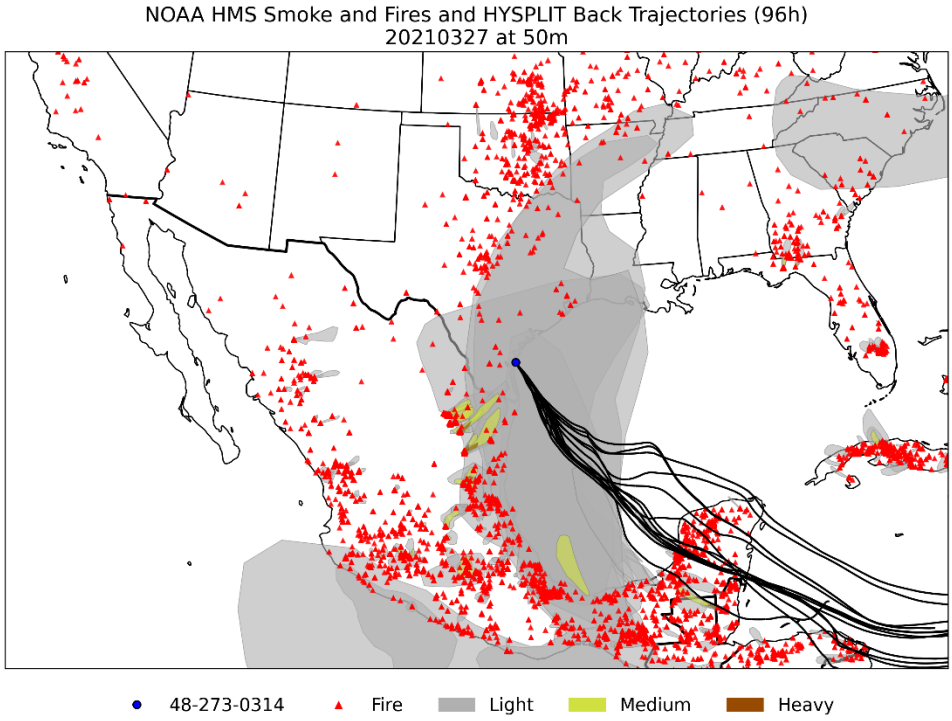
b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).



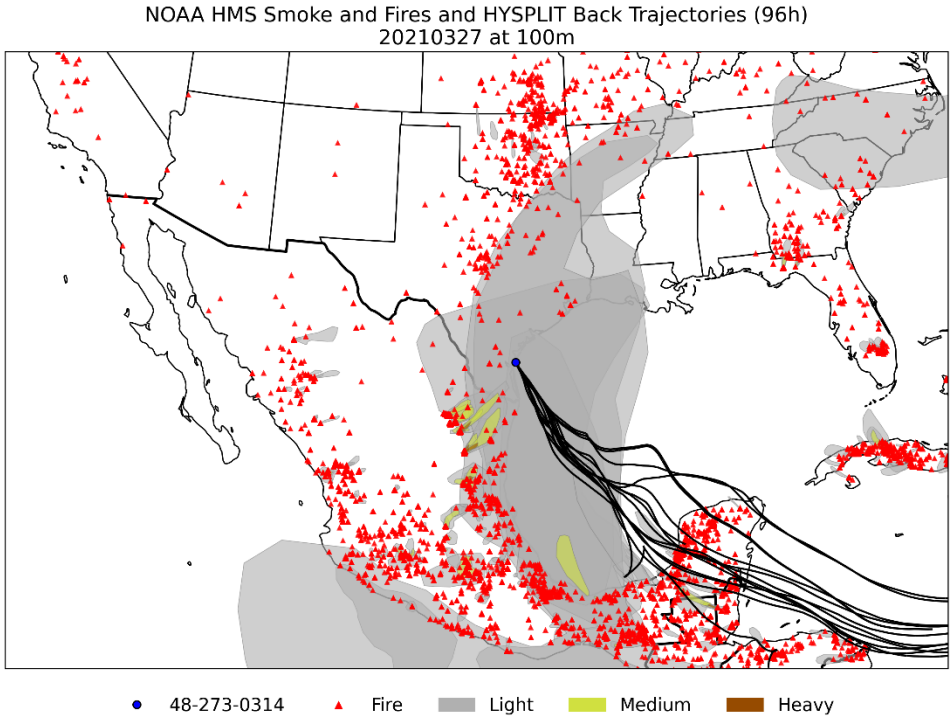


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

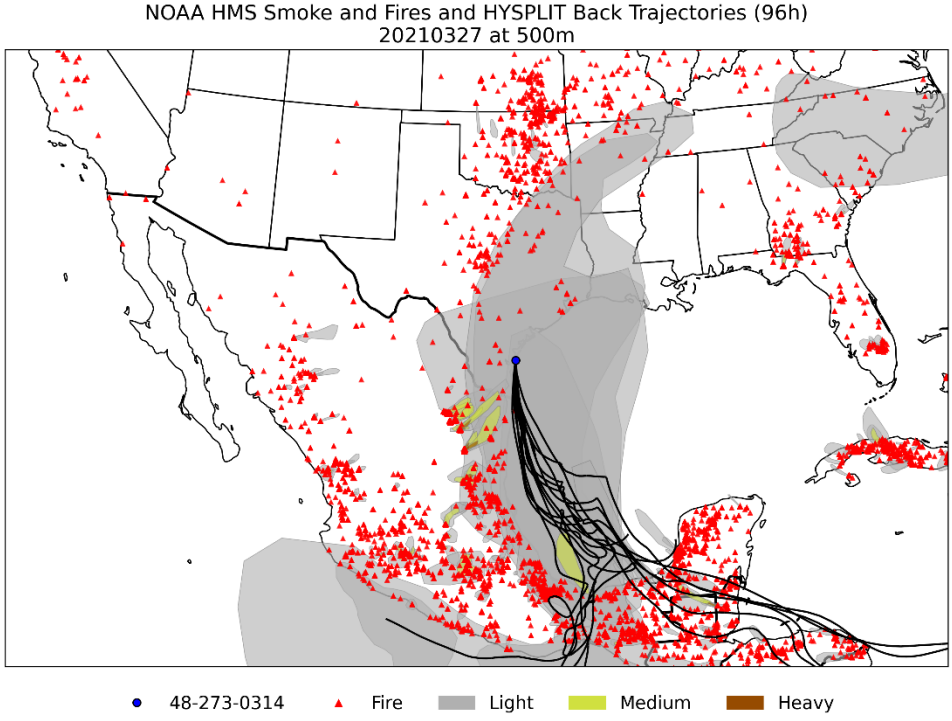
- 50m



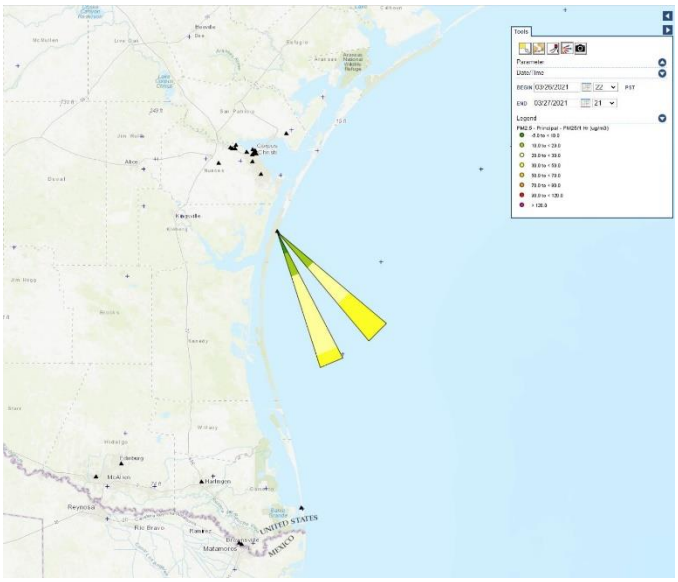
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210327 at 100m
48-273-0314
Fire
Light
Medium
Heavy

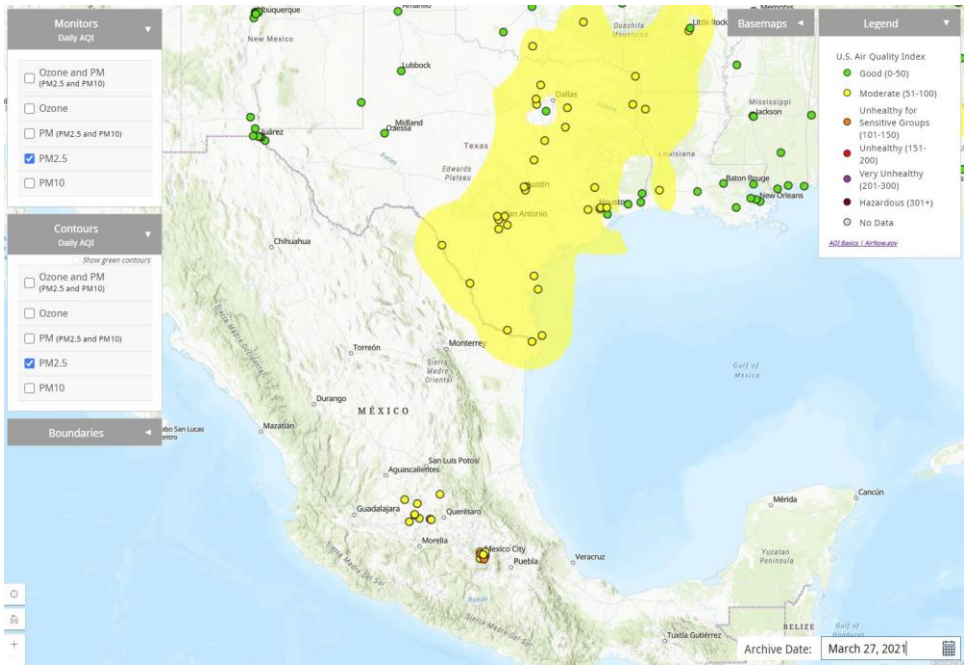
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210327 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 3/27/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4** - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 3/27/2021

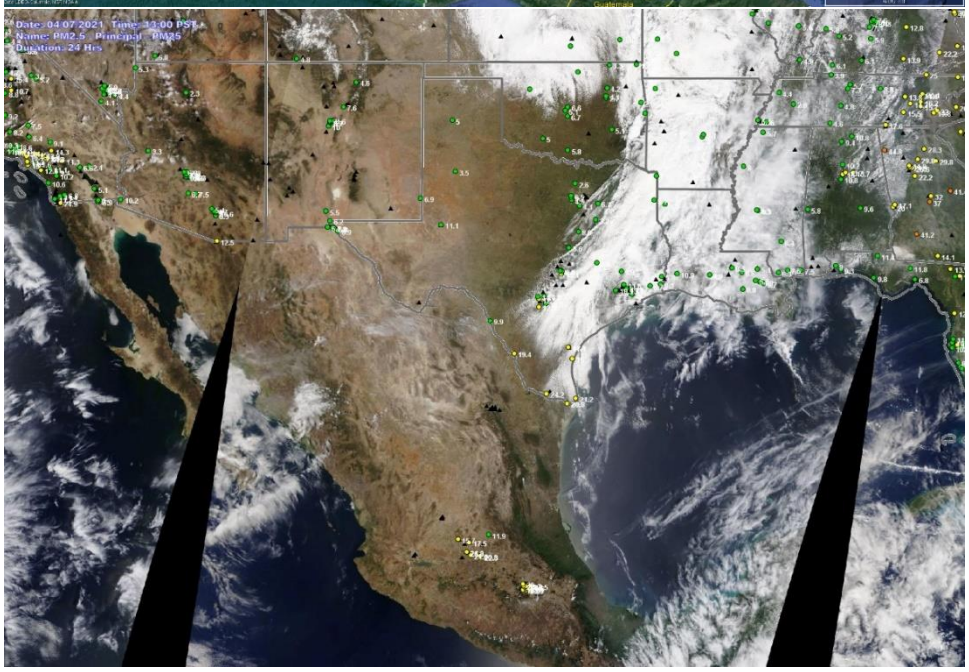


5. 4/7/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

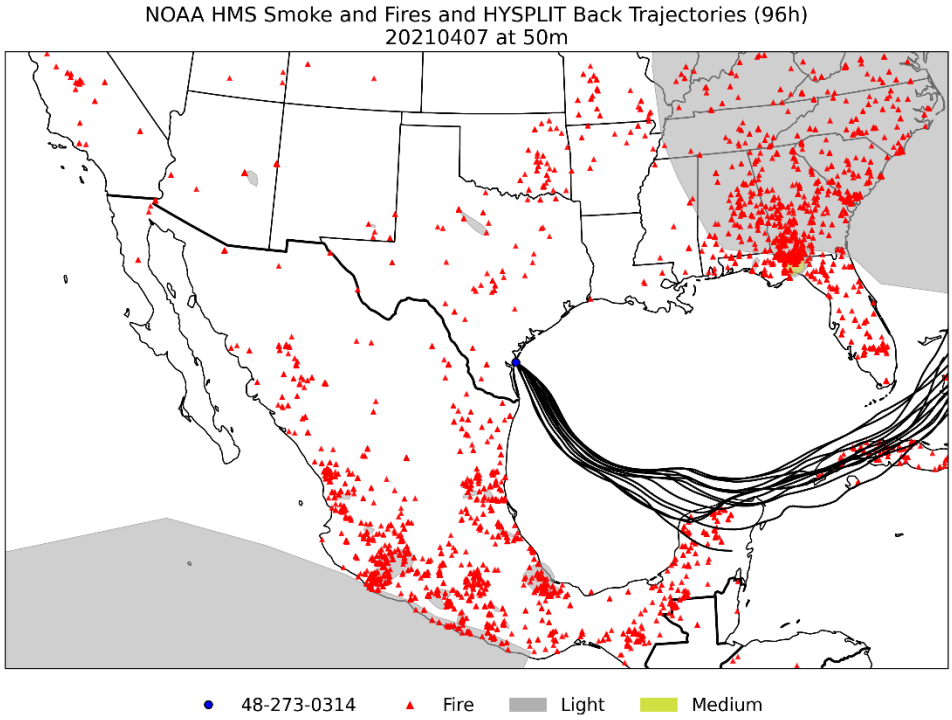
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
4/7/2021	19.8	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

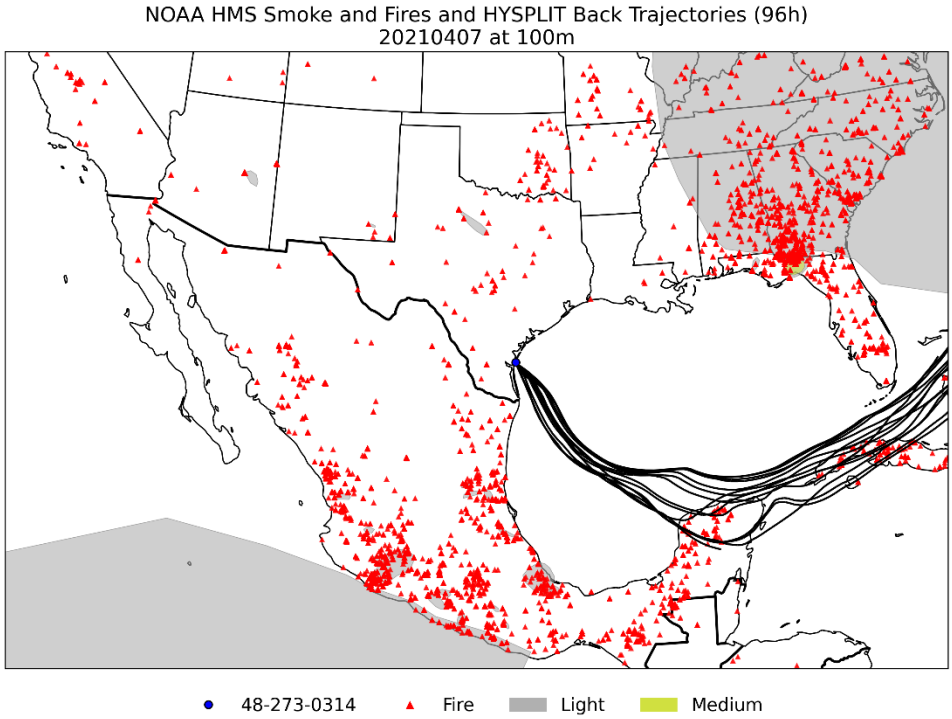


c. **Evidence #2**– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

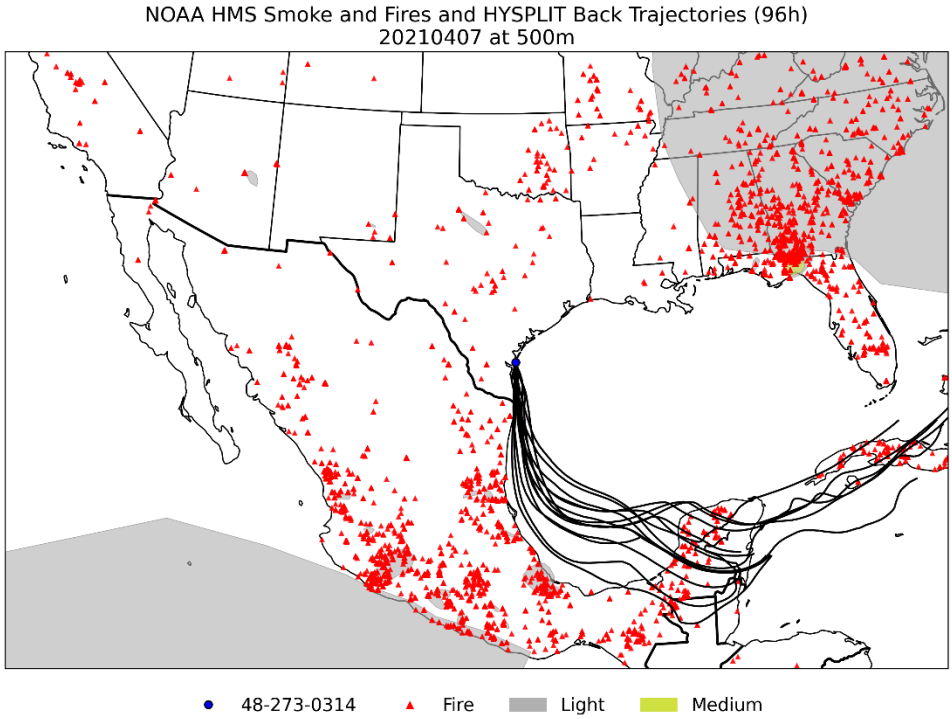
- 50m



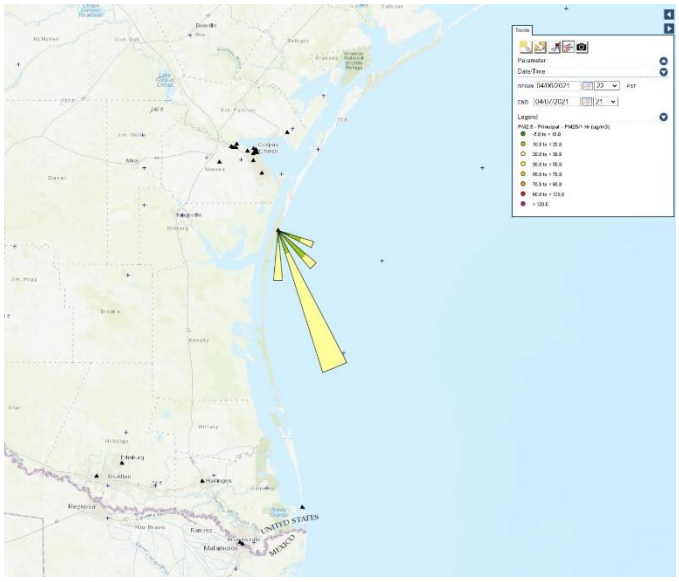
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210407 at 100m
48-273-0314
Fire
Light
Medium

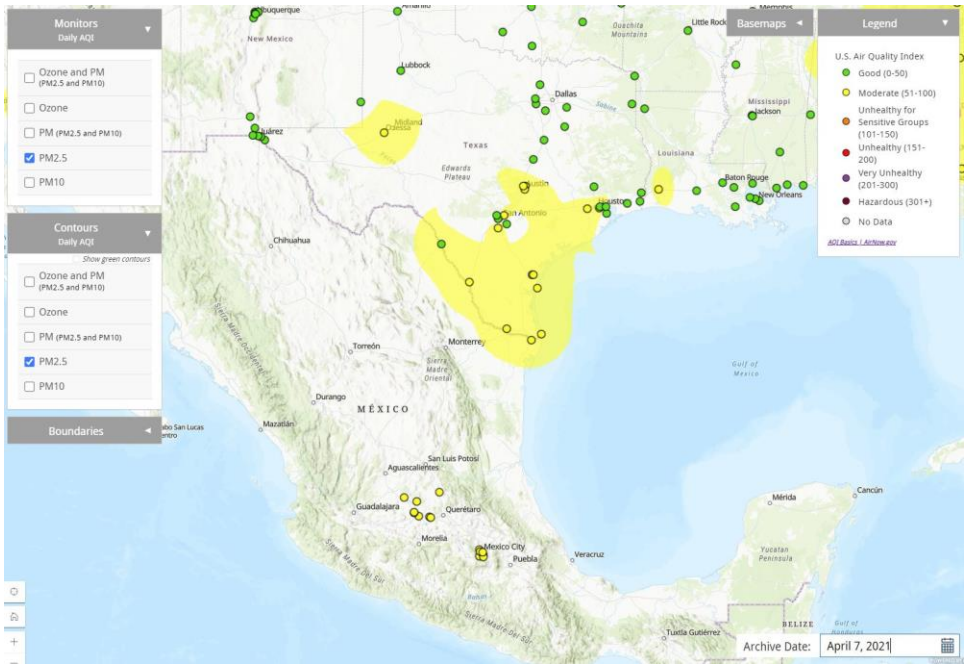
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210407 at 500m
48-273-0314
Fire
Light
Medium

d. Evidence #3 - Pollution rose for 4/7/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4** - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 4/7/2021.

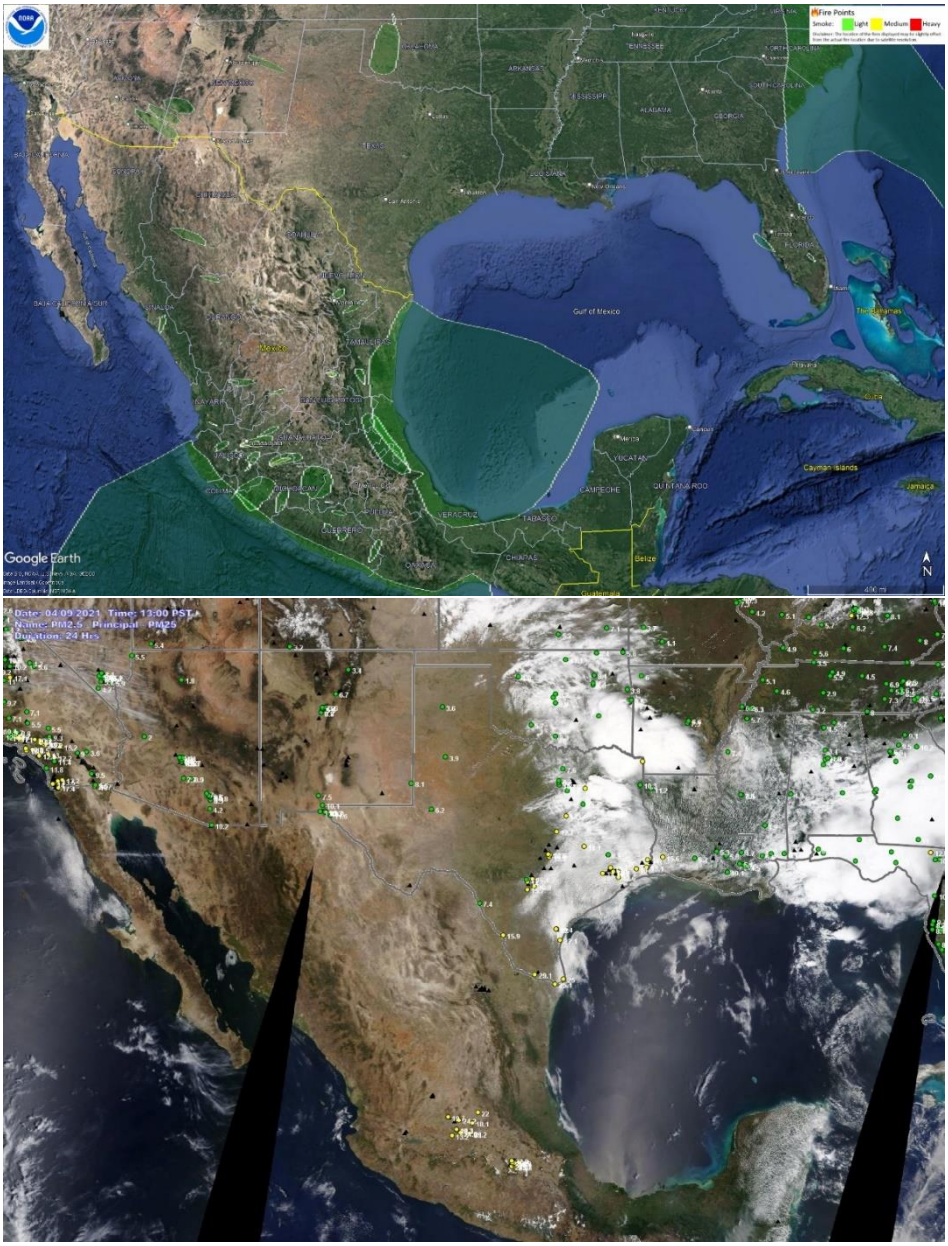


6. 4/9/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

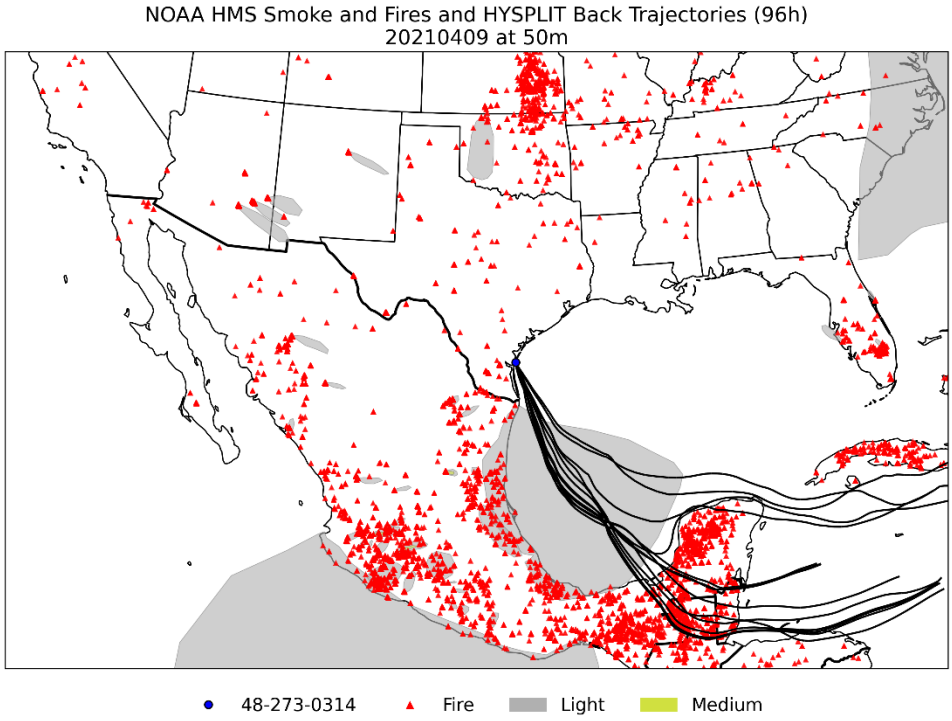
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
4/9/2021	28.0	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

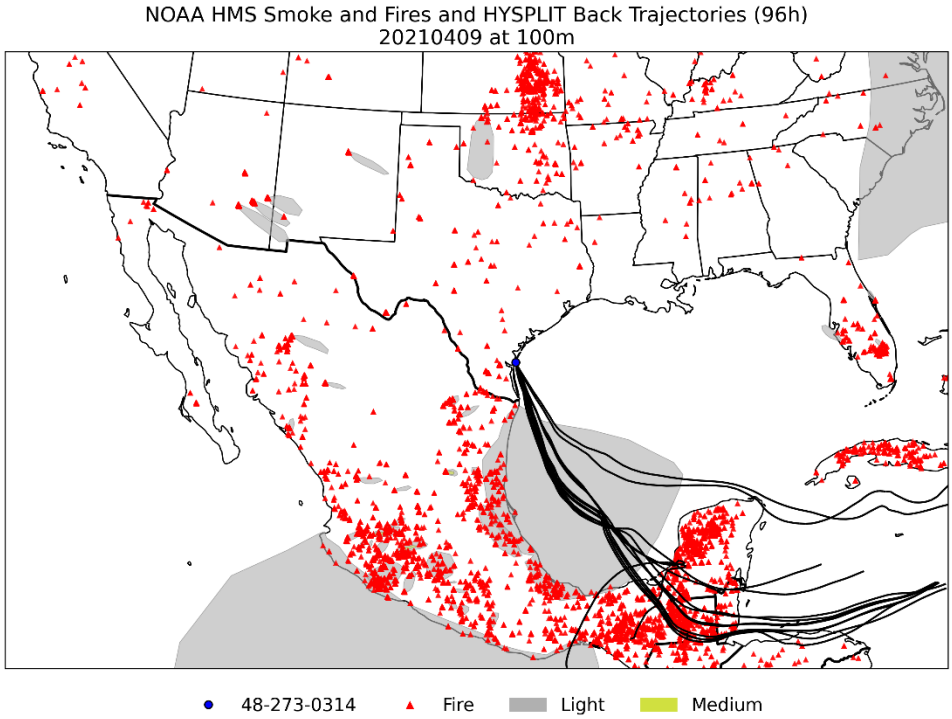


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

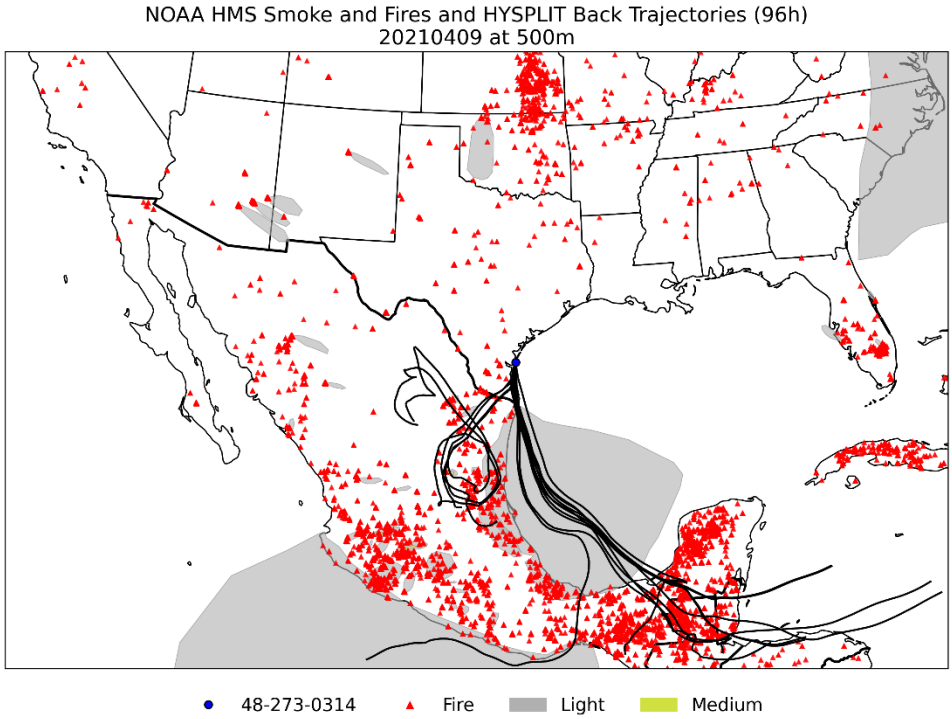
- 50m



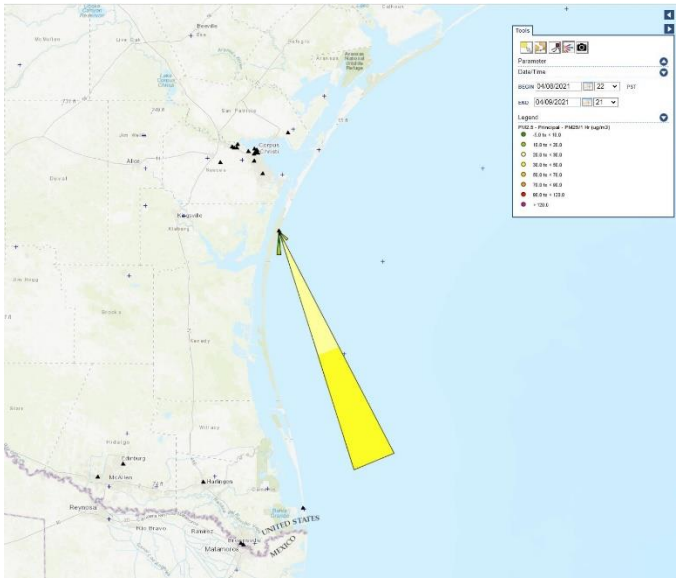
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210409 at 100m
48-273-0314
Fire
Light
Medium

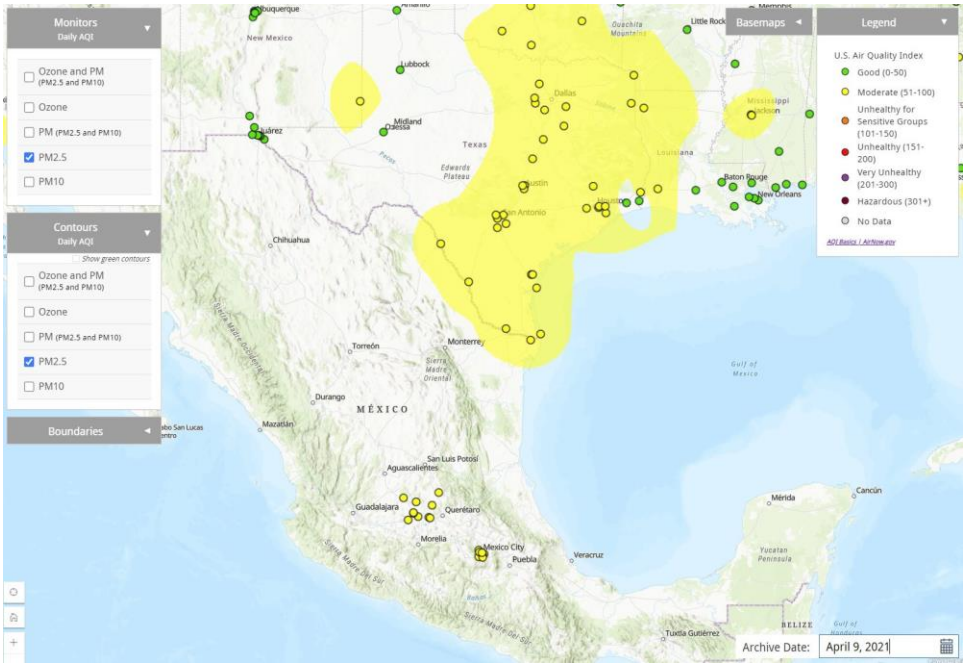
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210409 at 500m
48-273-0314
Fire
Light
Medium

d. Evidence #3 - Pollution rose for 4/9/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 4/9/2021.

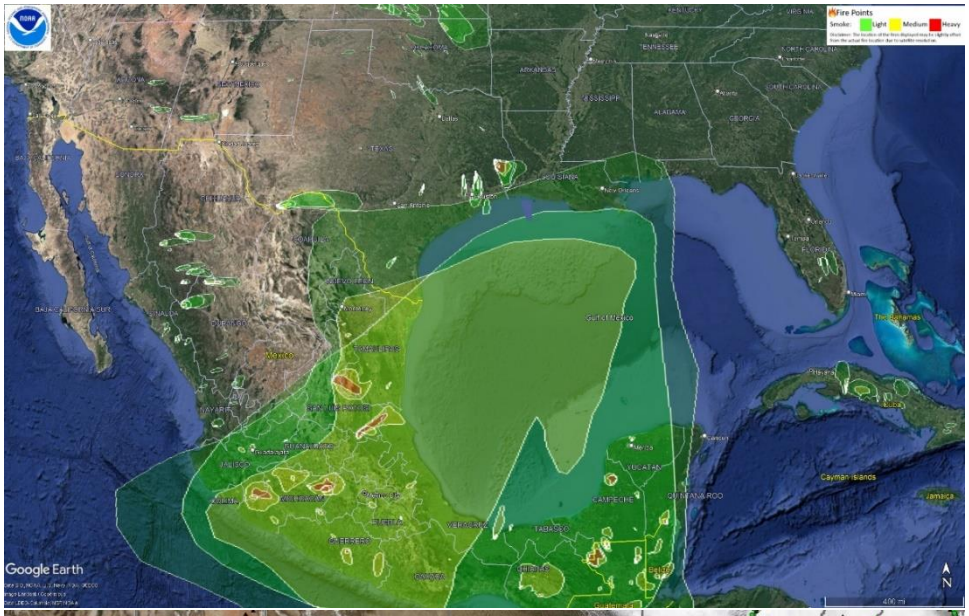


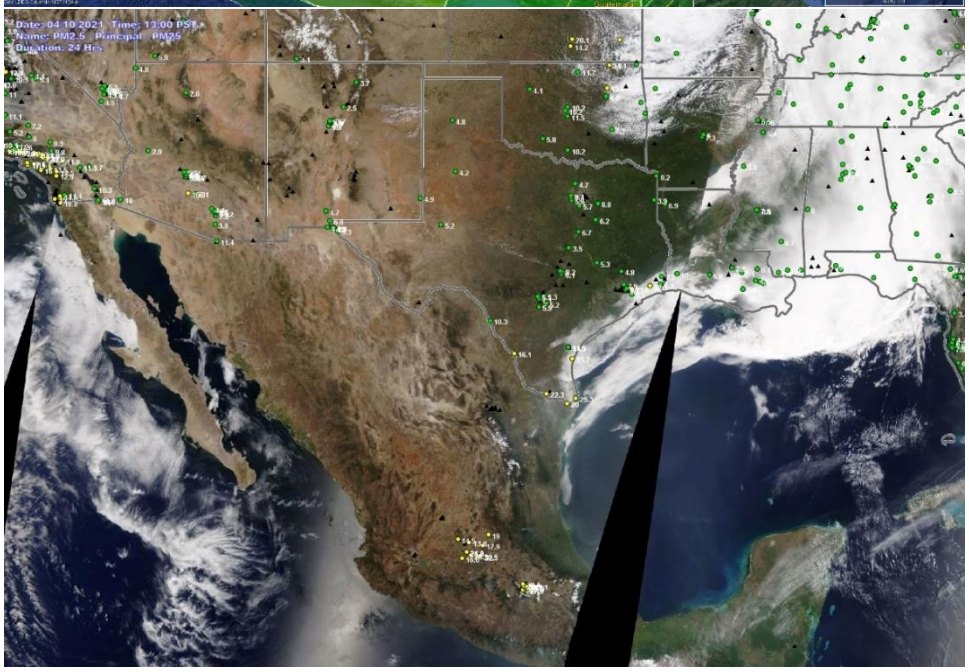
7. 4/10/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
4/10/2021	18.4	18.1	27.15

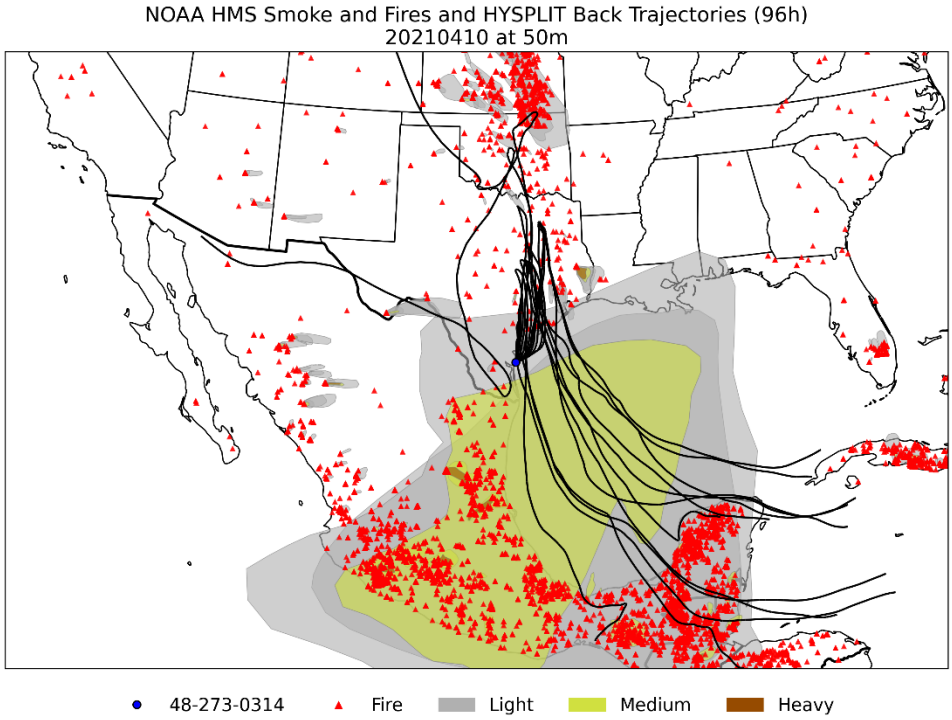
b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).



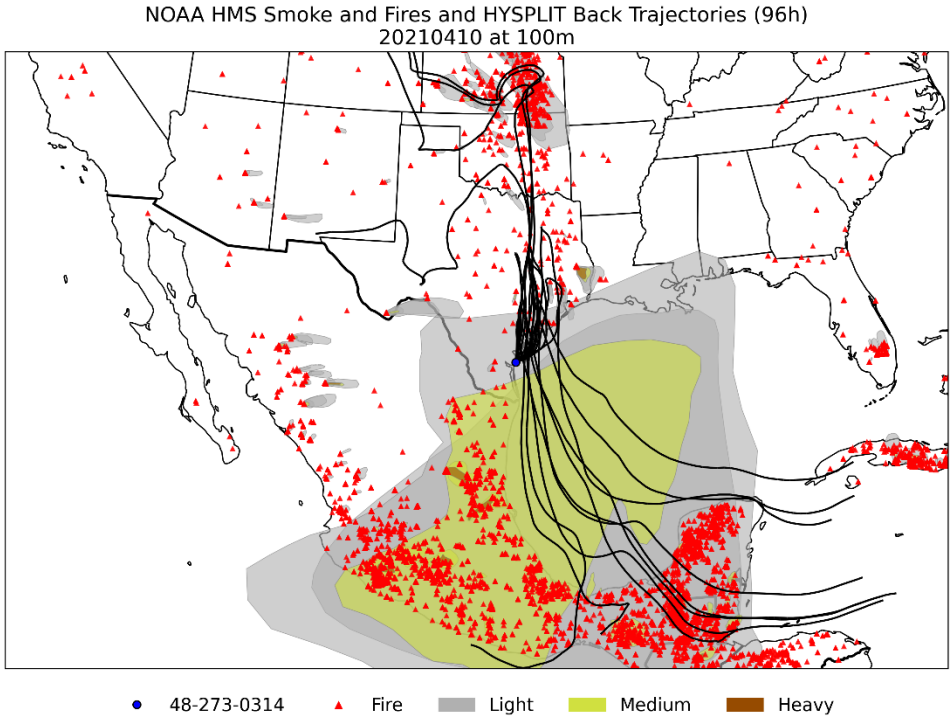


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

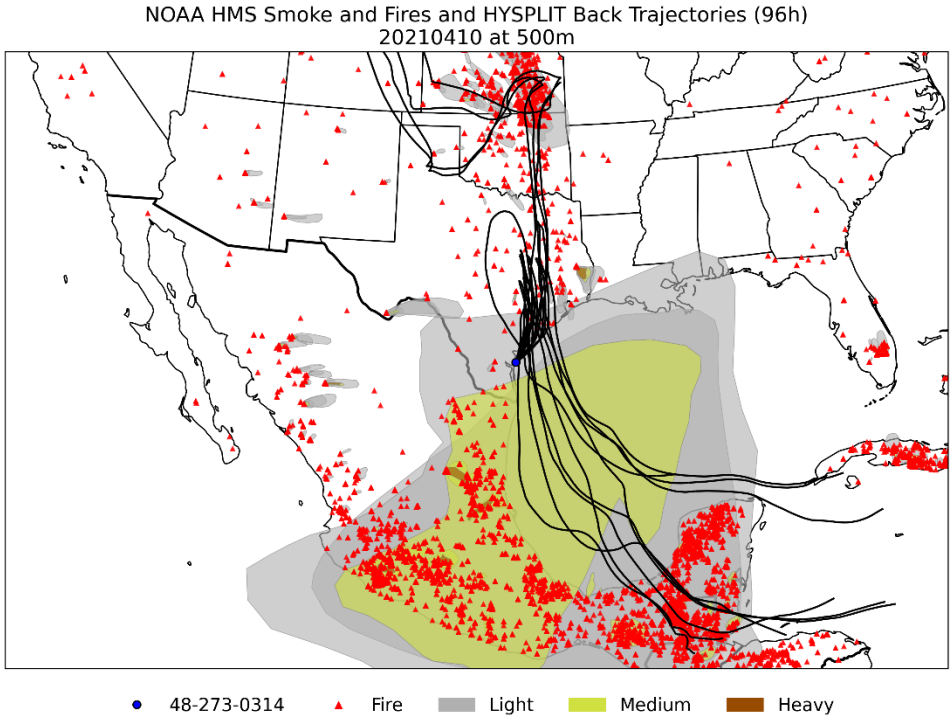
- 50m



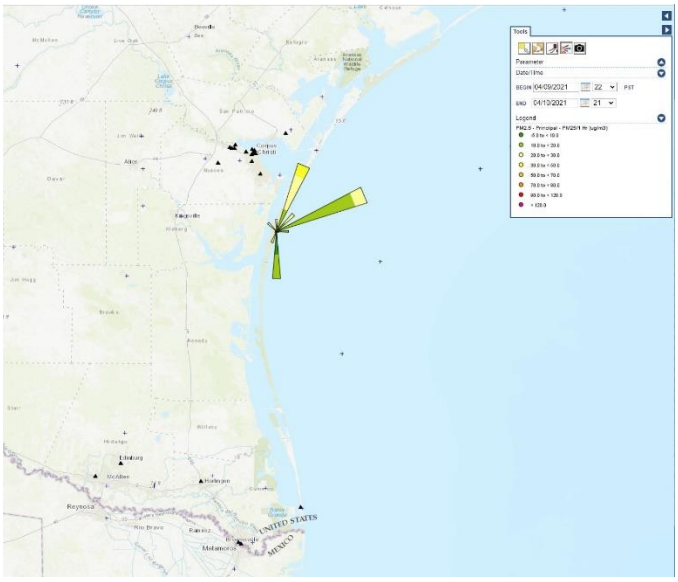
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210410 at 100m
48-273-0314
Fire
Light
Medium
Heavy

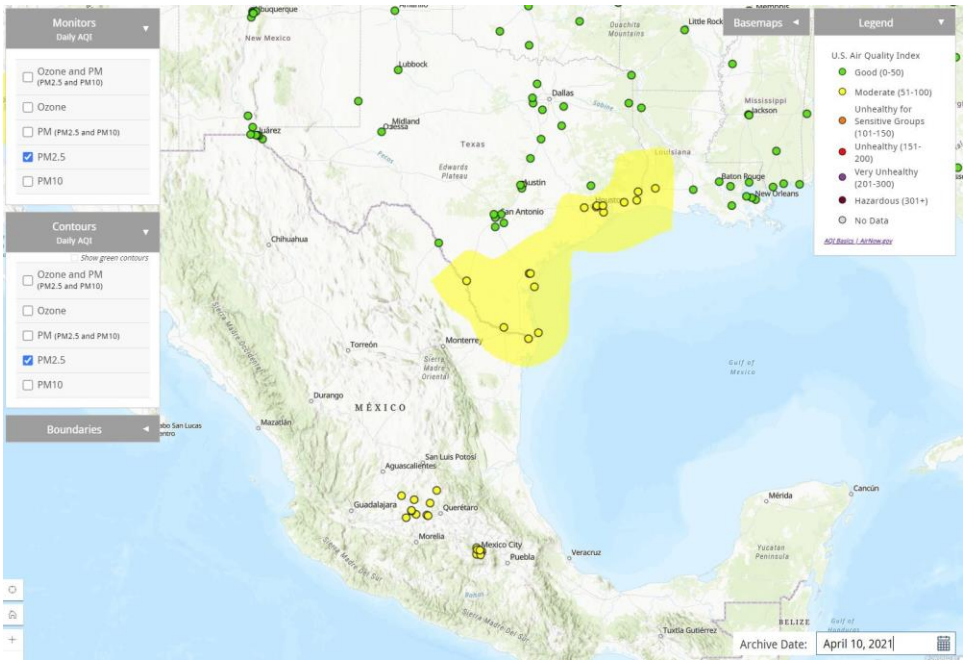
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210410 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 4/10/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 4/10/2021.

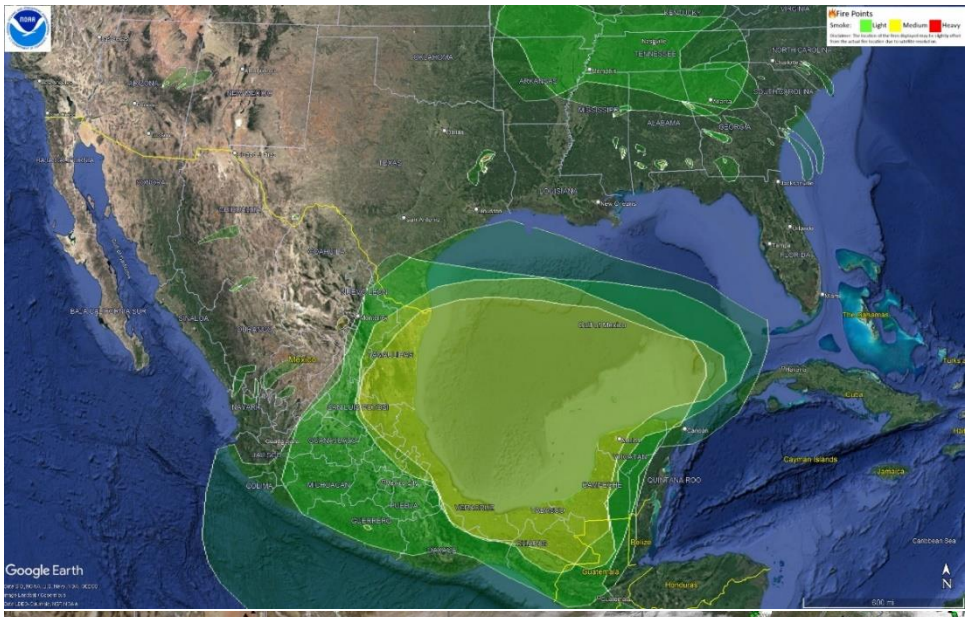


8. 4/12/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

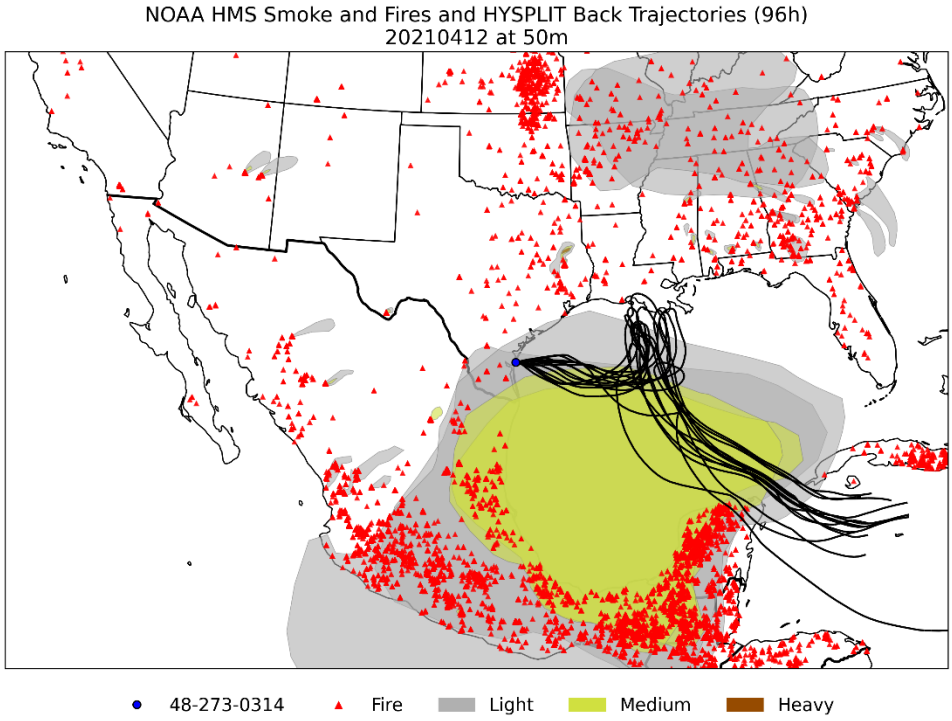
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
4/12/2021	20.9	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

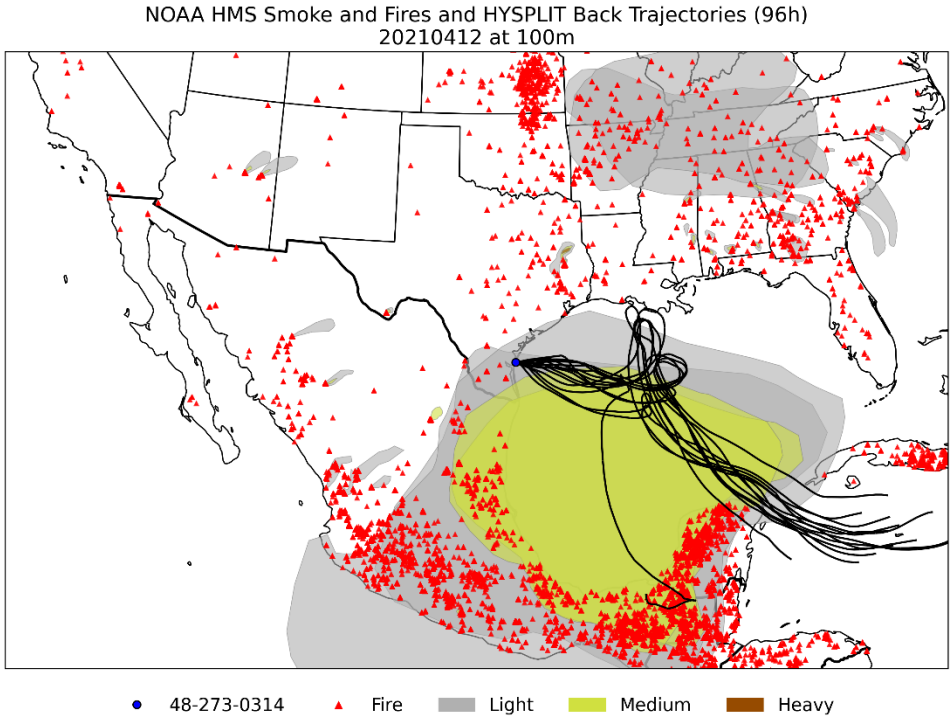


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

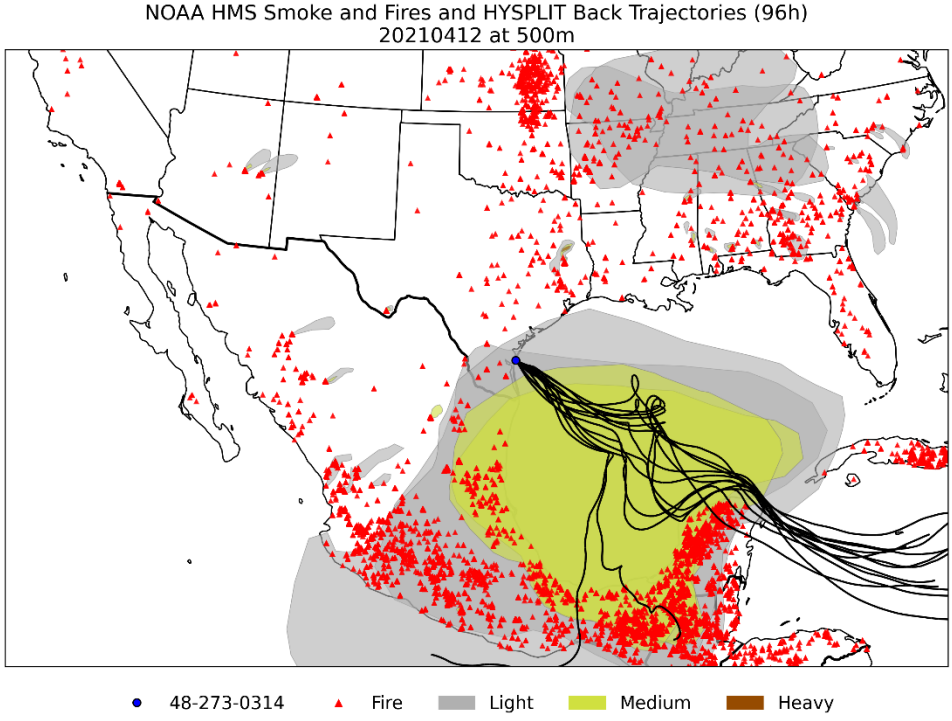
- 50m



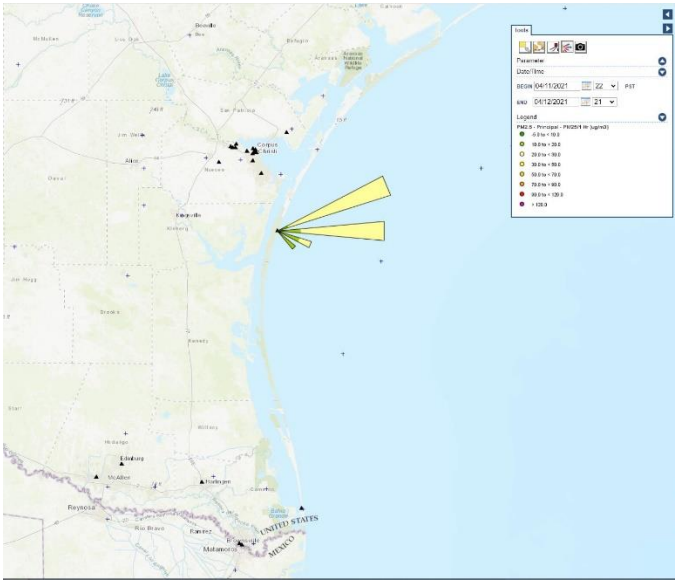
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210412 at 100m
48-273-0314
Fire
Light
Medium
Heavy

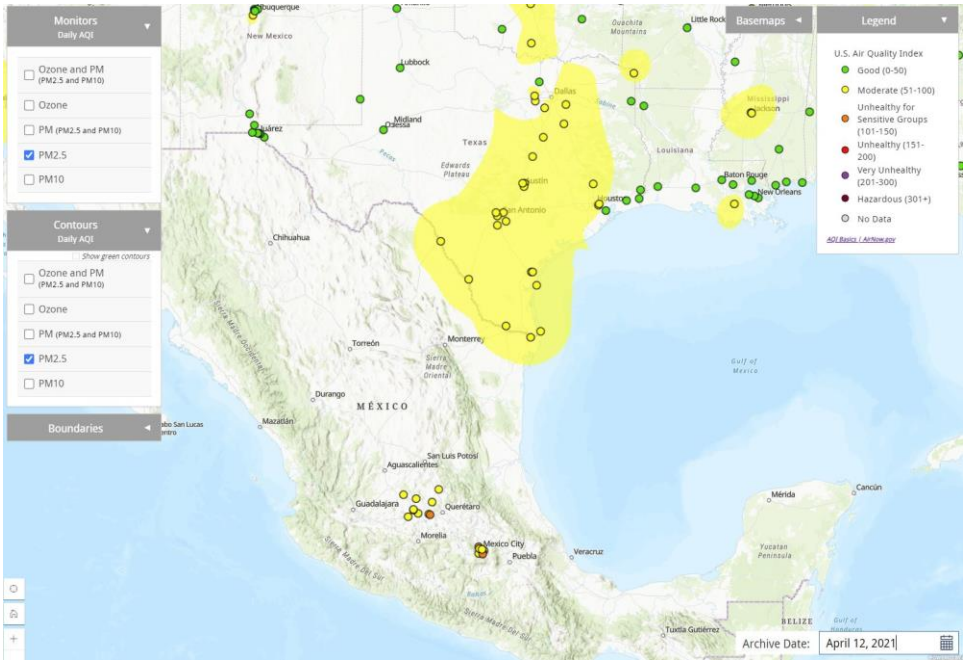
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210412 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 4/12/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 4/12/2021.

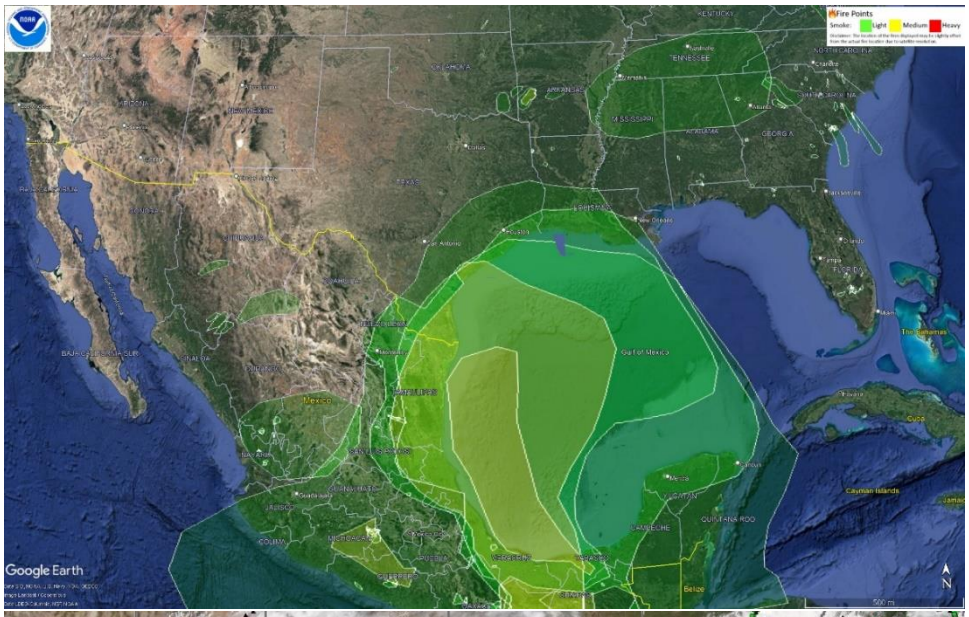


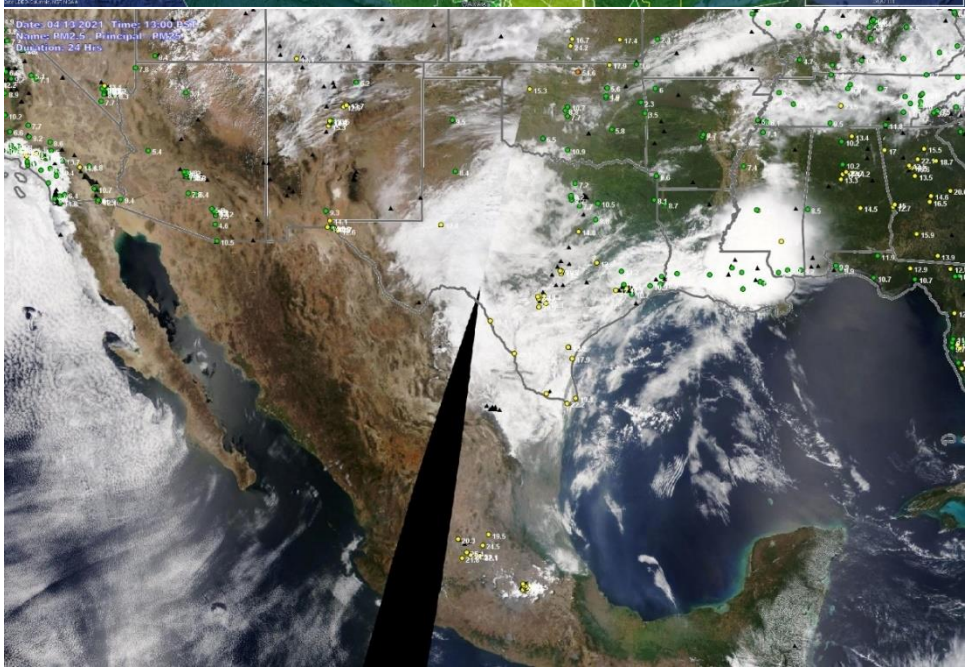
9. 4/13/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
4/13/2021	21.6	18.1	27.15

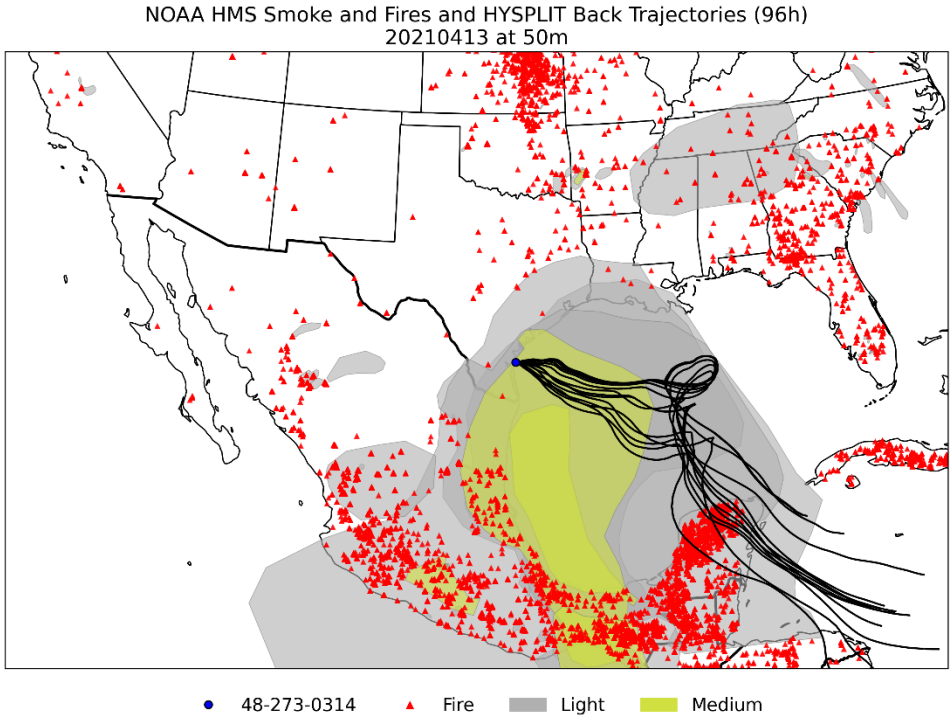
b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).



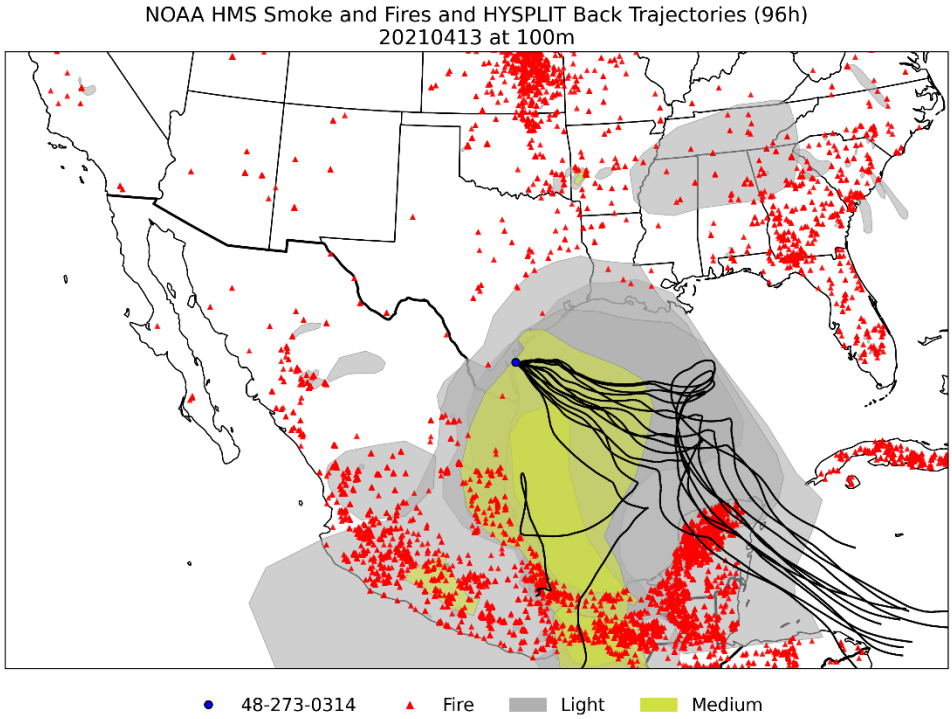


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

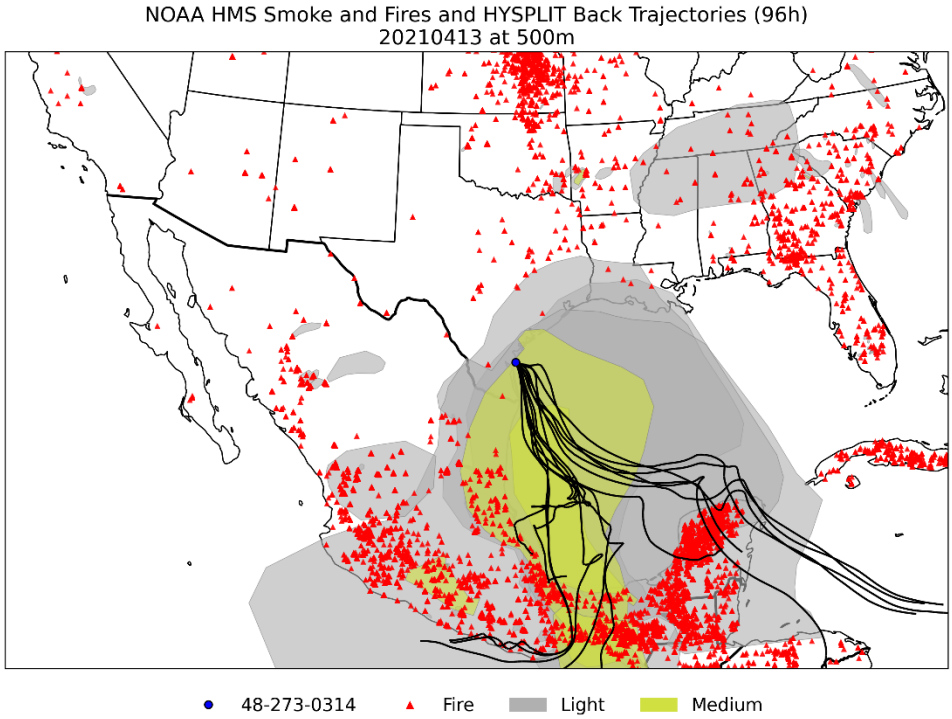
- 50m



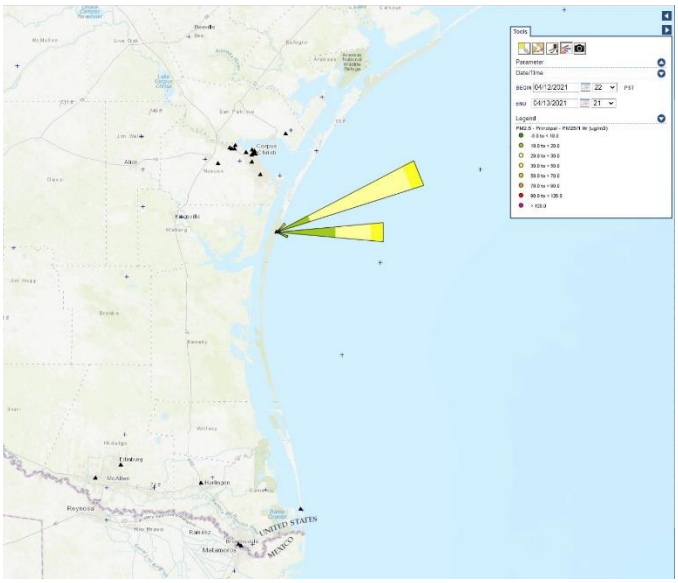
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210413 at 100m
48-273-0314
Fire
Light
Medium

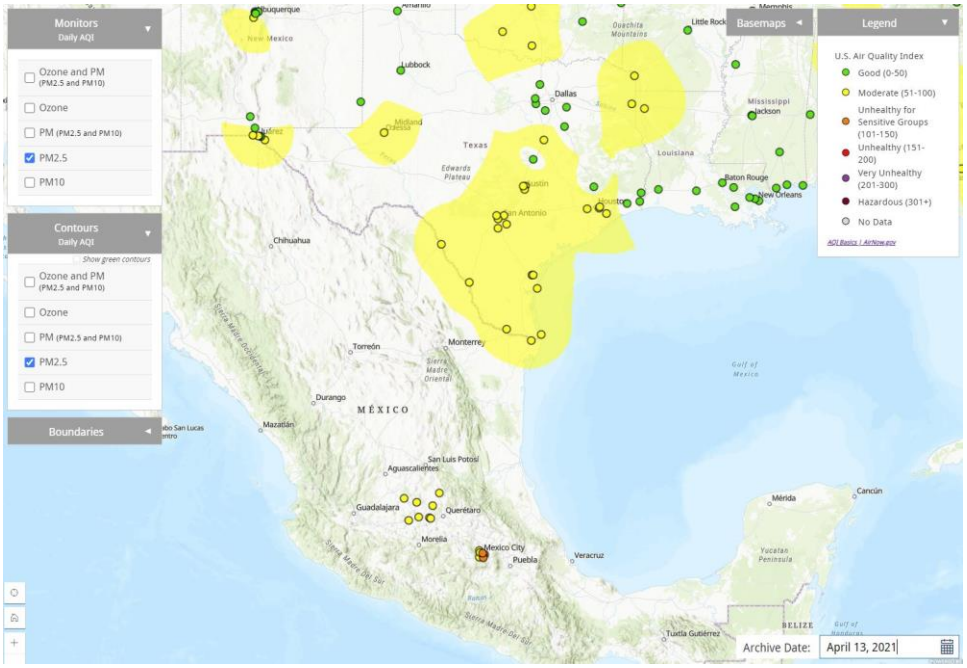
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210413 at 500m
48-273-0314
Fire
Light
Medium

d. **Evidence #3** - Pollution rose for 4/13/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 4/13/2021.

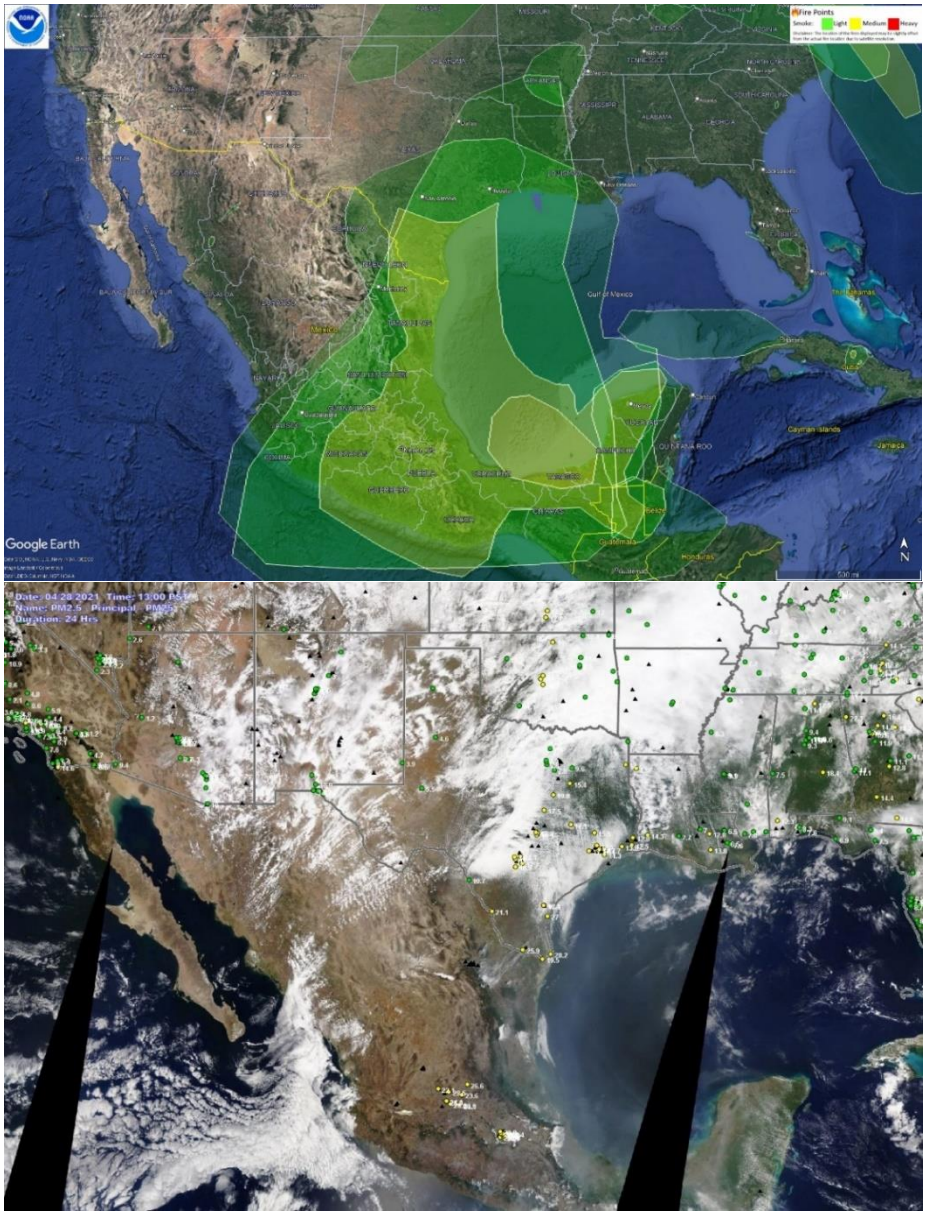


10. 4/28/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

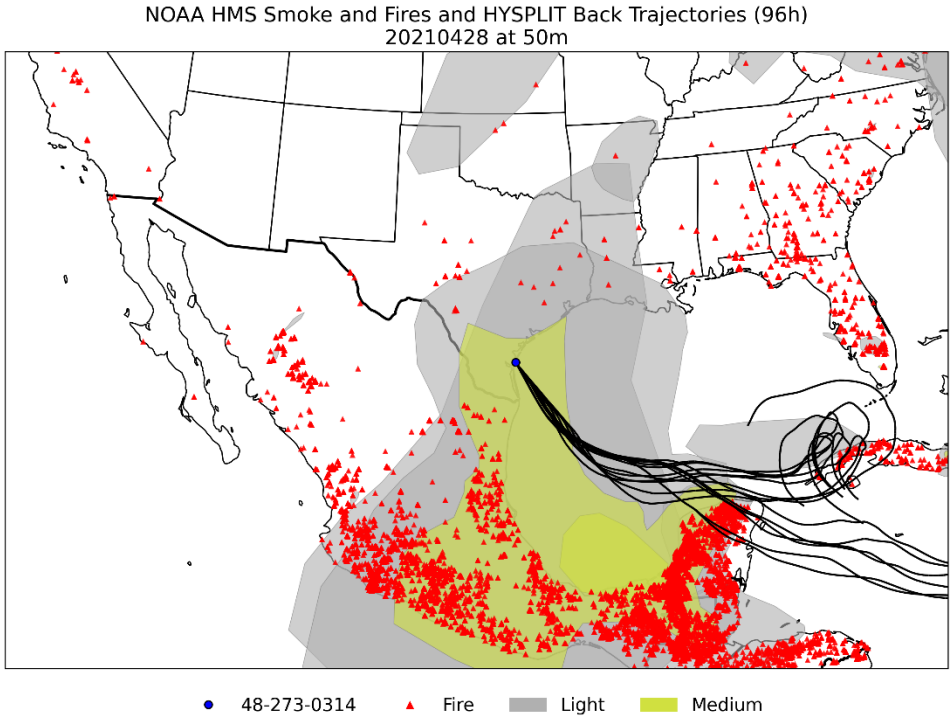
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
4/28/2021	25.0	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

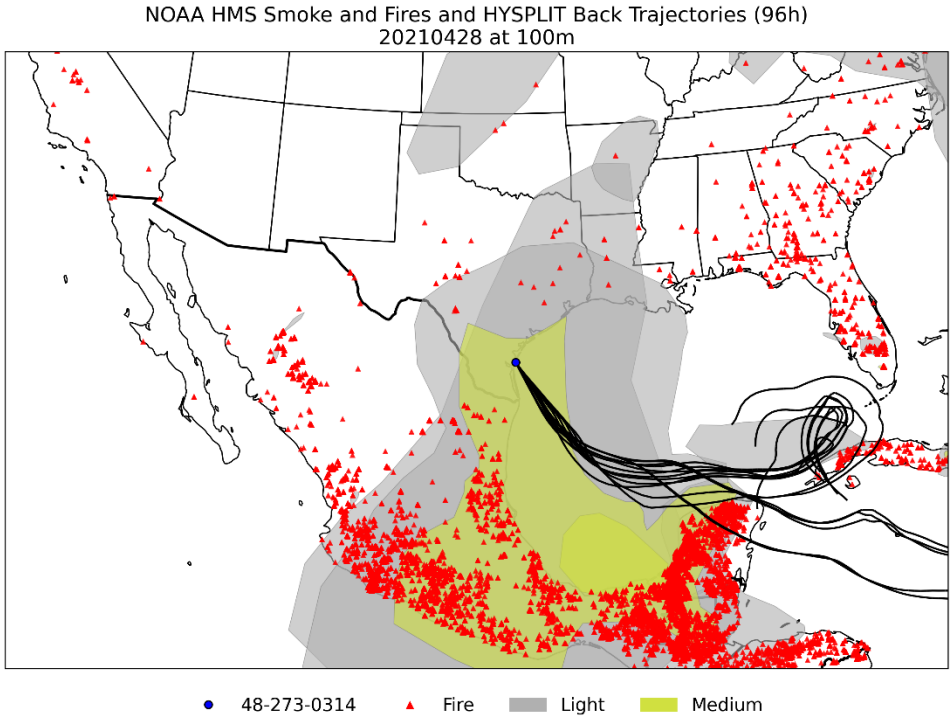


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

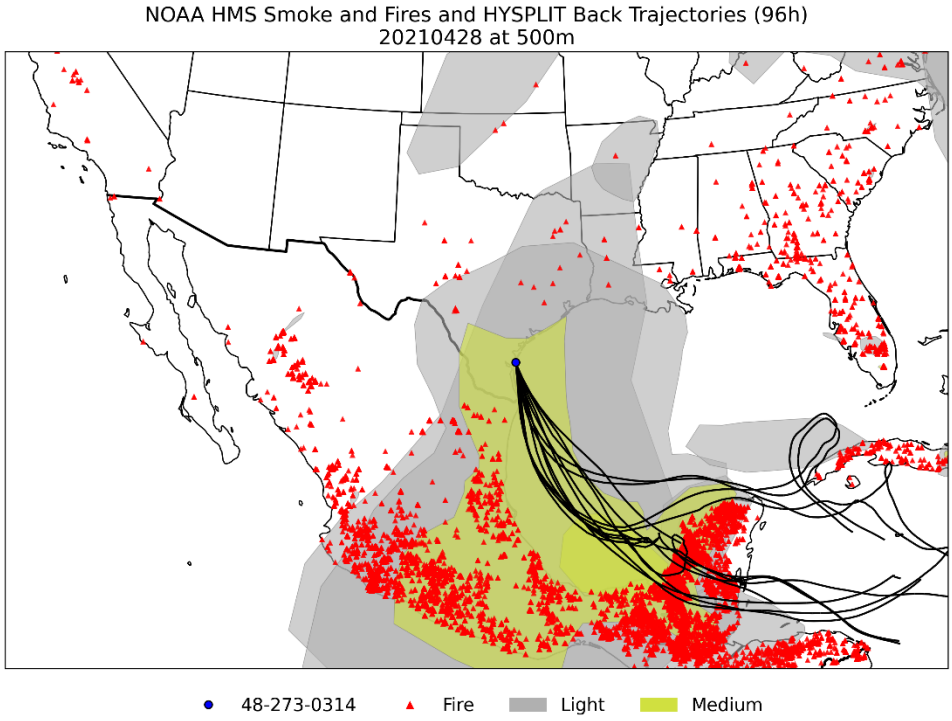
- 50m



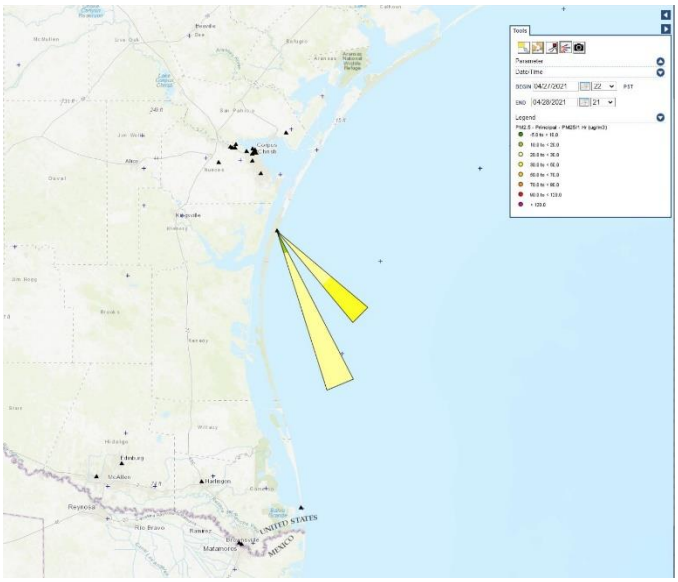
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210428 at 100m
48-273-0314
Fire
Light
Medium

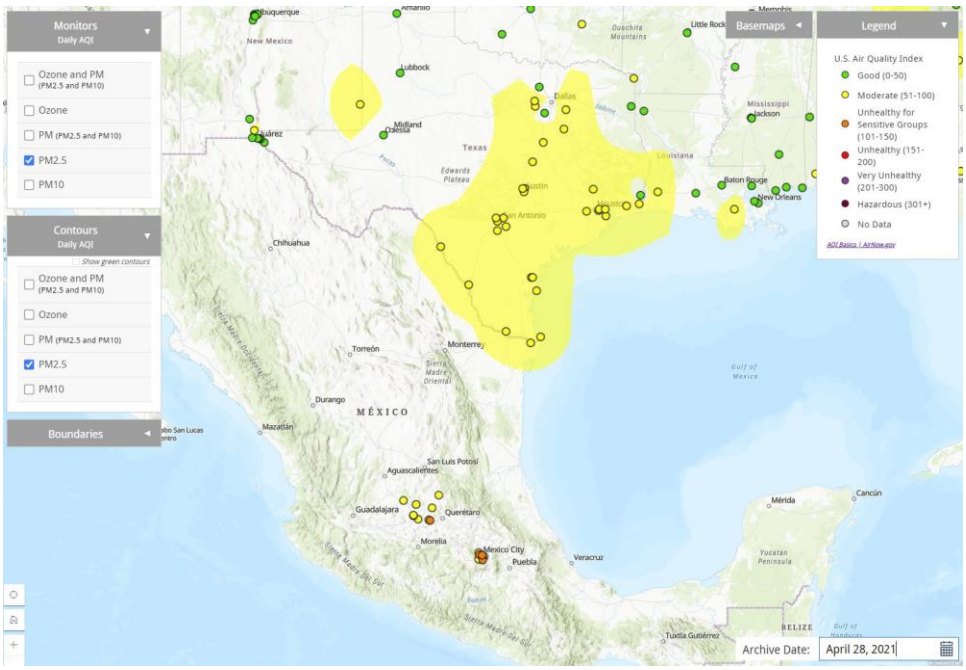
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210428 at 500m
48-273-0314
Fire
Light
Medium

d. Evidence #3 - Pollution rose for 4/28/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 4/28/2021.

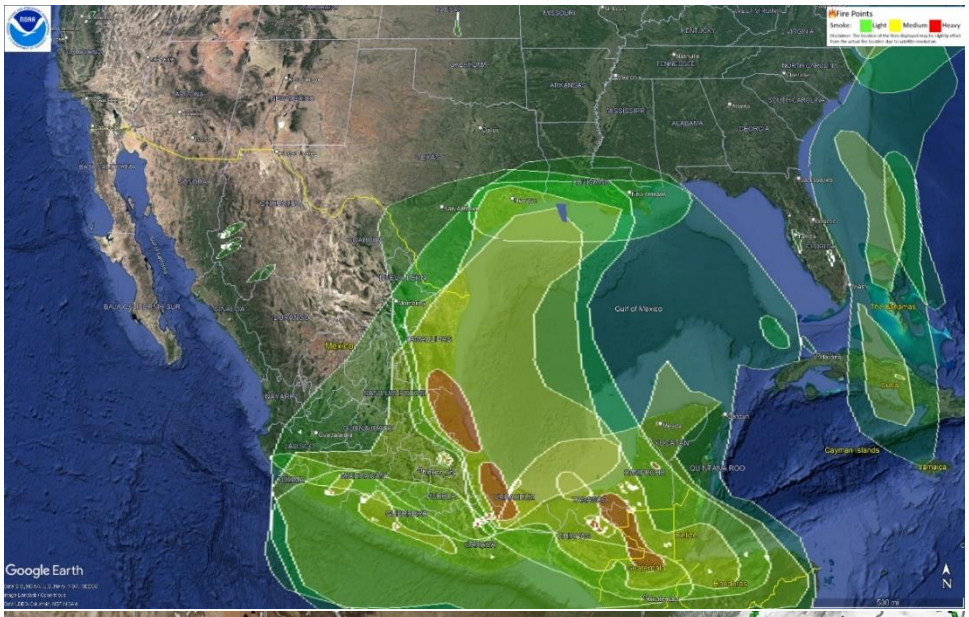


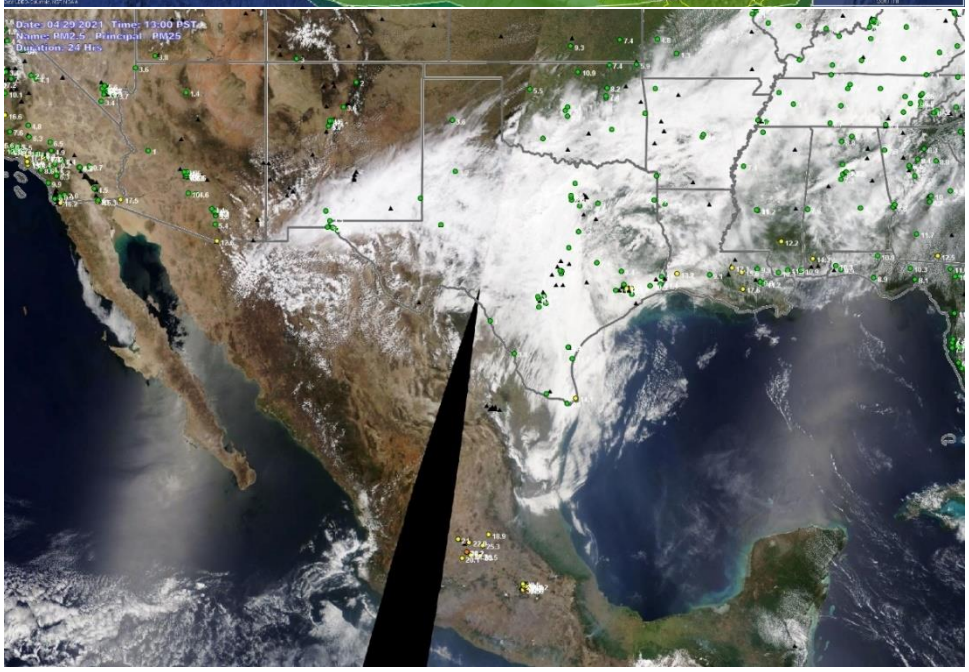
11. 4/29/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
4/29/2021	24.4	18.1	27.15

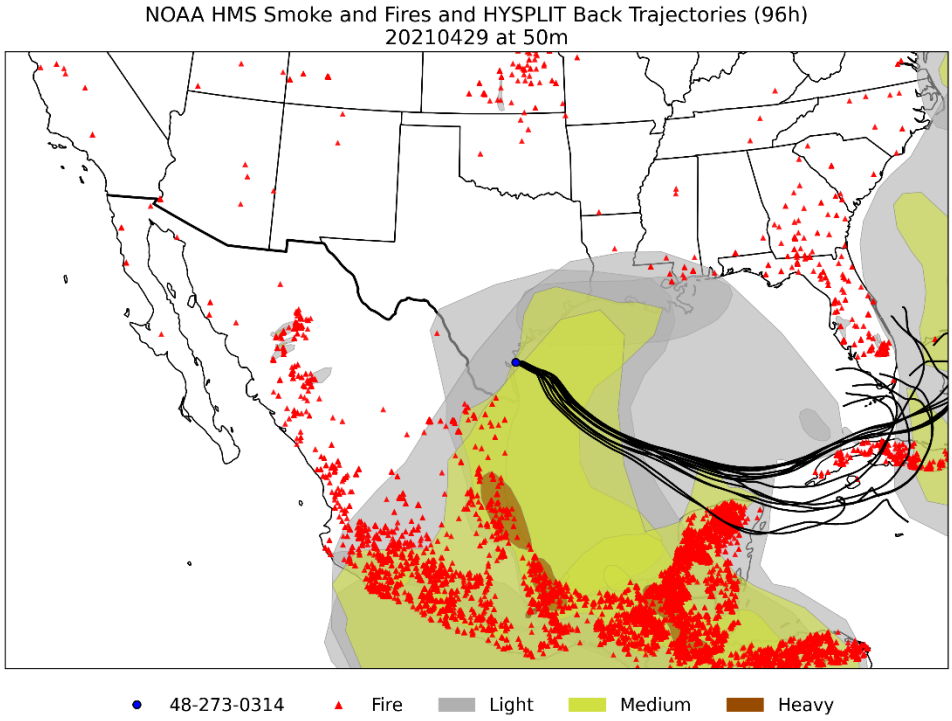
b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).



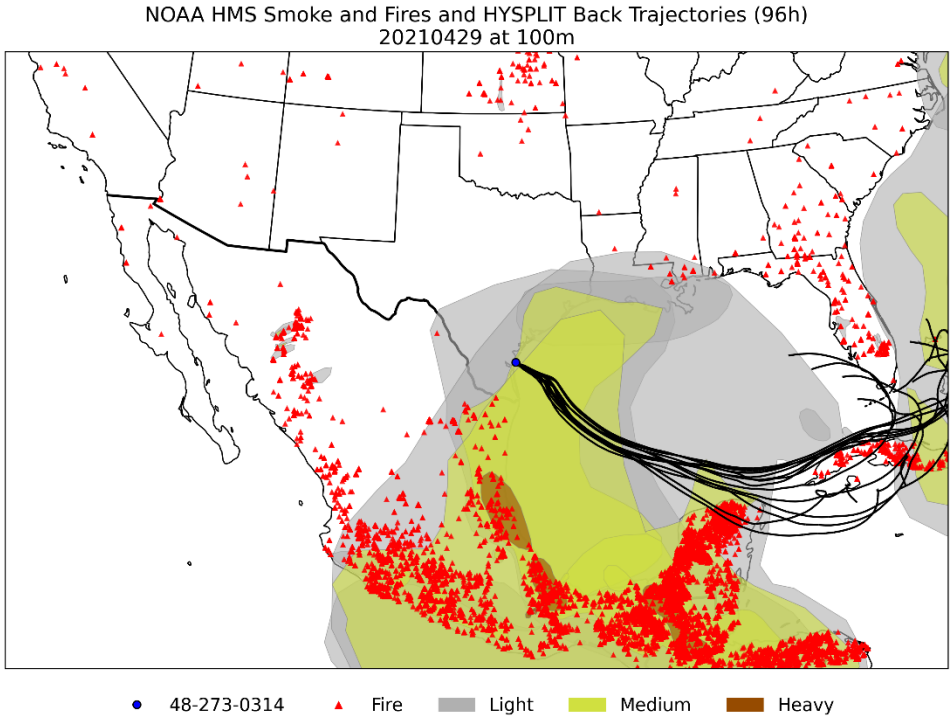


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

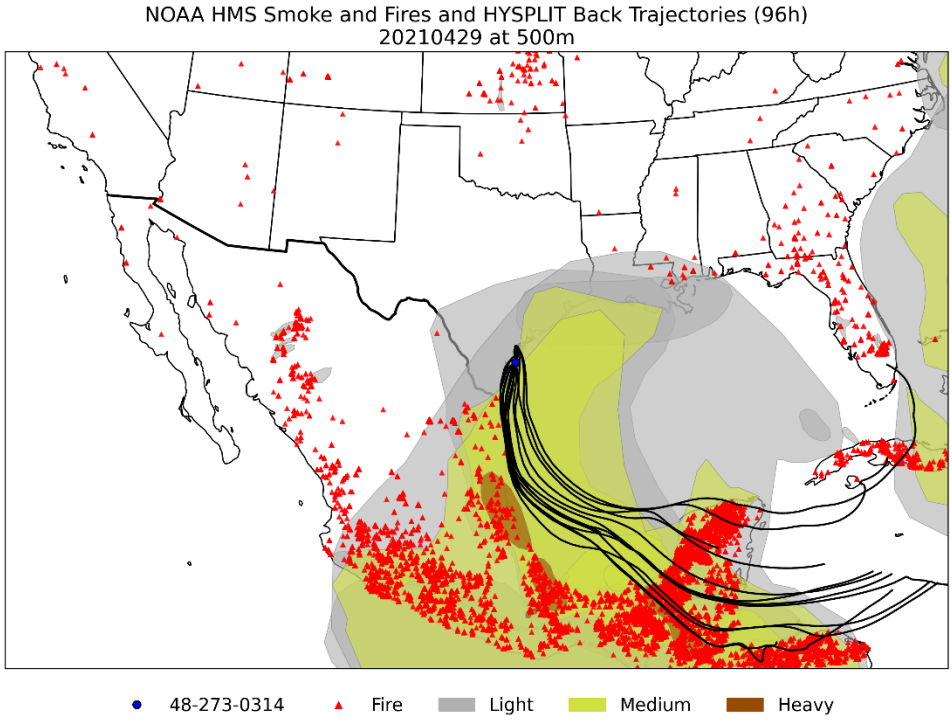
- 50m



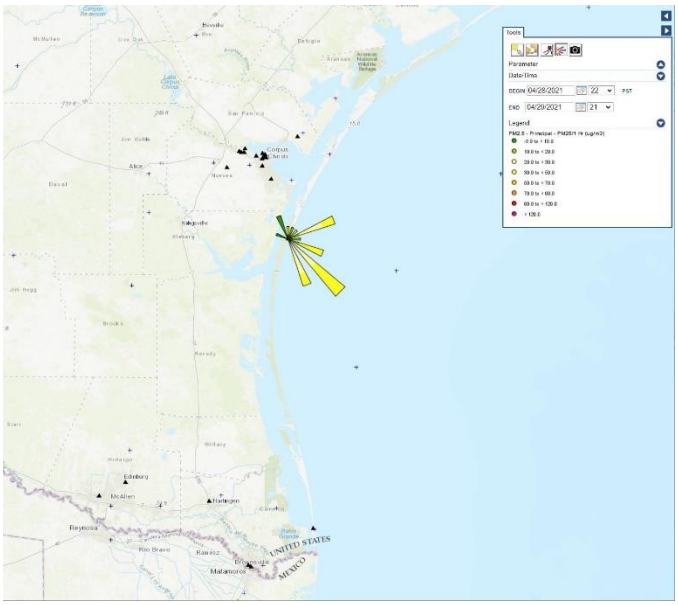
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210429 at 100m
48-273-0314
Fire
Light
Medium
Heavy

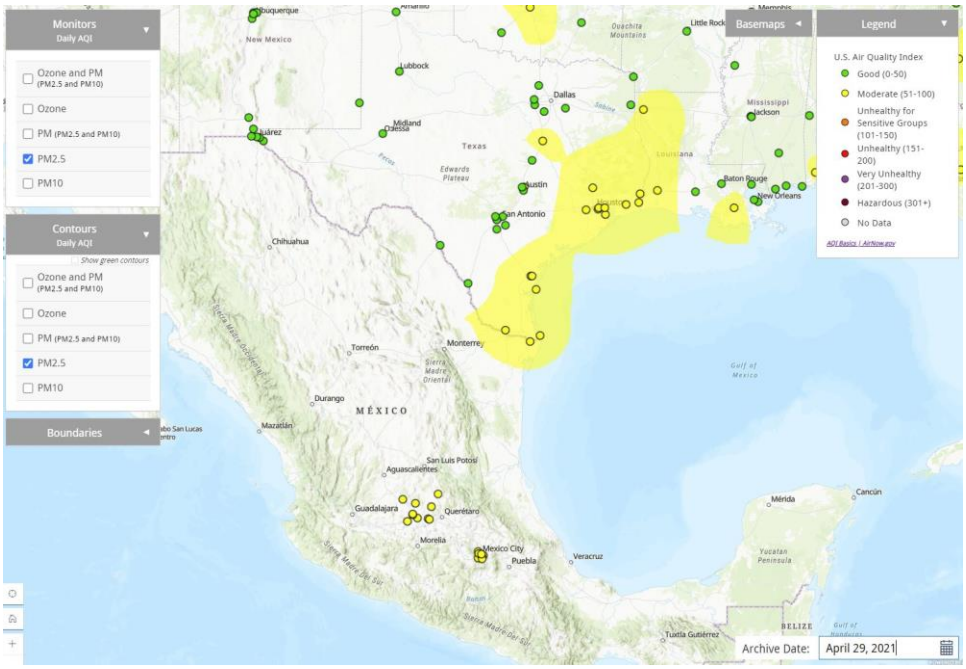
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210429 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 4/29/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4** - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 4/29/2021.

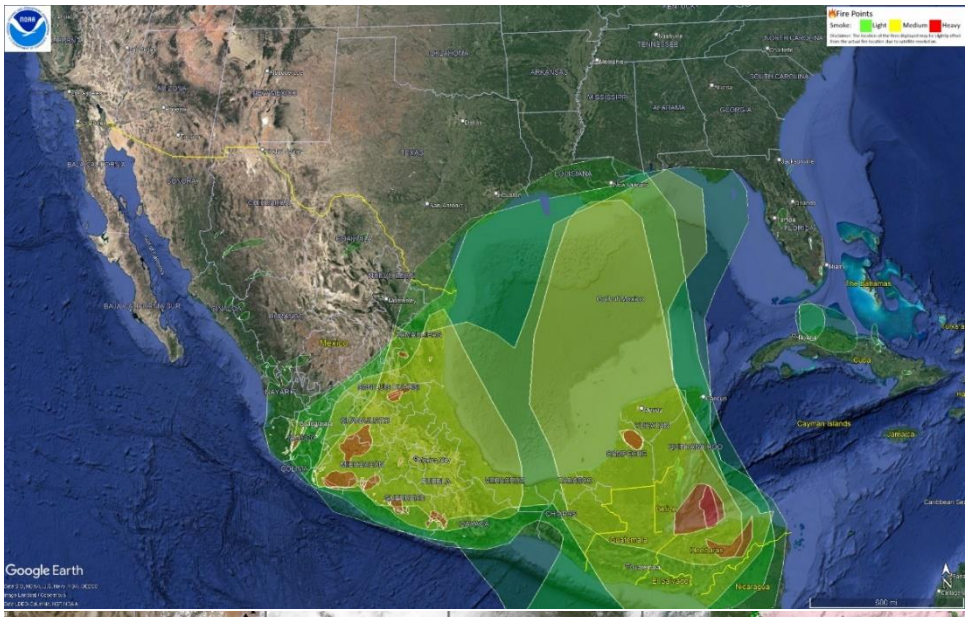


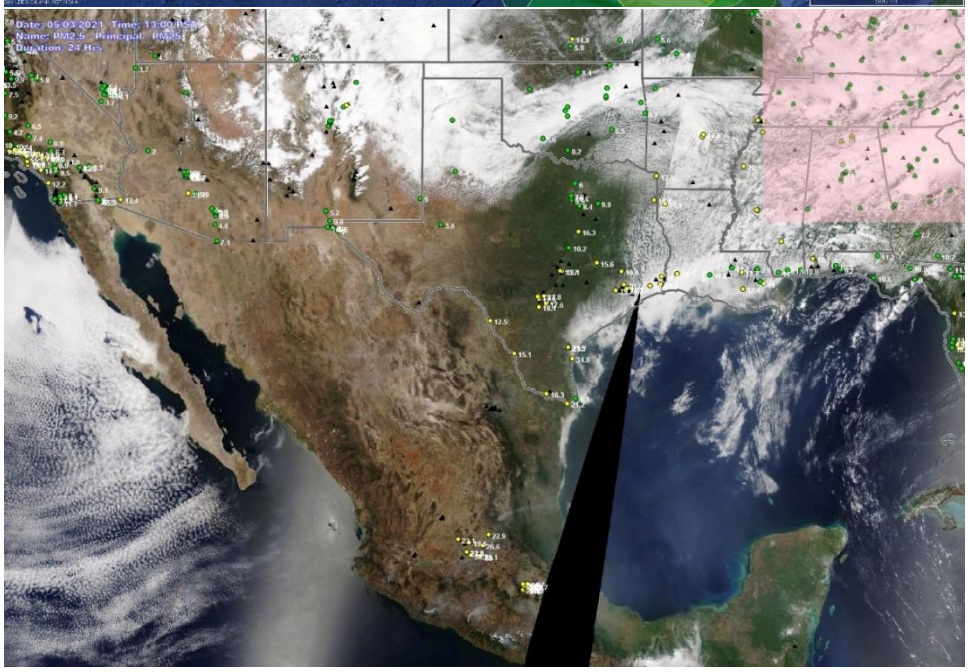
12. 5/3/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
5/3/2021	32.7	18.1	27.15

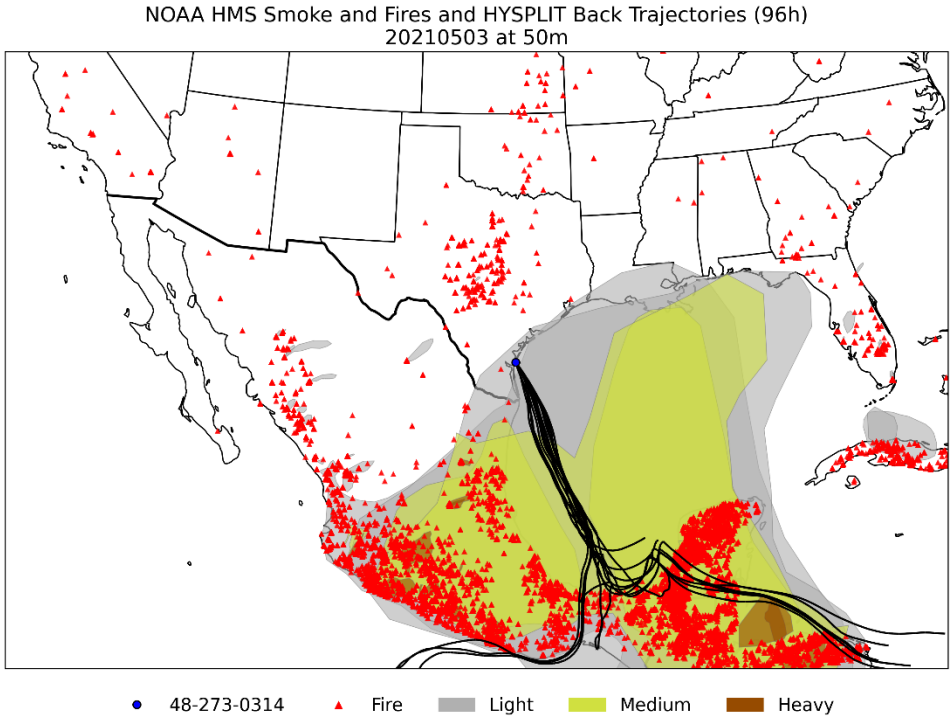
b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).



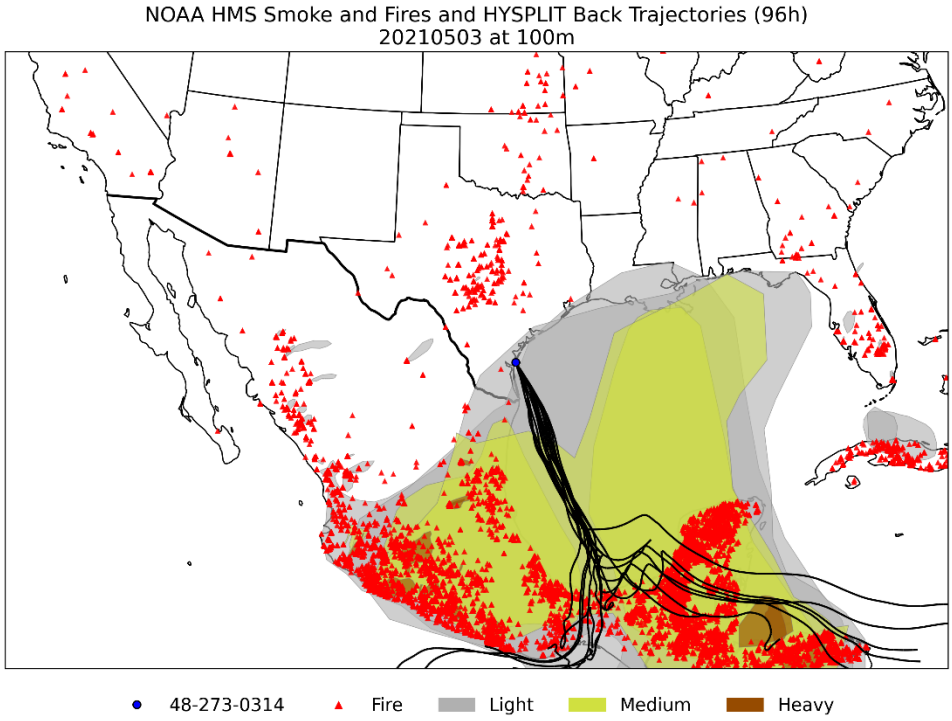


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

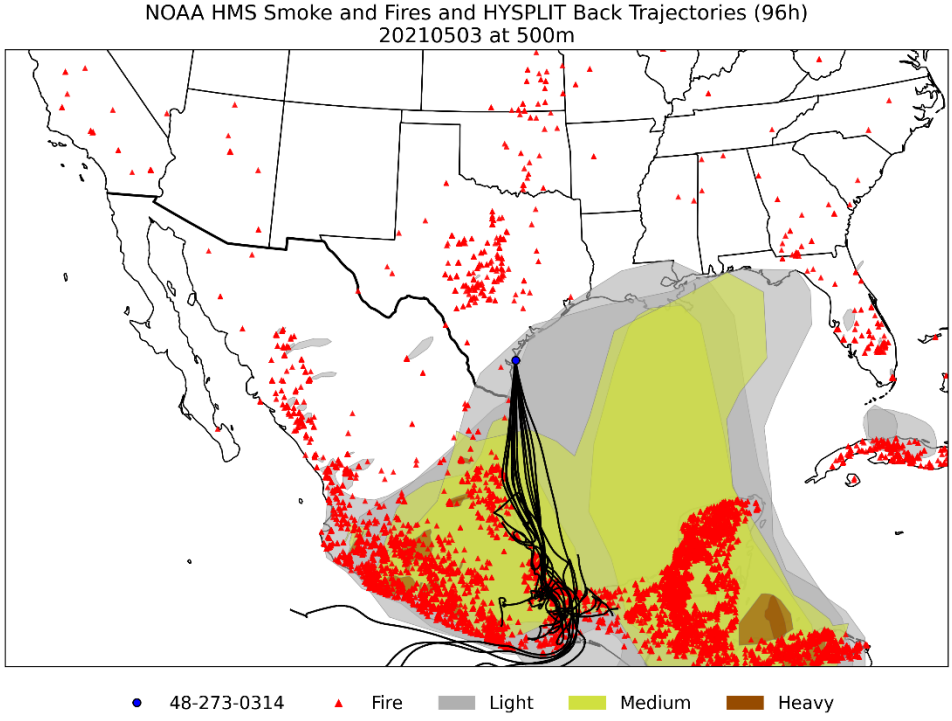
- 50m



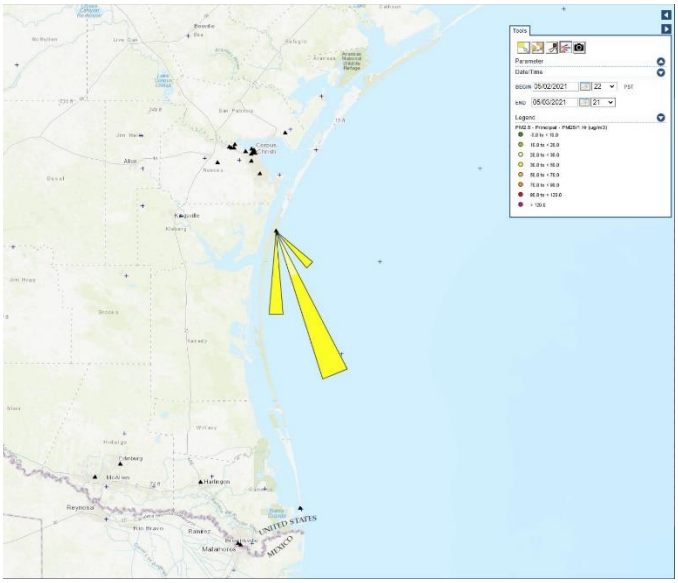
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210503 at 100m
48-273-0314
Fire
Light
Medium
Heavy

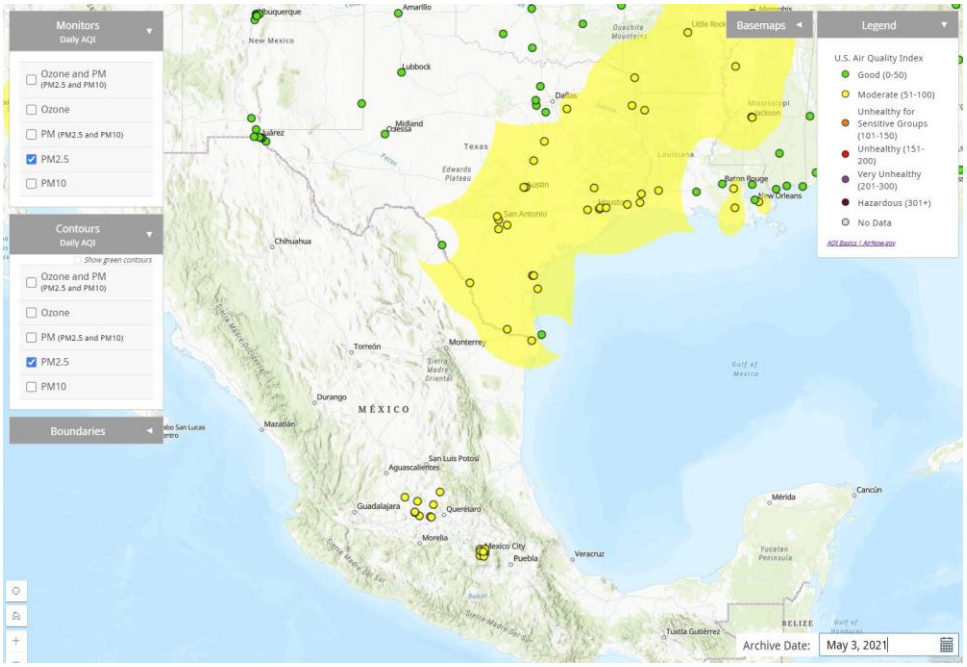
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210503 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 5/3/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 5/3/2021.

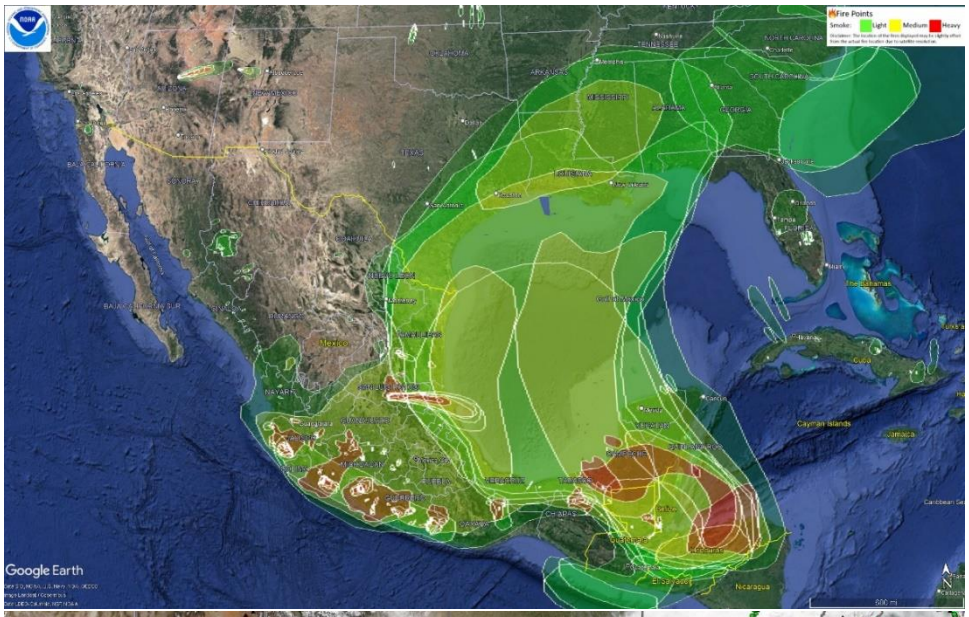


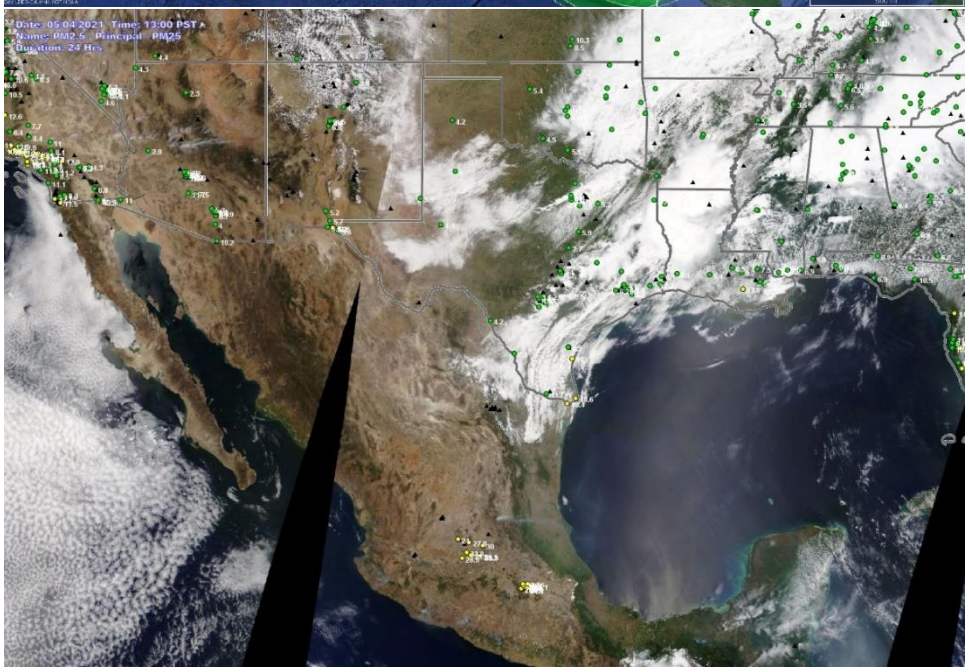
13. 5/4/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
5/4/2021	35.0	18.1	27.15

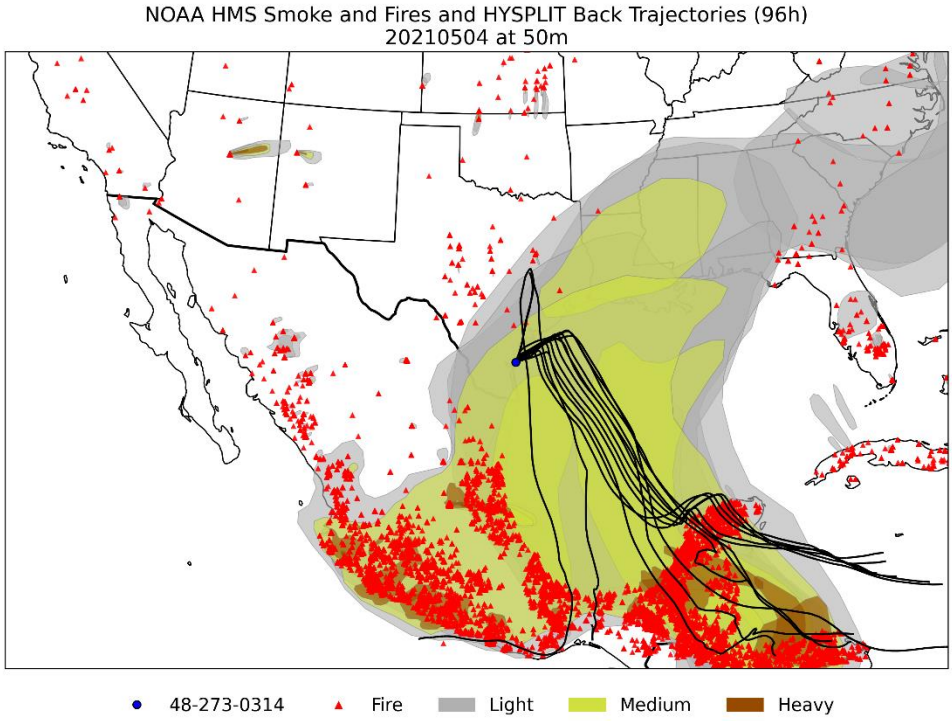
b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).



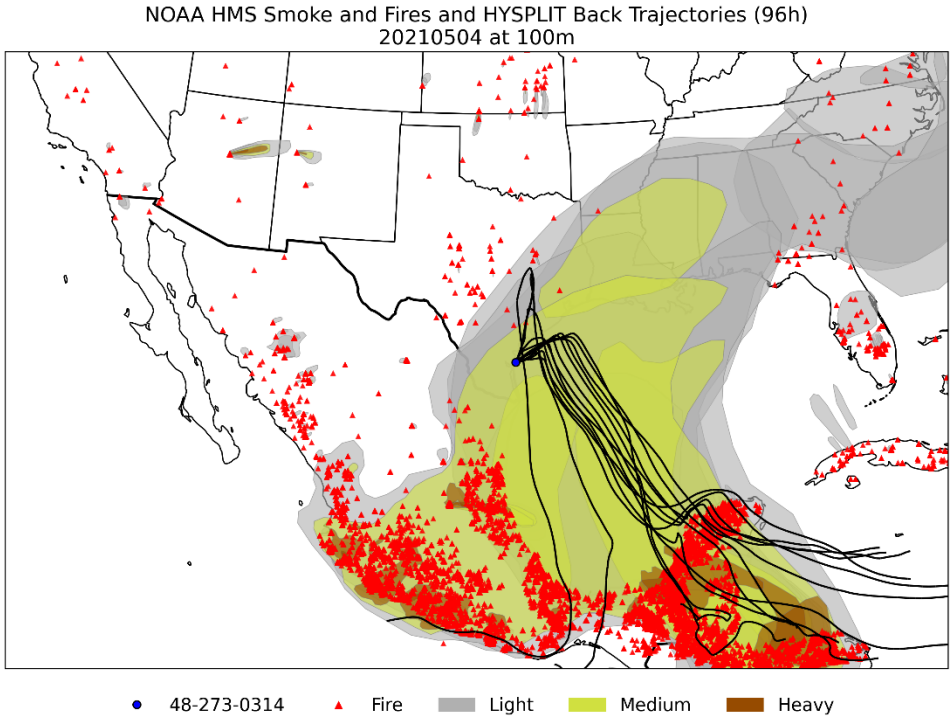


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

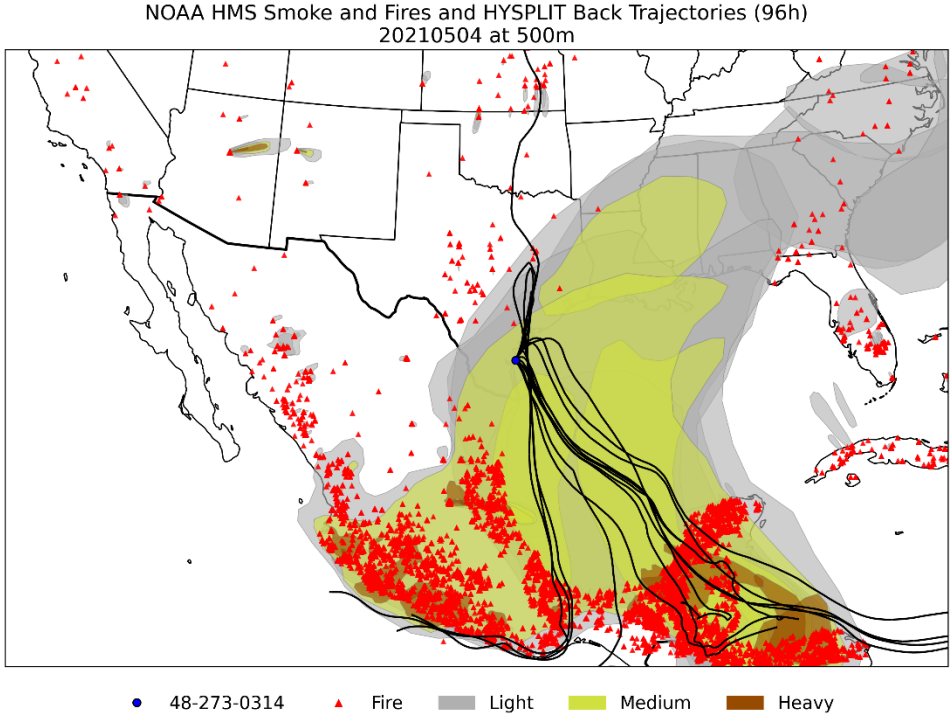
- 50m



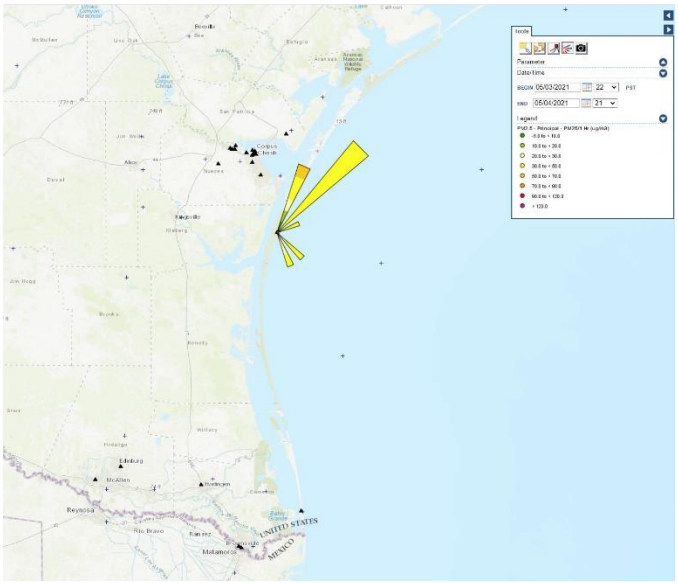
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210504 at 100m
48-273-0314
Fire
Light
Medium
Heavy

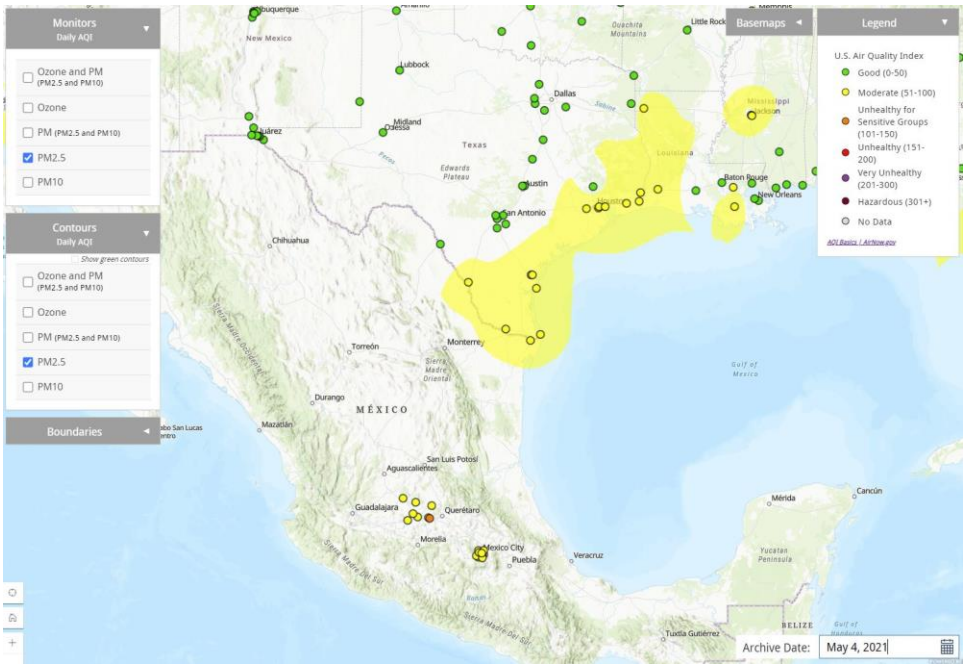
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210504 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 5/4/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4 -** EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 5/4/2021.

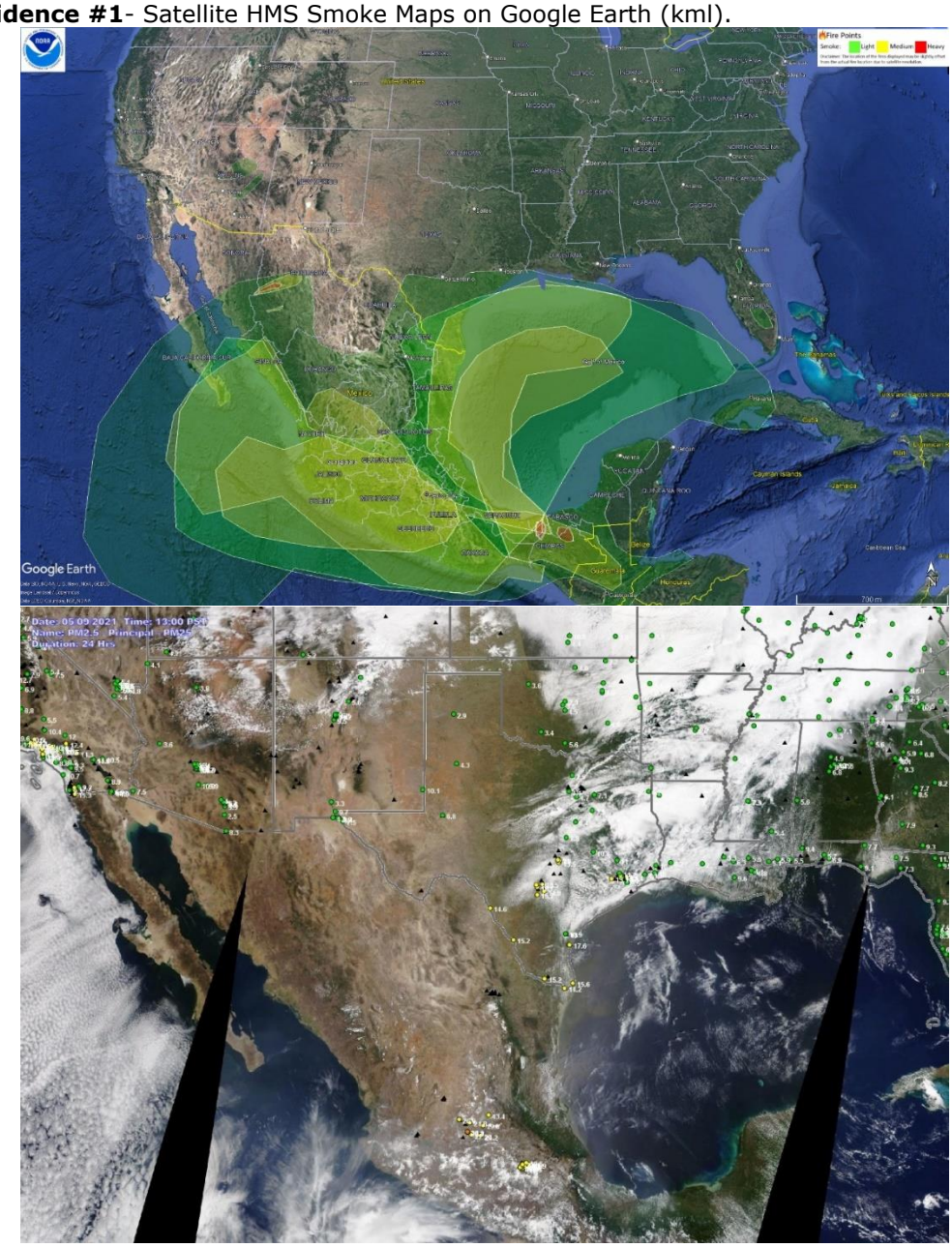


14. 5/9/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

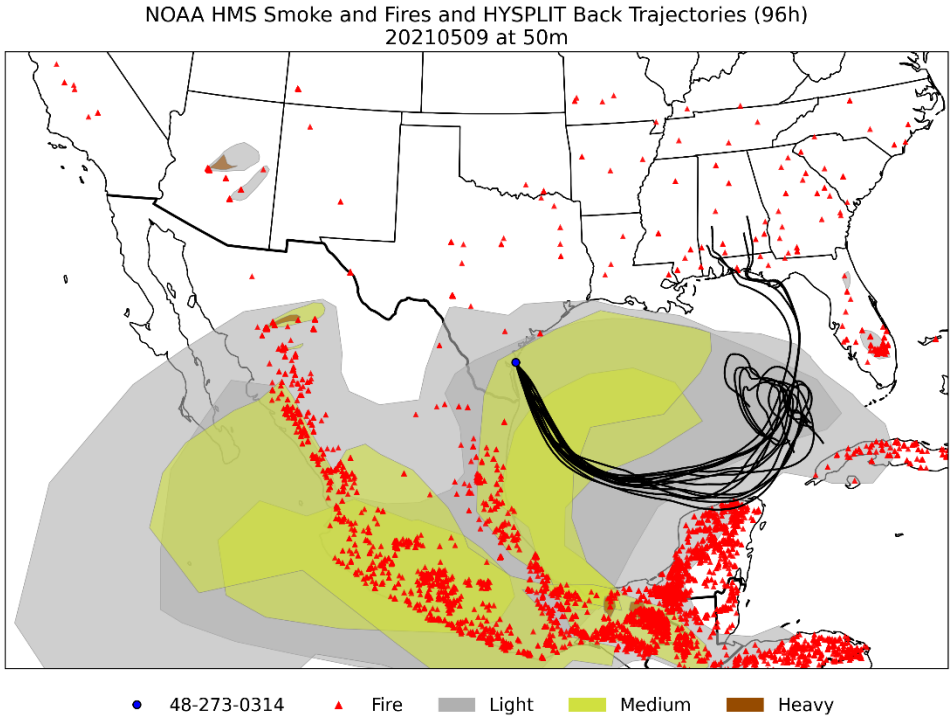
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
5/9/2021	25.2	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

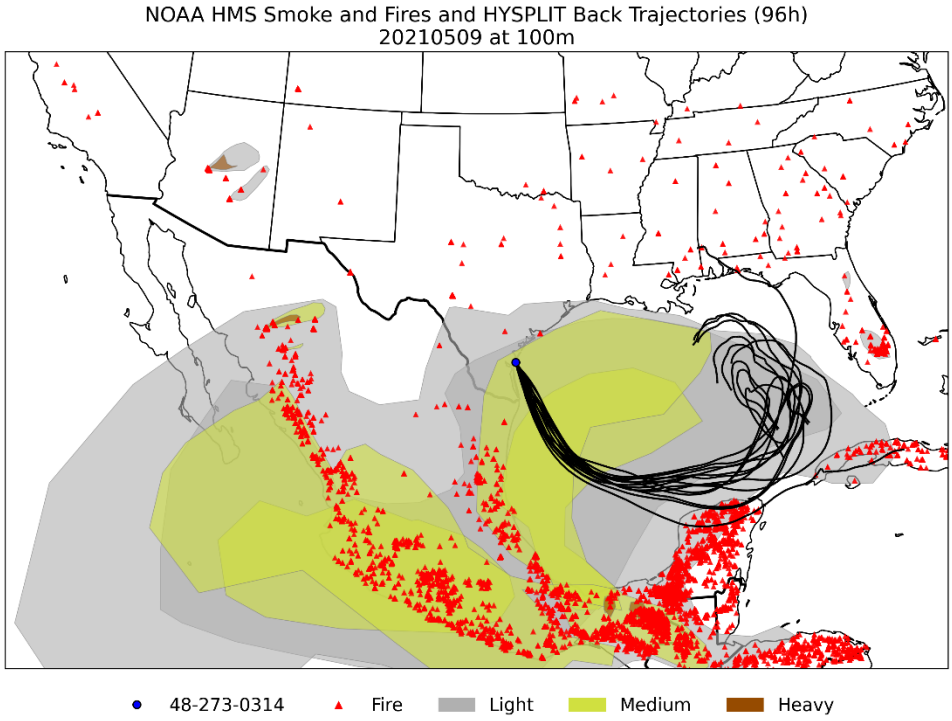


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

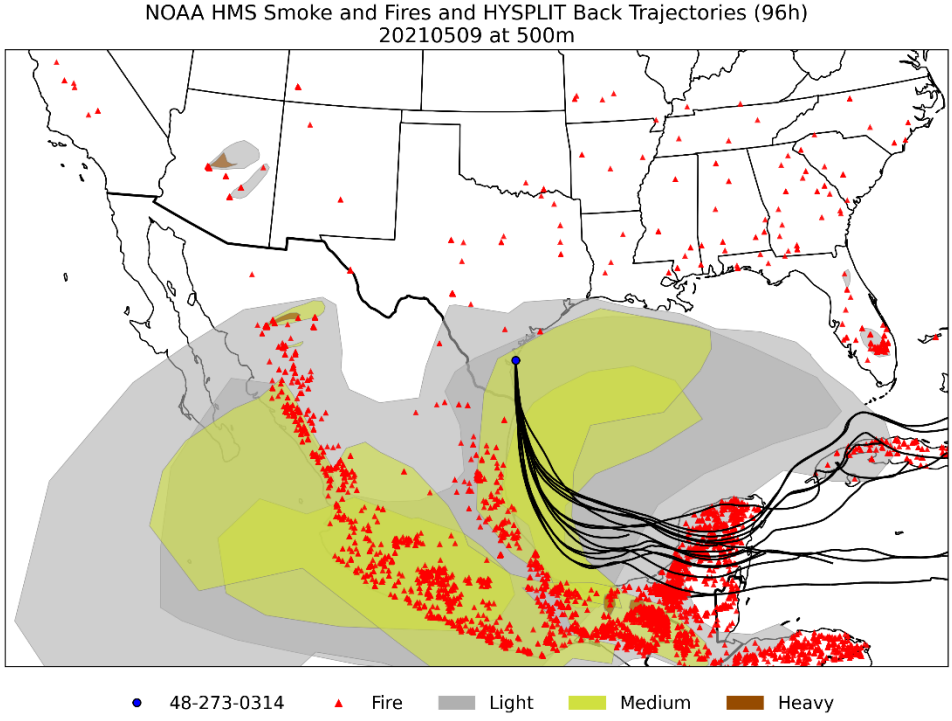
- 50m



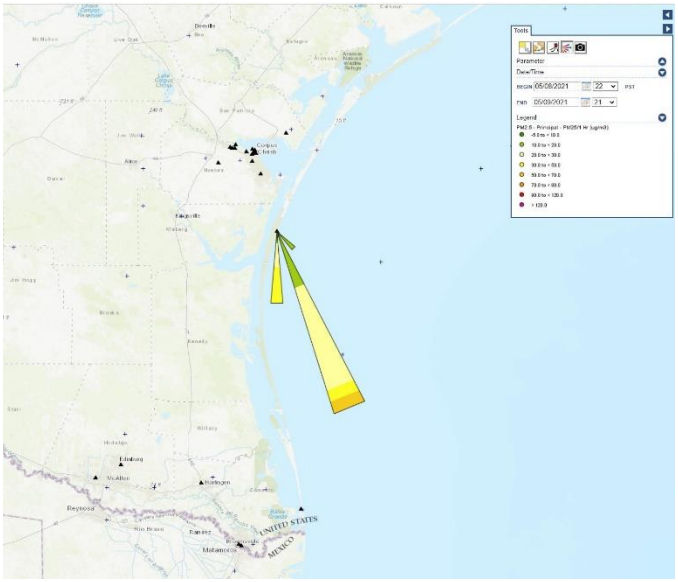
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210509 at 100m
48-273-0314
Fire
Light
Medium
Heavy

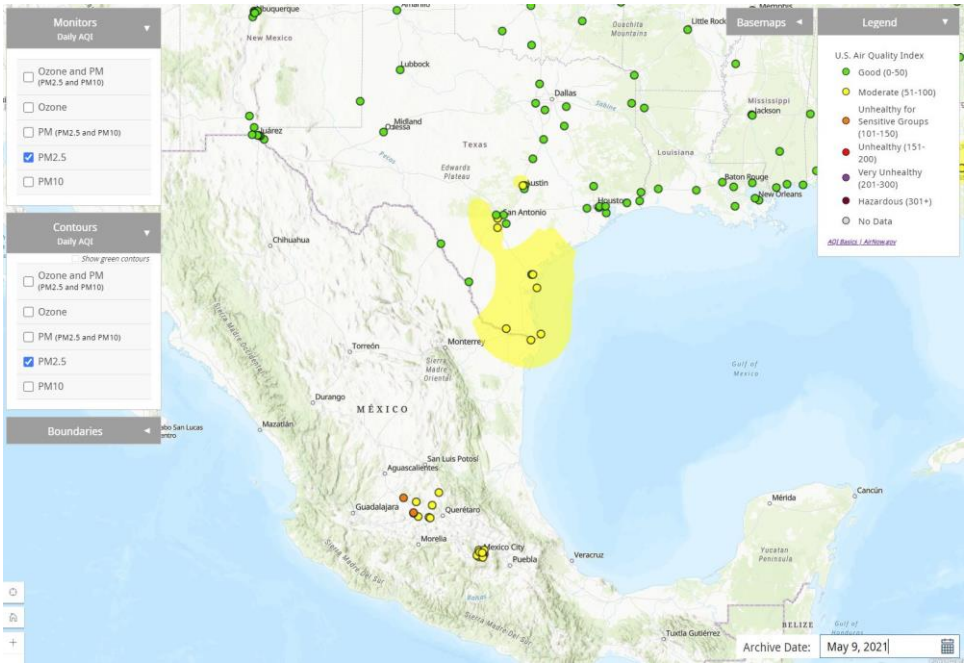
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210509 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 5/9/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 5/9/2021.

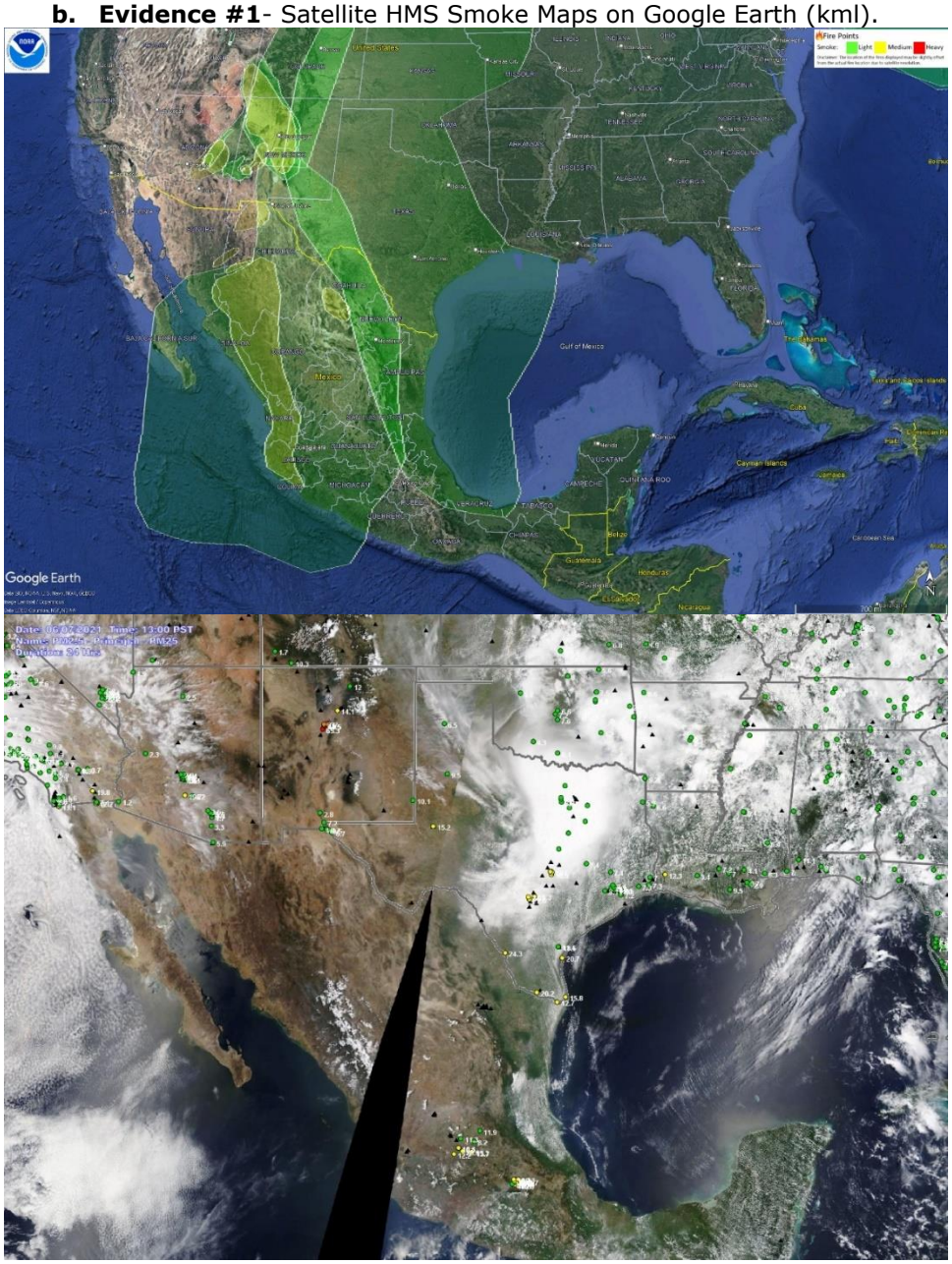


15. 6/7/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

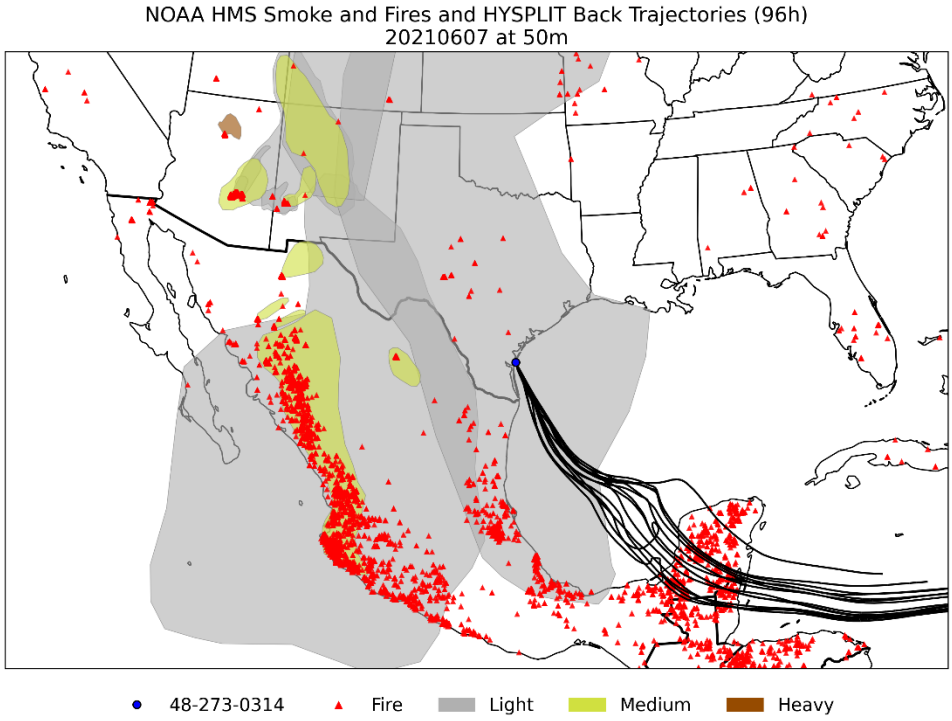
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
6/7/2021	27.3	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

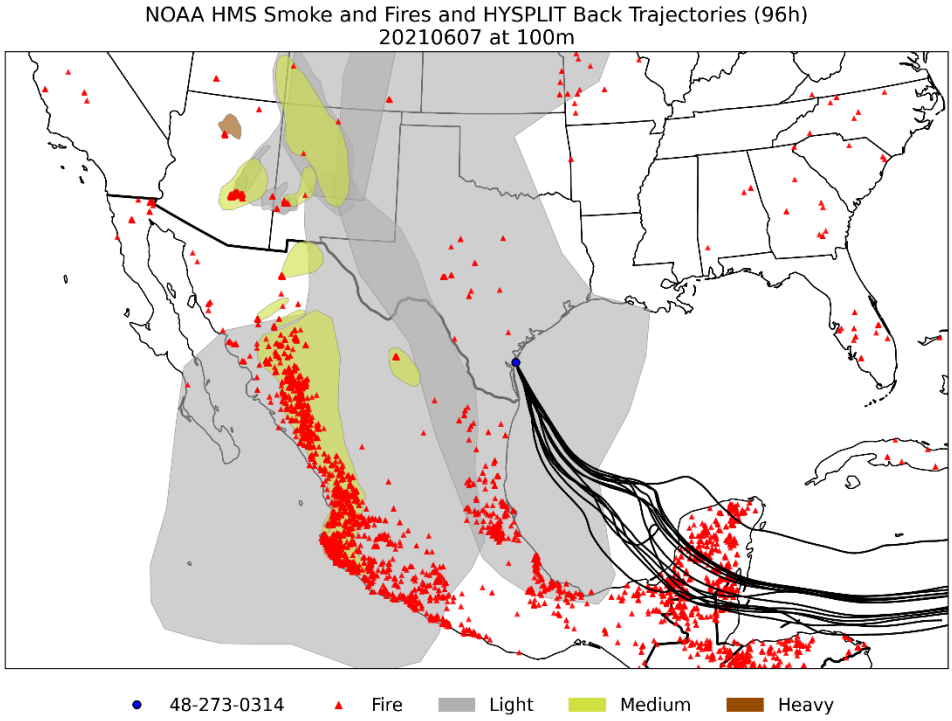


c. **Evidence #2**– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

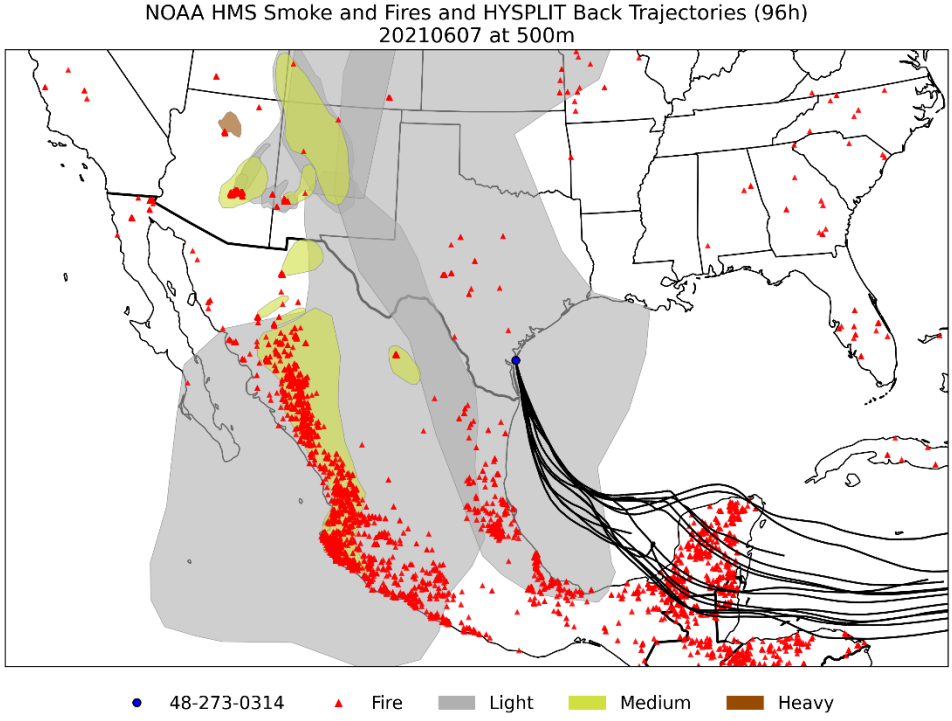
- 50m



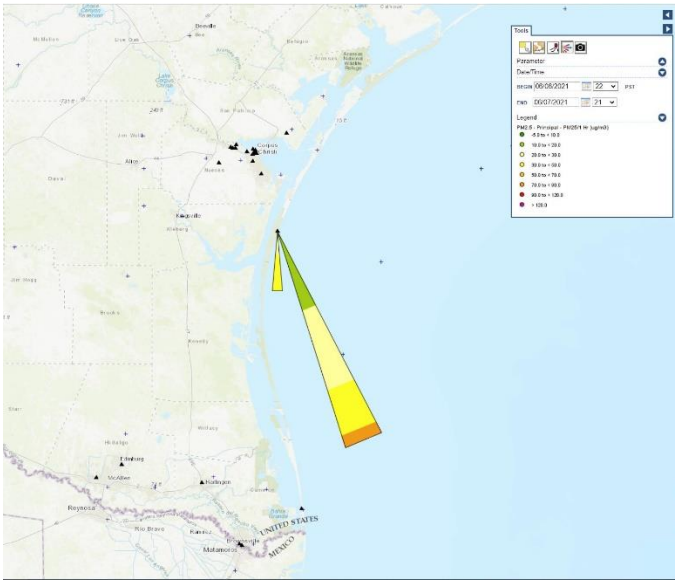
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210607 at 100m
48-273-0314
Fire
Light
Medium
Heavy

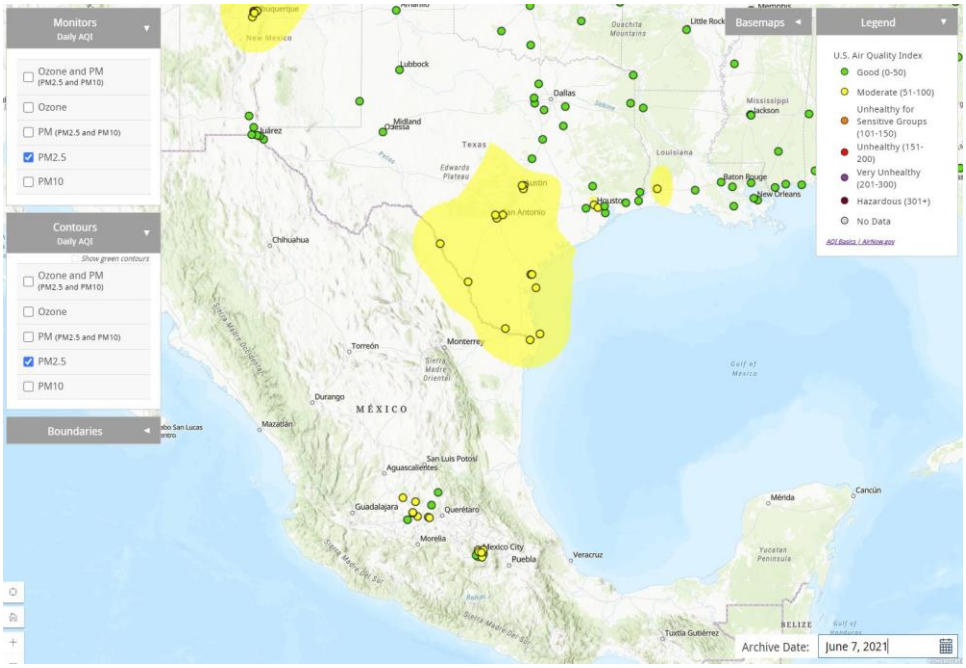
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210607 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 6/7/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 6/7/2021.

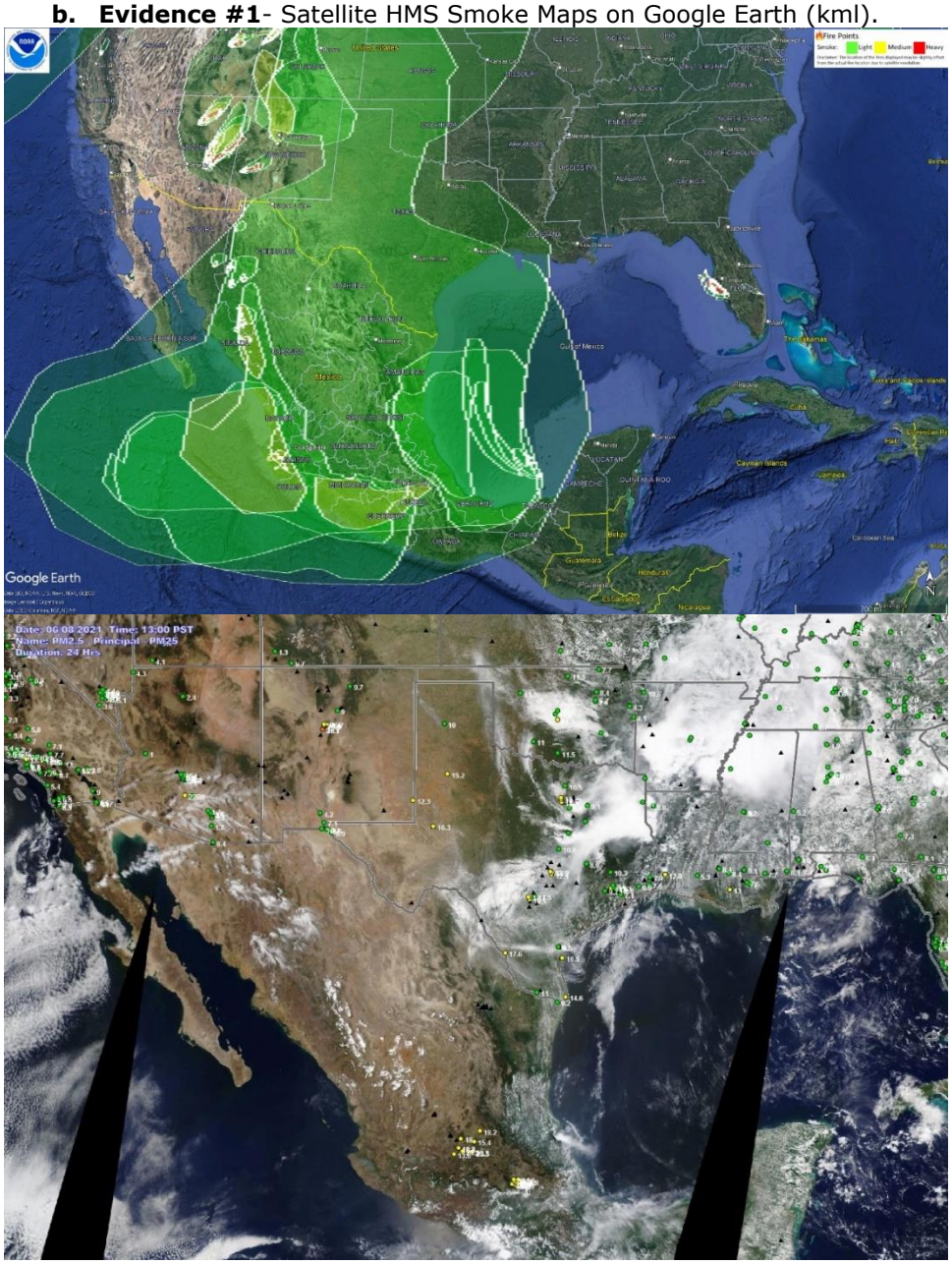


16. 6/8/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

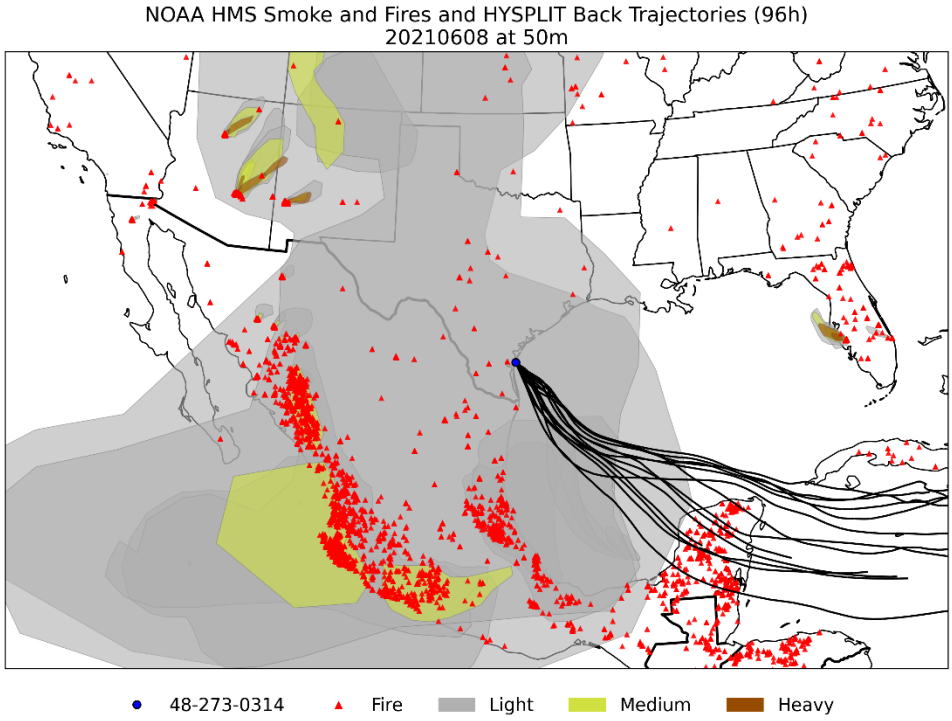
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
6/8/2021	18.7	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

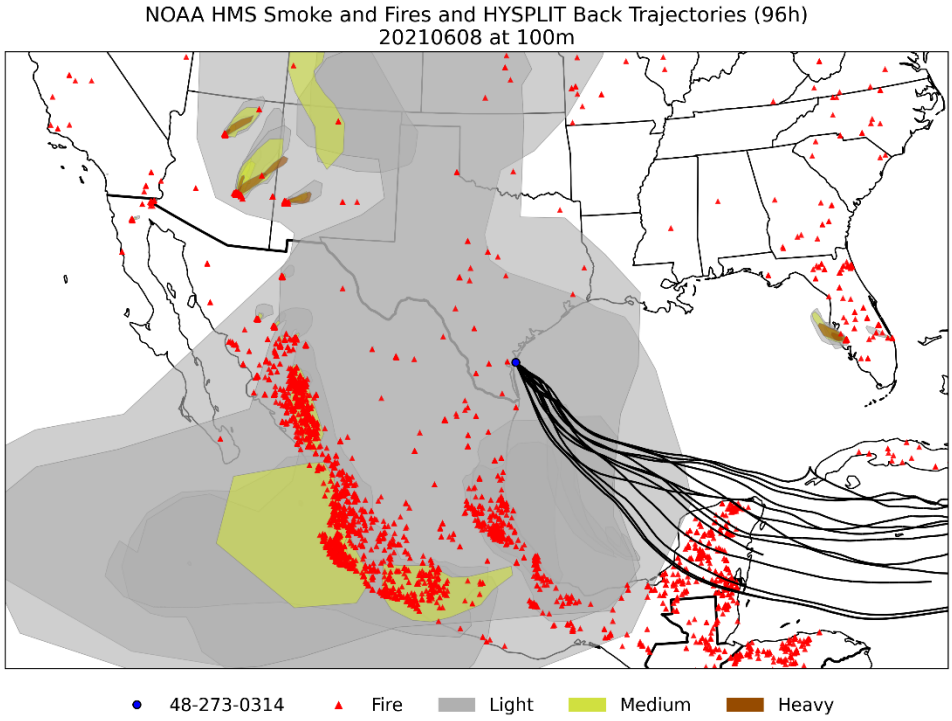


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

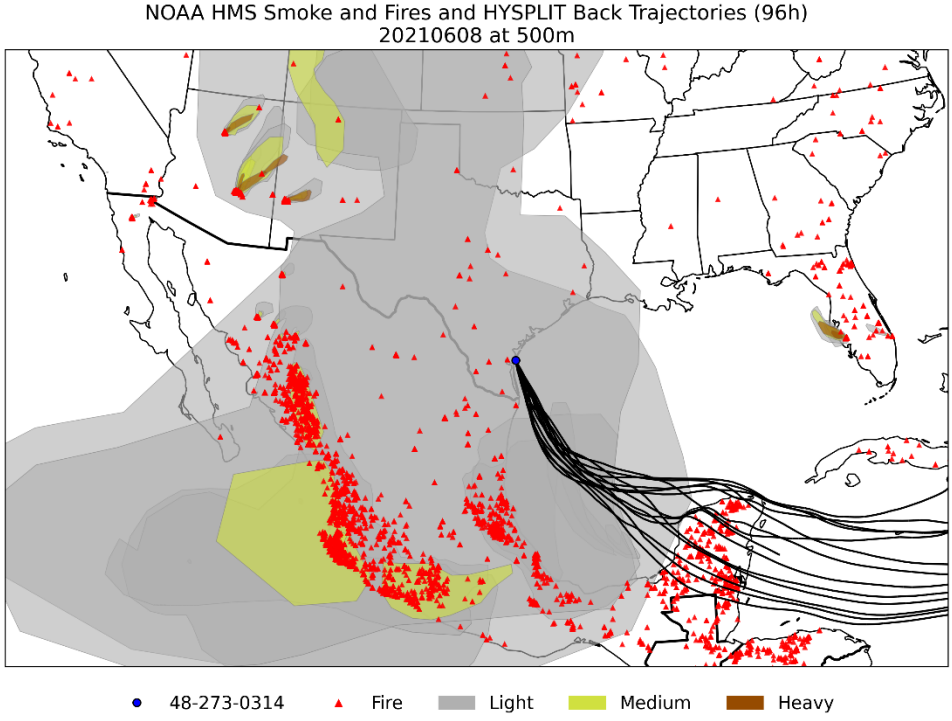
- 50m



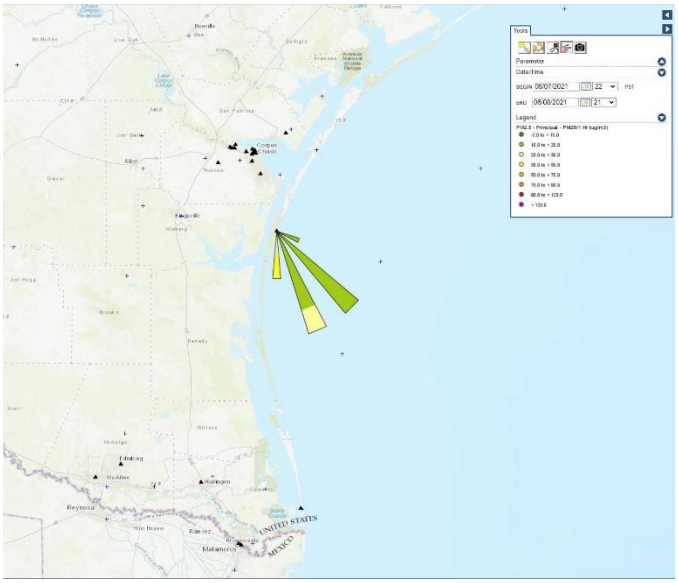
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210608 at 100m
48-273-0314
Fire
Light
Medium
Heavy

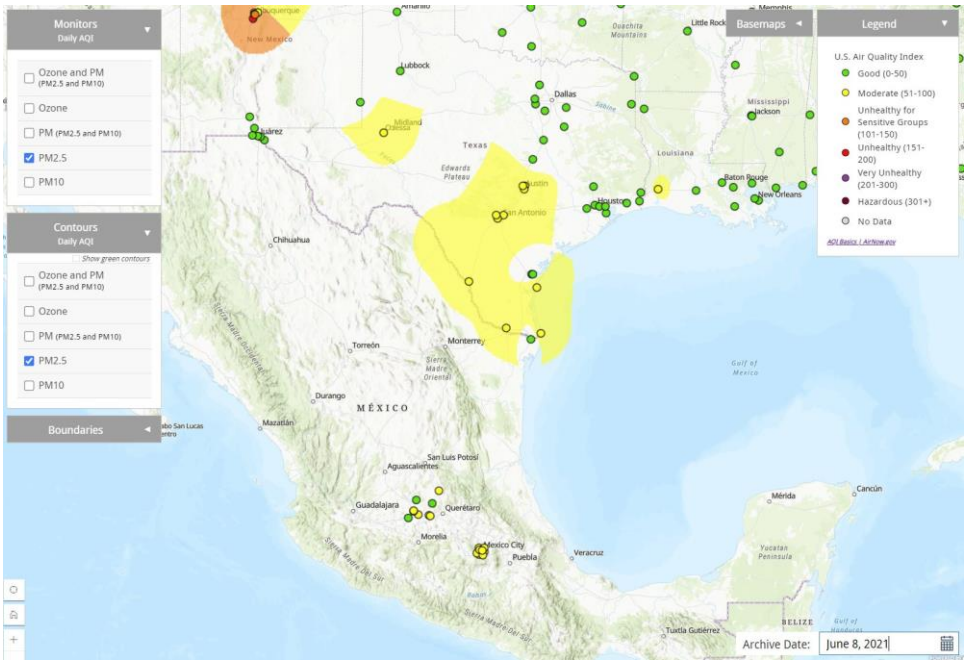
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210608 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 6/8/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4** - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 6/8/2021.

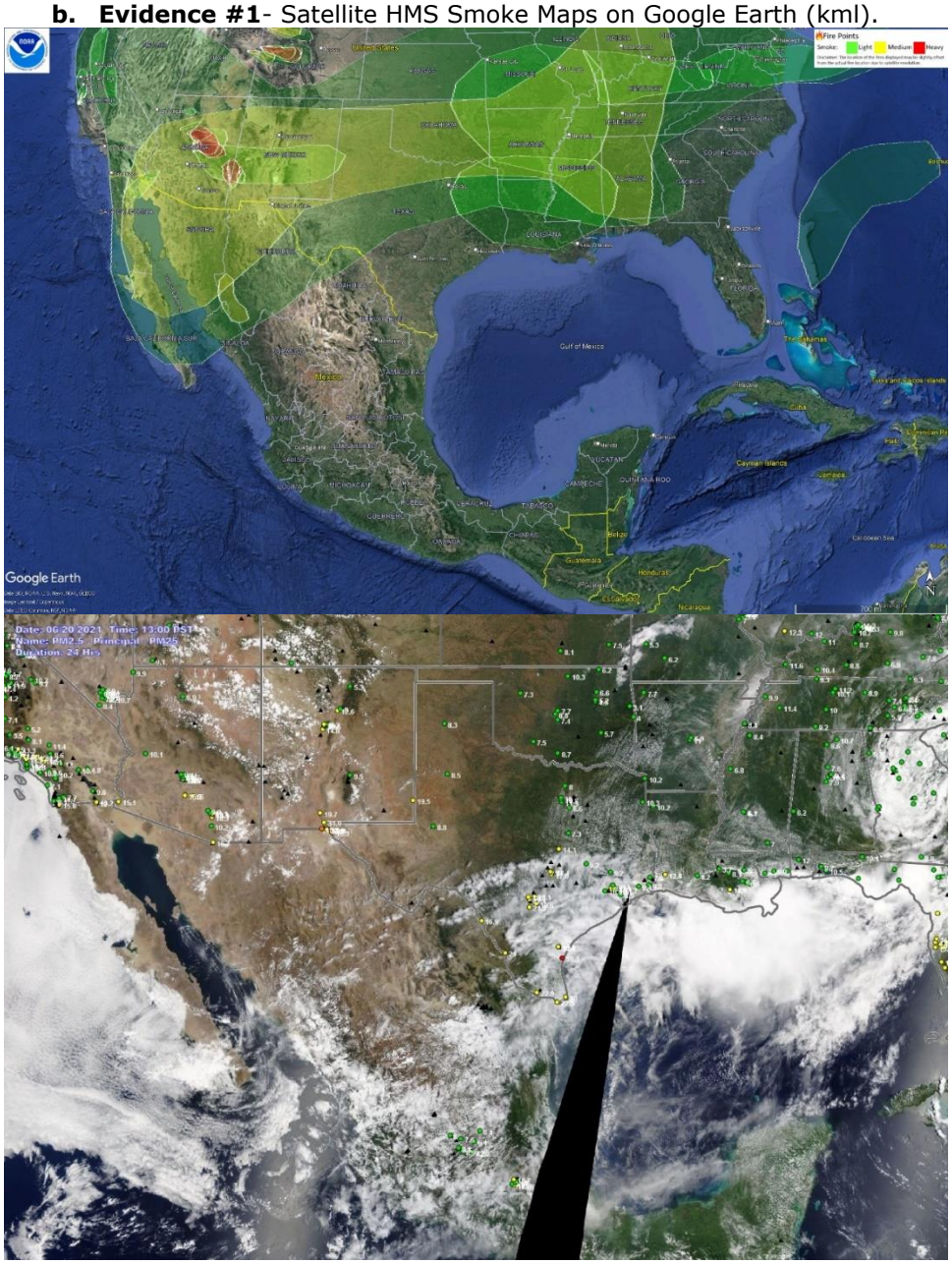


17. 6/20/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

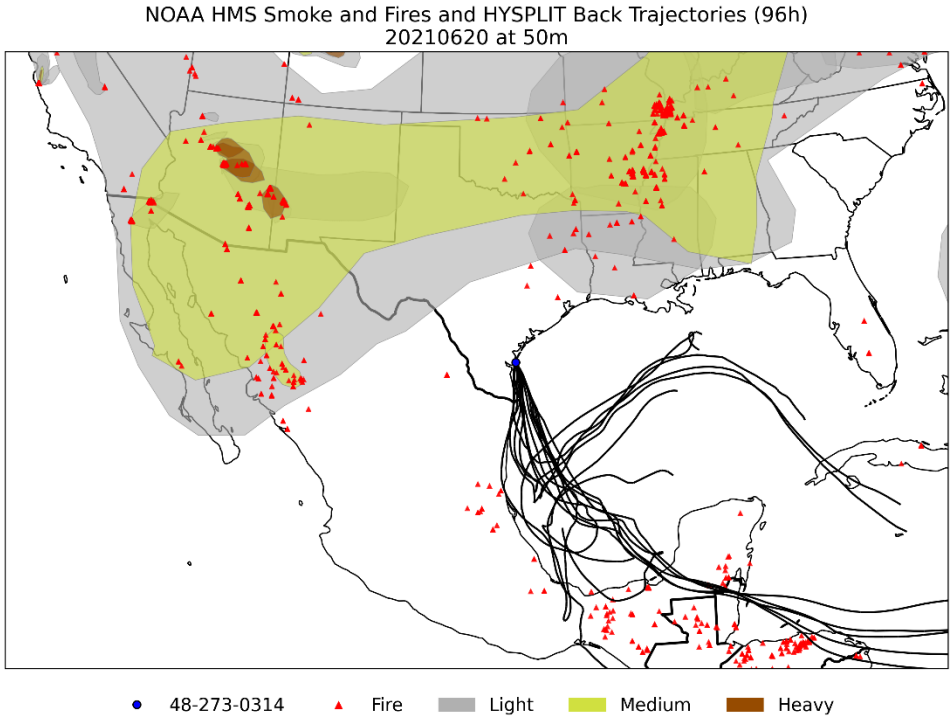
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
6/20/2021	33.0	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

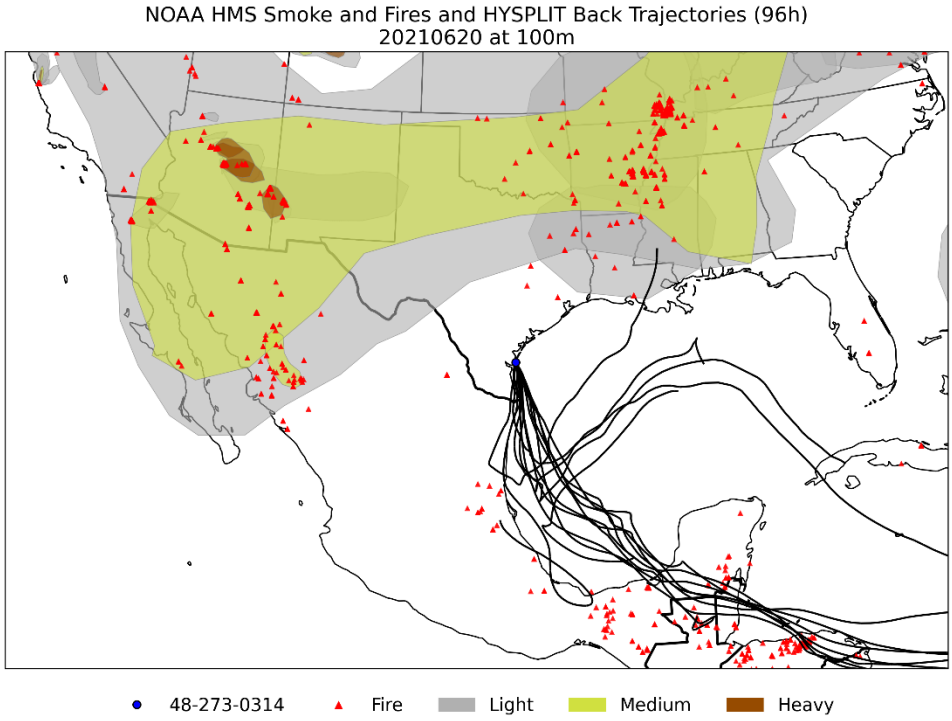


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

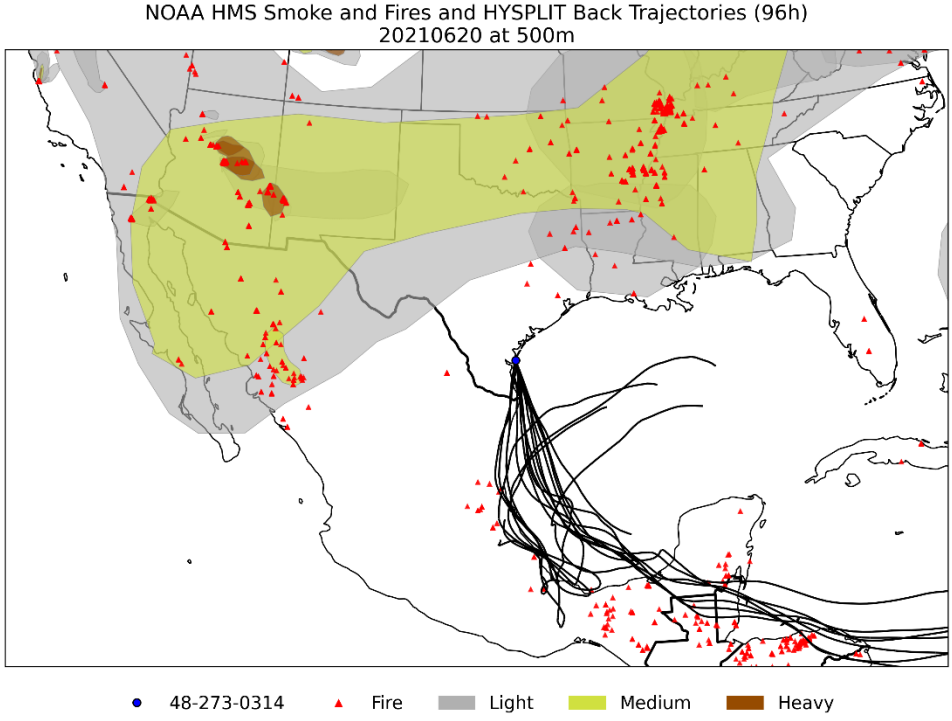
- 50m



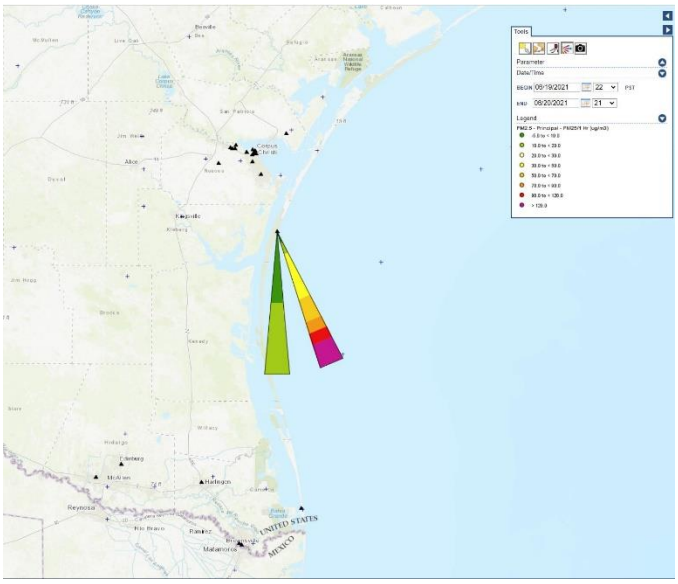
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210620 at 100m
48-273-0314
Fire
Light
Medium
Heavy

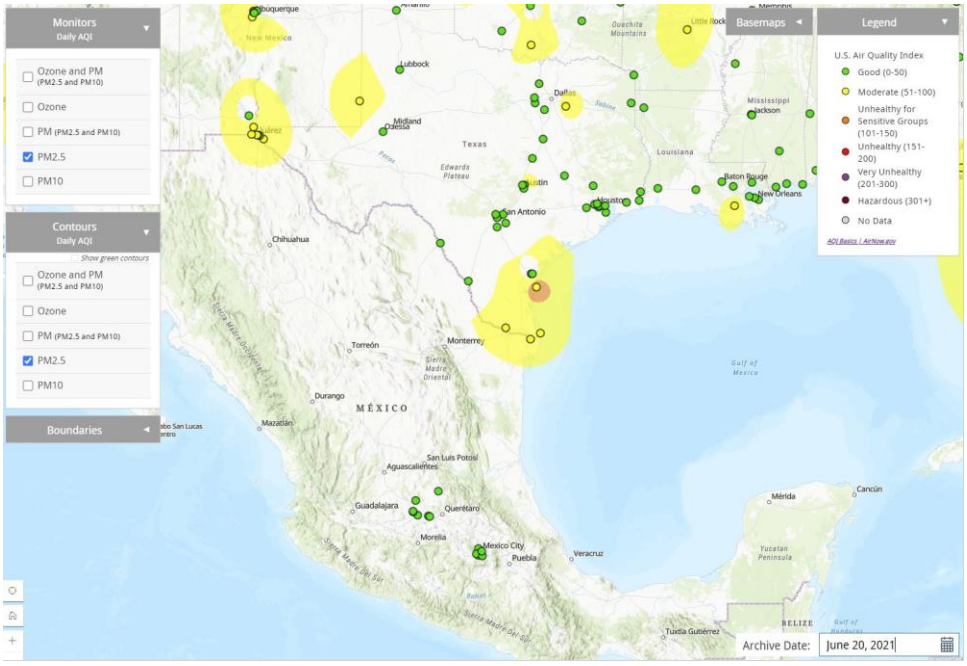
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210620 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 6/20/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 6/20/2021.

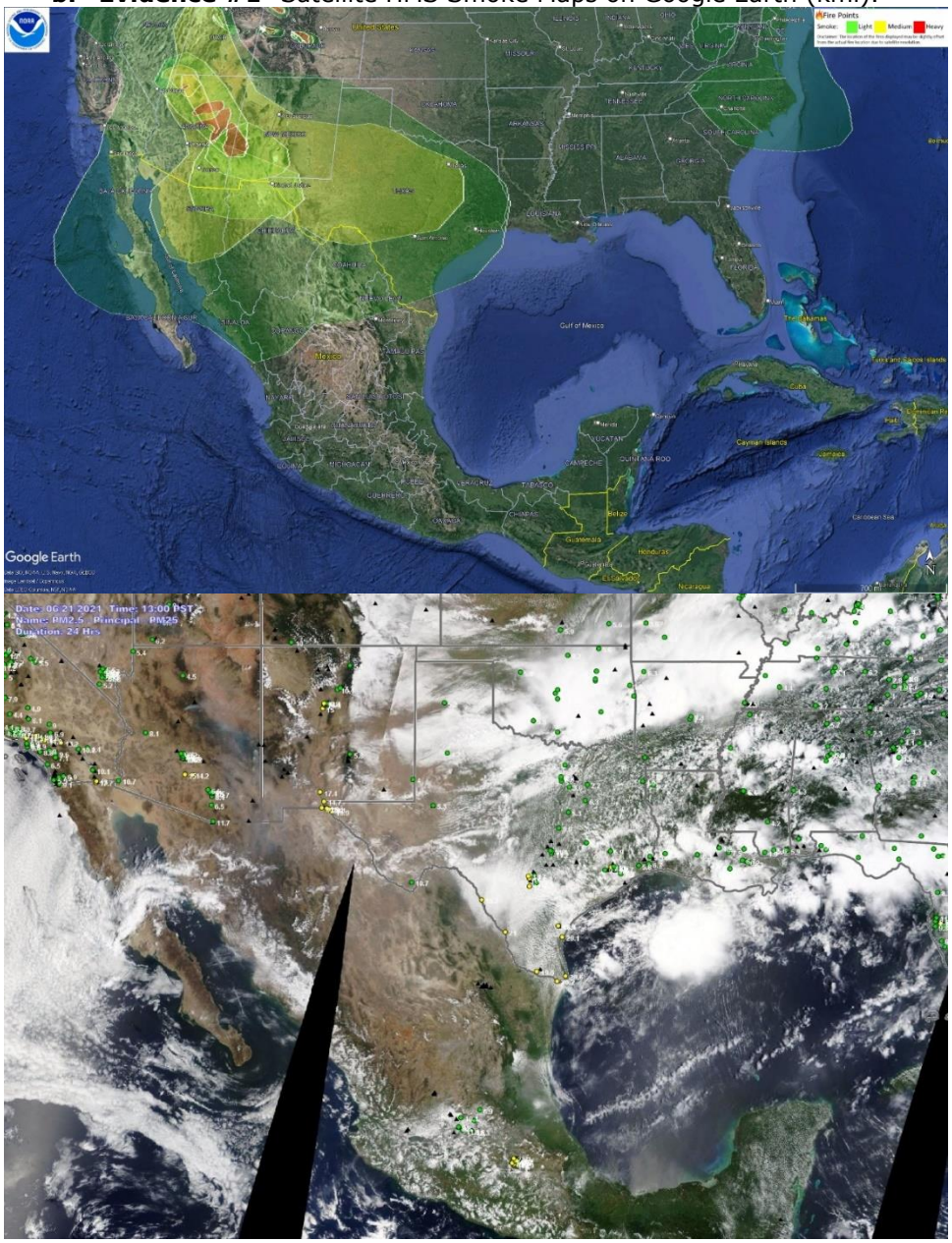


18. 6/21/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

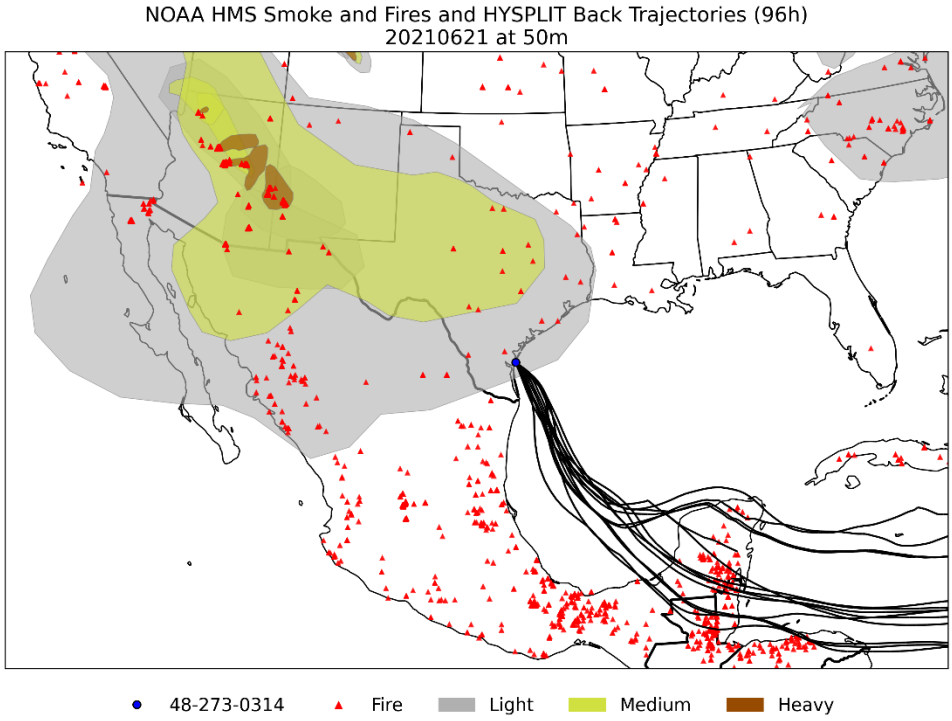
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
6/21/2021	34.1	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

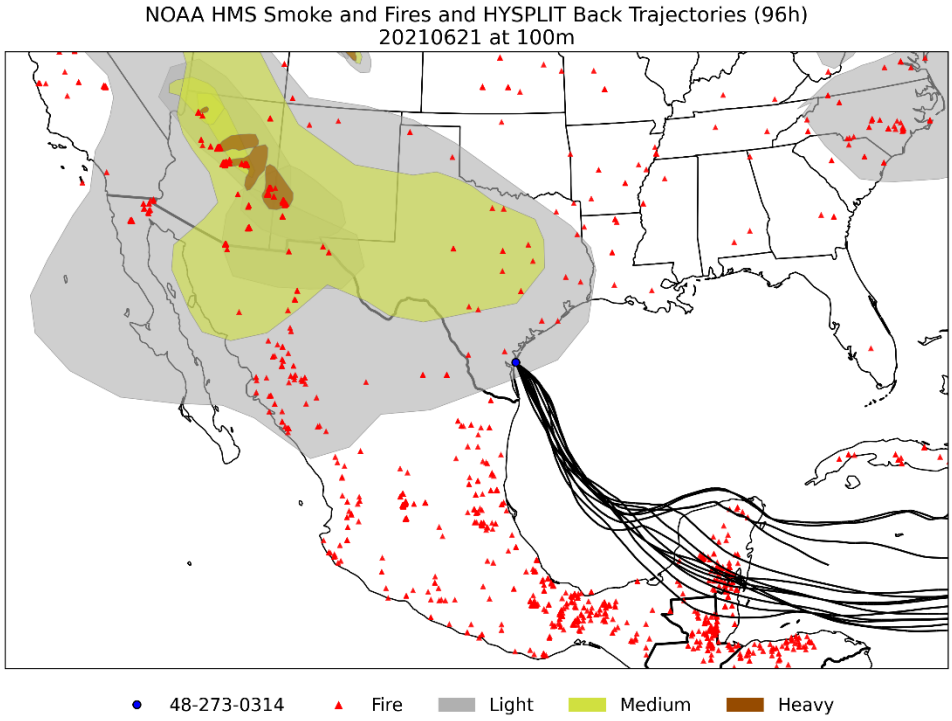


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

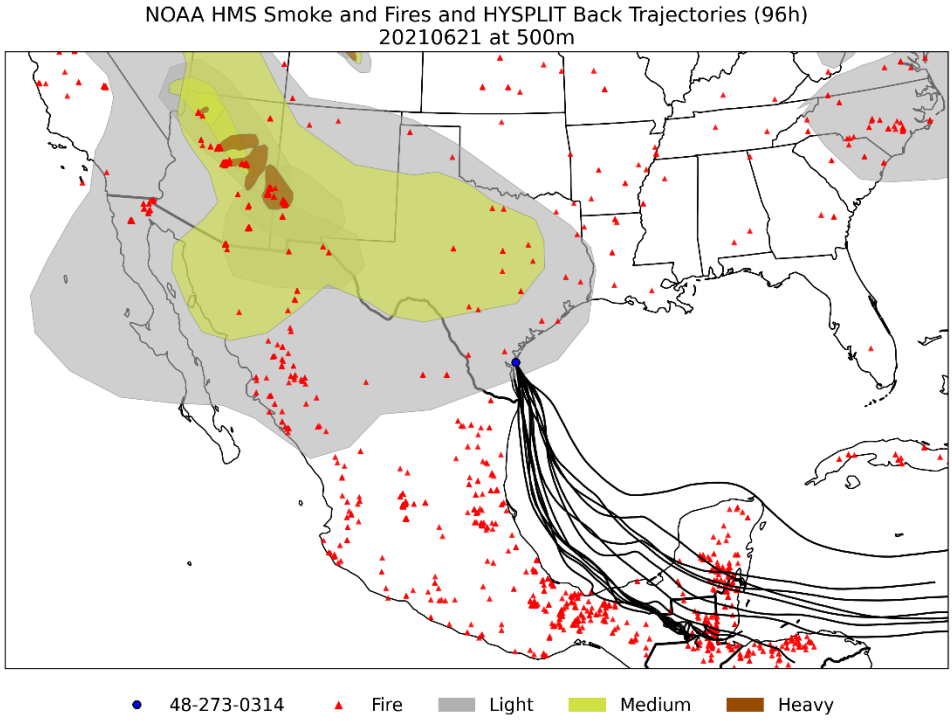
- 50m



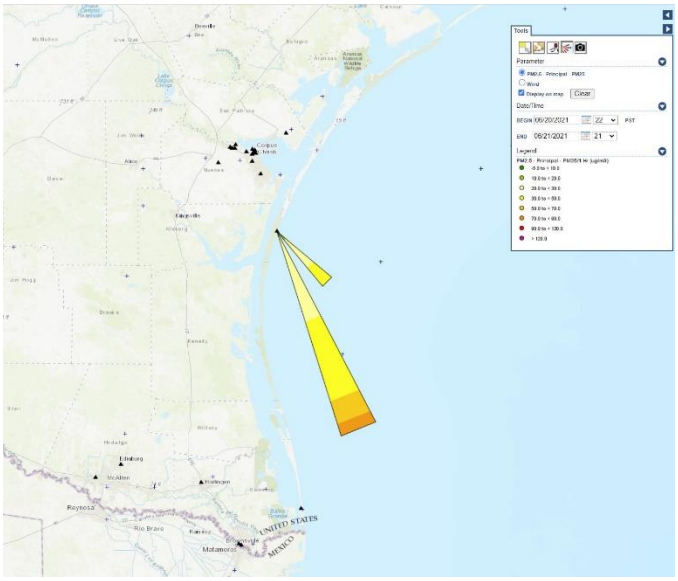
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210621 at 100m
48-273-0314
Fire
Light
Medium
Heavy

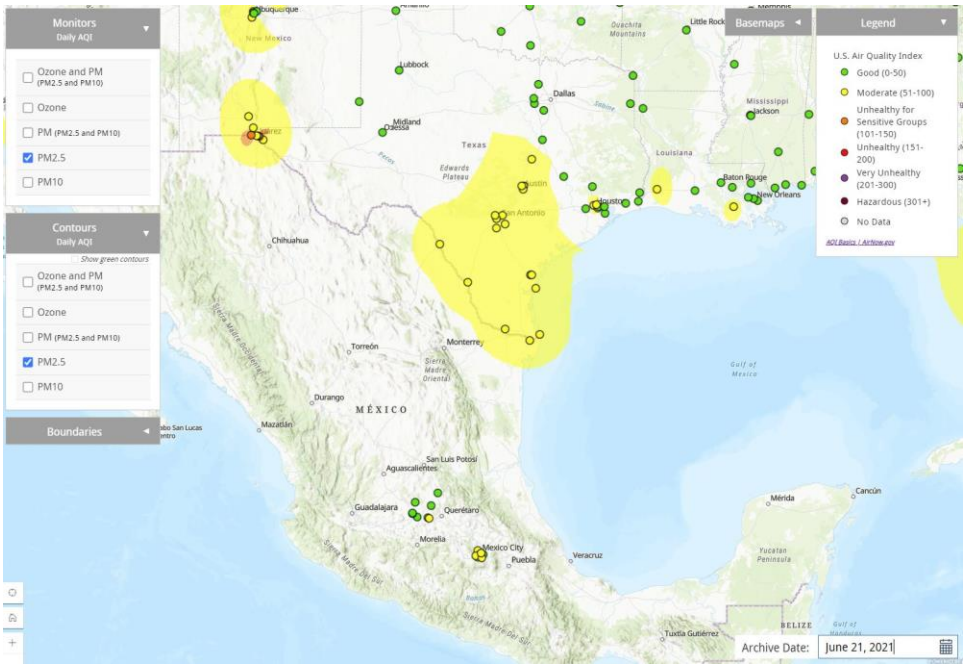
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210621 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 6/21/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4** - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 6/21/2021.

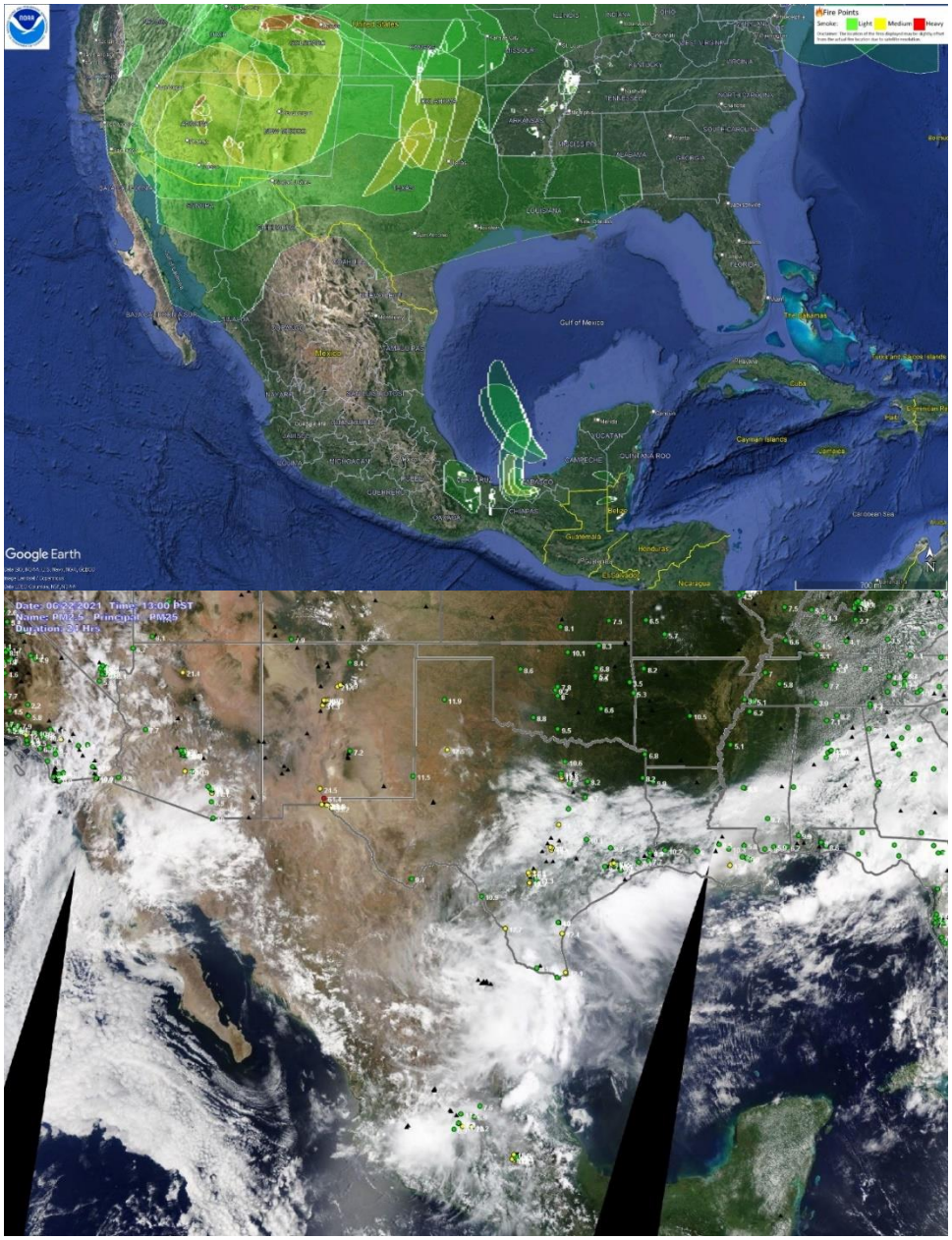


19.6/22/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

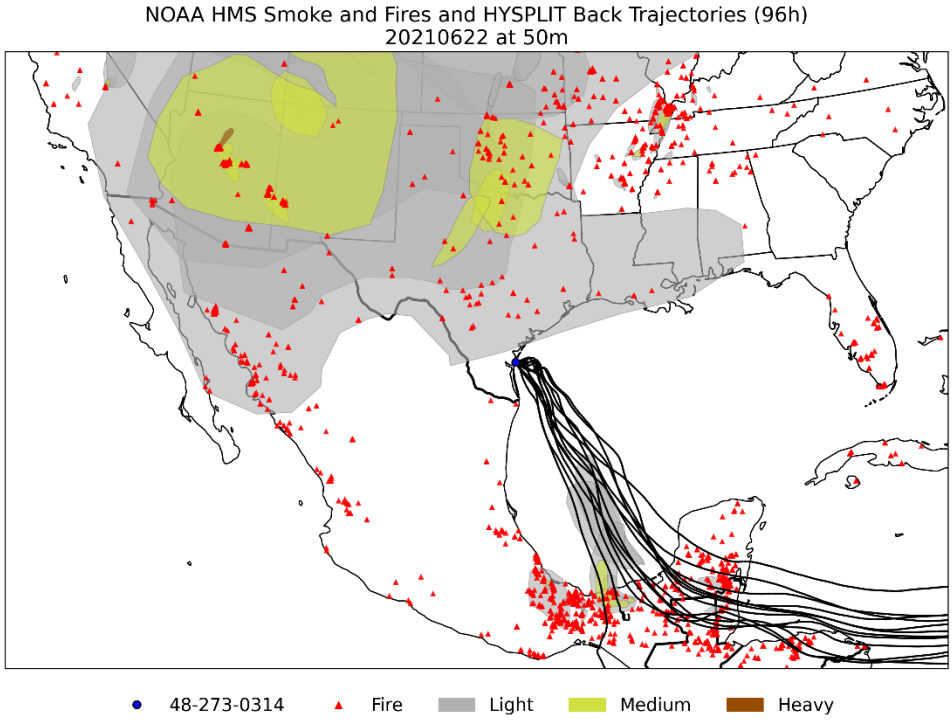
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
6/22/2021	33.0	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

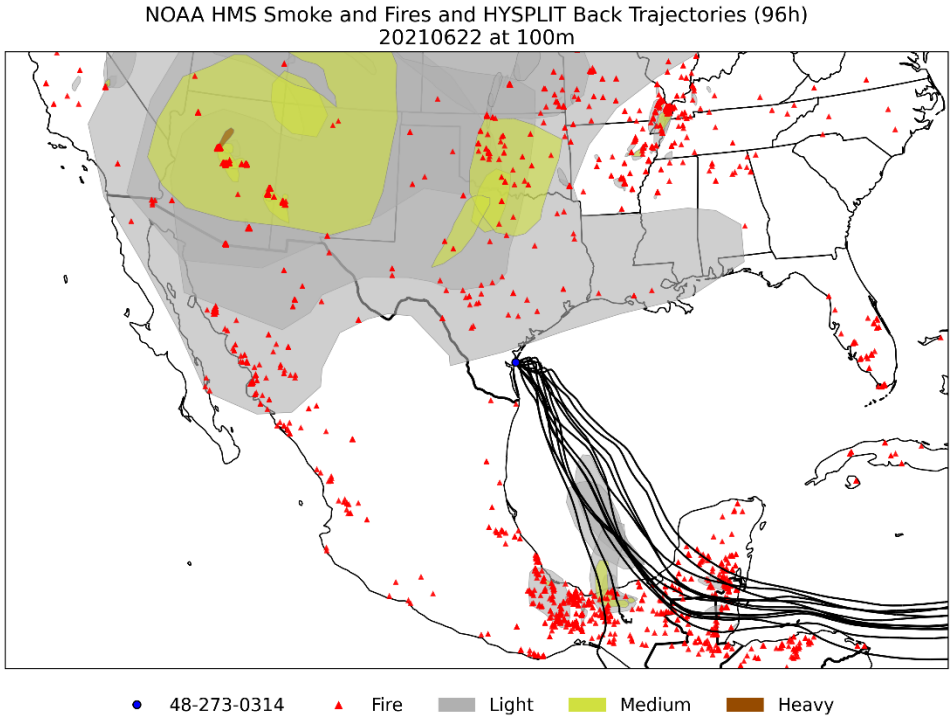


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

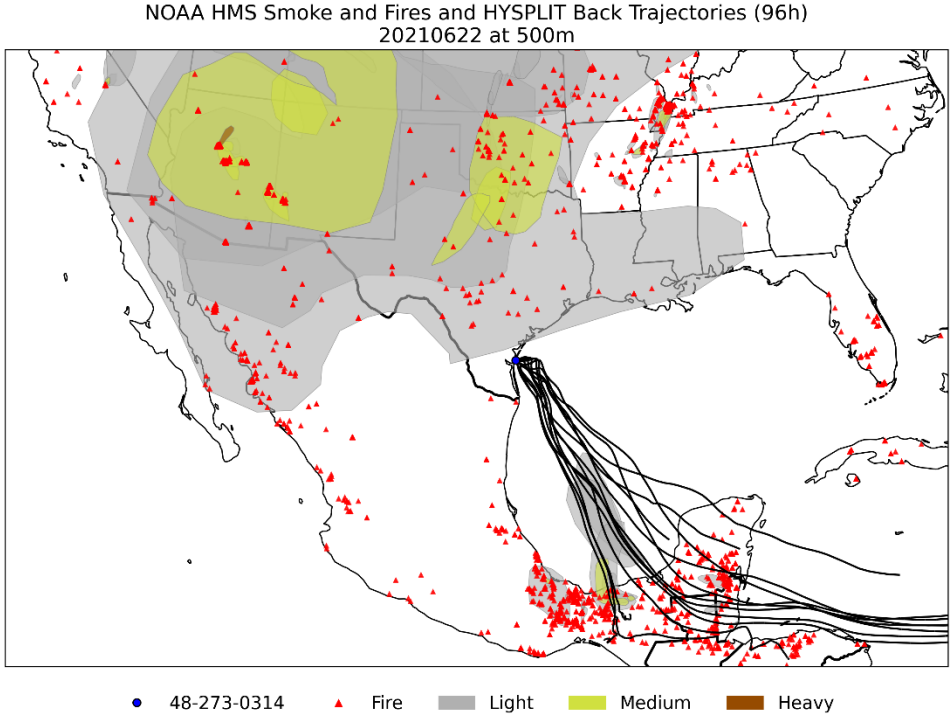
- 50m



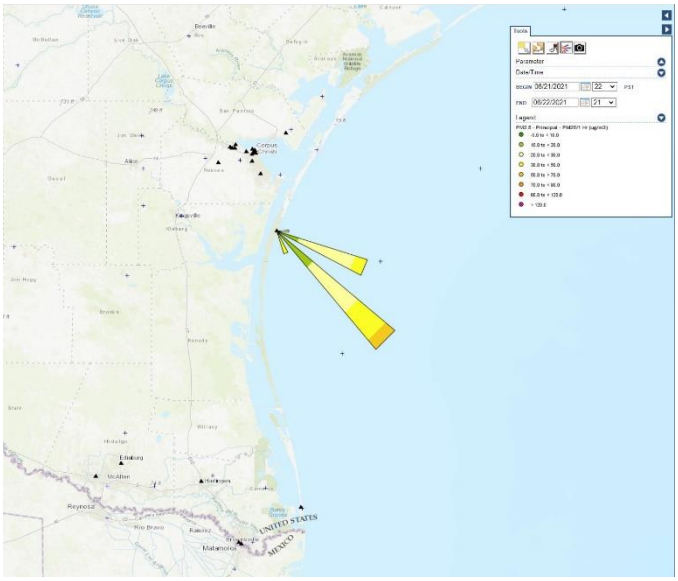
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210622 at 100m
48-273-0314
Fire
Light
Medium
Heavy

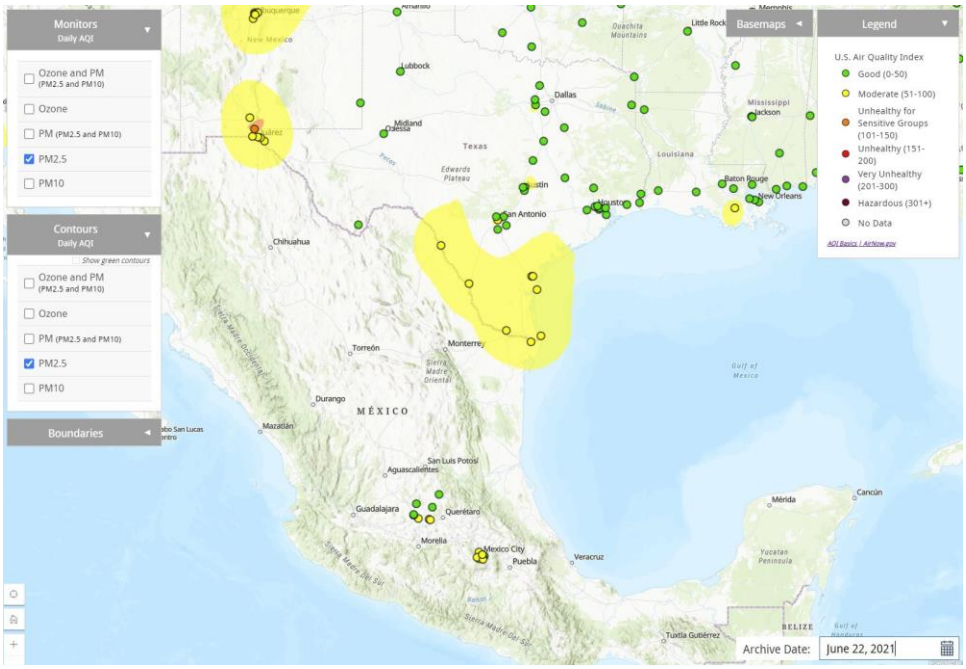
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210622 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 6/22/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 6/22/2021.

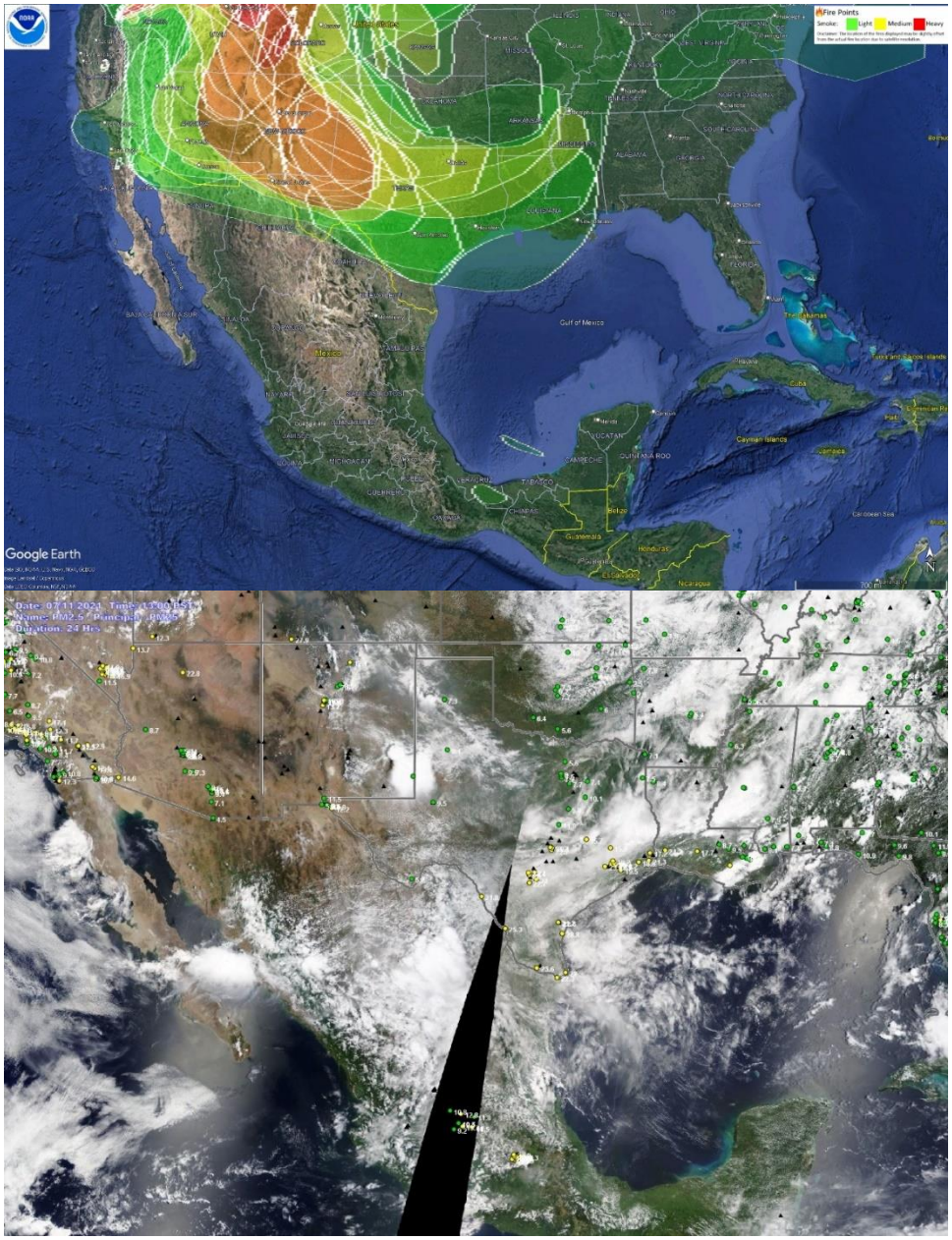


20. 7/11/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

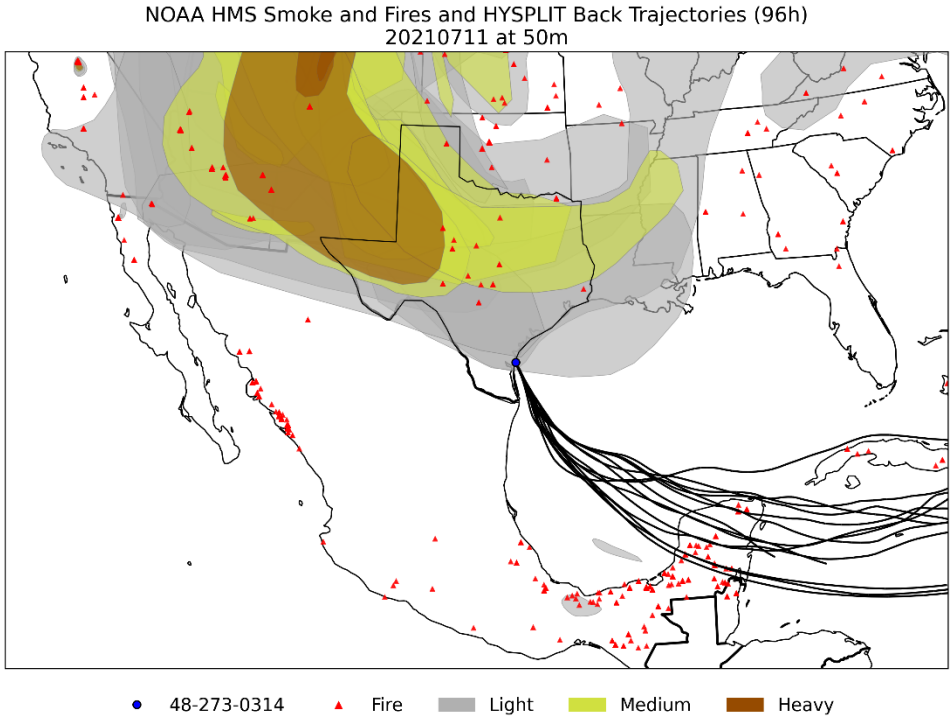
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/11/2021	28.6	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

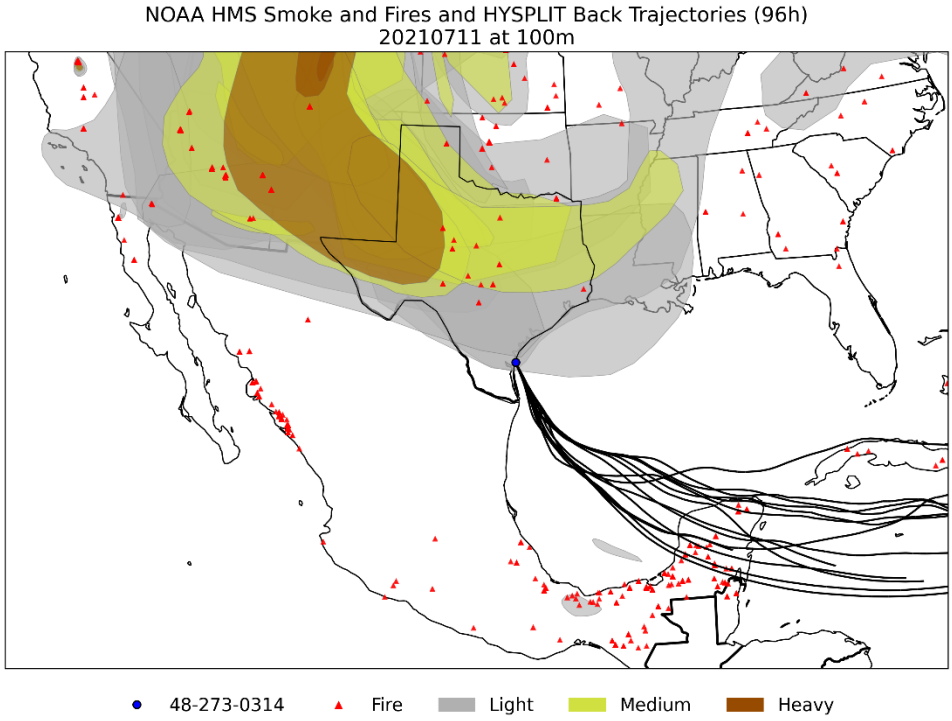


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

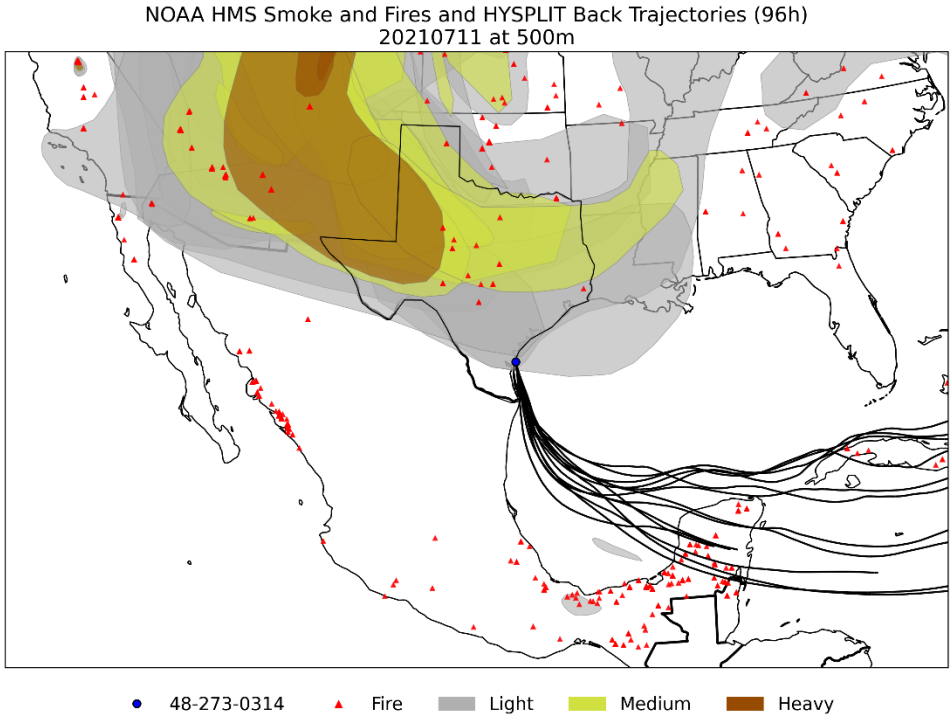
- 50m



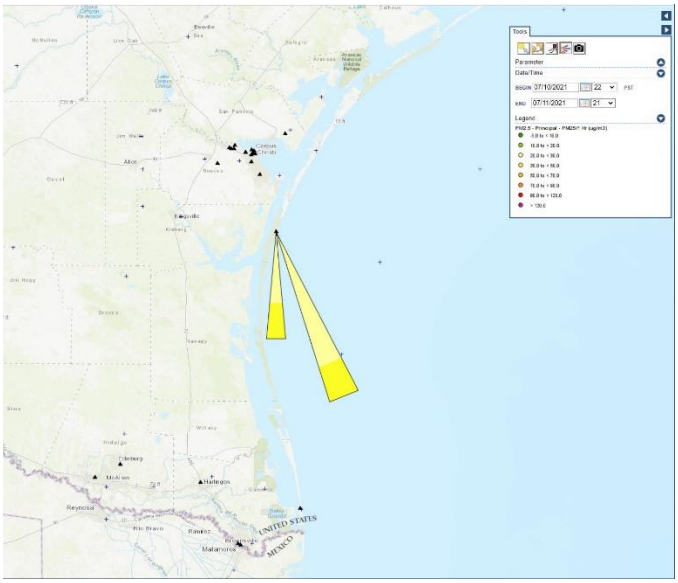
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210711 at 100m
48-273-0314
Fire
Light
Medium
Heavy

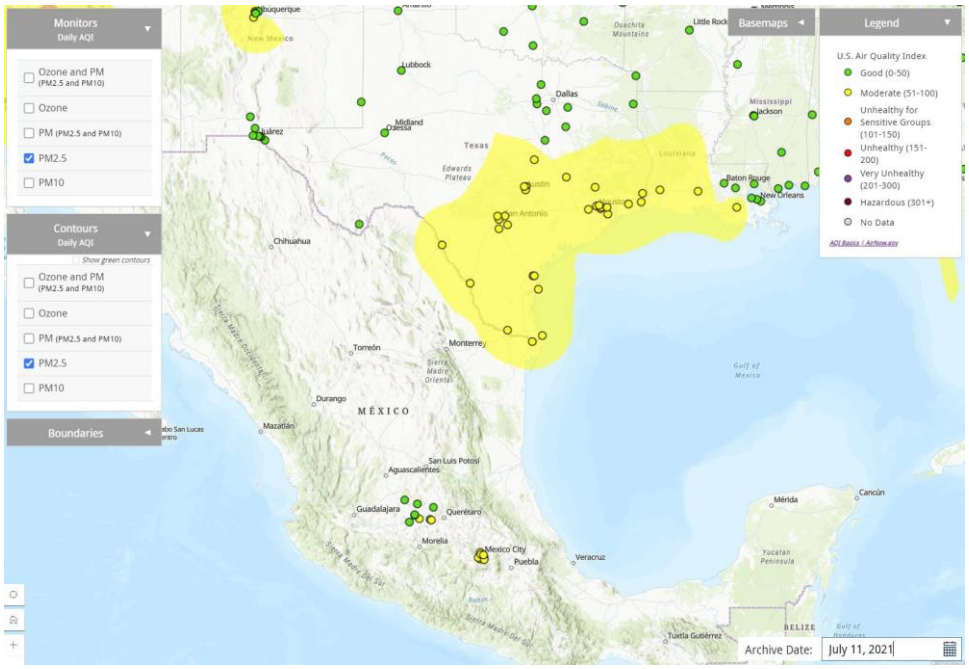
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210711 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 7/11/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/11/2021.

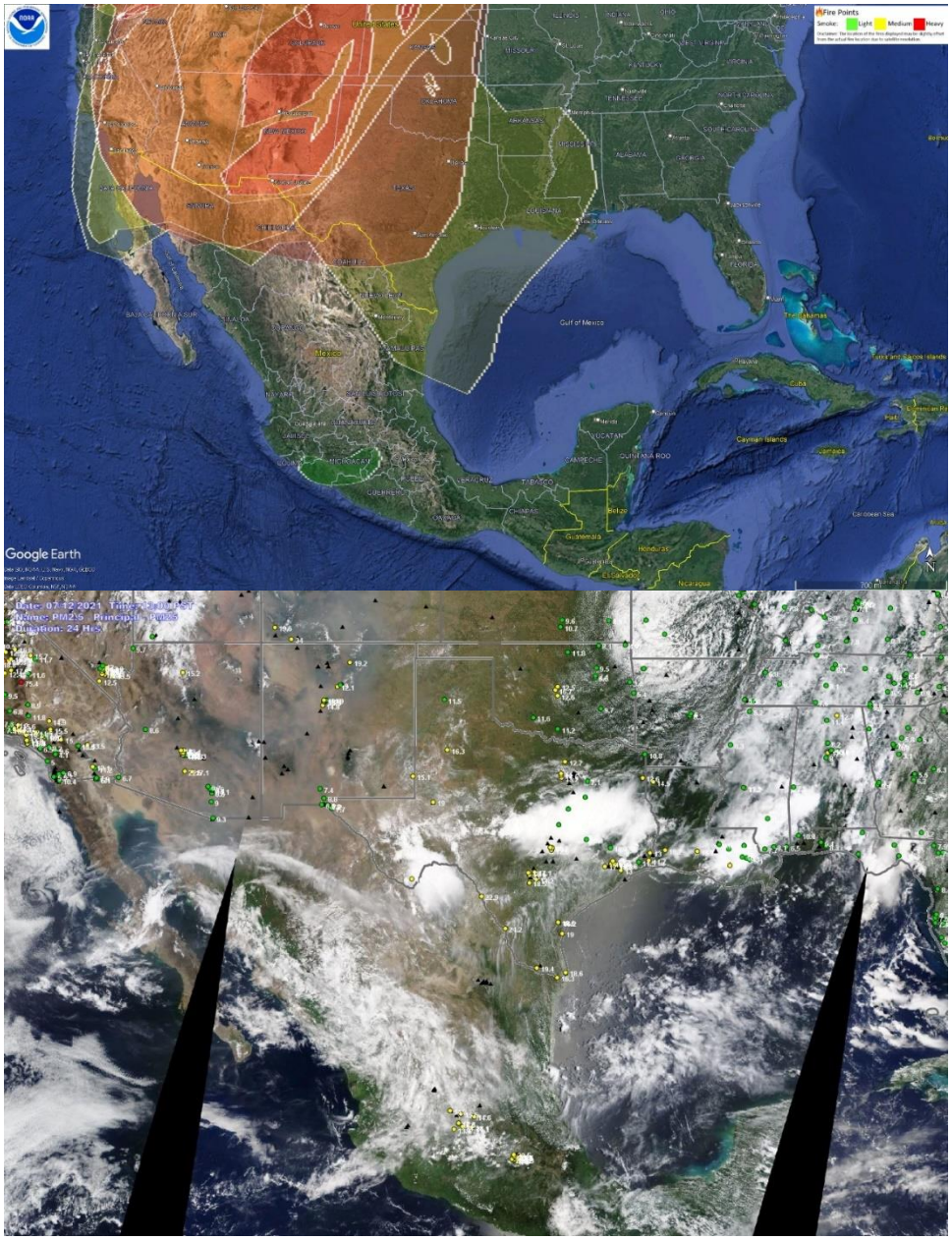


21. 7/12/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

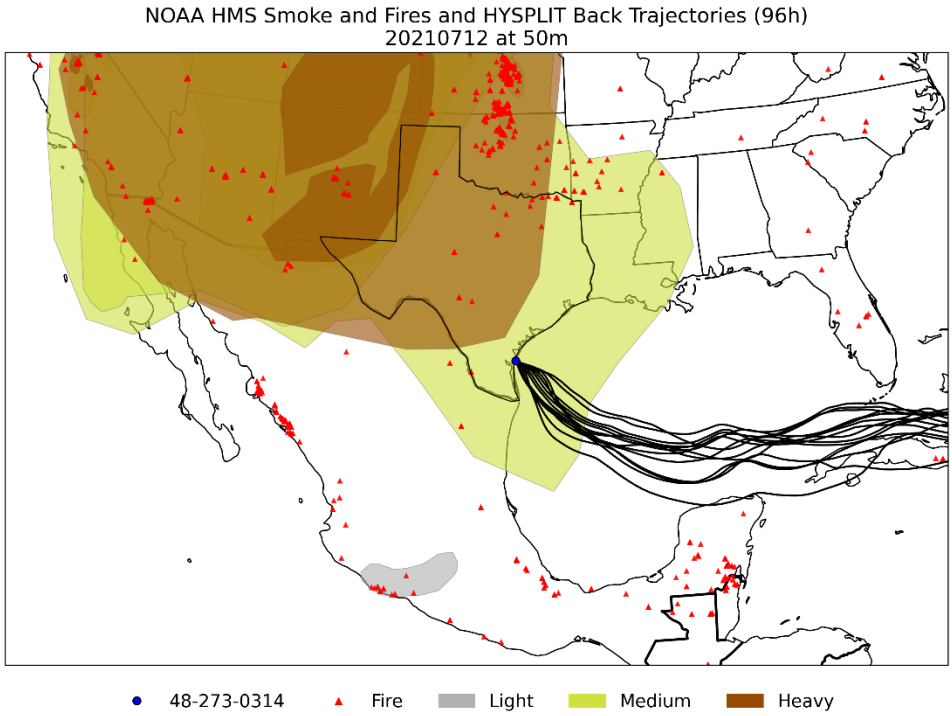
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/12/2021	26.7	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

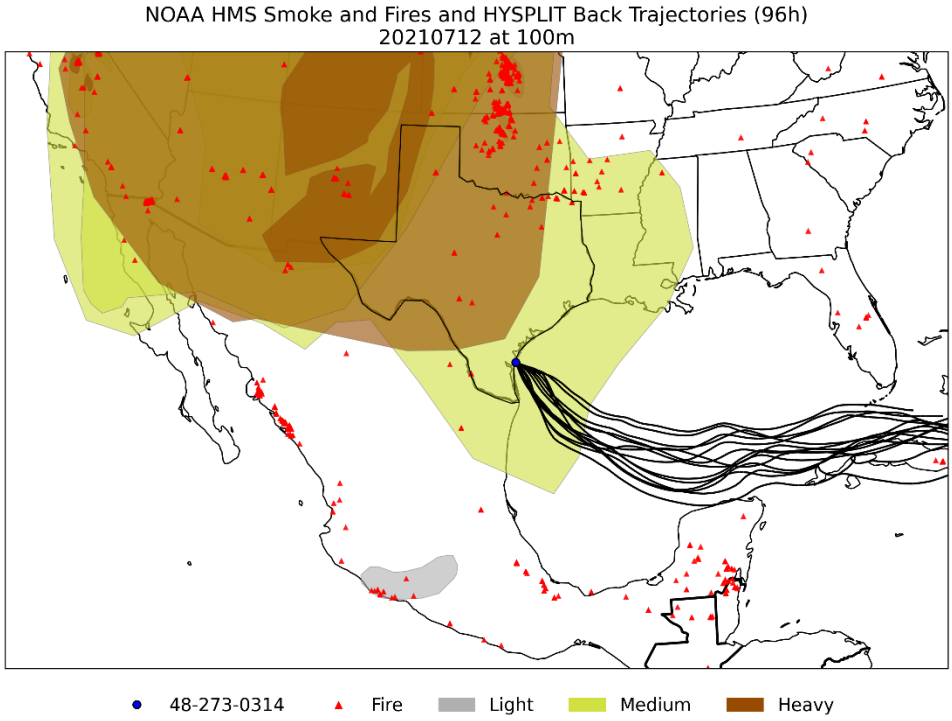


c. **Evidence #2**– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

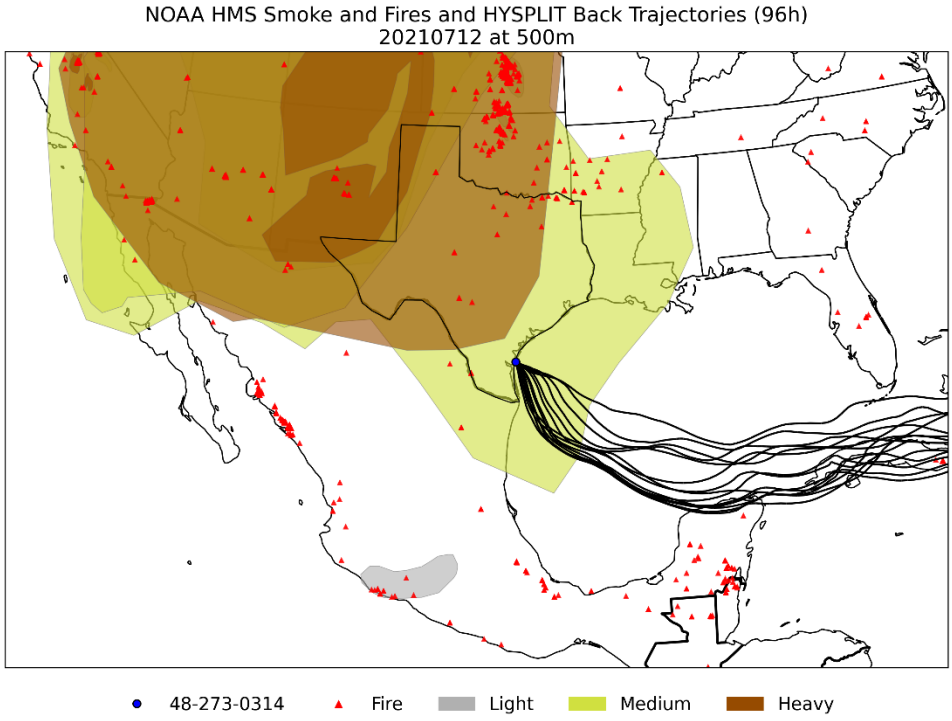
- 50m



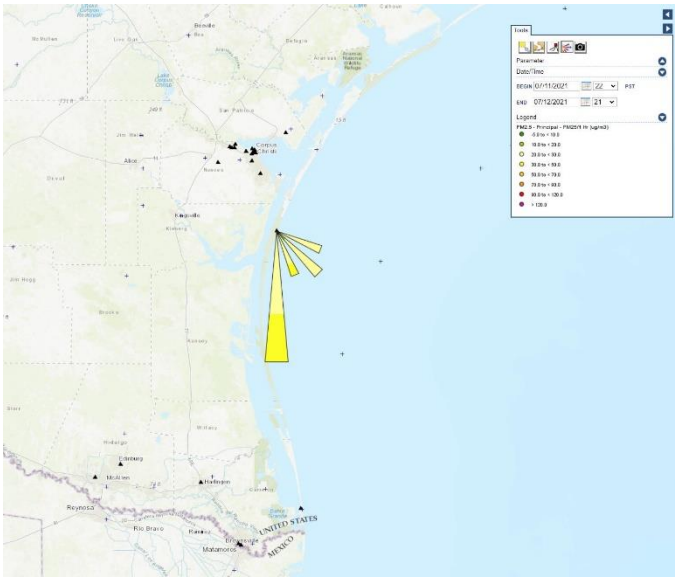
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210712 at 100m
48-273-0314
Fire
Light
Medium
Heavy

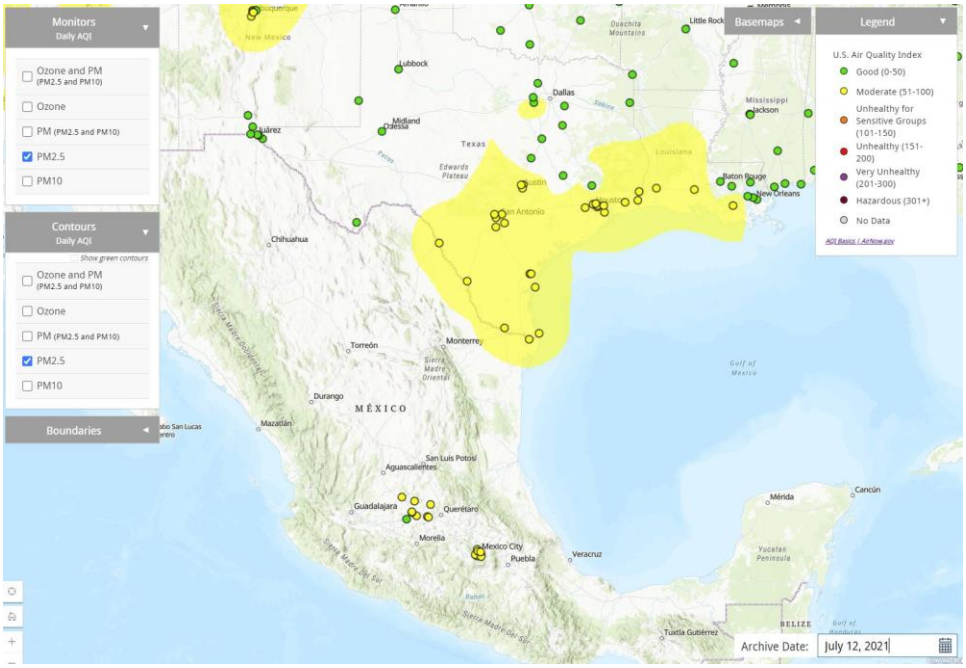
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210712 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 7/12/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4** - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/12/2021.

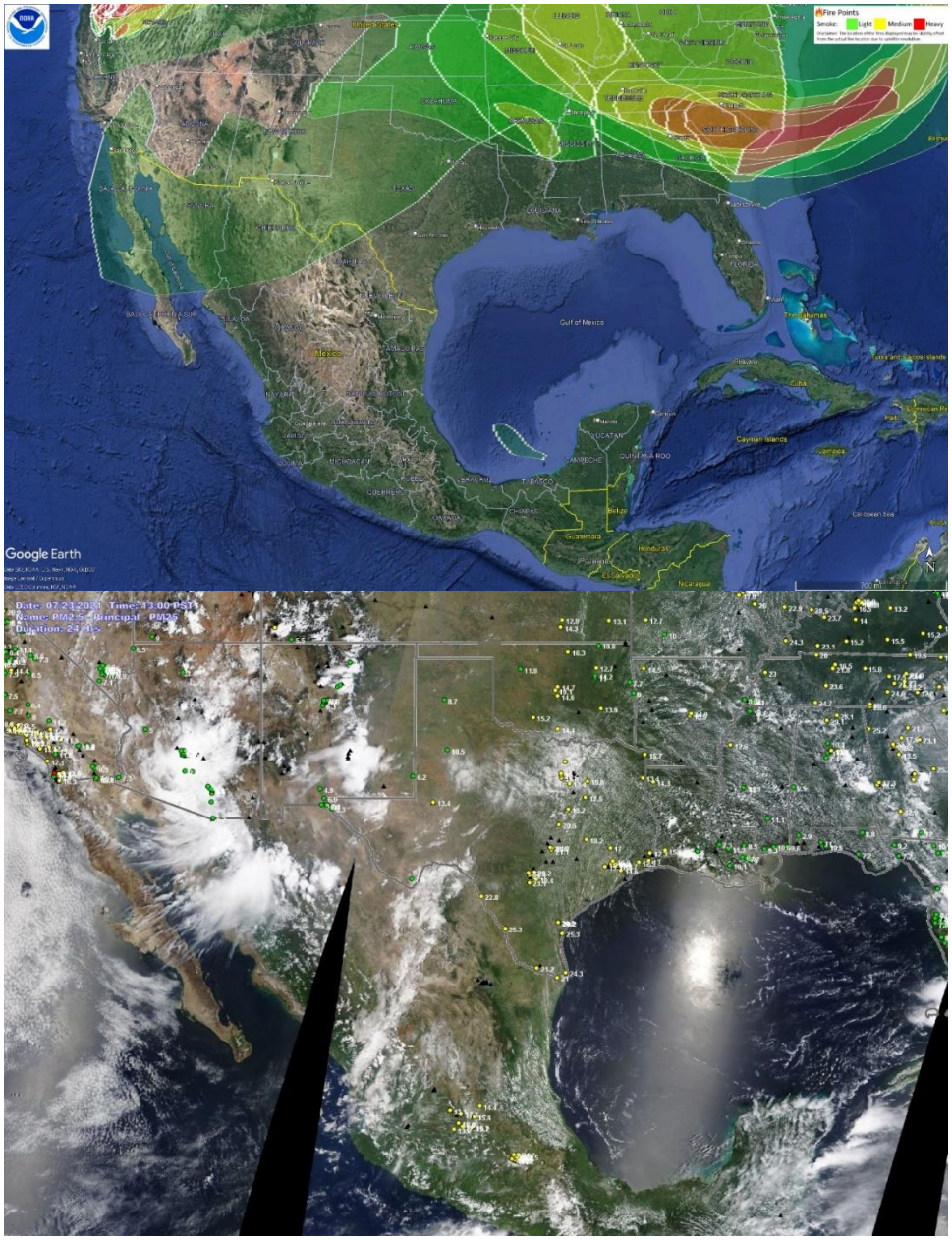


22. 7/23/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

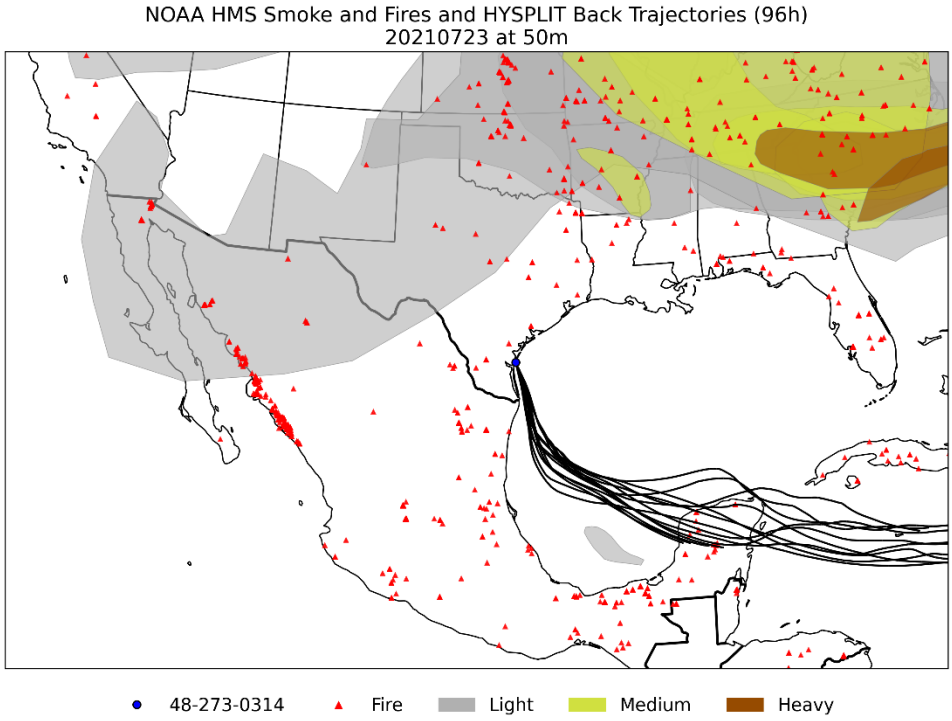
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/23/2021	18.8	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

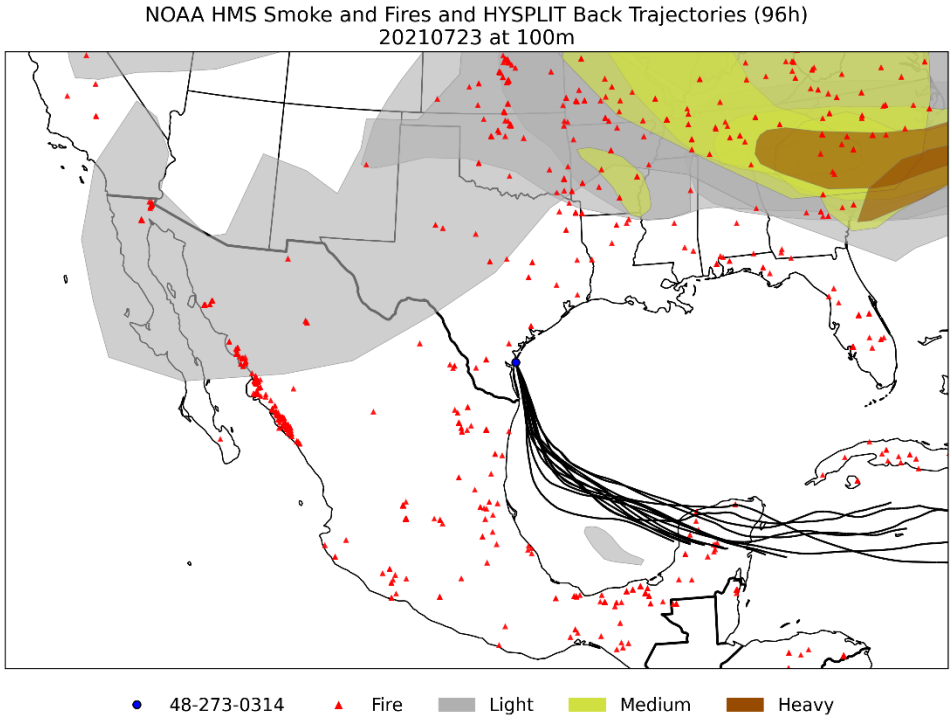


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

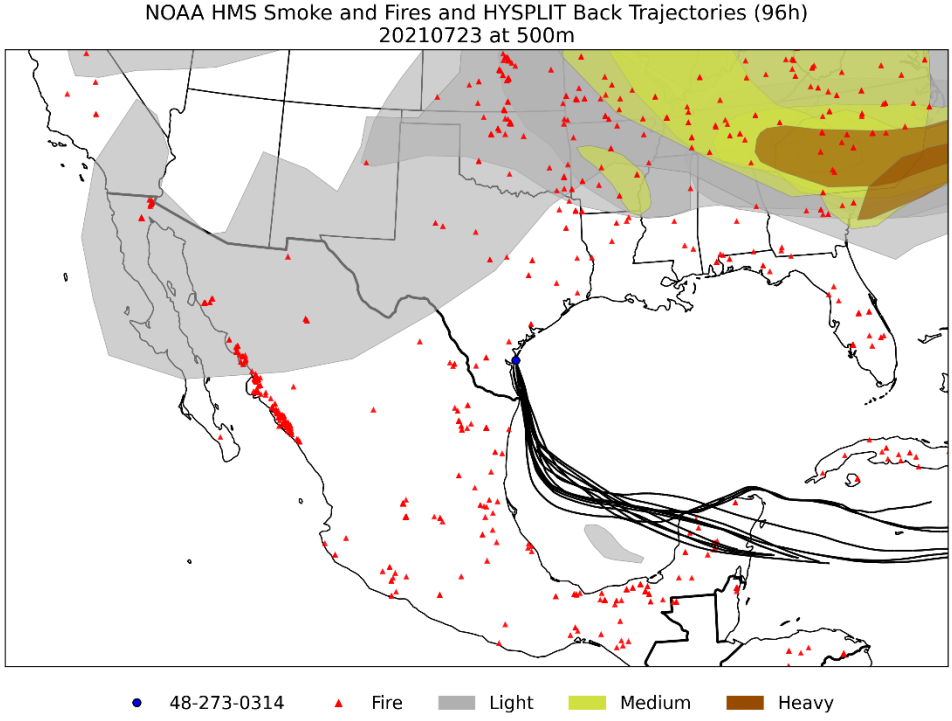
- 50m



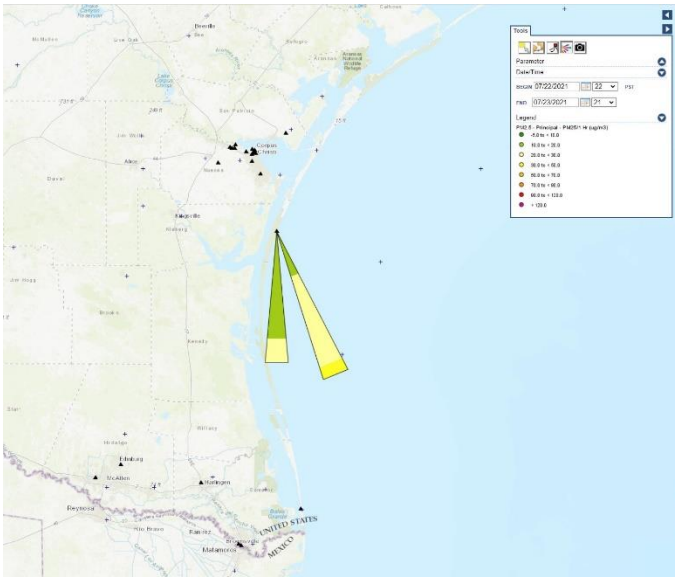
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210723 at 100m
48-273-0314
Fire
Light
Medium
Heavy

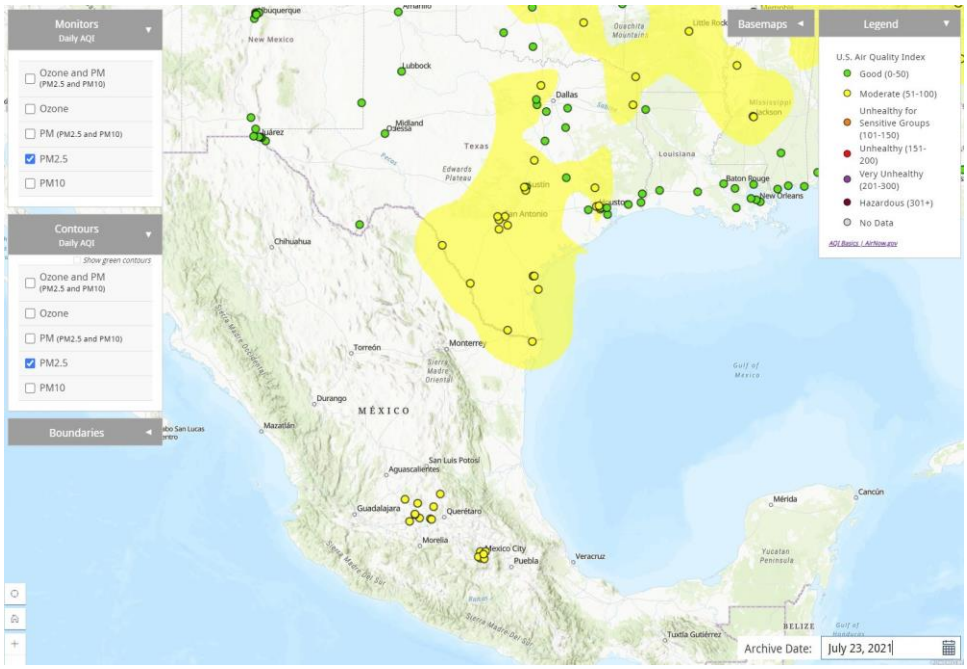
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210723 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 7/23/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/23/2021.

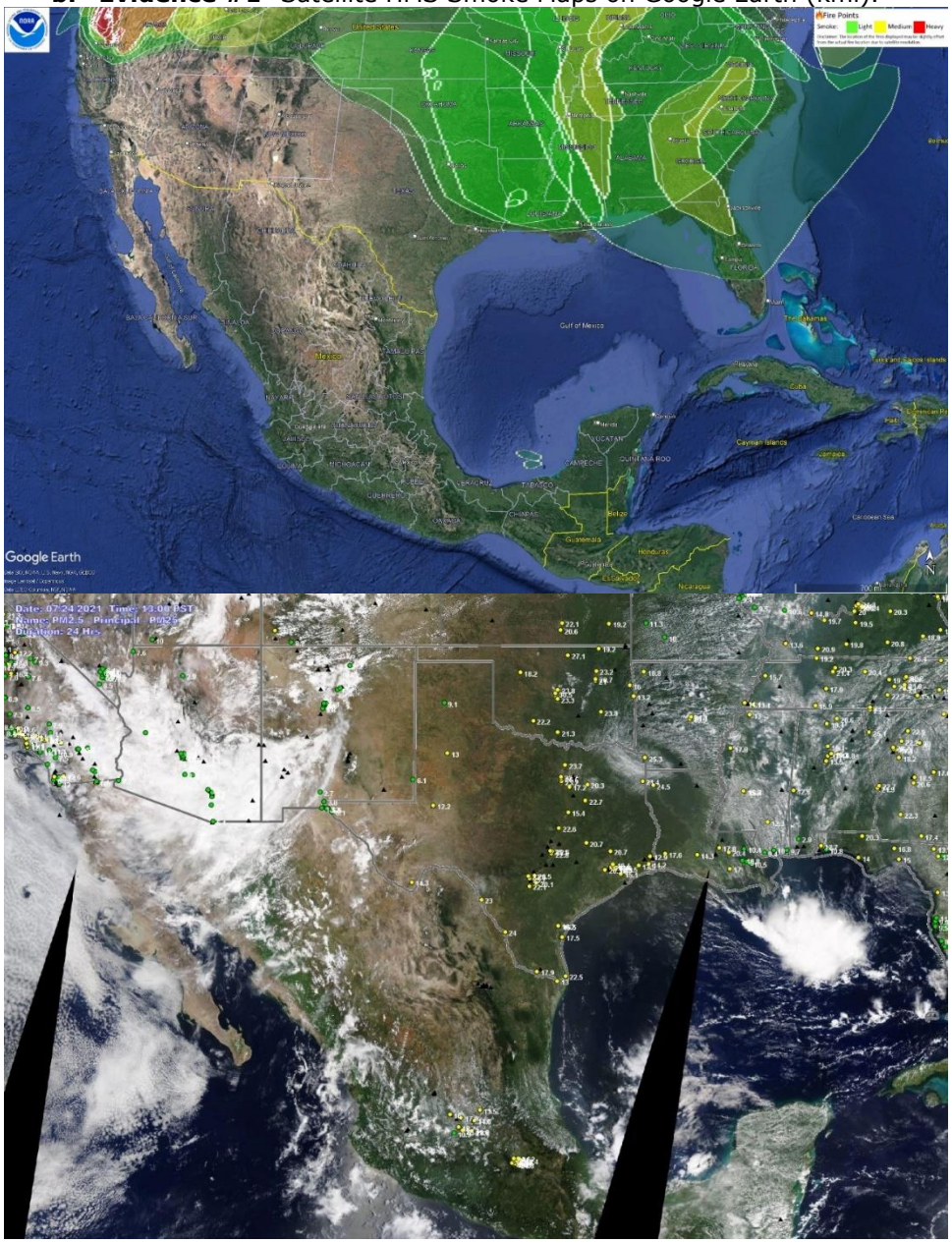


23. 7/24/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

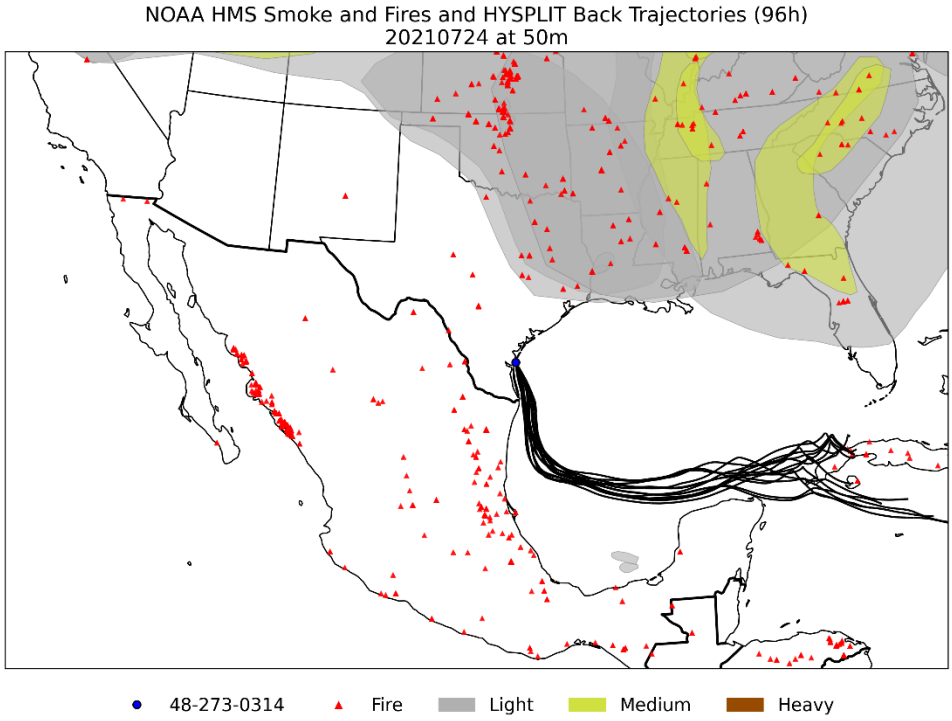
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/24/2021	25.6	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

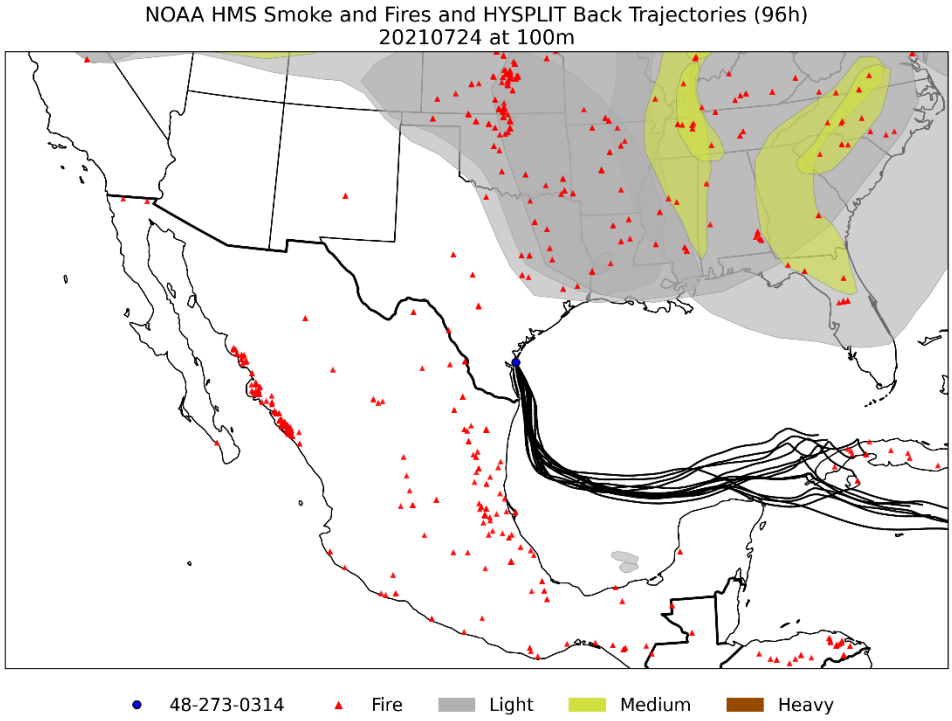


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

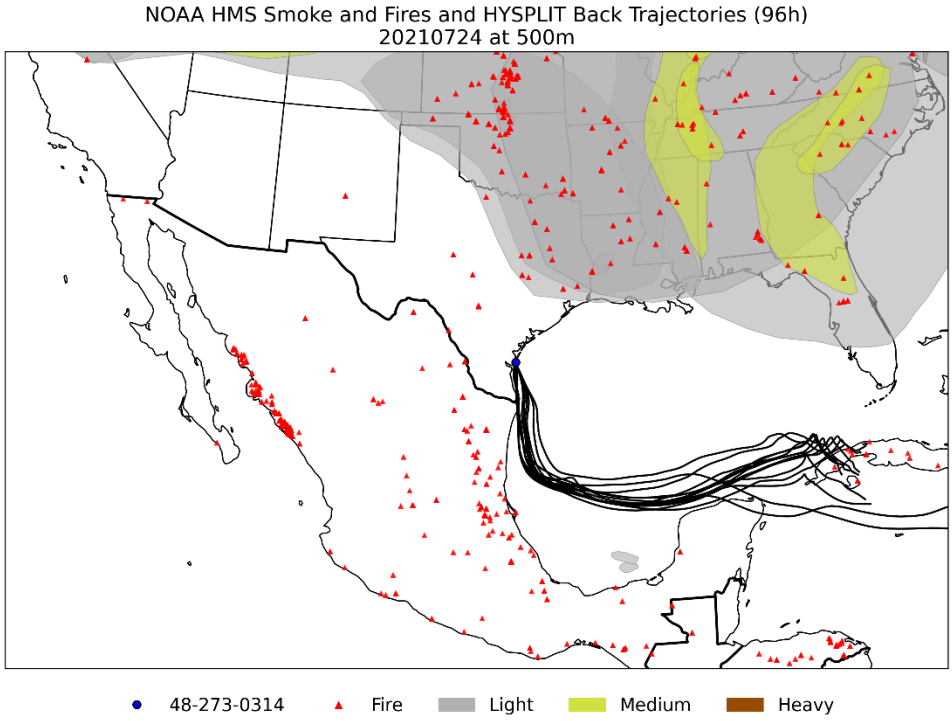
- 50m



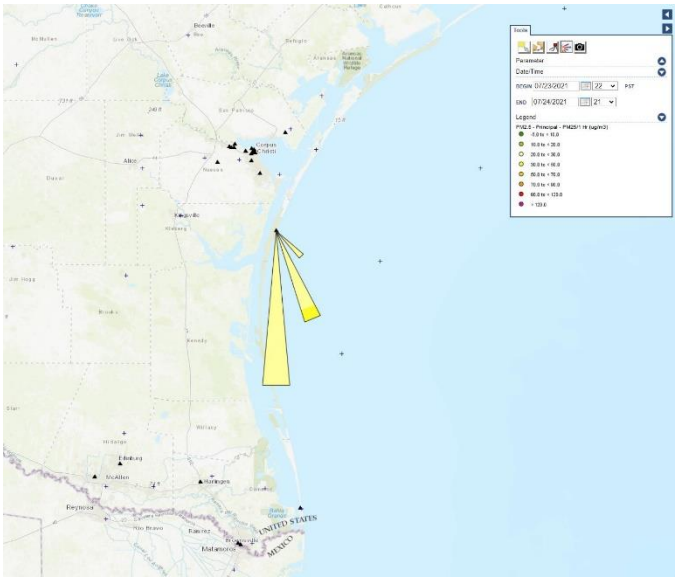
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210724 at 100m
48-273-0314
Fire
Light
Medium
Heavy

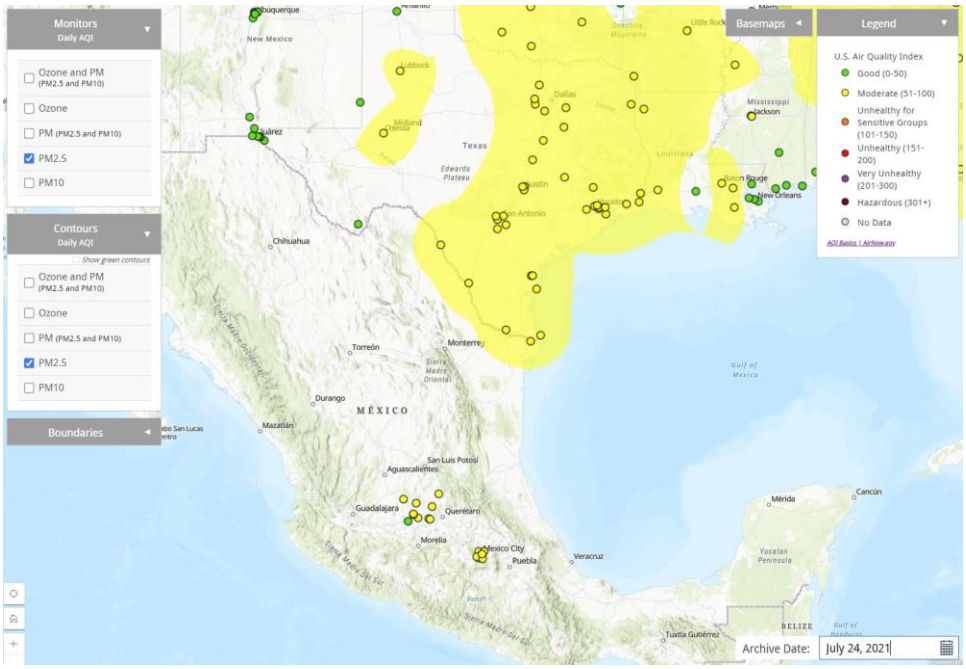
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210724 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 7/24/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/24/2021.

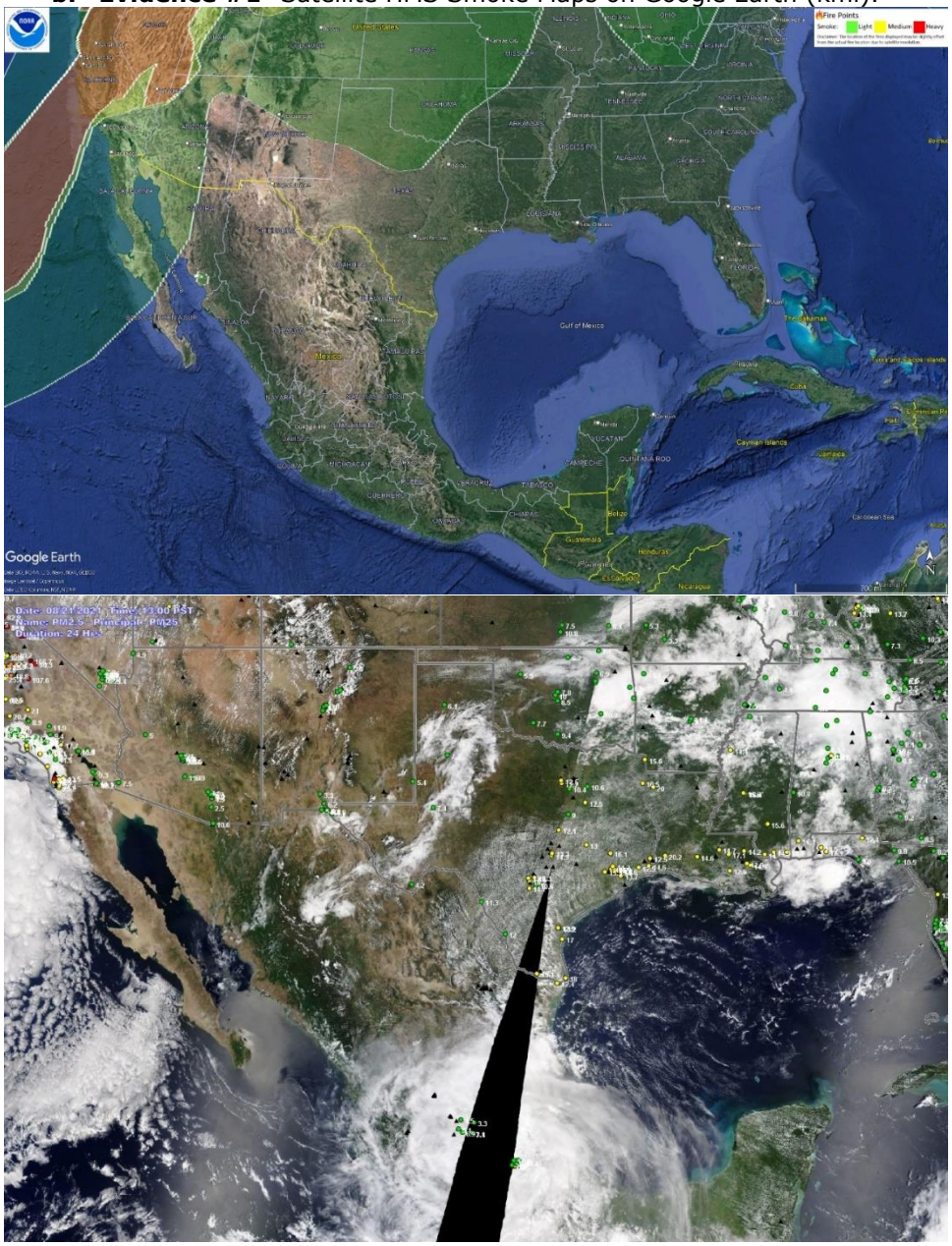


24. 8/21/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

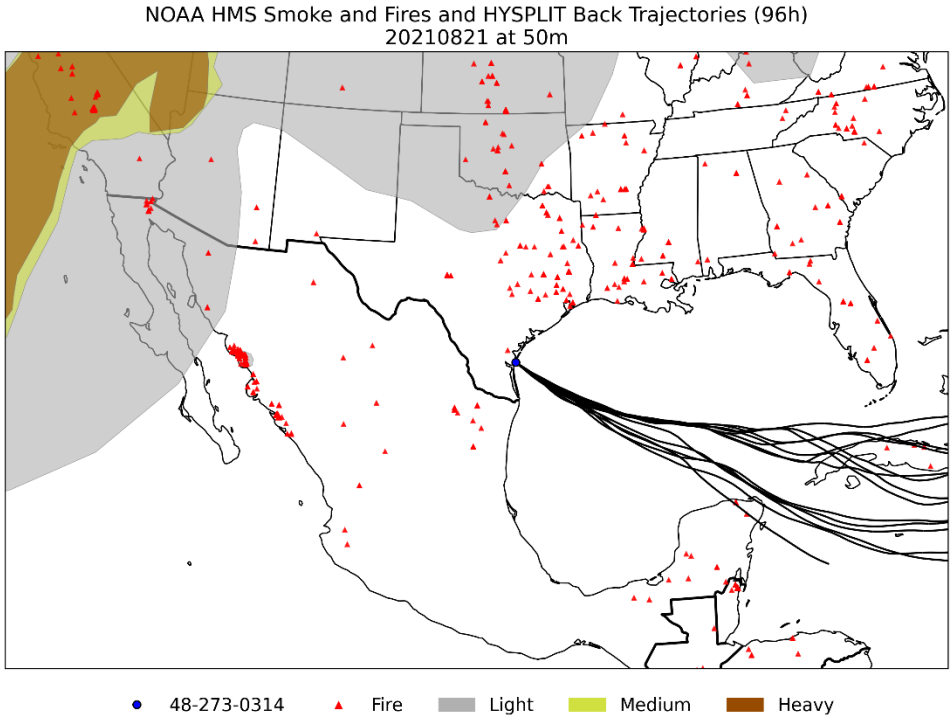
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
8/21/2021	19.9	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

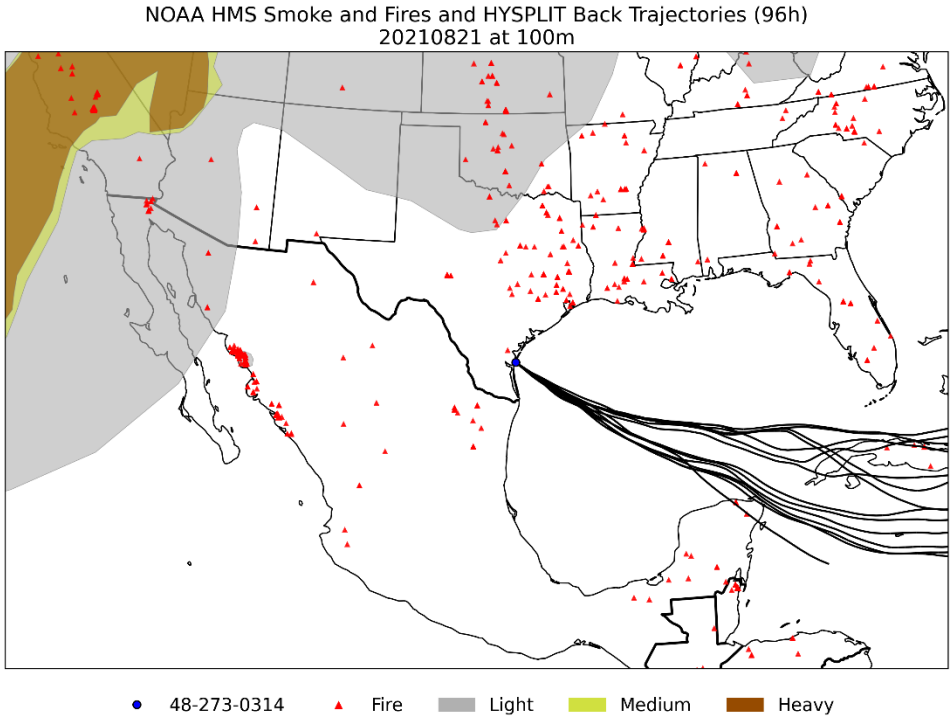


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

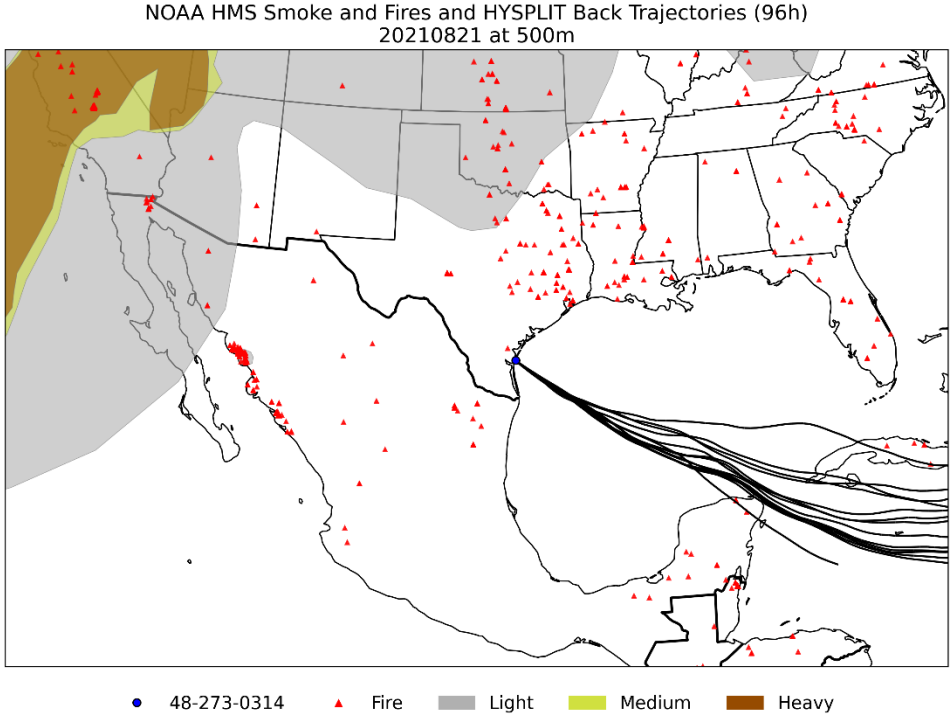
- 50m



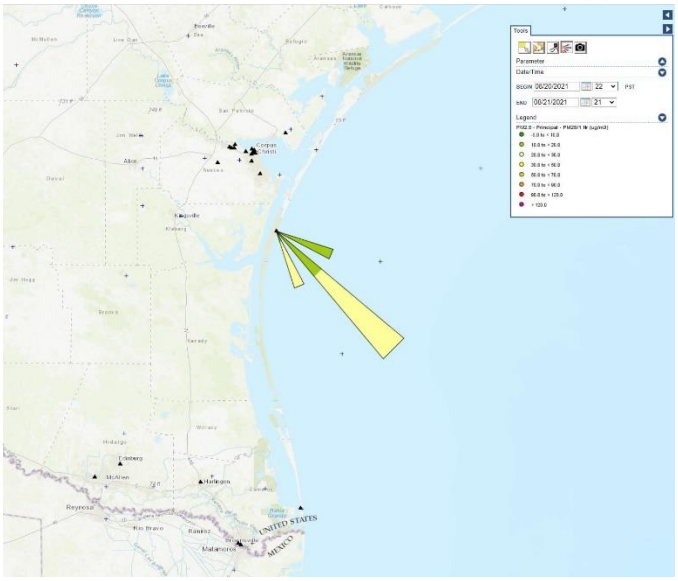
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210821 at 100m
48-273-0314
Fire
Light
Medium
Heavy

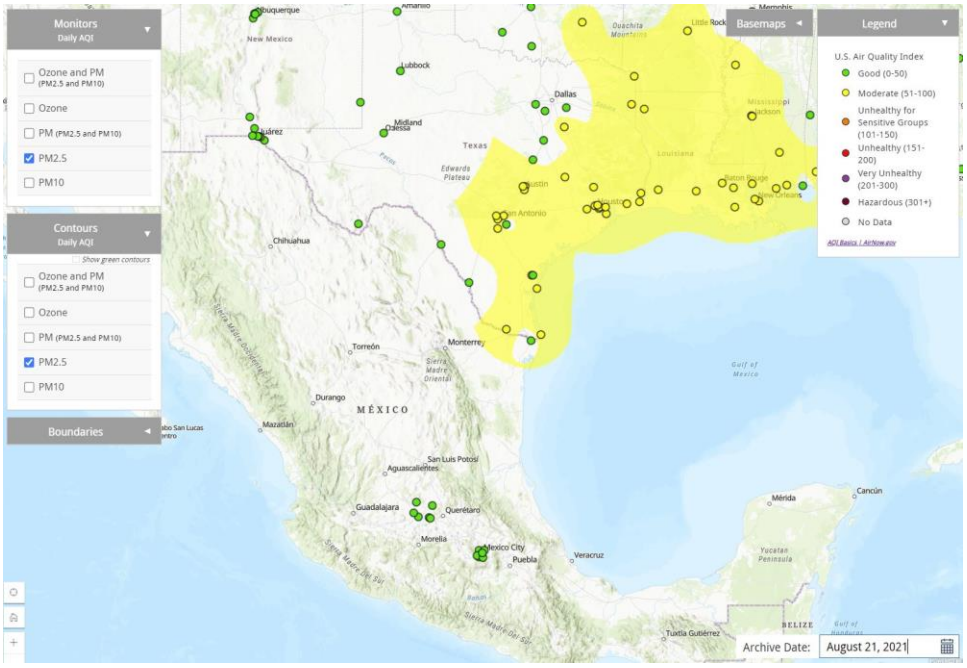
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210821 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 8/21/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 8/21/2021.

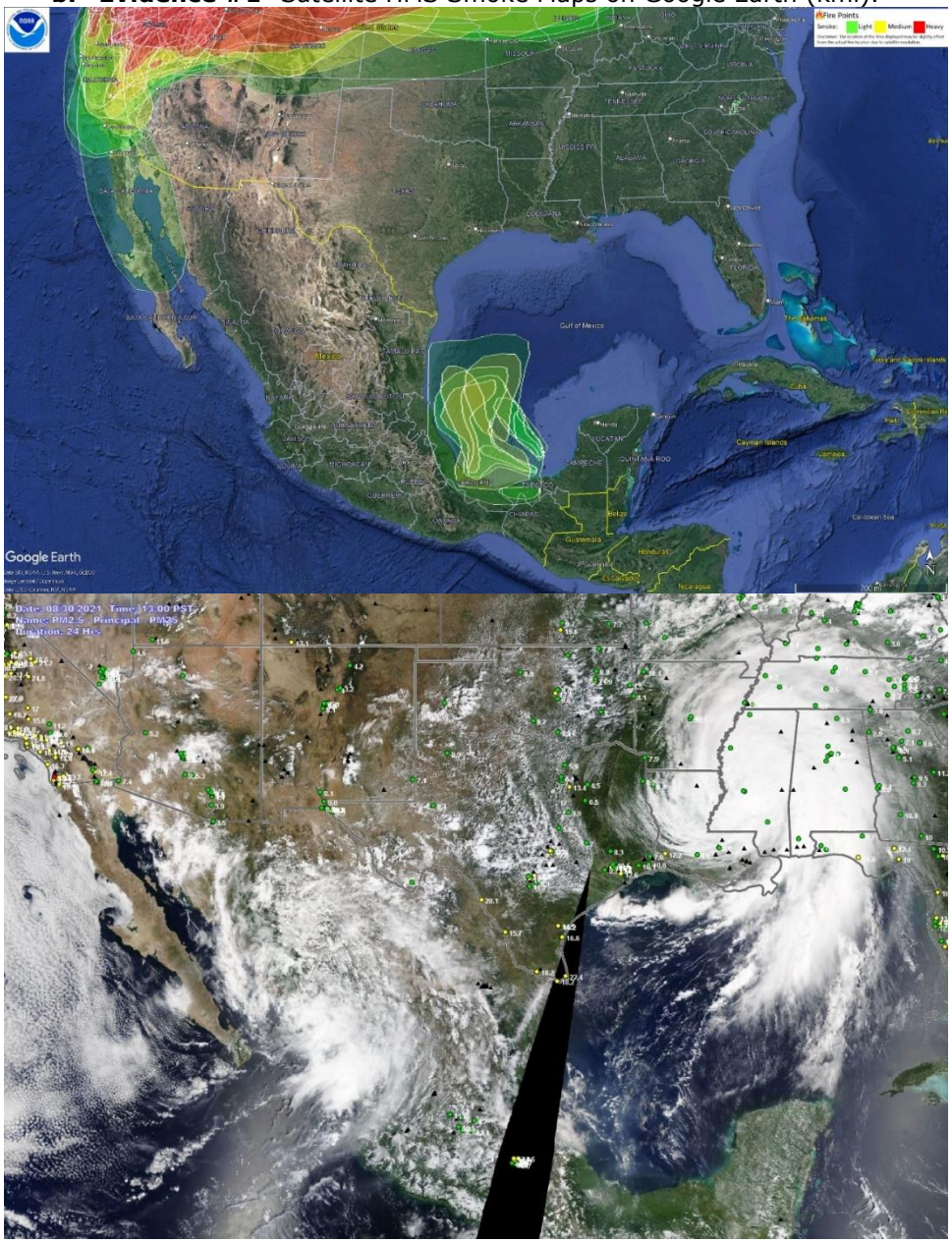


25. 8/30/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

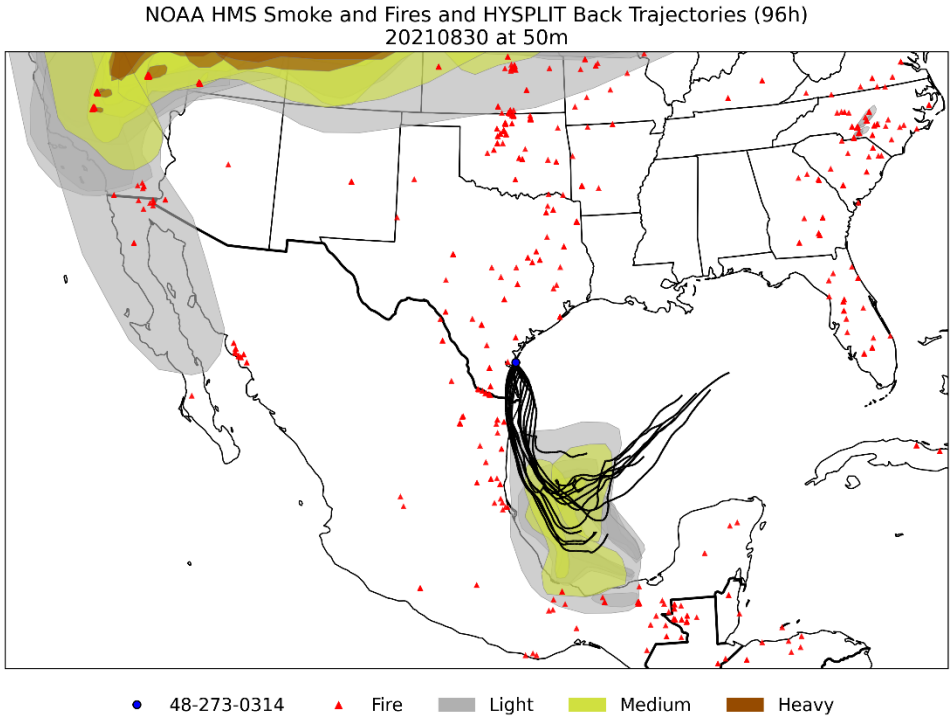
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
8/30/2021	19.0	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

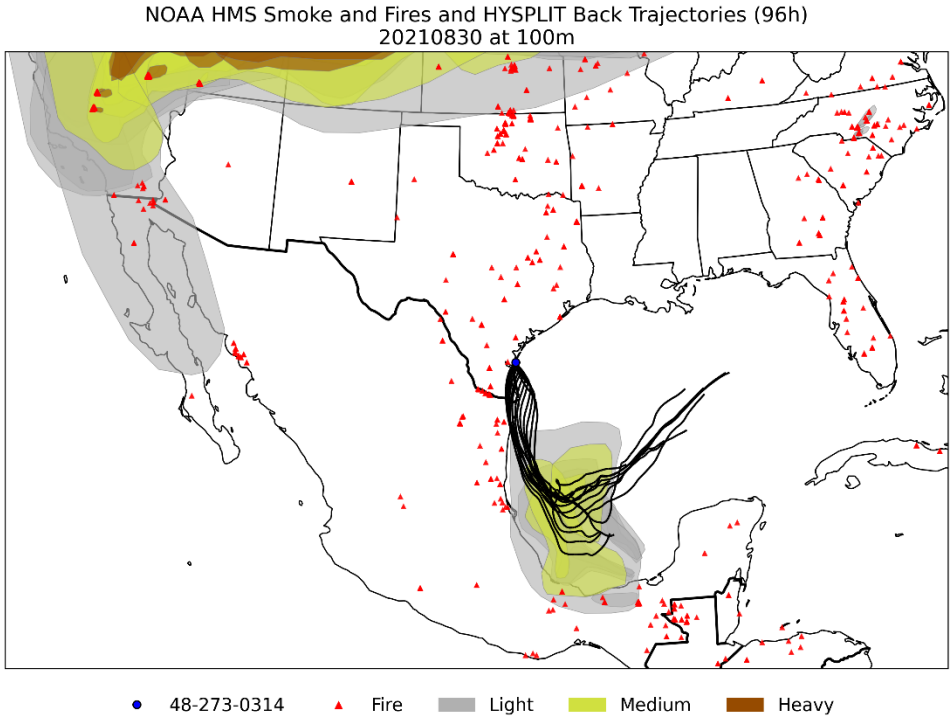


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

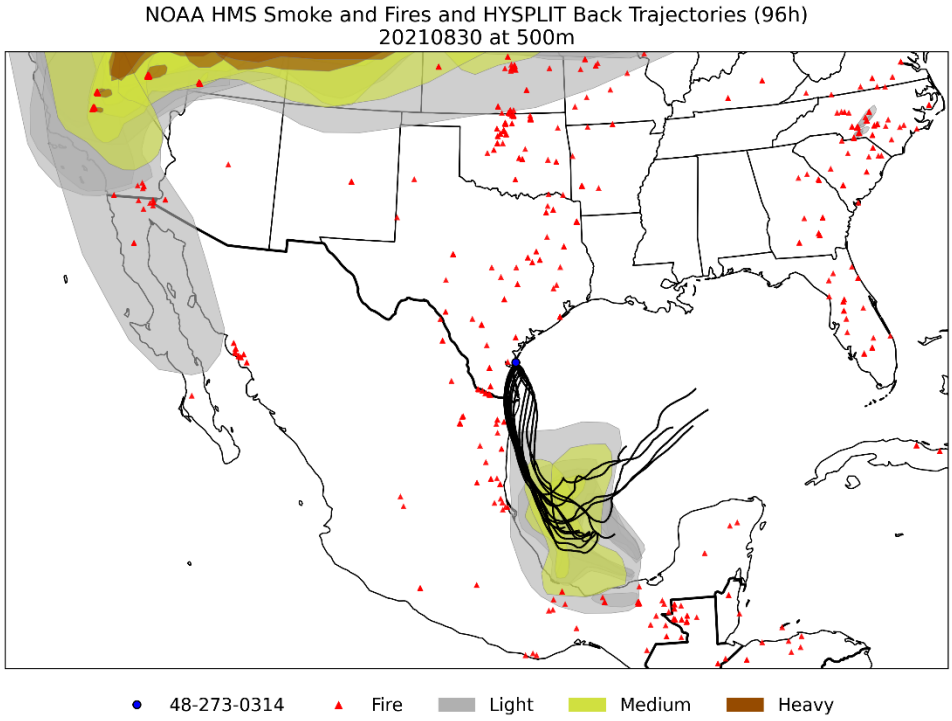
- 50m



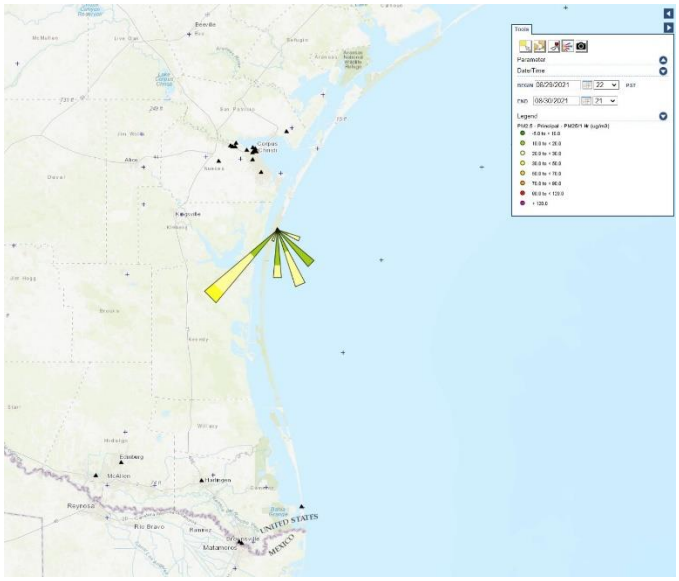
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210830 at 100m
48-273-0314
Fire
Light
Medium
Heavy

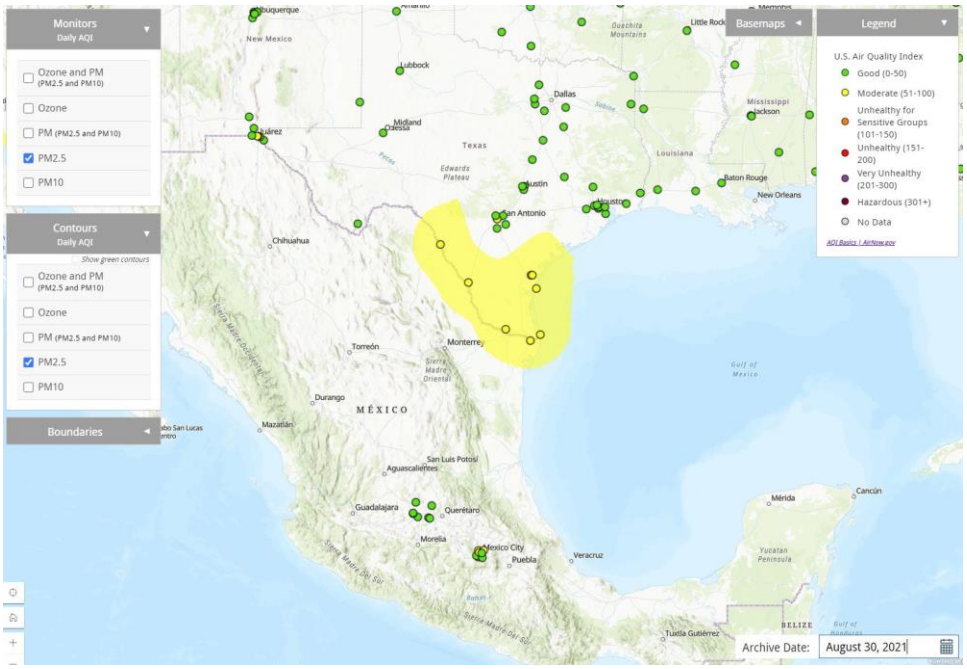
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210830 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 8/30/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 8/30/2021.

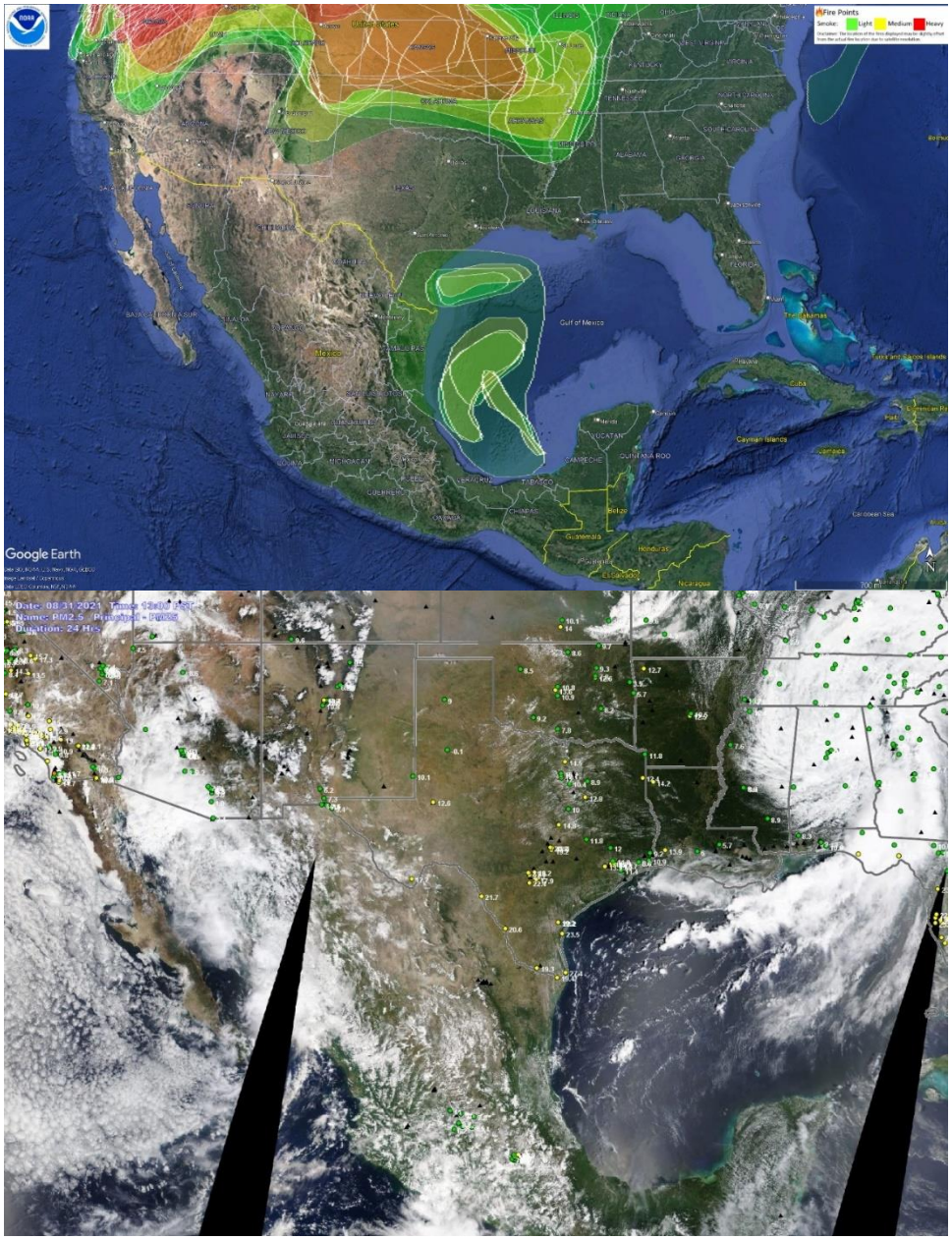


26. 8/31/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

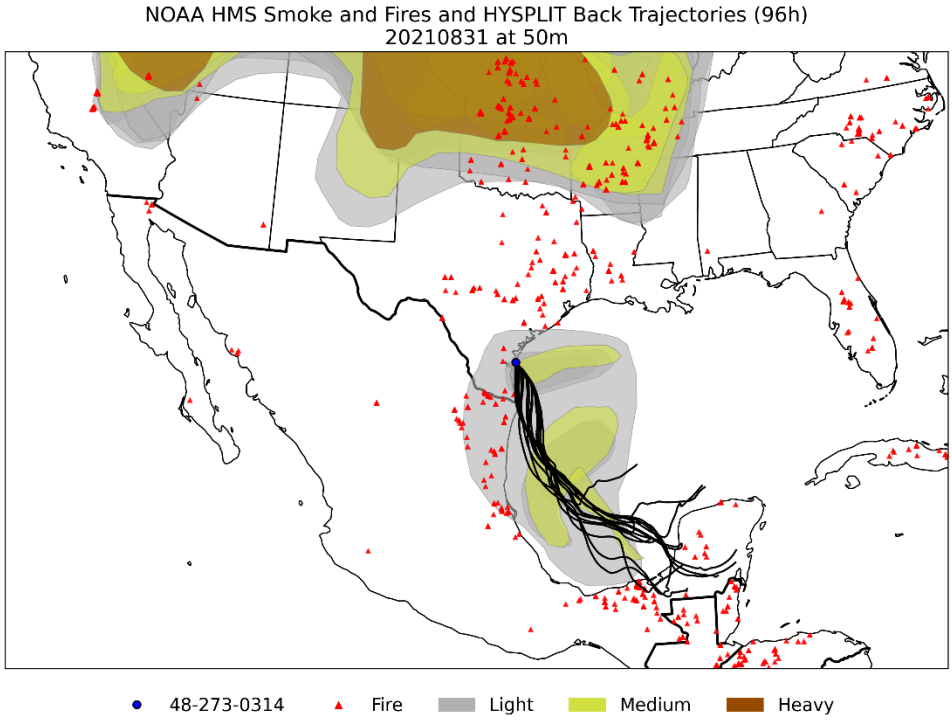
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
8/31/2021	19.6	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

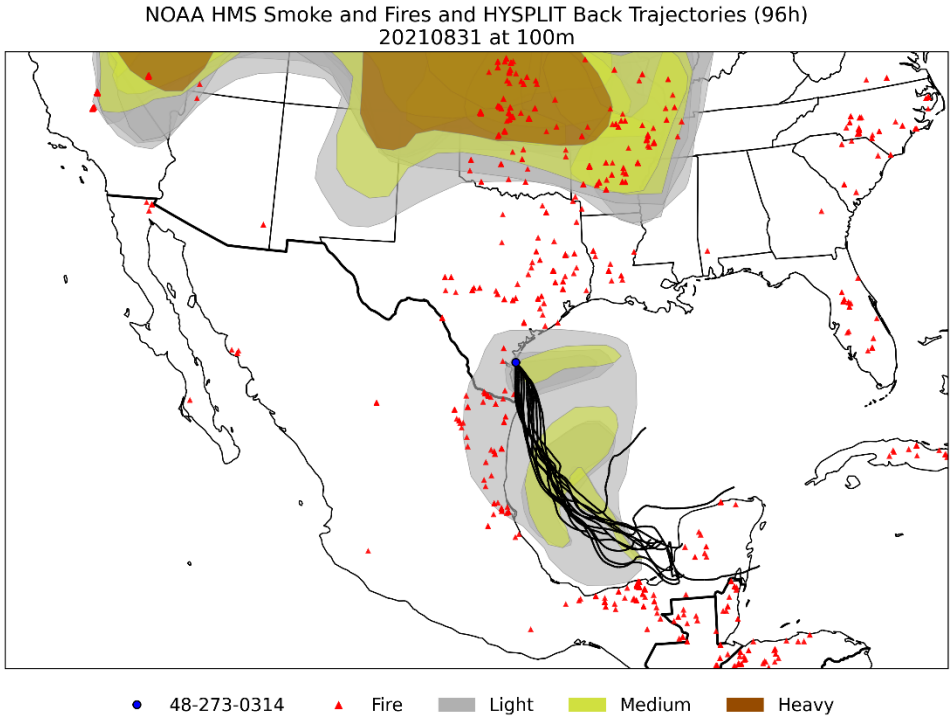


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

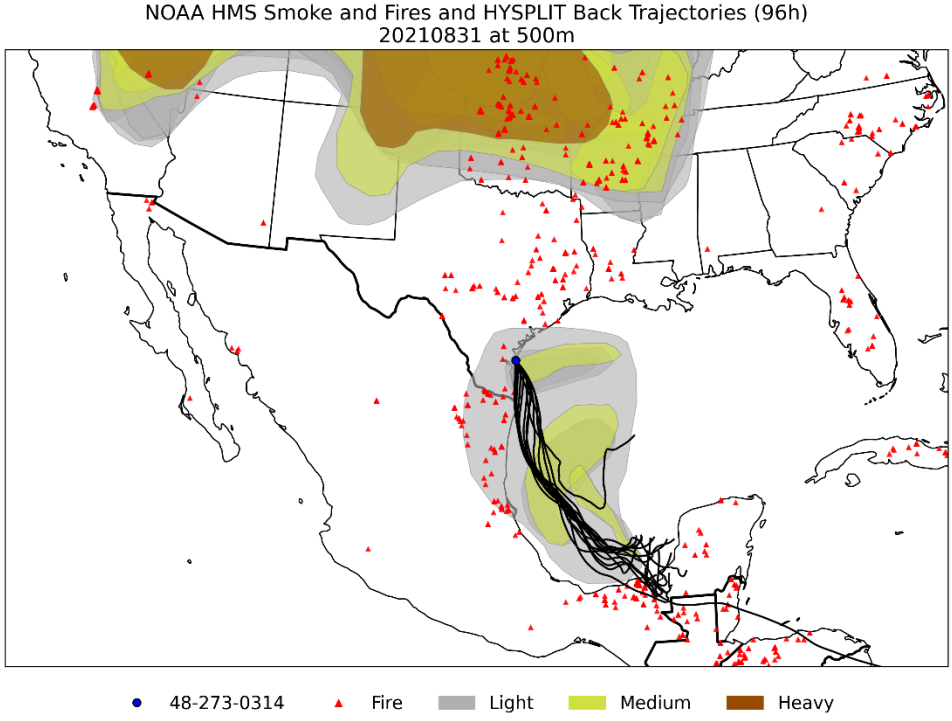
- 50m



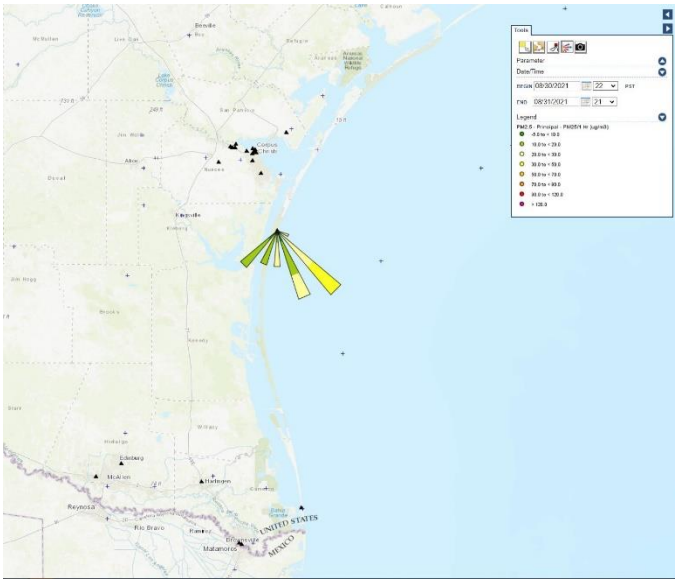
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210831 at 100m
48-273-0314
Fire
Light
Medium
Heavy

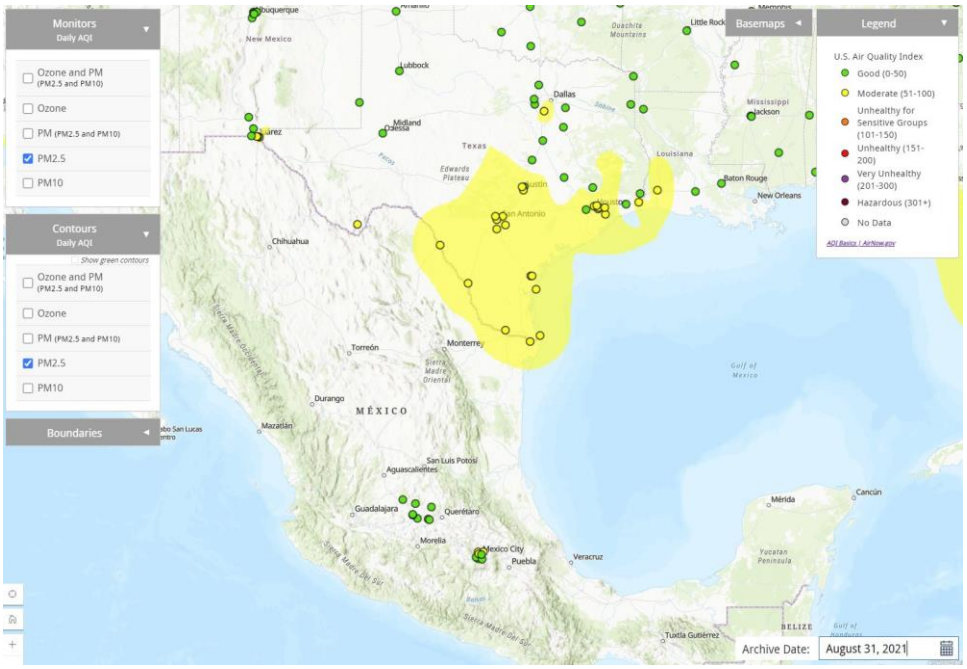
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210831 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 8/31/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 8/31/2021.

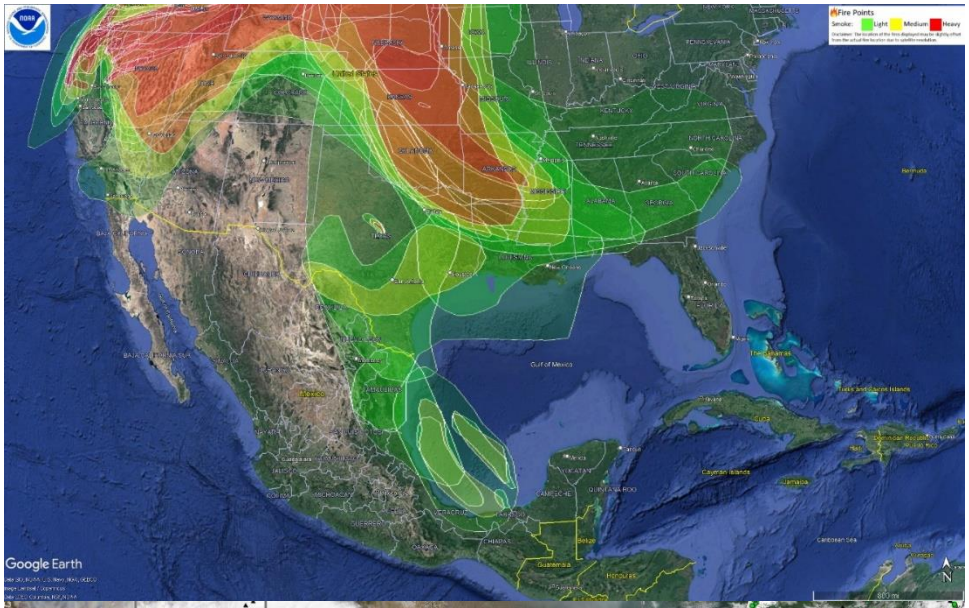


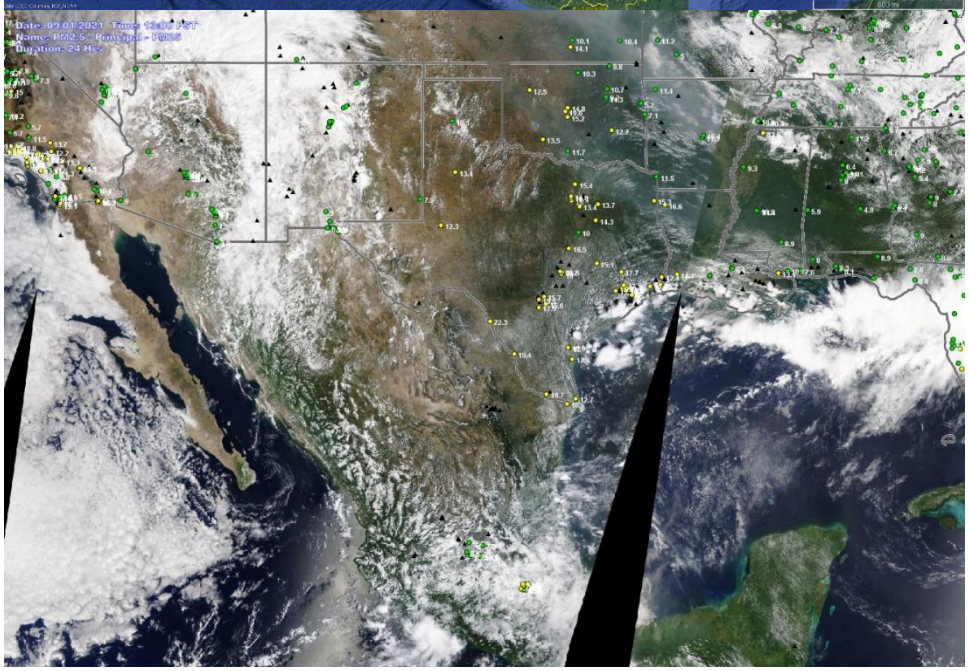
27. 9/1/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
9/1/2021	21.6	18.1	27.15

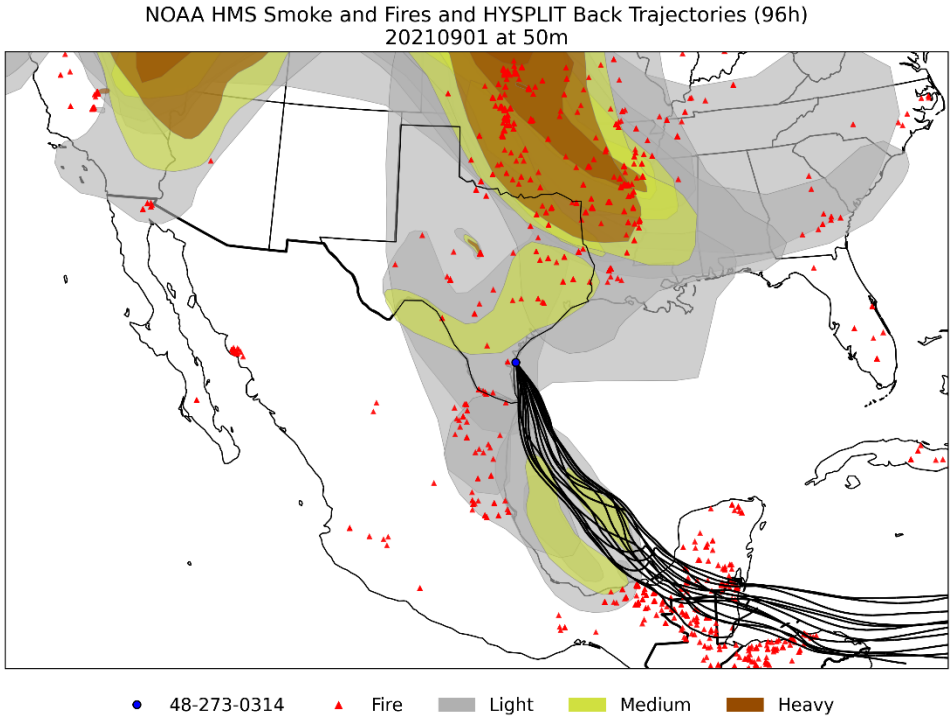
b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).



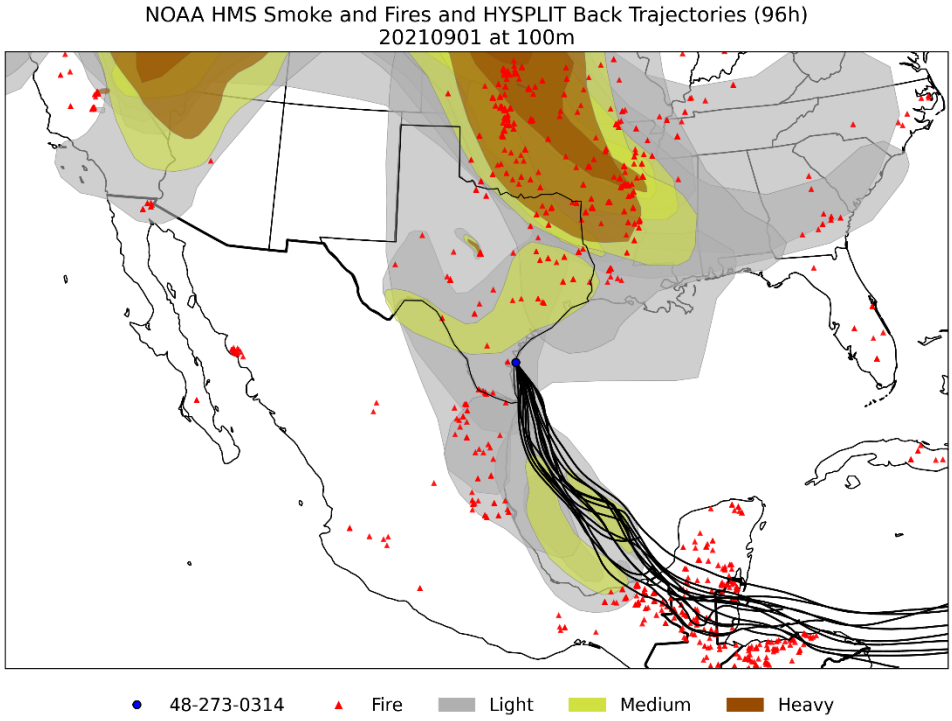


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

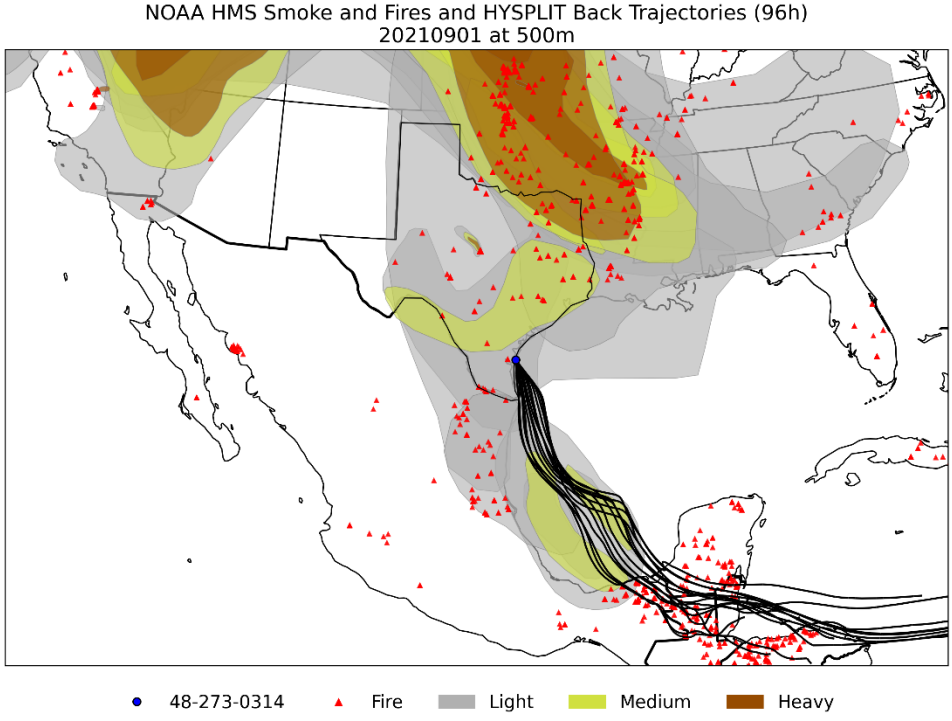
- 50m



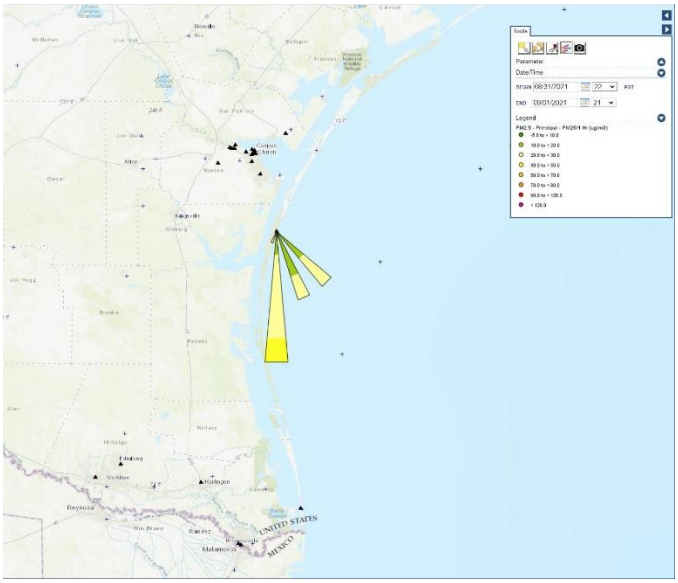
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210901 at 100m
48-273-0314
Fire
Light
Medium
Heavy

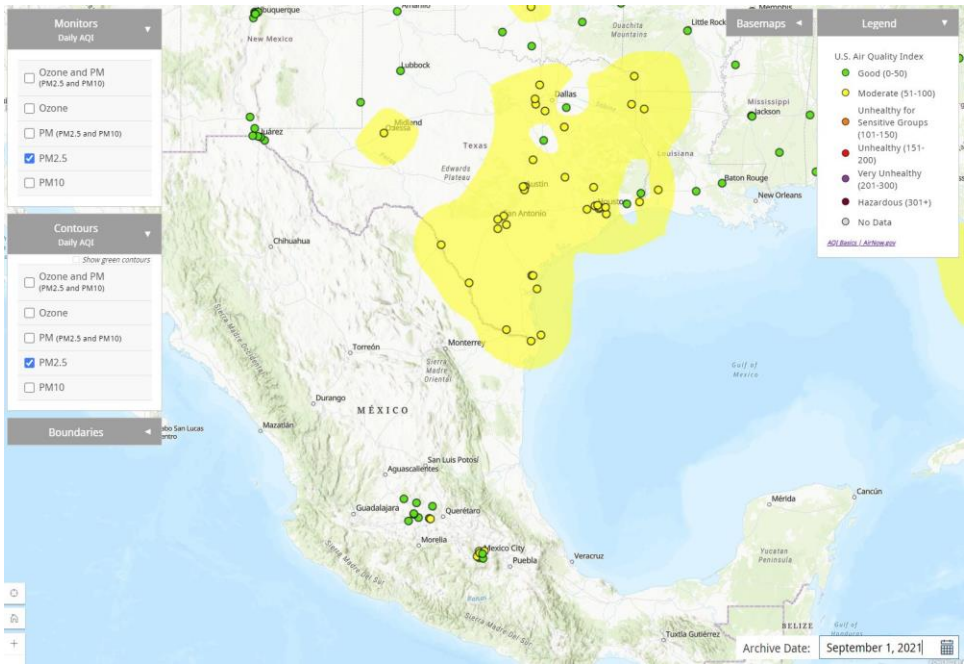
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210901 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 9/1/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 9/01/2021.

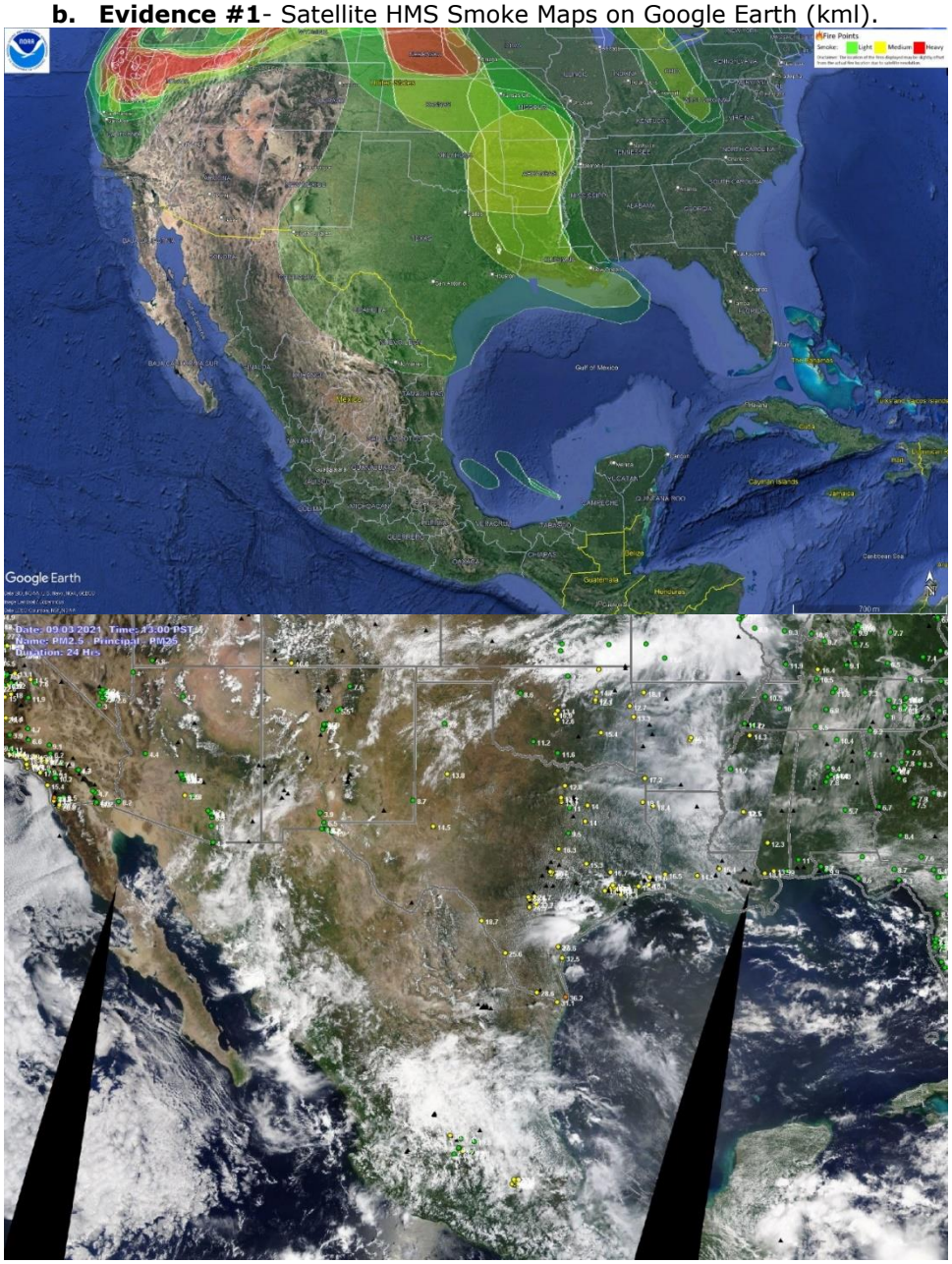


28. 9/3/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

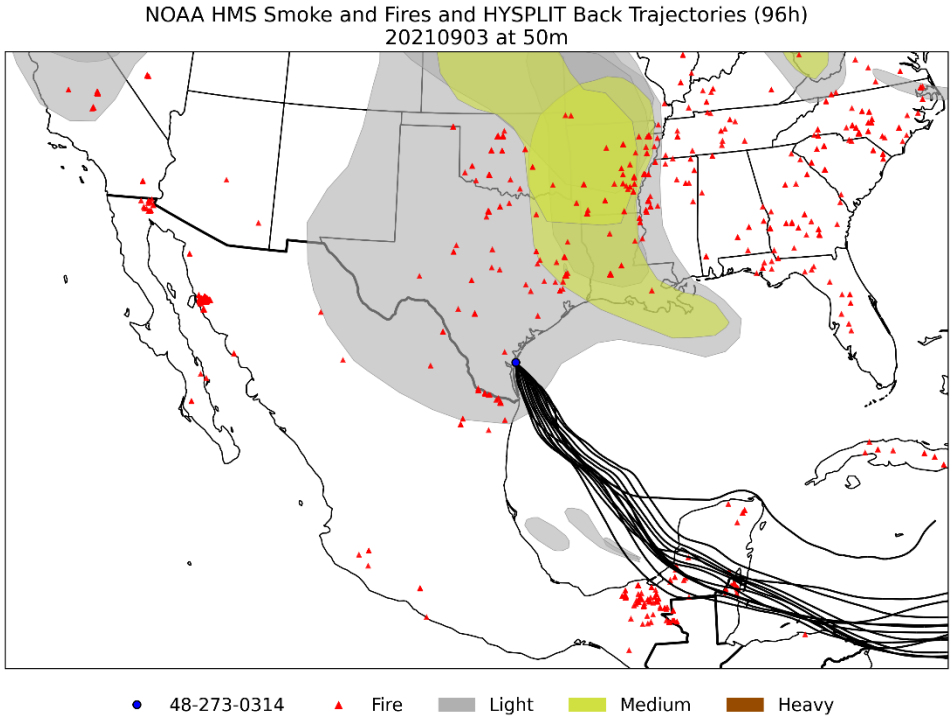
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
9/3/2021	23.3	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

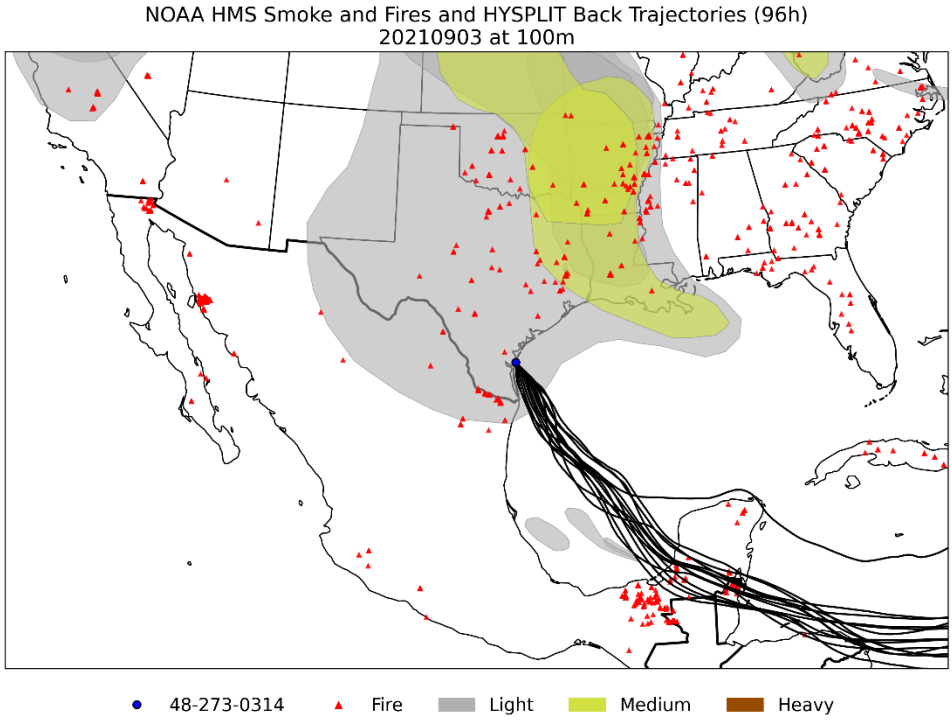


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

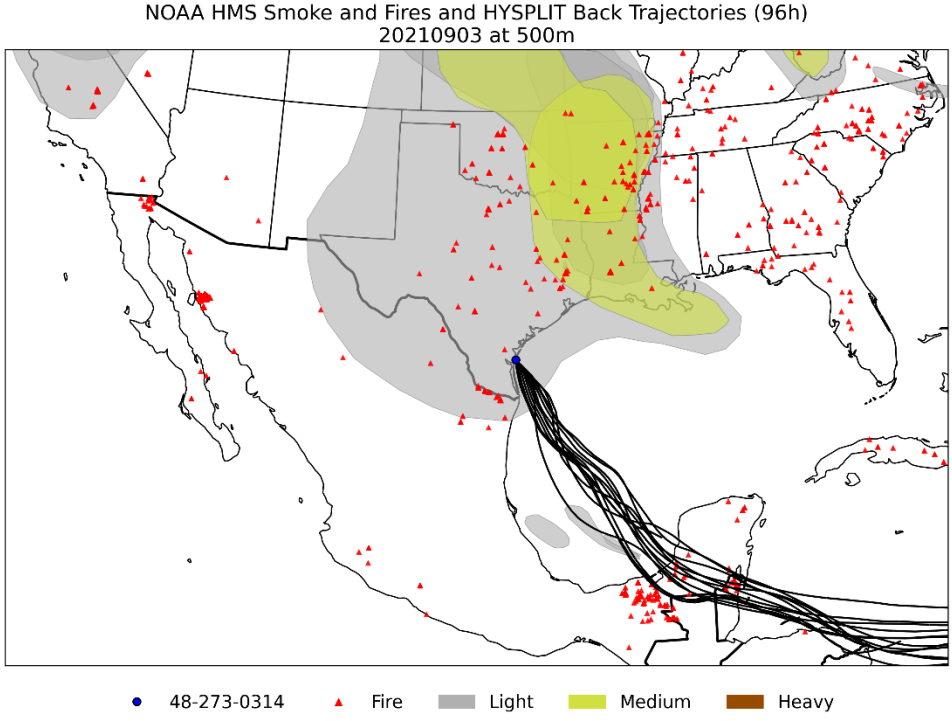
- 50m



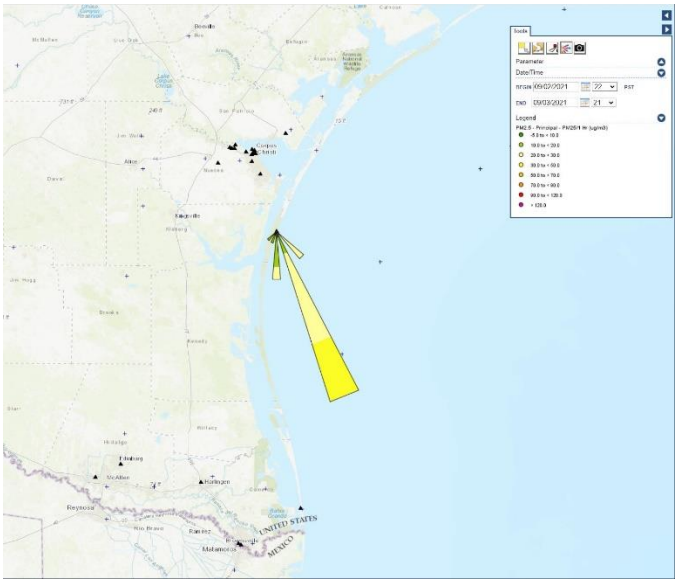
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210903 at 100m
48-273-0314
Fire
Light
Medium
Heavy

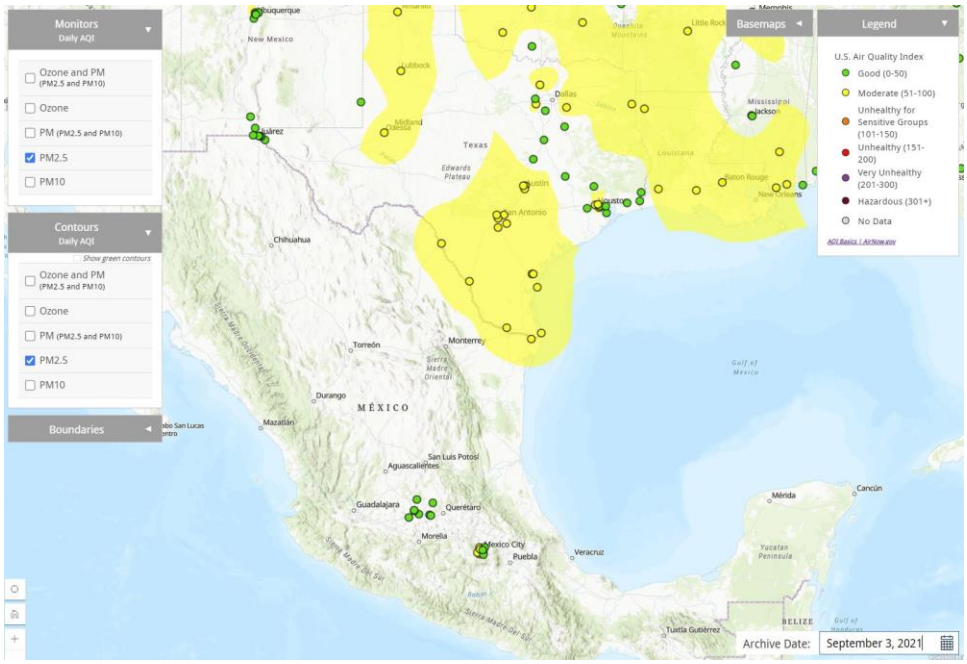
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210903 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 9/3/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 9/03/2021.

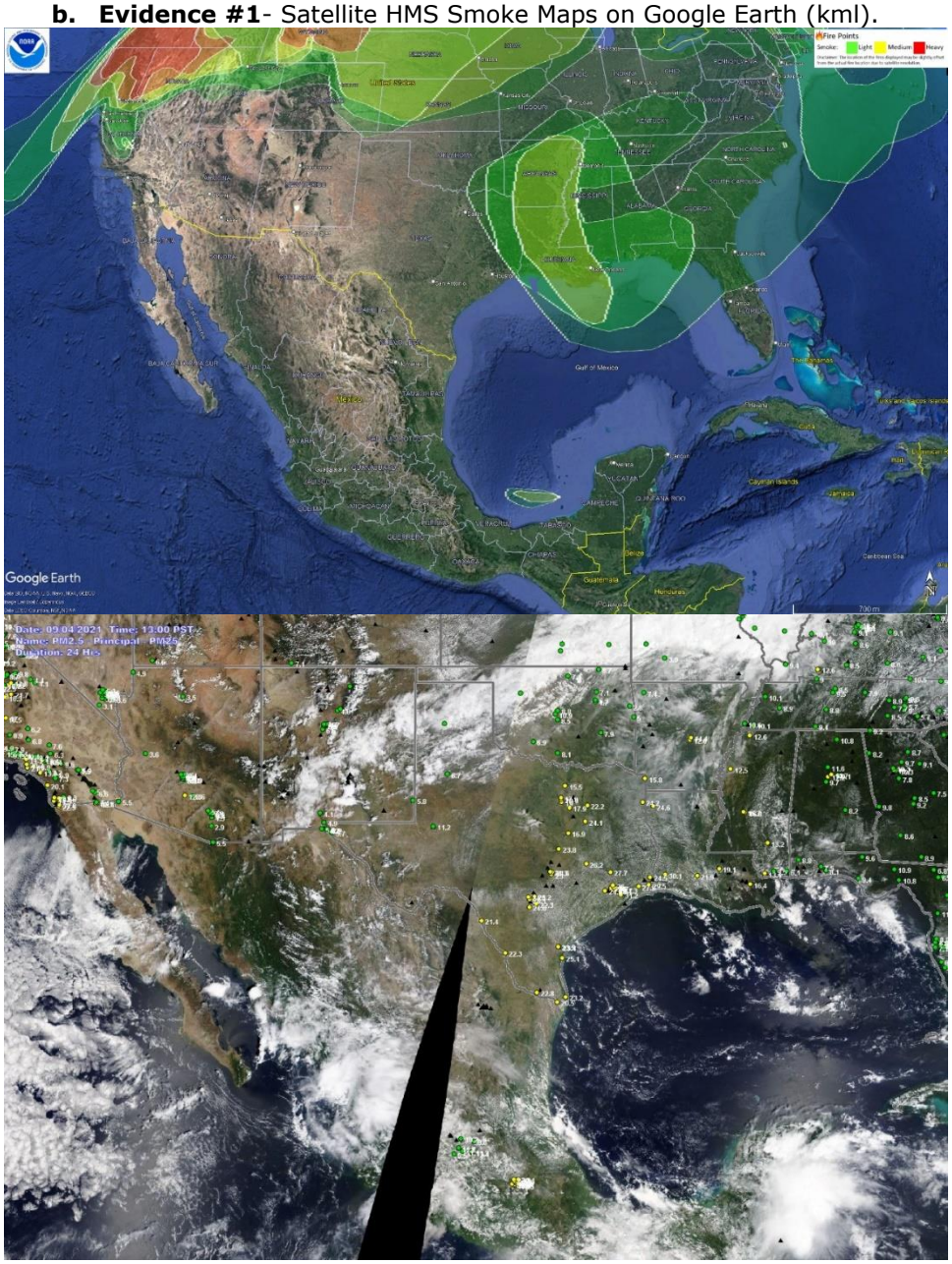


29. 9/4/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

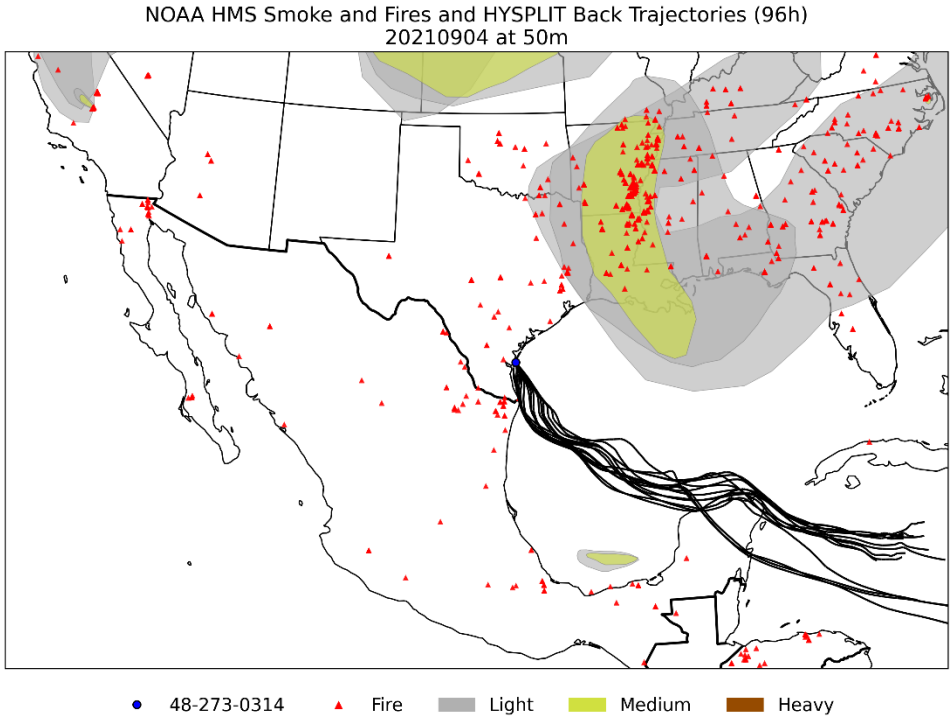
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
9/4/2021	34.9	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

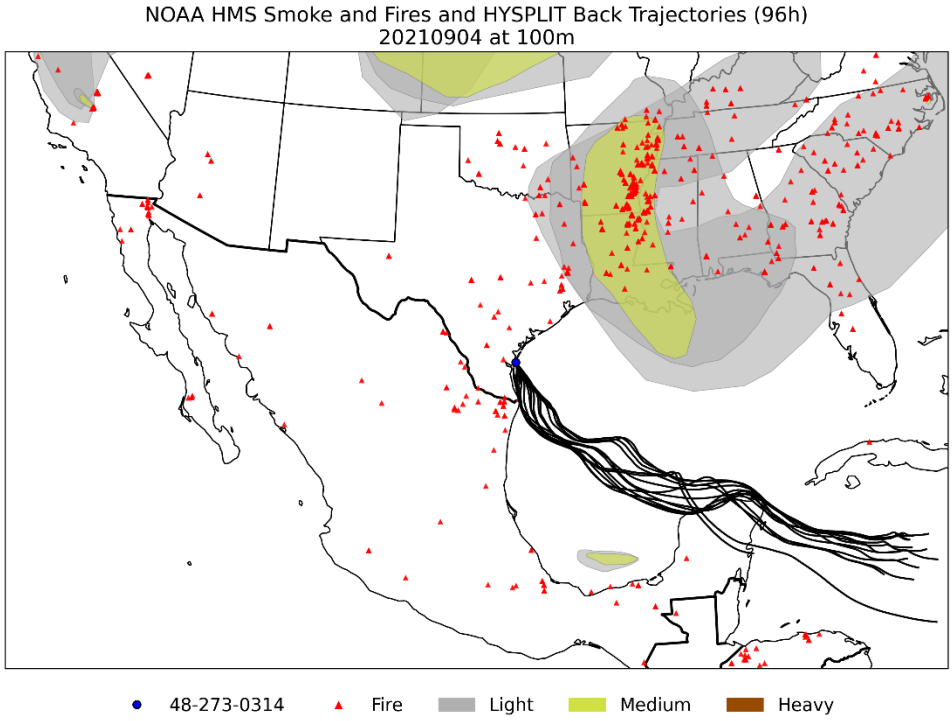


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

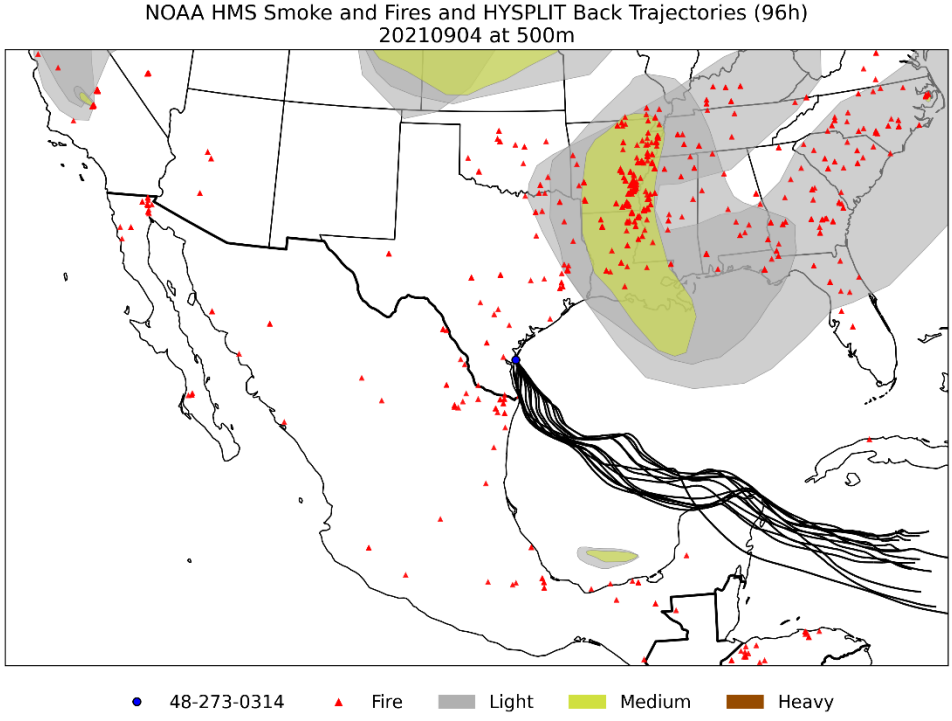
- 50m



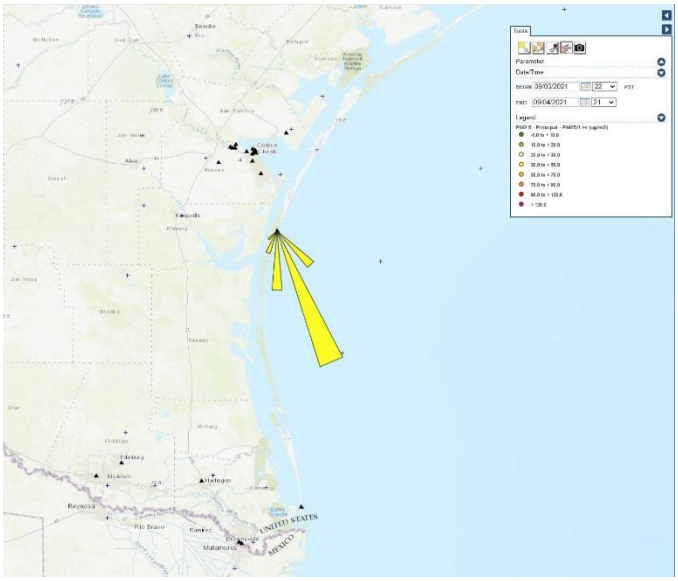
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210904 at 100m
48-273-0314
Fire
Light
Medium
Heavy

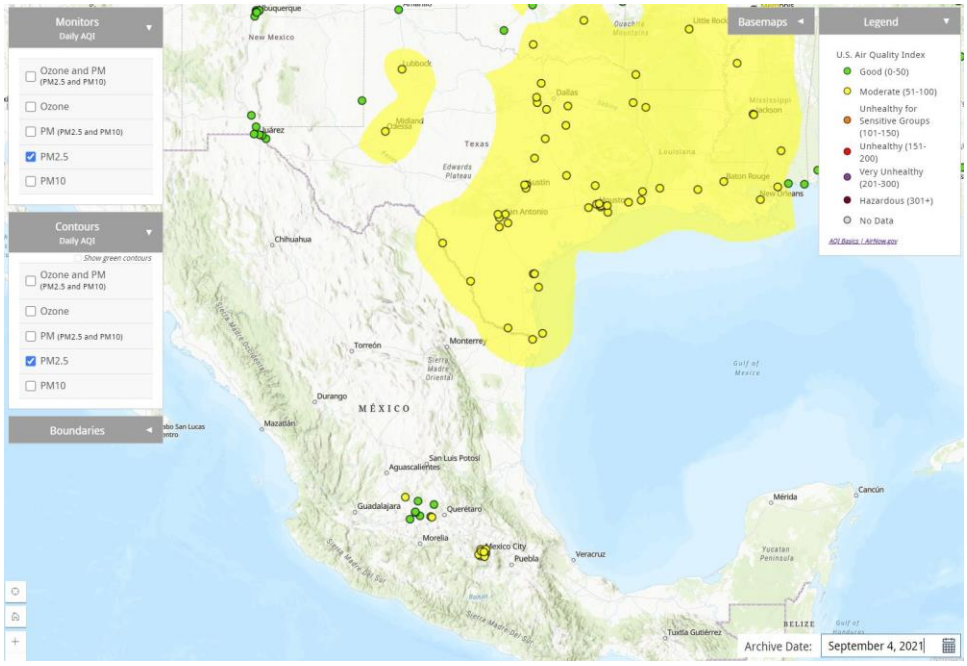
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210904 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 9/4/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 9/04/2021.

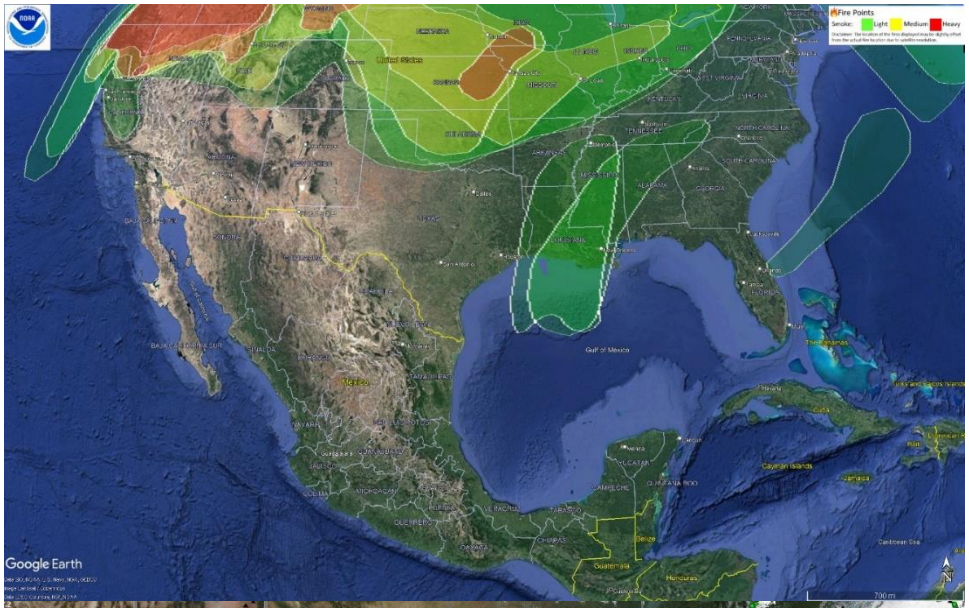


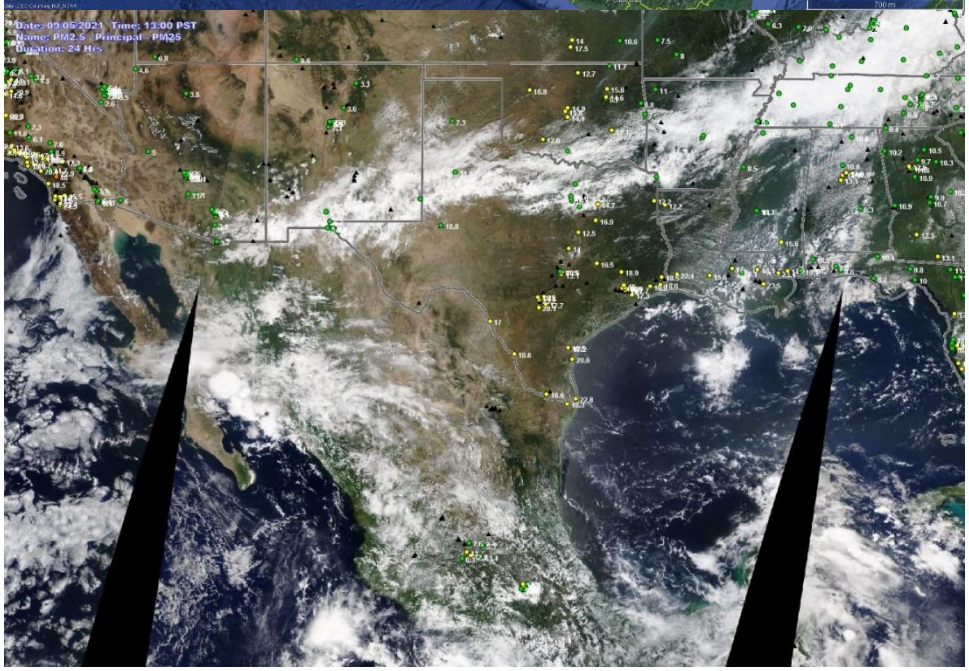
30. 9/5/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
9/5/2021	20.8	18.1	27.15

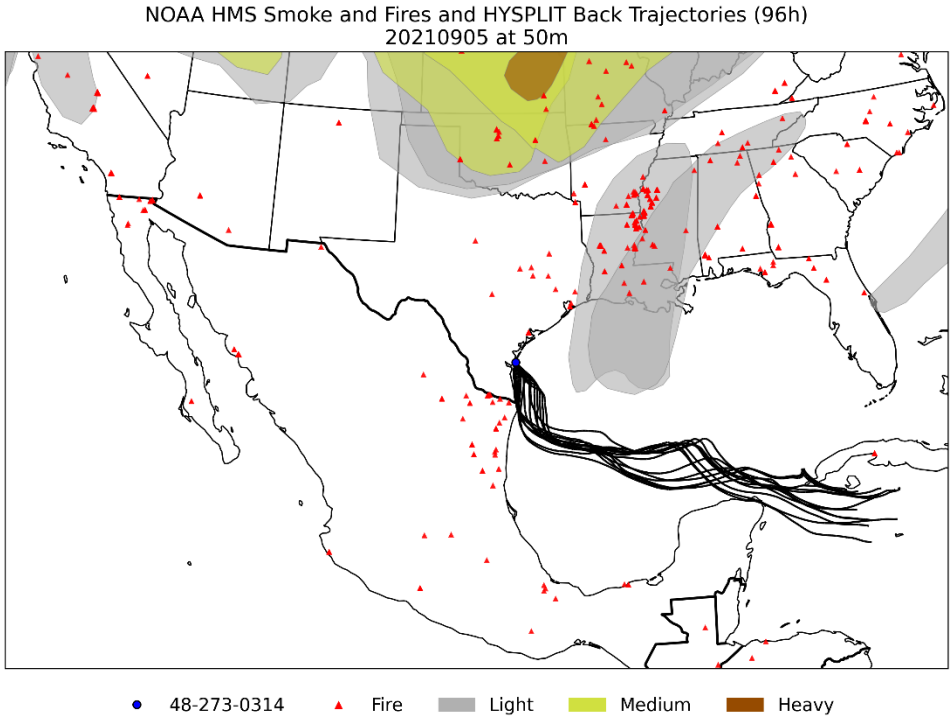
b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).



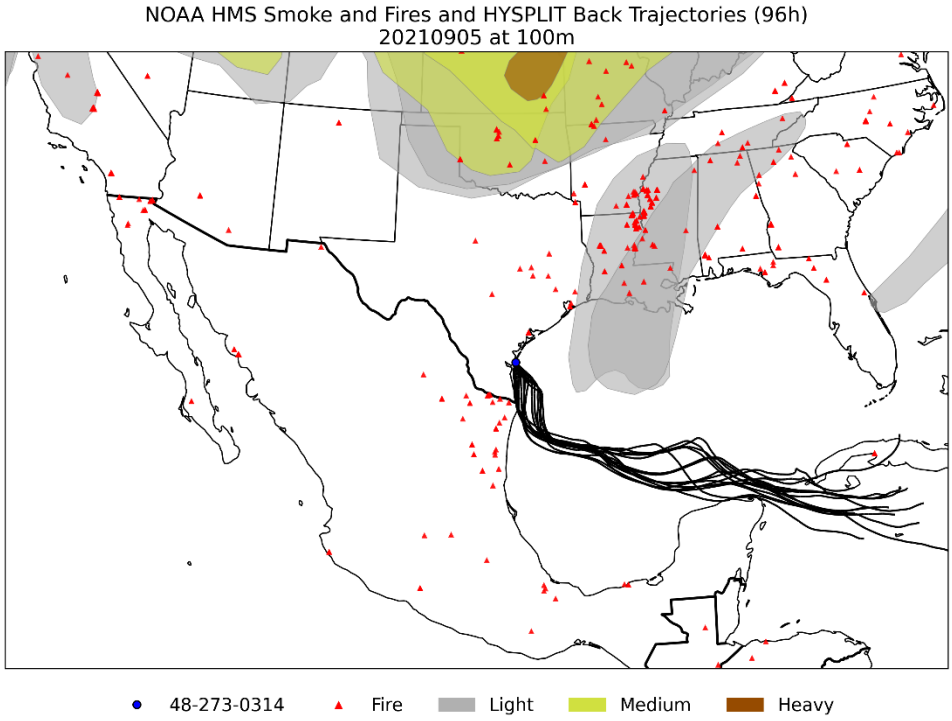


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

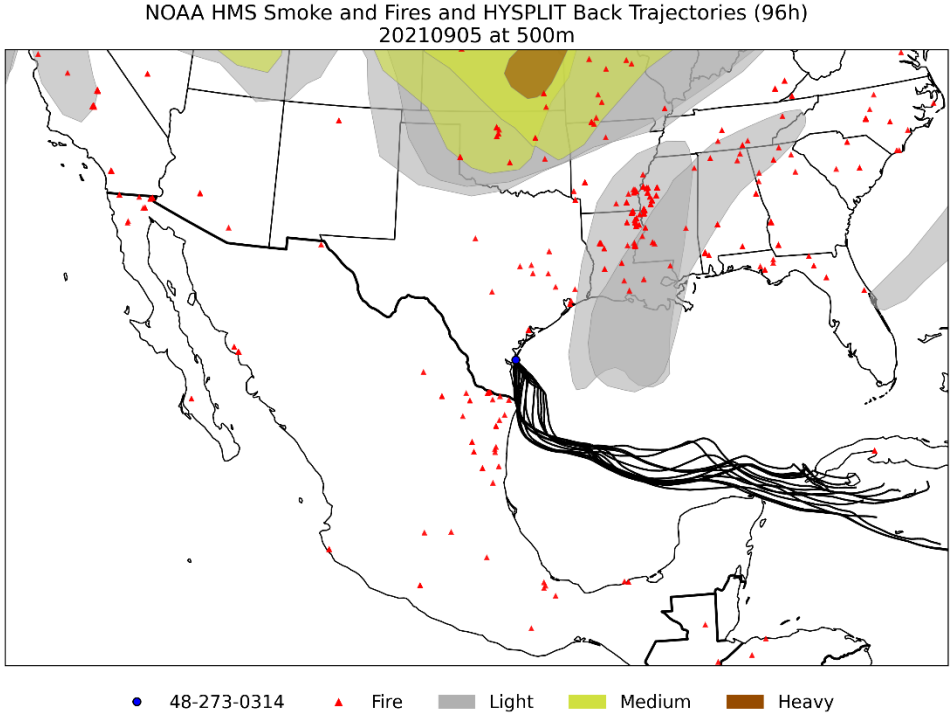
- 50m



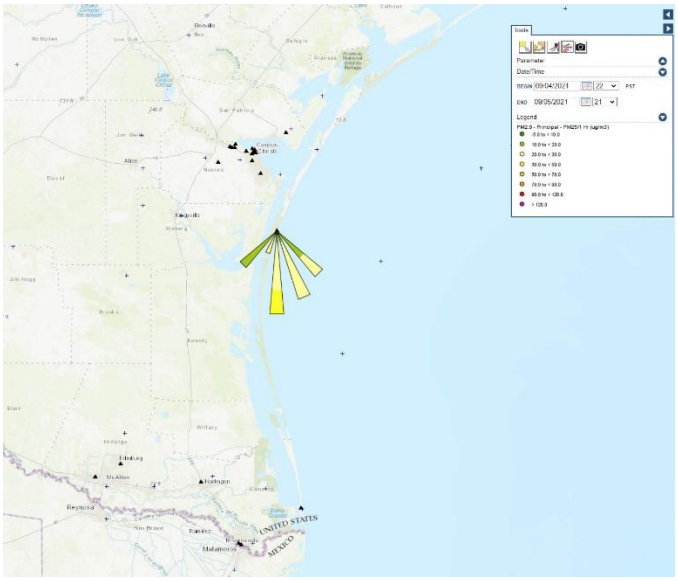
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210905 at 100m
48-273-0314
Fire
Light
Medium
Heavy

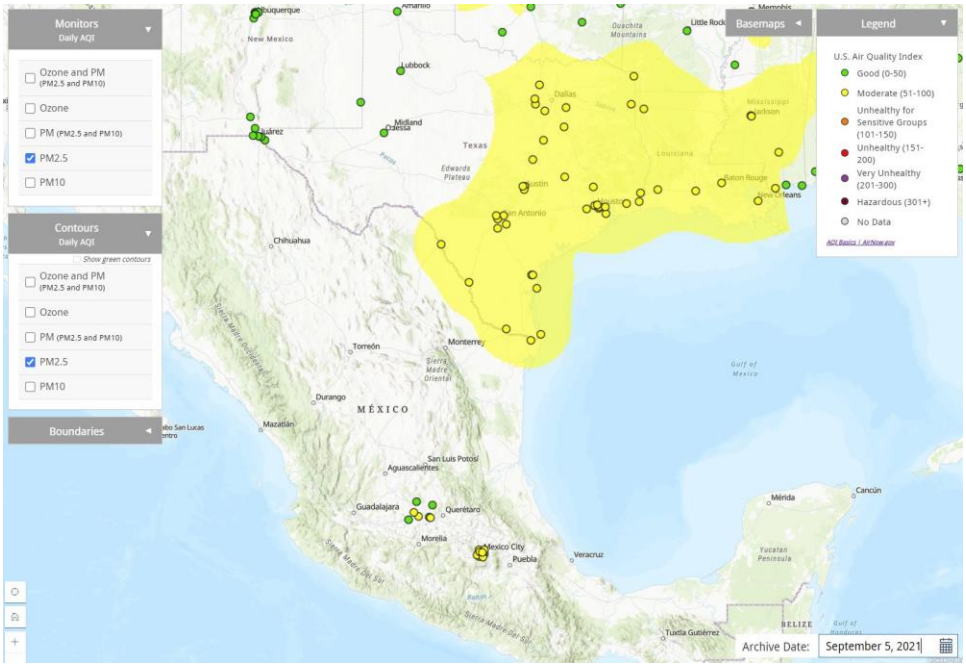
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210905 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 9/5/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



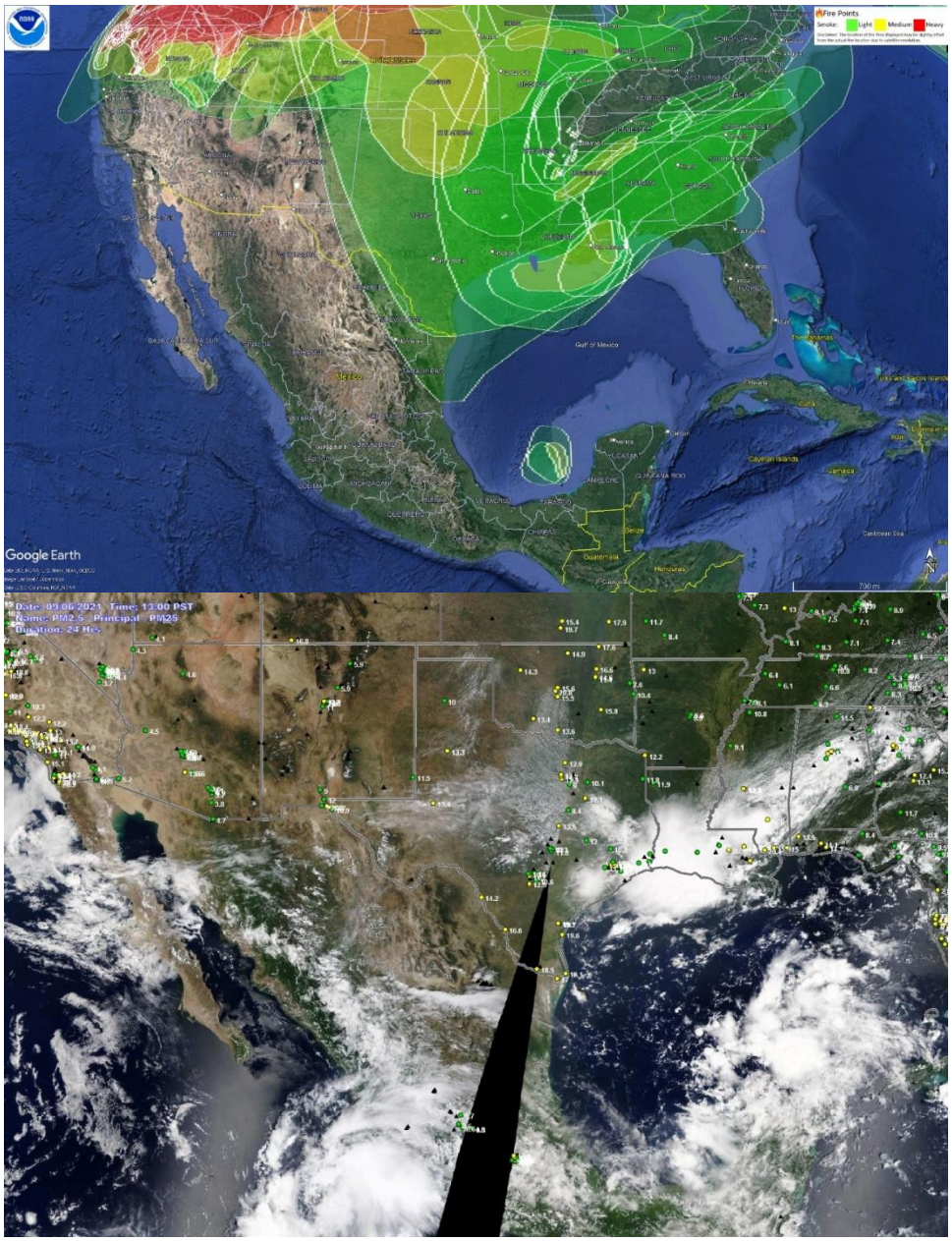
e. **Evidence #4** - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 9/05/2021.



31. 9/6/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

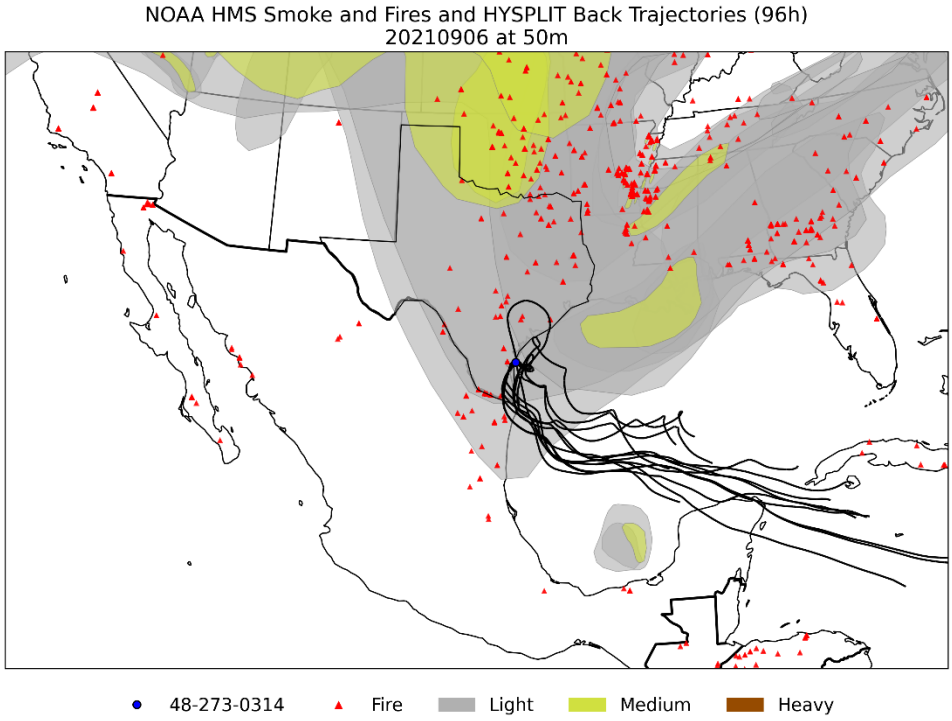
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
9/6/2021	20.2	18.1	27.15



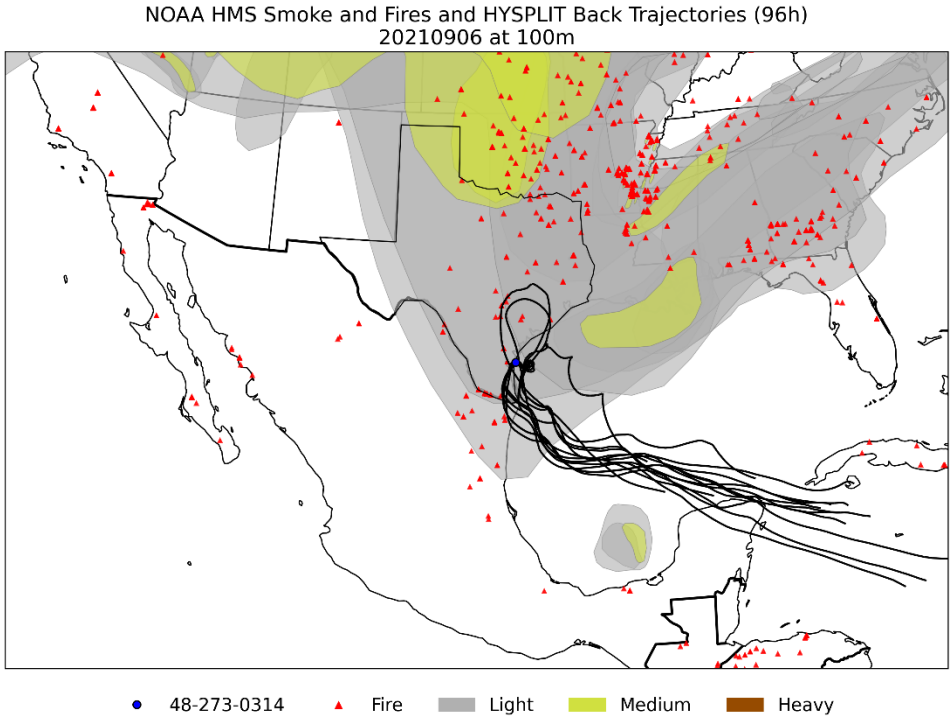
b. Evidence #1- Satellite HMS Smoke Maps on Google Earth (kml).

c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

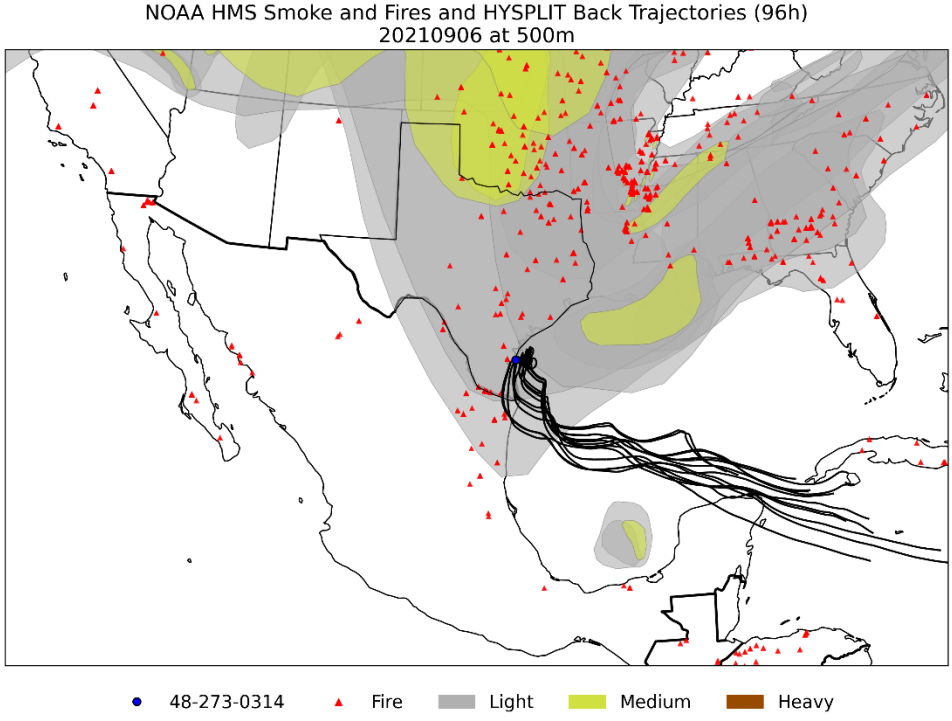
- 50m



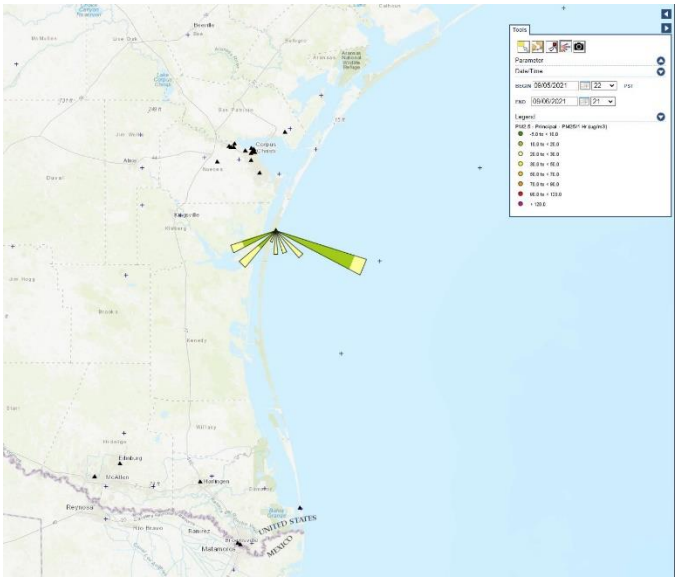
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210906 at 100m
48-273-0314
Fire
Light
Medium
Heavy

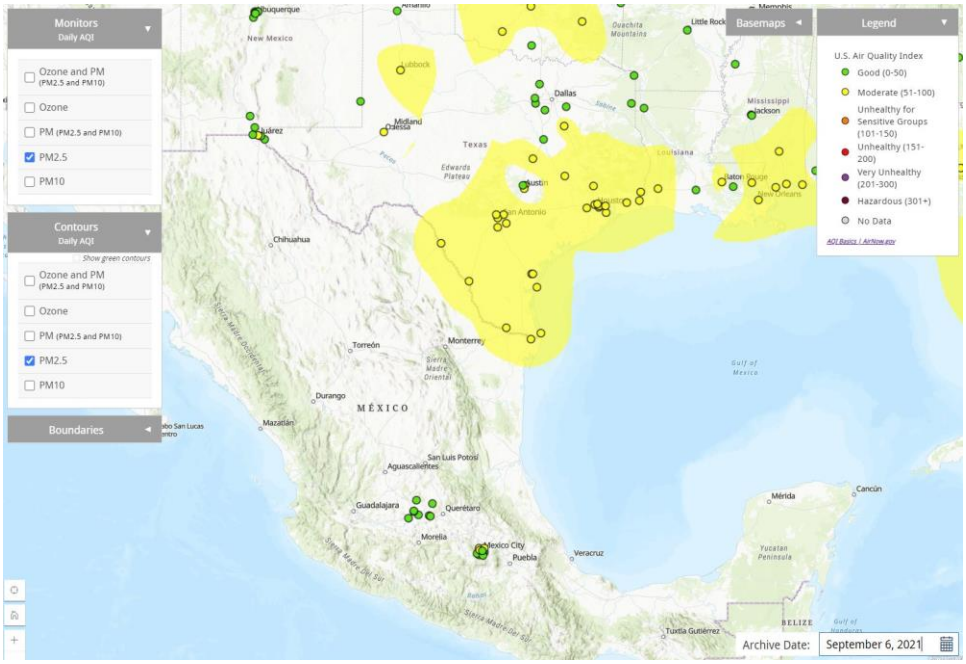
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210906 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 9/6/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4** - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 9/06/2021.

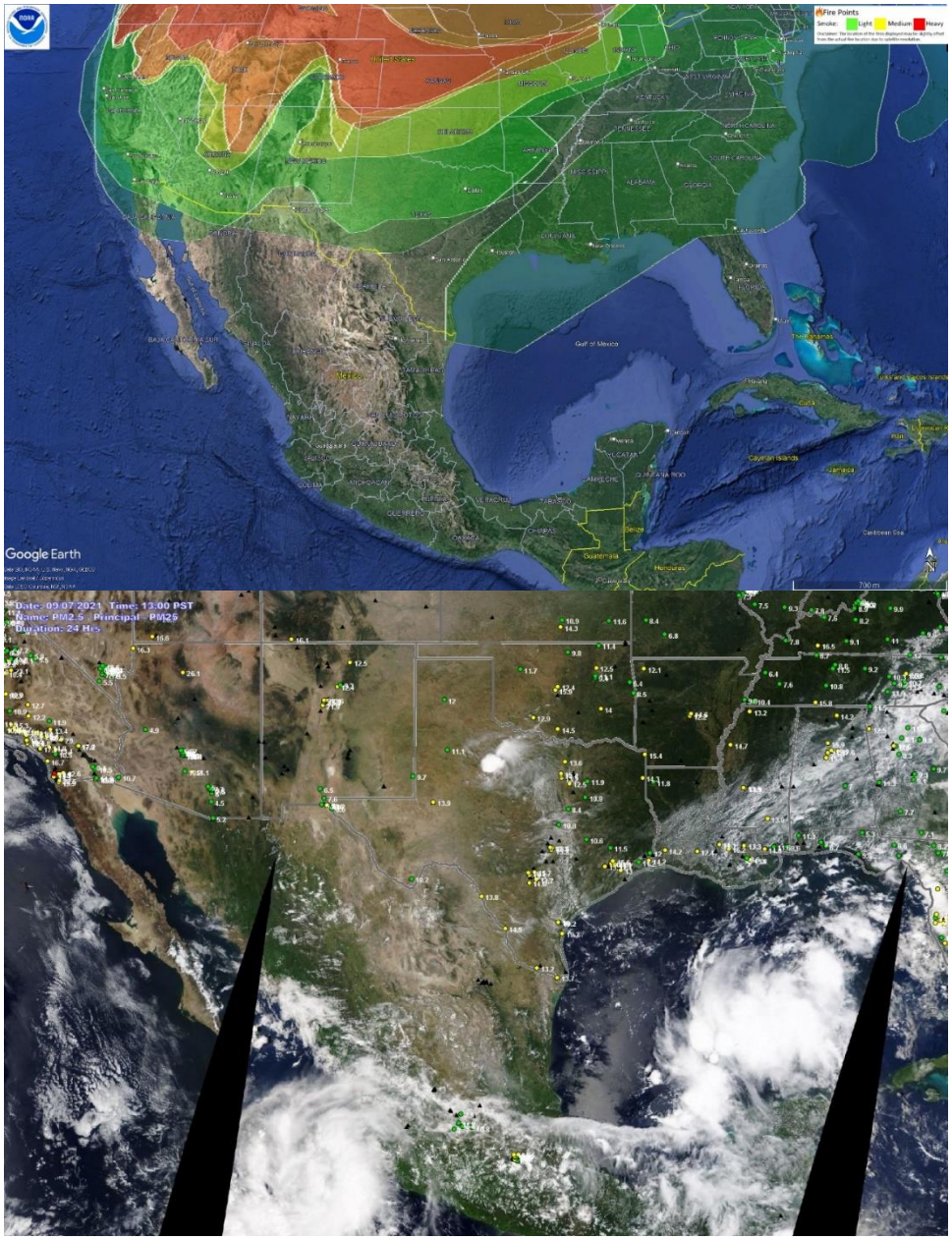


32. 9/7/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

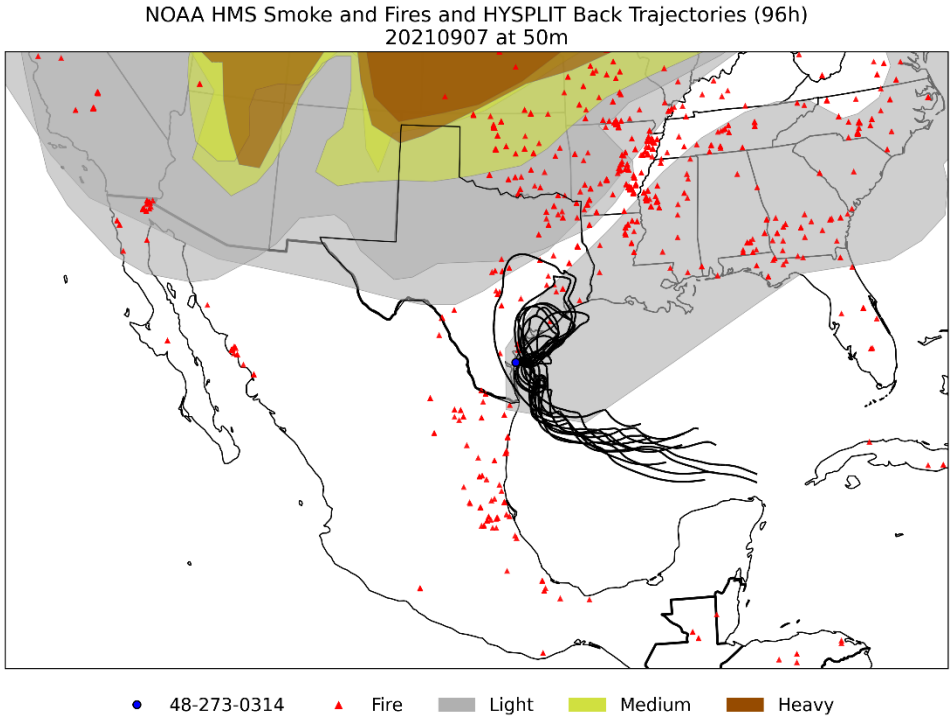
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
9/7/2021	19.7	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

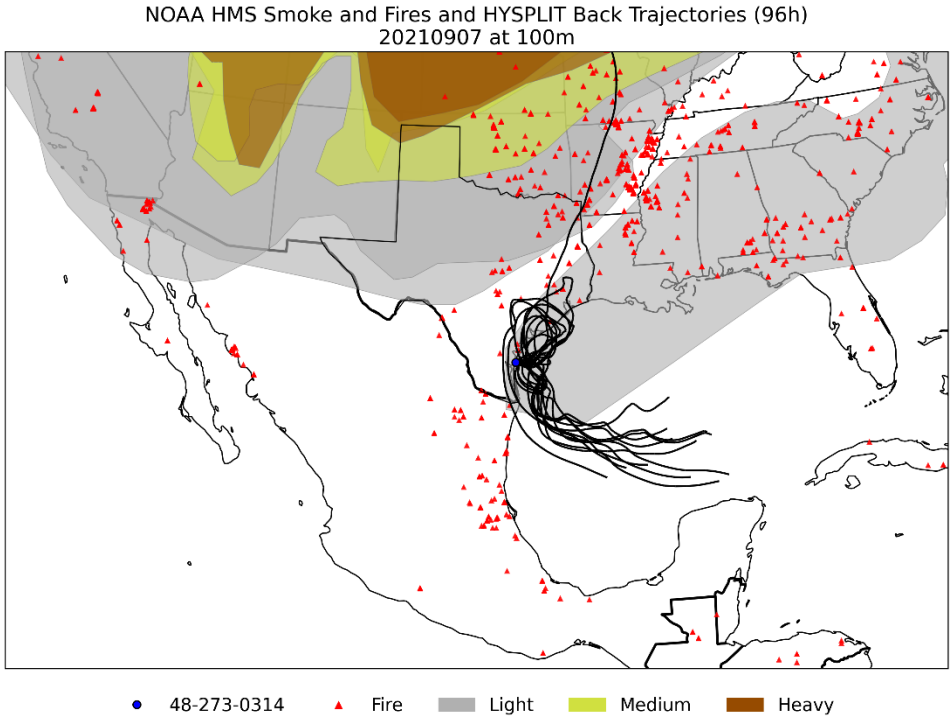


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

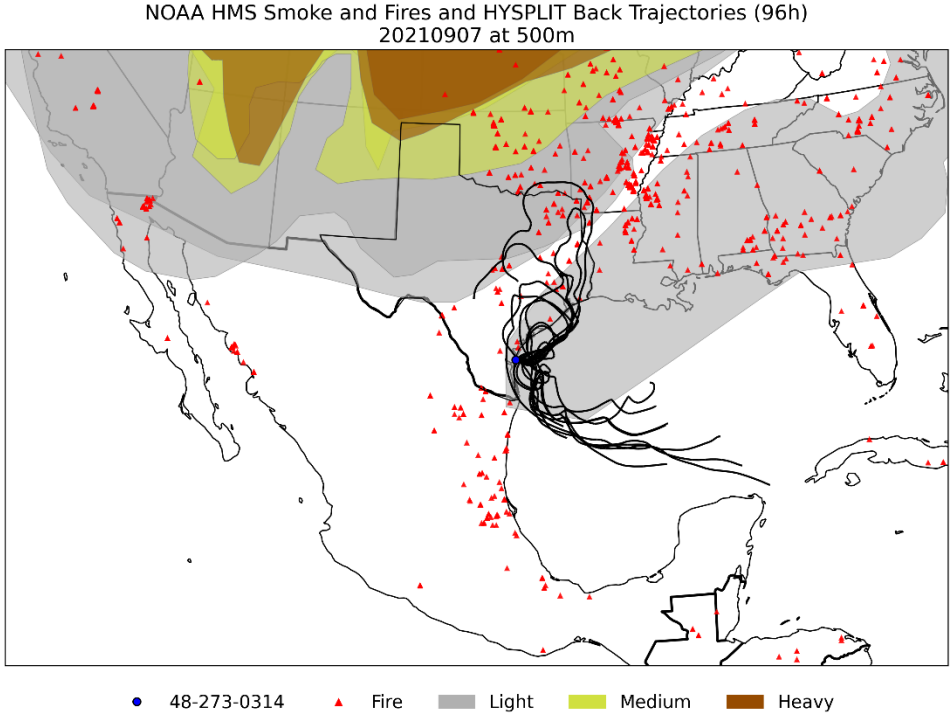
- 50m



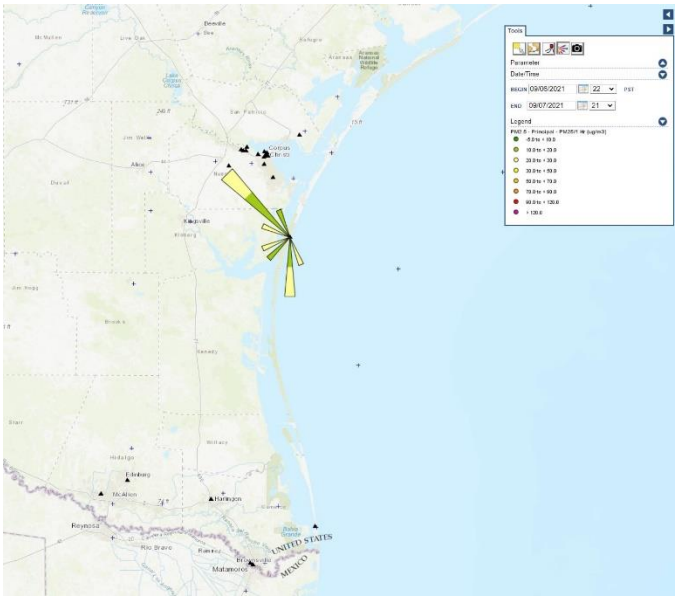
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210907 at 100m
48-273-0314
Fire
Light
Medium
Heavy

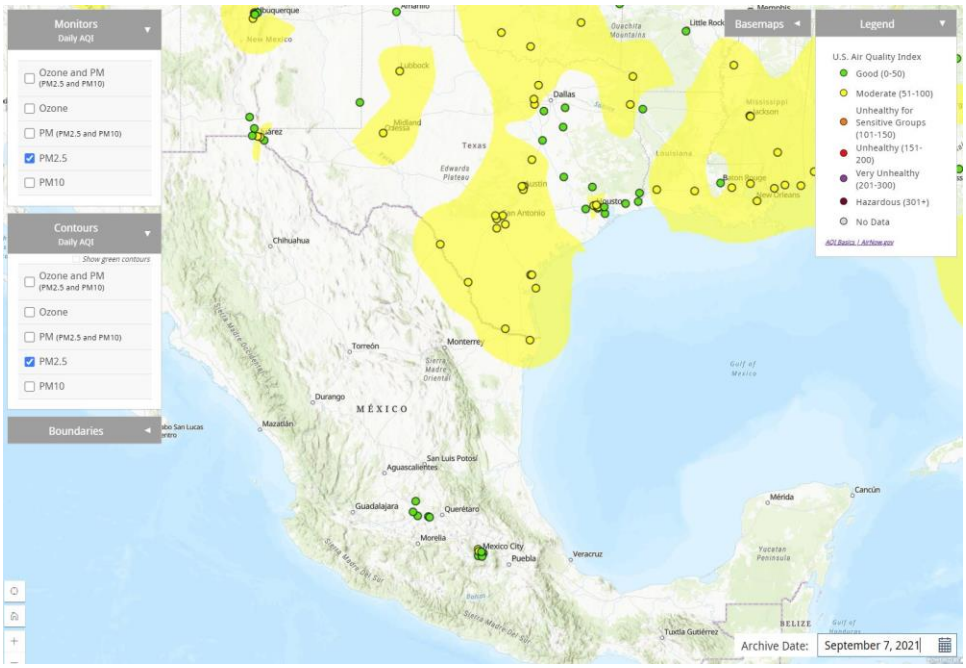
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20210907 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 9/7/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 9/07/2021.

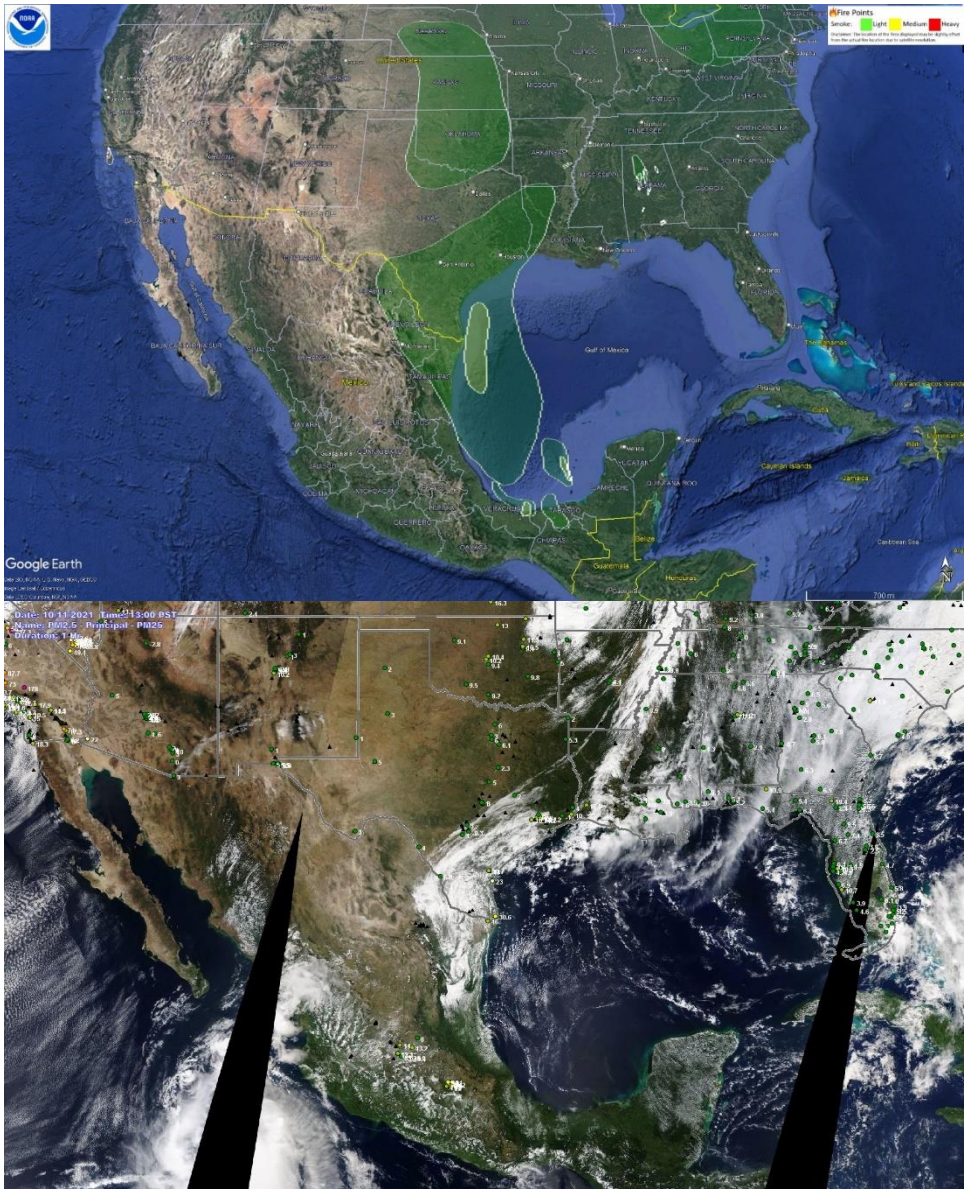


33. 10/11/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

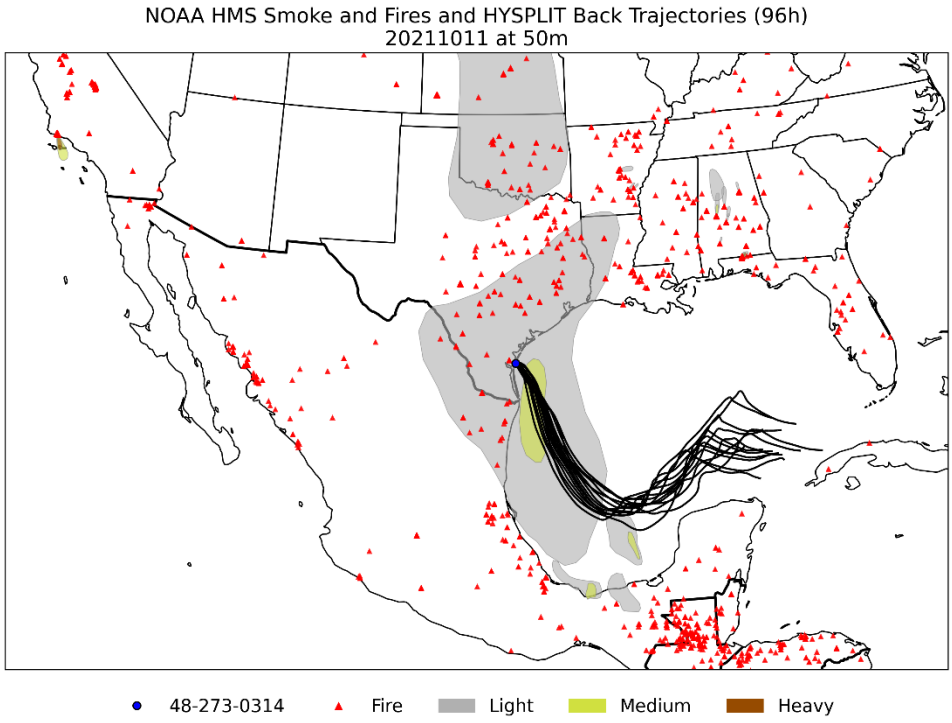
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
10/11/2021	15.2	14.2	21.3

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

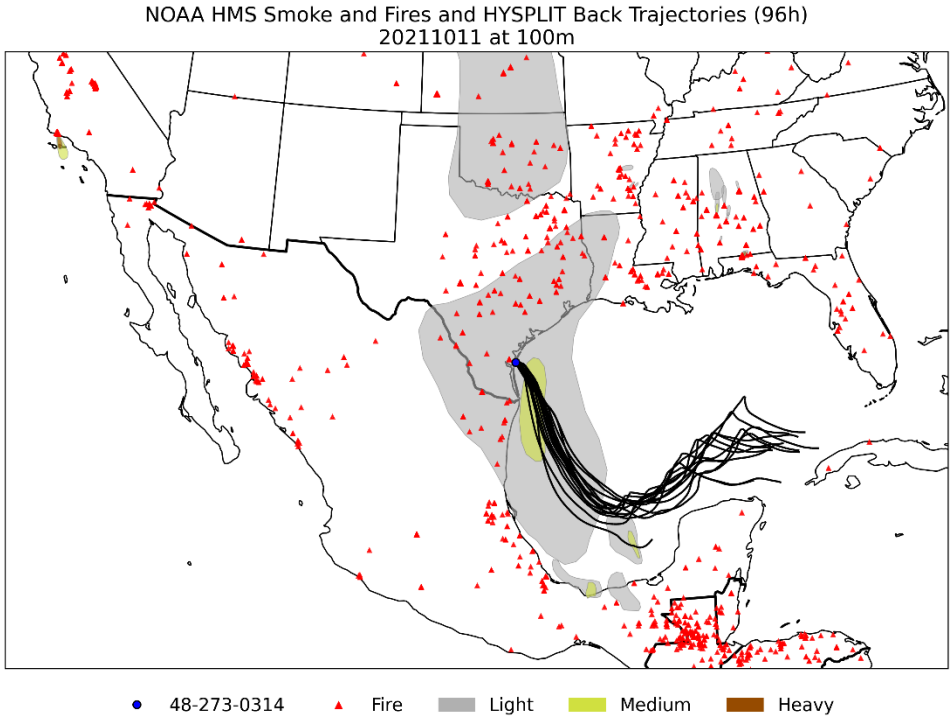


c. **Evidence #2**– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

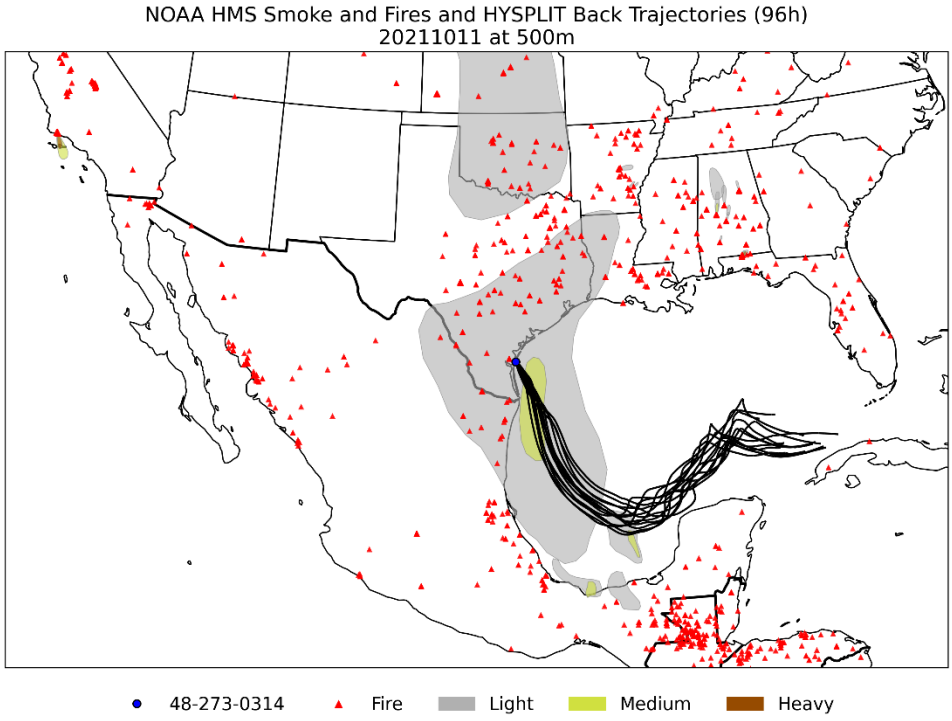
- 50m



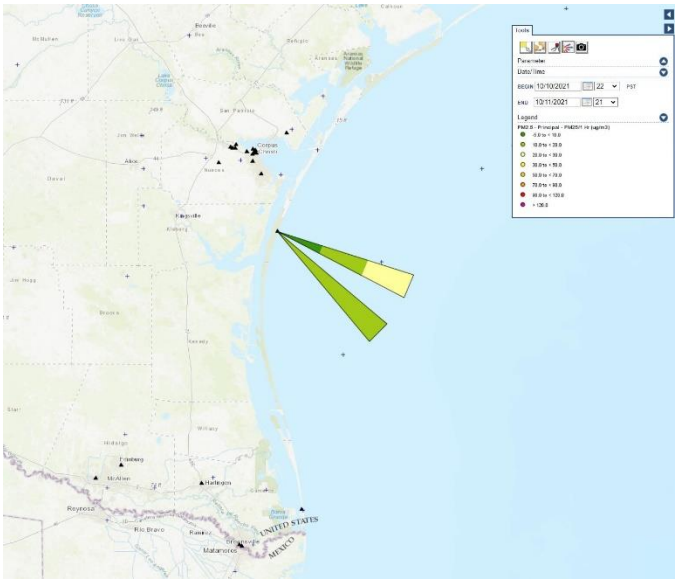
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20211011 at 100m
48-273-0314
Fire
Light
Medium
Heavy

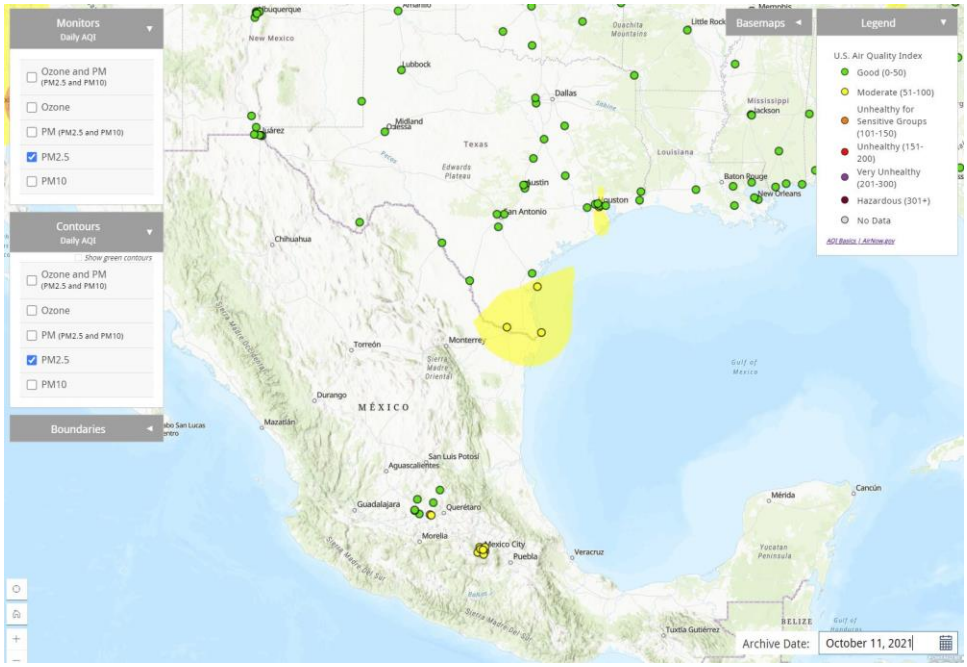
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20211011 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 10/11/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 10/11/2021.

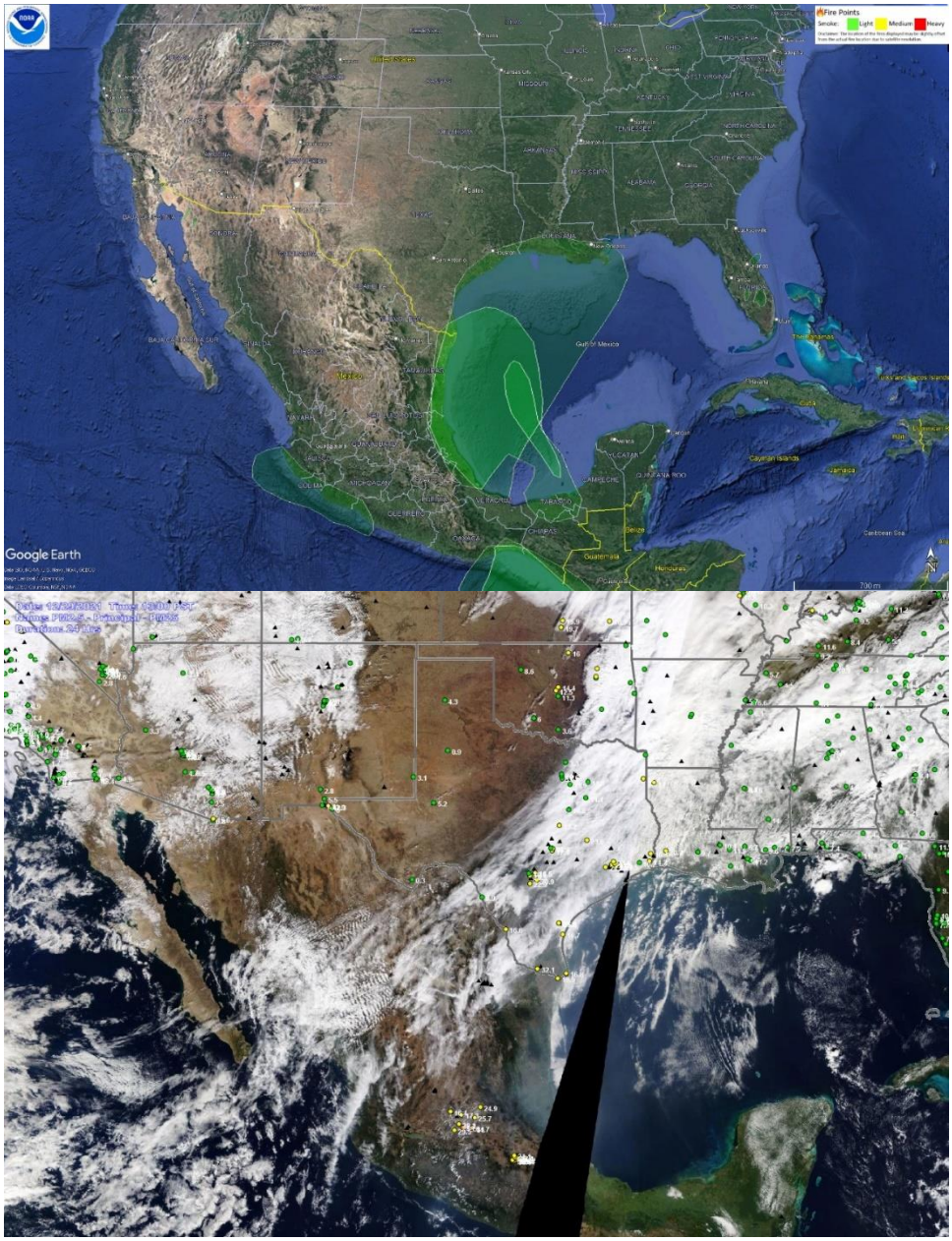


34. 12/29/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

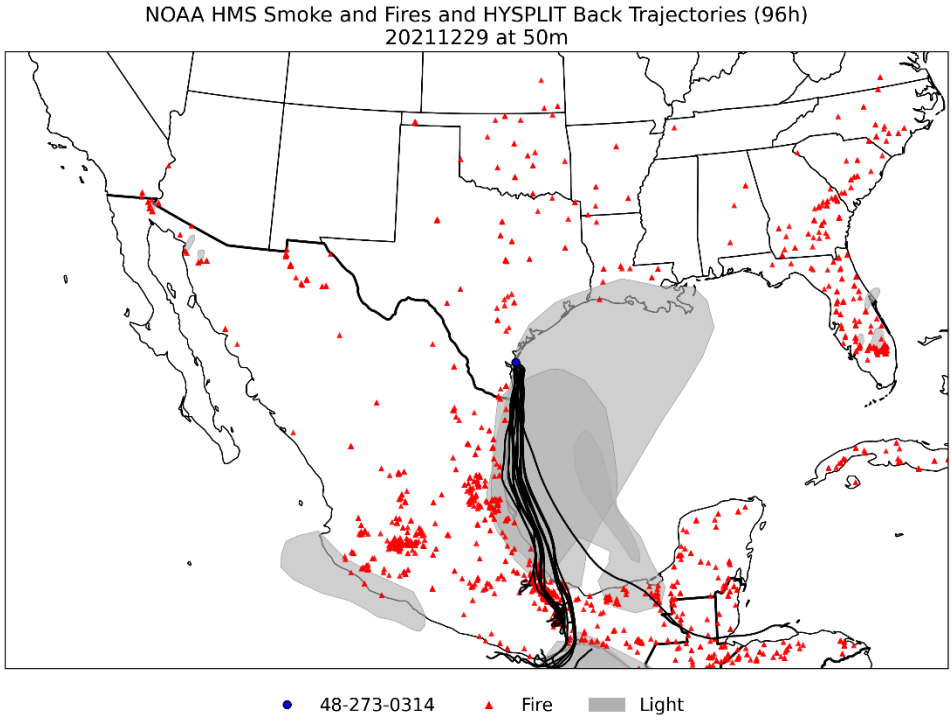
Date	24-hour $PM_{2.5}$ (µg/m³)	Tier 2 Threshold	Tier 1 Threshold
12/29/2021	29.3	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

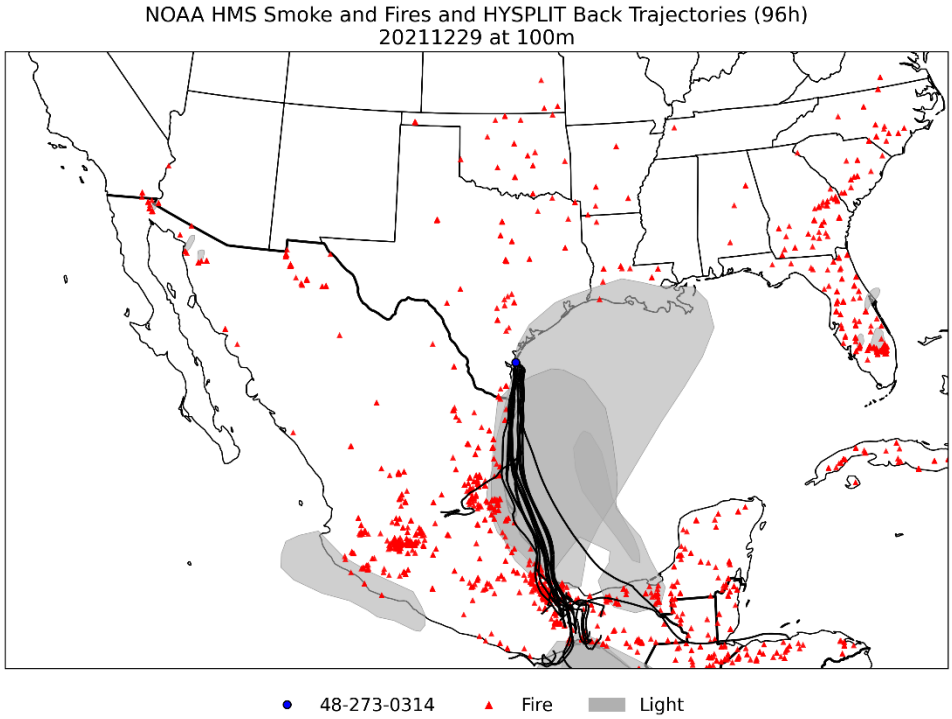


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

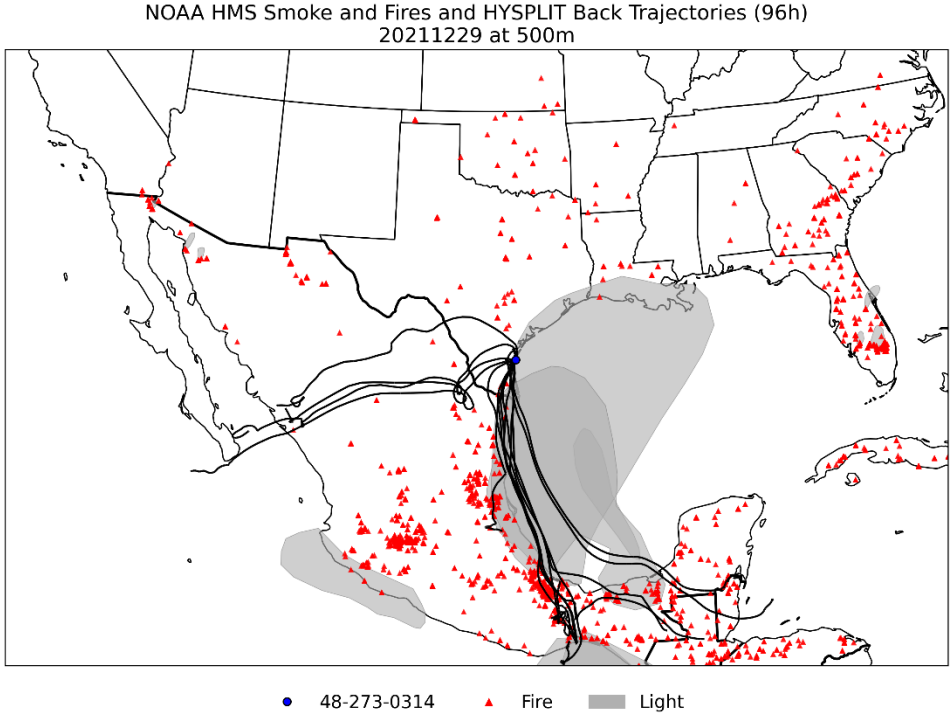
- 50m



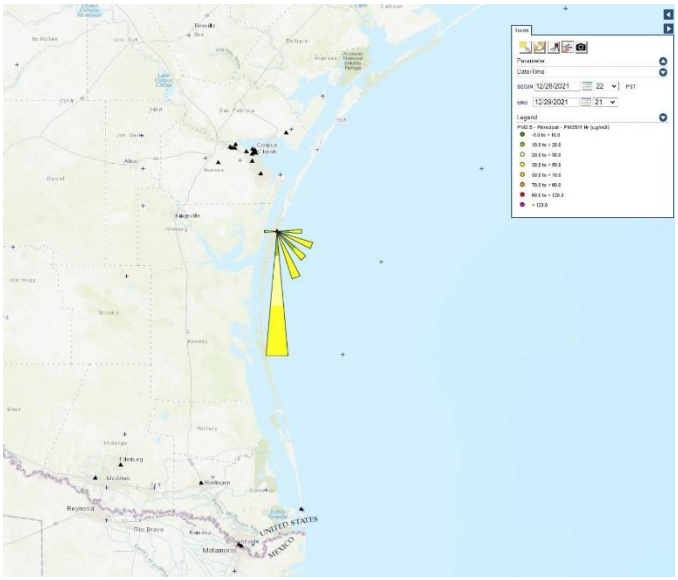
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20211229 at 100m
48-273-0314
Fire
Light

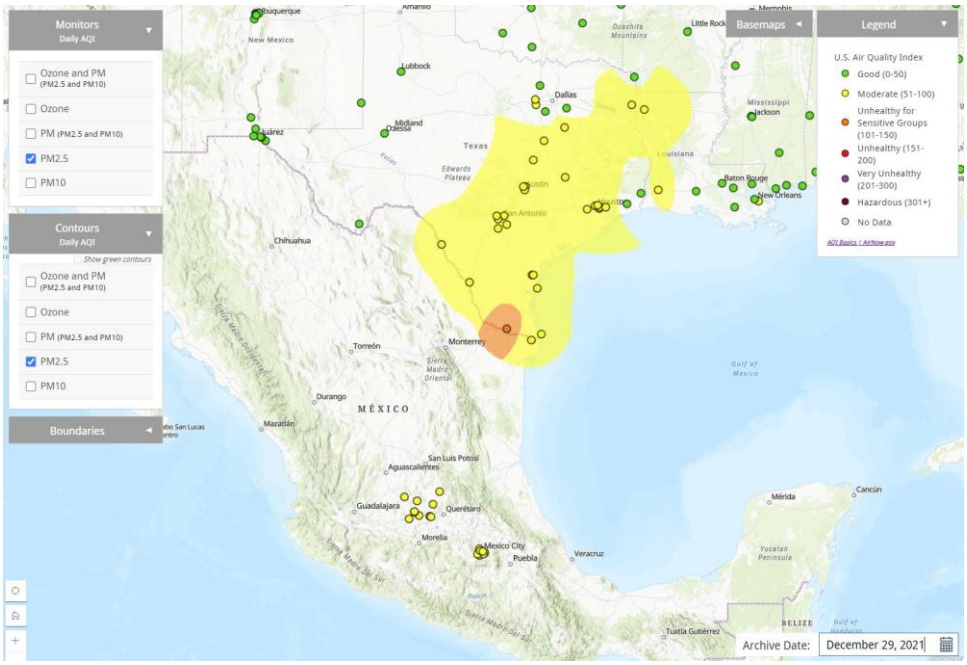
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20211229 at 500m
48-273-0314
Fire
Light

d. Evidence #3 - Pollution rose for 12/29/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 12/29/2021.

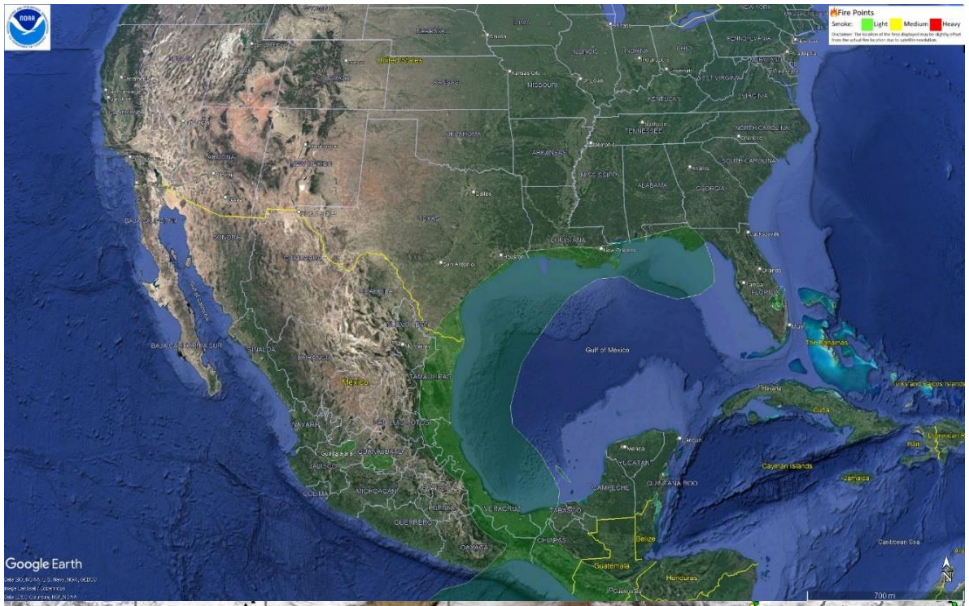


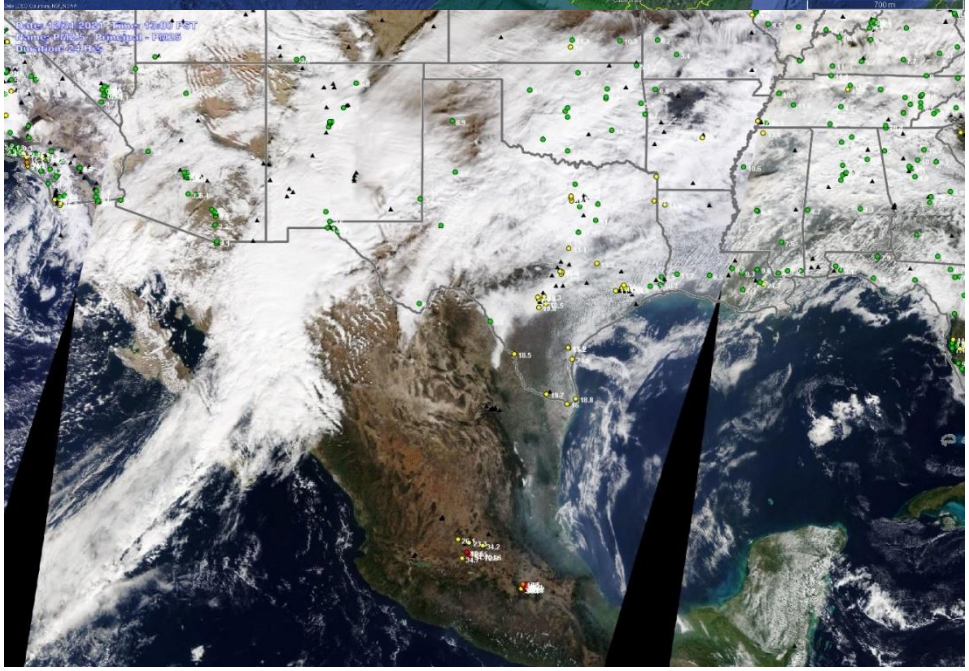
35. 12/31/2021

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

Date	24-hour $PM_{2.5}$ (µg/m³)	Tier 2 Threshold	Tier 1 Threshold
12/31/2021	20.4	18.1	27.15

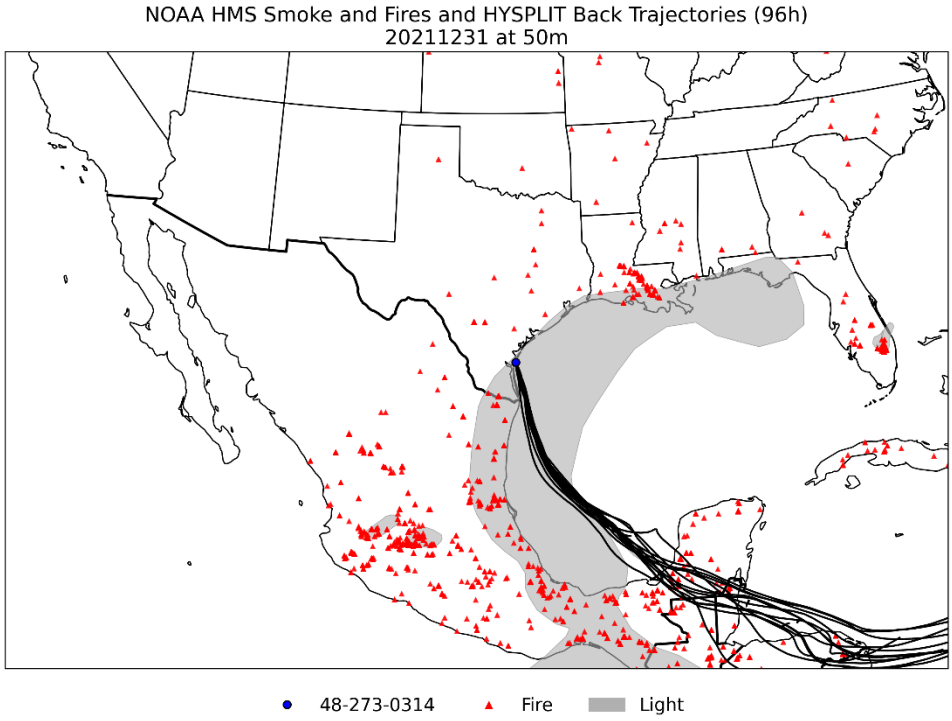
b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).



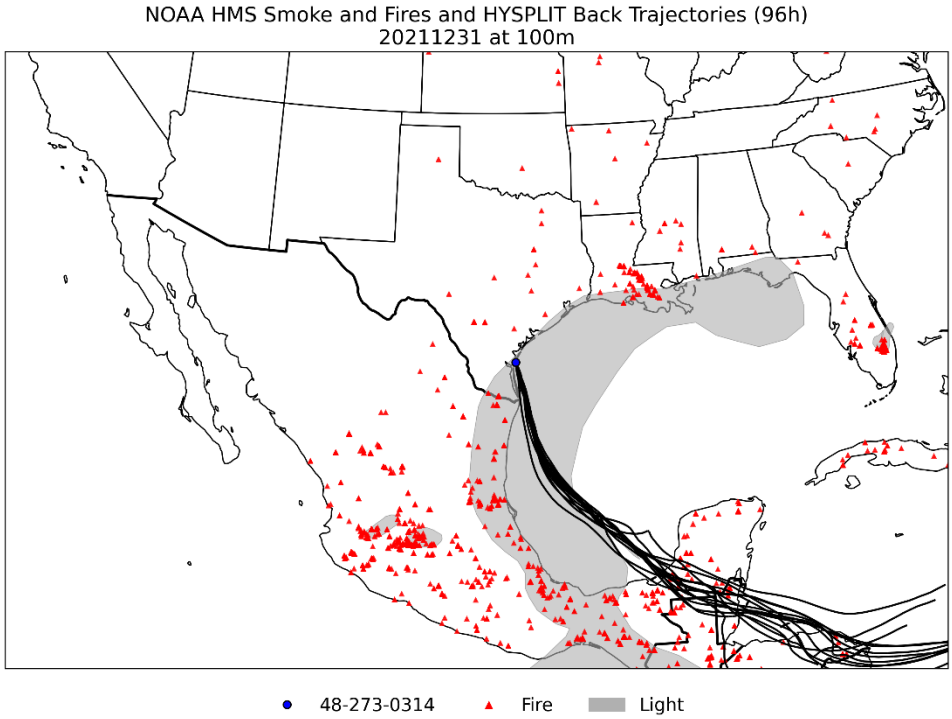


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

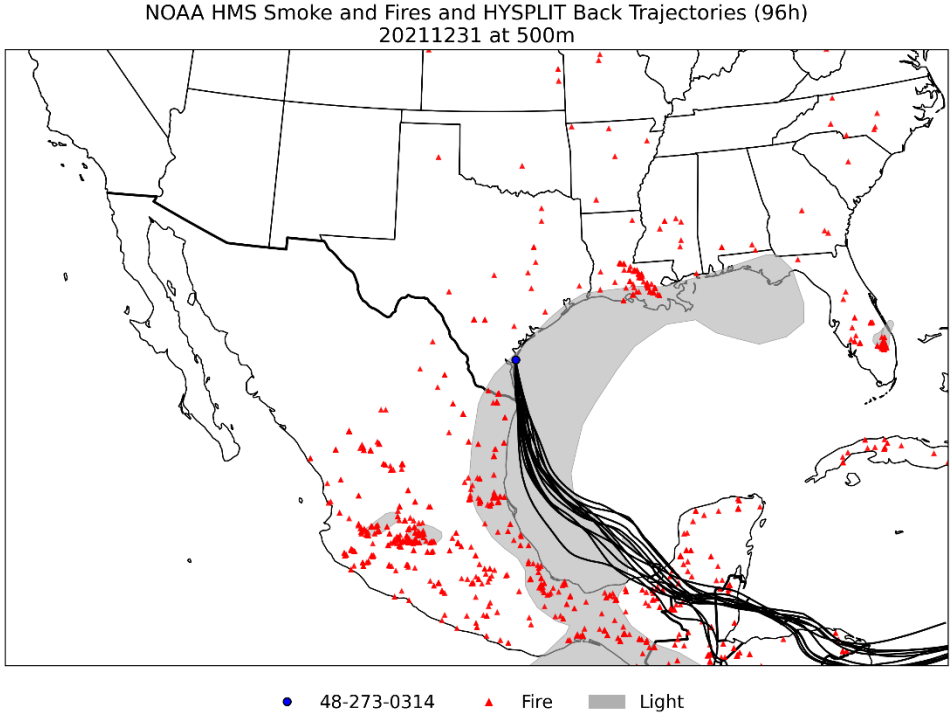
- 50m



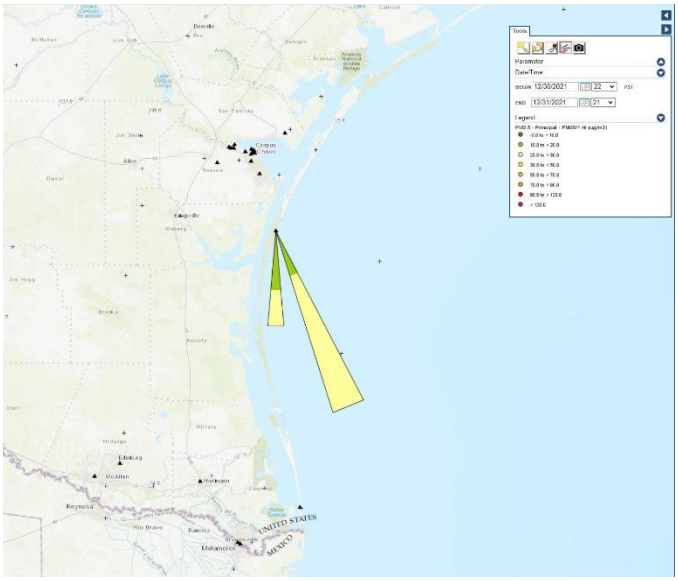
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20211231 at 100m
48-273-0314
Fire
Light

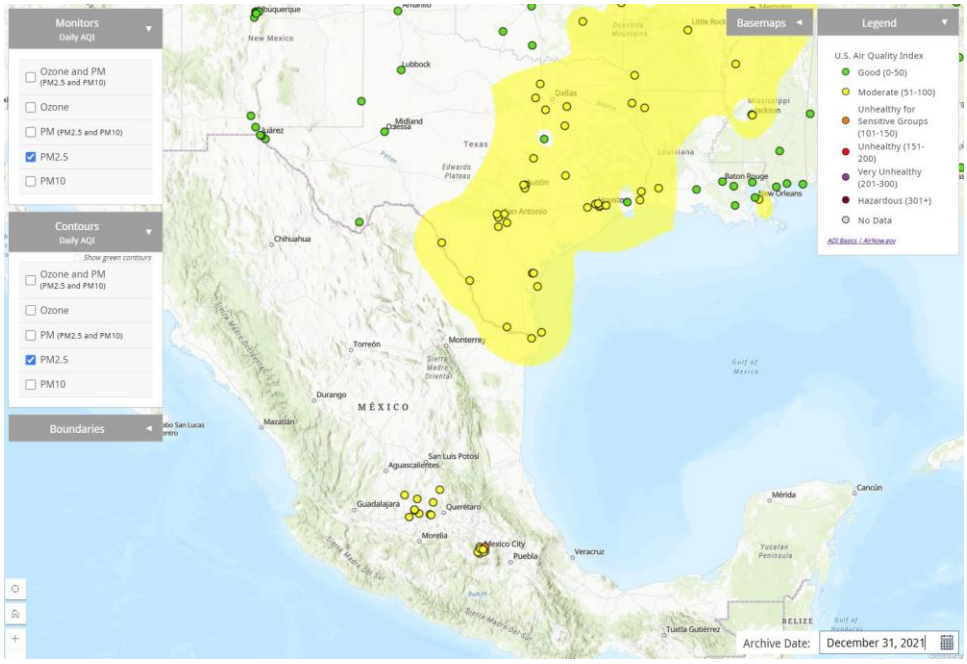
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20211231 at 500m
48-273-0314
Fire
Light

d. Evidence #3 - Pollution rose for 12/31/2021. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 12/31/2021.



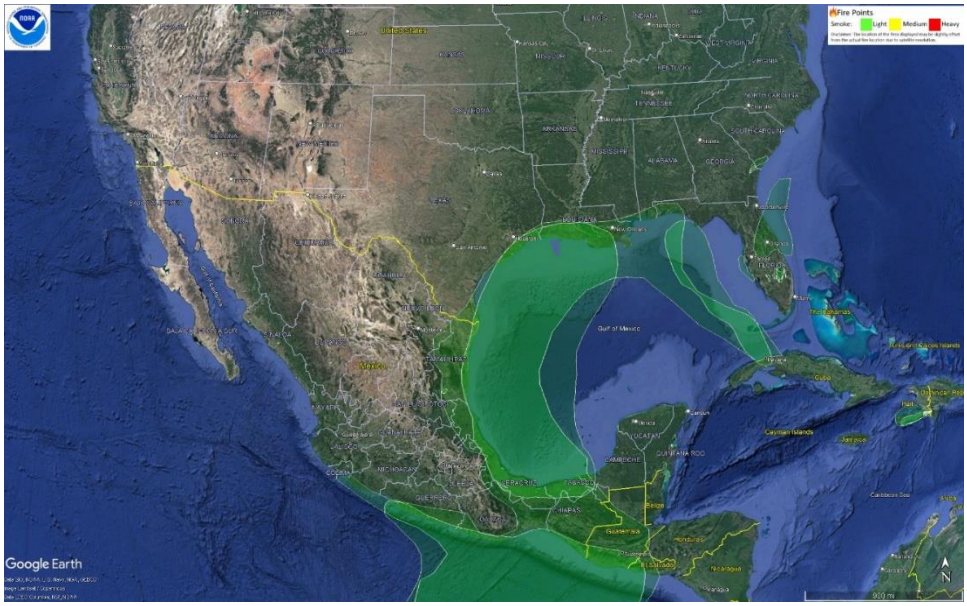
Appendix B: Evidence for Exceptional Events at National Seashore for 2022 Tier 1 and 2 Days

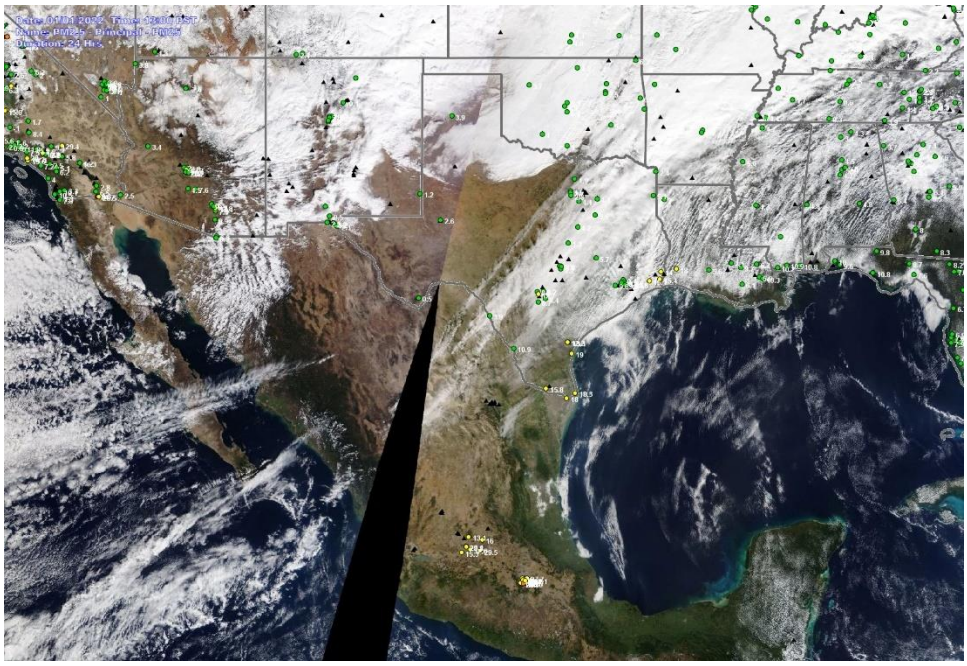
1. 1/1/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
1/1/2022	30.0	18.1	27.15

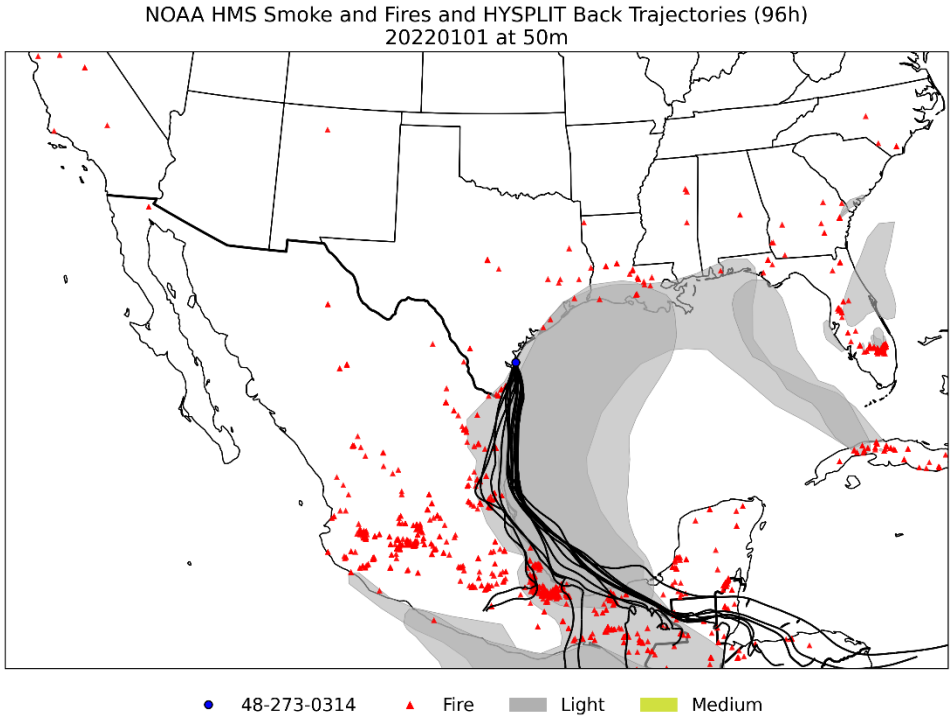
b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).



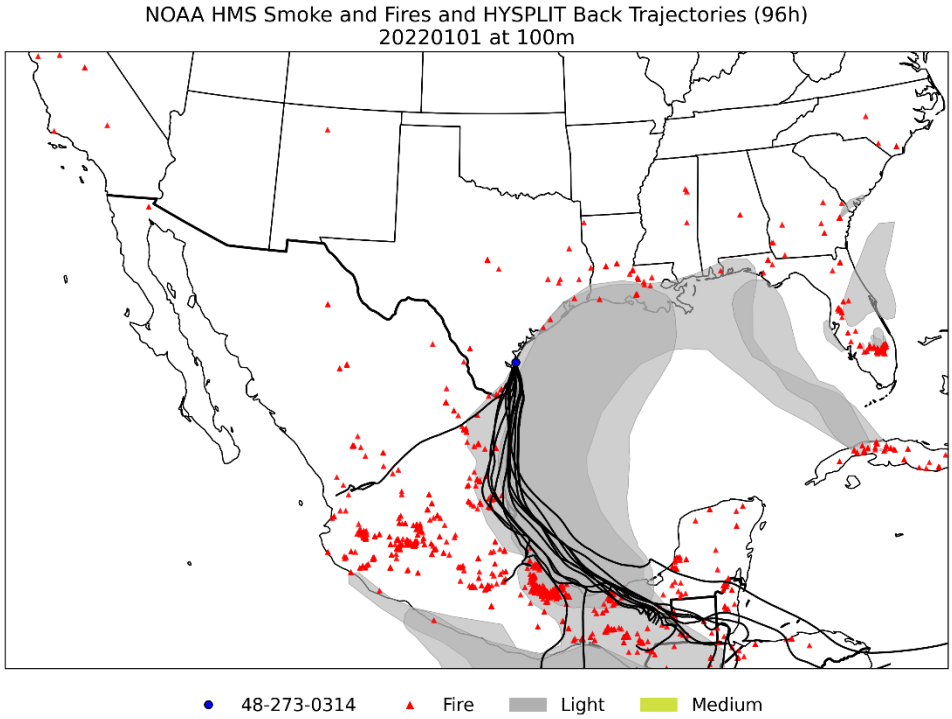


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

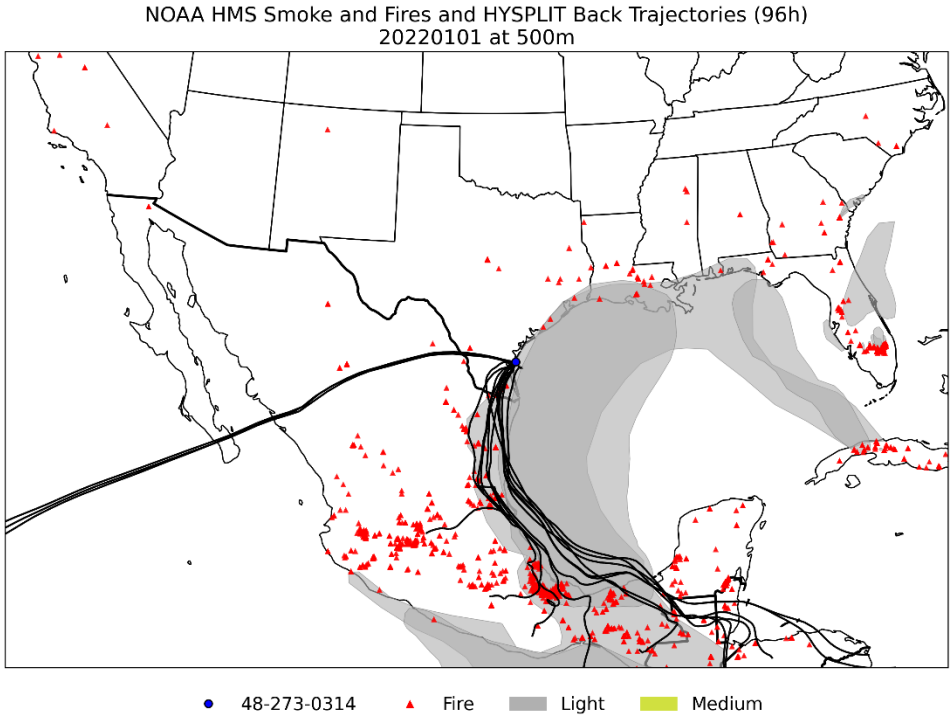
- 50m



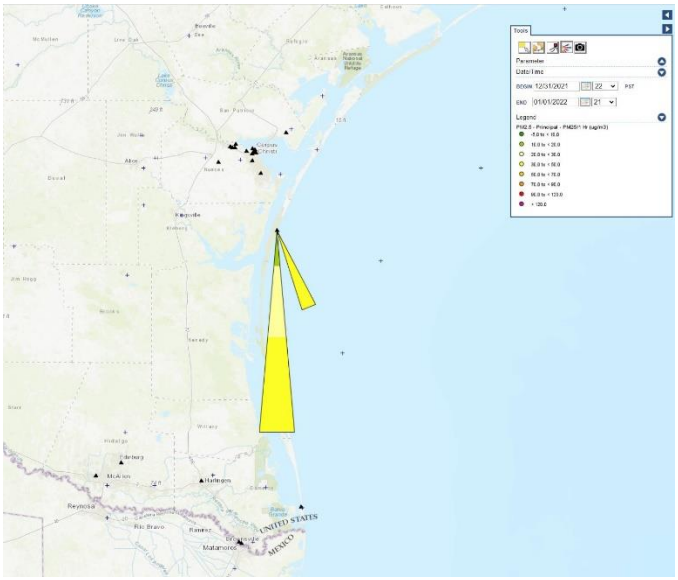
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220101 at 100m
48-273-0314
Fire
Light
Medium

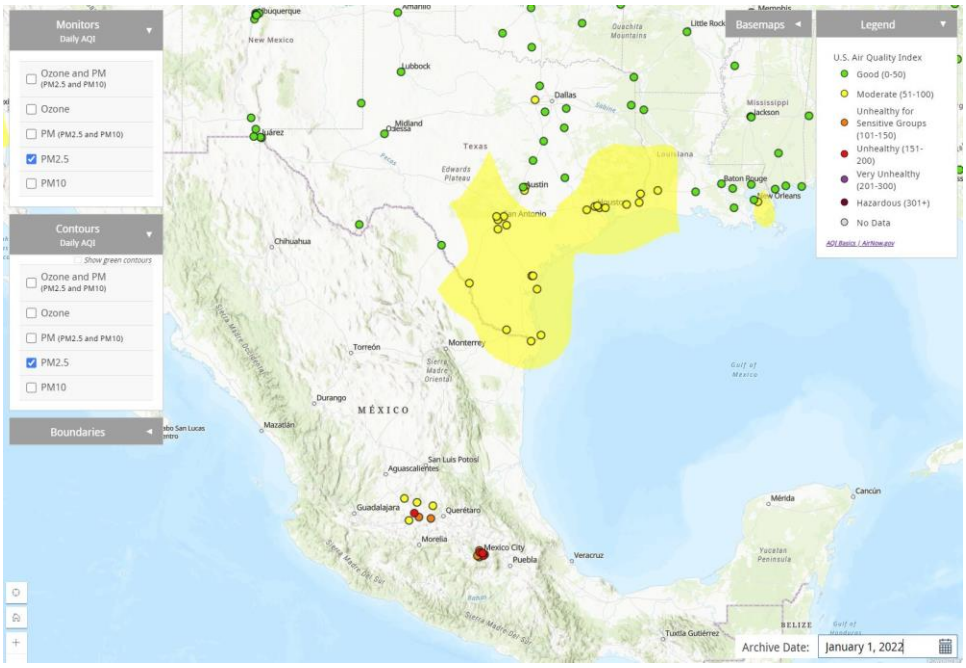
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220101 at 500m
48-273-0314
Fire
Light
Medium

d. **Evidence #3** - Pollution rose for 1/1/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4** - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 1/1/2022.

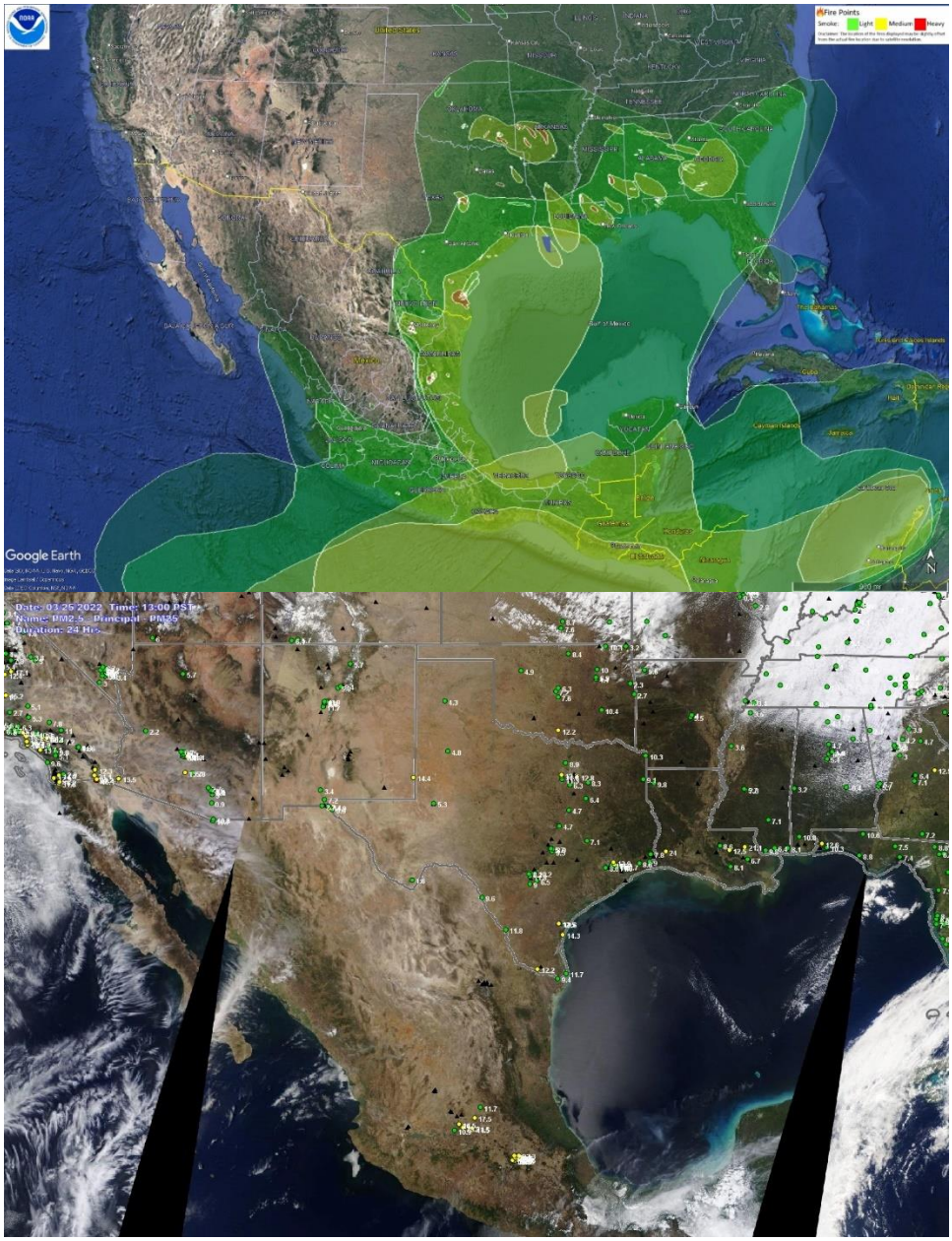


2. 3/25/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

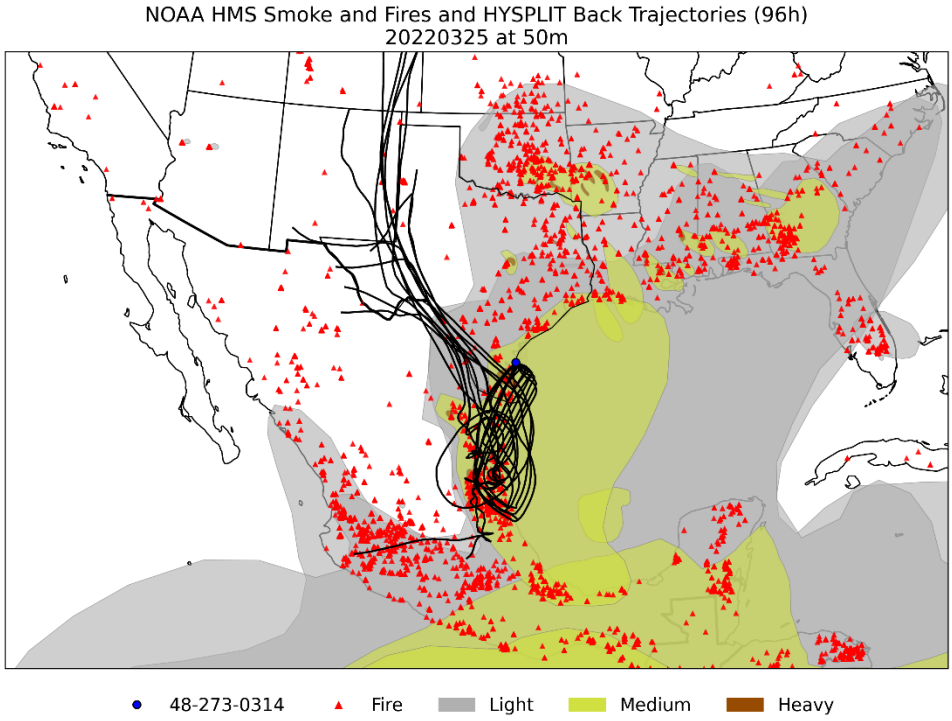
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
3/25/2022	30.5	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

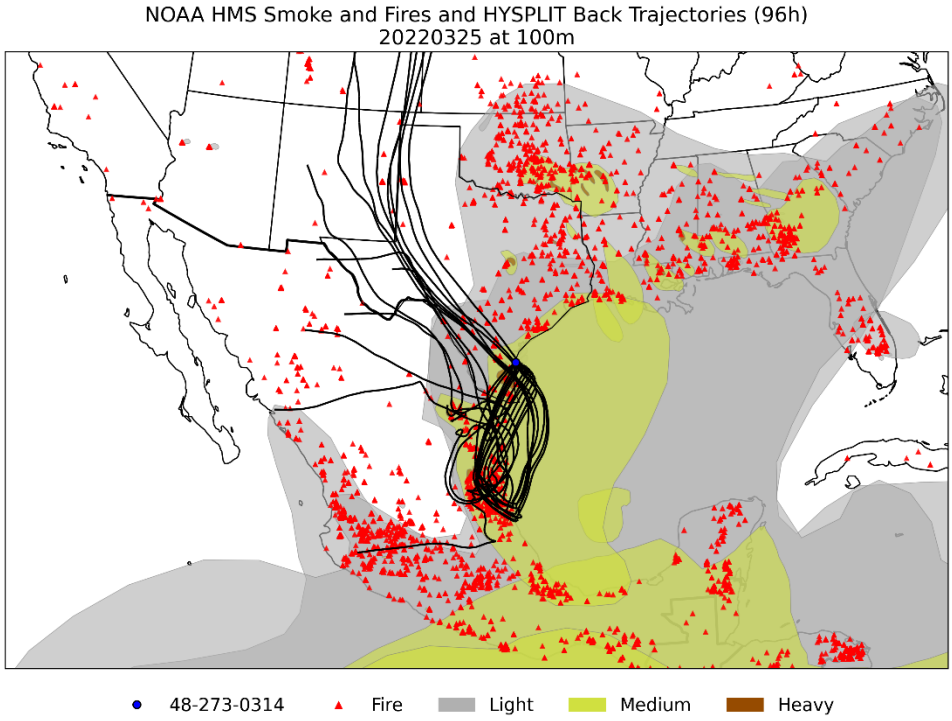


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

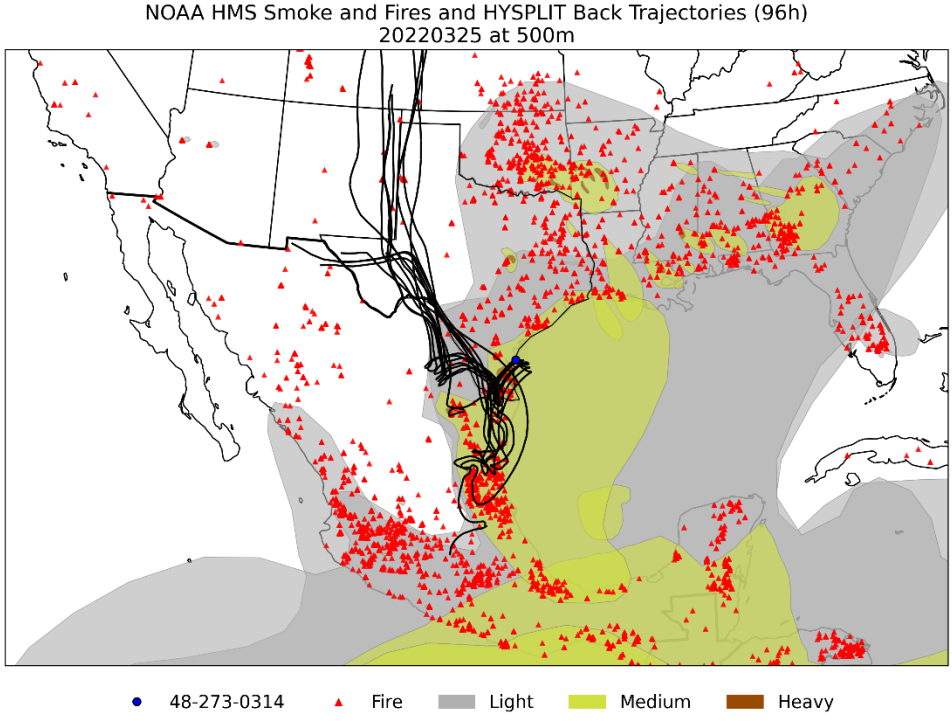
- 50m



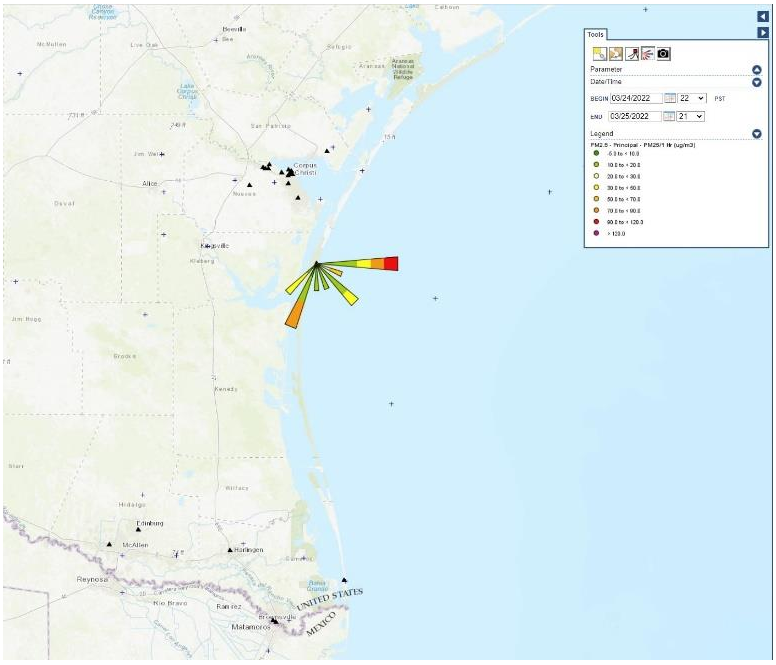
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220325 at 100m
48-273-0314
Fire
Light
Medium
Heavy

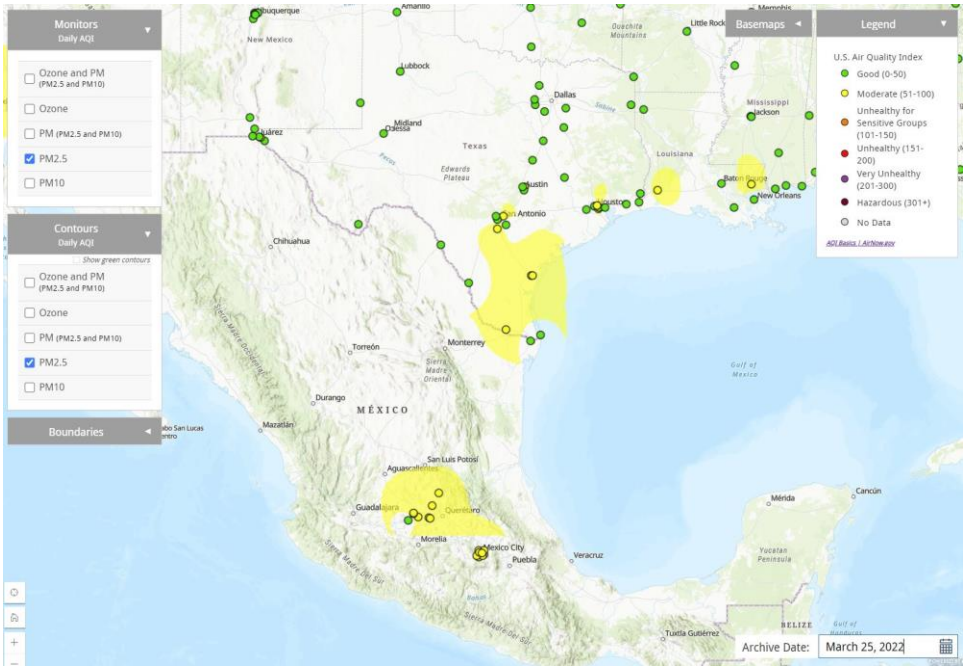
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220325 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 3/25/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 3/25/2022.

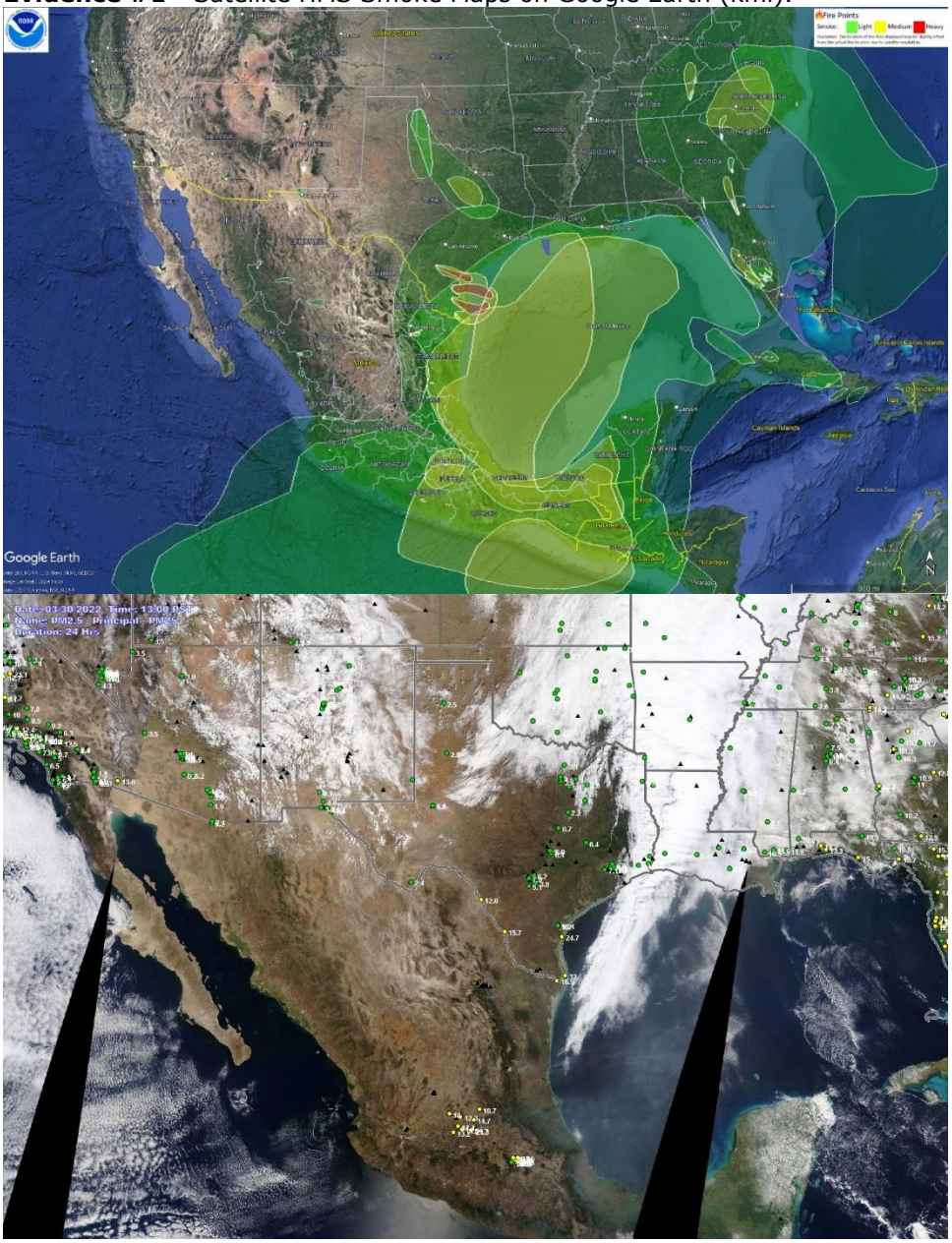


3. 3/30/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

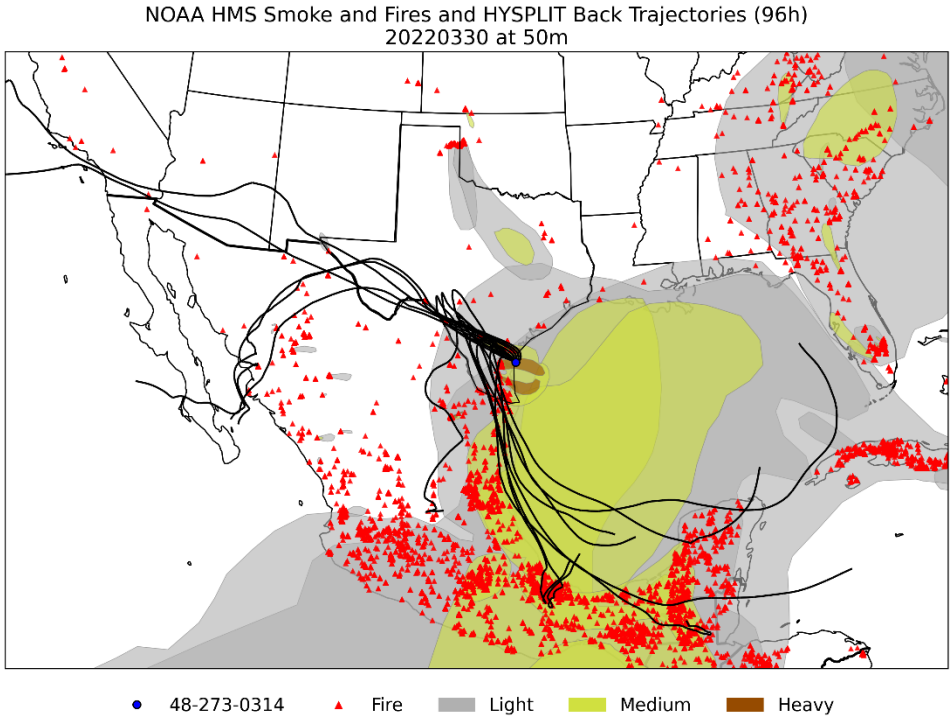
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
3/30/2022	20.1	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

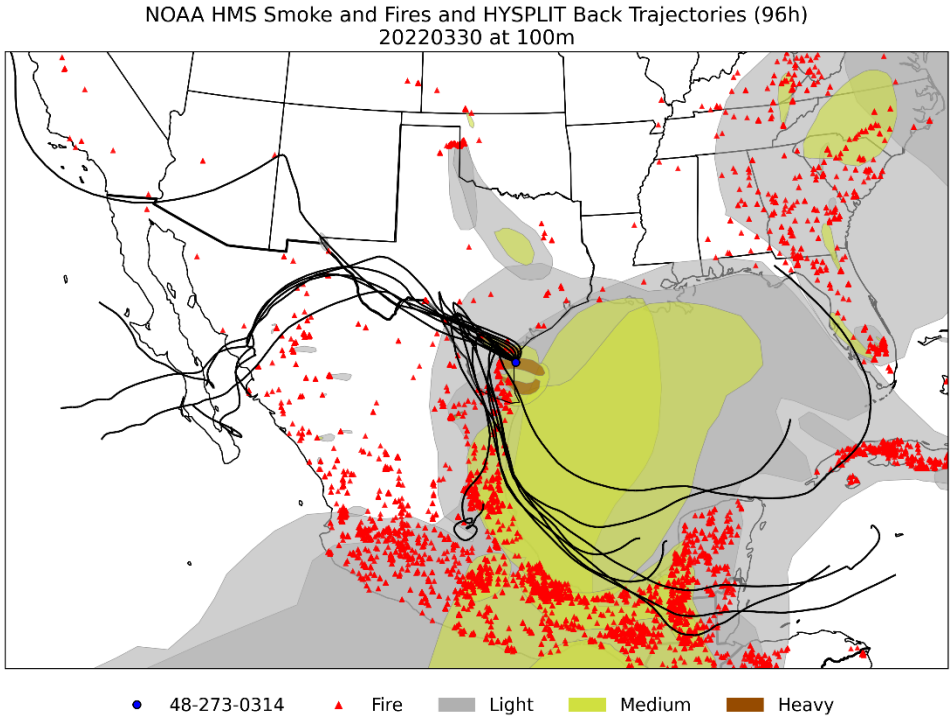


c. **Evidence #2** – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

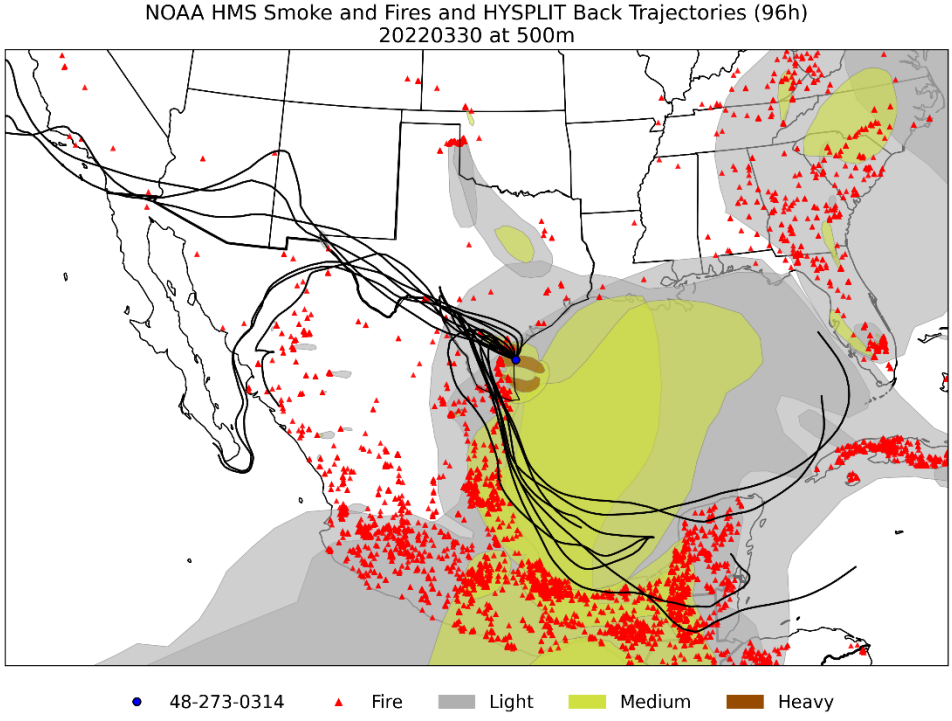
- 50m



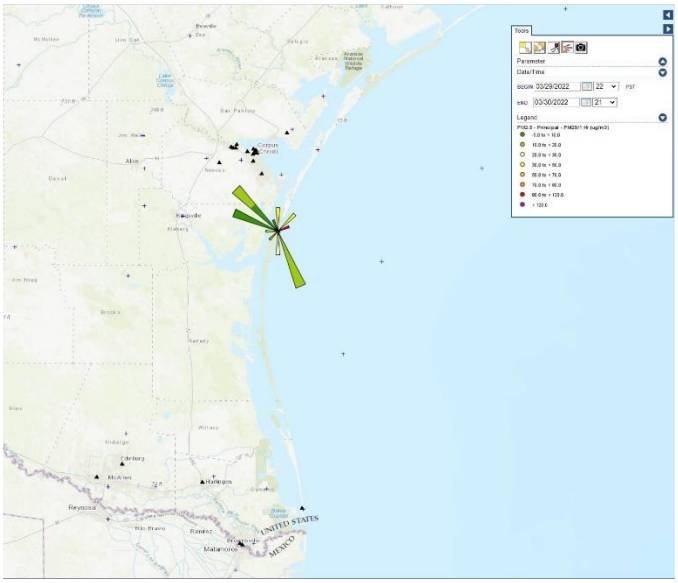
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220330 at 100m
48-273-0314
Fire
Light
Medium
Heavy

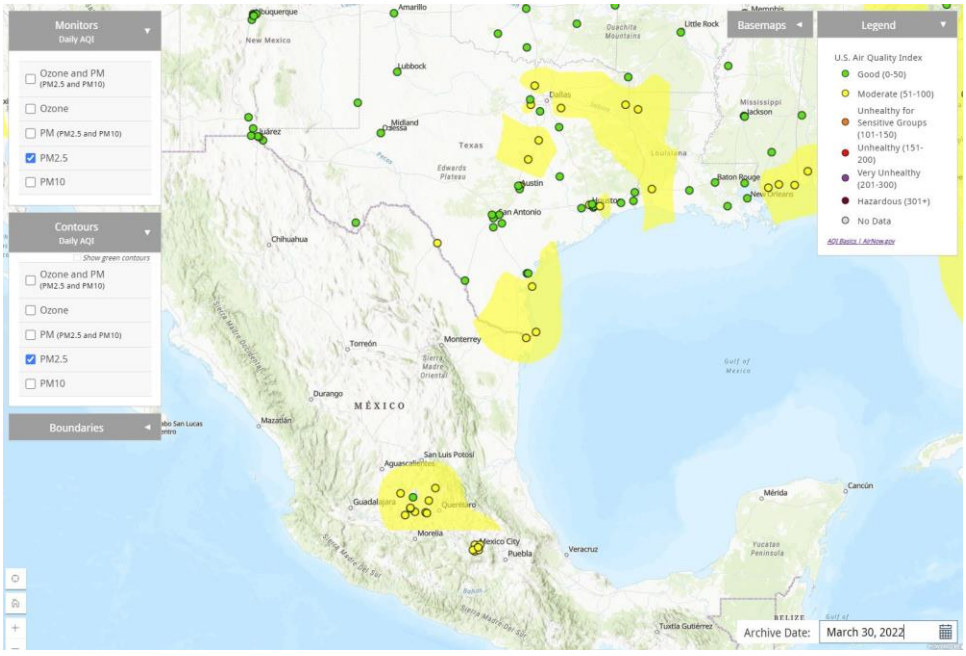
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220330 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 3/30/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4** - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 3/30/2022.

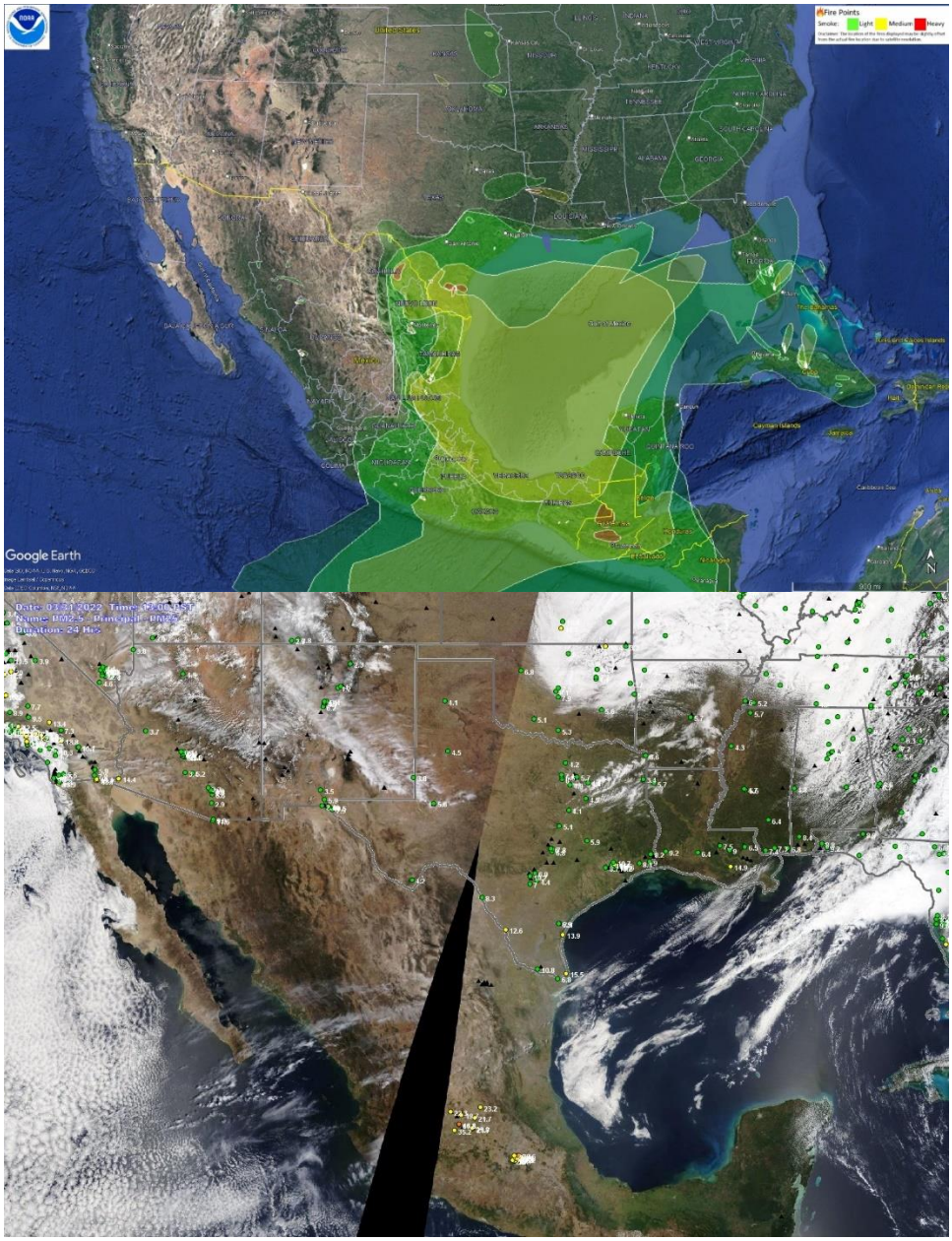


4. 3/31/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

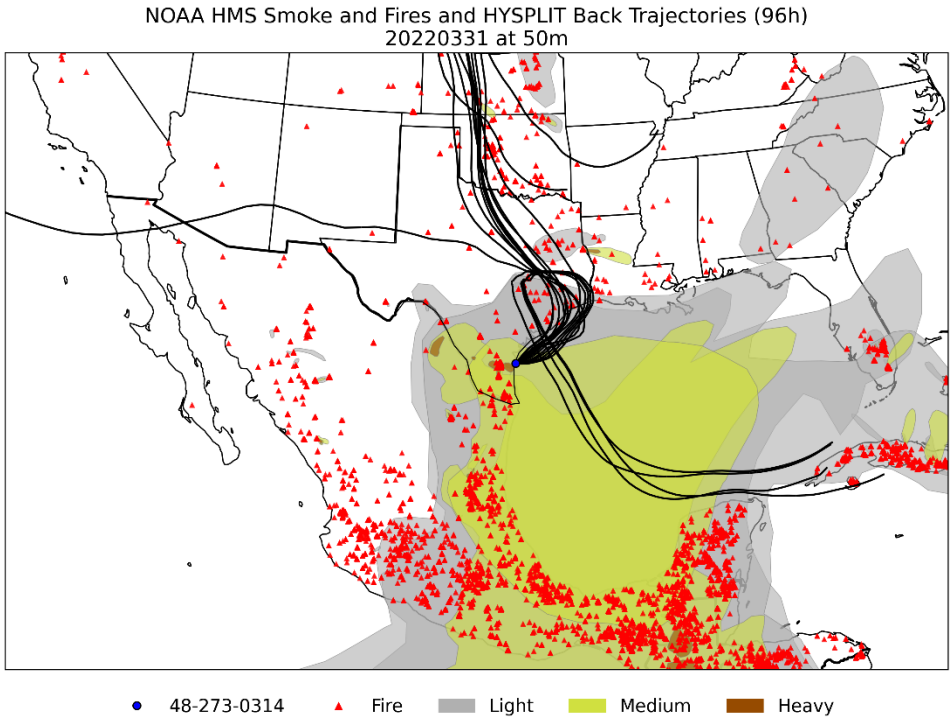
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
3/31/2022	19.1	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

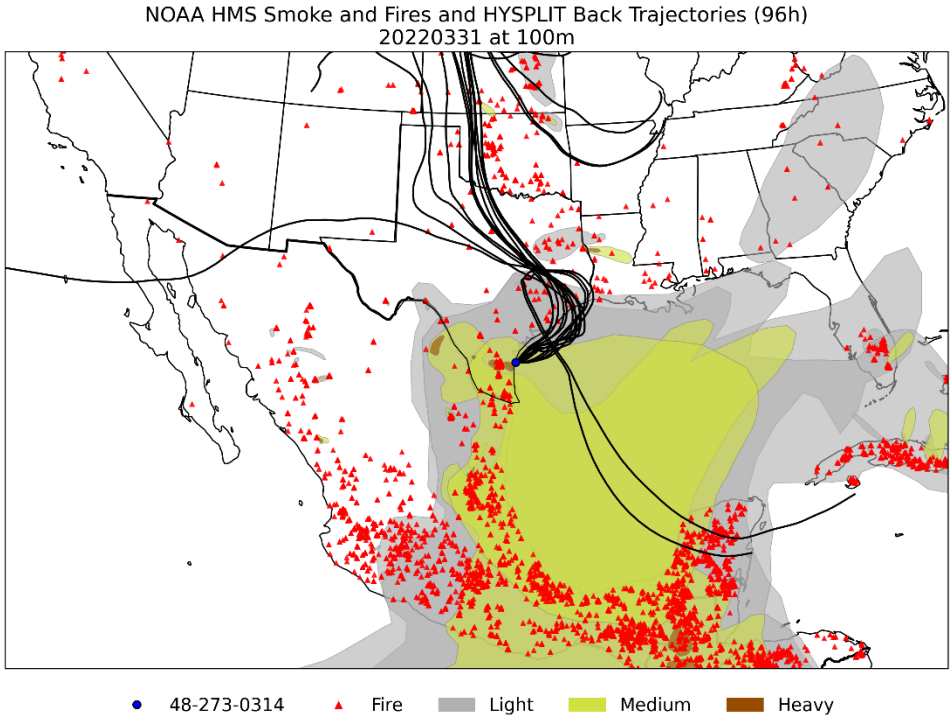


c. **Evidence #2** – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

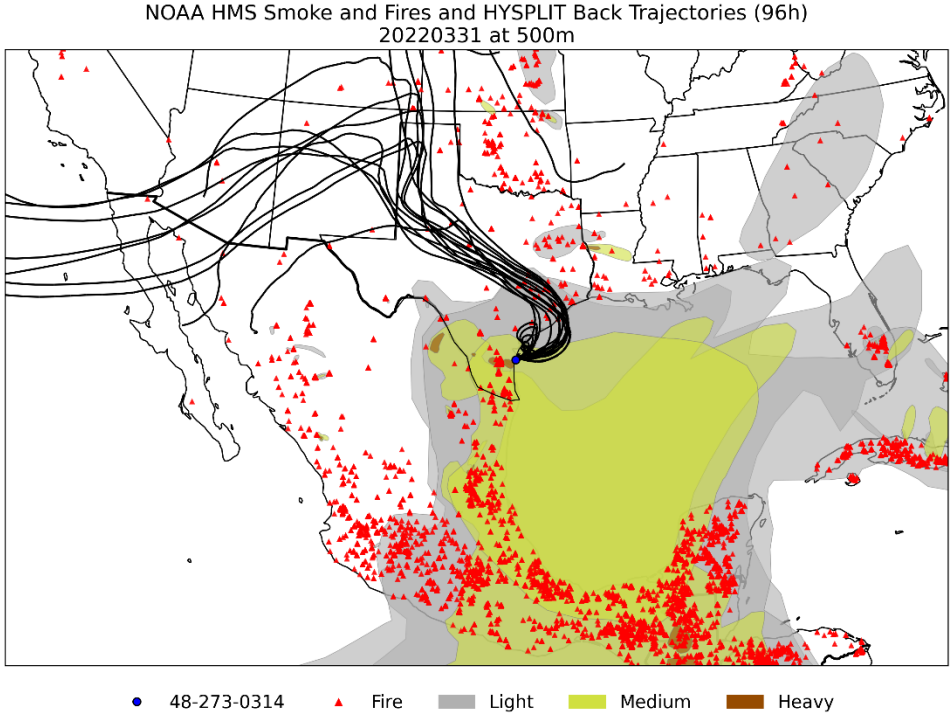
- 50m



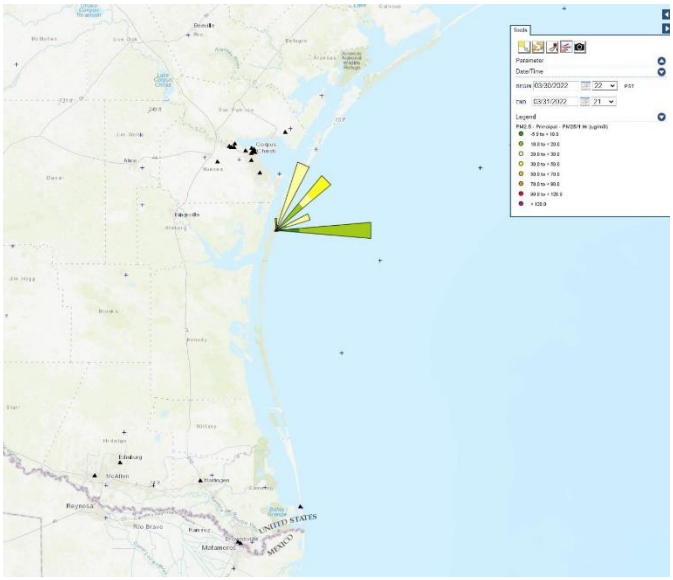
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220331 at 100m
48-273-0314
Fire
Light
Medium
Heavy

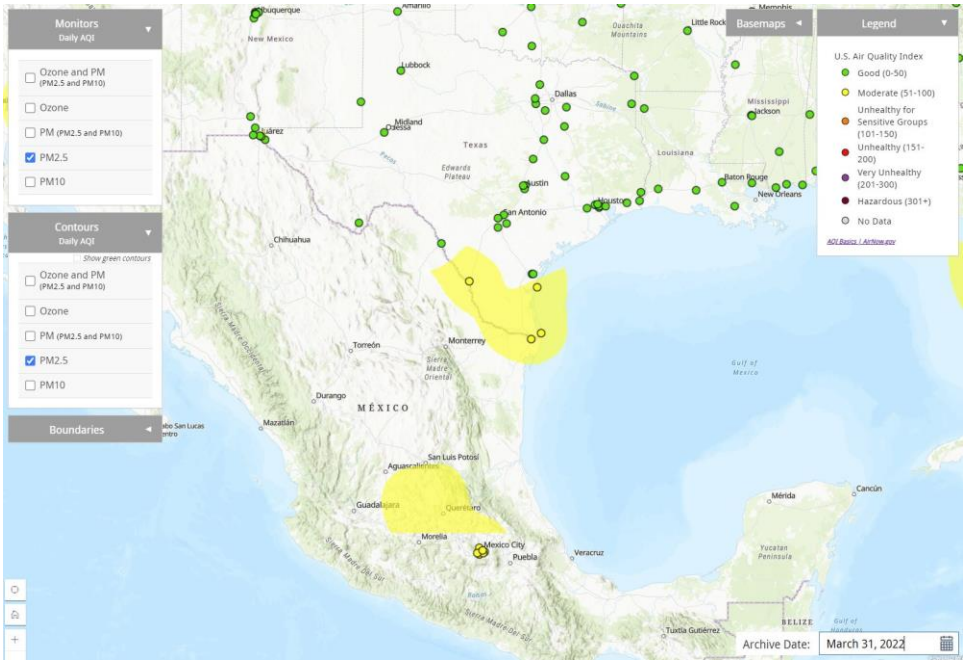
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220331 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 3/31/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4** - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 3/31/2022.

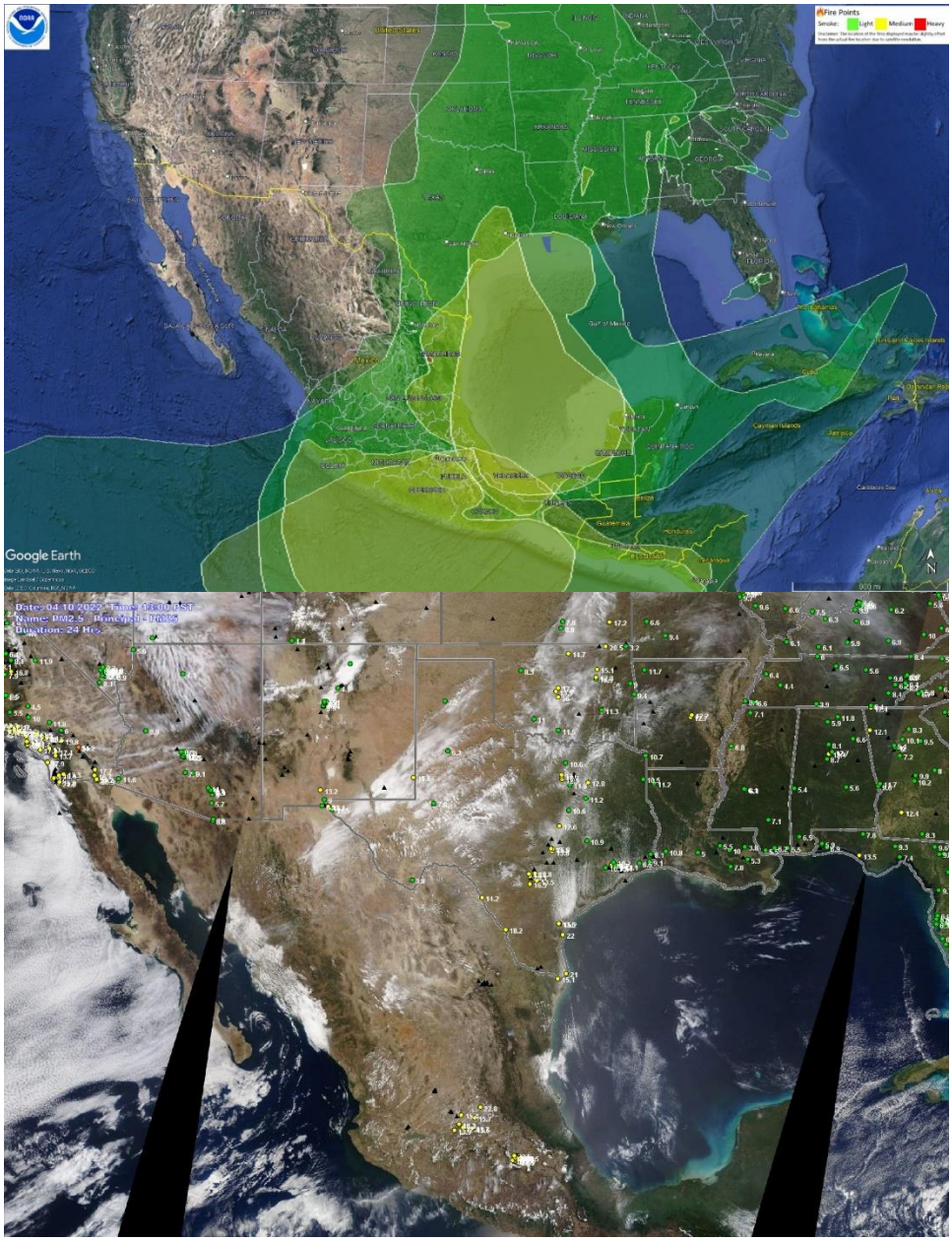


5. 4/10/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

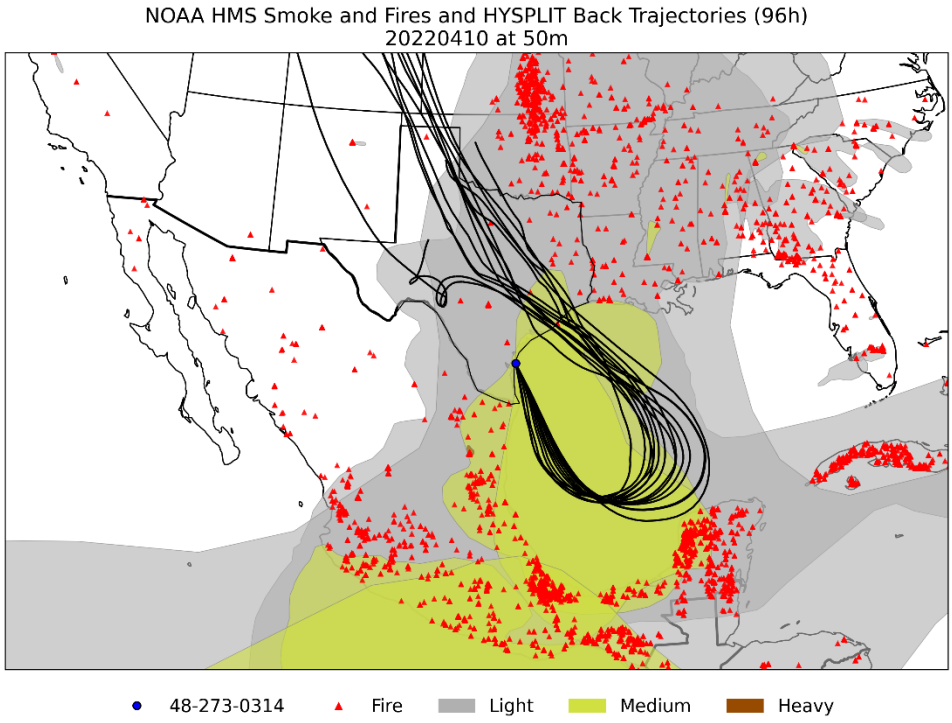
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
4/10/2022	19.2	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

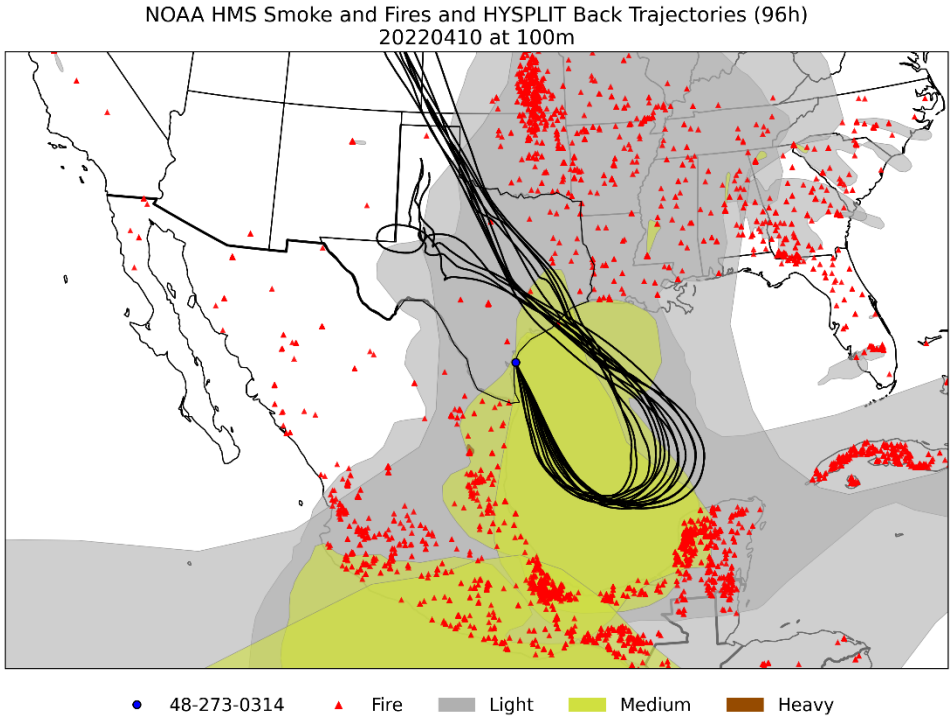


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

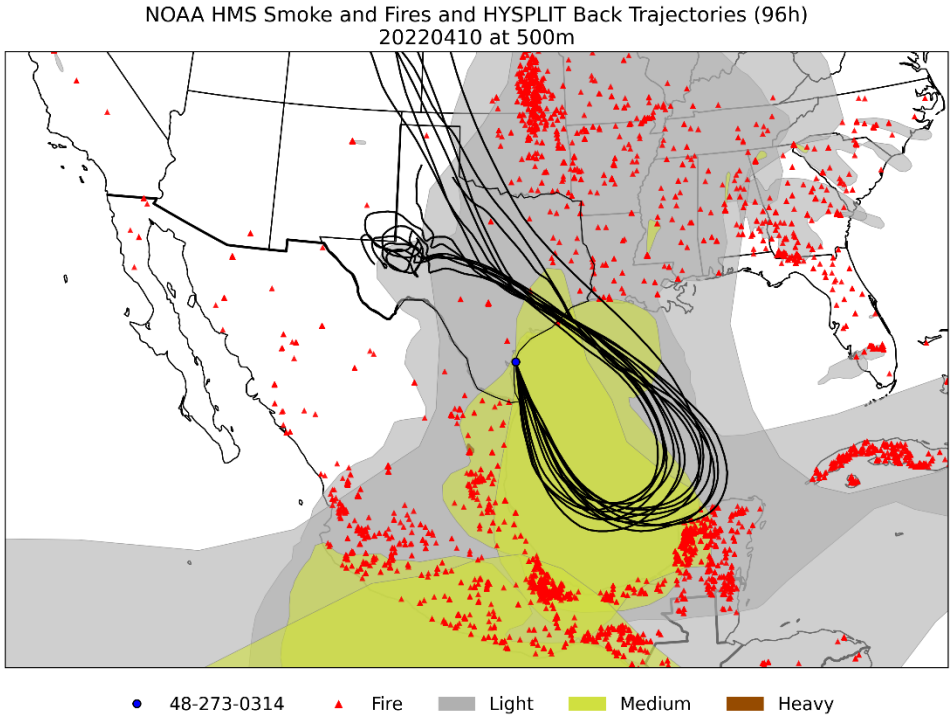
- 50m



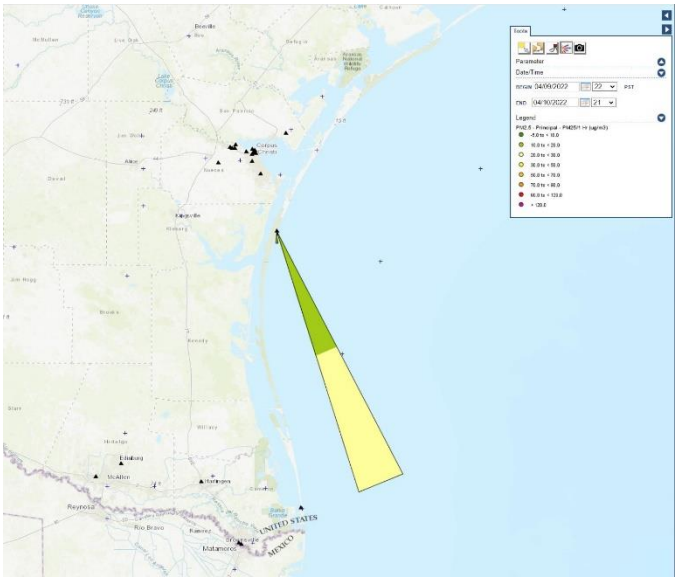
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220410 at 100m
48-273-0314
Fire
Light
Medium
Heavy

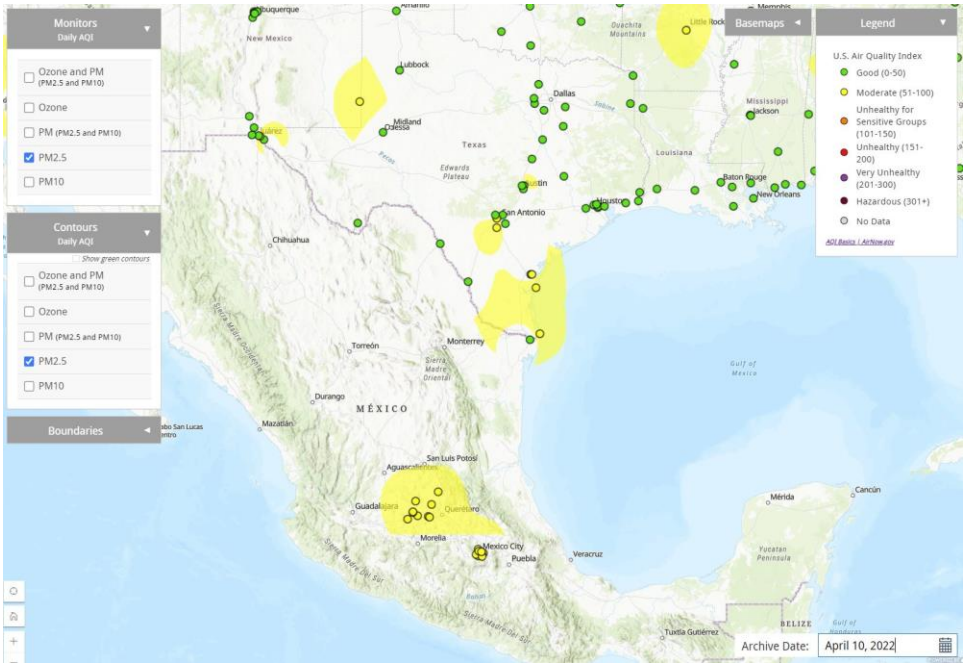
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220410 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 4/10/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 4/10/2022.

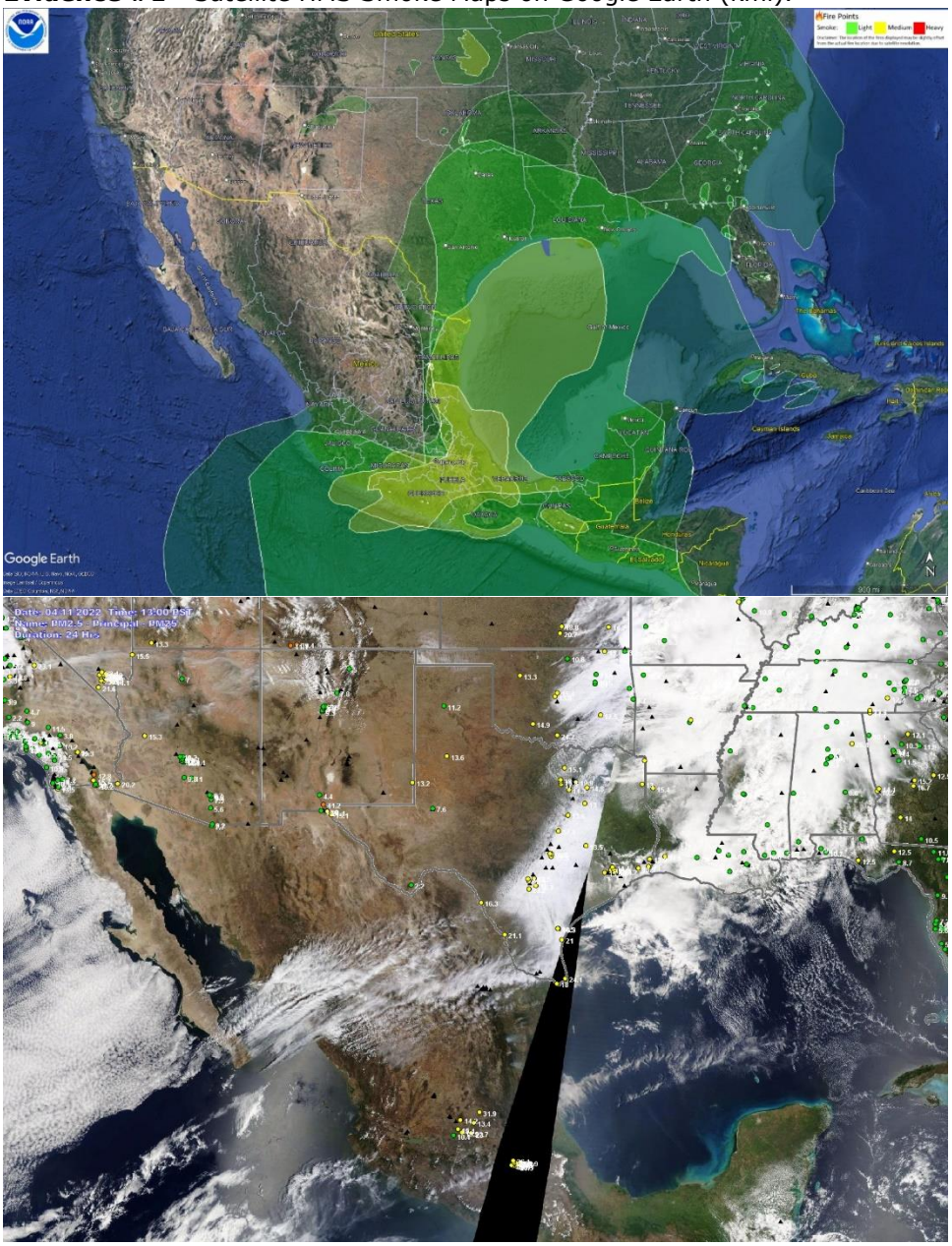


6. 4/11/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

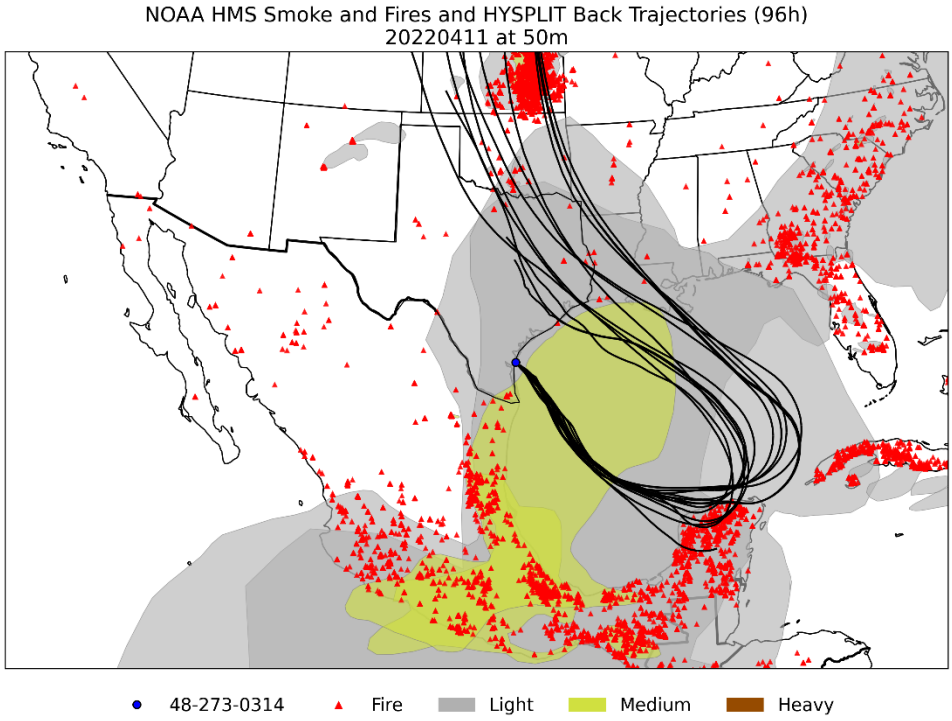
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
4/11/2022	21.7	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

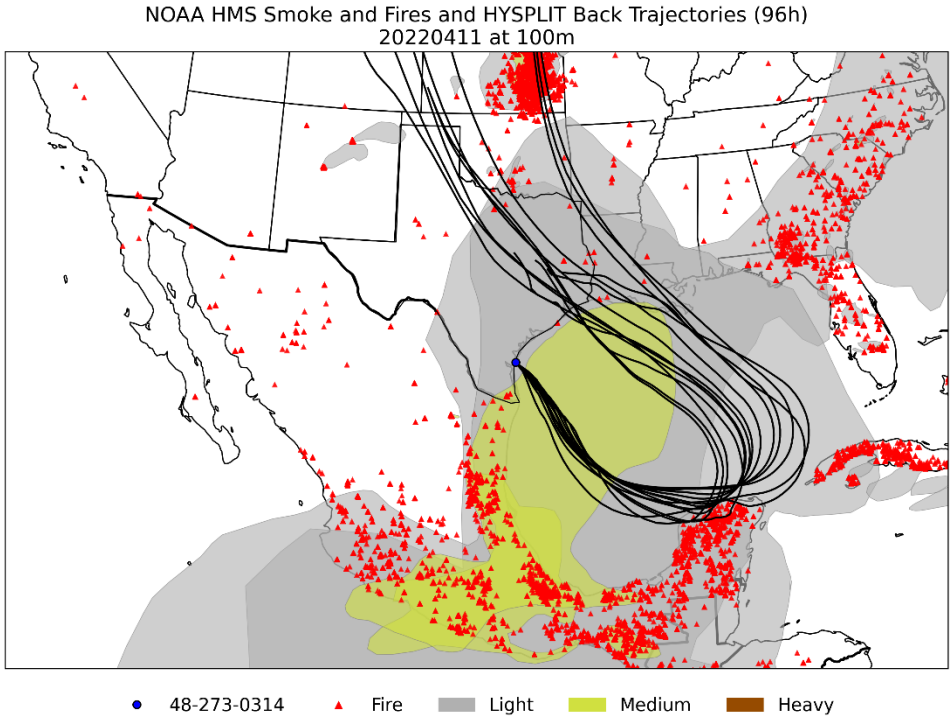


c. **Evidence #2** – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

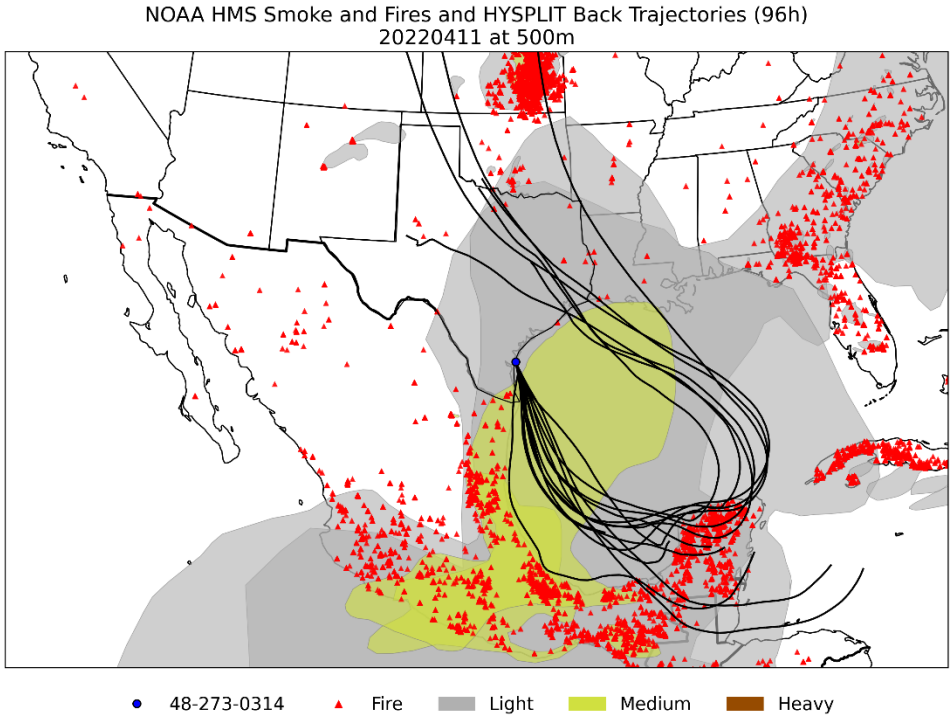
- 50m



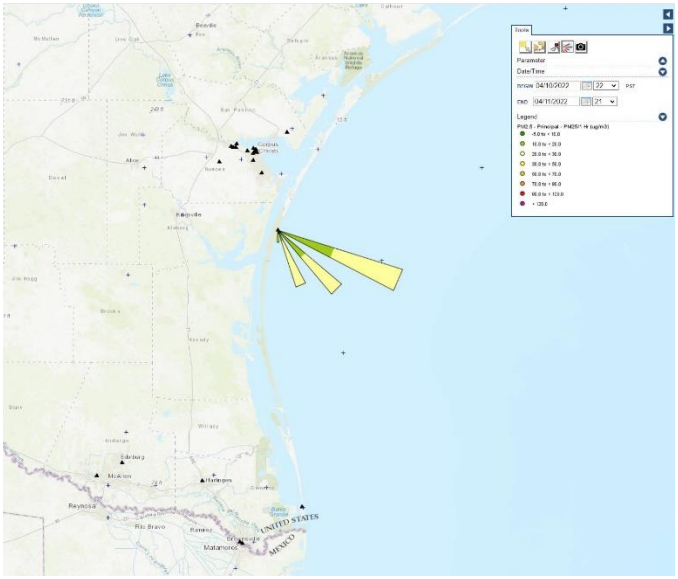
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220411 at 100m
48-273-0314
Fire
Light
Medium
Heavy

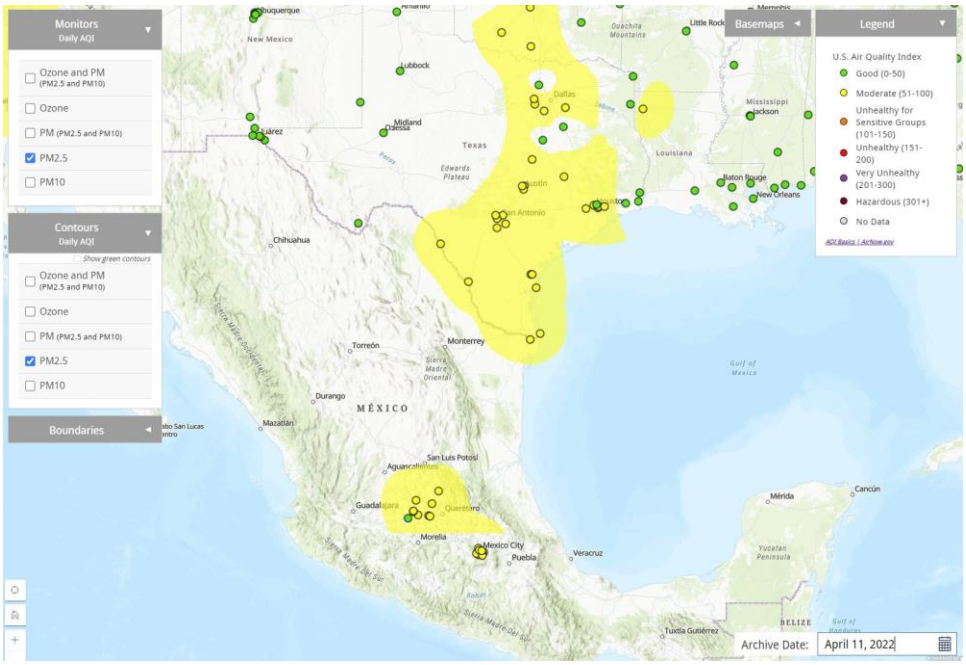
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220411 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 4/11/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4 -** EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 4/11/2022.

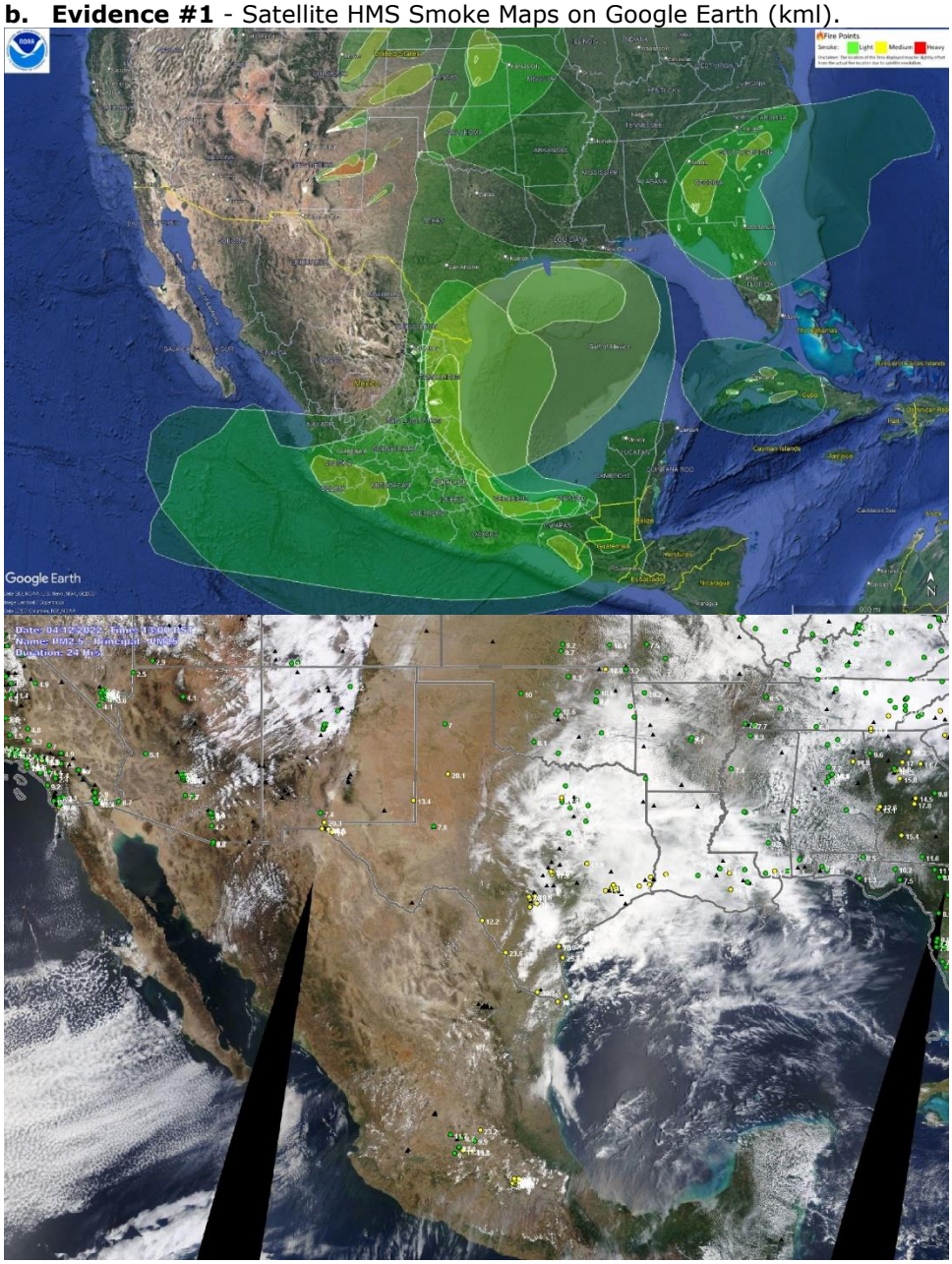


7. 4/12/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

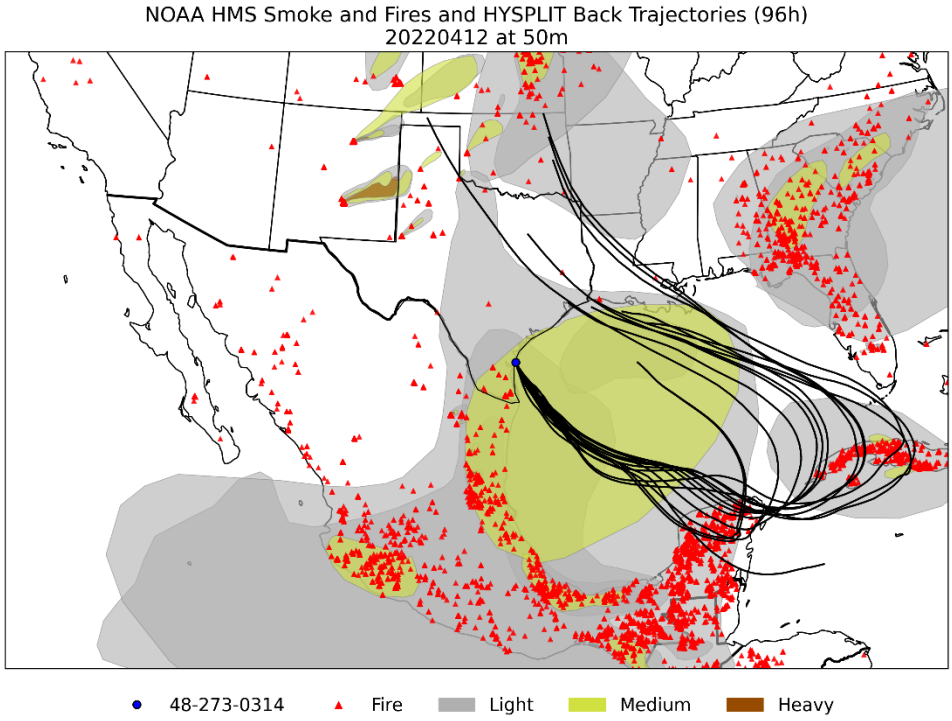
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
4/12/2022	21.7	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

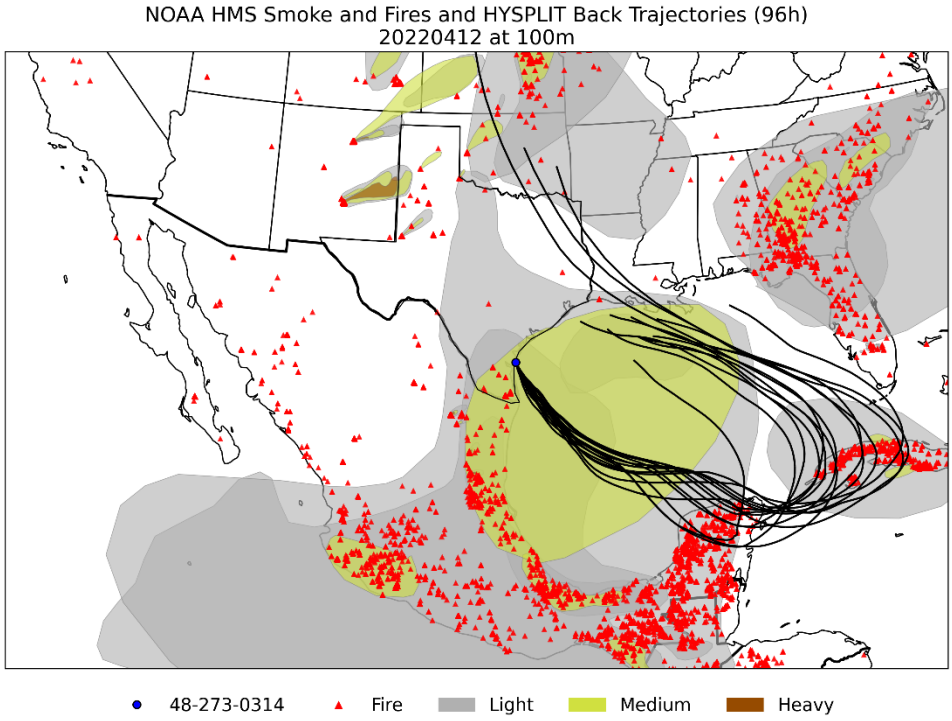


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

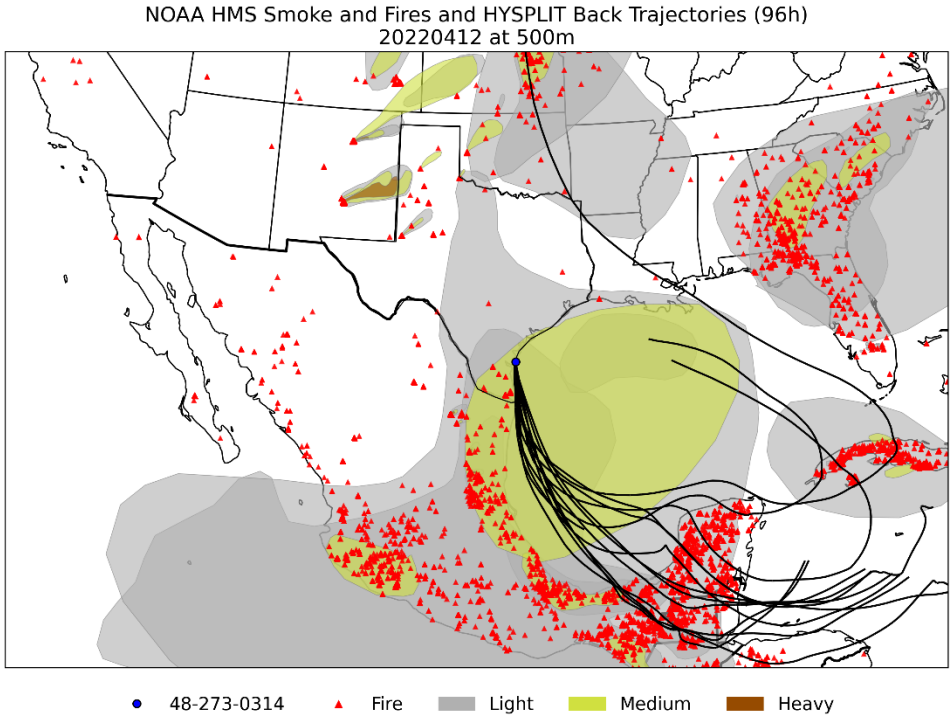
- 50m



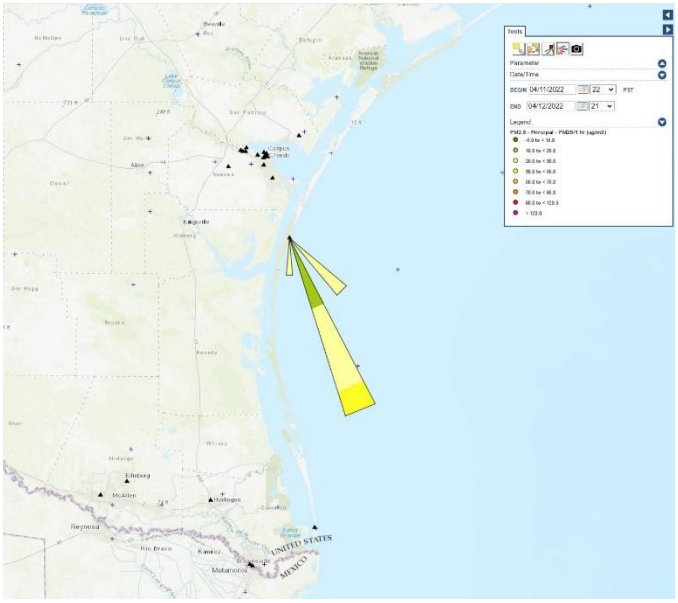
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220412 at 100m
48-273-0314
Fire
Light
Medium
Heavy

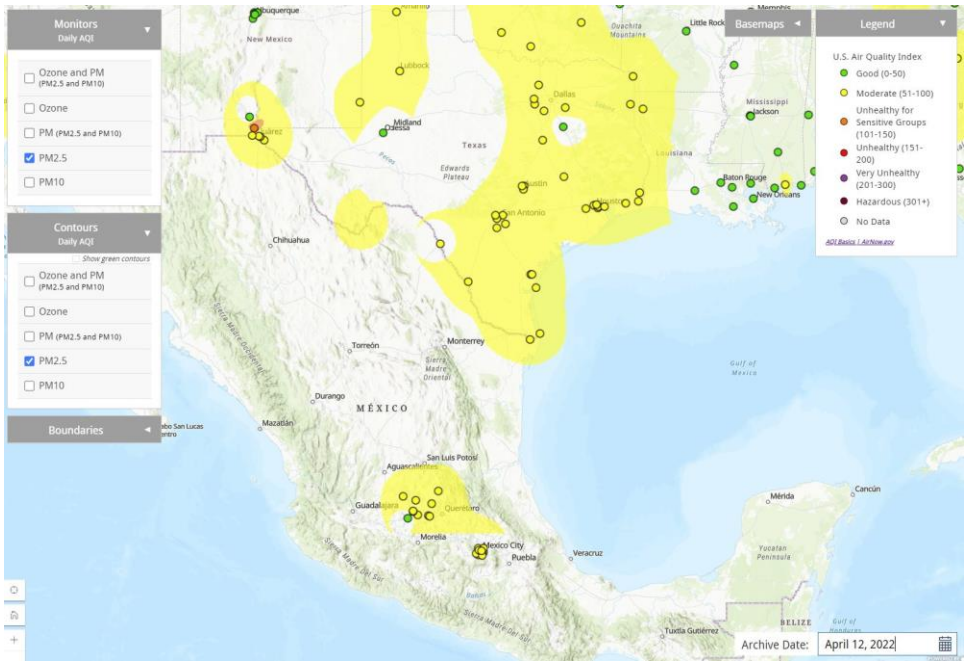
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220412 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 4/12/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4 -** EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 4/12/2022.

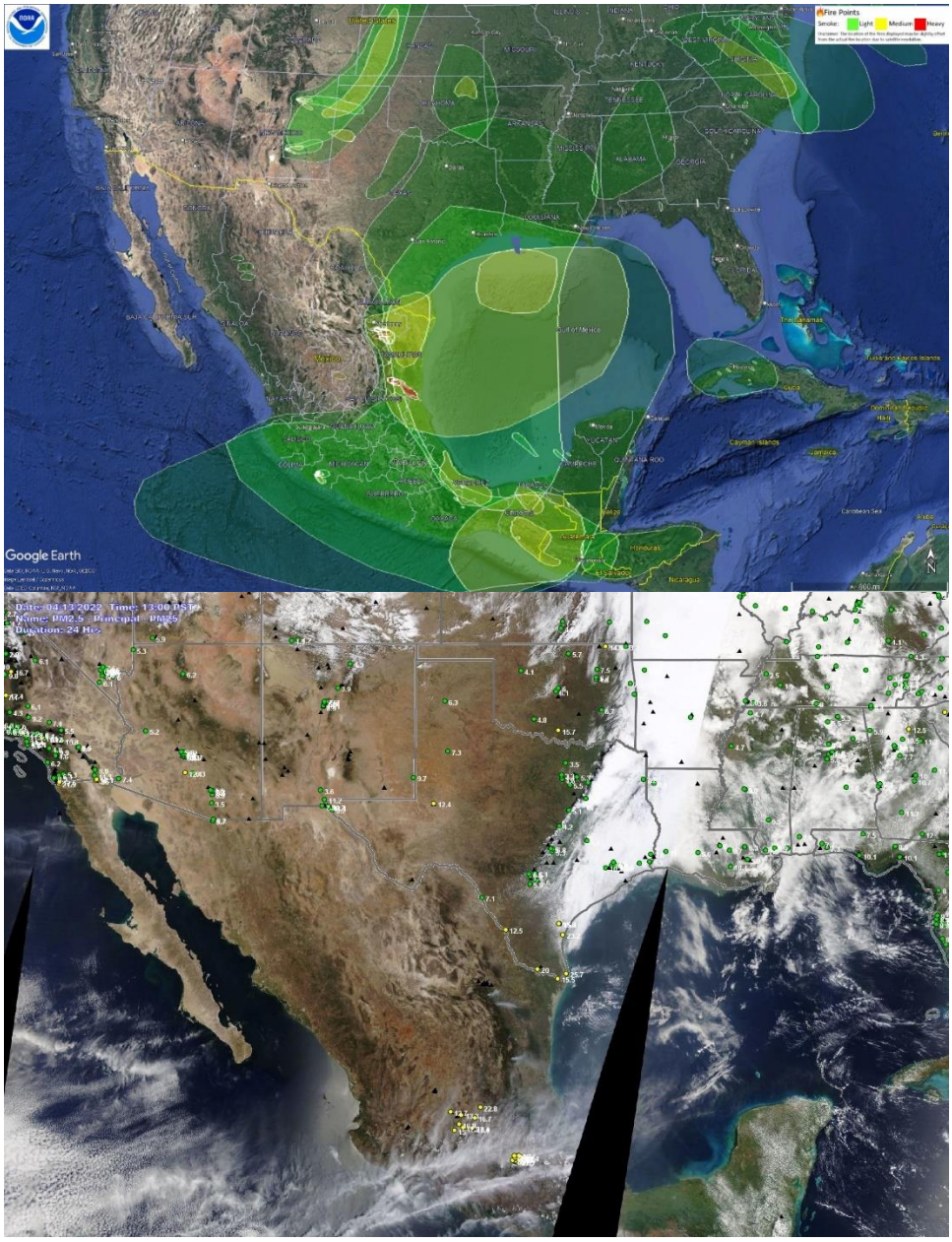


8. 4/13/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

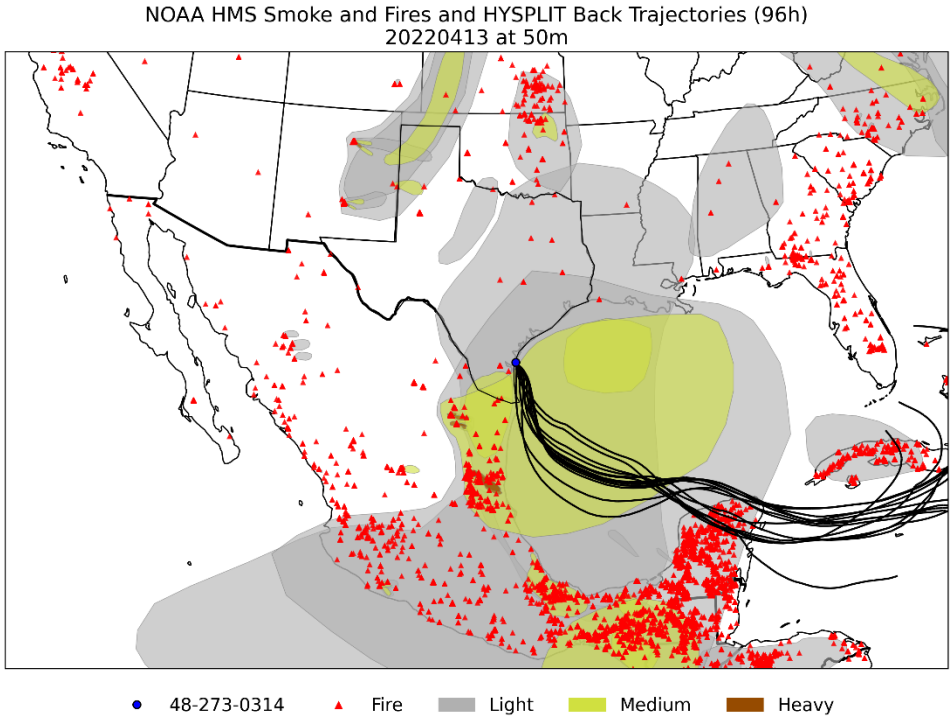
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
4/13/2022	27.7	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

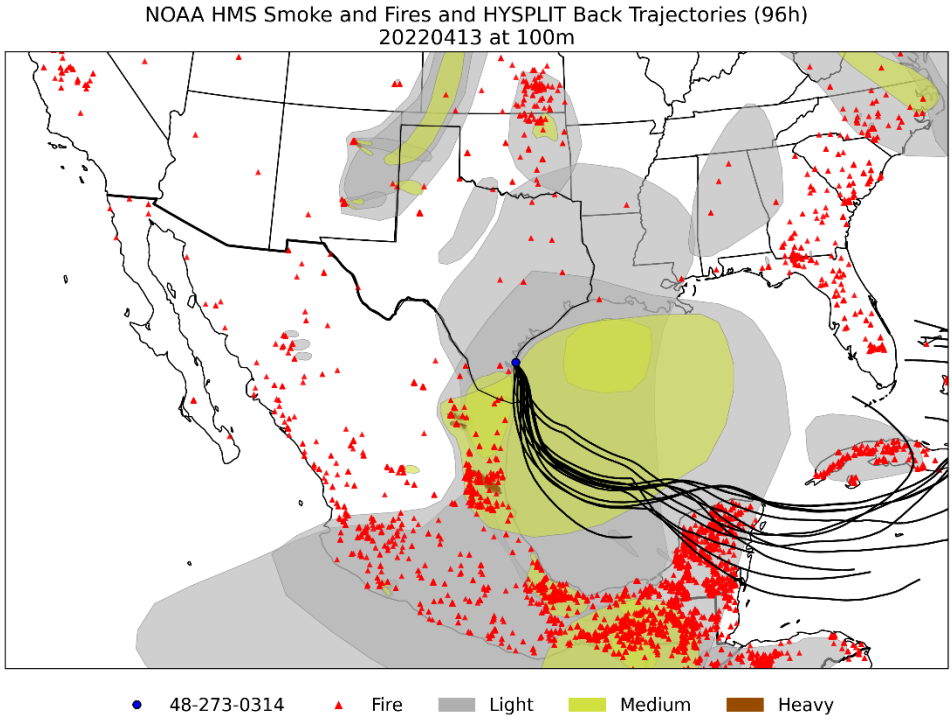


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

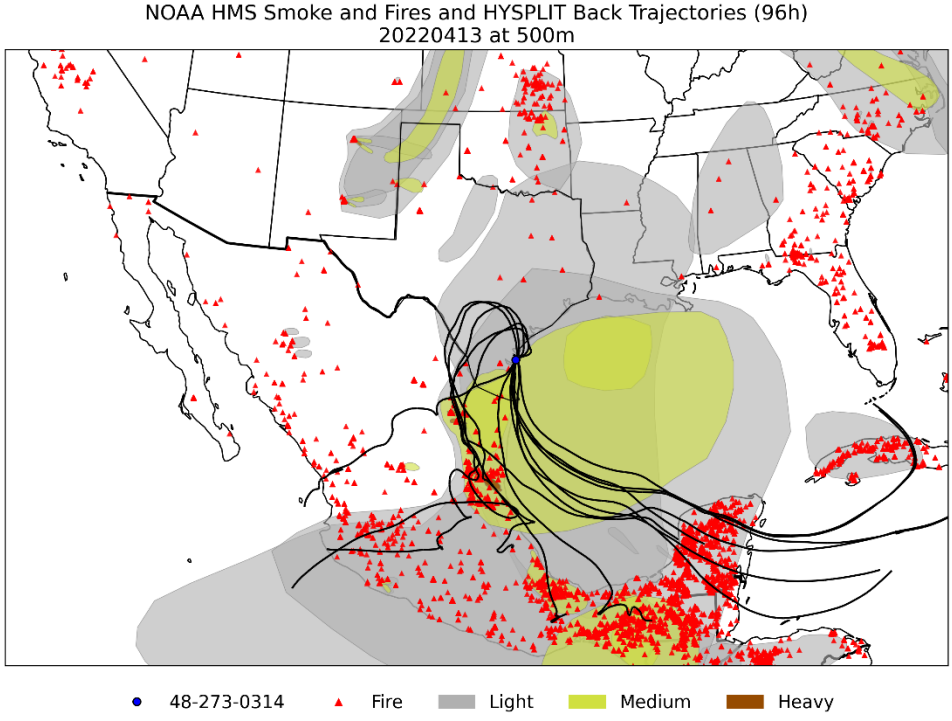
- 50m



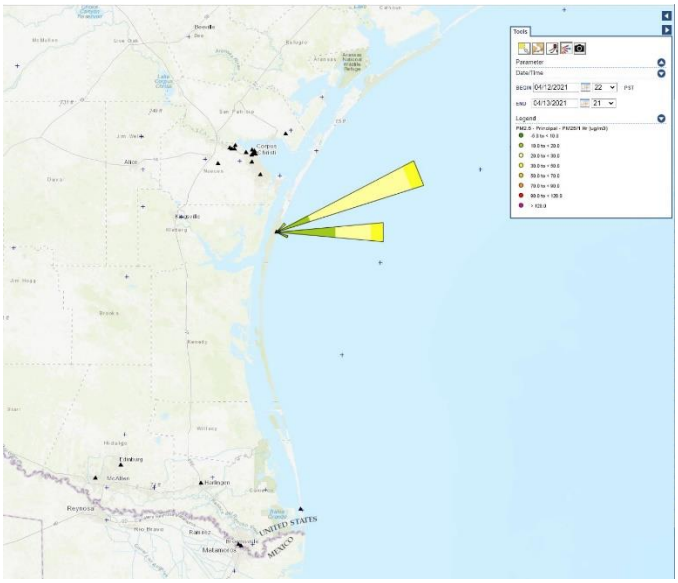
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220413 at 100m
48-273-0314
Fire
Light
Medium
Heavy

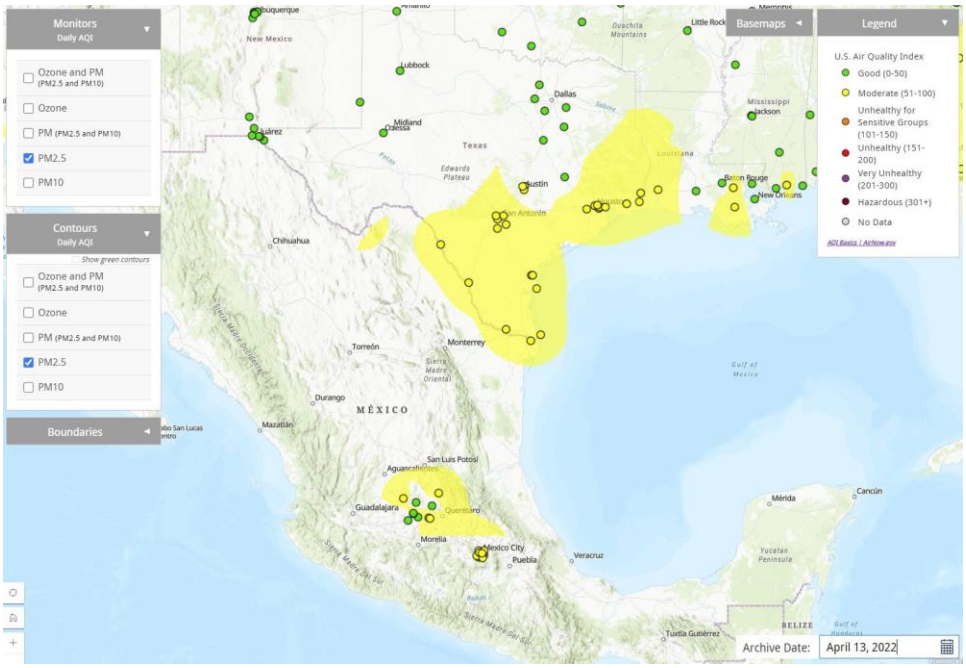
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220413 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3 - Pollution rose for 4/13/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 -EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 4/13/2022.

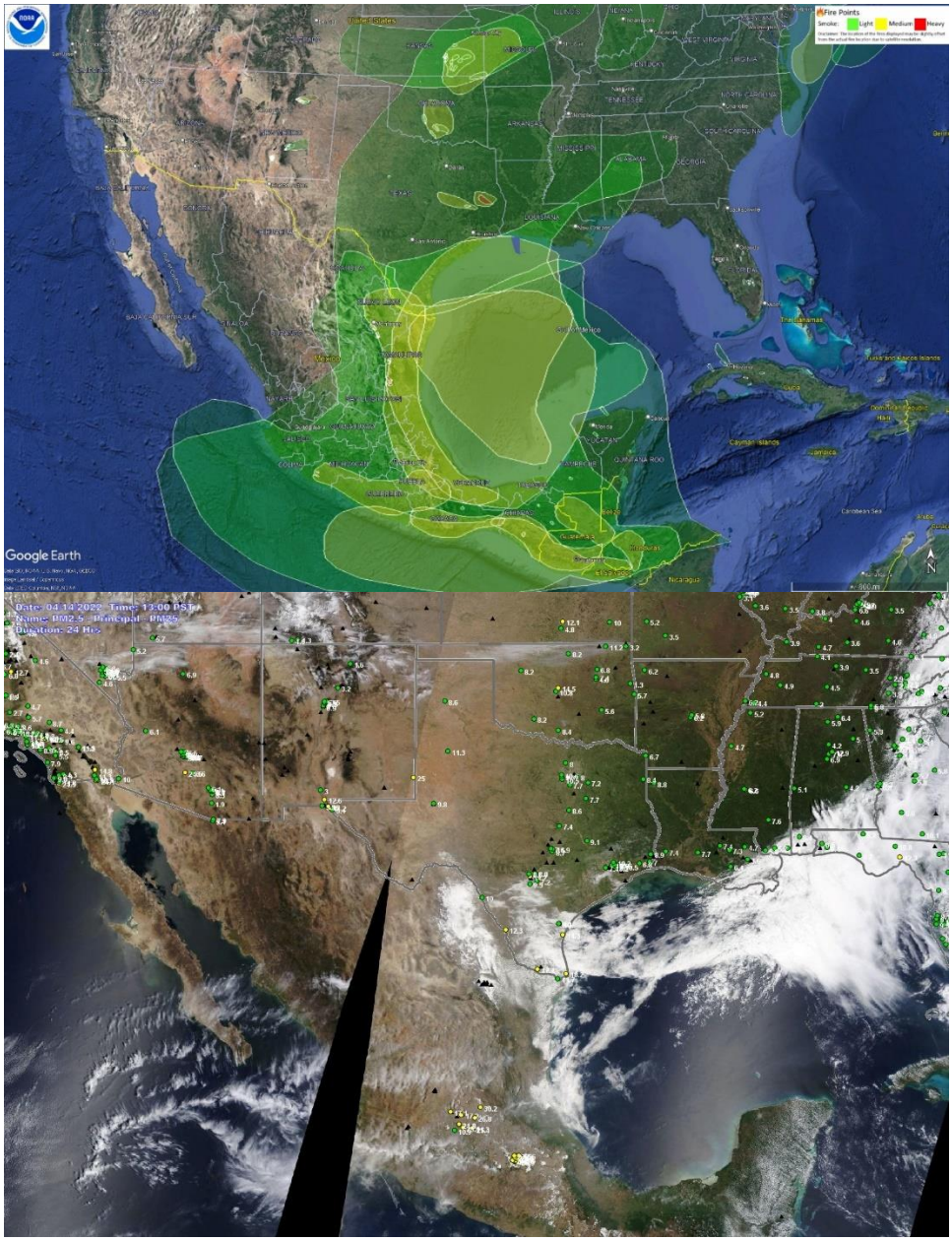


9. 4/14/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

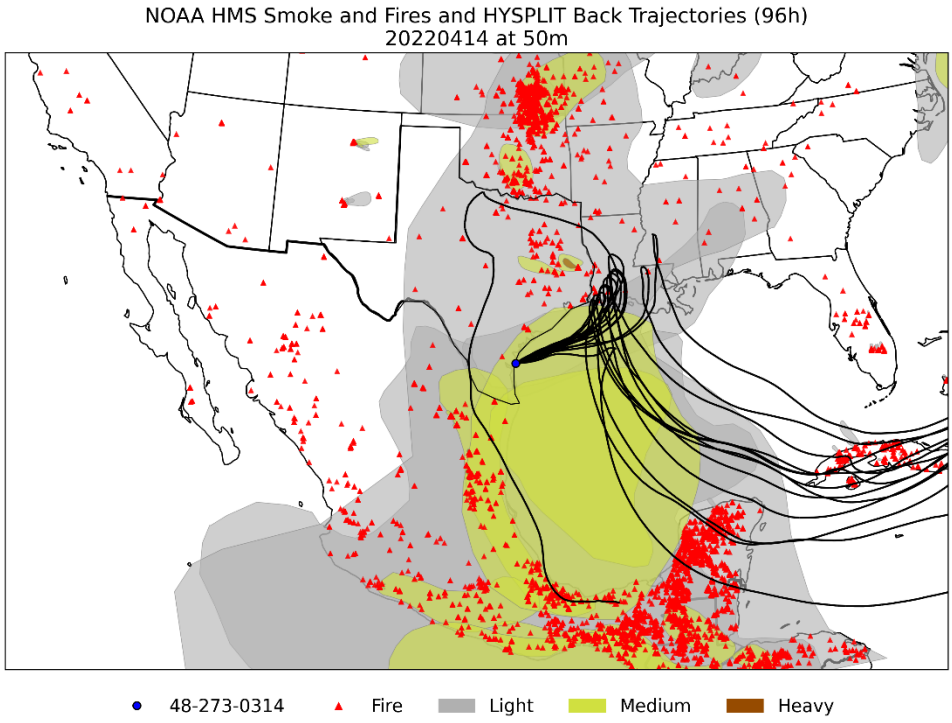
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
4/14/2022	18.9	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

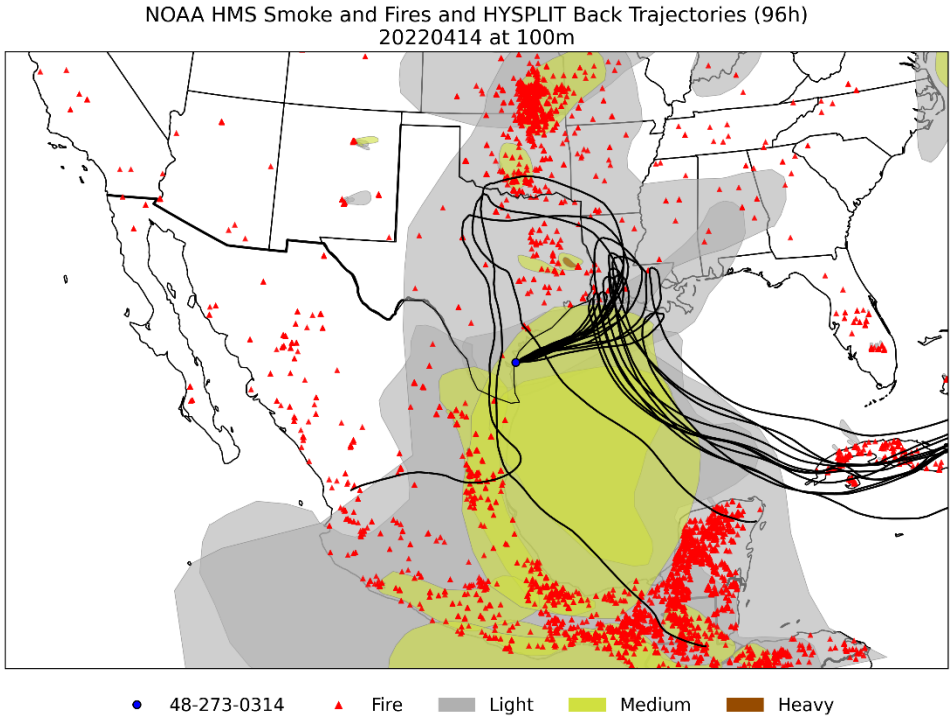


c. **Evidence #2** – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

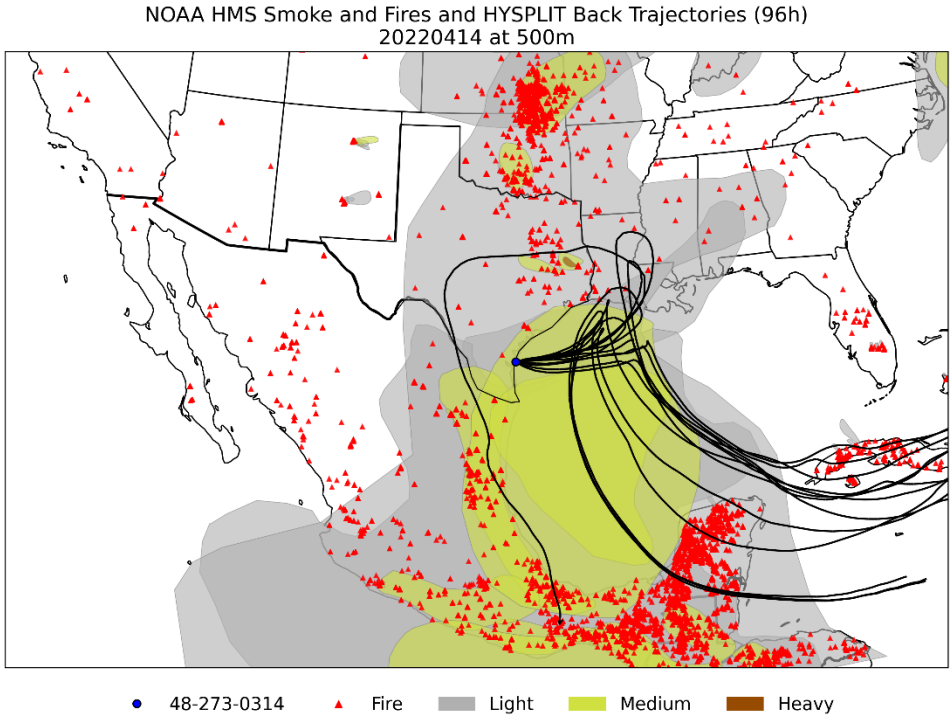
- 50m



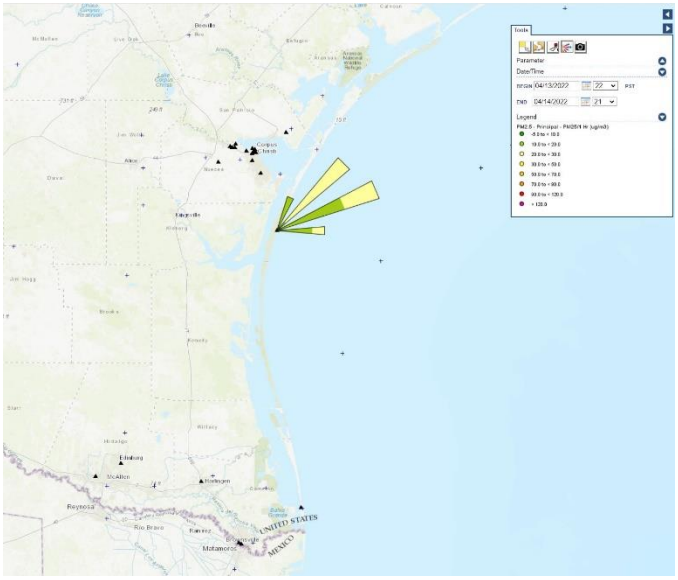
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220414 at 100m
48-273-0314
Fire
Light
Medium
Heavy

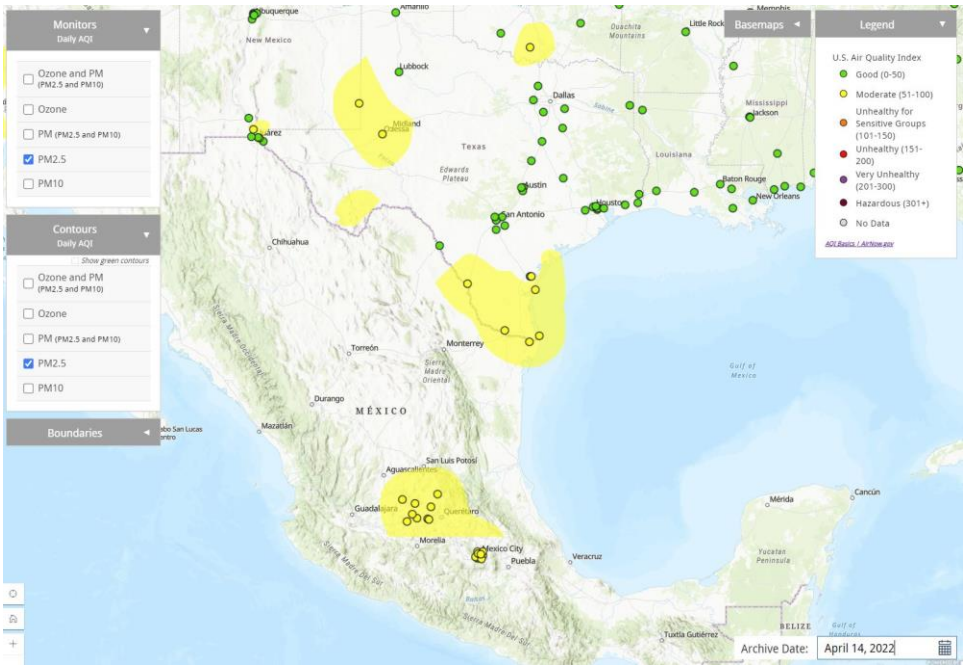
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220414 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 4/14/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 4/14/2022.

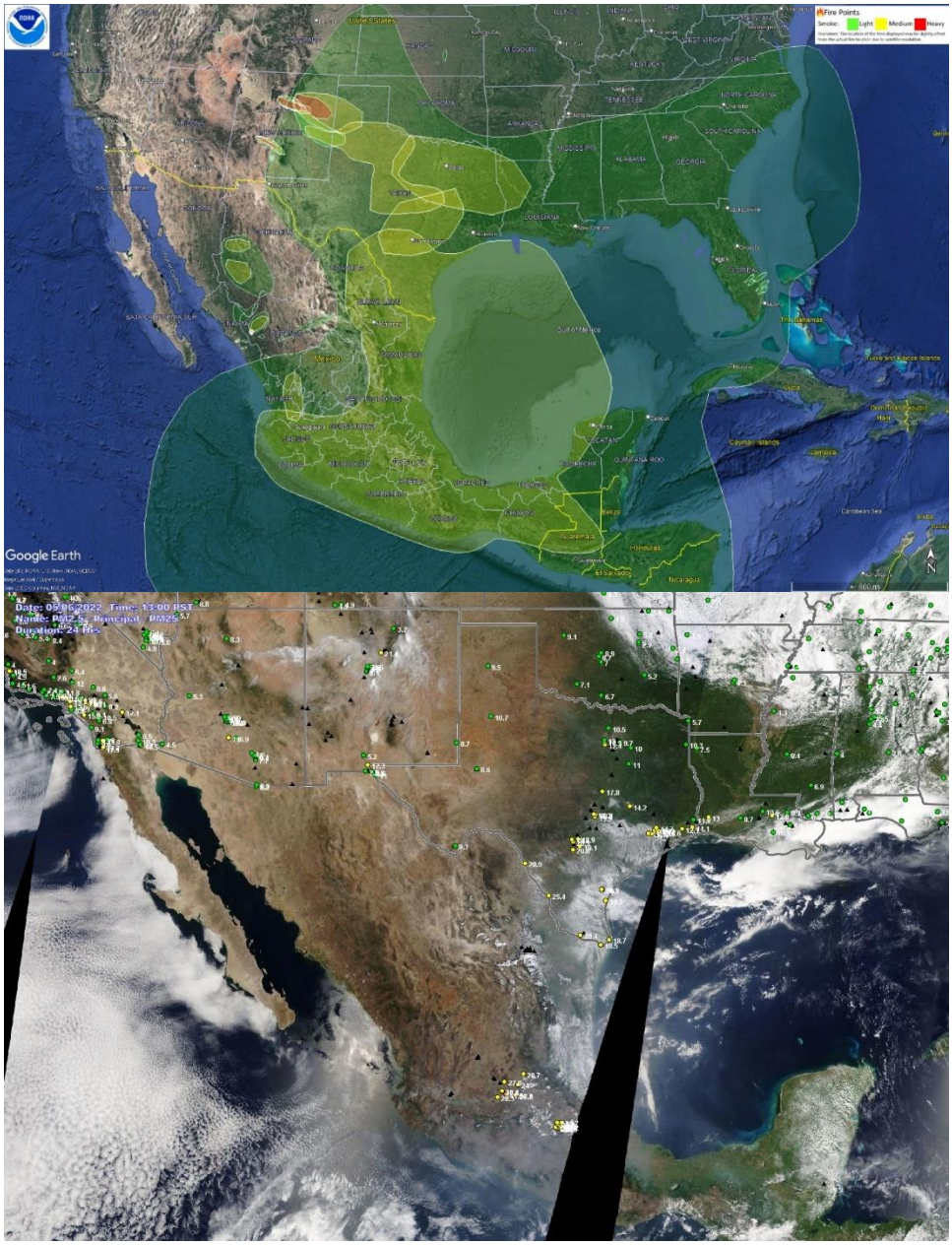


10. 5/6/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

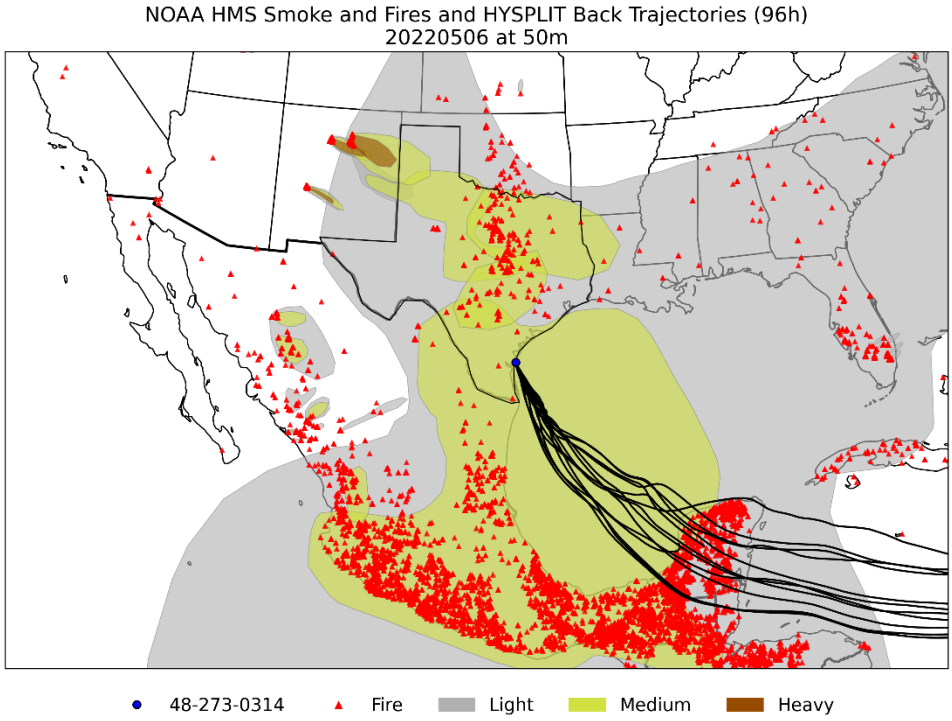
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
5/6/2022	21.7	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

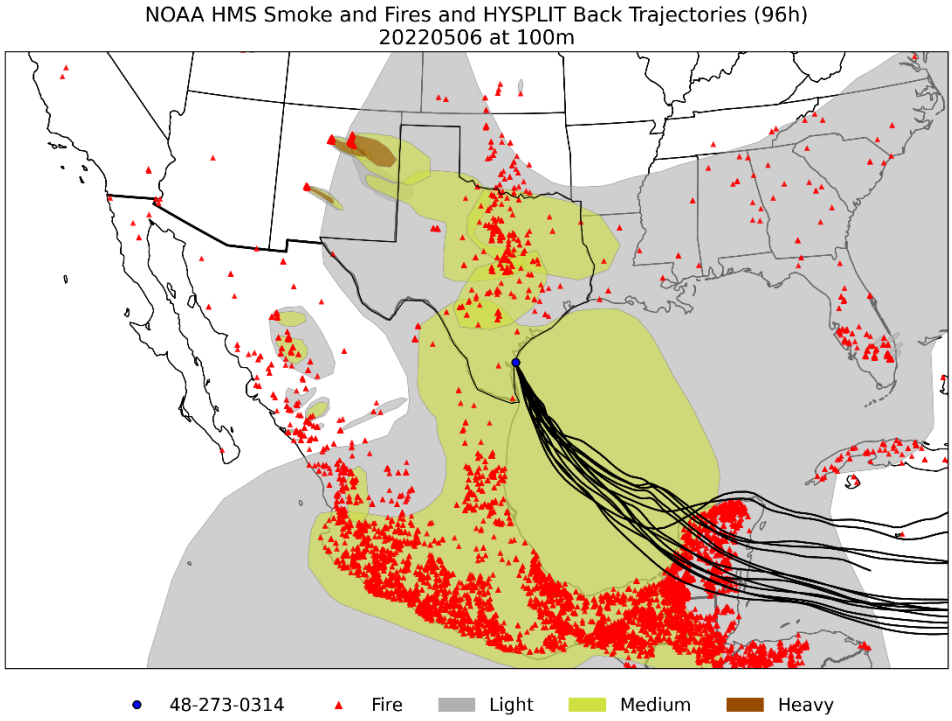


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

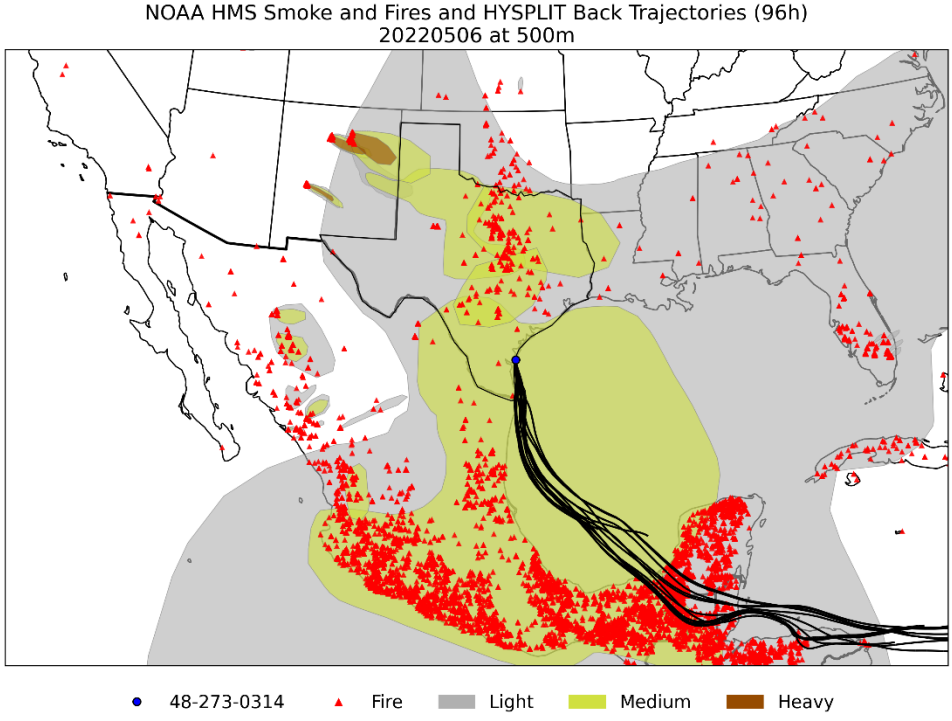
- 50m



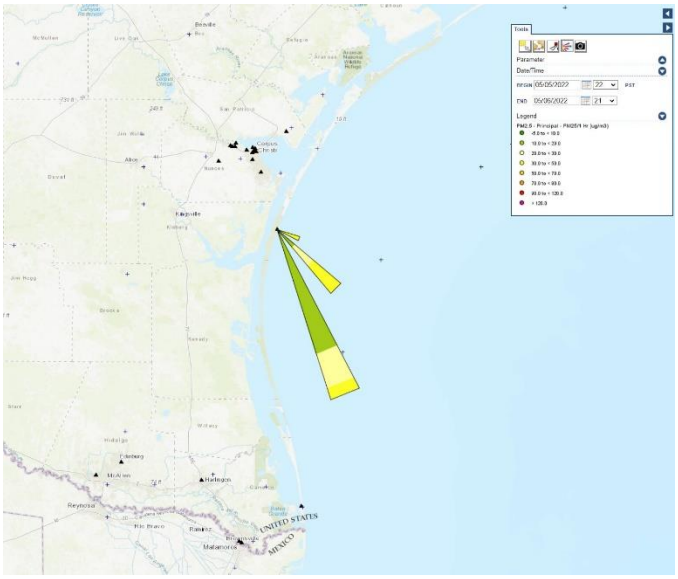
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220506 at 100m
48-273-0314
Fire
Light
Medium
Heavy

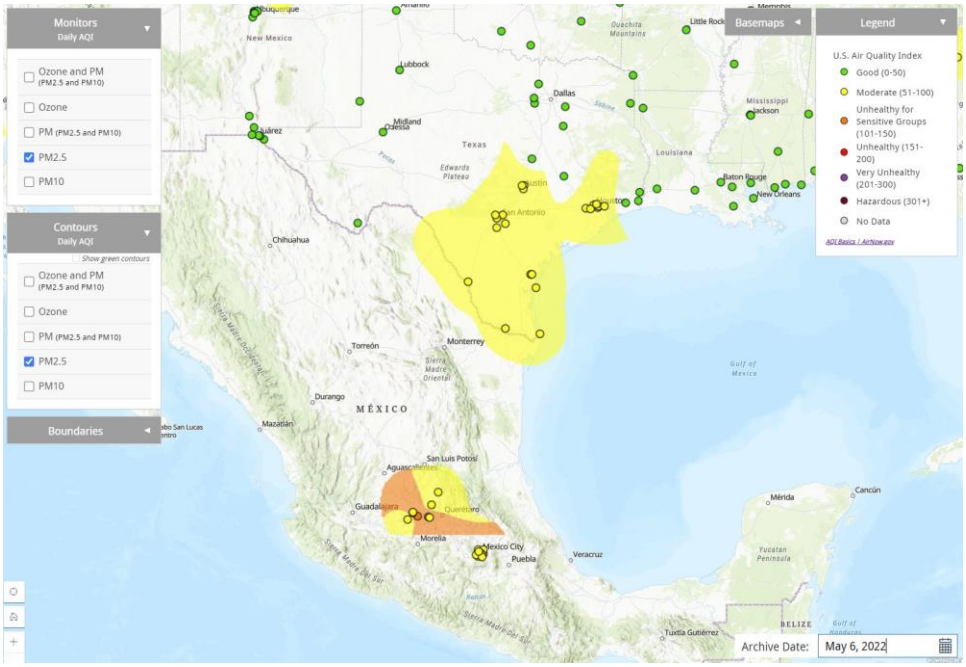
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220506 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 5/6/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 5/6/2022.

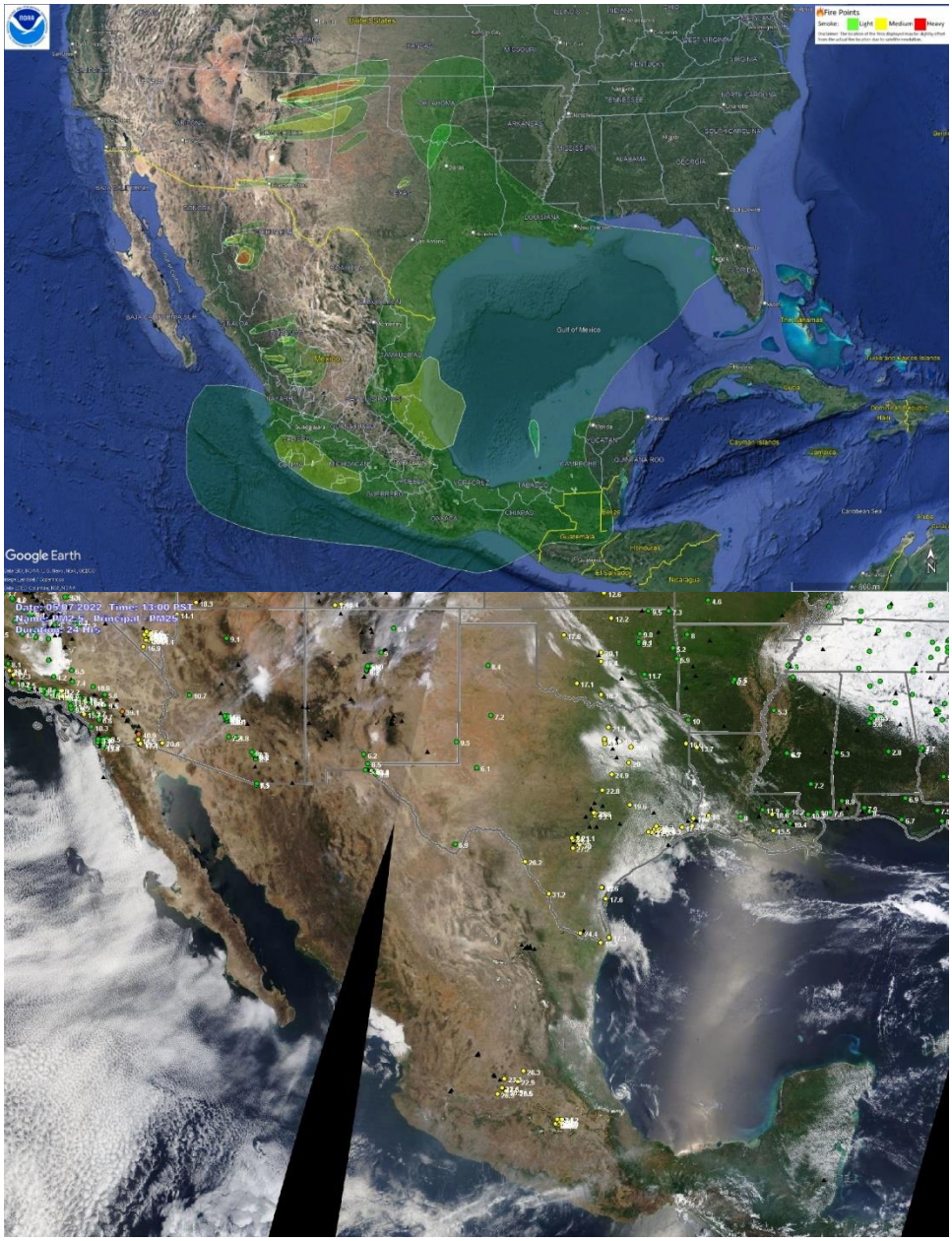


11. 5/7/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

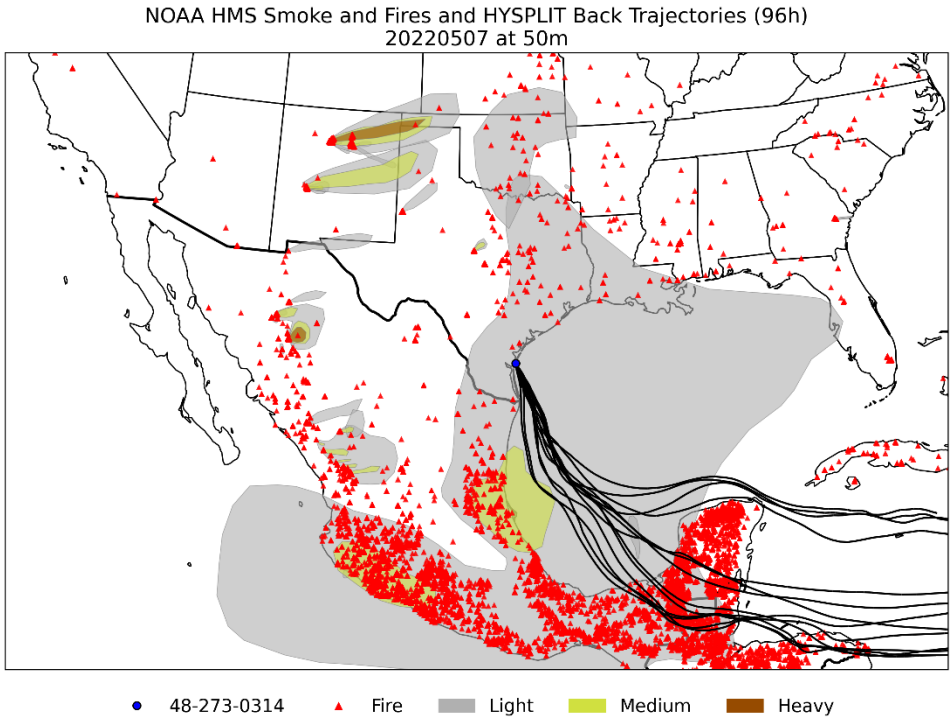
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
5/7/2022	23.1	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

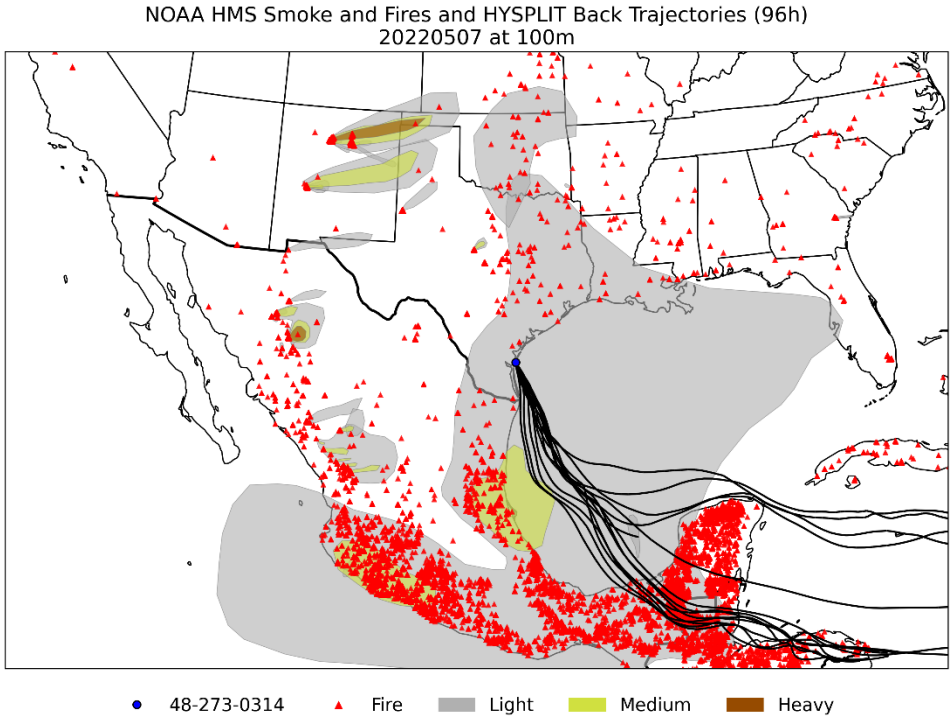


c. **Evidence #2** – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

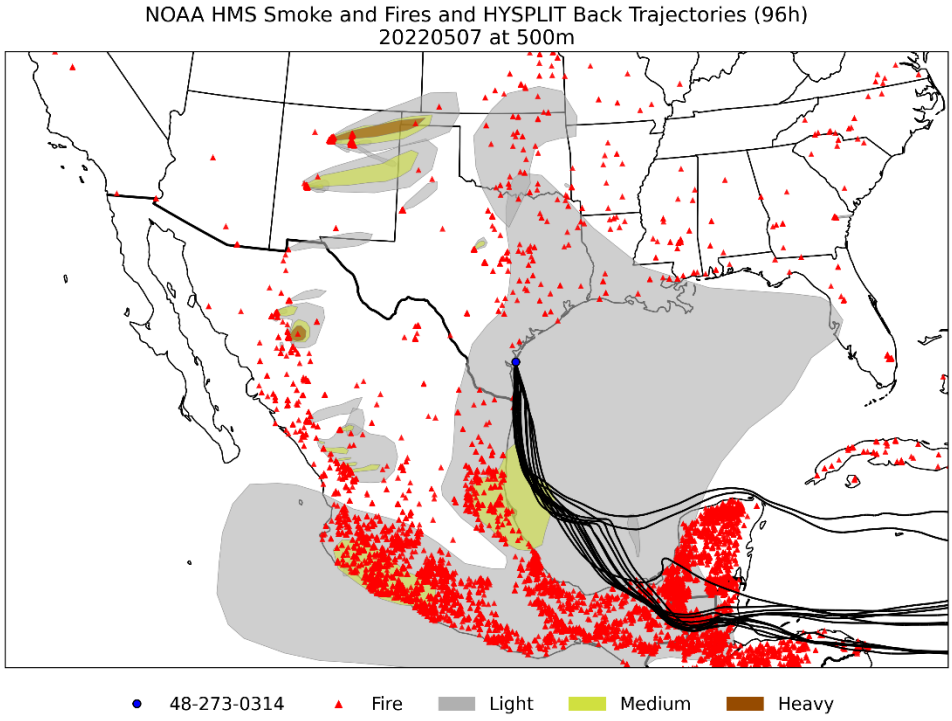
- 50m



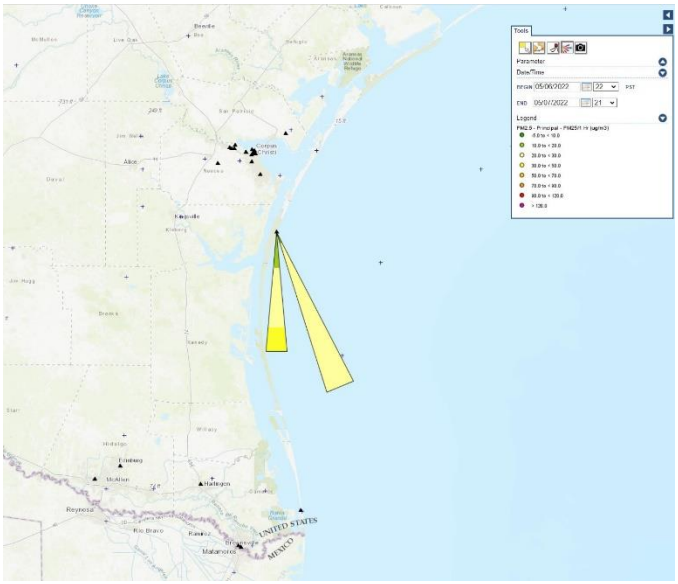
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220507 at 100m
48-273-0314
Fire
Light
Medium
Heavy

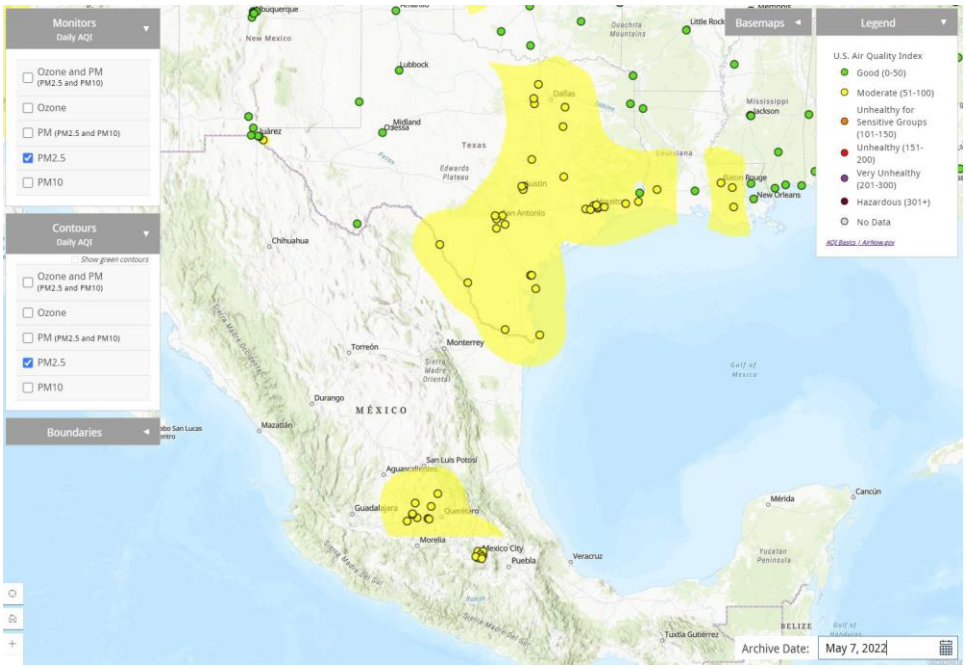
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220507 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 5/7/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 5/7/2022.

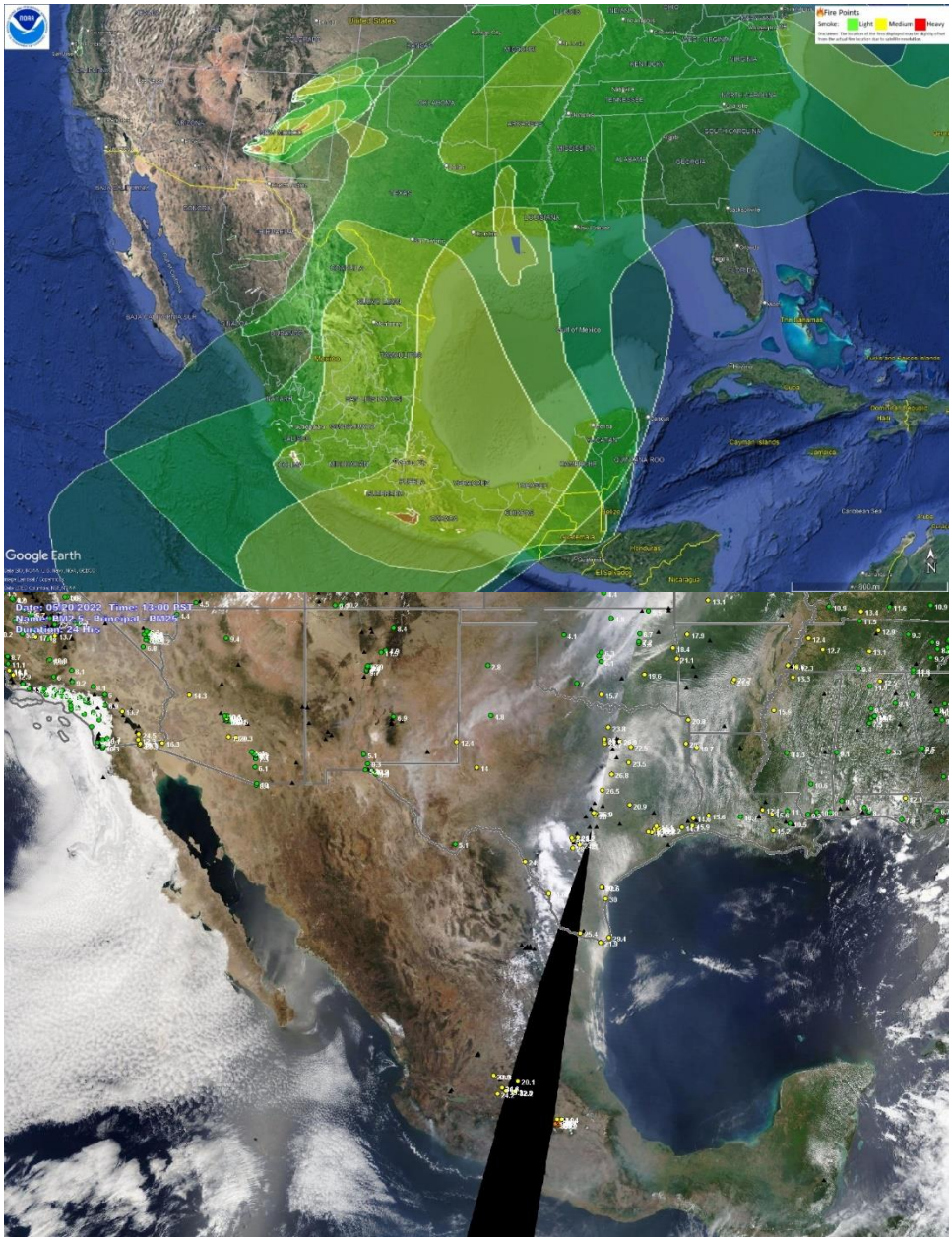


12. 5/20/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

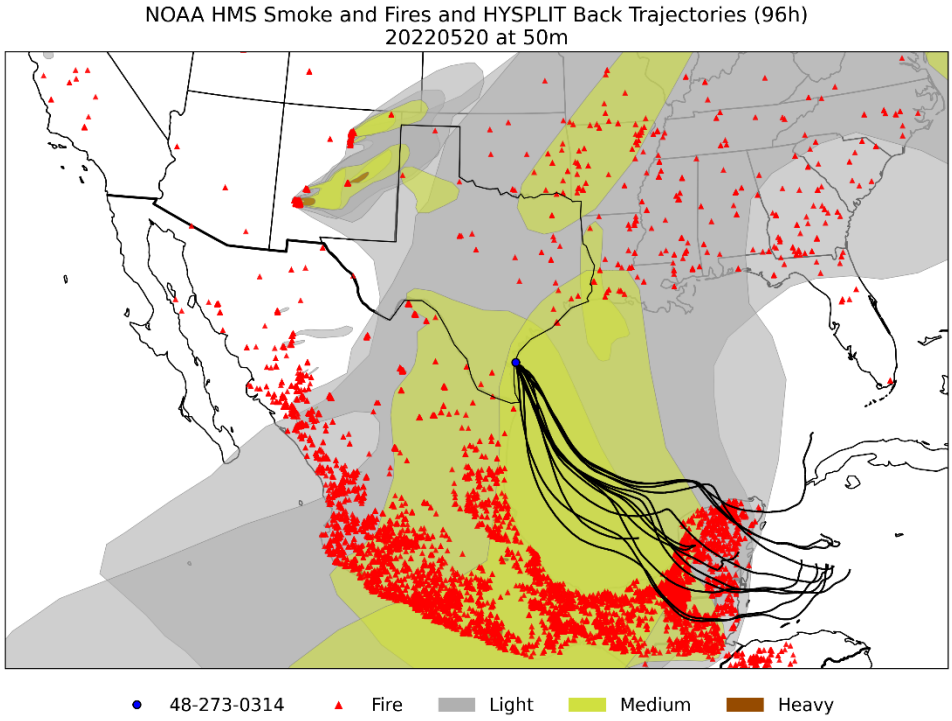
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
5/20/2022	26.6	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

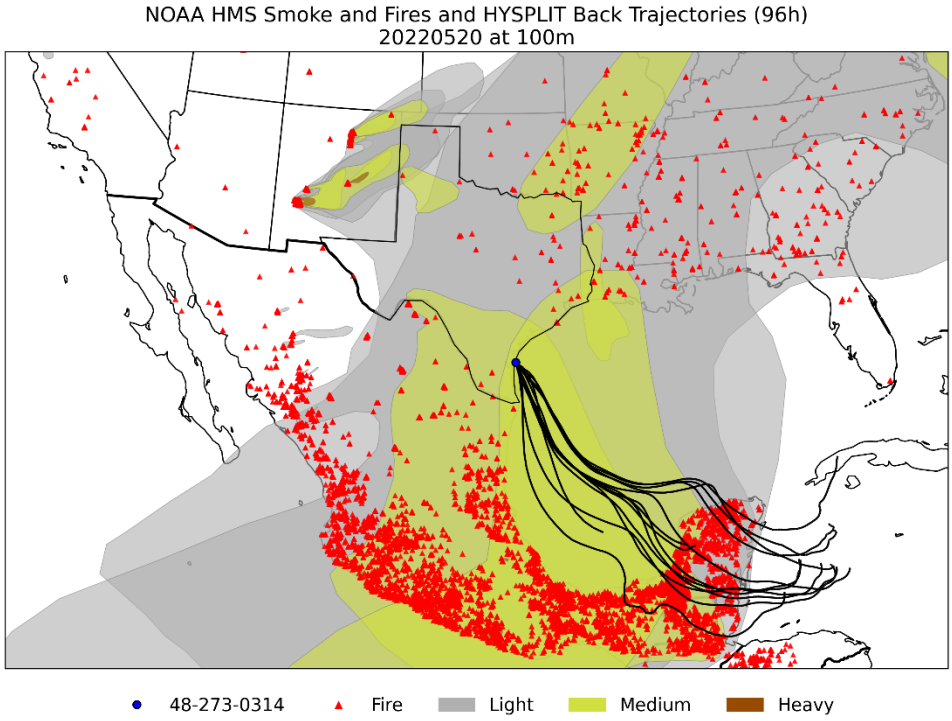


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

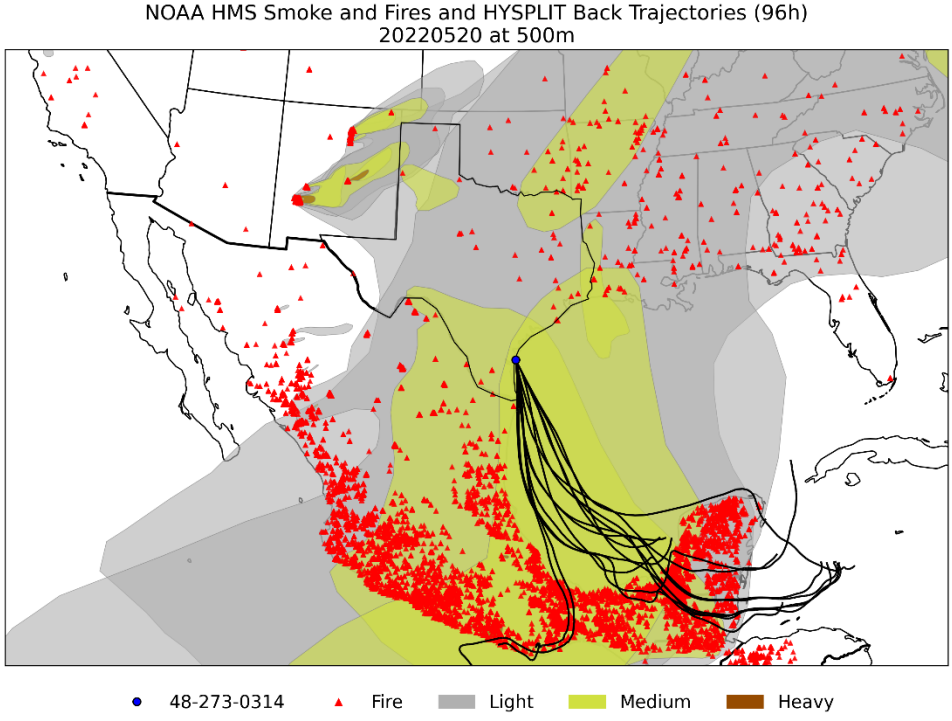
- 50m



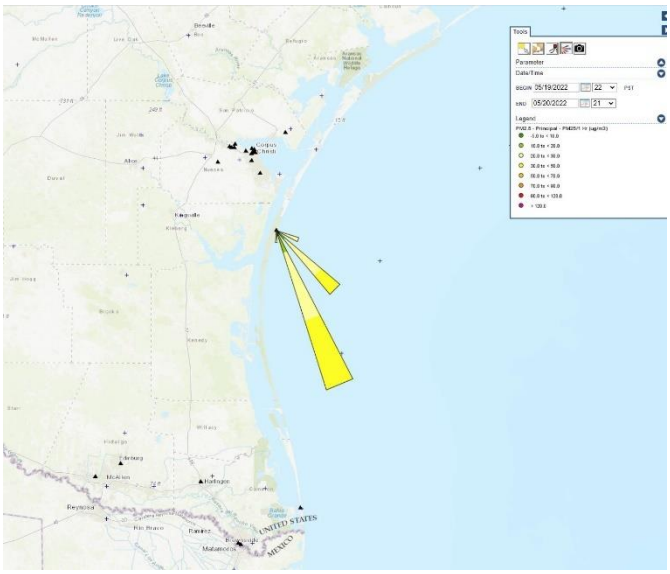
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220520 at 100m
48-273-0314
Fire
Light
Medium
Heavy

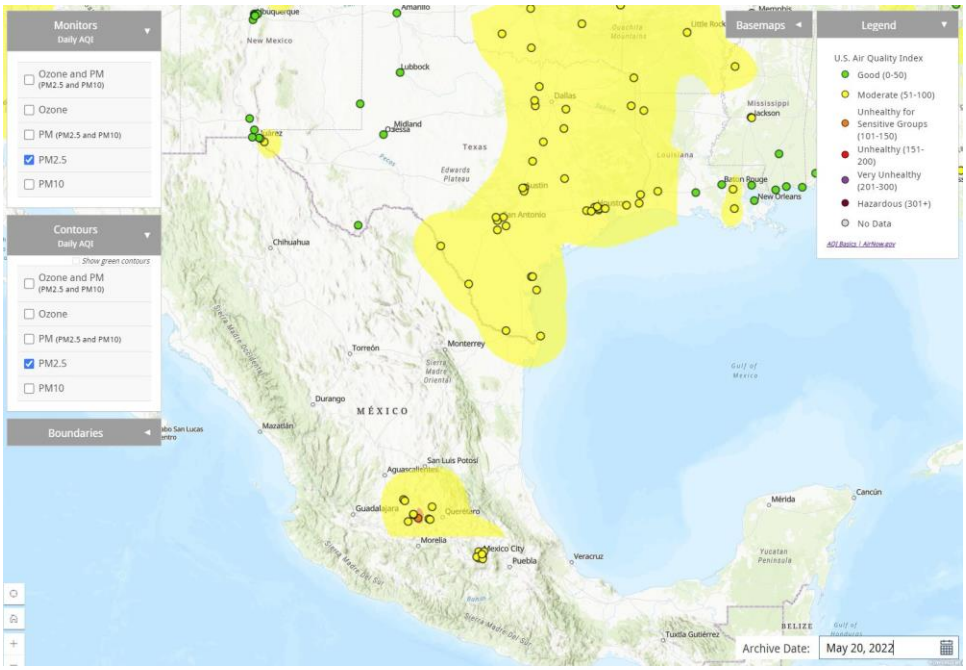
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220520 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 5/20/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 5/20/2022.

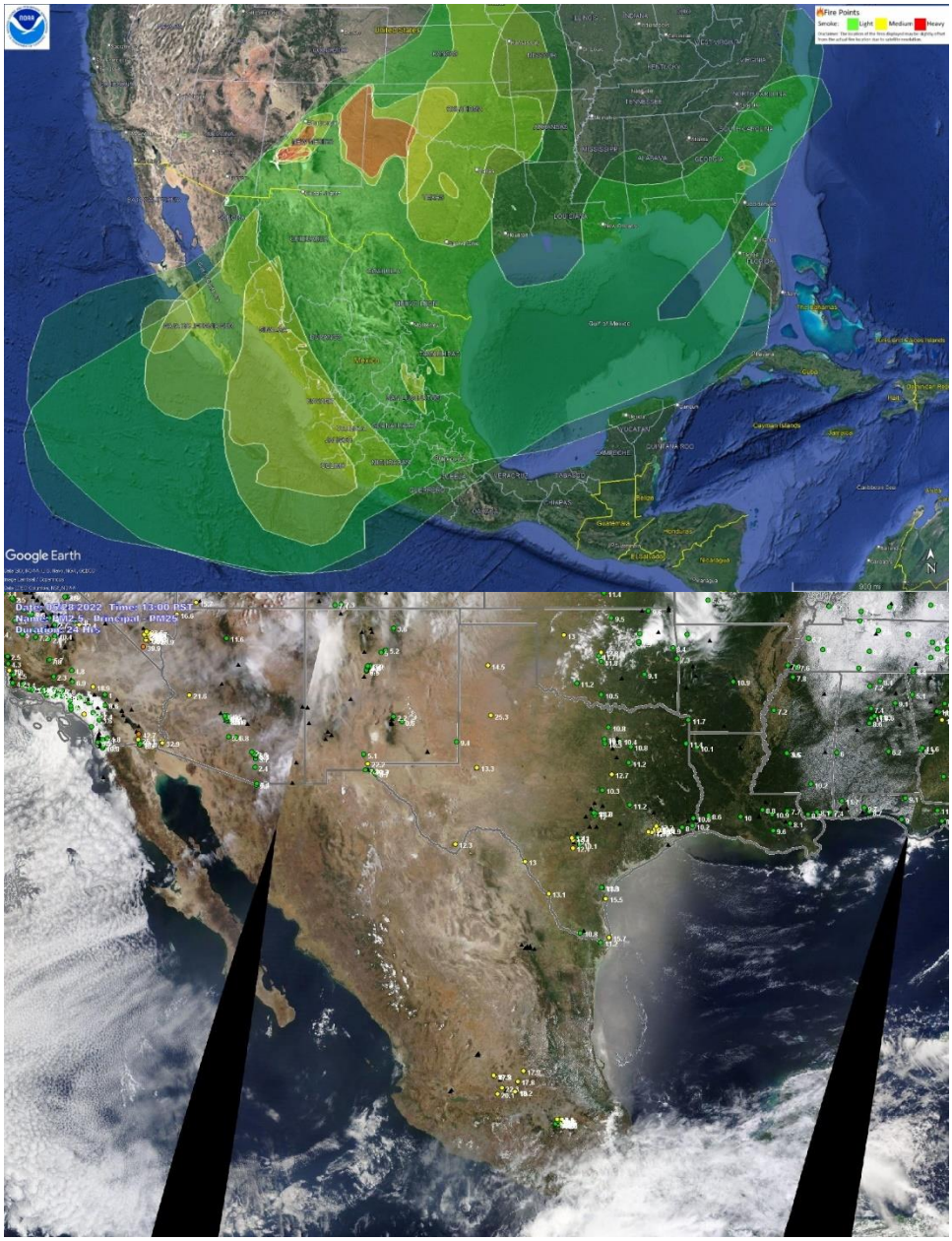


13. 5/28/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

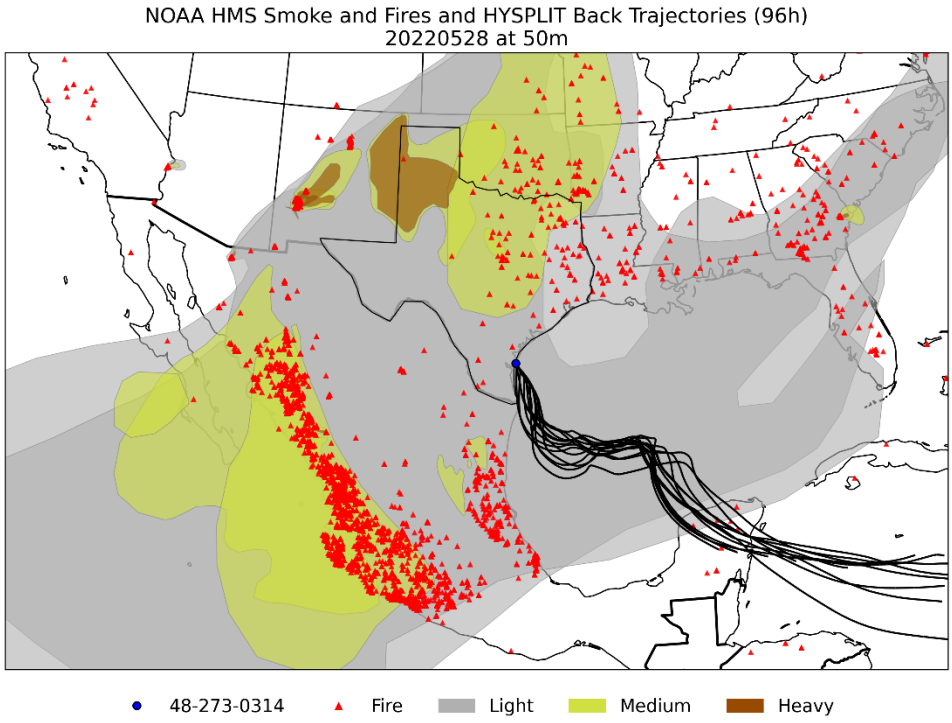
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
5/28/2022	18.3	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

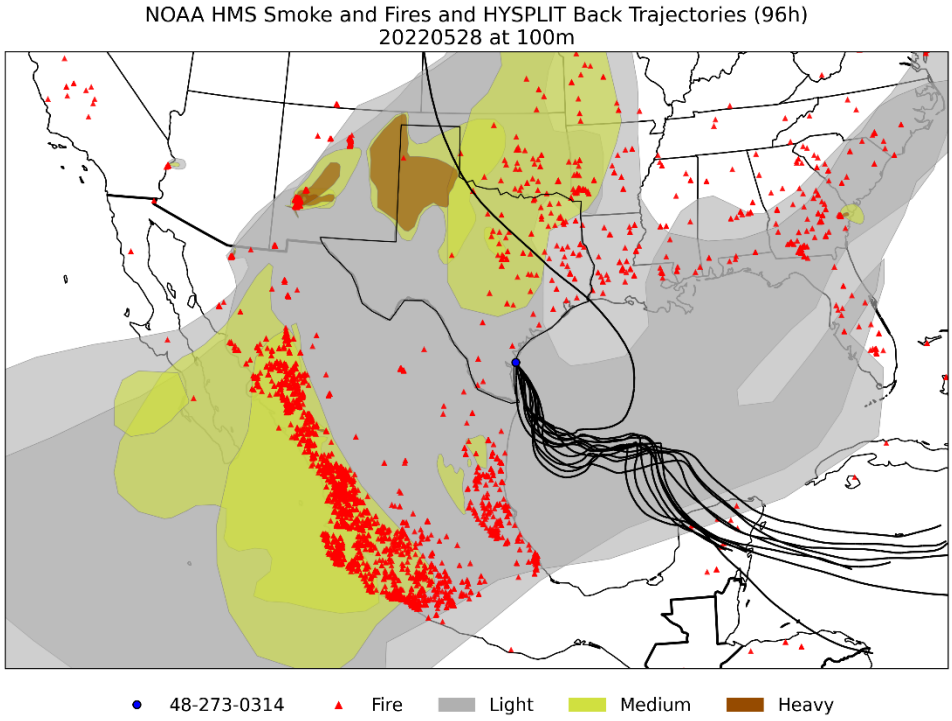


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

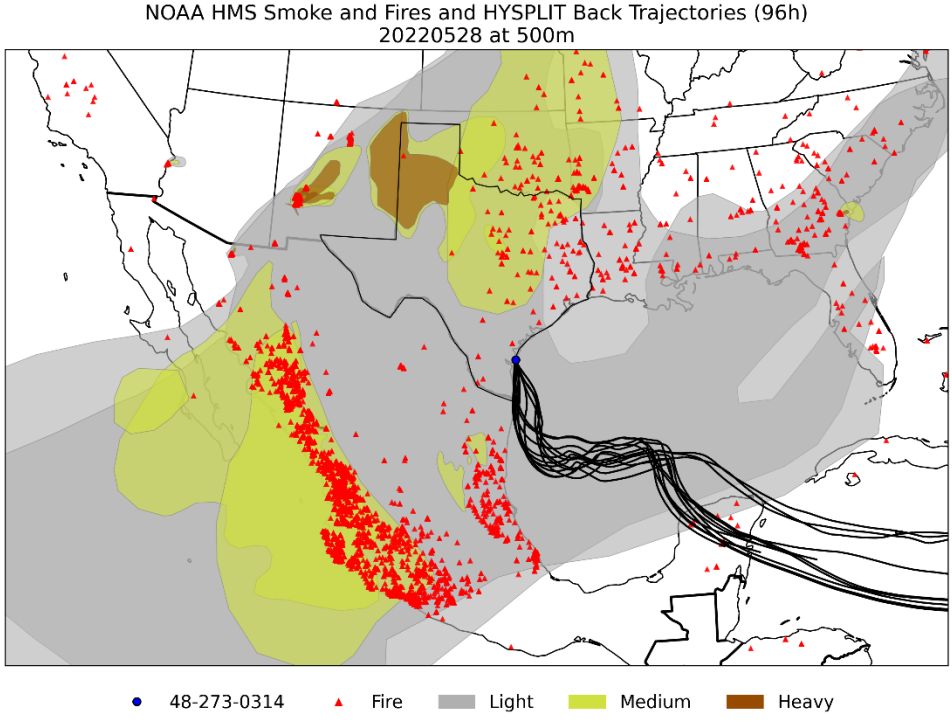
- 50m



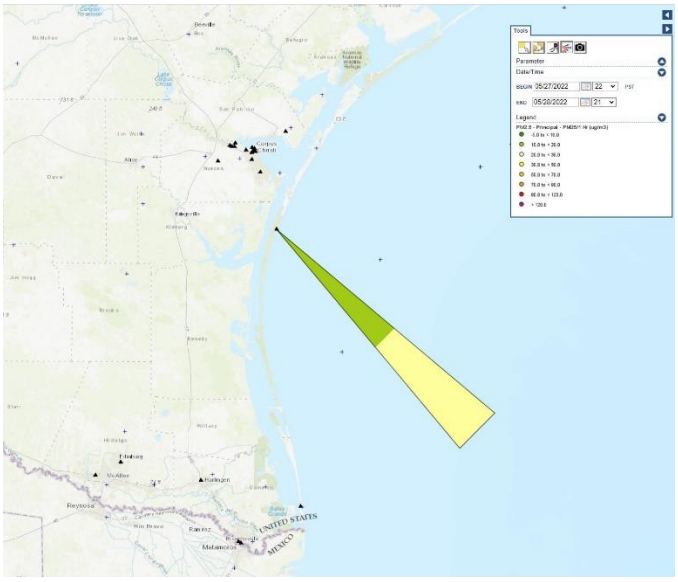
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220528 at 100m
48-273-0314
Fire
Light
Medium
Heavy

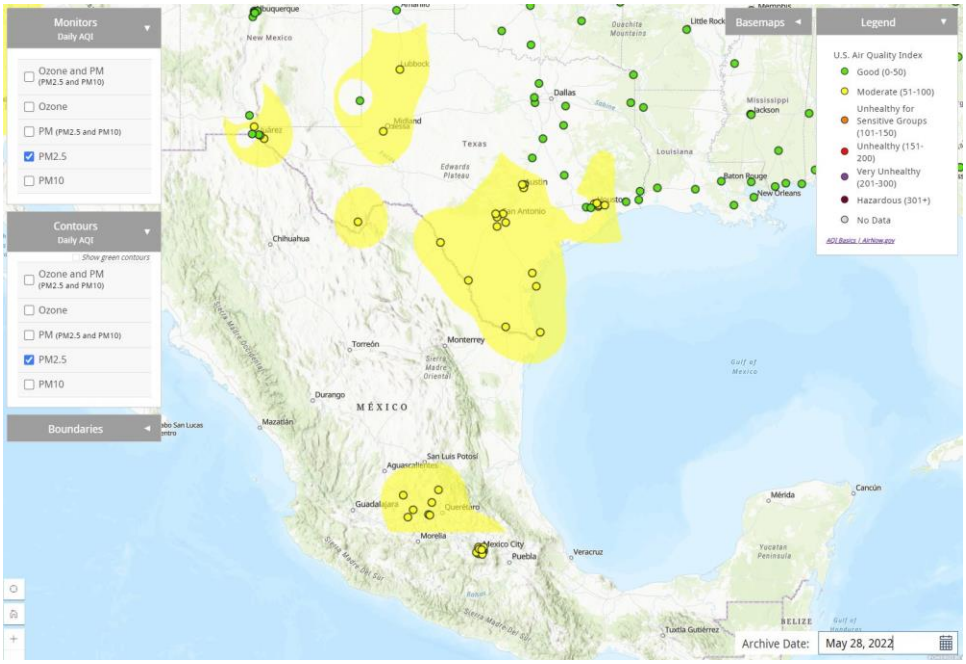
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220528 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 5/28/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 5/28/2022.

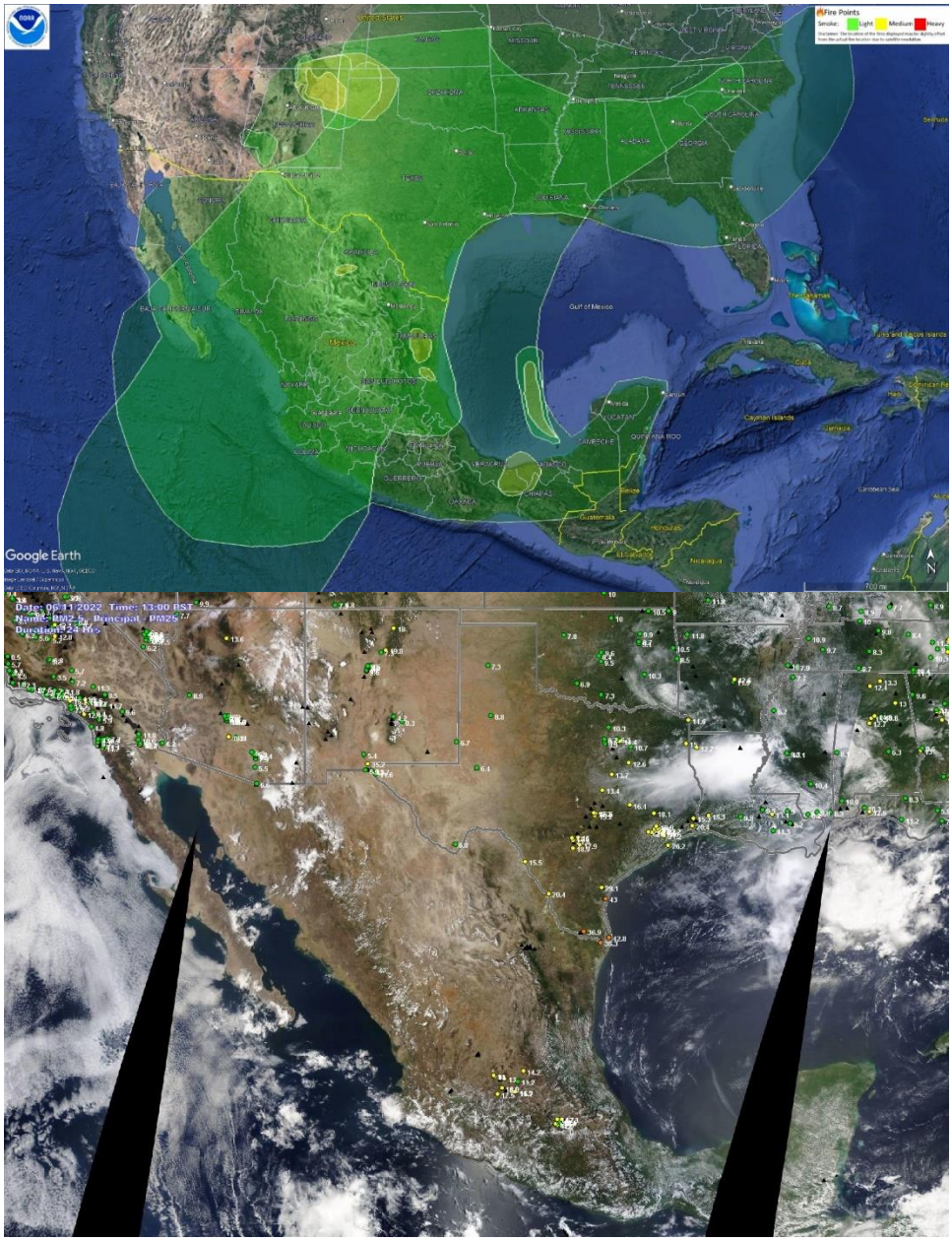


14. 6/11/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

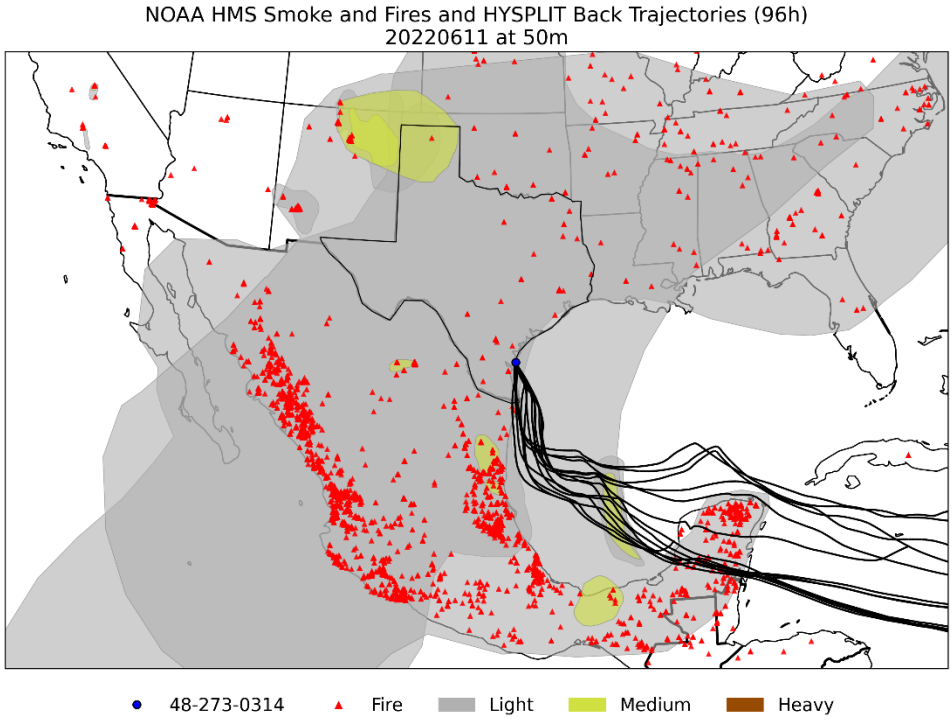
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
6/11/2022	23.6	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

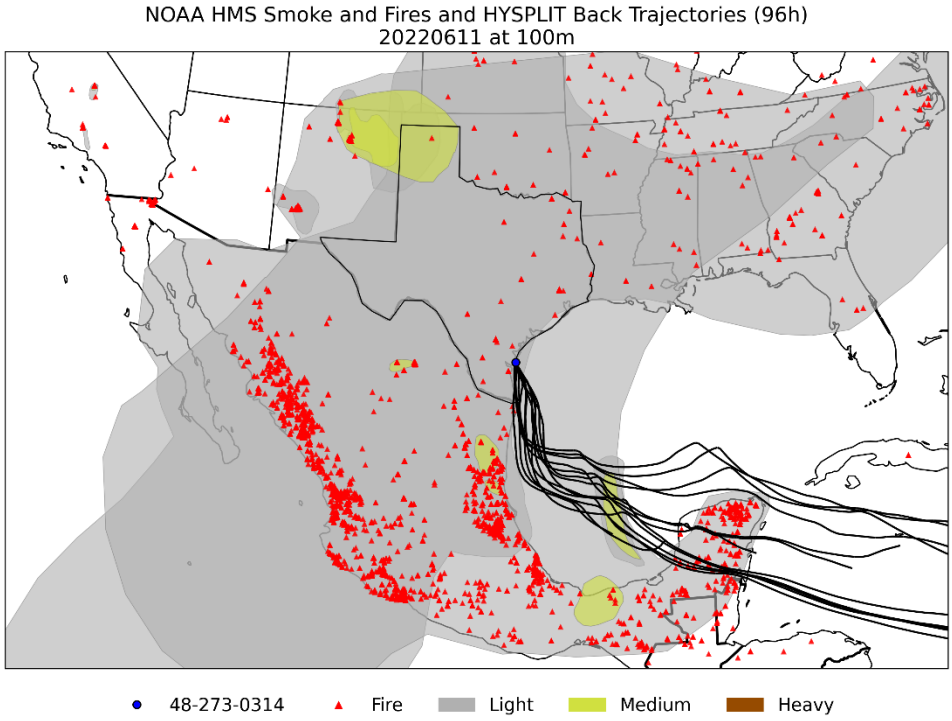


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

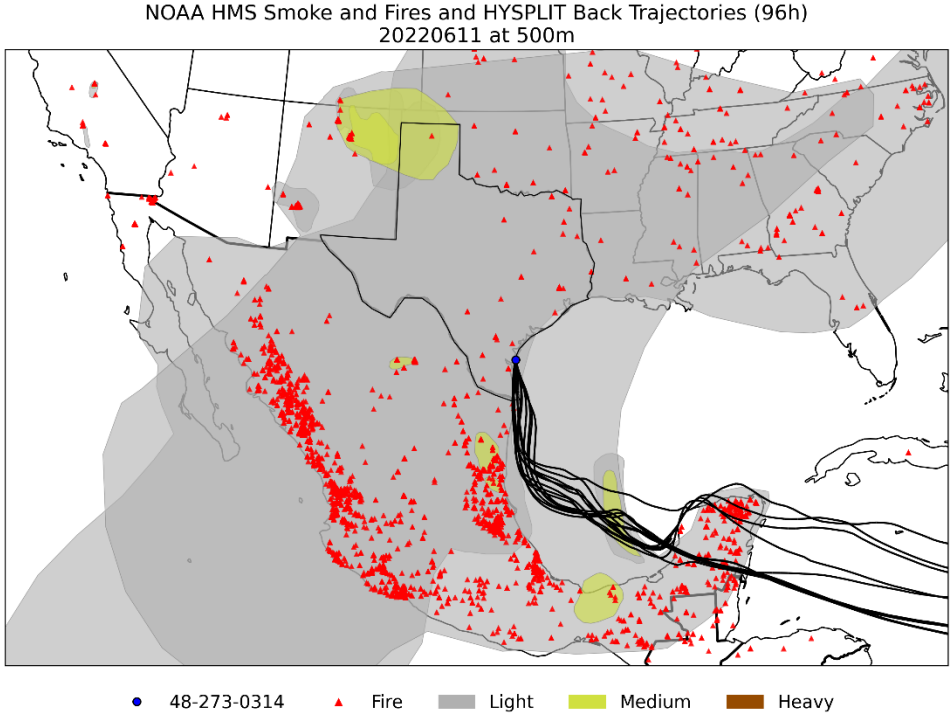
- 50m



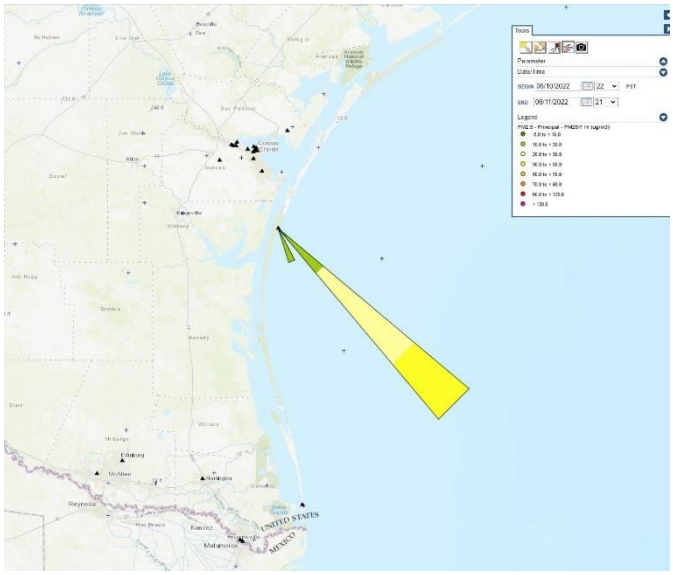
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220611 at 100m
48-273-0314
Fire
Light
Medium
Heavy

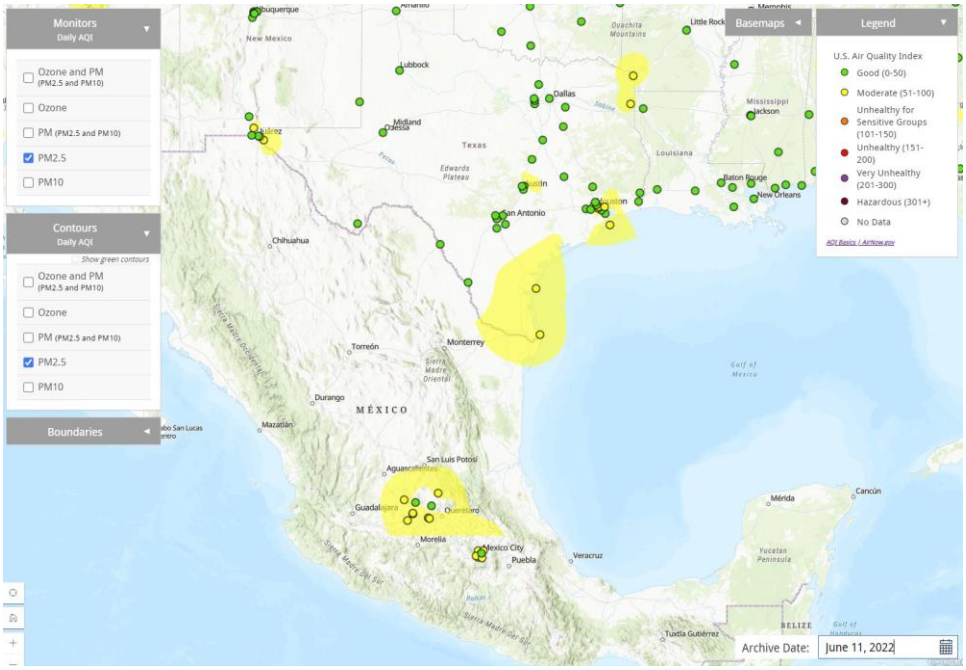
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220611 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 6/11/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 6/11/2022.

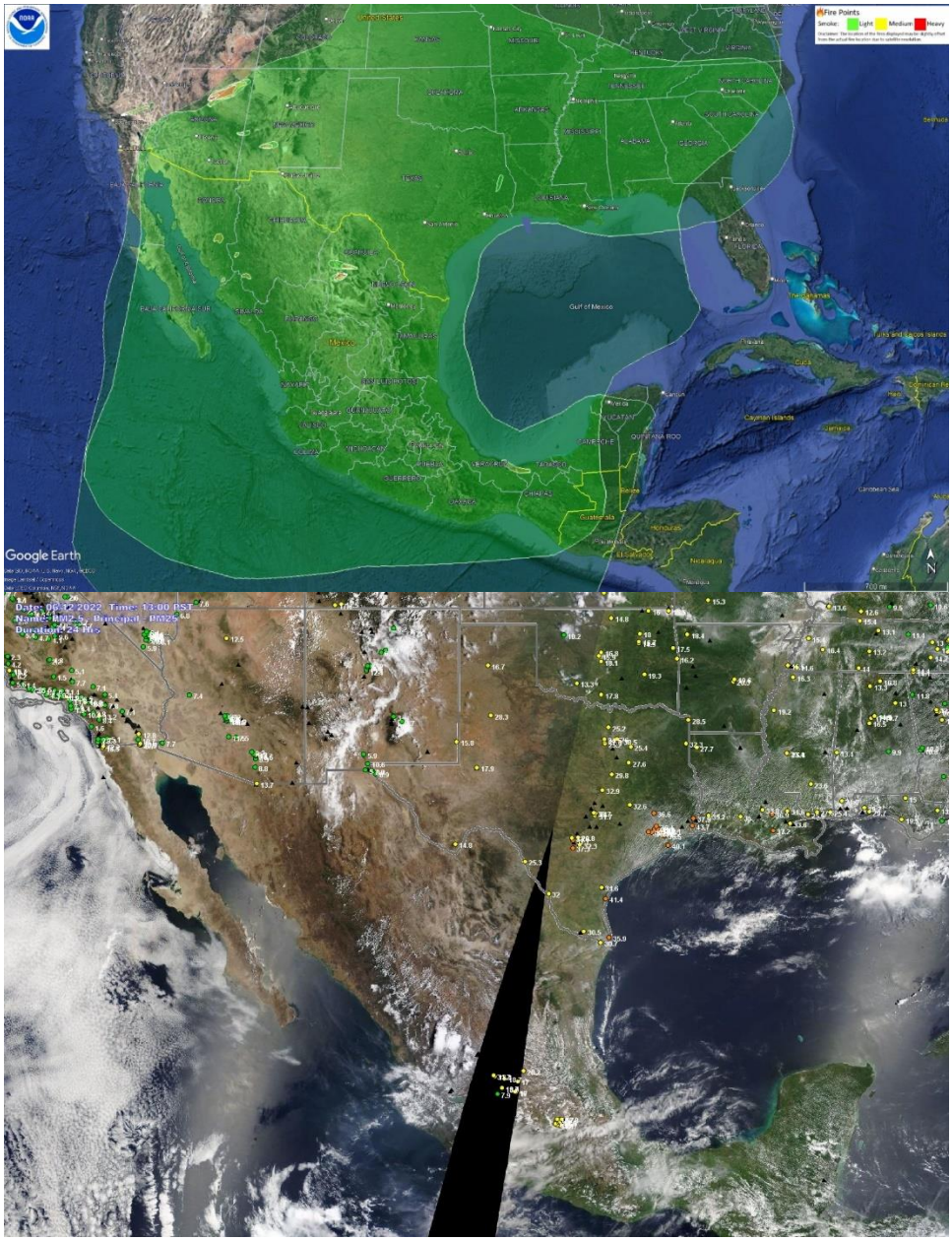


15. 6/12/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

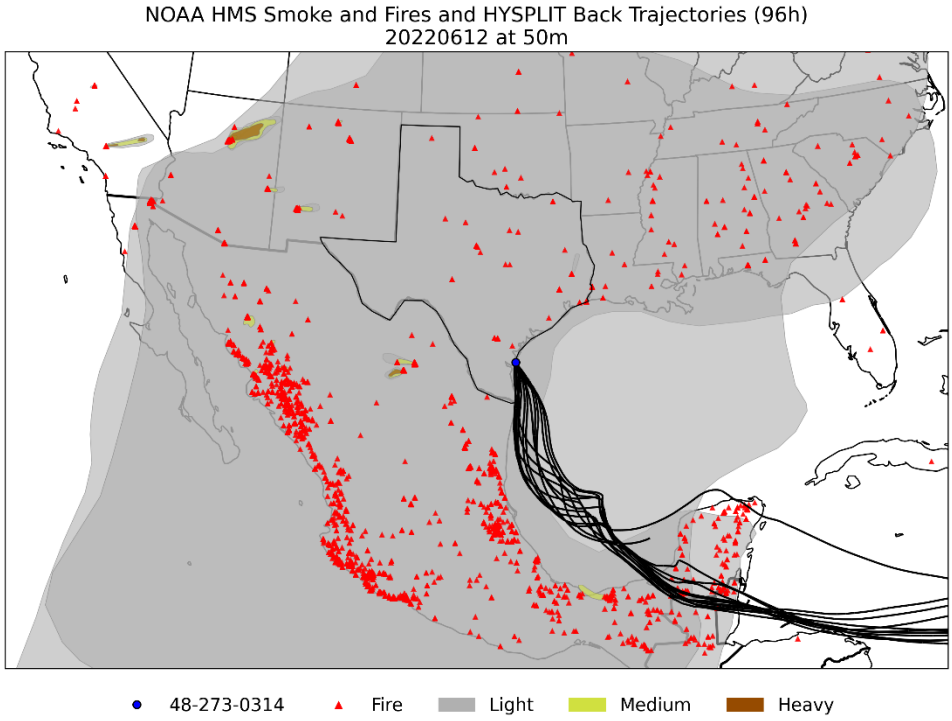
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
6/12/2022	48.5	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

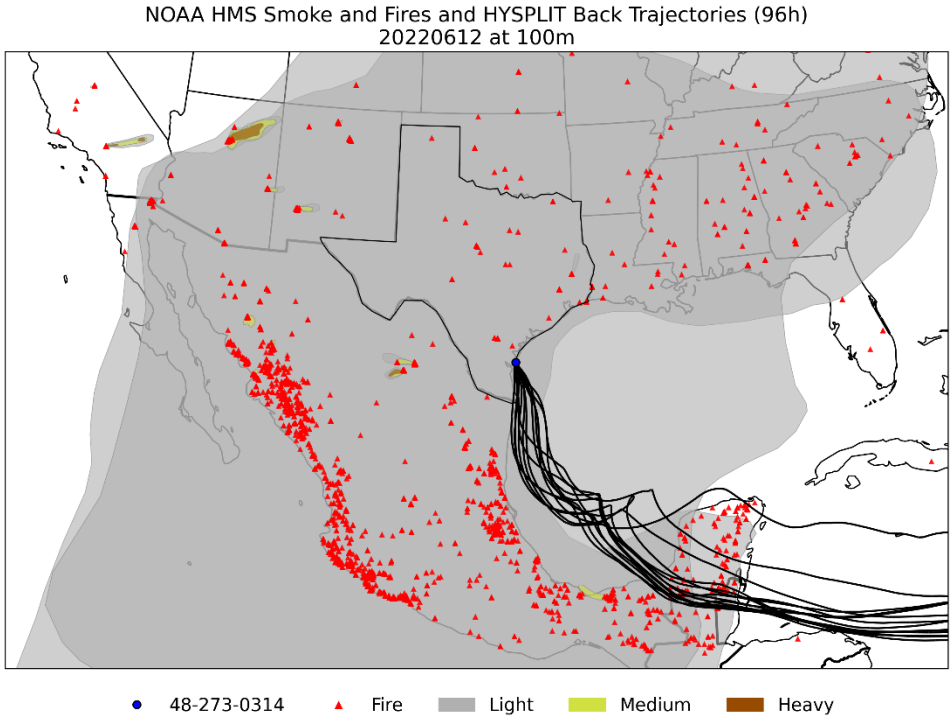


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

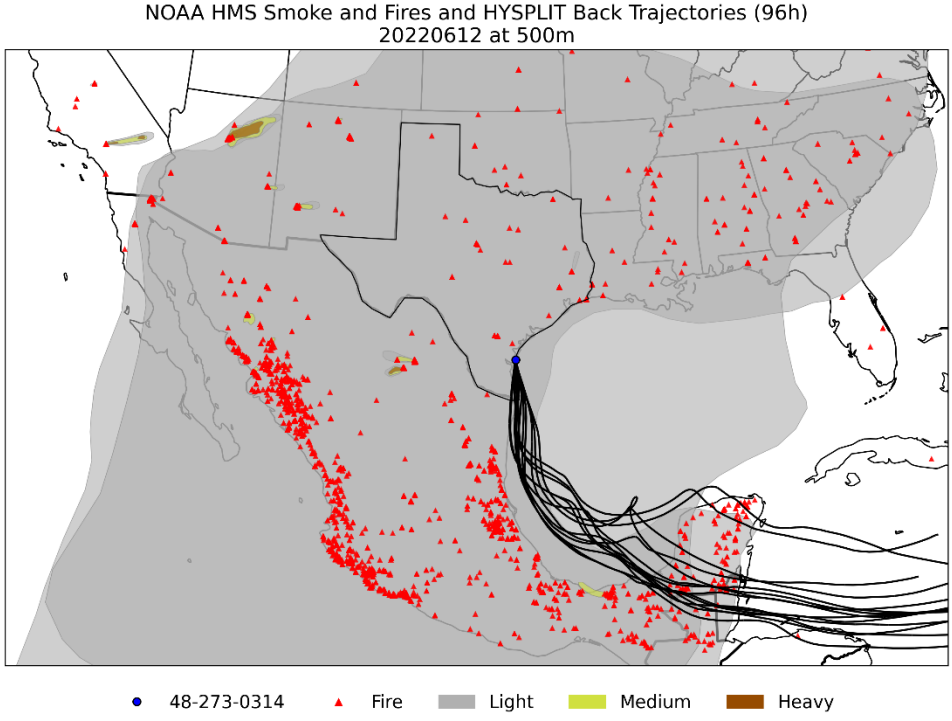
- 50m



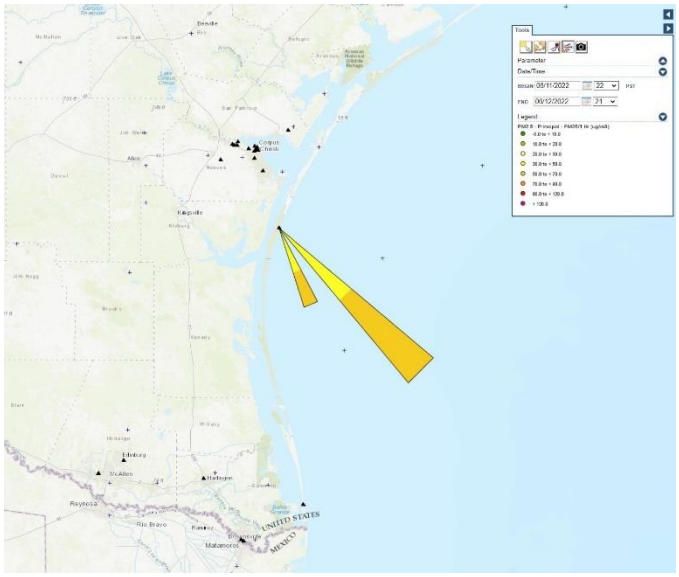
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220612 at 100m
48-273-0314
Fire
Light
Medium
Heavy

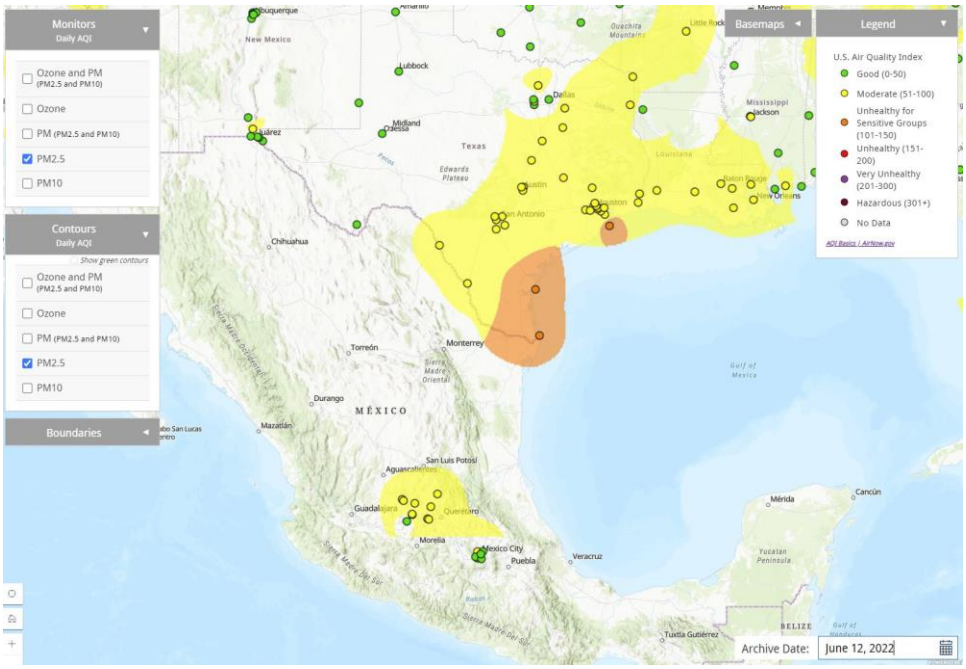
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220612 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 6/12/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 6/12/2022.

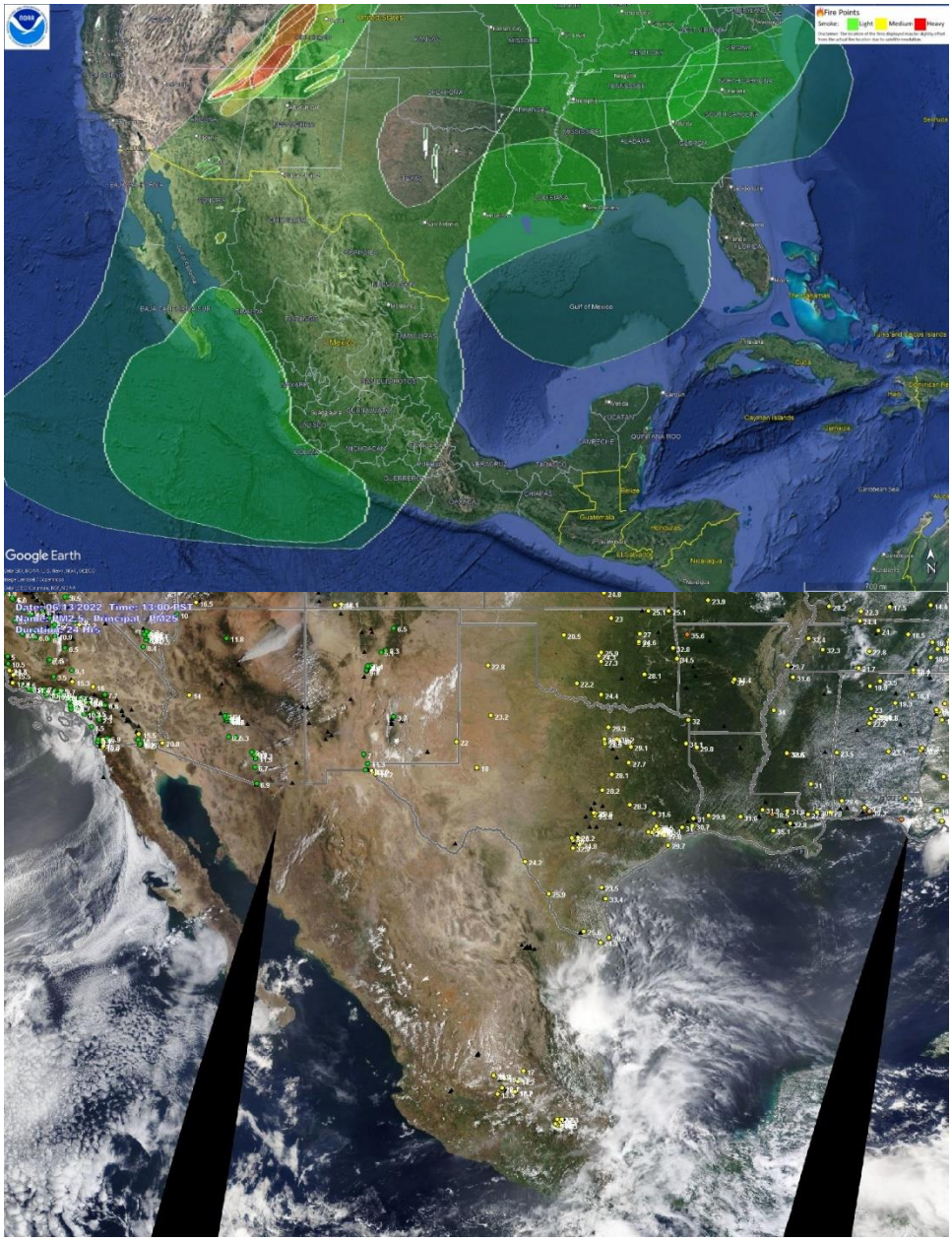


16. 6/13/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

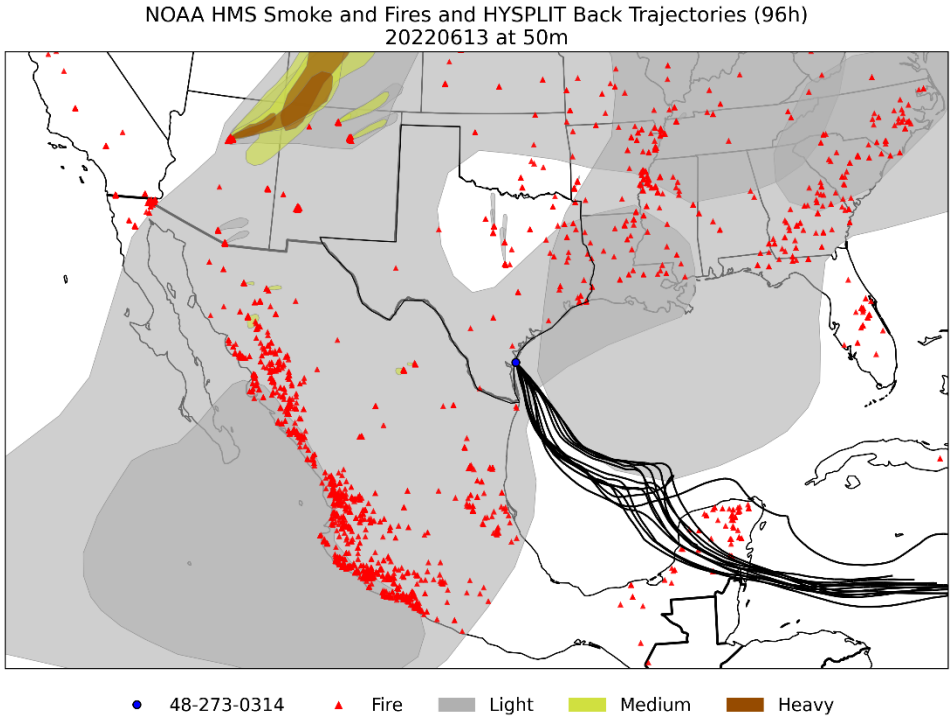
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
6/13/2022	36.4	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

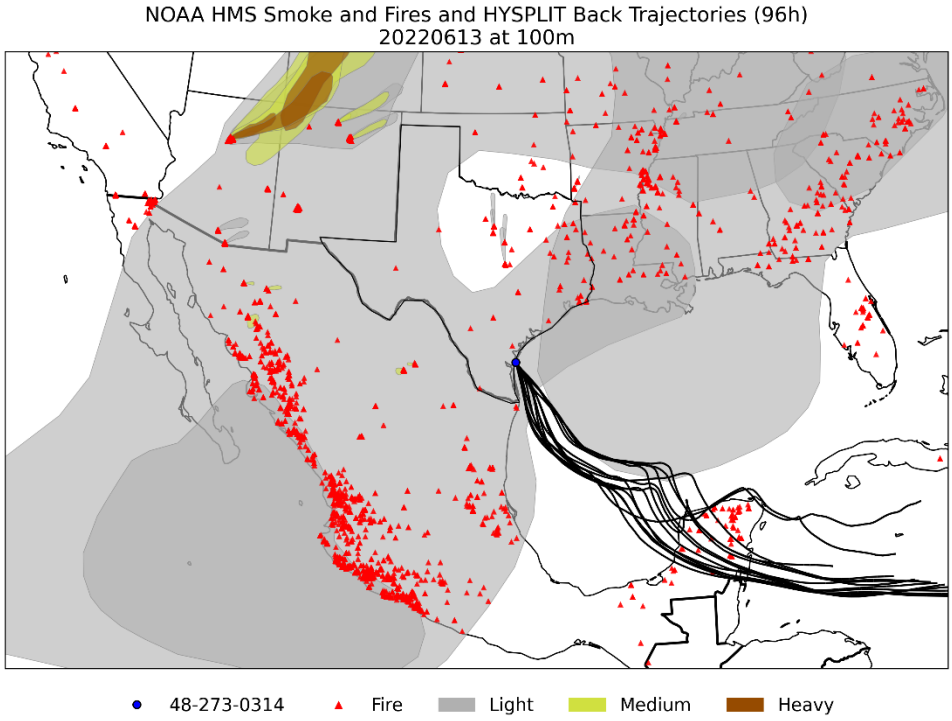


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

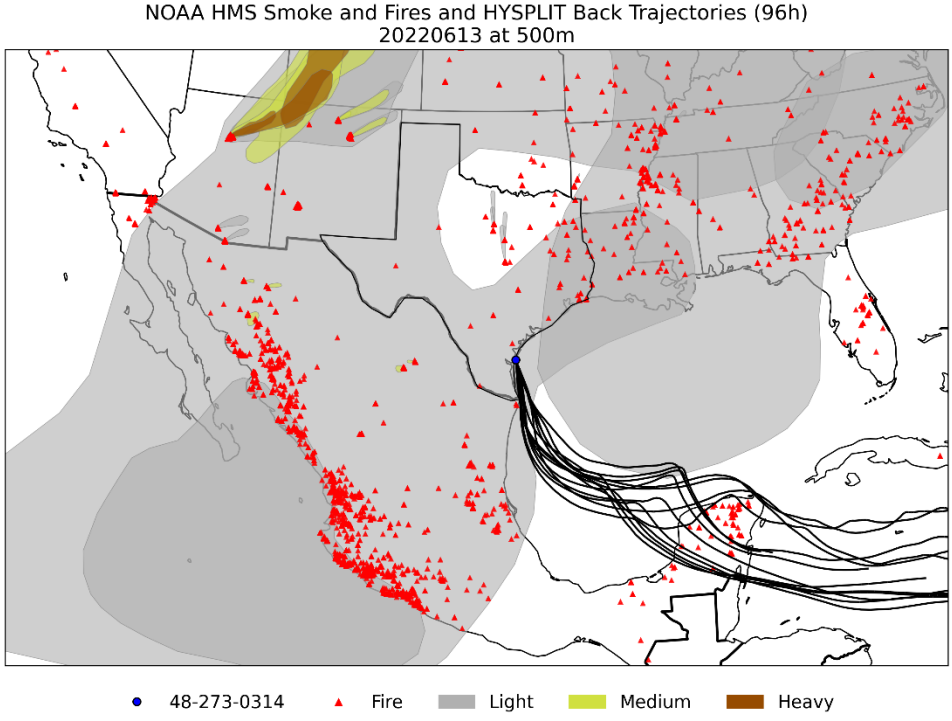
- 50m



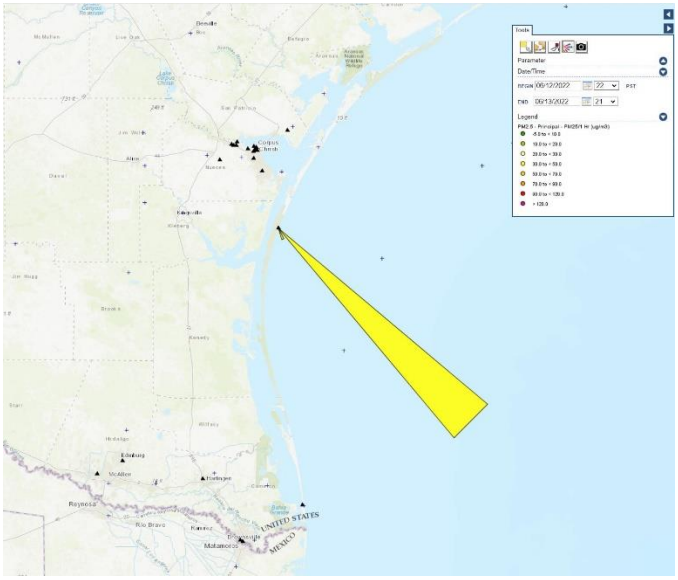
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220613 at 100m
48-273-0314
Fire
Light
Medium
Heavy

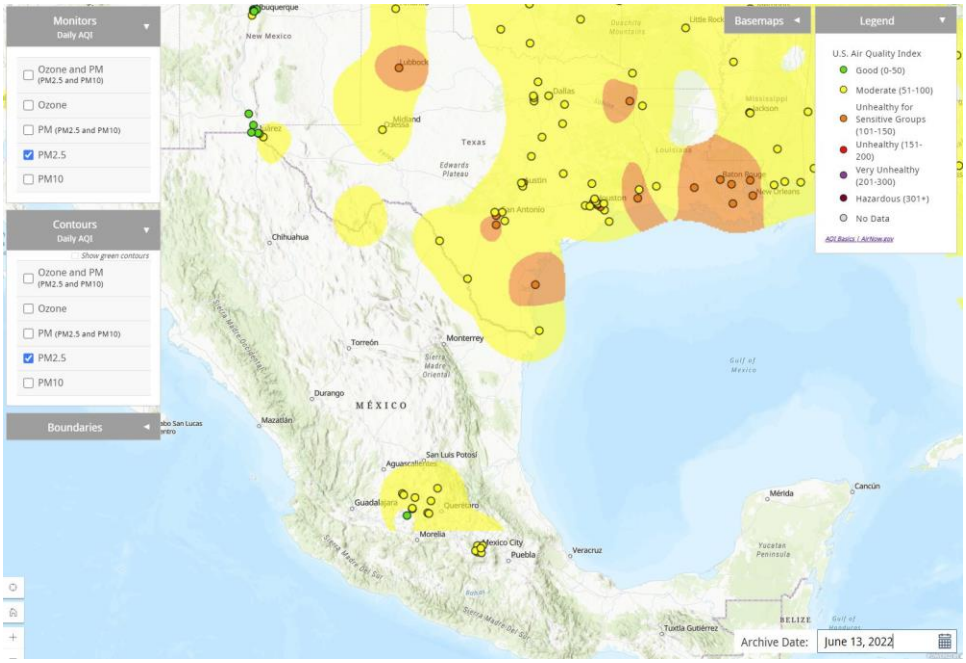
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220613 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 6/13/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 6/13/2022.

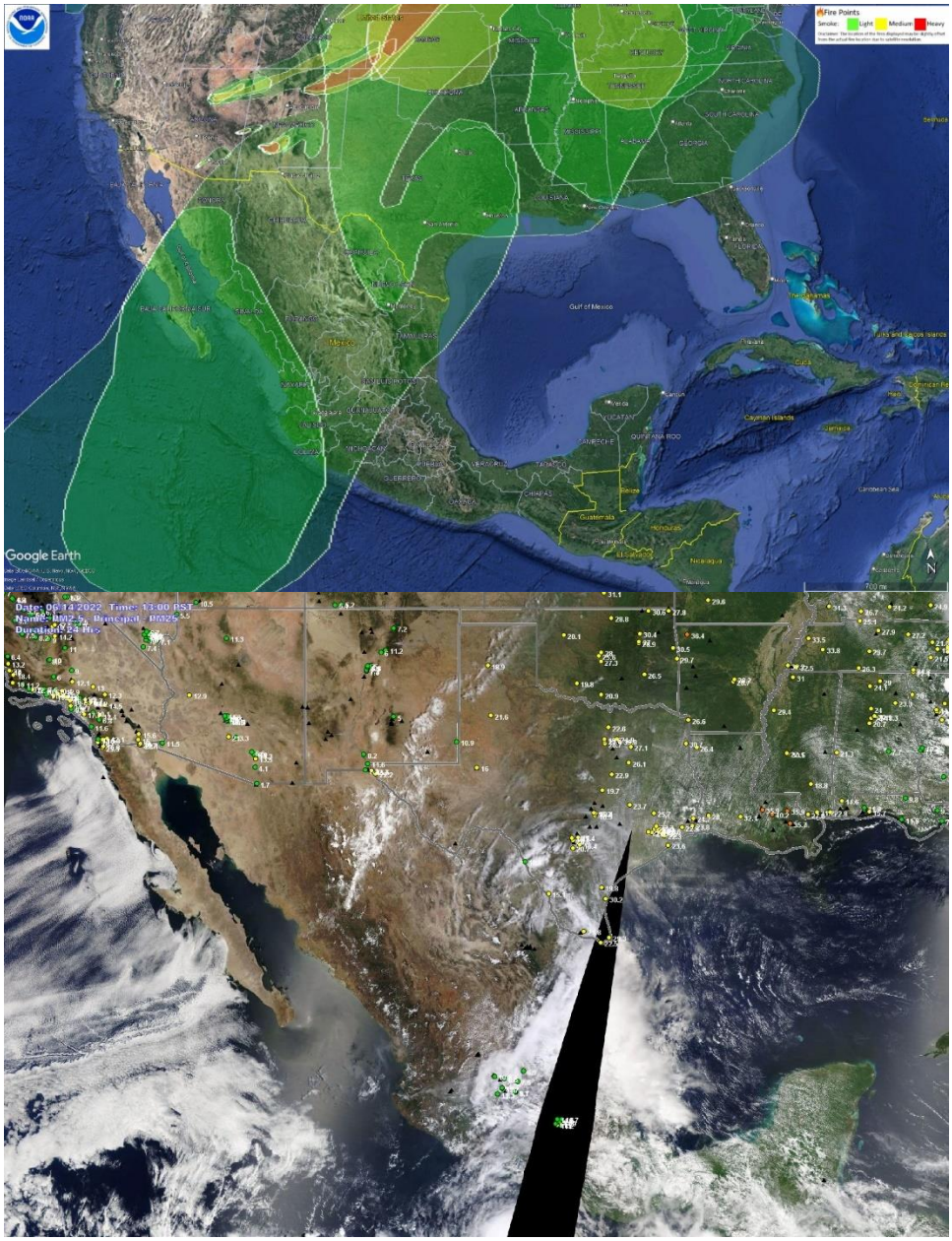


17. 6/14/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

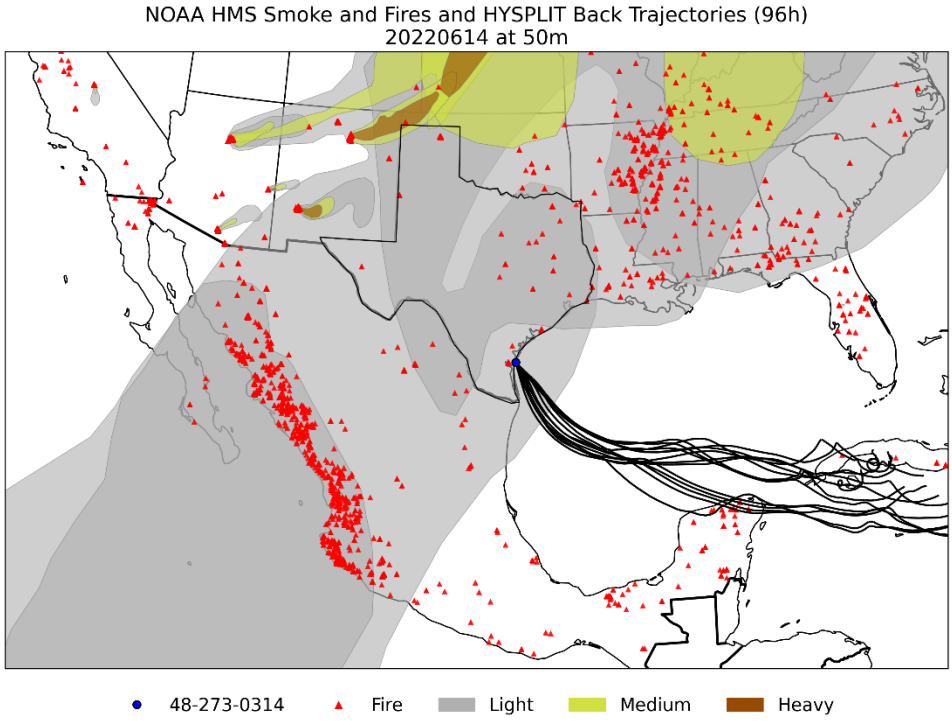
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
6/14/2022	29.8	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

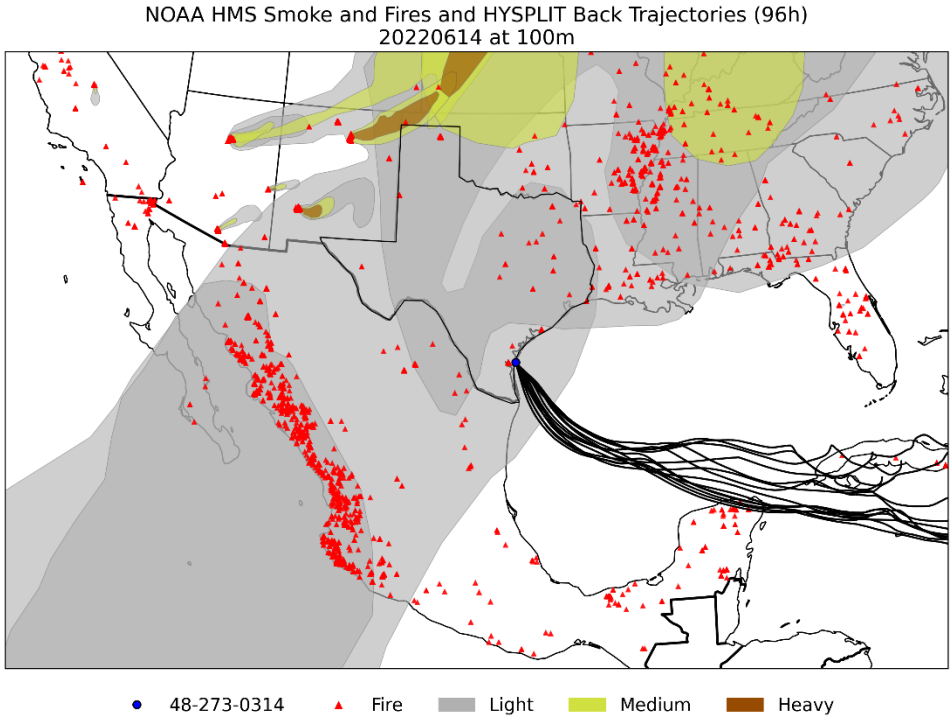


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

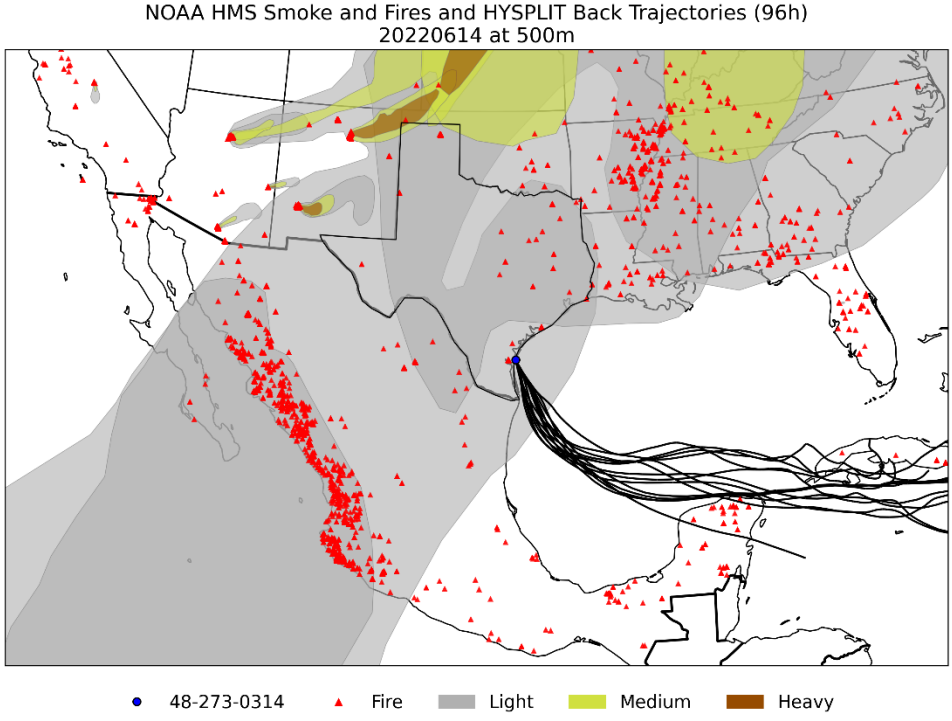
- 50m



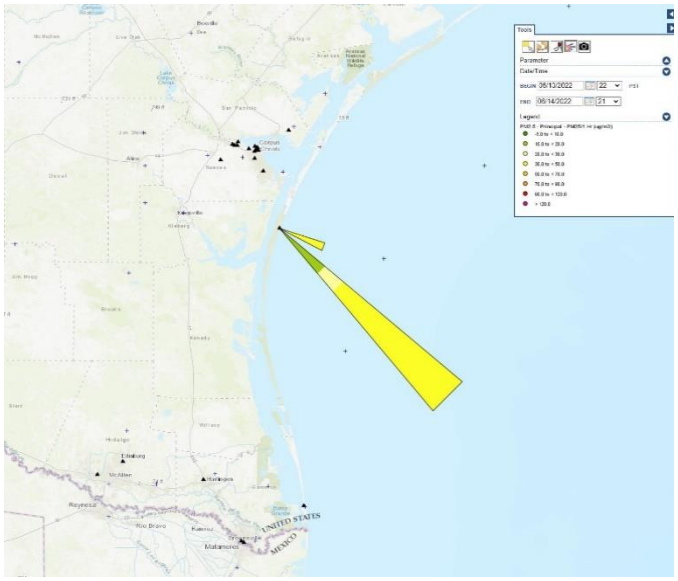
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220614 at 100m
48-273-0314
Fire
Light
Medium
Heavy

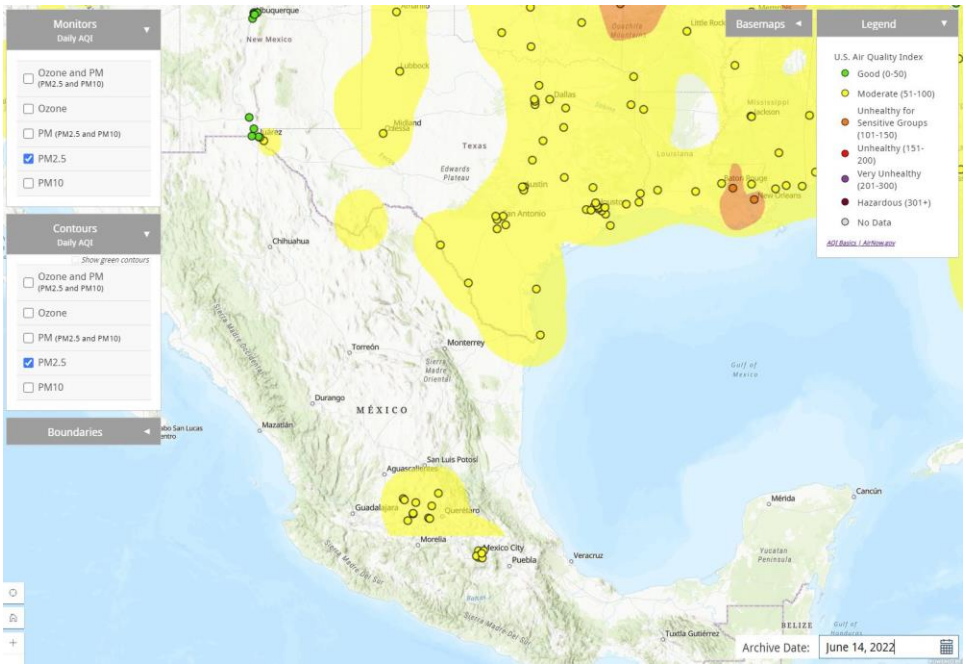
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220614 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 6/14/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 6/14/2022.

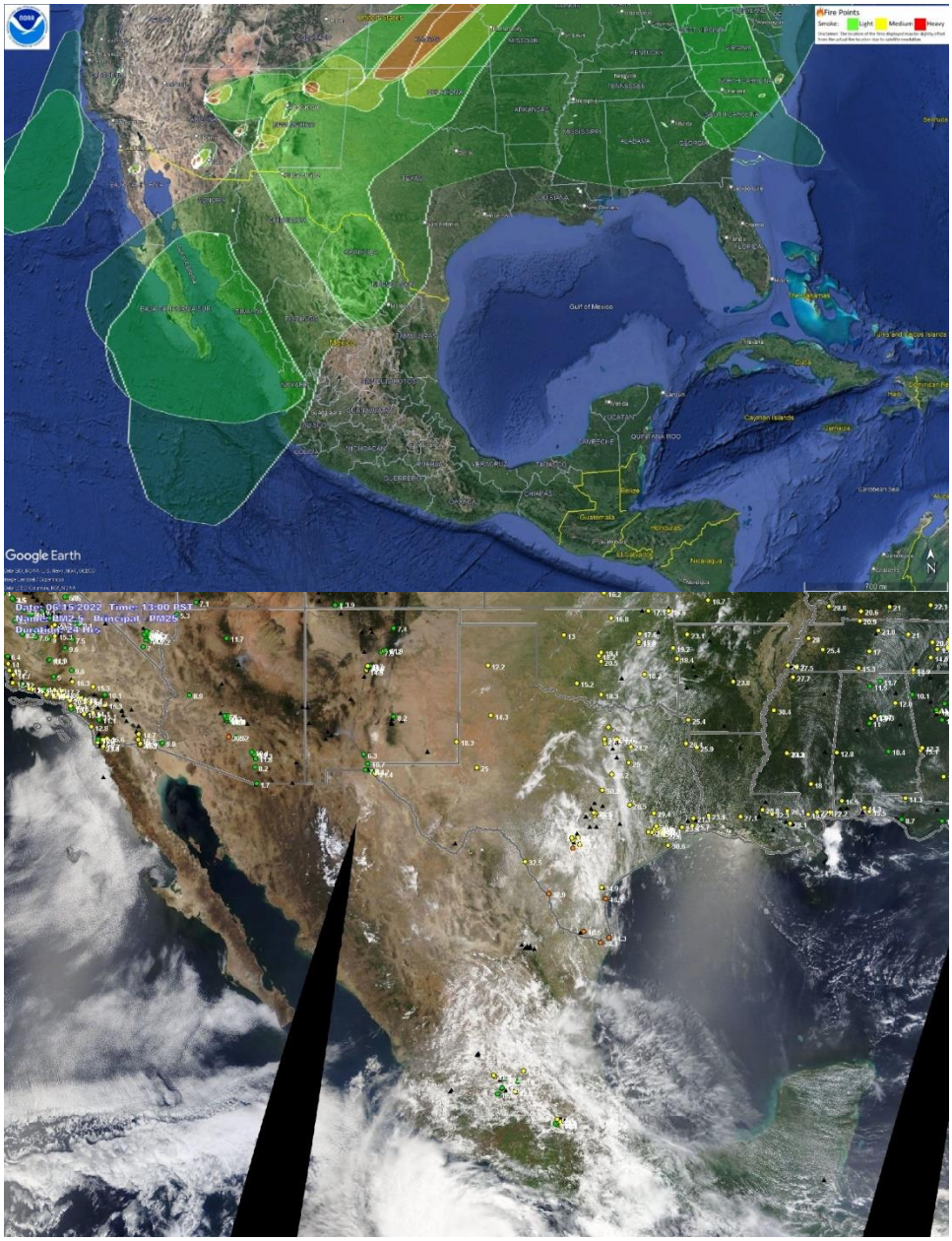


18. 6/15/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

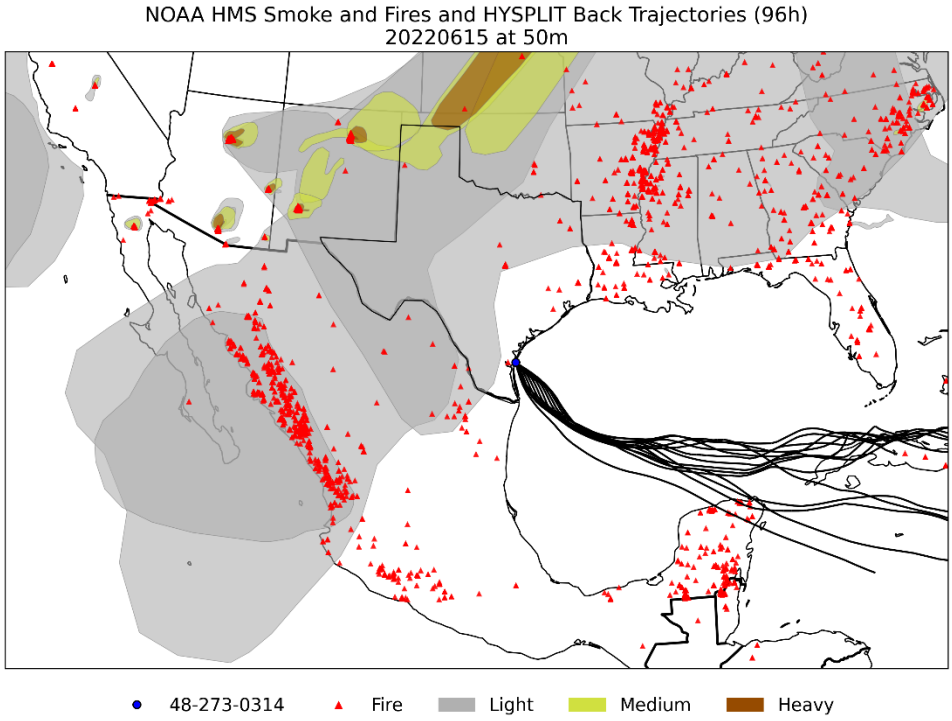
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
6/15/2022	38.5	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

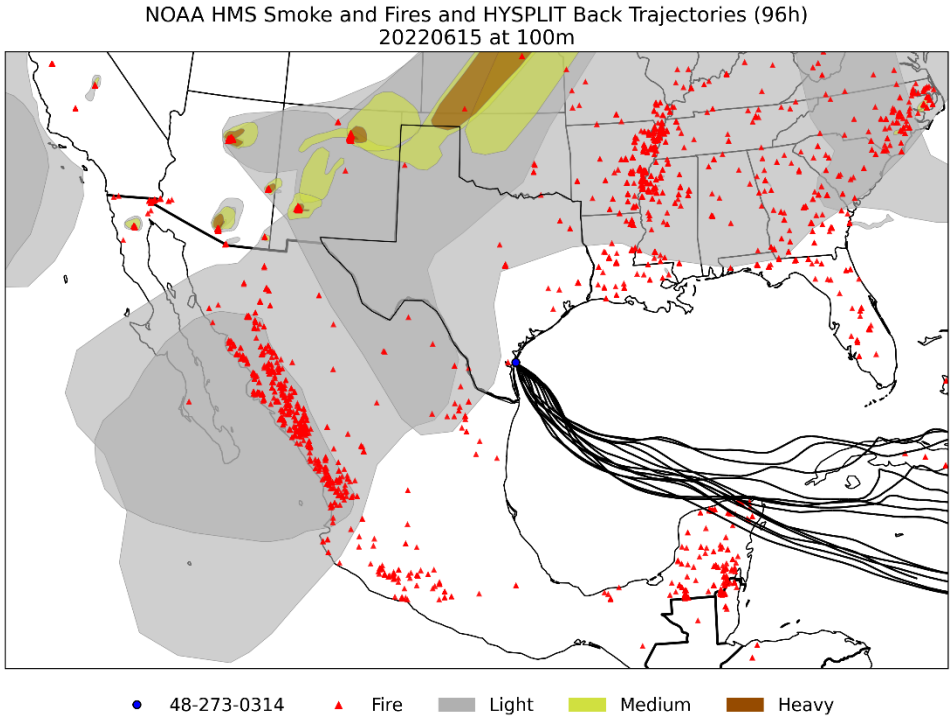


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

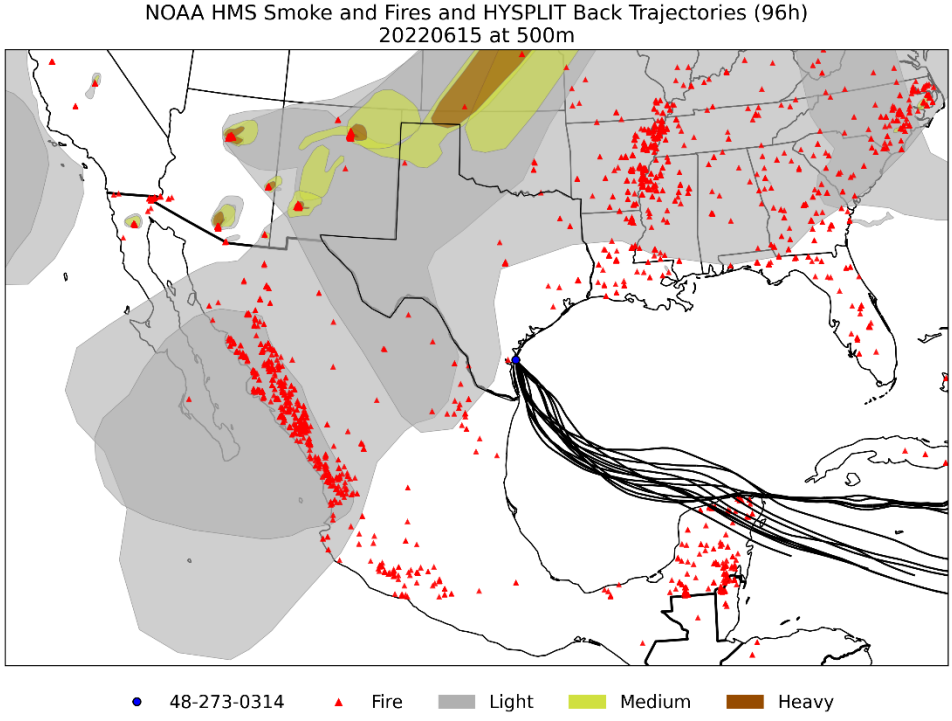
- 50m



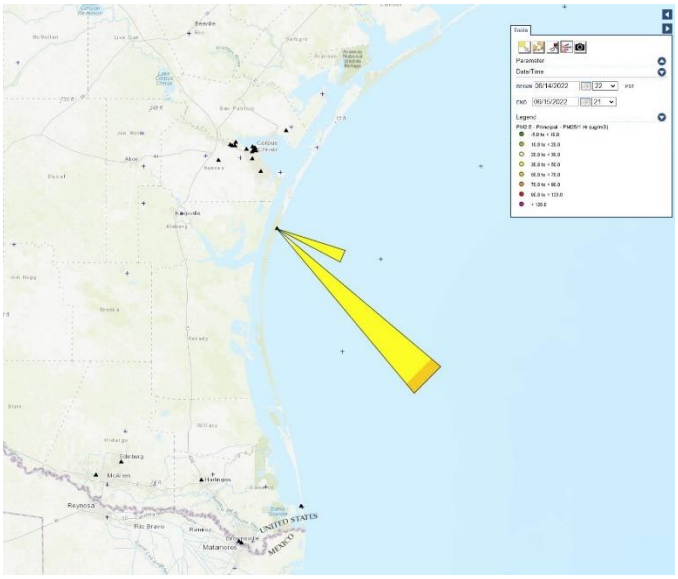
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220615 at 100m
48-273-0314
Fire
Light
Medium
Heavy

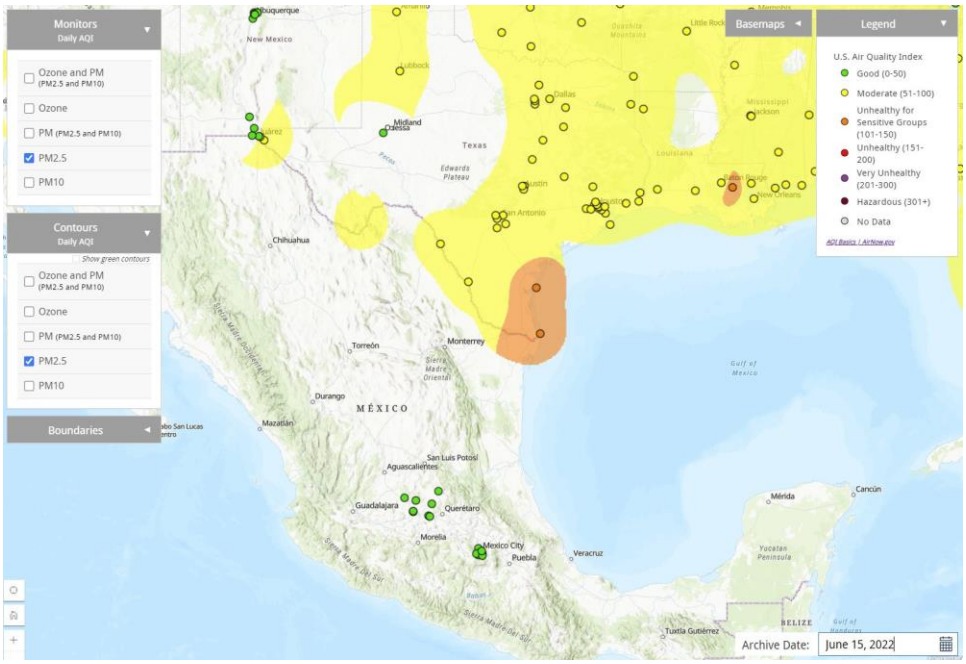
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220615 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 6/15/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 6/15/2022.

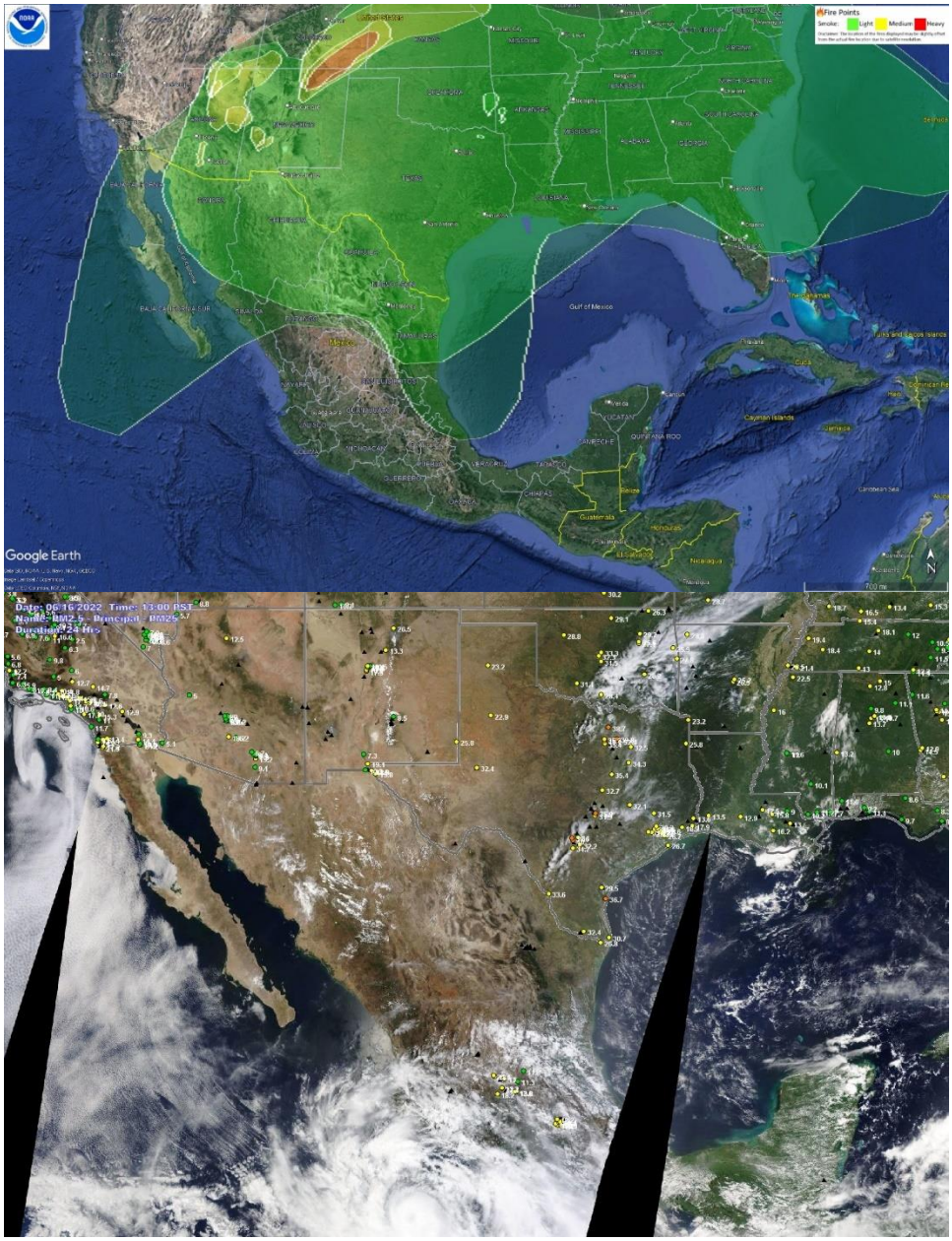


19. 6/16/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

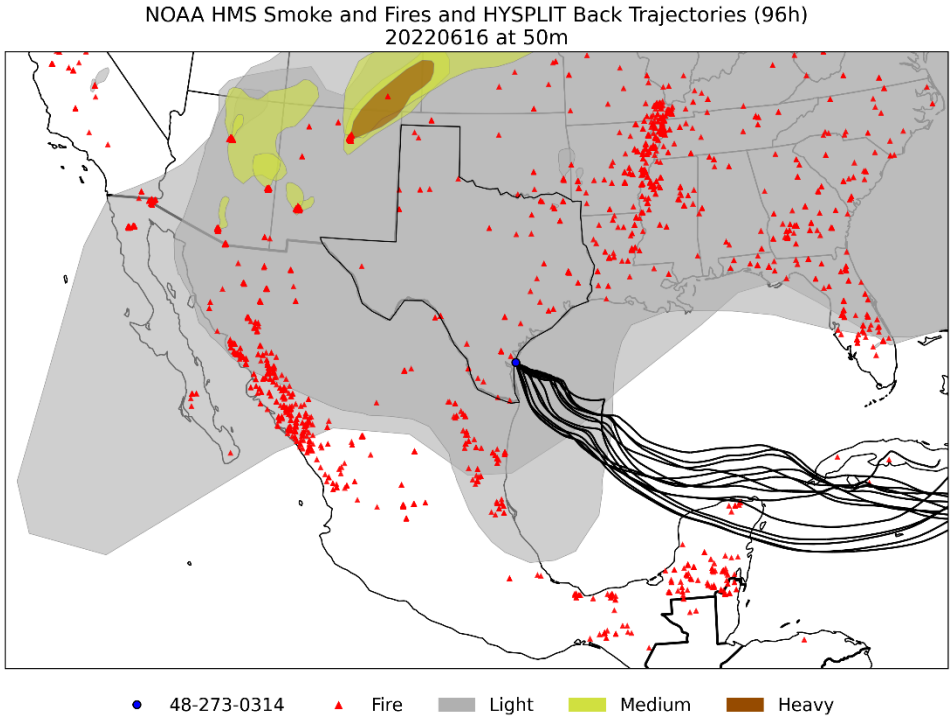
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
6/16/2022	46.0	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

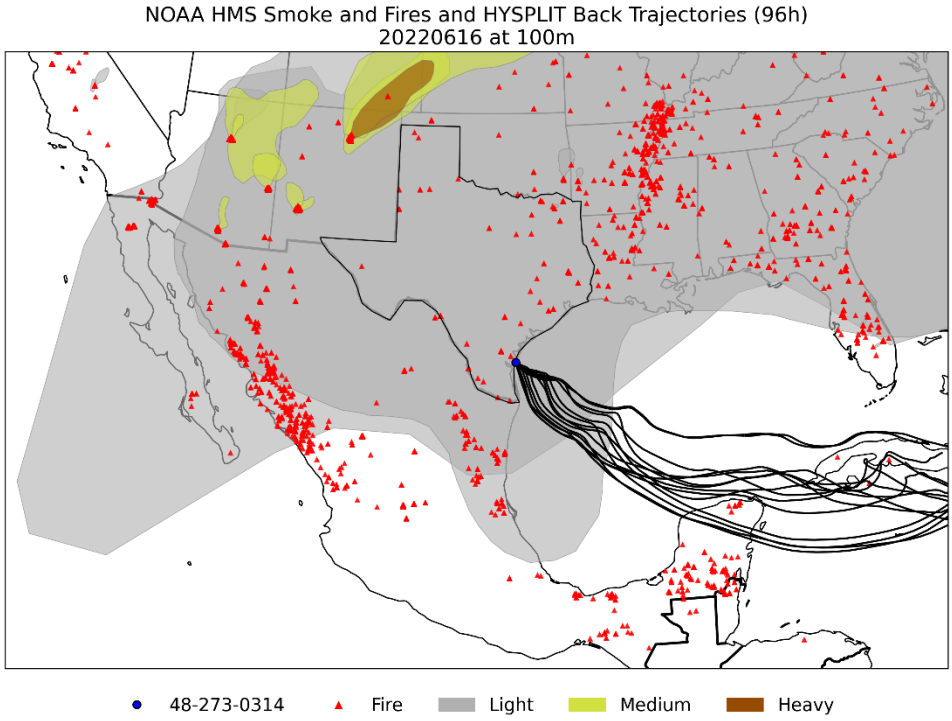


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

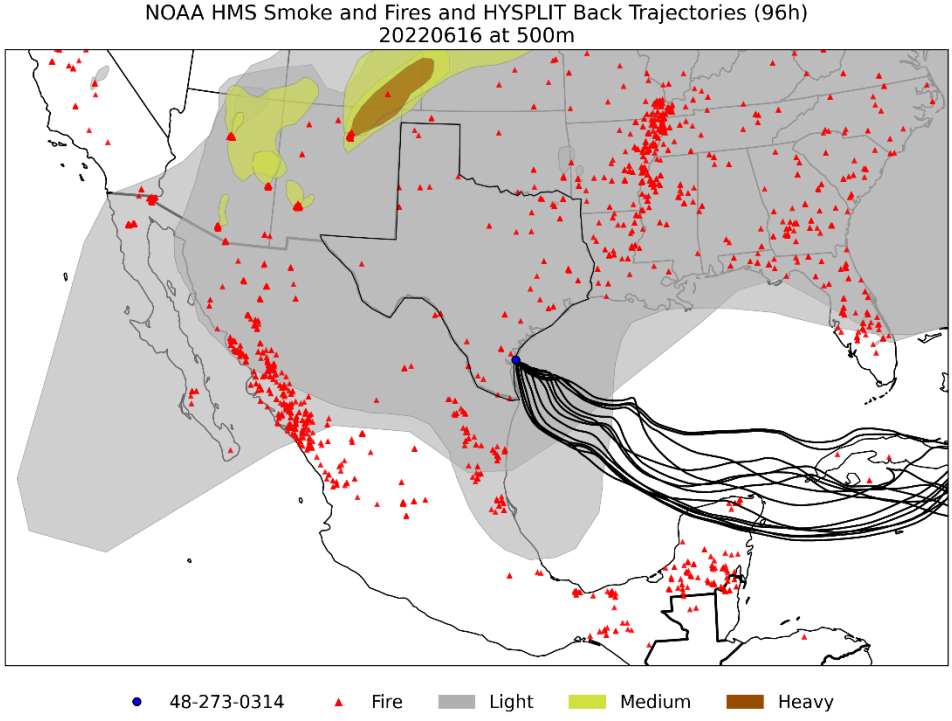
- 50m



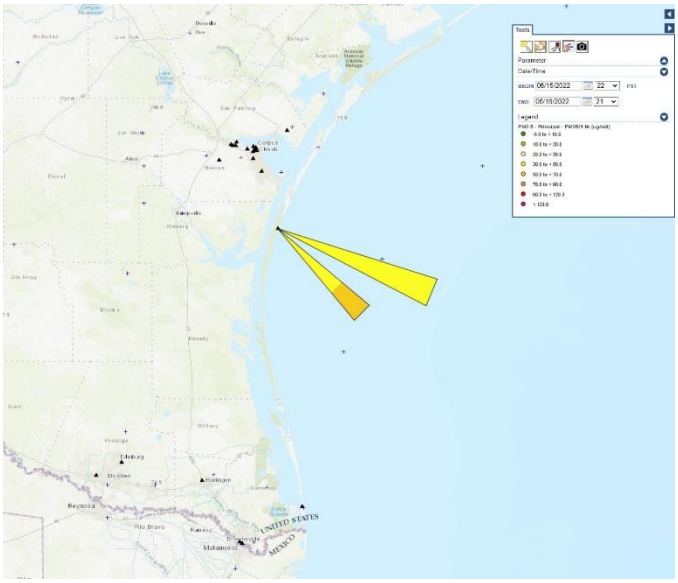
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220616 at 100m
48-273-0314
Fire
Light
Medium
Heavy

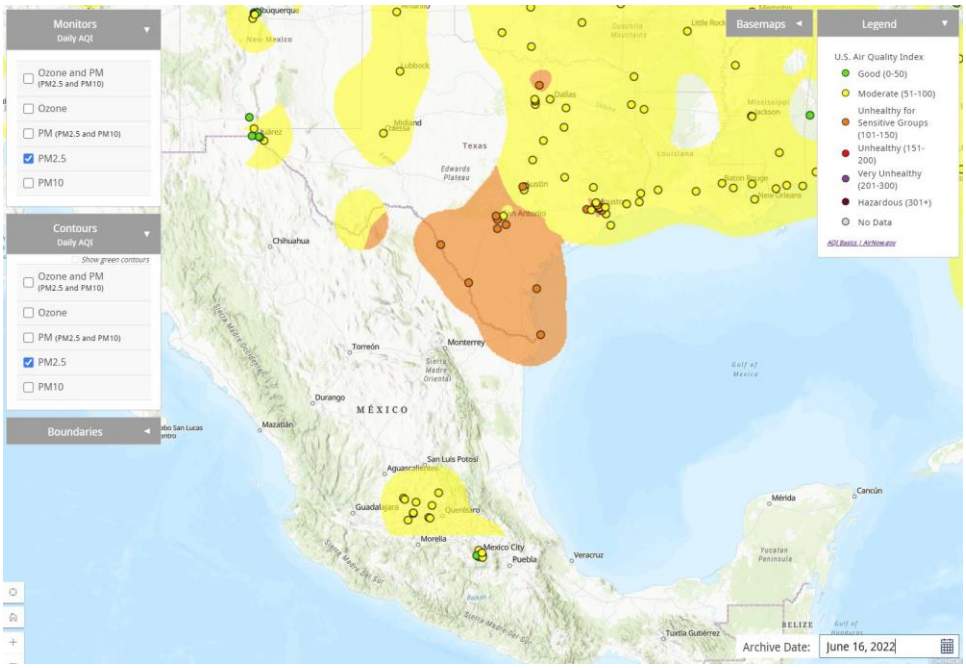
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220616 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 6/16/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 6/16/2022.

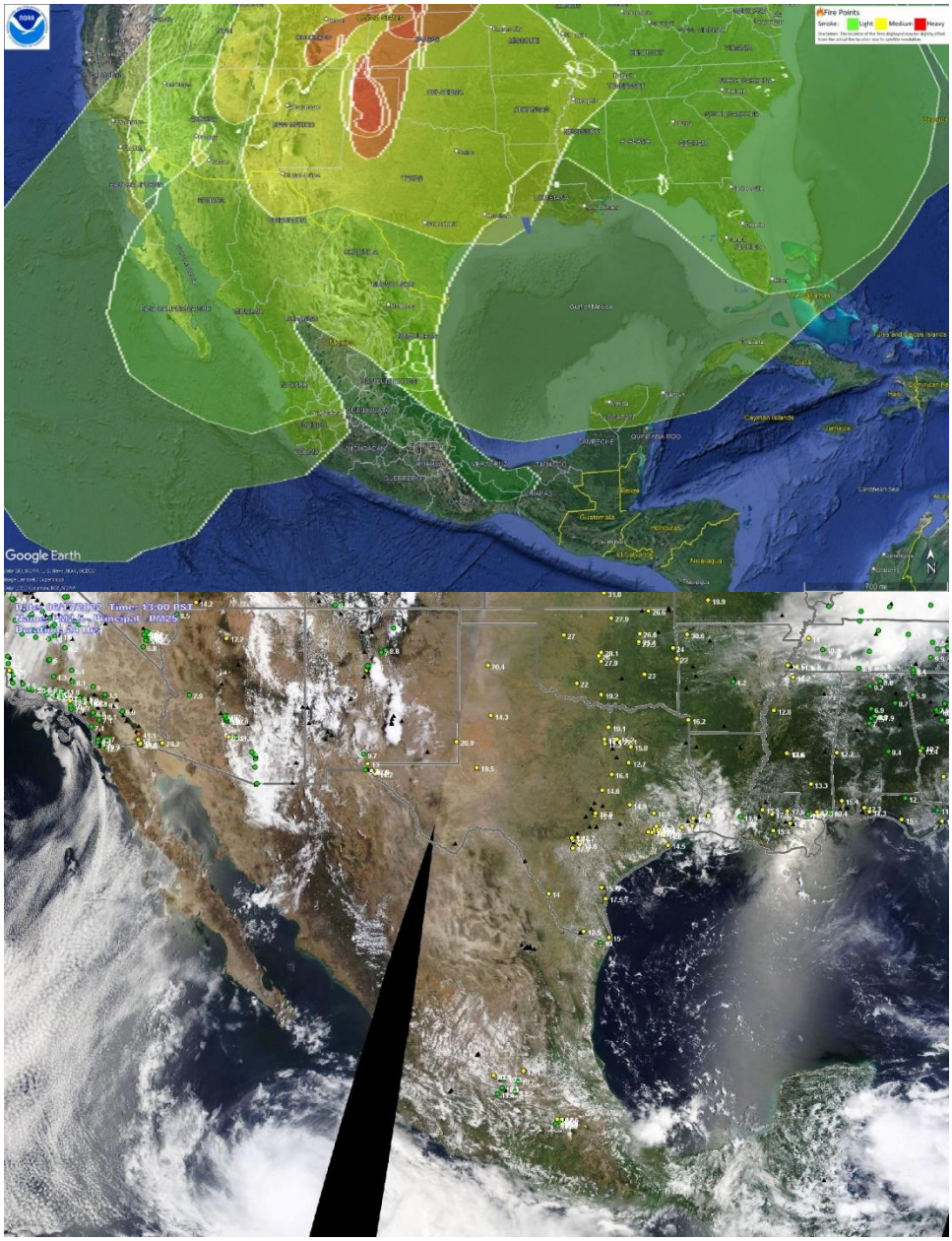


20. 6/17/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

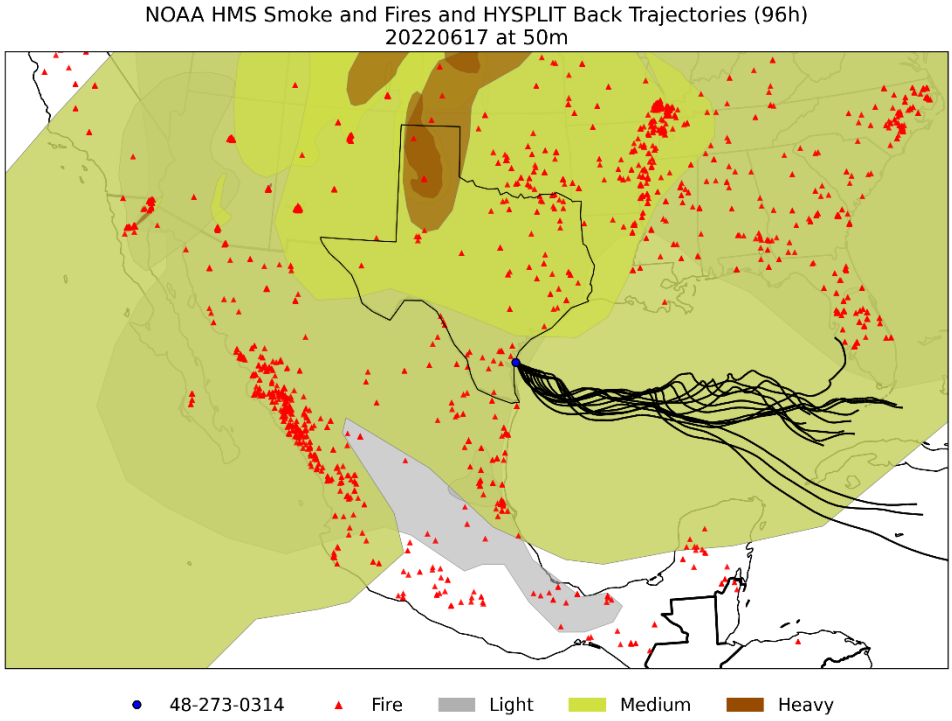
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
6/17/2022	28.8	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

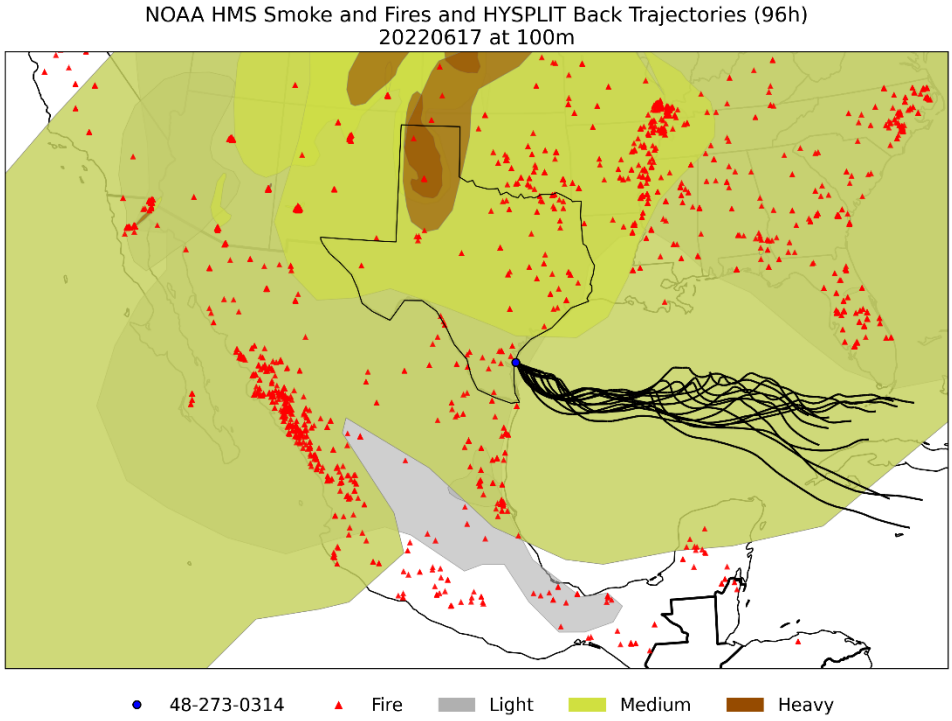


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

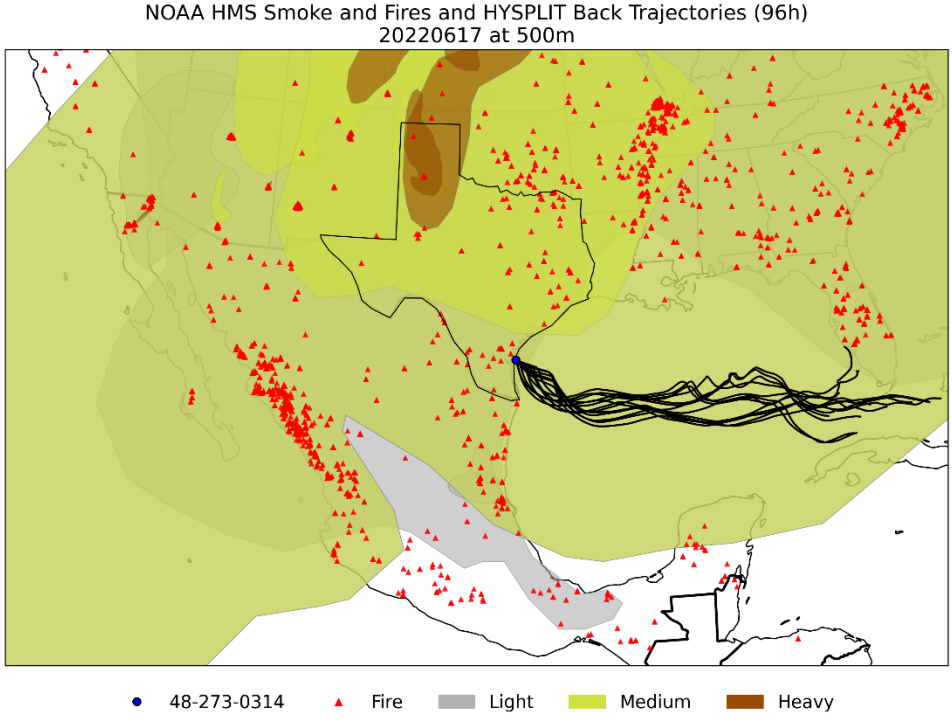
- 50m



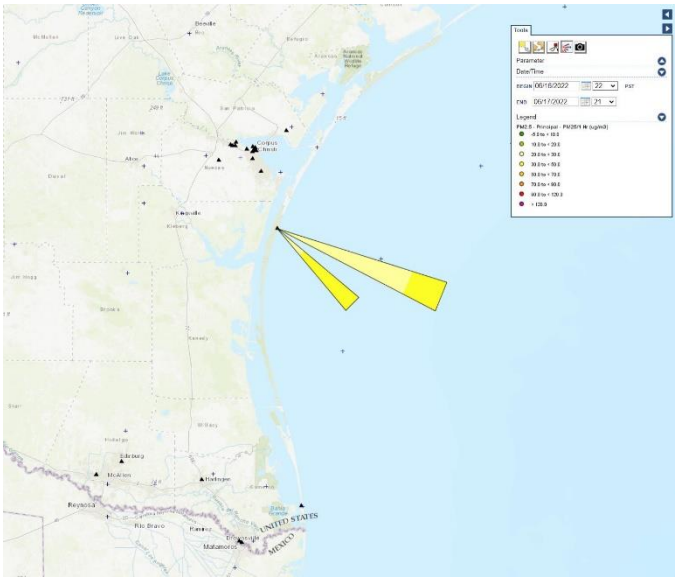
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220617 at 100m
48-273-0314
Fire
Light
Medium
Heavy

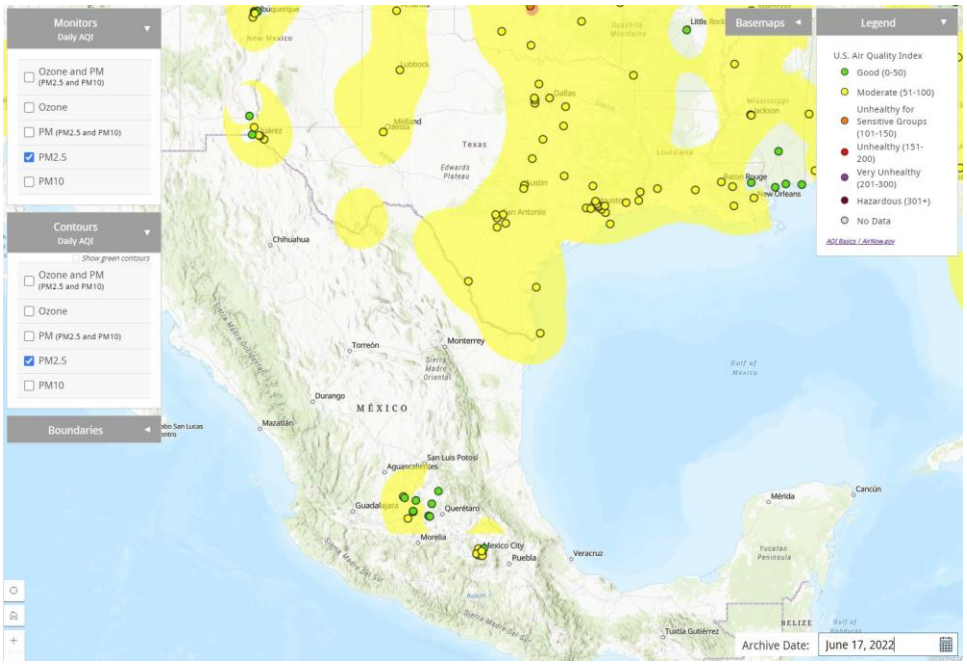
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220617 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 6/17/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 6/17/2022.

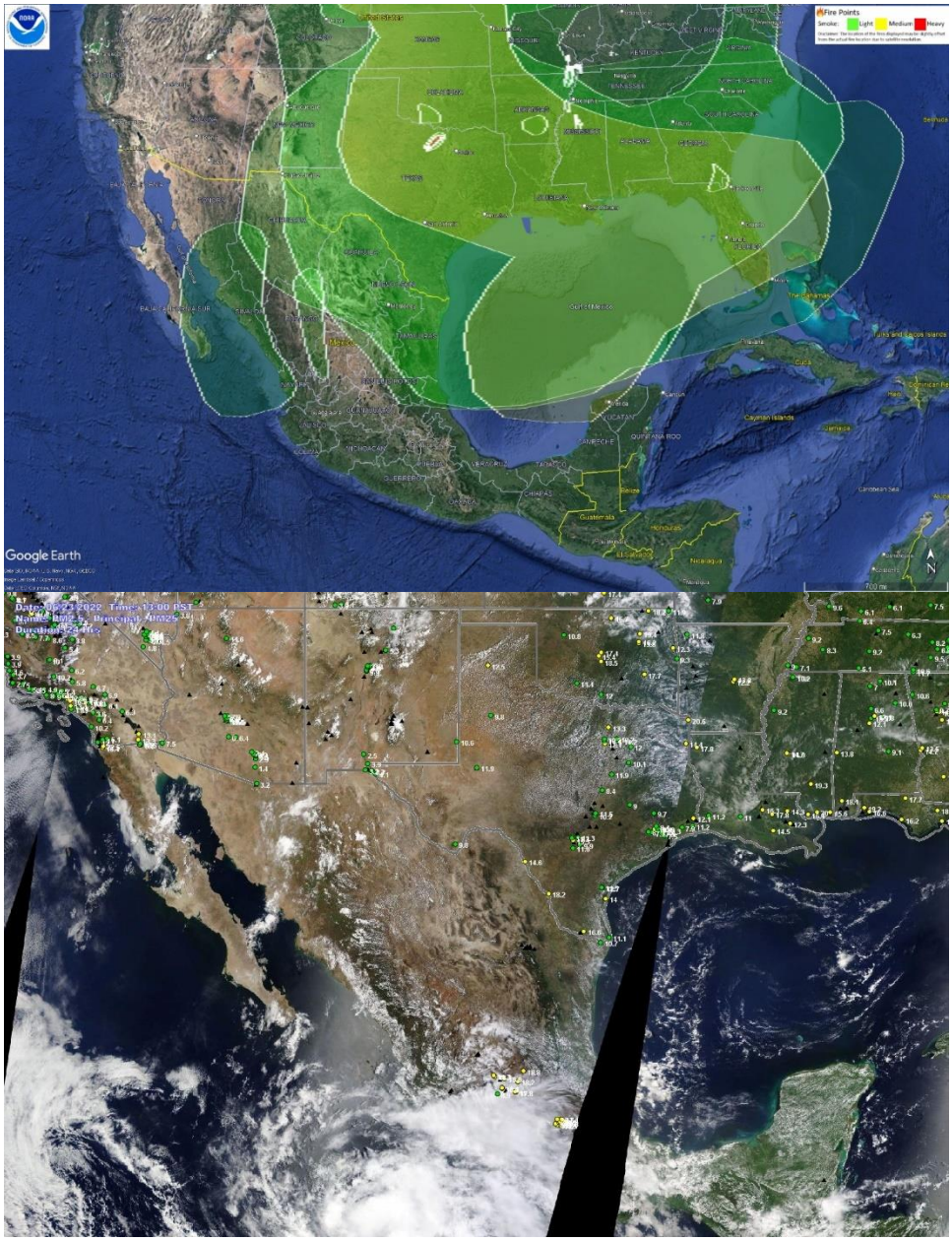


21. 6/23/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

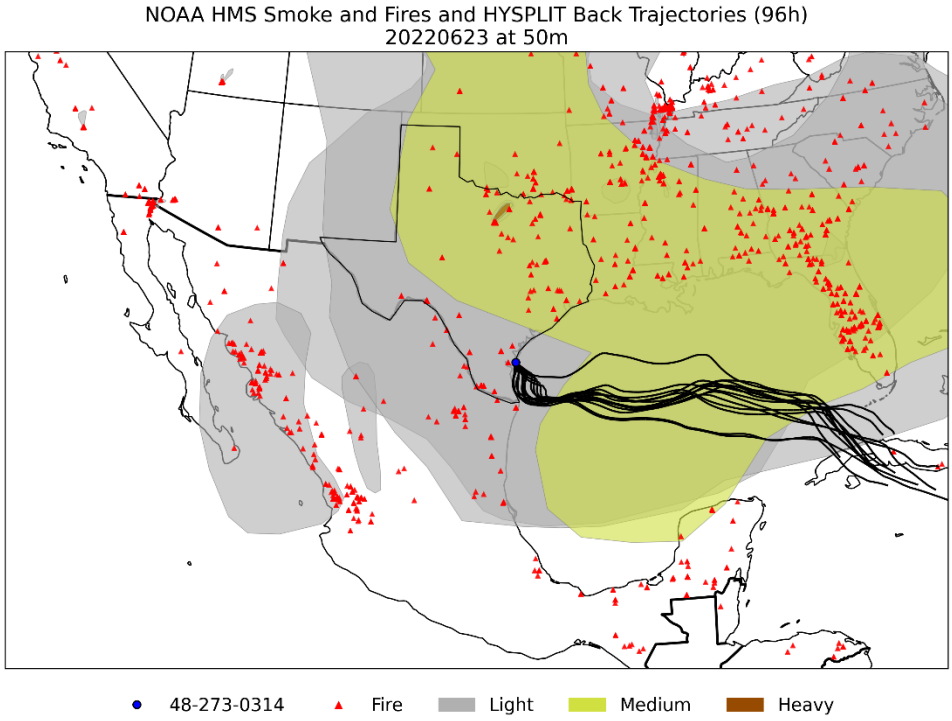
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
6/23/2022	18.5	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

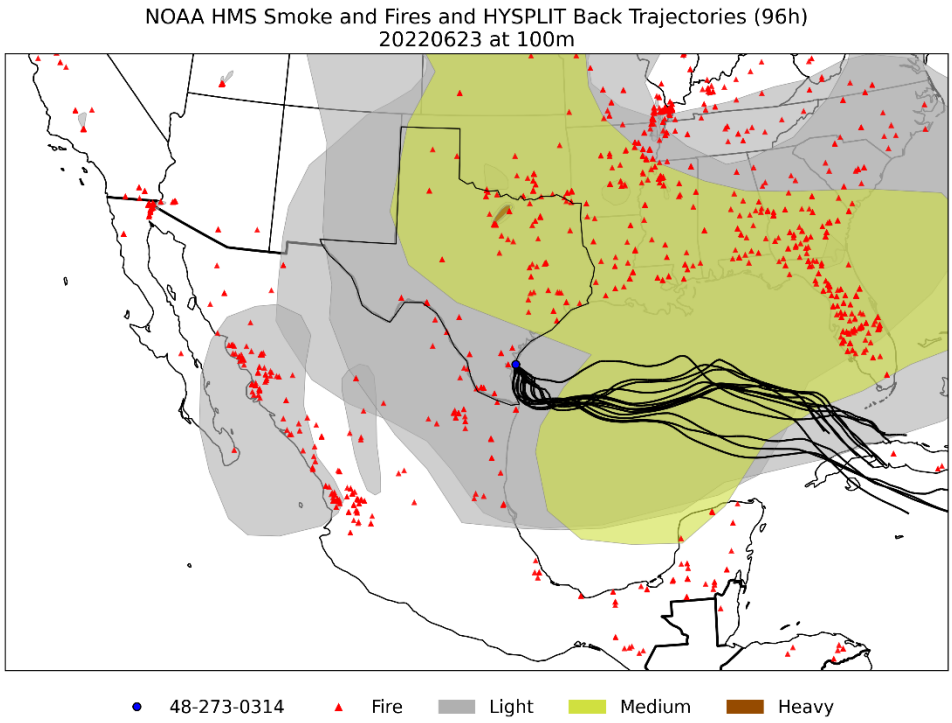


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

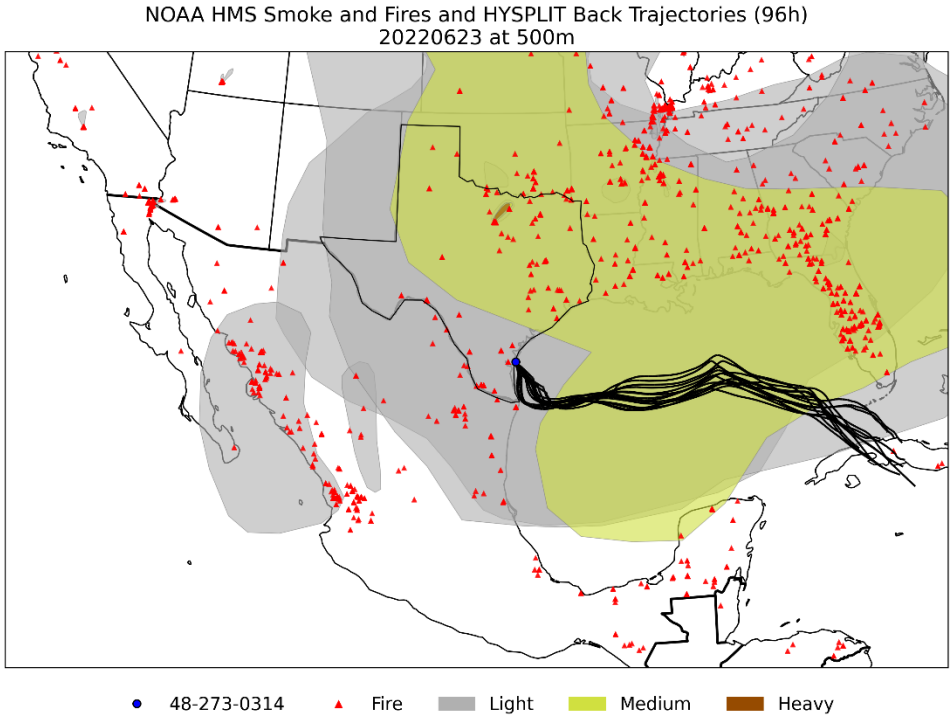
- 50m



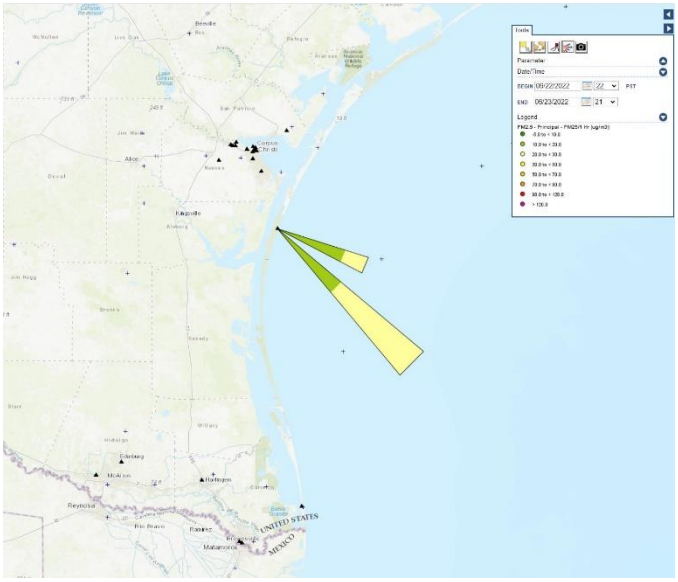
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220623 at 100m
48-273-0314
Fire
Light
Medium
Heavy

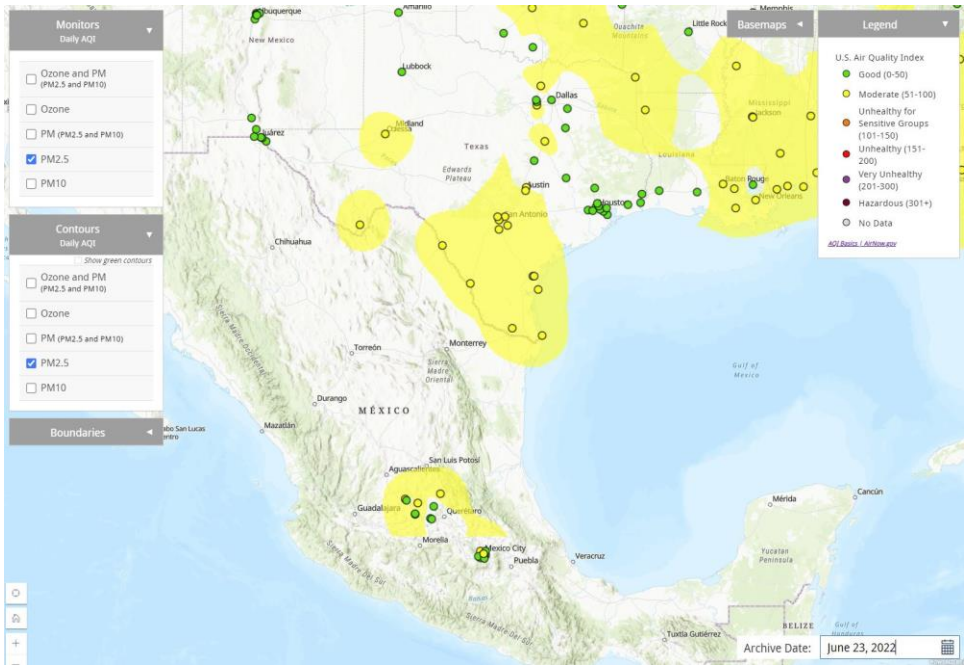
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220623 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 6/23/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 6/23/2022.

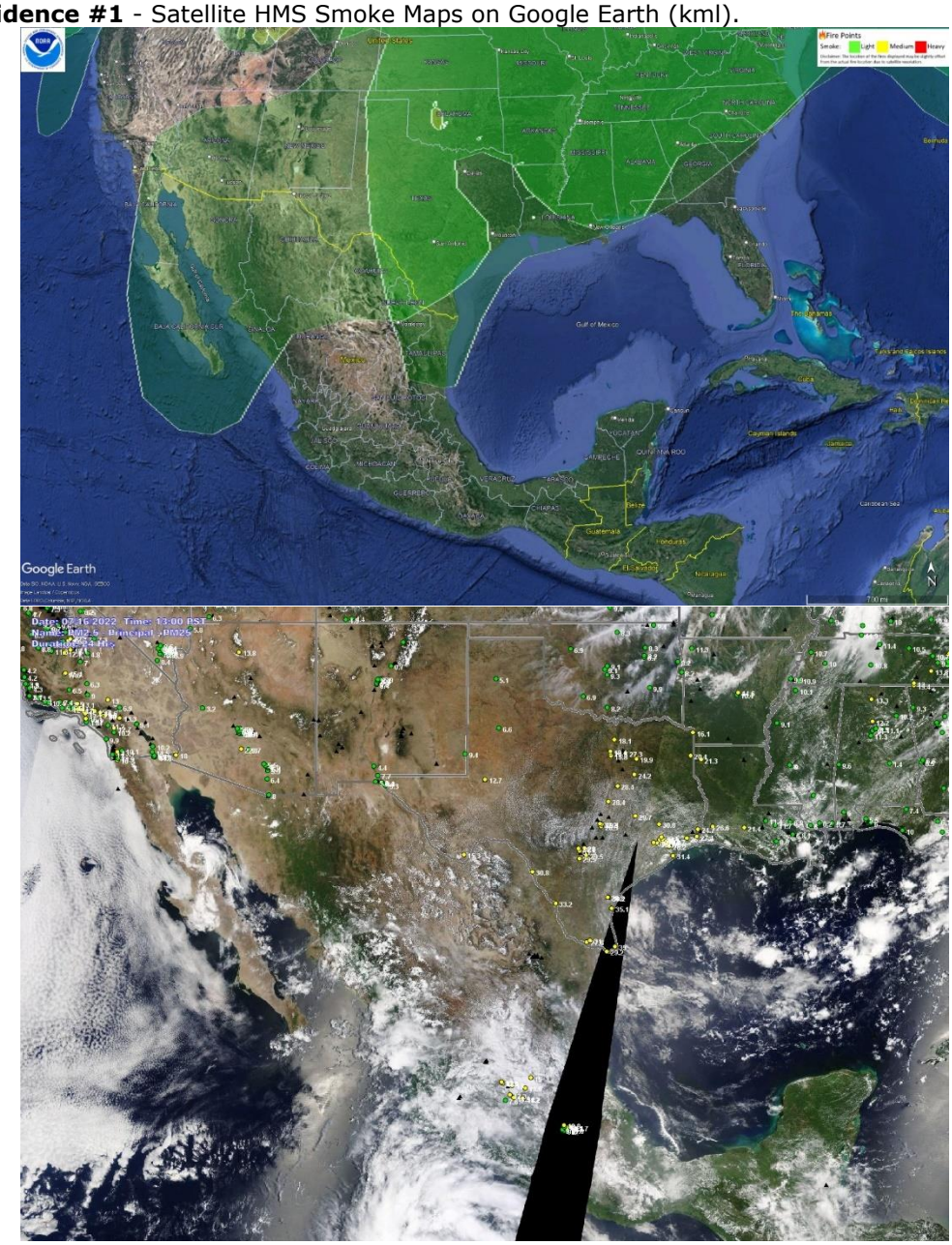


22. 7/16/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

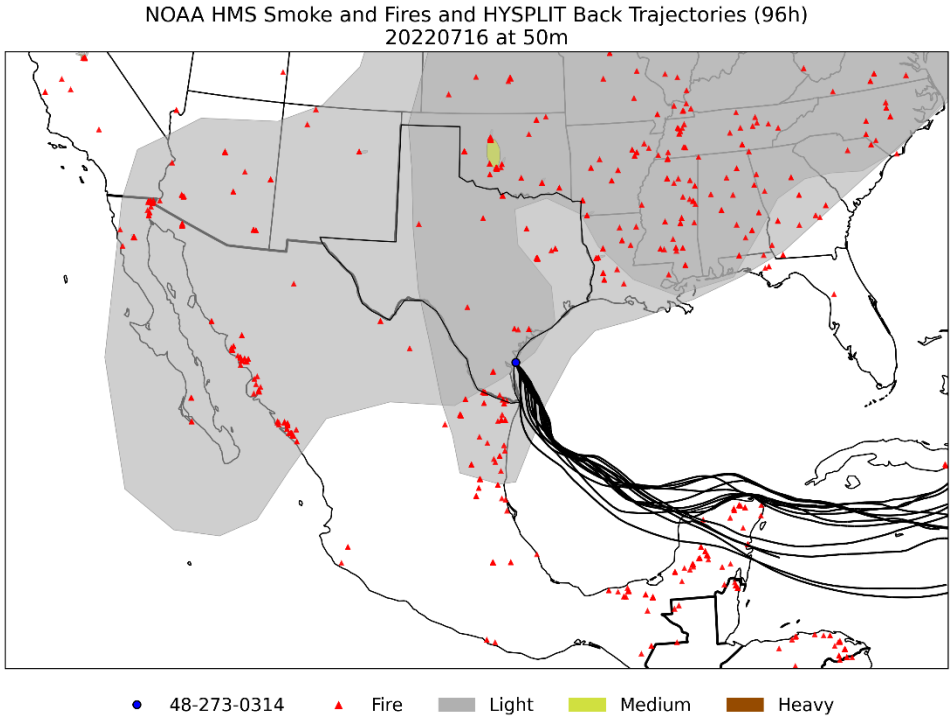
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/16/2022	27.3	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

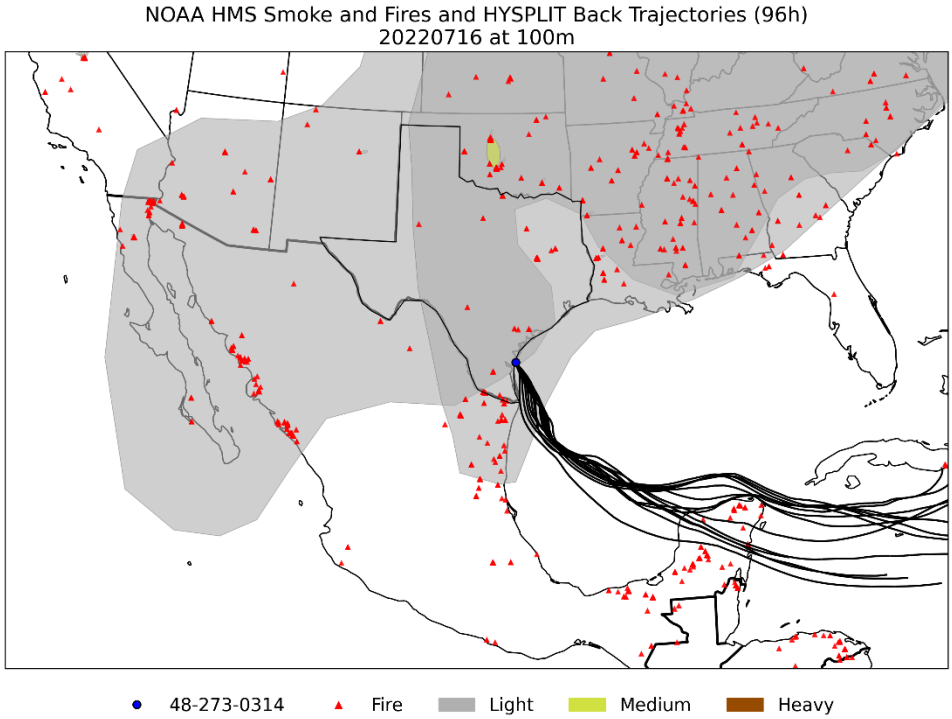


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

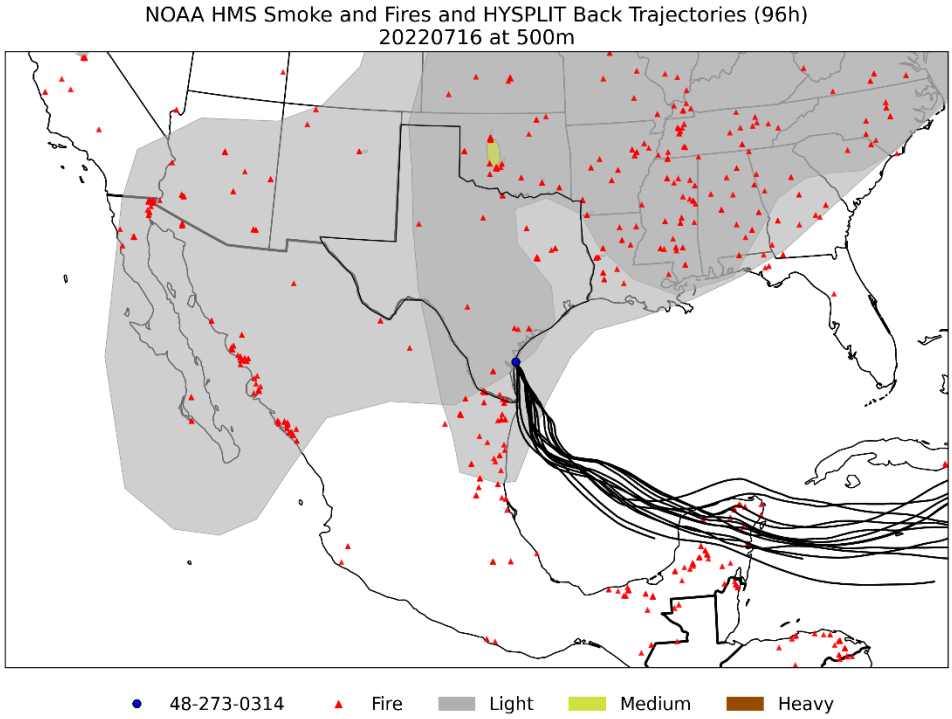
- 50m



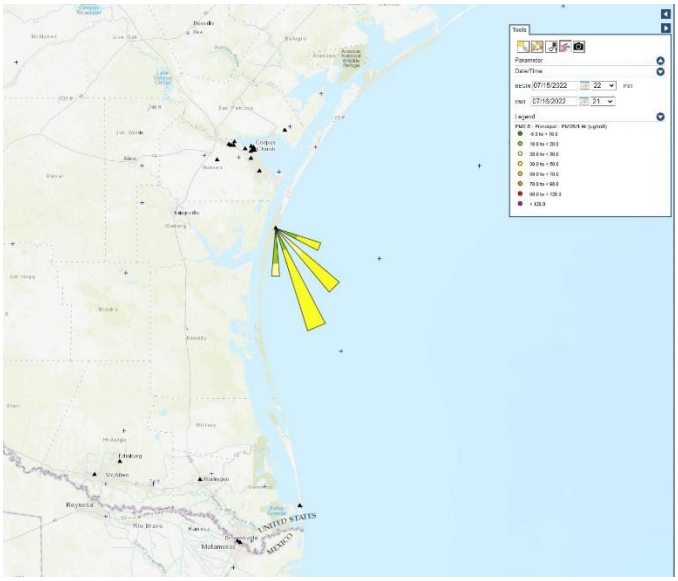
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220716 at 100m
48-273-0314
Fire
Light
Medium
Heavy

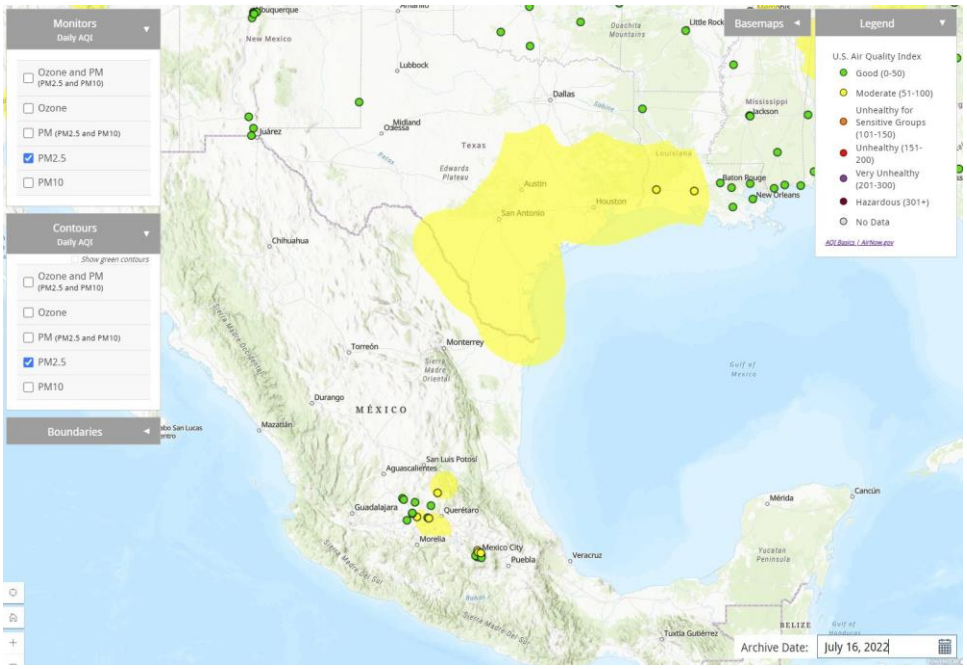
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220716 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 7/16/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/16/2022.

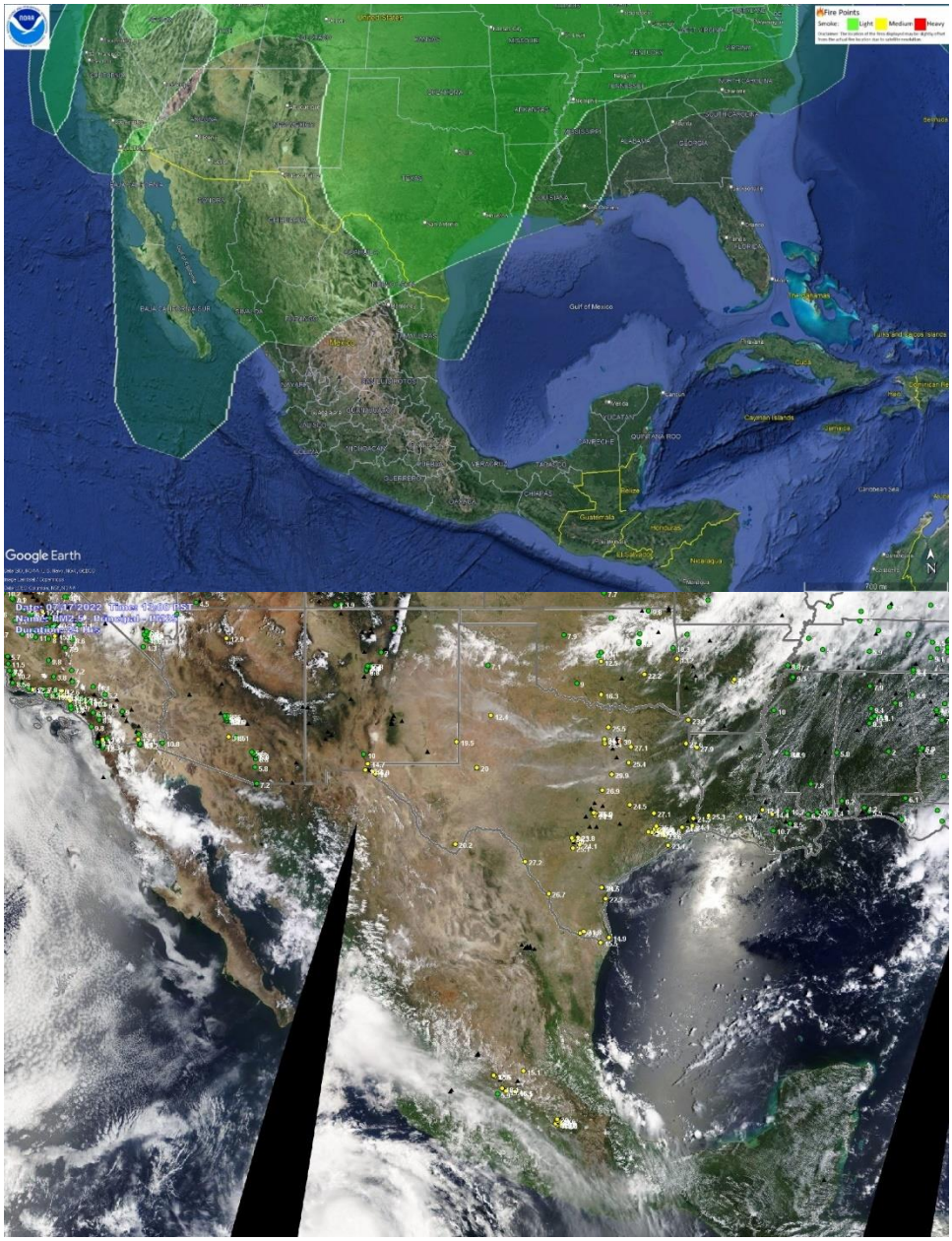


23. 7/17/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

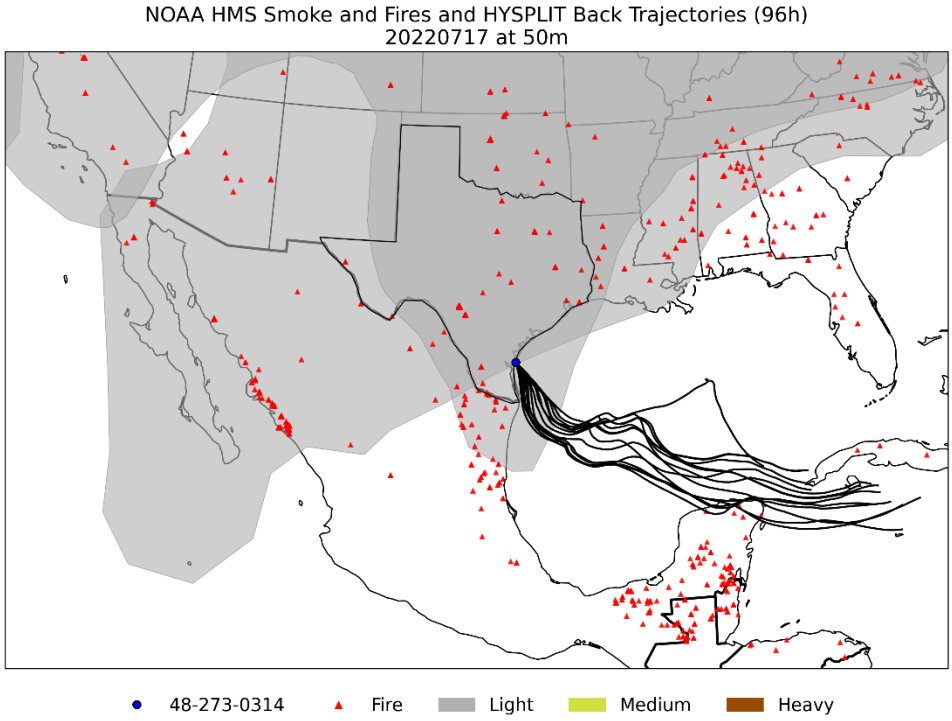
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/17/2022	34.6	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

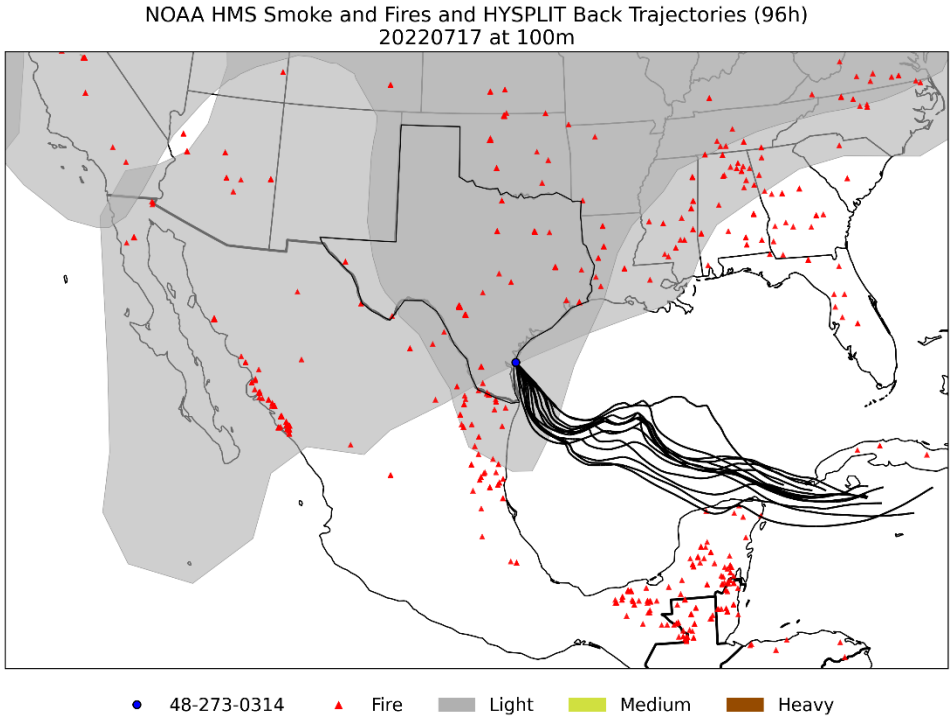


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

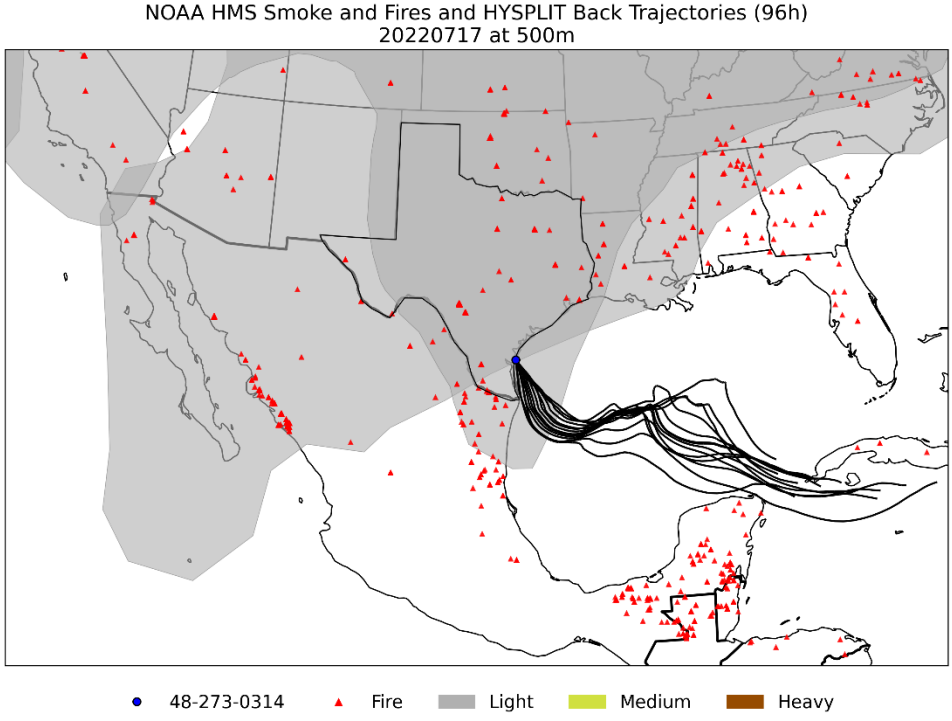
- 50m



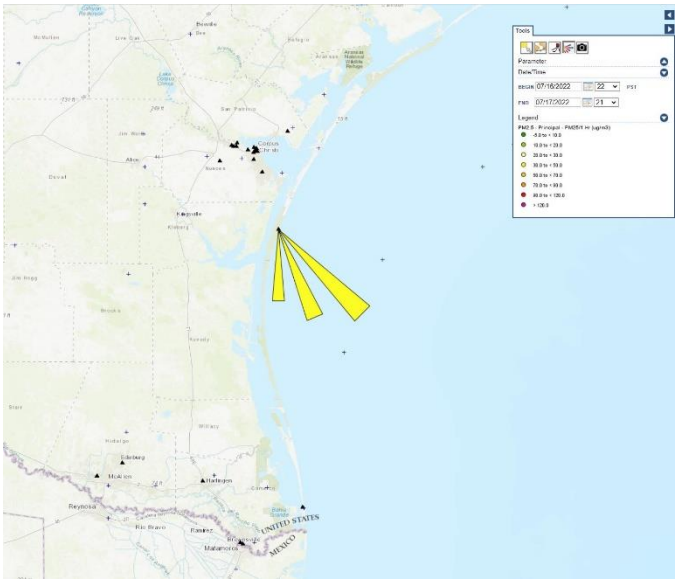
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220717 at 100m
48-273-0314
Fire
Light
Medium
Heavy

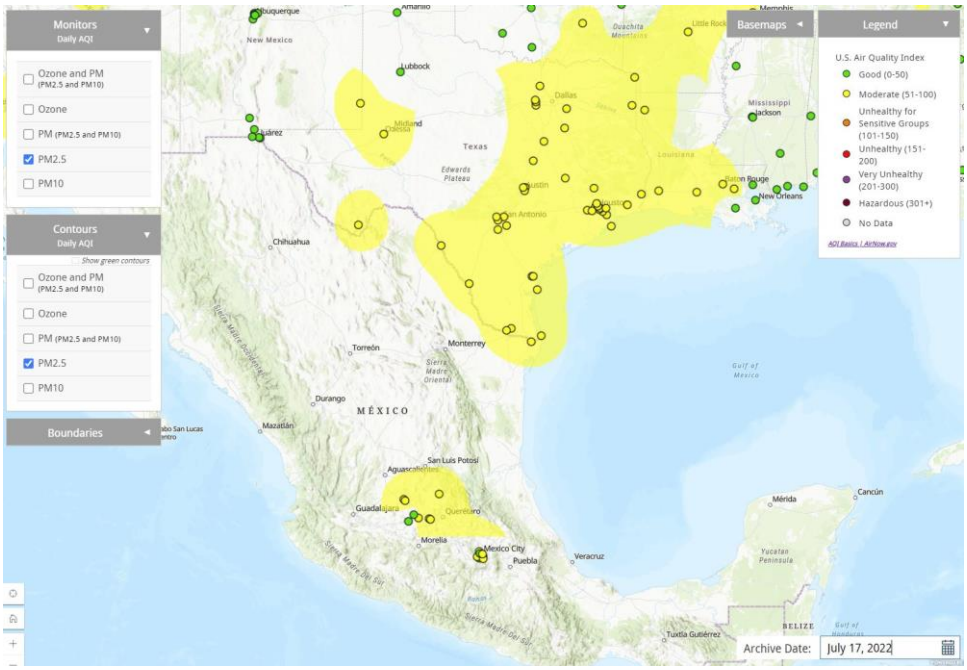
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220717 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 7/17/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/17/2022.

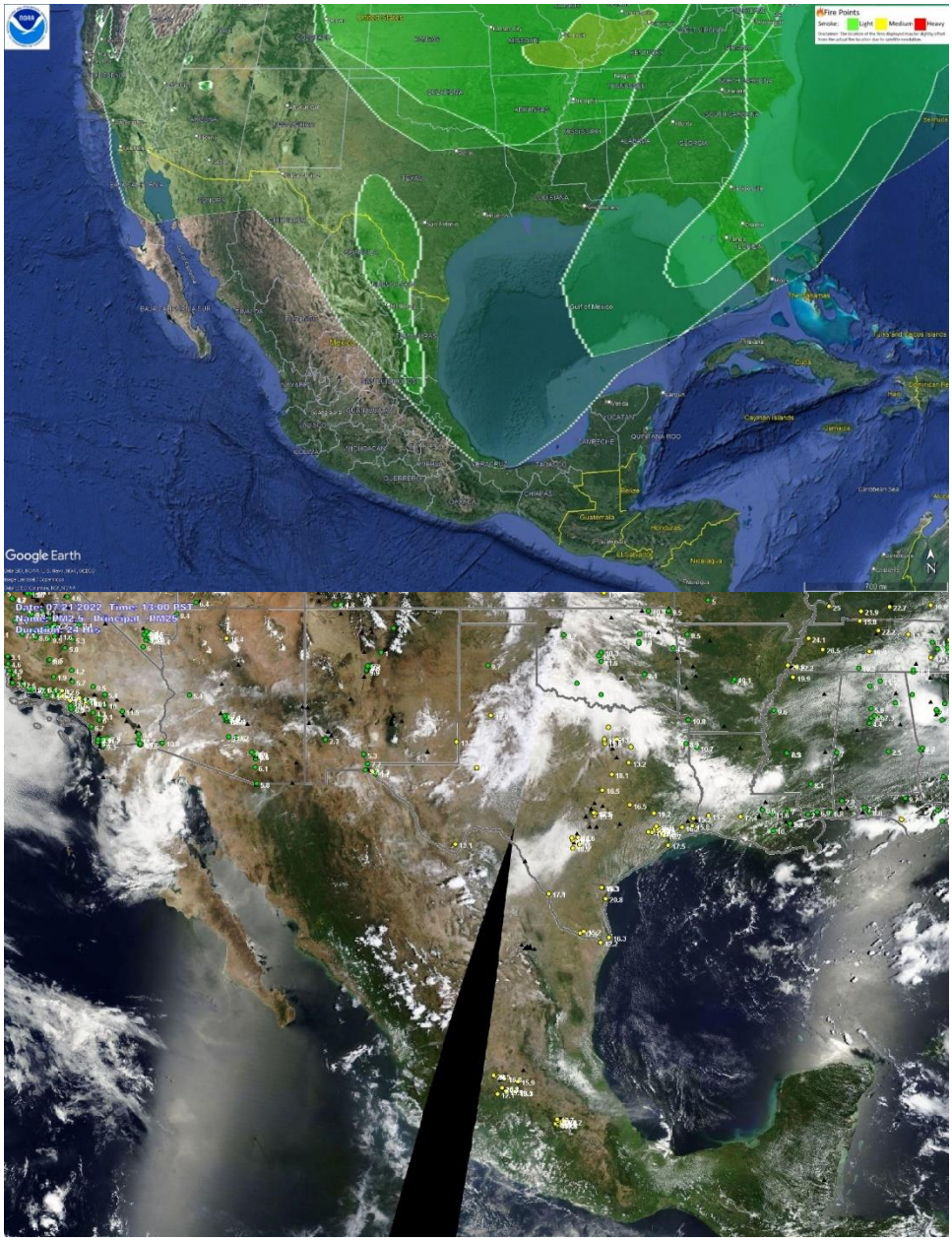


24. 7/21/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

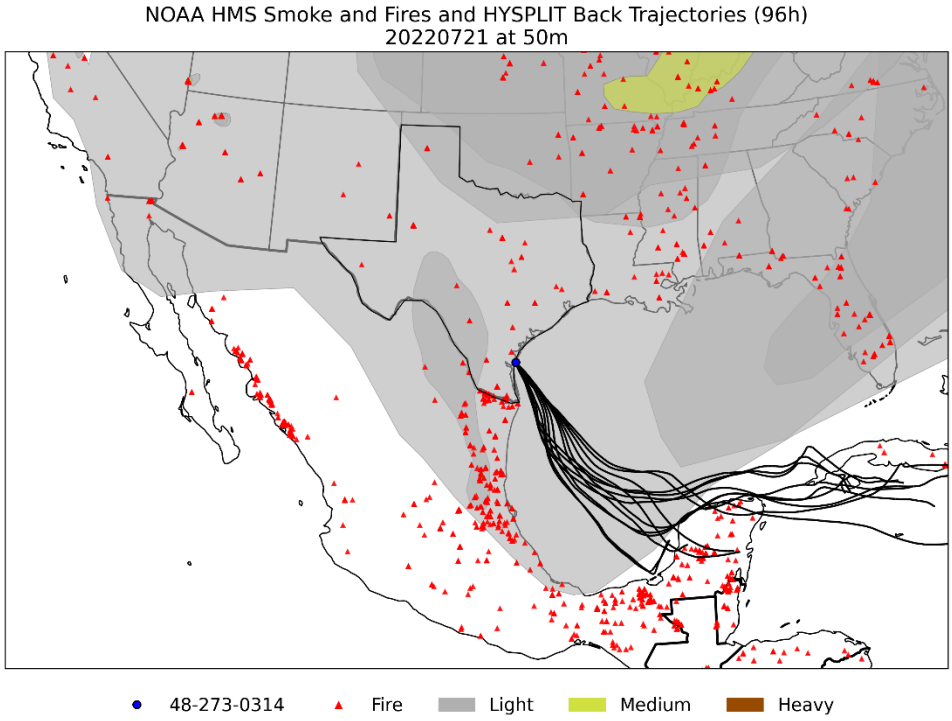
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/21/2022	24.7	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

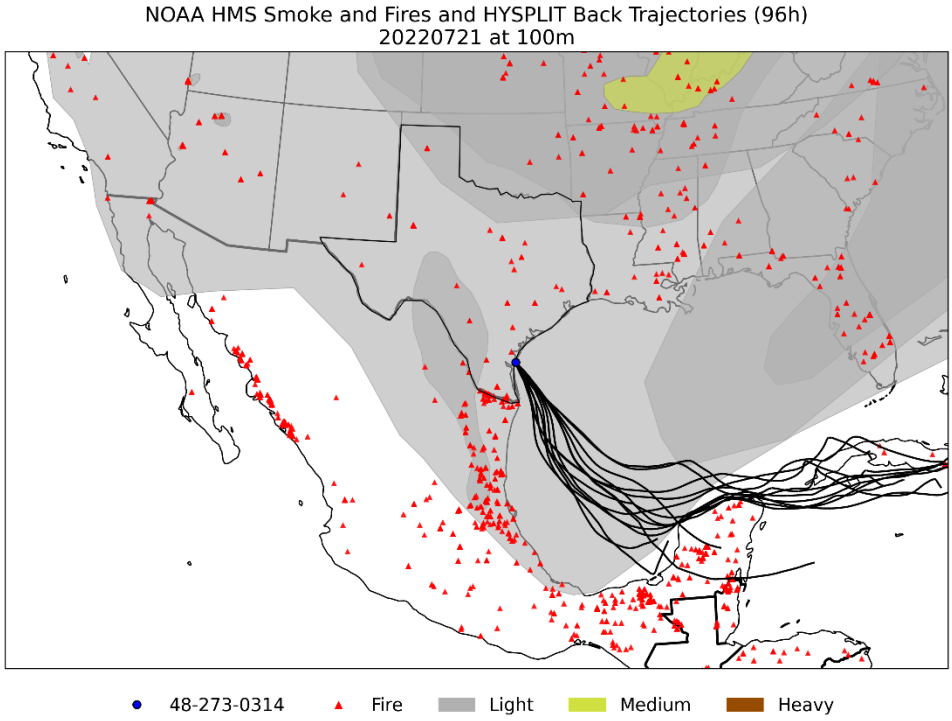


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

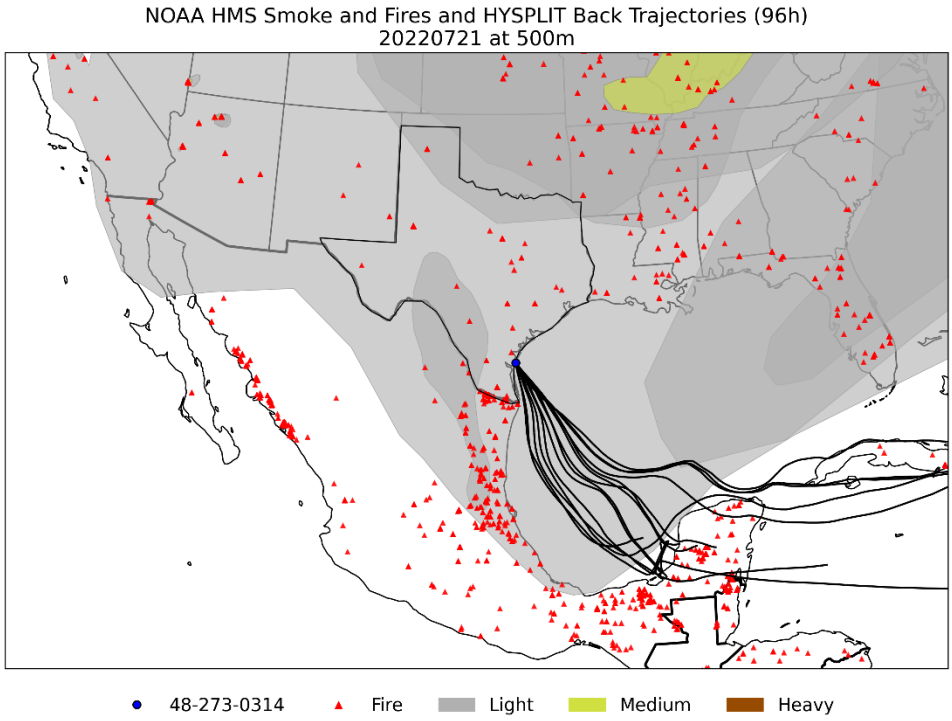
- 50m



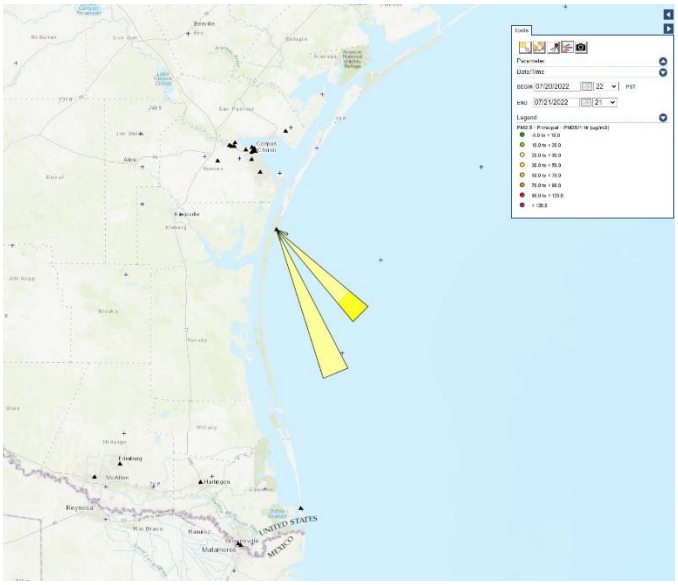
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220721 at 100m
48-273-0314
Fire
Light
Medium
Heavy

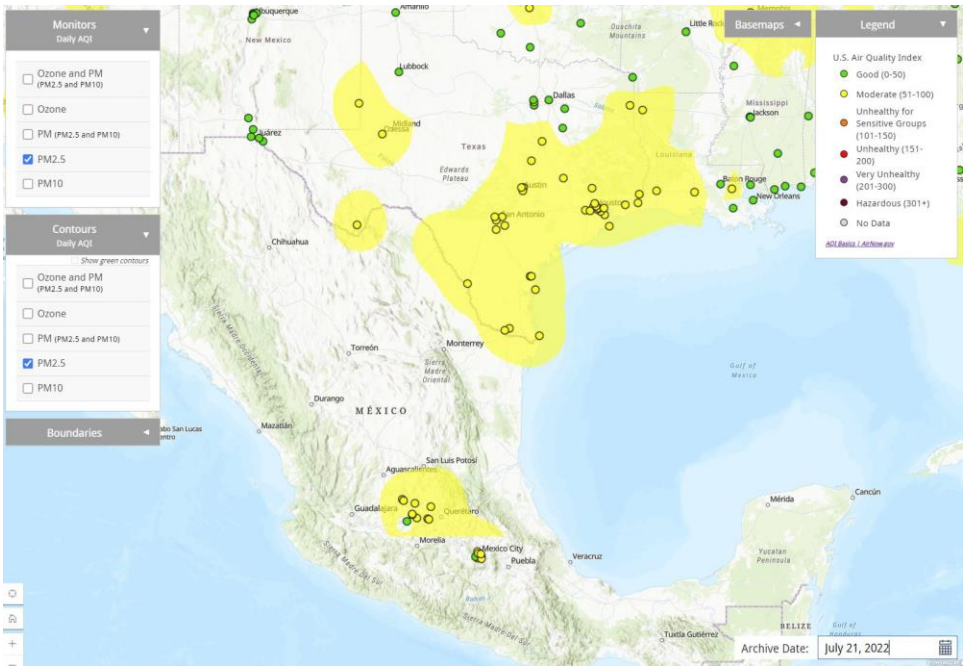
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20220721 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 7/21/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/21/2022.

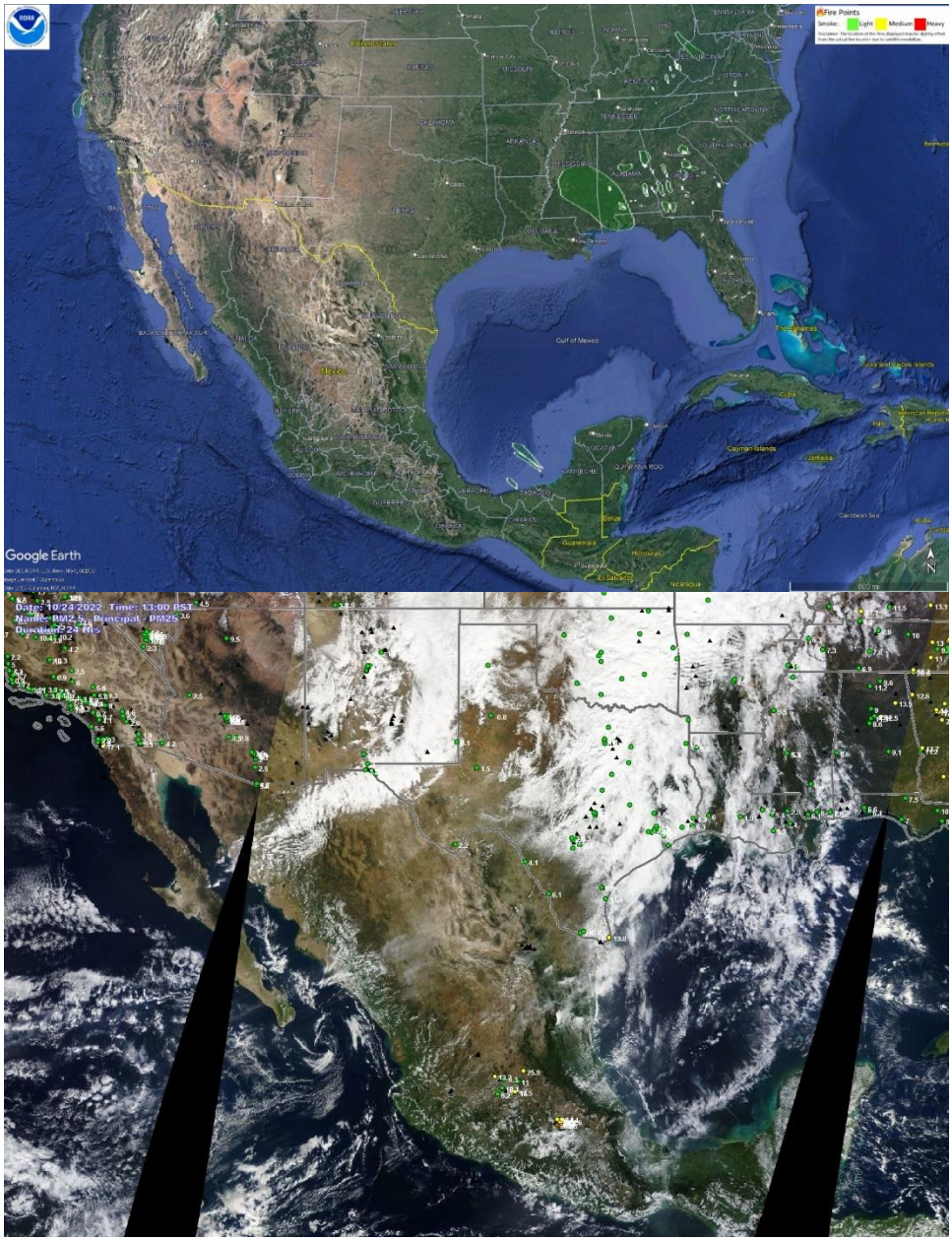


25. 10/24/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

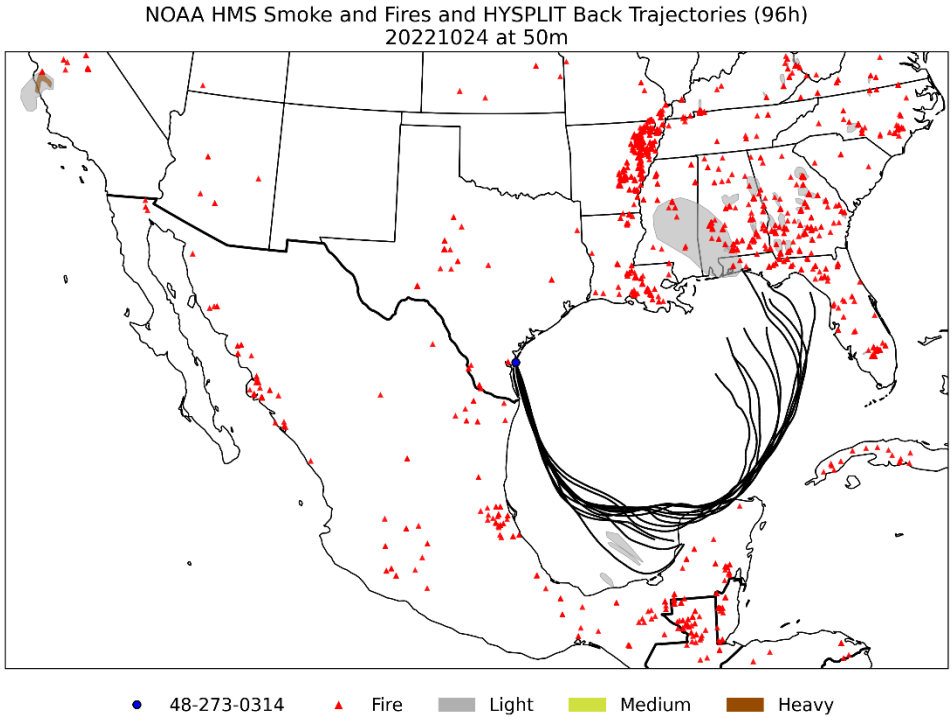
Date	24-hour $PM_{2.5}$ (µg/m³)	Tier 2 Threshold	Tier 1 Threshold
10/24/2022	19.2	14.2	21.3

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

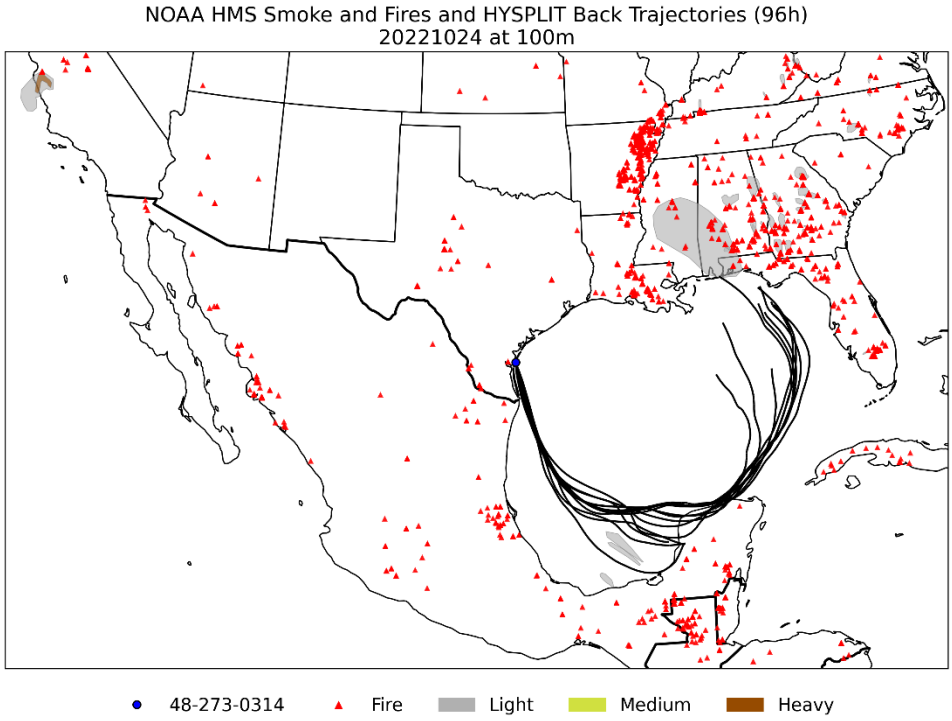


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

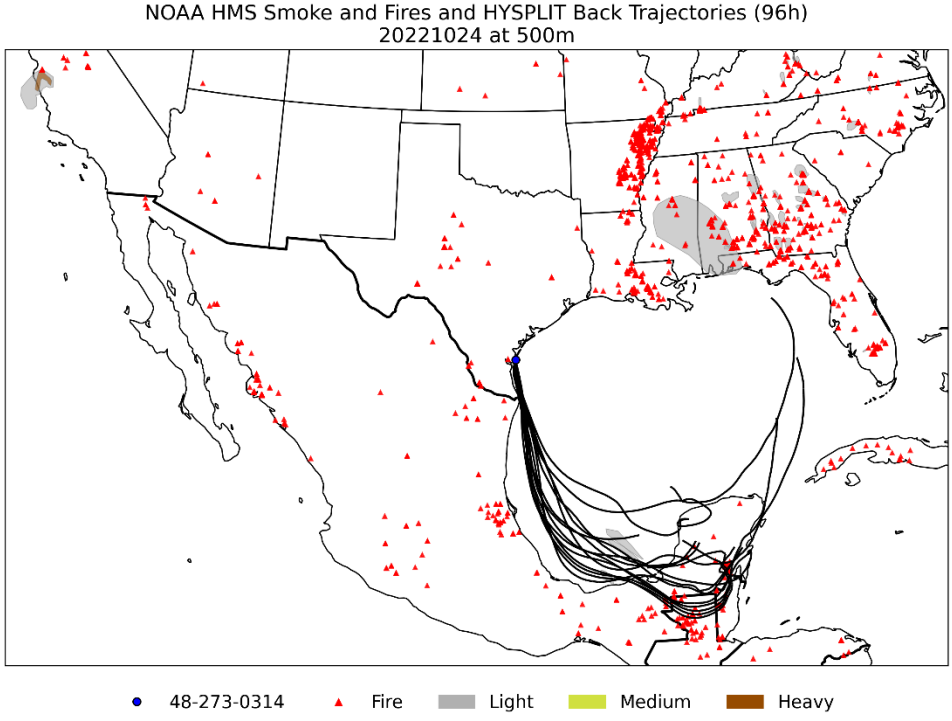
- 50m



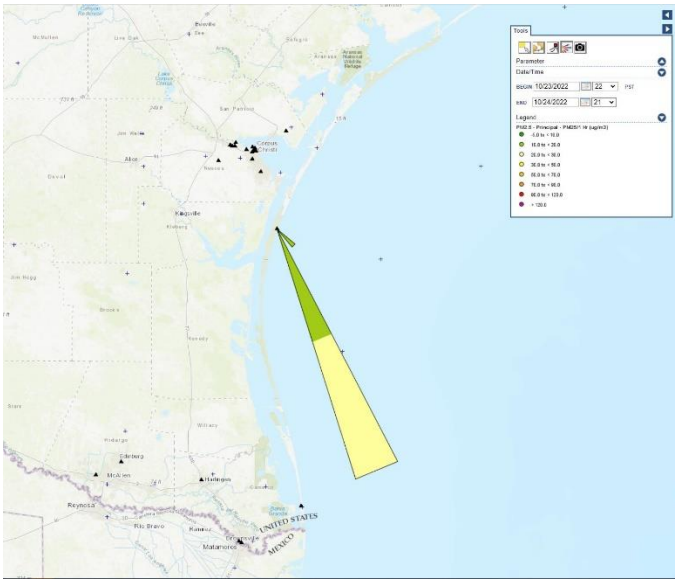
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20221024 at 100m
48-273-0314
Fire
Light
Medium
Heavy

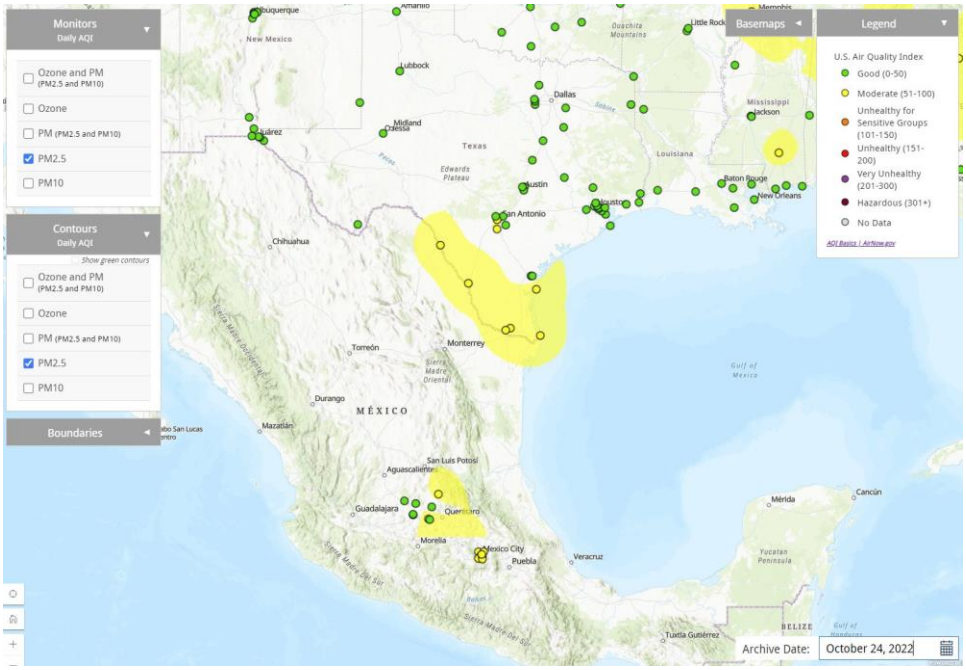
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20221024 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3** - Pollution rose for 10/24/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 10/24/2022.

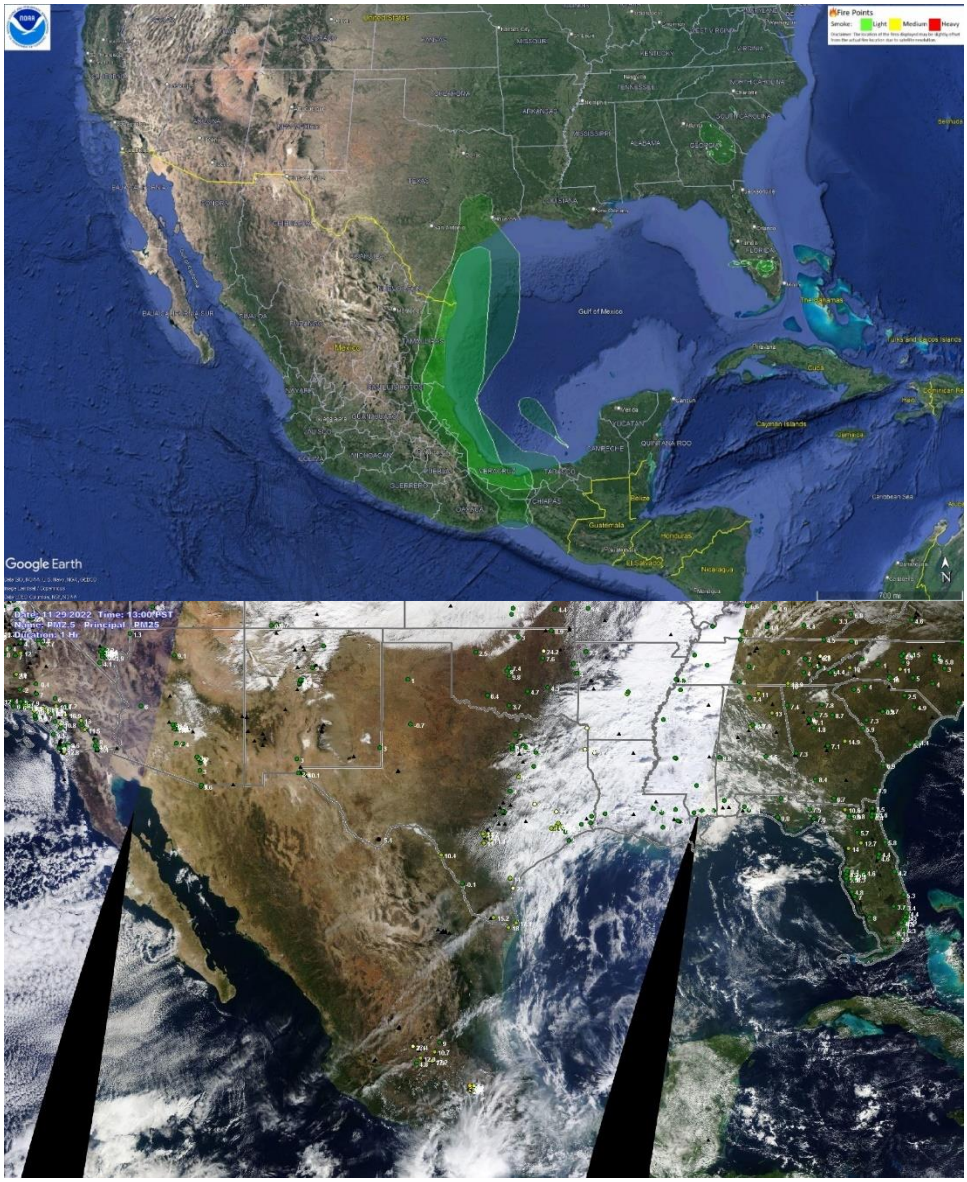


26. 11/29/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

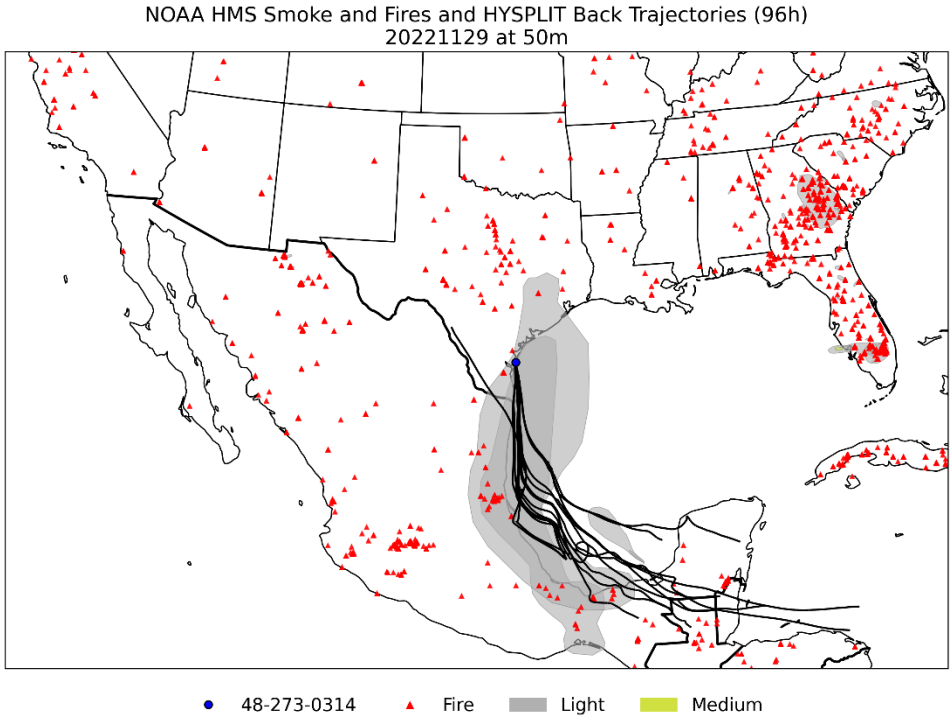
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
11/29/2022	19.7	16.4	24.6

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

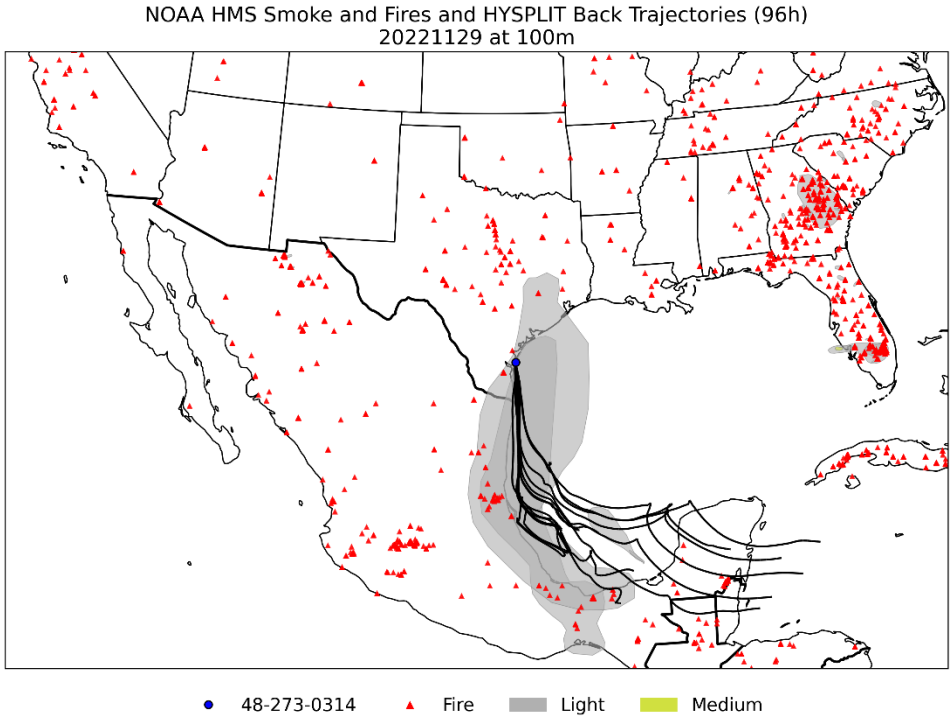


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

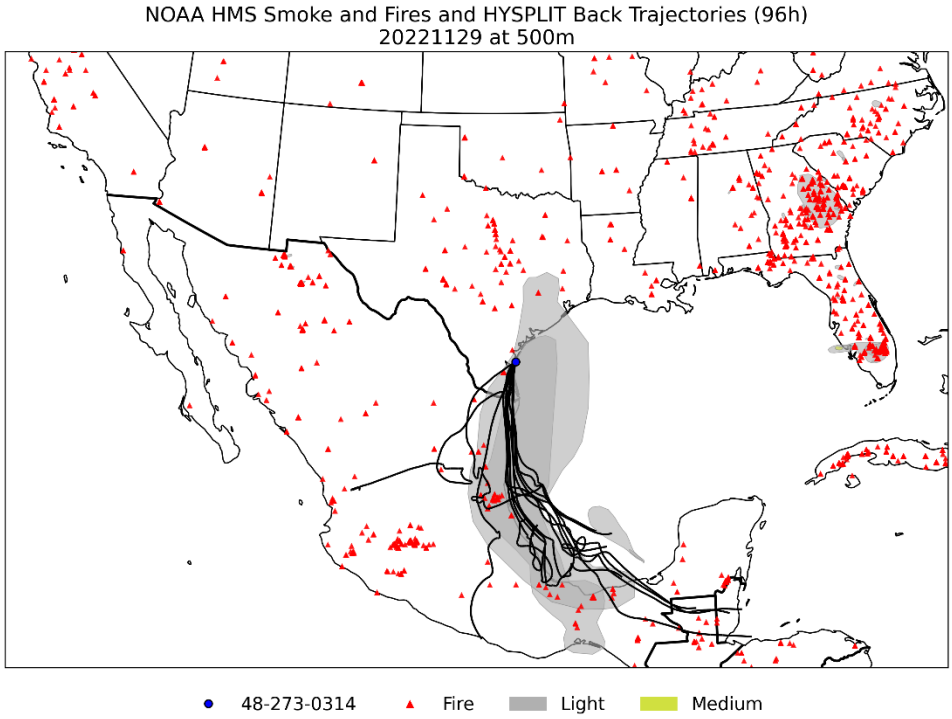
- 50m



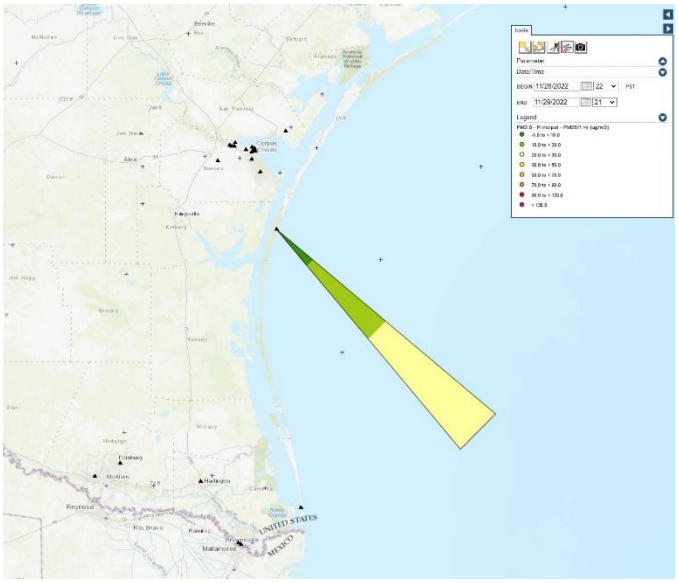
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20221129 at 100m
48-273-0314
Fire
Light
Medium

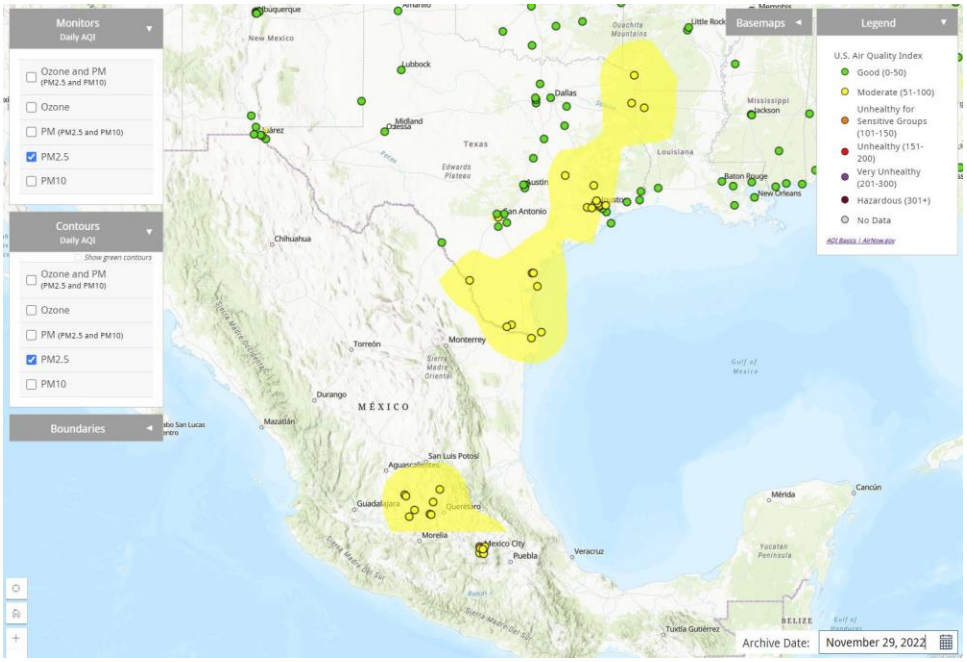
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20221129 at 500m
48-273-0314
Fire
Light
Medium

d. Evidence #3 - Pollution rose for 11/29/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4 - EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 11/29/2022.

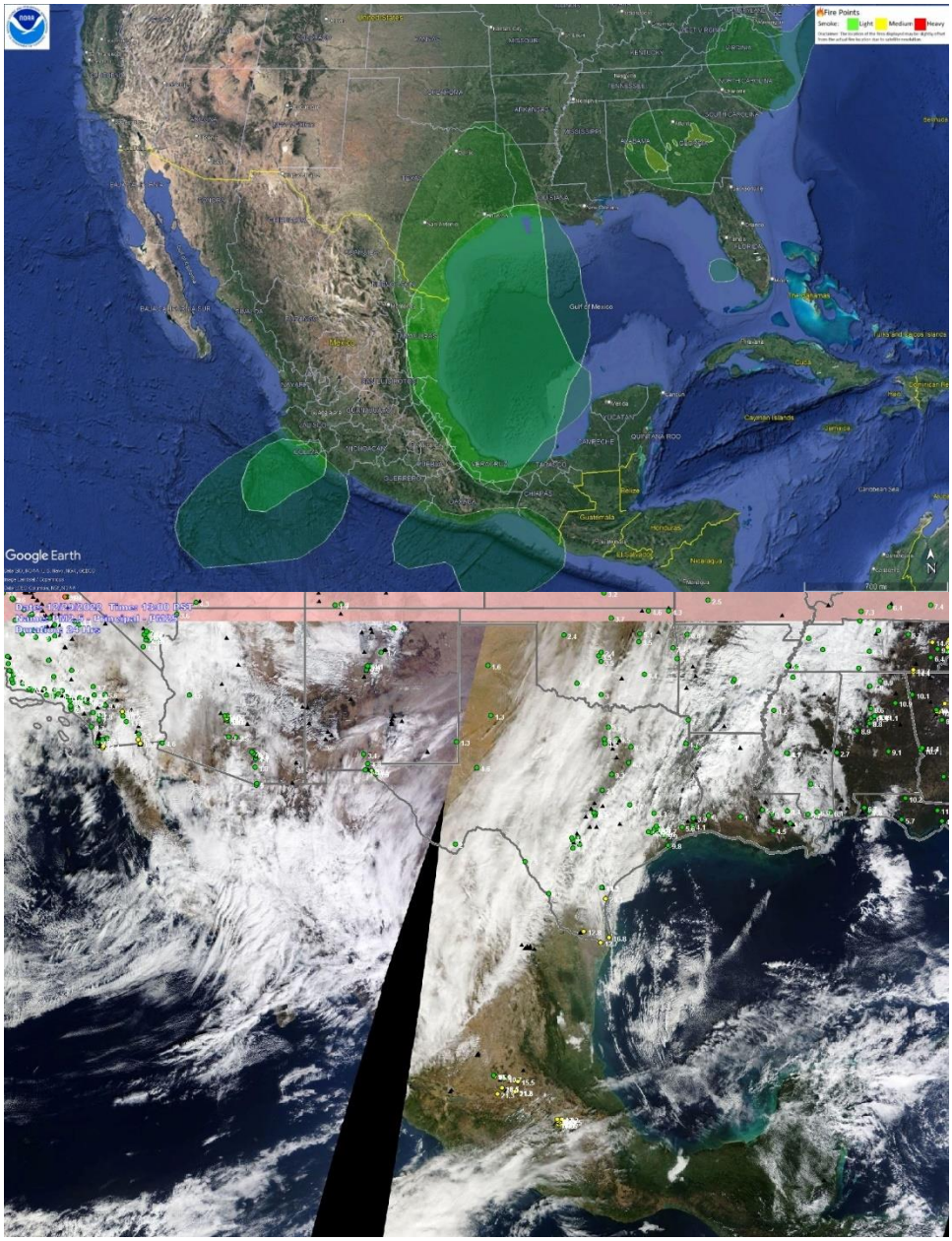


27. 12/29/2022

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

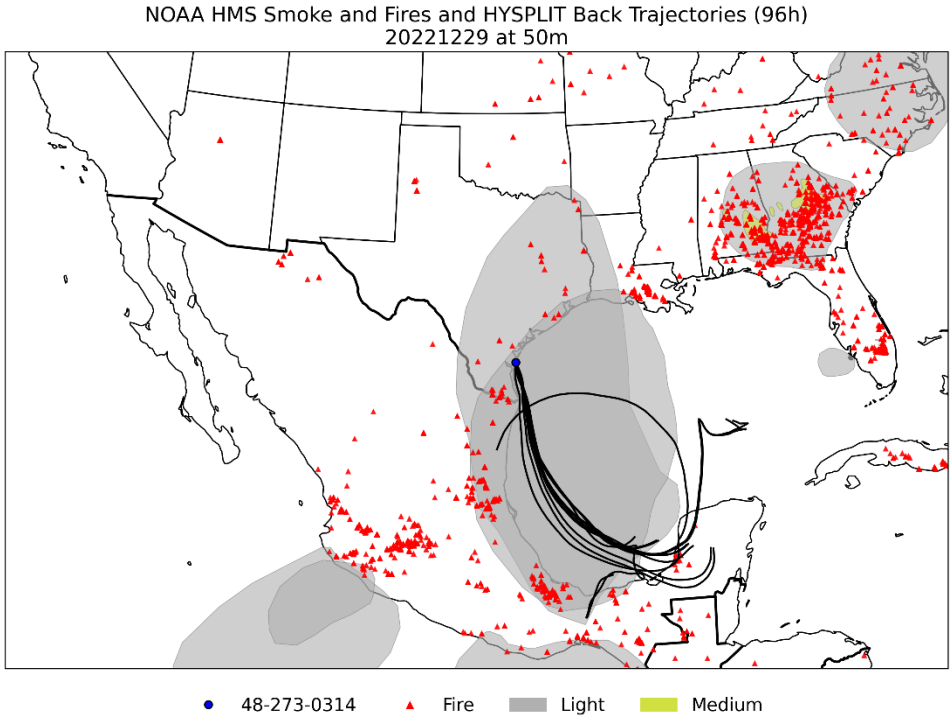
Date	24-hour $PM_{2.5}$ (µg/m³)	Tier 2 Threshold	Tier 1 Threshold
12/29/2022	19.7	18.1	27.15

b. **Evidence #1** - Satellite HMS Smoke Maps on Google Earth (kml).

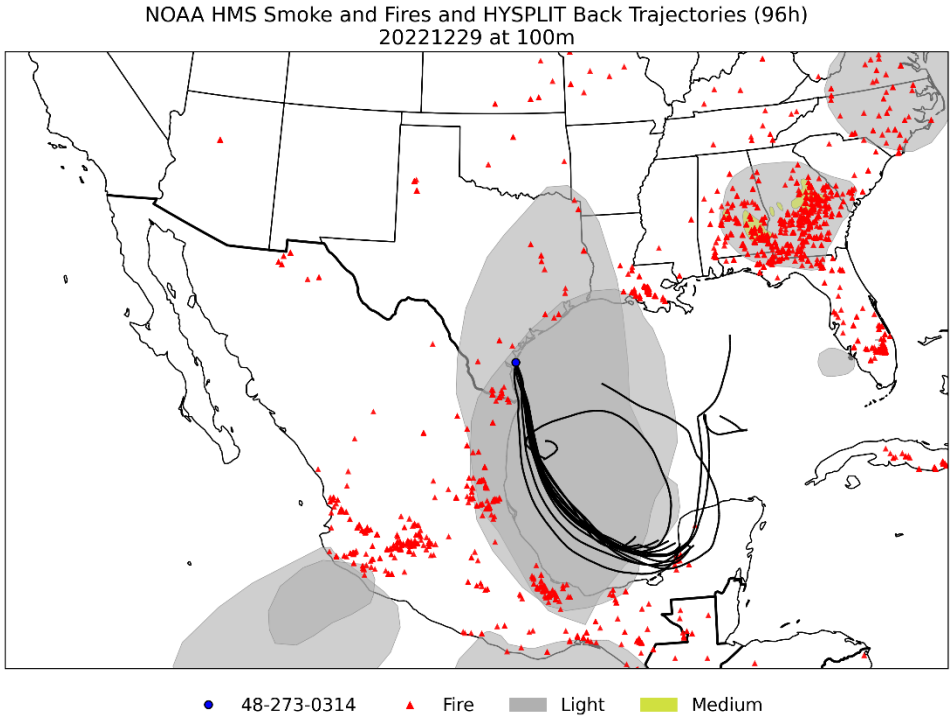


c. Evidence #2 – HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

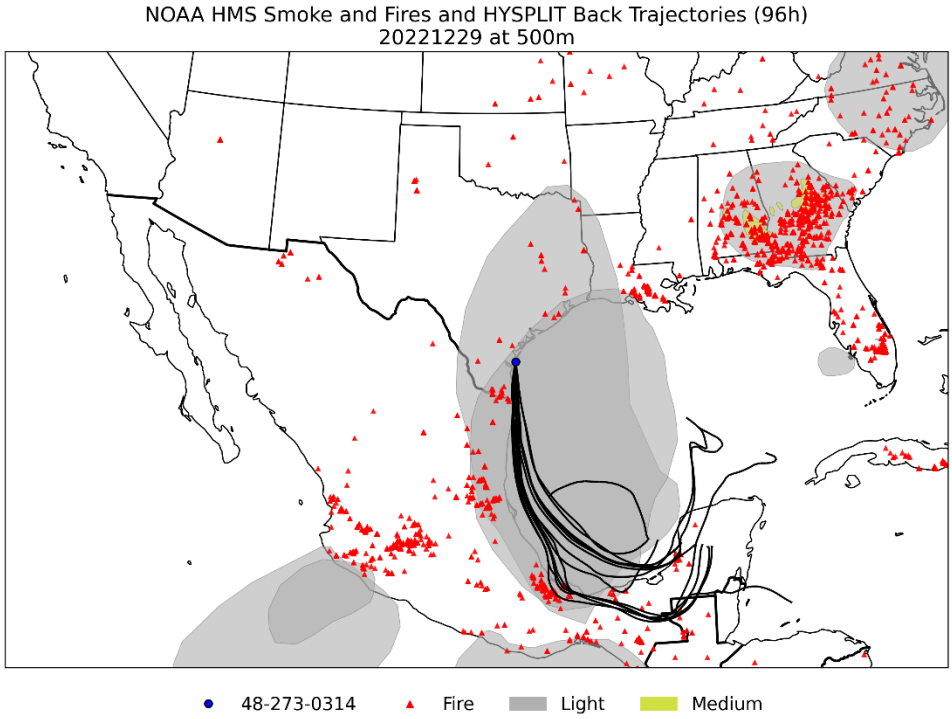
- 50m



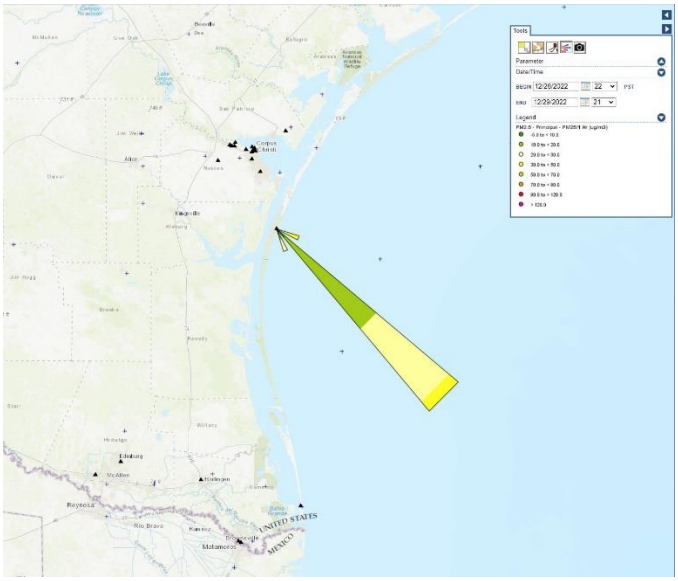
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20221229 at 100m
48-273-0314
Fire
Light
Medium

- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20221229 at 500m
48-273-0314
Fire
Light
Medium

d. **Evidence #3** - Pollution rose for 12/29/2022. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4 -** EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 12/29/2022.

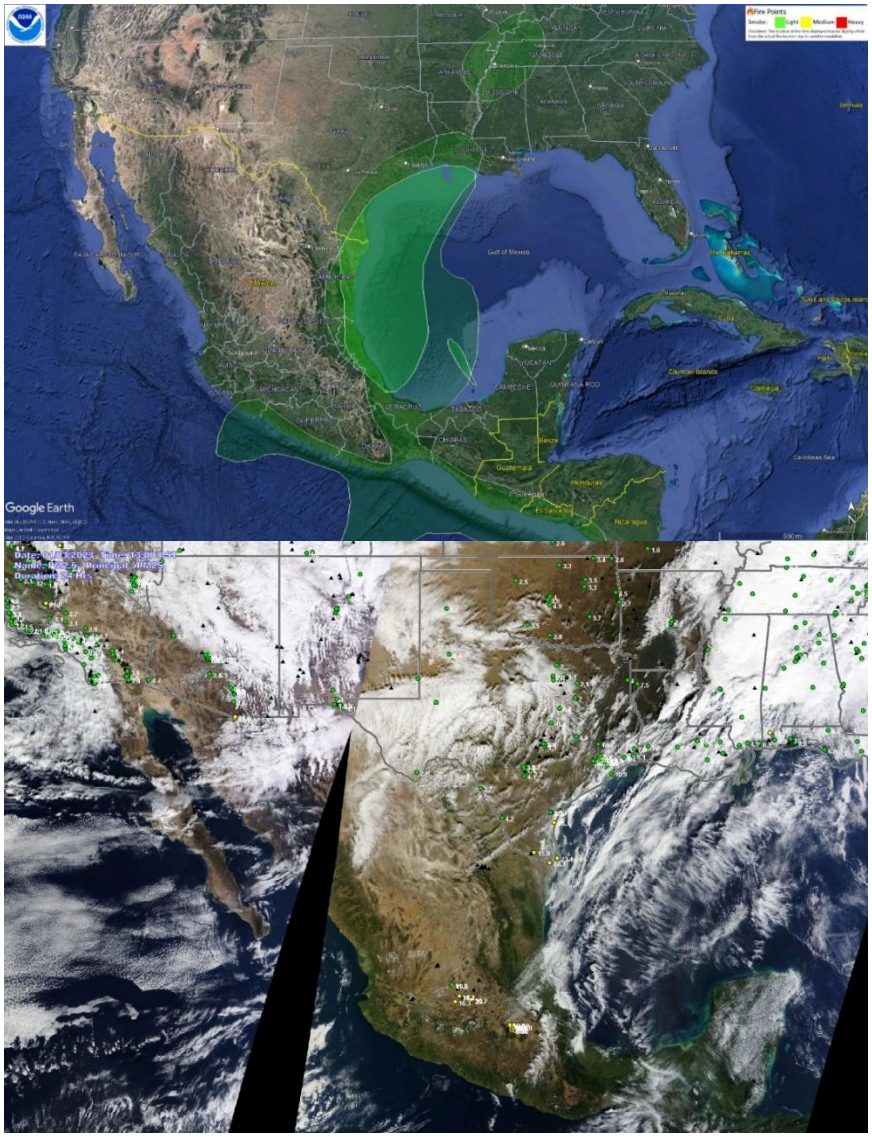
Appendix C: Evidence for Exceptional Events at National Seashore for 2023 Tier 1 and 2 Days

1. 1/3/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

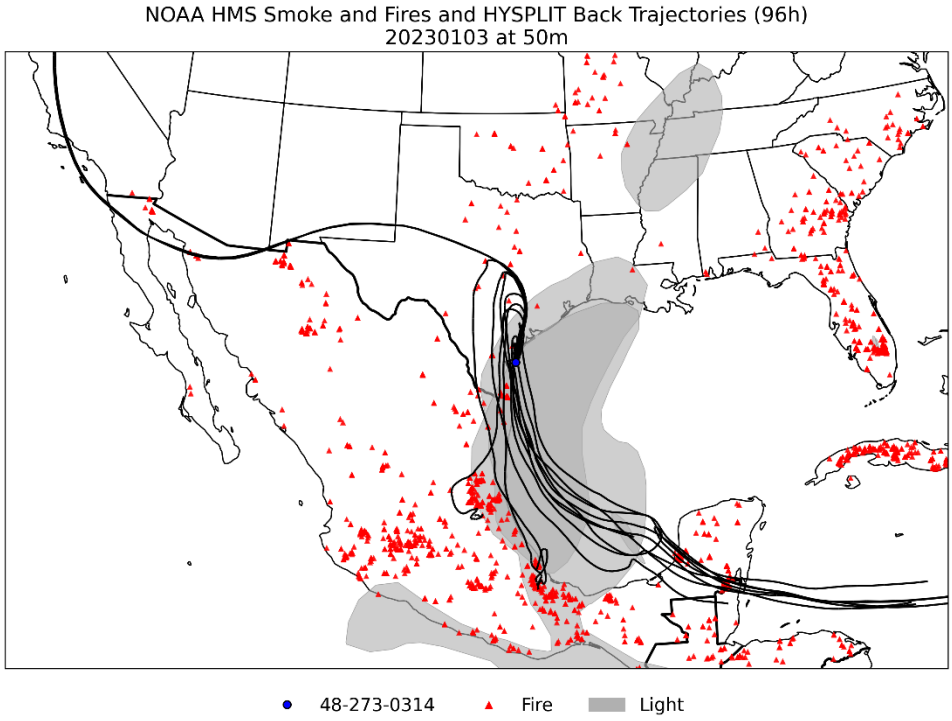
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
1/3/2023	25.1	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

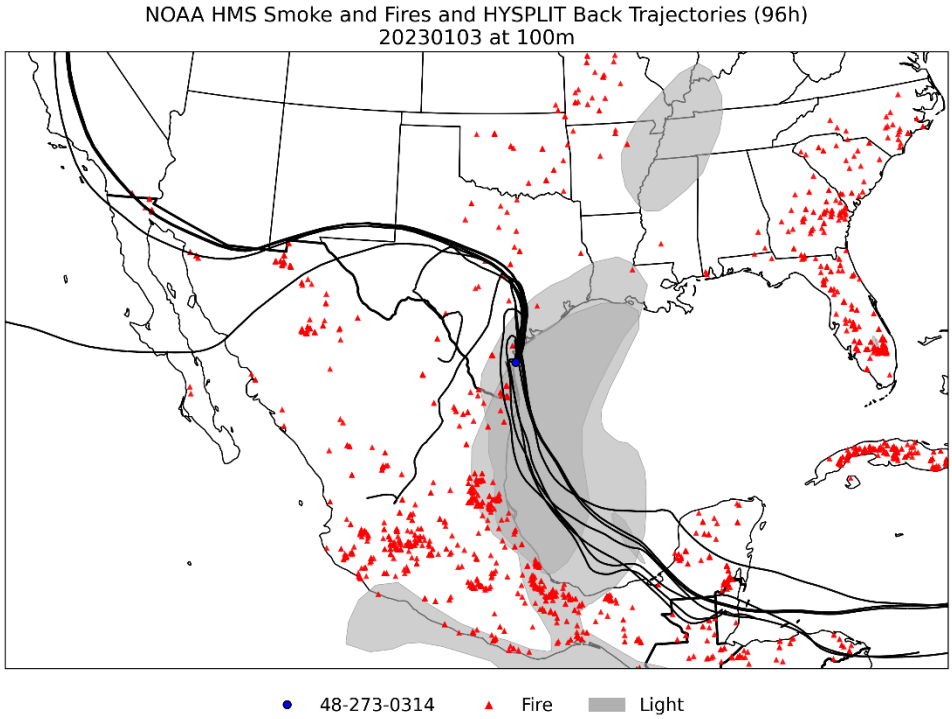


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

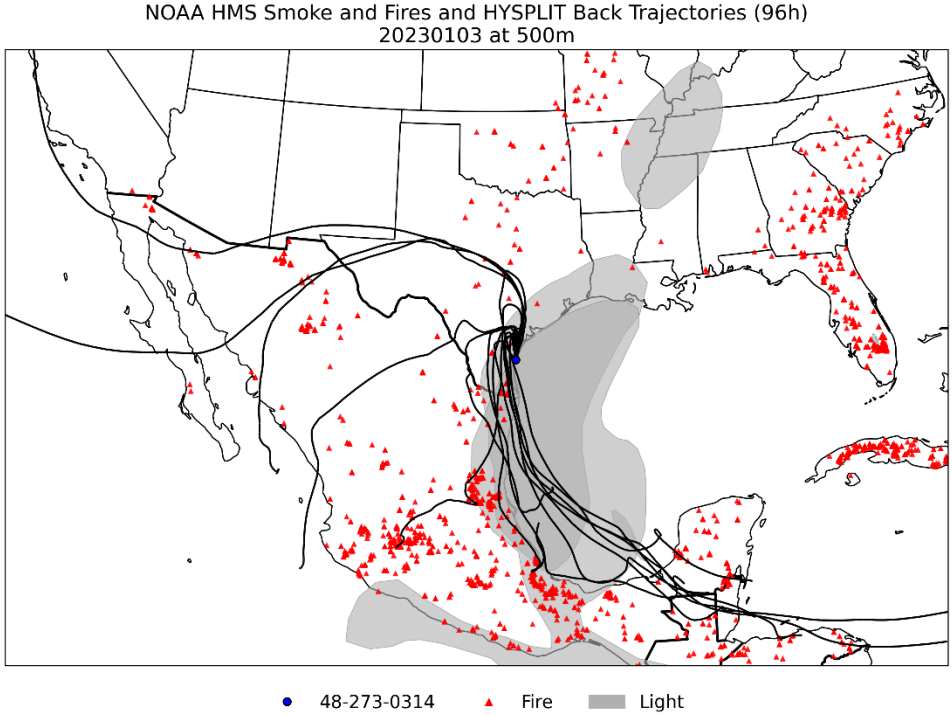
- 50m



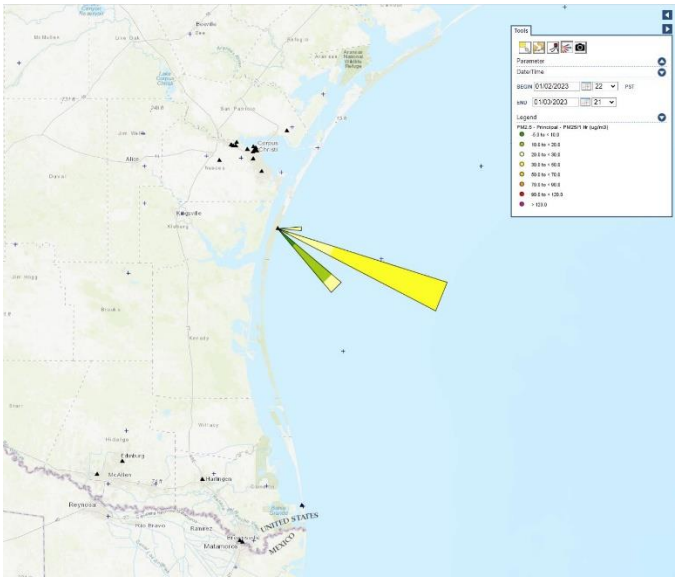
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230103 at 100m
48-273-0314
Fire
Light

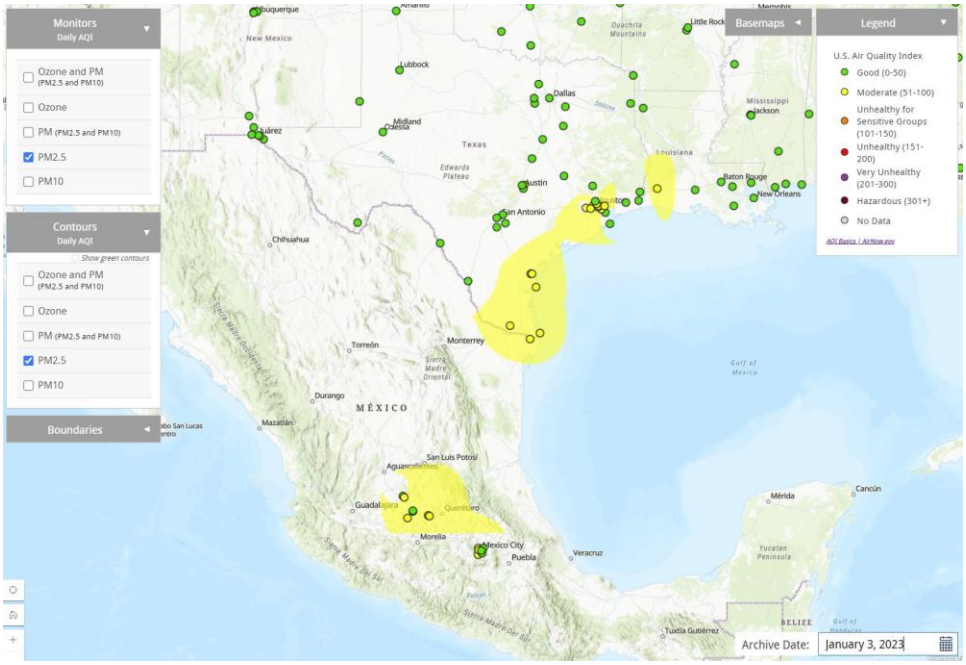
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230103 at 500m
48-273-0314
Fire
Light

d. **Evidence #3**- Pollution rose for 1/3/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4**- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 1/3/2023.

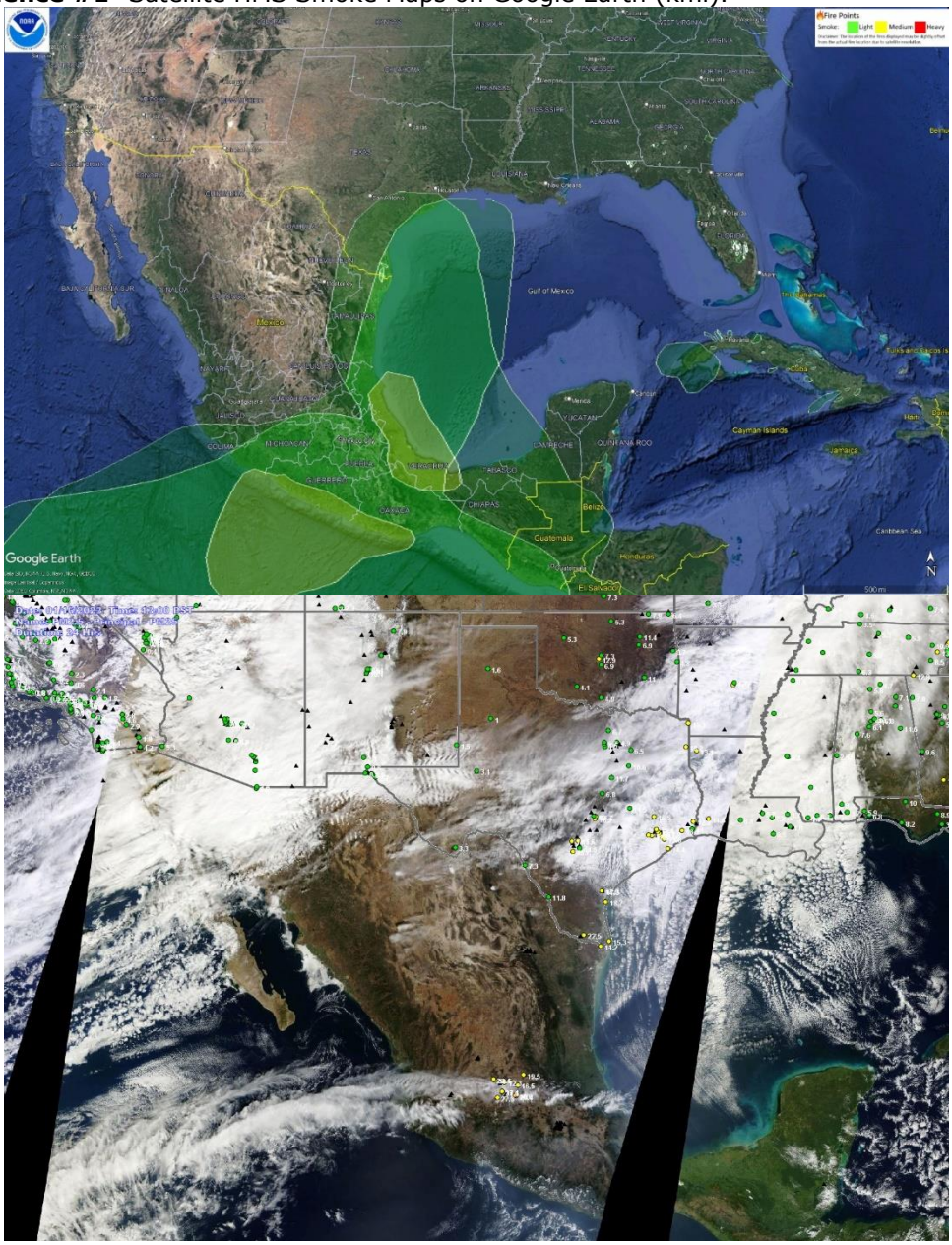


2. 1/16/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

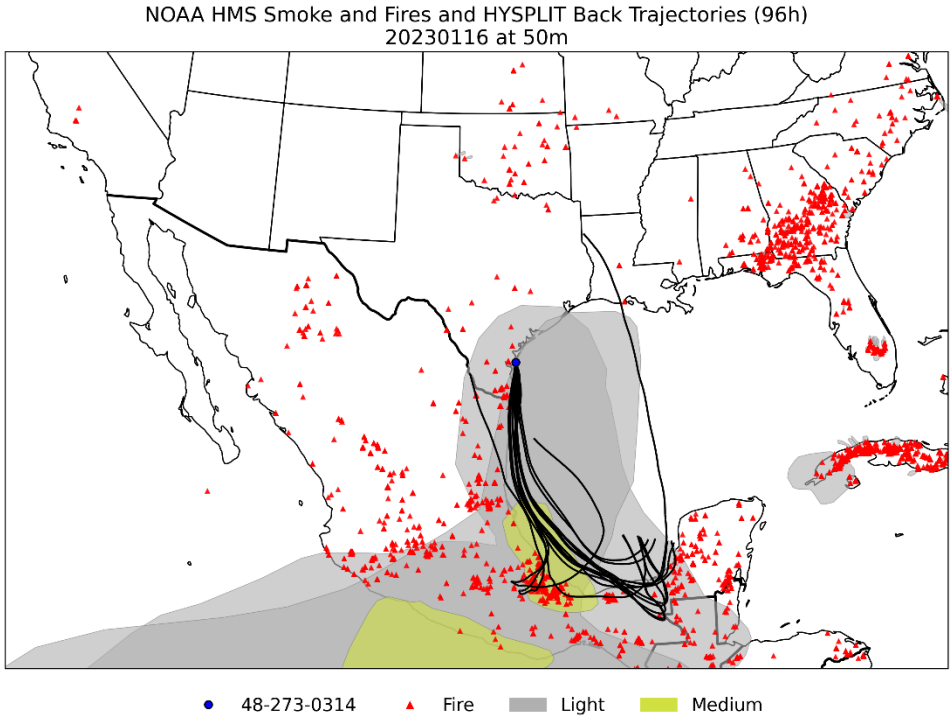
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
1/16/2023	24.0	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

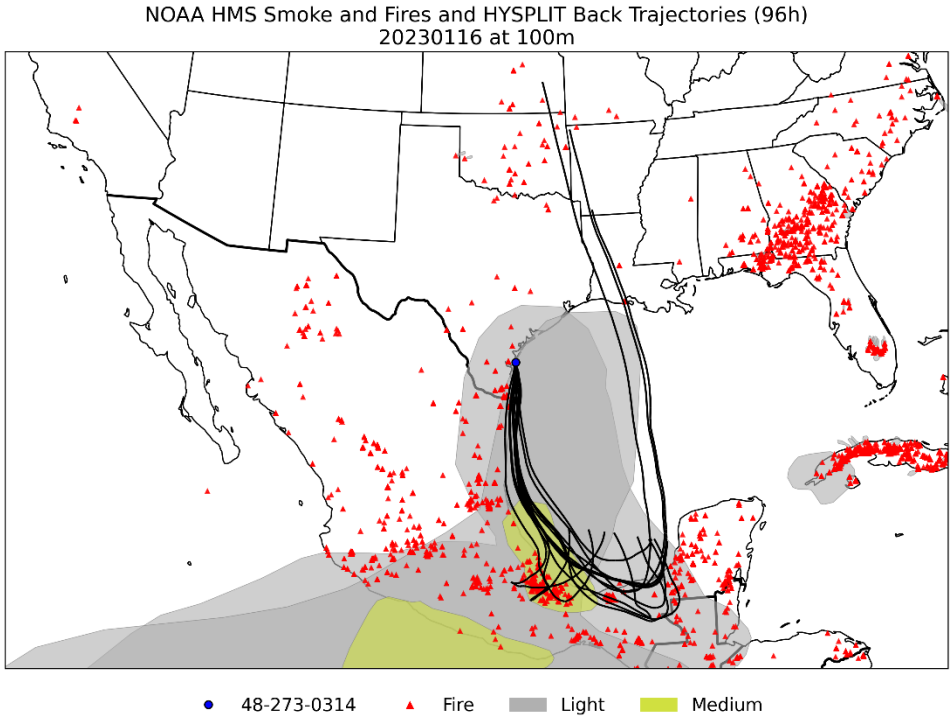


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

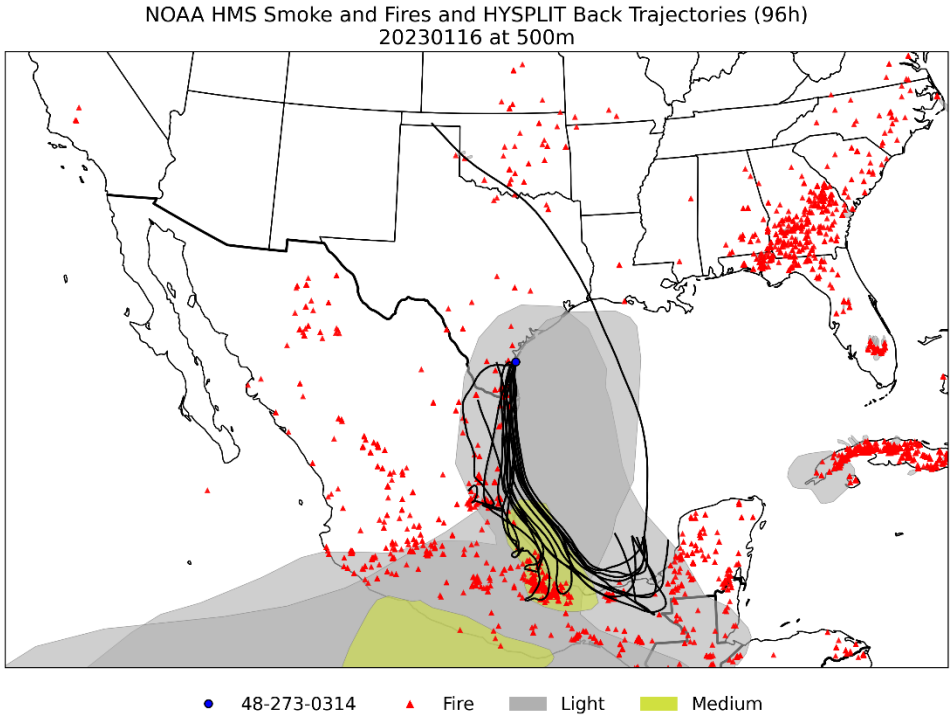
- 50m



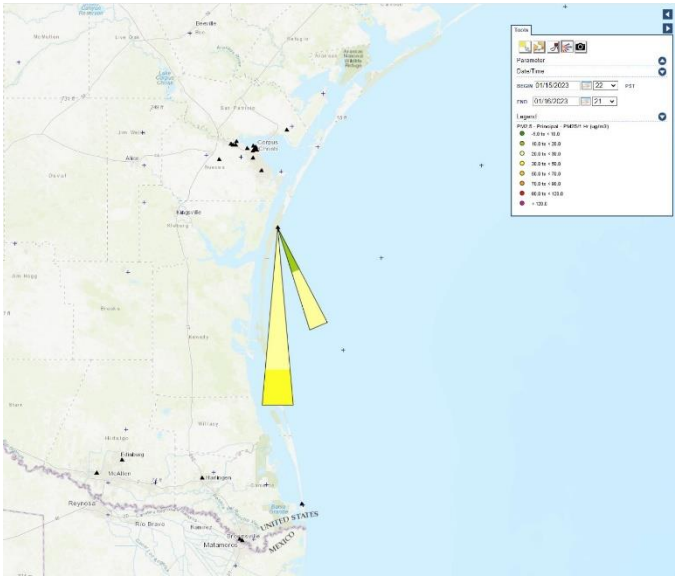
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230116 at 100m
48-273-0314
Fire
Light
Medium

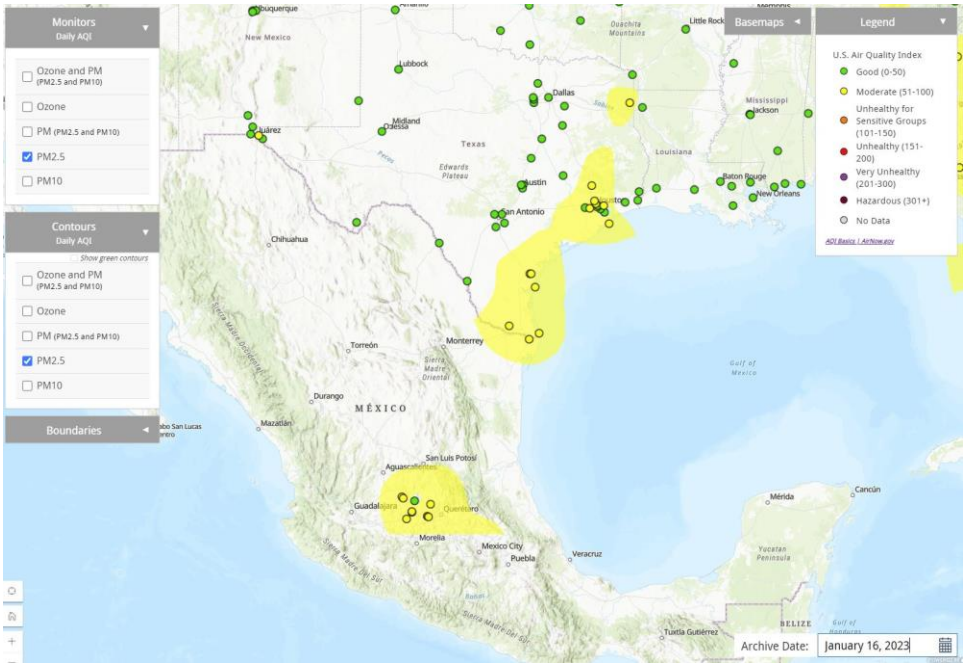
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230116 at 500m
48-273-0314
Fire
Light
Medium

d. **Evidence #3**- Pollution rose for 1/16/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4**- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 1/16/2023.

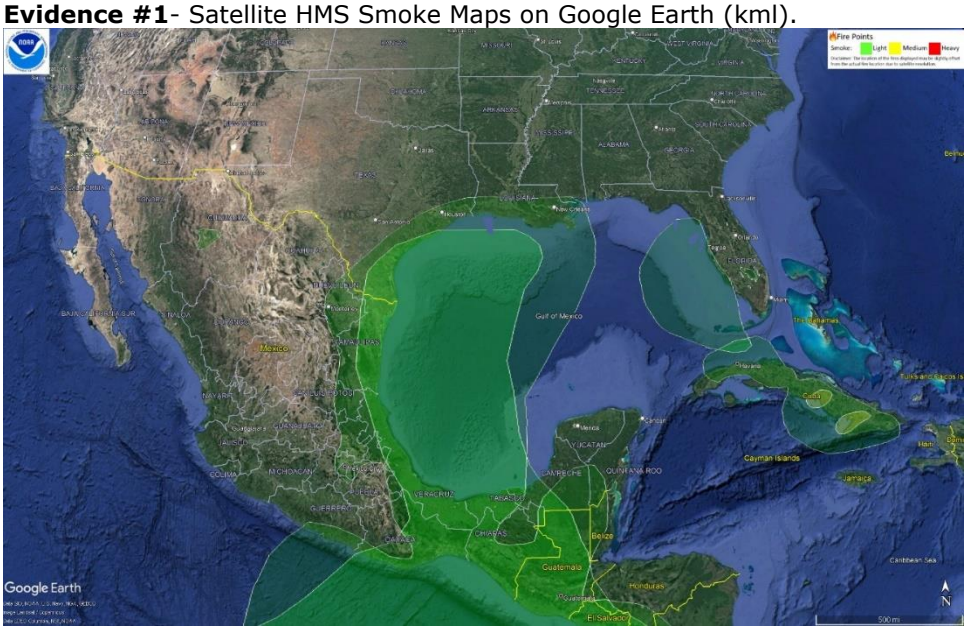


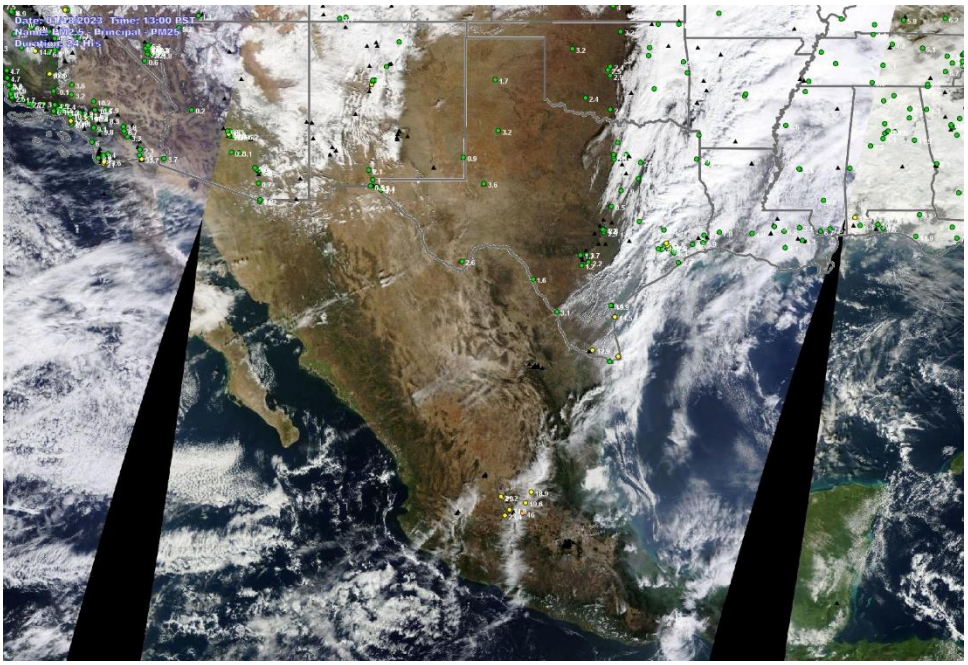
3. 1/18/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
1/18/2023	25.3	18.1	27.15

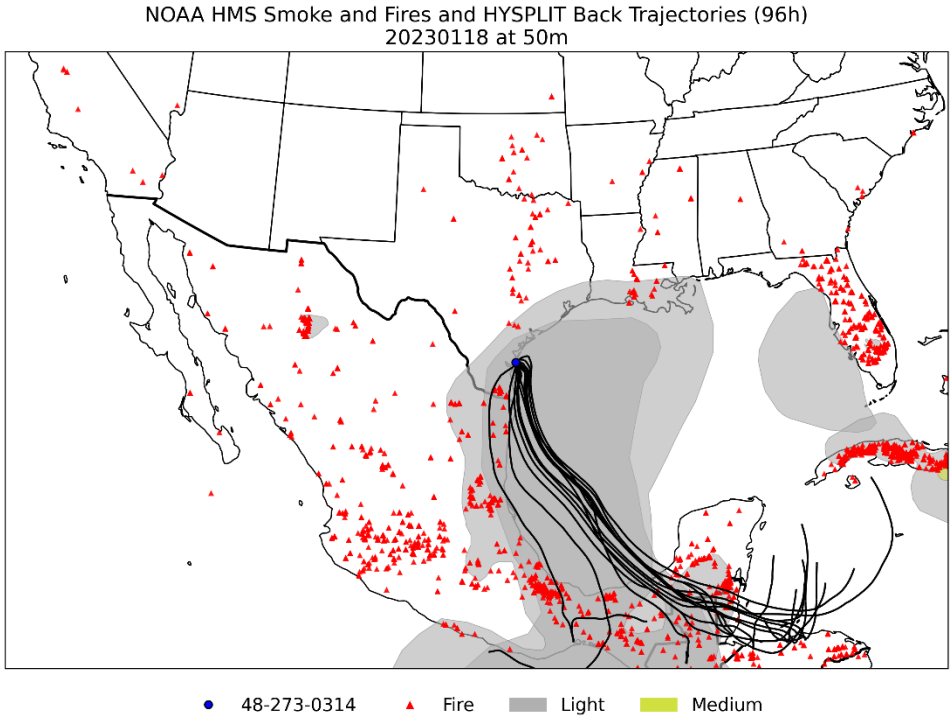
b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).



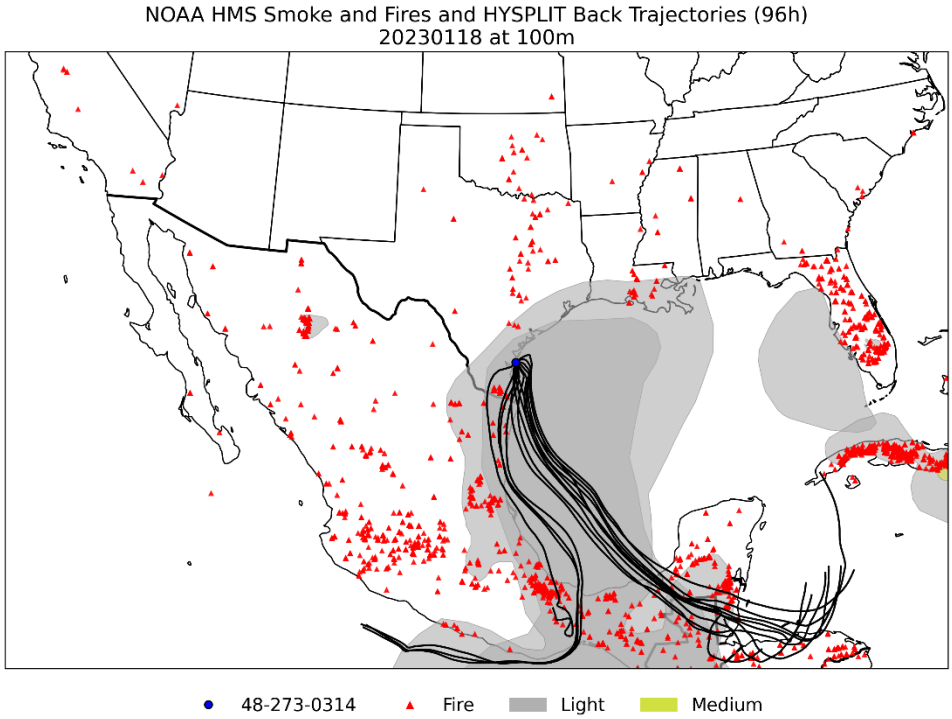


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

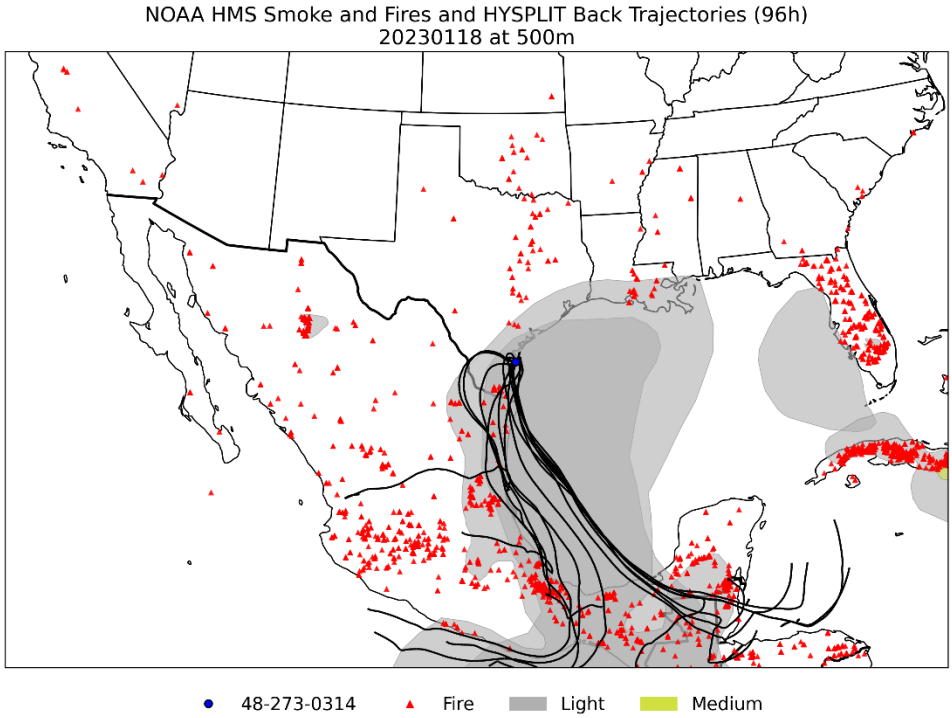
- 50m



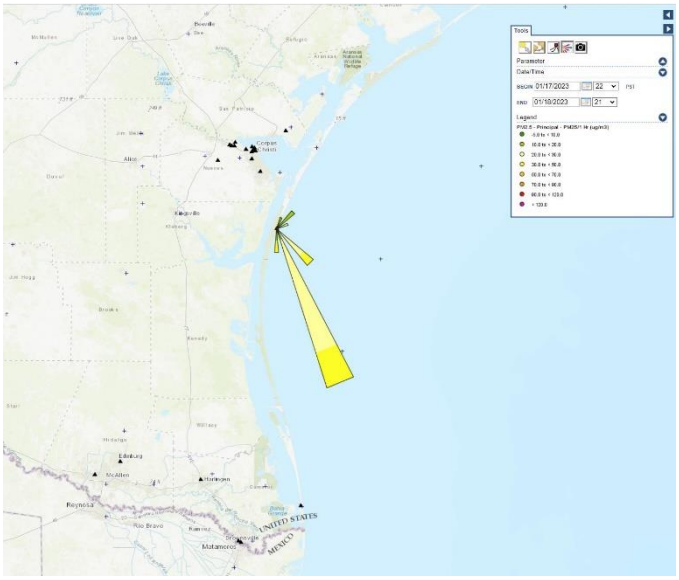
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230118 at 100m
48-273-0314
Fire
Light
Medium

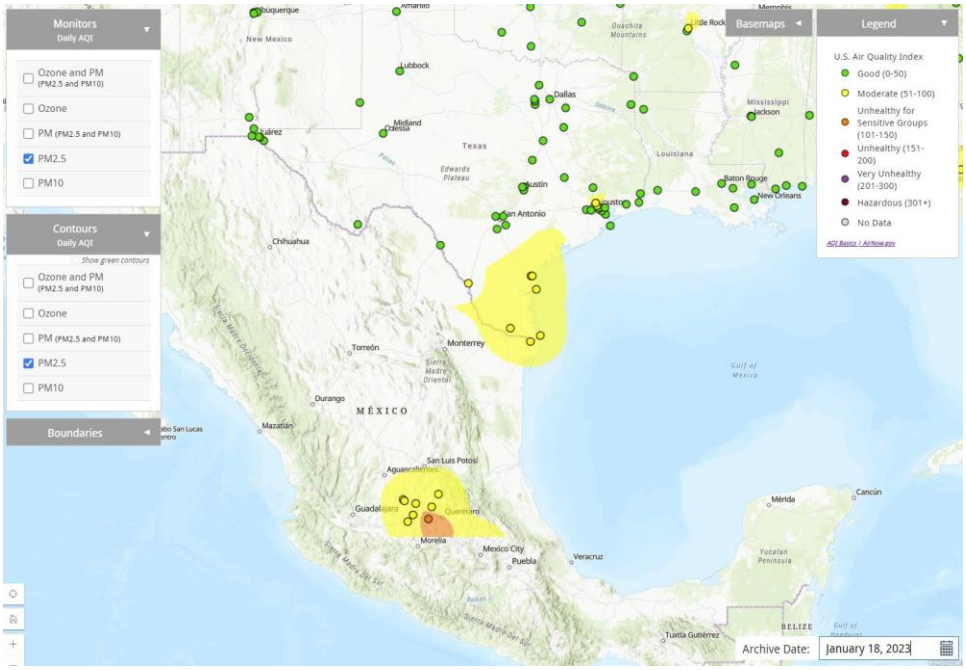
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230118 at 500m
48-273-0314
Fire
Light
Medium

d. **Evidence #3**- Pollution rose for 1/18/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4**- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 1/18/2023.

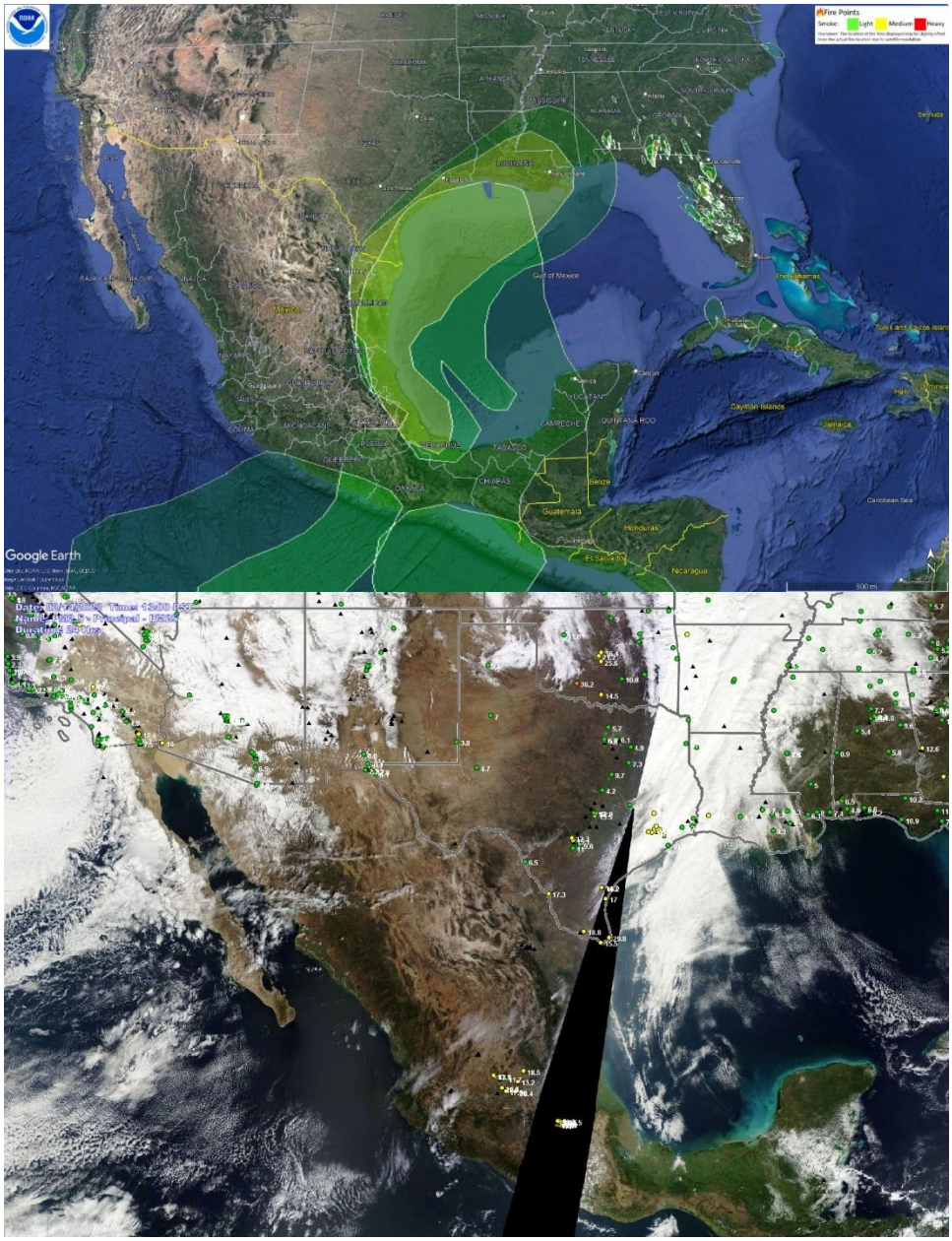


4. 2/14/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

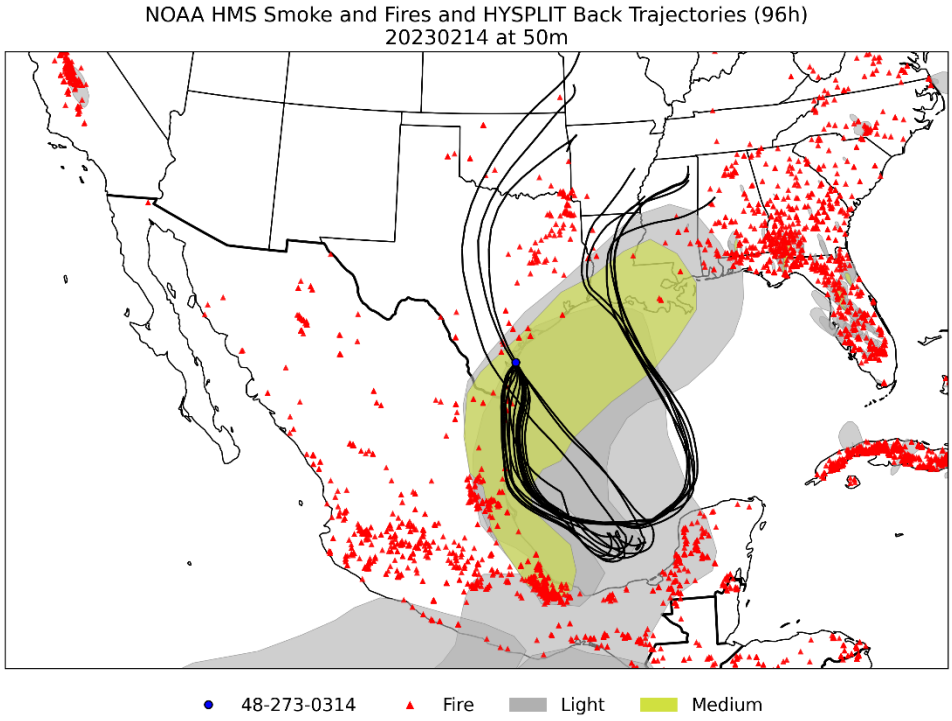
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
2/14/2023	21.8	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

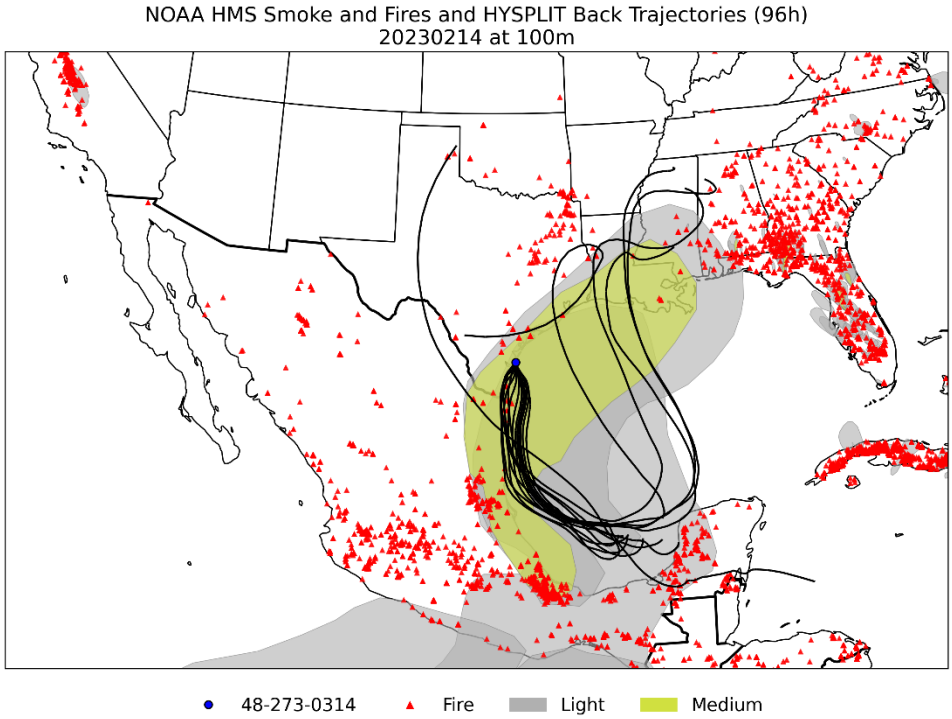


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

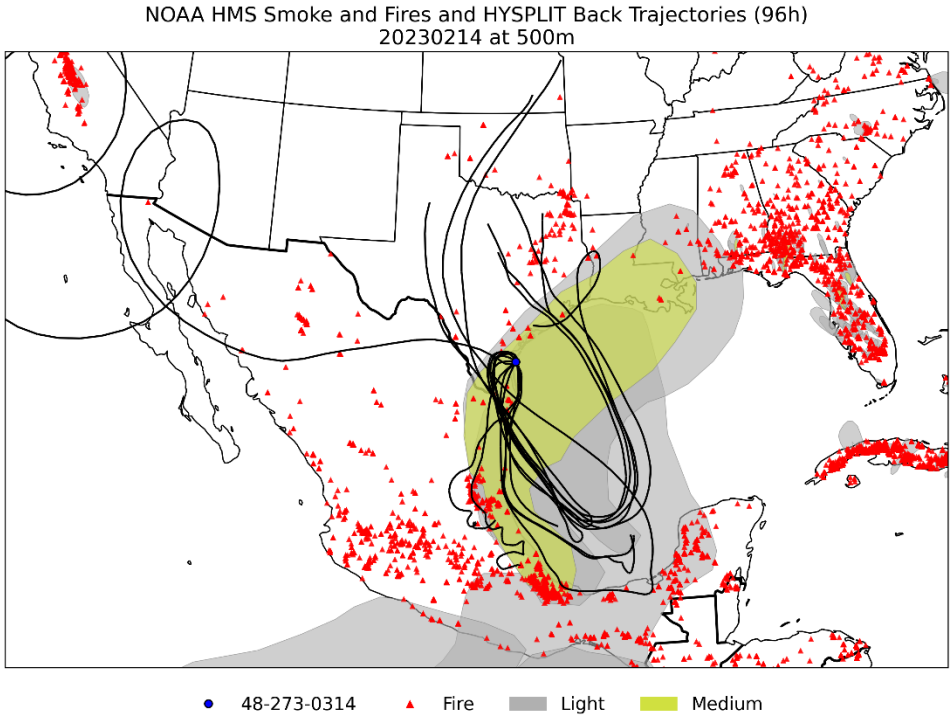
- 50m



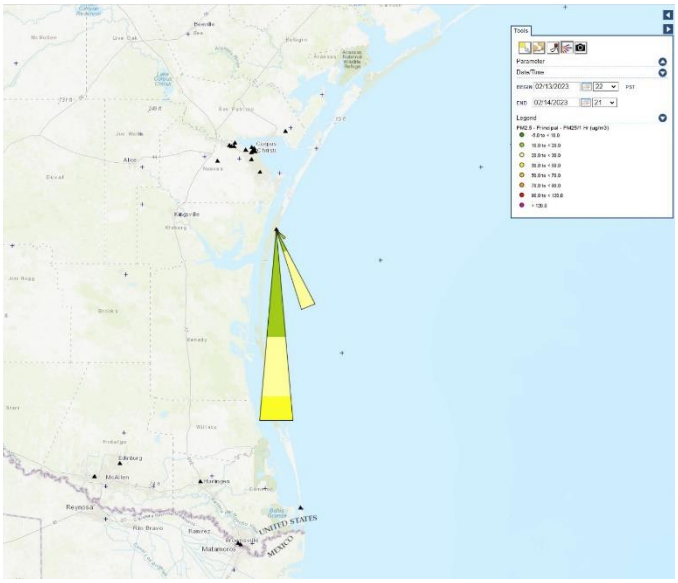
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230214 at 100m
48-273-0314
Fire
Light
Medium

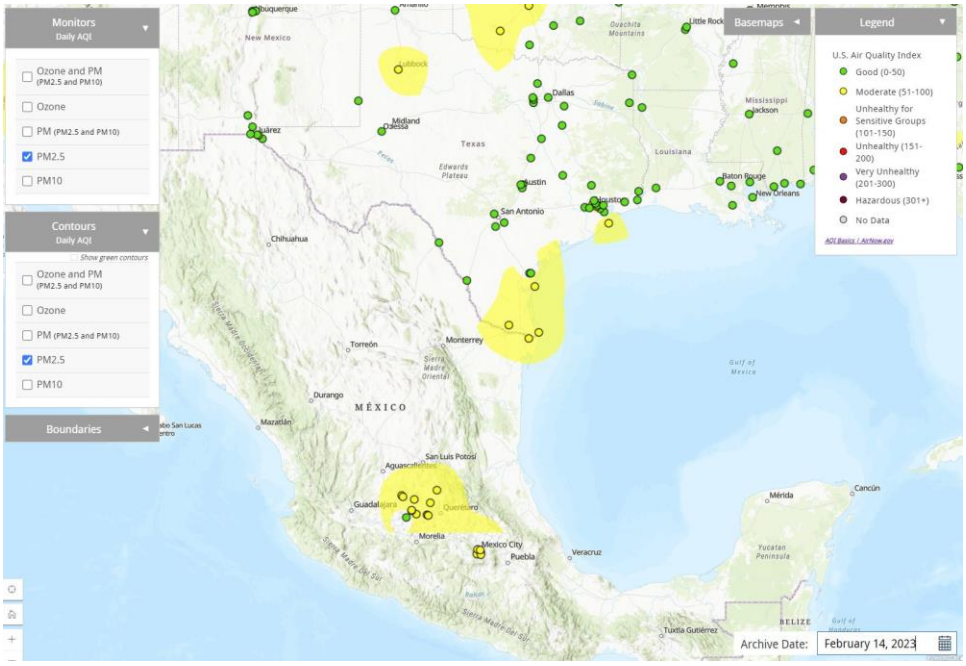
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230214 at 500m
48-273-0314
Fire
Light
Medium

d. Evidence #3- Pollution rose for 2/14/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4**- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 2/14/2023.

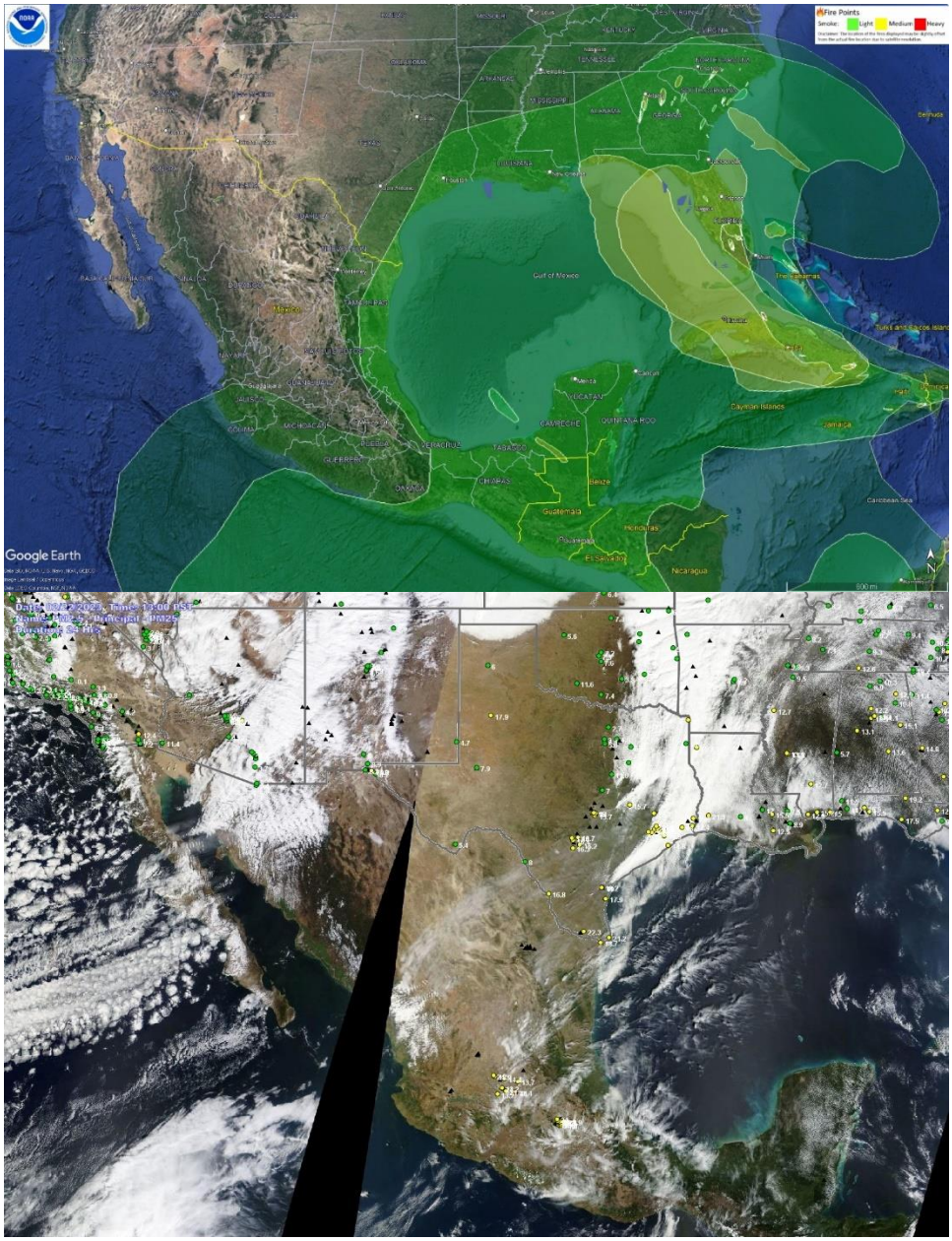


5. 2/22/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

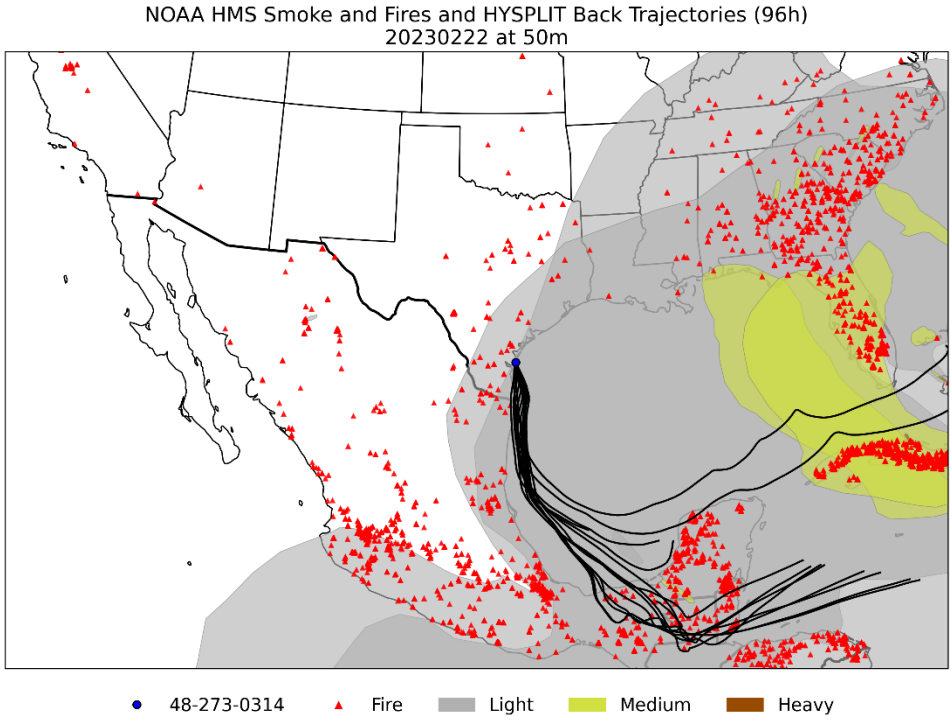
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
2/22/2023	21.2	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

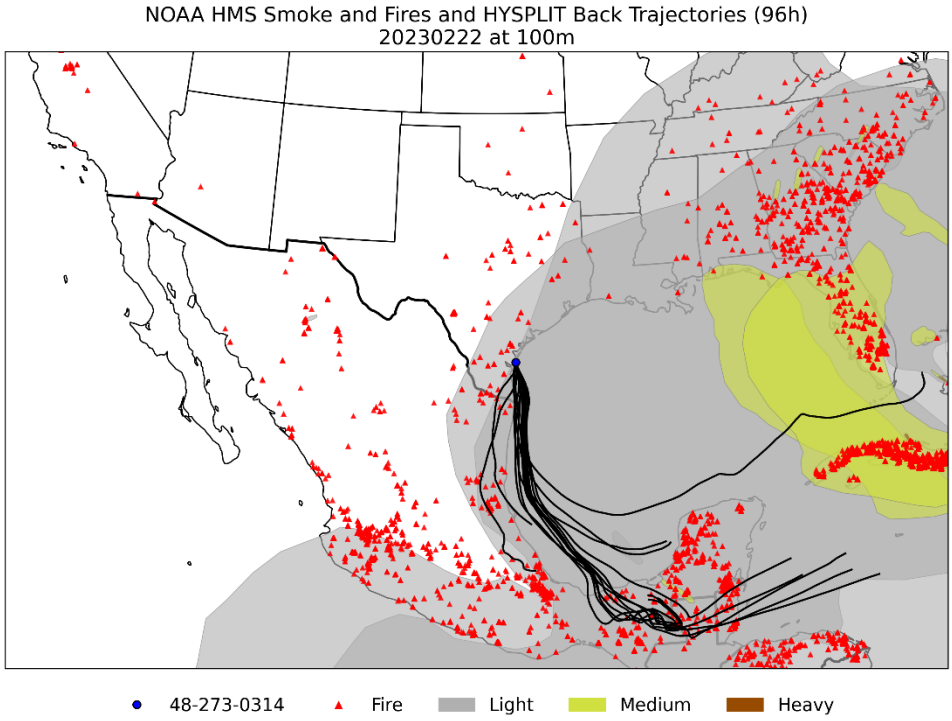


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

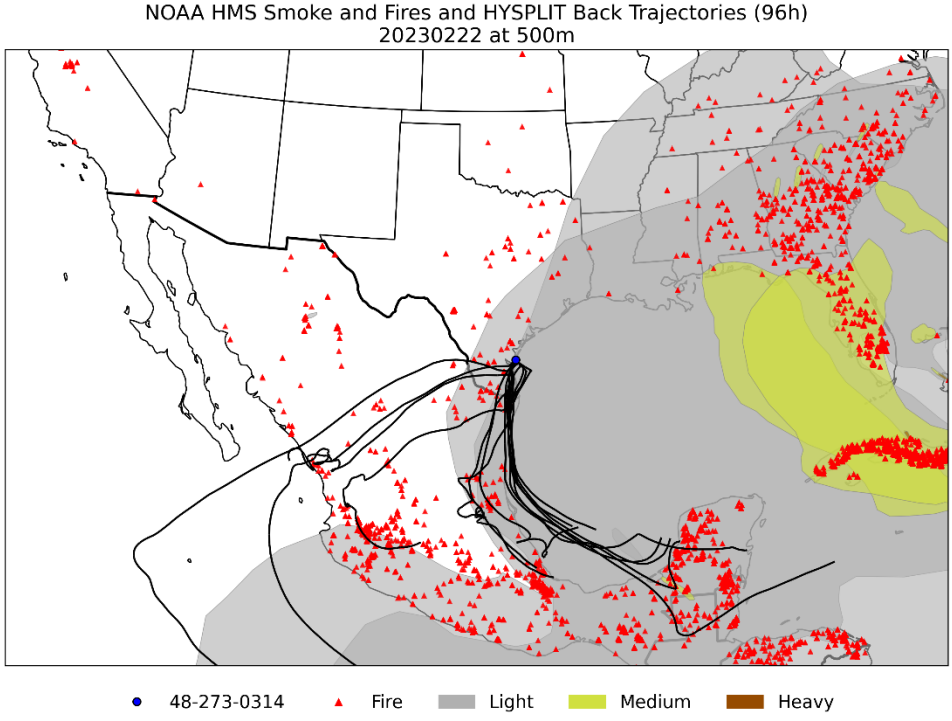
- 50m



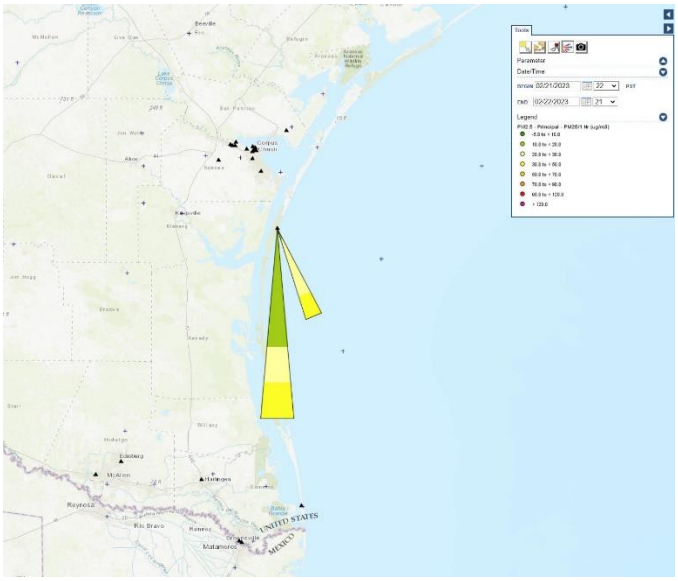
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230222 at 100m
48-273-0314
Fire
Light
Medium
Heavy

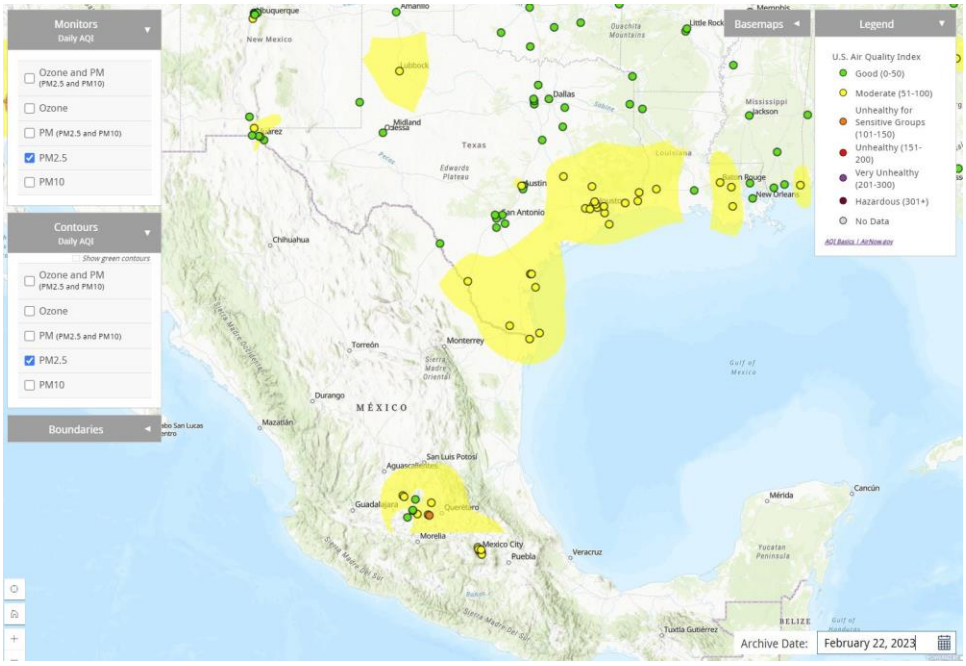
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230222 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3- Pollution rose for 2/22/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 2/22/2023.

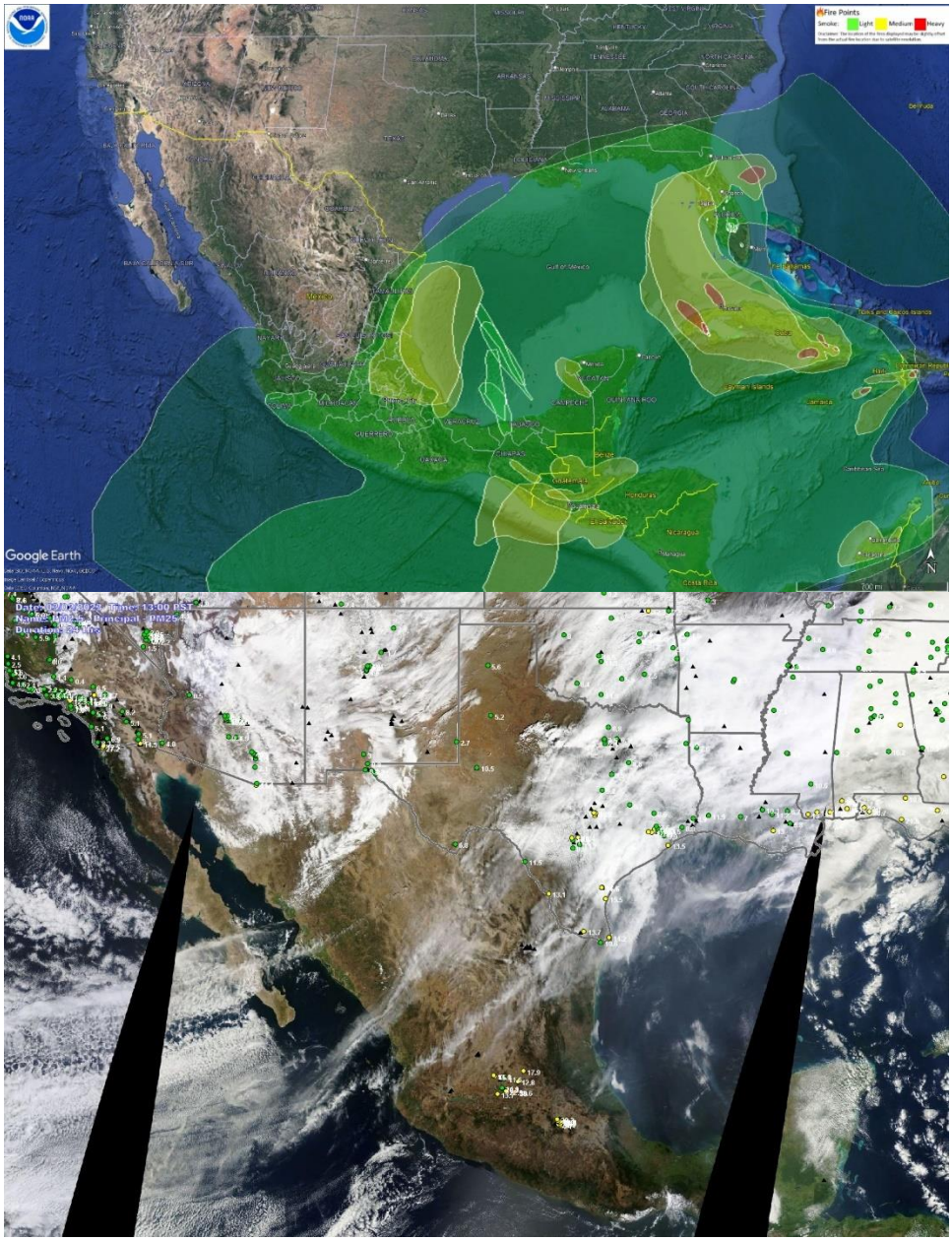


6. 3/2/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

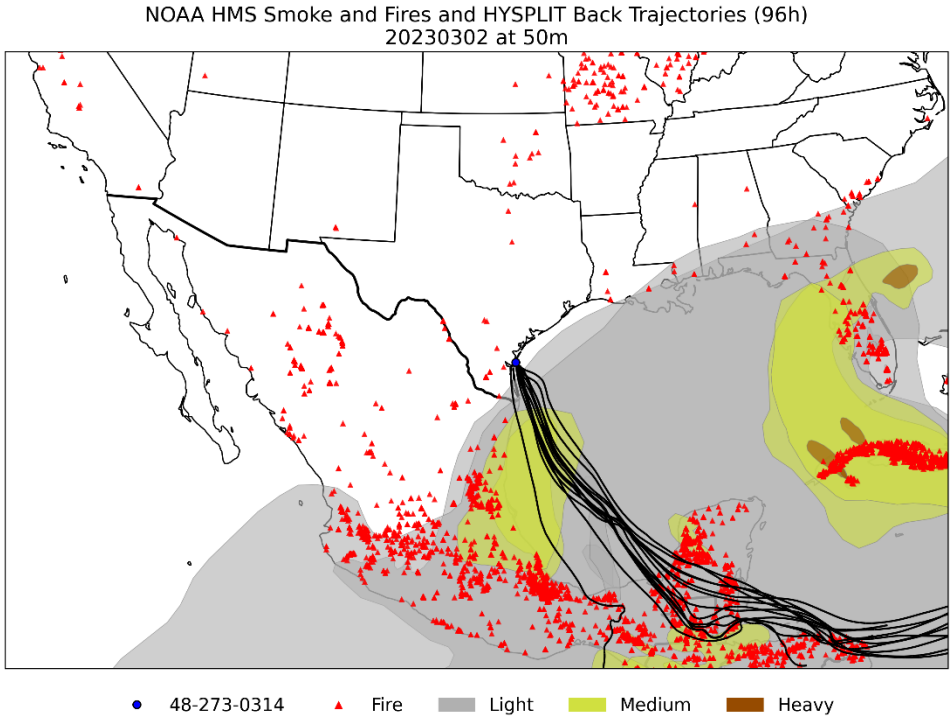
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
3/2/2023	21.5	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

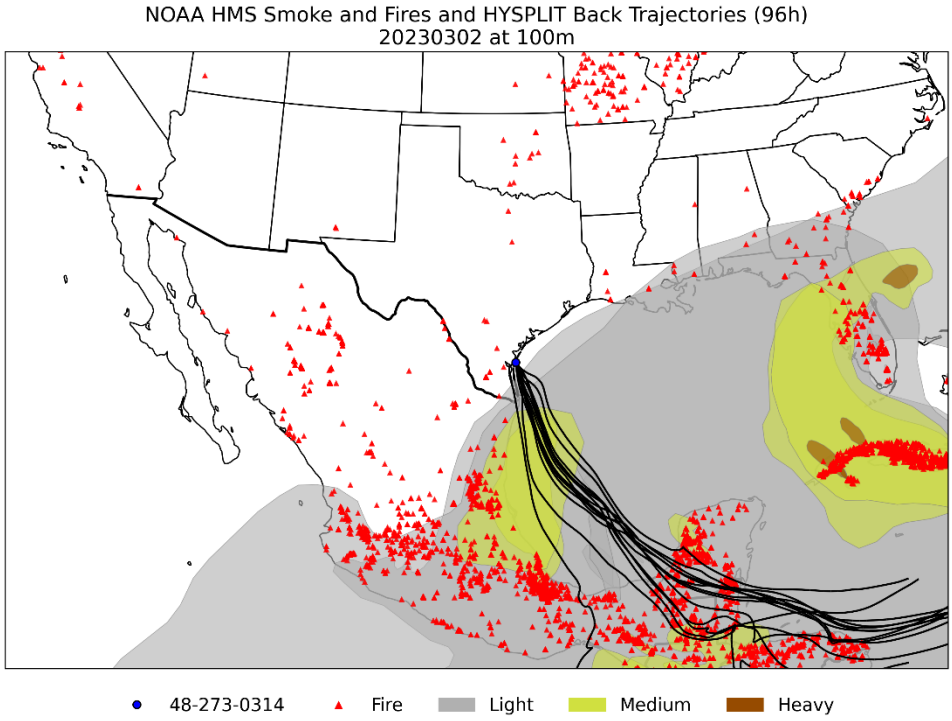


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

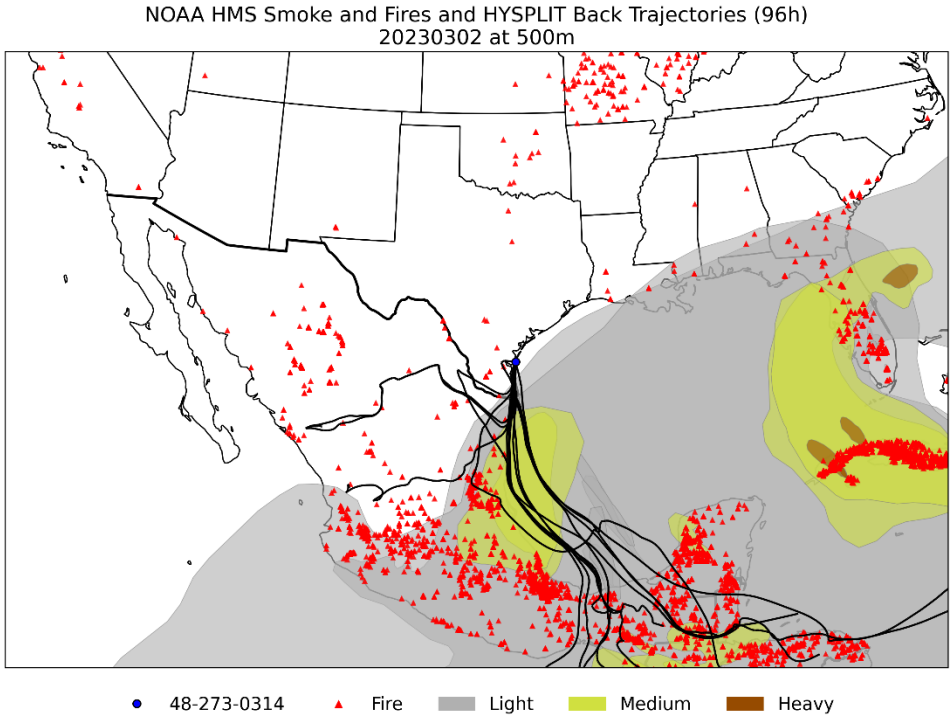
- 50m



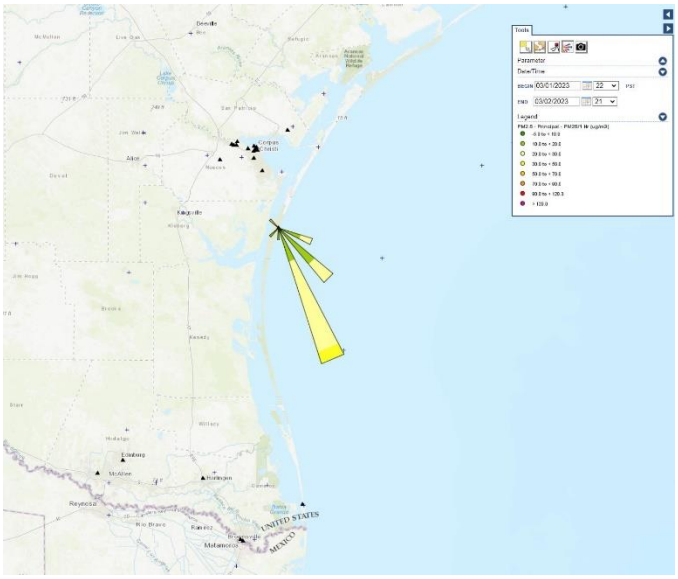
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230302 at 100m
48-273-0314
Fire
Light
Medium
Heavy

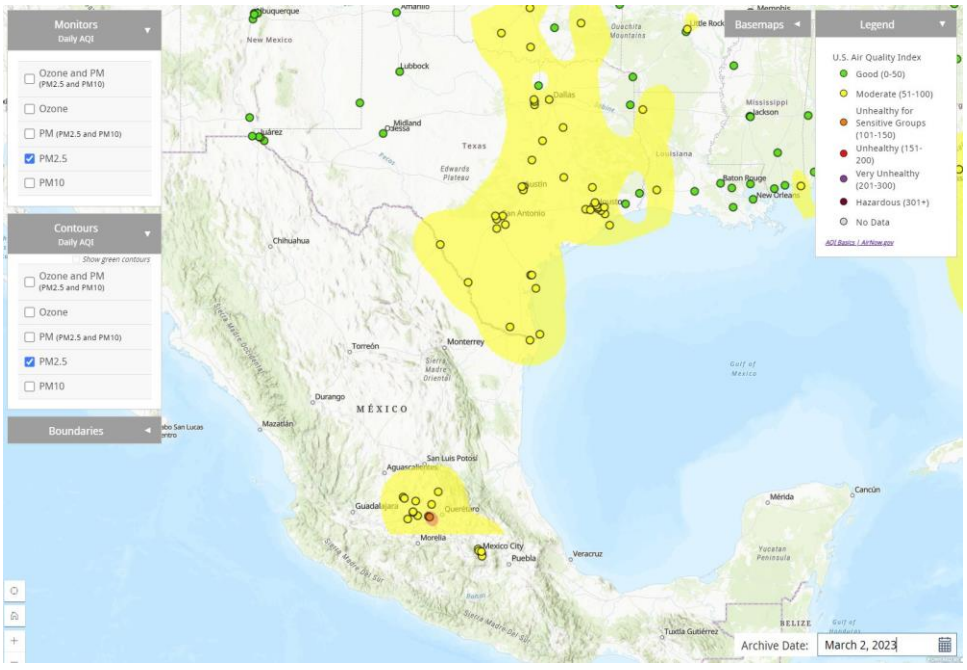
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230302 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3- Pollution rose for 3/2/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 3/2/2023.

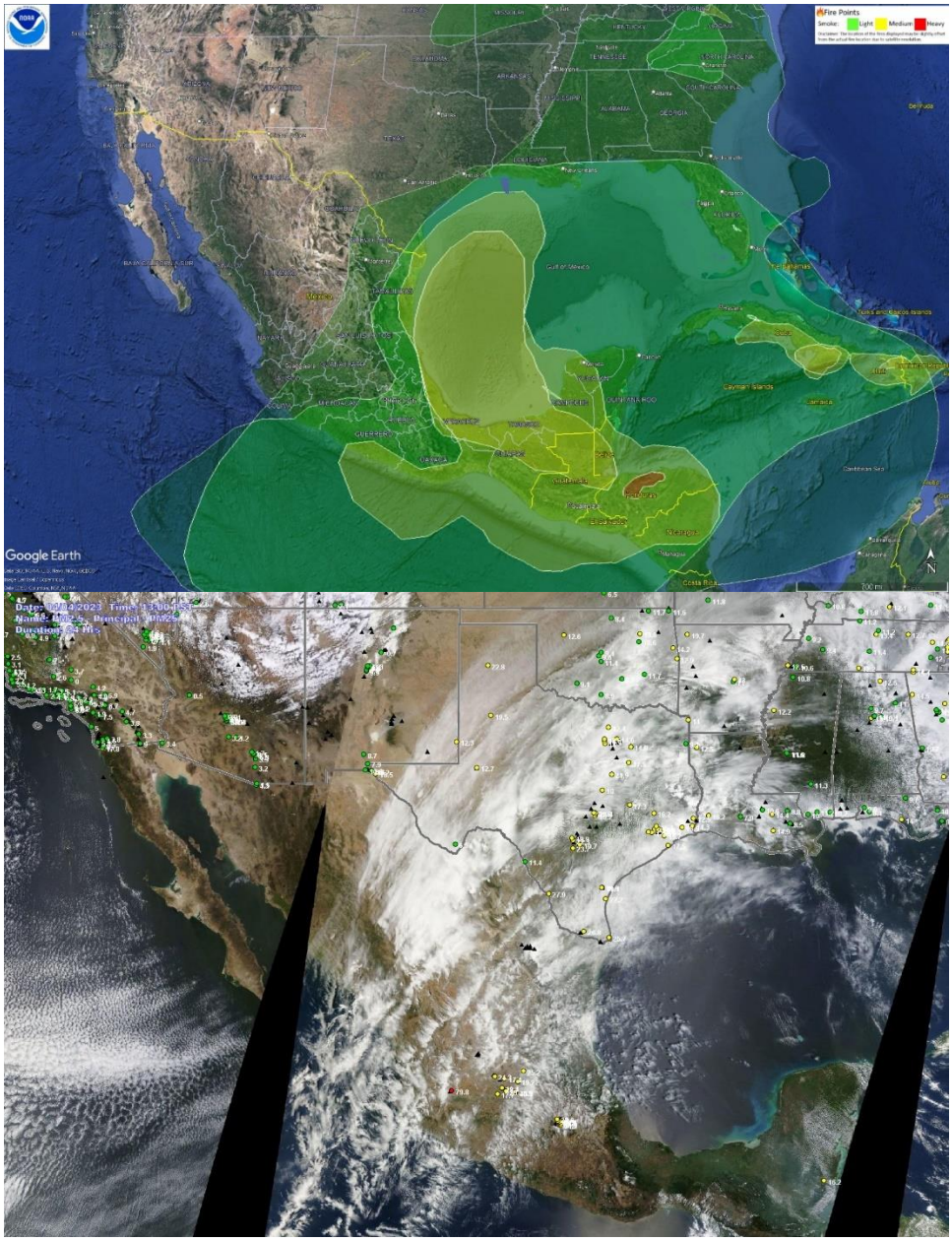


7. 4/4/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

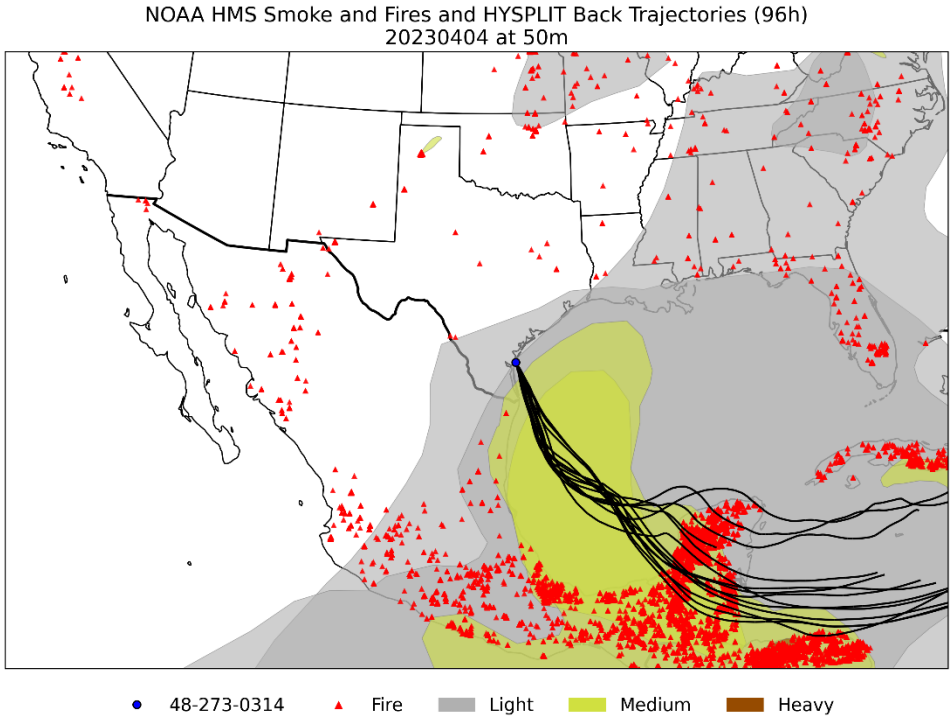
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
4/4/2023	18.4	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

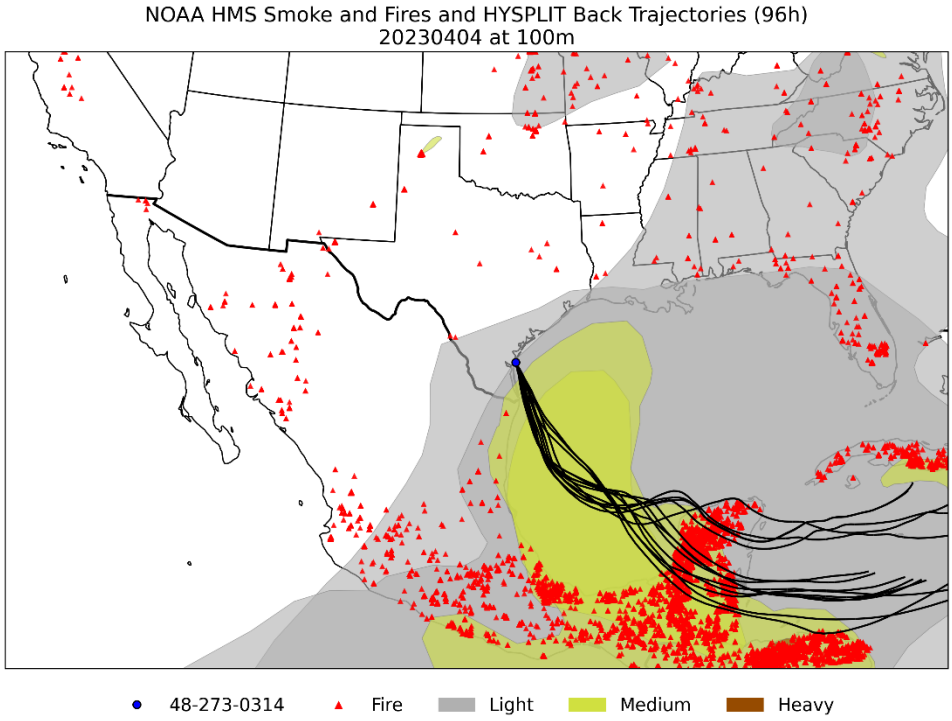


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

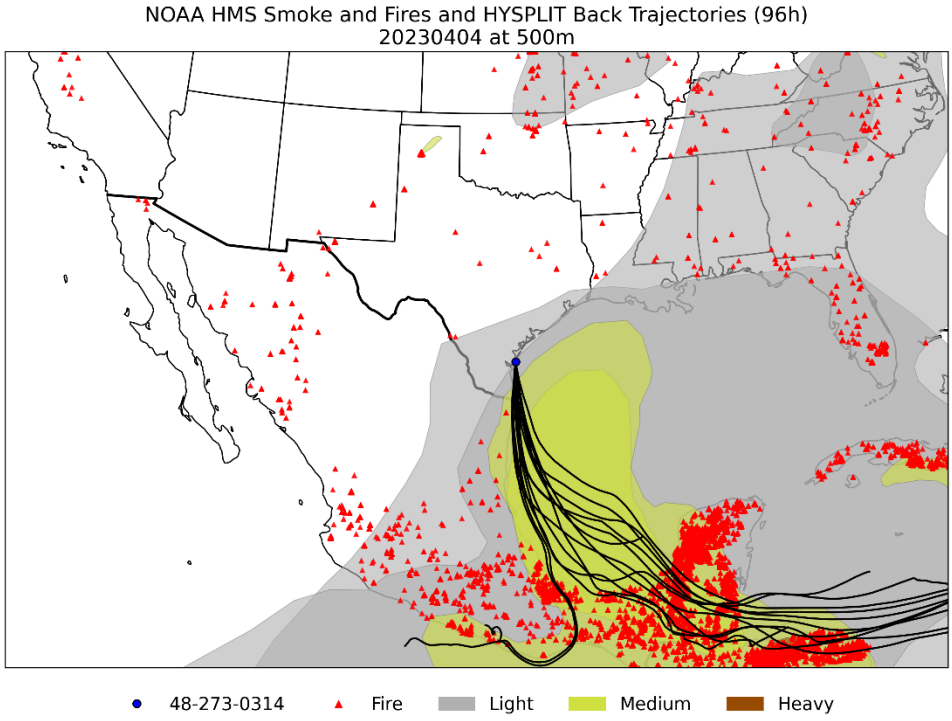
- 50m



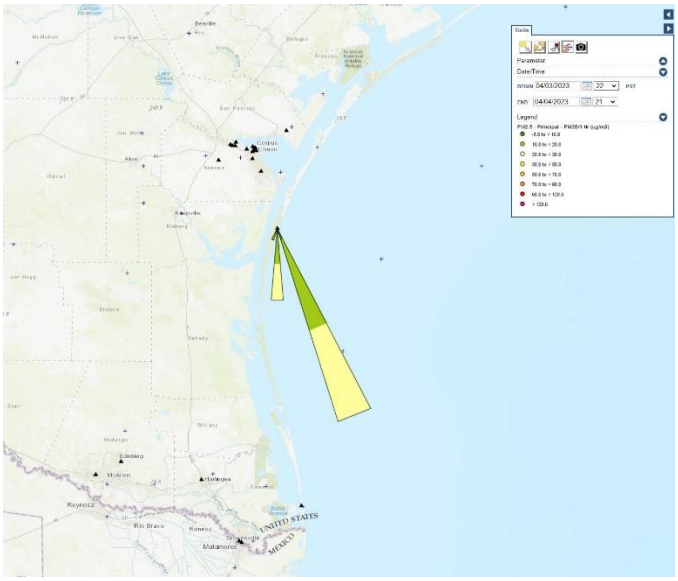
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230404 at 100m
48-273-0314
Fire
Light
Medium
Heavy

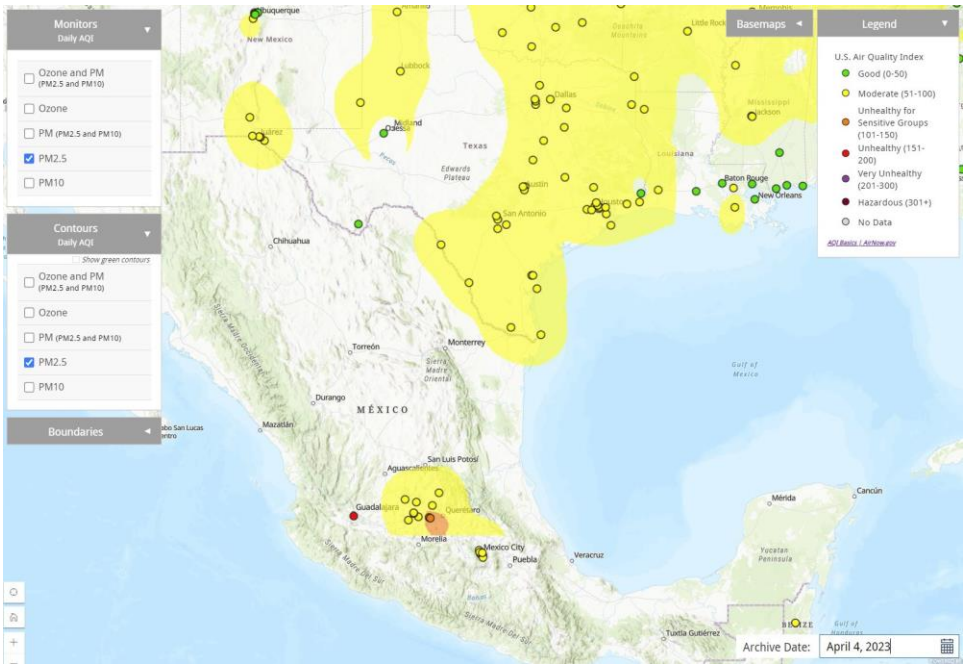
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230404 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3- Pollution rose for 4/4/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4**- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 4/4/2023.

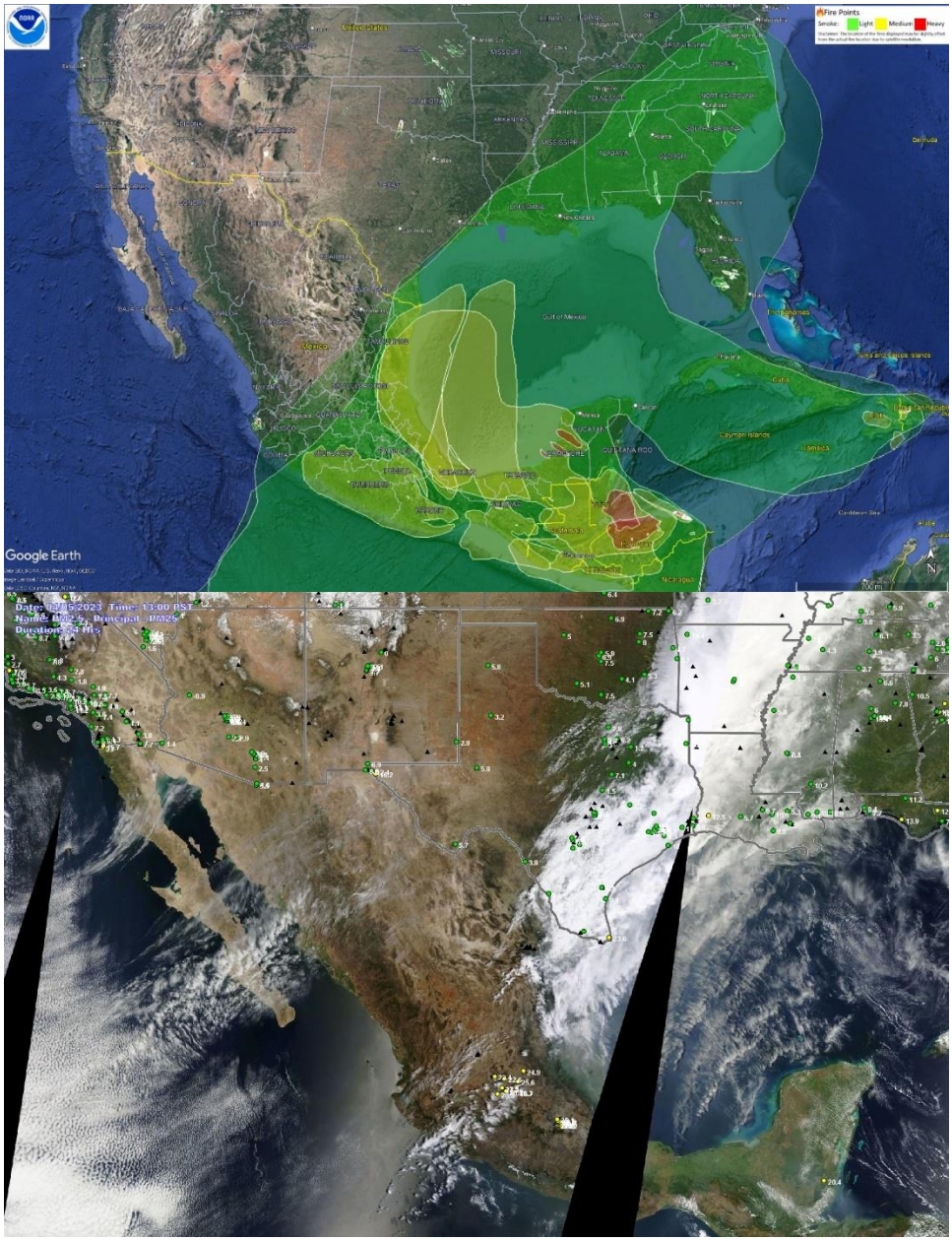


8. 4/5/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

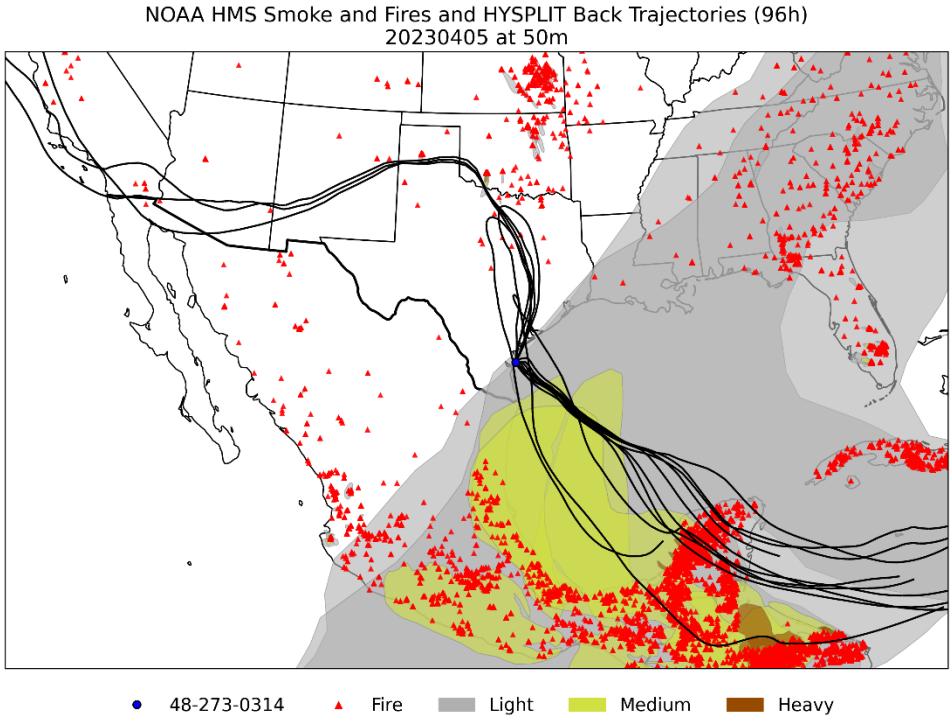
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
4/5/2023	20.1	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

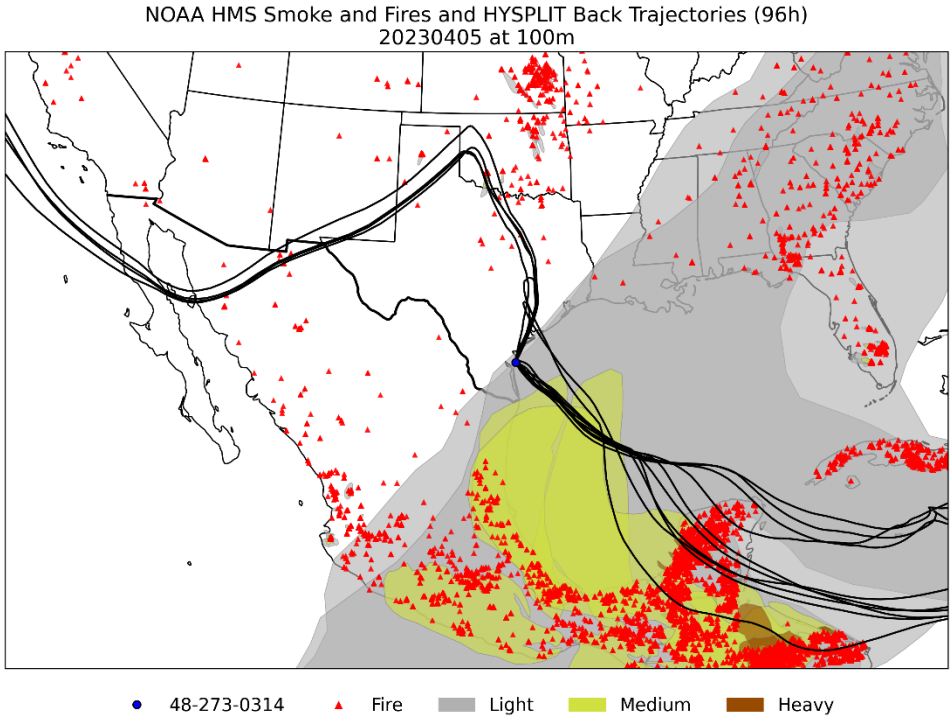


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

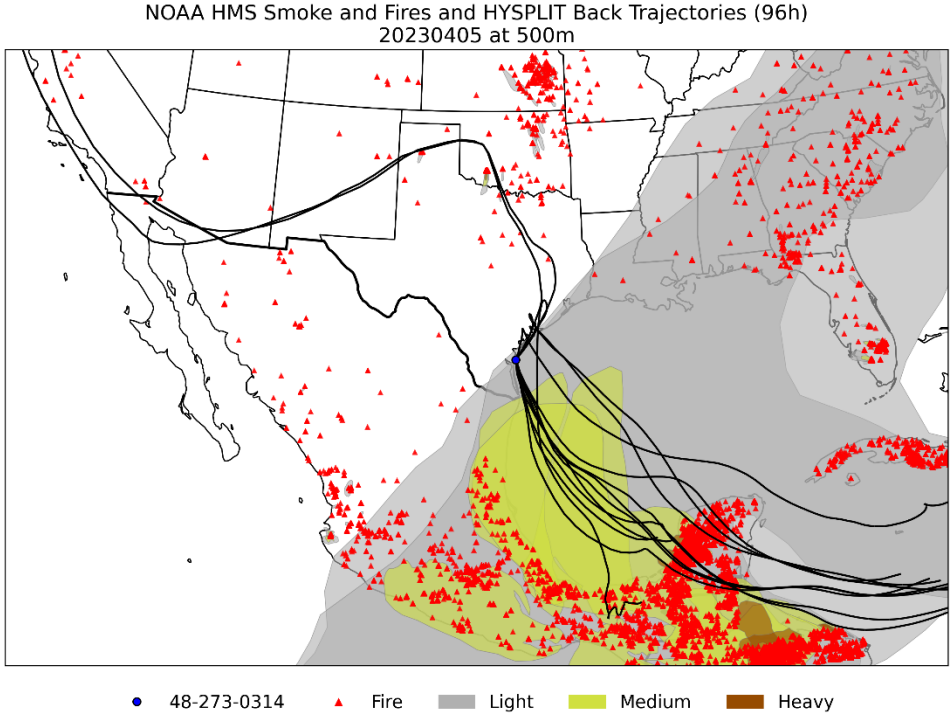
- 50m



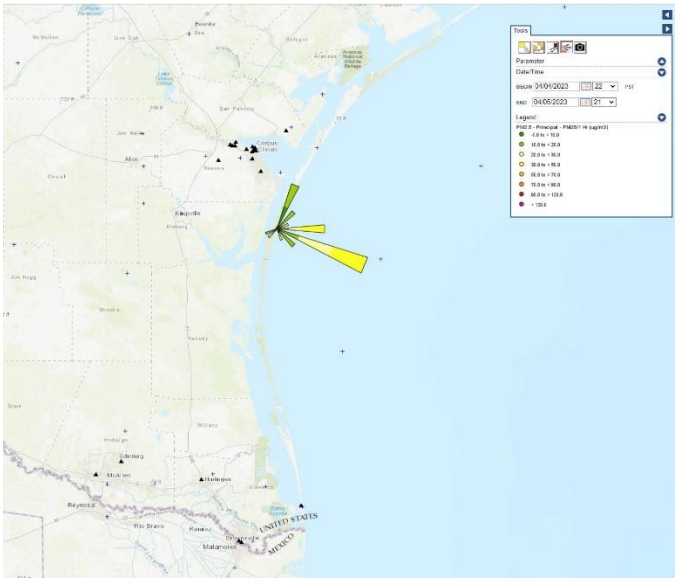
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230405 at 100m
48-273-0314
Fire
Light
Medium
Heavy

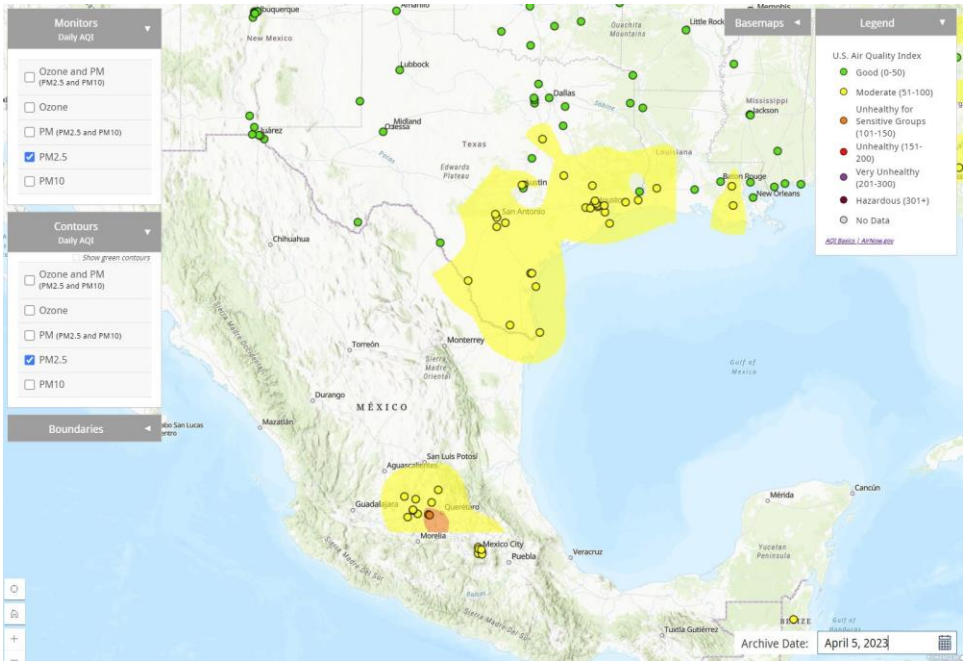
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230405 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3- Pollution rose for 4/5/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4**- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 4/5/2023.

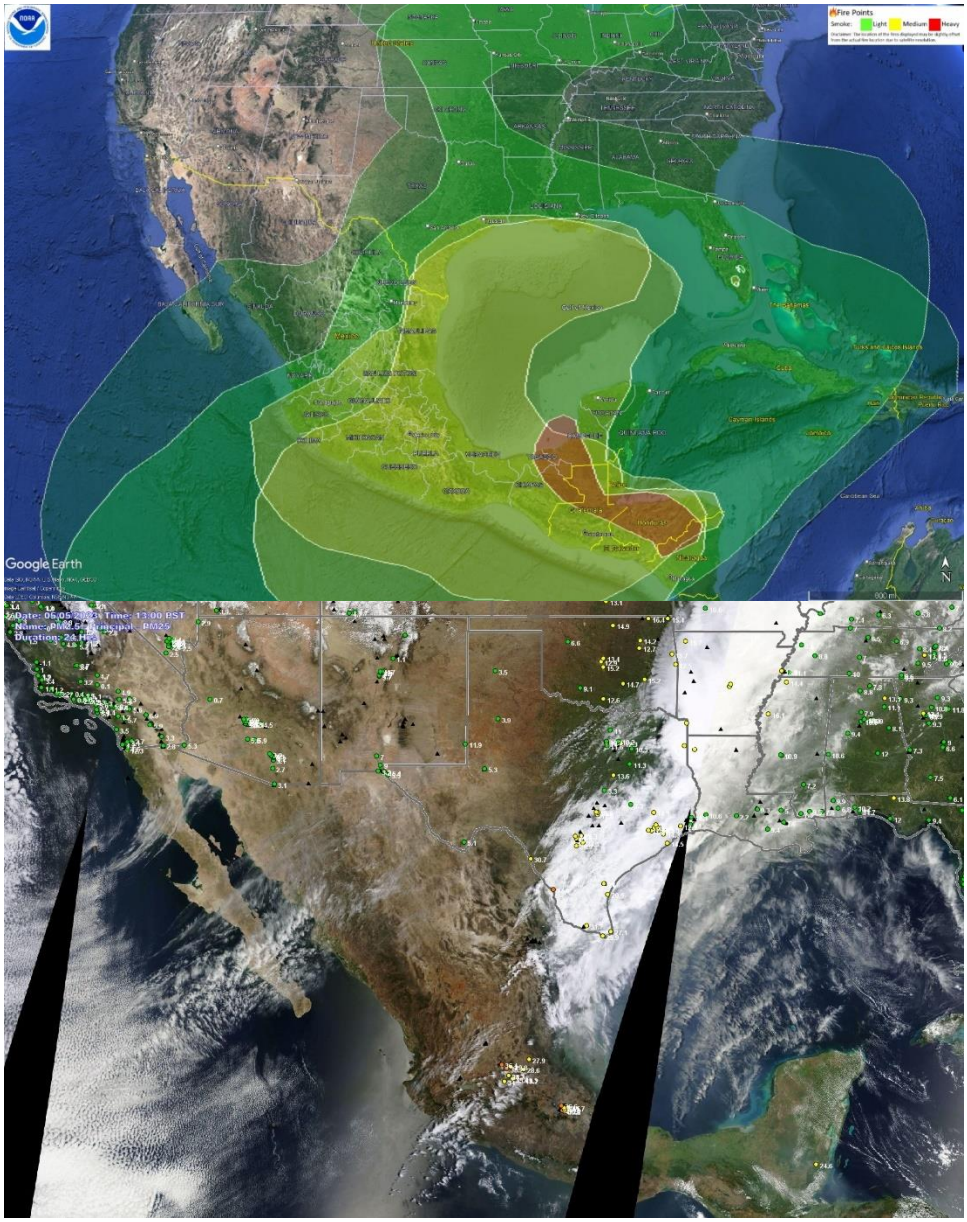


9. 5/5/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

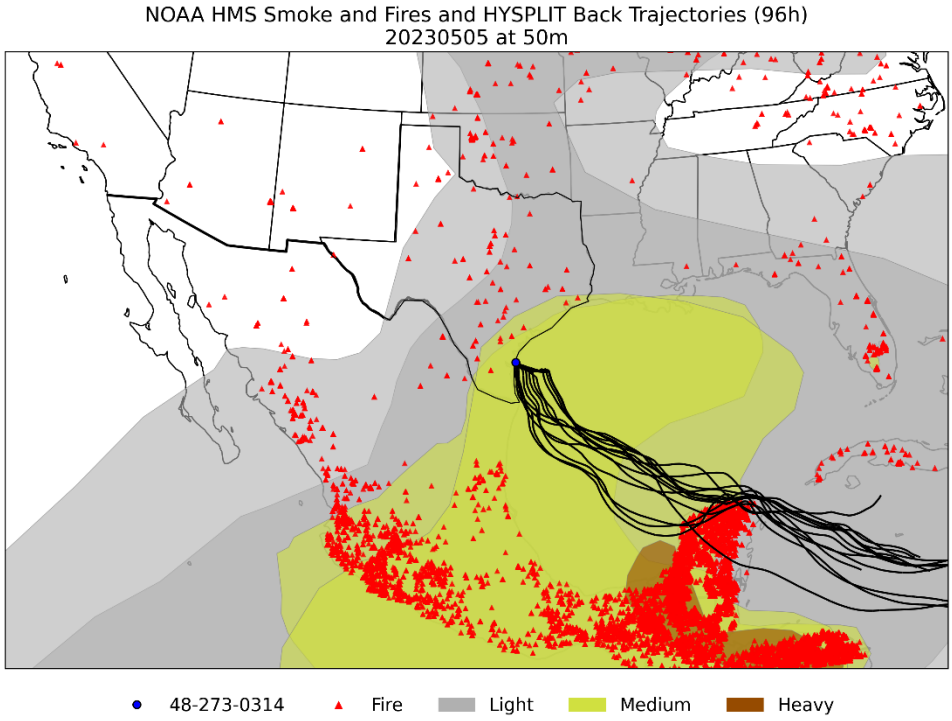
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
5/5/2023	22.2	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

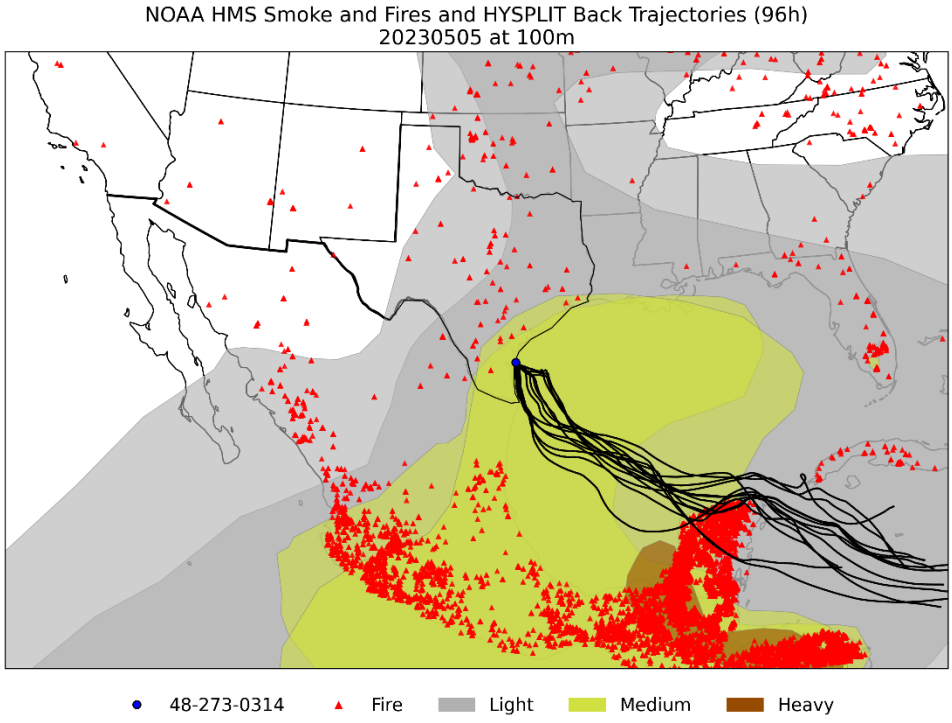


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

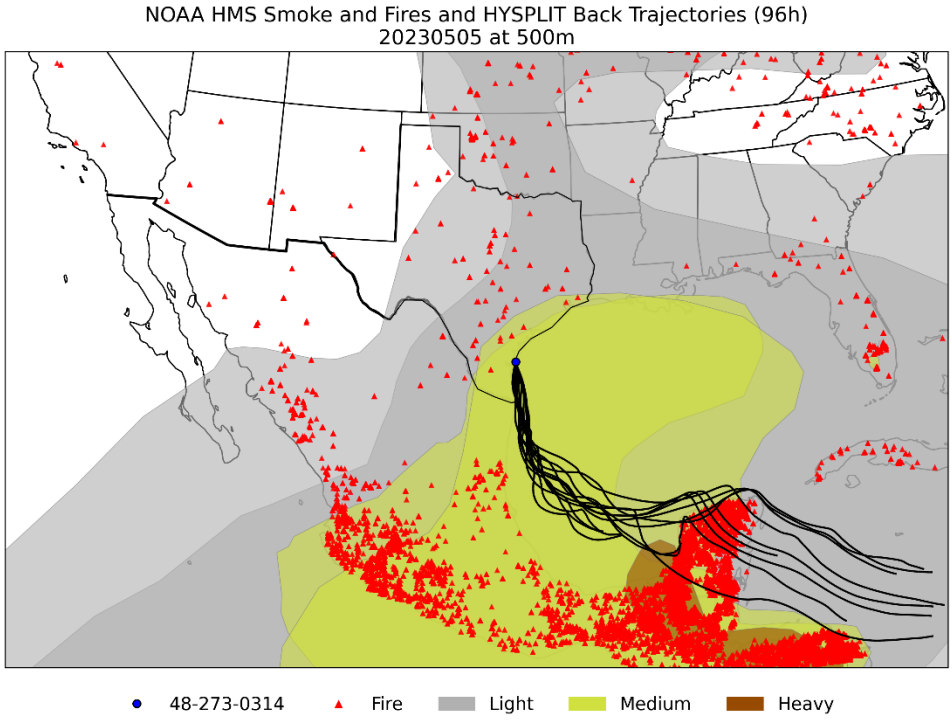
- 50m



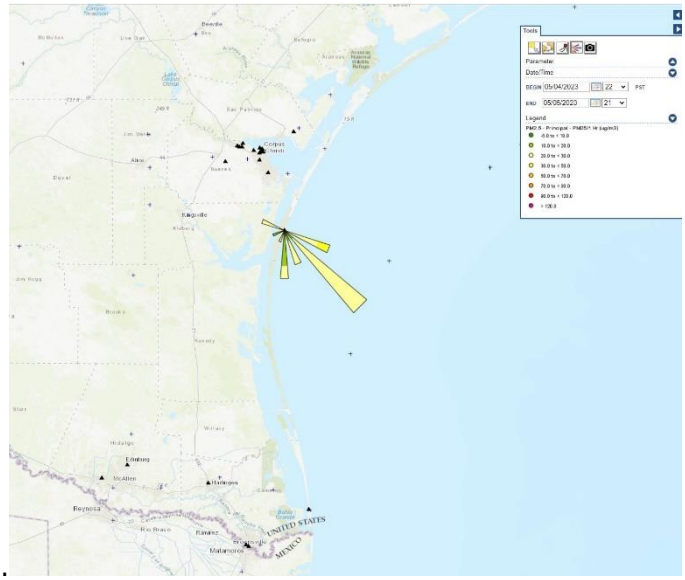
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230505 at 100m
48-273-0314
Fire
Light
Medium
Heavy

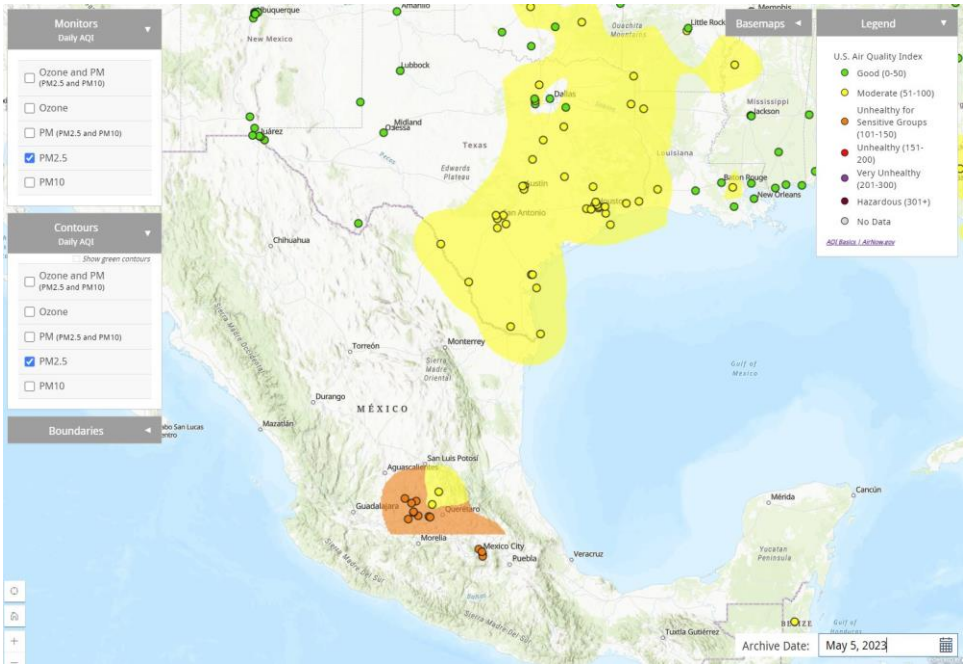
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230505 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3- Pollution rose for 5/5/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 5/5/2023.

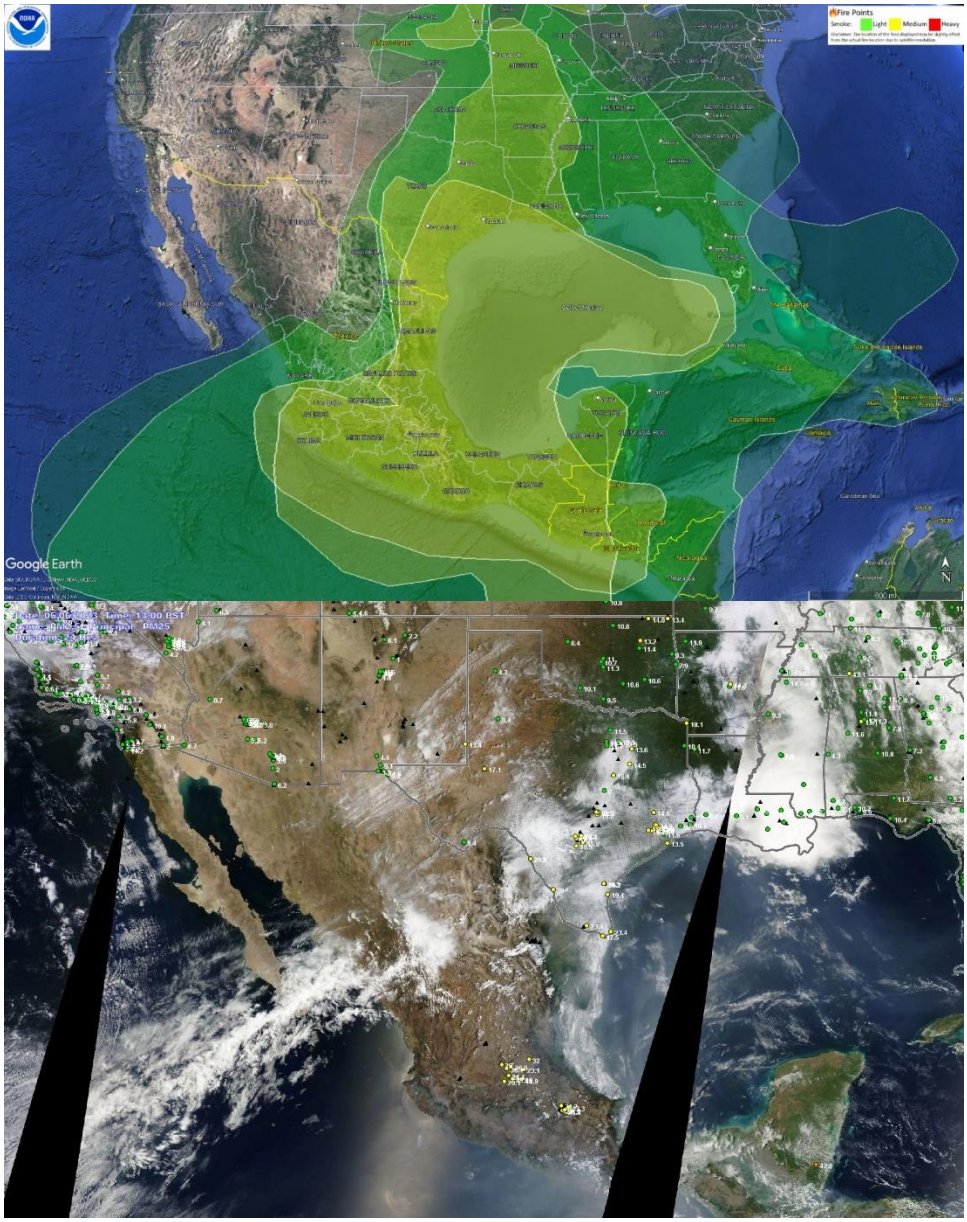


10. 5/6/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

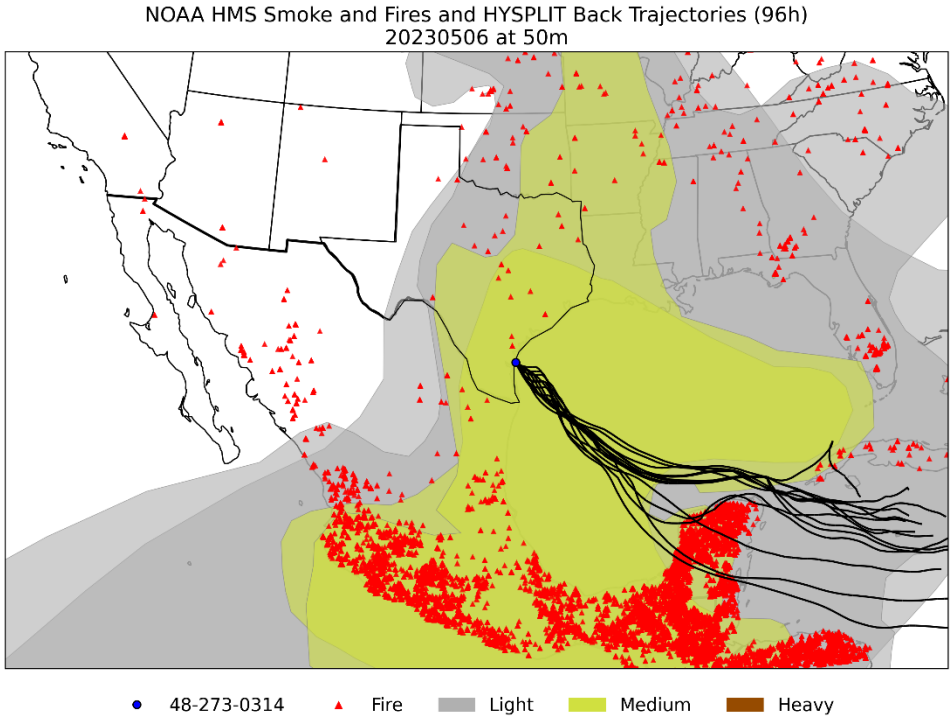
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
5/6/2023	18.3	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

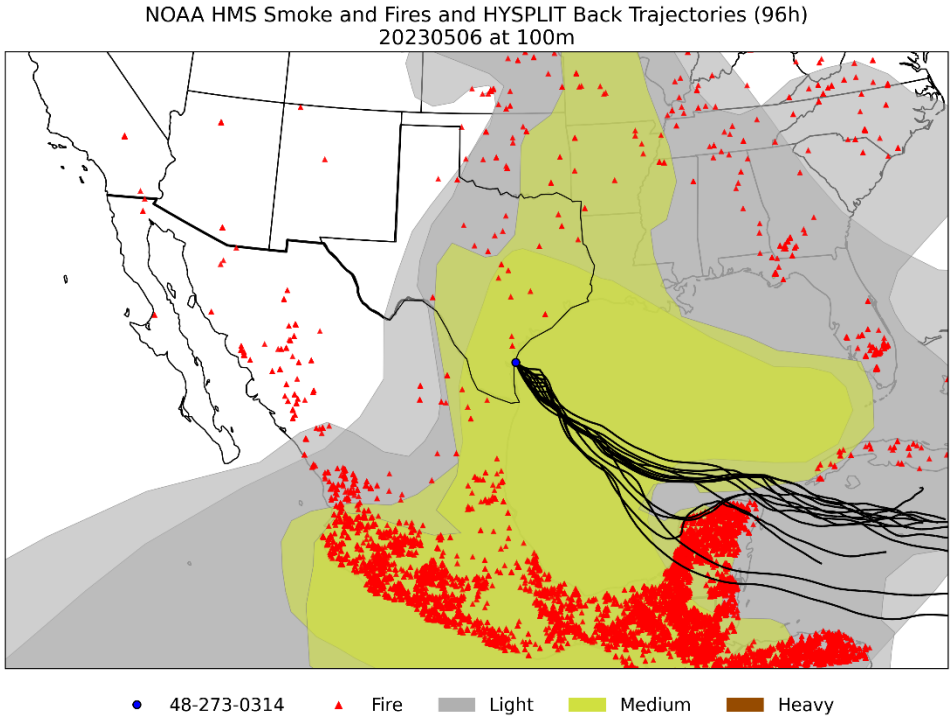


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

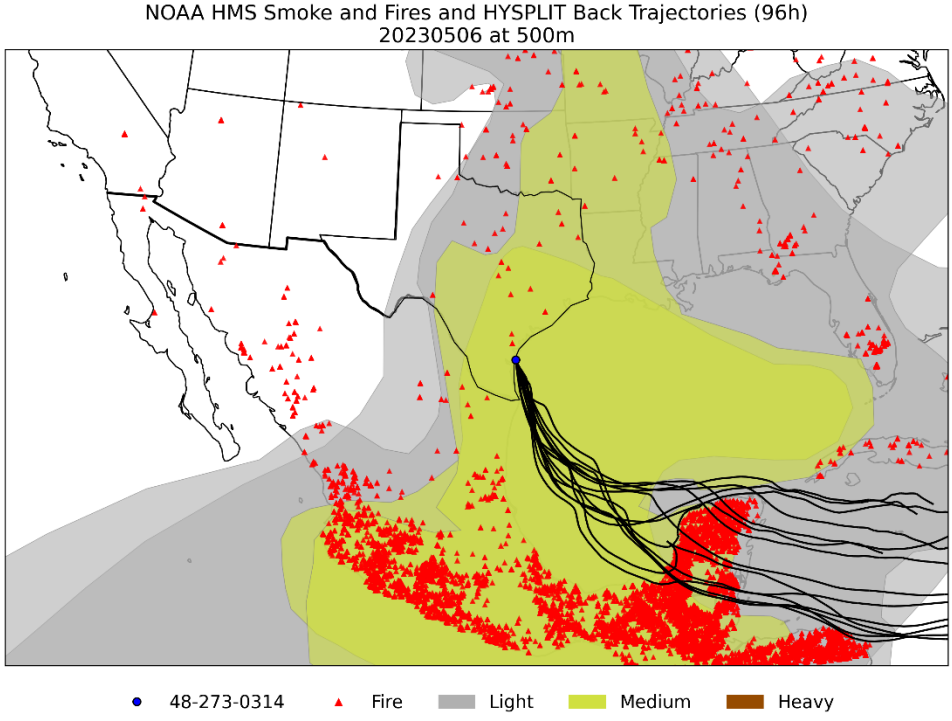
- 50m



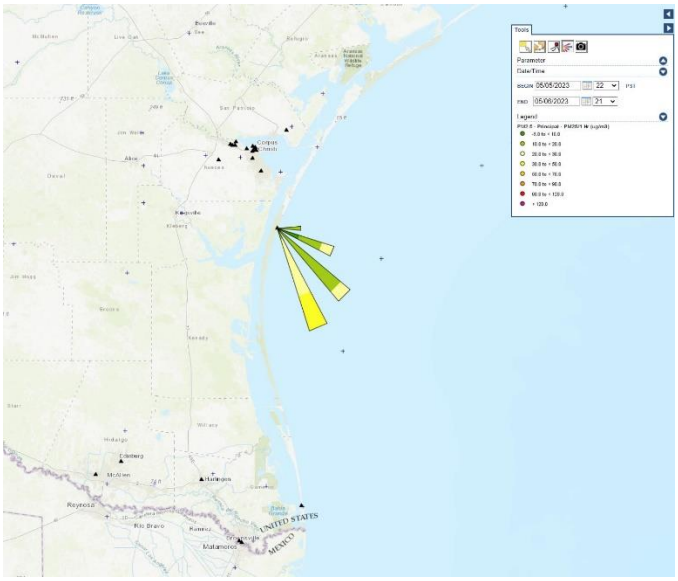
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230506 at 100m
48-273-0314
Fire
Light
Medium
Heavy

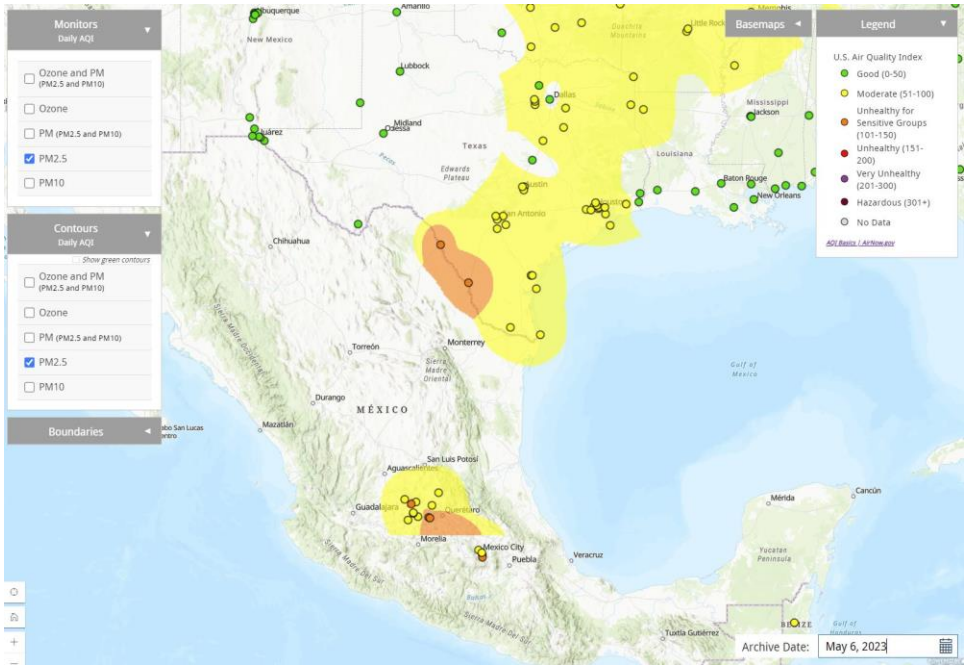
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230506 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3**- Pollution rose for 5/6/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4**- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 5/6/2023.

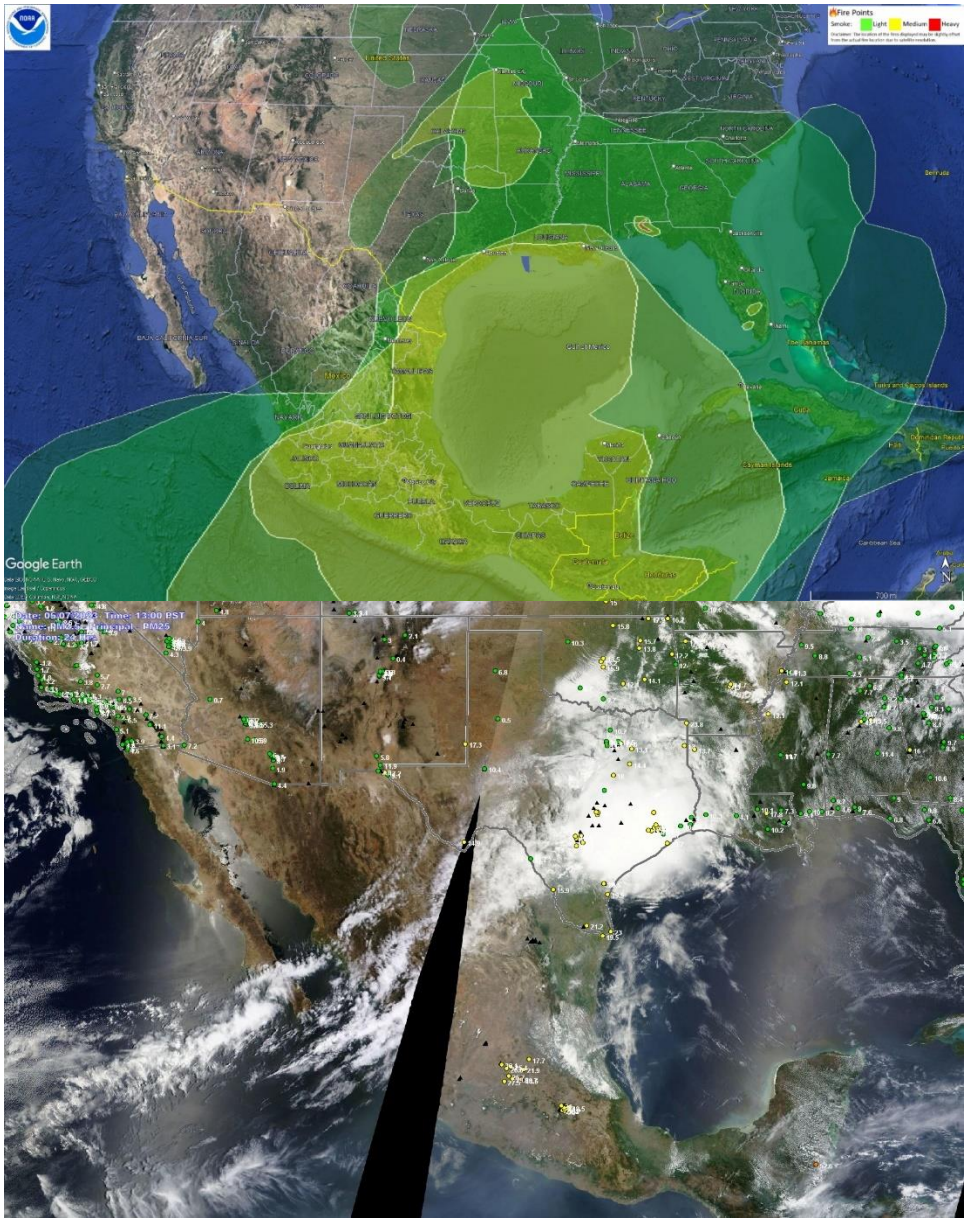


11. 5/7/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

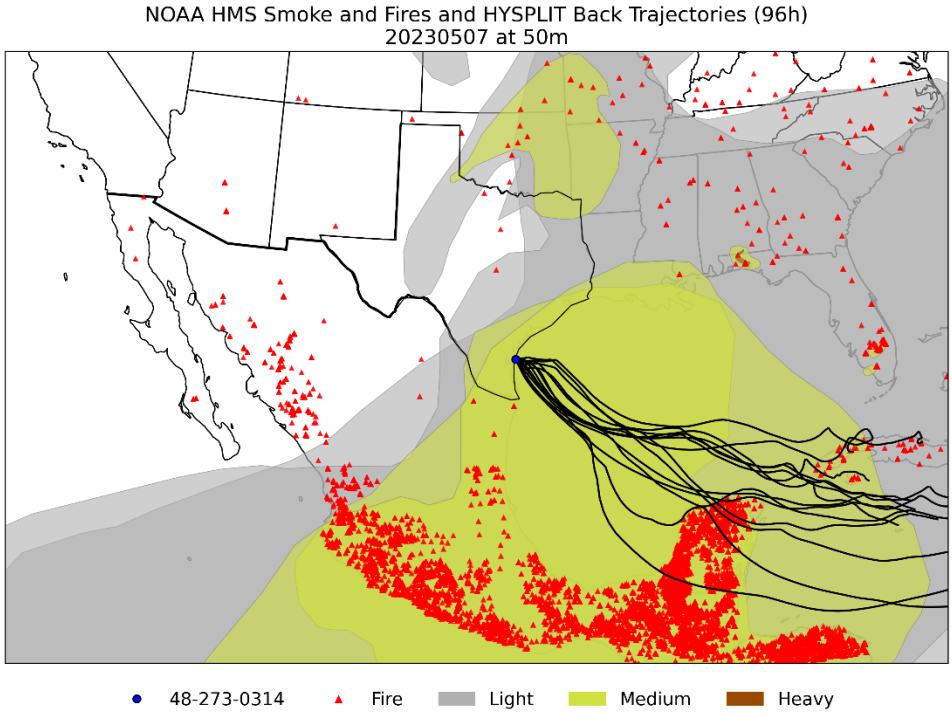
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
5/7/2023	19.4	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

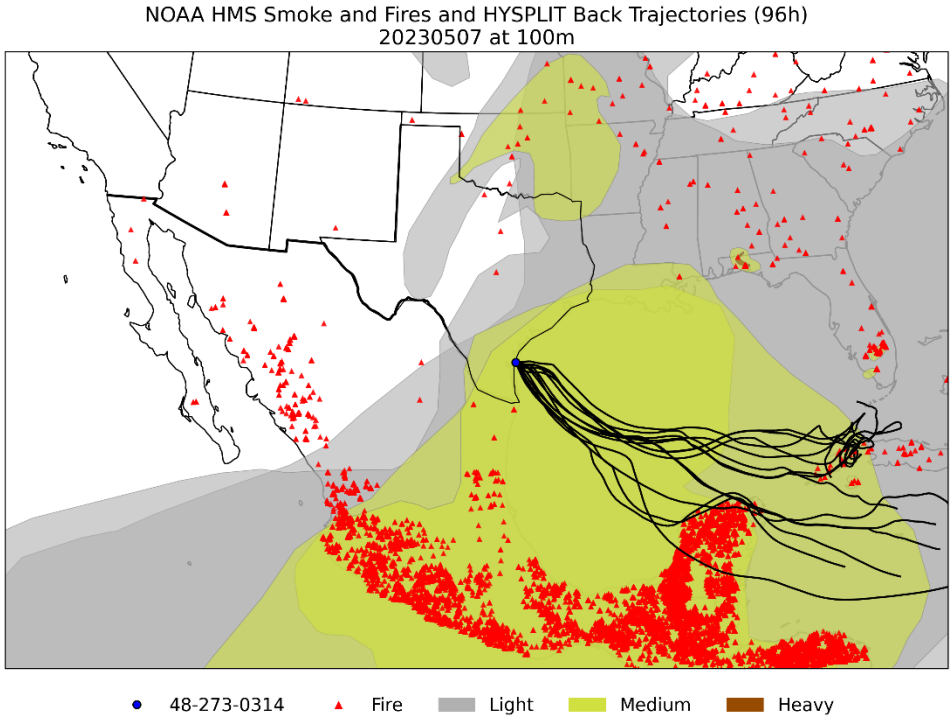


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

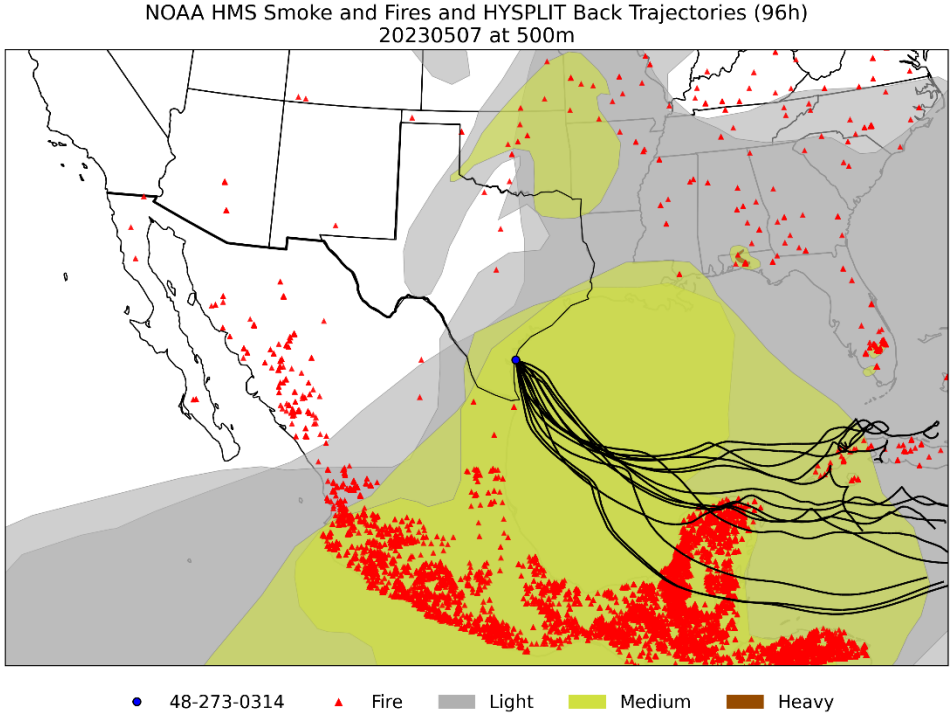
- 50m



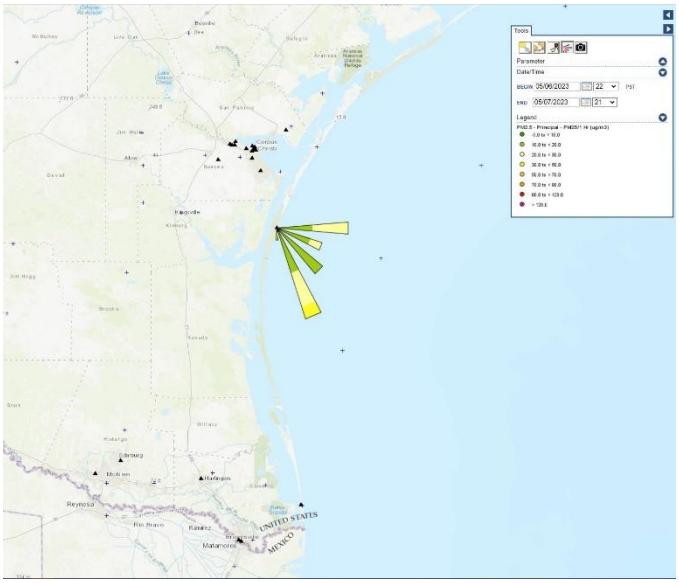
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230507 at 100m
48-273-0314
Fire
Light
Medium
Heavy

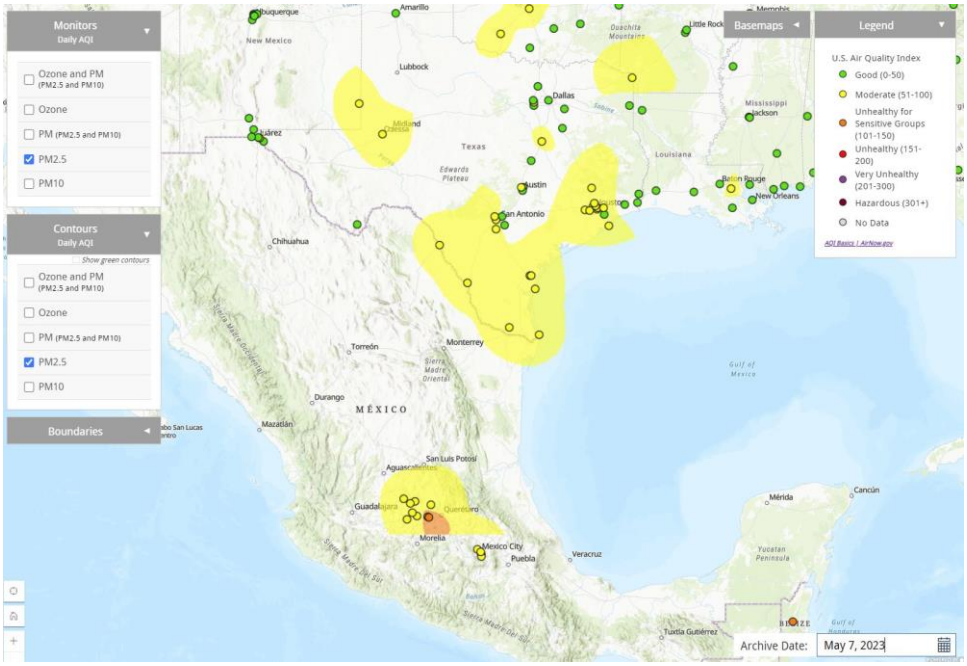
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230507 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3- Pollution rose for 5/7/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4**- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 5/7/2023.

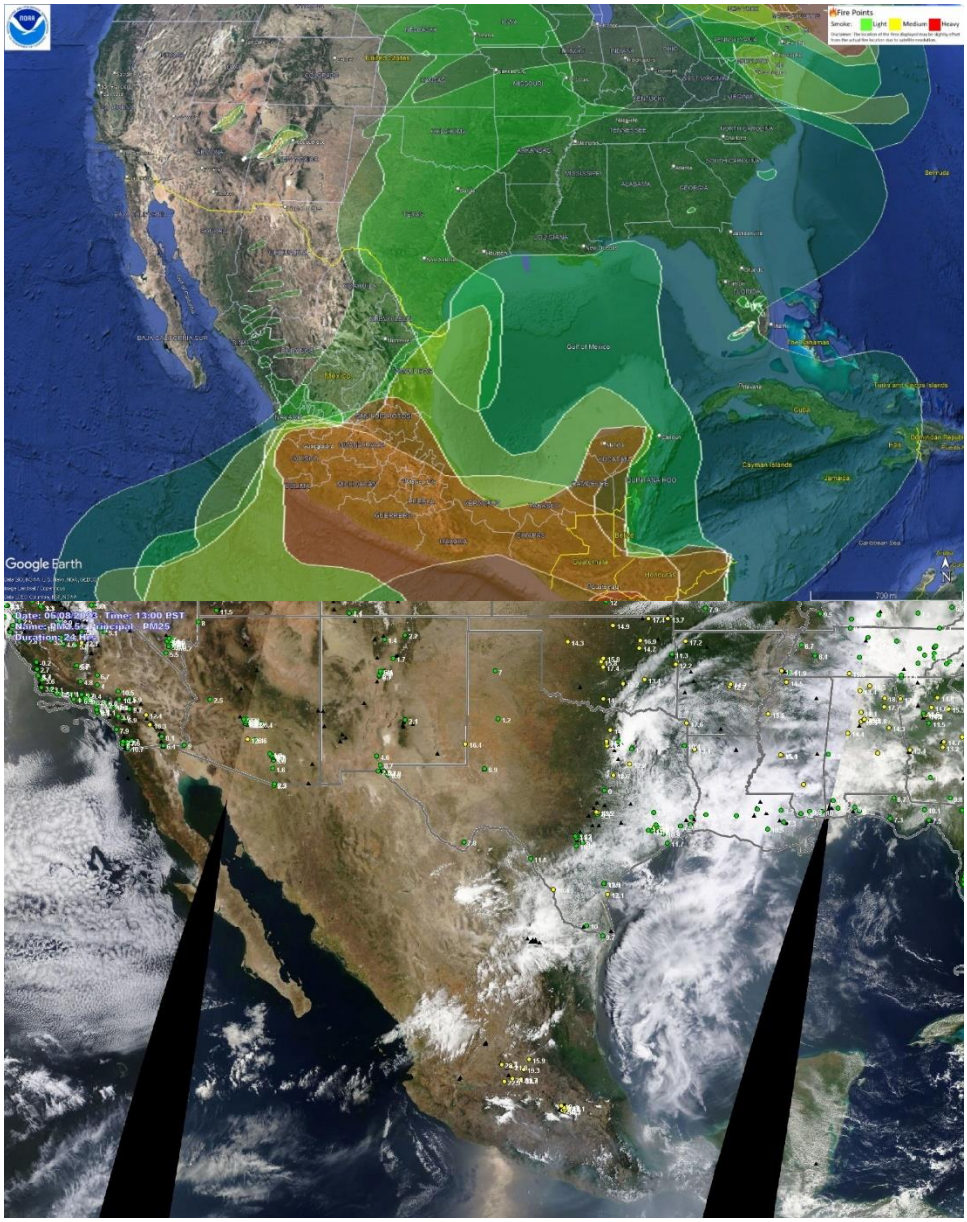


12. 5/8/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

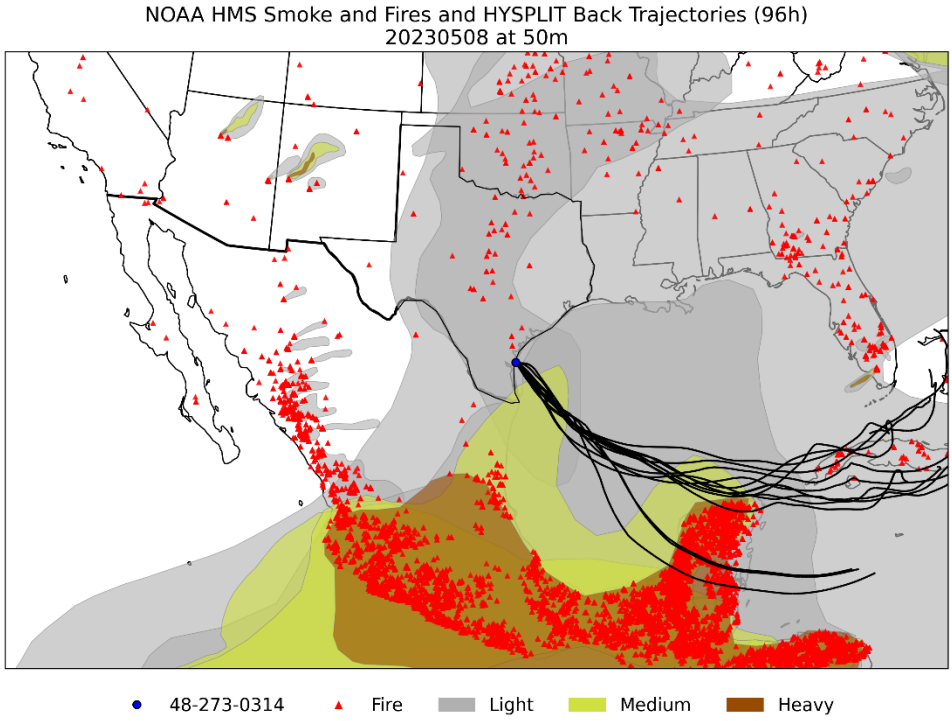
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
5/8/2023	19.2	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

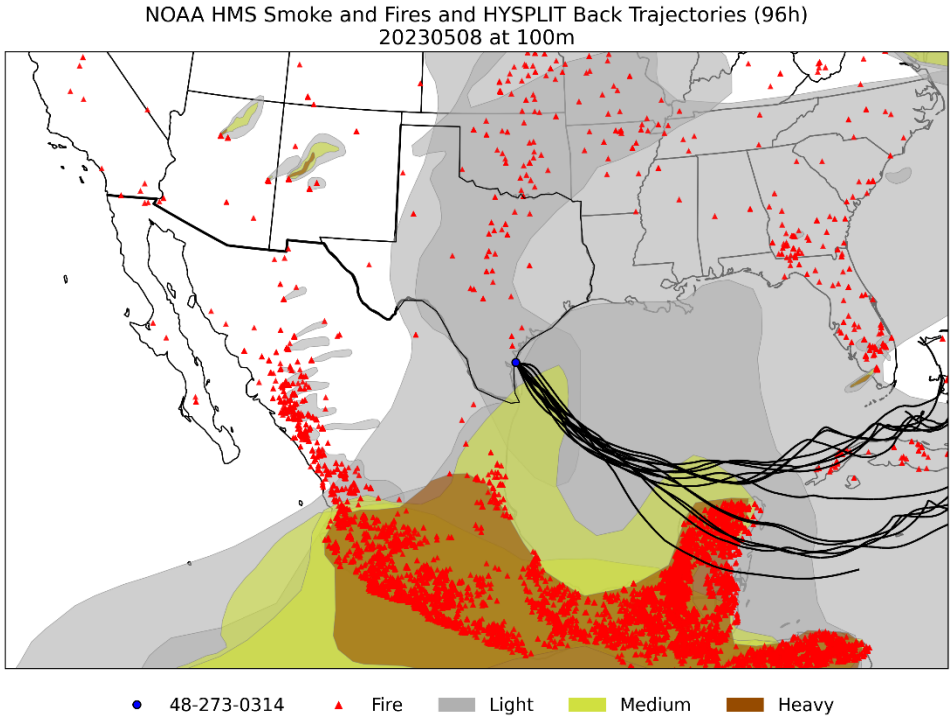


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

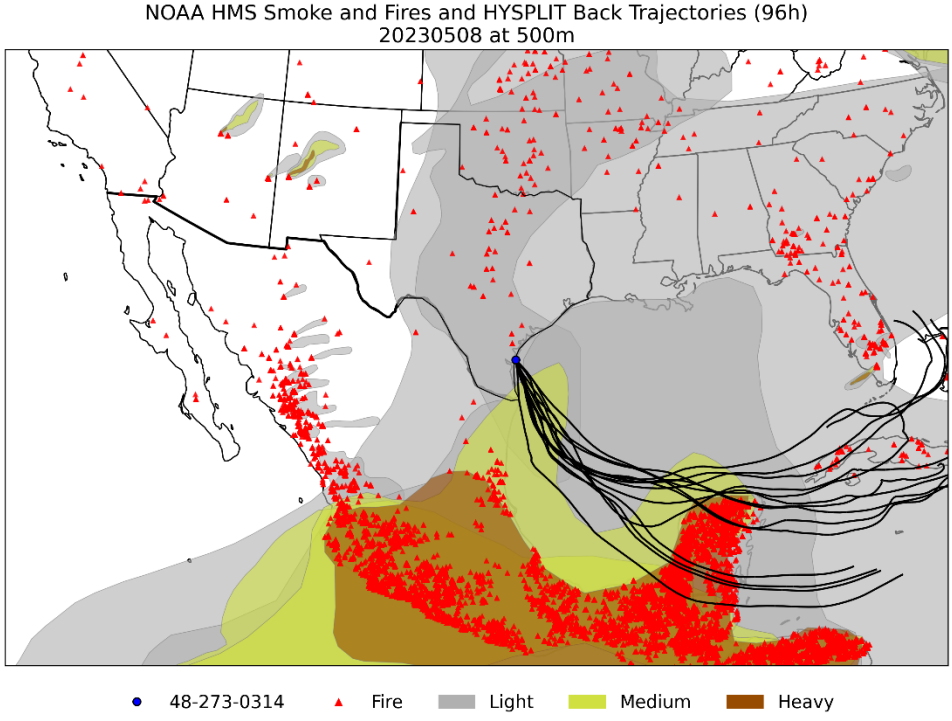
- 50m



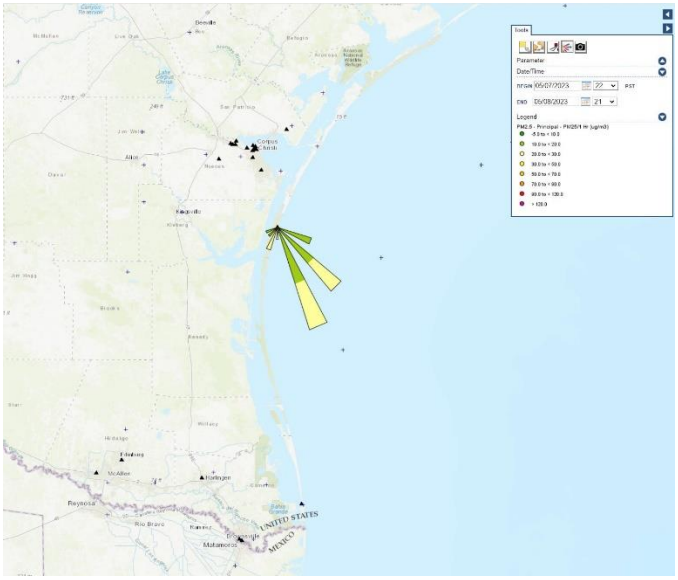
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230508 at 100m
48-273-0314
Fire
Light
Medium
Heavy

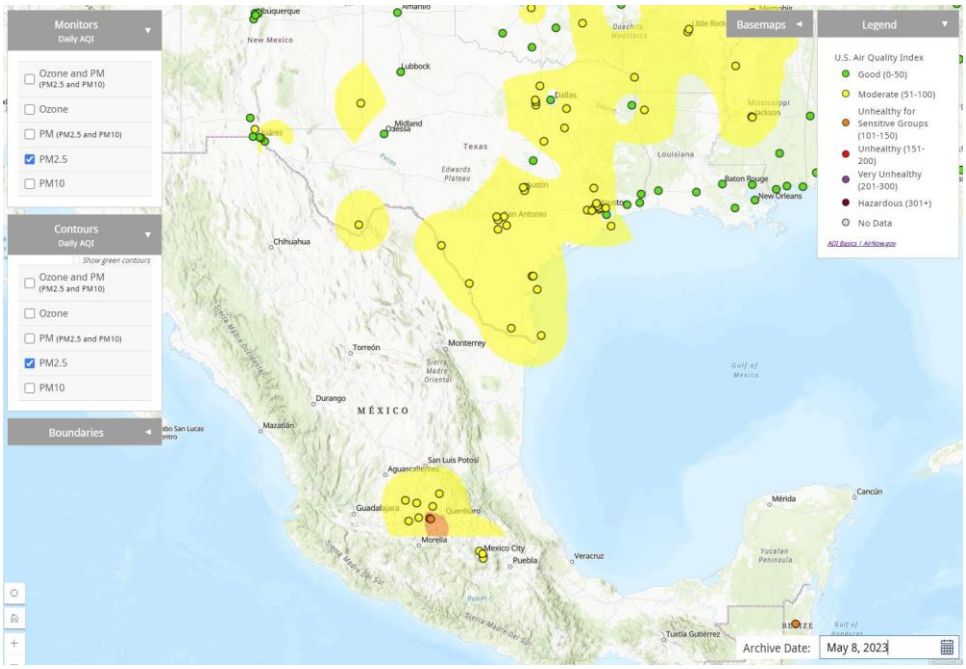
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230508 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3- Pollution rose for 5/8/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4**- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 5/8/2023.

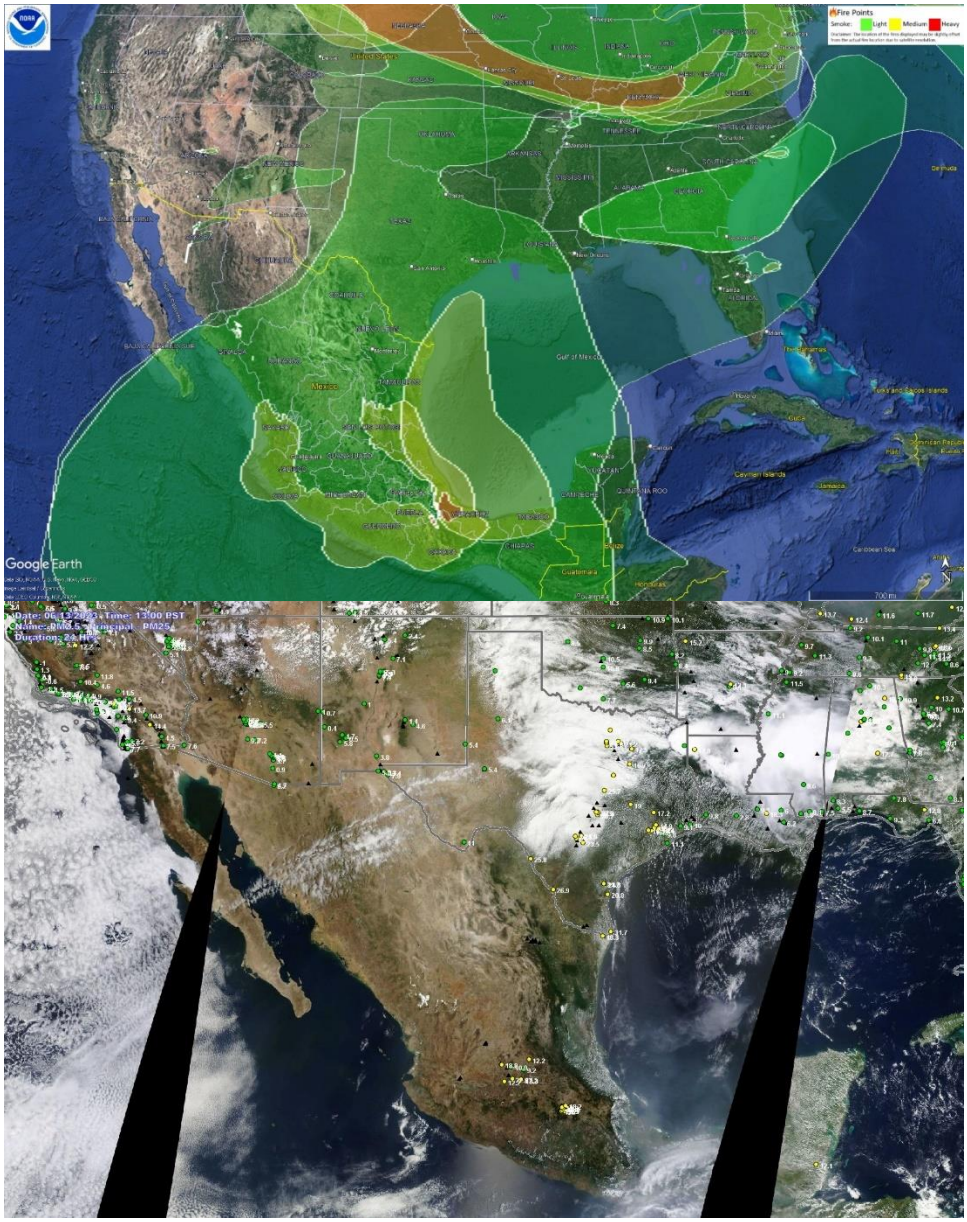


13. 6/13/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

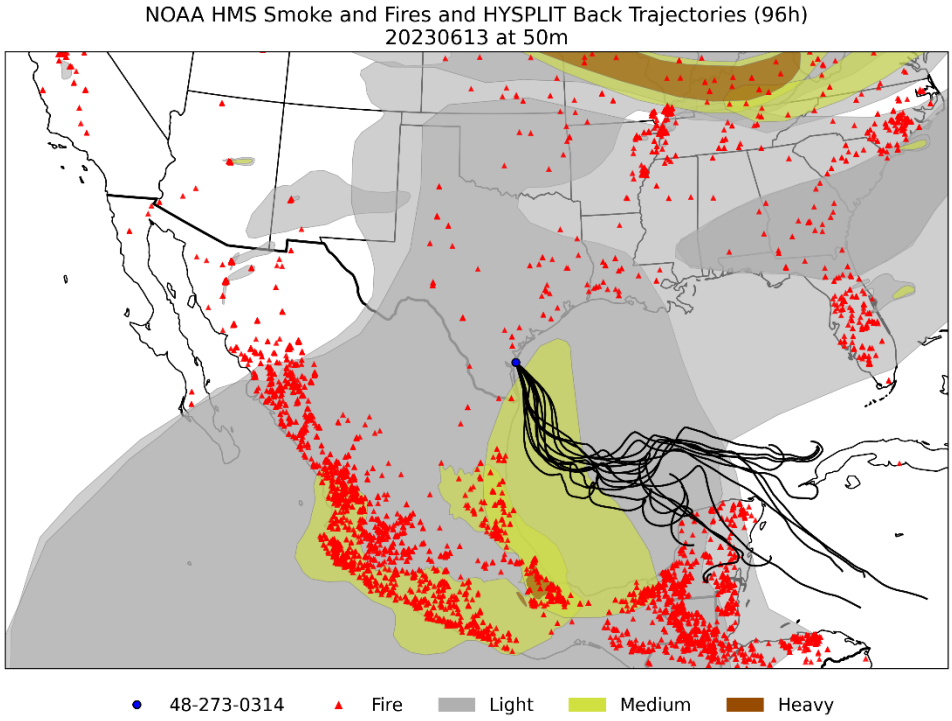
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
6/13/2023	19.0	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

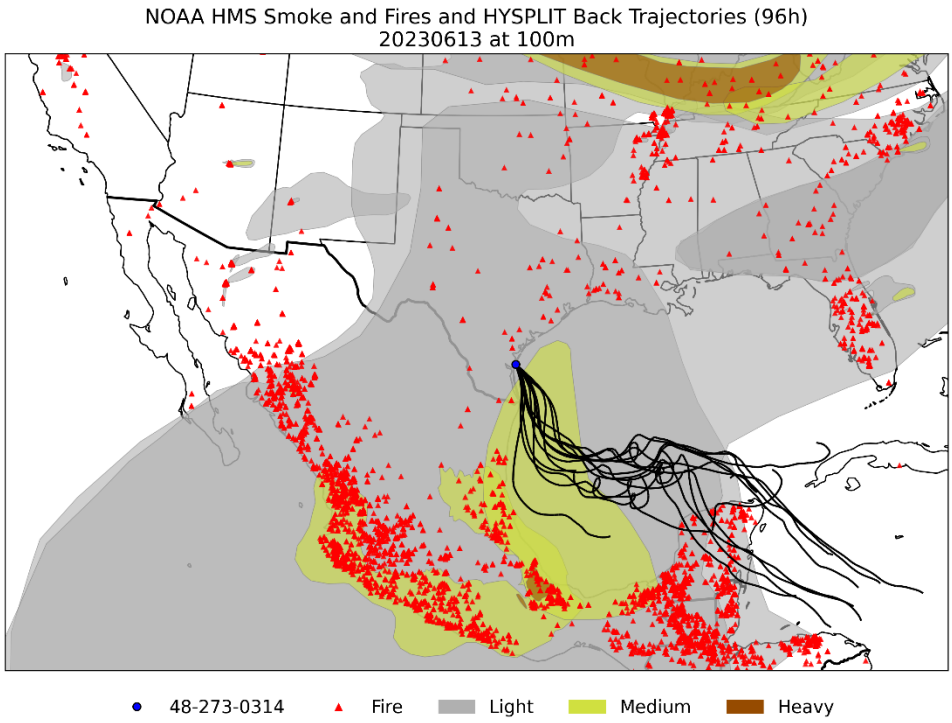


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

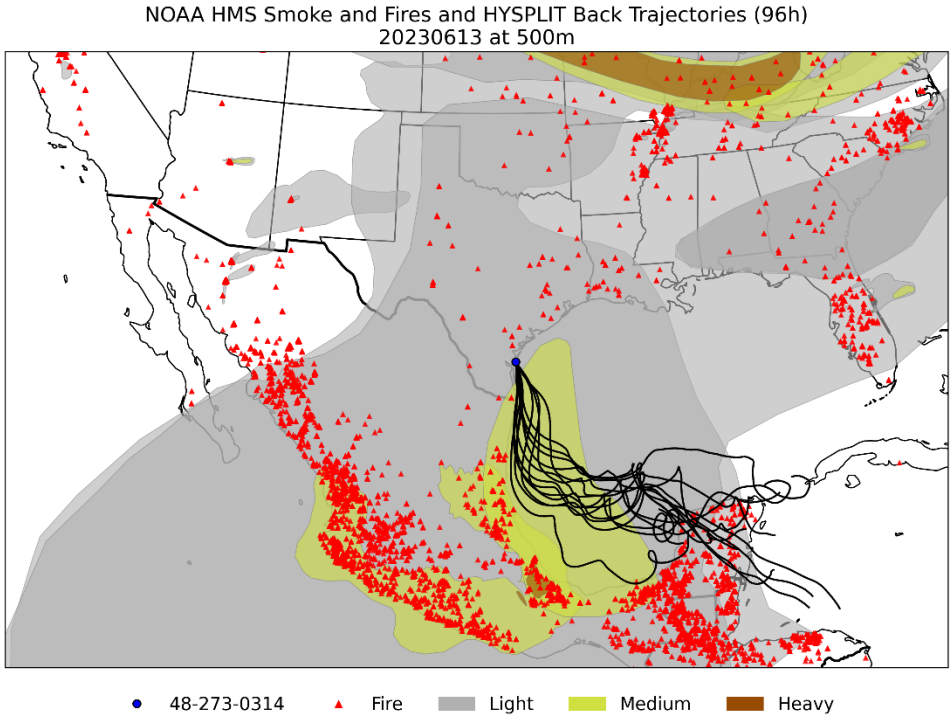
- 50m



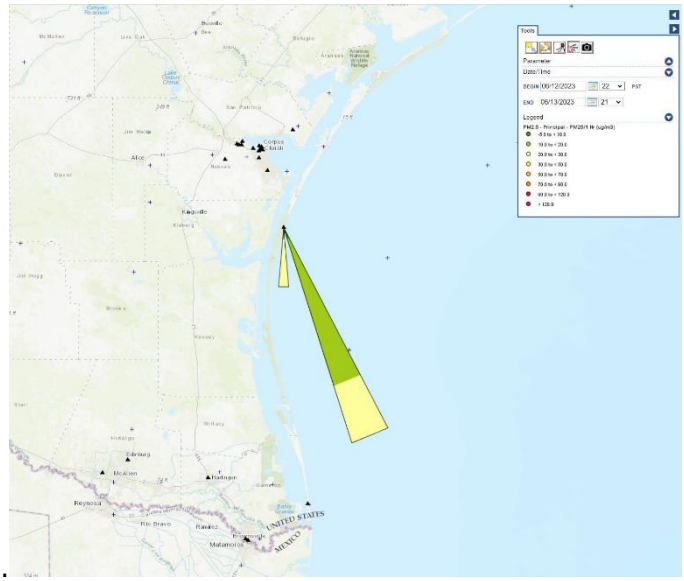
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230613 at 100m
48-273-0314
Fire
Light
Medium
Heavy

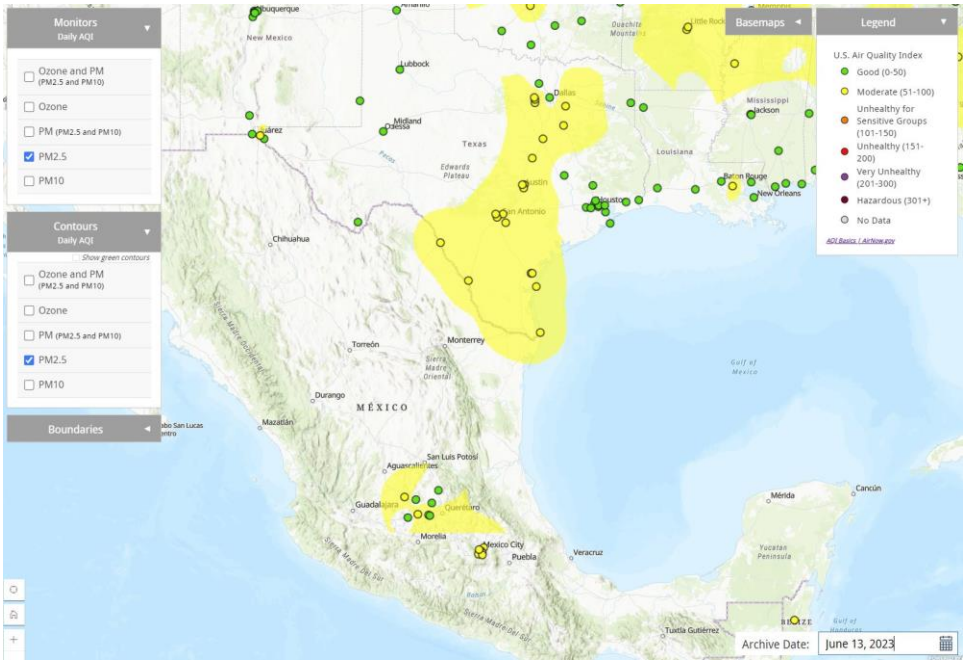
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230613 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3- Pollution rose for 6/13/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 6/13/2023.

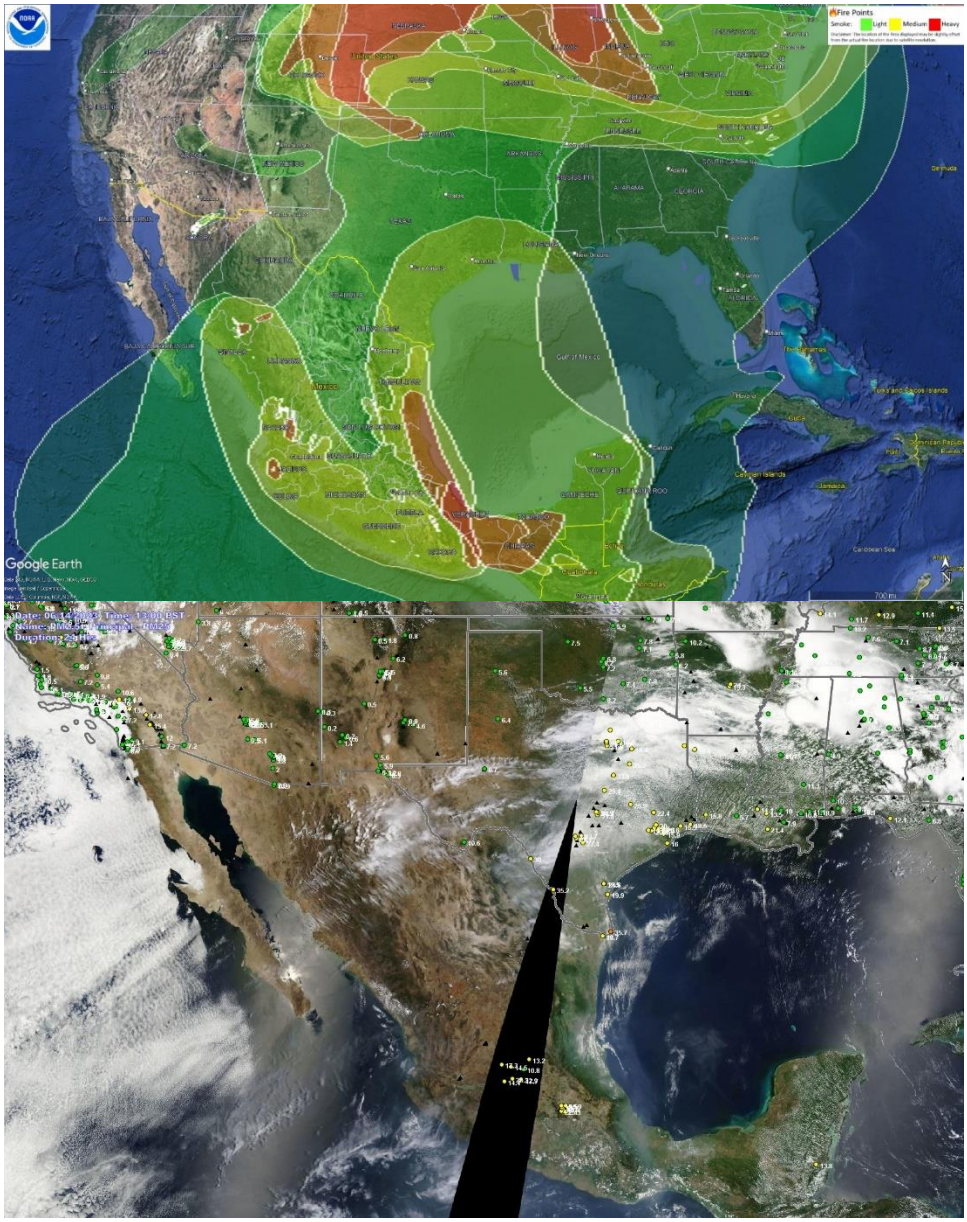


14. 6/14/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

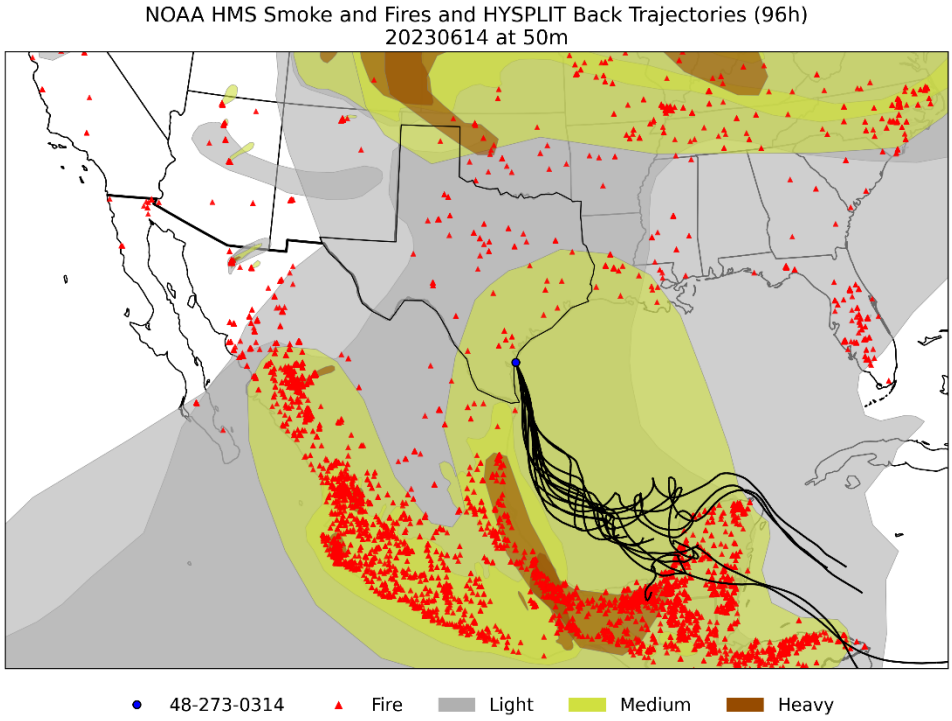
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
6/14/2023	22.2	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

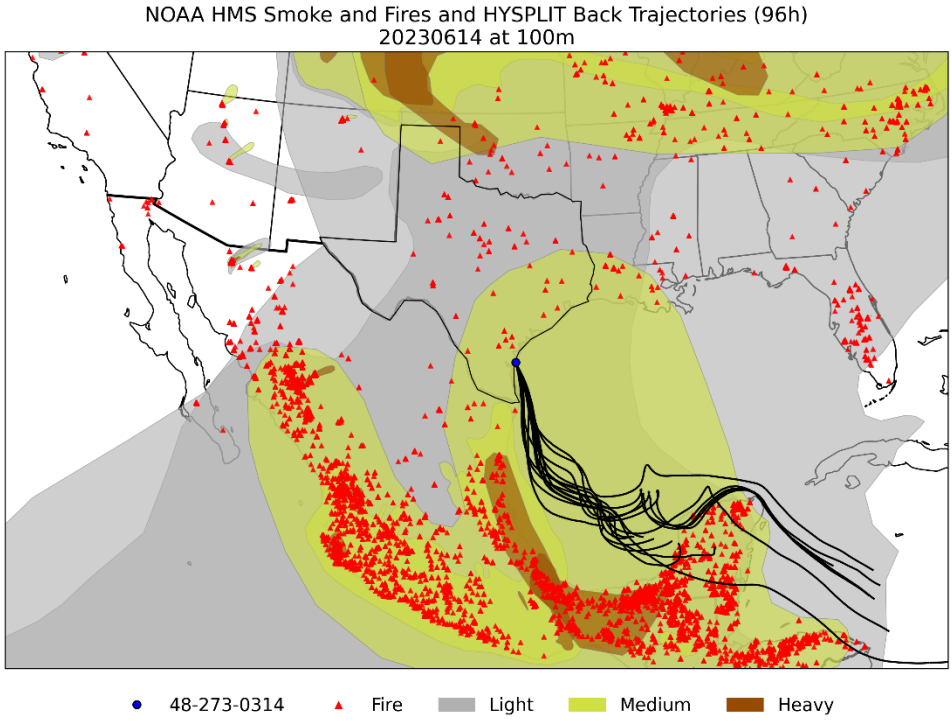


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

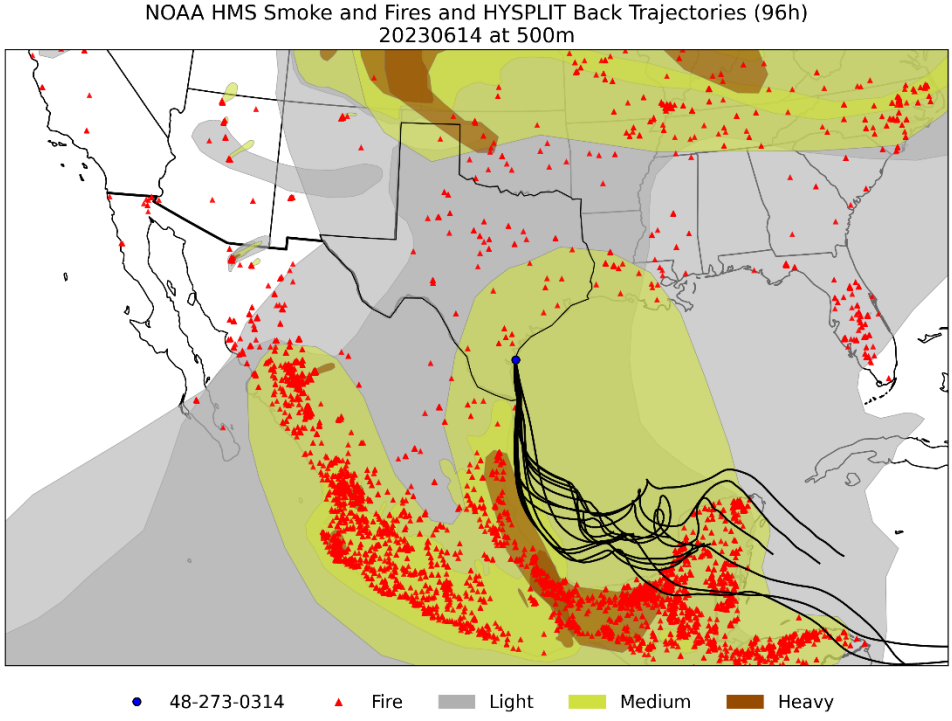
- 50m



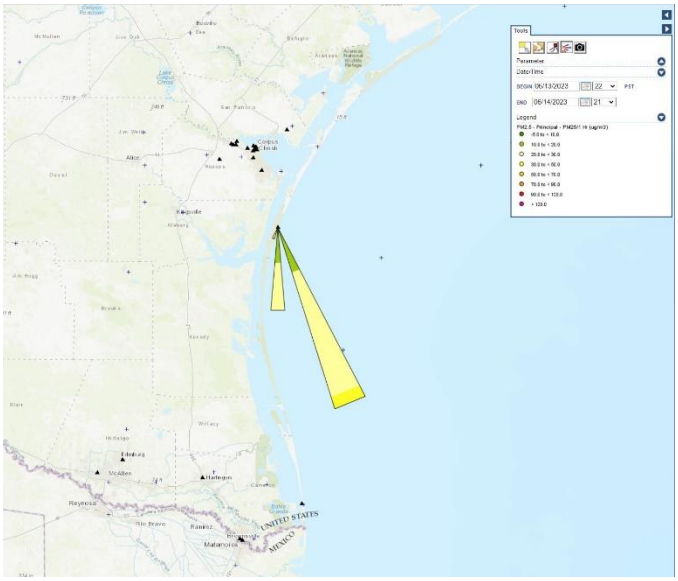
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230614 at 100m
48-273-0314
Fire
Light
Medium
Heavy

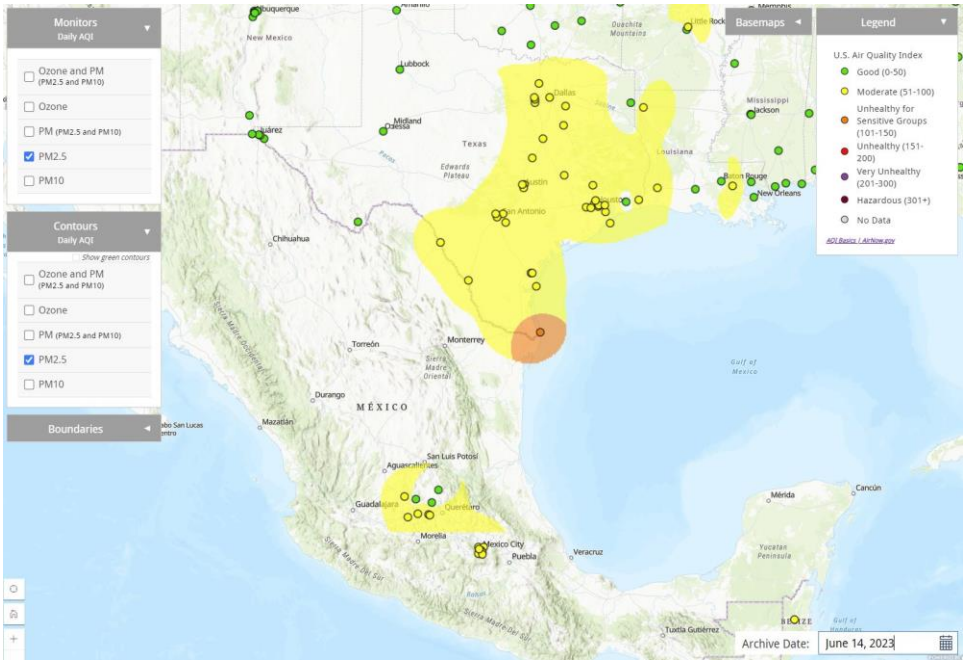
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230614 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3**- Pollution rose for 6/14/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 6/14/2023.

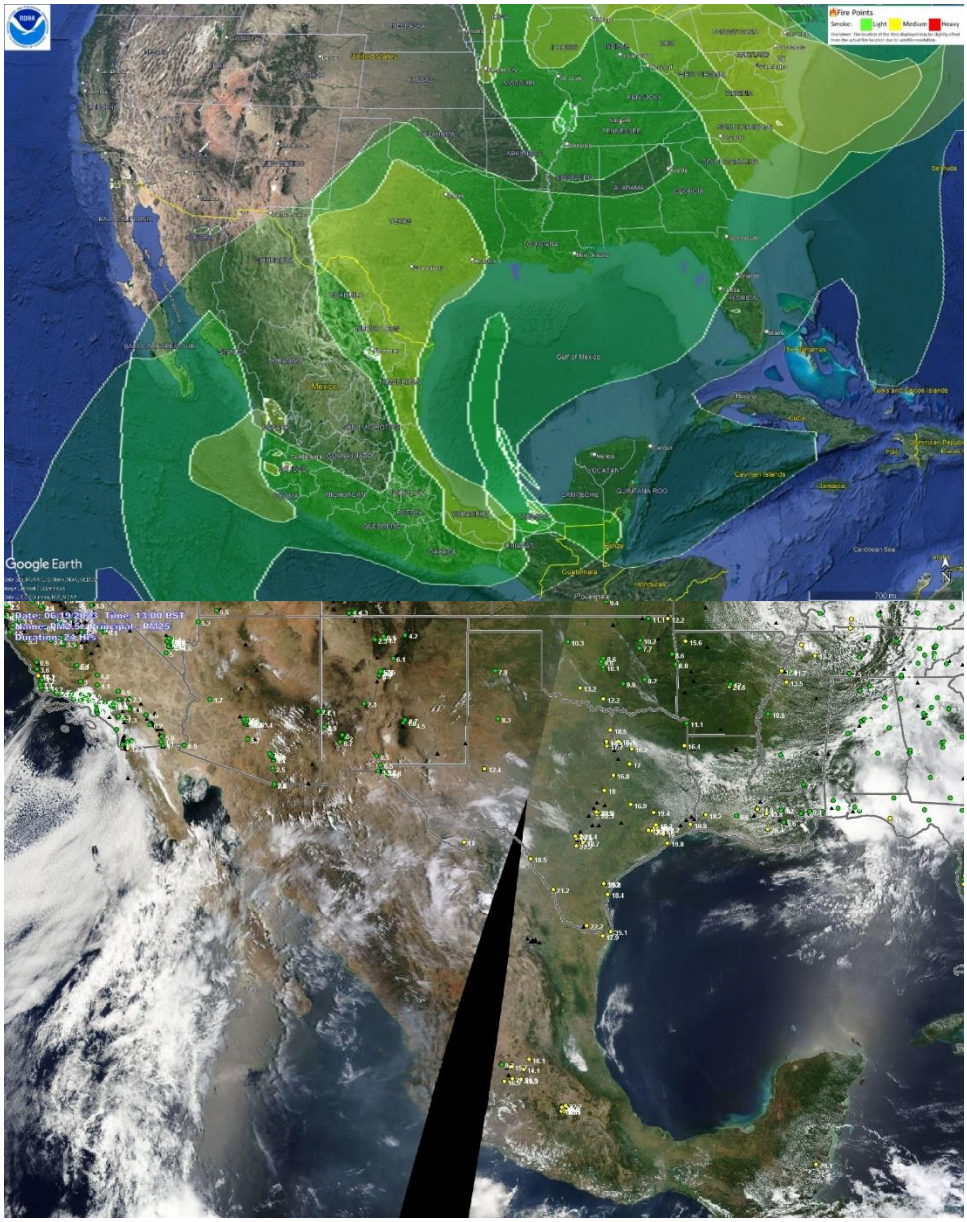


15. 6/19/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

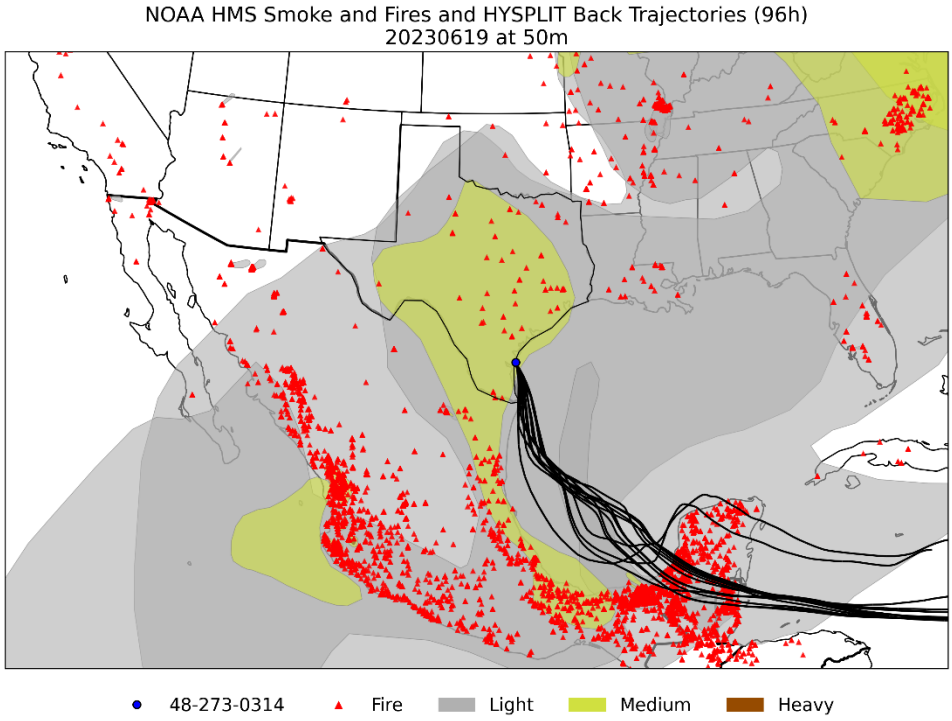
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
6/19/2023	19.3	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

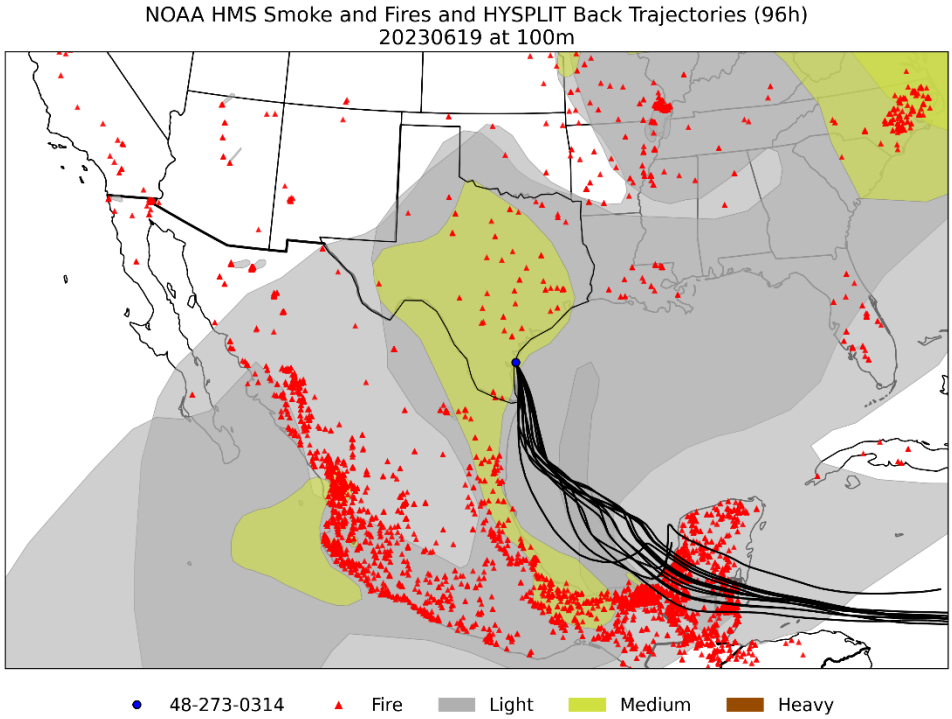


c. **Evidence #2**– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

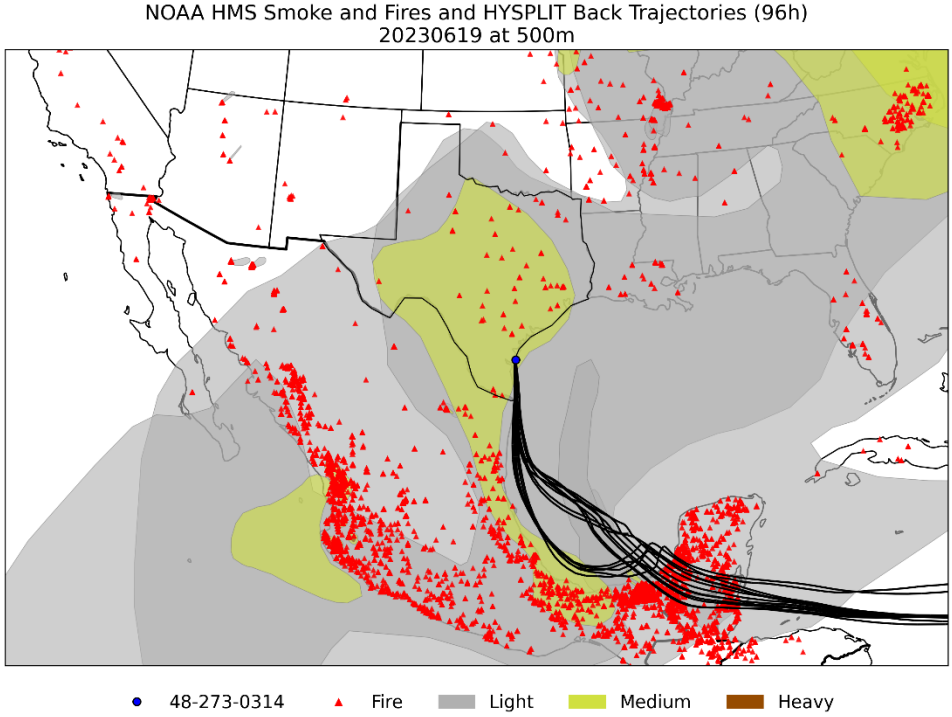
- 50m



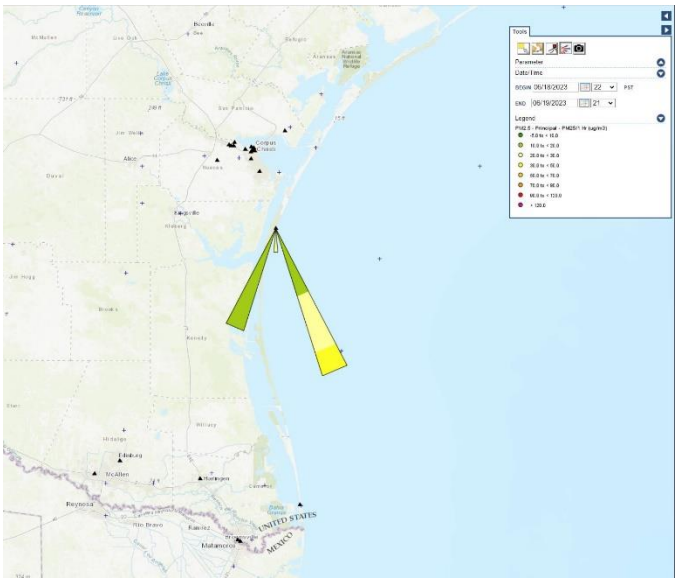
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230619 at 100m
48-273-0314
Fire
Light
Medium
Heavy

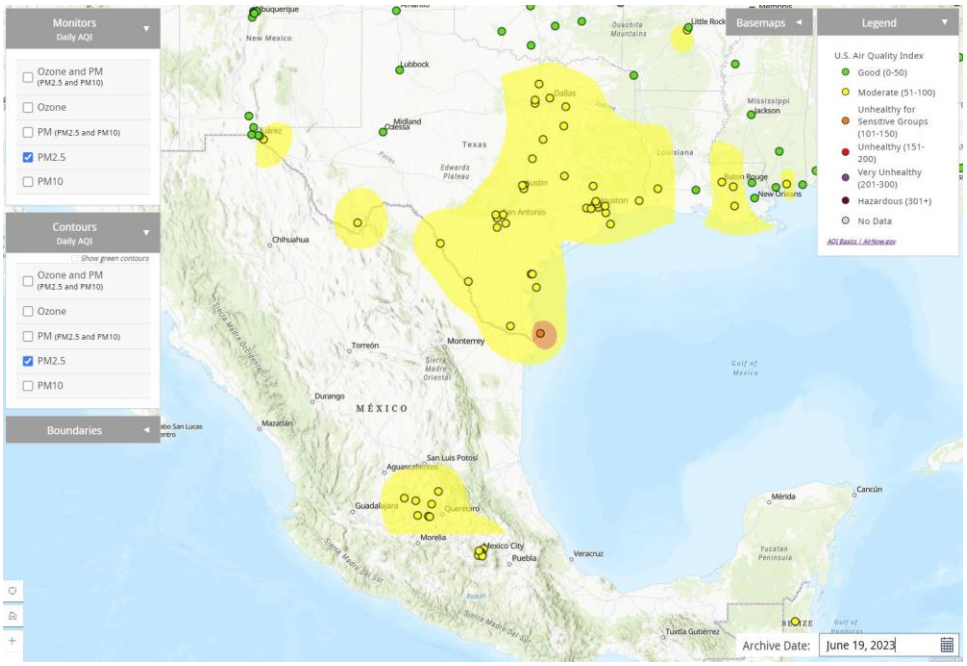
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230619 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3- Pollution rose for 6/19/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 6/19/2023.

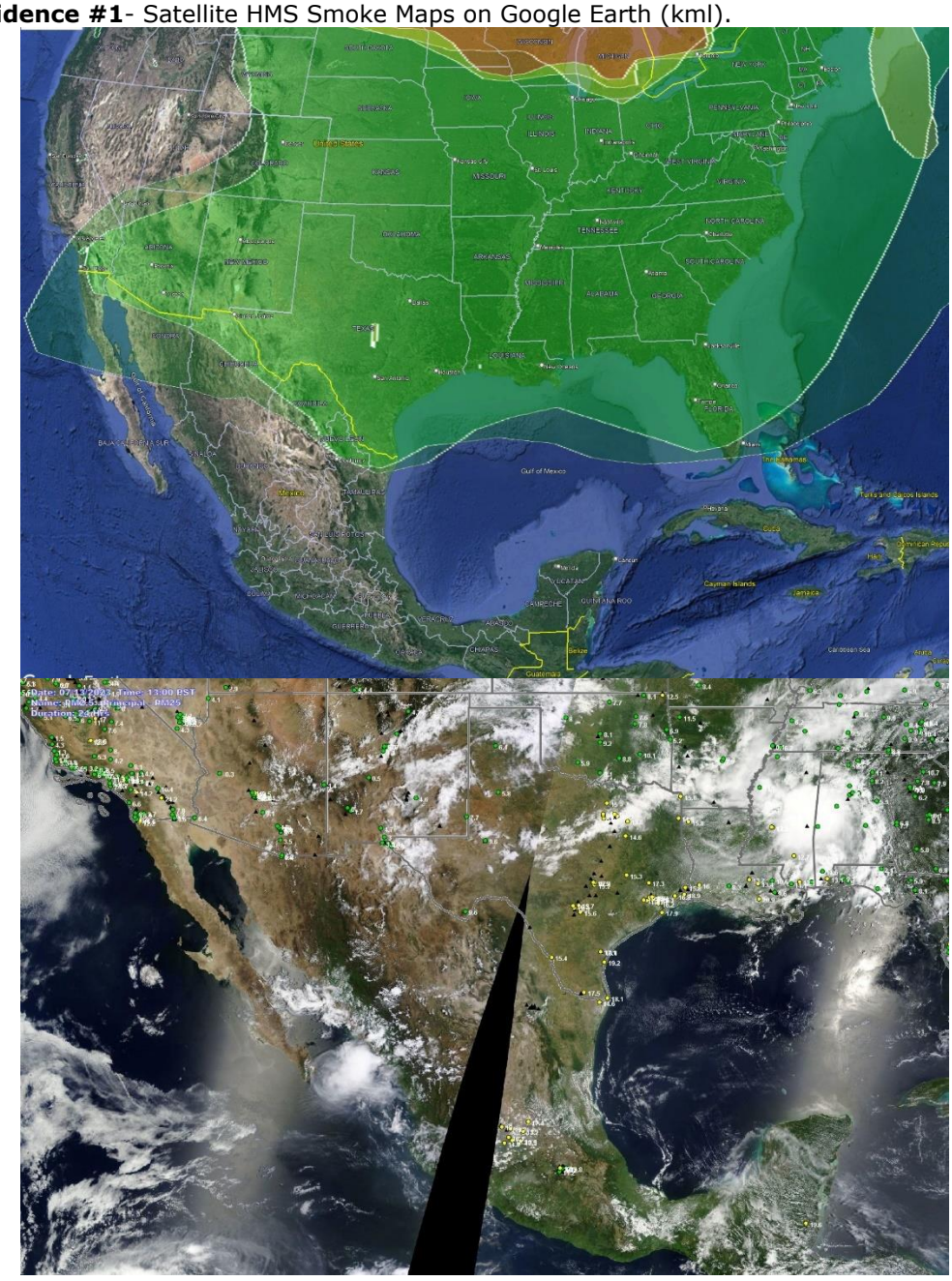


16. 7/13/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

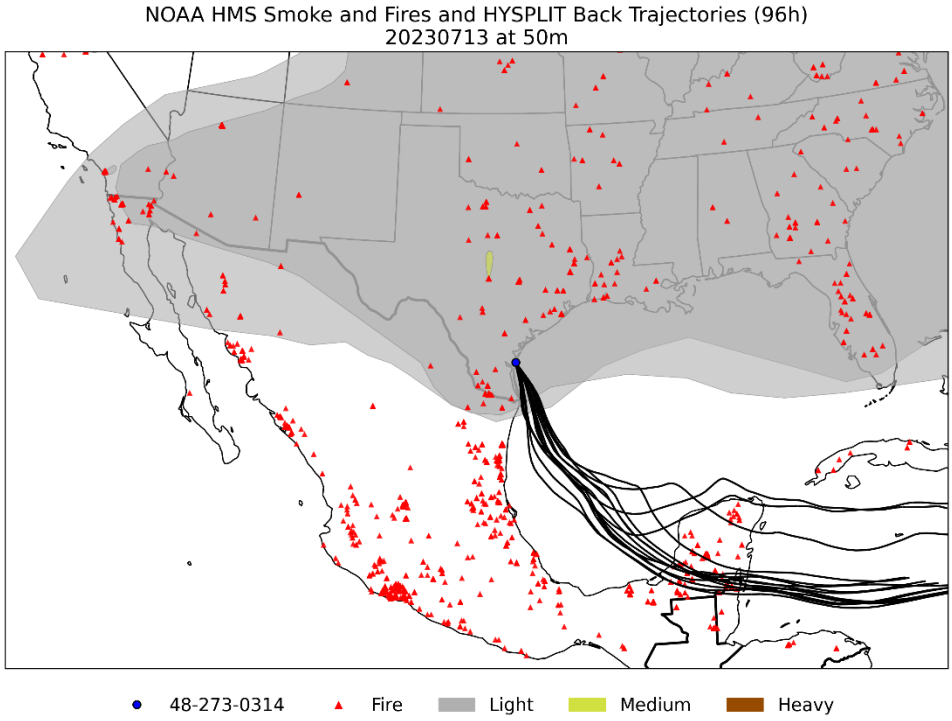
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/13/2023	19.3	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

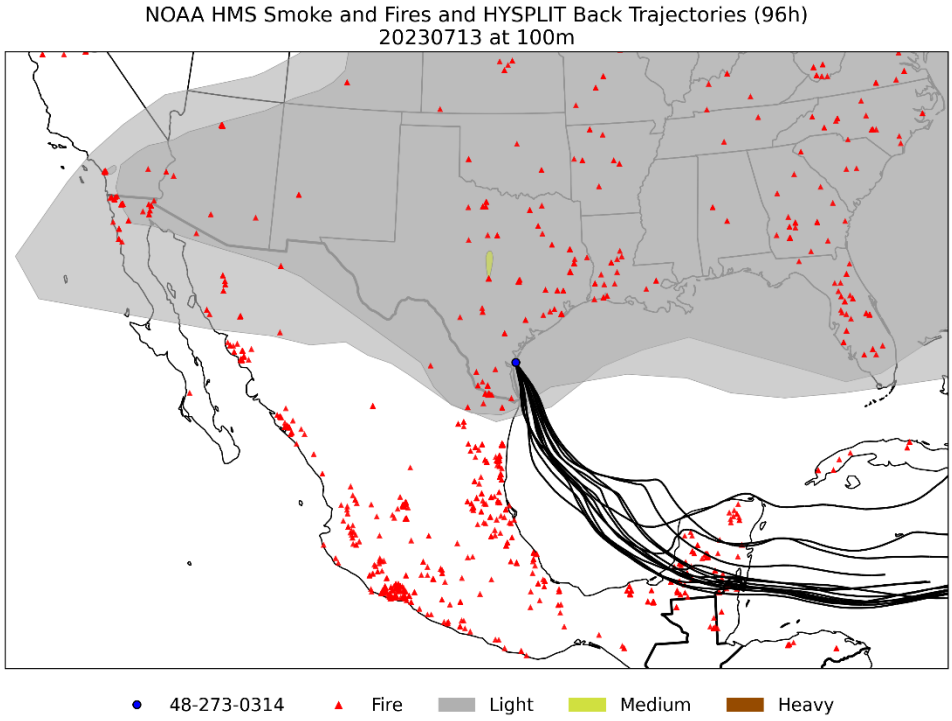


c. **Evidence #2**– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

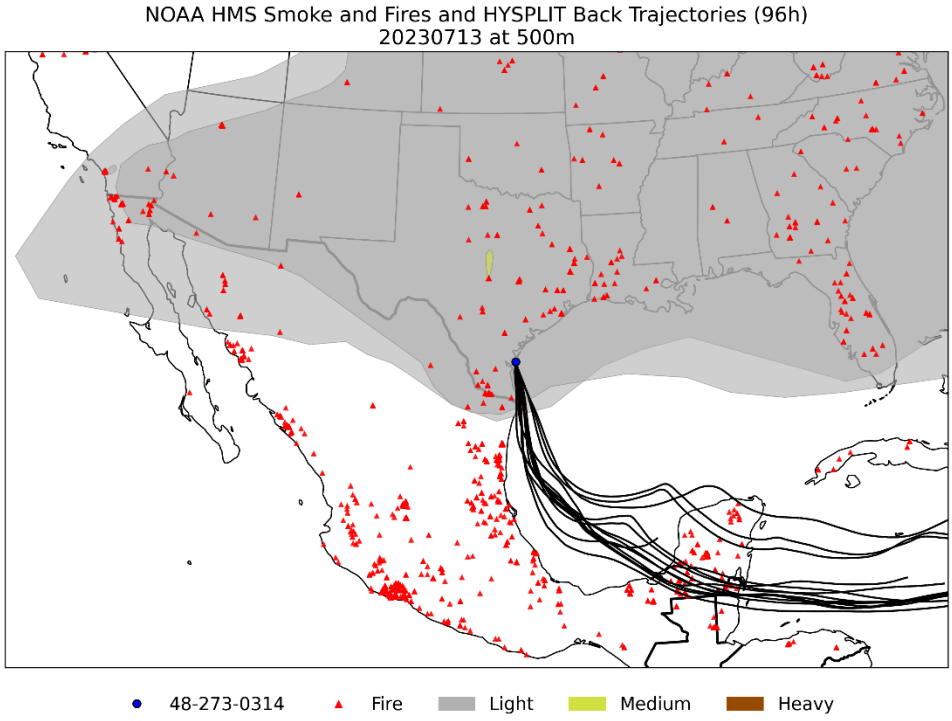
- 50m



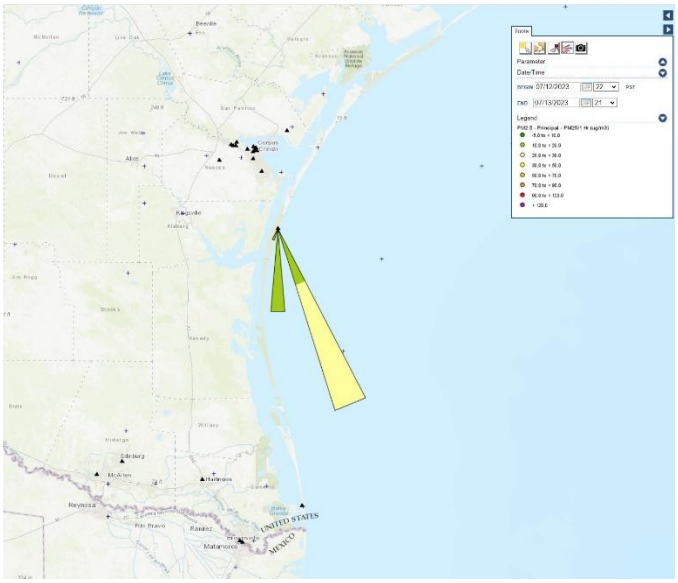
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230713 at 100m
48-273-0314
Fire
Light
Medium
Heavy

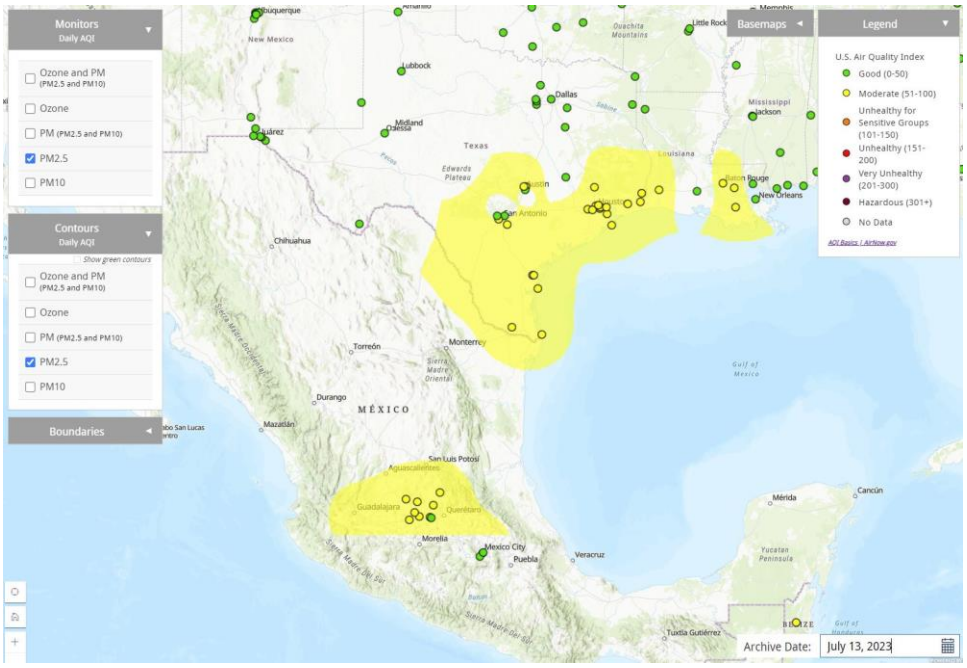
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230713 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3**- Pollution rose for 7/13/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/13/2023.

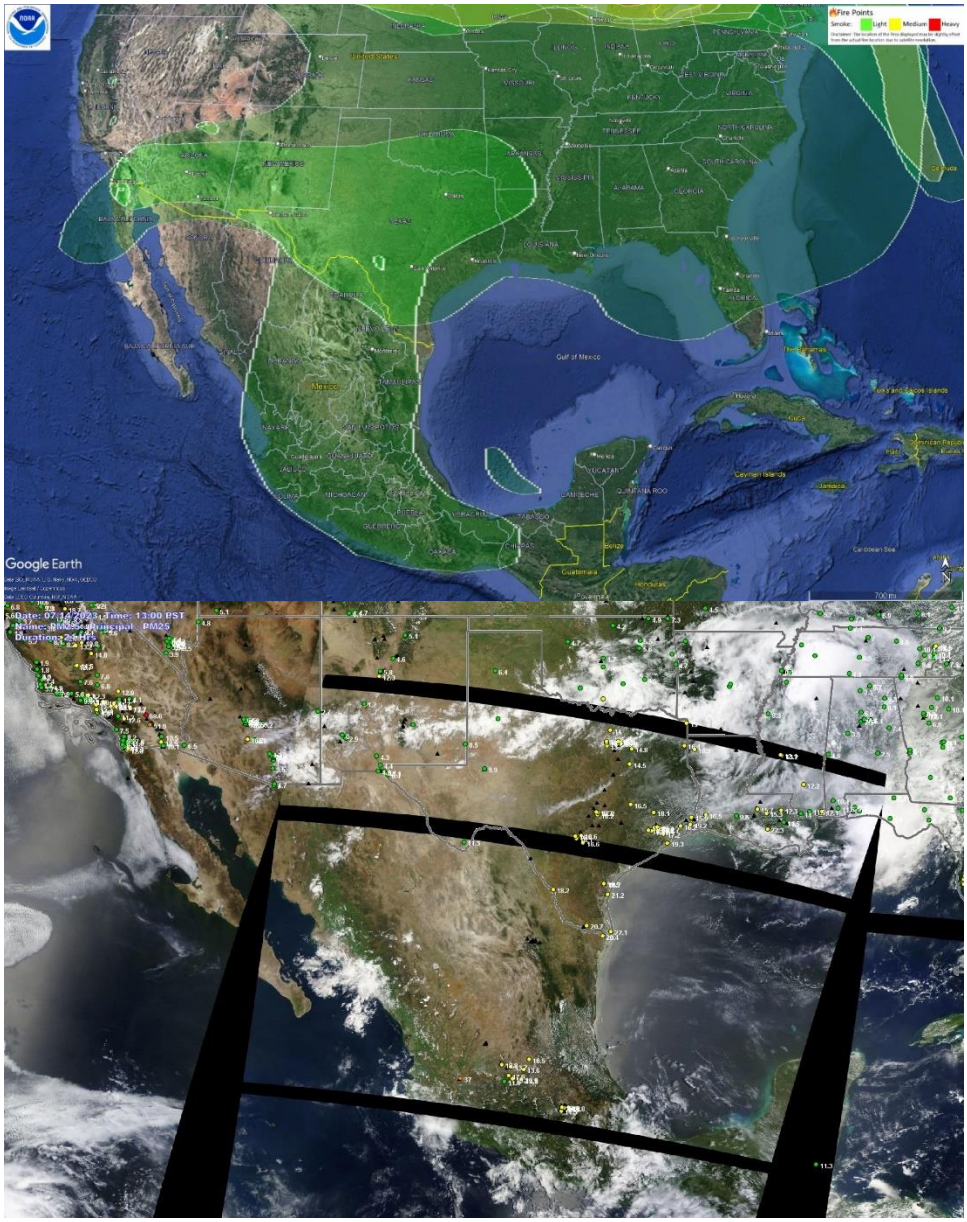


17. 7/14/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

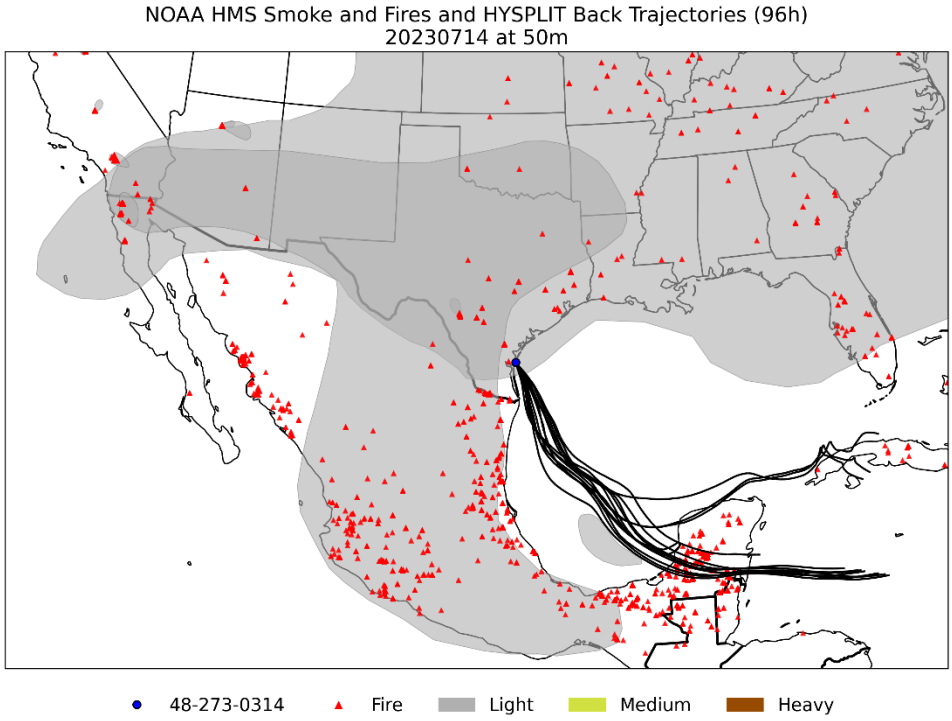
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/14/2023	18.5	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

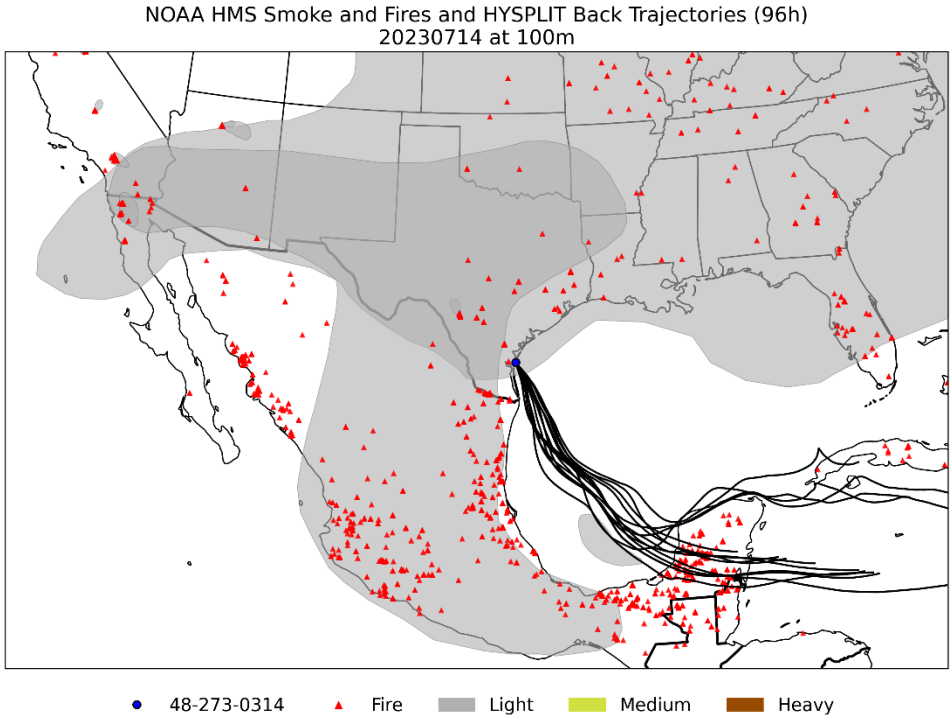


c. **Evidence #2**– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

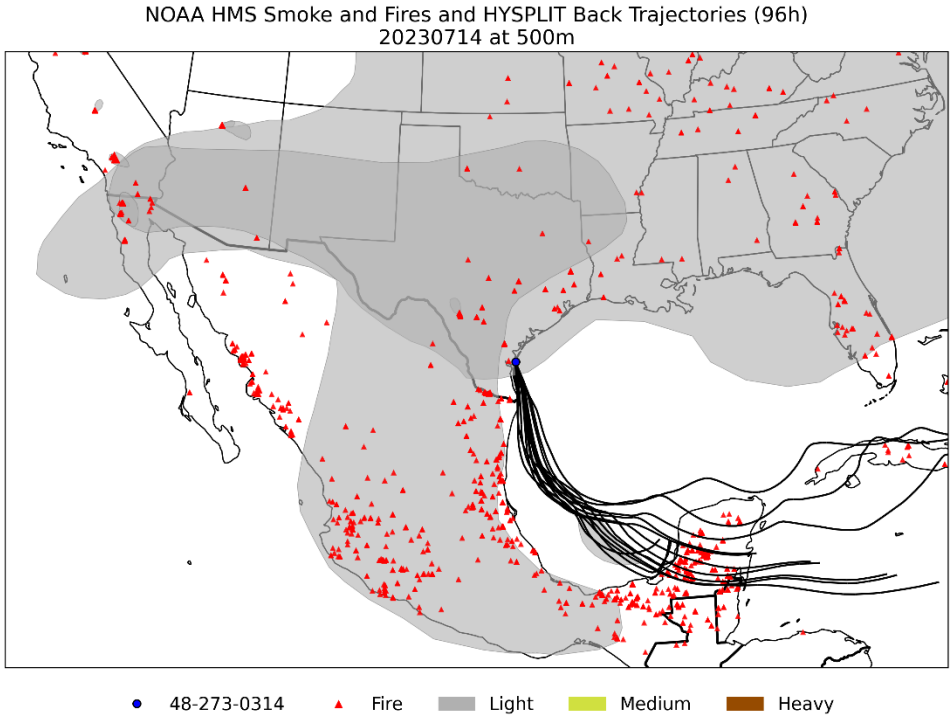
- 50m



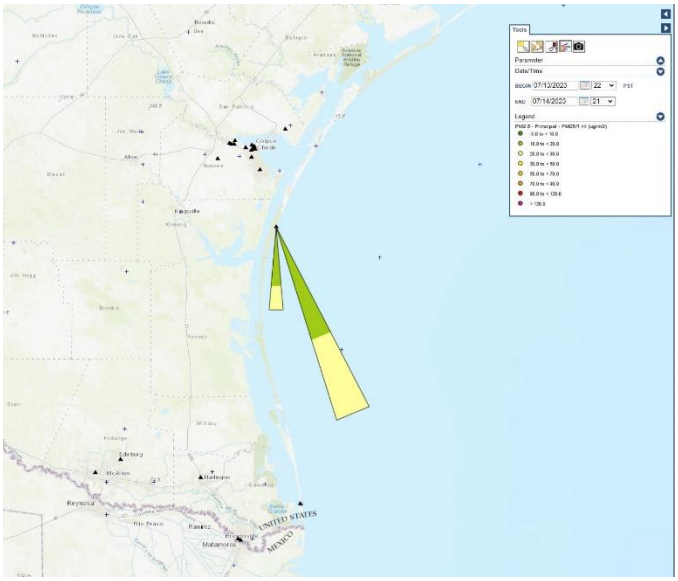
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230714 at 100m
48-273-0314
Fire
Light
Medium
Heavy

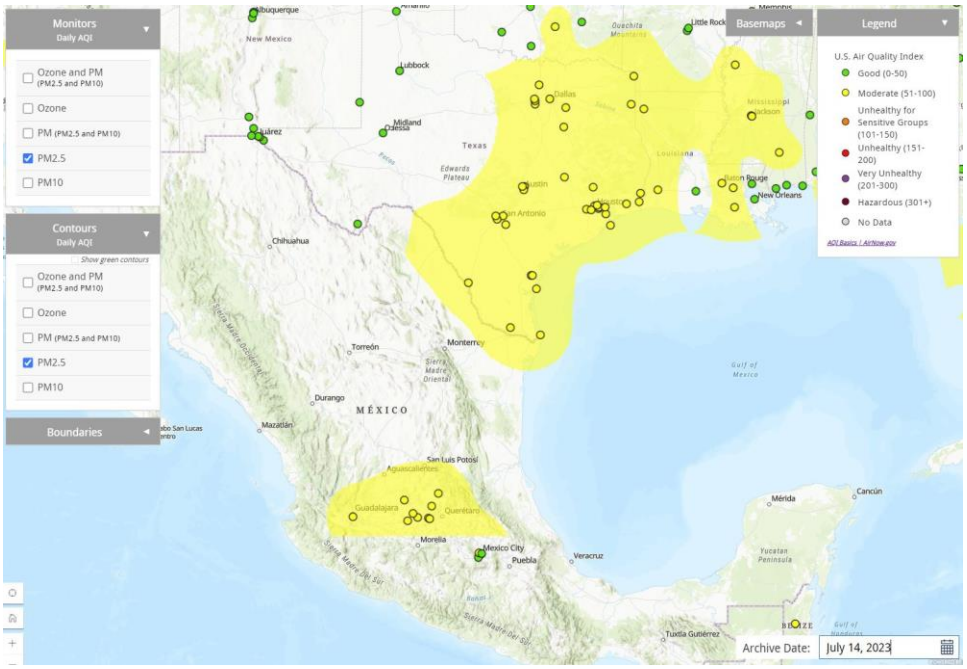
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230714 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3- Pollution rose for 7/14/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/14/2023.

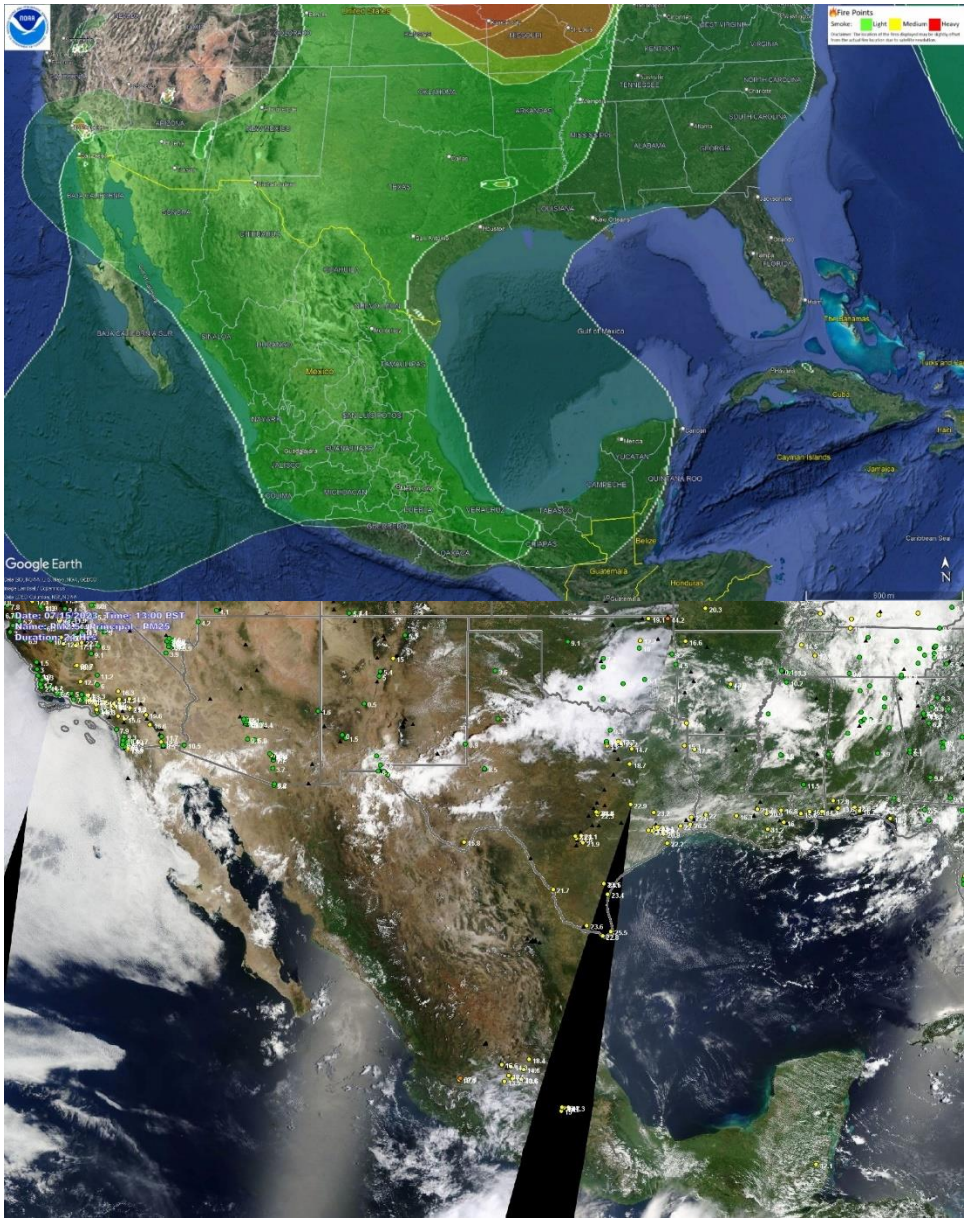


18. 7/15/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

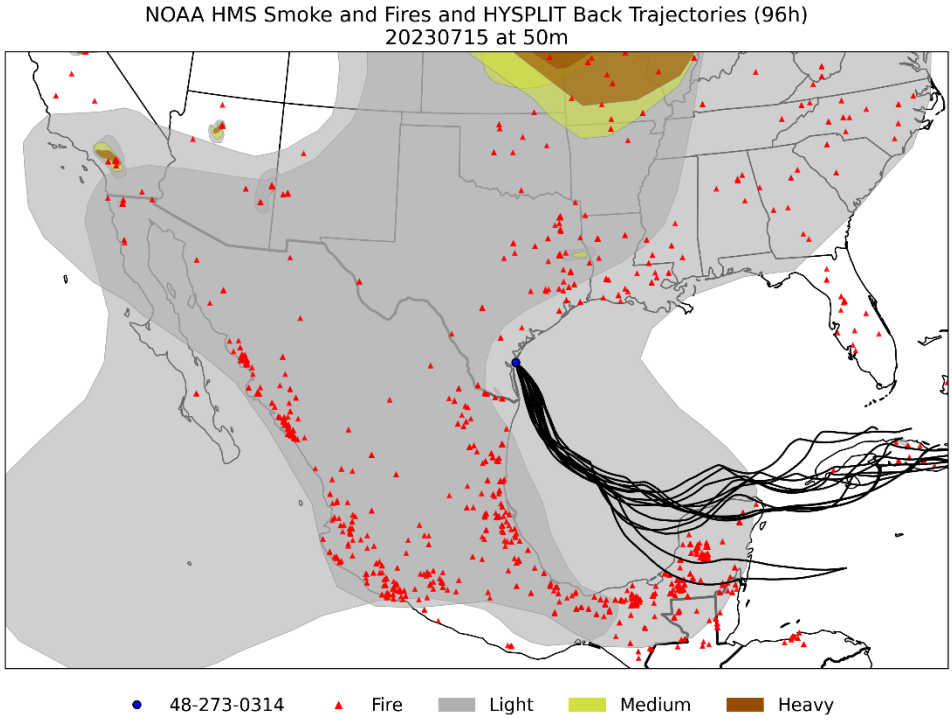
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/15/2023	24.2	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

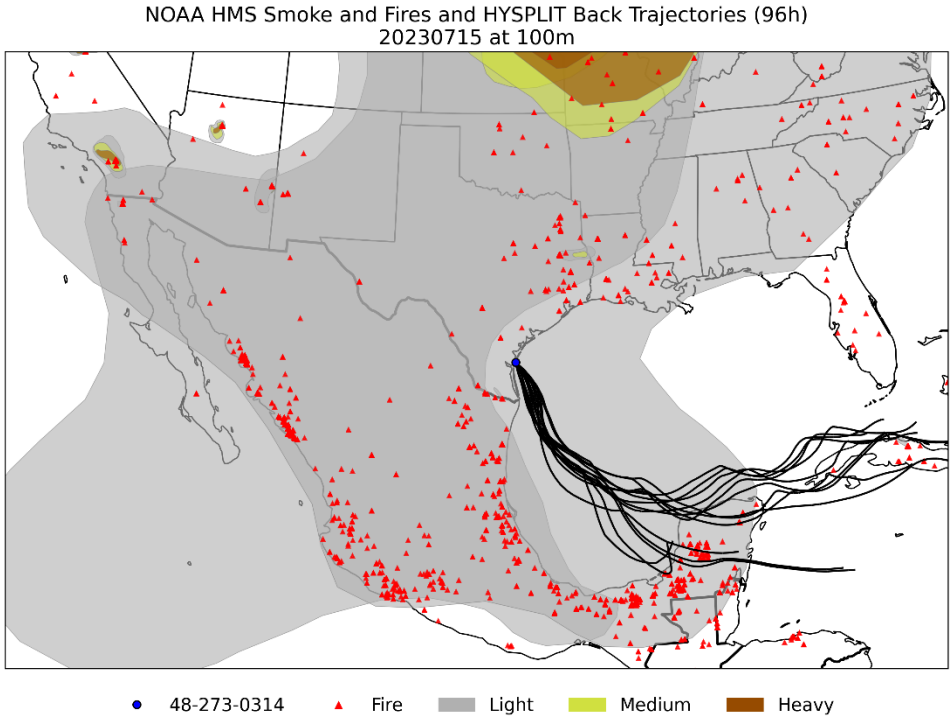


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

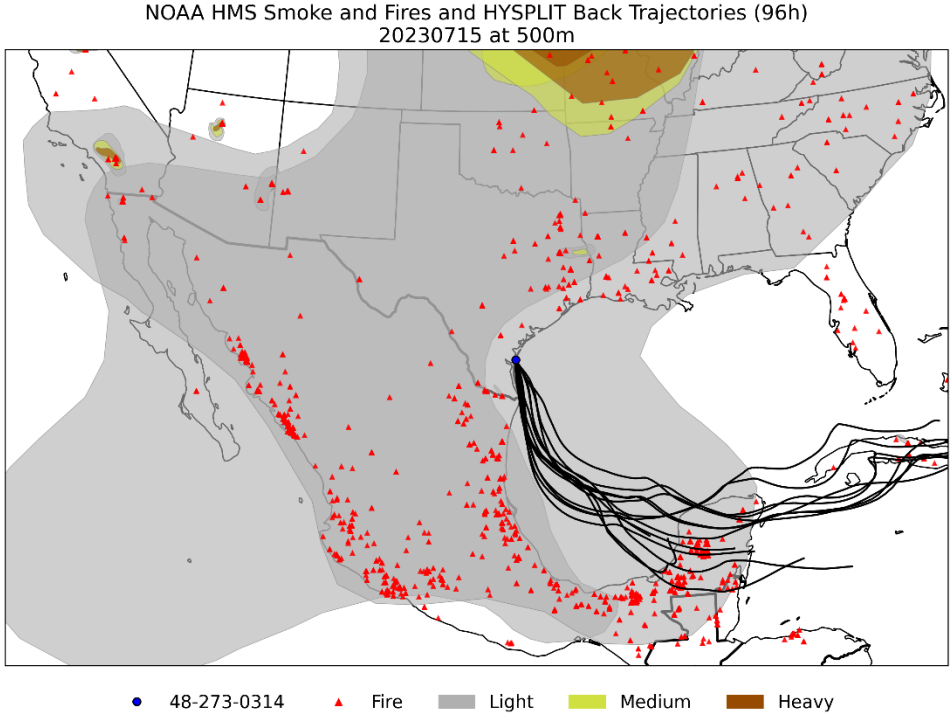
- 50m



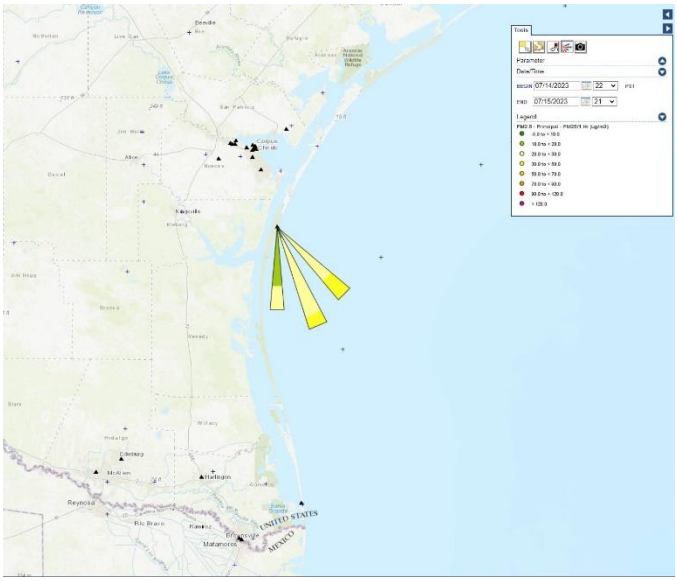
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230715 at 100m
48-273-0314
Fire
Light
Medium
Heavy

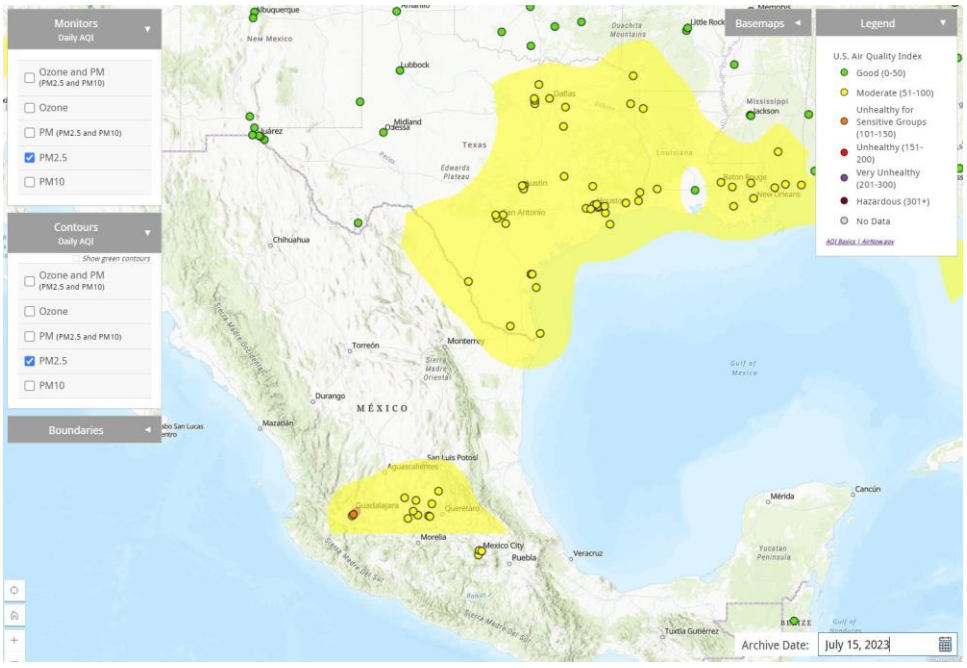
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230715 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3**- Pollution rose for 7/15/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4**- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/15/2023.

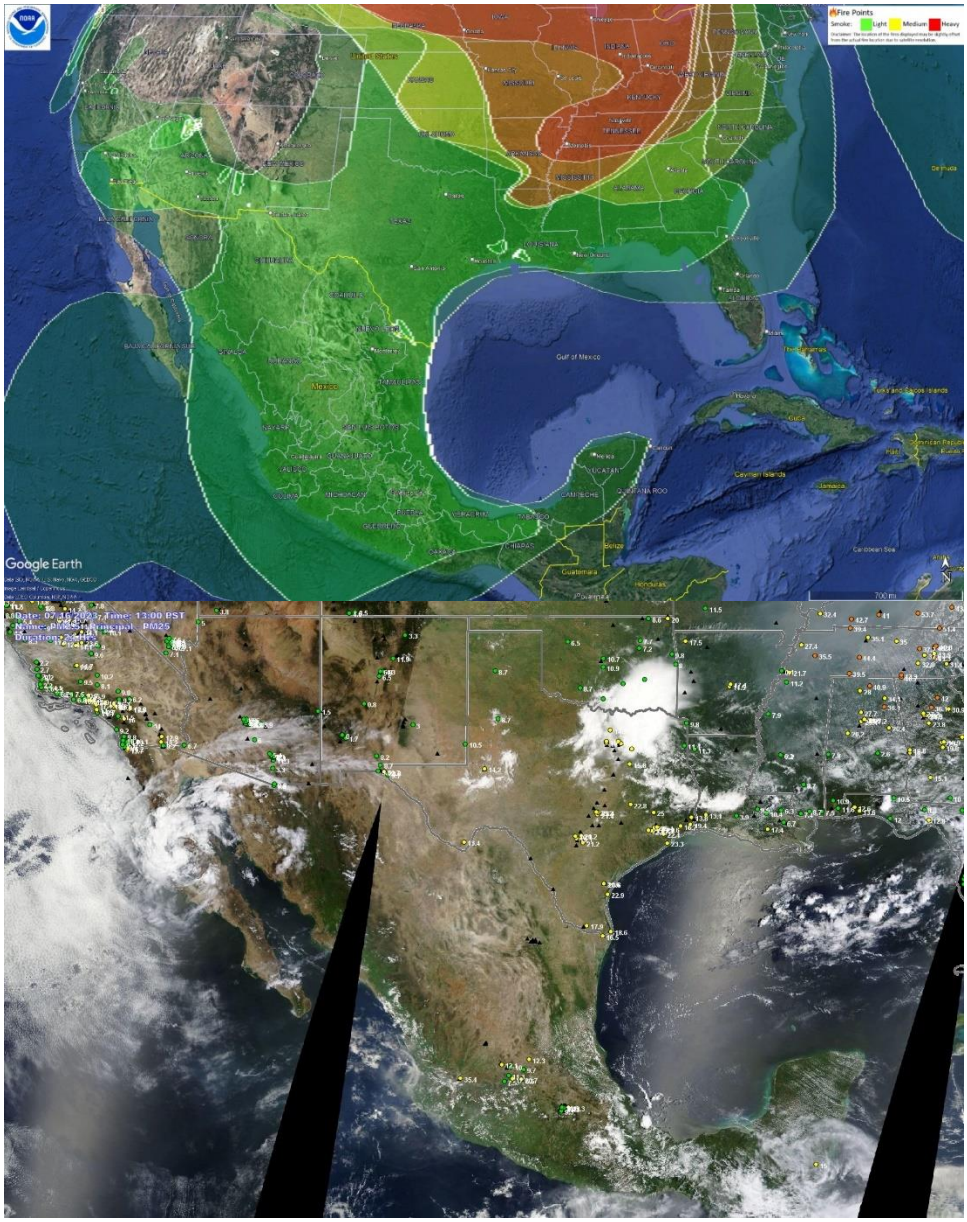


19. 7/16/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

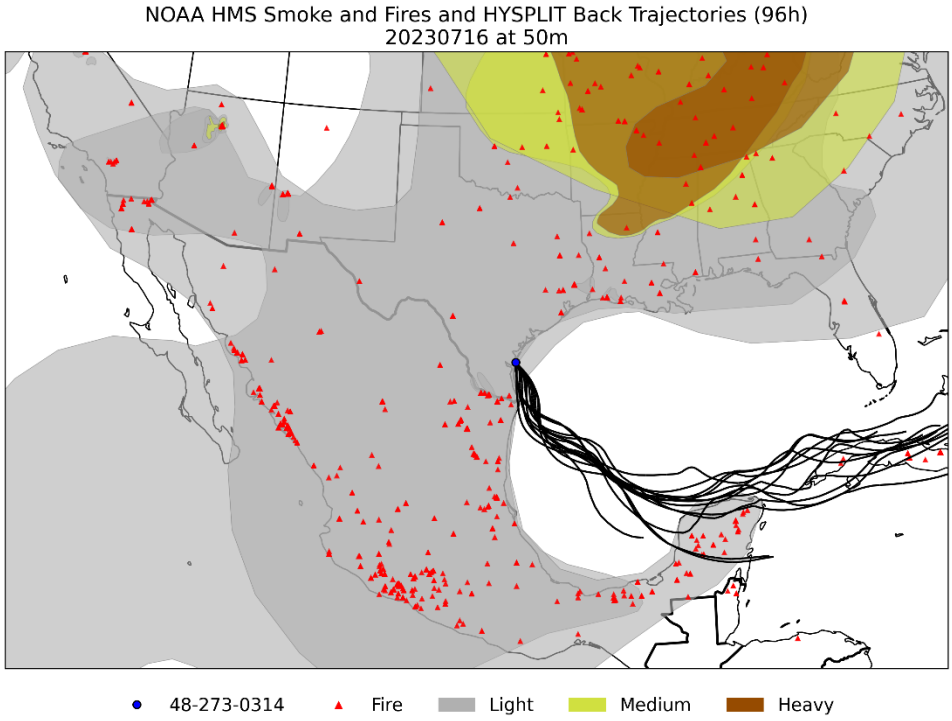
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/16/2023	24.6	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

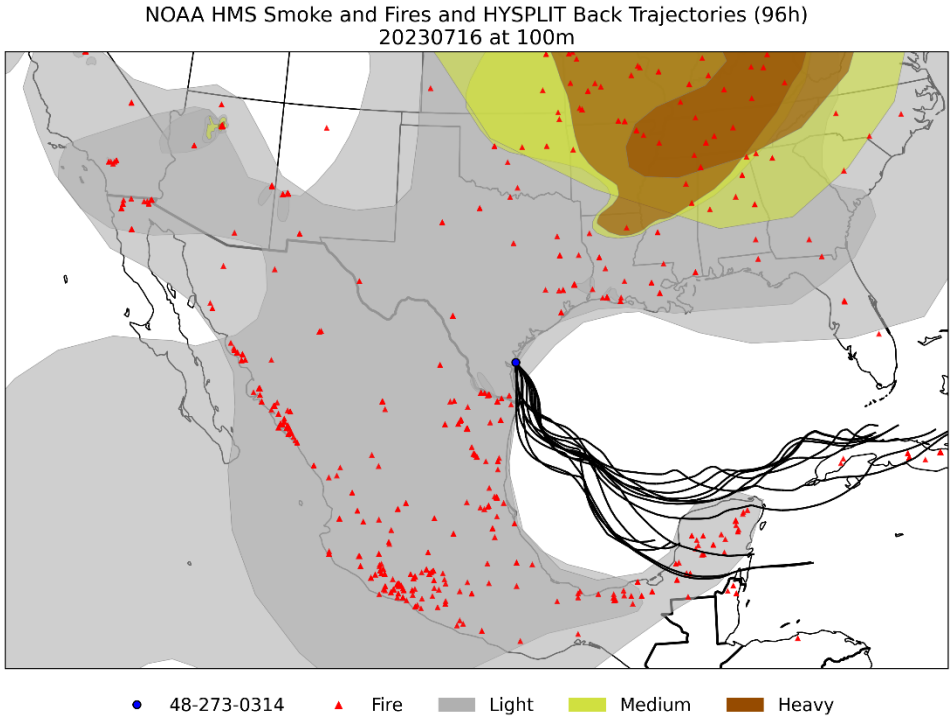


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

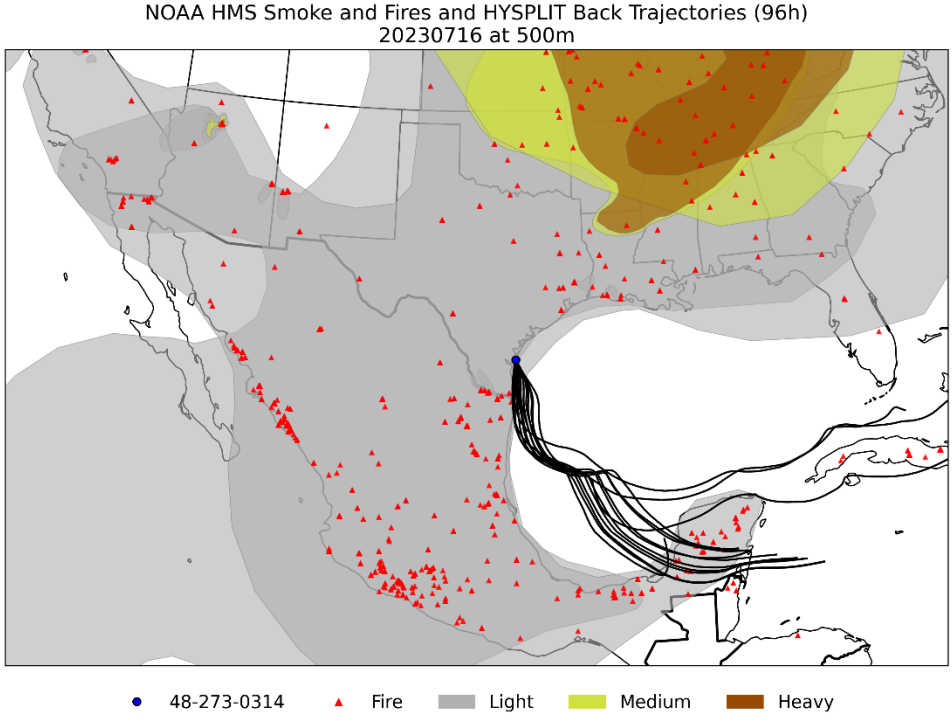
- 50m



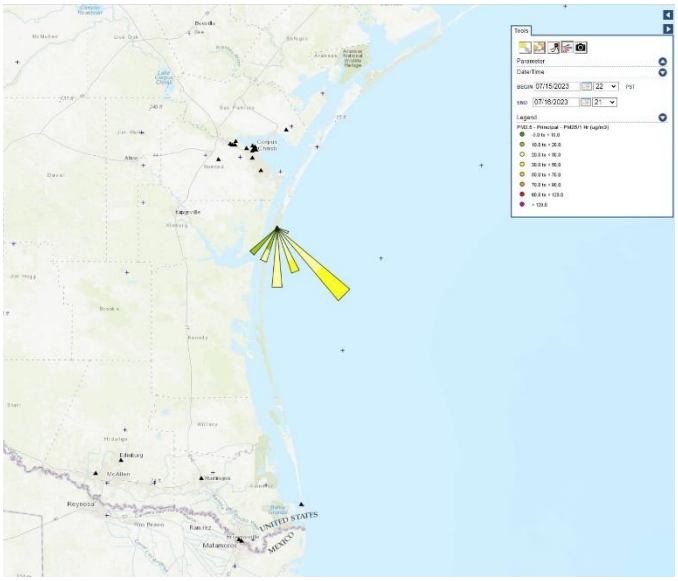
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230716 at 100m
48-273-0314
Fire
Light
Medium
Heavy

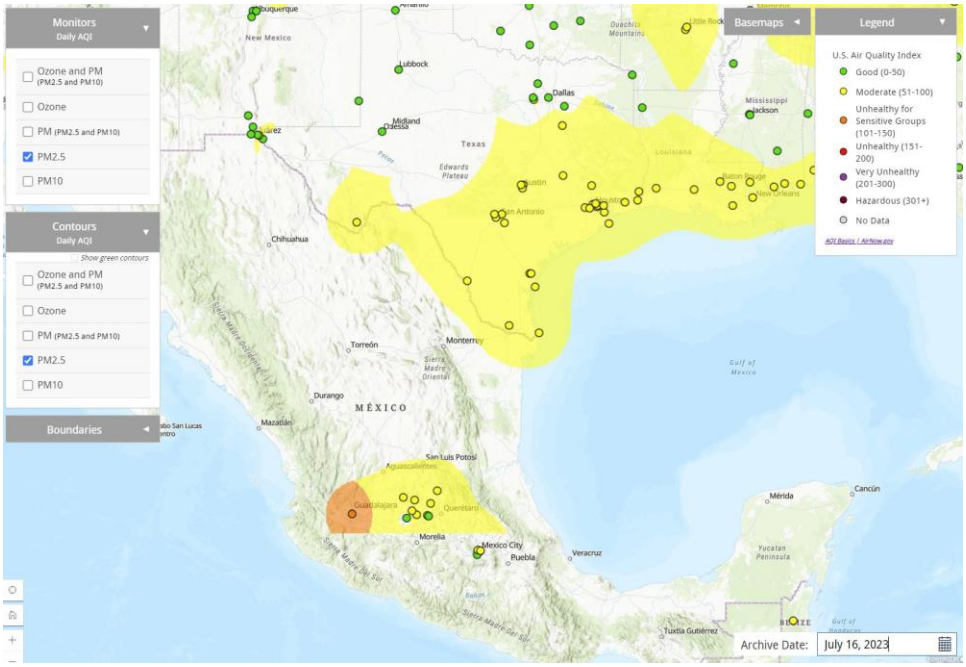
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230716 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3**- Pollution rose for 7/16/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/16/2023.

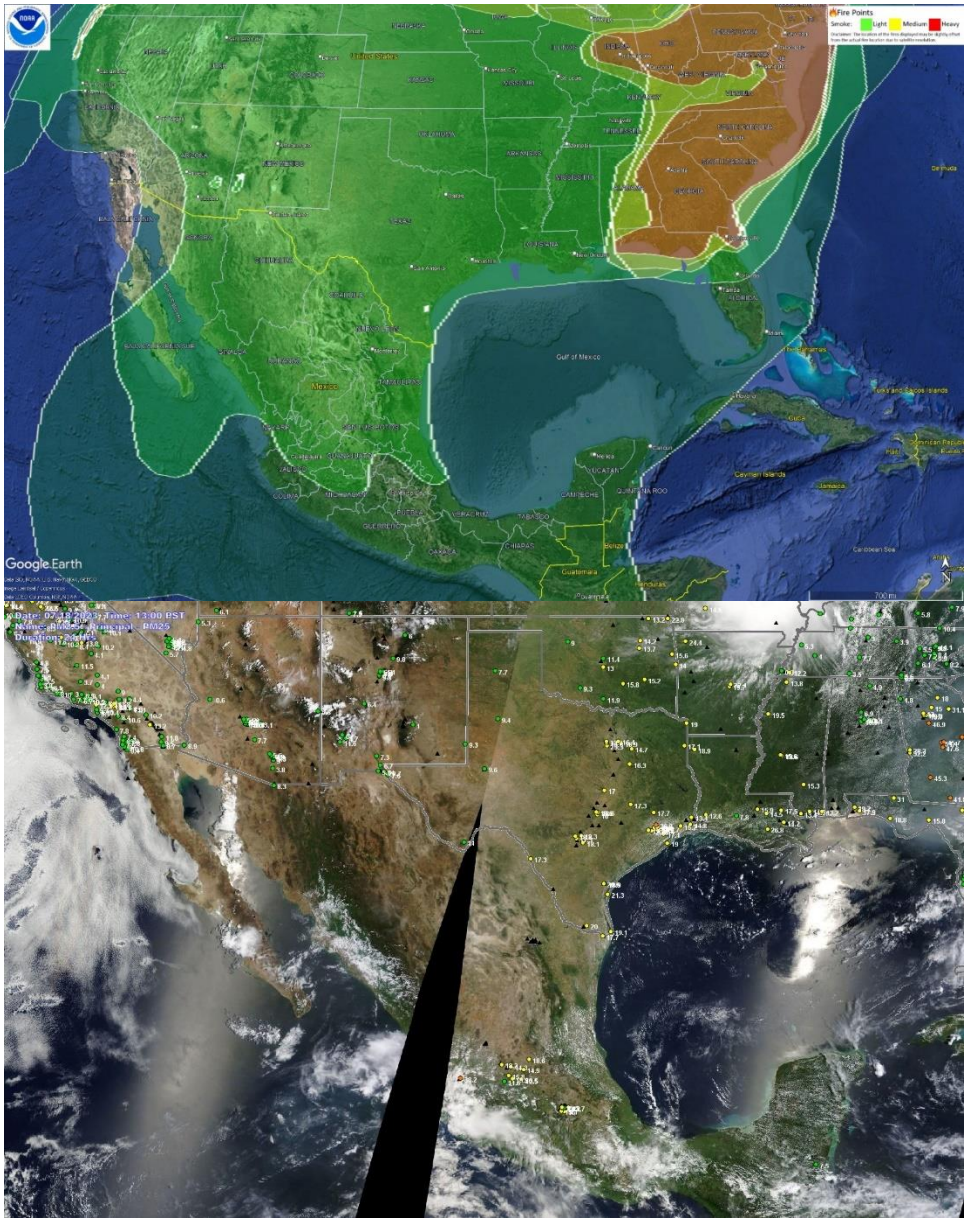


20. 7/18/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

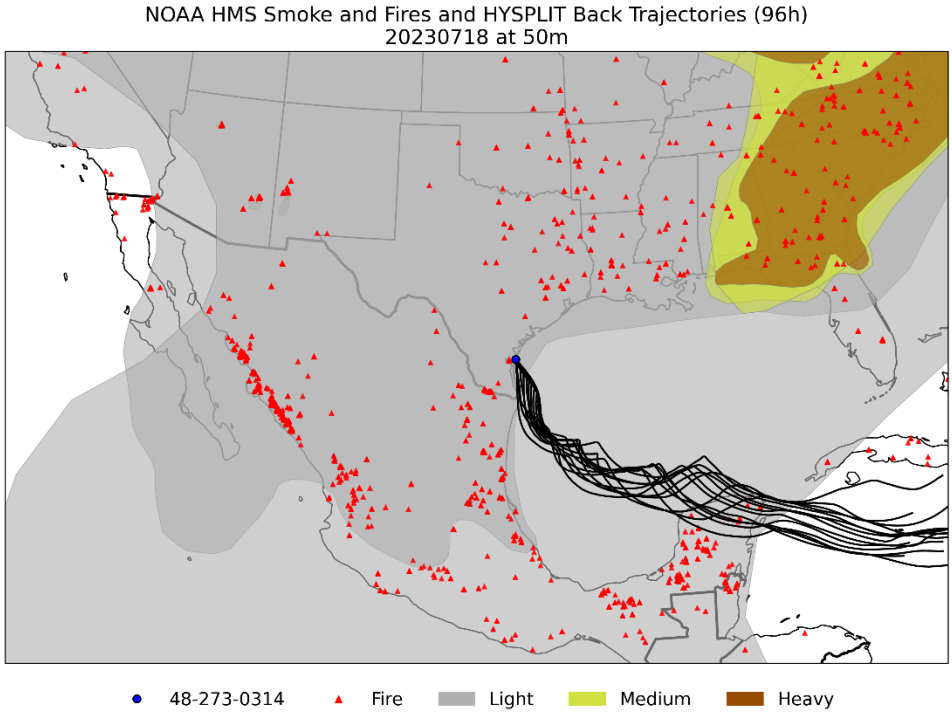
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/18/2023	19.2	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

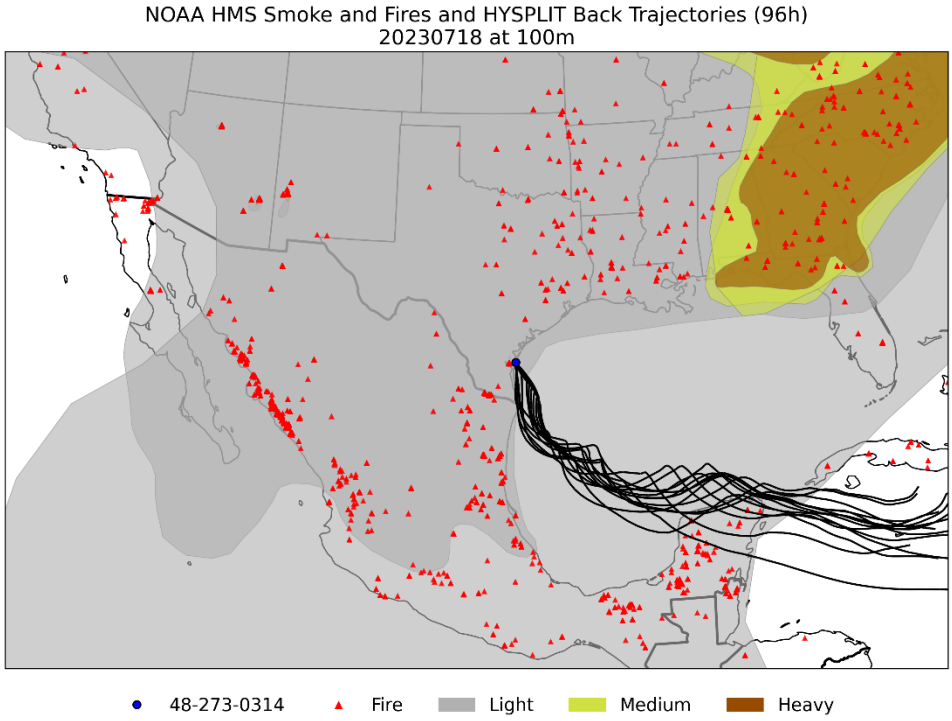


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

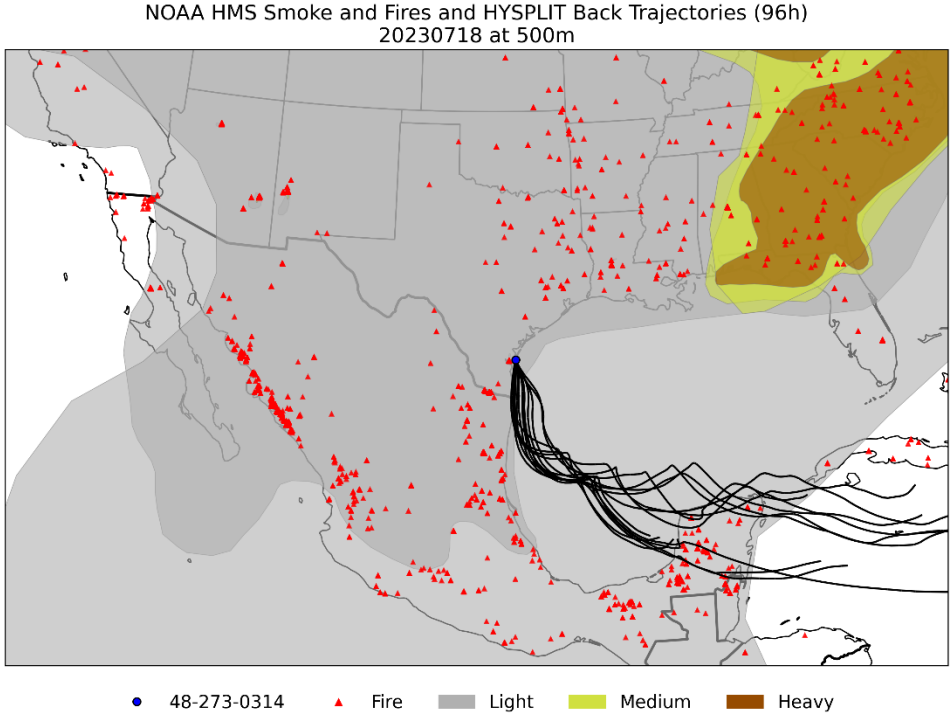
- 50m



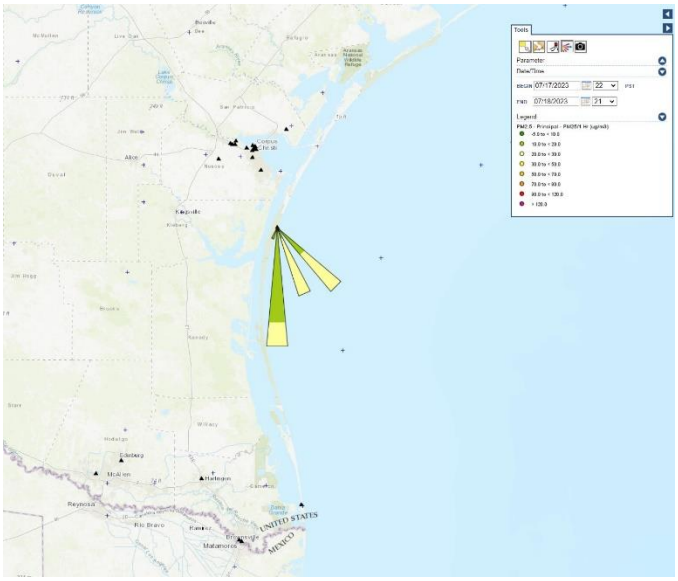
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230718 at 100m
48-273-0314
Fire
Light
Medium
Heavy

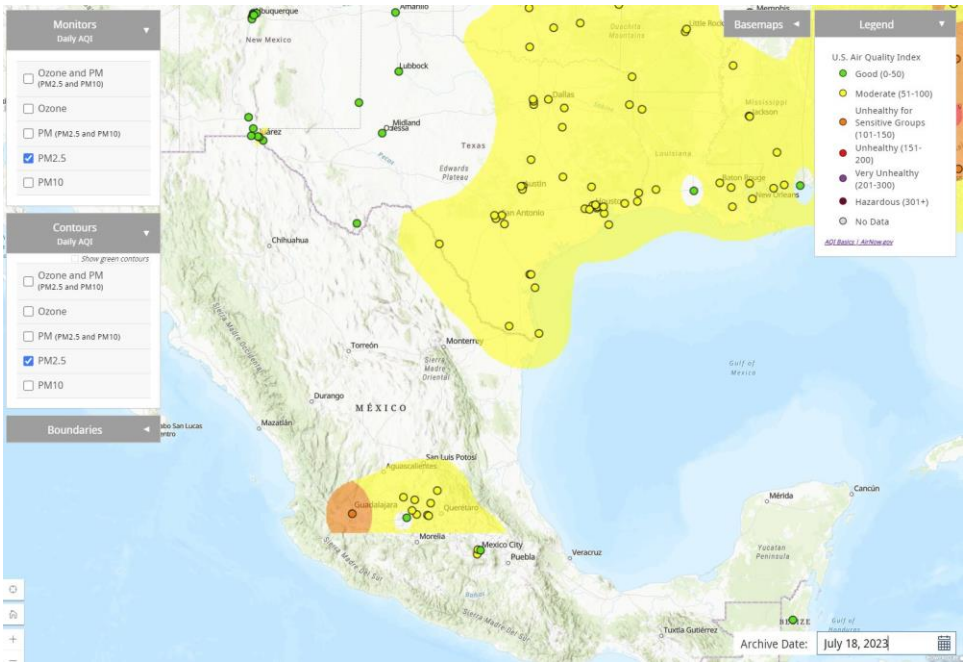
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230718 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3- Pollution rose for 7/18/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/18/2023.

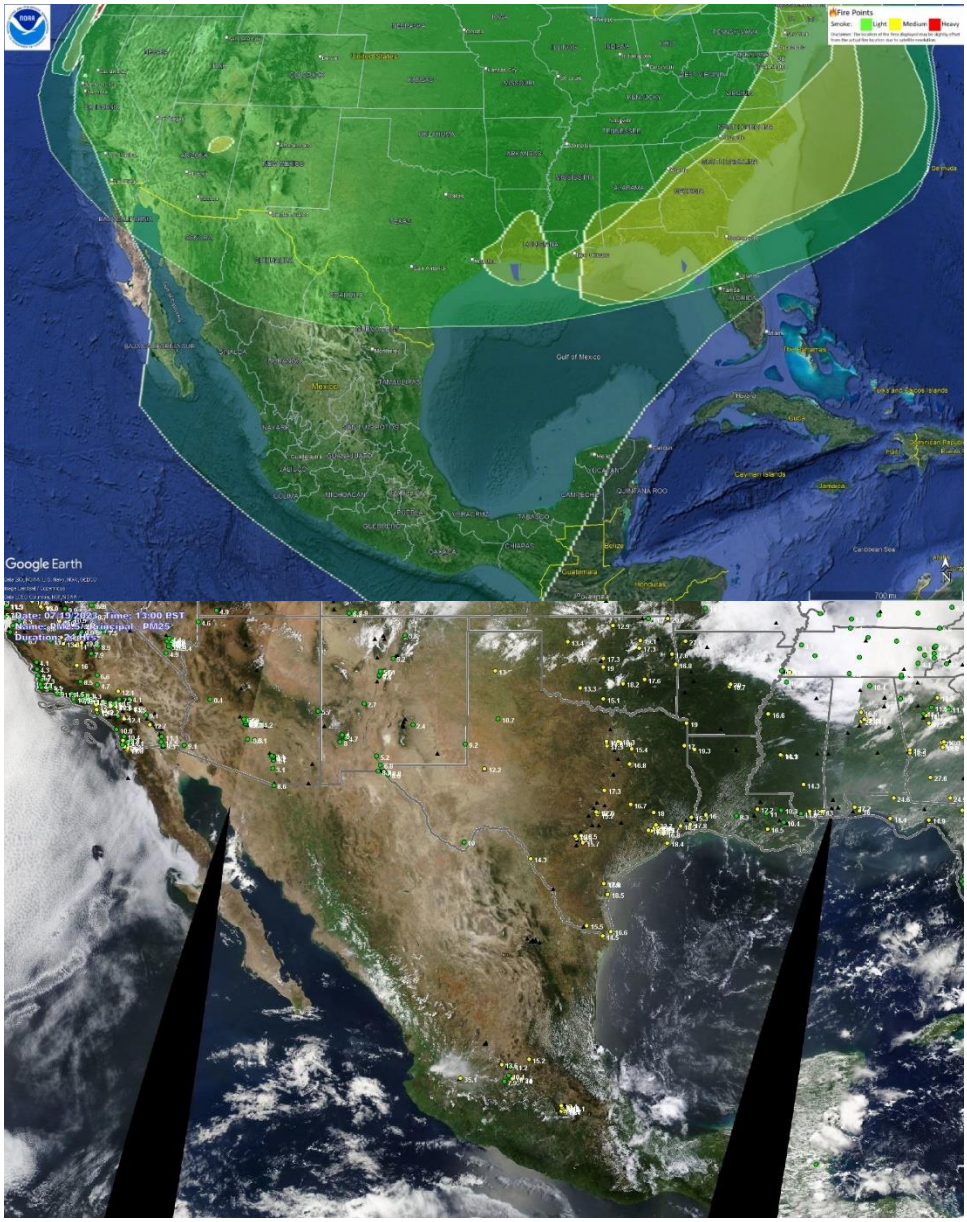


21. 7/19/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

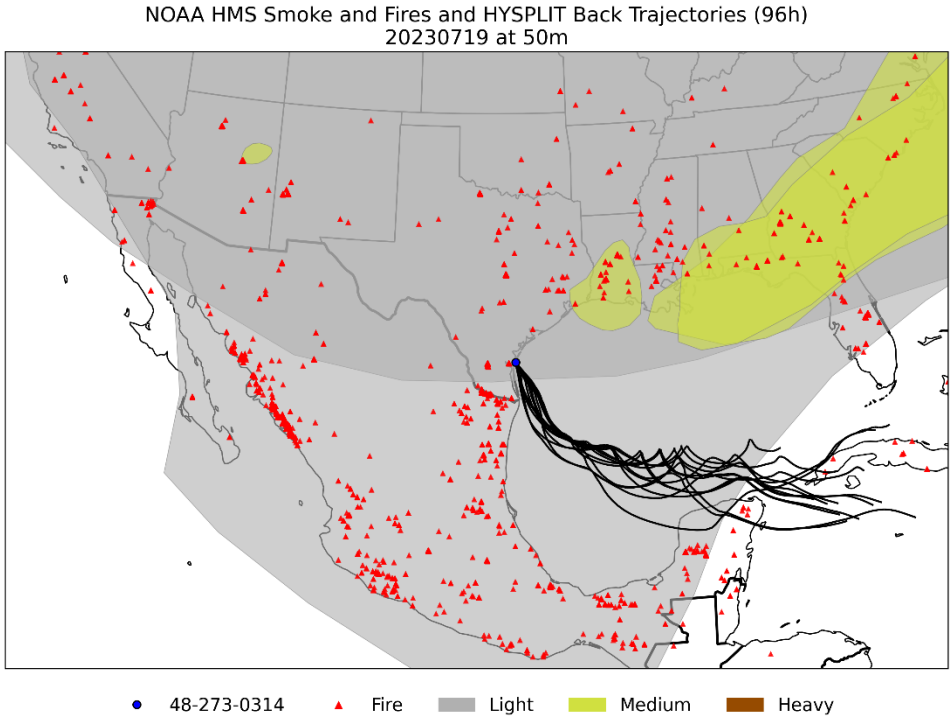
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/19/2023	20.1	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

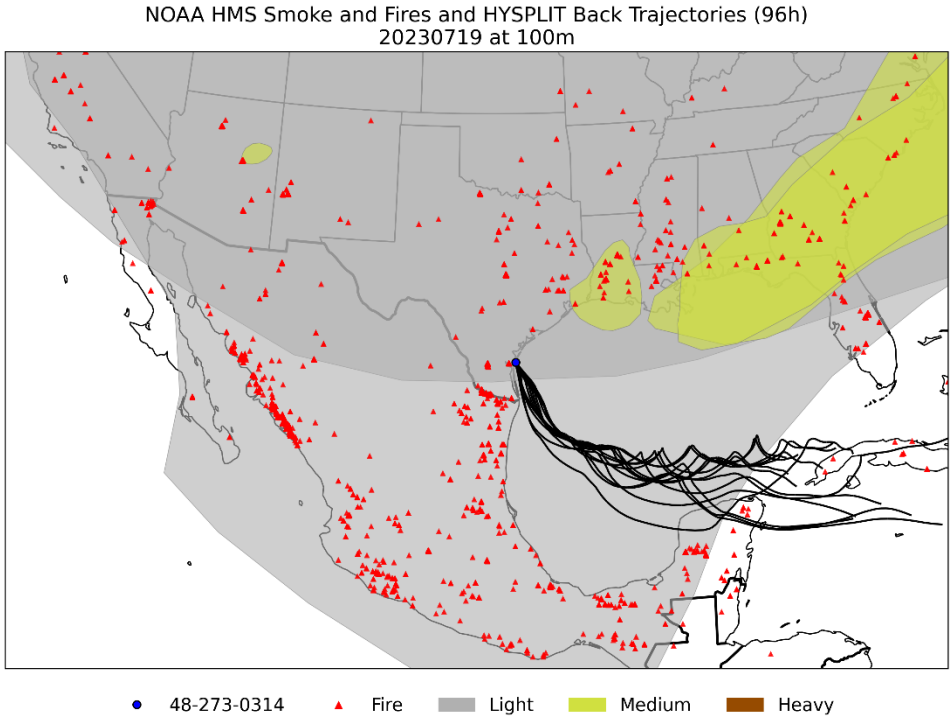


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

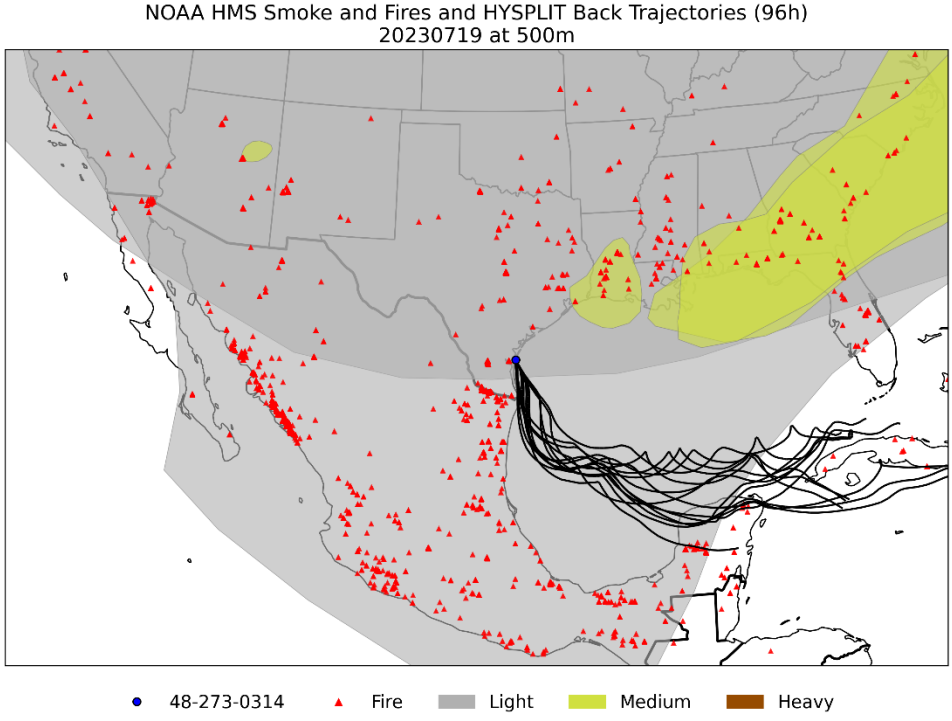
- 50m



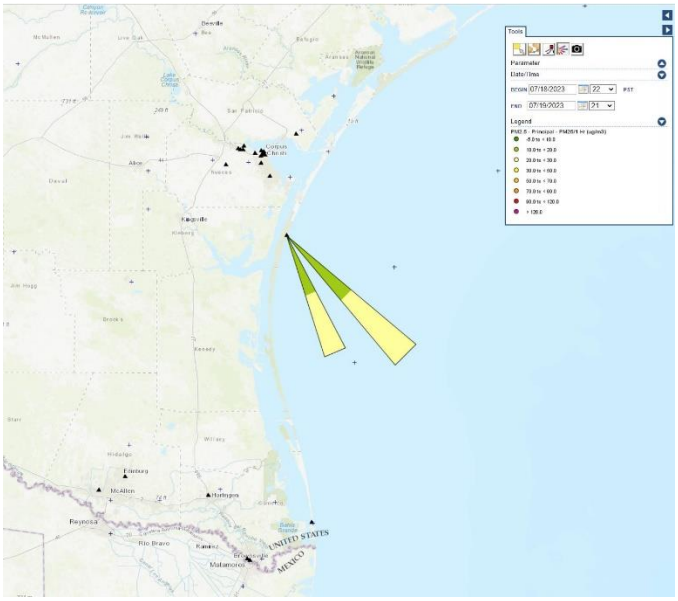
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230719 at 100m
48-273-0314
Fire
Light
Medium
Heavy

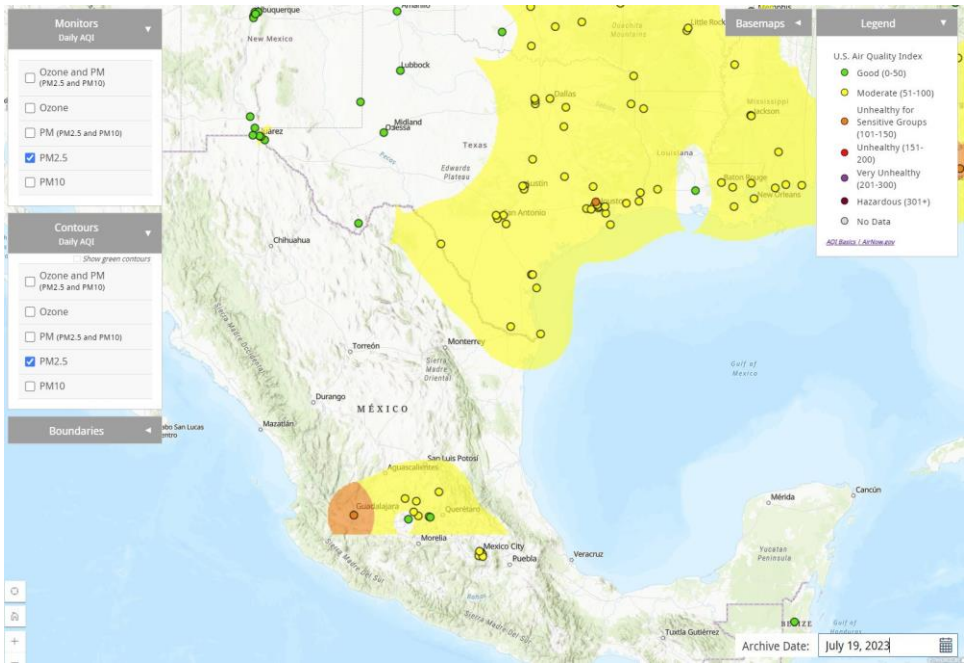
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230719 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3- Pollution rose for 7/19/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/19/2023.

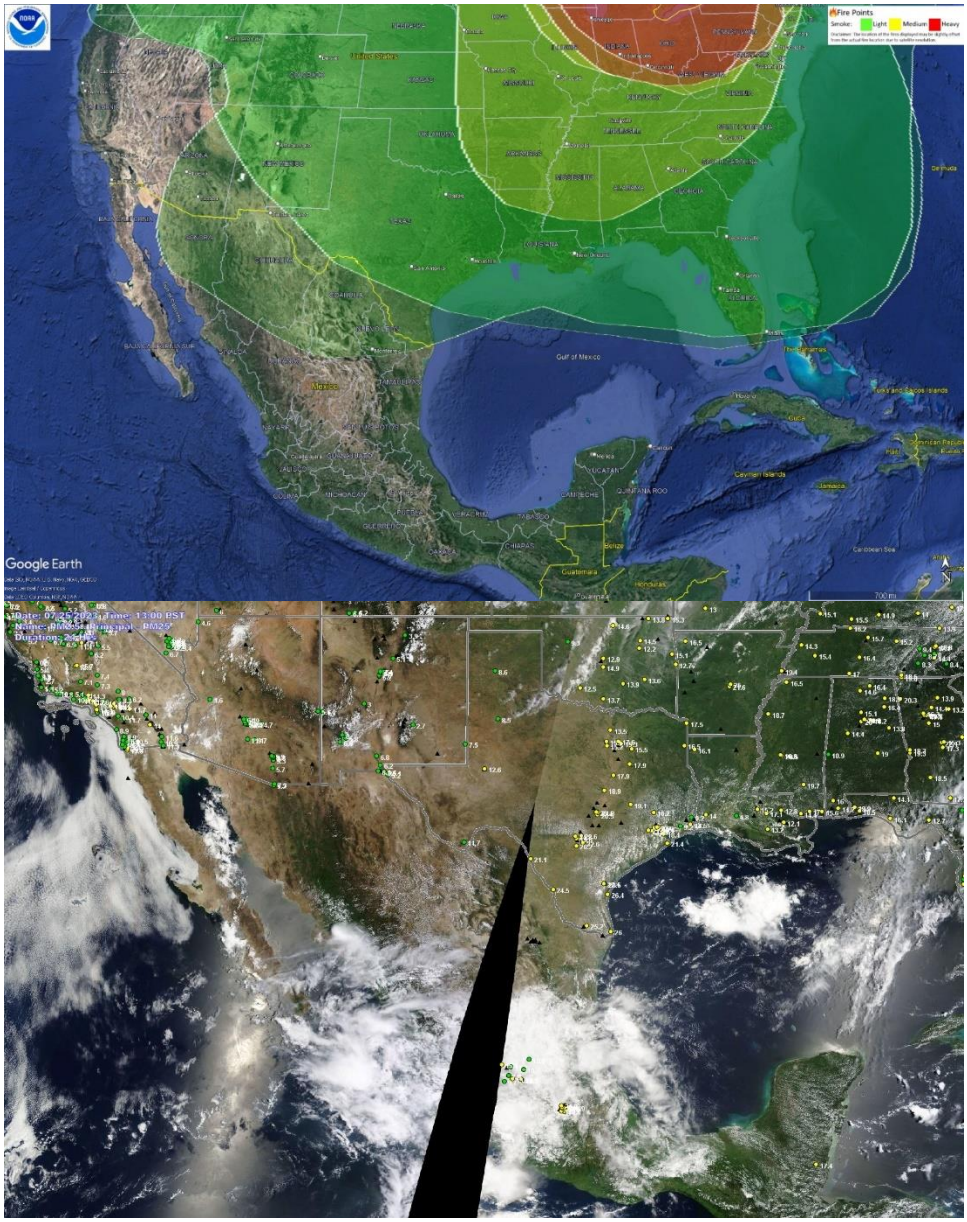


22. 7/25/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

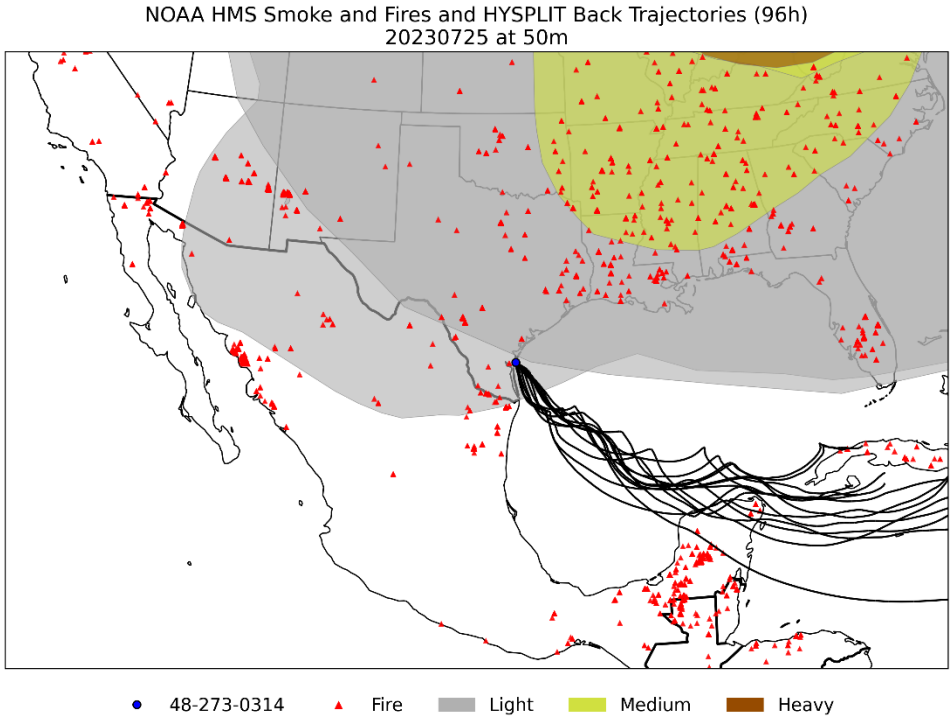
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/25/2023	22.3	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

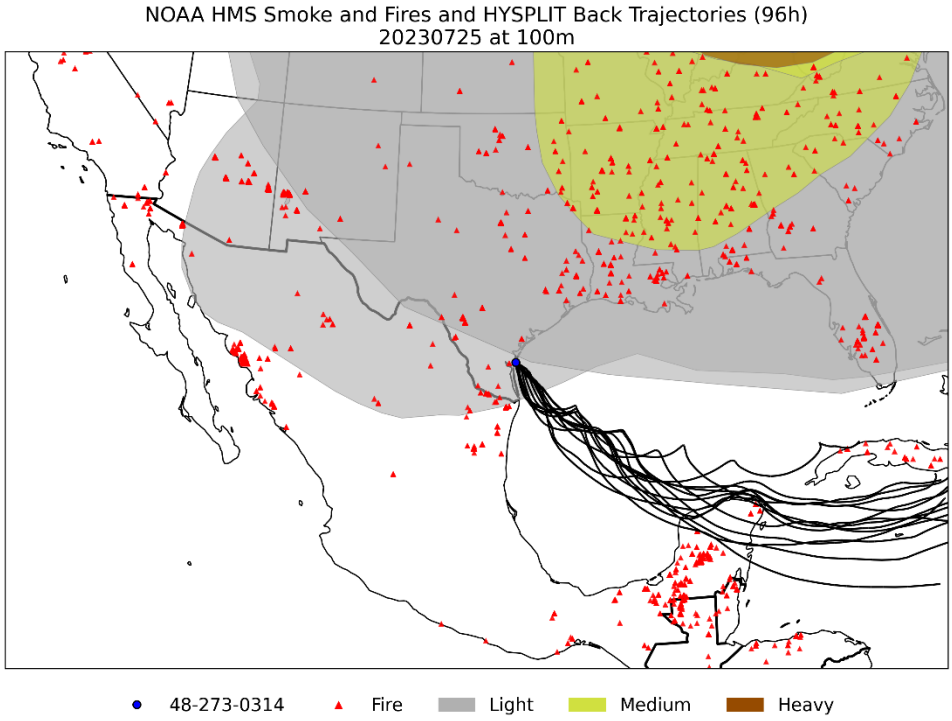


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

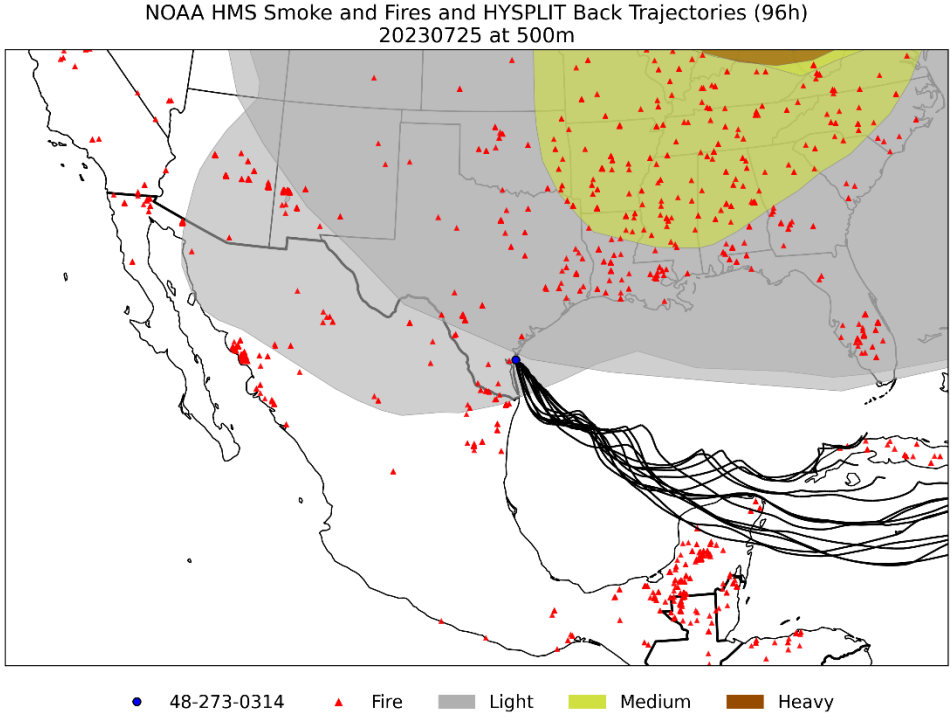
- 50m



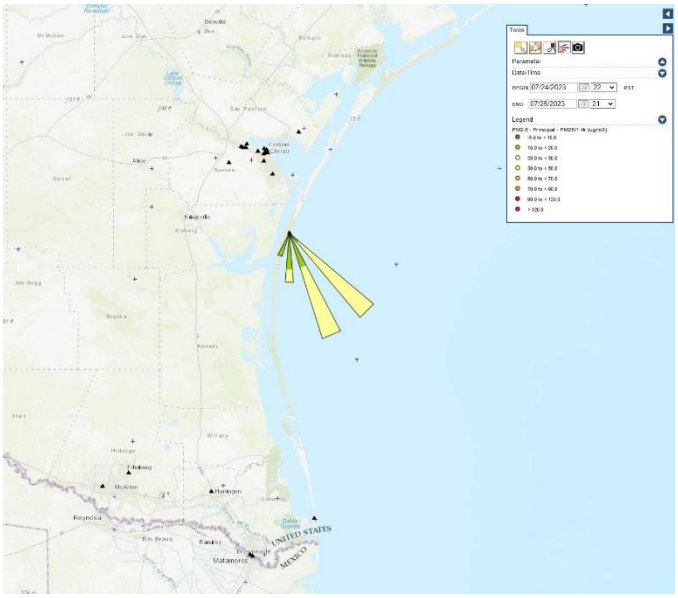
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230725 at 100m
48-273-0314
Fire
Light
Medium
Heavy

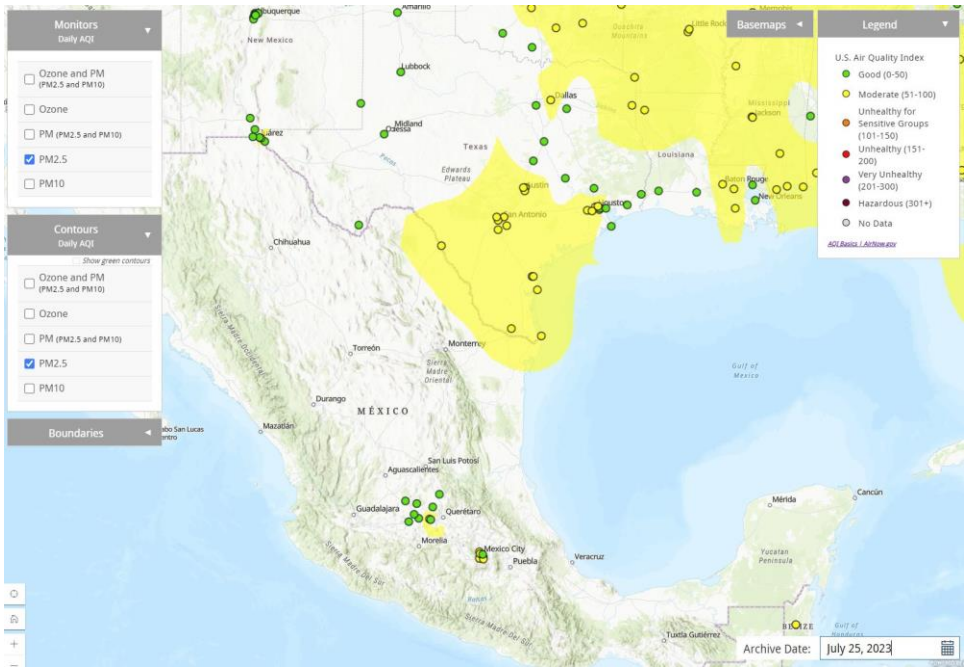
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230725 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3- Pollution rose for 7/25/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/25/2023.

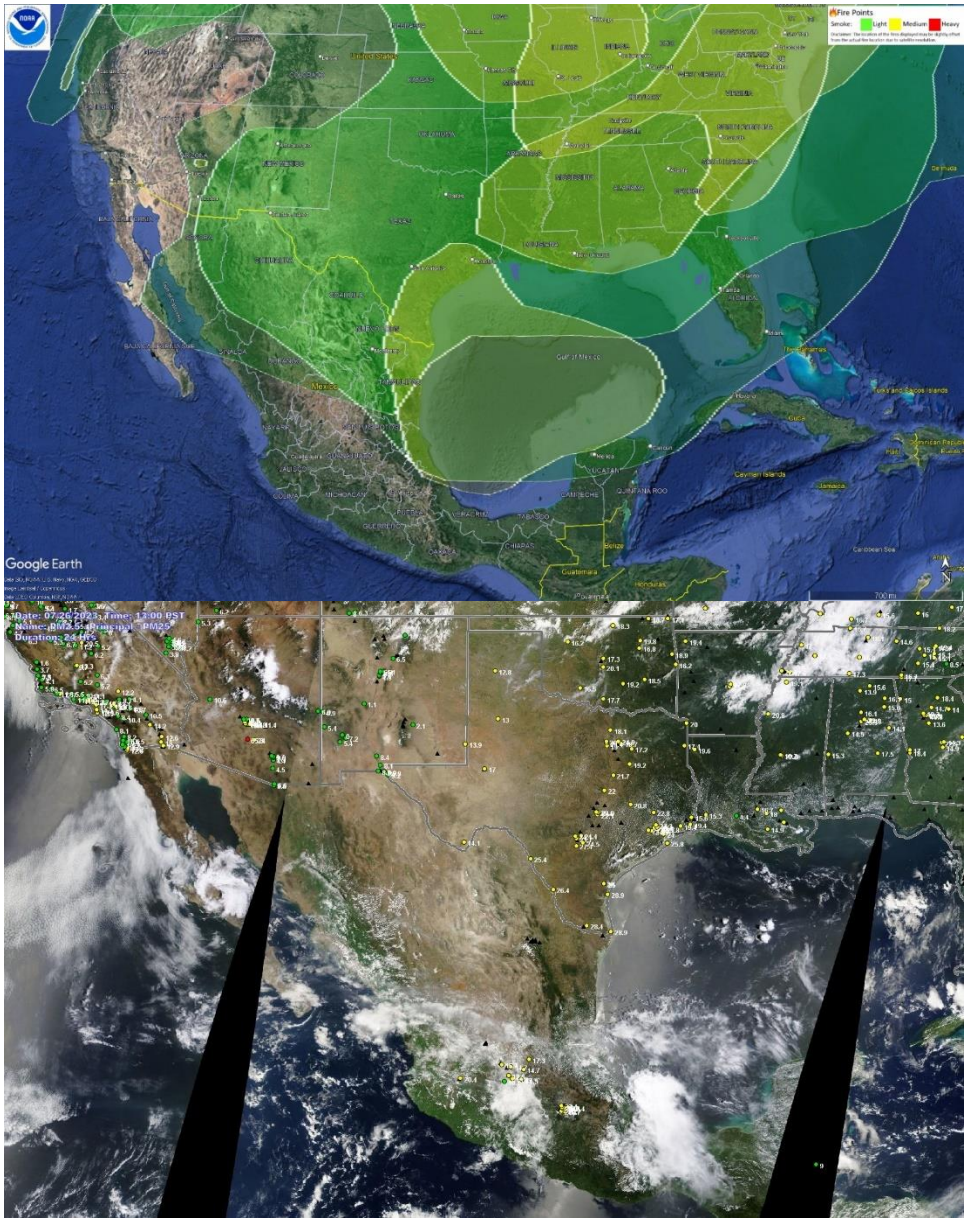


23. 7/26/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

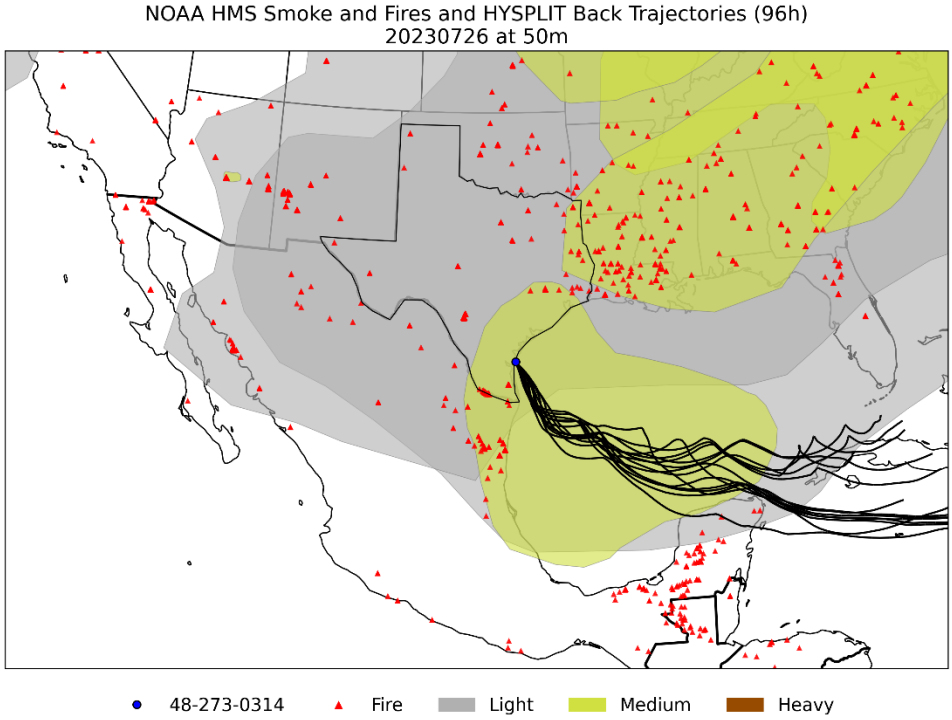
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/26/2023	26.5	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

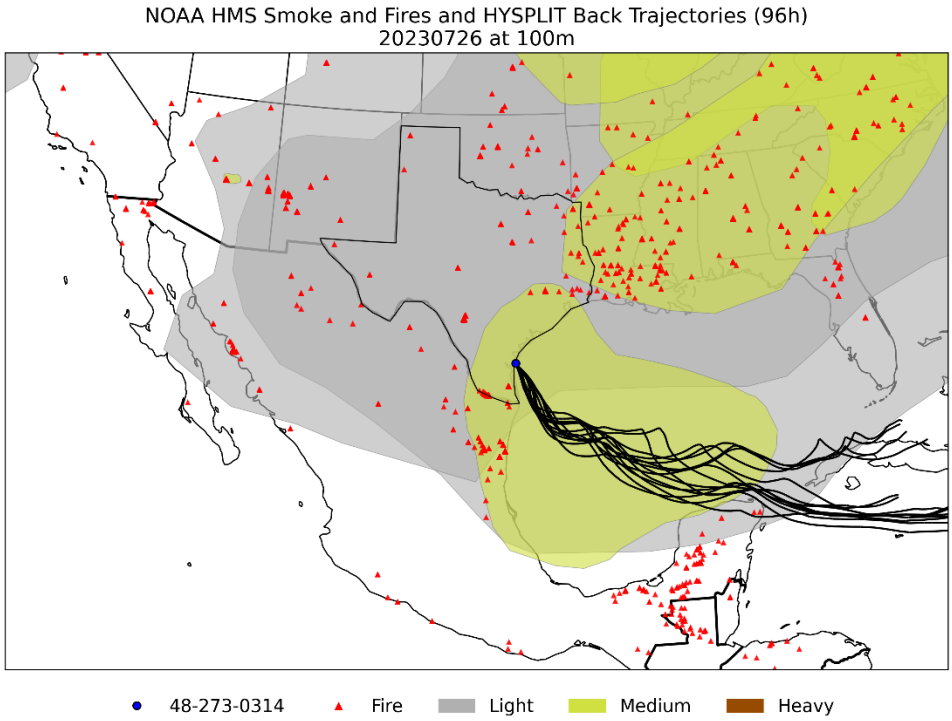


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

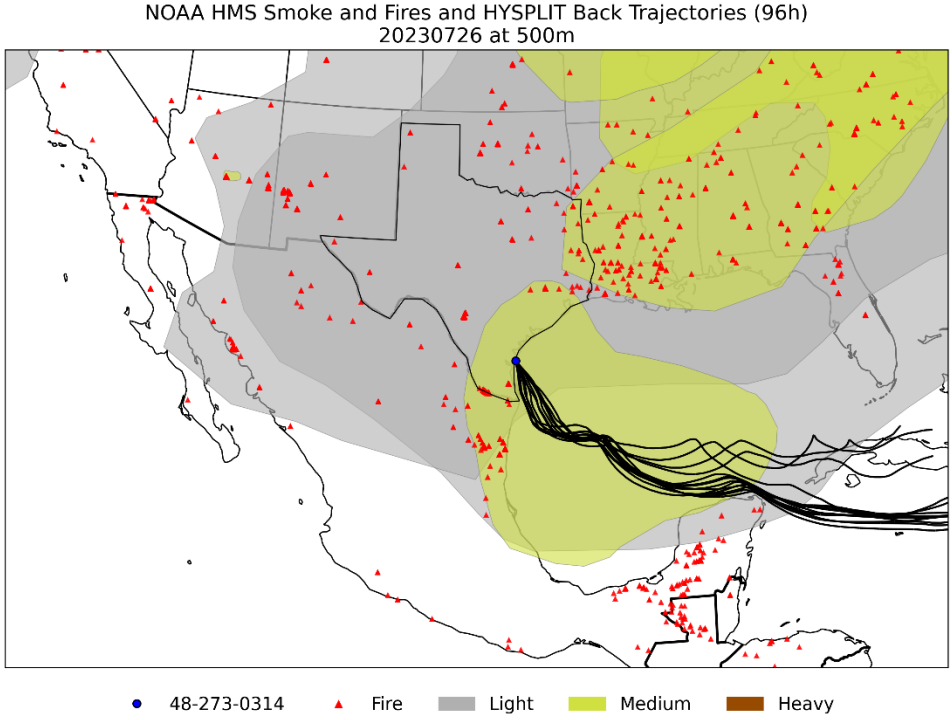
- 50m



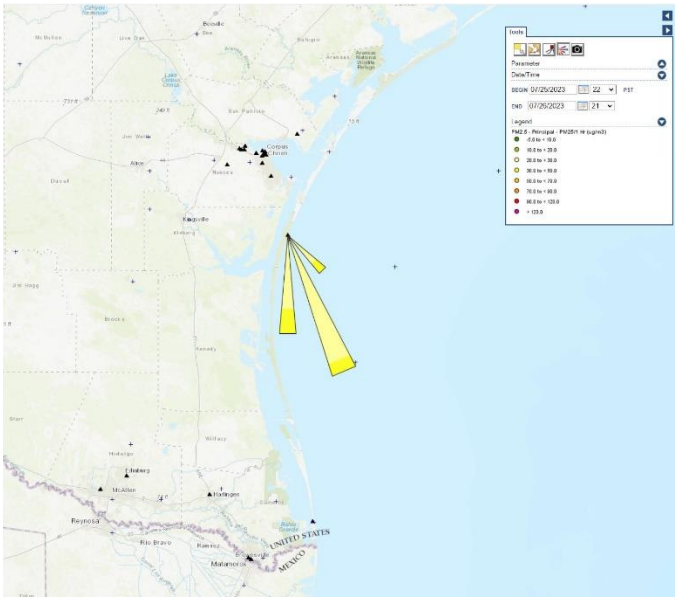
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230726 at 100m
48-273-0314
Fire
Light
Medium
Heavy

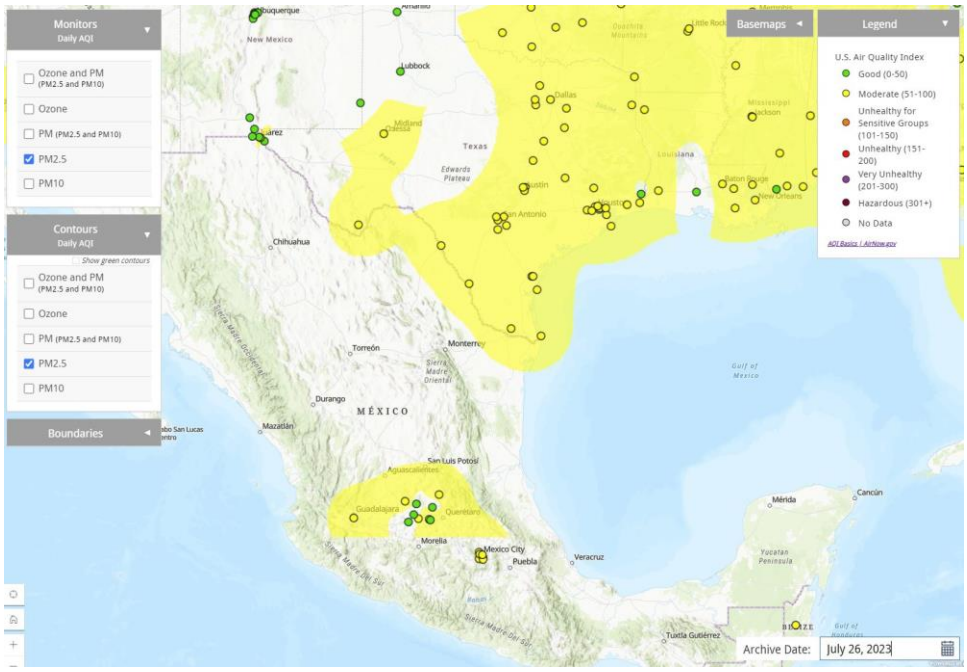
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230726 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3- Pollution rose for 7/26/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/26/2023.

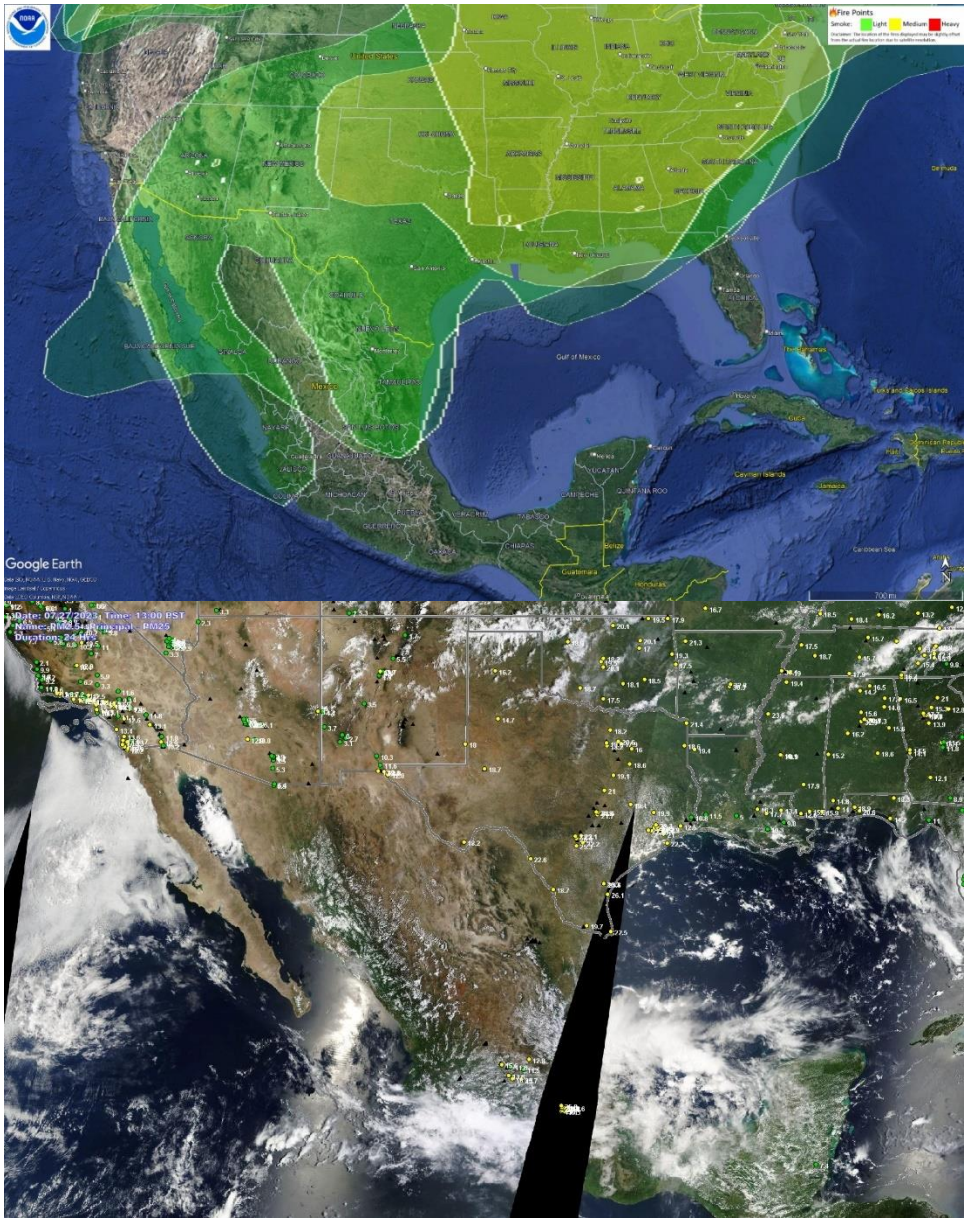


24. 7/27/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

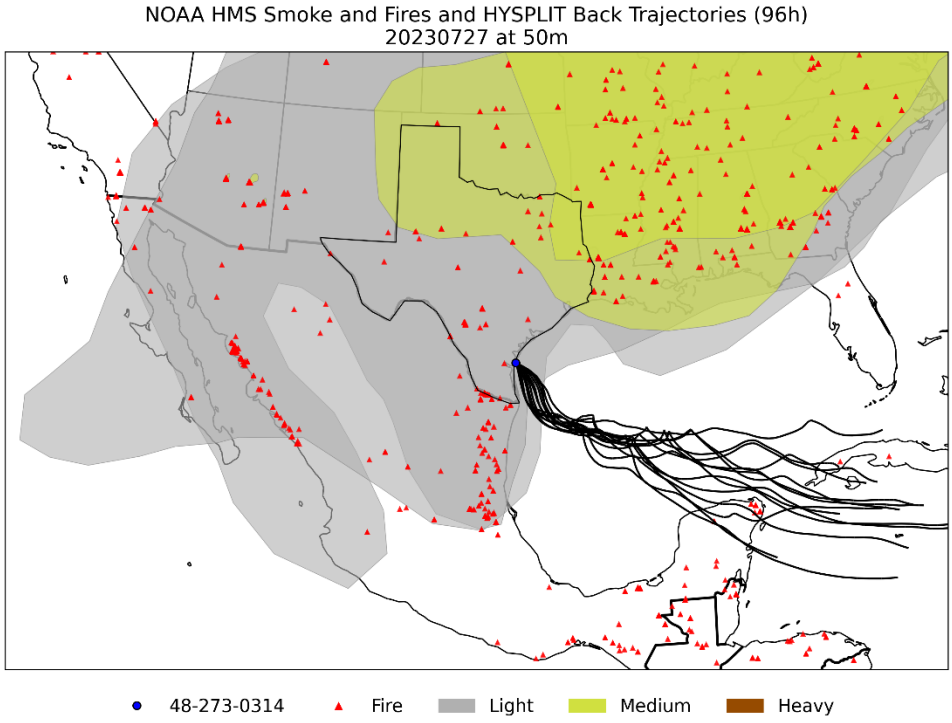
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/27/2023	29.6	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

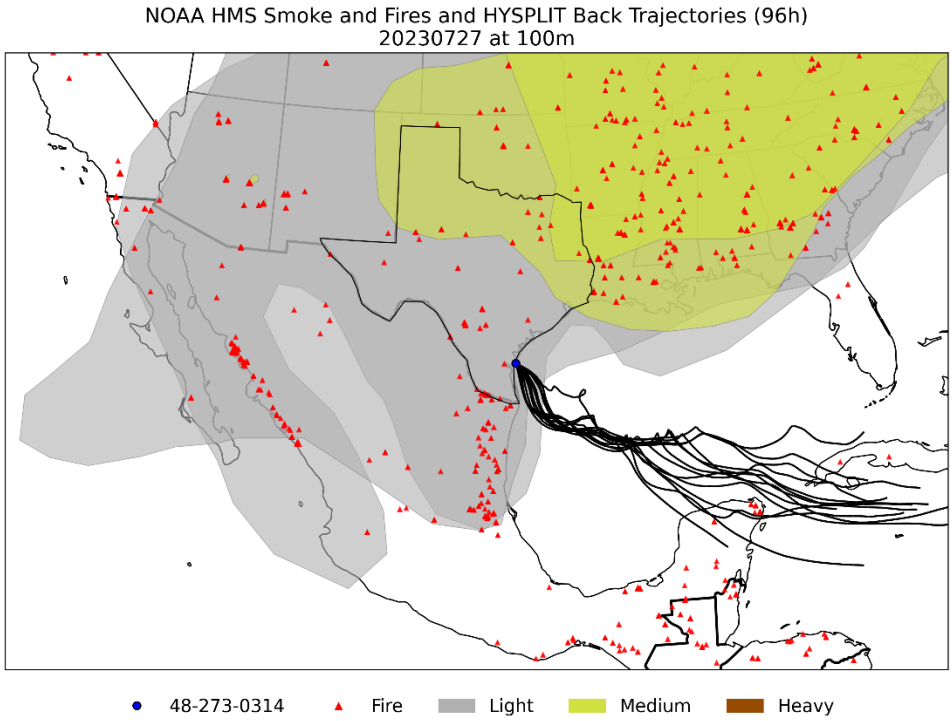


c. **Evidence #2**– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

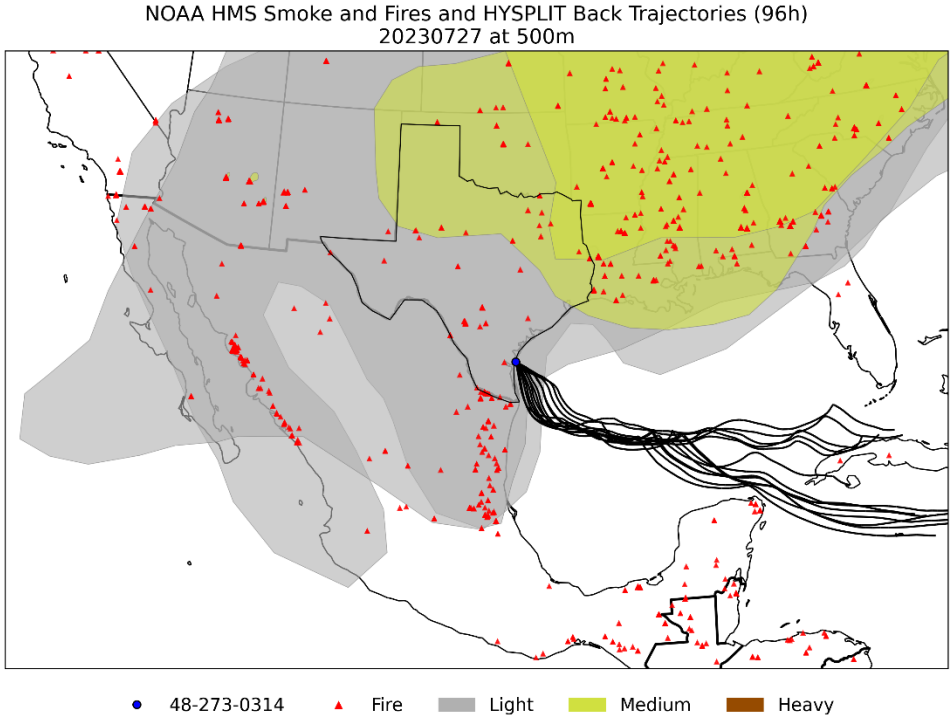
- 50m



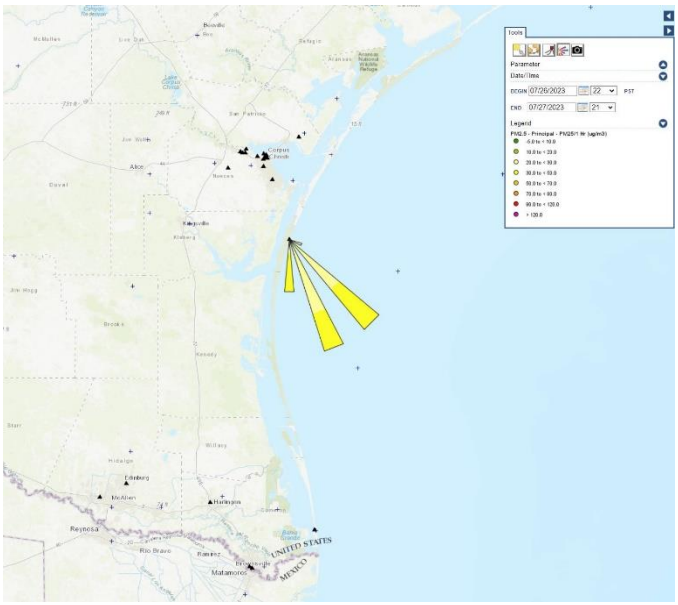
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230727 at 100m
48-273-0314
Fire
Light
Medium
Heavy

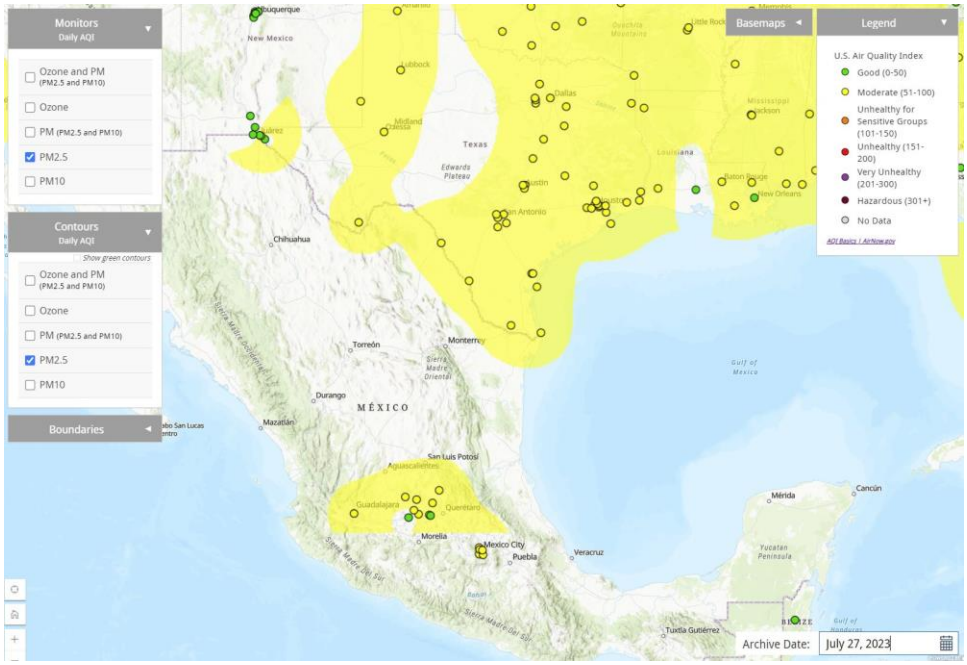
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230727 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. **Evidence #3**- Pollution rose for 7/27/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4**- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/27/2023.

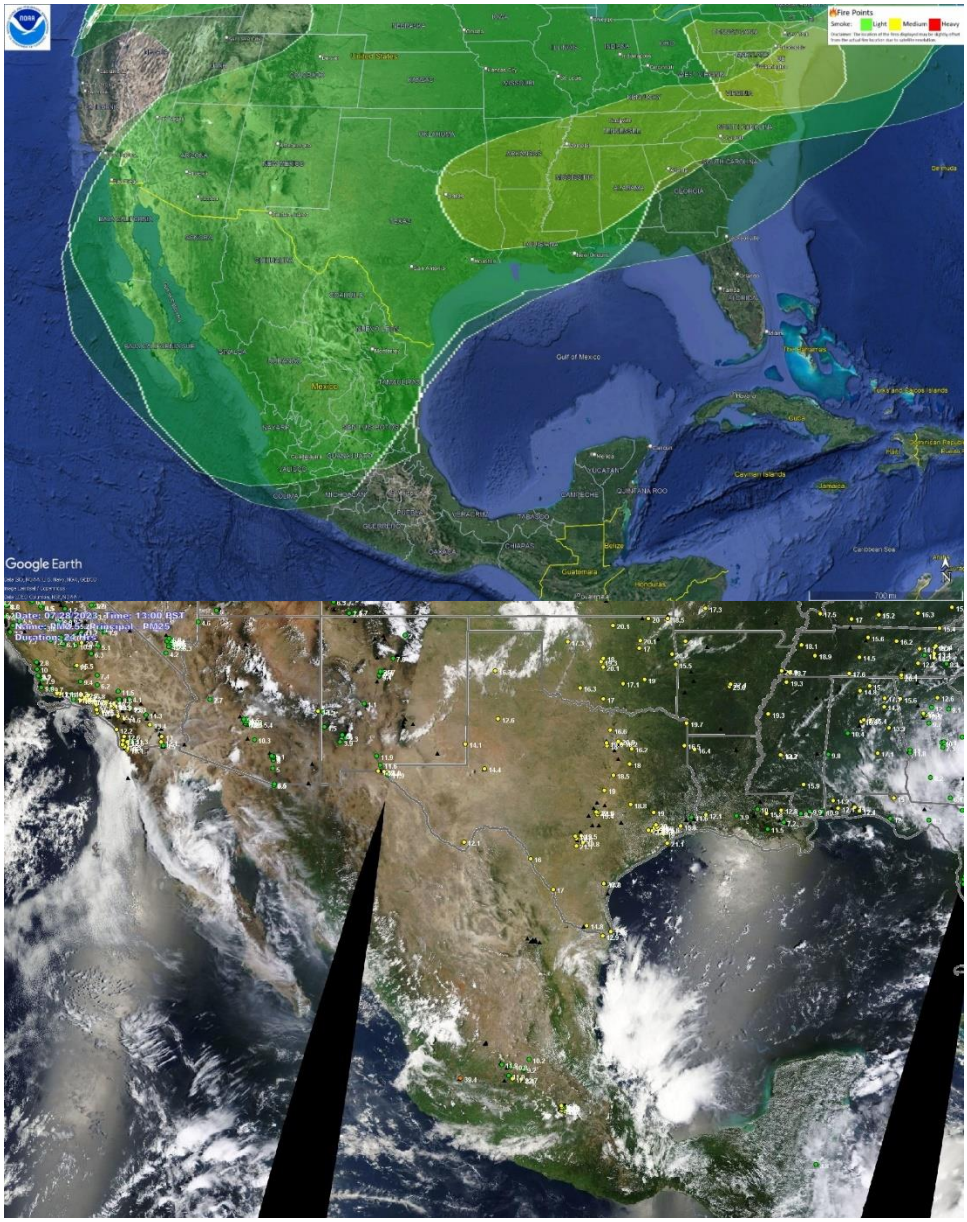


25. 7/28/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

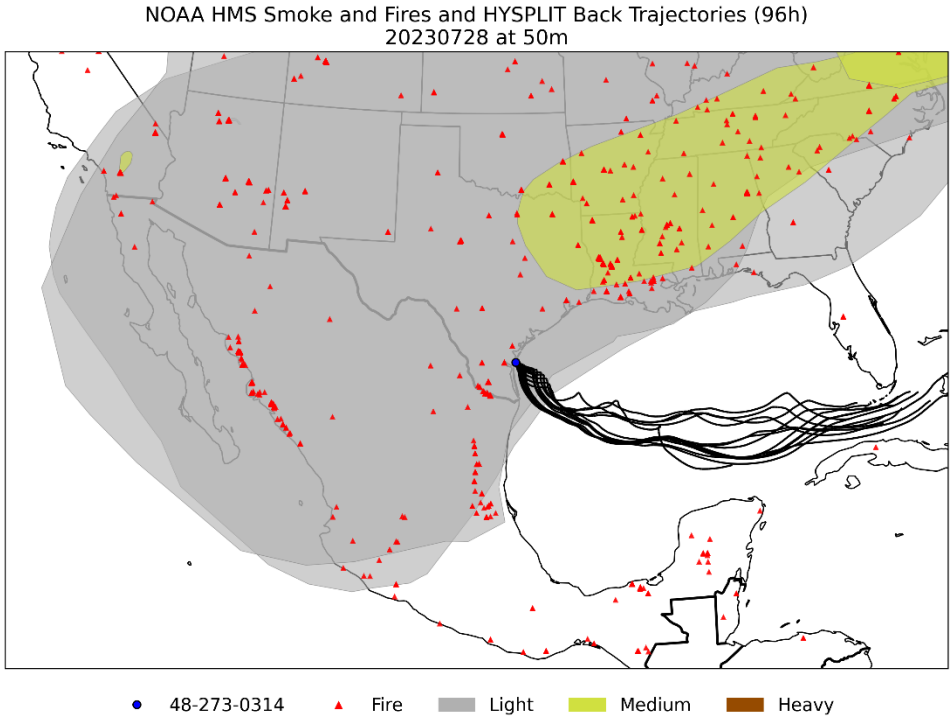
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
7/28/2023	23.3	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

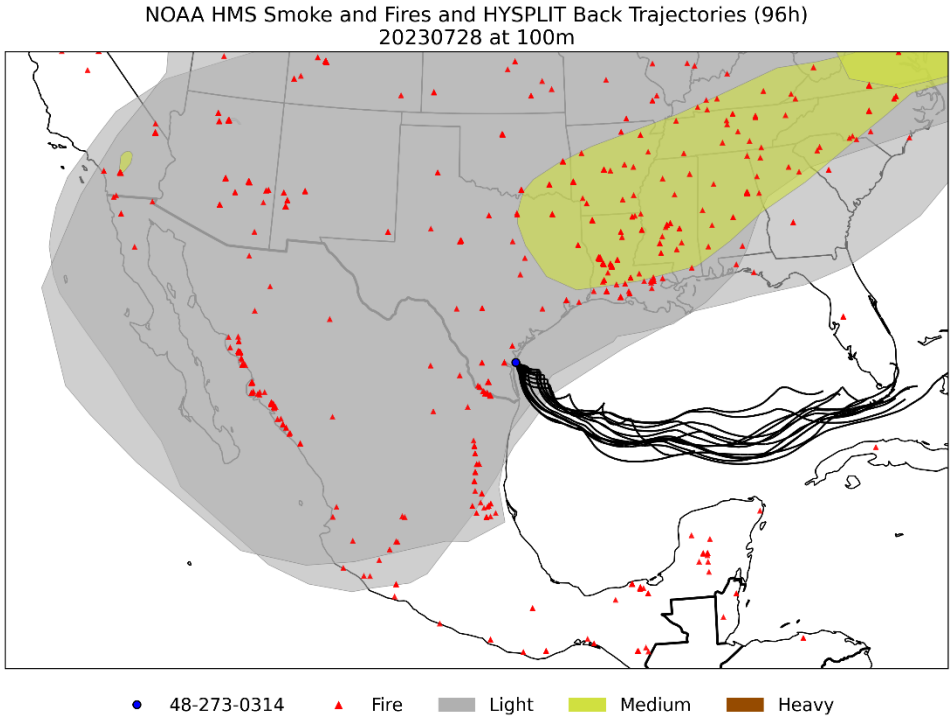


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

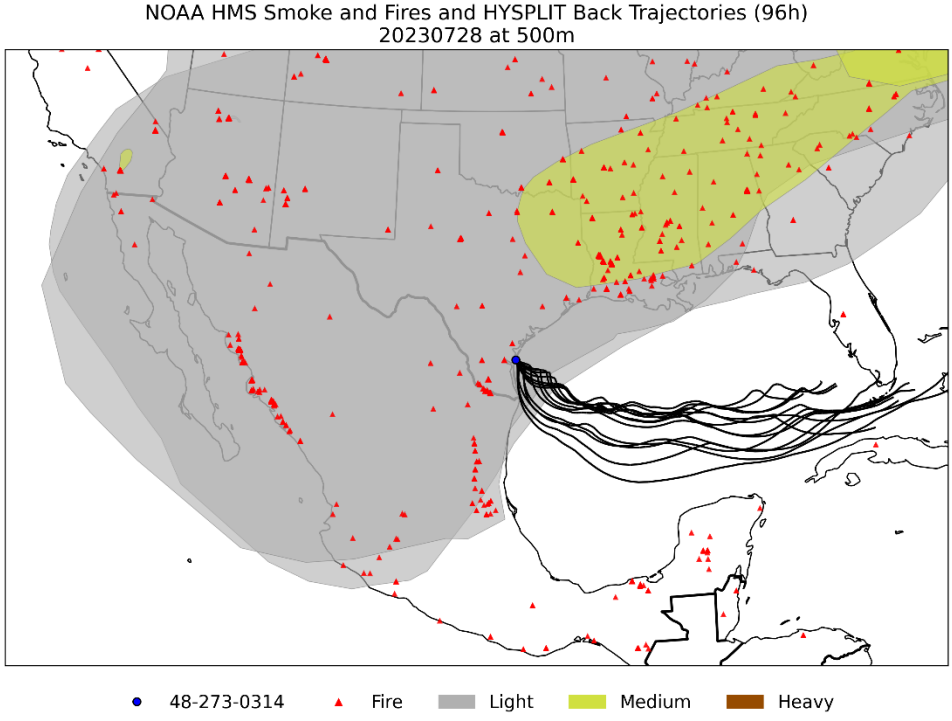
- 50m



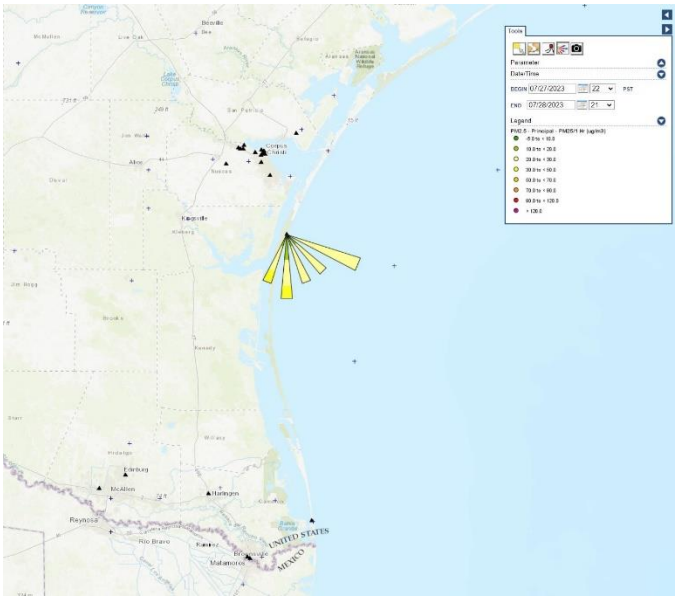
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230728 at 100m
48-273-0314
Fire
Light
Medium
Heavy

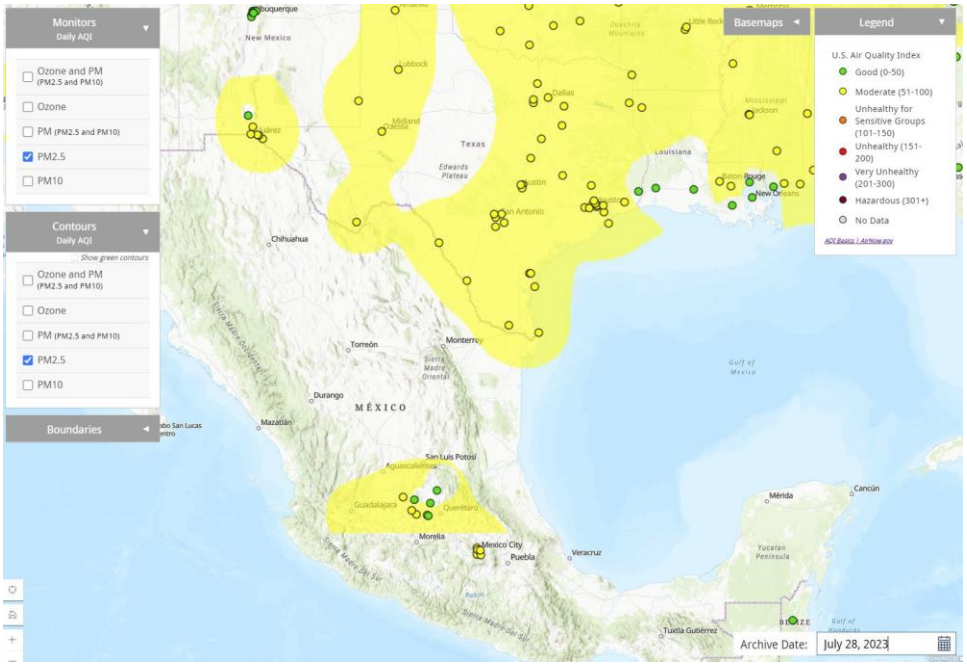
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20230728 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3- Pollution rose for 7/28/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 7/28/2023.

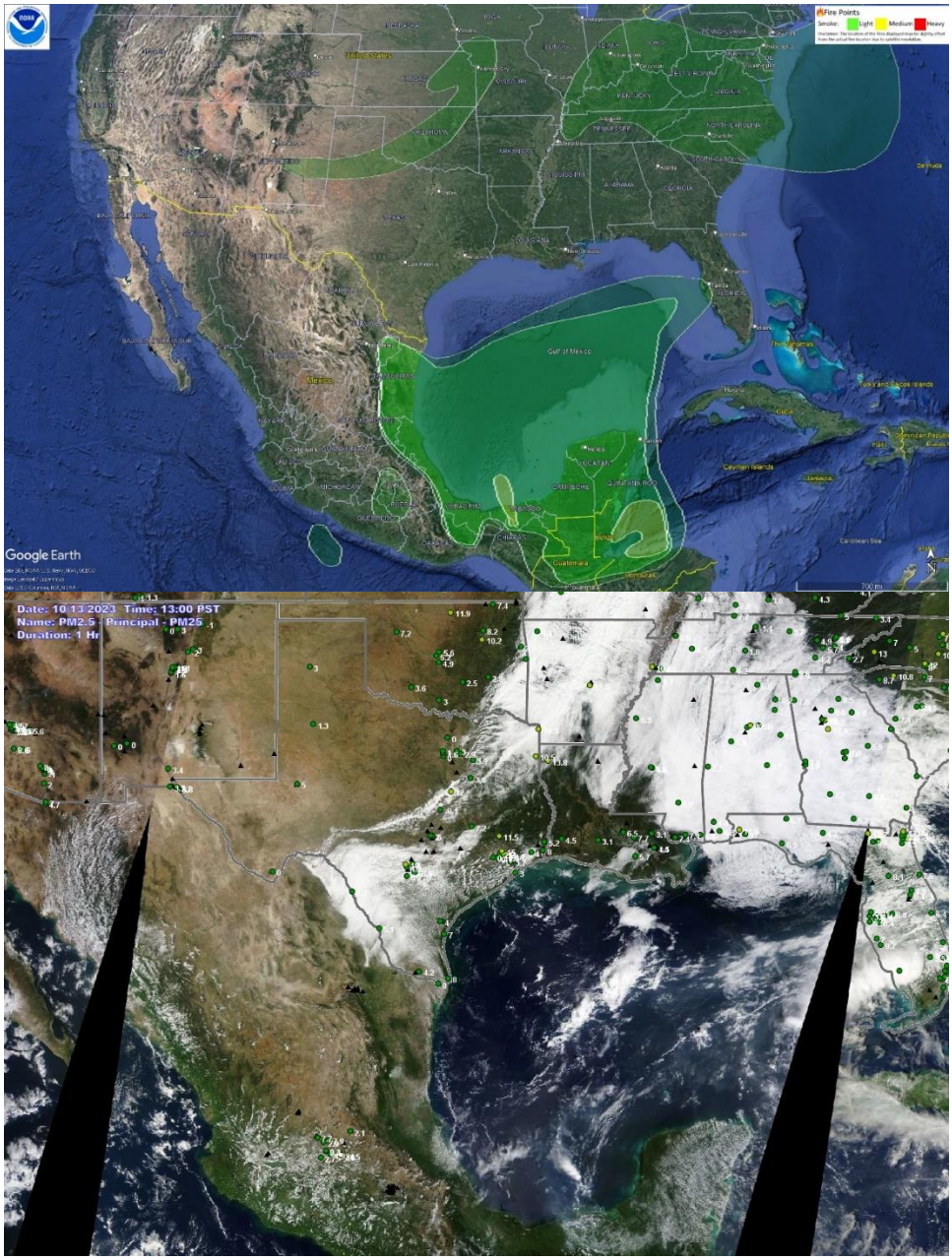


26. 10/13/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

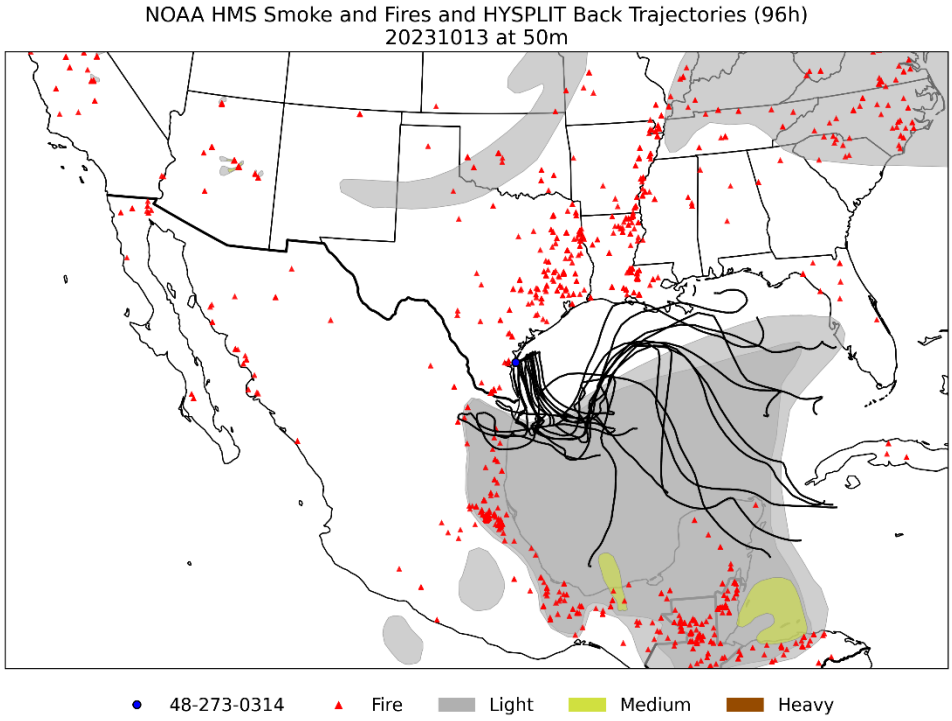
Date	24-hour $PM_{2.5}$ (µg/m³)	Tier 2 Threshold	Tier 1 Threshold
10/13/2023	14.3	14.2	21.3

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

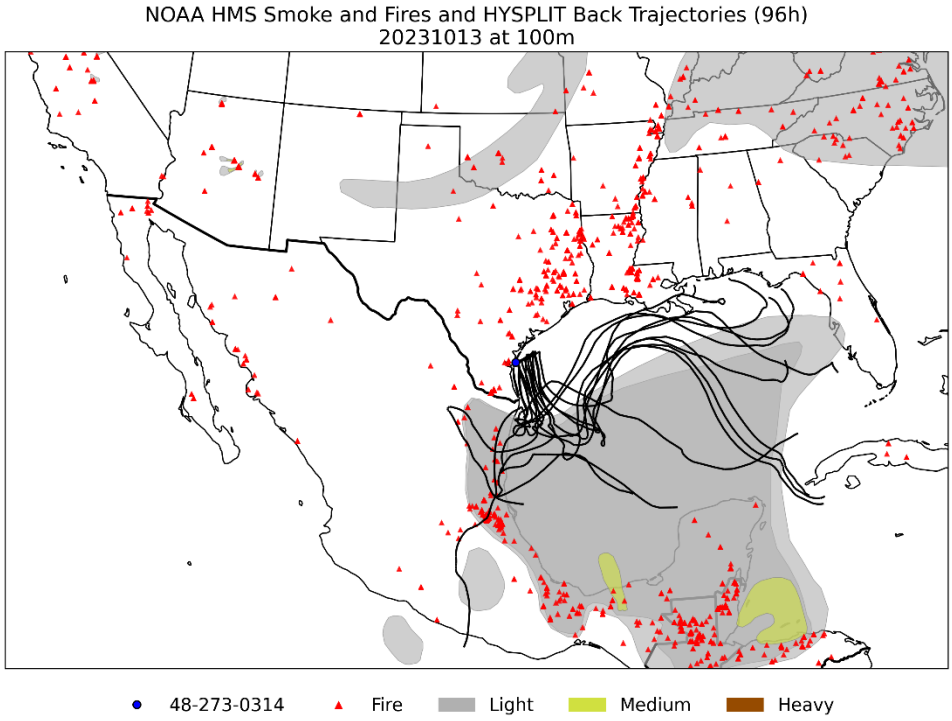


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

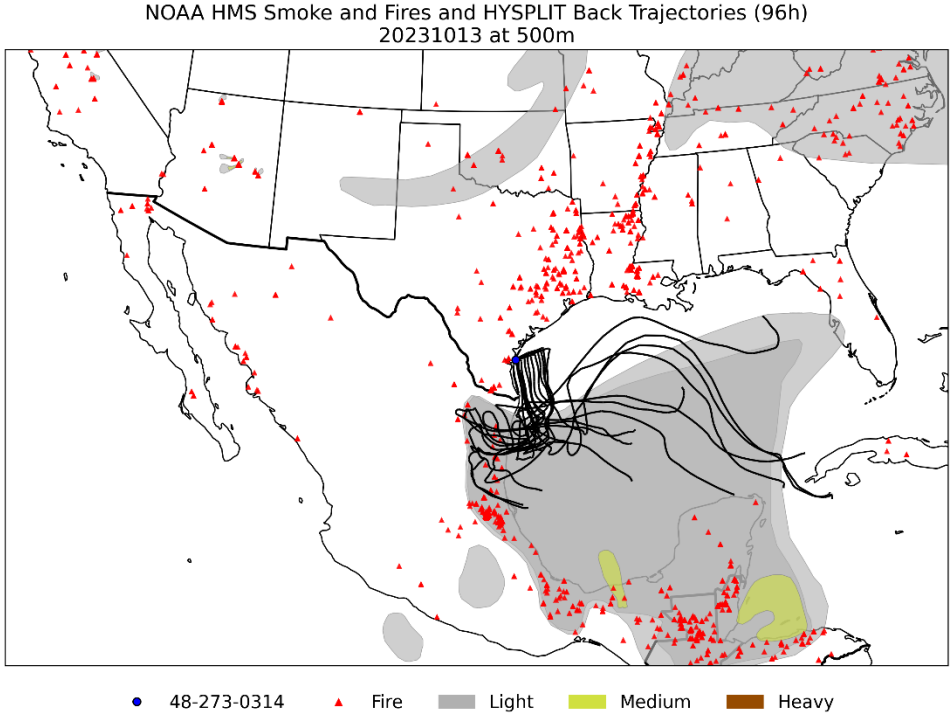
- 50m



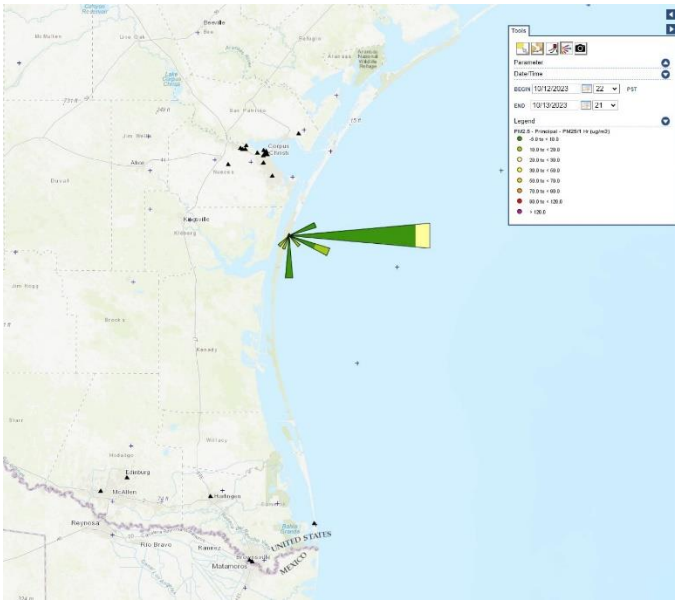
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20231013 at 100m
48-273-0314
Fire
Light
Medium
Heavy

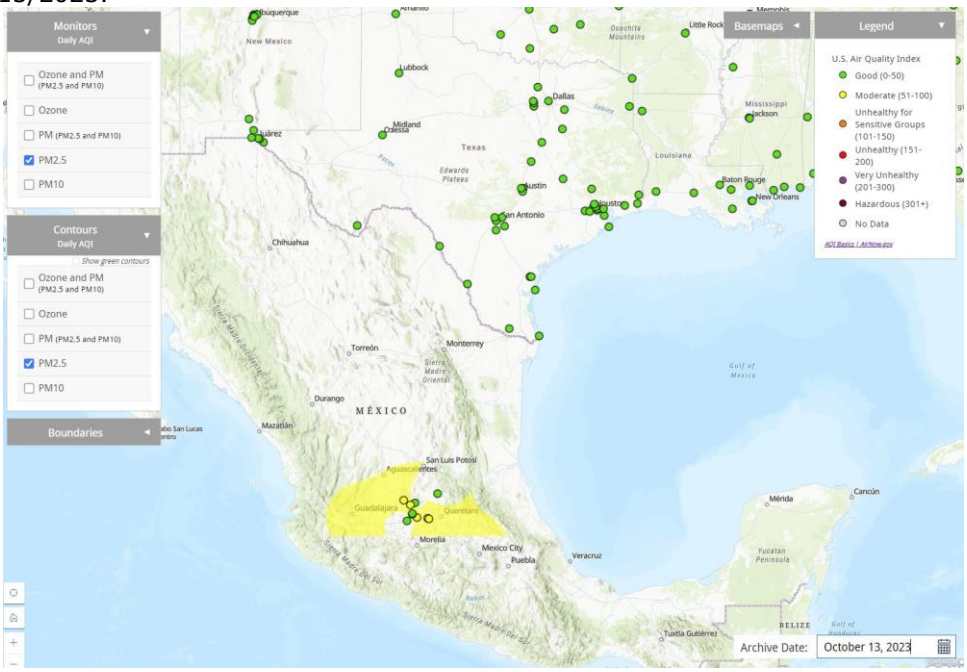
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20231013 at 500m
48-273-0314
Fire
Light
Medium
Heavy

d. Evidence #3- Pollution rose for 10/13/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 10/13/2023.

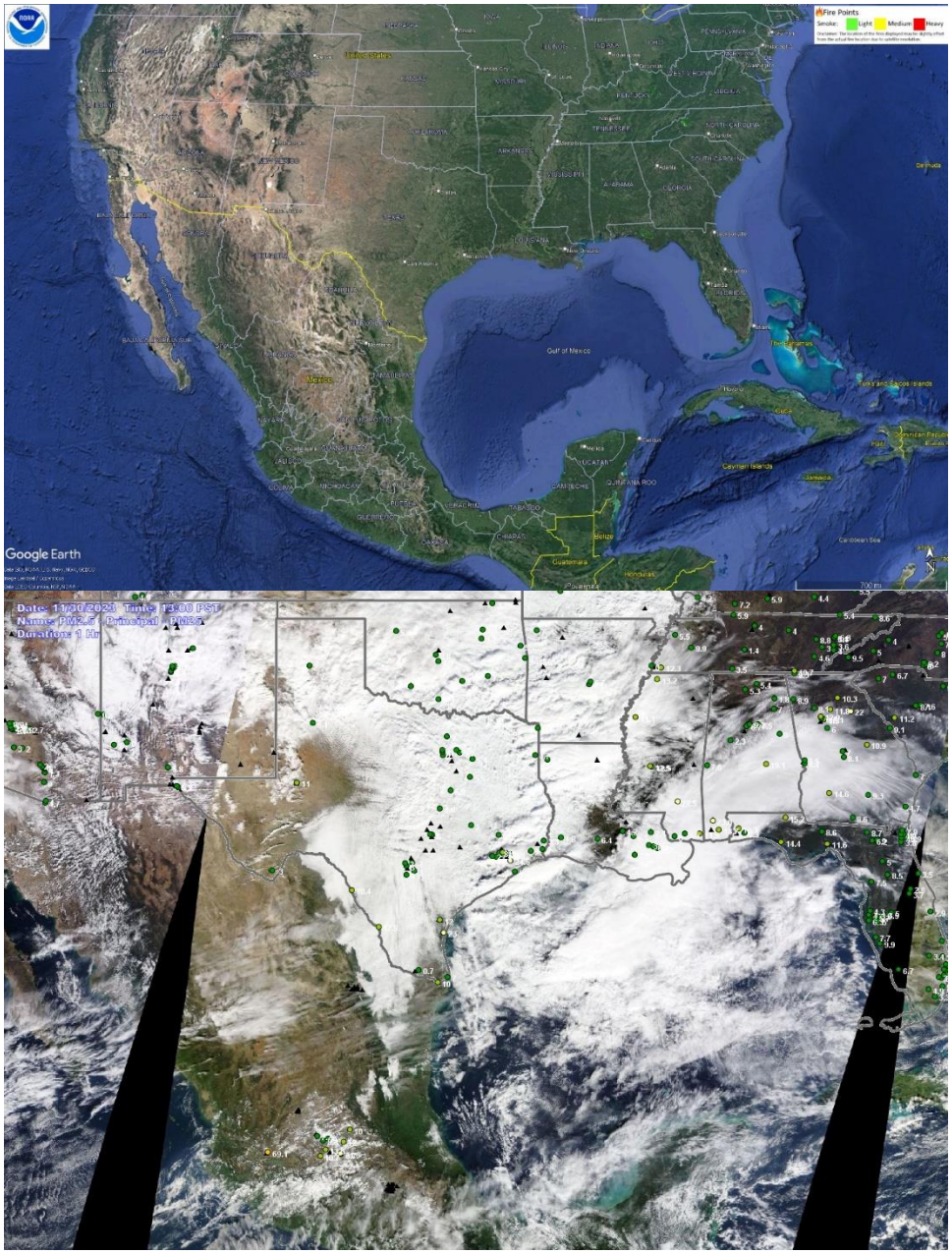


27. 11/30/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

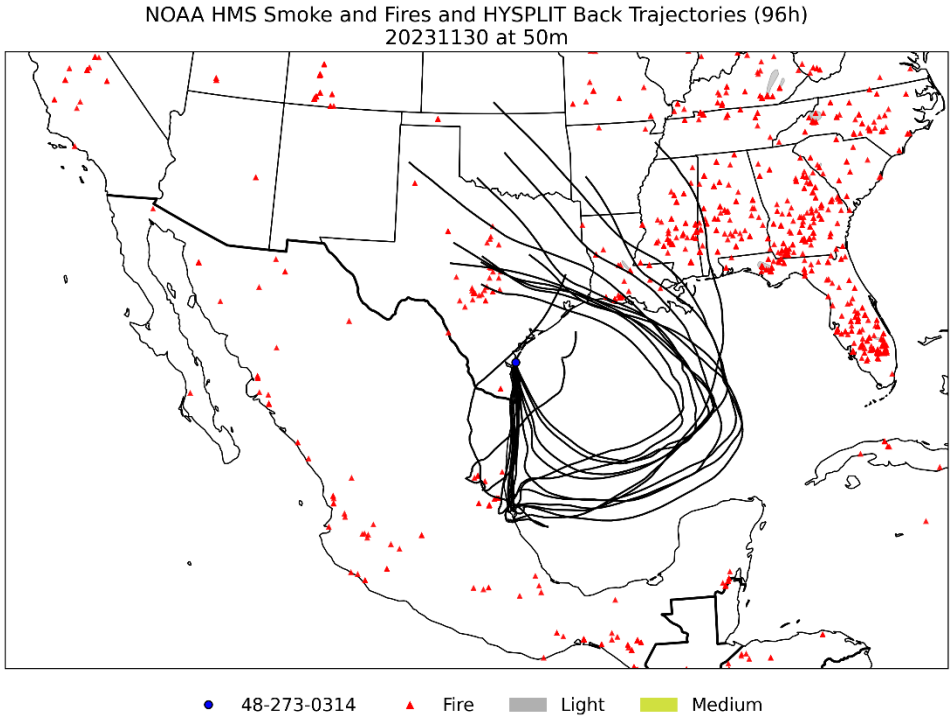
Date	24-hour $PM_{2.5}$ (µg/m³)	Tier 2 Threshold	Tier 1 Threshold
11/30/2023	18.1	16.4	24.6

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

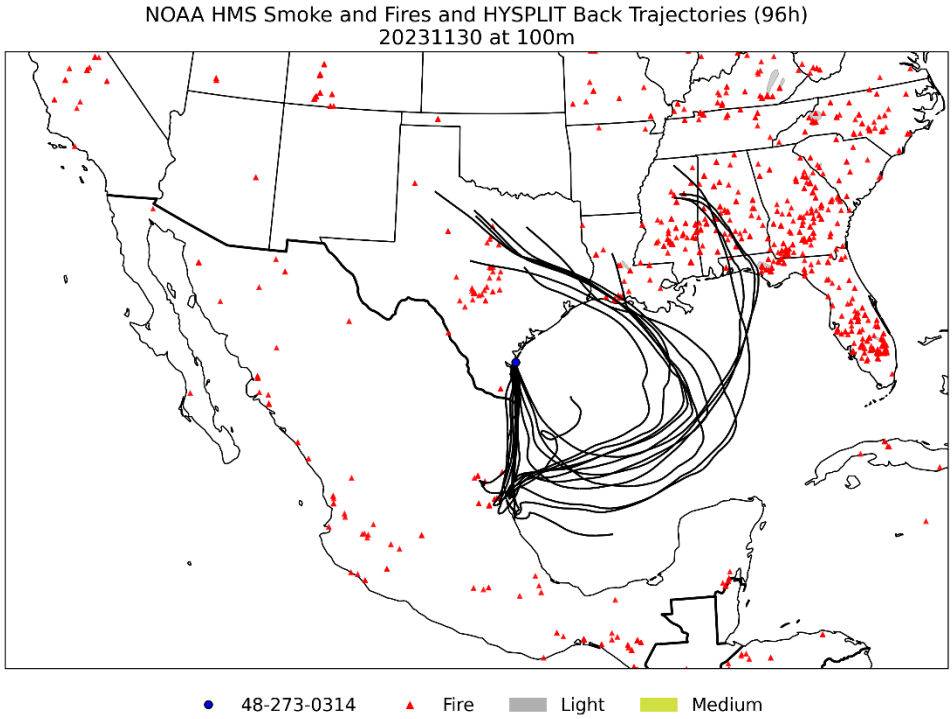


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

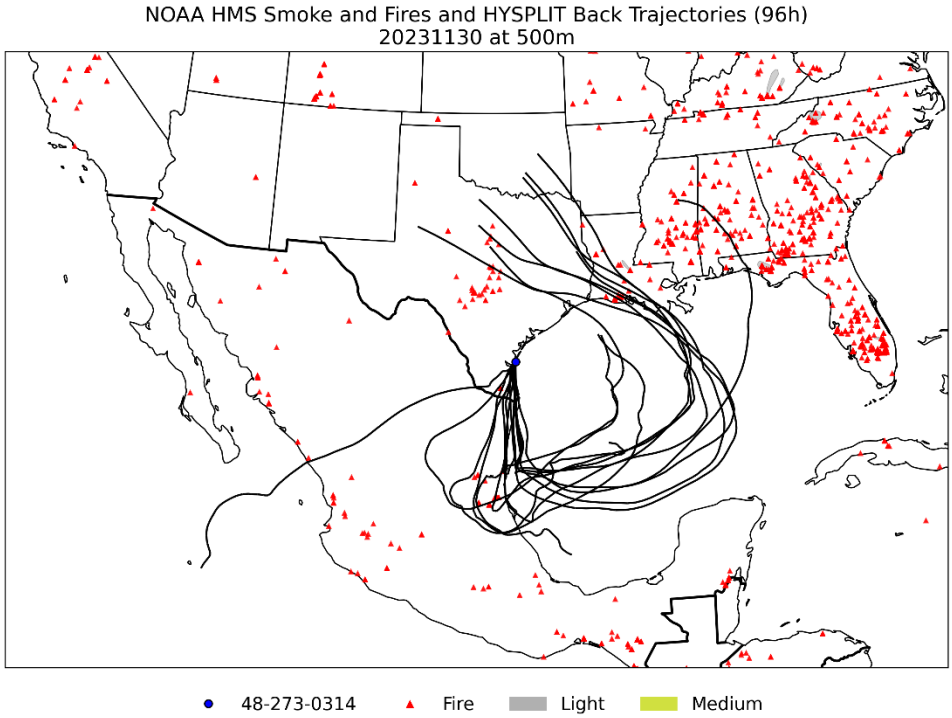
- 50m



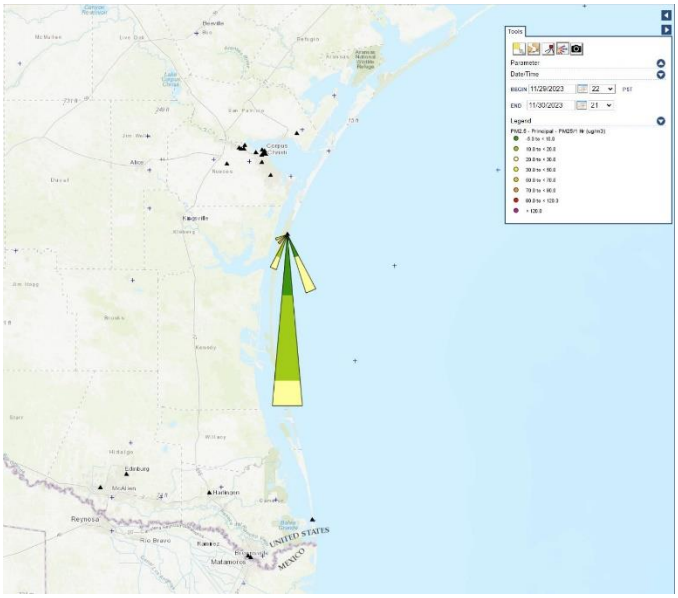
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20231130 at 100m
48-273-0314
Fire
Light
Medium

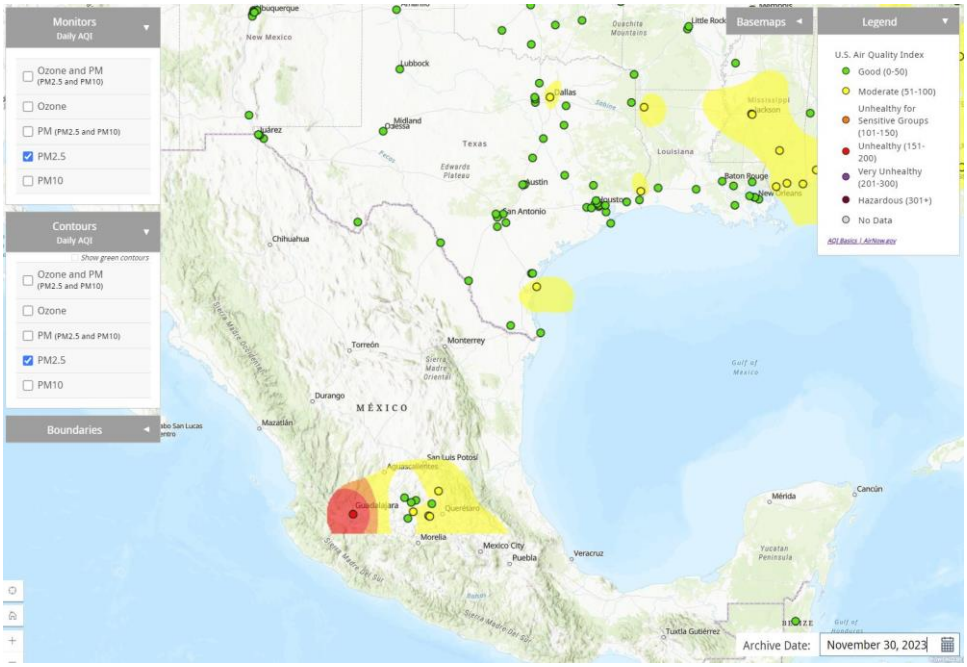
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20231130 at 500m
48-273-0314
Fire
Light
Medium

d. Evidence #3- Pollution rose for 11/30/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4**- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 11/30/2023.

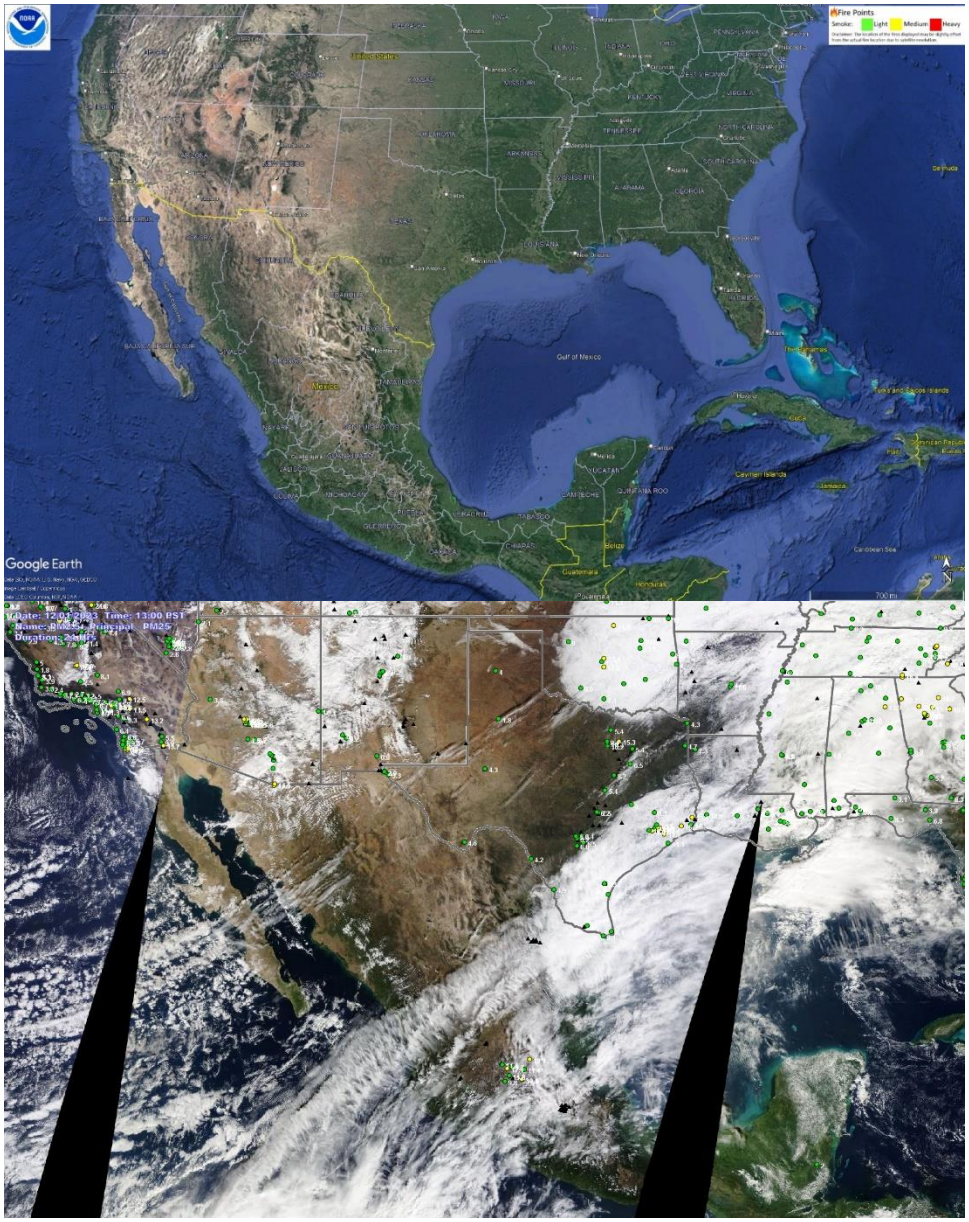


28. 12/1/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

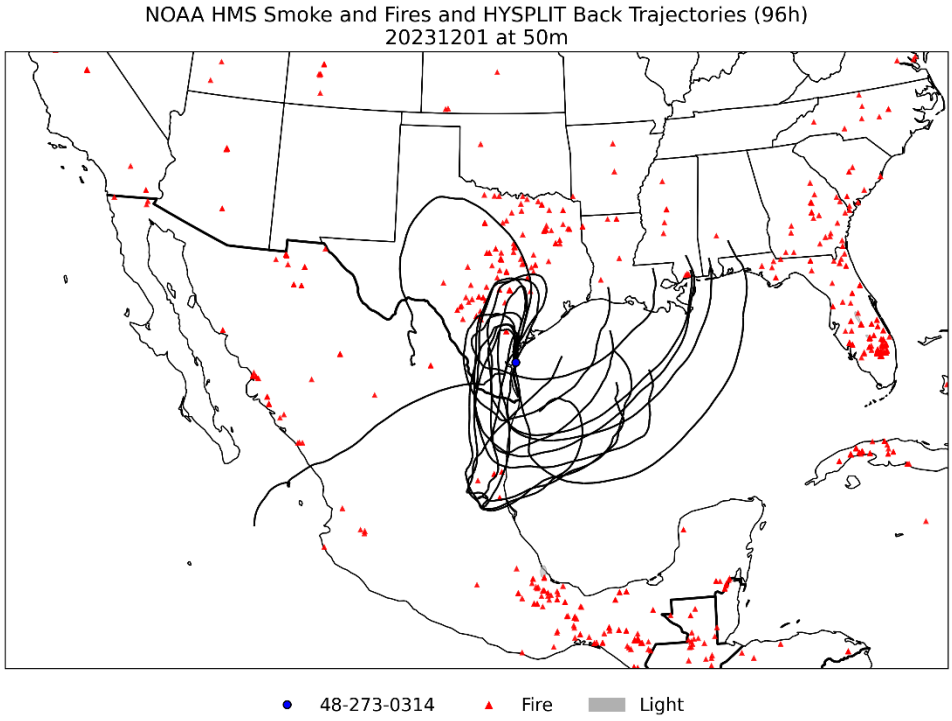
Date	24-hour $PM_{2.5}$ (µg/m^3)	Tier 2 Threshold	Tier 1 Threshold
12/1/2023	20.7	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

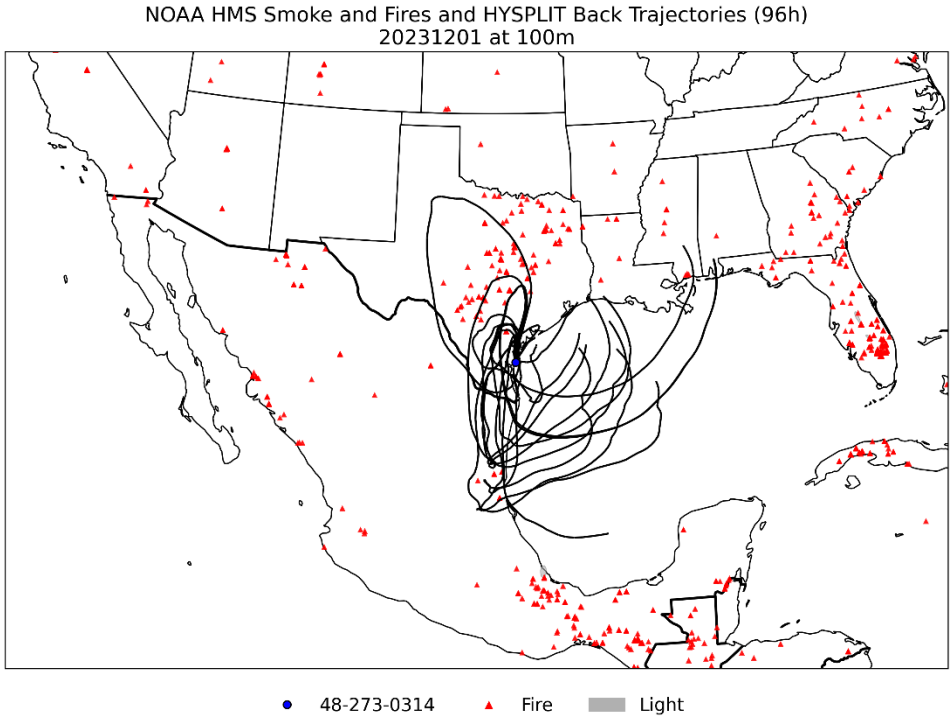


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

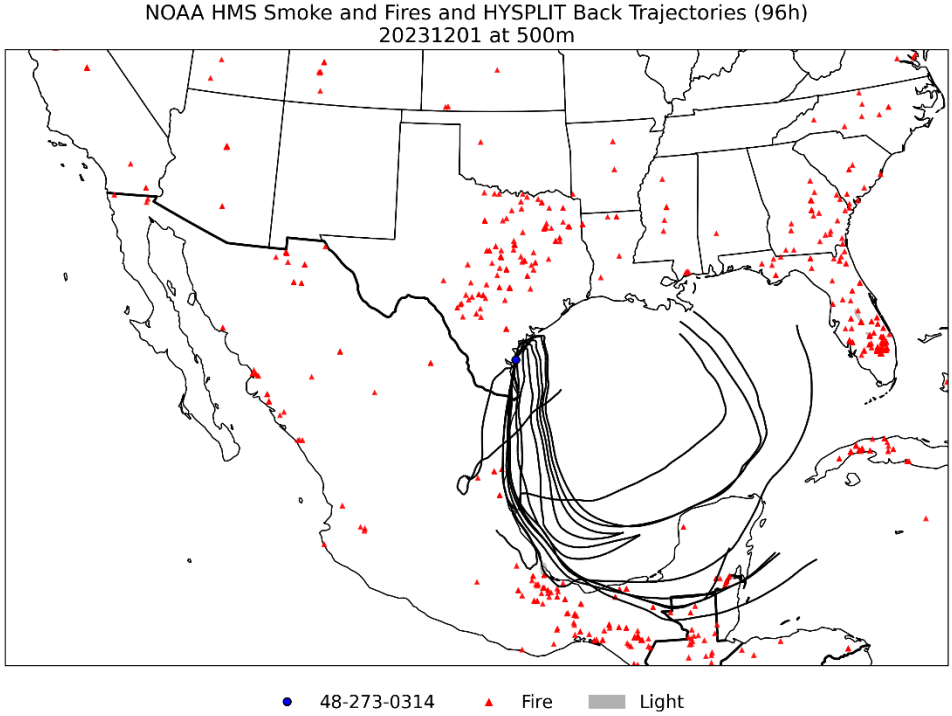
- 50m



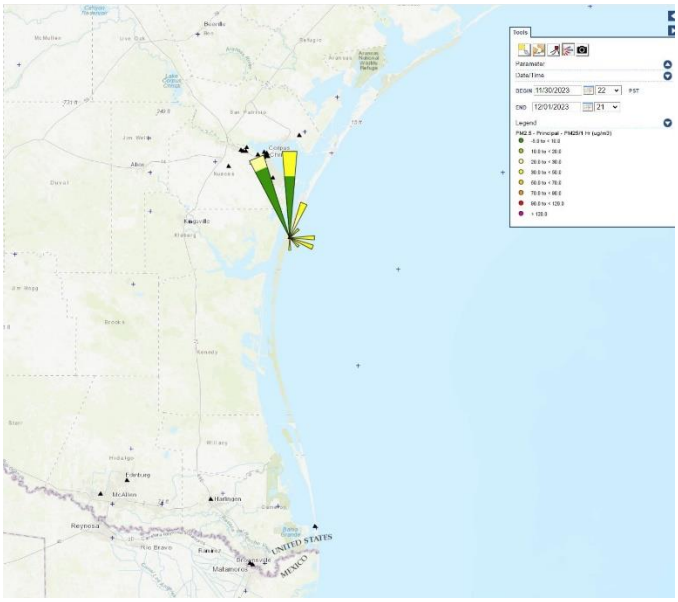
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20231201 at 100m
48-273-0314
Fire
Light

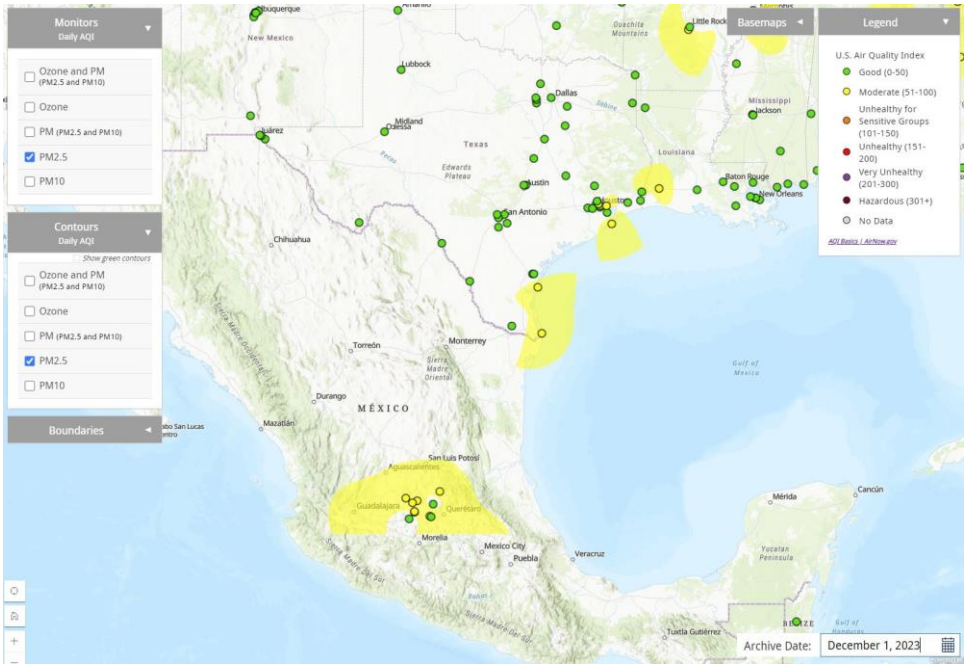
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20231201 at 500m
48-273-0314
Fire
Light

d. Evidence #3- Pollution rose for 12/1/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. **Evidence #4**- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 12/1/2023.

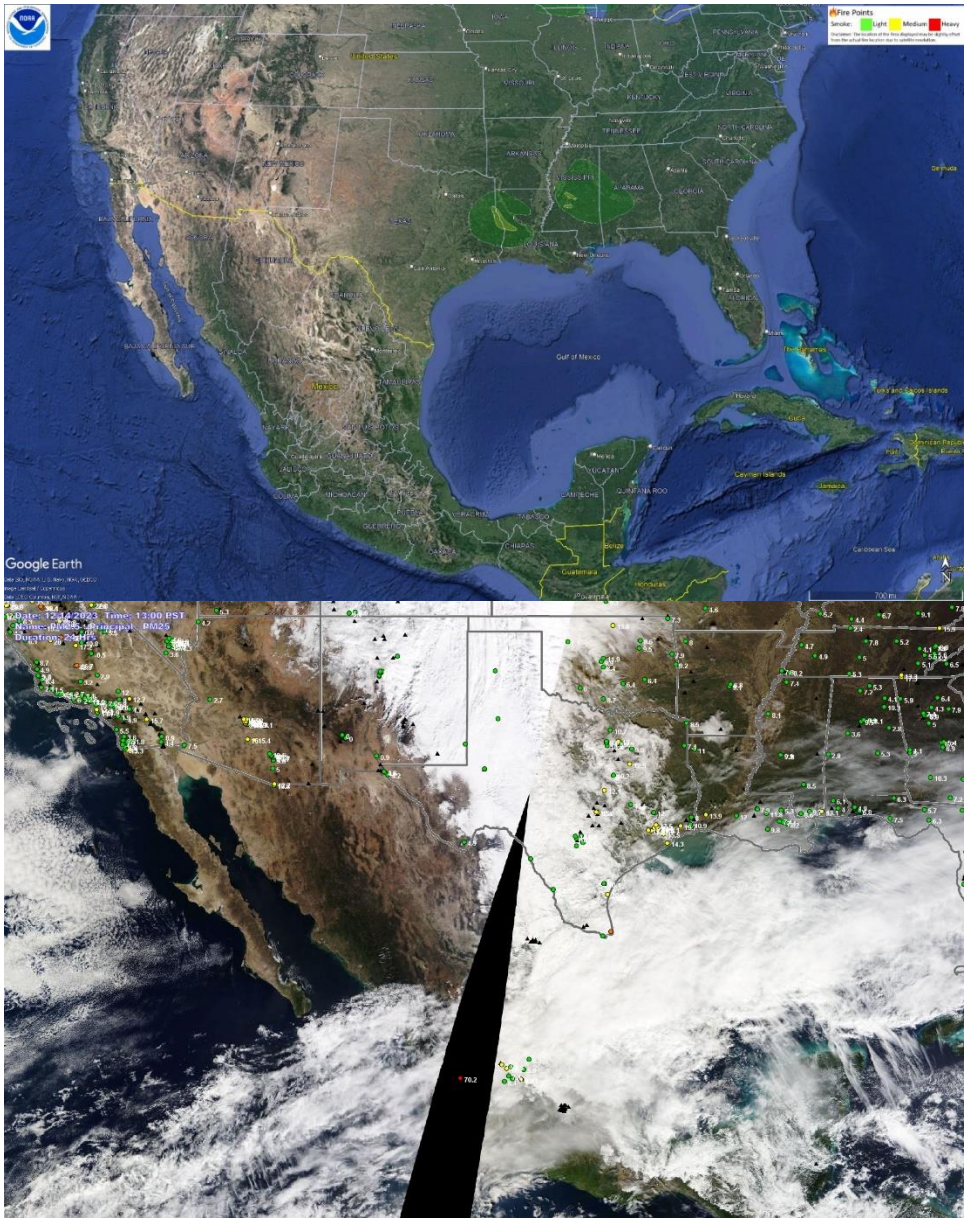


29. 12/14/2023

a. Measured 24-Hour $PM_{2.5}$ concentrations above the tiering threshold**.**

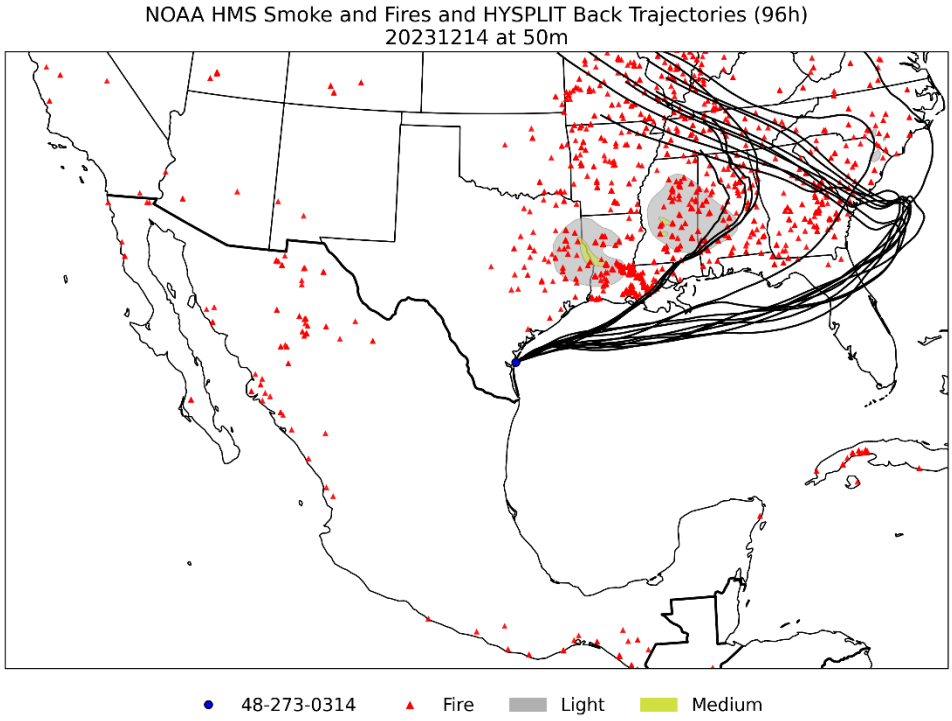
Date	24-hour $PM_{2.5}$ (µg/m³)	Tier 2 Threshold	Tier 1 Threshold
12/14/2023	18.5	18.1	27.15

b. **Evidence #1**- Satellite HMS Smoke Maps on Google Earth (kml).

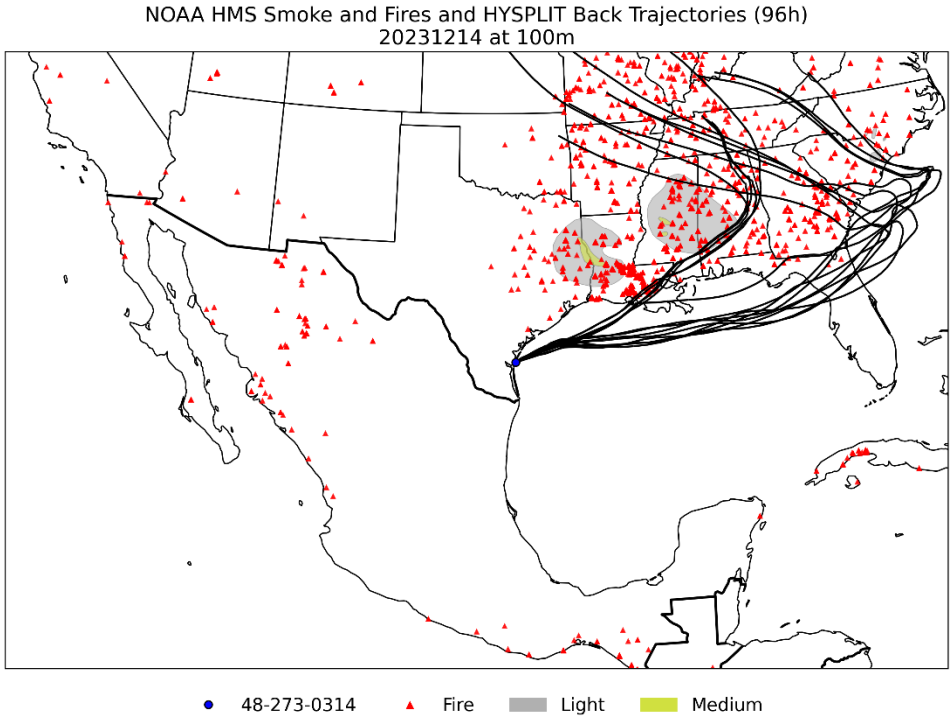


c. Evidence #2– HYSPLIT back trajectories (96-hours) superimposed on HMS smoke and fires reaching the monitor (48-273-0314) at 50m, 100m, and 500m. 24 trajectories per plot represent the 24-hours in the 24-hr average $PM_{2.5}$ concentration for that day.

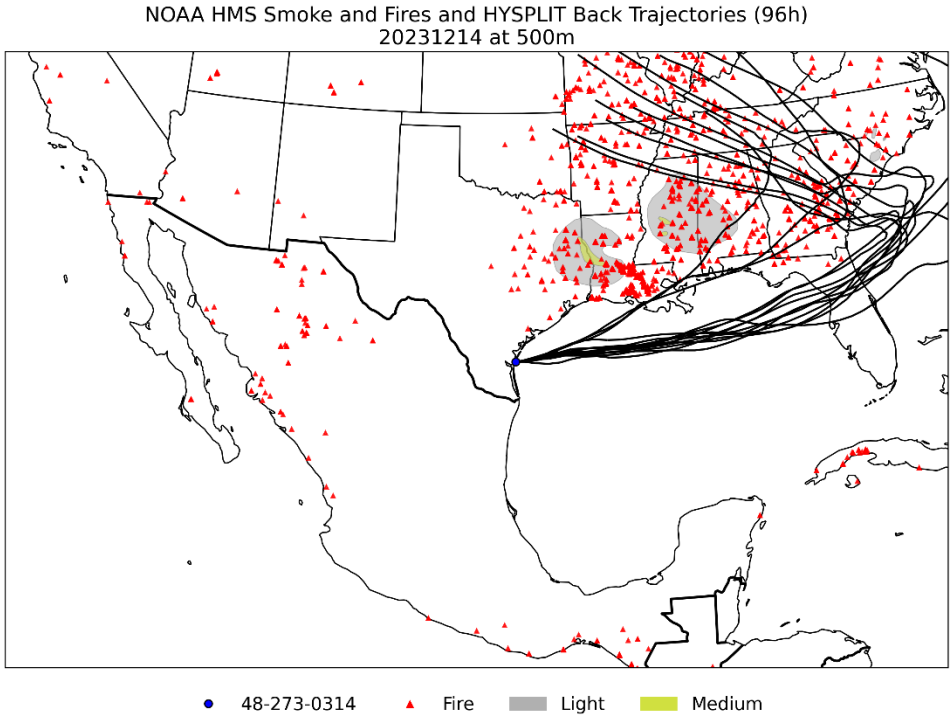
- 50m



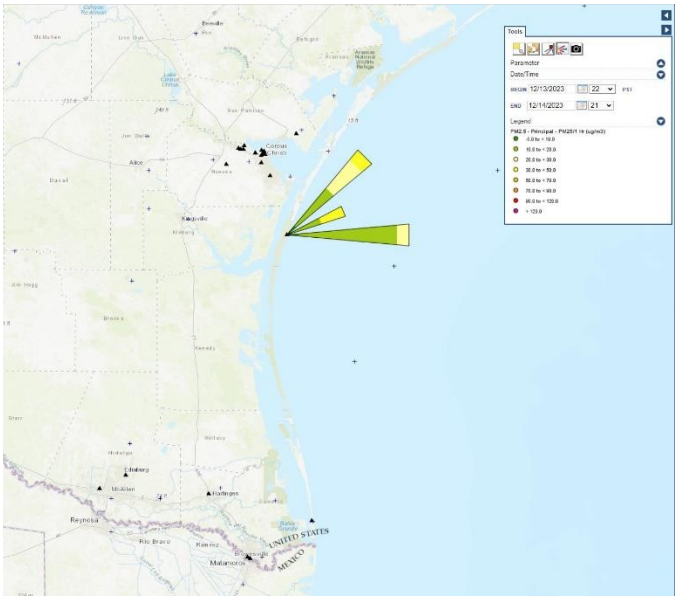
- 100m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20231214 at 100m
48-273-0314
Fire
Light
Medium

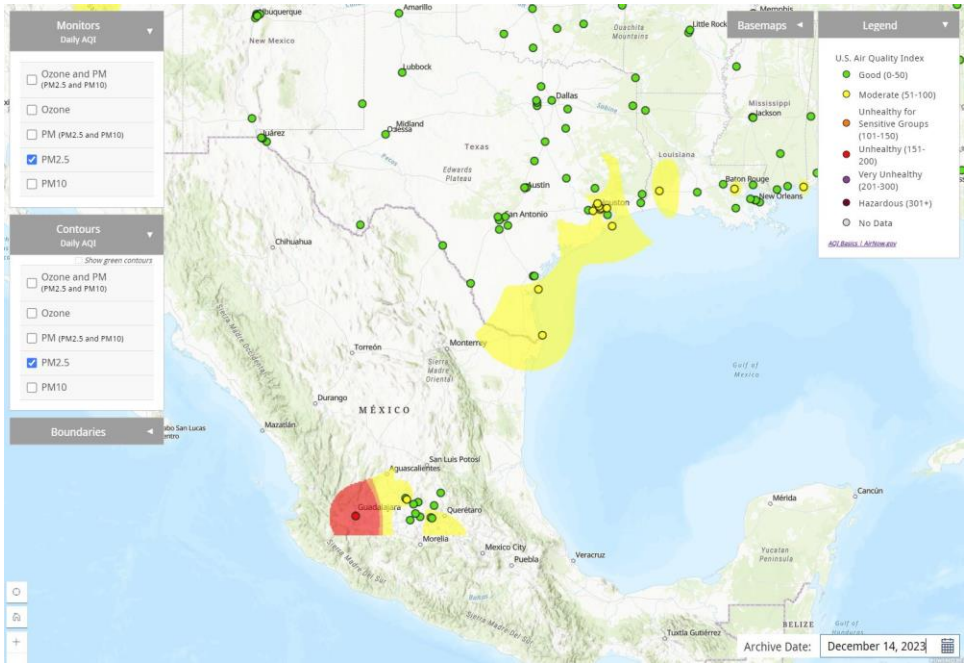
- 500m


NOAA HMS Smoke and Fires and HYSPLIT Back Trajectories (96h)
20231214 at 500m
48-273-0314
Fire
Light
Medium

d. Evidence #3- Pollution rose for 12/14/2023. Petals and shading represent hourly $PM_{2.5}$ concentration.



e. Evidence #4- EPA's AirNow Archive Plot of PM2.5 surface monitor data and contours for 12/14/2023.



September 6, 2024

Fires in Mexico as Exceptional Events: Documentation and Implications

RAMBOLL

Bright ideas.
Sustainable change.

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Dr. Marco Rodriguez is a Managing Consultant with Ramboll. Dr. Rodriguez obtained his PhD in Mechanical and Aerospace Engineering from the University of California Irvine and his bachelor's from the Universidad Autonoma Metropolitana-Iztapalapa in Mexico. Marco was born and raised in Mexico City and has firsthand experience with air quality issues both in the U.S. and Mexico. He is an expert in the use and interpretation of photochemical grid models and has over 20 years of experience working in atmospheric pollution problems. Dr. Rodriguez is fully bilingual and can read and write in both English and Spanish.

Mr. Ralph Morris is a Principal in Ramboll's Northern California offices where he directs air quality, meteorological and emissions modeling and data analysis projects. He has almost 45 years' experience in air quality consulting and started his career modeling ozone in Los Angeles in the 1970s. He has conducted numerous studies related to the effects of emissions from fires on air quality from developing fire emissions and chemical mechanisms to fire impact assessments on ozone and $PM_{2.5}$ concentrations including modeling and Exceptional Events Demonstrations. Mr. Morris has a Masters degree in mathematical modeling from the University of California and is an internationally recognized expert in air quality modeling.

Contents

1. Executive Summary

Southeast Texas occasionally observes elevated fine particulate matter ($PM_{2.5}$) concentrations due to smoke from fires in Mexico and elsewhere in Central America. Measured daily $PM_{2.5}$ concentrations that result from Exceptional Events can be excluded when considering attainment/nonattainment of the NAAQS. As stated in Section 319(b)(1)(A) of the Clean Air Act:

> "The term 'exceptional event' means an event that –
>
> 1. affects air quality;
> 2. is not reasonably controllable or preventable;
> 3. is an event caused by human activity that is unlikely to recur at a particular location or a natural event; and
> 4. is determined by the administrator through a process established in the regulations promulgated under paragraph (2) to be an exceptional event."

The most common $PM_{2.5}$ Exceptional Events are due to windblown dust and wildfires. This document provides evidence that the vast majority of the fires in Mexico and even more of the smoke from the fires are not caused by agricultural burning, that they do not recur at the same location, and that they therefore satisfy the third prong of the statutory test and can be considered as Exceptional Events. This evidence includes statistics on the source of fires from the Mexican government and other sources. Chapter 2 reviews the data from these sources. Chapter 3 demonstrates that the source of fires in Mexico—especially on the Yucatan peninsula—are mostly not caused by agricultural activity and that are unlikely to reoccur at a particular location.

The Mexican Government has collected detailed statistics and information about the incidences and area burned by fires since the 1970s. This information—publicly available—has been used by several Mexican agencies to guide policies for fire management, fire mitigation and to establish programs to reduce fire incidences.

Among the data provided by the Mexican Government are the activities reported to be likely causes of fires. These statistics are reported every year and indicate that 98% of the fires are due to anthropogenic activities with only 2% due to natural causes. The Mexico government reports in more recent years (e.g., 2021-2024) approximately 20% of the fires are agricultural burning with approximately 10% due to burning for livestock. Of the roughly 30% that are agricultural or livestock-related, many are for one-time clearing and there is no evidence that they recur in the same location. The remaining 70% of the fires are wildland fires that also do not recur at the same location. This means that the great majority of the fires experienced every year in Mexico are caused by human activity that does not recur at the same location.

Furthermore, several programs have been established since 2020 with the intent to educate farmers to modify practices and decrease the number of fires started by agricultural and livestock activities. These programs appear to be successful at reducing the number of fires due to agricultural practices in more recent years (e.g., 2021-

2024). Accordingly, the minority of historic fires that might be expected to recur at a location has been reduced over time and can be expected to continue to decline.

In Mexico, a substantial proportion of the observed fires are forest fires or burns performed to clear land for development. These are not expected to recur at a particular location, as once the forest is burned at a specific location the biomass is consumed and not available for additional fires in the following years. Global Forest Watch is a website that documents deforestation due to forest fires across the globe and shows that areas in Mexico with tree loss due to forest fires occur in the east coast states adjacent to the Gulf of Mexico (e.g., Yucatán, Veracruz, and Tabasco) having some of the highest rate of loss due to forest fires.

Fires in Mexico have a seasonality that follows a known climatology with a dry season typically in the period of January to May that affects Mexico and Central America. The dry season favors the conditions for the start of fires and makes it is more likely for them to get out of control. However, as the data presented in this document shows, less than a third of these fires are caused by agricultural activities and most fires in Mexico are of uncontrollable anthropogenic origin. Given that agricultural fires tend to be small and controlled, they will produce much less smoke than many other types of fires. Thus, most of the fires and even more of the smoke from fire in Mexico during this dry season should be considered non-recurring.

2. Mexican Government Data on Fires in Mexico

Fire plays a significant role in the dynamics of several ecosystems. Fires can be part of a natural process that contributes to the health of ecosystems, but when out of control they can cause severe damage in a brief time. Mexico often experiences fires due to a combination of natural and human factors. Over the last decade, changes to precipitation intensity, increased temperatures, and other factors due to climate change have affected the frequency and extent of fires in Mexico.

The Mexican institution in charge of the development of policies and practices that preserve Mexico's forests in a sustainable manner is the Comisión Nacional Forestal (CONAFOR) and was created by executive order on April 4, 2001[1]. One of CONAFOR's responsibilities is the development and maintenance of a database of fire statistics to establish fire management practices and to facilitate collaboration among other Mexican agencies on this issue. Figure 1 — taken from CONAFOR's fire management main page[2]—shows the incidence of forest fires in Mexico from 1970 to 2023. The information in orange shows the total number of fires, while the green indicates the total area burned in hectares (ha[3]). The time series at the bottom right shows that the area burned remains approximately constant from 1970 to 2015 at around 190,000 ha per year, with three major exceptions in 1988-1989 (500,000 ha), 1998 (849, 632 ha) and 2011 (956,405 ha). Since 2015 there has been a substantial increase in burned area with 2023 having a historic maximum of 1,047,493 ha. At the same time, the number of fires since 2015 has not increased and has fluctuated between 6,000 and 9,000 fires per year. This seems to imply that recent fires are now more intense and capable to burn larger areas indicating fires that are not controlled, possibly influenced by climate change leading to persistent drought conditions in Mexico.

Fires in Mexico are not only confined to states along the Gulf Coast and can occur over the entire country including in Central Mexico. State of Mexico, Jalisco, Michoacan, Chihuahua and Mexico City are the top five entities with the most fire incidences from 2021 to 2023[4]. Under the right meteorological conditions, the smoke from these fires along with those on the Yucatan Peninsula and Gulf of Mexico coastal areas (e.g., Veracruz) can be transported north and affect the air quality in the U.S., especially those located in the southern U.S. along the Gulf of Mexico like southeast Texas.

[1] Comisión Nacional Forestal (CONAFOR). Mission Statement. Accessed August 2024 at: https://www.gob.mx/conafor/que-hacemos

[2] Comisión Nacional Forestal (CONAFOR). Fire Management Statistics and Maps. Accessed August 2024 at: https://snif.cnf.gob.mx/incendios/

[3] A hectare is 100 m x 100 m and is approximately 2.5 acres.

[4] Comisión Nacional Forestal (CONAFOR). Fire Management Program CONAFOR Annual Summaries from 2019 to 2023 and partial 2024.Accessed August 2024 at: https://www.gob.mx/conafor/documentos/reporte-semanal-de-incendios

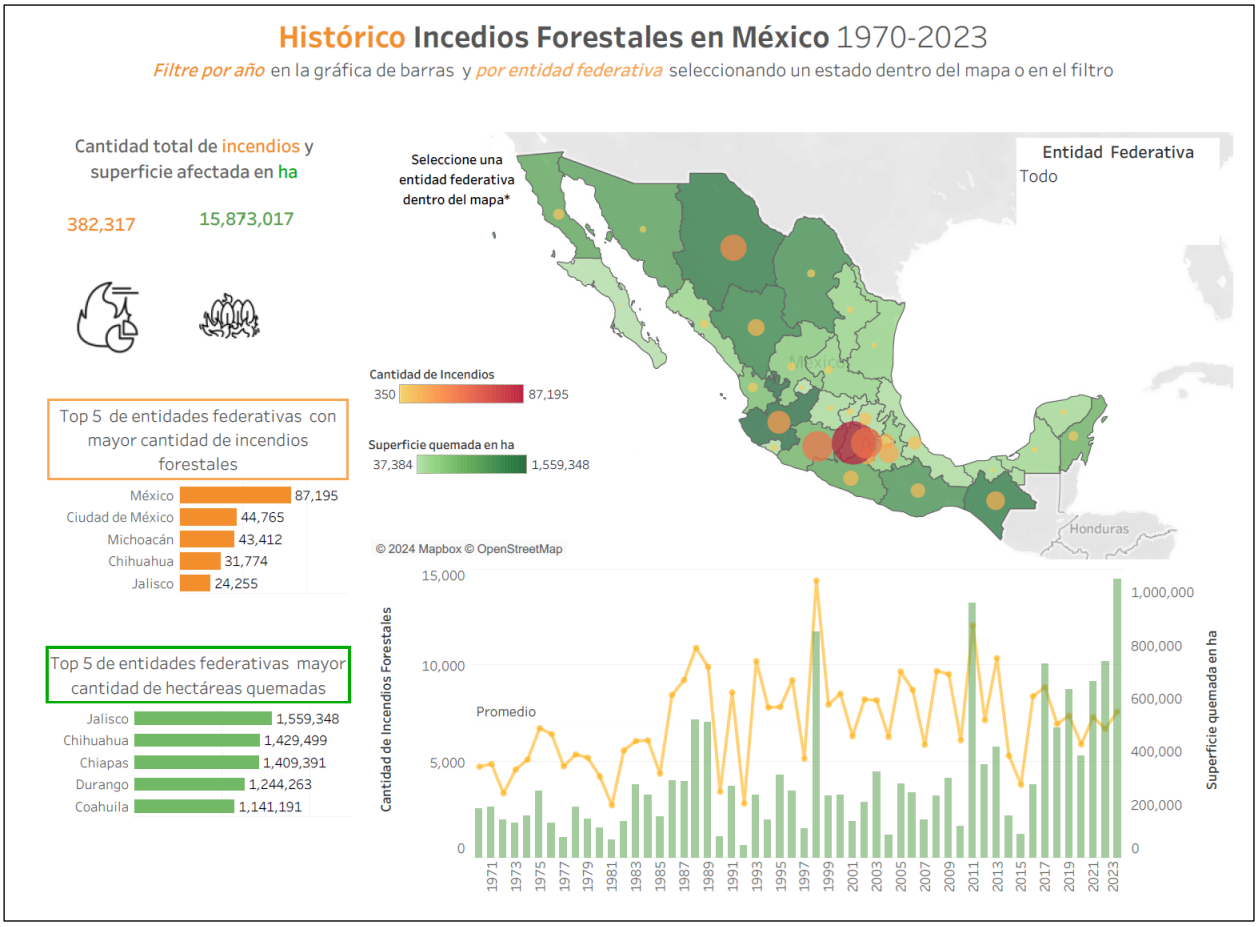


Figure 1. Incidence of Forest Fires in Mexico from 1970 to 2023[2]. In the time series at the bottom of the figure orange indicates number of fires, green shows area burned in hectares.

There are two main fire seasons identified in Mexico: the first from January to June occurs in central, north, northeast, south and southeast Mexico; the second, from May to September, in the northwest[5]. Both occur when the country experiences the dry or drought season. This is shown in Figure 2 that presents a heat map of the average fire incidences per month with data from 2015 to 2023 for all the Mexican States. Higher incidences are colored in red and orange shades. During the climatological dry season, high temperatures and low precipitation increase the probability to experience severe fires due to a combination of natural and human factors.

[5] Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT). Fire Seasons in Mexico. Accessed August 2024 at: https://www.gob.mx/semarnat/es/articulos/temporadas-de-incendios-forestales-en-mexico?idiom=es#:~:text=En%20M%C3%A9xico%20se%20tienen%20identificadas,sequ%C3%ADa)%20en%20el%20territorio%20nacional.

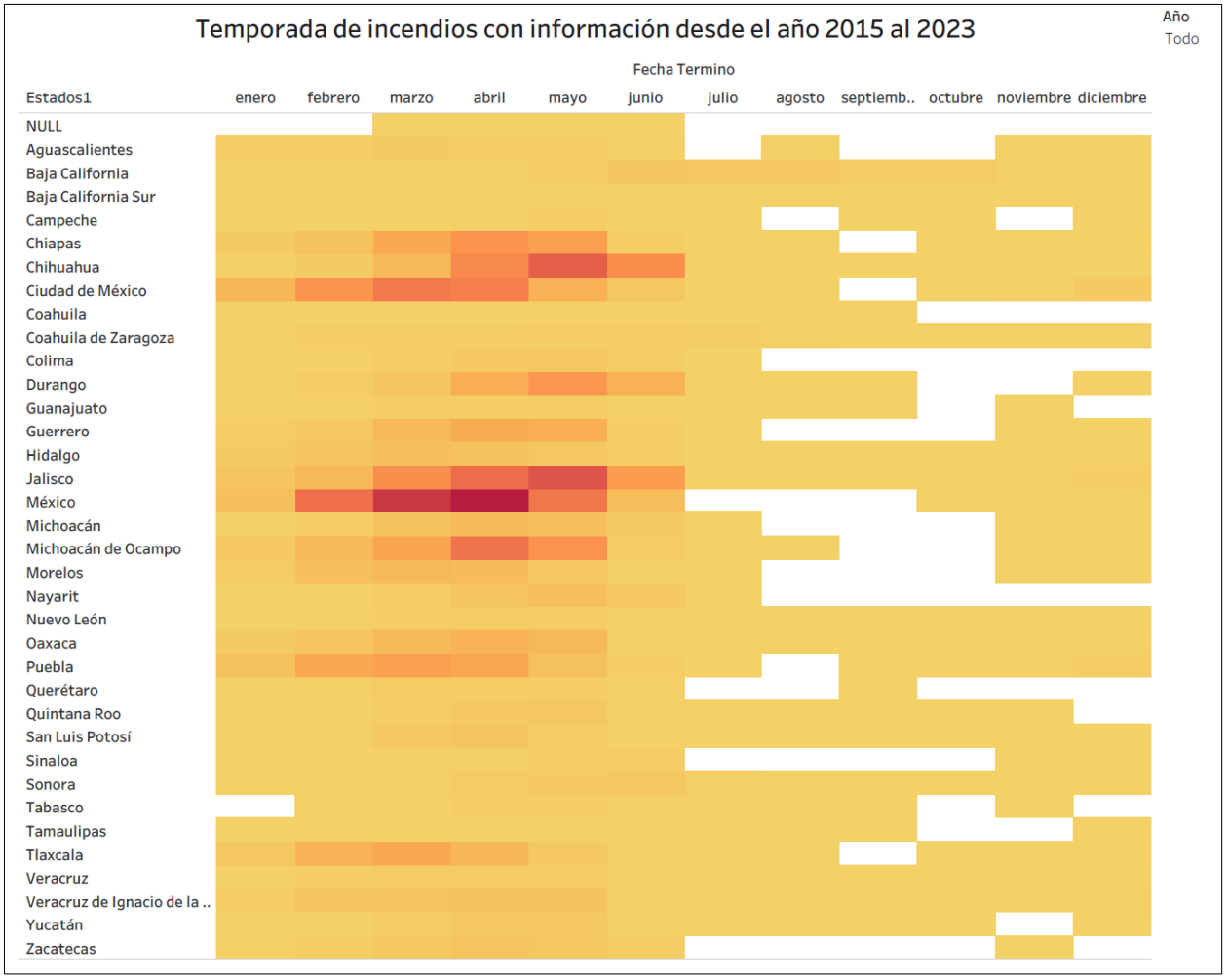


Figure 2. Heat map with the monthly average fire incidence from 2015 to 2023 for each state in Mexico. Red and orange color indicate higher number of fires.

According to CONAFOR, most fires in Mexico are started by human activity. During 1998-2019 anthropogenic causes were responsible for 98% of the fires with only 2% due to natural causes. Figure 3 shows the probable causes of fires in Mexico from 2019 to 2023 and partial data for 2024 (Jan to Aug). These are the main factors in the figure that contribute to occurrence of fires:

- Unknown: Includes accidental ignitions and fires started with no specific or unknown causes.
- Intentional: Includes efforts to clear land for development or other land use changes, vandalism and fires started by disputes over land.
- Agricultural: Includes fires started by traditional slash-and-burn farming methods (roza y quema) where the crop residue from the previous year is burned to provide fertilizer and prepare the field for planting. Farmers also clear small plots of land by cutting down vegetation and burning it to develop a new

field for planting of crops. This land-clearing is not recurring. Once the land is in agricultural use, the clearing is not a recurring need. Sometimes these agricultural fires can get out of control and spread to larger areas and become wildfires.

- Livestock: Similar to agricultural fires for land clearing, but the land is cleared to support livestock. This land-clearing is also likely not recurring. Once the land is in livestock use, the clearing is no longer needed on a recuring basis.
- Other Anthropogenic Causes: Includes fires caused by improper disposal of cigarette butts, campfires left unattended, or burning debris during windy conditions that can spread flames to unintended areas. It also includes fires started by hunters, fireworks at festivities, clearing land for other economic reasons or to open and clean roads from debris. It also includes prescribed fires.
- Natural: Includes fires started mostly by lightning during storms, but also volcanic activity in central Mexico (Popocatépetl, Volcán de Colima).

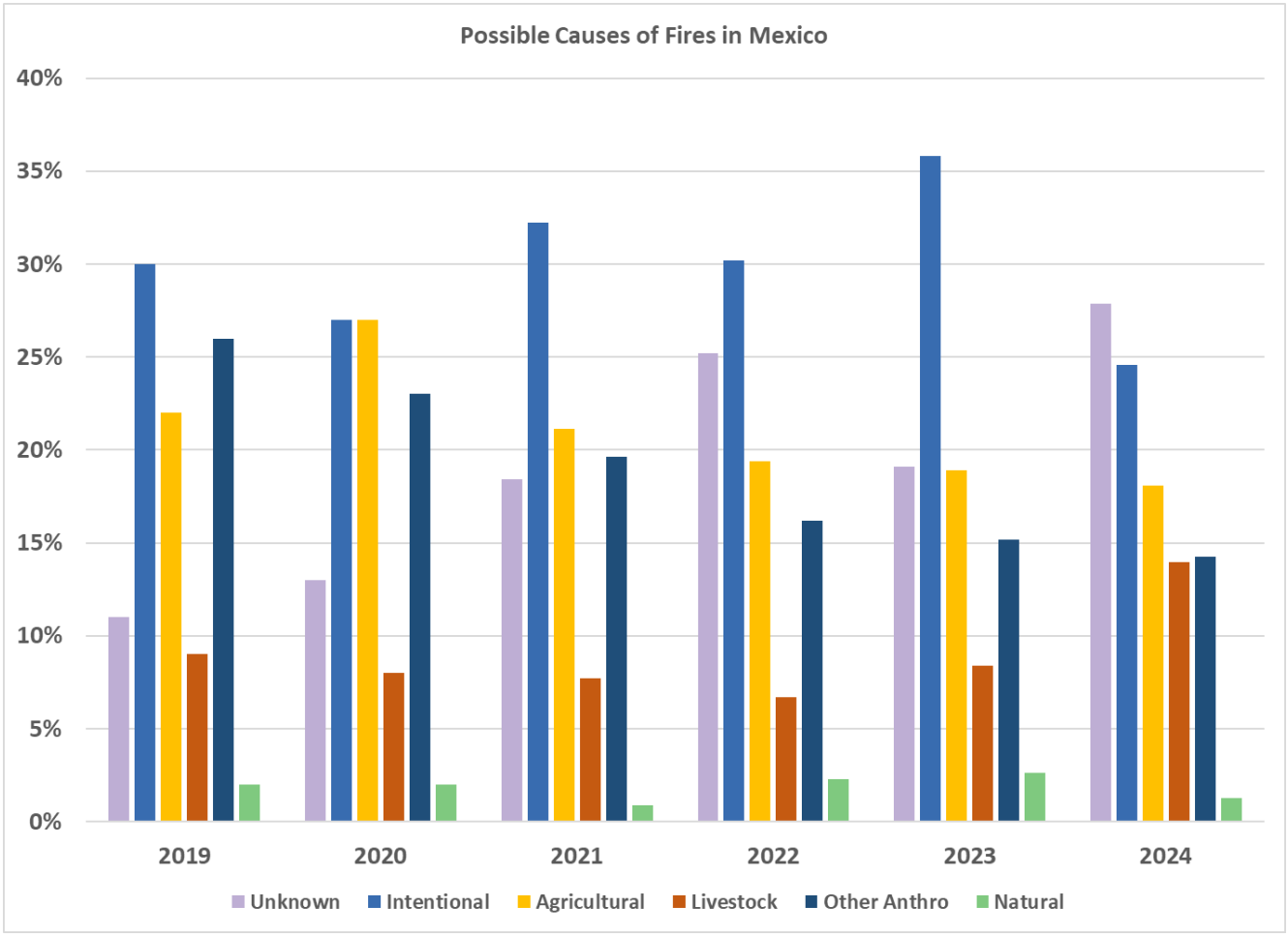


Figure 3. Possible causes of fires in Mexico from 2019 to 2024. Partial data for 2024 (January to August).

Figure 3 shows that agricultural fires are 18-21% of the fires in most recent years (2021-2024). Given that agricultural burning tends to be small fires that are under control, the amount of smoke produced by them is much less than most other types of fires (e.g., forest fires) so the contribution of smoke from agricultural fires would be much less than 20%. Fires to clear land for use by livestock are likely non-recurring as once the land is cleared and being used by livestock it does not need to be cleared. In the past EPA has classified burns for livestock as prescribed fires and approved them as Exceptional Events.[6] Agricultural and livestock activities account for approximately 30% of the fires each year in Mexico and would be much less than 30% of the smoke produced by fires in Mexico as they are much smaller and burn less biomass than most other types of fires. This means that over 70% of the fires and well over 70% of the smoke produced by fires in Mexico every year are caused by human activity but they are not "reasonably controllable or preventable" and are "unlikely to recur at a particular location." The combination of these factors contributes to the risk and occurrence of fires in Mexico sometimes resulting in significant environmental and economic impacts. Efforts to address these fires often involve improving agricultural practices, promoting sustainable land management, and enhancing fire prevention and suppression capabilities.

Forest fires caused by unintended agricultural burning put the lives of producers at risk, damage ecosystems and degrade soils, which translates into erosion and lower crop yields. According to the UN[7], many farmers consider agricultural burning to be the most efficient and cost-effective way to clear, fertilize and prepare land for new planting. The problem is that these burnings often get out of hand leading to wildfires and are the largest source of black carbon in the world, a threat to both human and environmental health. The Mexican Government has set goals with the intent to reduce the recurring burning of agricultural land by 40 percent by 2024[8]. The Secretaría de Agricultura y Desarrollo Rural (SADER) is the Mexican Ministry of Agriculture and Rural Development and launched the program "Mi Parcela no se quema" (my plot does not burn) in 2020[9] to promote the use of sustainable alternatives that reduce agricultural burning, such as waste management practices. This program involves other federal agencies like CONAFOR and state and local governments. The program organizes workshops for farmers with information to improve farming practices like reducing and composting organic matter into farmland without the need of burning. The number of workshops was initially small with only five provided in the entire country in 2020 but has

[6] https://www.kdhe.ks.gov/DocumentCenter/View/2209/Environmental-Protection-Agency-Region-7-Exceptional-Event-Flag-Concurrence-Letter-PDF

[7] https://www.unep.org/es/noticias-y-reportajes/reportajes/el-impacto-de-las-quemas-agricolas-un-problema-de-calidad-del-aire

[8] Mexico Business. SADER to Reduce Recurring Burning of Agricultural Land. Accessed August 2024 at: https://mexicobusiness.news/agribusiness/news/sader-reduce-recurring-burning-agricultural-land

[9] Secretaria de Agricultura y Desarrollo Rural (SADER). Mi Parcela No Se Quema. Accessed August 2024 at: https://www.gob.mx/agricultura/acciones-y-programas/miparcelanosequema

increased substantially since to 493 workshops in 2023[10]. As a direct result of these efforts the program has reduced the areas that used to be subjected to agricultural fires by 47,200 ha between 2021 and 2023[10]. Figure 3 indicates the success of these programs as the percentage of fires caused by agricultural activities alone has been decreasing since 2020 (the program's inception) to 2024.

Conclusions of Mexico Government Statistics on Fires: In summary, the Mexico government reports on the causes of fires in Mexico and in more recent years (e.g., 2021-2024) approximately 20% of the fires are agricultural burning with approximately 10% due to burning for livestock. Of the roughly 30% of the fires that are agricultural or livestock-related, many are for one-time clearing and there is no evidence that they recur in the same location. The remaining 70% of the fires that are not for agriculture or livestock are wildland fires that also do not recur at the same location. Furthermore, most other types of fires (e.g., forest fires) produce more smoke per fire than agricultural/livestock fires as they burn larger areas and consume more biomass. Thus, smoke from fires in Mexico are primarily non-recurring and are clearly not reasonably controllable by U.S. agencies so satisfy the criteria required to be classified as Exceptional Events.

[10] Statistics on the implementation of the Mi Parcela No se Quema program. Accessed August 2024 at: https://www.datos.gob.mx/busca/dataset/campana-mi-parcela-no-se-quema/resource/9b505ab0-b6bf-444f-bd73-33779f99a010

3. Additional Evidence Most Fires in Mexico are not Recurring Agricultural Fires

Below we provide supporting information that most of the fires in Mexico are not agricultural burning so are not recurring.

Global Forest Watch Indicates Frequent Forest Fires on The Yucatan Peninsula and Eastern Mexico

Forest fires in Mexico are mainly caused by human activities either on purpose (e.g., to clear land for development) or by accident. In either event, such forest fires will not recur as once the forest is burned at a specific location the biomass is consumed. Global Forest Watch[11] is a website that documents deforestation due to forest fires across the globe, including Mexico. Figure 4 from the Global Forest Watch website shows areas in Mexico with tree loss due to forest fires in pink with the east coast states adjacent to the Gulf of Mexico (e.g., Yucatán, Veracruz, and Tabasco) having some of the highest rate of tree loss due to forest fires. Figures 5 and 6 show an average yearly tree loss of approximately 17,000 ha (~42,000 acres) in the states of Veracruz and 14,000 ha (~35,000 acres) in Yucatán respectively.

Conclusions from Global Watch Deforestation: Large amounts of deforestation by prescribed burns and wildfires occur on the Yucatan Peninsula and southeast coastal states in Mexico (e.g., Veracruz) that do no reoccur so satisfy the requirements for being an Exceptional Event.

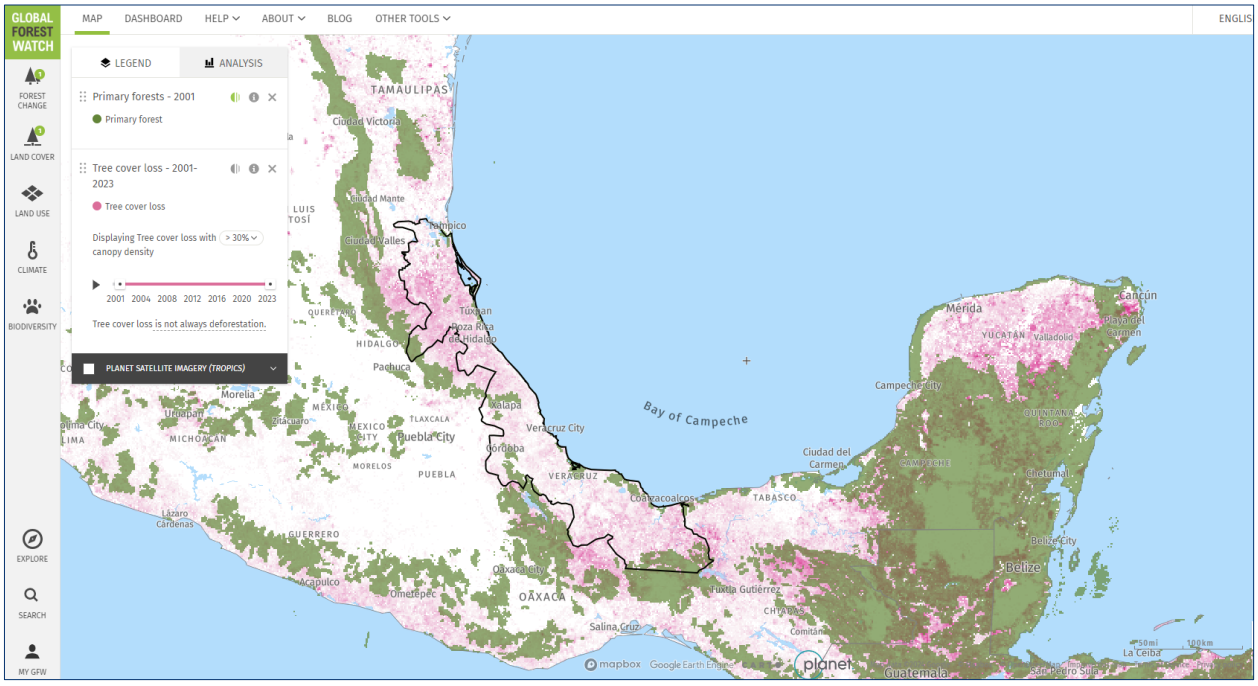


Figure 4. Locations of tree cover loss in southeastern Mexico (pink areas) that is primarily caused by Forest Fires.

[11] https://www.globalforestwatch.org/

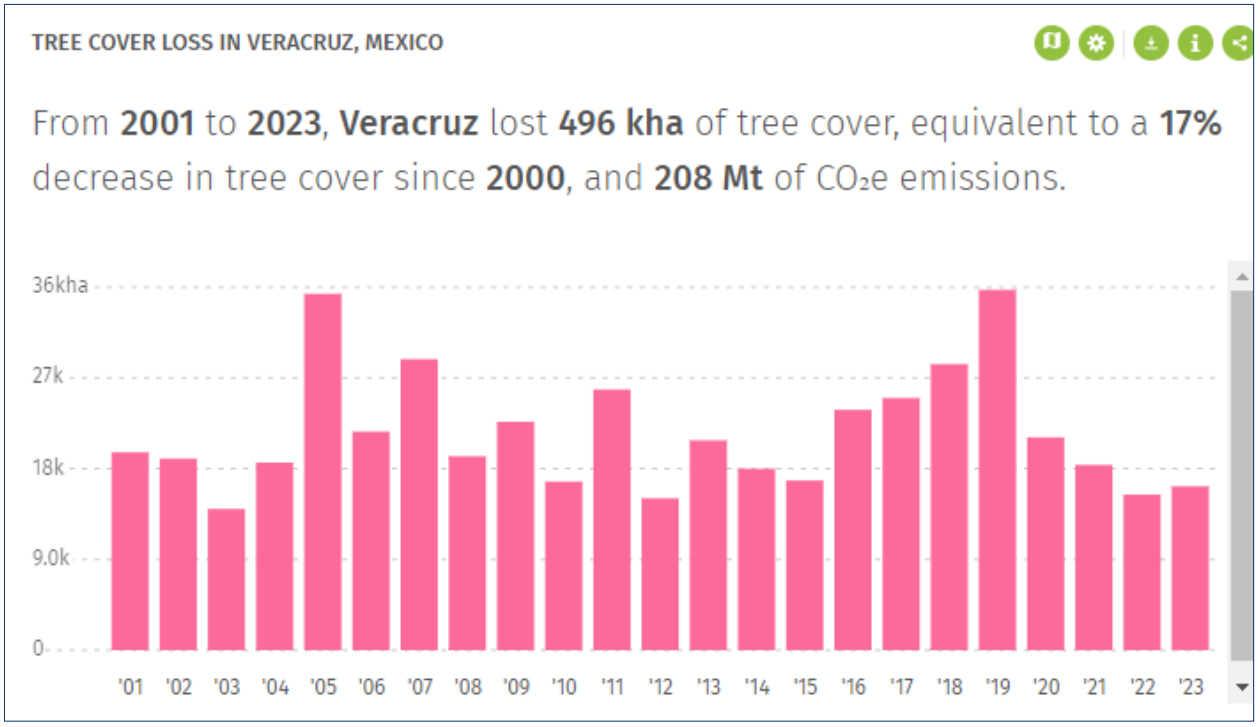


Figure 5. 2001-2023 annual tree cover loss in the state of Veracruz, Mexico.

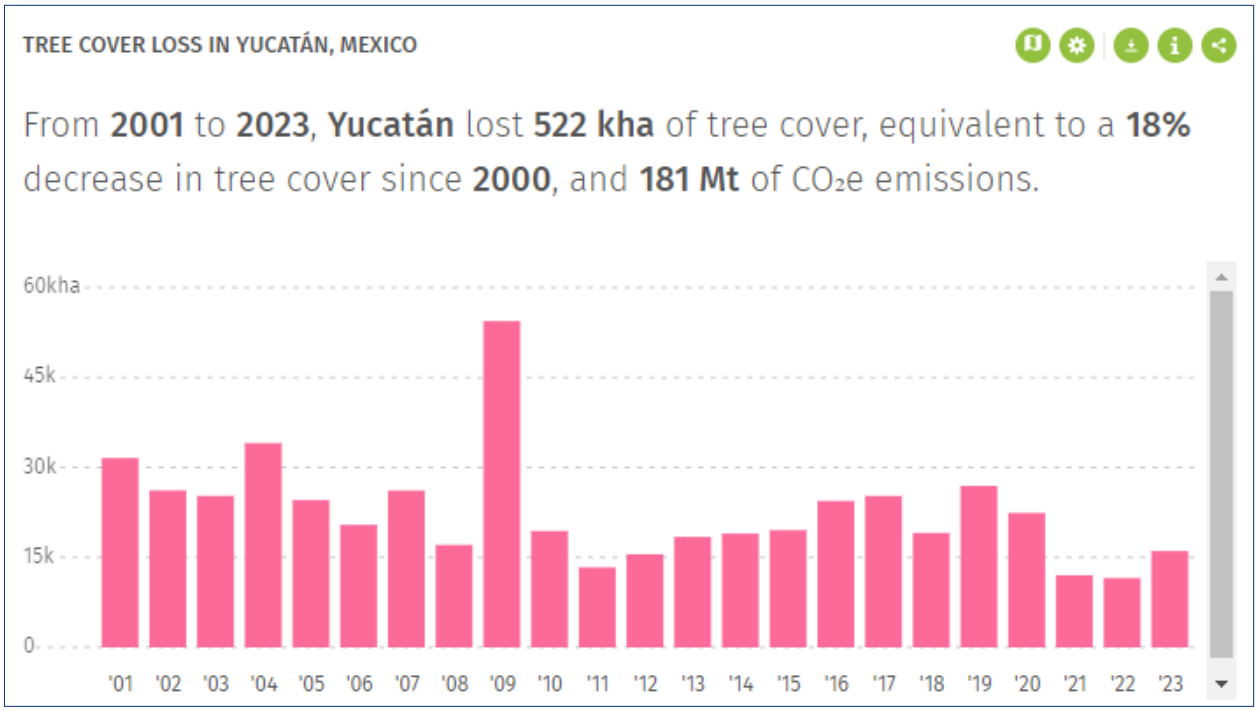


Figure 6. 2001-2023 annual tree cover loss in the state of Yucatán, Mexico.

Example Articles on the Causes of Fires on the Yucatan Peninsula

Numerous articles document fires in Mexico that are not controlled agricultural burning and are not recurring. Examples include:

- A March 29, 2024, article in Yucatan Magazine entitled Fires Rage Out of Control In And Around Merida[12] notes the extreme heat of early 2024 has caused many more fires than usual such as:
    - Fires starting from glass bottles on the side of the road that act as magnifying glasses when hit by the sun.
    - Fires at several warehouses along Meridas Periferico attributed to faulty wiring.
    - Fires started by fireworks at a wedding.
    - Agricultural fires that get out of control due to winds carrying sparks into nearby dry areas.
- A May 16, 2024 article in the Yucatan Times reported that a forest fire consumed 250 hectares of jungle in Cancún.[13]
- A July 2022 article about Modernización Sustentable de la Agricultura Tradicional (MasAgro) program, states that MasAgro has implemented practices that had reduced the area subjected to slash and burn in Mexico by 200,000 ha. The article states how agricultural fire is not a sustainable practice and lists several alternatives that have reduced agricultural burning in Mexico in more recent years.[14]

Conclusions From Articles on Fires in Mexico: Numerous publicly available articles reference fires in Mexico, and in particular on the Yucatan Peninsula, that are wildfires that are not recuring at the same location.

[12] https://yucatanmagazine.com/fires-rage-out-of-control-in-and-around-merida/

[13] https://www.theyucatantimes.com/2024/05/forest-fire-consumes-250-hectares-of-jungle-in-cancun/

[14] https://www.gob.mx/agricultura/articulos/el-fuego-ya-no-es-una-alternativa

From:	Ashley N Bell
To:	SIPRULES
Subject:	Harrison County - PM2.5 NAAQS
Date:	Friday, August 30, 2024 1:00:55 PM
Attachments:	image001.png

This comment is in regard to the upcoming PM2.5 NAAQS designations. Pirkey Power Plant, in Harrison County, ceased coal fire operation on March 31, 2023.

Thank You,

AMERICAN ELECTRIC POWER

ASHLEY N BELL | ENVIRONMENTAL SPEC CONSULT

[redacted]

EARTHJUSTICE

August 30, 2024

Texas Commission on Environmental Quality
Ms. Vanessa De Arman, State Implementation Plan Team
Mr. Laramie Mahan, Air Modeling and Data Analysis
Mr. Rick Goertz, Air Permits Division
P.O. Box 13087
Austin, TX 78711-3087
By email at: vanessa.dearman@tceq.texas.gov
By email at: laramie.mahan@tceq.texas.gov
By email at: richard.goertz@tceq.texas.gov

Dear Ms. De Arman and Messrs. Mahan and Goertz,

The Texas Commission on Environmental Quality (TCEQ) requested informal comments on potential county nonattainment designations for the newly adopted fine particulate matter (PM2.5) standard under the National Ambient Air Quality Standards (NAAQS).

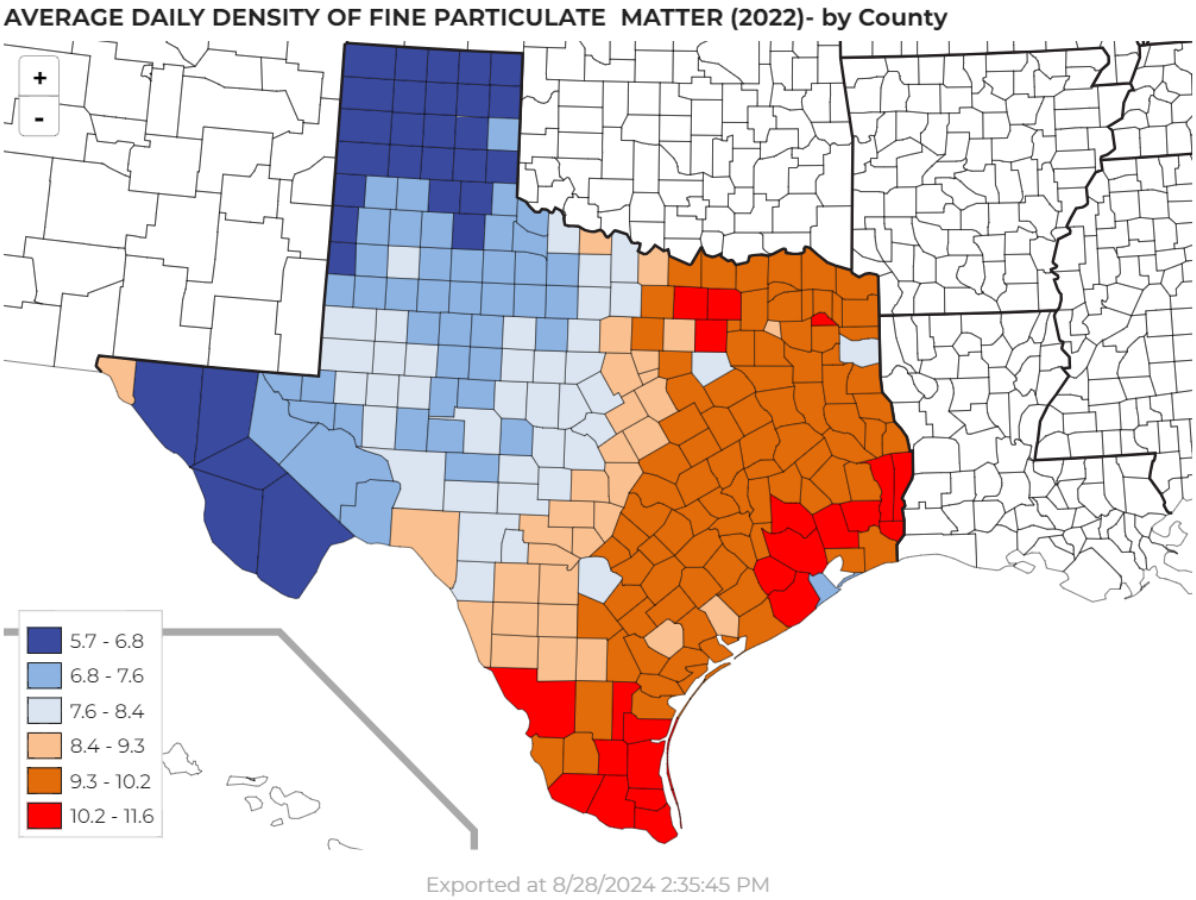
These informal comments are submitted on behalf of Air Alliance Houston, a clean air advocacy nonprofit organization based in Houston, Texas, along with an additional nonprofit signatory below. Both organizations appreciate TCEQ's public process so far and request continued engagement, including a meeting to discuss the following comments:

A. TCEQ's proposed map inappropriately limits nonattainment designation decisions to only those counties which have regulatory monitors.

To begin, during public meetings on TCEQ's proposed process for designations, TCEQ stated its intent to identify only those counties for nonattainment that currently had at least one regulatory monitor exceeding the newly imposed 9.0 ug/m3 standard for PM2.5 once the design values were adopted. This is inappropriate and does not meet the baseline requirement for compliance with NAAQS. 42 U.S.C. Sec. 7409(b)(describing air quality standards set for the protection of public health and welfare).

As such, TCEQ should consider other documented air quality ratings such as those provided by the Center for Disease Control's (CDC) National Environmental Public Health Tracking Network. Utilizing this data, the County Health Rankings & Roadmaps (CHR&R), a program of the University of Wisconsin Population Health Institute, created a map showing that most counties in the eastern half of Texas exceed the newly imposed 9.0 ug/m3 standard for PM2.5:[1]

[1] County Health Rankings & Roadmaps, https://www.countyhealthrankings.org/health-data/texas?year=2024&measure=Air+Pollution+-+Particulate+Matter (last accessed Aug. 30, 2024).



This data set is readily available to the TCEQ and as such, should be utilized by the agency as it considers how best to implement a plan to achieve attainment throughout the entire state that protects public health. By artificially limiting the review of PM2.5 data to only those counties with regulatory monitors, TCEQ is unable to craft an implementation plan to meet attainment.

For example, the Capital Area Council of Governments (CAPCOG) reported a design value above the new 9.0 ug/m3 standard by examining robust data sets.[2] This is particularly important for communities in Hays and Williamson Counties as those communities are dealing with extreme particulate matter pollution from numerous quarries and cement batch plants.[3] The undersigned organizations implore TCEQ to utilize existing data sets from a variety of sources to identify counties, or portions of counties, that are in nonattainment so that the regulatory process of command and control can more effectively reduce emissions.

Similarly, the Houston-Galveston Area Council (HGAC) issued an update in 2021 demonstrating that modeling data indicated vast areas to the west of downtown Houston were

[2] CAPCOG's State of the Air report is attached as Exhibit 1, see graph 1.4 at page 14.
[3] See comments submitted by CREAM to CAPCOG; Exhibit 2.

likely in nonattainment for the then 12.0 ug/m3 standard for PM2.5.[4] HGAC utilized modeling, and existing source data in an effort to create a voluntary compliance program early. This type of forward thinking is crucial to meet the objectives of the Clean Air Act (CAA) and protect public health, but also demonstrates how existing governmental entities such as these councils of government, utilize modeling and other data sets to achieve the mission of reducing air pollution. Like these two examples, TCEQ should utilize its expansive resources to model and/or examine other data sets as it works to identify counties that are in nonattainment.

B. Commentors specifically request modeling be used to demonstrate nonattainment.

Regardless of the data sets TCEQ uses, however, the CAA provides that modeling may be utilized to determine nonattainment, particularly when a state must consider counties adjacent to those that have regulatory monitors. Under any State Implementation Plan (SIP), the federal CAA provides that for each plan the state shall:

> (K) provide for—
>
> > (i) the performance of such air quality modeling as the Administrator may prescribe for the purpose of predicting the effect on ambient air quality of any emissions of any air pollutant for which the Administrator has established a national ambient air quality standard, and
> >
> > (ii) the submission, upon request, of data related to such air quality modeling to the Administrator.

CAA Section 42 U.S.C. Sec. 7410(a)(2)(K)(i-ii). Under Texas's own SIP, Texas has previously assured the EPA that "air quality modeling is conducted during development of revisions to the Texas SIP, as appropriate for the state to demonstrate attainment with required air quality standards."[5] Thus, TCEQ should model counties adjacent to existing nonattainment counties in order to appropriately list adjacent counties as nonattainment rather than designating them as "unclassified."

C. EPA's Guidance Memo expressly allows additional data sets and modeling.

EPA released a guidance memo in 2024 to specifically address how states could best protect the public health and welfare of the nation's residents.[6] The memo expressly does not limit states to solely using NAAQS monitoring data. Indeed, that is the regulatory starting point, but the EPA's guidance encourages states to incorporate emissions sources, meteorology, population centers, and

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[4] Attached as Exhibit 3, HGAC Advance Path Forward Update, https://www.h-gac.com/getmedia/4f9b0d6a-73ae-445c-a08d-f3233ba909df/PM2-5-Advance-Path-Forward-2021-Final-Draft (last accessed Aug. 30, 2024).
[5] 2009 TCEQ letter to EPA re: PM2.5, https://wayback.archive-it.org/414/20210527182117/https://www.tceq.texas.gov/assets/public/implementation/air/sip/pm25/infrastructure/2006_PM2.5_110a_Letter_to_EPA_11-23-09.pdf (last accessed Aug. 30. 2024).
[6] The EPA guidance memo is attached as Exhibit 4 and found here: https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-designations-memo_2.7.2024-_-jg-signed.pdf.

other data to determine where contributions to a PM2.5 NAAQS violation are coming from, and to include those contributing areas within the nonattainment designations.

Specifically, EPA recommends each state articulate a comprehensive narrative that includes a conceptual model of PM2.5 nonattainment. This description should explain the nature and causes of the PM2.5 air quality problem in the specific area, identify the scope and scale of the air quality problem in that area, and describe all nearby emissions sources that contribute to the problem and those that do not. EPA further specifically suggests that the state may use any available relevant non-regulatory PM2.5 data as well as Source Apportionment Modeling (SAM). SAM is another aggregation technique which may be useful to assess contribution to elevated PM2.5 levels in order to identify possible areas for inclusion in the nonattainment area because of their contribution to violations in nearby areas with violating monitors.

D. Exceptional events should be limited and consistent with EPA's guidance.

TCEQ also requested informal comments on whether and to what extent the design values for determining nonattainment should exclude certain data points due to an "exceptional event" (EE). EEs are defined as unusual or natural occurrences (such as wildfires, certain prescribed fires, high dust events, etc.) that can affect air quality, and are not reasonably controllable or preventable. Importantly, these events are either natural events or caused by human activity but defined as unlikely to recur at a particular location.

TCEQ identified and excluded the seasonal arrival of Saharan dust in 2022 when it evaluated PM2.5 emissions from Aggregate Production Operations (APOs) in Central Texas.[7] This methodology may have been reasonable for the purpose of evaluating the impact of respirable crystalline silica in Central Texas, but the impact to PM2.5 levels on a state-wide basis must be substantiated with similar meteorological and other supporting data.

For example, EPA has new guidance[8] and mapping tools (AirNow Fire and Smoke Map[9]) to provide technical guidance and data to help TCEQ identify which wildfires and prescribed burns can be categorized as EEs. We encourage TCEQ to use these tools to make robust technical decisions about wildfires and prescribed burns based on science, rather than arbitrary determinations.

Finally, we urge TCEQ to be mindful that routine natural disasters are now foreseeable weather events and to be skeptical of excluding high emission days based on bad weather. Texas leads the nation in severe weather events, and the frequency and timing of those storms can be

---

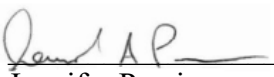
[7] TCEQ Ambient Monitoring of PM Near APO Facilities Interim Report, March 15, 2023, accessed at: https://www.tceq.texas.gov/downloads/toxicology/research-projects/interimapo.pdf (last accessed Aug. 30, 2024).
[8] Wildland Fire, Air Quality, and Public Health Considerations
Fact Sheet, Feb 2024 accessed at: https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-wildland-fire-air-quality-fact-sheet-final.pdf (last accessed Aug. 30, 2024).
[9] AirNow Fire and Smoke Map accessed at: https://fire.airnow.gov/ (last accessed Aug. 30, 2024).

documented. For example, Texas 2036, a state-wide nonprofit aiming to provide and utilize data to influence policy, identifies by month the type of natural disaster most likely to occur.[10] Thus, any argument that past weather events should be used as an excuse for high pollution events, or that such data should not be included to calculate design values, may inappropriately discard events that have significant negative health outcomes, and that industry must plan and control for in the future. Thus, TCEQ should limit the EEs it proposes to EPA for exclusion and be skeptical of broad claims related to bad weather in years past or moving forward.

E. Conclusion

The nonprofits below specifically request a robust public participation process, including more opportunities to informally meet with TCEQ staff as they work through this process. The State of Texas and the health of its citizens will benefit if TCEQ uses all available scientific data and modeling methods and follows EPA guidance when determining the attainment status of each county. We look forward to continuing this discussion to best protect all Texans.

Respectfully submitted by,



Jennifer Powis
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Sign on by:

Michael Spano, Co-Founder
Coalition for Responsible Environmental Aggregate Mining (CREAM)
Georgetown, TX

[10] See https://texas2036.org/posts/texas-has-the-most-billion-dollar-disasters-nationwide/#:~:text=Texas%20leads%20the%20nation%20in,weather%20and%20climate%20disaster%20events (last accessed Aug. 30, 2024).

Sierra Club Lone Star Chapter

August 30, 2024

Texas Commission on Environmental Quality
Email: SIPrules@tceq.texas.gov.

Re: Informal Public Comment Period: Potential State Designations for the 2024 Primary Annual Fine Particulate Matter ($PM_{2.5}$) National Ambient Air Quality Standard (NAAQS)

Attention SIP rules on Potential State Designations for Annual PM2.5 NAAQS:

The Sierra Club is submitting informal comments on information relevant to the agency's development of a designations submission for the 2024 primary annual $PM_{2.5}$ NAAQS of 9.0 micrograms per cubic meter ($\mu g/m^3$) averaged over three-years.

Once approved by the TCEQ, the designations will be sent to the governor for approval before submission to the Environmental Protection Agency (EPA) by February 7, 2025.

Twelve counties measured high fine particle levels for potential $PM_{2.5}$ nonattainment designations and are as follows exceeding the new EPA primary annual $PM_{2.5}$ NAAQS of 9.0 $\mu g/m^3$ averaged over three-years: Harris: 12.5 $\mu g/m^3$, Cameron: 11.0, Bowie: 10.3, Montgomery: 10.0, Dallas: 9.9, Kleberg: 9.9, Hidalgo: 9.7, Webb: 9.7, Tarrant: 9.6, Travis: 9.6, Harrison: 9.5, and Ellis: 9.2. Montgomery and Ellis county data is limited.

Six counties — Harris, Dallas, Tarrant, Harrison, Ellis and Montgomery counties — are home to major Clean Air Act industrial sources and large plants reporting major source $PM_{2.5}$ emissions.

Mobile sources number in the millions in the Houston and Dallas-Ft Worth areas, and especially large numbers of diesel truck vehicles producing tons of $PM_{2.5}$ emissions.

The Port of Houston is the largest international shipping container site in the nation, and thousands of $PM_{2.5}$ emitting diesel trucks are operating daily at the Houston Ship Channel. Assessing these emissions and emissions at other ports and LNG and oil terminals will be important in developing control strategies, including efforts to electrify vehicles that serve the ports.

Four counties (Harris, Dallas, Tarrant, Ellis) are home to thousands of medium and minor CAA $PM_{2.5}$ sources such as hundreds of concrete batch-mix plants, concrete-crushing plants, rock and sand mining sites, and other $PM_{2.5}$ emissions sources.

Cameron, Hidalgo and Webb counties are part of the south Texas border area with Mexico and have significant truck emissions due to tens of thousands of diesel trucks and miles of unpaved roads.

The EPA recognizes that neighboring counties of violating counties need to be considered as contributing to the $PM_{2.5}$ emissions in several of the twelve $PM_{2.5}$ exceeding counties.
The EPA has determined that any area that does not meet national primary or secondary National Ambient Air Quality Standards *or that contributes to ambient air quality in a nearby area that does not meet those standards* is a nonattainment area.
https://www.epa.gov/green-book/ozone-designation-and-classification-information#:~:text=Nonattainment:%20Any%20area%20that%20does,not%20including%200.111%20ppm%20Serious

We urge protective measures be taken by TCEQ's Air Quality Division staff in the twelve proposed nonattainment counties in evaluation of available data and potential designations under review in December 2024.

1. TCEQ needs to address the option to expand the $PM_{2.5}$ monitoring network and install additional $PM_{2.5}$ monitors, particularly in counties such as Harris County where elevated $PM_{2.5}$ concentrations have been measured at the highest annual levels in Texas.

More $PM_{2.5}$ monitors need to be considered for counties with concentrations of 9.5 $\mu g/m^3$ and higher, including Cameron: 11.0, Bowie: 10.3, Montgomery: 10.0, Dallas: 9.9, Kleberg: 9.9, Hidalgo: 9.7, Webb: 9.7, Tarrant: 9.6, Travis: 9.6, and Harrison: 9.5.

2. TCEQ needs to consider installing more $PM_{2.5}$ speciation monitors necessary in the proposed nonattainment counties where no current $PM_{2.5}$ speciation monitors exist to help identify in detail the types of $PM_{2.5}$ emissions in those counties.

3. TCEQ needs to identify the $PM_{2.5}$ sources through improved emission inventories, including large, medium and small fine particle emitters to help elaborate on effective control strategies.

4. TCEQ needs to identify and propose effective control strategies at sources of large, medium and small fine particle emitters. A range of control strategies will be needed to reduce the emissions of $PM_{2.5}$ at sources such as direct capture of $PM_{2.5}$ particles using appropriate bag houses, ESPs, and prevention of $PM_{2.5}$ particle formation with reduced flaring using flare gas recovery systems, etc.

In addition, more controls are needed to reduce emissions of nitrates (NOx), sulfates (SO2), combustion organics (VOCs), and other chemistry contributing to fine particle formation. Soot fine particles are known to contain combustion organics (VOCs) such as polycyclic aromatic hydrocarbons (PAHs) and well recognized as known human cancer-causing agents. Soot fine particle pollution comprises $PM_{2.5}$ fine particles with significant PAH chemistry as a type of VOCs.

5. TCEQ needs to consider the air shed impacts of the $PM_{2.5}$ sources in nearby contributing counties and options for control strategies in evaluation of available data and potential designations under review in December 2024.

Transport of precursors of fine particle pollution

Similar to the NOx-VOC transport problems in the air sheds of ozone nonattainment areas such as Houston-Harris County leading to the adoption of an HGB eight-county ozone nonattainment area, similar broad control measures need to be evaluated by TCEQ to control and reduce fine particle pollution.

Several HGB counties have minimal NOx-VOC emissions while six HGB counties have far larger NOx-VOC emissions.

Harris County has the worst hotspots in Texas for fine particle $PM_{2.5}$ emissions

Harris County has the highest preliminary 2023 annual $PM_{2.5}$ Design Value (three-year average) at 12.5 $\mu g/m^3$ measured at East Harris County's Houston North Wayside. This monitor measured 11.4 $\mu g/m^3$ for the 2022 annual $PM_{2.5}$ Design Value and close to levels measured to the south at the Clinton Drive monitor close to the 610 ship channel bridge in S. Galena Park on the north side of the Houston Ship Channel.

East Harris County has at least 7 $PM_{2.5}$ monitors measuring above 9.0 $\mu g/m^3$ in 2023 and one exceeding $PM_{2.5}$ monitor is the Bayland Park monitor located southwest of central Houston.

The East Harris County $PM_{2.5}$ monitors including the Houston North Wayside, Houston Clinton Drive, Houston East, Baytown, Aldine, and Houston North Loop monitors are impacted by dozens of major Clean Air Act $PM_{2.5}$ sources such as oil refineries, chemical plants, petrochemical plants, and many have large $PM_{2.5}$ emissions.

These large facilities contain thousands of combustion-generating fine particle pollution devices in heaters, boilers, fluid catalytic cracking units, cracking units, large emergency flares, compressor units, sulfur recovery units, and others.

Harris County plants (~228 = 85.4% of 267 Harris Co. sites) reported in 2020 a county $PM_{2.5}$ total of 3,842.93 tons.

More than 300 $PM_{2.5}$ polluting plants operating in Houston-Galveston-Brazoria (HGB) 8-county ozone nonattainment area reported 7,973.22 tons in 2020 (TCEQ Point Source Air Emissions Inventory: https://www.tceq.texas.gov/airquality/point-source-ei/psei.html), and Harris Co. plants had 48.2% of the $PM_{2.5}$.

The neighboring HGB counties (Brazoria, Fort Bend, Galveston, and Chambers) with large industrial plants emitting $PM_{2.5}$ will contribute to $PM_{2.5}$ pollution in 1) Harris Co., including 2) Brazoria Co. (20 plants – 1,467.39 tons) to the southwest; 3) Fort Bend Co. (18 plants - 1,158.85 tons with the W.A. Parish coal plant's 1,021.28 tons) located to the west-southwest; 3) Galveston Co. (29 plants - 893.33 tons) to the southeast; and 5) Chambers Co. (33 plants - 494.35 tons) to the east.

The highest $PM_{2.5}$ industry emissions in the HGB area are at the ExxonMobil's Baytown sour crude oil refinery (707.1678 tons), chemical (55.8622 tons) and petrochemical (335.1525 tons) plants reported at 1,098 total tons in 2020 while the W.A. Parish coal plant's had 1,021.28 tons at the #2 industrial site.

Sulfate emissions are another major $PM_{2.5}$ challenge in the HGB area with the sulfates (SO2) reacting and forming SO2-$PM_{2.5}$ fine particles in the ambient air.

Fort Bend County has the largest Clean Air Act major source of SO2 stack emissions at the W.A. Parish coal plant in 2020 at 23,865.794 tons, 28,828.0431 tons in 2019, and 38,164.9726 tons in 2018.

Parish plant's ultra high SO2 stack emissions will contribute to Harris County SO2-$PM_{2.5}$ fine particle pollution as the Parish emissions disperse and drift through the Houston area.

The W.A. Parish coal plant is by far the #1 source of SO2-$PM_{2.5}$ and $PM_{2.5}$ fine particles in the HGB airshed at 23,865.794 tons + 1,021 tons = 24,886 tons total.

<u>TCEQ needs to require the large WA Parish coal plant to make $PM_{2.5}$ reductions as the single largest source of SO2-$PM_{2.5}$ and $PM_{2.5}$ fine particles in the HGB airshed</u>

W.A. Parish needs to make reductions in its SO2-$PM_{2.5}$ and $PM_{2.5}$ fine particle pollution being ranked as the #1 fine particle polluter in the 8-county HGB airshed. TCEQ identifies speciated SO2 as a primary fine particle precursor in Harris County at the Deer Park $PM_{2.5}$ monitor.

ExxonMobil's Baytown refinery reported nearly 1,827 tons of SO2 as the #2 HGB sulfate polluter and Shell Deer Park's chemical plant reported 1,276 tons of SO2 as the #3 HGB sulfate polluter.

ExxonMobil's Baytown refinery-olefins-chemical complex reported as the #2 industry source of SO2-$PM_{2.5}$ and $PM_{2.5}$ fine particles in the HGB airshed at 1,757 tons + 1,098 tons = 2,855 tons total.

Fourteen major CAA sources reported sulfate emissions from 106 tons to 745 tons in 2020 that included five oil refineries, six chemical plants, and other plants.

Sour crude oil refineries and several chemical plants rely on refinery fuel gas (RFG) containing high sulfur compound levels compared to sweet natural gas, and use of RFG in heaters, boilers, and other process units has NSPS Subpart J hourly restrictions for the hydrogen sulfide inlet and sulfur dioxide outlet stack emissions.

Nonetheless, RFG use is likely a contributing factor to the elevated sulfate stack emissions and SO2-$PM_{2.5}$ fine particles in the ambient air.

<u>Transport of the Martin Lake Coal Plant's large $PM_{2.5}$, SO2- $PM_{2.5}$ and NOx- $PM_{2.5}$</u>

The Martin Lake coal-fired power plant in Rusk County in East Texas has consistently been one of the largest emitters of air pollution in Texas for decades in sulfur dioxide (SO2), nitrogen oxides (NOx), fine particles ($PM_{2.5}$), and carbon monoxide (CO).

Martin Lake's SO2 will form SO2- $PM_{2.5}$ fine particles in the atmosphere from its three ~800 feet high stacks and so will its NOx plumes form NOx- $PM_{2.5}$.

Martin Lake's large $PM_{2.5}$, NOx- $PM_{2.5}$ and SO2- $PM_{2.5}$ fine particles will be transported and flying at times into the DFW airshed and impacting the Dallas County's $PM_{2.5}$ air pollution problems, especially since the Dallas County's $PM_{2.5}$ speciation data shows the elevated SO2-$PM_{2.5}$.

Martin Lake's emissions of $PM_{2.5}$, NOx-$PM_{2.5}$ and SO2-$PM_{2.5}$ fine particles need to be considered by the TCEQ as to the transport impacts in Dallas County's fine particle impacts.

In the TCEQ's Point Source Emissions Inventory data for 2022, Martin Lake reported $PM_{2.5}$ tons at 1,045.7153, SO2 tons at 17,689.8345, and NOx tons at 8,999.7166 for a total of 27,735.25 tons.

More pollution controls need to be addressed by Martin Lake for $PM_{2.5}$, NOx-$PM_{2.5}$ and SO2-$PM_{2.5}$ fine particles.

Transport of PM 2.5 of the Fayette Coal Plant

Travis County has several $PM_{2.5}$ monitors and both the North I-35 (CAMS 1068) and Webberville Rd (CAMS 171) monitors have been found to be at levels above the new standards. In particular, CAMS 1068 has a three-year Design Value of 9.6 while CAMS 171 has a DV of 9.3. While the majority of emissions influencing these high annual levels are likely from activities within Travis County - such as truck traffic, construction equipment and concrete production - there is also evidence that oil and gas activity east of Travis County along with sulfate and $PM_{2.5}$ emissions from the Fayette Coal Plant could also contribute to these higher levels at the two monitors. Located only 90 miles east of Austin, the Fayette Coal Plant is a 1600+ MW large coal plant with three units. The original two units were built in the 1970s. While the units do have scrubbers, they lack some basic air pollution controls for $PM_{2.5}$, and have the potential to influence $PM_{2.5}$ levels in Travis County, which currently has annual levels above the new standard. Any SIP should assess the need for additional controls at this plant, as well as at nearby oil and gas development.

Thanks,

Neil Carman PhD
Lone Star Chapter Sierra Club
Austin, Tx

125 E 11th St | Austin, Texas 78701
512.463.8588
txdot.gov

August 28, 2024

Kelly Keel
Executive Director, MC 109
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

Re: TxDOT Public Comments on the Potential State Designations for the 2024 Primary Annual Fine Particulate Matter ($PM_{2.5}$) National Ambient Air Quality Standard (NAAQS)

Dear Ms. Keel,

I am providing comments on the potential State nonattainment recommendations for the 2024 primary annual fine $PM_{2.5}$ NAAQS. $PM_{2.5}$ nonattainment designations can substantially affect TxDOT's ability to approve transportation projects. TxDOT, therefore, is a significant stakeholder in this process and appreciates this opportunity to provide comments.

As you are aware, the designation recommendations will substantially impact transportation projects in Texas for at least the next two to three decades, and possibly much longer; consequently, TxDOT urges TCEQ to meticulously scrutinize the process used to make the recommendations. TxDOT values the relationship between our two agencies and appreciates your consideration of our comments below.

Comment No. 1: TCEQ should specifically identify and remove from designation consideration certain regulatory monitors that are not appropriate for comparison to the annual $PM_{2.5}$ NAAQS.

Not all regulatory monitors that analyze for $PM_{2.5}$ are intended to be compared to the annual $PM_{2.5}$ NAAQS. The Environmental Protection Agency (EPA), in Title 40 of the Code of Federal Regulations (CFR) Part 58.30 (40 CFR § 58.30), specifically states the following:

> "$PM_{2.5}$ measurement data from monitors that are not representative of area-wide air quality but rather of relatively unique micro-scale, or localized hot spot, or unique middle-scale impact sites are not eligible for comparison to the annual $PM_{2.5}$ NAAQS. $PM_{2.5}$ measurement data from these monitors are eligible for comparison to the 24-hour $PM_{2.5}$ NAAQS. For example, if a micro- or middle-scale $PM_{2.5}$ monitoring site is adjacent to a unique dominating local $PM_{2.5}$ source, then the $PM_{2.5}$ measurement data from such a site would only be eligible for comparison to the 24-hour $PM_{2.5}$ NAAQS."

At a minimum, regulatory monitors identified as "near road" should be excluded as they are micro-scale monitors and are specifically placed near a unique dominating local $PM_{2.5}$ source (i.e., highest volume highways that do not represent all roadways in an area). This potentially could also apply to monitors designated as being for regional transport.

<u>Comment No. 2</u>: TCEQ should re-calculate the design values of applicable regulatory monitors after removing any days where factors outside the State's purview and control played a significant role in an exceedance.

Many days in Texas are significantly impacted by particulate matter contributions that are outside of Texas's control. This includes natural events such as Saharan dust and wildfire events. It also includes international anthropogenic sources, such as annual agricultural burning in Mexico and Central America. As these activities cannot be reasonably controlled by the State, Texas should not make nonattainment recommendations based on monitors that would not have exceeded the annual $PM_{2.5}$ standard if such days were removed from the design value calculation. Since the implications of designation are profound and long lasting, TxDOT urges TCEQ to take this opportunity to meticulously scrutinize the monitor data to better inform their designation recommendations.

<u>Comment No. 3</u>: Source apportionment analyses should be started as expeditiously as practical for regulatory monitors where significant contributions to $PM_{2.5}$ exceedances are unknown.

In one of its recent $PM_{2.5}$ information sessions, TCEQ indicated that one or more monitors need further study to determine the source of the exceedances of the lowered $PM_{2.5}$ NAAQS (e.g., the Kleberg County monitor). Some reasons a regulatory monitor could exceed the standard could be high natural background concentrations or other factors outside the State's control, as previously mentioned. TCEQ should perform such source apportionment studies as expeditiously as practical for use in upcoming designation discussions with EPA as well as for determining appropriate controls to incorporate into future State Implementation Plans.

TxDOT appreciates TCEQ's consideration of these comments. Please reach out to me at (512) 416-7435 or Doug.Booher@txdot.gov if you have any questions about these comments. You may also reach out to Tim Wood, Air Quality Team Lead, Environmental Affairs at (512) 416-2659 or Tim.Wood@txdot.gov.

Sincerely,

DocuSigned by:
Doug Booher
FF2EB9A2A91645A...

Doug Booher, Division Director
Environmental Affairs Division

From: [redacted]
To: SIPRULES
Subject: Who"s most harmed by poor air quality?
Date: Thursday, August 29, 2024 10:48:40 AM

Texas Commission on Environmental Quality,

Children, pregnant women, people over 65 years of age, and those who have current respiratory illness. Do these people matter to us as a society? If so, we should be taking measures to protect them NOT harm them.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: We must do better
Date: Tuesday, August 27, 2024 6:37:36 PM

Texas Commission on Environmental Quality,

If we are going to sit here and gloat as not only the best country in the world, but let alone the best state in the country we need to show it by enforcing emission regulations, public transit initiatives, and proving the people of Texas you actually care about us and our interest and not just corporate interest.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Improve air quality
Date: Saturday, August 31, 2024 11:20:30 PM

Texas Commission on Environmental Quality,

We need public transportation, less cars, and more biodiversity. There's smog, increased allergies, and fire smoke.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality
Date: Thursday, August 29, 2024 11:17:00 AM

Texas Commission on Environmental Quality,

I am writing to express my deep concern regarding the deteriorating air quality in our city. Over the past few years, it has become increasingly apparent that the air quality has reached unacceptable levels, affecting not only the environment but also the health and well-being of our community.

Recent observations and reports from local air quality monitoring stations have highlighted a significant rise in pollutants, including particulate matter and ground-level ozone. This escalation is particularly alarming given the documented links between poor air quality and a range of health issues, such as respiratory problems, cardiovascular diseases, and exacerbation of pre-existing conditions like asthma.

The health and safety of our residents should be a top priority, and addressing air quality concerns is a crucial step in ensuring a healthier and more sustainable future for all. I appreciate your attention to this matter and look forward to seeing tangible actions that will help restore and maintain acceptable air quality levels in our city.

Thank you for your time and consideration.

Sincerely,
[redacted]

magaly
Texas

From: [redacted]
To: SIPRULES
Subject: Children and the air we breathe
Date: Tuesday, August 27, 2024 11:31:47 AM

Texas Commission on Environmental Quality,

The state is concerned with the health of children and mothers, which is important to me. One of the most important factors in how healthy a pregnant mother or a newborn child will be is the quality of the air they breathe. We need to be doing everything we can to improve air quality, including increasing public transit, active transportation, and removing dirty vehicles from the road. We should not be expanding highways in the middle of urban centers where thousands of mothers and children live.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality
Date: Thursday, August 29, 2024 10:56:59 PM

Texas Commission on Environmental Quality,

Air quality impacts our health in long and short term ways. This needs to be investigated!

Texas

From: [redacted]
To: SIPRULES
Subject: Air Quality
Date: Tuesday, August 27, 2024 11:39:57 AM

Texas Commission on Environmental Quality,

Its a human right to expect those in leadership positions to do whats right for their communities and clean air/quality is essential. I have asthma and I have noticed I have to use my inhaler a lot more these days.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality in texas
Date: Tuesday, August 27, 2024 11:09:50 AM

Texas Commission on Environmental Quality,

Freeway expansions and new and existing businesses adding more pollution to Texas hurts the community. My son has an autoimmune condition who is affected by poor air quality. Stop looking the other way

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality
Date: Tuesday, August 27, 2024 10:37:18 AM

Texas Commission on Environmental Quality,

I get around by bicycle and I really feel it when the air quality is poor. It is much harder to breathe and sometimes even feels like I've just smoked a cigarette if I'm near cars that do not meet emissions standards after doing something that is supposed to be healthy

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Bad Air quality
Date: Tuesday, August 27, 2024 6:24:06 PM

Texas Commission on Environmental Quality,

I’m tired of seeing the AQI report be poor enough to issue a warning for sensitive individuals. It stops me from being outside and playing with my kid.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: We need better air quality
Date: Thursday, August 29, 2024 3:45:02 PM

Texas Commission on Environmental Quality,

Air quality is important not only to me but to all Texans. We need to ensure we have the best air quality monitoring happening, so Texas sees that they need to make adjustments to how they build infrastructure that pollutes so heavily and harms the health of Texans.

I'm incredibly worried about how the air quality due to soot will affect young children's lungs and the lungs of my husband who has asthma. Please keep up the monitoring standards to keep us safe!

Thank you,
[redacted]
a concerned Texas Resident

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Air quality
Date: Tuesday, August 27, 2024 9:40:53 PM

Texas Commission on Environmental Quality,

Please protect our air. The biggest source of air pollution is car exhaust. Please investigate how to reduce the number of cars on the road so we can breathe clean, healthy air.

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Suffering from Poor Air Quality
Date: Tuesday, August 27, 2024 10:24:27 AM

Texas Commission on Environmental Quality,

The poor air quality is already too much to bear; it affects how I spend my time. Please consider prioritizing the PEOPLE of Texas, not the CARS of Texas. Provide people with better means of PUBLIC transportation so they are not SHACKLED to cars.

Thank you,
[redacted]

[redacted]
Texas

From: [redacted]
To: SIPRULES
Subject: Pm2.5
Date: Tuesday, July 30, 2024 4:19:37 PM

Thank you for allowing me to comment on PM2.5. Recent studies indicate that tire dust particles for car and truck wear is much more dangerous to our health and reproduction than gas or diesel exhaust. Solutions are electromagnetic filters in home's businesses and underneath vehicles along with more trees and long grasses. Also maybe tire manufacturers need to improve their compounds. Public awareness campaign? Lighter vehicles and regular air pressure checks by users ? So many rail cars hauling coal and shedding particulates. While you and us are meeting and thinking how to improve our environment there are more in government and business working harder to expand our economy with no regard for our environment. Big fines are not effective. Maybe the leadership should be required to volunteer in the lung section of a children's hospital ?
Thank you again and God bless you .