

Geographic Texas Air Monitoring (GeoTAM) Dashboard User Guide

Application Overview

The GeoTAM Dashboard presents users a geospatial way to view the current live ambient air values. These measurements are collected at ambient air monitoring sites owned by the Texas Commission on Environmental Quality (TCEQ) and hosted monitoring partners. The pollutants displayed include ozone (O₃), sulfur dioxide (SO₂), particulate matter of 2.5 micrometers or less in diameter (PM_{2.5}), benzene, toluene, styrene, and 1,3-butadiene, if the pollutant is measured at the air monitoring site. Individual air monitoring sites may also collect several other pollutants.

More information about the TCEQ Ambient Air Monitoring Network can be found on the TCEQ's [Air Quality and Monitoring](#) webpage.

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Criteria Pollutant Measurements

Criteria pollutants shown on the dashboard include ozone, PM_{2.5}, and sulfur dioxide.

The values displayed in the gauges on this dashboard do not necessarily indicate whether the area being viewed is in compliance with national air quality standards—which are called the National Ambient Air Quality Standards (NAAQS) and are set by the United States Environmental Protection Agency (EPA).

Individual ambient air measurements are reported hourly and should not be directly compared to the EPA NAAQS. The levels of the NAAQS are provided only as a visual reference. If a 1-hour measured concentration is higher than the NAAQS value, it does not mean that it exceeds the NAAQS.

The NAAQS specify the maximum amount of a pollutant which can be present in outdoor air without harming public health and cover six common air pollutants: O₃, particulate matter (PM) including PM_{2.5} and PM of 10 micrometers or less in diameter (PM₁₀), nitrogen dioxide (NO₂), SO₂, carbon monoxide (CO), and lead. Not all criteria pollutants are shown on the dashboard.

More information about the criteria pollutants and NAAQS is available on the EPA's [Criteria Air Pollutants](#) webpage.

Comparing Air Quality Status to National Standards

The EPA determines whether a geographical area complies with the NAAQS by using monitoring data and calculating a number known as the design value. When the design value is higher than the NAAQS, then that area may be non-compliant for that criteria pollutant.

Specific formulas for calculating design values for each of the criteria pollutants vary by pollutant and can be found in the appendices to [40 Code of Federal Regulations Part 50](#).

Ozone

Ozone, sometimes referred to as smog, is a gas that is formed in the atmosphere when three atoms of oxygen combine. The chemical structure of ozone is the same wherever it is found; however, there are two categories of ozone: stratospheric and ground-level. Unlike other gaseous pollutants, ozone is not emitted directly into the atmosphere. Instead, it is created in the atmosphere by the action of sunlight on volatile organic compounds and nitrogen oxides. The monitors displayed in the dashboard collect measurements for ground-level ozone. More information about ozone is available on the TCEQ's [Ozone: The Facts](#) and the EPA's [Ground-level Ozone Pollution](#) webpages.

The primary NAAQS for ozone is an 8-hour average. The EPA design value calculation used to compare to the NAAQS 8-hour average is the annual fourth-highest daily maximum 8-hour concentration, averaged over three consecutive years.

Particulate Matter 2.5

PM_{2.5} are fine particles and are the smallest particles that are regulated. They consist of particles that are less than or equal to 2.5 micrometers in diameter. By comparison, the average diameter of human hair is 70 micrometers. More information is available on the EPA's [Particulate Matter \(PM\) Pollution](#) webpage.

The shortest duration primary NAAQS for PM_{2.5} is a 24-hour average. The EPA design value used to compare to the NAAQS 24-hour average is the 98th percentile, averaged over three consecutive years.

Sulfur Dioxide

Sulfur dioxide is produced by burning sulfur-containing fuels (such as coal), smelting metallic ores containing sulfur, and removing sulfur from fuels. More information about SO₂ is available on the EPA's [Sulfur Dioxide \(SO₂\) Pollution](#) webpage.

The primary NAAQS for sulfur dioxide is a 1-hour average. The EPA design value used to compare to the NAAQS 1-hour average is the 99th percentile of 1-hour daily maximum concentrations, averaged over three consecutive years.

Air Toxics Measurements

On the dashboard, air toxics shown include benzene, toluene, styrene, and 1,3-butadiene. These are types of volatile organic compounds (VOCs), which along with sunlight and other pollutants have the potential to form ozone. More information about VOCs is available on the TCEQ's [Volatile Organic Compound Data](#) webpage.

Hourly concentrations of these air toxics can be compared to the TCEQ's short-term health air monitoring comparison values (AMCVs). AMCVs are screening levels used by TCEQ to evaluate data from ambient air monitoring to evaluate the potential for health and welfare effects. AMCVs are safe levels that are set below a level of health concern. ***Exceeding an AMCV does not mean an adverse health effect is expected, but that a more in-depth review is needed.*** More information about AMCVs is available on the TCEQ's [Toxicology](#) webpage.

Benzene

Benzene is a colorless and flammable liquid with a sweet smell and a relatively high melting point. It is carcinogenic and is no longer used as an additive in gasoline, but it is an industrial solvent and precursor in the production of drugs, plastics, synthetic rubber, and dyes. Benzene is a natural constituent of crude oil, but it is usually synthesized from other compounds present in petroleum. Smaller amounts of benzene are used to make some types of rubbers, lubricants, dyes, detergents, drugs, explosives, and pesticides.

Toluene

Toluene is a colorless, water-insoluble liquid with the smell associated with paint thinners. It is predominantly used as an industrial ingredient and a solvent in some types of paint thinner, permanent markers, contact cement and certain types of glue. Toluene occurs naturally at low

levels in crude oil and is a byproduct in the production of gasoline. It is also a byproduct of the production of coke from coal.

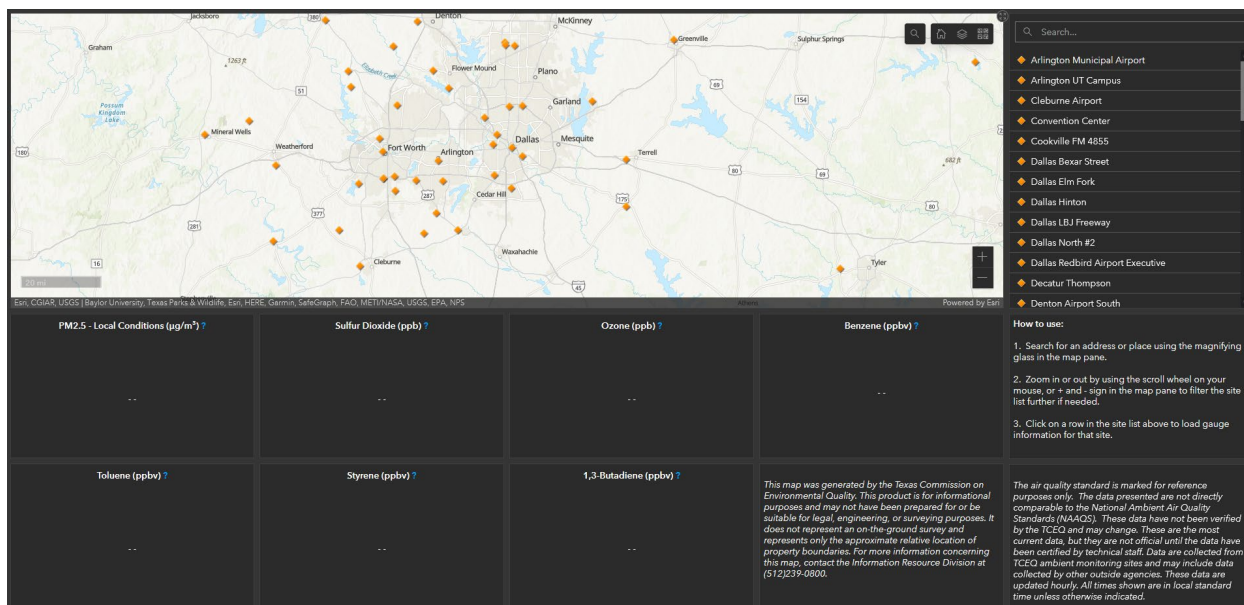
Styrene

Styrene is colorless, oily, toxic, flammable, and occurs in very small amounts in some plants, but is produced in industrial quantities from petroleum. It is used to make products such as rubber, plastic, insulation, fiberglass, pipes, automobile parts, food containers, and carpet backing. At room temperature, Styrene is a liquid, but it evaporates easily and has a sweet smell. It often contains other chemicals that can result in a sharp, unpleasant smell.

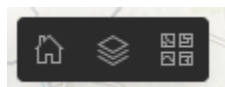
1,3-Butadiene

1,3-Butadiene is a colorless, highly flammable gas that has a slight gasoline-like smell. It is produced through the processing of petroleum and is mainly used in the production of synthetic rubber, which is widely used for tires on cars and trucks but is also found in smaller amounts in plastics including acrylics and fuel. Small amounts are found in gasoline.

Navigating Around the Dashboard



Map Menu Bar



The Map Menu Bar consists of Home, Layer, and Basemap widget selections.

Home



Home will reset the base load settings of the map. The map will load at a default zoom setting in order to capture the entire state of Texas.

- Click once to return to the default extent.

Layers



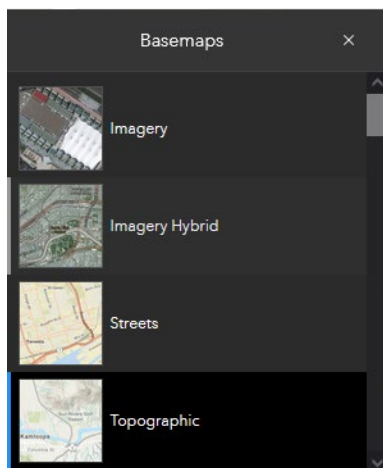
Users can select different layers within the web map. At this time, the dashboard only contains one layer.

Basemap



The basemap gallery will allow the user to change the basemap of the dashboard. The user may select from street maps, imagery, or terrain depending on need. The default is set to the ESRI Topographic basemap.

- To change the basemap, click on the Basemap tool on the map menu bar. A Basemaps selection box will appear.



- Select the basemap you wish to use.
- Click the “X” in the upper right-hand corner of the Basemaps box to collapse the box.

Location Search

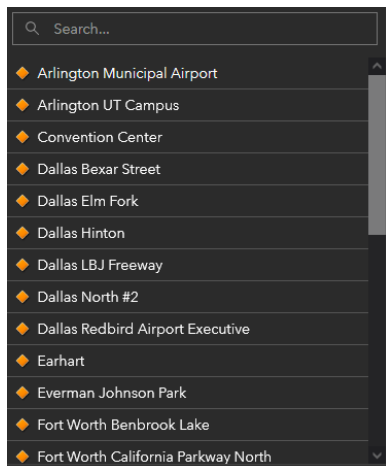


The Location Search tool enables users to search by landmark, county, city, state, or address. The use of the search widget will result in the map zooming into a 4-mile scale from centroid of search value entered.

- Click on the Location Search widget. A “Find address or place” search bar will appear.

- Enter a value into the “Find address or place” search bar.

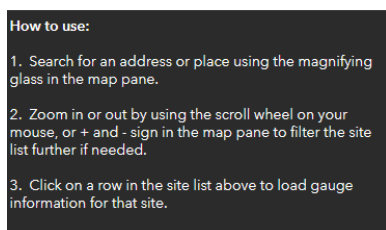
Site List & Site List Search Box



The user can search for a specific site by entering the name of the site into the Site Search Box.

- Only sites contained within the search box can be selected.
- Only sites that appear within the current map extent are included in the Site List results box.
- Entering a site name into the Search box will filter the results in the search results box.
- Selecting a site from the Site List results box will zoom the map to the selected site and provide the current pollutant values for any available monitors.

User Instructions



Three step user instruction are provided to assist the users with the dashboard.

Disclaimers and Notifications

This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. For more information concerning this map, contact the Information Resource Division at (512)239-0800.

For each pollutant displayed in this dashboard, the applicable NAAQS or AMCV has been included for reference only. The dashboard does not indicate whether Texas is meeting national standards. To assess compliance, TCEQ averages the results collected from air monitors over a time period specific to each pollutant.

These are the most current data, but they are not official until technical staff verify and certify them and they may change. TCEQ and other agencies operate the air monitors displayed in this dashboard, which is updated hourly. All times are shown in Local Standard Time (LST) unless indicated otherwise.

Zoom Settings



The feature allows the user to zoom in and out of the map extent.

Zoom In



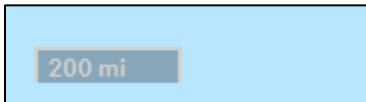
Click this button once or multiple times to zoom in at fixed increments.

Zoom Out



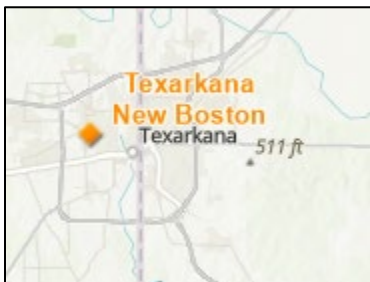
Click this button once or multiple times to zoom out at fixed increments.

Zoom Scale



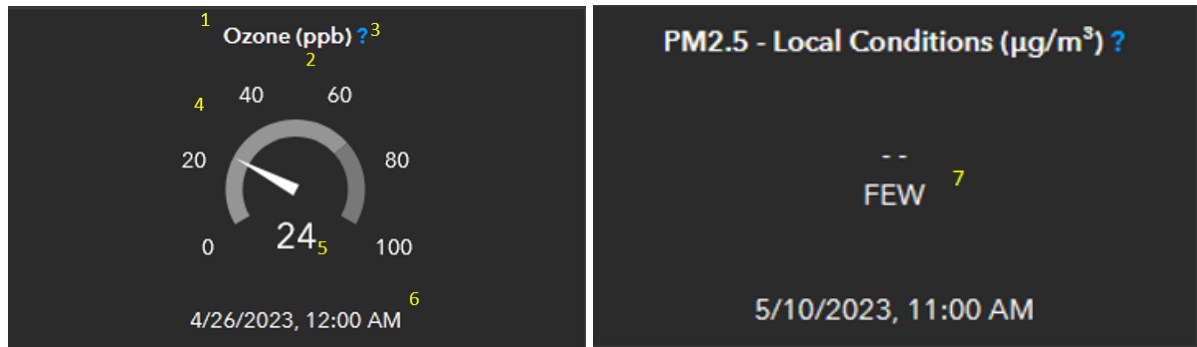
The default zoom scale when the map loads is 200 miles and can be found at the lower left-hand side of the map. The site labels in the map will populate with zoom scale of 10 miles or less.

Site Point



Site points are displayed as orange diamonds. Site points will also be labeled when the scale of the zoom setting is at 10 miles scale or less.

Gauges



The dashboard contains 7 gauges as defined above. Parameter and unit of measure are at the top of the gauge. Gauge will display gray scale gauge with comparative value at approximately 70% of gauge reading. Null values will show with no gauge dial. Gauge will show mm/dd/yyyy HH:MM AM based on CST. The Gauge will show a qualifier code if one exists.

Parameter (1)

The name of the pollutant for which the measurement value is associated with.

Unit of Measure (2)

Displayed as either one of the following: micrograms per cubic meter µg/m³, parts per billion (ppb), or parts per billion by volume (ppbv).

Help Text Question Mark (3)

A clickable link that takes you to the location in this user guide that provides a description of the pollutant being displayed.

Gray Scale Gauge with Comparative Value (4)

Each pollutant is represented by a box containing grey scale gauge. If a site does not measure for a represented pollutant, then there will not be a gauge present within the box.

Measurement Value (5)

Current hourly average for the pollutant taken at predetermined location, date, and time.

Data and Time of Measurement Value (6)

The date and time in Central Standard Time (CST) that the measurement value was taken.

Qualifier Code (if one exists) (7)

A code provided in place of a measurement value that helps to describe an unusual or anomalous event that may impact the availability of the value.

Contact Us

If you have any questions about the GeoTAM Dashboard or this user guide, contact TAMIS@tceq.texas.gov.