



# 2013 Ozone Update

---

Jonathan Steets  
Data Analysis, Air Quality Division

Presented to SET PMTC  
February 27, 2014



# Outline

---

- 8-Hr ozone in Texas
- 1-Hr ozone in Houston
- Drought conditions for Texas
- Meteorology summary and Surface trajectories for the Houston and Dallas Areas



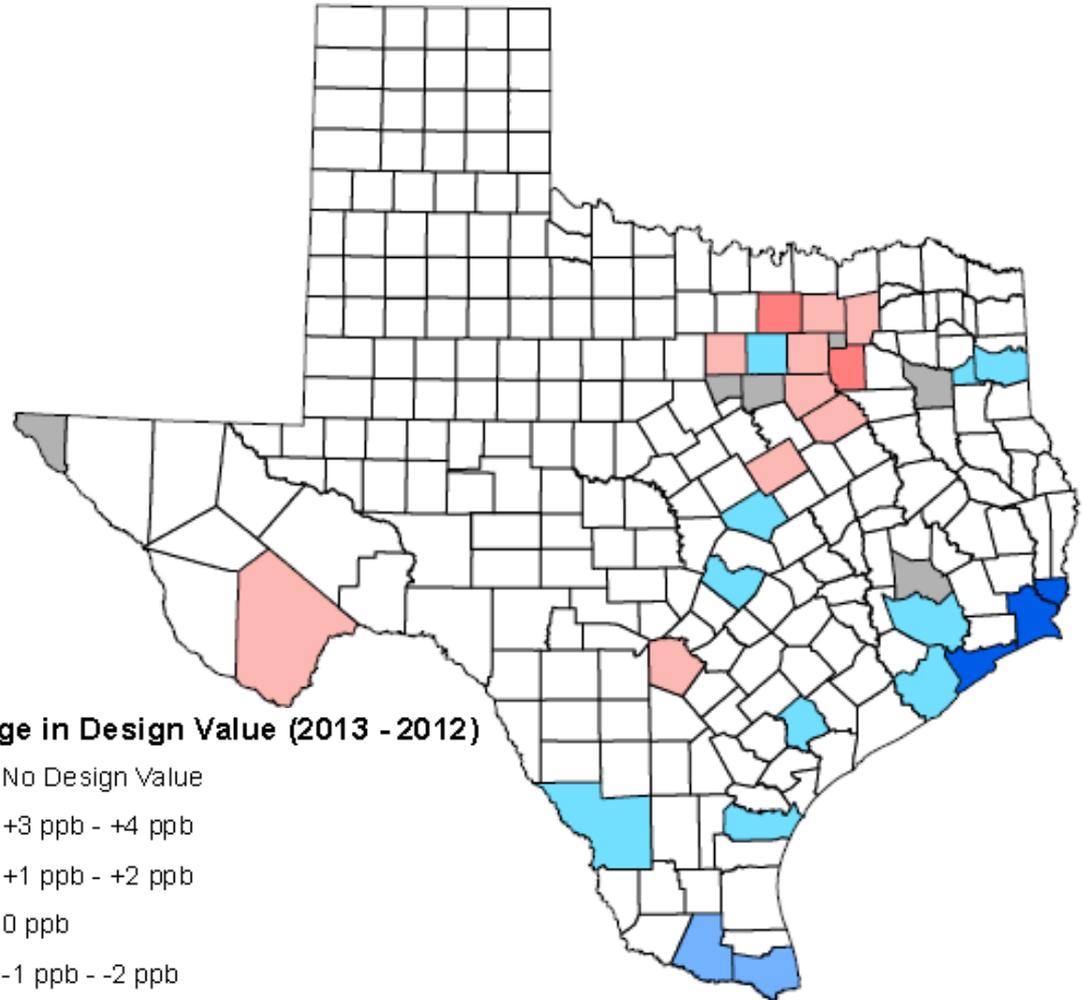
# Current Design Values

Area	Design Value Setting Monitor	Current Design Value (as of 02/21/2014)
Houston-Galveston-Brazoria (HGB)	Manvel Croix Park	87 ppb
Dallas-Fort Worth (DFW)	Denton Airport South	87 ppb
San Antonio (SAN)	Camp Bullis	81 ppb
Northeast Texas (NETX)	Longview	77 ppb
Beaumont-Port Arthur (BPA)	SETRPC Sabine Pass	75 ppb
Killeen-Temple-Fort Hood (KTF)	Killeen Skylark Field	74 ppb
Waco (WAC)	Waco Mazanec	74 ppb
Austin-Round Rock (ARR)	Audubon	73 ppb
El Paso (ELP)	El Paso UTEP	72 ppb
Big Bend (BB)	BRAVO Big Bend	71 ppb
Corpus Christi (CC)	Corpus Christi West	70 ppb
Victoria (VIC)	Victoria	67 ppb
Laredo (LAR)	Laredo Vidaurri	64 ppb
Lower Rio Grand Valley (LRGV)	Brownsville	60 ppb
Mission-Edinburg-McAllen (MEM)	Mission	59 ppb



# Design Value Change From 2012 to Current 2013

Area	County	2012 8hr Ozone DV (ppb)	2013* 8hr Ozone DV (ppb)
HGB	Brazoria	88	87
DFW	Denton	83	87
DFW	Tarrant	87	86
DFW	Collin	83	84
DFW	Dallas	82	84
HGB	Harris	84	82
SAN	Bexar	80	81
DFW	Johnson	79	79
HGB	Montgomery	79	79
DFW	Parker	78	79
NETX	Gregg	79	77
DFW	Rockwall	77	77
DFW	Hood	77	77
DFW	Ellis	76	77
NETX	Smith	75	75
BPA	Jefferson	80	75
HGB	Galveston	80	74
WAC	Bell	75	74
DFW	Hunt	72	74
WAC	McLennan	72	74
DFW	Kaufman	70	74
ARR	Travis	74	73
NETX	Harrison	74	72
ELP	El Paso	72	72
DFW	Navarro	70	72
BB	Brewster	70	71**
CC	Nueces	72	70
BPA	Orange	74	69
VIC	Victoria	69	67
LAR	Webb	63	64
LRGV	Cameron	64	60
MEM	Hidalgo	62	59



**Change in Design Value (2013 - 2012)**

- No Design Value
- +3 ppb - +4 ppb
- +1 ppb - +2 ppb
- 0 ppb
- 1 ppb - -2 ppb
- 3 ppb - -4 ppb
- < -5 ppb

\*2013 design values are calculated as of 02/21/2014, are not certified and are subject to change

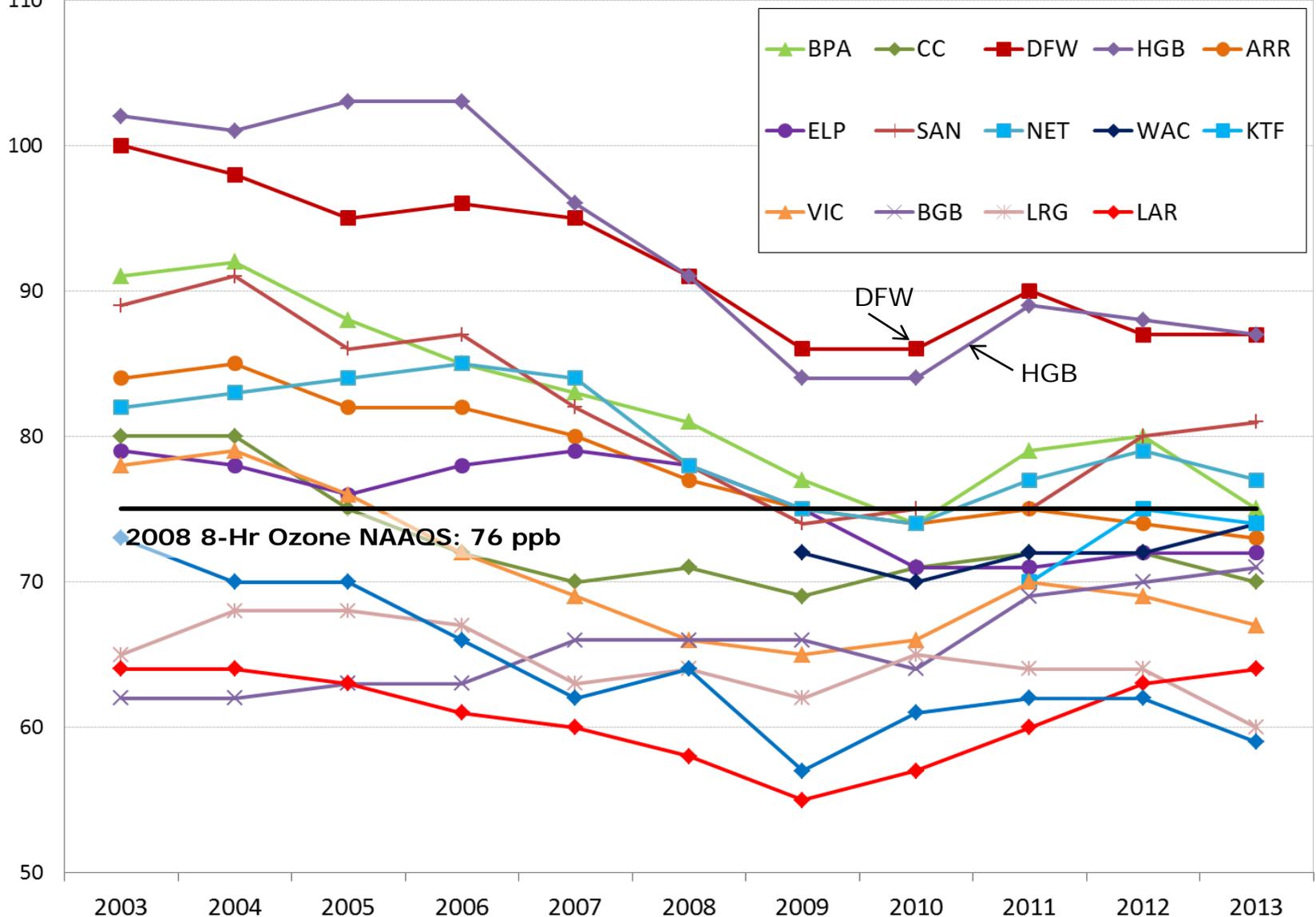
\*\* The Brewster County monitor that is maintained by the national park service and reported in EPA AQS does not have an up to date design value released; therefore, the design value shown is from the non-regulatory TCEQ monitor at the same location.



# Texas Design Values by Area

## 2003-2013\*

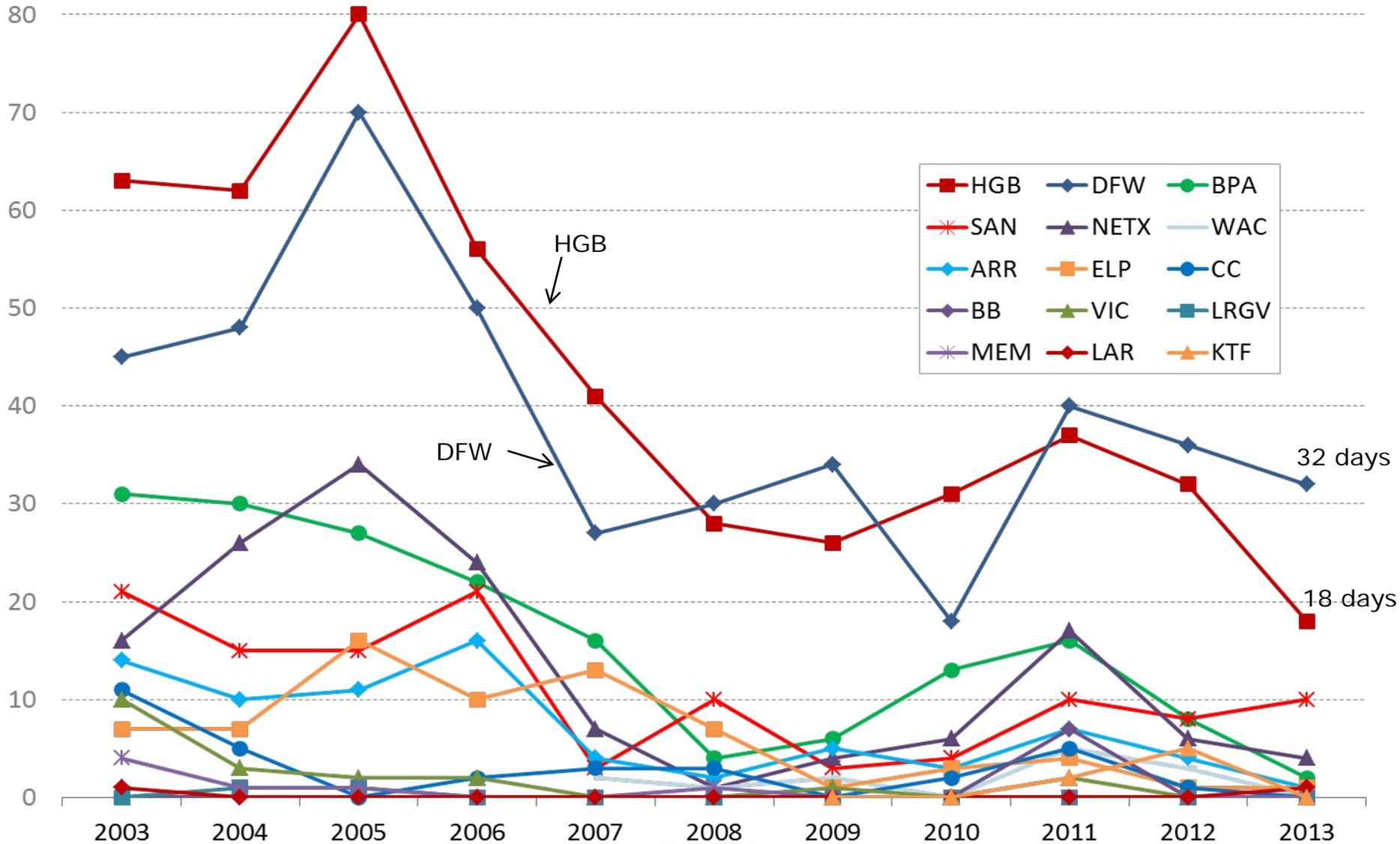
110



\*2013 data is current as of 02/21/2014 and is subject to change.



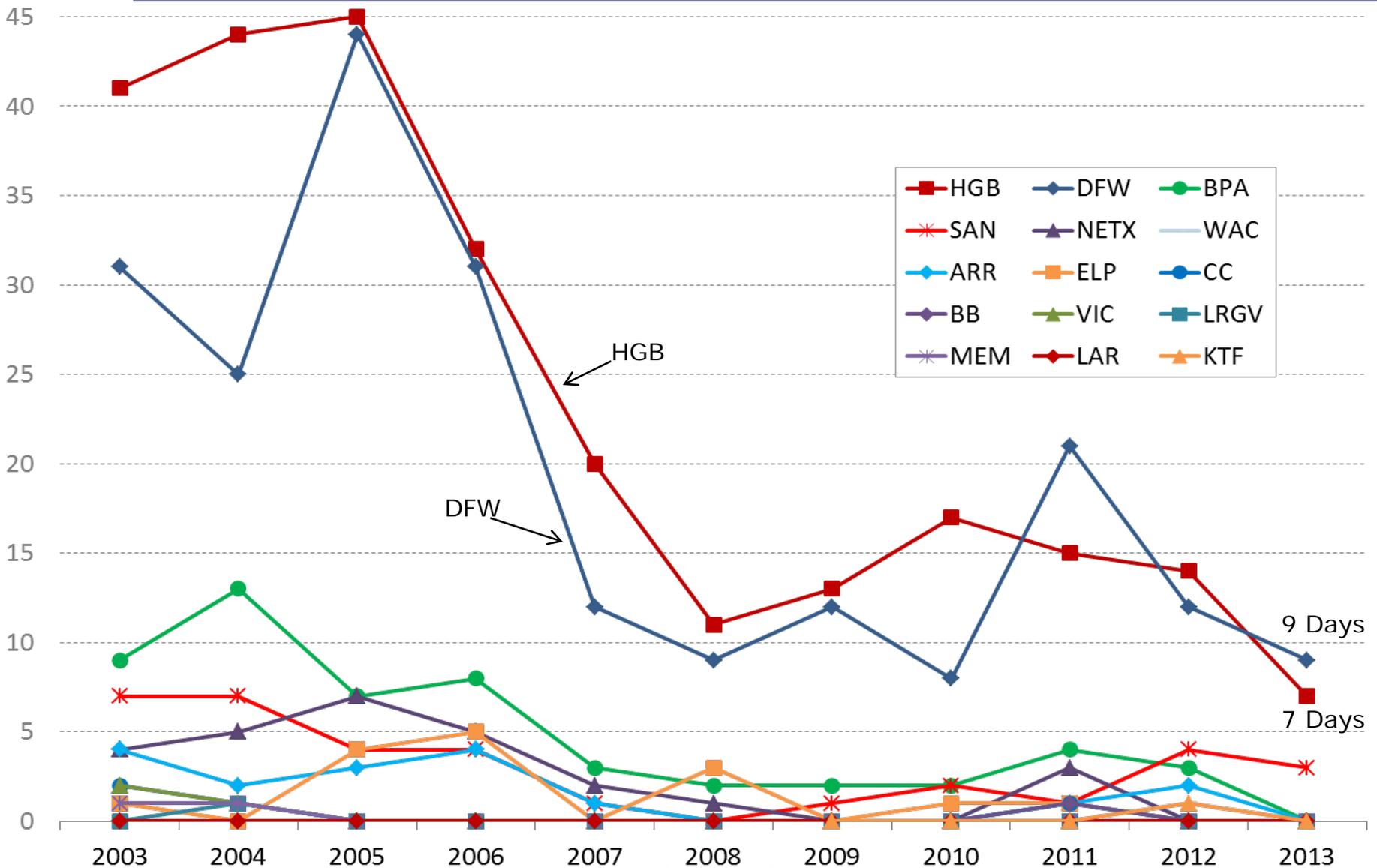
# Number of Days Where Daily 8-Hour Ozone Max > 75 ppb



\*2012 data is current as of 02/21/2014 and is subject to change.



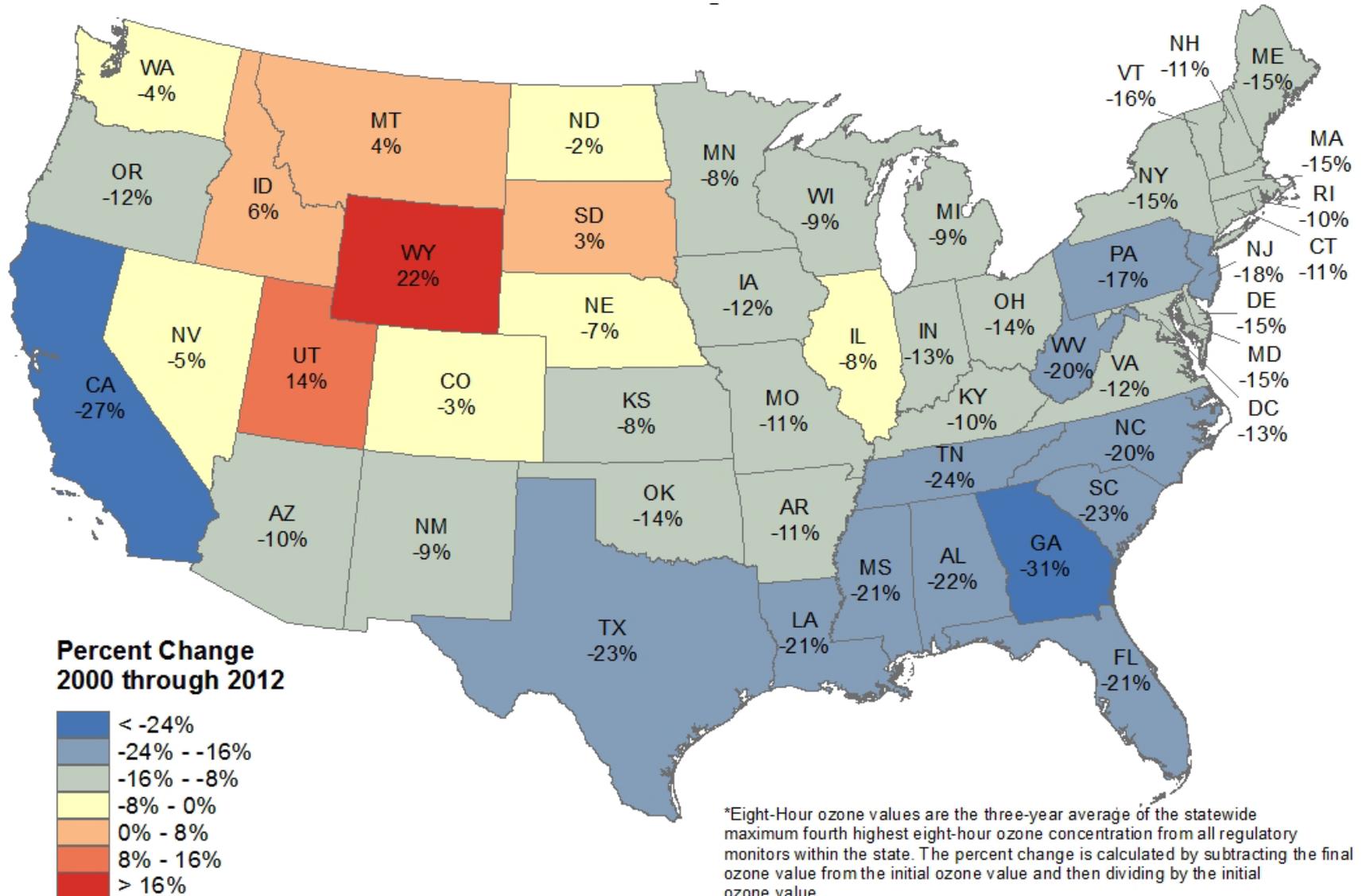
# Number of Days Where Daily 8-Hour Ozone Max > 84 ppb



\*2013 data is current as of 02/21/2014 and is subject to change.



# National Ozone Trends in 2000 through 2012



\*Eight-Hour ozone values are the three-year average of the statewide maximum fourth highest eight-hour ozone concentration from all regulatory monitors within the state. The percent change is calculated by subtracting the final ozone value from the initial ozone value and then dividing by the initial ozone value.

Source: Data from EPA's AQS, analysis from TCEQ Data Analysis Team



# 4<sup>th</sup> Highs Needed to Exceed in 2014

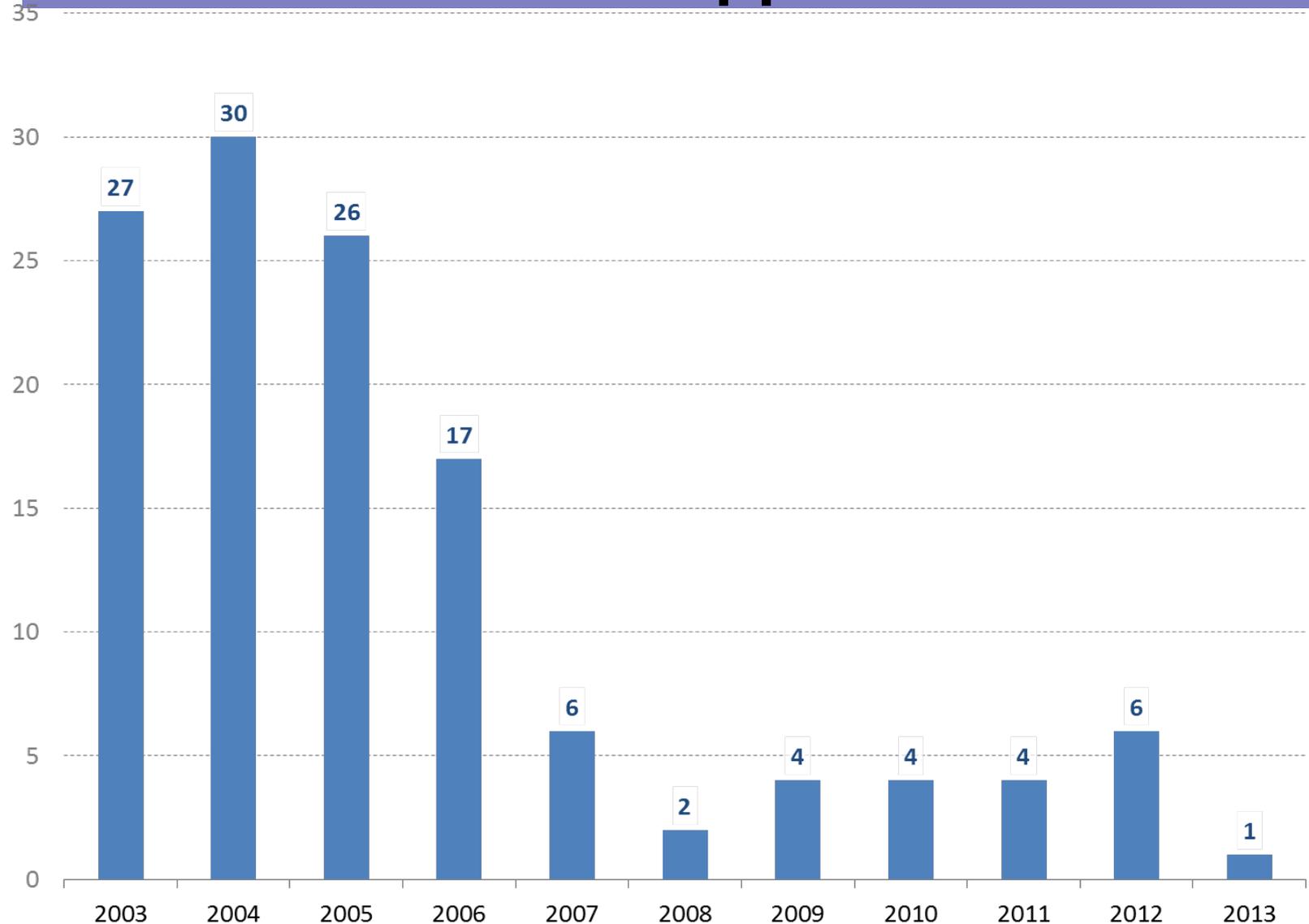
Area	Monitoring Site	2013* Design Value (ppb)	4th Highs (ppb)			
			2012	2013*	2014 to Exceed 75	2014 to Exceed 84
HGB	Manvel Croix Park	87	87	84	57	84
DFW	Denton Airport South	87	81	85	62	89
SAN	Camp Bullis	81	87	83	58	85
NETX	Longview	77	78	71	79	106
BPA	SETRPC 40 Sabine Pass	75	76	67	85	112
KILN	Killeen Skylark Field	74	78	71	79	106
ARR	Audubon	73	76	70	82	109
WAC	Waco Mazanec	73	73	69	86	113
ELP	El Paso UTEP	72	74	73	81	108
CC	Corpus Christi West	70	69	66	93	120
VIC	Victoria	67	66	62	100	127
LAR	Larado Vidaurri	64	61	65	102	129
LRGV	Brownsville	60	58	58	112	139
MEM	Mission	59	61	55	112	139

\*2013 data is current as of 02/21/2014 and is subject to change.

\*\* The Brewster County monitor that is maintained by the national park service and reported in EPA AQS does not have an up to date design value or 4<sup>th</sup> high released; therefore, the design value shown is from the non-regulatory TCEQ monitor at the same location.



# Number of Days where 1-Hr Ozone > 124 ppb in HGB



\*2013 data is current as of 02/21/2014 and is subject to change.



# 2014 Allowable days where 1-Hr Ozone > 124 ppb in HGB

Monitor	# Days > 124 ppb in 2012	# Days > 124 ppb in 2013*	# Allowable Days > 124 ppb in 2014 to meet NAAQS	2013* One-Hour Ozone Design Value (ppb)
Northwest Harris Co. C26	2	0	1	115
Seabrook Friendship Park C45	1	1	1	111
Houston Monroe C406	2	0	1	103
Manvel Croix Park C84	1	0	2	118
Clinton C403/C113/C304	1	0	2	114
Houston Bayland Park C53	1	0	2	113
Houston Texas Avenue C411	1	0	2	112
Park Place	1	0	2	111
Houston Croquet C409	1	0	2	109
Houston East C1	0	0	3	121
Houston Aldine C8/C108/C150	0	0	3	117
Lang C408	0	0	3	110
Houston North Wayside C405	0	0	3	105
Houston Deer Park 2 C35/139	0	0	3	104
Conroe Relocated C78	0	0	3	103
Channelview C15/C115	0	0	3	102
Houston Westhollow C410	0	0	3	102
Lynchburg C1015	0	0	3	101
Galveston 99th St C1034/A320	0	0	3	100
Lake Jackson C1016	0	0	3	91

\*2013 data is current as of 02/21/2014 and is subject to change.



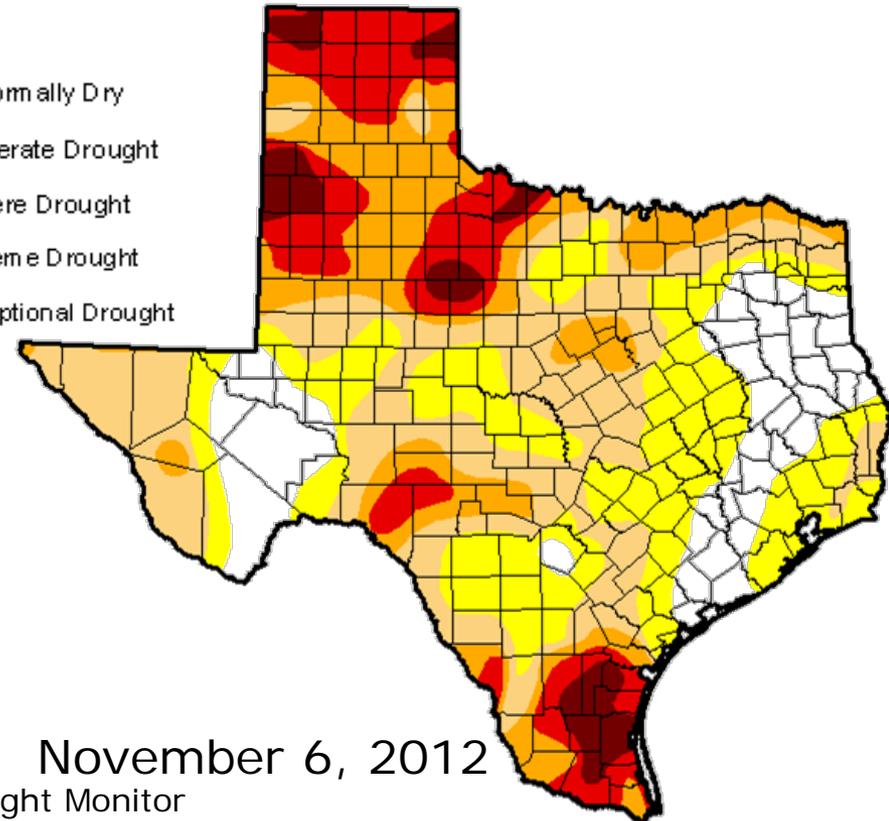
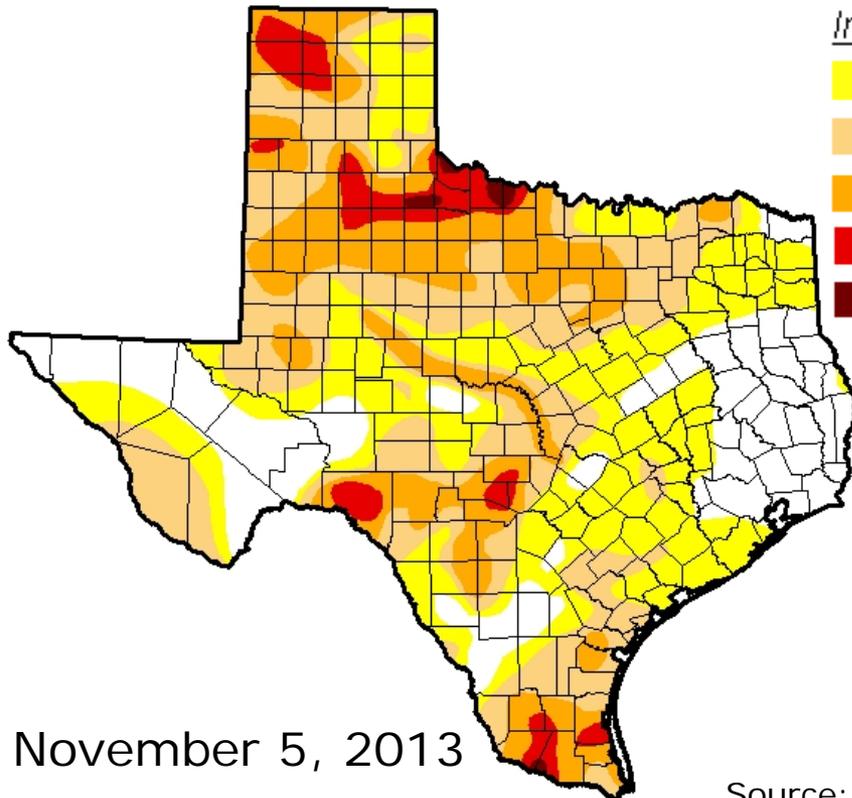
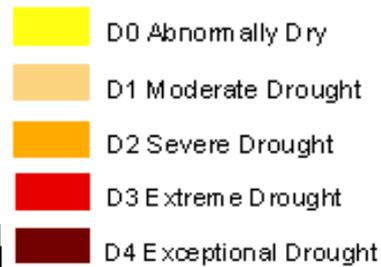
# Drought Conditions in Texas

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	20.07	79.93	50.49	23.61	5.43	0.49
<b>One Year Ago</b> <i>11/6/2012</i>	15.44	84.56	59.90	33.55	16.98	4.68

- 2013 has less areas with Drought conditions.
- 2013 also has more areas with no dry conditions

Intensity:



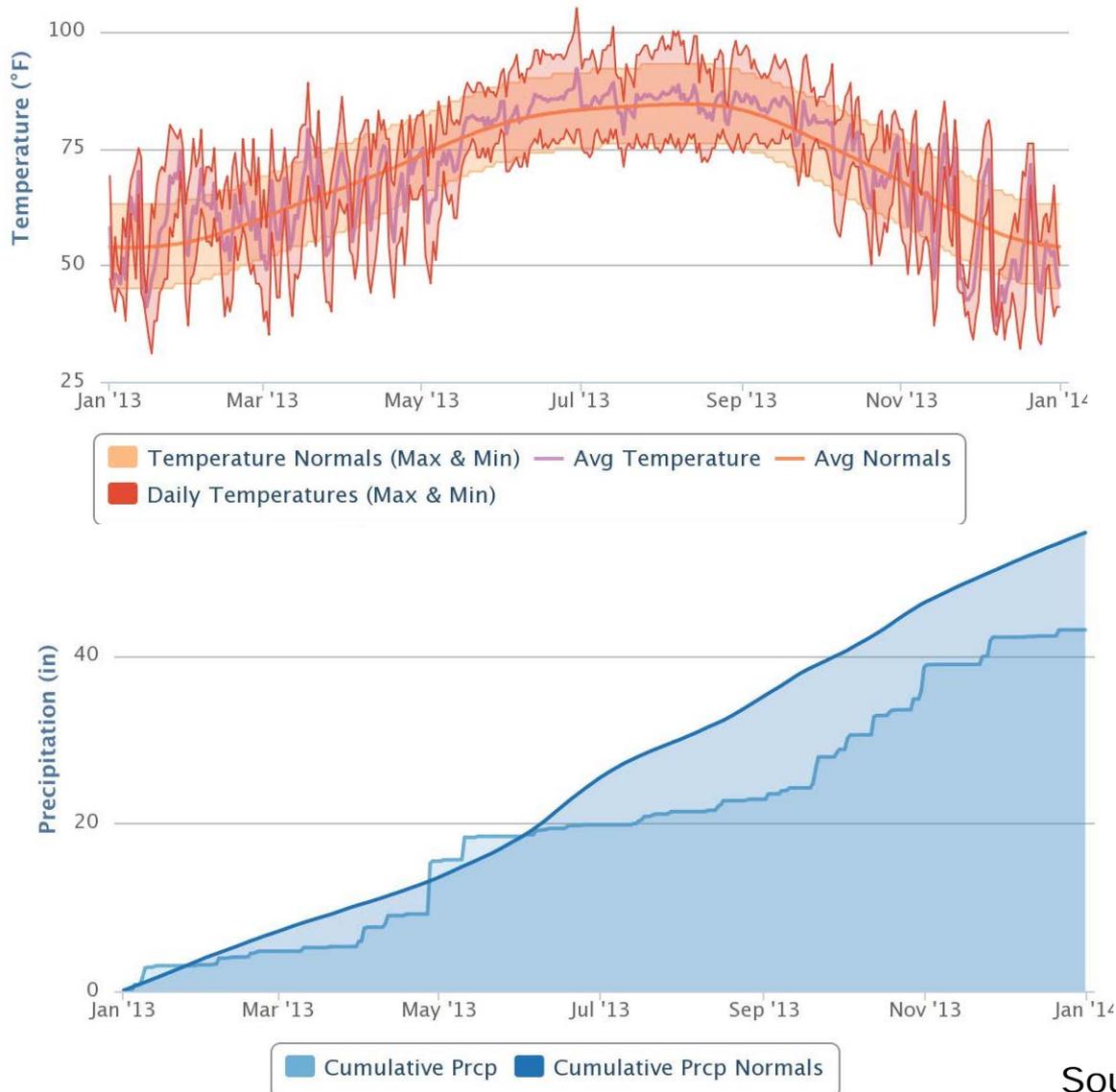
November 5, 2013

November 6, 2012

Source: U.S. Drought Monitor



# HGB Temperatures in 2013

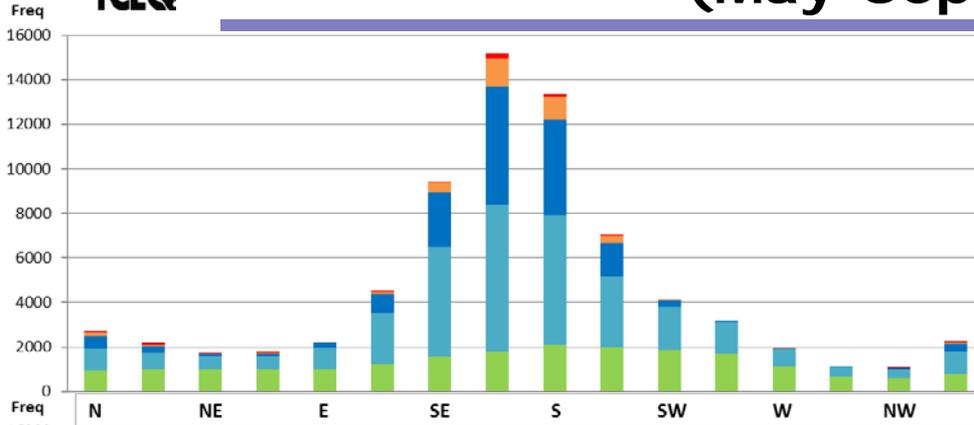


- Temperatures were above average during parts of the winter and early spring but close to average during the summer.
- Temperatures were below average briefly in March, April and May.
- Rainfall was above average in May but is currently below average.

Source: Southern Region Climate Center

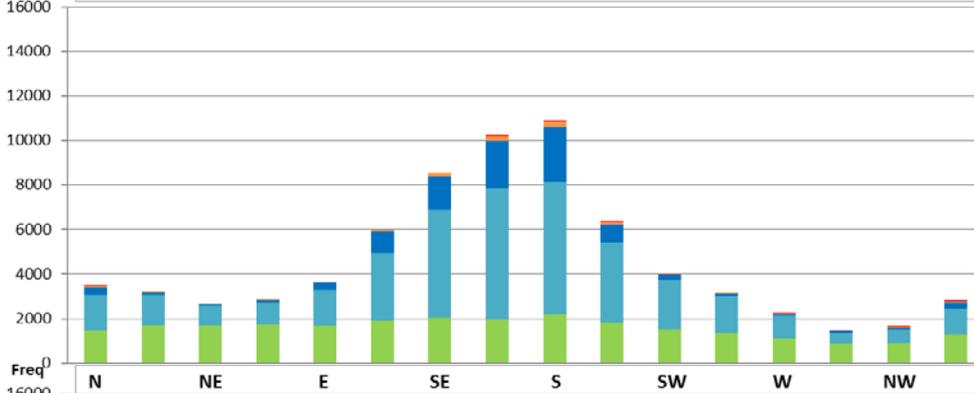


# HGB Daytime Winds (May-Sept, 7am-7pm)



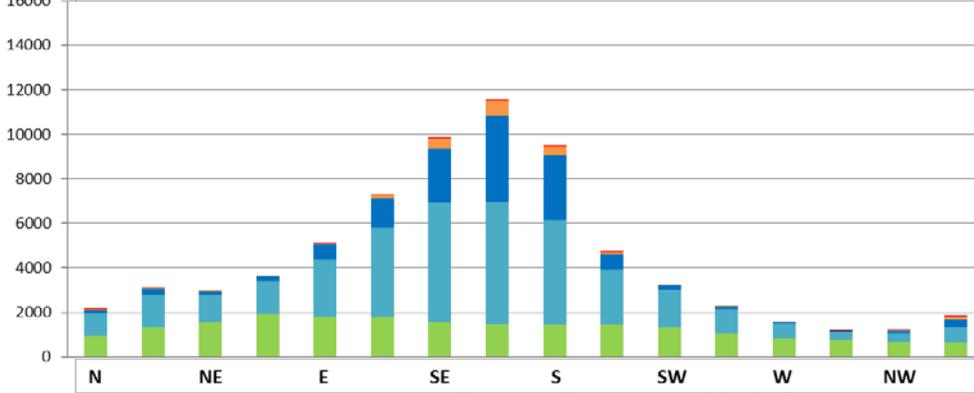
2011

- 2011 had more wind from the south and southeast than 2012 and 2013.
- 2012 and 2013 had more wind from the northeast and east.



2012

- 2011 had more frequency of wind speeds greater than 10 mph compared to 2012 and 2013.



2013

- 2012 had more winds frequency of wind speeds slower than 10 mph.

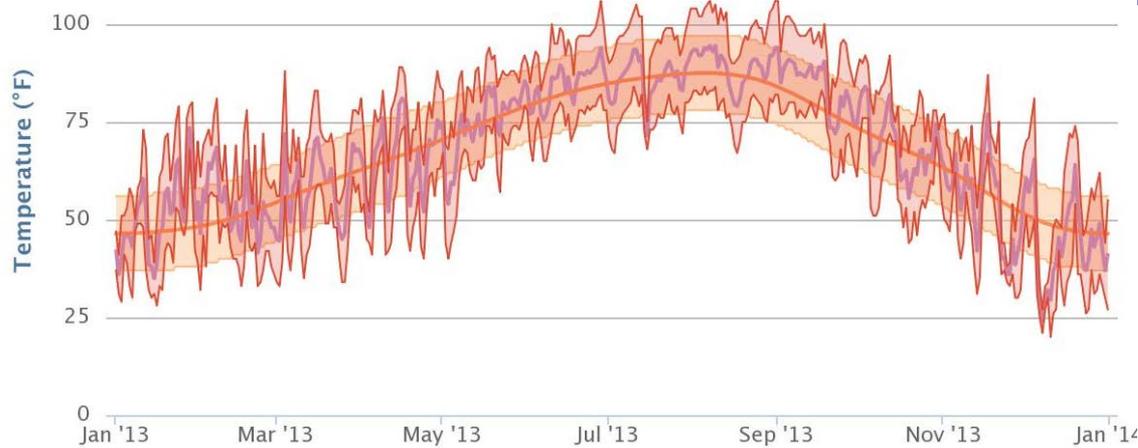
Percentage of frequency by Wind Speed

	< 5 mph	5 - 10 mph	10 - 15 mph	15 - 20 mph	25 - 25 mph	≥ 25 mph
2011	27.56%	44.37%	22.44%	4.87%	0.67%	0.08%
2012	34.56%	50.73%	13.22%	1.40%	0.09%	0.00%
2013	28.78%	48.86%	18.99%	3.03%	0.30%	0.03%

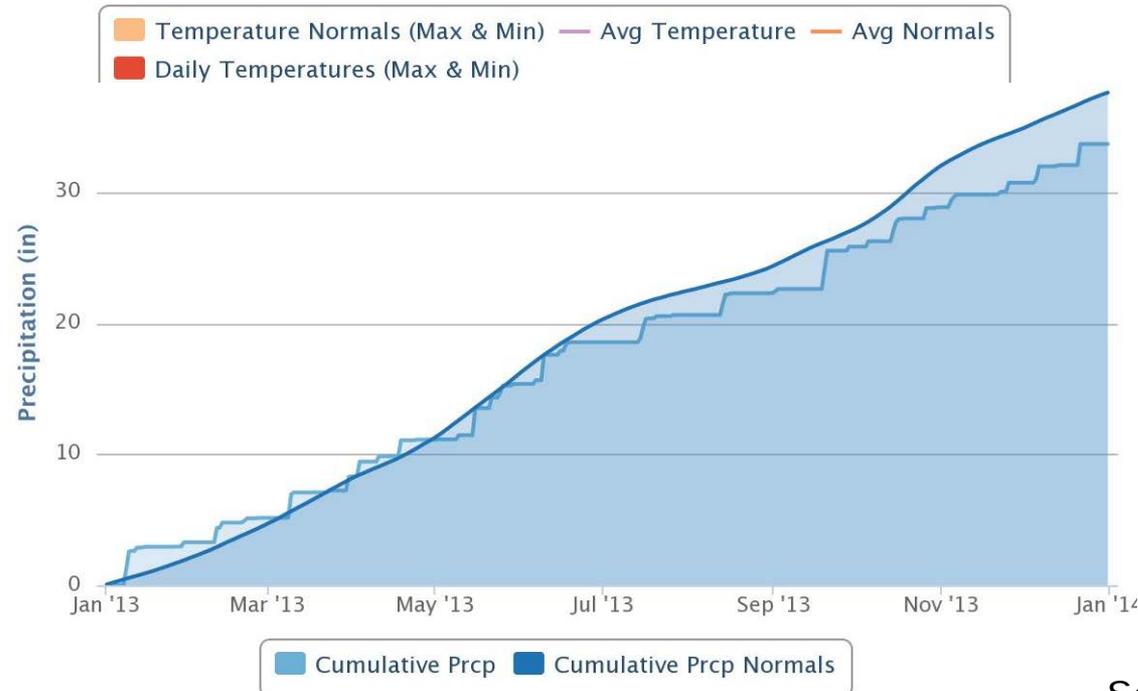




# DFW Temperatures in 2013



- Temperatures were above average in parts of February, March, April, September and October.

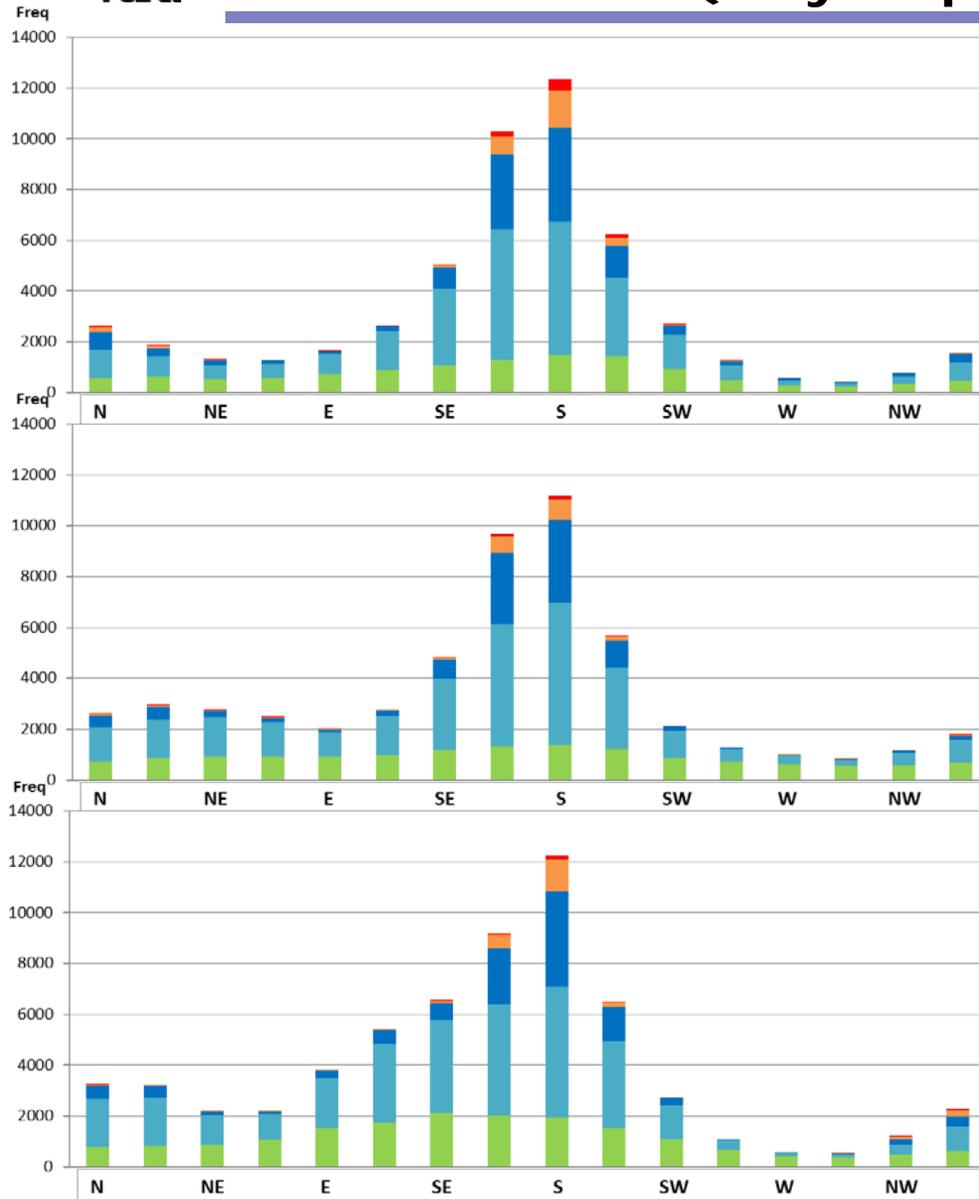


- Temperatures were below average in parts of March, April, May and October.
- Rainfall was about average throughout the year.

Source: Southern Region Climate Center



# DFW Daytime Winds (May-Sept, 7am-7pm)



- 2011
  - 2013 had more winds from the east to southeast.
  - 2011 had more frequency of wind speeds greater than 20 mph compared to 2012 and 2013.
- 2012
  - 2012 and 2013 had more winds frequency of wind speeds slower than 10 mph.

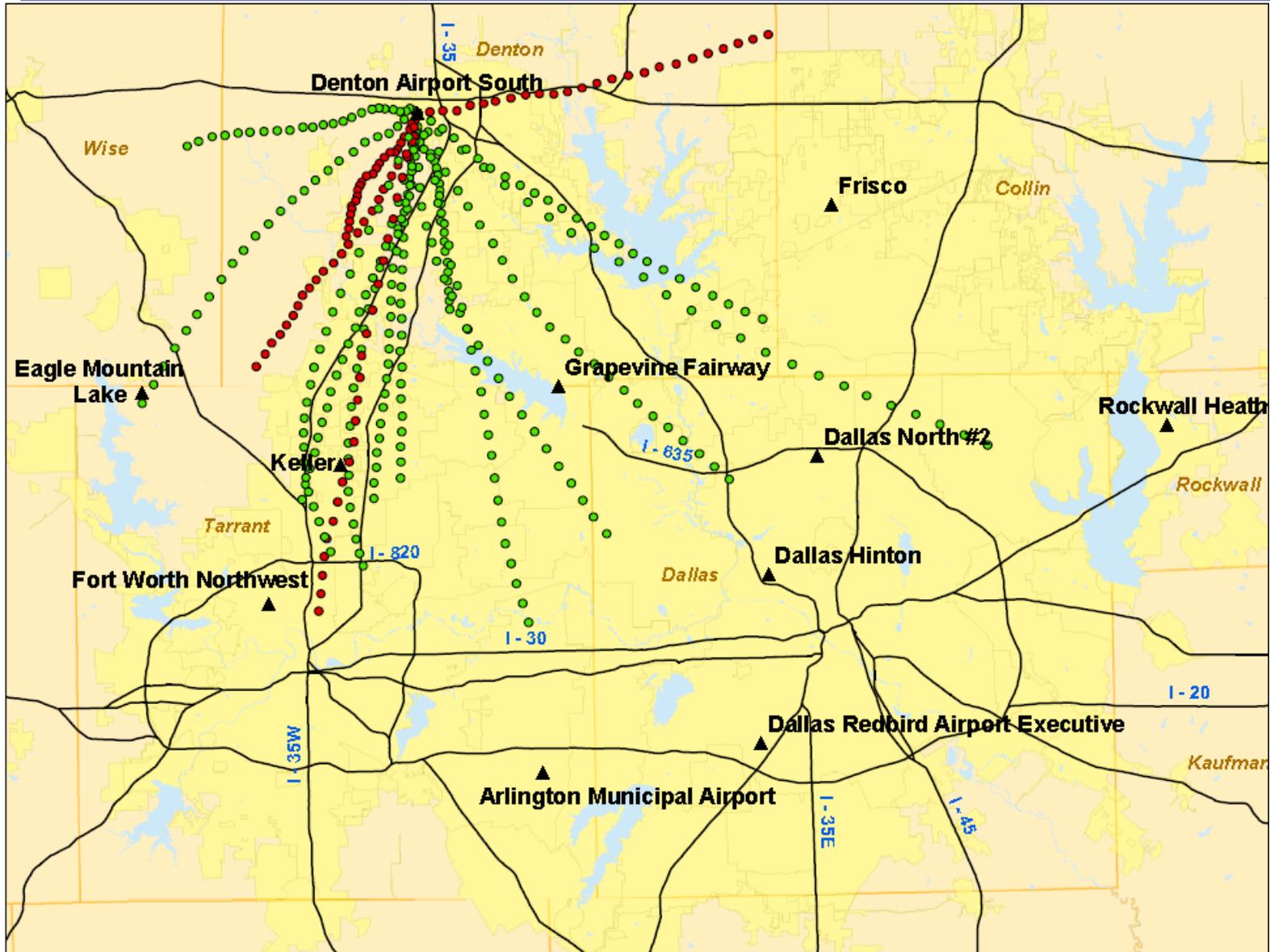
Percentage of frequency by Wind Speed

	< 5 mph	5 - 10 mph	10 - 15 mph	15 - 20 mph	25 - 25 mph	≥ 25 mph
2011	22.67%	47.95%	21.83%	6.00%	1.49%	0.06%
2012	26.36%	51.39%	18.26%	3.52%	0.44%	0.02%
2013	28.68%	49.37%	17.62%	3.87%	0.44%	0.01%



# DFW 2-Hr Surface Back Trajectories

## Days where 8-Hr Ozone > 75 ppb





# Summary

---

- HGB, DFW, SAN and NETX have a current ozone design value above 75 ppb.
- Most areas have been decreasing in ozone design value since 2011.
- HGB is currently meeting the 1-Hr standard of 124 ppb.
- Drought conditions have improved compared to last year.
- Temperatures were above average in parts of the spring and late winter in HGB and DFW.
- Precipitation was lower than average in HGB but close to average in the DFW area.



## Summary (cont.)

---

- 2011 had more frequency of faster winds while 2012 and 2013 had more frequency of slower winds in the HGB and DFW areas.
- On days where Manvel Croix Park observed 8-Hr Ozone > 75 ppb in the HGB area, wind came primarily from the northwest
- On days where Denton Airport South observed 8-Hr Ozone > 75 ppb in the DFW area, wind came from the southwest to southeast