2012 Calendar

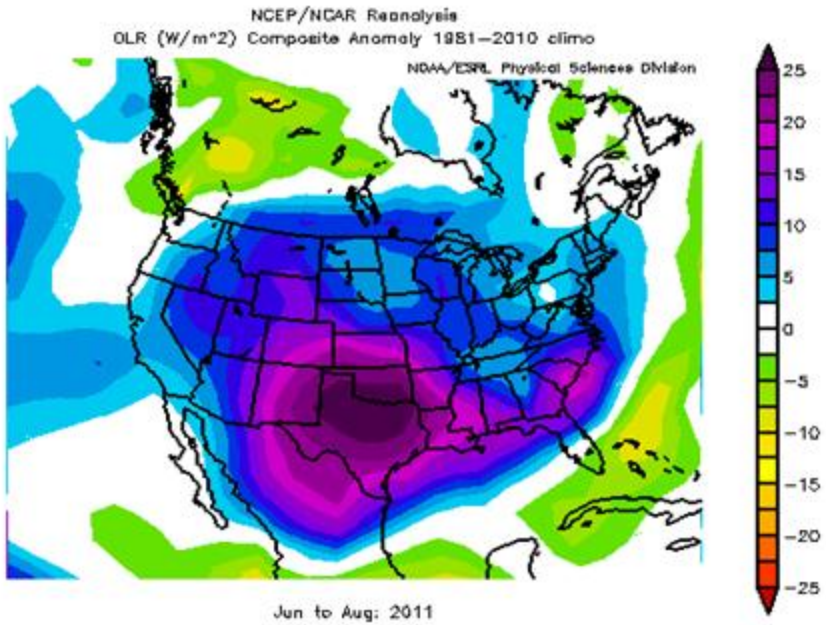
The National Weather Service in Lubbock, Texas

Drought: a repeating natural event over the Southern Plains

Texans have become quite familiar with Drought in recent years. Drought is a naturally occurring event, and it tends to repeat, as illustrated by the above chart showing frequency of various drought levels in Texas. Defining drought, however, isn't easy. Effects on people, their activities, and natural processes are different. The broadest definition of drought is simply a shortage of water over some period of time. But a precise definition of drought remains elusive.

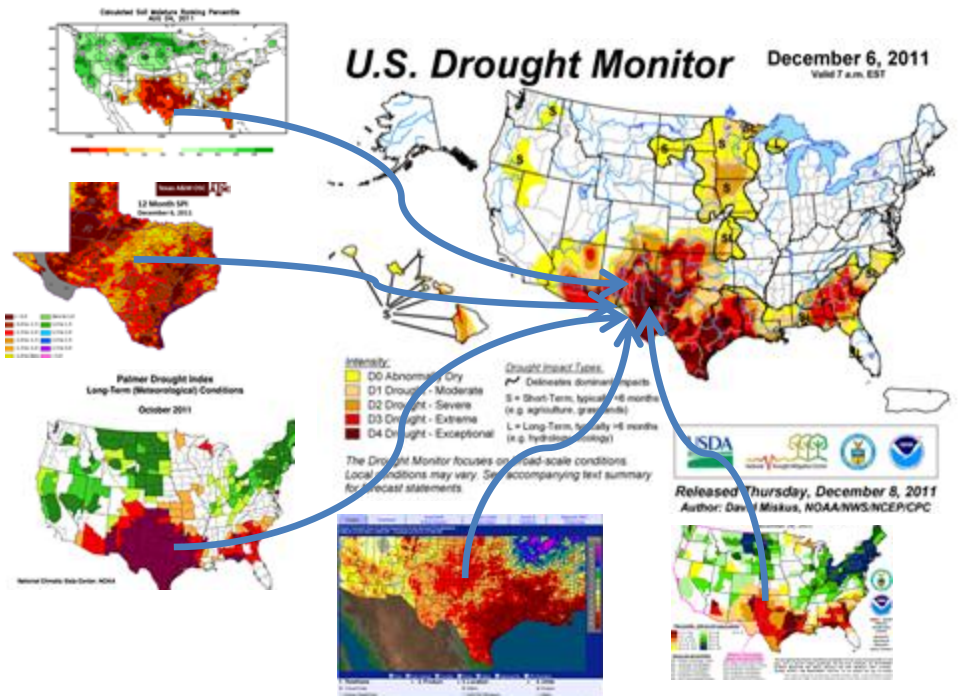
Drought can be long term, lasting years or decades – and in some cases drought may have been responsible for mass human migration. Short term drought persists for weeks or months. And *Flash Drought* can arise over just a few hot, windy days, damaging crops at critical development stages. Drought can be meteorological, hydrological, agricultural, and even human caused, such as when river flow is diminished or diverted.

The Exceptional Drought of 2010-2011



Rain failed the Southern Plains from late 2010 through most of 2011 – threatening to make 2011 the driest calendar year ever for the state of Texas. 2011 was a La Niña year – a pattern that favors mild and dry conditions in the winter and early spring over Texas – but La Niña ended by late April. Other factors very well contributed to the record Southern Plains drought. Here is one ingredient: an over-abundance of outgoing long-wave radiation (OLR) from June through August indicating tremendous surface heating. The massive "heat dome" that developed likely voided moisture flow to our area.

The U.S. Drought Monitor displays current drought conditions on a single map using colors to depict 5 levels of drought. Data from multiple sources is combined with expert input at local, state, and national levels. Weekly updates are on-line at http://droughtmonitor.unl.edu/



Lubbock National Weather Service

January 2012

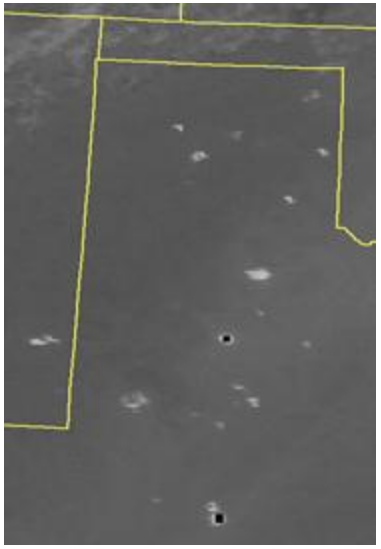
WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 Normals: 53 / 26 0.02 76-1997 / -2-1919 Lubbock Records sr 752 am - sunrise ss 550 pm - sunset New Year's Day First Quarter	**2** 53 / 26 0.02 77-2009 / -2-1979 sr 752 am ss 551 pm	**3** 53 / 26 0.01 83-2006 / -2-1947 sr 752 am ss 552 pm Quadrantids Meteor Shower (Jan 3-4)	**4** 53 / 26 0.02 76-1918 / -9-1947 sr 752 am ss 552 pm	**5** 53 / 26 0.02 82-1927 / -4-1971 sr 752 am ss 553 pm	**6** 53 / 26 0.02 79-1927 / 0-1971 sr 753 am ss 554 pm	**7** 53 / 26 0.02 80-2006 / 6-1968 sr 753 am ss 555 pm
8 53 / 26 0.02 82-1969 / 3-1967 sr 753 am ss 556 pm	**9** 53 / 26 0.02 79-2002 / 2-1920 sr 753 am ss 557 pm Full Moon	**10** 53 / 26 0.01 76-1928 / -10-1930 sr 753 am ss 557 pm	**11** 54 / 26 0.02 76-1911 / -7-1918 sr 752 am ss 558 pm	**12** 54 / 26 0.02 77-1953 / -10-1918 sr 752 am ss 559 pm	**13** 54 / 26 0.02 79-1957 / -16-1963 sr 752 am ss 600 pm	**14** 54 / 26 0.01 82-1928 / 3-1963 sr 752 am ss 601 pm
15 54 / 26 0.02 80-1911 / 4-1963 sr 752 am ss 602 pm	**16** 54 / 26 0.02 80-1974 / 6-1930 sr 752 am ss 603 pm Martin Luther King Jr. Day (Observed) Last Quarter	**17** 54 / 26 0.02 87-1914 / -2-1930 sr 751 am ss 604 pm	**18** 54 / 26 0.03 79-1914 / -5-1930 sr 751 am ss 605 pm	**19** 54 / 26 0.02 80-2000 / 0-1963 sr 751 am ss 606 pm	**20** 54 / 27 0.02 78-1986 / 7-1940 sr 750 am ss 607 pm	**21** 55 / 27 0.02 81-1950 / -4-1918 sr 750 am ss 608 pm
22 55 / 27 0.02 79-2009 / -6-1918 sr 750 am ss 609 pm	**23** 55 / 27 0.03 83-1972 / 3-1983 sr 749 am ss 610 pm New Moon	**24** 55 / 27 0.02 83-1970 / -1-1915 sr 749 am ss 611 pm	**25** 55 / 27 0.03 79-1952 / 7-1940 sr 748 am ss 612 pm	**26** 55 / 27 0.02 78-1975 / 7-1966 sr 748 am ss 613 pm	**27** 55 / 27 0.03 78-1970 / 5-1925 sr 747 am ss 614 pm	**28** 55 / 27 0.02 80-2003 / 8-1948 sr 747 am ss 614 pm
29 56 / 27 0.03 80-1911 / 1-1948 sr 746 am ss 615 pm	**30** 56 / 27 0.02 80-1967 / 6-1951 sr 745 am ss 616 pm First Quarter	**31** 56 / 28 0.03 84-1911 / 2-1985 sr 745 am ss 617 pm				NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES: Lubbock 162.400 Dimmitt 162.500 Plainview 162.450 Childress 162.525 Dickens 162.500

"The wind hit and the prairie exploded in fire…an unnatural wind that blew shrapnel-like debris on the west windows. I didn't think it was that close when actually, it was everywhere" Linda Roy – El Matador Hunting Lodge – Motley County Tribune.

On Sunday, February 27, 2011 – one of the most violent wildfire outbreaks to ever impact west Texas burned hundreds of thousands of acres and destroyed dozens of homes. In all, 36 wildfires scorched 284,911 acres across eastern New Mexico, west Texas, and western Oklahoma. More than 200 structures were burned, one life was lost, and four people were injured. What caused this incredible firestorm?

The phenomenon we witnessed on that Sunday was a classic Southern Plains Wildfire Outbreak. These extreme fire-weather episodes are associated with the passage of a potent winter or spring-time storm that brings strong downslope westerly winds off the southern Rockies and ushers in very dry and warm air over the plains. Although these storms commonly bring high winds and blowing dust, when wind fields align with above normal temperatures on top of heavy drought-stricken vegetation, these systems can unleash a firestorm in plain's grasslands.



Infrared satellite imagery detecting many massive wildfires (shown in white and/or black) burning across west Texas on February 27, 2011.

Unfortunately, the February 27th firestorm was the first of eight such events that occurred during the historic 2011 Texas fire season which saw approximately four million acres burn statewide.

Example of a Southern Plains Wildfire Outbreak weather pattern

Lubbock National Weather Service

February 2012

WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1 Normals: 56 / 28 0.03 83-1963 / -7-1951 Lubbock Records sr 744 am - sunrise ss 618 pm - sunset	**2** 56 / 28 0.02 80-2003 / -4-1951 sr 743 am ss 619 pm Groundhog Day	**3** 56 / 28 0.03 80-1934 / 4-1972 sr 743 am ss 620 pm	**4** 57 / 28 0.02 82-1925 / 3-1989 sr 742 am ss 621 pm
5 57 / 28 0.03 81-1937 / 3-1982 sr 741 am ss 622 pm	**6** 57 / 28 0.02 80-2009 / 4-1956 sr 740 am ss 623 pm	**7** 57 / 29 0.03 84-1918 / -3-1933 sr 739 am ss 624 pm Full Moon	**8** 57 / 29 0.03 83-1951 / -17-1933 (all-time) sr 739 am ss 625 pm	**9** 58 / 29 0.03 83-1976 / 0-1933 sr 738 am ss 626 pm	**10** 58 / 29 0.03 84-1962 / 1-1929 sr 737 am ss 627 pm	**11** 58 / 29 0.03 85-1962 / 6-1981 sr 736 am ss 628 pm
12 58 / 29 0.02 86-1962 / 9-1958 sr 735 am ss 629 pm	**13** 59 / 30 0.03 81-1979 / 7-1963 sr 734 am ss 630 pm	**14** 59 / 30 0.03 87-1979 / 12-2004 sr 733 am ss 631 pm Valentine's Day Last Quarter	**15** 59 / 30 0.02 83-1945 / 8-1951 sr 732 am ss 632 pm	**16** 59 / 30 0.03 85-2011 / 13-1979 sr 731 am ss 633 pm	**17** 59 / 31 0.03 85-1970 / 0-1978 sr 730 am ss 633 pm	**18** 60 / 31 0.02 83-1996 / -2-1978 sr 729 am ss 634 pm
19 60 / 31 0.03 83-1986 / 2-1978 sr 728 am ss 635 pm	**20** 60 / 31 0.03 82-1996 / 4-1918 sr 727 am ss 636 pm Presidents' Day	**21** 61 / 31 0.02 84-1996 / 6-1964 sr 726 am ss 637 pm New Moon	**22** 61 / 32 0.03 87-1996 / 12-1911 sr 725 am ss 638 pm Ash Wednesday	**23** 61 / 32 0.02 85-2009 / 9-1914 sr 723 am ss 639 pm	**24** 61 / 32 0.03 89-1918 / 1-1960 sr 722 am ss 640 pm	**25** 61 / 32 0.02 86-1989 / -8-1960 sr 721 am ss 640 pm
26 62 / 33 0.03 85-1918 / 8-1935 sr 720 am ss 641 pm	**27** 62 / 33 0.03 81-2006 / 10-1934 sr 719 am ss 642 pm	**28** 62 / 33 0.03 89-2006 / 7-1962 sr 718 am ss 643 pm	**29** 62 / 33 0.03 87-1940 / 14-1960 sr 716 am ss 634 pm First Quarter		NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES: Lubbock 162.400 Dimmitt 162.500 Plainview 162.450 Childress 162.525 Dickens 162.500	

Severe Weather Awareness Week

NWS Cooperative Observer Program (COOP)

Lubbock NWS COOP observer Neoma Williams received the 25-year Length of Service Award from Lubbock Meteorologist-In-Charge (MIC) Justin Weaver and Senior Service Hydrologist (SSH) John Lipe.

Lubbock NWS COOP observer Kerry Siders received the 10-year Length of Service Award from Lubbock NWS volunteer Jennifer Daniel and Forecaster Shawn Ellis.

Lubbock NWS COOP observer "JK" Adams and his wife received the 35-year Length of Service Award.

The National Weather Service (NWS) Cooperative Observer Program (COOP) is truly the nation's weather and climate observing network of, by, and for the people. The COOP was formally created in 1890 under the Organic Act. More than 11,000 volunteers take observations on farms, in urban and suburban areas, in National Parks, on seashores, and on mountain tops. The data are representative of the places people live, work and play.

The NWS Lubbock COOP program has about 40 observers that collect valuable meteorological data every day, with dozens more that send in information when it rains, sleets or snows. These data are widely used by surrounding NWS offices, River Forecast Centers at Tulsa, OK, and Fort Worth, TX, and the National Climatic Data Center (NCDC).

NWS Lubbock would like to express our sincere appreciation to the many COOP observers who provide these important services.

Lubbock NWS COOP observer Joe (Buzz) Thacker received a 50-year Length of Service Award from Lubbock MIC Justin Weaver and SSH John Lipe.

Lubbock NWS COOP observer Larry Don Moore Jr. and his father (not pictured) received a 20-year Length of Service Award from Lubbock MIC Justin Weaver and SSH John Lipe.

Lubbock NWS COOP observer Frankie McAlpin received a 15-year Length of Service Award from Lubbock SSH John Lipe.

Lubbock NWS COOP observer Elsie Hesterlee received a certificate of appreciation for almost 19 years of service. The certificate was presented by Lubbock SSH John Lipe and Intern Andrew Pritchett.

Lubbock National Weather Service

March 2012

WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES: Lubbock 162.400 Dimmitt 162.500 Plainview 162.450 Childress 162.525 Dickens 162.500		**1** Normals: 63 / 33 0.03 89-2006 / 5-1922 Lubbock Records sr 715 am - sunrise ss 645 pm – sunset	**2** 63 / 34 0.03 86-1974 / -2-1922 sr 714 am ss 645 pm	**3** 63 / 34 0.03 88-2009 / 7-1943 sr 713 am ss 646 pm
4 63 / 34 0.03 89-2009 / -1-1917 sr 711 am ss 647 pm	**5** 64 / 34 0.04 90-1916 / 11-1989 sr 710 am ss 648 pm	**6** 64 / 35 0.03 87-1934 / 10-1943 sr 709 am ss 649 pm	**7** 64 / 35 0.03 88-2006 / 11-1996 sr 708 am ss 650 pm	**8** 64 / 35 0.03 87-1918 / 12-1967 sr 706 am ss 650 pm Full Moon	**9** 65 / 35 0.04 88-1911 / 13-1969 sr 705 am ss 651 pm	**10** 65 / 36 0.03 88-1911 / 4-1948 sr 704 am ss 652 pm
11 65 / 36 0.03 95-1989 / 2-1948 sr 802 am ss 753 pm Daylight Saving Time begins	**12** 66 / 36 0.04 94-1989 / 10-1948 sr 801 am ss 753 pm	**13** 66 / 36 0.03 91-1916 / 12-1950 sr 800 am ss 754 pm	**14** 66 / 37 0.04 86-1972 / 13-1954 sr 759 am ss 755 pm Last Quarter	**15** 66 / 37 0.03 86-1966 / 17-1947 sr 757 am ss 756 pm	**16** 67 / 37 0.04 87-1966 / 16-1923 sr 756 am ss 756 pm	**17** 67 / 37 0.03 90-2011 / 18-1970 sr 755 am ss 757 pm St. Patrick's Day
18 67 / 37 0.04 88-1916 / 11-1923 sr 753 am ss 757 pm	**19** 68 / 38 0.04 87-1995 / 11-1923 sr 752 am ss 759 pm	**20** 68 / 38 0.03 90-1916 / 8-1965 sr 750 am ss 800 pm Spring Equinox (12:14 am)	**21** 68 / 38 0.04 93-1997 / 17-1983 sr 749 am ss 800 pm	**22** 68 / 38 0.04 86-1935 / 18-1952 sr 748 am ss 801 pm New Moon	**23** 69 / 39 0.04 84-2009 / 13-1952 sr 746 am ss 802 pm	**24** 69 / 39 0.04 88-1929 / 22-1965 sr 745 am ss 803 pm
25 69 / 39 0.04 90-1998 / 20-1996 sr 744 am ss 803 pm	**26** 70 / 40 0.04 88-1956 / 16-1965 sr 742 am ss 804 pm	**27** 70 / 40 0.04 94-1971 / 12-1931 sr 741 am ss 805 pm	**28** 70 / 40 0.04 90-1963 / 16-1931 sr 740 am ss 805 pm	**29** 70 / 40 0.04 89-1967 / 18-1944 sr 738 am ss 806 pm	**30** 71 / 41 0.03 91-2010 / 16-1987 sr 737 am ss 806 pm First Quarter	**31** 71 / 41 0.04 95-1946 / 19-1931 sr 736 am ss 807 pm

Flood Safety Awareness Week

Weather Radar

Origin

During World War II, radar operators discovered that weather caused echoes on their screen, and potentially masked enemy targets. Although a hindrance during the war, this technology was quickly exploited by the weather community to detect **precipitation location** and **intensity**. Specifically, the WSR-57 (Weather Surveillance Radar-1957) and later the WSR-74 were developed.

Picture of a WSR-57 antenna

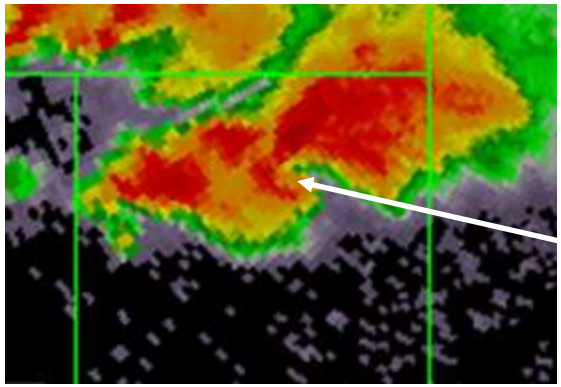
Doppler Radar

In the 1960s and 1970s, Doppler weather radar was developed and fine-tuned. In addition to detecting the location and intensity of precipitation, Doppler radar was able to measure if particles were **moving toward** or **away** from the radar, and at what **speed**. This technology helped provide a much more detailed picture of the structure of thunderstorms, and led to improvements in tornado detection and tornado warning lead times. The Doppler radar used by the NWS is the WSR-88D, which was deployed across the nation in the early/mid 1990s.

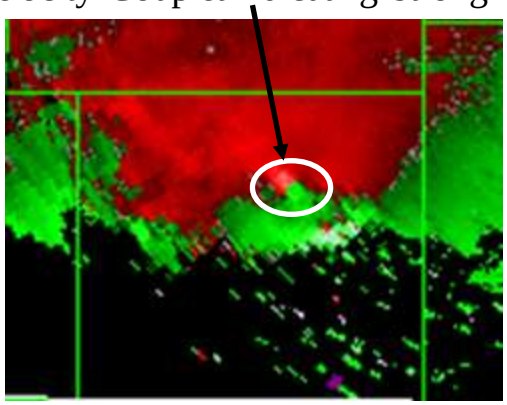
WSR-88D Radome (above) and reflectivity (left) and velocity (right) images below

Dual-Pol Radar

Over the next two years the current radar systems across the U.S. will be upgraded to include Dual-Polarization (Dual-Pol). Dual-Pol radars will have the added ability to sense both the **horizontal** and **vertical dimensions** of the targets, as opposed to just the horizontal, like in the past. This added capability will result in significant improvements in the estimation of precipitation rates, the ability to discriminate between precipitation types (hail vs. rain) and the identification of non-meteorological returns (like birds, etc.).



Velocity Couplet indicating strong rotation



Phased-Array Radar

Phased-Array radars are currently being researched and developed. They will scan the skies using a flat plate antenna that is electronically controlled. This will allow for much greater flexibility in scanning strategies, including much quicker scan times and more effective low-level scanning.

April 2012

Lubbock National Weather Service

WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 Normals: 71 / 41 0.04 96-1946 / 22-1948 Lubbock Records sr 734 am - sunrise ss 808 pm - sunset April Fool's Day	**2** 72 / 41 0.04 92-2011 / 20-1936 sr 733 am ss 809 pm	**3** 72 / 42 0.04 94-2011 / 26-1975 sr 732 am ss 810 pm	**4** 72 / 42 0.04 92-1928 / 18-1920 sr 730 am ss 811 pm	**5** 72 / 42 0.04 92-2006 / 21-1917 sr 729 am ss 811 pm	**6** 73 / 43 0.04 96-1972 / 21-1936 sr 728 am ss 812 pm Full Moon	**7** 73 / 43 0.04 93-1930 / 21-1936 sr 727 am ss 813 pm
8 73 / 43 0.05 91-1930 / 23-1938 sr 725 am ss 814 pm Easter	**9** 74 / 44 0.04 94-1939 / 23-1973 sr 724 am ss 814 pm	**10** 74 / 44 0.04 93-1972 / 26-1952 sr 723 am ss 815 pm	**11** 74 / 44 0.04 94-1972 / 25-1932 sr 721 am ss 816 pm	**12** 74 / 44 0.04 96-1972 / 22-1997 sr 720 am ss 817 pm	**13** 75 / 45 0.05 91-2006 / 26-1957 sr 719 am ss 817 pm Last Quarter	**14** 75 / 45 0.04 93-2006 / 27-1933 sr 718 am ss 818 pm
15 75 / 45 0.04 92-2006 / 25-1928 sr 716 am ss 819 pm	**16** 76 / 46 0.05 100-1925 / 31-1947 sr 715 am ss 820 pm	**17** 76 / 46 0.05 94-2006 / 23-1921 sr 714 am ss 820 pm	**18** 76 / 47 0.04 96-1987 / 29-1953 sr 713 am ss 821 pm	**19** 76 / 47 0.05 92-2001 / 31-1922 sr 712 am ss 822 pm	**20** 77 / 47 0.05 93-1925 / 30-1933 sr 710 am sr 823 pm	**21** 77 / 48 0.04 98-1989 / 28-1918 sr 709 am ss 823 pm Lynids Meteor Shower (Apr 21-22) New Moon
22 77 / 48 0.06 100-1989 / 29-1927 sr 708 am ss 824 pm Earth Day	**23** 78 / 48 0.05 97-1989 / 30-1928 sr 707 am ss 825 pm	**24** 78 / 49 0.05 95-1996 / 30-1968 sr 706 am ss 826 pm	**25** 78 / 49 0.06 96-1959 / 35-1927 sr 705 am ss 826 pm	**26** 78 / 49 0.05 96-1943 / 29-1947 sr 704 am ss 827 pm	**27** 79 / 50 0.06 97-1996 / 27-1920 sr 703 am ss 828 pm	**28** 79 / 50 0.06 94-1992 / 35-1994 sr 702 am ss 829 pm
29 79 / 50 0.06 97-2011 / 31-1968 sr 701 am ss 829 pm First Quarter	**30** 80 / 51 0.06 93-2008 / 33-1918 sr 700 am ss 830 pm		NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES: Lubbock 162.400 Dimmitt 162.500 Plainview 162.450 Childress 162.525 Dickens 162.500		NATIONAL WEATHER SERVICE	

Number of Reported Tornadoes - 1950 to 2011

Parmer	***Castro***	***Swisher***	***Briscoe***	***Hall***	***Childress***
Total 48	Total 57	Total 66	Total 42	Total 45	Total 25
F3+ 3	F3+ 1	F3+ 5	F3+ 3	F3+ 2	F3+ 0
Bailey	***Lamb***	***Hale***	***Floyd***	***Motley***	***Cottle***
Total 50	Total 82	Total 123	Total 53	Total 21	Total 26
F3+ 2	F3+ 7	F3+ 3	F3+ 3	F3+ 2	F3+ 1
Cochran	***Hockley***	***Lubbock***	***Crosby***	***Dickens***	***King***
Total 28	Total 57	Total 91	Total 51	Total 31	Total 19
F3+ 1	F3+ 6	F3+ 3	F3+ 2	F3+ 1	F3+ 0
		F5 1			
Yoakum	***Terry***	***Lynn***	***Garza***	***Kent***	***Stonewall***
Total 25	Total 31	Total 42	Total 19	Total 22	Total 22
F3+ 0	F3+ 0	F3+ 1	F3+ 0	F3+ 0	F3+ 0

Lubbock National Weather Service

May 2012

WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		Normals: 80 / 51 0.05 **1** 96-1992 / 32-1970 Lubbock Records sr 659 am - sunrise ss 831 pm – sunset	80 / 51 0.06 **2** 97-1943 / 30-1967 sr 658 am ss 832 pm	80 / 52 0.05 **3** 98-1996 / 30-1918 sr 657 am ss 832 pm	81 / 52 0.06 **4** 104-1947 / 35-1935 sr 656 am ss 833 pm	81 / 52 0.05 **5** 99-1940 / 34-1953 sr 655 am ss 834 pm Cinco De Mayo Full Moon
81 / 53 0.06 **6** 99-2000 / 32-1917 sr 654 am ss 835 pm	81 / 53 0.05 **7** 100-2009 / 29-1917 sr 653 am ss 836 pm	82 / 53 0.06 **8** 102-1989 / 31-1938 sr 652 am ss 836 pm	82 / 54 0.06 **9** 97-2011 / 38-1961 sr 651 am ss 837 pm	82 / 54 0.06 **10** 99-2000 / 33-1918 sr 650 am ss 838 pm	83 / 54 0.07 **11** 101-2000 / 37-1930 sr 650 am ss 839 pm	83 / 55 0.06 **12** 98-1962 / 35-1960 sr 649 am ss 839 pm Last Quarter
83 / 55 0.08 **13** 100-2006 / 37-1971 sr 648 am ss 840 pm Mother's Day	83 / 55 0.07 **14** 100-1996 / 35-1953 sr 647 am ss 841 pm	84 / 56 0.06 **15** 103-1996 / 34-1967 sr 647 am ss 842 pm	84 / 56 0.07 **16** 102-1996 / 37-1945 sr 646 am ss 842 pm	84 / 56 0.08 **17** 101-1996 / 41-1986 sr 645 am ss 843 pm	84 / 57 0.08 **18** 103-2003 / 42-1916 sr 645 am ss 844 pm	85 / 57 0.08 **19** 105-1996 / 42-1971 sr 644 am ss 844 pm
85 / 57 0.08 **20** 102-2006 / 40-1931 sr 643 am ss 845 pm New Moon Annular Solar Eclipse	85 / 58 0.09 **21** 101-1989 / 39-1967 sr 643 am ss 846 pm	85 / 58 0.09 **22** 105-1996 / 40-1931 sr 642 am ss 847 pm	86 / 58 0.09 **23** 105-2000 / 45-1917 sr 642 am ss 847 pm	86 / 58 0.09 **24** 109-2000 / 40-1930 sr 641 am ss 848 pm	86 / 59 0.09 **25** 101-1953 / 44-1924 sr 641 am ss 849 pm	86 / 59 0.09 **26** 101-1945 / 43-1950 sr 640 am ss 849 pm
86 / 59 0.08 **27** 103-1984 / 48-1961 sr 640 am ss 850 pm	87 / 60 0.10 **28** 104-2011 / 43-1917 sr 640 am ss 850 pm Memorial Day First Quarter	87 / 60 0.10 **29** 104-2011 / 38-1947 sr 639 am ss 851 pm	87 / 60 0.09 **30** 103-1998 / 45-1983 sr 639 am ss 852 pm	87 / 61 0.10 **31** 102-1916 / 43-1983 sr 639 am ss 852 pm		NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES: Lubbock 162.400 Dimmitt 162.500 Plainview 162.450 Childress 162.525 Dickens 162.500

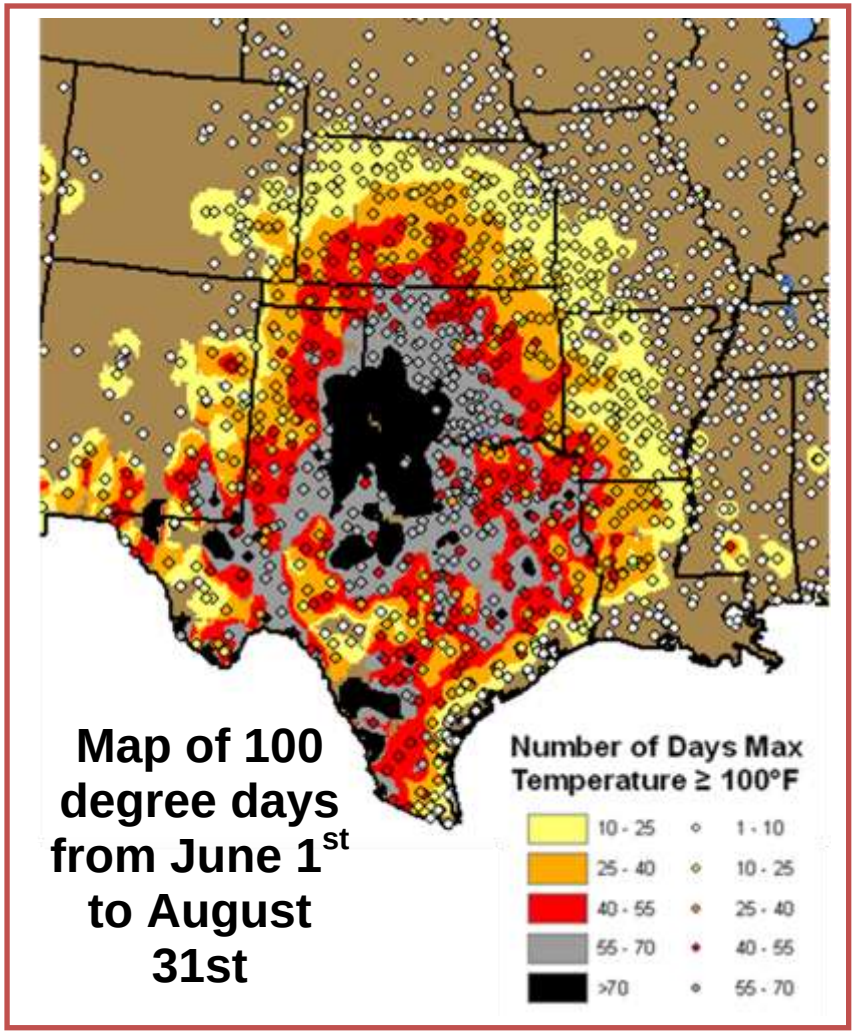
One for the record books: The heat wave of 2011

As 2011 begun, there were no hints of the extreme heat to come. In fact, in early February an arctic air mass brought the coldest temperatures in several years to the South Plains region. High temperatures were well below normal, and only reached the single digits and teens for a couple of days. However by spring, those cold days were a distant memory, and above normal temperatures returned for most locations during the months of March, April and May. This was nothing though compared to the extreme heat which would engulf the area from June through August. In short, this three-month period was the hottest in recorded history, and not by a small margin. The South Plains area was not alone as, on average, Texas and Oklahoma both experienced their hottest summers ever recorded. And across the United States, almost 9,000 daily heat records were broken or tied in July alone.

Just a few of the records from the heat wave:

- 117°F at Childress on June 26 was the hottest day on record (since 1893)
- 112°F at Lubbock on June 26 was the hottest day since June 27, 1994 and the second hottest day on record
- Using average daily temperatures, July was the hottest month ever on record at both Lubbock (86.0°F) and Childress (90.2°)
- Lubbock recorded 48 days of 100 degrees or higher (previous record was 29 days set in 1934)
- Lubbock and Childress both broke their records for days with lows at or above 75°F.

  27 days at Lubbock (previously 10 days)
  63 days at Childress (previously 46 days)



Map of 100 degree days from June 1st to August 31st

Heat Related Products and Dangers

- A **Heat Advisory** is issued if afternoon heat indices of 105-109 degrees and low temperatures of 75 degrees or greater are forecast to occur for at least two days.
- An **Excessive Heat Warning** is issued for afternoon heat index values of 110 degrees or greater and lows of 75 degrees or higher for at least two days.

June 2012

Lubbock National Weather Service

WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES: Lubbock 162.400 Dimmitt 162.500 Plainview 162.450 Childress 162.525 Dickens 162.500				Atlantic Hurricane Season Begins on June 1st	Normals: 88 / 61 0.11 **1** 107-1998 / 45-1964 Lubbock Records sr 638 am - sunrise ss 853 pm - sunset	88 / 61 0.10 **2** 107-1998 / 39-1917 sr 638 am ss 853 pm
88 / 61 0.11 **3** 104-1998 / 43-1919 sr 638 am ss 854 pm	89 / 62 0.12 **4** 101-2008 / 47-1970 sr 638 am ss 855 pm Full Moon	89 / 62 0.11 **5** 106-1990 / 45-1928 sr 637 am ss 855 pm	89 / 62 0.12 **6** 107-1990 / 45-1917 sr 637 am ss 856 pm	89 / 62 0.11 **7** 103-1994 / 45-1915 sr 637 am ss 856 pm	89 / 63 0.11 **8** 106-1981 / 43-1915 sr 637 am ss 857 pm	90 / 63 0.12 **9** 107-1981 / 50-1955 sr 637 am ss 857 pm
90 / 63 0.10 **10** 105-1917 / 47-1955 sr 637 am ss 857 pm	90 / 63 0.11 **11** 105-2008 / 50-1955 sr 637 am ss 858 pm Last Quarter	90 / 64 0.10 **12** 105-2001 / 53-1951 sr 637 am ss 858 pm	90 / 64 0.11 **13** 105-2011 / 52-1945 sr 637 am ss 859 pm	91 / 64 0.11 **14** 106-1939 / 44-1947 sr 637 am ss 859 pm Flag Day	91 / 64 0.10 **15** 109-1939 / 49-1927 sr 637 am ss 859 pm	91 / 65 0.10 **16** 108-2011 / 49-1981 sr 637 am ss 900 pm
91 / 65 0.10 **17** 107-1924 / 53-1999 sr 637 am ss 900 pm Father's Day	91 / 65 0.10 **18** 107-1924 / 47-1945 sr 637 am ss 900 pm	91 / 65 0.10 **19** 107-2011 / 52-1945 sr 638 am ss 900 pm New Moon	92 / 65 0.09 **20** 108-1935 / 49-1973 sr 638 am ss 901 pm Summer Solstice (12:16 pm)	92 / 66 0.10 **21** 107-1981 / 54-1973 sr 638 am ss 901 pm	92 / 66 0.10 **22** 106-1978 / 50-1927 sr 638 am ss 901 pm	92 / 66 0.09 **23** 107-1980 / 56-1964 sr 638 am ss 901 pm
92 / 66 0.09 **24** 110-1990 / 56-1957 sr 639 am ss 901 pm	92 / 66 0.10 **25** 110-2011 / 54-1940 sr 639 am ss 901 pm	92 / 66 0.08 **26** 112-2011 / 53-1958 sr 639 am ss 902 pm First Quarter	92 / 67 0.09 **27** 114-1994 / 56-1958 (all-time) sr 640 am ss 902 pm	92 / 67 0.08 **28** 108-1980 / 56-1946 sr 640 am ss 902 pm	92 / 67 0.09 **29** 107-1957 / 57-1948 sr 640 am ss 902 pm	93 / 67 0.09 **30** 106-1957 / 57-1940 sr 641 am ss 902 pm

Lightning Safety Awareness Week

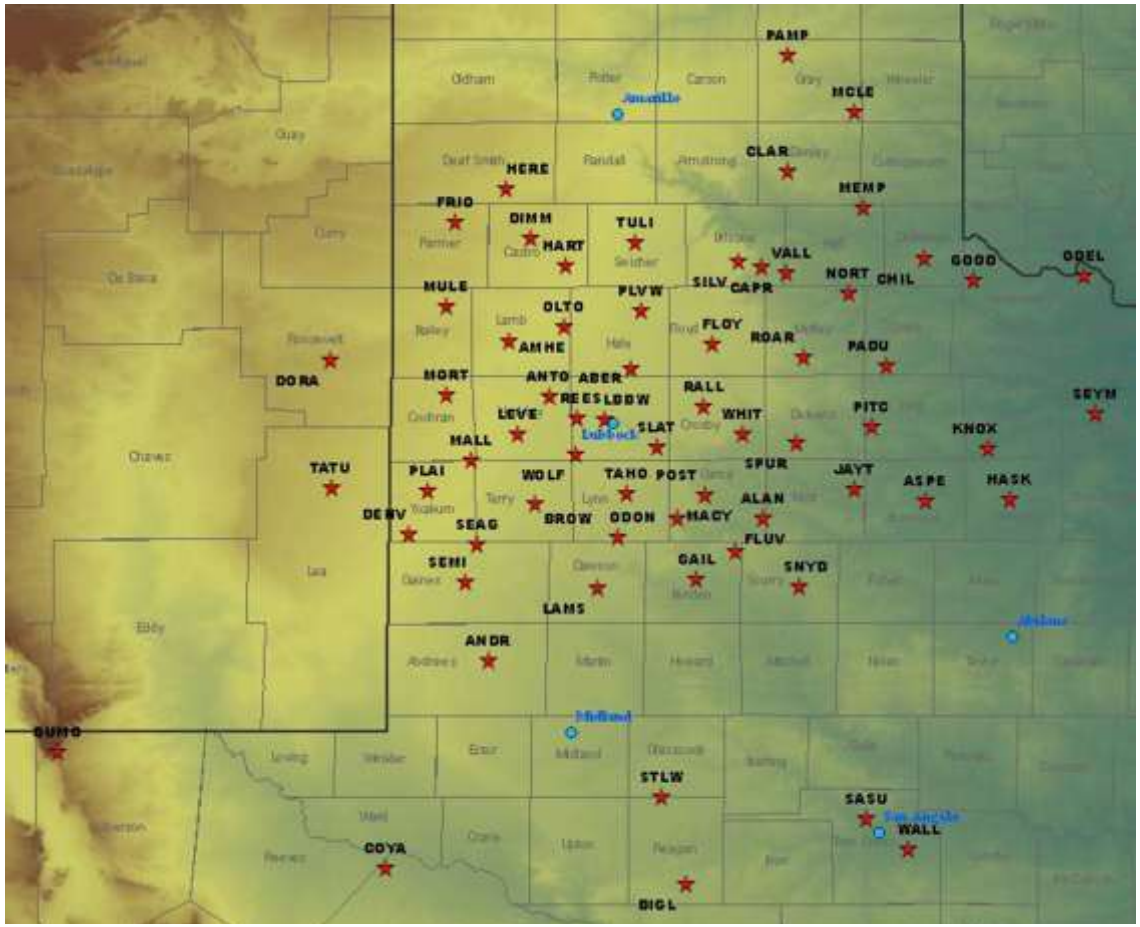
West Texas Mesonet Station located in Guadalupe National Park

West Texas Mesonet Station located on the eastern edge of the Caprock

West Texas Mesonet

(http://www.mesonet.ttu.edu/)

The West Texas Mesonet project was initiated in 1999 to provide **free real-time** weather and agricultural information for residents of the South Plains of West Texas. Over the years the project has expanded well beyond the South Plains, including two observation towers in eastern New Mexico and one at the Guadalupe Mountains National Park. To the right is a map of the West Texas domain, which includes 64 mesonet stations (red stars) as of late 2011. Every observation station collects temperature, moisture, wind, pressure, solar radiation, and precipitation data, with most sites also gathering soil temperature and moisture information at several depths.



July 2012

Lubbock National Weather Service

WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 Normals: 93 / 67 0.08 105-1994 / 56-1924 Lubbock Records sr 641 am - sunrise ss 902 pm – sunset	**2** 93 / 67 0.08 106-1989 / 56-1944 sr 642 am ss 901 pm	**3** 93 / 67 0.08 108-1983 / 54-1929 sr 642 am ss 901 pm Full Moon	**4** 93 / 67 0.07 105-1987 / 56-1924 sr 643 am ss 901 pm Independence Day	**5** 93 / 67 0.07 104-1971 / 49-1915 sr 643 am ss 901 pm	**6** 93 / 67 0.07 105-1994 / 53-1946 sr 644 am ss 901 pm	**7** 93 / 68 0.07 103-1998 / 51-1952 sr 644 am ss 901 pm
8 93 / 68 0.06 106-2009 / 51-1952 sr 645 am ss 900 pm	**9** 93 / 68 0.07 107-2009 / 56-1952 sr 645 am ss 900 pm	**10** 93 / 68 0.06 109-1940 / 58-1968 sr 646 am ss 900 pm Last Quarter	**11** 93 / 68 0.07 104-1970 / 57-1999 sr 646 am ss 900 pm	**12** 93 / 68 0.06 105-1933 / 57-1999 sr 647 am ss 859 pm	**13** 93 / 68 0.06 107-1933 / 54-1953 sr 648 am ss 859 pm	**14** 93 / 68 0.07 108-1933 / 55-1990 sr 648 am ss 858 pm
15 93 / 68 0.06 105-2001 / 58-1926 sr 649 am ss 858 pm	**16** 93 / 68 0.06 105-2001 / 58-1935 sr 649 am ss 858 pm	**17** 93 / 68 0.06 105-1989 / 59-1930 sr 650 am ss 857 pm	**18** 93 / 68 0.05 103-1978 / 60-1935 sr 651 am ss 857 pm	**19** 93 / 68 0.06 108-1936 / 55-1947 sr 651 am ss 856 pm New Moon	**20** 93 / 68 0.05 105-1936/ 59-1971 sr 652 am ss 855 pm	**21** 93 / 68 0.06 102-1966 / 57-1988 sr 653 am ss 855 pm
22 93 / 68 0.05 104-2003 / 55-1915 sr 653 am ss 854 pm	**23** 93 / 68 0.06 104-2001 / 54-1915 sr 654 am ss 854 pm	**24** 93 / 68 0.05 104-1958 / 57-1915 sr 655 am ss 853 pm	**25** 93 / 68 0.05 104-1940 / 59-1956 sr 655 am ss 852 pm	**26** 93 / 68 0.06 105-1995 / 58-1959 sr 656 am ss 852 pm First Quarter	**27** 93 / 68 0.05 106-1995 / 57-1933 sr 657 am ss 851 pm	**28** 93 / 68 0.06 105-1995 / 54-2005 sr 657 am ss 850 pm Delta Aquarids Meteor Shower (July 28-29)
29 93 / 68 0.05 102-1948 / 60-2004 sr 658 am ss 849 pm	**30** 93 / 68 0.05 104-1946 / 60-2000 sr 659 am ss 849 pm	**31** 93 / 68 0.06 104-1934 / 56-1971 sr 659 am ss 848 pm		NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES: Lubbock 162.400 Dimmitt 162.500 Plainview 162.450 Childress 162.525 Dickens 162.500		NATIONAL WEATHER SERVICE

The Tropics

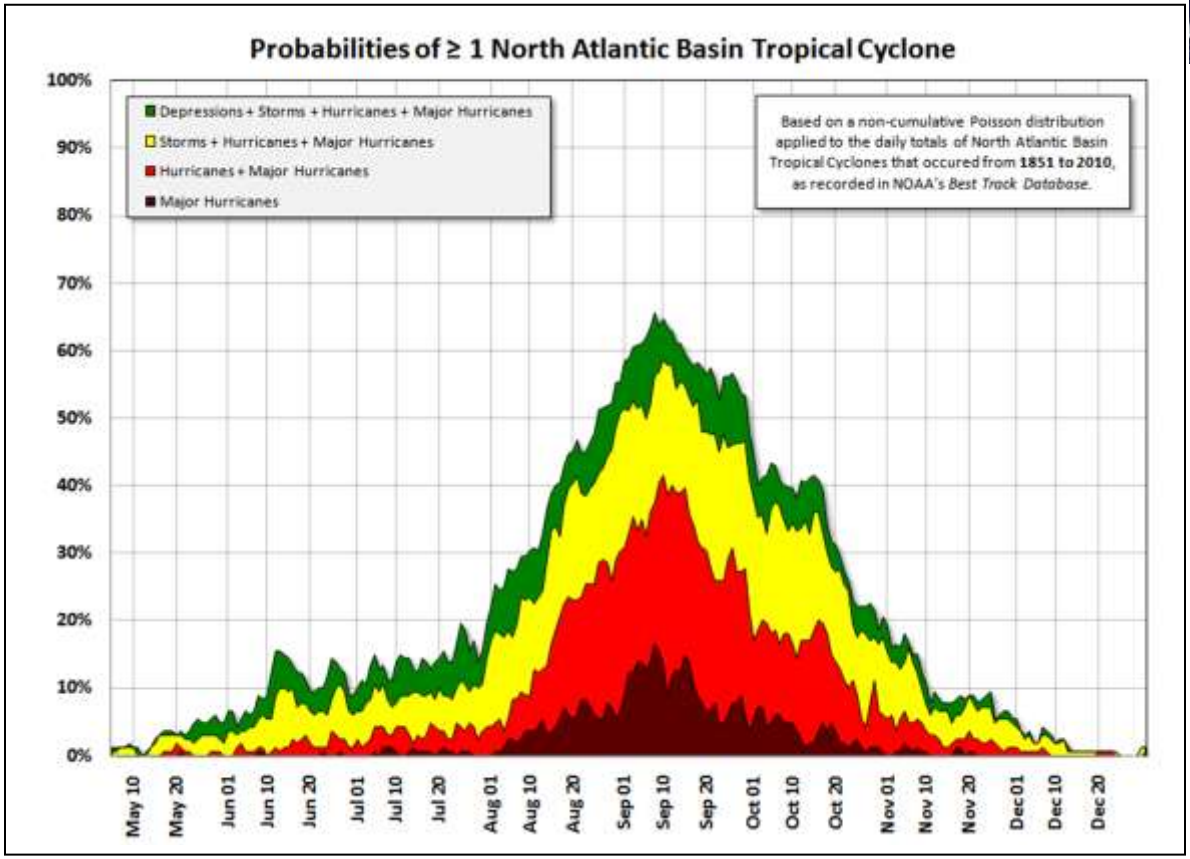
2012 Atlantic Names

Alberto	Leslie
Beryl	Michael
Chris	Nadine
Debby	Oscar
Ernesto	Patty
Florence	Rafael
Gordon	Sandy
Helene	Tony
Isaac	Valerie
Joyce	William
Kirk	

Average Atlantic Hurricane Season		Maximum Sustained Wind Speed
Named Storms	11	≥ 39 mph
Hurricanes	6	≥ 74 mph
Major Hurricanes (Category 3 or higher)	2	≥ 111 mph

2011 Texas Impacts Minimal

The 2011 Atlantic hurricane season produced 19 tropical storms, 7 hurricanes, and 3 major hurricanes. Though 2011 was tied for the 3rd most active since records began in 1851, Texas was only affected by Tropical Storm Don, which quickly fizzled and brought only light amounts of rain to the southern Texas coast in late July.



2011 United States Impacts

Hurricane Irene (above) garnered a lot of attention as it approached and moved up the east coast of the U.S. in late August. Irene brought heavy rain and strong winds to many of the population centers of the northeast, though it did weaken to a tropical storm by the time it made its third landfall in the Coney Island area of Brooklyn, New York. Still, Irene produced historic flooding in parts of Vermont.

(Left) Graph displaying the average distribution of tropical depressions, tropical storms, hurricanes and major hurricanes for the Atlantic basin. Although the official hurricane season spans from June through November, the peak of the season is from mid-August to late October. Additionally, on rare occasions, a tropical system occurs outside the official season.

August 2012

Lubbock National Weather Service

WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES: Lubbock 162.400 Dimmitt 162.500 Plainview 162.450 Childress 162.525 Dickens 162.500		Normals: 93 / 68 0.05 **1** 106-1966 / 55-1925 Lubbock Records sr 700 am - sunrise ss 847 pm – sunset Full Moon	**2** 93 / 68 0.06 105-1943 / 54-1936 sr 701 am ss 846 pm	**3** 93 / 68 0.07 107-1944 / 56-1921 sr 702 am ss 845 pm	**4** 93 / 68 0.06 105-2003 / 57-1915 sr 702 am ss 844 pm
5 92 / 68 0.07 102-2011 / 57-1915 sr 703 am ss 843 pm	**6** 92 / 68 0.06 102-2011 / 57-1990 sr 704 am ss 842 pm	**7** 92 / 68 0.06 104-2003 / 58-1971 sr 704 am ss 841 pm	**8** 92 / 68 0.06 105-2003 / 58-1990 sr 705 am ss 840 pm	**9** 92 / 68 0.07 103-2011 / 51-1946 sr 706 am ss 839 pm Last Quarter	**10** 92 / 68 0.06 104-2011 / 55-1915 sr 707 am ss 838 pm	**11** 92 / 67 0.06 103-1936 / 56-1931 sr 707 am ss 837 pm
12 92 / 67 0.05 107-1936 / 54-1979 sr 708 am ss 836 pm Perseids Meteor Shower (Aug 12-13)	**13** 92 / 67 0.06 107-1936 / 54-1920 sr 709 am ss 835 pm	**14** 92 / 67 0.06 103-1946 / 53-1920 sr 709 am ss 834 pm	**15** 92 / 67 0.06 103-1982 / 56-1920 sr 710 am ss 833 pm	**16** 92 / 67 0.06 104-1943 / 55-1931 sr 711 am ss 832 pm	**17** 92 / 67 0.06 103-1978 / 56-1931 sr 712 am ss 831 pm New Moon	**18** 91 / 67 0.06 103-1994 / 55-1943 sr 712 am ss 830 pm
19 91 / 67 0.05 103-1994 / 58-1950 sr 713 am ss 828 pm	**20** 91 / 66 0.06 103-1943 / 54-1915 sr 714 am ss 827 pm	**21** 91 / 66 0.07 103-1930 / 52-1956 sr 714 am ss 826 pm	**22** 91 / 66 0.06 100-1999 / 58-1967 sr 715 am ss 825 pm	**23** 91 / 66 0.06 101-1985 / 54-1923 sr 716 am ss 824 pm	**24** 91 / 66 0.06 101-1936 / 51-1916 sr 716 am ss 822 pm First Quarter	**25** 90 / 66 0.07 105-1936 / 54-1962 sr 717 am ss 821 pm
26 90 / 65 0.06 102-1922 / 51-2010 sr 718 am ss 820 pm	**27** 90 / 65 0.06 100-1931 / 53-1926 sr 718 am ss 819 pm	**28** 90 / 65 0.06 103-2003 / 54-1916 sr 719 am ss 817 pm	**29** 90 / 65 0.07 99-1943 / 51-1917 sr 720 am ss 816 pm	**30** 89 / 64 0.07 101-1943 / 44-1915 sr 720 am ss 815 pm	**31** 89 / 64 0.07 100-1930 / 43-1915 sr 721 am ss 813 pm Full Moon	NATIONAL WEATHER SERVICE

Historical Precipitation of the South Plains Region Compared to La Niña and El Niño

Each year you probably hear talk of La Niña or El Niño and what impacts each could have on various regions throughout the United States. La Niña and El Niño are simply part of a cycle known as the El Niño Southern Oscillation, or ENSO. The effects of La Niña and El Niño are typically most pronounced throughout the winter into early spring, although in some episodes these effects can linger for several additional months.

Unfortunately, one year with a strong La Niña or El Niño does not necessarily produce the same results as a strong episode in another year. This variability can be seen in the graph below that compares observed annual precipitation on the South Plains and Rolling Plains to the average sea surface temperature in the eastern equatorial Pacific Ocean (home to La Niña and El Niño) dating back to 1950. Take for instance 1973 which saw a slightly stronger La Niña than what we experienced in 2011. Instead of producing below average precipitation, the exceptionally strong La Niña of 1973 resulted in just over an inch more than the 61-year average of 19.4 inches for the South Plains and Rolling Plains! Also note that many of the years with over 20 inches of precipitation did not correspond with El Niño signals.

From the graph it becomes apparent that ENSO is not the only factor at play in determining how our annual precipitation will stack up. Excluding tropical systems (which are wildcards in annual rainfall), the following three large-scale indices can also impact our annual precipitation:

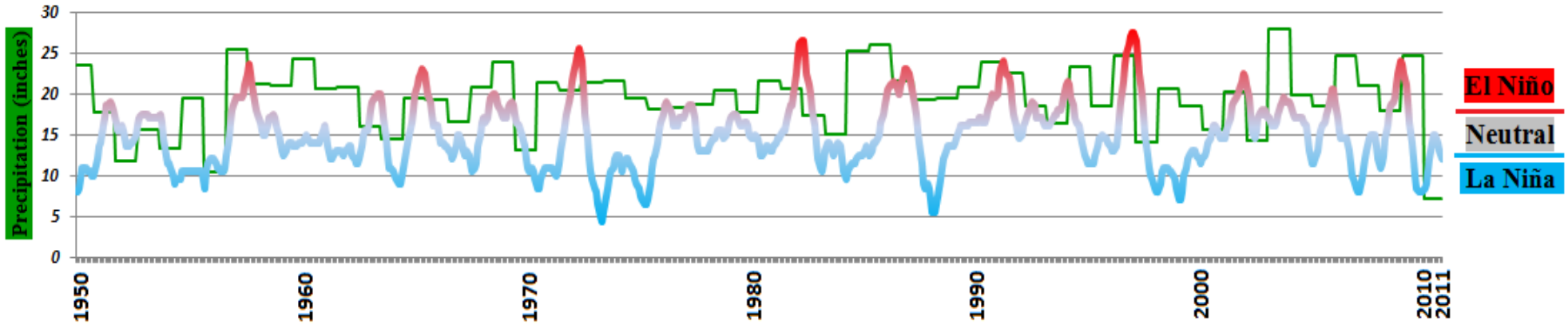
NAO (North Atlantic Oscillation)*: A very short-term event that occurs on the order of weeks. When the NAO index is negative, West Texas is more susceptible to strong cold fronts and occasional precipitation.*

PDO (Pacific Decadal Oscillation)*: A long-term event that occurs on the order of 10 to 20 years. The PDO is currently negative and this increases the probability of drier seasons in West Texas.*

MJO (Madden-Julian Oscillation)*: An event that occurs on the order of 30 to 60 days. Unlike the NAO, PDO or ENSO which remain confined to their source region, this feature travels around the world near the equator influencing weather patterns up to several thousand miles away. Since it travels, its effects are usually only felt at a given location for up to a week or two. During strong MJO waves over the eastern Pacific Ocean, West Texas can experience widespread and repeated rounds of precipitation.*

You can follow these indices and learn more at: www.cpc.ncep.noaa.gov

Combined Annual Precipitation of the South Plains and Rolling Plains VS. ENSO
(January 1950 – November 2011)



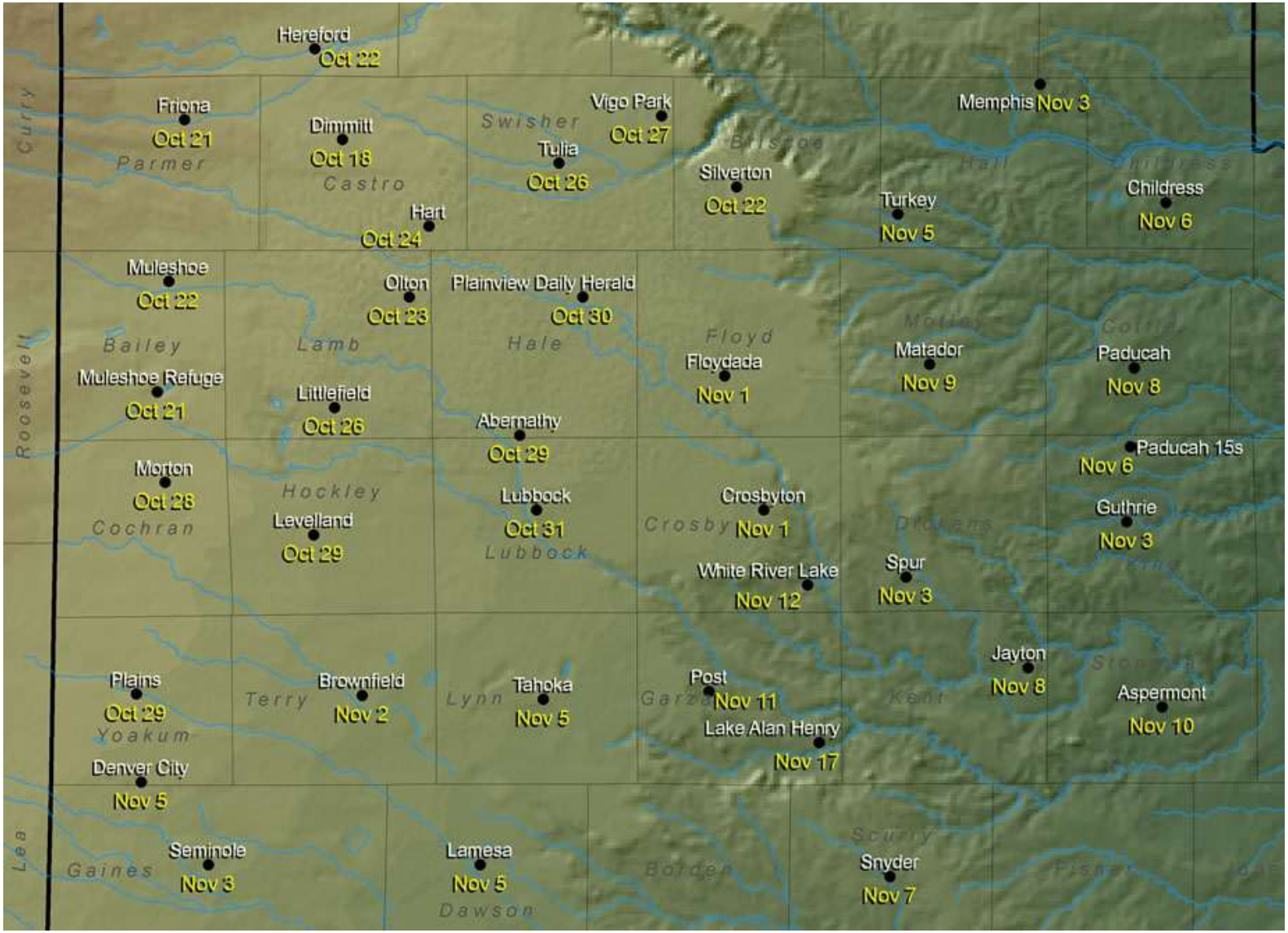
September 2012

Lubbock National Weather Service

WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES: Lubbock 162.400 Dimmitt 162.500 Plainview 162.450 Childress 162.525 Dickens 162.500		Normals: 89 / 64 0.08 **1** 99-1951 / 43-1915 Lubbock Records sr 722 am - sunrise ss 812 pm – sunset
2 89 / 64 0.07 101-1947 / 50-1955 sr 723 am ss 811 pm	**3** 88 / 63 0.09 101-2000 / 48-1974 sr 723 am ss 809 pm **Labor Day**	**4** 88 / 63 0.08 101-2000 / 46-1915 sr 724 am ss 808 pm	**5** 88 / 63 0.09 102-2000 / 46-1961 sr 725 am ss 807 pm	**6** 87 / 62 0.09 103-1948 / 51-1918 sr 725 am ss 805 pm	**7** 87 / 62 0.09 98-2000 / 45-1918 sr 726 am ss 804 pm	**8** 87 / 62 0.09 97-1985 / 47-2004 sr 727 am ss 803 pm Last Quarter
9 87 / 61 0.09 99-1984 / 47-1956 sr 727 am ss 801 pm	**10** 86 / 61 0.09 100-2000 / 47-1962 sr 728 am ss 800 pm	**11** 86 / 61 0.09 103-2000 / 47-1959 sr 729 am ss 759 pm	**12** 86 / 60 0.08 100-1930 / 44-1959 sr 729 am ss 757 pm	**13** 85 / 60 0.09 101-1930 / 43-1959 sr 730 am ss 756 pm	**14** 85 / 60 0.09 100-1965 / 42-1945 sr 731 am ss 755 pm	**15** 85 / 59 0.08 99-1965 / 42-1993 sr 731 am ss 753 pm New Moon
16 84 / 59 0.09 100-1965 / 42-1951 sr 732 am ss 752 pm	**17** 84 / 58 0.09 98-2005 / 42-1951 sr 733 am ss 750 pm	**18** 84 / 58 0.08 98-1997 / 43-1971 sr 733 am ss 749 pm	**19** 83 / 58 0.09 105-1930 / 42-1991 sr 734 am ss 748 pm	**20** 83 / 57 0.08 98-1977 / 41-1991 sr 735 am ss 746 pm	**21** 83 / 57 0.08 98-1998 / 33-1983 sr 735 am ss 745 pm	**22** 83 / 56 0.09 98-1977 / 40-1995 sr 736 am ss 743 pm **Autumnal Equinox (9:49 am)** First Quarter
23 82 / 56 0.08 98-1926 / 41-2009 sr 737 am ss 742 pm **30** 80 / 53 0.07 99-1977 / 35-1985 sr 742 am ss 732 pm	**24** 82 / 56 0.09 97-1953 / 38-1989 sr 737 am ss 741 pm	**25** 82 / 55 0.08 100-2005 / 36-2000 sr 738 am ss 739 pm	**26** 81 / 55 0.08 99-1997 / 36-1926 sr 739 am ss 738 pm	**27** 81 / 55 0.08 100-1953 / 39-1942 sr 739 am ss 737 pm	**28** 81 / 54 0.07 98-1994 / 36-1918 sr 740 am ss 735 pm	**29** 80 / 54 0.07 97-1977 / 33-1916 sr 741 am ss 734 pm Full Moon

Average First Freeze Dates

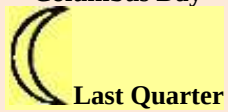


For Lubbock, the earliest fall freeze occurred on October 7, 1952.
The latest fall freeze in Lubbock occurred on November 23, 2003.

October 2012

Lubbock National Weather Service

WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	Normals: 80 / 53 0.07 **1** 98-2000 / 39-1985 Lubbock Records sr 742 am - sunrise ss 731 pm - sunset	**2** 79 / 53 0.07 99-2000 / 40-2009 sr 743 am ss 730 pm	**3** 79 / 52 0.06 100-2000 / 35-1961 sr 744 am ss 728 pm	**4** 79 / 52 0.06 96-2000 / 41-1961 sr 744 am ss 727 pm	**5** 79 / 52 0.07 97-1934 / 33-1932 sr 745 am ss 726 pm	**6** 78 / 51 0.07 94-1939 / 34-2001 sr 746 am ss 724 pm
7 78 / 51 0.07 98-1979 / 31-1952 sr 747 am ss 723 pm	**8** 78 / 51 0.07 98-1979 / 31-1976 sr 747 am ss 722 pm Columbus Day  Last Quarter	**9** 77 / 50 0.07 93-1965 / 29-1970 sr 748 am ss 721 pm	**10** 77 / 50 0.07 93-1965 / 37-2009 sr 749 am ss 719 pm	**11** 77 / 50 0.08 93-1979 / 34-2009 sr 750 am ss 718 pm	**12** 77 / 49 0.07 92-1989 / 33-1969 sr 750 am ss 717 pm	**13** 76 / 49 0.06 92-1992 / 28-1969 sr 751 am ss 716 pm
14 76 / 49 0.07 93-2009 / 31-1969 sr 752 am ss 714 pm	**15** 76 / 48 0.07 92-1965 / 31-1966 sr 753 am ss 713 pm  New Moon	**16** 75 / 48 0.07 92-2003 / 30-2001 sr 753 am ss 712 pm	**17** 75 / 48 0.06 93-1988 / 32-1999 sr 754 am ss 711 pm	**18** 75 / 47 0.07 90-2001 / 32-1968 sr 755 am ss 710 pm	**19** 74 / 47 0.06 92-1940 / 24-1917 sr 756 am ss 708 pm	**20** 74 / 47 0.06 92-2007 / 25-1916 sr 757 am ss 707 pm
21 74 / 46 0.07 90-2003 / 26-1917 sr 757 am ss 706 pm Orionids Meteor Shower (Oct 21-22) First Quarter	**22** 74 / 46 0.06 89-1961 / 28-1945 sr 758 am ss 705 pm	**23** 73 / 46 0.06 91-2003 / 22-1917 sr 759 am ss 704 pm	**24** 73 / 45 0.05 91-1933 / 26-1929 sr 800 am ss 703 pm	**25** 72 / 45 0.05 91-1959 / 30-1955 sr 801 am ss 702 pm	**26** 72 / 44 0.05 88-1979 / 26-1913 sr 802 am ss 701 pm	**27** 72 / 44 0.05 87-1922 / 26-1997 sr 803 am ss 700 pm
28 71 / 44 0.05 91-1943 / 25-1970 sr 803 am ss 659 pm	**29** 71 / 43 0.05 90-2003 / 20-1917 sr 804 am ss 658 pm  Full Moon	**30** 71 / 43 0.04 90-2010 / 18-1993 sr 805 am ss 657 pm	**31** 70 / 43 0.05 88-1934 / 20-1991 sr 806 am ss 656 pm Halloween		NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES: Lubbock 162.400 Dimmitt 162.500 Plainview 162.450 Childress 162.525 Dickens 162.500	

- Dust Storms-

What causes dust storms?

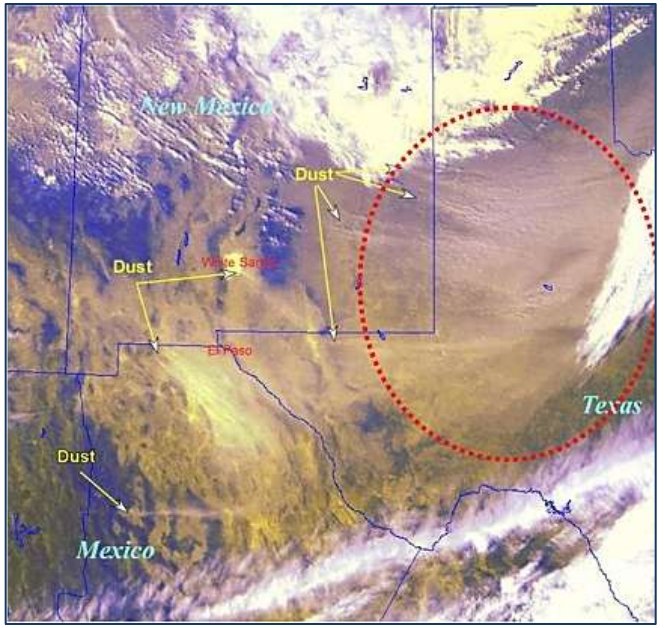
Dust storms are some of the region's most devastating and unpredictable phenomena. High winds lift dirt particles from open fields, construction sites, and other dust prone areas into the air. This process unleashes a turbulent and sometimes suffocating cloud of particulates that can reduce the visibility to almost nothing. The intensity and size of the dust cloud can vary depending on the season, strength of the winds or even how recent precipitation has fallen. The typical dust storm lasts only a few hours but can extend an entire day given the right conditions.

Visibility can drop in seconds.

Fact: Finer dust particles settle out about 1,000 ft/hr. In a strong haboob dust may reach 3,000 ft which means dust may remain in the air for over 3 hrs - well after the strong winds subside.

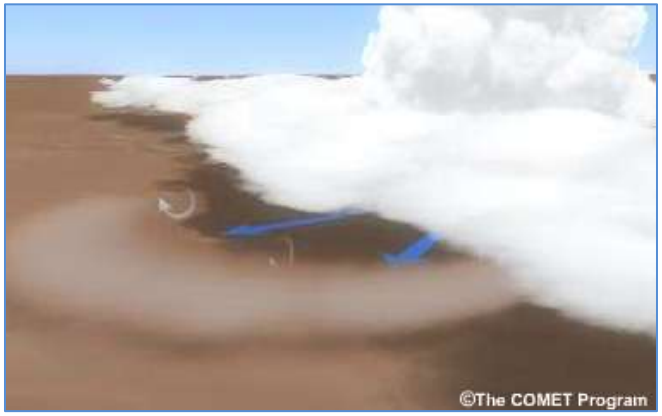
What is a haboob?

The name "haboob" is sometimes given to particularly dense dust storms, often caused by thunderstorm outflow winds. The name comes from the Arabic word *haab*, meaning "wind". Haboob events are the true walls of dust most people think of as strong dust storms. Haboob events can be created as cold air rushes out from nearby thunderstorms. The dense, cold air lifts vast amounts of dust as it races along the surface. The dust forms a whirling wall which may reach as high as 3,000 ft. Similarly, a strong cold front with winds over 40 mph may produce a haboob if soil conditions are prime such as during a period of intense drought. While any dust storm can cause damage, injuries or respiratory illnesses, the haboob is particularly dangerous as the onset can be sudden. Haboobs have been known to disrupt air traffic as well as motorists.



Satellite photo of a dust storm in progress over west Texas.

Haboob events like the one depicted below are most likely during the thunderstorm season in spring and summer. More widespread dust storms such as in the satellite photo above occur with the onset of the windy season in the fall and early winter.



November 2012

Lubbock National Weather Service

WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES: Lubbock 162.400 Dimmitt 162.500 Plainview 162.450 Childress 162.525 Dickens 162.500			Normals: 70 / 42 0.04 **1** 85-1994 / 23-1951 Lubbock Records sr 807 am - sunrise ss 655 pm – sunset	69 / 42 0.04 **2** 83-2001 / 19-1991 sr 808 am ss 654 pm	69 / 41 0.04 **3** 88-2005 / 7-1991 sr 809 am ss 653 pm
69 / 41 0.04 **4** 86-1916 / 20-1950 sr 710 am ss 552 pm Daylight Saving Time Ends	68 / 40 0.03 **5** 86-1924 / 22-1959 sr 710 am ss 551 pm	68 / 40 0.03 **6** 85-1975 / 16-1959 sr 711 am ss 551 pm Election Day Last Quarter	67 / 40 0.03 **7** 89-1916 / 19-1947 sr 712 am ss 550 pm	67 / 39 0.03 **8** 88--2005 / 20-1943 sr 713 am ss 549 pm	67 / 39 0.02 **9** 90-2006 / 21-1943 sr 714 am ss 548 pm	66 / 38 0.03 **10** 85-1927 / 19-1950 sr 715 am ss 548 pm
66 / 38 0.03 **11** 82-1956 / 16-1950 sr 716 am ss 547 pm Veteran's Day	65 / 37 0.03 **12** 85-1995 / 19-1919 sr 717 am ss 546 pm	65 / 37 0.02 **13** 82-1973 / 14-1976 sr 718 am ss 546 pm  New Moon	64 / 37 0.03 **14** 85-1933 / 4-1976 sr 719 am ss 545 pm	64 / 36 0.03 **15** 85-1965 / 10-1916 sr 720 am ss 544 pm	63 / 36 0.02 **16** 83-1966 / 11-1916 sr 721 am ss 544 pm Leonids Meteor Shower (Nov 16-18)	63 / 35 0.03 **17** 85-1966 / 10-1959 sr 722 am ss 543 pm
62 / 35 0.02 **18** 82-1999 / 16-1951 sr 722 am ss 543 pm	62 / 34 0.03 **19** 85-1996 / 14-1937 sr 723 am ss 542 pm	62 / 34 0.02 **20** 88-1996 / 17-1937 sr 724 am ss 542 pm  First Quarter	61 / 33 0.03 **21** 84-1927 / 18-1956 sr 725 am ss 542 pm	61 / 33 0.02 **22** 82-2006 / 6-1957 sr 726 am ss 541 pm Thanksgiving Day	60 / 33 0.03 **23** 84-1965 / -1-1957 sr 727 am ss 541 pm	60 / 32 0.02 **24** 82-1915 / 7-1938 sr 728 am ss 541 pm
59 / 32 0.03 **25** 86-1965 / 15-1993 sr 729 am ss 540 pm	59 / 32 0.03 **26** 82-1970 / 8-1980 sr 730 am ss 540 pm	59 / 31 0.02 **27** 81-1949 / 12-1976 sr 731 am ss 540 pm	58 / 31 0.03 **28** 83-1949 / 5-1976 sr 732 am ss 540 pm  Full Moon	58 / 30 0.03 **29** 76-1927 / 1-1976 sr 732 am ss 539 pm	58 / 30 0.02 **30** 80-1946 / 10-1918 sr 733 am ss 539 pm End of the Atlantic Hurricane Season	

Winter Weather

Lubbock

Normals (1981-2010) and Records (1911-present)

The 1982-1983 season produced the record single storm snowfall (16.9", Jan 20-21) and the record maximum snow depth (17", Jan 21-22). The record winter season was characterized by an extremely strong El Niño.

Month	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Season
Normal Snowfall	0.0"	0.9"	2.3"	2.6"	1.6"	0.6"	0.2"	8.2"
Record Snowfall (year)	7.5" (1976)	21.4" (1980)	10.5" (1942)	25.3" (1983)	16.8" (1956)	16.5" (1915)	6.8" (1942)	41.2" (1982-83)
Average Low	48ºF	36ºF	27ºF	26ºF	30ºF	37ºF	46ºF	
Record Low (year)	18ºF (1993)	-1ºF (1957)	-2ºF (1989)	-16ºF (1963)	-17ºF (1933)	-2ºF (1922)	18ºF (1920)	-17ºF (all-time)

The all-time record low of -17ºF occurred on February 8, 1933. The day before the record low, the high was 61ºF, though 3" inches of snow did fall and the low by the end of the day was -3ºF.

Cold Start to February 2011

One Arctic front blasted through the South Plains late on January 31st, with a second plunging through on February 8th. Each frontal passage brought light snow to the region, but the main story was the very cold air. Below are a few facts about the cold air outbreaks of early February 2011:

- Lubbock recorded its first high below 15ºF (14ºF on February 2nd) since January of 1997.
- Lubbock recorded five lows of 5ºF or less in a nine day stretch. The 2000-2009 year period only had three totals days with lows at or below 5ºF.
- Winds chills dropped to between -10ºF and -30ºF behind both cold fronts, as strong northerly winds combined with the frigid air.

How cold does it feel?

The **wind chill** is the effect of the wind on people and animals. The wind chill temperature is based on the rate of heat loss from exposed skin caused by wind and cold and gives you an approximation of how cold the air feels on your body.

Wind Chill	Cold Threat
0°F to -19°F	COLD. Frostbite possible.
-20°F to -30°F	VERY COLD. Frostbite possible within 30 minutes.
-31°F to -49°F	BITTER COLD. Frostbite likely within 10 minutes.
-50°F & colder	EXTREMELY COLD. Frostbite likely within 5 minutes or less.

Lubbock National Weather Service — December 2012 — WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES: Lubbock 162.400 Dimmitt 162.500 Plainview 162.450 Childress 162.525 Dickens 162.500		Normals: 57 / 30 0.02 **1** 76-1995 / 12-1918 Lubbock Records sr 734 am - sunrise ss 539 pm – sunset
2 57 / 30 0.03 81-1995 / 13-1985 sr 735 am ss 539 pm	**3** 57 / 29 0.02 82-2010 / 15-1967 sr 736 am ss 539 pm	**4** 56 / 29 0.02 81-1958 / 15-1921 sr 737 am ss 539 pm	**5** 56 / 29 0.03 79-1939 / 10-1950 sr 737 am ss 539 pm	**6** 56 / 28 0.02 83-1939 / 1-1950 sr 738 am ss 539 pm Last Quarter	**7** 55 / 28 0.03 79-2007 / 8-2005 sr 739 am ss 539 pm	**8** 55 / 28 0.03 78-1970 / 3-1917 sr 740 am ss 539 pm
9 55 / 28 0.02 80-1939 / 5-1978 sr 741 am ss 540 pm	**10** 55 / 28 0.03 81-1933 / 5-1917 sr 741 am ss 540 pm	**11** 54 / 27 0.03 80-1939 / 6-1917 sr 742 am ss 540 pm	**12** 54 / 27 0.02 82-1937 / 6-1961 sr 743 am ss 540 pm Geminids Meteor Shower (Dec 12-14)	**13** 54 / 27 0.03 79-1921 / 5-1917 sr 743 am ss 540 pm New Moon	**14** 54 / 27 0.03 82-2010 / 8-1987 sr 744 am ss 541 pm	**15** 54 / 27 0.02 80-2010 / 2-1987 sr 745 am ss 541 pm
16 54 / 27 0.03 77-2006 / 3-1987 sr 745 am ss 542 pm	**17** 53 / 27 0.03 78-1980 / 5-1932 sr 746 am ss 542 pm	**18** 53 / 27 0.02 77-1980 / 6-1996 sr 747 am ss 542 pm	**19** 53 / 26 0.03 76-1921 / 0-1924 sr 747 am ss 543 pm	**20** 53 / 26 0.02 80-1921 / 3-1924 sr 748 am ss 543 pm First Quarter	**21** 53 / 26 0.03 78-1981 / 2-1983 sr 748 am ss 544 pm Winter Solstice (5:12 am)	**22** 53 / 26 0.02 79-1969 / -2-1989 sr 749 am ss 544 pm
23 53 / 26 0.03 80-1964 / -1-1989 sr 749 am ss 545 pm **30** 53 / 26 0.02 80-2008 / 7-2000 sr 752 am ss 549 pm	**24** 53 / 26 0.02 80-1955 / 0-1983 sr 750 am ss 545 pm **31** 53 / 26 0.02 75-2005 / 8-1923 sr 752 am ss 550 New Year's Eve	**25** 53 / 26 0.02 76-1955 / -1-1924 sr 750 am ss 546pm Christmas	**26** 53 / 26 0.02 77-2005 / 0-1918 sr 750 am ss 547 pm	**27** 53 / 26 0.03 76-2006 / 3-1918 sr 751 am ss 547 pm	**28** 53 / 26 0.02 81-1928 / -2-1924 sr 751 am ss 548 pm Full Moon	**29** 53 / 26 0.02 77-1920 / -1-1939 sr 751 am ss 549 pm

Severe Weather Safety Tips

Prepare a Home Severe Weather Plan—

- Pick a place where family members could gather if a tornado is headed your way. It could be your basement or, if there is no basement, a center hallway, bathroom, or closet on the lowest floor. Keep this place uncluttered.
- If you are in a high-rise building, you may not have enough time to go to the lowest floor. Pick a place in a hallway in the center of the building.

Assemble a Disaster Supplies Kit containing—

- First aid kit and essential medications.
- Canned food and can opener.
- At least three gallons of water per person.
- Protective clothing, bedding, or sleeping bags.
- Battery-powered radio, flashlight, and extra batteries.
- Special items for infant, elderly, or disabled family members.

When a Severe Thunderstorm or Tornado WATCH is issued—

- Listen to NOAA Weather Radio, local radio and TV stations for further updates.
- Be alert to changing weather conditions.

When a Severe Thunderstorm or Tornado WARNING is issued—

- If you are inside, go to the safe place you picked to protect yourself from glass and other flying objects.
- If you are outside, hurry to the basement of a nearby sturdy building or lie flat in a ditch or low-lying area.
- If you are in a car or mobile home, get out immediately and head for safety (as above).

After the Severe Thunderstorm or Tornado passes—

- Watch out for fallen power lines and stay out of the damaged area.
- Listen to the radio for information and instructions.
- Use a flashlight to inspect your home for damage.

Conduct periodic Severe Weather drills so everyone remembers what to do. Stay tuned for warnings—

- Listen to your local radio and TV stations for updated storm information.
- Be especially alert to the weather when Severe Thunderstorm and Tornado WATCHES are in effect and take action when WARNINGS are issued.
- Know what a Severe Thunderstorm or Tornado WATCH and WARNING means:
  - A Tornado/Severe Thunderstorm WATCH means a Tornado/Severe Thunderstorm is possible in your area.
  - A Tornado/Severe Thunderstorm WARNING means a Tornado/Severe Thunderstorm has been detected and may be headed for your area. Go to a safe location immediately.