2011 CALENDAR

National Weather Service

Lubbock, Texas

FIRE WEATHER


Wildfire Burns on January 1, 2006 © CNN

When is the Fire Weather Season?

The fire weather season for West Texas generally starts during the winter months and continues on into spring. Some years the fire weather season can be rather benign, while others become extreme and can result in catastrophic wildfire events. Wildfires depend on a number of factors including **fuels**, **weather** and **topography**. While topography remains nearly constant, the fuels vary seasonally and the weather changes constantly.

What Makes for a "Bad" Fire Weather Season?

Both fuels and weather dictate the severity of any given fire weather season. On the South Plains, the **fuels consist primarily of grasses**. A wet summer, like that seen in 2010, can lead to above average vegetation growth, leaving more fuel for any potential fires when the vegetation dries out in fall. However, just having greater amounts of fuel does not ensure a "bad" fire season. But, when combined with persistent dry and windy weather, conditions will become more favorable for the ignition and spread of wildfires. The threat is further exacerbated by drought conditions. Given the development of La Niña in late 2010, which favors warmer and drier weather for West Texas during the winter months, the 2010/2011 fire weather season will have to be watched closely.


Smokey Lubbock Sunset on March 12, 2006 © Todd Lindley


Smoke from a Wildfire on January 1, 2006 © CNN


© West Texas Mesonet

Smoke Rises into a Thunderstorm

Products Issued by the NWS:

A **Fire Weather Watch** will be issued when dangerous fire weather conditions are expected in the next 24 to 72 hours. Dangerous fire weather conditions are defined as three hours or more of sustained winds speeds of 20 mph or greater (measured at 20 feet) coupled with relative humidity values of 15 percent or lower and a high, very high, or extreme fire danger rating. A **Red Flag Warning** will be issued when the above conditions are anticipated in the next 24 hours. Beginning in 2011, the Lubbock NWS Office will also issue a **Fire Danger Statement**, when the fire danger is elevated, but expected to be below red flag criteria. Also, **Fire Weather Forecasts** are issued twice daily noting any possible weather related fire hazards. **Fire Weather Special (Spot) Forecasts** are site-specific forecasts created upon request for any local, state, or federal agency to support land management activities like controlled burns.

Lubbock National Weather Service

January 2011

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: 51 / 24 0.02 76-1997 / -2-1919 Lubbock Records sr 752 am - sunrise ss 550 pm - sunset New Years Day
2 51 / 24 0.02 77-2009 / -2-1979 sr 752 am ss 551 pm	**3** 51 / 24 0.02 83-2006 / -2-1947 sr 752 am ss 552 pm Quadrantids Meteor Shower (Jan 3-4)	**4** 51 / 24 0.02 76-1918 / -9-1947 sr 752 am ss 553 pm New Moon	**5** 51 / 24 0.02 82-1927 / -4-1971 sr 752 am ss 553 pm	**6** 51 / 24 0.02 79-1927 / 0-1971 sr 753 am ss 554 pm	**7** 51 / 24 0.02 80-2006 / 6-1968 sr 753 am ss 555 pm	**8** 51 / 24 0.01 82-1969 / 3-1967 sr 753 am ss 556 pm
9 51 / 24 0.01 79-2002 / 2-1920 sr 753 am ss 557 pm	**10** 51 / 24 0.01 76-1928 / -10-1930 sr 753 am ss 558 pm	**11** 51 / 24 0.01 75-2006 / -7-1918 sr 752 am ss 559 pm	**12** 51 / 24 0.01 77-1953 / -10-1918 sr 752 am ss 559 pm First Quarter	**13** 51 / 24 0.01 79-1957 / -16-1963 sr 752 am ss 600 pm	**14** 51 / 24 0.01 82-1928 / 3-1963 sr 752 am ss 601 pm	**15** 52/ 24 0.01 77-1999 / 4-1963 sr 752 am ss 602 pm
16 52/ 24 0.01 80-1974 / 6-1930 sr 752 am ss 603 pm	**17** 52/ 24 0.01 87-1914 / -2-1930 sr 751 am ss 604 pm Martin Luther King Jr. Day (Observed)	**18** 52/ 24 0.01 79-1914 / -5-1930 sr 751 am ss 605 pm	**19** 52/ 24 0.01 80-2000 / 0-1963 sr 751 am ss 606 pm Full Moon	**20** 52/ 24 0.02 78-1986 / 7-1940 sr 750 am ss 607 pm	**21** 52/ 24 0.02 81-1950 / -4-1918 sr 750 am ss 608 pm	**22** 52/ 25 0.02 79-2009 / -6-1918 sr 750 am ss 609 pm
23 52/ 25 0.02 83-1972/ 3-1983 sr 749 am ss 610 pm **30** 54/ 26 0.02 80-1967 / 6-1951 sr 745 am ss 617 pm	**24** 53/ 25 0.02 83-1970 /-1-1915 sr 749 am ss 611 pm **31** 54/ 26 0.02 77-1963 / 2-1985 sr 745 am ss 618 pm	**25** 53/ 25 0.02 79-1952 / 7-1940 sr 748 am ss 612 pm	**26** 53/ 25 0.02 78-1975 / 7-1966 sr 748 am ss 613 pm Last Quarter	**27** 53/ 25 0.02 78-1970 / 5-1925 sr 747 am ss 614 pm	**28** 53/ 25 0.02 80-2003 / 8-1948 sr 746 am ss 615 pm	**29** 54/ 25 0.02 79-1927 / 1-1948 sr 746 am ss 616 pm

Local Groups Provide Great Information to the National Weather Service

NWS Cooperative Observers (COOP)

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 from around the South Plains, Rolling Plains and Southern Texas Panhandle. The observations are widely used by surrounding NWS offices, River Forecast Centers at Tulsa, OK, and Fort Worth, TX, and the National Climatic Data Center (NCDC). Additionally, dozens more observers send in precipitation information when it rains, sleets or snows.

SKYWARN Storm Spotters

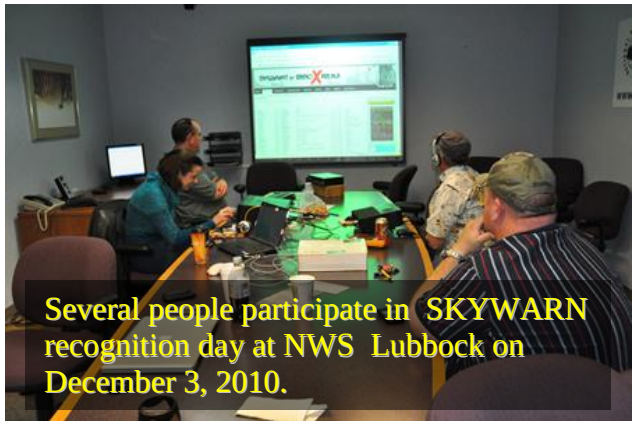
There are over 1000 trained SKYWARN storm spotters across the 24 counties in the South Plains region served by the NWS Office in Lubbock. These volunteers come from all walks of life but most are affiliated with their local law enforcement agencies or fire departments. We also have an amateur radio storm spotting team, the South Plains Storm Spotting Team, which cover the majority of our area of responsibility. Most of our spotters attend annual training conducted by the NWS in the spring. The training is geared toward keeping them safe while navigating around and interpreting what they see in close proximity to severe thunderstorms. The vital information from their "eyes on the sky" are relayed to our office and help provide ground truth to what forecasters are seeing on radar and in other meteorological data, and greatly help warning forecasters make their critical decisions.

If you are interested in attending a spotter training class check the Lubbock NWS web site (www.weather.gov/lub) for a schedule of classes between February and April.

SKYWARN spotter and NWS employee Bruce Haynie intercepts a tornado near Turkey on March 28, 2007.

In addition to the COOP observers and SKYWARN Storm Spotters, many other groups provide great information to the NWS. These groups include, but are not limited to:

- Sheriff's Offices
- Media
- Emergency Management Officials
- Public



Several people participate in SKYWARN recognition day at NWS Lubbock on December 3, 2010.

National Weather Service Lubbock would like to express our sincere appreciation to the many COOP observers, SKYWARN storm spotters and to everyone who provides us with valuable information and services!

Lubbock National Weather Service

February 2011

WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1 Normals: 54 / 26 0.02 83-1963 / -7-1951 Lubbock Records sr 744 am - sunrise ss 619 pm - sunset	**2** 54 / 26 0.02 80-2003 / -4-1951 sr 743 am ss 620 pm Groundhog Day New Moon	**3** 55 / 26 0.02 80-1934 / 4-1972 sr 742 am ss 621 pm	**4** 55 / 27 0.02 82-1925 / 3-1989 sr 742 am ss 622 pm	**5** 55 / 27 0.02 81-1937 / 3-1982 sr 741 am ss 622 pm
6 55 / 27 0.02 80-2009 / 4-1956 sr 740 am ss 623 pm	**7** 56 / 27 0.02 84-1918 / -3-1933 sr 739 am ss 624 pm	**8** 56 / 27 0.02 83-1951 / -17-1933 (all-time) sr 738 am ss 625 pm	**9** 56 / 28 0.02 83-1976 / 0-1933 sr 738 am ss 626 pm Ash Wednesday	**10** 57 / 28 0.02 84-1962 / 1-1929 sr 737 am ss 627 pm	**11** 57 / 28 0.03 85-1962 / 6-1981 sr 736 am ss 628 pm First Quarter	**12** 57 / 28 0.03 86-1962 / 9-1958 sr 735 am ss 629 pm
13 57 / 29 0.03 81-1979 / 7-1963 sr 734 am ss 630 pm	**14** 58 / 29 0.03 87-1979 / 12-2004 sr 733 am ss 631 pm St. Valentine's Day	**15** 58 / 29 0.03 83-1945 / 8-1951 sr 732 am ss 632 pm	**16** 58 / 29 0.03 79-1959 / 13-1979 sr 731 am ss 633 pm	**17** 58 / 29 0.03 85-1970 / 0-1978 sr 730 am ss 634 pm	**18** 59 / 30 0.03 83-1996 / -2-1978 sr 729 am ss 635 pm Full Moon	**19** 59 / 30 0.03 83-1986 / 2-1978 sr 728 am ss 635 pm
20 59 / 30 0.03 82-1996 / 4-1918 sr 727 am ss 636 pm	**21** 60 / 30 0.03 84-1996 / 6-1964 sr 725 am ss 637 pm Presidents' Day	**22** 60 / 31 0.03 87-1996 / 13-1971 sr 724 am ss 638 pm	**23** 60 / 31 0.03 85-2009 / 9-1914 sr 723 am ss 639 pm	**24** 60 / 31 0.03 89-1918 / 1-1960 sr 722 am ss 640 pm Last Quarter	**25** 61 / 31 0.03 86-1989 / -8-1960 sr 721 am ss 641 pm	**26** 61 / 31 0.02 85-1918 / 8-1935 sr 720 am ss 642 pm
27 61 / 32 0.02 81-2006 / 10-1934 sr 719 am ss 642 pm	**28** 62 / 32 0.02 89-2006 / 7-1962 sr 717 am ss 643 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			

Severe Weather Awareness Week

2010 Was Punctuated by Periods of Heavy Precipitation

(Left) Picture of ice, sleet and snow near Childress on February 1, 2010.

(Right) Image of flooding outside of Lubbock on April 15, 2010.

Early 2010

The first few months of 2010 brought regular storm systems that produced bouts of heavy rain and snow. A total of 14.3 inches of snow officially fell in Lubbock during the winter of 2009-2010, well above the normal of 10.4 inches.

Spring through Fall of 2010

Heavy rain fell in several episodes throughout the year. The most notable events were during mid-April, over the 4th of July weekend and mid-October, when many parts of the South Plains and Rolling Plains picked up 2-5 inches of rain. July brought the most extreme rains, when several locations across the southern South Plains received 10-12 inches.

(Left) Picture of snow in Lubbock on February 23, 2010.

(Right) Flooded park in Lubbock on July 4, 2010.

Lubbock National Weather Service

March 2011

WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1 Normals: 62 / 32 0.03 89-2006 / 5-1922 Lubbock Records sr 716 am - sunrise ss 644 pm – sunset	**2** 62 / 32 0.03 86-1974 / -2-1922 sr 715 am ss 645 pm	**3** 62 / 33 0.02 88-2009 / 7-1943 sr 714 am ss 646 pm	**4** 63 / 33 0.02 89-2009 / -1-1917 sr 712 am ss 646 pm New Moon	**5** 63 / 33 0.02 90-1916 / 11-1989 sr 711 am ss 647 pm
6 63 / 33 0.02 87-1934 / 10-1943 sr 710 am ss 648 pm	**7** 64 / 34 0.02 88-2006 / 11-1996 sr 709 am ss 649 pm	**8** 64 / 34 0.02 87-1918 / 12-1967 sr 707 am ss 650 pm	**9** 64 / 34 0.02 83-1993 / 13-1969 sr 706 am ss 651 pm	**10** 64 / 35 0.02 86-1989 / 4-1948 sr 705 am ss 651 pm	**11** 65 / 35 0.02 95-1989 / 2-1948 sr 703 am ss 652 pm	**12** 65 / 35 0.02 94-1989 / 10-1948 sr 702 am ss 653 pm First Quarter
13 65 / 35 0.02 91-1916 / 12-1950 sr 801 am ss 754 pm Daylight Saving Time begins	**14** 66 / 36 0.02 86-1972 / 13-1954 sr 800 am ss 754 pm	**15** 66 / 36 0.02 86-1966 / 17-1947 sr 758 am ss 755 pm	**16** 66 / 36 0.02 87-1966 / 16-1923 sr 757 am ss 756 pm	**17** 67 / 36 0.02 89-1989 / 18-1970 sr 756 am ss 757 pm St. Patrick's Day	**18** 67 / 37 0.02 88-1916 / 11-1923 sr 754 am ss 757 pm	**19** 67 / 37 0.02 87-1995 / 11-1923 sr 753 am ss 758 pm Full Moon
20 67 / 37 0.03 90-1916 / 8-1965 sr 752 am ss 759 pm Spring Equinox (6:21 pm)	**21** 68 / 38 0.03 93-1997 / 17-1983 sr 750 am ss 800 pm	**22** 68 / 38 0.03 86-1935 / 18-1952 sr 749 am ss 800 pm	**23** 68 / 38 0.03 84-2009 / 13-1952 sr 747 am ss 801 pm	**24** 69 / 38 0.03 88-1929 / 22-1965 sr 746 am ss 802 pm	**25** 69 / 39 0.03 90-1998 / 20-1996 sr 745 am ss 803 pm	**26** 69 / 39 0.03 88-1956 / 16-1965 sr 743 am ss 803 pm Last Quarter
27 69 / 39 0.03 94-1971 / 12-1931 sr 742 am ss 804 pm	**28** 70 / 40 0.03 90-1963 / 16-1931 sr 741 am ss 805 pm	**29** 70 / 40 0.03 89-1967 / 18-1944 sr 739 am ss 806 pm	**30** 70 / 40 0.03 91-2010 / 16-1987 sr 738 am ss 806 pm	**31** 70 / 40 0.03 95-1946 / 19-1931 sr 737 am ss 807 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

Flood Safety Awareness Week

If you can hear thunder, you are within striking distance. Seek safe shelter immediately. **When Thunder Roars, Go Indoors!** If caught outside without a sturdy building nearby, seek shelter in a hard topped metal vehicle.

Severe Thunderstorms

A severe thunderstorm warning will be issued for **hail of 1 inch in diameter or greater**.

To the left is a picture of a record breaking hailstone that fell in Vivian, SD, on July 23, 2010. The hailstone was:

- 8.0” in diameter
- 18.625” in circumference
- 1.9375 pounds

The hailstone broke the record for diameter (previously 7.0” in Aurora, NE, on June 22, 2003) and weight (previously 1.67 lbs in Coffeyville, KS on September 3, 1970). The Aurora stone maintains the circumference record of 18.75”.

When approaching a flooded roadway:

Turn Around, Don’t Drown!

A severe thunderstorm warning will be issued for thunderstorm **winds of 58 mph or greater**.

April 2011

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: 71 / 41 0.03 **1** 96-1946 / 22-1948 Lubbock Records sr 735 am - sunrise ss 808 pm - sunset April Fool's Day	71 / 41 0.03 **2** 90-2003 / 20-1936 sr 734 am ss 809 pm
71 / 41 0.03 **3** 90-1950 / 26-1975 sr 733 am ss 809 pm New Moon	72 / 42 0.03 **4** 92-1928 / 18-1920 sr 731 am ss 810 pm	72 / 42 0.03 **5** 92-2006 / 21-1917 sr 730 am ss 811 pm	72 / 42 0.03 **6** 96-1972 / 21-1936 sr 729 am ss 812 pm	72 / 43 0.04 **7** 93-1930 / 21-1936 sr 727 am ss 812 pm	73 / 43 0.04 **8** 91-1930 / 23-1938 sr 726 am ss 813 pm	73 / 43 0.04 **9** 94-1939 / 23-1973 sr 725 am ss 814 pm
73 / 44 0.04 **10** 93-1972 / 26-1952 sr 724 am ss 815 pm	73 / 44 0.04 **11** 94-1972 / 25-1932 sr 722 am ss 815 pm First Quarter	74 / 44 0.04 **12** 96-1972 / 22-1997 sr 721 am ss 816 pm	74 / 45 0.04 **13** 91-2006 / 26-1957 sr 720 am ss 817 pm	74 / 45 0.04 **14** 93-2006 / 27-1933 sr 719 am ss 818 pm	75 / 45 0.04 **15** 92-2006 / 25-1928 sr 717 am ss 818 pm	75 / 45 0.04 **16** 100-1925 / 31-1947 sr 716 am ss 819 pm
75 / 46 0.04 **17** 94-2006 / 23-1921 sr 715 am ss 820 pm Full Moon	75 / 46 0.05 **18** 96-1987 / 29-1953 sr 714 am ss 821 pm	76 / 46 0.05 **19** 92-2001 / 31-1922 sr 712 am ss 821 pm	76 / 47 0.05 **20** 93-1925 / 30-1933 sr 711 am sr 822 pm	76 / 47 0.05 **21** 98-1989 / 28-1918 sr 710 am ss 823 pm Lynids Meteor Shower (Apr 21-22)	76 / 47 0.05 **22** 100-1989 / 29-1927 sr 709 am ss 824 pm Earth Day	77 / 48 0.05 **23** 97-1989 / 30-1928 sr 708 am ss 824 pm
77 / 48 0.05 **24** 95-1996 / 30-1968 sr 707 am ss 825 pm Easter Last Quarter	77 / 49 0.05 **25** 96-1959 / 35-1927 sr 706 am ss 826 pm	78 / 49 0.05 **26** 96-1943 / 29-1947 sr 705 am ss 827 pm	78 / 49 0.05 **27** 97-1996 / 27-1920 sr 703 am ss 827 pm	78 / 50 0.05 **28** 94-1992 / 35-1994 sr 702 am ss 828 pm	78 / 50 0.06 **29** 96-1928 / 31-1968 sr 701 am ss 829 pm	79 / 50 0.06 **30** 93-2008 / 33-1918 sr 700 am ss 830 pm

Number of "observed" tornadoes - 1950 to 2010

Parmer Total 48 F3+ 3	*Castro* Total 57 F3+ 1	*Swisher* Total 66 F3+ 5	*Briscoe* Total 42 F3+ 3	*Hall* Total 44 F3+ 2	*Childress* Total 25 F3+ 0
Bailey Total 49 F3+ 2	*Lamb* Total 82 F3+ 7	*Hale* Total 122 F3+ 3	*Floyd* Total 53 F3+ 3	*Motley* Total 21 F3+ 2	*Cottle* Total 26 F3+ 1
Cochran Total 28 F3+ 1	*Hockley* Total 57 F3+ 6	*Lubbock* Total 90 F3+ 3 F5 1	*Crosby* Total 51 F3+ 2	*Dickens* Total 31 F3+ 1	*King* Total 19 F3+ 0
Yoakum Total 25 F3+ 0	*Terry* Total 31 F3+ 0	*Lynn* Total 42 F3+ 1	*Garza* Total 19 F3+ 0	*Kent* Total 22 F3+ 0	*Stonewall* Total 22 F3+ 0

Lubbock National Weather Service

May 2011

WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 Normals: 79 / 51 0.06 96-1992 / 32-1970 Lubbock Records sr 659 am - sunrise ss 830 pm – sunset	**2** 79 / 51 0.06 97-1943 / 30-1967 sr 658 am ss 831 pm	**3** 79 / 51 0.06 98-1996 / 30-1918 sr 657 am ss 832 pm New Moon	**4** 80 / 52 0.06 104-1947 / 35-1935 sr 656 am ss 833 pm	**5** 80 / 52 0.06 99-1940 / 34-1953 sr 655 am ss 833 pm Cinco De Mayo	**6** 80 / 52 0.06 99-2000 / 32-1917 sr 655 am ss 834 pm	**7** 80 / 53 0.06 100-2009 / 29-1917 sr 654 am ss 835 pm
8 81 / 53 0.06 102-1989 / 31-1938 sr 653 am ss 836 pm Mother's Day	**9** 81 / 53 0.07 97-1996 / 38-1961 sr 652 am ss 837 pm	**10** 81 / 54 0.07 99-2000 / 33-1918 sr 651 am ss 837 pm First Quarter	**11** 81 / 54 0.07 101-2000 / 37-1930 sr 650 am ss 838 pm	**12** 82 / 54 0.07 98-1962 / 35-1960 sr 649 am ss 839 pm	**13** 82 / 55 0.07 100-2006 / 37-1971 sr 649 am ss 840 pm	**14** 82 / 55 0.07 100-1996 / 35-1953 sr 648 am ss 840 pm
15 83 / 55 0.07 103-1996 / 34-1967 sr 647 am ss 841 pm	**16** 83 / 56 0.07 102-1996 / 37-1945 sr 646 am ss 842 pm	**17** 83 / 56 0.08 101-1996 / 41-1986 sr 646 am ss 842 pm Full Moon	**18** 83 / 56 0.08 103-2003 / 42-1916 sr 645 am ss 843 pm	**19** 84 / 57 0.08 105-1996 / 42-1971 sr 644 am ss 844 pm	**20** 84 / 57 0.08 102-2006 / 40-1931 sr 644 am ss 845 pm	**21** 84 / 57 0.08 101-1989 / 39-1967 sr 643 am ss 845 pm
22 84 / 58 0.08 105-1996 / 40-1931 sr 643 am ss 846 pm	**23** 85 / 58 0.08 105-2000 / 45-1917 sr 642 am ss 847 pm	**24** 85 / 58 0.08 109-2000 / 40-1930 sr 642 am ss 847 pm Last Quarter	**25** 85 / 59 0.09 101-1953 / 44-1924 sr 641 am ss 848 pm	**26** 85 / 59 0.09 101-1945 / 43-1950 sr 641 am ss 849 pm	**27** 86 / 59 0.09 103-1984 / 48-1961 sr 640 am ss 849 pm	**28** 86 / 59 0.09 102-1974 / 43-1917 sr 640 am ss 850 pm
29 86 / 60 0.09 104-1938 / 38-1947 sr 639 am ss 851 pm	**30** 87 / 60 0.09 103-1998 / 45-1983 sr 639 am ss 851 pm Memorial Day	**31** 87 / 60 0.09 102-1916 / 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		NATIONAL WEATHER SERVICE

Hot Days in Lubbock

Decade	Number of Days with Highs of 100 or More
1920-1929	86
1930-1939	141
1940-1949	129
1950-1959	78
1960-1969	60
1970-1979	64
1980-1989	79
1990-1999	109
2000-2009	111

A few interesting facts for Lubbock (since 1920):

- Averaged almost 10 100-degree days a year
- 1934 brought a record 29 days at or above 100-degrees
- 5 years had no 100-degree days, most recently in 2007
- 2010 only had two 100-degree days
- The hottest temperature recorded was 114 on June 17, 1994
- The mercury has only topped 110 degrees 3 times, twice in 1994 (June 16th and 17th) and on June 24, 1990

Heat Related Products and Dangers

A **Heat Advisory** will be 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** will be issued for afternoon heat index values of 110 degrees or greater and lows of 75 degrees or higher for two or more days consecutively. These especially dangerous conditions are generally found in humid locations and are relatively rare on the South Plains, thanks to the drier air that is often in place and keeps heat indices down and allows overnight lows to dip below 75 degrees. Although the West Texas heat can be dangerous, prolonged periods of hot and humid days coupled with nights that don't cool off much can be very dangerous or deadly, particularly with the elderly and the young.

Summer Brings the HEAT!

Safety under the Sun

To minimize the risk of heat-related illnesses (including sunburn, heat cramps, heat exhaustion and heat stroke):

- Slow down
  - Reduce strenuous activities or save them for the coolest time of day
- Dress for summer
  - Lightweight, light-colored clothes
- Eat lighter meals
- Drink plenty of water
- Do not drink alcoholic beverages
- Spend more time in air-conditioning
- Don't get too much sun – use sunscreen

June 2011

Lubbock National Weather Service

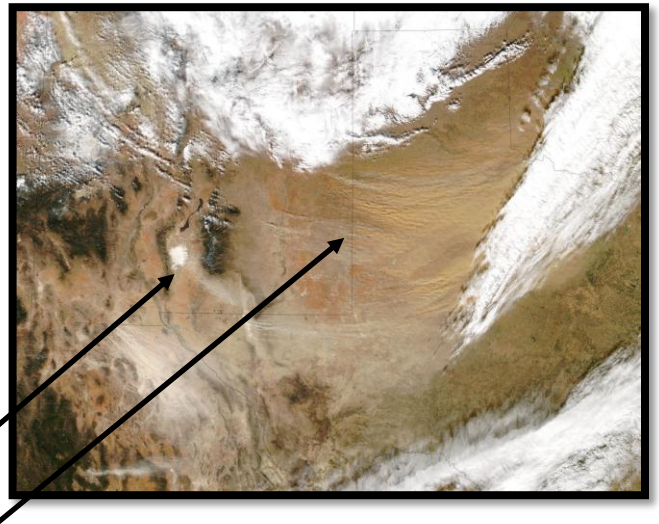
WWW.WEATHER.GOV/LUBBOCK

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: 87 / 61 0.10 **1** 107-1998 / 45-1964 Lubbock Records sr 638 am - sunrise ss 852 pm - sunset New Moon	**2** 87 / 61 0.10 107-1998 / 39-1917 sr 638 am ss 853 pm	**3** 88 / 61 0.10 104-1998 / 43-1919 sr 638 am ss 854 pm	**4** 88 / 61 0.10 101-2008 / 47-1970 sr 638 am ss 854 pm
5 88 / 62 0.10 106-1990 / 45-1928 sr 638 am ss 855 pm	**6** 88 / 62 0.10 107-1990 / 45-1917 sr 637 am ss 855 pm	**7** 89 / 62 0.10 103-1994 / 45-1915 sr 637 am ss 856 pm	**8** 89 / 63 0.10 106-1981 / 43-1915 sr 637 am ss 856 pm First Quarter	**9** 89 / 63 0.10 107-1981 / 50-1955 sr 637 am ss 857 pm	**10** 89 / 63 0.10 105-1917 / 47-1955 sr 637 am ss 857 pm	**11** 90 / 63 0.10 105-2008 / 50-1955 sr 637 am ss 858 pm
12 90 / 64 0.10 105-2001 / 53-1951 sr 637 am ss 858 pm	**13** 90 / 64 0.11 105-1931 / 52-1945 sr 637 am ss 858 pm	**14** 90 / 64 0.11 106-1939 / 44-1947 sr 637 am ss 859 pm Flag Day	**15** 90 / 64 0.10 109-1939 / 49-1927 sr 637 am ss 859 pm Full Moon	**16** 90 / 64 0.10 108-1924 / 49-1981 sr 637 am ss 859 pm	**17** 91 / 65 0.10 107-1924 / 53-1999 sr 637 am ss 900 pm	**18** 91 / 65 0.10 107-1924 / 47-1945 sr 637 am ss 900 pm
19 91 / 65 0.10 106-1998 / 52-1945 sr 637 am ss 900 pm Father's Day	**20** 91 / 65 0.10 108-1935 / 49-1973 sr 638 am ss 901 pm	**21** 91 / 65 0.10 107-1981 / 54-1973 sr 638 am ss 901 pm Summer Solstice (12:16 pm)	**22** 91 / 66 0.10 106-1978 / 50-1927 sr 638 am ss 901 pm	**23** 91 / 66 0.10 107-1980 / 56-1964 sr 638 am ss 901 pm Last Quarter Phase of the Moon	**24** 91 / 66 0.10 110-1990 / 56-1957 sr 639 am ss 901 pm	**25** 91 / 66 0.10 108-1994 / 54-1940 sr 639 am ss 901 pm
26 91 / 66 0.10 111-1994 / 53-1958 sr 639 am ss 901 pm	**27** 92 / 66 0.09 114-1994 / 56-1958 (all-time) sr 639 am ss 902 pm	**28** 92 / 66 0.09 108-1980 / 56-1946 sr 640 am ss 902 pm	**29** 92 / 67 0.09 107-1957 / 57-1948 sr 640 am ss 902 pm	**30** 92 / 67 0.09 106-1957 / 57-1940 sr 641 am ss 902 pm		

Lightning Safety Awareness Week

The NWS uses many different tools to access the current state of the atmosphere and make forecasts.

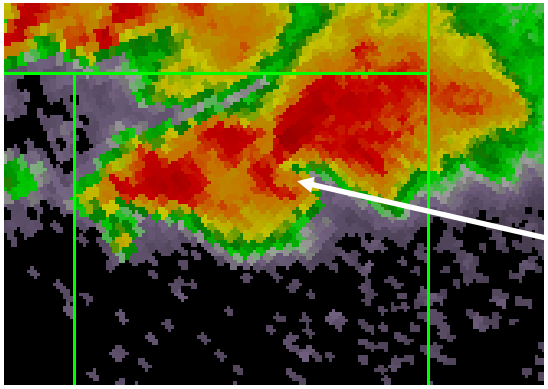
Satellites allow us to see many different large scale features from space. One such example is the dust storm image to the right.



Dust from: White Sands; Open fields in TX and NM

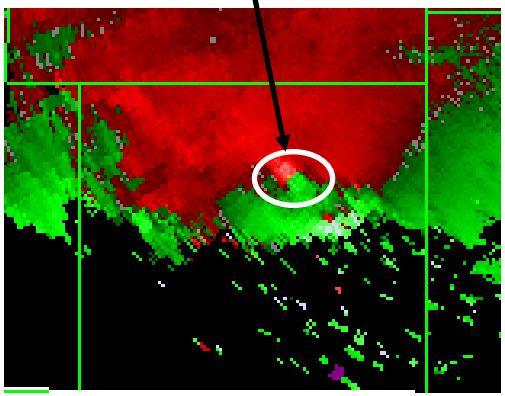
Weather Tools

Doppler Radar is a very important tool for observing precipitation. It is especially critical for monitoring severe thunderstorms since it provides a picture of their structure and the relative motion of the air within the storm. Over the next two years the current radar systems across the U.S. will be upgraded to **Dual-Polarization**. Once this occurs, radars will be better able to determine precipitation type and rate as well as detect non-meteorological returns (like birds, etc).



Hook Echo

Velocity Couplet indicating strong rotation



The **ASOS** (Automated Surface Observing System) measures temperature, wind, humidity, pressure, visibility, precipitation type and amount at ground level. Above is a picture of the ASOS located in Childress.

Weather Balloons are launched twice a day and measure temperature, moisture, wind and pressure above the ground. Balloons are launched from various sites around the country, including Midland and Amarillo.

July 2011

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: 91 / 67 0.09 **1** 105-1994 / 56-1924 Lubbock Records sr 641 am - sunrise ss 902 pm – sunset New Moon	**2** 92 / 67 0.08 106-1989 / 56-1944 sr 641 am ss 902 pm
3 92 / 67 0.08 108-1983 / 54-1929 sr 642 am ss 901 pm	**4** 92 / 67 0.08 105-1987 / 56-1924 sr 642 am ss 901 pm Independence Day	**5** 92 / 67 0.08 104-1971 / 49-1915 sr 643 am ss 901 pm	**6** 92 / 67 0.08 105-1994 / 53-1946 sr 643 am ss 901 pm	**7** 92 / 67 0.08 103-1998 / 51-1952 sr 644 am ss 901 pm	**8** 92 / 67 0.07 106-2009 / 51-1952 sr 644 am ss 901 pm First Quarter	**9** 92 / 67 0.07 107-2009 / 56-1952 sr 645 am ss 900 pm
10 92 / 68 0.07 109-1940 / 58-1968 sr 645 am ss 900 pm	**11** 92 / 68 0.07 104-1970 / 57-1999 sr 646 am ss 900 pm	**12** 92 / 68 0.07 105-1933 / 57-1999 sr 647 am ss 859 pm	**13** 92 / 68 0.07 107-1933 / 54-1953 sr 647 am ss 859 pm	**14** 92 / 68 0.07 108-1933 / 55-1990 sr 648 am ss 859 pm	**15** 92 / 68 0.07 105-2001 / 58-1926 sr 648 am ss 858 pm Full Moon	**16** 92 / 68 0.07 105-2001 / 58-1935 sr 649 am ss 858 pm
17 92 / 68 0.07 105-1989 / 59-1930 sr 650 am ss 857 pm	**18** 92 / 68 0.06 103-1978 / 60-1935 sr 650 am ss 857 pm	**19** 92 / 68 0.06 108-1936 / 55-1947 sr 651 am ss 856 pm	**20** 92 / 68 0.06 105-1936/ 59-1971 sr 651 am ss 856 pm	**21** 92 / 68 0.06 102-1966 / 57-1988 sr 652 am ss 855 pm	**22** 92 / 68 0.06 104-2003 / 55-1915 sr 653 am ss 855 pm	**23** 92 / 68 0.06 104-2001 / 54-1915 sr 653 am ss 854 pm Last Quarter
24 92 / 68 0.06 104-1958 / 57-1915 sr 654 am ss 854 pm **31** 91 / 68 0.07 104-1934 / 56-1971 sr 659 am ss 848 pm	**25** 92 / 68 0.06 104-1940 / 59-1956 sr 655 am ss 853 pm	**26** 92 / 68 0.06 105-1995 / 58-1959 sr 655 am ss 852 pm	**27** 92 / 68 0.06 106-1995 / 57-1933 sr 656 am ss 851 pm	**28** 92 / 68 0.06 105-1995 / 54-2005 sr 657 am ss 851 pm Delta Aquarids Meteor Shower (Jul 28-29)	**29** 92 / 68 0.06 102-1948 / 60-2004 sr 658 am ss 850 pm	**30** 91 / 68 0.07 104-1946 / 60-2000 sr 658 am ss 849 pm New Moon

The Tropics

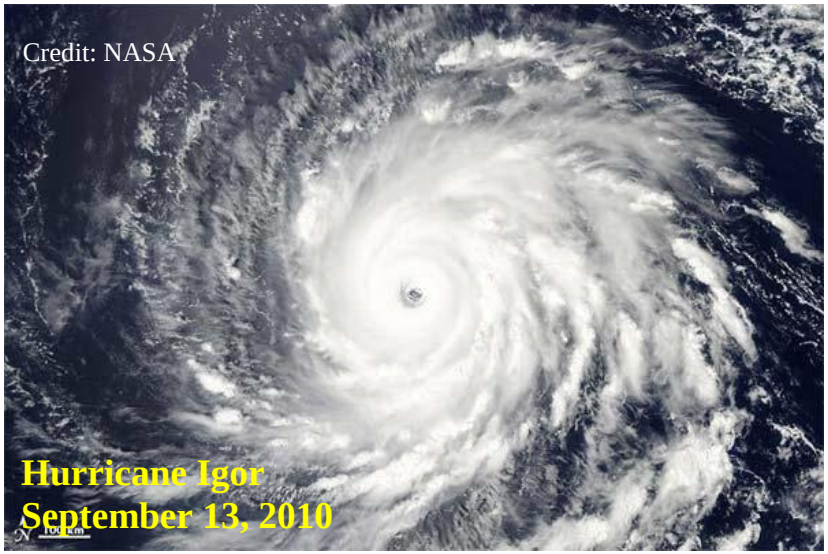
Average Atlantic Hurricane Season	
Named Storms	11
Hurricanes	6
Major Hurricanes (Category 3 or higher)	2

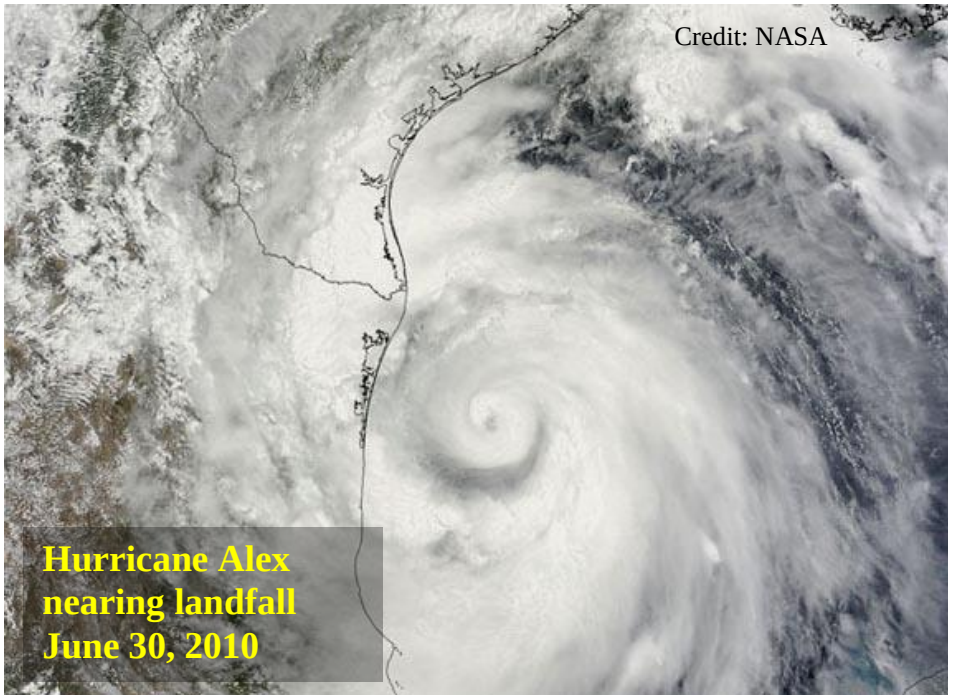
2011 Atlantic Names

Arlene	Lee
Bret	Maria
Cindy	Nate
Don	Ophelia
Emily	Philippe
Franklin	Rina
Gert	Sean
Harvey	Tammy
Irene	Vince
Jose	Whitney
Katia	

2010 was an Active Year for the Tropics

The 2010 Atlantic hurricane season was well above average, having produced 19 named storms and 12 hurricanes (5 of which become major). However, the 2010 season may not have seemed that active as no hurricanes made landfall in the United States.





Hurricane Igor (below left) was the strongest of the 2010 Atlantic hurricanes, becoming a major category 4 storm in mid-September. At its height Igor had sustained winds of 155 mph. Thankfully Igor was a "fish storm", and remained in the open Atlantic. Hurricane Alex, on the other hand, peaked as a category 2 storm, but abundant moisture from the remnants of Alex contributed to the heavy rain in West Texas over the July 4th weekend.

Saffir-Simpson Scale	
Type	**Maximum Wind Speeds (mph)**
Tropical Depression	< 39
Tropical Storm	39 - 73
Category 1 Hurricane	74 - 95
Category 2 Hurricane	96 -110
Category 3 Hurricane	111 - 130
Category 4 Hurricane	131 -155
Category 5 Hurricane	156 +

August 2011

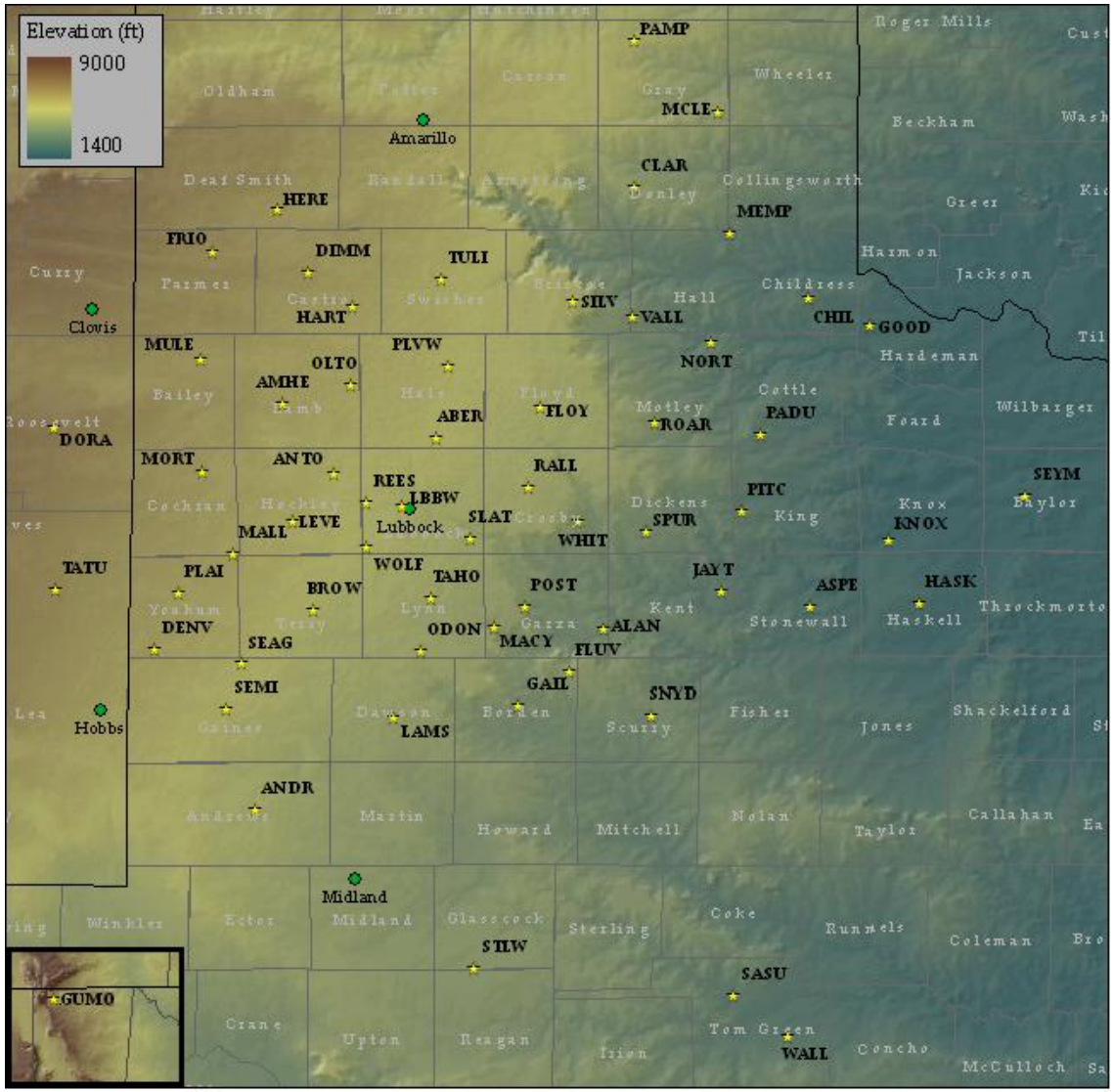
Lubbock National Weather Service

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: 92 / 68 0.07 **1** 106-1966 / 55-1925 Lubbock Records sr 700 am - sunrise ss 848 pm – sunset	92 / 68 0.07 **2** 105-1943 / 54-1936 sr 700 am ss 847 pm	92 / 68 0.07 **3** 107-1944 / 56-1921 sr 701 am ss 846 pm	92 / 68 0.07 **4** 105-2003 / 57-1915 sr 702 am ss 845 pm	91 / 68 0.07 **5** 102-2003 / 57-1915 sr 703 am ss 844 pm	91 / 67 0.07 **6** 102-2003 / 57-1990 sr 703 am ss 843 pm First Quarter
91 / 67 0.07 **7** 104-2003 / 58-1971 sr 704 am ss 842 pm	91 / 67 0.07 **8** 105-2003 / 58-1990 sr 705 am ss 841 pm	91 / 67 0.07 **9** 101-1970 / 51-1946 sr 705 am ss 840 pm	91 / 67 0.07 **10** 103-1935 / 55-1915 sr 706 am ss 839 pm	91 / 67 0.07 **11** 103-1936 / 56-1931 sr 707 am ss 838 pm	91 / 67 0.07 **12** 107-1936 / 54-1979 sr 707 am ss 837 pm Perseids Meteor Shower (Aug 12-14)	91 / 67 0.07 **13** 107-1936 / 54-1920 sr 708 am ss 836 pm Full Moon
91 / 67 0.07 **14** 103-1946 / 53-1920 sr 709 am ss 835 pm	90 / 66 0.08 **15** 103-1982 / 56-1920 sr 710 am ss 834 pm	90 / 66 0.08 **16** 104-1943 / 55-1931 sr 710 am ss 833 pm	90 / 66 0.08 **17** 103-1978 / 56-1931 sr 711 am ss 832 pm	90 / 66 0.08 **18** 103-1994 / 55-1943 sr 712 am ss 830 pm	90 / 66 0.08 **19** 103-1994 / 58-1950 sr 712 am ss 829 pm	90 / 66 0.08 **20** 103-1943 / 54-1915 sr 713 am ss 828 pm
89 / 65 0.08 **21** 103-1930 / 52-1956 sr 714 am ss 827 pm Last Quarter	89 / 65 0.08 **22** 100-1999 / 58-1967 sr 714 am ss 826 pm	89 / 65 0.08 **23** 101-1985 / 54-1923 sr 715 am ss 825 pm	89 / 65 0.08 **24** 101-1936 / 51-1916 sr 716 am ss 823 pm	89 / 65 0.08 **25** 105-1936 / 54-1962 sr 717 am ss 822 pm	88 / 64 0.08 **26** 102-1922 / 51-2010 sr 717 am ss 821 pm	88 / 64 0.08 **27** 100-1931 / 53-1926 sr 718 am ss 820 pm
88 / 64 0.08 **28** 100-1943 / 54-1916 sr 719 am ss 818 pm New Moon	88 / 64 0.08 **29** 99-1943 / 51-1917 sr 719 am ss 817 pm	88 / 63 0.09 **30** 101-1943 / 44-1915 sr 720 am ss 816 pm	87 / 63 0.09 **31** 100-1930 / 43-1915 sr 721 am ss 814 pm		NATIONAL WEATHER SERVICE	

West Texas Mesonet

Image captured of a shelf cloud approaching the West Texas Mesonet observation tower at Reese Center.



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 to include observation towers well beyond the South Plains, including two sites in eastern New Mexico and one at the Guadalupe Mountains National Park (see the image below). To the left is a map of the 60 mesonet stations (yellow stars) around the region. Temperature, moisture, wind, pressure, solar radiation, and precipitation data are available at all sites, with soil data available at most sites.

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

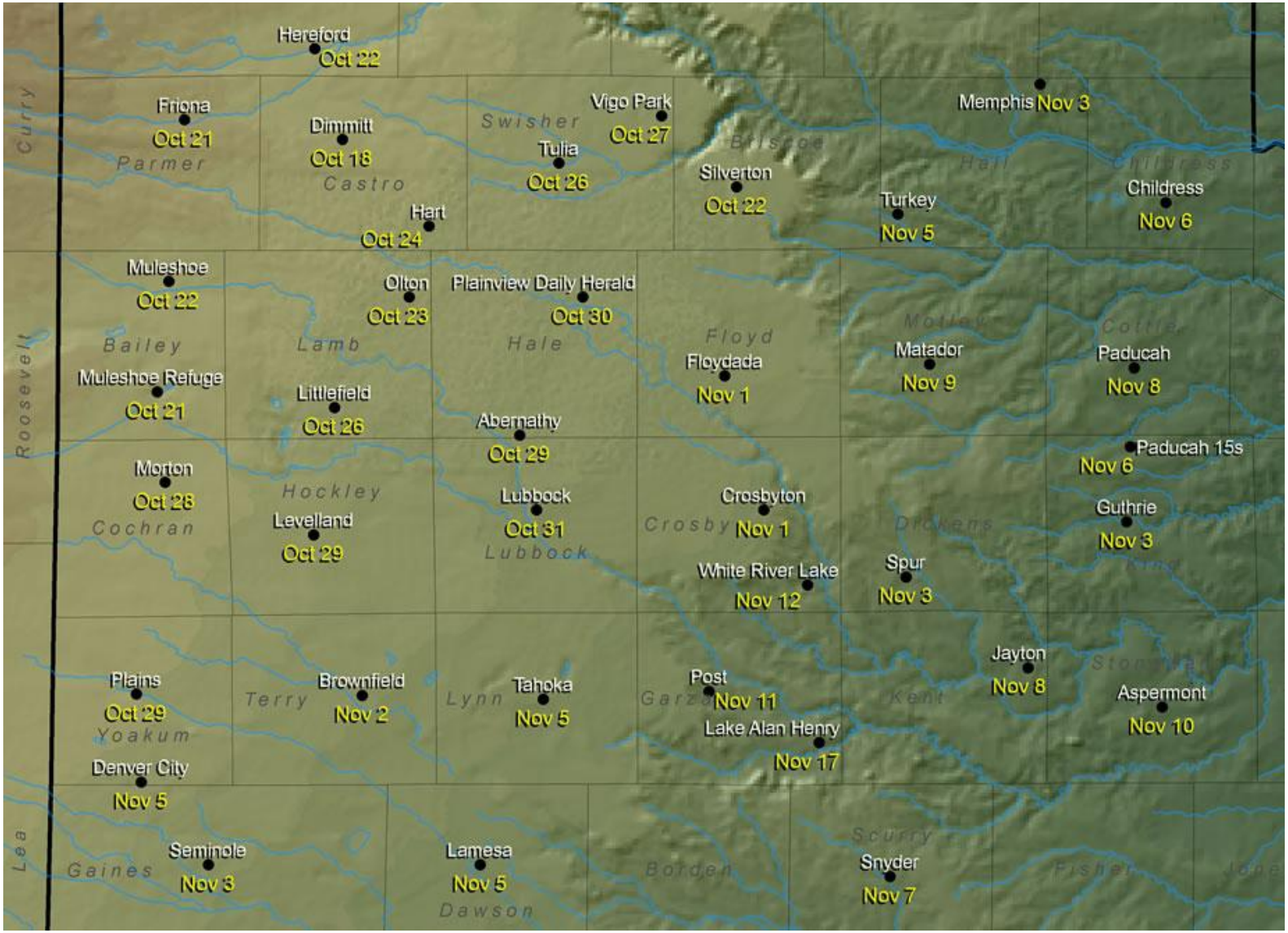
September 2011

Lubbock National Weather Service

WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				Normals: 87 / 63 0.09 **1** 99-1951 / 43-1915 Lubbock Records sr 721 am - sunrise ss 813 pm – sunset	87 / 63 0.09 **2** 101-1947 / 50-1955 sr 722 am ss 812 pm	87 / 62 0.09 **3** 101-2000 / 48-1974 sr 723 am ss 810 pm
86 / 62 0.09 **4** 101-2000 / 46-1915 sr 723 am ss 809 pm First Quarter	86 / 62 0.09 **5** 102-2000 / 46-1961 sr 724 am ss 808 pm Labor Day	86 / 61 0.09 **6** 103-1948 / 51-1918 sr 725 am ss 806 pm	86 / 61 0.09 **7** 98-2000 / 45-1918 sr 725 am ss 805 pm	85 / 61 0.09 **8** 97-1985 / 47-2004 sr 726 am ss 804 pm	85 / 61 0.09 **9** 99-1984 / 47-1956 sr 727 am ss 802 pm	85 / 60 0.09 **10** 100-2000 / 47-1962 sr 727 am ss 801 pm
85 / 60 0.09 **11** 103-2000 / 47-1959 sr 728 am ss 800 pm	84 / 60 0.09 **12** 100-1930 / 44-1959 sr 729 am ss 758 pm Full Moon	84 / 59 0.09 **13** 101-1930 / 43-1959 sr 729 am ss 757 pm	84 / 59 0.09 **14** 100-1965 / 42-1945 sr 730 am ss 756 pm	84 / 59 0.09 **15** 99-1965 / 42-1993 sr 731 am ss 754 pm	83 / 58 0.09 **16** 100-1965 / 42-1951 sr 731 am ss 753 pm	83 / 58 0.09 **17** 98-2005 / 42-1951 sr 732 am ss 751 pm
83 / 58 0.09 **18** 98-1997 / 43-1971 sr 733 am ss 750 pm	82 / 57 0.08 **19** 105-1930 / 42-1991 sr 733 am ss 749 pm	82 / 57 0.08 **20** 98-1977 / 41-1991 sr 734 am ss 747 pm Last Quarter	82 / 57 0.08 **21** 98-1998 / 33-1983 sr 735 am ss 746 pm	82 / 56 0.08 **22** 98-1977 / 40-1995 sr 735 am ss 744 pm	81 / 56 0.08 **23** 98-1926 / 41-2009 sr 736 am ss 743 pm Autumnal Equinox (4:04 am)	81 / 56 0.08 **24** 97-1953 / 38-1989 sr 737 am ss 742 pm
81 / 55 0.08 **25** 100-2005 / 36-2000 sr 737 am ss 740 pm	81 / 55 0.08 **26** 99-1997 / 36-1926 sr 738 am ss 739 pm	80 / 55 0.08 **27** 100-1953 / 39-1942 sr 739 am ss 738 pm New Moon	80 / 54 0.08 **28** 98-1994 / 36-1918 sr 740 am ss 736 pm	80 / 54 0.08 **29** 97-1977 / 33-1916 sr 740 am ss 735 pm	80 / 53 0.07 **30** 99-1977 / 35-1985 sr 741 am ss 733 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

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 2011

Lubbock National Weather Service

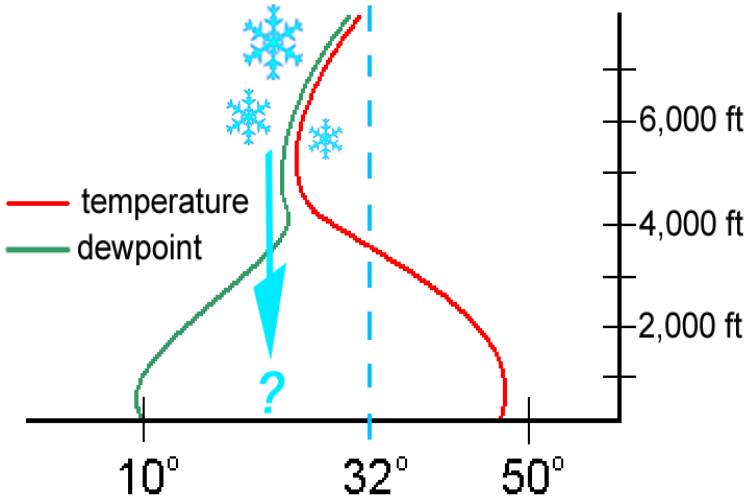
WWW.WEATHER.GOV/LUBBOCK

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: 79 / 53 0.07 **1** 98-2000 / 39-1985 Lubbock Records sr 742 am - sunrise ss 732 pm - sunset
79 / 53 0.07 **2** 99-2000 / 40-2009 sr 742 am ss 731 pm	79 / 52 0.07 **3** 100-2000 / 35-1961 sr 743 am ss 729 pm First Quarter	79 / 52 0.07 **4** 96-2000 / 41-1961 sr 744 am ss 728 pm	78 / 51 0.07 **5** 97-1934 / 33-1932 sr 745 am ss 727 pm	78 / 51 0.07 **6** 94-1939 / 34-2001 sr 745 am ss 725 pm	78 / 51 0.07 **7** 98-1979 / 31-1952 sr 746 am ss 724 pm	77 / 50 0.07 **8** 98-1979 / 31-1976 sr 747 am ss 723 pm
77 / 50 0.06 **9** 93-1965 / 29-1970 sr 747 am ss 722 pm	77 / 50 0.06 **10** 93-1965 / 37-2009 sr 748 am ss 720 pm Columbus Day	77 / 49 0.06 **11** 93-1979 / 34-2009 sr 749 am ss 719 pm Full Moon	76 / 49 0.06 **12** 92-1989 / 33-1969 sr 750 am ss 718 pm	76 / 48 0.06 **13** 92-1992 / 28-1969 sr 751 am ss 716 pm	75 / 48 0.06 **14** 93-2009 / 31-1969 sr 751 am ss 715 pm	75 / 47 0.06 **15** 92-1965 / 31-1966 sr 752 am ss 714 pm
75 / 47 0.05 **16** 92-2003 / 30-2001 sr 753 am ss 713 pm	74 / 47 0.05 **17** 93-1988 / 32-1999 sr 754 am ss 712 pm	74 / 46 0.05 **18** 90-2001 / 32-1968 sr 754 am ss 710 pm	74 / 46 0.05 **19** 92-1940 / 24-1917 sr 755 am ss 709 pm Last Quarter	73 / 45 0.05 **20** 92-2007 / 25-1916 sr 756 am ss 708 pm	73 / 45 0.05 **21** 90-2003 / 26-1917 sr 757 am ss 707 pm Orionids Meteor Shower (Oct 21-22)	72 / 45 0.05 **22** 89-1961 / 28-1945 sr 758 am ss 706 pm
72 / 44 0.05 **23** 91-2003 / 22-1917 sr 758 am ss 705 pm 69 / 41 0.04 **30** 88-1945 / 18-1993 sr 804 am ss 657 pm	71 / 44 0.04 **24** 91-1933 / 26-1929 sr 759 am ss 704 pm 68 / 41 0.04 **31** 88-1934 / 20-1991 sr 805 am ss 656 pm Halloween	71 / 43 0.04 **25** 91-1959 / 30-1955 sr 800 am ss 703 pm	71 / 43 0.04 **26** 88-1979 / 26-1913 sr 801 am ss 701 pm New Moon	70 / 42 0.04 **27** 87-1922 / 26-1997 sr 802 am ss 700 pm	70 / 42 0.04 **28** 91-1943 / 25-1970 sr 803 am ss 659 pm	69 / 42 0.04 **29** 90-2003 / 20-1917 sr 804 am ss 658 pm

Snow, Sleet and Freezing Rain...The Iceman Cometh!

At the NWS office in Lubbock, forecasting the precipitation type much of the year is typically straightforward and not one that requires much effort. However, by late in the year and occasionally through early spring, we devote special attention to the location of polar and arctic air masses that often visit much of the Great Plains. These cold air masses are no stranger to residents of West Texas, but they tend not to persist very long this far south as warmer air from either the Gulf of Mexico or the Desert Southwest often replaces them within a matter of days. This battle between air masses becomes especially important when storm systems approach as precipitation can range from snow to a wintry mix to rain and even thunderstorms in a short distance! Deciding where these transition lines unfold in advance is one of the most perplexing tasks forecasters face as weather models often struggle anticipating the precise strength of the opposing warm and cold layers of air.

The Challenge of Forecasting Precipitation Type



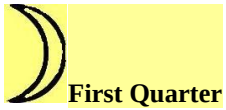
Profile of temperature and dewpoint with height as snow is occurring aloft. What precipitation type will reach the ground? Read the explanation to the right for insight.

To help determine what type of wintry precipitation might occur, forecasters look at vertical measurements of temperature and humidity from the surface up to about 15,000 feet. This allows us to see any variations in temperature or moisture that could present challenges in deciding the final precipitation type. Consider the following example: Your neighbor says because the temperature in their backyard is 42°F with no colder air in sight, the NWS must be off their rocker by forecasting snow in the coming hours. You might be inclined to think the same, but here is how the atmosphere can actually pull off such an impressive feat. The figure to the left shows a vertical profile of temperature (red) and moisture (green). Notice how the warm layer of air near the ground has much less moisture than the colder air aloft. As snow originating aloft falls down into the warmer layer, the warm layer cools and moistens as much of the snow sublimates (changes from a solid to a gas). With time, the once warm layer turns much colder and moister and can be supportive of snow reaching the ground! But what if we reverse the warm and cold layers but keep both of them very moist? This is where forecasters can pull their hair out as the answer is not so straightforward. The crux of the matter involves the depth of both the warm and cold layers. Generally speaking, a deep layer aloft with temperatures warmer than 32°F will convert any precipitation in that layer to a liquid, but if this rain falls into a deep cold layer below, then it would freeze resulting in ice pellets (sleet). But if the cold layer is not very deep above the ground, then the rain will remain liquid before freezing on contact with the ground. This results in freezing rain and is by far the most hazardous winter precipitation as it can cripple traffic and down power lines leaving residents without electricity, sometimes for days.

November 2011

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: 68 / 40 0.03 **1** 85-1994 / 23-1951 Lubbock Records sr 806 am - sunrise ss 656 pm – sunset	67 / 40 0.03 **2** 83-2001 / 19-1991 sr 807 am ss 655 pm  First Quarter	67 / 39 0.03 **3** 88-2005 / 7-1991 sr 808 am ss 654 pm	66 / 39 0.03 **4** 86-1916 / 20-1950 sr 809 am ss 653 pm	66 / 38 0.03 **5** 86-1924 / 22-1959 sr 810 am ss 652 pm
65 / 38 0.03 **6** 85-1975 / 16-1959 sr 711 am ss 551 pm Daylight Saving Time Ends	65 / 38 0.03 **7** 89-1916 / 19-1947 sr 712 am ss 550 pm	64 / 37 0.03 **8** 88--2005 / 20-1943 sr 712 am ss 550 pm Election Day	64 / 37 0.03 **9** 90-2006 / 21-1943 sr 713 am ss 549 pm	64 / 36 0.03 **10** 85-1927 / 19-1950 sr 714 am ss 548 pm  Full Moon	63 / 36 0.03 **11** 82-1956 / 16-1950 sr 715 am ss 547 pm Veteran's Day	63 / 36 0.02 **12** 85-1995 / 19-1919 sr 716 am ss 547 pm
62 / 35 0.02 **13** 82-1973 / 14-1976 sr 717 am ss 546 pm	62 / 35 0.02 **14** 85-1933 / 4-1976 sr 718 am ss 545 pm	62 / 35 0.02 **15** 85-1965 / 10-1916 sr 719 am ss 545 pm	61 / 34 0.02 **16** 83-1966 / 11-1916 sr 720 am ss 544 pm	61 / 34 0.02 **17** 85-1966 / 10-1959 sr 721 am ss 544 pm Leonids Meteor Shower (Nov 17-18)	60 / 33 0.02 **18** 82-1999 / 16-1951 sr 722 am ss 543 pm  Last Quarter	60 / 33 0.02 **19** 85-1996 / 14-1937 sr 723 am ss 543 pm
60 / 33 0.02 **20** 88-1996 / 17-1937 sr 724 am ss 542 pm	59 / 32 0.02 **21** 84-1927 / 18-1956 sr 725 am ss 542 pm	59 / 32 0.02 **22** 82-2006 / 6-1957 sr 725 am ss 541 pm	59 / 32 0.02 **23** 84-1965 / -1-1957 sr 726 am ss 541 pm	58 / 31 0.02 **24** 82-1915 / 7-1938 sr 727 am ss 541 pm Thanksgiving Day	58 / 31 0.02 **25** 86-1965 / 15-1993 sr 728 am ss 540 pm  New Moon	58 / 31 0.02 **26** 82-1970 / 8-1980 sr 729 am ss 540 pm
57 / 30 0.02 **27** 81-1949 / 12-1976 sr 730 am ss 540 pm	57 / 30 0.02 **28** 83-1949 / 5-1976 sr 731 am ss 540 pm	57 / 30 0.02 **29** 76-1927 / 1-1976 sr 732 am ss 540 pm	56 / 30 0.02 **30** 80-1946 / 10-1918 sr 733 am ss 539 pm End of the Atlantic Hurricane Season			

2011 Celestial Events

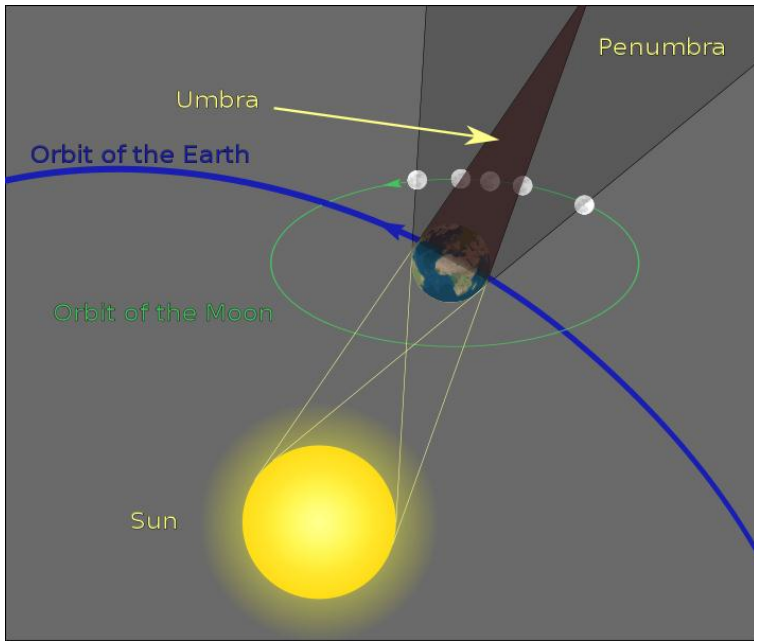
A **Total Lunar Eclipse** will occur on December 10th. Unfortunately the moon will be setting across North America as the eclipse begins, and we will only see a portion of the eclipse before the moon sets below the horizon. The above photo shows the progression to totality during a lunar eclipse on August 28, 2007.

2011 Major Meteor Showers

Shower	Peak Dates	Notes
Quadrantids	Jan 3-4	sharp peak
Lyrids	Apr 21-22	sporadic
Delta Aquarids	Jul 28-29	sporadic
Perseids	Aug 12-13	one of best
Orionids	Oct 21-22	sporadic
Leonids	Nov 17-18	variable
Geminids	Dec 13-14	one of best

What Causes a Lunar Eclipse?

A lunar eclipse occurs when the moon passes through the shadow the earth casts. This occurs when the sun, earth and moon fall along the same line, with the earth between the sun and the moon. The image to the right illustrates the configuration for a lunar eclipse.



Similar to a lunar eclipse, a solar eclipse also occurs when the three celestial objects (sun, earth and moon) line up, but in this case the moon passes between the sun and the earth. However, a total solar eclipse is much rarer and only occurs over small portions of the earth when it does happen. The reason a solar eclipse is relatively uncommon is that, as viewed from earth, the moon and the sun are nearly the same size, even though in reality the sun is about 400 times wider than the moon. Thus, the moon must pass directly in front of the sun to fully eclipse it. With a lunar eclipse, the moon must just pass through the earth's shadow, which is much bigger relative to the moon. This is why a lunar eclipse occurs more often and last longer than a solar eclipse.

Lubbock National Weather Service

December 2011

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: 56 / 29 0.02 **1** 76-1995 / 12-1918 Lubbock Records sr 734 am - sunrise ss 539 pm – sunset	56 / 29 0.02 **2** 81-1995 / 13-1985 sr 734 am ss 539 pm First Quarter	56 / 29 0.02 **3** 82-2010 / 15-1967 sr 735 am ss 539 pm
55 / 28 0.02 **4** 81-1958 / 15-1921 sr 736 am ss 539 pm	55 / 28 0.02 **5** 79-1939 / 10-1950 sr 737 am ss 539 pm	55 / 28 0.02 **6** 83-1939 / 1-1950 sr 738 am ss 539 pm	55 / 28 0.02 **7** 79-2007 / 8-2005 sr 738 am ss 539 pm	55 / 27 0.02 **8** 78-1970 / 3-1917 sr 739 am ss 539 pm	54 / 27 0.02 **9** 80-1939 / 5-1978 sr 740 am ss 539 pm	54 / 27 0.02 **10** 81-1933 / 5-1917 sr 741 am ss 540 pm Full Moon Total Lunar Eclipse
54 / 27 0.03 **11** 80-1939 / 6-1917 sr 742 am ss 540 pm	54 / 27 0.03 **12** 82-1937 / 6-1961 sr 742 am ss 540 pm	53 / 26 0.03 **13** 79-1921 / 5-1917 sr 743 am ss 540 pm	53 / 26 0.03 **14** 75-1922 / 8-1987 sr 744 am ss 541 pm Geminids Meteor Shower (Dec 13-14)	53 / 26 0.03 **15** 76-1977 / 2-1987 sr 744 am ss 541 pm	53 / 26 0.02 **16** 77-2006 / 3-1987 sr 745 am ss 541 pm	53 / 26 0.02 **17** 78-1980 / 5-1932 sr 746 am ss 542 pm Last Quarter
53 / 26 0.02 **18** 77-1980 / 6-1996 sr 746 am ss 542 pm	52 / 25 0.02 **19** 76-1921 / 0-1924 sr 747 am ss 542 pm	52 / 25 0.02 **20** 80-1921 / 3-1924 sr 747 am ss 543 pm	52 / 25 0.02 **21** 78-1981 / 2-1983 sr 748 am ss 543 pm Winter Solstice (11:30 pm)	52 / 25 0.02 **22** 79-1969 / -2-1989 sr 748 am ss 544 pm	52 / 25 0.02 **23** 80-1964 / -1-1989 sr 749 am ss 544 pm	52 / 25 0.02 **24** 80-1955 / 0-1983 sr 749 am ss 545 pm New Moon
52 / 25 0.02 **25** 76-1955 / -1-1924 sr 750 am ss 545pm Christmas	52 / 24 0.02 **26** 77-2005 / 0-1918 sr 750 am ss 546 pm	52 / 24 0.02 **27** 76-2006 / 3-1918 sr 750 am ss 547 pm	51 / 24 0.02 **28** 81-1928 / -2-1924 sr 751 am ss 547 pm	51 / 24 0.02 **29** 77-1920 / -1-1939 sr 751 am ss 548 pm	51 / 24 0.02 **30** 80-2008 / 7-2000 sr 751 am ss 549 pm	51 / 24 0.02 **31** 75-2005 / 8-1923 sr 752 am ss 549 pm New Year's Eve

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.