

2013 Calendar



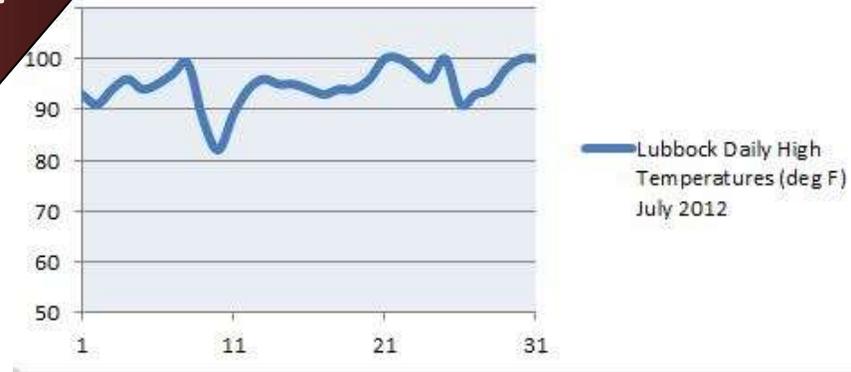
Photo by
Erin Shaw

The National Weather Service in Lubbock, Texas

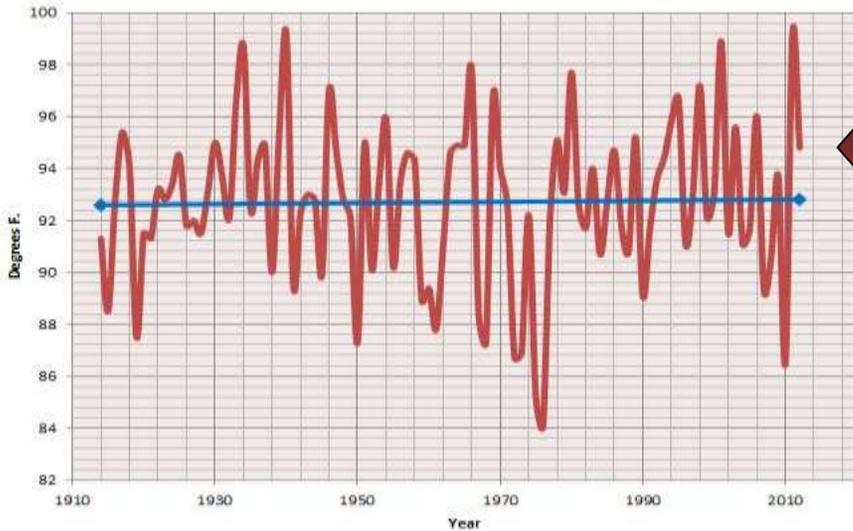
Weather is what meteorologists tell you about each day: cloudy and cool today, sunny and hot tomorrow with a chance of thunderstorms. Weather varies quite a bit – even during summer. This chart shows high temperatures at Lubbock each day during July of 2012. A few days were around 100 degrees, while one day barely warmed into the 80s. Day-to-day weather is influenced by things such as disturbances, fronts, and geography. Weather may change wildly from one day to the next and differ greatly even from one nearby location to another.

weather

Lubbock Daily High Temperatures (deg F) July 2012



July Average High Temperature for Lubbock 1914-2012



climate

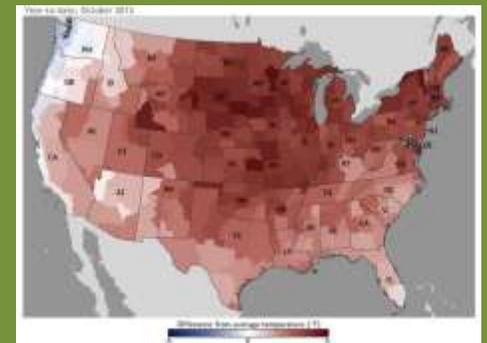
Climate is the average weather that occurs over a long period of time. Whereas weather can change day-to-day, climate changes over a much longer time – usually many years. This graph shows each year's average July temperature at Lubbock starting in 1914. Some Julys were hot; some less hot. The blue line around 93 degrees is the long-term trend, and it shows slight warming. As you probably can tell, however, the climate typically fluctuates between warm phases – such as the 1930s – and cool phases - such as the 1970s - each that may persist several years. Short-term variations within the long-term trend are referred to as **Climate Variability**.

Weather and Climate are kind of like your wardrobe: you have clothes for the variety of conditions (climate) but wear only one set at a time (weather)



2012: On-pace for the hottest year

Temperatures for the U.S. January through October 2012 were the hottest of any year on-record. After a mild winter, hot spring and summer, and a warm fall - it seemed likely that 2012 would end as the warmest year ever. Lubbock and Childress, along with many other South Plains cities, were on the same pace as most of the country.



SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1 Normals: 53 / 26 0.02 76-1997 / -2-1919 Lubbock Records sr 752 am - sunrise ss 551 pm - sunset New Year's Day	2 53 / 26 0.02 77-2009 / -2-1979 sr 752 am ss 552 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 553 pm  Last Quarter	5 53 / 26 0.02 82-1927 / -4-1971 sr 753 am ss 554 pm
	6 53 / 26 0.02 79-1927 / 0-1971 sr 753 am ss 555 pm	7 53 / 26 0.02 80-2006 / 6-1968 sr 753 am ss 556 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	10 53 / 26 0.01 76-1928 / -10-1930 sr 752 am ss 558 pm	11 54 / 26 0.02 76-1911 / -7-1918 sr 752 am ss 559 pm  New Moon
13 54 / 26 0.02 79-1957 / -16-1963 sr 752 am ss 601 pm	14 54 / 26 0.01 82-1928 / 3-1963 sr 752 am ss 602 pm	15 54 / 26 0.02 80-1911 / 4-1963 sr 752 am ss 603 pm	16 54 / 26 0.02 80-1974 / 6-1930 sr 751am ss 604 pm	17 54 / 26 0.02 87-1914 / -2-1930 sr 751 am ss 605 pm	18 54 / 26 0.03 79-1914 / -5-1930 sr 751 am ss 606 pm  First Quarter	19 54 / 26 0.02 80-2000 / 0-1963 sr 751 am ss 607 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 Martin Luther King Jr. Day (Observed)	22 55 / 27 0.02 79-2009 / -6-1918 sr 749 am ss 609 pm	23 55 / 27 0.03 83-1972 / 3-1983 sr 749 am ss 610 pm	24 55 / 27 0.02 83-1970 / -1-1915 sr 748 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 747 am ss 613 pm  Full Moon
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 746 am ss 615 pm	29 56 / 27 0.03 80-1911 / 1-1948 sr 746 am ss 616 pm	30 56 / 27 0.02 80-1967 / 6-1951 sr 745 am ss 617 pm	31 56 / 28 0.03 84-1911 / 2-1985 sr 744 am ss 618 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	

NWS Cooperative Observer Program (COOP)



Lubbock NWS COOP observer Anna Belle Walker received the 35-year Length of Service Award from Lubbock Meteorologist in Charge (MIC) Justin Weather (right) and Lubbock Senior Service Hydrologist John Lipe (left).

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 Clinton Bowman received the 15-year Length of Service Award from Lubbock MIC Justin Weather and Administrative Support Assistant Marsha Black.



Lubbock NWS COOP observer Tommie Jo Cruise received the 35-year Length of Service Award from Lubbock MIC Justin Weather.



Lubbock NWS COOP observer Joe (Buzz) Thacker received the Benjamin Franklin Award for 55 years of weather reporting. The award was presented by Lubbock MIC Justin Weaver.



Lubbock NWS COOP observer Betty Carr, pictured with her husband Charles, received the 10-year Length of Service Award.

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 / 28 0.03 83-1963 / -7-1951 Lubbock Records 1 sr 744 am - sunrise ss 619 pm - sunset	2 56 / 28 0.02 80-2003 / -4-1951 sr 743 am ss 620 pm Groundhog Day
3 56 / 28 0.03 80-1934 / 4-1972 sr 742 am ss 621 pm 	4 57 / 28 0.02 82-1925 / 3-1989 sr 741 am ss 622 pm	5 57 / 28 0.03 81-1937 / 3-1982 sr 740 am ss 623 pm	6 57 / 28 0.02 80-2009 / 4-1956 sr 740 am ss 624 pm	7 57 / 29 0.03 84-1918 / -3-1933 sr 739 am ss 625 pm	8 57 / 29 0.03 83-1951 / -17-1933 (all-time) sr 738 am ss 626 pm	9 58 / 29 0.03 83-1976 / 0-1933 sr 737 am ss 627 pm
10 58 / 29 0.03 84-1962 / 1-1929 sr 736 am ss 628 pm 	11 58 / 29 0.03 85-1962 / 6-1981 sr 735 am ss 629 pm	12 58 / 29 0.02 86-1962 / 9-1958 sr 734 am ss 630 pm	13 59 / 30 0.03 81-1979 / 7-1963 sr 733 am ss 630 pm Ash Wednesday	14 59 / 30 0.03 87-1979 / 12-2004 sr 732 am ss 631 pm Valentine's Day	15 59 / 30 0.02 83-1945 / 8-1951 sr 731 am ss 632 pm	16 59 / 30 0.03 85-2011 / 13-1979 sr 730 am ss 633 pm
17 59 / 31 0.03 85-1970 / 0-1978 sr 729 am ss 634 pm 	18 60 / 31 0.02 83-1996 / -2-1978 sr 728 am ss 635 pm Presidents' Day	19 60 / 31 0.03 83-1986 / 2-1978 sr 727 am ss 636 pm	20 60 / 31 0.03 82-1996 / 4-1918 sr 726 am ss 637 pm	21 60 / 31 0.02 84-1996 / 6-1964 sr 725 am ss 638 pm	22 61 / 32 0.03 87-1996 / 12-1911 sr 724 am ss 639 pm	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 721 am ss 640 pm	25 61 / 32 0.02 86-1989 / -8-1960 sr 720 am ss 641 pm 	26 62 / 33 0.03 85-1918 / 8-1935 sr 719 am ss 642 pm	27 62 / 33 0.03 81-2006 / 10-1934 sr 718 am ss 643 pm	28 62 / 33 0.03 89-2006 / 7-1962 sr 717 am ss 644 pm		

XERISCAPING HELPS CONSERVE Our Water Resources



LANDSCAPING TIPS

Choose plants native or adapted to hot, dry West Texas summers and our cold, windy winters. They require up to 80% less water than non-adapted varieties.

For bedding plants and row gardens focus watering to the roots by using drip irrigation. Regulate ground temperature and evaporation with good quality mulch.

Water lawns early in the morning during the hotter summer months to reduce loss to evaporation.

Do not over-water or water too frequently.

Consider rainwater harvesting to collect rainfall for later use on the landscape.

Abide by any local government ordinances in place for your area.

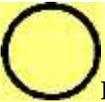


MORE INFORMATION:

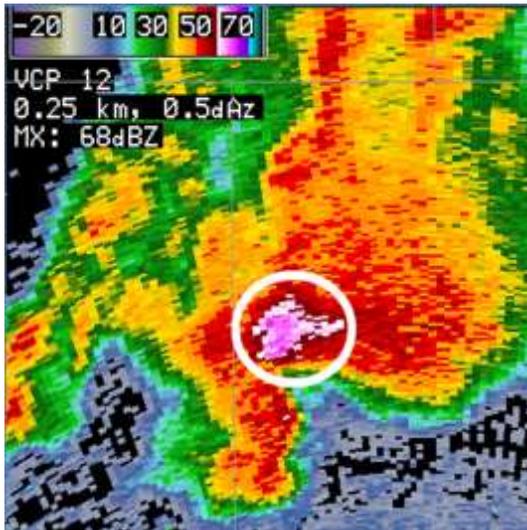
Lubbock Master Gardeners <http://www.lubbockmastergardeners.org/>
WestTexas SmartScape <http://www.txsmartscape.com/WestTX/main.asp>
Water IQ <http://www.wateriq.org/index.asp>
Rainwater Harvesting <http://rainwaterharvesting.tamu.edu/>

Using water wisely saves
money and saves water for the
future of West Texas.



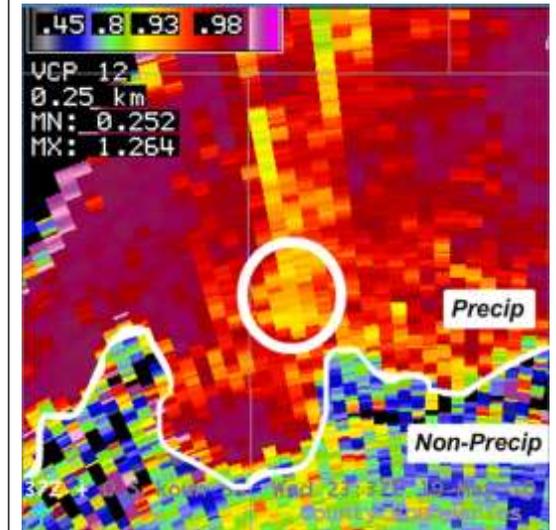
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES: Lubbock 162.400 Dimmitt 162.500 Plainview 162.450 Childress 162.525 Dickens 162.500		Normals: 63 / 33 0.03 89-2006 / 5-1922 Lubbock Records 1 sr 715 am - sunrise ss 644 pm - sunset	63 / 34 0.03 86-1974 / -2-1922 2 sr 714 am ss 645 pm
3 63 / 34 0.03 88-2009 / 7-1943 sr 713 am ss 646 pm	63 / 34 0.03 89-2009 / -1-1917 sr 712 am ss 647 pm Last Quarter	64 / 34 0.04 90-1916 / 11-1989 sr 710 am ss 648 pm	64 / 35 0.03 87-1934 / 10-1943 sr 709 am ss 649 pm	64 / 35 0.03 88-2006 / 11-1996 sr 708 am ss 649 pm	64 / 35 0.03 87-1918 / 12-1967 sr 707 am ss 650 pm	65 / 35 0.04 88-1911 / 13-1969 sr 705 am ss 651 pm
<h2>Severe Weather Awareness Week</h2>						
10 65 / 36 0.03 88-1911 / 4-1948 sr 804 am ss 752 pm Daylight Saving Time begins	65 / 36 0.03 95-1989 / 2-1948 sr 803 am ss 752 pm  New Moon	66 / 36 0.04 94-1989 / 10-1948 sr 801 am ss 753 pm	66 / 36 0.03 91-1916 / 12-1950 sr 800 am ss 754 pm	66 / 37 0.04 86-1972 / 13-1954 sr 759 am ss 755 pm	66 / 37 0.03 86-1966 / 17-1947 sr 758 am ss 756 pm	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	67 / 37 0.04 88-1916 / 11-1923 sr 754 am ss 758 pm	68 / 38 0.04 87-1995 / 11-1923 sr 752 am ss 759 pm First Quarter	68 / 38 0.03 90-1916 / 8-1965 sr 751 am ss 759 pm Spring Equinox (6:02 am)	68 / 38 0.04 93-1997 / 17-1983 sr 749 am ss 800 pm	68 / 38 0.04 86-1935 / 18-1952 sr 748 am ss 801 pm	69 / 39 0.04 84-2009 / 13-1952 sr 747 am ss 802 pm
<h2>Flood Safety Awareness Week</h2>						
24 69 / 39 0.04 88-1929 / 22-1965 sr 745 am ss 802 pm	69 / 39 0.04 90-1998 / 20-1996 sr 744 am ss 803 pm	70 / 40 0.04 88-1956 / 16-1965 sr 743 am ss 804 pm	70 / 40 0.04 94-1971 / 12-1931 sr 741 am ss 805 pm  Full Moon	70 / 40 0.04 90-1963 / 16-1931 sr 740 am ss 805 pm	70 / 40 0.04 91-2012 / 18-1944 sr 739 am ss 806 pm	71 / 41 0.03 91-2010 / 16-1987 sr 737 am ss 807 pm
31 71 / 41 0.04 95-1946 / 19-1931 sr 736 am ss 807 pm Easter Sunday						

Dual-Polarization Doppler Radar

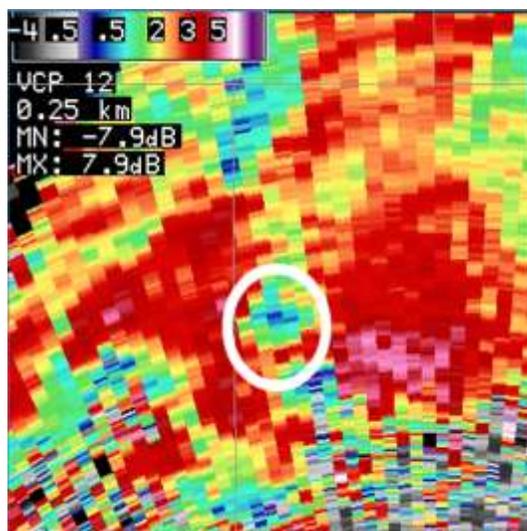


(Above) Radar reflectivity observed during a strong thunderstorm. This product was already available before the Dual-Pol upgrade, with stronger returns (reds, whites and purples) corresponding to heavier rain and possible hail (in the circle).

Through 2012 and the first half of 2013 the current weather radar systems across the U.S. will be upgraded to include Dual-Polarization (Dual-Pol). Dual-Pol radars will have the ability to sense both the **horizontal** and **vertical dimensions** of the targets, rather than 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), the identification of tornadic debris signatures, and the identification of non-meteorological returns (like birds, insects, etc.). The radar at Lubbock is scheduled to be upgraded to Dual-Pol in April 2013.



(Above) Correlation Coefficient (CC) observed during a strong thunderstorm. High values of CC tell us the same shape/type of precipitation is falling. In this case, where CC is high (red) rain is falling, whereas where it is lower in the circle, rain is mixed with hail.



(Left) Differential Reflectivity (ZDR) and (Right) Specific Differential Phase (KDP) observed during a strong thunderstorm. ZDR is the ratio of horizontal to vertical returned power. Round objects will have values near zero (like hail within the circle) while relatively wide but flat objects (like large falling raindrops which are shaped like hamburger buns) will have positive (red) values. The KDP is a measure of how much the horizontal and vertical pulses slow down as they move through the atmosphere. Large values of KDP, like found in the circle, correspond to heavier rainfall rates (potentially mixed with hail).



SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1 Normals: 71/41 0.04 96-1946/22-1948 Lubbock Records sr 735 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  Last Quarter	4 72/42 0.04 92-1928/18-1920 sr 731 am ss 810 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
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 726 am ss 813 pm	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  New Moon	11 74/44 0.04 94-1972/25-1932 sr 722 am ss 816 pm	12 74/44 0.04 96-1972/22-1997 sr 720 am ss 816 pm	13 75/45 0.05 91-2006/26-1957 sr 719 am ss 817 pm
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 717 am ss 819 pm	16 76/46 0.05 100-1925/31-1947 sr 715 am ss 819 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  First Quarter	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 711 am ss 822 pm
21 77/48 0.04 98-1989/28-1918 sr 710 am ss 823 pm Lynids Meteor Shower (Apr 21-22)	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 825 pm	25 78/49 0.06 104-2012/35-1927 sr 705 am ss 826 pm  Full Moon	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 828 pm	29 79/50 0.06 97-2011/31-1968 sr 701 am ss 829 pm	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			

Number of Reported Tornadoes - 1950 to 2012

<u>Parmer</u>	<u>Castro</u>	<u>Swisher</u>	<u>Briscoe</u>	<u>Hall</u>	<u>Childress</u>
Total 48 F3+ 3	Total 57 F3+ 1	Total 66 F3+ 5	Total 42 F3+ 3	Total 45 F3+ 2	Total 25 F3+ 0
<u>Bailey</u>	<u>Lamb</u>	<u>Hale</u>	<u>Floyd</u>	<u>Motley</u>	<u>Cottle</u>
Total 50 F3+ 2	Total 82 F3+ 7	Total 125 F3+ 3	Total 53 F3+ 3	Total 21 F3+ 2	Total 31 F3+ 1
<u>Cochran</u>	<u>Hockley</u>	<u>Lubbock</u>	<u>Crosby</u>	<u>Dickens</u>	<u>King</u>
Total 28 F3+ 1	Total 57 F3+ 6	Total 91 F3+ 3 F5 1	Total 52 F3+ 2	Total 31 F3+ 1	Total 19 F3+ 0
<u>Yoakum</u>	<u>Terry</u>	<u>Lynn</u>	<u>Garza</u>	<u>Kent</u>	<u>Stonewall</u>
Total 25 F3+ 0	Total 31 F3+ 0	Total 42 F3+ 1	Total 19 F3+ 0	Total 22 F3+ 0	Total 23 F3+ 0

South Plains Tornado Trivia

Longest Tracked Tornado:

- ▽ From NE of Muleshoe to NE of Pampa on April 17, 1970 = 130 miles
- ▽ Entire track in Lubbock NWS area: From NW of Levelland to NE of Muleshoe on June 17, 1980 = 45 miles

Largest Tornado:

- ▽ May 28, 1980 – Tornado that tracked west of Tulia was estimated to be 2330 yards wide (1.3 miles wide)

Strongest Tornado:

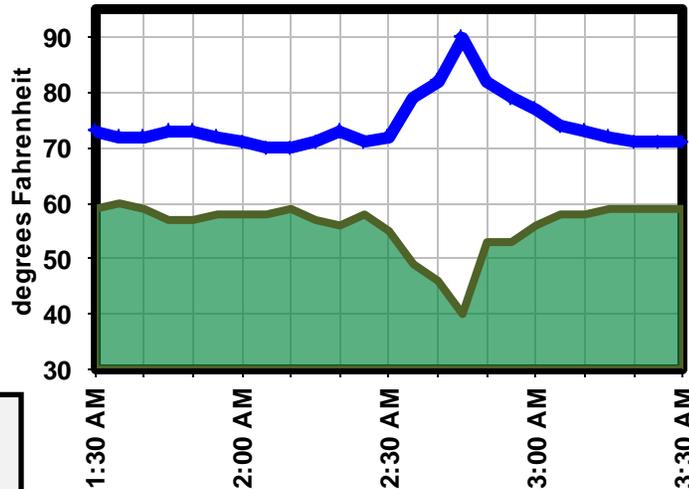
- ▽ May 11, 1970 - F5 tornado tracked through Lubbock and produced \$250 million in damage, killed 26 people, and injured 1500

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1 Normals: 80 / 51 0.05 96-2012 / 32-1970 Lubbock Records sr 659 am - sunrise ss 831 pm - sunset	2 80 / 51 0.06 97-2012 / 30-1967 sr 658 am ss 832 pm 	3 80 / 52 0.05 98-2012 / 30-1918 sr 657 am ss 832 pm	4 81 / 52 0.06 104-1947 / 35-1935 sr 656 am ss 833 pm
5 81 / 52 0.05 99-2012 / 34-1953 sr 655 am ss 834 pm Cinco De Mayo	6 81 / 53 0.06 99-2000 / 32-1917 sr 654 am ss 835 pm	7 81 / 53 0.05 100-2009 / 29-1917 sr 653 am ss 835 pm	8 82 / 53 0.06 102-1989 / 31-1938 sr 652 am ss 836 pm	9 82 / 54 0.06 97-2011 / 38-1961 sr 651 am ss 837 pm 	10 82 / 54 0.06 99-2000 / 33-1918 sr 651 am ss 838 pm	11 83 / 54 0.07 101-2000 / 37-1930 sr 650 am ss 838 pm
12 83 / 55 0.06 98-1962 / 35-1960 sr 649 am ss 839 pm Mother's Day	13 83 / 55 0.08 100-2006 / 37-1971 sr 648 am ss 840 pm	14 83 / 55 0.07 100-1996 / 35-1953 sr 647 am ss 841 pm	15 84 / 56 0.06 103-1996 / 34-1967 sr 647 am ss 841 pm	16 84 / 56 0.07 102-1996 / 37-1945 sr 646 am ss 842 pm	17 84 / 56 0.08 101-1996 / 41-1986 sr 645 am ss 843 pm	18 84 / 57 0.08 103-2003 / 42-1916 sr 645 am ss 843 pm 
19 85 / 57 0.08 105-1996 / 42-1971 sr 644 am ss 844 pm	20 85 / 57 0.08 102-2006 / 40-1931 sr 644 am ss 845 pm	21 85 / 58 0.09 101-1989 / 39-1967 sr 643 am ss 846 pm	22 85 / 58 0.09 105-1996 / 40-1931 sr 642 am ss 846 pm	23 86 / 58 0.09 105-2000 / 45-1917 sr 642 am ss 847 pm	24 86 / 58 0.09 109-2000 / 40-1930 sr 641 am ss 848 pm	25 86 / 59 0.09 102-2012 / 44-1924 sr 641 am ss 848 pm 
26 86 / 59 0.09 101-1945 / 43-1950 sr 640 am ss 849 pm	27 86 / 59 0.08 103-1984 / 48-1961 sr 640 am ss 850 pm Memorial Day	28 87 / 60 0.10 104-2011 / 43-1917 sr 640 am ss 850 pm	29 87 / 60 0.10 104-2011 / 38-1947 sr 639 am ss 851 pm	30 87 / 60 0.09 103-1998 / 45-1983 sr 639 am ss 852 pm	31 87 / 61 0.10 102-1916 / 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

Heat Bursts: A (not so) Rare Weather Phenomenon

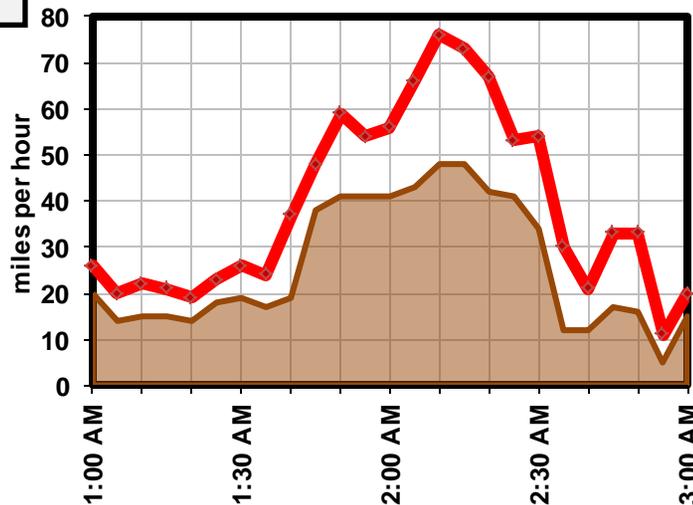
A heat burst is a meteorological phenomenon in which air descending from a dying thunderstorm causes a rapid temperature increase and strong winds at the surface. What distinguishes a heat burst from a more typical thunderstorm downburst is that heat bursts occur at night. At night, the air near the surface cools more rapidly than air above, creating a temperature inversion. Thunderstorm downdraft air warms as it descends and in some cases can punch through the inversion, allowing the warm, dry air to reach the ground.

The graph on the right shows how the air temperature (blue line) increased dramatically—rising to over 90 degrees! The dewpoint temperature (green) also decreased, leading to very low relative humidity in the middle of the night.



Example: Heat burst at Childress on June 15th, 2012

The graph on the right shows how the wind speed increased during the heat burst. The thick red line is the highest wind gust reported in a 5-minute period while the shaded area is the 5-minute average wind speed. The peak gust was 77mph.



Winds Associated with a heat burst in September of 2005 tore the roof off a church in Lubbock

Heat Burst Questions:

▪ When do heat bursts typically occur?

Most heat bursts happen at night or during the early morning, when surface temperatures are cooler. Heat bursts occur most commonly in late spring and summer. During those seasons, we frequently see strong thunderstorms develop across our area in the afternoon and evening and then die off overnight – a sequence of events that is favorable for heat bursts.

▪ How common are heat bursts?

Once thought to be rare, new dense networks of weather stations like the West Texas Mesonet are showing that heat bursts occur at least several times each year across west Texas.

June 2013

Lubbock National Weather Service

WWW.WEATHER.GOV/LUBBOCK

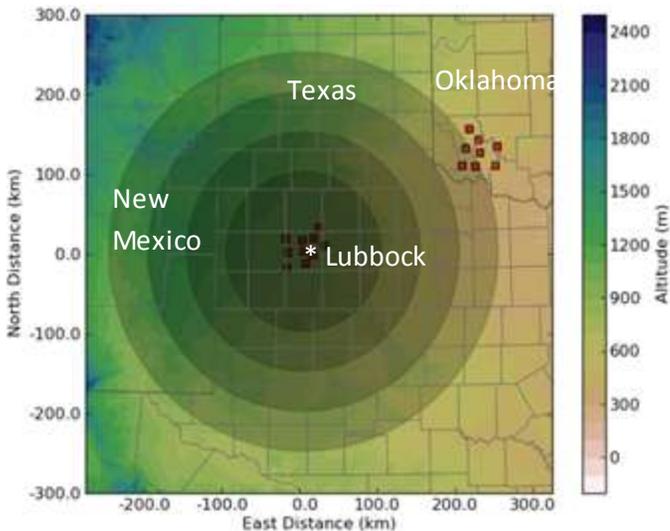
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	<p>NO AA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES:</p> <p>Lubbock 162.400 Dimmitt 162.500 Plainview 162.450 Childress 162.525 Dickens 162.500</p>				<p>Atlantic Hurricane Season Begins on June 1st</p>	<p>Normals: 88/61 0.11 107-1998/45-1964 Lubbock Records sr 638 am - sunrise ss 853 pm - sunset</p>
<p>2 88/61 0.10 107-1998/39-1917 sr 638 am ss 853 pm</p>	<p>3 88/61 0.11 104-1998/43-1919 sr 638 am ss 854 pm</p>	<p>4 89/62 0.12 101-2008/47-1970 sr 638 am ss 854 pm</p>	<p>5 89/62 0.11 106-1990/45-1928 sr 637 am ss 855 pm</p>	<p>6 89/62 0.12 107-1990/45-1917 sr 637 am ss 855 pm</p>	<p>7 89/62 0.11 103-1994/45-1915 sr 637 am ss 856 pm</p>	<p>8 89/63 0.11 106-1981/43-1915 sr 637 am ss 856 pm</p> 
<p>9 90/63 0.12 107-1981/50-1955 sr 637 am ss 857 pm</p>	<p>10 90/63 0.10 105-1917/47-1955 sr 637 am ss 857 pm</p>	<p>11 90/63 0.11 105-2008/50-1955 sr 637 am ss 858 pm</p>	<p>12 90/64 0.10 105-2001/53-1951 sr 637 am ss 858 pm</p>	<p>13 90/64 0.11 105-2011/52-1945 sr 637 am ss 859 pm</p>	<p>14 91/64 0.11 106-1939/44-1947 sr 637 am ss 859 pm</p> <p>Flag Day</p>	<p>15 91/64 0.10 109-1939/49-1927 sr 637 am ss 859 pm</p>
<p>16 91/65 0.10 108-2011/49-1981 sr 637 am ss 900 pm</p> <p>Father's Day</p> 	<p>17 91/65 0.10 107-1924/53-1999 sr 637 am ss 900 pm</p>	<p>18 91/65 0.10 107-1924/47-1945 sr 637 am ss 900 pm</p>	<p>19 91/65 0.10 107-2011/52-1945 sr 637 am ss 900 pm</p>	<p>20 92/65 0.09 108-1935/49-1973 sr 638 am ss 901 pm</p>	<p>21 92/66 0.10 107-1981/54-1973 sr 638 am ss 901 pm</p> <p>Summer Solstice (12:04 am)</p>	<p>22 92/66 0.10 106-1978/50-1927 sr 638 am ss 901 pm</p>
<p>23 92/66 0.09 107-1980/56-1964 sr 638 am ss 901 pm</p> <p>Full Moon</p>	<p>24 92/66 0.09 110-1990/56-1957 sr 639 am ss 901 pm</p>	<p>25 92/66 0.10 110-2011/54-1940 sr 639 am ss 901 pm</p>	<p>26 92/66 0.08 112-2011/53-1958 sr 639 am ss 901 pm</p>	<p>27 92/67 0.09 114-1994/56-1958 (all-time) sr 640 am ss 902 pm</p>	<p>28 92/67 0.08 108-1980/56-1946 sr 640 am ss 902 pm</p>	<p>29 92/67 0.09 107-1957/57-1948 sr 640 am ss 902 pm</p>
<p>30 93/67 0.09 106-1957/57-1940 sr 641 am ss 902 pm</p> <p>Last Quarter</p>	<p>Lightning Safety Awareness Week</p>					

West Texas Lightning Mapping Array (WTLMA)



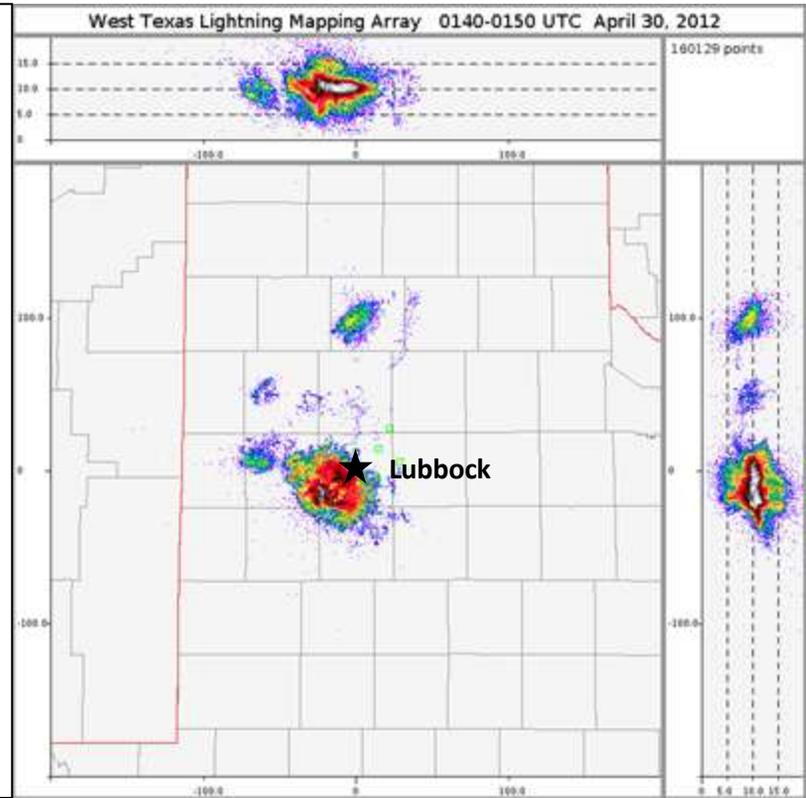
(<http://pogo.tosm.ttu.edu/wtlma/>)

In spring of 2012, Texas Tech installed a Lightning Mapping Array (LMA). The LMA detects VHF point sources that are made by lightning channel steps. This essentially allows us to “see” the total lightning (both cloud-to-cloud [CC] and cloud-to-ground [CG]) from thunderstorms in real-time. Before the LMA, meteorologists at the NWS were only able to observe CG strikes. Since CC lightning often precedes the first CG strike, the LMA can provide lead time on developing thunderstorms that could produce dangerous CG lightning. In addition, trends in the frequency and altitude of lightning can indicate whether a thunderstorm updraft is strengthening or weakening, which in turn is another tool meteorologist can use to help make warning decisions.

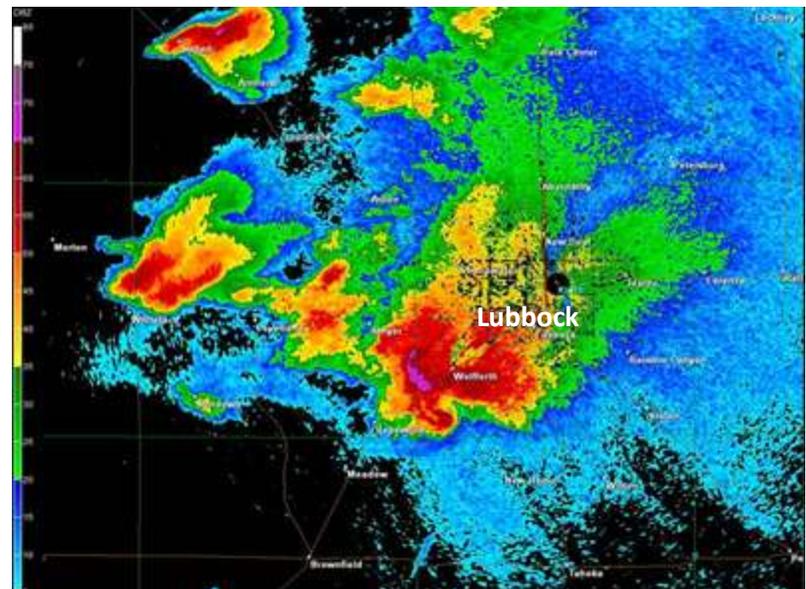


← Coverage map for the WTLMA. The sensors (red dots) are scattered around the Lubbock area, with sensitivity of lightning detection decreasing radially outward from Lubbock. The best coverage is within 100-150 km of Lubbock. However, Oklahoma also operates a LMA that fills in the gaps across the eastern Panhandle into the Rolling Plains.

WTLMA data gathered between 8:40 and 8:50 pm on April 29, 2012. Plotted on the map are the total lightning point sources, including all intra-cloud lightning. Note the high concentration of activity across the southwest half of Lubbock County, where a severe supercell storm is located. The top (right) plot displays a west-to-east (north-to-south) vertical cross-section of the lightning observed. The greatest concentration of lightning sources is between 10 and 12 km above ground level.



→ Different views of a severe storm that affected Lubbock County in late April 2012 →



Base reflectivity data captured by the Lubbock radar at 8:50 pm on April 29, 2012. The storm over southwest Lubbock County produced baseball size hail driven by 80+ mph gusts.

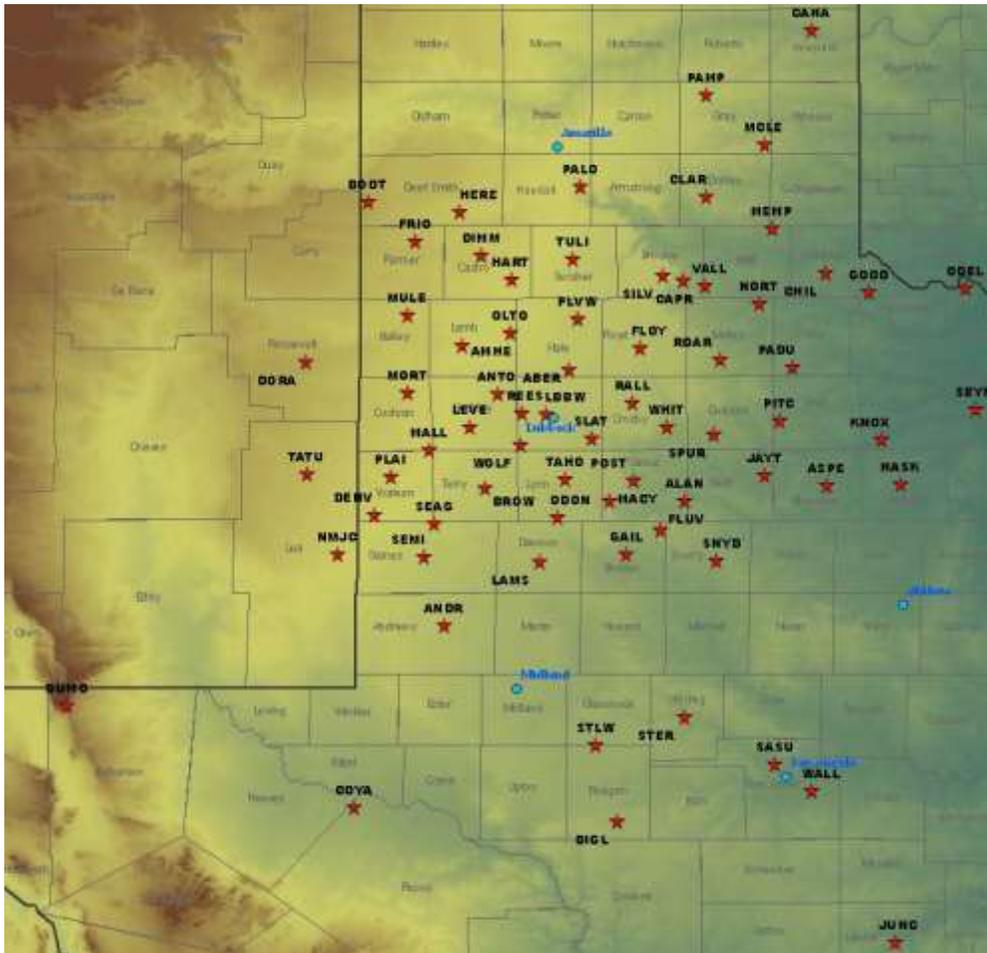
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1 Normals: 93/67 0.08 105-1994/56-1924 Lubbock Records sr 641 am - sunrise ss 902 pm - sunset	2 93/67 0.08 106-1989/56-1944 sr 642 am ss 901 pm	3 93/67 0.08 108-1983/54-1929 sr 642 am ss 901 pm	4 93/67 0.07 105-1987/56-1924 sr 643 am ss 901 pm 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	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 647 am ss 859 pm
14 93/68 0.07 108-1933/55-1990 sr 648 am ss 859 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 650 am ss 857 pm	19 93/68 0.06 108-1936/55-1947 sr 651 am ss 856 pm	20 93/68 0.05 105-1936/59-1971 sr 652 am ss 856 pm
21 93/68 0.06 102-1966/57-1988 sr 652 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 654 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	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 850 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		



Shelf cloud nearing the West Texas Mesonet Site at Reese Center.



West Texas Mesonet Station located on the edge of the Caprock



West Texas Mesonet

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

The West Texas Mesonet project began 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 grown well beyond the South Plains to include three observation towers in eastern New Mexico, one in Guadalupe Mountains National Park and sites at Palo Duro and Caprock Canyons State Parks. To the left is a map of the West Texas domain which includes 70 mesonet stations (red stars) as of late 2012. Each observation station collects temperature, moisture, wind, pressure, solar radiation, and precipitation data, with most sites also measuring soil temperature and moisture at several depths.

August 2013

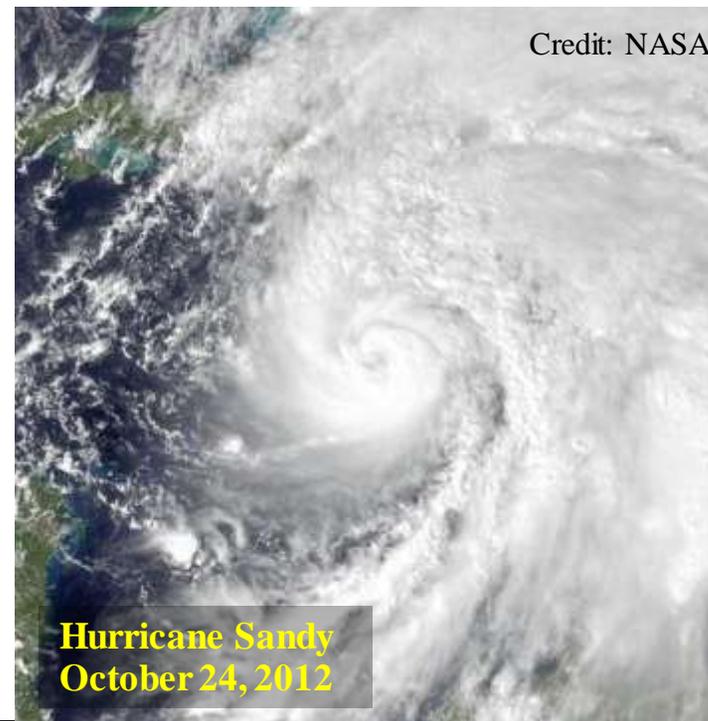
Lubbock National Weather Service

WWW.WEATHER.GOV/LUBBOCK

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		<p>NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES:</p> <p>Lubbock 162.400 Dimmitt 162.500 Plainview 162.450 Childress 162.525 Dickens 162.500</p>		<p>Normals: 93/68 0.05 106-1966/55-1925 Lubbock Records</p> <p>1 sr 700 am - sunrise ss 847 pm - sunset</p>	<p>2 93/68 0.06 105-2012/54-1936</p> <p>sr 701 am ss 846 pm</p>	<p>3 93/68 0.07 107-1944/56-1921</p> <p>sr 701 am ss 845 pm</p>
<p>4 93/68 0.06 105-2003/57-1915</p> <p>sr 702 am ss 844 pm</p>	<p>5 92/68 0.07 102-2011/57-1915</p> <p>sr 703 am ss 844 pm</p>	<p>6 92/68 0.06 102-2011/57-1990</p> <p>sr 704 am ss 843 pm</p> 	<p>7 92/68 0.06 104-2003/58-1971</p> <p>sr 704 am ss 842 pm</p>	<p>8 92/68 0.06 105-2003/58-1990</p> <p>sr 705 am ss 841 pm</p>	<p>9 92/68 0.07 103-2011/51-1946</p> <p>sr 706 am ss 840 pm</p>	<p>10 92/68 0.06 104-2011/55-1915</p> <p>sr 706 am ss 839 pm</p>
<p>11 92/67 0.06 103-1936/56-1931</p> <p>sr 707 am ss 838 pm</p>	<p>12 92/67 0.05 107-1936/54-1979</p> <p>sr 708 am ss 837 pm</p> <p>Perseids Meteor Shower (Aug 12-13)</p>	<p>13 92/67 0.06 107-1936/54-1920</p> <p>sr 709 am ss 835 pm</p>	<p>14 92/67 0.06 103-1946/53-1920</p> <p>sr 709 am ss 834 pm</p> 	<p>15 92/67 0.06 103-1982/56-1920</p> <p>sr 710 am ss 833 pm</p>	<p>16 92/67 0.06 104-1943/55-1931</p> <p>sr 711 am ss 832 pm</p>	<p>17 92/67 0.06 103-1978/56-1931</p> <p>sr 711 am ss 831 pm</p>
<p>18 91/67 0.06 103-1994/55-1943</p> <p>sr 712 am ss 830 pm</p>	<p>19 91/67 0.05 103-1994/58-1950</p> <p>sr 713 am ss 829 pm</p>	<p>20 91/66 0.06 103-1943/54-1915</p> <p>sr 713 am ss 828 pm</p> 	<p>21 91/66 0.07 103-1930/52-1956</p> <p>sr 714 am ss 826 pm</p>	<p>22 91/66 0.06 100-1999/58-1967</p> <p>sr 715 am ss 825 pm</p>	<p>23 91/66 0.06 101-1985/54-1923</p> <p>sr 716 am ss 824 pm</p>	<p>24 91/66 0.06 101-1936/51-1916</p> <p>sr 716 am ss 823 pm</p>
<p>25 90/66 0.07 105-1936/54-1962</p> <p>sr 717 am ss 821 pm</p>	<p>26 90/65 0.06 102-1922/51-2010</p> <p>sr 718 am ss 820 pm</p>	<p>27 90/65 0.06 100-1931/53-1926</p> <p>sr 718 am ss 819 pm</p>	<p>28 90/65 0.06 103-2011/54-1916</p> <p>sr 719 am ss 818 pm</p> 	<p>29 90/65 0.07 99-1943/51-1917</p> <p>sr 720 am ss 816 pm</p>	<p>30 89/64 0.07 104-2011/44-1915</p> <p>sr 720 am ss 815 pm</p>	<p>31 89/64 0.07 100-1930/43-1915</p> <p>sr 721 am ss 814 pm</p>

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

The Tropics



Credit: NASA

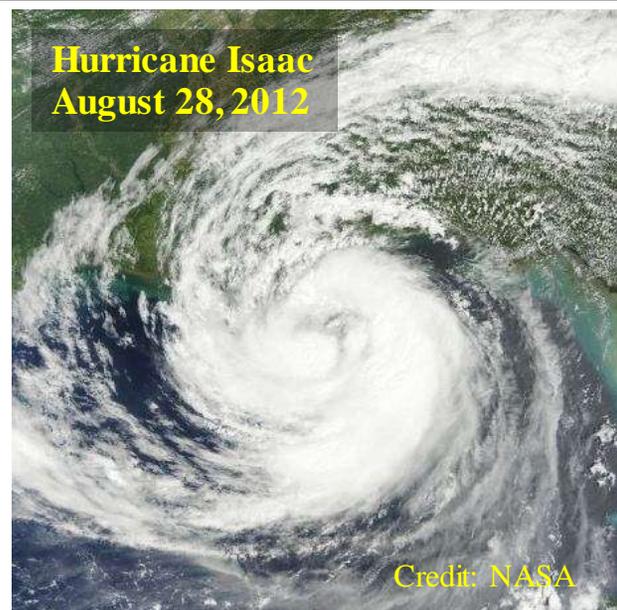
Hurricane Sandy
October 24, 2012

2012 Texas Impacts Minimal

The 2012 Atlantic hurricane season produced 19 tropical storms, 10 hurricanes, and 1 major hurricane. Though 2012 was tied for the 7th most active season since records began in 1851, Texas escaped without any direct impacts. However, the remnants of eastern Pacific Hurricane Miriam did bring flooding rains to parts of the Lone Star State in late September. Midland recorded an impressive 4.66 inches on September 28, 2012, making it the third wettest day on record. The heavy rain did produce flooding, but also put a brief dent in the drought and some water in reservoirs.

2013 Atlantic Names

Andrea	Lorenzo
Barry	Melissa
Chantal	Nestor
Dorian	Olga
Erin	Pablo
Fernand	Rebekah
Gabrielle	Sebastien
Humberto	Tanya
Ingrid	Van
Jerry	Wendy
Karen	



Hurricane Isaac
August 28, 2012

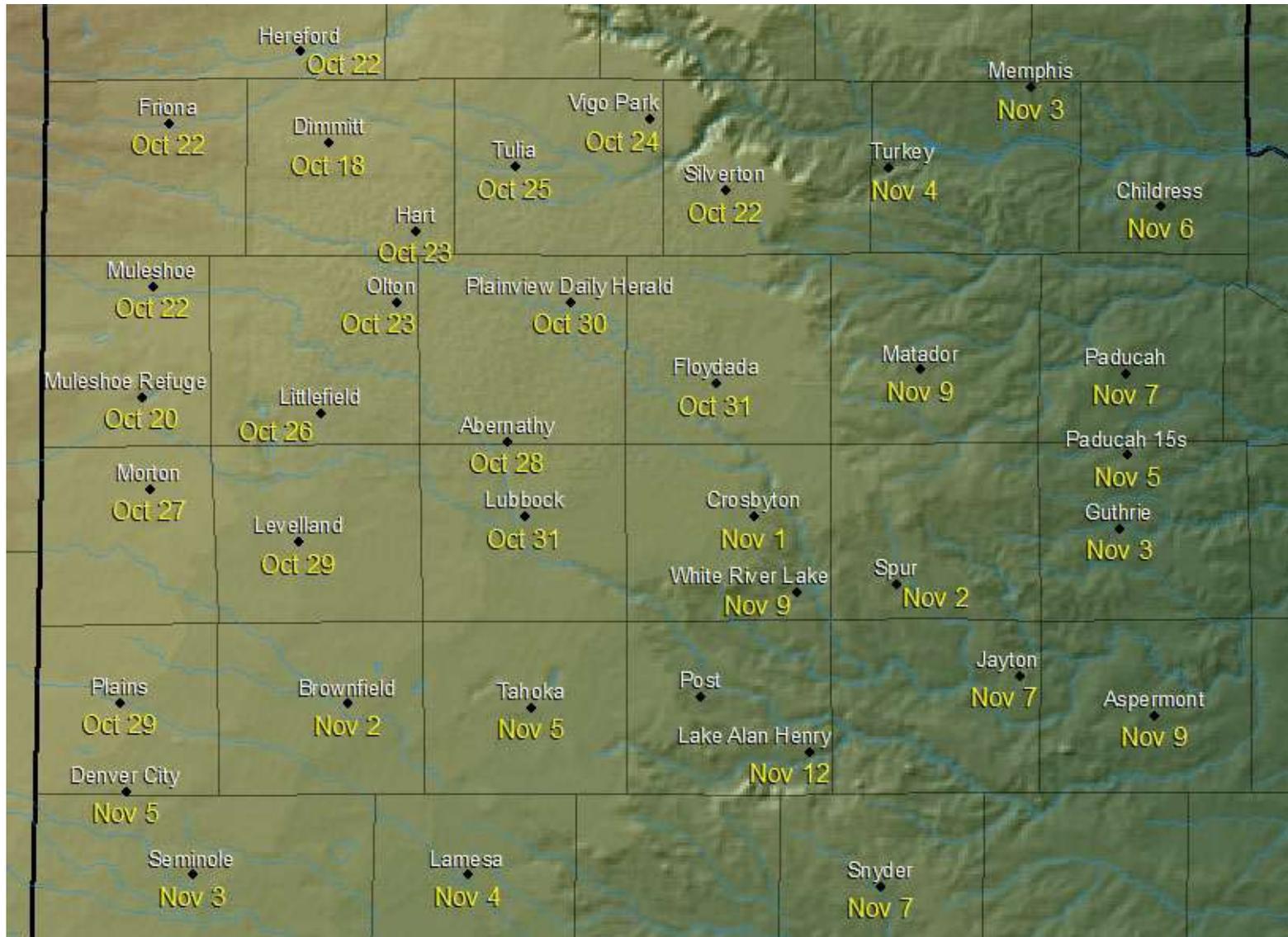
Credit: NASA

Hurricane Isaac made landfall just west of Port Fourchon, Louisiana in late August 2012 with sustained winds of 80 mph. Initially, Isaac took its time and brought strong winds and very heavy rain, with New Orleans recording 20 inches of rain before the storm moved northward. The remnants of Isaac did eventually bring beneficial rain to parts of the drought stricken Midwest.

Hurricane Sandy (above) garnered a lot of attention as she moved off the southeast coast and then took a sharp left, striking the heavily populated northeast part of the nation in late October 2012. Sandy quickly lost tropical characteristics as she interacted with a cold upper level storm system approaching from the Ohio River Valley. Even though Sandy became extratropical (entraining much colder and drier air), the combination of Sandy's remnants and the upper level storm brought strong winds and heavy precipitation to a large corridor of the northeast. Where temperatures were cold enough, across the higher elevations of the Appalachians, a couple of feet of snow fell in parts of West Virginia. The strong winds knocked out power for millions and the storm surge and large waves resulted in severe beach erosion and caused billions of dollars of damage and destruction to coastal New York and New Jersey.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY										
<p>1 Normals: 89/64 0.08 99-1951/43-1915 Lubbock Records sr 722 am - sunrise ss 812 pm - sunset</p>	<p>2 101-1947/50-1955 Labor Day</p>	<p>3 101-2000/48-1974</p>	<p>4 101-2000/46-1915</p>	<p>5 102-2000/46-1961  New Moon</p>	<p>6 103-1948/51-1918</p>	<p>7 99-2012/45-1918</p>										
<p>8 87/62 0.09 97-1985/47-2004 sr 726 am ss 803 pm</p>	<p>9 87/61 0.09 99-1984/47-1956</p>	<p>10 86/61 0.09 100-2000/47-1962</p>	<p>11 86/61 0.09 103-2000/47-1959</p>	<p>12 86/60 0.08 100-1930/44-1959  First Quarter</p>	<p>13 85/60 0.09 101-1930/43-1959</p>	<p>14 85/60 0.09 100-1965/42-1945</p>										
<p>15 85/59 0.08 99-1965/42-1993 sr 731 am ss 753 pm</p>	<p>16 84/59 0.09 100-1965/42-1951</p>	<p>17 84/58 0.09 98-2005/42-1951</p>	<p>18 84/58 0.08 98-1997/43-1971</p>	<p>19 83/58 0.09 105-1930/42-1991  Full Moon</p>	<p>20 83/57 0.08 98-1977/41-1991</p>	<p>21 83/57 0.08 98-1998/33-1983</p>										
<p>22 83/56 0.09 98-1977/40-1995 sr 736 am ss 744 pm Autumnal Equinox (3:44 pm)</p>	<p>23 82/56 0.08 98-1926/41-2009</p>	<p>24 82/56 0.09 97-1953/38-1989</p>	<p>25 82/55 0.08 100-2005/36-2000</p>	<p>26 81/55 0.08 99-1997/36-1926  Last Quarter</p>	<p>27 81/55 0.08 100-1953/39-1942</p>	<p>28 81/54 0.07 98-1994/36-1918</p>										
<p>29 80/54 0.07 97-2011/33-1916 sr 741 am ss 734 pm</p>	<p>30 80/53 0.07 99-1977/35-1985 sr 741 am ss 733 pm</p>		<p>NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES:</p> <table> <tr> <td>Lubbock</td> <td>162.400</td> </tr> <tr> <td>Dimmitt</td> <td>162.500</td> </tr> <tr> <td>Plainview</td> <td>162.450</td> </tr> <tr> <td>Childress</td> <td>162.525</td> </tr> <tr> <td>Dickens</td> <td>162.500</td> </tr> </table>	Lubbock	162.400	Dimmitt	162.500	Plainview	162.450	Childress	162.525	Dickens	162.500			
Lubbock	162.400															
Dimmitt	162.500															
Plainview	162.450															
Childress	162.525															
Dickens	162.500															

Average First Freeze Dates



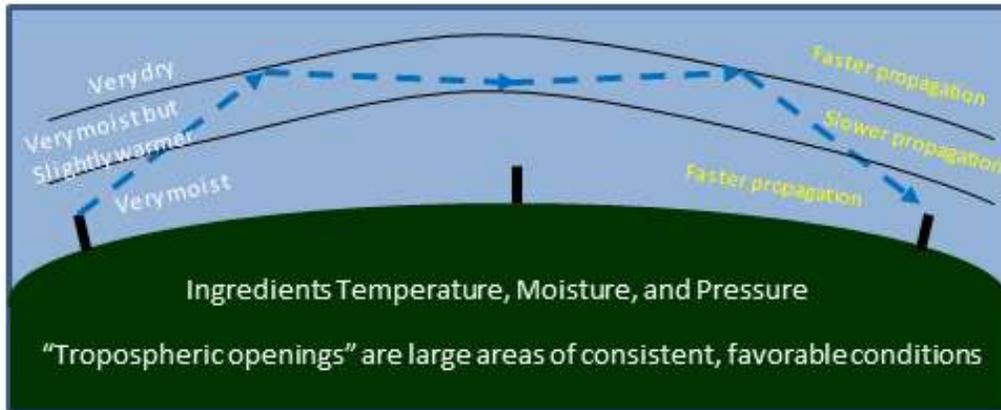
In Lubbock, the earliest fall freeze occurred on October 7, 1952.
The latest fall freeze in Lubbock occurred on November 23, 2003.

October 2013

Lubbock National Weather Service

WWW.WEATHER.GOV/LUBBOCK

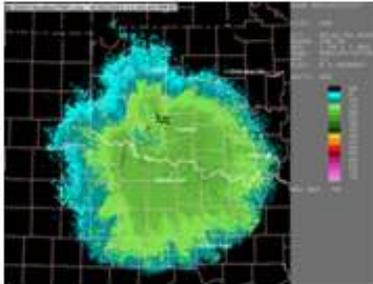
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1 Normals: 80 / 53 0.07 98-2000 / 39-1985 Lubbock Records sr 742 am - sunrise ss 731 pm - sunset	2 79 / 53 0.07 99-2000 / 40-2009 sr 743 am ss 730 pm	3 79 / 52 0.06 100-2000 / 35-1961 sr 743 am ss 729 pm	4 79 / 52 0.06 96-2000 / 41-1961 sr 744 am ss 727 pm  New Moon	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 725 pm	7 78 / 51 0.07 98-1979 / 31-1952 sr 746 am ss 723 pm	8 78 / 51 0.07 98-1979 / 31-1976 sr 747 am ss 722 pm	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 720 pm	11 77 / 50 0.08 93-1979 / 34-2009 sr 749 am ss 718 pm  First Quarter	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 715 pm Columbus Day	15 76 / 48 0.07 92-1965 / 31-1966 sr 752 am ss 713 pm	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  Full Moon	19 74 / 47 0.06 92-1940 / 24-1917 sr 756 am ss 709 pm
20 74 / 47 0.06 93-2012 / 25-1916 sr 756 am ss 707 pm	21 74 / 46 0.07 90-2003 / 26-1917 sr 757 am ss 706 pm Orionids Meteor Shower (Peaks Oct 21)	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 801 am ss 701 pm  Last Quarter
27 72 / 44 0.05 87-1922 / 26-2012 sr 802 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	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	



Enhanced radio and radar propagation

Before the days of digital TV, you probably recall nights where the picture on the TV screen almost appeared to be two completely different images.

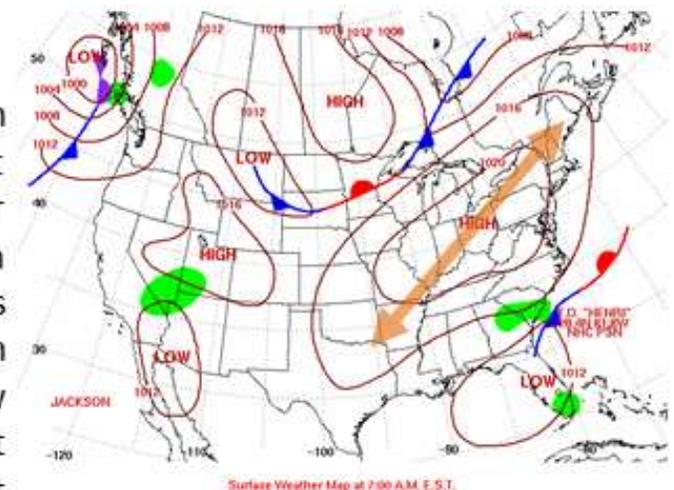
Perhaps you may have heard an FM radio station from quite a distance away on a *clear*, calm evening. In both cases, you were experiencing the result of low level weather conditions. When moist air near the surface is “capped” by slightly warmer air above it (*temperature inversion*) and very dry air exists above that cap, the phenomenon of **tropospheric ducting** occurs. The normal line-of-sight characteristics of very high frequencies are modified such that the radio waves are bent back toward the earth’s surface and substantially extend the range. This is similar to the behavior of light in a fiber optic. These conditions often affect weather radars, too, as seen in the image to the left.



This is not rain or snow reflecting, but rather weak returns formed by the scattering of the radar waves by the temperature inversion aloft. Sometimes, if one views a national radar image this effect is visible across an expansive geographical area. For this to occur, calm weather conditions are required over a broad area — usually under high surface pressure.

Just how expansive?

The image to the right depicts the surface map from September 6, 2003 when radio contacts were made by amateur radio operators from Texas to Maine. At the same time, FM radio broadcasts were heard many states away from their transmitters. NOAA weather radio from Virginia was heard in Texas. Usually, a large high pressure system over the southeastern US with a front to its northwest yields the best events. In addition, large scale events occur from California to Hawaii each year! Although these openings are rare (just a few per year), one will observe at least modest local to regional enhancement about half the nights of the year. So, tune off your local station and see what you hear! Over time, you will hear different stations fade in!



Surface Weather Map at 7:00 AM, E.S.T.

November 2013

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 85-1994 / 23-1951 Lubbock Records 1 sr 807 am - sunrise ss 655 pm - sunset	69 / 42 0.04 85-2012 / 19-1991 2 sr 808 am ss 654 pm
3 69 / 41 0.04 88-2005 / 7-1991 sr 708 am ss 553 pm New Moon Daylight Saving Time Ends	4 69 / 41 0.04 86-1916 / 20-1950 sr 709 am ss 552 pm	5 68 / 40 0.03 86-1924 / 22-1959 sr 710 am ss 552 pm Election Day	6 68 / 40 0.03 85-1975 / 16-1959 sr 711 am ss 551 pm	7 67 / 40 0.03 89-1916 / 19-1947 sr 712 am ss 550 pm	8 67 / 39 0.03 88--2005 / 20-1943 sr 713 am ss 549 pm	9 67 / 39 0.02 90-2006 / 21-1943 sr 714 am ss 548 pm
10 66 / 38 0.03 85-1927 / 19-1950 sr 715 am ss 548 pm  First Quarter	11 66 / 38 0.03 82-1956 / 16-1950 sr 716 am ss 547 pm Veteran's Day	12 65 / 37 0.03 85-1995 / 19-1919 sr 717 am ss 546 pm	13 65 / 37 0.02 82-1973 / 14-1976 sr 718 am ss 546 pm	14 64 / 37 0.03 85-1933 / 4-1976 sr 718 am ss 545 pm	15 64 / 36 0.03 85-1965 / 10-1916 sr 719 am ss 545 pm	16 63 / 36 0.02 83-1966 / 11-1916 sr 720 am ss 544 pm Leonids Meteor Shower (Nov 16-18)
17 63 / 35 0.03 85-1966 / 10-1959 sr 721 am ss 543 pm  Full Moon	18 62 / 35 0.02 82-1999 / 16-1951 sr 722 am ss 543 pm	19 62 / 34 0.03 85-1996 / 14-1937 sr 723 am ss 543 pm	20 62 / 34 0.02 88-1996 / 17-1937 sr 724 am ss 542 pm	21 61 / 33 0.03 84-1927 / 18-1956 sr 725 am ss 542 pm	22 61 / 33 0.02 82-2006 / 6-1957 sr 726 am ss 541 pm	23 60 / 33 0.03 84-1965 / -1-1957 sr 727 am ss 541 pm
24 60 / 32 0.02 82-1915 / 7-1938 sr 728 am ss 541 pm	25 59 / 32 0.03 86-1965 / 15-1993 sr 729 am ss 540 pm  Last Quarter	26 59 / 32 0.03 82-1970 / 8-1980 sr 730 am ss 540 pm	27 59 / 31 0.02 81-1949 / 12-1976 sr 730 am ss 540 pm	28 58 / 31 0.03 83-1949 / 5-1976 sr 731 am ss 540 pm Thanksgiving Day	29 58 / 30 0.03 78-2012 / 1-1976 sr 732 am ss 539 pm	30 58 / 30 0.02 81-2012 / 10-1918 sr 733 am ss 539 pm End of the Atlantic Hurricane Season

Historic Cold Waves on the Texas South Plains

We're fortunate that most winters on the South Plains fail to make dents in the record book for bitter cold or snow. However, the history books show that this region experiences its share of bitterly cold airmasses originating in the Arctic. Since cold air is heavier than warm air, it stays close to the ground and spreads more readily when over flat land such as the Great Plains. If the jet stream assumes a large dip through the middle of the U.S. (such as shown to the right), this cold air races south and often times disrupts our seasonal temperatures with harsh cold.

Cold patterns such as this rarely last more than a few days, but this was not the case in late December of 1983 when one such pattern remained in place for just over 1 week! In fact, from the 18th through Christmas Day and into the morning of the 26th, the temperature at Lubbock remained at or below freezing for **207 hours straight**. Almost one year earlier, much of the region saw 7 consecutive days of sub-freezing temperatures from Dec 28, 1982 through Jan 3, 1983. These remain the worst cold waves ever to strike the region in terms of duration. In both of these cases, thousands of homes and businesses suffered extensive water damage from ruptured water pipes.

Historically, late December through middle January have favored the strongest and longest-lasting cold waves on the South Plains. If snow covers the ground, then the odds are improved the cold air will last even longer.



Typical weather pattern associated with bitter cold on the Texas South Plains. The yellow arrows depict the flow of the upper jet stream and the cyan "H" represents the center of strong Arctic high pressure.

Top Records for Consecutive Days $\leq 32^\circ$ in Lubbock

<u># Days</u>	<u>Last Full Day $\leq 32^\circ$</u>
8	Dec 25, 1983
7	Jan 3, 1983
6 (5 times)	Jan 9, 1988 / Jan 11, 1973 / Jan 29, 1948 Jan 4, 1947 / Dec 27, 1918

Insulate your water pipes!

Home plumbing in warmer climates like ours is highly vulnerable to failure, especially after 48 hours or more of freezing temperatures. Water pipes left exposed to cold air (such as near roofing or exterior walls) are most prone to freezing. If ice develops in the water line, pressure builds up between the ice and the water source which may lead to a rupture and thousands of dollars in water damage to your home! Letting your faucets drip does not always prevent such a catastrophe from happening.



SUNDAY

MONDAY

TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

SATURDAY

<p>1 Normals: 57 / 30 0.02 79-2012/ 12-1918 Lubbock Records sr 734 am - sunrise ss 539 pm – sunset</p>	<p>2 57 / 30 0.03 81-1995 / 13-1985</p>  <p>New Moon</p>	<p>3 57 / 29 0.02 82-2010 / 15-1967</p>	<p>4 56 / 29 0.02 81-1958 / 15-1921</p>	<p>5 56 / 29 0.03 79-1939 / 10-1950</p>	<p>6 56 / 28 0.02 83-1939 / 1-1950</p>	<p>7 55 / 28 0.03 79-2007 / 8-2005</p>										
<p>8 55 / 28 0.03 78-1970 / 3-1917</p>	<p>9 55 / 28 0.02 80-1939 / 5-1978</p>  <p>First Quarter</p>	<p>10 55 / 28 0.03 81-1933 / 5-1917</p>	<p>11 54 / 27 0.03 80-1939 / 6-1917</p>	<p>12 54 / 27 0.02 82-1937 / 6-1961</p>	<p>13 54 / 27 0.03 79-1921 / 5-1917</p> <p>Geminids Meteor Shower (Dec 13-14)</p>	<p>14 54 / 27 0.03 82-2010 / 8-1987</p>										
<p>15 54 / 27 0.02 80-2010 / 2-1987</p>	<p>16 54 / 27 0.03 77-2006 / 3-1987</p>	<p>17 53 / 27 0.03 78-1980 / 5-1932</p>  <p>Full Moon</p>	<p>18 53 / 27 0.02 77-1980 / 6-1996</p>	<p>19 53 / 26 0.03 76-1921 / 0-1924</p>	<p>20 53 / 26 0.02 80-1921 / 3-1924</p>	<p>21 53 / 26 0.03 78-1981 / 2-1983</p> <p>Winter Solstice (11:11 am)</p>										
<p>22 53 / 26 0.02 79-1969 / -2-1989</p>	<p>23 53 / 26 0.03 80-1964 / -1-1989</p>	<p>24 53 / 26 0.02 80-1955 / 0-1983</p>	<p>25 53 / 26 0.02 76-1955 / -1-1924</p> <p>Christmas</p>  <p>Last Quarter</p>	<p>26 53 / 26 0.02 77-2005 / 0-1918</p>	<p>27 53 / 26 0.03 76-2006 / 3-1918</p>	<p>28 53 / 26 0.02 81-1928 / -2-1924</p>										
<p>29 53 / 26 0.02 77-1920 / -1-1939</p>	<p>30 53 / 26 0.02 80-2008 / 7-2000</p>	<p>31 53 / 26 0.02 76-2011 / 8-1923</p> <p>New Year's Eve</p>	<p>NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES:</p> <table> <tbody> <tr> <td>Lubbock</td> <td>162.400</td> </tr> <tr> <td>Dimmitt</td> <td>162.500</td> </tr> <tr> <td>Plainview</td> <td>162.450</td> </tr> <tr> <td>Childress</td> <td>162.525</td> </tr> <tr> <td>Dickens</td> <td>162.500</td> </tr> </tbody> </table>		Lubbock	162.400	Dimmitt	162.500	Plainview	162.450	Childress	162.525	Dickens	162.500		
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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.