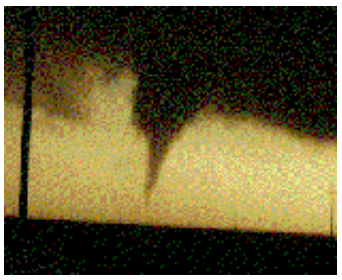
The West Texas

TWISTER



SUMMER 2001 NATIONAL WEATHER SERVICE FORECAST OFFICE LUBBOCK TEXAS

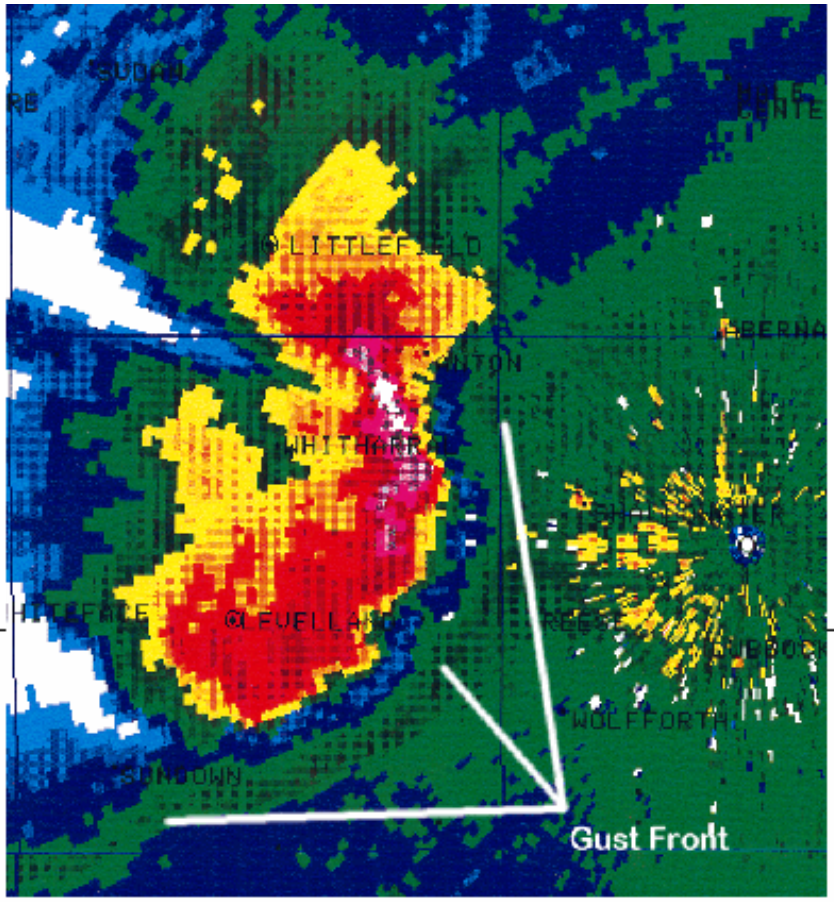


Figure 1. KLBB base reflectivity at 935 pm as the gust front, or leading edge of outflow wind, surged into western Lubbock County.

"BOW ECHO" THUNDER-STORM RAVAGES THE SOUTH PLAINS

by Ed Calianese, WCM

A pair of supercell thunderstorms, storms with persistent and deep areas of rotation in their updraft region usually associated with extreme weather, developed during the afternoon hours of May 30th in northeastern New Mexico. The storms maintained their strength as they moved into the southwestern Panhandle during the evening. The northern storm eventually weakened over Deaf Smith County but the southern storm maintained its intensity as it developed into southwestern Parmer and northwestern Bailey Counties.

The first report of severe weather associated with this storm in West Texas came at around 800 pm

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"Bow Echo" Thunderstorm Ravages the South Plains

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when estimated 80 mph wind gusts and tree damage were reported in Farwell. Intermittent reports of 60 to 70 mph wind gusts and associated wind damage continued for the next hour as the storm evolved into a classic "bow echo" configuration. A "bow echo" is a radar echo that is linear but bent outward in a bow shape and is usually associated with very strong straight-line wind, especially along the path of the apex of the bow.

This severe storm's most intense stage occurred as it moved through southern Lamb, northern and eastern Hockley, western and southern Lubbock, and northern Lynn Counties (see **Fig. 1 and 2**). During this portion of its life, the storm produced measured wind gusts in excess of 100 mph and hail up to golfball size. **Table 1** shows a number of severe wind observations obtained by the West Texas Mesonet. A broad swath of wind damage occurred along the path of the storm, within which several mobile homes were rolled and destroyed, numerous power poles were snapped at ground level, trees were blown down, windows were blown out, and more than 100,000 acres of cotton were laid to waste. As the storm moved across a given location, it produced a lengthy period of wind-driven hail, which virtually sand blasted property and crops. Damage is estimated at $100 million to property and $70 million to crops in Lubbock and surrounding counties to the west and south.

Table 1.

Ta

Mesonet Location	Peak Measured Wind Gust	Time
1 NE Morton	62 mph	900 pm
Reese Center	105 mph	1005 pm
4 S Levelland	68 mph	1025 pm
1 N O'Donnel	63 mph	1045 pm
2 NE Slaton	59 mph	1050 pm
3 NE Tahoka	76 mph	1055 pm

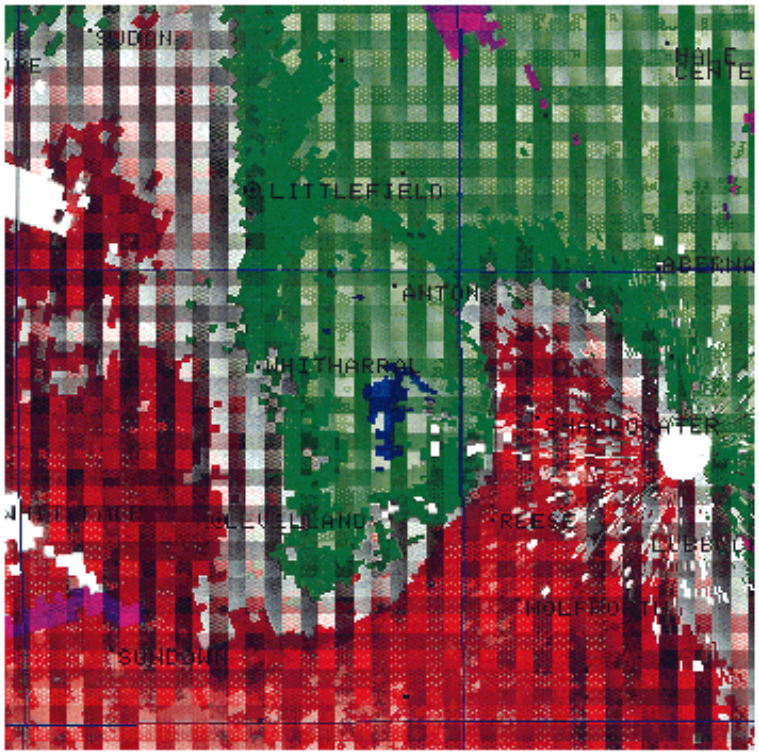

Figure 2. KLBB base velocity at 935 pm showing strongest winds (bright green and blue) just above the ground shifting into Lubbock County.

THE HEAT IS ON!!

Heat can kill by pushing the human body beyond its limits. Under normal conditions, the body's internal thermostat produces perspiration that evaporates and cools the body. However, in extreme heat and high humidity, evaporation is slowed and the body must work extra hard to maintain a normal temperature. Elderly people, young children, and those who are sick or overweight are more likely to become victims of extreme heat.

Because men sweat more than women, they are more susceptible to heat illness because they become more quickly dehydrated.

The duration of excessive heat plays an important role in how people are affected by a heat wave. Studies have shown that a significant rise in heat-related illnesses happens when excessive heat lasts more than two days. Spending at least two hours per day in air conditioning significantly cuts down on the number of heat-related illnesses.

Summer on the South Plains

by Tim Tinsley, Senior Forecaster

The summer season for 2001 has started on an above normal pace for temperatures. The monthly average for June at Lubbock was 80.7 degrees or 3.5 degrees above normal. There was one record high (105 on the 12th) with six days of 100 degrees or higher during the month of June.

Climate records for Lubbock back to 1914 show there have been only ten summers (June/July/ August) with an average temperature above 80 degrees. The incredible heat wave of 1980 provided the South Plains with its warmest summer of record. The summer average was 82.7 degrees at Lubbock in 1980. The second warmest summer recorded at Lubbock was during the Dust Bowl Era of the 1930s with the average summer temperature for 1934 at 82 degrees.

However, the past decade of the 1990s has provided more summers of above normal temperatures than any other decade. The years of 1990, 1993, 1994, and 1998 recorded average summer temperatures above 80 degrees with 1994 becoming the third warmest on record at Lubbock with an average temperature of 81.8 degrees. The all-time record high of 114 degrees occurred on June 27th in 1994 at Lubbock, while Paducah reached 118 degrees on the same day. The greatest number of days in a month with a high temperature of 100 degrees or more occurred during June of 1990 with 19 days. The warmest June on record of 84.4 degrees occurred in 1990.

The summer of 2001 also started on a drier note with only 0.47 inches of rain falling at Lubbock. The outlook for the remaining summer period of July through September calls for equal chances of above normal, normal, and below normal temperatures and rainfall.

Top Ten Warmest Summers (June/July/ August) at Lubbock

1)	1980	82.67 degrees
2)	1934	82.00 degrees
3)	1994	81.80 degrees
4)	1998	80.83 degrees
5)	1953	80.70 degrees
6)	1924	80.40 degrees
7)	1966	80.23 degrees
8t)	1990	80.17 degrees
8t)	1993	80.17 degrees
10)	1978	80.03 degrees

A Big THANK YOU! - to our Spotters

We had an average to slightly above average severe weather season this year. From February through June, we issued 236 severe thunderstorm and tornado warnings for the 24 counties in our warning area. As always, storm spotters from across the South Plains, extreme southern Texas Panhandle, and Rolling Plains played an important role in our warning program by providing us real-time reports of severe weather and visual evaluations of storm structure, which were used to complement our radar observations. Many thanks to all of our spotting teams for their dedicated efforts this spring!

...Co-op News...

By Johnny S. Wallace, DAPM

Some special programs have come and gone for this year. The gathering of soil temperature and evaporation data went very well again this year. A special thanks goes out to the Coop-observers that take part in these special programs each spring and early summer. The data is very valuable to our agricultural community as they plan for their yearly planting.

With the return to work of Mr. Jerry English, we are slowly getting out into the field for the annual station visits. All of the Fischer/Porter Rain gauges have been made ready for the summer. Several emergency visits were made this year to repair failures of MMTS readout units, most due to lightning strikes from our spring thunderstorm season. Being short handed for some of this past spring has thrown us behind in the re-establishment of our Coop Station in Muleshoe, TX, but we hope to remedy that sometime in July.

We will soon lose a couple of our personnel from the Public Service/Cooperative Unit here at the WFO in Lubbock. Mr. Rick Brandt will be leaving in August as he has chosen to return to his University studies. He will be attending the University of Arizona next fall to obtain his Doctorate Degree in Meteorology. Mr. John Jamison is planning to retire from Federal Service at the end of this year. Both of these excellent employees will be missed. We here at the WFO wish them both well in their new endeavors.

This will mean some training of new employees as they transfer into these vacated positions. So we will ask our Coop observers to be patient with us as this occurs. As always our South Plains Coop observers continue to do an outstanding job in their daily observations.

StormReady
NATIONAL WEATHER SERVICE

The NWS has initiated a new program to help communities prepare themselves to handle hazardous weather. The program is called **StormReady** and consists of a series of steps that will help the community respond to tornadoes, floods, winter storms, etc. Larger cities need to accomplish many steps to be StormReady. However, medium and smaller towns with fewer resources do not need to do quite as much to be given StormReady status.

Any community that earns StormReady certification will be part of a press briefing and media event to announce their accomplishment. Also, the NWS will supply two StormReady road signs that the community can use to proudly show off their accomplishments. If you are interested, please contact Ed Calianese at 806-745-3916 ext. 223 for more details.

Highlights from Severe Weather Season 2001

February – Like the 2000 severe weather season, we had another unusually early start this year with severe weather reported on both the 8th and 20th of the month. Severe thunderstorms produced wind damage in Lamb County and hail up to golfball size in Parmer, Swisher, Garza, and Dickens Counties.

March – Severe thunderstorms produced hail up to golfball size and wind gusts up to 70 mph across several counties of the South Plains on the 23rd.

April – On the 4th, there were a dozen reports of large hail up to 2 inches in diameter in Terry, Hockley, Lubbock, and Hale Counties. Strong thunderstorm wind destroyed a number of center pivot irrigation systems and wind that likely exceeded 100 mph resulted in major damage in Happy on the 6th. The West Texas Mesonet site near Olton measured an 83 mph gust. On the 21st, there were 30 reports of damaging wind and hail up to 2 inches in diameter across nine counties of the South Plains and extreme southern Panhandle.

May – Severe weather was reported on twelve days this month. There were 19 reports of hail up to baseball size and two brief tornado touchdowns on the 2nd. On the 3rd, there were 57 reports of hail and damaging wind as well as two brief tornado touchdowns across the South Plains and extreme southern Panhandle. The severe weather event evolved into a heavy rain event with flash flooding reported in eleven counties. On the 17th, there were 35 reports of large hail with baseball to softball size hail occurring near New Deal. On the 26th, a tornado lasting about 25 minutes produced minor damage in southern Hockley County. A long-lived supercell produced hail up to tennis ball size and several tornadoes as it tracked eastward across Swisher, Briscoe, Hall, and Childress Counties on the 29th. A powerful windstorm affected the South Plains on the 30th. Wind gusts of 105 mph were measured at the West Texas Mesonet site at Reese Center. This storm resulted in an estimated $100 million damage to property and another $70 million to crops across Lubbock, Lamb, Hockley, and Lynn Counties.

June – Large hail up to two inches in diameter was reported in Crosby, Lubbock, Dickens, Kent, Stonewall, and Hall Counties on the 1st, 4th, 14th, and 24th. At least eight tornadoes, several of which lasted 20 to 30 minutes, were reported across Motley, Floyd and Briscoe Counties on the 5th. The severe storms also produced hail up to baseball size across the same areas.

Studies have shown that a significant rise in heat-related illnesses happens when excessive heat lasts more than two days.

Heat index: A number in degrees Fahrenheit (F) that tells how hot it really feels when the effect of the relative humidity is combined with the actual air temperature. The heat index is measured in the shade, so it may be up to 15 degrees higher in direct sunlight.

Heat stroke: Heat stroke is life-threatening. The victim's temperature control system, which produces sweating to cool the body, stops working. The body temperature can rise so high that brain damage and death may result if the body is not cooled quickly.

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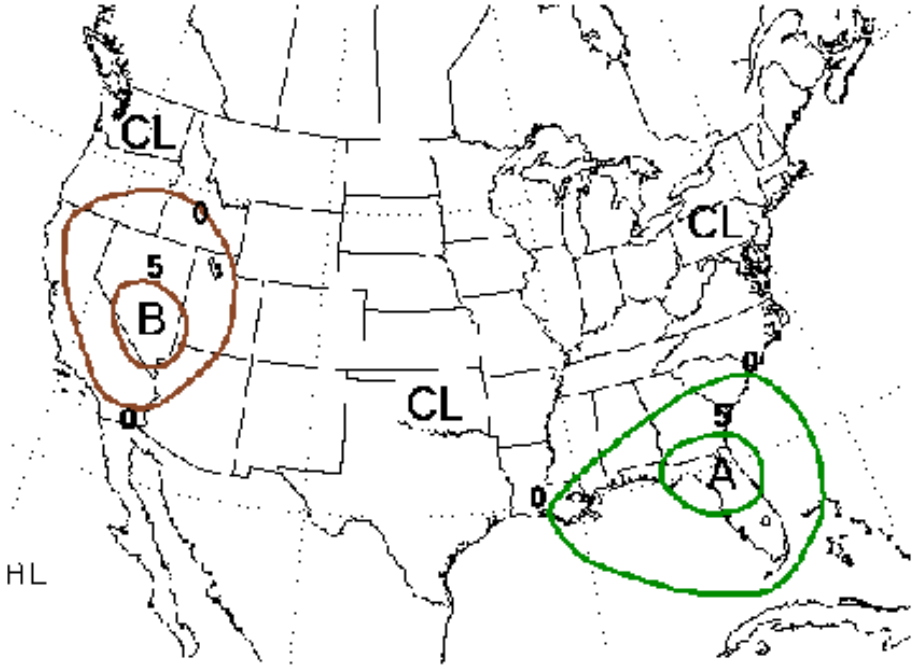
In This Issue...

90 Day Precip. Outlook from NCEP's Climate Prediction Center



Outlook for Precipitation for August, September and October from the Climate Prediction Center. Below average rainfall is forecast across the Great Basin, and wetter than normal weather is expected across the southeastern United States. Near normal precipitation is expected across West Texas and the remainder of the country.

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