

Storm Data and Unusual Weather Phenomena - December 2021

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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TEXAS, South Panhandle

(TX-Z021) PARMER, (TX-Z033) COCHRAN

12/05/21 22:55 CST	0	High Wind (MAX 51 kt)
12/06/21 00:45 CST	0	

A strong cold front pushed southward through the region late on the fifth into the early morning hours of the sixth. Extremely robust pressure rises immediately behind the front allowed for stout winds to develop. A couple of severe wind gusts were observed by the Texas Tech University West Texas mesonet. A site near Friona (Parmer County) measured a peak wind gust of 59 mph while a site near Morton (Cochran County) measured a peak wind gust of 58 mph.

(TX-Z021) PARMER, (TX-Z031) MOTLEY, (TX-Z032) COTTLE, (TX-Z035) LUBBOCK, (TX-Z036) CROSBY, (TX-Z038) KING, (TX-Z041) LYNN, (TX-Z042) GARZA, (TX-Z044) STONEWALL

12/10/21 10:35 CST	0	High Wind (MAX 58 kt)
12/10/21 20:42 CST	0	

During the daytime of the tenth, a large positively tilted trough over the Great Basin amplified as a pair of short wave troughs moved across far West Texas and eastern New Mexico. This induced strong surface lee cyclogenesis in eastern Colorado into western Kansas. A strong jet streak of 90 knots at 500mb rotated over the region during the afternoon further enhancing the surface winds. Widespread stout surface winds resulted from this setup producing numerous high wind gusts and blowing dust.

Peak high wind gusts below were reported from the Texas Tech University West Texas mesonet:

67 mph at Guthrie (King County),
 65 mph at Friona (Parmer County),
 63 mph at Aspermont (Stonewall County),
 63 mph at Slaton (Lubbock County),
 61 mph at O'Donnell (Lynn County),
 60 mph at White River Lake (Crosby County),
 60 mph at Graham (Garza County),
 58 mph at Paducah (Cottle County), and
 58 mph at Northfield (Motley County).

Additionally, the automated surface observing system at Lubbock Preston Smith International airport recorded a peak wind gust of 67 mph.

(TX-Z021) PARMER, (TX-Z022) CASTRO, (TX-Z023) SWISHER, (TX-Z024) BRISCOE

12/15/21 10:38 CST	0	High Wind (MAX 55 kt)
12/15/21 14:55 CST	0	

An extremely stout mid level short wave for mid December moved across the Intermountain West and Central Plains on the 15th. Strong surface cyclogenesis developed in lee of the Rockies which brought robust winds to the extreme southern Texas Panhandle. This same system would go on to create a rare December severe weather outbreak across the Midwest.

Severe wind gust reports below are from the Texas Tech University West Texas mesonet:

62 mph at Friona (Parmer County) and
 60 mph at Silverton and Caprock Canyons State Park (Briscoe County).

Sustained winds of 40mph or greater were reported by the following Texas Tech University West Texas mesonet sites:

45 mph at Dimmitt (Castro County),
 45 mph at Happy, Tulia, and Vigo Park (Swisher County).

(TX-Z022) CASTRO, (TX-Z026) CHILDRESS, (TX-Z031) MOTLEY, (TX-Z032) COTTLE

12/21/21 06:00 CST	0	Drought
12/31/21 23:59 CST	0	

Extreme drought (D3) conditions have returned to portions of the extreme southern Texas Panhandle and Rolling Plains in December. The counties of Castro, Childress, Motley, and Cottle saw extreme drought conditions per the US Drought Monitor with Moderate (D1) to Severe (D2) drought elsewhere.

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These drought conditions were strongly tied to a mature moderate strength La Niña over the tropical eastern Pacific Ocean. Several drier than average months have led to these conditions. The latest three month precipitation amounts ranged from a paltry 5% to 25% of normal. This dryness also contributed to one of the warmest December months ever recorded. Lubbock Preston Smith International Airport's average temperature was 9.9 degrees above average which was by far the warmest ever recorded. Even a more drastic temperature difference was observed at Childress Municipal Airport. The December monthly mean temperature at Childress was an incredible 53.4 degrees while the next warmest month was 47.4 degrees. There are few agricultural impacts this time of year with most of the area cotton already harvested. However, winter wheat emergence has been very poor to this date. The onset of dry and occasional windy conditions along with cured normal to above normal fine fuel loading has generated the highest energy release component (ERC) values for the end of December in the past 20 years. This has greatly increased the potential for large wildfires across the region.

(TX-Z034) HOCKLEY

	12/24/21 13:37 CST	0	High Wind (MAX 50 kt)
	12/24/21 13:37 CST	0	

On the afternoon of Christmas Eve, a strong short wave trough moved across the southwestern United States within a larger long wave trough. Very strong winds aloft mixed down to the surface during the day. Many locations saw wind gusts between 50 and 57 mph but one Texas Tech University West Texas mesonet site near Levelland (Hockley County) recorded a wind gust to 58 mph.

(TX-Z022) CASTRO

	12/27/21 22:29 CST	0	High Wind (MAX 55 kt)
	12/27/21 22:30 CST	0	

On the evening of the 27th, a strong upper level jet streak extended across the central portion of the country. Lift from this jet streak acted upon abundant mid and high level moisture across West Texas creating virga showers. One of these virga showers resulted in a heat burst recorded at a Texas Tech University mesonet site near Hart (Castro County). This mesonet site observed a wind gust to 63 mph.