

Storm Data and Unusual Weather Phenomena - July 2013

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

(OK-Z001) CIMARRON, (OK-Z002) TEXAS, (OK-Z003) BEAVER

07/01/13 00:00 CST	0	Drought
07/31/13 23:59 CST	36M	

The month of July brought multiple chances for precipitation, but the scattered nature of storms kept drought relief limited. Guymon recorded 1.07 inches of precipitation (1.59 inch below normal) for the month of July. This July ranked as the 45th coolest and the 18th wettest July for the Oklahoma Panhandle on record. The U.S. Drought Monitor showed slight improvement across the western half of the Oklahoma Panhandle for the month while the eastern portion of the Panhandle remained steady state. All of the Oklahoma Panhandle is rated as Extreme (D3) drought.

The scattered precipitation has provided short-term improvement in upper zone soils however, this precipitation has had little to no impact on deep soil moisture. With that said the short term relief came at the optimum time for farmers with crops in peak water demand phases. Dryland crops showed signs of improvement and irrigated fields were able to reduce the amount of supplemental watering. Water watches remain in effect for several public water systems through July while voluntary to mandatory water restrictions have been enacted.

Economic losses due to the drought through July were estimated near \$12 million (D3) a county, and were predominately the result for poor growth of corn and cotton, moderate supplemental watering, reduction of cattle herd sizes, and supplemental feed for cattle in pastures and rangeland.

CIMARRON COUNTY --- 0.7 NW BOISE CITY [36.74, -102.53], 0.2 SE BOISE CITY [36.73, -102.52]

07/25/13 16:00 CST	0	Heavy Rain
07/25/13 17:02 CST	0	Source: Broadcast Media

Scattered thunderstorms developed along a surface trough during the evening hours of the 25th. As thunderstorms moved southeastward across the city of Boise City (Cimarron County), the KVII School net site at Boise City School reported that 1.10 inches of rain fell in less than an hour. The thunderstorm which produced this rain continued to move to the southeast and quickly entered the northern Texas Panhandle. No swift water rescues or flooding was associated with this heavy rain.

Ample atmospheric moisture fueled thunderstorms across the western Oklahoma Panhandle during the evening hours of the 25th. Thunderstorms that developed along a surface trough positioned from southeastern New Mexico to a surface low over southwestern Kansas slowly moved southeastward across the western Oklahoma Panhandle. These thunderstorms produced periods of heavy rain as they tapped into the climatologically high Precipitable Water values of 1.3 inches to 1.4 inches. While heavy rain was reported, no reports of flooding were reported in association to this heavy rain.

TEXAS, North Panhandle

(TX-Z001) DALLAM, (TX-Z002) SHERMAN, (TX-Z003) HANSFORD, (TX-Z004) OCHILTREE, (TX-Z005) LIPSCOMB, (TX-Z006) HARTLEY, (TX-Z007) MOORE, (TX-Z008) HUTCHINSON, (TX-Z009) ROBERTS, (TX-Z010) HEMPHILL, (TX-Z011) OLDHAM, (TX-Z012) POTTER, (TX-Z013) CARSON, (TX-Z014) GRAY, (TX-Z015) WHEELER, (TX-Z016) DEAF SMITH, (TX-Z017) RANDALL, (TX-Z018) ARMSTRONG, (TX-Z019) DONLEY, (TX-Z020) COLLINGSWORTH

07/01/13 00:00 CST	0	Drought
07/31/13 23:59 CST	0.13B	

The month of July brought multiple chances for precipitation, but the scattered nature of storms kept drought relief limited. Amarillo recorded 1.86 inches of precipitation for the month (0.98 below normal), Dalhart recorded 1.53 inches of precipitation (1.26 inches below normal), and Borger recorded 2.19 inches of precipitation (0.43 inches below normal). This July ranked as the 37th coolest and the 25th wettest July for the Texas High Plains region. Drought conditions across the Texas Panhandle showed minor improvement across the southern portion of the Texas Panhandle while the remainder stayed relatively steady state as according to the U.S. Drought Monitor. Exceptional (D4) drought persists across the northwestern Texas Panhandle with Extreme (D3) drought affecting the northeastern Texas Panhandle. Severe (D2) drought affects the southern Texas Panhandle.

The southern Texas Panhandle showed the greatest improvement in upper zone soil moisture. In this area, the upper zones showed from neutral to greater than 40 percent full. The northern portion of the Texas Panhandle ranged from extreme dry to moderately dry except for a few isolated areas near the center of area. While this provided some short term relief, the deeper soil moisture remains dry. With that said the short term relief came at the optimum time for farmers with crops in peak water demand phases. Dryland crops showed signs of improvement and irrigated fields were able to reduce the amount of supplemental watering. However, rangeland remains in poor conditions as observed by the Texas Crop and Weather Report. Countywide burn bans remain in effect for all of the

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Texas Panhandle except for Dallam, Ochiltree, Lipscomb, Hartley, Moore, Roberts, Potter, Wheeler, and Armstrong.

Reservoirs and stream flows across the Panhandles range from below to above normal levels. The reservoirs of Palo Duro and Greenbelt Lake are both below 15 percent capacity with Lake Meredith at zero percent capacity. Water watches for several public water systems persisted through July while voluntary to mandatory mild water restrictions have been enacted.

Economic losses due to the drought through July were estimated near \$5 million (D2)/\$10 million (D3)/\$15 million (D4) a county, and were predominately the result for poor growth of corn and cotton, moderate supplemental watering, reduction of cattle herd sizes, and supplemental feed for cattle in pastures and rangeland.

POTTER COUNTY --- 1.5 ESE AMARILLO [35.19, -101.79], 1.2 ESE AMARILLO [35.19, -101.80]

07/16/13 12:00 CST	0	Heavy Rain
07/16/13 17:00 CST	0	Source: NWS Employee

A tropical shower moved over the city of Amarillo (Potter County) during the early afternoon hours of the 16th. Due to the above average moisture content in the atmosphere, these showers produced intense downpours over the city. An off duty NWS employee reported that this intense rain caused minor flooding of the access road of Interstate 40 at the Grand Street exit. This minor flooding quickly receded as showers moved away from the city. No swift water rescues or stranded motorist were reported in association to this minor flooding.

RANDALL COUNTY --- 2.1 S AMARILLO [35.17, -101.81], 1.6 SSE AMARILLO [35.18, -101.81]

07/16/13 12:00 CST	0	Heavy Rain
07/16/13 17:00 CST	0	Source: NWS Employee

A tropical shower moved over the city of Amarillo (Randall County) during the early afternoon hours of the 16th. Due to the above average moisture content in the atmosphere, these showers produced intense downpours over the city. An off duty NWS employee reported that this intense rain caused minor flooding on the southbound lane of Ross Road south of Interstate 40. This minor flooding quickly receded as showers moved away from the city. No swift water rescues or stranded motorist were reported in association to this minor flooding.

RANDALL COUNTY --- 7.1 NW TIMBERCREEK CANYON [35.12, -101.92], 7.5 NW TIMBERCREEK CANYON [35.12, -101.92]

07/17/13 05:00 CST	0	Heavy Rain
07/17/13 09:00 CST	0	Source: NWS Employee

A tropical shower moved over the city of Amarillo (Potter County) during the early morning hours of the 17th. Due to the above average moisture content in the atmosphere, these showers produced intense downpours over the city. An off duty NWS employee reported that this intense rain caused minor flooding of the south bound lanes of Coulter Street near the Loop 335 interchange. This minor flooding quickly receded as showers moved away from the city. No swift water rescues or stranded motorist were reported in association to this minor flooding.

A broad upper level low pressure system slowly moved northwestward across the Texas Panhandle from the 15th through the 17th of July. The circulation around this low brought in copious amounts of moisture to the Panhandle. The Amarillo upper air sounding from the evening hours of the 16th showed climatologically above average Precipitable Water values of 1.2 inches. As peak heating was reached, scattered showers developed across the southern Texas Panhandle. Due to the above average moisture content in the atmosphere; these showers were able to produce highly localized heavy rain. This heavy rain led to minor urban flooding in Amarillo. The minor flooding quickly receded as the showers moved away from the city. As time progressed through the overnight hours of the 16th and the morning hours of the 17th, another round of heavy rain moved over Amarillo as the center of the low moved directly overhead. This caused another round of minor flooding on the southwest side of town during the morning commute. This minor flooding quickly receded as showers moved out of the city to the northwest.

POTTER COUNTY --- 2.5 NNW AMARILLO [35.23, -101.83], AMARILLO [35.20, -101.82]

07/20/13 01:07 CST	0	Heavy Rain
07/20/13 02:19 CST	0	Source: Public

An isolated thunderstorm moved over the northern half of Amarillo (Potter County). The high water content in the atmosphere allowed this storm to quickly produce 0.60 inch of rain. No flooding was reported in association with this heavy rain.

Scattered showers and thunderstorms developed along a surface trough across the western Oklahoma Panhandle during the early morning hours of the 20th. These storms produced an outflow boundary which moved southward across the Texas Panhandle. Isolated showers developed along this outflow boundary. As these storms moved into the southern Texas Panhandle, they gained access to climatologically high Precipitable Water values. This high water content allowed the storms to produce quick half to near an inch accumulations in Potter County. The outflow continued to move southward and exited the Texas Panhandle by 4 AM CST.

HEMPHILL COUNTY --- 2.5 N CANADIAN HEMPILL AR [35.94, -100.41], 0.6 SSE CANADIAN [35.89, -100.37]

07/20/13 12:00 CST	0	Heavy Rain
07/20/13 15:00 CST	0	Source: Broadcast Media

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An isolated thunderstorm briefly intensified over Hemphill County during the early afternoon hours of the 20th. The storm collapsed upon its own updraft and produced a brief period of heavy rain. A local TV station film crew reported that low-lying areas near the city of Canadian (Hemphill County) experienced minor flooding. The flooding was not significant enough to cause traffic to stop. No swift water rescues or stranded motorist were reported in association to this flooding.

Scattered showers developed across the Texas Panhandle along residual outflow boundaries from early morning storms during the early afternoon hours of the 20th. Precipitable Water values across the Texas Panhandle were climatologically high for late July and supplied storms with high water content. These storms produced brief periods of heavy rain which lead to localized flooding of flood prone areas. The storms moved out of the Texas Panhandle by the late evening hours.

HEMPHILL COUNTY --- 0.7 S CANADIAN HEMPHILL AR [35.89, -100.40]

07/20/13 13:34 CST		0		Thunderstorm Wind (MG 53 kt)
07/20/13 13:35 CST		0		Source: AWOS

An isolated thunderstorm briefly intensified over Hemphill County during the early afternoon hours of the 20th. The storm collapsed upon its own updraft and produced a 61 mph downburst 2 miles southwest of Canadian (Hemphill County). This gust was measured by the Texas Department of Transportation AWOS at Canadian (Hemphill County). No damage was reported in association to this gust.

Scattered showers developed across the Texas Panhandle along residual outflow boundaries from early morning storms during the early afternoon hours of the 20th. A weak mid-level disturbance moving southward out of Colorado helped to cause brief intensifications in these scattered showers before quickly weakening. While weakening, the storms produced isolated downbursts. The storms moved out of the Texas Panhandle by the late evening hours.

DEAF SMITH COUNTY --- 3.0 N DAWN [34.96, -102.20], 11.0 WNW BOOTLEG [34.89, -102.99]

07/24/13 17:30 CST		0		Heavy Rain
07/25/13 00:30 CST		0		Source: Mesonet

Scattered showers and thunderstorms developed across the southwestern Texas Panhandle during the evening hours of the 24th. These thunderstorms produced 0.40 inches of heavy rain 11 miles west-northwest of Bootleg (Deaf Smith County), as reported by the Bootleg West Texas Mesonet site. The West Texas Mesonet site at Hereford (Deaf Smith County) reported 0.43 inches of rain from these storms. Scattered showers and thunderstorms persisted for several hours before ending shortly after midnight on the 25th.

DEAF SMITH COUNTY --- 3.0 N DAWN [34.96, -102.20], 11.0 WNW BOOTLEG [34.89, -102.99]

07/24/13 17:30 CST		0		Heavy Rain
07/25/13 00:30 CST		0		Source: Broadcast Media

Scattered showers and thunderstorms developed across the southwestern Texas Panhandle during the evening hours of the 24th. These thunderstorms produced 1.10 inches of heavy rain 3 miles north of Dawn (Deaf Smith County), as reported by the KVII Schoolnet site at G and C Hydro Farms. Scattered showers and thunderstorms persisted for several hours before ending shortly after midnight on the 25th.

RANDALL COUNTY --- 2.9 NW PALO DURO CANYON STATE PARK [34.98, -101.71], 5.6 SE PALO DURO CANYON STATE PARK [34.88, -101.61]

07/24/13 17:30 CST		0		Heavy Rain
07/25/13 09:00 CST		0		Source: Park/Forest Service

Scattered showers and thunderstorms developed across the southwestern Texas Panhandle during the evening hours of the 24th. These thunderstorms heavy rain over Palo Duro Canyon State Park (Randall County). This heavy rain caused low water crossings number 3 through 6 to flood. Flood waters at crossing number 4 placed a log in the middle of the road, and the flood waters caused 2 ft of mud to be accumulated at crossing number 5. The flooding of crossings 3 through 6 caused campers within the park to become stranded for a brief period, but the flood waters did not threaten these campers. Scattered showers and thunderstorms persisted through the overnight hours and into the late morning hours of the 25th. No stranded motorist or swift water rescues were reported in association to this flooding.

RANDALL COUNTY --- 8.0 NW CANYON [35.06, -102.02], 6.1 SSE PALO DURO CANYON STATE PARK [34.87, -101.61]

07/24/13 17:30 CST		0		Heavy Rain
07/25/13 09:00 CST		0		Source: Mesonet

Scattered showers and thunderstorms developed across the southwestern Texas Panhandle during the evening hours of the 24th. These thunderstorms produced 1.02 inches of heavy rain 7 miles south-southwest of Amarillo (Randall County), as reported by the Amarillo West Texas Mesonet site. Scattered showers and thunderstorms persisted through the overnight hours and into the late morning hours of the 25th.

RANDALL COUNTY --- 8.0 NW CANYON [35.06, -102.02], 6.1 SSE PALO DURO CANYON STATE PARK [34.87, -101.61]

07/24/13 17:30 CST		0		Heavy Rain
07/25/13 09:00 CST		0		Source: Broadcast Media

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Scattered showers and thunderstorms developed across the southwestern Texas Panhandle during the evening hours of the 24th. These thunderstorms produced 1.06 inches of heavy rain 14 miles southeast of Buffalo Lake (Randall County), as reported by the KVII Schoolnet site at Frost Ranch. Scattered showers and thunderstorms persisted through the overnight hours and into the late morning hours of the 25th.				

RANDALL COUNTY --- 8.0 NW CANYON [35.06, -102.02], 6.1 SSE PALO DURO CANYON STATE PARK [34.87, -101.61]

07/24/13 17:30 CST	0	Heavy Rain
07/25/13 09:00 CST	0	Source: Broadcast Media

Scattered showers and thunderstorms developed across the southwestern Texas Panhandle during the evening hours of the 24th. These thunderstorms produced 1.7 inches of heavy rain 5 miles west-northwest of Timbercreek Canyon (Randall County), as reported by the KVII Schoolnet site at Midway Alternative High School. Scattered showers and thunderstorms persisted through the overnight hours and into the late morning hours of the 25th.

RANDALL COUNTY --- 8.0 NW TIMBERCREEK CANYON [35.13, -101.92], 5.3 WSW AMARILLO [35.16, -101.90]

07/24/13 17:30 CST	0	Heavy Rain
07/25/13 09:00 CST	0	Source: Broadcast Media

Scattered showers and thunderstorms developed across the southwestern Texas Panhandle during the evening hours of the 24th. These thunderstorms heavy rain on the southwest side of Amarillo (Randall County) which caused minor flooding of streets on Hillside Street and Coulter Road; Bell Street and 45th Ave; and on Western Street between Sundown Ave and Mack Road. Scattered showers and thunderstorms persisted through the overnight hours and into the late morning hours of the 25th. No stranded motorist or swift water rescues were reported in association to this minor flooding.

ARMSTRONG COUNTY --- 12.0 SW CLAUDE [35.00, -101.52], 7.3 SSW CLAUDE [35.03, -101.44]

07/24/13 21:30 CST	0	Heavy Rain
07/25/13 10:00 CST	0	Source: Mesonet

Scattered showers and thunderstorms developed across the southwestern Texas Panhandle during the evening hours of the 24th. These thunderstorms produced 1.65 inches of heavy rain 12 miles southwest of the city of Claude (Armstrong County), as reported by the Claude West Texas Mesonet site. Scattered showers and thunderstorms persisted through the overnight hours and into the late morning hours of the 25th.

DONLEY COUNTY --- 2.0 WSW CLARENDON [34.92, -100.93], 2.0 NE CLARENDON [34.95, -100.87]

07/24/13 21:30 CST	0	Heavy Rain
07/25/13 10:00 CST	0	Source: Mesonet

Scattered showers and thunderstorms developed across the southwestern Texas Panhandle during the evening hours of the 24th. These thunderstorms produced 0.78 inches of heavy rain 2 miles west-southwest of the city of Clarendon (Donley County), as reported by the Clarendon West Texas Mesonet site. Scattered showers and thunderstorms persisted through the overnight hours and into the late morning hours of the 25th.

GRAY COUNTY --- 0.5 SSW MC LEAN [35.22, -100.60], 1.0 E MC LEAN [35.23, -100.58]

07/24/13 21:30 CST	0	Heavy Rain
07/25/13 10:00 CST	0	Source: Mesonet

Scattered showers and thunderstorms developed across the southwestern Texas Panhandle during the evening hours of the 24th. These thunderstorms produced 1.77 inches of heavy rain 1 mile east of the city of McLean (Gray County), as reported by the McLean West Texas Mesonet site. Scattered showers and thunderstorms persisted through the overnight hours and into the late morning hours of the 25th.

Thunderstorms developed along both storm outflows moving across the southwestern Texas Panhandle from New Mexico and a modifying surface front across Northwestern Texas. The weak steering winds caused these storms to slowly move eastward along these boundaries over the same area from the evening hours of the 24th and into the morning hours of the 25th. These storms had access to climatologically high Precipitable Water Values of 1.3 inches to 1.5 inches. The ample atmospheric moisture and training of storms lead to periods of heavy rain resulting in localized flooding of flood prone areas across the southern Texas Panhandle. This localized flooding diminished as storms moved out of the area by 10 AM on the 25th.

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Low water crossing number 1 in Palo Duro Canyon State Park flooded. Picture provided by park personnel.

RANDALL COUNTY --- 4.2 N CANYON [35.04, -101.92], 5.6 WNW TIMBERCREEK CANYON [35.09, -101.91]

07/24/13 19:16 CST	0	Hail (0.88 in)
07/24/13 19:18 CST	0	Source: Trained Spotter

A thunderstorm developed along a thunderstorm outflow from earlier New Mexico storms. The thunderstorm tapped into marginal elevated instability as it moved across southern Randall County. As it moved north of the mouth of Canyon (Randall County), a trained storm spotter reported a mix of pea to nickel size hail (0.25 inch to 0.88 inch). This thunderstorm that produced this hail made a gradual turn in direction from northwest to north-northeast and began to weaken. No further reports of hail were received as the storm moved across Randall County.

Thunderstorm outflow boundaries from New Mexico helped to develop scattered thunderstorms across the southern Texas Panhandle during the evening hours of the 24th. A cold front which moved through the southern Texas Panhandle during the day on the 24th has stabilized the lower portions of the atmosphere however; marginal elevated instability persisted across the area. The outflow provided the low level forcing needed to allow thunderstorms to tap into this elevated instability and produced isolated sub-severe hail during the late evening hours. Marginal elevated instability lessened as time progressed and no further reports of hail were received after 7:30 PM CST.