# Storm Data and Unusual Weather Phenomena - September 2013

| Location | Date/Time | Deaths & Injuries | Property & Crop Dmg | Event Type and Details |
|---|---|---|---|---|

## OKLAHOMA, Panhandle

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

| | | | |
|---|---|---|---|
| | 09/01/13 00:00 CST | 0 | Drought |
| | 09/30/13 23:59 CST | 8M | |

**The month of September brought periods of monsoonal flow and as a result saw several precipitation events across the Oklahoma Panhandle. Guymon recorded 2.77 inches of precipitation (0.98 inch above normal) for the month of September. This September ranked as the 12th warmest and the 24th wettest September for the Oklahoma Panhandle on record. The U.S. Drought Monitor showed a one category improvement for the month with only portions of Texas County remaining in the Extreme (D3) Drought rating. The remainder of the Oklahoma Panhandle falls in the Severe Drought (D2) rating.**

**The multiple heavy rain events during the month of September continued to provide relief to farmers across the Panhandle as upper zone soils have improved to greater than 100 percent of normal, and deeper soil zones ranging from 50 to 100 percent of normal. The Palmer Drought Severity Index rates the Oklahoma Panhandle at Moderate Drought due to the impact from the long range drought from the past three years. Water watches remain in effect for several public water systems through September while voluntary to mandatory water restrictions have been enacted.**

**Economic losses due to the drought through September were estimated near $2 million (D2)/$5 million (D3)/$10 million (D4) a county, and were predominately the result of delayed growth of corn and cotton, marginal supplemental watering, reduction of cattle herd sizes, and supplemental feed for cattle in pastures and rangeland.**

**BEAVER COUNTY --- 2.0 SW SLAPOUT [36.60, -100.15]**

| | | | |
|---|---|---|---|
| | 09/27/13 19:55 CST | 20K | Thunderstorm Wind (EG 52 kt) |
| | 09/27/13 19:56 CST | 0 | Source: Public |

A discrete thunderstorm moved across the eastern Oklahoma Panhandle during the late night hours of the 27th. As this thunderstorm neared the city of Slapout (Beaver County), the storm produced a downburst which blew trees down and snapped wooden power poles as reported by a member of the public. The thunderstorm continued to move to the northeast after producing this downburst.

**BEAVER COUNTY --- 4.5 SSE GATE [36.79, -100.02]**

| | | | |
|---|---|---|---|
| | 09/27/13 20:20 CST | 3K | Thunderstorm Wind (EG 52 kt) |
| | 09/27/13 20:21 CST | 0 | Source: Fire Department/Rescue |

A discrete thunderstorm moved across the eastern Oklahoma Panhandle during the late night hours of the 27th. As this thunderstorm neared the city of Gate (Beaver County), the core of the storm descended and produced a downburst. The wind gust produced by this downburst blew oil field tanks several feet onto a county road as reported by the Beaver County Fire Department. The thunderstorm continued to move to the northeast after producing this downburst.

**An upper level disturbance and the associated surface cold front caused a series of thunderstorm lines to move across the Oklahoma Panhandle during the evening and late night hours of the 27th. Most of the thunderstorms which formed remained below severe levels however, one thunderstorm which broke from a line of thunderstorms around the 8 PM CST hour was able to produce thunderstorm wind gusts which caused localized damage across the eastern extent of Beaver County. This storm quickly moved into western Oklahoma by 8:30 PM CST.**

## TEXAS, North Panhandle

**(TX-Z001) DALLAM, (TX-Z002) SHERMAN, (TX-Z003) HANSFORD, (TX-Z006) HARTLEY, (TX-Z007) MOORE, (TX-Z008) HUTCHINSON, (TX-Z012) POTTER, (TX-Z013) CARSON**

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|---|---|---|---|
| | 09/01/13 00:00 CST | 0 | Drought |
| | 09/30/13 23:59 CST | 22M | |

**The month of September brought periods of monsoonal flow and as a result saw several precipitation events across the Texas Panhandle. Amarillo recorded 1.83 inches of precipitation for the month (0.04 inch below normal), Dalhart recorded 1.64 inches of precipitation (0.01 inch below normal), and Borger recorded 2.26 inches of precipitation (0.12 inch below normal). This September ranked as the 16th warmest and the 56th driest September for the Texas High Plains region. Several heavy rain events during the month led to the Texas Panhandle seeing a 1 category improvement for the second month in a row. Portions of the northwest Texas Panhandle remain in Extreme (D3) Drought rating while the western half of the Texas Panhandle has improved to Severe (D2) Drought rating. The remainder of the Texas Panhandle has dropped below Severe (D2) Drought rating.**

| Location | Date/Time | Deaths & Injuries | Property & Crop Dmg | Event Type and Details |
|---|---|---|---|---|

**The multiple heavy rain events during the month of September continued to provide relief to farmers across the Panhandle as upper zone soils have improved to greater than 100 percent of normal, and deeper soil zones ranging from 50 to 100 percent of normal. Farmers have been able to shutoff irrigation systems to allow corn and cotton crops to dry before harvest and some farmers have begun to plant winter wheat, as observed by the Texas Crop and Weather Report. The Palmer Drought Severity Index rates the Texas Panhandle at Extreme Drought due to the impact from the long range drought from the past three years. Countywide burn bans continue to be supported in Moore, Roberts, Hemphill, Wheeler, Potter, and Armstrong Counties.**

**Reservoirs and stream flows across the Panhandle have remained at near normal flow with short term rises to action and minor flood stages during heavy precipitation periods during the month. 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 September while voluntary to mandatory mild water restrictions have been enacted.**

**Economic losses due to the drought through September were estimated near $2 million (D2)/$5 million (D3)/$10 million (D4) a county, and were predominately the result of delayed growth of corn and cotton, marginal supplemental watering, reduction of cattle herd sizes, and supplemental feed for cattle in pastures and rangeland.**

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**ROBERTS COUNTY --- 27.0 NW MIAMI [35.98, -100.97]**

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|---|---|---|---|
| | 09/13/13 15:30 CST | 0 | Heavy Rain |
| | 09/13/13 19:00 CST | 0 | Source: Public |

A cluster of thunderstorms developed over Roberts County during the evening hours of the 13th. These thunderstorms moved slowly and produced heavy rain over portions of the county. This heavy rain led to a member of the public reporting minor flooding of their property west of State Highway 70 along North River Road (Roberts County). The minor flooding stayed contained to the yard and did not enter the home. This minor flooding dissipated once storm coverage diminished by 7 PM CST. No swift water rescues or stranded motorist were reported in association to this minor flooding.

**Scattered showers and thunderstorms across the Texas Panhandle lead to localized heavy rain during the evening hours of the 13th. The combination of a stalled frontal boundary and an approaching weak upper level disturbance helped to initiate showers and thunderstorms across the panhandle. Weak steering winds and atmospheric moisture which was climatologically high, caused thunderstorms that developed to move slowly and produce prolonged periods of heavy rain over the same area. This led to localized flooding over the eastern Texas Panhandle. Flooding subsided as thunderstorm activity diminished around 7 PM CST.**

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**DONLEY COUNTY --- 1.1 E CLARENDON [34.93, -100.88], 1.4 ENE CLARENDON [34.94, -100.88], 1.0 NNE CLARENDON [34.94, -100.89], 1.0 N CLARENDON [34.94, -100.90]**

| | | | |
|---|---|---|---|
| | 09/13/13 15:30 CST | 0 | Flash Flood (due to Heavy Rain) |
| | 09/13/13 19:00 CST | 0 | Source: Public |

A line of thunderstorms developed over Donley County during the evening hours of the 13th. These thunderstorms moved slowly and produced heavy rain over the city of Clarendon (Donley County). This heavy rain led to flash flooding on U.S. Highway 287 from the north side of Clarendon to the U.S. Highway 287 and State Highway 70 turn off, water completely covered Koogle Street at U.S. Highway 287, and water completely covered 3rd Street at the intersection with Koogle Street. An off duty NWS Employee reported a storm total of 2.25 inches of rain once the rain had subsided by 7 PM CST. No swift water rescues or stranded motorist were reported in association to this flash flooding.

**Scattered showers and thunderstorms across the Texas Panhandle lead to localized flash flooding and heavy rain during the evening hours of the 13th. The combination of a stalled frontal boundary and an approaching weak upper level disturbance helped to initiate showers and thunderstorms across the panhandle. Weak steering winds and atmospheric moisture which was climatologically high, caused thunderstorms that developed to move slowly and produce prolonged periods of heavy rain over the same area. This led to localized flash flooding over the eastern Texas Panhandle. Flash flooding subsided as thunderstorm activity diminished around 7 PM CST.**

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**DONLEY COUNTY --- 1.8 WSW CLARENDON [34.92, -100.93]**

| | | | |
|---|---|---|---|
| | 09/15/13 21:10 CST | 0 | Thunderstorm Wind (MG 53 kt) |
| | 09/15/13 21:11 CST | 0 | Source: Mesonet |

The West Texas Mesonet site 2 miles west-southwest of Clarendon reported a 61 mph downburst wind as a thunderstorm collapsed near the station during the late night hours of the 15th. After this storm collapsed, no other thunderstorms were able to reach severe levels.

**A cold front moved southward across the Texas Panhandle during the evening hours of the 15th. Showers and thunderstorms developed along this cold front in an area of marginal instability and low deep layer shear. Most thunderstorms that developed remained below severe levels however, a collapsing thunderstorm was able to produce a single downburst of 61 mph over Donley County. Scattered showers and thunderstorms continued into the early morning hours of the 16th, but no other thunderstorm was able to become severe.**

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**POTTER COUNTY --- (AMA)AMARILLO INTL A [35.22, -101.72]**

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|---|---|---|---|
| | 09/16/13 14:00 CST | 0 | Heavy Rain |
| | 09/16/13 18:00 CST | 0 | Source: Emergency Manager |

| Location | Date/Time | Deaths & Injuries | Property & Crop Dmg | Event Type and Details |
|---|---|---|---|---|

Scattered thunderstorms moved northward into the southern Texas Panhandle during the early afternoon hours of the 16th. These thunderstorms had access to a high atmospheric moisture content which allowed for periods of heavy rain. As the thunderstorms moved over the city of Amarillo, the heavy rain led to minor flooding of Danbury Street, portions of Bell Street between Interstate 40 and interstate 27, Soncy, Wolflin, and Coulter. Once the thunderstorms moved away from the city of Amarillo (Potter and Randall), the minor flooding subsided. No stranded vehicles or swift water rescues were reported in association to this minor flooding.

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**RANDALL COUNTY --- 5.0 WSW AMARILLO [35.18, -101.90], 6.6 NW TIMBERCREEK CANYON [35.11, -101.91]**

| | | | |
|---|---|---|---|
| | 09/16/13 14:00 CST | 0 | Heavy Rain |
| | 09/16/13 18:00 CST | 0 | Source: Emergency Manager |

Scattered thunderstorms moved northward into the southern Texas Panhandle during the early afternoon hours of the 16th. These thunderstorms had access to a high atmospheric moisture content which allowed for periods of heavy rain. As the thunderstorms moved over the city of Amarillo, the heavy rain led to minor flooding of Danbury Street, portions of Bell Street between Interstate 40 and interstate 27, Soncy, Wolflin, and Coulter. Once the thunderstorms moved away from the city of Amarillo (Potter and Randall), the minor flooding subsided. No stranded vehicles or swift water rescues were reported in association to this minor flooding.

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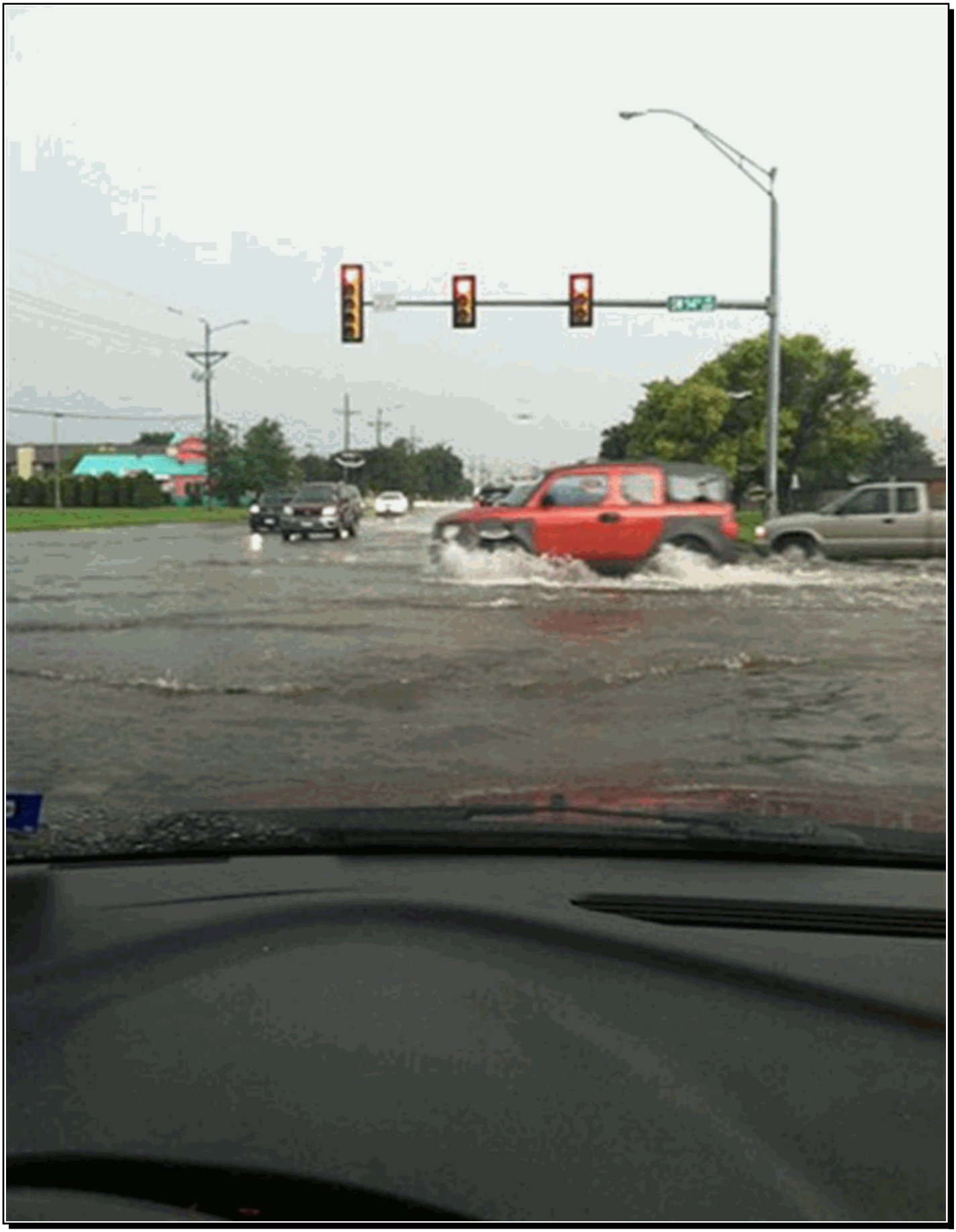
**RANDALL COUNTY --- CANYON [34.98, -101.92]**

| | | | |
|---|---|---|---|
| | 09/16/13 15:00 CST | 0 | Heavy Rain |
| | 09/16/13 17:00 CST | 0 | Source: Public |

Scattered thunderstorms moved northward into the southern Texas Panhandle during the early afternoon hours of the 16th. These thunderstorms had access to a high atmospheric moisture content which allowed for periods of heavy rain. A member of the public in Canyon reported that heavy rain led to minor flooding on Cemetery Road on the west side of Canyon. This minor flooding cleared quickly as thunderstorms continued to move northward away from the city. No stranded vehicles or swift water rescues were reported in association to this minor flooding.

**Scattered showers and thunderstorms developed along a slowly northward advancing warm front during the afternoon hours of the 16th. As thunderstorms intensified they moved northward off of the warm front and into a highly moist environment already in place across the southern Texas Panhandle. The 6 PM CST upper air sounding from Amarillo (Randall and Potter Counties) showed that Precipitable Water values were 1.5 inches which is a climatologically high value for the middle of September. This high water content in the atmosphere allowed thunderstorms to produce periods of heavy rain. A thunderstorm that moved across Potter and Randall Counties produces periods of heavy rain which led to minor flooding. This minor flooding caused traffic issues across Amarillo however, no vehicles became stranded. The minor flooding dissipated quickly as precipitation moved north of the counties by 6 PM CST.**

| Location | Date/Time | Deaths & Injuries | Property & Crop Dmg | Event Type and Details |
|---|---|---|---|---|



| Location | Date/Time | Deaths & Injuries | Property & Crop Dmg | Event Type and Details |
|---|---|---|---|---|

*Minor flooding at the intersection of Bell Street and 54th Ave in southern Amarillo (Randall County). This photo was provided by the Amarillo Globe News.*

**RANDALL COUNTY --- 5.2 WSW AMARILLO [35.17, -101.90], 4.8 WSW AMARILLO [35.17, -101.90]**

| | | | |
|---|---|---|---|
| | 09/16/13 15:45 CST | 0 | Hail (1.00 in) |
| | 09/16/13 15:46 CST | 0 | Source: Broadcast Media |

A discrete thunderstorm moved across the southern Texas Panhandle during the late afternoon hours of the 16th. This thunderstorm intensified as it neared the city of Amarillo (Randall County). A local broadcast station reported quarter size hail (1.00 inch) 5 miles west-southwest of Amarillo (Randall County) as the thunderstorm moved into the city. The thunderstorm continued to move to the north after producing this hail.

**RANDALL COUNTY --- 6.4 WSW AMARILLO [35.18, -101.93], 6.3 WSW AMARILLO [35.18, -101.93]**

| | | | |
|---|---|---|---|
| | 09/16/13 15:46 CST | 0 | Hail (1.00 in) |
| | 09/16/13 15:47 CST | 0 | Source: NWS Employee |

A discrete thunderstorm moved across the southern Texas Panhandle during the late afternoon hours of the 16th. This thunderstorm intensified as it neared the city of Amarillo (Randall County). A NWS employee reported quarter size hail (1.00 inch) 6 miles west-southwest of Amarillo (Randall County) as the thunderstorm moved over the city. The thunderstorm continued to move to the north after producing this hail.

**POTTER COUNTY --- 3.7 WSW AMARILLO [35.18, -101.88], 3.2 W AMARILLO [35.19, -101.88]**

| | | | |
|---|---|---|---|
| | 09/16/13 15:50 CST | 0 | Hail (1.00 in) |
| | 09/16/13 15:51 CST | 0 | Source: Public |

A discrete thunderstorm moved across the southern Texas Panhandle during the late afternoon hours of the 16th. This thunderstorm intensified as it neared the city of Amarillo (Randall County). A member of the public reported quarter size hail (1.00 inch) 4 miles west-southwest of Amarillo (Potter County) as the thunderstorm moved over the city. The thunderstorm continued to move to the north after producing this hail.

**POTTER COUNTY --- 4.0 W AMARILLO [35.20, -101.89], 3.8 W AMARILLO [35.21, -101.89]**

| | | | |
|---|---|---|---|
| | 09/16/13 15:50 CST | 0 | Hail (1.00 in) |
| | 09/16/13 15:51 CST | 0 | Source: Public |

A discrete thunderstorm moved across the southern Texas Panhandle during the late afternoon hours of the 16th. This thunderstorm intensified as it neared the city of Amarillo (Randall County). A member of the public reported quarter size hail (1.00 inch) 4 miles west of Amarillo (Potter County) as the thunderstorm moved over the city. The thunderstorm continued to move to the north after producing this hail.

**POTTER COUNTY --- 5.2 W AMARILLO [35.19, -101.91], 5.1 W AMARILLO [35.19, -101.91]**

| | | | |
|---|---|---|---|
| | 09/16/13 15:50 CST | 0 | Hail (1.00 in) |
| | 09/16/13 15:51 CST | 0 | Source: Public |

A discrete thunderstorm moved across the southern Texas Panhandle during the late afternoon hours of the 16th. This thunderstorm intensified as it neared the city of Amarillo (Randall County). A member of the public reported quarter size hail (1.00 inch) 5 miles west-southwest of Amarillo (Potter County) as the thunderstorm moved over the city. The thunderstorm continued to move to the north after producing this hail.

**POTTER COUNTY --- 5.7 W AMARILLO [35.19, -101.92], 5.3 W AMARILLO [35.20, -101.91]**

| | | | |
|---|---|---|---|
| | 09/16/13 15:50 CST | 0 | Hail (0.88 in) |
| | 09/16/13 15:51 CST | 0 | Source: NWS Employee |

A discrete thunderstorm moved across the southern Texas Panhandle during the late afternoon hours of the 16th. This thunderstorm intensified as it neared the city of Amarillo (Randall County). A NWS employee reported nicklel size hail (0.88 inch) 6 miles west of Amarillo (Potter County) as the thunderstorm moved over the city. The thunderstorm continued to move to the north after producing this hail.

**RANDALL COUNTY --- 6.8 WSW AMARILLO [35.16, -101.93], 5.8 W AMARILLO [35.18, -101.92]**

| | | | |
|---|---|---|---|
| | 09/16/13 15:55 CST | 0 | Hail (0.75 in) |
| | 09/16/13 15:56 CST | 0 | Source: Broadcast Media |

A discrete thunderstorm moved across the southern Texas Panhandle during the late afternoon hours of the 16th. This thunderstorm intensified as it neared the city of Amarillo (Randall County). A local broadcast station reported penny size hail (0.75 inch) 7 miles west-southwest of Amarillo (Randall County) as the thunderstorm moved over the city. The thunderstorm continued to move to the north after producing this hail.

**Scattered showers and thunderstorms developed along a slowly northward advancing warm front during the afternoon hours of the 16th. Some thunderstorms were able to tap into elevated instability sufficiently to move off of the warm front and move northward into**

| Location | Date/Time | Deaths & Injuries | Property & Crop Dmg | Event Type and Details |
|---|---|---|---|---|

**the southern Texas Panhandle. While the vast majority of these thunderstorms remained below severe levels, one storm intensified as it moved over the city of Amarillo (Potter and Randall County) and produced hail up to the size of quarters. This storm also produced a lightning bolt which struck the air traffic control tower at the Amarillo International Airport which damaged various equipment systems. Thunderstorms continued to move northward across the Texas Panhandle before dissipating by 9 PM CST.**

| Location | Date/Time | Deaths & Injuries | Property & Crop Dmg | Event Type and Details |
|---|---|---|---|---|

| Location | Date/Time | Deaths & Injuries | Property & Crop Dmg | Event Type and Details |
|---|---|---|---|---|

*Photo of hail in Amarillo (Potter and Randall County) provided by the Amarillo Globe News.*

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**DONLEY COUNTY --- 1.9 NNW CLARENDON [34.96, -100.91], 1.4 NW CLARENDON [34.94, -100.92], 0.8 SSE CLARENDON [34.92, -100.89], 2.3 ENE CLARENDON [34.94, -100.86]**

| | | | |
|---|---|---|---|
| | 09/16/13 17:00 CST | 0 | Flash Flood (due to Heavy Rain) |
| | 09/16/13 19:45 CST | 0 | Source: Storm Chaser |

Scattered thunderstorms merged over the city of Clarendon (Donley County) during the evening hours of the 16th. These thunderstorms had access to a highly moist atmosphere which allowed them to produce periods of heavy rain. The heavy rain led to flash flooding across the city. The intersections of Koogle Street and Hawley Street with U.S. Highway 287 were reported to have 2 to 3 feet of water covering the intersections. Flash flooding was also reported on portions of U.S. Highway 287 with up to 8 inches of standing water. A vehicle became stranded on U.S. Highway 287, but all of the occupants were able to escape the vehicle unassisted. As time progressed the flash flooding on U.S. Highway 287 widened to encompase one block to either side of the highway. Farm-to-Market Road 2161 was closed at the Highway 287 intersection. This flash flooding later diminished once precipiation moved out of the county.

**Scattered showers and thunderstorms developed along a slowly northward advancing warm front during the afternoon hours of the 16th. As thunderstorms intensified they moved northward off of the warm front and into a highly moist environment already in place across the southern Texas Panhandle. The 6 PM CST upper air sounding from Amarillo (Randall and Potter Counties) showed that Precipitable Water values were 1.5 inches which is a climatologically high value for the middle of September. This high water content in the atmosphere allowed thunderstorms to produce periods of heavy rain. This heavy rain potential was magnified over Donley County as thunderstorms merged and collapsed over the city of Clarendon (Donley County). This series of factors lead to a period of intense rainfall which quickly overwhelmed drainage systems and led to flash flooding. Several feet of water were reported across the town of Clarendon (Donley County) that lasted for a couple hours after precipitation ended. By 9 PM CST, all flash flooding was reported to have cleared according to the County Sheriff's Office.**

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**LIPSCOMB COUNTY --- 2.2 SE BOOKER [36.43, -100.50]**

| | | | |
|---|---|---|---|
| | 09/19/13 14:30 CST | 4K | Thunderstorm Wind (EG 52 kt) |
| | 09/19/13 14:31 CST | 0 | Source: Emergency Manager |

A line of thunderstorms developed over the northeastern Texas Panhandle during the afternoon hours of the 19th. One storm embedded within the line intensified sufficiently to produce a localized downburst 3 miles southeast of Booker (Lipscomb County). This downburst caused minor damage to outbuildings 1.5 miles south of Highway 15 on County Road 6. After producing this downburst the line of thunderstorms continued to move southward slowly, but did not produce any further severe weather.

**A line of thunderstorms developed along a slowly southward progressing cold front during the afternoon hours of the 19th across the northeastern Texas Panhandle. Instability indices showed that these thunderstorms developed in a moderately unstable environment however, deep layer shear and steering flow was very weak. The weakly sheared environment proved to be a limiting factor for severe potential, and the majority of storms that developed remained below severe levels. One storm was able to intensify sufficiently to produce a downburst which caused damage in Lipscomb County. After this downburst occurred, no other thunderstorms were able to intensify sufficiently to reach severe levels during the overnight hours of the 19th.**

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**LIPSCOMB COUNTY --- 4.7 WNW DARROUZETT [36.45, -100.40], 6.1 NW DARROUZETT [36.49, -100.40], 6.8 NW DARROUZETT [36.49, -100.42], 5.3 WNW DARROUZETT [36.45, -100.41]**

| | | | |
|---|---|---|---|
| | 09/19/13 18:00 CST | 0 | Flash Flood (due to Heavy Rain) |
| | 09/19/13 20:00 CST | 0 | Source: Emergency Manager |

A line of near stationary thunderstorms developed over northern Lipscomb County during the evening hours of the 19th. These thunderstorms formed in a highly moist atmosphere which allowed the thunderstorms to produce heavy rain. This heavy rain led to flash flooding on County Road 9 between Booker and Darrouzett. The USGS rain gauge near Lipscomb reported a storm total accumulation of 3.10 inches. No swift water rescues or stranded vehicles were reported in association to this flash flooding.

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**POTTER COUNTY --- 4.6 W AMARILLO [35.21, -101.90], 4.8 W AMARILLO [35.21, -101.90], 5.2 WNW AMARILLO [35.22, -101.91], 4.6 WNW AMARILLO [35.22, -101.90]**

| | | | |
|---|---|---|---|
| | 09/19/13 18:17 CST | 0 | Flash Flood (due to Heavy Rain) |
| | 09/19/13 20:00 CST | 0 | Source: Emergency Manager |

A line of near stationary thunderstorms developed over Potter County during the evening hours of the 19th. These thunderstorms formed in a highly moist atmosphere which allowed the thunderstorms to produce heavy rain. This heavy rain led to flash flooding on 9th Street and Bell Street which caused a car to stall. The occupant was able to escape the flood waters unassisted. A trained storm spotter 8 miles north-northwest of Amarillo (Potter County) recorded a 1.10 inches of storm total accumulation. Flash flooding was able to recede after 8 PM CST as thunderstorms moved south of the city.

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**POTTER COUNTY --- 2.4 WNW AMARILLO [35.22, -101.86], 2.1 WNW AMARILLO [35.22, -101.85], 2.0 WNW AMARILLO [35.21, -101.85], 2.3 WNW AMARILLO [35.21, -101.86]**

| | | | |
|---|---|---|---|
| | 09/19/13 18:26 CST | 0 | Flash Flood (due to Heavy Rain) |
| | 09/19/13 20:00 CST | 0 | Source: Law Enforcement |

A line of near stationary thunderstorms developed over Potter County during the evening hours of the 19th. These thunderstorms formed in a highly moist atmosphere which allowed the thunderstorms to produce heavy rain. This heavy rain led to 2 feet of water at the intersection of Bowie Street and the railroad tracks near Martin Luther King Jr. Park. The KVII Studios repored a storm total accumulation of 1.00 inch. No swift water rescues or stranded vehicles were reported in association to this flash flooding. Flash flooding was able to recede after 8 PM CST as thunderstorms moved south of the city.

**POTTER COUNTY --- 2.6 WSW AMARILLO [35.19, -101.86], 2.5 W AMARILLO [35.20, -101.86], 4.3 W AMARILLO [35.19, -101.90], 4.3 W AMARILLO [35.19, -101.89]**

| | | | |
|---|---|---|---|
| | 09/19/13 18:40 CST | 40K | Flash Flood (due to Heavy Rain) |
| | 09/19/13 20:00 CST | 0 | Source: Newspaper |

A line of near stationary thunderstorms developed over Potter County during the evening hours of the 19th. These thunderstorms formed in a highly moist atmosphere which allowed the thunderstorms to produce heavy rain. This heavy rain led to flash flooding which caused a car to hydroplane and wreck at Interstate 40 and Western Street (Potter County). The Amarillo Globe Newspaper reported that a foot of water had accumulated in the parking lot of Rudy's Barbecue. Emergency personnel also reported to wrecks on Interstate 40 between Avondale Street and Georgia Street. Flash flooding was able to recede after 8 PM CST as thunderstorms moved south of the city.

**POTTER COUNTY --- 0.7 S AMARILLO [35.19, -101.82], 0.4 S AMARILLO [35.19, -101.82], 0.6 ESE AMARILLO [35.20, -101.81], 0.9 SE AMARILLO [35.19, -101.81]**

| | | | |
|---|---|---|---|
| | 09/19/13 18:52 CST | 5K | Flash Flood (due to Heavy Rain) |
| | 09/19/13 20:00 CST | 0 | Source: Newspaper |

A line of near stationary thunderstorms developed over Potter County during the evening hours of the 19th. These thunderstorms formed in a highly moist atmosphere which allowed the thunderstorms to produce heavy rain. This heavy rain led to flash flooding which caused a car to stall at the intersection of Interstate 40 and Ross Street (Potter County). The Amarillo Globe Newspaper reported the car was pushed out of knee deep flood waters by the driver while other vehicles attempted to cross the intersection. Flash flooding was able to recede after 8 PM CST as thunderstorms moved south of the city.

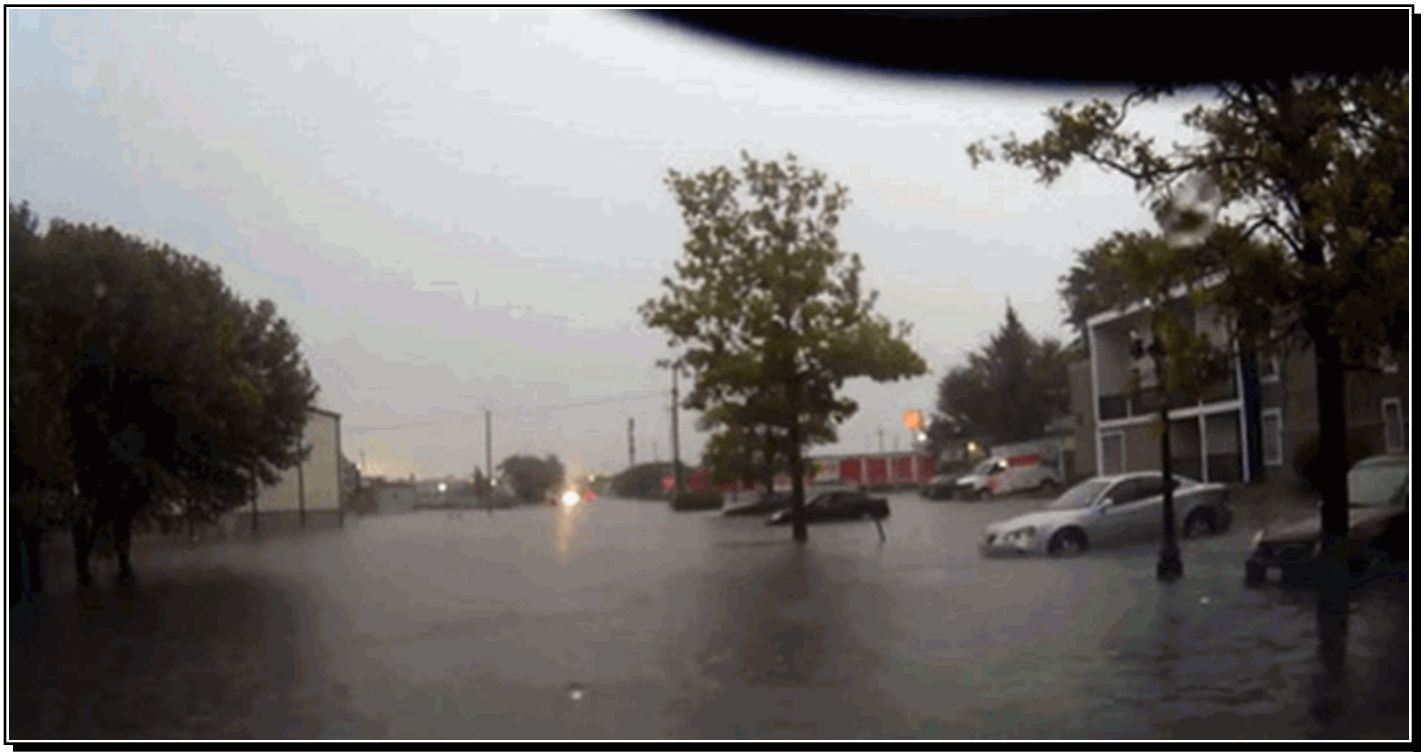
**OLDHAM COUNTY --- 1.8 ENE ADRIAN [35.28, -102.65], 0.8 NNE ADRIAN [35.28, -102.67], 0.4 SSE ADRIAN [35.27, -102.68], 1.4 E ADRIAN [35.27, -102.65]**

| | | | |
|---|---|---|---|
| | 09/19/13 19:45 CST | 0 | Flash Flood (due to Heavy Rain) |
| | 09/19/13 21:05 CST | 0 | Source: Trained Spotter |

A line of near stationary thunderstorms developed over southern Oldham County during the evening hours of the 19th. These thunderstorms formed in a highly moist atmosphere which allowed the thunderstorms to produce heavy rain. This heavy rain led to flash flooding of the Interstate 40 side road with a foot of fast flowing water. Swiftly running water 3 inches deep was also reported at the intersection of 5th Street and Walnut Avenue in town. No swift water rescues or stranded vehicles were reported in association to this flash flooding.

**Portions of the Texas Panhandle experienced tropical-like precipitation which led to localized flash flooding during the evening hours of the 19th. The remnants of Tropical Depression Manuel streamed across the panhandle ahead of a slow southward progressing cold front. The increased moisture pushed Precipitable Water values into a climatological extreme range which provided thunderstorms with the potential to produce heavy rain. This heavy rain potential became a threat for flash flooding due to weak steering flow aloft. This flash flood potential was verified as two areas of thunderstorms developed across the Texas Panhandle during the evening hours of the 19th. The eastern area was positioned over Lipscomb County while the western area was positioned over southwestern Texas Panhandle counties. These thunderstorms moved very slowly which allowed them to remain over the same location for a couple of hours. Flash flooding was reported in the counties before the cold front increased in speed and forced thunderstorms southward. Flash flooding persisted in these counties for a few hours after the thunderstorms moved southward.**

| Location | Date/Time | Deaths & Injuries | Property & Crop Dmg | Event Type and Details |
|---|---|---|---|---|



*Picture of flooding in north Amarillo provided by the Amarillo Globe News.*

**POTTER COUNTY --- 3.0 N AMARILLO [35.24, -101.82]**

| | | | |
|---|---|---|---|
| | 09/27/13 16:10 CST | 0 | Heavy Rain |
| | 09/27/13 16:20 CST | 0 | Source: Public |

A discrete thunderstorm moved northward across the city of Amarillo (Potter County) during the early evening hours of the 27th. This thunderstorm was able to tap into a highly moist atmosphere which allowed it to produce periods of heavy rain. A member of the public 3 miles north of Amarillo (Potter County) reported that an inch of rain fell within 10 minutes. No reports of flooding were associated to this heavy rain.

**CARSON COUNTY --- GROOM [35.20, -101.10], 6.0 ENE PANHANDLE [35.38, -101.28]**

| | | | |
|---|---|---|---|
| | 09/27/13 17:20 CST | 0 | Heavy Rain |
| | 09/27/13 21:54 CST | 0 | Source: Broadcast Media |

A broken line of thunderstorms moved across the Texas Panhandle during the evening hours of the 27th. This line of thunderstorms was able to tap into a highly moist atmosphere which allowed the production of heavy rain. The KVII Schoolnet site at Groom High School (Carson County) reported 1.02 inches of storm total accumulation with 0.84 inch falling with a half hour. This heavy rain across the county caused minor flooding of State Highway 60 between Panhandle and White Deer (Carson County). No swift water rescues or stranded vehicles were reported with this minor flooding.

**HANSFORD COUNTY --- 1.0 SSE SPEARMAN [36.19, -101.19]**

| | | | |
|---|---|---|---|
| | 09/27/13 18:00 CST | 0 | Heavy Rain |
| | 09/27/13 19:06 CST | 0 | Source: Broadcast Media |

A broken line of thunderstorms moved across the Texas Panhandle during the evening hours of the 27th. This line of thunderstorms was able to tap into a highly moist atmosphere which allowed the production of heavy rain. The KVII Schoolnet site at Spearman High School (Hansford County) recorded 0.70 inch of storm total accumulation. No reports of flooding were associated to this heavy rain.

**OCHILTREE COUNTY --- 1.0 WSW PERRYTON [36.39, -100.82]**

| | | | |
|---|---|---|---|
| | 09/27/13 18:00 CST | 0 | Heavy Rain |
| | 09/27/13 19:00 CST | 0 | Source: Broadcast Media |

A broken line of thunderstorms moved across the Texas Panhandle during the evening hours of the 27th. This line of thunderstorms was able to tap into a highly moist atmosphere which allowed the production of heavy rain. The KVII Schoolnet site at Perryton High School (Ochiltree County) recorded 0.94 inch of storm total accumulation with 0.65 inch falling within 20 minutes. No reports of flooding were associated to this heavy rain.

**ROBERTS COUNTY --- 8.0 NW MIAMI [35.78, -100.73]**

| Location | Date/Time | Deaths & Injuries | Property & Crop Dmg | Event Type and Details |
|---|---|---|---|---|
| | 09/27/13 18:25 CST | | 0 | Heavy Rain |
| | 09/27/13 20:00 CST | | 0 | Source: Broadcast Media |

A broken line of thunderstorms moved across the Texas Panhandle during the evening hours of the 27th. This line of thunderstorms was able to tap into a highly moist atmosphere which allowed the production of heavy rain. The KVII Schoolnet site at Robert Clark Ranch (Roberts County) recorded a storm total accumulation of 2.72 inches. No reports of flooding were associated to this heavy rain.

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**GRAY COUNTY --- 2.8 ENE PAMPA LEFORS ARPT [35.64, -100.95], 5.5 S PAMPA [35.45, -100.97]**

| | | | |
|---|---|---|---|
| 09/27/13 19:00 CST | 0 | | Heavy Rain |
| 09/28/13 01:00 CST | 0 | | Source: Law Enforcement |

A broken line of thunderstorms moved across the Texas Panhandle during the evening hours of the 27th. This line of thunderstorms was able to tap into a highly moist atmosphere which allowed the production of heavy rain. The Gray County Sheriff's Office in Pampa (Gray County) reported minor flooding of State Highway 70 outside of town. The flooding persisted a few hours after precipitation had ended across the county, and no swift water rescues or stranded motorist were reported in association to this flooding.

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**ARMSTRONG COUNTY --- CLAUDE [35.12, -101.37]**

| | | | |
|---|---|---|---|
| 09/27/13 21:00 CST | 0 | | Heavy Rain |
| 09/27/13 23:30 CST | 0 | | Source: Law Enforcement |

A broken line of thunderstorms moved across the Texas Panhandle during the evening hours of the 27th. This line of thunderstorms was able to tap into a highly moist atmosphere which allowed the production of heavy rain. The Armstrong County Sheriff's Office in Claude (Armstrong County) reported minor flooding of roads in Claude. The flooding persisted a few hours after precipitation had ended for the city, and no swift water rescues or stranded motorist were reported in association to this flooding. The KVII Schoolnet site at Claude High School (Armstrong County) recorded 2.88 inches of storm total accumulation.

**The combination of an approaching low pressure system and a climatologically moist atmosphere led to a series of broken lines of thunderstorms moving over the same locations from the evening hours of the 27th into the early morning hours of the 28th. Each line of thunderstorms were able to tap into the extremely most atmosphere to produce periods of heavy rain across the Texas Panhandle. This heavy rain was able to overwhelm drainage systems in flood prone areas which lead to localized minor flooding. As the final line of thunderstorms moved into western Oklahoma along a surface cold front, the precipitation across the panhandle ended which also brought an end to minor flooding and heavy rain.**

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**ARMSTRONG COUNTY --- 3.9 NNE WAYSIDE [34.83, -101.52]**

| | | | |
|---|---|---|---|
| 09/27/13 16:41 CST | 0 | | Thunderstorm Wind (MG 56 kt) |
| 09/27/13 16:42 CST | 0 | | Source: Broadcast Media |

Scattered discrete thunderstorms began to form into a broken line of thunderstorms during the early evening hours of the 27th. As one discrete thunderstorm neared the town of Wayside (Armstrong County), it produced a downburst which was measured to be 65 mph by the KVII Schoolnet site at Hidden Falls Ranch (Armstrong County). After producing this downburst the discrete thunderstorm merged into a broken line which moved eastward across the southern Texas Panhandle.

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**DONLEY COUNTY --- 1.8 WSW CLARENDON [34.92, -100.93]**

| | | | |
|---|---|---|---|
| 09/27/13 18:50 CST | 0 | | Thunderstorm Wind (MG 50 kt) |
| 09/27/13 18:52 CST | 0 | | Source: Mesonet |

A broken line of thunderstorms moved across the southern Texas Panhandle during the evening hours of the 27th. As this line approached the city of Clarendon (Donley County), the West Texas Mesonet site 2 miles west-southwest of Clarendon reported a 58 mph wind gust. This line continued to move eastward across the southern Texas Panhandle after producing this gust.

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**DONLEY COUNTY --- 2.0 N CLARENDON [34.96, -100.90]**

| | | | |
|---|---|---|---|
| 09/27/13 18:50 CST | 50K | | Thunderstorm Wind (EG 52 kt) |
| 09/27/13 18:51 CST | 0 | | Source: Public |

A broken line of thunderstorms moved across the southern Texas Panhandle during the evening hours of the 27th. As this line moved over the city of Clarendon (Donley County), a member of the public reported that 3 power poles had been blown down along State Highway 70 by a downburst. There was also heavy damage to two large storage units, and two center pivot irrigation systems were turned. This line continued to move eastward across the southern Texas Panhandle after producing this damage.

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**GRAY COUNTY --- 0.7 S ALANREED [35.21, -100.73]**

| | | | |
|---|---|---|---|
| 09/27/13 18:59 CST | 2K | | Thunderstorm Wind (EG 52 kt) |
| 09/27/13 19:00 CST | 0 | | Source: Public |

| Location | Date/Time | Deaths & Injuries | Property & Crop Dmg | Event Type and Details |
|---|---|---|---|---|

A broken line of thunderstorms moved across the southern Texas Panhandle during the evening hours of the 27th. As this line approached the city of Alanreed (Gray County), a member of the public reported that a thunderstorm wind gust blew a tree down onto the Interstate 40 on ramp. This tree blocked the one ramp for several hours before it could be removed. This line continued to move eastward across the southern Texas Panhandle after producing this damage.

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**WHEELER COUNTY --- 1.5 NNW TWITTY [35.34, -100.24]**

| | | | |
|---|---|---|---|
| | 09/27/13 21:11 CST | 2K | Thunderstorm Wind (EG 52 kt) |
| | 09/28/13 21:12 CST | 0 | Source: Law Enforcement |

A second broken line of thunderstorms moved across the southern Texas Panhandle during the late night hours of the 27th. This line of storms produced a downburst which blew a tree down onto U.S. Highway 83 two miles north of the town of Twitty (Wheeler County). This tree blocked traffic before it could be removed several hours later. The line which produced this gust continued to move eastward across the southern Texas Panhandle before entering western Oklahoma by 11:30 PM CST.

**An upper level disturbance and the associated surface cold front caused a series of thunderstorm lines to move across the Texas Panhandles during the evening and late night hours of the 27th. Thunderstorms developed across the central Texas Panhandle during the early evening hours of the 27th, they initiated as discrete thunderstorms that quickly formed into a broken line. Elevated instability remained sufficient for another broken line of thunderstorms to develop west of the initial line. This line also moved across the Texas Panhandle producing isolated severe wind gusts. By 11:00 PM CST, the final line of thunderstorms formed along the surface cold front as it moved across the Panhandle. This line was not able to produce any further severe wind gusts due to the strengthening nocturnal inversion.**

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**WHEELER COUNTY --- 0.6 W NEW MOBEETIE [35.53, -100.44], 0.7 S MOBEETIE [35.51, -100.43], 1.6 WSW MOBEETIE [35.51, -100.45], 1.3 W NEW MOBEETIE [35.53, -100.45]**

| | | | |
|---|---|---|---|
| | 09/28/13 01:42 CST | 0 | Flash Flood (due to Heavy Rain) |
| | 09/28/13 04:43 CST | 0 | Source: Law Enforcement |

A series of thunderstorm lines moved across the southern Texas Panhandle from the evening hours of the 27th through the early morning hours of the 28th. These thunderstorms were able to tap into a highly moist atmosphere to produce periods of heavy rain. This heavy rain led to flash flooding across portions of Wheeler County. The Wheeler County Sheriff's Office reported that an estimated 6 inches of water was flowing over State Highway 152 at Mobeetie (Wheeler County). This portion of the Highway was barricaded by TXDOT until the flash flooding subsided prior to 5 AM CST on the 28th. No reports of stranded motorist or swift water rescues were reported in association to this flash flooding.

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**DONLEY COUNTY --- 0.9 NNE CLARENDON [34.94, -100.90], 0.4 N CLARENDON [34.94, -100.90], 1.1 E CLARENDON [34.93, -100.88], 1.1 ENE CLARENDON [34.94, -100.88]**

| | | | |
|---|---|---|---|
| | 09/28/13 01:55 CST | 0 | Flash Flood (due to Heavy Rain) |
| | 09/28/13 04:00 CST | 0 | Source: Law Enforcement |

A series of thunderstorm lines moved across the southern Texas Panhandle from the evening hours of the 27th through the early morning hours of the 28th. These thunderstorms were able to tap into a highly moist atmosphere to produce periods of heavy rain. This heavy rain led to flash flooding across portions of Donley County. The Donley County Sheriff's Office reported a vehicle became stranded in high water near the city park due to the bridge the vehicle was traveling on flooding. Flash flooding was also reported on U.S. Highway 287 from Koogle Street southward to the State Highway 70 intersection. The KVII Schoolnet site at Clarendon High School reported a storm total accumulation of 3.09 inches and the site are Matthews Ranch reported a storm total accumulation of 3.55 inches. Flash flooding persisted for several hours after precipitation had ended across the county before diminishing after 4 AM CST.

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**GRAY COUNTY --- 2.0 ENE LEFORS [35.44, -100.79], 1.8 E LEFORS [35.43, -100.79], 3.2 ESE LEFORS [35.42, -100.76], 3.9 E LEFORS [35.42, -100.75]**

| | | | |
|---|---|---|---|
| | 09/28/13 02:05 CST | 0 | Flash Flood (due to Heavy Rain) |
| | 09/28/13 03:15 CST | 0 | Source: Law Enforcement |

A series of thunderstorm lines moved across the southern Texas Panhandle from the evening hours of the 27th through the early morning hours of the 28th. These thunderstorms were able to tap into a highly moist atmosphere to produce periods of heavy rain. This heavy rain led to flash flooding across portions of Gray County. The Gray County Sheriff's Office reported TXDOT was working on closing portions of State Highway 273 near Lefors due to flash flooding on the highway. The KVII Schoolnet site at McLean High School (Gray County) reported a storm total accumulation of 4.58 inches. This flash flooding persisted for an hour after precipitation had ended across the county before diminishing a little after 3 AM CST. No reports of stranded vehicles or swift water rescues were reported in association to this flash flooding.

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**WHEELER COUNTY --- 2.8 W LELA [35.22, -100.40], 3.0 WNW LELA [35.23, -100.40], 2.5 WNW LELA [35.24, -100.39], 2.5 W LELA [35.22, -100.39]**

| | | | |
|---|---|---|---|
| | 09/28/13 02:15 CST | 3K | Flash Flood (due to Heavy Rain) |
| | 09/28/13 04:43 CST | 0 | Source: Law Enforcement |

| Location | Date/Time | Deaths & Injuries | Property & Crop Dmg | Event Type and Details |
|---|---|---|---|---|

A series of thunderstorm lines moved across the southern Texas Panhandle from the evening hours of the 27th through the early morning hours of the 28th. These thunderstorms were able to tap into a highly moist atmosphere to produce periods of heavy rain. This heavy rain led to flash flooding across portions of Wheeler County. The Wheeler County Sheriff's Office reported a stranded motorist on County Road 8 near Interstate 40 due to flash flooding. The occupant was assisted by law enforcement officials to escape the flood waters. Flash flooding persisted for a few hours after precipitation had ended across the county before diminishing a little before 5 AM CST.

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**WHEELER COUNTY --- 0.9 NE ALLISON [35.61, -100.09], 1.3 NW ALLISON [35.61, -100.11], 3.2 WSW BRISCOE [35.56, -100.33], 3.4 SSW BRISCOE [35.54, -100.31]**

| | | | |
|---|---|---|---|
| | 09/28/13 03:10 CST | 0 | Flash Flood (due to Heavy Rain) |
| | 09/28/13 04:43 CST | 0 | Source: Law Enforcement |

A series of thunderstorm lines moved across the southern Texas Panhandle from the evening hours of the 27th through the early morning hours of the 28th. These thunderstorms were able to tap into a highly moist atmosphere to produce periods of heavy rain. This heavy rain led to flash flooding across portions of Wheeler County. The Wheeler County Sheriff's Office reported flash flooding on U.S. Highway 83 north of the town of Wheeler (Wheeler County). Also the KVII Schoolnet site at Begert Ranch (Wheeler County) recorded a storm total accumulation of 3.92 inches. Flash flooding persisted for an hour after precipitation had ended across the county before diminishing a little before 5 AM CST. No stranded motorists or swift water rescues were reported in association to this flash flooding.

**The combination of an approaching low pressure system and a climatologically moist atmosphere led to a series of broken lines of thunderstorms moving over the same locations from the evening hours of the 27th into the early morning hours of the 28th. The 6 PM CST upper air sounding showed Precipitable Water values across the Panhandle were 1.4 inches which is a climatological extreme value for the last week of September. This high amount of atmospheric moisture allowed the lines of thunderstorms to produce periods of heavy rain. The southeastern Texas Panhandle had the longest residence time by thunderstorms and this proved sufficient to cause localized flash flooding as the third line of thunderstorms moved through. Flash Flooding persisted for a few hours after all precipitation moved into western Oklahoma but diminished by 5 AM CST.**