



The Dryline

The Official Newsletter of the National Weather Service in Amarillo

Summer 2010

2010 Severe Weather in the Panhandles

By Mike Johnson, General Forecaster

With an El Niño pattern looming over the eastern Pacific Ocean during the winter months, National Weather Service meteorologists in Amarillo anticipated an active and early severe weather season for the Texas and Oklahoma Panhandles. That prediction turned out to be only half true. Spring began a bit on the sluggish side with no severe weather reported across the forecast area through early April. However, things began to change quickly by mid April as the pattern became more conducive for severe weather. The active weather pattern continued through mid June, consistent with local climatology. This article highlights the significant severe weather events observed in the Texas and Oklahoma Panhandles during the spring of 2010.



Tornado that crossed Highway 287 just west of Goodnight, TX. Photo courtesy of Tim Marshall.

Through April 15th, large hail was the only reported severe weather phenomena in the Panhandles. Hail of 1.5 inches in diameter or larger was reported in Armstrong and Lipscomb Counties. As the number of severe weather occurrences began to increase during the latter half of April, so too did the magnitude of the events. The first tornado of the year occurred in extreme southwest Potter County near the community of Bushland on April 20th. This tornado passed very close to Interstate 40 before heading to the south southeast. A second tornado occurred 3 miles northeast of Umbarger. Very little damage was caused by either of these tornadoes although some straight line wind damage was sustained near Umbarger.

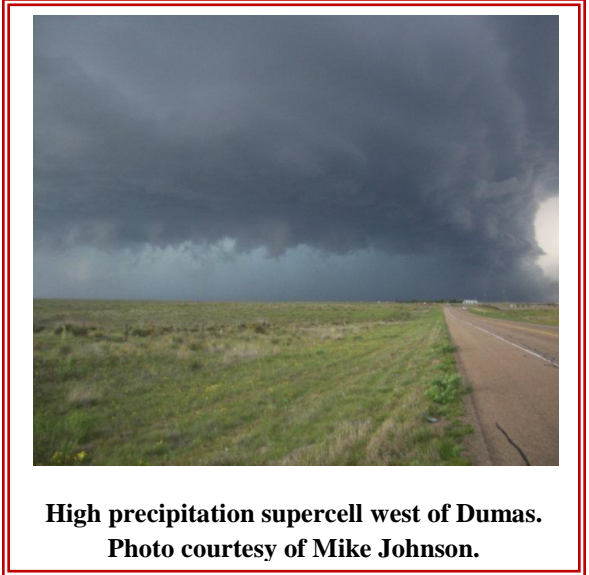
The first significant severe weather outbreak occurred on April 22nd across much of the central and eastern portions of the Texas and Oklahoma Panhandles. In addition to numerous reports of hail up to the size of baseballs, eight tornadoes were confirmed in

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the Texas Panhandle. This is more than one third of the annual average for the Amarillo forecast area. Among these, was the very photogenic tornado that formed near Goodnight, Texas. Fortunately the only damage sustained during this event was the loss of a few power poles near Goodnight.

The next three weeks were relatively slow with only a handful of severe weather occurrences. One of the most impressive individual storms of the season occurred during the afternoon and evening hours on May 18th. A lone supercell storm developed over southern Hartley County around 4 PM and quickly became severe, producing golf ball size hail shortly after 5 PM. Before exiting Hartley County, this storm became tornadic, producing baseball size hail and the first of many tornadoes between Hartley and Channing. As this storm moved into Moore County, it encountered increasing low level moisture and morphed into a cyclic high-precipitation supercell. Another tornado developed approximately 11 miles west of Dumas with continuous reports of golf ball to baseball size hail along the path of the storm. This supercell tracked across Dumas producing minor damage in town. This storm continued to produce occasional, brief tornadoes as it moved into Hutchinson County. Significant damage occurred at a residence 3 miles south southwest of Pringle. The roof was blown off of the home and major damage was sustained to the surrounding trees and a farm vehicle. This storm spawned a total of eight tornadoes before weakening. Luckily, despite the impressive structure of this storm and persistent strong rotation, no large, violent tornadoes were observed.



Additional tornadic storms developed as the evening wore on, with six additional tornadoes reported from near Conlen (in Dallam County) to 14 miles southwest of Wolf Creek Park (in Ochiltree County). In a strange coincidence, one of these later tornadoes struck the same property that was impacted by the earlier tornado near Pringle.



The weather remained quite active throughout the latter half of May. Numerous reports of large hail and gusty winds were reported across the area, in addition to several more tornadoes. Much of this activity occurred on May 24th-25th, when a total of 45 severe thunderstorm warnings and 20 tornado warnings were issued by the Amarillo National Weather Service office. Most of the severe weather was confined to large hail, but one relatively long-lived tornado occurred near Spearman. This tornado produced EF0 damage approximately 4

miles west of Spearman and was on the ground for 13 minutes.

The first half of June was relatively active as well, with significant severe weather reported on June 12th-13th and June 18th. On June 12th, a very unstable atmosphere supported massive supercell thunderstorms that produced extremely large hail near Sunray. One storm chaser sustained damage to his vehicle due to hail that was approximately 6 inches in diameter. To put this in comparison, the largest hailstone ever officially measured had a diameter of 8 inches.



Sunray, TX large hail

One brief tornado was reported 8 miles south of Sunray but a majority of the severe weather was in the form of large hail and damaging winds. The most significant damage occurred just after midnight on June 13th in Bryans Corners in the Oklahoma Panhandle. Strong straight line winds from a weakening thunderstorm produced winds estimated to be around 90 mph. This produced significant damage to a church.

During the afternoon of June 13th, additional severe weather was observed. One long track cyclic supercell produced several tornadoes in southern Beaver County but most of the severe weather was confined to large hail (up to the size of tea cups) and damaging winds in the extreme eastern Oklahoma Panhandle and northeast Texas Panhandle. Additional reports of baseball size hail were received on June 18th, mainly across the southeast Texas Panhandle near Groom and Goodnight. The remainder of June was relatively quiet with only a few marginal severe occurrences.

Tropical moisture associated with the remnants of Hurricane Alex made its way to the High Plains in early July. This set the stage for heavy rainfall across the



Church in Bryans Corners damaged on June 13th.



Grain bins in Bryans Corners damaged on June 13th.

area.

During the evening hours on July 7th, heavy rainfall began to impact the Amarillo area, resulting in flash flooding at the Highland Park School and Rick Husband International Airport. Numerous roads in and around Amarillo were closed due to high water and several high water rescues were performed by emergency response personnel throughout the city.

By the time the precipitation came to an end during the morning hours on July 8th, more than

seven inches of rain had been recorded. Several precipitation records were set during this event and are listed below:

	<u>New Record</u>	<u>Previous Record</u>
All-time daily record	5.74" (July 7, 2010)	4.92" (June 10, 1984)
All-time 24 hour record	7.25 (July 7-8, 2010)	6.75" (May 15-16, 1951)
Monthly record for July	8.02" (2010)	7.59" (1960)

Amarillo Bids Farewell to Two Staff Members

Change is constant in the weather business. Unfortunately, sometimes change occurs with our forecast staff as well. In this instance, we bid farewell and congratulations to two excellent individuals.

In August, we will lose an outstanding Warning Coordination Meteorologist (WCM), Steve Drillette. Steve was serving his second stint in Amarillo. He started his NWS career here in 1993 as an Intern Meteorologist, and returned in 1999 to become our WCM. Over the past 11 years, Steve has been a key member in the development of customer services and educational outreach that have reflected high praise on the local office. He was the mastermind behind such programs as Kids Weather Hour and Storm Spotter Recognition Day. He also led our StormReady community recognition program, organized biennial Severe Weather Workshops and created numerous office programs that helped to improve our operations. Steve's leadership will not only be missed here in our office, but in the community as well. Steve has been promoted to be the Meteorologist in Charge, at the NWS office in Brownsville, Texas.



In September, we will also lose Journeyman Forecaster, Mike Johnson. Mike came to Amarillo in 2006. Over the past four years, he has served in many roles within the office. He was most recently the Focal Leader for our AWIPS computer system and he also managed our NOAA Weather Radio system. He provided training and critical information to all of the staff on both of these systems. Mike is an excellent forecaster, and one of our best radar operators. His experience will be sorely missed. Mike

has been promoted to a Senior Forecaster position in San Angelo, TX.



Weather Review and Outlook

By Rich Wynne, Science & Operations Officer

REVIEW OF SUMMER 2010

The El Niño pattern brought several weather systems across the Southern Plains which pulled plenty of moist air over the Texas and Oklahoma Panhandles. Many areas are above average on rainfall and have left the Panhandles unusually green for this time of the year. July has been a record month for rain, as the combination of deep moisture and passing disturbances resulted in significant rains over wide areas of the Panhandles.

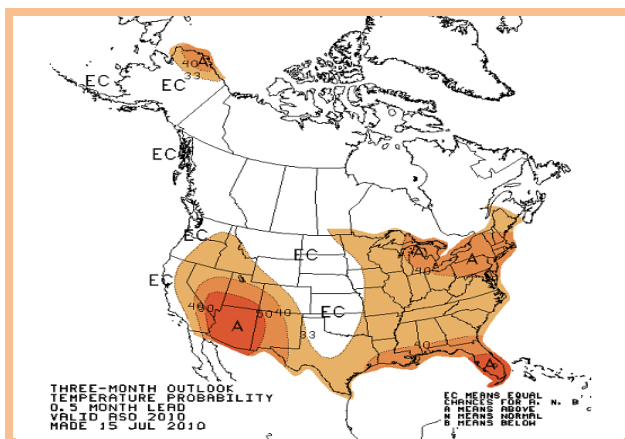
	AVG HIGH	AVG LOW	AVG TEMP	PRECIP
APR	70.5 (-0.1)	44.0 (+2.3)	57.3 (+1.1)	3.28 (+1.95)
MAY	77.3 (-1.3)	51.1 (-0.1)	64.2 (-1.0)	2.18 (-0.32)
JUN	92.0 (+4.6)	65.1 (+4.0)	78.6 (+4.3)	1.00 (-2.28)

Early Summer 2010 statistics for Amarillo, TX

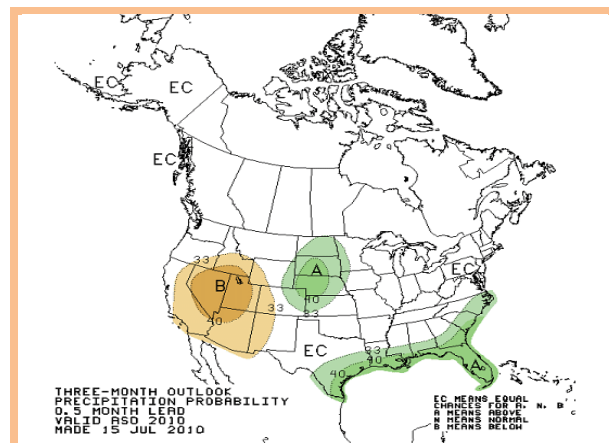
OUTLOOK FOR LATE SUMMER/EARLY FALL 2010

Experts at the Climate Prediction Center (CPC) predict a shift from El Niño/La Niña neutral conditions to a La Niña pattern into the fall season of 2010. The La Niña pattern often leads into a warm and dry period for the southern United States. The experts at the CPC anticipate the onset of a La Niña episode later this year.

The weak signal in the three-month outlook for August, September, and October (ASO) may be reflection of the current transition in the El Niño/La Niña pattern. The three-month temperature outlook indicates a slightly better chance for above normal temperatures for late summer into early fall, especially in the far western counties of the Panhandles. The precipitation ASO outlook does not give any strong signal for any of the categories (above, normal, or below) for the Panhandles.



AUG-SEP-OCT 2010 Temperature Outlook



AUG-SEP-OCT 2010 Precipitation Outlook

How Does Our Weather Affect Lake Meredith?

By Rich Wynne, Science & Operations Officer

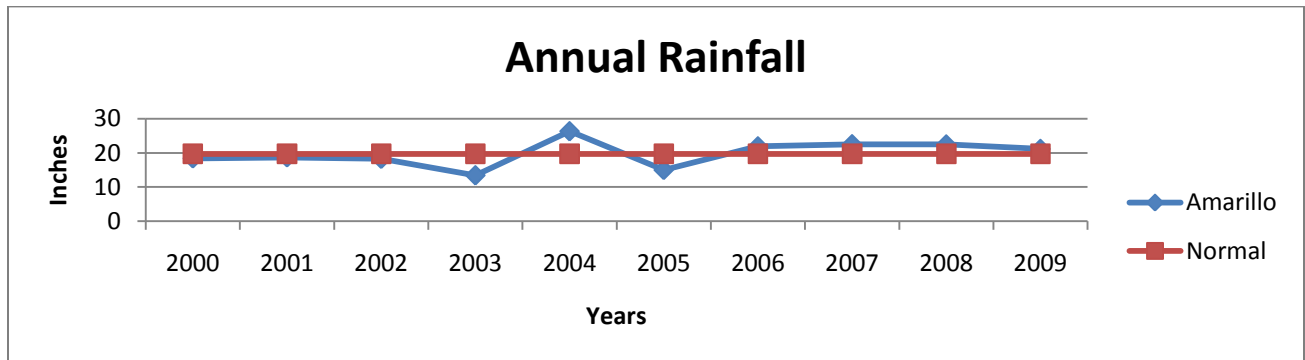
Lake Meredith, located behind the Sanford Dam on the Canadian River, is a major source of water and recreation for the people of the Texas Panhandle. The dam and lake were constructed in the mid 1960's. The lake soon reached a record depth in 1973 of 101.85 feet.

If you live in the Texas Panhandle, you know that the Lake Meredith water level has been on the decline in the last decade. Based on data from the Canadian Water Authority measuring point, the lake depth early in the year 2000 was around 94 feet, with a water surface area of over 10,000 acres. By 2004, the lake depth was varying between 59 and 65 feet. By the end of 2007, the depth was near 50 feet. By the middle of July 2010, the lake depth was at 44 feet and a surface area just less than 3800 acres (Canadian River Water Authority Data).

So how much has the weather over the past 10 years contributed to the lower lake level? Evaporation takes its toll each summer as daily losses can exceed one-half inch per day. Portions of the Panhandles have been exceptionally dry, but some other locations have not been that far behind normal. The chart below shows that Amarillo has been slightly above the normal amount in recent years. It is the distribution, or where the rain falls that is critical to the lake level. There are many factors that figure into how much water gets into the lake. According to the Canadian River Municipal Water Authority information, the Canadian River itself is the main supplier of water to the lake. There are a few tributaries that supply some water to the river and eventually the lake. Significant rains need to occur over the Canadian River upstream of the lake in order to affect its level. In addition, the snow packs in the mountains have been too low in past years to impact Lake Meredith.

A significant non-weather factor affecting the amount of water getting to Lake Meredith in recent time is the spread in the river valley of a non-native shrub/tree commonly known as salt cedar. Salt cedar wastes a tremendous amount of water through the process of transpiration. Water is taken up by the roots of the plant and is then brought through the plant and then evaporates through the surface of its leaves and salt glands. A salt cedar can use between three and seven acre feet of water per year.

In summary, lack of significant rain over the Canadian River Valley, high evaporative losses from the lake in summer, and the toll on the water flow to the lake by the expansion of the thirsty salt cedar have taken its toll on the lake level in recent times.



NOAA Weather Radio Transmitter at Perryton, TX

By Paul Schaafsma, Electric Systems Analyst

On November 3rd, 2009, the Remote Off the Air Monitoring system (ROAMS) at the Perryton, TX NWR transmitter site alerted the WFO Amarillo staff that there was a problem with the radio transmitter. Phil Shideler, NWS Regional Maintenance Specialist from the WFO Lubbock office, was informed of the problem and began the initial troubleshooting efforts to get the transmitter back up to full operational status. The problem was found to be in the antenna system. It appears that the antenna mast that is attached to a tower 270 feet above the ground had been cracked in half leaving only one quarter of the antenna functional. Kent Orton, an antenna specialist from Independent Technology Inc., was called to assess the damage. He concluded that strong winds had caused the mast to fail at the point where two sections were joined together. He also recommended that the weight of the present antenna (102 lbs) might be too much for the tower and that NWS should look into an alternative antenna system weighing only 59 lbs. Phil immediately ordered this replacement antenna which was received late in December. Due to the holidays and the weather, the antenna installation had to wait until January 14th, 2010. Although it was a sunny and rather warm day, the wind in Perryton was formidable that Thursday and at 270 feet in the air it was still a very cold repair process for the two climbers. TRICO Tower Service Inc. from Houston, TX was called in to do the climbing and replacement work. The antenna replacement took approximately 3 ½ hours with the end result of the NWR at Perryton TX being back up and operational on full power!



TRICO Tower employee working on the Perryton Transmitter

Cooperative Observers Receive Awards

By Christine Krause, General Forecaster

The Cooperative Observer Program of the National Weather Service supplies the nation daily temperature and precipitation data, which helps support forecasts, warnings, and other public products supplied by the NWS as well as helping scientists measure long-term climate changes. There are more than 11,000 volunteers who take these observations from all over the country; from urban areas, suburban areas, along seashores, and even in mountain terrain.

To help honor the people who dedicate time to provide the NWS with this crucial data, there are various awards given to cooperative observers based on the length of time they have been recording their data. This summer, in particular, several cooperative observers within the Texas and Oklahoma Panhandles reached these important milestones. Tabatha Tripp, the Observational Program Leader who oversees the Cooperative Observer Network, along with forecasters Sarah Johnson, Lance Goehring, and Christine Krause went to present awards to these observers.

A Certificate of Appreciation for five years of taking weather observations was given to Rebecca (Becky) Hemphill of Stratford, TX. Becky has been married to Jim Elledge for 22 years and has lived in Stratford for 11 years. She is also the County Executive Director of the Sherman County Farm Service Agency. Becky has also been with USDA for 20 years.

Another certificate of Appreciation for five years was awarded to Danny Thompson of Hartley, TX. Danny has lived around Hartley all his life. He has been married to his wife Mary for 37 years. Danny has an extensive agricultural background working on the farm, elevator, or feedlot. They also enjoy raising and training border collies and have been doing so for ten years.

Jim and Betty Biggs of Panhandle, TX received a fifteen year length of service award. Jim was born 79 years ago on their land and has spent 59 years sharing it with Betty. Betty worked for and continues to contribute a weekly weather report for the Panhandle Herald.

Not pictured is Kirk Fisher of Beaver, Oklahoma who received a ten year length of service award.



Becky Hemphill of Stratford, TX



Danny (l), Tabatha Tripp, Danny's mother Jeanne (r)



Jim and Betty Biggs; Christine Krause (c)

In YOUR Community

Outreach is one of the many hats the National Weather Service in Amarillo wears, and August and September will be no exception. For those who like baseball, come and watch the Dillas game for free held on Monday August 9th. We will be there, along with KVII-TV, for “Weather Day at the Dillas”. The gates open at 5:45 PM, but before the game starts at 7:05 PM, the National Weather Service will launch a weather balloon in center field.

Just prior to the first day of school, come visit us at America’s Promise “Kids Fest”. This free event will be held on August 14th from 8 AM until noon and it’s your chance to obtain various weather related paraphernalia.

On August 21st, we will be out at the annual Polk Street block party. This event will run from 5 PM until midnight. We will have a booth there, so come visit us if you have a chance!

The month of August continues to be a busy one for the Amarillo National Weather Service office as the biennial Customer Appreciation Day and open house will round out the month. This event will be held at our office on August 28th from 11 AM until 2 PM where we will provide attendees lunch, games, and in-depth tours of the office.

September is not only time for back to school, but it’s also time for the Amarillo Chamber of Commerce Barbeque Cook off and the Tri-State Fair! The Chamber of Commerce Barbeque is on September 8-9th, where over 100 cooking teams, including staff from the office, are competing for top honors in various categories. We will also be participating in the parade at the Tri-State fair which will be held on September 18th from 10 to 11 AM.

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