



The Dryline



The Official Newsletter of the National Weather Service in Amarillo

TEXAS COUNTY EARNS STORMREADY® RECOGNITION

*FROM TORNADOES TO FLOODS,
TEXAS COUNTY IS PREPARED*

By Steve Drillette, Warning Coordination Meteorologist

Texas County was presented with a NOAA National Weather Service Certificate recognizing local officials and citizens for their efforts in earning the distinguished StormReady® designation. The ceremony was held April 7, 2008 at the County Courthouse in Guymon. Texas County became the 11th StormReady Community to be recognized across the Texas and Oklahoma Panhandles since our first community was recognized in 2002.

The ceremony was led by Jose Garcia, Meteorologist-In-Charge of the National Weather Service office in Amarillo. Mr. Garcia presented Texas County Emergency Manager, Harold Tyson, with a StormReady® certificate and two StormReady® highway signs. Mr. Kevin Starbuck, Emergency Management Coordinator of Amarillo and member of the Amarillo StormReady® Advisory Board, also participated in the presentation. Guymon Emergency Manager Clark Purdy, several county commissioners and other local officials were also on hand to accept the awards.

StormReady® is a voluntary program, and is offered as a means of providing guidance and incentive to local and county officials interested in improving hazardous weather operations. To receive StormReady® recognition, communities are required to meet minimum criteria in hazardous weather preparedness, as established through a partnership of the NWS and federal, state, and local emergency management professionals.

“Texas County officials are to be commended for their efforts in meeting and exceeding the StormReady® criteria,” said Mr. Garcia. “We appreciate all the work Harold Tyson and others have done to earn this honor.” Mr. Tyson also serves as a member of the Amarillo StormReady® Advisory Board. The StormReady® status for Texas County is valid for 3 years from the ceremony date.

SUMMER 2008

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Fig. 1. NWS Amarillo presents StormReady certification to Texas County officials.

TORNADOES, LANDSPOUTS AND DUST DEVILS. OH MY!

By Chris Kimble, Meteorologist Intern

The Texas and Oklahoma Panhandles are known for their extreme weather. Perhaps the most famous and dazzling weather phenomenon that occurs in the Panhandles is the tornado. But there are other very similar weather features which look and act much like tornadoes that have been known to occur in the High Plains. Some of these other features are often confused with tornadoes because of the obvious similarities to their more violent cousins.

Dust Devils

Dust devils are spinning columns of rising air which often pull dirt and small objects into the air. They are sometimes similar to tornadoes in appearance, but have one big distinction. Dust devils are not a result of a thunderstorm, and are usually harmless. Dust devils usually form in hot and dry environments like the southwestern United States, including the Southern Plains. On a clear sunny day, when the sun heats the ground very quickly, pockets of hot air near the ground are forced to rise into the cooler air above the surface. As air rises, it often starts to rotate, pulling more hot air into the vortex at the base and lifting dust and other small debris into the air. Most dust devils are small, only a few feet in diameter and a few tens of feet tall with wind speeds of about 45 mph, and only lasting a few seconds. In some cases, dust devils can grow larger, up to 300 feet wide and more than 1000 feet

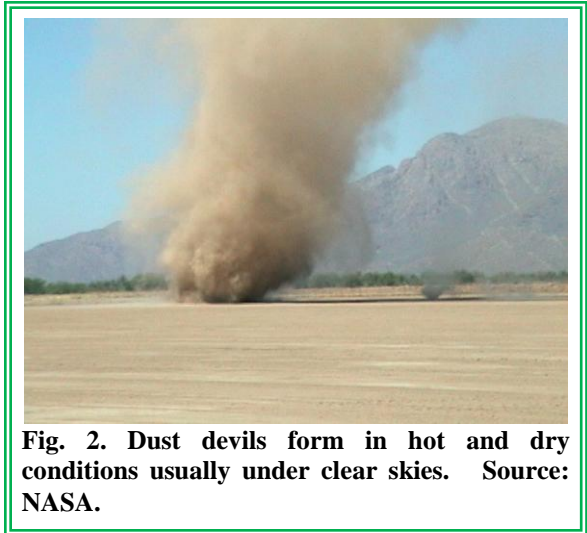


Fig. 2. Dust devils form in hot and dry conditions usually under clear skies. Source: NASA.

tall with winds greater than 60 mph, and lasting up to 20 minutes. These larger and more intense dust devils are rare but have the capability of producing minor damage equivalent to an EF0 tornado, based on the Enhanced Fujita Scale. Dust devils rarely harm people as their wind speeds are usually too light to cause significant damage. Although, there have been cases where dust devils have caused minor damage to structures, injured a few people, and even caused a fatality. Dust devils are more common in hot and dry climates and flat terrain. They typically occur a few hours after sunrise or during the mid-afternoon. The best conditions for dust devil formation are on a clear day with light winds when the atmosphere is relatively cool and the sun is able to heat the ground very rapidly.



Fig. 3. This land spout tornado formed near Adams, Oklahoma on June 21, 2006. Photo courtesy of Harold Tyson, Texas County Emergency Manager.

Landspouts

Landspouts are a particular type of tornado, associated with a cumulus cloud but not a mesocyclone. A land spout is the land-based version of the more widely known waterspout, which typically occurs over large bodies of water, such as near the Florida Keys. Waterspouts and landspouts typically occur as very unstable air rises beneath a cumulus cloud. They are more

(continued on next page)

likely to occur along surface boundaries, such as stationary fronts and outflow boundaries with weak vertical wind shear. They normally form in the development stages of cumulus clouds or thunderstorms as air is pulled into the updraft. They are usually much weaker than tornadoes associated with supercell thunderstorms, but they have been known to cause EF3 damage in rare cases. On June 21, 2006, a stationary front located across the northern Texas Panhandle produced 8 landspout tornadoes as cumulus clouds then eventual thunderstorms developed along the boundary. These types of tornadoes are often very difficult to predict as they form early in the development of cumulus clouds when almost no returns may be visible on radar and rotation is not detected.

Tornadoes

The more classic versions of tornadoes form from mesocyclones in supercells. Supercells form in an environment that is moist and unstable, with moderate to strong wind shear (wind speeds increasing and turning with height). The wind shear creates horizontal circulations along the ground, which are stretched into vertical circulations by the updrafts in the thunderstorms. These rotating updrafts are called mesocyclones, and when this rotation becomes strong, a tornado may form. Supercell tornadoes can be among the most violent tornadoes that occur, with wind speeds in excess of 200 mph. When conditions are favorable, these tornadoes can stay on the ground for longer than an hour and travel more than 100 miles.



Fig. 4. Tornado near Elmwood, Oklahoma on March 28, 2007. Supercell tornadoes occur in association with a mesocyclone and a wall cloud as seen above. Photo courtesy of Northern Natural Gas.

	TIME	SIZE	WINDS	FAVORABLE CONDITIONS
Dust devils	A seconds up to 20 minutes	One to 300 feet wide	45 mph to more than 60 mph or near EF0 level	Hot and dry conditions, strong low level instability
Landspouts	A few minutes	A few yards to a few hundred feet wide	Usually EF0 but rarely up to EF3 level	Development stages of cumulus clouds or thunderstorms, especially along surface boundaries
Tornadoes	A few minutes to more than an hour	A few yards to more than a mile wide	EF0 to EF5 (more than 200 mph)	During the mature stages of rotating supercell thunderstorms.

Kids' Weather Hour

The new school year is just around the corner, and Kids' Weather Hour will return again in the fall to take requests from classes wanting to participate in this fun and exciting program. School kids from across the Panhandles can have their weather questions answered live on NOAA Weather Radio (NWR) by National Weather Service meteorologists. Students from participating classes will be eligible for prizes. If you are interested in Kids' Weather Hour, please e-mail John Brost at John.Brost@noaa.gov for information.



Fig. 5. JJ Brost answers kids' questions.

FLOOD SAFETY

By Christine Krause, General Forecaster

With summer upon us, thunderstorms are likely across the Panhandles. Strong winds, large hail, dangerous cloud-to-ground lightning, and even tornadoes can accompany these storms. While most people are aware of the dangers associated with lightning and tornadoes, thunderstorms can also produce heavy rainfall and flooding. In the long term, floods kill more people in the United States than any other type of severe weather. Floods can roll boulders the size of cars, tear out trees, destroy buildings and bridges, and pose a significant threat to human lives.

When heavy rains impact the Panhandles, NWS Amarillo issues flood warnings, watches, and advisories to inform you of any impending hazard.

Flash Flood Warning –issued when heavy rainfall causes rapid water rises. A flash flood is a rapid rise of water along a stream or low-lying area that could lead to life-threatening situations. In some cases, water may inundate buildings and close roadways, creating a hazard to life and property.

Flood Warning – issued for areas which are expected to experience high water levels mainly in creeks, rivers, and low lying areas at least 6 hours after the heavy precipitation ends; and water rises are expected to be slow. Flood warnings may also be issued with detailed river gage information for specific rivers.

Flood/Flash Flood Watch – issued when conditions are favorable for flooding or flash flooding to occur but the conditions are not imminent. When a flood watch is issued, you should be aware of potential flood hazards and be ready to respond and act quickly if a warning is issued.

Flood Advisory – issued when heavy rainfall is expected to cause minor flooding which could lead to significant inconveniences including ponding of water on roadways and nuisance flooding in low lying areas.

When you receive a Flood Warning:

Never try to walk, swim, drive, or play in flood water. You may not be able to determine how fast the water is flowing, or if there is submerged debris.



Be especially cautious at night when it is harder to recognize flood dangers. Do not attempt to drive through a flooded road. The depth of water is not always obvious. The roadbed may be washed out under the water, and you could be stranded or trapped. Do not drive around a barricade. Barricades are there for your protection. Turn around and go another way! Rapidly rising water may engulf a vehicle and its occupants, sweeping them away. Vehicles can be swept away by as little as 2 feet of flowing water.

Interested in becoming a Weather Spotter?

NWS Amarillo is in need of Weather Spotters who can relay storm reports during and after a storm event, especially in rural areas. These spotters help the NWS by ensuring all reports of hail, tornadoes, wind and wind damage are officially recorded. To join, sign up at:

<http://www.srh.noaa.gov/ama/spotter/>

or call us at:

806-335-1121

Join today!

NEW PRECIPITATION MAP AVAILABLE ONLINE

By Chris Kimble, Meteorologist Intern

Have you ever wondered how much rain you received after that last round of thunderstorms? Well now there's a quick and easy way to find out! NWS Amarillo has begun producing a daily precipitation map for the Texas and Oklahoma Panhandles, available on the NWS Amarillo homepage. This new map is produced by the River Forecast Centers and displays radar estimated precipitation, adjusted for actual precipitation reports. In addition to the map, you can view our morning climate summary with the high and low temperatures and precipitation reports from many sites in the Panhandles. You can access the new precipitation map by clicking on the "Precip Map" icon from the NWS Amarillo homepage at www.srh.noaa.gov/ama.

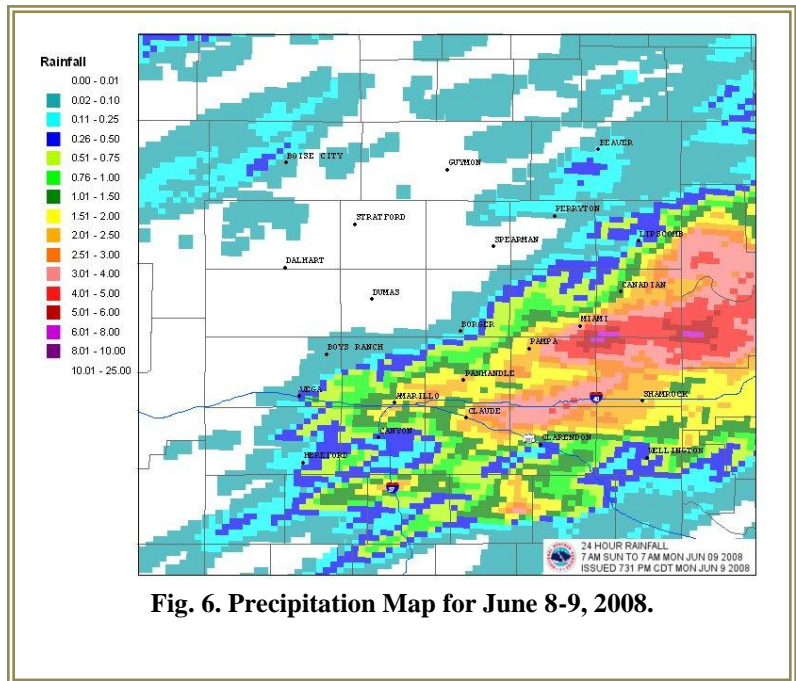


Fig. 6. Precipitation Map for June 8-9, 2008.

CoCoRaHS – Report the Weather from YOUR Backyard

By Stephen Bilodeau, Hydrometeorological Technician and Climate Focal Point



Do you have a backyard rain gage? Are you interested in sharing your rainfall totals with others? Now you can be a part of the Community Collaborative Rain, Hail and Snow Network (CoCoRaHS). This is a unique, non-profit, community-based network of volunteers of all ages and backgrounds, working together to measure and map precipitation (rain, hail and snow). Users report their daily precipitation through a website (www.cocorahs.org), allowing this information to be used by the National Weather Service, other meteorologists, hydrologists, emergency managers, city utilities (water supply, water conservation, storm water), insurance adjusters, USDA, engineers, mosquito control, ranchers and farmers, outdoor and recreation interests, teachers, students, and neighbors. Whenever rain, hail, or snow impacts our area, these volunteer observers take measurements and report their readings. This data helps fill the gaps in the current precipitation network and provides additional insight into the local impacts of the weather.

To sign up to be a part of CoCoRaHS, go to www.cocorahs.org and click on "Join CoCoRaHS" to submit an application and start contributing to the network! You can also contact Stephen Bilodeau at the NWS Amarillo by sending an e-mail to Stephen.Bilodeau@noaa.gov.

Weather Review and Outlook

By Chris Kimble, Meteorologist Intern, and Richard Wynne, Science and Operations Officer

REVIEW OF SPRING 2008

The spring continued a pattern of warm and dry weather for the Panhandles that had been in place since the beginning of the year. Spring storm systems brought more wind than rain, leaving much of the area in a drought. The hottest period occurred in the early to middle part of June when temperatures routinely topped 100 degrees in many parts of the High Plains. On June 2, Amarillo reached 106 degrees, breaking the daily record high temperature and coming within two degrees of the all time high temperature. By the end of the month of June the rains finally began to return to the drought-stricken High Plains. A weather pattern developed which allowed thunderstorms to form and track across the Panhandles nearly every evening for more than a week. This brought much needed rain

to a large part of the area, though some areas remained in an extreme drought.

Overall, the severe thunderstorm and tornado season was not very active this year, with only 9 confirmed tornadoes through the end of June. The most notable event occurred on June 19 when a severe thunderstorm moved through the eastern part of Amarillo, producing 81 mph wind gusts at the Rick Husband Amarillo International Airport. The extreme wind gusts and large hail caused damage near the airport and across the eastern side of the city.

	AVG HIGH	AVG LOW	AVG TEMP	PRECIP	90° +
APR	73.2 (+2.6)	40.1 (-1.5)	56.7 (+0.5)	0.38 (-0.95)	1 (+0.3)
MAY	81.4 (+2.8)	51.2 (-0.5)	66.3 (+1.1)	2.08 (-0.42)	8 (+4.0)
JUN	92.4 (+5.0)	62.0 (+0.9)	77.2 (+2.9)	4.03 (+0.73)	21 (+8.2)

Table 1. Spring 2008 statistics for Amarillo, TX

OUTLOOK FOR SUMMER 2008

The three-month outlooks for July, August, and September have been issued by the Climate Prediction Center (CPC). The temperature outlook indicates equal chances for above and below normal temperatures for the Panhandles. The precipitation outlook also indicates equal chances for above and below normal precipitation for the Panhandles. Normally, this is the wettest time of year for the region. The tropical Pacific should remain in neutral conditions with no El Niño or La Niña expected.

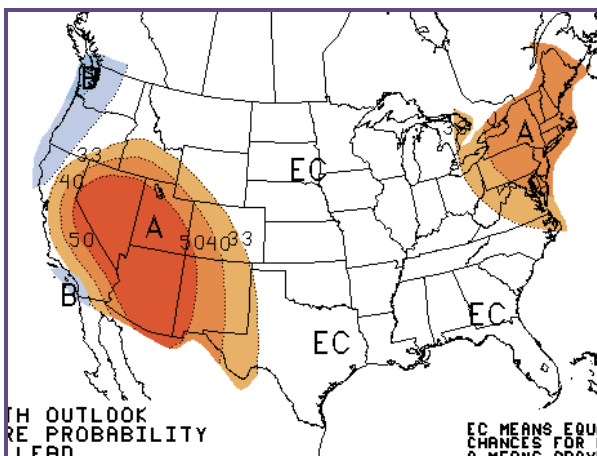


Fig. 7. July-September 2008 Temperature Outlook

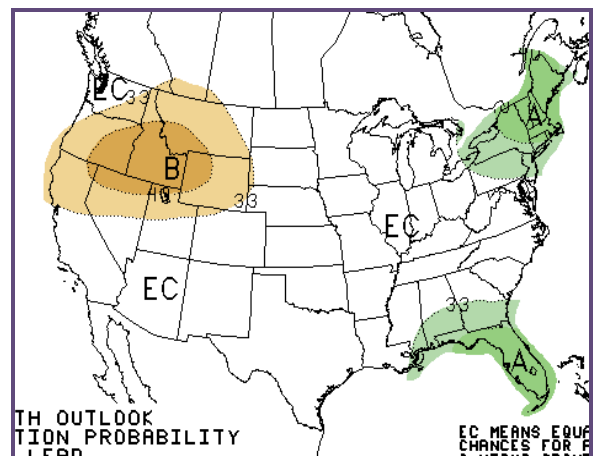


Fig. 8. July-September 2008 Precipitation Outlook

In YOUR Community

The National Weather Service in Amarillo continues to participate in numerous outreach events. In addition to the events shown below, we have many more photos from outreach to many communities in the Texas and Oklahoma Panhandles. They are located on our website at:

http://www.srh.noaa.gov/ama/outreach_events/outreach_event_front.htm



Fig. 9. The NWS joins other Amarillo community volunteers in United Way's "Day of Caring".



Fig. 10. Steve Bilodeau shares weather concepts at the Girl Scout Day.

We would love to participate at your next event! To schedule the NWS Amarillo in your next community event, please e-mail Steve Drillette at steve.drillette@noaa.gov, or call 806-335-1121.

AMARILLO MAYOR VISITS NATIONAL WEATHER SERVICE

By Roland Nuñez, Senior Forecaster

Amarillo Mayor Debra McCartt visited our office on April 16, 2008, and served as the guest speaker for our local leadership enrichment program called **BLAST** – **B**uilding **L**eaders for **A** **S**olid **T**omorrow. She shared her passion for life, especially the importance of serving others. Mayor McCartt encouraged us to reach out to our full potential, and to not be afraid when standing up to do right. She defined leadership as “how you act” around people; it’s about “being there”; and “listening” actively when you’re interacting with others. Many thanks to Mayor McCartt for her encouraging words for life!



FAREWELL AND HELLO

By José Garcia, Meteorologist in Charge

There have been some recent staff changes at your National Weather Service office. In June, the office said farewell to Journeyman forecaster, Matthew Kramar. Matthew moved to Amarillo in 2004. He is an outstanding forecaster and radar meteorologist and will be missed for his knowledge and expertise in these areas. Matthew provided good, solid leadership to the Amarillo office during his tenure here. He served as leader of our Science and Training team. Matthew was instrumental in the development of a local software call logging program, and he spent countless hours in the development and improvement of this excellent coordination program. Matthew was active in leading our office storm interrogation and verification process, and has accomplished significant meteorological research during his time here. Matthew has been promoted to a Senior Forecaster position at the NWS office in Sterling, VA.

In July, we will also bid farewell to Journeyman forecaster, Jason Jordan. Jason worked in Amarillo since 2003. He is also an outstanding forecaster and radar meteorologist, so our office will be losing a great amount of expertise in a short period of time. Jason has provided the office with excellent leadership. He worked in developing a local modeling program, has served as Aviation Focal leader and AWIPS Focal leader and has led efforts on maintaining our operational computers. Jason has been an avid supporter of the Amarillo Area Center for Advance Learning (AACAL) and has served on their board of directors. Jason was instrumental in designing our office operations layout and he has been involved in creating a working environment that provides forecasters with the best possible working conditions and tools to perform their work. Jason will be moving just down the road to become a Senior Forecaster at the NWS office in Lubbock, TX.

We will miss both of these outstanding forecasters and wish them the best in their future careers!

In May, the office welcomed a new Student Employee, Jerald Meadows. Jerald is studying to become a meteorologist at Texas A&M University. He is participating in the National Weather Service Student Career Experience Program (SCEP). When Jerald completes the program he will be eligible to become a Meteorologist Intern in the National Weather Service.

YOU ARE INVITED TO THE NWS VOLUNTEER APPRECIATION DAY AND OPEN HOUSE!

**Saturday, September 13, 2008
11 am – 2 pm**

Please join us for free food, beverages, and door prizes to be provided for NWS Amarillo Storm Spotters, Cooperative Observers and others. Office tours will also be provided. Families are welcome!

RSVP to Steve Bilodeau or Steve Drillette at (806) 335-1121.

The Dryline

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