

The Dryline

The Official Newsletter of the National Weather Service in Amarillo

Winter 2009

2008 Weather Year in Review

The year 2008 was characterized by 3 distinct pattern changes. From January through June the Texas and Oklahoma Panhandles experienced drought conditions with above normal temperatures and below normal precipitation. A marked difference was noted from July through October when a cool and wet pattern prevailed. The pattern returned to warm and dry in November and continued through the end of the year.

Only 12 tornados were observed across the Panhandles in 2008, which is about half of what we would normally experience and much lower than the record 59 tornados of 2007. Also, no major winter storms were observed during 2008, although several light snowstorms combined with high winds to create near blizzard conditions in January and March. Listed below are the statistical highlights of 2008. To view a much more detailed review of 2008, go to <http://www.srh.noaa.gov/ama/climate/2008wxreview.htm> for graphical and monthly information.

YEAR 2008 SUMMARY FOR AMARILLO

High for the year: 106°, June 2nd

Low for the year: 6°, December 21st

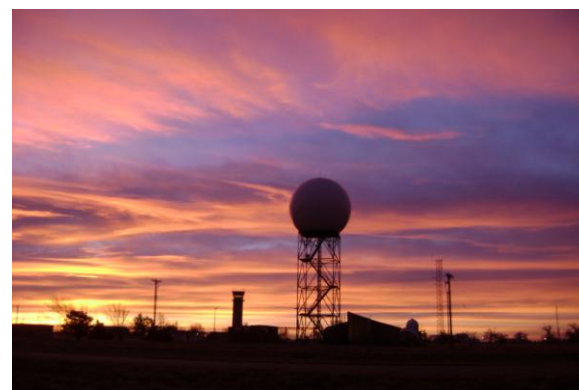
Average High Temperature: 72.2° (2.0° above normal)

Average Low Temperature: 43.4° (0.2° below normal)

Average Annual Temperature: 57.8° (0.8 above normal)

Total precipitation: 22.44 inches (2.79 inches above normal)

Annual snowfall: 7.1 inches (10.8 inches below normal)



Sunrise over the Doppler Radar at the National Weather Service Office in Amarillo, Texas.

In This Issue...

	Page
Day in the Life of the NWS.....	2
Winter Weather Safety.....	3
Panhandles Snow Storms.....	4
Drought Update.....	6
Award Winning Staff Member.....	7

2009 SEVERE WEATHER CONFERENCE

Amarillo Civic Center March 21, 2009

Booths: 9AM-1230PM

General Session: 1230PM-5PM

Spotter Training: 530PM-730PM



NWS Staff at the 2007 Severe Weather Conference

A Day in the Life...Of A NWS Forecaster – Winter Weather Operations

By Christine Krause, General Forecaster, and Roland Nuñez, Senior Forecaster

When winter weather hits the Panhandles, the National Weather Service (NWS) in Amarillo works to alert and prepare the public for dangerous weather, which could affect residents and travelers across a large portion of the area. NWS forecasters, as stated in [Part 1](#) of this series, utilize a complex network of computer models and prognostic tools to assess atmospheric conditions and to accurately forecast, not only where snow, sleet, or freezing rain will fall, but how much will accumulate. Most winter storms have a great deal of uncertainty as the storms approach the Southern Plains, including the path and speed of the system, expected temperatures and available moisture for precipitation. Twenty-four hours a day, forecasters keep a watchful eye on these changing conditions, providing timely and accurate information that the public can use to prepare for potential winter weather hazards.

Forecasts are then released through written or graphical products once a decision is made. If applicable, winter weather impacts are made known through specifically tailored products. One example is the Winter Weather Impact Statement. This product is geared toward giving a “heads up” about an approaching winter storm. It is issued up to three days in advance of the projected winter storm. This statement gives the forecaster the ability to convey the level of confidence that hazardous winter weather will impact the area.



The forecaster may also issue an advisory, watch, or warning that details the type of winter weather expected. These products describe the expected conditions and timing of the system, which will let the public and other users better prepare for the impacts from this storm. Given the complex nature of winter weather and its possible impacts on area roads, local schools and emergency operations, the forecast staff may hold a conference call with Emergency Managers, Department of Transportation, law enforcement, and school officials. This call offers the opportunity for these individuals to ask questions about the storm itself, providing more specific details to help plan for any anticipated school and road closures and for them to obtain extra staffing and other provisions they will need during the event.

Once the winter precipitation falls, every effort is made to collect reports of precipitation amounts from this storm from the network of cooperative observers, automated weather sensors, or other general public sensors. Information is then collected by the staff here at the NWS. Forecasters use this to document the weather event and keep track of the “ground truth” information during the storm.

The next topic in the series “A Day in the Life of the NWS” will be on Severe Weather Operations. Look for it in our Spring 2009 Dryline issue.

Winter Weather Safety

By Chris Kimble, Meteorologist Intern

There are more winter weather related deaths each year in the Texas and Oklahoma Panhandles than from lightning, tornadoes, and flash floods combined! Most winter-related fatalities involve automobiles, usually where winter weather directly results in a traffic accident.

When snow, sleet, or freezing rain begins to fall and transform the Panhandles into a winter wonderland, you are urged to stay home and avoid travelling. If you must travel during winter weather, you can greatly reduce your risk by taking a few precautions. Check on the latest road conditions and weather reports before you leave. Let others know where you are going and when you expect to reach your destination. Keep your gas tank near full and avoid travelling alone. Carry an emergency supply kit that contains a cell phone, non-perishable food and water, blankets, dry clothing, flashlights and batteries, first aid kit, and a snow shovel.

In an effort to protect life and property, the National Weather Service strives to alert you of hazardous winter weather conditions. This is done primarily through public forecasts and statements. Winter Weather Advisories are issued when winter weather conditions are expected to cause significant inconveniences. Winter Storm Warnings are issued when winter weather conditions are expected to be hazardous and life threatening. Winter Storm Watches may be issued ahead of the storm to alert you that significant hazardous winter weather conditions are possible in the near future.

For road condition reports, use the following numbers:

Texas Panhandle:	806-468-1488
Texas:	800-452-9292
Oklahoma:	405-425-2385
New Mexico:	800-432-4269

For Weather Forecast Information:

www.srh.noaa.gov/ama

2009 Spotter Training

The 2009 Severe Weather Season is almost here! The National Weather Service will again be hosting Spotter Training sessions at many locations in the Texas and Oklahoma Panhandles. If you would like to help the National Weather Service by becoming a storm spotter, please attend one of the spotter training classes this season. The full spotter training schedule is available at

http://www.srh.noaa.gov/ama/spotter_training_sched/index.htm

Amarillo	February 24 th	7:00 PM
	March 21 st	5:30 PM
Dalhart	March 6 th	6:30 PM
Dumas	March 5 th	7:00 PM
Pampa	March 12 th	7:00 PM
	April 17 th	9:00 AM



The best way to stay informed 24 hours per day with local forecasts and warnings is to listen to NOAA Weather Radio. You may also visit our website at www.srh.noaa.gov/ama. Many local television and radio stations also broadcast useful forecast information and relay National Weather Service winter weather advisory and warning statements.

Climatology of Winter Storms in the Panhandles

By Mike Johnson, General Forecaster

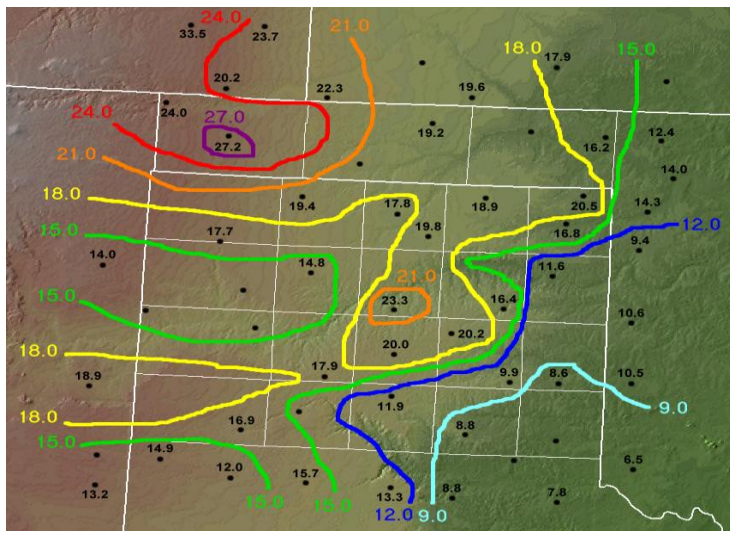


Fig. 1. Average Annual Snowfall for the Texas and Oklahoma Panhandles

Now that the cold season has arrived, winter weather is on the mind of many Panhandles residents. Some people wonder what types of weather systems bring heavy snowfall to our area. The Texas and Oklahoma Panhandles is no stranger to heavy snowstorms, and the 30 year average snowfall amounts exhibit quite a range across the Panhandles (Fig. 1). The southeast Texas Panhandle averages between 6 and 10 inches per year while much of the northern Texas Panhandle and Oklahoma Panhandle average around 20 inches (and higher) per year. Amarillo falls near the mean value, averaging 17.9 inches of snow per year.

Most snowfall occurrences result in snowfall amounts of 2 inches or less. However, some events can bring snowfall amounts in excess of 8 inches. So what typically causes these major snowfall events? Light snowfall events can occur with many different types of weather systems. But the heavy snow producers typically follow a common theme, including a slow moving upper level storm system approaching the Panhandles from the Desert Southwest, modest amounts of atmospheric moisture, and a cold airmass with below freezing temperatures throughout the column. These upper level weather systems typically approach the area along a track that moves south of the Four Corners, with the main upper low passing just to the south of Interstate 40 (Fig. 2). But not all systems that follow this general path produce heavy snowfall. In fact, very few do. Many times, these systems either lack sufficient moisture to produce snowfall or temperatures are too warm (either near the ground or well above the surface). If one of these ingredients is missing, the result may be a cold rain, sleet, freezing rain, light snow, or no precipitation at all.

Terrain is another factor that comes into play on many occasions. The landscape of the Panhandles generally increases in elevation from east to west. Therefore, when surface winds have an easterly component, they are deemed to be “upslope.” This upslope wind forces the air to rise, which in turn cools and moistens the low level environment, leading to clouds and precipitation. This factor is present in many instances of heavy snowfall.

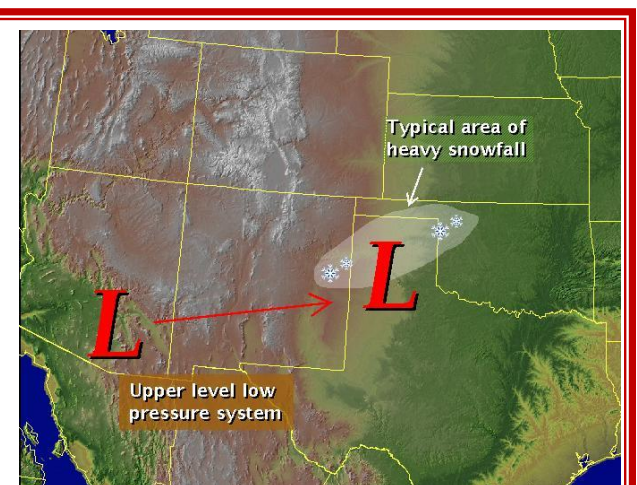


Fig. 2. The typical path of a heavy snow producing weather system. The “L” denotes the general position of the upper level low pressure center.

Weather Review and Outlook

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

REVIEW OF FALL 2008

The cool and wet pattern which had dominated the latter part of the summer continued into October. Another storm system combined with tropical moisture from the remnants of Hurricane Norbert from the Pacific to bring widespread heavy rain to the Panhandles in the middle part of October. But the rainfall shut off after this system and the Panhandles went back into a predominantly warm and dry pattern which lasted through the end of the year. In fact, from October 22 through December 31, Amarillo only received a total of 0.24 inches of rainfall.

The first widespread freezing temperatures occurred on the night of October 23-34. Snowfall was hard to come by for most of the Panhandles, although one minor winter storm on December 9 brought 1 to 3 inches of snow and strong winds mainly to areas north of the Canadian River. A strong arctic front on December 14 brought very cold temperatures to the area. The high temperature in Amarillo was only 15 degrees on December 15, which was the coldest high temperature in three years. But the cold temperatures did not last very long, and the month ended well above normal, including a very mild 72 degrees on Christmas Day.

	AVG HIGH	AVG LOW	AVG TEMP	PRECIP	SNOW
OCT	71.7 (-0.1)	44.7 (+0.1)	58.2 (0.0)	3.87 (+2.37)	0.0 (-0.4)
NOV	62.4 (+4.0)	34.0 (+2.2)	48.2 (+3.1)	0.19 (-0.49)	0.0 (-2.4)
DEC	55.2 (+5.4)	23.4 (-0.7)	39.3 (+2.3)	0.05 (-0.56)	0.6 (-3.1)

Table 1. Fall 2008 statistics for Amarillo, TX

OUTLOOK FOR SPRING 2009

The three-month outlooks for January, February, and March have been issued by the Climate Prediction Center. The temperature outlook shows an enhanced chance for above normal temperatures over the three month period. The precipitation outlook indicates a slightly greater chance for above normal precipitation in the northeast Texas Panhandle and the eastern Oklahoma Panhandle. Normally, precipitation is very low in the winter months with spring moisture and thunderstorms beginning to return by March.

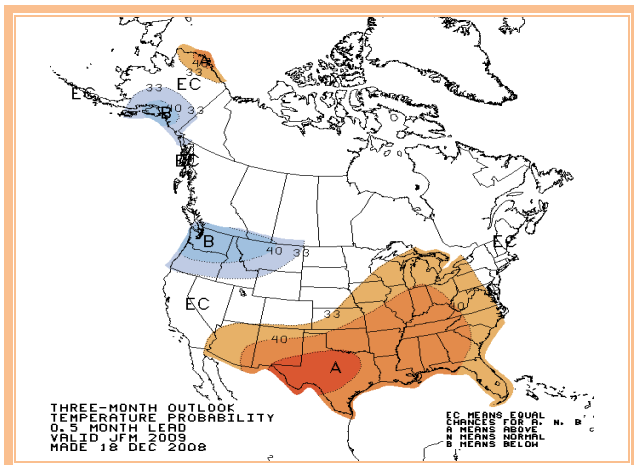


Fig. 3. JAN-FEB-MAR 2009 Temperature Outlook

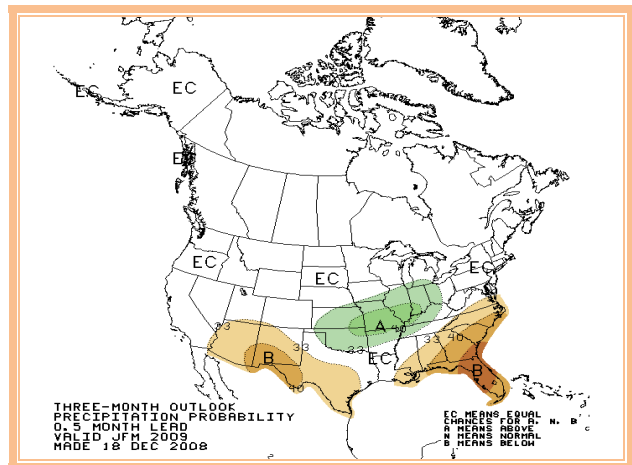


Fig. 4. JAN-FEB-MAR 2009 Precipitation Outlook

Water Levels Rise at Lake Meredith

By Christine Krause, General Forecaster

Anyone who has lived in the Panhandles for some time is probably familiar with the semi-arid nature of the local climate. As a result, the local terrain is characterized by stretches of land with very little in the way of large water bodies that are beneficial for agricultural and residential use. One break in this dry and windswept landscape is Lake Meredith. Lake Meredith is a man-made lake located on the Canadian River and was designed to provide a source of drinking water to cities such as Amarillo and Lubbock. Unfortunately over the past decade, dry weather conditions combined with an increase in water usage across the Panhandles has lead to steadily declining lake levels, with record low levels observed this year. A big reason for these dropping lake levels is that parts of the region have been in a prolonged drought for almost ten years (Fig. 5).

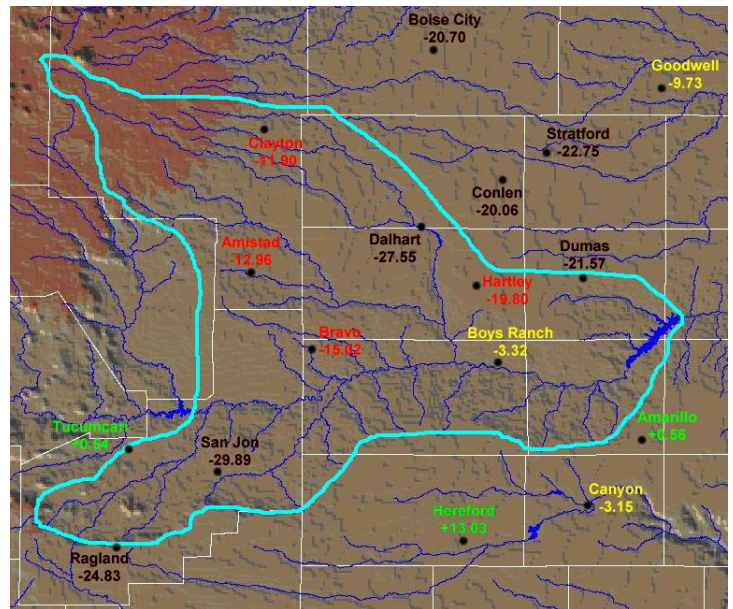


Fig. 5. Lake Meredith water shed is drawn in light blue. Displayed are precipitation departures from normal since 2000. Notice the large deficits of precipitation across the Western Texas Panhandle and Northeast New Mexico which drains into Lake Meredith, leading to the dropping lake levels.

However, the last half of 2008 featured three heavy rainfall events which helped to increase the water levels in Lake Meredith once again. In July, Hurricane Dolly hit the Southeast Texas coast and moisture from this system brought heavy rain and flooding to the Panhandles a few days later. In the middle of August a week of heavy rains and flooding again hit the Panhandles, prompting another large increase in water levels. Finally, a third round of heavy rain occurred in mid October as tropical moisture from the Pacific, associated with the remnants of Hurricane Norbert, surged across the Panhandles. Figure 6 is a graph of the lake depth for the year 2008. Notice the declining lake levels for most of the year, with three spikes associated with the three major precipitation events which occurred upstream of the lake. Although the Panhandles have not received much precipitation since October, Lake Meredith levels have not seen much of a decline due to the lower evaporation rates and usage from cities during winter.

Although Lake Meredith experienced a net increase in water in the year 2008 for only the second time since 1999, the low water levels continue to be a concern. It will take more heavy rains in 2009 to help alleviate the hydrologic drought in the region.

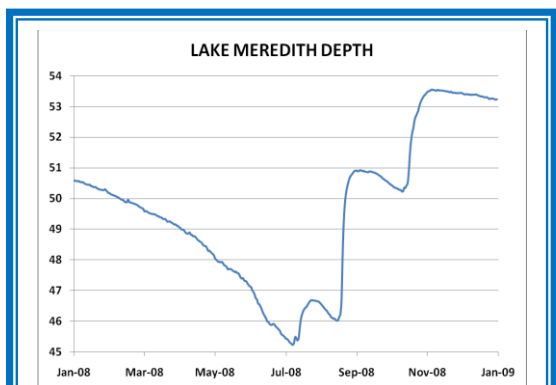


Fig. 6. Graph depicting Lake Meredith's water depth for the year 2008.

Information Technology Officer Earns Regional Isaac Cline Award

Mr. Scott Plischke was recently recognized with the 2008 Regional Isaac Cline Award in Program Management. Mr. Plischke is the Information Technology Officer at the NWS Amarillo and ensures our many computer systems are up to date and running smoothly. This prestigious award is named for Isaac M. Cline, who went to great lengths to accurately predict and warn the public before the Galveston hurricane of 1900, the deadliest weather event in the history of the United States. Mr. Plischke provided outstanding leadership to WFO Amarillo and constantly strives to ensure the information technology needs of the staff are met.



Information Technology Officer, Scott Plischke earns Regional Isaac Cline Award for Program Management at WFO Amarillo in 2008.

Mr. Plischke was especially recognized for his work above and beyond the requirements of his IT duties. His services are often sought out at the regional level and he has served on numerous regional and national teams. Within our office, Mr. Plischke worked to develop a graphical automated rainfall report, which incorporates local rainfall totals into a comprehensive graphic for the web page. He also worked to initiate a PC based storm spotter reference program, utilizing Google Earth. This marks the 5th time, since the award began in 1999, and the second year in a row that individuals at the Amarillo office have been recognized at the Regional level for their accomplishments. The Regional level award encompasses all offices in the NWS Southern Region which extends from New Mexico to Florida. Mr. Plischke was also nominated to earn the award on a National level as well.

COOPERATIVE OBSERVER ANNIVERSARIES

We want to thank our volunteer Cooperative observers for their service in helping the NWS maintain quality climatology data for their cities and towns. The following observers will celebrate anniversaries in 2009. Look for photos of these presentations in future Dryline Issues:

45 years

Wayside, TX – Darral Watson

30 years

McLean, TX – Sam Haynes

25 years

Gate, OK – Lila and Harold Curtis

20 years

Gageby, TX – Chuck Hartline
Boys Ranch, TX – Mike Pacino

10 years

Beaver, OK – Kirk Fisher

5 years

Stratford, TX – Becky and Jim Hemphill

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