

The Dryline

The Official Newsletter of the National Weather Service in Amarillo

Fall 2010

September Storms Bring Heavy Rain and Large Hail to Amarillo

By Justyn Jackson, Meteorologist Intern

On the morning of September 16th, showers and thunderstorms moved across the eastern Oklahoma Panhandle and the northern Texas Panhandle. These storms produced an outflow boundary that moved slowly southward during the daytime hours. Also present was a nearly stationary front that was draped across the southern Texas Panhandle. An unseasonably warm and moist air mass was in place south of the front with temperatures in the upper 80s to lower 90s and dew points in the 60s. As an upper level trough of low pressure approached the region, temperatures aloft began to cool, which created an unstable air mass. The combination of an outflow boundary, a nearly stationary front, an upper level trough of low pressure, and an unstable air mass resulted in an environment primed for thunderstorm development.

Indeed, thunderstorms developed during the early to middle afternoon hours across Deaf Smith, Oldham, Potter, and Randall, Carson, and Armstrong Counties. Due to the unstable air mass, the thunderstorms quickly strengthened and first became severe just before 3 p.m. near Amarillo. These storms initially produced quarter size (1.00 inch) hail across southwest Amarillo but then



Flooding on Soncy Road in Amarillo. Image courtesy of Brynn Rains.

In This Issue...

	Page
La Niña and Its Effects	3
Winter Weather Safety.....	4
Weather Review / Outlook	6
How to Measure Snow.....	7
Cooperative Observer News.....	8

quickly increased to golf ball size (1.75 inches).

Training of storms occurred as new thunderstorms formed behind the initial storms, which led to flooding across Amarillo. The hardest hit areas were generally south of Interstate 40 and west of Interstate 27, particularly at Soncy Road, Bell, Coulter, and Western Streets, and 34th Avenue. The flooding resulted in

numerous impassable streets, stranded vehicles, and several high water rescues.

Another severe thunderstorm affected Deaf Smith and Oldham Counties and produced quarter size hail 10 miles south of Vega. Arguably, the strongest storm of the day occurred in the eastern and southeastern parts of Randall County where estimated wind gusts up to 75 mph occurred 7 miles west southwest of Wayside and grapefruit size (4.00 inches) hail fell at Palo Duro State Park.



Grapefruit size hail in Palo Duro Canyon. Image courtesy of John Dawson.

Amarillo Bids Farewell to One of Its Forecasters

Once again, our office is faced with saying goodbye to an experienced forecaster. We now bid farewell to Roland Nuñez, one of our Senior Forecasters. Roland will leave our office at the end of October to become the new Meteorologist-in-Charge at the Center Weather Service Unit at the Air Route Traffic Control Center in Houston, TX. As a Senior Forecaster in our office for the past nine years, Roland has been strongly involved in the Graphical Forecast Editor program and has also been instrumental in developing our local leadership development program. Roland has worked hard on many outreach events and was the brain child of this year's "Scouting for Meteorologists" educational outreach.



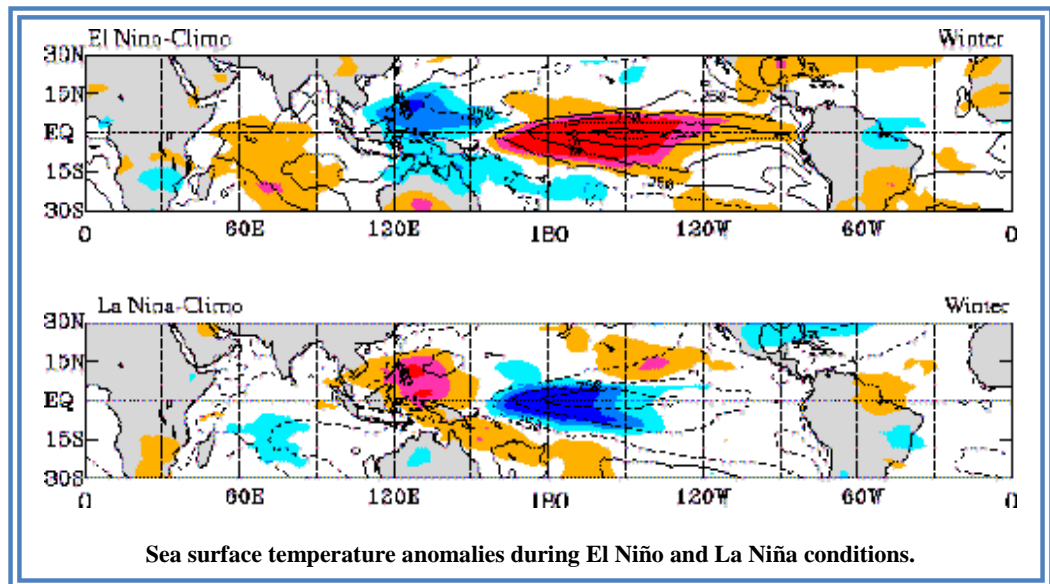
La Niña is Coming and What it Means for the Upcoming Winter

By Christine Krause, General Forecaster

In the spring of this year, El Niño was in the forefront of our minds, specifically how this would impact the severe weather season in the Panhandles. How quickly things change. Instead, now we have trended toward La Niña conditions and concern has shifted to how this change will affect the upcoming winter across the Texas and Oklahoma Panhandles.

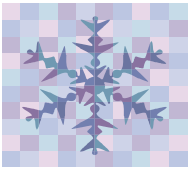
El Niño and La Niña are opposite phases of the Southern Oscillation (ENSO). El Niño is referred to as the warm phase since it is characterized by warming of surface ocean waters in the eastern tropical Pacific. On the other hand, La Niña (cold phase) conditions develop when there are unusually cold waters in the Equatorial Pacific. This abnormal cooling can have ramifications on the global weather patterns, particularly in the fall and winter months. Since we are transitioning into the Northern Hemisphere fall, La Niña will begin to exert an increasing influence on the weather and climate of the United States. Specifically, winter temperatures are typically warmer than normal in the Southeast and cooler than normal in the Northwest while there is an enhanced chance of above-average precipitation in the Pacific Northwest and below-average precipitation in the Southwest and in portions of the middle and lower Mississippi and Tennessee Valleys. So what weather impacts will be noticed in the Texas and Oklahoma Panhandles with respect to the upcoming winter? Our region has a tendency to experience above normal temperatures and below normal precipitation.

The latest outlook provided by the Climate Prediction Center predicts moderate to strong La Niña conditions to last through the winter and early spring of 2011, although some of the model guidance disagrees on the eventual strength of La Niña. However, based on current observations and model forecasts, sea surface temperatures in the Equatorial Pacific should persist near the current strength, or strengthen during the winter, which is consistent with the historical evolution of La Niña. Therefore, it is likely that at least moderate La Niña conditions will develop.



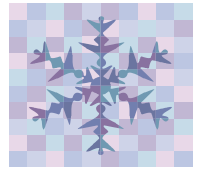
Winter is rapidly approaching so only time will tell how this winter will shape up for the Texas and Oklahoma Panhandles. Meanwhile, you can keep abreast of the latest forecasts from the National Weather Service to prepare yourself for the upcoming winter.

** Information for this article was provided by the Climate Prediction Center and Senior Forecaster Edward Andrade.*



Winter Weather Safety

By Todd Beal, General Forecaster



The first snowflakes of the winter season across the Texas and Oklahoma Panhandles generally do not wait to fall until the “official” start of winter. However, it has snowed in the Panhandles as early as September with numerous winter weather events occurring in the months of October and November. With the winter weather season just around the corner, here are some winter weather safety tips to keep in mind when freezing rain, sleet, and snow impact the Panhandles.

It is highly recommended to stay home and avoid traveling during a winter storm. However, if you must travel, ensure that your vehicle is prepared for inclement winter weather. A few items that should be checked to winterize your vehicle include the battery, brakes, heater, defroster, and tires. Also, check to make sure fluids such as antifreeze and windshield wiper fluid are not low and fill up/replace, if necessary. When traveling, keep your gas tank near full and avoid traveling alone. Prior to departing, check the latest roads conditions and plan an alternate route. Inform a friend or family member of your travel plans and when you expect to arrive at your destination. An emergency supply kit is recommended in the event you become stuck or stranded. Items that should be included are a mobile phone, blankets, dry clothing, non-perishable food, water, a first aid kit, flashlights, extra batteries, and a snow shovel.



The National Weather Service in Amarillo issues a wide variety of products and statements to inform the public, emergency managers, and decision makers on winter weather that will impact the Panhandles. This information can be accessed by listening to NOAA Weather Radio, visiting our website at <http://www.srh.noaa.gov/ama>, or tuning in to local broadcast media.

Winter Weather Products Issued by the NWS Amarillo

Winter Storm Watch: A winter storm watch is issued when conditions are favorable for hazardous winter weather to develop across all or parts of the Texas and Oklahoma Panhandles. Winter storm watches are generally issued 12 to 48 hours in advance to provide the public and decision makers time to prepare for the impending winter weather.

Winter Storm Warning: When hazardous and life-threatening winter weather is occurring, likely, or has a high probability of occurrence, a winter storm warning will be issued. The following criteria or combination of will warrant a winter storm warning:

- Snow accumulations of 6 inches or more in a 24 hour period
- Sleet accumulations greater than one half of an inch
- High impact/life-threatening events that do not meet defined warning criteria (e.g. near blizzard conditions)

Blizzard Warning: A blizzard warning will be issued when both of the following conditions are forecast to occur for three or more hours:

- Wind speeds of 35 mph or greater
- Considerable falling or drifting snow with visibilities at or below one quarter of a mile

Ice Storm Warning: When significant ice accumulations of one quarter of an inch or greater are expected, an ice storm warning will be issued.

Winter Weather Advisory: A winter weather advisory will be issued for hazardous winter weather that causes significant inconveniences. The following criteria or combination will warrant a winter weather advisory:

- Snow accumulations of 1 to 5 inches in a 24 hour period.
- Sleet accumulations less than one half of an inch

Freezing Rain Advisory: A freezing rain advisory will be issued for a light accumulation of ice from light rain and/or drizzle.

For the latest road conditions, please use the following numbers:

Texas Panhandle:	1-806-468-1488	Oklahoma:	1-405-425-2385
Texas:	1-800-452-9292	New Mexico:	1-800-432-4269



Award Winning Chili by Amarillo Staff Member



The Veteran’s Administration (VA) in Amarillo threw a chili cook-off on October 1st to raise money for the Combined Federal Campaign (CFC). ET Dave Wilburn and HMT Steve Bilodeau jumped at the chance to participate. Both made a traditional tomato based chili, although with one big difference; Dave’s chili contained several different types of hot peppers, including the ghost pepper, which is the hottest pepper on earth, according to the Guinness Book of World Records. Steve’s chili was a milder version. Dave took home top honors in the “Hotter Than Hot” category for the third year in a row. Steve has participated in previous chili cook-offs. In fact, last year he took home a first place trophy for the most unusual chili.



Three time award winner Dave Wilburn



Dave Wilburn (l) and Steve Bilodeau (r) at the VA chili cook-off

Weather Review and Outlook

By Rich Wynne, Science and Operations Officer

REVIEW OF SUMMER 2010

The transition from an El Niño to a La Niña pattern progressed over the summer. Moist air remained abundant over the Texas and Oklahoma Panhandles. For the southern and eastern Texas Panhandle, July brought significant rains and unusually moist conditions. Amarillo set a record for July rain with 8.02". In general, August trended back to warmer and drier conditions.

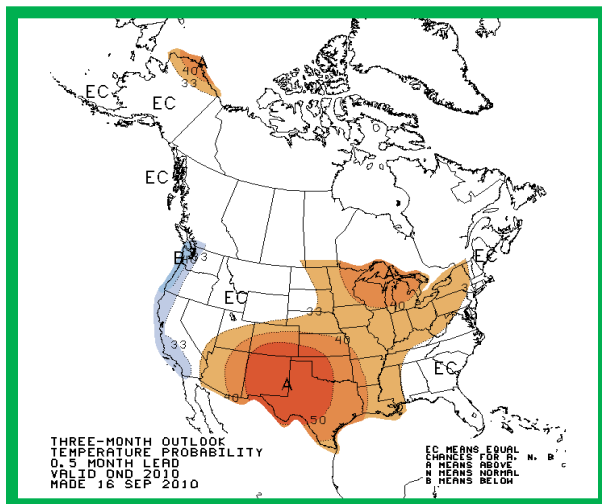
	AVG HIGH	AVG LOW	AVG TEMP	PRECIP
JUN	92.0 (+4.6)	65.1 (+4.0)	78.6 (+4.3)	1.00 (-2.28)
JUL	87.8 (-3.2)	65.8 (+0.5)	76.8 (-1.4)	8.02 (+5.34)
AUG	91.3 (+2.6)	65.4 (+1.6)	78.3 (+2.0)	2.55 (-0.39)

Summer 2010 statistics for Amarillo, TX

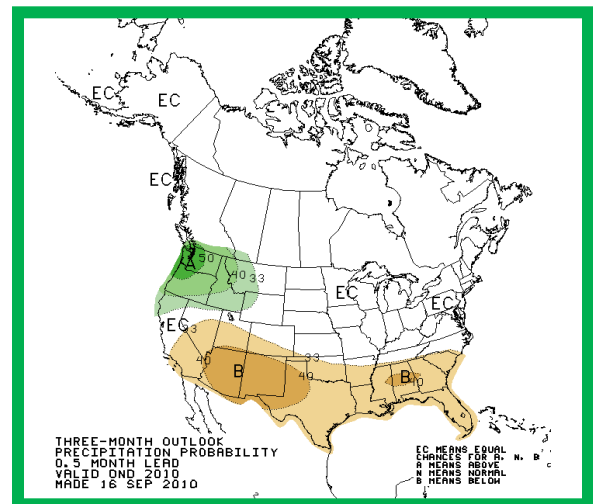
OUTLOOK FOR FALL/EARLY WINTER 2010

Climatologists at the Climate Prediction Center (CPC) confirm that a La Niña episode is in effect and should strengthen through the rest of 2010. The La Niña pattern often leads to a warm and dry period for the southern United States.

The three-month outlook for October, November, and December (OND) seems to fit well with a La Niña pattern. The three-month temperature outlook indicates a better chance for above normal temperatures for late summer into early fall, especially in the far western counties of the Panhandles. The precipitation OND outlook has below normal chances for the Oklahoma and Texas Panhandles for the last quarter of the 2010.



OCT-NOV-DEC 2010 Temperature Outlook



OCT-NOV-DEC 2010 Precipitation Outlook

How to Measure Snow

By Tabatha Tripp, Observational Program Leader

Winter is just around the corner which means a return to cold temperatures and the occasional bout of accumulating snowfall. Measuring snowfall is often a tricky thing to do, and although our cooperative observers have been doing this for years, it's a good idea to provide a refresher before the first snowflakes fall.

All measurements are taken once a day at your specified time of observation. To measure the liquid water equivalent, melt the contents of your gauge (by bringing it inside your home or adding a measured amount of warm water) and then pour the liquid into the funnel and smaller inner measuring tube and measure the amount to the nearest 0.01 inch (use NWS provided measuring stick) just as you use for measuring rainfall. Do not measure the melted precipitation directly in the large 8-inch outer cylinder. If the melted water equivalent (including any added warm water) exceeds two inches and cannot fit into the measuring tube all at one time, then empty the full measuring tube and pour the remaining liquid from the large 8-inch outer cylinder into the emptied measuring tube. Then, add and record the water equivalent of the multiple measurements. If you added warm water to the gauge to melt the snow, make sure you accurately measure the amount of warm water added before pouring it into the gauge. Then, when you take your liquid measurement, subtract the amount of warm water added from the total liquid measurement to get your final liquid water equivalent of the snowfall. As wind speeds increase, gauges collect less and less of the precipitation that actually falls. Generally speaking, the stronger the wind and the drier the snow, less is captured in the gauge. If you notice that less snow is in the gauge than accumulated on the ground, you should first empty any existing snow from inside the 8-inch cylinder, then use it to take a snow sample, sometimes referred to as "take a core", or "cut a biscuit" from your snow board with the 8-inch overflow can. Melt the biscuit of snow; pour the liquid into the small measuring tube to measure the water equivalent.

Remember, you want to report the greatest accumulation since the last observation. If snowfall occurred several times during the period, and each snowfall melted either completely or in part before the next snowfall, record the total of the greatest snow depths of each event and enter in your remarks "snowfall melted during the OBS period". For example, three separate snow squalls affect your station during your 24-hour reporting day with amounts of 3.0, 2.2, and 1.5 inches. The snow from each event melts off before the next accumulation and no snow is on the ground at your scheduled time of observation. The total snowfall for that reporting 24-hour day is the sum of the three separate snow squalls, 6.7 inches, even though the snow depth at observation time was zero. Snow often melts as it lands. If snow continually melts as it lands, and the accumulation never reaches 0.1 inches on your measuring surface, snowfall should be recorded as a trace (T) and record in your remarks that the "snow melted as it landed".

Report snow depth to the nearest whole inch, rounding up when one-half inch increments are reached (e.g. 0.4 inches gets reported as a trace (T), 3.5 inches gets reported as 4 inches). Often times, you will need to use good judgment to visually average and then measure snow depths in exposed areas within several hundred yards surrounding the weather station. For example, if half the exposed ground is bare and half is covered with six inches of snow, the snow depth should be entered as the average of the two readings, or three inches. If less than 50 percent of the exposed ground is covered by snow, even though the covered areas have a significant depth, the snow depth should be recorded as a trace (T). When no snow or ice is on the ground in exposed areas, it is best to record it as a zero. When strong winds have blown the snow, take several measurements where the snow was least affected by drifting and average them. If most exposed areas are either blown free of snow while others have drifts, try to combine visual averaging with measurements to make your estimate.

CALL FOR COOP OBSERVERS



The National Weather Service in Amarillo is looking for cooperative weather observers to measure precipitation across the Texas and Oklahoma Panhandles. This is a wonderful opportunity to become part of the COOP family across the Panhandles! Your observation would support drought assessments, crop yield forecasts, recreation, flood zone determination, and investment of billions of dollars in the insurance industry! The following locations are where cooperative observers are needed:

Kenton, OK	Claude, TX
Goodnight, TX	Sunray, TX
Pringle, TX	Texline, TX
Glenrio, TX	

There is also a great need for one or two rainfall observers in Armstrong County in the Texas Panhandle.

Cooperative observers must have access to the Internet as they will need to submit their weather data online through the **WXCoder** program. For those who are interested, please contact Tabatha Tripp, Observing Program Leader (OPL) at the National Weather Service office in Amarillo, at 1-806-335-1835, extension 225 or via email to tabatha.tripp@noaa.gov

Borger Texas Cooperative Observer Receives Award!

Ricky Dean from Borger, Texas received a 5 year Certificate of Appreciation from Meteorologist-in-Charge Jose Garcia. Ricky is a Borger native, and he and his wife have two children and three grandchildren. Ricky holds an Extra Class amateur radio license and also has a personal weather station on Weather Underground.



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