



### INSIDE THIS ISSUE:

Summer Heat Tips 2

New weather station 4

Astronomical Events 5

# The Dryline

SUMMER 2012

## Climate and Drought Update

After a spring of beneficial rain across most of the Panhandles, this summer has seen a transition back to a drier pattern across the area. Amarillo has only received 1.95 inches of rain since the beginning of June. This is a little better than last year, when Amarillo had only gotten 1.43 inches in the first two months of summer. Around the area, Dalhart has received 2.02 inches compared to last year's half an inch for the same time. Borger has been a little luckier with 3.43 inches to start the summer, compared to 2.38 inches by this point of the summer last year. Guymon has gotten almost 5 inches this summer, though last year there was only an inch of rain to this point.

The rains this summer have been much appreciated across the Panhandles, though they have not been enough to keep away the drought. Rainfall on the order of 3 inches per month is considered normal during Panhandle summers. Meanwhile, this is the warmest start to the year for the Panhandles and much of the country. Under the hot and sunny skies this summer, drought has crept back into the area. At the time of this writing, all of the Texas and Oklahoma Panhandles are experiencing at least a moderate drought, with some places seeing a return to the exceptional drought – the driest category. Rangeland and non-irrigated crop land have suffered the greatest effects this summer. Several municipal water suppliers, including the city of Canyon, have instituted voluntary and mandatory water restrictions to ease water demand.

Looking to the rest of the summer and beyond, there remains a good chance for the development of at least a weak El Niño by late summer. El Niño events have historically meant a greater chance for cooler and wetter than normal conditions across the Panhandles. This is welcome news as the Panhandles emerge from the effects of the 2011 and 2012 La Niña events and the drought they helped to usher in. For the August through October period, the Climate Prediction Center forecasts greater chances for above normal temperatures and equal chances for above, below, and near-normal precipitation across the Panhandles.

## Summer Heat Tips

Heat is the number one weather related killer in the United States resulting in hundreds of fatalities each year. In fact, on average excessive heat claims more lives each year than floods, lightning, tornadoes, and hurricanes combined. In the disastrous heat wave of 1980, more than 1,250 people died. In the heat wave of 1995, more than 700 deaths in the Chicago area were attributed to heat. In August 2003, a record heat wave in Europe claimed an estimated 50,000 lives.

North American summers are hot; most summers see heat waves in one or more parts of the United States. East of the Rockies, they tend to combine both high temperature and high humidity, although some of the worst heat waves have been catastrophically dry.

...Summer Heat Tips continued on page 2...

# Summer Heat Tips continued...

Each National Weather Service Forecast Office issues the following heat-related products as conditions warrant:

**Excessive Heat Outlooks:** are issued when the potential exists for an excessive heat event in the next 3-7 days. An Outlook provides information to those who need considerable lead time to prepare for the event, such as public utility staff, emergency managers and public health officials. See the mean heat index and probability forecasts maps.

**Excessive Heat Watches:** are issued when conditions are favorable for an excessive heat event in the next 24 to 72 hours. A Watch is used when the risk of a heat wave has increased but its occurrence and timing is still uncertain. A Watch provides enough lead time so that those who need to prepare can do so, such as cities officials who have excessive heat event mitigation plans.

**Excessive Heat Warning/Advisories** are issued when an excessive heat event is expected in the next 36 hours. These products are issued when an excessive heat event is occurring, is imminent, or has a very high probability of occurring. The warning is used for conditions posing a threat to life or property. An advisory is for less serious conditions that cause significant discomfort or inconvenience and, if caution is not taken, could lead to a threat to life and/or property.

NOAA's heat alert procedures are based mainly on Heat Index Values. The Heat Index, sometimes referred to as the apparent temperature, is given in degrees Fahrenheit. The Heat Index is a measure of how hot it really feels when relative humidity is factored with the actual air temperature.

To find the Heat Index temperature, look at the Heat Index chart below. As an example, if the air temperature is 96°F and the relative humidity is 65%, the heat index--how hot it feels--is 121°F. The Weather Service will initiate alert procedures when the Heat Index is expected to exceed 105°-110°F (depending on local climate) for at least 2 consecutive days.

## NOAA's National Weather Service

Heat Index  
Temperature (°F)

Relative Humidity (%)	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution
  Extreme Caution
  Danger
  Extreme Danger

**IMPORTANT:** Since heat index values were devised for shady, light wind conditions, exposure to full sunshine can increase heat index values by up to 15°F. Also, strong winds, particularly with very hot and dry air, can be extremely hazardous.

# Summer Heat Tips continued...

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When the body heats too quickly to cool itself safely, or when you lose too much fluid or salt through dehydration or sweating, your body temperature rises and heat-related illness may develop. Heat disorders share one common feature: the individual has been in the heat too long or exercised too much for his or her age and physical condition.

Studies indicate that, other things being equal, the severity of heat disorders tends to increase with age. Conditions that cause heat cramps in a 17-year-old may result in heat exhaustion in someone 40 years old, and in heat stroke in a person over 60. Sunburn, with its ultraviolet radiation burns, can significantly retard the skin's ability to shed excess heat. Acclimatization has to do with adjusting sweat-salt concentrations, among other things. The idea is to lose enough water to regulate body temperature, with the least possible chemical disturbance--salt depletion.

## ***Child Safety Tips***

- Make sure your child's safety seat and safety belt buckles aren't too hot before securing your child in a safety restraint system, especially when your car has been parked in the heat.
- Never leave your child unattended in a vehicle, even with the windows down.
- Teach children not to play in, on, or around cars.
- Always lock car doors and trunks--even at home--and keep keys out of children's reach.
- Always make sure all children have left the car when you reach your destination. Don't leave sleeping infants in the car ever!

## ***Adult Heat Wave Safety Tips***

- Slow down. Reduce, eliminate or reschedule strenuous activities until the coolest time of the day. Children, seniors and anyone with health problems should stay in the coolest available place, not necessarily indoors.
- Dress for summer. Wear lightweight, light-colored clothing to reflect heat and sunlight.
- Foods, like meat and other proteins that increase metabolic heat production also increase water loss.
- Drink plenty of water, non-alcoholic and decaffeinated fluids. Your body needs water to keep cool. Drink plenty of fluids even if you don't feel thirsty. Persons who have epilepsy or heart, kidney or liver disease, are on fluid restrictive diets or have a problem with fluid retention should consult a physician before increasing their consumption of fluids. Do not drink alcoholic beverages and limit caffeinated beverages.
- During excessive heat periods, spend more time in air-conditioned places. Air conditioning in homes and other buildings markedly reduces danger from the heat. If you cannot afford an air conditioner, go to a library, store or other location with air conditioning for part of the day.
- Don't get too much sun. Sunburn reduces your body's ability to dissipate heat.
- Do not take salt tablets unless specified by a physician.

## ***Heat Disorder Symptoms***

**SUNBURN:** Redness and pain. In severe cases swelling of skin, blisters, fever, headaches. First Aid: Ointments for mild cases if blisters appear and do not break. If breaking occurs, apply dry sterile dressing. Serious, extensive cases should be seen by physician.

**HEAT CRAMPS:** Painful spasms usually in the muscles of legs and abdomen with heavy sweating. First Aid: Firm pressure on cramping muscles or gentle massage to relieve spasm. Give sips of water. If nausea occurs, discontinue water.

**HEAT EXHAUSTION:** Heavy sweating; weakness; cold, pale, clammy skin; thready pulse; fainting and vomiting but may have normal temperature. First Aid: Get victim out of sun. Once inside, the person should lay down and loosen his or her clothing. Apply cool, wet cloths. Fan or move victim to air conditioned room. Offer sips of water. If nausea occurs, discontinue water. If vomiting continues, seek immediate medical attention.

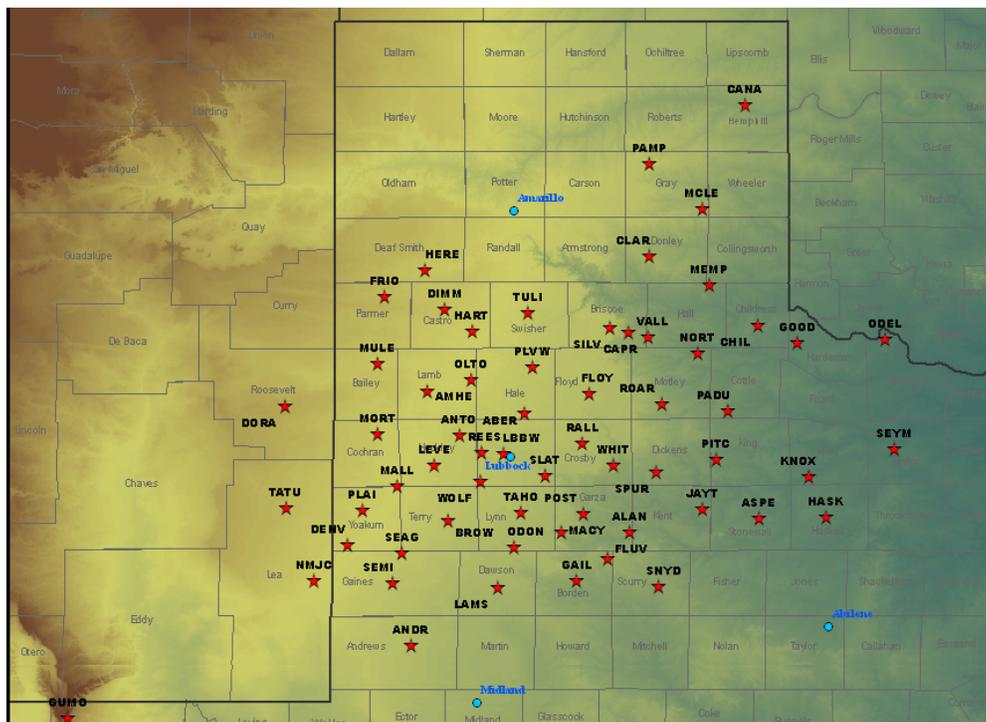
**HEAT STROKE (or sunstroke):** High body temperature (106° F or higher), hot dry skin, rapid and strong pulse, possible unconsciousness. First Aid: **HEAT STROKE IS A SEVERE MEDICAL EMERGENCY. SUMMON EMERGENCY MEDICAL ASSISTANCE OR GET THE VICTIM TO A HOSPITAL IMMEDIATELY. DELAY CAN BE FATAL.** While waiting for emergency assistance, move the victim to a cooler environment reduce body temperature with cold bath or sponging. Use extreme caution. Remove clothing, use fans and air conditioners. If temperature rises again, repeat process. Do NOT give fluids. Persons on salt restrictive diets should consult a physician before increasing their salt intake.

# New Mesonet Station in Canadian

A new weather station has been installed by the Texas Tech University West Texas Mesonet 6 miles east of Canadian, TX with the help of the Amarillo and Lubbock NWS offices. This weather station, also known as a mesonet station, will provide up to the minute meteorological data such as temperature, wind, precipitation, and other pertinent weather data. Data from these sites are invaluable to forecasters in daily operations and in severe weather operations. The West Texas Mesonet also have 66 other weather stations in 47 counties across West Texas and eastern New Mexico. Below is a picture of the mesonet station after its completion.



The station stands at over 30 feet tall and is located away from the city, trees, hills, and other features that could interfere with the meteorological instruments. More information and weather data from this site and others can be found at the West Texas Mesonet website at [www.mesonet.ttu.edu](http://www.mesonet.ttu.edu). Below is a map of most of the mesonet stations that the West Texas Mesonet is currently operating and maintaining.



# Above the Weather

***By Todd Lindley, Science and Operations Officer***

Texas and Oklahoma Panhandle residents were keeping a close eye to the sky in May and June. Yes, it was the peak of our climatological severe weather season, but it wasn't necessarily raging supercells that they were watching. Instead, the spring of 2012 brought three widely seen astronomical events including an annular solar eclipse, a partial lunar eclipse, and a solar transit of Venus. Although opportunities to witness any of these celestial events are rare, they amazingly graced the skies above the Panhandles in just over two-weeks during late May and early June.

At sunset on May 20<sup>th</sup>, an annular solar eclipse provided a spectacular sight in the western sky. An annular eclipse occurs when the Moon passes between the Earth and the Sun, but at a distance that makes the diameter of the Moon appear slightly smaller than that of the Sun as viewed from our perspective here on Earth. This results in a "ring of fire" as the Moon darks the inner portions of the visible Sun. The path of annularity during the May 20<sup>th</sup> eclipse, the first such eclipse to occur over the continental United States since May 10<sup>th</sup> 1994, tracked just south of the Panhandles from west Texas northwestward over the Pacific Ocean. Thus most Panhandle residents witnessed a deep partial obscuration of the setting sun in a beautiful partly cloudy sky.



*May 20th annular solar eclipse as viewed from Amarillo. Photo courtesy of Todd Lindley*

The ensuing full moon also brought a twilight spectacle just two weeks later. A partial lunar eclipse was visible above the western horizon during the morning commute on June 4<sup>th</sup>, when 38% of the Moon's surface was darkened by the Earth's shadow.

*...Above the Weather continued on page 6...*

# Above the Weather continued...



*Partial lunar eclipse visible in Amarillo in the early morning hours of June 5th. Photo courtesy of Todd Lindley*

The trifecta of astronomical sights was completed the next day, on June 5<sup>th</sup>, when the rarest of the three events transpired in our skies. The planet Venus passed between Earth and the Sun during the late afternoon and evening hours, and appeared to transit the face of the Sun as viewed from observers here on Earth. Although the Venus transit required the use of special filters and a telescope to observe, it was a highly anticipated event that was a “must see” for astronomers everywhere. Planetary transits were historically used by early astronomers in efforts to measure the Sun-Earth distance, known as an astronomical unit. Such transits are very rare, and although the last transit of Venus across the solar disk occurred in 2004, the next one will not be visible until the year 2117! Clouds shrouded the view of Venus’ transit for many would-be observers across the Panhandles, but a lucky few over the western and central Panhandles managed brief views through mostly cloudy skies.



*View of the Transit of Venus from Amarillo on June 5th. Photo courtesy of Todd Lindley*



**The Dryline.....**1900 English Road, Amarillo, TX 79108

Call us: 806.335.1121

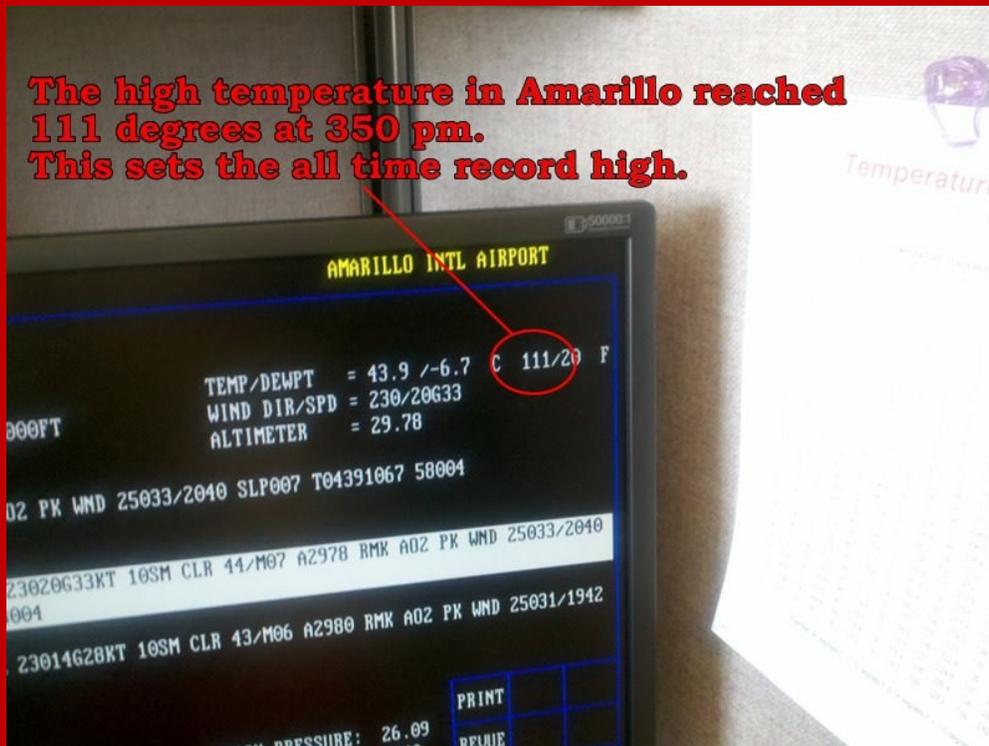
E-mail us: [SR-AMA.Dryline@noaa.gov](mailto:SR-AMA.Dryline@noaa.gov)

**Got a question for the Dryline editors? E-mail us at:**  
**[SR-AMA.Dryline@noaa.gov](mailto:SR-AMA.Dryline@noaa.gov)**



• José Garcia—*Publisher and Meteorologist-In-Charge*

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On June 26h of last year (2011), Amarillo experienced its highest temperature ever recorded of 111 degrees Fahrenheit. Weather records in Amarillo have been kept since 1892. This picture shows the reading on the instruments when the record was broken in addition to other meteorological data. This reading capped what was a historic year for the Panhandles in which Amarillo only received 7.00 inches of rain which shattered the old record of 9.56 inches set in 1970.