



# The Dryline



The Official Newsletter of the National Weather Service in Amarillo

## Record Wildfires in the Southern High Plains

by Ken Schneider, Senior Forecaster and Fire Weather Focal,  
and John Brost, Journeyman Forecaster and Assistant Fire Weather Focal

The Panhandle wildfires during March 2006 set an all-time record in the state of Texas for the largest area burned in one fire season. Severe drought conditions, persisting since September 2005, led to a prolonged fire season that continued well into March 2006. Above-normal temperatures for the winter and early spring seasons contributed to relative humidities remaining below normal. A surface low pressure system over the Central Plains states deepened in response to the jet stream approaching from the Southern Rockies. The surface pressure gradient tightened across the Southern High Plains, resulting in strong west to southwest downsloping winds of 25 to 35 mph with gusts higher than 50 mph. To exacerbate the wind situation, a cold front moved through the Southern High Plains late on March 12 into early March 13. This resulted in a wind shift to the north and northwest with continued strong winds.

The potential for explosive wildfires was forecasted well in advance, with Fire Weather Watches being issued the day before. A Wind Advisory was also issued for the area for the strong winds expected.

The first wildfire actually occurred on Friday, March 10, in extreme northeastern Oldham County. The wildfire broke out



Fig. 1. Fisher and Helicopter Drop

when a car caught fire around 2:20 PM CST about four miles north of Boys Ranch along U.S. Highway 385. Southwesterly winds of around 25 mph spread the wildfire across Moore and Hartley Counties: these

favorable conditions allowed the length of the flames to reach up to 11 feet.

The fire came within seven miles of Dumas and burned 13,000 acres. A voluntary evacuation order was issued for residents of Moore County southwest of Dumas.

However, the two largest wildfires occurred on March 12. From March 12<sup>th</sup> to 19<sup>th</sup>, more than a dozen large wildfires burned over one million acres across the Southern High Plains. The wildfires resulted in eleven civilian deaths and one injury in the Texas Panhandle, and at least nine injuries to firefighters. Unfortunately, one of the firefighters later died from his injuries. In total, the wildfires burned over 1,700 square miles, and eight towns were evacuated. In addition, over 40 structures were destroyed, including 32 homes. Cattle ranchers across the Panhandles were also

greatly affected by the wildfires. An estimated four to six thousand head of cattle were lost, not to mention the great loss of feeding supplies, as grass and hay (Fig. 2) were torched. Fire, smoke, and blowing dust along Interstate 40 between Groom and McLean, produced a nine-car accident, which resulted in four deaths and six injuries. Interstate 40 was shut down for several hours, causing major traffic delays and detours. The wildfires indirectly affected hundreds of other Panhandle residents, as 1,040 electrical poles were destroyed, leaving at least 80 homes without power.

The largest wildfire in the Texas Panhandle started between 11:00 AM and 12:00 PM from two fires located south and southeast of Borger. The fires resulted from high winds that downed power lines on the Burnett “6666” Ranch.



**Fig. 2. Hay bales on fire along Interstate 40.**

These two fires merged into the large wildfire known as the Borger fire. This fire spread through southeastern Hutchinson County, northwestern Gray County, central Roberts County and western Hemphill County, ultimately consuming 479,549 acres.

Multiple small fires combined to create the other large wildfire, known as the I-40 wildfire, which began around 11:00 AM

CST in Gray County. The I-40 wildfire was also caused by power lines down by high winds. The small fires originated just east of Groom, near Jericho, and just west of Lefors, before combining to burn 427,696 acres. Together the Borger and I-40 wildfires were named the East Amarillo Complex (Fig. 3) and consumed 907,245 acres. The wildfires also destroyed about 700 miles of fencing, which may cost as much as \$5,000 per mile to repair.

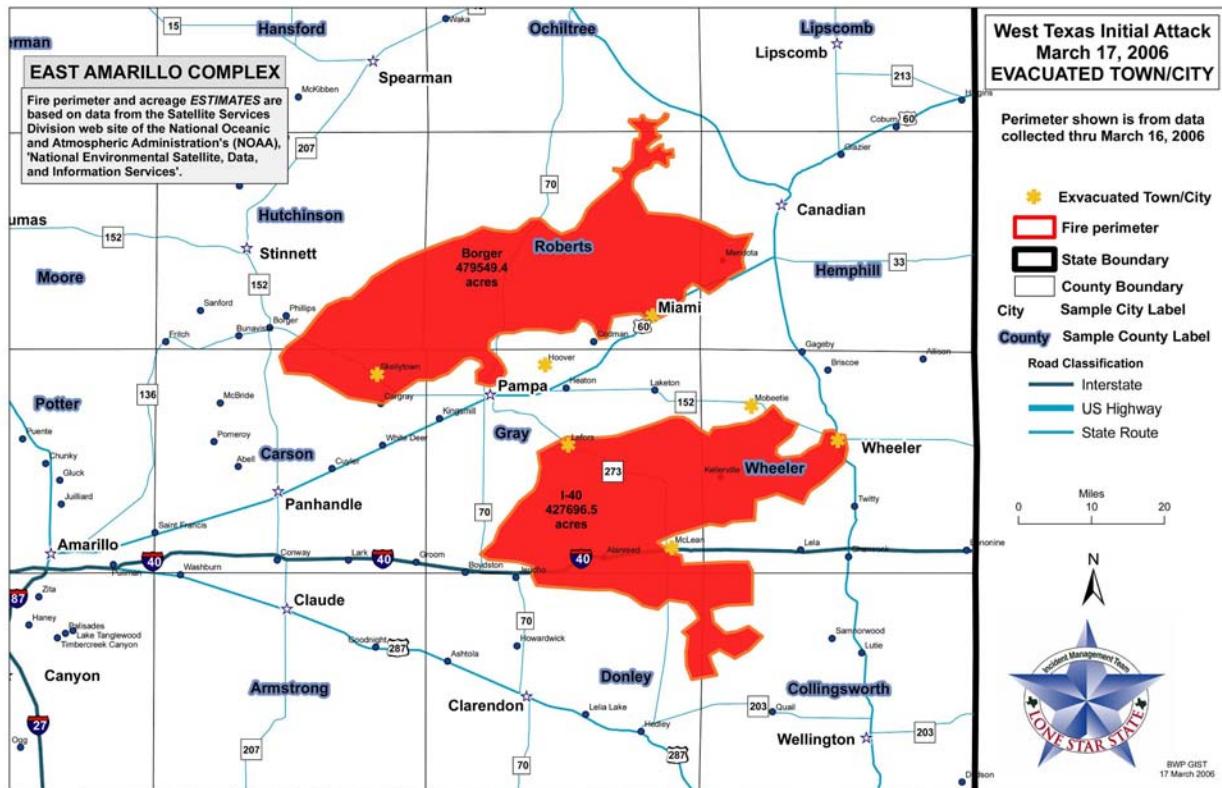


Fig. 3. Extent of wildfires within the East Amarillo Complex in March 2006.

## Red Flag Warning

The weather criteria for issuing Red Flag Warnings are: minimum relative humidities less than or equal to 15 percent along with sustained 20 foot wind speeds of 20 mph or higher and/or gusts to 35 mph occurring for three hours or longer.

**REMEMBER:** If a wildfire escapes an initial attack, you are advised to evacuate immediately for a safe zone. Texas mayors and county judges have the authority to demand evacuations for people along the path of the fire spread.



The rapid spread of the wildfires made firefighting extremely difficult. The Texas Forest Service reported the wildfires moved 45 miles in just 9 hours, which means the fires had a forward speed of 5 mph. This may not seem fast until one considers that many firefighters were on foot carrying

heavy equipment with warm temperatures and low humidity.

Several other large wildfires occurred in the Texas Panhandle on March 12, and are listed in Figure 4 below.

Location	Initiation Time (CST)	Size (acres)	Damage
Randall County – 14 miles south-southwest of Canyon	8:20 AM	2,000	2 outbuildings lost
Donley County – 4 miles southeast of Lelia Lake	3:00 PM	1,800	8 outbuildings destroyed
Randall County – 6 miles southeast of Canyon	8:30 AM	1,600	Mostly grassland
Randall County – 7 miles southwest of Canyon	11:55 AM	1,000	Mostly grassland
Hartley County – 9 miles west-northwest of Channing	12:00 PM	800	Mostly grassland
Moore County – 6 miles west-northwest of Cactus	11:45 AM	500	Mostly grassland
Randall County – 7 miles southeast of Amarillo	12:40 PM	450	Mostly grassland

**Fig. 4. Other large wildfires in the Texas Panhandle on March 12, 2006.**

### ***Matthew Kramar — March 2006 Employee of the Month***

Matthew has been a Journeyman Forecaster for WFO Amarillo since May 2004 after a brief period as a Meteorologist Intern at WFO Jackson Mississippi. He is the Mesoscale Operations focal point, serves on the Forecast and Warnings Team, and leads the Science and Training Team. It takes great fortitude for Matthew to balance forecasting, research and a sardonic sense of humor, but he seems to have had marginal success in continuing severe weather research, publishing (see his article on the Owl Horn Signature in last quarter's *Dryline*), and attending national conferences. After spending his formative years in New England (growing up in Connecticut), he obtained a BA (2000) in Mathematics from Dartmouth College in New Hampshire before earning a MS (2003) in Meteorology from the University of Oklahoma. When he is off duty, Matthew is an avid chef, a classically-trained musician, an active volleyball player, and a semi-frequent stormchaser generally inhibited primarily by high gasoline prices and poorly-timed midnight shifts.

# Summer Outlook – Little Relief Expected

By Roland Nuñez, Senior Forecaster

The La Niña phase that developed during the past winter months showed signs of weakening through Spring 2006. According to the Climate Prediction Center (CPC), the recent patterns of sea surface temperatures (SST) and upper-ocean heat content indicated a return to El Niño/Southern Oscillation (ENSO) – neutral conditions in the tropical Pacific Ocean. These near-average conditions should correspond to a less-dominant upper level high pressure system over the Western U.S., therefore slightly increasing the frequency of weather systems that could affect the Southern High Plains, and particularly the Texas and Oklahoma Panhandles.

CPC's Temperature Outlook (Fig. 5) for June through August 2006 calls for warmer than normal conditions across the Western and Southern U.S., including parts of the Oklahoma and Texas Panhandles. The Precipitation Outlook (Fig. 6) for the same time period depicts wetter than normal conditions over the Southeast U.S. and drier than normal conditions over the Pacific Northwest. Elsewhere, and including the Oklahoma and Texas Panhandles, there are equal chances of precipitation being wetter than normal, drier than normal, or near median. By definition, "equal chances" means that the expected likelihoods of above, normal and below values do not differ from their climatological odds of 33 1/3 percent.

As a result, it does not appear that there is any imminent significant relief from the existing extreme

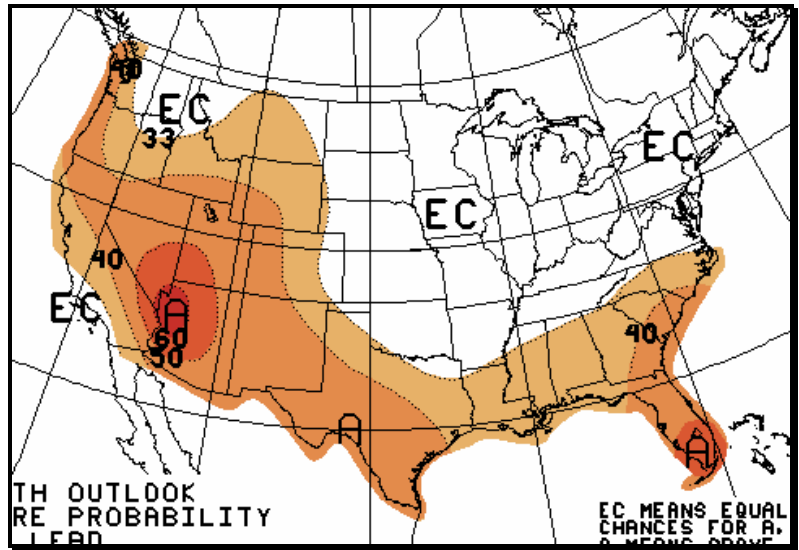


Fig. 5. Temperature Outlook for June-August 2006

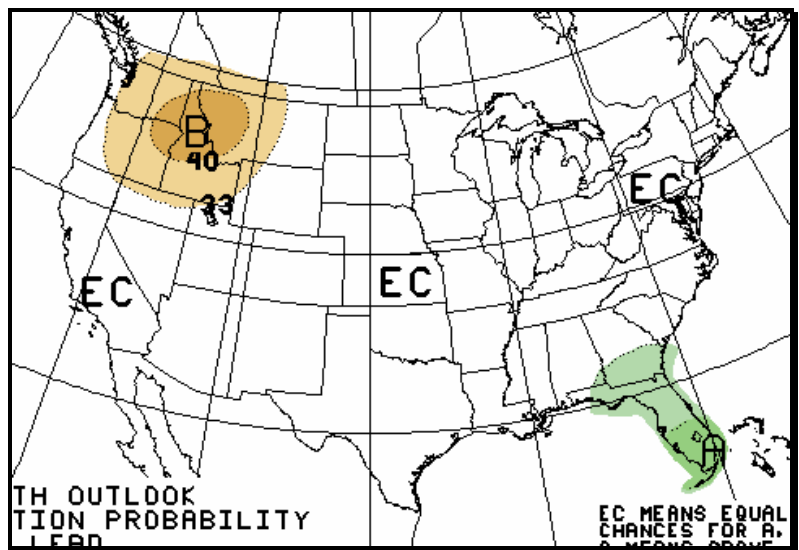


Fig. 6. Precipitation Outlook for June-August 2006

drought conditions over the area. The latest U.S. Seasonal Drought Outlook (Fig. 7) through August 2006 expects the drought to persist. CPC predicts that the ENSO-neutral conditions are likely to continue through the remainder of the year, so drought conditions will likely persist until the weather pattern changes.

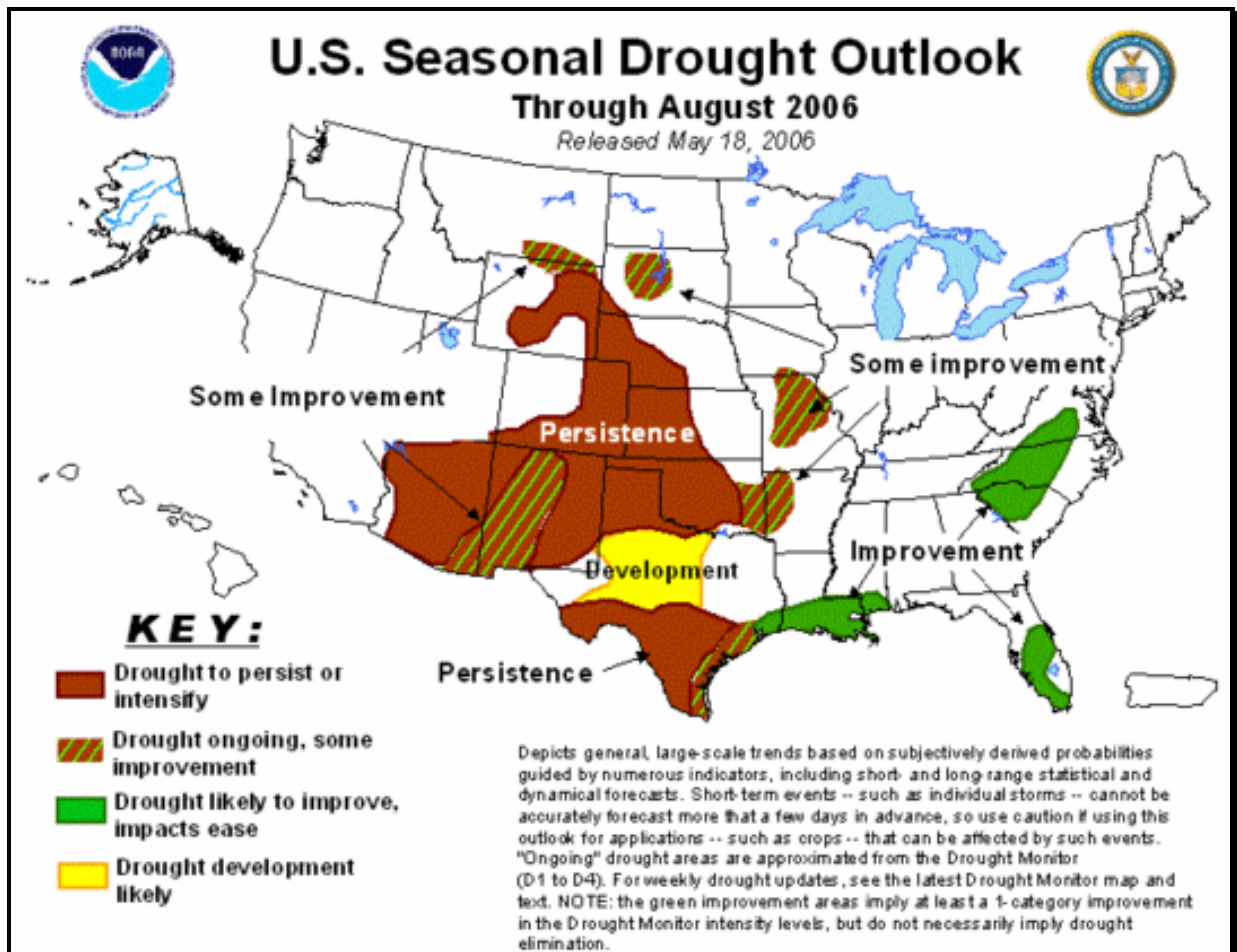
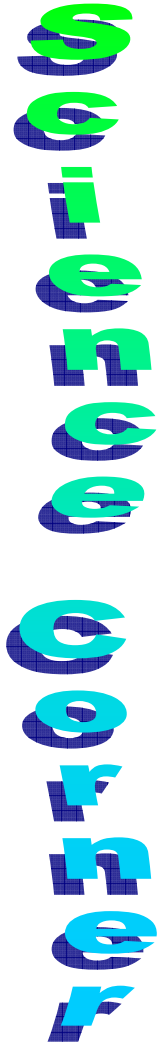


Fig. 7. U.S. Seasonal Drought Outlook through August 2006

### *Ken Hunter — April 2006 Employee of the Month*

Ken has been serving as our Electronic Systems Analyst since 2002, and is responsible for the maintenance of our local National Weather Service equipment, such as the WSR-88 Doppler radar, Automated Surface Observation System (ASOS), and the Advanced Weather Interactive Processing System (AWIPS). He is married to Rose, and is the father of four children, seven grandchildren, and many foster children over the years. Ken was born and raised in San Diego, CA. He served in the U.S. Air Force, where he completed Basic and Advanced Electronic Technical Training, and became an instructor. Through his career, he has traveled much of the world, and has worked at Kitt Peak National Observatory, Yuma Proving Grounds, and as a Master Radio Electronics Officer in the U.S. Merchant Marines. Ken enjoys many hobbies, including astronomy, amateur telescope making and ham radio operations.



## THE ENHANCED FUJITA (EF) SCALE — MOTIVATIONS

*A preliminary look at the proposed Enhanced Fujita Scale and its impact on tornado damage assessment*

By Matthew R. Kramar, Journeyman Forecaster and Science and Training Team Leader

One of the principal problems in tornado climatology has been objectively rating the wind speeds in tornadoes. Since wind is invisible to the naked eye, and it is rare to have wind observations taken *within* a tornado, Ted Fujita established his now-famous “Fujita Scale” (F-Scale) to diagnose wind speeds based on the damage caused by tornadoes. Since the early 1970s, the F-Scale has been used to distinguish among various levels of damage caused by tornadoes. It was consequently accepted that a distinction could be made between weak and strong tornadoes by the magnitude of the damage they inflicted.

Several recent surveys of tornado damage have suggested that the objectivity originally hoped for in the use of the F-scale may be less attainable than previously thought owing to several limitations in the scale—an inability to account for quality of building construction, a lack of damage indicators, and perhaps the most significant: the lack of a definitive relationship between damage and wind speeds. As a result of these limitations, tornado damage has been inconsistently rated, with tornadoes often being assigned higher ratings than the damage truly suggests. In fact, it has been shown that total destruction of a home can occur at wind speeds as low as F3 (around 160 mph), and not at F4-F5 speeds (more than 200 mph) as previously thought.

To address these concerns, a team of experts was assembled by the Wind Science and Engineering Center at Texas Tech University. Among the results of their deliberations was the establishment of much more detailed guidelines for damage indicators, finally yielding a relationship between damage and wind speeds. Their efforts yielded the Enhanced Fujita Scale (EF-Scale), which is now being evaluated for implementation by the National Weather Service. The primary difference between the F-scale and the EF-scale is that lower wind speeds are required to effect significant damage to structures.

### ***Angie Margrave — February 2006 Employee of the Month***

Angie has been with the Amarillo office for 16 years, and serves as our Administrative Support Assistant and Office Manager. She is actively involved in our Marketing and Outreach Team, and supports our “FISH” Fun Team, which ensures we have a fun and exciting workplace. She’s originally from California, and is the mother of two girls. Angie attended West Texas State University from 1985-86, and is currently enrolled at Amarillo College to further her career. On her free time, she enjoys reading, music, auto racing, and exercising. A unique fact about Angie is that she played basketball for Canyon High School under legendary Coach Bob Schneider.



# ***In YOUR Community...***

The National Weather Service in Amarillo has participated in numerous outreach events since our last Dryline issued in February 2006. We would love to participate in an event *in YOUR community!!* To schedule the NWS in your next community event, please email Steve Drillette at [steve.drillette@noaa.gov](mailto:steve.drillette@noaa.gov) or call 806-335-1121.

Feb–May	Kids' Weather Hour Texas Panhandle Schools	NWS Meteorologists answered kids' questions live on NOAA Weather Radio each Friday at 9 am. (See page 11.) To sign up or for more info, visit <a href="http://www.srh.noaa.gov/ama">www.srh.noaa.gov/ama</a>
Feb–May	Severe Storm Spotter Training Texas & Oklahoma Panhandles	Over 40 Storm Spotter Classes have been held in just about every county in the Texas and Oklahoma Panhandles. For a complete list go to: <a href="http://www.srh.noaa.gov/ama/spotter_training_sched/sptrain.htm">www.srh.noaa.gov/ama/spotter_training_sched/sptrain.htm</a>
Feb 3	Lakeview Elementary Amarillo, TX	88 2 <sup>nd</sup> grade students toured the Amarillo NWS Office.
Feb 14	Career Day – Forest Hill Elementary Amarillo, TX	NWS Amarillo participated in Career Day activities at a local elementary school.
Feb 24	NWS Blood Drive Amarillo, TX	Several NWS employees donated blood during an on-site blood drive by Coffee Memorial. See photo on page 11.
Mar 3	Trinity Lutheran School Amarillo, TX	8 3 <sup>rd</sup> grade students toured the Amarillo NWS office.
Mar 4	Severe Storm Spotter Training Amarillo College B & I Center, Amarillo, TX	Warning Coordination Meteorologist (WCM) Steve Drillette presented a severe storm spotter program to 65 people.
Mar 4	Amarillo College Science Fair, Amarillo, TX	NWS Amarillo staff helped judge entries in a local science fair, and also staffed a booth after the judging was completed.
Mar 7	Amarillo Advanced Center for Academic Learning (AACAL) Amarillo, TX	Electronic Technicians (ETs) David Wilburn & Ken Hunter and Forecaster Jason Jordan received a “Heart for Kids” award from Amarillo ISD for their commitment in working with students, including the development of a water-powered rocket system.
Mar 7	Tornado Safety Plan Amarillo, TX	WCM Steve Drillette assisted with the development of a tornado safety plan at Nationwide Insurance.
Mar 9	Career Day – Forest Hill Elementary, Amarillo, TX	NWS Amarillo participated in the 5 <sup>th</sup> grade Career Day activities at a local elementary school.
Mar 10	Sam Houston Middle School Amarillo, TX	200 8 <sup>th</sup> grade students toured the Amarillo NWS Office.
Mar 17	Kiwana's Club Pampa, TX	WCM Steve Drillette gave a local climate program to the local Kiwana's Club.
Mar 21	Miami Elementary Miami, TX	90 elementary students from grades K – 5 toured the Amarillo NWS Office.



Mar 22	United Market Street Amarillo, TX	Hydro-meteorological Technician (HMT) Steve Bilodeau joined the KVII weather team in programming newly purchased weather radios.
Mar 24	Reeves – Hinger Middle School Canyon, TX	WCM Steve Drillette participated in the 8 <sup>th</sup> grade Career Day activities.
Mar 24	Fannin Middle School Amarillo, TX	Information Technology Officer (ITO) Scott Plischke and Forecaster John Brost were guest lecturers to each of the 6 <sup>th</sup> grade classes.
Mar 24	Latter Day Saints Church Amarillo, TX	HMT Steve Bilodeau manned a severe weather preparedness booth at this community safety event.
Mar 28	Yarborough Elementary Eva, OK	Forecaster JJ Brost spoke to the elementary students at a local elementary school about severe weather.
Mar 29	Panhandle Regional Planning Comm., Amarillo, TX	WCM Steve Drillette attended the PRPC monthly meeting where he serves on the board.
Mar 30	Safety Fair Clarendon, TX	NWS Amarillo staffed a booth at the annual Safety Fair held at Clarendon College.
Mar 30	Boys Ranch Elementary Boys Ranch, TX	WCM Steve Drillette and Senior Forecaster Roland Nunez spoke to the 4 <sup>th</sup> and 5 <sup>th</sup> graders about severe weather safety.
Mar 31	Fannin Middle School Amarillo, TX	ITO Scott Plischke and HMT Steve Bilodeau were guest lecturers to each of the 8 <sup>th</sup> grade classes.
Apr 3	Girl Scouts Perryton, TX	WCM Steve Drillette presented a severe weather safety program to a local Brownie troop. See photo on page 12
Apr 4	Cub Scouts Amarillo, TX	Local Cub Scout Pack 10 toured the Amarillo NWS Office.
Apr 6	Eastridge Elementary Amarillo, TX	WCM Steve Drillette spoke to each 4 <sup>th</sup> grade class about weather and severe storms.
Apr 8	KVII Storm Spotter Training Amarillo, TX	WCM Steve Drillette provided 65 local residents “Severe Storm Spotter Training”, which was sponsored by KVII-TV. The training was held at the Amarillo Civic Center.
Apr 19	Our Lady of Guadalupe School, Amarillo, TX	25 4 <sup>th</sup> and 5 <sup>th</sup> grade students toured the Amarillo NWS Office.
Apr 19 & 20	WTAMU Education Majors Canyon, TX	3 separate classes, totaling about 60 students, toured the NWS Amarillo office.
Apr 22	Girl Scout Day Amarillo, TX	Meteorologist-In-Charge (MIC) Jose Garcia, HMT Steve Bilodeau, & ITO Scott Plischke participated in “Girl Scout Day” activities at the Amarillo Civic Center.
Apr 26	Fannin Middle School Amarillo, TX	HMT Steve Bilodeau spoke to over 80 7 <sup>th</sup> and 8 <sup>th</sup> grade students about weather safety.
Apr 27	Sam Houston Middle School Amarillo, TX	WCM Steve Drillette represented the NWS during the 8 <sup>th</sup> grade Career Fair.
Apr 29	Generation 2000 – A Kids Fair Amarillo, TX	NWS Amarillo Staff interacted with hundreds of kids at “Generation 2000” at the Amarillo Civic Center.

May 3	Austin Middle School Amarillo, TX	MIC Jose Garcia provided students with information on weather safety at the Austin Middle School Safety Fair.
May 3	Top of Texas Career Expo West Texas A&M University Canyon, TX	NWS Amarillo participated in the Career Expo at WTAMU and interacted with thousands of high school students from the region.
May 4	Genesis House Pampa, TX	WCM Steve Drillette provided a severe weather safety program for the staff at Genesis House.
May 4	Kiwanis Club Hereford, TX	MIC Jose Garcia presented a weather program to a local civic organization.
May 5	Ridgecrest Elementary Amarillo, TX	HMT Steve Bilodeau spoke to students as part of their first ever "Weather Day" activities.
May 5	Boys Ranch School Boys Ranch, TX	Forecaster JJ Brost spoke to the 8 <sup>th</sup> grade classes about general weather and severe weather safety.
May 6	Gardenfest 2006 Amarillo, TX	Senior Forecaster Ken Schneider manned a booth at the Amarillo Botanical Gardens "Gardenfest".
May 9	BusinessConnection 2006 Amarillo Civic Center Amarillo, TX	NWS Amarillo, along with hundreds of other businesses, staffed a booth at the annual BusinessConnection event sponsored by the Amarillo Chamber of Commerce.
May 9	Will Rogers Elementary Amarillo, TX	Senior Forecaster Roland Nunez in Career Day activities at a local elementary school.
May 13	Foster Parent Association Amarillo, TX	WCM Steve Drillette provided a severe weather safety program to the Foster Parent Association in Amarillo.
May 11	ATMOS Energy Pampa, TX	WCM Steve Drillette provided a severe weather safety program for the ATMOS Energy staff in Pampa.
May 17	Margaret Wills Elementary Amarillo, TX	HMT Steve Bilodeau participated in Career Day for the 4 <sup>th</sup> and 5 <sup>th</sup> grades.
May 18	Stratford School Career Day Stratford, TX	HMT Steve Bilodeau participated in the annual Career Day for local elementary students.
May 18	Landergin Elementary School Amarillo, TX	ITO Scott Plischke will participate in Career Day activities at a local elementary school.
May 19	Caprock Cluster Science Fair Amarillo, TX	ITO Scott Plischke and HMT Steve Bilodeau participated in activities associated with the science fair, which included participation from several local schools.
May 22	Lake Meredith Water Safety Day Fritch, TX	Science & Operations Officer (SOO) Rich Wynne and HMT Steve Bilodeau spoke to Fritch 4 <sup>th</sup> grade students during the annual water safety event.
June 17	Business Expo Pampa, TX	Amarillo NWS Staff participated in the Pampa Chamber of Commerce Business Expo.
June 18 – 24	Lightning Awareness Week Texas & Oklahoma Panhandles	Events included visiting area swimming pools to promote lightning safety, radio interviews, and the release of daily public information statements.

# NWS Amarillo Photo Gallery

## Kids' Weather Hour Bicycle Winners

Fourteen elementary schools and 530 students participated in this year's Kids' Weather Hour. All participants were automatically entered into a drawing for a free bicycle, which was provided as a courtesy of Wal-Mart Superstores. At the end of the year, one girl and one boy are selected to win. In addition, each school received a free NOAA Weather Radio, donated by BWXT Pantex.



Fig. 8. Second Grade student Haley from Windsor Elementary received her bicycle from Forecaster John Brost.



Fig. 9. Forecaster John Brost presents a bicycle to Second Grade student Thomas from The Montessori Academy.



## Coffee Blood Drive

← Fig. 10. From left to right, Electronic Technician Dave Wilburn, Senior Forecaster Lance Goehring, Meteorologist-In-Charge Jose Garcia, and Forecaster Mike Johnson pose with Coffee Blood Center staff during the NWS Amarillo blood drive held in February 2006.

## Welcome, Chris!

The National Weather Service office in Amarillo welcomes our newest Meteorologist Intern, Mr. Chris Kimble. Chris is a recent graduate of the University of Oklahoma. He also served in the National Weather Service Student Career Experience Program (SCEP). Mr. Kimble split his time between his studies at OU and working at the NWS office in Memphis, Tennessee. He comes very highly recommended, and we are glad to have him working with us as he undertakes his training to become a forecaster.



## Girl Scouts learn weather safety

Fig. 11. Warning Coordination Meteorologist Steve Drillette presented a program on Severe Weather Safety for the girls of Girl Scout Troop 435 on April 2006. He talked about the dangers of and how to stay safe from lightning and severe weather. Pictured are (front row) Jamie Lear, Savannah Naumann, Jessica Hargrove, Arleen Silva, Katrina Davis, (back row) Troop Leader Lenna Lear, Five Star Council Representative Lori Mendenhall and Steve. →



### ***Ken Schneider — May 2006 Employee of the Month***

For 12 years, Ken has served the NWS Amarillo. He leads our Fire Weather program and compiles the Storm Data for the Texas and Oklahoma Panhandles. He was born in Glen Ridge, New Jersey. Ken is married to Marie and has four children. He attended Jesuit College Preparatory School in Dallas, TX, and received a Bachelor of Arts in Meteorology from the University of St. Thomas in Houston, Texas. Ken enjoys reading American History, and watching basketball, especially the Dallas Mavericks. Of special interest, Ken went to Guatemala in 1979 with “Amigos De Las Americas”, and forecasted for an oil company in 1985 in Tierra Del Fuego, Argentina.

## ***KPAN and Hereford receive honors***



Fig. 12. MIC Jose Garcia (left) presents KPAN Radio General Manager Chip Formby with 25- and 100-year service awards.

The National Weather Service (NWS) in Amarillo presented Hereford radio station, KPAN, with an Institutional Award for its 25 years of service as a cooperative weather observer. KPAN also received a special recognition for 100 years of weather observations in Hereford, Texas. Hereford first began recording observations for the NWS in 1906. With the exception of a couple of years in the 1930s, Hereford has maintained a nearly continuous span of daily observations. According to Meteorologist-In-Charge (MIC) Jose Garcia, “this is quite a significant milestone. In fact, very few communities across the Texas Panhandle have records that date back 100 years”.



# Join Us at the Spotter Picnic!



**Saturday, August 12, 2006  
at 11:00 AM – 2:00 PM  
at the National Weather Service Office in Amarillo**

**Please join us for free food, beverages, and door prizes to be provided for Amarillo NWS Storm Spotters, Cooperative Observers and other partners and volunteers of the Amarillo NWS. Please bring your family! Call (806) 335-1121 for more information.**

## ***The Dryline***

1900 English Road, Amarillo, TX 79108

[www.srh.noaa.gov/ama](http://www.srh.noaa.gov/ama) 806.335.1121

•José Garcia—*Publisher and Meteorologist In Charge*

•Roland Nuñez—*Editor-in-Chief*

•Richard Wynne—*Science and Operations Officer*

•Matthew Kramar—*Editor*

•Steve Drillette—*Warning Coordination Meteorologist*

•Angela Margrave—*Administrative Assistant*