THE TEXAS THUNDERBOLT

NATIONAL WEATHER SERVICE -- FORT WORTH, TX
SERVING ALL OF NORTH TEXAS
WWW.WEATHER.GOV/FORTWORTH

SPRING 2009

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Background image is courtesy of Nick Hampshire.
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NWS Warnings: Severe Thunderstorm, Tornado, and Fire?

By Jessica Schultz

If you've lived in North Texas for any time, you're likely familiar with severe thunderstorm, tornado, and flash flood warnings from your National Weather Service in Fort Worth. But, did you know we also issue fire warnings?

What is a fire warning?

Emergency Management officials at the city and county level can request the National Weather Service issue a fire warning when wildfires threaten homes and communities.

Here is an example:

The following message is transmitted at the request of XXXX County Emergency Management. Two large fires continue to affect populated areas of XXXX County. The first fire is located near Your Town and another is located 2 miles southwest of Next Town. Residents near the paths of these fires should evacuate to the XXXX County Community Center and follow instructions from local emergency responders.

These fire warnings will be broadcast in the same manner as severe thunderstorm and tornado warnings. Crawls will appear on local television stations, and local radio stations will broadcast the message. The warning will also be alerted on your NOAA All-Hazards Radio.

On April 9, 2009, NWS Fort Worth issued a record number of fire warnings. There were 5 warnings in effect for western and northwestern portions of North Texas simultaneously. Fire warnings have been used by the National Weather Service since the destructive wildfire season of 2005-2006. Prior to April 9, NWS Fort Worth had only issued 1 fire warning.

Fire warnings will be issued in the event of fast-moving, life-threatening wildfires. Proper evacuation procedures should be followed, and residents should always heed the instructions of emergency management personnel on scene.

Dr. Weather Discusses Landspouts!
See Page 5 for Details

Did you Know?

By Nick Hampshire

Daily climate records are taken for DFW Airport and Waco Regional Airport, and have been for many years. Records date back to 1898 at DFW and 1901 at Waco. Summer is fast approaching, so let's take a look back at some fun climate facts for the area:

Did you know the hottest temperature ever recorded at DFW was 113°F and actually occurred on two consecutive days? DFW International Airport reached 113°F on June 26 and 27, during the infamous heat wave of 1980. The highest temperature last summer at DFW was 107°F on August 3.

Did you know the hottest temperature ever recorded at Waco was not during the heat wave of 1980? Waco hit 109°F on June 27, 1980. On August 11, 1969, Waco reached the record of 112°F. Waco has also reached 111°F on two separate occasions. The first was August 11, 1936 and the second was on September 4, 2000. The highest temperature last summer at Waco was 105°F also on August 3.

Did you know the average number of 100 degree days in a summer at DFW is 16 and 20 at Waco? Both DFW and Waco recorded the greatest number of 100 degree days of any summer during the summer of 1980. DFW had 69 days where the high temperature was at least 100°F, and Waco recorded 63. Last

What are Cooling and Heating Degree Days?

Cooling degree days are an index meant for the warm season to express the amount of energy needed to cool a home or business. Cooling degree days are found by subtracting 65°F from the day's average temperature. This index can be used to compare one summer to the next, and compare summers in different locations. Similarly, in the cold season, heating degree days provide an indication of how much energy is needed to heat a home or business. Heating degree days are found by subtracting the day's average temperature from 65°F. This index can give you an estimate of how much you may spend in heating or cooling costs if you move from one location to another. On any given day, one or both of the heating/cooling degree days will be 0. Of course, factors such as how well your home or business is insulated are not taken into account with degree days.

THE LIGHTNING BOLT

Join us on your NOAA All-Hazards Radio for our talk show, The Lightning Bolt. We answer your weather questions and provide weather safety tips and trivia. If you have a question for our meteorologists, submit it to sr-fwd.ask@noaa.gov. We will select 3 questions to answer for each show. For the date of the next Lightning Bolt, stay tuned to our webpage at www.weather.gov/fwd.

Staff Spotlight

Greg Patrick
Science and Operations Officer

Meet WFO Fort Worth's Science and Operations Officer, Greg Patrick!

What sparked your interest in meteorology?

Growing up in Tulsa, Oklahoma, I was fascinated with various weather phenomena beginning in grade school. I loved walking to elementary school when it was foggy or snowy. If snow or ice was in the forecast, I would carry a battery powered radio to school to listen for an updated forecast at lunch time. If snow was falling during the school day, I would be scolded because I couldn't stop looking out the window! In the spring, I remember hoping that I would see large hail with thunderstorms --- I've since outgrown that enthusiasm!

A number of weather catastophes affected Tulsa in the '70s, including the June 8, 1974 tornadoes and the December 5, 1975 tornado. My family was not directly affected by these tornadic events, although the December 5 tornado destroyed a house in east Tulsa where I had lived as a toddler.

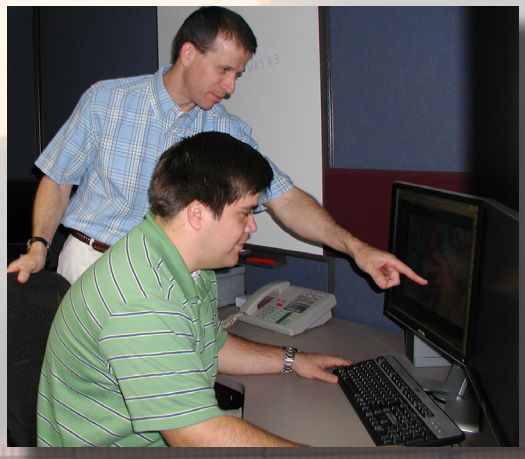
Science and Operations Officer, Greg Patrick

Where did you receive your degree?

The University of Oklahoma in Norman - I graduated in 1987.

Tell us about your career in the NWS.

I started as a meteorologist intern at the NWS office in Tulsa in late 1987. At that time, the only true NWS forecast office in Oklahoma was in Oklahoma City. The timing for starting my career was excellent, as the NWS Modernization efforts started in the early 1990s. Part of that modernization was the "spin-up" of some select, smaller NWS offices, including Tulsa. I became a Senior Forecaster at the Tulsa office in the mid '90s, a position I held until coming to Fort Worth as the Science and Operations Officer in 2003.



Greg Patrick works on a training exercise with meteorologist Nick Hampshire.

What are the responsibilities of a Science and Operations Officer?

I am in charge of keeping our staff well-prepared to perform their duties. My primary responsibilities include developing and delivering training materials, providing support and guidance for local research projects, and ensuring forecasters have the tools and skills they need to be successful. I'm the office leader for making sure our current forecast and warning services maintain a high level of scientific integrity. I also provide advice to the Meteorologist-In-Charge on any new or proposed change in warning and forecast operations.

What do you love most about your job?

The most rewarding aspect of my job is helping to contribute to the successes at the Weather Forecast Office in Fort Worth. Each and every warning and forecast event, whether it be a routine daily forecast or a tornado outbreak, involves a true team effort to make it successful. I love being a part of a team of professionals dedicated to informing and protecting the population of North Texas!

West Gulf River Forecast Center to Enter the CHPS World

By Gregg Waller, West Gulf RFC

A significant change is on the horizon, and it could impact the quality of your river forecasts. The West Gulf River Forecast Center (WGRFC) has begun the process of migrating to a new operational forecast system, the Community Hydrologic Prediction System (CHPS). CHPS is built on a modular operating platform, which builds on the Advanced Hydrologic Prediction Service (AHPS), and has the capability of infusing cutting-edge hydrologic models and new technologies into the system. CHPS will allow for improved cooperation and coordination within NOAA, as well as with other federal, state, municipal, academic, and private institutions.

The "C" in CHPS in an important distinction over the previous operating environment. CHPS allows the "Community" to help meet the needs of our customers. Better coordination among all water agencies will improve the accuracy and utility of the entire community's water-based forecasts. CHPS also allows for the rapid transfer of collaborative research into NWS operations. As a result, models from the research community, other federal agencies (such as US Army Corps of Engineers), and testbeds within the NWS can be quickly incorporated into the CHPS environment. This is a quantum leap in modeling technology for the NWS, and the WGRFC is excited to be a part of this effort!

The migration to CHPS is an intensive two year project, culminating in the retirement of the current NWS River Forecast System (NWSRFS) by the end of 2011. Prior to this event, the WGRFC will run parallel operations, using both the NWSRFS and the CHPS platforms, to ensure all services can be continued to the highest standards and complete a smooth transition. The technology enhancements with CHPS will allow the WGRFC to migrate the capabilities of NWSRFS, while adding the benefits of other models (those with finer time scales and infusion of science) to improve the quality of services to our customers.

For questions, please contact:
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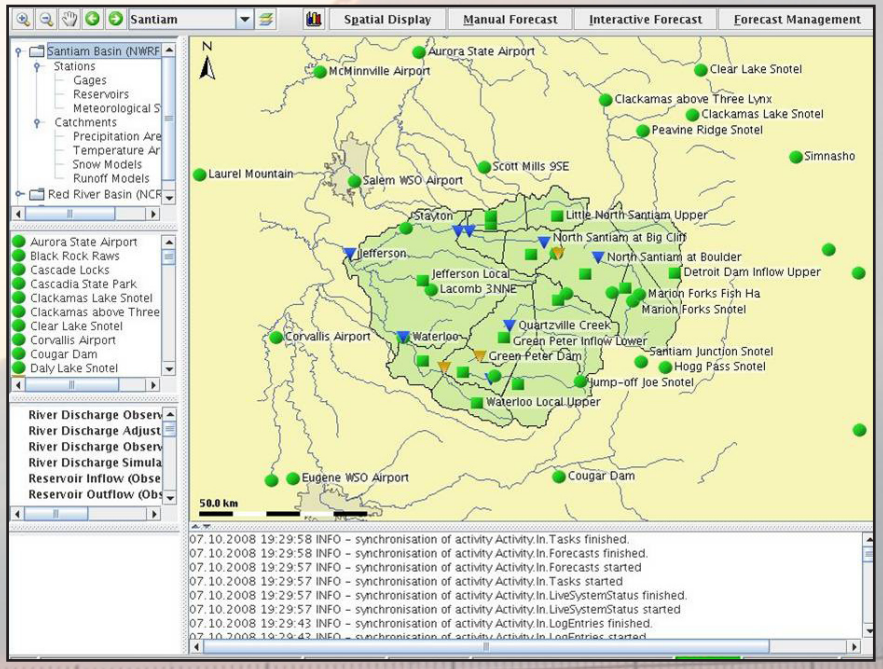
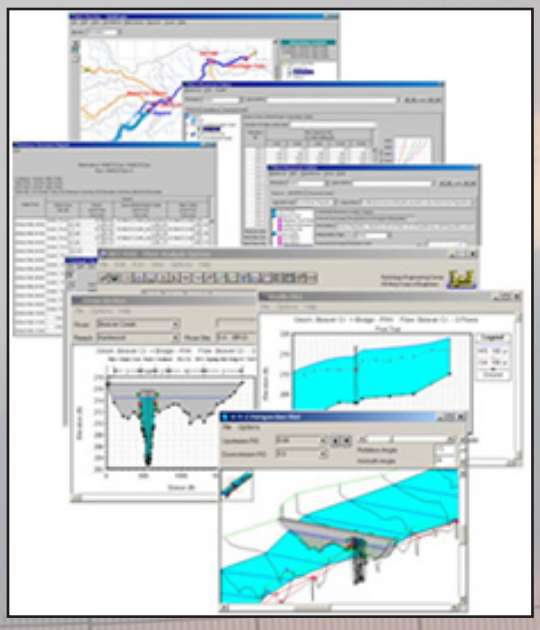


Screen capture of CHPS GUI



CHPS Framework

DR. WEATHER'S WISDOM

LANDSPOUTS

BY TED RYAN

Tornadoes can vary in strength, size, shape, and visual appearance, but also in the way they form. Most classic tornadoes are spun from supercells, which are very intense, rotating thunderstorms. Supercells form in environments that are unstable and have strong vertical wind shear, or the change in wind speed and direction as you go up in the atmosphere. Tornadoes spawned from supercell thunderstorms can be very intense, with winds as high as 300 mph spanning over 1 mile in width.

There is another type of tornado that does not form under typical circumstances. These tornadoes form when there is no vertical wind shear. In fact, the winds are very light or even calm at all levels of the atmosphere. You've probably heard of a *waterspout* before, and it's often thought to mean just a tornado that is over water. In actuality, most waterspouts are not formed from rotating thunderstorms, and therefore are fundamentally different.

The rotation in a waterspout tornado develops from a rising column of air associated with a developing shower or storm that slowly starts to spin. This process is similar to how a dust devil forms, just on a larger scale. When a tornado that is not associated with a rotating thunderstorm forms over land, it is called a landspout by meteorologists. While landspouts are less common than their water-based counterparts, they can occur in North Texas during the late spring and summer months.

A landspout in South Texas (photo by Michael Pusley). Notice all the blue sky. This landspout tornado resulted in F1 damage and occurred with a cloud that never produced appreciable rainfall.

These types of tornadoes all rotate violently and sometimes can look very similar. Some distinguishing features of a landspout include: slow movement, tubular appearance, narrow in size, and weaker than traditional supercell tornadoes. Landspouts can still be dangerous, with wind speeds strong enough to cause damage to structures and knock down trees. Unlike tornadoes that form with supercells, landspouts are almost never detected by radar because they are very small-scale features. In some cases, landspouts have developed from clouds before rain has ever fallen!

For more landspout pictures, see page 6!

The above photos were taken on March 25, 2007 in the Texas Panhandle, near Lubbock. Personnel from the NWS office in Lubbock took the top two photos, while the third picture was taken by Gary and Denise Cross. More information about this event and additonal photos can be found on the NWS Lubbock website at: http://www.srh.noaa.gov/lub/?n=events-2007-20070325_landspouts.