

Winter 2007

THE TEXAS THUNDERBOLT

National Weather Service -- Fort Worth, TX
Serving all of North Texas
www.weather.gov/fortworth

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Storm Spotters & Weather Observers Play Crucial Role in 2007

By Bill Bunting, Meteorologist-In-Charge

This will be remembered as a year where a significant two-year drought was broken by a series of severe weather and flood events during the Spring and Summer, and which ended with a return to below normal precipitation during the Fall. Throughout the year, the Fort Worth National Weather Service staff issued 55 Tornado Warnings, 496 Severe Thunderstorm Warnings, and 570 Flash Flood Warnings. The almost unprecedented number of severe and flood warnings are one measure of just how active 2007 has been. In such a year, the role of trained severe storm spotters becomes ever more critical to an effective integrated warning system. Thousands of storm spotters across North Texas relayed information on cloud structure and storm impacts to local emergency management officials and the National Weather Service. This timely information allowed us to issue warnings with as much advance notice (we call this "lead time") as possible, and let emergency officials activate local warning systems (sirens and cable TV override are two examples) quickly.

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Many of the storm spotters in North Texas are licensed Amateur Radio Operators, while others are affiliated with public service agencies such as local police, fire, and emergency medical services.

Equally as important as the contributions from these trained spotters are the timely reports we receive from our network of Cooperative Weather Observers. Located throughout North Texas, over 160 weather observers relay daily information on precipitation, temperature, and severe weather to our office. Many of these observers carry on a tradition of weather observations at their location that spans decades. Cooperative Weather Observers' reports are used on a daily basis to help in assessing the potential for flooding, and on a longer-term basis to document the variability of climate at a particular location. Both are important contributions to the community and to the science of weather forecasting.

One other group of weather observers that contributes to our ability to accomplish our mission of protecting life and property are weather enthusiasts who submit storm reports through our Internet web page.

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NWS Fort Worth Ham Radio Operators: An Invaluable Resource

The National Weather Service in Fort Worth utilizes various technologies when making warning decisions on storms. Radar, satellite, and upper air data are all critical in determining a storm's strength and potential to become severe. However, ground-truth information, or what is actually occurring, is vital.

A group of 10 volunteer Ham radio operators make NWS Fort Worth their home when hazardous weather strikes the region. A team led by Mike Heskett, WB5QLD, can be called 24 hours/7 days a week by NWS meteorologists to search the air waves for hail, high wind, tornado, and flooding reports.

As the chart below depicts, our volunteer Hams have worked a record number of hours this year. Many of these hours were a result of the numerous severe flooding events North Texas experienced during the months of May through July.

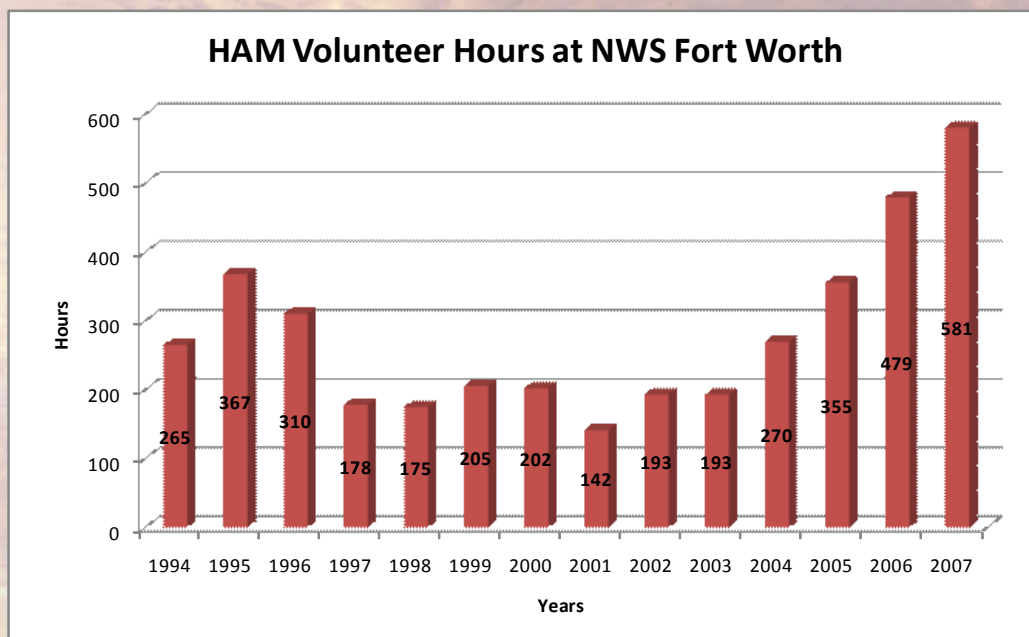
Inside NWS Fort Worth, Ham radio operators sit directly across from radar warning operators. This allows critical ground-truth information to be passed along to warning meteorologists quickly. Storm details from spotters in the field can play an essential role in a forecaster issuing a life-saving tornado warning versus a severe thunderstorm warning, or a flash flood warning versus a flood advisory.

If you are a Ham across North Texas, give Mike and our other dedicated volunteers a shout when severe storms roll through your area...you might help us save a life!

NWS FORT WORTH CALL SIGN:
WX5FWD



Above: Ham radio area at NWS Fort Worth



Upper Air Advancements at NWS Fort Worth

For more technical details of the RRS, visit www.ua.nws.noaa.gov/rrs_overview.htm

By Tara Dudzik

The National Weather Service sends up weather balloons twice a day at 93 locations. Worldwide, there are more than 900 upper air stations. Weather balloons are critical to weather forecasting and research, as they provide valuable information on atmospheric temperature, moisture, and winds.

Exciting changes have come to NWS Fort Worth this winter! The long-awaited RRS (Rawinsonde Replacement System) was installed in early December.

Data will still be obtained by launching a balloon with an attached radiosonde twice a day, but the RRS will allow us to acquire more accurate data more efficiently using a GPS-based tracking system. Improved wind accuracy and one second data resolution are just a few of the improvements with the new system.

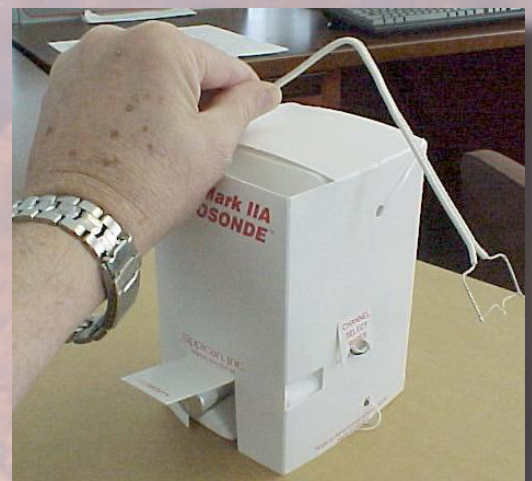
Other benefits of the RRS include lower maintenance, which equates to less downtime. The RRS performs several self-tests to detect problems. These upgrades will cut down the number of missing flights due to ground equipment failures.

The NWS plans to have RRS implemented at all upper air sites across the United States by 2009. This is a huge step in improving the quality of data used in the daily forecast process. RRS will be a benefit to forecasters and researchers for years to come.

For questions regarding the RRS at NWS Fort Worth, contact Tara Dudzik, Upper Air Focal Point, at Tara.Dudzik@noaa.gov or Gerald Shultz, Observing Program Leader, at Gerald.Shultz@noaa.gov. More technical details of the RRS can be found at www.ua.nws.noaa.gov/rrs_overview.htm.



Above: Typical NWS upper air shelter and balloon launch. NWS photo.



Above: New radiosondes, with GPS-tracking capabilities, used by the RRS. NWS photo.

SEARCHING FOR THE PERFECT GIFT?

NOAA Weather Radios are a great way to keep up-to-date with the latest forecasts, watches, and warnings. There are a wide variety of radios available, including portable models for travel and recreational activities. NOAA Weather Radios make the perfect gift for friends and family! Get yours now before the next round of hazardous weather strikes North Texas!

DR. WEATHER'S WISDOM



TWO IDENTICAL SNOWFLAKES?

BY TED RYAN

Is it true that no two snowflakes are alike? Snowflakes are simply ice crystals that form within clouds that are several degrees below freezing. The molecular structure of water as well as the cloud temperature and humidity at which the crystal is immersed causes the growing snowflake to have different forms. There are six main snowflake groups: columns, plates, columns with plates, dendrites, needles, and stars. The classic snowflakes we often visualize (with the sharp points and symmetrical branching arms) fall under the dendrite class, and typically form when cloud temperatures are between 0 and 15 degrees.

A snowflake is constantly growing and changing as it travels through the cloud and falls to the ground. This is because it encounters slightly different temperature, humidity, and wind turbulence that ultimately affect the tiniest details of its shape and form. Essentially, each snowflake tells its own story of the environment it encountered while falling to the surface. Although some snowflakes can be very similar, no two snowflakes can take the same exact path at the same exact time; so each is indeed one of a kind!

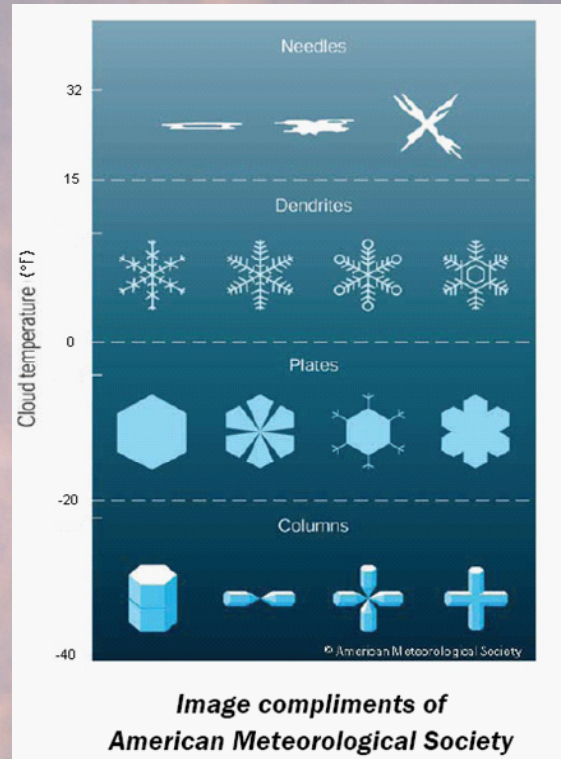


Image compliments of American Meteorological Society

Above: Snowflake forms at various temperatures.

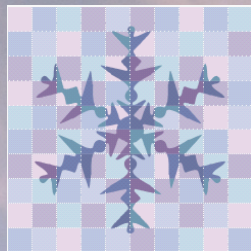
Storm Spotters & Weather Observers Play Crucial Role in 2007

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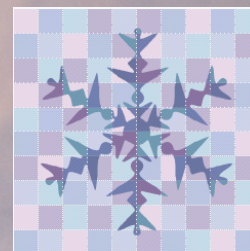
By clicking on the "Submit Storm Report" link just above the North Texas map on our webpage (weather.gov/fortworth), anyone can send important information on rainfall, snowfall, hail or damaging winds, and storm damage directly to our staff within seconds. During the past year, we received many timely and valuable reports through our on-line reporting system. These reports allowed us to verify the occurrence of high-impact weather conditions, and ensure that our public weather warnings were as accurate as possible.

Whether a trained storm spotter, Cooperative Weather Observer, or public service-oriented weather enthusiast, the "ground truth" information they provide directly benefit people in the path of a flood or dangerous storm.

To all of our spotters and weather observers, we say THANK YOU for dedicating your time and talents, and for making a difference in the lives of North Texans.



Preparing for Winter Weather: Safety Tips, Reminders, & Resources



Winters in North Texas can be deadly if you are not prepared. Follow these winter weather tips to stay safe!

In Your Vehicle...

Carry a Winter Survival Kit complete with a cell phone, charger, batteries, blankets, extra clothing, water, flashlight, and a windshield scraper and brush. Always keep an eye on the gas tank and do not go below 3/4 of a tank empty if traveling long distances.

At Home...

Keep a flashlight or two with extra batteries, along with a battery-powered weather radio. Having extra food, water, medicines, first-aid kits, and baby items available are also good ideas in case streets are treacherous for several days.

Road Conditions Across Texas

Amarillo.....806-359-4751

Austin.....512-373-3100

Childress.....940-937-2548

Dallas.....214-861-2000

Lubbock.....806-747-4491

Wichita Falls...940-655-6610

Snow Advisory...

Snow accumulation of 3 inches or less expected.

Freezing Rain Advisory...

Ice accumulation of 1/4 inch or less expected.

Wind Chill Advisory...

Wind chills of 0 degrees Fahrenheit or colder expected.

Ice Storm Warning...

Ice accumulation of more than 1/4 inch expected.

Winter Storm Warning...

A mixture of sleet, ice, and/or snow expected.

TEXAS STATEWIDE
ROAD CONDITIONS
1-800-452-9292

Road Conditions in Nearby States

Arkansas.....501-569-2374

Louisiana.....800-925-1777

Oklahoma.....888-425-2335

New Mexico...800-432-4269

**Check out the Guide to Surviving North Texas Winters at
www.srh.noaa.gov/fwd/winterwx.htm**

NWS Fort Worth to Kick Off 2008 Awareness Tour

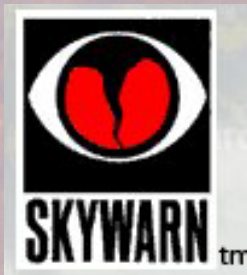
With 2008 approaching, the National Weather Service in Fort Worth is ramping up its preparedness efforts for the spring severe weather season. From January 7 through April 8, staff from the NWS Forecast Office will conduct coordination visits with media and emergency management staffs, awareness and safety talks, and storm spotter training classes. The staff currently has 52 stops scheduled for this year's tour.

The tour has three primary goals: to ensure that communications between the Fort Worth NWS Office and emergency officials across north Texas are as efficient as they can be; to provide training to the storm spotter groups across north Texas; and to ensure that citizens in the area are as prepared as they can be for the upcoming severe weather season.

"The 2007 storm season is one that will go down in history. We had it all, from widespread devastating flooding, to large damaging wind events, to tornadoes and hail", said Gary Woodall, Warning Coordination Meteorologist at the NWS Forecast Office in Fort Worth. "We certainly don't hope for a repeat in 2008, but we must prepare for whatever the year will have in store. During our awareness tour, we aim to enhance the already-strong spotter network, emergency communications and warning system, and level of hazardous weather awareness which is in place".

As in past years, the SKYWARN storm spotter training programs will be a featured part of the awareness tour. The spotter training programs discuss the formation and behavior of storms, the production of severe weather, environmental clues which can suggest the possibility of a tornado or other severe weather, spotter reporting procedures, and safety tips. Nearly all of the SKYWARN programs are open to the public.

"Storm spotters are a valuable component of the warning system", Woodall stated. "Radar is a great electronic tool, but it sometimes does not tell us the whole story of what's going on around a thunderstorm. Storm spotters complement the electronic data with their visual observations and reports. This in turn helps us provide the best possible service to North Texans".



To view the complete SKYWARN program schedule, point your web browser to <http://www.srh.noaa.gov/fwd/sptrsched.html>

Mark Your Calendars!

**Gary Woodall will be hosting an Advanced Storm Spotting Seminar
at the 2008 National Storm Conference
in Colleyville, TX on March 8, 2008
Visit www.tessa.org for more information!**