National Weather Service

Topeka, Kansas

The Topeka Tiller

VOLUME 4, ISSUE 2

NOVEMBER 2010

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Kansas IWT Workshops: Teamwork that Saves Lives

By Chad Omitt, *Warning Coordination Meteorologist*

The theme of the National Weather Service 2005-2010 Strategic Plan, "Working Together to Save Lives," is also the perfect description for the recent Integrated Warning Team (IWT) workshop held in Wichita this past September.

The workshop brought together 100 participants primarily from three entities identified as the lead players in the overall severe weather warning process: the NWS, Emergency Management community, and Broadcast Meteorology community.

Operating effectively and efficiently during severe weather requires that all of the players must be committed to the highest level of teamwork. Imagine a warm, humid late spring evening, and during the pre-dawn hours Mother Nature unleashes a powerful and damaging line of severe thunderstorms and tornadoes. In that instance, NWS forecasters use their expertise to predict the hazard and issue timely warnings, maintaining good communication with Emergency Managers as they alert the public to the best of their abilities. Communication from the broadcasters to the public is equally important since the Broadcast Meteorologists on TV are able to reach the majority of the population. From past events and through the use of new technology, lessons were learned, and those involved became motivated to build stronger working relationships with their colleagues, before, during and after severe weather events.

Around 100 participants gathered in Wichita for the two day Integrated Warning Team workshop. Emergency managers, broadcast meteorologists, and NWS meteorologists and researchers learned how to work better together during times of severe weather.

The National Weather Service partnered with Kansas Division of Emergency Management and

IWT Workshop page 3

Winter Weather Outlook 2010

By Kyle Poage, *Forecaster*

Weather conditions this past winter were rather cold and snowy. The normal average temperature for the months of December through February for Topeka and Concordia are 30.7 and 29.7°F, respectively. For December 2009 through February 2010, the average temperature for Topeka and Concordia were 27.1 and 23.9°F, respectively. For snowfall, 15.8" normally fall in both Topeka and Concordia from December through February, but for the 2009-2010 season, 35.5" were measured at Topeka and 28.8 inches were measured at Concordia. What kind of winter is expected this year?

The Winter Outlook for the nation was recently issued by the Climate Prediction Center. For Northeast Kansas, there is a greater than equal chance that the average temperature will be warmer than normal, while there are equal chances for below, near and above normal precipitation (see graphics). This, of course, does not mean the entire winter will have above normal temperatures. Arctic air will bring very cold temperatures at some point, but the above normal days are expected to outnumber the below normal ones.

For the most recent winter, a strong El Niño occurred, where ocean temperatures in the Pacific Ocean near the equator were much warmer than

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Powerful Winds Blow Through Manhattan and Surrounding Areas

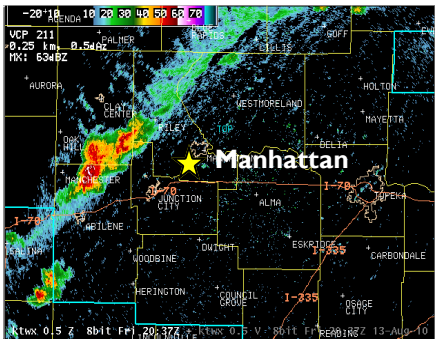
By Brian Barjenbruch, *Forecaster*

Tree damage from Wind Storm in Osage City in Osage County.

August 13 was a hot day in northeast Kansas. Very hot. In fact, the high temperature was 106 degrees at Manhattan. Most would consider temperatures farther northwest to be hot as well, with a high of 97 at Concordia. However, that seemingly minor temperature difference was caused by a stationary frontal system stretched across Kansas that would eventually cause widespread severe thunderstorm development. Weather balloon flights earlier in the day provided data indicating that the atmosphere south of this front was very unstable, and that damaging winds would be the main threat with any storms that developed. By mid afternoon, a pair of storms developed west of Junction City and intensified quickly, prompting the National Weather Service to issue severe thunderstorm warnings.

As these two storms moved east, they began to merge, and a single, very intense downdraft developed. A downdraft is a downward moving air current caused by a combination of heavy rain and evaporation that, when it contacts the earth's surface, quickly spreads out and produces intense winds (similar to how water will quickly move outward if it is poured onto a hard surface). The winds associated with this storm quickly became severe, with reports of 60 to 70 mph winds across Dickinson County. The downdraft strengthened further as it moved into Geary and Riley counties, damaging or destroying buildings and causing significant tree and power line damage. The strongest winds were measured at the Manhattan airport, where an automated system measured a 93 mph wind gust.

Additional strong to severe thunderstorms lined up along the stationary front, eventually affecting a large portion of central and eastern Kansas with damaging winds of 60 to 75 mph, hail as large as quarters, and torrential rainfall. The NWS in Topeka received 51 reports of wind damage and 2 reports of large hail. However, by the end of the night, the most significant was in southern Riley and northern Geary counties. Many were without electricity well into the following day, and chainsaws were busy clearing fallen trees. Numerous buildings were damaged or completely destroyed, but with this disaster was a silver lining…no fatalities or injuries were reported as a result of this very dangerous thunderstorm complex.



Radar reflectivity Image of Wind Storm before it struck Manhattan, KS

Tornado Sirens...Just One Piece of the Warning Network

By Chad Omitt, *Warning Coordination Meteorologist*

Civil defense sirens or tornado sirens as most people call them have provided a public service for decades. But sirens don't always work as intended. Scientific literature highlights a number of pitfalls of using sirens, including unrealistic dependence on them, desensitization towards them, sound-limiting geographic factors such as wind direction and varying topography, Ineffectiveness in hearing impaired populations, and the fact that sirens are designed to be heard only in outdoor settings, such as at picnics or baseball games. Another pitfall is the fact that there is no standardized policy for how or when communities activate sirens, meaning that a person from Nebraska who normally hears sirens and heads to her basement to seek shelter from a tornado might visit Washington's coast and not realize that the same siren tone now means a tsunami may be approaching and that she should seek higher ground. In Virginia, a siren might mean straight line winds of 80 mph are imminent, while in a small town in Kansas, the siren could simply mean it is time for lunch.

Outdoor Sirens Page 4

IWT workshop *Continued from Page 1*

Small groups gathered to discuss ideas for enhancing internal communications among the Integrated Warning Team members and improving external communications to the public

assembled the IWT workshop with great success, resulting in a much stronger Integrated Warning Team identity. The three IWT entities built bridges, knocked down cultural walls, and became solidified as a group of people who want to do all they can to save lives during dangerous weather. A critical component to the IWT workshops was the inclusion of experts in "societal impacts meteorology." Social science themes, such as improving communication, were integrated into the topics of the workshop. The social science experts also helped make the connection between the individual roles that the Team members play and the resulting lives that are saved. The IWT workshop is an example of how your National Weather Service office in Topeka is accomplishing its mission. Based on the feedback gained and the action items that have been created we aim to improve our partnerships in the warning community to provide better service to the residents of Northeast Kansas.

Winter Outlook 2010 *Continued from Page 1*

normal. Conditions have reversed in the past several months, and La Niña conditions (colder than normal ocean water in the equatorial Pacific) have recently developed. A moderate to strong La Niña is anticipated for this winter. Historical records indicate La Niña conditions favor a cooler and wetter winter in the Pacific Northwest and Northern Plains, with warmer and drier than normal conditions in the southern states, so on a larger scale, Kansas does not necessarily see a great impact from La Niña in winter. Local studies have indicated, however, that since 1949 when El Niño and La Niña conditions have been monitored, three of the top five warmest and wettest winters in Topeka have occurred during moderate or strong La Niñas.

The Temperature and Precipitation outlooks over the United States for the Winter 2010 season.

Meet your Weatherman, Senior Forecaster John Woynick

My name is John Woynick and I am a Senior Meteorologist Forecaster at the National Weather Service office in Topeka. I graduated with a degree in Earth Science-Meteorology from Central Michigan University in 1988. My career started out as an intern at the Weather Service Office in Lexington, KY in 1988, I then moved to Topeka in 1990 as a Journeymen Forecaster. I became a Senior Forecaster in 1994. In addition to weather forecasting duties I also am the Hydrology Program Manager, responsible for the river gages in our forecast area. I first became interested in the weather when I was in elementary school. My parents bought me a SkillCraft weather forecast kit from Toys R Us when I was in the 4th Grade. I also had a book that showed how to make your own weather instruments and it also included a cloud chart. I was always intrigued by the weather in Michigan while growing up. I especially liked the big snow storms. I learned to watch the clouds and depending on the wind direction and cloud types I would try to predict what the weather would be. I also made many homemade weather instruments and would keep records of the high and low as well as winds and precipitation. I always liked the weather because it always was changing and for this reason I decided to

Weatherman continues Page 5

"In Kansas where the weather can be life threatening we should view outdoor sirens as just one piece of the warning network."

Outdoor warning sirens *Continued from Page 2*

In Kansas where the weather can be life threatening we should view outdoor sirens as just one piece of the warning network. This warning network needs to include multiple sources of information including television, commercial radio, NOAA weather radio, along with other alerting services that are now offered through county emergency management or through your local television station. Sirens are just one piece of the pie and that piece has its strengths and its weaknesses. As mentioned, in bad weather the wind and rain will limit the distance a sound can be heard even when you are outdoors. It is irrational and potentially dangerous to assume that a siren will wake you up when severe weather is approaching or occurring. However people continue to expect to hear them in their homes. Why? Sirens are a passive warning method. The average person can have no television, radio, or phone service, and be completely unaware of a

Outdoor Sirens continues Page 5

Winter Awareness Day 2010

November 17th, 2010 will be observed as the Winter Awareness Day at the National Weather Service in Topeka. It is an important day to review winter weather hazards such as snow, ice, and sleet as well ways to stay warm and safe when the next winter storm approaches. We have provided information on our website (www.weather.gov/topeka). Topics will include: What to place in the car when traveling, supplies to keep in your home such as canned food, flashlights, blankets, and batteries in the event the power goes out, and also a review of the 2009-2010 Winter Season where Topeka received 40 inches of snow! Making preparations now will save time and money in the long term in the event a winter storm blows through your neighborhood.

December 25, 2009 from Lawrence in Douglas County. High snow drifts were common across the area. Courtesy of KTKA 49 News.

Meet your Weatherman

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pursue a career in Meteorology.
I have been through many events since coming to Kansas. I worked during the 1991 tornado outbreak in Andover which also spawned a few tornados in northeast Kansas that day. The floods of 1993 were also a memorable time as well as many of the numerous snow and ice storms over the years. I still enjoy the ever changing weather to this day and always look forward to the next day's challenge of forecasting the weather.

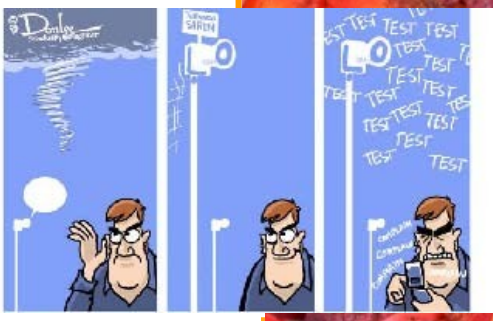
John out in the field working on a river gage site.

We would like to thank everyone in the Cooperative Observing Program for all their hard work and dedication to reporting the weather. You are a valuable asset to the National Weather Service.

Outdoor Warning Sirens

Continued from Page 4

severe weather threat and yet still be warned when a severe weather threat is imminent. All other technologies require some sort of action by the end user, even if a person receives the necessary equipment for free. However, as mentioned if you are inside don't count on hearing them-although some will, many more will not.
So here is what we should be thinking about. Sign up for an alerting service either through your local media or through county emergency management. They can provide a phone call or other alert method to keep you informed of any weather threat. Watch the weather on the news or check the forecast on the web in a nutshell, stay aware. If severe weather is expected especially at night set your NOAA weather radio to alert so that if a warning is issued, you will know. Have more than one way to receive warning information. Outdoor warning sirens have their place and they can be effective when used in conjunction with comprehensive preparedness and weather awareness, as part of a warning network of multi-ple information sources.



Coop Observer Awards

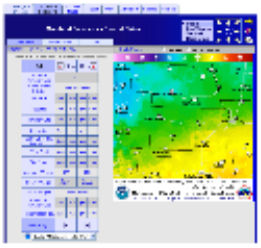
WAKEFIELD 4 W	JIM YAROW	10 yrs
LONGFORD	VON KRAMER	10 years
MILLER 4 SSW	GARY ROBINSON	10 years
SCANDIA	JERRY SWANSON	10 years
NORWAY	JAMES NORRIS	20 years
LILLIS	MARTHA CAFFREY	20 years
WETMORE	DONA BELL	25 years
CHALK	GARY ROWLEY	25 years
WHITE CITY	FRANK L NELSON	30 years
TESCOTT	WANDA DIEHL	45 years
JOHN REDMOND LAKE	Institutional Award	50 years

Items of Interest Section on Office Website

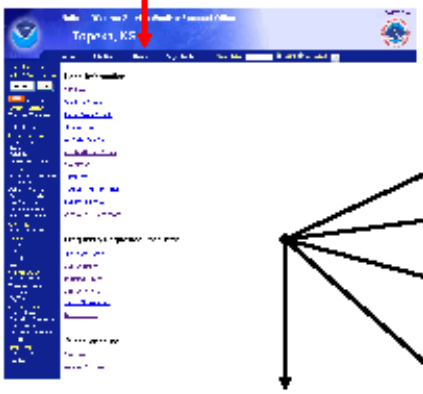
By Jared Leighton, *Forecaster*

New left hand menu...www.weather.gov/topeka

Many useful pieces of information can be found using the newly created "Items of Interest" link located on the front page of the National Weather Service Topeka website.



Graphical Weather Forecasts



Kansas Road Information

Archived "Topeka News"

Top 5 Weather Records

Weather Calculators

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Meteorologist Intern

"Working together to save lives"

Winter Weather Spotting Tips

Weather to Report:

Snowfall depth >= 1 inch

Any ice accumulation (including roads)

Precipitation type changes (i.e. rain to freezing rain, snow to sleet, etc.)

What to Include in your Report:

Your Name and/or Call Sign (Spotter Number)

Your Location

Time and Date of Event

Location of Event

Visit the following website for more information:
http://www.erh.noaa.gov/iln/spotterpage/snowweb/measuringsnowfall.htm

Kansas Sets New State Record Hail Size

By Jenifer Bowen, *Meteorologist Intern*

On September 15 Wichita, Kansas fell into the history books with a record-setting hail stone. It began in the late afternoon with the development of severe thunderstorms in association with a cold front. The super cell thunderstorm formed over Reno County and quickly raced southeast towards Maize, Goddard, and Western Wichita. Six tornadoes were produced and hail up to 7 inches in diameter fell across Sedgwick and Cowley counties. The largest, record-setting hail stone measured was 7.75" in diameter; however larger hailstones fell that were broken upon contact with the ground. This record size compares with the old record of 5.7" set back in 1970. Widespread damage occurred as a result of the storm, in particular residential properties. Many locations received substantial roof damage and automobile damage. Families walked outside of their homes to see numerous ground craters as much of 12" across. Costs to repair the damage may be fairly high, but have yet to be determined.

Top: Hail craters created from the large hail stones on a golf course in Wichita.

Bottom: The record hail stone measured at 7.75" in diameter. The location was 119th and Pawnee in Wichita (Sedgwick County). It weighed 1.1 lbs. Special thanks to the NWS Wichita.