



NATIONAL WEATHER SERVICE TOPEKA, KANSAS

# The Topeka Tiller

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SPRING / SUMMER 2013

## Summer Temperatures Pose Heat Dangers

By Jenifer Bowen, Forecaster and Chad Omitt, Warning Coordination Meteorologist

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After temperatures were below normal for a good portion of the spring season over northeast Kansas, the National Climate Prediction Center (CPC) is expecting a warmer than normal summer. Based on the latest Three-Month Outlook issued on June 20th (Figure 1), much of northeast Kansas has a 33-40% probability of average temperatures being above normal from July through September. In terms of precipitation, the CPC sees precipitation trending towards having equal chances of being above or below normal for the summer season (Figure 2). In other words, the upper level pattern does not favor a dry or wet pattern thus far.

So far this June, high temperatures have been near to just slightly above normal especially heading towards the final weeks of June. Readings in the lower to middle 90s F have been common with normal highs typically in the middle to upper 80s F for this time of year.

As the summer season commences it is very important to review safety precautions to protect yourself and your family from the heat. Hyperthermia is a tragic yet real danger that threatens children and the elderly each year during the summertime.

Hyperthermia occurs when the body produces or absorbs more heat than it can dissipate which leads to heat stroke. Heat stroke is an acute condition of hyperthermia that is caused by prolonged exposure to excessive heat and/or humidity. Tragically, this can occur when a child is left inside of a vehicle in the summertime heat.

- To date there have been 10 deaths in 2013 of children due to hyperthermia (heat stroke) from being in hot vehicles.
- Last year there were a total of at least 32 such fatalities in the United States due to hyperthermia after they were left in hot cars,

trucks, vans and SUV's.

- Since 1998 there have been at least a total of 560 of these needless tragedies. The studies show that these incidents can occur on days with relatively mild (i.e., ~ 70 degrees F) temperatures and that vehicles can reach life-threatening temperatures very rapidly. Just imagine the danger when the outside air temperatures exceed 100 degrees.

The following is a web site that is useful in highlighting the tragic consequences of leaving children unattended in cars during hot spells [ggweather.com/heat/index.htm](http://ggweather.com/heat/index.htm)

As we continue to deal with the summertime heat here in Kansas, please remember:

- Children and pets should never be left unattended in vehicles under any circumstances. This is especially true during warm

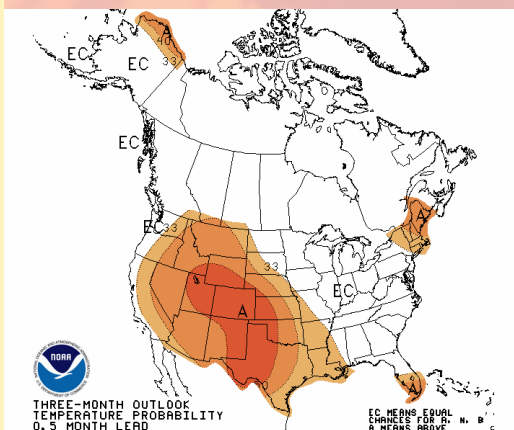


Figure 1. National Climate Prediction Center's Three-Month Temperature Outlook on probabilities of average temperatures being above or below normal. Valid from July through September. Issued on June 20, 2013.

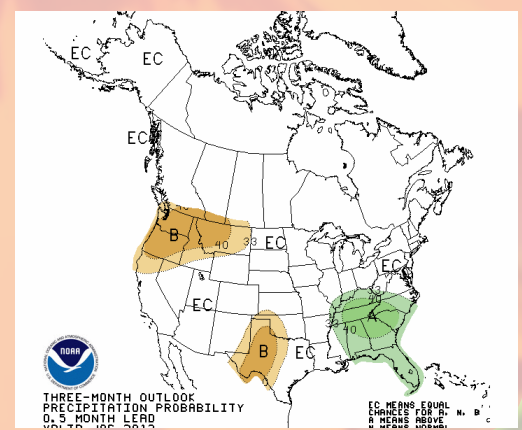


Figure 2. National Climate Prediction Center's Three-Month Outlook on Precipitation Probabilities from July through September. Issued on June 20, 2013.

# Winter's Slow Start and Wild Finish

By Brian Barjenbruch, Senior Forecaster



To the snow lovers across northeast Kansas, it may have seemed like winter would never arrive. Depending on your location, there were only 2 to 3 snowfalls greater than an inch through the first half of February. Late December did provide some noteworthy winter weather with 1 to 4 inches of wind driven snow, a brief period of near-zero visibility, and a storm system that deposited anywhere from 1 to 7 inches of snow on New Year's Eve. However, the vast majority of the area had to wait until the second half of February

to receive a snowfall greater than 5 inches. Temperatures were also warmer than normal throughout the November through January period. When the cold and snowy weather pattern finally began, it was impressive in both intensity and duration.

The first major snowstorm of the year affected the entire area on February 21<sup>st</sup> with anywhere from 4 to 14 inches of snow, and even higher amounts in parts of central Kansas. Thunder snow, a relatively rare phenomenon, was reported in

several locations with measured snowfall rates as high as 3.7 inches in a single hour! Numerous accidents and stranded vehicles were reported, prompting the closure of almost every interstate highway in Kansas.

The next significant winter storm rolled into northeast Kansas later the same week. A very tight gradient in snowfall amounts led to sharply different results, depending on location. For instance, Manhattan received only two inches of snow while less than 100 miles away in Osage

February 21st: 9.9" of snowfall at the Weather Service office

Winter continues Page 4

## 2013 Spotter Training

By Chad Omitt, Warning Coordination Meteorologist

Every year, the National Weather Service in Topeka presents spotter talks which are open to the general public. Presentations are typically 1-1.5 hours long, and are given by a meteorologist from our office. Figure 1 (right) shows a shelf cloud feature. The shelf cloud is caused by the process of downdraft and outflow. Shelf clouds often precede the gust front or leading edge of strong winds associated with lines of storms called squall lines (Figure 1).



Figure 1

Spotter training this past year again focused on storm structure and accurate identification of important cloud features associated with supercell thunderstorms. Figure 2 shows some of the more important features associated with a classic

Spotter Training continues Page 6

## Severe Weather Awareness Day

By Audra Hennecke, Forecaster

By early March, much of northeastern Kansas was feeling the full effects of winter as two large winter storms had brought several inches of snow to much of the region in late February. At the National Weather Service, the winter months are spent not only forecasting for winter weather but also preparing for the upcoming severe weather season. Across the state of Kansas, the week of March 3-

9, 2013, was designated as "Severe Weather Awareness Week." Severe Weather Awareness Week provided a good opportunity for state-wide discussion on important topics such as how to be prepared and stay aware during severe weather events, where to seek shelter during a tornado warning, and what items ought to be included in a disaster kit. In addition to the state-recognized Severe

Weather Awareness Week, the National Weather Service Topeka forecast office hosted the third-annual Severe Weather Awareness Day on March 2 at the West Ridge Mall in Topeka, KS.

The Severe Weather Awareness Day was a great opportunity to reach out to the public and to educate them on several aspects of severe

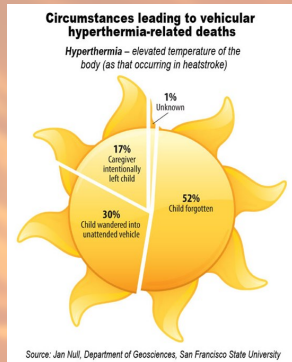
Awareness Day continues Page 6



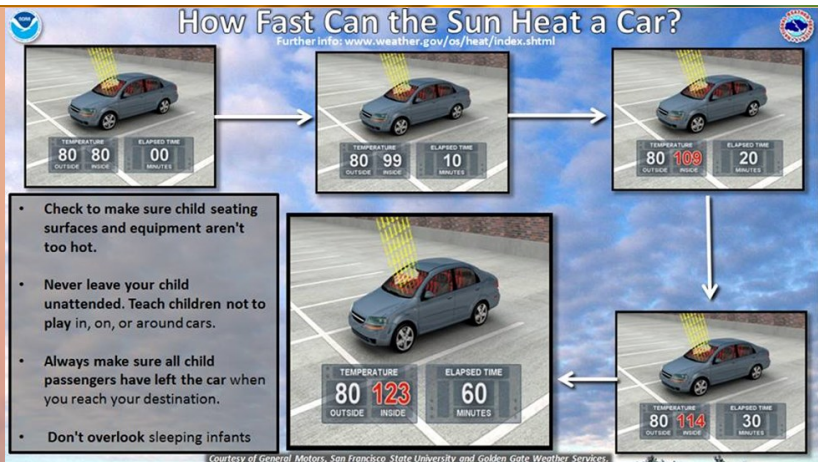
Chad Omitt presenting a weather safety talk at West Ridge Mall

# Summer Heat Continued...

or hot weather when car interiors can reach lethal temperatures in a matter of minutes. Unfortunately, cars can even reach dangerous temperatures in a matter of minutes on relatively mild days (Figure 4). NEVER leave children or pets unattended in a vehicle, not even for a minute.



**Figure 3.** Vehicular hyperthermia-related deaths



**Figure 4.** Heat tragically kills people every year, especially in a car. In the past dozen years over 450 children have died from hyperthermia after being left in or gaining access to unattended cars! This figure shows how quickly 80 degrees F outside can turn into over 123 degrees F in a matter of an hour.

## May 27-31: A Violent Week of Severe Weather

By Jenifer Bowen, Forecaster

Severe weather across northeast Kansas this season could have been summed up into one week. Various weather phenomena from flash flooding to large hail and tornadoes impacted portions of the area from May 27-31st. The week began on Monday (May 27th) when an isolated supercell thunderstorm produced an EF-2 tornado near Marysville in Marshall County. Fortunately, no one was injured with extensive damage reported to a local dealership. Additional heavy thunderstorms later that evening brought 5"+ of rain in Shawnee County.

Tuesday (May 28th) was the most violent day of the week in terms of weather with two significant tornadoes that were observed. The first tornado was observed during the late afternoon hours near Corning in Nemaha County. Estimated maximum winds approached 150 mph causing significant damage to a house and farm (Figure 1). A second, brief tornado touched down just northeast of Corning with estimated maximum wind speeds around 97 mph. The second large tornado occurred over southern Ottawa county and quickly grew to a half mile wide (Figure 2). The tornado was on the ground for around an hour, making an interesting track in a circular

pattern. No serious injuries occurred with this tornado however over 100 head of cattle were lost. Damage to local structures lead to a rating of EF3, however local radar data suggested wind speeds may have exceeded 160 mph. Along with tornadoes, hail to the size of grapefruit and widespread flash flooding were reported. Highest rainfall total was 6.41" called in by a spotter 4 miles west southwest of Woodlawn in Nemaha County. Another round of storms on Wednesday produced damaging winds



**Figure 1.** Nemaha county EF3 tornado on May 28, 2013.

and tree damage over Culver in Ottawa county while hail near the size of hen eggs struck Topeka during the early morning on Friday.

Throughout the region that week, severe weather caused an unprecedented amount of damage from Nebraska through Oklahoma where multiple significant tornadoes occurred. Spring 2013 was a clear testament to the power that mother nature can evoke. Severe weather is possible any time of the year which is why preparing for these types of events is most crucial to the safety of you and your family.



**Figure 2.** Ottawa county tornado on May 28th, 2013.

# Social Media Saves Disaster Victims

By Kris Craven, Senior Forecaster

In the past decade, social media has taken the world by storm. Facebook, developed at Harvard and initially intended for college students, today has over one billion active users. Twitter began as an internal messaging service for its parent company, and now boasts over 340 million 'tweets' in a single day. Dozens of applications have been developed for smartphones that can impart critical information to their users in the blink of an eye. What may have at one time been seen as a recreational

pastime, social media has evolved into a means of communicating real time information around the globe. Timely weather and disaster information has also found a place in this new information expressway.

Social media has proven to be critical in all phases of severe weather events – from pre-event awareness, ongoing event updates, and as a tool for information sharing after an event has occurred. Here are a few statistics collected by Mashable.com about the

increasing use of social media in disasters:

- 37% of social media users used information they found to buy supplies and locate shelter.
- 76% of disaster survivors use social media to contact friends and tell them they are safe. 1 in 5 of survivors in a disaster have used social media, websites or email to contact emergency responders directly – with 44% of those asking

Social Media continues Page 5

## Winter Continued...

“Some of the latest recorded snowfall on record was reported during the first week in May.”

county, 10 inches of snow was measured. By the end of the week, some locations had totaled 20 inches of snow or more from the combination of the two storms (Figure 1).

Temperatures from March through the first week in May were well below normal, in large part due to a persistent barrage of Canadian cold fronts and frequent snow cover. There were several episodes of light snow up to 2 inches, as well as one event that left 5 inches in Republic County. March 23<sup>rd</sup> was another significant snowfall event when 2 to 9 inches of snow fell across the area with the heaviest amounts once again focused in east central Kansas. Some of the latest recorded snowfall on record was reported during the first week in May, and several records were broken for

coldest temperatures in late April and early May. There was even one instance where a severe thunderstorm traveled across north central Kansas, but produced little to no rain. Rather, due to the cold temperatures, the thunderstorm produced heavy sleet and hail approaching the size of quarters. It truly felt like winter well into the spring months.

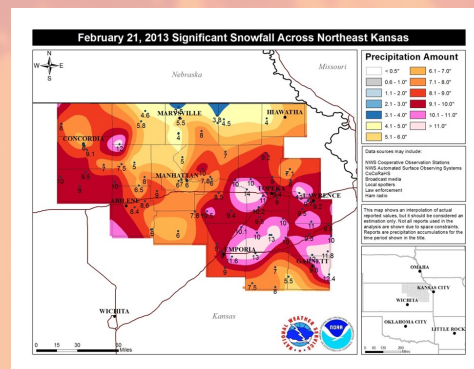


Figure 1. Significant snowfall amounts reported across Northeast Kansas on February 21st.

# Social Media Continued...

their friends to contact emergency responders for them.

- After Hurricane Sandy, FEMA used its Twitter account to suggest using social networks or text to let loved ones know they were ok, as phone lines may have been congested.
- The Red Cross not only used staffers to monitor social media during Sandy, but actually tagged 4500 posts for officials to follow up on, providing aid to those individuals.
- A Tuscaloosa school used social media to ask for volunteers to help clean up and got 80 responses in half an hour after a devastating tornado.
- After the Joplin tornado, a hospital employee in Joplin used Facebook to locate 1100 missing hospital workers.

The National Weather Service in Norman, Oklahoma was heavily present in social media as the day of the Moore tornado unfolded – May 20<sup>th</sup>, 2013. Their tweets contained information about everything from being prepared, updates on how the event was unfolding, as well as photos and text about the tornado as it was making its trek across the

city. You can find a presentation timeline of their twitter feed at: [http://www.srh.noaa.gov/images/oun/wxevents/20130520/products\\_presentation.pdf](http://www.srh.noaa.gov/images/oun/wxevents/20130520/products_presentation.pdf)

The National Weather Service here in Topeka can also be found on YouTube, Facebook and Twitter. And while we encourage our users to follow these accounts, we still strongly recommend that everyone have at least TWO different ways to receive their warning and severe weather information. Outdoor warning sirens have gone silent in power outages, NOAA Weather Radio towers have been damaged during severe storms, and cell phones and smart phones may have trouble with connectivity during severe events. And many of us can recount examples of how MISinformation has been communicated during events, emphasizing the need to be able to double check your information.

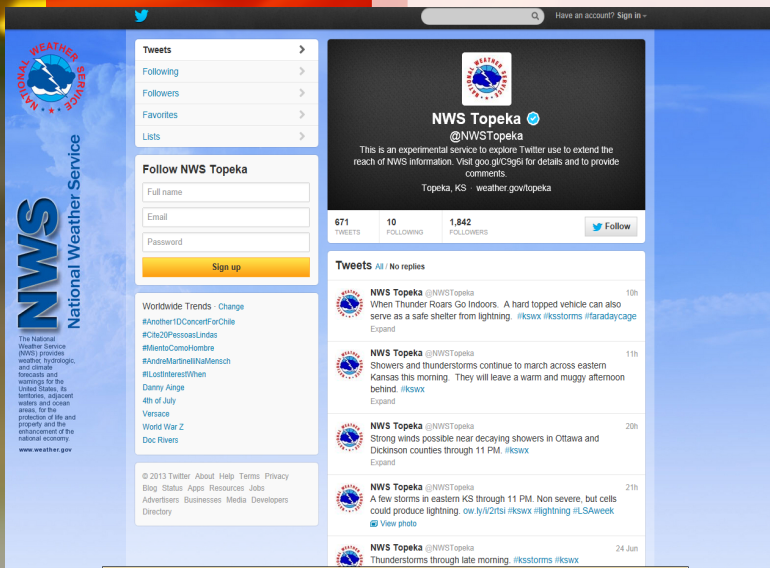
But given the amount of data that can be relayed, the speed at which it can be communicated, and the increasing evolution of a digital world, social media will have a strong hold on information sharing for a long time to come. Please pay us a visit at:

<https://www.facebook.com/US.NationalWeatherService.Topeka.gov>  
<https://twitter.com/NWSTopeka>

<http://www.youtube.com/user/NWSTopekaKS>

<http://weather.gov/topeka>

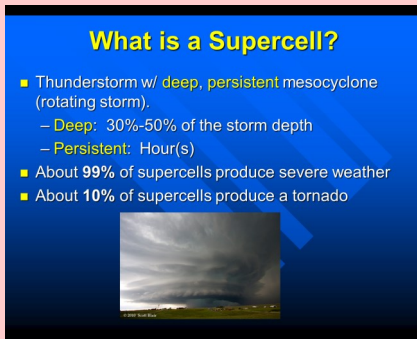
We would love to hear from you!



# Spotter Training Continued...

supercell as seen from the east looking west.

Figure 2



The storm spotter training season has come to an end however continuing education is extremely important for those that need to understand severe storm cloud features and the processes that lead to their formation. As a result, we are providing supplemental on-line spotter training. This training is focused on the basics of convective weather and storm

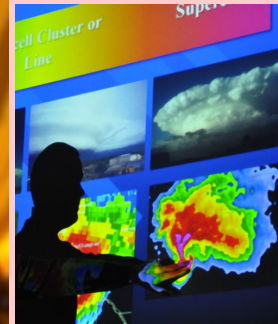
structure. We strongly encourage all county spotters and others who are interested in becoming spotters to complete this training as an introduction into basic concepts. This training takes around one hour can be accessed at

[https://www.meted.ucar.edu/training\\_module.php?id=816](https://www.meted.ucar.edu/training_module.php?id=816)  
 We also have a new and improved storm spotter reference guide for download.

In addition, the National Weather Service office in Oklahoma City has produced effective short videos that touch on various topics associated with being a storm spotter. Those videos can be accessed at <http://www.srh.noaa.gov/oun/?n=onlinespottertraining>

Over the past 3 years the NWS in Topeka along with our emergency management and media partners have provided training to over 10,000 people across Northeast Kansas. As we look ahead to the future we are seeking additional, effective means of training and educating residents of northeast Kansas about the morphology of severe thunderstorms and the hazards they can

produce. It is likely that more online and remote training will be done to supplement



the live, in-person training throughout the area each spring. Regardless, the National Weather Service along with our media and emergency management

partners will continue to work together to provide severe weather training and education for those that live across northeast Kansas. We hope that you will also continue to use the additional on-line resources to learn more about severe weather and how to best keep you and your family safe. For any questions or concerns regarding storm spotter training please contact Warning Coordination Meteorologist [Chad Omitt](#).

# Awareness Day Continued...

weather. Ten staff members from the Topeka NWS forecast office assisted with the event by hosting a variety of demonstrations and activities. On display, the NWS had a tornado simulator, a hydrological event simulator to demonstrate the effects of flooding in different types of terrain, and a weather balloon, parachute, and radiosonde instrument package to discuss the weather balloon releases that the Topeka forecast office conducts at least twice a day. The National Weather Service staff also gave several short presentations on severe weather safety and preparedness methods and on how to identify different aspects of a supercell thunderstorm. Those that attended these discussions were quickly able to test their knowledge by participating in a Weather Jeopardy game. In addition to these entertaining and educational displays and discussions, the National Weather Service provided several different informational pamphlets and brochures for people to take home to

learn more about not only severe weather but also basic weather concepts.

To assist in this educational outreach event, several other local entities participated alongside the National Weather Service to discuss severe weather preparedness and awareness. TV meteorologists Matt Miller, Tom Hagen, and Kyle Borchert from Kansas First News in Topeka answered a variety of weather questions from the public and showed off their Storm Tracker Hummer vehicle that is fully equipped with a variety of weather instruments. From WIBW in Topeka, TV meteorologist Doug Meyers also discussed a variety of severe weather topics with members of the public. Staff from WIBW radio attended the event and recorded several interviews with NWS staff to discuss a variety of safety and preparedness topics for the severe weather season (Figure 2). Several staff members from the Shawnee County Emergency Management and Emergency Response teams assisted

with the event and even provided several All-Hazards Weather Radios to Shawnee County residents at a special discounted rate. Together, members of the National Weather Service, local media stations, and local emergency management were able to reach out to several hundred adults and children



Figure 2. Audra discussing severe weather safety with WIBW

in the area, providing a wealth of information to ensure that the public was taking the necessary steps to prepare for the upcoming severe weather season by learning how to prepare in advance of hazardous weather and how to stay safe during a severe weather event.

# Emergency Alerts Coming To Cell Phones

By Chad Omitt, Warning Coordination Meteorologist

This year, the Federal Emergency Management Agency is rolling out a new nationwide text emergency alert system, called [Wireless Emergency Alerts](#), which can warn you when a tornado or flash flood warning has been issued for your location.

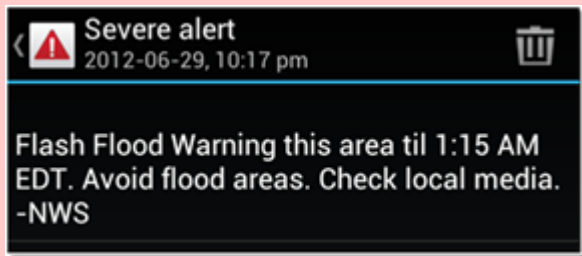
The text alert service is free and automatic – there’s no need to sign up or download an app. As long as your cell phone is WEA-capable, you’ll get wireless alerts for the most dangerous types of weather from the National Weather Service no matter where you are, just as soon as the new service is available in your area.

The NWS will broadcast warnings for weather emergencies that are most dangerous including tornadoes, flash floods, hurricanes, ice storms, tsunamis, and dust storms. (Severe thunderstorm warnings *will not* be part of the initial rollout of broadcast messages because they are so frequent; however, these will continue to be broadcast by NOAA Weather Radio, media outlets and Internet-based services.)

## How weather text alerts work

If you are at home or traveling with your cell phone through an area where a tornado or flash flood warning has been issued, your phone will pick up alerts broadcast by nearby cell towers. Those towers will broadcast the message much like an AM/FM radio station, and cell phones within range will immediately pick up the signal — provided they are WEA-capable. When your phone receives a message, it will alert you with a unique ring tone and vibration.

The message will *look* like a text, but it’s not a traditional text message most people are used to. This text message will automatically pop up on your cell phone’s screen; you won’t have to open it up to read it.



In addition, regardless of where you are, this service will send alerts appropriate to your real-time geographic location. For example, if a person with a WEA-capable phone from New Jersey happens to be in Kansas during a tornado warning, she will receive the tornado warning alert on her device.

## Q: What should I do when I receive a message?

It depends. In most cases, these 90-character messages are a “heads up” to prompt you to seek further information about the threat. In the case of an extreme and imminent danger – such as a tornado warning – the message will advise you to seek shelter immediately.

## Q: Who is behind the text alert system?

The new weather messages are part of the broader [Wireless Emergency Alerts](#) initiative – a partnership among the wireless industry, the Federal Communications Commission and the Federal Emergency Management Agency, or FEMA. The National Weather Service is one of many agencies authorized to send emergency alerts to cell phones through this new system.

These alerts will help people stay safe when they are at risk for dangerous situations — even in their own homes. You might also receive messages regarding [Amber alerts](#), local hazards (e.g., chemical spills), and even national emergencies.

The Wireless Emergency Alert system relies on “best-effort” networks, so delivery of alerts at a given place and time is not guaranteed. The new alert system is not a replacement for other alert systems, and you should not rely on it as a sole source of emergency information. A weather alert sent through WEA is intended to notify the public that a warning has been issued and that you should seek additional information. Remember: Not all phones are capable of receiving Wireless Emergency Alerts. We always recommend having multiple methods of receiving weather warning information and this is just one possible method.

Cell service customers can opt out of weather alerts, but we discourage you from doing so. These weather alerts are a vital public service that ultimately helps America become a more weather-ready nation. Armed with late-breaking weather warnings, people will have the timely information they need to make smart decisions about how to protect themselves, their families, their friends and neighbors.

**Find out if your phone is WEA-capable and when the alert system will be available in your area: Contact your wireless carrier today or visit [CTIA, the Wireless Association](#).**

# Cooperative Observer Corner

By Shawn Byrne , Observation Program Leader



**Brad Cox** (pictured above), of the US Army Corps of Engineers (USACE), proudly accepts the Length of Service Award for 50 years of weather observations at Pomona Lake Reservoir, KS. Brad, and the team at Pomona Lake, have done a wonderful job of providing rainfall, snowfall and snow depth, and temperatures for the past 50 years. Brad accepted the award on behalf of the USACE at the National Weather Service Office in Topeka, KS.

Thank  
you  
Coop  
Observers  
for your  
continued  
dedicated  
hard work  
and  
support!



## Have You Checked Your Rain Gauge?

It's that time of year! After what seemed like a long winter, and snow falling in parts of the area in May for the first time in over 100 years, warm weather finally appears to be here to stay! Please, make sure that you place your inner measuring tubes and funnels inside and on your rain gauges.

## Observational Site Visits

We at the National Weather Service want to thank every Cooperative Observer in the field, and what they do to enhance not only the office in Topeka, but the nation's climate record as well! Your contributions to our nation are very much appreciated. We are going to try to visit as many sites as we can by the end of the year. However, if we are unable to get to you this year, and you need supplies, please feel free to email or call us!



# Do You Have What It Takes To Be in the Hot Seat?

By Jenifer Bowen, Forecaster

Being a meteorologist at the National Weather Service requires constant vigilance of the current conditions as well as the forecast. Throughout the year, especially during the spring season across Kansas, we are monitoring the chances for severe thunderstorms to occur. As a severe weather event unfolds meteorologists are constantly evaluating the storm's severity, from the base of the thunderstorm to the top that can reach as high as 60,000 feet! Visual cues such as high reflectivity values at levels in the atmosphere well below freezing can indicate the potential for hail to form and grow. Hail is considered to be severe if it is equal to or greater than one inch in diameter. Another visual cue to consider is the winds or velocities going into and out of a thunderstorm. If the storm is producing damaging winds and/or rotating, the velocity product can highlight that

information. Severe winds are measured at the surface to be greater than or equal to 58 MPH. When analyzing wind direction on the radar, the red color depicts winds blowing away from the radar location while green values show winds blowing towards the radar. In addition to the products mentioned, there are a plethora of other parameters and products meteorologists examine before deciding to issue or not issue a warning.

Thanks to the staff at the National Weather Service in Peachtree City, Georgia, you have the opportunity to experience a severe weather event as the radar operator in the hot seat! Experience the decision-making process of issuing warnings while going through an interactive severe weather simulator. Learn about basic radar products, create warning boxes, disseminate storm reports, and receive a score at the end of the simulation. If you are up to the challenge, an initial tutorial is provided with total warning time for each event between

20 and 30 minutes. You also have the option of difficulty from easy to hard and for the most ambitious, really hard. It's important to remember that the simulator illustrates the basic severe weather operations as the weather service performs additional tasks not presented here. Regardless, the simulator will test your severe weather warning skills and perhaps shed further insight on the warnings themselves. Good luck!

To begin visit the following link:

<http://www.srh.noaa.gov/ffc/?n=hotseat>

## HotSeat Tips and Tricks

HotSeat requires Java Version 1.4.2 or later. Go to [www.java.com/en](http://www.java.com/en) for more information regarding Java. You can verify which version of Java your browser is using by going to [javatester.org](http://javatester.org).

Scenarios 1 and 2 require a screen resolution of at least 1024x768. All other scenarios require a screen resolution of at least 800x600. You can set your browser to full screen mode (F11) to get as much screen real estate as possible.

When the scenario begins, there will be no warnings in effect. Get all your warnings out as quickly as possible BEFORE worrying about the path of the storms.

Once you have the initial warnings issued and reports start coming in, place warnings out in front of the storms for lead-time bonus points.

Because warnings do cost you 50 points per minute, be sure to cancel them after the storm has passed. The key word here is "AFTER."

Make sure that you're looking at the most recent radar scan when you are about to issue a warning.

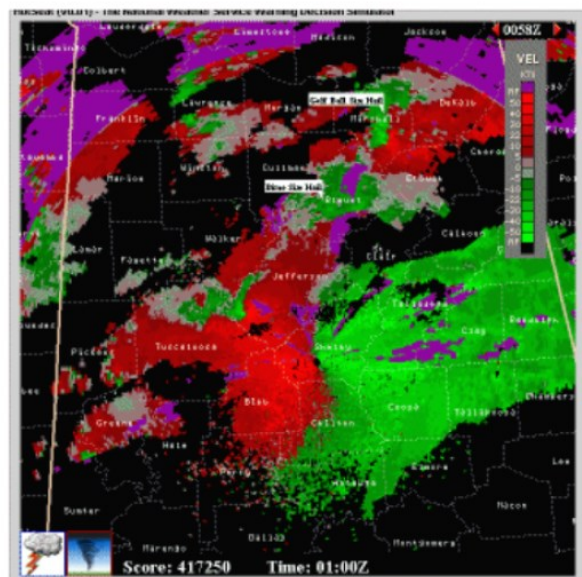
You can overlap warnings. The earliest warning you placed will be the one that verifies, thus giving you the largest possible lead-time bonus.

The NWS frowns upon false alarms, but when you're issuing warnings that only cover several square miles, a few false alarms are inevitable. Remember that a missed event will cost you way more than a couple false alarms.

After the scenario is over, you can cursor through the entire event to see which cells actually led to damage reports.

Just because there were no damage reports for a certain cell doesn't mean there was no damage. It could mean that no one lives in that part of the state.

After you've played a HotSeat scenario a few times, you may notice that things become rather... predictable. The good news is that we'll be providing more scenarios in the future. Stay tuned.





## Severe Weather Spotter Card

**National Weather Service**  
Topeka, Kansas

**1116 NE Strait Ave**  
Topeka, Kansas 66616

**Local Forecast Phone: 785-234-2592**  
**E-mail: w-top.webmaster@oaa.gov**  
**Editor: Jenifer Bowen, Meteorologist**  
**Intern**

**“Working together to  
save lives”**

### Weather to Report:

**Hail (report any size)**

**Strong wind gusts (58+ MPH)**

**Any notable wind damage to trees, homes,  
businesses**

**Funnel Cloud/ Rotating Wall Cloud or Tornado**

### What to Include in your Report:

**Your Name and/or Call Sign (Spotter Number)**

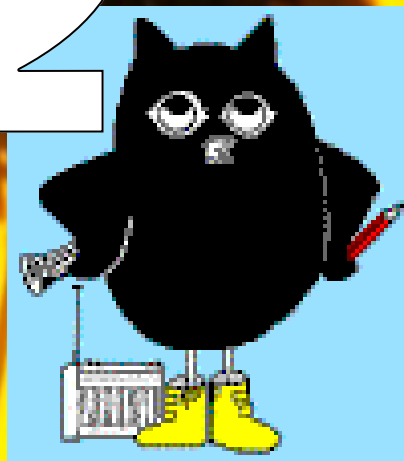
**Your Location**

**Exact Location of Event**

**Time and Date of Event**

**Cut the spotter card  
out for safe keeping!**

**Owlie Skywarn** says:  
“Visit our website for the  
latest forecast, severe weather  
support, and past weather  
information:  
**[www.weather.gov/top](http://www.weather.gov/top).”**



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