



# Central Illinois Lincoln Logs

National Weather Service, Lincoln IL

Summer 2009

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## Positive Impacts of the July 13, 2004 Roanoke, IL F4 Tornado

*By: Chris Miller, Warning Coordination Meteorologist*

Only two percent of all tornadoes reported in Illinois since 1950 have been rated as violent - F4 or F5 (now referred to as EF4 or EF5 in the Enhanced Fujita Scale). One of these rare tornadoes occurred during the early afternoon hours of July 13, 2004 near the town of Roanoke - and since then, there has not been another one that strong in Illinois. For a summary of the weather conditions that produced the Roanoke tornado, including



detailed radar images and photographs of the tornado's life cycle, visit our web page at:  
<http://www.crh.noaa.gov/ilx/events/jul132004/jul13.php>

Even though violent tornadoes only account for 2% of all tornadoes, they are responsible for nearly 70% of the fatalities. The nearly 200 people in the direct path of the Roanoke tornado took protective actions before the tornado approached - which resulted in NO fatalities and only three minor injuries. The action of the people affected by this tornado has had several positive impacts. There were several homes in the path of the tornado which sustained irreparable damage and the occupants were either unharmed or had minor injuries because they sought

shelter from the storm in their basements. The biggest story of survival, though, came from the Parsons Company which took a direct hit from the nearly 200 mph winds. I will outline the actions that were taken at the Parsons Company, which serve as a model for hazard planning. This information has been given to weather forecast offices across the United States and Canada - who in turn have shared it with businesses and home owners. During the last five years, these tips have already helped others survive when storms threaten.

## Plan

Having a plan for disasters is the first step. You need to know what threats to plan for, and address each threat as it pertains to your home or business. Planning for a tornado threat is a lot different than planning for an extended power outage due to an ice storm. When planning for a tornado, the Parsons Company built concrete and steel reinforced shelters - at a relatively minimal expense - for all of their employees and visitors to seek safety during a tornado. The owner of the company had a prior experience with a tornado and wanted to make sure his employees would be safe. Some things to consider when planning for hazardous weather threats include:

### **Know the high impact weather threats that can affect your area**

*In central and southeast Illinois this includes everything from tornadoes and severe thunderstorm winds - which peak from April through August - to ice storms and snow storms, mainly from late November into March.*

### **Have predetermined safe shelters, with an emergency supply kit**

*For tornadoes, get to the lowest floor of the structure away from windows and doors. If you have a basement, that is the best place to be - especially under a piece of furniture like a table or work bench.*

*At businesses, the shelters should be able to accommodate all of the employees and possible visitors or customers.*

*Each shelter should have a leader that can account for everyone, knows the safety plan, and has communications with others.*

*For winter storms, have plenty of food, water and medicine for everyone in the house.*

*(continued on next page)*



## Spring Climate Statistics:

### Peoria:

- Average Temperature: 51.9°F (0.9°F above normal)
- Extreme Temperatures 85 (5/22) and 12 (3/2-3)
- Precipitation 19.91 inches (9.35 inches above normal; wettest spring on record)
- 24-hour Maximum: 2.43 inches on May 15-16
- Snowfall: 6.7 inches (2.5 inches above normal)
- 24-hour Maximum: 4.9 inches on Mar. 29

### Springfield:

- Average Temperature: 54.4°F (1.7°F above normal)
- Extreme Temperatures 87 (4/25 and 5/22-23) and 11 (3/3)
- Precipitation: 15.36 inches (4.79 inches above normal)
- 24-hour Maximum: 2.23 inches on May 12-13
- Snowfall: 6 inches (1.9 inches above normal)
- 24-hour Maximum: 5.8 inches on Mar. 29

(cont. on next page)

## Positive Impacts of the July 13, 2004 Roanoke, IL F4 Tornado (cont.)

An effective severe weather plan at a business needs to have guidelines for enacting the plan and clear, concise communications.

*Have a method for alerting everyone, as well as guidelines for declaring an "All Clear". If you need assistance with these guidelines, contact your local emergency management agency. Establish criteria for when to enact the plan. This can be upon receipt of a Severe Thunderstorm or Tornado Warning issued by the NWS, your own trained company storm spotters, or some other criteria you establish. Don't forget to consider the time it takes for the person farthest away from the shelter to reach safety.*

### Practice

The next step is to make sure you practice your safety plan. At home, this may be as simple as talking about it with other family members. At business or where large groups of people gather, consider having periodic drills - at least 2 to 3 times each year. At the Parsons Company, they not only held drills, but they timed the drills to see how long it took everyone to reach a storm shelter. During the drills they also tested their communications systems (overhead speakers and two-way radios). Things to consider with respect to practicing include:

#### Designate dates and times for conducting drills

*For severe weather drills, a good time to practice is during Severe Weather Preparedness Week - which is usually the first week of March. Another good time would be the first Tuesday of the month around 10:00 AM - which is when most communities in Illinois test their outdoor warning sirens.*

#### Have supervisors or security staff evaluate and time the drills

Include safety plan information in new employee or new student orientation packets so they know the plan before the next drill.

### Monitor

After creating a plan, this may be one of the most important steps. You can have the best plan in place, with the best storm shelters, but if no one is monitoring the weather conditions - your plan will do you no good. At the Parsons Company, they had trained weather spotters that watched for signs of severe storms and developing tornadoes. When the spotters detected severe weather, they radioed back to the main office, where a message was broadcast throughout the warehouses over a speak system. They also monitored weather warnings through the use of a weather alert radio with a battery backup. There are also numerous web sites that you can monitor, local radio or TV stations, and there are cell phone text messaging services - many of which are free or at a very low cost. Things to keep in mind when monitoring the weather include:

#### Have a designated "Weather Watcher"

*This is important everywhere - whether it is a business with trained weather spotters or at home having someone monitor a weather alert radio, or local radio and TV. Ask yourself - "If I am having a party with 20 people at my house, and severe weather strikes, is anybody paying attention to the warnings? Where would everybody seek shelter?"*

#### Have multiple ways to monitor conditions - don't just rely on outdoor warning sirens

*Ways to monitor severe weather warnings include weather alert radios, local radio and TV, internet weather sites, signing up for text message warning alerts, or making a phone call to a family member or friend.*

### Take Action

The last step in the warning response process is taking action. If you have identified a safe shelter, you know how long it takes to get everyone there, and while monitoring conditions you determine that your location is threatened - it is time to take action and put your safety plan into motion. Employees at the Parsons Company never thought they would have to enact their plan in a real situation. They are alive today because they did. Here are some things to consider when taking action:

(continued on next page)



## Spring Climate Statistics:

### Lincoln:

- Average Temperature: 52.4° F (1.6° F above normal)
- Extreme Temperatures 87 (5/23) and 9 (3/3)
- Precipitation: 14.45 inches (3.29 inches above normal)
- 24-hour Maximum: 1.52 inches on Mar. 15
- Snowfall : 2.7 inches (normal)
- 24-hour Maximum: 2.5 inches on Mar. 29

## Positive Impacts of the July 13, 2004 Roanoke, IL F4 Tornado (cont.)

When the plan needs to be acted upon, it should be done as quickly as possible

*This is not the time to go outside and see what is going on! If you are being warned that a storm is threatening your area seek a safe shelter. With winter storms, delay or reschedule travel until the storm ends and the roads are cleared.*

*Keep in mind that the average times between the issuance of the warning and the time the severe weather strikes your area is around 15 minutes (more than 85% of the time). Use this time wisely to gather your family/co-workers and any essential items, and go to shelter.*

Even though the strong tornadoes (EF2 and EF3) and violent tornadoes (EF4 and EF5) only occur about 20 to 25% of the time, you need to be prepared for their devastating effects. Even weak tornadoes - EF0 and EF1 - as well as straight-line winds and downbursts, occur the majority of the time and have winds less than 110 mph. These storms can still produce significant damage and cause numerous injuries and even fatalities at times. Having a safety plan, reviewing it, monitoring the weather when thunderstorms are in the forecast, and finally, taking action when your area is threatened are all essential to enduring Illinois weather.

## Cold Air Funnels: Can They Become Tornadoes?

By: Ed Shimon, Senior Meteorologist

Cold air funnels have become a more regular occurrence this summer across Central Illinois, due to the unseasonably cold air that has frequented the Upper Midwest the last couple of months. The most recent case of cold-air funnels was captured on film by Dorothy Bullard, just northeast of Morrisonville, IL on July 19. July 4<sup>th</sup> was another busy day for cold air funnels, as several locations in Central Illinois set records for their coldest high temperature that day.

What is a cold air funnel? The term "cold air funnel" is used by meteorologists to identify funnel clouds that are not produced by rotating thunderstorms. At the basic level, all funnel clouds are the same. The overall weather pattern in which they form may be different, but the mechanism for producing the funnel remains the same. The funnels form from vertically stretching a horizontal tube of rolling air. The tube of rolling air is created by wind shear, or air flowing in different directions at different heights.

Cold air funnels typically form in the wake of a cold front, mostly during partly cloudy skies with towering cumulus. The cold air helps to create unstable conditions, which is defined as warmer air below colder air. The warm air rises through the cold air, possibly stretching any available rolling tubes of air. The instability is usually not enough to produce rain clouds, just fair weather cumulus or towering cumulus. The circulations that help the cold air funnels to develop are usually not based near the ground, but are high-based weak circulations. High-based means they develop well above the earth's surface. Cold-air funnels can look threatening, but rarely make contact with the ground. It is possible for them to briefly touch down and become weak tornadoes or waterspouts, with the potential to produce minor damage.

In general, cold air funnels rarely cause any harm, and usually make an interesting photo opportunity for many weather enthusiasts. When the NWS meteorologists recognize conditions favorable for the formation of cold air funnels, they usually send out a special weather statement letting the public know that funnels may be forming that day but they will mostly likely not be reaching to the ground and becoming tornadoes.





**COOP Observer Awards:**

The following stations will be receiving Length of Service awards over the next few months:

**50 Years:**

Danville  
Galesburg

**40 Years:**

Chenoa

**30 Years:**

Hammond  
Lawrenceville

**25 Years:**

Marietta  
Sidell 5NW

**20 Years:**

Congerville 2NW  
Lacon  
Yates City

**10 Years:**

Dahinda  
Loami 3SSW  
Sherman

Names and photos will appear in the next couple issues of the *Central Illinois Lincoln Logs*.

The NWS thanks these observers for their dedication to the Cooperative Observer Program!

**Cooperative Observer Program News**

By: *Billy Ousley, Data Acquisition Program Manager*

**WXCODER III and the Importance of Daily Observation Reporting**

Daily observing and recording of Cooperative observations has always been important. However, in the digital age we now live in it is of paramount importance to add the extra step of "REPORTING" the observation daily.

With the relatively recent switch over to utilization of WXCODER III as the main reporting program there is now a "marked decrease in the interval between observation and receipt" by the National Climatic Data Center (NCDC). A fully-realized, Web based (WXCODER III) COOP observer submission process represents a significant improvement over the existing COOP data ingest at NCDC.



Previously, NCDC would digitally capture the manually recorded COOP data. This process consumed/consumes large amount human and computing resources. Through the use of WXCODER III we are able to eliminating the need for manual digitization of paper forms.

However, the "marked decrease in the interval" the need for daily reporting is fully realized as a necessary step. Without the daily data reported the electronic process is halted as the station observations are researched and perused for missed, incomplete or unavailable observations. So, PLEASE report daily if at all possible.

Additionally, with respect to WXCOCER III, it should be noted that while the paper B-91 forms have in the past provided a convenient original record of the COOP observations for a station over a given month, the forms are not officially certified by the United States government. Only the data that reside in the NCDC archives are officially certified. Thus, the process of collecting, processing, and archiving COOP data can be made completely paperless. It is recognized, however, that many within the climate community, COOP observers included, may wish to continue to retain paper copies of the monthly observations at a particular station. A Web-based COOP interface such as WXCODER III can easily facilitate the production of a digital, printable form, which contains all the same information currently contained in a B-91 form, and which appears in the same format.

Conclusion: Bottom line...if you utilize WXCODER III and report consistently your observations there is no need to mail your "original" form into the NWS office. You need only to go into WXCODER at month's end and "CLOSE-OUT" your stations monthly data. The job is now considered complete on your end. We will review, research, and ensure data quality on our end and "CLOSE-OUT" your station data on our end and our job is then complete. NCDC will then download the data and review for certification.

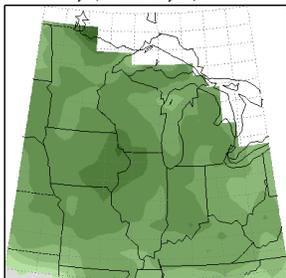


## Cool Summer

Summer 2009 has been rather cool across the area. July in particular was unusually cool, with many places not even reaching 90 degrees! Peoria saw its coolest July on record, with an average temperature of 70.8 degrees, breaking the old record of 71.2 degrees in 1971. Lincoln's average temperature of 69.4 degrees was also a record, breaking the 71.3 degrees in 1924.

The image below shows the temperature departure from normal for the Midwest in July. All of this region has seen below normal temperatures, with some of the coolest weather in eastern Iowa and northwest Illinois.

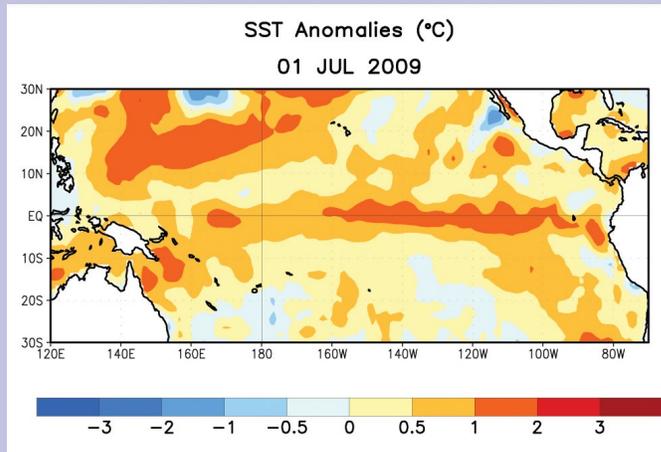
Average Temperature Departure from Mean in °F  
July 1, 2009 to July 31, 2009



NOAA Midwestern Regional Climate Center  
Illinois State Water Survey  
University of Illinois at Urbana-Champaign

## El Niño Arrives, Expected to Persist Through Winter

NOAA scientists recently announced the arrival of a new El Niño, which is expected to persist through the winter. El Niño is a warming of waters in the central and eastern Pacific Ocean, which can affect weather patterns over many parts of the globe. The last El Niño pattern was observed in 2006.

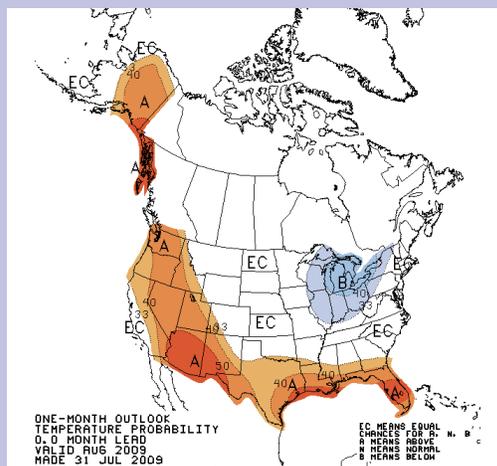


Departure from normal of Pacific Ocean temperatures, as of July 1. The red shades indicate temperatures above normal. The equator is the horizontal line across the middle of the image.

According to the Illinois State Climatologist's office, an El Niño typically produces the following in Illinois, although impacts can vary due to the length and strength of the El Niño:

- Summers tend to be wetter and slightly cooler than average.
- Autumns tend to be cooler and wetter than average.
- Winters tend to be warmer and drier.
- Springs tend to be drier.
- Snowfall tends to be 70-90% of normal.
- Heating degree days tend to be 80-90% of normal, which can lead to lower heating bills.
- Tornado activity tends to be suppressed.

Nationally, an El Niño helps to suppress Atlantic hurricane activity, provides beneficial winter precipitation to the southwest U.S., and a reduced risk of wildfires in Florida. However, it can also produce more damaging winter storms in California and increased storminess across the southern states.



The August temperature outlook from the Climate Prediction Center shows temperatures across the Midwest remaining below normal during August. Warmer than normal temperatures are expected along the Gulf Coast, and west of the Rockies.



## Wet First 7 Months of 2009

Normal precipitation for the first 7 months of the year ranges from 21 to 23 inches across central and southeast Illinois.

Over a dozen cities in this area have already had 30 to 37 inches of precipitation this year, close to the normal annual totals! Here are some totals through July 31st, and how they rank in the record books.

Flora — 37.28" (5th place)

Havana — 36.08" (2nd place)

Palestine — 35.49" (5th place)

Galesburg — 33.14" (3rd place)

Peoria — 31.32" (6th place)



## "Weather Wizards" Raise Money for Relay for Life

By: Heather Stanley, Meteorologist

Once again, in 2009, the NWS office in Lincoln participated in the Logan County Relay for Life. This year's theme for the event was "Disney", so the team decided to be the "Weather Wizards," based on Sorcerer Mickey from the movie Fantasia – and even wear Sorcerer Mickey hats during the Relay!



(l-r) Heather Stanley (meteorologist), Darrin Hensing (hydrologist), Llyle Barker (Science & Operations Officer) and Ed Shimon (senior meteorologist) prepare for the start of the Logan County Relay for Life.

To start off the fundraising, the office had a potluck luncheon and team co-captains, Ed Shimon and Heather Stanley, spoke briefly about Relay for Life and the American Cancer Society. Chris Miller was also asked to speak at the lunch. Members of the team went on to do individual fundraising beyond the luncheon, and donations were received regularly from both team members and colleagues. The team continued to plan their participation in the event, tent decoration, activities – including a mini-theater of Disney movies, an on-site bake sale with goodies made by the office staff, how to stay awake all night, etc. But there was one major problem that kept popping up as the event date approached. What else would ruin

meteorologists' plans? Severe weather.

The 2009 Relay for Life was supposed to be an expansive outdoor event from 6 p.m. to 6 a.m. in Lincoln. However, the weather had other plans. June 19<sup>th</sup> brought stormy weather to Logan County, and the event had to be moved inside the high school for the safety of everyone involved. Fortunately, everyone seemed to take the change in plans in stride. The tent, the bake sale, and everyone in their hats set up in their assigned corner of the Lincoln High School gym and waited it out. At the start of the event, while all the teams were lining up, the Weather Wizards were appropriately monitoring NOAA Weather Radio All-Hazards, as well as radar from cell phones as the storms blew through. The Weather Wizards tent, with the weather radio on, was a popular place! Many people stopped by to listen to the forecast and ask questions while buying a brownie or two from the bake sale.

Several members of the team were needed to deal with the weather at the office and couldn't make the whole event. But almost all of the team members made it to the Relay at some point, and a couple even made it all the way to closing ceremonies.

In all, the Weather Wizards raised more than \$1300 for the American Cancer Society. Logan County as a whole raised more than \$78,000. The event was a wonderful success!



*Each year, more deaths occur due to flooding than any other severe weather hazard. Over half of all flood deaths occur when people drive into flooded areas, where only 2 feet of water can sweep away a vehicle. Two people died in May in southern Knox and northern Fulton Counties, when their cars were swept away by the flooded Spoon River. If you see a flooded road, Turn Around, Don't Drown!*



## Flooding on the Illinois River Comes to a Close

By: *Darrin Hansing, Service Hydrologist*

The long stretch of flooding along the Illinois River has finally come to an end...for now. The information below, courtesy of the U.S. Army Corps of Engineers, outlines the number of consecutive days that locations from Henry to Beardstown were above flood. All 4 locations received "Top 5" honors, with a new record set at Peoria.

### Henry (HNYI2) – Records began January 1, 1900

5th place	32 days	April 1–May 2, 1922
<b>4th place</b>	<b>39 days</b>	<b>March 9–April 16, 2009</b>
3rd place	46 days	March 13–April 27, 1982
2nd place	50 days	March 16–May 4, 1929
1st place	70 days	March 6–May 14, 1979

### Peoria (PIAI2) – Records began January 1, 1942

5th place	51 days	March 12–May 1, 1982
4th place	55 days	June 12–August 5, 1993
3rd place	66 days	March 14–May 18, 1973
2nd place	71 days	March 7–May 16, 1979
<b>1st place</b>	<b>89 days</b>	<b>March 9–June 5, 2009</b>

### Havana (HAVI2) – Records began January 1, 1900

5th place	124 days	March 9 -July 10, 1973
<b>4th place</b>	<b>145 days</b>	<b>February 14–July 8, 2009</b>
3rd place	147 days	January 12–June 7, 1929
2nd place	149 days	February 5–July 2, 1924
1st place	151 days	June 12–November 9, 1993

### Beardstown (BEAI2) – Records began January 1, 1900

5th place	126 days	March 9–July 12, 1973
<b>4th place</b>	<b>144 days</b>	<b>February 15–July 8, 2009</b>
3rd place	149 days	June 13–November 8, 1993
2nd place	154 days	February 27–July 30, 1929
1st place	155 days	February 4–July 8, 1927



## Central Illinois Lincoln Logs

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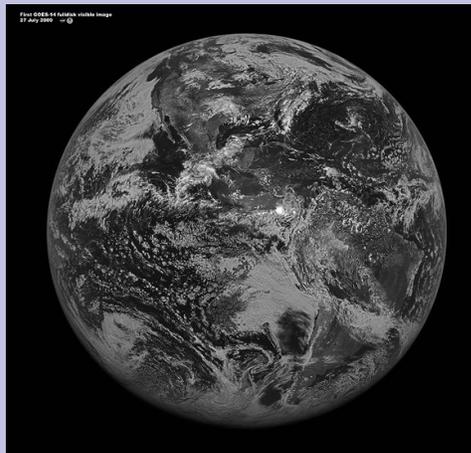
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## New NOAA Satellite Reaches Orbit

NOAA and NASA officials announced a new [Geostationary Operational Environmental Satellite](#) (GOES), launched on June 27th, successfully reached orbit, joining three other GOES spacecraft that help NOAA forecasters track life-threatening weather and solar storms.



*The first image from GOES-14 was taken July 27th at 1 pm CDT.*

The new satellite, GOES-O, lifted off at 5:51 pm CDT from the Cape Canaveral Air Force Station in Florida, and separated from the launch vehicle at 11:12 pm CDT. At the same time, the first signal was captured at the Air Force Tracking Station, Diego Garcia, located in the Indian Ocean.

“Reliable satellite coverage helps us see severe weather as it develops,” said Mary E. Kicza, assistant administrator for NOAA’s Satellite and Information Service. “With more than a thousand tornadoes touching down in the United States each year, and hurricanes a serious risk to residents along the Gulf and East coastlines, it’s critical GOES-O is in orbit and ready when needed.”

GOES-O is the second spacecraft in the GOES-N/O/P series and features significant improvements in the instruments that capture high-resolution pictures of weather patterns and atmospheric measurements.

“The imagery and data we get from GOES is key to our ability to continuously monitor and diagnose weather in the tropics,” said Bill Read, director of [NOAA’s National Hurricane Center](#) in Miami. “Continued improvements in the type and quality of GOES data will contribute to improvements in tropical cyclone forecasts.”

GOES-O also provides expanded measurements for space and solar environment monitoring, including the Solar X-Ray Imager. The SXI is improving forecasts and warnings for solar disturbances, protecting billions of dollars of commercial and government assets in space and on the ground and lessening the effect of power surges for the satellite-based electronics and communications industry.

On July 7, GOES-O was placed in its final orbit and renamed GOES-14.

NOAA has two operational GOES satellites hovering 22,300 miles above the equator - GOES-12, in the east, and GOES-11, in the west - each provide continuous observations of environmental conditions of North, Central and South America and surrounding oceans. While these two are operational, another GOES satellite, GOES-13, is in orbital storage and can be activated if one of the other satellites experiences trouble. These satellites supply the data critical for fast, accurate weather forecasts and warnings, detecting solar storm activity and relaying distress signals from emergency beacons.

Once it reaches geostationary orbit, GOES-O will undergo a series of tests for approximately six months before completing its “check-out” phase. After check out, GOES-O will be placed into orbital storage mode.