Central Illinois Lincoln Logs

National Weather Service
Lincoln, Illinois

Volume 15, Issue 2 Summer 2012

Inside this issue:

Severe Drought Affecting Much of the Nation

By: Chris Geelhart, Meteorologist

The topic of drought is dominating a large part of the country this summer. As of July 31, nearly 2/3 (63%) of the contiguous United States was classified as being in drought conditions, compared to 30% this time last year. Of that, just over 22% of the country was in extreme or exceptional drought. Nearly all of Illinois was classified as being in severe drought or worse. Crops were being harvested early to be used as feed for animals, due to poor pasture conditions requiring early use of baled hay.

A farmer rakes up corn from his field near Sigel, in order to bale it for use as hay. Photo by Aaron Greuel.

The seeds of our current drought were planted last summer. Drought conditions rapidly developed during July 2011, due to exceptionally hot weather that occurred that month. These drought conditions lingered into the first part of October, before easing. During the winter, precipitation remained below normal in some areas, and there was little snow to contribute any additional moisture. Spring rainfall was well below normal, and many areas had their warmest spring on record as well. The very hot weather we have experienced in June and July rapidly dried out what little moisture was still remaining. The table below shows the amount of rain that has fallen since July of last year, and how it compares to normal. Deficits in excess of a foot were common. Some portions of southeast Illinois, which were coming out of one of the wettest springs on record in 2011, have deficits of around 8 to 9 inches.

Location	Rainfall from 7/1/11 to 7/31/12	Departure from Normal
Charleston	35.07 inches	-12.07 inches
Decatur	22.03 inches	-22.27 inches
Lawrenceville	36.12 inches	-12.18 inches
Normal	30.21 inches	-13.29 inches
Peoria	28.16 inches	-12.21 inches
Springfield	24.92 inches	-16.45 inches
Urbana	30.19 inches	-15.89 inches

Several factors are used when coming up with the drought categories for a given area. These include observed precipitation and temperatures; observed stream flows from area rivers and creeks, as

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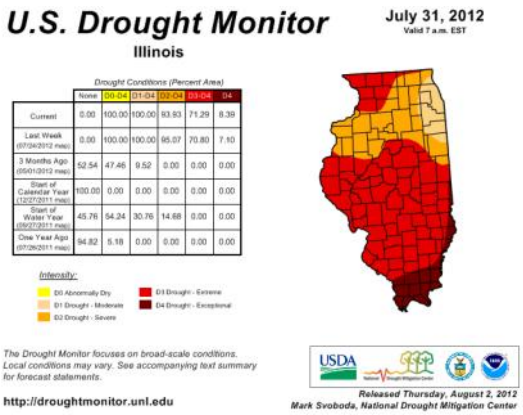
Severe to Extreme Drought (cont.)

well as reservoir or lake levels; observations of soil moisture and pasture conditions; satellite analysis of vegetation; and model analysis of long-term trends in the above categories.



Drought classifications are communicated via the Drought Monitor. This product is not issued by any one agency, but is a collaborative effort between several agencies. Primary authorship of the Drought Monitor product rotates between the following:

- U.S. Department of Agriculture (Joint Agricultural Weather Facility, and the National Water and Climate Center)
- NOAA (Climate Prediction Center, National Weather Service, and National Climatic Data Center)
- National Drought Mitigation Center, located at the University of Nebraska

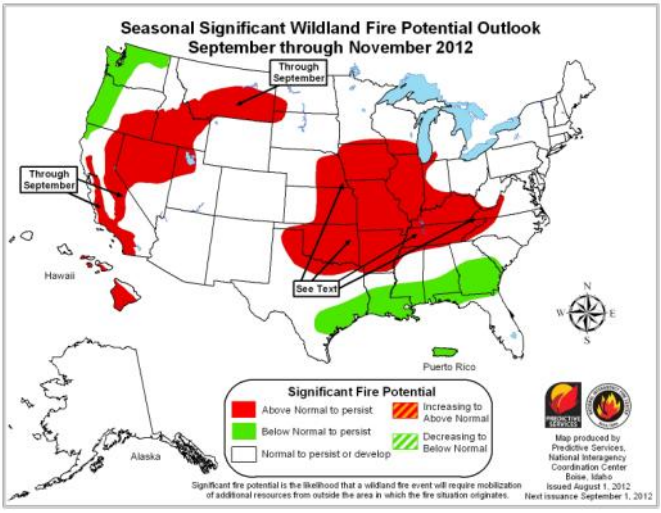
The agency producing the Drought Monitor that week will calculate the statistics for the previous week, and produce drafts of the upcoming product for review. Because these statistics are being generated on a national scale, input from the state or local level is critical. This input, which comes from state climatologists, local National Weather Service offices, USDA field offices, and other agencies, includes real-time observations and local impacts, as well as any recommended adjustments. The product is finalized and sent out on Thursday mornings. Drought Information Statements are then issued by local NWS offices, to provide more specific information for the local area.

Expanding Drought Brings Heightened Fire Danger

By: Patrick Bak, Senior Meteorologist

Drought has continued to expand and intensify across central and southeast Illinois this summer, as it has throughout much of the United States. One major impact of severe drought is heightened fire danger. The hot and dry summer across the region has wreaked havoc on the local vegetation, with many plants exhibiting signs of stress, entering dormancy, or even dying. Dormant or dead plants are much more susceptible to starting on fire when exposed to an ignition source, and support much more rapid fire growth. Fire danger is at its greatest on hot, dry, and windy days.

It is important to take extra care this year to prevent an out of control fire. Do not be careless with matches or cigarettes, and avoid outdoor burning. In fact, many communities already have burn bans in effect due to the extremely dry conditions. If you must burn outdoors, check with your community government to make sure a burn ban is not in effect for your area. In addition, check the weather forecast to avoid burning on a day with especially high fire danger.



This graphic, from the National Interagency Fire Center in Idaho, highlights areas that have a significant potential for wildfires this fall. Areas in red indicate the high potential to continue.

Recent StormReady Declarations

Several StormReady presentations have been made by our staff over the last few months. The Storm-Ready program helps communities with communication and safety skills needed to save lives and property – before and during an event. When the NWS designates a community or county as "StormReady" we are recognizing the planning and organizational skills that are in place in the event of a disaster.

Fulton County was designated StormReady June 12. Chris Miller (right), Warning Coordination Meteorologist for the Lincoln NWS, made the presentation to Chris Helle, director of Fulton County ESDA.

The city of Canton received the StormReady designation during a presentation on June 19. Kevin Mead (left), mayor of Canton, and John Lund (right), an assistant with the Fulton County ESDA. accepted the designation from Chris Miller.

The Central Illinois Regional Airport in Bloomington was presented with the StormReady designation on June 21. Chris Miller was accompanied by senior forecasters Patrick Bak (left) and Ed Shimon (right) during the presentation ceremony.

September is National Preparedness Month

By: Chris Miller, Warning Coordination Meteorologist

Many years ago, Mark Twain said "Everybody talks about the weather, but nobody does anything about it." Mark Twain is right – to a certain extent. There is nothing we can do to change the weather. However, there is something all of us can do to make life a little easier for ourselves when the weather impacts our lives – we can be prepared!

RECENT STUDY

A study commissioned by the Federal Signal Corporation in June of 2012 surveyed more than 2,000 adults nationwide about their knowledge and level of preparedness. The results were quiet startling, to say the least. Only 34% of those surveyed rated their current level of safety awareness and preparedness as "somewhat high" or "very high".

The surprising part of the study, related to preparedness, indicated that less than half of the respondents would prepare in advance for widespread, hazardous weather if they heard stories or statistics about the likelihood of an event or about the impacts of a similar past event. The remaining 52% of respondents would either wait until the event was already producing damage or injuries in their community, or they would do nothing to prepare.

There are many reasons why most Americans are reactive with regards to preparedness, as opposed to being proactive, or that they do nothing. However, researchers have been able to put their finger on one recurring theme – many people don't know where to get information about being prepared. There will always be some people that just don't want to invest the time or do not have the means to invest the money into being prepared for disasters. But there is a lot that can be done, for very little money, to be ready.

WHY PREPARE?

Local emergency managers and first responders do an outstanding job of assisting people after a disaster. However, in a widespread event, such as an ice storm, tornado outbreak or flooding, it can be several days before help arrives – particularly for those in rural areas.

First, we need to know what we are dealing with in Illinois. What is the deadliest weather in Illinois? Many people guess it is flooding or tornadoes. We certainly see our share of these events. Without a doubt, though, the most dangerous weather in Illinois is extreme heat and extreme cold. These two temperature extremes have killed nearly 12 times as many people in Illinois the past 20 years than all other weather events – combined.

Having a properly working heating and cooling system, drinking plenty of fluids and making sure that livestock has fresh water and a fan blowing on them help significantly. But what happens if you lose power? This is where preparedness comes in.

HOW DO WE PREPARE?

Being ready for disasters comes down to three things:

- Having an emergency kit of items to help you and your neighbors cope after a disaster
- Making a plan for different kinds of emergencies
- Being informed about potential emergencies that can impact your community

All three of these things should take into account not only the number of people in your household, or neighbors that you can help, but also pets, livestock and your business.

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September is National Preparedness Month
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EMERGENCY KIT

Many people do not have a kit because they believe they will never need it. However, during extended power outages, flooding, or after damage from a tornado, it is an extremely stressful time so you will be glad you thought ahead. Use plastic totes to store items so they can be kept dry and portable. Items to have on hand include:

- Water (a gallon a day for each person) for drinking and sanitation
- A three day supply of non-perishable food & a manual can opener
- Flashlights with batteries
- First aid kit
- A whistle to signal for help
- Moist towelettes, toilet paper, and garbage bags for personal sanitation
- Basic tools for simple repairs or to turn off utilities
- A small supply of important medications
- Cash and extra set of keys
- Extra clothing, shoes and sleeping bags
- A weather alert radio with extra batteries to stay informed
- Pet food and small bowls

MAKE A PLAN

Make sure your family and your business has a plan in case of an emergency. The first thing to do is to determine how everyone will stay in contact in case of an emergency. Cell phone towers may be overloaded during emergencies, so texting a short message may be the best way to make contact. Another important step is to outline what you will do in the case of an emergency. If you need to evacuate, pick a meeting place familiar to everyone in the family or business.

There is an excellent planning guide on FEMA's web page at: http://www.ready.gov/make-a-plan

BE INFORMED

Whether you are at home, work or traveling, staying informed about potential hazards is very important. A majority of disasters are weather related, so stay abreast of the latest weather conditions, particularly on days when there are thunderstorms, flooding, heat waves, or winter storms forecast. Warnings are issued by county, so if you are traveling, pay attention to the names of counties or nearby towns. Warnings also mean that the storm is occurring, or about to occur soon, so seek shelter for protection.

Weather alerts are available on local TV and radio stations, weather alert radios, the NWS web page at www.weather.gov , and through many cell phone/mobile device providers.

Benjamin Franklin once said, "By failing to prepare, we are preparing to fail". Recent disasters in our country have proven the importance of this advice more than 200 years later.

Web Pages for Preparedness Information:

National Weather Service
http://www.weather.gov

State of Illinois Preparedness Page:
http://ready.illinois.gov

FEMA Preparedness Page:
http://www.ready.gov

Seeing a Weather Balloon Burst From Over 100,000 Feet

By: Eric Laufenberg, Meteorologist Intern

A local astronomer, Wayne James from Mansfield, witnessed the burst of a weather balloon launched from the Lincoln NWS. This rare occurrence happened while searching for Venus on the evening of April 17, 2011. He was having students from Parkland Community College coming over that evening over after sunset to look at the stars, so he wanted to make sure his equipment was working correctly. Around 7:30 pm he had his telescope pointed toward Venus, which should have been a crescent. However, he observed a sphere instead. The object appeared to be translucent. All of a sudden the object he was tracking looked as though it had shattered. What he actually witnessed was the balloon bursting about 105,000 feet above the ground. He then noticed an orange object with string below it suspending a shiny object. He was observing the instrument package (radiosonde) suspended from the parachute by a string. He was unsure what he had witnessed until he called our office the next morning.

About 20% of the weather balloons are found and can be reused after being reconditioned. If you happen to find a weather balloon there are instructions on the box of how to return the item, free of charge.

Weather balloons are launched twice a day all around the world at the same time. Locally the launch times are at 5 am CST (6 am CDT) and 5 pm CST (6 pm CDT). The National Weather Service has 102 locations throughout the United States, Pacific, and Caribbean that routinely launch weather balloons.

A weather balloon consists of a latex balloon filled with helium or hydrogen (approx 6 feet in diameter) that is then tied to a parachute, then an instrument box. The instrument box is typically called a radiosonde (which measures temperature, pressure, humidity, and has a GPS sensor). The radiosonde sends back a radio signal of the meteorological data and its position. Wind speed and direction are calculated using the position. Weather balloons typically last 2 hours, routinely rising 100,000 feet (20 miles into the atmosphere) and drift up to 100 miles from the release point. Weather balloons give a vertical profile of the atmosphere, which is very important in forecasting different types of weather including: winter storms, floods, thunderstorms, freezing levels, aircraft icing, jet stream positions, and maximum temperatures. This data is used for location weather forecasts and is also fed into national computer forecast models.

Weather Folklore

By: Heather Stanley, Meteorologist

(second of a two-part series)

"Lightning never strikes the same place twice."
"Cows lay down in the field before it rains."
"Red sky at morning, sailors take warning…"

From lions and lambs in March, to groundhogs in February, for years humans have been looking for patterns in nature in an attempt to anticipate and forecast the weather. Many of the myths and wives' tales have persisted through the centuries and survive today, in an age of more advanced scientific understanding and technological advances. Interestingly, some of these myths can actually be proven by the knowledge of the atmosphere that we have today. However, some of the myths can be considered dangerous with regards to severe weather safety.

General Weather

"When halo rings the moon or sun, rain's approaching on the run"
Halos around the moon or sun have always carried a myth or two, but this one has some scientific merit. A halo around the sun or the moon is caused by the refraction of light by ice crystals (whether in cloud or just in the atmosphere) at high altitudes. High level moisture is often a precursor to moisture moving in at lower levels of the atmosphere…often in advance of the next weather system. The thicker the high level clouds, the better sign of an approaching low pressure system. In winter, a halo around the sun is usually evidence of very cold and often clear air above the surface.

A sun pillar was visible at sunset in this picture from Peoria taken October 17, 2004.

"Red sky at morning, sailors take warning. Red sky at night, sailors delight"
This particular saying has variations in many countries, with documented history through Shakespeare's time — and in fact, references exist all the way back to Biblical times. The reasoning of this myth can actually be explained with a bit of scientific understanding.

To understand this myth, there are two important pieces of information. One, weather systems typically move from west to east. Two, at dawn or dusk, the sun is shining at a very low angle on the horizon, and through a thicker slice of the atmosphere. As the light passes through so much atmosphere, portions of the visible spectrum of light are scattered out, leaving a lot of red hues at sunrise or sunset. So, in the morning, if the sun can shine through a clear path in the east to light up the bottom of clouds approaching from the west, creating a "red sky", these red clouds are often part of an approaching weather system. Conversely, in the evening, with the sun setting in the west, a "red sky" would be scattered sunlight illuminating clouds moving out of the area. Keep in mind, of course, that not all systems move from west to east, so this myth is more of a rule of thumb, but by no means absolute.

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Weather Folklore (continued)

By: Heather Stanley, Meteorologist

"When windows won't open, and the salt clogs the shaker,
The weather will favor the umbrella maker!"
Moisture, or increased humidity, causes wood to swell, which would make windows and doors difficult to open. In addition, salt readily absorbs moisture, and would often clump inside the shaker on rainy days. More humid areas of the country still use dry rice inside salt shakers to absorb humidity and keep the salt from clumping. This may actually be a bit of overkill since the introduction of sodium iodide in "iodized salt". Sodium iodide acts as an anti-clumping agent in humid conditions. This phenomenon and solution is what led to the Morton's Salt umbrella girl and slogan, *"When it rains, it pours."*

Groundhog Day

"If the groundhog sees its shadow, winter continues. If not, spring will follow immediately."
This myth has very little evidence in its favor whatsoever. Annual records and statistics show that the groundhog is no more correct than a coin toss. There are no correlations between the existence of clouds on February 2 and the rest of winter.

However, in other countries, there are also days on the calendar that predict the remainder of the season. In the British Isles, July 15th, Saint Swithun's Day is said to forecast the weather for the rest of the summer. France and Germany have similar summer forecast days. Legend says that if it's a dry day, the next 40 days will be dry. If it's raining, it will rain for another 40 days. This has a bit more of a scientific basis than just the groundhog and his shadow. In mid July, the jet stream falls into a rather steady pattern over Northern Europe — either north of the British Isles with a building continental high pressure system, or south of the British Isles with a rapid succession of approaching storm systems.

These are just a few of the myths and legends that revolve around the subject of weather. There are many out there, including legends that reach back well into mythology times. Science has come a long way from the days of attributing every roar of thunder to Norse gods. Still it seems we can't help but notice how dark the wooly worms are this year, or hope that that Groundhog gets it right this year and doesn't see his shadow.

Spring Climate Statistics

Peoria:

- Warmest spring on record
- Average temperature: 59.2°F (7.4°F above normal)
- Total precipitation: 6.47" (4.29" below normal)
- Total snowfall: 1.1" (2.2" below normal)

Lincoln:

- Warmest spring and 10th driest spring on record
- Average temperature: 59.2°F (7°F above normal)
- Total precipitation: 6.50" (3.87" below normal)
- Total snowfall: 1.6" (0.4" below normal)

Springfield:

- Warmest spring on record
- Average temperature: 61.2°F (8.1°F above normal)
- Total precipitation: 10.44" (0.06" above normal)
- Total snowfall: 2.8" (normal)

Administrative Support Assistant Retires July 31

Patty Peifer, the Administrative Support Assistant at the Lincoln NWS for the last 17 years, has decided to call it a career after nearly 35 years of Federal service. Patty's last day at the office was July 31.

Patty's government career began in September 1965, when she began to work at the Federal Aviation Administration in Washington, DC. She later accepted a job with the U.S. Air Force at the Pentagon, where she met her future husband, Tom. They married on Groundhog Day 1974 at the chapel at Ft. Myer, adjacent to Arlington National Cemetery. Tom and Patty moved to Illinois in 1974, residing at the Peifer family farm outside of Lincoln, which has been in the family for nearly 150 years.

From 1974 to 1978, she worked at the Internal Revenue Service's district office in Springfield. She took time off to raise her family, then returned to the IRS in 1990. She remained at that office until the district office closed in 1995. She joined the NWS in July 1995.

Patty plans to spend her free time with her 3 daughters and 4 grandchildren.

Patty Peifer, Administrative Support Assistant at the Lincoln NWS, proudly displays her retirement papers.

A formal retirement party will be hosted by the Peifer family in early September.

Lincoln NWS Receives Bronze Medal Award

(l-r) Dr. Jane Lubchenco, NOAA Administrator; Rusty Kapela, Warning Coordination Meteorologist, NWS Milwaukee/Sullivan, WI; Chris Geelhart, meteorologist, NWS Lincoln; David Beachler, senior meteorologist, NWS Chicago; Laura Furgione, Acting National Weather Service Director

In late March, NOAA announced its 2011 recipients of the NOAA Bronze Medal Award, the highest honor award that can be granted by the Under Secretary of Commerce for Oceans and Atmosphere. The Lincoln NWS office was named a recipient of the NOAA Bronze Medal Award, for exceptional efforts during the Groundhog Blizzard of 2011. The Lincoln office shared this honor with the NWS offices in Chicago and Milwaukee.

Meteorologist Chris Geelhart traveled to NOAA Headquarters in Silver Spring, MD, to accept the award on behalf of the office during the May 1 awards ceremony.

COOP Corner

By: Emily Timte, Meteorologist Intern

Cooperative Observer Highlight: Springfield #2

Joe Armstrong has been an official observer for the National Weather Service since 2003. He is located near Springfield's Abraham Lincoln Capital Airport in Sangamon County, and his observations are used to supplement our official climate site in Springfield. Below is his biography and a little bit about his interests and involvement with the weather.

As with most residents of Illinois, I became acquainted with the weather early on. Wading in flooded Springfield streets or hearing the air raid sirens sounding a call to the basement occupy many of my childhood memories. My father would tell me how the weather worked, stirring my fascination about thunderstorms, tornadoes and other types of phenomena so common in Illinois.

When I was young I would watch the news, in eager anticipation for the weather segment. Though WCIA's Mr. Roberts was my favorite, I would quickly turn the channel knob over to Channel 20 to get the day's readings for Springfield. For months I would chart the trends and calculate averages.

Joe Armstrong (left) was presented with a Special Service Award in 2007 by John Parr, Hydrometeorological Technician.

I guess that same interest in the collection of weather data still exists in me as an adult. I have been the Springfield COOP since February of 2003, daily reporting temperature and rainfall values. In the colder months I also report frost depths and snowfall. During this time I have enjoyed meeting and working with the Lincoln NWS staff, who have been more than grateful for my submissions and helpful with my frequent questions.

In addition to this I have been involved in the Significant Weather Observer Program (SWOP) for even longer. Reporting the "max, min and at ob" as a COOP may not be as glamorous and exciting as calling in severe storm conditions as a SWOP. But the readings still serve the important purpose of continuing the uninterrupted record of Springfield climate data that dates back to 1879.

I'll remind myself of that again this December when I am knee-deep in snow taking a midnight reading. ;-)

You can find my weather blog on the State Journal Register webpage (sj-r.com), as SangamoWeather.

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COOP Corner *(continued)*

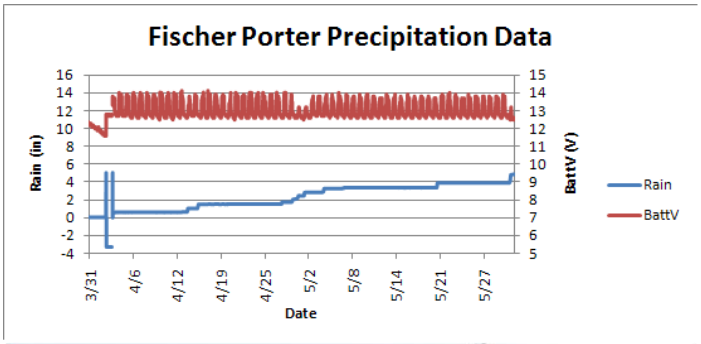
Cooperative Observer Accomplishments

The following observers have passed a monumental mark in their COOP history this past April, May, or June.

5 Years of Service	10 Years of Service	15 Years of Service	20 Years of Service	25 Years of Service
Marshall Metcalf *(Kincaid)*	Ron Weishaar *(Cisco)*	City Water Light & Power *(Lake Springfield)*	Louisville Pumping Station	Sonny Snyder *(Yates City)*
Darin Kronner *(Toulon)*				

Fischer-Porter Recording Rain Gages Upgrades Completed

The upgrade to the Fischer-Porter recording rain gauges has been completed! Twenty-two official cooperative observer sites in central and southeast Illinois now use flash drives to download precipitation data each month. Precipitation readings are taken every 15 minutes, so that there is a continuous flow of data coming in. Below is an example of what this new incoming data looks like:

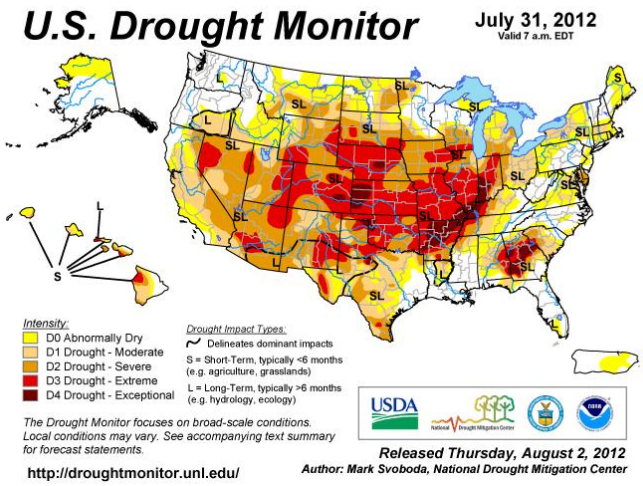


This example is from the Mackinaw COOP station. The graph is compiled from the files that are downloaded and sent to us each month. The blue line indicates the accumulating rain total over a period of time. Towards the beginning of April, the jumpiness/spikes in the data reflect the calibration of the equipment. As time progresses, you can see a steady increase where precipitation fell. Precipitation will continue to accumulate until the bucket gets full (around 15 inches). The observer will drain the bucket, and the rain total will reset to zero. The red line on the graph indicates the battery voltage. The gauge is powered by a solar panel, so the fluctuations are simply due to the natural cycle of day and night.

John Parr (Hydrometeorological Technician) and Kyle Clark (Electronics Technician) install the new gage at the NWS office in Lincoln.

If you are an observer with this gauge: Please refer to the Weather Observer Guide for the recording rain gauges (sent to you in e-mail and hard copy with the returned flash drives). This has step-by-step instructions on downloading the data, emailing the data, and can probably answer any of your other questions. As mentioned on previous phone calls, we would like you to start emailing us the data, as opposed to sending the flash drives back and forth each month. **APPENDIX B** in the instruction manual goes through how to do this. If you have further questions, feel free to call or email us!

U.S. Drought Highlights (As of July 31)



As of the end of July, approximately 63% of the contiguous United States was affected by drought conditions ("moderate drought" or worse). The area of coverage has increased by about 25% over the last 3 months. 22% of the "lower 48" was considered to be in extreme or exceptional drought, about 15% more than 3 months ago.

The graphic at right overlays the coverage of drought in comparison to corn production. Approximately 88% of the corn that is grown in the U.S. is within an area of drought, based on historical crop production data. This includes almost all of the major corn producing regions, extending from eastern South Dakota and Nebraska to western Ohio (dark green shades). These particular areas represent about 75% of the total national production annually.

Web Pages for Drought Information:

National Drought Portal — http://www.drought.gov
U.S. Drought Monitor — http://droughtmonitor.unl.edu/monitor.html
NWS Lincoln Drought Update -- http://www.crh.noaa.gov/ilx/?n=drought
Drought Impact Reporter — http://droughtreporter.unl.edu/
Illinois Drought Response Task Force — http://www.drought.illinois.gov

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National Weather Service
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Phone: (217) 732-3089
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Newsletter Editor:
Chris Geelhart, Meteorologist
chris.geelhart@noaa.gov