

# Gateway Observer



Volume 1, Issue 1

Fall, 2010

## Special points of interest:

- Open House on the horizon!
- Spring and Summer flood waters begin to recede
- Autumn climate outlook
- Where your daily data goes, and how we use it

## INAUGURAL EDITION!

We, at the NWS office in St. Louis, Missouri, would like to first thank you—our co-operative observers—for your time and dedication to our Co-Operative Observer Program. The information you gather is invaluable to our organization, and assists us greatly in furthering our mission to help in understanding ongoing climate change and climate science as a whole.

The goal of this newsletter is to serve as an additional avenue of communication between us at the office, and those of you who volunteer to take time out of your day to provide us with information that helps NOAA to assess monthly and seasonal climate patterns.

As a new product, this newsletter will develop over time, and hopefully will develop into something that will continue to be used for years to come. Our

hope is to send out a newsletter each quarter, which will include information about the Co-Op program, changes here at the office as they happen, weather safety tips, climate outlooks and reviews, significant event spotlights, among many other great topics.

We hope this first edition of the Gateway Observer will prove to be both informative, and interesting, and set the framework for something that is anticipated by not only our observers, but anyone who may also check it out on our website. We look forward to continuing to provide you all with the most up-to-date weather information for Missouri and Illinois, and via this publication, keep our users informed of products and services that will help with further weather and climate understanding.

Enjoy!



## Lightning—Don't Get Caught Off Guard

Across Missouri and Illinois, thunderstorms are a regular occurrence, not only in the summer months, but year-round. Along with these thunderstorms, there is often frequent cloud-to-ground lightning. One thing to keep in mind, is that it is never safe to be outdoors when you hear thunder, even if the associated storm is not overhead. Make your way

to a safe building or vehicle, ensuring that you stay away from any bodies of water or metal objects, both of which are exceptional conductors of electricity.

Hundreds of people are permanently injured every year from lightning strikes, so exercise caution and be aware if storms are nearby.



**"When Thunder Roars, Go Indoors!"**

[www.lightningsafety.noaa.gov](http://www.lightningsafety.noaa.gov)

## NWS St. Louis Open House on the Horizon

On October 16th, 2010, WFO LSX will be hosting an open house, allowing people in the 46-county warning area to come and see what goes on "behind the scenes".

The last open house at WFO LSX was held in 2007, and received rave reviews. There were nearly 1000 attendees from not only the St. Louis metropolitan area, but also from Adams county MO, Ste. Genevieve county MO, Bond county IL, Moniteau county MO, and all areas in between!

At this year's open house, as with years past, there will be posters depicting everything from how a radar works, to hydrologic processes, and even to highlights on weather events that significantly impacted Missouri and Illinois. There will be tours of the office, and WFO LSX staff members will be on hand to answer any and all weather related questions you may have.

The open house will provide a great opportunity for people who share a passion in weather to mix and mingle, and will offer a glimpse into the equipment utilized and processes that meteorologists at the weather service go through in order to deliver accurate and timely information to people who need it most when it matters the most.

The Open House will be on October 16th from approximately 9am until 4pm. All ages are welcome, and handicapped parking will be available on-site. Bring your friends and family, and we hope to see you there!

*As the event nears, additional information will be available on our website, and via NOAA Weather Radio Broadcasts. Stay tuned!*

<http://www.weather.gov/lx>



Meteorologist Benjamin Sipprell explains weather balloons to an excited group of children at the Open House in 2007.

## Little Reprieve Felt From Spring and Summer Flooding

Due to excessive rainfall received not only across Missouri and Illinois, but also over upstream portions of the Illinois, Missouri, and Mississippi River basins, traditional springtime flooding became summer flooding; and now that summer is nearing its end, individuals and businesses with interests along area rivers and tributaries are finally beginning to see the waters recede.

### Missouri River

On the Missouri River, people from Nebraska and Kansas, all the way through Missouri up to its confluence with the Mississippi, felt the effects of minor to moderate flooding this summer. WFO LSX has responsibility for locations along the Missouri River including Jefferson City, Chamois, Gasconade, Hermann, Washington, and St. Charles. Water levels at these locations exceeded flood stage between June 4th and June 9th, finally receding below flood stage between July 1st and July 3rd. Chamois experienced the longest period of continuous flooding, from June 4th to July 3rd.

### Illinois River

The Illinois River tends to remain in flood for quite some time once it reaches flood stage due to its large flat basin, and prolonged flooding occurred at all four of WFO LSX's forecast points along the mainstem this spring and summer. La Grange Lock and Dam Tail Water was in flood from May 18th through July 14th, with a slight reprieve for several days at the end of May. Meridosia saw flooding occur from May 19th until July 15th. At Valley City, despite a slight dip below flood stage from July 17th to 20th, the Illinois River was out of its banks from May 17th to August 1st. Hardin, the last point on the Illinois River before its confluence with the Mississippi entered flood stage May 15th, and only recently dropped below the flood threshold. The major contributing factor to the extended period of flooding at Hardin is due to its proximity to the Mississippi, as backwater from elevated stages on the Mississippi River result in additional rises at Hardin.

### Mississippi River

The big story regarding flooding this spring and summer continues to be the Mississippi River, from locations north through Iowa, to locations south through Arkansas. The initial elevated river levels were caused by melting snow upriver... *(Continued on next page)*

## Little Reprieve Felt From Spring and Summer Flooding (Continued)



Flooding along the North Fabius River near Ewing on July 22nd, 2010. The North Fabius crested at 20.07 feet after 7 to 10 inches of rain fell across the basin. Flood stage at this location is 11.0 feet. (Photo courtesy of Service Hydrologist Mark Fuchs)

...in early spring. Then, before river levels were able to recede, spring storms began to move across the basin, allowing for additional runoff to go into the river. River levels continued to rise, and as storm complex after storm complex tracked across Iowa and northern Missouri, the ground remained saturated, allowing for nearly 100% runoff at times into tributaries and the mainstem of the Mississippi River itself. Some locations along the Mississippi River had been in flood for around two months, including Hannibal, Louisiana, Clarksville, and Grafton beginning June 14th; Winfield and Alton beginning June 15th; and Chester beginning on June 8th. Other locations, including Canton, Quincy, Quincy Lock and Dam, Saverton, and St. Louis, also experienced flooding, though it was more intermittent, with brief periods below flood stage.

On July 22nd and 23rd, storms moved across northern Missouri and Southern Iowa, with some locations receiving over ten inches of rain in as little as 48 hours. This rainfall compounded the problems resulting from flooding occurring on the Mississippi River, as many tributaries in that area including the North, Middle, and South Fabius Rivers, the North River, and Salt River, experienced moderate to major flooding due to excessive runoff.

### Moving Into Fall...

As July transitioned into August, the heat and humidity common to Missouri and Illinois during the summer returned to the area with a vengeance, accompanied by extended periods with little to no precipitation. This has allowed many river forecast points to drop below flood stage. Throughout much of August, only the Mississippi River has remained in flood. Current river forecasts predict that all remaining forecast points still experiencing flooding will drop below flood stage by the end of the first week of September.

## What's the Outlook for Autumn?

*Courtesy: Benjamin Sipprell*

September, October and November are the season of autumn, and within a 20-year perspective the season has exhibited fairly normal seasonal average temperatures intermixed with wet or dry periods region-wide. Yet there is always the possibility for one out of the three months within the season of being anomalously cool or warm, even wet or dry as was the case last year when much of the region saw its wettest October on record.

With Summer exhibiting very hot and humid conditions similar trends may continue into early autumn. Looking globally, a strong La Niña has developed in the eastern Pacific Ocean (a cooling of

waters off South America). Similar patterns have been observed over the past half-century, allowing forecasts to be made by climatologists as to the outlook for the upcoming autumn.

The Climate Prediction Center (CPC) has issued its outlook for the upcoming autumn based on current trends. With waters cooling and observed global patterns, similar trends in the past have resulted in higher probabilities across the Missouri and Illinois region of warmer than normal conditions, with equal chances of wet and dry seasons. As such the CPC has emphasized greater probabilities for a warmer autumn with equal chances of the season being either very

wet, very dry, or normal. Undoubtedly through autumn, as the region transitions into winter, stormy patterns and abrupt temperature swings are to be expected, but their frequency and how they will impact monthly temperatures and precipitation averages remains uncertain.

- **Warmer than normal conditions**
- **Equal chances for normal, above normal, or below normal precipitation**
- **Individual weather systems play a big part!**

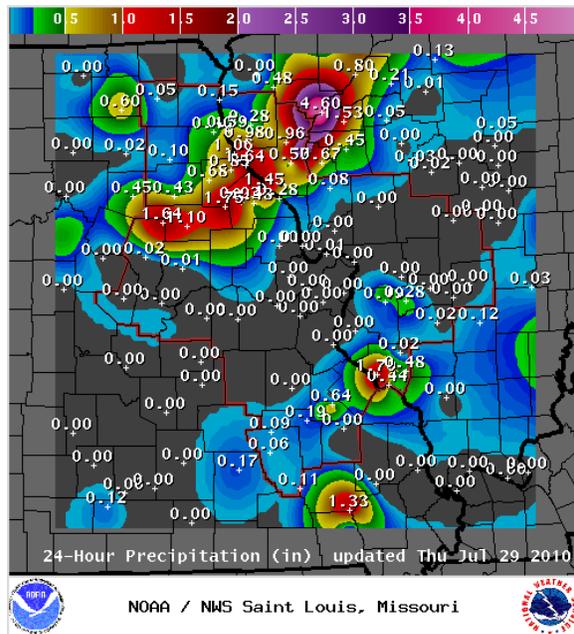
For additional information, visit the CPC online at <http://www.cpc.ncep.noaa.gov>

## Co-Op Observer Data Serves GREAT Importance!

Each day, those of you in our co-operative observer program send information to the National Weather Service regarding high and low temperatures, liquid precipitation, and in the winter, snowfall and snow depth information. But, you may wonder, “what happens to this data once I send it off?”

As co-op observer data filters into the office each morning, regardless of whether it is submitted using WxCoder, IV-ROCS, or called in directly to the office, it undergoes a preliminary quality control check. This check just makes sure that the data seem representative of the previous day's weather (for example, high temperatures around the right range, and if there was rain, making sure there's a precipitation amount entered), and ensures that a given location's data “makes sense” compared to other nearby observers or automated weather observing stations. After the data comes into the office, a daily co-op report is created. This report compiles into a list all of the temperature and precipitation data received, organizes it by region (St. Louis Metro, SW Illinois, NE Missouri, etc), and the text product is then transmitted from our office to other offices and national centers, and is also posted on the St. Louis NWS website for perusal by anyone curious about the previous day's weather. Each morning after co-op observer data is sent out from our office and surrounding offices, we create a suite of co-op maps, visual representations of the weather the day before. These maps use the information from each office's individual text product, and creates an at-a-glance overview of the previous day's high and low temperatures and precipitation.

At the end of every month, paper forms are sent into the office from each observer with a log of all the daily data that had been sent in throughout the month. These forms are then organized by state (Illinois and Missouri), and are checked over for small things, such as making sure a given day's low temperature is the same as, or lower than, the previous day's observation time temperature. After these



Left: Map depicting 24-hour precipitation totals as recorded by co-op observers across Missouri and Illinois. Other maps depicting 24-hour high temperatures, 24-hour low temperatures, 24-hour snow fall, and snow depth at observation time (typically 7:00 to 8:00 am) are also created on a daily basis. Surrounding Weather Service Forecast Offices in Paducah KY, Pleasant Hill MO, Springfield MO, Lincoln IL, and Davenport IA contribute their own observer network data for these maps, allowing for a visual representation of the previous day's weather. These maps can be found online at [www.crh.noaa.gov/lstx/?n=dailycoopprecip](http://www.crh.noaa.gov/lstx/?n=dailycoopprecip) and are updated by around 11:00am daily. Maps are kept available online for up to ten days, allowing for a ten day archive of weather information, thanks to our dedicated co-op observers!

forms have been checked and organized, one copy is kept on site at the St. Louis NWS Office for our climate record database, a copy is sent to the state climatologist (either at the University of Missouri or the University of Illinois), and the original form is sent to the National Climatic Data Center (NCDC).

The use of co-operative observer data by NCDC is quite possibly the most important part of the observing process. Once the forms arrive, they undergo a final quality control, and are entered into a national database. This database allows for a national overview of the weather every day, month by month, and over the course of years, and has shed light on the existence of climate change on everything from the local scale to a national scale, and compared to data from other countries, a global scale. NCDC also uses temperature and precipitation trends, as discerned from the data they receive from local offices, to create their seasonal climate summaries and seasonal climate outlooks. So, if you watch the news or read the paper, and see something about how a given month was the warmest or coolest on record,

or if there was record precipitation on a state or national scale, it's the data that you've observed that allowed NCDC to make that correlation and discovery.

Aside from government entities, universities across the country and across the world also use this climate data for research and projects including everything from individual precipitation events, heat waves, or cold snaps, to research into climate change, how it's occurring, and how it may affect the world in the long term, and even in relation to renewable energy research.

If you're a co-op observer, your data is invaluable to the NWS and the country as a whole. Without those of you who take the time out of your day to provide temperature and precipitation data to us, it would be incredibly difficult, if not nearly impossible, to maintain a comprehensive record of climate across the United States. Our hats are off to each and every one of you, thank you for your efforts!

*Do you know someone else who may be interested in becoming a co-op observer for their area? Feel free to contact us!*