



THE CLIMATE OBSERVER

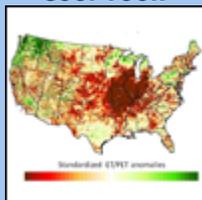
August 8, 2012

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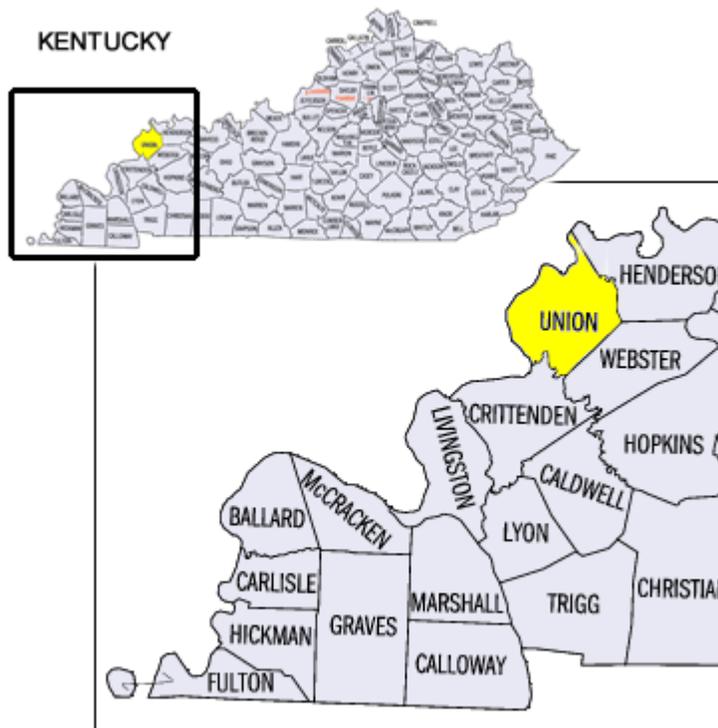


Impacts of the Midwest Drought: An Interview with a County Extension Agent in Kentucky

Molly Woloszyn, MRCC Extension Climatologist

Rankin Powell is a County Extension Agent with University of Kentucky Extension

for Union County, Kentucky. He started working as an agronomist in Kentucky in 1966 and a county agent in 1971, and continued to do so for almost 12 years before spending the next 20 years taking care of his family farm in western Kentucky. It was in 1996 that he returned to Union County, Kentucky to work as a County Extension Agent and has



been there ever since. As a part of the Land Grant County Extension system, he works closely with many people throughout Union County, most specifically farmers and other producers (i.e. livestock, dairy). As a few examples of what his job entails, Rankin provides personal advising to farmers, runs test agricultural plots, gives tours, and has meetings with those in the county. Since Rankin has experience as an at-risk farmer, he said he has a better perspective as to how farmers think, which helps him greatly in his everyday job.

MRCC: Unfortunately, Union County is one of the counties in Kentucky currently experiencing an Exceptional Drought (D4), rated by the US Drought Monitor. Can you tell us a little bit about what you are seeing first hand as an Extension Agent for that county?

RP: Farmers in this region are seeing a tremendous drop in the corn yield this year. People have already started to harvest the corn, which is the first time ever that harvesting has begun in July. However, the yields from this harvest are not too good. In some places, the corn did not pollenate, there are no grains on the cob, and some do not have ears on the stalk. For the corn that did develop, it is very small. The corn yield this year is expected to be about half of what it was last year.

On the Road:

OH - Ohio River Basin
Climate Study Kick-off

IL - MW Climate
Collaboration Workshop

MI - NOAA/GLERL Workshop

IN - Keep Indianapolis
Beautiful Luncheon

OH - Great Lakes Week

As far as other crops go, it is still uncertain what impact the drought may be having on the soybean yield. It is possible that some rain could help the beans, but it needs to happen soon. The double crop beans (which were planted after wheat) are starting to die. Right now, these younger crops just do not have much of a root system so they are fading away. However, we did see a fairly good wheat yield since wheat is not as affected by dry weather. Stock water ponds are also going dry.



Pond with low water-levels in Crittenden County, Kentucky on July 20, 2012. Crittenden County is adjacent to Union County and is also experiencing Exceptional Drought as of July 17th.

Photo credit: Nancy Hunt, Extension Agent for Crittenden County

The double whammy has been that we haven't had any rain, but it has also been so hot. We've had more days over 90°F (close to 30 days) and probably 10 to 12 days over 100°F, which is almost unheard of for us. Plus, there has been little to no rainfall. We haven't seen any widespread rains since April and there was really no winter precipitation either. Normally, we would have about 26" of precipitation by this time of year and I've heard some places have only had five to six inches so far this year. Because it was so warm, most of the farmers had corn planted in mid-March and some soybeans were also planted in March, which was the first time that has ever happened.

Overall, it has not been a good year. But, I guess once in a while, you have to expect a drought like this may happen.

MRCC: How are the farmers and other producers (i.e. livestock, dairy) in your county responding to the drought?

RP: Farmers are starting to harvest the corn, with very low yields expected. The cattle in this area have been without feed for a long time. As a result, some farmers are turning the drought-stressed corn into feed for their cattle. But, drought-stressed corn has a good possibility of having excess nitrates, which can be poisonous to cattle. I've been testing the corn, and much of it does have high nitrates. Farmers have to be really cautious on how they work with this corn silage. If the corn goes through the silage process, about 50% of the nitrates would dissipate. However, if they just try to pasture it or cut it for hay, the nitrates stay put. If they feed this drought-stressed corn to cattle, the cattle have a good chance of dying because of the exposure to nitrates.

In order to feed their cattle, some farmers are buying commodity feeds (by-products from the soybean process or by-products from ethanol). However, the price of these commodity feeds are going up tremendously and are harder to get since many ethanol plants are shutting down as a result of the drought as well. The ethanol plants are shutting down because they cannot be competitive if the price of corn gets too high.



Drought-stressed corn in Hopkins County, Kentucky on July 2, 2012. Hopkins County has been experiencing Extreme Drought as of June 19th, and part of the county is now in Exceptional Drought, according to the US Drought Monitor.

Photo credit: Curtis Dame, Extension Agent for Hopkins County

MRCC: You have either lived or worked as a farmer or as a County Extension agent in this region of Kentucky for many years. Based on your experience, how would you rank this drought among other years of drought in your region?

RP: This is the worst that I have ever seen and all of the older people are the same way. They said the last time they ever heard of it being anywhere close to this

bad was in 1936. This is pretty much true for this part of Kentucky, as well as southern Indiana and parts of southern Illinois.

MRCC: This drought is not only impacting Kentucky, but also a large portion of the Midwest. What do you expect will be some of the major impacts of this drought for the region and for the country?

RP: There is no doubt that the food prices are going to go up for the whole United States. The price of meat will go up – first the price of beef, pork, and then poultry. After the meat prices go up, the price of everything else will start to go up too. In fact, we’ve already seen grocery prices increase.

In addition to food prices, the farming areas in the Midwest, and especially rural agricultural counties, will feel the effect of the drought economically because farmers are not going to be spending money if they don't have to. They won't be buying new machinery and will be cutting down on input costs for next year (fertilizer, fuel, chemicals, and



Drought-stressed corn in Crittenden County, Kentucky on July 20, 2012. Crittenden County is adjacent to Union County and is also experiencing Exceptional Drought as of July 17th.

Photo credit: Nancy Hunt, Extension Agent for Crittenden County

seed). This is especially going to hurt those rural counties in the Midwest that rely heavily on agriculture for their economy. Generally, the agricultural dollar stays at home and multiplies, which boosts their local economy. But, if it's been

a bad year, there won't be any dollars floating around in these communities.

MRCC: Any last comments that you would like to make?

RP: I hope that this drought doesn't affect some of the young farmers who are just getting started. These farmers don't have much equity built up and I hope they can stay in business and not be forced out. Most of the older farmers can hold on for a year. The farmers that either just started or have only been in business for five to ten years are going to be hard pressed to stay in business. They probably had to borrow a lot of money and they will have trouble paying it back.

Another thing that is really impacting this is the higher input costs (i.e. fertilizer, seeds, and chemicals), which are so much higher now. These costs were raised this year and they will be high again next year.

MRCC Extension Climatologist Molly Woloszyn may be reached via email at mollyw@illinois.edu

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MRCC's Northern Midwest Road Tour

Beth Hall, MRCC Director

The groupie caravan is yet to be seen, and no lighters were sparking the air of the many conference rooms visited, but the [Midwestern Regional Climate Center](#) (MRCC) still felt pretty excited about their most recent road trip through Wisconsin, Minnesota, and Iowa. The MRCC, located in Champaign, IL at the University of Illinois, is one of 6 [Regional Climate Centers](#) across the United States who receives funding support from the National Oceanic and Atmospheric Administration (NOAA) to provide climate services such as climate data, climate information and products, and applied climate research. With climate affecting everyone, whether it is worsening snowstorms, disastrous flooding, or the record-breaking heat and drought of 2012, more and more sectors are interested in climate information. Therefore, the MRCC has decided to hit the road a few times throughout the year to meet with as many climate partners that they can within a one-week period.

The summer 2012 road trip began with an inaugural stop at the [Eastern Area Coordination Center](#) (EACC), (show map of EACC) a regional member of the [Geographic Area Coordination Centers](#) (GACC). The primary mission of the GACC is to serve Federal and State wildland



Route of the July 2012 MRCC Road Trip.

fire agencies through logistical coordination and mobilization of resources (i.e., people, aircraft, ground equipment) throughout the geographical area, and with other geographic areas, as necessary. While wildfires of the eastern region may not be as well publicized as those in the western or southern regions of the US, the number of wildfire ignitions in the eastern region so far this year is over 8,900



with more than 88,000 acres burnt! Climate information is currently being used to consider drought severity, recent precipitation coverage, and health of fuels due to high temperatures and low humidity. Climate services can play a more active role in the wildfire community by gaining an improved understanding of wind and dew point characteristics, along with climatological relationships between large-scale climate variability (e.g., El Niño) and atmospheric conditions related to ignition potential and fire activity.

After leaving the EACC, the MRCC visited the first of three [National Weather Service \(NWS\) Offices](#) (Milwaukee, Minneapolis, Des Moines). Visiting NWS offices are always exciting for the MRCC since we are contracting partners under NOAA. While the NWS is predominantly tasked with providing the best possible weather and hydrological forecasts for a region, their reputation means they are often contacted for climate information. Therefore, the MRCC works hard to develop products and tools to help each NWS office meet the needs of the public as quickly and as accurately as possible. Visiting these offices gives a proactive opportunity for the MRCC to hear how best to design and deliver the products and tools that are developed. Comments and feedback help to not only improve colors and design of the various products, but also recommend new climate products that can help them do their job.



Mike Timlin (second from right) and Beth Hall (third from right) with Staff at the Des Moines, IA NWS office.

For example, climate products that seem to be in high demand include dew point temperature, wind speed and direction, soil moisture, snow water equivalent, and evapotranspiration/potential evapotranspiration products. Without feedback like this from not only the NWS, but also all users of climate information, the MRCC would be unable to fulfill the climate needs of our



Nighttime photo of Wisconsin state climatologist John Young in front of a glacial erratic on the University of Wisconsin campus.

region as well as we want to!

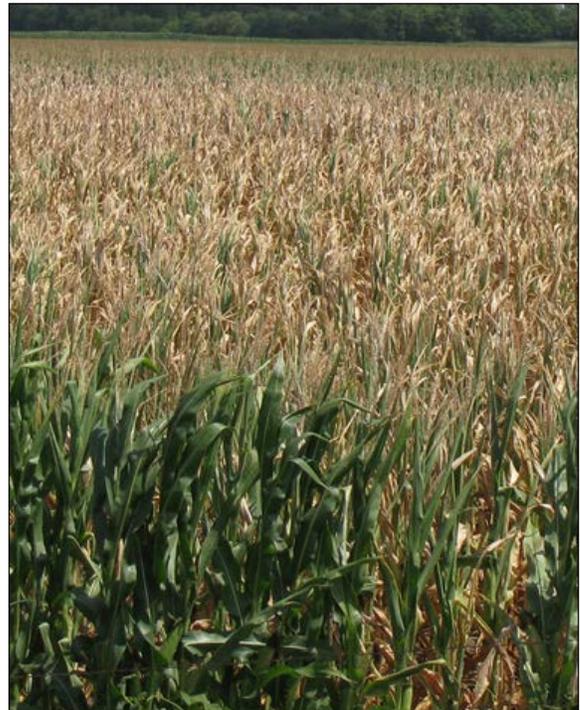
Another key partner to the MRCC is the [consortium of state climatologists](#). Almost every state has a recognized state climatologist who is tasked with knowing the climate of his or her state well enough to be a dependable resource of not only climate information but also climate consultation for a variety of government and private entities. On this road trip, the MRCC had the pleasure of meeting with the state climatologists (and their staff) of [Wisconsin \(John Young\)](#), [Minnesota \(Greg Spoden\)](#), and [Iowa \(Harry](#)

[Hillaker\)](#). In addition to having their own state-centered climate resources, they work closely with the MRCC to have products and tools developed to help them do their job. Like the NWS, meeting with these state climatologists is critical in order to find out how they are using MRCC resources, what they like and don't like, and what we can develop in order to continue to providing them with the resources they use and depend upon.

While visiting with the Wisconsin state climatologist, the MRCC had the pleasure of meeting with representatives from the [Wisconsin Initiative on Climate Change Impacts \(WICCI\)](#) and [Wisconsin Department of Natural Resources](#). In this first-time meeting between the MRCC and a potential climate partner, the MRCC had the opportunity to present who we are, resources that we can and do provide, and also had the opportunity to discuss possible research collaborations.

The third day of the 5-day road trip was filled with meetings, not only with key climate partners of the NWS and the Minnesota State Climate Office, but new contacts with the Fire Weather Forecaster of the [EACC](#), the [Bureau of Indian Affairs](#), the [River Forecast Center](#), the [National Operational Hydrological Remote Sensing Center](#), and [Cargill](#). With only Mike and Beth from the MRCC to visit all of these current and potential climate partners, the visits were short but incredibly rewarding and informative. In addition to ending the day with pages and pages of notes concerning comments and feedback for the MRCC, it was clear that the MRCC would have to come back to the Minneapolis-St. Paul region again soon, and for a longer period of time in order to dedicate more one-on-one time with each group and reach out to the many folks that we were sad to miss due to time constraints.

After leaving Minneapolis-St. Paul, we entered Iowa – a state clearly feeling the impacts of the 2012 drought. The corn was visibly stressed and water levels shockingly low. It is truly disheartening to see the vast, negative impacts of this drought, knowing the potential for improvement anytime soon is unfortunately low. In addition to an NWS office, the MRCC also stopped in to visit with faculty and staff at [Iowa State University](#). Not only were they wonderful hosts of our visit, but we were delighted to learn about their many climate data efforts and capabilities. We look forward to collaborating on not only climate research, but also on climate data and services.



A typical Iowa corn field seen on 24 July 2012.

During our “home stretch” back to Champaign, IL, the MRCC road trip decided to stop at a local winery to talk with the vineyard owners about how they utilize climate information for their decision-making purposes. [Ardon Creek Vineyard and Winery](#) is one of many regional wineries and vineyards in the Midwest. They showed us their vineyard and taught us a lot of about the weather and climate impacts on the wine industry and how they respond to things like pests and drought. As with everyone the MRCC met with during the road trip, Mike and Diane Furlong were incredibly inviting and welcomed us warmly (not to mention they have wonderful wine!).



Grapes from Ardon Creek Vineyard. Source: www.ardoncreek.com

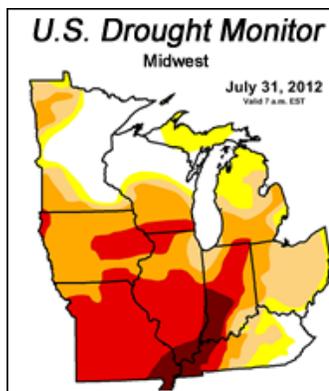
The summer 2012 MRCC road trip concluded with lots of new relationships, an incredible amount of comments and feedback for us to work on, and motivation to keep doing what we’re doing! Our fall 2012 MRCC road trip is planned for October 22nd through 26th and will be taking the MRCC through central and southern Indiana, southwestern Ohio, Kentucky, and southern Illinois. If you are

in these areas and would be interested in the MRCC stopping by, please let us know!

MRCC Director Beth Hall may be reached via email at bethhall@illinois.edu

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Midwest Climate at a Glance - July



Above average temperatures and minimal rainfall across much of the region resulted in an expansion and intensification of drought conditions over a large part of the Midwest during July. Drought conditions expanded from less than half of the region to more than 70% during the month. Severe drought areas more than tripled from 15% to 55%, while areas in extreme or exceptional drought (the worst two categories) grew from just over 5% of the region to more than 36%. As a result of the drought, crop conditions continued to deteriorate during July.

Similar to much of the summer, temperatures were above average during July. Maximum temperatures were 8°F to 10°F above normal across much of Missouri, Illinois, Indiana, southern Iowa, and southern Wisconsin. The number of record high temperatures topped 100 on 15 of the 31 days of the month, with a monthly total in excess of 3,000. [Read more...](#)

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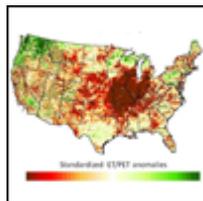
MRCC Product Highlight



The [MRCC Heat Wave web page](#) is the first product of our new "Living With Weather" series. This web series is being designed as a resource for individuals and communities to help plan for and cope with extreme weather events. The inaugural heat wave page describes heat waves and their intensity, the potential impacts of heat waves, safety tips, and current heat wave warning information and forecasts. Information has been gathered from a variety of sources, including the American Red Cross, the US Environmental Protection Agency (EPA), The US Department of Agriculture, the National Oceanic Atmospheric Administration (NOAA), and various University groups. A link to the US EPA's Excessive Heat Events Guidebook developed for urban planners is also provided.

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Climate Cool Tool



The [Evaporative Stress Index \(ESI\)](#), available from the Agricultural Research Service at USDA, describes temporal anomalies in evapotranspiration (ET), highlighting areas with anomalously high or low rates of water use across the land surface. Here, ET is retrieved via energy balance using remotely sensed land-surface temperature (LST) time-change signals. LST is a fast-response variable, providing proxy information

regarding rapidly evolving surface soil moisture and crop stress conditions at relatively high spatial resolution.

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MRCC On The Road



Columbus, OH (Aug 16) - Ohio River Basin Climate Change Study kick-off meeting

Beth Hall will be representing the MRCC at this kick-off meeting for the interagency effort to examine climate change impacts (both current and potential) on the Ohio River Basin.

Chicago, IL (Aug 20-22) - Midwest Climate Collaboration Workshop

Beth Hall is on the planning committee and will be the face of the MRCC at this gathering where climate partners from many sectors will come together to begin networking, coordinate priorities, explain capacities and expertise, and discuss resource opportunities.

Muskegon, MI (Aug 26-29) - Methods of Projecting Hydrologic Impacts of Climate Change Workshop, sponsored by NOAA/GLERL

Nancy Westcott and Beth Hall will be representing the MRCC at this NOAA-sponsored event that hopes to resolve how we bridge the gap between climate projection and hydrologic projection, how do we serve the needs of those interested in surface-atmosphere interaction and those interested in surface (and sub-surface) water budgets, and other hydrological and climatological questions.

Indianapolis, IN (Sep 6) - Keep Indianapolis Beautiful, Inc. annual luncheon

Beth Hall will be presenting a brief overview of the 2012 Drought thus far, placing this drought into historical perspective with past droughts, explaining some science on how this drought developed, and how much longer the drought is anticipated to persist. Keep Indianapolis Beautiful, Inc. unites people to build community and transform public spaces through aesthetic and environmental improvement.

Cleveland, OH (Sep 10-14) - Great Lakes Week

Molly Woloszyn will be representing the MRCC at Great Lakes Week, which is an effort to consolidate the numerous annual meetings of many Great Lakes organizations. It is a combined meeting of the Great Lakes Commission, International Joint Commission, Healing our Waters Coalition (HOW) and the annual Area of Concern conference with a bit of the Great Lakes Restoration Initiative added in.

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The MRCC is a partner in a national climate service program that includes the [NOAA National Climatic Data Center](#), [Regional Climate Centers](#), and [State Climate Offices](#).

MRCC is based at the Illinois State Water Survey, a division of the Prairie Research Institute
at University of Illinois Urbana-Champaign.

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