USDA Midwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

Midwest CHU

Climate Hub Update

Spring 2018

Promoting Climate-Informed Decisions Since 2014.

Meeting NLAE's Stakeholders

The Midwest Climate Hub (MCH) had a strong presence at the USDA-ARS National Laboratory for Agriculture and Environment (NLAE) Stakeholder Meeting held in Ames, IA on March 27, 2018. This meeting provides an opportunity for a wide range of stakeholders (~40 producers, crop/environmental consultants, and non-profits attended this year's meeting) to learn about the latest research from NLAE and provide crucial feedback for future research needs. For nearly 30 years, NLAE has been addressing critical issues in agriculture and watershed management through innovative and applied research driven by stakeholder needs. Since 2014, the NLAE has hosted MCH, whose mission is to convert scientific information into practical solutions for a wide range of stakeholders across the Midwestern region. MCH had an information booth and two posters on display at the meeting. Producers at this year's meeting stated that any tools to help them better manage their water issues (flooding and drought) are greatly desired.

Climate and Extreme Weather Taking a Toll on Midwest Specialty Crops

While the Midwest is famous for being the world's leader in corn and soybean production, this region is also home to a variety of high value specialty crops. Specialty crops include fruits, vegetables, tree nuts, dried fruits, and nursery crops including floriculture. Because specialty crops have much higher market values compared to traditional row crops, specialty crop production is an important contributor to the Midwest's rural economy with an estimated annual revenue value of $1.8 billion dollars in 2012. However, these crops are more sensitive to climatic stressors and require more intensive management compared to row crops like corn. As a result, these higher-risk, higher-reward fruits and vegetables have more limited crop insurance coverage than row crops.

Find out more on temperature and precipitation effects, weather induced crop losses, and adaptation and planning needs for specialty crops by selecting here.

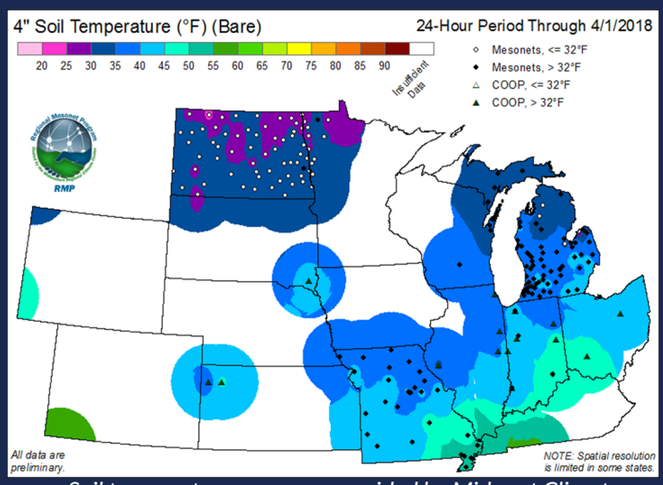
CHU in Every Issue...

Midwest Ag Focus Climate Update: April 3rd, 2018

Precipitation in March was well above average near the Ohio Valley into the Dakotas. Dry conditions prevailed in Michigan and Wisconsin as well as the central Plains. Average March temperatures were mostly cooler than average, but not extremely over most of the region. Only recent temperatures have been much colder than average.

The initial concern as of early April is impact on planting progress. Early planting is starting in the far southern Corn Belt.Early crop insurance dates are approaching for corn in the Midwest. Conditions are unlikely to allow early planting.Spring wheat and other small grains may be delayed also in the northern areas. Ample time does exist for corn planting if conditions are able to rebound. Soil temperatures are near 50°F only in the southern Corn Belt.

Select here to see the outlook in its entirety.



Soil temperature maps are provided by Midwest Climate Watch, MRCC. Select here for more information.

Regional Outlook for the Midwest

In collaboration with NOAA and the Midwest Regional Climate Center, we are pleased to provide the following Winter 2018, Regional Outlooks. The Midwest, Missouri Basin, and Great Lakes regional outlooks can be accessed by clicking on their titles to the right.

Missouri River Basin

Great Lakes Region

Midwest Region

Meet the Climate Hub Partners: Beth Hall, Director of MRCC

The success of the Midwest Climate Hub in transferring management practices, decision tools and information to our stakeholders can only be achieved through coordination via a diverse array of regional partners. In that spirit, we would like to highlight one of our partners: The Midwestern Regional Climate Center (MRCC) and it's Director, Dr. Beth Hall.

Beth Hall has been with MRCC as director since 2012 (for Beth's full biography select here). In a short interview with Beth to learn more about her position and MRCC, we asked the following questions:

1. Tell us a little about yourself.

When I started studying meteorology, I had assumed that I would be pursuing some sort of career in forecasting. However, when I started my Master's program in the mid-1990's...I soon discovered that studying climatology could benefit the wildfire, agricultural, energy, and water resources communities. In fact, relating trends, extremes, and other patterns of weather to decision making in other disciplines can be endless. I decided to pursue an education that would allow me to do applied climatology.

2. What appeals to you most about your position?

Being the director of the MRCC, I have diverse opportunities to interact with and help stakeholders, from across a wide range of interests, make better-informed decisions. It is incredibly rewarding to discover how large databases of numbers (that are always increasing in size) can be converted into information that is useful. MRCC provides services that enable society to learn from past weather and climate impacts, monitor conditions for the possible return of those impacts, and become more resilient for the future.

3. How have you worked with the MCH in the past and what do you hope to achieve with the Climate Hubs in the future?

The MCH shares a lot of the same mission interests as the MRCC, except with a targeted audience – agricultural communities. Working with the MCH has been beneficial for both of our organizations to help better engage with this community. We have worked together in recent years with in collaboration on the state mesonet programs (programs that manage and operate networks of weather observing sites that collect atmospheric/ground information). Another example of how the MRCC has worked with the MCH is through the shared interest in climate data needs and applications for specialty crop production. The specialty crop industry continues to grow and have tremendous economic impact in the region.Variable weather across the Midwest, including the likelihood of weather extremes poses risks to this industry.

"Both the MRCC and MCH have been partnering to engage more directly with producers to identify their climate services needs to make crops resilient to weather impacts. I hope the MCH and MRCC continue to work together to identify and develop climate services that are driven by agricultural stakeholder needs and interests."

-Beth Hall, Director, MRCC

MRCC is a cooperative program between the National Centers for Environmental Information (NCEI) and the Illinois State Water Survey in Champaign, Illinois. The MRCC serves the nine-state Midwest region (all of the same states as the MCH plus Kentucky). Their services and research help to better explain climate and its impacts on the Midwest, provide practical solutions to specific climate problems, and allows for the development of climate information for the Midwest on climate-sensitive issues such as agriculture, climate change, energy, the environment, human health, risk management, transportation,and water resources.

On the RADAR....

Great Plains Grassland Summit
Denver, CO: April 10-11

The objectives of the 2018 Great Plains Grassland Summit are to convene an opportunity for managers, scientists and stakeholders to learn about and contribute to ideas, knowledge, and plans for managing, conserving and restoring grasslands through collaborations across boundaries in the Great Plains. For more program information contact: Deborah Finch, dfinch@fs.fed.us.

Webinar: No-tilling Through High Residue Conditions
April 10, 2018 2:00 pm Eastern

Presenter: Barry Fisher, NRCS Soil Health Division Central Region Soil Health Team Leader, Indianapolis, IN. This webinar will focus on management strategies for planting into high biomass (>6" depth and 10,000 lbs. of residue) to ensure good stands. High biomass cover crops are a key to improving soil health, with many farmers growing an additional 10,000 lbs. or more of plant material resulting in a thick (>6") layer of mulch. These conditions require a different strategy for planting to ensure good seed to soil contact. This webinar will cover adjustments to planter, drills and other equipment to ensure good seed to soil contact.

Rising Voices: Collaborative Science with Indigenous Knowledge for Climate Solutions- Rising Together: Mobilizing and Learning from Local Actions
Duluth, MN: April 11-13

The theme of the workshop is "Rising Together: Mobilizing Learning from Local to Global." The theme reflects the meeting objectives which will be to review what we have learned from previous Rising Voices gatherings, mobilize diverse knowledge systems toward appropriate climate solutions, and learn from local partners and actions in the Great Lakes area.

16th Annual Climate Prediction Applications Science Workshop (CPASW)
North Dakota State University,Fargo, ND: May 22-24, 2018

The 16th Annual Climate Prediction Applications Science Workshop (CPASW) brings together a diverse group of climate researchers, information producers, and users to share developments in the research and applications of climate predictions for societal decision-making.The 2018 CPASW will be hosted by the NOAA National Weather Service Climate Services Branch, North Dakota State University, and other climate services partners. Find out more here.

Additional Resources

Skeptical but Adapting: What Midwestern Farmers Say about Climate Change

Farmers stand to be greatly affected by changes in the climate, necessitating adaptive responses, yet little is documented on how U.S. Midwestern farmers understand and perceive climate change adaptation. Eight focus groups with 53 Michigan farmers were conducted in 2011–2012 to better understand the following: 1) what do farmers think about the relationship between climate change and agriculture, 2) what differentiates normal weather-related management from climate change adaptation actions, and 3) how do farmers understand the term "climate change adaptation."

Farmers expressed skepticism at global climate change yet conveyed specific details about the local changes in climate they are experiencing on their farms.

AMS American Meteorological Society

The Weather Channel: The United States of Climate Change

Missouri | Iowa
Minnesota | Indiana
Wisconsin | Illinois
Ohio | Michigan

A project with focus on stories from all 50 states: The basic mechanism of climate change was described in 1896, and while the climate system is complicated, humans' understanding of climate change and the factors which might alter or mitigate it has only grown over the past century. This project will not debate the science of climate change. Instead, this project will focus on telling stories. Americans are already feeling the impacts of climate change. We're feeling it in raised temperatures and unusual weather patterns, true, but also in things like a shifting economic landscape and coastal regions that seem to be altering by the moment. Select your state to the left to read those stories.

Global Change Biology

Research: Deep Ploughing Increases Agricultural Soil Organic Matter Stocks

Subsoils play an important role within the global carbon cycle, since they have high soil organic carbon (SOC) storage capacity due to generally low SOC concentrations. However, measures for enhancing SOC storage commonly focus on topsoils. This study assessed the long-term storage and stability of SOC in topsoils buried in arable subsoils by deep ploughing, a globally applied method for breaking up hard pans and improving soil structure to optimize crop growing conditions...On average, 45 years after deep ploughing, the 'new' topsoil still contained 15% less SOC than the reference topsoil, indicating long-term SOC accumulation potential in the topsoil. Read More by selecting here.

Research: Who Framed Climate Change? Identifying the How and Why of Iowa Corn Farmers' Framing of Climate Change

Agricultural production systems both contribute to and are threatened by climate change. Farmers could reduce agriculture's contributions and vulnerability to climate change by adopting mitigation and adaption practices. A growing number of studies have begun to examine developed countries farmers' beliefs related to climate change and how they affect farmers' support for adopting these practices. To build on this work, this analysis uses qualitative data from 53 Iowa corn farmers to offer a nuanced depiction of the farmers' perception of non-anthropogenic climate change. Goffman's concept of *framing*, with contributions from more recent social movement scholarship, is used to reveal *how* farmers are constructing climate change as largely a result of inevitable 'natural cycles', the effect this has on their support for mitigation and adaptation and to explore *why* this particular framing resonates with them.

Research: Climate Change and Ideological Transformation in United States Agriculture

Sociologia Ruralis

Farmers pay close attention to their environment and are increasingly experiencing and recognising the impacts of climate change. Drawing from the work of Göran Therborn, this article examines farmers' climate change beliefs, explores emerging contradictions between conservative ideological positions and personal experiences, and looks for signs of ideological transformation. Data from 154 personal interviews with corn farmers in the Midwestern United States reveals that many farmers believe that humans play some role in climate change and that climate change has serious and negative impacts on agriculture. Interview data also illustrates how farmers contradict themselves when discussing their positions on climate change and suggests that farmers may be losing faith in political elites. As farmers continue to experience the impacts of climate change, they may find it increasingly difficult to support conservative positions. However, this study also reveals that, despite individual beliefs, the political economy of industrial agriculture will continue to constrain the adoption of climate change mitigation measures.