Promoting Climate-Informed Decisions Since 2014.

MCH and NDMC Host US Drought Monitor Workshop in Altoona, IA

In light of the serious droughts that have affected the parts of the Midwest, Southern Plains and Southwest regions of the U.S. recently, the USDA Midwest Climate Hub, USDA Office of the Chief Economist, and the National Drought Mitigation Center (NDMC) hosted an all-day training workshop in Altoona, IA on June 28th. The U.S. Drought Monitor (USDM) is identified in the USDA Farm Bill as the main source for determining location and severity of drought events. The USDA uses USDM maps to determine allocation of drought relief funds to agricultural producers. Because of the importance of the USDM to federal farm programs, the USDA and NDMC are coordinating a series of meetings nationwide for USDA personnel to learn more about the details of the creation of the USDM. This workshop's 30+ attendees included USDA program field staff, University Extension personnel as well as state, county and local management officials. Attendees learned the history of the USDM, how it is produced, and its role in triggering USDA farm programs. Contact the Midwest Climate Hub for more information.

MCH Director on Planning Team: Wisconsin Climate Services Summit Meeting

A first-time meeting of Wisconsin's State, Federal, University, & Tribal weather/climate information providers and users - 49 invited representatives from 21 organizations met in Madison, WI on Jun 6-7 for an open discussion on the current state of weather/climate services across the state. Meeting objective were to: 1) Identify climate services needs or gaps within the state; 2) Build increased awareness of existing climate tools, data, individuals and expertise; 3) Identify opportunities to seek out additional resources; and 4) Enable climate service providers to better coordinate and collaborate. MCH Director Dennis Todey showcased current USDA Climate Hub products, including the Midwest Ag-Focus Climate Outlook and helped guide discussions on ag climate services for Wisconsin.

Published: Climate Change Benefits Superweed, Palmer Amaranth

Palmer amaranth has recently emerged as one of the most widespread and severe agronomic weeds in the United States, due in part to its facility for evolving herbicide resistance. Climate change will likely exacerbate the challenges of managing this species. A recent study in *Agricultural & Environmental Letters*, lead by MCH fellow Erica Kistner-Thomas, simulated the potential global distribution of Palmer amaranth under current conditions and future climate scenarios using a process-oriented bioclimatic niche model.

Projected future increases in temperatures would expand the weed's potential range northward into portions of Canada. In addition, suitable range for Palmer amaranth in the United States alone would increase by 21.22% by 2050, particularly in the central and western states. This study highlights several agricultural production regions of increasing and emerging risk from Palmer amaranth that should be considered routinely in ongoing biosecurity and weed management programs. Click here to read the full article.

Published: Need for Improved Climate Info Delivery to Corn Belt Growers

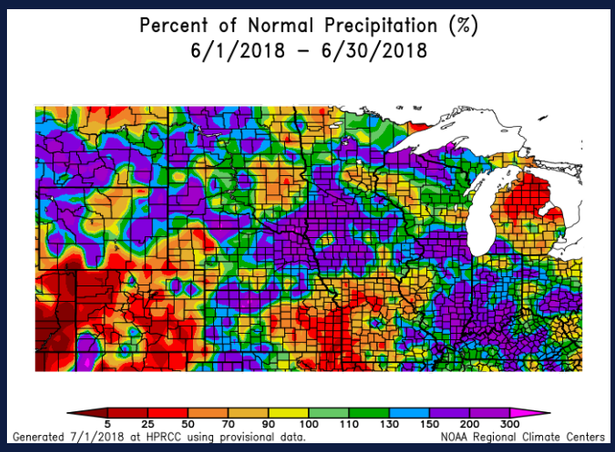
In a recent article published in the Bulletin of the American Metoerological Society, researchers found that agricultural advisors are engaged and critical users of climate information, while gaps remain in providing salient climate information to U.S. Corn Belt farmers. Dennis Todey, the Midwest Hub Director, is a co-author on this paper. Click here to read the full article.

CHU in Every Issue...

Midwest Ag Focus Climate Update: June 22nd, 2018

Dry conditions have given way to wet or excessively wet conditions across many areas of the Midwest and Plains in June. Pockets of dryness have stay very persistent from eastern Kansas to southern Iowa while flooding and inundated fields have occurred form Minnesota and Iowa eastward where over 150% of average precipitation occurred with much more in smaller areas. Very warm conditions overspread the Midwest and Plains as of the end of June accompanied by high humidities creating very stressful conditions for humans and livestock. Overall June was 2-6 F above average over most of the region.

Select here to see the **Midwest Ag Focus Climate Outlook** in its entirety, including impacts in the Region.



Map is generated at the High Plains Regional Climate Center. Select here for more information.

Quarterly Climate Impacts and Outlooks

In collaboration with NOAA and the Midwest Regional Climate Center, we are pleased to provide the following June 2018, Regional Outlooks. The Midwest, Missouri Basin, and Great Lakes regional outlooks can be accessed by clicking on their titles to the right. Select here for a list of all regions.

A new Drought Status Update for the Midwest & Nothern Plains Region was published on June 21st . MCH Director, Dennis Todey, was a co-author. Click here to read the full Drought Outlook.

Missouri River Basin

Great Lakes Region

Midwest Region

Meet the Climate Hub Partners: Doug Kluck
NOAA Regional Climate Services Director, Central Region

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: NOAA Regional Climate Services Director, Doug Kluck.

1. Tell us a little about yourself.

I am from Nebraska and born on, not in, a feedlot near Richland, NE (Columbus, NE). I spent most of my growing up years in Lincoln, NE where I received a BS in geology and a MA in geography/climatology from the University of Nebraska.

2. Tell us about your work history. How long have you been with NOAA?

After college, I worked for North American Weather Consultants in Salt Lake City, UT. From there I spent six years in Silver Spring, MD at the National Weather Service headquarters doing primarily probable maximum precipitation studies. From there I transitioned to Hastings, NE (NWS) to be a weather forecaster and then to Kansas City, MO as a hydrologic forecaster at the Missouri Basin River Forecast Center. Following that I moved to a regional office in Kanas City, MO. I left the National Weather Service in 2010 but I now work for another part of NOAA, specifically the National Centers for Environmental Information (NCEI). My title is a regional climate service director. I have worked for NOAA for about 26 years, 18 of which with the NWS.

3. What appeals to you most about your position?

By far the most appealing part is knowing that the information we provide is useful and thus used. People and organizations have to make a lot of decisions and a portion of that is weather and climate dependent often. We provide climate and environmental information about the past (back to the 19th century), the present and the future. We translate national and broad based information from a variety of sources to regional and local issues and impacts. Both the Climate Hub and NOAA regional climate services cover many states so there are always events and extremes to deal with. My region stretches from the Great Lakes to Kentucky west to the Rockies.

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

We work very closely on climate related issues with the Hub monthly if not weekly. Information comes at all of us very quickly and so do changes with the climate and weather. One of our jobs is to funnel the most important impactful information down to just what is most needed by particular institutions and individuals. We do this through a variety of means including regional climate webinars, briefings and conference calls. In the future we will continue to work hand in hand on climate services across time scales with many sectors including agriculture, federal/state/tribal/municipal governments, energy, transportation etc…

> *"Agriculture is almost always on the front line of climate impacts so in other words they feel the pain first. It's part of our job in working with the Hubs to assure we are collaborating appropriately so that the Ag sector is well informed. "*
>
> -Doug Kluck, NOAA

****Some Fun Facts about Doug:** *Doug is an avid biker and regularly takes long rides on rails to trails with a group of friends. He spends as much time "gaming" as time allows, including but not limited to computer and board games.*

NOAA/NCEI's Central Region Climate Services provide actionable and useable information across time scales and at a meaningful geography. Climate extremes often impact the north-central United States. Over the last five years, devastating floods, record heat, and drought have enveloped immense areas of the 14 states in the region. NOAA and its key partners in the region are responding to these events and the ever-increasing demand for climate information by reaching out and working directly with federal, state, tribal, academic, and nongovernmental organizations and private concerns.

On the RADAR....

InfoAg Conference
St. Louis, MO: July 17-19, 2018

InfoAg is the premier conference on the practical application of precision agriculture. It features an educational program that includes plenary, breakout, and workshop sessions along with an extensive exhibit hall of leading hardware, software, and services vendors to precision agriculture. Attendees include crop consultants, agribusiness people, university researchers, and government workers.

For more information and to regoter for the conference, select here.

103rd Annual Meeting of the Ecological Socity of America
New Orleans, LA: Aug 5-10, 2018

Ecologists from around the world will gather this August in New Orleans for the Ecological Society of America's 103rd Annual Meeting, which is expected to host over 3,000 scientific presentations this year. Meeting plenaries and symposia will delve into recent events as they explore the meeting theme "Extreme events, ecosystem resilience, and human wellbeing." Find out more here.

Note: Several USDA Climate Hub Fellows will be presenting reserach at ESA 2018.

2018 Great Lakes Adaptation Forum
Ann Arbor, MI: Sept 24-26, 2018

The 3rd Great Lakes Adaptation Forum will focus on equity in climate adaptation and accelerating action through innovation and technology. This 3 day Forum will support interactive sessions and be an opportunity for exchange between hundreds of researchers and professionals working on climate change adaptation at the local, state, and regional levels in the U.S. and Canada. Find out more here.

Additional Resources

Blog Article: "Crop Diversity: A Nice Thing If You Can Get It (and You Can Get It If You Try)"

Diverse croppings systems are crucial for a productive and resilient agrifood system. Cropping system diversity can help build greater agroecosystem resilience by suppressing insect, weed, and disease pressures while also mitigating the impacts of global climate change. Sadly, much of the agricultural production in the US, particularly in the Midwest, is lacking in biological diversity (at the genetic, species, and community level). USDA Climate Hub Fellow, Gabarielle Roesch-McNally, lead a study examining the socioeconomic reasons behind why Midwestern growers are still stuck on corn and sobean.

Their results indicate that Midwestern growers acknowledge the benefits of diversifying their crop rotation, but often lack the technological, economical, and informational support needed to incorporate more diverse crop rotations. Click to read the full blog summary article.

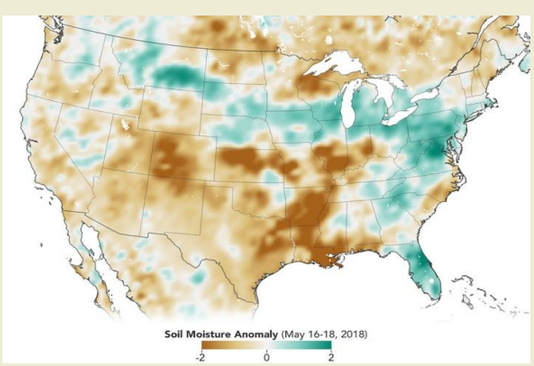
Union of Concerned Scientists
Science for a Healthy Planet and Safer World

Publication: Northward Shift of the Agricultural Climate Zone Under 21st-century Global Climate Change

SCIENTIFIC REPORTS

In a recent study published in Scientific Reports, an international team of scientists have assessed the impact of climate change on land that could support agriculture in the boreal region, which includes large sections of Canada, Sweden, Norway, Finland, Russia and the United States. The study fround that climate change could expand the agricultural feasibility of the global boreal region by 44% by the end of the century. Model simulations indicate that the upper edge of land suitable for crop growth could shift as far north as 1,200km from the current position with the most dramatic changes occurring in the inner-continental regions of North America and Eurasia. However, researchers also warn that the same climate trends that would increase land suitable for crop growth in that area could also significantly change the global climatic water balance – negatively impacting agriculture in the rest of the world.

Article: NASA Soil Moisture Data Advances Global Crop Forecasts



Data from the first NASA satellite mission dedicated to measuring the water content of soils is now being used operationally by the U.S. Department of Agriculture to monitor global croplands and make commodity forecasts. The Soil MoistureActive Passive mission, or SMAP, launched in 2015 and has helped map the amount of water in soils worldwide. Now, with tools developed by a team at NASA's Goddard Space Flight Center in Greenbelt, Maryland, SMAP soil moisture data is being incorporated into the Crop Explorer website of the USDA's Foreign Agricultural Service, which reports on regional droughts, floods and crop forecasts. Among the users of this new SMAP data are USDA regional crop analysts who need accurate soil moisture information to better monitor and predict these variations. Read more here.

USDA Climate Hub Blog: Long Range Weather Forecasts are Getting Better

The Northeast Climate Hub's own Anthony Buda and Erin Lanes provide a great overview of the history of weather forecasting and where this field is heading in the future. Overall, numerical weather prediction (aka weather forecasting) has come a very long way since computer-based forecasts were first introduced in the 1950s. As Peter Bauer details in his article entitled, “oday's weather forecast: good with a strong chance of improvement,” the useful range of weather forecasts has improved by about a day per decade, meaning that today’s seven-day forecast is about as good as a one-day forecast in the 1950s. So despite what you might hear about weather forecasters being paid to be wrong 50% of the time, the reality is quite the opposite. As weather forecasting continues its quiet revolution, forecasters with NOAA’s Climate Prediction Center (CPC) are advancing their ability to predict regional and global climate events that influence average weather (or climate) beyond the typical seven-day forecast. Click to read the full blog article.

Publication: Farm service agency employee intentions to use weather and climate data in professional services

In 2016, a survey colloboratively designed by the USDA Climate Hubs, FSA, and the University of Vermont was administered to capture FSA field staffs' perspectives related to climate change as well as the risk weather varaiability poses to U.S. farmers. The survey also investigated the types of climate and weather tools FSA staff currenlty use in their work with land owners. The results of this survey were recently published in a special issue of Renewable Agriculture and Food Systems with Climate Hub Fellows Rachel Schattman, Sarah Wiener, and Gabrielle Roesch-McNaly as co-authors. Over 10,000 FSA were contacted for the survey; in total 4,621 participated resulting in a very high response rate of 42%.

The majority of FSA survey respondents (65%) believe that it is important for producers to adapt to climate change to ensure the long-term viability of U.S. Agriculture. However, only 14% of respondents felt that they personally have the knowledge to help producers deal with weather-related threats. Overall their suvey results indicate the need to increase FSA employee exposure and proficiency with weather and climate information. Click here to read the full article.

Article: What Do Farmers Need To Know About Climate Change? AgBiz Logic

National Farmers Union

The National Farmers Union have written a brief piece highlighting AgBiz Logic, a tool suite that was has co-developed by Oregon State University, USDA-NIFA and the USDA Northwest Climate Hub. AgBiz Logic has five modules including AgBizClimate. AgBizClimate is a climate decision tool to help producersunderstand economic risks and benefits of changes to climate on theiroperations. It provides climate change projections for weather conditions that are relevant to producers of specific agricultural commodities at a useful scale for making decisions on their operation.

To remove your name from our mailing list, please email midwestclimatehub@ars.usda.gov.
Questions or comments? E-mail us at midwestclimatehub@ars.usda.gov or call 515-294-0136.

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