North Central U.S. Climate Summary and Outlook Webinar
July 21, 2016

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General Information

- Regional climate services for the North Central U.S., including the Great Plains and Midwest, are provided through collaboration among federal, regional, and state partners:
  - National Oceanic and Atmospheric Administration
  - U.S. Department of Agriculture
  - National Drought Mitigation Center
  - High Plains Regional Climate Center
  - Midwestern Regional Climate Center
  - American Association of State Climatologists

- Next webinar
  - August 18, 2016 with Jim Angel, Illinois State Climatologist

- Archive of past webinars
  - [http://mrcc.isws.illinois.edu/multimedia/webinars.jsp](http://mrcc.isws.illinois.edu/multimedia/webinars.jsp)
  - [http://www.hprcc.unl.edu/webinars.php](http://www.hprcc.unl.edu/webinars.php)
Agenda

• Current climate conditions in historical context
• Current and prospective climate impacts
• Climate outlooks
• Questions, answers, and further discussion
  Panelists: Doug Kluck (host), Barb Mayes, Dennis Todey, Stu Foster

Credit: NWS, Omaha WFO
Precipitation deficits continued to develop in portions of Wyoming and South Dakota and in portions of Michigan and Ohio.

Abundant precipitation occurred over a large portion of the region, with the heaviest amounts centered on portions of Kentucky.
Soil Moisture Anomaly
North American Land Assimilation Data System

http://www.emc.ncep.noaa.gov/mmb/nldas/drought/
USGS Water Watch
Real-time Streamflow in Historical Context

Thursday, July 21, 2016 09:30ET

Explanation - Percentile classes

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<th>Low</th>
<th>&lt;10</th>
<th>10-24</th>
<th>25-75</th>
<th>76-90</th>
<th>&gt;90</th>
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</table>
Temperatures transitioned from warmer than normal in the June period to cooler than normal in the July period across the Upper Great Plains and the much of the Midwest.

Temperatures transitioned from cooler than normal in the June period to warmer than normal in the July period across the southern portions of the Upper Greats Plains and Midwest.

Over the past week, high temperatures and heat stress have been widespread.
Evaporative Stress Index 4km
1 month composite ending July 19, 2016

Standardized ET/PET anomalies
-2σ < -1σ 0 +1σ > +2σ

USDA-ARS Hydrology & Remote Sensing Lab
Year-by-Year Comparisons

2016 (July 19)

2015 (July 21)

2014 (July 22)

2013 (July 23)

2012 (July 24)
U.S. Corn Areas Experiencing Drought

Reflects July 12, 2016
U.S. Drought Monitor data

Approximately 6% of corn production is within an area experiencing drought.

Major and minor agricultural areas are derived from NASS county-level crop production data from 2006 to 2010. Additional information on these agricultural data can be found at: http://www.nass.usda.gov/.

Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: http://droughtmonitor.unl.edu/.

- Major agricultural areas combined account for 75% of the total national production.
- Major and minor agricultural areas combined account for 99% of the total national production.
Modified Stress Degree Days (base 86°F) for Corn Plants
Accumulated January 1 to 7/19/2016

Modified Stress Degree Days (base 86°F) for Corn Plants, Departure From Normal
Accumulation January 1 to 7/19/2016
Climate Impacts: It’s too wet!

- Extensive areas in western Kentucky have recorded 10” or more of rain in July. One storm produced more than 8” within 5 hours in Marshall County. Corn and soybean crops have been damaged. Areas of Kentucky, Indiana, Illinois, and Missouri are at elevated risk for fungus.
Climate Impacts: It’s too dry!

- Drought is intensifying in northeastern Wyoming and western South Dakota. Dryland alfalfa yields are projected to be worst since 1988. Pastures are stressed. Water quantity and quality issues are prevalent. Increased pumping for irrigation or row crops. Fire danger is heightened. Municipal water in Rapid City during June exceeded than experienced in 2012.

- Dryness has persisted in some areas the Lower Peninsula of Michigan and in northern Ohio, following wet conditions over winter and into spring. Continued dryness is likely to impact corn, hay, Christmas trees, and young/recently transplanted fruit trees. With prospects for rain over the near term, potential impacts could be reduced.
7-day Quantitative Precipitation Forecast

[Map showing precipitation forecast with color coding and numerical values across the United States.]
8-14 Day Outlook
July 28-Aug 3
NWS Climate Prediction Center

http://www.cpc.ncep.noaa.gov/products/predictions/814day/
Monthly Outlook for August
NWS Climate Prediction Center

http://www.cpc.ncep.noaa.gov/products/predictions/long_range/lead14/
Seasonal Outlook for Aug-Sep-Oct
NWS Climate Prediction Center

http://www.cpc.ncep.noaa.gov/products/predictions/long_range/
Short-Term Energy Outlook

Electricity Consumption

Nationwide Retail Sales of Electricity

US EIA Estimates

- Jan-Jun 2016 estimated -5.4% year-over-year, due to mild temperatures
- Jul-Dec 2016 projected +2.9% year-over-year, due to projected above normal temperatures, especially in the Midwest

* National average

https://www.eia.gov/forecasts/steo/report/electricity.cfm
To get a La Niña started, someone—the ocean or the atmosphere—has to make the first move. The ocean has done that—the ocean surface has cooled somewhat, and appears to be “waiting” for some stronger surface winds to upwell still colder water. **To get the La Niña to grow, we need more upwelling.** It is the atmosphere’s turn to play ball. Is it going to kick in or isn’t it?
Probabilistic ENSO Forecast and Model Predictions

Early–Jul CPC/IRI Official Probabilistic ENSO Forecast

Mid-Jul 2016 Plume of Model ENSO Predictions
Generalized Influence of La Niña on North American Winter Climate
Seasonal Outlook for Dec-Jan-Feb
NWS Climate Prediction Center

[Map showing temperature and precipitation outlooks for the northern hemisphere, with color-coded regions indicating above-normal, normal, and below-normal conditions]

Summary

• Precipitation was above normal for much of the region over the past month, including extreme events in portions of Kentucky. Dryness eased over portions of Iowa. Meanwhile, areas of emerging drought expanded and intensified in portions of South Dakota and Wyoming, while dryness persisted in areas of Michigan and Ohio.

• Temperatures moderated over much of the region during the past month before a heat wave accompanied by high humidity developed and created stress during the past week.

• Though extreme conditions affect some areas, conditions over the region have been generally favorable for agriculture.

• La Niña conditions are likely to develop into the fall or winter, though the probability has decreased over the past month.
Additional Information

- Today’s and Past Recorded Presentations and
  [http://mrcc.isws.illinois.edu/multimedia/webinars.jsp](http://mrcc.isws.illinois.edu/multimedia/webinars.jsp)
  [http://www.hprcc.unl.edu/webinars.php](http://www.hprcc.unl.edu/webinars.php)

- NOAA’s National Centers for Environmental Information:
  [https://www.ncei.noaa.gov/](https://www.ncei.noaa.gov/)


- NOAA’s Climate Prediction Center: [www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov)

- Climate Portal: [www.climate.gov](http://www.climate.gov)


- National Drought Mitigation Center: [http://drought.unl.edu/](http://drought.unl.edu/)

- American Association of State Climatologists
  [http://www.stateclimate.org](http://www.stateclimate.org)

- Regional Climate Centers serving the Central Region
  Midwestern RCC [http://mrcc.isws.illinois.edu](http://mrcc.isws.illinois.edu)
  High Plains RCC [http://www.hprcc.unl.edu](http://www.hprcc.unl.edu)
Questions?

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Thank you for your participation!