Midwest and Great Plains Climate-Drought Outlook 19 November 2015

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SDSU Campus Brooking – Author phote

General Information

Providing climate services to the Central Region

- * Collaboration Activity Between:
 - State Climatologists
 - * Doug Kluck & John Eise (NOAA)
 - * American Association of State Climatologists
 - * Midwest and High Plains Regional Climate Centers
 - * National Drought Mitigation Center/USDA
- * Next Regular Climate/Drought Outlook Webinar
 - * Dec. 17, 2015 (1 PM CDT)
 - * Jeff Andresen MSU (Michigan SC)
- * Access to Future Climate Webinars and Information
- * http://www.drought.gov/drought/content/regionalprograms/regional-drought-webinars
- * http://mrcc.isws.illinois.edu/webinars.htm
- * <u>http://www.hprcc.unl.edu/webinars.php</u>
- * Open for questions at the end

Agenda

* Current Conditions

- * Impacts
- * Outlooks
 - * El Niño
 - * Winter
 - * Summer



Review/Current Conditions



October Temperature Recap

October 2015 Period: 1895-2015 National Centers for nvironmen ed Nov 4 2015 Above Average Much Above Average Record Coldest Much Below Below Near Record Average Average Warmest Average (1)(121)

Statewide Average Temperature Ranks

Warm nationally but specifically in the western half of country.

http://www.ncdc.noaa.gov/temp-and-precip/us-maps/

October Precipitation Recap

Period: 1895-2015 80 National Centers for Invironmenta Information Ned Nov 4 2015 Much Above Average Record Driest Much Below Average Below Above Record Wettest (121) Near Average Average Average (1)

Statewide Precipitation Ranks October 2015

Most active across southern US – subtropical jet the more active (climatology and El Nino)

http://www.ncdc.noaa.gov/temp-and-precip/us-maps/

Statewide Average Temperature Ranks August-October 2015 90 day Period: 1895-2015 temperature and precipitation ranks DOBR, Wed Nov 4 2015 Statewide Precipitation Ranks August-October 2015 Period: 1895-2015 Record Coldest (1) Much Below Average Much Above Average Below Average Near Average Above Average Record Warmest (121) 90 34 Environmental Information Wed Nov 4 2015 Record Driest (1) Much Below Average Below Much Above Average Record Wettest (121) Near Above Average Average Average



Percent of Normal Precipitation (%) 10/19/2015 - 11/17/2015



Most recent 30 and 90-day precipitation

Percent of Normal Precipitation (%) 8/20/2015 - 11/17/2015

Mixed messages across the region and across time scales

http://hprcc.unl.edu/maps.php?map=ACISClimateMaps/

HPRCC – Regional Climate Centers



Regional Climate Centers

5 25 50 70 90 100 Generated 11/18/2015 at HPRCC using provisional data.



Impacts



Late hard freeze (< 28 F)

Latest Fall 28°F Freeze and Rank, 2015 Rank based on each site's period of record Station Data Valid the Morning of 11/18/2015

- No 28°F Freeze Yet
- New Record Late Freeze
- 2nd Latest Fall Freeze 4th Latest Fall Freeze
- 3rd Latest Fall Freeze 🔷 🌒
- 5th Latest Fall Freeze
 Freeze not near Record



Late freeze impact

- Extended growing seasons (gardens, flowers, trees)
- * Delay in killing all insects
- Has left some potential issues if we were to experience a big shift to cold – especially MI
- Tree standpoint still leaves susceptible to winter storm damage/wind



https://www.climate.gov/news-features/blogs/beyond-data/first-dates

http://mrcc.isws.illinois.edu/CLIMATE/

Midwestern Regional Climate Center cli-MATE: MRCC Application Tools Environment Generated at: 11/19/2015 7:58:48 AM CST

Stations from the following networks used: WBAN, COOP, FAA, GHCN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI, Missouri FSA, Missouri Mesonet,

Agriculture

- Generally easy harvest season (non-wet few big storms)
- * Crop yield records in several states
- Dry conditions left limited drying necessary in some cases crops were a little too dry
- Winter wheat establishment good (sufficient moisture and growth – concern on growth)

Late season precipitation

Precipitation (in) 11/4/2015 - 11/17/2015





Eased some dryness concerns entering the winter

Several records for November precip – various daily







USDA-NASS

Soil temperatures



Soil temp concerns

- Warm and dry conditions kept soils warmer well into the fall
- People not watching soil temps and applying N could likely be losing nitrogen after application

Fire Issues

More active fire season than usual in several places in the corn belt.



Fire near Davenport, IA Courtesy Ray Wolf - NWS

7-Day Average Streamflow

Monday, November 16, 2015



Wednesday, 18 Nov. 2015 General conditions near-normal to wet Dry in NE-KS and Upper MO

 Explanation - Percentile classes

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Streamflow comments

- * 5-10% below average reduced probability of bankfull conditions with current situation (similar in both Missouri and Mississippi systems) - RFCs
- * USACE runoff into Ft. Peck and Garrison 60-85% of average in recent months (and forecasts of Nov-Dec)

Great Lakes



Water level outlooks Differing by El Niño event Most likely to stay above long term average





Outlooks

El Niño

Warm water progression in Pacific

Week centered on 26 AUG 2015 SST Anomalies (°C)



ENSO Alert System Status: El Niño Advisory

Large amount of warm water sub-surface Likely to continue.

Peak may be upon us



CPC/IRI Probabilistic ENSO Outlook

Updated: 9 April 2015

The chance of El Niño is approximately 90% through winter 2015.



El Niño summary

- * Current El Niño will impact winter
- * Will be weakening by late winter
- * Likely rapidly weaken through spring
- * Outside chance of La Niña by late summer (20-25%)
 - * Small increase in summer drought risk
 - * Chance reflected in next winter outlook

Outlooks

Climate Outlooks

- * 7-day precipitation forecast
- * 8-14 day outlook
- * December
- * 3 Months (December February)
- * Seasonal Drought Outlooks
- * Spring/Summer a look ahead

7-day Quantitative Precipitation Forecast Valid: 7 AM Thu 19 Noy- 7 AM Thu 26 Nov



http://www.wpc.ncep.noaa.gov/qpf/day1-7.shtml

Temperature and Precipitation Probabilities for 26 Nov. – 2 Dec. 2015



Temperature

Precipitation

http://www.cpc.ncep.noaa.gov/products/predictions/814day/index.php

December Temperature and Precipitation Probabilities



http://www.cpc.ncep.noaa.gov/products/predictions/30day/

3 Month Temperature and Precipitation Probabilities (Dec. – Feb.)



http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1

3 Month Temperature and Precipitation Probabilities (Apr. – Jun.)



http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1

Drought Outlook through 29 Feb.

U.S. Seasonal Drought Outlook Valid for November 19 - February 29, 2016 Drought Tendency During the Valid Period Released November 19, 2015



Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Drought persists

Drought remains but improves

Drought removal likely

Drought development likely

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http://go.usa.gov/3eZ73

http://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.gif/

Summary - Conditions

- * Mostly warmer fall various impacts
- * Fairly dry fall over most of region. Pockets of wet.

- Good harvest season
- * Yields very good in many states
- * Winter wheat good establishment
- Late freeze impacts

Summary - Outlooks

- * El Niño advisory. Impacts winter outlook heavily
- Sub-tropical jet typically more active, polar jet further north
- * Warmer than average quite likely northern areas
- * Wetter "possible" in the central plains
- * Likely drier in northern plains/Missouri headwaters and Great Lakes/Ohio Valley
- * Late winter/spring question with weakening El Niño
- * Summer wide open with possibilities

Further Information - Partners

Today's and Past Recorded Presentations and : http://mrcc.isws.illinois.edu/webinars.htm http://www.hprcc.unl.edu

- NOAA's National Climatic Data Center: www.ncdc.noaa.gov
 - Monthly climate reports (U.S. & Global): www.ncdc.noaa.gov/sotc/
- NOAA's Climate Prediction Center: <u>www.cpc.ncep.noaa.gov</u>
- Climate Portal: <u>www.climate.gov</u>
- U.S. Drought Portal: <u>www.drought.gov</u>
- National Drought Mitigation Center: http://drought.unl.edu/
- State climatologists
 - * http://www.stateclimate.org
- Regional climate centers
 - http://mrcc.isws.illinois.edu
 - * http://www.hprcc.unl.edu

Thank You and Questions?

* Questions:

- * Climate:
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