Great Plains and Midwest Climate and Drought Outlook November 17, 2016

Dr. Jim Angel
State Climatologist
Illinois State Water Survey
University of Illinois
jimangel@illinois.edu

National Drought Mitigation Center

NOAA National Oceanic and Atmospheric Administration U.S. Department of Commerce

Regional Climate Centers

AASC American Association of State Climatologists

General Information

- **Providing climate services to the Central Region**
  - Collaboration with Dennis Todey (USDA Climate Hub), Jim Angel (Illinois State Climatologist), Doug Kluck and Barb Mayes (NOAA), State Climatologists and the Midwest and High Plains Regional Climate Centers, NOAAs Climate Prediction Center, and the National Drought Mitigation Center

- **Next Climate/Drought Outlook Webinar**
  - December 15, 2016, Stuart Foster (Kentucky SC)

- **Access to Future Climate Webinars and Information**
- http://www.drought.gov/drought/content/regional-programs/regional-drought-webinars

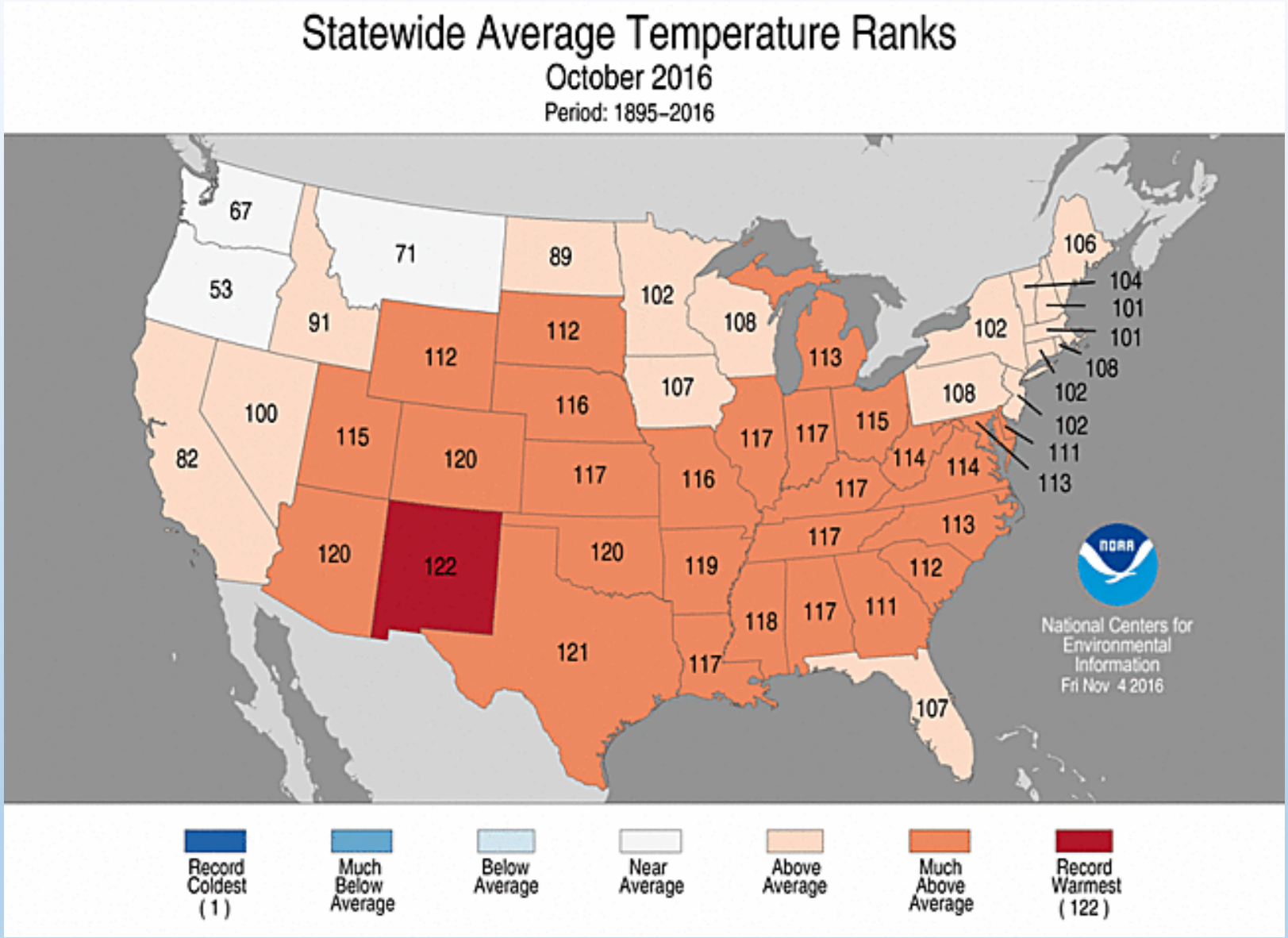
- **Past recorded presentations and slides can be found here:**
- *http://mrcc.isws.illinois.edu/webinars.jsp*
- *http://www.hprcc.unl.edu/webinars.php*

- **There will be time for questions at the end**

Area of Interest

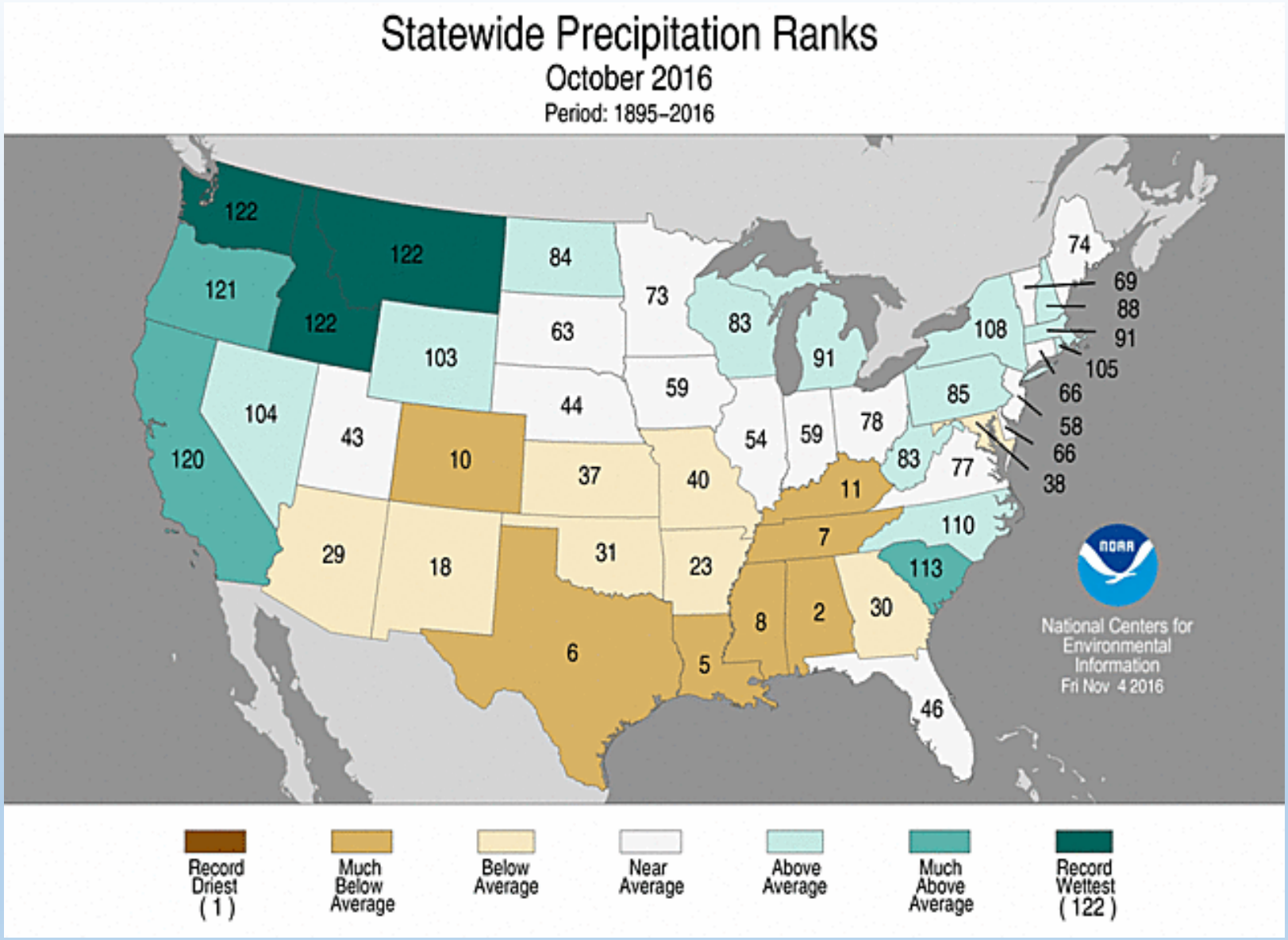
Agenda

- Current conditions
- Impacts
- Outlooks



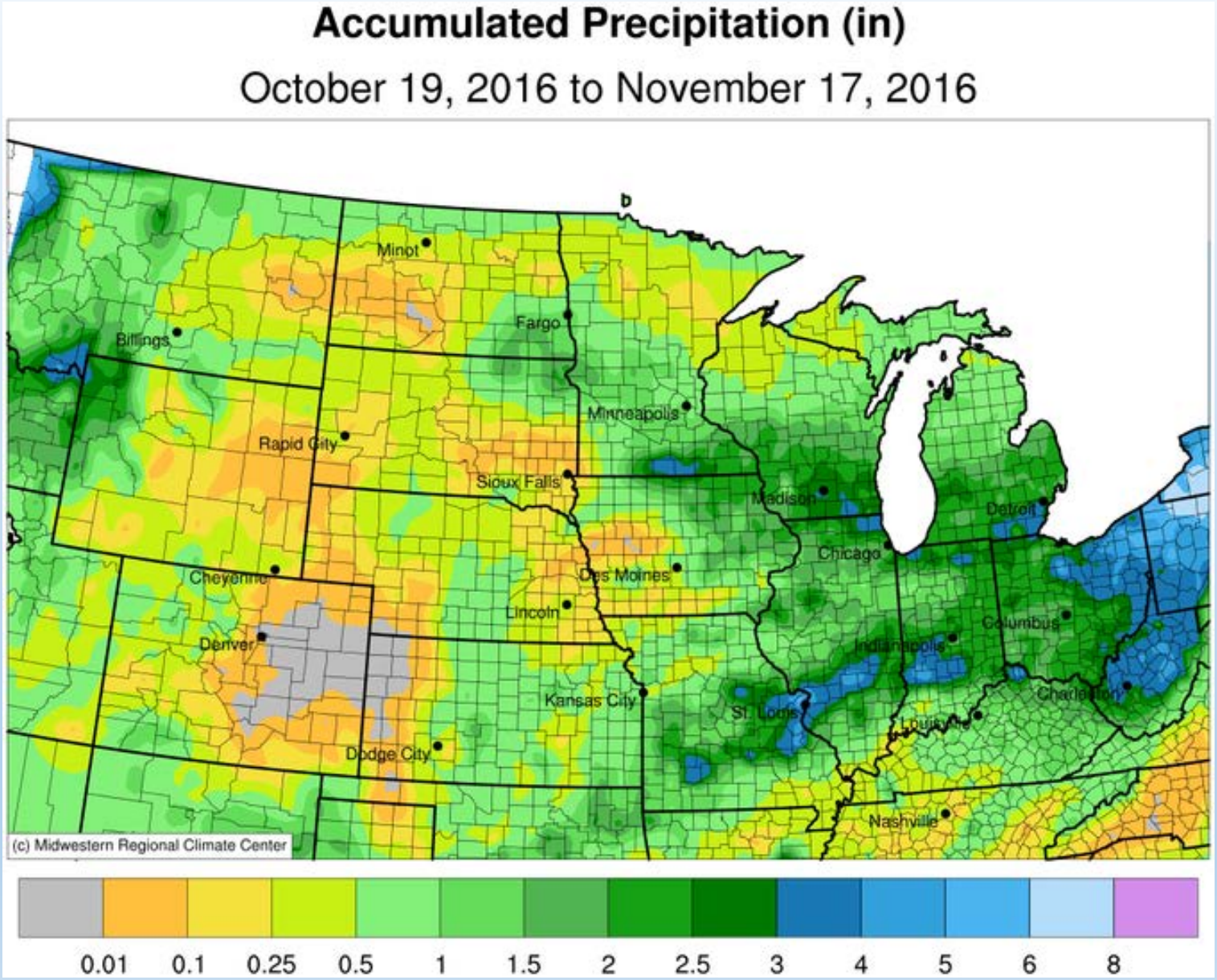
3rd Warmest October for US and World

http://www.ncdc.noaa.gov/sotc/



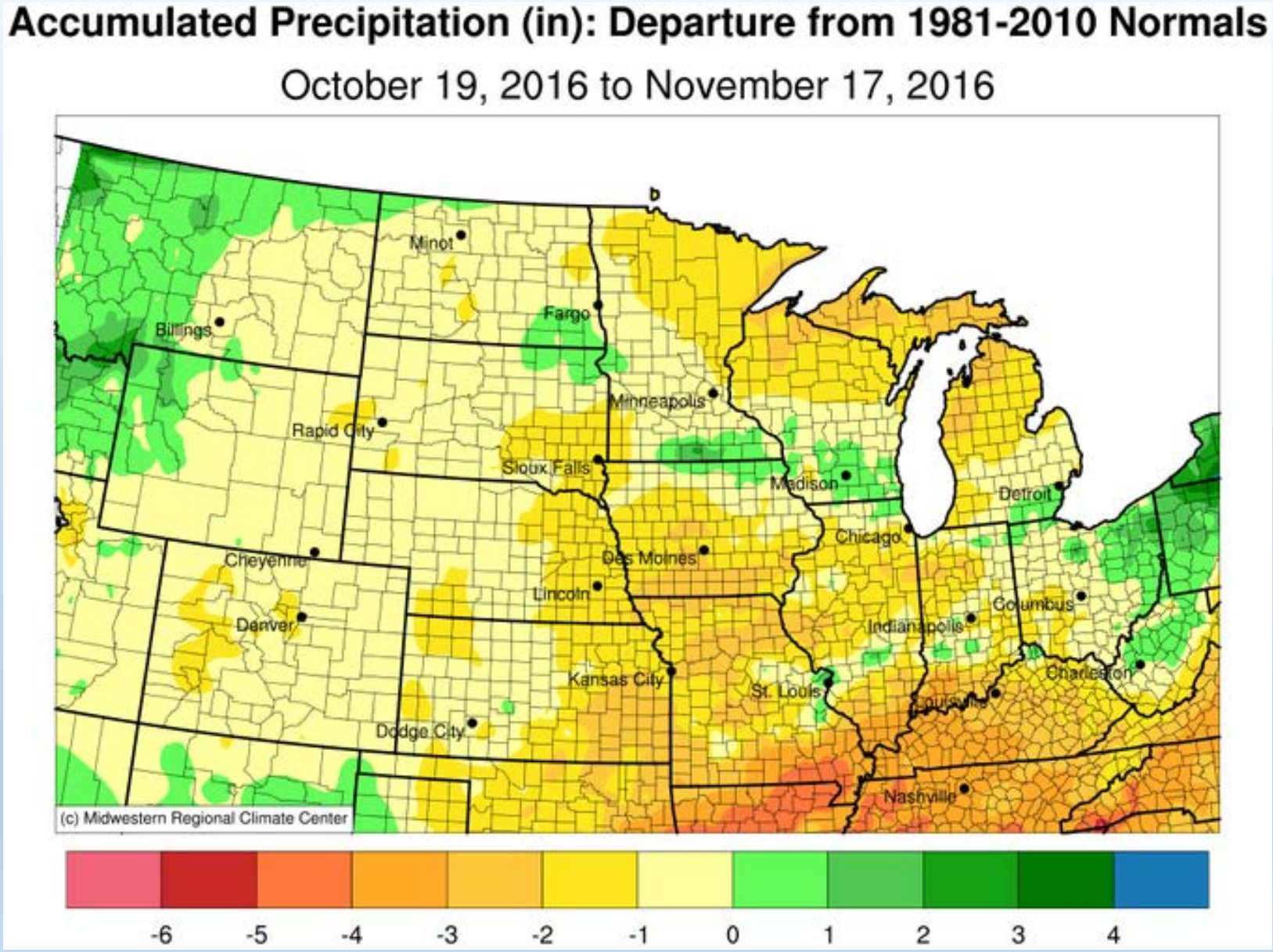
http://www.ncdc.noaa.gov/sotc/

30 Day Precipitation

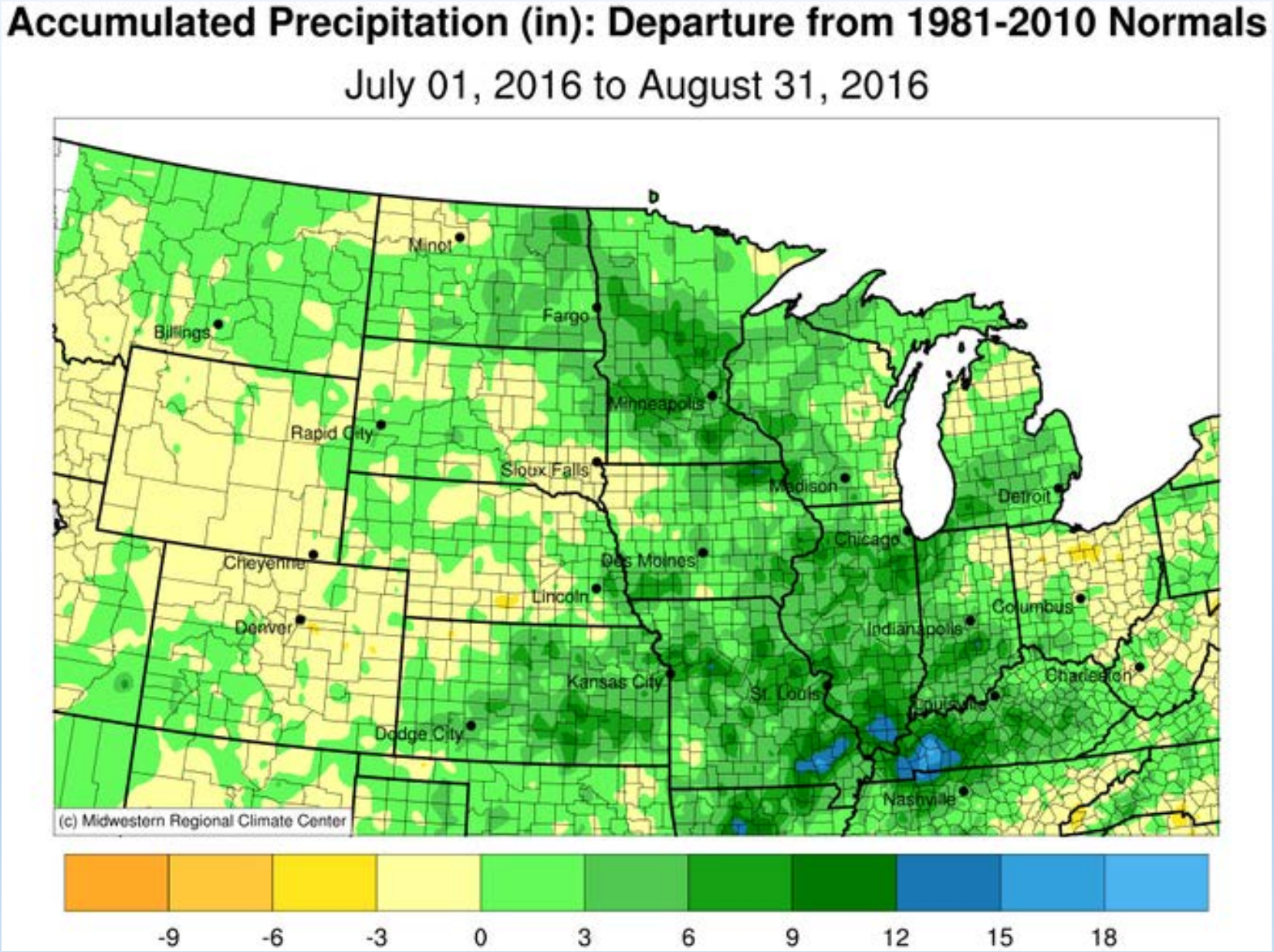


http://mrcc.isws.Illinois.edu/

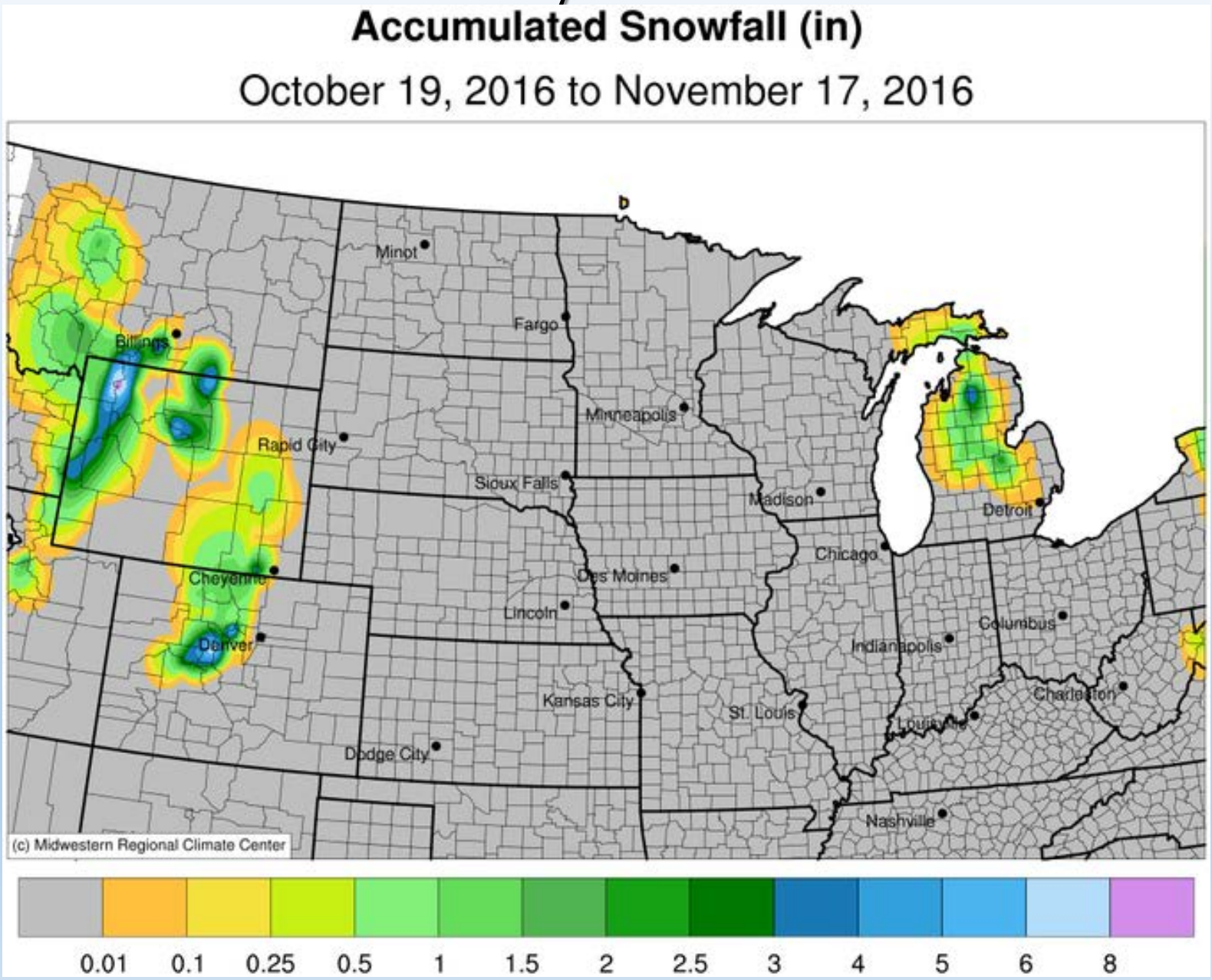
30-Day Precipitation Departure

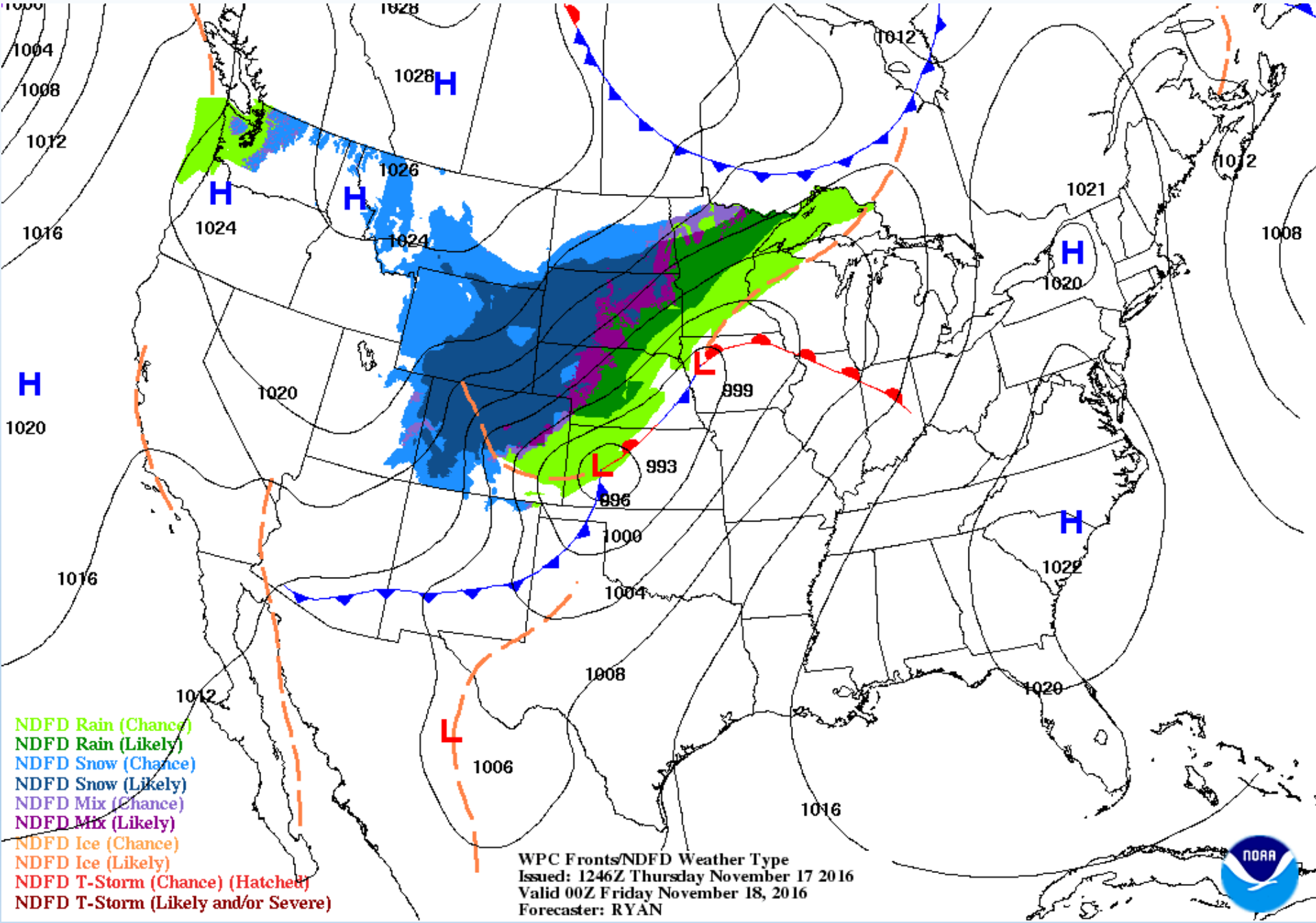


Wet July-August



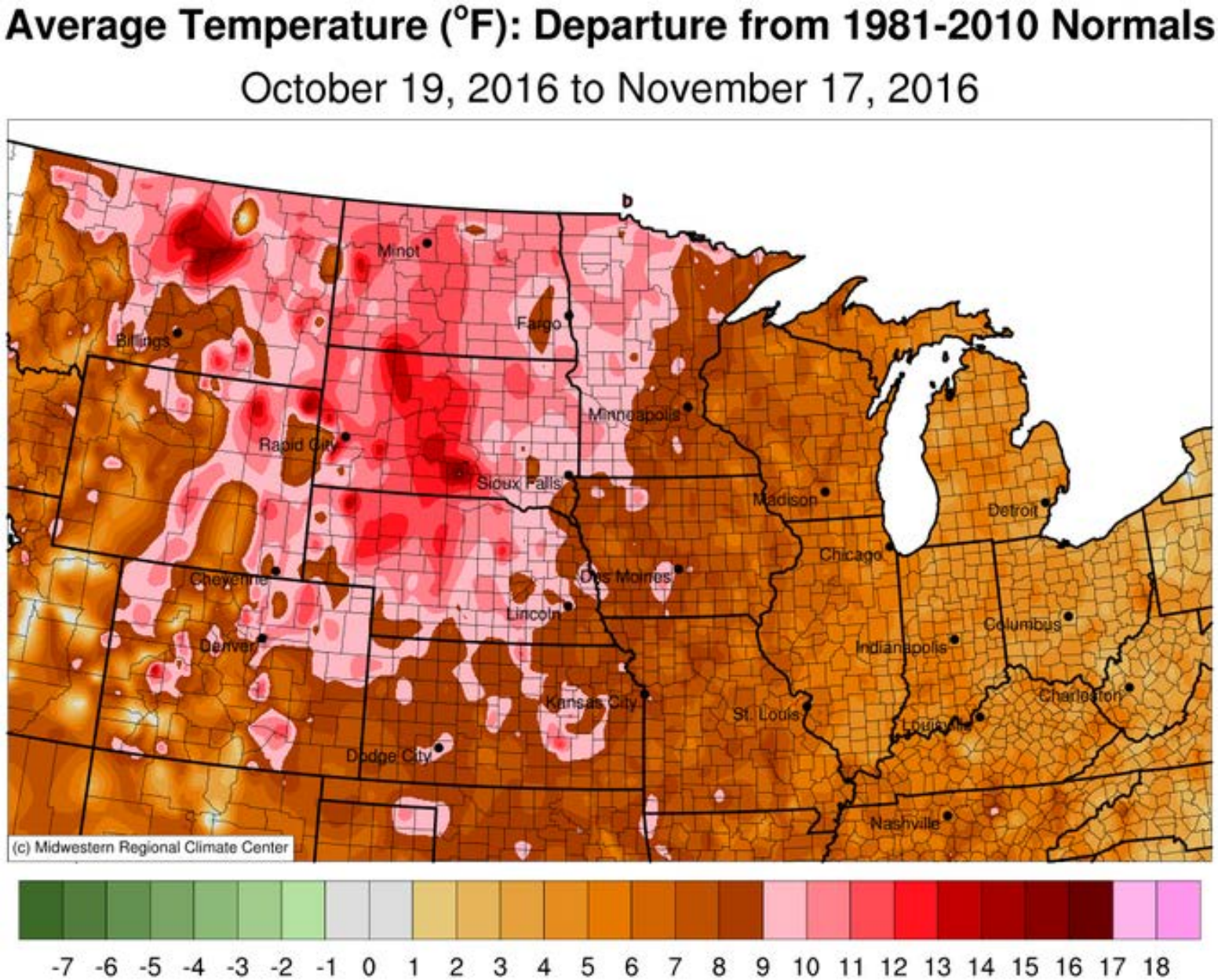
30-Day Snowfall

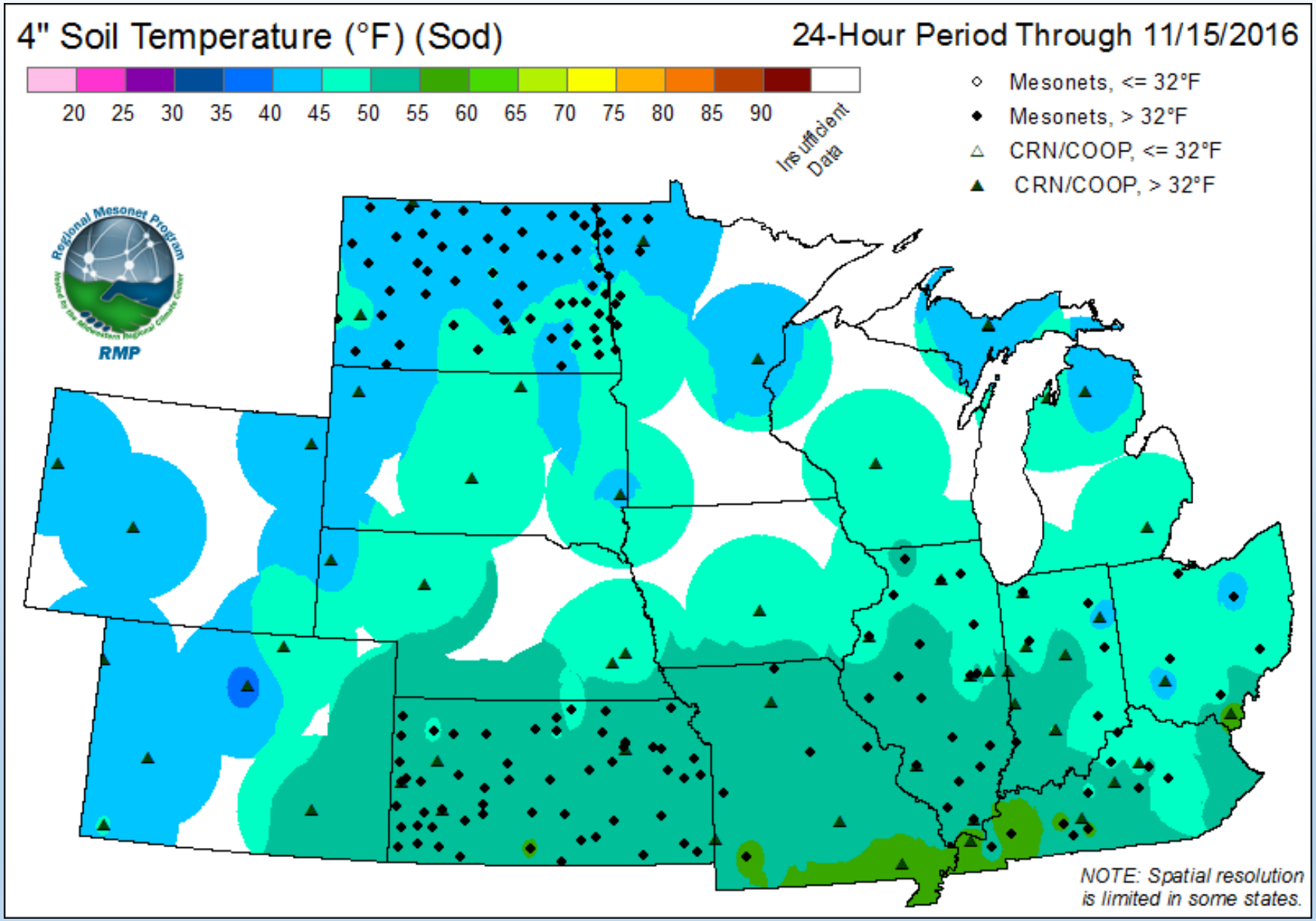



NDFD Rain (Chance)
NDFD Rain (Likely)
NDFD Snow (Chance)
NDFD Snow (Likely)
NDFD Mix (Chance)
NDFD Mix (Likely)
NDFD Ice (Chance)
NDFD Ice (Likely)
NDFD T-Storm (Chance) (Hatched)
NDFD T-Storm (Likely and/or Severe)
WPC Fronts/NDFD Weather Type
Issued: 1246Z Thursday November 17 2016
Valid 00Z Friday November 18, 2016
Forecaster: RYAN
NOAA

Weather.gov

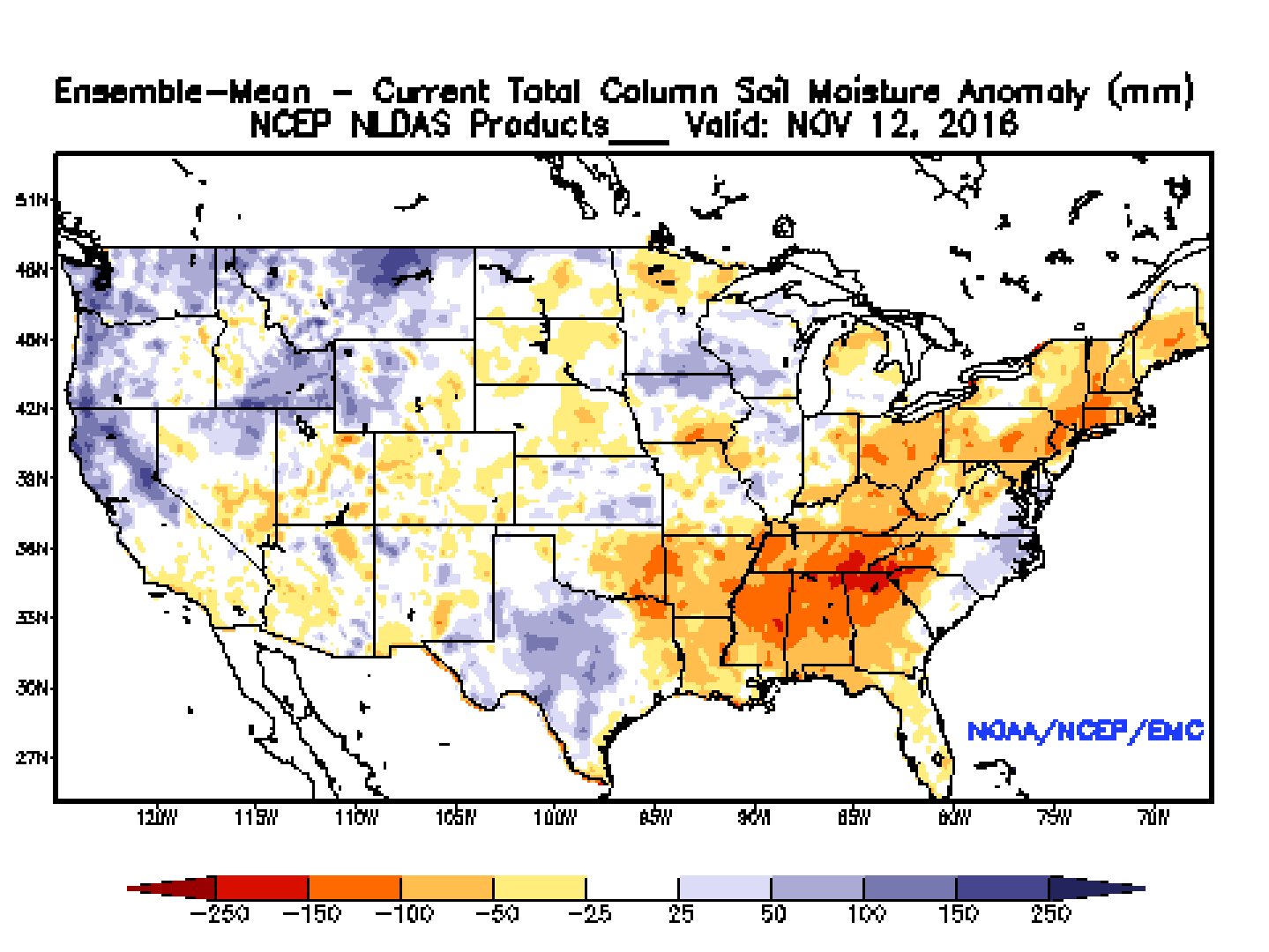
30 Day Temperature Departure





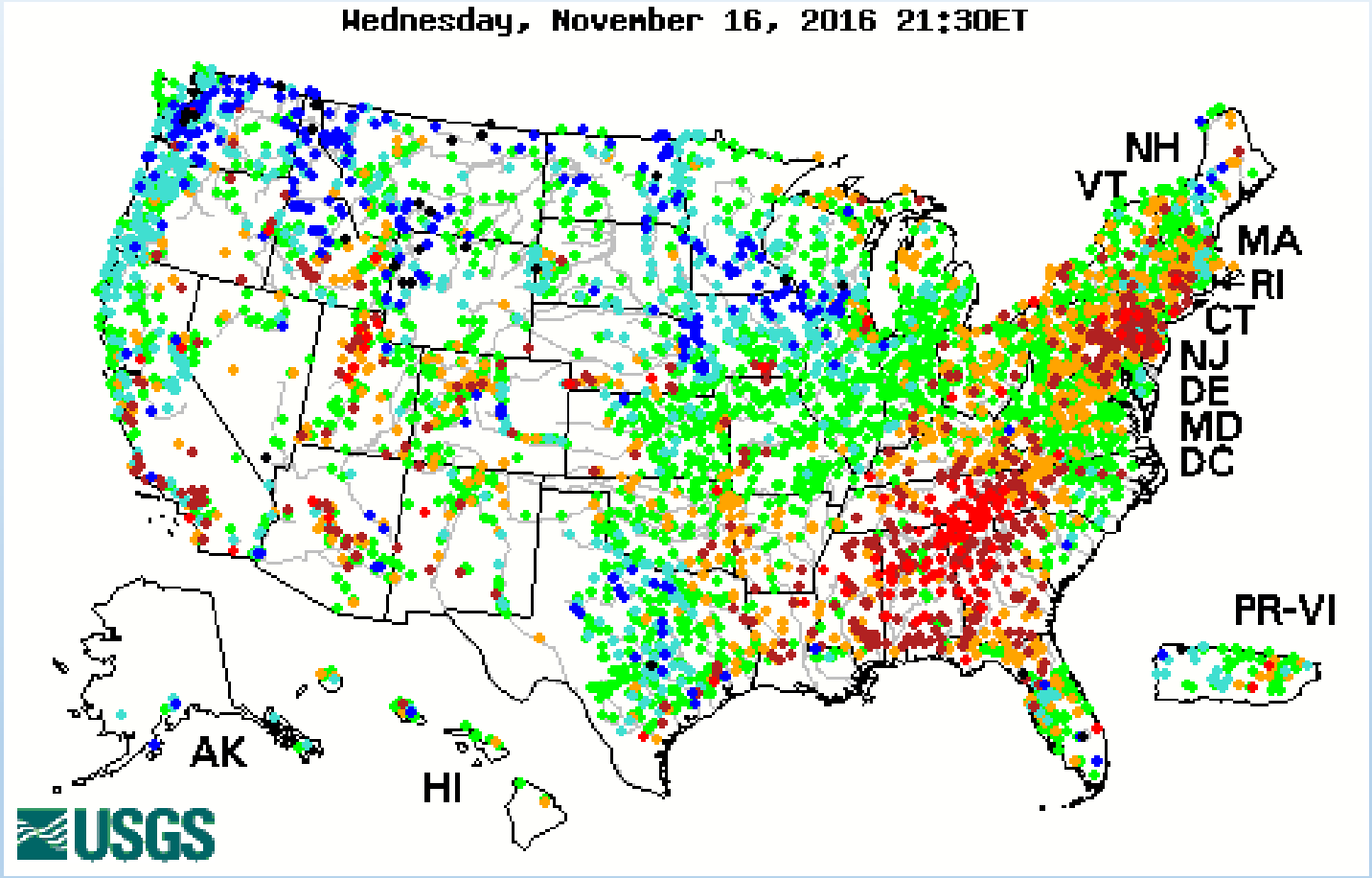
http://mrcc.isws.illinois.edu/cliwatch/mesonets/soilTemp.html

Modeled Soil Moisture - NLDAS

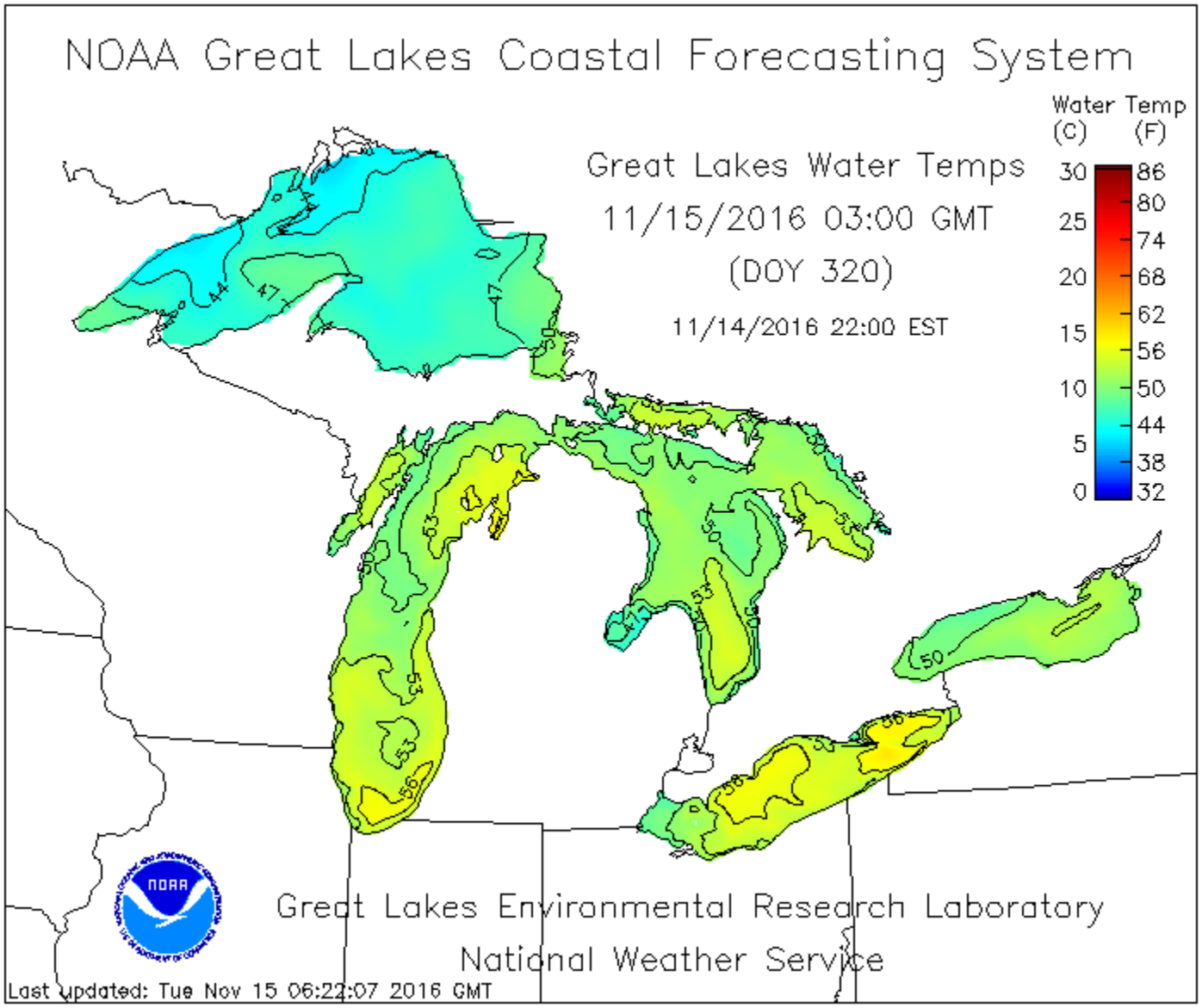


http://www.emc.ncep.noaa.gov/mmb/nldas/drought/

Stream Flow - USGS



http://waterdata.usgs.gov/nwis/rt

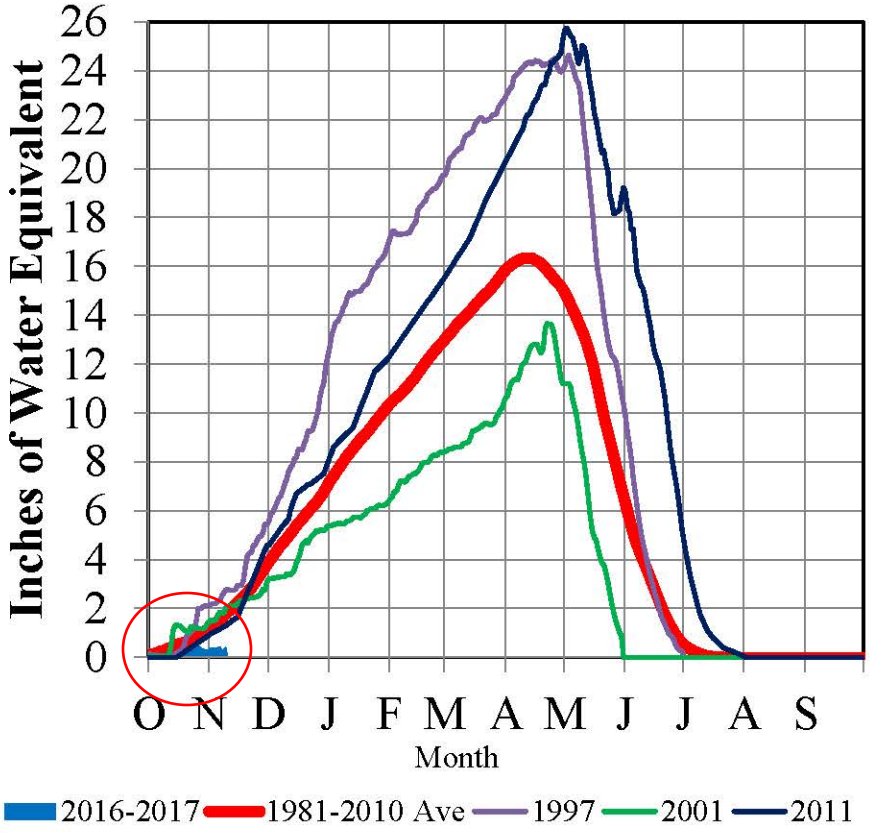


http://www.glerl.noaa.gov/data/ice/#currentConditions

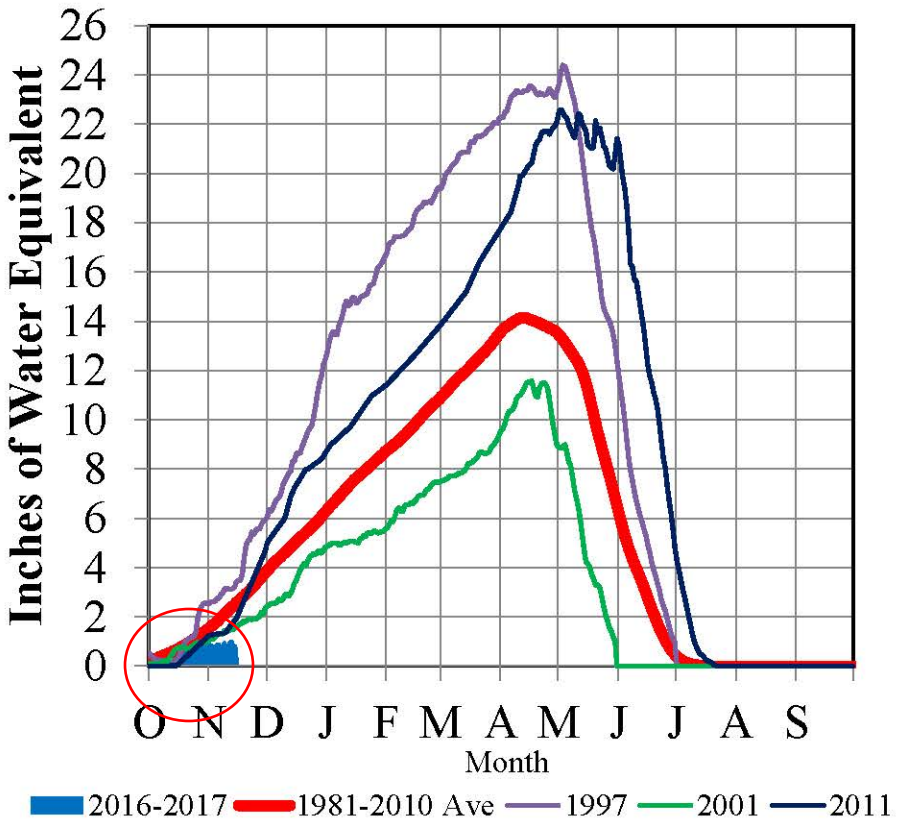
Missouri River Basin – Mountain Snowpack Water Content
2016-2017 with comparison plots from 1997*, 2001*, and 2011

November 15, 2016

Total above Fort Peck



Total Fort Peck to Garrison



The Missouri River Basin mountain snowpack normally peaks near April 15. On November 15, 2016 the mountain Snow Water Equivalent (SWE) in the "Total above Fort Peck" reach was 0.5", 21% of average. The mountain SWE in the "Total Fort Peck to Garrison" reach was 0.8", 32% of average. Normally by November 15, about 16% of the peak mountain SWE has occurred in both reaches.

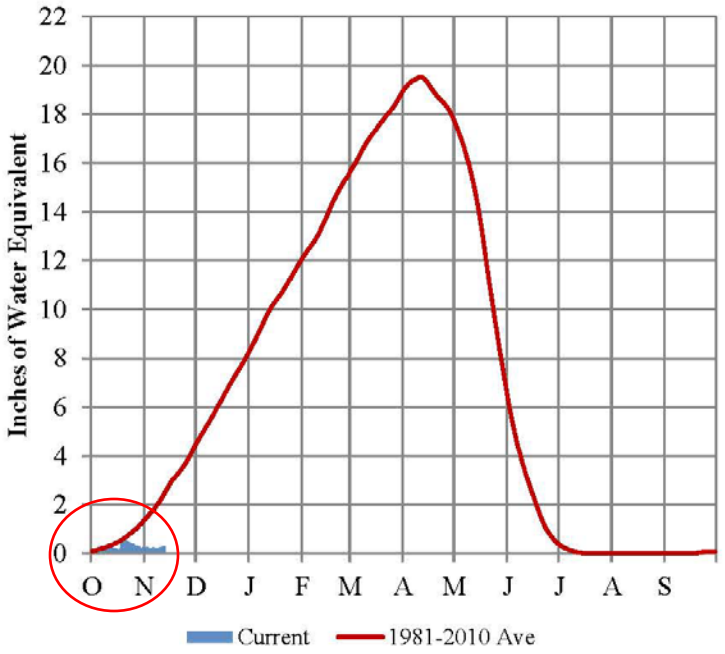
*Generally considered the high and low year of the last 20-year period, respectively.

Provisional data. Subject to revision.

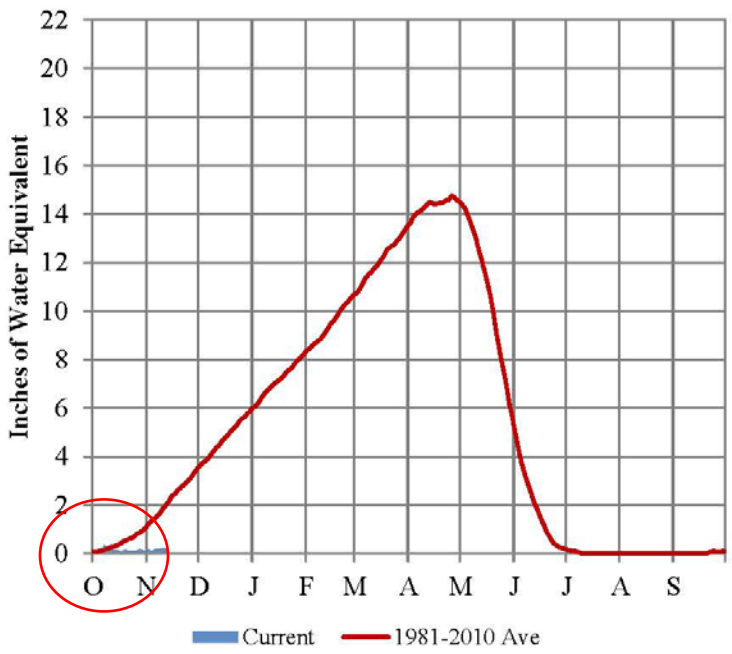
Platte River Basin - Mountain Snowpack Water Content
Water Year 2016-2017

November 14, 2016

Total North Platte



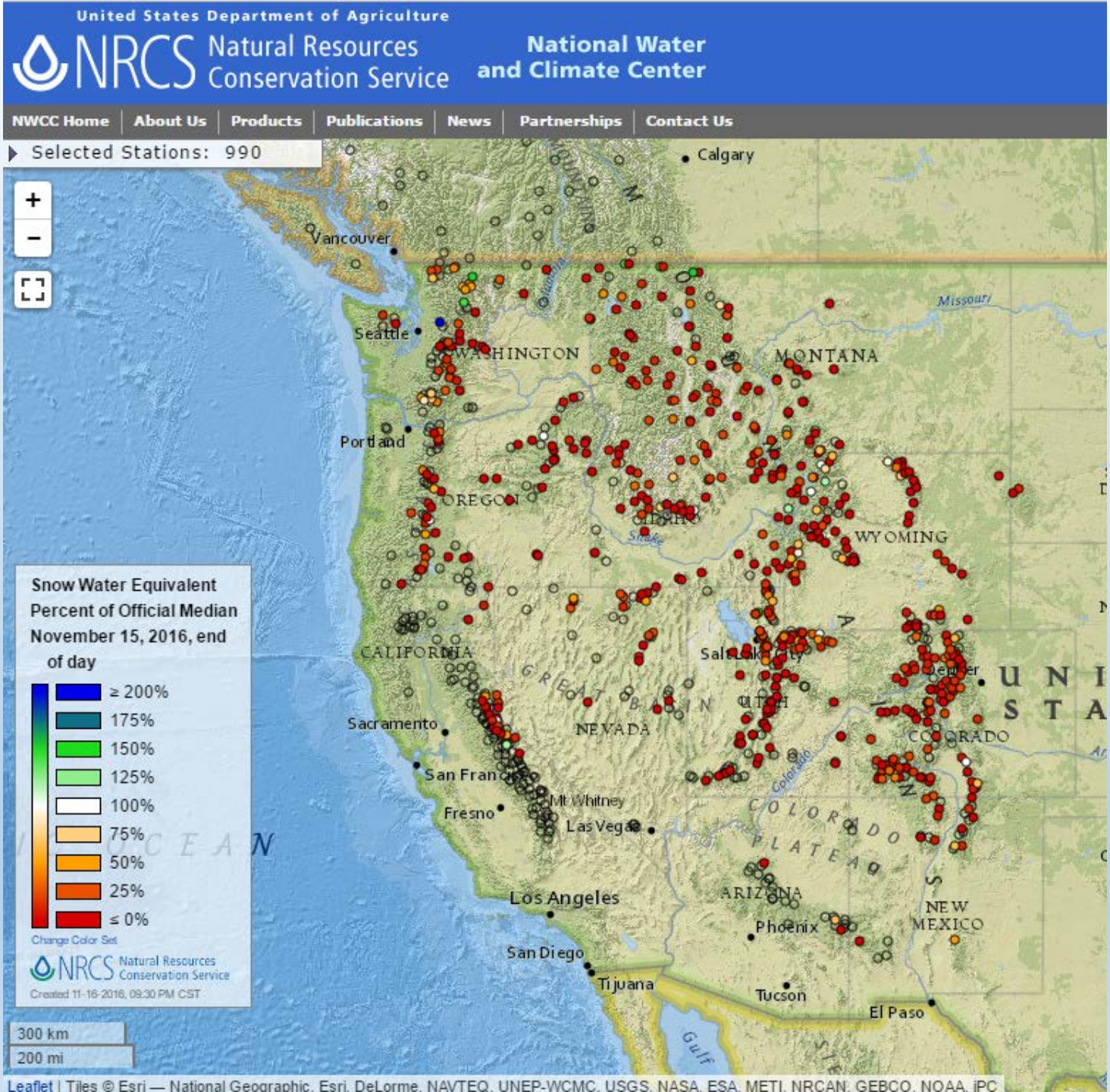
Total South Platte



The North and South Platte River Basin mountain snowpacks normally peak near April 15 and the end of April, respectively. As of November 13, 2016, the mountain snowpack SWE in the "Total North Platte" reach is currently 0.3", 12% of average. The mountain snowpack SWE in the "Total South Platte" reach is currently 0.2", 12% of average.

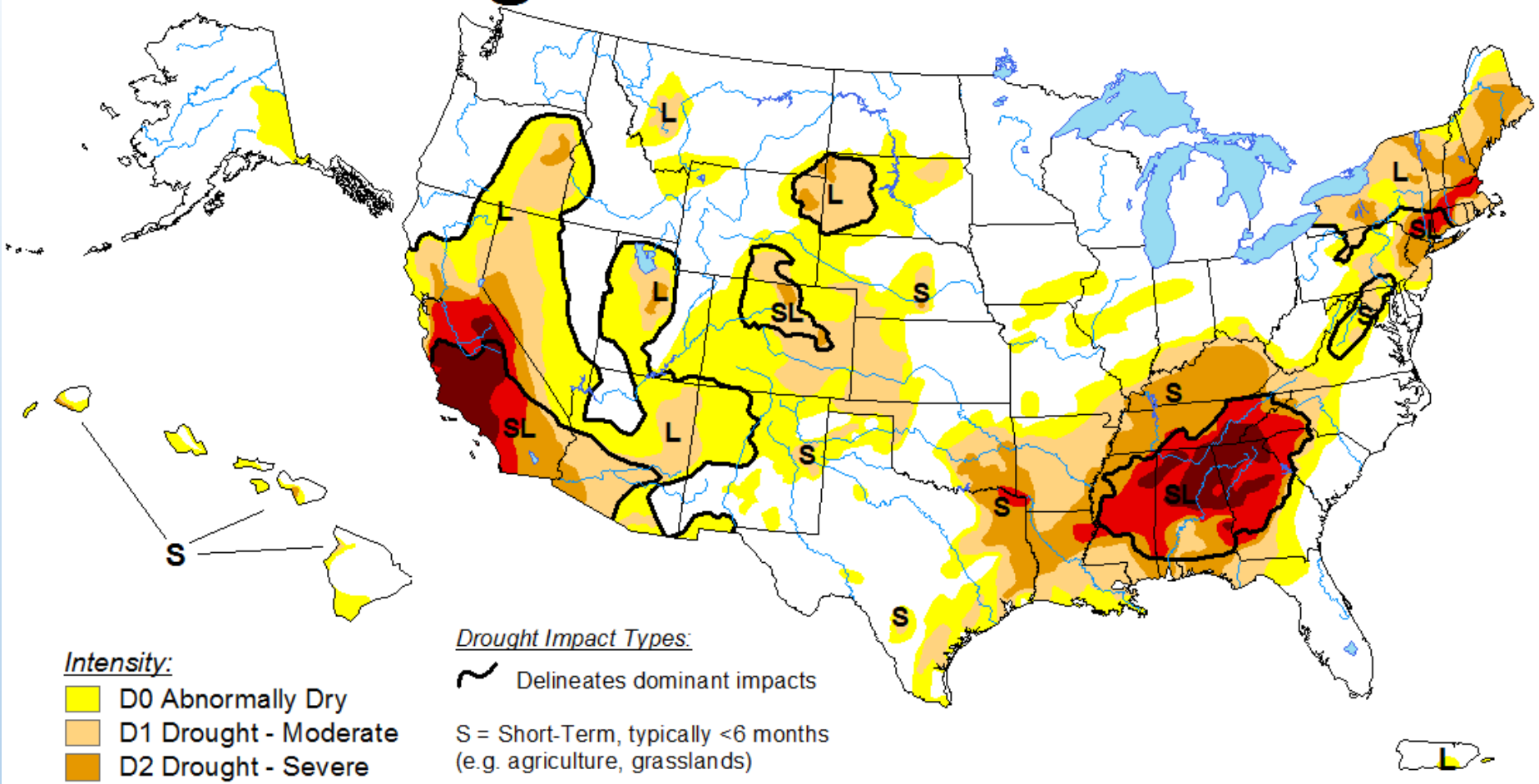
Source: USDA, Natural Resource Conservation Service

Provisional Data. Subject to Revision


United States Department of Agriculture
NRCS Natural Resources Conservation Service
National Water and Climate Center
NWCC Home
About Us
Products
Publications
News
Partnerships
Contact Us
Selected Stations: 990
Snow Water Equivalent
Percent of Official Median
November 15, 2016, end of day
≥ 200%
175%
150%
125%
100%
75%
50%
25%
≤ 0%
Change Color Set
NRCS Natural Resources Conservation Service
Created 11-16-2016, 09:30 PM CST
Calgary
Vancouver
Seattle
Portland
Sacramento
San Francisco
Fresno
Mt Whitney
Las Vegas
Los Angeles
San Diego
Tijuana
Phoenix
Tucson
El Paso
Salt Lake City
Denver
WASHINGTON
OREGON
CALIFORNIA
NEVADA
MONTANA
WYOMING
UTAH
COLORADO
ARIZONA
NEW MEXICO
GREAT BASIN
COLORADO PLATEAU
Missouri
Colorado
Gulf
300 km
200 mi
Leaflet | Tiles © Esri — National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, iPC

U.S. Drought Monitor

November 15, 2016
Valid 7 a.m. EST



Intensity:
- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types:

~ Delineates dominant impacts

S = Short-Term, typically <6 months (e.g. agriculture, grasslands)

L = Long-Term, typically >6 months (e.g. hydrology, ecology)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://droughtmonitor.unl.edu/

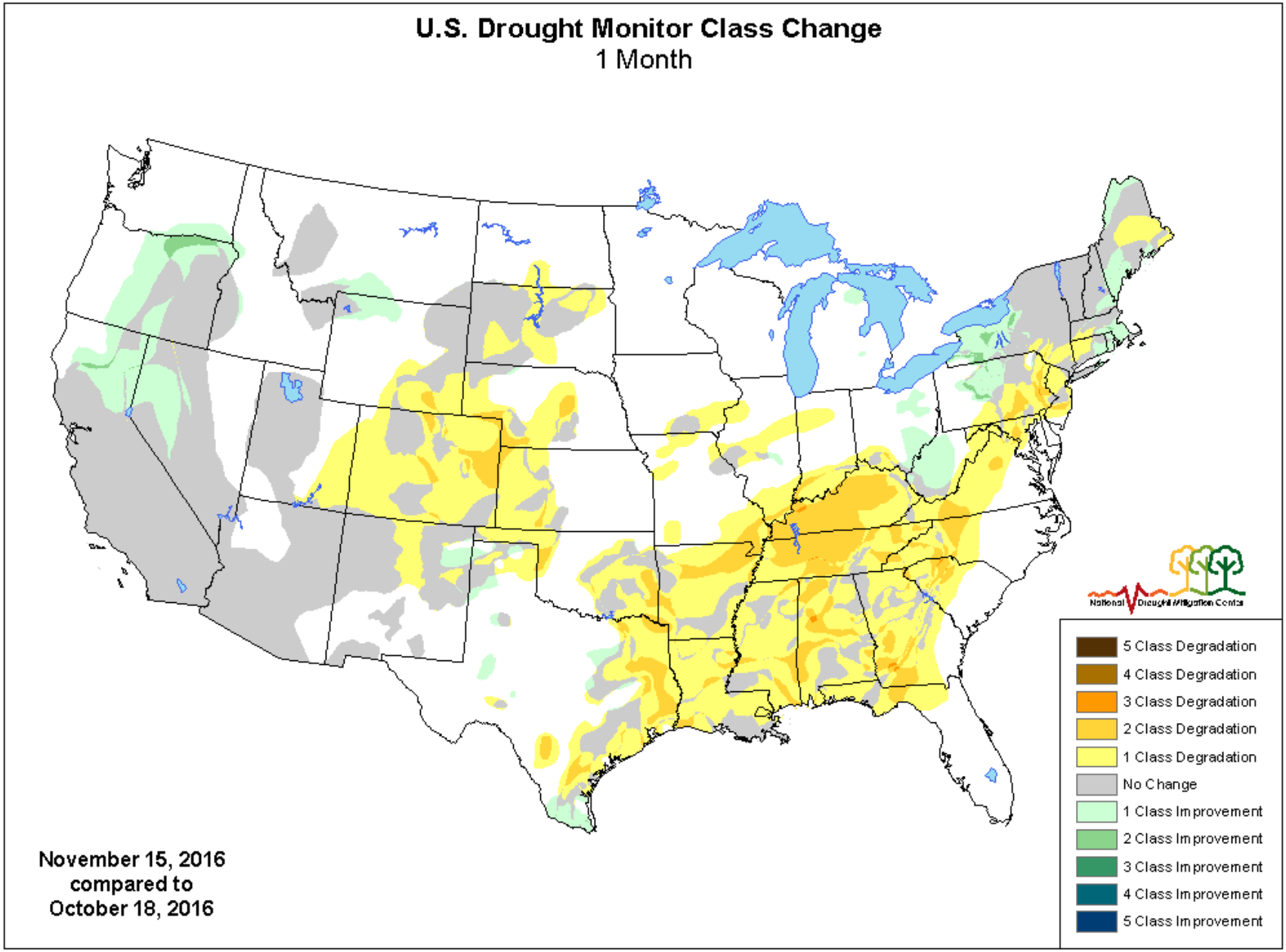
USDA National Drought Mitigation Center

Released Thursday, November 17, 2016

Author: Richard Heim, NOAA/NESDIS/NCEI

U.S. Drought Monitor Class Change

1 Month

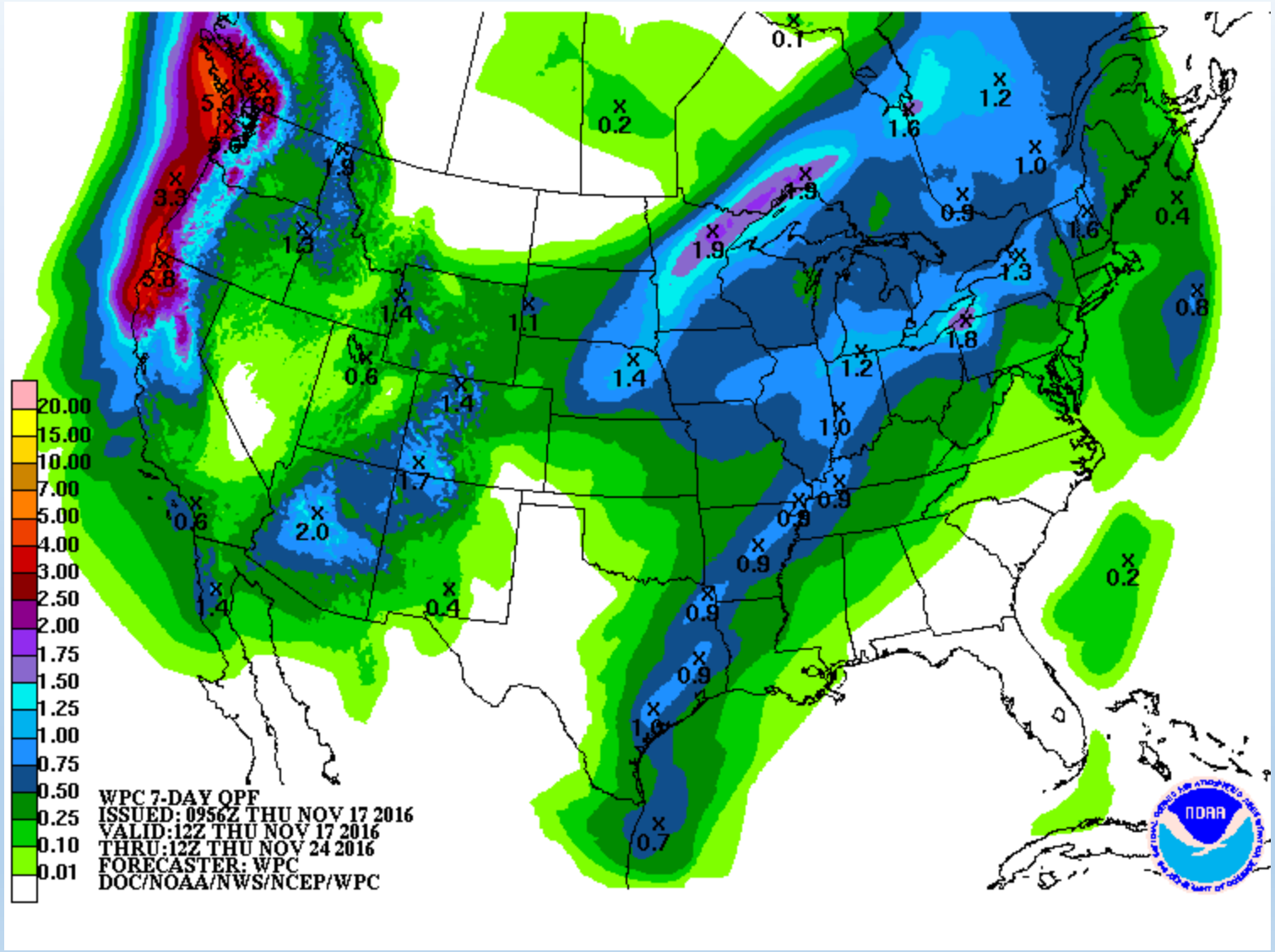


http://droughtmonitor.unl.edu

Climate Outlooks

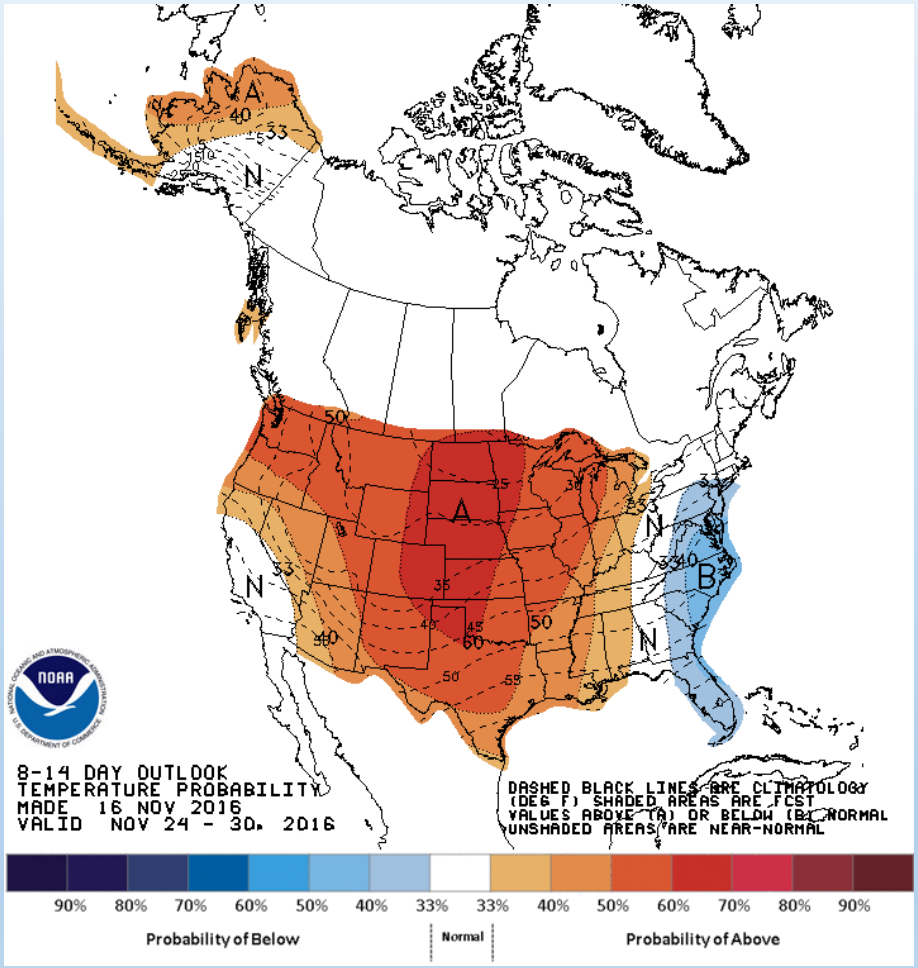
- **7-day precipitation forecast**
- **6-10, 8-14 day outlook**
- **December**
- **Winter, Spring, Summer**
- **Drought Outlooks**

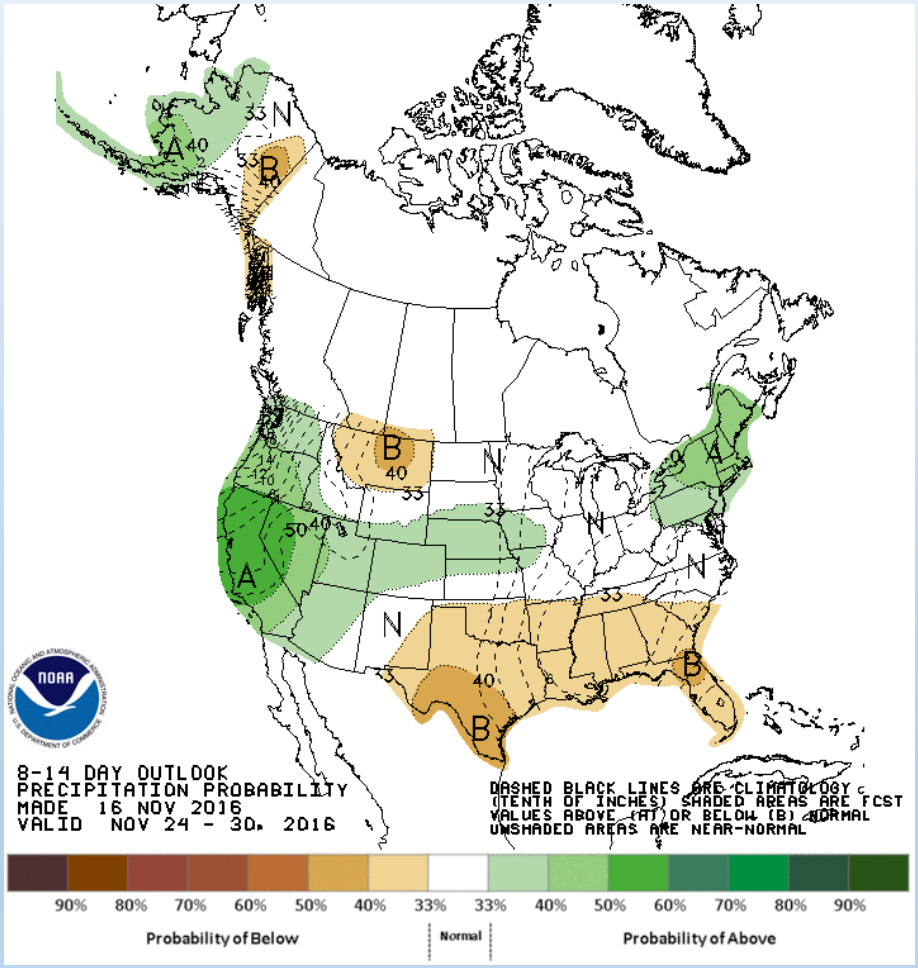
Forecast Precipitation Amounts (7 day)



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

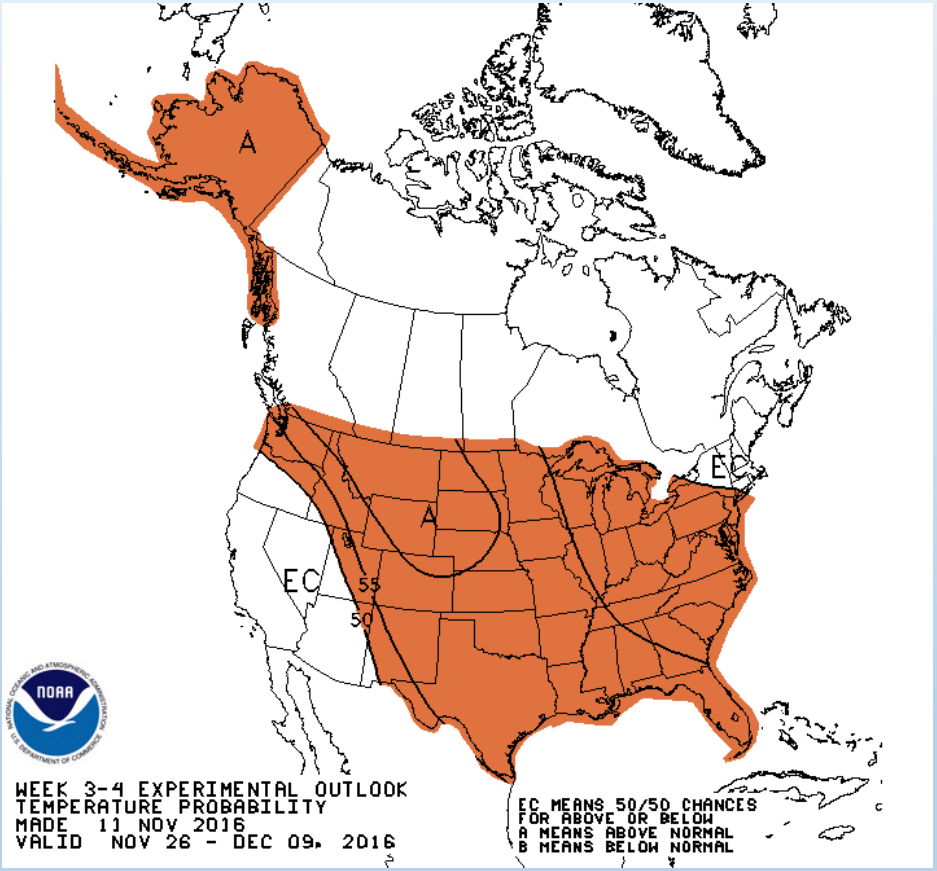
8-14 Day Forecast Nov 24 – 30

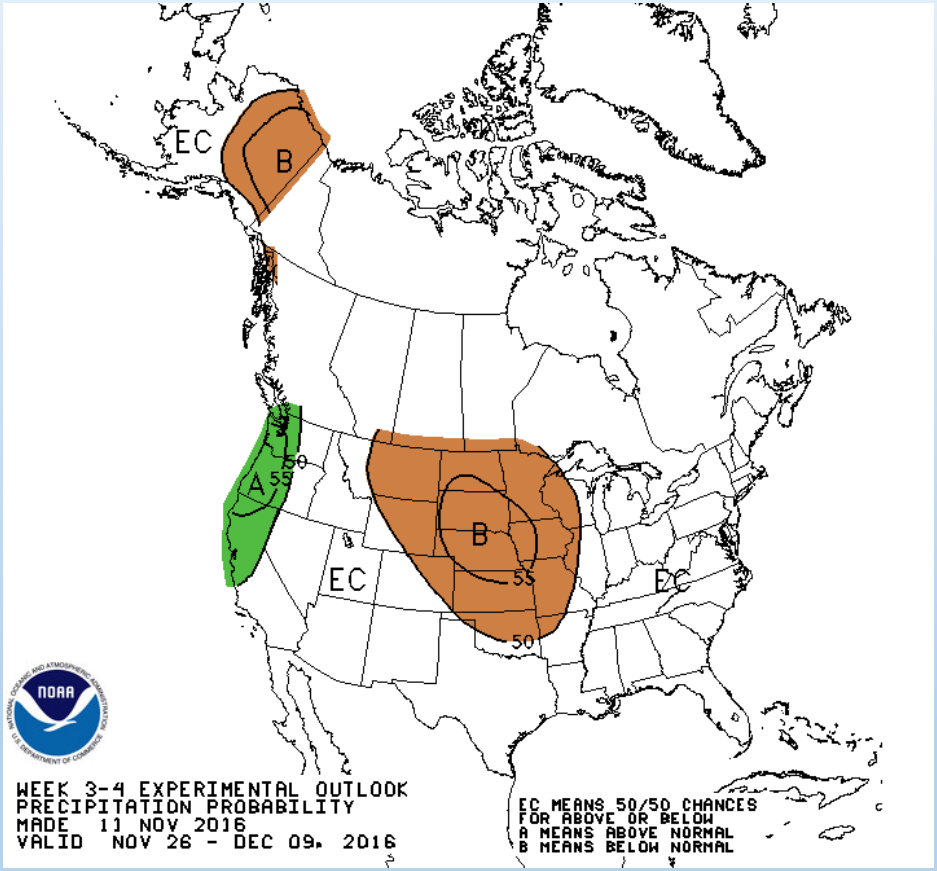




Warmer than normal for this time of year – not absolute warmth

Weeks 3 & 4 Forecast Nov 28 – Dec 09





La Niña

- **La Niña conditions are present and slightly favored to persist (~55% chance) through winter 2016-17.**

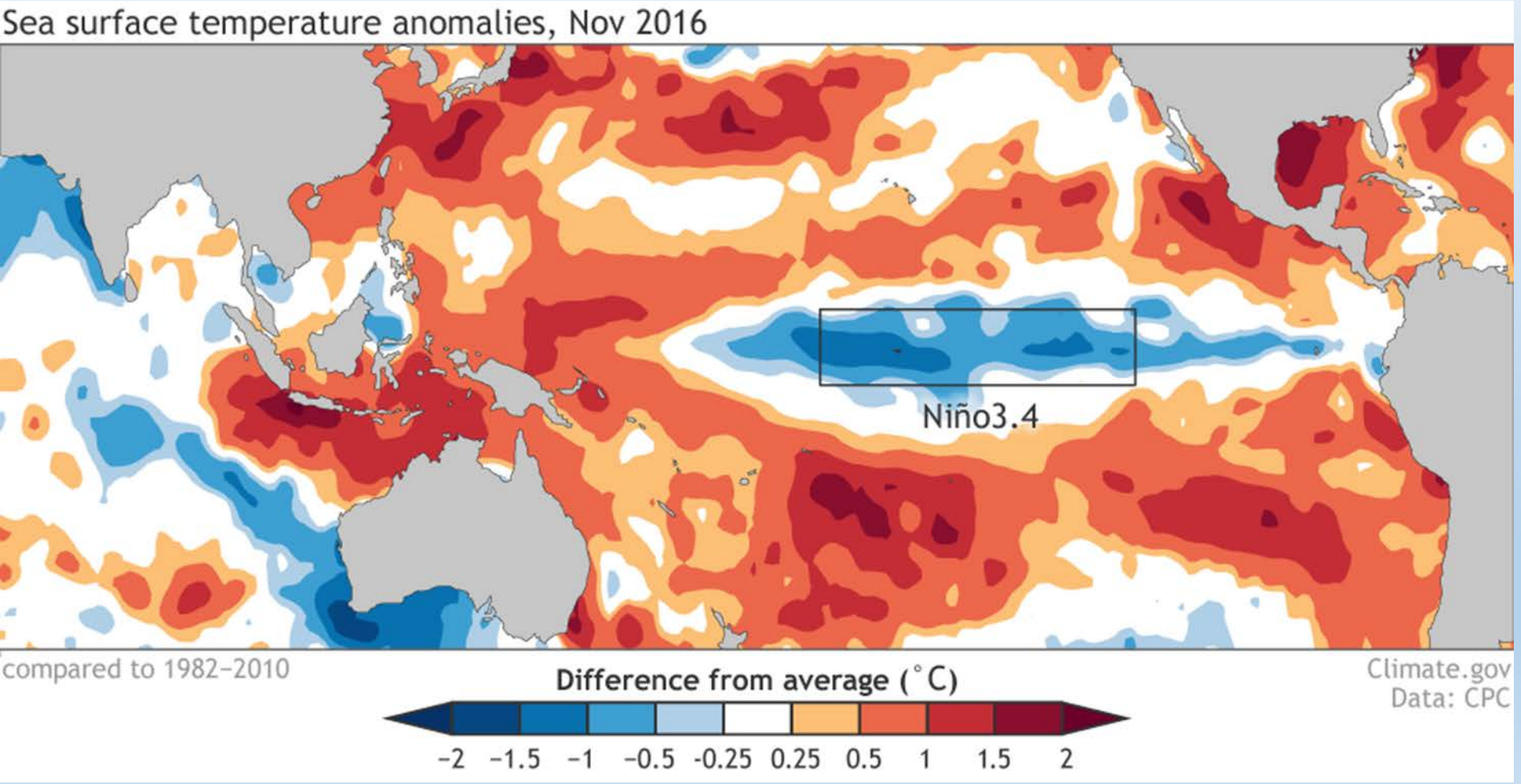
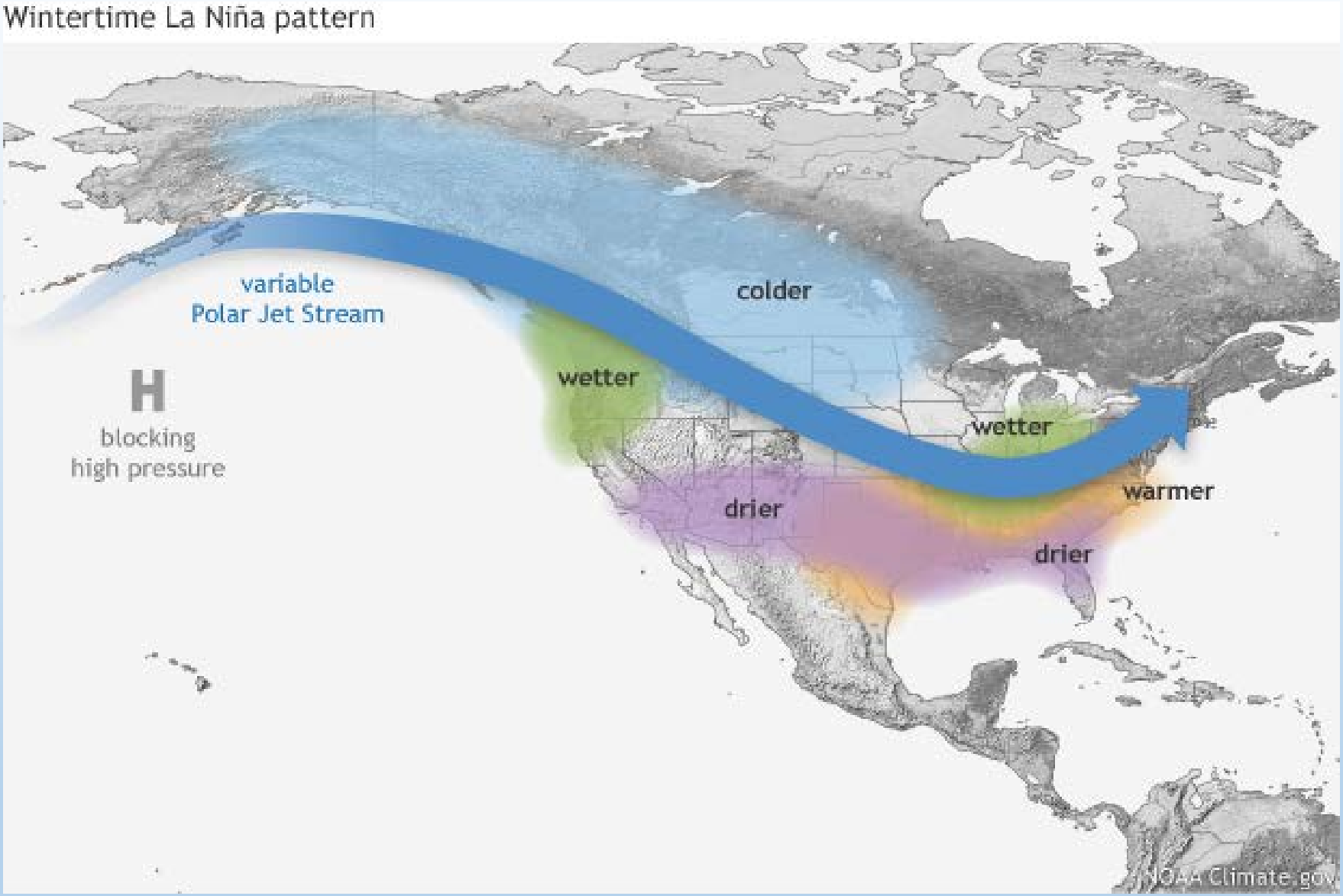
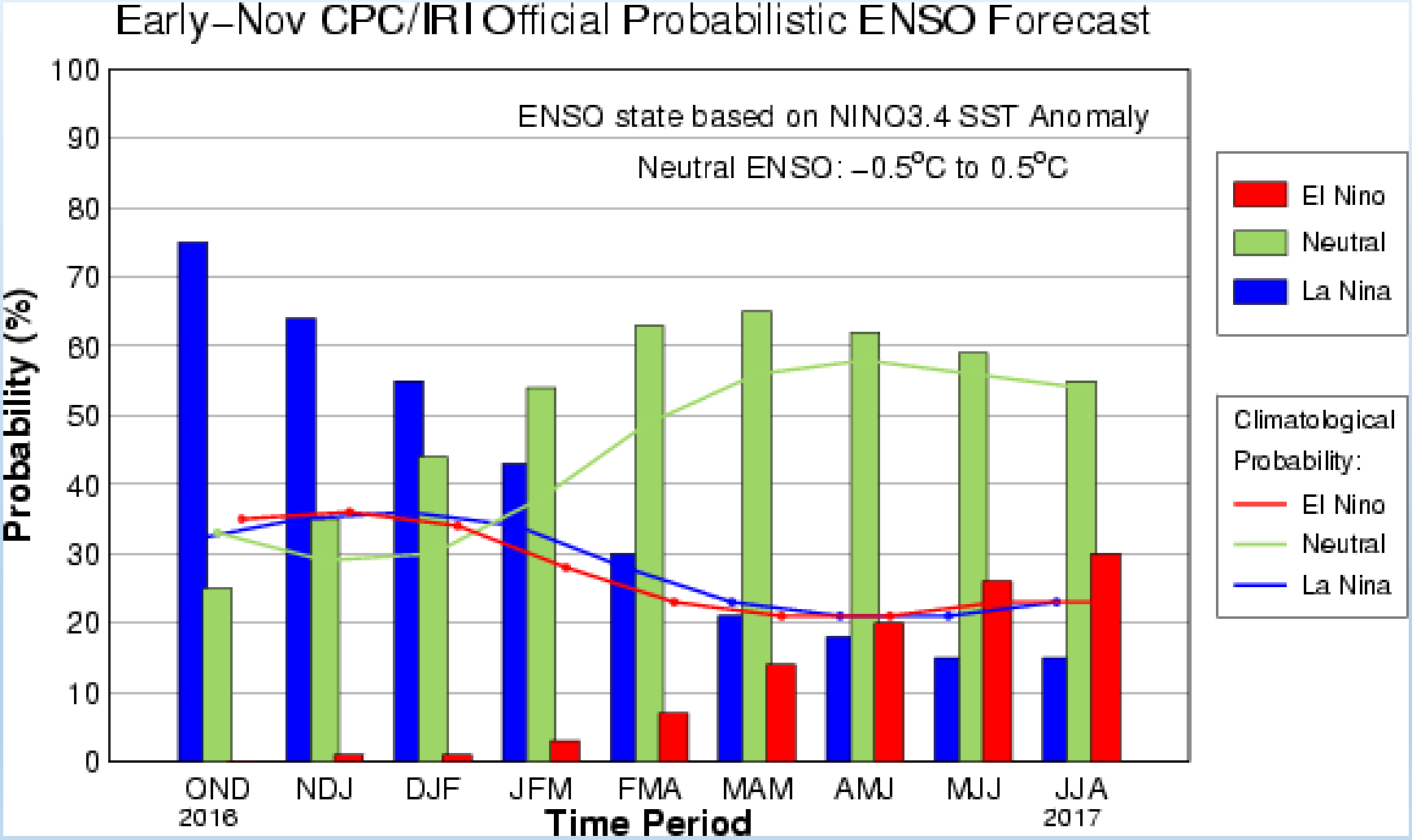


Figure: https://www.climate.gov/news-features/department/enso-blog



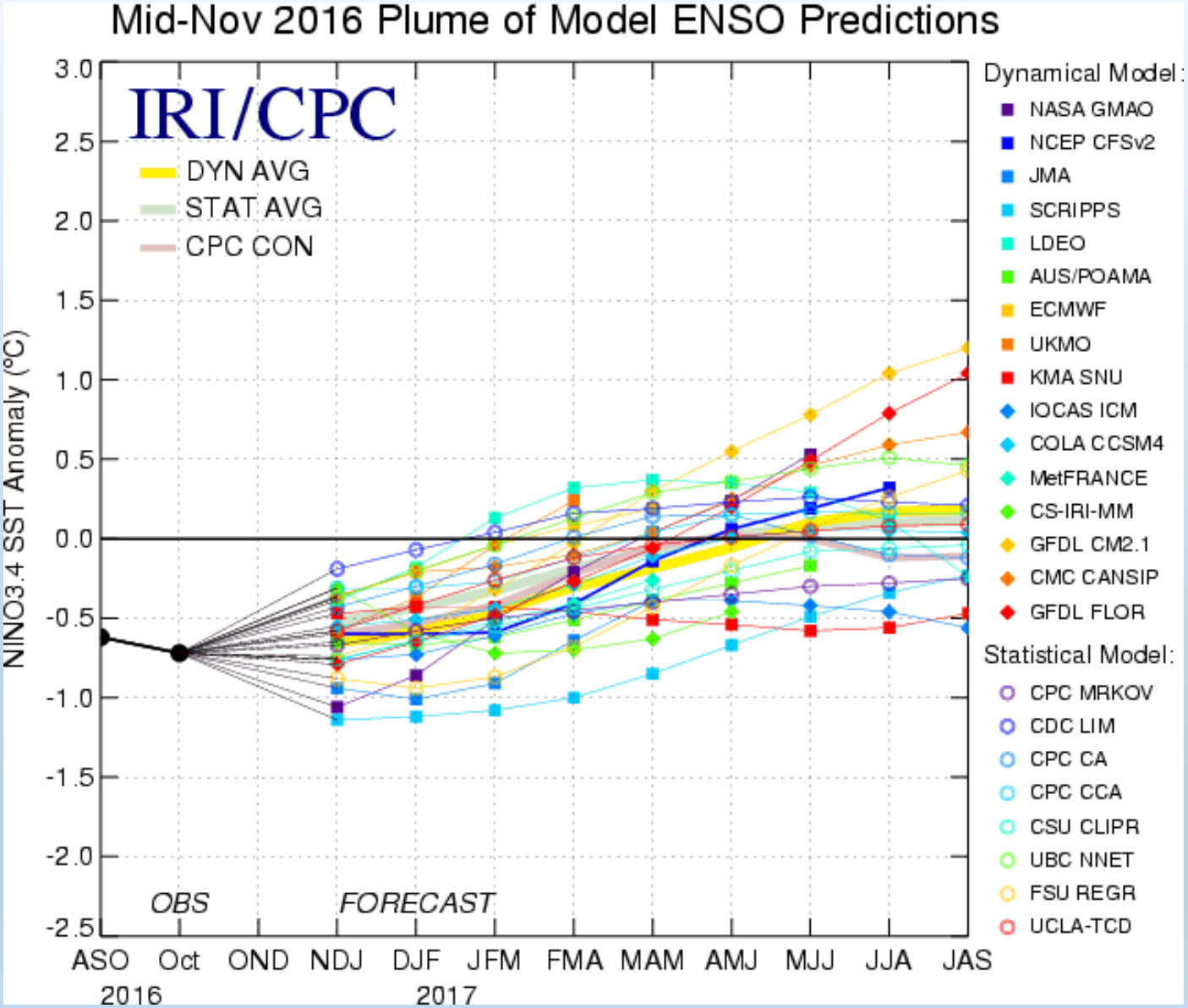
Changes in the winter atmosphere during El Niño. NOAA Climate.gov image by Fiona Martin.

CPC/IRI ENSO Forecast



http://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/?enso_tab=enso-cpc_plume

Forecast Plume for ENSO

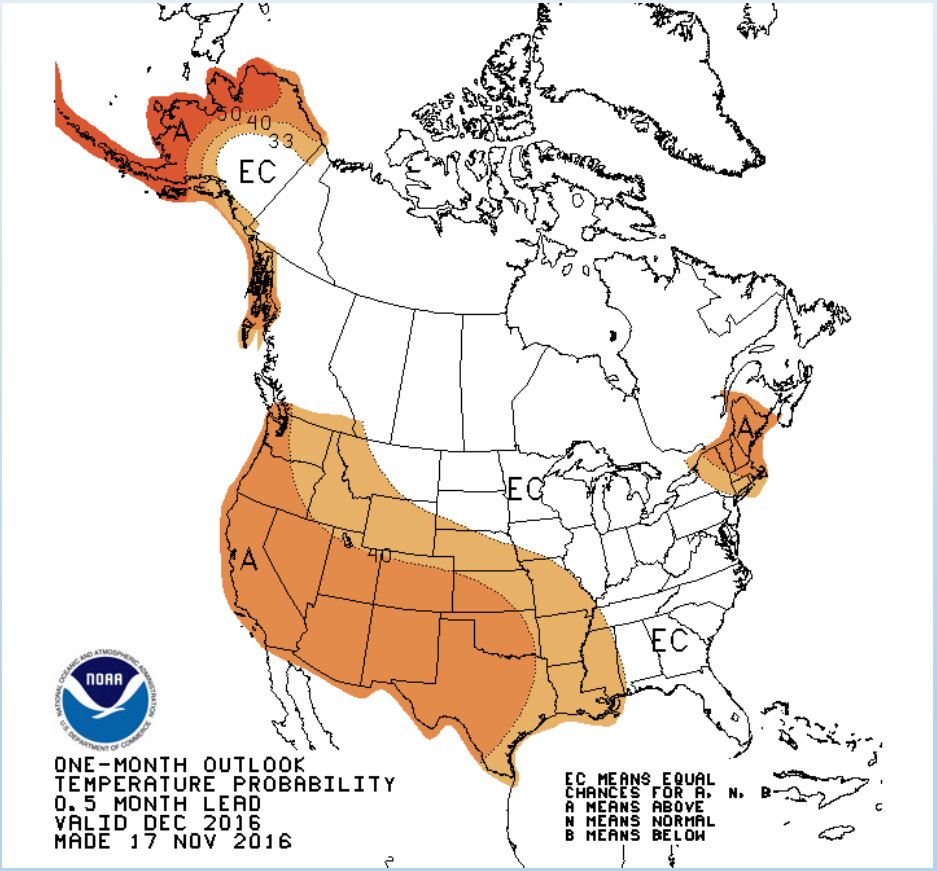


http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.shtml

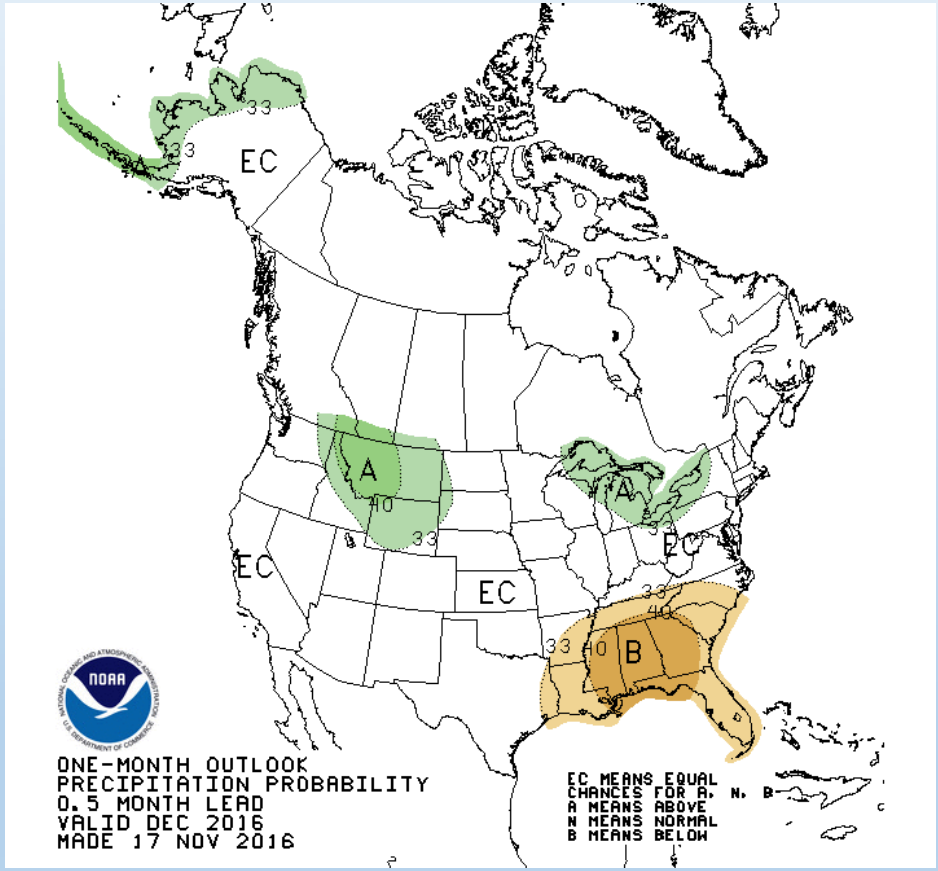
Caveats

- La Niña is not as well-defined as El Niño
- The impacts of La Niña are less clear than El Niño
- There are always other factors at play – Canadian and Siberian snow cover, reduced ice cover in the Arctic Ocean, ocean temperatures in other parts of the Pacific and Atlantic, overall warming due to climate change …

December Outlook



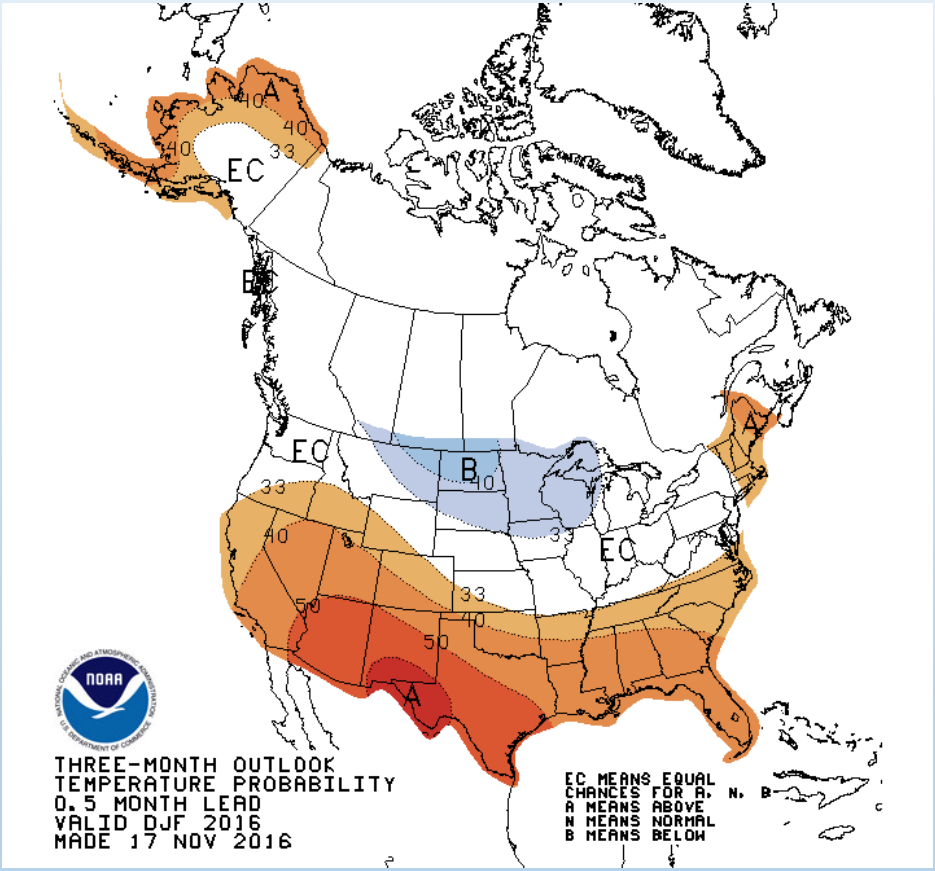
Temperature



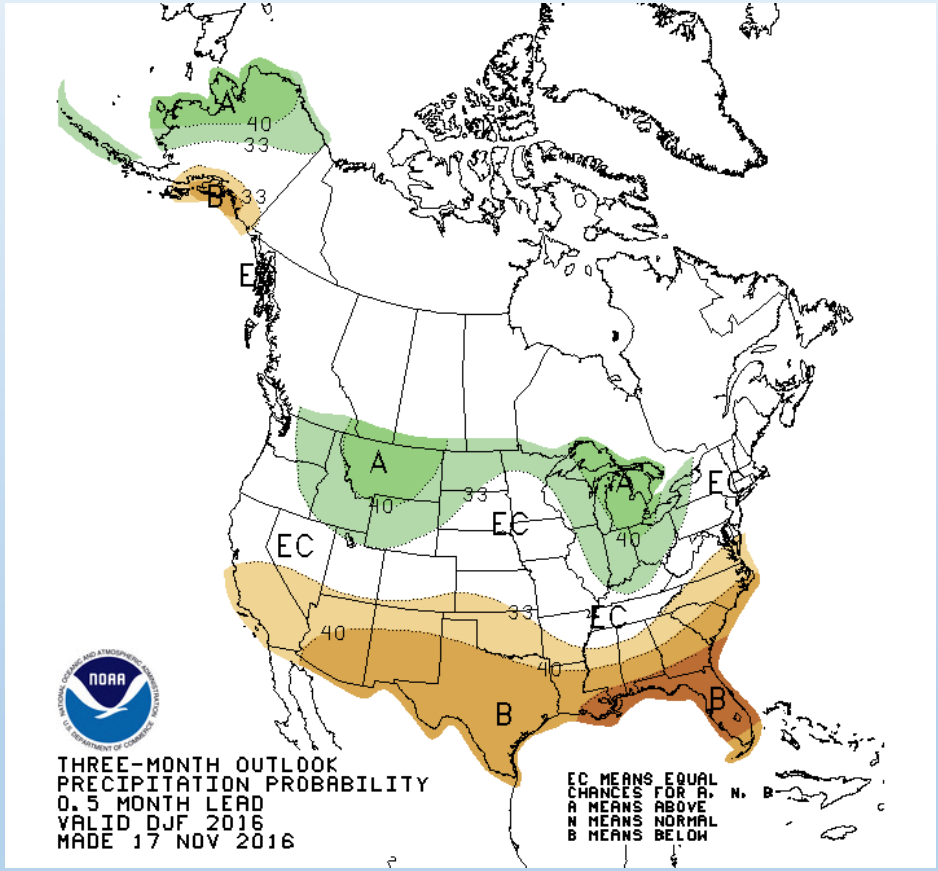
Precipitation

http://www.cpc.ncep.noaa.gov/

December - February Outlook

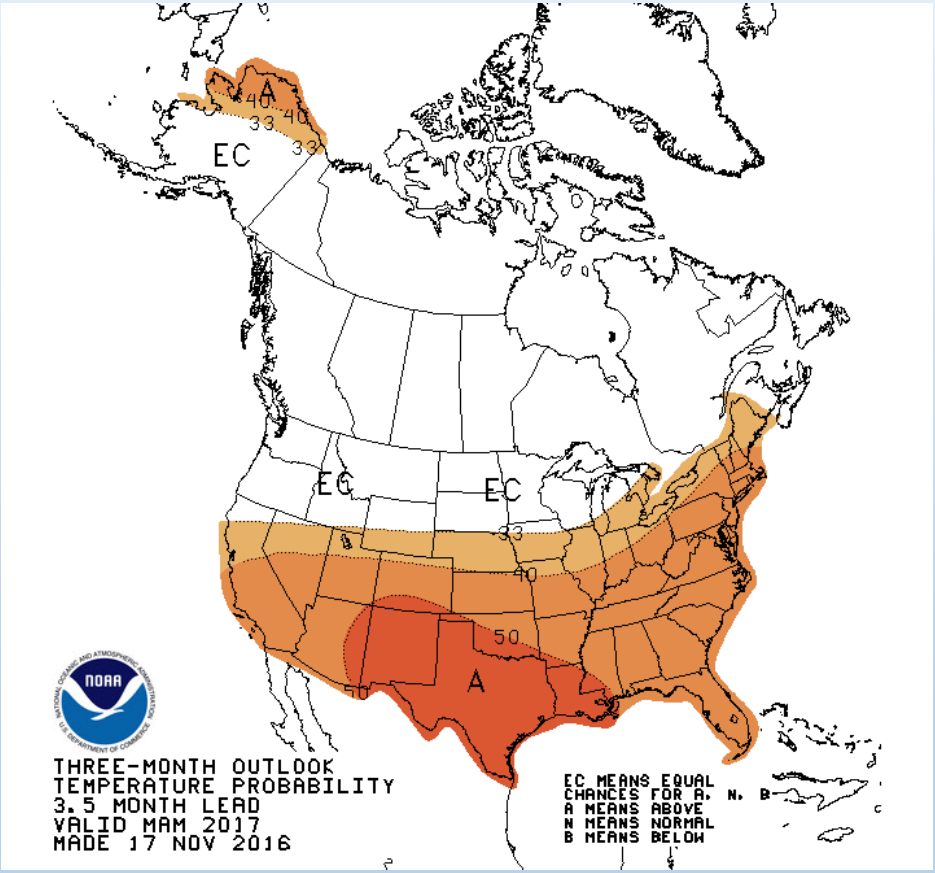


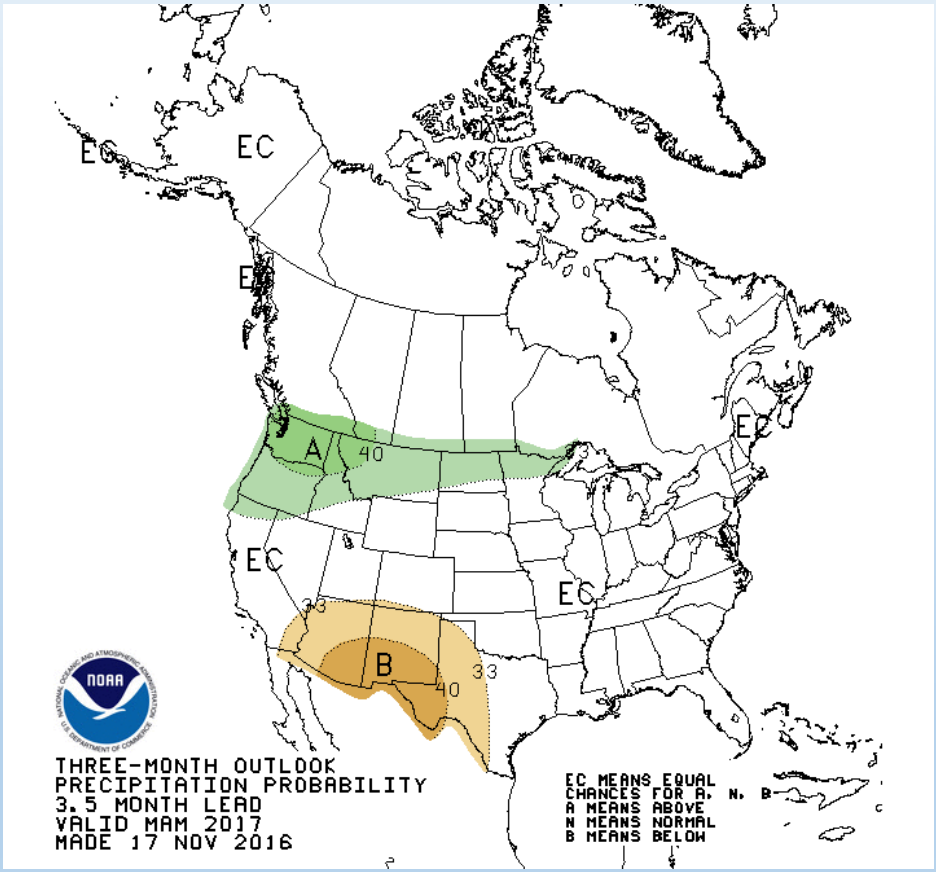
Temperature



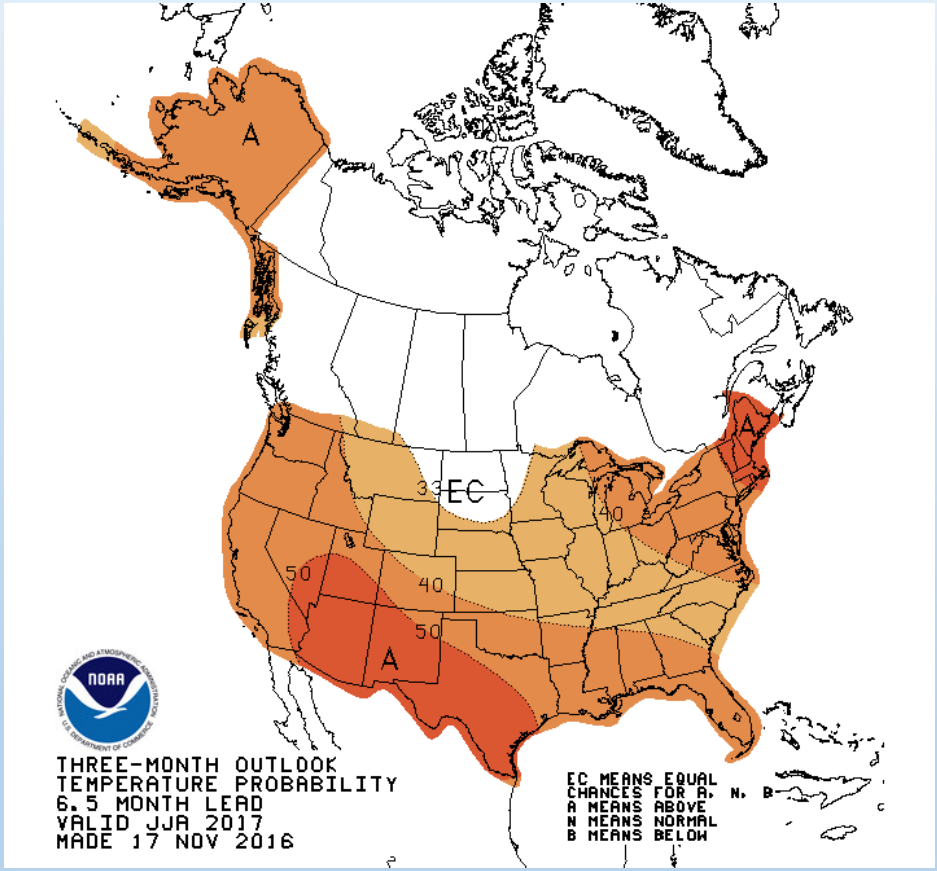
Precipitation

March – May Outlook

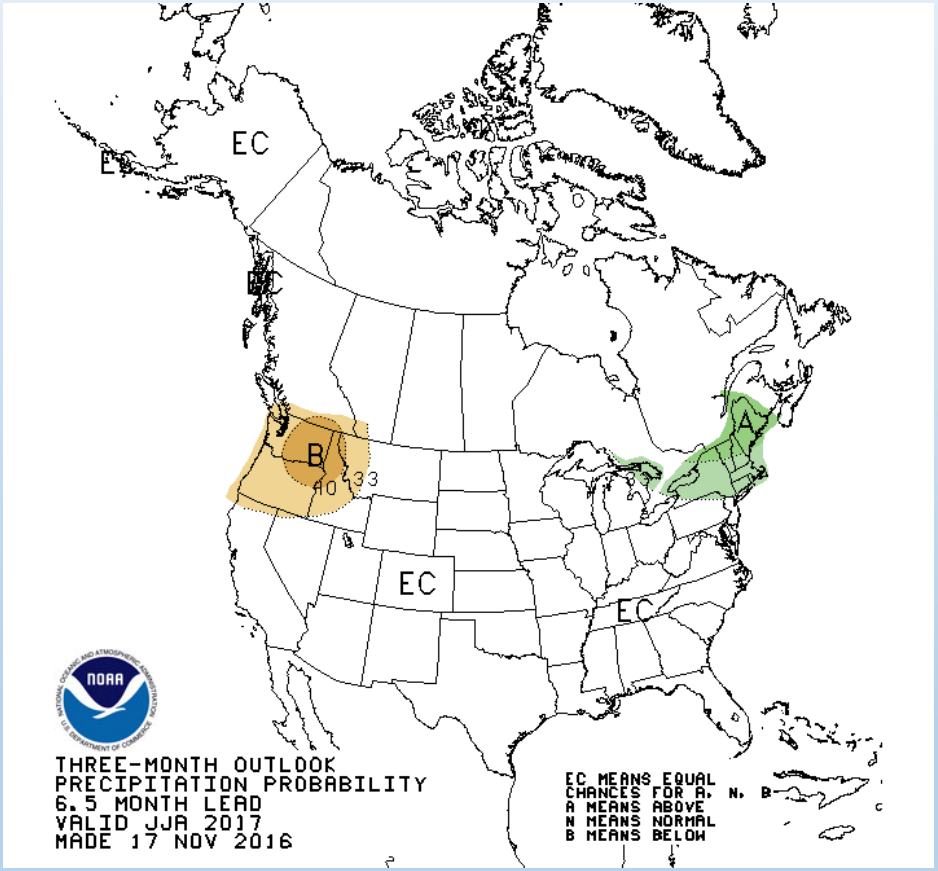




June – August Outlook



Temperature

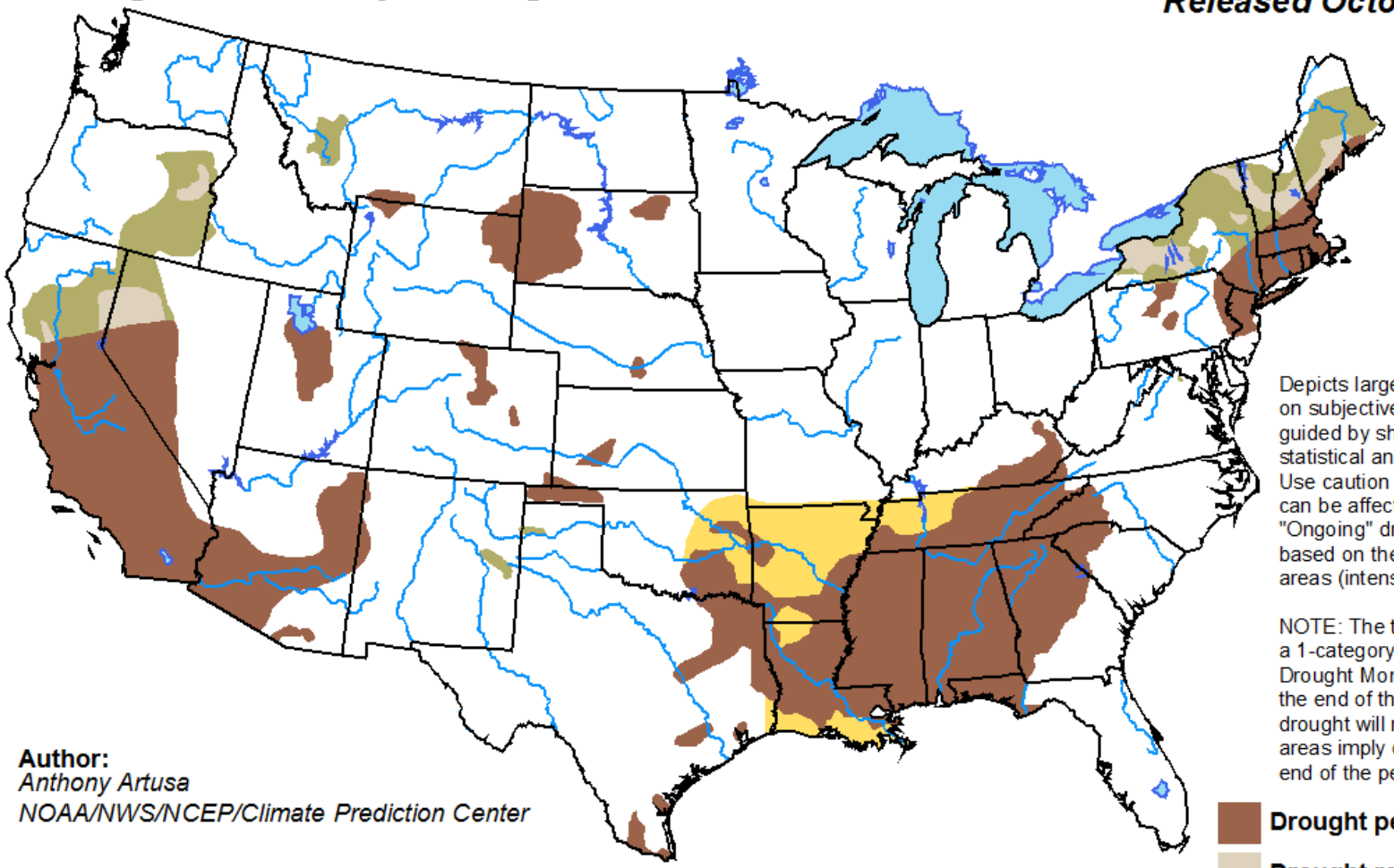


Precipitation

U.S. Monthly Drought Outlook

Drought Tendency During the Valid Period

Valid for November 2016
Released October 31, 2016



Author:
Anthony Artusa
NOAA/NWS/NCEP/Climate Prediction Center

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).

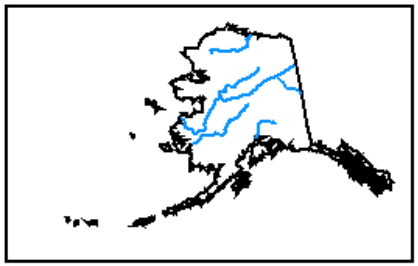
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

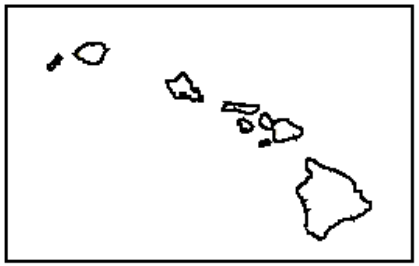
Drought persists

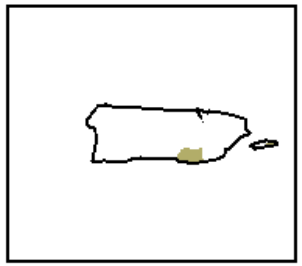
Drought remains but improves

Drought removal likely

Drought development likely





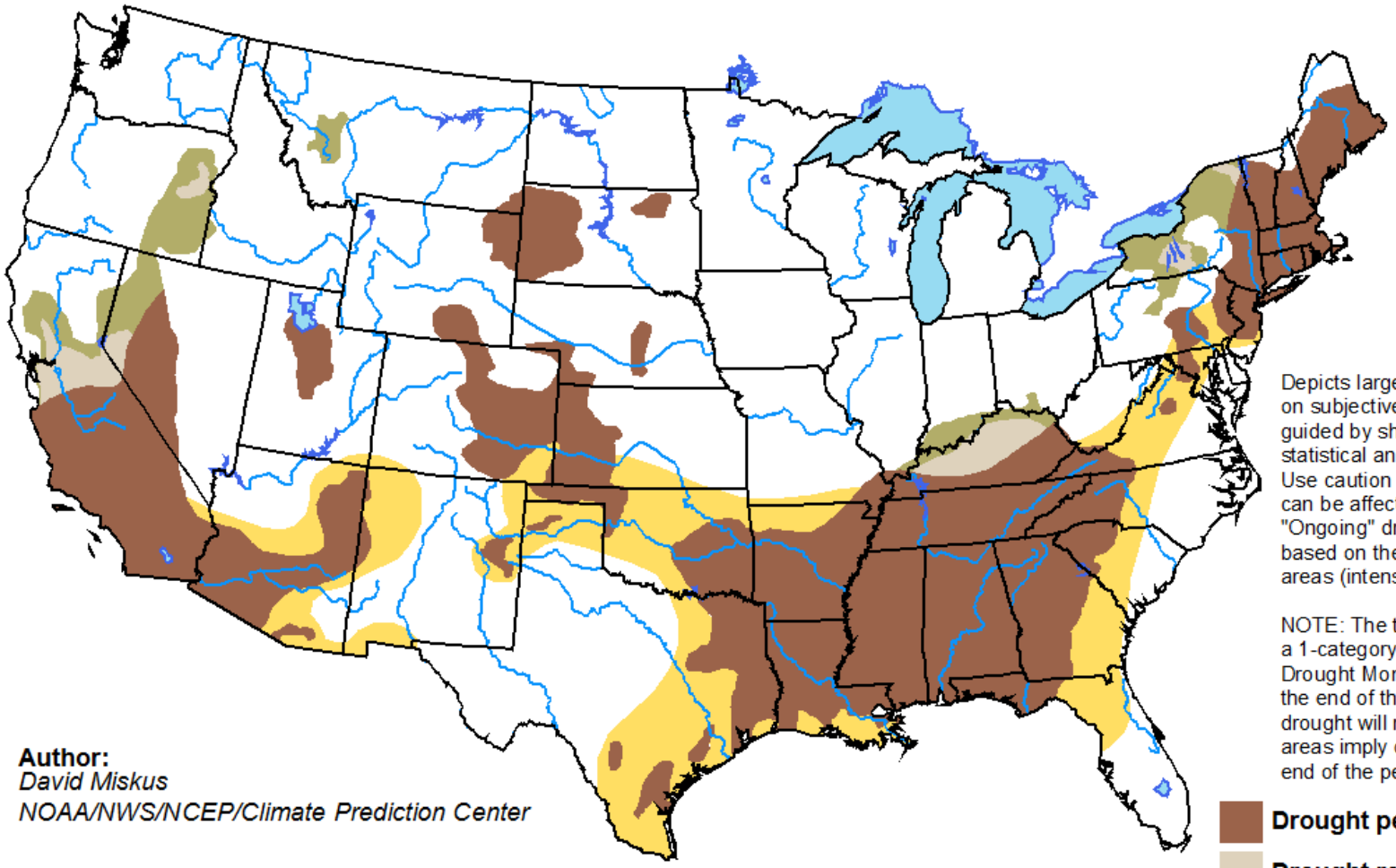


http://go.usa.gov/3eZGd

U.S. Seasonal Drought Outlook *Valid for November 17 - February 28, 2017*

Drought Tendency During the Valid Period

Released November 17, 2016



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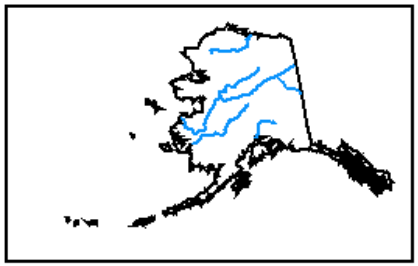
Drought persists

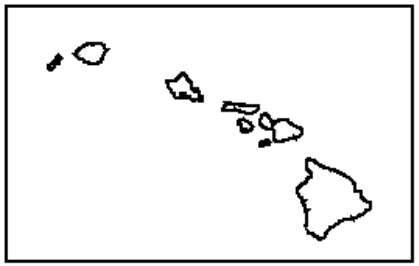
Drought remains but improves

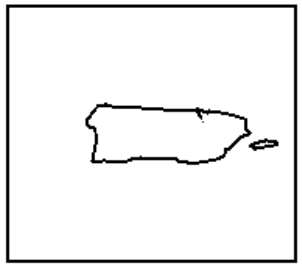
Drought removal likely

Drought development likely

Author:
David Miskus
NOAA/NWS/NCEP/Climate Prediction Center







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

Summary – In Last 30 Days …

- Temperatures were well above normal across the region (5-15 degrees above)
- Precipitation was below-normal across the region
- No widespread snow yet – but it's early
- Late first fall freeze dates across region
- Warm soils

Summary - Forecast

- Winter
  - Increased chance of **below-normal** temperatures in upper Midwest/Plains
  - Increased chance of above-normal precipitation from MT to the Great Lakes
- Spring
  - Except for the northern state, increased chance of above-normal temperatures
- Summer
  - Increased chance of above-normal temperatures

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: www.cpc.ncep.noaa.gov
- Climate Portal: www.climate.gov
- U.S. Drought Portal: www.drought.gov
- 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:**
  - Jim Angel: jimangel@Illinois.edu, 217-333-0729
  - Dennis Todey: Dennis.Todey@ARS.USDA.GOV , 605-688-5141
  - Doug Kluck: doug.kluck@noaa.gov, 816-994-3008
  - Barb Mayes: barb.mayes@noaa.gov
  - Mike Timlin: mtimlin@illinois.edu; 217-333-8506
  - Natalie Umphlett: numphlett2@unl.edu ; 402 472-6764
  - Brian Fuchs: bfuchs2@unl.edu 402 472-6775

  - **Weather:**
  - crhroc@noaa.gov