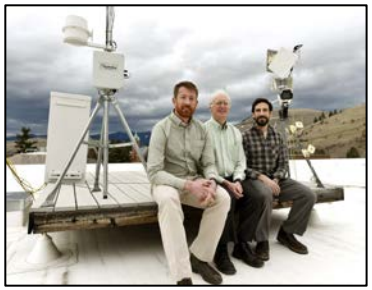
North Central U.S. Climate Summary and Outlook Webinar January 19, 2017



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Montana Climate Office

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

Regional Climate Centers

AASC American Association of State Climatologists

National Drought Mitigation Center

USDA

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
  - February 16th - Brian Fuchs (National Drought Mitigation Center - Climatologist)

- Archive of past webinars
  - http://mrcc.isws.illinois.edu/multimedia/webinars.jsp
  - http://www.hprcc.unl.edu/webinars.php

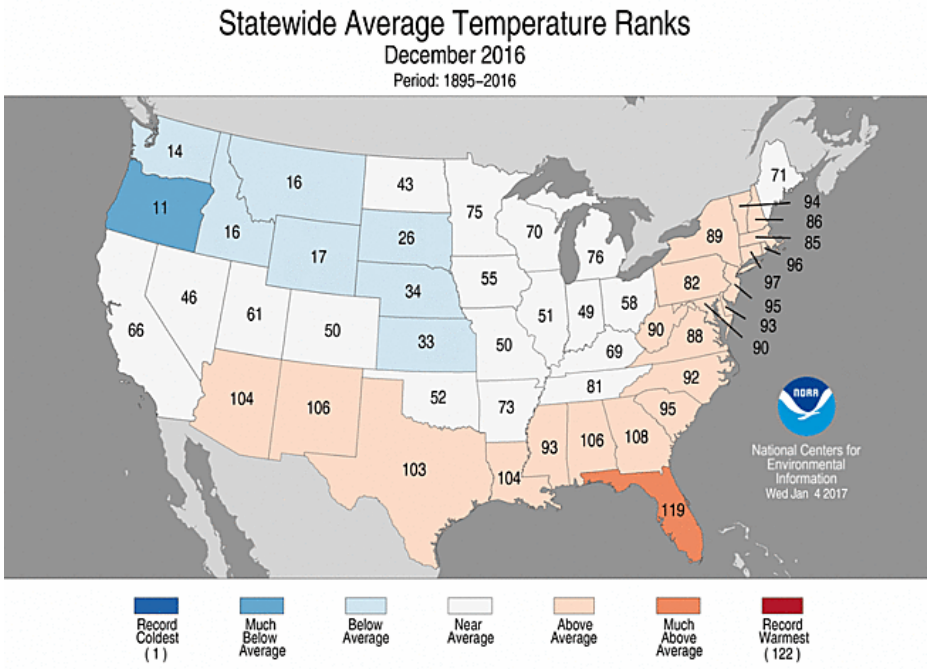
Agenda

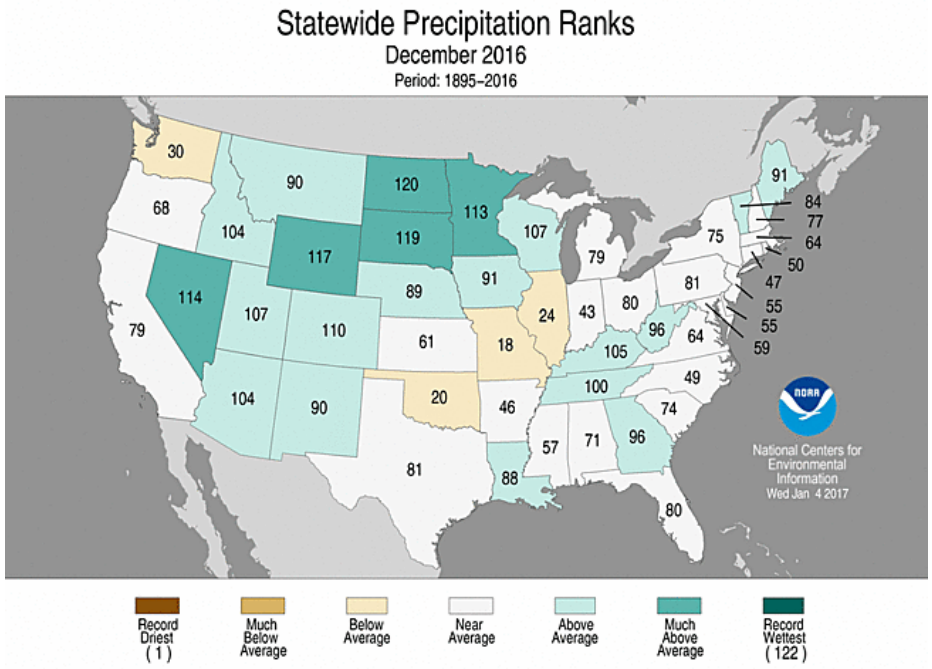
1. Current climate conditions in a historical context
2. Current and prospective climate impacts
3. Climate outlooks
4. Discussion

December

It's been normal to colder throughout the region…

… and very wet, normal or dry depending on your location

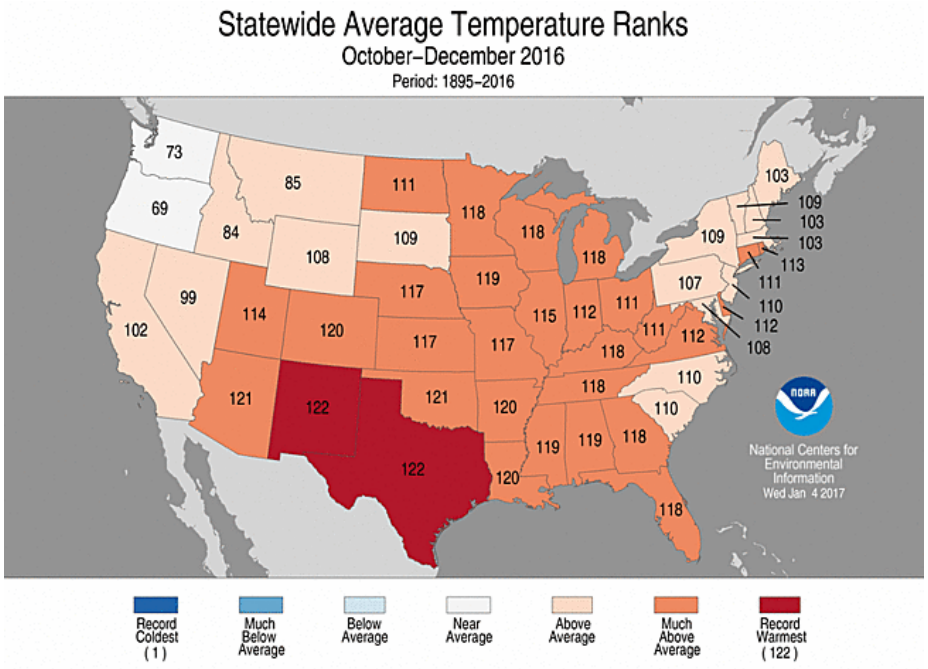




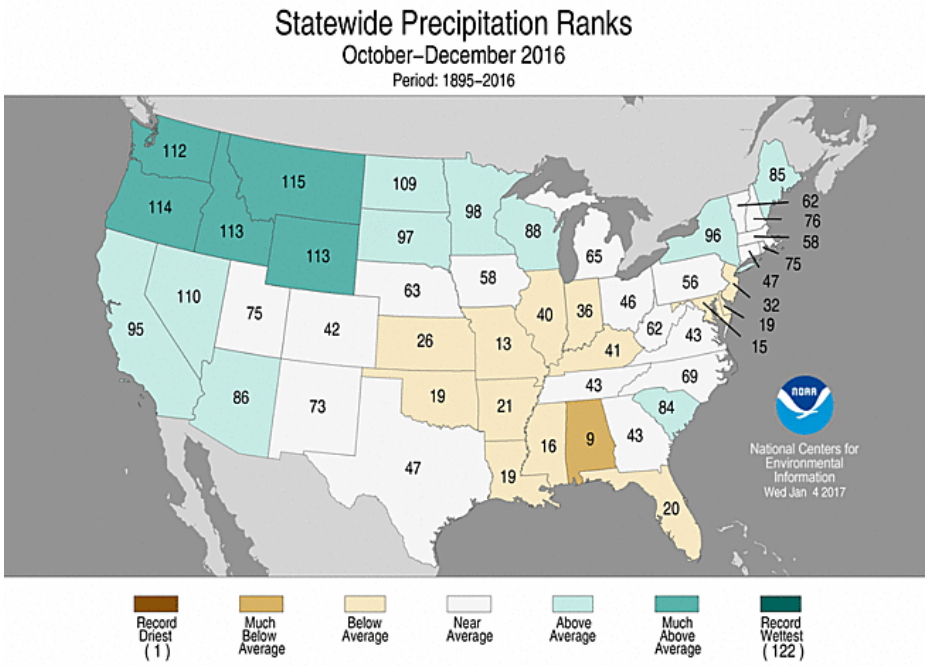
https://www.ncdc.noaa.gov/temp-and-precip/

Oct-Nov-Dec

It's been warm throughout the region…

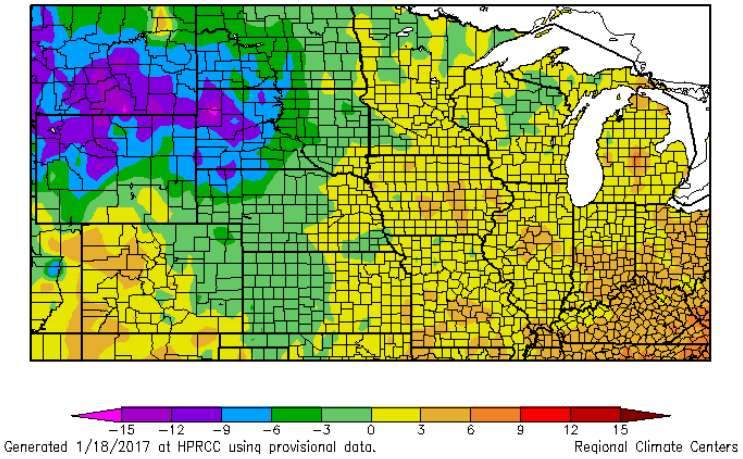


… and wet, dry, or about normal, depending on where you are

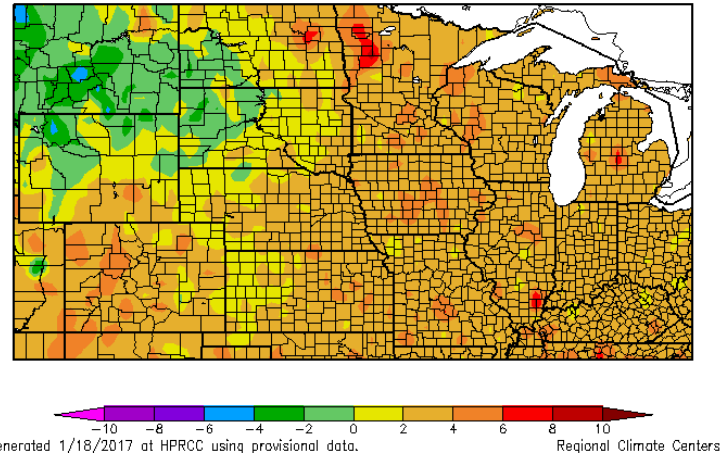


https://www.ncdc.noaa.gov/temp-and-precip/

Departure from Normal Temperature (F)
12/19/2016 – 1/17/2017

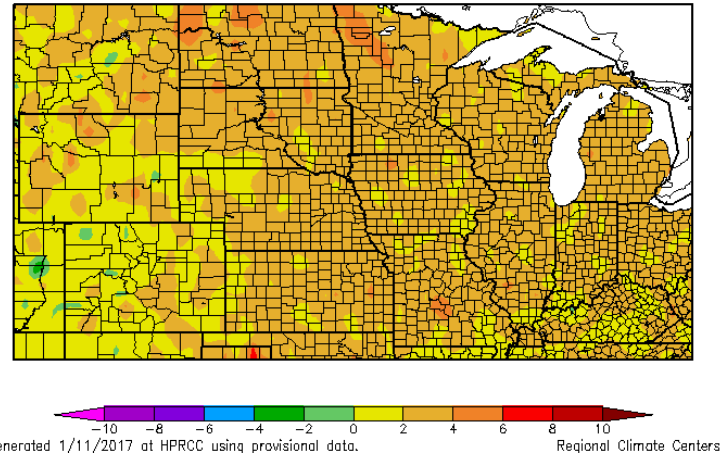


Departure from Normal Temperature (F)
10/1/2016 – 1/17/2017



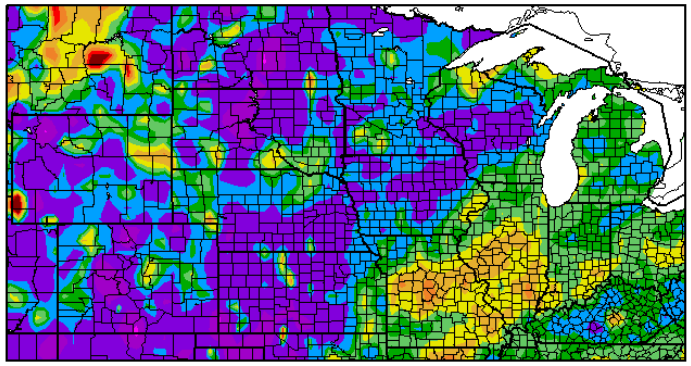
- **MONTH**: Over the past 30 days it has been much cooler across much of the plains with warmer temperatures in CO and across the Midwest
- **3 MONTH**: From 2 to 6 °F above normal for much of the region since October with a pocket of cooler temperatures in the northwestern High Plains
- **YEAR:** From 1 to 6 °F above normal for the region in 2016. Second warmest year on record for the Continental U.S.

Departure from Normal Temperature (F)
1/1/2016 – 12/31/2016

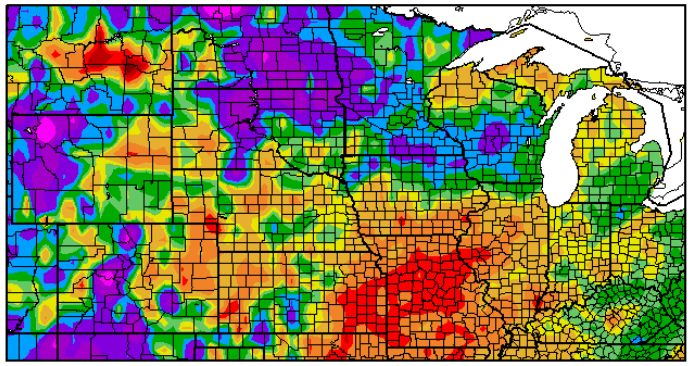


http://www.hprcc.unl.edu/maps.php?map=ACISClimateMaps

Percent of Normal Precipitation (%)
12/19/2016 – 1/17/2017



Percent of Normal Precipitation (%)
10/20/2016 – 1/17/2017

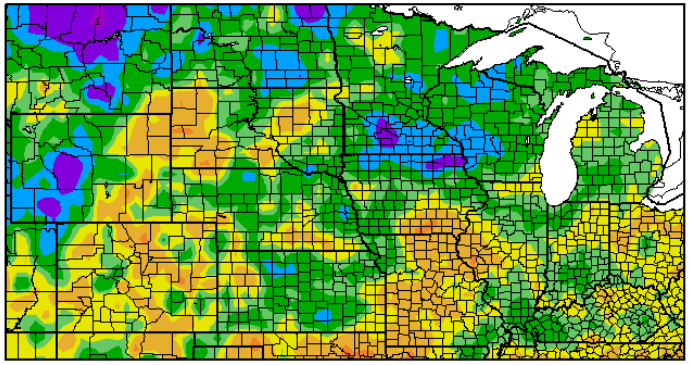


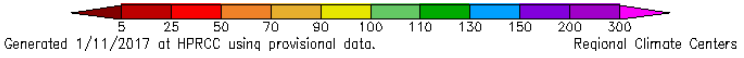
- **MONTH:** Above normal across the high plains region (except central MT) and Upper Midwest. Slightly below normal in portions of the lower Midwest (MO and IL), over the past 30 days

- **3 MONTH:** Normal to above normal in upper Midwest and Plains and sharply below normal in portions of the lower Midwest and Plains over the past 90 days

- **YEAR:** Generally normal to wetter than normal, including some areas of record wetness in portions of Iowa, Minnesota and Montana. Parts of Colorado, Missouri and Indiana were drier than normal

Percent of Normal Precipitation (%)
1/1/2016 – 12/31/2016





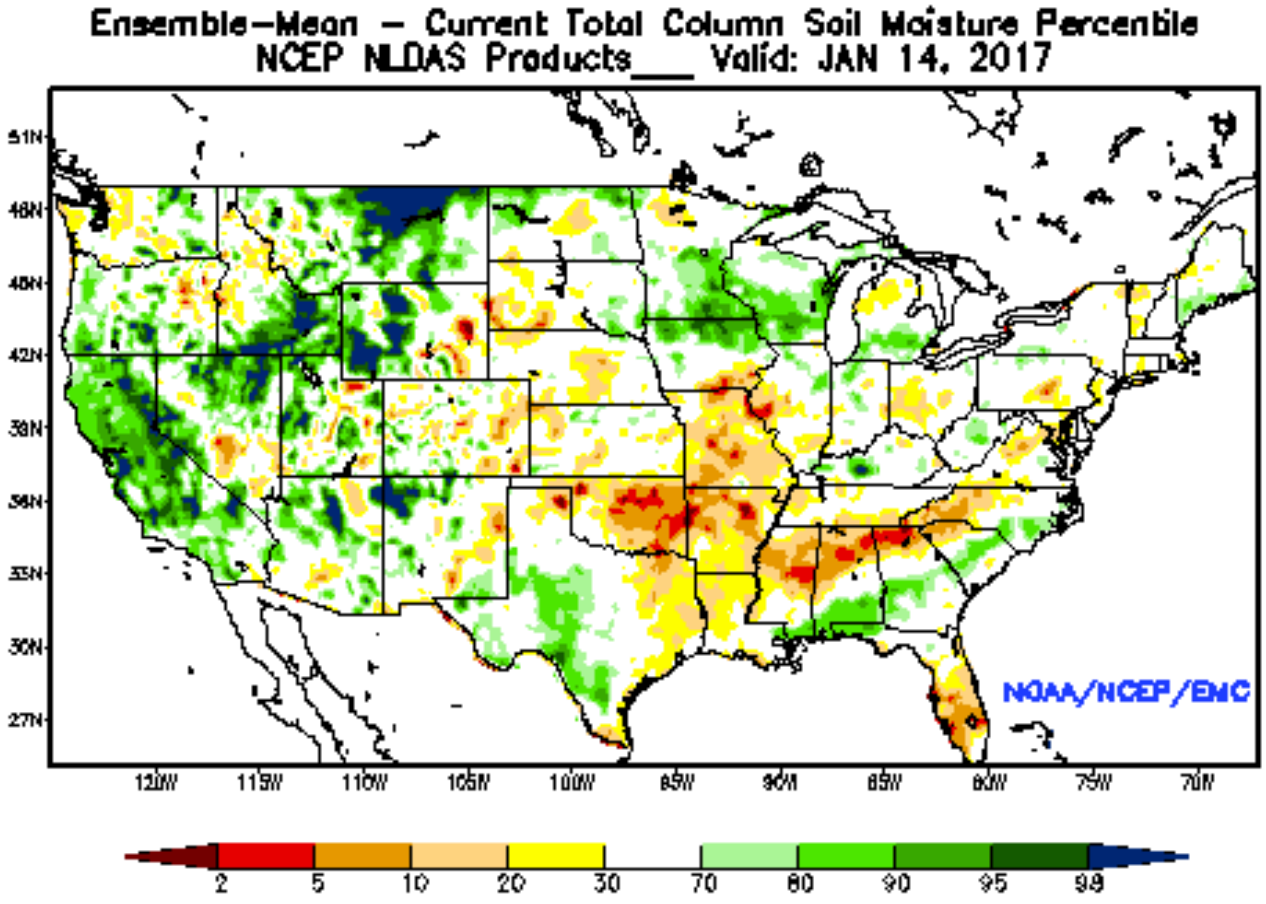
http://www.hprcc.unl.edu/maps.php?map=ACISClimateMaps

Precipitation & Temperature Impacts

- Trains are having difficulties navigating sections of track in ND & SD due to extensive snowpack and blowing snow.
- Due to above average snowpack in the Dakotas, areas are being watched for potential flooding; dependent upon future snow and rain and melt timing in the spring
- Slight ponding in agricultural areas in Iowa and IL from recent snowmelt on frozen soils
- Minor ice jams in Montana, Wyoming and Iowa, but no real impact
- Freezing rain across NE, MO, KS, IA, and MN was a bit unusual but not a major impact.

Modeled Soil Moisture

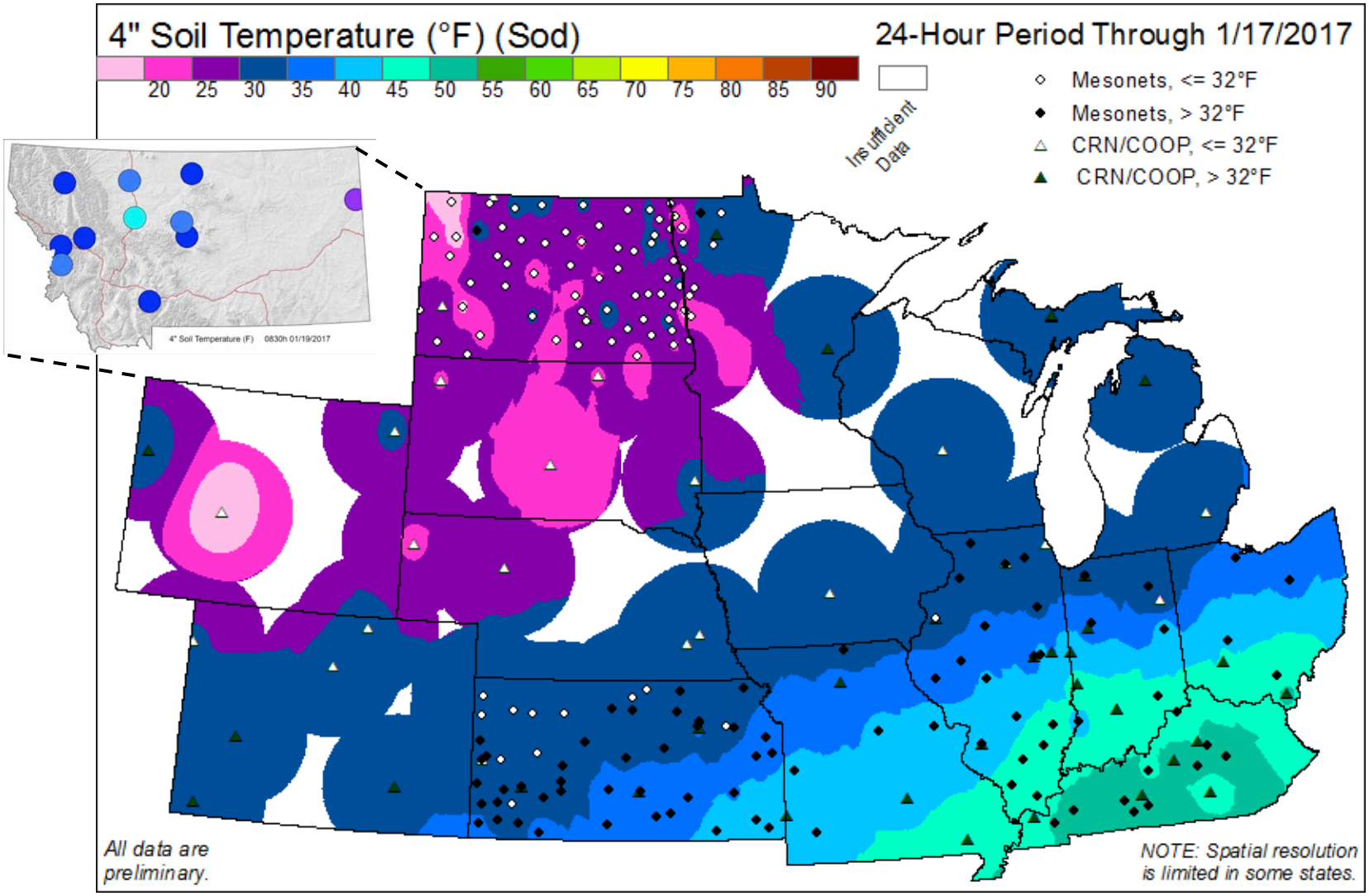
National Land Data Assimilation System



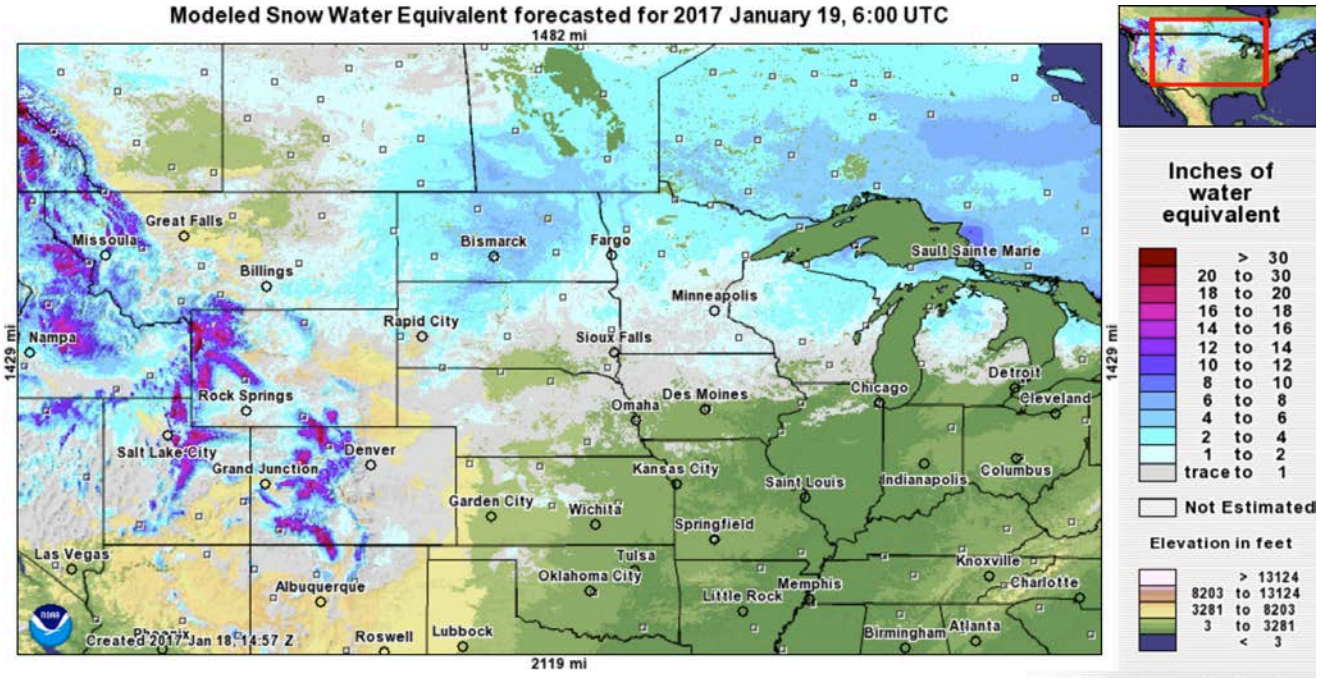
www.emc.ncep.noaa.gov/mmb/nldas/drought/

Soil Temperature

Regional Mesonet Program

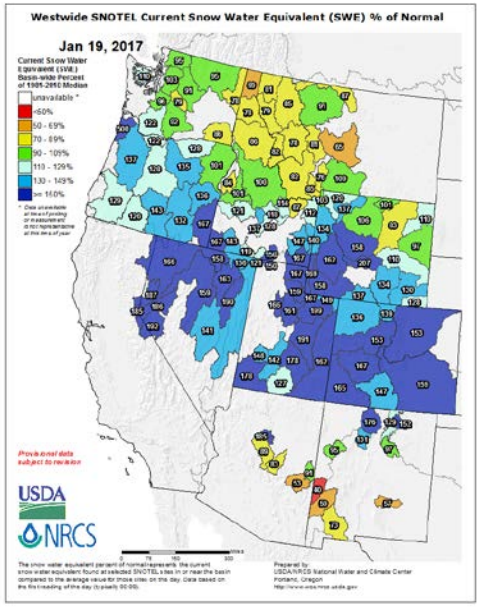


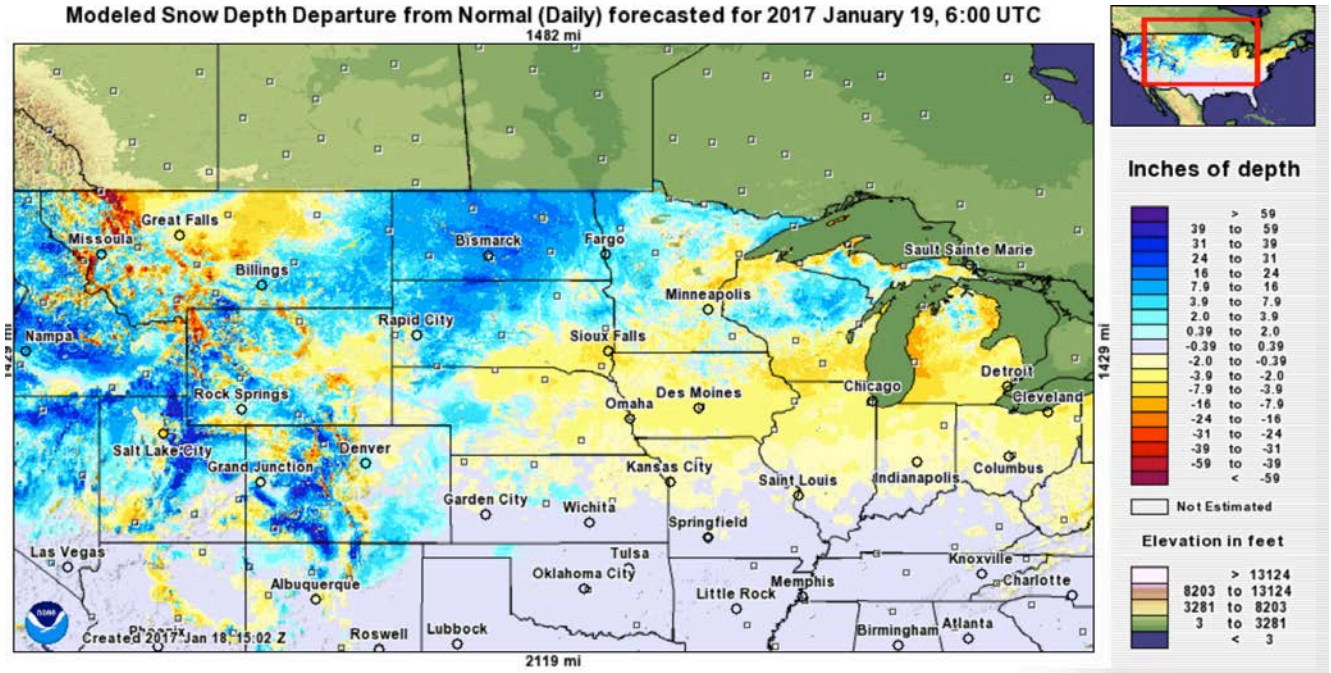
http://mrcc.isws.illinois.edu/cliwatch/mesonets/soilTemp.html#bannerFixed



Snow Water Equivalent

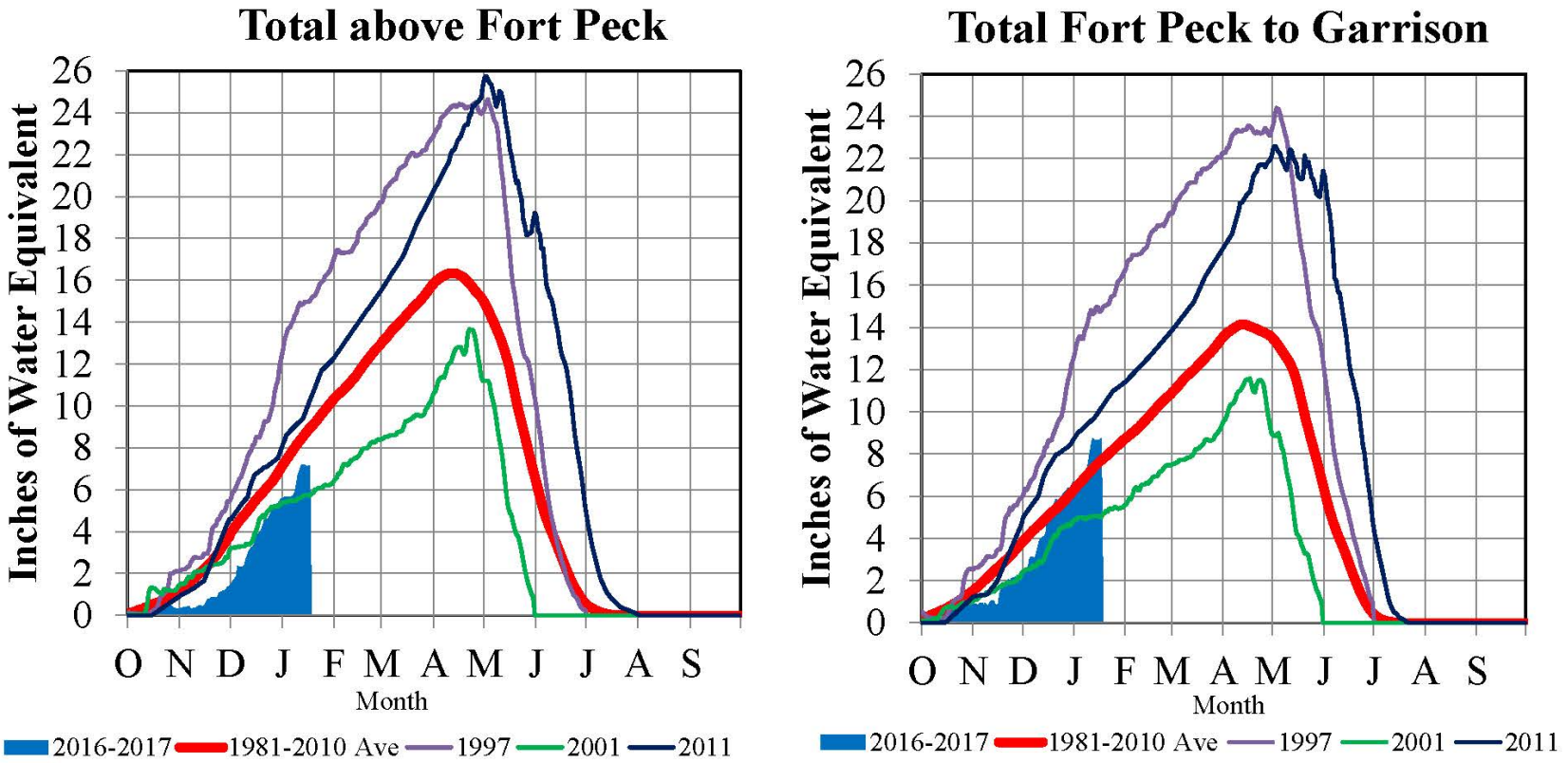
Departures from Normal





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

January 17, 2017

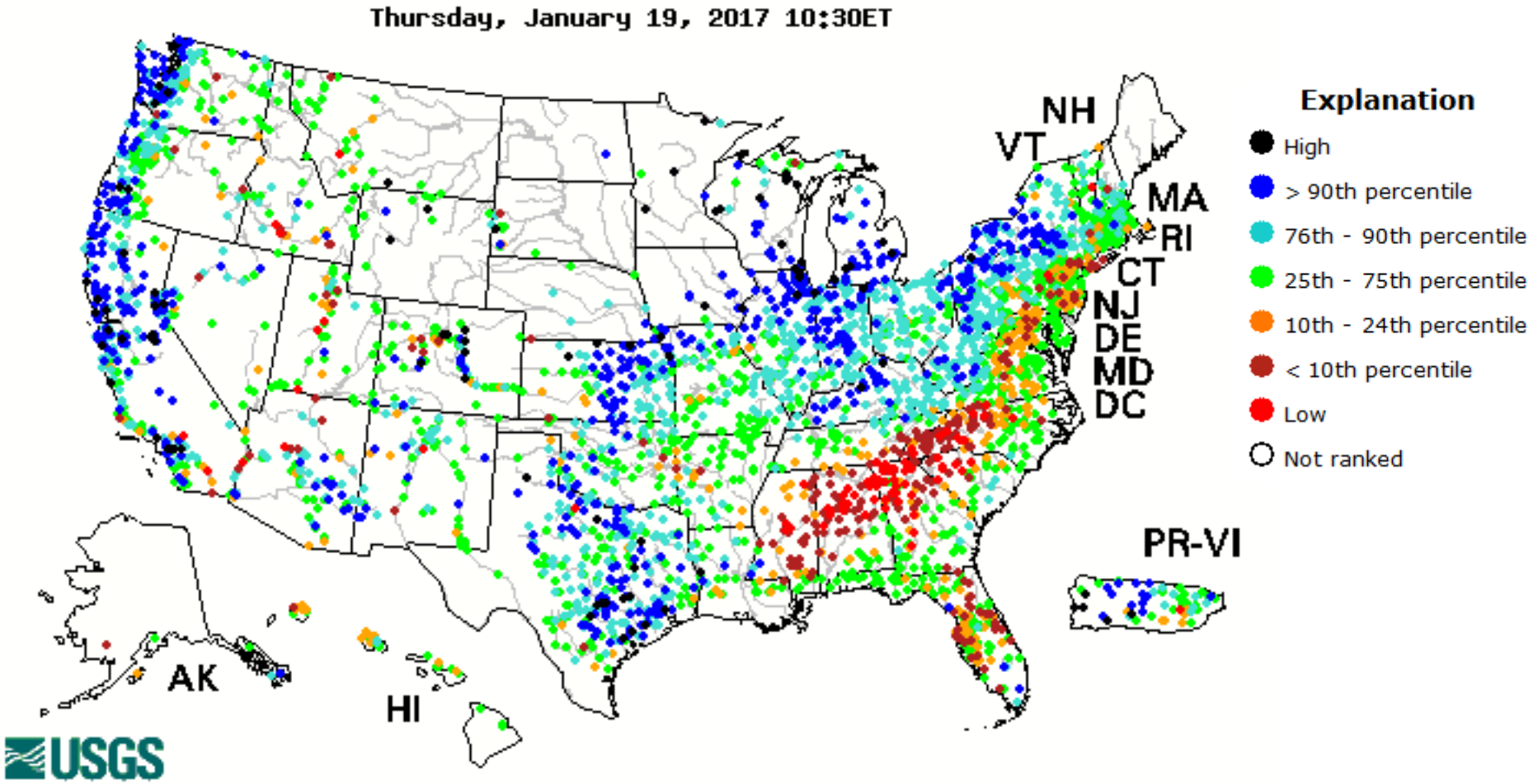


The Missouri River Basin mountain snowpack normally peaks near April 15. On January 17, 2017 the mountain Snow Water Equivalent (SWE) in the "Total above Fort Peck" reach was 7.2", 80% of average. The mountain SWE in the "Total Fort Peck to Garrison" reach was 8.7", 113% of average. Normally by January 15, about 54% of the peak mountain SWE has occurred in both reaches.

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

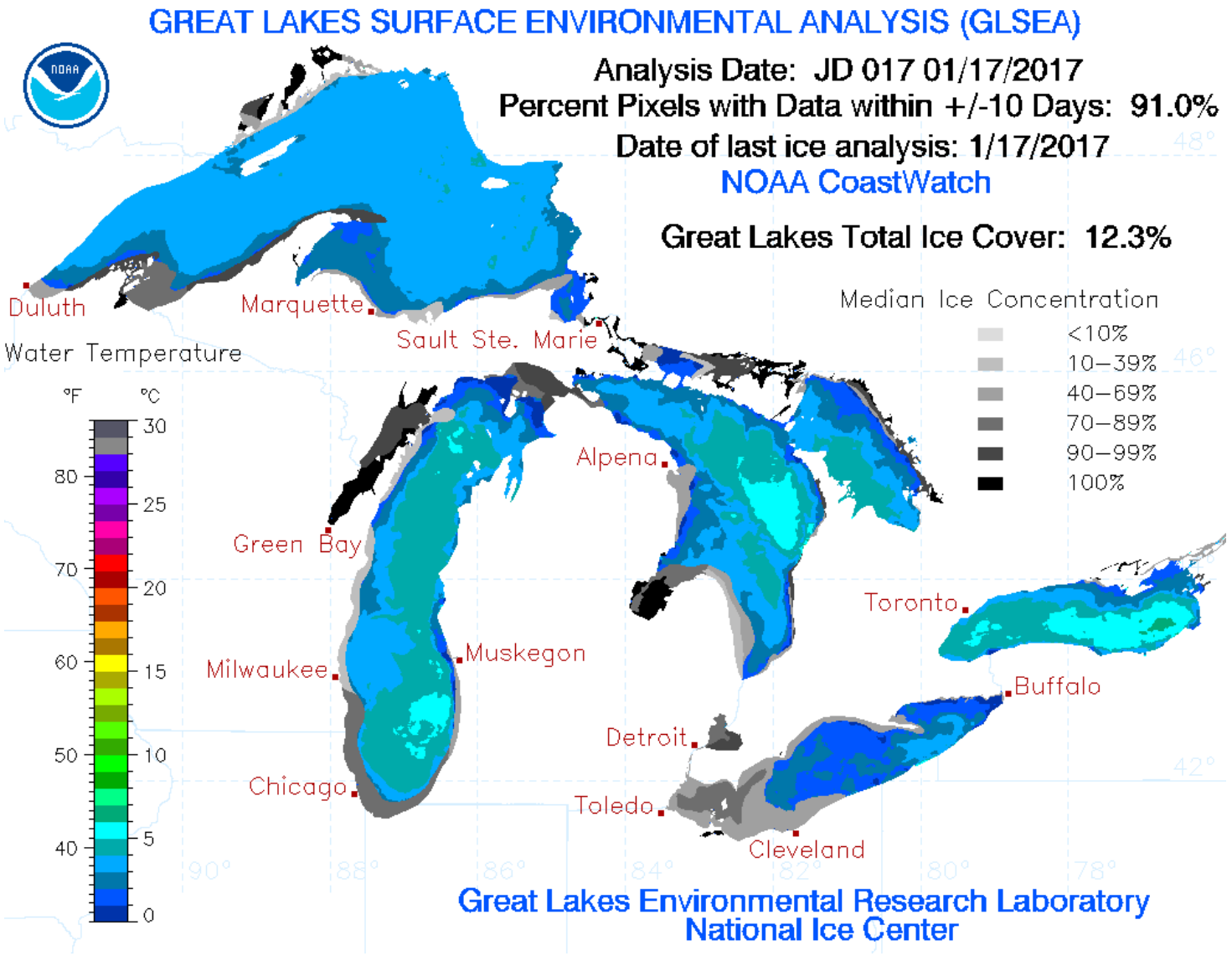
Provisional data. Subject to revision.

Streamflow Conditions

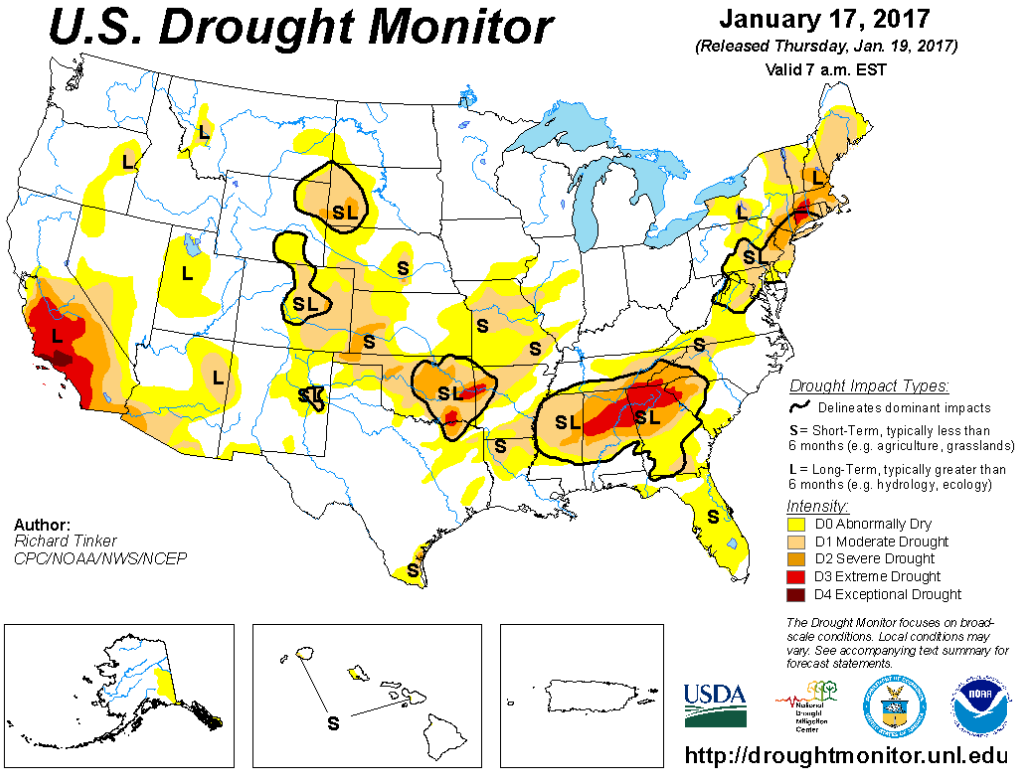


https://waterdata.usgs.gov/nwis/rt

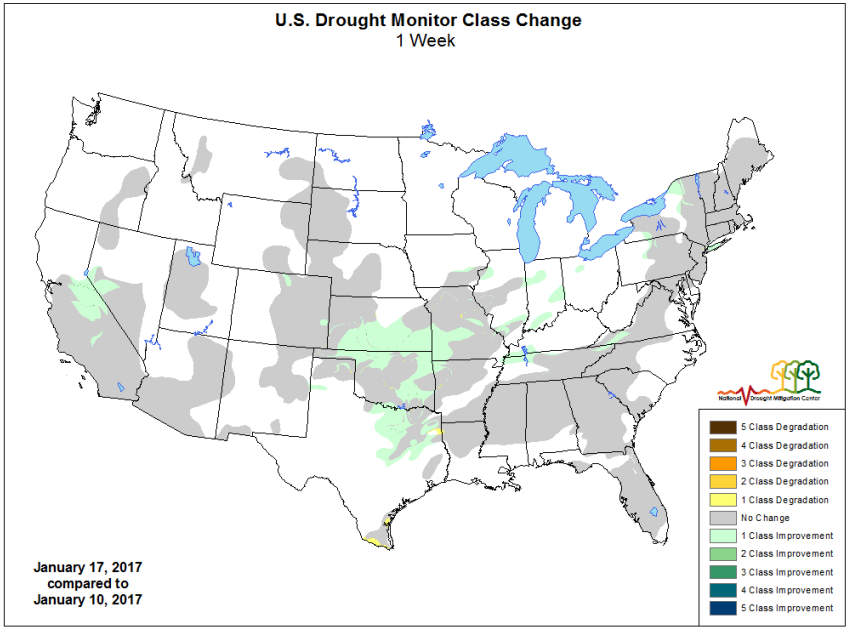
Great Lakes – Water Temperature and Ice Cover



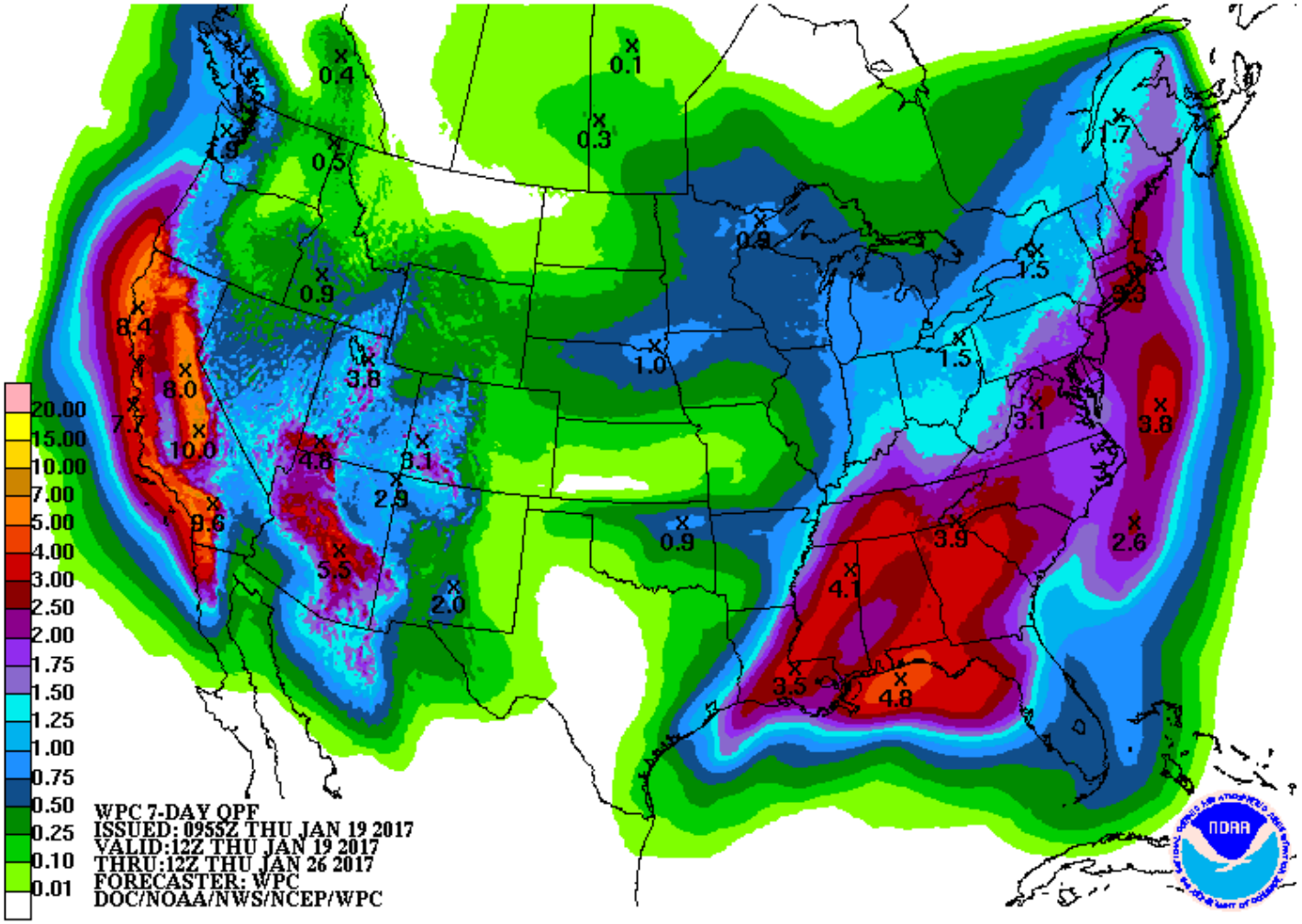
www.glerl.noaa.gov//data/ice/#currentConditions



- Drought conditions have contracted with the increase in December and early January precipitation.



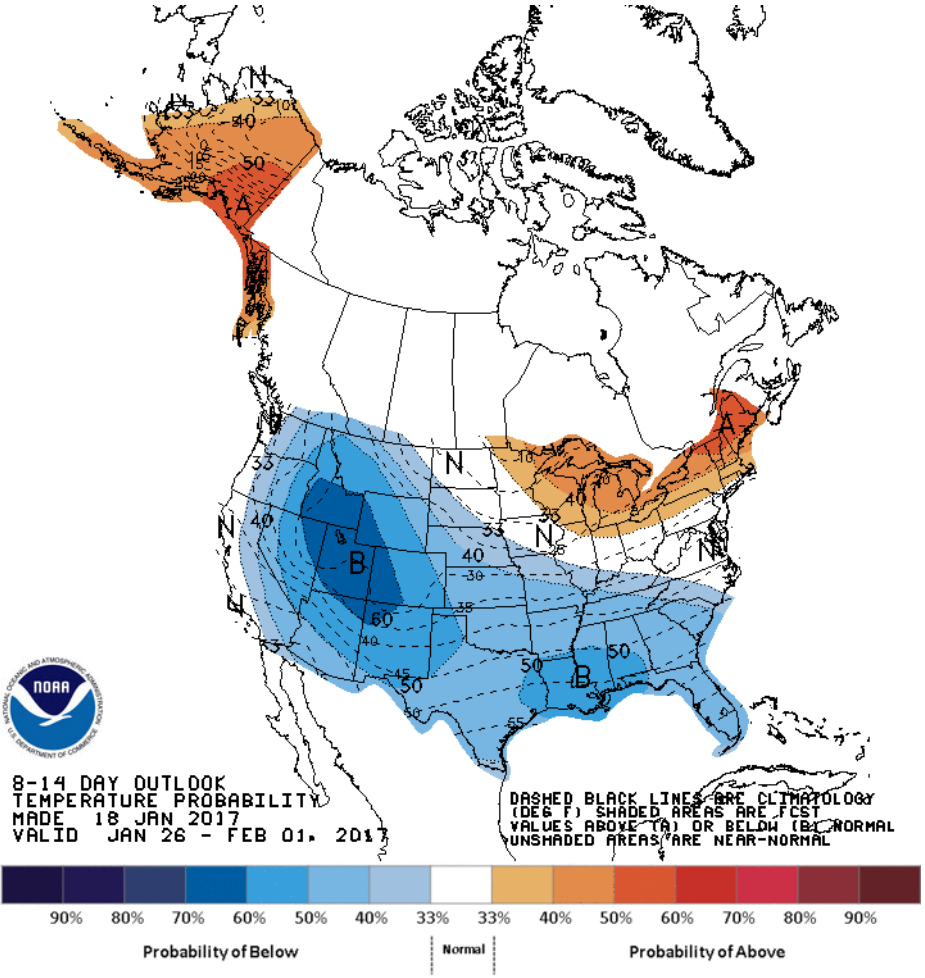
7-day Quantitative Precipitation Forecast

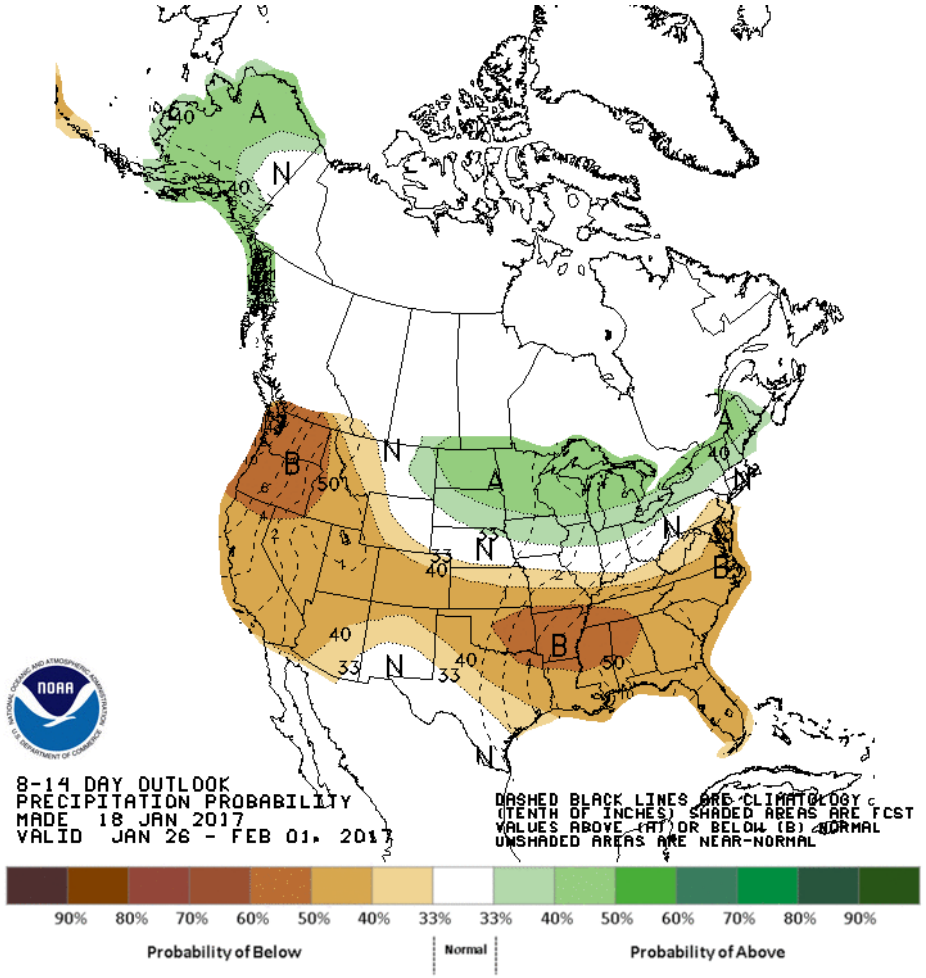


http://www.wpc.ncep.noaa.gov/qpf/day1-7.shtml

8-14 Day Outlook
Jan 26 – Feb 1

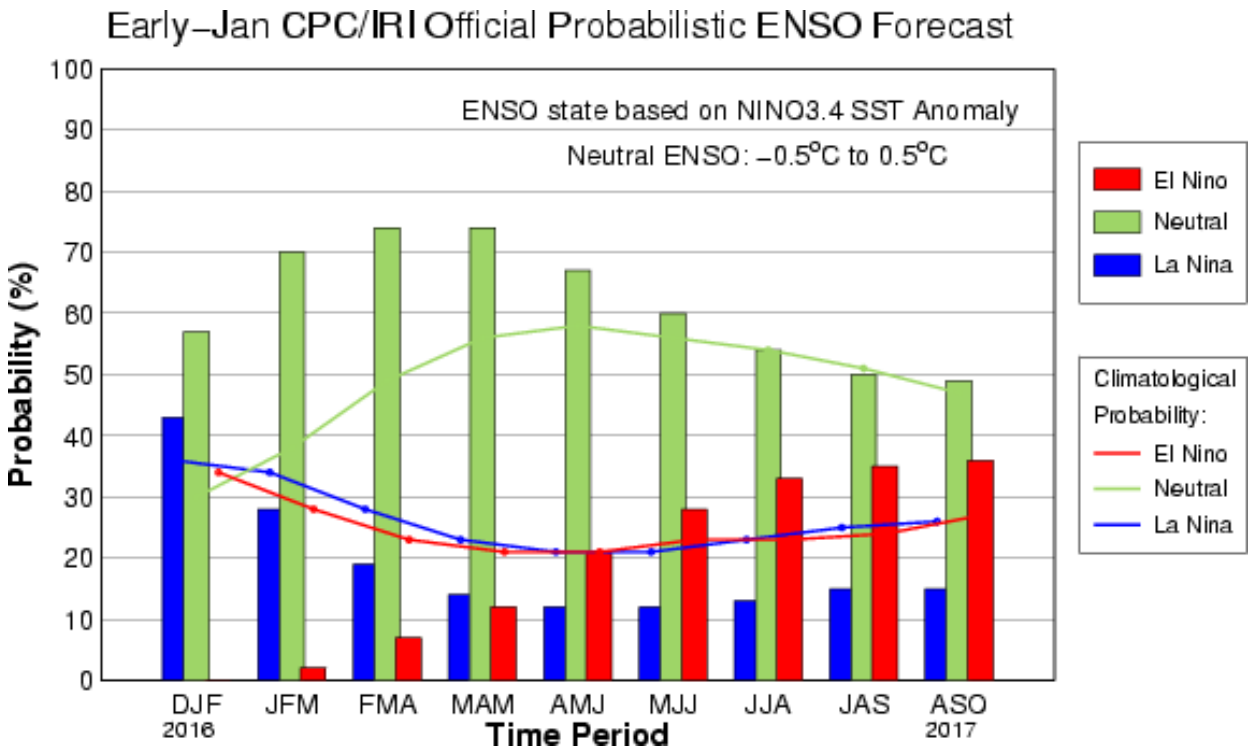
NWS Climate Predication Center





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

ENSO Probabilistic Forecast



- Weak La Niña continues
- Expected to transition to ENSO neutral by February

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

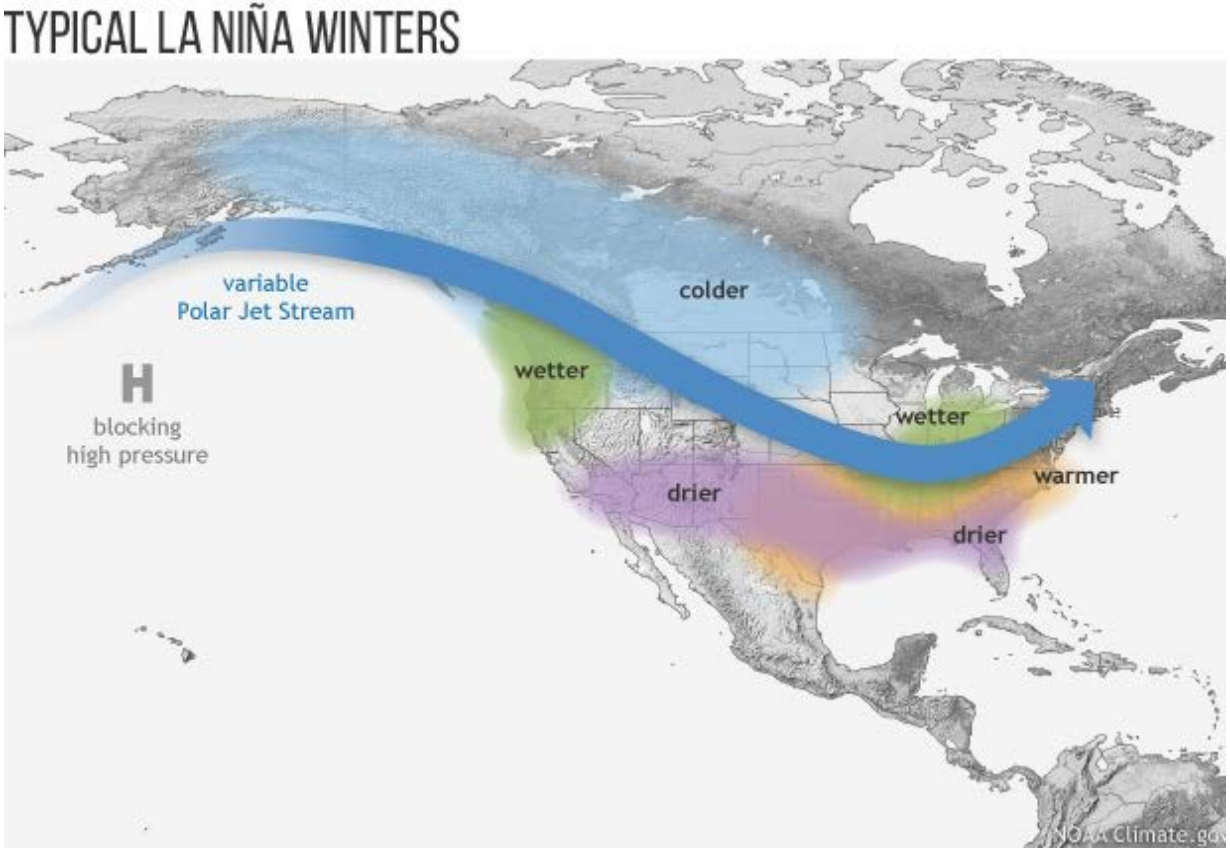
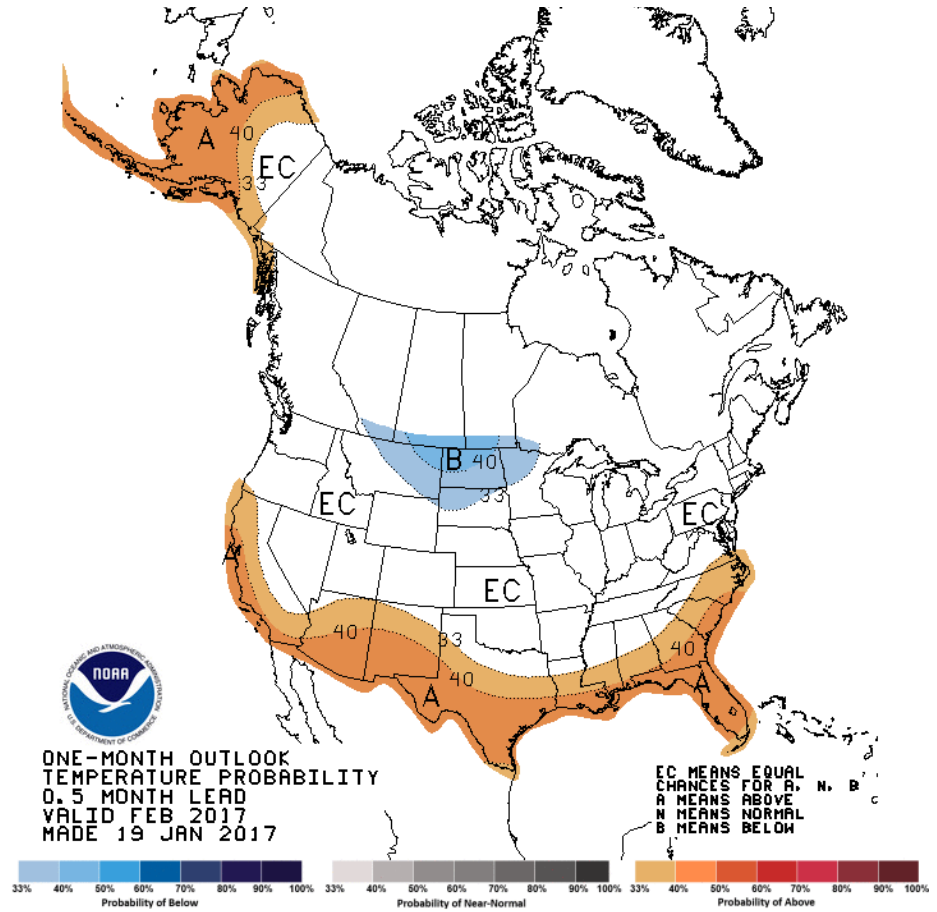


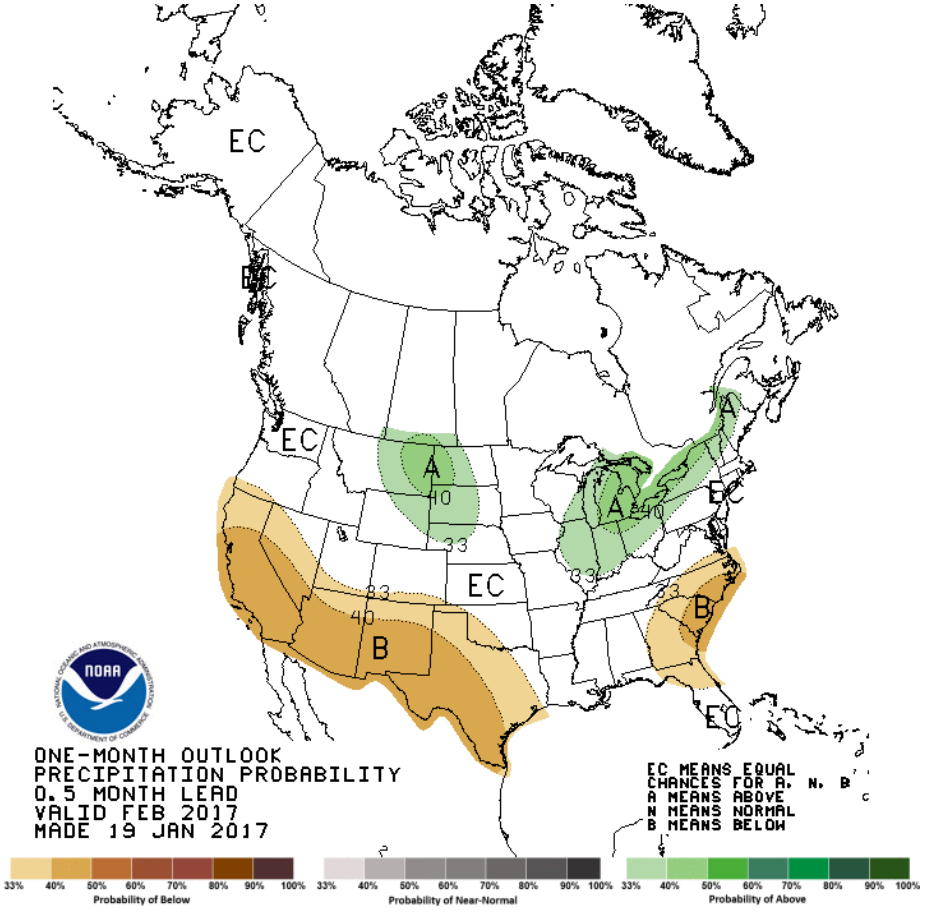
Image Credit: Fiona Martin, NOAA Climate.gov

Monthly Outlook for February

NWS Climate Predication Center



Temperature

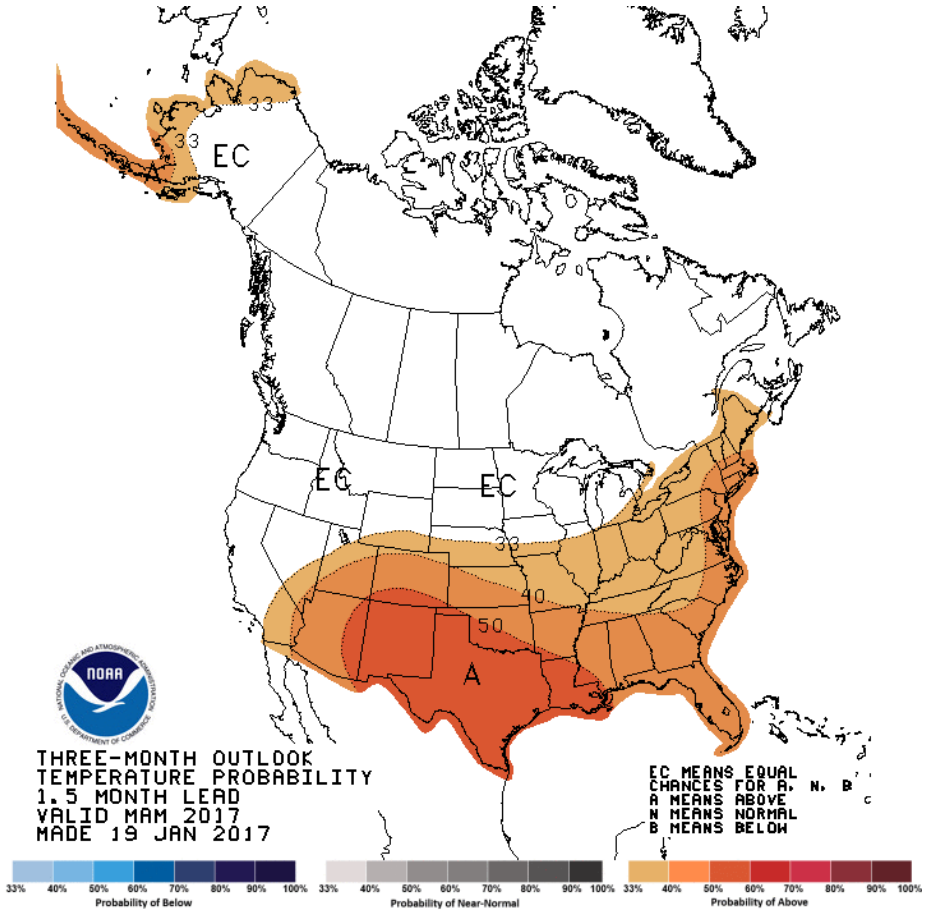


Precipitation

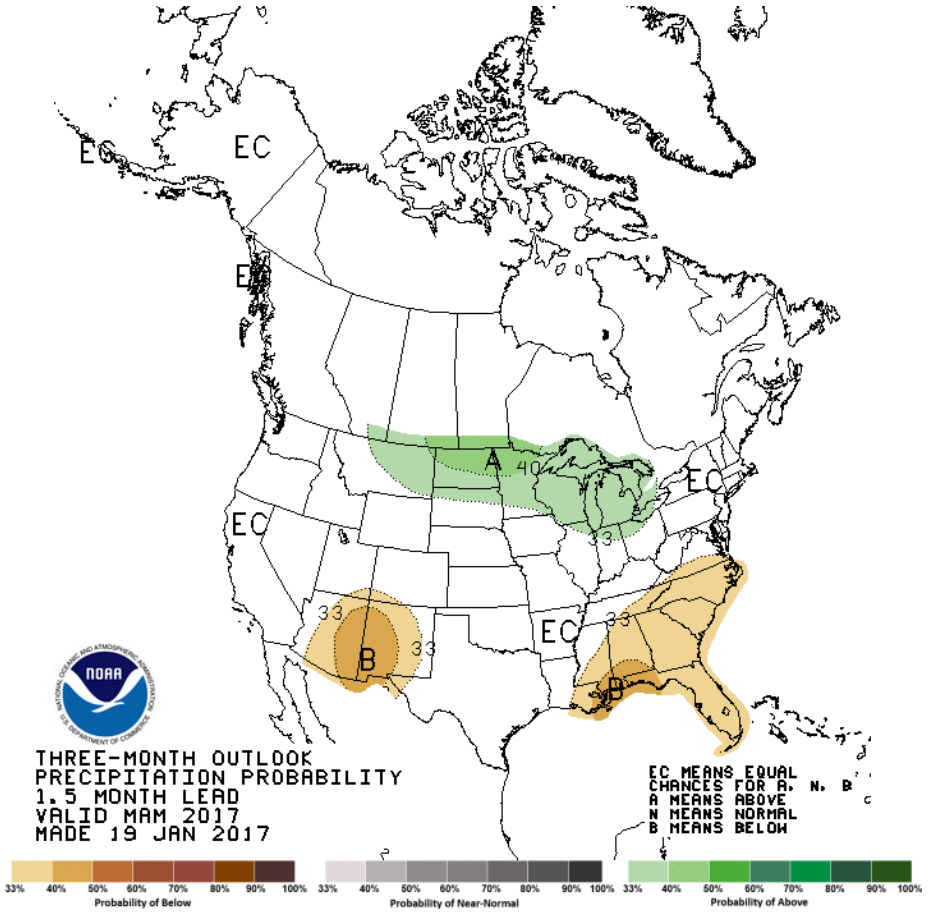
http://www.cpc.ncep.noaa.gov/products/predictions/long_range/lead14/

Seasonal Outlook for Mar-April-May

NWS Climate Predication Center



Temperature

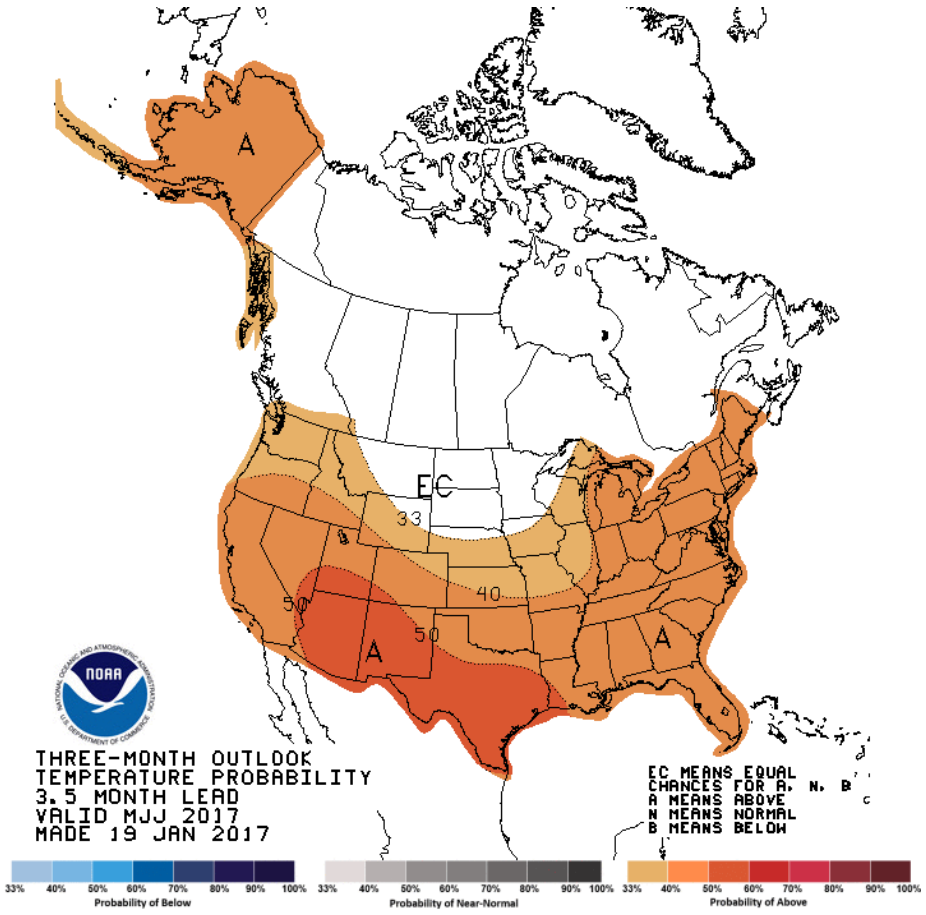


Precipitation

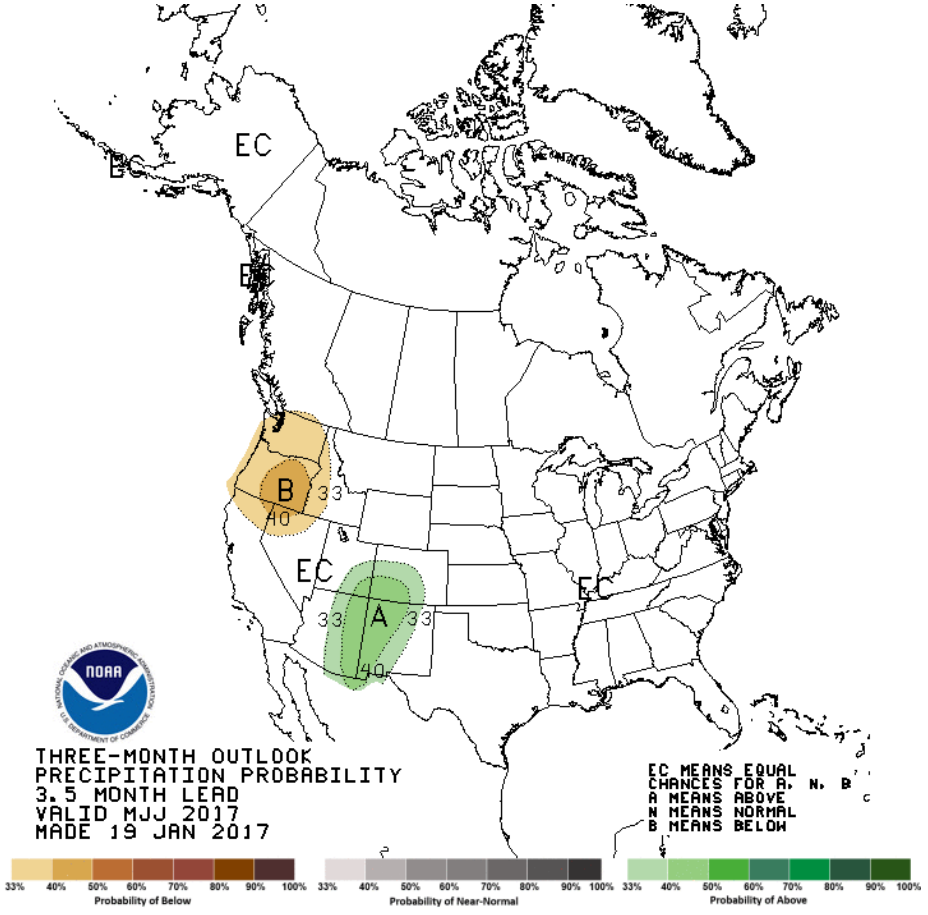
http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1.5

Seasonal Outlook for May-Jun-July

NWS Climate Predication Center



Temperature



Precipitation

http://www.cpc.noaa.gov/products/predictions/long_range/seasonal.php?lead=4

Summary

- For the past month it's been cooler to the west and slightly warmer to the east.
- Precipitation has been much above normal across much of region except for south eastern states near the Mississippi.
- Snow pack is moving towards normal conditions in the high plains region following a slow start to the season.
- Drought conditions have contracted slightly with the increase in late December and early January precipitation.
- La Niña conditions are likely to diminish into February, though climatic conditions may still reflect a La Niña influence.

Additional Information

- Today's and Past Recorded Presentations and
  http://mrcc.isws.illinois.edu/multimedia/webinars.jsp
  http://www.hprcc.unl.edu/webinars.php
- NOAA's National Centers for Environmental Information: https://www.ncei.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/
- American Association of State Climatologists
  http://www.stateclimate.org
- Regional Climate Centers serving the Central Region
  Midwestern RCC http://mrcc.isws.illinois.edu
  High Plains RCC http://www.hprcc.unl.edu

Questions?

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Thank you for your participation!