

Midwest and Great Plains Climate & Drought Outlook 21 December 2017

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Legion Lake Fire in the South Dakota Black Hills (Darren Clabo, December 12, 2017)



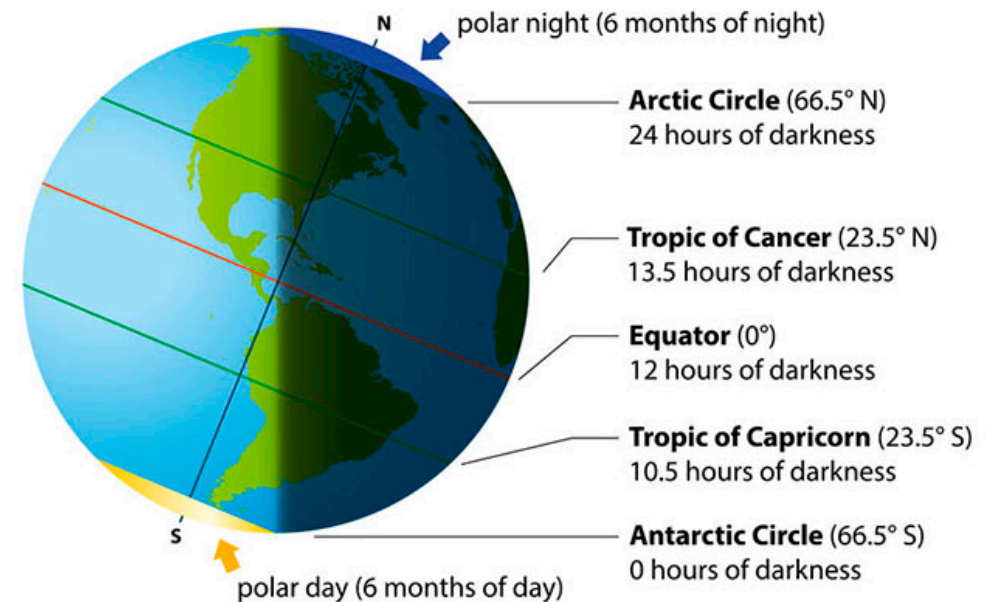
Happy Winter Solstice

Moon Stumpp

No, it's not the first
day of winter...

just the shortest day
of the year!

winter solstice (December 21)



General Information

- **Providing climate services to the Central Region**

- Collaboration Activity Between:

- State Climatologists/American Association of State Climatologists
- NOAA NCEI/NWS/OAR/NIDIS/
- USDA Climate Hubs
- Midwest and High Plains Regional Climate Centers
- National Drought Mitigation Center

- **Next Regular Climate/Drought Outlook Webinar**

- January 18, 2018 (1 PM CST), presenter Stuart Foster (Kentucky Climate Center)

- **Access to Future Climate Webinars and Information**

- <http://www.drought.gov/drought/content/regional-programs/regional-drought-webinars>

- <http://mrcc.isws.illinois.edu/webinars.htm>

- <http://www.hprcc.unl.edu/webinars.php>

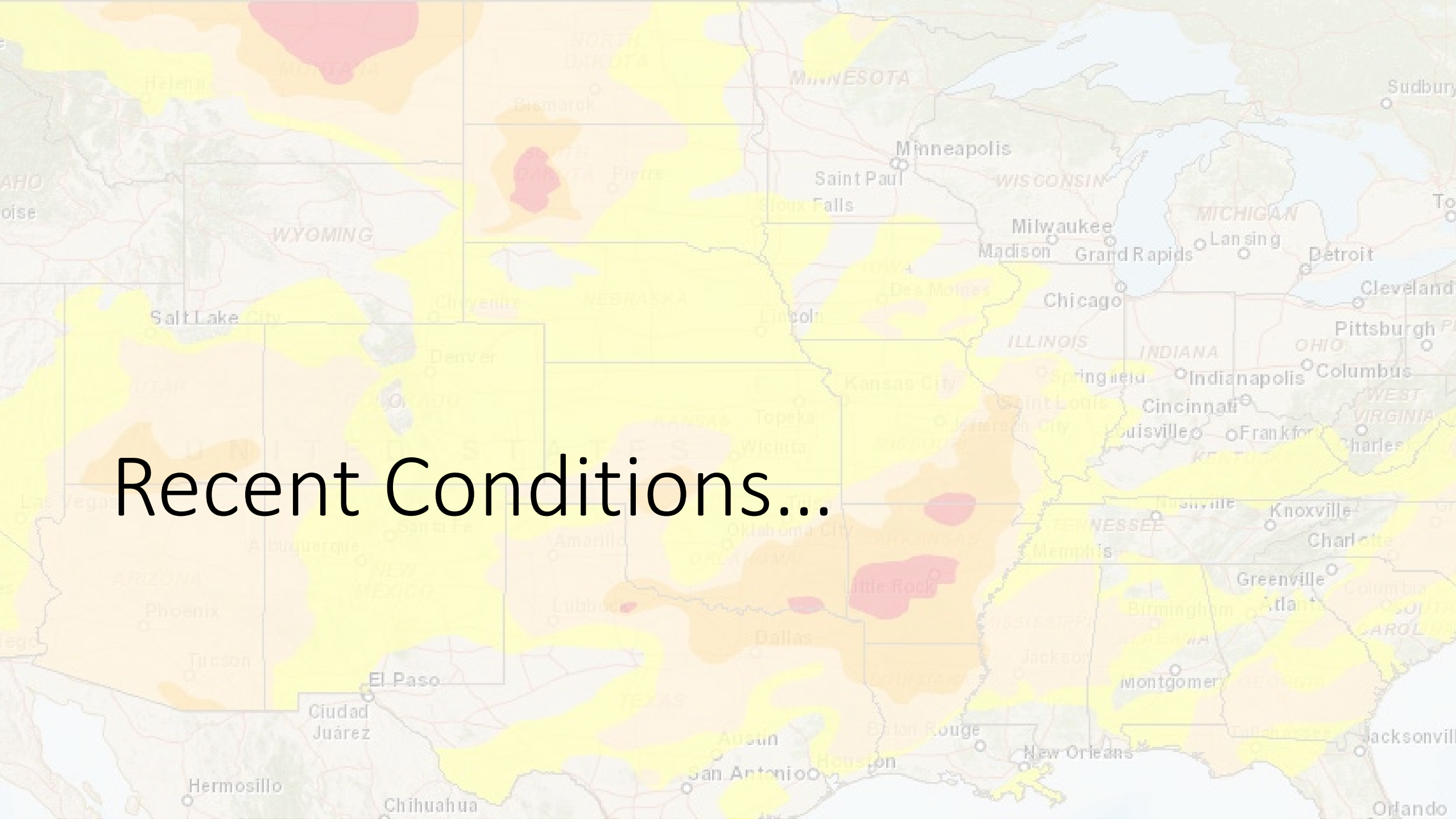
- **Open for questions at the end**

Today's Agenda...

- **Recent Conditions**
- **Impacts**
 - **Drought**
 - **Agriculture**
 - **Hydrologic**
- **Outlooks**
 - **A pattern shift?**
 - **La Niña Continues**
 - **Jan – Mar**



Anomalously low pond in St. Francois Co. Missouri (Kendra Graham, December 10, 2017)

A map of the United States with various regions highlighted in different colors. The colors range from light yellow to dark red. The red areas are concentrated in the northern and central parts of the country, including Montana, North Dakota, South Dakota, and parts of Texas and Oklahoma. The yellow areas cover most of the rest of the United States. The text 'Recent Conditions...' is overlaid in the center of the map.

Recent Conditions...

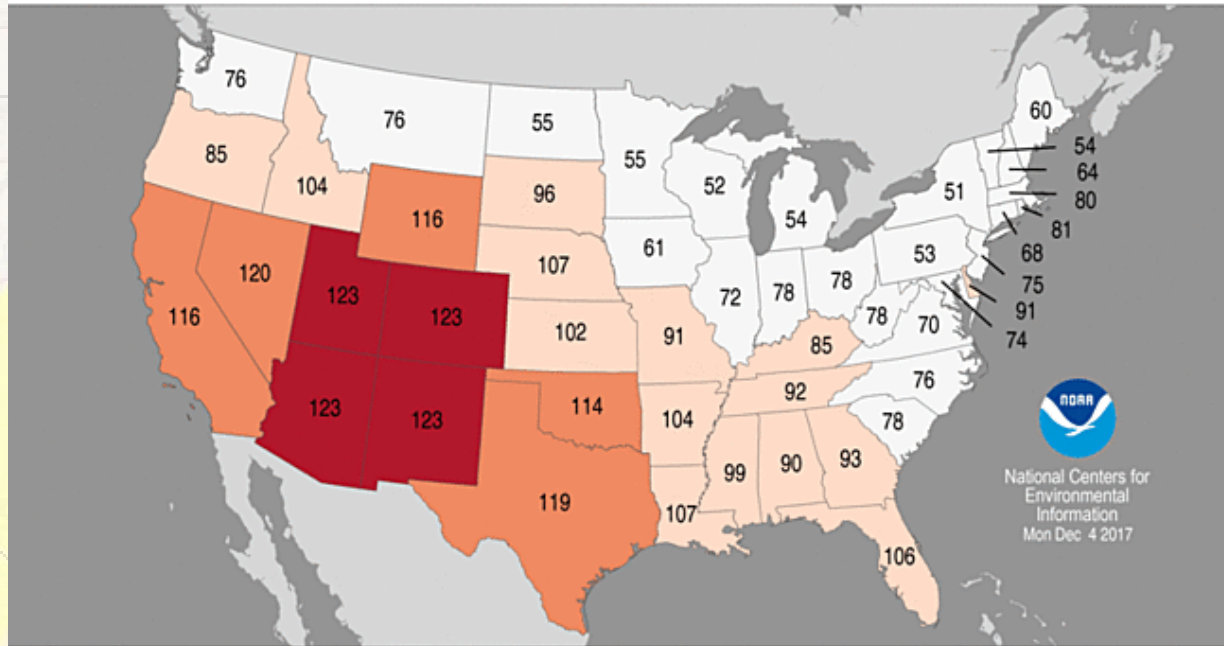
November Rankings

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

Statewide Average Temperature Ranks

November 2017

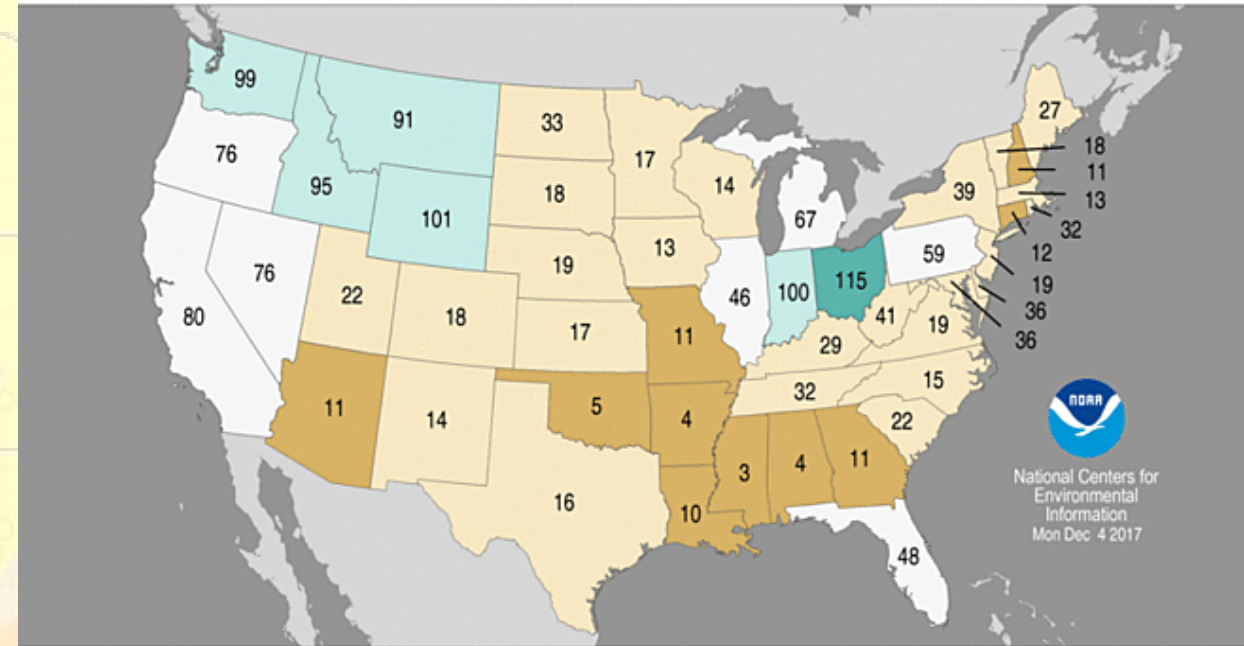
Period: 1895-2017



Statewide Precipitation Ranks

November 2017

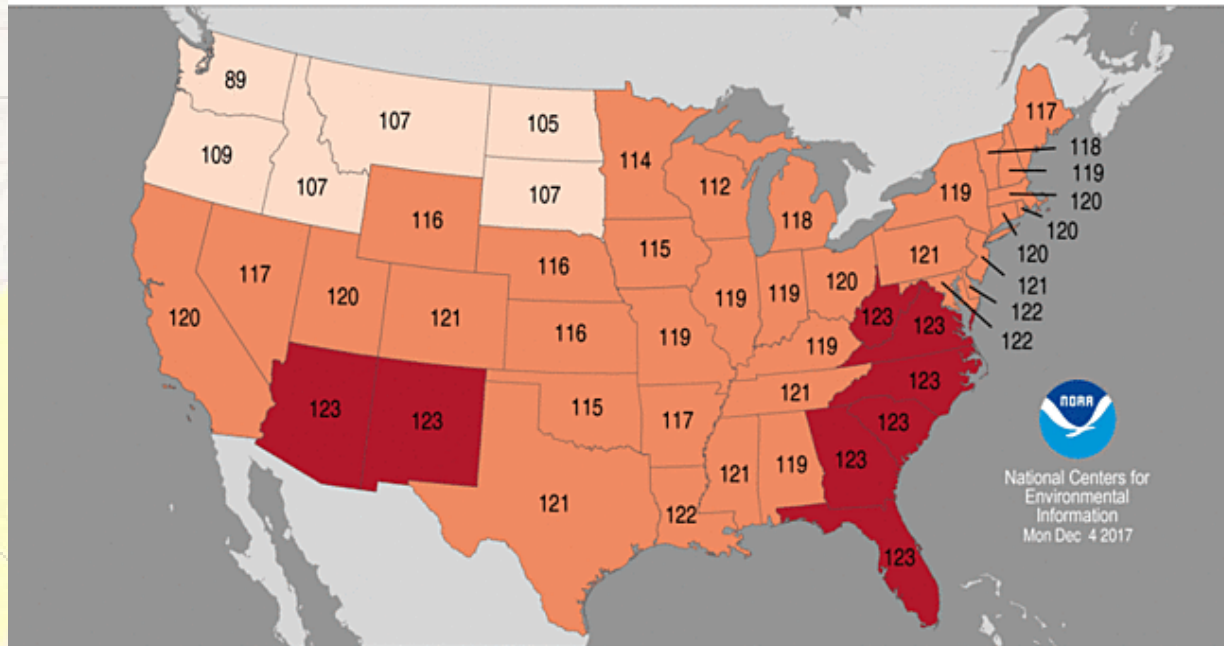
Period: 1895-2017



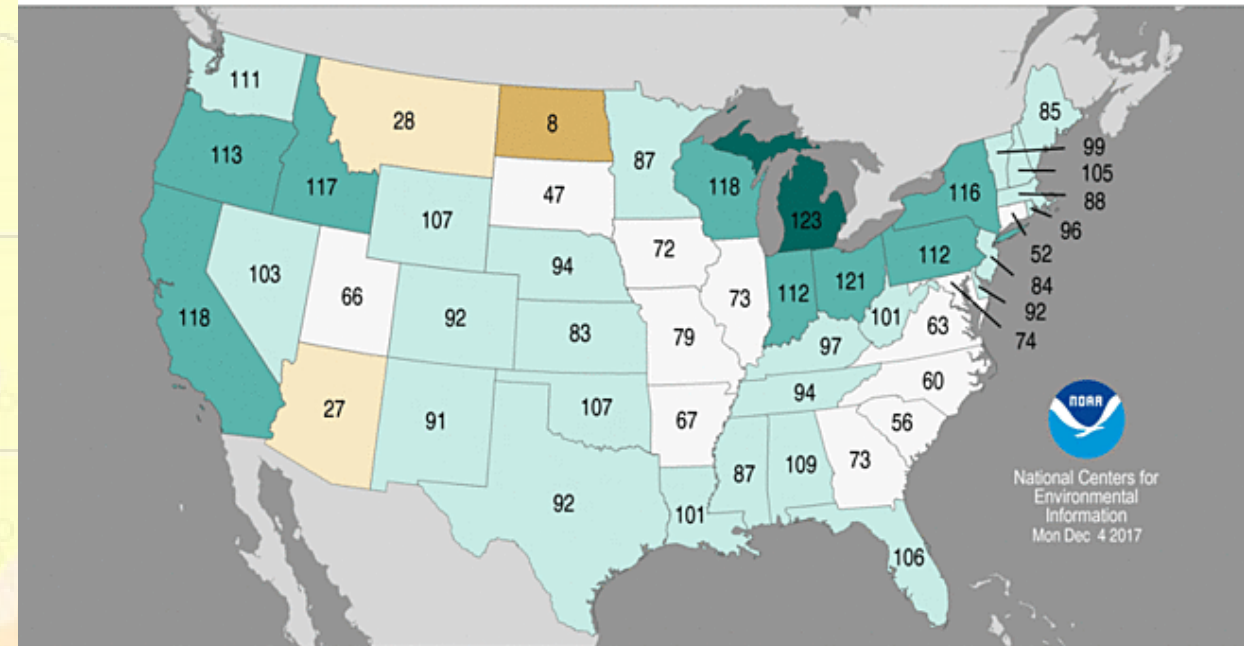
Jan – Nov Rankings

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

Statewide Average Temperature Ranks
January–November 2017
Period: 1895–2017



Statewide Precipitation Ranks
January–November 2017
Period: 1895–2017

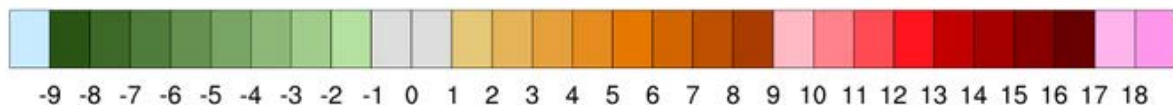
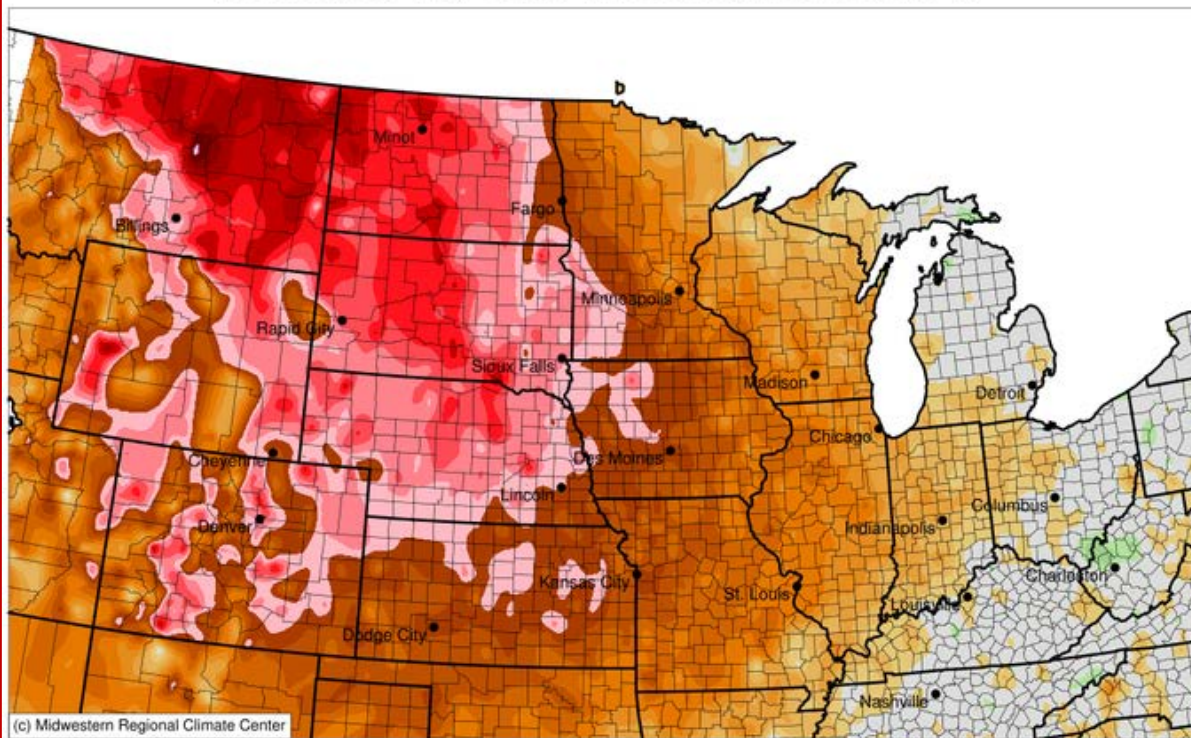


U.S. ranked 3rd warmest and 9th wettest in 123-year record!

Last 30 Days

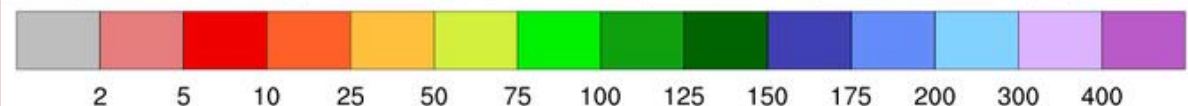
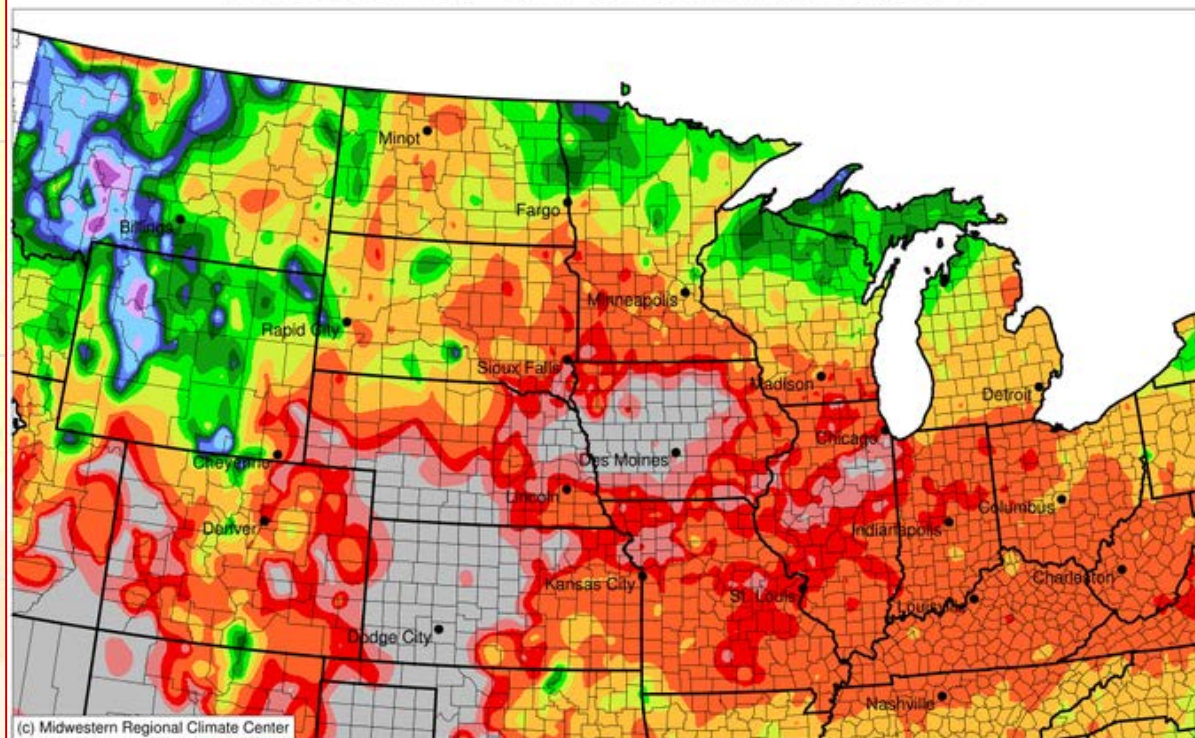
Average Temperature (°F): Departure from 1981-2010 Normals

November 21, 2017 to December 20, 2017



Accumulated Precipitation (in): Percent of 1981-2010 Normals

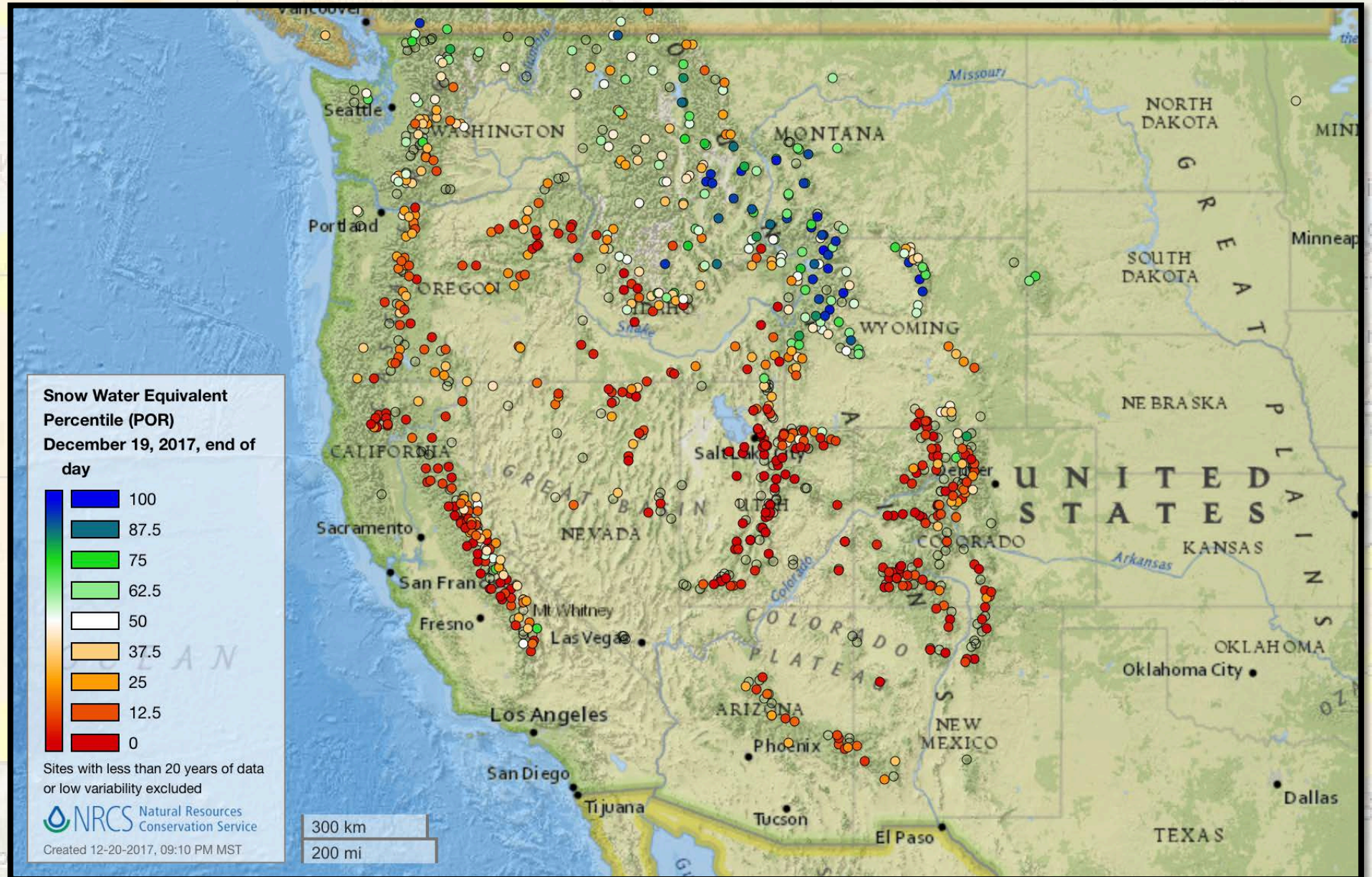
November 21, 2017 to December 20, 2017



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

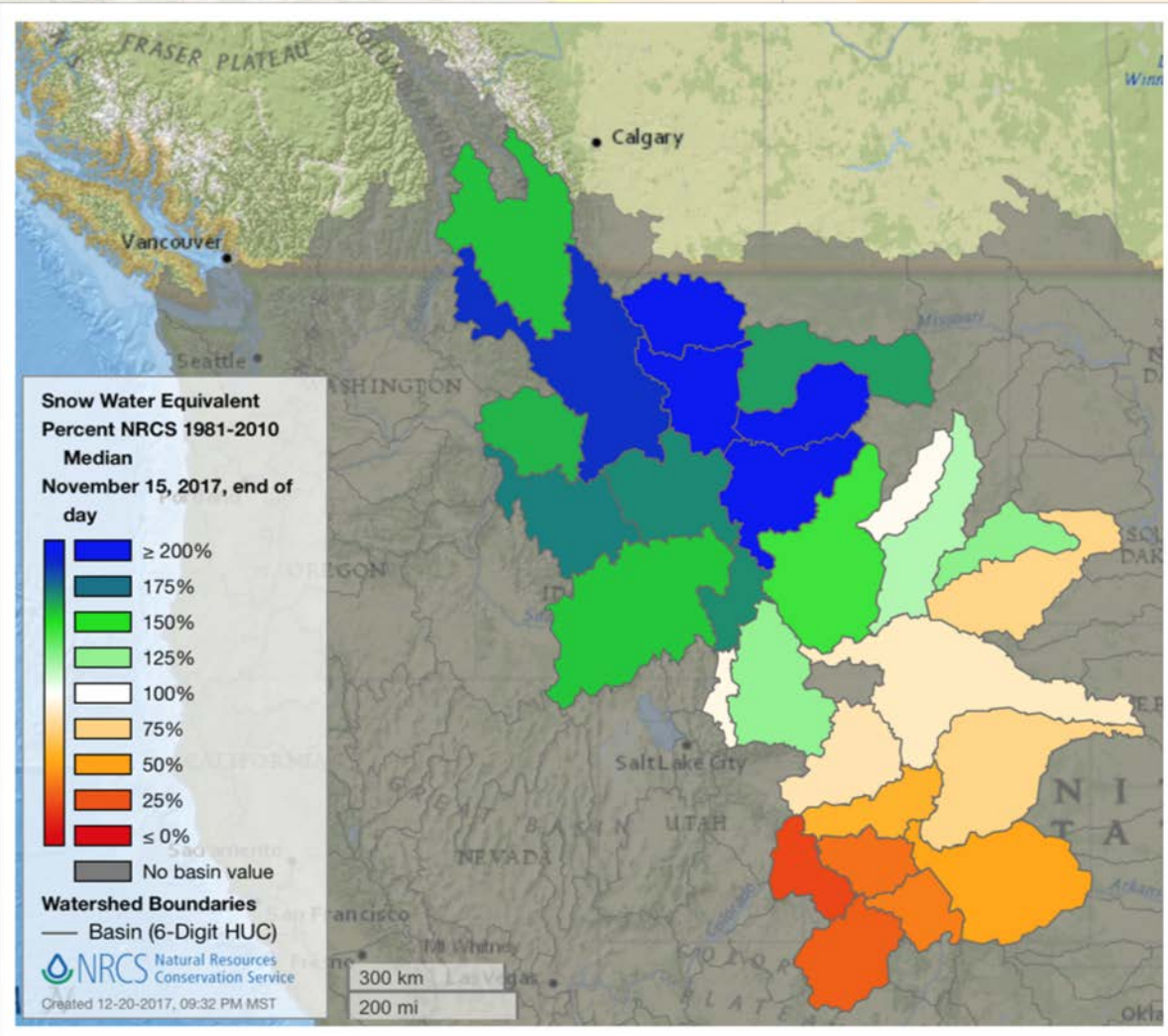
Snow Conditions

https://www.wcc.nrcs.usda.gov/snow/snow_map.html

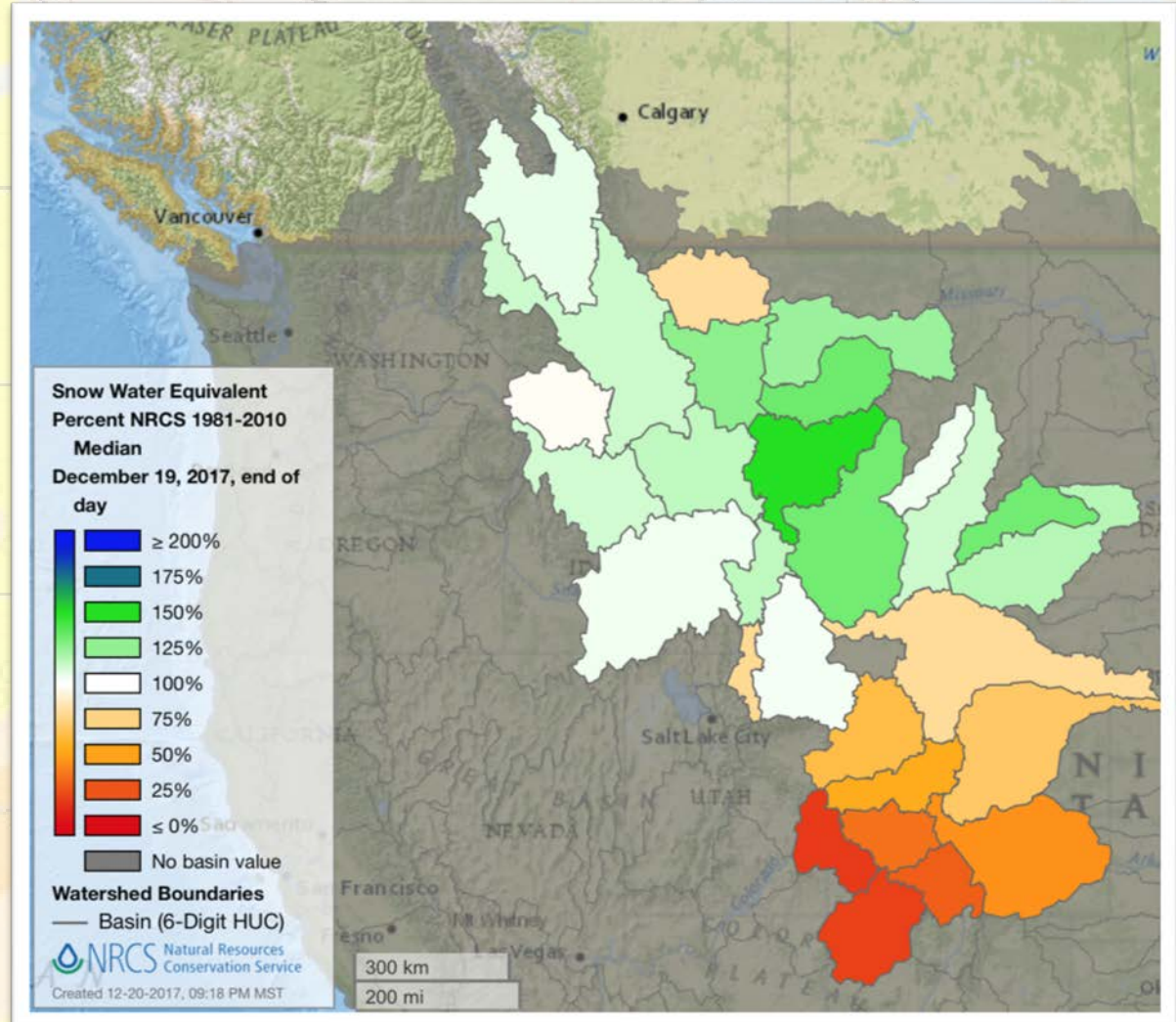


Snow Conditions

https://www.wcc.nrcs.usda.gov/snow/snow_map.html



November 15, 2017



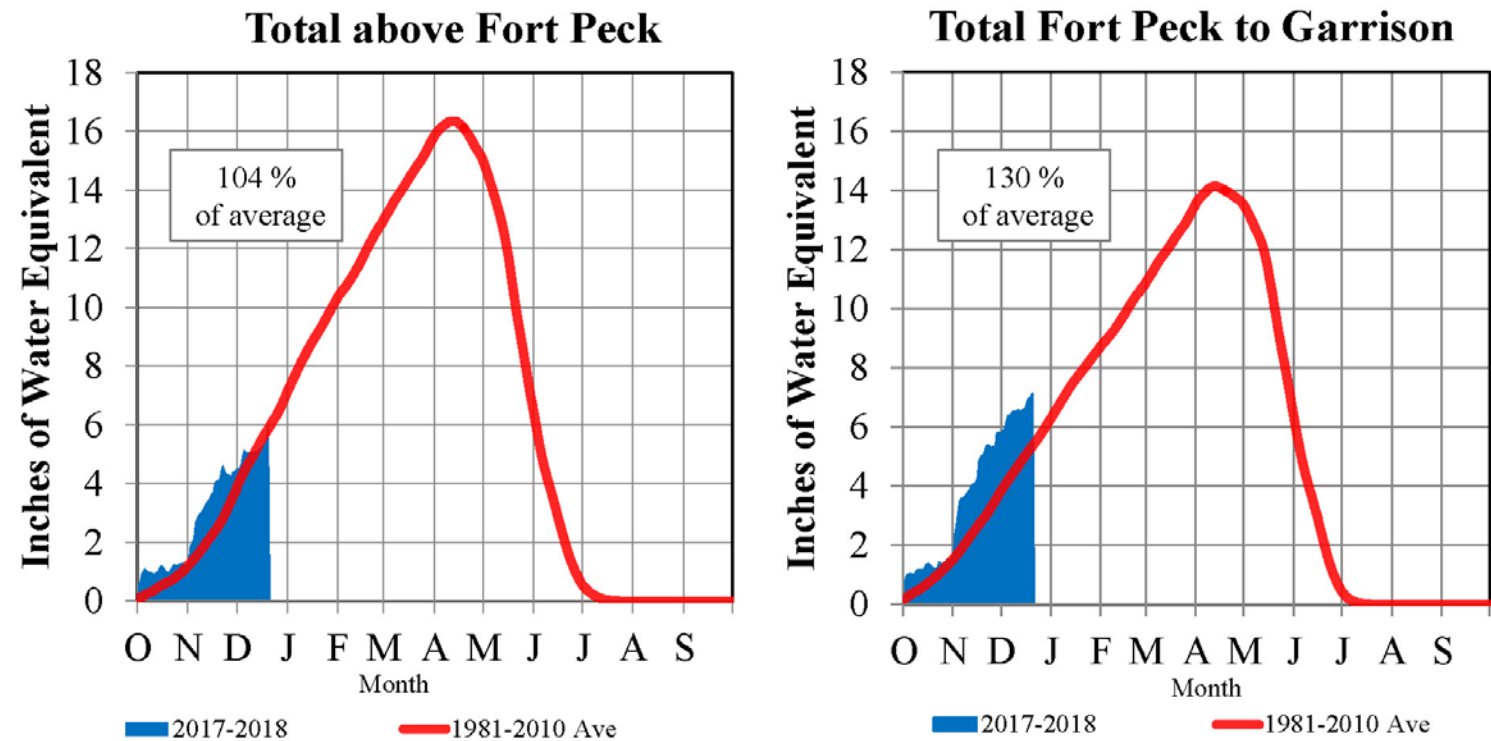
December 19, 2017

Snow Conditions

Upper Missouri SWE

Mountain Snowpack

December 20, 2017



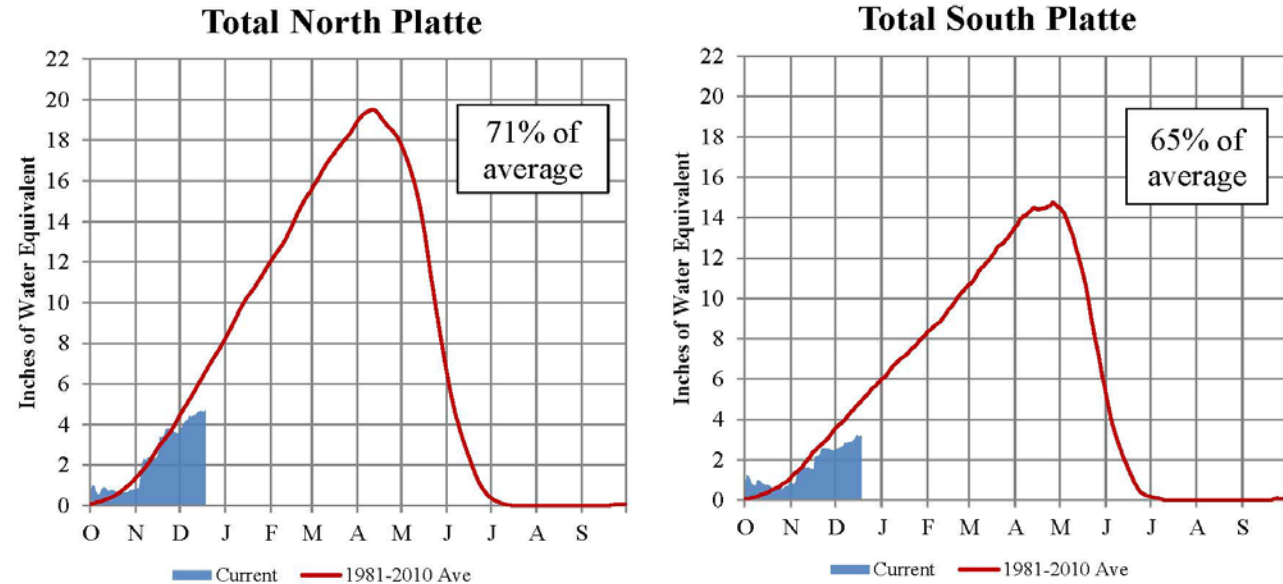
Normally by December 15 about 34% of the peak mountain SWE has occurred in both reaches.

Source: USDA-NRCS

Snow Conditions

Platte River SWE

Platte River Basin - Mountain Snowpack Water Content Water Year 2017-2018 December 19, 2017

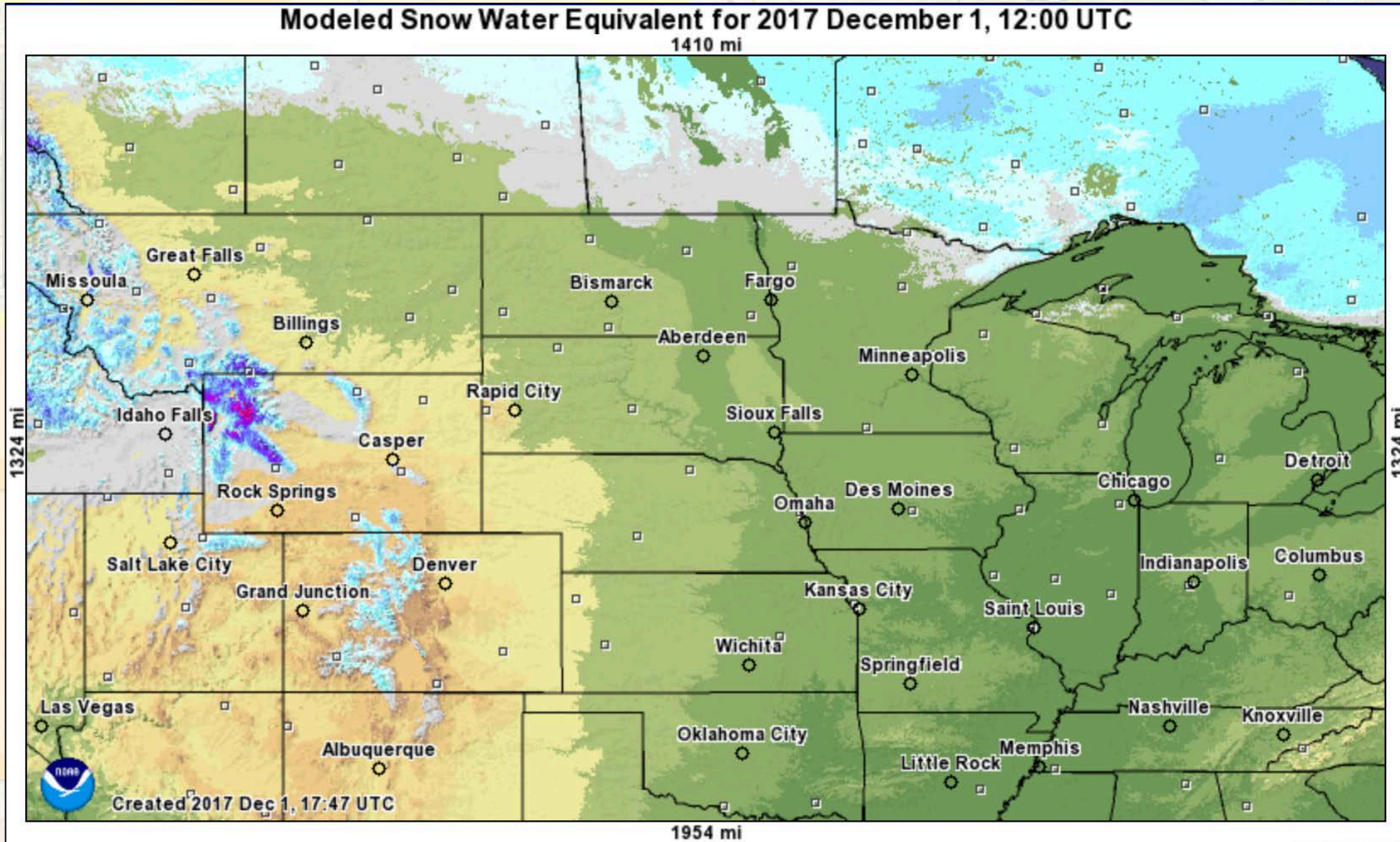


The North and South Platte River Basin mountain snowpacks normally peak near April 15 and the end of April, respectively. As of December 19, 2017, the mountain snowpack SWE in the "Total North Platte" reach is currently 4.7", 71% of average. The mountain snowpack SWE in the "Total South Platte" reach is currently 3.2", 65% of average.

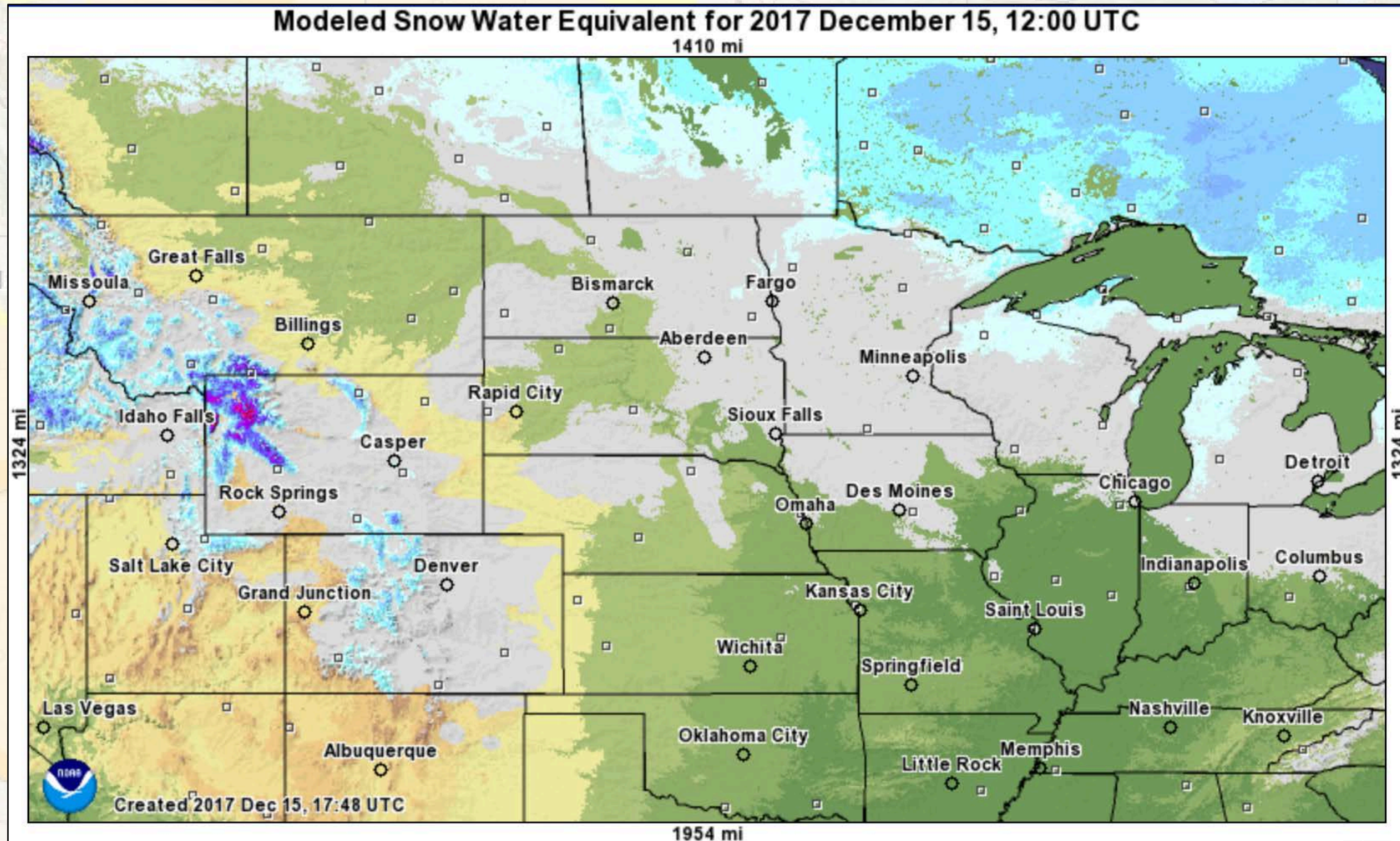
Source: USDA, Natural Resource Conservation Service

Provisional Data. Subject to Revision

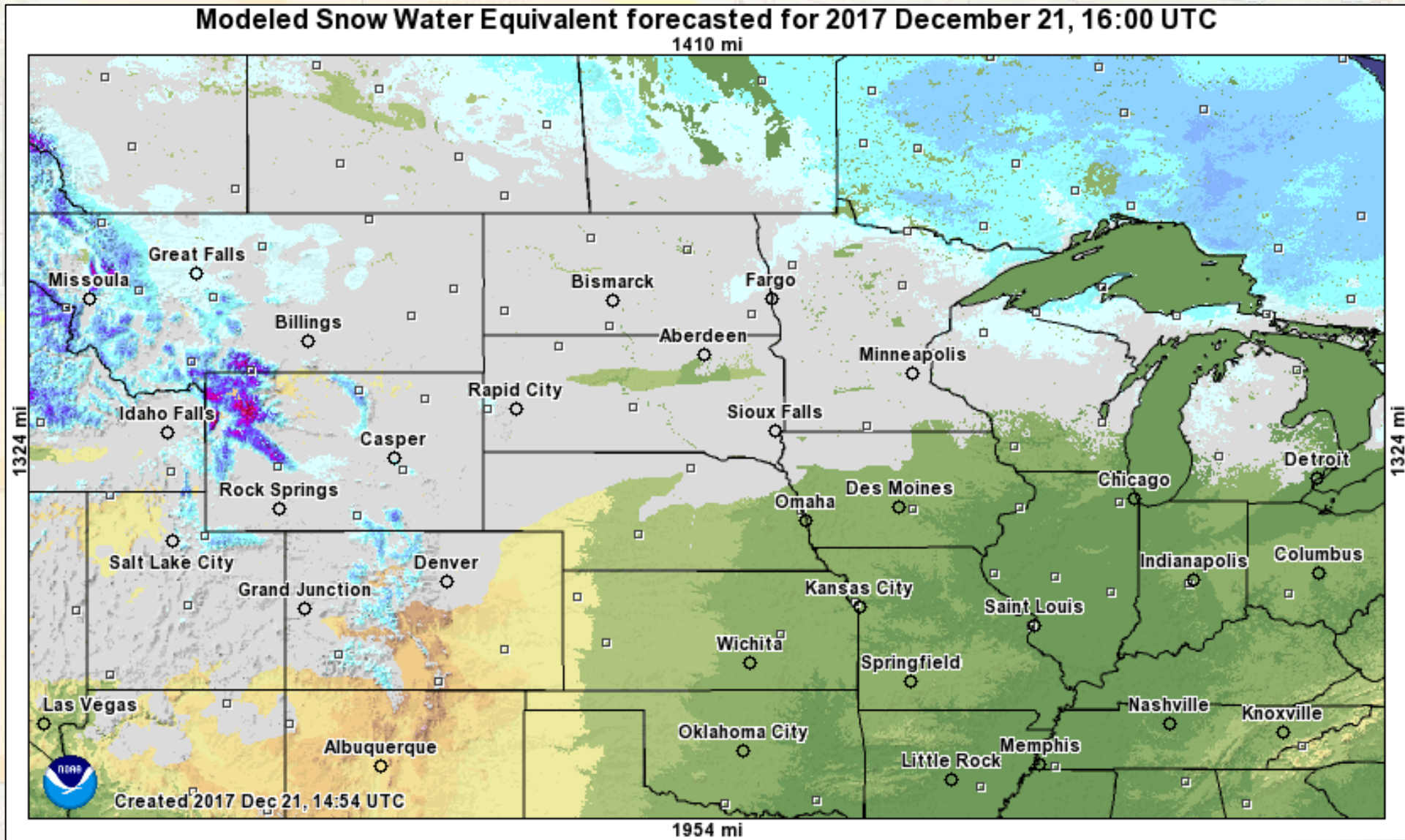
Snow Conditions



Snow Conditions

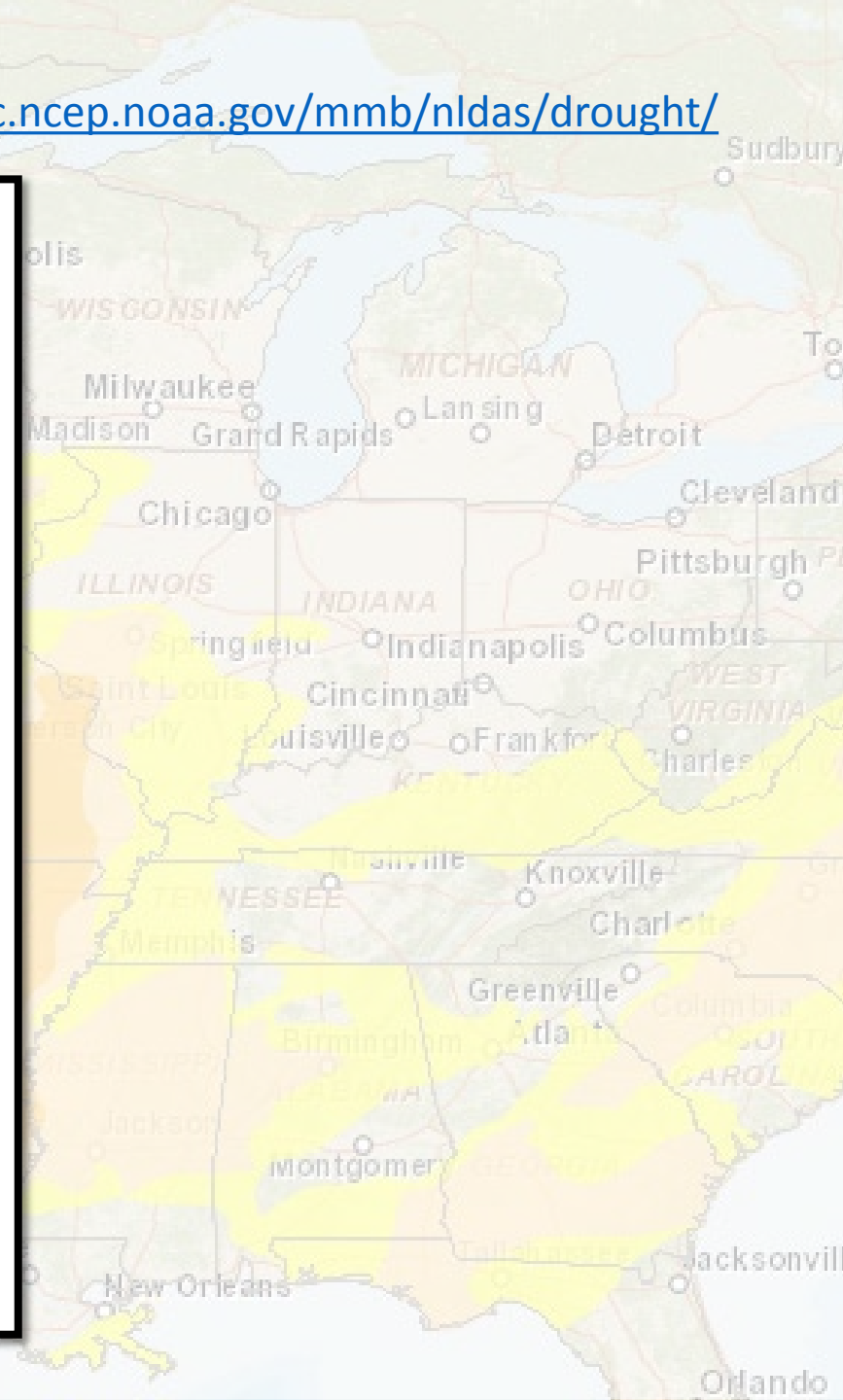
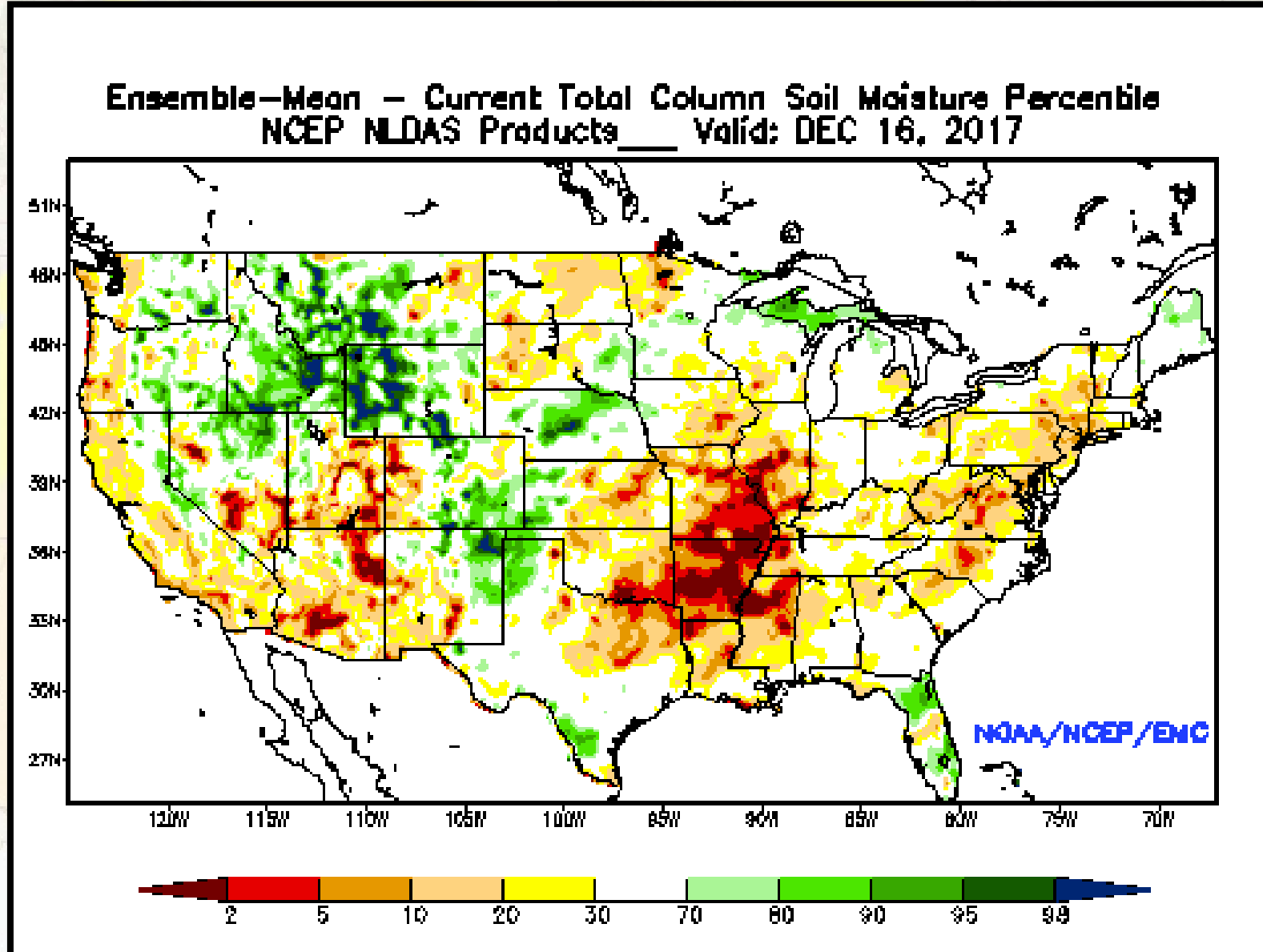


Snow Conditions

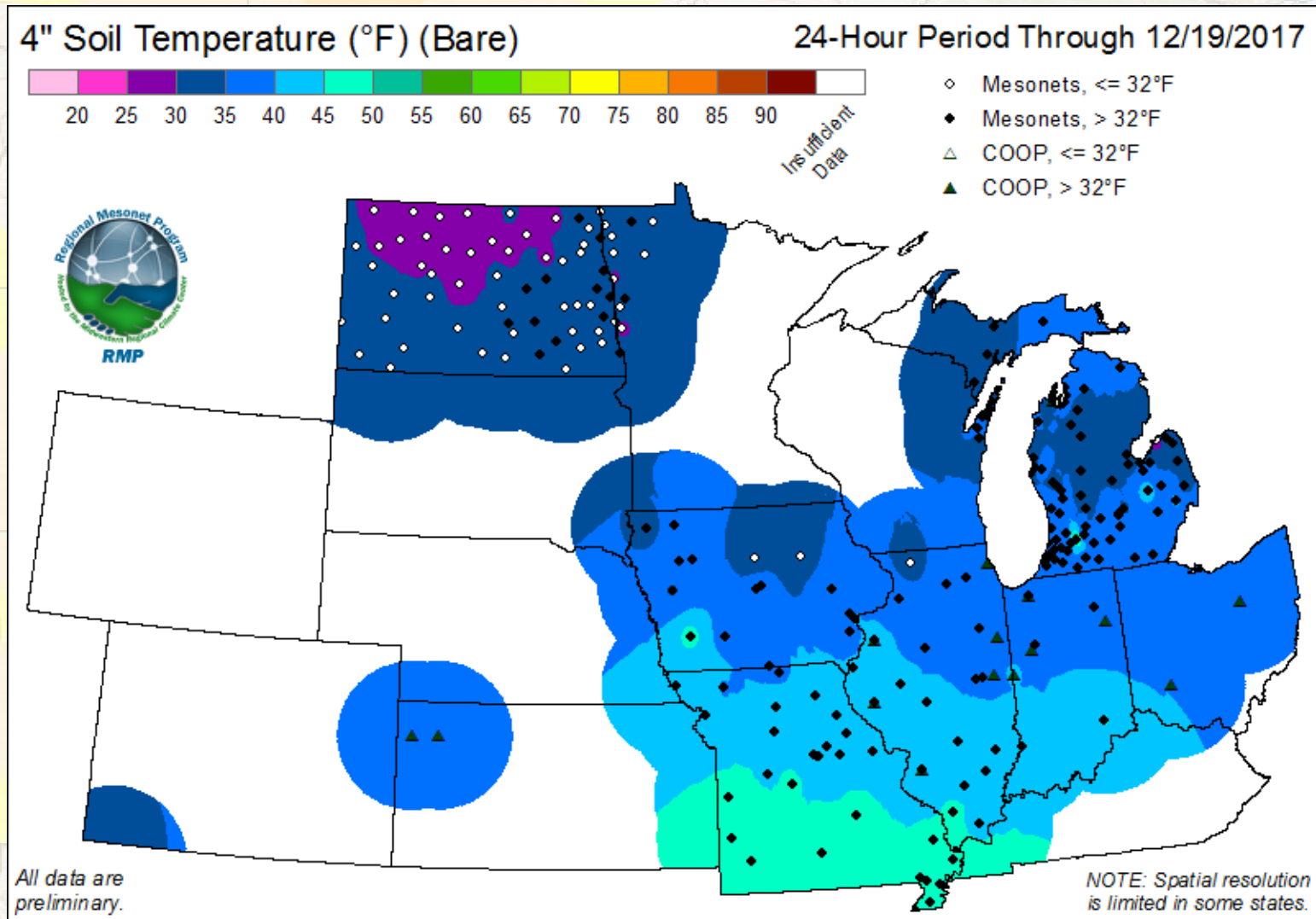


Soil Moisture

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



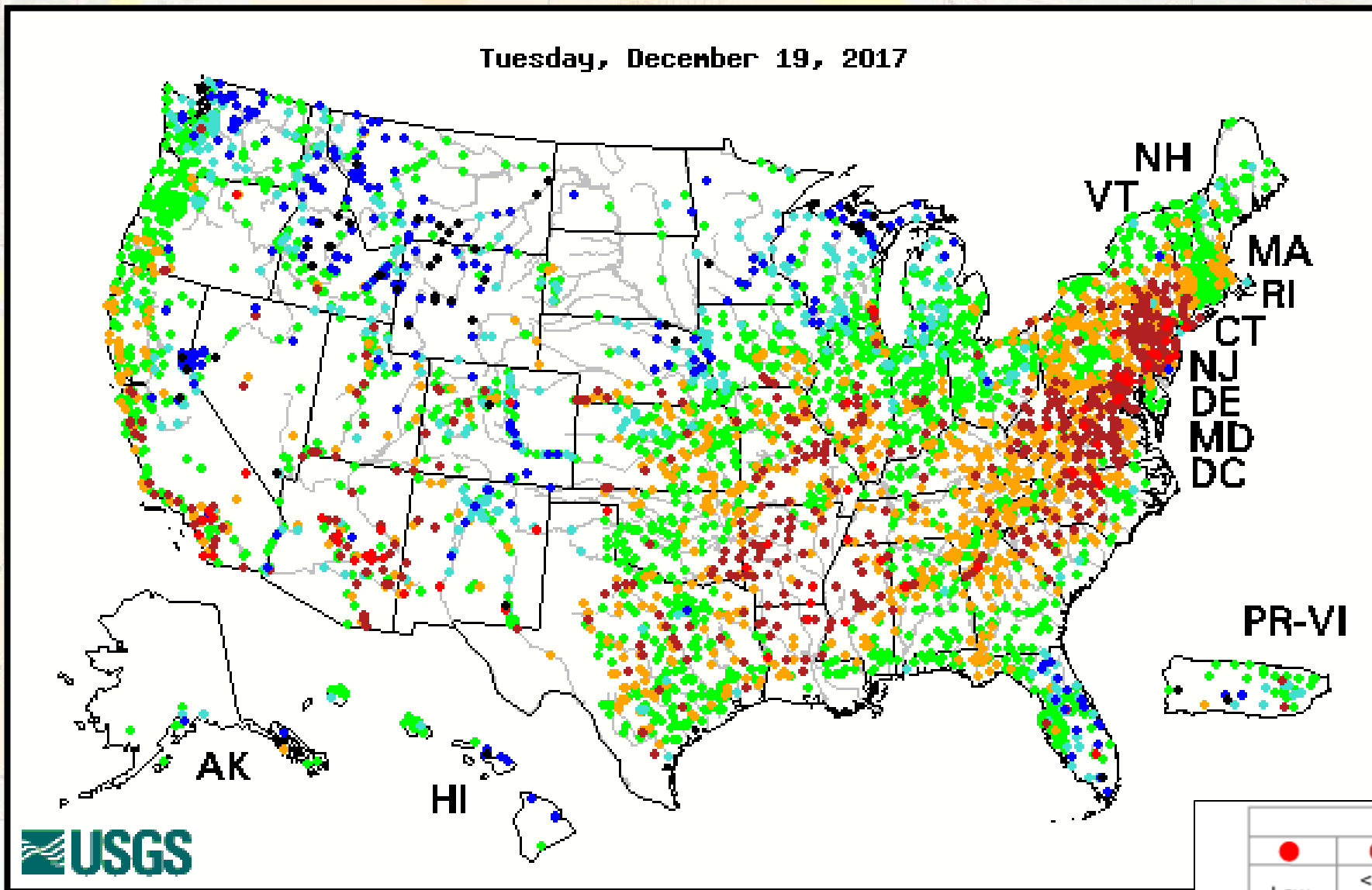
Soil Temperatures



<http://mrcc.isws.illinois.edu/RMP/currentMaps.html>

Streamflow

Tuesday, December 19, 2017

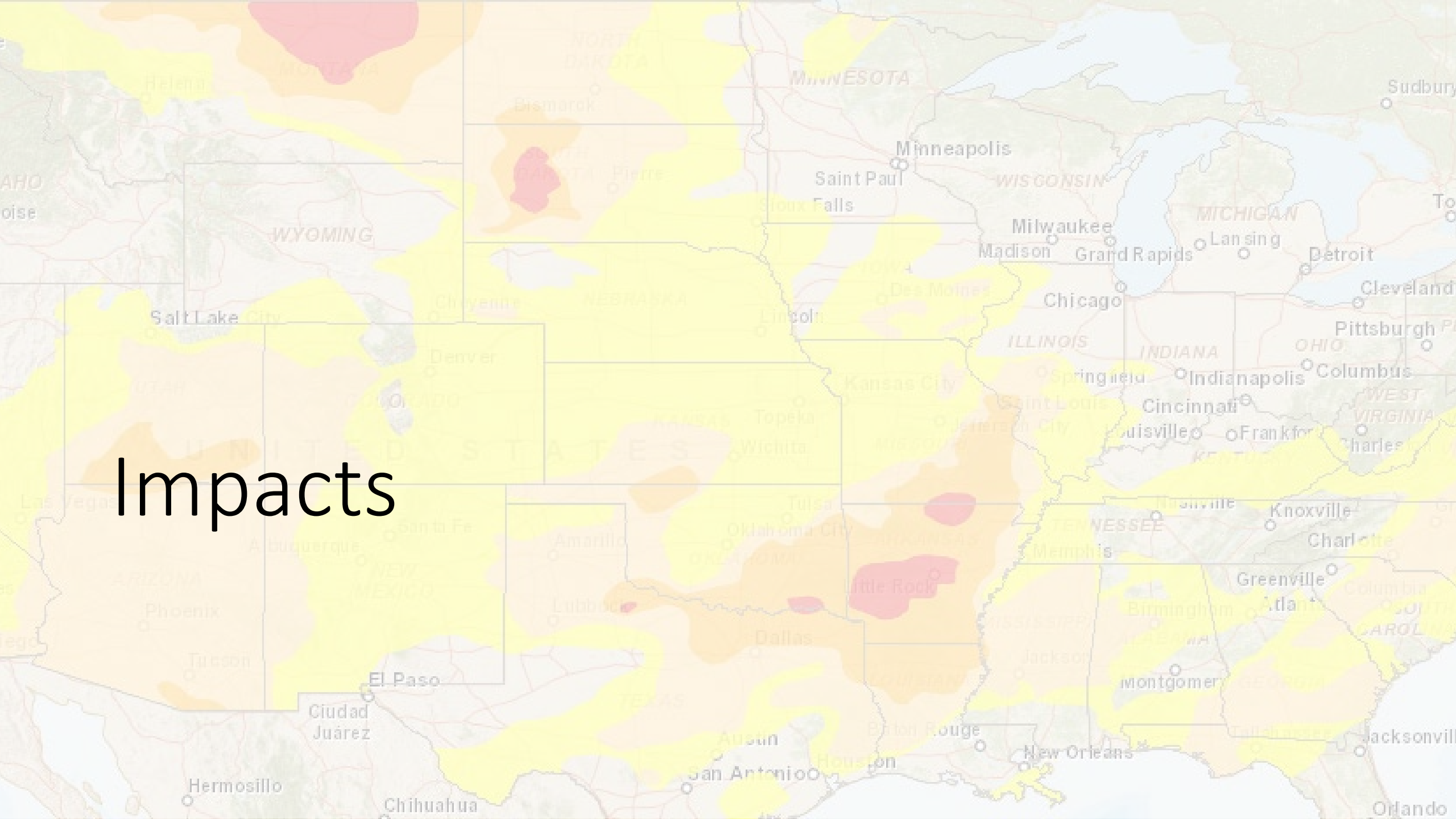


<http://waterwatch.usgs.gov>

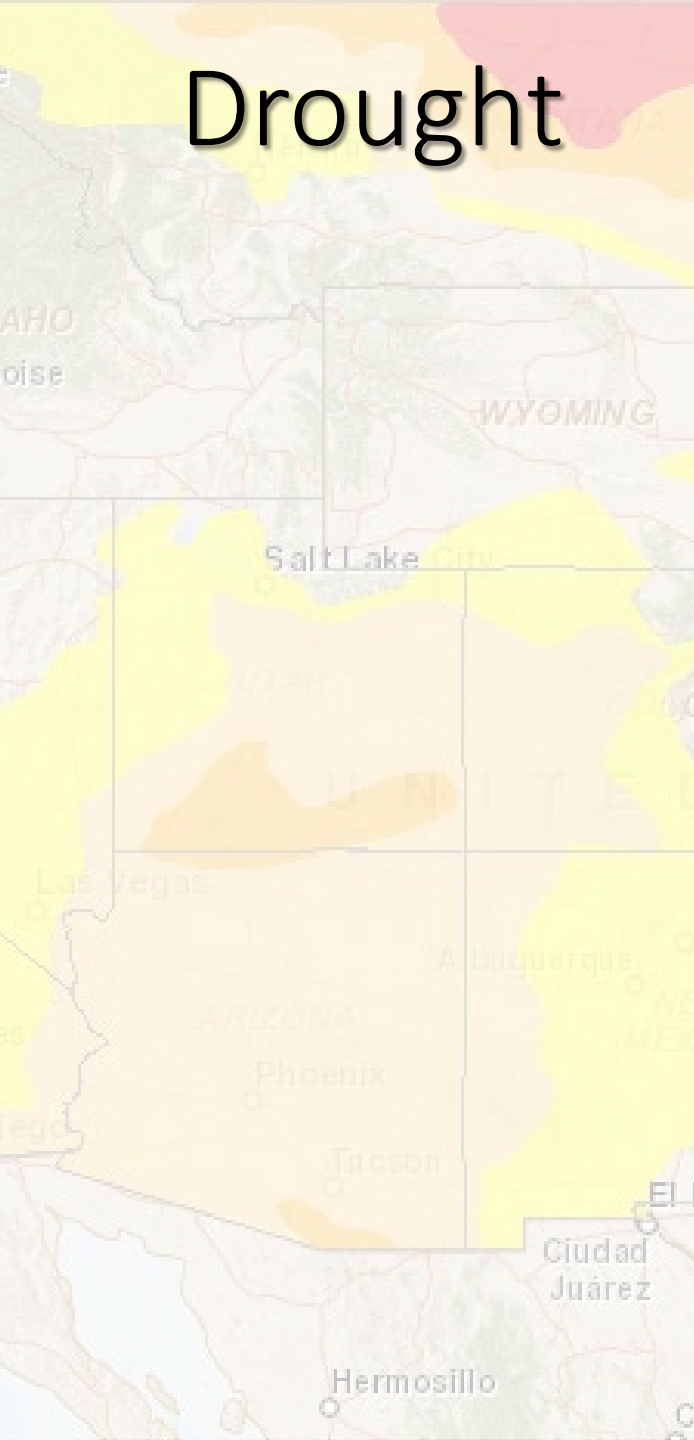
Explanation - Percentile classes

Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

Impacts



Drought

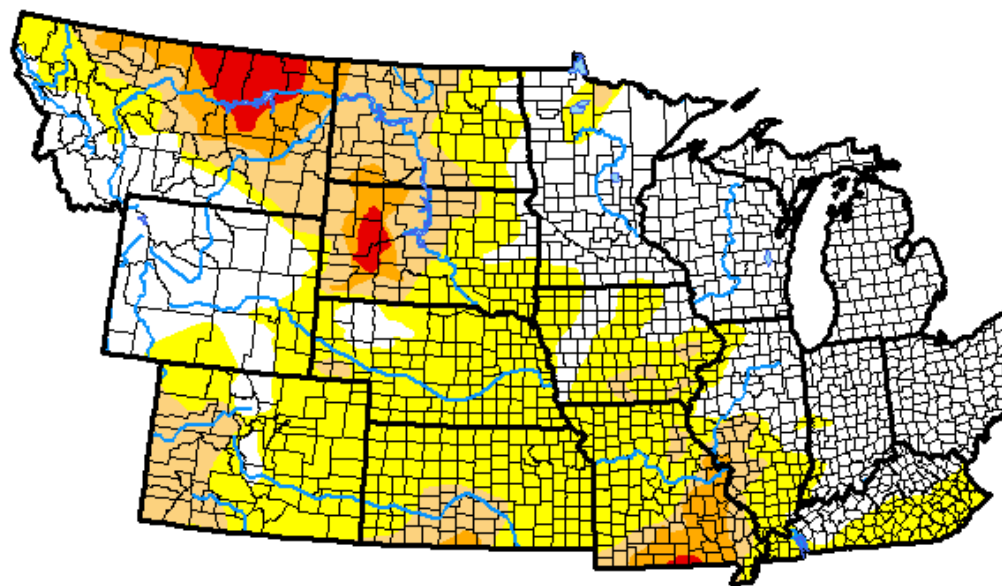


U.S. Drought Monitor NWS Central Region

December 19, 2017
(Released Thursday, Dec. 21, 2017)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	40.19	59.81	21.92	7.02	2.04	0.00
Last Week <i>12-12-2017</i>	45.35	54.65	20.34	7.02	2.04	0.00
3 Months Ago <i>09-19-2017</i>	44.82	55.18	28.25	14.24	6.21	2.26
Start of Calendar Year <i>01-03-2017</i>	65.79	34.21	12.04	1.70	0.00	0.00
Start of Water Year <i>09-26-2017</i>	50.80	49.20	24.09	12.89	6.13	2.26
One Year Ago <i>12-20-2016</i>	58.86	41.14	13.64	2.10	0.00	0.00



Intensity:

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

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

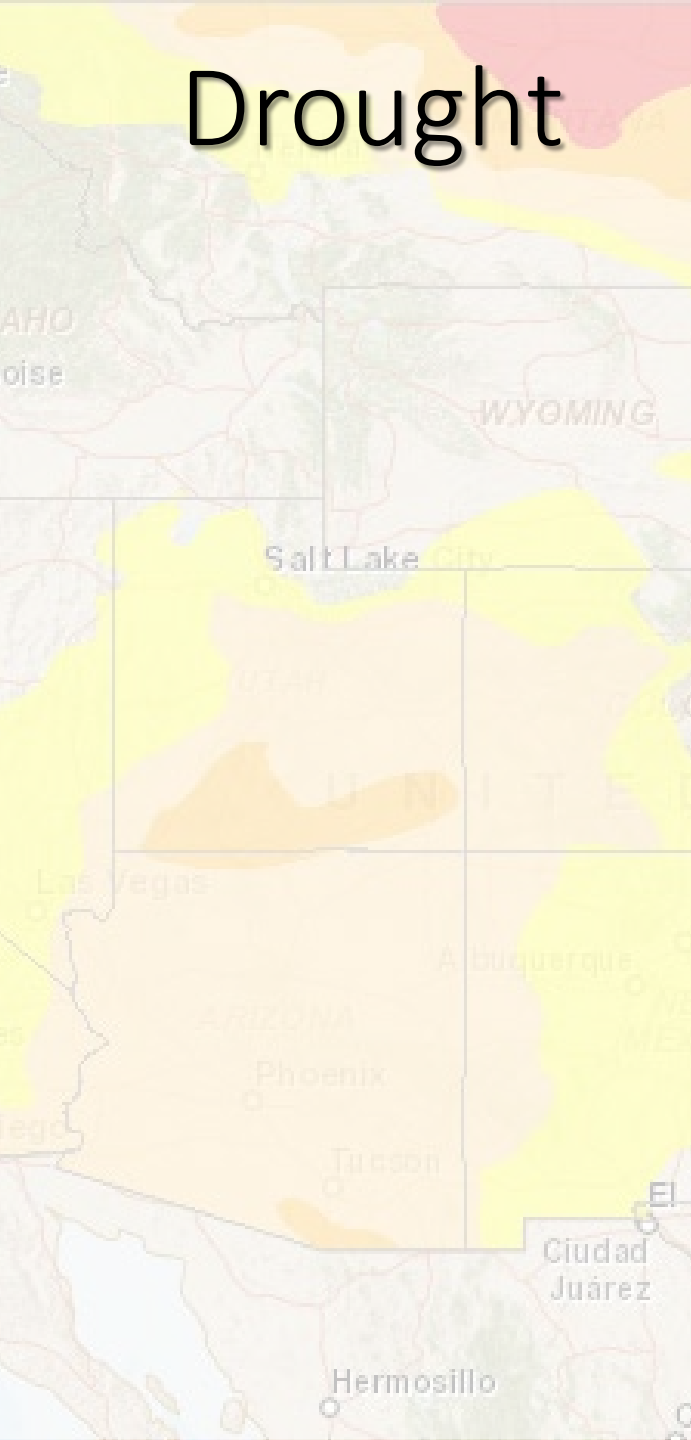
Author:

Jessica Blunden
NCEI/NOAA

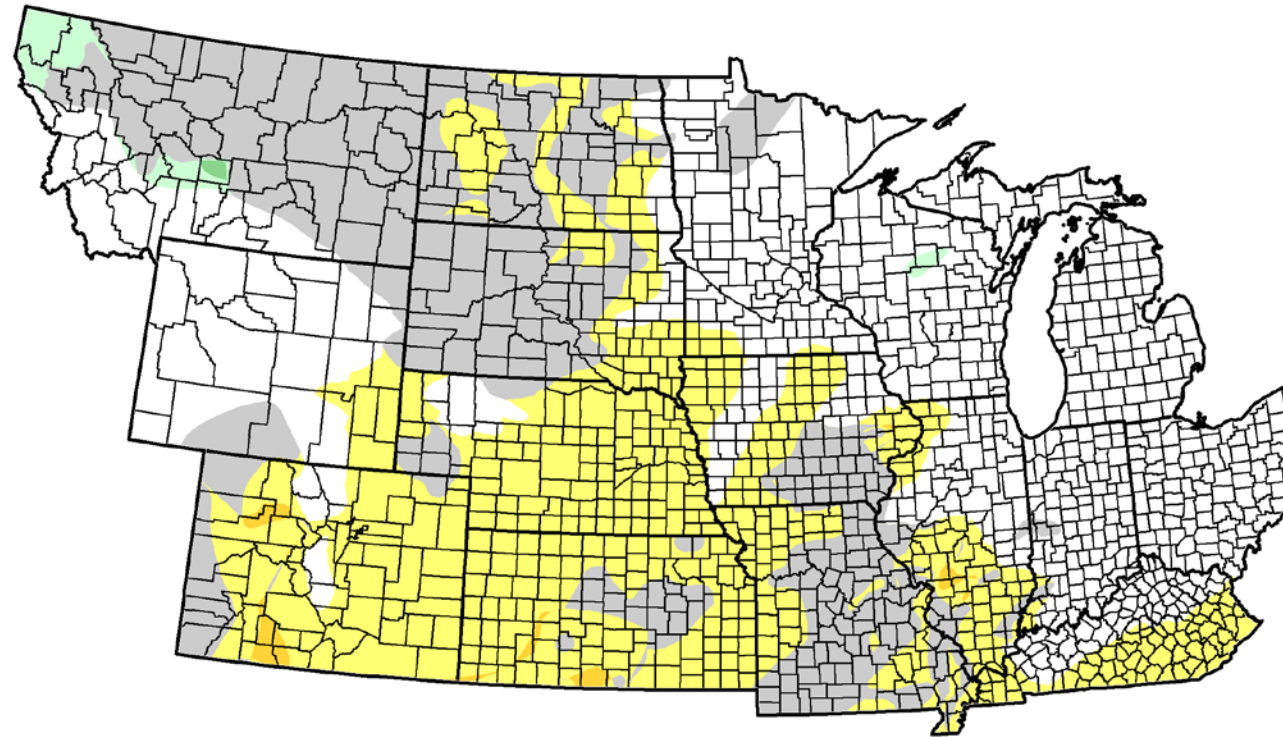


<http://droughtmonitor.unl.edu/>

Drought



U.S. Drought Monitor Class Change - NWS Central Region 1 Month



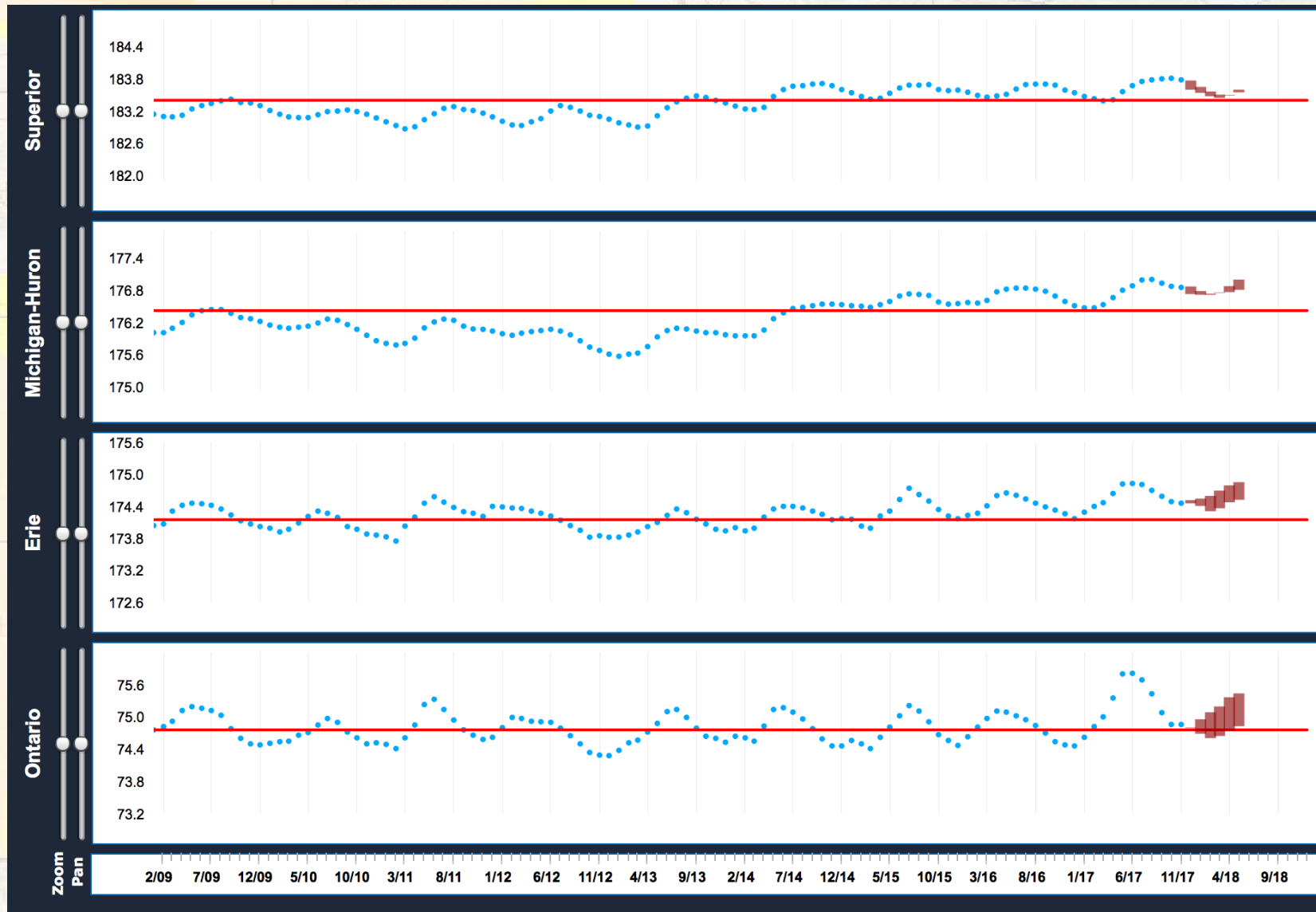
December 19, 2017
compared to
November 21, 2017

<http://droughtmonitor.unl.edu>

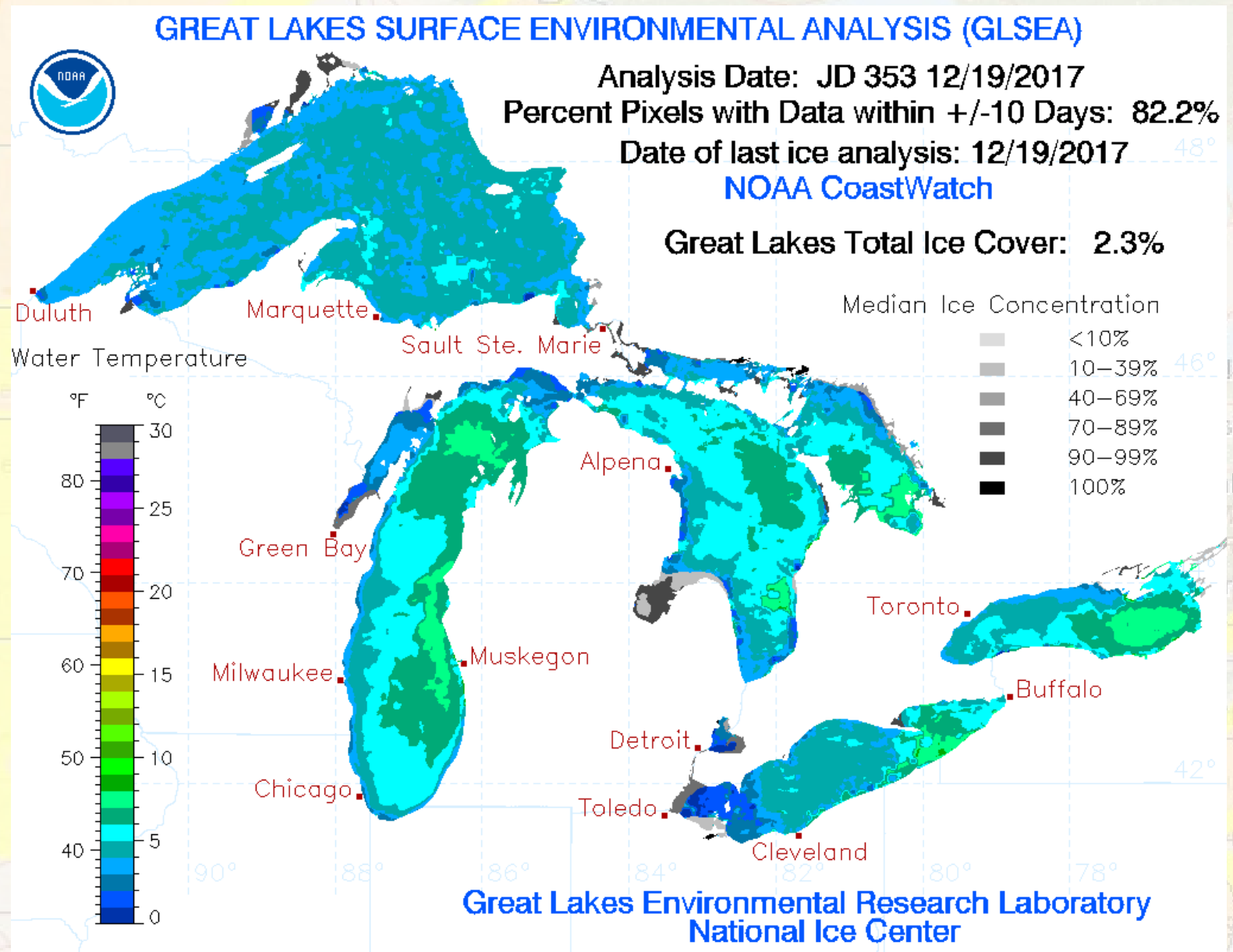


- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

Great Lakes



Great Lakes



Forecast of 26% peak ice cover

Average is 55% ice cover

Agriculture

- North Dakota – drought and snow delays some harvesting until next spring.
- Missouri – very low stock ponds and lack of feed for livestock is an issue. Cold season precipitation can solve the former problem.
- Indiana – wet conditions in south resulted in hay shortage because of limited cutting opportunities.
- Kansas – Stock pond levels are falling quickly and warm temperatures keeping them from icing over.
- Illinois – very dry dewpoints, possible atmospheric drought?
- Dry conditions positive impact – ranchers don't have to deal with mud as an issue.
- Across majority of region, harvesting has been completed.

In the news...

Nebraska

A Perfect Storm...

- ✓ High heat during pollination weakened shanks
- ✓ Cool August resulted in bigger and heavier ears
- ✓ High winds in late October ripped the corn off the compromised stalks

courtesy journalstar.com

Farmers losing money, cows dying from so much corn on the ground

PETER SALTER [Lincoln Journal Star](#) Dec 7, 2017 Updated Dec 15, 2017 [\(3\)](#) 4 min to read



Hugh and Linda Clarke lost up to 30 acres of corn per bushel on one of their fields west of Wilber, the result of heavy winds that blew the ears off the stalk before harvest.

[BUY NOW](#)

In the news...

North Dakota

- ✓ Drought in western ND this summer
- ✓ Feed shortages top issue for ranchers
- ✓ Biggest challenge for ranchers is keeping the livestock fed during winter

courtesy morningagclips.com

HAULIN' HAY ...

0 COMMENTS

NDFU brings bales to ranchers in western ND

Hay distributed via a lottery system established by the county officers

PUBLISHED ON **DECEMBER 9, 2017**



The drought hit western North Dakota hard this summer, with feed shortages floating to the top among issues facing ranchers. North Dakota Farmers Union went to its county organizations to find out who needed help, and Mercer and McIntosh counties said they were facing shortages. (Courtesy of North Dakota Farmers Union)

Legion Lake Fire

By the numbers...

- Maxed out over 50,000 acres
- 3rd largest fire in state history
- Largest fire to ever occur in December
- Increased from 4,000 acres to 47,000 acres in 24 hours in early December



Custer State Park @CusterStatePark

1d

The Legion Lake Fire was 100% contained as of noon today. Custer State Park will remain open on a limited basis. Park staff are busily repairing fences, removing hazard trees, and monitoring park wildlife. The burros are holding their own and remain under veterinarian care.

↩️ ↻️ 98 ❤️ 298



Custer State Park @CusterStatePark

2d

Great to see the wildlife beginning to reappear after the #LegionLakeFire. Containment remains at 95% for today.



↩️ ↻️ 50 ❤️ 194

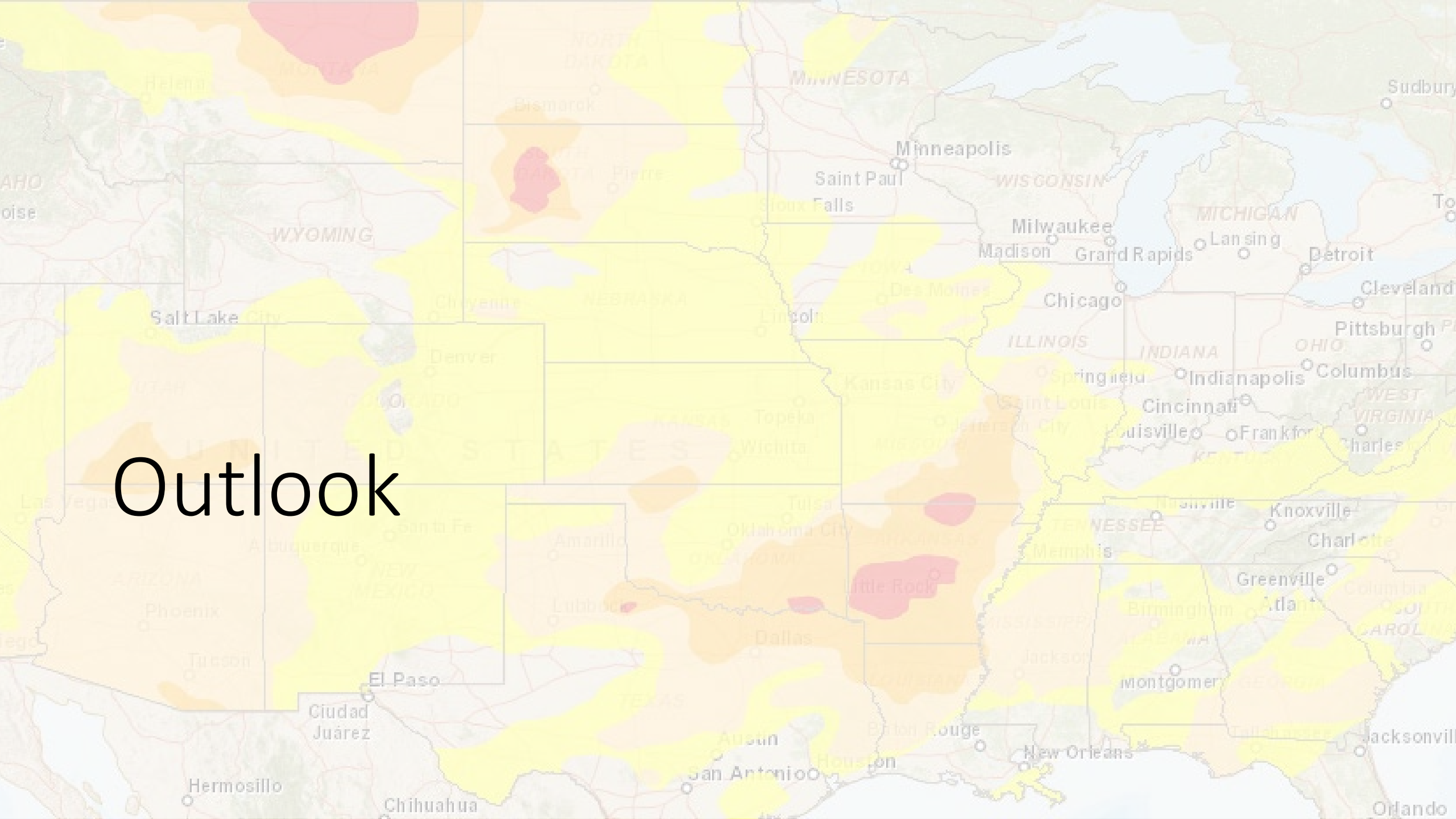
photo courtesy Darren Clabo



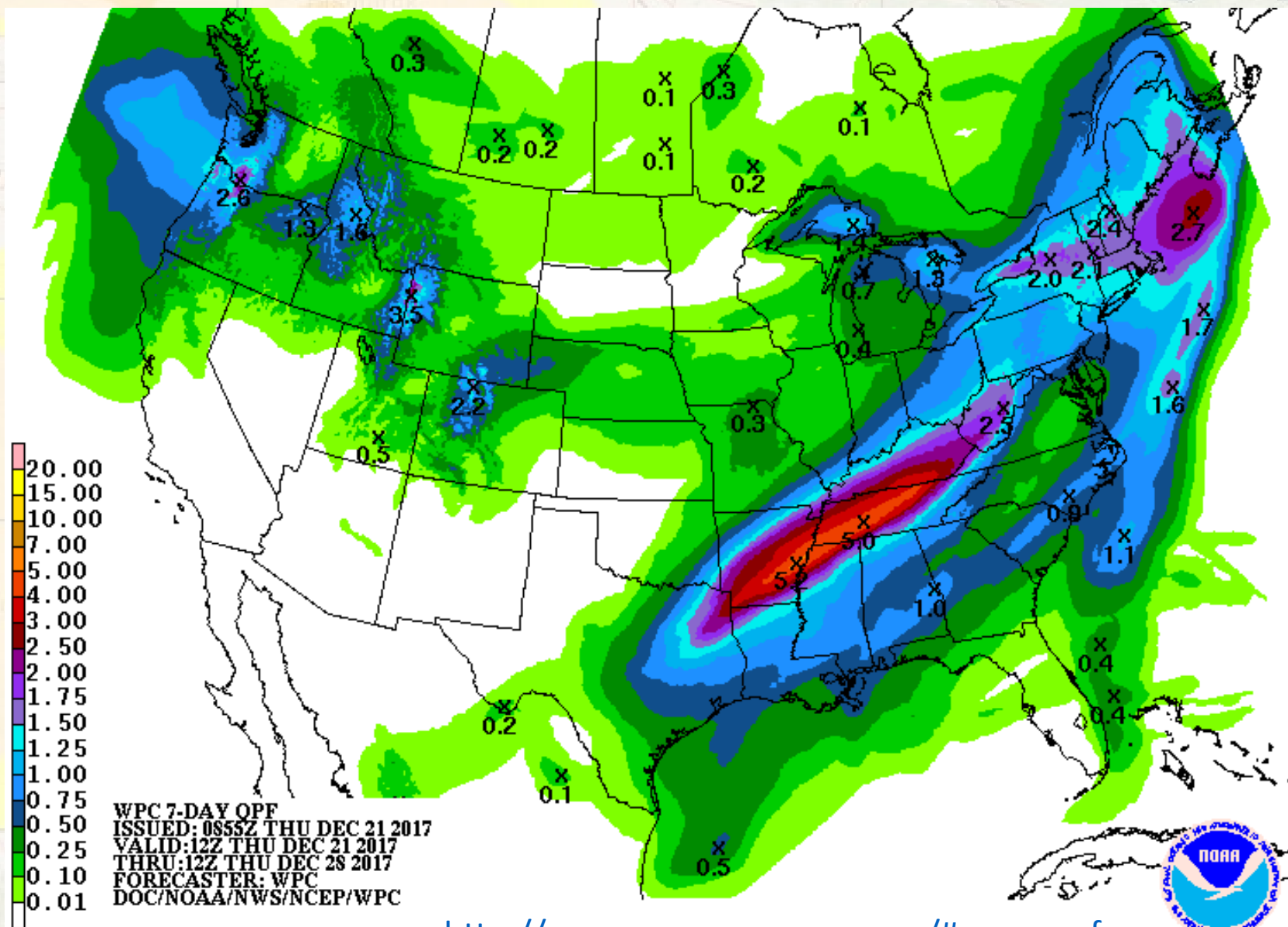
Hydrology

- Warmer temperatures recently...
 - Above normal flows due to melting of snow
 - Lack of ice formation issues
- Significant cold weather coming...
 - Ice formation expected
 - Ice jamming could become an issue
 - Especially near the Missouri Headwaters
- Water in good condition
 - Recent summer drought in locations that aren't big contributors to baseflow
 - This spring's flows and water supplies will be sensitive to this winter's snowpack.

Outlook

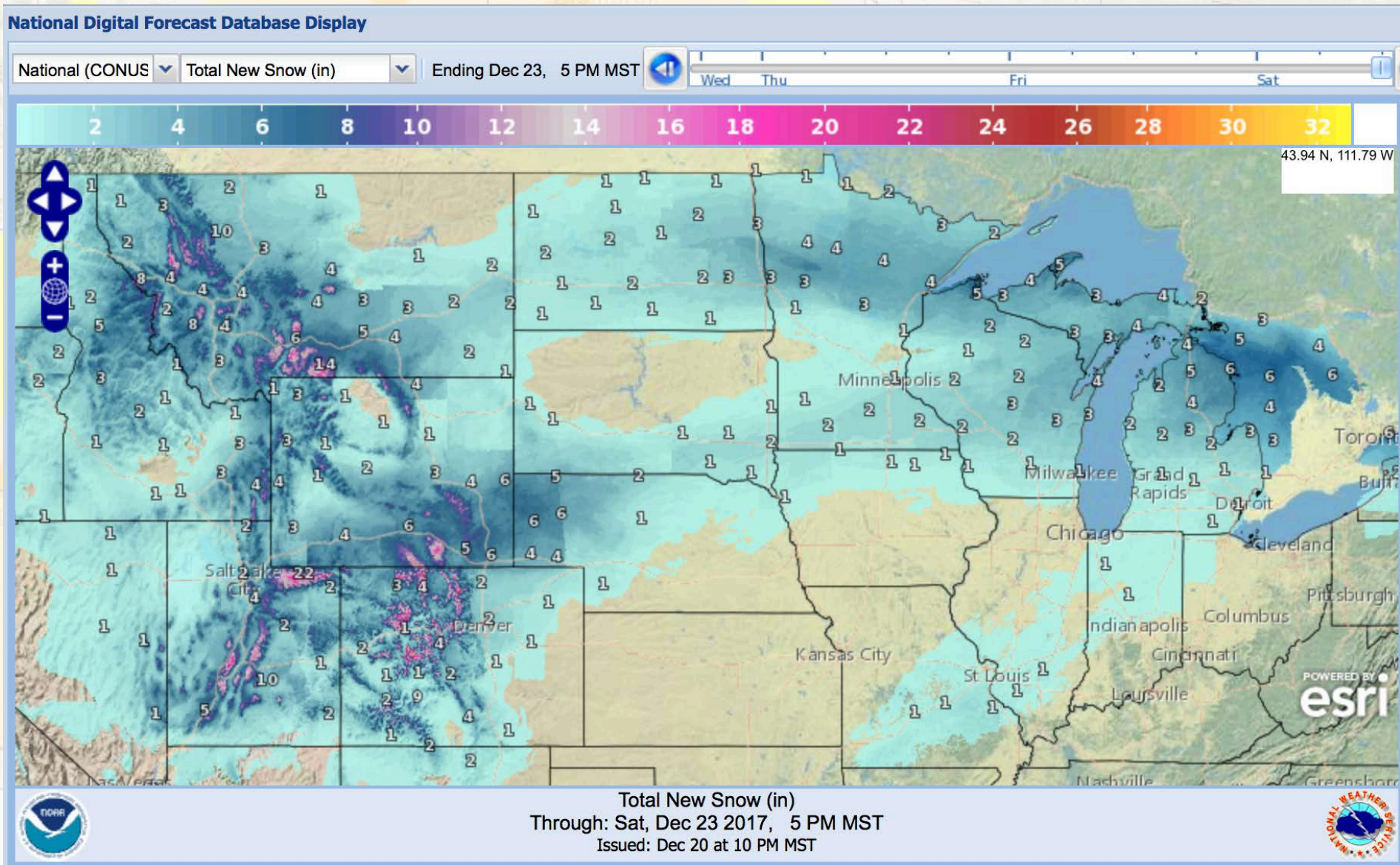


WPC 7-Day QPF

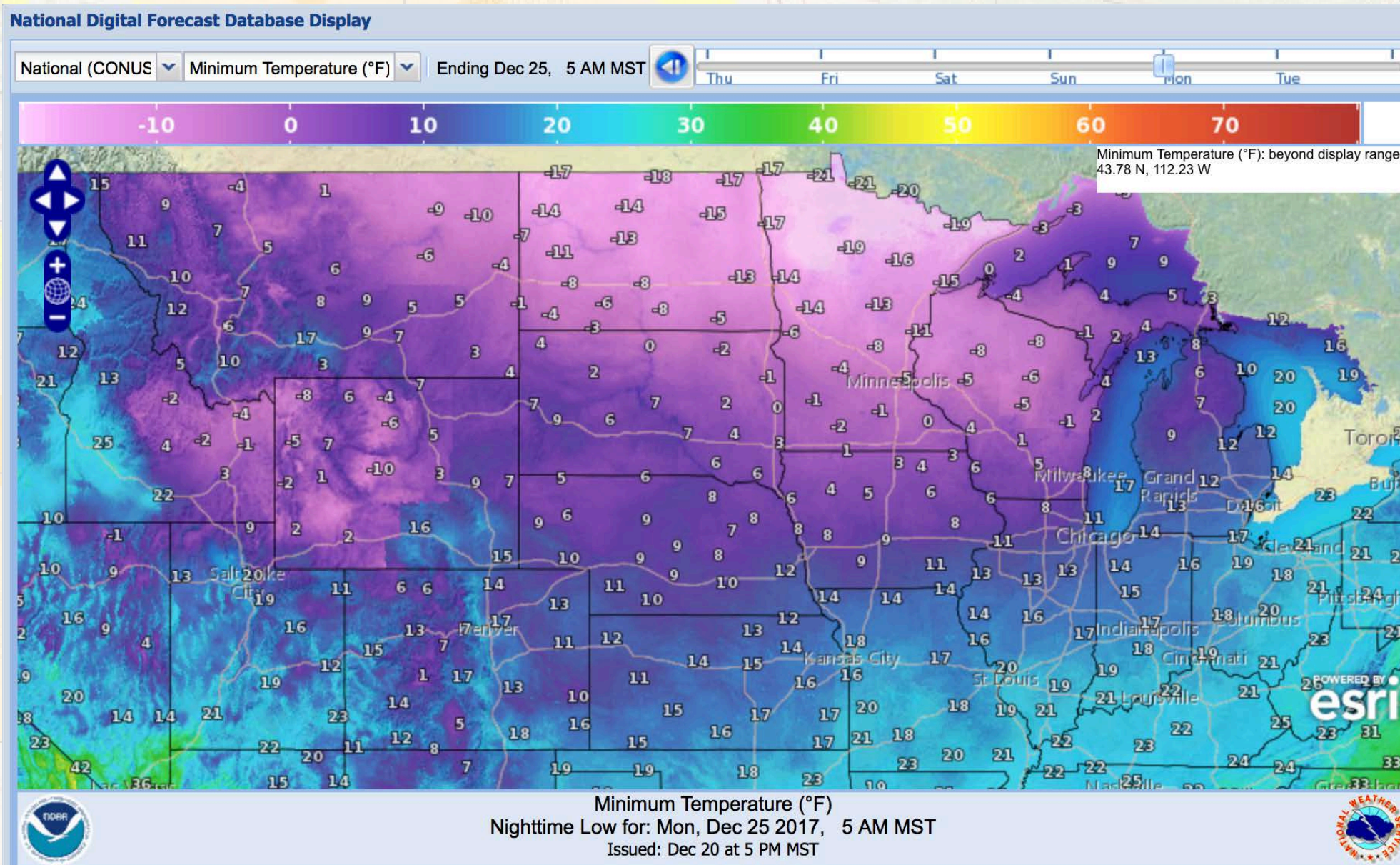


<http://www.wpc.ncep.noaa.gov/#page=qpf>

Total New Snow Through Saturday

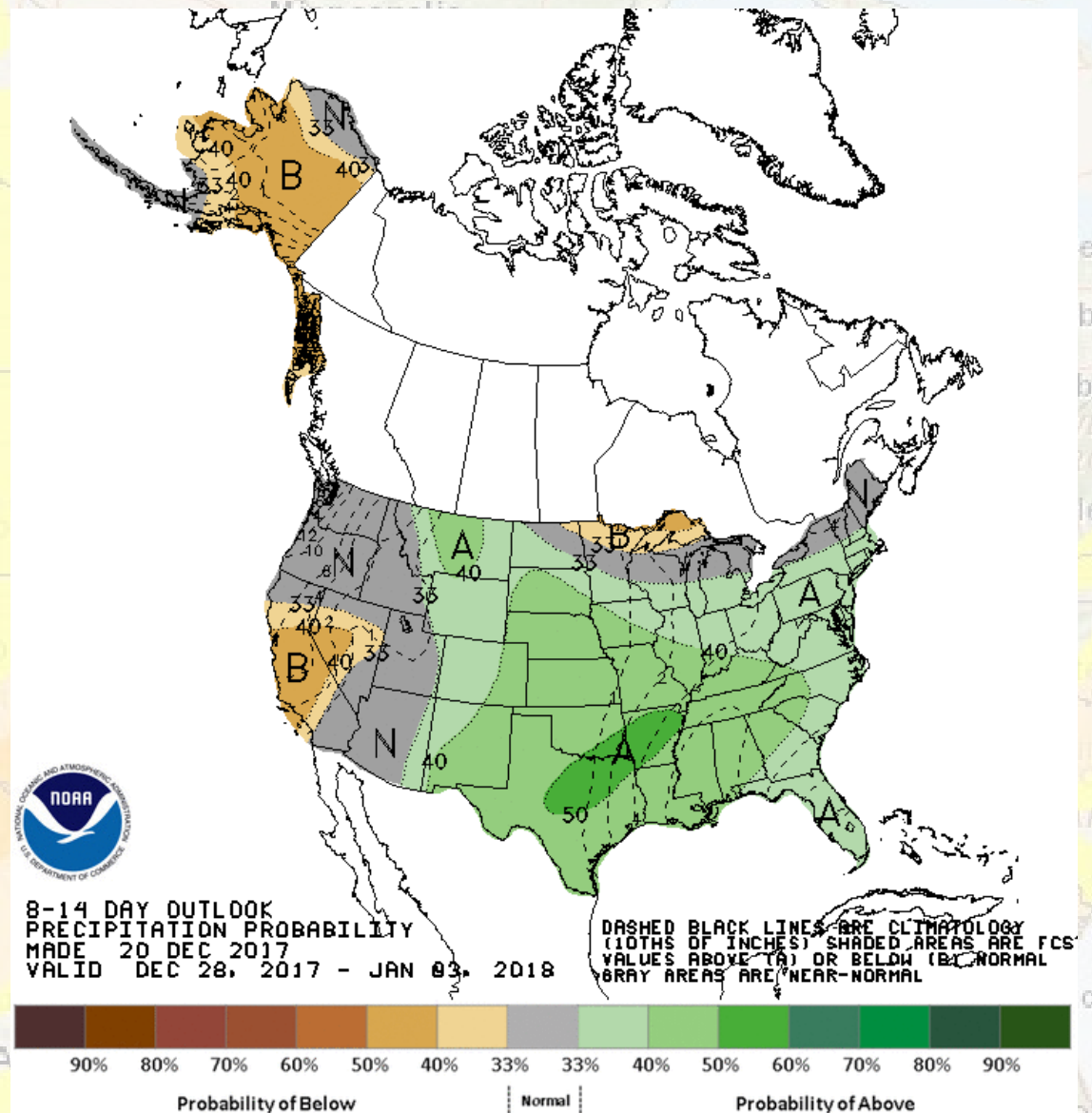
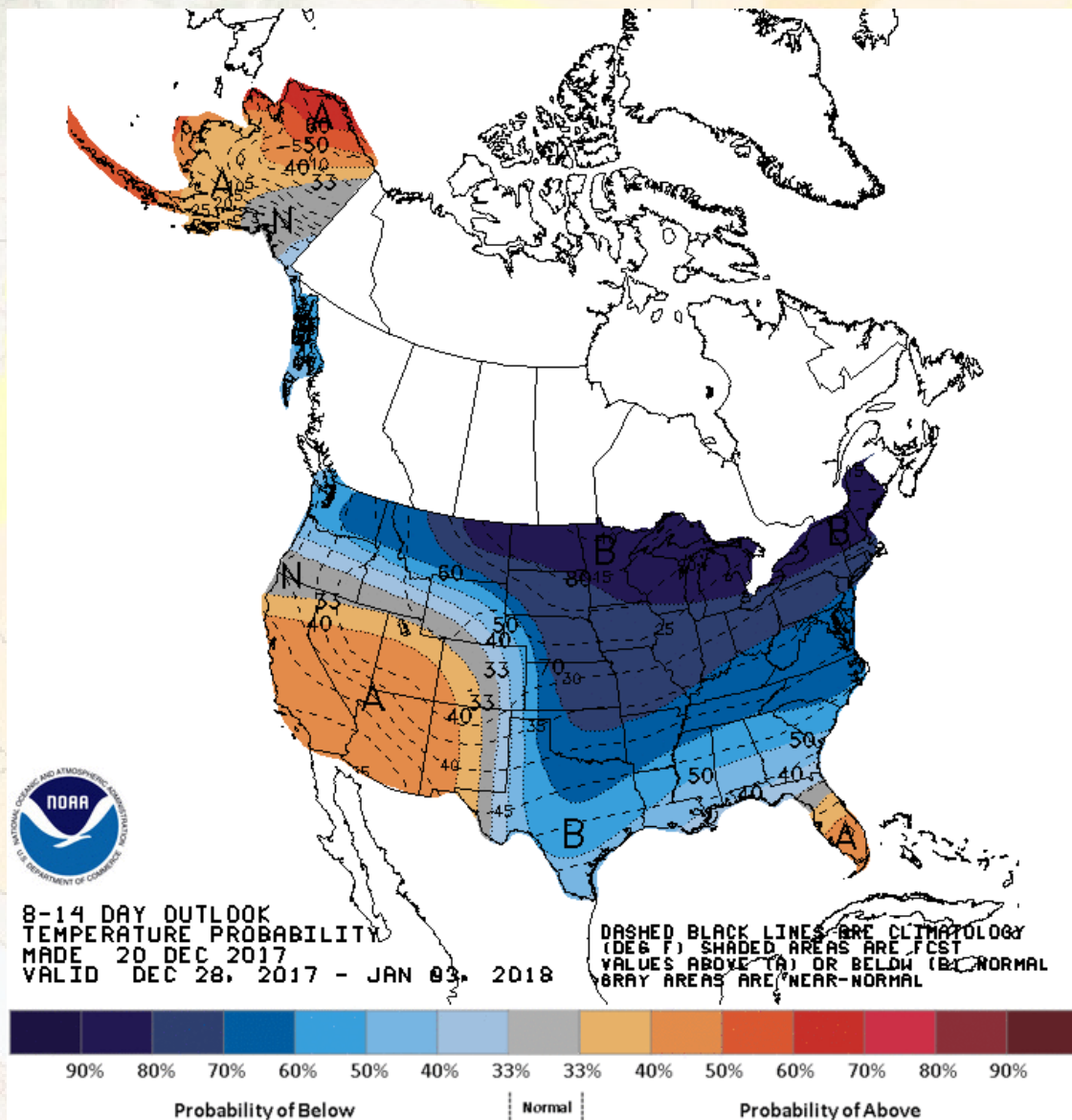


Merry Christmas! Brrrrrr!



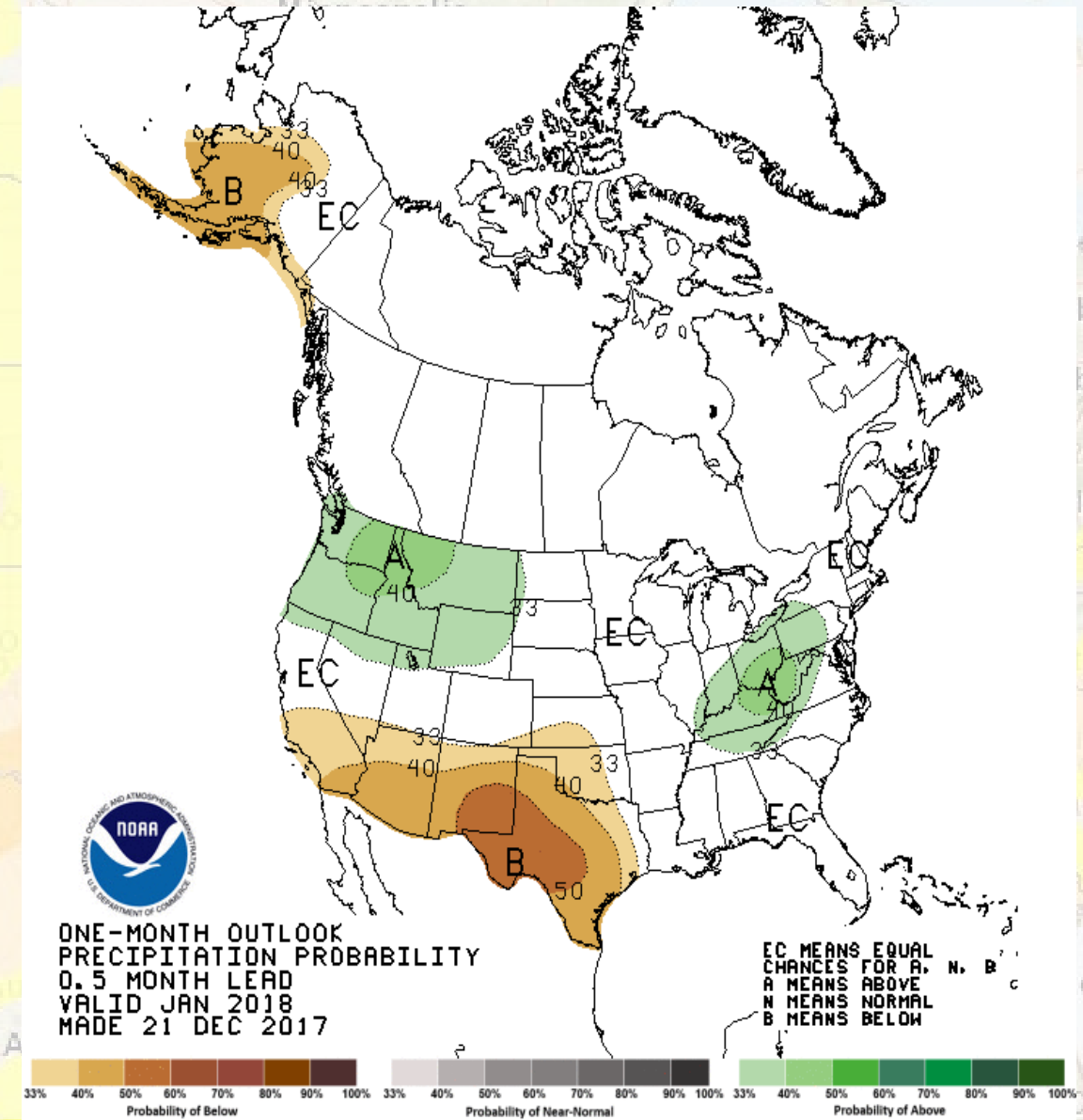
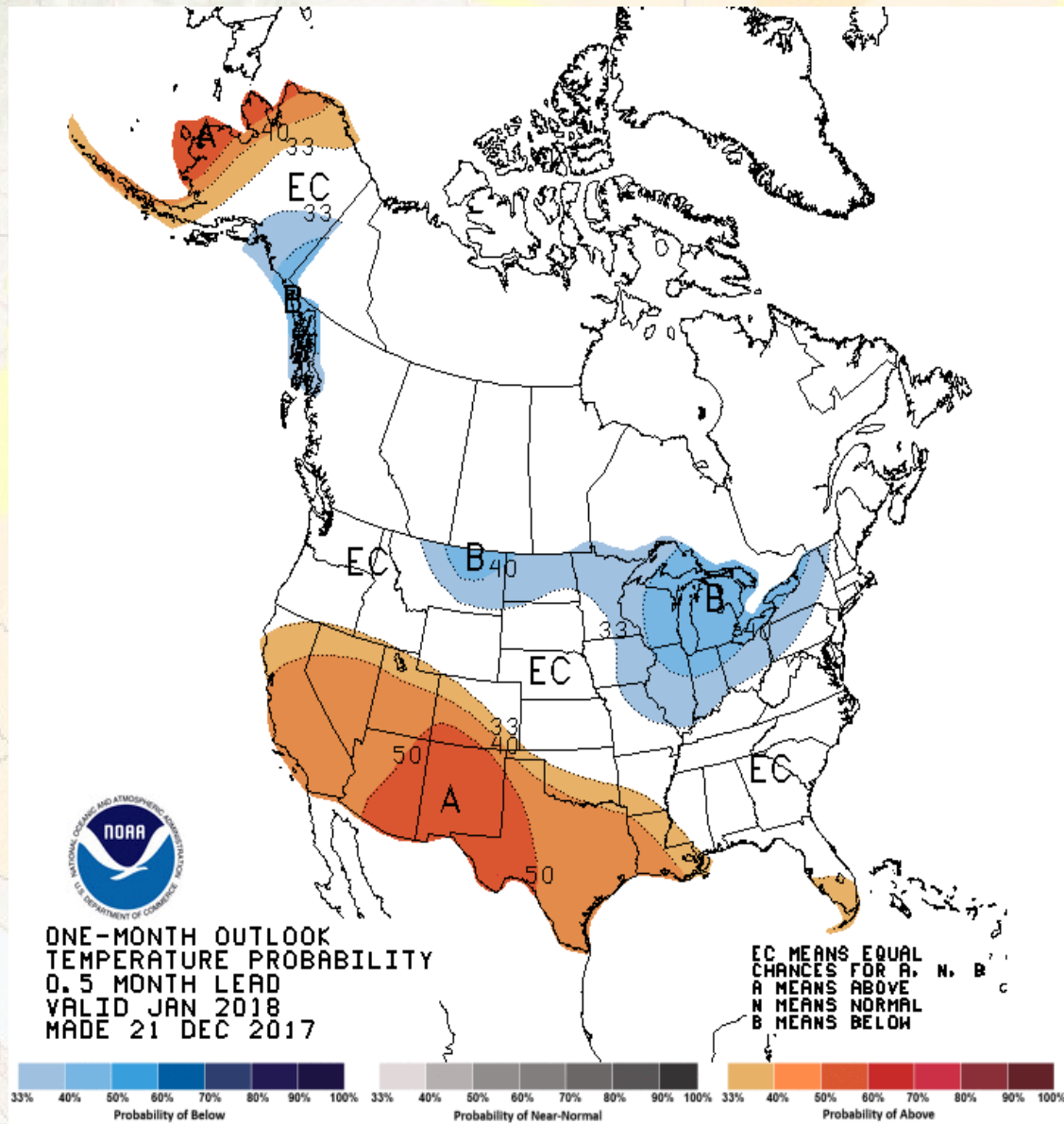
CPC 8 – 14 Day Outlook

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

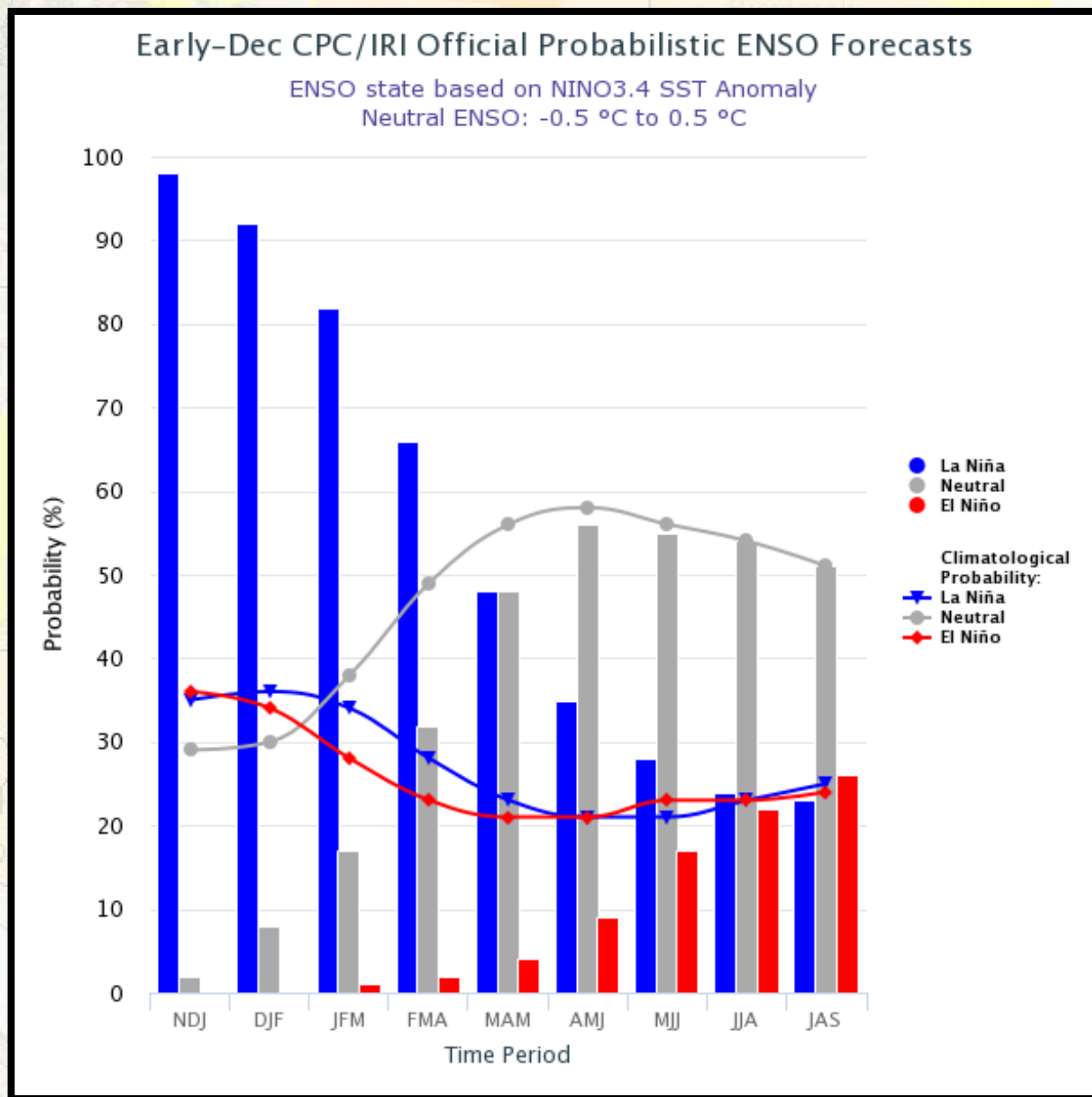


CPC 1 Month Outlook

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



La Niña Update

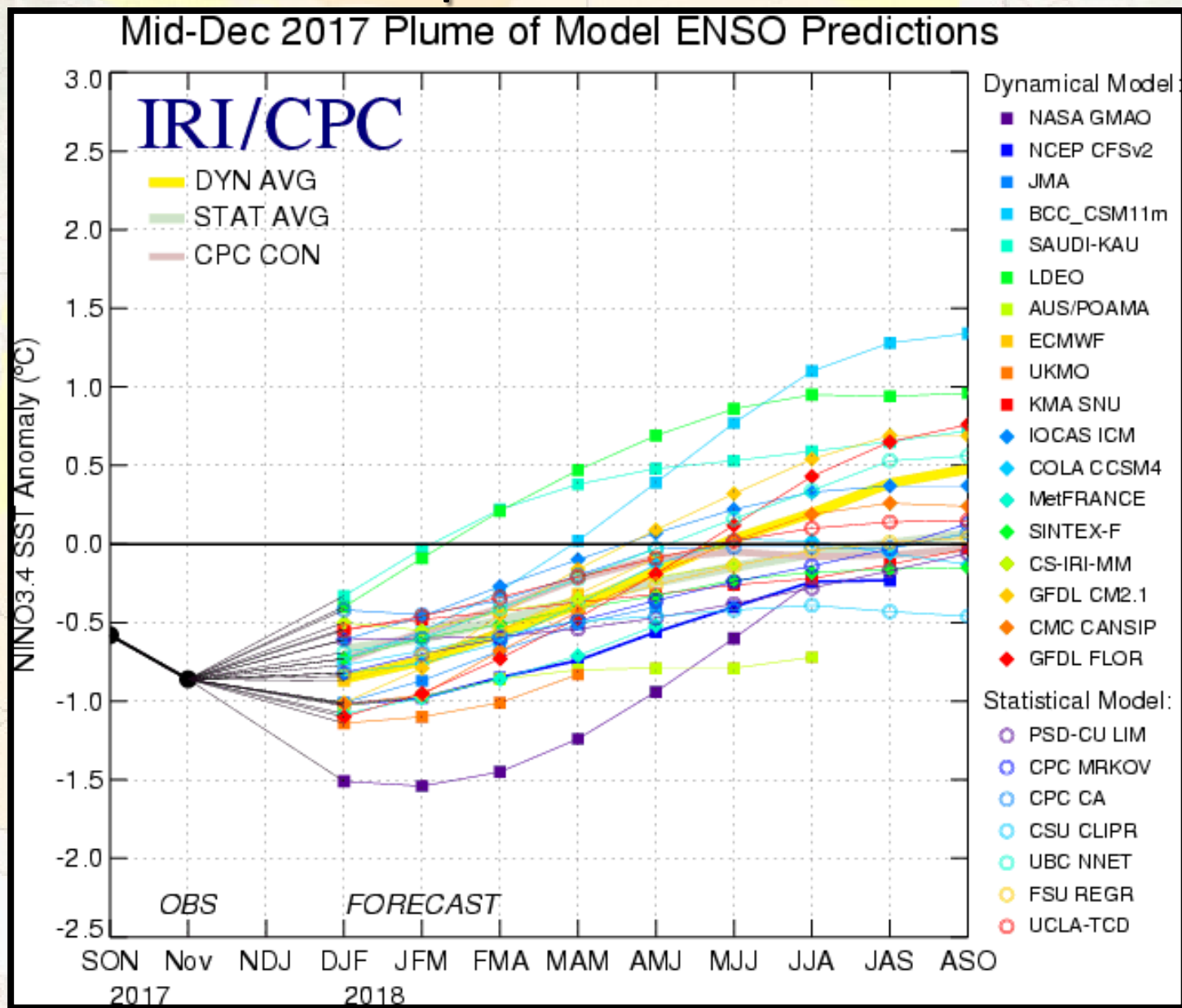


The collection of latest ENSO prediction models indicates weak, but not far from threshold of moderate, La Niña as the most likely scenario for the Northern Hemisphere winter, lasting into spring.

The official CPC/IRI outlook favors continuation of La Niña through middle or late spring.

<https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/>

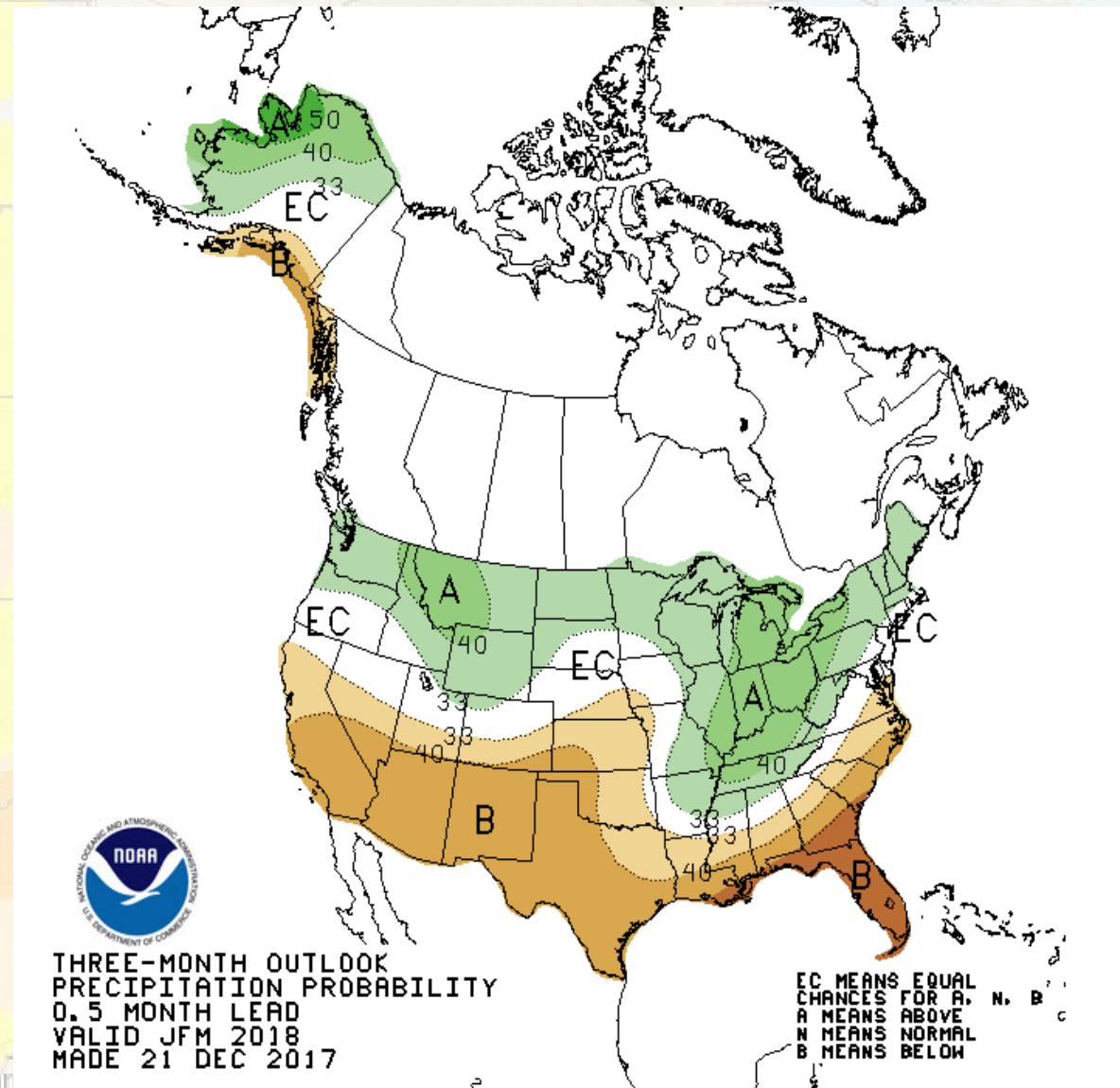
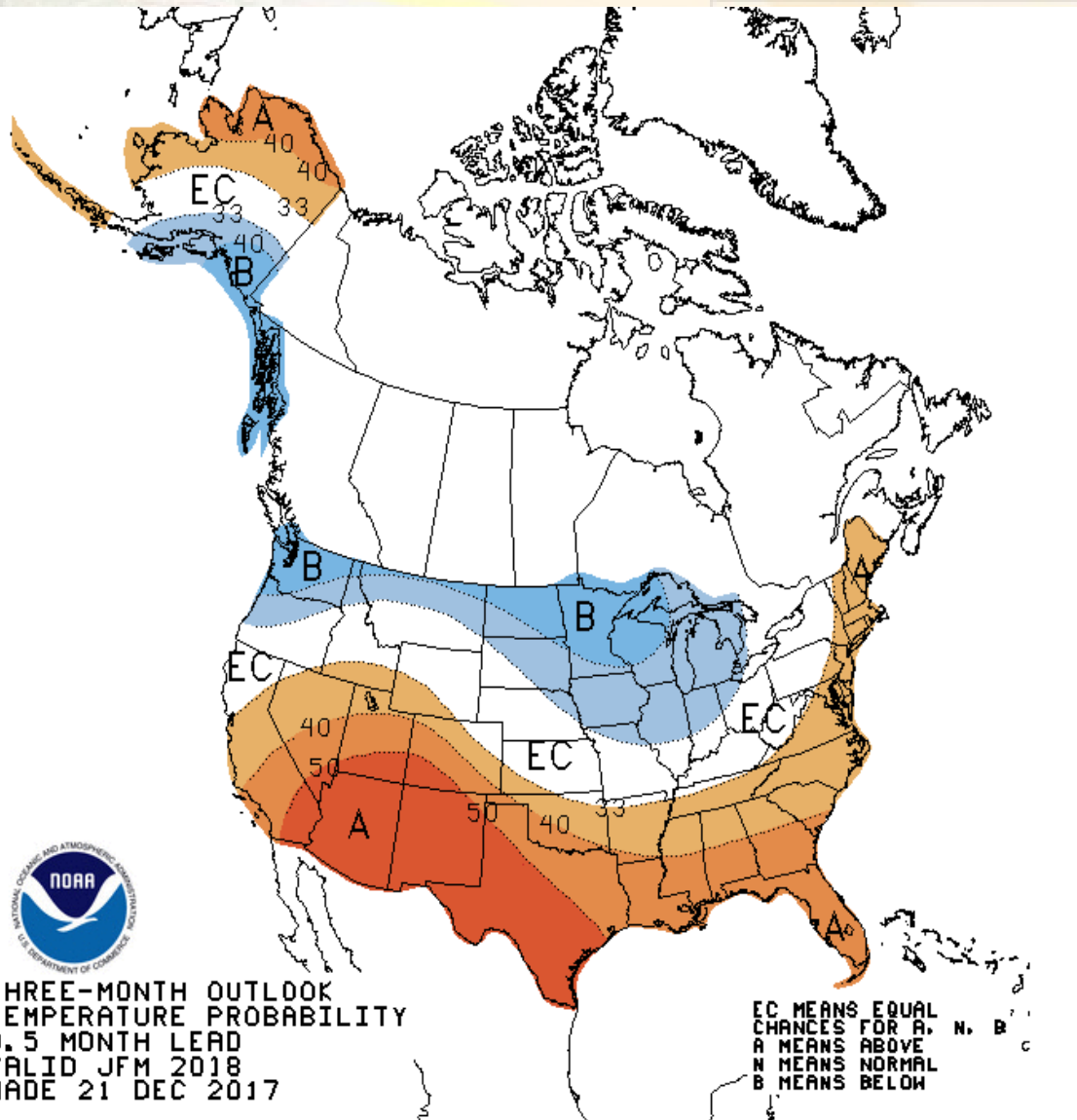
La Niña Update



<https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/>

Jan-Feb-Mar Outlook

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

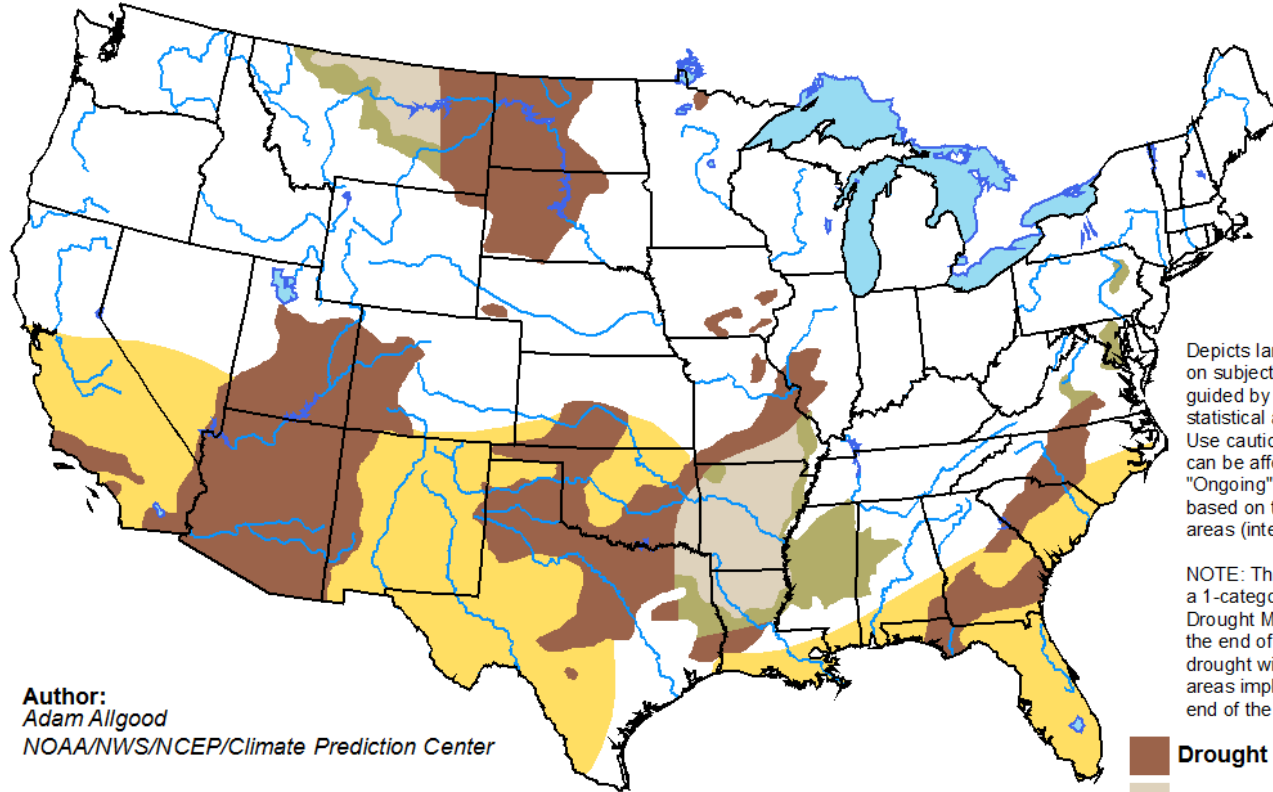


Jan-Feb-Mar Outlook

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

U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period





Valid for December 21 - March 31, 2018
Released December 21, 2017

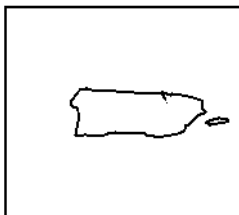
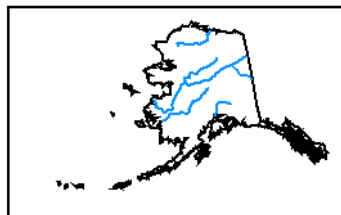


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to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

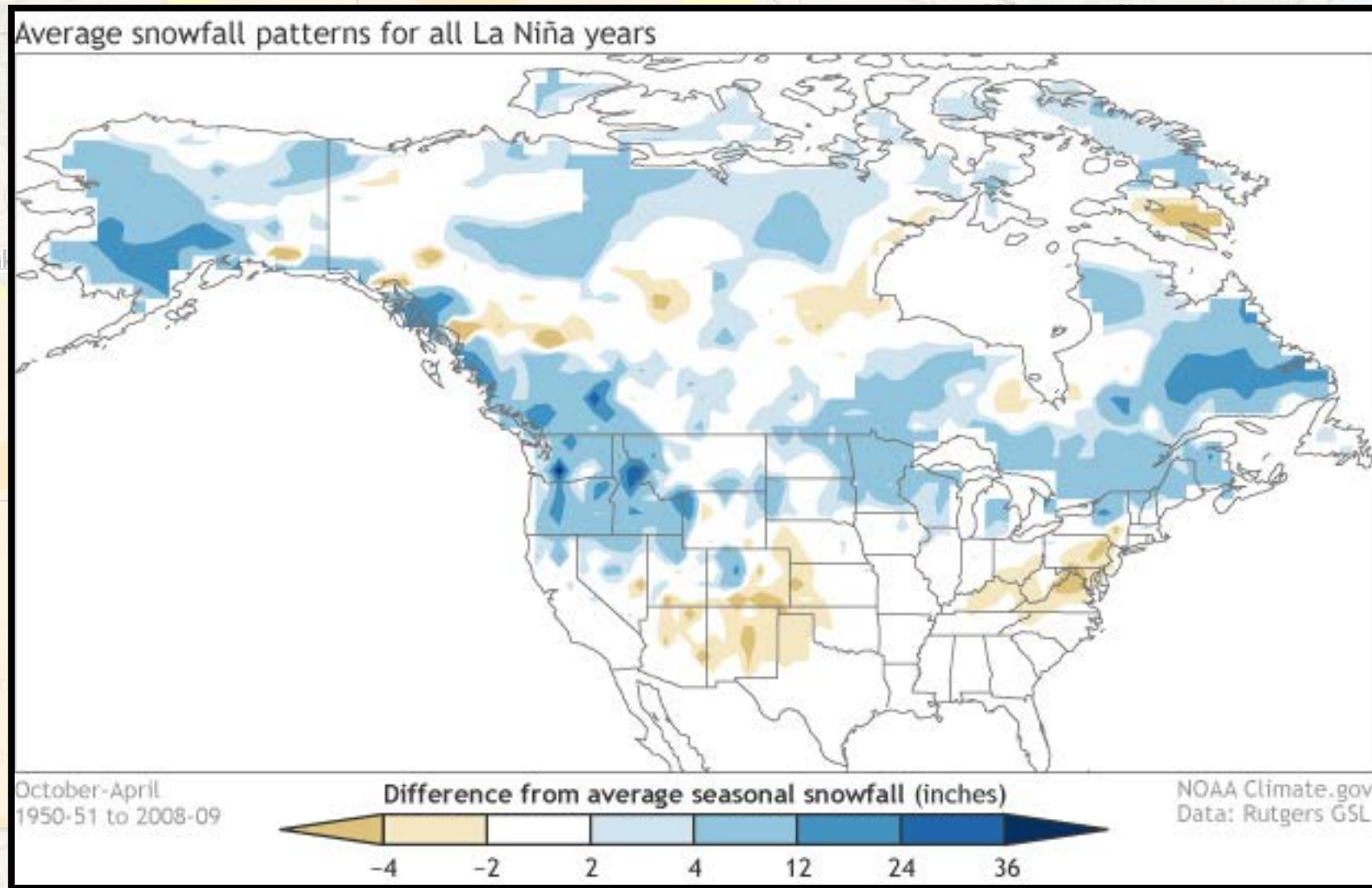
Author:
Adam Allgood
NOAA/NWS/NCEP/Climate Prediction Center

-  Drought persists
-  Drought remains but improves
-  Drought removal likely
-  Drought development likely

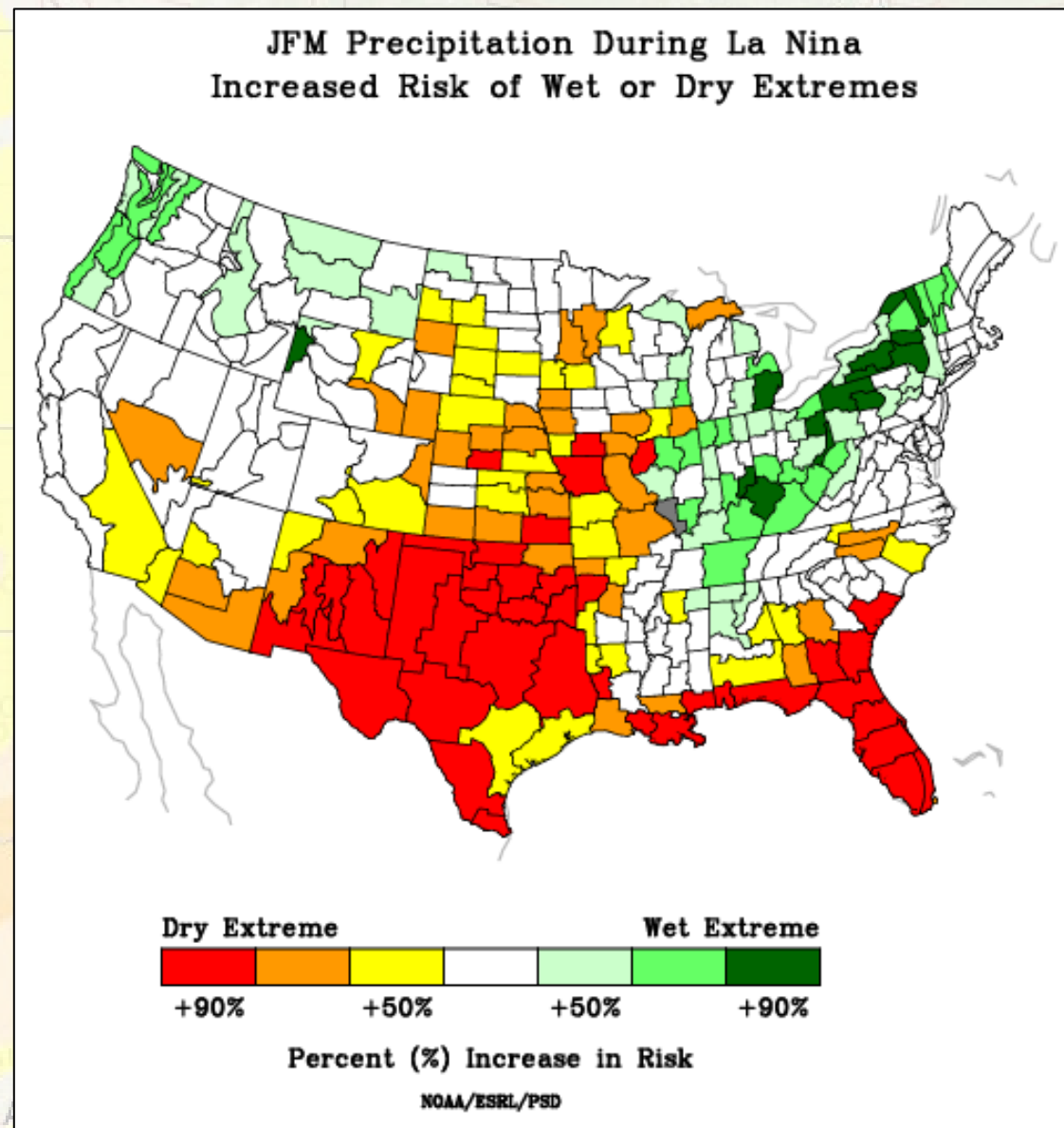
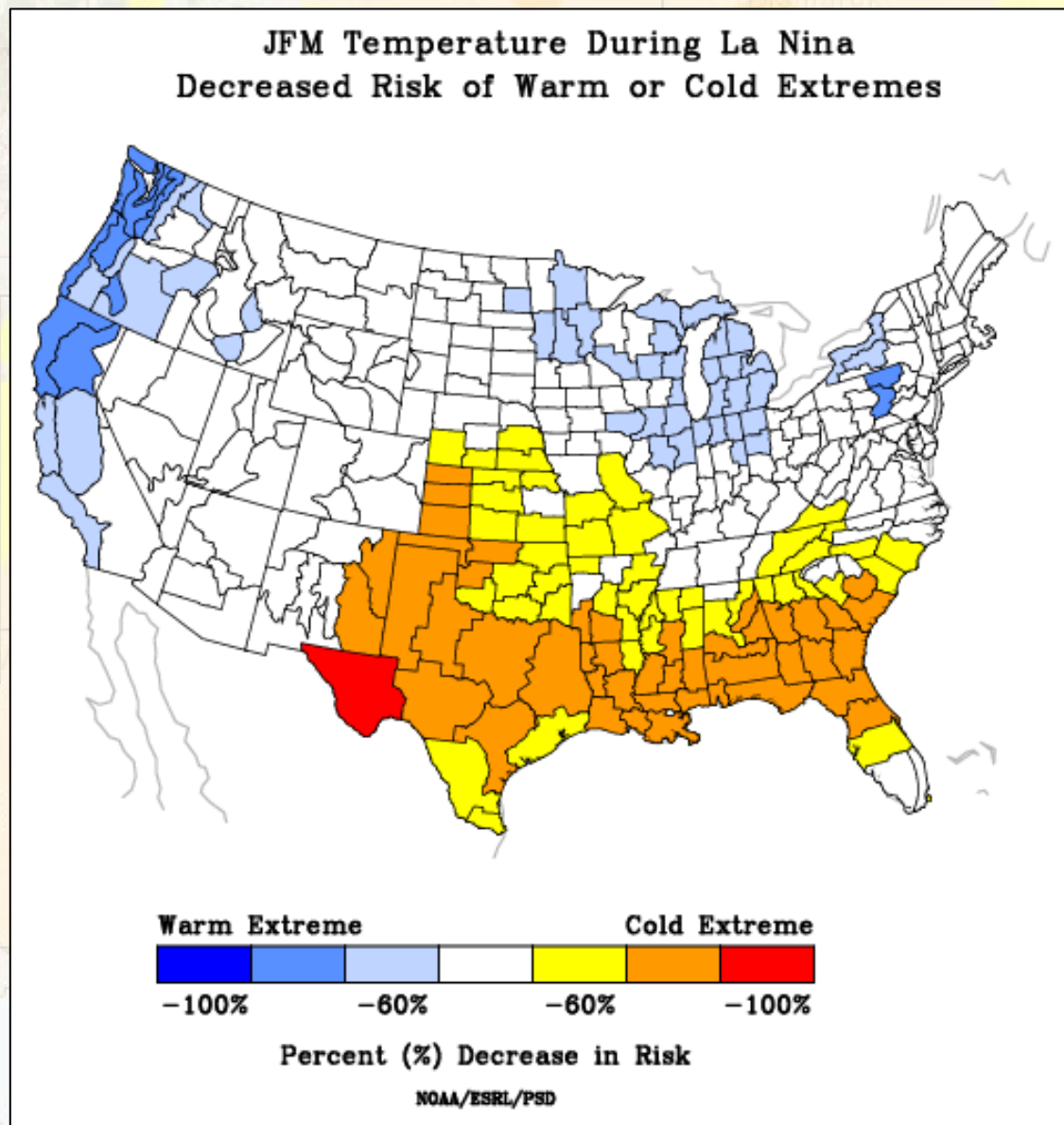


<http://go.usa.gov/3eZ73>

Other La Niña Signatures...



Other La Niña Signatures... <https://www.esrl.noaa.gov/psd/enso/climaterisks/>



So what does a La Niña mean for us?

- Boundary between the north and the south
 - Could see more snow and more precipitation in general to the north
 - Could see less snow and less precipitation in general to the south
- Poor snowpack conditions in Colorado could result in lower spring flows on the upper North and South Platte and the Upper Arkansas
- Better snowpack conditions in Montana could benefit the headwaters of the Missouri River.
- Late season warmth, little snow cover, and sudden deep cold could be damaging to winter crops.
- Hard to get drought relief in the winter, since it's so dry around the lower elevation plains, but the "wet" forecast may help alleviate some drought stresses in the northern plains and in Missouri.
- Drought at risk of expanding in Colorado and Kansas.

Further Information - Partners

- **Today's and Past Recorded Presentations:**
- <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:**

- Becky Bolinger: becky.bolinger@colostate.edu, 970-491-8506

- Dennis Todey: dennis.todey@ars.usda.gov, 515-294-2013

- Doug Kluck: doug.kluck@noaa.gov, 816-994-3008

- Mike Timlin: mtimlin@illinois.edu, 217-333-8506

- Natalie Umphlett: numphlett2@unl.edu, 402-472-6764

- Brian Fuchs: bfuchs2@unl.edu, 402-472-6775 (drought)

- **Weather:**

- crhroc@noaa.gov