Central Region Climate and Drought Outlook March 19, 2020

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Michigan State Climate Office

Great Lakes Integrated Sciences and Assessments

Michigan State University

East Lansing, MI

NWS Grand Forks

National Drought Mitigation Center

MICHIGAN STATE UNIVERSITY

GLISA
A NOAA RISA TEAM

NOAA

REGIONAL CLIMATE CENTERS

AASC
AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS

USDA
United States Department of Agriculture
Midwest Climate Hub

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**
  - April 16, 2020 (2 PM EDT/1 PM CDT), Presenter: Pete Boulay, MN State Climate Office
- **Access to Future Climate Webinars and Information**
- http://www.drought.gov/drought/content/regional-programs/regional-drought-webinars
- **Recordings of Past Webinars**
- *http://mrcc.isws.illinois.edu/webinars.htm*
- *http://www.hprcc.unl.edu/webinars.php*
- **Open for questions at the end**

Agenda

- **Recent Conditions**
- **Impacts**
- **Outlooks**

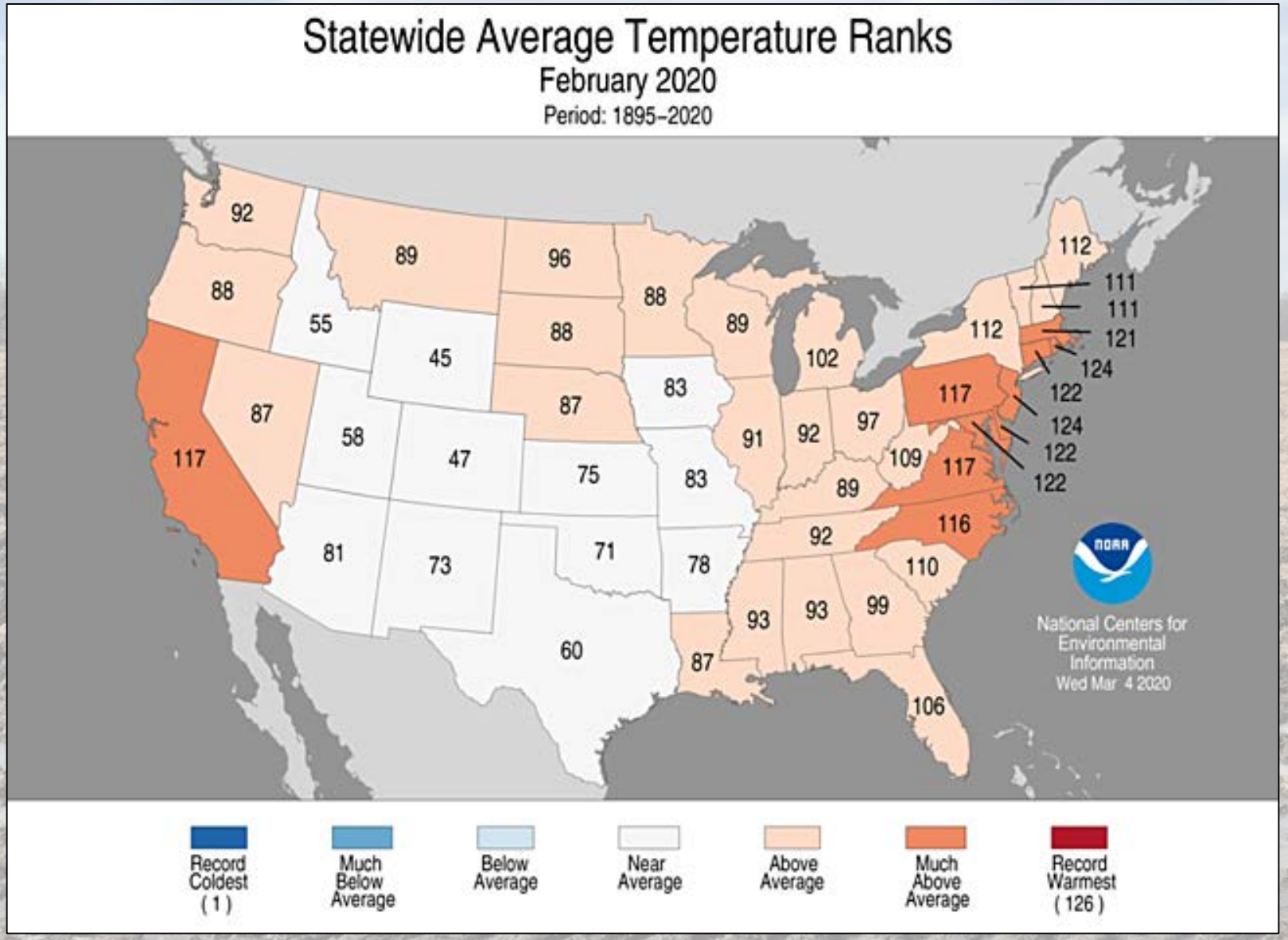
Grass Fire near Eudora, KS.
Photo Courtesy of Kansas Highway Patrol

A look back

Recent Conditions

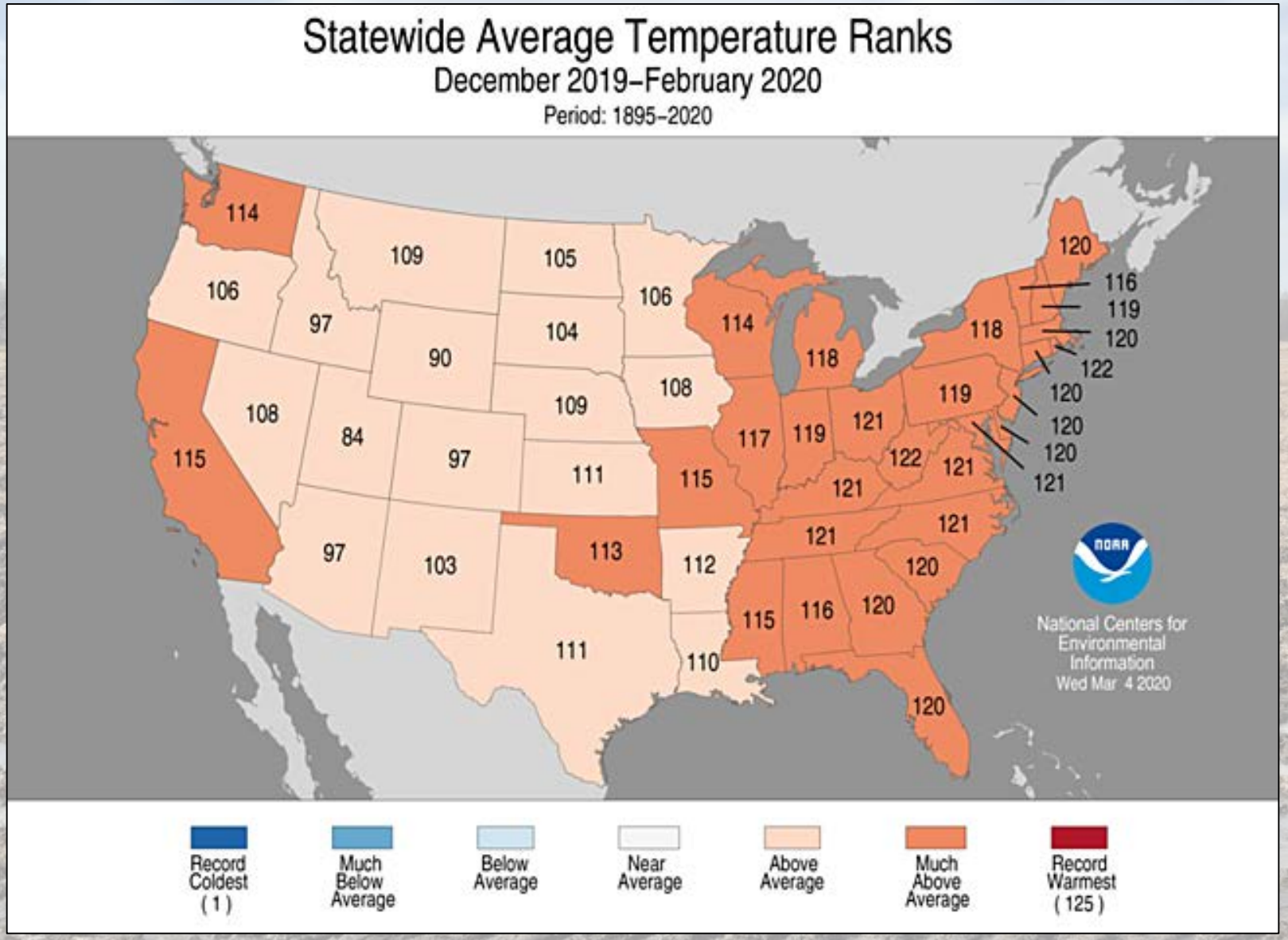
Photo Courtesy: B.J. Baule, MI State Climatology Office

February Temperature Ranks



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

Winter Temperature Ranks



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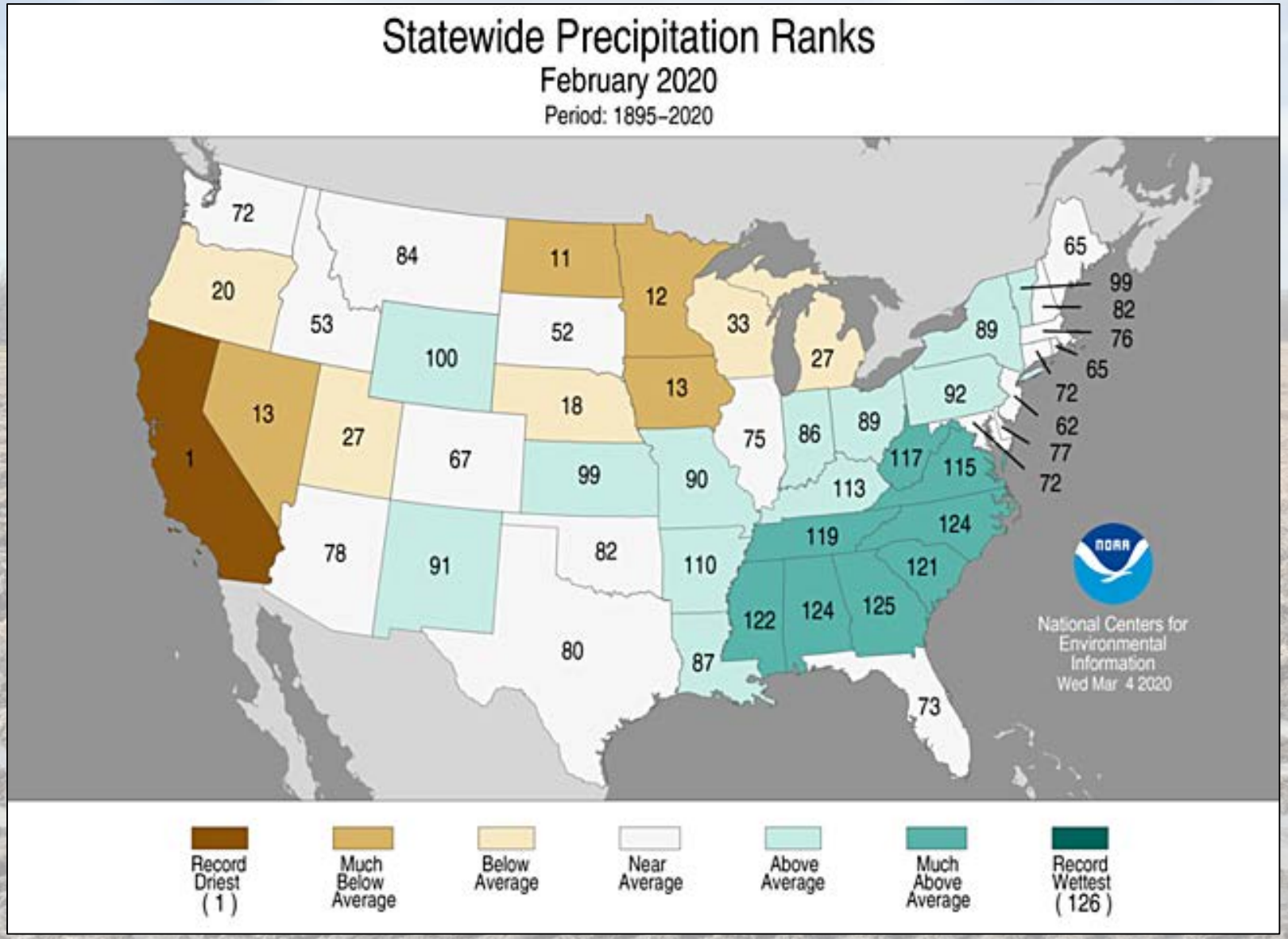
February Precipitation Ranks



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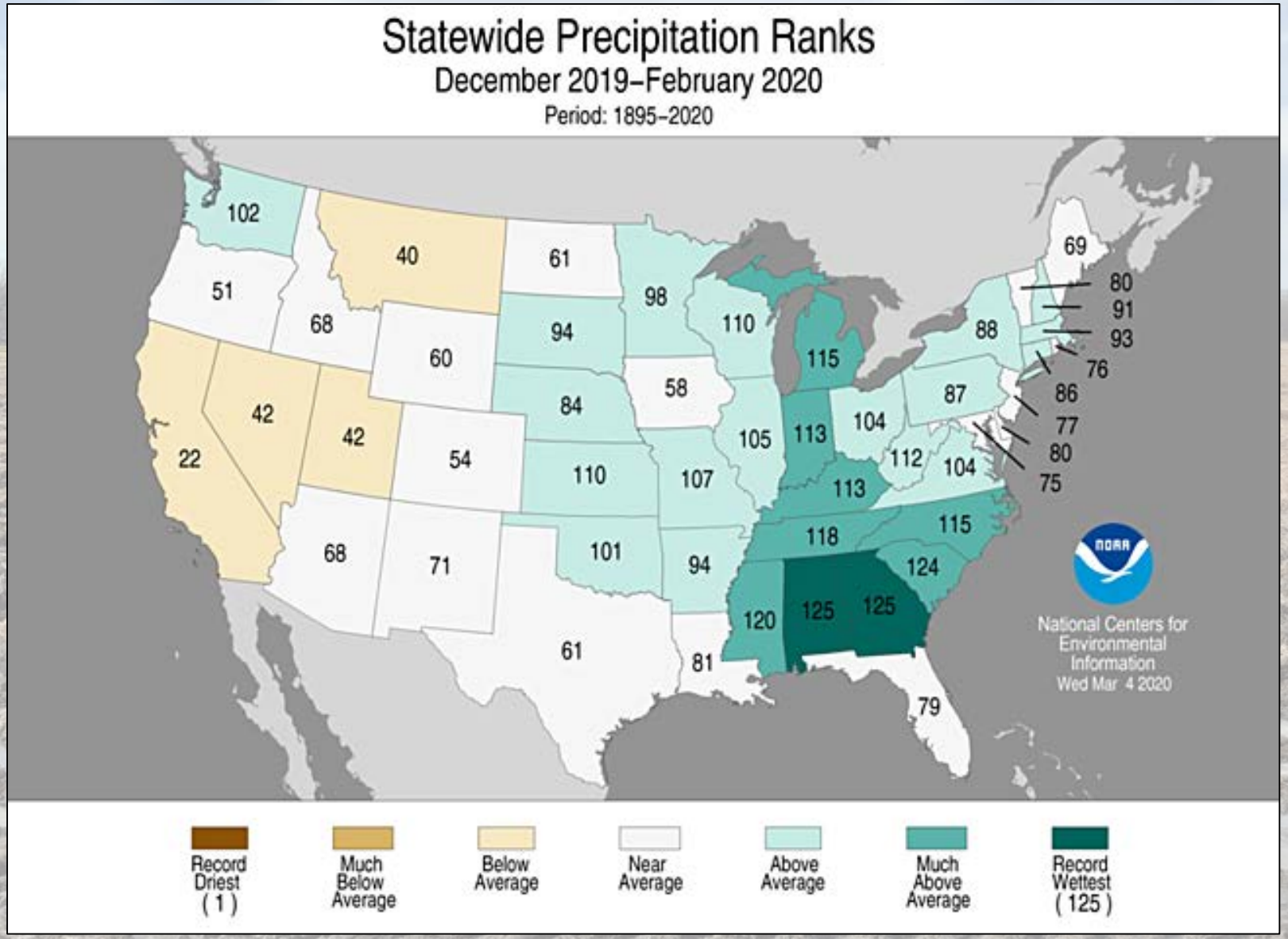
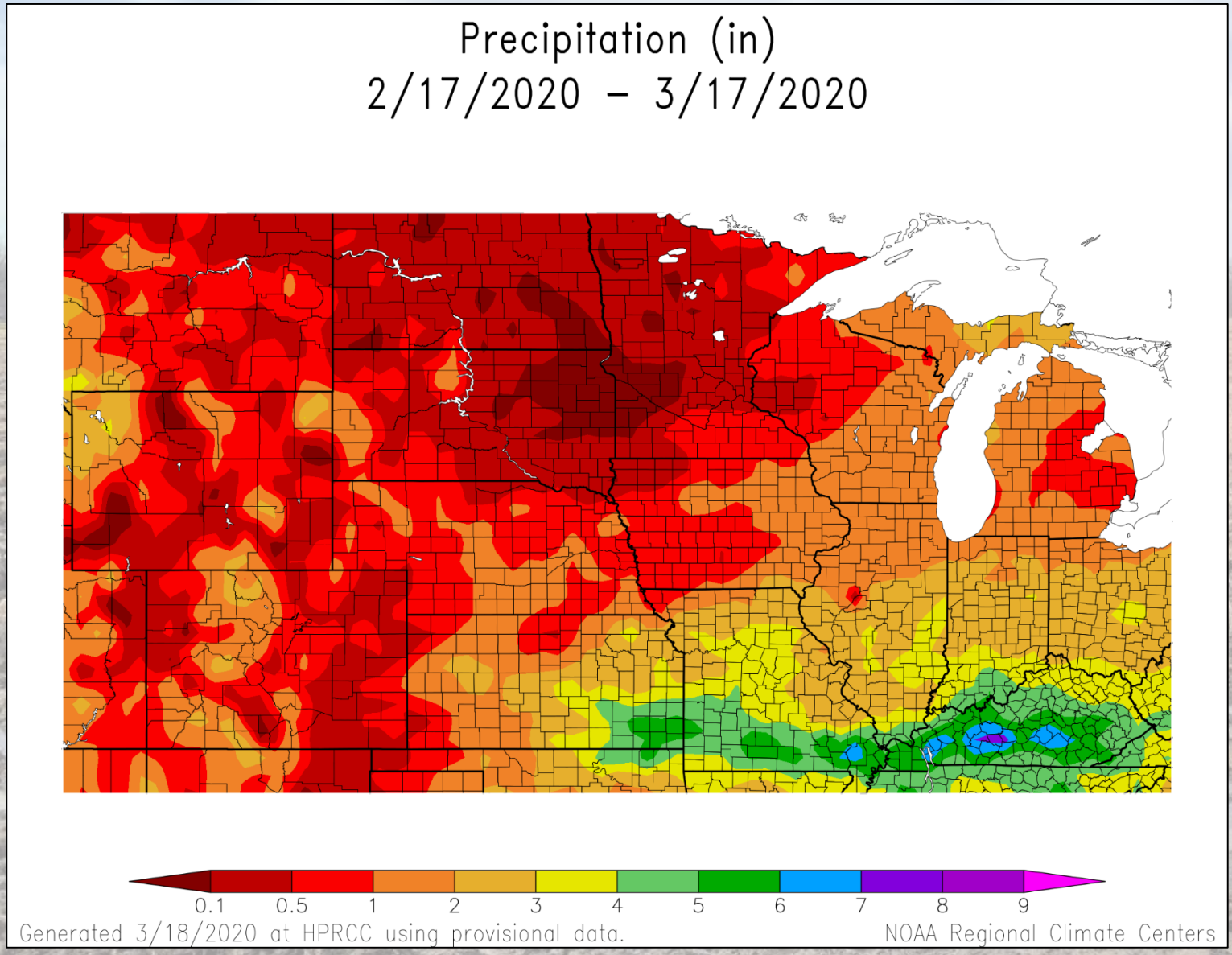
Winter Precipitation Ranks



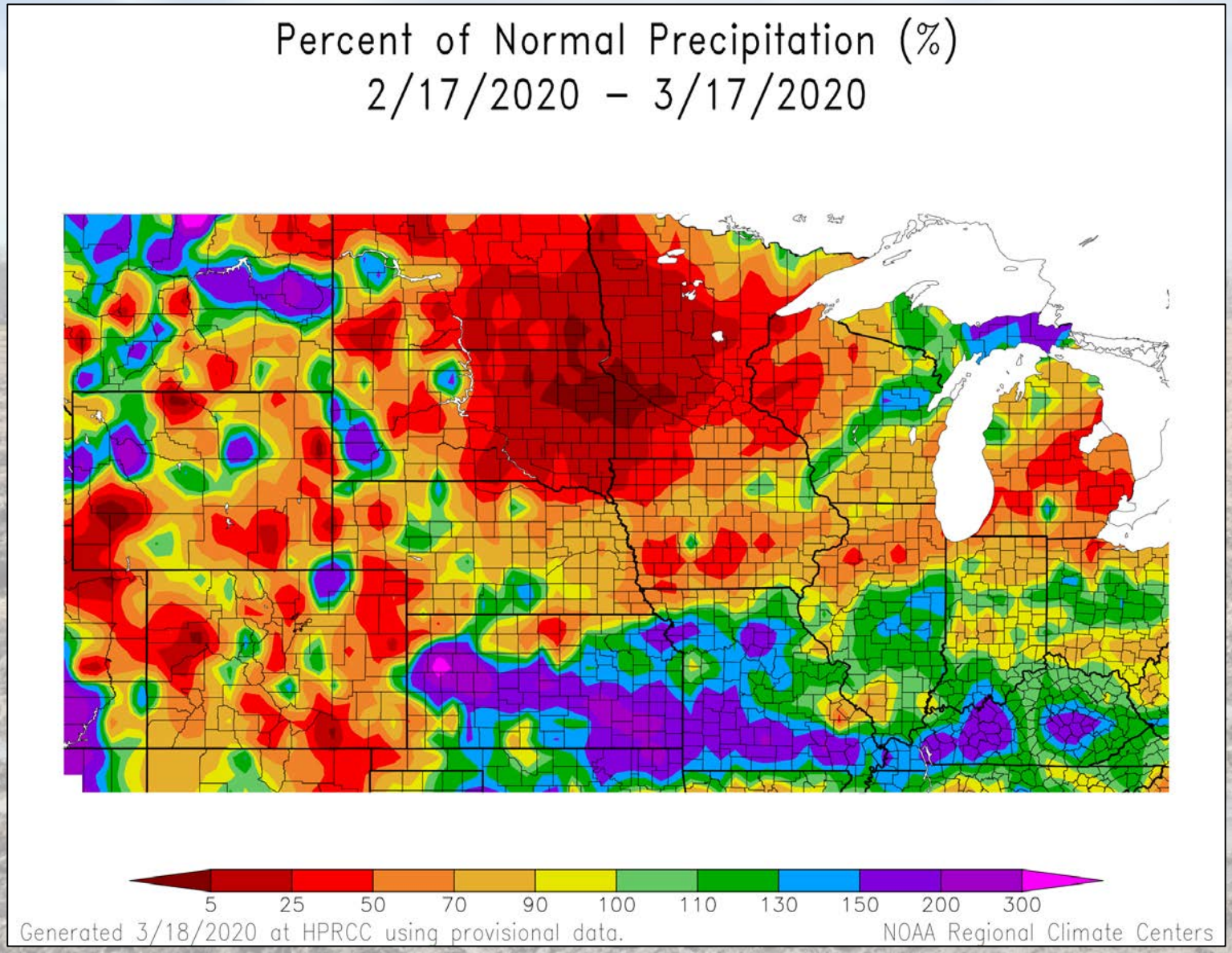
http://www.ncdc.noaa.gov/temp-and-precip/us-maps/

Last 30 Days



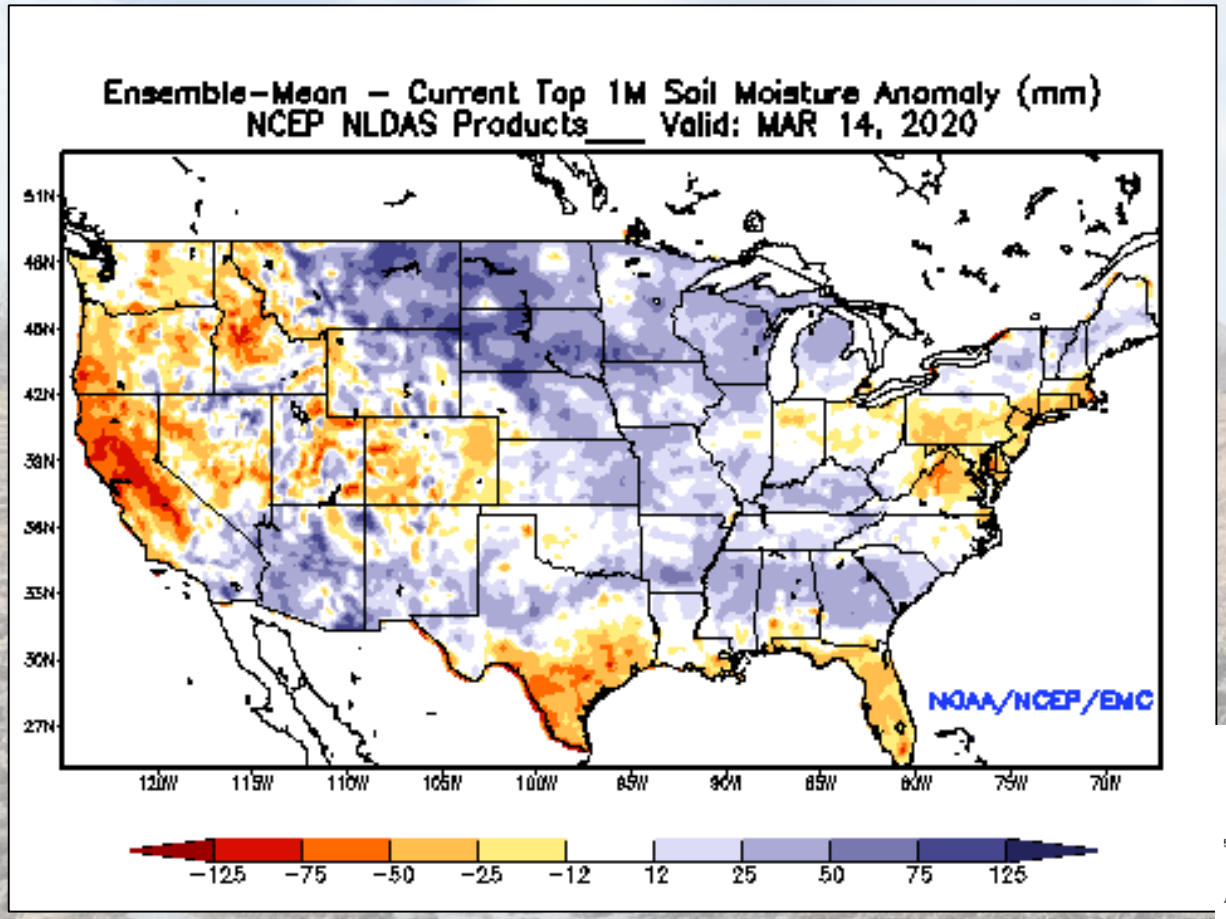
https://hprcc.unl.edu/maps.php?map=ACISClimateMaps

Last 30 Days

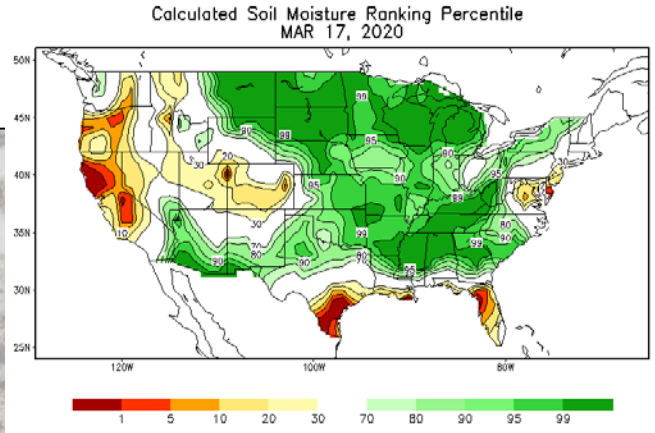


https://hprcc.unl.edu/maps.php?map=ACISClimateMaps

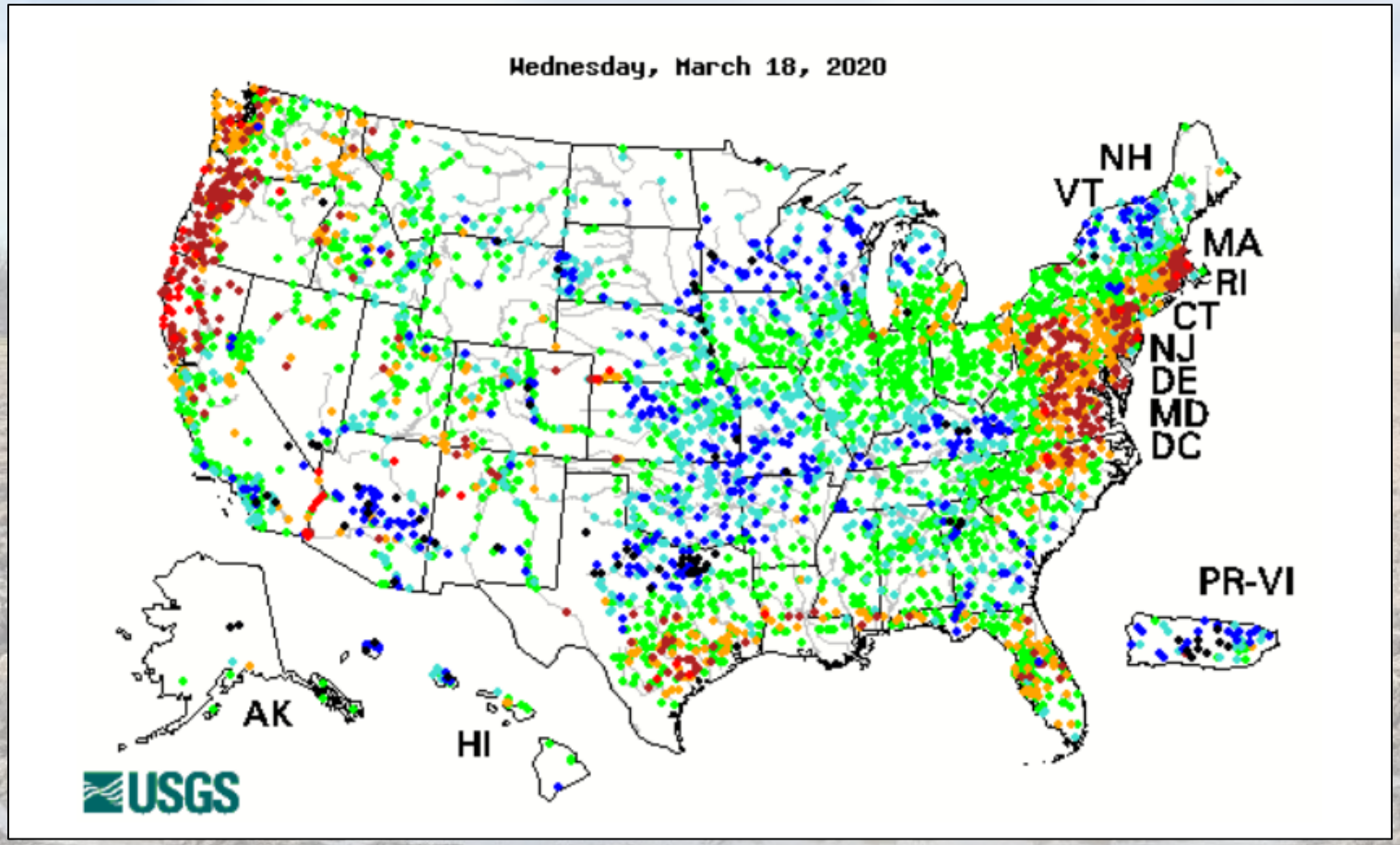
Estimated Soil Moisture



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



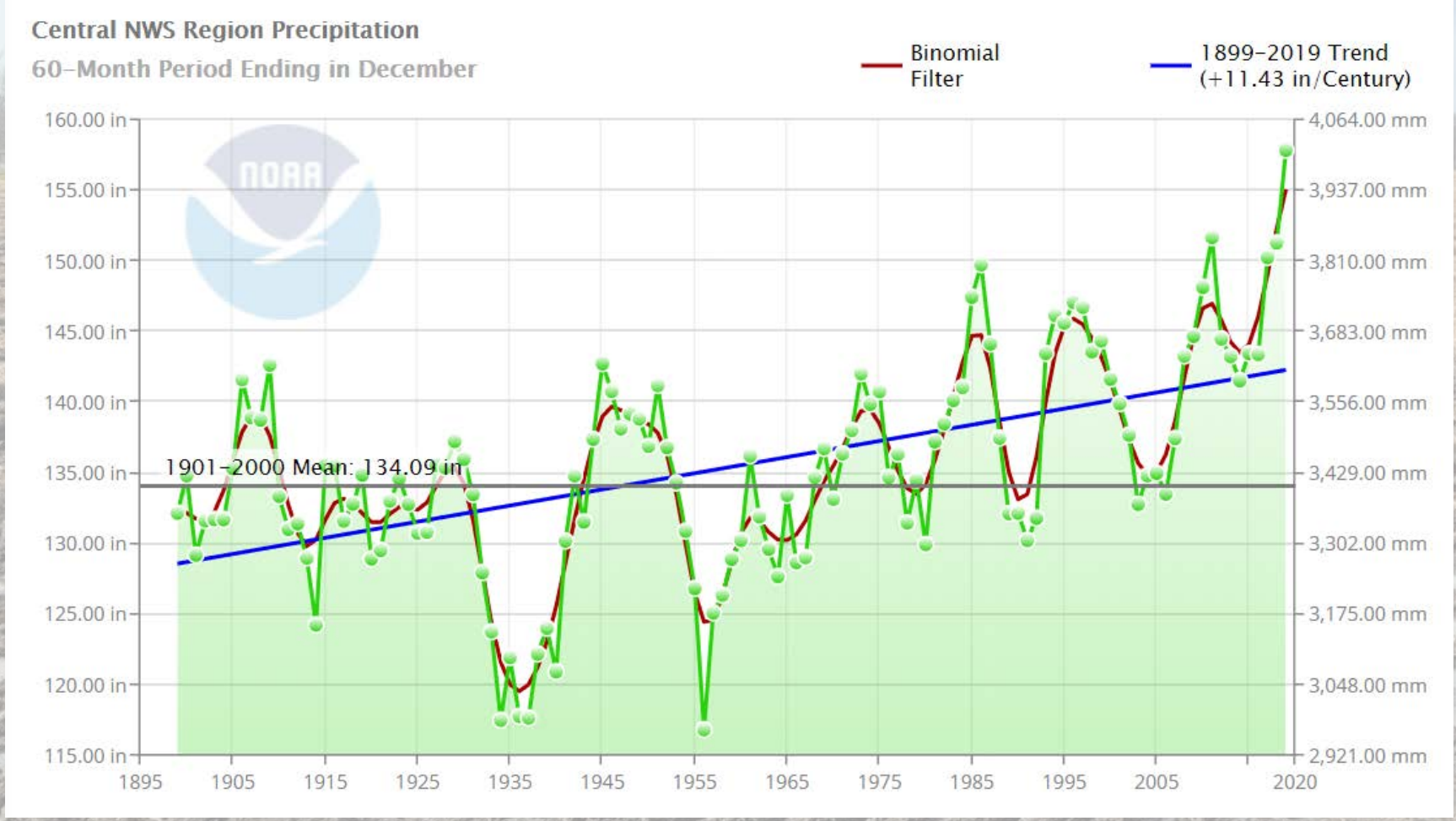
28-Day Average Streamflow



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

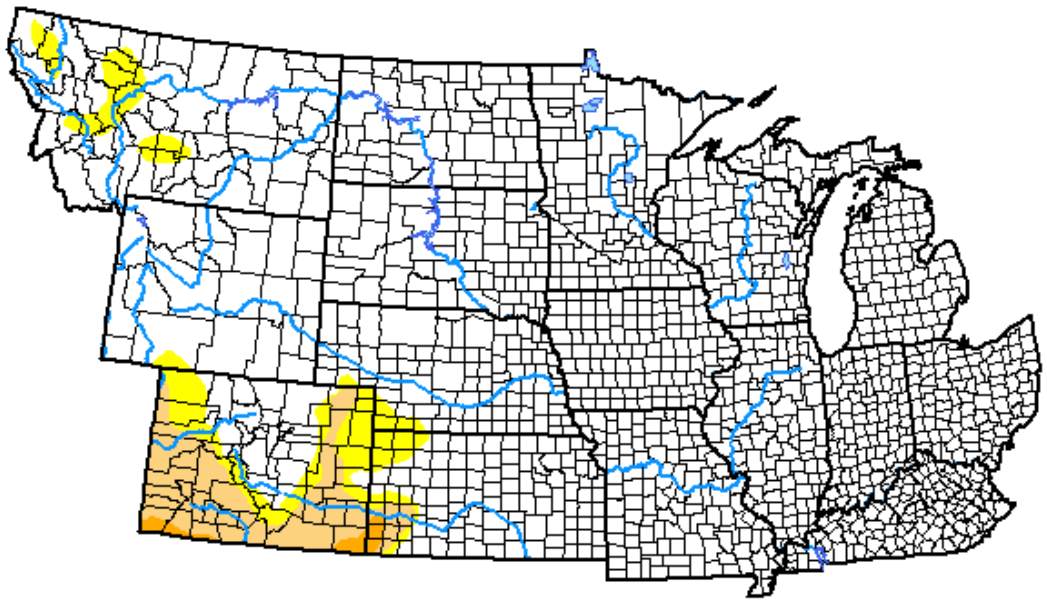
http://waterwatch.usgs.gov/index.php?id=pa07d

Increasingly Wetter with Time



U.S. Drought Monitor

NWS Central Region



March 17, 2020

(Released Thursday, Mar. 19, 2020)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	90.91	9.09	4.66	0.44	0.00	0.00
Last Week *03-10-2020*	90.91	9.09	4.66	0.44	0.00	0.00
3 Months Ago *12-17-2019*	87.39	12.61	6.60	2.41	0.11	0.00
Start of Calendar Year *12-31-2019*	87.81	12.19	5.33	2.11	0.00	0.00
Start of Water Year *10-01-2019*	79.05	20.95	8.02	2.19	0.14	0.00
One Year Ago *03-19-2019*	92.79	7.21	0.82	0.06	0.00	0.00

Intensity:

- None
- 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. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Author:

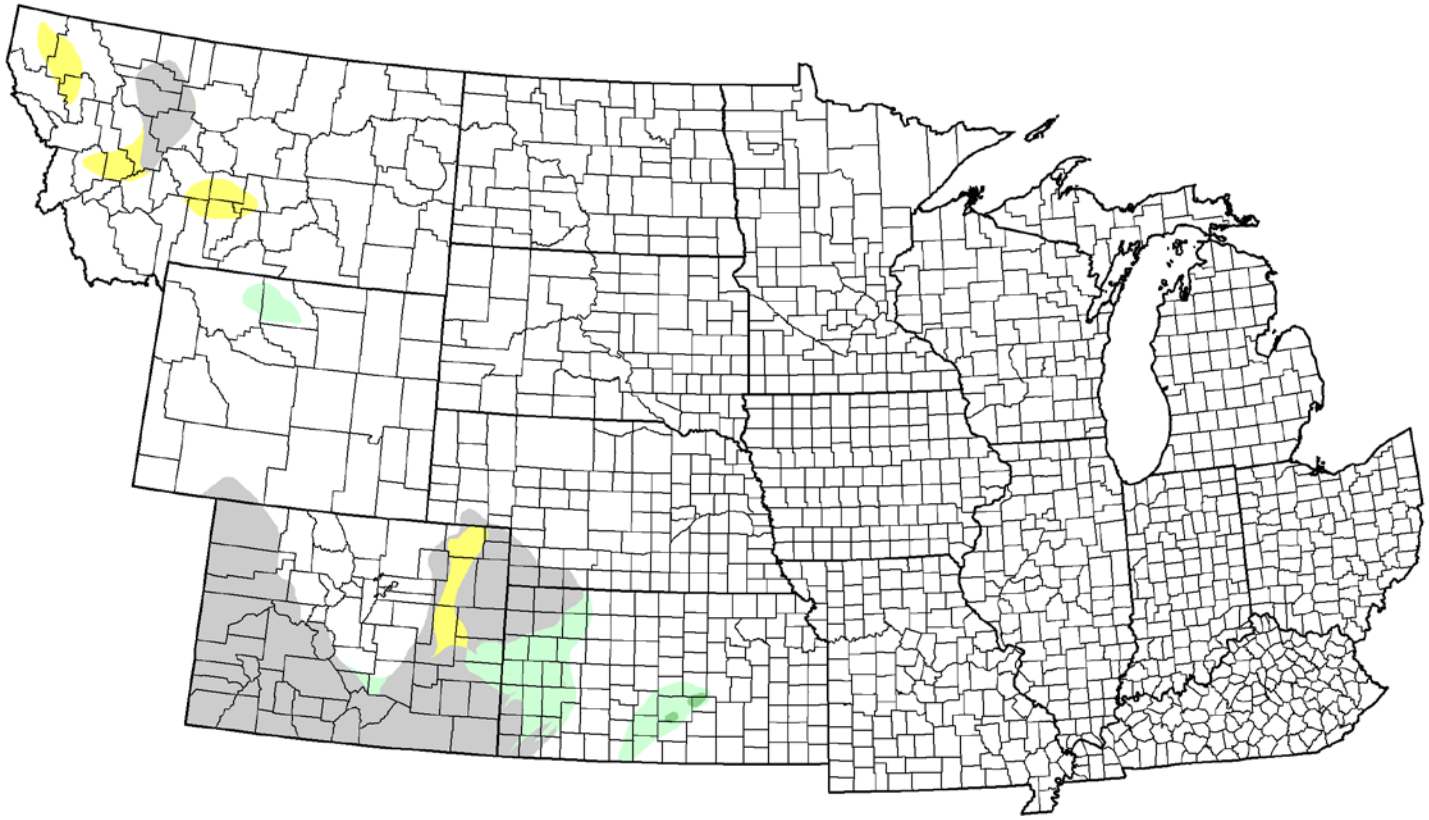
Deborah Bathke

National Drought Mitigation Center

droughtmonitor.unl.edu

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

1 Month

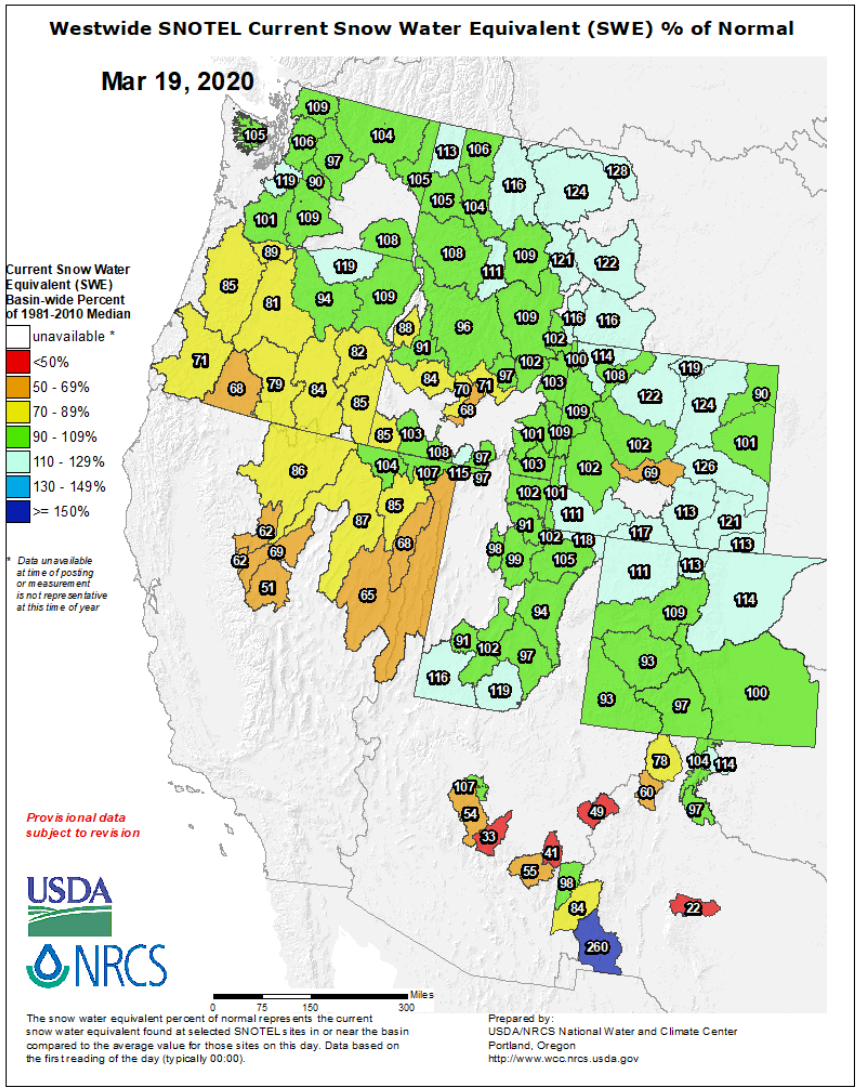


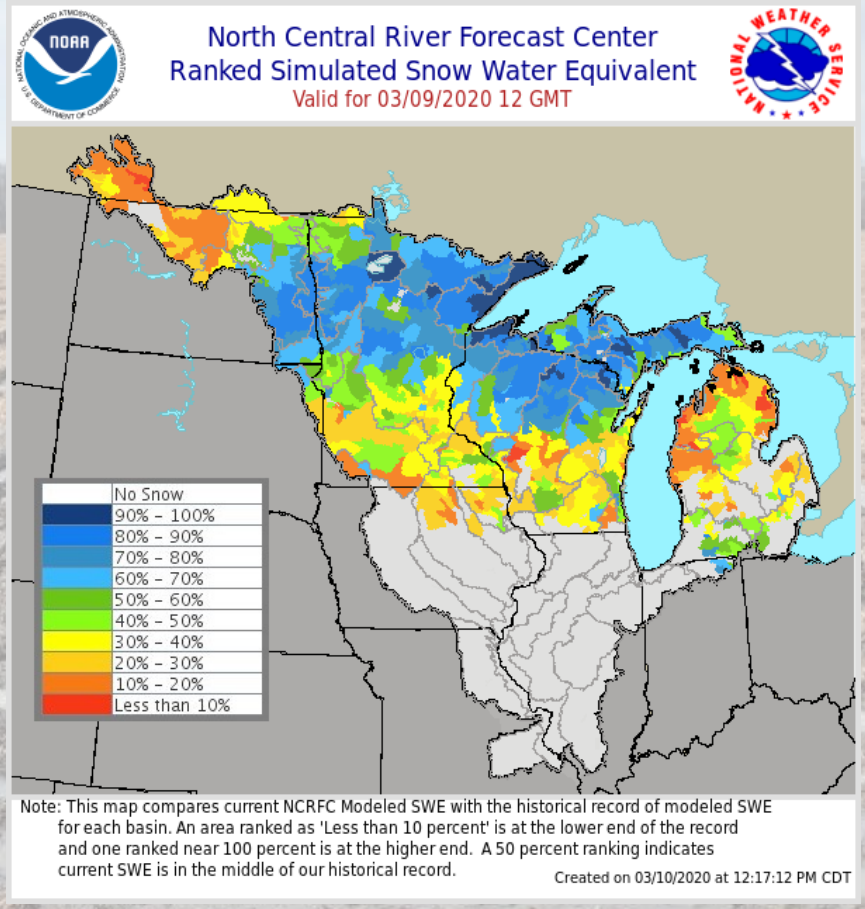
March 17, 2020
compared to
February 18, 2020

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

Current SWE % of Normal

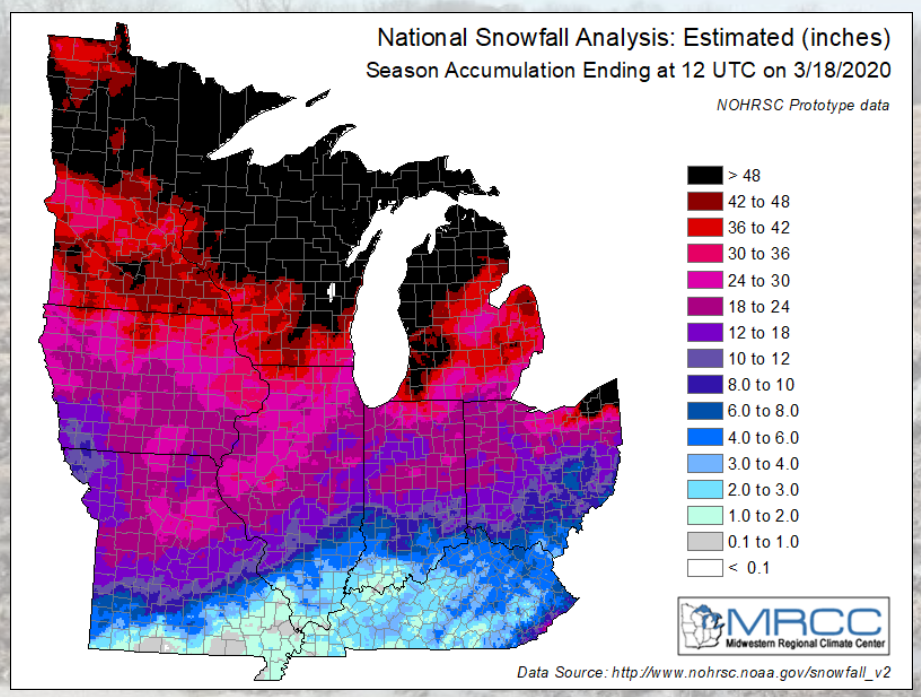


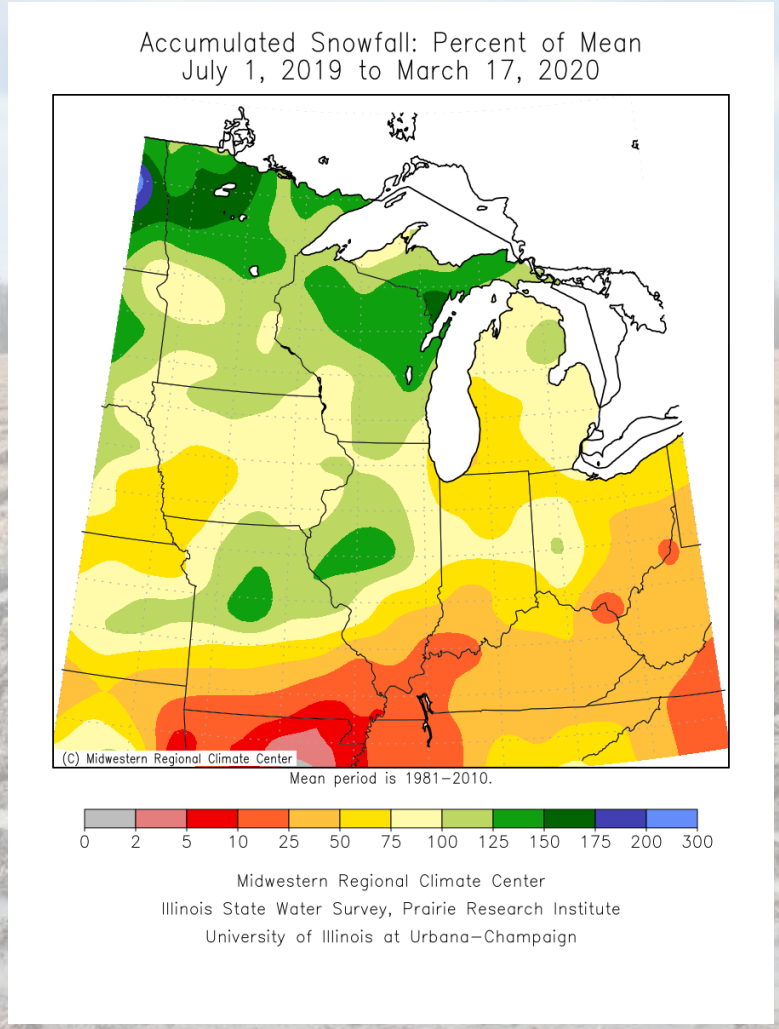


https://www.weather.gov/ncrfc/

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

Winter Snowfall Totals



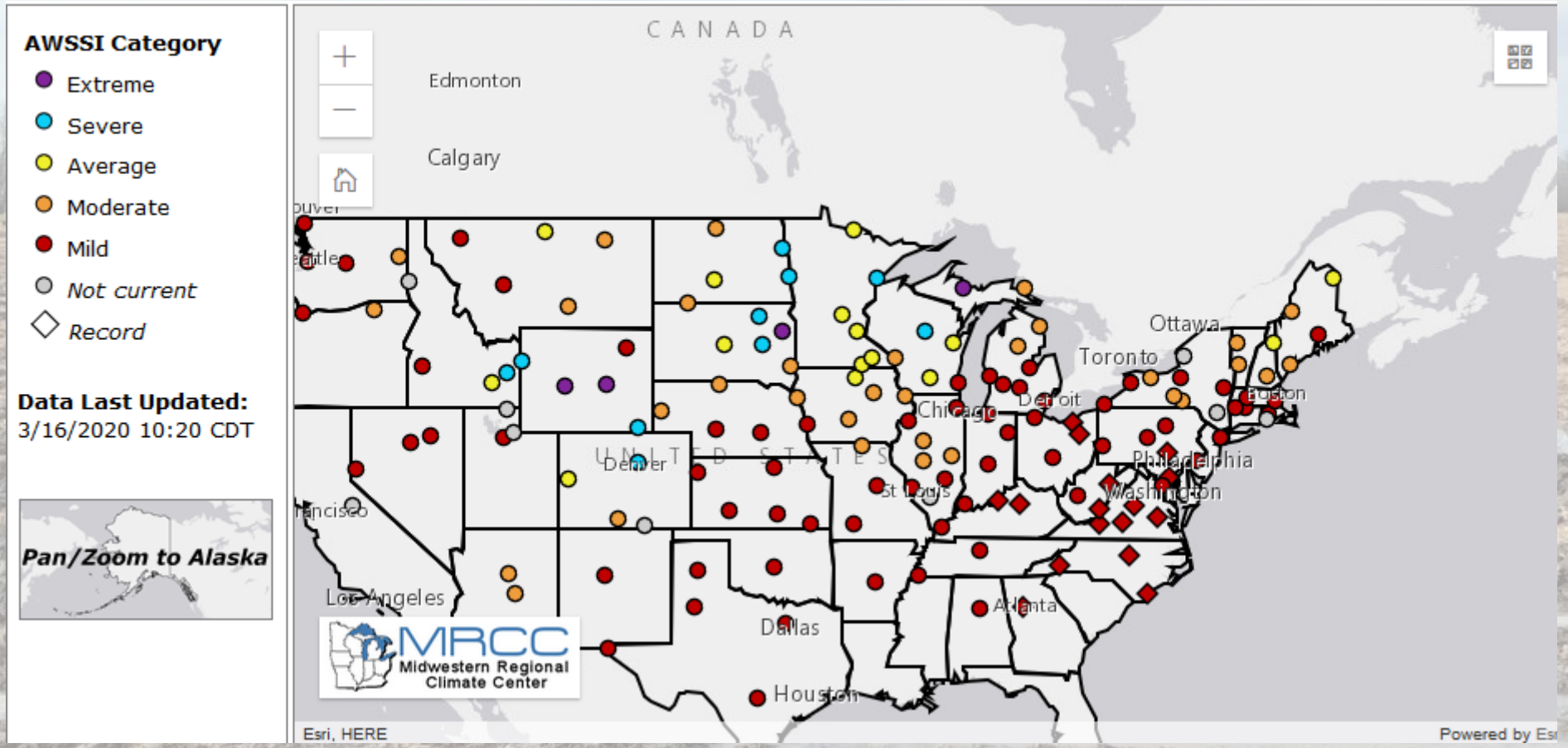


https://mrcc.illinois.edu/cliwatch/watch.htm#seasonMaps

Grand River, Lansing, MI 3/17/2020

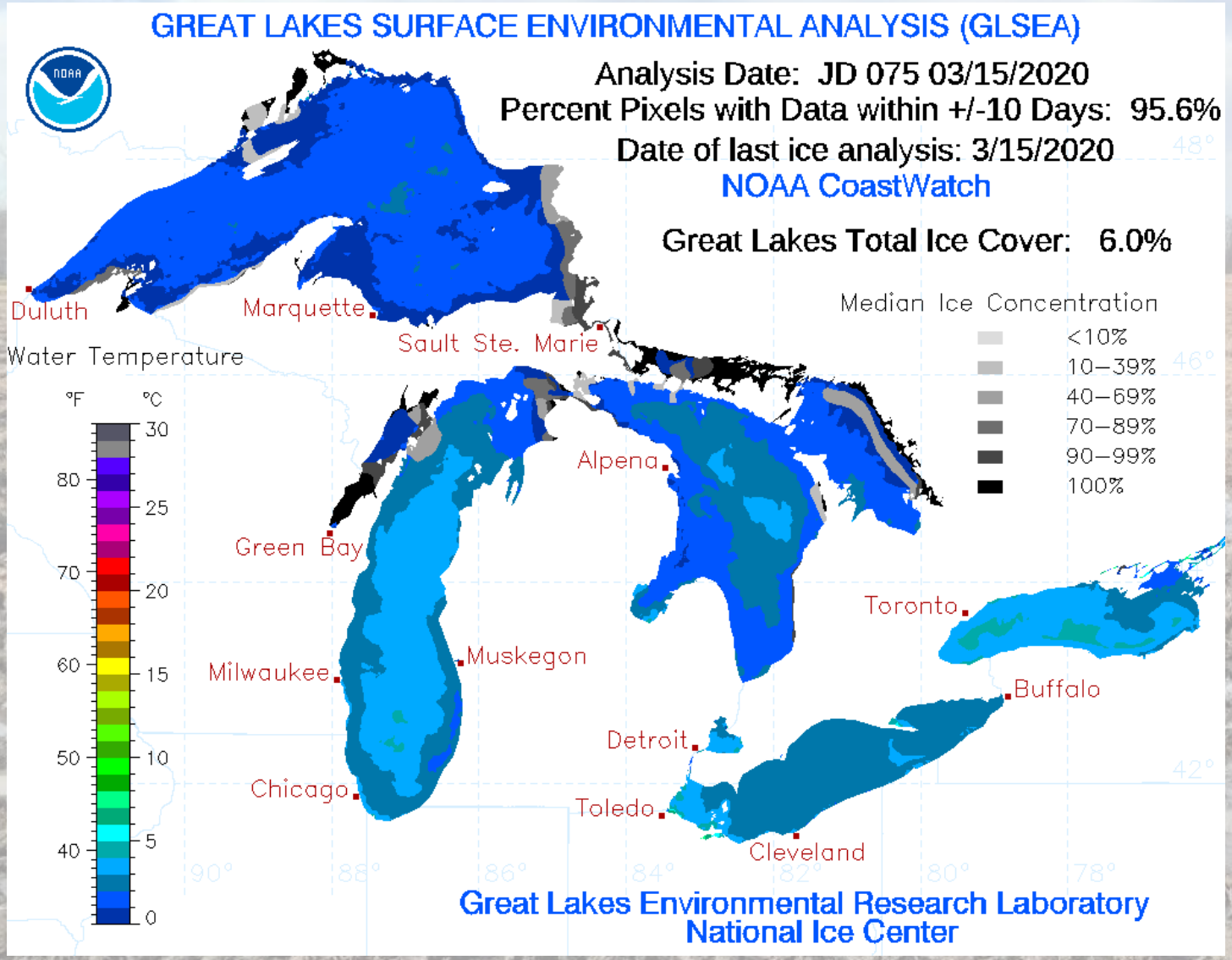
Impacts: Drier Start, Lots of Water Still There….

Winter Severity



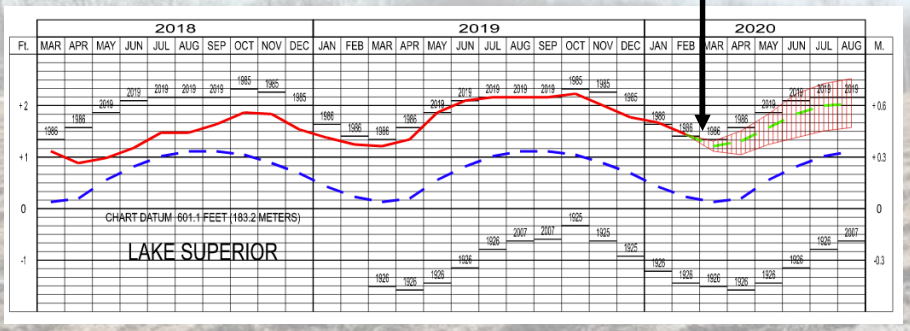
https://mrcc.illinois.edu/research/awssi/indexAwssi.jsp

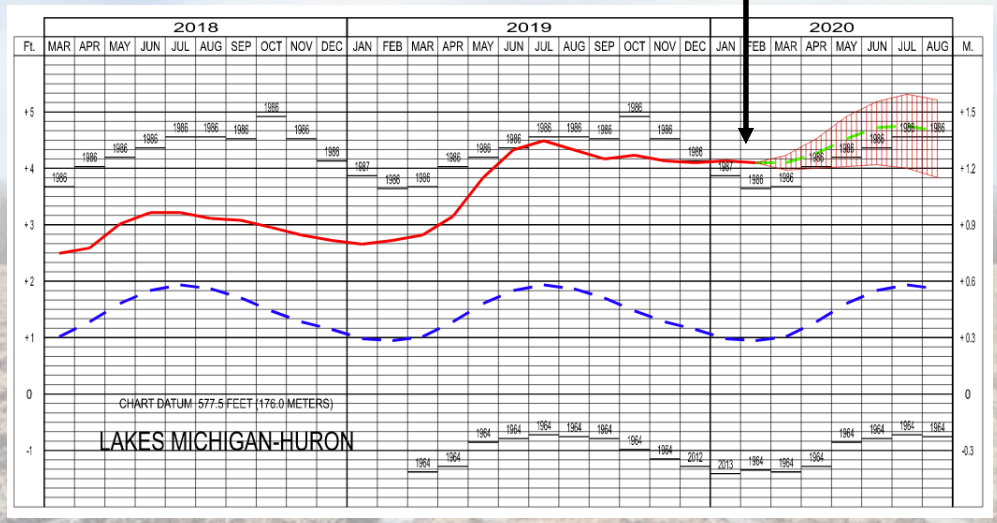
Great Lakes Ice Cover/Temps

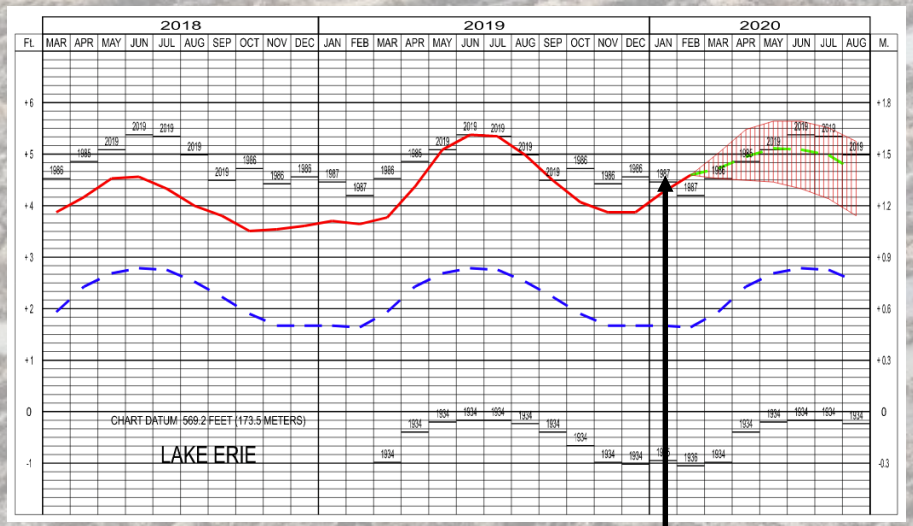


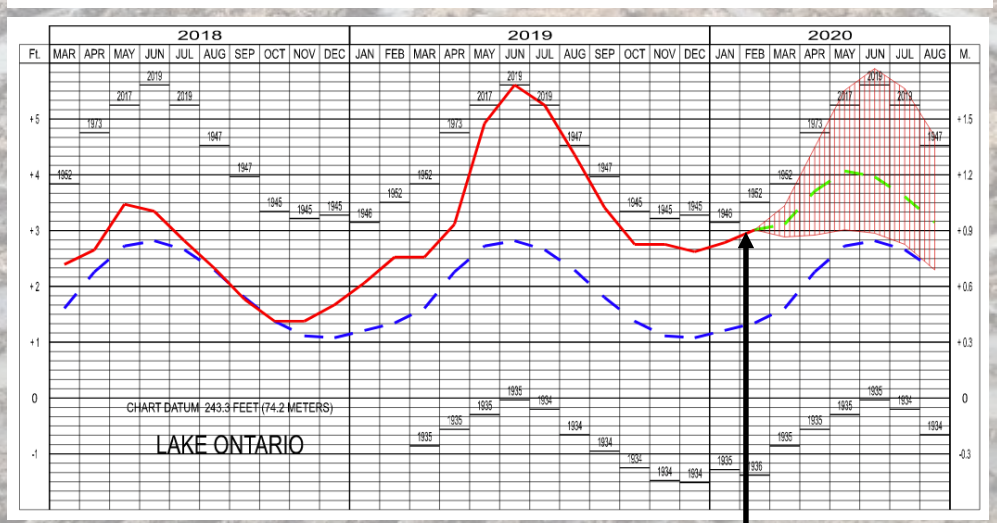
Great Lakes Water Levels

Arrows point to current level



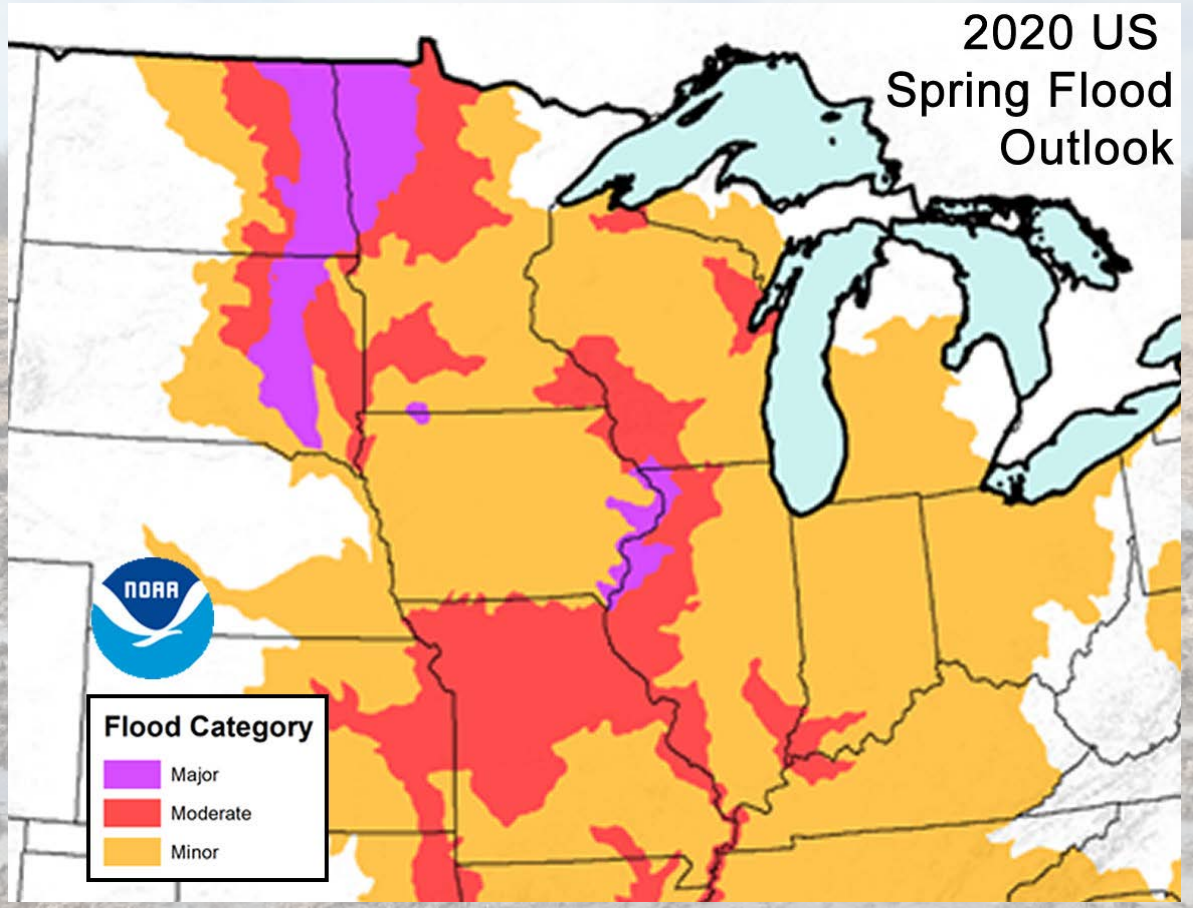






Rivers/Runoff/Flooding

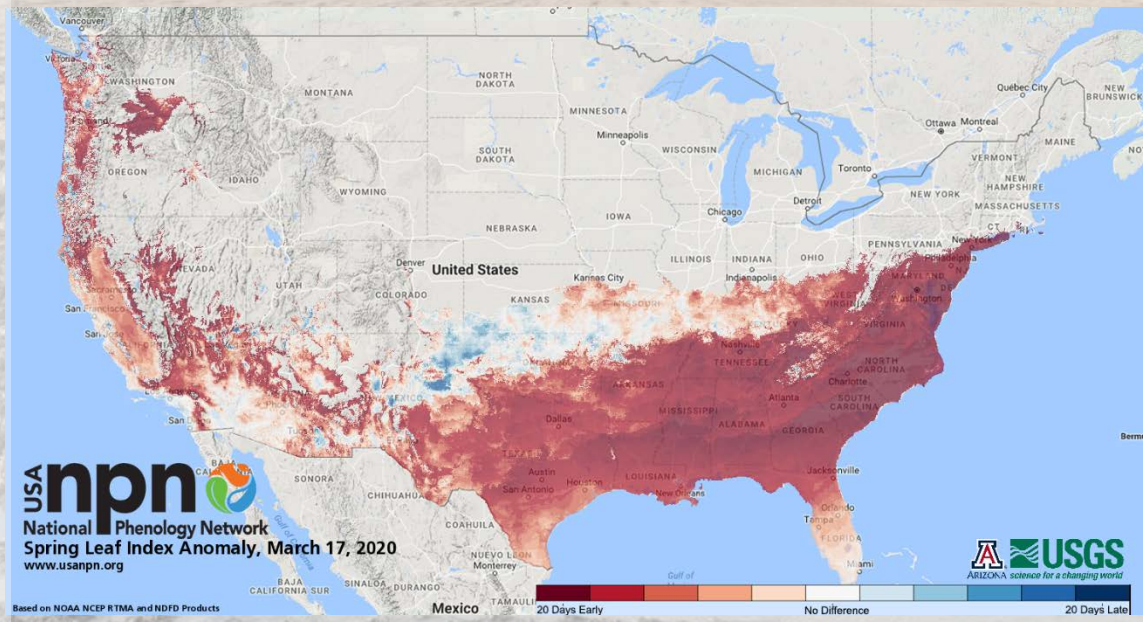
- Upper MO Basin February 2020 runoff was over two times the average February runoff volume.
- Great Lakes are above, at , or near record highs (Ontario somewhat lower)
- The James River did not drop below flood stage over the winter. It has gone over 350 days above flood stage.
- Essentially a lot of carryover from an extremely wet 2019



https://www.noaa.gov/media-release/us-spring-outlook-forecasts-another-year-of-widespread-river-flooding

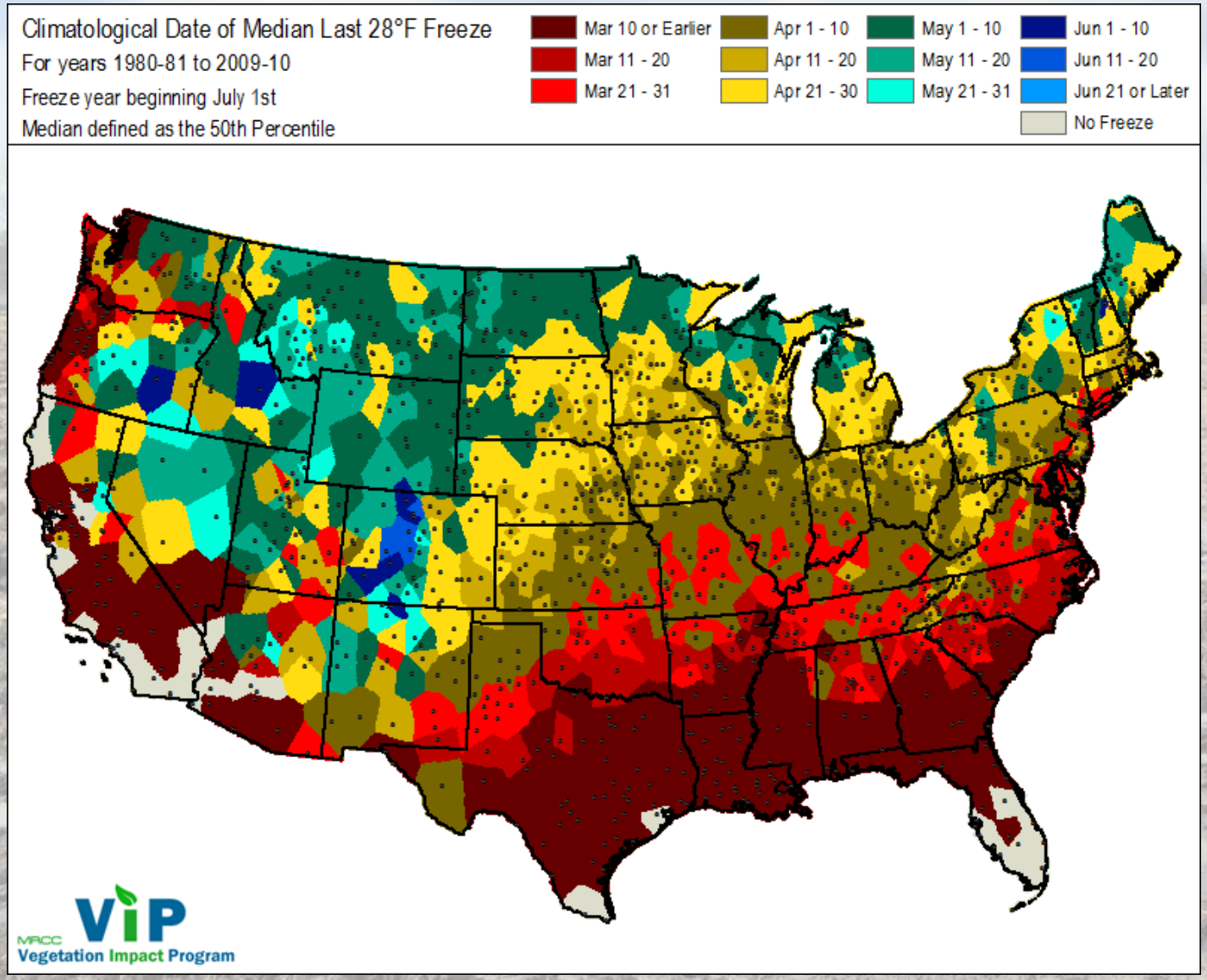
Agricultural Conditions

- 2019 Harvest continues in the northern plains. Harvest (as of February 29, 2020) in North Dakota reached 61% (corn) and 79% (sunflower).
- Green up of winter wheat, pasture, trees, horticultural plants across southern/eastern region.
- Some optimism for spring planting. Warming soils and lower precipitation facilitated slight drying of soils.
- SW portion of region dry. Concerns moving forward.
- Wet soils still have the potential to slow planting progress with even close to average precipitation amounts.



https://www.usanpn.org/files/npn/maps/six-leaf-index-anomaly.png

Median Last Hard Freeze Dates



https://mrcc.illinois.edu/VIP/frz_maps/freeze_maps.html#frzMaps

State Impacts

- Despite recent drier weather, a lot of standing water has been observed (IL,IN,KY). Some improvement has been noted in areas (NE,MN).
- Over-winter crops/trees breaking dormancy from recent warm temperatures (KS,IN,NE,OH,MO)
- Slow grass green-up and lots of residual fuel, increased fire risk. Some fires already occurred (NE,IA,IL,KS).
- Field operations starting to ramp up (IA, IL,IN, KS) but wet soils are still impacting start/progress.

Spring Soil Sampling, Springport, MI

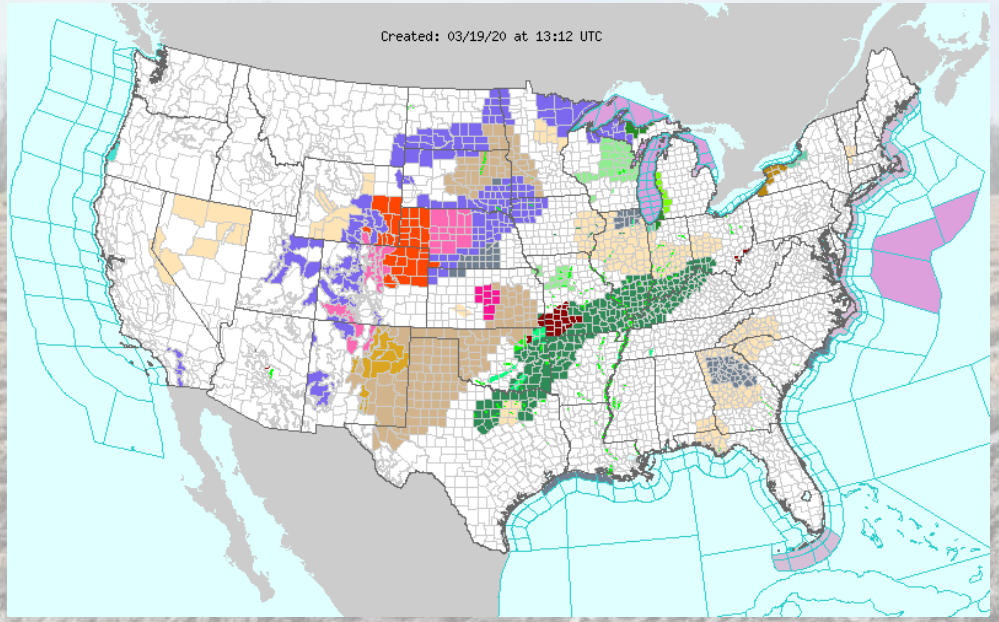
State Impacts (cont.)

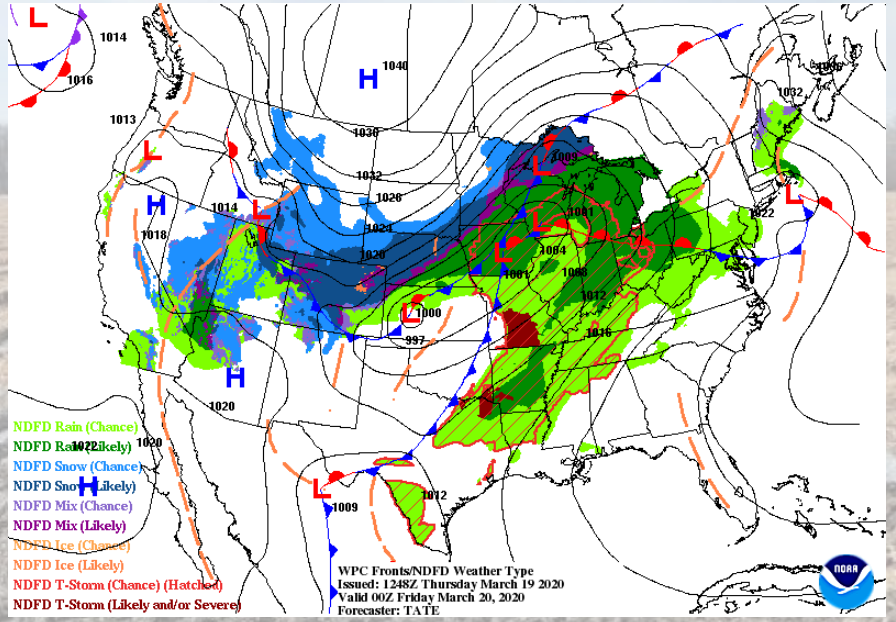
- Frost out in many locations as the season advances (NE,MN,MI)
- Increased transportation issues over last year along I-80 (WY)
- Farmers trying to get corn off before ground thaws are encountering hibernating bears (MN).
- High lake levels and shoreline flooding, erosion continue (MI,OH)
- Good calving weather (NE)
- Dry conditions (CO/w. KS). Requiring water hauling for cattle and irrigation for winter wheat

Lake Ontario 2019 International Joint Commission

Outlooks

Short Term Hazards

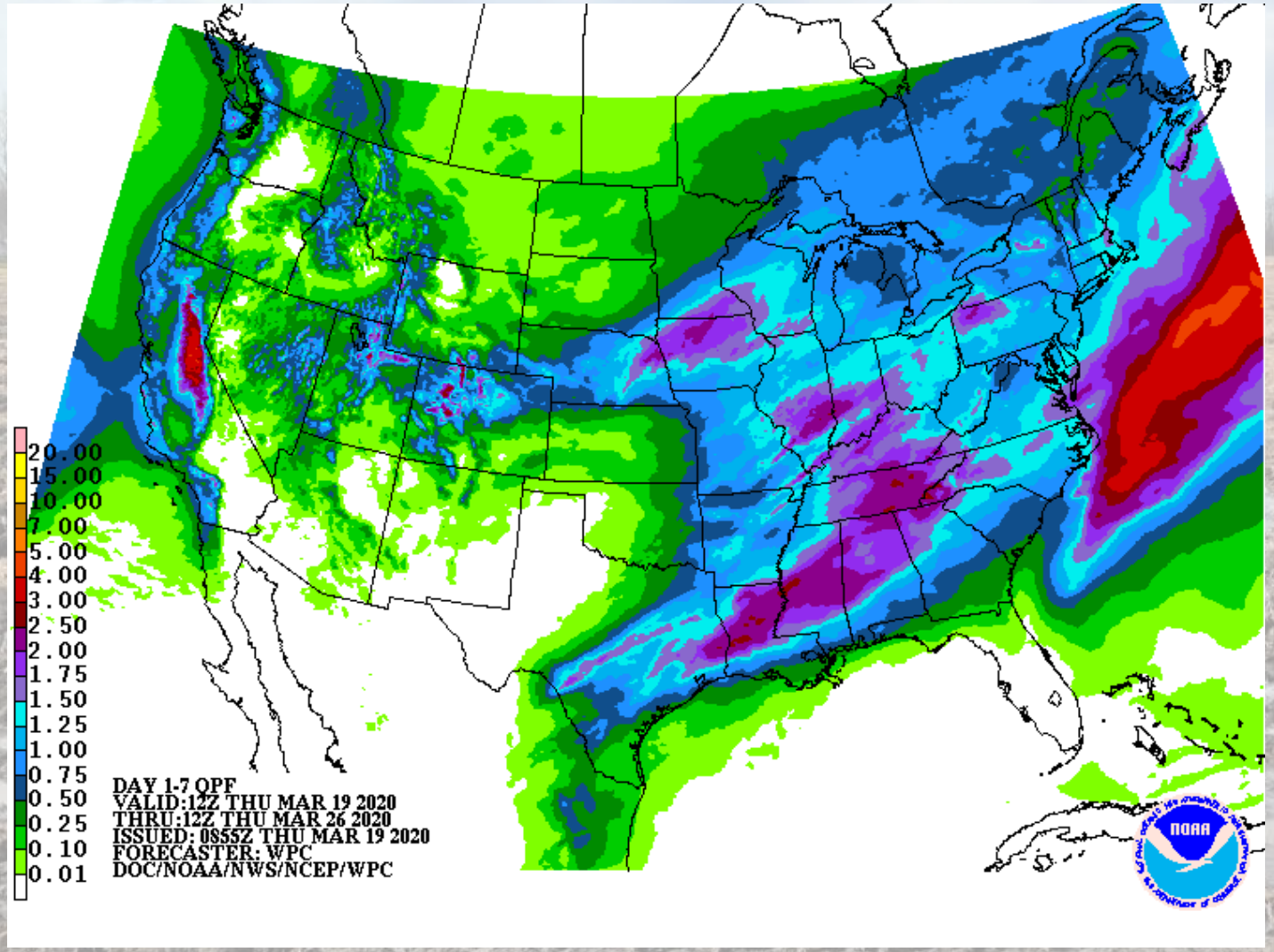




http://www.weather.gov/

7-day Quantitative Precipitation Forecast

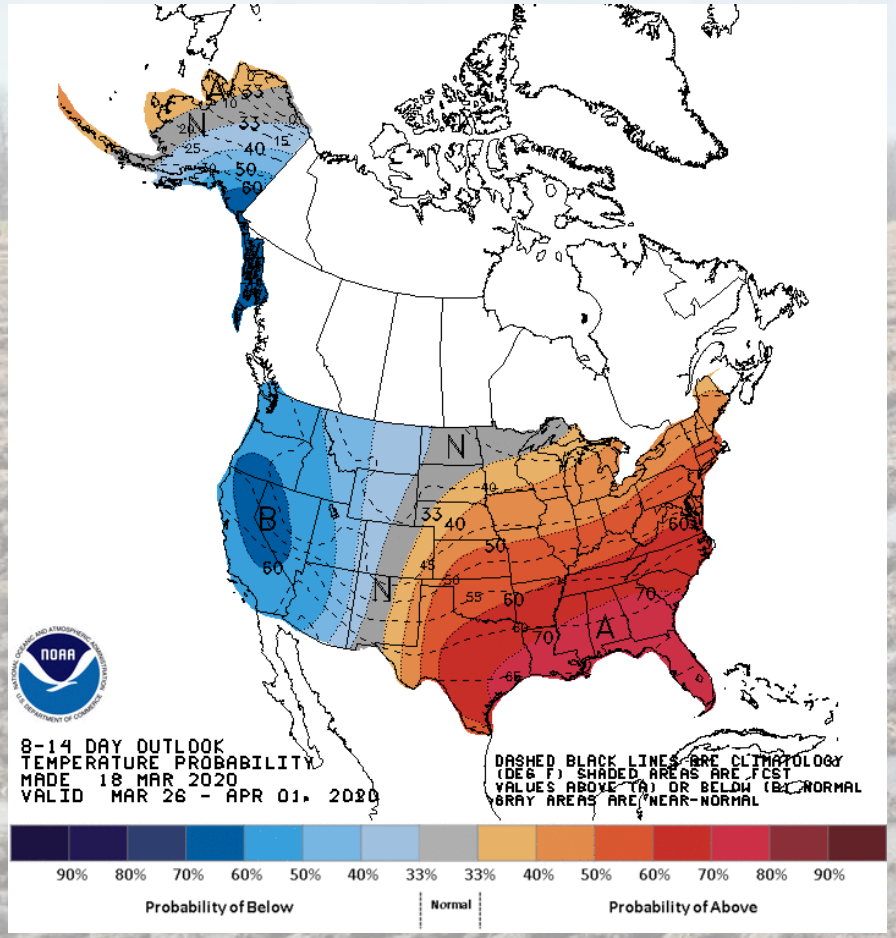
Valid: 7 AM THU 19 MAR – 7 AM THU 26 MAR 2020

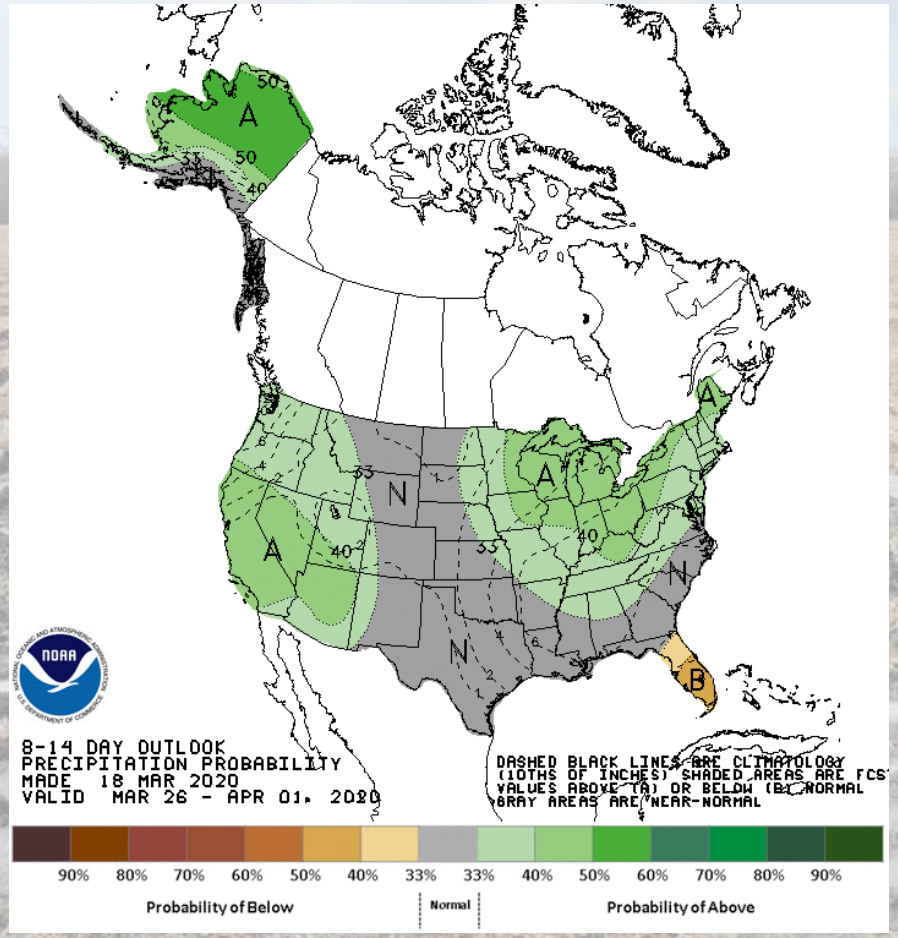


http://www.wpc.ncep.noaa.gov/qpf/day1-7.shtml

Temperature and Precipitation Outlook

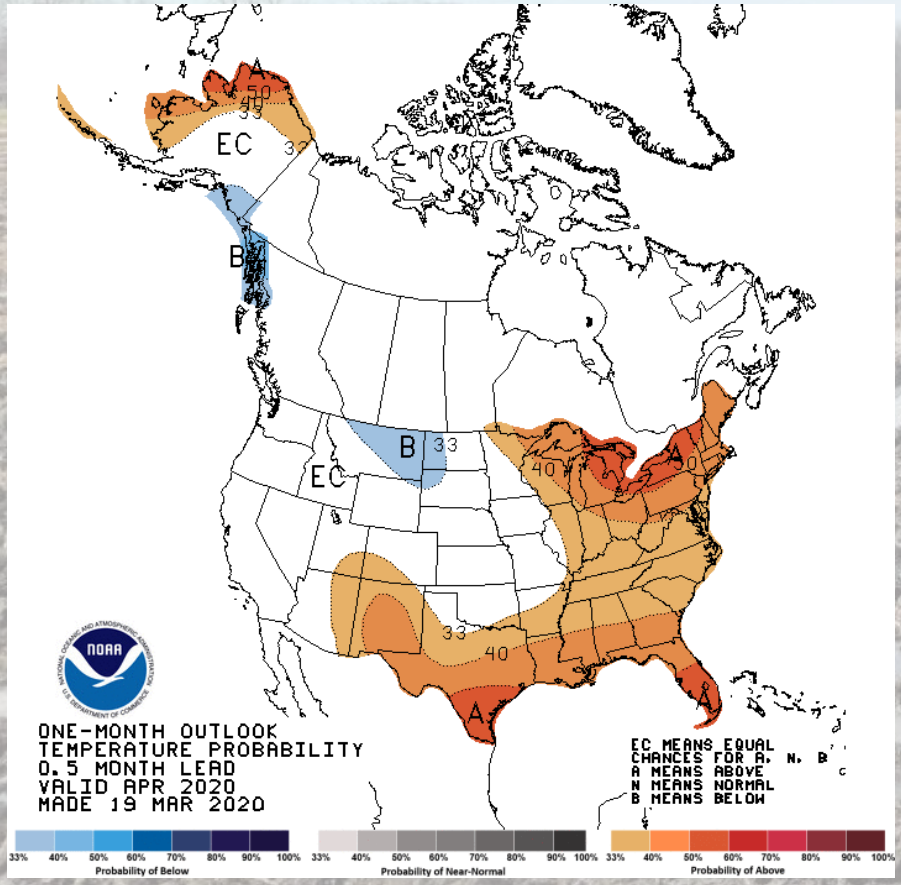
26 MAR – 1 APR 2020

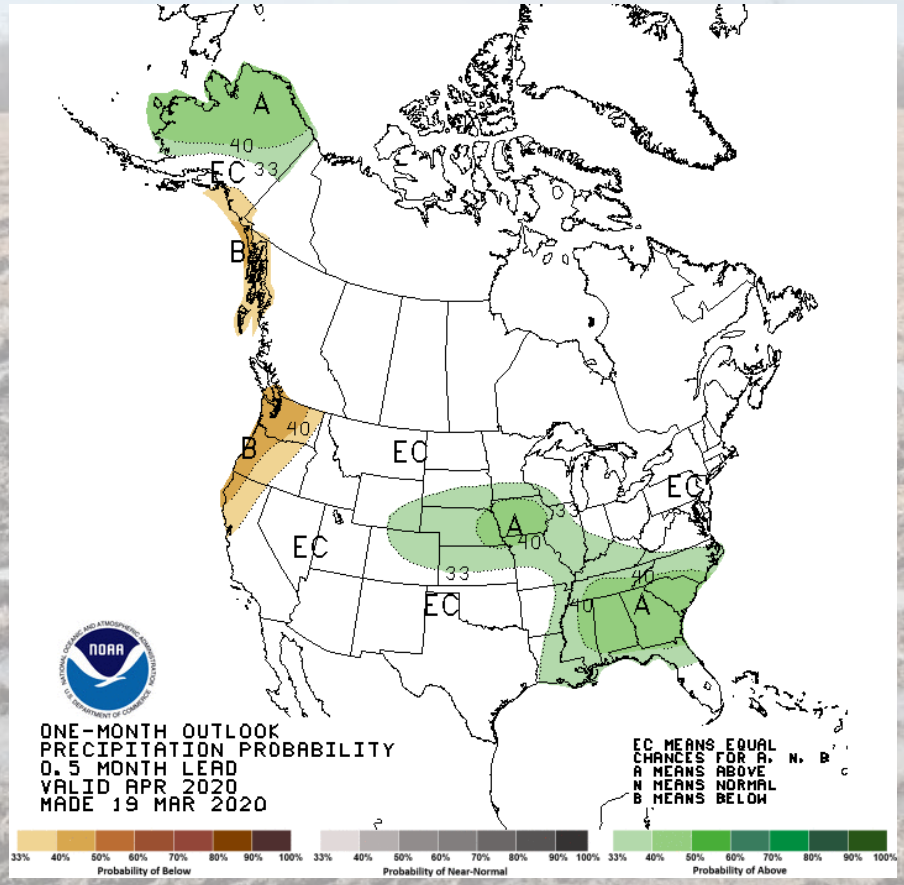




http://www.cpc.ncep.noaa.gov/products/predictions/814day/index.php

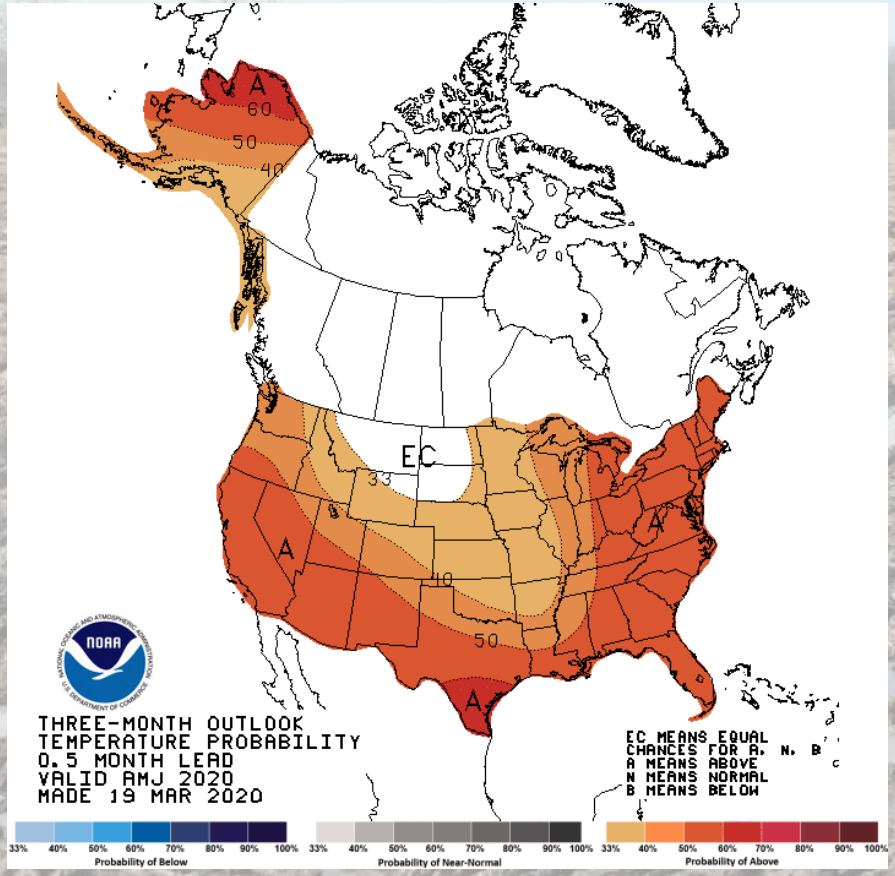
NOAA CPC
30-Day Outlook
APR 2020

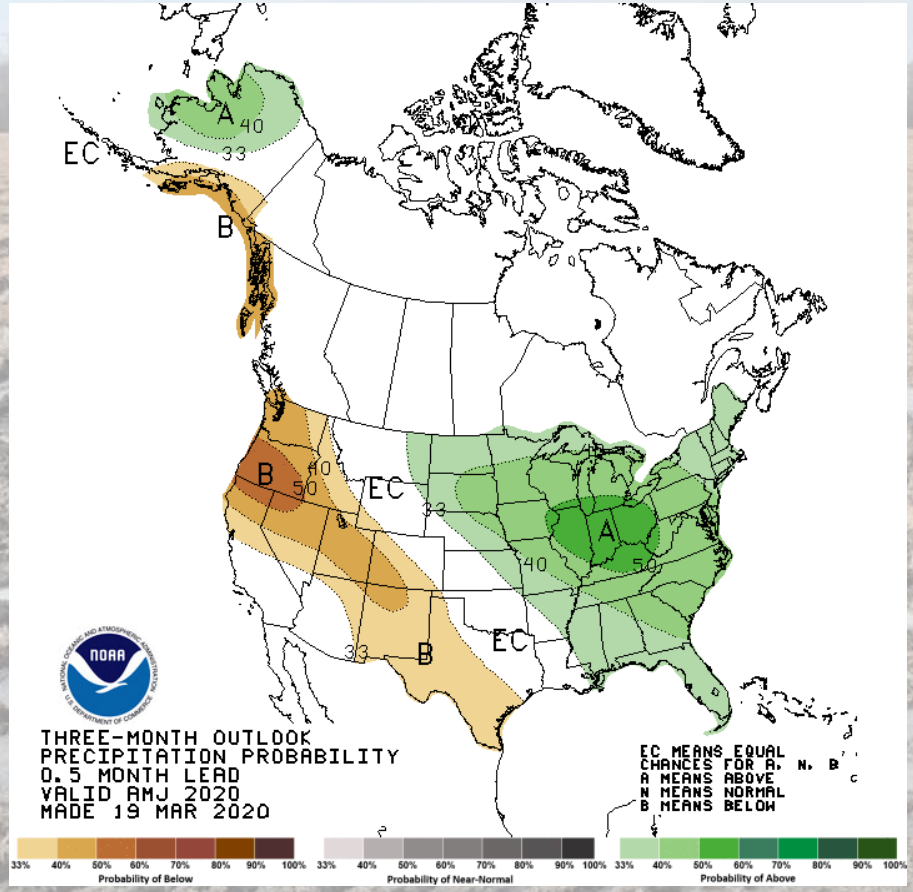




https://www.cpc.ncep.noaa.gov/products/predictions/30day/

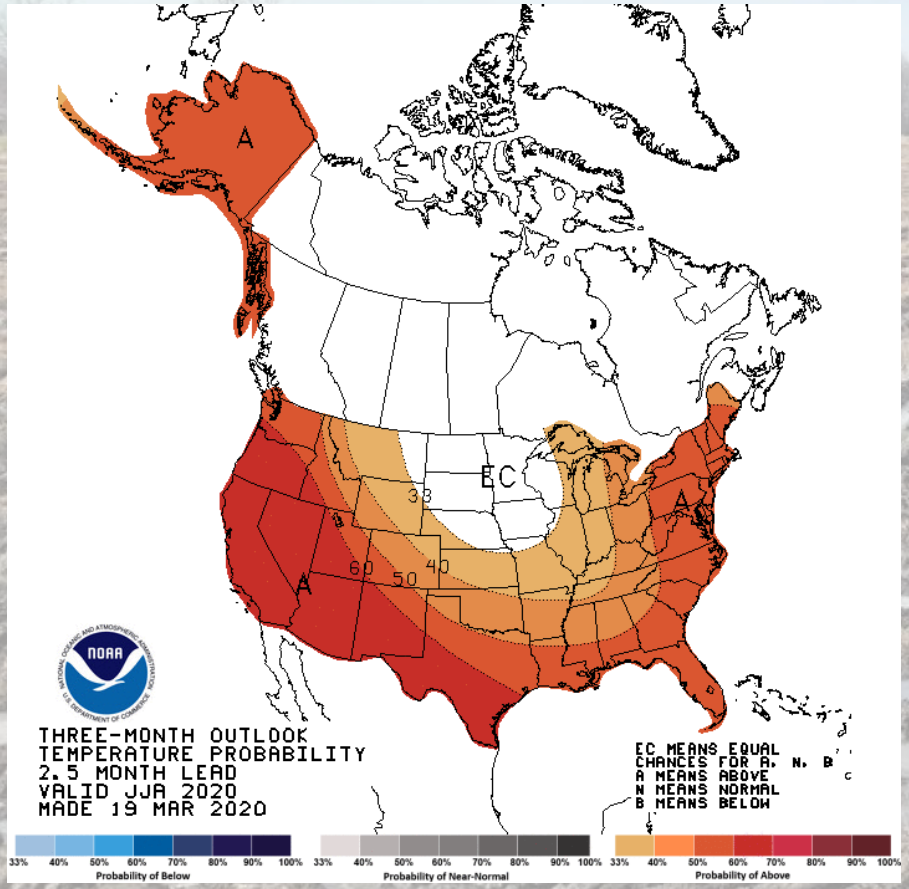
NOAA CPC Seasonal Outlook APR-JUN 2020

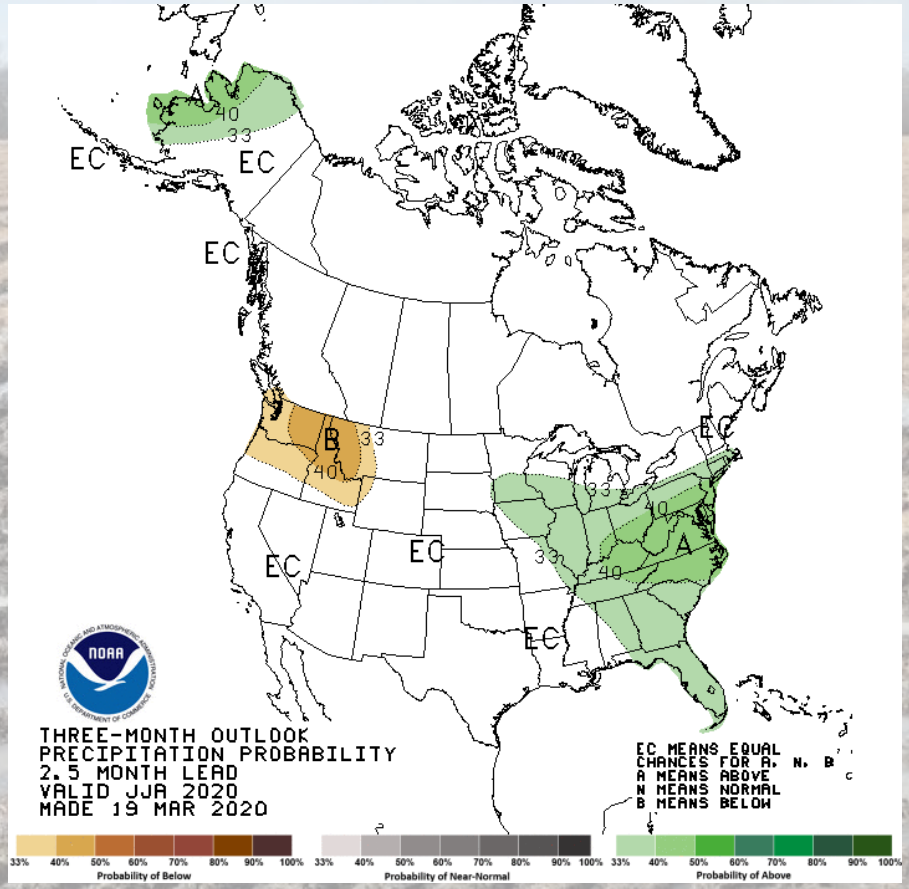




https://www.cpc.ncep.noaa.gov/products/predictions/long_range/

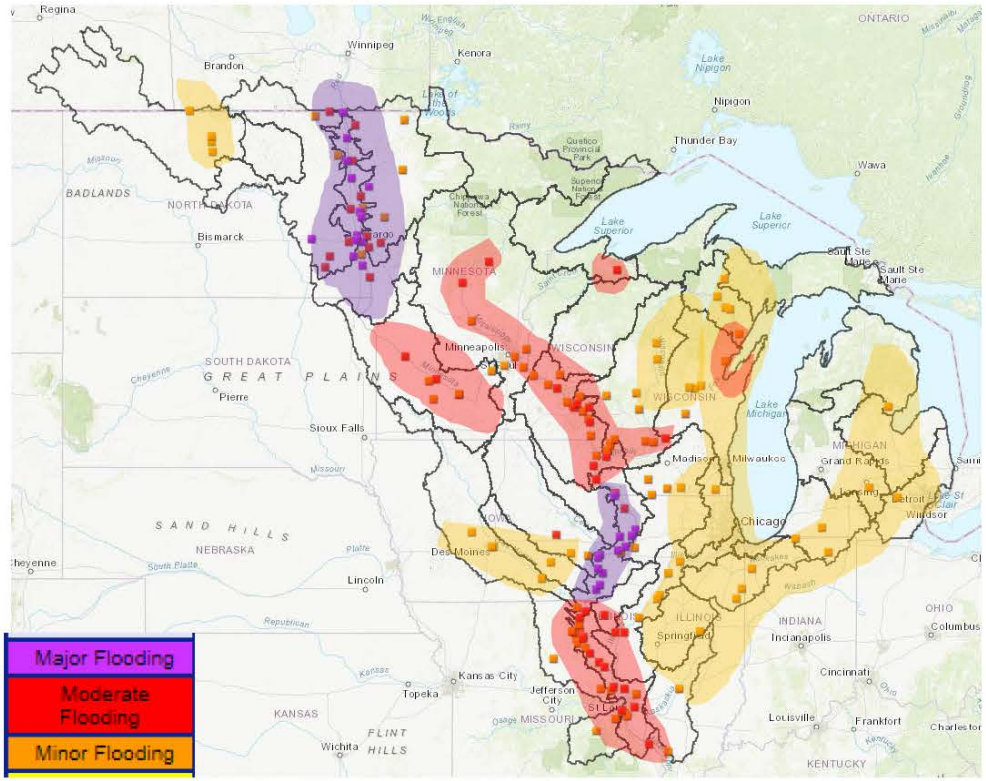
NOAA CPC Seasonal Outlook JUN-AUG 2020





https://www.cpc.ncep.noaa.gov/products/predictions/long_range/

Flood Outlook: Upper Mississippi Basin



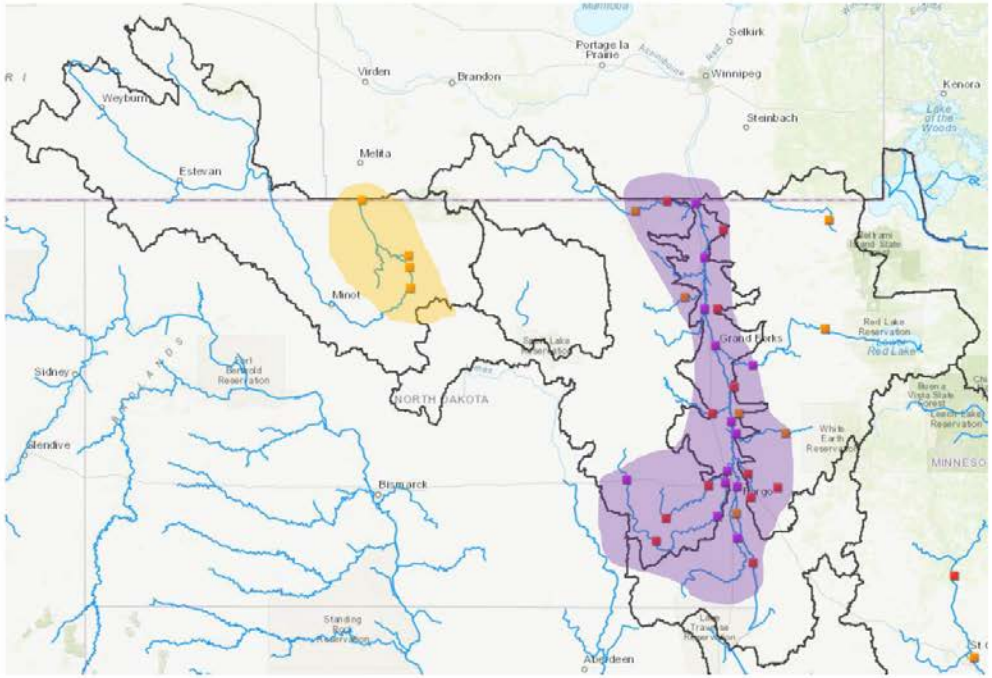
- **Current condition simulations:**
  68 forecast points with >50% chance of significant flooding. (Moderate and Major) (*was 103*)
- **24 Major flood stage (*was 42*) ↓**
- **43 Moderate flood stage (*was 60*) ↓**
- **Mississippi River Drainage Area: 42 points**
- **Hudson Bay Drainage Area: 25 points**
- **Great Lakes Drainage Area: 1 point**

Bottom Line: Continued Elevated Risk of Widespread Significant Flooding

NATIONAL WEATHER SERVICE

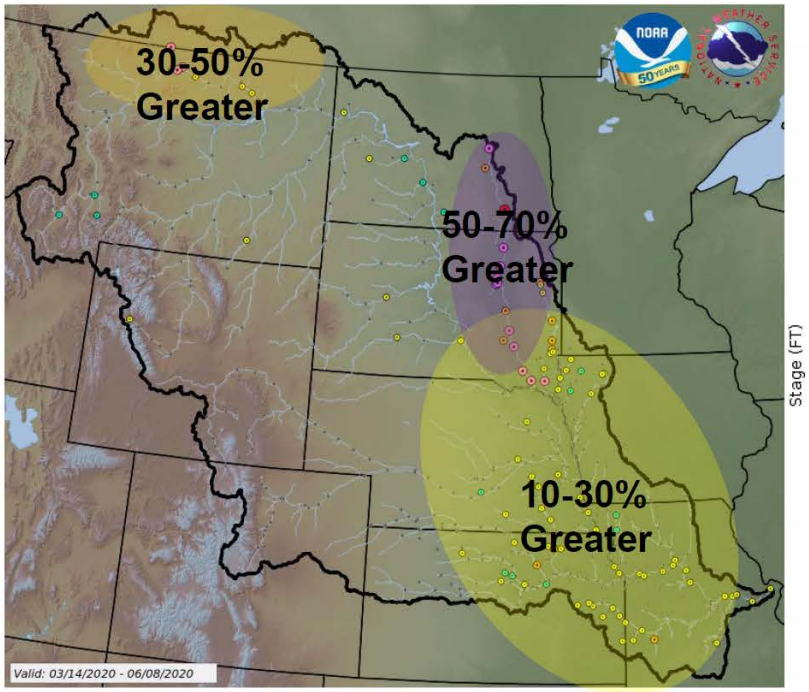
Building a Weather-Ready Nation

Flood Outlook: Red River of the North Basin



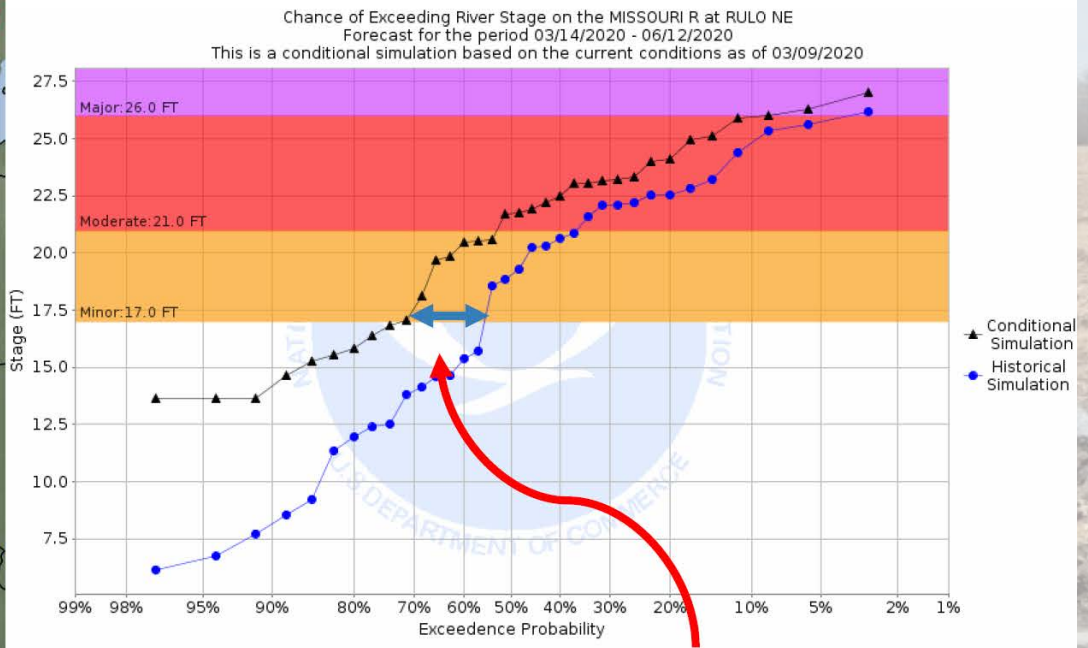
- Primary concern remains to be Red River of the North.
- Widespread >50% chance of Major and Moderate flooding.
- Minor flooding potential in the Souris.

Flood Outlook: Missouri Basin



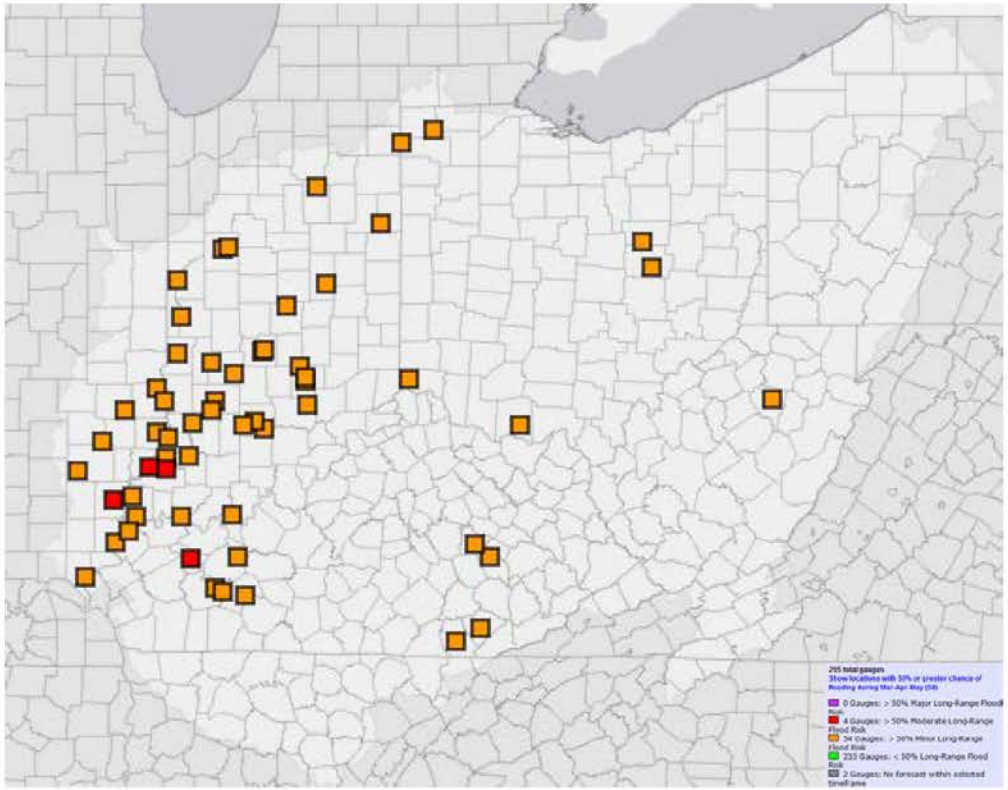
Percent Difference of Reaching Minor Flooding Compared to Historical Average

- -100% to -70%
- -69% to -50%
- -49% to -30%
- -29% to -10%
- -9% to 9%
- 10% to 29%
- 30% to 49%
- 50% to 69%
- 70% to 100%



16 percent increase in chance to reach flood stage during next 3 months

Flood Outlook: Ohio and Cumberland Basins

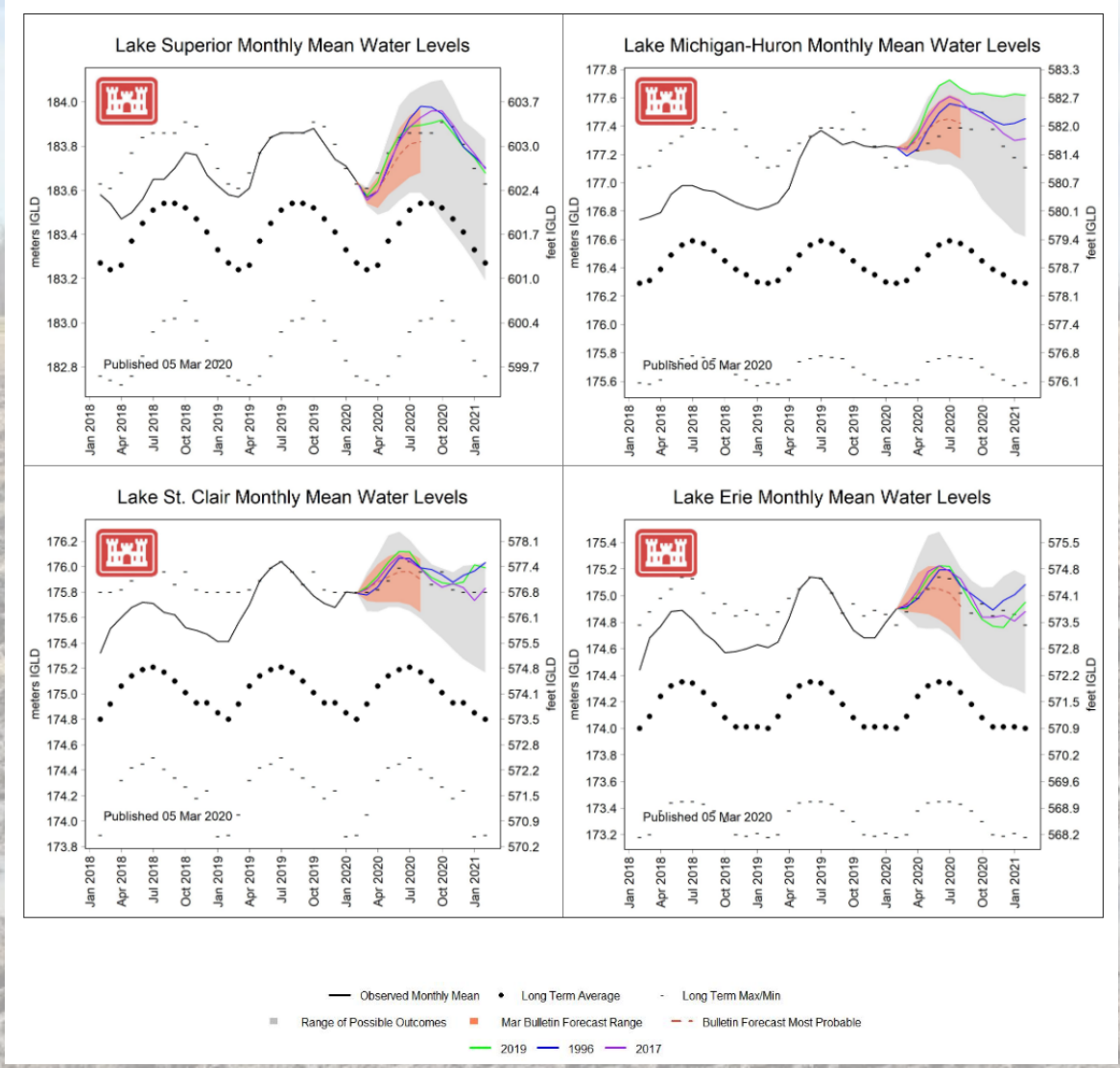


https://water.weather.gov/ahps/region_long_range.php?rfc=ohrfc&percent=50

50% or Greater Chance of Flooding
Valid through May 2020

- **Widespread minor flooding and some moderate flooding is still expected (>50%) through spring in Ohio River basin.**
- **Greatest risk is in the western and southern basin.**

USACE Great Lakes Outlooks



https://www.lre.usace.army.mil/Missions/Great-Lakes-Information/Great-Lakes-Water-Levels/Water-Level-Forecast/Water-Level-Outlook/

Summary

- Highly variable rainfall during the past several weeks has resulted in a wide range of current conditions ranging from excessive wetness and flooding across portions of the Great Lakes and Ohio Valley to severe drought in the northern Great Plains. Crop conditions also vary widely across the region.
- Temperatures during the past several weeks have generally ranged from near to above normal levels.
- Short and medium range forecast guidance suggests a continued active weather pattern across large sections of the region with above normal mean temperatures and precipitation totals.
- Long lead outlooks call for increased likelihood of warmer and wetter than normal weather for much of the spring season. Outlooks for the summer season suggest warmer than normal mean temperatures east and south, with EC elsewhere. Increased likelihood of above normal summer precipitation totals for central and eastern sections, with EC elsewhere.
- Due to continued abnormally wet soils, flooding risks are greater than normal across portions of the region, esp. the Red, and mid-upper Mississippi River Valleys.
- The Great Lakes are expected to remain at near or above record levels into the summer, with shoreline flooding and erosion problems continuing.

Further Information - Partners

- **Today's and Past Recorded Presentations:**
- http://mrcc.isws.illinois.edu/webinars.htm
  http://www.hprcc.unl.edu
- NOAA's National Centers for Environmental Information: 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
  - https://mrcc.illinois.edu
  - http://www.hprcc.unl.edu


Upcoming Events:
Great Lakes Climate and Lake Levels Update and Outlook
Mon, Apr 13, 2020 11:00 AM - 12:00 PM EDT
Register at:
https://attendee.gotowebinar.com/register/2805844127483824140

Thank You and Questions?

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