



2022 Spring Flood Outlook

March 10, 2022
11:31 AM

Covering the Upper Mississippi, Minnesota, and Chippewa (WI) basins and tributaries

Key Messages

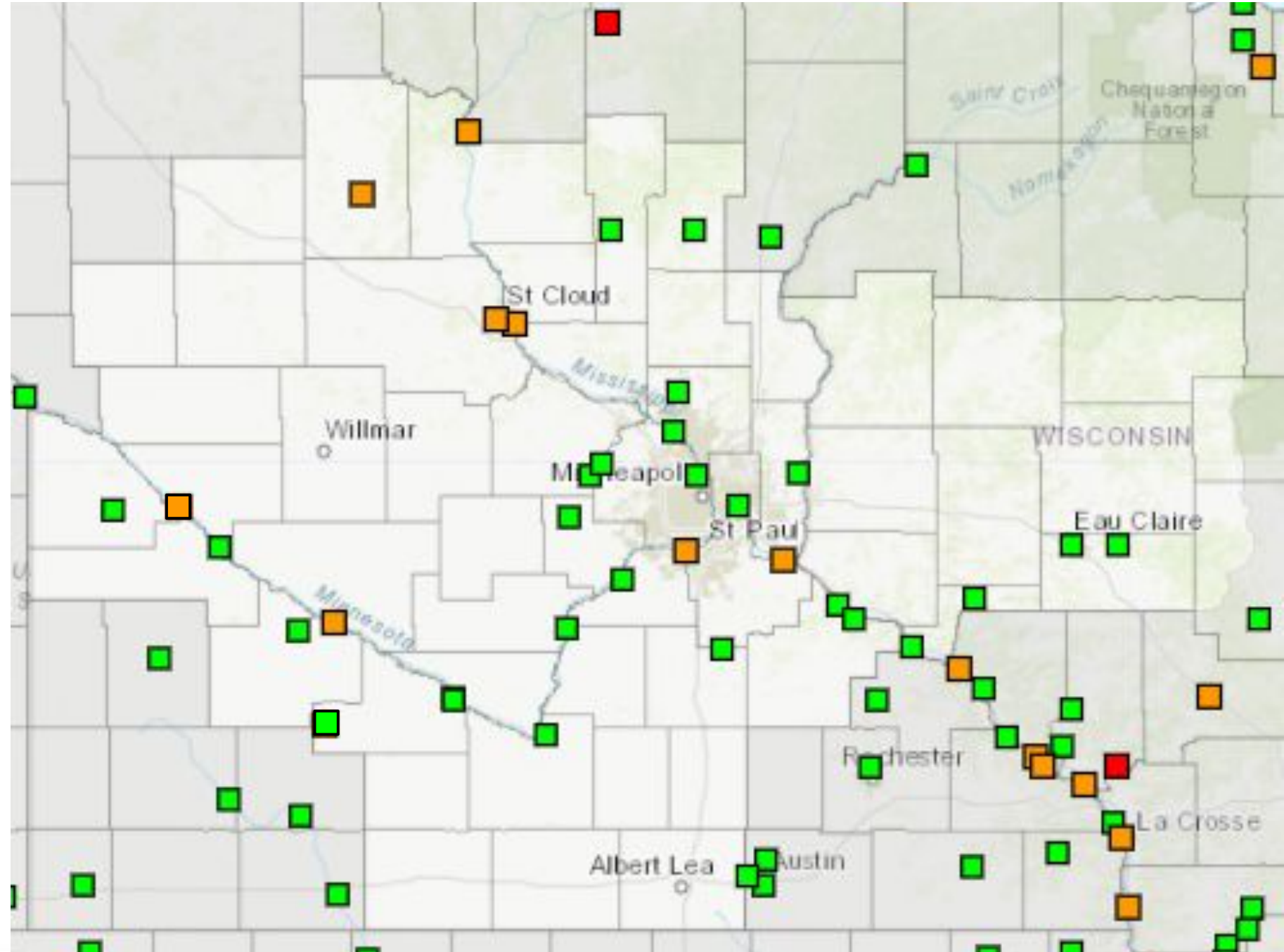
- The latest spring flood outlook for the Twin Cities service area is still **Average/Normal**.
- Nearly every spring flood parameter is near what we'd expect for early March.
- The headwaters of the Mississippi have a robust snowpack, but there is also plenty of room to intercept runoff due to the recent drought.

Important Updates

- There has been little change to the probability for flooding throughout the region
- The CPC Drought Outlook flipped again, and now shows improvement for central/southern MN and WI (pg 4).

Next Scheduled Briefing

- This is the final scheduled spring outlook

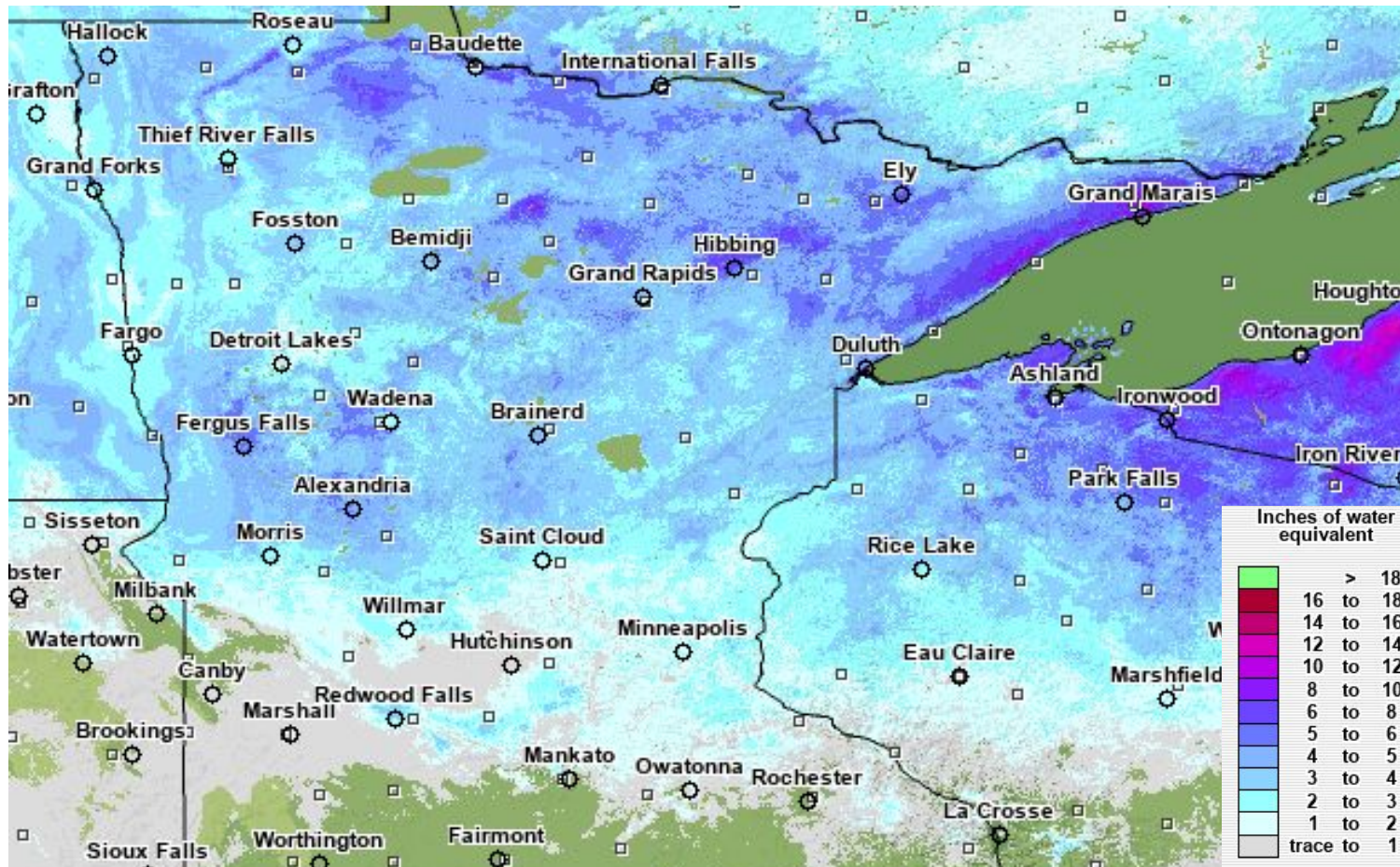




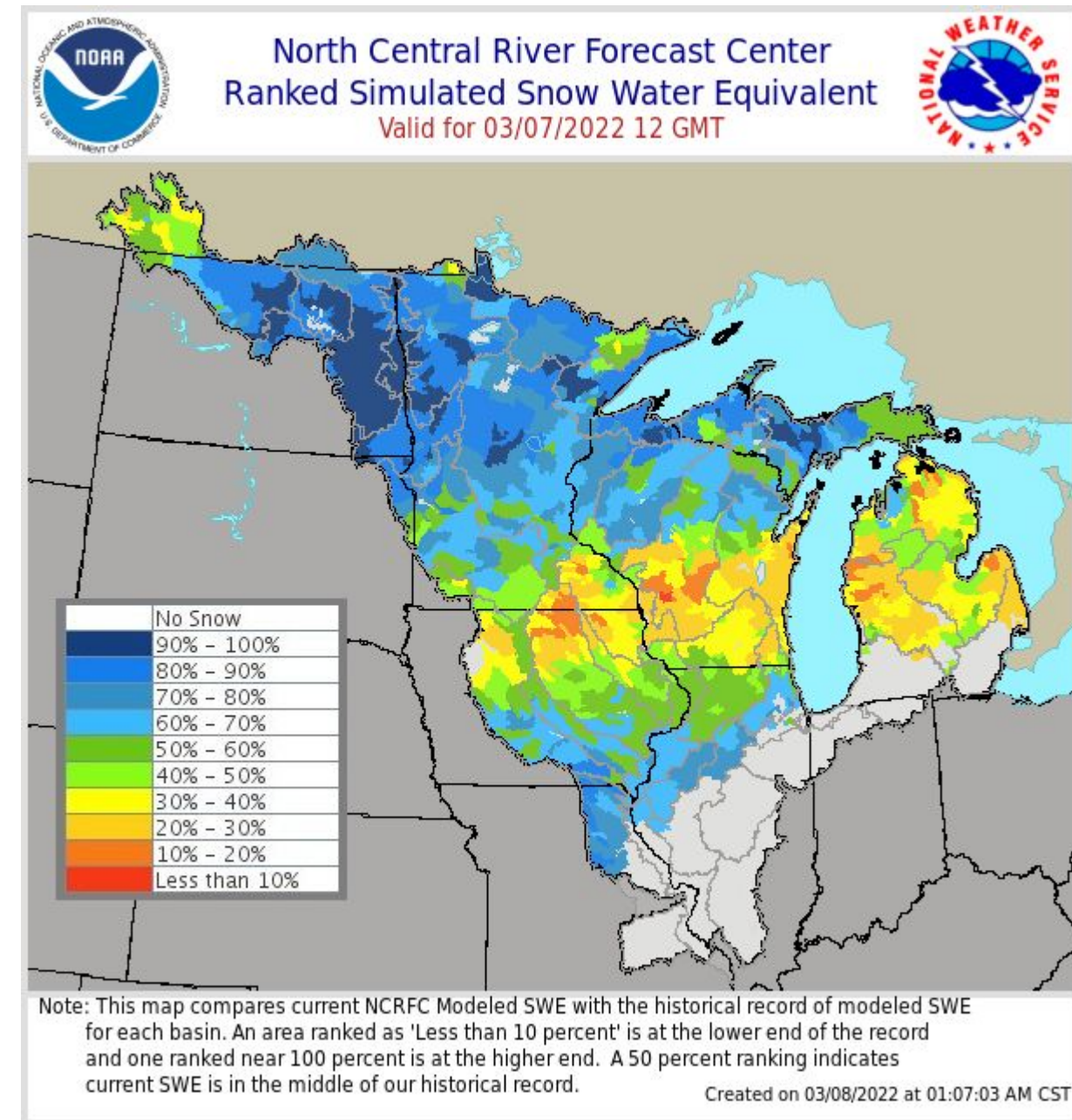
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Snow Water Equivalent (SWE)



We'll start with modeled Snow Water Equivalent (SWE) (above) around 2-5 inches north and 0.5-2 inches south. These are now slightly above normal for much of the Mississippi and Minnesota headwaters, but not significantly.





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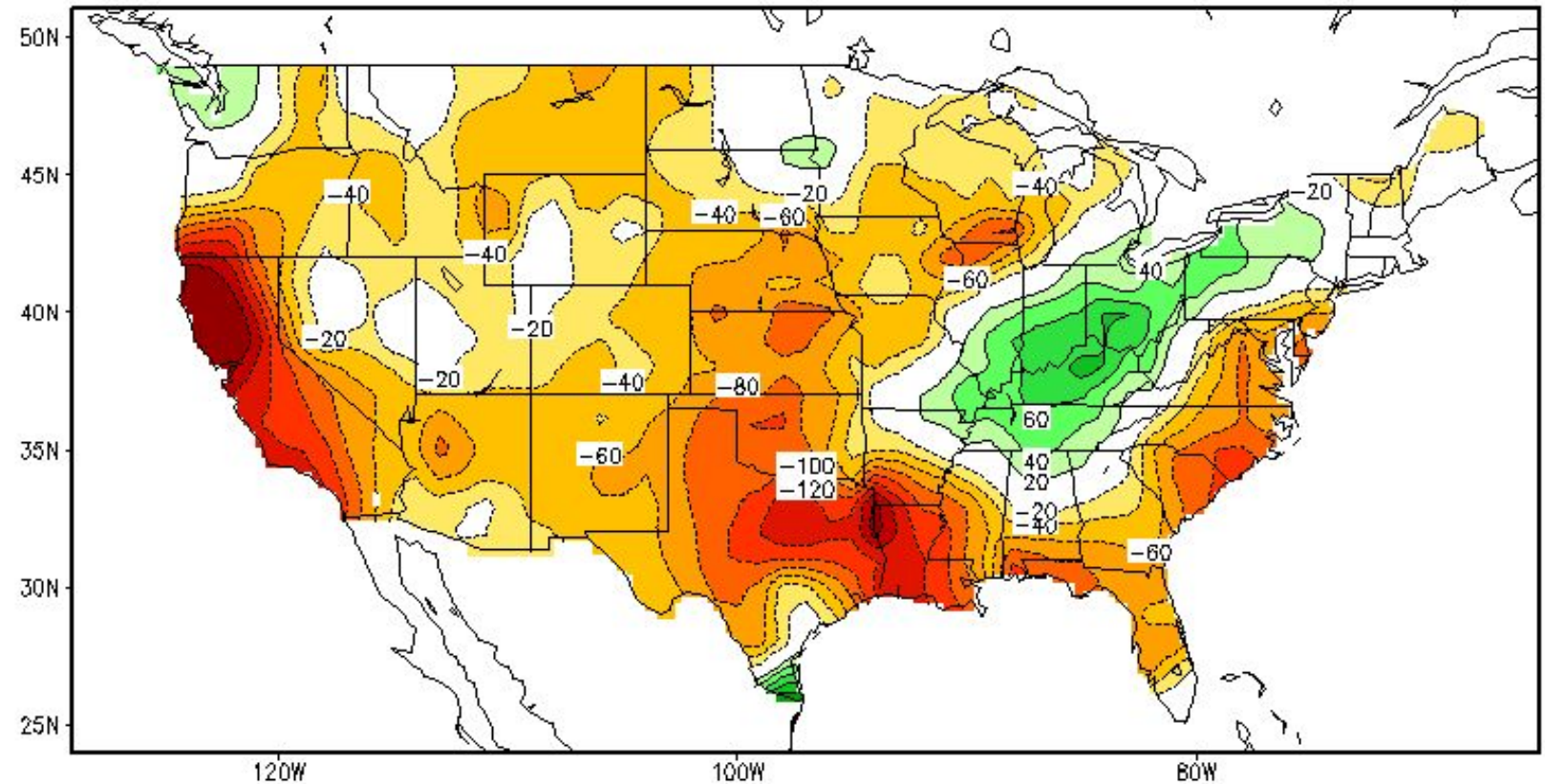
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Soil Moisture and Frost Depth

The increased precipitation last autumn resulted in improved soil moisture conditions before freeze-up this year; while there is still a small deficit over most of the area, it has improved greatly since mid summer.

Frost Depth (not shown) is also very much near normal for mid March over the entire area, with most readings showing from 18 to 30 inches of frost in the soil.

Calculated Soil Moisture Anomaly (mm)
MAR 08, 2022





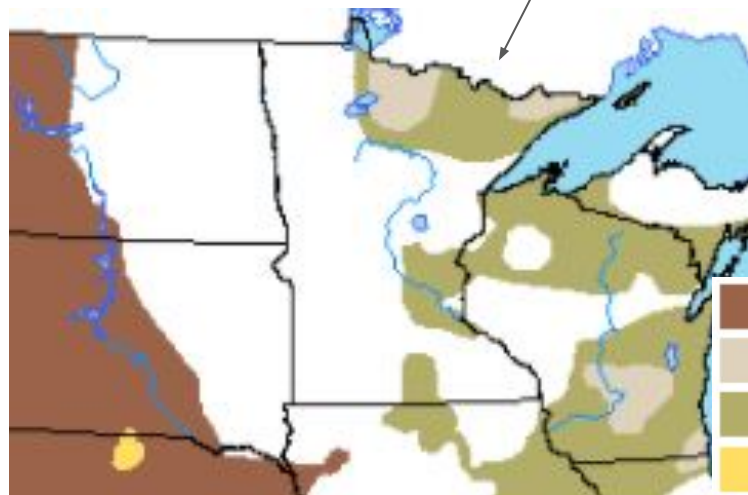
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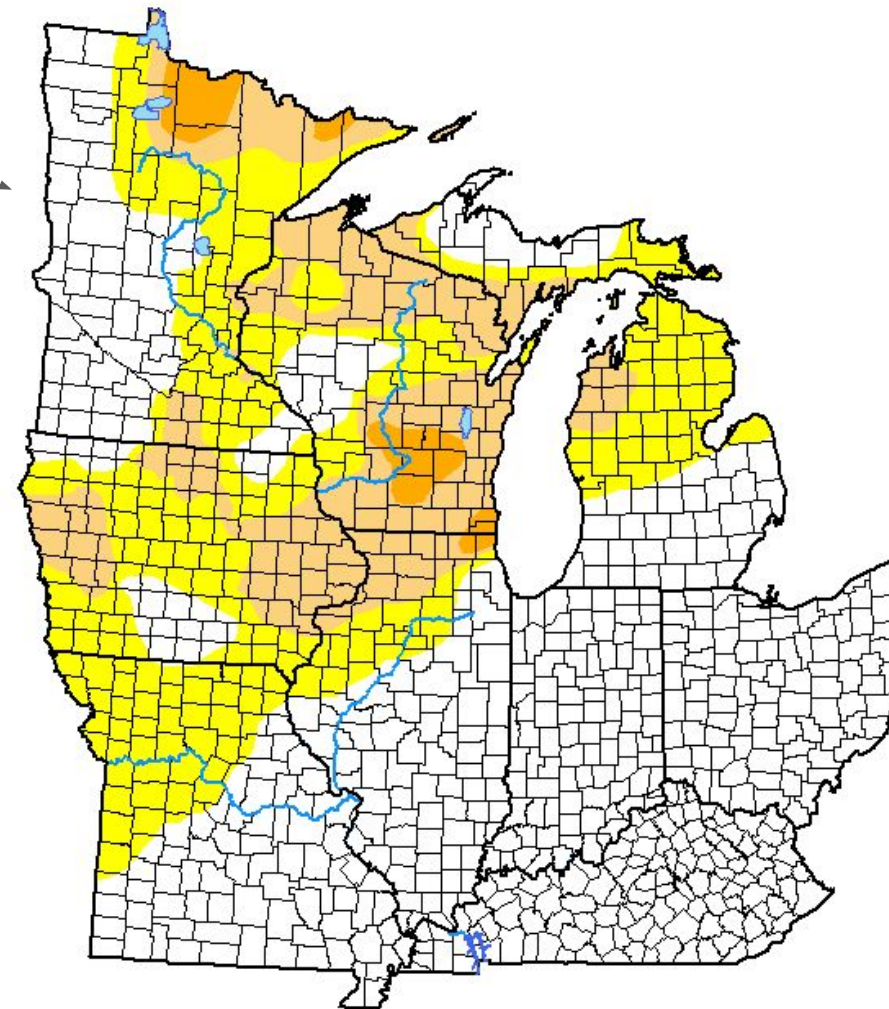
Drought

While the drought has improved since summer, there remains minor to moderate drought from eastern Minnesota into much of Wisconsin. These areas of drought have decreased in the last month.

The Climate Prediction Center outlook changed again...now forecasts improvement over the entire area through the spring.



U.S. Drought Monitor Midwest



March 8, 2022
(Released Thursday, Mar. 10, 2022)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	57.04	42.96	17.60	2.10	0.00	0.00
Last Week 03-01-2022	54.95	45.05	19.34	2.28	0.00	0.00
3 Months Ago 12-07-2021	60.60	39.40	17.44	4.88	0.23	0.00
Start of Calendar Year 01-04-2022	63.32	36.68	15.25	2.41	0.00	0.00
Start of Water Year 09-28-2021	57.44	42.56	23.36	12.29	4.16	0.00
One Year Ago 03-09-2021	46.93	53.07	11.59	1.24	0.33	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:

Brian Fuchs
National Drought Mitigation Center



droughtmonitor.unl.edu





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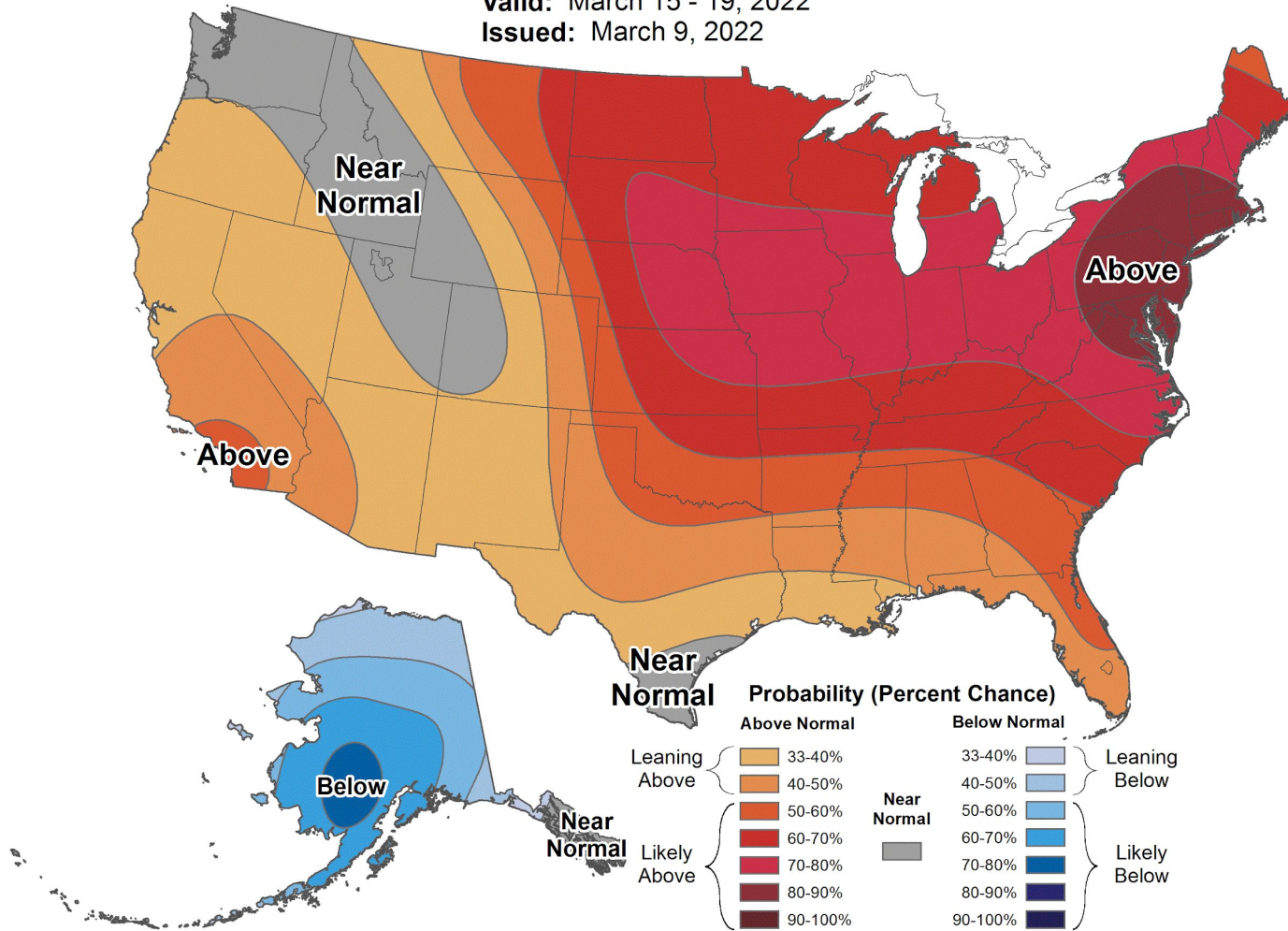
Climate Prediction Center Outlook for Next Week



6-10 Day Temperature Outlook



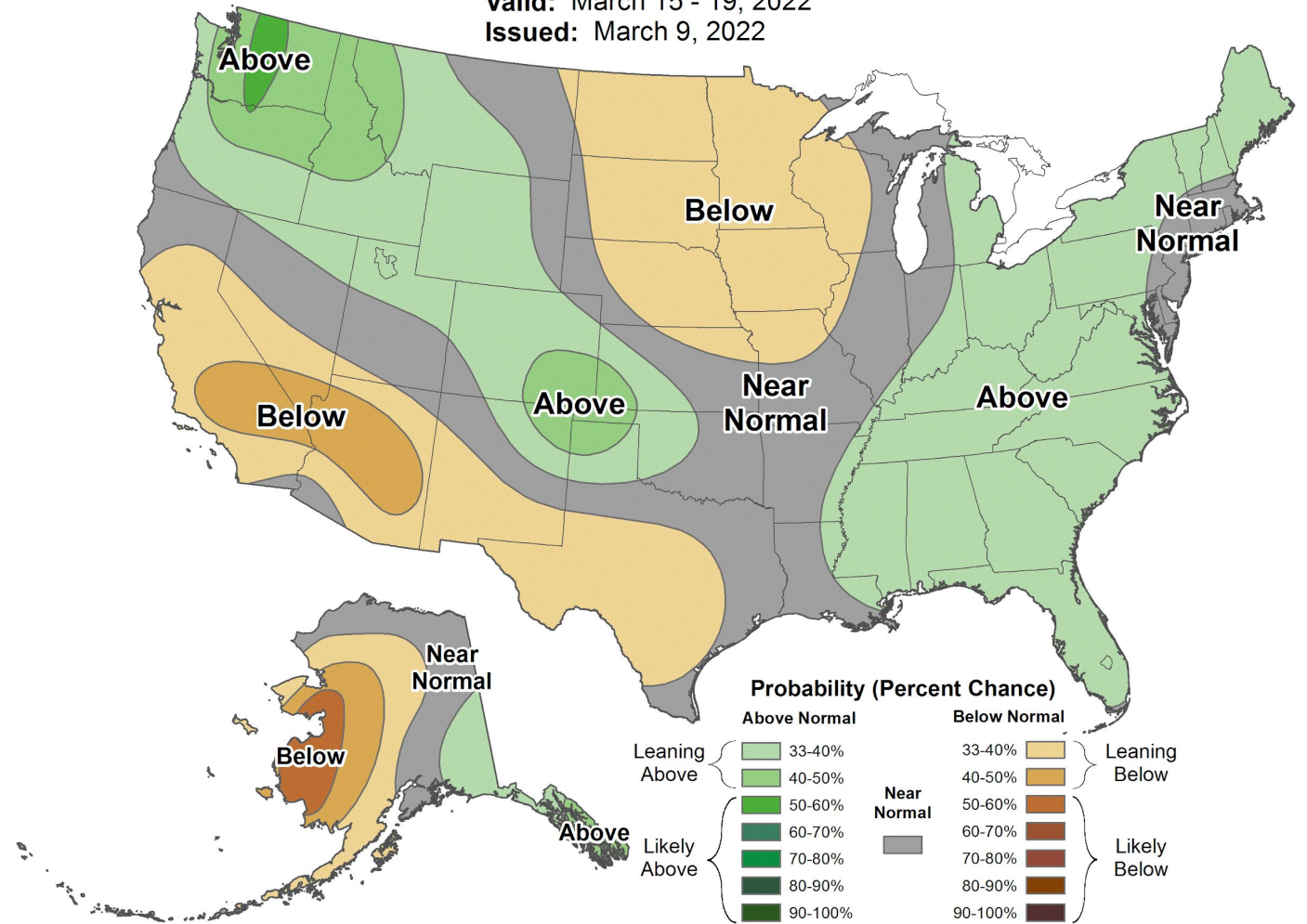
Valid: March 15 - 19, 2022
Issued: March 9, 2022



6-10 Day Precipitation Outlook



Valid: March 15 - 19, 2022
Issued: March 9, 2022



After a cold end to this week, temperatures rebound to above normal next week. With nighttime lows dropping near to below freezing and no significant precipitation, we may have a favorable start our snowmelt.





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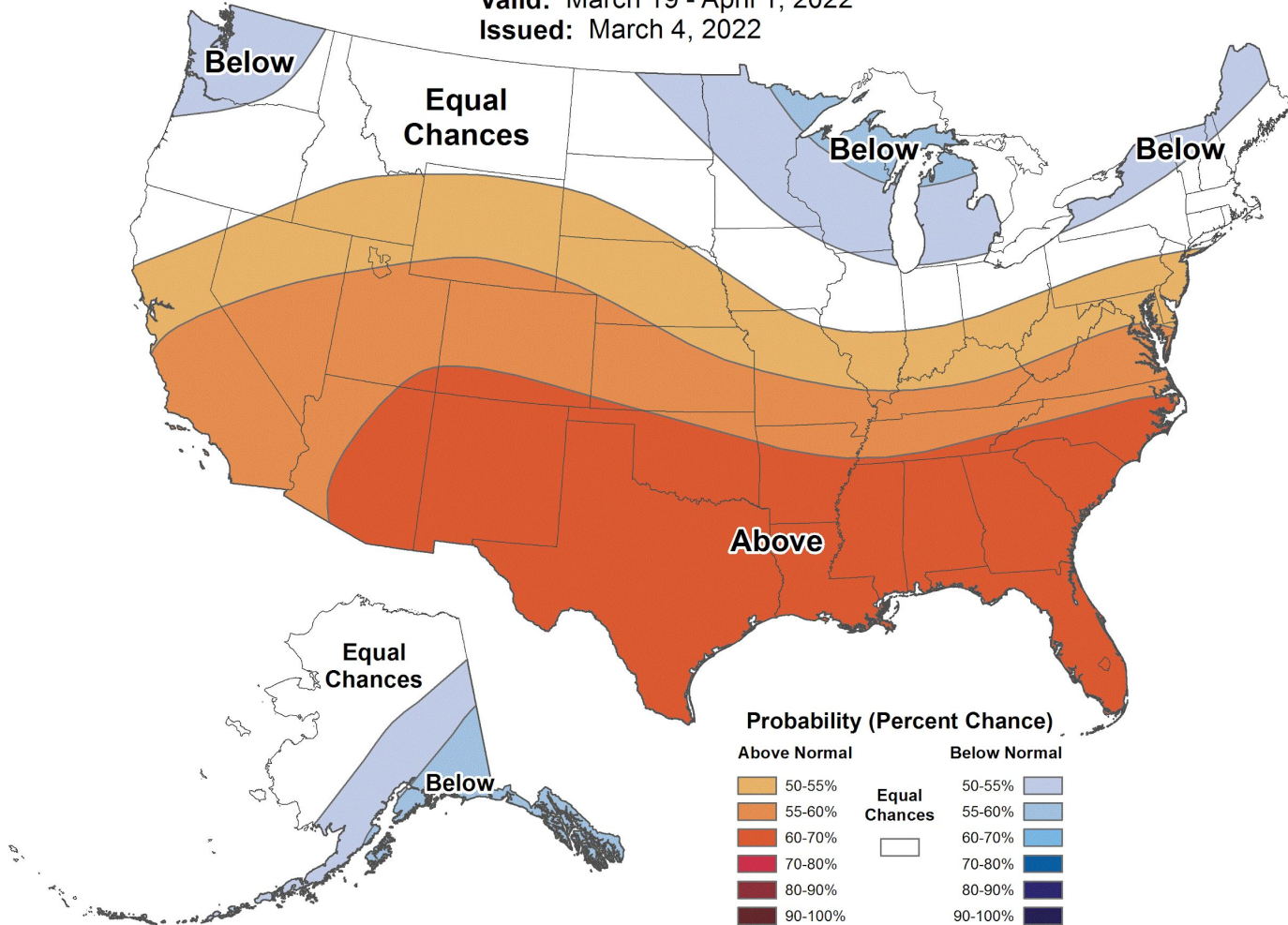
Climate Prediction Center Outlook for the rest of March



Weeks 3-4 Temperature Outlook



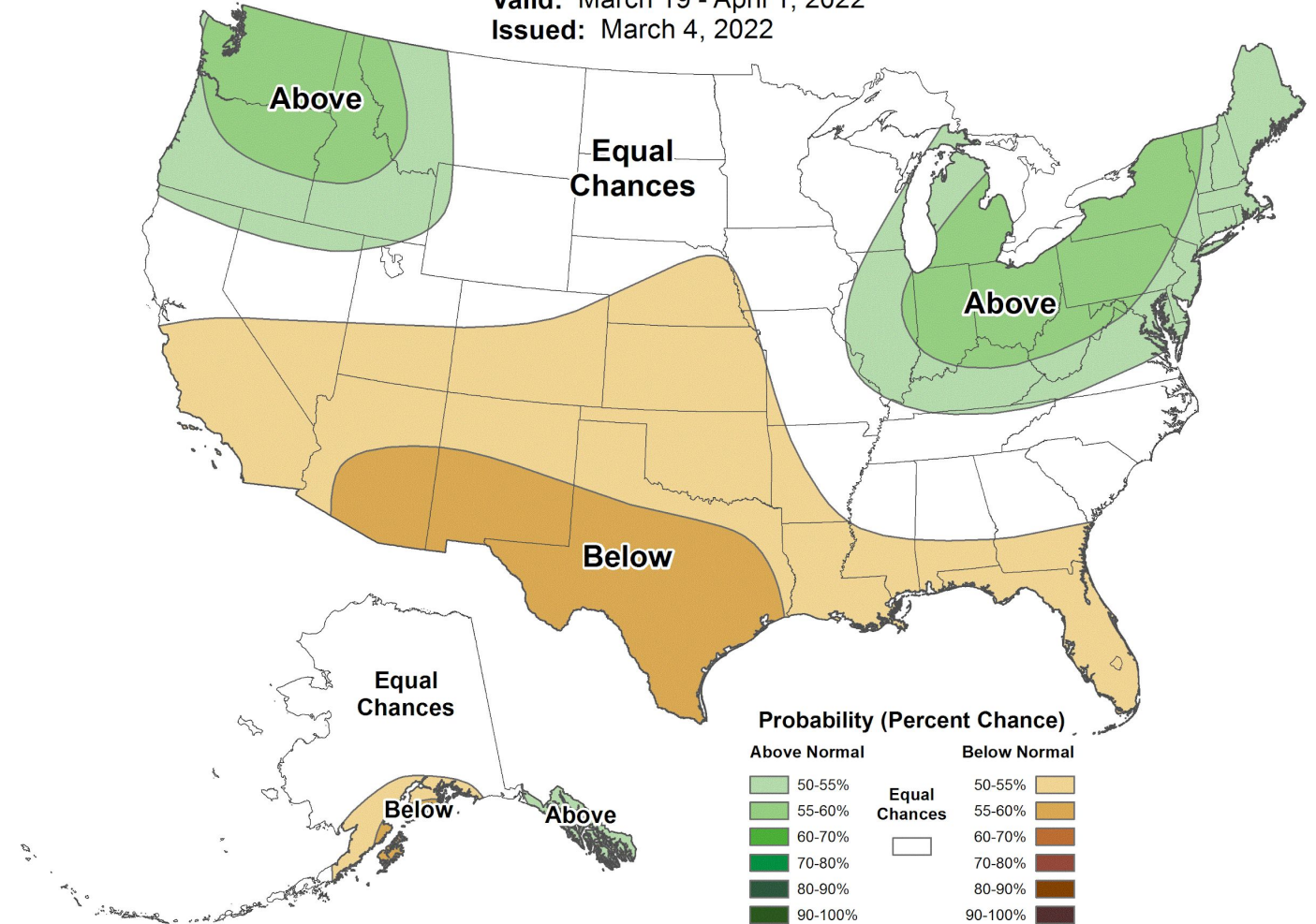
Valid: March 19 - April 1, 2022
Issued: March 4, 2022



Weeks 3-4 Precipitation Outlook



Valid: March 19 - April 1, 2022
Issued: March 4, 2022



CPC and models show potentially cooler than normal temperatures move back in, though by late March this may be above freezing. Barring a major arctic outbreak or snowstorm, this would be a favorable melting pattern too.



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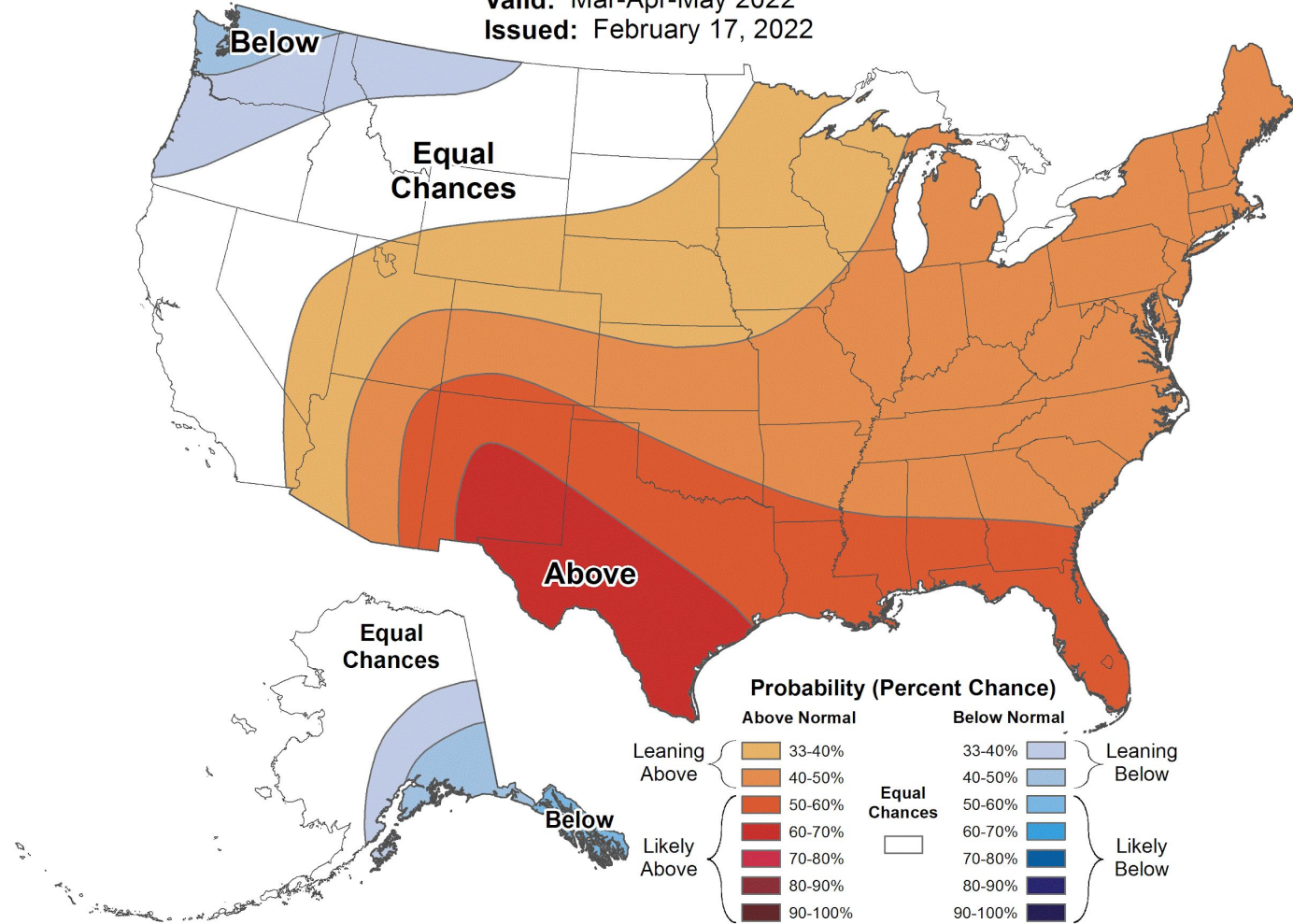
Climate Prediction Center Outlook for the rest of Spring



Seasonal Temperature Outlook



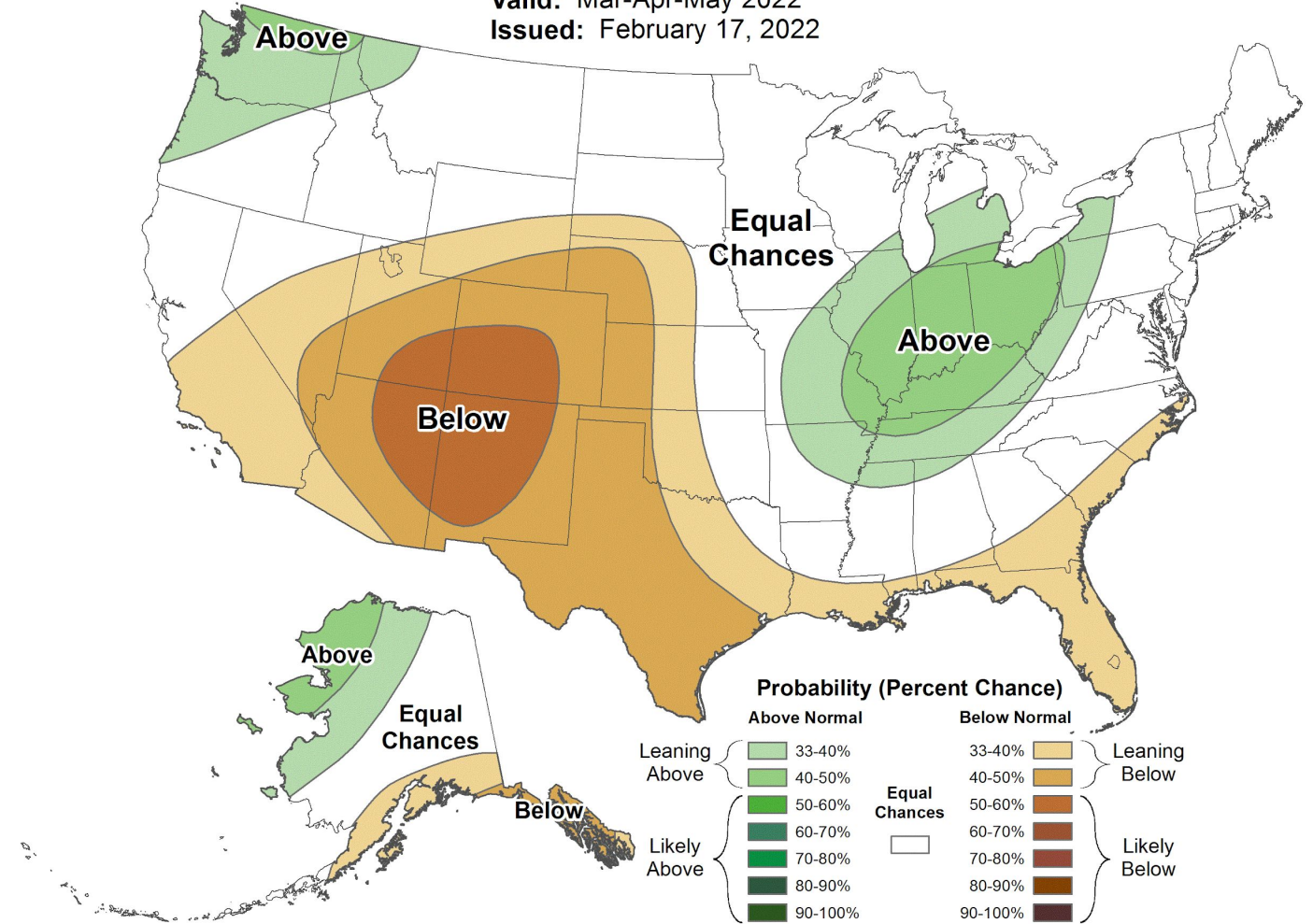
Valid: Mar-Apr-May 2022
Issued: February 17, 2022



Seasonal Precipitation Outlook



Valid: Mar-Apr-May 2022
Issued: February 17, 2022



CPC indicates a slight increase in probabilities for warmer than normal temperature, while the highest likelihood of above normal precipitation remains to the southeast.





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Overall Outlook: Average Threat for Spring Snowmelt Flooding

Looking at all the current/known factors we evaluate for the flood threat, all are fairly close to normal so far for 2022.

Much will be determined by what happens with our temperatures and rainfall/snowfall in March and early April (as we say every year!). A major warm rain event at the wrong time can always produce flooding.

Overall, our flood threat outlook for this season is currently Average for the Minnesota, Upper Mississippi, and Chippewa (WI) basins and tributaries.

Threat	Impact to Potential Spring Flooding	Link to Image
Current River levels	Little Impact / Normal	USGS WaterWatch
Soil moisture	Near to Just Below Normal	CPC Soil Moisture
Frost Depth	Near Normal	Frost Depth Map
Snowpack/Liquid Equivalent	Near to Slightly Above Normal	Snow Analysis
March Precipitation	Not a strong signal either way	March CPC Outlook
Rate of Spring Snowmelt	To Be Determined	Choose Snowmelt from list here
Spring Precipitation	To Be Determined	Precip Forecast (in season)

Continue on to find out more about particular locations...



2022 Spring Flood Outlook

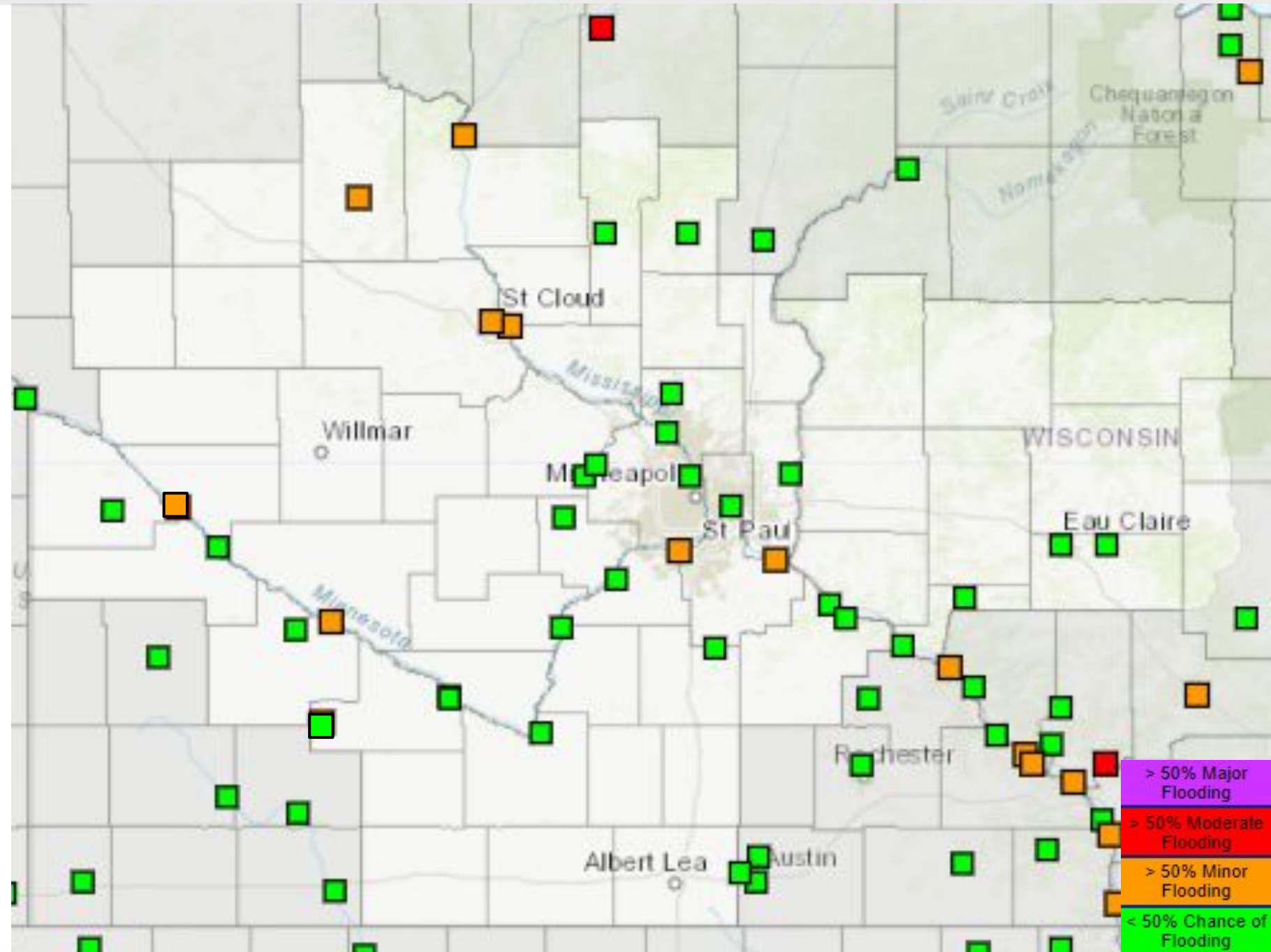
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Overall Outlook: Average Threat for Spring Snowmelt Flooding

Going back to our Long Range Flood Threat map, only a few locations in the Mississippi basin have a 50 percent chance of reaching minor Flood Stage. There has been little change since the previous outlook.

This is very much in the “normal/average” category of flood threat for our area.

There are other areas, particularly the Red River of the North, with a higher threat; see the [North Central River Forecast Center outlook page](#) for more info there.





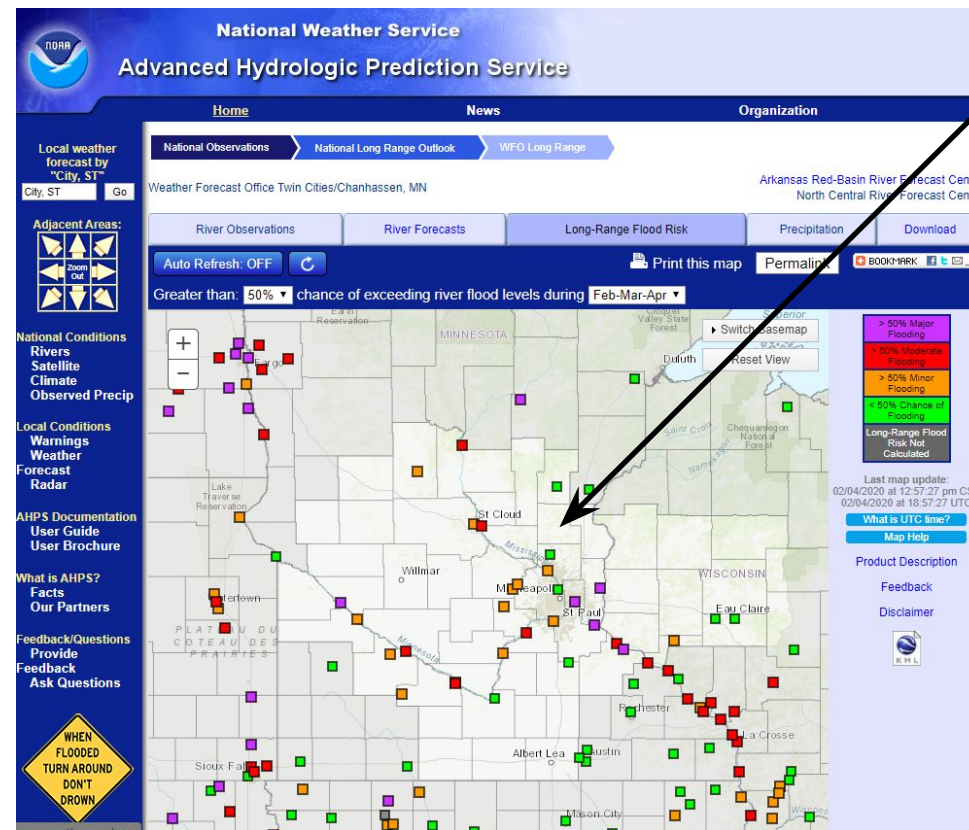
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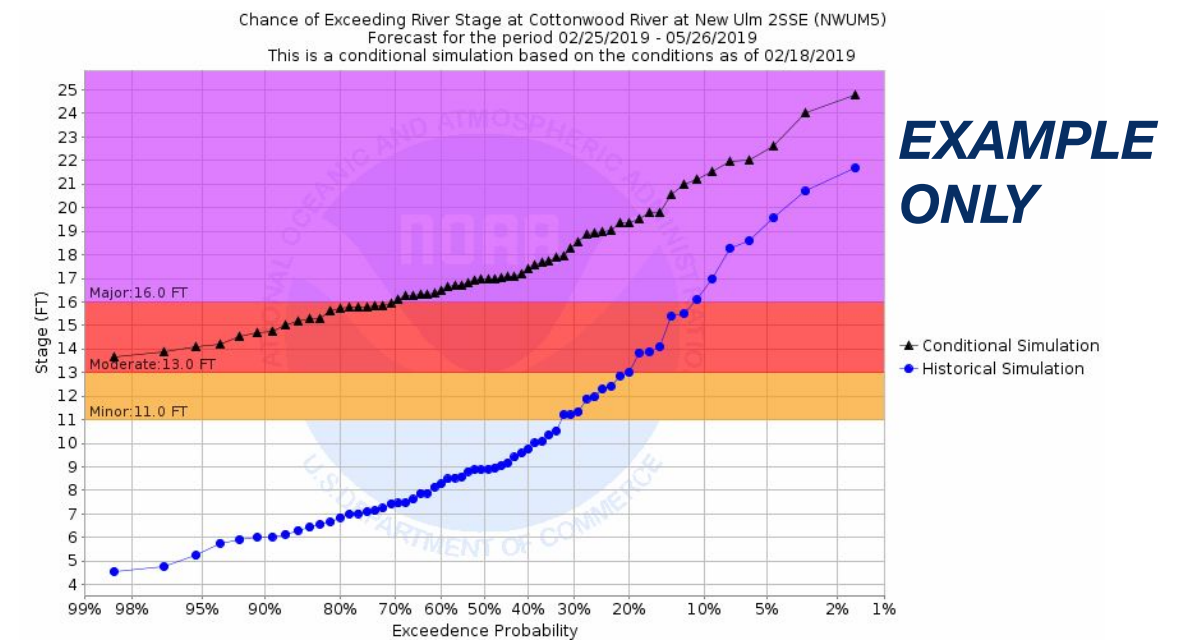
Find your Long Range Outlook Graph

Long range flood risk graphs are available at: https://water.weather.gov/ahps2/long_range.php?wfo=MPX

River forecasters run long range river models, including current soil moisture profiles, snowpack info, and 45-day model precipitation forecasts. The result is a graph of probability of reaching various stages .



Click a point in here, and hover over the “Probability Information” tab. Select the “...during Entire Period” graph. It will look something like this:



The Black Line represents the current forecast – Blue Line represents historical average. When the black line is to the left/above of the blue line, the flood threat is above normal.



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Long Range Forecast Probability Graphic

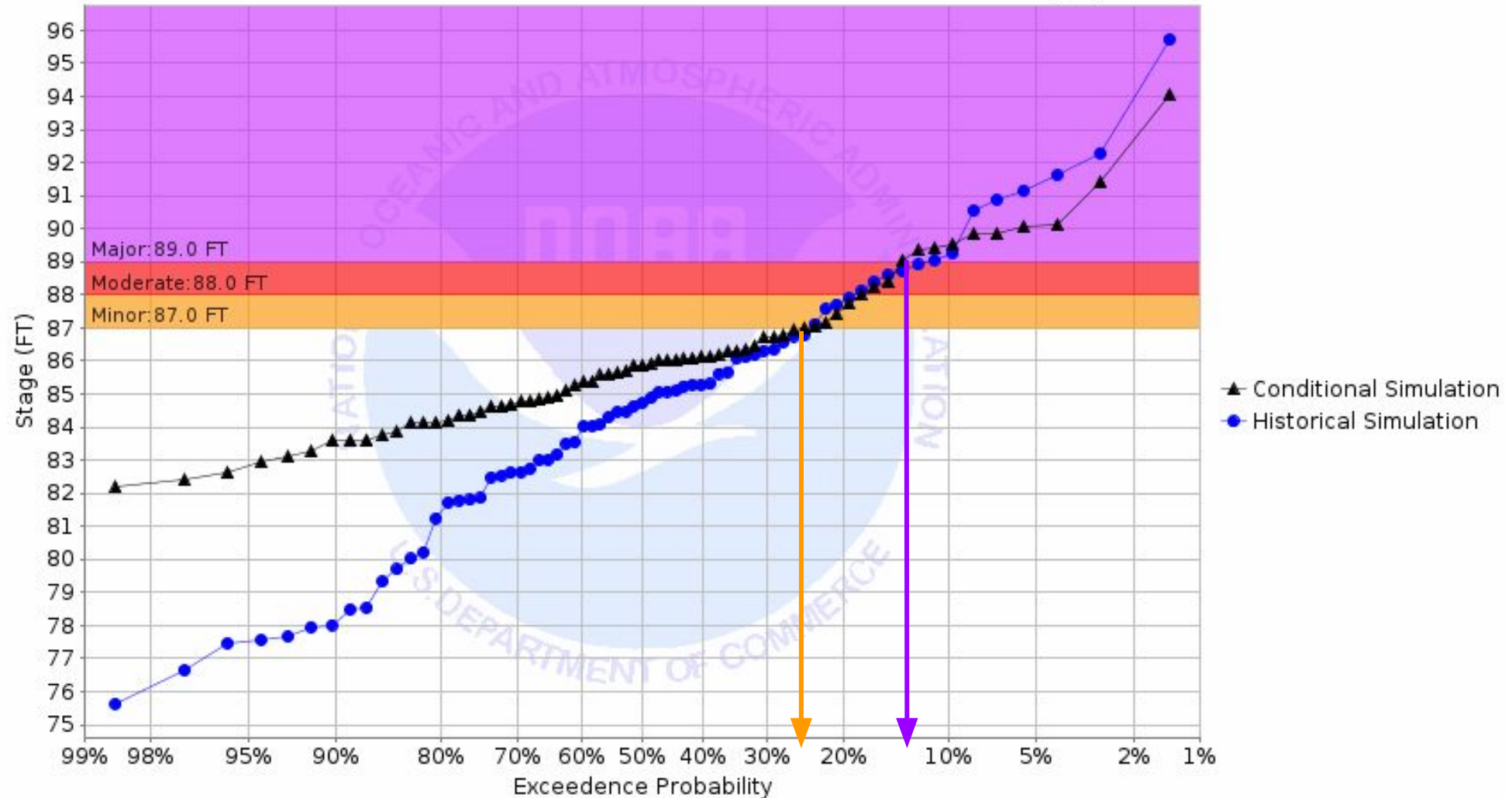
Let's look at the St. Croix River at Stillwater, for example.

The black line intersects Minor Flood Stage right about 25 percent (orange arrow), meaning there is about a 25 percent chance of reaching minor flood stage. This is exactly normal. (blue line).

When we look at Major Flood Stage, the black line shows about a 14 percent probability (purple arrow), also very close to the normal value.

These numbers have come down a little since the previous update.

Chance of Exceeding River Stage at St Croix River at Stillwater (STLM5)
Forecast for the period 03/14/2022 - 06/12/2022
This is a conditional simulation based on the conditions as of 03/07/2022



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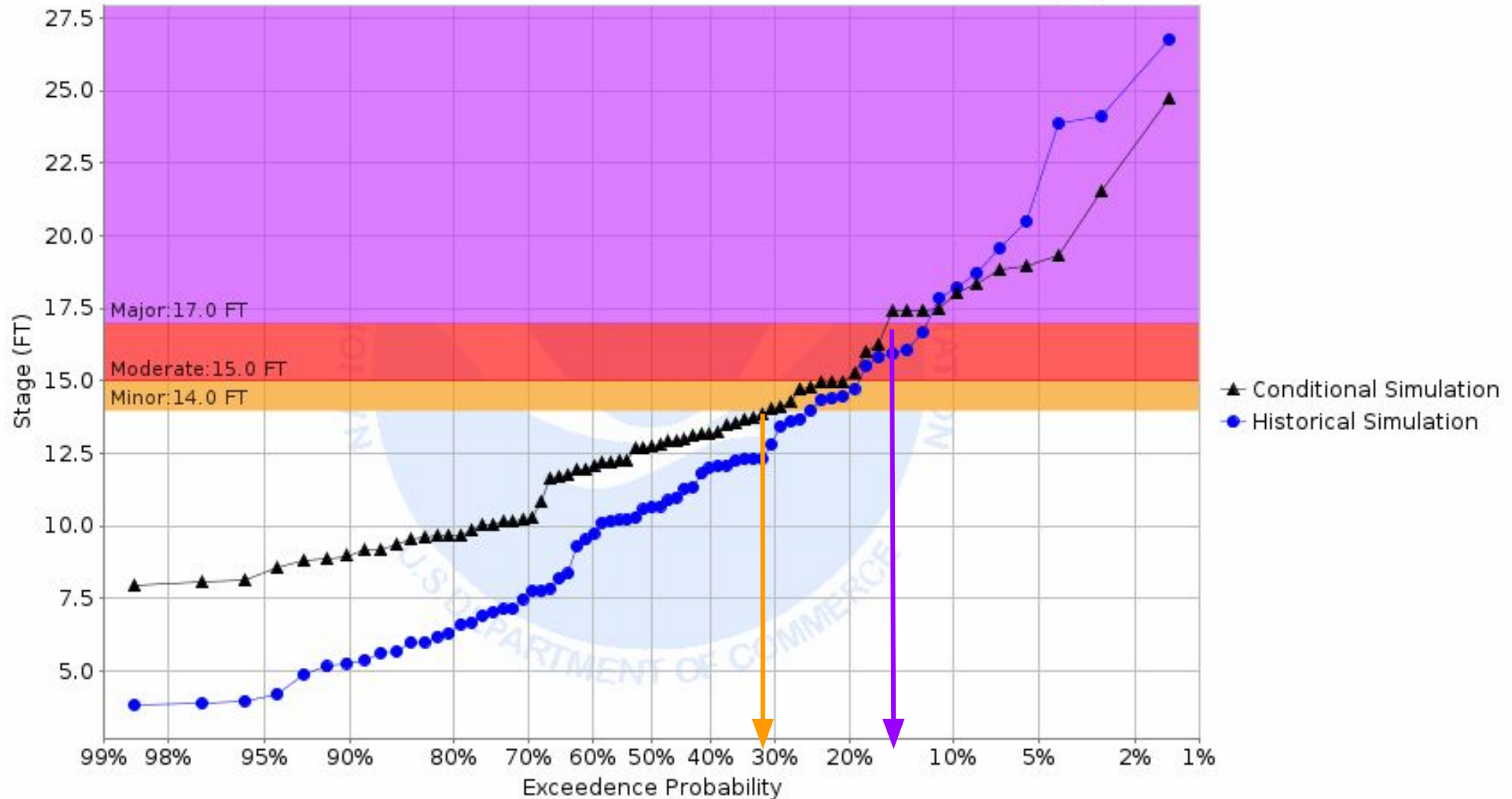
Long Range Forecast Probability Graphic

For the Mississippi at St. Paul:

The black line intersects Minor Flood Stage right about 32 percent (orange arrow), meaning there is about a 32 percent chance of reaching minor flood stage. This just above the normal of 27 percent. (blue line).

When we look at Major Flood Stage, the black line shows about a 17 percent probability (purple arrow), also just above normal.

Chance of Exceeding River Stage at Mississippi River at St Paul - Roberts St Brdg (STPM5)
Forecast for the period 03/14/2022 - 06/12/2022
This is a conditional simulation based on the conditions as of 03/07/2022



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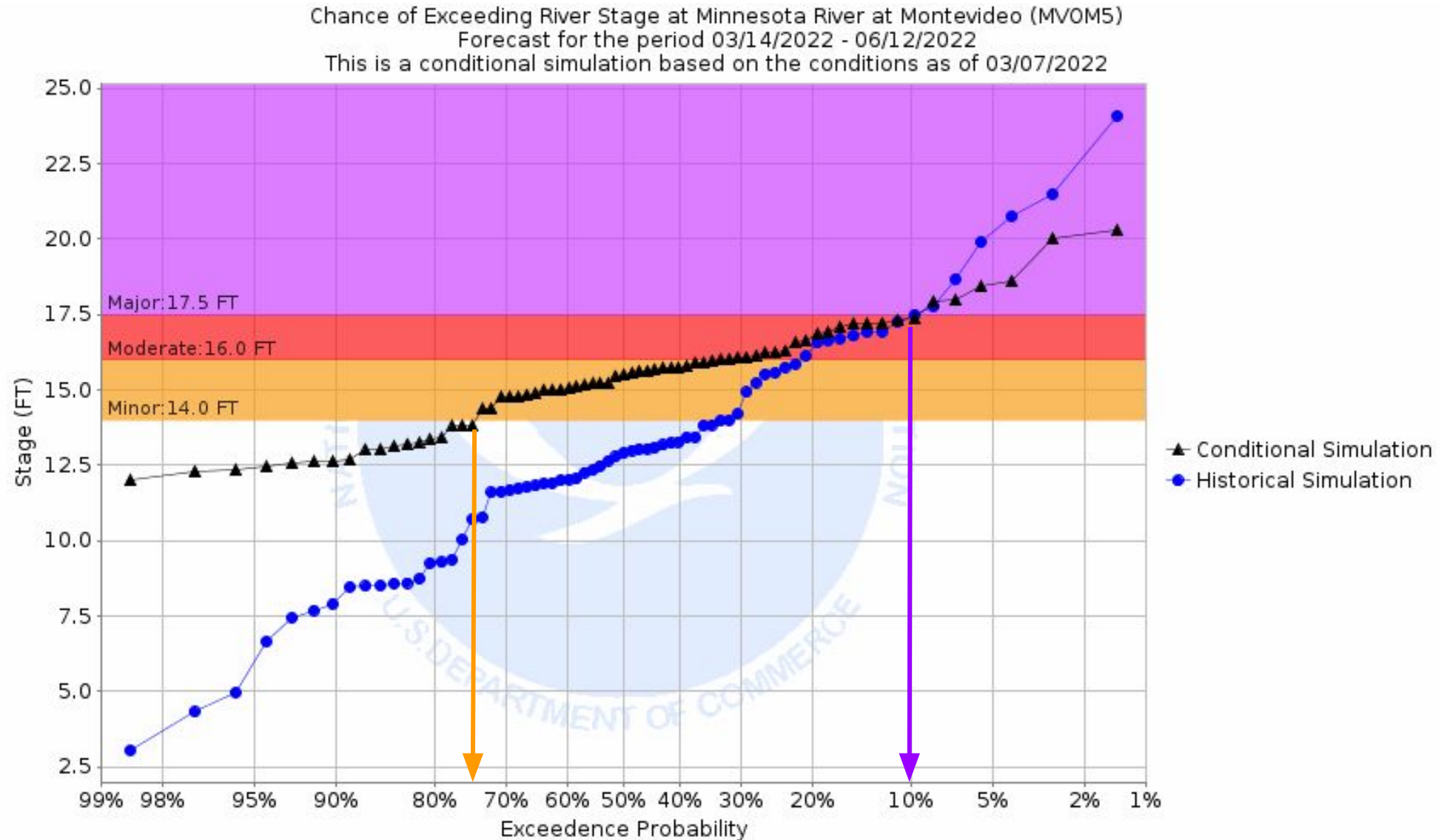
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Long Range Forecast Probability Graphic

Here is a look at a higher threat location, such as the Minnesota River at Montevideo.

The black line intersects Minor Flood Stage around 75 percent, meaning there is about a 75 percent chance of reaching minor flood stage. The normal value is about 33 percent (blue line).

When we look at Major Flood Stage, the black line shows about a 10 percent probability, which is also normal for the March update.



The **Black Line** represents the current forecast – **Blue Line** represents historical average. When the black line is to the left/above of the blue line, the flood threat is above normal.



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Bottom Line

Overall, our flood threat outlook for this season is currently Average, or close to normal, for the Minnesota, Upper Mississippi, and Chippewa (WI) basins and tributaries.

The next week or so should start the melt, and with no major storms on the horizon, we should get a nice start to the snowmelt season.

Be on the lookout for ice jams during at vulnerable locations, as the rivers have a strong ice cover this year.

**Watch for event specific updates, and...
Be safe and enjoy your spring!**

Threat	Impact to Potential Spring Flooding	Link to Image
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Questions or need more info? Email us at nws.twincities@noaa.gov