Monthly Report of River and Flood Conditions

Report for February 2023

NWS FORM E-5 U.S. DEPARTMENT OF COMMERCE NOAA, NATIONAL WEATHER SERVICE **MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS** TO: NATIONAL WEATHER SERVICE (W/OH12x1) HYDROMETEOROLOGICAL INFO CENTER 1325 EAST-WEST HIGHWAY, RM 7116 SILVER SPRING, MD 20910	HSA OFFICE: **Marquette, MI** REPORT FOR (MONTH / YEAR): **February 2023** DATE: **March 14th, 2023** SIGNATURE: **Evan Kutta, Hydro Program Manager** **Robin J. Turner, MIC**
When no flooding occurs, include miscellaneous river conditions, such as significant rises, record low stages, ice conditions, snow cover, droughts, and hydrologic products issued (WSOM E-41).	

X An X inside this box indicates no flooding occurred within this Hydrologic Service Area.

Summary

February was another warm and wet month with observed precipitation values between 120% and 208% of long-term averages and 16.8 to 43.4 inches of snowfall. Upper Michigan continued to accumulate snow water equivalent, but values were near the seasonal normal. At the NWS office in Negaunee Township, temperatures averaged 3.9°F warmer than normal which included 11 days with maximum temperatures above freezing. These warm temperatures prevented river ice formation and allowed for around a half inch of rain to fall across most of Upper Michigan on February 14th and 15th. The combination of warm temperatures and above normal precipitation –including rainfall- resulted in generally above normal streamflow, but no flooding was observed. The Ontonagon and Manistique watersheds and the smaller watersheds across far eastern Michigan observed near-normal streamflow.

Location	Precipitation	% of Normal	Snowfall
WFO Marquette	2.90	129%	43.4”
Marquette City	1.79	122%	22.1”
Quincy Hill	2.49	M	29.6”
Ironwood	2.53	172%	33.9”
Iron Mountain	2.39	208%	19.3”
Manistique	1.78	130%	22.0”
Munising	2.86	120%	38.6”
Stambaugh	1.47	153%	16.8”

NOTE: Precipitation after 8 AM EST February 28th was counted in March stats for all but the WFO Marquette site due to the reporting structure of our cooperative observers.

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Flooding Conditions

There were no flooding concerns during the month of February.

Media Links

None.

River Conditions

Streamflow was near-normal to much above-normal across Upper Michigan during February.

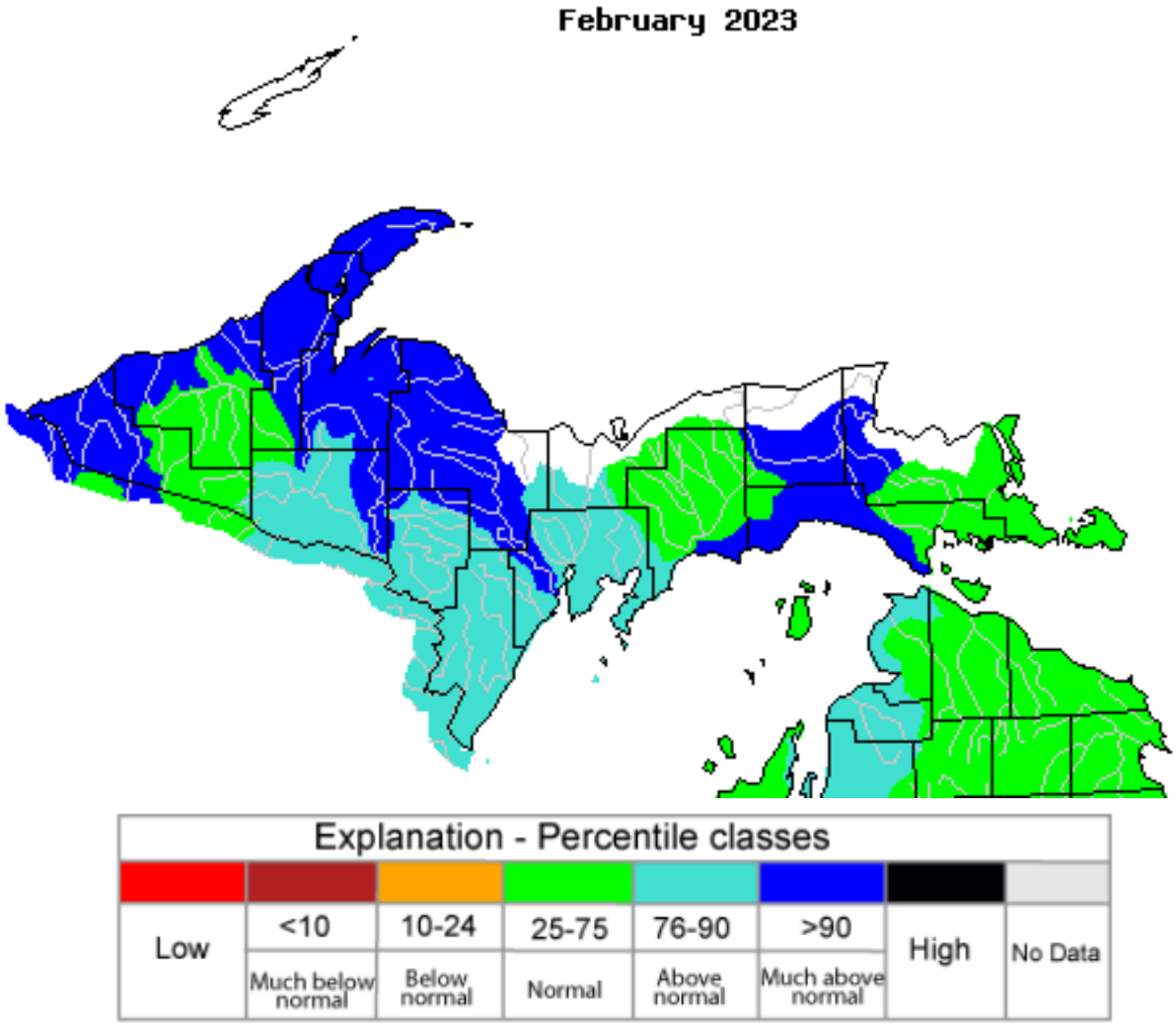

Figure 1: USGS monthly average streamflow in February 2023 across Upper Michigan

Snowpack SWE (Snow Water Equivalent) Conditions

Snowpack across Upper Michigan was generally near long-term medians during February with values of 6-12 inches in the favored snow belts with less amounts farther from Lake Superior. Below normal snowpack was present across far eastern Upper Michigan near the Mackinac Bridge.

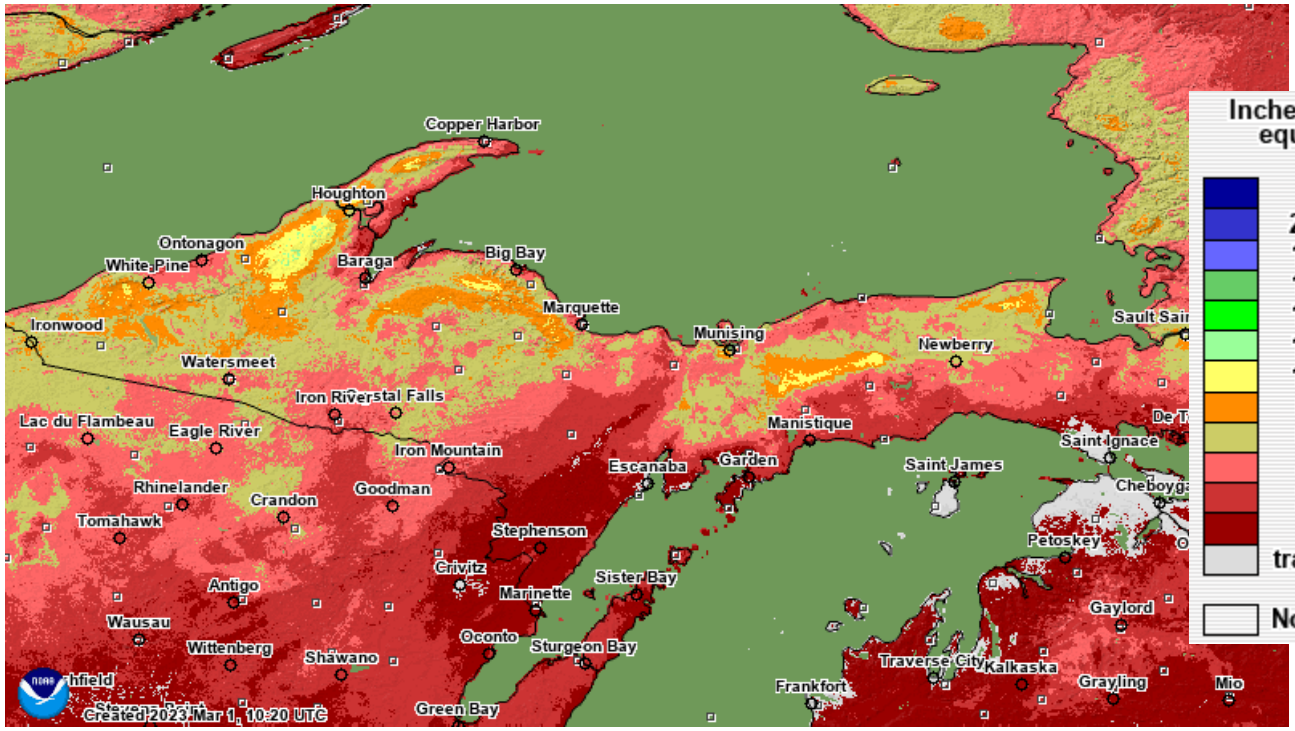

Figure 2: Current modeled snowpack snow water equivalent on March 1st, 2023.

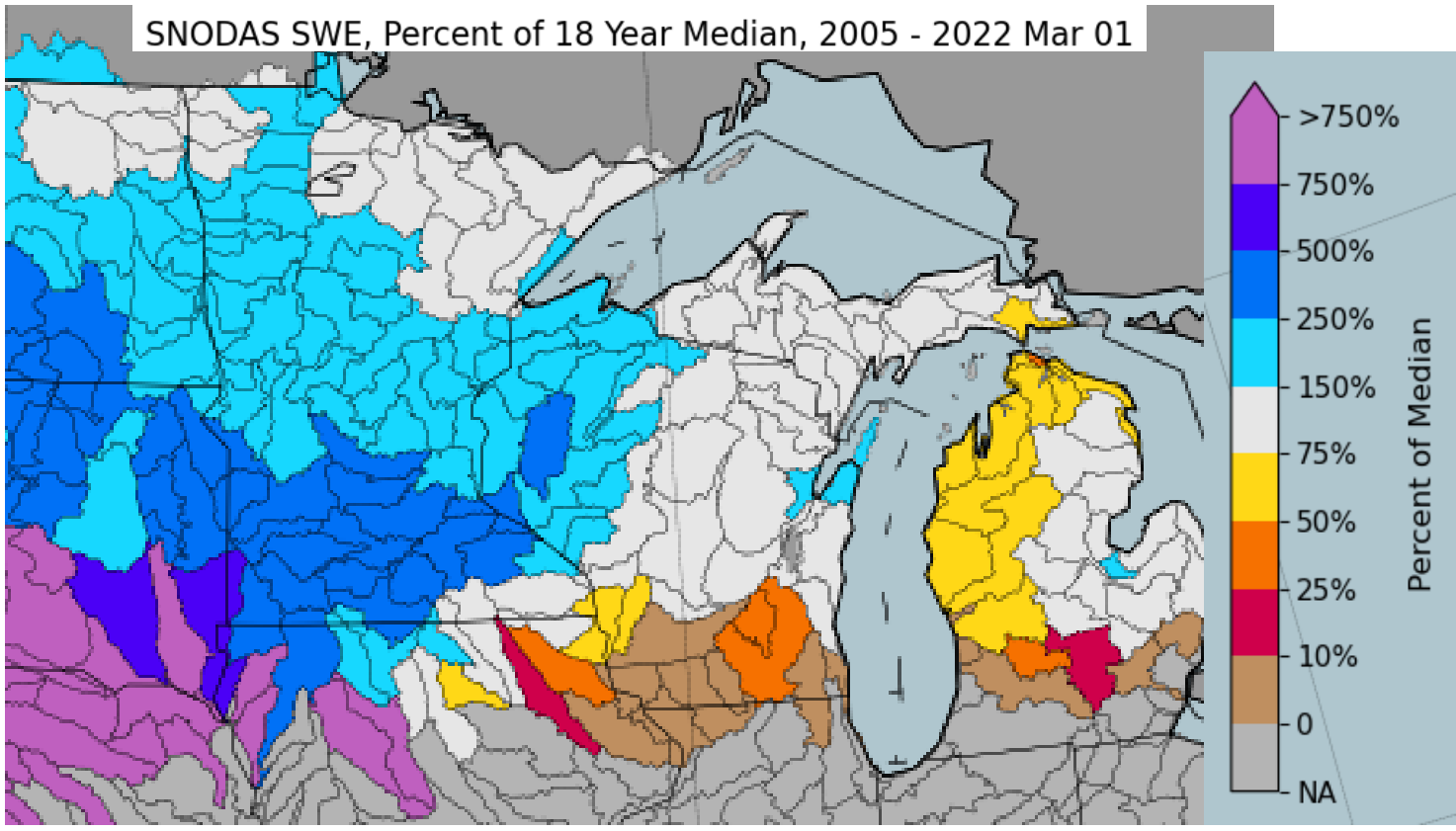

Figure 3: Modeled snow water equivalent for drainage basins on March 1st, 2023 as a percent of the 18-year median.

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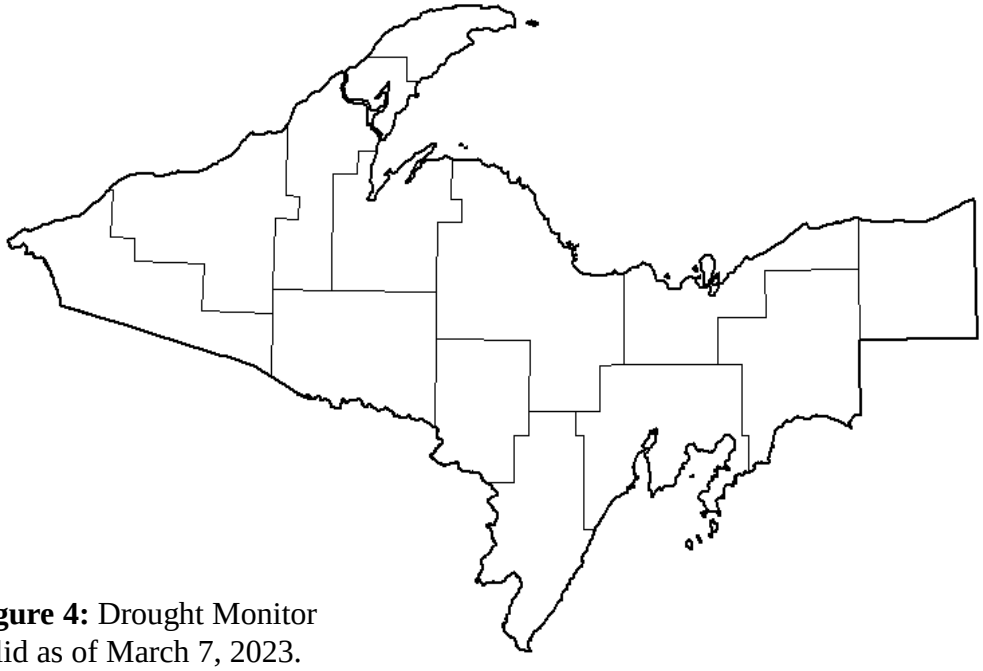
Drought Discussion

No drought was present across Upper Michigan during February. For the latest drought status, please visit http://www.drought.gov.



March 7, 2023

(Released Thursday, Mar. 9, 2023)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	100.00	0.00	0.00	0.00	0.00	0.00
Last Week 02-28-2023	100.00	0.00	0.00	0.00	0.00	0.00
3 Months Ago 12-06-2022	93.94	6.06	0.00	0.00	0.00	0.00
Start of Calendar Year 01-03-2023	93.80	6.20	0.00	0.00	0.00	0.00
Start of Water Year 09-27-2022	88.48	11.52	1.94	0.00	0.00	0.00
One Year Ago 03-08-2022	51.86	48.14	27.63	0.00	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:

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National Drought Mitigation Center

droughtmonitor.unl.edu

Figure 4: Drought Monitor valid as of March 7, 2023.

Hydro Products Issued

Product	Number
Hydrologic Outlook (ESF)	2
Flood Watch (FFA)	0
Flood Warning (FLW)	0
Flood Advisories and Statements (FLS)	0
Flash Flood Warning (FFW)	0
Flash Flood Statement (FFS)	0
Hydrologic Summary (RVA)	28
Daily River Forecasts (RVD)	0

Precipitation Summary

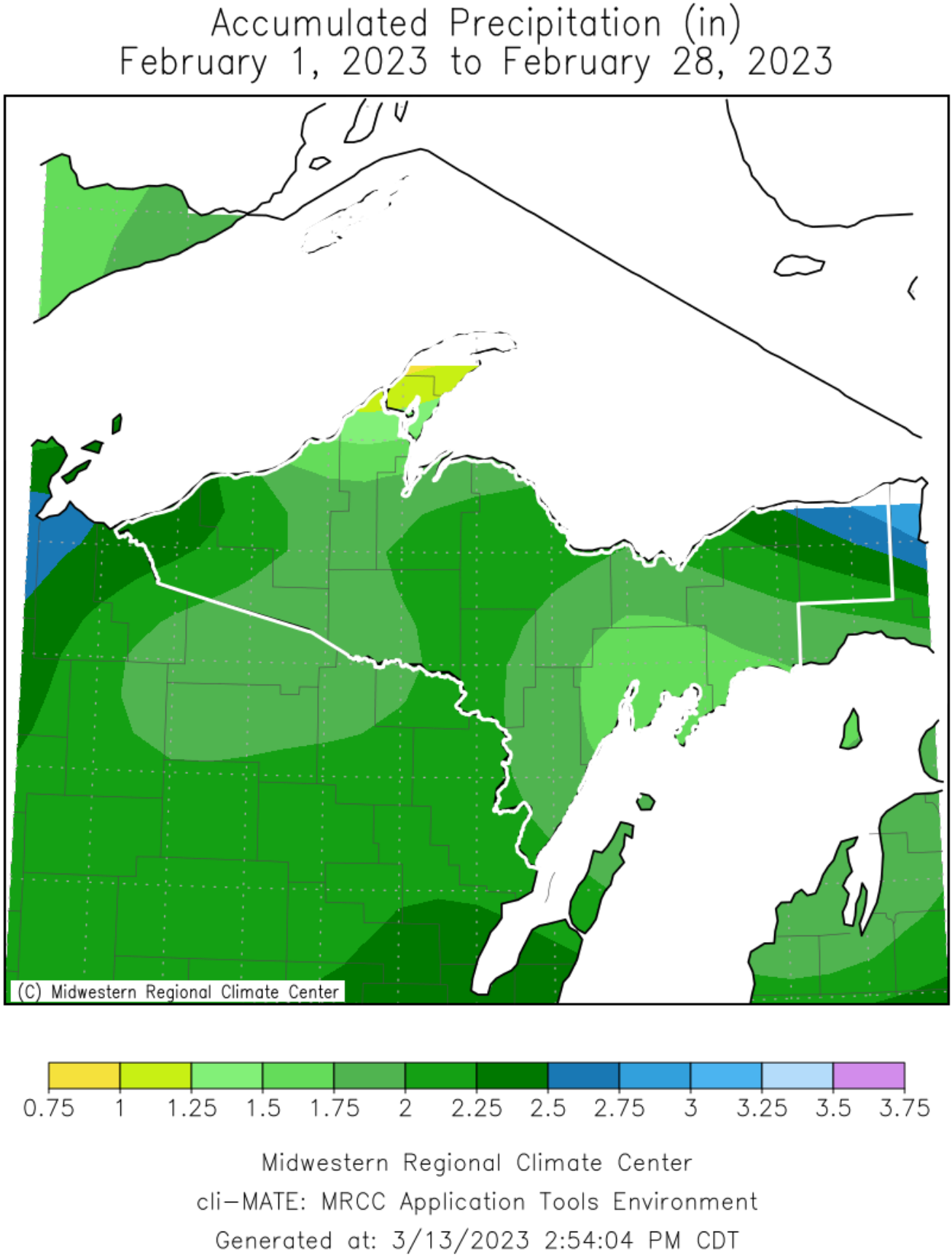

Figure 5: February 2023 Monthly Precipitation Totals.

Precipitation Summary Continued

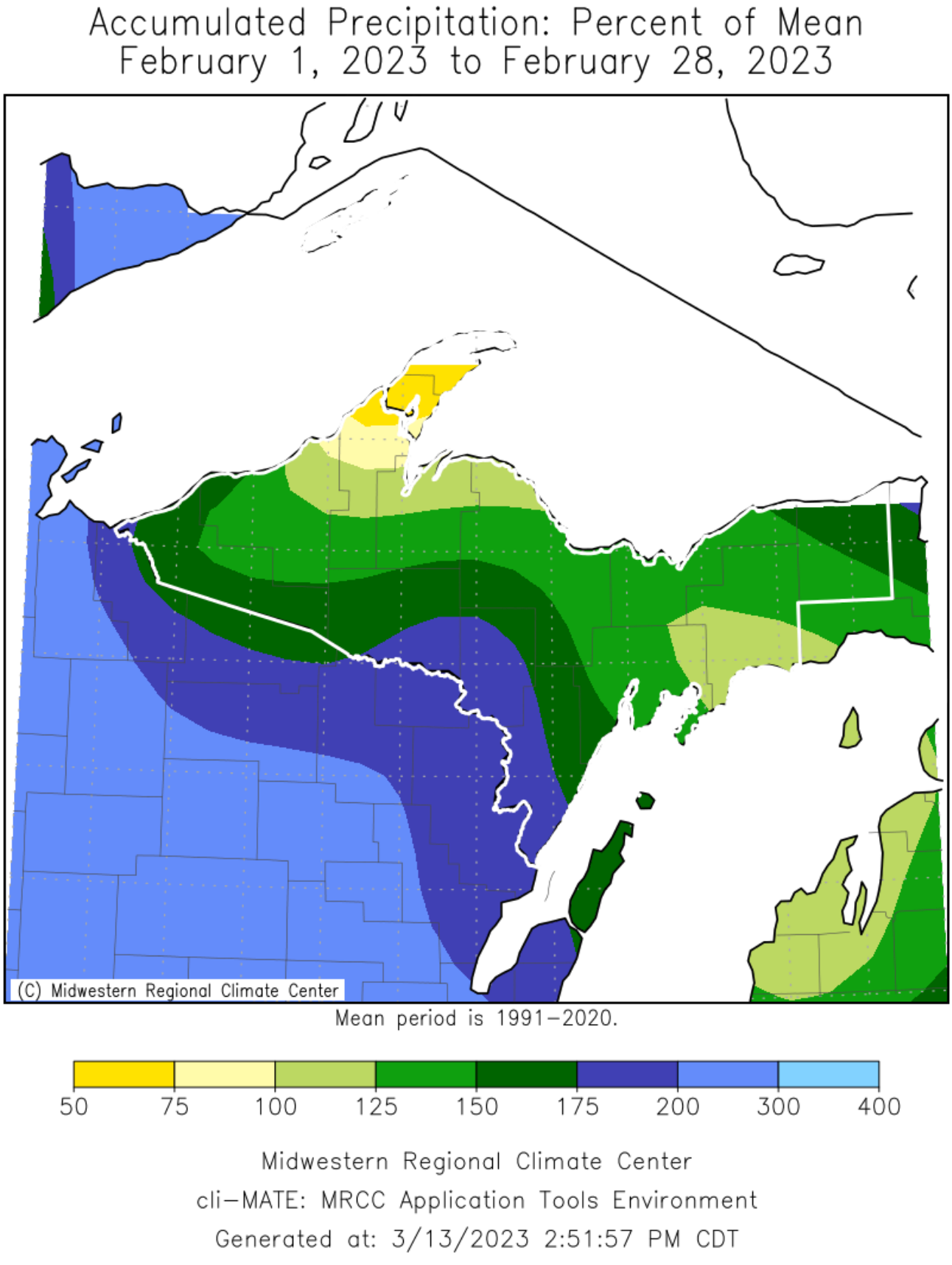

Figure 6: February 2023 Percent of Normal of Accumulated Precipitation.

Soil Moisture Anomaly

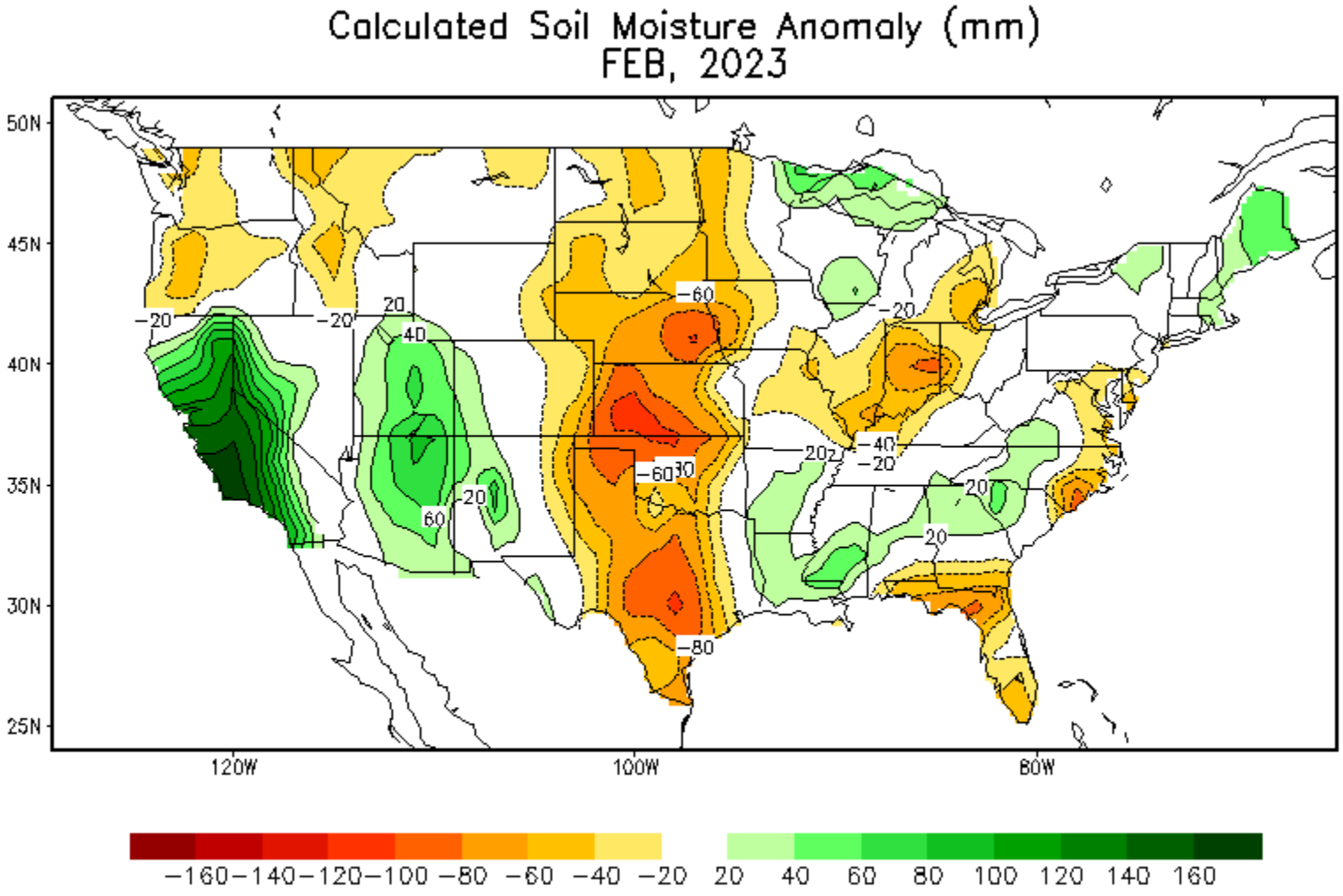

Figure 7: Climate Prediction Center's monthly average soil moisture anomaly for February 2023.

Shallow and Deep Soil Moisture Percentiles

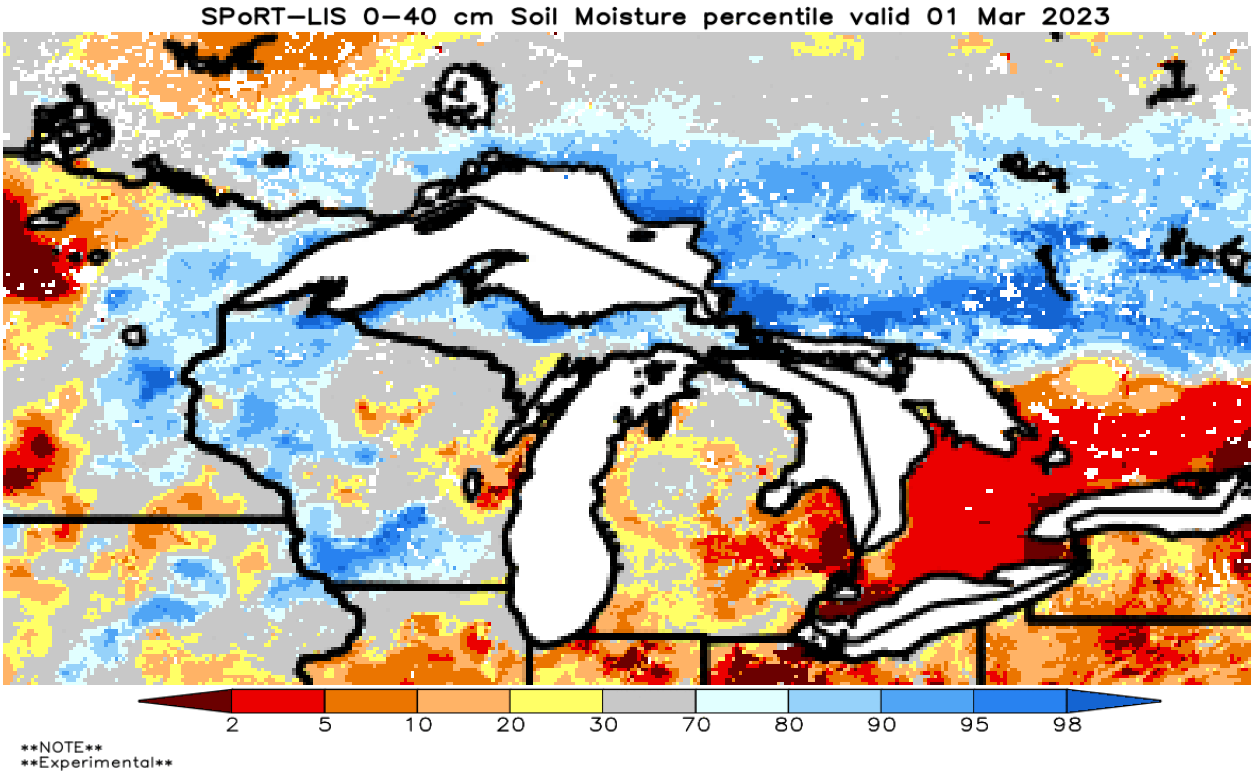

Figure 8: NASA's Short-term Prediction Research and Transition (SPoRT) Center's shallow (0-40 cm) soil moisture percentile valid March 1, 2023.

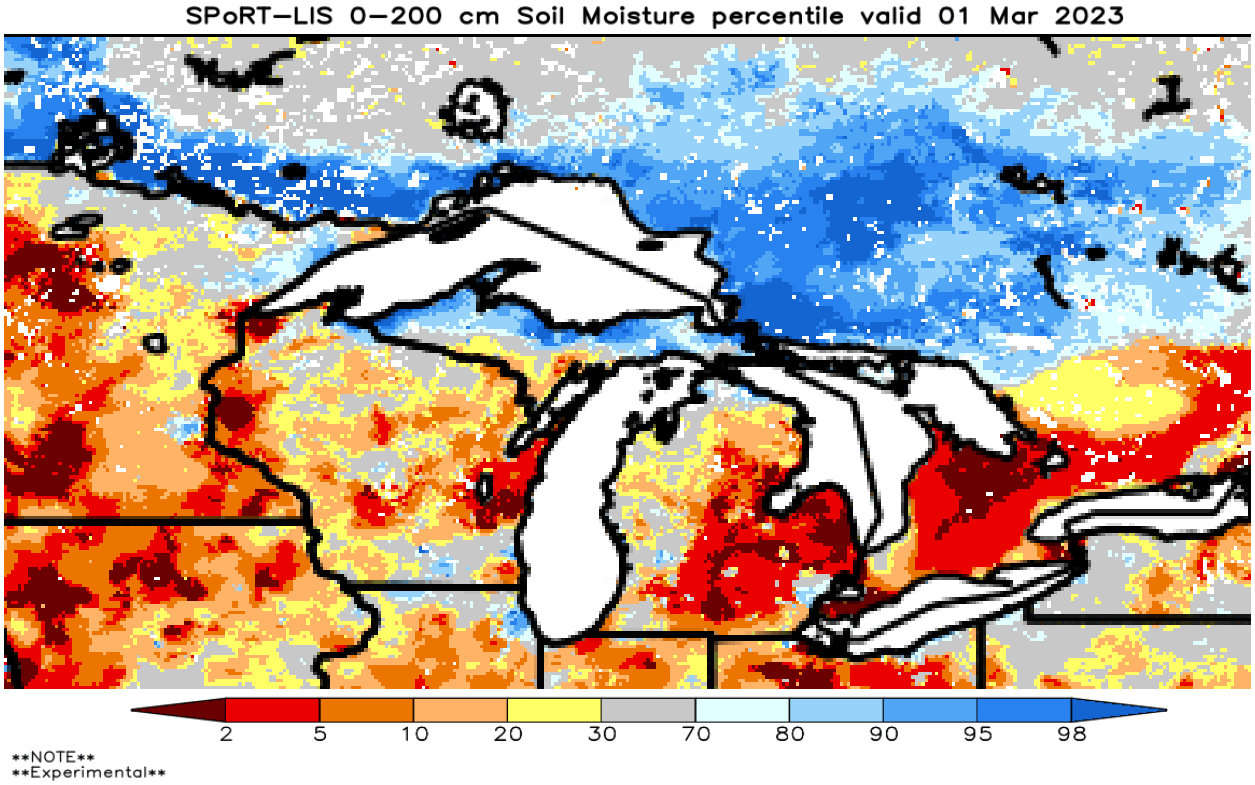

Figure 9: NASA's Short-term Prediction Research and Transition (SPoRT) Center's deep (0-200 cm) soil moisture percentile valid March 1, 2023.