Monthly Report of River and Flood Conditions

Report for March 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): **March 2023** DATE: **May 10th, 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

Widespread near- to above-normal precipitation has been observed every month since November across Upper Michigan and March was no different. The observation locations presented below observed between 103% and 152% of normal precipitation during March with snow being the primary precipitation type. While not shown in this report, temperatures were slightly below normal (-0.4°F) at WFO Marquette for the first time since April of 2022. These cooler temperatures prevented snowpack from melting with streamflow generally near normal for the month across Upper Michigan. By the end of March, snowpack was much above-normal with SWE values commonly in the 6 to 10 inch range and larger values within the usual lake effect snow belts.

Location	Precipitation	% of Normal	Snowfall
WFO Marquette	3.40”	127%	46.2”
Marquette City	1.94”	122%	19.4”
Quincy Hill	1.79”	M	22.7”
Ironwood	3.09”	152%	42.2”
Iron Mountain	2.20”	131%	20.9”
Manistique	1.90”	103%	13.0”
Munising	2.38”	118%	24.6”
Stambaugh	1.81”	122%	20.4”

NOTE: Precipitation after 8 AM EST March 31st was counted in April 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 March, 2023.

Media Links

None.

River Conditions

Streamflow across Upper Michigan was near to above normal during March 2023. Above normal streamflow was most prevalent across west-central Upper Michigan.

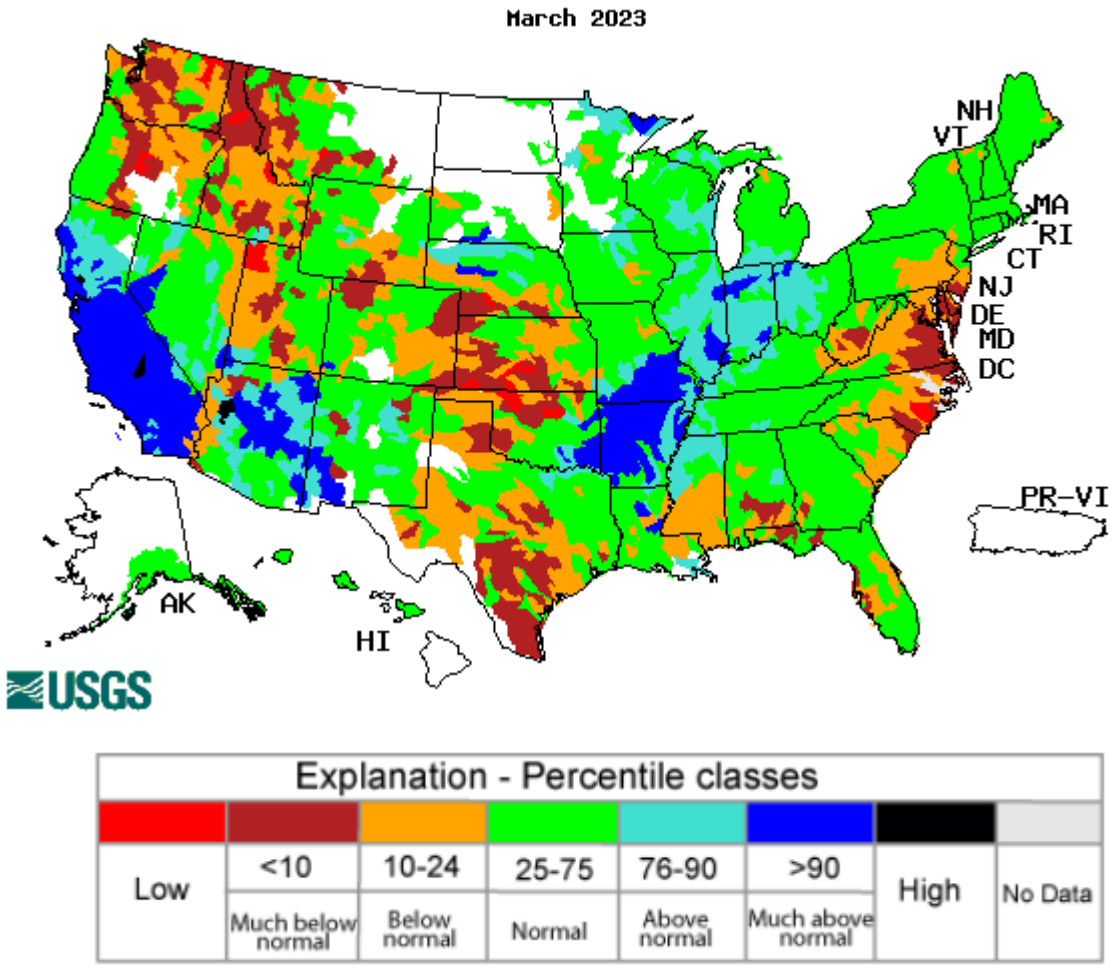

Figure 1: USGS monthly average streamflow during March 2023 across the United States. Late creation and publication of this report made the typical Michigan-centric figure unavailable.

Snowpack SWE (Snow Water Equivalent) Conditions

SWE values were generally 6 to 10 inches across Upper Michigan on April 1st with locally higher values over 12 inches in the favored lake effect belts and lower amounts near Lake Michigan. While the short 18-year period of record exaggerates values in Figure 3, values were greater than 150% across most of the western UP, especially near the Wisconsin state line where values >300% were shown.

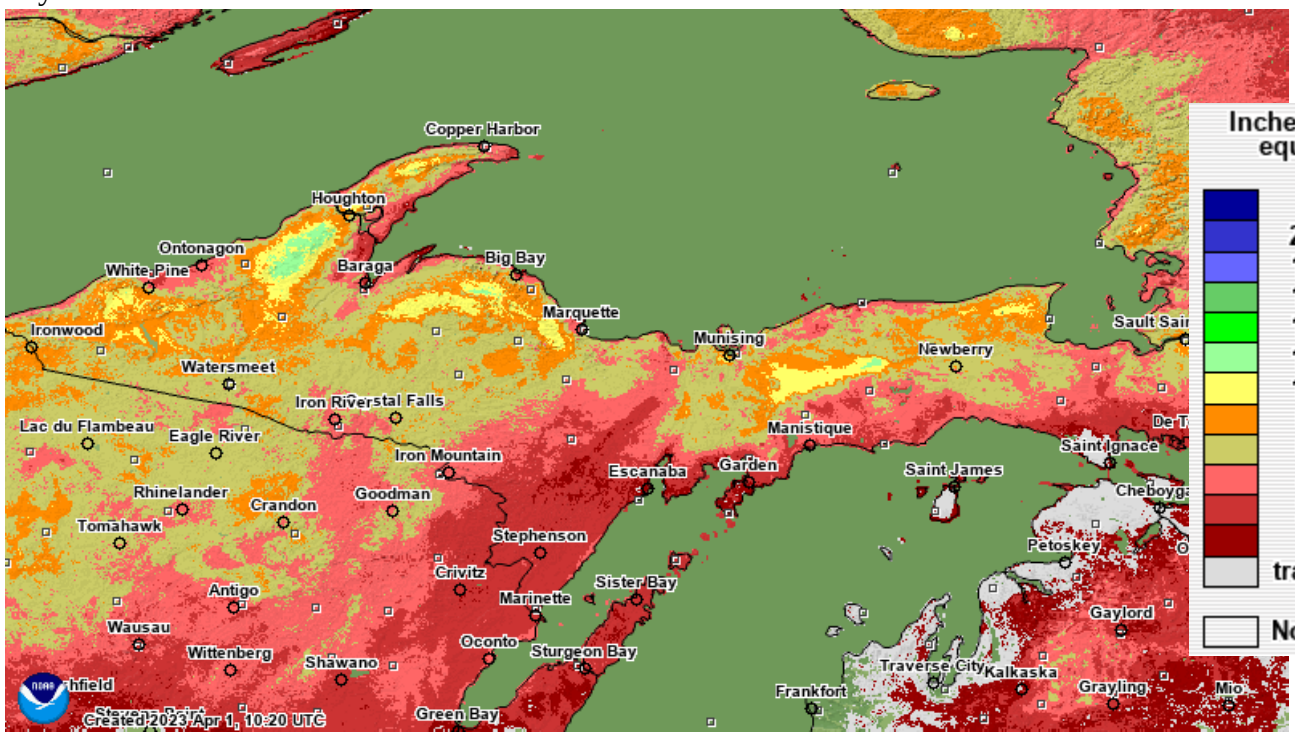

Figure 2: Current modeled snowpack snow water equivalent on April 1st, 2023.

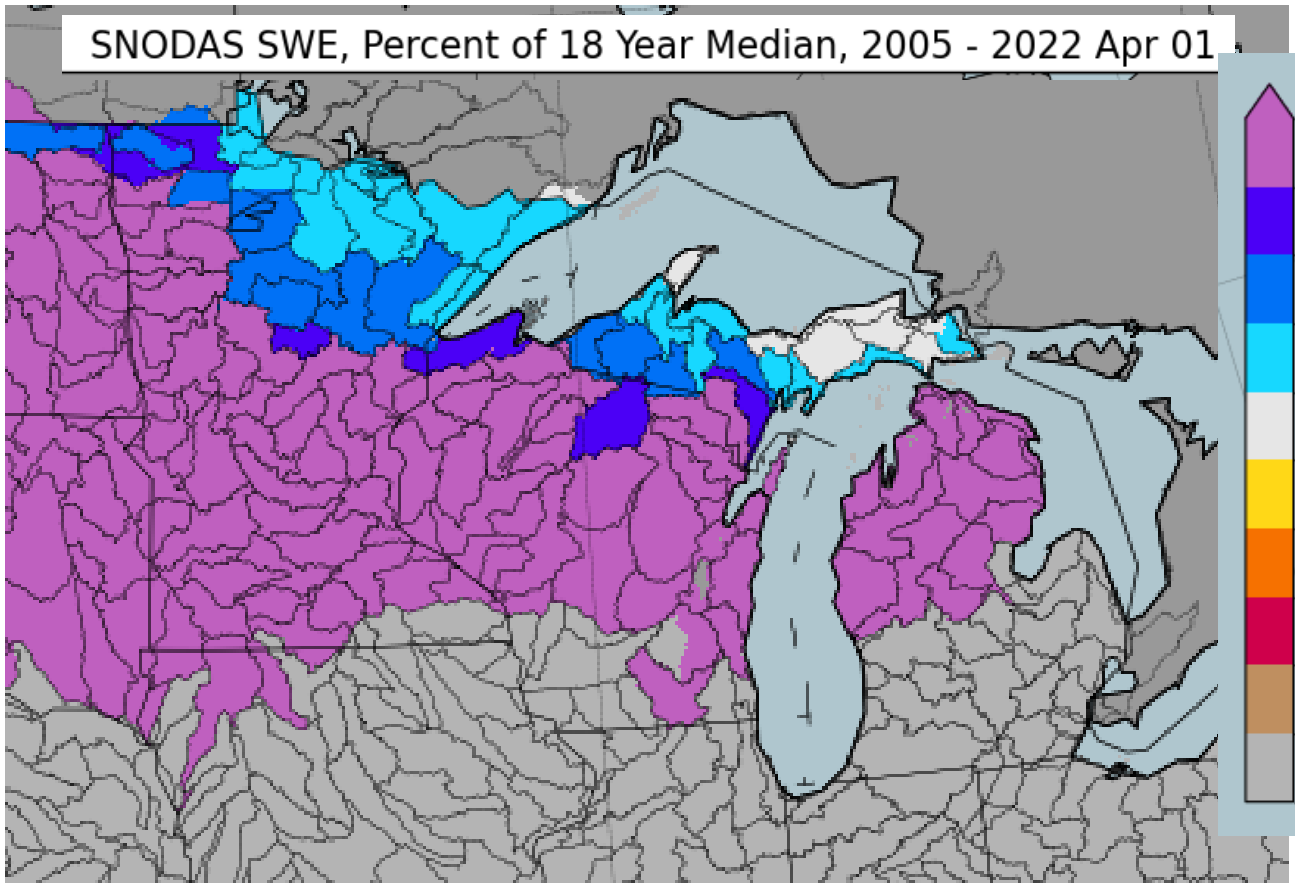

Figure 3: Modeled snow water equivalent for drainage basins on April 1st, 2023 as a percent of 18-year median.

Drought Discussion

Drought is not present across Upper Michigan. For the latest drought status, please visit http://www.drought.gov.

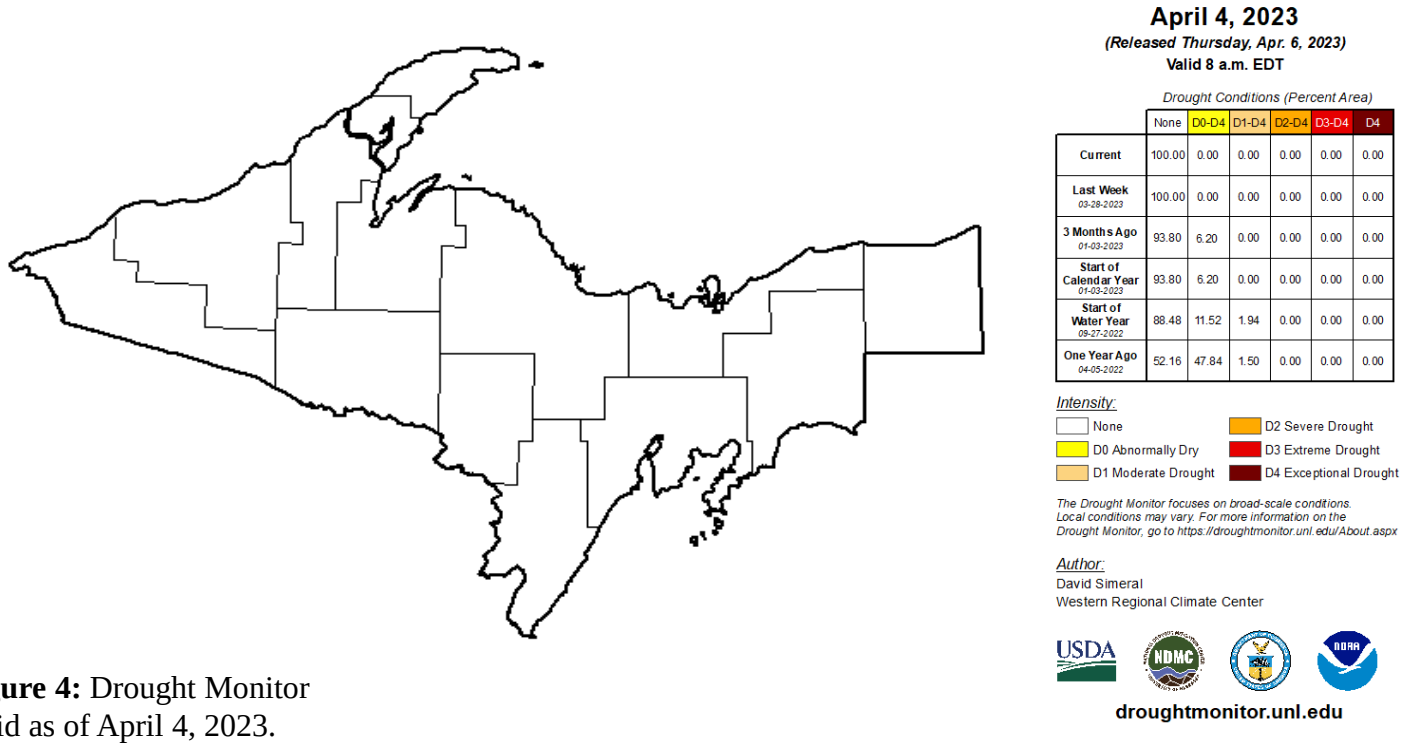

Figure 4: Drought Monitor valid as of April 4, 2023.

Hydro Products Issued

Product	Number
Hydrologic Outlook (ESF)	1
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)	31
Daily River Forecasts (RVD)	0

Precipitation Summary

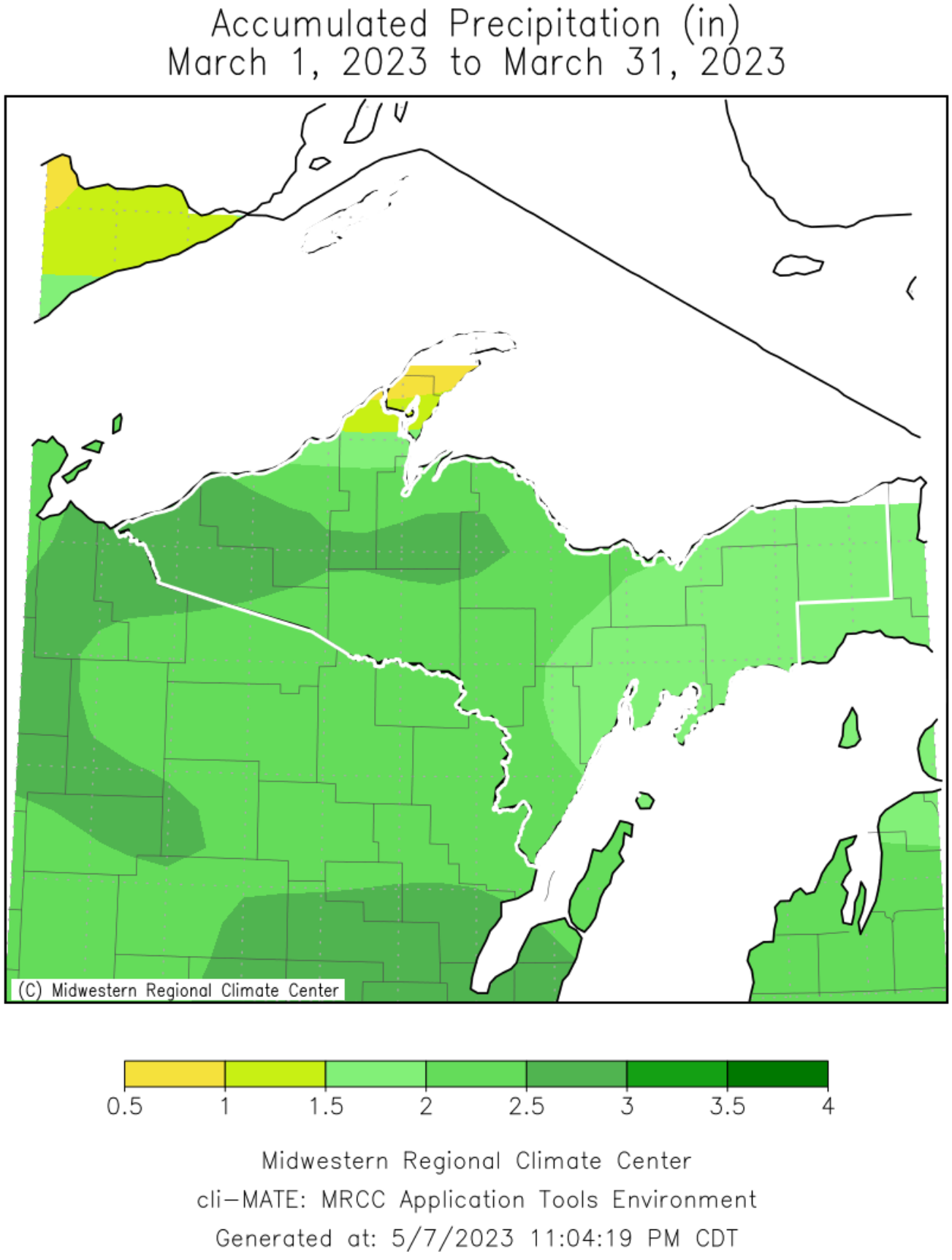

Figure 5: March 2023 Monthly Precipitation Totals.

Precipitation Summary Continued

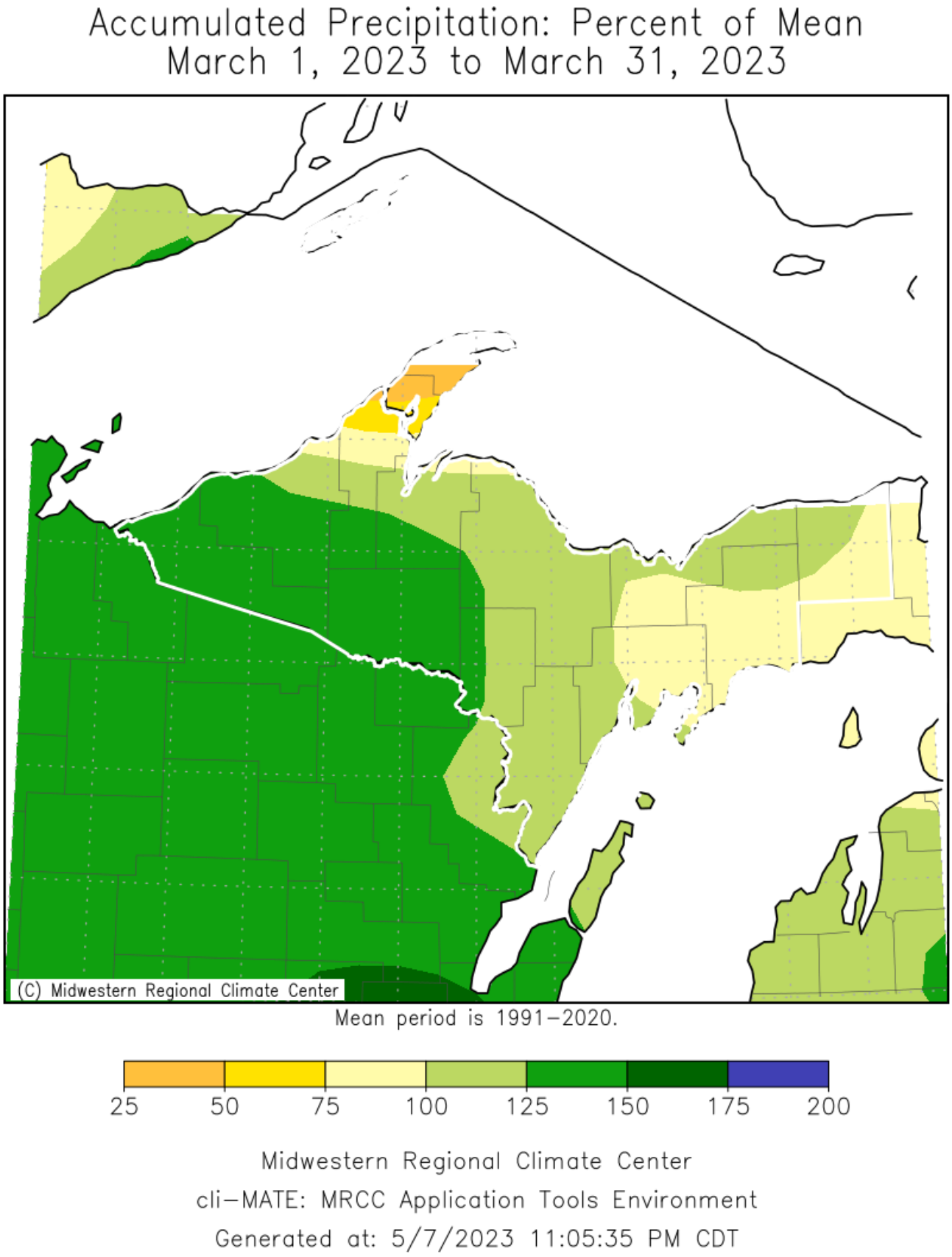

Figure 6: March 2023 Percent of Normal of Accumulated Precipitation.

Soil Moisture Anomaly

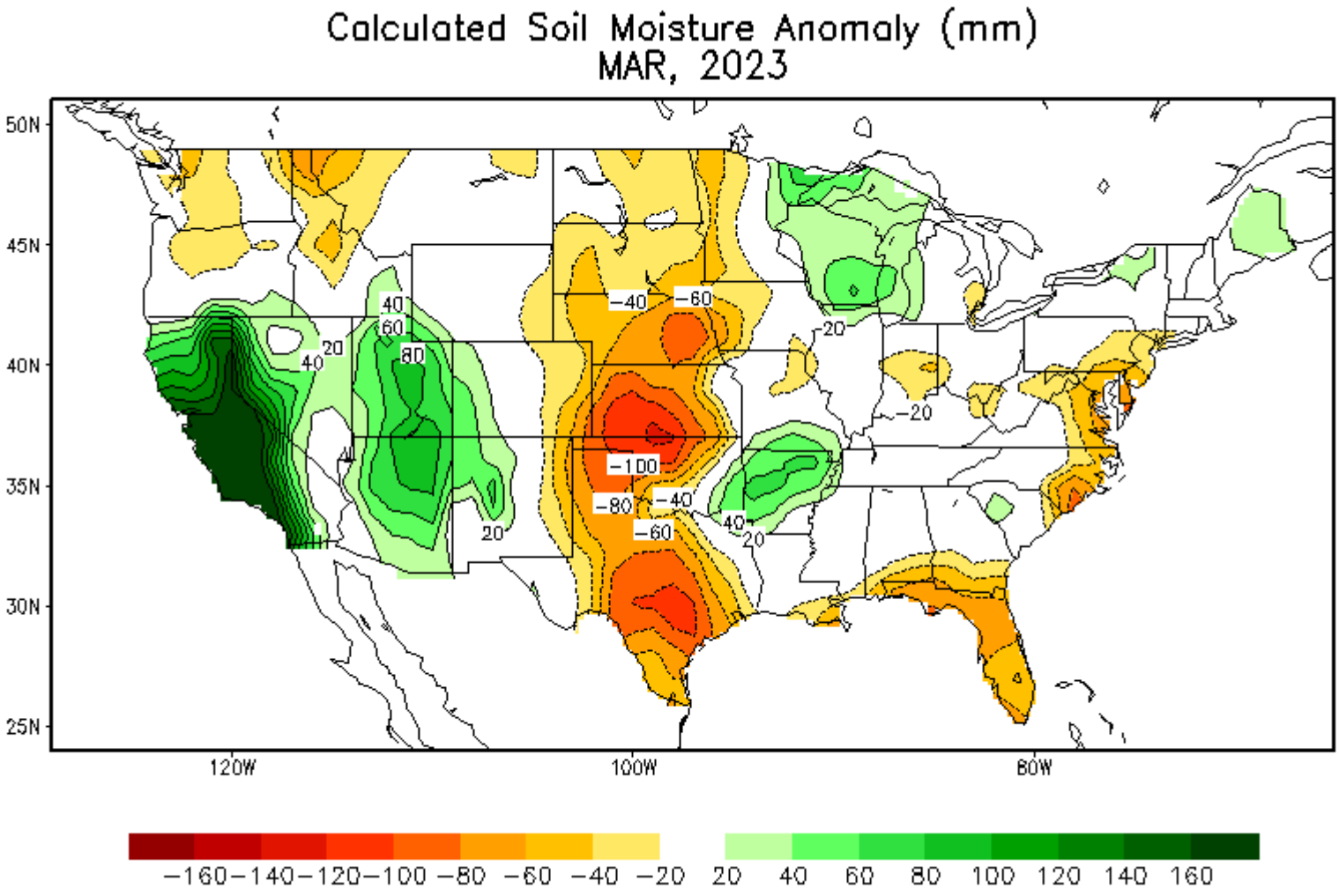

Figure 7: Climate Prediction Center's monthly average soil moisture anomaly for March 2023.

Shallow and Deep Soil Moisture Percentiles

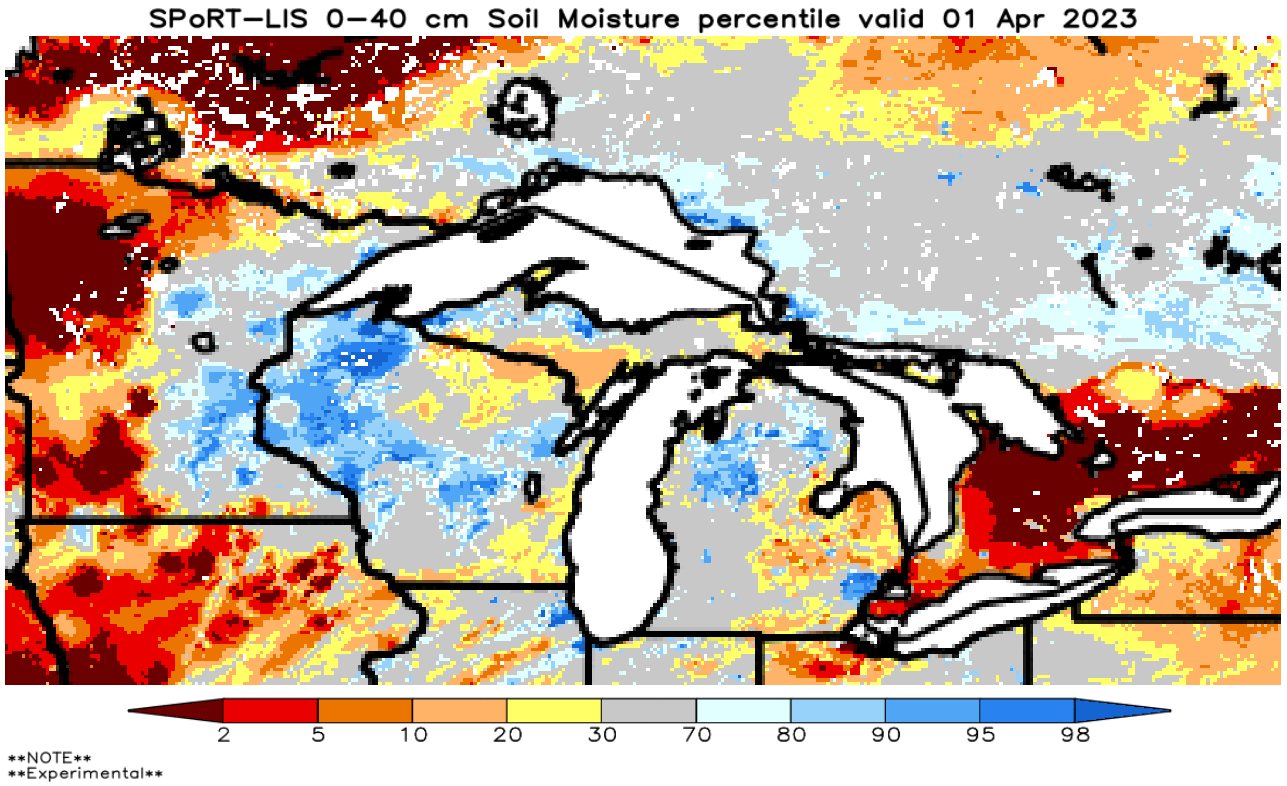

Figure 8: NASA's Short-term Prediction Research and Transition (SPoRT) Center's shallow (0-40 cm) soil moisture percentile valid April 1st, 2023.

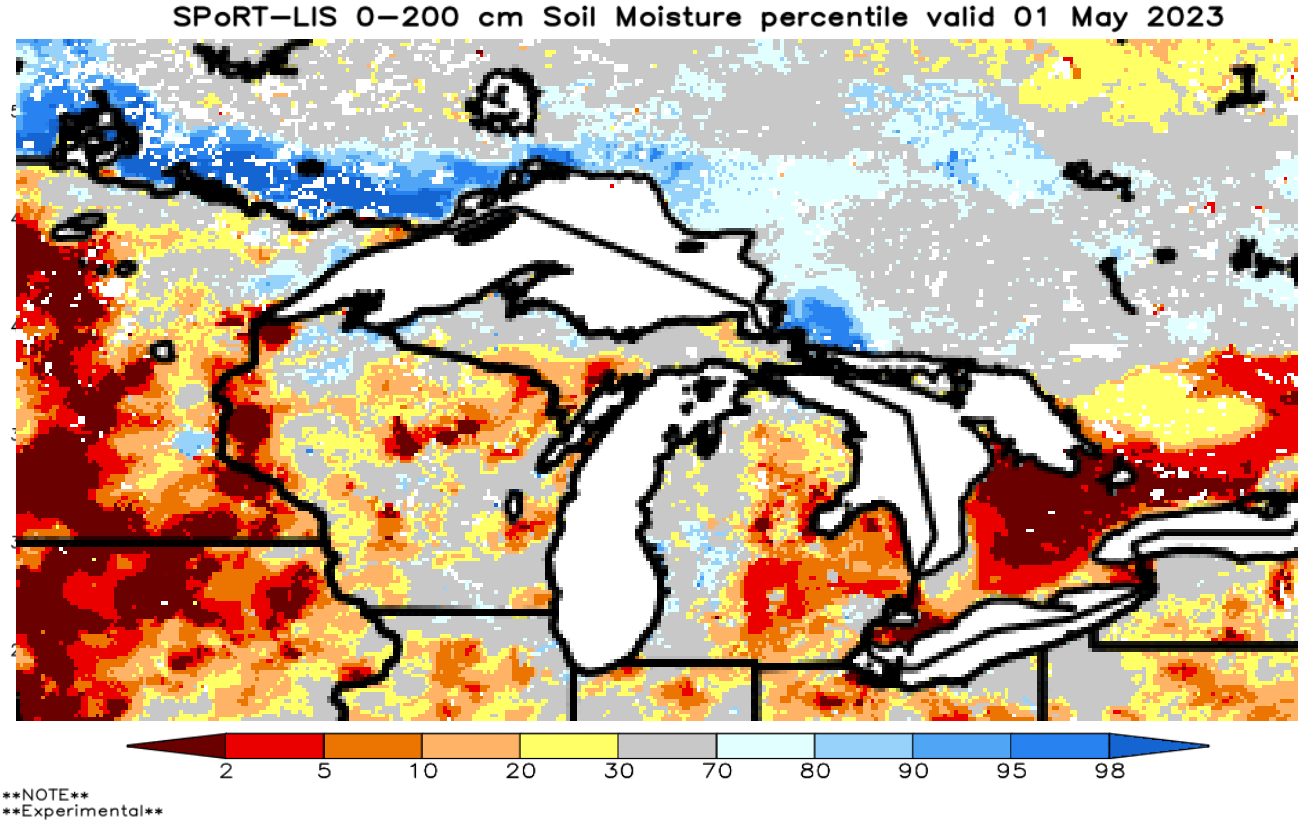

Figure 9: NASA's Short-term Prediction Research and Transition (SPoRT) Center's deep (0-200 cm) soil moisture percentile valid April 1st, 2023.