Monthly Hydrometeorological Report

Report for January 2024

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): **January 2024** DATE: **February 13th, 2024** SIGNATURE: **Evan Kutta, Hydro Program Manager** **Matt Zika, AMIC**
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

Precipitation was below normal across most of Upper Michigan during January with most sites only getting 59% to 69% of their monthly average (Table 1). This primarily fell as snow with the Keweenaw and north-central Upper Michigan racking up about 4 feet of snow during January. WFO Marquette was the only site with above normal precipitation observed and 78% of that precipitation fell in the 8-day stretch between Jan 12th and 19th. A blizzard on Jan 12-13 brought strong ENE winds that may have artificially increased WFO Marquette's precipitation amounts due to snow blowing off the roof. Several consecutive days of heavy lake effect snow occurred on the Keweenaw after the blizzard, including Quincy Hill. This week of locally heavy snow was not enough to compensate for the lack of snowpack at the beginning of January with snow water equivalent values ranging from 10% to 50% of normal across Upper Michigan to start February (Figure 3). The lack of snowpack is particularly concerning considering below normal soil moisture content (Figures 7-9) and abnormally dry to severe drought conditions analyzed across Upper Michigan (Figure 4) that has persisted since late summer.

Location	Precipitation	% of Normal	Snowfall
WFO Marquette	3.27”	140%	47.4”
Marquette City	1.15”	62%	11.2”
Quincy Hill	2.90”	M	50.5”
Ironwood	1.18”	60%	14.8”
Iron Mountain	0.94”	69%	10.3”
Manistique	1.01”	59%	12.0”
Munising	2.31”	65%	31.9”
Stambaugh	0.89”	82%	9.8”

Table 1. Precipitation, percent of normal precipitation, and snowfall values observed across Upper Michigan during January 2024. **NOTE:** Precipitation after 8 AM EST January 31st was counted in February stats for all but the WFO Marquette site due to the reporting structure of our cooperative observers.

November-January Precipitation Summary

Location	Precipitation	% of Normal	Rank	Last Year
WFO Marquette (Records: 1962-2023)	7.17”	90%	T-26th driest	11.70”
Marquette City (Records: 1875-2023)	4.17”	72%	24th driest	7.23”
Ironwood (Records: 1901-2023)	5.00”	70%	20th driest	14.17”
Iron Mountain (Records: 1902-2023)	2.49”	52%	13th driest	6.93”
Manistique (Records: 1938-2023)	4.84”	79%	24th driest	9.80”
Munising (Records: 1912-2023)	8.18”	86%	37th driest	12.70”
Stambaugh (Records: 1900-2023)	2.59”	58%	12th driest	6.92”

Table 2. Total observed precipitation at long-term climate sites across Upper Michigan for November 2023 through January 2024.

November-January Temperature Summary

Location	Avg Temp	Departure	Rank	Last Year
WFO Marquette (Records: 1962-2023)	27.4°F	+6.4°F	2nd warmest	25.3°F
Marquette City (Records: 1875-2023)	30.8°F	+5.1°F	5th warmest	29.4°F
Ironwood (Records: 1901-2023)	26.0°F	+6.3°F	4th warmest	21.8°F
Iron Mountain (Records: 1902-2023)	28.1°F	+6.0°F	T-4th warmest	26.3°F
Manistique (Records: 1938-2023)	29.2°F	+4.1°F	42nd warmest	28.7°F
Munising (Records: 1912-2023)	29.1°F	+4.1°F	28th warmest	27.9°F
Stambaugh (Records: 1900-2023)	25.5°F	+5.9°F	5th warmest	22.9°F

Table 3. Total observed precipitation at long-term climate sites across Upper Michigan for November 2023 through January 2024.

Flooding Conditions

There were no flooding concerns during the month of January 2024.

Media Links

None.

River Conditions

Streamflow was mainly near normal during January across Upper Michigan. Streamflow for the Pine, Carp, and Munuscong Rivers of far eastern Upper Michigan were below normal whereas the Montreal River of far western Upper Michigan was much above normal.

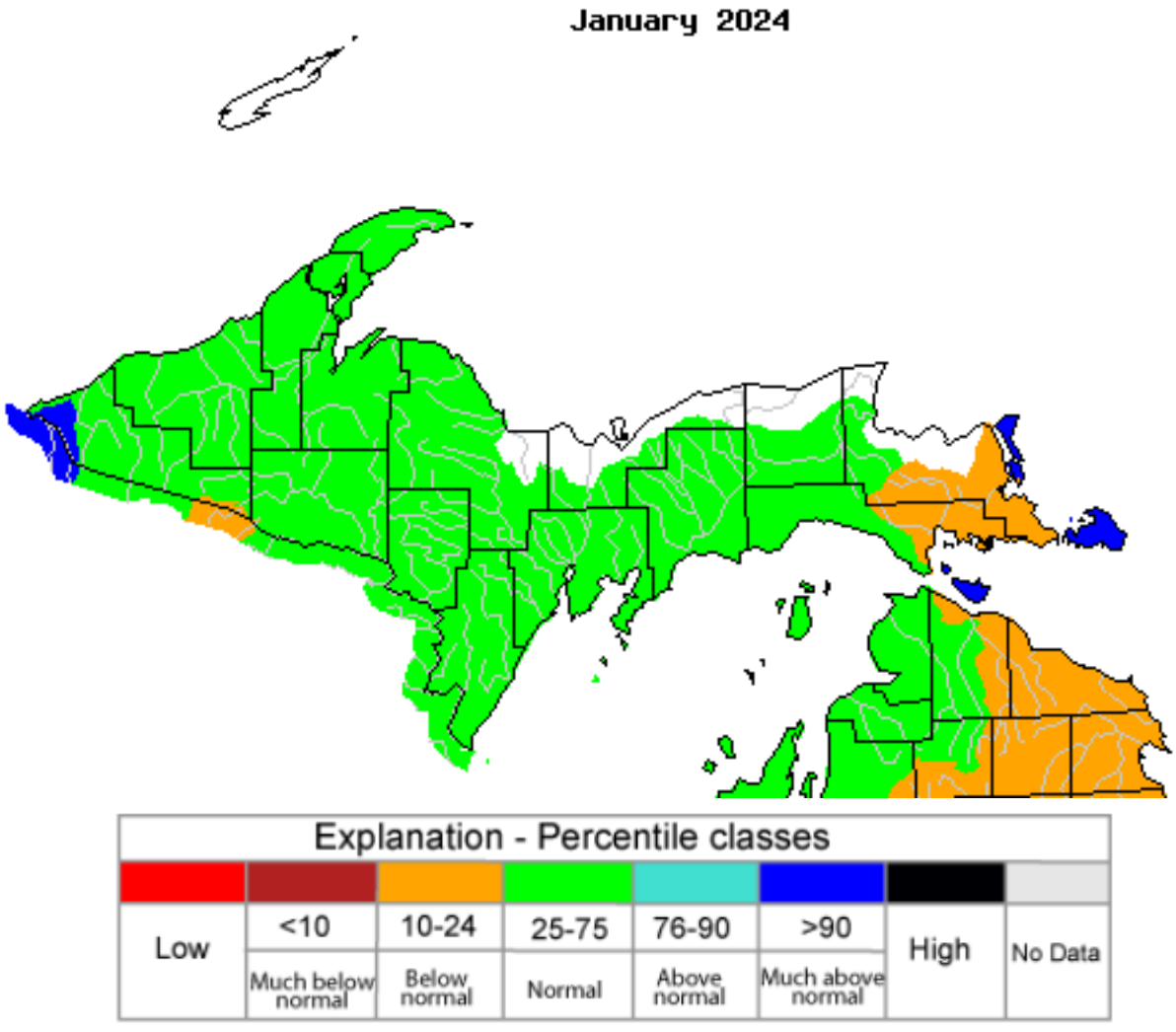


Figure 1: USGS monthly average streamflow in January 2024 across Upper Michigan

Snowpack SWE (Snow Water Equivalent) Conditions

All but the far eastern UP has less than half of their 19-year median snow water equivalent values. This equates to SWE values of 1-4 inches for the traditional lake effect snow belts with less than an inch elsewhere.

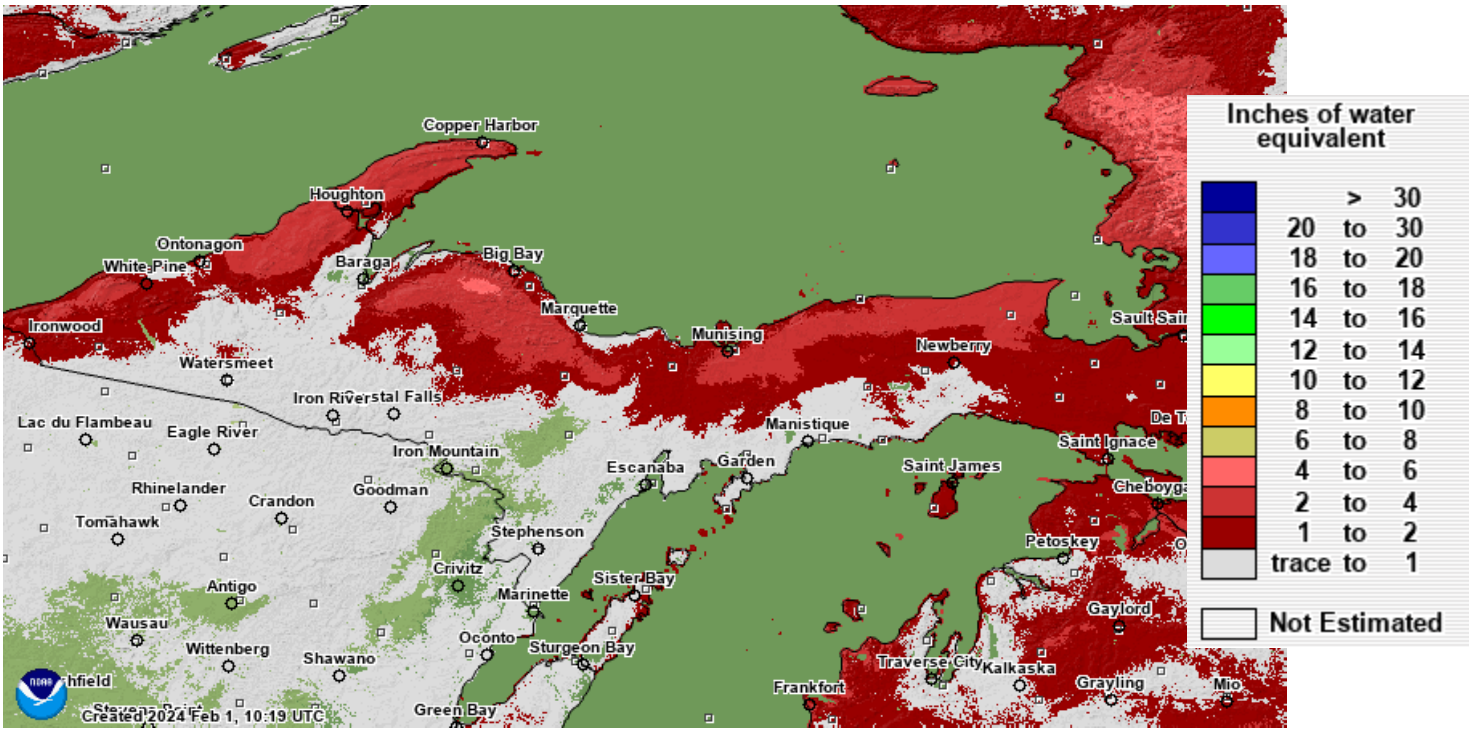


Figure 2: Current modeled snowpack snow water equivalent on February 1st, 2024.

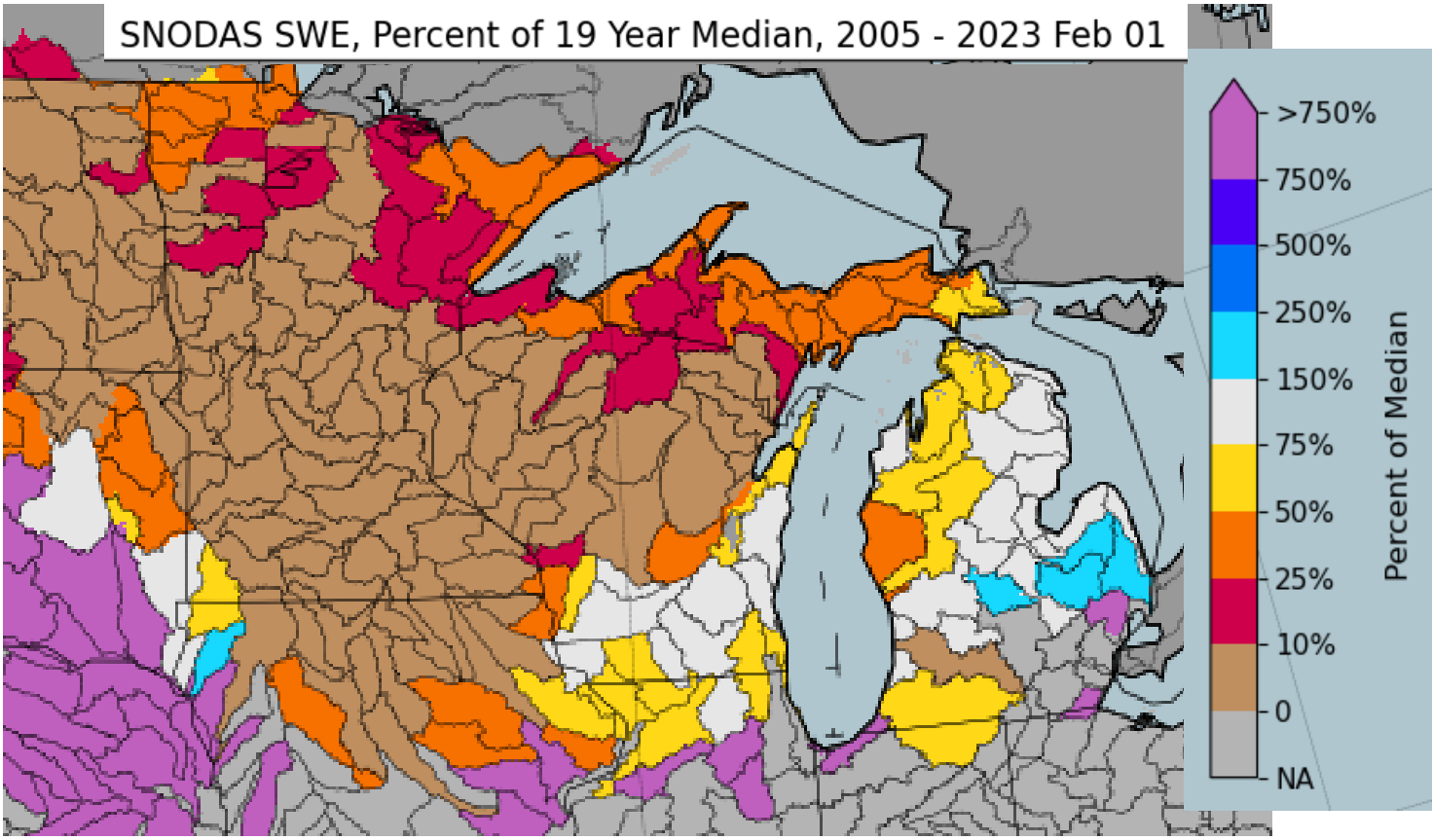
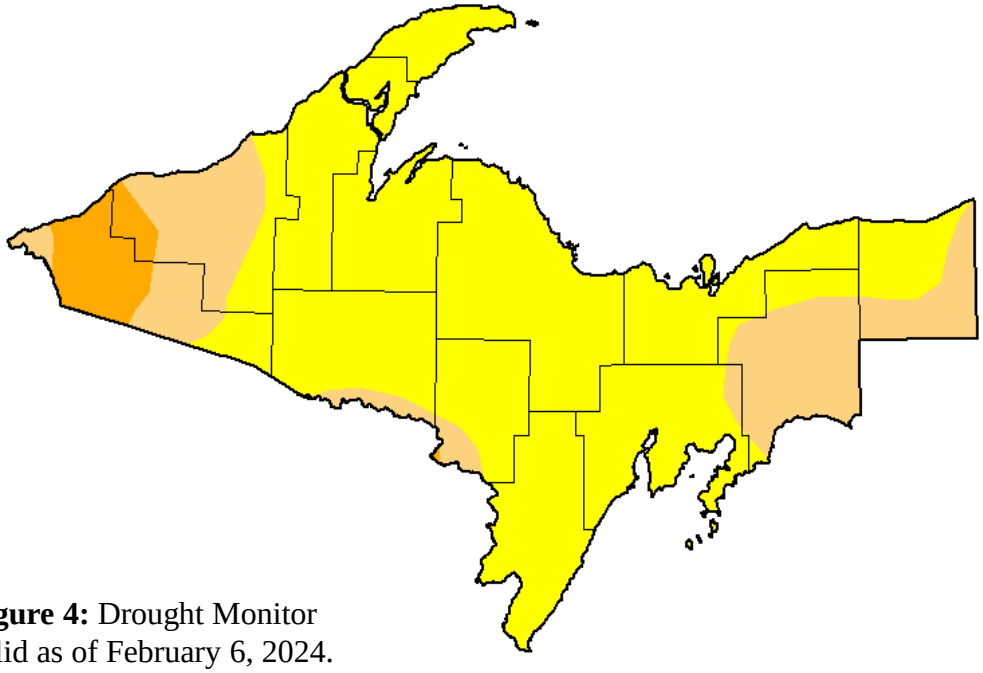


Figure 3: Modeled snow water equivalent for drainage basins on February 1st as a percent of 19-year median.

Drought Discussion

Widespread below normal precipitation allowed for a continuation of the abnormally dry to locally severe drought continued across Upper Michigan during January. For the latest drought status, please visit http://www.drought.gov.



February 6, 2024
(Released Thursday, Feb. 8, 2024)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	25.83	4.96	0.00	0.00
Last Week 01-30-2024	0.00	100.00	25.83	4.96	0.00	0.00
3 Months Ago 11-07-2023	46.35	53.65	13.74	4.92	0.00	0.00
Start of Calendar Year 01-02-2024	0.01	99.99	15.20	4.96	0.00	0.00
Start of Water Year 09-26-2023	55.88	44.12	13.42	5.42	0.00	0.00
One Year Ago 02-07-2023	100.00	0.00	0.00	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:
Deborah Bathke
National Drought Mitigation Center

droughtmonitor.unl.edu

Figure 4: Drought Monitor valid as of February 6, 2024.

Hydro Products Issued

Product	Number
Hydrologic Outlook (ESF)	0
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

Precipitation Summary

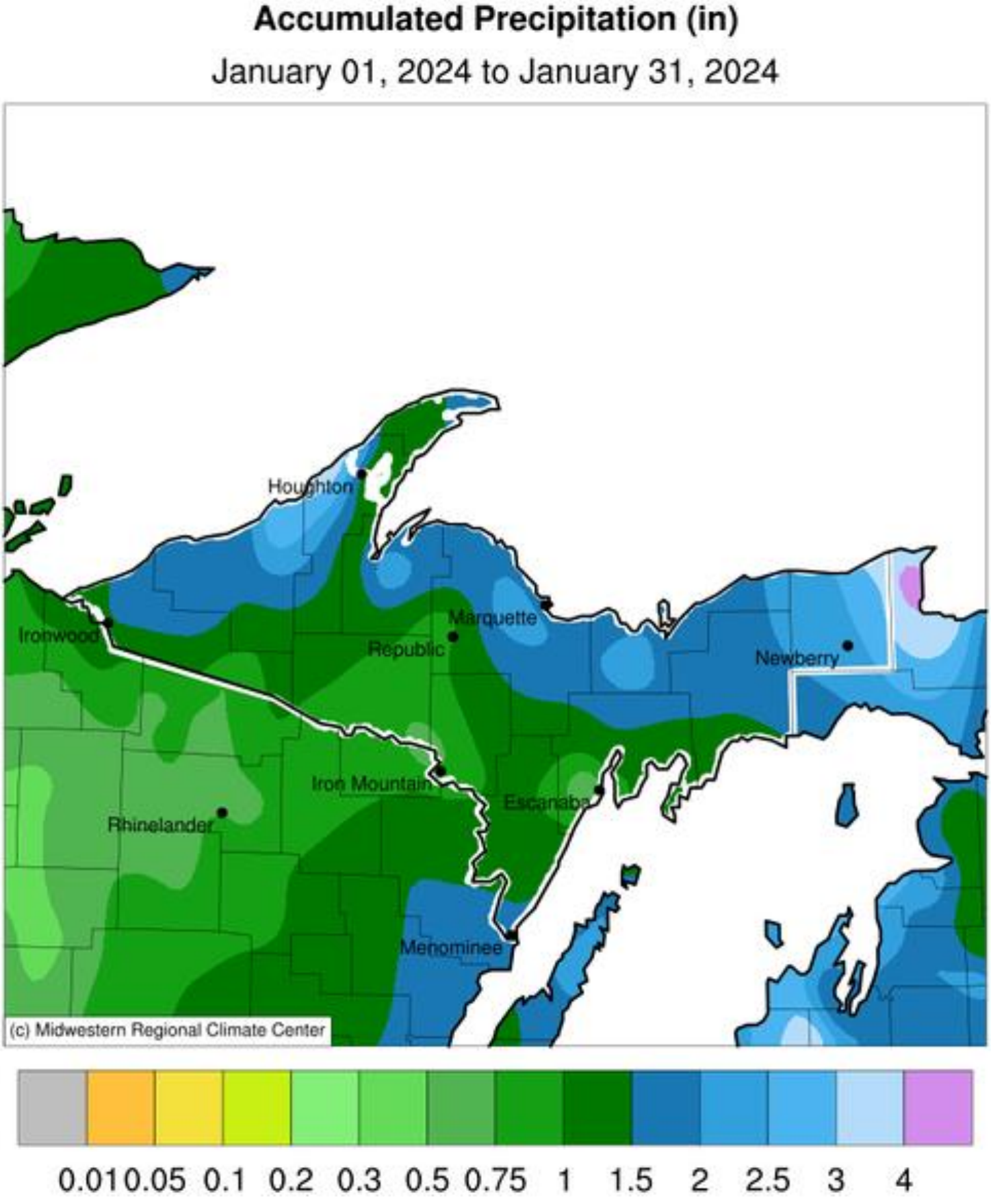


Figure 5: January 2024 Monthly Precipitation Totals.

Precipitation Summary Continued

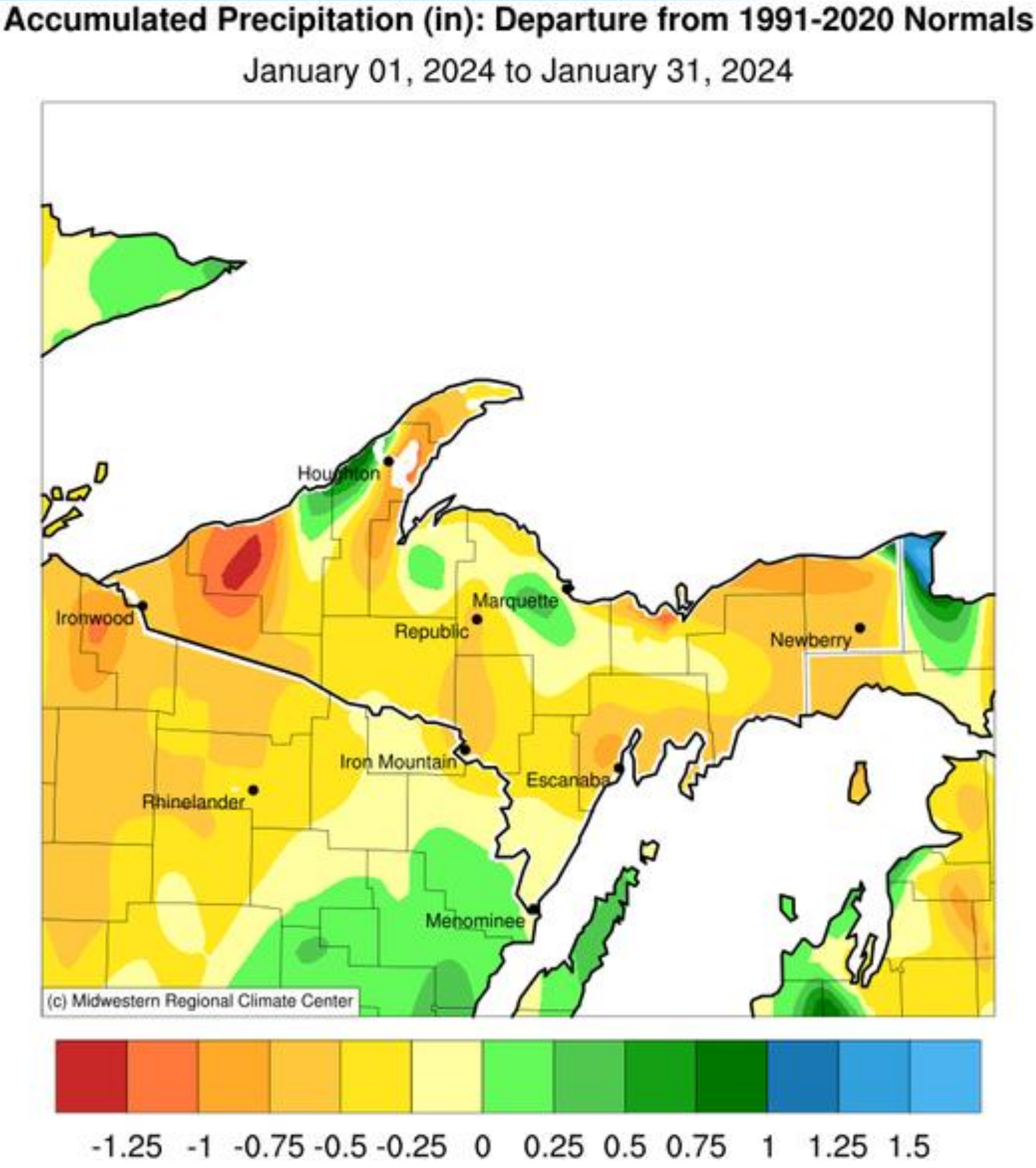


Figure 6: January 2024 Percent of Normal of Accumulated Precipitation.

Soil Moisture Anomaly

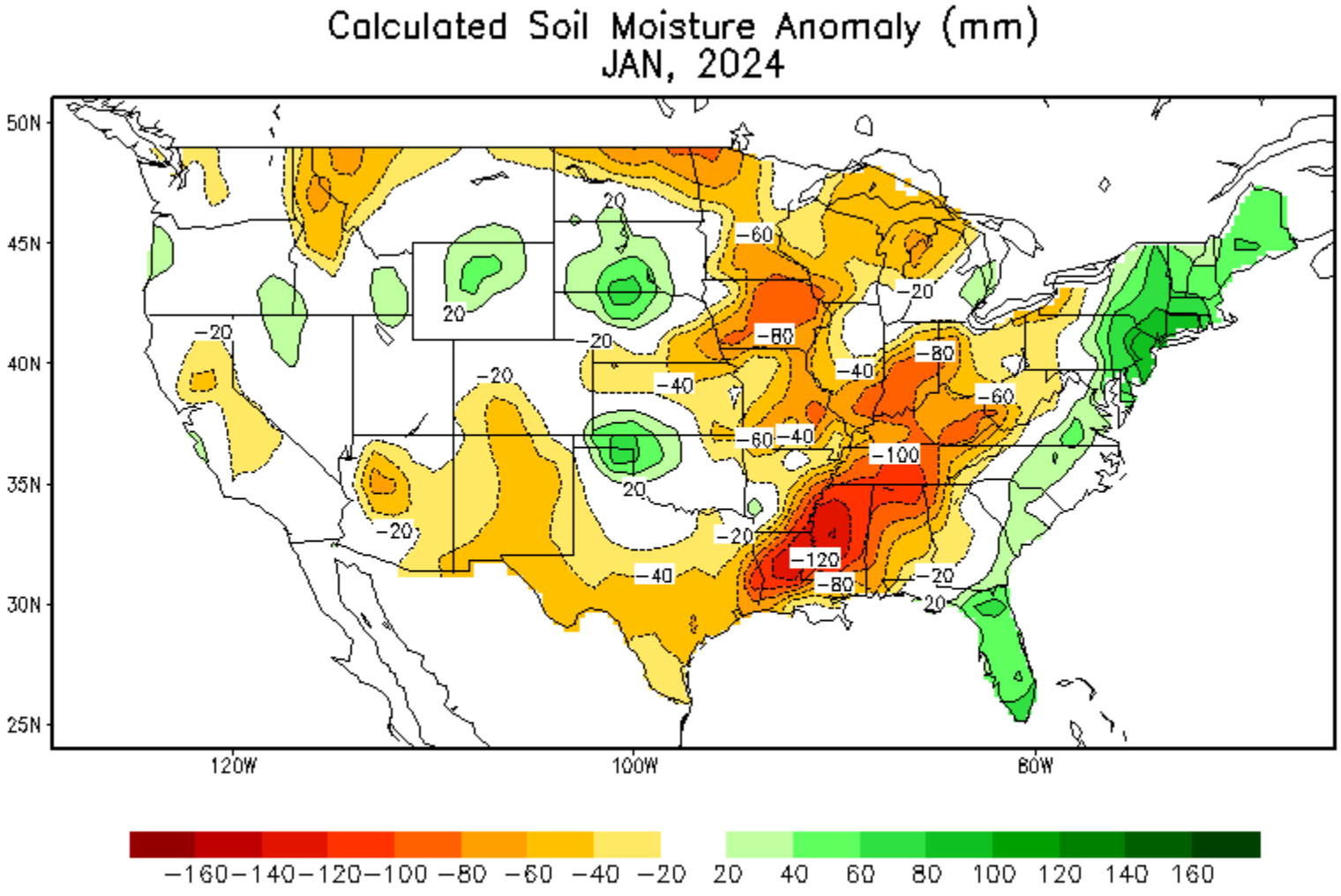


Figure 7: Climate Prediction Center's monthly average soil moisture anomaly for January 2024.

Shallow and Deep Soil Moisture Percentiles

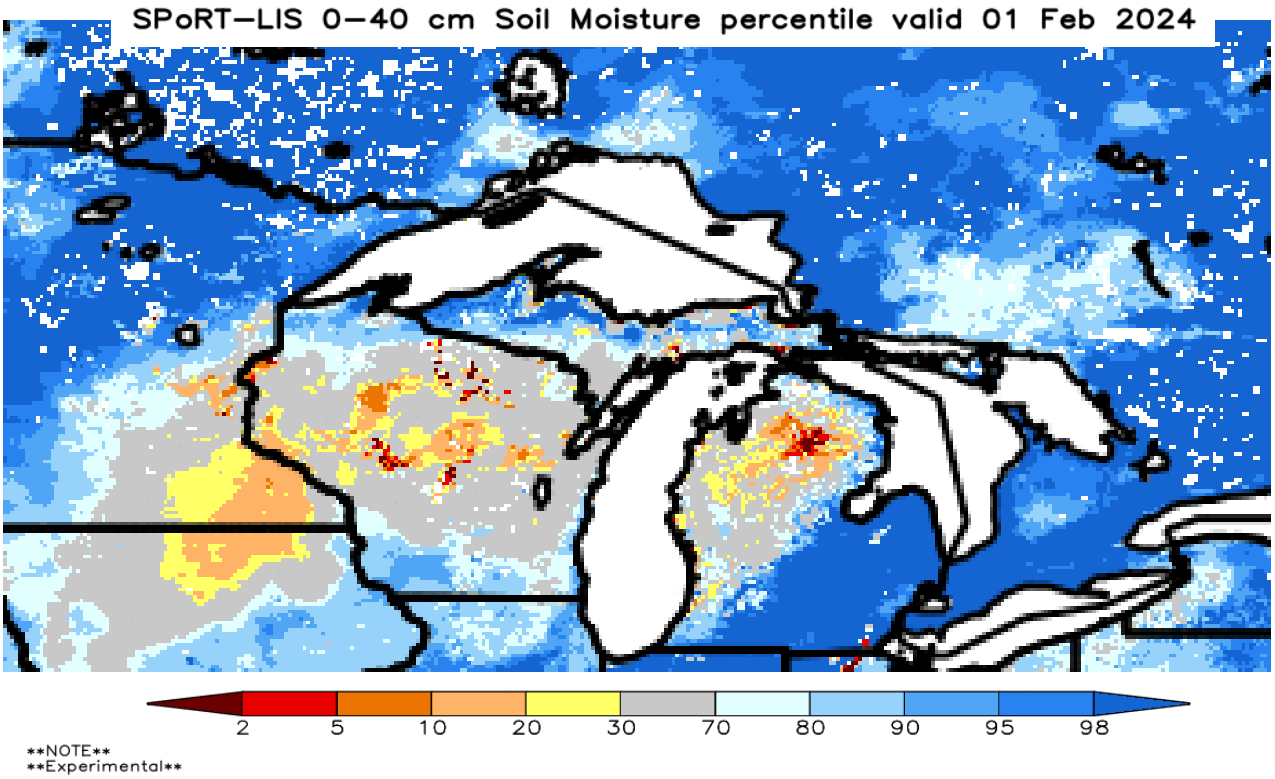


Figure 8: NASA's Short-term Prediction Research and Transition (SPoRT) Center's shallow (0-40 cm) soil moisture percentile valid February 1, 2024.

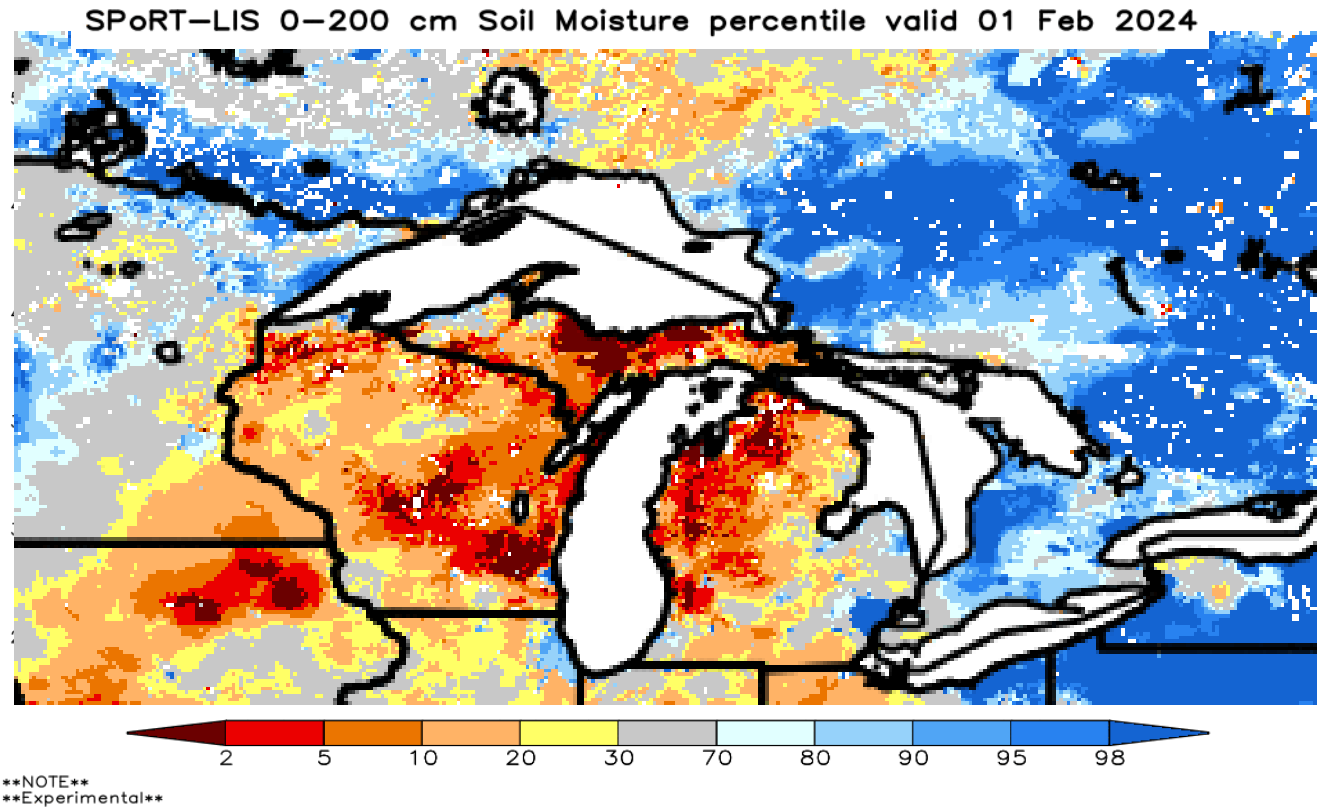


Figure 9: NASA's Short-term Prediction Research and Transition (SPoRT) Center's deep (0-200 cm) soil moisture percentile valid February 1, 2024.