Monthly Hydrometeorological Report

Report for August 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): **August 2024** DATE: **September 10th, 2024** SIGNATURE: **James S. Salzwedel, OPL** **Ryan Metzger, 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

Rainfall was near to below-normal across most of Upper Michigan during August with values ranging from 1.85” inches at Iron Mountain to 5.03” inches at the Lake Superior shoreline in Marquette (Table 1). The outliers with above normal precipitation were northern sections of the U.P. from the Keweenaw southeast to WFO Marquette (Negaunee Township) and Munising; where 4.09” inches and 3.42” inches accumulated during the month (Table 1). The least amount of rainfall fell over the south-central U.P., where the NWS CO-OP observers at the Escanaba Water Filtration Plant (Ludington Park) only measured 1.16” inches for the entire month of August (Figure 6).

August temperatures were near or above normal for most, but below normal along Lake Michigan at Manistique with persistent southerly winds off Lake Michigan. Temperature departures ranged from near normal at Stambaugh, Ironwood and Munising to ranging from + 1.0°F to +1.8°F. The U.S. Drought Monitor graphic depicts abnormally dry conditions along the Porcupine Mountains in Ontonagon and Gogebic Counties and along portions of the south-central U.P. along the Menominee River Basin (Figure 4). Streamflow was normal during August across much of Upper Michigan, with below normal flows in the Michigamme, Menominee, and Tahquamenon Basins (Figure 1).

For the meteorological summer, rainfall was above normal in most places. In fact, the City of Marquette, Munising and Stambaugh each tallied greater than a foot of rainfall this summer (Table 2). A CoCoRaHS station in Carlshend in eastern Marquette County observed just over 15 inches (15.09”) of rainfall this summer! Munising and Marquette both over-achieved at 140% percent to 146% of their normal rainfall for the summer season. The City of Marquette had one rainfall event that yielded 2.81” inches alone in August while Munising had an event total 2.58” inches in the month of June. Interior sections of the south-central U.P. had below normal seasonal rainfall as Iron Mountain only received 83% percent of their normal summer season precipitation.

For the year-to-date, observation sites ranged from 97% to 137% of normal precipitation with 30.48” inches of precipitation at Munising ranking as the 5th wettest January through August time frame on record (Table 4). Summer temperatures were warmer than last year and the departures from normal ranged from 1.6°F below normal at Stambaugh to 1.2°F above normal at the lakeshore in Marquette. Manistique was the outlier at 3.3°F below normal for the summer season (Table 3).

For the year-to-date, temperatures were significantly warmer than last year and were between 0.9°F and 3.9°F above normal across Upper Michigan with WFO Marquette ranking as the 4th warmest January through August time period on record (Table 5). Iron Mountain and Munising both placed 5th in their warmest January through August time period (Table 5).

(August) Precipitation Summary

Location	Precipitation	% of Normal	Average Temperature	Departure from Normal
WFO Marquette	4.09”	129%	64.4°F	+1.0°F
Marquette City	5.03”	181%	67.4°F	+1.4°F
Quincy Hill	2.77”	M	M	M
Ironwood	2.56”	67%	64.2°F	-0.6°F
Iron Mountain	1.85”	52%	67.6°F	+1.8°F
Manistique	2.42”	78%	62.6°F	-2.0°F
Munising	3.42”	111%	64.7°F	+0.7°F
Stambaugh	2.35”	68%	62.3°F	-0.5°F

Table 1. Observed liquid equivalent precipitation, percent of normal, and snowfall at long-term climate sites across Upper Michigan for August 2024.

NOTE: Precipitation after 8 AM EST July 31st was counted in August stats for all but the WFO Marquette site due to the reporting structure of our NWS Cooperative Observers.

Summer (June – August) Precipitation Summary

Location	Precipitation	% of Normal	Rank	Last Year
WFO Marquette (Records: 1962-2023)	11.52	120%	14	13.59
Marquette City (Records: 1875-2023)	12.90	146%	13	10.14
Ironwood (Records: 1901-2023)	11.48	96%	57	8.00
Iron Mountain (Records: 1902-2023)	8.84	83%	85	9.09
Manistique (Records: 1938-2023)	10.33	110%	31	6.59
Munising (Records: 1912-2023)	13.48	140%	9	8.34
Stambaugh (Records: 1900-2023)	12.03	108%	44	9.33

Table 2. Total observed precipitation at long-term climate sites across Upper Michigan for June, July, and August 2024.

Summer (June – August) Temperature Summary

Location	Avg Temp	Departure	Rank	Last Year
WFO Marquette (Records: 1962-2023)	63.4	+0.4F	28	62.7
Marquette City (Records: 1875-2023)	65.2	+1.2F	34	62.4
Ironwood (Records: 1901-2023)	63.8	-0.7F	74	63.6
Iron Mountain (Records: 1902-2023)	66.5	+0.9F	39	66.1
Manistique (Records: 1938-2023)	59.4	-3.3F	88	60.7
Munising (Records: 1912-2023)	63.0	+0.4F	38	61.0
Stambaugh (Records: 1900-2023)	61.2	-1.6F	96	61.4

Table 3. Average temperature observed at long-term climate sites across Upper Michigan for June, July, and August 2024.

Year-to-Date Precipitation Summary

Location	Precipitation	% of Normal	Rank	Last Year
WFO Marquette (Records: 1962-2023)	26.45”	114%	19th wettest	35.54”
Marquette City (Records: 1875-2023)	22.48”	115%	40th wettest	25.57”
Ironwood (Records: 1901-2023)	23.00”	97%	64th wettest	27.21”
Iron Mountain (Records: 1902-2023)	22.06”	109%	33rd wettest	21.90”
Manistique (Records: 1938-2023)	23.30”	119%	12th wettest	19.68”
Munising (Records: 1912-2023)	30.48”	137%	5th wettest	29.09”
Stambaugh (Records: 1900-2023)	22.78”	110%	37th wettest	21.02”

Table 4. Total observed precipitation at long-term climate sites across Upper Michigan for January through August 2024.

Year-to-Date Temperature Summary

Location.	Avg Temp	Departure	Rank	Last Year
WFO Marquette (Records: 1962-2023)	45.1F	+3.6F	4th warmest	43.3F
Marquette City (Records: 1875-2023)	46.7F	+2.9F	11th warmest	44.3F
Ironwood (Records: 1901-2023)	44.7F	+2.3F	16th warmest	43.0F
Iron Mountain (Records: 1902-2023)	47.9F	+3.9F	5th warmest	45.9F
Manistique (Records: 1938-2023)	43.5F	+0.9F	28th warmest	43.0F
Munising (Records: 1912-2023)	45.4F	+2.9F	5th warmest	43.3F
Stambaugh (Records: 1900-2023)	43.6F	+2.2F	18th warmest	41.7F

Table 5. Average temperature observed at long-term climate sites across Upper Michigan for January through August 2024.

Flooding Conditions

No river flooding concerns during the month of August 2024.

There were reports of isolated street and parking lots that were flooded with several inches of water in the City of Negaunee on August 16th. Law enforcement closed a local street at one point in the low spot under the overpass in downtown Negaunee and there was three to five inches of standing water at the parking lots adjacent to Teal Lake Avenue and US-41. There were also reports of standing water in the City of Munising. Rainfall rates of over one inch per hour were observed on the afternoon of the 16th across the U.P. The NWS Paulding CO-OP observer observed that 1.84" inches of rainfall fell in a one hour period. The NWS CO-OP observers in the City of Marquette at the Water Filtration Plant measured 2.81 inches at the shore while the NWS recorded 2.10 inches in Negaunee Township.

Media Links

River Conditions

[Basin streamflow relative to normal]

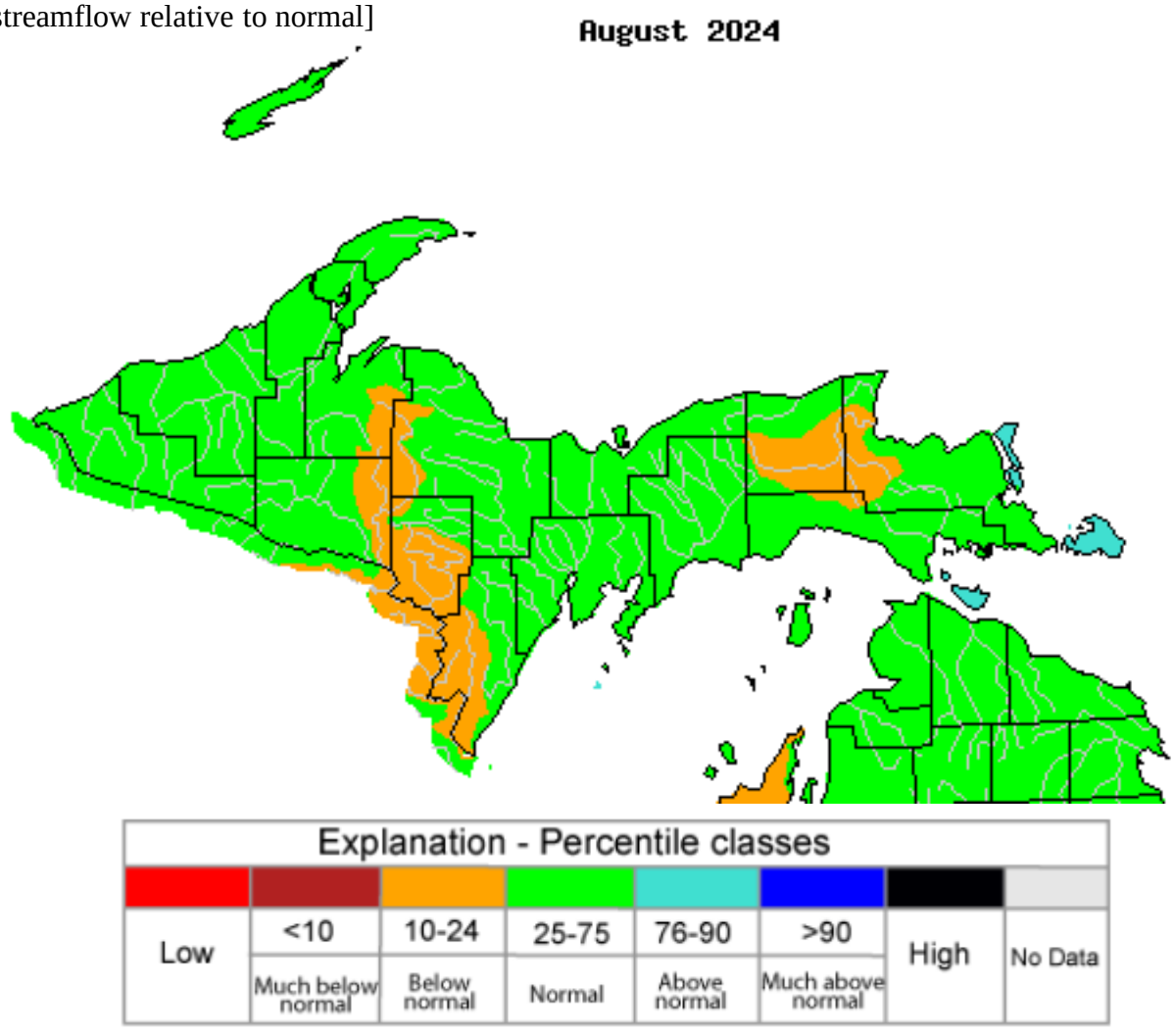

Figure 1: USGS monthly average streamflow in August 2024 across Upper Michigan

Snowpack SWE (Snow Water Equivalent) Conditions

Snowpack is on summer vacation!

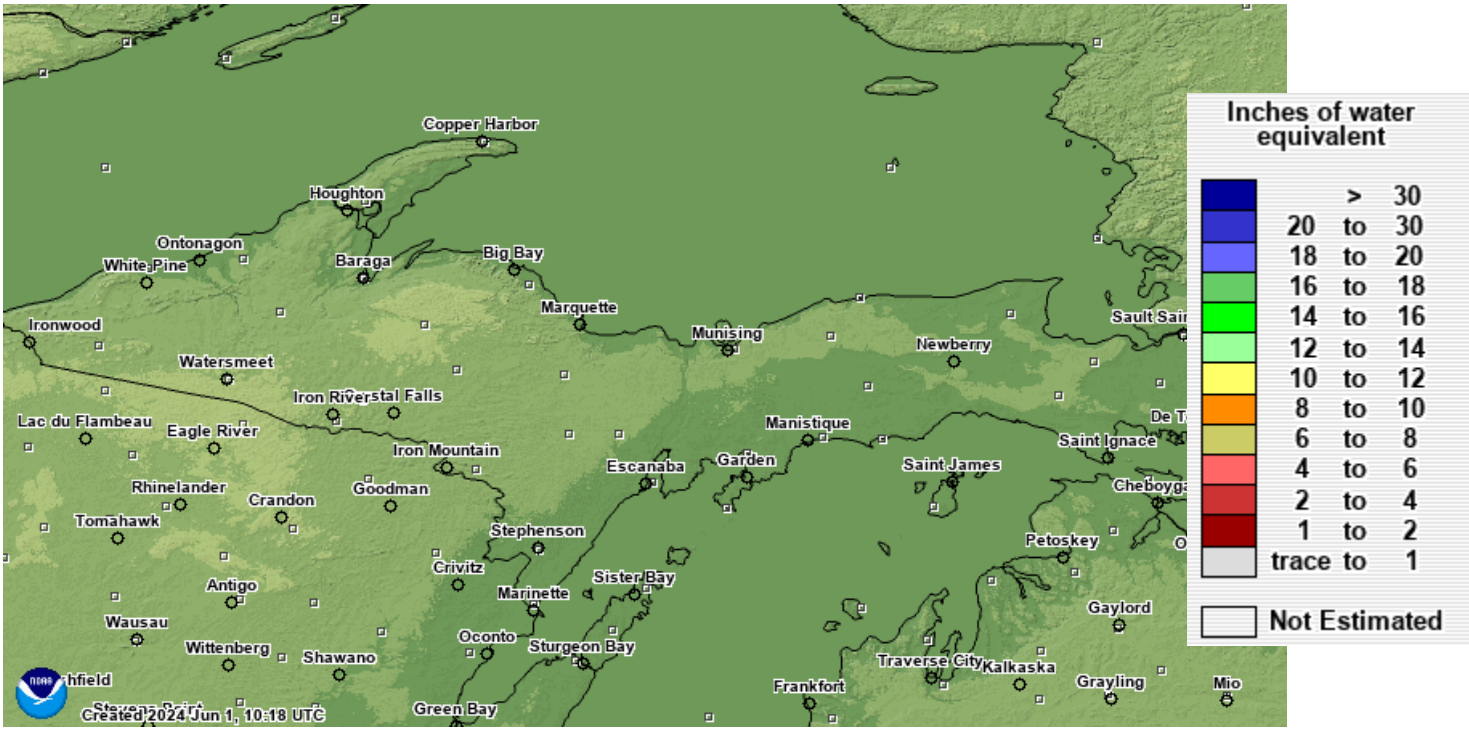

Figure 2: Current modeled snowpack snow water equivalent on September 1st, 2024.

SNODAS SWE, Percent of 19 Year Median, 2005-2024 Sep 05

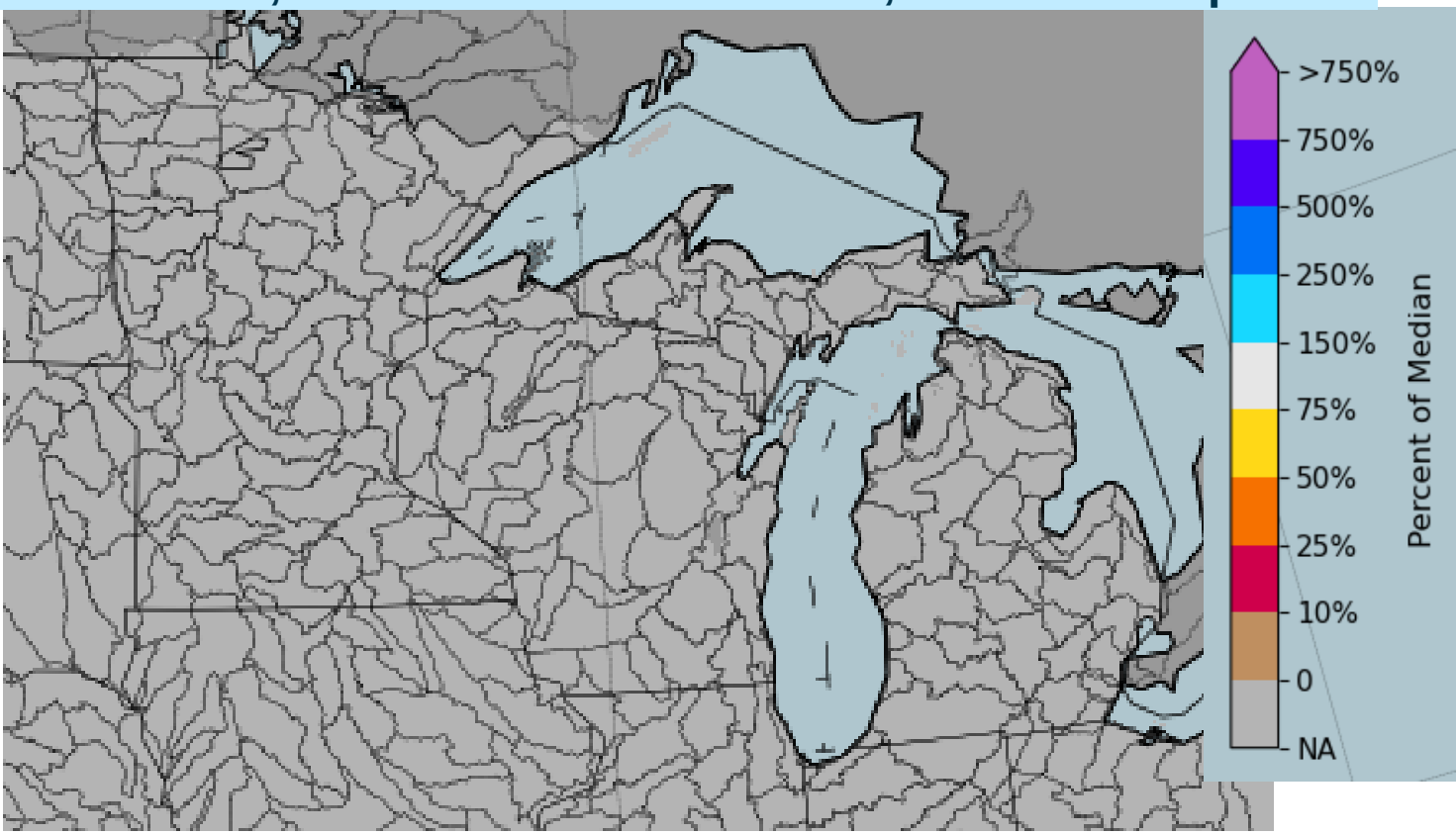

Figure 3: Modeled snow water equivalent for drainage basins on September 5th , 2024 as a percent of 19-year median.

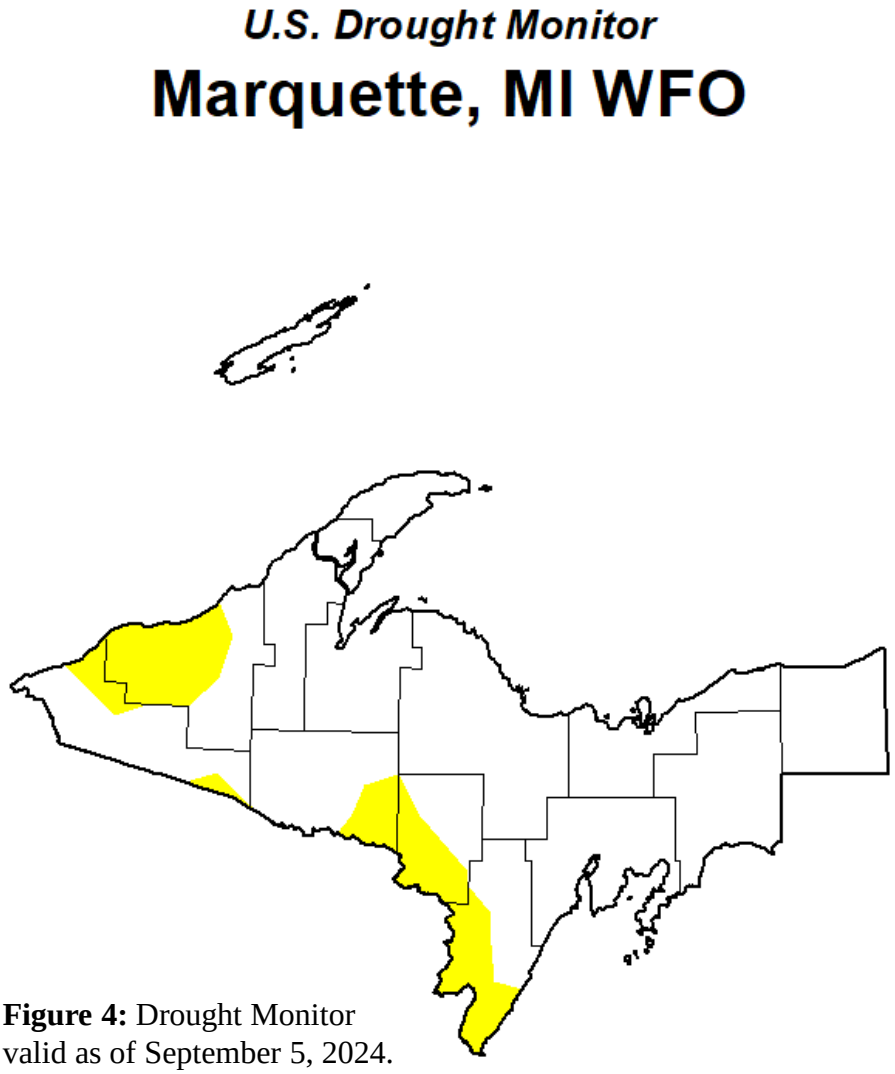

Figure 4: Drought Monitor valid as of September 5, 2024.

Hydro Products Issued

Product	Number
Hydrologic Outlook (ESF)	00
Flood Watch (FFA)	00
Flood Warning (FLW)	00
Flood Advisories and Statements (FLS)	06
Flash Flood Warning (FFW)	00
Flash Flood Statement (FFS)	00
Hydrologic Summary (RVA)	31

Precipitation Summary

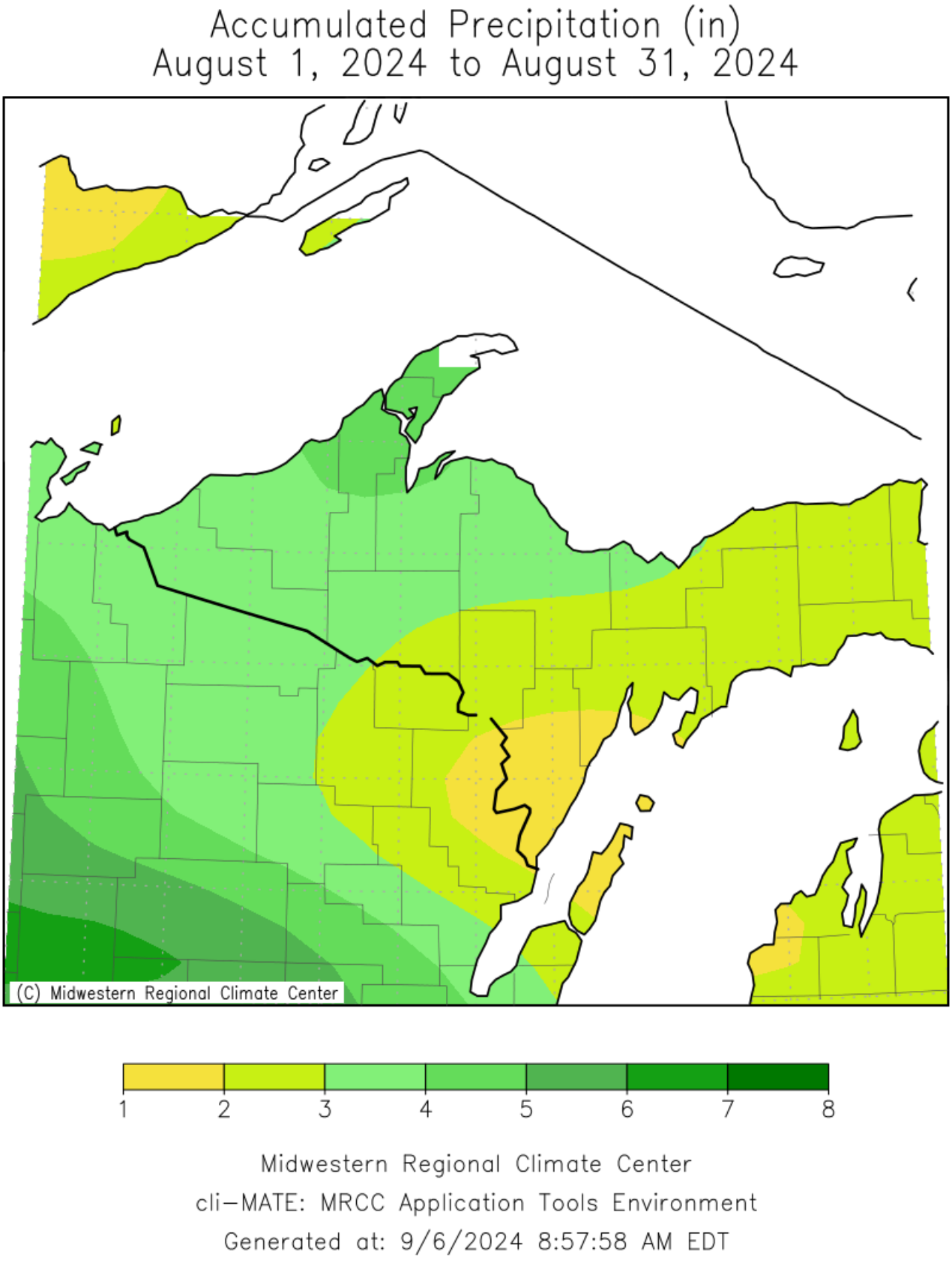

Figure 5: August 2024 Monthly Precipitation Totals.

Precipitation Summary Continued

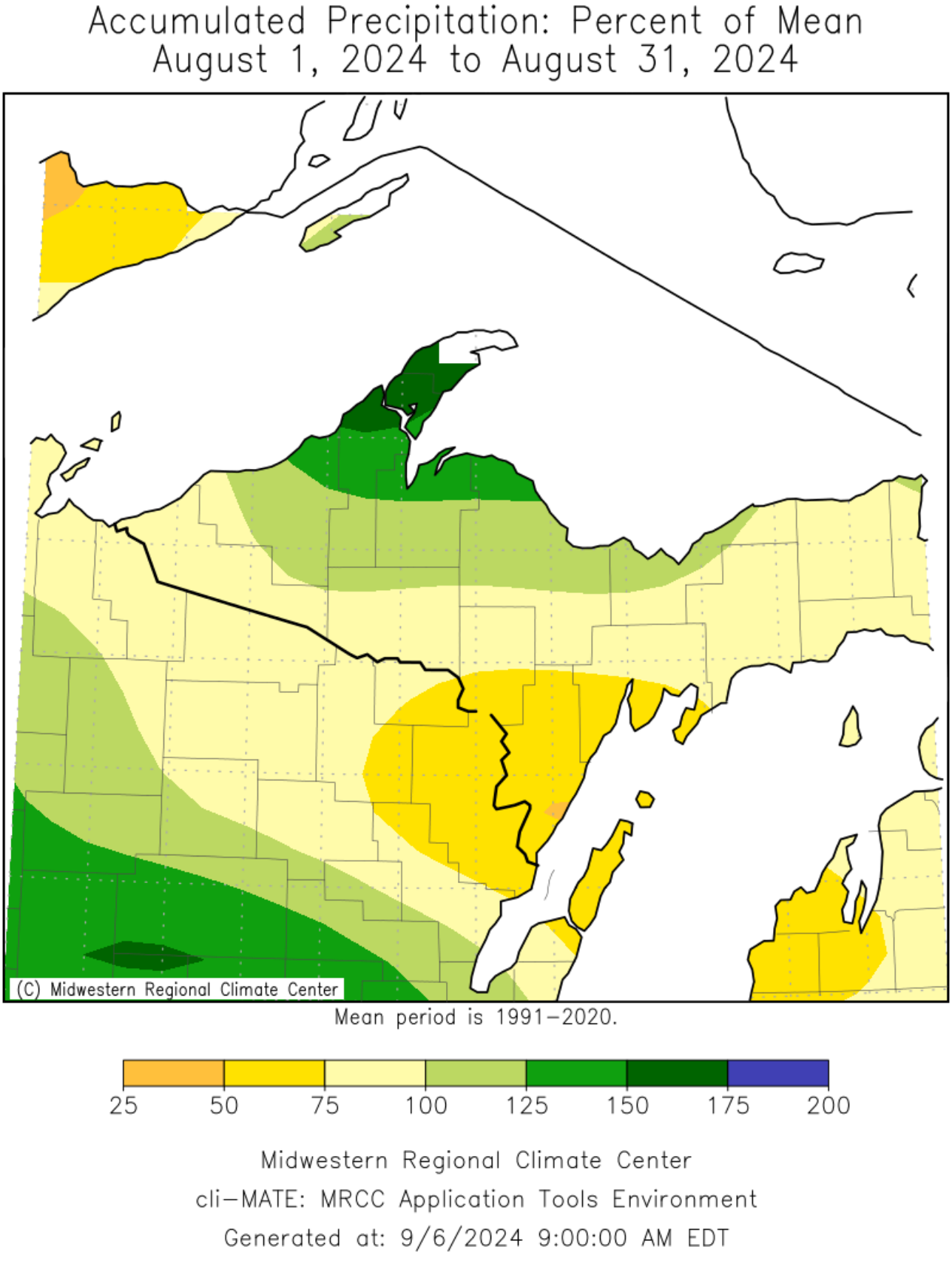

Figure 6: August 2024 Percent of Normal of Accumulated Precipitation.

Soil Moisture Anomaly

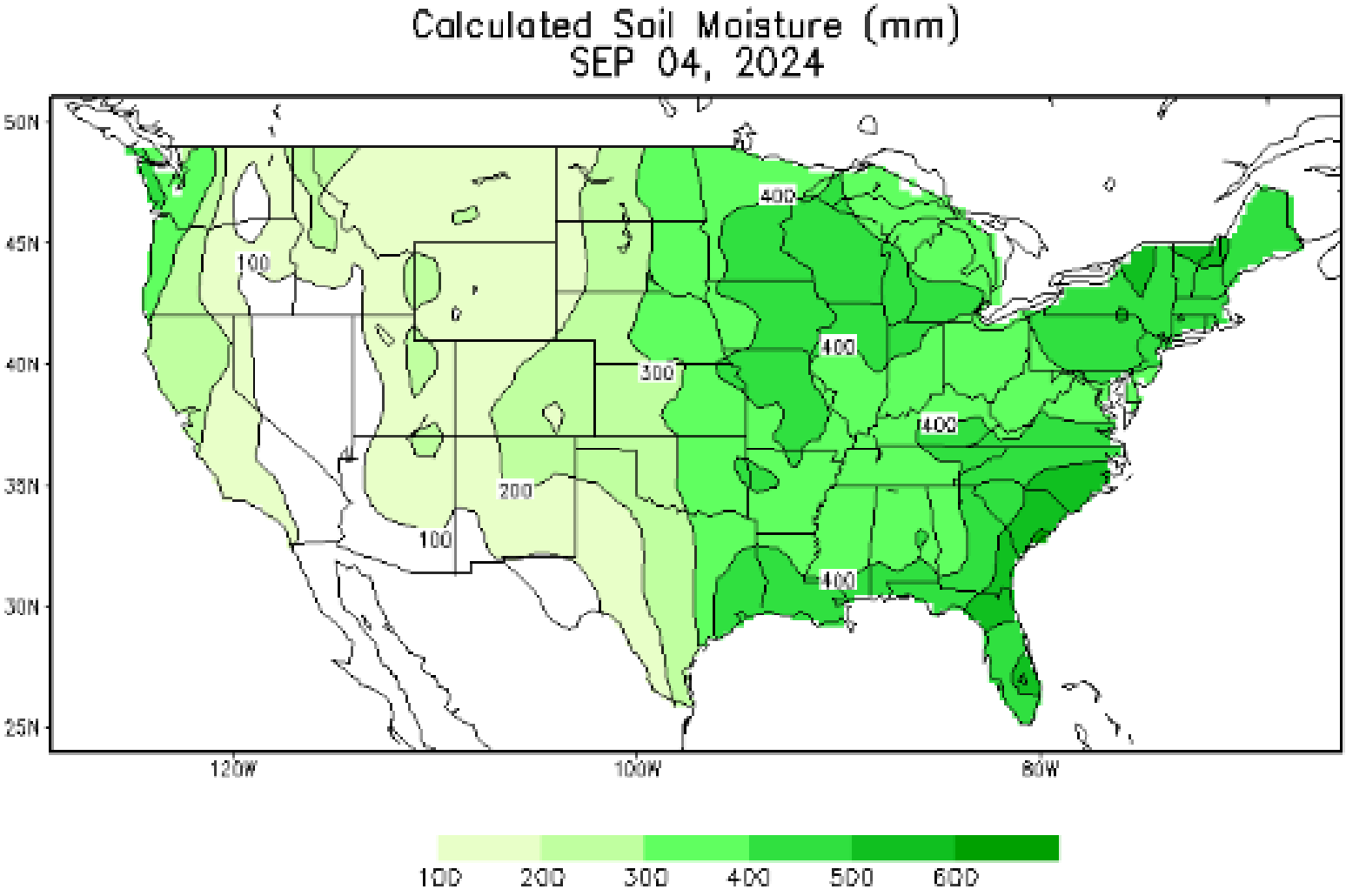

Figure 7: Climate Prediction Center's monthly average soil moisture anomaly for August 2024.

Shallow and Deep Soil Moisture Percentiles

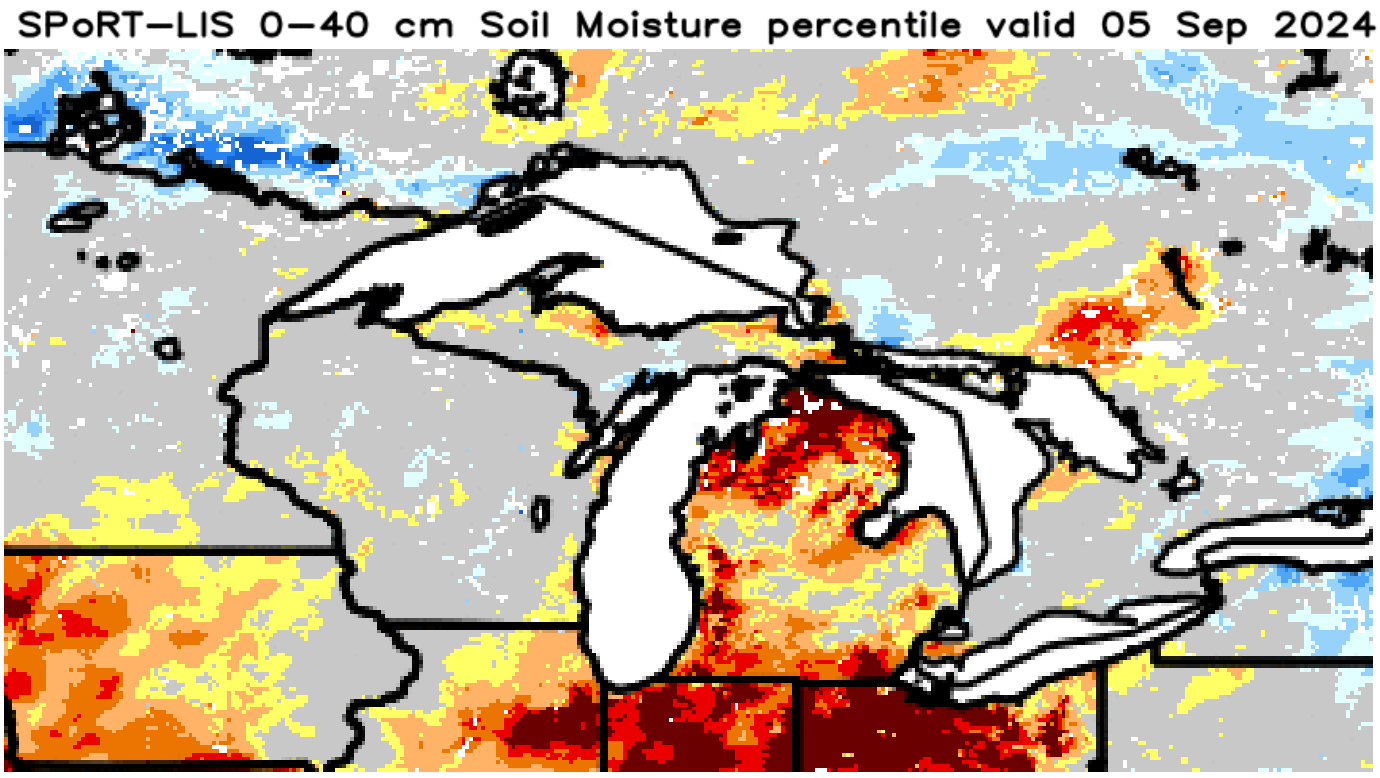

Figure 8: NASA's Short-term Prediction Research and Transition (SPoRT) Center's shallow (0-40 cm) soil moisture percentile valid September 5, 2024.

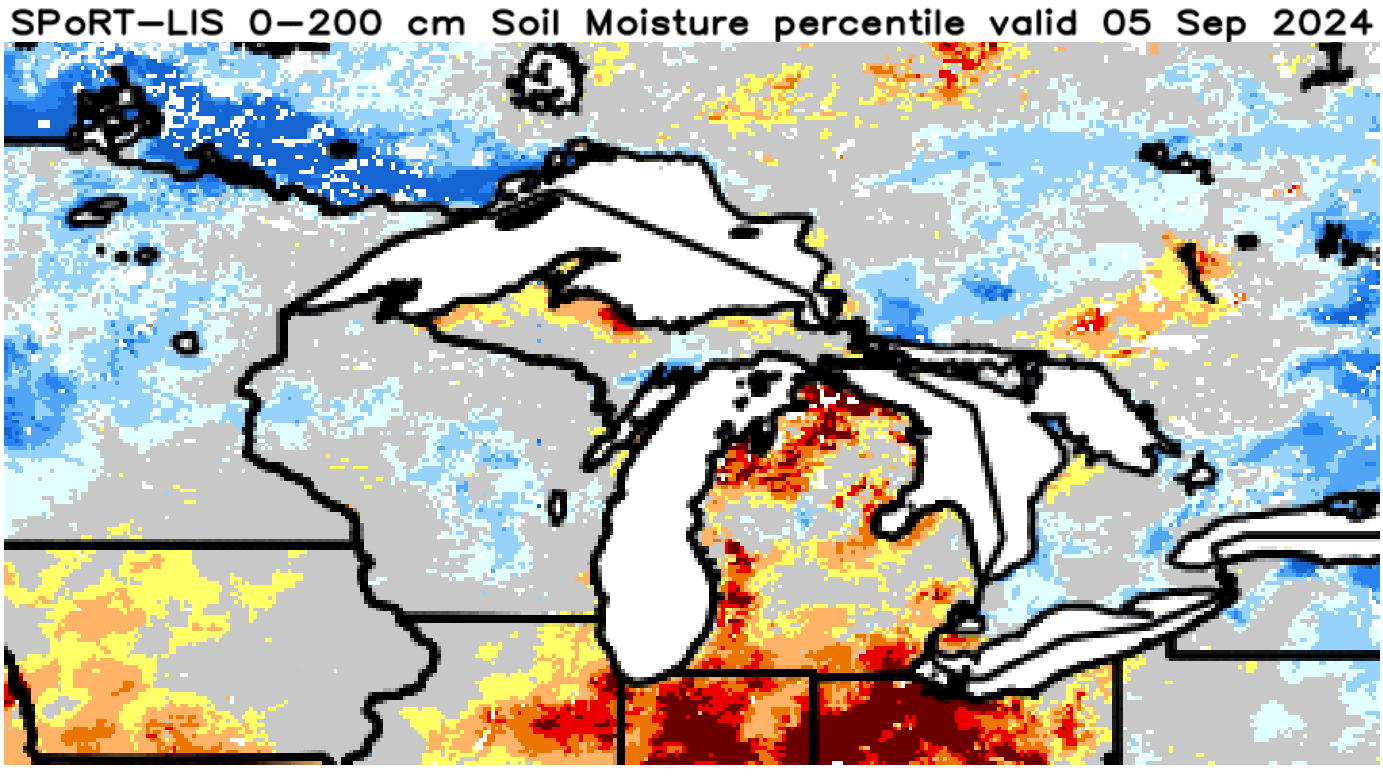

Figure 9: NASA's Short-term Prediction Research and Transition (SPoRT) Center's deep (0-200 cm) soil moisture percentile valid September 5, 2024.