



Monthly Report of River and Flood Conditions

Report for July 2023

NWS FORM E-5	U.S. DEPARTMENT OF COMMERCE NOAA, NATIONAL WEATHER SERVICE	HSA OFFICE: Marquette, MI
MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS		REPORT FOR (MONTH / YEAR): July 2023
TO: NATIONAL WEATHER SERVICE (W/OH12x1) HYDROMETEOROLOGICAL INFO CENTER 1325 EAST-WEST HIGHWAY, RM 7116 SILVER SPRING, MD 20910		DATE: August 24th, 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).		



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

Summary

Substantial precipitation gradients were observed across Upper Michigan during July 2023, but most locations were near- to above-normal for the month. Far western portions of the U.P. observed less than half the normal monthly rainfall whereas central locations were near or above 150% of normal and eastern locations were near-normal. Several rounds of strong to severe thunderstorms brought hail to Upper Michigan during July, which is why WFO Marquette observed a trace of snowfall. No flooding occurred across Upper Michigan during July, but a flood advisory was issued on July 5th for the possibility of minor flooding in low-lying and poor drainage areas across southern Menominee County. Streamflow was near-normal areawide even though severe drought developed across far western Upper Michigan. For example, Ironwood has now observed just 66% of normal precipitation during May, June, and July.

Location	Precipitation	% of Normal	Snowfall
WFO Marquette	6.07"	196%	T
Marquette City	4.93"	159%	0.0"
Quincy Hill	3.10"	M	0.0"
Ironwood	1.88"	45%	0.0"
Iron Mountain	5.13"	150%	0.0"
Manistique	3.52"	101%	0.0"
Munising	3.32"	97%	0.0"
Stambaugh	4.92"	119%	0.0"

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 cooperative observers.



Flooding Conditions

There were no flooding concerns during the month of July, 2023.

Media Links

None.

River Conditions

Streamflow was near normal across Upper Michigan during July, 2023.

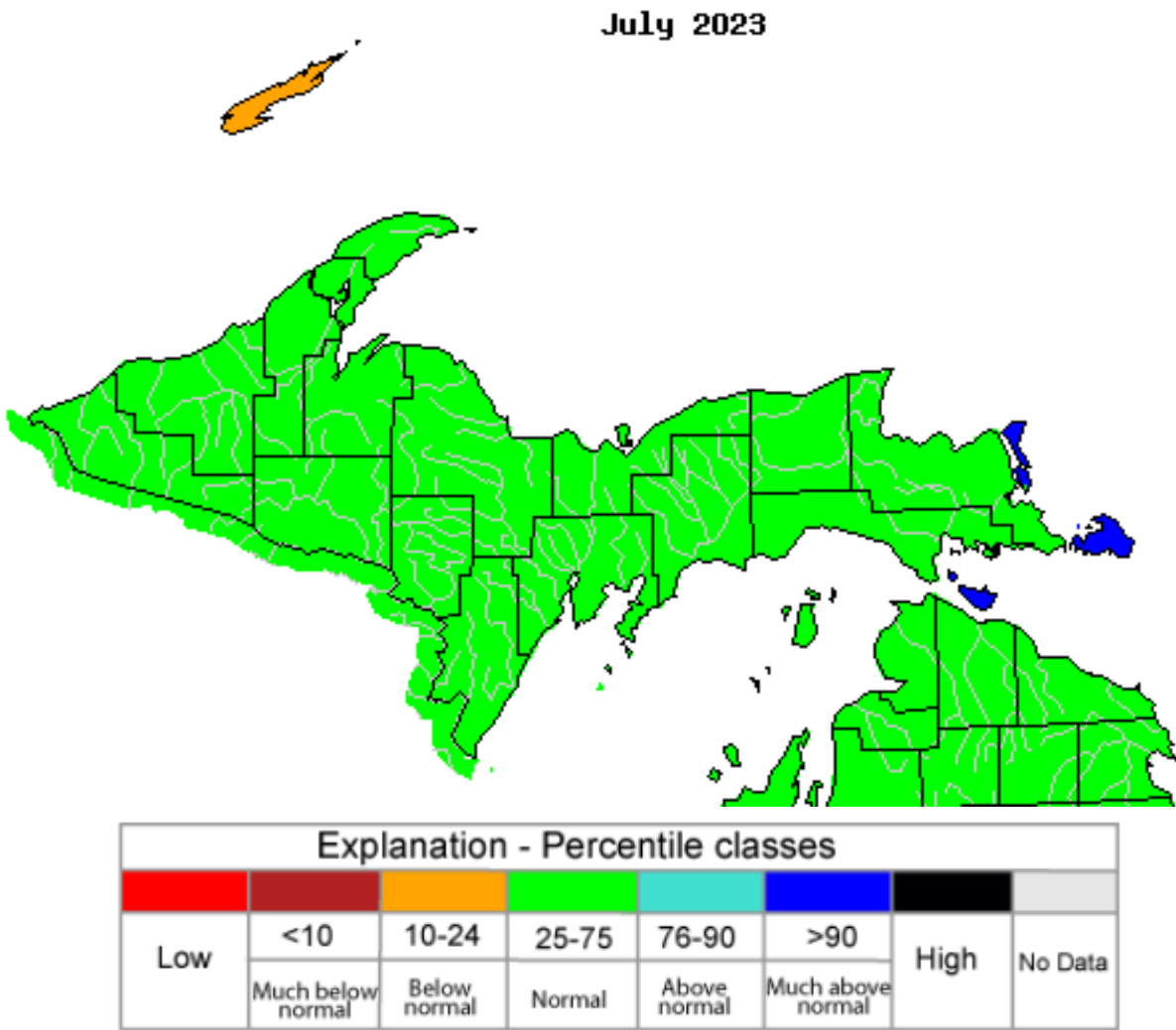


Figure 1: USGS monthly average streamflow in July 2023 across Upper Michigan



Snowpack SWE (Snow Water Equivalent) Conditions

On summer vacation!

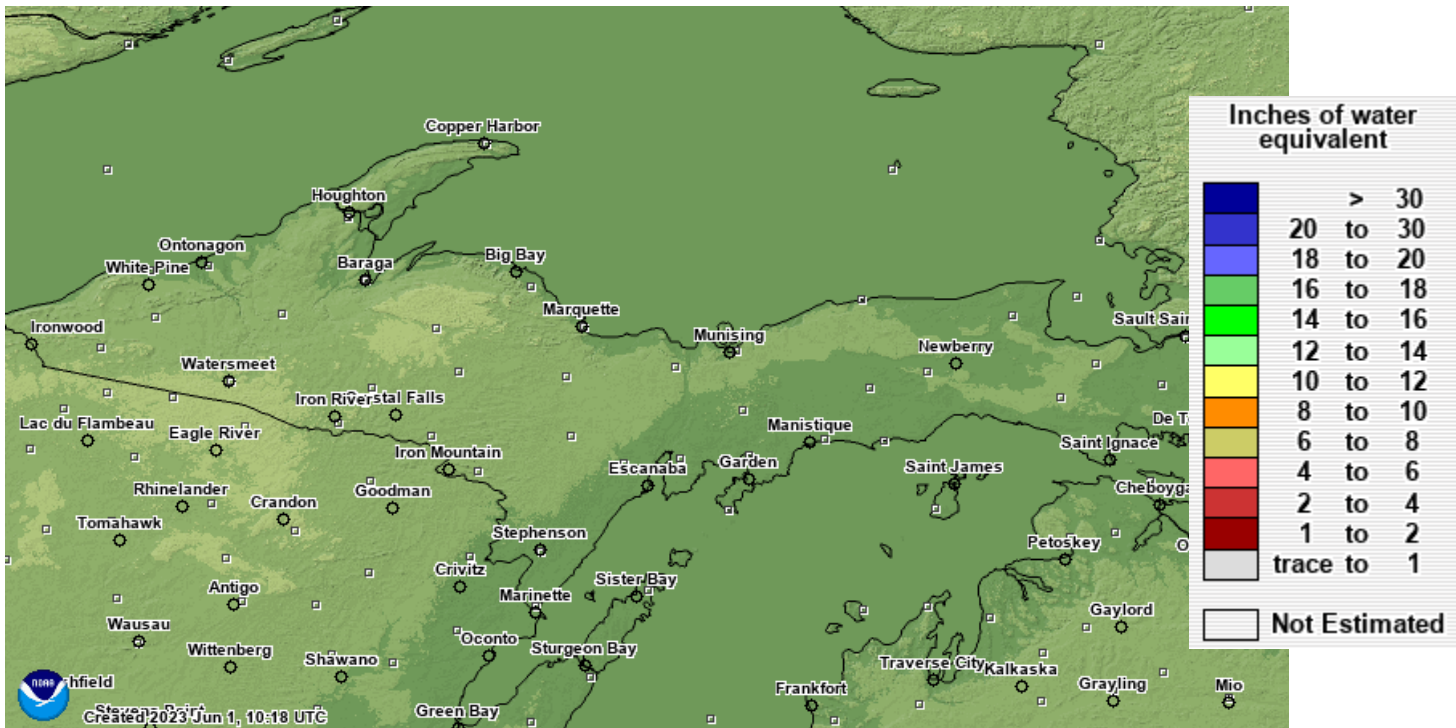


Figure 2: Current modeled snowpack snow water equivalent on August 1st.

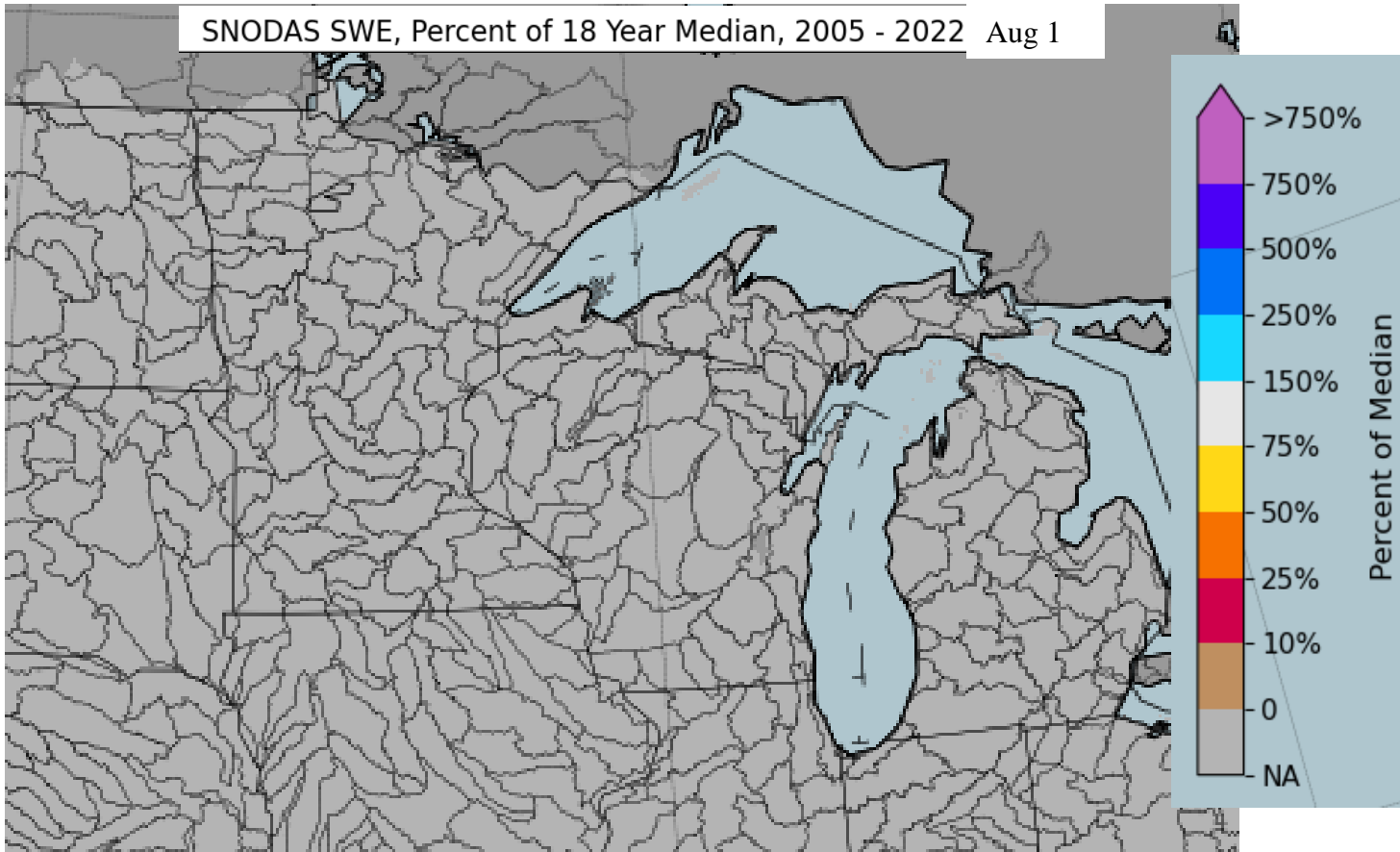


Figure 3: Modeled snow water equivalent for drainage basins on August 1st as a percent of 18-year median.



Drought Discussion

Severe drought developed across far western Upper Michigan during July. For the May-July period, Ironwood observed just 7.78” of rain or 66% of their normal of 11.87”. For the latest drought status, please visit <http://www.drought.gov>.

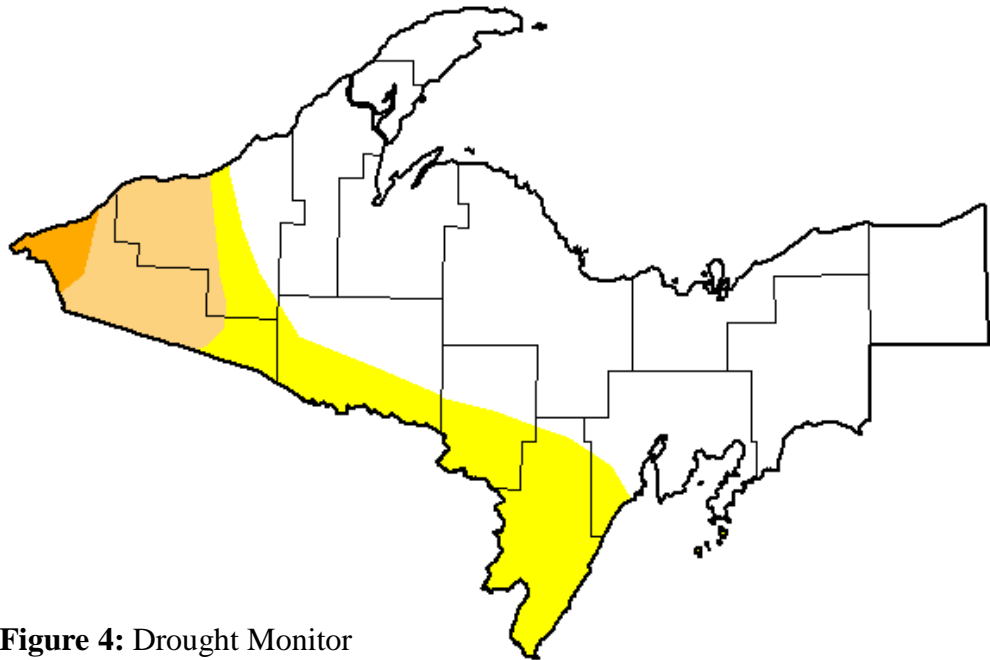


Figure 4: Drought Monitor valid as of August 1st.

August 1, 2023
(Released Thursday, Aug. 3, 2023)
Valid 8 a.m. EDT

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	69.50	30.50	10.73	1.48	0.00	0.00
Last Week 07-25-2023	50.68	49.32	10.73	1.55	0.00	0.00
3 Months Ago 05-02-2023	100.00	0.00	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 08-02-2022	76.46	23.54	0.01	0.00	0.00	0.00

Intensity:
None D2 Severe Drought
D0 Abnormally Dry D3 Extreme Drought
D1 Moderate 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

Hydro Products Issued

Product	Number
Hydrologic Outlook (ESF)	0
Flood Watch (FFA)	0
Flood Warning (FLW)	0
Flood Advisories and Statements (FLS)	2
Flash Flood Warning (FFW)	0
Flash Flood Statement (FFS)	0
Hydrologic Summary (RVA)	31



Precipitation Summary

Accumulated Precipitation (in)
July 01, 2023 to July 31, 2023

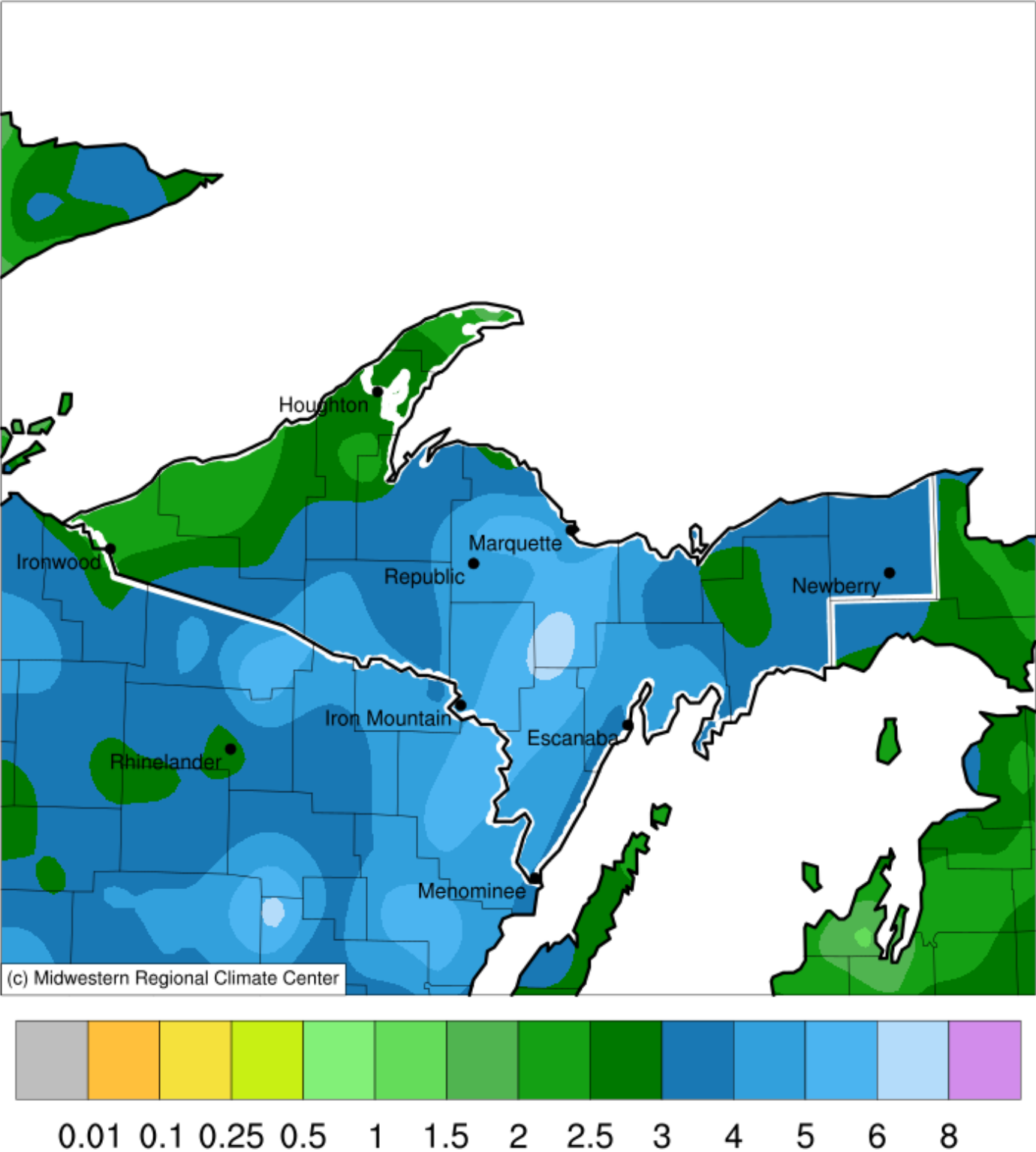


Figure 5: July 2023 Monthly Precipitation Totals.



Precipitation Summary Continued

Accumulated Precipitation (in): Percent of 1991-2020 Normals
July 01, 2023 to July 31, 2023

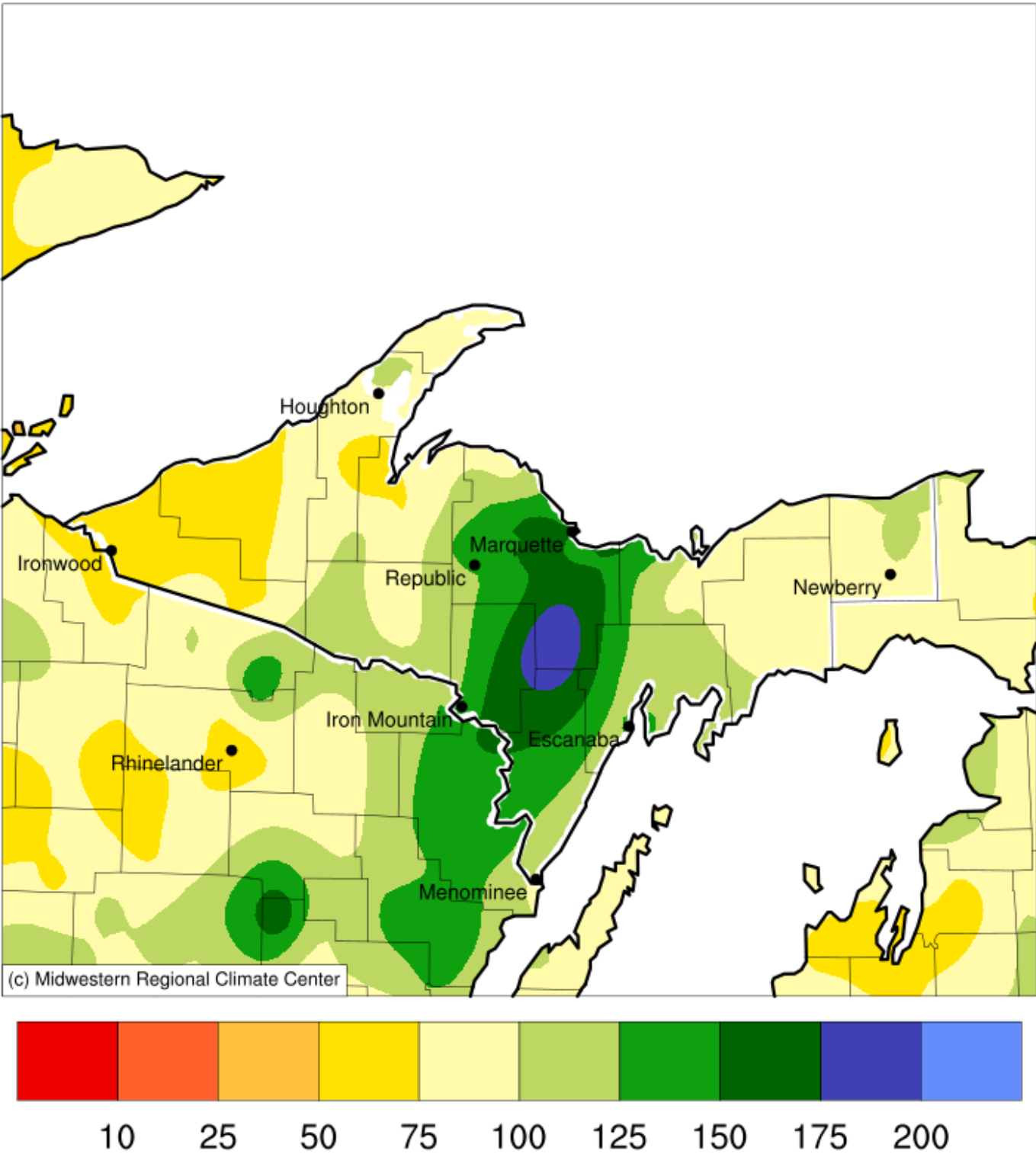


Figure 6: July 2023 Percent of Normal of Accumulated Precipitation.



Soil Moisture Anomaly

Calculated Soil Moisture Anomaly (mm)
JUL, 2023

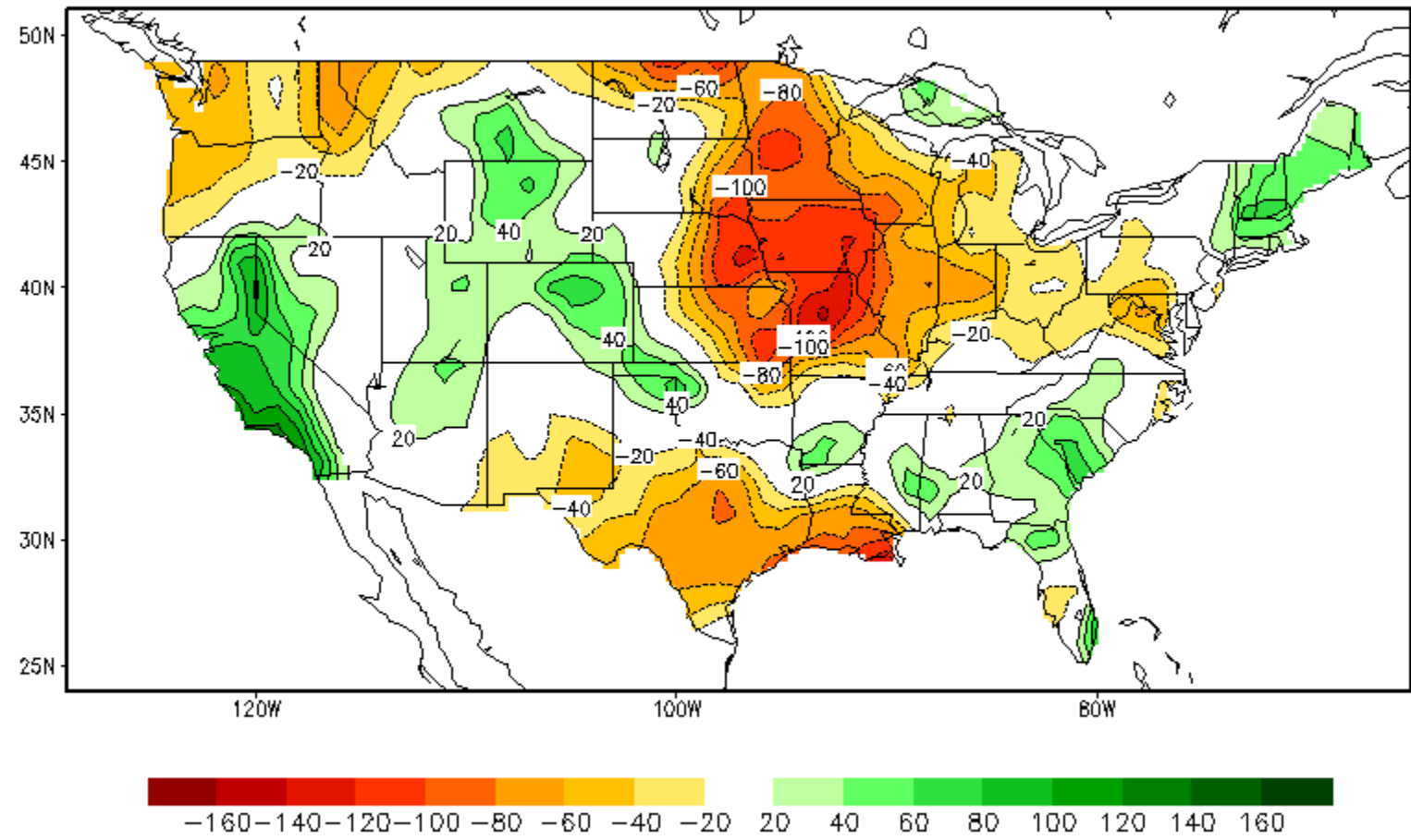


Figure 7: Climate Prediction Center’s monthly average soil moisture anomaly for July 2023.