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): **December 2020** DATE: **January 9th, 2021** SIGNATURE: **Jordan Wendt, 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

Unusual feeling December for most, with above normal temperatures and below normal precipitation for all except the extreme far western portions of Upper Michigan. Half of Ironwood's precipitation for the month fell on one day, December 24th. Otherwise, most of our observing sites received on the order of 50% of their respective precipitation normals during the month of December. Our wetter than normal soil conditions have been trending closer back to normal over the past few months (Figure 5).

Location	Precipitation	% of normal	Snowfall
WFO Marquette	1.40"	54%	25.0"
Marquette City	0.90"	46%	10.5"
Quincy Hill	1.87"	M	26.9"
Ironwood	2.20"	104%	25.1"
Iron Mountain	0.64"	41%	6.4"
Manistique	0.62"	39%	4.0"
Munising	2.21"	59%	33.8"
Stambaugh	0.73"	57%	7.3"

NOTE: Precipitation after 8am EST November 30th was counted in December 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 December.

River Conditions

Most basin's streamflow across Upper Michigan remained near- to above-normal, with the Brule basin averaging much above-normal (Figure 1).

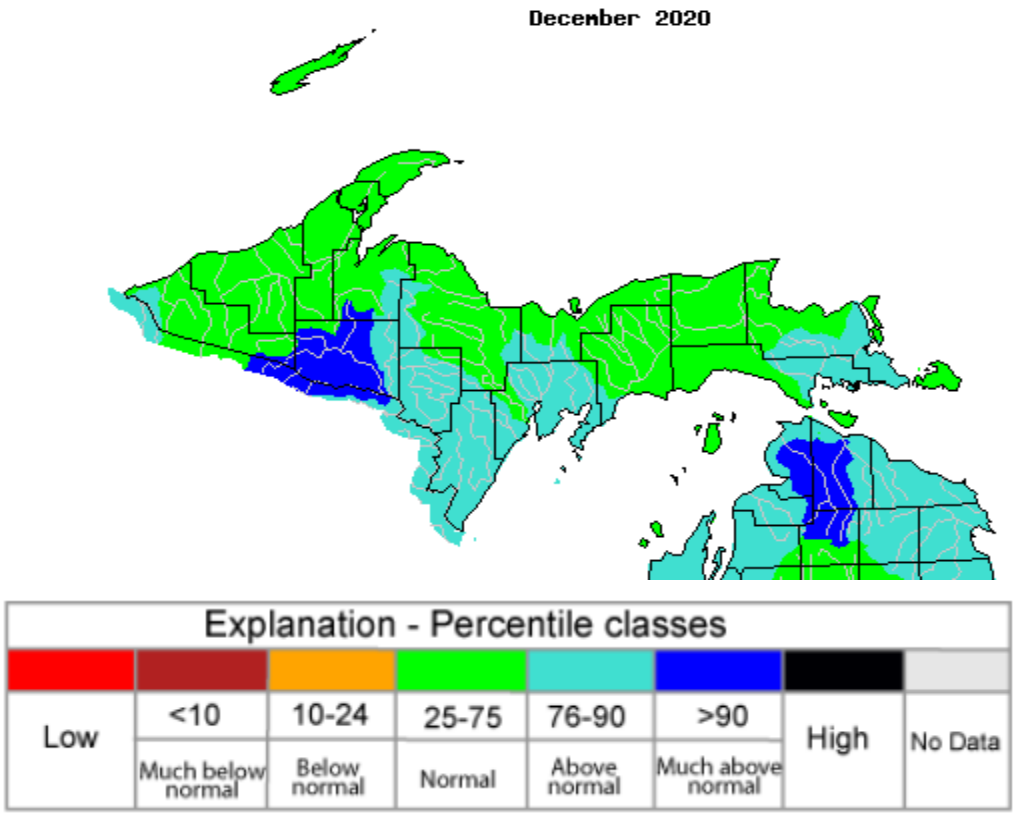

Figure 1: USGS monthly average streamflow in December 2020 across Upper Michigan

Snowpack Discussion

All of Upper Michigan is experiencing a below-normal snow depth as of January 1st (Figure 2).

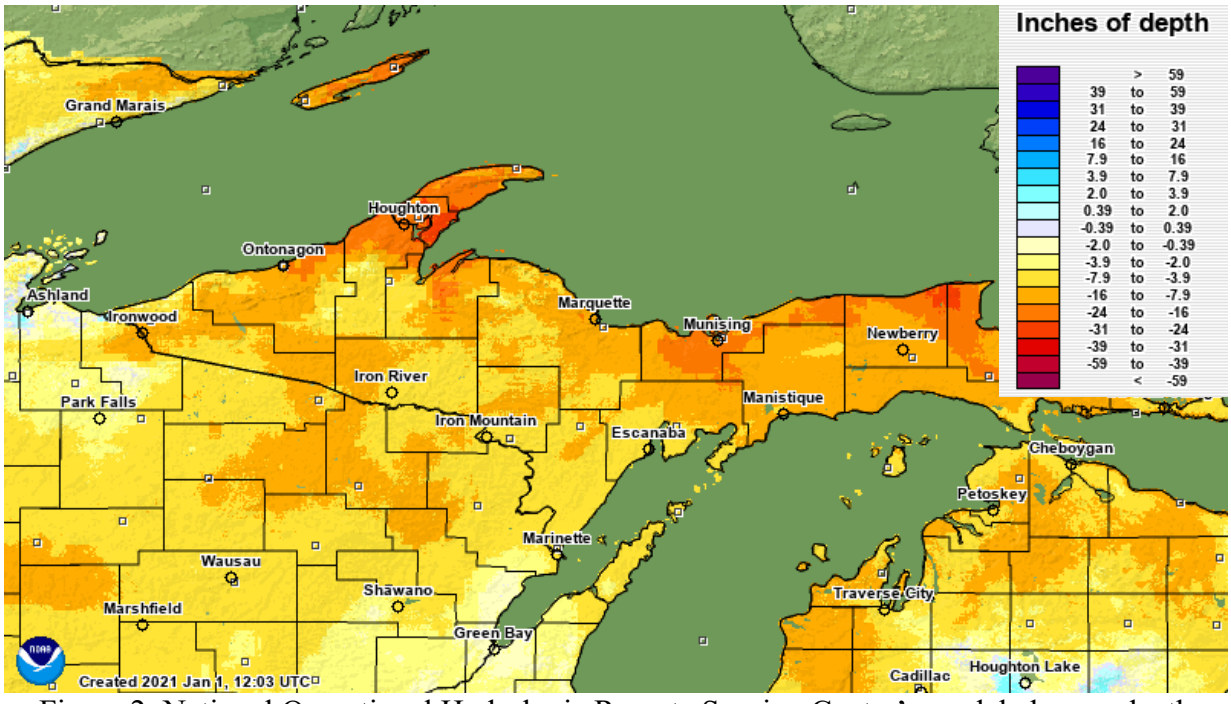

Figure 2: National Operational Hydrologic Remote Sensing Center's modeled snow depth departure from normal as of January 1st, 2021.

Drought Discussion

There were no areas of drought across Upper Michigan in December, or at this time. For the latest drought status, please go to http://www.drought.gov.

Media Links

None.

Hydro Products Issued

1 – Hydrologic Outlook (ESF)
0 – Flood Watch (FFA)
0 – Flood Warning (FLW)
3 – Flood Advisories and Statements (FLS)
0 – Flash Flood Warning (FFW)
0 – Flash Flood Statement (FFS)
31 – Hydrologic Summary (RVA)
0 – Daily River Forecasts (RVD)

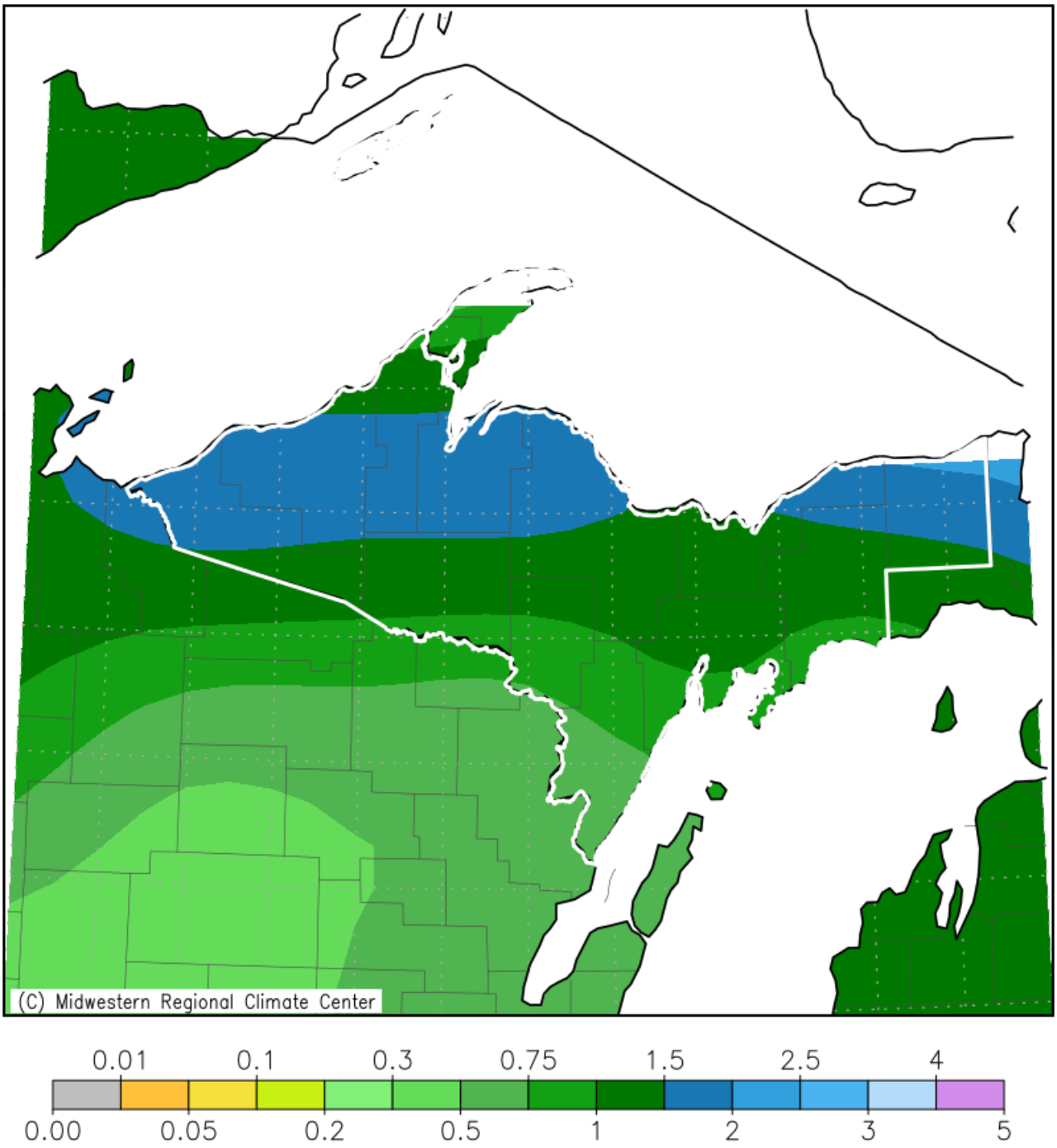

Figure 3: December 2020 Monthly Precipitation Totals.

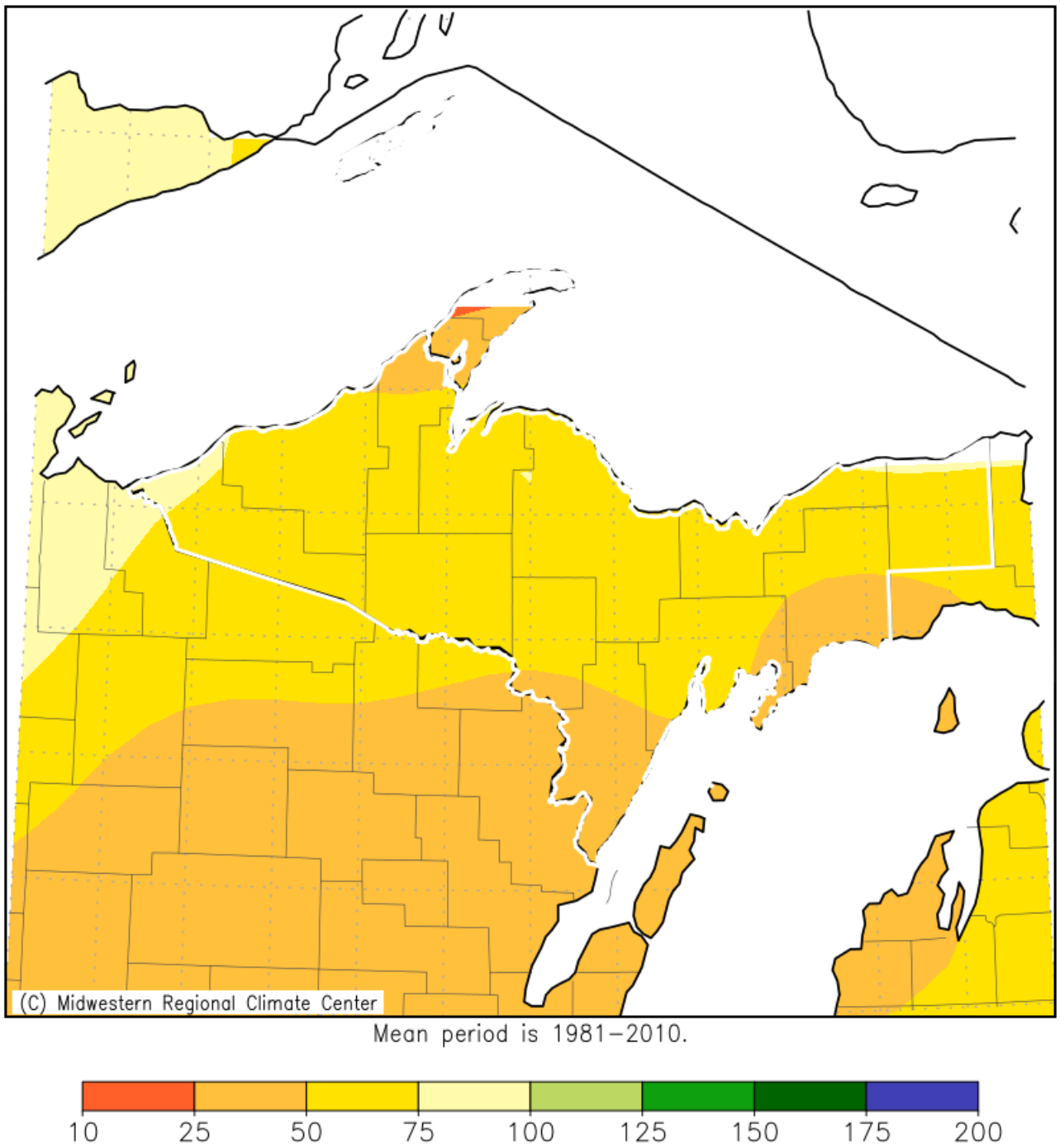

Figure 4. December 2020 Percent of Normal of Accumulated Precipitation

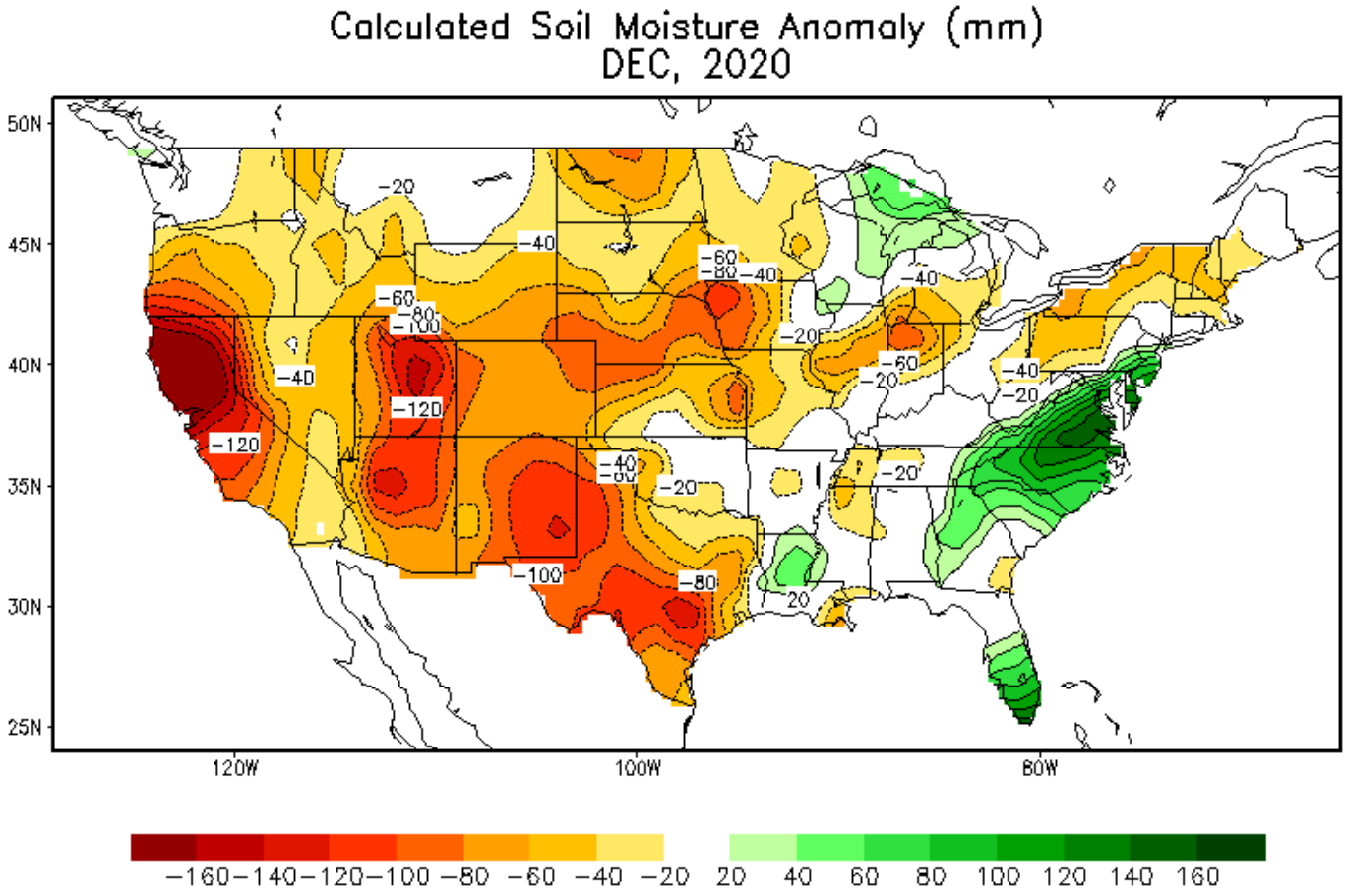

Figure 5: Climate Prediction Center's monthly average soil moisture anomaly for December 2020