



# Monthly Report of River and Flood Conditions

## Report for November 2021

<b>NWS FORM E-5</b> U.S. DEPARTMENT OF COMMERCE NOAA, NATIONAL WEATHER SERVICE  <b>MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS</b>  TO: NATIONAL WEATHER SERVICE (W/OH12x1) HYDROMETEOROLOGICAL INFO CENTER 1325 EAST-WEST HIGHWAY, RM 7116 SILVER SPRING, MD 20910	HSA OFFICE: <b>Marquette, MI</b>
	REPORT FOR (MONTH / YEAR): <b>November 2021</b>
	DATE: <b>December 10th, 2021</b>
	SIGNATURE: <b>Taylor Prislovsky, Meteorologist</b> <b>Robin J. Turner, MIC</b>
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

Areas along the northwest wind lake-effect belts in the western half of Upper Michigan saw near normal to above normal precipitation amounts, save for the Keweenaw, which saw below normal precipitation (Figure 5). In the east, above normal precipitation amounts were observed in the northwest wind lake-effect belts from Marquette eastward (Figure 5). Otherwise, the rest of the UP saw below normal precipitation amounts in November (Figure 5). Drought conditions remained static over the area this past month (Figure 3), largely due to the lake effect precipitation in the northwest wind lake-effect belts (especially from Marquette eastward).

Location	Precipitation	% of Normal	Snowfall
WFO Marquette	1.70"	59%	20.9"
Marquette City	1.90"	79%	7.7"
Quincy Hill	2.99"	M	16.7"
Ironwood	3.07"	107%	21.6"
Iron Mountain	1.10"	58%	6.5"
Manistique	1.33"	51%	4.5"
Munising	6.98"	201%	33.3"
Stambaugh	1.28"	73%	10.6"

**NOTE:** Precipitation after 8 AM EST November 30<sup>st</sup> was counted in December stats for all but the WFO Marquette site due to the reporting structure of our cooperative observers.

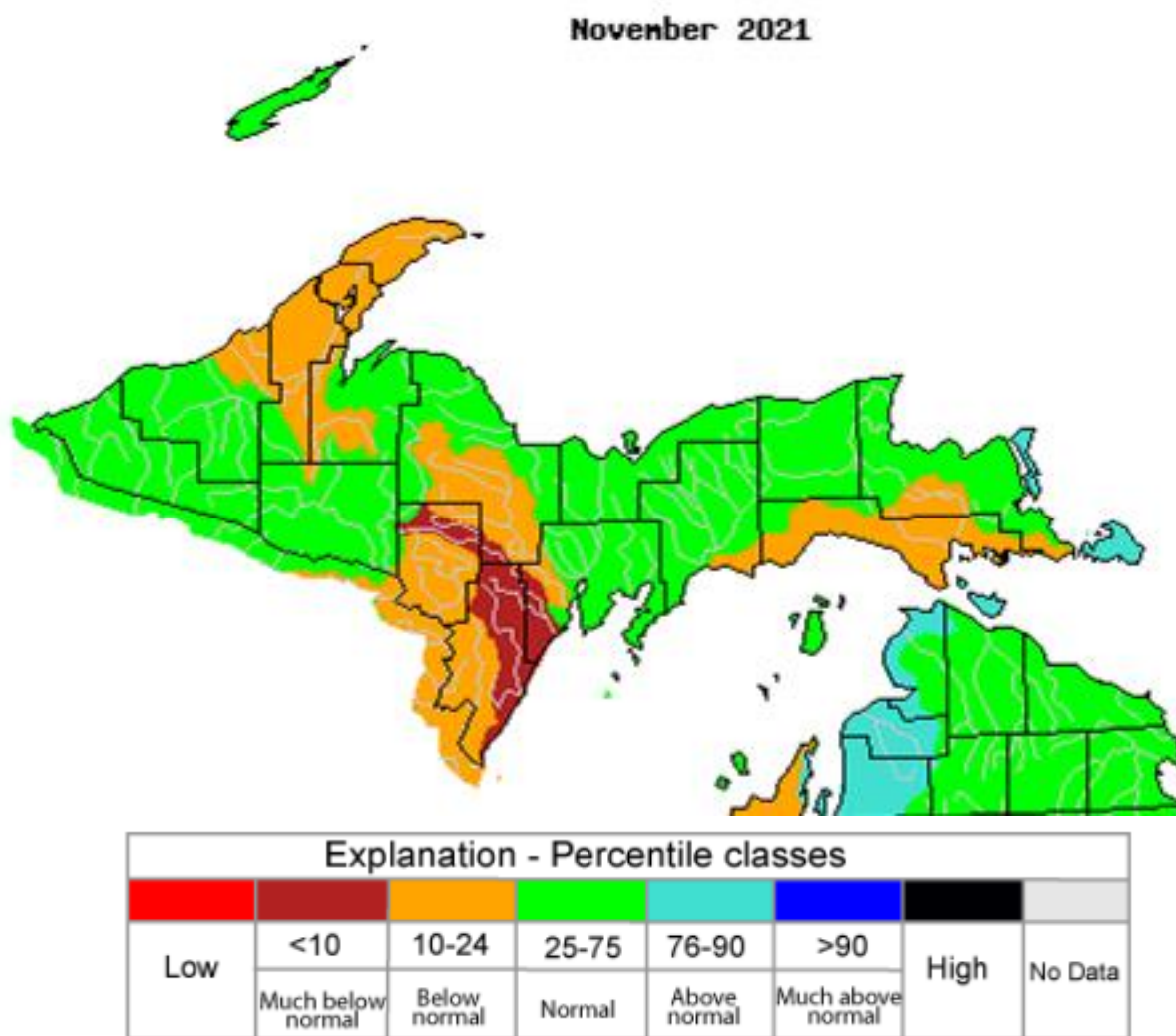


### Flooding Conditions

There were no flooding concerns during the month of November.

### River Conditions

The monthly average streamflows were near to below normal for most of the area. The Keweenaw and over Menominee, Dickinson, southern Marquette, and western Delta Counties (the Ford, Escanaba, and Menominee River Basins) all saw below to well below normal streamflows.



**Figure 1:** USGS monthly average streamflow in November 2021 across Upper Michigan



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## Snowpack Conditions

Most of the area saw below normal snowfall for the month of November. In fact, the area from Ironwood to the tip of the Keweenaw saw anomalously low snowfall amounts for November.

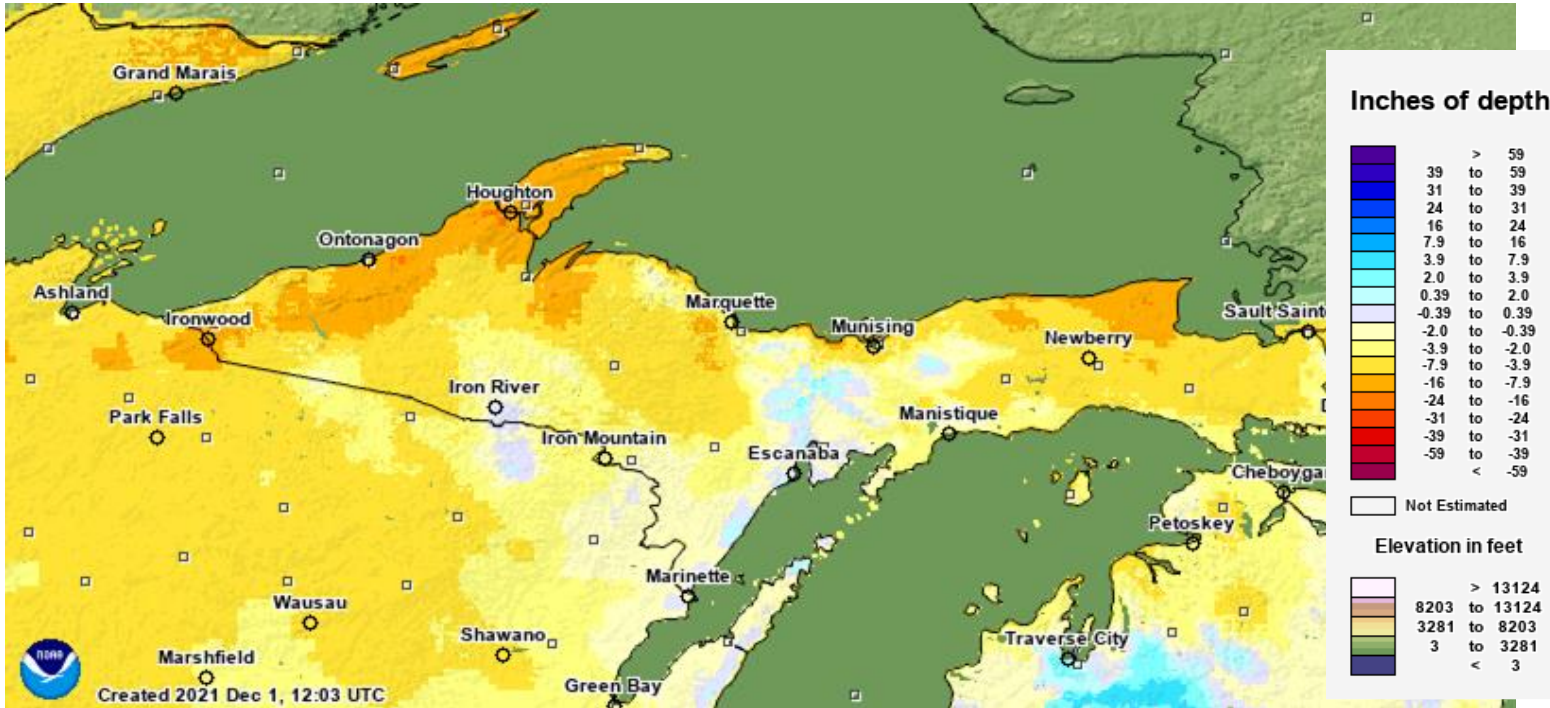


Figure 2: Departure from normal snow depth on December 1st.

## Drought Discussion

Abnormally dry to moderate drought conditions continued to impact most of Upper Michigan this past November. The driest conditions were seen out in the far west near Ironwood, although the areas near Lake Michigan and the Wisconsin border saw moderate drought conditions as well. For the latest drought status, please visit <http://www.drought.gov>.

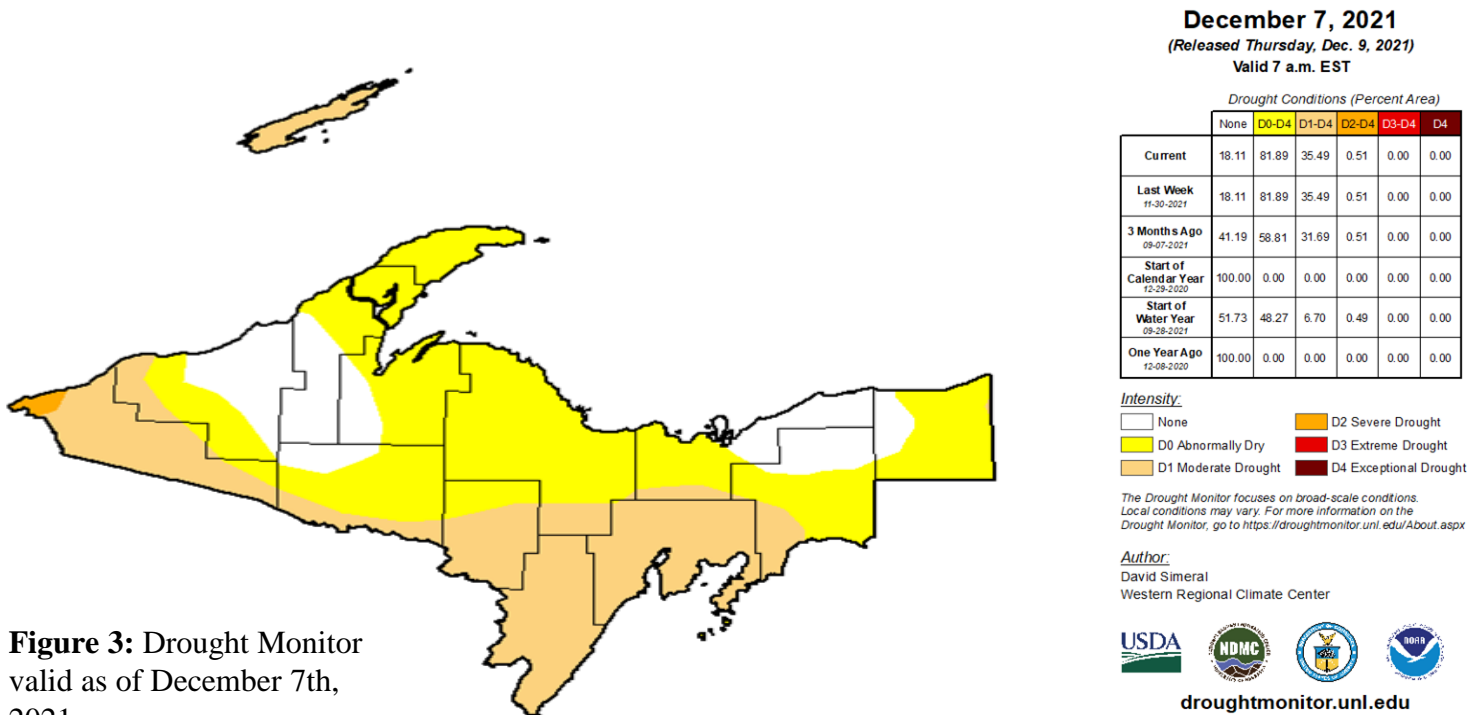


Figure 3: Drought Monitor valid as of December 7th, 2021.



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## Media Links

None.

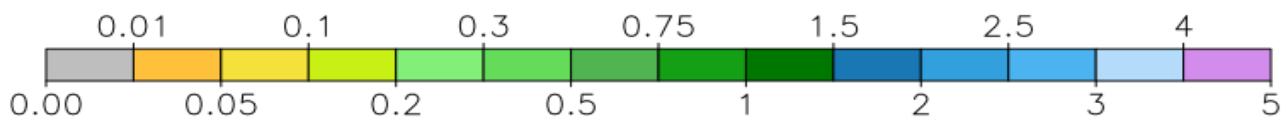
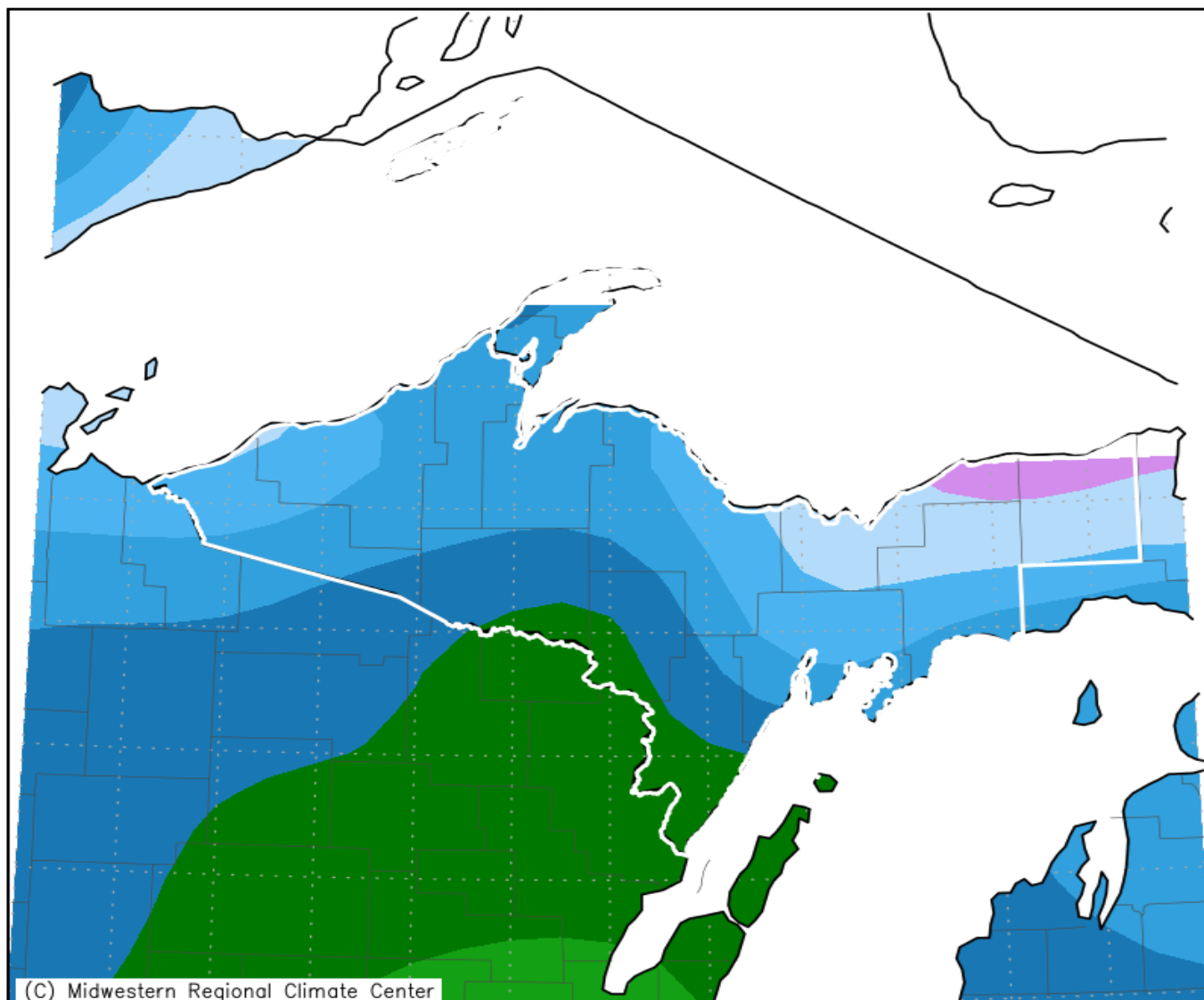
## Hydro Products Issued

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)	30
Daily River Forecasts (RVD)	1



### Precipitation Summary

Accumulated Precipitation (in)  
November 1, 2021 to November 30, 2021

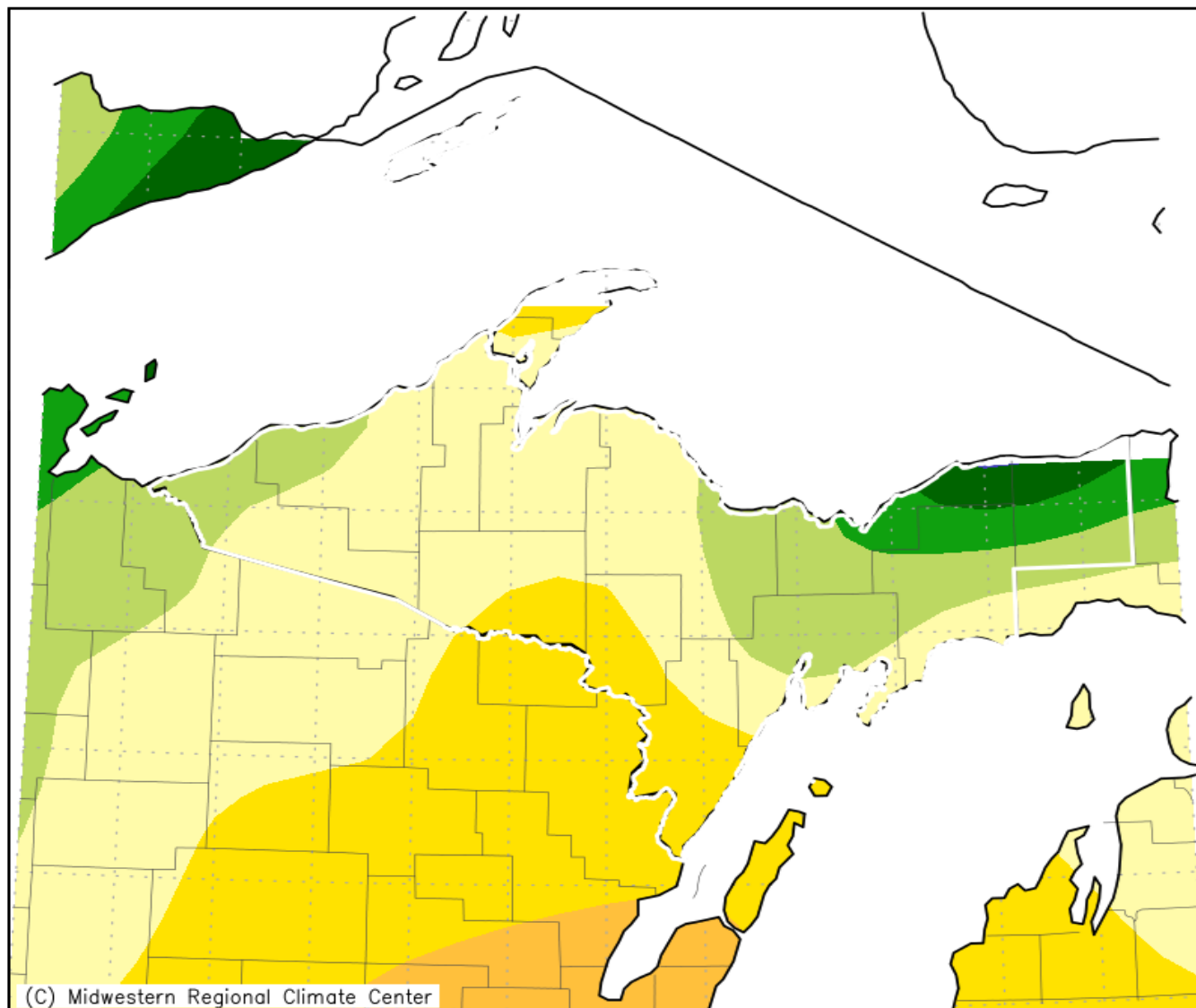


**Figure 4:** November 2021 Monthly Precipitation Totals.



### Precipitation Summary Continued

Accumulated Precipitation: Percent of Mean  
November 1, 2021 to November 30, 2021



Mean period is 1991–2020.



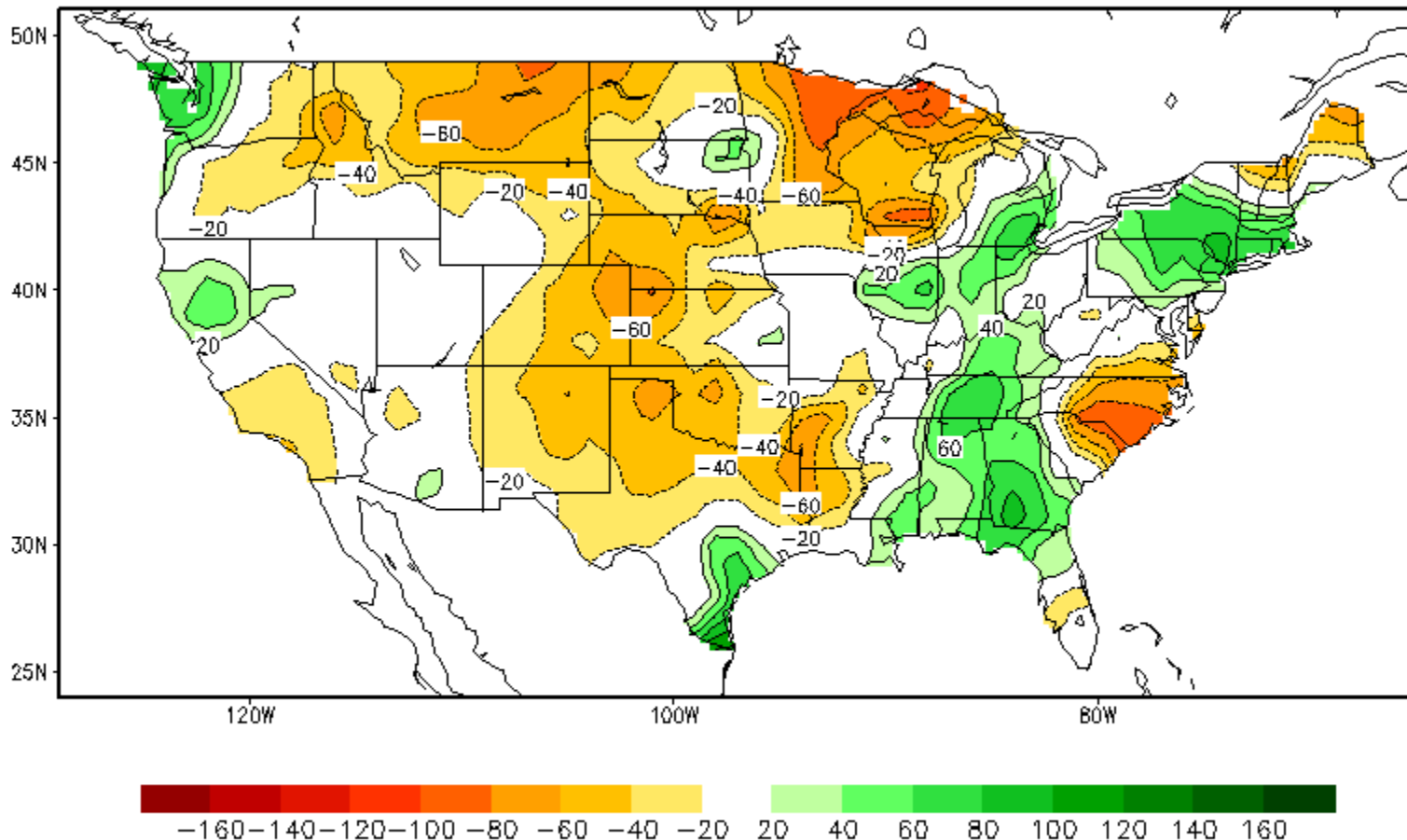
**Figure 5:** November 2021 Percent of Normal of Accumulated Precipitation.





### Soil Moisture Anomaly

Calculated Soil Moisture Anomaly (mm)  
NOV, 2021



**Figure 6:** Climate Prediction Center's monthly average soil moisture anomaly for November 2021.