



Monthly Report of River and Flood Conditions

Report for October 2022

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): October 2022
TO: NATIONAL WEATHER SERVICE (W/OH12x1) HYDROMETEOROLOGICAL INFO CENTER 1325 EAST-WEST HIGHWAY, RM 7116 SILVER SPRING, MD 20910		DATE: November 10th, 2022
		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).		

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

Summary

Most of Upper Michigan was drier than normal during October, especially locations near the Wisconsin state line where Iron Mountain and Stambaugh only recorded 43% and 53% of their monthly averages, respectively. An early season winter storm brought heavy, wet snow to the higher elevations of Upper Michigan and wind-driven cold rain at lower elevations on the 17th and 18th. Most of October's precipitation was associated with this winter storm so places that didn't receive heavy precipitation with that event ended up with below normal precipitation. No flooding occurred during October and river levels were near to below normal.

Location	Precipitation	% of Normal	Snowfall
WFO Marquette	4.59	114%	19.1"
Marquette City	1.95"	57%	0.0"
Quincy Hill	2.63"	M	2.4"
Ironwood	3.76"	93%	11.6"
Iron Mountain	1.39"	43%	T
Manistique	2.45"	62%	T
Munising	6.04"	123%	0.3"
Stambaugh	1.76"	53%	1.7"

NOTE: Precipitation after 8 AM EST February 28th was counted in March stats for all but the WFO Marquette site due to the reporting structure of our cooperative observers.



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Additional October Precipitation Observations

Location	October
Alberta	4.14"
Big Bay	2.02"
Bruce Crossing	2.99"
Chatham	3.98"
Escanaba WFP	1.83"
Fort Wilkins State Park	2.39"
Gwinn DNR	2.98"
Manistique WWTP	2.02"
Marquette WFO	3.98"
Michigamme	3.36"
Iron Mountain – Kingsford WWTP	1.33"
Ironwood WWTP	3.69"
Kenton	2.89"
Newberry	3.73"
Ontonagon	2.86"
Stambaugh	1.76"
Watersmeet	1.73"

Monthly total precipitation from Fisher Porter weighing rain gages during October 2022.



Flooding Conditions

There were no flooding concerns during the month of October.

River Conditions

[Basin streamflow relative to normal]

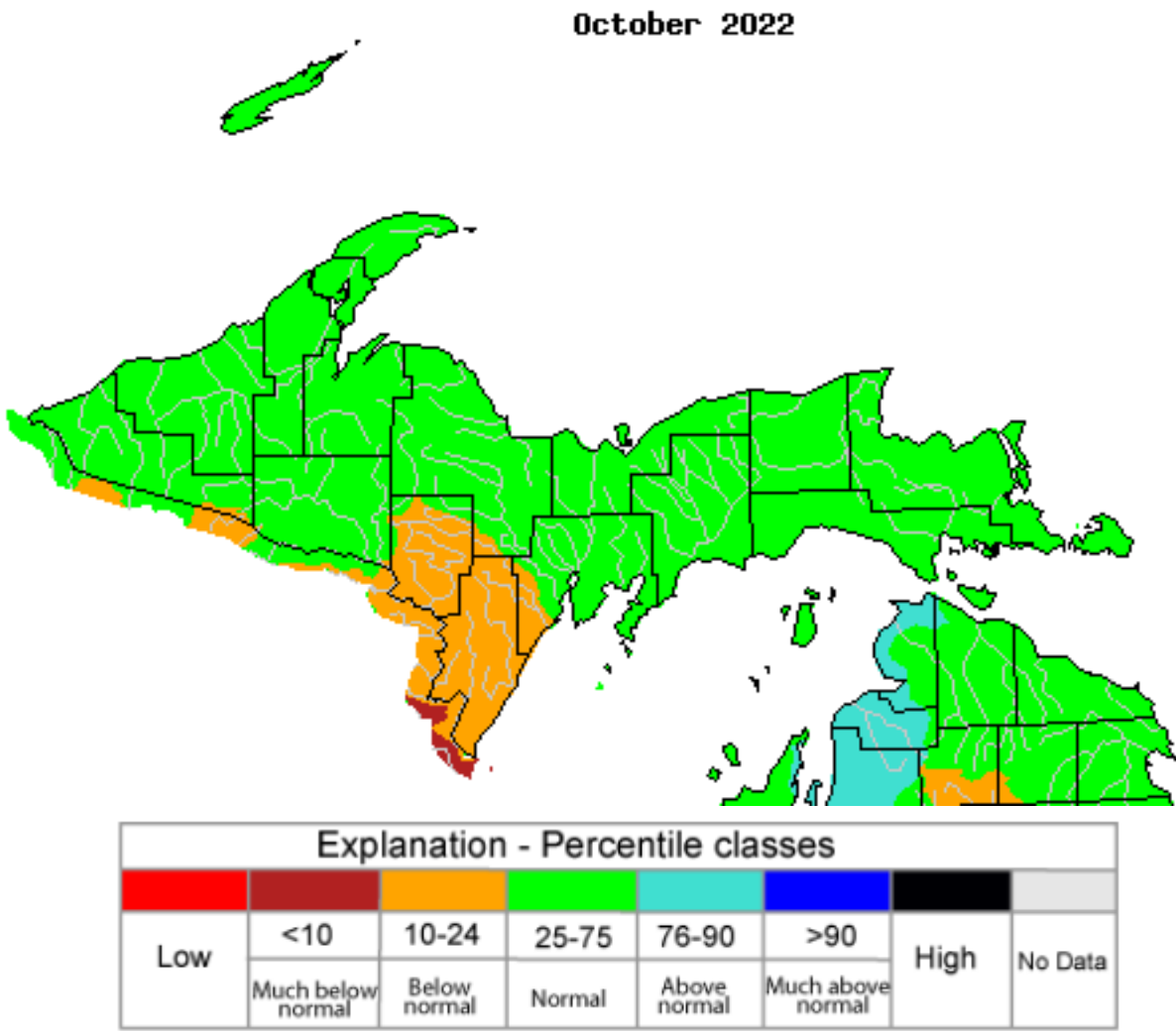


Figure 1: USGS monthly average streamflow in October 2022 across Upper Michigan



Snowpack SWE (Snow Water Equivalent) Conditions

An early-season winter storm impacted higher elevations of Upper Michigan late on October 16th through early on the 19th, but much warmer weather since then melted all the snow that fell.

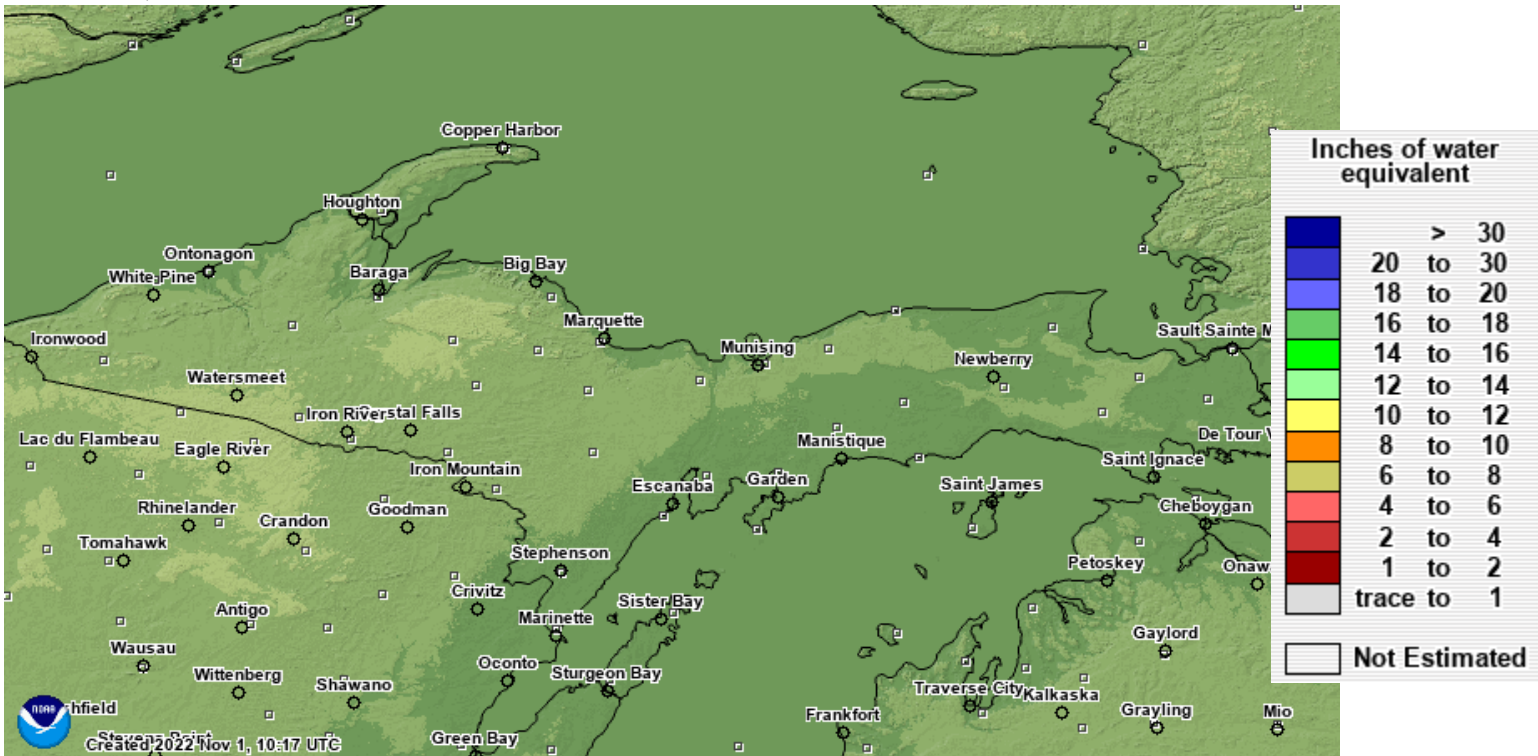


Figure 2: Current modeled snowpack snow water equivalent on November 1st.

Drought Discussion

Abnormally dry conditions persisted through October along the Wisconsin state line and northern portions of the Keweenaw Peninsula. For the latest drought status, please visit <http://www.drought.gov>.

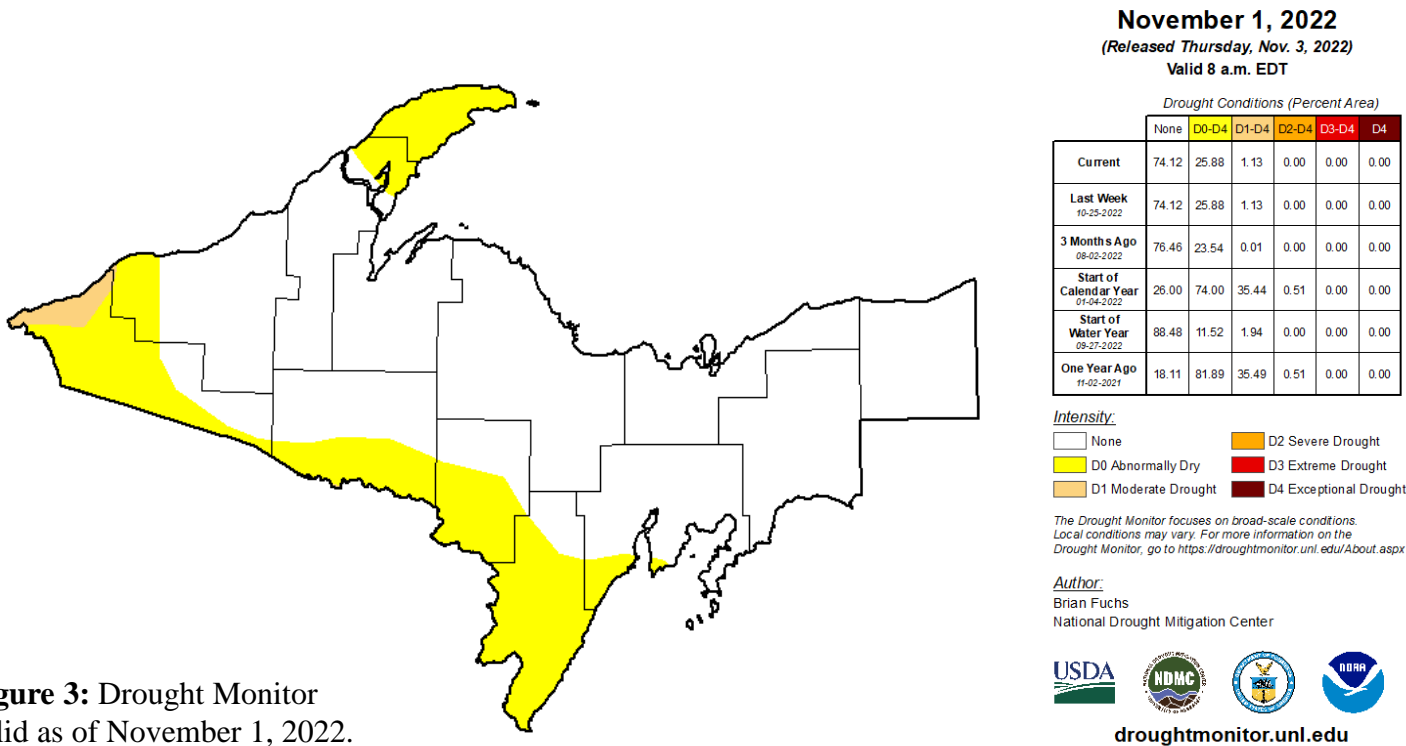


Figure 3: Drought Monitor valid as of November 1, 2022.



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Media Links

None.

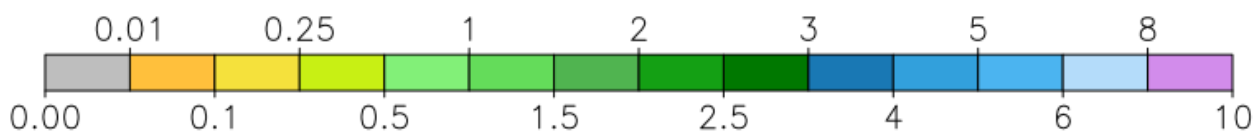
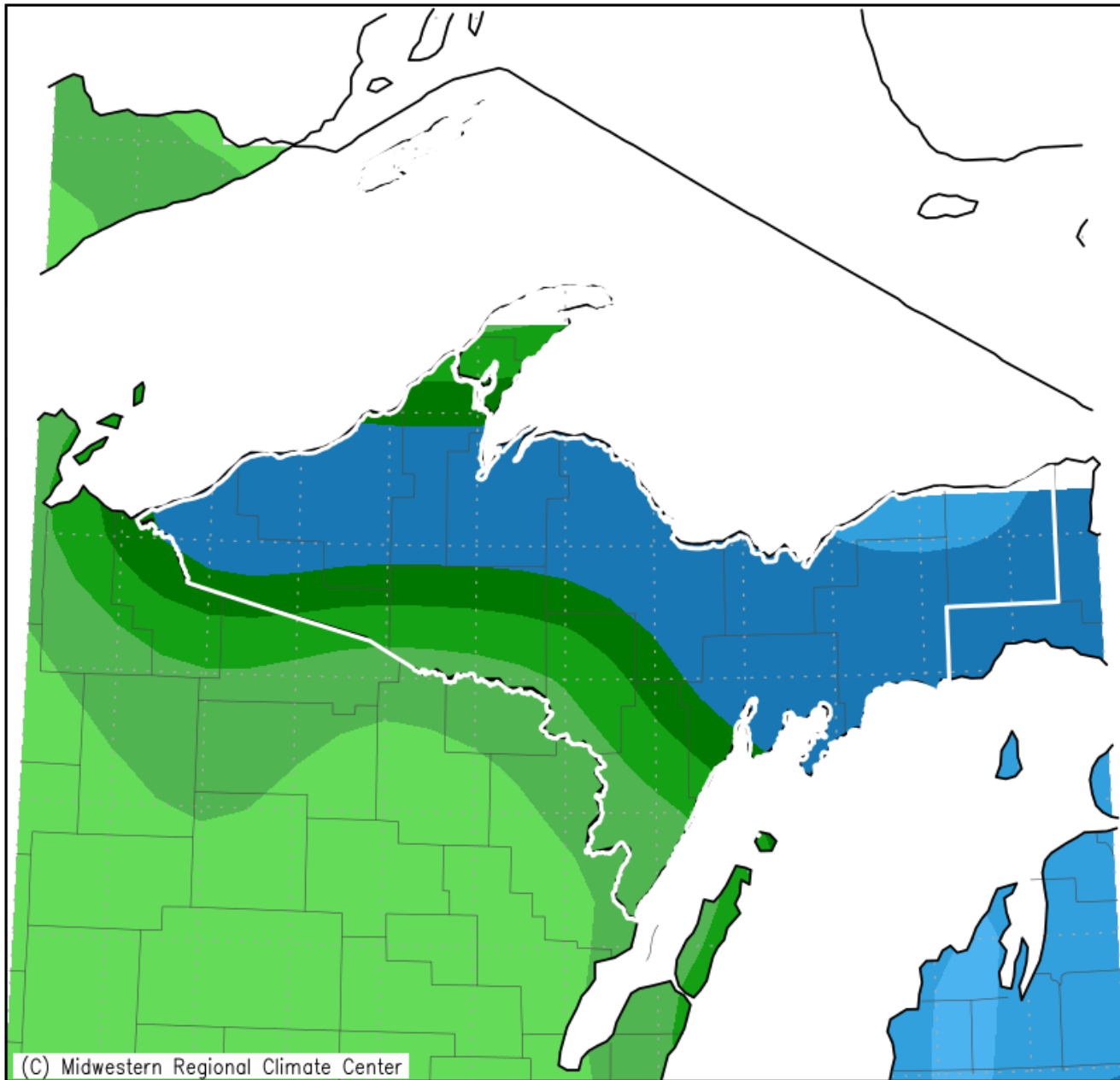
Hydro Products Issued

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
Daily River Forecasts (RVD)	29



Precipitation Summary

Accumulated Precipitation (in)
October 1, 2022 to October 31, 2022



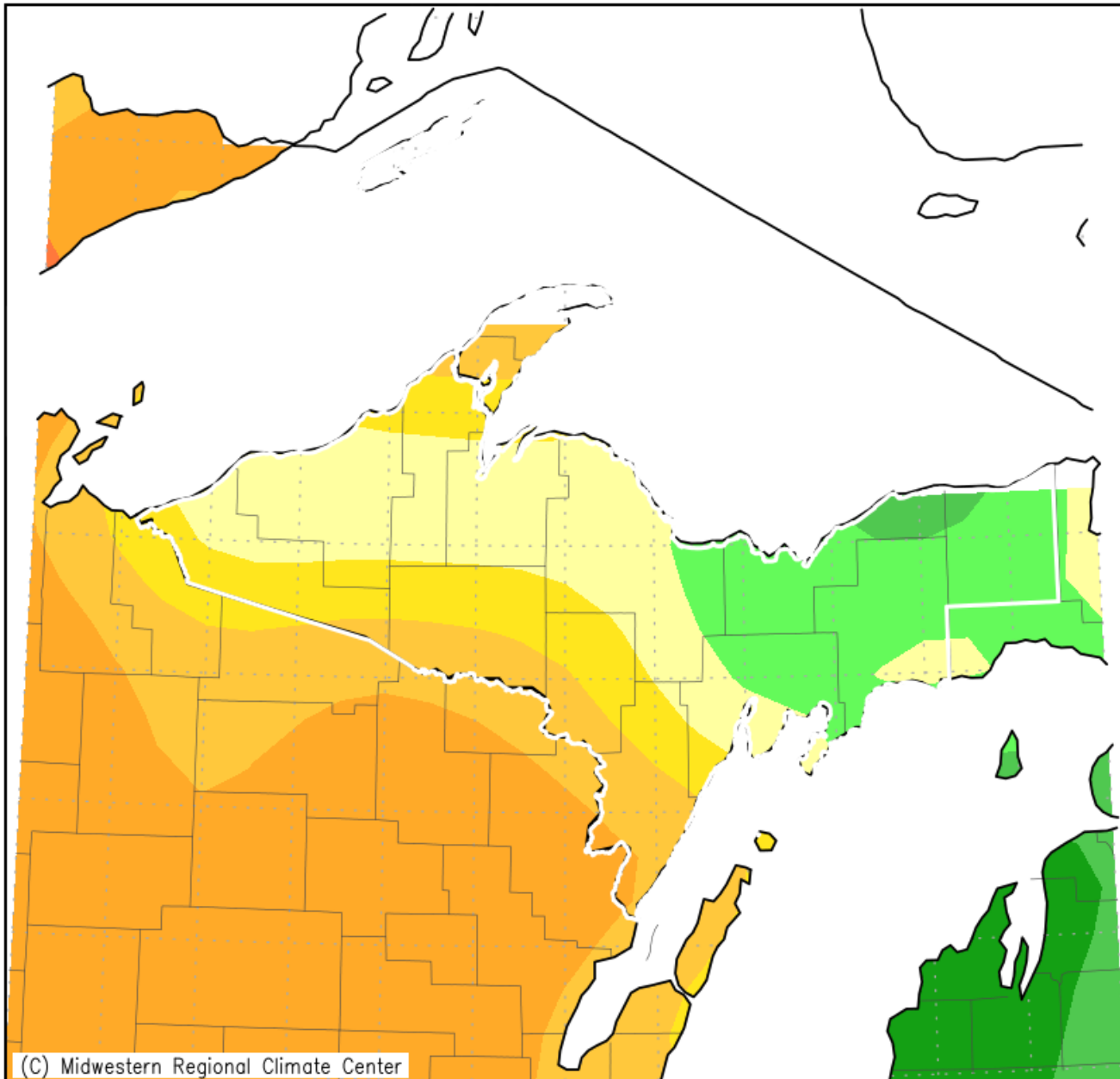
Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 11/8/2022 7:43:58 AM CST

Figure 4: October 2022 Monthly Precipitation Totals.

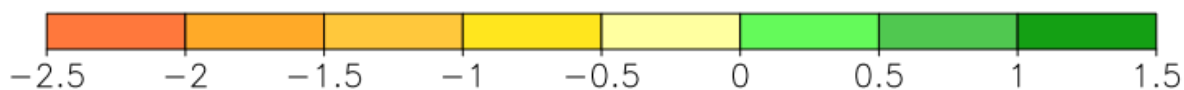


Precipitation Summary Continued

Accumulated Precipitation (in): Departure from Mean
October 1, 2022 to October 31, 2022



Mean period is 1991–2020.



Midwestern Regional Climate Center

cli-MATE: MRCC Application Tools Environment

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Figure 5: October 2022 Percent of Normal of Accumulated Precipitation.



Soil Moisture Anomaly

Calculated Soil Moisture Anomaly (mm)
OCT, 2022

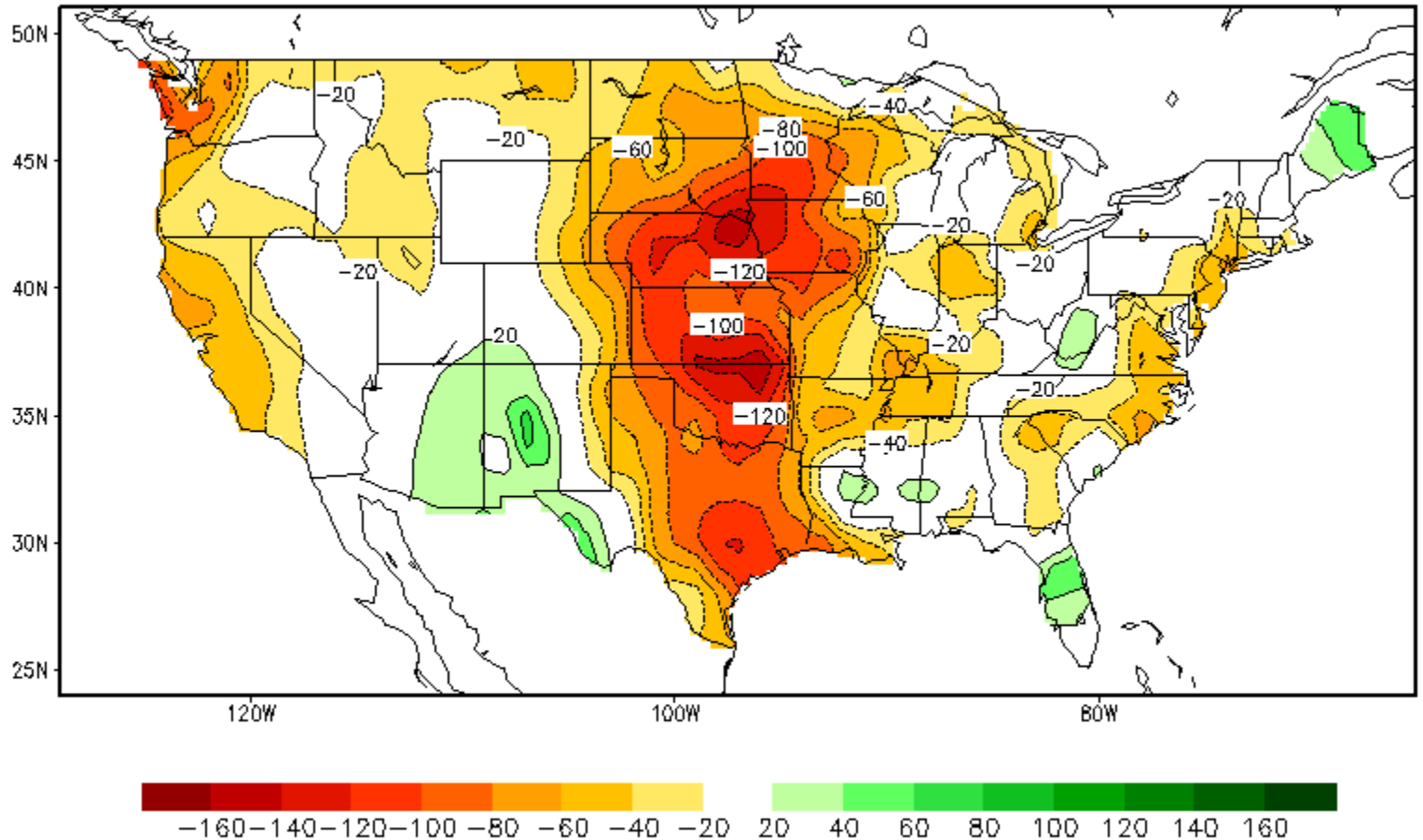


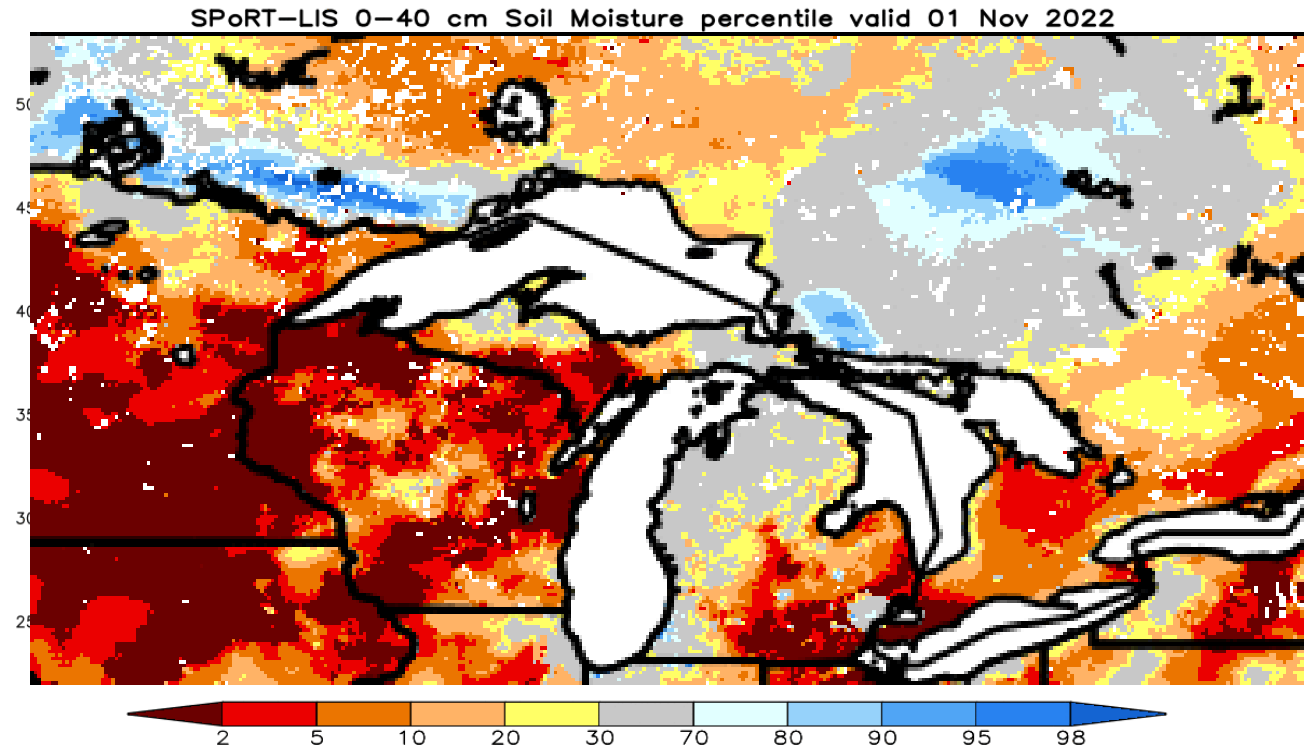
Figure 6: Climate Prediction Center's monthly average soil moisture anomaly for October 2022.



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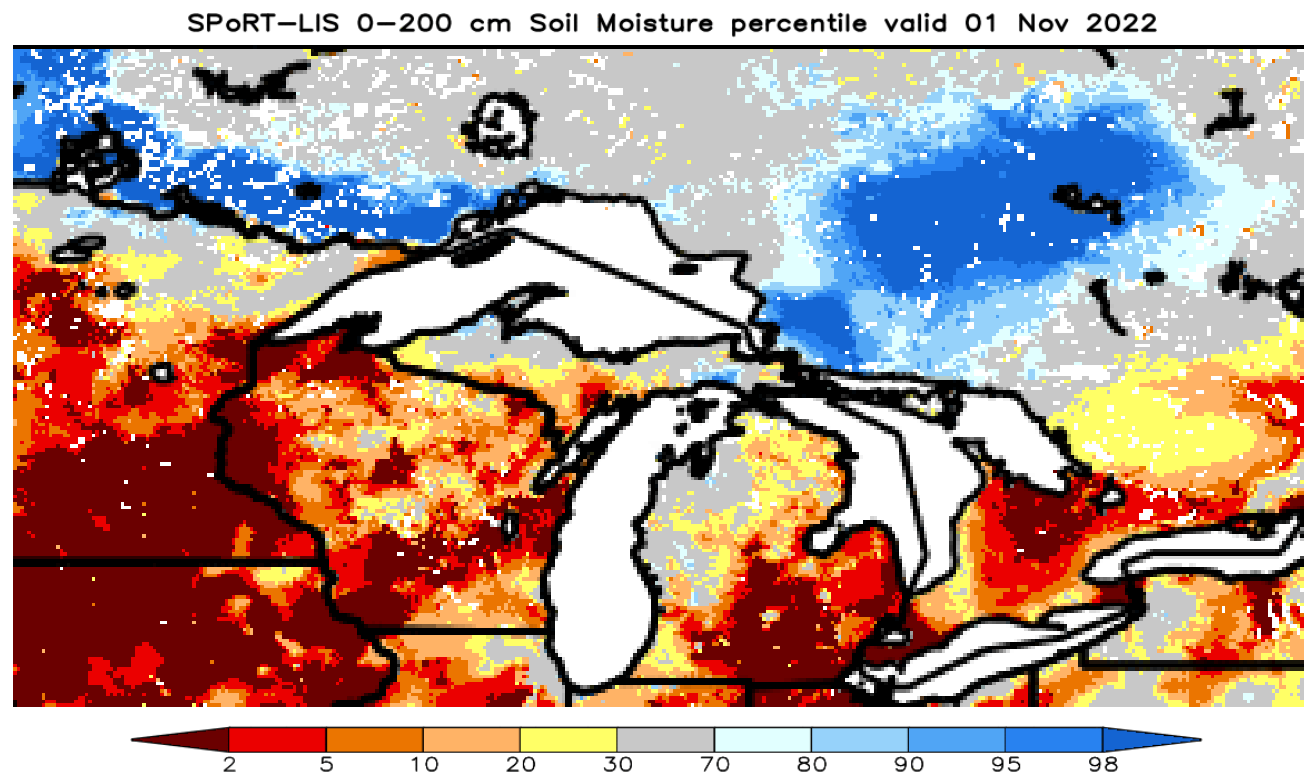
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Shallow and Deep Soil Moisture Percentiles



****NOTE****
****Experimental****

Figure 7: NASA Short-term Prediction Research and Transition (SPoRT) Center's shallow (0-40 cm) soil moisture percentile valid November 1, 2022.



****NOTE****
****Experimental****

Figure 8: NASA Short-term Prediction Research and Transition (SPoRT) Center's deep (0-200 cm) soil moisture percentile valid November 1, 2022.