



Monthly Report of River and Flood Conditions

Report for September 2022

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): September 2022
	DATE: October 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

All official sites observed below normal precipitation with the least rainfall at our southern sites (Stambaugh, Manistique, and Iron Mountain) and the most rain across the Keweenaw Peninsula. In general, September’s precipitation pattern was the opposite of what was observed during most of the summer with Quincy Hill observing at least 68% more rain than the other seven sites. Marquette, Ironwood, and other locations near Lake Superior observed slightly below normal rainfall amounts. These dry conditions allowed for near to below normal streamflow for all Upper Michigan rivers.

Location	Precipitation	% of Normal	Snowfall
WFO Marquette	2.91	73%	0.0
Marquette City	2.70	81%	0.0
Quincy Hill	4.90	M	0.0
Ironwood	2.63	68%	0.0
Iron Mountain	1.46	41%	0.0
Manistique	1.42	38%	0.0
Munising	2.91	69%	0.0
Stambaugh	1.30	37%	0.0

NOTE: Precipitation after 8 AM EST September 31st was counted in October 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 September.

River Conditions

Near to below normal streamflow was observed across the UP during September.

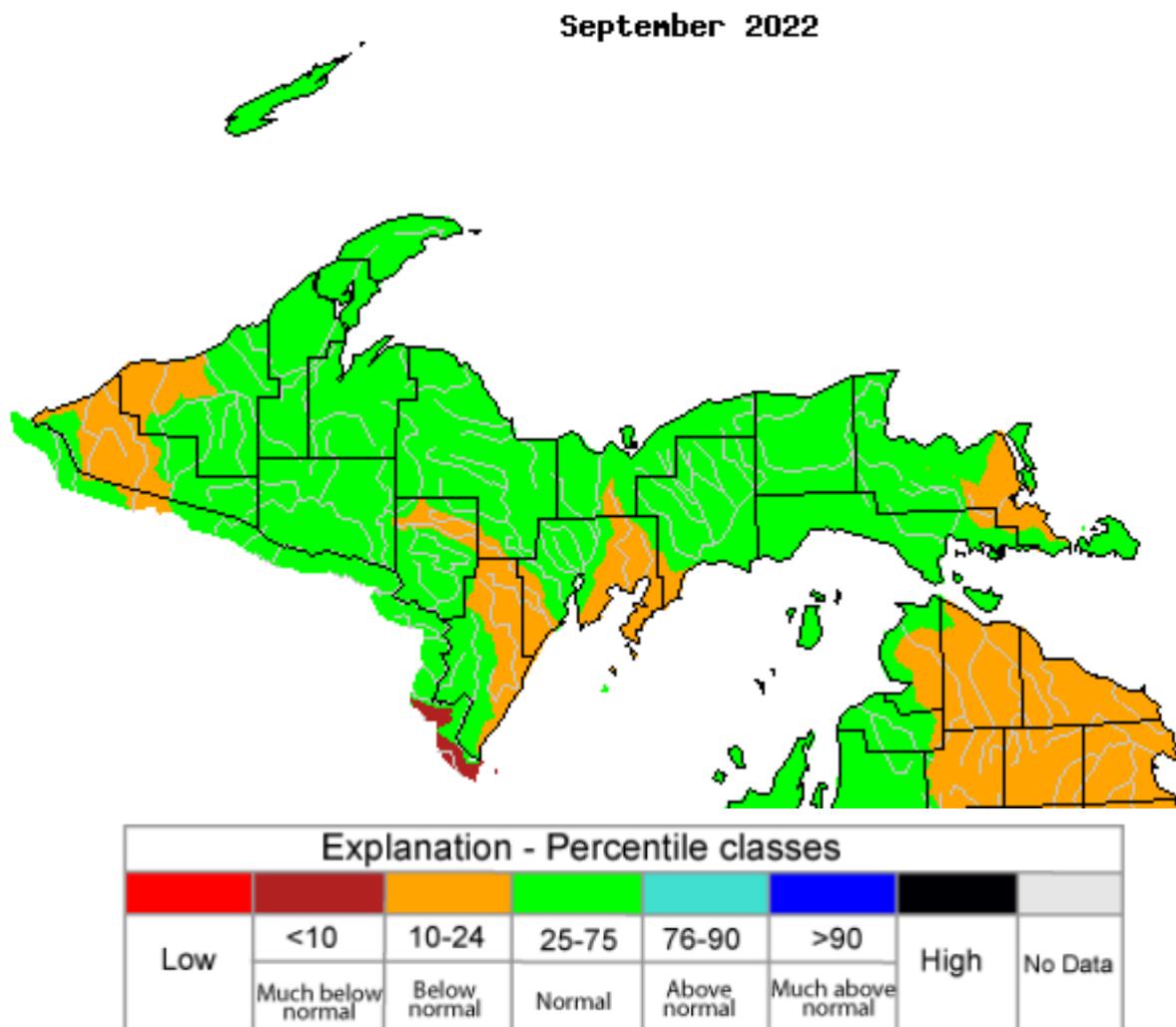


Figure 1: USGS monthly average streamflow in September 2022 across Upper Michigan



Snowpack SWE (Snow Water Equivalent) Conditions

Snowpack was still on summer vacation during September.

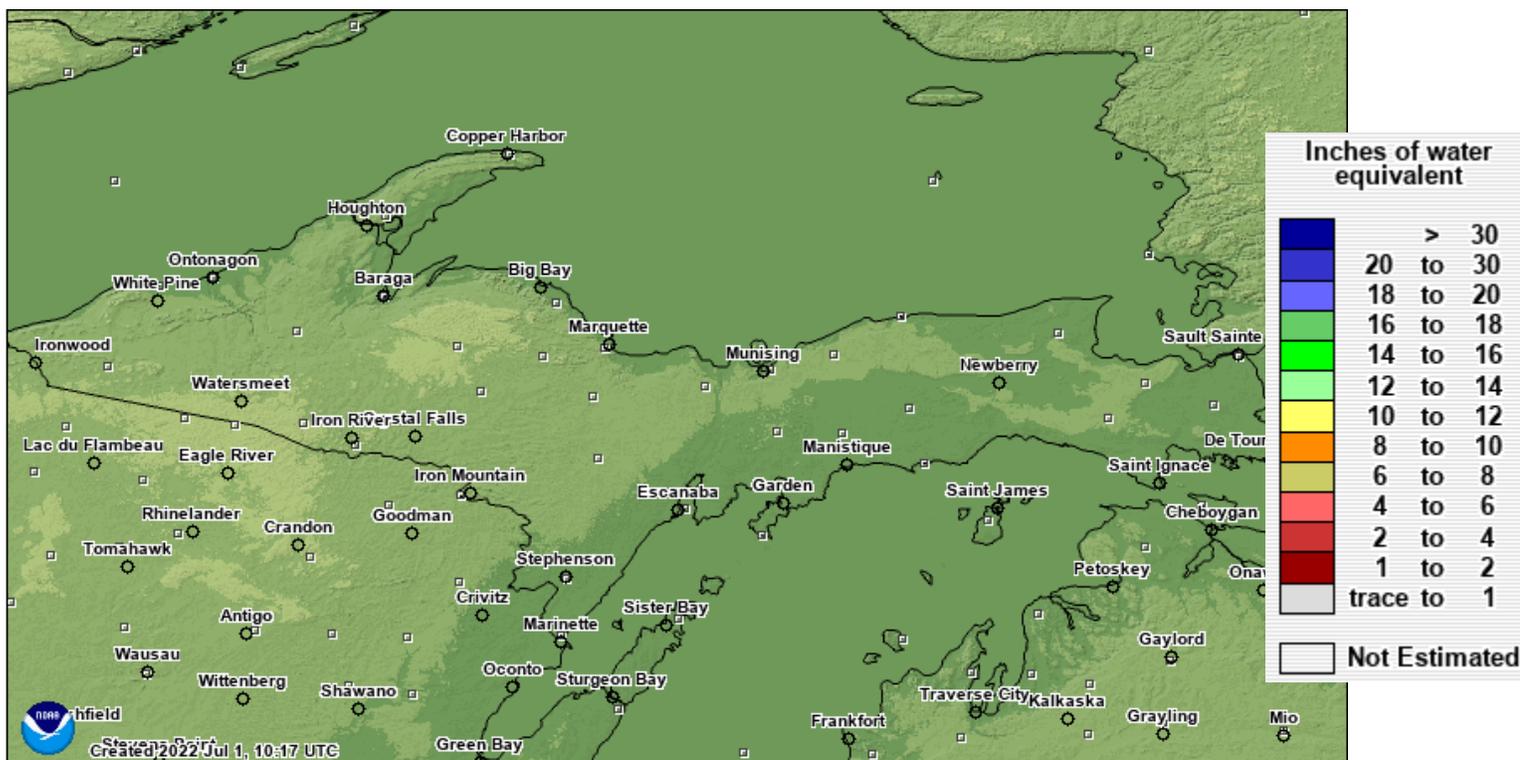
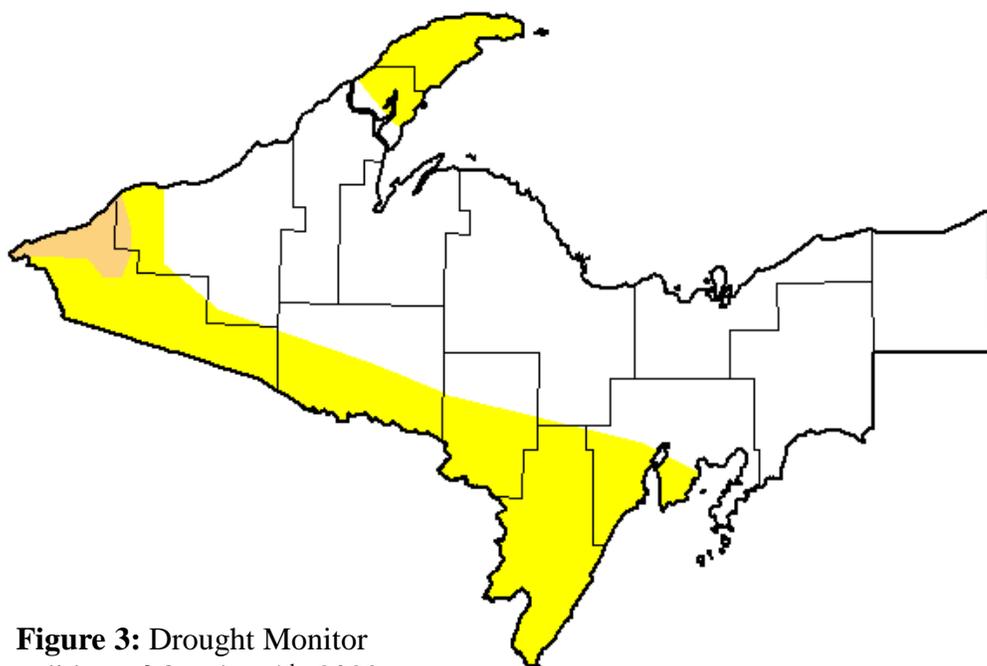


Figure 2: Current modeled snowpack snow water equivalent on October 1st.

Drought Discussion

Abnormally dry conditions were present near the Wisconsin state line and portions of the Keweenaw Peninsula with a small area of moderate drought near Ironwood, MI. For the latest drought status, please visit <http://www.drought.gov>.



October 4, 2022
 (Released Thursday, Oct. 6, 2022)
 Valid 8 a.m. EDT

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	67.42	32.58	1.94	0.00	0.00	0.00
Last Week 09-27-2022	88.48	11.52	1.94	0.00	0.00	0.00
3 Months Ago 07-05-2022	95.60	4.40	0.00	0.00	0.00	0.00
Start of Calendar Year 01-04-2022	26.00	74.00	35.44	0.51	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 10-05-2021	30.73	69.27	6.78	0.49	0.00	0.00

Intensity:
 None (White) D2 Severe Drought (Red)
 D0 Abnormally Dry (Yellow) D3 Extreme Drought (Dark Red)
 D1 Moderate Drought (Orange) D4 Exceptional Drought (Dark Red)

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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 CPC/NOAA



Figure 3: Drought Monitor valid as of October 4th, 2022.



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Media Links

None.

Hydro Products Issued

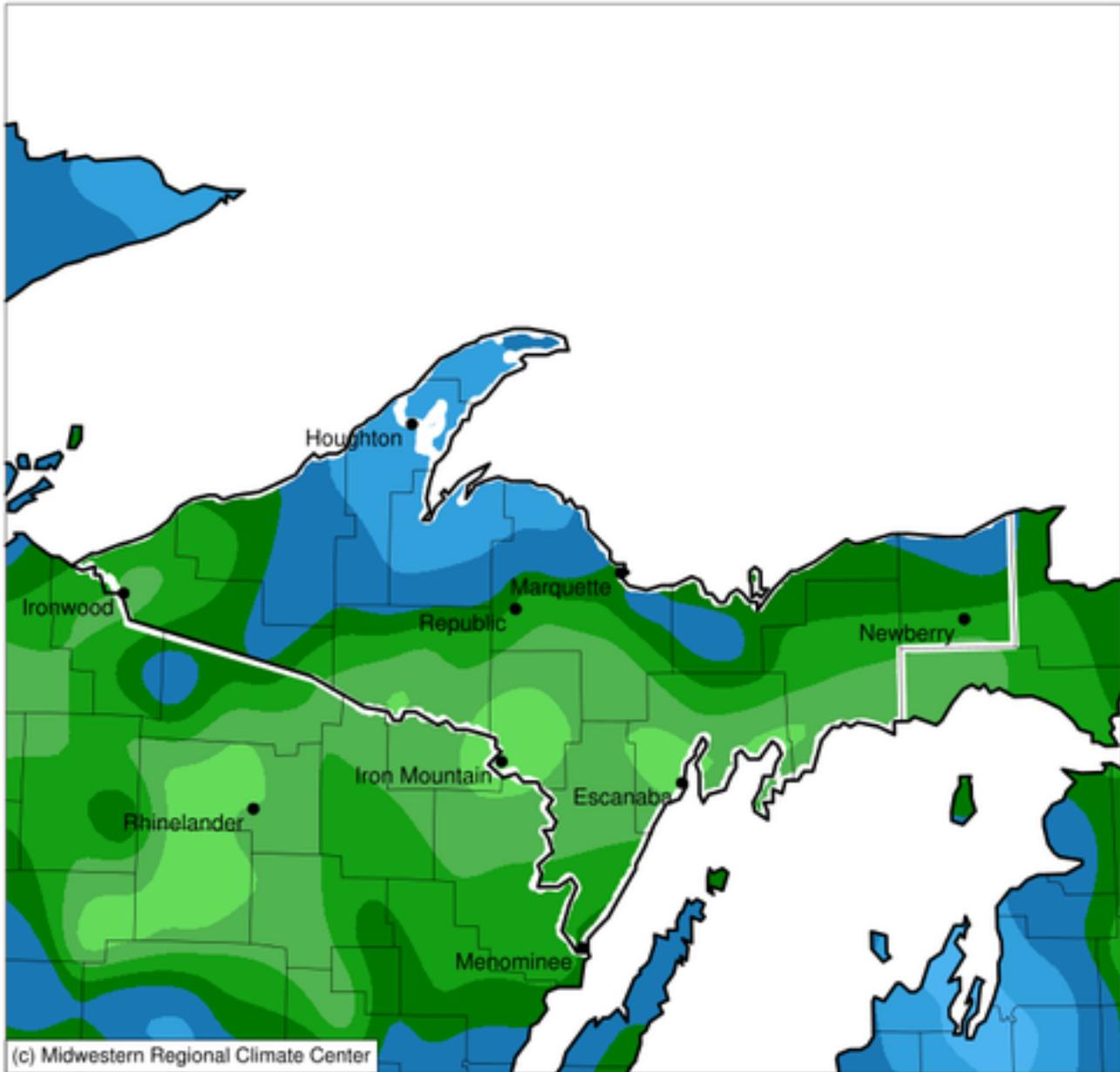
Product	Number
Hydrologic Outlook (ESF)	1
Flood Watch (FFA)	0
Flood Warning (FLW)	0
Flood Advisories and Statements (FLS)	0
Flash Flood Warning (FFW)	0
Flash Flood Statement (FFS)	0
Hydrologic Summary (RVA)	31
Daily River Forecasts (RVD)	31



Precipitation Summary

Accumulated Precipitation (in)

September 01, 2022 to September 30, 2022



(c) Midwestern Regional Climate Center



0.01 0.1 0.25 0.5 1 1.5 2 2.5 3 4 5 6 8

Stations from the following networks used: WBAN, COOP, FAA, GHCN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI, Missouri FSA, Missouri Mesonet,

Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
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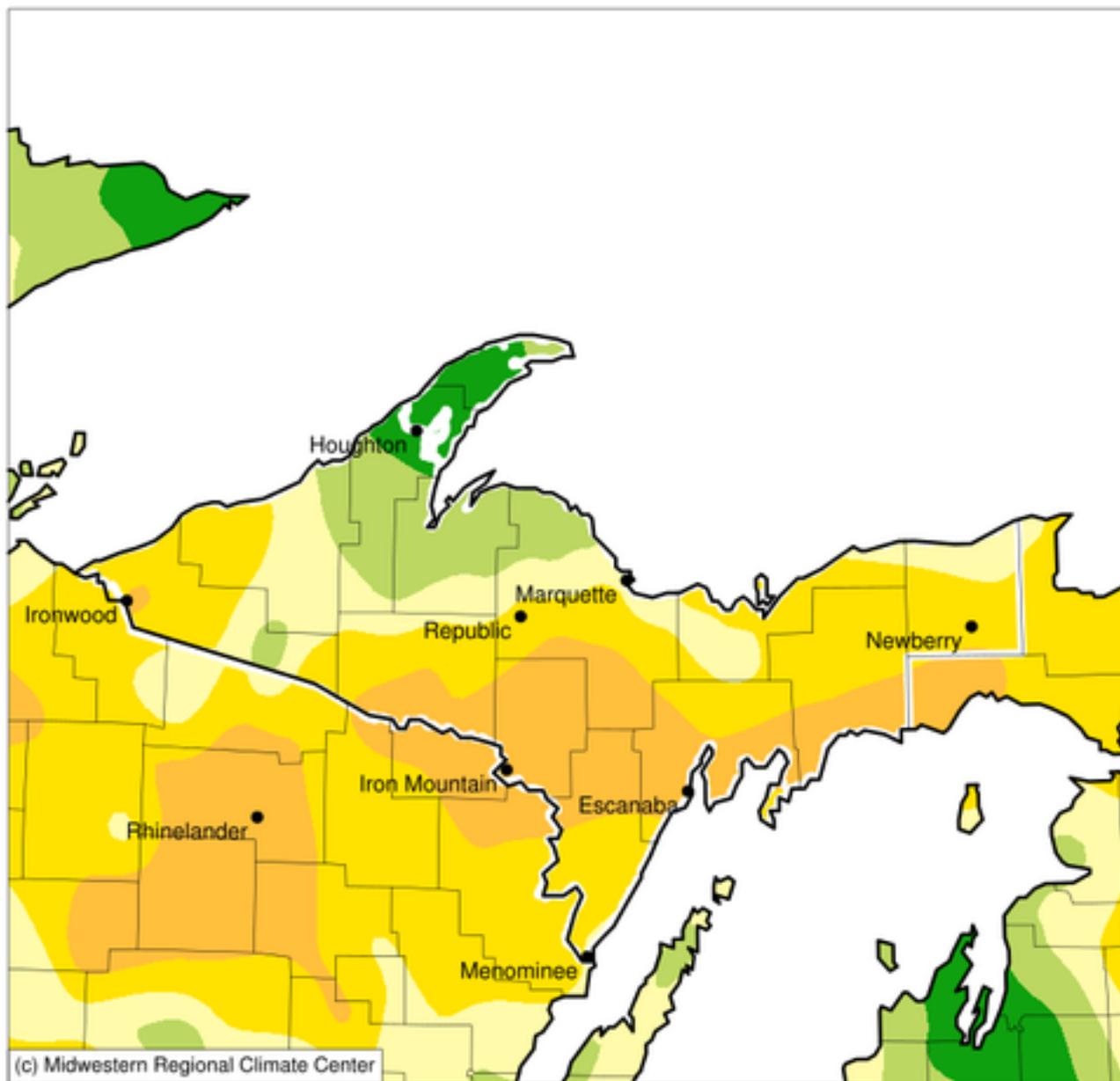
Figure 4: September 2022 Monthly Precipitation Totals.



Precipitation Summary Continued

Accumulated Precipitation (in): Percent of 1991-2020 Normals

September 01, 2022 to September 30, 2022



(c) Midwestern Regional Climate Center



5 10 25 50 75 100 125

Stations from the following networks used: WBAN, COOP, FAA, GHCN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI,

Midwestern Regional Climate Center

cli-MATE: MRCC Application Tools Environment

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



Soil Moisture Anomaly

Calculated Soil Moisture Anomaly (mm)
SEP, 2022

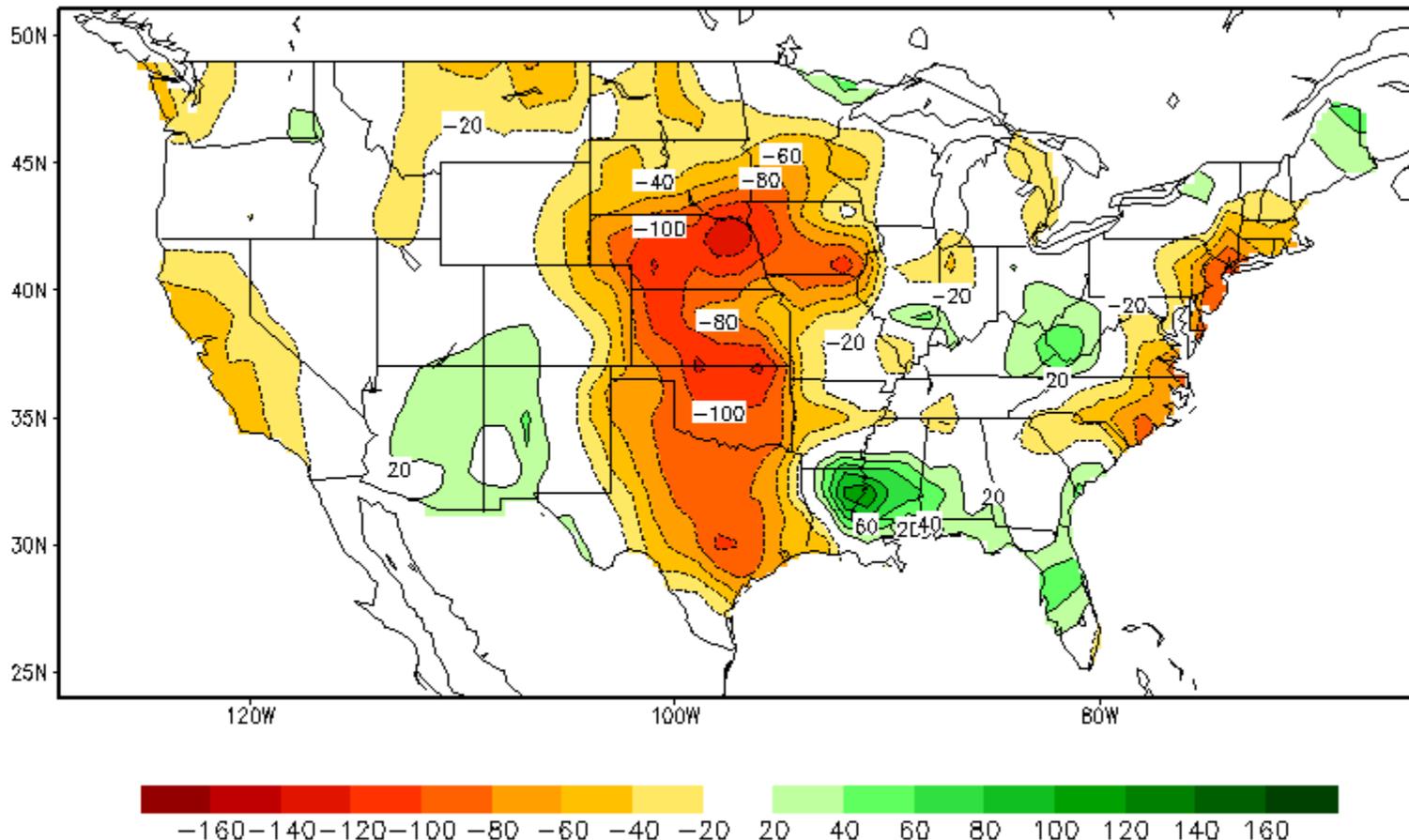


Figure 6: Climate Prediction Center's monthly average soil moisture anomaly for September 2022.



Shallow and Deep Soil Moisture Percentiles

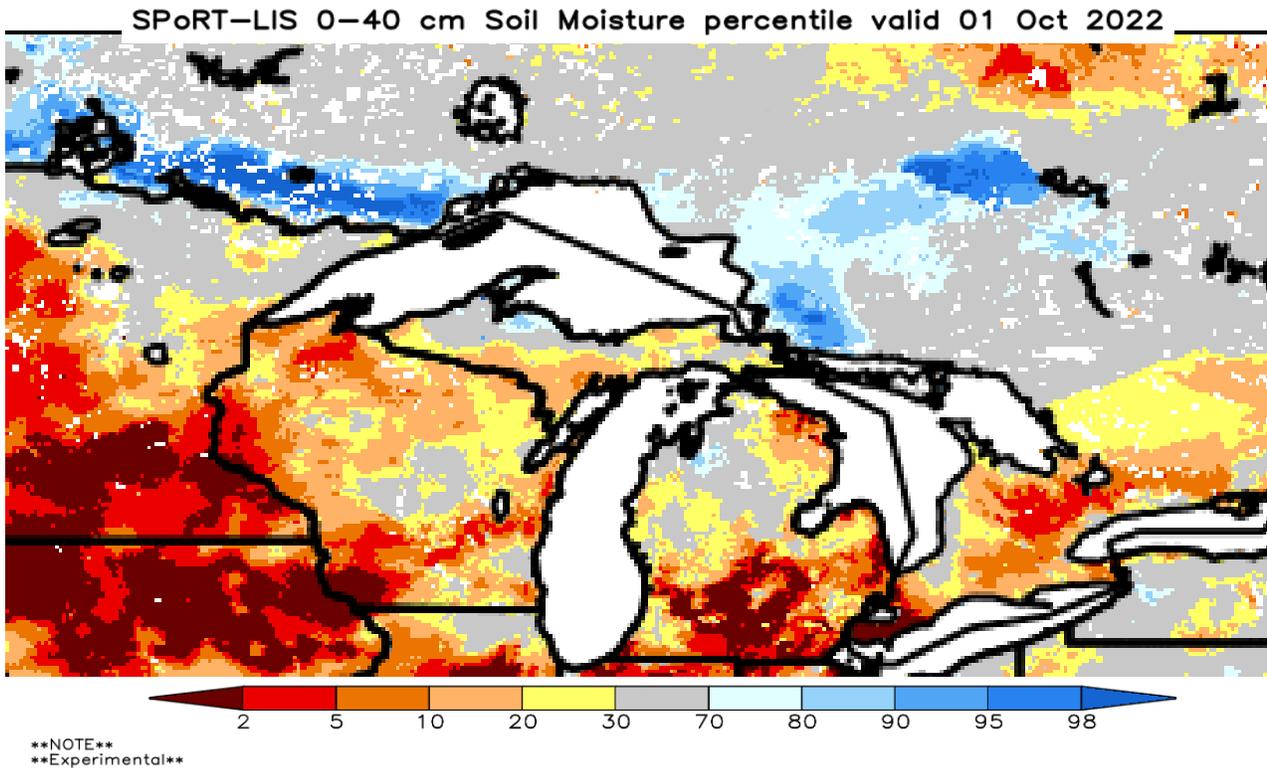


Figure 7: NASA Short-term Prediction Research and Transition (SPoRT) Center's shallow (0-40 cm) soil moisture percentile valid October 1, 2022.

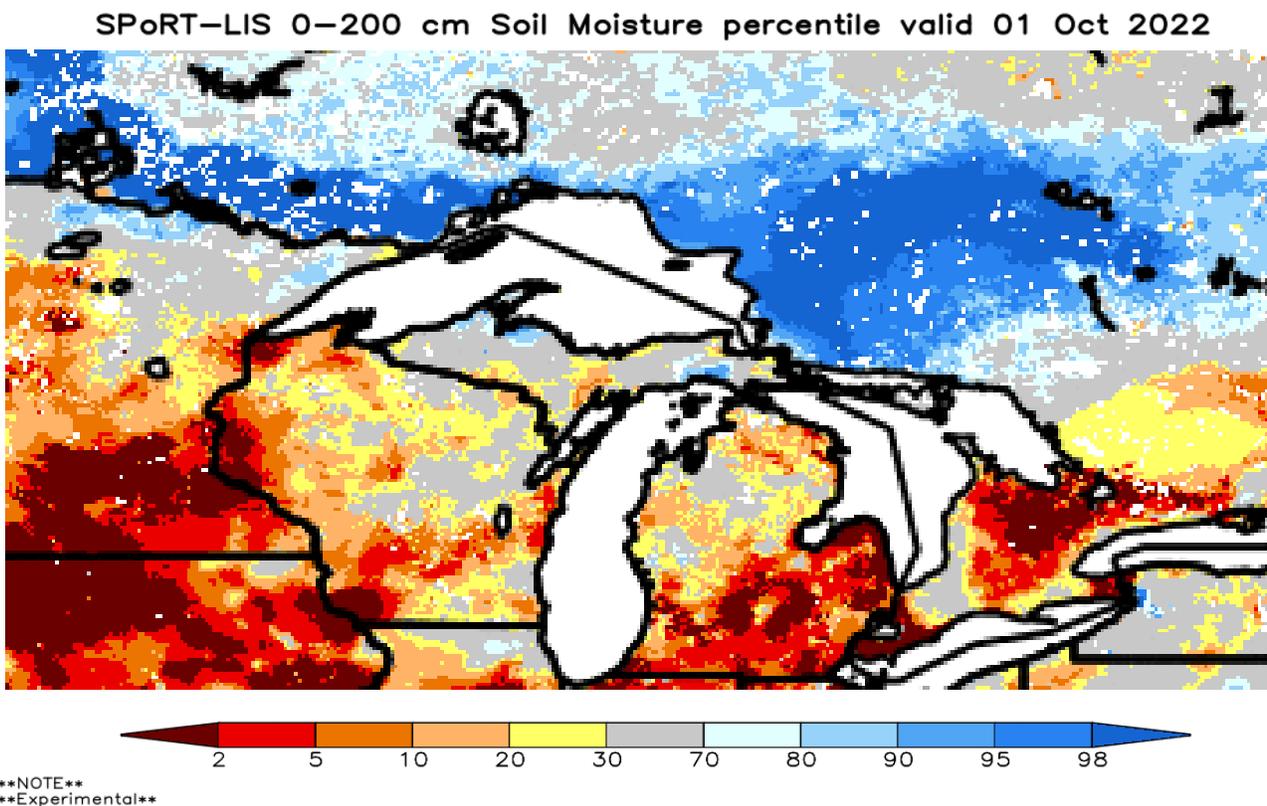


Figure 8: NASA Short-term Prediction Research and Transition (SPoRT) Center's deep (0-200 cm) soil moisture percentile valid October 1, 2022.