



Monthly Report of River and Flood Conditions

Report for August 2021

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): August 2021
	DATE: September 7th, 2021
	SIGNATURE: Ryan Connelly, Asst. 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

August continued to be abnormally dry over Upper Michigan, with many areas seeing the development of a D1 Moderate drought by the middle of the month. However, an area-wide rainfall on August 28th led to some minor improvement in drought conditions. A relatively small portion of central Upper Michigan saw heavy rain with daily rainfall totals of nearly 2 inches in spots. While this corridor of heavy rain led to two sites recording above-normal precipitation for the month, the majority of sites finished the month with below-normal precipitation, and some sites recorded precipitation amounts that were less than half of normal for the month of August. Therefore, no flooding was observed in the NWS Marquette service area during the month of August, with the exception of some very minor flooding of poor drainage areas that are prone to ponding on August 8th.

Location	Precipitation	% of Normal	Snowfall
WFO Marquette	2.50	88%	0
Marquette City	3.12	135%	0
Quincy Hill	1.84	M	0
Ironwood	1.63	43%	0
Iron Mountain	2.47	73%	0
Manistique	1.38	45%	0
Munising	1.96	62%	0
Stambaugh	3.23	104%	0

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

River Conditions

Monthly average streamflows were below normal for the Lake Superior watershed but near normal for most of the Lake Michigan watershed. Training thunderstorms with very heavy rain and even some flash flooding affected parts of northern Lower Michigan late in the month, leading to areas of high streamflow there.

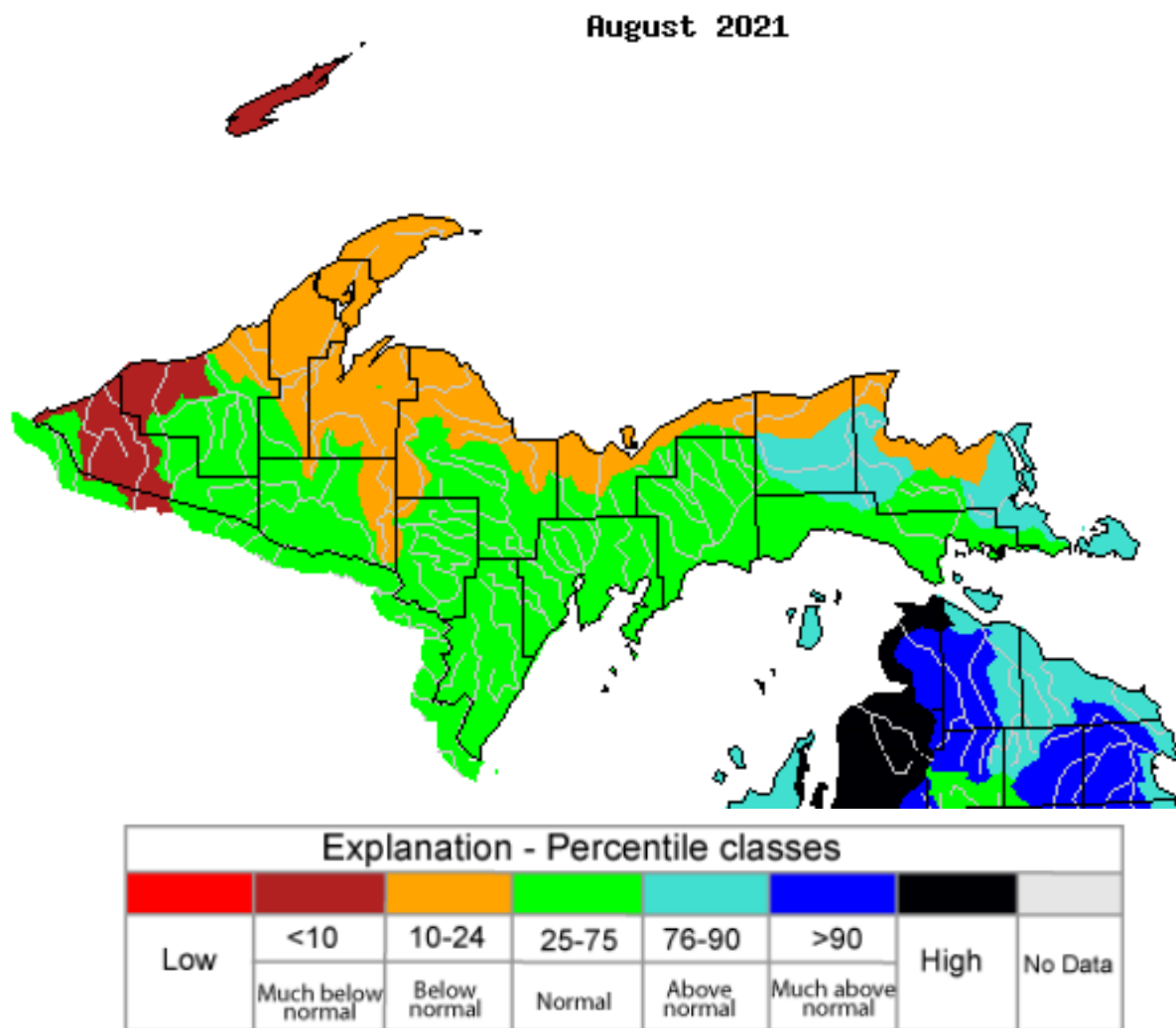


Figure 1: USGS monthly average streamflow in August 2021 across Upper Michigan

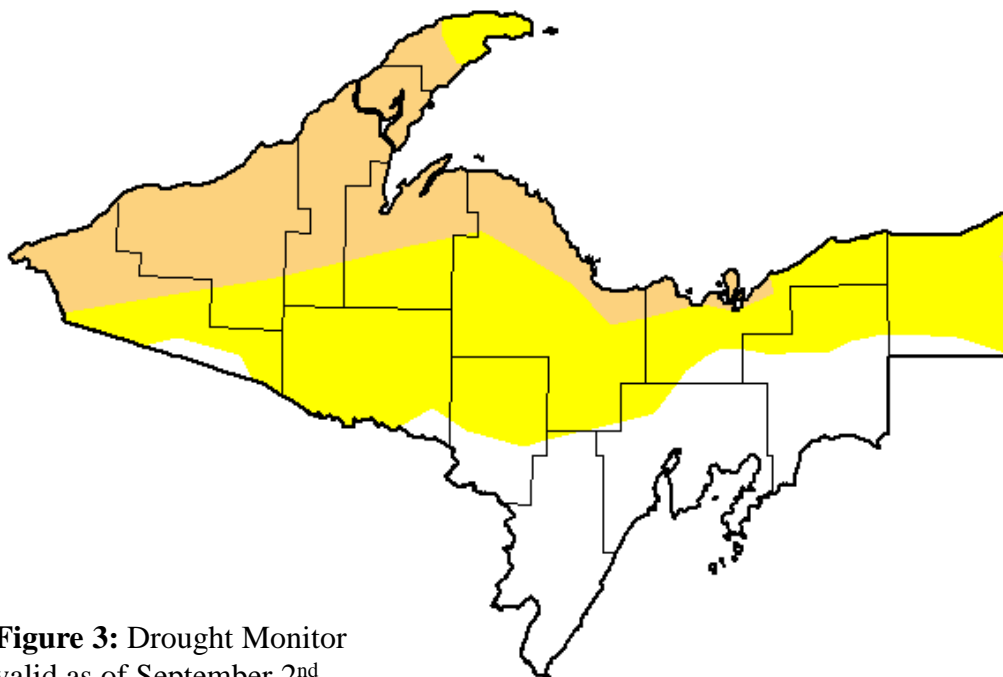


Snowpack Conditions

The next snowpack discussion will start at the beginning of the 2021-2022 winter season.

Drought Discussion

Over the course of August, a D1-4 Moderate drought developed over portions of western Upper Michigan. The majority of the area was in at least the D0 Abnormally Dry category. However, areas near Lake Michigan saw enough rain to prevent drought development there. For the latest drought status, please visit <http://www.drought.gov>.



August 31, 2021

(Released Thursday, Sep. 2, 2021)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	25.74	74.26	29.09	0.00	0.00	0.00
Last Week 08-24-2021	25.84	74.16	29.13	0.00	0.00	0.00
3 Months Ago 06-01-2021	87.17	12.83	8.11	0.00	0.00	0.00
Start of Calendar Year 12-29-2020	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year 09-29-2020	100.00	0.00	0.00	0.00	0.00	0.00
One Year Ago 09-01-2020	100.00	0.00	0.00	0.00	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme 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>

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Western Regional Climate Center

Figure 3: Drought Monitor valid as of September 2nd.





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Media Links

None.

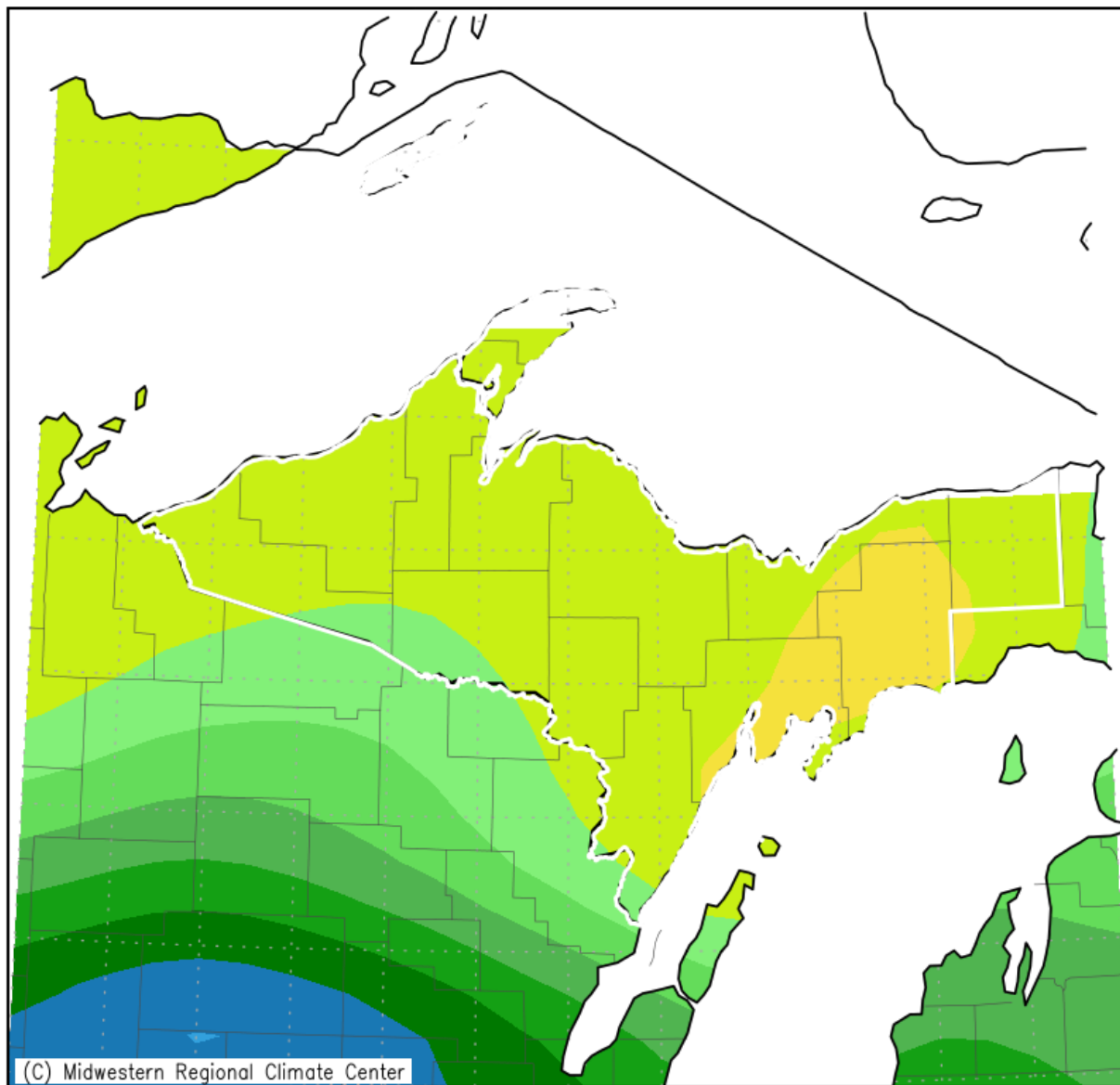
Hydro Products Issued

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



Precipitation Summary

Accumulated Precipitation (in)
August 1, 2021 to August 31, 2021



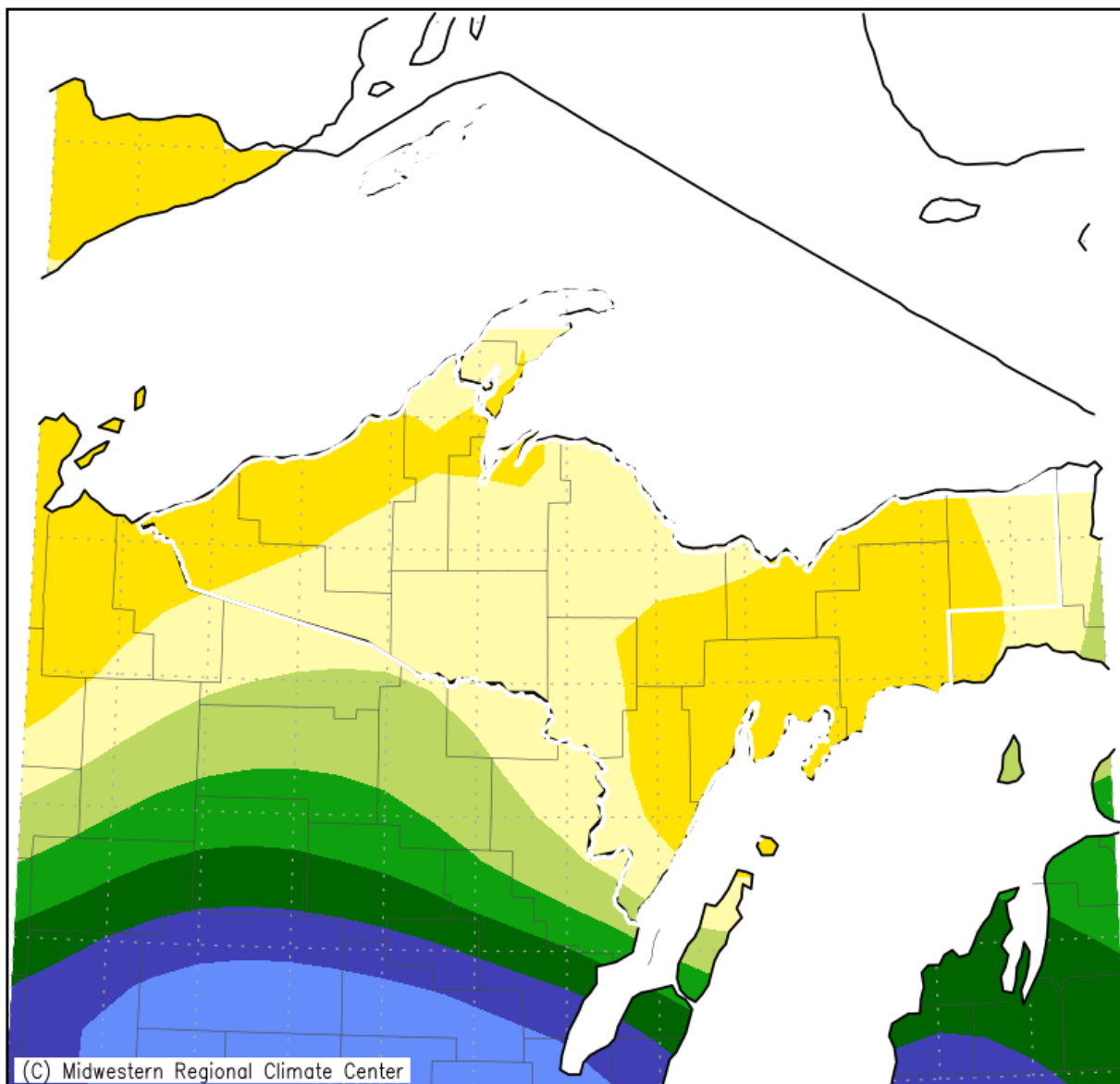
Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
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Figure 4: August 2021 Monthly Precipitation Totals.

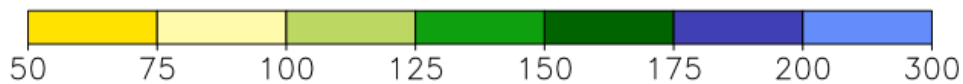


Precipitation Summary Continued

Accumulated Precipitation: Percent of Mean
August 1, 2021 to August 31, 2021



Mean period is 1991–2020.



Midwestern Regional Climate Center

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Figure 5: August 2021 Percent of Normal of Accumulated Precipitation.



Soil Moisture Anomaly

Calculated Soil Moisture Anomaly (mm)
AUG, 2021

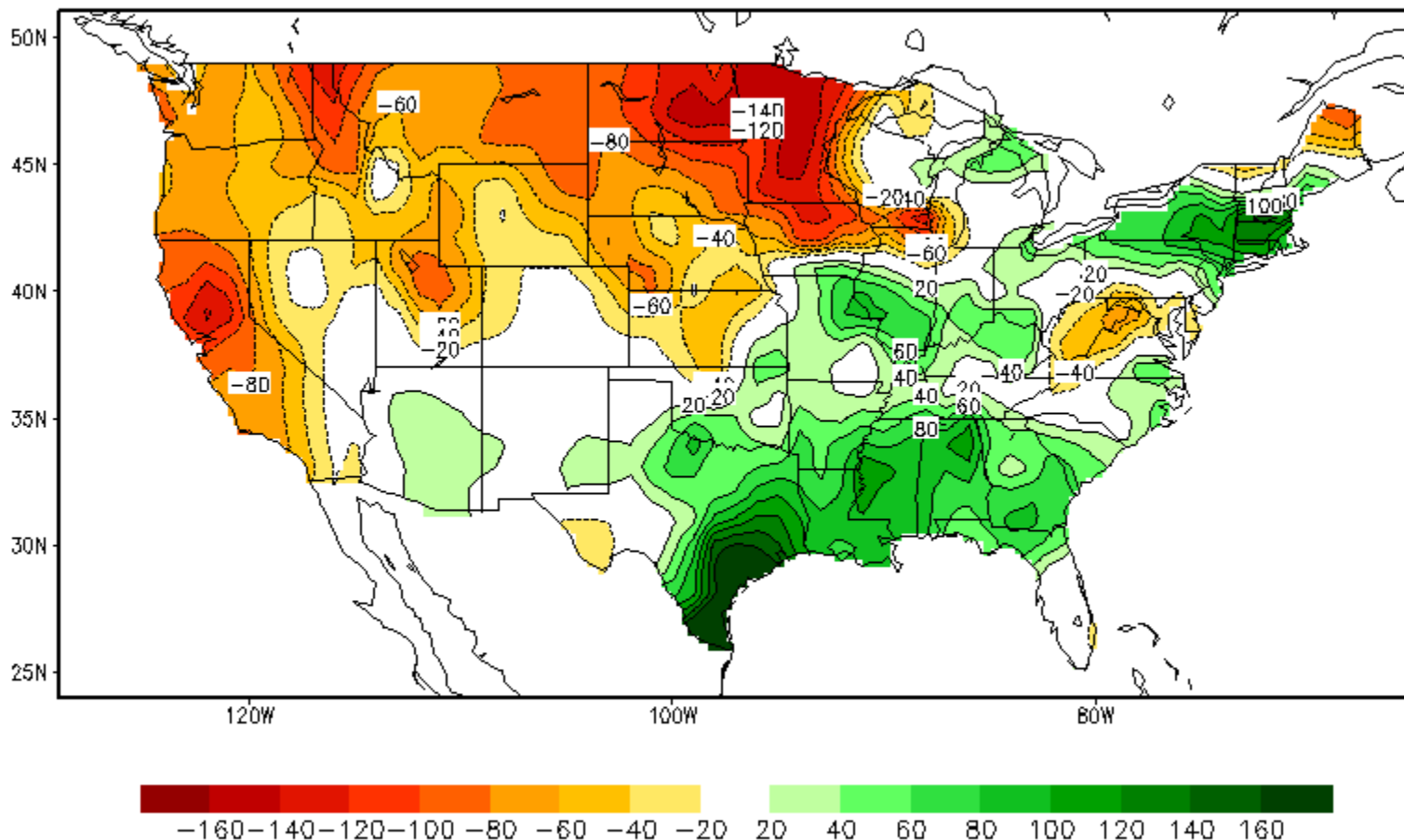


Figure 6: Climate Prediction Center's monthly average soil moisture anomaly for August 2021.