

**NWS FORM  
E-5**

**U.S. Department of Commerce  
NOAA, NATIONAL WEATHER SERVICE**

**HSA OFFICE:  
Grand Rapids, MI**

**MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS**

REPORT FOR (MONTH &  
YEAR):  
**May 2023**

TO: NATIONAL WEATHER SERVICE (W/OS31)  
HYDROMETEOROLOGICAL INFO CENTER  
1325 EAST-WEST HIGHWAY, RM 13468  
SILVER SPRING, MD 20910

DATE:  
June 16th, 2023

SIGNATURE:  
Bruce Smith, MIC  
Joe Ceru, Meteorologist

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 that no flooding occurred within this hydrologic service area.

**Summary**

May 2023 was the 2nd driest on record at Grand Rapids. What started out as a top ten wettest spring has transitioned into a top ten driest start to the summer. There was a heat wave to end the month but overall average monthly temperatures were around normal. Even with the well below normal precipitation there has been above normal precipitation for the year.

**Flood Conditions**

The month that started out with above normal flow. The heaviest precipitation events came on the 1st and the 7th of the month. Neither of these caused flooding of any kind. The flows along the Kalamazoo, the Grand River and the Muskegon began in the 30 percentile range through the first half of the month and steadily dropped to the 10 to 25 percentile range towards the end of May. This flow has dropped below the median but is not at record low. The hot and dry conditions have continued into June and that trend lookd to continue as we are approaching a moderate drought status.

**Flood Stage Report**

No forecast points exceeded flood stage during the month. Thus, the NWS Form E-3 "Flood Stage Report" was not issued.

**River Conditions**

The end of May percentage of normal flow for selected rivers is listed below:

<u>Location</u>	<u>River</u>	<u>% of Normal</u>
Scottville	Pere Marquette	80
Whitehall	White	80
Ewart	Muskegon	67
Mt. Pleasant	Chippewa	66
Lansing	Grand	41
Grand Rapids	Grand	64
East Lansing	Red Cedar	53
Hastings	Thornapple	67
Battle Creek	Battle Creek	39
Battle Creek	Kalamazoo	60

### **General Hydrologic Information**

May precipitation amounts for Grand Rapids, Lansing, and Muskegon, Michigan, were 0.84, 0.96, and 0.86 inches, respectively (Figure 1). Monthly departures were -3.16, -2.70, and -2.52 inches, respectively. Yearly departures were +2.88, +2.39 and +1.16 inches for Grand Rapids, Lansing and Muskegon, respectively. Percent of mean precipitation for May 2023 is shown in Figure 2.

Temperatures for the month of May at Grand Rapids, Lansing and Muskegon were near or slightly warmer than average. The monthly average temperature departures for these sites were -0.3, +0.7, and +1.7 degrees Fahrenheit, respectively.

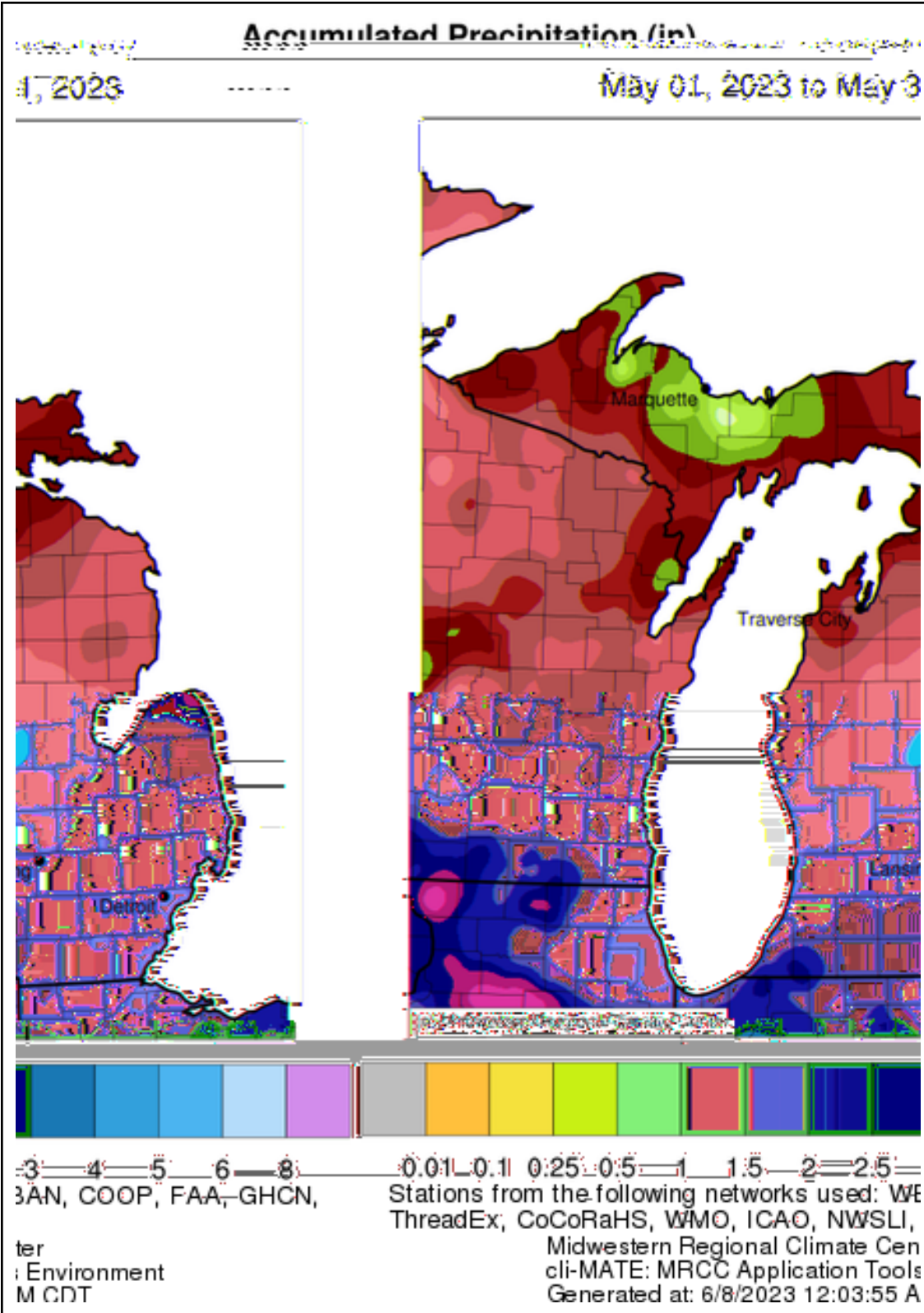


Figure 1. May 2023 Monthly Precipitation Totals.

Accumulated Precipitation: Percent of Mean  
May 1, 2023 to May 31, 2023

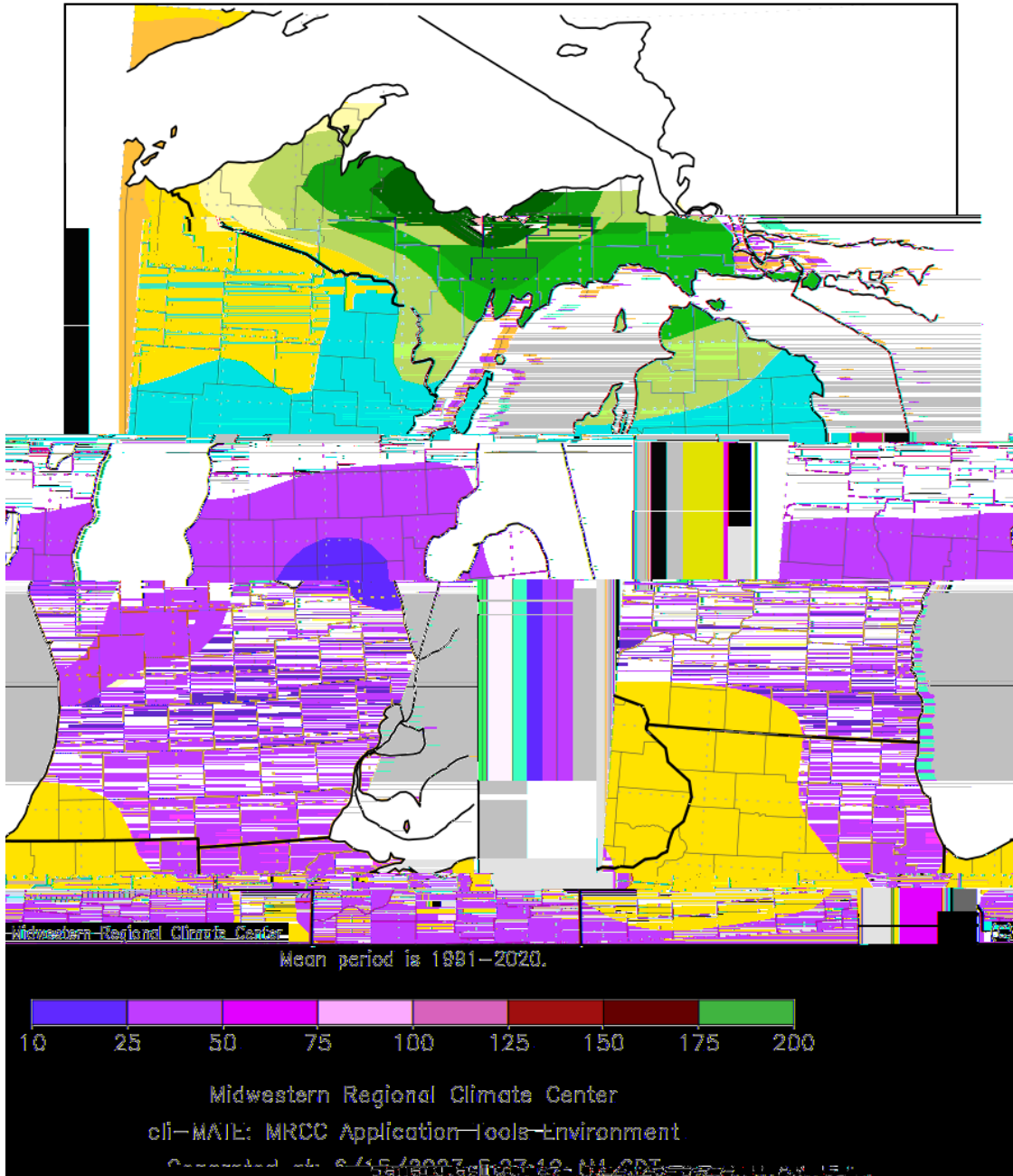
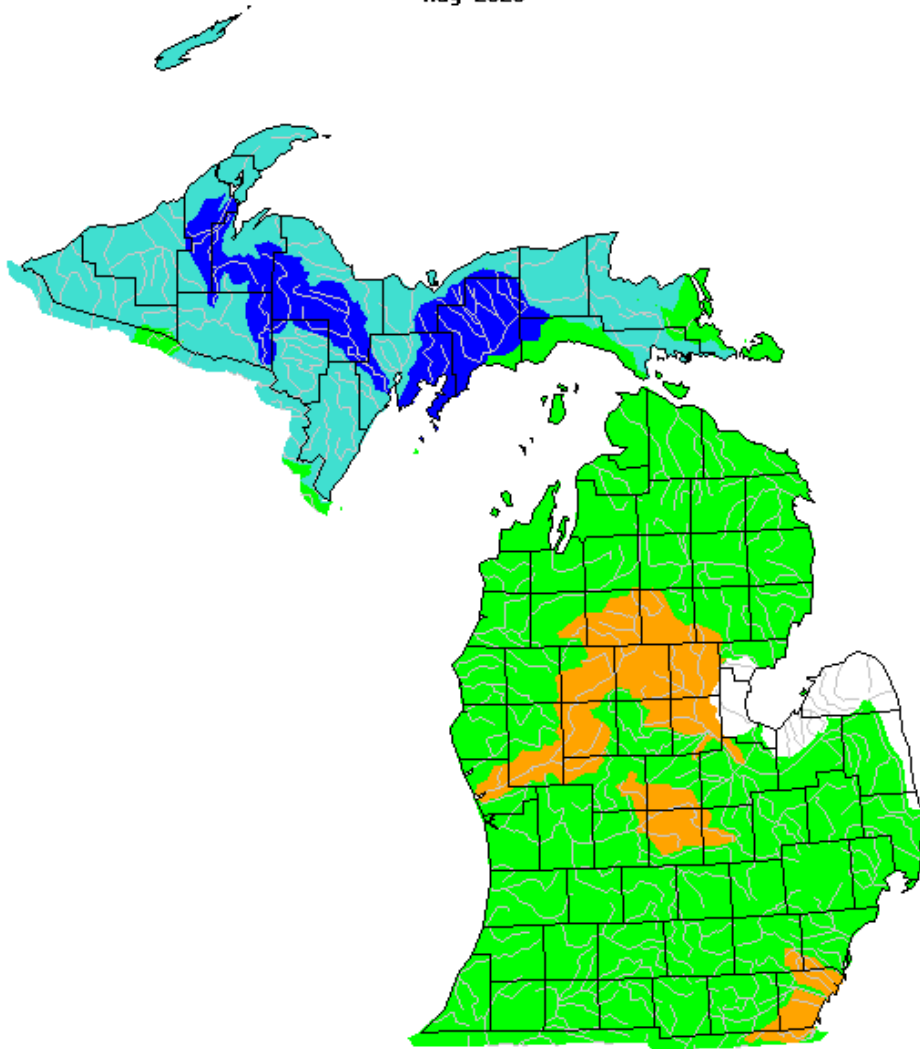


Figure 2. May 2023 Percent of Mean of Accumulated Precipitation.

May 2023



Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	No Data
	Much below normal	Below normal	Normal	Above normal	Much above normal		

Figure 3. USGS monthly streamflow for May, grouped by significant hydrologic units. Note streamflows for the Grand River watershed are around normal for this time of year. Much of northern lower Michigan remains around normal.

Calculated Soil Moisture Ranking Percentile  
MAY, 2023

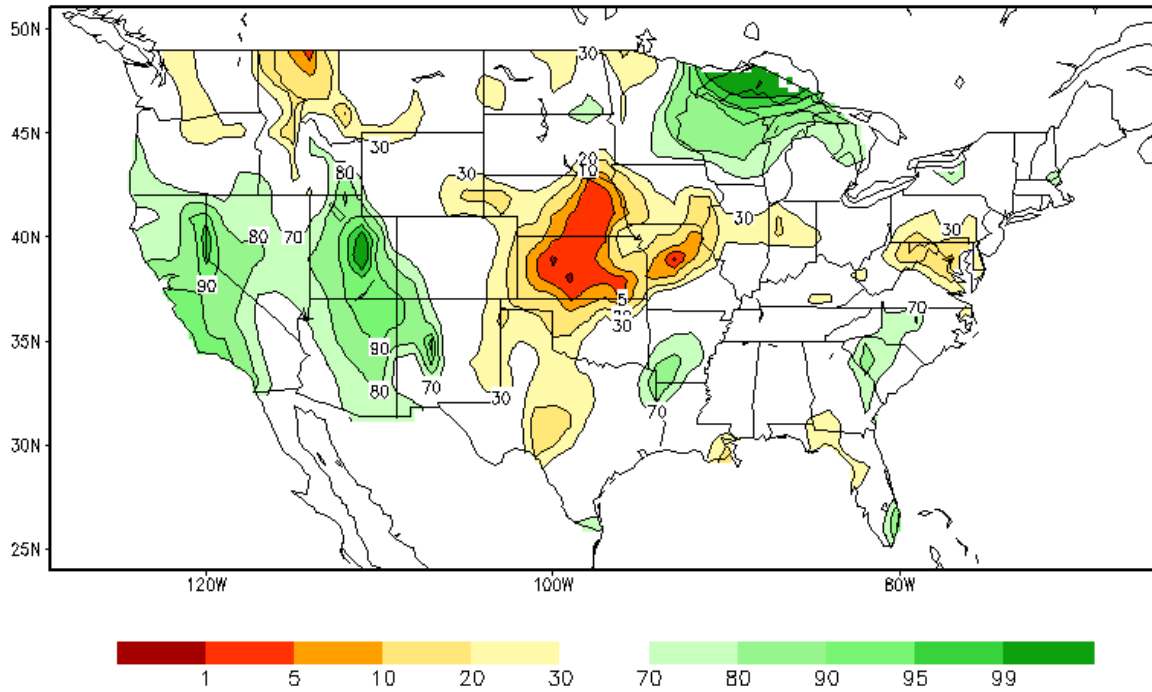


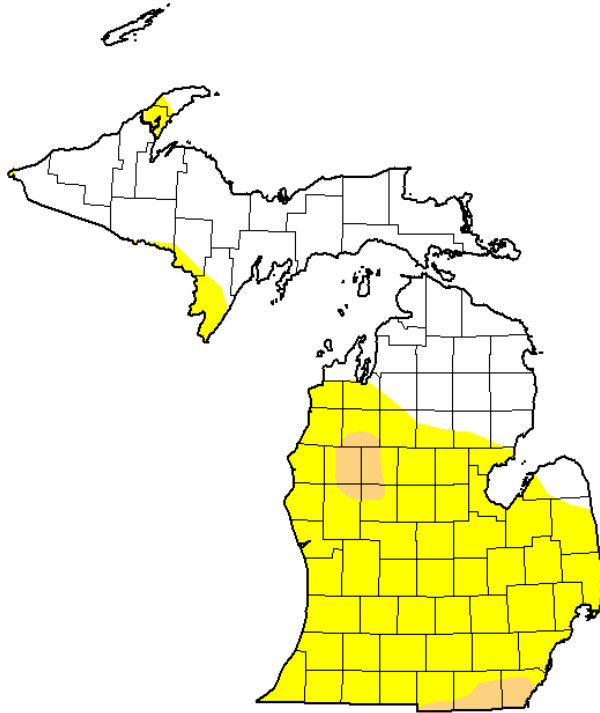
Figure 4. Calculated Soil Moisture Percentile for May, 2023. This supports the drying conditions beginning to occur through the southern half of the Lower peninsula of Michigan.

**U.S. Drought Monitor**  
**Michigan**

**June 6, 2023**

(Released Thursday, Jun. 8, 2023)

Valid 8 a.m. EDT



*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	42.99	57.01	3.65	0.00	0.00	0.00
<b>Last Week</b> <i>05-30-2023</i>	80.31	19.69	0.00	0.00	0.00	0.00
<b>3 Months Ago</b> <i>03-07-2023</i>	83.45	16.55	10.91	0.00	0.00	0.00
<b>Start of Calendar Year</b> <i>01-03-2023</i>	48.07	51.93	30.62	9.67	0.00	0.00
<b>Start of Water Year</b> <i>09-27-2022</i>	59.10	40.90	5.76	0.00	0.00	0.00
<b>One Year Ago</b> <i>06-07-2022</i>	94.36	5.64	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>*

*Author:*

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[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

Figure 5.U.S. Drought Monitor showing drier than normal conditions over most of Lower Michigan. Conditions are worsening as we have reached moderate drought in several locations with widespread abnormally dry conditions.

**Hydrologic Products issued this month**

- 31 Hydrologic Summaries (ARBRVAGRR)
- 1 Probabilistic Hydrologic Outlook (ARBESFGRR)
- 0 Event-driven Hydrologic Outlook (ARBESFGRR)
- 0 Areal Flood Advisory Statements (ARBFLSGRR)
- 0 Flood Warning Statements (ARBFLWGRR)
- 0 Flood Watch Statements (ARBFFAGRR)
- 0 River Statements (ARBRVSGRR)

**News Articles and Related Documentation**

- [Historic Dry May Across SW Michigan](#)
- [Drought Early Warning for Midwest](#)
- [HighTemperatures and Drought conditions possible](#)