

**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):  
**April 2023**

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

DATE:  
May 14, 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**

While April ended with near-record rainfall amounts across Southwest Michigan, the first week of May continued the trend. 60 to 70 percent of the rain we got in April fell during the first week of the month. While the rivers were already rising significantly as the March rainfall worked through the river systems, the additional rains in early April pushed many of our rivers above flood stage. The Grand River (and tributaries) experienced the brunt of the flooding, but some minor flooding also occurred in the Muskegon and Kalamazoo river systems. Overall, 23 different flood warnings were issued across West Michigan during the first half of the month.

The heaviest and most widespread rainstorm occurred on April 4th to 5th, 2023 dropping over 2 inches of rain in many areas. Thankfully, the second half of the month saw fairly dry conditions with only minor and localized additional rainstorms that were mostly confined to the lakeshore areas.

**Flood Conditions**

All of the major river systems in Western Michigan started the month slightly above normal (and rising) due to the widespread rain in late March. Additional rains only made things worse, and by the 2nd week of the month the mainstem rivers were all above the 90th percentile flows for this time of year - which is significant as this is already the highest "average" water level throughout the calendar year. Among the mainstems, flooding was most widespread and impactful along the Grand River, where several forecast points reached minor flood stage, and one (Comstock Park) briefly reached Major flood stage.

### **Flood Stage Report**

Numerous forecast points on the Grand, Kalamazoo, Thornapple and Muskegon rivers exceeded flood stage during the month. Thus, the NWS Form E-3 “Flood Stage Report” was issued.

### **River Conditions**

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

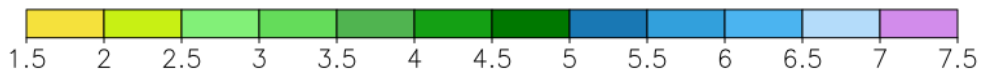
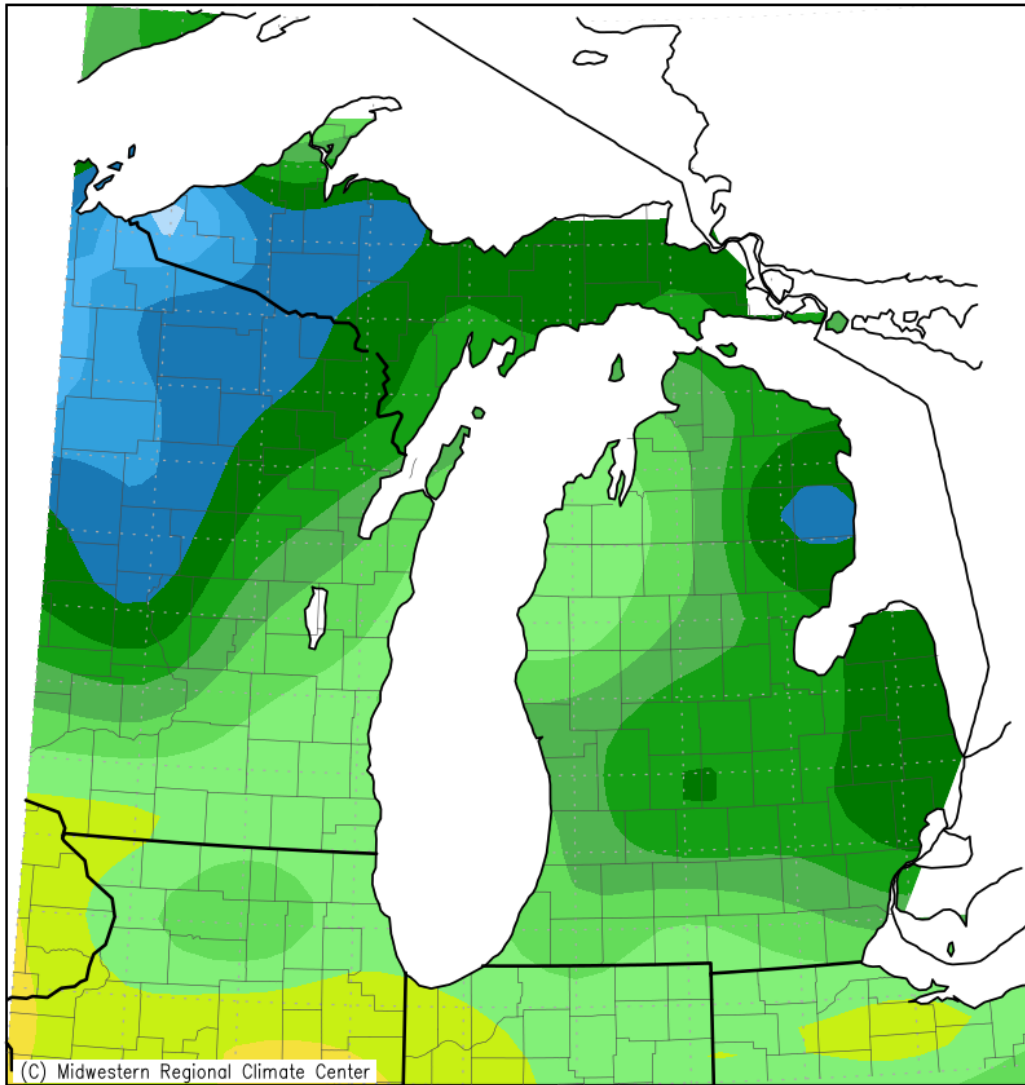
<u>Location</u>	<u>River</u>	<u>% of Normal</u>
Scottville	Pere Marquette	83
Whitehall	White	103
Evart	Muskegon	83
Mt. Pleasant	Chippewa	105
Lansing	Grand	104
Grand Rapids	Grand	98
East Lansing	Red Cedar	139
Hastings	Thornapple	90
Battle Creek	Battle Creek	96
Battle Creek	Kalamazoo	104

### **General Hydrologic Information**

April precipitation amounts for Grand Rapids, Lansing, and Muskegon, Michigan, were 3.13, 3.89, and 2.23 inches, respectively (Figure 1). Monthly departures were -0.86, +0.63, and -1.24 inches, respectively. Yearly departures were +5.51, +4.74 and +3.29 inches for Grand Rapids, Lansing and Muskegon, respectively. Percent of mean precipitation for April 2023 is shown in Figure 2.

Temperatures for the month of April at Grand Rapids, Lansing and Muskegon were near or slightly warmer than average. The monthly average temperature departures for these sites were +1.7, +3.0, and +2.5 degrees Fahrenheit, respectively.

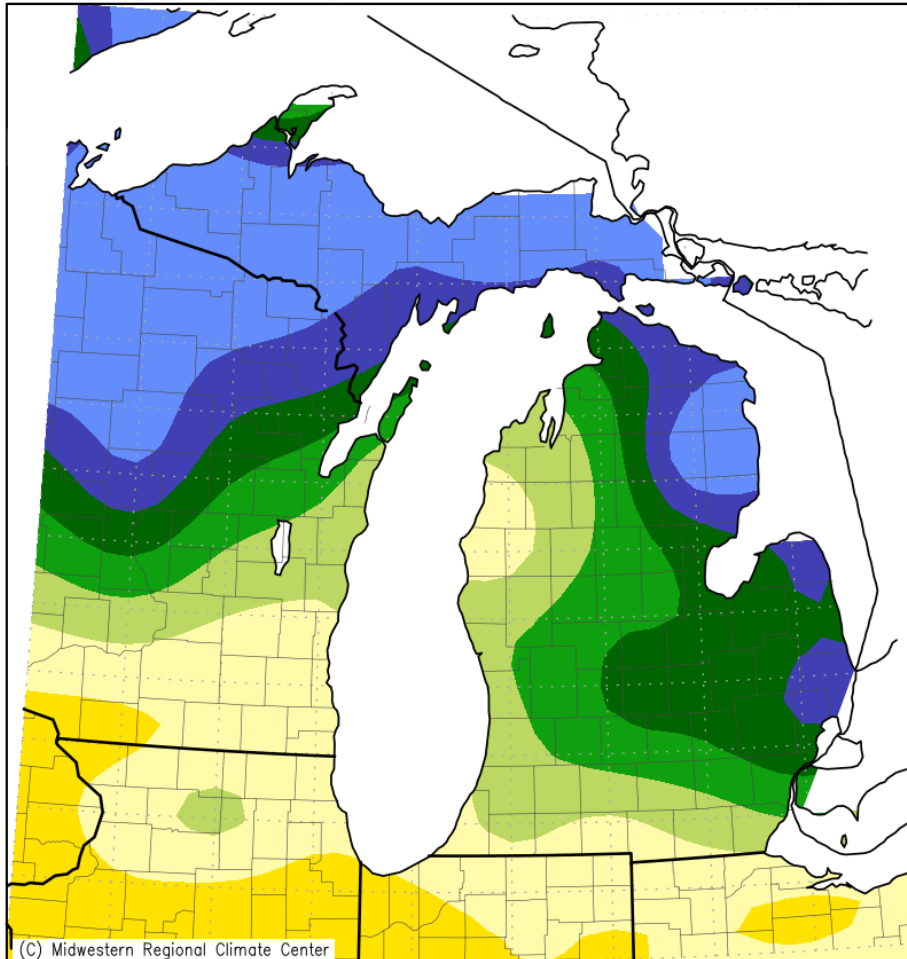
Accumulated Precipitation (in)  
April 1, 2023 to April 30, 2023



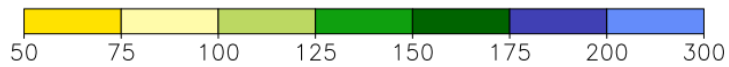
Midwestern Regional Climate Center  
cli-MATE: MRCC Application Tools Environment  
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Figure 1. April 2023 Monthly Precipitation Totals.

Accumulated Precipitation: Percent of Mean  
April 1, 2023 to April 30, 2023



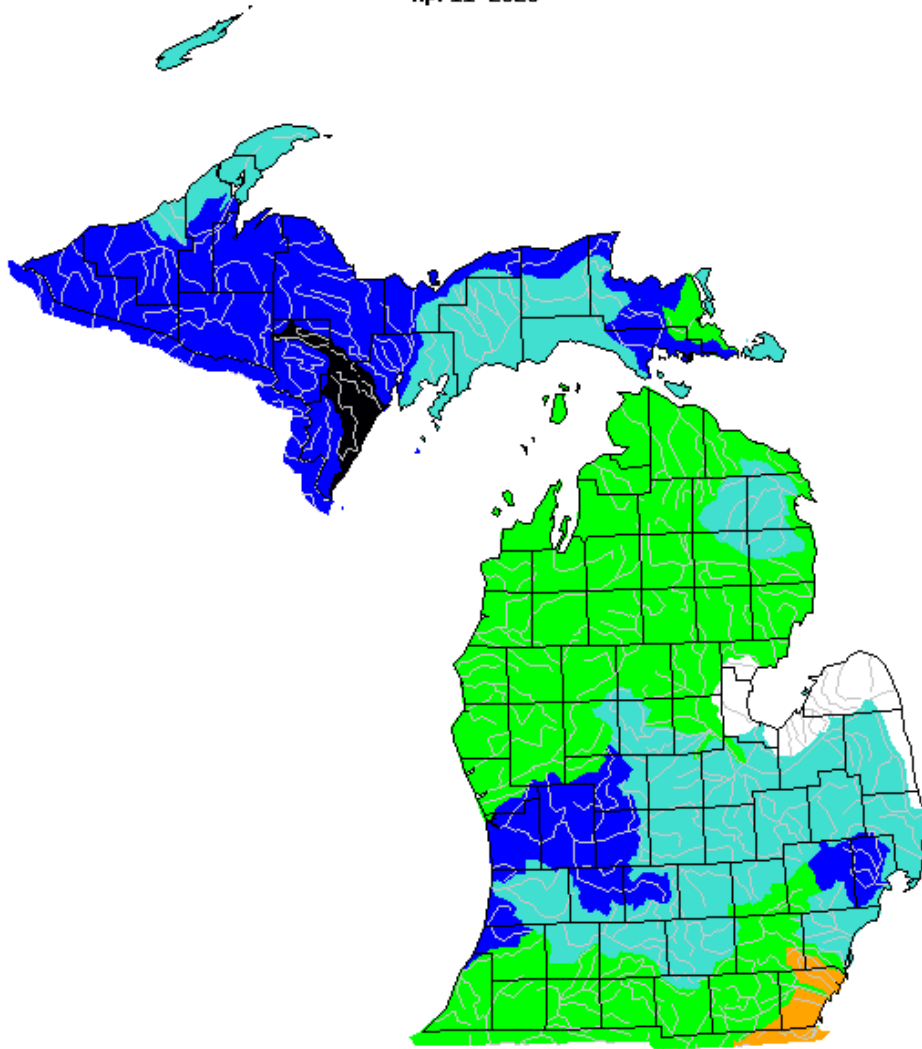
Mean period is 1991–2020.



Midwestern Regional Climate Center  
cli-MATE: MRCC Application Tools Environment  
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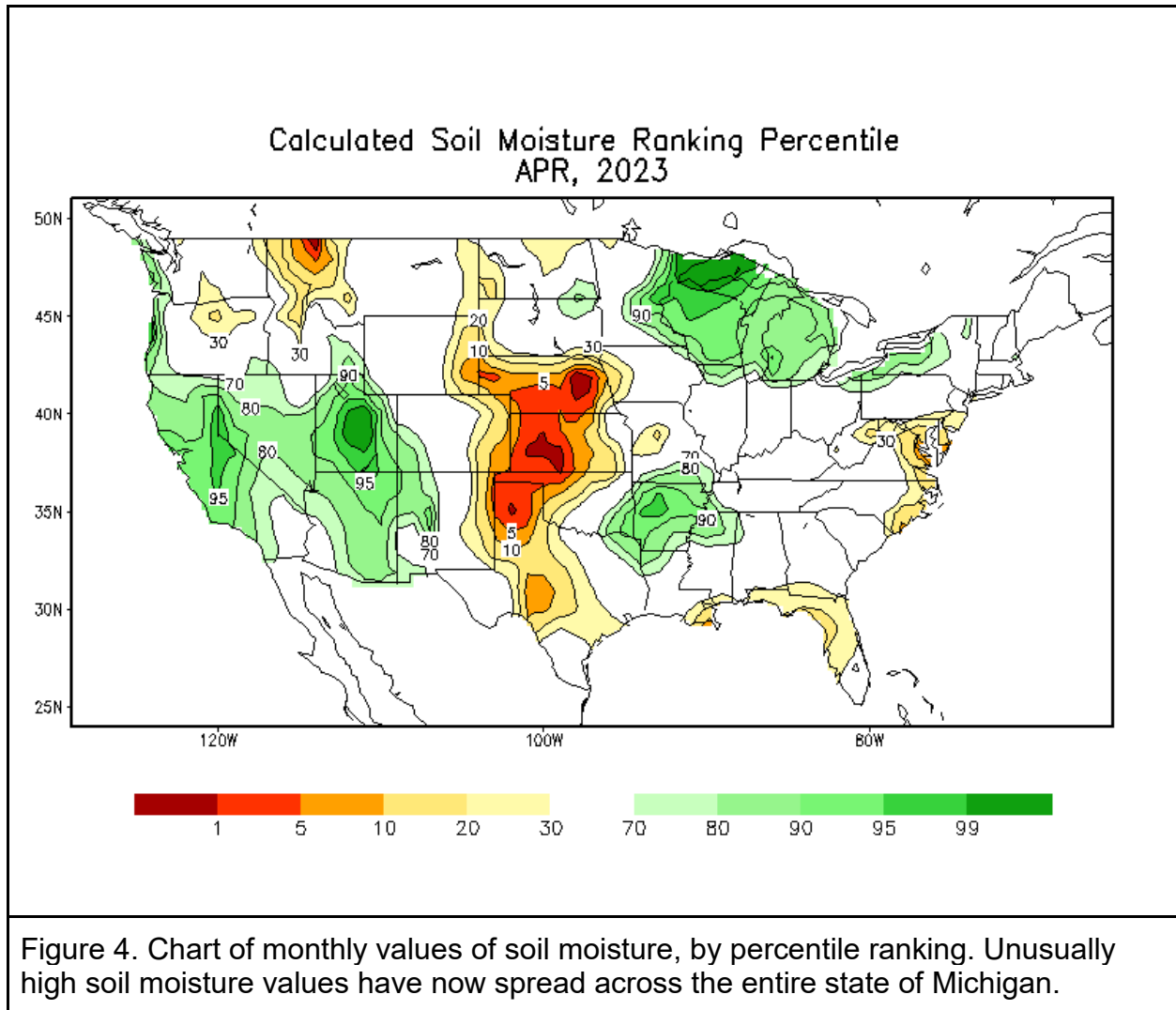
Figure 2. April 2023 Percent of Mean of Accumulated Precipitation.

April 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 April, grouped by significant hydrologic units. Note streamflows for the Grand River watershed are well above normal for this time of year.



### **Hydrologic Products issued this month**

- 30 Hydrologic Summaries (ARBRVAGRR)
- 1 Probabilistic Hydrologic Outlook (ARBESFGRR)
- 0 Event-driven Hydrologic Outlook (ARBESFGRR)
- 30 Daily River Forecasts (ARBRVDGRR)
- 2 Areal Flood Advisory Statements (ARBFLSGRR)
- 23 Flood Warning Statements (ARBFLWGRR)
- 5 Flood Watch Statements (ARBFFAGRR)
- 0 River Statements (ARBRVSGRR)

### **News Articles and Related Documentation**

- [Wood TV Grand River Flooding](#)
- [WWMT 3 West Michigan Flooding](#)

[MLive Grand River 2023 Flooding pictures](#)

[Lowell's First Look 2023 Flood Edition](#)