

MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS

DATE:

May 5, 2014

SIGNATURE:

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

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 significant flooding occurred within this Hydrologic Service Area.

Summary

Minor flooding occurred in our Hydrologic Service Area (HSA) during the month of March 2014.

Flood Conditions

Minor River and ice jam flooding occurred during March. Numerous advisories were in place for much of the month as high flows resulted from the excessive runoff due to the melting snow and episodes of rain. Highlighted below are the warning events.

Wednesday, March 19th

At 5:39 PM EDT a flood watch was issued for Kent and Ottawa counties through Friday morning for the potential for ice jams.

Thursday, March 20th

At 9:38 AM EDT a flood warning for an ice jam on the Grand River near Comstock Park was issued. The initial warning was in effect until further notice. The river crested at 12.9 feet at 11:30 AM EDT the same day. Flood stage is 12.0 feet.

At 10:27 AM EDT, the flood watch continued for Kent and Ottawa counties for potential ice jams on the Grand River.

At 11:53 AM EDT, the flood warning for the Grand River at Comstock Park was extended until further notice.

At 9:15 PM EDT, the flood watch was cancelled for Kent County, but continued for Ottawa County as the ice moved downstream from Kent County to Ottawa County on the Grand River.

At 10:24 PM EDT, the flood warning for Comstock Park on the Grand River was cancelled as it had been downgraded into an advisory. The ice jam had moved

downstream into Ottawa County.

Friday, March 21st

At 3:29 AM EDT, the flood watch continued for Ottawa County through Friday morning.

At 10:39 AM EDT, the flood watch was cancelled for Ottawa County because the ice jam moved out into Lake Michigan.

Saturday, March 22nd

At 10:05 AM EDT, a flood warning was issued for Sycamore Creek near Holt due to a debris jam on the river. The initial warning was in effect until late Sunday night. The river crested at 8.06 feet at 9:45 pm on the 22nd. Flood stage is 8.0 feet.

At 8:58 PM EDT, the flood warning for Sycamore Creek near Holt continued.

Sunday, March 23rd

At 10:52 AM EDT, a flood warning was issued for the Maple River near Maple Rapids due to a combination of runoff from snowmelt and recent rain. The initial warning was in effect until Wednesday morning. The river crested at 9.01 feet at 9:30 pm on the 23rd. Flood stage is 9.0 feet.

At 11:12 AM EDT, the flood warning for Holt was downgraded to an advisory as water worked its way around the debris jam.

At 9:28 PM, the flood warning was extended for the Maple River near Maple Rapids until late Tuesday night.

Monday, March 24th

At 11:53 AM EDT, the flood warning was downgraded to an advisory for the Maple River at Maple Rapids. Water levels fell below flood stage and were forecasted to continue to fall.

The following rivers exceeded bankfull during the month of March 2014:

- St. Joseph River near Burlington, Michigan (6 days above bankfull)
- Looking Glass River near Eagle, Michigan (10 days above bankfull)
- Kalamazoo River near Comstock, Michigan (4 days above bankfull)
- Red Cedar River near East Lansing, Michigan (5 days above bankfull)
- Grand River near Grand Rapids, Michigan (7 days above bankfull)
- Thornapple River near Hastings, Michigan (13 days above bankfull)
- Grand River near Ionia, Michigan (17 days above bankfull)
- Grand River near Lansing, Michigan (1 day above bankfull)
- Kalamazoo River near Marshall, Michigan (2 days above bankfull)
- Chippewa River near Mt. Pleasant, Michigan (1 day above bankfull)
- Maple River near Mt. Pleasant, Michigan (14 days above bankfull)
- Red Cedar River near Williamston, Michigan (5 days above bankfull)
- Kalamazoo River near New Richmond, Michigan (3 days above bankfull)

- Grand River near Comstock Park, Michigan (11 days above bankfull)
- Sycamore Creek near Holt, Michigan (19 days above bankfull)
- Grand River near Lowell, Michigan (9 days above bankfull)

The March Spring Flood and Water Resources Outlook indicated the risk of flooding from for early spring was well above average.

Flood Stage Report

Three forecast points exceeded flood stage in our HSA during the month of March 2014.

River Conditions

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

<u>Location</u>	<u>River</u>	<u>% of Normal</u>
Scottville	Pere Marquette	133
Whitehall	White	153
Ewart	Muskegon	100
Mt. Pleasant	Chippewa	141
Lansing	Grand	184
Grand Rapids	Grand	186
East Lansing	Red Cedar	256
Hastings	Thornapple	236
Battle Creek	Battle Creek	271
Battle Creek	Kalamazoo	205

General Hydrologic Information

Across Southwest Lower Michigan, March 2014 was below normal in precipitation and much colder than normal. March precipitation totals at Grand Rapids, Lansing, and Muskegon, Michigan, were 1.54, 1.69, and 1.67 inches, respectively (Figure 1). Precipitation totals for the month at these three sites were 0.83 of an inch below normal at Grand Rapids, 0.37 of an inch below normal at Lansing, and 0.58 of an inch below normal at Muskegon, Michigan (Figure 2).

Snowfall totals for the month of March at Grand Rapids, Lansing, and Muskegon, Michigan were 6.4 (1.9 below), 10.4 (3.4 above), and 7.5 (1.5 below) inches respectively. In early March, Grand Rapids, Michigan set a snow depth record of 20 inches on March 2nd and Muskegon, Michigan set a snow depth record of 24 inches on March 5th.

Temperatures for the month of March were significantly below normal at Grand Rapids, Lansing, and Muskegon, Michigan, with average monthly departures of -9.0, -9.4 and -8.5 degrees Fahrenheit, respectively.

At the end of March, the frost depth ranged from 5 to 7 inches.

Snow depth ranged from near zero over south central Lower Michigan to near 12 inches near the lakeshore of northwest Lower Michigan (Figure 3). Water in the snowpack ranged from 0 to 3 inches (Figure 4) over Southwest Lower Michigan.

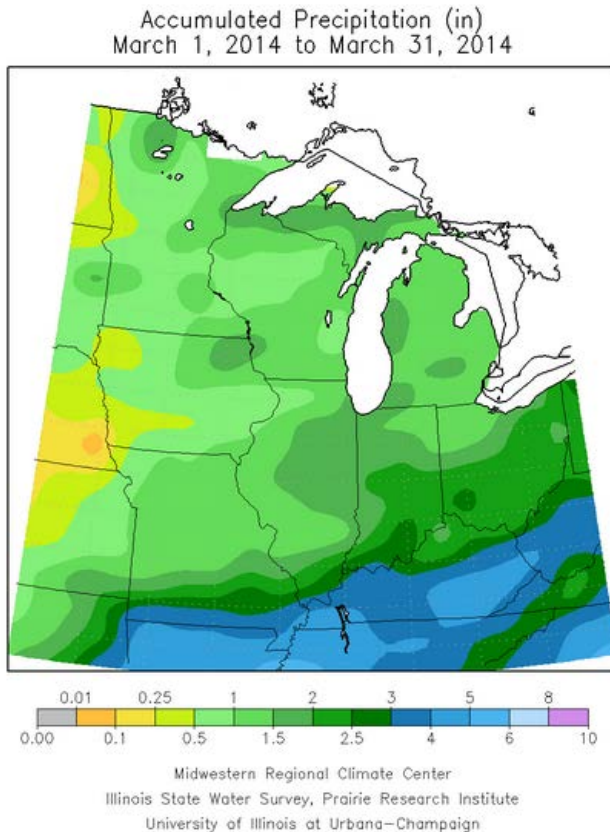


Figure 1. March Monthly Precipitation Totals

Accumulated Precipitation: Percent of Mean
March 1, 2014 to March 31, 2014

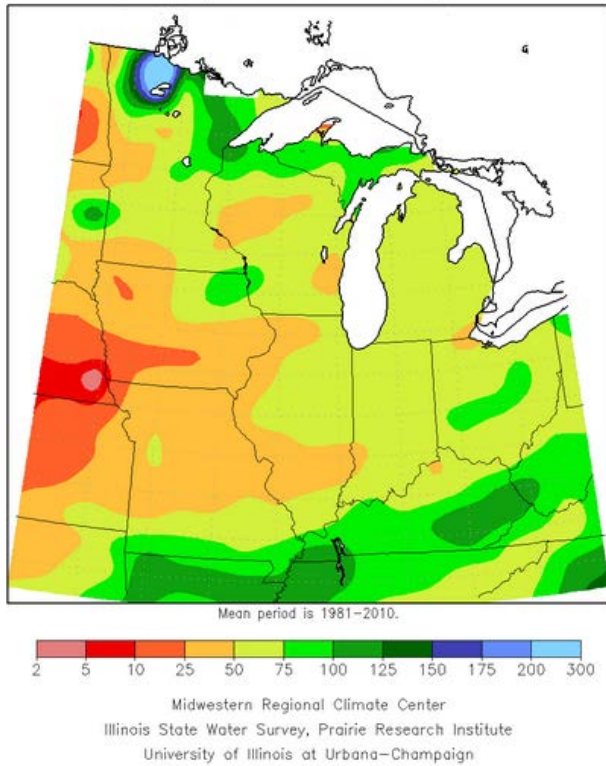


Figure 2. March Percent of Mean of Accumulated Precipitation

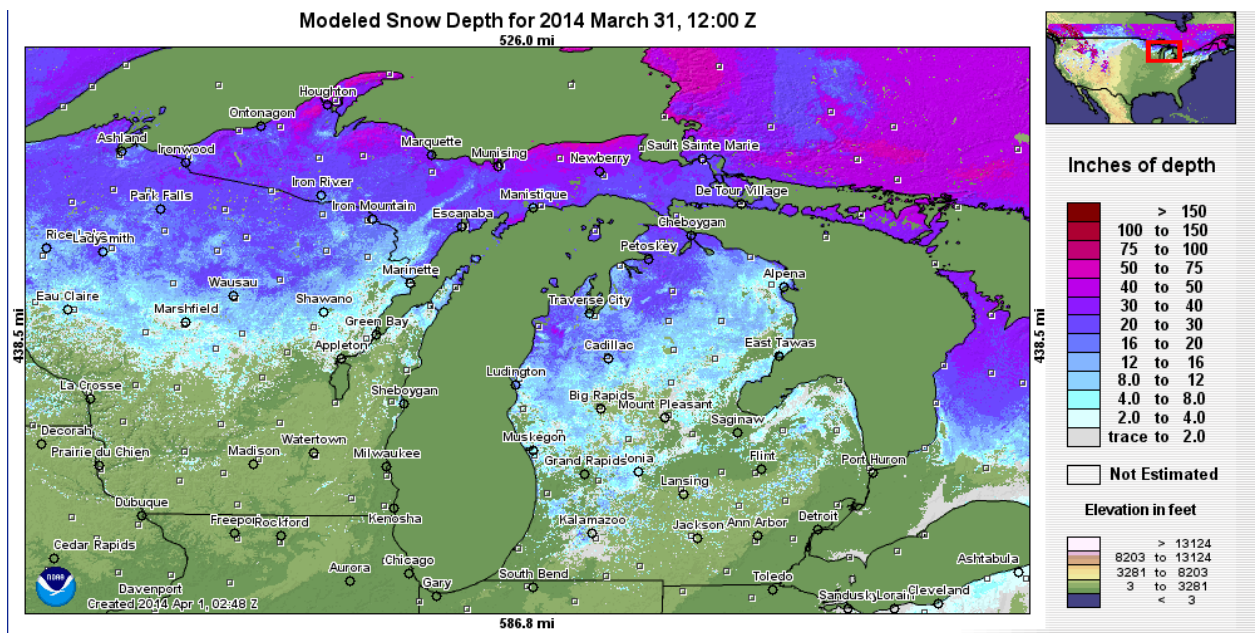


Figure 3. End of the Month Snow Depth for March

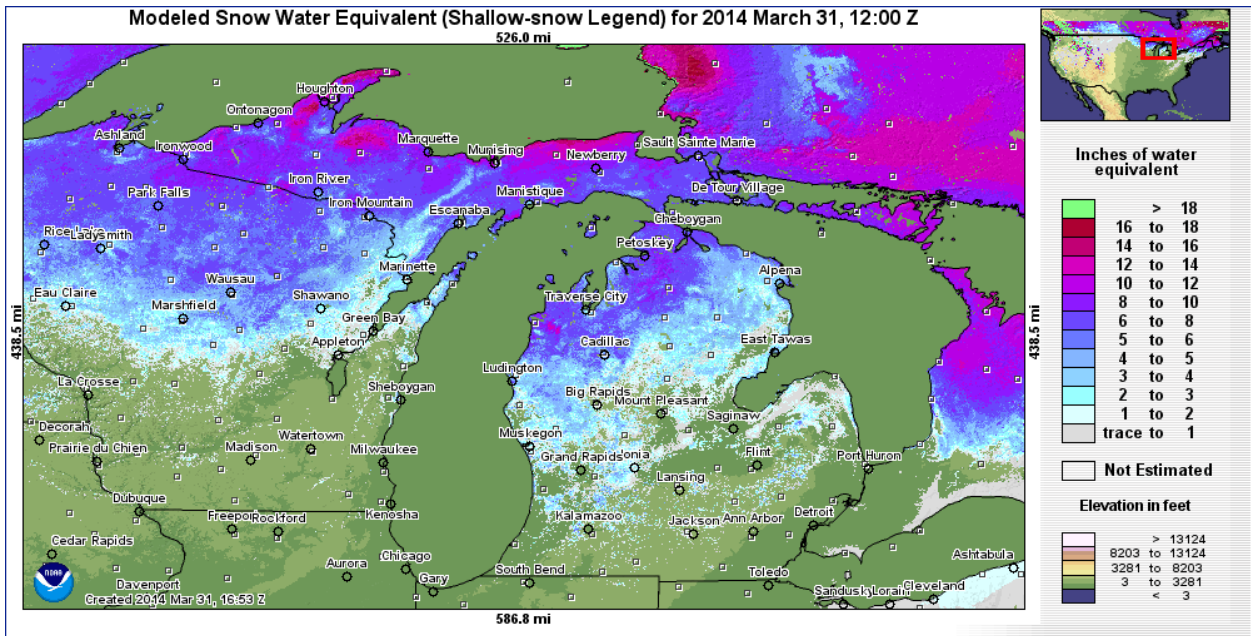


Figure 4. End of the Month Snow Water Equivalent for March

Hydrologic Products issued this month:

- 5 Flood Watches (ARBFFAGRR)
- 4 River Flood Warnings (ARBFLWGRR)
- 6 River Flood Statements (ARBFLSGRR)
- 44 River Flood Advisories (ARBFLSGRR)
- 27 Hydrologic Statements (ARBRVSGRR)
- 1 Hydrologic Outlook (ARBESFGRR)
- 31 Hydrologic Summaries (ARBRVAGRR)