

MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS

REPORT FOR (MONTH & YEAR):
December 2013

DATE:
January 22, 2014

TO: NATIONAL WEATHER SERVICE (W/OS31)
HYDROMETEOROLOGICAL INFO CENTER
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SILVER SPRING, MD 20910

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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

Several rivers exceeded bankfull during the month of December. No significant flooding occurred in our Hydrologic Service Area (HSA) during the month of December 2013.

Flood Conditions

The following rivers exceeded bankfull, but remained below flood stage, in our HSA during the month of December 2013:

- Flat River near Smyrna, Michigan (5 days above bankfull)
- Sycamore Creek near Holt, Michigan (1 day above bankfull)
- Muskegon River near Ewart, Michigan (1 day above bankfull)

Flood Stage Report

No rivers exceeded flood stage in our HSA during the month of December 2013.

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	124*
Whitehall	White	125*
Ewart	Muskegon	320
Mt. Pleasant	Chippewa	250
Lansing	Grand	192
Grand Rapids	Grand	125
East Lansing	Red Cedar	141
Hastings	Thornapple	167
Battle Creek	Battle Creek	189
Battle Creek	Kalamazoo	142

* Ice Impacted

General Hydrologic Information

December 2013 had temperatures colder than normal and precipitation near normal for Southwest Lower Michigan. December precipitation totals at Grand Rapids, Lansing, and Muskegon, Michigan, were 2.70, 1.87, and 2.70 inches, respectively (Figure 1).

Precipitation totals for the month at these three sites were 0.20 of an inch above normal at Grand Rapids, 0.00 or normal at Lansing, and 0.15 of an inch above normal at Muskegon, Michigan (Figure 2). Yearly precipitation totals were 7.18 inches above normal for Grand Rapids, 9.70 inches above normal for Lansing, and 10.24 inches above normal for Muskegon, Michigan.

Snowfall for the month of December at Grand Rapids, Lansing, and Muskegon, Michigan were 34.7(12.8 above), 15.8(2.8 above), and 39.2(10.3 above) inches respectively.

Temperatures for the month of December were below normal at Grand Rapids, Lansing, and Muskegon, Michigan, with average monthly departures of -3.1, -4.1 and -3.8 degrees Fahrenheit, respectively.

The cold temperatures allowed for ice to form in many of the rivers, which impacted levels.

At the end of December, the frost depth ranged from 1 to 4 inches.

Snow depth ranged from a trace over south central Lower Michigan to near 14 inches near the lakeshore of northwest Lower Michigan (Figure 3).

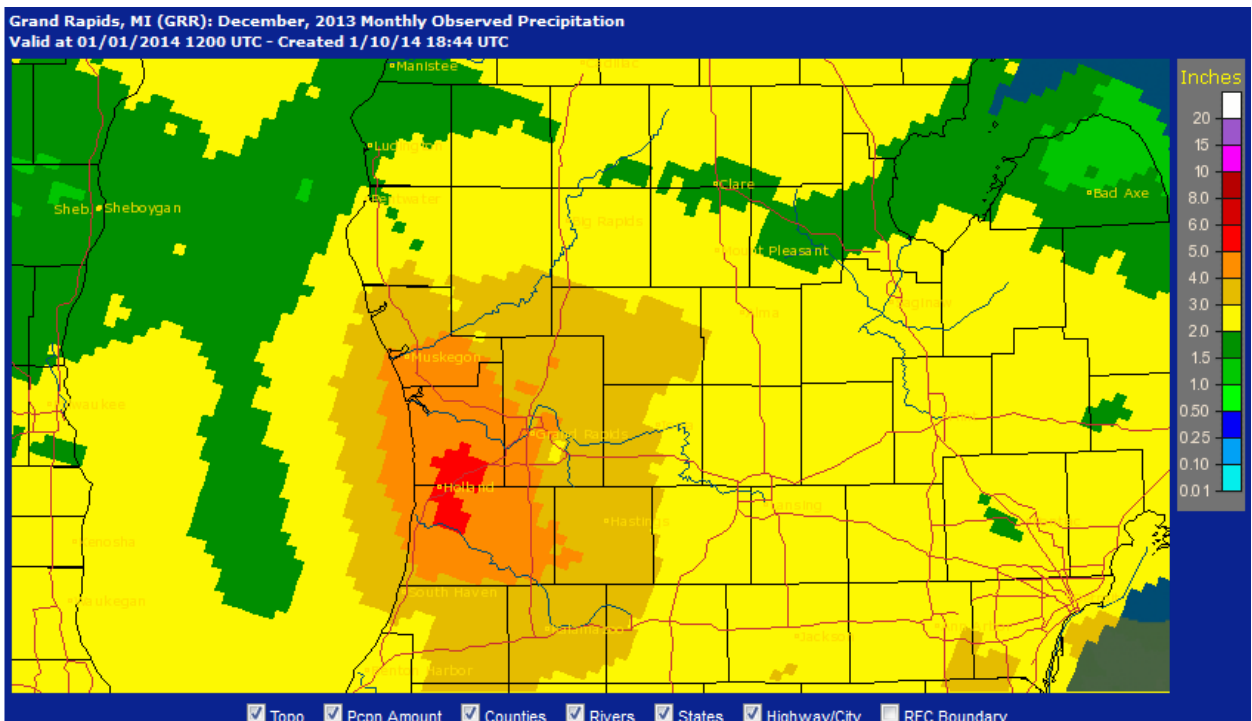


Figure 1. December Monthly Precipitation Totals

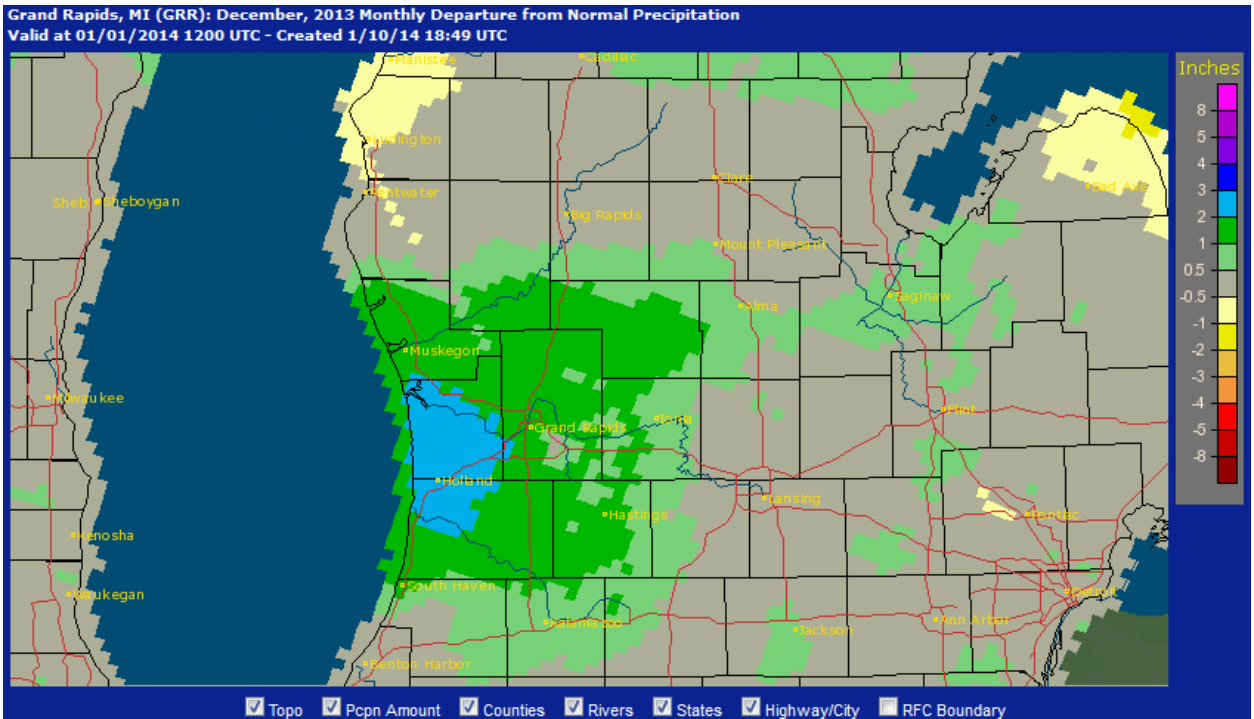


Figure 2. December Monthly Departure from Normal Precipitation Totals

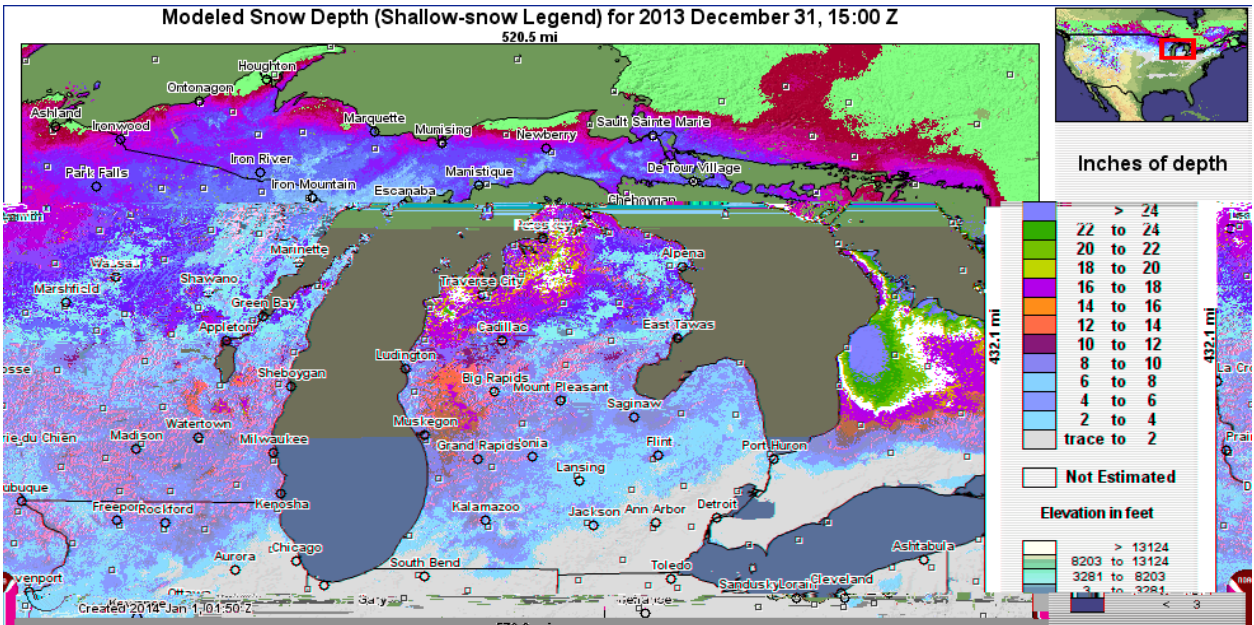


Figure 3. End of the Month Snow Depth for December

Hydrologic Products issued this month:

- 13 River Flood Advisories (ARBFLSGRR)
- 2 Hydrologic Statements (ARBRVSGRR)
- 1 Hydrologic Outlook (ARBESFGRR)
- 31 Hydrologic Summaries (ARBRVAGRR)