

MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS

TO: NATIONAL WEATHER SERVICE (W/OS31)
HYDROMETEOROLOGICAL INFO CENTER
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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

Flash flooding occurred in our Hydrologic Service Area (HSA) during the month of August. The most significant flash flooding occurred on August 2nd in Mecosta, Newaygo, and Lake Counties. All counties reported roads washed out. One of the washed out roads stranded over 800 Boy Scouts at a local camp in Mecosta County. Ferris State University in Big Rapids, Michigan reported 25 buildings on campus with water damage.

Incident Decision Support Services (IDSS) were provided to the Newaygo County Emergency Operations Center from August 9th – 14th for the United States Canoe Associations Canoe and Kayak Championships held on the Muskegon River near the city of Newaygo, Michigan. Daily IDSS briefings focused on severe weather, wind, lightning, rainfall, and water levels. A flash flood occurred during the event, on August 13th, and resulted in Newaygo Emergency Services evacuating and then sheltering over a dozen campers. Flash flooding also occurred in Van Buren County on August 13th. The flash flooding on August 13th resulted in numerous flooded roads and road washouts in Van Buren and Newaygo counties.

Flood Conditions

Monday, August 1st

At 10:40 AM EDT river flood warnings continued for the following rivers:

- Sycamore Creek near Holt, Michigan
- Thornapple River near Hastings, Michigan

The river flood warning for Sycamore Creek near Holt, Michigan called for the river to continue to fall. The river flood warning for the Thornapple River near Hastings, Michigan, called for the river to continue to fall and fall below flood stage Tuesday afternoon.

At 11:49 AM EDT a river flood statement was issued that cancelled the river flood warning for Sycamore Creek near Holt, Michigan, and downgraded it to a river flood advisory.

At 10:21 PM EDT a river flood statement was issued that continued the river flood warning for the Thornapple River near Hastings, Michigan. The updated river flood

forecast called for the river to continue to fall and fall below flood stage Tuesday afternoon.

Tuesday, August 2nd

At 10:28 AM EDT a river flood statement was issued that continued the river flood warning for the Thornapple River near Hastings, Michigan. The updated river flood forecast called for the river to continue to fall and fall below flood stage that afternoon. At 9:43 PM EDT the river flood warning was cancelled and downgraded to a river flood advisory for the Thornapple River near Hastings, Michigan.

At 11:39 PM EDT a flash flood warning was issued for Mecosta, northeastern Newaygo, and southeastern Lake Counties effective until 11:30 AM EDT Wednesday. Mecosta County Emergency Management had reported State Street in Big Rapids, Michigan, closed due to high water and stalled vehicles. Thunderstorms with very heavy rain were moving over the warned area with rainfall rates of one to two inches per hour.

Wednesday, August 3rd

At 5:14 AM EDT a flash flood statement was issued that cancelled the flash flood warning for Mecosta, northeastern Newaygo, and southeastern Lake Counties. Mecosta Emergency Management had reported the flooding had receded.

Tuesday, August 9th

At 6:30 AM EDT an Incident Decision Support Services (IDSS) Webinar (Weather Hazard Brief) was provided to the Newaygo Emergency Services Incident Command for the United States Canoe Associations Canoe and Kayak Championships. Newaygo Emergency Services requested specialized weather support for this six day large venue event. The daily IDSS briefings focused on severe weather, wind, lightning, rainfall, and water levels.

Wednesday, August 10th

At 6:30 AM EDT an Incident Decision Support Services (IDSS) Webinar (Weather Hazard Brief) was provided to the Newaygo Emergency Services Incident Command for the United States Canoe Associations Canoe and Kayak Championships.

Thursday, August 11th

At 6:30 AM EDT an Incident Decision Support Services (IDSS) Webinar (Weather Hazard Brief) was provided to the Newaygo Emergency Services Incident Command for the United States Canoe Associations Canoe and Kayak Championships.

Friday, August 12th

At 6:30 AM EDT an Incident Decision Support Services (IDSS) Webinar (Weather Hazard Brief) was provided to the Newaygo Emergency Services Incident Command for the United States Canoe Associations Canoe and Kayak Championships. The briefing highlighted the potential for significant severe weather on Saturday and mentioned the threat of heavy rain and lightning.

Saturday, August 13th

At 6:30 AM EDT an Incident Decision Support Services (IDSS) Webinar (Weather

Hazard Brief) was provided to the Newaygo Emergency Services Incident Command for the United States Canoe Associations Canoe and Kayak Championships. The briefing highlighted the potential for significant severe weather on Saturday and mentioned the threat of heavy rain and lightning.

At 9:52 AM EDT a flash flood warning was issued for Allegan County effective until 6:00 PM EDT. Slow moving thunderstorms with very heavy rain were moving across the warned area. Radar estimated rainfall exceeded 4 inches over portions of the warned area.

At 11:39 AM EDT a flash flood warning was issued for Van Buren County effective until 5:30 PM EDT. Slow moving thunderstorms with very heavy rain were moving across the warned area. Radar estimated rainfall over portions of the warned area exceeded 3 to 4 inches over a three hour period, with rainfall rates in excess of an inch per hour.

At 12:45 PM EDT a flash flood statement was issued for Van Buren County that continued the flash flood warning until 5:30 PM EDT. Additional heavy rain was forecast to fall over the warned area.

At 2:00 PM EDT an Incident Decision Support Services (IDSS) Webinar (Weather Hazard Brief) was provided to all Emergency Managers in southwest Lower Michigan and the Newaygo Emergency Services Incident Command for the United States Canoe Associations Canoe and Kayak Championships. The briefing highlighted the potential for significant severe weather over southwest Lower Michigan, and specifically mentioned the threat of heavy rain and lightning.

At 2:47 PM EDT a flash flood warning was issued for southern Newaygo County effective until 10:30 PM EDT. Thunderstorms with heavy rain were training across the warned area. Radar estimated rainfall exceeded 3 inches, and Newaygo Emergency Management reported standing water in the City of Newaygo and several roads washed out.

At 2:57 PM EDT a flash flood statement was issued for Allegan County that continued the flash flood warning until 6:00 PM EDT. More rain was forecast to move over an area that had already experienced several inches of rainfall. No reports of flooding had been received at the time of this statement.

At 4:17 PM EDT a flash flood statement was issued for Van Buren County that continued the flash flood warning until 5:30 PM EDT. The Van Buren County Road Commission reported several roads washed out.

At 4:59 PM EDT a flash flood statement was issued that cancelled the flash flood warning for Allegan County. No reports of flooding were received during this event.

At 5:01 PM EDT a flash flood statement was issued that cancelled the flash flood warning for Van Buren County.

At 5:46 PM EDT a flash flood statement was issued for southern Newaygo County that continued the flash flood warning until 10:30 PM EDT. Newaygo Emergency Management reported a rainfall total of 5.29 inches, flooded roads, washed out roads, and standing water in the city of Newaygo.

At 7:25 PM EDT a flash flood statement was issued for southern Newaygo County that continued the flash flood warning until 10:30 PM EDT. Newaygo Emergency Management reported that Henning Park in Newaygo had flooded earlier and campers had to be evacuated to a shelter.

At 10:07 PM EDT a flood warning was issued for southern Newaygo County effective until 10:00 PM EDT Sunday. The rain had ended but the flooding was continuing and expected to remain hazardous through the night.

At 10:12 PM EDT a flash flood statement was issued that cancelled the flash flood warning for southern Newaygo County. The flash flood warning was replaced by an areal

flood warning for the area as the event transitioned into longer term flooding.

Sunday, August 14th

At 6:30 AM EDT an Incident Decision Support Services (IDSS) Webinar (Weather Hazard Brief) was provided to the Newaygo Emergency Services Incident Command for the final day of the United States Canoe Associations Canoe and Kayak Championships. At 10:36 AM EDT a flood statement was issued that cancelled the flood warning for southern Newaygo County.

The following rivers exceeded bankfull during the month of August:

- Sycamore Creek near Holt, Michigan (4 days above bankfull)
- Thornapple River near Hastings, Michigan (7 days above bankfull)
- Thornapple River near Caledonia, Michigan (3 days above bankfull)
- Grand River at Comstock Park, Michigan (1 day above bankfull)
- Grand River at Ionia, Michigan (5 days above bankfull)
- Grand River near Lowell, Michigan (2 days above bankfull)
- Grand River near Lansing, Michigan (1 day above bankfull)

Flood Stage Report

One river in Southwest Lower Michigan exceeded minor flood stage during the month of August (was a continuation of flooding that occurred at the end of July).

The Thornapple River near Hastings, Michigan, with a flood stage of 7 feet, rose above flood stage around 6:00 PM EDT on July 30th, crested at 7.98 feet at 12:45 AM EDT on August 1st, and fell back below flood stage around 7:45 PM EDT on August 2nd.

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	106
Whitehall	White	83
Ewart	Muskegon	81
Alma	Pine	154
Lansing	Grand	252
Grand Rapids	Grand	164
East Lansing	Red Cedar	210
Hastings	Thornapple	209
Battle Creek	Battle Creek	160
Battle Creek	Kalamazoo	123

General Hydrologic Information

August 2011 had near normal temperatures and above normal precipitation for our HSA.

August precipitation totals at Grand Rapids, Lansing, and Muskegon, Michigan, were 4.42, 3.45, and 5.47 inches, respectively (Figure 1). Precipitation totals for the month at these three sites were 0.83 of an inch above normal at Grand Rapids, 0.22 of an inch above normal at Lansing, and 2.08 inches above normal at Muskegon, Michigan (Figure 2). Yearly precipitation totals were 10.04 inches above normal for Grand Rapids, 7.17 inches above normal for Lansing, and 8.60 inches above normal for Muskegon, Michigan.

Temperatures for the month of August were near to above normal at Grand Rapids, Lansing, and Muskegon, Michigan, with average monthly departures of +1.0, +0.3 and +1.4 degrees Fahrenheit, respectively.

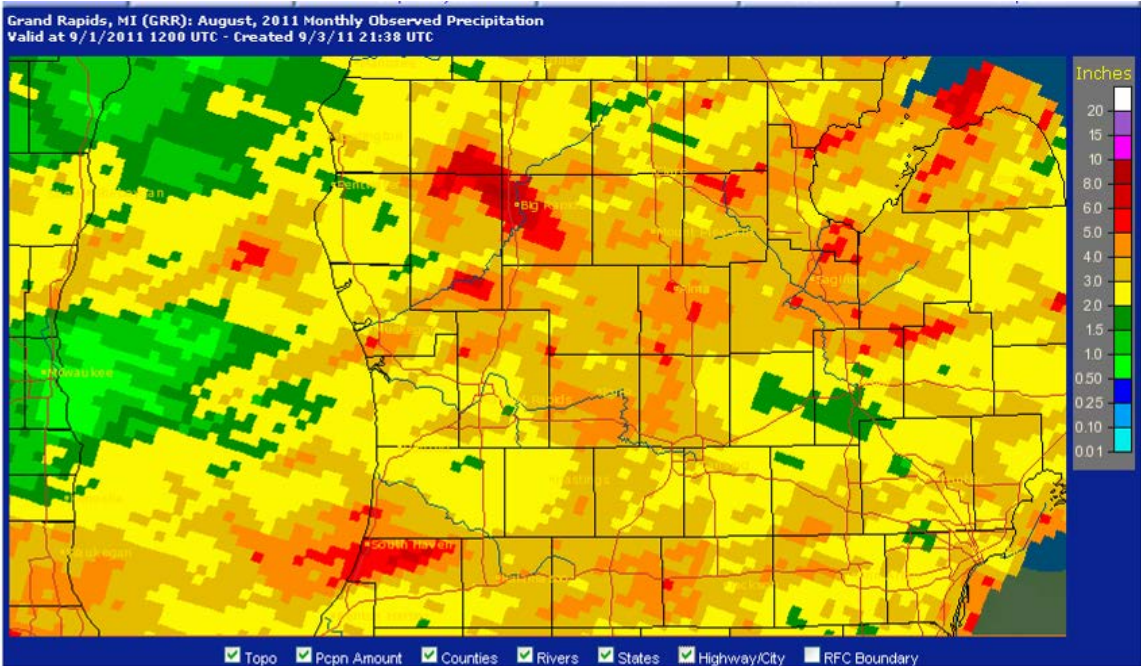


Figure 1. August 2011 Monthly Rainfall Totals

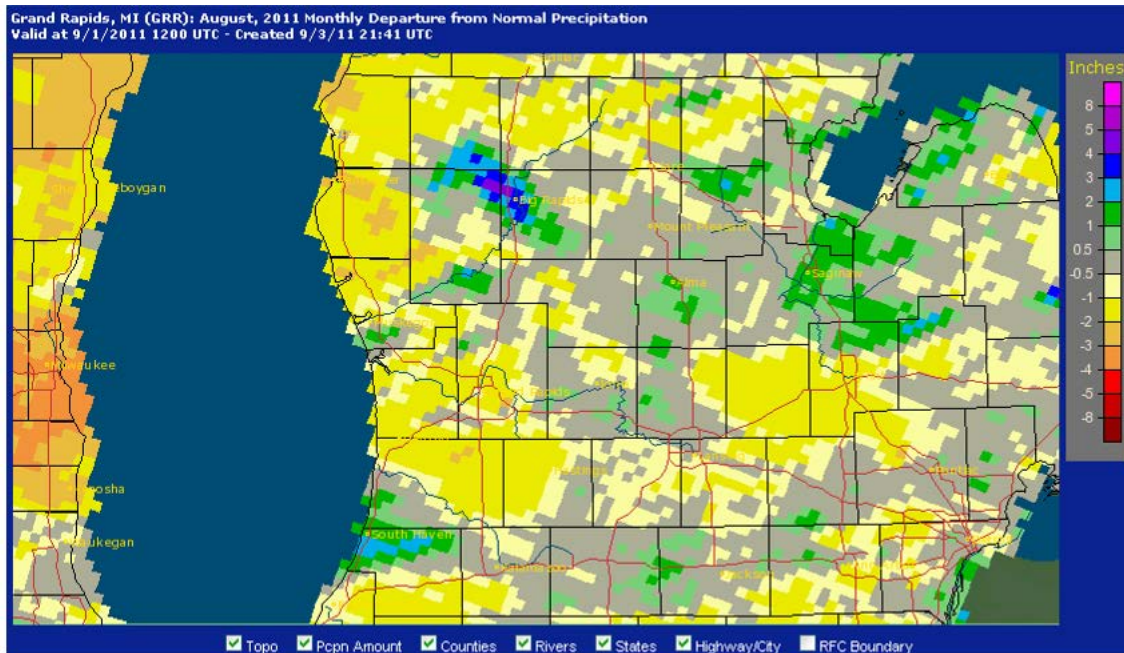


Figure 2. August 2011 Monthly Departure from Normal Rainfall Totals

Hydrologic Products issued this month:

- 3 Flood Watches (ARBFFAGRR)
- 4 Flash Flood Warnings (ARBFFWGRR)
- 10 Flash Flood Statements (ARBFFSGRR)
- 1 Areal Flood Warning (ARBFLWGRR)
- 1 Areal Flood Statement (ARBFLSGRR)
- 6 River Flood Statements (ARBFLSGRR)
- 14 River Flood Advisories (ARBFLSGRR)
- 10 Hydrologic Statements (ARBRVSGRR)
- 1 Probabilistic Hydrologic Outlook (ARBESFGRR)
- 31 Hydrologic Summaries (ARBRVAGRR)
- 31 Daily River and Lake Summaries (ARBRVDGRR)

News Articles and Related Documentation

Flash Flooding Hits Big Rapids Area late Tuesday, August 2, 2011 (This was a News of the Day Article posted on our website on August 3rd)

A narrow band of very heavy rain developed Tuesday evening from Baldwin to Big Rapids. National Weather Service Doppler Radar indicated that 3 to 6 inches of rain fell in this band, and most of that fell in less than a three hour period between 9 PM and Midnight on August 2nd, 2011. (The legend is in the upper left of the image.)

Ground measurements verified that the radar precipitation estimates were quite accurate as our Big Rapids cooperative observer reported 5.97 inches of new rainfall early Wednesday morning. State Street in Big Rapids was closed for a few hours late Tuesday night due to high water.

