

NWS FORM E-5

U.S. DEPARTMENT OF COMMERCE
NOAA, NATIONAL WEATHER SERVICE

HSA OFFICE:

Grand Rapids, MI

REPORT FOR (MONTH & YEAR):

October 2017

MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS

DATE:

November 11th, 2017

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

SIGNATURE:

Daniel K. Cobb, MIC

Mark Sekelsky, Lead Forecaster

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

Record rainfall fell throughout much of the Hydrologic Service Area during the month of October. Impacts on the larger rivers were limited because of the below well normal water levels at the start of the month. Impacts were largely confined to flooded roads.

Flood Conditions

Saturday, October 14th

At 3:14 AM EDT an areal flood watch was issued for much of the central and northern parts of Southwest Lower Michigan until late Saturday night.

Saturday, October 14th

At 10:52 AM EDT the areal flood watch was continued for much of the central and northern parts of Southwest Lower Michigan until late Saturday night.

Saturday, October 14th

At 3:35 PM EDT the areal flood watch was continued for much of the central and northern parts of Southwest Lower Michigan until late Saturday night.

Saturday, October 14th

At 4:06 PM EDT, an areal flood warning was issued due to heavy rain over Calhoun, Van Buren and Kalamazoo Counties until 4:00 pm Sunday. Flooding of small streams and creeks was expected.

Saturday, October 14th

At 8:58 PM EDT, the areal flood warning was continued for Calhoun, Van Buren and Kalamazoo Counties until 4:00 pm Sunday. Flooding of small streams and creeks was expected.

Saturday, October 14th

At 9:31 PM EDT an areal flood warning was issued due to heavy rain over Allegan, Barry and Eaton Counties until 930 pm Sunday. Flooding of small streams and creeks was expected.

Saturday, October 14th

At 9:48 PM EDT a river flood warning was issued for the Portage River near Vicksburg affecting Kalamazoo County. Minor flooding was forecasted.

Saturday, October 14th

At 10:29 PM EDT the areal flood watch was continued for much of the central and northern parts of Southwest Lower Michigan until late Saturday night.

Saturday, October 14th

At 11:52 PM EDT, the areal flood warning was continued for Calhoun, Van Buren and Kalamazoo Counties until 4:00 pm Sunday. Flooding of small streams and creeks was expected.

Saturday, October 14th

At 11:57 PM EDT the areal flood warning was continued due to heavy rain over Allegan, Barry and Eaton Counties until 930 pm Sunday. Flooding of small streams and creeks was expected.

Sunday, October 15th

At 2:11 AM EDT, the areal flood warning was continued for Calhoun, Van Buren and Kalamazoo Counties until 4:00 pm Sunday. Flooding of small streams and creeks was expected.

Sunday, October 15th

At 2:27 AM EDT the areal flood warning was continued due to heavy rain over Allegan, Barry and Eaton Counties until 930 pm Sunday. Flooding of small streams and creeks was expected.

Sunday, October 15th

At 3:31 AM EDT the areal flood watch was cancelled.

Sunday, October 15th

At 10:12 AM EDT the river flood warning was continued for the Portage River near Vicksburg affecting Kalamazoo County. Minor flooding was forecasted.

Sunday, October 15th

At 11:24 AM EDT the areal flood warning was continued for ongoing flooding over Allegan, Barry and Eaton Counties until 930 pm Sunday.

Sunday, October 15th

At 11:41 AM EDT the areal flood warning was extended due ongoing flooding over Calhoun, Van Buren and Kalamazoo Counties until 4:00 pm Monday. Flooding of small streams and creeks was occurring.

Sunday, October 15th

At 7:56 PM EDT the areal flood warning was cancelled Allegan, Barry and Eaton.

Sunday, October 15th

At 9:25 PM EDT the river flood warning was continued for the Portage River near Vicksburg affecting Kalamazoo County. Minor flooding was forecasted

Sunday, October 15th

At 10:13 PM EDT...the flood warning was cancelled for Calhoun County, while the flood warning remained in effect for Kalamazoo and Van Buren Counties.

Monday, October 16th

At 11:05 AM EDT the river flood warning was cancelled for the Portage River near Vicksburg.

Monday, October 16th

At 10:53 PM EDT, the areal flood warning was extended due to ongoing flooding for parts of Van Buren and Kalamazoo Counties until 1:00 pm Tuesday. Flooding of small streams and creeks was ongoing.

Tuesday, October 17th

At 8:57 AM EDT, The flood warning was cancelled for Van Buren and Kalamazoo Counties.

Sunday, October 22nd

At 3:27 AM EDT a flood watch was issued for much of central and southern portions of Southwest Lower Michigan from Monday afternoon through Tuesday Morning.

Sunday, October 22nd

At 9:55 AM EDT the flood watch was continued for much of central and southern portions of Southwest Lower Michigan from Monday afternoon through Tuesday Morning.

Sunday, October 22nd

At 3:07 PM EDT the flood watch was continued for much of central and southern portions of Southwest Lower Michigan from Monday afternoon through Tuesday Morning.

Sunday, October 22nd

At 8:01 PM EDT the flood watch was continued for much of central and northern portions of Southwest Lower Michigan from Monday afternoon through Tuesday Morning.

Monday, October 23rd

At 2:31 AM EDT the flood watch was expanded to include all of Southwest Lower Michigan through Tuesday Morning.

Monday, October 23rd

At 10:40 AM EDT, an areal flood warning was issued due to heavy rain for Allegan, Kent, Ottawa, Newaygo, Muskegon and Oceana Counties until 10:30 PM EDT Tuesday due to heavy rain. Flooding of small streams and creeks was expected.

Monday, October 23rd

At 10:57 AM EDT the flood watch was cancelled for central parts of the region as warnings were issued. The watch was continued for the remainder of the area.

Monday, October 23rd

At 11:20 AM EDT Mon Oct 23 2017 a flood warning was issued for the Rogue River Below Rockford, Portage River Near Vicksburg affecting Kalamazoo County, Muskegon River Near Croton affecting Newaygo County. Minor flooding was forecasted.

Monday, October 23rd

At 2:27 PM EDT, an areal flood warning was issued due to heavy rain for Van Buren, Lake, and Mason Counties until 8:30 PM EDT Tuesday due to heavy rain. Flooding of small streams and creeks was expected.

Monday, October 23rd

At 3:54 PM EDT the flood watch was cancelled for the remainder of the region as warnings were issued.

Monday, October 23rd

At 6:57 PM EDT, the areal flood warning was continued for Allegan, Kent, Ottawa, Newaygo, Muskegon and Oceana Counties until 10:30 PM EDT Tuesday due to heavy rain. Flooding of small streams and creeks was expected.

Monday, October 23rd

At 7:14 PM EDT, the areal flood warning was continued for Van Buren, Lake, and Mason Counties until 8:30 PM EDT Tuesday due to heavy rain. Flooding of small streams and creeks was expected.

Monday, October 23rd

At 7:34 AM EDT Mon Oct 23 2017 the flood warning was continued for the Rogue River below Rockford, Portage River near Vicksburg affecting Kalamazoo County, Muskegon River Near Croton affecting Newaygo County. Minor flooding was forecasted.

Monday, October 23rd

At 8:12 PM EDT, an areal flood warning was issued due to heavy rain for Isabella, Clare, Osceola, Mecosta and Montcalm counties until 8:15 PM EDT Tuesday. Flooding of small streams and creeks was expected.

Monday, October 23rd

At 9:31 PM EDT, A river flood warning was issued for the Chippewa River Below Mt Pleasant affecting Isabella County. Minor flooding was forecasted.

Monday, October 23rd

At 10:07 PM EDT, the flood warning was continued for the Rogue River below Rockford, Portage River near Vicksburg affecting Kalamazoo County, Muskegon River near Croton affecting Newaygo County and Chippewa River below Mt Pleasant affecting Isabella County. Minor flooding was forecasted.

Tuesday, October 24th

At 4:42 AM EDT the areal flood warning was continued for Isabella, Clare, Osceola, Mecosta and Montcalm counties until 8:15 PM EDT Tuesday. Flooding of small streams and creeks was expected

Tuesday, October 24th

At 4:45 AM EDT the areal flood warning was continued for Van Buren, Lake, and Mason Counties until 8:30 PM EDT Tuesday due to heavy rain. Flooding of small streams and creeks was expected.

Tuesday, October 24th

At 4:51 AM EDT the areal flood warning was continued for Allegan, Kent, Ottawa, Newaygo, Muskegon and Oceana Counties until 10:30 PM EDT Tuesday due to heavy rain. Flooding of small streams and creeks was expected

Tuesday, October 24th

At 11:40 AM EDT the flood warning was cancelled and downgraded to a Flood Advisory for the Rogue River below Rockford affecting Kent County, while the flood warning was continued for the Portage River near Vicksburg affecting Kalamazoo County, Muskegon River Near Croton affecting Newaygo County and Chippewa River Below Mt Pleasant affecting Isabella County. Minor flooding was forecasted.

Tuesday, October 24th

At 12:36 PM EDT the areal flood warning was continued for Isabella, Clare, Osceola, Mecosta and Montcalm counties until 8:15 PM EDT Tuesday. Flooding of small streams and creeks was expected

Tuesday, October 24th

At 12:40 PM EDT the areal flood warning was continued for Van Buren, Lake, and Mason Counties until 8:30 PM EDT Tuesday due to heavy rain. Flooding of small streams and creeks was expected.

Tuesday, October 24th

At 12:43 PM EDT the areal flood warning was continued for Allegan, Kent, Ottawa, Newaygo, Muskegon and Oceana Counties until 10:30 PM EDT Tuesday due to heavy rain. Flooding of small streams and creeks was expected

Tuesday, October 24th

At 7:41 PM EDT, the areal flood warning was extended due to ongoing flooding for Isabella, Clare, Osceola, Mecosta and Montcalm counties until 2:15 PM EDT Wednesday. Flooding of small streams and creeks was occurring.

Tuesday, October 24th

At 7:48 PM EDT, an areal flood warning was extended due to ongoing flooding in Van Buren, Lake, and Mason Counties until 2:30 PM EDT Wednesday. Flooding of small streams and creeks was occurring.

Tuesday, October 24th

At 7:58 PM EDT, the areal flood warning was extended for ongoing flooding in Allegan, Kent, Ottawa, Newaygo, Muskegon and Oceana Counties until 4:30 PM EDT Wednesday. Flooding of small streams and creeks was occurring

Tuesday, October 24th

At 10:11 PM EDT the flood warning was continued for the Portage River near Vicksburg affecting Kalamazoo County, Muskegon River near Croton affecting Newaygo County and Chippewa River Below Mt Pleasant affecting Isabella County. Minor flooding was forecasted.

Wednesday, October 25th

At 8:26 AM EDT the flood warning was cancelled for Isabella, Clare, Osceola, Mecosta, and Montcalm counties.

Wednesday, October 25th

At 8:27 AM EDT the flood warning was cancelled for Allegan, Kent, Ottawa, Newaygo, Muskegon and Oceana Counties.

Wednesday, October 25

At 12:12 PM EDT the flood warning has been cancelled and downgraded to a Flood Advisory for Muskegon River near Croton affecting Newaygo County, the Chippewa River below Mt Pleasant affecting Isabella County, and the Portage River near Vicksburg affecting Kalamazoo County

The following rivers exceeded bankfull during the month of October 2017:

- Pere Marquette River at Scottville, Michigan (4 days above bankfull)
- White River near Whitehall, Michigan(1 day above bankfull)
- Chippewa River near Mount Pleasant, Michigan (3 days above bankfull)
- Muskegon River at Croton, Michigan (3 days above bankfull)
- Thornapple River at Hastings, Michigan(6 days above bankfull)
- Kalamazoo River near New Richmond, Michigan(4 days above bankfull)
- Grand River at Ionia, Michigan(4 days above bankfull)
- Flat River near Smyrna, Michigan(1 day above bankfull)
- Looking Glass River near Eagle, Michigan(3 days above bankfull)
- Little Muskegon River near Morely, Michigan(2 days above bankfull)

Flood Stage Report

One forecast point exceeded flood stage in our HSA during the month of October 2017. Thus, the NWS Form E-3 “Flood Stage Report” was issued.

River Conditions

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

| <u>Location</u> | <u>River</u> | <u>% of Normal</u> |
|-----------------|----------------|--------------------|
| Scottville | Pere Marquette | 213 |
| Whitehall | White | 160 |
| Ewart | Muskegon | 289 |
| Mt. Pleasant | Chippewa | 212 |
| Lansing | Grand | 185 |
| Grand Rapids | Grand | 325 |
| East Lansing | Red Cedar | 223 |
| Hastings | Thornapple | 512 |
| Battle Creek | Battle Creek | 343 |
| Battle Creek | Kalamazoo | 176 |

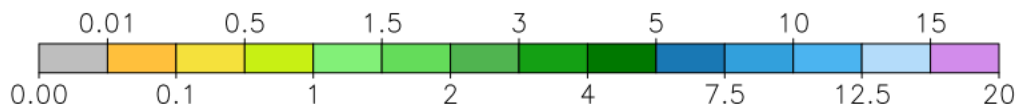
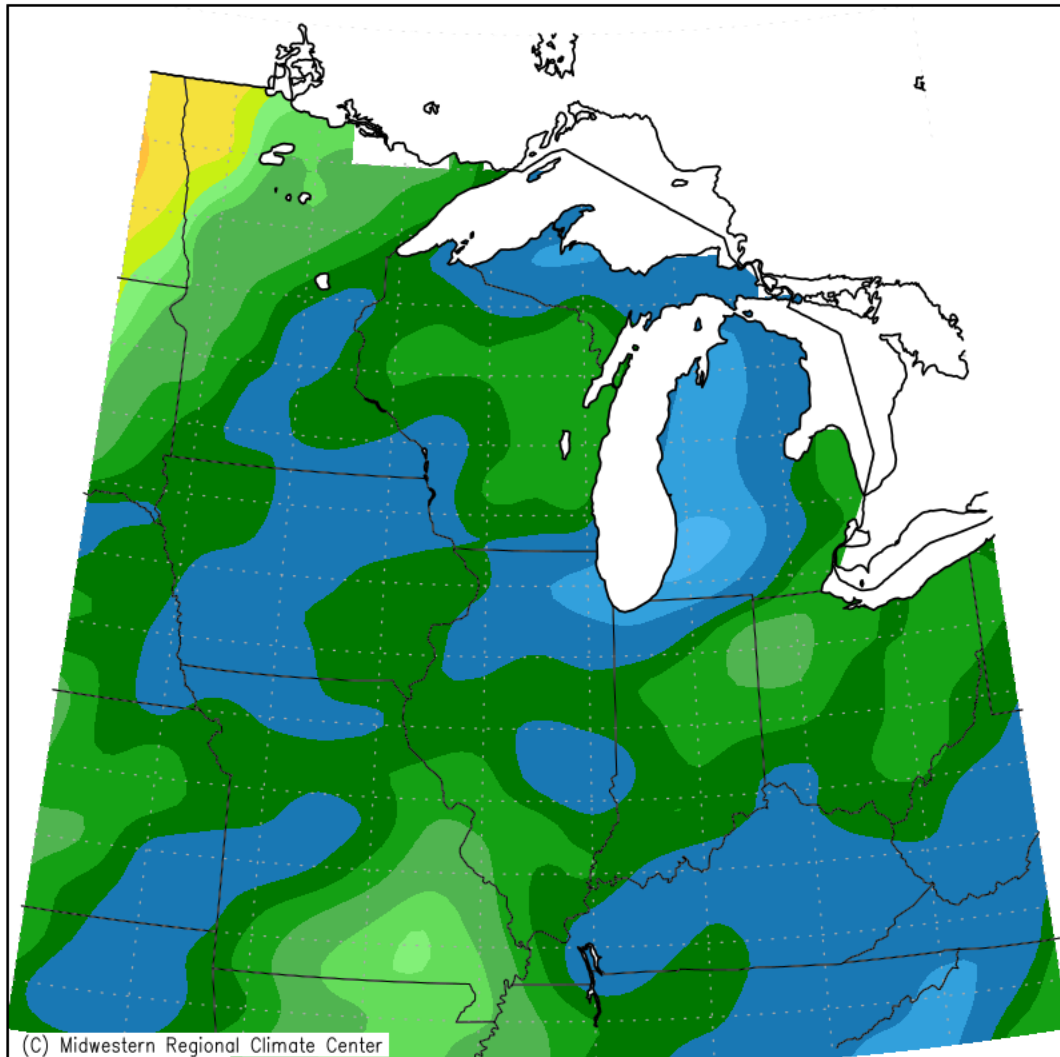
General Hydrologic Information

The month of October featured record rainfall. The entire Hydrologic Service Area saw more than 200 percent of normal precipitation. Water levels at the end of the month were very high across the region.

October precipitation totals at Grand Rapids, Lansing, and Muskegon, Michigan, were 9.69, 8.73, and 9.25 inches, respectively (Figure 1). Monthly departures were 6.43, 6.20 and 6.14 inches respectively. Yearly departures were 2.41, 7.85, and 3.65 inches for Grand Rapids, Lansing and Muskegon respectively. Percent of mean precipitation for October 2017 is shown in Figure 2.

Temperatures for the month of October were well above normal at Grand Rapids, Lansing and Muskegon. The average monthly temperature departures for these sites were, 4.2, 4.9 and 4.9 degrees Fahrenheit respectively.

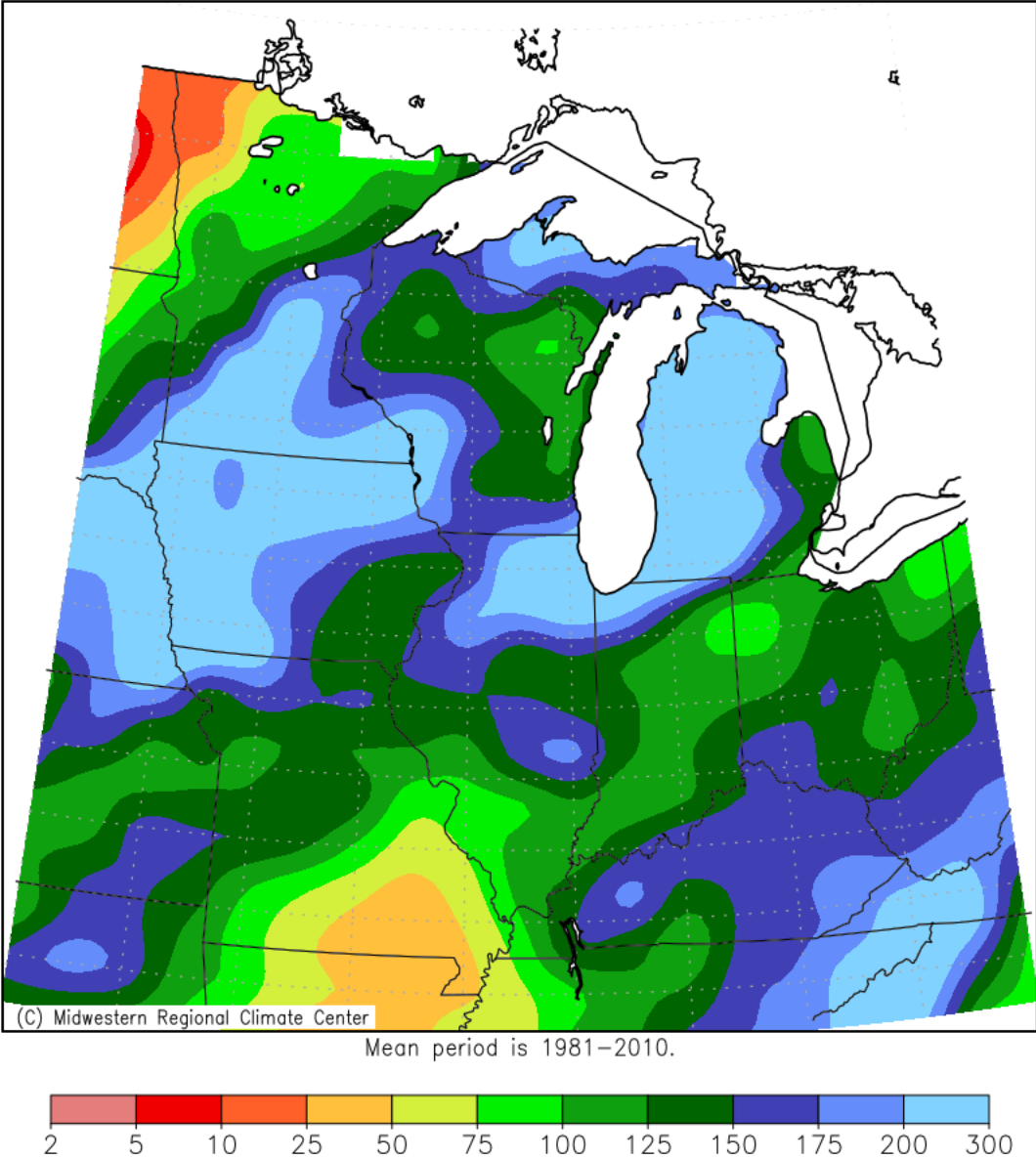
Accumulated Precipitation (in)
October 1, 2017 to October 31, 2017



Midwestern Regional Climate Center
Illinois State Water Survey, Prairie Research Institute
University of Illinois at Urbana-Champaign

Figure 1. October Monthly Precipitation Totals

Accumulated Precipitation: Percent of Mean
October 1, 2017 to October 31, 2017



Midwestern Regional Climate Center
Illinois State Water Survey, Prairie Research Institute
University of Illinois at Urbana–Champaign

Figure 2. October 2017 Percent of Mean of Accumulated Precipitation

Hydrologic Products issued this month:

- 31 Hydrologic Summaries (ARBRVAGRR)
 - 1 Probabilistic Hydrologic Outlook (ARBESFGRR)
- 31 Daily River and Lake Summary (ARBRVDGRR)
- 18 Areal Flood Advisory Statements (ARBFLSGRR)
- 10 Areal Flood Warning (ARBFLWGRR)
- 21 Areal Flood Warning Statements (ARBFLSGRR)
- 36 River Flood Advisory Statements (ARBFLSGRR)
 - 3 River Flood Warnings (ARBFLWGRR)
 - 9 River Flood Warning Statements (ARBFLSGRR)
- 12 Areal Flood Watch Statements (ARBFFAGRR)
- 17 River Statements (ARBRVSGRR)