

NWS FORM E-5 U.S. DEPARTMENT OF COMMERCE NOAA, NATIONAL WEATHER SERVICE MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS TO: NATIONAL WEATHER SERVICE (W/OH12x1) HYDROMETEOROLOGICAL INFO CENTER 1325 EAST-WEST HIGHWAY, RM 7116 SILVER SPRING, MD 20910	HSA OFFICE: Marquette, MI
	REPORT FOR (MONTH / YEAR): October 2018
	DATE: November 5, 2018
	SIGNATURE: Robin J. Turner, MIC Keith White, Hydrology Program Manager
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 no flooding occurred within this Hydrologic Service Area.

October Precipitation

The entire Upper Peninsula experienced well above average precipitation in October. After a couple rounds of thunderstorms early in the month, widespread moderate to heavy rain of generally greater than 2.5" fell the 8th-10th which led to areas of flooding. While the second half of the month featured lower rainfall totals, nearly every day had some sort of precipitation. In fact, at our office in Negaunee Township we had at least a trace of precipitation for 28 out of the 31 days. In all, multiple locations had their wettest October on record and nearly every observation site eclipsed the top 10.

Below is a chart of some of the larger cities in the Upper Peninsula, with monthly precipitation in inches and the amount of inches above or below normal for the month. Any notable monthly ranks are also included. See figures 1 and 2 below for a smoothed out aerial view of these data, and figures 3 and 4 for the radar-estimated precipitation data.

Location	Precipitation	% of normal	Rank	Snowfall	Above/Below	Rank
WFO Marquette	6.62"	172	5/59	4.2"	-1.8"	
Marquette City	6.32"	202	3/154	0.0"	-1.0"	
Houghton Airport	6.27"	M	M	2.6"	-2.1"	
Ironwood	5.56"	140	10/118	0.5"	-6.1"	
Iron Mountain	6.73"	214	1/118	1.6"	+1.3"	
Manistique	6.07"	174	4/90	0.5"	+0.3"	
Munising	8.85"	209	2/107	2.2"	+0.8"	
Newberry	7.83"	219	1/113	2.5"	+1.3"	
Stambaugh	5.10"	166	9/120	3.1"	+1.2"	

October Flooding

Rounds of showers and thunderstorms during the first week of October brought scattered areas up to 2.5 inches of rain, preconditioning soils and adding to area reservoirs. A hydrologic outlook was issued the afternoon of October 7th in advance of an approaching front that was set to become stationary near our area for several days and serve as the focal point for numerous additional rounds of moderate to heavy rain. As confidence in the event increased on the 8th, a Flood Watch was issued for the west half of Upper Michigan.

Over the following 3+ days, this system dumped a widespread 2.5" to nearly 4" of rain across the UP. Rivers and streams universally rose on the 10th and 11th. Flashier basin locations of Sturgeon River near Alston and Black River near Bessemer required Flood Warnings on the 10th, while the slower responding sites of the Chocolay River at Harvey and the Sturgeon River near

Chassell required Flood Warnings on the 11th. Flooding was also reported near Au Train and Ewen, and some impacts were seen in a Houghton area previously impacted by devastating flash flooding in the summer. A few campgrounds in the UP decided to close early as a result of the soggy weather. See below for some local media reports of the flood impacts in our area.

Drought Discussion

The November 1st release of the US Drought Monitor indicates no drought conditions across the MWS MQT Hydrologic Service Area (HSA). For the latest drought status, please go to <http://www.drought.gov>.

Local Media Reports

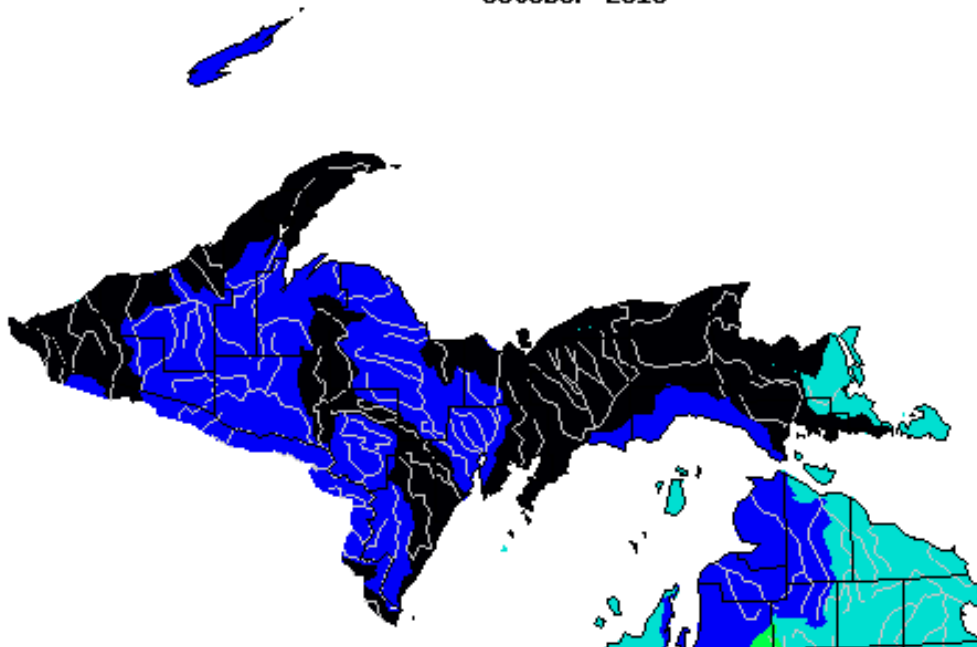
<https://www.uppermichiganssource.com/content/news/Au-Train-River-rising-to-dangerous-levels-496956361.html>

<https://www.freep.com/story/news/local/michigan/2018/10/14/campground-closure-upper-peninsula/1641022002/>

<https://www.uppermichiganssource.com/content/news/Heavy-rain-hits-areas-of-Houghton-County-recovering-from-Father-Day-Flood-496687421.html>

October River Levels

October 2018

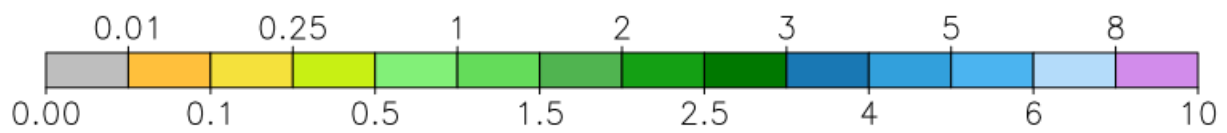
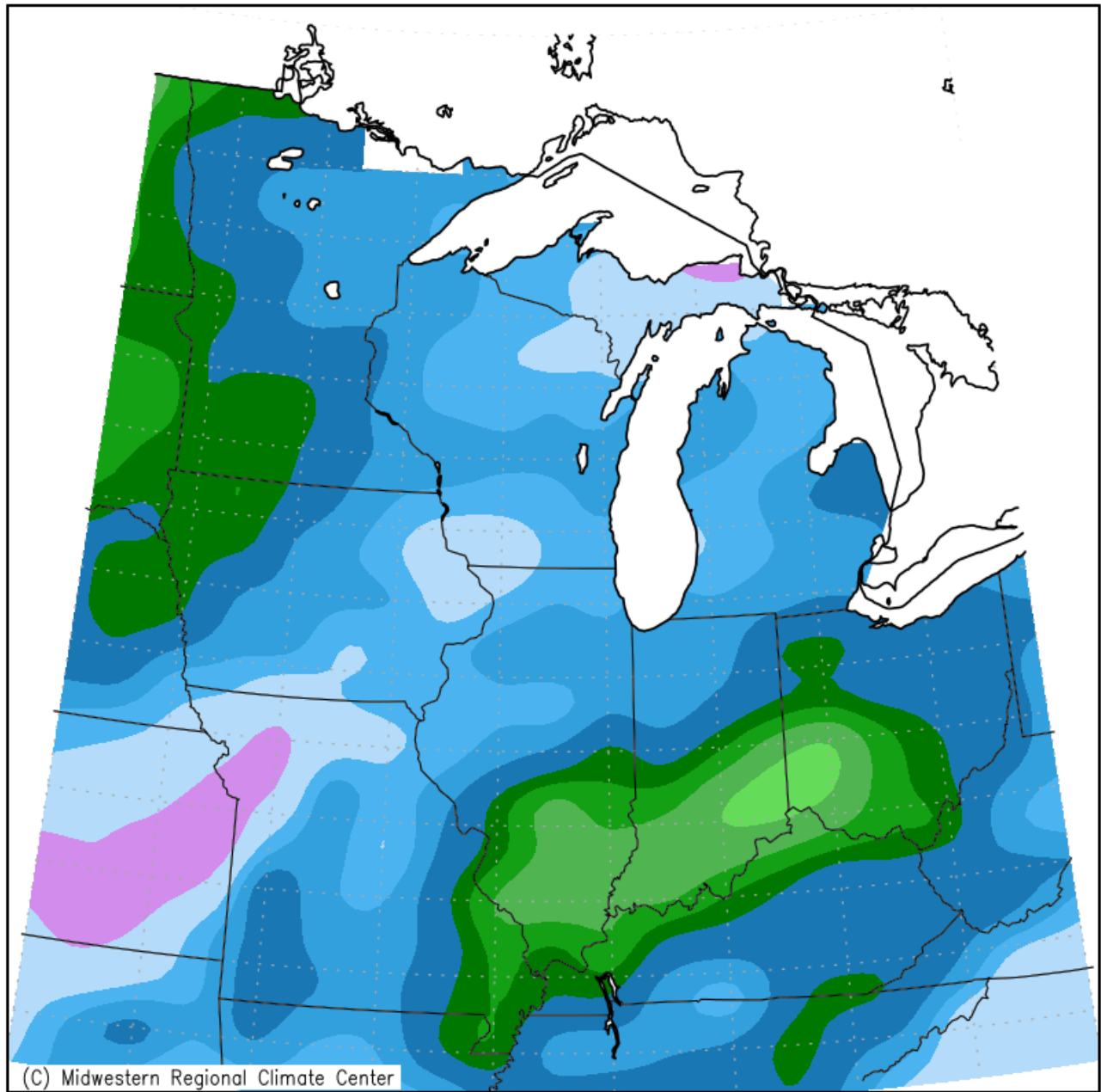


Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	No Data
	Much below normal	Below normal	Normal	Above normal	Much above normal		

October Products Issued

- 6 – Flood Watch (FFA; one watch, extended in area, then continued)
- 4 – Flood Warning (FLW)
- 0 – Flash Flood Warning (FFW)
- 0 – Flash Flood Statement (FFS)
- 18 – Flood Advisories and Statements (FLS)
- 31 – Hydrologic Summary (RVA)
- 31 – Daily River Forecasts (RVD)
- 2 – Hydrologic Outlook (ESF) (Monthly river outlook + one in advance of widespread heavy rain event)

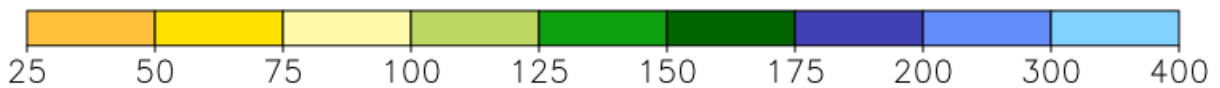
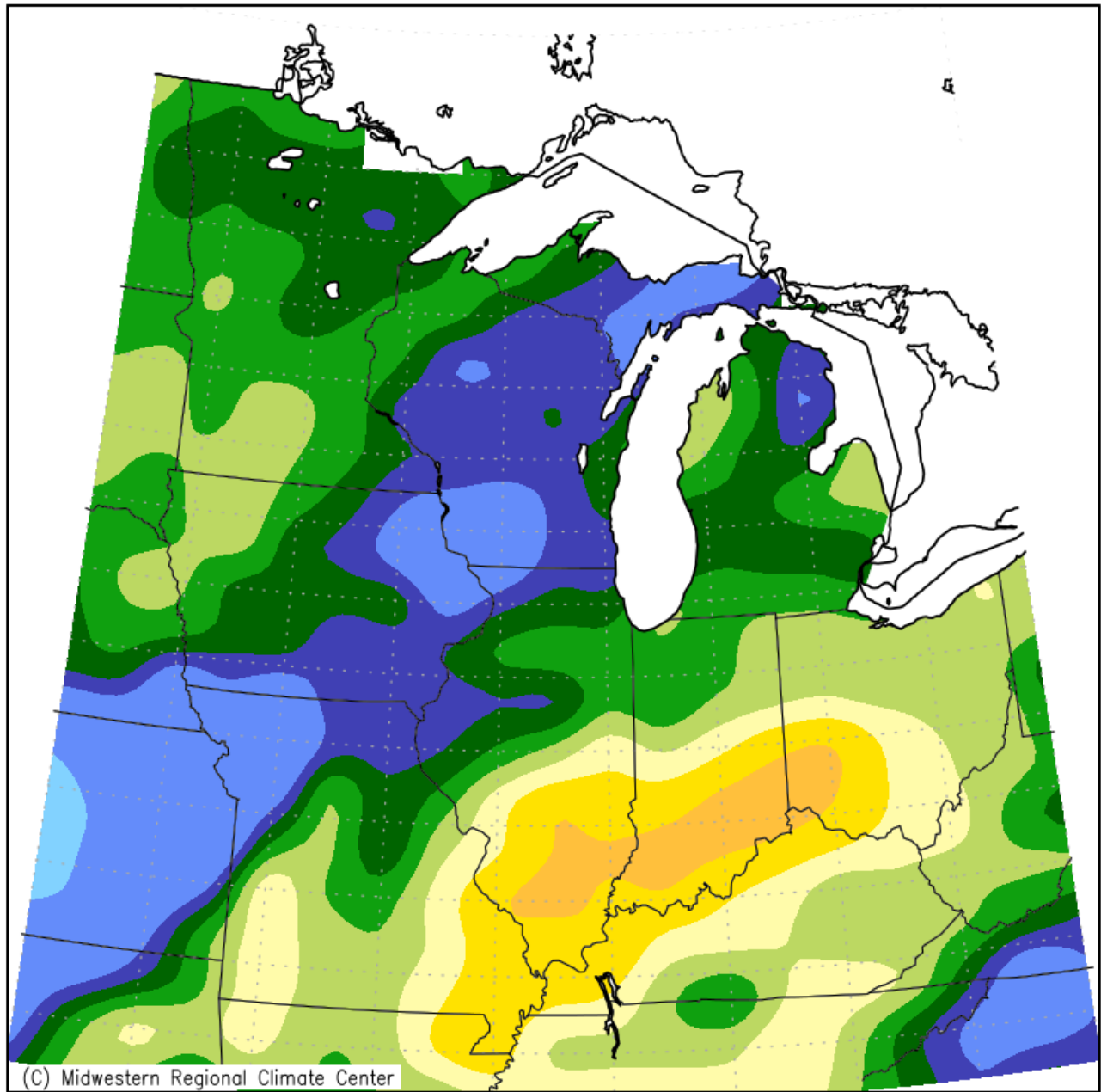
Accumulated Precipitation (in)
October 1, 2018 to October 31, 2018



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

Figure 1. October 2018 Monthly Precipitation Totals

Accumulated Precipitation: Percent of Mean October 1, 2018 to October 31, 2018



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

Figure 2. October 2018 Percent of Mean of Accumulated Precipitation

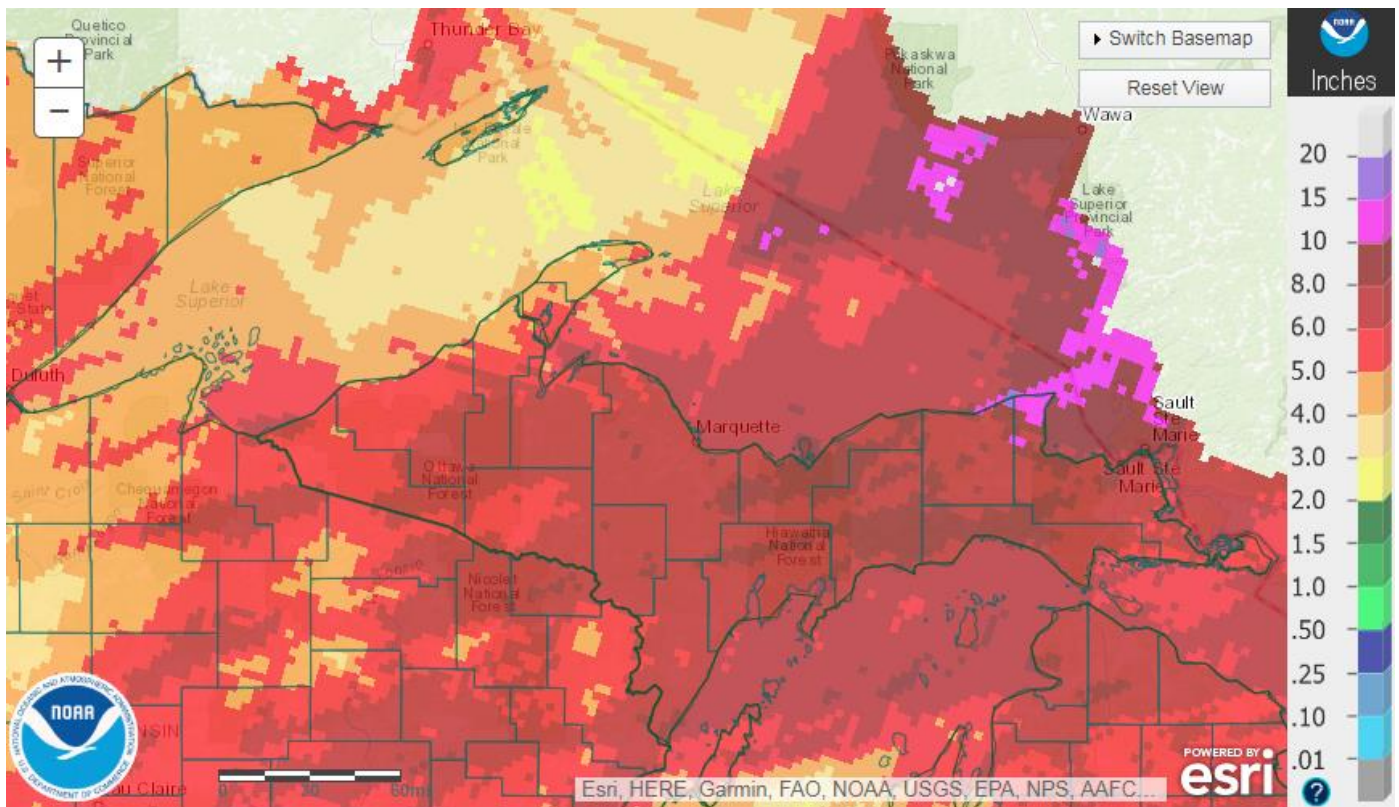


Figure 3. October 2018 AHPS Monthly Precipitation

Note: This data is subject to errors in the estimates produced by the radar, as well as beam blockage across portions of the NW UP.

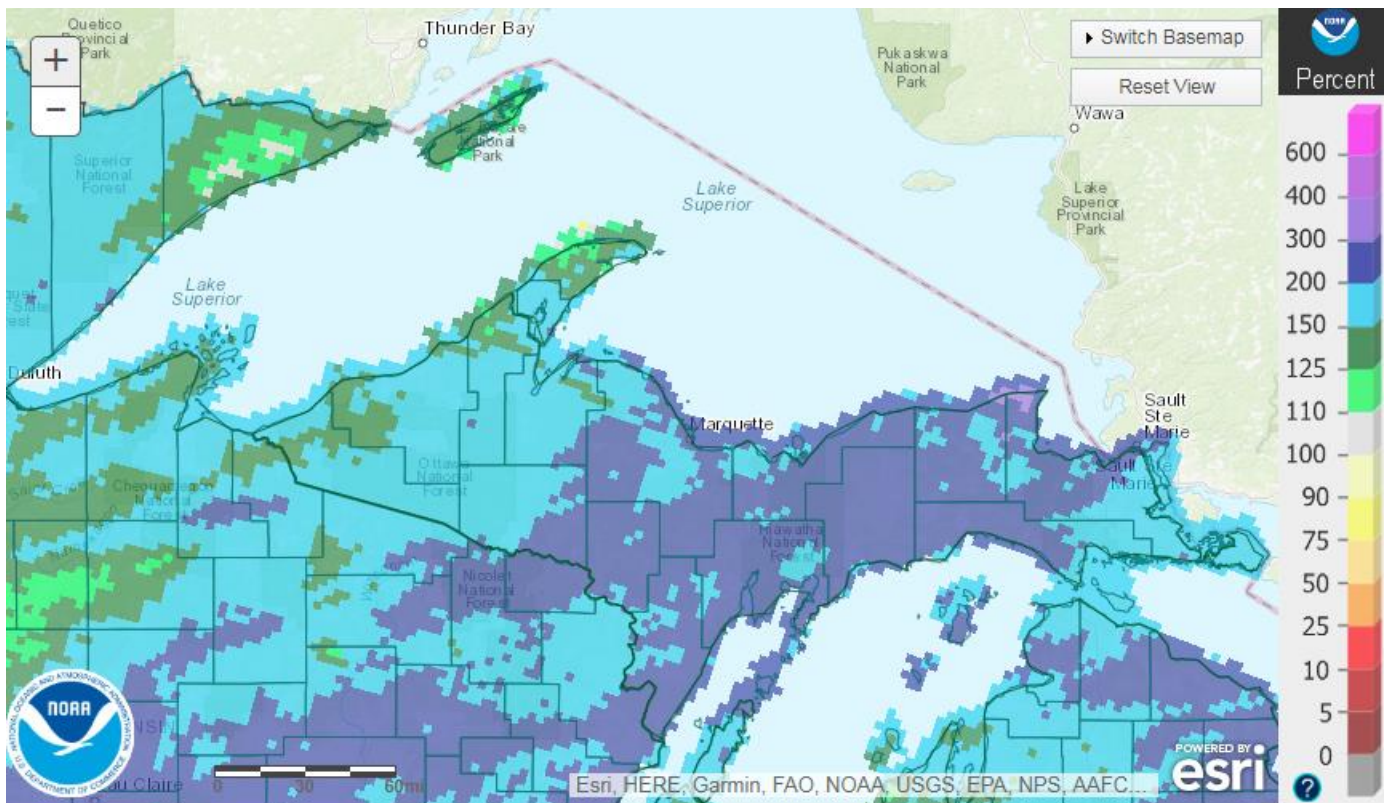


Figure 4. Figure 2. October 2018 AHPS Percent of Mean of Accumulated Precipitation

Note: This data is subject to errors in the estimates produced by the radar, as well as beam blockage across portions of the NW UP.