

NWS Form E-5 (04-2006) (PRES. BY NWS Instruction 10-924)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE	HYDROLOGIC SERVICE AREA (HSA) Burlington VT
		MONTHLY REPORT OF HYDROLOGIC CONDITIONS
TO: Hydrologic Information Center, W/OS31 NOAA's National Weather Service 1325 East West Highway Silver Spring, MD 20910-3283		REPORT FOR: MONTH YEAR July 2017
		SIGNATURE /s/ Kimberly G. McMahon, GF DATE August 15, 2017

When no flooding occurs, include miscellaneous river conditions below the small box, such as significant rises, record low stages, ice conditions, snow cover, droughts, and hydrologic products issued (NWS Instruction 10-924).

An X inside this box indicates that no flooding occurred within this hydrologic service area.

Active weather pattern continued into July with four days warranting flash flood warnings due to heavy rainfall. Approximately 24 of the 31 days in July had widespread rainfall occur over the Burlington HSA. This resulted in monthly precipitation totals generally ranging from three to over seven inches across the North Country (figure 1). For most of the North Country, outside of the high peaks and northeastern Vermont, it was common to see above normal precipitation for the month of July on the order of a half inch or more (figure 2). Some areas experienced 175% or more of their normal monthly precipitation (figure 3).

July started with heavy rainfall causing flash flooding for central Vermont on the first of the month. Cooperative observers reporting generally one to three inches of rainfall on already saturated soils (figure 4). Three Flash Flood Warnings were issued the afternoon and early evening of July first (Table 1). Multiple state and local roads were closed due to flooding, and some roads were heavily damaged. Thetford was the hardest hit with several roads wiped out, and the Neshobe River in Brandon destroyed a section of Newton Road. Public infrastructure suffered \$4.7 million in damage, and a Federal Disaster was declared for Addison, Bennington, Caledonia, Orange, Rutland, Washington, and Windsor Counties for this flood event. Basin-wide rainfall from the July 1 event pushed main-stem rivers above flood stage as well (Table 2). The Winooski River at Waterbury VT (WATV1) and Essex Junction VT (ESSV1) flooded for the second time in as many days, with the first flood events falling during the June reporting period.

A The first week of July closed with more flooding as two Flash Flood Warnings were issued due to convection with heavy rainfall affected Lamoille County in Vermont and Franklin County, New York.

The northeast United States remained under the influence of an upper trough, which provided precipitation almost daily and resulted in continued moist soils. On July 17, three Flash Flood Warnings were issued due to heavy rainfall with areas of Vermont receiving over one inch (figure 5). Figure 6 shows precipitable water values over 1.5 inches over portions of Vermont and New York which helped to produce the heavy rainfall that produced flooding.

The fourth flash flooding day in July resulted from training thunderstorms over the St. Lawrence Valley in New York. Convection moved across the rest of the North Country with only a half inch to inch of rainfall. Figure 7 shows the rainfall exceeding six inches in western St Lawrence County and generally two inches along the valley. Flash flooding of roads and basements, and the wash out of a culvert were reported.

The wet month of July resulted in above to much above normal streamflows for much of the area. Figure 8 shows the average monthly streamflow across the Burlington HSA for July. Lake Champlain rose nearly a foot from late June to its peak of 98.22 on July 5 from the heavy rainfall, then receded over a foot to 96.98 on July 31 (Figure 9).

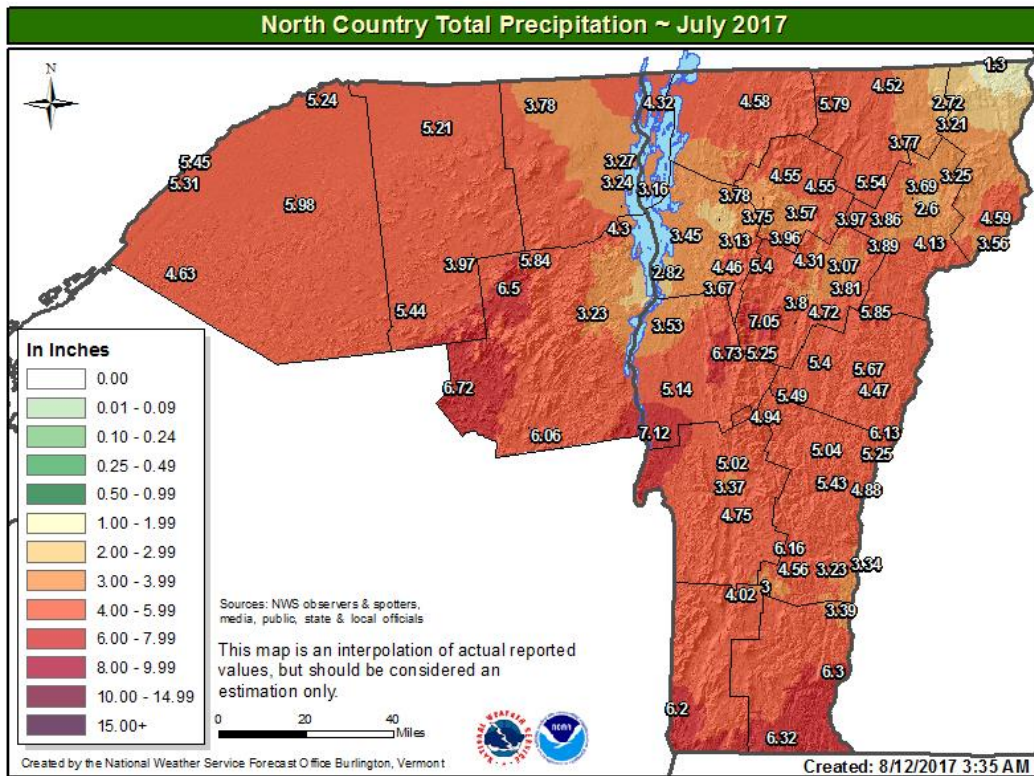


Figure 1. Most of the NWS Burlington HSA saw over 3 inches of rainfall during July 2017, with some locations exceeding 7 inches. Note rainfall amounts are from Cooperative Observer program and ASOS/AWOS systems.

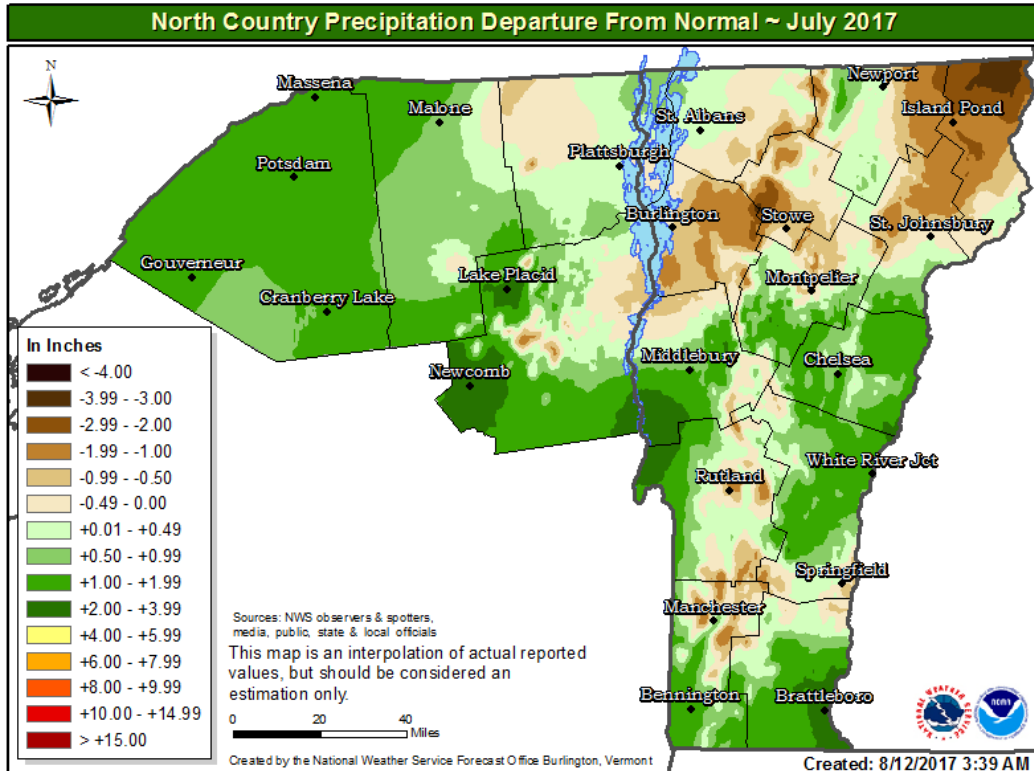


Figure 2. Outside of the Mountain peaks and northern Vermont, many areas received over 1 inch of precipitation above monthly normals.

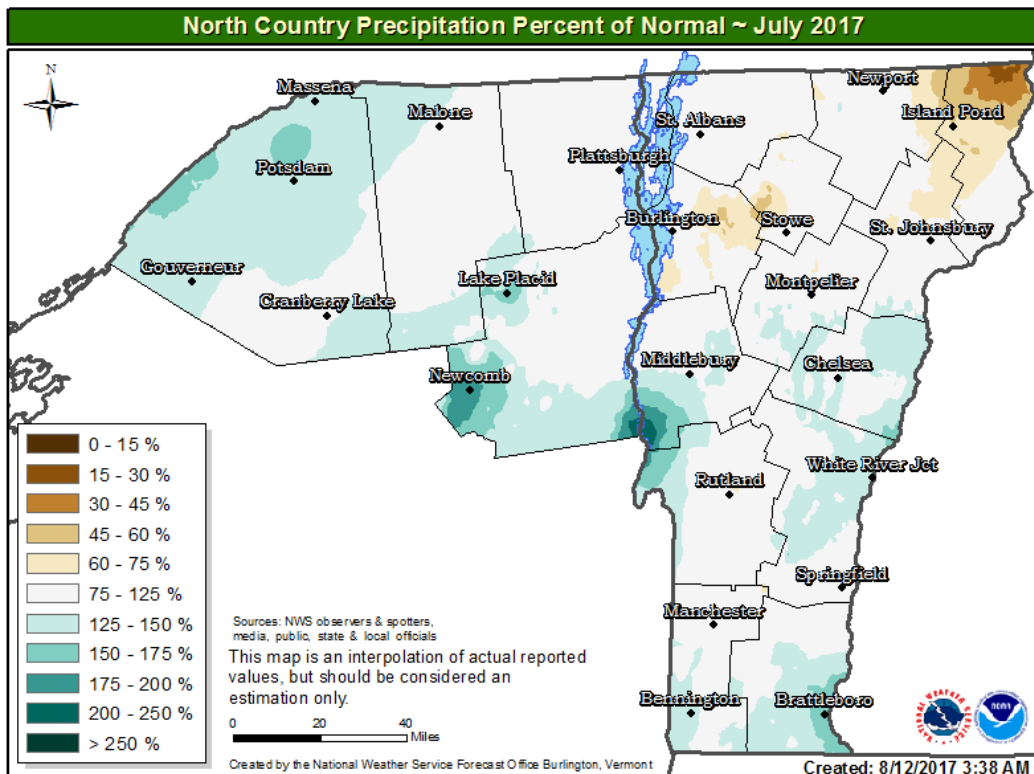


Figure 3. Many areas saw greater than normal precipitation, with highest amounts in excess of 175% of normal. Extreme northeast Vermont remained below normal.

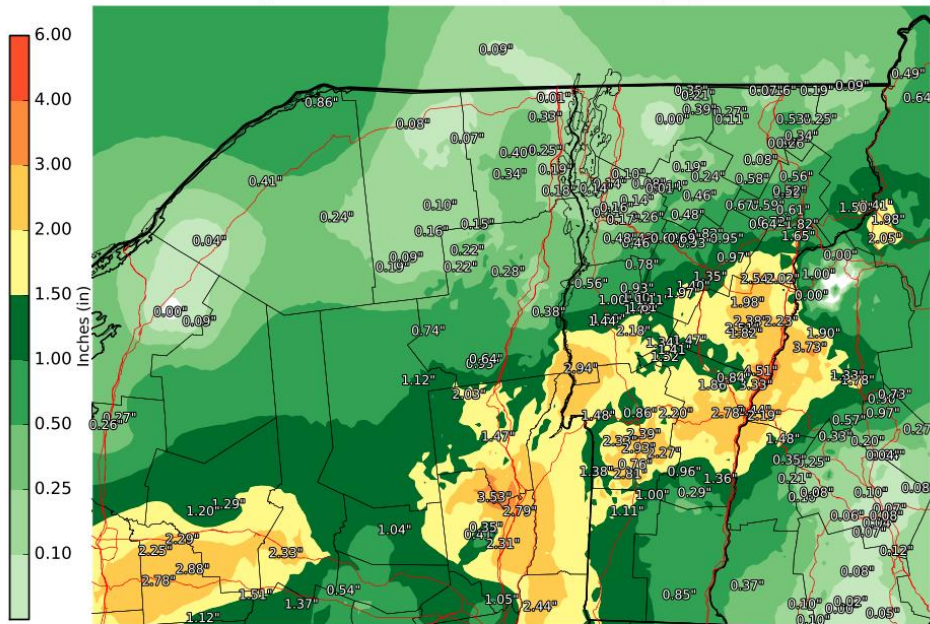
Flash Flood Warning VTEC number	Date JULY 2017	Issuance Time (UTC)	Counties, State
FFW 0006	1	18:49	Orange, Washington, Windsor, Rutland, Addison VT
FFW 0007	1	19:15	Caledonia, Orange, Washington, Windsor VT
FFW 0008	1	20:00	Rutland, Windsor VT
FFW 0009	7	20:04	Lamoille, Orleans VT
FFW 0010	7	23:55	Franklin NY
FFW 0011	17	00:30	Addison VT
FFW 0012	17	18:02	Lamoille, Washington VT
FFW 0013	17	21:29	Windsor, Rutland VT
FFW 0014	24	09:19	St. Lawrence NY
FFW 0015	24	13:14	St. Lawrence NY

Table 1. List of Flash Flood Warnings issued in July 2017.

Location	ID	Flood Stage (ft)	Above Flood (UTC)	Below Flood (UTC)	Crest (ft)	Crest Time (UTC)
Winooski River at Essex Junction VT	ESSV1	12	02 Jul 11:12	02 Jul 19:12	12.65	02 Jul 15:15
Winooski River at Waterbury VT	WATV1	419.0	01 Jul 23:27	02 Jul 06:57	420.56	02 Jul 03:45
Mad River at Moretown VT	MOOV1	9.0	01 Jul 23:39	02 Jul 01:15	9.39	02 Jul 00:45
Dog River at Northfield Falls VT	NFFV	8.0	01 Jul 22:25	01 Jul 23:51	8.24	01 Jul 23:15
Wells River at Wells River VT	WLRV1	6.0	02 Jul 00:36	02 Jul 10:34	7.61	02 Jul 03:15

Table 2. River Gages exceeding Flood Stage in July 2017.

24-hr Precipitation Totals: ending at 8 AM EDT July 02, 2017

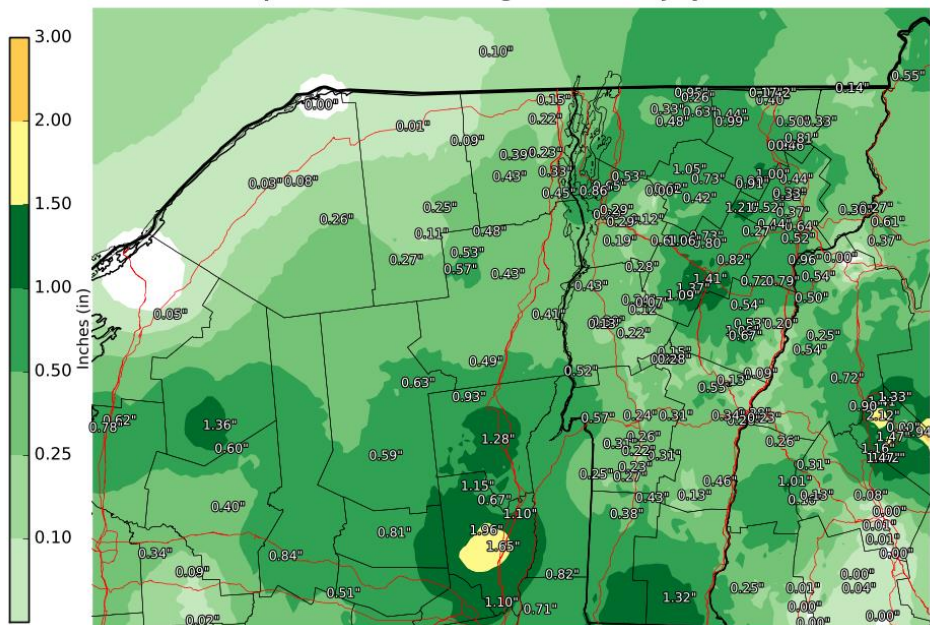


National Weather Service
Burlington, VT
07/02/2017 11:20 AM EDT

Follow Us:
weather.gov/Burlington

Figure 4. Heavy precipitation axis of 1 to 3 inches occurred over south central Vermont, resulting in flash flooding on July 1, 2017.

24-hr Precipitation Totals: ending at 8 AM EDT July 18, 2017



National Weather Service
Burlington, VT
07/18/2017 10:52 AM EDT

Follow Us:
weather.gov/Burlington

Figure 5. Heavy rain onto moisture laden soils in mid-July led to another day with flash flooding, July 17, 2017.

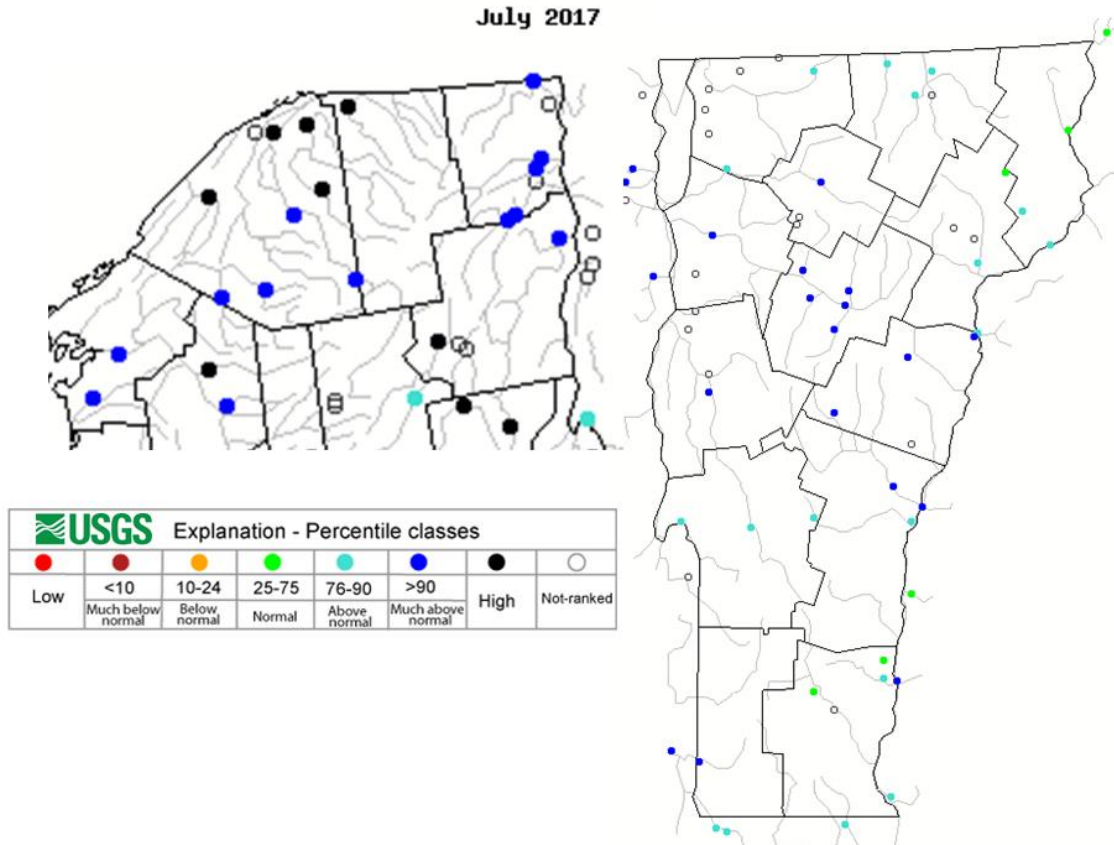


Figure 8. Average Streamflow for July 2017 was above normal to much above normal for most of northern New York and central Vermont.

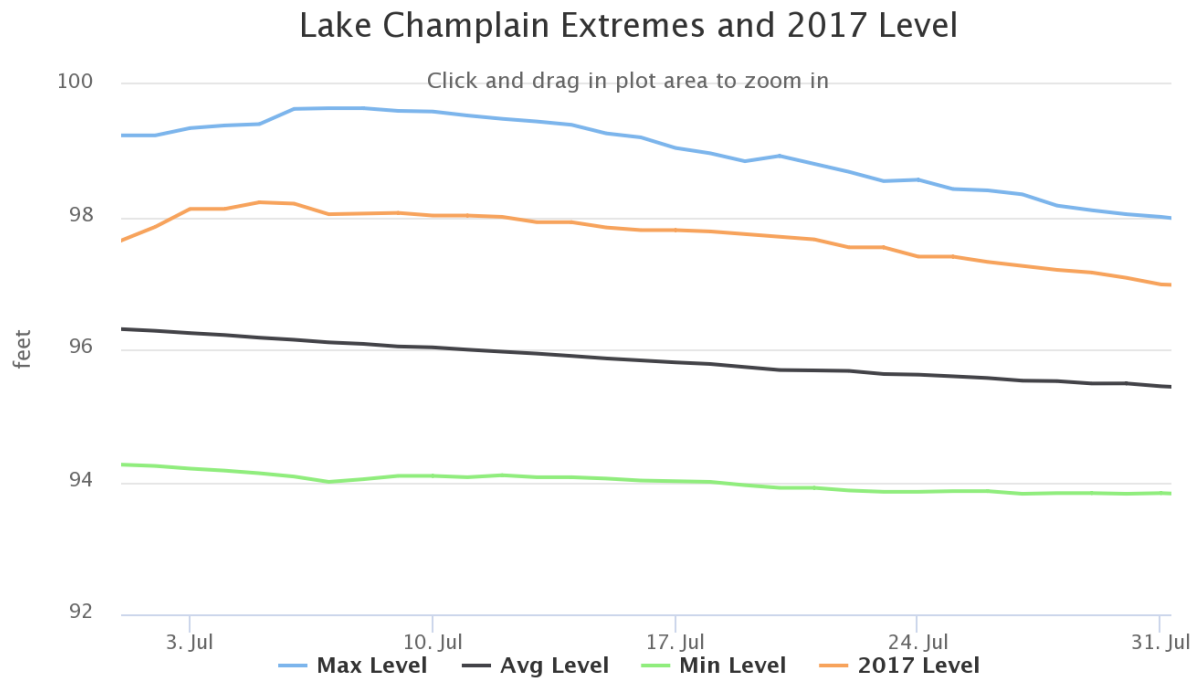


Figure 9, Lake Champlain levels July 2017