

<b>NWS Form E-5</b> (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
<b>MONTHLY REPORT OF HYDROLOGIC CONDITIONS</b>	REPORT FOR: MONTH                      YEAR August                      2023
TO: Hydrologic Information Center, W/OS31 NOAA's National Weather Service 1325 East West Highway Silver Spring, MD 20910-3283	SIGNATURE /s/ John Goff, Senior Service Hydrologist DATE October 9, 2023

*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.

## Overview

August 2023 within the NWS Burlington HSA started off as a continuation of July's wet pattern with several systems producing locally heavy rainfall, some of which led to considerable flash flooding during the first half of the month. Overall, 13 Flash Flood Warnings and 9 Flood Warnings were issued during the period. The synoptic weather pattern featured persistent upper troughing across the northeastern third of the nation, a feature that had been in place since late June, leading to periodic unsettled weather and ample cloud cover. By month's end, 31-day positive precipitation departures generally averaged in the one to two inch range with a swath of two to five inch departures extending from the Adirondack Mountains eastward across central Vermont. Within this band, total monthly rainfall neared one foot in a few spots in Addison County, VT. Additionally, the Saranac Lake automated observing station (ASOS) reported a record monthly total of 8.48 inches (Table 1 and Figs. 1-2). As a result of the cloudier conditions, cooler than normal temperatures were also felt across the HSA, evidenced by Burlington, VT failing to reach 85° F for the entire month (Fig. 3).

## Notable Hydrology

### **Addison/Rutland County flash flooding of August 3-4, 2023**

During the late afternoon and evening hours of August 3, 2023 a training band of showers and thunderstorms evolved across portions of Essex County, NY eastward into central Addison County, VT. The storms formed in a weak wind flow regime and deep moisture pooling well south of any significant synoptic scale weather features. Over a period of 3 to 4 hours, tremendous amounts of rain fell from this band on the order of three to six inches. The heaviest totals were unfortunately centered over Middlebury, VT, the county seat and largest town within the county. This led to severe flash flooding in the town and immediate surrounding countryside, with numerous road washouts, damage to infrastructure and several swift water rescues reported (Figs. 4-6).

By the next evening, a similar rinse-and repeat of training storms developed across Rutland County, immediately south of Addison County. These storms uncannily were focused on the City of Rutland, Vermont's third largest city with numerous reports of flash flooding received. While the severity of the flash floods were slightly lesser in magnitude than in Addison County the prior evening, numerous road closures occurred. The area along Clover St. near the Moon Brook was particularly hard hit with homes impacted by high water leading to several swift water rescues (Figs. 7-8).

As a result of these events, President Biden declared a federal disaster for Addison and Rutland Counties.

AUGUST 2023 MONTHLY PRECIPITATION DEPARTURES FOR SELECTED ASOS PLATFORMS IN THE NWS BURLINGTON HSA		
SITE	OBSERVED AMOUNT (IN.)	DEPARTURE FROM NORMAL (IN.)
Burlington, VT (BTV)	4.90	+1.36
Montpelier, VT (MPV)	5.97	+2.16
Morrisville, VT (MVL)	6.19	+2.69
St. Johnsbury, VT (1V4)	5.10	+1.27
Springfield, VT (VSF)	4.31	+0.75
Saranac Lake, NY (SLK)	8.48R	+4.92
Massena, NY (MSS)	3.66	+0.30

Table 1: Observed precipitation totals for August 2023 for selected NOAA/NWS ASOS platforms. Significant positive departures were observed at Saranac Lake, NY with the overall monthly total setting a record.

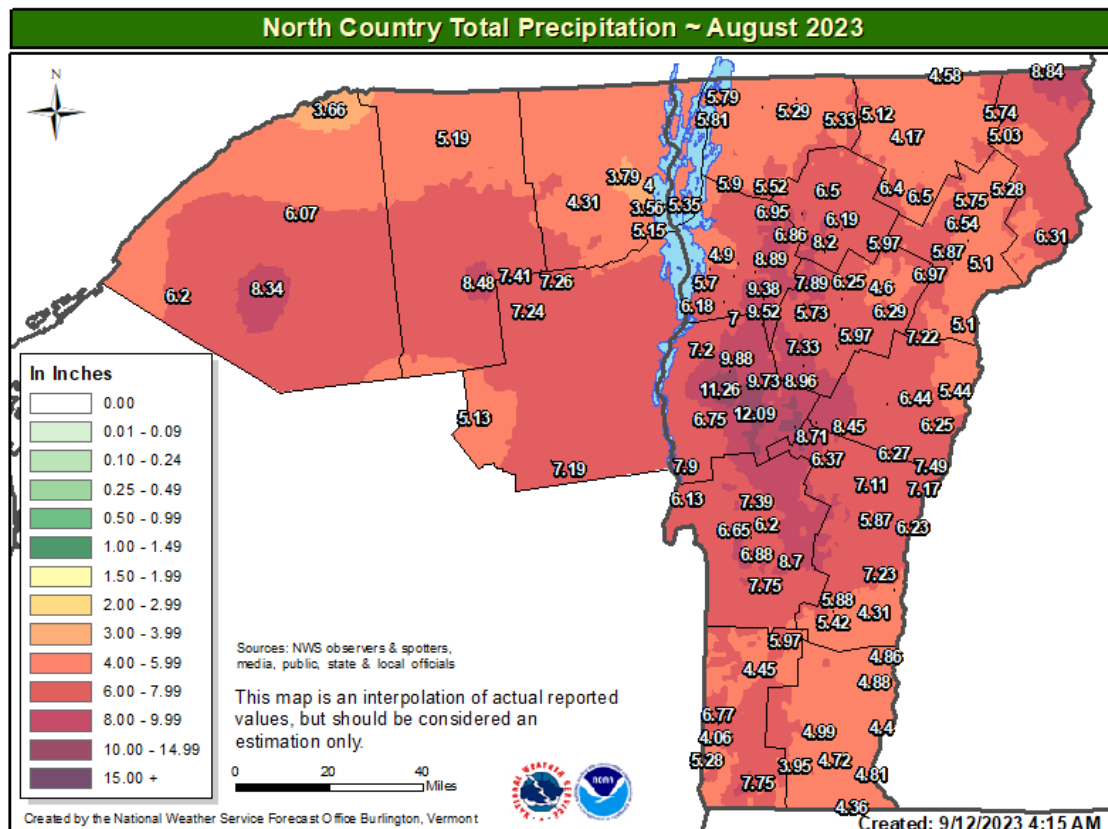
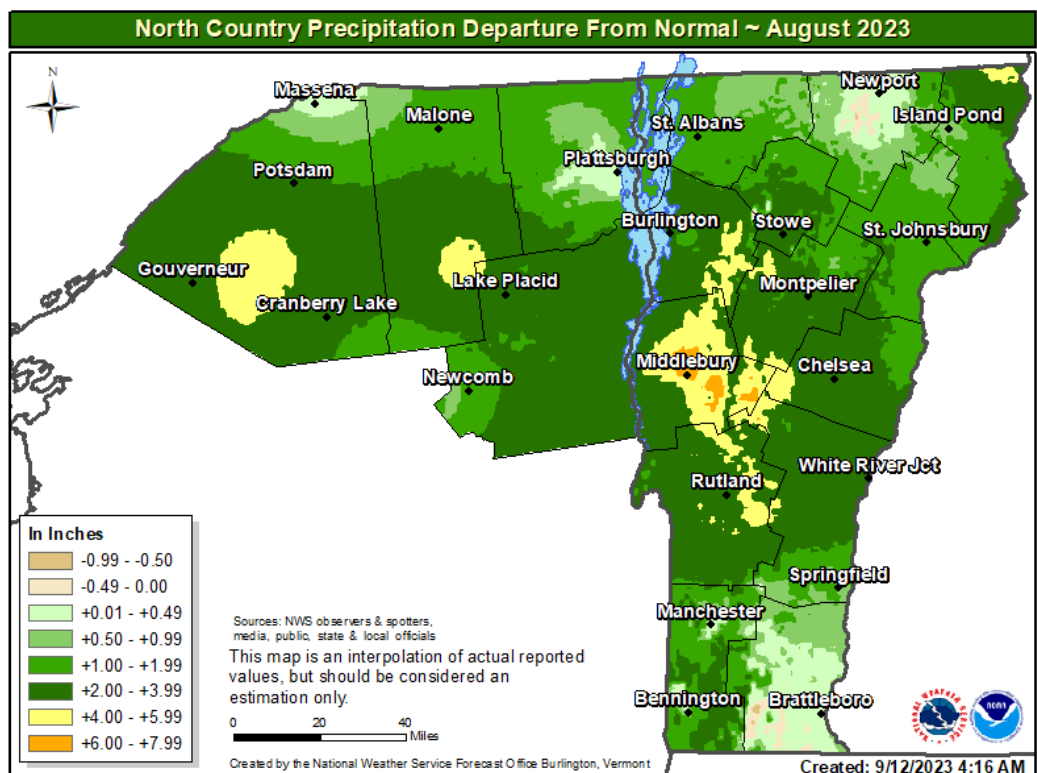
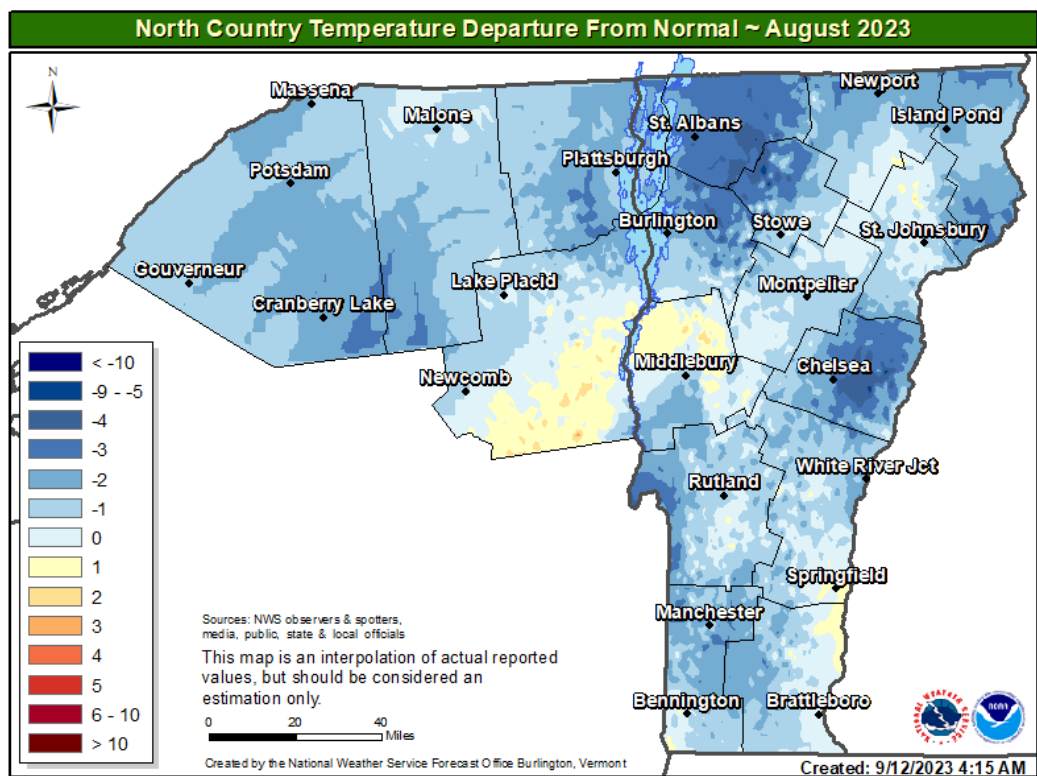


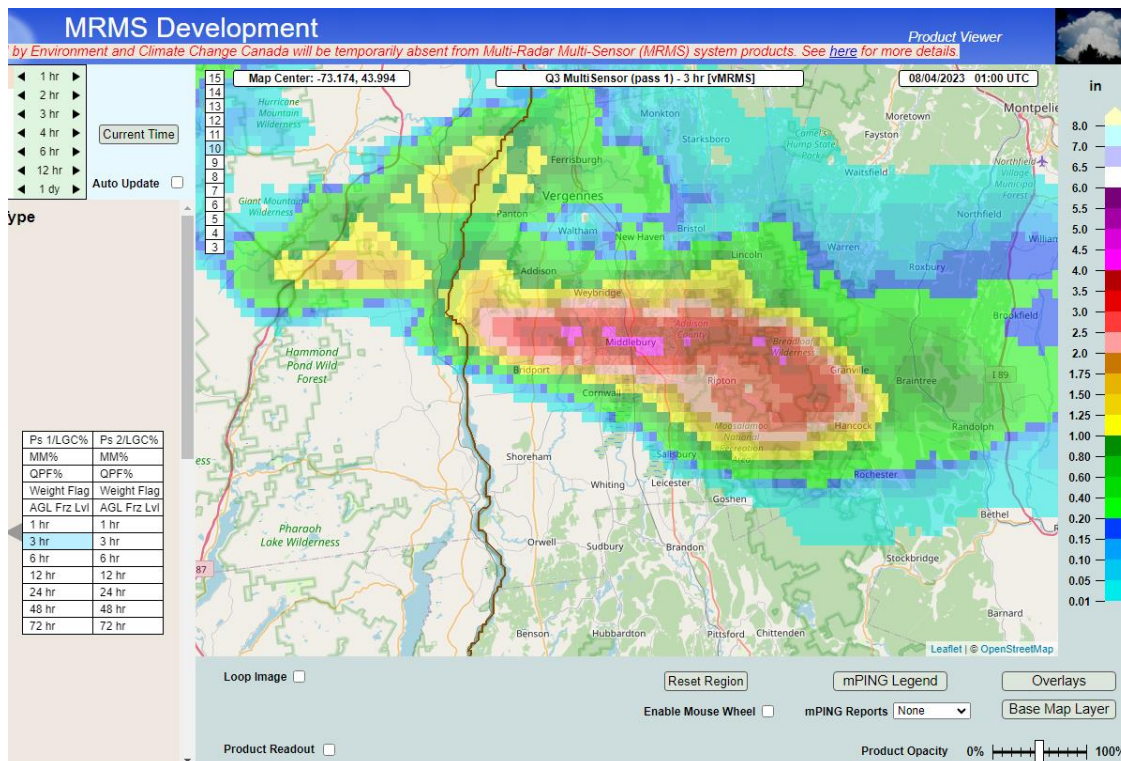
Figure 1: Rainfall totals for the month of August 2023. Nearly all areas received above average totals, with significant amounts between 8 and 12 inches noted in portions of the Northern Adirondack Mountains, central Vermont and western slopes of the Green Mountains.



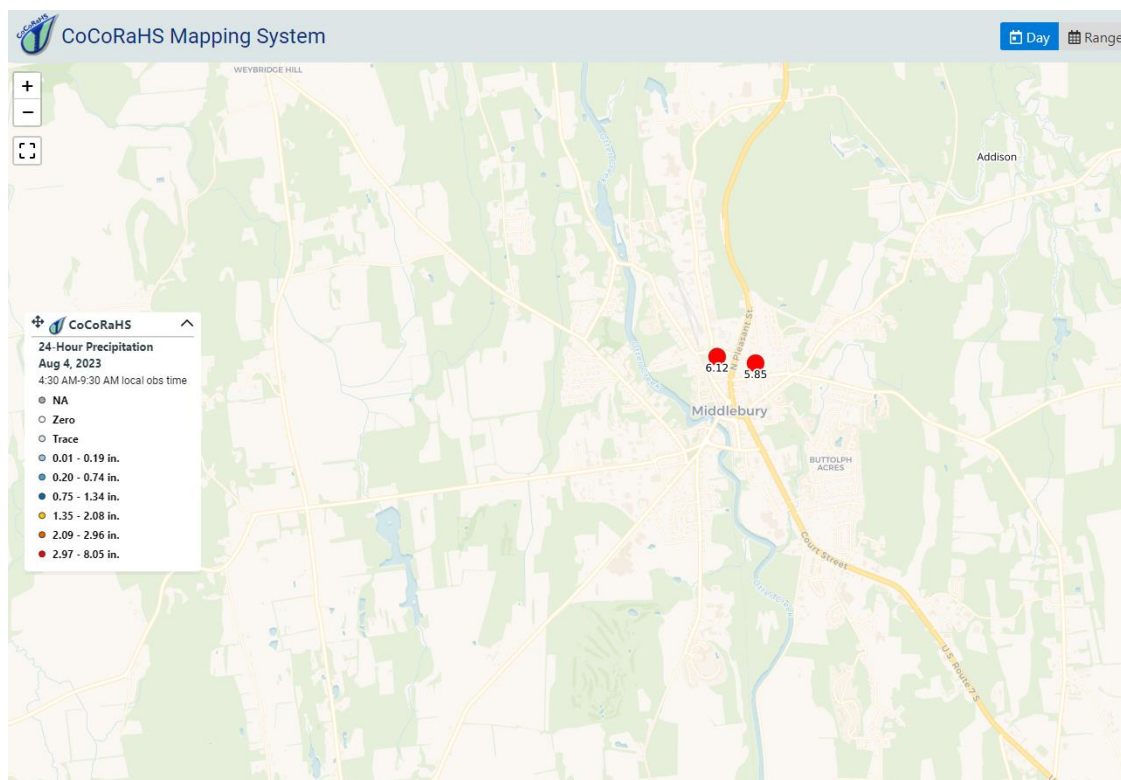
**Figure 2: August 2023 rainfall departures for the NWS Burlington HSA. Most areas saw above average totals, with a stripe of significant 3 to 6 inch departures from the Adirondack Mountains east into central Vermont.**



**Figure 3: August 2023 temperature departures for the NWS Burlington HSA. Persistent cloud cover through much of the month led to overall negative departures on the order of 1 to 3 degrees for most areas.**



**Figure 4: Multi-Sensor/Multi-Radar (MRMS) precipitation estimates in Addison County on the evening of August 3, 2023. Between 3 and 6 inches of rainfall fell in a narrow swath, focused atop the Town of Middlebury leading to severe flash flooding.**



**Figure 5: CoCoRaHS 24-hour precipitation totals ending on the morning of August 4, 2023. Note the two sites in Middlebury, each of which recorded around six inches of rainfall.**





Figure 6: A landslide affects the backyard of a home in Middlebury, VT on the evening of August 3, 2023. Photo courtesy VT Digger.



Figure 7: A swift water rescue team evacuates affected homeowners on Clover St. in the City of Rutland on the evening of August 4, 2023. Photo courtesy Michael Talbott.



**Figure 8: Aerial imagery from Rutland, VT on the evening of August 4, 2023 showing flash flooding affecting areas near Clover St. in the southern portions of the city.**