NWS Form E-5 U.S. DEPARTMENT OF COMI (04-2006) NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTR (PRES. BY NWS Instruction 10-924) NATIONAL WEATHER SE			RCE HYDROLOGIC SER	HYDROLOGIC SERVICE AREA (HSA)	
		VICE Bu	E Burlington VT		
MONTHLY REPORT OF HYDR		ROLOGIC CONDITIONS	REPORT FOR: MONTH	YEAR	
			March	2024	
TO:	Hydrologic Information Center, W/OS31 NOAA's National Weather Service		SIGNATURE /s/ John Goff, Se	SIGNATURE /s/ John Goff, Senior Service Hydrologist	
	1325 East West Highway Silver Spring, MD 20910-3283	1way 0910-3283	DATE	ay 6, 2024	

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

March 2024 was both similar and different from February 2024 across the NWS Burlington, VT HSA. On the one hand, temperatures continued to run extremely mild with positive 31-day departures averaging from 5 to 7 degrees (Fig. 1). This kept with the longer term trends during winter 2023-24 with several sites observing a top 5 warmest March on record. Alternatively, conditions were much wetter in March than in February as a longwave pattern shift led to numerous low pressure systems tracking across the area with abundant precipitation. The most impactful systems occurred on March 5-7, 10-11, 14-15, 20 and 23, a few of which produced heavy late season snowfalls, especially across Vermont. Overall positive monthly departures were observed with values generally averaging from +1 to +3 inches. Slightly lower values were observed in the Saint Lawrence Valley (Fig. 2). Percent of normal values mimicked the departure totals, with most sites showing values from +125 to +225 percent, highest in eastern and southern Vermont (Fig. 3). As mentioned above, a few of the low pressure systems affecting the area during March were accompanied by heavy, late season snows. While most areas observed substandard snowfalls for the winter as a whole during 2023-24, these late season snows generally helped the ski industry and any potential water supply concerns coming out of an unusually dry February. On average, the heaviest totals accumulating from these systems affected Vermont, though the Northern Adirondacks also received beneficial totals (Fig. 4).

Notable Hydrology

The most impactful hydrological event of the month occurred from March 5-7 as coastal low pressure tracked through the region and interacted with an approaching cold front from the northwest. With very mild temperatures in the 40s and lower 50s, most of this system's precipitation fell as rain. Multi-day totals averaged from 1 to 2.25 inches from the Adirondack Mountains east into Vermont (Fig. 5). This rainfall combined with the mild temperatures also led to ample snowmelt across the region. The resultant combination of rain and melting snow drove rapid rises on many rivers and smaller creeks/tributaries. Several rivers, including the Winooski, Otter Creek, East Branch of the Passumpsic, Black and Ottauquechee all exceeded flood stage during this event, though fortunately levels remained below moderate to major flood stage (Fig. 6). In total, a combination 10 Flood Warnings (Areal or River) were issued by NWS Burlington during the event.



Figure 1: March 2024 temperature departure from normal across the NWS Burlington, HSA. Mean 31-day values averaged from +5 to +7 degrees with several long term climate sites observing a top-5 warmest March on record.



Figure 2: March 2024 monthly precipitation departures from normal across the NWS Burlington, VT HSA. On average, positive anomalies from +1 to +3 inches above the long term 30-year mean were observed with slightly drier conditions in parts of the Saint Lawrence Valley.



Figure 3: Monthly precipitation percent of normal for March 2024. Values were nearly all greater than 100% with highest departures across eastern and southern Vermont.



Figure 4: March 2024 snowfall totals across the NWS Burlington HSA. Several storm systems crossing the area produced heavy, late season snows. While all areas received beneficial snowfall, the heavier, more consistent amounts occurred across Vermont.



Figure 5: Multi-day rainfall plot from March 5-7, 2024. Widespread totals from 1 to 2.25 inches combined with ample snowmelt led to rapid stream and river rises and areas of flooding across portions of the NWS Burlington HSA.



Figure 6: A sampling of river hydrographs from the March 5-7, 2024 flood event. Several river gauges saw impactful rises to above flood stage during the event, though thankfully moderate and major flood levels were not reached.