NWS Form E-5 **U.S. DEPARTMENT OF COMMERCE** **(04-2006)** **NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION** **(PRES. BY NWS Instruction 10-924)** **NATIONAL WEATHER SERVICE**	HYDROLOGIC SERVICE AREA (HSA) Burlington VT
MONTHLY REPORT OF HYDROLOGIC CONDITIONS	REPORT FOR: MONTH YEAR January 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 February 8 , 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).

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

Overview

The month of January was relatively uneventful from a hydrological perspective across the NWS Burlington HSA. Frequent systems bringing periods of mixed precipitation and snow affected the area with monthly totals averaging within 2 inches of normal (Figures 1 and 2). No large-scale, blockbuster storms occurred and no flooding was reported. It was also unusually mild, with positive monthly temperature departures generally averaging from 8 to 11 degrees (Figure 3). Burlington, VT, for example, recorded its fifth warmest January on record. The extant snowpack was clearly affected by this warmth, and was sorely lacking into the middle of the month (Figure 4). A few modest snowfalls did help rejuvenate some of this by month's end. However, season long negative snow depth departures were still evident on the 31st across much of the central and northern Green Mountains and portions of the Adirondack Mountains (Figure 5).

Notable Hydrology

The most notable hydrological note of January 2023 was the near absence of any significant river ice. Mild temperatures in December, followed by even greater early winter warmth in January inhibited river ice formation, keeping any threat of ice jams minimal. In this author's 23 years at NWS Burlington, average ice coverage observed on the four primary northern Vermont rivers (Missisquoi, Passumpsic, Lamoille and Winooski) was the lowest in memory for the month (Figure 6).

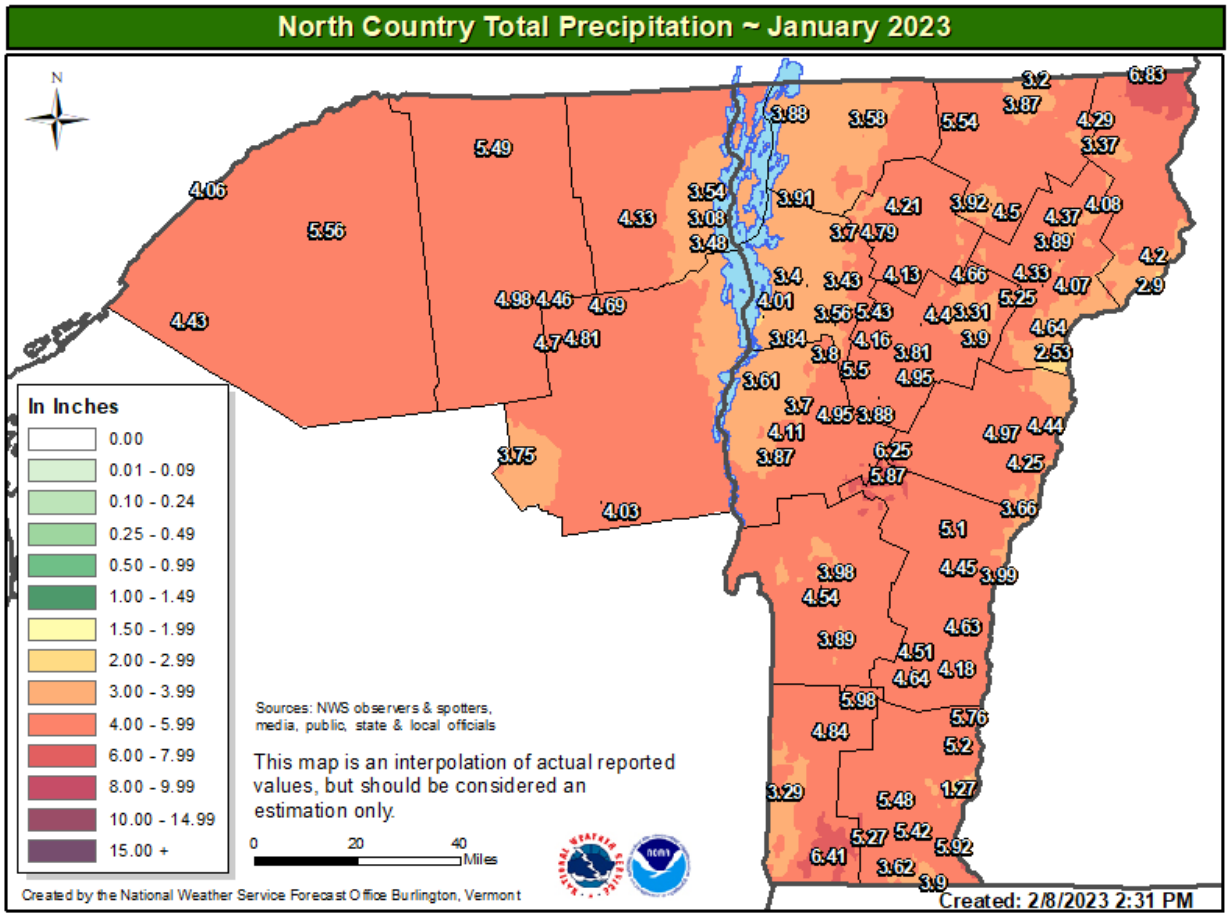

Figure 1: Monthly precipitation totals for January 2023 across the NWS Burlington, VT area. Amounts generally averaged from 3 to 6 inches with some slight variability, which was slightly above normal.

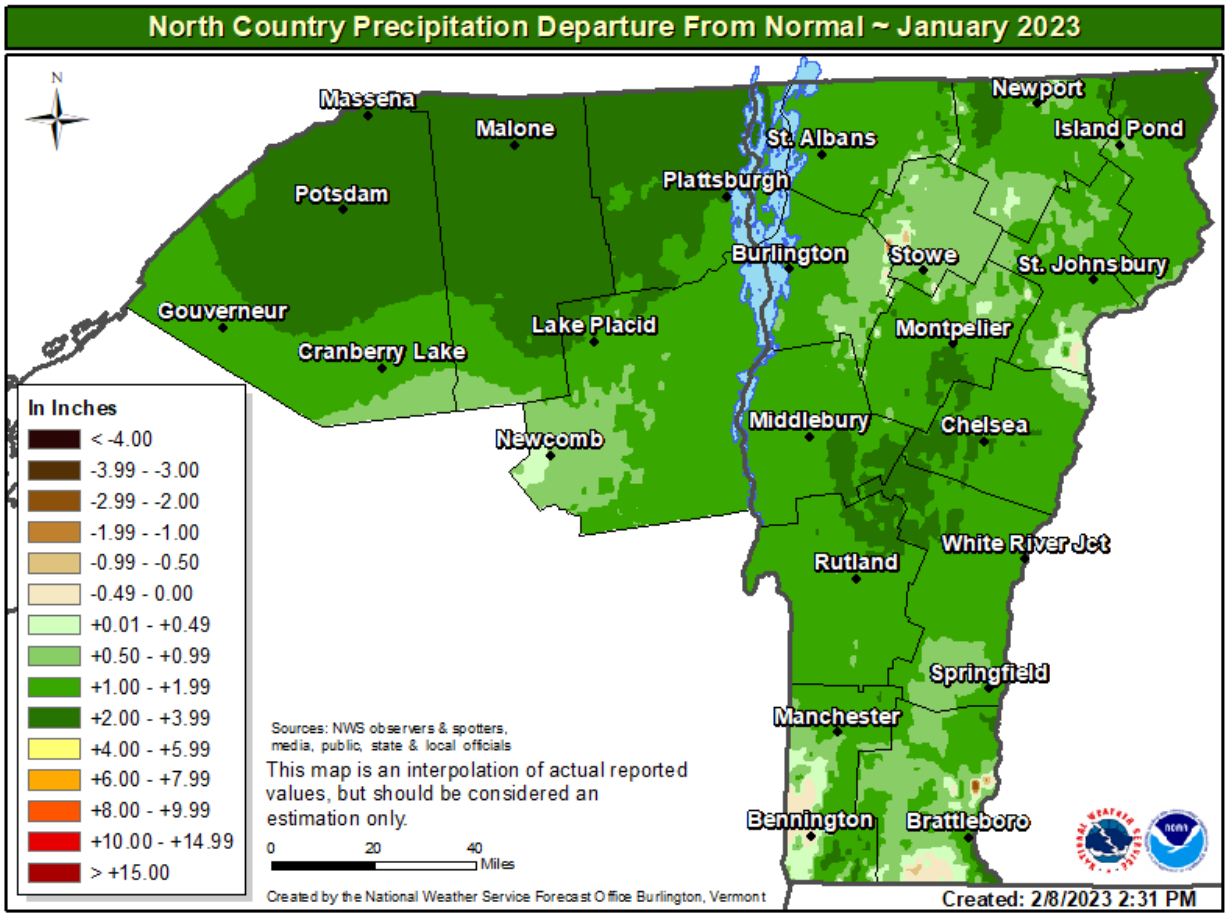

Figure 2: Monthly precipitation departures from normal for January 2023 across the NWS Burlington, VT forecast area. Positive departures averaged from 0.5 to 2.5 inches with some natural variability.

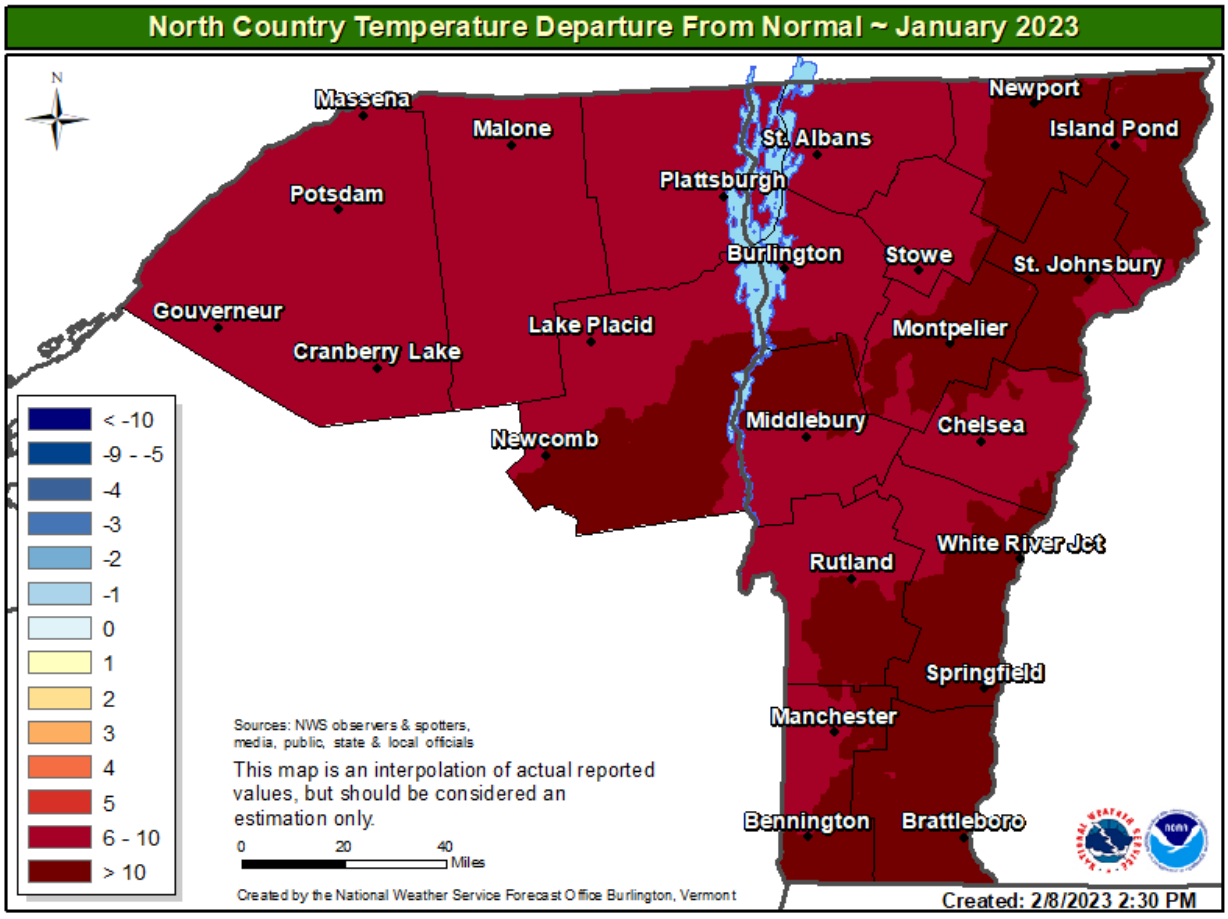

Figure 3: Monthly temperature departures from normal for January 2023 for the NWS Burlington, VT forecast area. Values ran 8 to 11 degrees above normal for the month, with some observation sites recording their top ten warmest Januaries on record, including Burlington, VT.

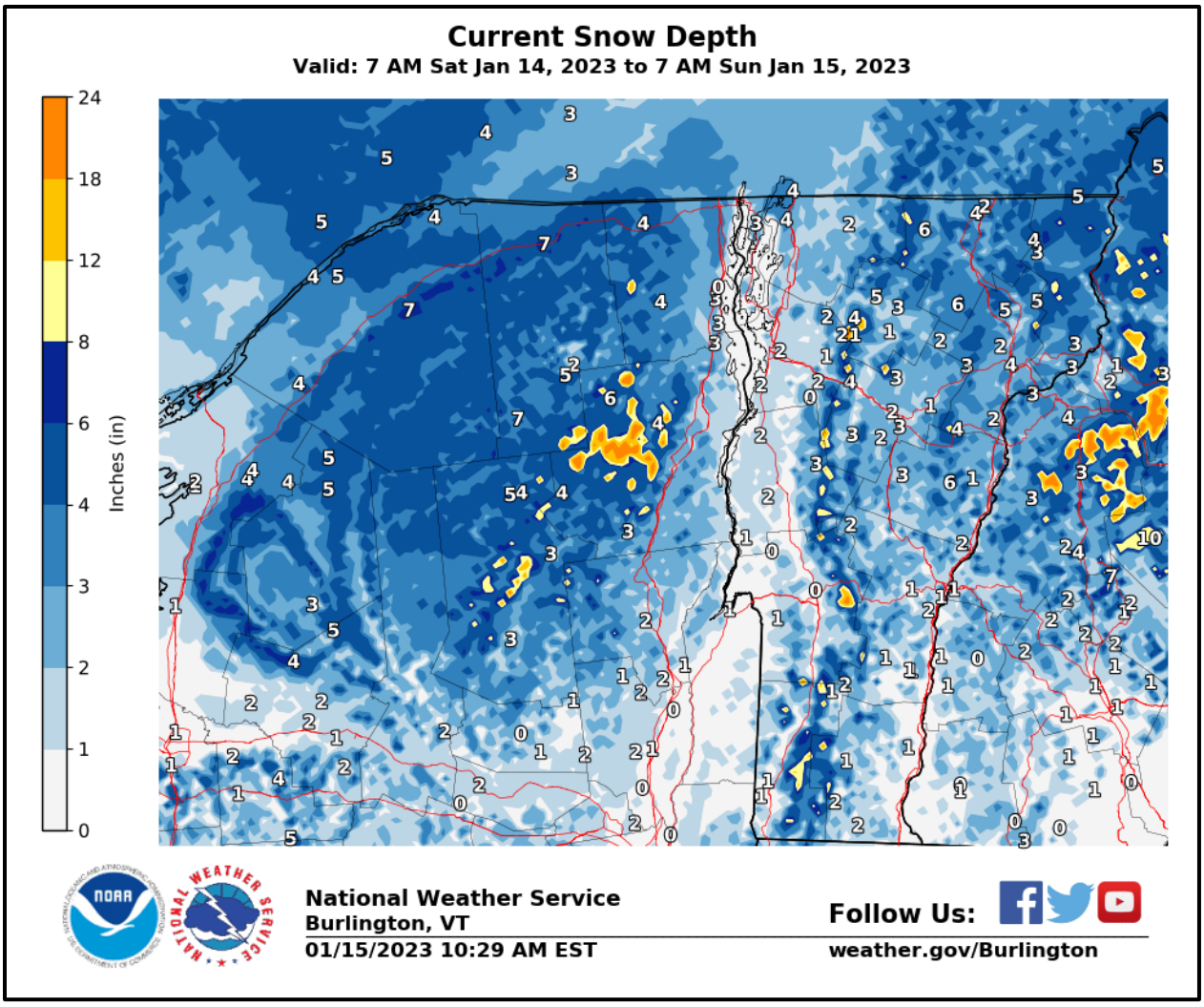

Figure 4: Snow depth map from January 15, 2023 showing anomalously low values across the NWS Burlington HSA. Many observation sites reported less than six inches on the ground with the highest summits reporting less than two feet.

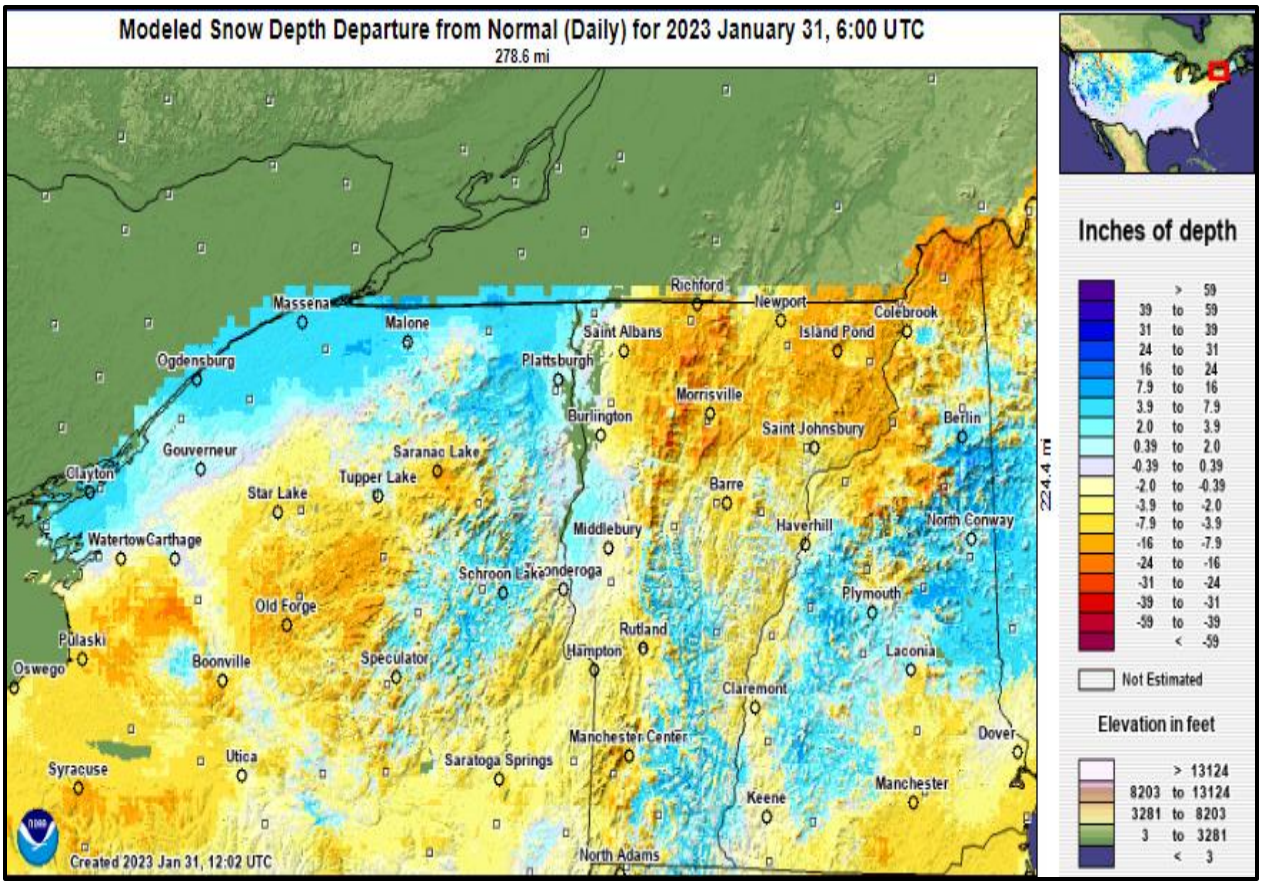

Figure 5: Modeled snow depth departure from normal for January 31, 2023 at 0600 UTC (courtesy the National Hydrologic Remote Sensing Center). Note the large negative departures across much of central and northern Vermont, as well as portions of the Adirondack Mountains in northern New York.

Figure 6: A largely ice free channel is observed on the Passumpsic River at its confluence with the Moose River in St. Johnsbury, VT during river ice surveys performed by NWS Burlington, VT on January 23, 2023. River ice coverage and thickness was minimal across much of the HSA during January due to anomalous warmth.