

<b>NWS Form E-5</b> (04-2006) (PRES. BY NWS Instruction 10-924)	<b>U.S. DEPARTMENT OF COMMERCE</b> <b>NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION</b> <b>NATIONAL WEATHER SERVICE</b>	HYDROLOGIC SERVICE AREA (HSA) Burlington VT	
		REPORT FOR: MONTH            YEAR January            2018	
<b>MONTHLY REPORT OF HYDROLOGIC CONDITIONS</b>  TO: Hydrologic Information Center, W/OS31 NOAA's National Weather Service 1325 East West Highway Silver Spring, MD 20910-3283		SIGNATURE /s/ Maureen Hastings	
		DATE February 12, 2018	

*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.

January 2018 was an active month with wide swings in temperature. Thus the area experienced a range of precipitation types along with substantial snowmelt. This in turn led to ice breakup on area rivers, several of which experienced ice jams and associated flooding, mainly January 12<sup>th</sup> through the 13<sup>th</sup>.

The month started out very cold, a continuation of the arctic outbreak at the end of December 2017. Although temperatures warmed briefly the 2<sup>nd</sup> through the 4<sup>th</sup>, they still remained below normal. The coldest day of the month was the 6<sup>th</sup>, when temperatures stayed below zero across the much of the North Country. This combined with the cold conditions in December lead to rapidly strengthening river ice and likely a lot of frazil development in those waterways that had open stretches. As such, river ice thickness was highly variable across the region as we headed into the 2<sup>nd</sup> week of the month.

The most significant event of the month occurred shortly thereafter, when warm and moist air rushed northward ahead of a slow cold front. Waves of low pressure rode up along the cold front, resulting in rounds of precipitation the 10<sup>th</sup> through the 13<sup>th</sup>. Temperatures warmed significantly through this period; highs on the 11<sup>th</sup> hit the mid 40s to around 50. The 12<sup>th</sup> was even warmer with many locations sky rocketing to around 60. Unfortunately, this warmth coincided with the heaviest precipitation, which in turn fell mostly as rain. Significant snowmelt also occurred, with a widespread 2-4 inches of snow-water equivalent being released from the snowpack.

All of these parameters – plentiful and strong river ice, copious snowmelt, and heavy rainfall – all combined to produce flooding along many waterways as river ice broke and jammed up. Some of the affected rivers included but were not limited to: the Ausable, the Winooski, the Missisquoi, and the Lamoille. The river gage on the Ausable River at Ausable Forks rose 7.75 ft in 14 minutes when an ice jam formed there and rose over 11 ft in total. Significant flooding occurred in Plattsburgh when an ice jam formed on the Saranac River; evacuations took place when a mobile home park was inundated, with 50 homes damaged or destroyed. Another ice jam on the Lamoille River caused flooding in Johnson, mainly due to the Gihorn River overflowing as it encountered the jam's backwater on the Lamoille. Evacuations were also needed in this instance. An ice jam that was several miles long also formed on the Missisquoi, which caused some flooding along Route 78 in Swanton. Numerous other ice jams formed across the North Country during this event.

Temperatures dropped sharply following the cold frontal passage on the evening of the 12<sup>th</sup>. Runoff into area waterways diminished as rain turned to snow and snowmelt ended. River flows subsided, allowing remaining ice jams to settle. The ice then quickly froze in place as temperatures dipped back below zero. Several of these jams remain in place as of this writing, and these locations will have to be monitored closely as they will likely serve as the focus for more flooding later this spring.

The see-saw temperatures and active pattern continued through the remainder of the month, though nothing as drastic as what occurred on the 12<sup>th</sup> and 13<sup>th</sup>. Overall river flows remained steady or subsided slightly through

the last half of January, although some minor rises were noted around the 24<sup>th</sup> due to a little rain and snowmelt. River ice has become reestablished along some stretches

Given the periods of melt – particularly in the middle of the month – river flows averaged above to much above normal through the month.

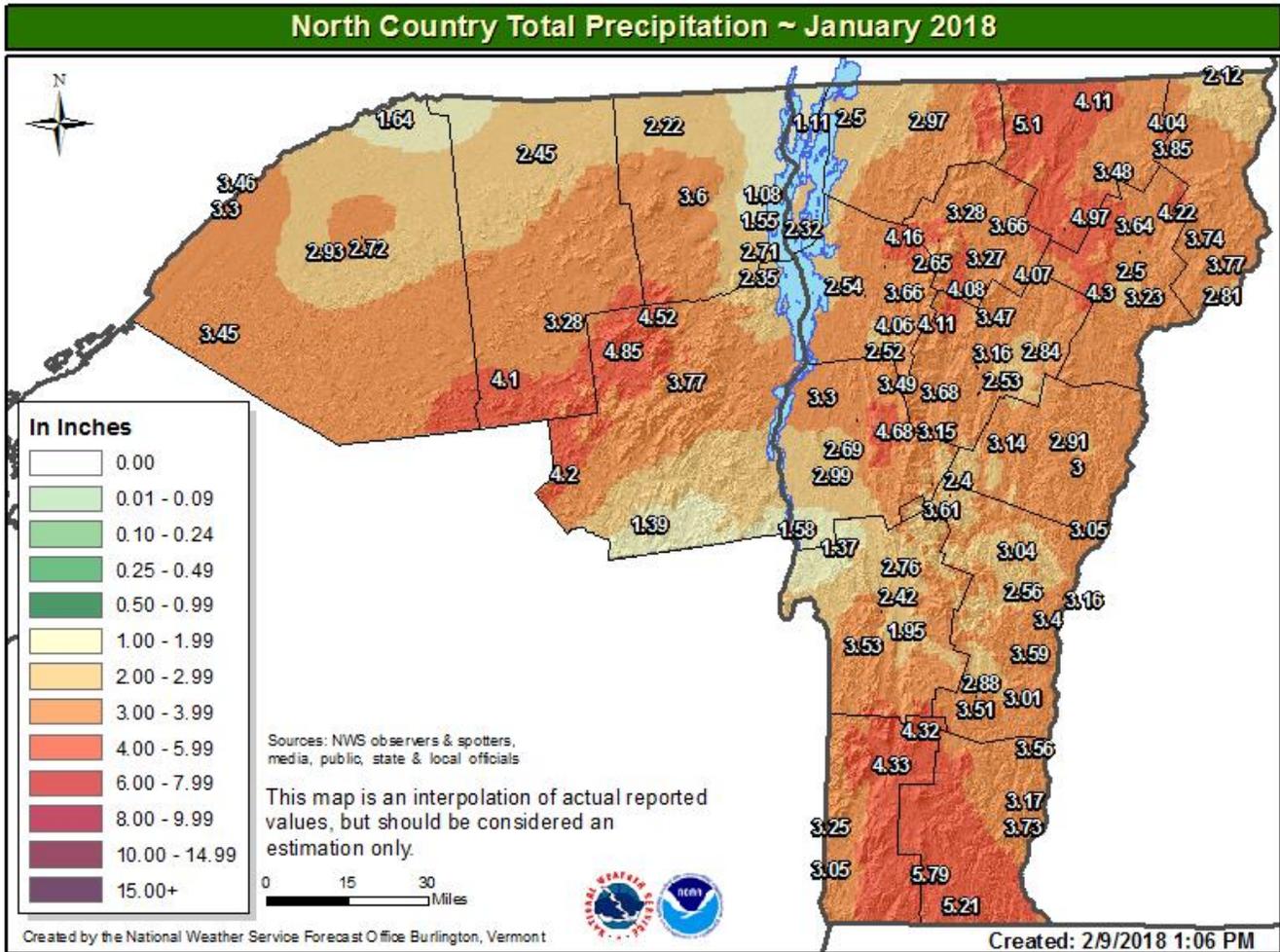


Figure 1: Monthly precipitation for January 2018. Totals generally ranged from 2 to 4 inches across the North Country. Lowest totals were east of the Greens, and highest totals in the favored lake effect zones in northern New York.

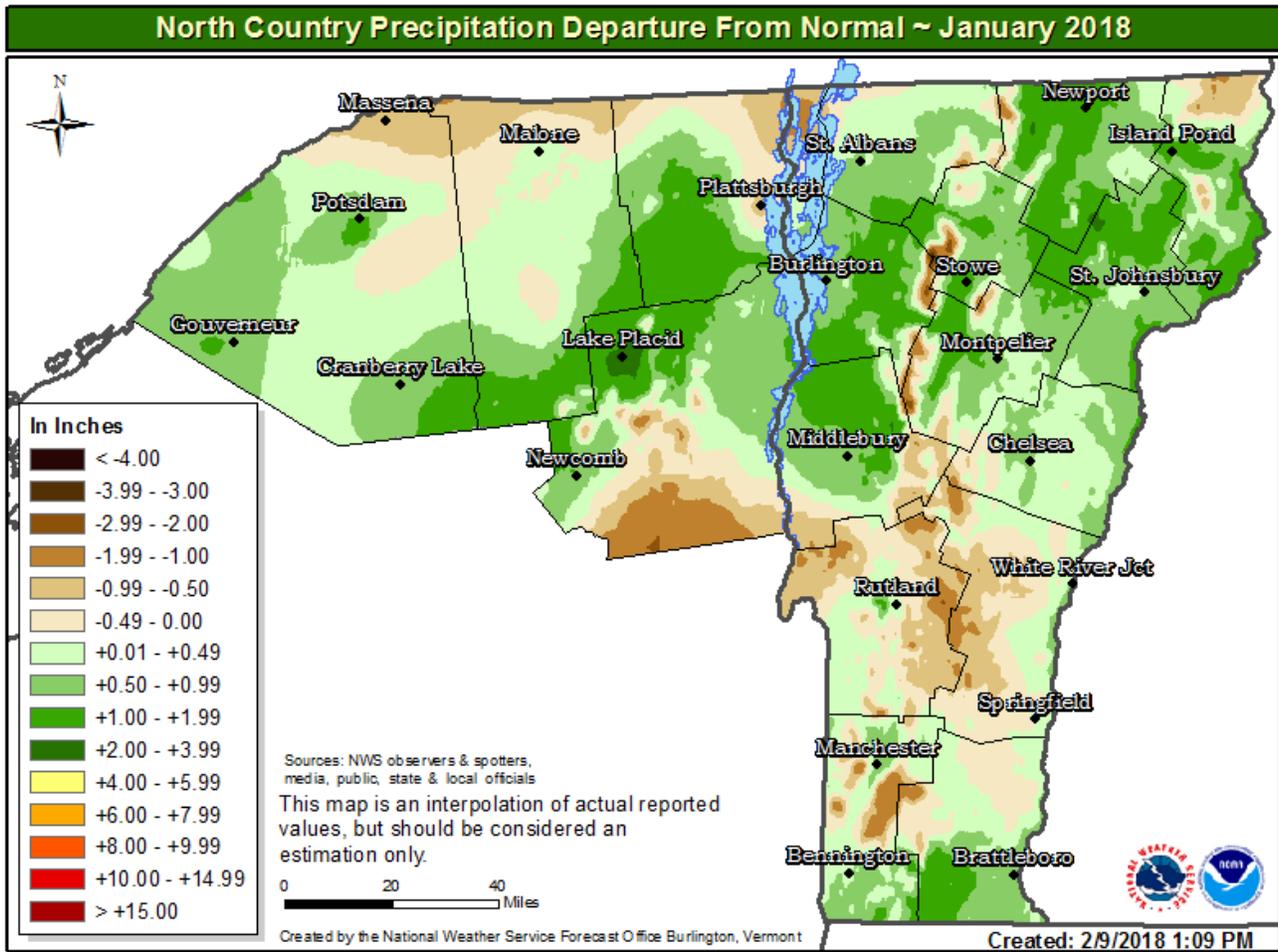


Figure 2: Monthly precipitation departure from normal for January 2018 for the Burlington, VT HSA. Negative departures of 0.50 to 1.50 inches were noted in Vermont east of the Green Mountains. Positive departures of 0.50 to 2.50 inches were observed in the western slopes of the Greens in Vermont and in the northern slopes of the Adirondacks and the lake effect regions of northern New York.

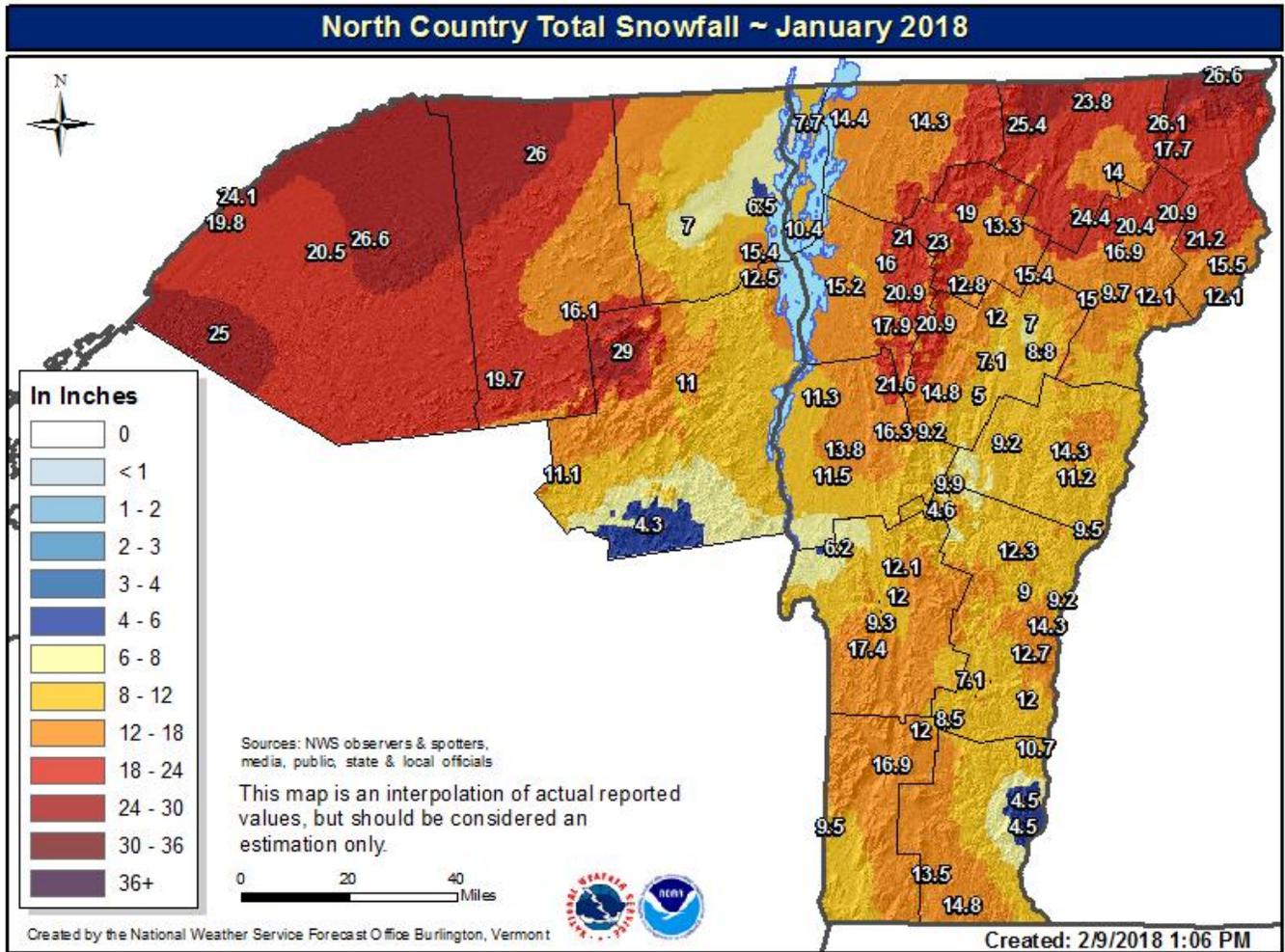


Figure 3: Total monthly snowfall for January 2018. Snow totals were highest across the north, where 20-26 inches were common. Amounts were slightly less further south and in the Champlain Valley, mainly 10 to 18 inches.

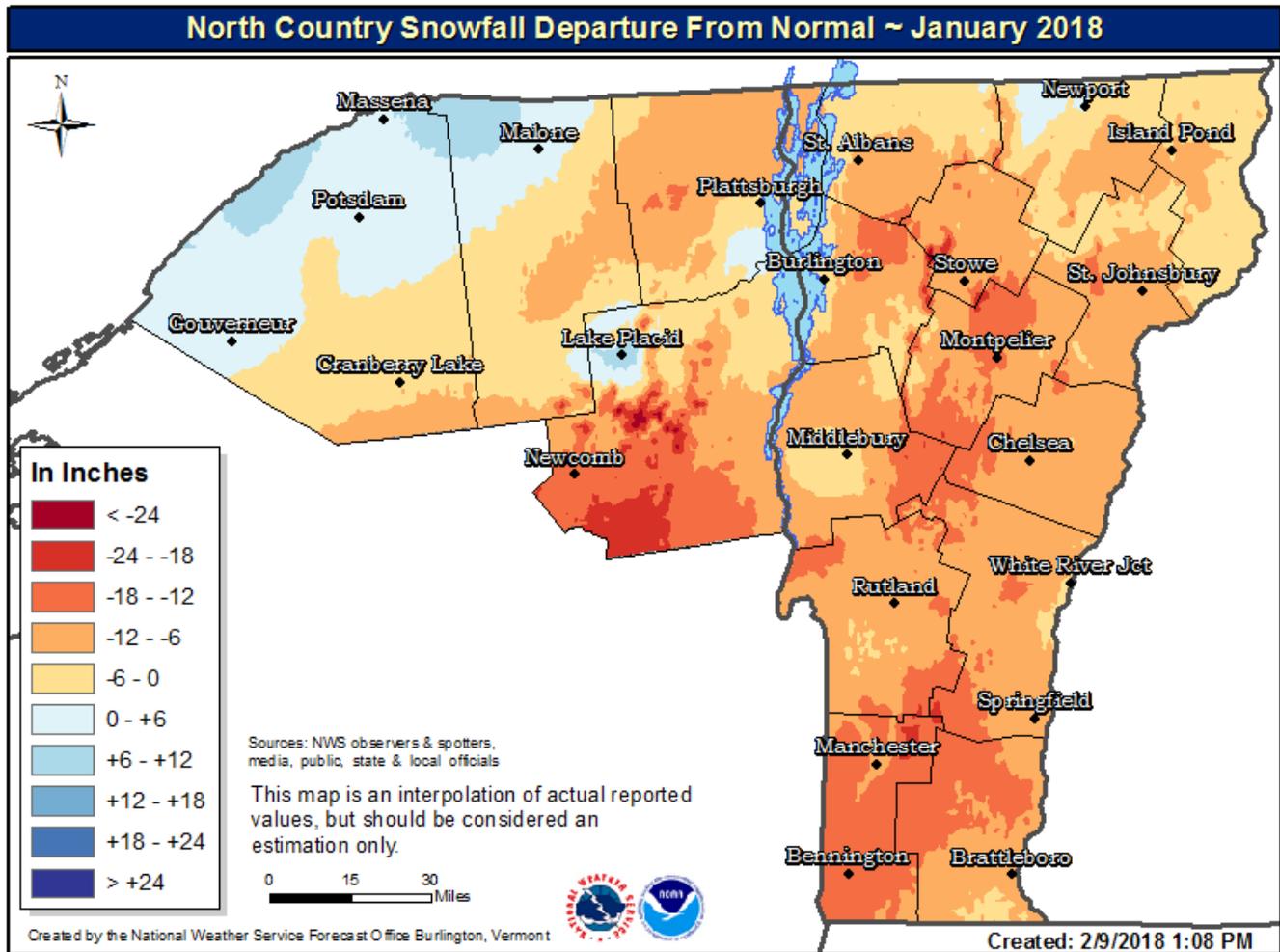


Figure 4: Monthly snowfall departure from normal for January 2018. Most of the area received below normal snowfall for the month, with just the St Lawrence River Valley in New York seeing above normal snow.

### Current Reported Ice Jams as of 2/1/2018 12:55 PM

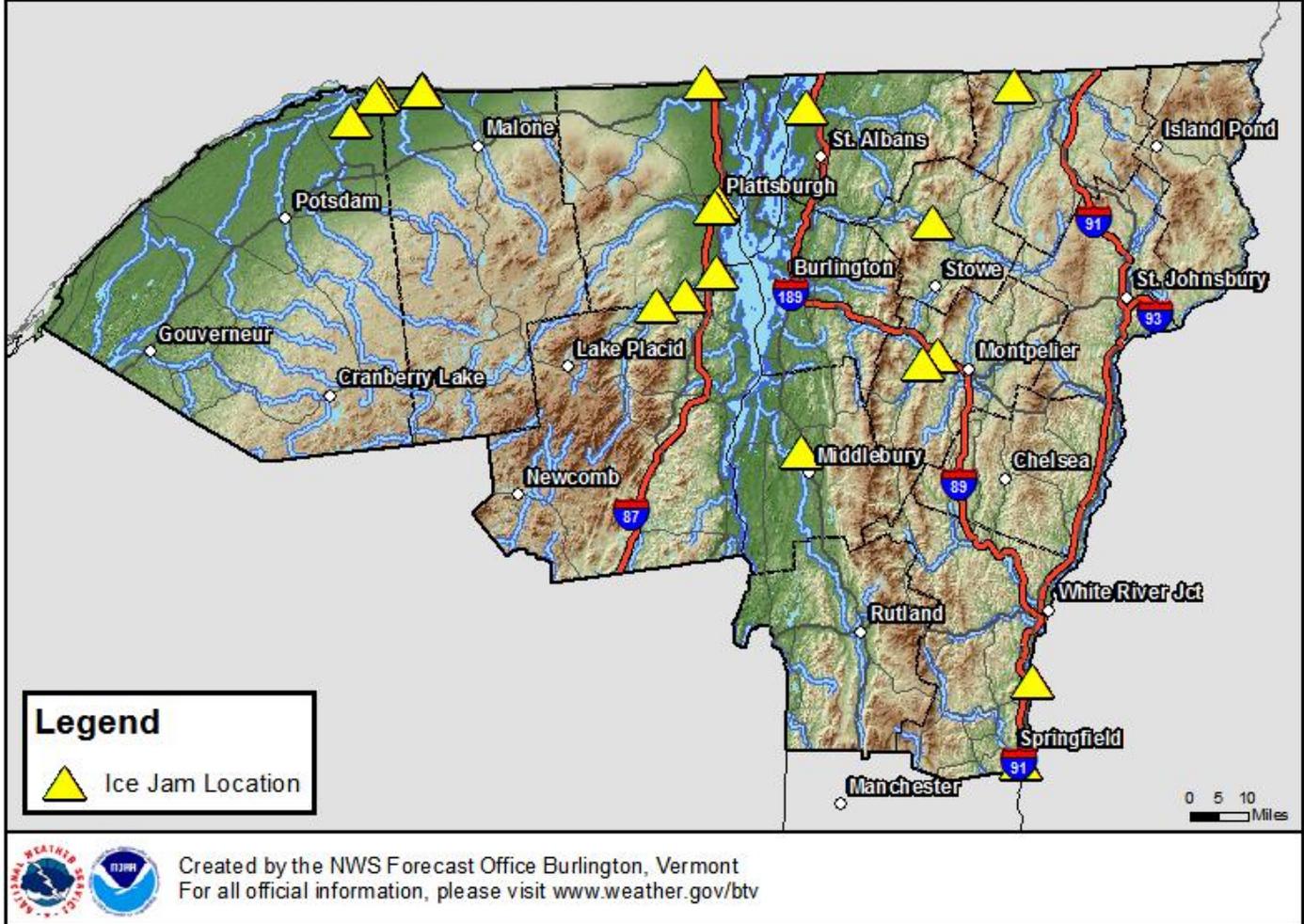


Figure 5: Ice jams still in place as of February 1, 2018. With river flows dropping through the month, many of these jams have settled in place and will likely cause issues in the spring.

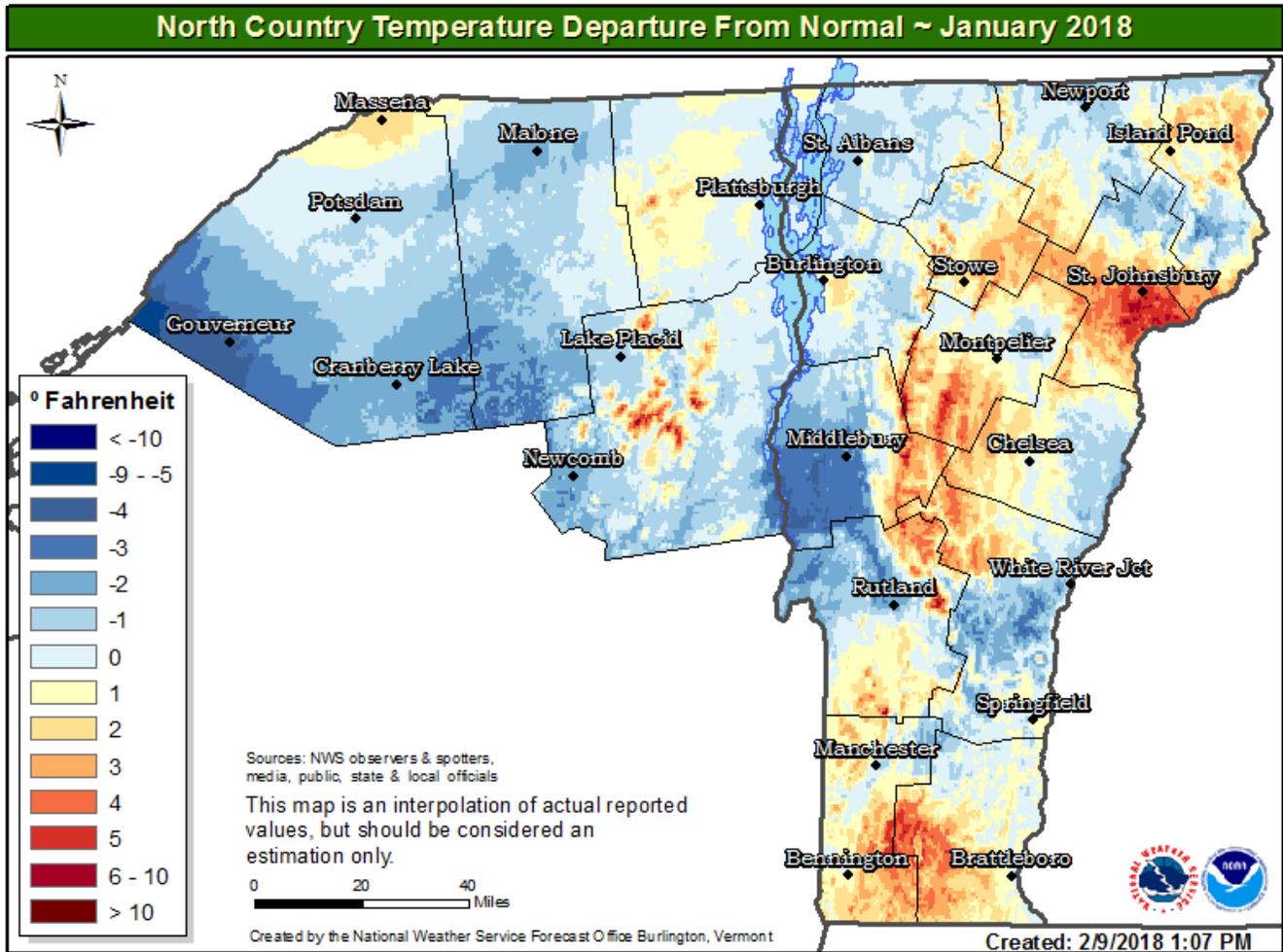
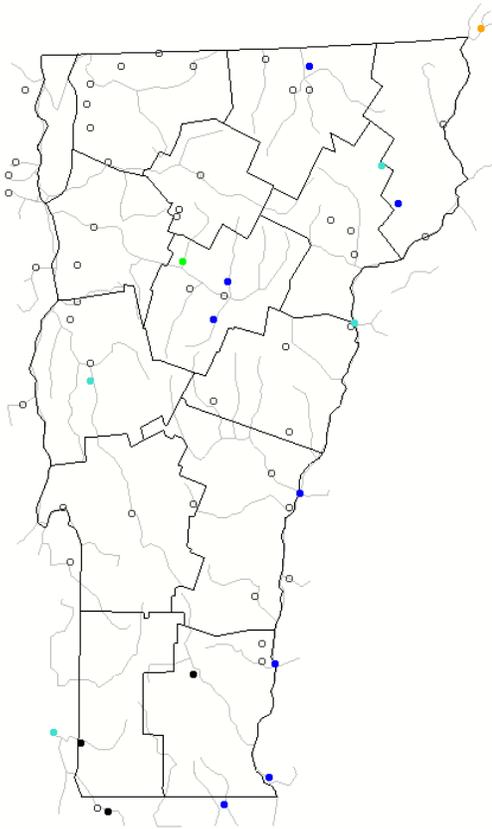
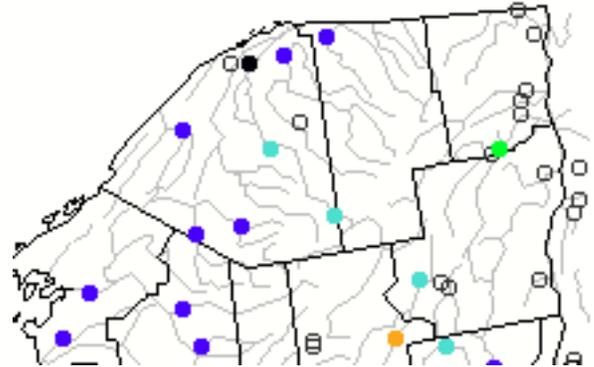


Figure 6: Average temperature departure from normal for January 2018. Overall the region averaged around normal with some locations warmer and others cooler.

January 2018



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Explanation - Percentile classes							
●	●	●	●	●	●	●	○
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

Figure 7: January 2018 Monthly Average Streamflow for Northern New York and Vermont, overall above to well above normal conditions.