



Vermont State Climate Office
Climate Impacts Summary
December 2010

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December 2010 was marked by a number of severe events including wind damage, large snowfalls towards month's end and a number of daily record maxima.

Section 1: Strong winds

During the morning and afternoon of December 1st very strong winds preceded a storm system that tracked up the St Lawrence Valley (after having wreaked havoc along the eastern seaboard as far south as the Carolinas). Winds in western Vermont were generally between 45 and 75mph, with the strongest winds along the western slopes and foothills of the Green Mountains. In the easternmost portions of western Vermont, the town of Cambridge reported 90 mph winds, while at the summit of Mt Mansfield 103 mph winds were recorded. Elsewhere, strong winds ranged from 35 to 60 mph across northeast Vermont and 30-45 mph across the southeast Vermont. Trees and power lines were blown down across many areas in western Vermont and portions of northeast Vermont, where up to 40,000 residents were without power for three days. Northern Vermont was also hard hit with over 12,500 Vermont Electric Co-op (based in Johnson) and 400 of Morrisville Water and Light's 4,000 customers experiencing power losses of 1-2 days. The area between the towns of Jericho and Jeffersonville was especially hard hit with downed trees blocking roads, making power restoration especially difficult in those areas through December 6th. Several roads were totally blocked for up to 3 days in Jericho. State Route 2 was closed in the Richmond area during portions of the afternoon of December 1st due to downed power lines. Roof damage to barns and mobile homes was reported in several towns along the western slopes of the Green Mountains (e.g. Hinesburg, Williston).

The highest wind gusts across Vermont are summarized on Table 1. The western part of the state saw strong winds between 45 and 80 mph, with the strongest winds along the western slopes and foothills of the Green Mountains. In the easternmost portions of western Vermont, the town of Cambridge reported 90 mph winds, while at the summit of Mt Mansfield 103 mph winds were recorded. Elsewhere, maximum wind gusts ranged from 35 to 60 mph across northeast Vermont and 25-45 mph across the southeast Vermont.

Table 1: Maximum wind gusts observed across Vermont on 1 December 2010

CLIMATE DIVISION	STATION (COUNTY)	MAXIMUM WIND GUST (mph)
1 (Northeast)	Mt. Mansfield (Lamoille)	103
	Walden (Caledonia)	50
	Newport (Orleans)	47
	Barre-Montpelier airport ASOS (Washington)	36
2 (Western)	Hanksville (Chittenden)	73
	Burlington Airport ASOS (Chittenden)	53
	Cambridge (Lamoille)	90
	Monkton (Addison)	60
	Sheldon Springs (Franklin)	62
	Rutland airport AWOS (Rutland)	51
	Bennington airport ASOS (Bennington)	54
3 (Southeast)	Springfield airport ASOS (Windsor)	26

Section 2: Snowfall highlights

After below average snowfall in November, a number of daily snowfall records were broken across the southern third of the state on December 27th, as a coastal storm tracked just east of Cape Cod, MA. Two-day snowfall totals (December 27-28) were greatest across the southern counties of Bennington and Windham where 18-26 inches were reported; southeastern two thirds of Windsor county, extreme southern Rutland county and extreme southeast Orange where between 10 and 18 inches were reported. Figure 1 highlights the regional nature of this storm with much lower snowfalls in northern Vermont (3-6 inches), and the lowest accumulations in northwest Vermont.

Prior to this event, other snowy periods were also observed in December. During the period of December 5th through the 8th, an offshore low pressure system moved westward across northern Maine and into Québec. The resulting moisture influx and northwesterly airflow produced orographic snowfall from the 6th through the 8th. Snowfall accumulations of 4-7 inches occurred across northwest Vermont, while 8 -16 inches were reported in the Green Mountains due to upslope flow. A number of vehicular accidents and incidences of cars that rolled over were reported across the state. Some of these were serious including a “tanker truck with 18,000 pounds of a blasting agent” that rolled over in Sheffield (Burlington Free Press).

	Essex Junction 1N	7.6	14
	Hanksville	14.2	7
	Sunderland 2	19.0	27
	Pownal 1NE	20.0	27
	Pownal 1NE	6.0	28
3 (Southeast)	North Hartland Lake	11.0	27
	North Springfield Lake	12.0	27
	Union Village Dam	11.8	27
	Cavendish	12.0	27
	Ball Mountain Lake	18.0	27 (tie)

Section 3: Other precipitation and temperature records

Record snowfalls were not the only precipitation totals broken in December. On the 2nd and 13th, as the aforementioned storms (Sections 1 and 2) moved across the state, liquid precipitation records were also set as summarized on Table 3.

Table 3: Daily liquid precipitation records set in December 2010

CLIMATE DIVISION	STATION	DECEMBER 2 (in)	DECEMBER 13 (in)	DECEMBER 14 (in)
1 (Northeast)	Brookfield 2WSW	1.01	1.31	
	Chelsea 2NW		1.02	
	Corinth	1.36	1.58	0.69
	Eden 2S	0.98	1.29	
	Jay Peak		1.43	
	Montpelier 2		0.96	
	Sutton	1.42	1.18	
	Waitsfield 2W		1.62 (tie)	
	Worcester 2W		1.04	
	Island Pond	1.14		

2 (Western)	Danby 4 Corners		1.07	
	Essex Junction 1N		1.08	
	Hanksville		1.21	
	Pownal 1NE	1.25	1.33	
3 (Southeast)	Cavendish	1.87	2.17	
	North Hartland Lake	0.98	1.00 (tie)	
	North Springfield Lake	1.90	2.21	
	Ball Mountain Lake	1.71		

On the same dates, record warmth was also noted across eastern Vermont, where daily high temperature records were either set or tied (Table 4). A cold front moved through on the 13th leaving in its wake snowy and icy roads which resulted in a number of vehicular accidents in Chittenden County especially along US Route 7 in South Burlington and Vermont Route 15 in Essex. Conversely, daily record low temperatures were set in western Vermont on the 10th (-10°F at Hanksville and -8°F at Danby 4 corners).

Table 4: Daily maximum temperature records set in December 2010

CLIMATE DIVISION	STATION	DECEMBER 2 (°F)	DECEMBER 13 (°F)	DECEMBER 14 (°F)
1 (Northeast)	Brookfield 2 WSW		45	
	Chelsea 2NW		50	
	Corinth	45	49	46
	East Haven			50
	Montpelier 2	52		
	Sutton		47	
3 (Southeast)	North Hartland Lake			
	North Springfield Lake			
	Union Village Dam			