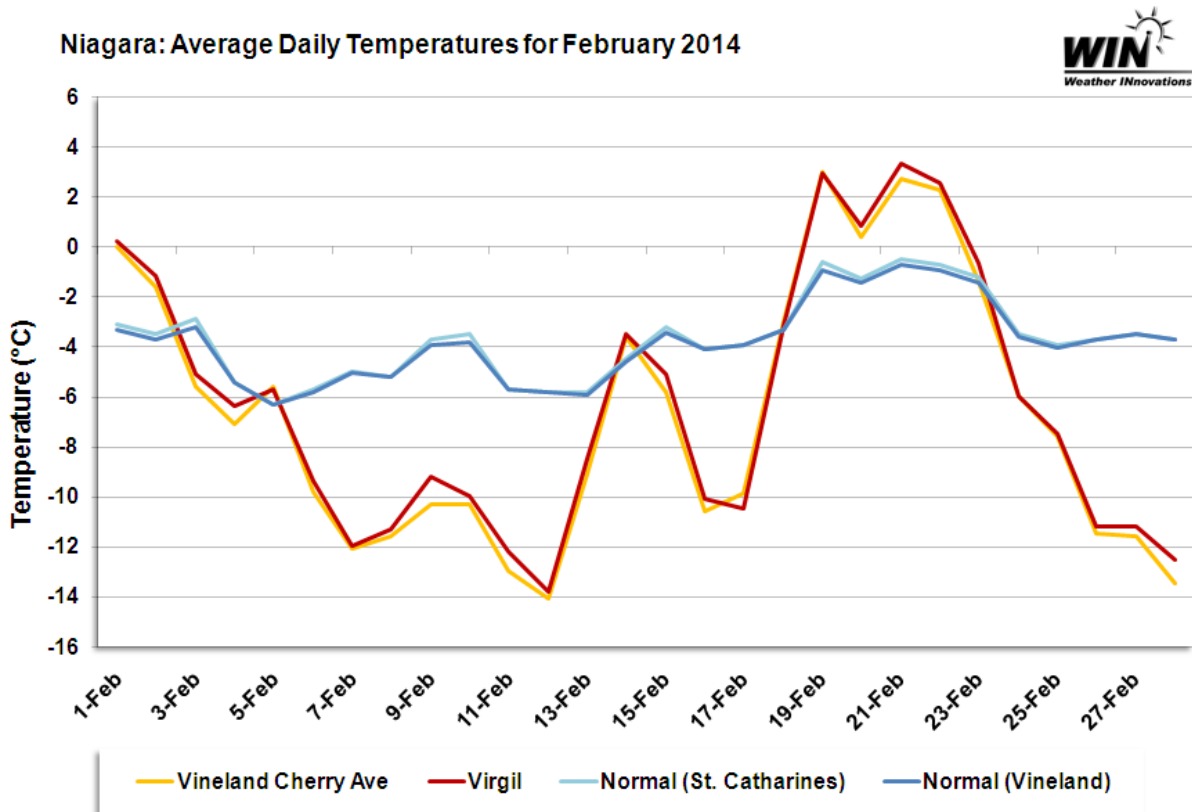


Overview

The colder-than-normal temperatures experienced this winter continued into February 2014. Average temperatures were -7.1°C in the west and -6.4°C in the east. Accordingly, the average monthly temperature in the west was 3.5°C below the normal daily mean in the west and 2.8°C below the normal daily mean in the east (compared to 0.2°C below normal in the west and 0.2°C above normal in the east in February 2013). These statistics are based on Environment Canada's 30-year normals. This summary illustrates February 2014 temperatures, inversion temperatures and icewine hours. For this report, icewine hours are defined as instances when the average hourly temperature ranged between -8.0°C and -12.0°C , inclusive.



Temperature Analysis

The monthly minimum temperatures for each site in February 2014 ranged from -18.8°C at the NOTL Irvine Road station to -29.7°C at the Grimsby station (compared to -12.9°C at both the Beamsville and Lincoln Hwy 8 stations to -23°C at the Grimsby station in 2013). The monthly minimum temperatures occurred on the 12th and 17th. Note that there were a significantly greater-than-normal number of days when the minimum temperature was below -10°C and -20°C . There were 19 days (compared to 18 days in February 2013) when temperatures at one or more stations, dipped into icewine temperature ranges. These temperature characteristics are shown in the following figures.

Niagara West: February 2014 Daily Minimums

Date	Winona	Grimsby	West Lincoln	Lincoln Fly Road	Beamsville	Lincoln Hwy 8	Lincoln Lakeshore	Vineland Cherry Ave.	Vineland Escarpment	Jordan Escarpment	Jordan Hwy 8	Jordan Harbour	Rockway
1-Feb	-2.1	-3.9	-4.2	-3.5	-2.8	-2.6	-2.4	-2.7	-3.2	-3.8	-3.2	-2.8	-3.9
2-Feb	-6.5	-7.1	-6.6	-6.8	-6.4	-6.5	-4.8	-5.5	-6.1	-5.9	-5.2	-5.4	-5.6
3-Feb	-11.6	-12.2	-10.2	-11.3	-11.2	-10.2	-9.4	-9.4	-9.8	-10.9	-9.7	-10	-9.9
4-Feb	-12.8	-14.8	-12.6	-13.1	-13.2	-12.2	-11.1	-12.3	-12.1	-12.7	-12.2	-12	-12.3
5-Feb	-10.4	-11.6	-11.4	-11	-10.2	-10.2	-8.9	-9.6	-10.6	-10.6	-9.7	-10.2	-9.7
6-Feb	-18.5	-24.3	-20.1	-17.1	-17.4	-17.5	-14.8	-20.3	-17	-18.3	-15.9	-15.4	-16.2
7-Feb	-13.8	-14.9	-14.5	-14.4	-13.7	-13.9	-13.4	-13.2	-13.9	-14.1	-13	-13.7	-13.6
8-Feb	-16.1	-19.1	-18.2	-16.8	-16.1	-15.9	-17.3	-18.5	-16.6	-16.6	-19.8	-16.6	-20.2
9-Feb	-15.5	-21.1	-16.2	-14.8	-14	-14.4	-15.2	-18.5	-15	-17.1	-16.4	-15.2	-17.6
10-Feb	-13.6	-16.7	-17.2	-15.4	-13.6	-13.7	-12.8	-13.1	-14.7	-16.7	-14	-13.5	-14.8
11-Feb	-20.8	-28.5	-21.7	-19.1	-19.5	-20.7	-18.4	-23.3	-19.3	-23.1	-20.2	-20.2	-19.7
12-Feb	-21.2	-29.7	-23.4	-20.1	-19.4	-21	-19.7	-24.6	-20.5	-24	-21.8	-22.4	-20.5
13-Feb	-17.7	-23	-19.5	-17.1	-16.4	-16.4	-18.1	-19.4	-16.2	-19.5	-17.9	-19	-18.4
14-Feb	-5.9	-8	-7.8	-7	-5.8	-6.1	-5.2	-5.3	-6.3	-6.4	-5.5	-5.6	-5.9
15-Feb	-14.2	-15.2	-15.3	-14.7	-13.6	-13.3	-11.7	-12.5	-13.5	-13.3	-11.7	-12	-12.4
16-Feb	-16.3	-22.2	-19	-17.7	-16.9	-15.9	-15.3	-16.6	-16.8	-18.1	-15.9	-15.8	-16.2
17-Feb	-21.2	-27	-23.3	-19.1	-19.1	-19	-18.6	-23.3	-20.4	-24.4	-20.6	-22.1	-21
18-Feb	-6.1	-6.4	-5.6	-5.4	-5.2	-5.6	-4.8	-5.5	-5.4	-5.6	-5.5	-6	-6.1
19-Feb	-5	-3.9	-4.6	-3.7	-2.9	-2.4	-4.1	-4.9	-3.3	-4.5	-4.8	-4.6	-4.5
20-Feb	-2	-3.9	-4.4	-2.9	-2	-2.2	-1.2	-1.2	-2.3	-2.8	-1.5	-1.6	-1.9
21-Feb	0.4	0.2	0.4	0.4	1	0.6	1.1	0.9	0.7	0.9	1.2	0.8	0.8
22-Feb	0.8	0	0	0.1	0.8	0.7	1.3	1.2	0.6	0.7	1.3	1	0.6
23-Feb	-5.2	-6.3	-6	-6.1	-5.3	-5.4	-4.3	-5.7	-5.4	-5.5	-5.5	-4.9	-6.3
24-Feb	-7.9	-8.7	-8.4	-8.5	-7.9	-8.1	-7.1	-7.4	-8	-8	-7.2	-7.6	-7.9
25-Feb	-10.5	-11.4	-10.9	-11	-10.4	-10.6	-9.5	-9.8	-10.5	-10.4	-9.5	-10	-10.1
26-Feb	-15.1	-16.1	-15.7	-15.8	-15.2	-15.3	-14.1	-14.7	-15.4	-15.3	-14.3	-14.7	-15
27-Feb	-16.4	-17.4	-17.2	-17.2	-16.5	-16.6	-14.2	-15.4	-16.4	-16.6	-15.5	-15	-16.2
28-Feb	-19	-20.2	-19.9	-19.8	-18.9	-18.8	-17	-17.6	-18.9	-19.2	-17.8	-17.5	-18.5

Legend:

	Days with Ice Wine Temperatures
	Monthly Minimum

Niagara East: February 2014 Daily Minimums

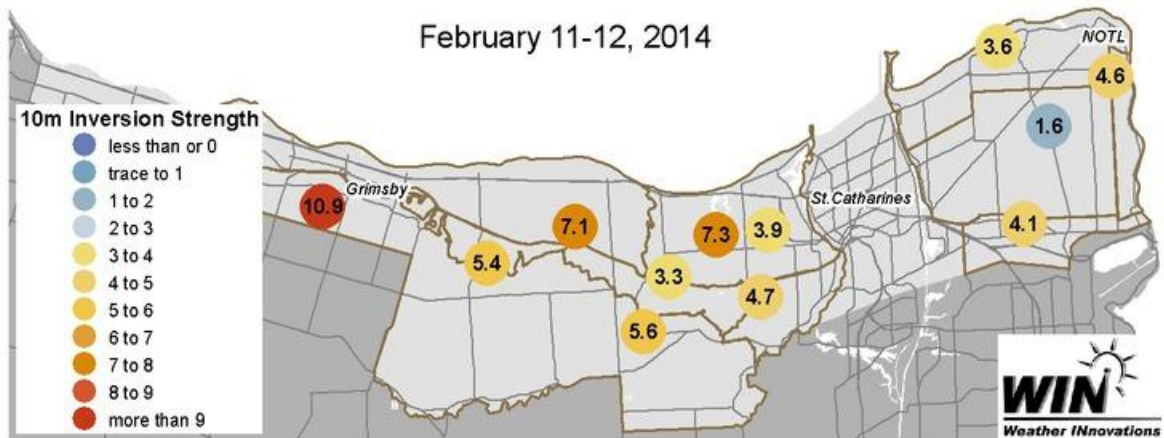
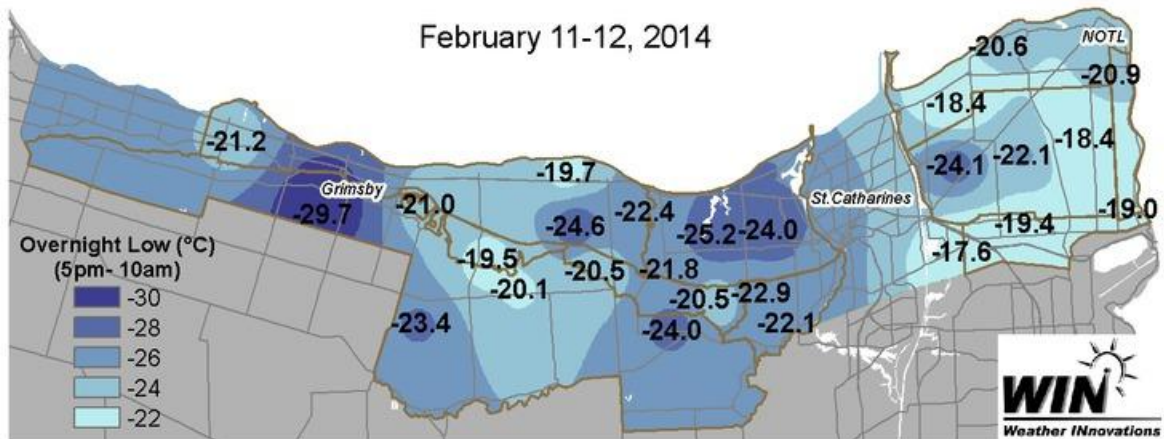
Date	St. Catharines Glass Ave	St. Catharines Third Ave	West St. Catharines Fifth St	Niagara College	St. David's Bench	Niagara Airport	Virgil	Virgil East	NOTL Irvine Road	Lakeshore	Parkway	Queenston	
1-Feb	-2.9	-3.7	-3.7	-3.2	-2.6	-3.2	-3.3	-3.2	-3.6	-3.2	-3	-3	-3.2
2-Feb	-4.8	-5.1	-5.4	-5.1	-4.6	-4.9	-4.5	-4.2	-4.3	-4.4	-4.3	-4.2	-4.5
3-Feb	-10.7	-11.4	-10.7	-10.7	-9.3	-10.2	-9	-8.3	-8.6	-8.5	-8.6	-8.2	-9.8
4-Feb	-12.1	-13.1	-12.6	-13	-10.9	-11.8	-10.8	-10.4	-10.9	-10.8	-10.6	-9.7	-12.2
5-Feb	-9	-9.3	-9.6	-10	-9.1	-10.1	-10.2	-9.6	-9.4	-9.5	-9.2	-8.9	-10.1
6-Feb	-15.4	-17.7	-17.8	-16.1	-15.4	-14.6	-14.2	-15.2	-14.5	-13.7	-13.4	-13	-15.3
7-Feb	-13	-13.7	-13.7	-13.4	-13.5	-13.2	-13.4	-13.1	-13.1	-13.2	-13.2	-13.1	-13.1
8-Feb	-17.3	-17.2	-19.8	-18.4	-17.2	-17.7	-16.2	-17	-17.3	-15.4	-15.2	-15.2	-16.3
9-Feb	-16.5	-16.8	-17	-15.7	-12.7	-12.4	-13.8	-12.5	-12	-12.3	-11.7	-11.4	-12.1
10-Feb	-16.4	-17.1	-14.7	-14.8	-14.2	-14.1	-15	-13.5	-13.2	-12.6	-12.3	-12.4	-12.6
11-Feb	-22.4	-21.7	-20.8	-20.9	-17.4	-16.9	-17.8	-19.9	-18.4	-16.4	-17	-15.8	-15.6
12-Feb	-25.2	-24	-22.9	-22.1	-17.6	-19.4	-24.1	-22.1	-18.9	-18.4	-20.6	-20.9	-19
13-Feb	-20.8	-19.3	-18	-17.8	-16	-17.3	-18.5	-17.7	-16.9	-16.7	-18.8	-17.6	-15.7
14-Feb	-5.2	-5.8	-5.9	-5.9	-5.2	-5.3	-5.2	-4.9	-5	-4.8	-4.7	-4.9	-5.7
15-Feb	-11.5	-11.7	-12.3	-11.7	-11.4	-11.4	-11.2	-10.7	-10.7	-9.6	-9.5	-9.4	-10.8
16-Feb	-15.7	-17.2	-16.8	-15.1	-14	-13.7	-13	-12.6	-12.8	-12.6	-12.5	-12.5	-13.4
17-Feb	-23.1	-22.4	-23	-20.2	-20.4	-20.3	-21.2	-22.5	-18.4	-18.8	-19.2	-20.4	-20.7
18-Feb	-6.7	-6.8	-5.6	-5.3	-4.8	-5.7	-7.4	-6.7	-5.8	-6.7	-6.3	-7.3	-4.5
19-Feb	-4.1	-4.3	-3.9	-3.1	-1.1	-3.5	-4.6	-3.7	-4.1	-4.9	-4.7	-4.4	-2.8
20-Feb	-1.3	-2.2	-1.7	-1.3	-1.6	-1.9	-1.9	-1.9	-2	-2	-2.5	-2.5	-1.3
21-Feb	1.4	1.1	0.8	1.1	1.4	1.3	1.2	1.6	1.5	1.4	1.4	1.6	1.5
22-Feb	1.4	0.8	0.9	0.8	1.1	1	0.9	1.3	1.3	1.1	1.1	1.4	1.3
23-Feb	-4.3	-5.5	-4.9	-4.8	-5.6	-4.7	-4.4	-3.9	-4.2	-3.9	-3.7	-3.5	-4.6
24-Feb	-7	-7.5	-7.6	-7.5	-7.4	-7.5	-7.4	-7.1	-7.3	-7.3	-7.1	-7.2	-7.4
25-Feb	-9.5	-9.9	-9.9	-9.6	-9.8	-10.1	-10	-9.7	-9.9	-9.7	-9.2	-9.6	-10
26-Feb	-14.3	-14.5	-14.9	-14.5	-14.5	-14.5	-14.1	-13.7	-13.7	-13.5	-12.6	-13.2	-14.3
27-Feb	-14.9	-14.8	-16.1	-15.8	-14.2	-14.5	-14.3	-14	-14.1	-14.1	-13.9	-14	-14.4
28-Feb	-17.4	-18	-18.3	-18	-17.5	-17.3	-17.2	-16.8	-16.5	-16.4	-15.7	-16	-17.1

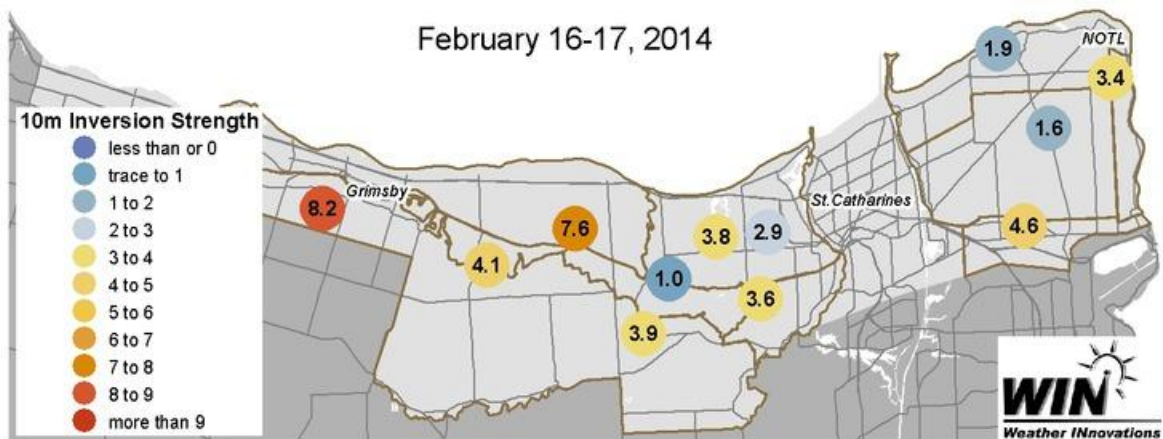
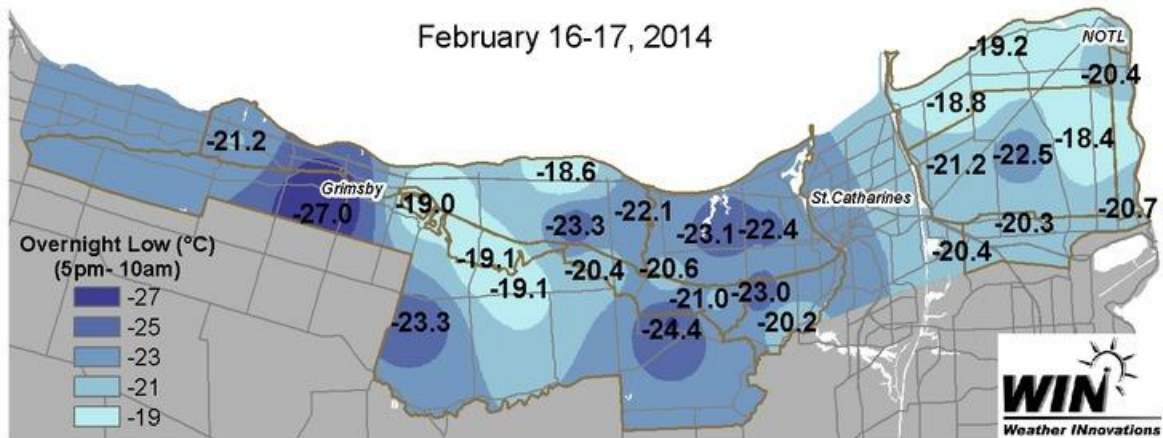
Legend:

	Days with Ice Wine Temperatures
	Monthly Minimum

Inversion Strength

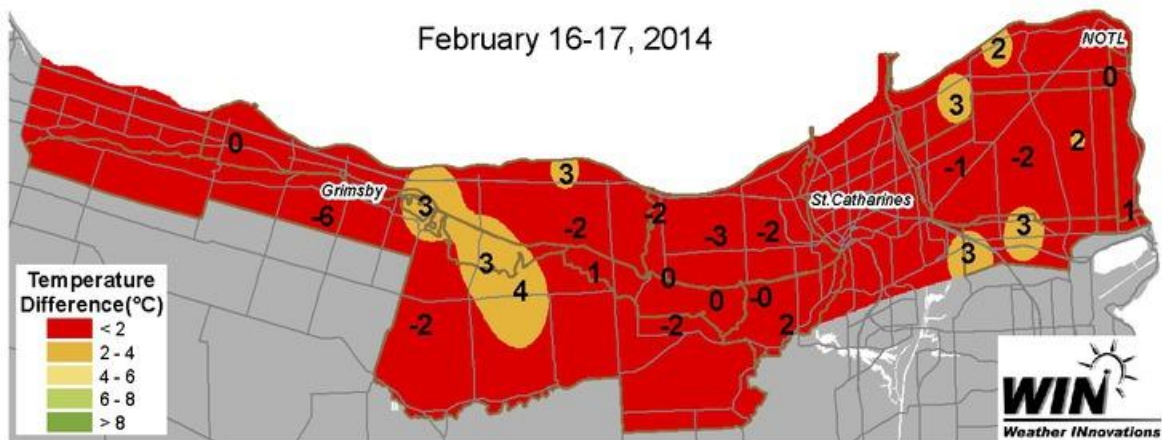
The following 4 figures show the 2 coldest January nights: January 11-12 and 16-17. Note that the locations that experienced the lowest temperatures also typically had the strongest 10-metre inversion strength.





Bud Hardiness

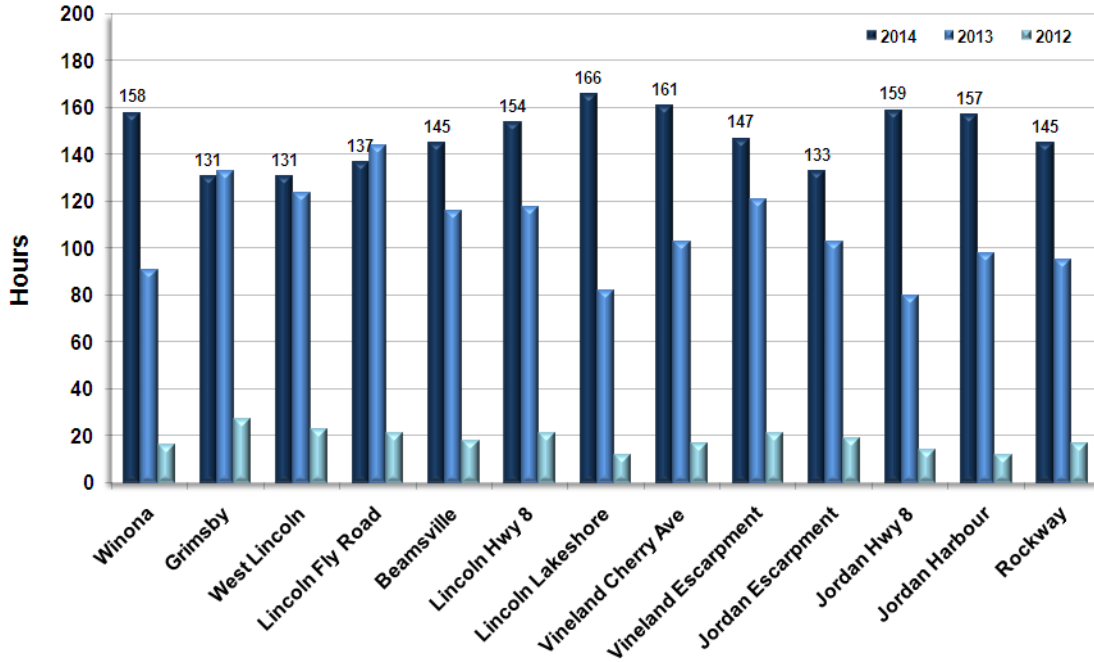
Temperatures dropped below the estimated LTE10 values (the temperature at which 10% of primary buds would die) for Chardonnay and Cabernet Franc at many locations during the 2 coldest February events. Moreover, temperatures dropped below the estimated LTE50 values (the temperature at which 50% of primary buds would die) for a few locations as well. Note that sampling and determining LTE values are not performed at all of the Niagara locations.



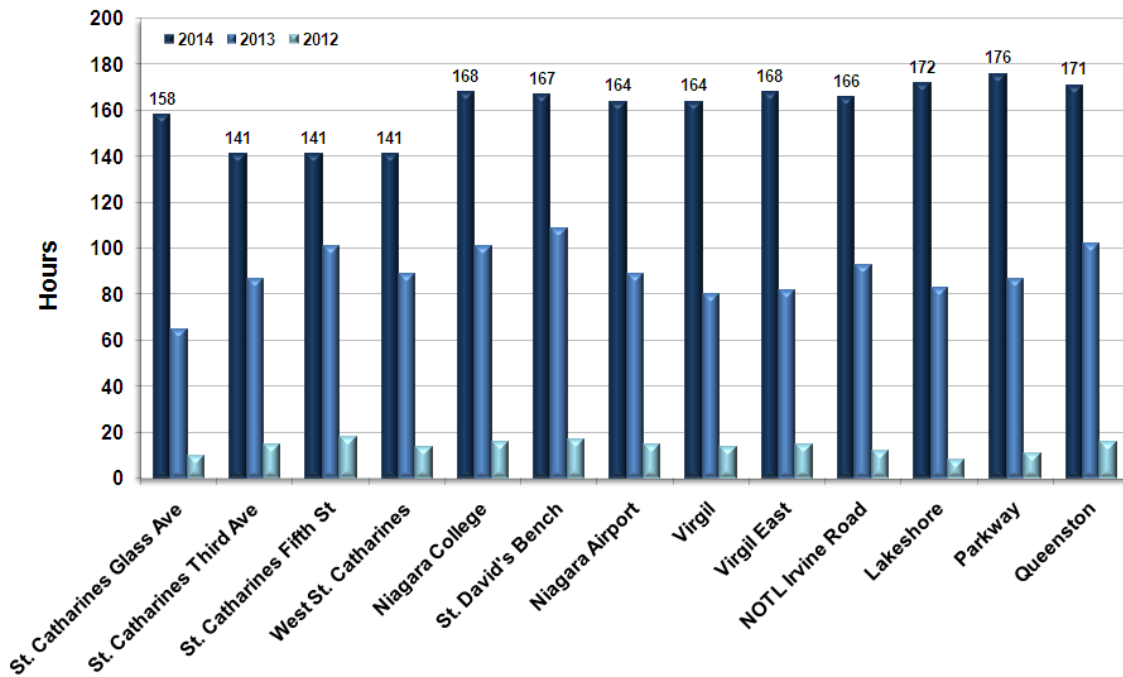
Icewine Hours Analysis

Icewine hours continued to be in abundance into February following an abundance of hours in both December and January. As seen in the following two figures, all of the stations accumulated a greater number of icewine hours than in 2013 and 2012. The Niagara stations recorded between 131 and 176 icewine hours in February 2014, compared to between 65 and 144 icewine hours in 2013. The 2013/2014 three month accumulations totaled between 370 and 414 hours. Due to the frequent icewine harvest opportunities this winter, many completed the icewine harvest already by the end of December. The following figures illustrate how the accumulation of icewine hours differed across Niagara.

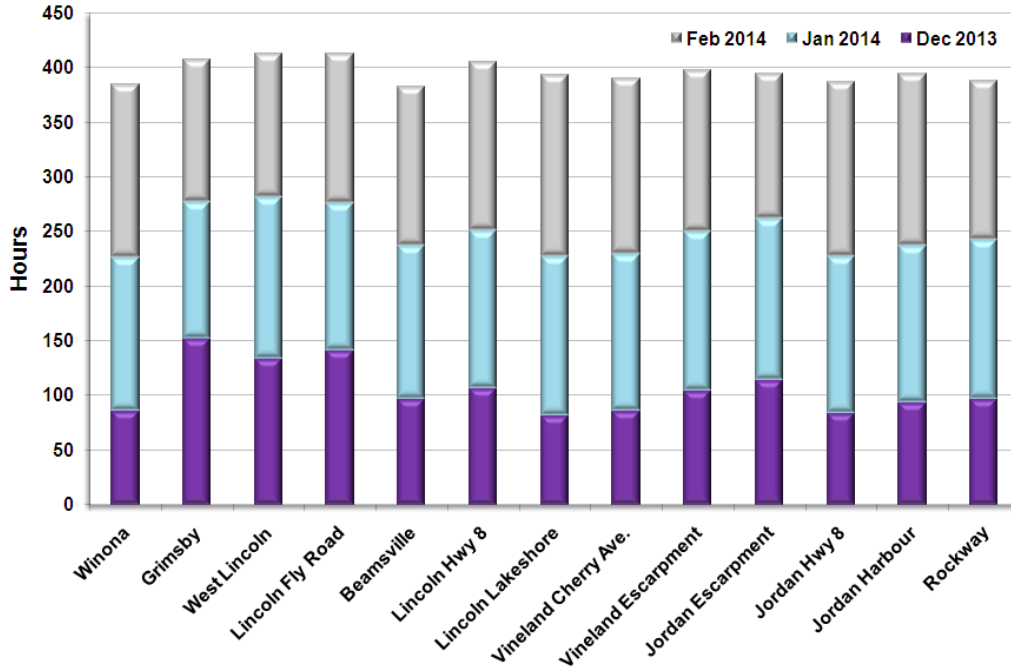
Niagara West: February 2014 Accumulation of Icewine Hours



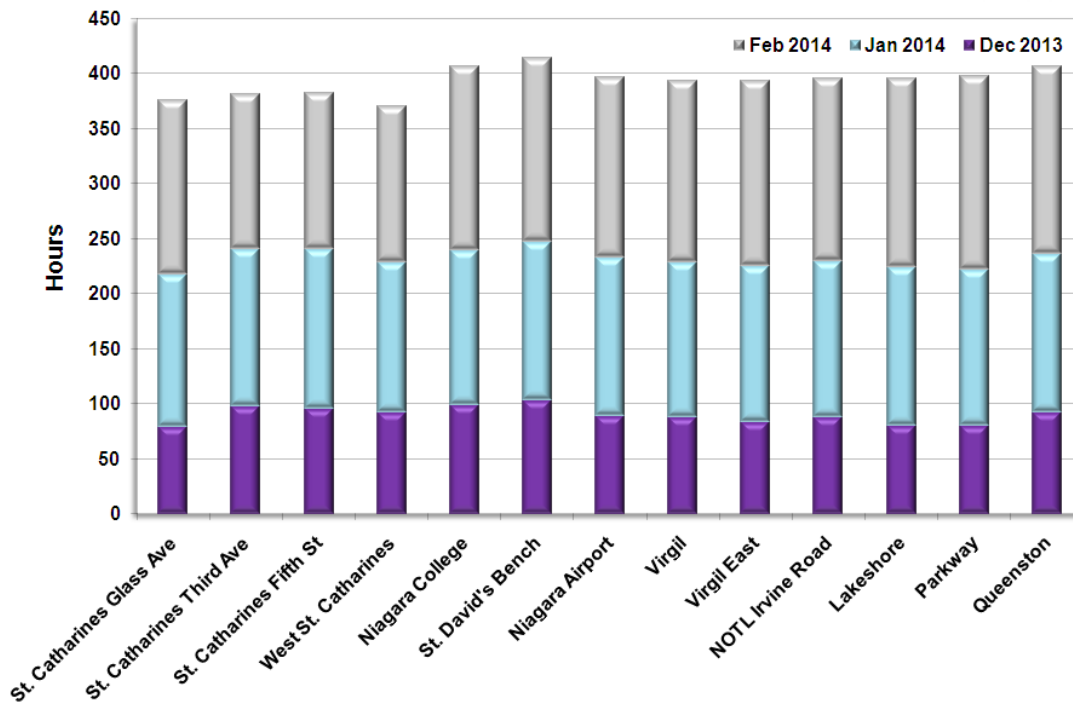
Niagara East: February 2014 Accumulation of Icewine Hours



Niagara West: Winter 2013/2014 Accumulation of Icewine Hours



Niagara East: Winter 2013/2014 Accumulation of Icewine Hours





Summary

February 2014 temperatures were significantly below normal in the Niagara appellation. The coldest February temperature reached -29.7°C at the Grimsby station. Temperatures fell below the LTE10 values for Cabernet Franc and Chardonnay at many of the sites and even below the LTE50 temperatures at some sites. However, strong inversion temperatures were present during these 2 coldest events, so those with wind machines operating would have benefited.