

Niagara Report

DECEMBER 2007:

Temperature and Ice Wine Hours Summary

**Wayne Heinen
Weather INnovations Incorporated**

OVERVIEW

December 2007 was quite variable in temperature, with the coldest average daily temperatures occurring on the 1st, the 5th to the 6th, and the 15th to the 17th. The warmest mean daily temperatures occurred from the 22nd to the 24th. The normal daily mean for December is -0.8°C , based on Environment Canada's 30-year normal for Vineland. Thus, daily means in December were only slightly below normal, ranging from -0.9°C to -2.3°C across the 13 NAWN stations. Grimsby recorded the coldest average temperatures, which is historically the circumstance. Lakeshore often experienced warmer temperatures, due to the moderating effects of the lake. All of the bench and escarpment NAWN stations were typically slightly cooler than the other NAWN stations.

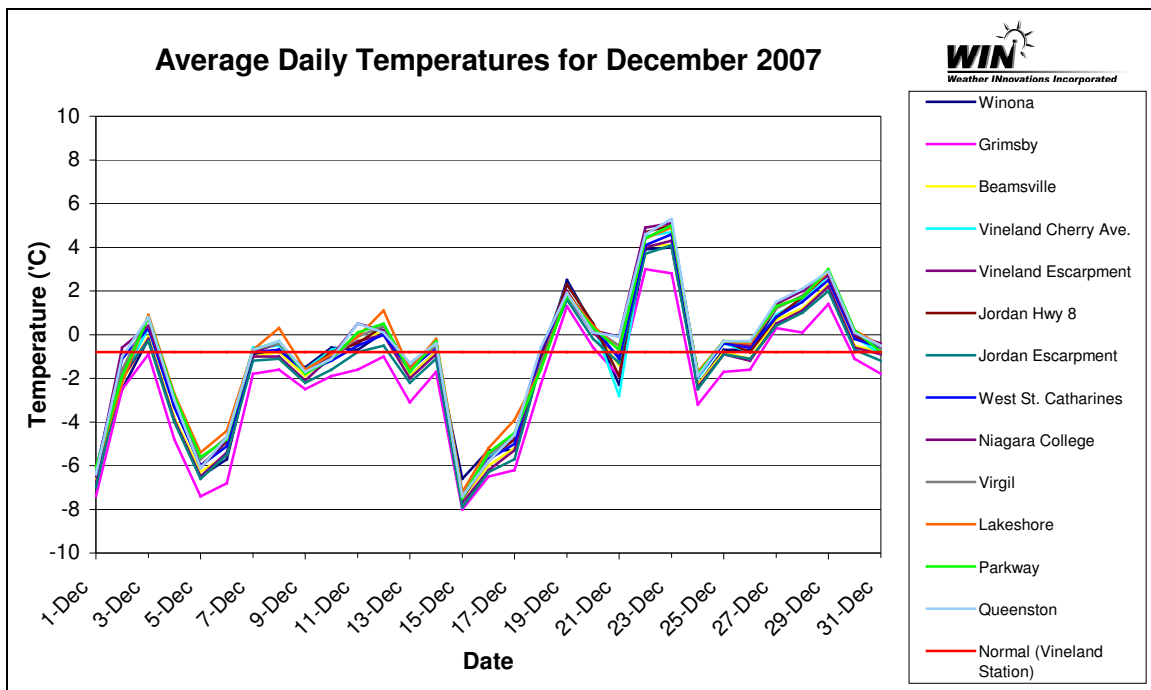



Figure 1: Average Daily Temperatures

This summary will examine minimum December 2007 temperatures, as well as the ice wine harvest opportunities that arose. In each case, comparisons are made between the 13 NAWN stations. For the purpose of this report, ice wine hours are defined as instances when the average hourly temperature was between -8.0°C and -12.0°C , inclusive. Thus, factors such as high average daily temperatures preceding these ice wine hours were not taken into account. Consequently, total ice wine hours are much higher than the number of hours that were *actually* suitable for ice wine harvesting.

TEMPERATURE ANALYSIS:

Vineland Cherry Avenue, Grimsby and Jordan Highway 8 experienced the coldest extreme minimum temperatures for December 2007, reaching -11.8°C , -11.5°C and -11.0°C , respectively. The warmest extreme minimum December temperature was -9.3°C at Lakeshore, followed by -9.6°C at both Virgil and the Parkway. There were ten days when temperatures at one or more stations dipped into ice wine temperature ranges.

December 2007 Daily Minimums for the NAWN Stations															
Date	Winona	Grimsby	Beamsville	Vineland Cherry Ave.	Vineland Escarpment	Jordan Hwy 8	West St. Catharines	Niagara College	Virgil	Lakeshore	Parkway	Queenston			
1-Dec	-8.0	-9.0	-8.3	-8.2	-8.6	-8.1	-8.8	-7.8	-8.2	-7.9	-7.7	-7.8	-8.0		
2-Dec	-8.1	-9.3	-8.6	-8.4	-8.8	-8.4	-8.8	-8.3	-8.4	-8.6	-8.6	-8.6	-8.5		
3-Dec	-3.3	-4.3	-3.4	-2.9	-3.4	-2.8	-3.4	-2.8	-2.9	-2.5	-2.2	-2.6	-2.7		
4-Dec	-6.4	-7.2	-5.9	-5.1	-5.7	-5.0	-5.9	-5.0	-5.1	-4.1	-3.8	-3.9	-4.8		
5-Dec	-9.8	-11.5	-10.2	-9.4	-9.2	-9.7	-9.7	-10.6	-10.8	-8.6	-7.5	-8.3	-10.4		
6-Dec	-8.2	-9.5	-8.3	-7.5	-8.3	-7.5	-8.6	-8.2	-7.5	-7.7	-7.3	-7.7	-7.4		
7-Dec	-5.3	-6.1	-4.1	-3.5	-3.5	-3.6	-3.3	-2.8	-3.0	-3.1	-3.0	-2.8	-2.8		
8-Dec	-4.0	-4.6	-4.0	-4.2	-4.1	-4.0	-4.4	-4.8	-3.9	-4.3	-2.1	-3.8	-3.5		
9-Dec	-2.9	-3.9	-3.0	-2.5	-3.1	-2.6	-3.3	-3.1	-2.5	-2.6	-2.2	-2.6	-2.2		
10-Dec	-2.1	-6.1	-2.9	-3.0	-3.2	-4.0	-5.3	-4.4	-3.2	-3.5	-3.1	-3.6	-3.9		
11-Dec	-5.3	-7.3	-4.5	-5.6	-5.2	-5.2	-5.9	-5.5	-3.5	-4.4	-3.8	-4.0	-3.6		
12-Dec	-5.5	-8.9	-5.1	-5.7	-5.2	-5.1	-6.3	-5.5	-5.1	-5.3	-3.8	-5.9	-5.1		
13-Dec	-5.9	-9.8	-5.4	-5.7	-5.6	-5.1	-6.2	-5.4	-4.9	-5.0	-4.3	-6.0	-5.0		
14-Dec	-7.1	-7.9	-7.4	-6.7	-7.3	-6.7	-7.5	-7.4	-7.7	-7.6	-7.3	-7.4	-7.2		
15-Dec	-8.5	-10.0	-9.5	-10.1	-9.9	-11.0	-10.6	-9.5	-10.8	-9.4	-9.3	-9.6	-9.0		
16-Dec	-8.0	-9.3	-8.6	-8.6	-9.0	-8.7	-9.2	-8.7	-8.5	-8.3	-8.0	-8.3	-8.5		
17-Dec	-8.7	-10.8	-8.6	-8.8	-9.0	-8.5	-10.8	-8.4	-9.6	-9.6	-6.5	-8.0	-10.9		
18-Dec	-5.2	-6.0	-5.2	-6.3	-5.9	-6.7	-6	-5.9	-5.5	-5.7	-5.0	-5.2	-5.3		
19-Dec	0.7	-1.1	-0.1	0.0	-0.6	-0.6	-0.4	-0.6	-0.1	-2.3	-1.5	-1.0	0.8		
20-Dec	-1.3	-2.4	-1.9	-1.4	-2.0	-1.7	-2.1	-1.6	-1.8	-1.7	-1.6	-1.7	-1.8		
21-Dec	-8.8	-7.2	-7.1	-11.8	-5.5	-8.1	-5.5	-6.8	-3.7	-4.1	-4.3	-4.5	-4.1		
22-Dec	0.9	0.5	1.1	1.9	0.8	1.3	0.5	0.0	2.3	1.6	1.7	0.5	1.4		
23-Dec	-4.5	-5.2	-4.0	-3.6	-3.8	-3.1	-3.5	-3.3	-3.2	-3.2	-3.0	-3.3	-3.1		
24-Dec	-3.9	-4.8	-4.0	-3.7	-4.2	-3.7	-4.2	-3.7	-3.8	-3.6	-3.3	-3.6	-3.8		
25-Dec	-2.5	-2.9	-1.8	-1.4	-2.0	-1.4	-2.1	-1.6	-1.5	-1.4	-1.2	-1.3	-1.5		
26-Dec	-1.8	-2.5	-2.6	-3.5	-2.9	-2.5	-2.4	-3.2	-3.7	-2.3	-1.3	-2.0	-3.4		
27-Dec	-0.4	-1.2	-1.8	-2.1	-2.2	-2.6	-2.3	-2.8	-0.8	-0.5	0.0	-0.3	-0.3		
28-Dec	-1.3	-5.3	-2.1	-1.2	-2.7	-1.7	-2.4	-2.1	-1.1	-1.3	-0.5	-0.4	-0.5		
29-Dec	0.5	-0.4	0.4	0.7	0.2	0.8	0.1	0.6	0.7	0.7	0.8	0.8	0.7		
30-Dec	-1.5	-2.3	-1.3	-1.2	-1.6	-1.1	-1.6	-1.1	-1.2	-1.1	-0.9	-1.0	-1.1		
31-Dec	-3.7	-6.6	-3.4	-5.1	-3.1	-3.2	-3.8	-3.5	-3.6	-3.2	-3.3	-4.8	-2.7		

Legend:

	Days with Ice Wine Temperatures
	Extreme Monthly Minimum

Figure 2: Daily Minimum Temperatures

ICE WINE HOURS ANALYSIS:

Most of the NAWN stations recorded 20 or fewer ice wine hours. The stations located on the bench and escarpment were the only locations to record more than 20 hours, since temperatures are often 1-2°C cooler at those elevations. These locations not only reach -8°C sooner, but also maintain these colder temperatures for a longer time period, thereby increasing the number of ice wine hours.

Grimsby recorded the highest accumulation, with 53 ice wine hours. Given that Grimsby is almost always the coldest station (also located on the escarpment), the temperature would often reach minimums of -8°C, while the temperature at all other locations would only reach approximately -7°C. Consequently, Grimsby accumulated many more ice wine hours than the other stations. In contrast, Winona and Lakeshore experienced the least amount of ice wine hours, likely due to the moderating effects of the lake. These stations only accumulated 10 ice wine hours in December.

As can be seen in Figure 3, all of the NAWN stations, except Winona and the Parkway, accumulated more ice wine hours in 2007, than in the previous year. In fact, Grimsby and Vineland escarpment almost doubled the amount of hours accumulated in 2006! However, interestingly, a slight change to the upper temperature threshold paints a

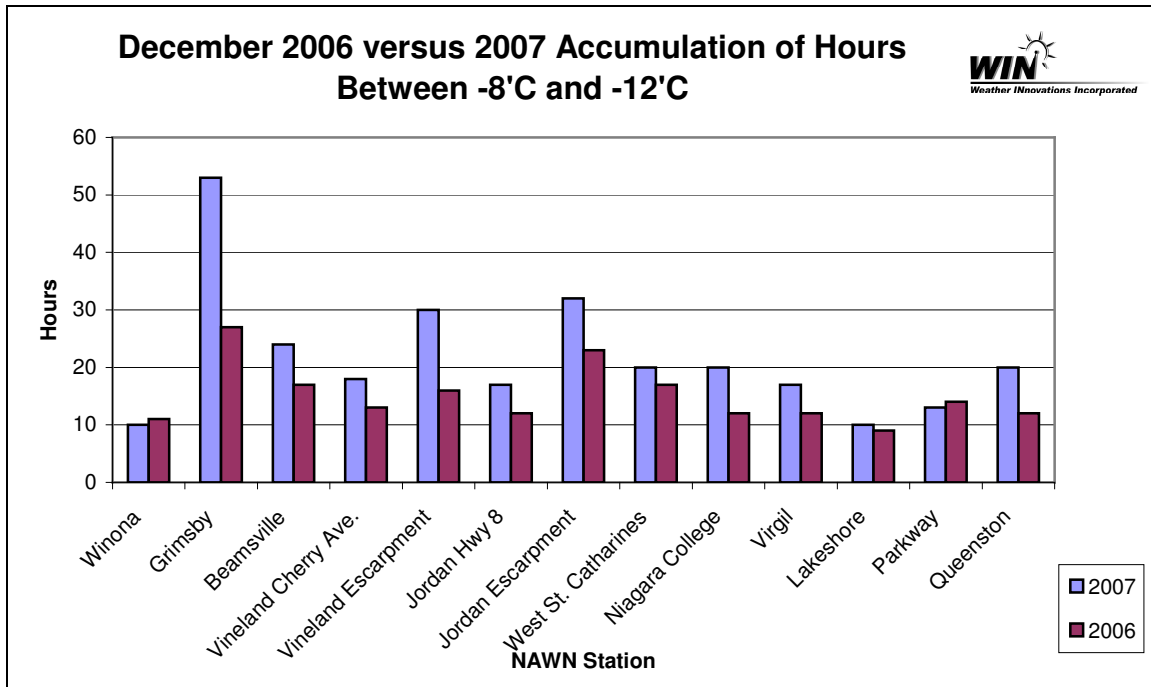


Figure 3: Hours Between -8°C and -12°C

very different picture. In fact, an examination of the hours between -9°C and -12°C (Figure 4) reveals that most stations experienced *less* hours at these temperatures in 2007 than in 2006! In other words, most of the ice wine hours in December 2007 were accumulated when temperatures were between -8.0°C and -8.9°C . Consequently, it is most likely that there were less ice wine harvesting opportunities in December 2007 than in December 2006, despite having more ‘ice wine hours’.

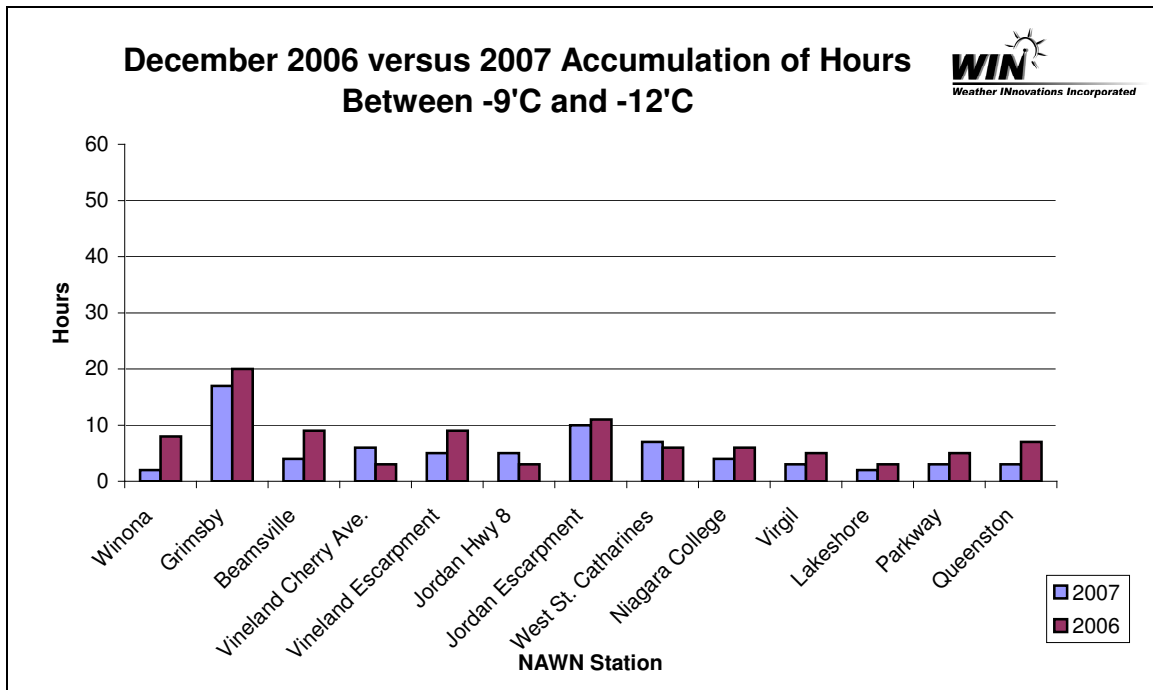


Figure 4: Hours Between -9°C and -12°C

The ice wine hours between -8°C and -12°C were accumulated during 7 ice wine “opportunities” in December, although many were not suitable for grape harvesting, due to preceding warmer daily temperatures or insufficient freezing time. These opportunities are shown explicitly in the following tables. These figures reveal the importance of adequate and accurate temperature monitoring, as the variability across locations is high. In addition, the amount of time in which temperatures are between ice wine thresholds is limited, emerging and changing rapidly.


Date/ Time														
	Winona	Grimsby	Beamsville	Vineland Cherry Ave.	Vineland Escarpment	Jordan Hwy 8	Jordan Escarpment	West St. Catharines	Niagara College	Virgil	Lakeshore	Parkway	Queenston	
Possible Icewine Opportunity #1: Dec 1-2														
12/1 14:00	-6.5	-7.4	-6.8	-6.9	-7.2	-6.8	-7.2	-6	-6.6	-6.8	-6.8	-6.8	-6.7	
12/1 15:00	-6.7	-7.8	-7	-7	-7.2	-6.9	-7.4	-6.5	-7	-7	-7	-7	-7	
12/1 16:00	-6.8	-7.9	-7.4	-7.2	-7.7	-7.2	-7.8	-6.9	-7.5	-7.4	-7.3	-7.4	-7.4	
12/1 17:00	-6.8	-8.1	-7.7	-7.5	-8	-7.5	-8.2	-7.4	-7.9	-7.7	-7.5	-7.6	-7.9	
12/1 18:00	-7	-8.4	-7.9	-7.6	-8.2	-7.7	-8.4	-7.6	-8	-7.8	-7.5	-7.7	-7.9	
12/1 19:00	-7.2	-8.5	-8.1	-7.6	-8.3	-7.7	-8.4	-7.6	-7.9	-7.7	-7.7	-7.7	-7.8	
12/1 20:00	-7.2	-8.4	-7.9	-7.5	-8.1	-7.5	-8.1	-7.4	-7.8	-7.7	-7.7	-7.7	-7.7	
12/1 21:00	-7.2	-8.3	-7.7	-7.4	-7.9	-7.3	-7.8	-7.2	-7.6	-7.5	-7.6	-7.6	-7.6	
12/1 22:00	-7	-8.2	-7.6	-7.2	-7.7	-7.2	-7.9	-7.1	-7.5	-7.4	-7.5	-7.5	-7.5	
12/1 23:00	-6.9	-8	-7.4	-7	-7.6	-7.1	-7.5	-7	-7.4	-7.4	-7.5	-7.5	-7.5	
12/2 0:00	-7.9	-8.8	-8.1	-7.8	-8.3	-7.6	-8.2	-7.4	-7.7	-7.5	-7.4	-7.4	-7.5	
12/2 1:00	-8.1	-9.1	-8.4	-8.2	-8.7	-8.2	-8.5	-8.1	-8.4	-8.3	-8.4	-8.2	-8.3	
12/2 2:00	-8.1	-9.2	-8.6	-8.3	-8.7	-8.3	-8.7	-8.2	-8.3	-8.4	-8.5	-8.4	-8.4	
12/2 3:00	-7.8	-9.1	-8.3	-8.3	-8.5	-8.2	-8.5	-8.2	-8.1	-8.5	-8.5	-8.5	-8.4	
12/2 4:00	-7.6	-8.9	-8.3	-8	-8.5	-8.1	-8.4	-8	-8.2	-8.2	-8.4	-8.4	-8.2	
12/2 5:00	-7.6	-8.6	-7.6	-7.5	-7.7	-7.3	-7.5	-7	-7.5	-7.5	-7.9	-7.8	-7.4	
12/2 6:00	-7.4	-8.3	-7.5	-7.3	-7.4	-7	-7.1	-6.3	-6.7	-7.1	-7.4	-7.3	-6.5	
12/2 7:00	-7	-8	-7	-6.7	-6.6	-6.3	-5.5	-4.8	-5	-5.9	-6.6	-6.3	-5.3	
12/2 8:00	-6.1	-6.1	-6.4	-5.6	-6.2	-5.7	-5.4	-3.6	-3.2	-4.8	-5.5	-5.2	-3.7	
12/2 9:00	-3.8	-4.5	-5	-4.2	-5	-4.7	-5.1	-3.2	-3.3	-4.2	-4.6	-4.5	-3.5	
12/2 10:00	-2.9	-3.6	-3.7	-3.7	-4.1	-3.6	-3.9	-2.4	-2.7	-3.2	-3.7	-3.5	-2.6	
Possible Icewine Opportunity #2: Dec 5-6														
12/5 17:00	-6.1	-7.3	-6.4	-6.1	-6.7	-6.1	-6.6	-6.1	-6.1	-5.7	-5.5	-5.8	-5.9	
12/5 18:00	-6.4	-7.5	-6.7	-6.4	-7.3	-6.4	-7	-6.7	-6.6	-6.3	-5.8	-6.1	-6.5	
12/5 19:00	-6.6	-7.7	-6.9	-6.5	-7.5	-6.5	-7.1	-7.1	-7	-6.3	-6	-6.3	-6.7	
12/5 20:00	-9	-9	-7.6	-7	-8	-7.1	-7.6	-7.6	-7.2	-6.8	-6.2	-6.6	-7.3	
12/5 21:00	-9.6	-11	-9.3	-8.9	-8.7	-9.5	-9	-9.5	-9.4	-7.8	-6.2	-7.2	-10.1	
12/5 22:00	-8.8	-11.1	-8.8	-8.5	-9	-8.6	-9.6	-9.3	-9.8	-8.3	-5.7	-7.1	-9.9	
12/5 23:00	-7.9	-9.6	-8.4	-7.4	-8.6	-8.5	-9.1	-9	-8.3	-8.3	-6.7	-8	-8.3	
12/6 0:00	-7.6	-8.6	-7.8	-7.1	-8	-7.5	-8.3	-7.8	-7	-7.3	-6.8	-7.2	-7.3	
12/6 1:00	-7.8	-8.6	-7.5	-6.9	-7.6	-7.2	-7.8	-7.4	-7	-7.3	-7.1	-7.4	-7.2	
12/6 2:00	-8	-9.1	-7.8	-7.1	-7.7	-7	-7.7	-7.1	-6.7	-6.5	-6	-6.5	-6.7	
12/6 3:00	-7.9	-9.4	-8.1	-7.4	-8	-7.4	-8.3	-8.1	-7.1	-6.9	-6	-6.3	-6.9	
12/6 4:00	-7.9	-9.4	-8.2	-7.5	-8.2	-7.5	-8.5	-7.8	-7.3	-7.7	-6.7	-7.4	-7.3	
12/6 5:00	-7.2	-8.4	-7.7	-7.1	-7.7	-7.1	-8.1	-7.6	-7.4	-7.6	-6.8	-7.7	-7.2	
12/6 6:00	-7	-8	-7.1	-6.5	-7.1	-6.4	-7.3	-6.7	-7.1	-7.3	-6.4	-7.3	-6.8	
12/6 7:00	-7.3	-8.3	-7	-6.5	-7	-6.2	-7.2	-6.6	-6.3	-6.2	-5.4	-6.6	-6.1	
12/6 8:00	-7.4	-8.8	-7.6	-6.9	-7.5	-6.8	-7.8	-7.2	-6.5	-6.1	-5.4	-5.7	-6.1	
12/6 9:00	-6.5	-7.6	-6.6	-6.1	-6.6	-6.2	-6.9	-6.3	-6.4	-5.8	-5.1	-5.8	-5.9	
12/6 10:00	-5.2	-6.3	-5.5	-5.2	-5.1	-4.2	-4.9	-4.6	-4.6	-3.9	-4	-4.1	-4.4	
12/6 11:00	-3.8	-4.5	-3.9	-3.7	-4.1	-3.7	-4.2	-3.3	-3.5	-3.3	-3.6	-3.5	-3.4	

Figure 5: Ice Wine Hours from Dec 1-6, 2007

The night of December 1-2 provided fairly consistent cold temperatures across Niagara. All stations saw at least a four-hour window of ice wine temperatures, with the exception of Winona. Unfortunately, the temperatures only hovered around the -8°C threshold for both the December 1-2 and the December 5-6 events.


Date/ Time													
	Winona	Grimsby	Beamsville	Vineland Cherry Ave.	Vineland Escarpment	Jordan Hwy 8	Jordan Escarpment	West St. Catharines	Niagara College	Virgil	Lakeshore	Parkway	Queenston
Possible Icewine Opportunity #3: Dec 13													
12/12 21:00	-3.2	-3.4	-2.3	-2.8	-2.4	-2.1	-3.3	-3.4	-3	-1	0.1	-0.9	-3
12/12 22:00	-4	-3.9	-3.1	-2.3	-2.6	-3.1	-5	-4.1	-3.7	-2.1	-0.2	-1.1	-3.4
12/12 23:00	-4.8	-7.8	-4.6	-3.7	-3.8	-4.1	-5.6	-4.7	-4.3	-4.2	-0.5	-3.3	-4.3
12/13 0:00	-5	-8.8	-5	-5.5	-4.7	-5	-6.1	-5.3	-4.8	-4.9	-2.4	-5.4	-4.9
12/13 1:00	-5.6	-8.6	-5	-5.4	-5	-4.7	-5.7	-5.3	-4.6	-4.7	-4.1	-5.3	-4.5
12/13 2:00	-5.4	-8.5	-5	-4.6	-4.8	-4.5	-5.5	-5.3	-3.6	-3.1	-2.5	-2.4	-3.1
12/13 3:00	-5.7	-8.4	-4.7	-4.5	-4.4	-4.5	-4.8	-4.3	-2.4	-2.6	-2.4	-3.1	-2.1
12/13 4:00	-4.3	-6.8	-3.4	-3.4	-3	-3.2	-3.4	-2.9	-2.3	-2.1	-2.8	-3.4	-2.1
12/13 5:00	-3.6	-4.6	-2.6	-2.5	-2.6	-2.3	-3	-2.2	-2.3	-2.1	-2.6	-3.1	-2.2
12/13 6:00	-2.8	-3.4	-2.5	-2.4	-2.7	-2.3	-2.9	-2.2	-2.3	-2	-2.6	-3	-2.1
Possible Icewine Opportunity #4: Dec 15													
12/14 22:00	-6	-6.7	-5.6	-5.2	-5.7	-5	-5.7	-5.6	-5.3	-5.8	-5.5	-5.8	-5.9
12/14 23:00	-6.4	-7.3	-6.3	-6.1	-6.6	-6.1	-6.7	-6.4	-6.5	-6.6	-6.2	-6.5	-6.5
12/15 0:00	-6.9	-7.8	-7.2	-6.6	-7.2	-6.6	-7.2	-7.2	-7.4	-7.3	-7.1	-7.3	-6.9
12/15 1:00	-7	-8.1	-7.5	-7.1	-7.5	-7.2	-7.8	-7.8	-7.9	-7.8	-7.5	-7.6	-7.5
12/15 2:00	-7.6	-8.5	-8	-7.5	-7.9	-7.7	-8.4	-8.2	-8.4	-8	-7.6	-7.7	-7.9
12/15 3:00	-7.7	-8.7	-8.2	-7.4	-8.1	-8.1	-8.7	-8.8	-8.7	-8.2	-7.5	-8.3	-8.4
12/15 4:00	-7.2	-8.3	-8.1	-7.9	-8.7	-8.8	-9.1	-9	-8.7	-8.6	-8	-8.5	-8.7
12/15 5:00	-7.1	-8.8	-8.6	-8.4	-9.1	-9.4	-9.5	-9.2	-8.8	-9.1	-8.3	-8.9	-8.6
12/15 6:00	-7.8	-9.1	-9	-8.9	-9.5	-10.2	-10.4	-9.4	-8.9	-9.3	-8.9	-9.3	-8.8
12/15 7:00	-8.2	-9.8	-9.4	-9.7	-9.8	-10.5	-10	-9.3	-9.7	-9.1	-9.2	-9.6	-9
12/15 8:00	-8.3	-9.7	-9	-9.6	-9.5	-9.9	-9.6	-8.9	-9.2	-8.9	-9.1	-9.5	-8.8
12/15 9:00	-7.7	-9	-8.4	-8.1	-8.7	-8.3	-8.7	-8.1	-8.1	-8.5	-8.3	-8.8	-8
12/15 10:00	-6.9	-8.1	-7.6	-7.4	-7.7	-7.3	-7.9	-7.3	-7.2	-7.7	-7.3	-7.6	-7.2
12/15 11:00	-6.5	-7.4	-6.9	-6.7	-7.2	-6.8	-7.5	-6.8	-6.8	-6.8	-6.9	-6.8	-6.7
12/15 12:00	-6.1	-7	-6.7	-6.5	-7	-6.6	-7.3	-6.6	-6.7	-6.8	-6.6	-6.5	-6.7
12/15 13:00	-5.9	-7	-6.5	-6.4	-6.7	-6.5	-7.3	-6.5	-6.6	-6.7	-6.6	-6.6	-6.7
12/15 14:00	-5.9	-7.1	-6.5	-6.3	-6.7	-6.4	-7.3	-6.6	-6.3	-6.5	-6.5	-6.6	-6.4
12/15 15:00	-6.1	-7.2	-6.5	-6.3	-6.7	-6.4	-7.1	-6.5	-6.2	-6.7	-6.4	-6.4	-6.4
12/15 16:00	-5.4	-7.1	-6.6	-6.3	-6.6	-6.2	-6.7	-6.2	-6.3	-6.4	-6.4	-6.4	-6.3
12/15 17:00	-5.5	-7.1	-6.6	-6.3	-6.8	-6.4	-6.7	-6.2	-6.4	-6.3	-6.2	-6.3	-6.4
12/15 18:00	-5.8	-7.3	-6.7	-6.3	-6.9	-6.5	-6.8	-6.3	-6.6	-6.5	-6.4	-6.5	-6.7
12/15 19:00	-5.8	-7.4	-6.6	-6.5	-6.6	-6.2	-6.9	-6.4	-6.3	-6.6	-6.4	-6.6	-6.6
12/15 20:00	-5.8	-7.4	-6.5	-6.3	-6.6	-6.2	-6.8	-6.4	-6.3	-6.3	-6.5	-6.6	-6.4
12/15 21:00	-6.3	-7.7	-7.2	-6.7	-7.4	-7	-7.6	-7.1	-7.2	-7	-6.8	-7	-7.3
12/15 22:00	-6.6	-8.1	-7.6	-7.3	-7.7	-7.3	-7.9	-7.3	-7.2	-7.4	-7.4	-7.5	-7.4
12/15 23:00	-6.1	-7.8	-7.6	-7.2	-7.6	-7.1	-7.4	-6.9	-7	-7.2	-7	-7.1	-7.1
12/16 0:00	-5.7	-7.4	-7.2	-6.8	-7.4	-6.8	-7.4	-6.5	-6.8	-6.7	-6.5	-6.6	-6.9
12/16 1:00	-5.6	-7.2	-7	-6.6	-7.1	-6.7	-7.3	-6.7	-6.8	-6.5	-6.4	-6.5	-6.6

Figure 6: Ice Wine Hours from Dec 7-15, 2007

The third opportunity was quite insignificant; only Grimsby experienced a four-hour window of temperatures just below -8°C . The morning of December 15 offered the longest time interval for ice wine harvest, provided the grapes were sufficiently frozen. Temperatures in Jordan reached -10°C for two hours and each station experienced at least a five-hour window, with the exception of Winona.


Date/ Time														
	Winona	Grimsby	Beamsville	Vineland Cherry Ave.	Vineland Escarpment	Jordan Hwy 8	Jordan Escarpment	West St. Catharines	Niagara College	Virgil	Lakeshore	Parkway	Queenston	
Possible Icewine Opportunity #5: Dec 16														
12/16 13:00	-2.6	-4.1	-3.8	-3.6	-4.1	-3.8	-4.2	-3.5	-3.7	-3.2	-3	-2.9	-3.5	
12/16 14:00	-5	-3.7	-3.1	-2.9	-3.3	-3.2	-3.6	-2.7	-3.1	-2.9	-2.9	-2.7	-3.2	
12/16 15:00	-7.3	-7.4	-4.4	-3.5	-3.6	-2.7	-3.3	-2.5	-3	-2.7	-2.4	-2.6	-3.1	
12/16 16:00	-7.5	-8.3	-7.1	-6.5	-6.9	-5.9	-6.7	-5	-4.1	-4	-4.2	-3.7	-3.6	
12/16 17:00	-7.9	-8.9	-8	-7.5	-8	-7.3	-8	-7	-6.6	-6.4	-6.1	-6.2	-6.4	
12/16 18:00	-7.9	-9.1	-8.2	-7.6	-8.2	-7.5	-8.2	-7.6	-7.6	-7.3	-6.8	-7.1	-7.3	
12/16 19:00	-7.8	-9.1	-8.5	-8.3	-8.8	-8.1	-8.7	-8	-7.7	-7.5	-7.2	-7.4	-7.6	
12/16 20:00	-7.6	-8.7	-8.1	-7.9	-8.5	-8.1	-8.7	-8.5	-8.4	-8.2	-7.8	-8.1	-8.3	
12/16 21:00	-7.3	-8.5	-7.8	-7.3	-8	-7.5	-8.2	-7.8	-8	-7.8	-7.3	-7.7	-8.1	
12/16 22:00	-7.1	-8.1	-7.2	-6.6	-7.2	-7.2	-7.6	-7.7	-8	-8	-7.6	-7.9	-8.2	
12/16 23:00	-6.3	-7.4	-6.7	-6	-6.8	-6.3	-7	-7.5	-7.9	-7.6	-7.2	-7.5	-8.1	
12/17 0:00	-6	-7	-6.3	-5.5	-6.3	-5.6	-6.5	-6	-6.3	-6.1	-5.6	-6.1	-6.7	
12/17 1:00	-6.3	-7.2	-6.2	-5.6	-6.1	-5.5	-6.3	-5.8	-5.2	-5	-4.6	-5.2	-5.4	
12/17 2:00	-6.1	-7.1	-6.2	-5.4	-6.2	-5.7	-6.3	-5.9	-4.9	-4.8	-4.4	-4.7	-5.1	
Possible Icewine Opportunity #6: Dec 17														
12/17 3:00	-6.1	-6.9	-5.8	-5	-5.6	-5.1	-5.7	-5.3	-4.7	-4.6	-4.2	-4.5	-4.8	
12/17 4:00	-6.5	-7.2	-5.9	-5.1	-5.6	-5.2	-5.8	-5.6	-4.6	-4.6	-4.2	-4.4	-4.7	
12/17 5:00	-7.1	-7.6	-6.8	-5.6	-6.3	-5.5	-6.7	-5.7	-5	-4.7	-4.6	-4.8	-5.2	
12/17 6:00	-7.3	-7.6	-7.3	-7	-7.2	-6.6	-8.4	-7.3	-5.3	-5.1	-4.5	-5	-5.6	
12/17 7:00	-8.2	-9.7	-7.7	-8.2	-8.2	-7.3	-9.8	-8.1	-7.5	-6.7	-5	-5.7	-8.2	
12/17 8:00	-7.1	-8.6	-8.1	-7.5	-8.4	-8.1	-9.5	-8.2	-8.3	-8.5	-4.4	-7.6	-8.1	
12/17 9:00	-6	-6.8	-6.5	-6	-6.4	-6.8	-7.6	-7	-6.9	-7.2	-6.2	-7.1	-6.7	
12/17 10:00	-5.3	-6.3	-5.6	-5.2	-5.7	-5.1	-6	-5.3	-5.5	-5.6	-5.1	-5.8	-5.2	
12/17 11:00	-4.7	-5.6	-5	-4.7	-5	-4.5	-5.4	-4.6	-4.6	-4.5	-3.5	-4.4	-4.4	
Possible Icewine Opportunity #7: Dec 21														
12/21 1:00	-1.5	-2.8	-2.4	-1.9	-2.5	-2.5	-2.4	-2.5	-1.9	-1.7	-1.7	-1.8	-1.8	
12/21 2:00	-3.8	-4.9	-4.4	-3.4	-3.4	-3.7	-3.2	-3.7	-2.3	-2.2	-2.1	-2.4	-2.2	
12/21 3:00	-6.5	-5.8	-5.6	-6.5	-3.7	-5.1	-3.7	-4.7	-2.7	-2.7	-3.1	-3.2	-3	
12/21 4:00	-7.1	-5.4	-5.9	-8.8	-4.5	-6.2	-3.9	-5.7	-2.9	-3.4	-3.7	-3.5	-3.3	
12/21 5:00	-6.4	-4.7	-6.3	-9.7	-4.8	-7	-4.8	-5.8	-3.1	-3.7	-3.7	-3.8	-3.3	
12/21 6:00	-6.1	-5.7	-6.9	-10.4	-5.3	-7.7	-5.2	-5.6	-3.3	-4	-3.8	-4	-3.7	
12/21 7:00	-6	-7.1	-6.2	-10.6	-4.5	-7.9	-4.5	-5.6	-3.5	-3.7	-4	-4.2	-3.4	
12/21 8:00	-8.3	-6.5	-5	-10.9	-4.2	-7	-4.4	-3.5	-3.6	-3.7	-4.2	-4.3	-3.6	
12/21 9:00	-6.8	-4.1	-3.5	-5.2	-3.1	-4.2	-3.2	-2.2	-3.1	-3.1	-3.9	-4	-3	
12/21 10:00	-3.1	-1.7	-1.2	-3.3	-1.5	-1.5	-2	-0.6	-1.6	-2.1	-2.4	-2.4	-1.3	
12/21 11:00	0.3	-0.5	0.8	-0.2	0.1	0.7	-0.6	1.1	-0.2	-0.9	-0.7	-0.6	-0.2	

Figure 7: Ice Wine Hours From Dec 16-31, 2007

The last three ice wine harvest opportunities were rather sporadic. A few locations may have benefited from an hour or two of suitable temperatures. Again, the escarpment locations accumulated a few more ice wine hours than other locations. Vineland Cherry Avenue experienced an interesting cold spell in the morning hours of December 21, likely due to a period of little or no wind speed.

SUMMARY

In general, December 2007 was fairly typical, with average daily temperatures only slightly below the 30-year normal for Vineland. Of the 13 NAWN stations, the coldest December temperature reached was -11.8°C , occurring suddenly and briefly at Vineland Cherry Avenue on December 21st. A number of ice wine harvest opportunities arose; however, it was often the case that daily temperatures preceding these events were relatively warm. Locations with a slightly higher elevation often accumulated significantly more ice wine hours due to minimum temperatures remaining close to -8°C , while temperatures at lower elevation locations remained slightly above -8°C . Furthermore, locations closer to the lake experienced even warmer temperatures, resulting in even fewer ice wine hours. Overall, although there were more hours accumulated in 2007 with temperatures between -8°C and -12°C than in 2006, there were fewer hours accumulated with temperatures between -9°C and -12°C ! Thus, there were most likely fewer opportunities for harvesting in December 2007 than in December 2006. The importance of adequate, accurate and timely temperature monitoring is apparent, as temperatures vary significantly between locations. In addition, monitoring is essential due to the limited amount of time in which temperatures are between ice wine thresholds, which emerge and change rapidly. Wind also plays a significant role, as temperatures can plunge suddenly and rapidly in areas where winds become calm. This occurrence can be widespread or extremely isolated.