

Environment Canada Imaging Cover Page

Report N.:



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SKP Box Number: 672572447

THE WINTER OF 1976-77:
HOW COLD/WARM WAS IT?

by

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The winter of 1976-77 in Canada can, climatologically speaking, be considered as one of the most outstanding in recent years. While the media in eastern Canada conjured up visions of impending ice ages, particularly during the eastern North America 'deep freeze' in January, regions of western Canada experienced one of the warmest winters on record.

Temperatures were above normal west of Manitoba and below normal eastward (figure 1). The main core of above normal temperatures extended from the Yukon southeastward into southern Alberta. The absolute departures from normal were much greater in magnitude than the negative departures from normal centred in southern Ontario.

For example: Edmonton's 1976-77 winter was 10.9°F above normal (table 1), the warmest since 1930-31 and the third warmest in its 98 year record. The mean temperature at Whitehorse this winter was a remarkable 15.5°F above normal and was the warmest since 1943-44.

In the east, Toronto City's mean temperature for the winter of 1976-77 was 4.7°F below normal, the coldest since

1935-36 but only the twenty first coldest winter on its 136 year meteorological record. This winter was the coldest at London, Ontario since 1903-04 and third coldest on its 100 year record. Perusal of nearby climatological stations reveal that the winter of 1976-77 was the 15th coldest at Peterborough in its 83 year history and the eighth coldest at Beatrice. In Ontario, at least, three much colder winters occurred in the twentieth century (1903-04, 1917-18, 1933-34).

Seasonal accumulated heating degree days (HDD) are a useful guide to estimating heating fuel expenses. A 10 percent increase or decrease in seasonal HDD's compared to normal approximately a 10 percent increase or decrease, respectively, in heating fuel demand. Accumulated HDD's to March 12, 1977 are running below normal for western Canada and above normal for Winnipeg and eastward (figure 2, table 2).

In summary, it appears that, overall, the cold winter experienced this year in eastern Canada was not as extreme historically as the remarkably warm winter which occurred this year in Alberta, northeastern British Columbia and the Yukon.

March 17th, 1977

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ACCUMULATED MONTHLY HEATI DEGREE DAYS BASED ON 18.0°C
 NORMAL 1941-70(—)
 ACTUAL 1976-77(--) EXTENDED TO MARCH 12/77

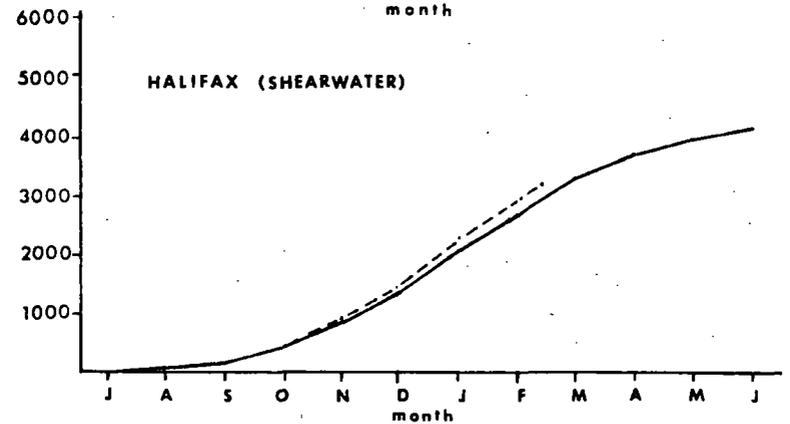
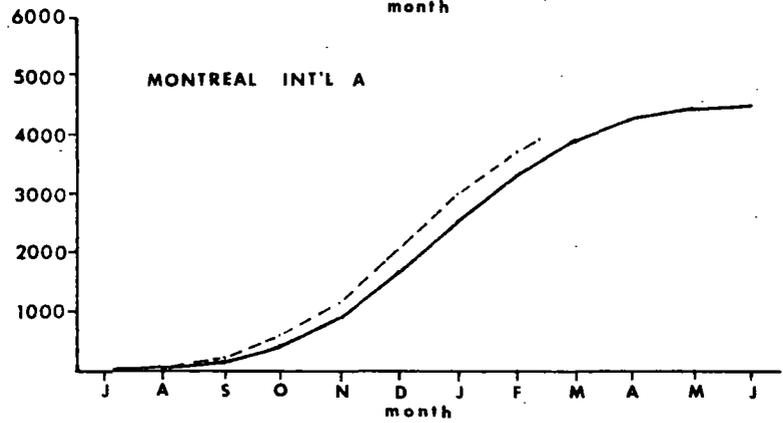
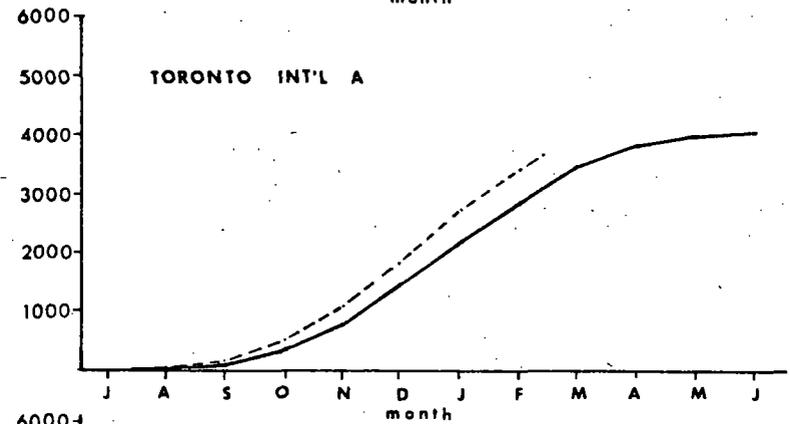
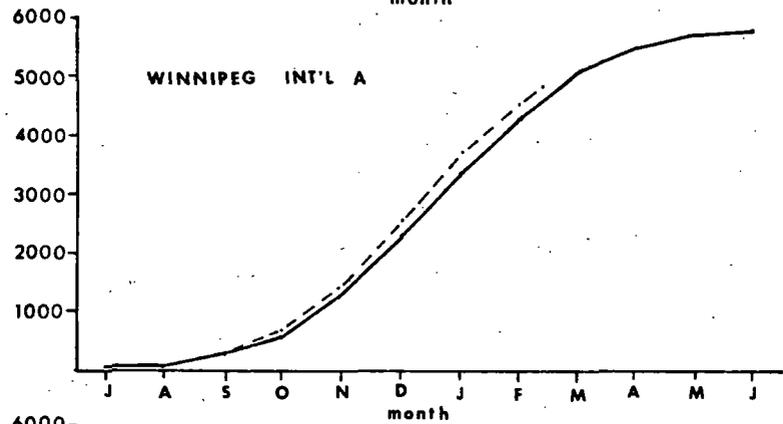
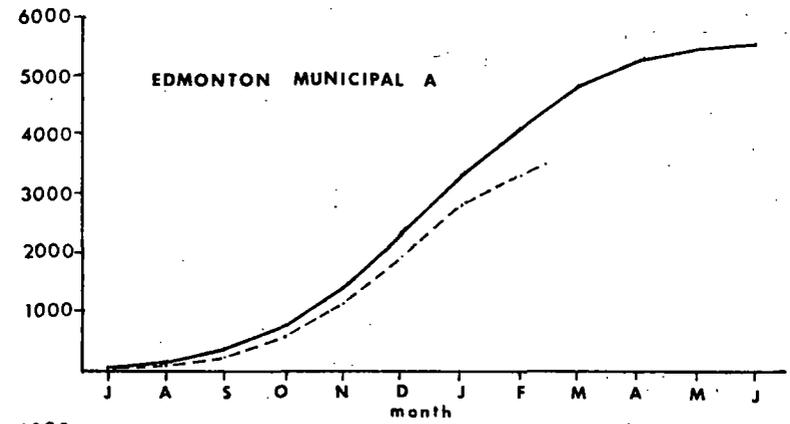
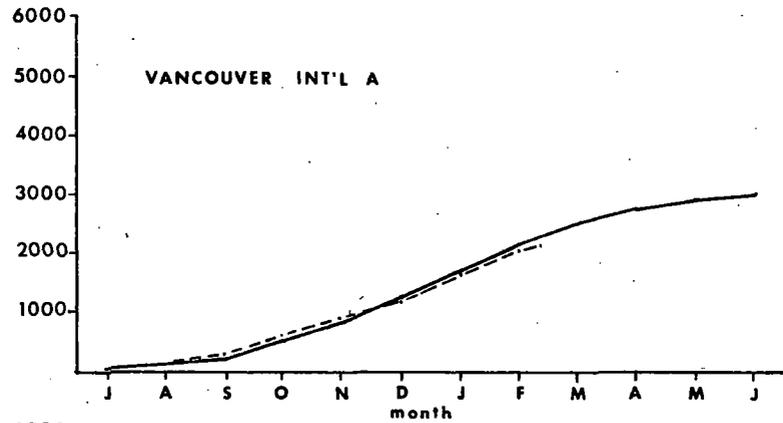


TABLE 1. COMPARATIVE WINTER SEASON (DEC-JAN-FEB) TEMPERATURES (°F)

LOCATION	THIS YEAR		RECORDS SINCE	COLDEST		WARMEST	
	1976-77 TEMP.	DIFF. FROM NORMAL		YEAR	TEMP.	YEAR	TEMP.
Vancouver	40.7	+ 1.7	1937	1949-50	31.7	1939-40	43.8
Whitehorse	18.8	+15.5	1940	1968-69	-11.2	1943-44	19.0
Edmonton	21.4	+10.9	1880	1886-87	- 4.0	1930-31	26.7
Regina	9.6	+ 4.3	1883	1886-87	-12.0	1930-31	21.6
Winnipeg	1.3	- 2.1	1872	1874-75	- 9.3	1877-78	19.1
Toronto	21.3	- 4.7	1841	1874-75	16.7	1931-32	32.8
London	16.3	- 6.6	1878	1903-04	16.0	1889-90	31.7
Ottawa	12.2	- 2.9	1889	1933-34	3.4	1952-53	22.3
Montreal	15.0	- 3.7	1871	1904-05	9.5	1932-33	24.5
Halifax	26.8	- 1.0	1871	1904-05	19.0	1950-51	33.0

TABLE 2. SEASONAL HEATING DEGREE DAYS (BASED ON °C)

LOCATION	TOTAL FOR (DEC-JAN-FEB)			SEASONAL ACCUMULATION TO MAR.12		
	1976-77	1941-70 NORMAL	1971-76 AVERAGE	1976-77	NORMAL	% NORMAL
Vancouver Int'l A	1191	1307	1329	2137.5	2255	95
Edmonton Municipal	2148.5	2712	2630	3475.5	4424	79
Regina A	2767	2967	2936	4326.5	4689	92
Winnipeg Int'l A	3168	3062	3102	4845	4682	103
Thunder Bay A	2979.5	2787	2778	4729	4420	107
Toronto Int'l A	2384.5	2093	2064	3652	3165	115
Montreal Int'l A	2588	2387	2393	3909.5	3528	111
Halifax Shearwater	2013	1897	1953	3114.5	2953	105
St. John's Nfld.	2009	1902	2053	3396.5	3299	103