

DIAN

ate



# Summary

December 1998

Monthly review of Canadian climate and water

vol. 3

## CLIMATIC HIGHLIGHTS

### December 1998

December concludes warmest year ever measured in Canada. The 1998 national average temperature is 2.5°C above the 1951-1980 normal. Every month in 1998 has had above normal, national average temperatures with 6 of those months having broken records.

The lowest temperature for the month, -50.0°C, occurs on the 29th at Pelly Ranch.

Dec 18 - Rain, snow and high winds hit the Maritime provinces, causing at least six highway fatalities, and the closing of schools and highways. Southern New Brunswick receives the heaviest snowfall amounts (20 - 30 cm). Nova Scotia and PEI are blanketed with snow (5-15 cm), and rain (15-40 mm). Halifax receives 37.2 mm of rain and 6.8 cm of snow. Strong winds, gusting to 112 km/h, force the closure of Confederation Bridge.

Dec 28 - A high avalanche hazard closes several interior roads in British Columbia. Included in the closure is the Trans-Canada Highway along the Fraser canyon. Recent days heavy snowfall and mild temperatures have forced officials to undertake avalanche-control work in the area.

Dec 19 - Eastern Ontario and Western Quebec get their first major snowfall for the season. Emergency services are swamped as over 300 weather-related accidents occur in the Ottawa area alone.

Dec 1st & 5th - Winds gusting 80-90 km/h force the cancellation of ferry services to Vancouver Island.

The first half of the month proves to be exceptionally mild and relatively snow-free for many parts of the country. Rounds of golf are still being enjoyed by enthusiasts in communities such as Calgary and London where courses are normally frozen and snow covered. In Kelowna, black bears are still roaming about in this second week of December. A lack of wintry white in cities such as Regina and Montreal is believed by retailers to be responsible for putting consumers in their non-spending mood. Overall, sales of winter apparel are down for the country. In other areas, black ice becomes almost a daily occurrence as the combination of warm, moist daytime air and sub-zero overnight temperatures leads to the dangerous conditions. Niagara Peninsula icewines are at risk as mounting losses and the continual warmth encourages some producers to pick the grapes before it is time. Temperatures attain more seasonable values as a series of cold fronts cross the country on the 17th and 18th of the month.

The highest temperature for the month, 20.5°C, occurs at St. Catharines, on the 6th.

Low water levels continue to plague the great lakes. Lake Superior is at lowest level since 1926 and generating stations on St. Mary's River experience 30% cut to their water supply. St. Lawrence ships are forced to carry lighter loads.


**CANADIAN CLIMATE SUMMARY  
VOLUME 3**

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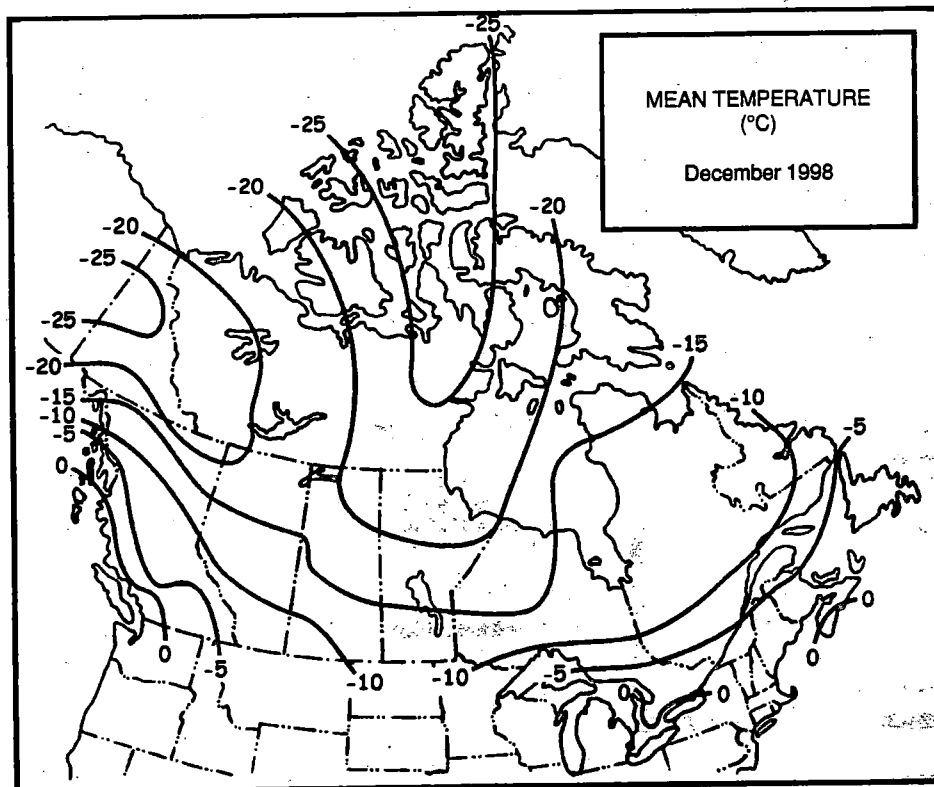
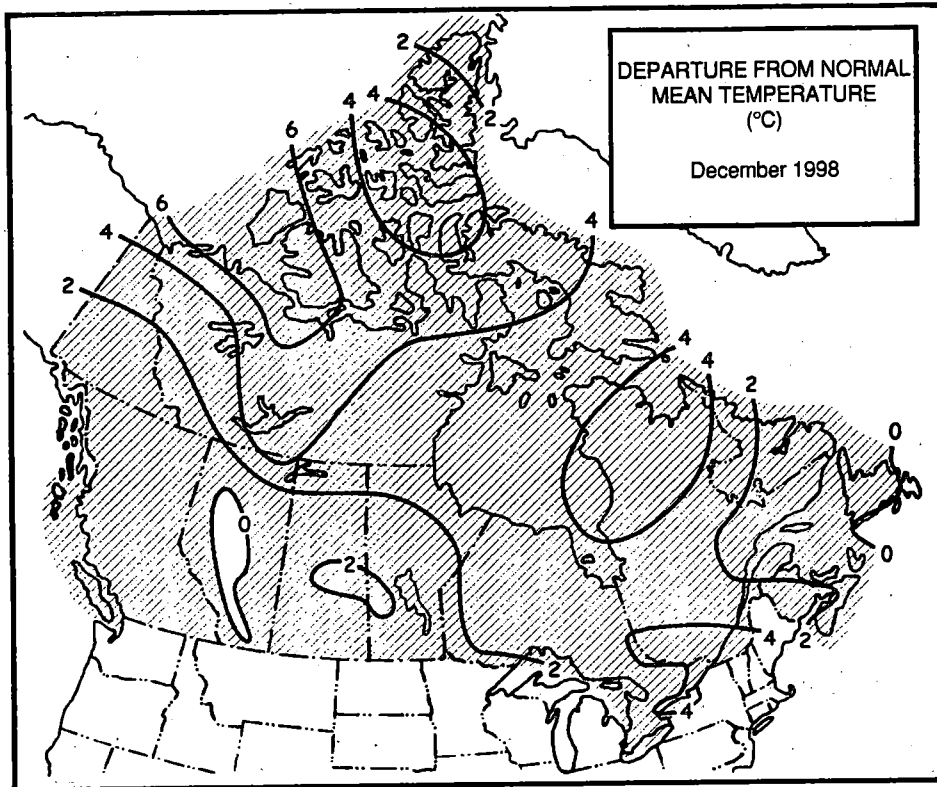
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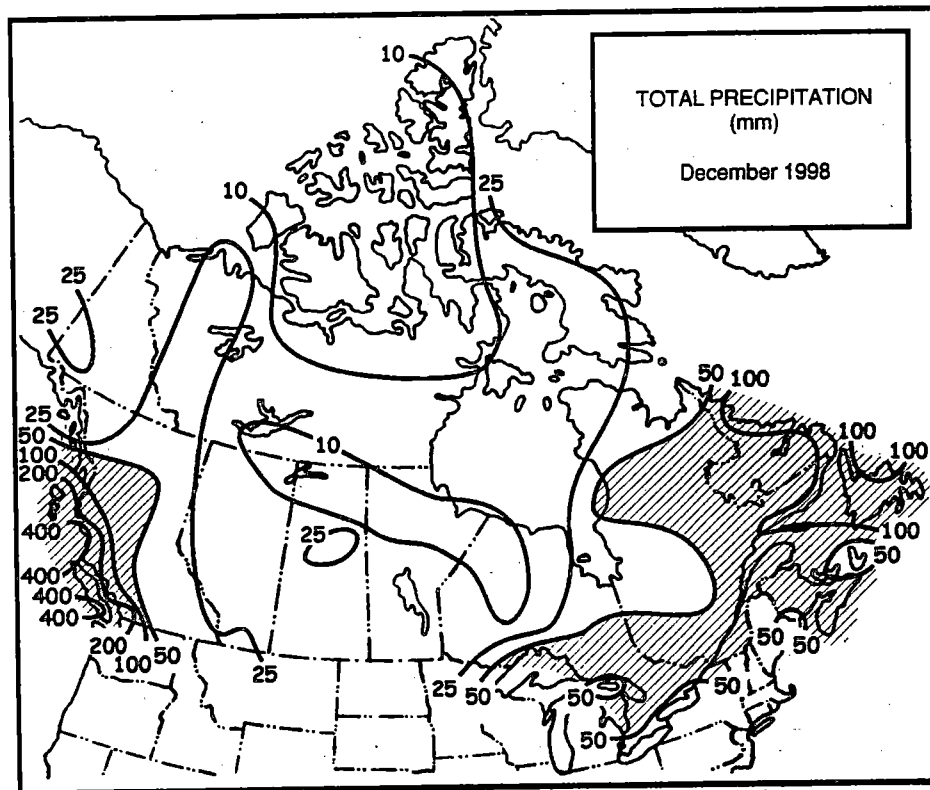
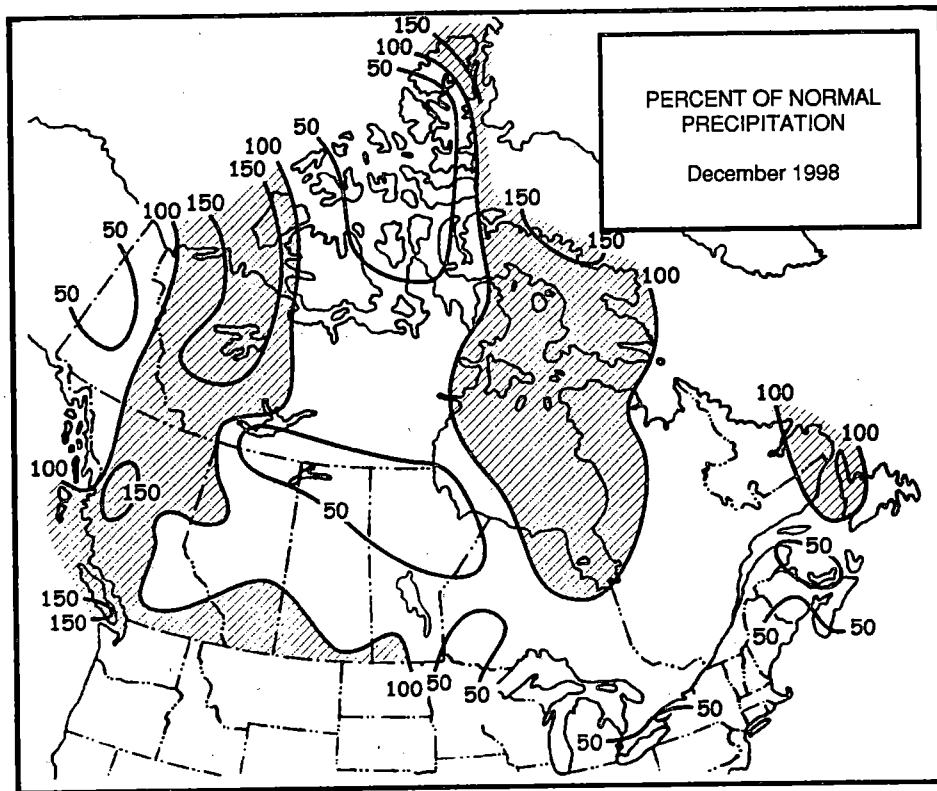


## Weather Extremes, December 1998

	Maximum temperature (°C)	Minimum temperature (°C)	Greatest precipitation (mm)
<b>British Columbia</b>	PAM ROCKS 15.9	BLUE RIVER -40.3	HENDERSON LAKE 1546.6
<b>Yukon Territory</b>	TESLIN 6.7	PELLY RANCH -50.0	KLONDIKE 41.1
<b>Northwest Territories</b>	PANGNIRTUNG 6.7	TULITA -44.0	FORT LIARD 55.7
<b>Alberta</b>	MEDICINE HAT 16.1	KAKWA -42.4	BEAVER MINES 80.4
<b>Saskatchewan</b>	GOLDEN PRAIRIE 16.5	KEY LAKE -42.9	CARNDUFF 65.0
<b>Manitoba</b>	KILLARNEY 13.0	THOMPSON -41.4	BRANDON 42.0
<b>Ontario</b>	ST. CATHARINES 20.5	CHAPLEAU -37.4	TARA 145.8
<b>Quebec</b>	STE CLOTHILDE 18.7	LAC BENOIT -42.2	FORET MONTMORENCY 132.1
<b>New Brunswick</b>	GAGETOWN 16.0	ST. LEONARD -28.9	ALMA 114.4
<b>Nova Scotia</b>	BRIDGEWATER 18.0	MALAY FALLS -21.0	SABLE ISLAND 140.5
<b>Prince Edward Island</b>	MONTICELLO 14.0	CHARLOTTETOWN -19.5	O'LEARY 80.8
<b>Newfoundland</b>	LONG HARBOUR 15.5	WABUSH LAKE -33.8	WEST ST. MODESTE 205.5

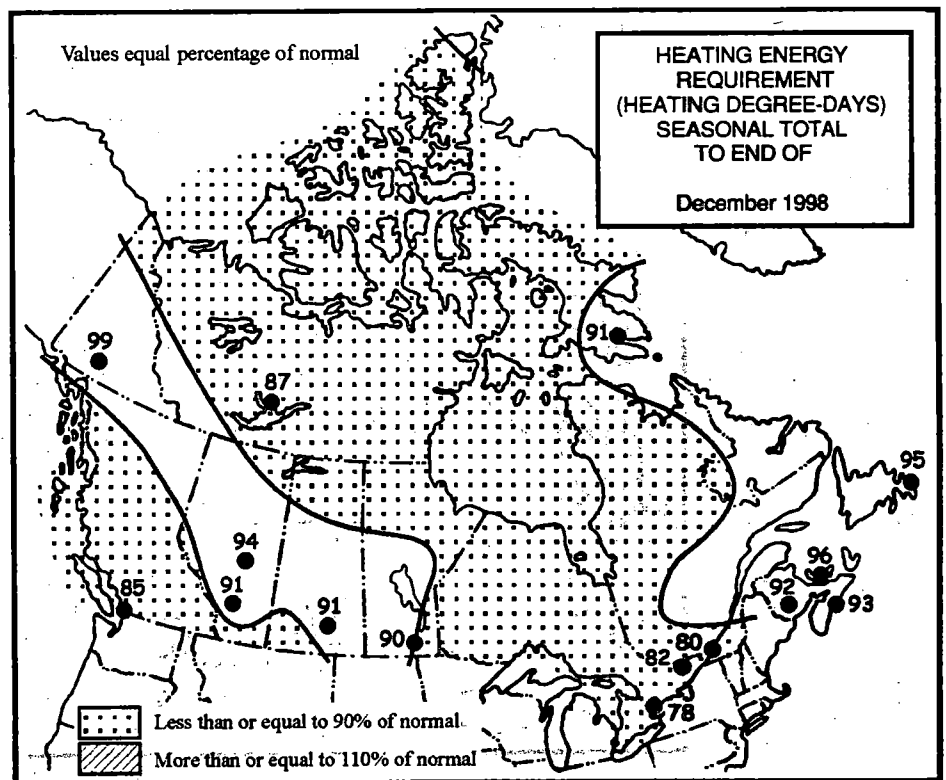
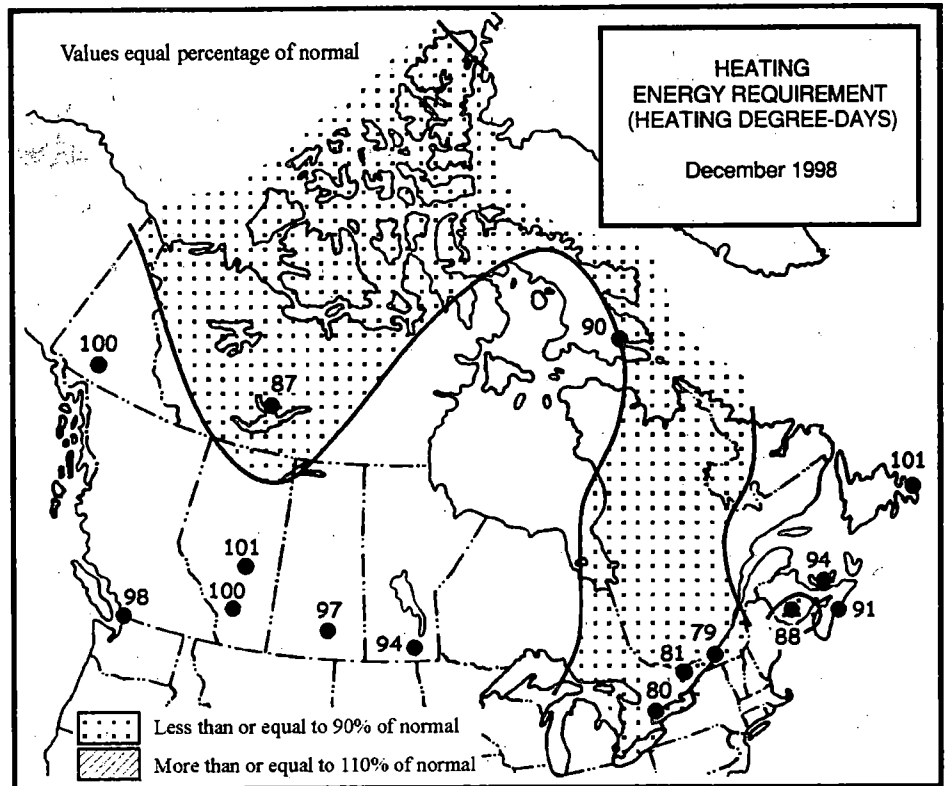
### Across The Country...

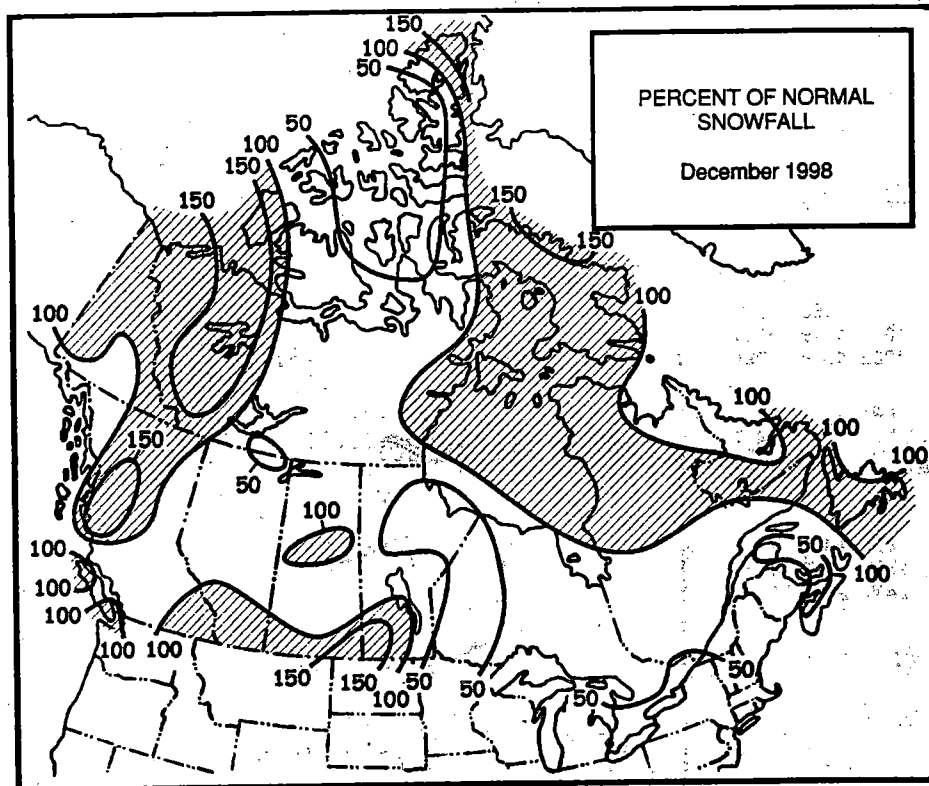
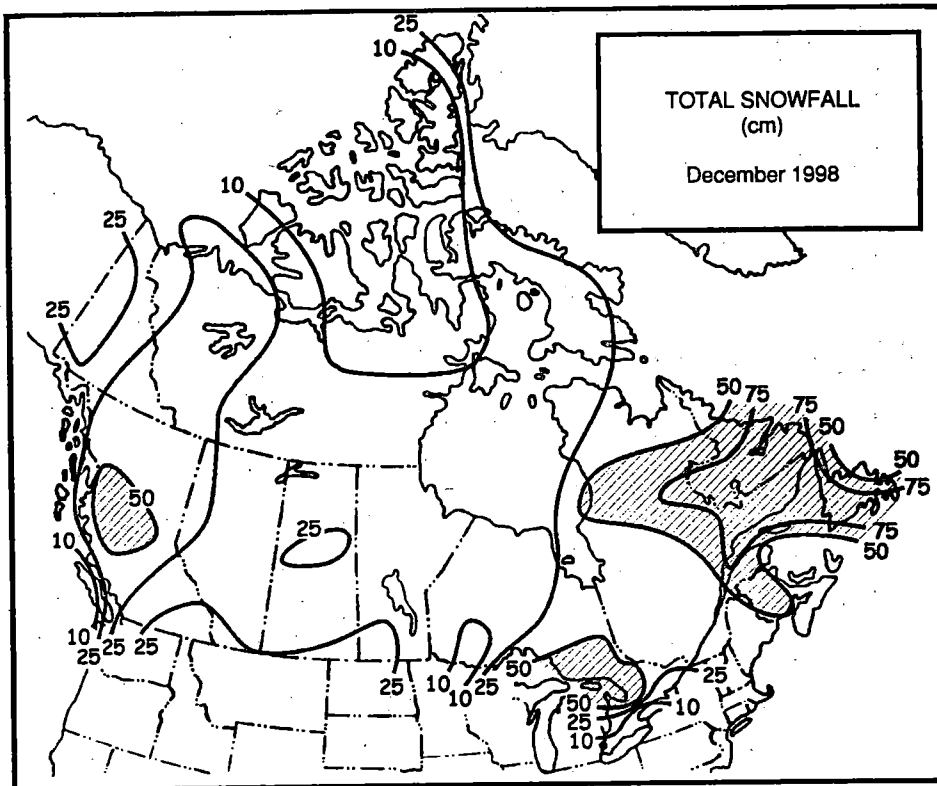
<b>Highest Monthly Mean Temperature</b>	VICTORIA UNIVERSITY	BC	7.1	°C
<b>Lowest Monthly Mean Temperature</b>	ALERT	NWT	-29.1	°C
<b>Highest Temperature</b>	ST. CATHARINES	ONT	20.5	°C
<b>Lowest Temperature</b>	PELLY RANCH	YT	-50.0	°C
<b>Heaviest Monthly Precipitation</b>	HENDERSON LAKE	BC	1546.6	mm
<b>Greatest Number of Bright Sunshine Hours</b>	ESTEVAN	SASK	134.3	hrs

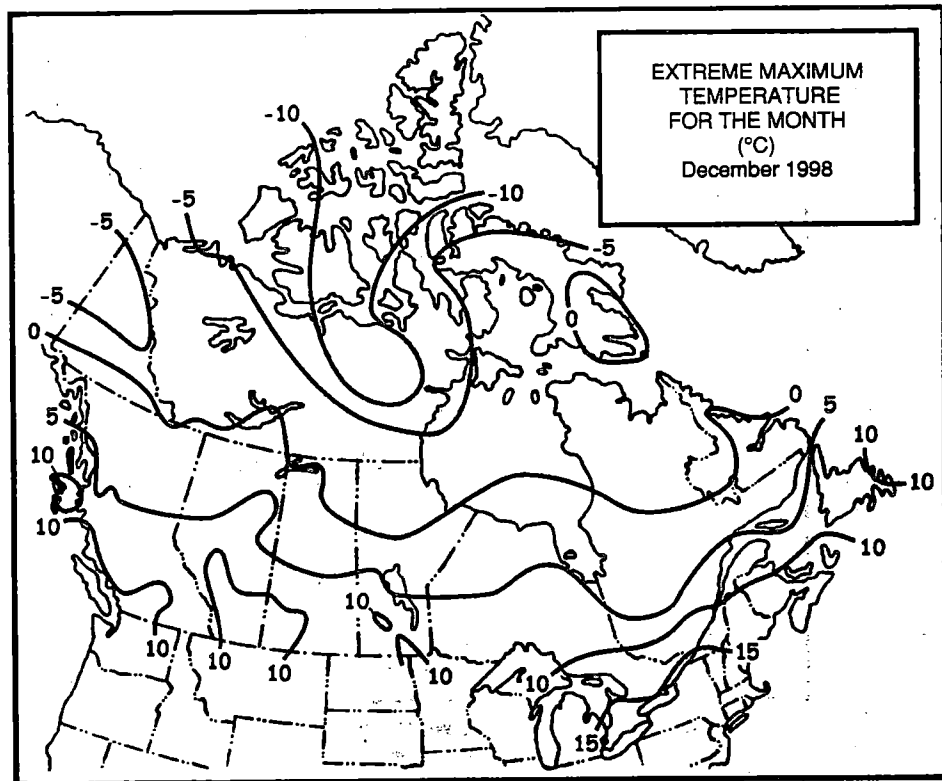
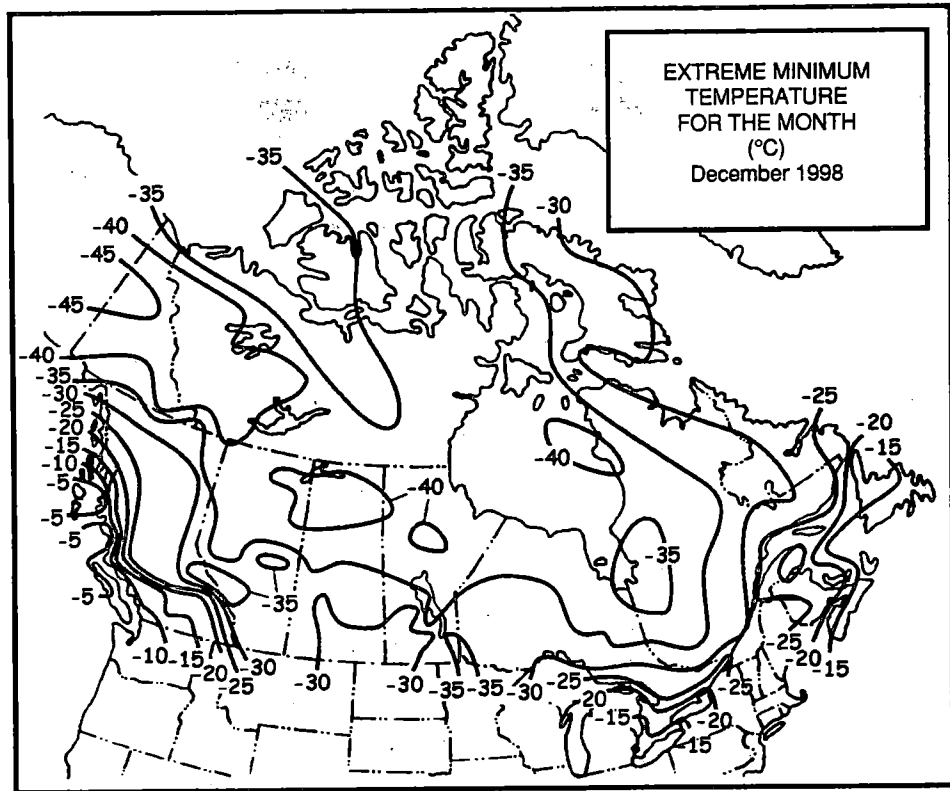


SEASONAL TOTAL OF HEATING  
DEGREE-DAYS TO END OF DECEMBER

	1998	1997	Normal
<b>British Columbia</b>			
VICTORIA INT'L A	1091	1084	1311
PRINCE GEORGE A	2058	1990	2316
VANCOUVER INT'L A	1058	1054	1248
PENTICTON A	1253	1334	1464
KAMLOOPS A	*	1344	1575
<b>Yukon Territory</b>			
DAWSON	*	*	*
WATSON LAKE A	*	3100	3418
<b>North West Territories</b>			
INUVIK A	*	*	4191
IQALUIT A	*	*	4022
RESOLUTE A	*	5464	5392
<b>Alberta</b>			
EDMONTON INT'L A	2346	1981	2493
CALGARY INT'L A	2008	1948	2210
MEDICINE HAT A	1715	*	1967
PEACE RIVER A	2526	2315	2740
<b>Saskatchewan</b>			
MOOSE JAW A	*	1785	2177
REGINA A	*	*	2354
PRINCE ALBERT A	2394	*	2667
SASKATOON A	*	2063	2450
<b>Manitoba</b>			
BRANDON A	2232	2100	2422
WINNIPEG INT'L A	*	2036	2321
CHURCHILL A	*	*	3572
LYNN LAKE A	2931	2924	3292
THOMPSON A	2942	2983	3259
<b>Ontario</b>			
KENORA A	2062	2063	2332
THUNDER BAY A	*	*	2245
SUDBURY A	1803	2049	2078
KAPUSKASING A	*	*	2544
NORTH BAY A	1786	*	2081
OTTAWA INT'L A	1465	1790	1786
WINDSOR A	*	*	1314
LONDON A	1235	*	1528
TORONTO INT'L A	1195	*	1535
<b>Quebec</b>			
MONTREAL INT'L A	1375	1698	1721
SHERBROOKE A	*	2035	2022
SEPT-ILES A	2304	2446	2453
MONT JOLI A	1956	2069	2111
BAGOTVILLE A	2049	2247	2278
VAL D'OR A	2181	2417	2441
<b>New Brunswick</b>			
FREDERICTON A	*	1886	1820
MONCTON A	1677	1839	1791
SAINT JOHN A	1702	1918	1786
<b>Nova Scotia</b>			
GREENWOOD A	1444	1622	1569
YARMOUTH A	*	*	1487
<b>Prince Edward Island</b>			
CHARLOTTETOWN A	1612	1703	1674
<b>Newfoundland</b>			
GANDER INT'L A	1851	1940	1934
ST JOHN'S A	1708	1797	1789
GOOSE A	2480	2520	2620

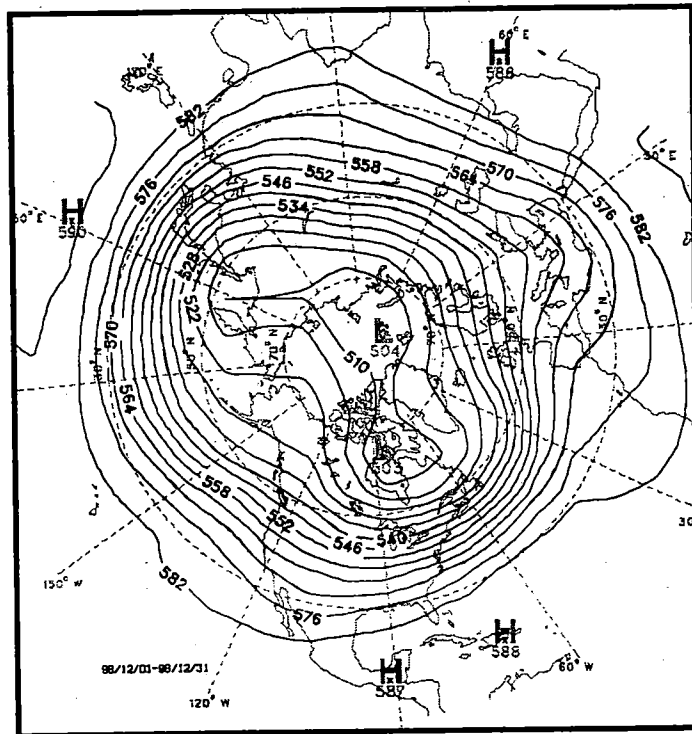




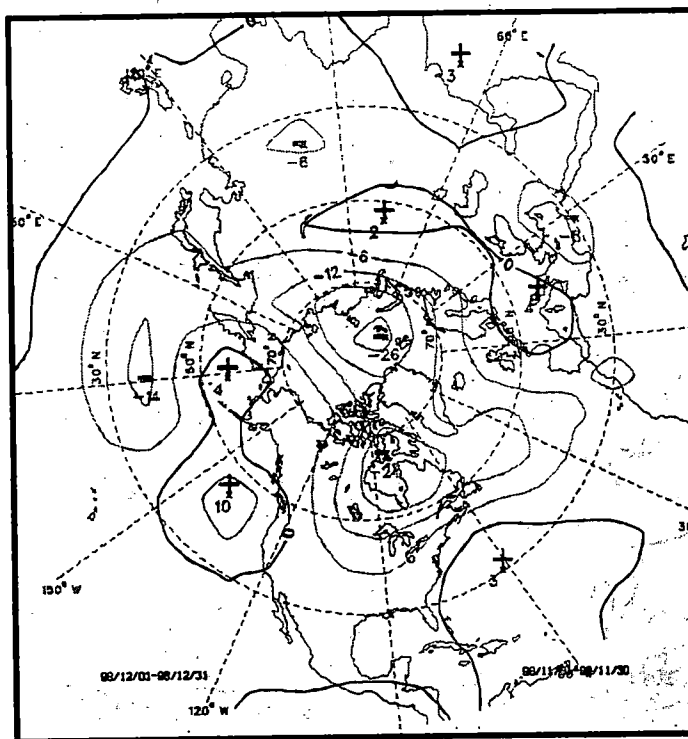


# 50-kPa ATMOSPHERIC CIRCULATION

December 1998



Mean geopotential heights  
6-decametre interval



Mean height difference w/r to previous month  
6-decametre interval



December 1998

STATION	Temperature C				Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C			
	Mean	Difference from Normal	Maximum	Minimum												
<b>BRITISH COLUMBIA</b>																
ABBOTSFORD A	3.1	0.5	15.4	-11.3	20.2	85	317.3	146		26	44					
AGASSIZ CS	2.7		12.0	-8.9									474.7			
CLINTON	-6.2		5.4	-27.4			30.0			11			749.4			
COMOX A	3.7	0.3	10.8	-5.9	25.6	87	226.0	113		20	51		444.1			
CRANBROOK A	-6.4	0.8	7.4	-26.2	39.6	100	39.2	104	14	10			757.3			
DEASE LAKE CAMPBELL	-16.5		4.0	-33.8									1069.9			
FORT NELSON A	-20.0	0.3	1.1	-35.4	27.2	101	28.7	153	37	9			1179.4			
FORT ST JOHN A	-12.7	0.5	4.7	-29.9	27.4	79	32.6	111	26	8			950.3			
HOPE	1.9		12.4	-10.1									598.4			
KAMLOOPS A	-1.3	2.0	14.0	-17.0	17.8	57	22.4	69	6	6			603.9			
KELOWNA A	-1.5	1.8	11.3	-18.7			49.5	134		14			435.8			
LANGARA	3.9	0.2	10.9	-1.5			300.0	144		27						
LYTTON	0.0		12.3	-13.8												
MACKENZIE A	-8.9	1.2	3.2	-29.2			95.5	137		16			834.4			
MALAHAT	2.7		10.4	-9.9												
MCINNIS ISLAND	5.4	1.4	10.7	-2.7			420.4	145		25						
NELSON	-1.8		6.6	-16.2									613.2			
PENTICTON A	0.1	1.2	10.9	-15.5	25.2	100	32.9	102	8	38	104		555.7			
PORT HARDY A	3.6	0.3	11.7	-6.1	6.9	46	366.8	141	28	35	72		445.9			
PRINCE GEORGE A	-6.4	2.0	7.7	-21.0	54.2	100	48.6	90	25	13	46	96	755.9			
PRINCE RUPERT A	2.6	0.9	9.3	-6.6			147.5	55		11			475.9			
PRINCETON	-4.5		6.8	-23.1									698.4			
QUESNEL A	-5.3	2.2	8.9	-23.0			68.0	138		18						
REVELSTOKE	-2.3		7.0	-16.6			220.0			19			629.8			
SANDSPIT A	4.0	0.5	10.7	-1.1									433.9			
SHERINGHAM POINT	6.1		14.5	-6.7			34.0		6				370.3			
SMITHERS A	-6.9	1.1	7.4	-23.8	90.4	174	80.6	168	47	17			771.2			
SPARWOOD	-7.2		5.1	-30.3									779.9			
SQUAMISH	1.2		9.1	-11.4									520.9			
SUMMERLAND CS	-0.7		10.6	-16.2									579.0			
TERRACE A	-3.4	0.0	4.3	-13.5	188.5	204	255.8	143	31	24	30	49	662.3			
VANCOUVER INT'L A	3.7	0.2	13.0	-9.7								91	443.9			
VICTORIA INT'L A	4.7	0.9	13.8	-8.3	27.0	186	207.5	137	19	19	54	112	412.8			
WILLIAMS LAKE A	-6.3	1.4	6.2	-27.9	41.3	84	39.8	100	26	11	54	112	753.6			
<b>YUKON TERRITORY</b>																
BURWASH	-22.7			-0.8												
DAWSON	-26.0			-9.2												
FARO	-21.8			-3.3												
KOMAKUK BEACH	-17.0			0.5												
TESLIN	-15.3			6.7												
WATSON LAKE A	-22.4	0.5		2.7												
<b>NORTHWEST TERRITORIES</b>																
BAKER LAKE A	-25.0	3.3		-10.7					15.0	134	8.8	94	18	3	22	1333.2
CAPE DORSET A	-17.0			-1.0												
CAPE DYER	-16.8			-1.0												
CAPE HOOPER	-18.3	3.8		-3.1												
CAPE PARRY A	-17.4	7.1		-7.0												
CLYDE A	-19.4	4.6		-9.0												
CORAL HARBOUR A	-22.0	3.5		-2.3					14.0	122	14.2	131	23	6	0	1158.2
EUREKA	-28.9	5.6		-13.6							0.0	0	9	0	0	1240.3
FORT RELIANCE	-18.1			0.5												
FORT SIMPSON A	-21.5	2.3		-5.0					35.7	166	15.5	70	15	5	6	1223.1
FORT SMITH A	-16.7	5.0		1.2					11.8	48	13.2	47	20	5	5	1075.3
FOX FIVE	-18.3	3.1		-1.9							9.0	47	20	5	5	1125.5
HALL BEACH A	-23.5	4.1		-0.7												
HAY RIVER A	-16.8	4.1		2.0					13.0	59	6.1	29	29	3	3	1285.8
INUVIK A	-20.3	5.8		-1.4							14.5	86				1079.0
IQALUIT A	-18.2	3.9		3.1												1187.4
LONGSTAFF BLUFF	-20.6	4.3		-1.9												
NORMAN WELLS A	-22.9	2.3		-0.5					39.6	197	27.0	153	8	8		1197.3
PANGNIRTUNG	-14.1			6.7												
RANKIN INLET A	-25.2			-7.2					13.0		13.8		27	5		1266.9
RESOLUTE A	-26.1	2.9		-13.4					0.4	8	0.4	9	17	0		995.5
SHEPHERD BAY A	-28.0			-7.4												
TUKTOYAKTUK	-18.6			-3.5												
YELLOWKNIFE A	-19.6	4.5		-3.1							17.7	120	19	5		1338.2



December 1998

STATION	Temperature C				Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C
	Mean	Difference from Normal	Maximum	Minimum									
THUNDER BAY A	-9.4	1.9	10.0	-31.1									
TIMMINS A	-10.3	3.4	6.2	-35.3	50.1	70	97.5	248	7				848.1
TORONTO ISLAND A	1.7	3.2	17.3	-16.1			50.2	78	33	10			875.9
TORONTO LESTER B. P	0.7	4.2	17.6	-17.4	9.1	29	63.0	96	0	6			505.7
TRENTON A	0.0	4.5	15.4	-18.5	12.6	28	44.4	54	0	8			556.9
WATERLOO WELLINGTON	-0.5	3.5	17.1	-16.1	7.6	19	72.8	92	2	11			535.1
WAWA A	-7.1		7.5	-35.0			78.6		45	10			777.0
WIARTON A	0.0	3.7	15.0	-17.3					15				556.7
WINDSOR A	2.0	3.9	19.6	-12.3	6.6	21	35.4	43	0	7			496.8
QUEBEC													
BAGOTVILLE A	-8.7	3.4	10.6	-31.2	83.1	97	79.4	103	54	12			828.1
BAIE COMEAU A	-9.5	0.8	4.5	-30.8									853.1
BLANC SABLON A	-8.5		3.5	-24.0			118.5			15			820.7
CHIBOUGAMAU	-13.0		3.1	-36.9									
GASPE A	-6.5		10.3	-25.5	29.8	34	51.2	43	20	9	125		759.2
ILES DE LA MADELEIN	-1.6		9.1	-11.1			50.6		1	10	63		608.1
JOMQUIERE	-8.2		11.2	-29.8			71.8			15			811.5
KUUJUAQA A	-14.3	4.8	-2.2	-30.8	36.4	86	36.4	90	21	8			1001.0
KUUJUARAPEK A	-12.3	4.3	0.6	-35.8	82.8	224	83.0	236	53	21			938.7
L'ASSOMPTION CDA	-2.7	5.5	13.2	-27.9									
LA GRANDE RIVIERE A	-13.9		0.0	-33.3	47.8		48.4		42	14	27		989.0
LAC EON	-13.6		0.8	-30.5									
MATAGAMI	-12.4		4.4	-34.1									
MONT JOLI A	-6.3	2.1	10.1	-22.6	61.4	68	74.8	80	20	12			753.0
MONTREAL/DORVAL INT	-1.7	5.2	15.1	-24.8			59.5	70		9			610.3
NATASHQUAN A	-8.6	0.8	4.1	-28.7									
NORMANDIN	-10.4		6.8	-33.1									
QUEBEC CS	-5.7		8.9	-28.7							0		734.7
ROBERVAL A	-8.7	3.7	9.3	-31.2	49.6	64	50.0	63	2	10	84		827.8
SEPT-ILES A	-10.5	0.5	3.6	-29.6	87.6	92	102.6	96	46	12	111		882.8
SHERBROOKE A	-3.1	5.2	15.8	-27.5			52.5	55		12			653.4
ST HUBERT A	-2.2	4.8	15.0	-24.9									
VAL D'OR A	-9.4	3.9	5.7	-36.9			64.0	92		12			848.0

STATION	Temperature C				Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C
	Mean	Difference from Normal	Maximum	Minimum									
NEW BRUNSWICK													
CHARLO A	-7.1	1.6	4.8	-25.2			64.6	62	40	10			778.3
FREDERICTON A	-3.8	2.8	14.4	-28.3	58.8	83	50.8	43	12	8			676.5
MONCTON A	-3.4	2.3	14.3	-21.3	44.4	59	72.4	57	0	9			663.8
SAINT JOHN A	-2.6	2.4	13.4	-21.0	45.0	70	70.1	42	1	9			638.9
ST STEPHEN	-3.3		15.4	-23.6			45.4			9			
NOVA SCOTIA													
AMHERST	-2.5		11.7	-19.6			56.6			6			634.0
GREENWOOD A	-0.6	2.0	17.1	-17.7	21.4	33	75.6	65	3	11			578.1
SHEARWATER A	0.0	1.7	13.6	-14.3	28.2	76	99.2	66	2	13	112	117	556.6
SYDNEY A	-1.6	0.4	13.3	-14.1	41.2	60			4				607.5
YARMOUTH A	0.8	1.2	12.3	-12.8	24.7	58	57.2	40	5	9	95	148	532.2
PRINCE EDWARD ISLAND													
CHARLOTTETOWN A	-2.8	1.3	12.4	-19.5	37.8	50	64.0	48	3	10			644.8
EAST POINT	-1.4		13.3	-18.2			42.0			10			
NEWFOUNDLAND													
ARGENTIA	-0.1	-0.6	0.5	10.35	13.4		\$ \$1	08.8	\$ \$3	?	\$ \$15	?	\$ \$5
BONAVISTA	-1.6		11.0	-7.9									561.9
CAPE RACE	-0.6		8.0	-11.4									606.5
CARTWRIGHT	-9.2	0.2	3.0	-24.2	96.0	121	100.4	114	89	15			844.5
CHURCHILL FALLS	-15.0		-1.0	-31.8			22.4		3				1023.9
DANIELS HARBOUR	-3.8	0.3	9.2	-16.4									677.1
DEER LAKE A	-4.2	0.9	8.7	-18.0	113.7	135	138.0	132	23	17			688.1
GANDER INT'L A	-3.7	0.2	8.4	-15.2	39.8	51	83.0	73	5	11	97		673.5
GOOSE A	-12.0	1.4	3.6	-29.4	79.3	94	75.6	97	78	11	60	79	928.7
MARY'S HARBOUR	-9.5		2.7	-24.9					45				
NAIN A	-10.5		2.1	-25.8			123.4		42	7			882.6
PORT AUX BASQUES	-1.7	0.0	8.2	-10.6									611.8
ST JOHN'S A	-2.0	-0.3	13.3	-11.4	56.0	102	142.9	99	2	15	84		620.1
STEPHENVILLE A	-2.3	0.4	10.3	-11.3	95.6	107	119.5	97	41	16	33	115	630.7
WABUSH LAKE A	-15.5	3.2	0.3	-33.8	78.0	101	53.7	78	52	11			1037.5