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lian Climate Centre

Climatic Perspectives

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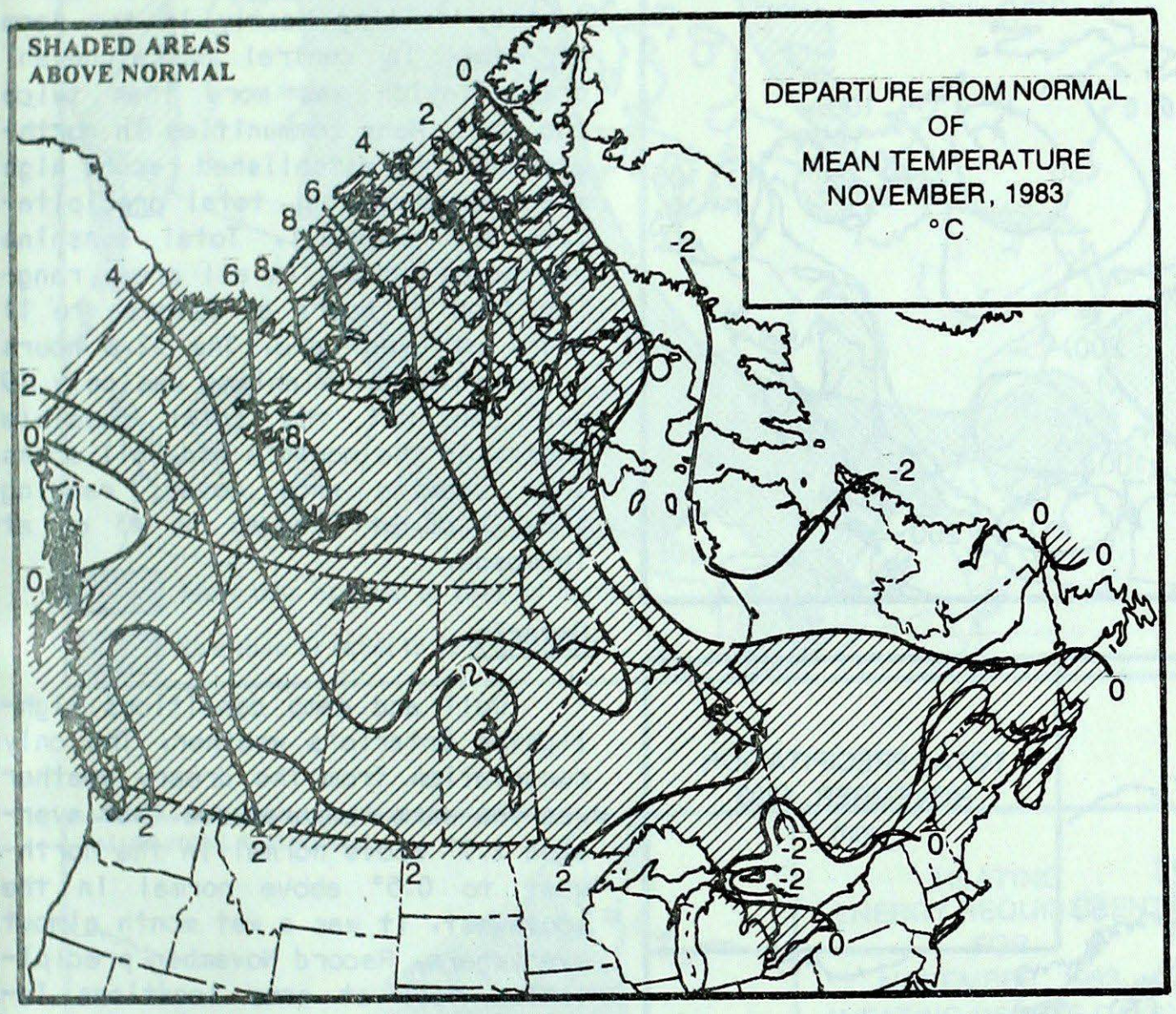
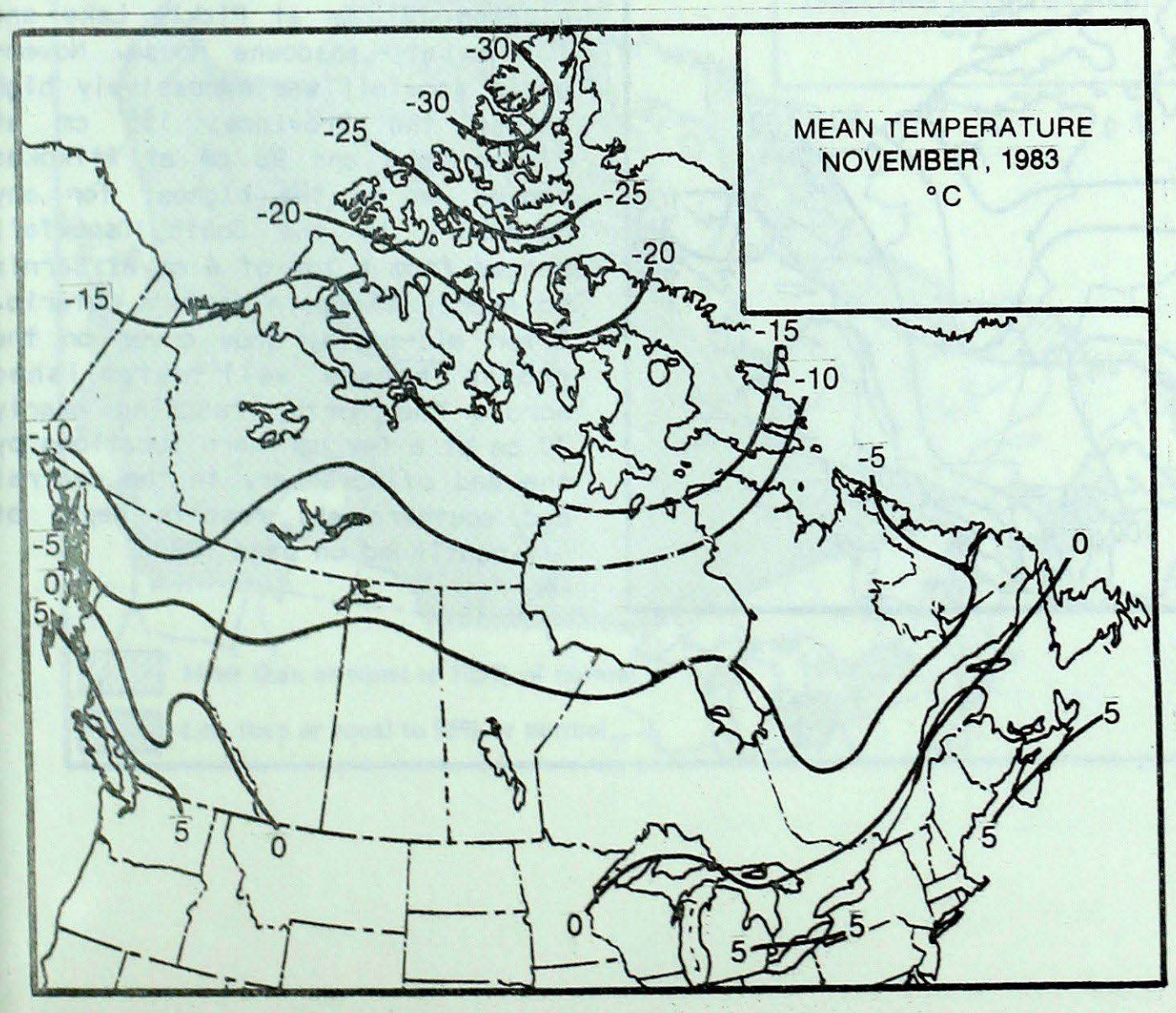




ACROSS THE COUNTRY...

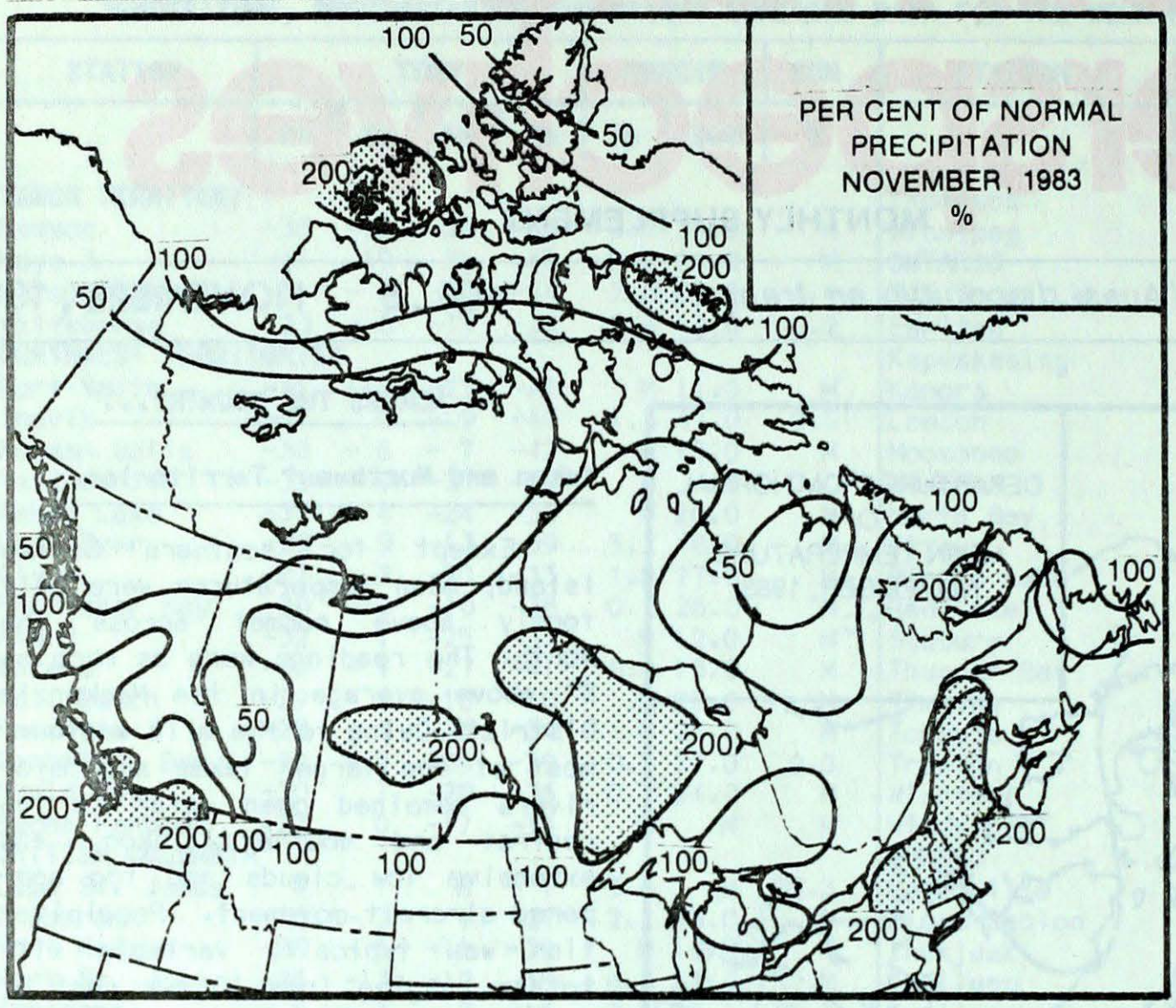
Yukon and Northwest Territories

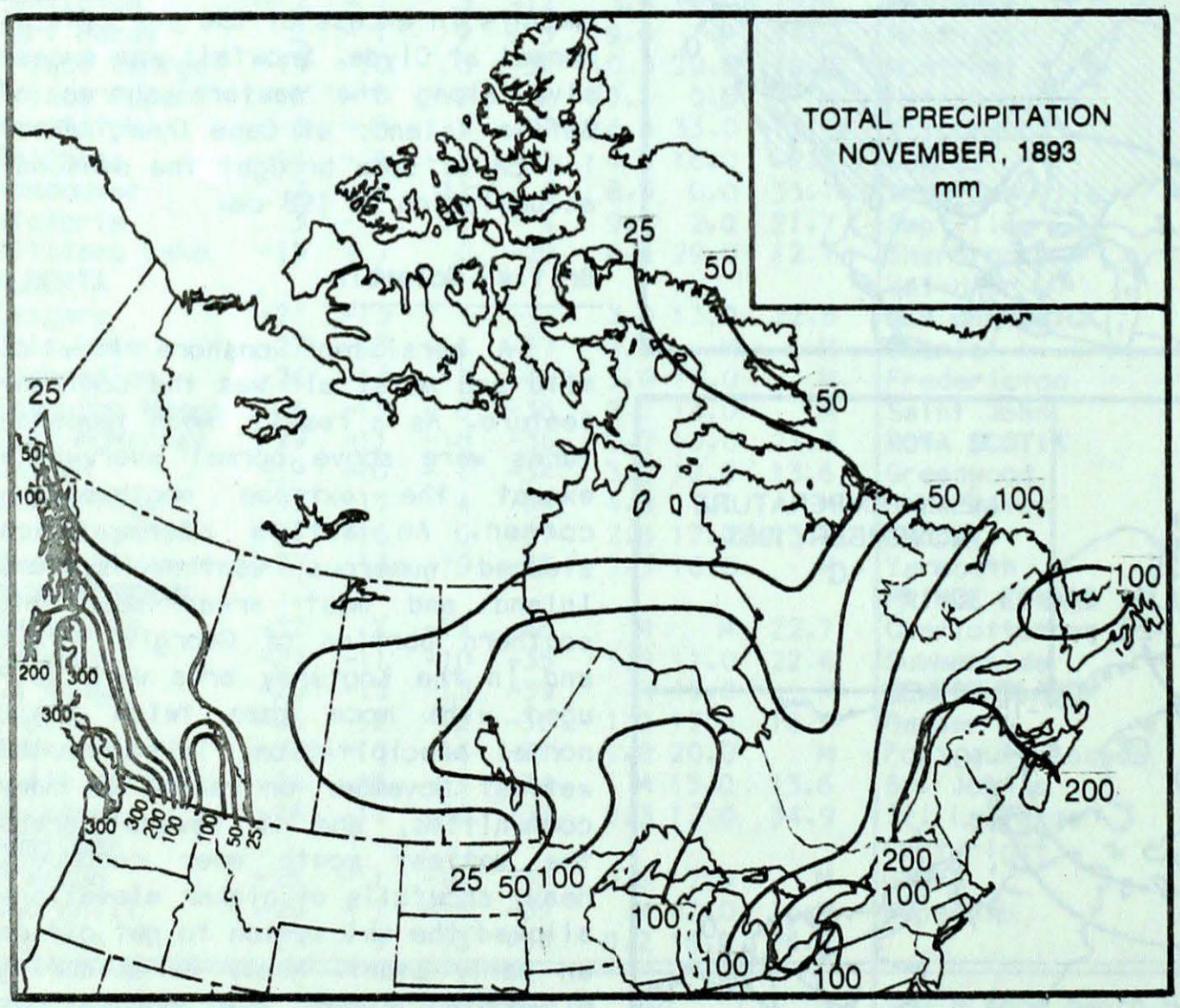
Except for southern Baffin Island, mean temperatures were uniformly above normal across the North. The readings were as much as 8° above average in the Mackenzie District. Owing to the mild weather, most of the larger lakes and major rivers remained open water in the central and southern Yukon, and extensive low clouds and fog hampered aircraft movement. Precipitation was typically variable with totals ranging from 10 per cent of normal in the southern Yukon to amounts in excess of 250 per cent of normal at Clyde. Snowfall was excessive along the eastern shores of Baffin Island; at Cape Dyer, about 165 cm of snow brought the seasonal accumulation to 198 cm.

British Columbia

A persistent onshore flow of mild and moist air was the dominant feature. As a result, mean temperatures were above normal everywhere except the extreme northwestern corner. An active storm track steered numerous weather systems inland and most areas near the southern portion of Georgia Strait and in the Kootenay area were deluged with more than twice their normal precipitation. This was the wettest November on record in many communities, and in several areas the wettest month ever recorded. Heavy snowfalls at higher elevations allowed the ski season to get off to an early start. Heavy rains during mid-month along the mountainous coastline, north of Vancouver, caused some local flooding and washouts but suprisingly little damage otherwise.

Canada





Prairies

It was a warm, dull and wet month. The temperatures varied from day to day but overall remained near the seasonable range. In the North they were as much as 5° above normal. Precipitation was below normal in western Alberta and extreme southern Manitoba. Elsewhere, precipitation was significantly above normal, falling mostly in the form of snow. In central Saskatchewan, precipitation was more than twice the norm. Many communities in northern Manitoba established record high mean temperatures, total precipitation and snowfall. Total sunshine was below normal in all areas ranging from 75 hours at Estevan to 11 hours at Lynn Lake. The 52.6 hours of sunshine at Winnipeg was only 19 per cent of the total possible hours. At the month's end, all areas were showing snow cover, ranging from 3 cm at Estevan to 43 cm at Thompson.

Ontario

Dull and damp conditions highlighted Ontario's weather. The only consolation from the dreary weather was the warm temperatures that averaged 2.5° above normal in the northwest to 0.5° above normal in the southwest. It was a wet month almost everywhere. Record November precipitation fell at some locations including 121 mm at Pickle Lake and 101 mm at Lansdowne House. November's snowfall was excessively high across the Province; 155 cm at Pickle Lake and 98 cm at Atikokan proved to be the highest for any November. In the South, snowfall ranged from a low of 4 cm at Sarnia to nearly 25 cm in eastern Ontario. After mid-month, snow cover on the ground became well established across the North, reaching nearly 70 cm at a few northern locations by the end of November. In the central and southern ski resorts depth of

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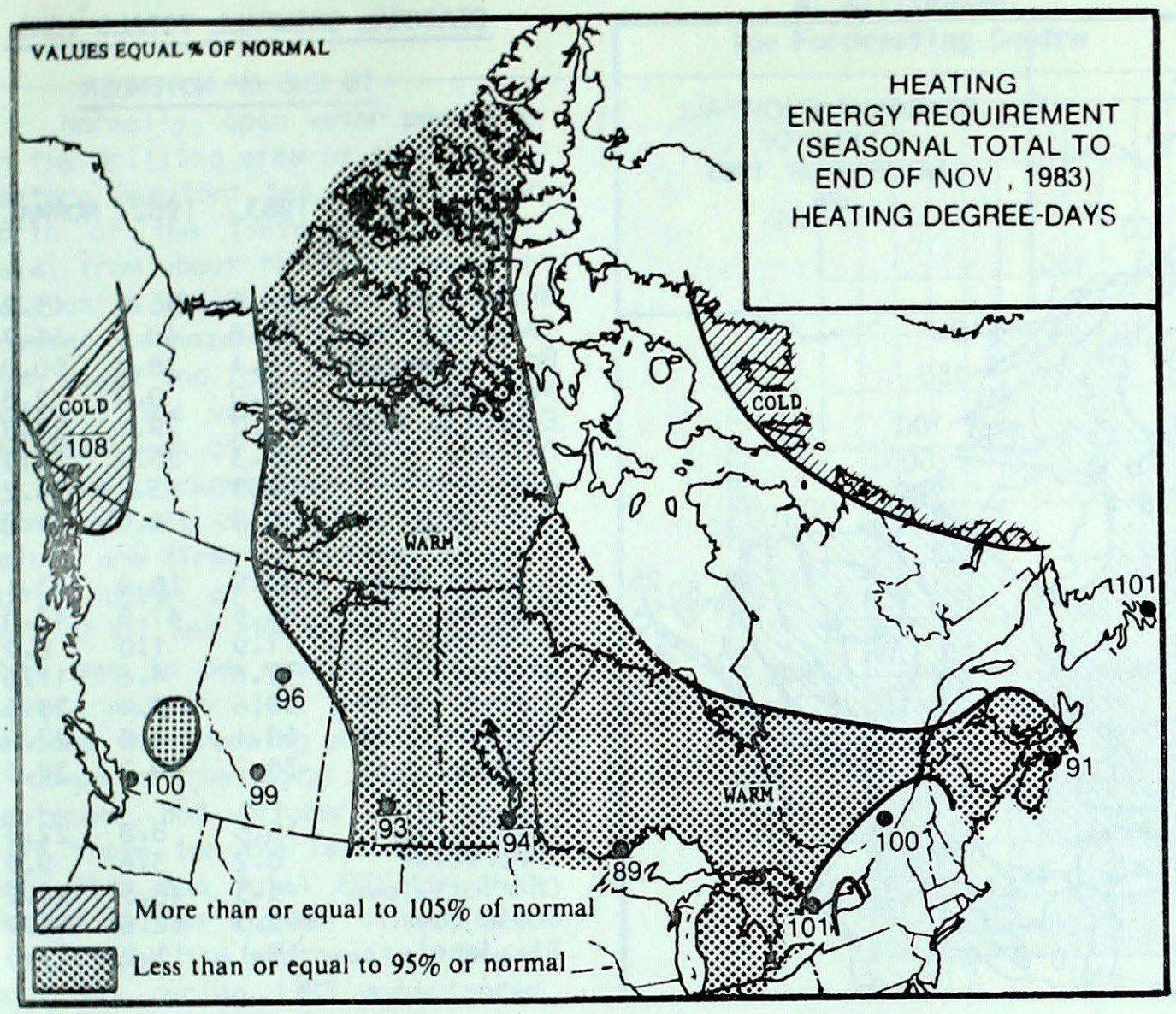
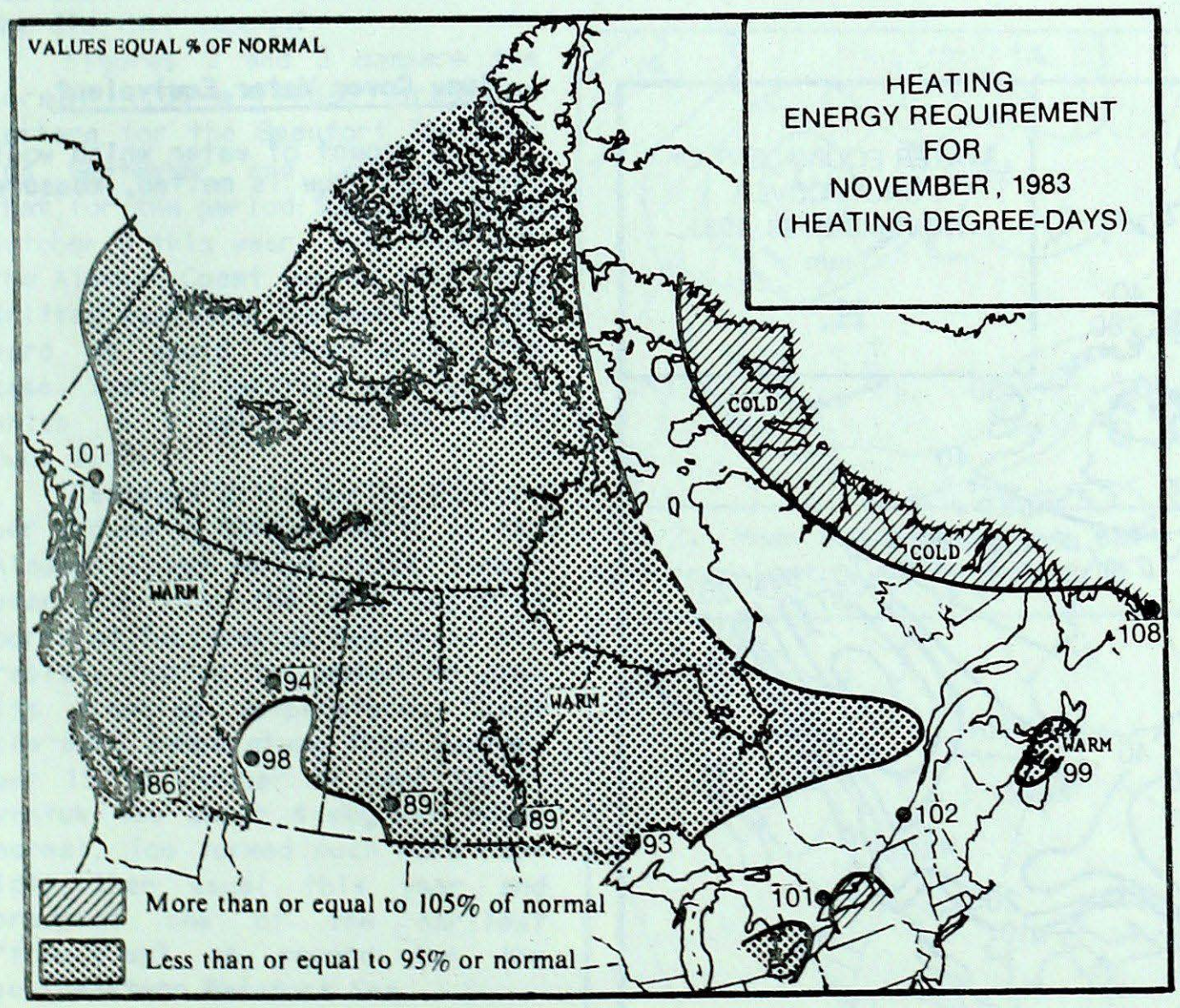
ENERGY REQUIREMENT

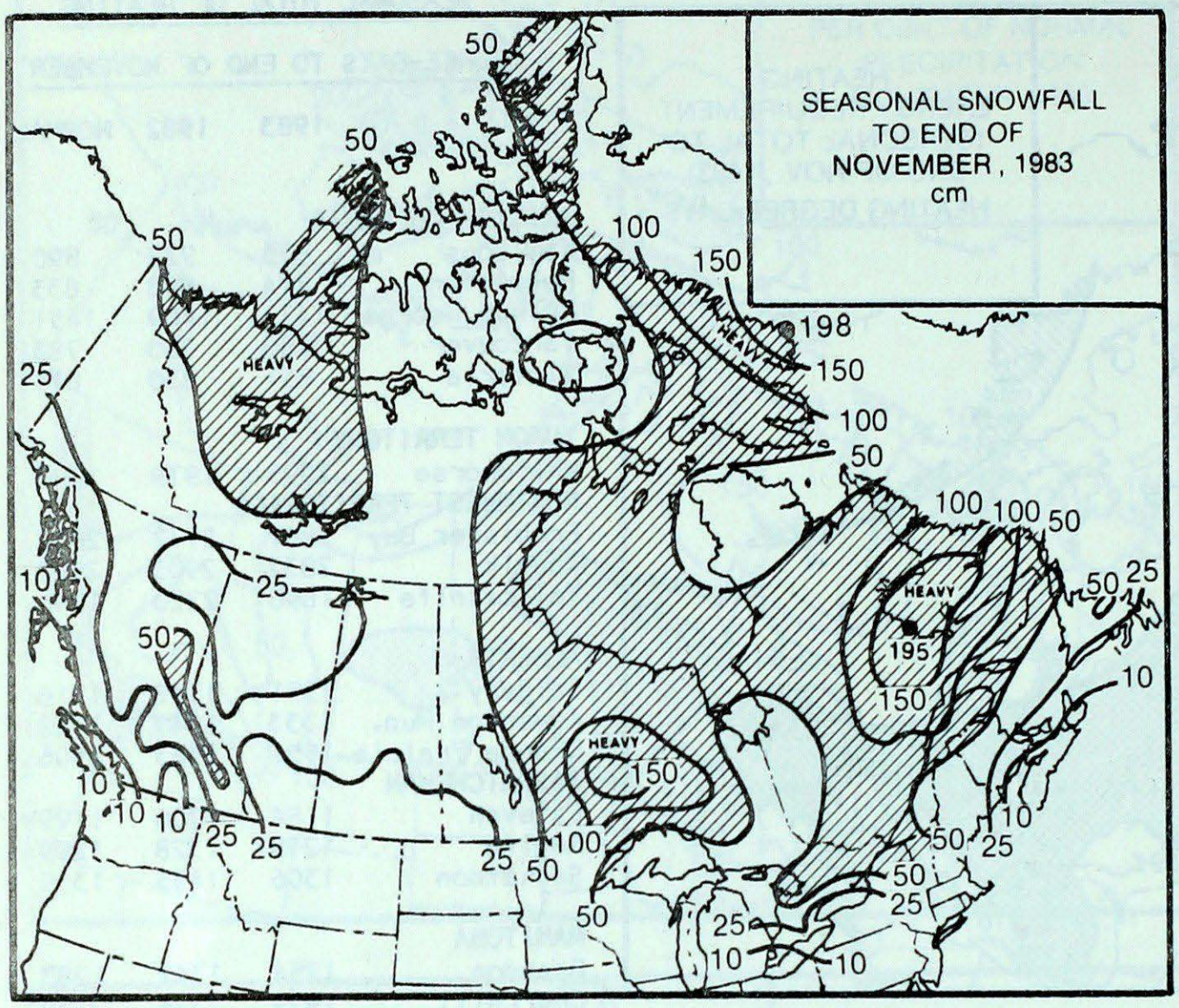




SEASONAL TOTAL OF HEATING DEGREE-DAYS TO END OF NOVEMBER

	1983	1982	NORMAL
BRITISH COLUMBIA			
Kamloops	853	927	890
Penticton	844	898	833
Prince George	1471	1409	1451
Vancouver	780	780	783
Victoria	831	830	811
YUKON TERRITORY			
Whitehorse	2095	1979	1865
NORTHWEST TERRITORIES			
Frobisher Bay	2861	2772	2611
Inuvik	2837	2903	2690
Yellowknife	1896	2220	1996
ALBERTA			
Calgary	1351	1348	1316
Edmonton Mun.	1333	1347	1328
Grande Prairie	1551	1583	1506
SASKATCHEWAN			
Estevan	1164	1206	1179
Regina	1279	1328	1299
Saskatoon	1306	1435	1339
MANITOBA			
Brandon	1254	1342	1283
Churchill	1979	2324	2150
The Pas	1316	1541	1479
Winnipeg	1191	1269	1208
ONTARIO			
Kapuskasing	1319	1470	1405
London	781	792	795
Ottawa	903	891	906
Sudbury	1109	1139	1128
Thunder Bay	1156	1326	1240
Toronto	824	805	784
Windsor	655	649	666
QUÉBEC			
Baie Comeau	1331	1426	1363
Montréal	875	865	831
Québec	1039	1040	1031
Sept-Iles	1473	1525	1436
Sherbrooke	1097	1106	1131
Val-d'Or	1292	1388	1342
NEW BRUNSWICK			
Charlo	1146	1196	1082
Fredericton	945	963	961
Moncton	932	977	946
NOVA SCOTIA			
Halifax	733	775	772
Sydney	874	911	864
Yarmouth	806	844	822
PRINCE EDWARD ISLAND			
Charlottetown	846	906	878
NEWFOUNDLAND			
Gander	1175	1197	1130
St. John's	1123	1104	1087

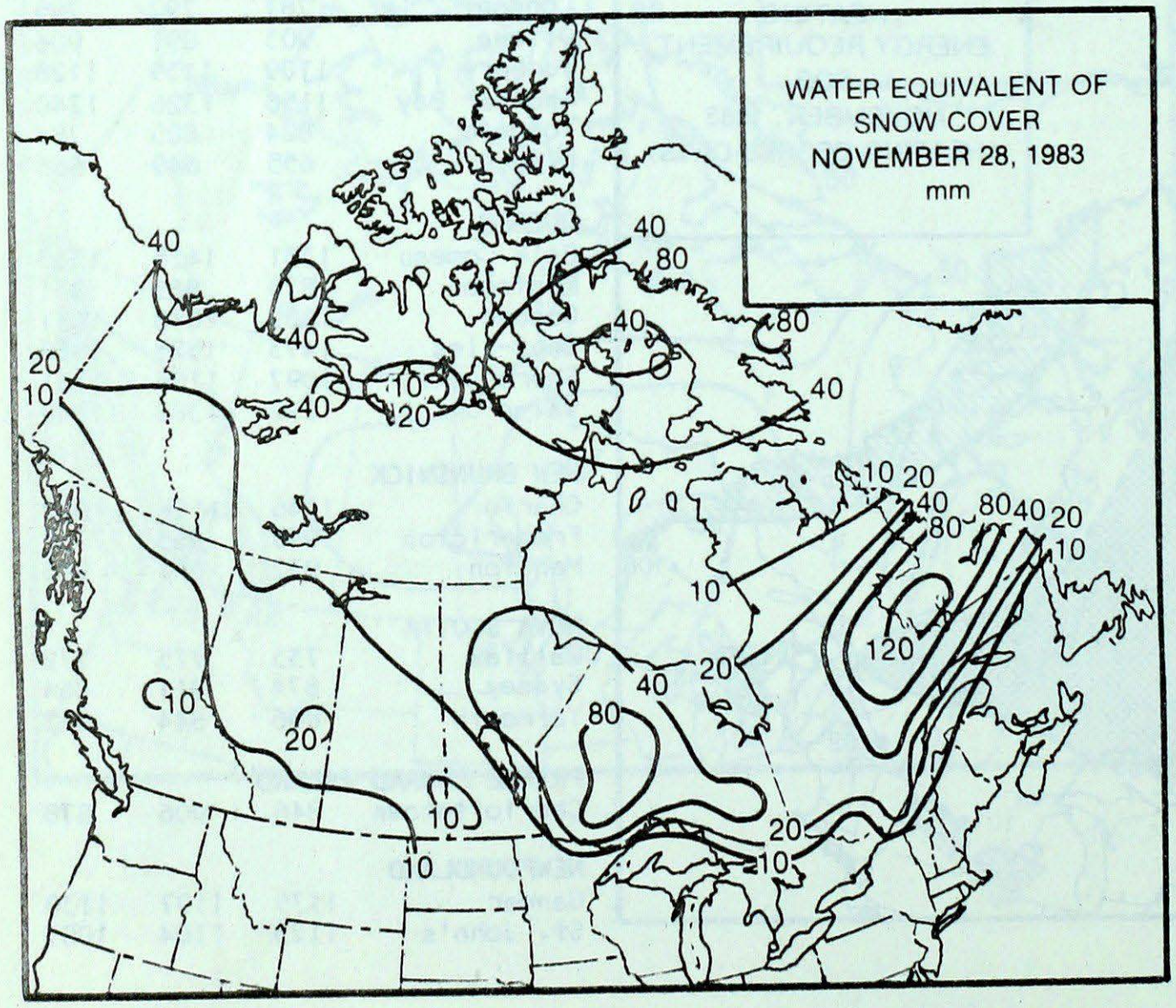
SNOWFALL



SEASONAL SNOWFALL TOTALS (CM)

TO END OF NOVEMBER

	1983	1982	NORMAL
Whitehorse	29.0	56.6	45.2
Yellowknife	67.8	40.0	56.7
Prince George	15.4	38.2	50.0
Vancouver	0.0	0.0	2.8
Edmonton Namao	19.7	29.1	26.5
Calgary	21.3	20.2	35.7
Regina	20.3	13.2	24.2
Winnipeg	19.7	4.0	27.3
Thunder Bay	38.9	16.9	33.1
Muskoka	54.6	47.8	43.5
Toronto	11.9	1.0	8.9
Windsor	7.6	4.6	11.6
Ottawa	58.6	3.4	25.5
Montréal	69.1	4.6	22.9
Québec	35.2	30.2	38.3
Fredericton	16.6	8.8	22.7
Shearwater	0.2	3.6	9.5
Charlottetown	5.3	48.5	24.2
Goose Bay	175.3	52.8	85.7
St. John's	19.1	11.8	25.6



Snow Cover Water Equivalent

The amount of water which would result when snow is melted, measured in millimetres.

EARLY FREEZE-UP IN THE BEAUFORT SEA

by
A. Gillingham
Ice Forecasting Centre

Normally, open water persists in the drilling area of the southeastern Beaufort Sea, just to the north of the Tuktoyaktuk Peninsula, from about the third week of July until mid-October. This year, however, freeze-up began earlier than usual and ice coverage of the Beaufort Sea was complete during the last week of September.

Ice thickness and whether ice forms at all on a given body of water, are directly related to the total number of FREEZING DEGREE-DAYS (FDD) and the amount of heat that has to be removed from the water before its temperature reaches the freezing point. Figure 1 compares the total FDD during September and October this year with those for the last 25 years. Note that the total FDD for that period is the highest since 1974. Even though the southeastern Beaufort Sea during 1983 experienced the third warmest summer in the last quarter century, freeze-up was one of the earliest on record. Why did that happen?

Figures 2 and 3 compare the normal 1000-millibar pressure pattern for the Beaufort Sea during September and October with that for the period September 1 to October 8 this year. Note that off the Alaskan Coast during 1983, ice drifted eastward instead of westward as would normally be the case. That is verified by Figure 4 which is a daily plot of Drift Buoy #10B.

Eastward drift during September and early October north of the Alaskan Coast moved thick first-year ice into the drilling area north of Tuktoyaktuk Peninsula and rapidly cooled the water to near its freezing temperature. Since the mean temperature from September 15 to October 31 near Tuktoyaktuk was about 4 degrees below normal, ice formed much more rapidly than usual this year and produced one of the earliest "freeze-up" on record for the southeastern Beaufort Sea.

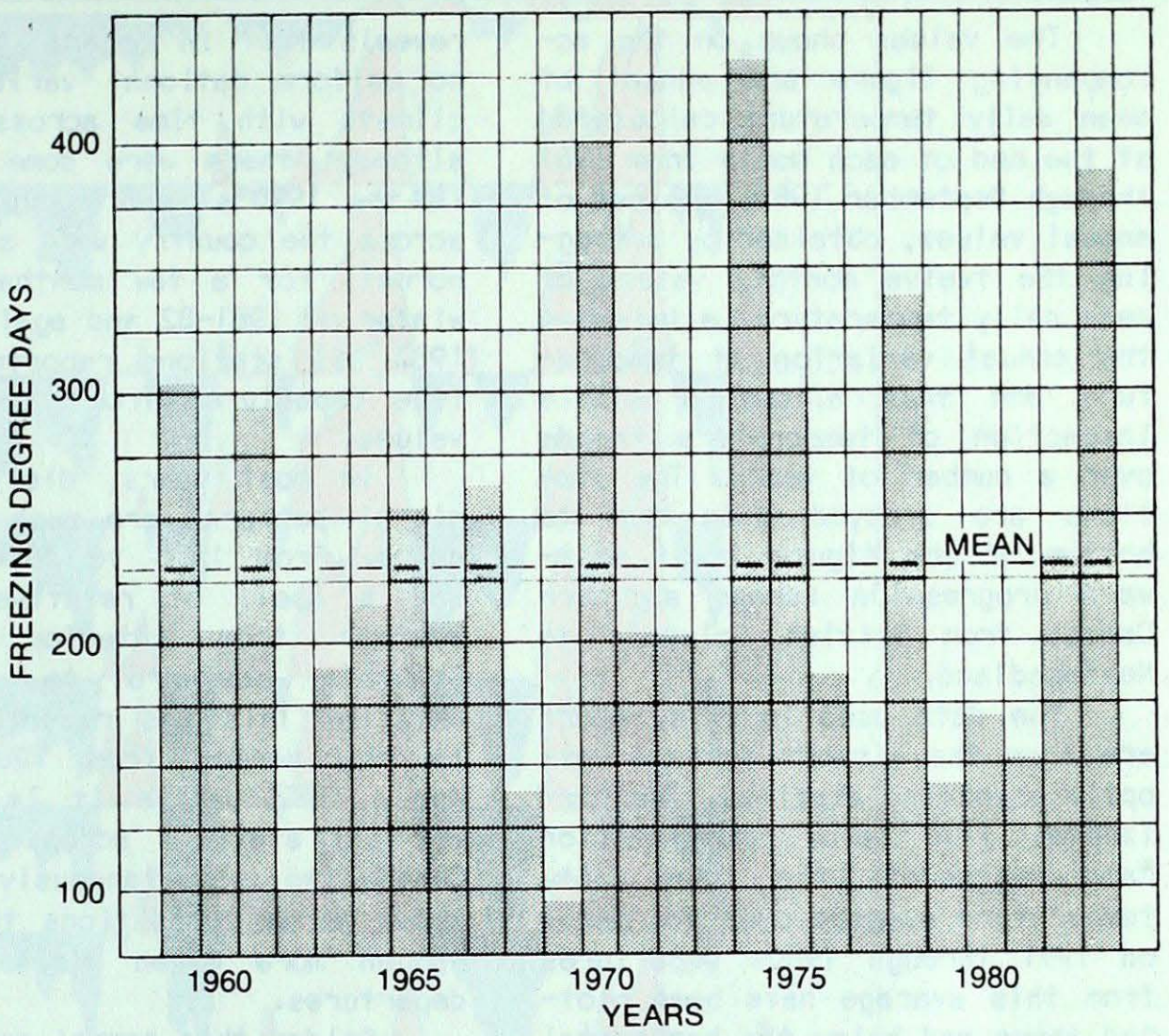


Fig. 1. Freezing degree-days (a measure of the departure of the daily temperature from the base of 0°C)

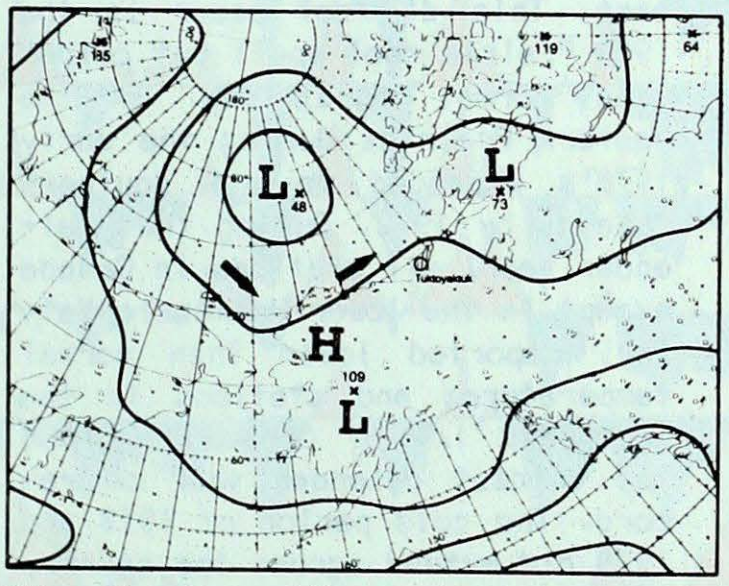


Fig. 2. Mean 100 kPa pressure pattern from Sept. 1/83 to Oct. 8/83

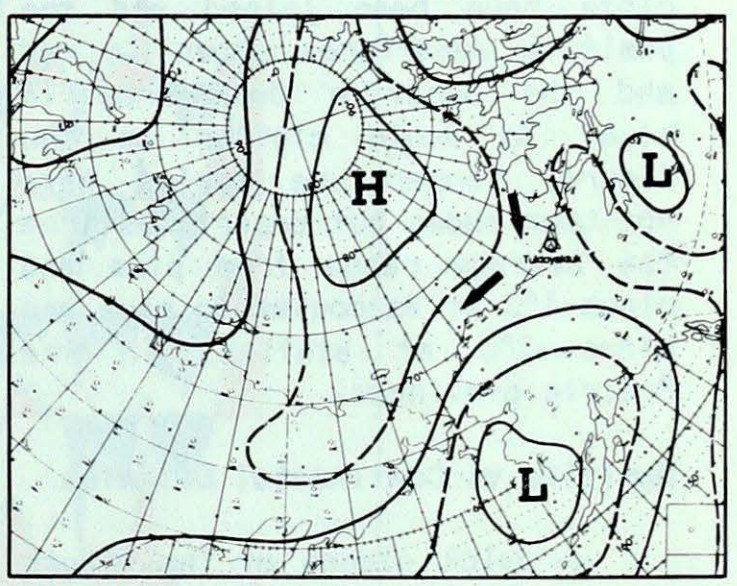


Fig. 3. Average or expected 100 kPa pressure pattern for September and October

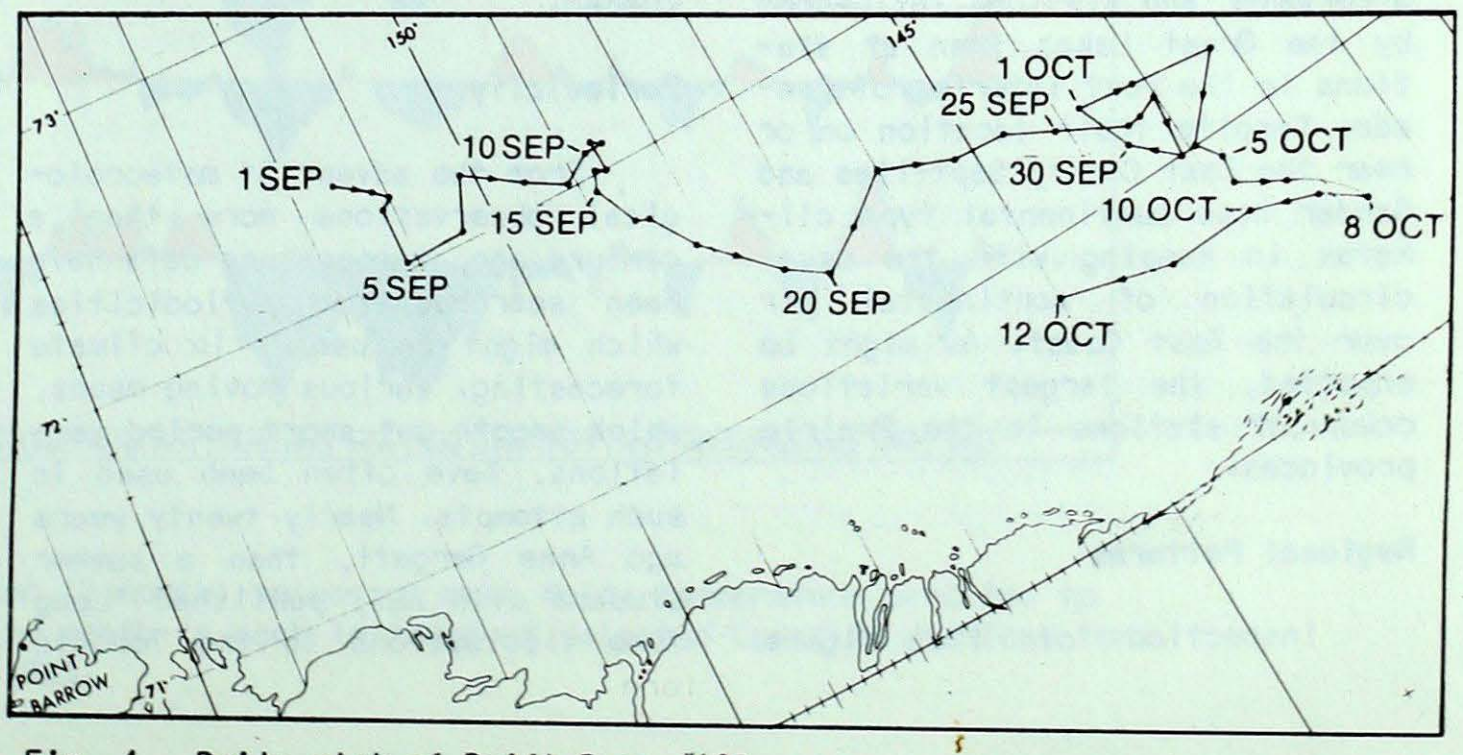


Fig. 4. Daily plot of Drift Buoy #10B

CANADIAN CLIMATE PATTERNS

by
Morley Thomas and Derek Aston
Canadian Climate Centre

The values shown on the accompanying figure are annual of mean daily temperature calculated at the end of each month from 1967 through September 1983. The use of annual values, obtained by averaging the twelve monthly values of mean daily temperature, eliminates the annual variation of temperature and thus allows a simple inspection of temperature trends over a number of years. The stations are arrayed from top to bottom of the figure in in eastward progression across southern Canada from British Columbia to Newfoundland.

The data used in this report are from the airport surface synoptic observing stations. The horizontal line below each station name represents the mean daily temperature average over the period 1951 through 1980. Departures from this average have been plotted above and below the horizontal line for annual periods ending with each month of the year. These plots have been joined and the positive departures shown in red and the negative departures in blue. To avoid clutter on the figure, temperature scales have not been shown but departures from the average range from plus and minus 1°C at Vancouver to plus and minus 2°C at stations in the Prairie provinces.

Maritime vs Continental Climates

A quick glance at the figure reveals twelve month moving means that vary less at Vancouver, Shearwater and stations influenced by the Great Lakes than at stations in the vast interior of Canada. Despite their location on or near the East Coast, Sept-Iles and Gander have continental type climates in keeping with the usual circulation of continental air over the East Coast. As might be expected, the largest variations occur at stations in the Prairie provinces.

Regional Patterns

Inspection of the figure reveals that in general there is no uniform national variation of climate with time across Canada although there were some periods in the 1970's when annual values across the country were all below normal. For a few months in the winter of 1981-82 and again in mid 1983 all stations reported positive departures from the average values.

In most years, distinct regional patterns are much in evidence. From 1976 to 1978, there was a spell of relatively warm weather from interior British Columbia eastward to northern Ontario. This was repeated again in the period from 1980 until early 1982. While it is unusual for all stations across southern Canada to simultaneously report above normal conditions this does happen more often with negative departures.

Colder than normal conditions in 1967 in the Prairie provinces extended to Nova Scotia in the east. This did not occur in the 1969 Prairie cool spell but colder than normal conditions in the eastern Prairies during the early 1970's expanded to all southern Canada, by 1972. During that calendar year, all stations in Canada except in the lower Mackenzie Valley, reported lower than normal temperatures and stations in the northeast 1/3 of Canada reported the coldest calendar year on record. The cold period of 1978 and 1979 did extend across the country but was much more pronounced in the interior from Alberta to Québec.

Periodicity

From the advent of meteorological observations more than a century ago, temperature data have been searched for periodicities which might be useful in climate forecasting. Various moving means, which smooth out short period variations, have often been used in such attempts. Nearly twenty years ago Anne Gargett, then a summer student with AES, published "Long term fluctuations in the Toronto temperature and precipitation record" as CIR-4199, TEC-559. She found that the power spectra of the time series of Toronto temperature data revealed a weak mean 26-month oscillation.

Inspection of the curve for Toronto and other cities in the accompanying figure reveals that the biennial oscillation is indeed often present but it is by no mean regular and the amplitudes are highly variable. In the belt across southern Canada under study the biennial oscillation is probably least evident in Vancouver and most evident in the Great Lakes and Atlantic regions. Over the last decade the authors of this report have calculated and inspected the twelve month moving means from perhaps forty or fifty stations throughout the country and have noted that the biennial oscillation is sometimes very much in evidence and at other times entirely missing.

A particular interest has been the Toronto City record that dates back to 1840. An eight foot long graph of twelve month moving temperatures for Toronto City provides a most interesting record of changes in the biennnial oscillation over more than one hundred and forty years. There are periods of regular biennial oscillation with modest amplitude, periods with great amplitudes and other periods with iregular deviations. Although a natural biennial oscillation may exist, other forcing factors enter from time to time to destroy what might otherwise be a natural rhythm.

Readers can obtain tabular values of temperature data for Canadian stations from AES Regional offices or the CCC office in Downsview.

CANADIAN CLIMATE PATTERNS

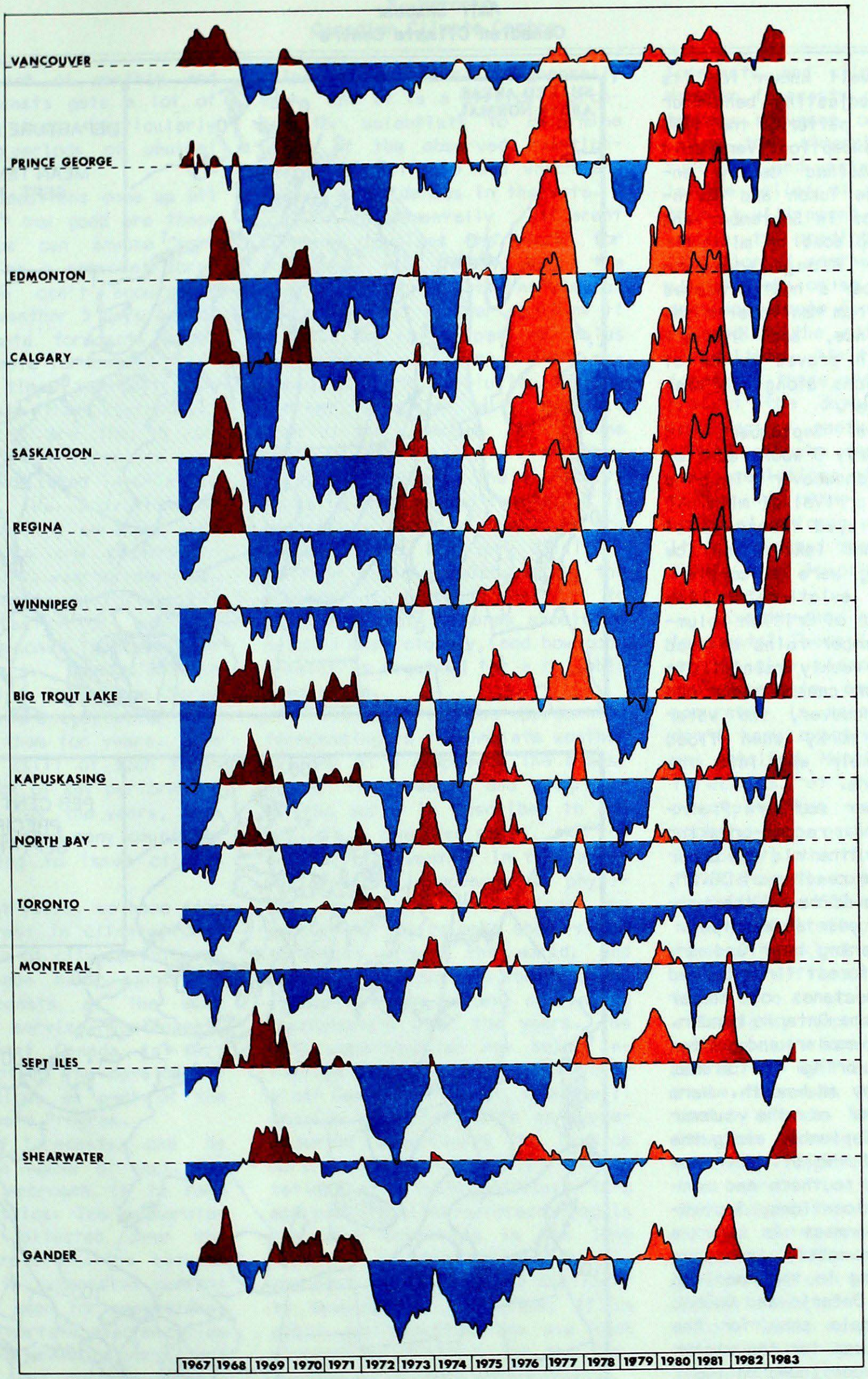


Fig. 1. Annual (or 12 month) values of mean daily temperature credited to the twelve month in each instance at selected Canadian stations for 1967 to 1983.

Fall of 1983

by
Amir Shabbar
Canadian Climate Centre

Fall is well known for its changing and adjusting behaviour in the weather pattern, the 1983 season was no exception. Very cold air which remained deeply entrenched in the Yukon and Northwest Territories in September and October was replaced by mild air in November. Along southern Canada, September's heat produced record warmth from Manitoba to the Atlantic Province, and frequent deluges of rain proved to be of record proportions along the West Coast in November.

The unusual September cold resulted in nearly 3 weeks earlier than normal snowcover in the Yukon, but the arrival of mild air in November delayed freeze up of major rivers and lakes, and low clouds and fog were a constant hazard to the aviation. In the central interior of British Columbia heavy September rains delayed harvest. Later weekly rainfall in excess of 100 mm caused minor mud slides. At Vancouver, the water supply turned murky when flood waters made their way into the city's reservoirs.

In September southern Prairies experienced record-breaking temperatures in the mid to upper thirties; with a reading of 38.8°, September 2 proved to be the hottest day of the year at Winnipeg.

In the searing heat and dry weather, major forest fires burned over 150,000 hectares of timber along the Manitoba-Ontario border. The arrival of cooler and wetter weather helped bring the flames under control by mid-month. Warm and sunny skies of the summer continued into September along the Great Lakes and the St. Lawrence Valley. At many southern and central Ontario's locations, September was the warmest in over a decade. By November, numerous storms developing in the American Mid west struck Ontario and Québec and produced ample snow for the ski resorts to open for the winter

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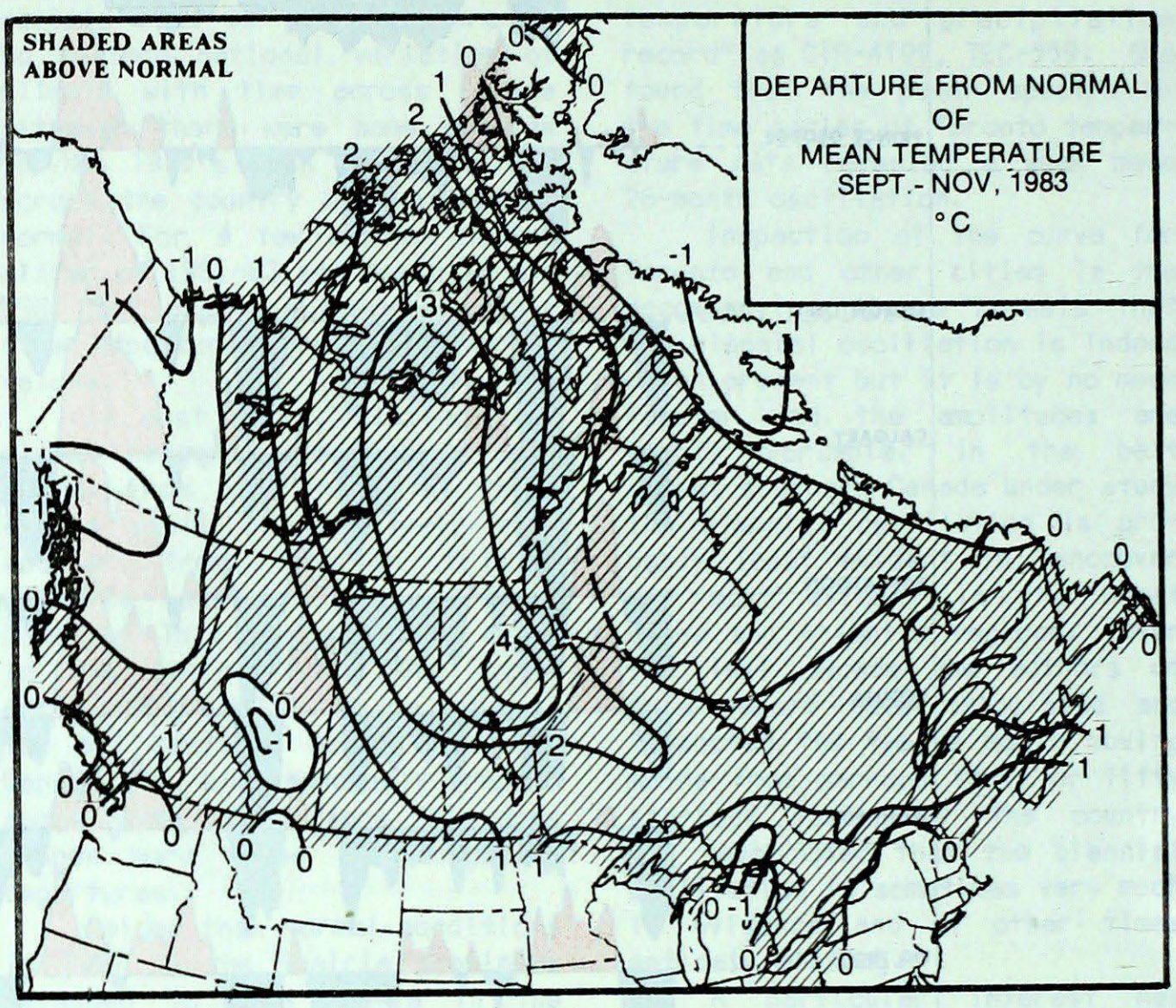

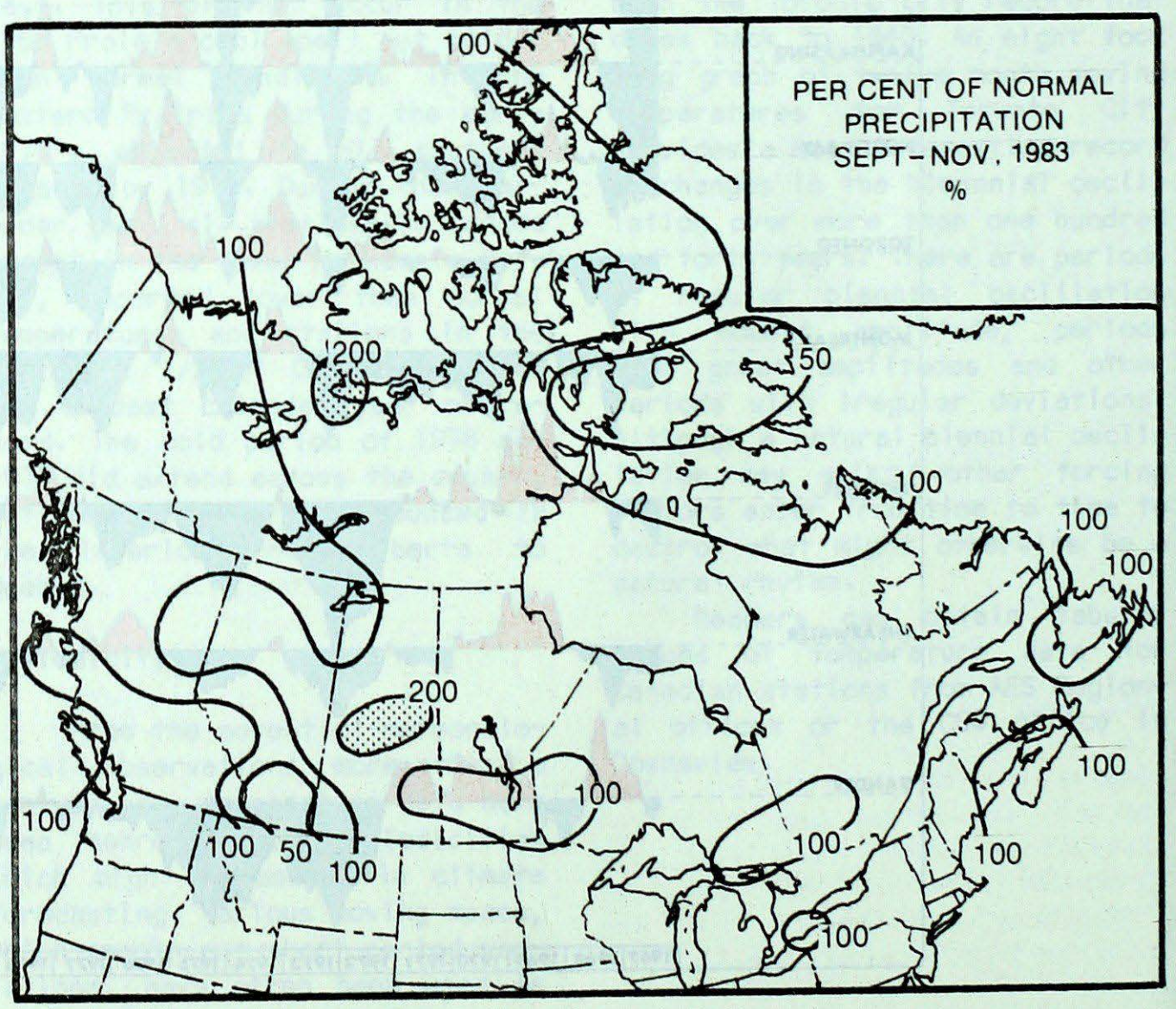

About Climate Forecasts

by
S. Woronko
Canadian Climate Centre

The subject of monthly and seasonal forecasts gets a lot of attention at times, particularly in prolonged periods of unusual weather.

Certain questions come up all the time. Just how good are these forecasts? How can anyone even think of making a seasonal forecast when we can't accurately forecast the weather 5 days ahead? How are climate forecasts made? Who makes climate forecasts?

At this time, the only long range forecasts that Environment Canada produces are the 15 day average temperature forecasts such as the ones published in Climatic Perspectives. The provision of climate forecasting services varies widely from one country to another. The U.S. weather service, N.O.A.A., has been producing monthly forecasts for over 30 years, and seasonal forecasts for over 20 years. Great Britain stopped issuing long-range forecasts a few years ago, after having provided them for years. The low level of skill of such forecasts, the lack of any performance breakthroughs over the years, have generally dissuaded many countries from attempting to issue climate forecasts.

In recent years, we have seen renewed interest in climate forecasting. Users of climate information in Canada have identified climate forecasts as the most important new service requirement, and Environment Canada is currently supporting the development of such services as part of the Canadian Climate Program.

Climate forecasts can be produced in a number of ways. The most common approach is to make use of statistics. The meteorological data collected over the years show relationships between the weather in successive seasons which can be used for prediction. For example, certain abnormalities in the weather are more persistent than others, and certain geographical patterns of weather tend to recur. The statistical relationships that are found are generally weak, and it is a difficult problem for scientists to determine which of the observed relationships are reliable and which are chance coincidences in the data.

A fundamentally different approach involves the search for analogues, i.e. situations in the past with weather patterns similar to the current weather pattern. If a situation in the past resembles the current situation, it is assumed that the evolution of the current situation will resemble that of the analogue. This is the basis of the Canadian 15 day temperature forecasts. The difficulty in using this method is that it is impossible to find two that are exactly alike, and very difficult to find a close match. It is the subject of current research to determine what features should be matched most closely, and how good a match is required for a reliable prediction.

The most rigorous approach to forecasting is to simulate weather systems on a computer. The atmosphere, the oceans, and geography of the world is described in detail in a computer model, and the evolution of weather in this artificial world is governed by physical laws. Such simulations are used every day to make short-range forecasts around the world, and both the accuracy and the range of forecasts have shown continuing improvements over the years. The CRAY supercomputer now being installed at the Canadian Meteorological Centre in Dorval, Que., will provide scientists with an unprecedented opportunity to develop more elaborate and realistic simulations of climate. Although this approach to climate forecasting is the most promising in the long term, it is also the one that is the most complicated and difficult to develop. At this time, it is still not practical to use such simulations directly for the production of climate forecasts.

At this point, let's consider the difference between weather forecasts and climate forecasts. Weather forecasts concern the day to day sequence of weather. Because the atmosphere has very turbulent and unstable motions, it is the belief of most scientists that it will never be possible for anyone to predict the detailed evolution of weather beyond a couple of weeks or so. The attempt to develop climate forecasts does not contradict the notion of a predictability limit. In climate forecasts there are no attempts to predict the detailed timing or location of weather events. Instead, climate forecasts contain only predictions of average conditions. In other words, as the range of a forecast is increased, it is expected that the amount of detail that is predictable has to decrease.

Exactly how good are climate forecasts? There is more than one way to give a score to forecast, and a simple answer like "80% accurate" is meaningless if you don't know exactly how the score was obtained. Monthly and seasonal forecasts of temperature or precipitation deviations from normal are easiest to score. Typically, the forecast temperature is on the correct side of the normal 60 to 65% of the time, and the precipitation, 55% of the time. Other kinds of forecasts can be more difficult to score. The skill of a forecast as measured by scientists, depends on the percentage of forecasts that are correct as well as on the odds of those forecasts having been correct by chance. In the case of the Canadian 15 day forecasts which predict temperature departures from normal in five categories, the probability of selecting the correct category at any point by chance is 20%, but the forecast selects the correct category about 28% of the time. This translates into a "skill score" of 10%, where 0% would mean the forecasts are no better than chance and 100% would mean perfect forecasts.

CLIMATIC EXTREMES - NOVEMBER, 1983

MEAN TEMPERATURE:		
WARMEST	Victoria, BC	8.5°
COLDEST	Eureka, NWT	-33.3°
HIGHEST TEMPERATURE:	Brooks, ALTA Suffield, ALTA	19.5°
LOWEST TEMPERATURE:	Eureka, NWT	-41.5°
HEAVIEST PRECIPITATION:	Port Albernie, BC	504.8 mm
HEAVIEST SNOWFALL:	Cape Dyer, NWT	165.6 cm
GREATEST NUMBER OF BRIGHT SUNSHINE HOURS:	Calgary, ALTA Shearwater, NS	110 hrs

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snow on the ground averaged 20 cm, encouraging early start to the skiing season this year. Hours of bright sunshine were well below normal throughout the Province, and as much as 50 per cent of normal in the Northwest.

Québec

November's weather was mild but damp along the St. Lawrence Valley, and cold and dry in the extreme North. Central Québec experienced near normal temperatures and precipitation. Storms crossing Québec dumped record high precipitation at 8 locations. Southwestern Québec and the Gaspé area experienced amounts in excess of 200 mm. At St. Hubert, 223.7 mm was 252 per cent of normal while Gaspé's 233 mm was 279 per cent of normal. Following stations received record high snowfall (cm):

Station	New Record	Old Record
Montréal	69.1	67.3 (1965)
Hull-Ottawa	69.6	42.2 (1978)
Roberval	112.0	104.4 (1965)
Baie-Comeau	116.4	79.5 (1949)
Mont-Joli	107.6	75.7 (1958)

November was rather cloudy south of a line from Val d'Or to Wabush Lake; hours of bright sunshine being only 80 per cent of normal. Locations to the northwest of this line enjoyed plenty of sunshine; Inukjuak had nearly 3 times its normal November brightness.

Atlantic Provinces

November was extremely stormy along the East Coast. Mean temperatures were slightly above normal. At several locations, this trend marked the 13th consecutive month with above normal temperatures. With the exception of a few locations, precipitation was well above normal. At Liverpool N.S., 304.5 mm was the second largest November total on record, and at Charlo, 246.7 mm was the most precipitation received during any month since record began in 1966. Except for Labrador and northern New Brunswick, snowfall was below normal almost everywhere. Hours of bright sunshine varied considerably, ranging from 26 hours below normal at Eddy point to 7 hours above normal at Saint John.

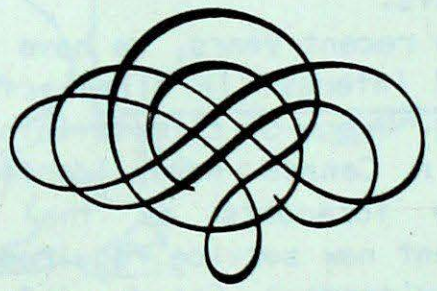
Week after week, major storms struck the East Coast, causing property damage, power outages and flooding. On November 22, a violent storm pounded Nova Scotia.

...continued from page 8B

season 2 to 3 weeks earlier than normal. At Downtown Toronto, nearly 10 cm of snow on November 4 was the heaviest so early in the season since 1969. Several Québec stations received record November snowfalls of 70-110 cm.

In the Atlantic Provinces, September was the warmest in over 20 years in many areas. At Halifax, a monthly mean of 16.4° was the second highest since record began in 1944. The September warmth kept the Maritimes frost-free and contributed to one of the best tobacco crop in years.

November was exceedingly stormy along the East Coast. Week after week, storms packing winds in excess of 100 km/h pounded the Maritimes and caused damage in millions of dollars. On November 26, a vigorous storm crossing New Brunswick left two-thirds of the province without electricity; heavy rains accompanying the storm washed out roads and bridges. The East Coast storms, winding up in Northeastern Atlantic dumped record November snow in Labrador. By the end of the Autumn season, Churchill Falls had about 150 cm of snow on the ground.



Yarmouth experienced record-setting winds of 130 km/h for November. On November 27, gale force winds gusting in excess of 100 km/h rocked New Brunswick. The winds toppled utility poles and trees across a wide swath of southern and central New Brunswick cutting electric power to at least two-thirds of the province.

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NOVEMBER 1983 NOVEMBRE

STATION	Temperature °C Température °C				Snowfall (cm) Chute de neige (cm)	Total Precipitation (mm) Précipitation totale (mm)	% of Normal Precipitation % de précipitation normale	Snow on ground at end of month (cm) Neige au sol à la fin du mois (cm)	No. of days with Precip. 1.0 or more (mm) Nombre de jours de préc. 1.0 ou plus (mm)	Bright sunshine (hours) Durée de l'insolation (heures)	Degree Days below 18°C Degrés-jours au-dessous de 18°C	Mean Sea Level Pressure (kPa) Pression au niveau moyen de la mer (kPa)	Mean Vapour Pressure (kPa) Pression de vapeur moyenne (kPa)
	Mean Moyenne	Difference from Normal Ecart à la normale	Maximum Maximale	Minimum Minimale									
BRITISH COLUMBIA COLOMBIE-BRITANNIQUE													
Abbotsford A	6.9	1.3	14.9	-0.3	0.0	340.9	178	0	24	43	333.0	100.8	.88
Alert Bay	6.0	0.3	11.3	-0.2	0.0	244.9	115	0	21		358.1	100.6	.82
Blue River A	0.9	3.2	10.3	-7.5	39.6	120.8	144	11	19	33			
Bull Harbour	6.5	0.4	12.5	-2.2	0.0	335.0	124	0	22		343.9	100.5	.90
Burns Lake													
Cape St. James	7.5	0.6	11.6	3.1	0.0	176.8	94	0	19	76	315.5	100.2	.89
Cape Scott													
Castlegar A	4.3	2.6	13.4	-4.5	18.6	179.2	232	0	21	35	411.1	101.3	
Comox A	7.2	1.9	14.6	-3.4	1.5	381.6	199	0	22		326.4	100.7	.87
Cranbrook A	0.9	2.7	11.1	-13.4	25.7	56.4	183	7	12	59	513.2	101.4	.53
Dease Lake	-9.9	-1.4	5.6	-22.5	15.4	8.6	29	10	3	69	837.2	101.1	.26
Ethelda Bay	5.8	0.6	11.3	-2.4	0.0	370.5	93	0	22		366.2		
Fort Nelson A	-10.3	1.7	5.8	-25.1	7.8	4.0	18	7	2		849.2	101.3	.28
Fort St. John A	-5.7	0.3	9.9	-18.8	18.0	22.4	72	10	8		710.9	100.2	.37
Hope A	6.2	1.5	12.7	-0.1	0.0	381.9	171	0	24	8			
Kamloops A	4.9	3.3	15.8	-6.0	1.8	25.6	116	0	7	45	392.8	101.0	.67
Kelowna A	4.3	3.2	13.0	-7.6	5.8	42.6	164	0	11	33	411.5	101.2	.70
Langara	6.2	0.6	10.3	1.7	1.0	128.9	65	0	23		354.3	100.2	.83
Lytton	5.1	2.5	11.4	-3.3	0.0	72.6	104	0	16	31	387.5	101.0	.74
Mackenzie A	-2.2	1.7	8.2	-11.2	45.0	69.6	116	10	14	31	605.3		
McInnes Island	7.3	1.3	12.4	1.6	0.0	342.6	111	0	22		322.7		
Merry Island	8.3	1.3	14.5	1.0	0.0	278.0	211	21	42		292.1		
Penticton A	5.7	2.7	14.4	-6.2	T	49.2	206	0	9	35	369.6	101.2	.73
Port Alberni A	6.4	1.3	14.1	-3.5	24.2	504.8	175	0	23	33	334.8		
Port Hardy A	6.1	0.8	12.5	-3.4	0.0	287.7	118	0	22	52	349.8	100.5	.85
Prince George A	-0.4	2.5	12.0	-13.3	15.2	30.1	60	8	12	49	550.9	100.9	.53
Prince Rupert A	4.7	0.9	13.0	-6.5	0.0	154.7	58	0	21				
Princeton A	2.0	2.9	11.7	-11.1	6.2	35.8	95	0	7	53			
Quesnel A	1.3	3.1	14.4	-13.1	14.0	27.8	65	12	7		500.7	100.9	.55
Revelstoke A	3.6	2.9	9.3	-5.8	31.5	145.3	150	0	23	25	433.6	101.3	.71
Sandspit A	6.3	0.8	10.8	0.5	0.0	272.6	151	6	19	69	350.7	100.2	.85
Smithers A	-0.6	1.7	7.3	-10.0	22.2	39.4	68	10	16	22	557.5	100.8	.52
Stewart A													
Terrace A	1.9	1.6	8.1	-6.4	19.2	82.1	46	10	14	44	481.9	100.6	.62
Vancouver Harbour	8.1	1.3	15.4	-1.7	0.0	420.4	196	0	25		299.1		
Vancouver Int'l A	7.6	1.7	15.1	-2.5	0.0	350.8	234	0	24	42	325.6	100.9	.90
Victoria Gonzales Heights	8.5	1.3	14.0	-1.7	0.0	118.0	123	0	17	71	283.6		
Victoria Int'l A	7.6	1.6	16.0	-2.3	0.0	260.8	199	0	20	69	312.4	100.8	.92
Victoria Marine	7.9	1.3	13.7	0.5	0.0	366.5	212	6	26		301.5	100.8	.93
Williams Lake A	0.3	2.9	12.2	-16.3	31.7	29.2	93	24	7	46	531.4	100.9	.51

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	Mean Moyenne	Difference from Normal Ecart à la normale	Maximum Maximale	Minimum Minimale									
YUKON TERRITORY TERRITOIRE DU YUKON													
Burwash A	-12.4	1.0	2.5	-28.8	4.1	2.8	17	2	0		914.8	101.0	.23
Dawson A	-13.9	4.2	-4.0	-29.5	11.1	9.5	38	34	4		958.3	101.0	.20
Mayo A	-12.1	3.1	-2.0	-24.0	18.0	8.7	36	23	3		902.0	101.1	.23
Watson Lake A	-14.5	-0.7	-4.0	-30.4	20.2	16.1	51	16	7	16		101.3	.22
Whitehorse A	-9.3	-0.5	0.9	-21.8	5.0	2.0	10	5	0	40	818.7	101.0	.28
NORTHWEST TERRITORIES TERRITOIRES DU NORD-OUEST													
Alert	-26.7	-0.1	-11.2	-37.0	8.0	3.6	43	10	1		1341.5	102.0	.07
Baker Lake	-16.4	3.9	1.7	-32.5	5.1	3.9	24	18	2	32	1031.0	102.0	.19
Cambridge Bay A	-17.3	6.5	-3.1	-31.2	3.6	3.6	47	12	1	5	1058.9	101.8	.18
Cape Dyer A	-17.5	-2.8	-3.9	-34.8	165.6	55.4	94	33	7		1065.8	101.3	.14
Cape Parry A	-12.2	6.1	-0.4	-25.9	20.4	10.7	111	13	5		904.3	101.1	.24
Clyde	-19.4	-2.0	-8.5	-32.4	63.2	40.6	269	79	6	15	1121.1	101.6	.10
Coppermine	-11.9	7.8	2.8	-31.7	7.4	4.4	31	13	1	13	898.4	101.5	.24
Coral Harbour A	-17.8	-0.3	-0.2	-32.3	27.7	20.7	115	20	5	86	1078.3	101.8	.15
Eureka	-33.3	-1.8	-11.2	-44.5	2.8	0.9	36	13	0		1537.9	102.0	.05
Fort Reliance	-7.9	6.1	4.3	22.0	7.0	6.0	28	7	2		775.4	101.7	.33
Fort Simpson A	-10.4	5.2	2.1	-27.1	18.0	16.0	66	33	3	32	852.1	101.3	.28
Fort Smith A	-5.8	5.8	4.8	-18.9	20.0	14.0	54	10	5	19	714.3	101.4	.39
Frobisher Bay A	-16.2	3.2	1.5	-33.3	34.5	30.8	90	27	9	62	1024.9	101.5	.18
Hall Beach A	-19.3		-6.5	-36.2	9.4	7.8	62	18	3		1118.4	101.1	.12
Hay River A	-5.9	5.4	5.6	-19.5	10.2	12.8	35	7	7		726.9	101.3	.38
Inuvik A	-15.5	5.2	-8.2	-23.7	20.4	13.4	75	50	5	23	1006.7	101.0	.15
Mould Bay A	-21.8	4.8	-6.5	-32.9	18.0	9.1	246	31	4		1195.7	101.9	.10
Norman Wells A	-14.4		-3.9	-26.9	3.2	3.2	15	5	2	26	972.7	101.1	.19
Pond Inlet A	-23.8	-0.2	-10.7	-37.7	12.6	13.3	90	11	6		1252.6	101.7	.07
Resolute A	-21.5	3.0	-7.9	-38.4	17.4	9.7	170	20	3		1185.6	101.9	.10
Sachs Harbour A	-14.0		-3.8	-25.1	9.7	9.1	123	20	2	6	958.2	101.2	.20
Yellowknife A	-6.0	8.1	3.6	-21.2	32.8	26.8	109	7	6	12	719.3	101.4	.35
ALBERTA													
Banff	-1.9	2.0	10.0	-15.5	15.2	16.6	53	7					
Brooks	-1.9	1.1	19.5	-23.0	17.2	17.3	116	14		67			
Calgary Int'l A	-2.2	0.5	18.2	-25.3	14.1	10.5	83	4	2	110	605.2	101.3	.36
Cold Lake A	-3.9	2.3	7.6	-18.6	39.4	31.5	155	21	9	37	656.3	101.4	.42
Coronation	-3.7	1.2	15.4	-21.4	26.4	15.6	104	9	5	49	652.1	101.4	.42
Edmonton Int'l A	-4.2	1.3	12.5	-23.3	14.7	13.4	80	8	6	47	665.8	101.3	.41
Edmonton Municipal A	-2.9	0.8	12.2	-17.0	16.5	16.2	103	9	4	52	627.6	101.3	.43
Edmonton Namao A	-3.9	1.0	11.6	-17.3	12.3	18.6	103	8	5		655.9	101.3	.43

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	Mean Moyenne	Difference from Normal Ecart à la normale	Maximum Maximale	Minimum Minimale									
Edson A	-4.8	1.6	10.9	-21.7	15.3	16.2	89	11	7	69	685.1	101.3	.39
Fort Chipewyan A	-5.5	5.4	6.0	-22.0	8.7	8.7	36	5					
Fort McMurray A	-4.7	3.5	6.8	-20.3	17.6	32.8	130	9	5	44	681.1	101.5	.41
Grande Prairie A	-4.9	1.1	13.4	-21.2	19.5	13.8	50	6	6	47	685.1	101.2	.40
High Level A	-7.0	4.4	7.7	-26.3	21.7	21.3	84	17	6	20	745.2	101.3	.34
Jasper	-1.4	2.5	11.0	-16.0	9.0	14.6	49	2	6	64	581.5	101.3	.45
Lethbridge A	-0.4	0.4	19.4	-25.8	12.2	12.6	75	6	6	80	552.2	101.3	.45
Medicine Hat A	-0.3	1.3	18.4	-22.8	14.2	15.7	108	9	4	71	549.2	101.2	.47
Peace River A	-5.7	3.4	12.4	-20.0	17.4	25.1	126	7	5		710.1	101.2	.38
Red Deer A	-3.2	1.4	15.4	-22.7	8.1	8.0	53	2	2		635.3	101.3	.43
Rocky Mountain House	-3.7	-0.1	13.0	-26.8	22.7	17.2	96	14	6		650.7	101.3	.40
Slave Lake A	-3.7	2.6	8.4	-17.2	16.1	14.8	71	6	4	42	652.2	101.2	.43
Suffield A	-0.1	2.2	19.5	-19.8	18.9	18.5	127	7	6	70	567.7		
Whitecourt	-3.9	2.4	10.2	-20.0	19.0	15.7	67	9	6		656.1	101.3	.42
SASKATCHEWAN													
Broadview	-3.0	2.5	15.4	-21.8	16.2	22.0	161	6	7	58	628.3	101.5	.47
Collins Bay	-6.8	5.7	3.5	-18.0	58.0	39.3		33	13	12	743.2	101.7	.36
Cree Lake	-5.2	5.2	4.8	-14.8	24.2	28.7	135	9	6	18	690.9	101.6	.39
Estevan A	-1.5	2.1	19.1	-16.7	6.0	17.3	107	3	5	75	579.5	101.5	.50
Hudson Bay	-2.6	4.5	14.1	-16.7	31.6	34.7	139	11	12	42	617.2	101.4	.47
Kindersley KY	-3.1	2.1	16.7	-21.6	19.4	16.9	135	12	9		632.8	101.3	.46
La Ronge A	-3.9	4.0	7.4	-19.3	27.2	30.5	119	17	10		652.5	101.6	.41
Meadow Lake	-4.5	2.1	12.2	-22.6	23.0	36.9	171	12	11	40	674.1	101.4	.43
Moose Jaw A	-2.2	1.4	17.0	-21.1	13.9	21.0	126	10	9	72	605.1	101.4	.48
Nipawin A	-3.8		12.1	-20.6	41.6	52.4		18	11	34	653.1	101.5	.46
North Battleford A	-3.6	2.2	15.3	-19.9	29.0	37.3	261	17	13		650.7	101.4	.44
Prince Albert A	-3.2	4.0	13.3	-18.8	20.7	43.0	253	13	11	26	636.0	101.5	.44
Regina A	-2.8	2.3	15.5	-21.0	16.5	17.4	129	9	10	57	622.7	101.5	.47
Saskatoon A	-2.7	3.0	15.2	-20.6	28.6	26.4	180	17	8		620.7	101.4	.44
Swift Current A	-2.5	1.2	16.6	-19.3	16.2	20.4	129	10	8	67	597.0		
Wynyard	-3.4	2.4	15.5	-19.9	25.8	34.3	220	11	10	27	641.4	101.4	.47
Yorkton A	-2.7	3.2	15.3	-19.2	14.0	26.5	132	7	7	48	622.5	101.5	.45
MANITOBA													
Bissett	-2.3	3.5	12.5	-11.6	4.3	42.2	141	23	9	46	606.5	101.5	.47
Brandon A	-2.4	3.3	16.5	-17.9	10.4			3	7		612.0	101.5	.47
Churchill A	-6.3	5.8	3.8	-27.2	47.0	55.3	143	32	9	25	727.9	101.8	.35
Dauphin A	-1.8	3.4	13.0	-15.1	27.9	25.6	102	20	6	43	593.9	101.5	.46
Gillam A	-5.5	6.6	8.7	-21.5	88.9	65.8	209	38	14		703.8	101.7	.39
Gimli	-1.4	3.2	13.5	-14.6	52.2	44.4	148	12	8	50	580.1	101.5	.48
Island Lake	-3.8	4.6	9.9	-12.9	93.4	68.2	186	28	10		637.7	101.6	.43
Lynn Lake A	-6.5	5.8	6.8	-19.7	44.5	35.7	121	24	14	11	731.8	101.6	.37
Norway House A	-3.3		8.6	-12.4	60.2	63.8		25	13		638.1	101.5	.43

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Pilot Mound	-2.6	2.5	17.3	-19.6	19.7	20.1	93	18	7		618.2	101.6	.49
Portage la Prairie A	-1.4	2.7	12.7	-17.0	25.5	21.1	72	24	8		581.4		
The Pas A	-2.3	5.2	10.0	-11.3	37.5	51.1	177	14	12	19	609.6	101.5	.47
Thompson A	-4.9	7.0	8.6	-16.8	52.4	55.5	187	43	10	22	687.1	101.6	.41
Winnipeg Int'l A	-1.9	2.6	15.4	-16.0	19.2	16.3	65	4	6	53	597.0	101.5	.48
ONTARIO													
Atikokan	-2.8	1.8	9.9	-16.0	99.2	106.0	273	49	11	35	622.0	101.4	.45
Earlton A	-2.4	0.1	13.2	-18.2	37.5	60.4	86	6	11		611.8	101.4	
Geraldton	-3.9	1.6	10.3	-16.8	41.0	82.8	134	24	12		656.0	101.4	.40
Gore Bay A	1.7	0.2	14.4	-9.1	33.6	66.6	82	12	13		489.3	101.3	.58
Hamilton	4.7	0.2	18.1	-6.8	19.2	93.6	142	1	9	59			
Hamilton A	3.9	0.5	16.5	-7.5	30.8	103.6	148	1	14		424.1		
Kapuskasing A	-3.3	1.1	11.3	-17.8	64.0	84.5	105	28	16		637.9	101.4	.43
Kenora A	-2.4	2.2	-0.2	-4.6	60.1	63.7	158	35	12		609.9	101.4	.45
Kingston A	2.5	-0.9	12.8	-11.1	17.7	113.3	121	0	16	61	465.9	101.3	.66
Lansdowne House	-4.1	3.3	9.8	-14.2	98.0	100.9	216	49	13		665.7	101.4	.41
London A	3.9	0.8	16.2	-9.4	26.3	98.3	116	1	14	57	424.0	101.3	.69
Moosonee	-1.7	2.8	13.9	-14.7	29.6	90.1	136	8	10	43	589.8	101.4	.49
Mount Forest	2.1	0.5	15.2	-10.7	37.7	82.4	94	6	13	45	476.1	101.2	.64
Muskoka A	1.0	-0.1	14.7	-16.5	54.6	105.6	105	23	15		506.1		
North Bay A	-1.2	-0.2	14.2	-15.2	34.2	67.0	77	10	13	63	574.5	101.3	.51
Ottawa Int'l A	1.3	0.1	14.4	-10.7	58.4	131.0	169	0	12	73	502.8	101.3	.60
Petawawa A	-0.2	-0.1	12.3	-13.6	63.0	83.0	127	T	12		545.2	101.2	.53
Peterborough A	1.9	-0.2	15.7	-13.5	25.8	91.4	134	T	11		483.9		
Pickle Lake	-4.2	3.4	10.1	-12.7	155.2	121.0	247	65	14		665.6	101.5	.40
Red Lake A	-3.4	2.4	9.8	-14.2	65.8	55.5	148	46	10	30	641.0	101.5	.43
St. Catharines A	4.9	0.2	18.6	-6.1	21.2	103.5	166	0	14		392.9		
Sarnia A	4.7	0.5	17.0	-6.3	3.9	100.0	136	T	11	66	399.1		
Sault Ste. Marie A	0.9	0.2	12.0	-12.7	15.7	75.9	89	4	10	68	520.2	101.2	.53
Simcoe	4.3	0.7	16.0	-8.0	18.8	99.2	115	3	15		413.1	101.3	.73
Sioux Lookout A	-2.8	2.5	10.8	-12.1	66.0	67.2	135	43	12		623.9	101.5	.45
Sudbury A	-1.1	0.1	13.3	-13.6	33.2	56.9	73	13	10	67	571.4	101.3	.50
Thunder Bay A	-1.2	1.4	12.9	-15.0	30.6	103.7	196	12	9	52	573.7	101.7	.48
Timmins A	-3.2	0.6	11.6	-19.9	66.4	77.6	98	26	9		637.0	101.4	.43
Toronto	4.5	-0.4	16.4	-5.9	18.3	103.7	149	T	13	70	403.6		
Toronto Int'l A	3.3	0.0	17.2	-8.5	11.9	89.1	149	T	9		440.7	102.7	.96
Toronto Island A	5.0	0.4	14.8	-5.2	12.4	93.6	145	0	11		389.9	101.3	.67
Trenton A	2.3	-0.9	15.3	-13.1	24.2	90.3	105	T	13		475.7	101.3	.64
Trout Lake (Big)	-4.4	4.6	8.9	-15.4	95.3	89.8	218	68	15		672.5	101.6	.40
Waterloo-Wellington A	3.0	0.4	16.5	-10.2	14.8	87.1	119	2	13		448.4		
Wawa A	-1.5		11.5	-16.8	103.2	147.3		41	15		576.6	101.1	.49
Wiarton A	2.8	0.1	15.8	-7.8	53.7	127.6	135	6	15	53	454.7	101.2	.60
Windsor A	5.4	1.0	17.5	-6.1	7.6	123.6	190	0	11		379.1	101.3	.75

STATION	Temperature °C Température °C				Snowfall (cm) Chute de neige (cm)	Total Precipitation (mm) Précipitation totale (mm)	% of Normal Precipitation % de précipitation normale	Snow on ground at end of month (cm) Neige au sol à la fin du mois (cm)	No. of days with Precip. 1.0 or more (mm) Nombre de jours de préc. 1.0 ou plus (mm)	Bright sunshine (hours) Durée de l'insolation (heures)	Degree Days below 18°C Degrés-jours au-dessous de 18°C	Mean Sea Level Pressure (kPa) Pression au niveau moyen de la mer (kPa)	Mean Vapour Pressure (kPa) Pression de vapeur moyenne (kPa)
	Mean Moyenne	Difference from Normal Ecart à la normale	Maximum Maximale	Minimum Minimale									
QUEBEC													
Bagotville A	-0.9	-1.1	15.6	-14.6	73.2	117.4	160	37	15		564.6	101.3	.50
Baie Comeau A	-0.8	0.9	9.9	-12.5	116.4	160.6	200	43	13	74	561.7	101.2	.52
Blanc Sablon	-1.5	-1.1	11.7	-12.3	61.8	101.6	104	T	13	83	584.6	100.9	.49
Chibougamau A	-4.0	1.4	11.6	-15.5	53.2	70.0	91	25	14	51	657.1	101.4	.43
Kuujjuac A	-8.5	-0.2	5.3	-23.6	18.8	14.2	35	10	5	56	774.0	101.6	.27
Gaspe A	0.4	0.6	17.5	-12.1	67.8	233.0	278	13	17	82	527.7	101.0	.52
Inukjuak A	-9.4	-2.2	3.5	-25.9	14.2	21.3	54	5	8	78	821.7	101.6	.28
La Grande Riviere	-4.8		8.1	-16.7	47.6	45.5		16	10	47	683.2	101.4	.37
Maniwaki	-0.5	-0.2	13.5	-15.0	52.8	81.2	110	T	13	50	555.7	101.2	.54
Matagami A	-2.9	2.3	11.9	-12.9	32.2	64.2	100	9	11	60	624.2		
Mont Joli A	0.0	0.3	15.0	-11.5	107.6	183.7	247	34	16	66	541.0	101.2	.51
Montreal Int'l A	2.0	0.0	14.4	-8.4	69.1	189.7	234	0	15	65	482.1	101.2	.62
Montreal Mirabel Int'l A	0.3		13.6	-12.5	69.6	203.7		1	15	73	531.0	101.3	.56
Natashquan	-1.6	-0.5	9.6	-13.6	60.6	179.8	156	8	13	96	587.8	101.0	.49
Nitchequon	-7.4	0.9	5.9	-22.5	66.0	50.8	81	36	10	42	731.3	101.5	.34
Kuujjuarapik A	-5.5	-0.6	7.5	-17.2	60.4	56.6	93	15	12	56	705.4	101.5	.34
Quebec A	0.6	0.8	12.3	-10.2	34.8	168.1	173	7	14	66	522.6	101.3	.51
Roberval A	-1.3	0.9	15.1	-15.3	112.0	146.6	196	32	12	61	537.4	101.3	.48
Ste. Agathe des Monts	-1.2	0.3	14.0	-15.0	72.6	172.0	160	7	15	48	573.4	101.2	.52
St. Hubert A	1.5	-0.3	14.6	-10.9	36.3	223.7	252	0	15		507.0	101.2	.61
Schefferville A	9.2	-0.2	6.2	-30.0	101.1	83.7	127	59	15	53	815.4	101.5	.28
Sept-Iles A	-2.4	0.1	6.6	-16.6	104.0	180.0	180	27	17	75	612.5	101.2	
Sherbrooke A	1.0	0.6	15.2	-13.6	42.1	207.8	216	6	16	58	508.9	101.3	.59
Val d'Or A	-2.6	0.8	12.8	-14.8	33.4	68.6	87	6	13	54	617.0	101.4	.45
NEW BRUNSWICK NOUVEAU-BRUNSWICK													
Charlo A	0.5	0.8	15.3	-10.6	72.3	246.7	311	19	16	82	525.5	101.1	.54
Chatham A	1.9	1.0	14.0	-10.4	28.8	198.8	194	6	16	99	471.2	101.1	.59
Fredericton A	2.3	0.9	15.5	-9.0	16.6	207.2	195	3	15	100	472.0	101.1	.60
Moncton A	2.9	0.9	15.8	-6.8	9.5	143.2	130	T	14	92	454.7	101.1	.64
Saint John A	3.4	1.1	14.2	-6.6	4.4	178.9	123	T	13	105	438.4	101.1	.65

STATION	Temperature °C Température °C				Snowfall (cm) Chute de neige (cm)	Total Precipitation (mm) Précipitation totale (mm)	% of Normal Precipitation % de précipitation normale	Snow on ground at end of month (cm) Neige au sol à la fin du mois (cm)	No. of days with Precip. 1.0 or more (mm) Nombre de jours de préc. 1.0 ou plus (mm)	Bright sunshine (hours) Durée de l'insolation (heures)	Degree Days below 18°C Degrés-jours au-dessous de 18°C	Mean Sea Level Pressure (kPa) Pression au niveau moyen de la mer (kPa)	Mean Vapour Pressure (kPa) Pression de vapeur moyenne (kPa)
	Mean Moyenne	Difference from Normal Ecart à la normale	Maximum Maximale	Minimum Minimale									
NOVA SCOTIA NOUVELLE-ECOSSE													
Eddy Point	4.9	0.6	15.2	-1.8	6.1	248.0	168	0	13	73	392.5	101.1	.62
Greenwood A	4.4	0.5	16.5	-6.2	1.4	84.7	78	0	13		407.6	101.1	.69
Halifax Int'l A	4.4	1.0	16.5	-5.7	2.4	195.6	128	0	10		407.4	101.0	.73
Sable Island	7.1	-0.2	14.9	1.0	0.2	121.0	89	0	13	76	326.6	101.1	.85
Shearwater A	5.1	0.5	15.6	-4.9	0.2	236.2	165	0	10	110	387.4	101.1	.74
Sydney A	4.1	0.3	15.0	-5.7	3.8	173.0	108	0	13	59	416.2	101.1	.70
Truro													
Yarmouth A	5.6	0.4	15.1	-5.4	T	138.9	103	0	10	94	371.5	101.1	.77
PRINCE EDWARD ISLAND ILE-DU-PRINCE-EDOUARD													
Charlottetown A	4.0	1.1	16.3	-3.5	5.3	127.9	106	0	16		408.7	101.0	.71
Summerside A	3.7	0.7	16.4	-4.6	2.4	130.6	131	0	15	60	429.4	101.1	.68
NEWFOUNDLAND TERRE-NEUVE													
Argentia A	4.0	-1.0	15.4	-3.0	1.6	120.2	114	0	12		418.6	101.0	.67
Battle Harbour	-1.6	-1.0	11.5	-11.2	45.4	132.6	149	15	14		573.8	100.9	.49
Bonavista	2.8	-0.6	13.0	-5.5	26.6	133.8	139	3	15		457.2	101.0	.64
Burgeo	3.2	0.0	12.0	-4.6	9.4	176.8	96	0	15	94	442.7	101.0	.67
Cartwright	-2.0	-0.2	11.1	-14.1	93.7	129.3	162	48	16	60	599.5	101.0	.46
Churchill Falls A	-8.5	-0.6	6.0	-25.8	146.4	140.6	175	134	17	58	795.2	101.1	.30
Comfort Cove	1.3	-0.6	14.0	-5.7	44.4	111.4	101	11	17		504.5	101.8	.57
Daniel's Harbour	1.4	-0.4	16.5	-6.0	24.4	91.6	89	3	16	57	499.8	100.9	.58
Deer Lake A	0.7	-0.3	16.8	-11.4	47.0	101.2	93	12	15		503.6	101.0	.58
Gander Int'l A	1.3	-0.5	13.2	-5.8	53.4	126.4	118	17	16	64	503.2	101.0	.58
Goose A	-4.9	-1.1	11.7	-17.7	150.6	155.1	206	80	16	64	690.7	101.2	.39
Hopedale	-3.8	-0.4	7.6	-14.5	84.3	99.1	151	38	12		652.4	101.0	.40
Port-aux-Basques	3.3	0.1	11.7	-3.8	11.0	182.5	118	0	17	85	439.2	101.0	.68
St. Anthony	-1.2	-0.3	10.4	-7.6	62.5	116.1	93	14	17		558.5	100.8	.52
St. John's A	2.4	-1.0	13.3	-7.6	17.9	118.9	73	3	18	58	473.4	101.0	.61
St. Lawrence	3.2	-0.4	15.0	-6.5		142.3	105	0	10		446.3		
Stephenville A	2.8	-0.1	16.2	-6.3	36.0	126.4	103	4	17	60	452.0	100.9	.60
Wabush Lake A	-8.6	-0.5	6.2	-25.8	161.2	124.9	103	83	16	51	796.6	101.4	.28

NOVEMBER 1983 NOVEMBRE

STATION	Temperature °C Température °C: Mean Moyenne	Difference from Normal Ecart à la normale	Maximum Maximale	Minimum Minimale	Snowfall (cm) Chute de neige (cm)	Total Precipitation (mm) Précipitation totale (mm)	% of Normal Precipitation % de précipitation normale	Snow on ground at end of month (cm) Neige au sol à la fin du mois (cm)	No. of days with Precip. 1.0 or more (mm) Nombre de jours de préc. 1.0 ou plus (mm)	Bright sunshine (hours) Durée de l'insolation (heures)	Degree Days above 5°C Degrés-jours au-dessus de 5°C: This Month Présent mois	Since Jan. 1st Depuis le 1er janv.	Mean Dew Point °C Point de rosée moyen °C
AGROCLIMATOLOGICAL STATIONS AGROCLIMATOLOGIQUES													
BRITISH COLUMBIA COLOMBIE-BRITANNIQUE													
Agassiz	7.3	1.3	14.0	3.0	0.0	363.4	172	0	23	36	68.5	2259.9	
Kamloops													
Sidney													
Summerland	5.2	2.7	13.5	-4.0	2.8	45.6	180	0	11	45	39.5	2087.5	
ALBERTA													
Beaverlodge	-4.5	0.6	11.5	-20.5	14.0	13.6	51	9	4	58	1.6	1227.6	
Ellerslie	-3.8		12.0	-21.5	13.0	12.5		11	4	55	1.0	1370.8	
Fort Vermilion													
Lacombe	-2.7	1.7	14.0	-22.0	9.0	8.5	61	4	4	63			
Lethbridge	-4.0	3.0	11.5	-23.0	17.1	18.1	112	10	7				
Vauxhall	-1.3	0.6	20.5	-21.0	12.9	12.7	98	6	5	73	21.4	1698.3	
Vegreville	-4.0	2.1	11.5	-23.0	17.1	18.1	124	10	7	46			
SASKATCHEWAN													
Indian Head	-2.6	2.7	15.0	-21.0	13.6	23.0	135	10	8				
Melfort	-3.4	3.5	12.5	-18.0	21.5	36.5	193	13	9	28	4.5	1536.5	
Regina	-4.3	1.4	16.0	-27.0	13.9	17.5	130	10	8		0.0	1551.3	
Saskatoon	-2.9		15.0	-18.5	22.8	27.6		9	10	49	7.5	1637.5	
Scott	-4.6	1.6	14.0	-23.0	29.3	35.6	258	16	11	25	3.0	1437.8	
Swift Current South	-2.8	1.1	16.5	-19.5	13.1	15.3	128	8	6	61	12.4	1854.3	
MANITOBA													
Brandon	-2.2	2.8	16.5	-17.0	5.4	17.0	85	7	6	46	6.0	1748.6	
Glenlea	-1.5	3.4	15.5	-13.0	23.8	23.8	98	10	7	50	17.0	1359.5	
Morden	-1.4	2.1	17.5	-14.0	19.6	19.8	77	11	7	40	15.1	2025.7	
ONTARIO													
Delhi	3.9	0.2	16.5	-5.5	10.0	107.5	130	1	14	60	35.8	2313.0	
Elora	2.3		16.2	-8.6	7.7	67.3		6	13	52	25.0	1974.5	
Guelph	2.7	0.2	17.0	-10.4	11.5	80.5	107	1	13	51	26.0	2044.5	
Harrow	5.2	0.7	17.0	-7.5	10.8	123.3	184	0	11	112	53.4	2395.1	
Kapuskasing													
Merivale													
Ottawa	1.6	0.0	13.9	-10.4	38.0	109.6	148	T	11	62	9.2	2163.3	
Smithfield	2.5	-0.5	15.0	-13.0	21.5	118.8	133	0	14		19.0	2169.7	
Vineland Station	4.9	-0.2	17.9	-4.8	7.4	89.4	140	0	14	68			
Woodslee	4.7	0.5	17.5	-7.0	2.0	113.2	187	0	12				
QUEBEC													
La Pocatiere	0.0	-0.4	13.0	-11.0	38.3	163.5	210	10	13	81	5.1	1680.1	
L'Assomption	1.0	-0.1	13.5	-12.0	34.4	260.4	313	1	13	61	31.8	2046.6	
Lavaltrie													
Lennoxville													
Normandin	-2.8	0.1	15.0	-20.0	42.2	79.6	136	10	14	59			
St. Augustin													
Ste. Clothilde	1.4	-0.5	15.0	-14.5	29.3	136.4	170	0	14	55	7.1	2112.8	
NEW BRUNSWICK NOUVEAU-BRUNSWICK													
Fredericton													
NOVA SCOTIA NOUVELLE-ECOSSE													
Kentville													
Nappan	4.0	1.0	16.0	-6.0							29.8	1822.3	
PRINCE EDWARD ISLAND ILE-DU-PRINCE-EDOUARD													
Charlottetown	4.1	0.7	14.9	-5.0	6.4	138.4	125	0	17	52		1869.6	
NEWFOUNDLAND TERRE-NEUVE													
St. John's West													

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