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adian Climate Centre

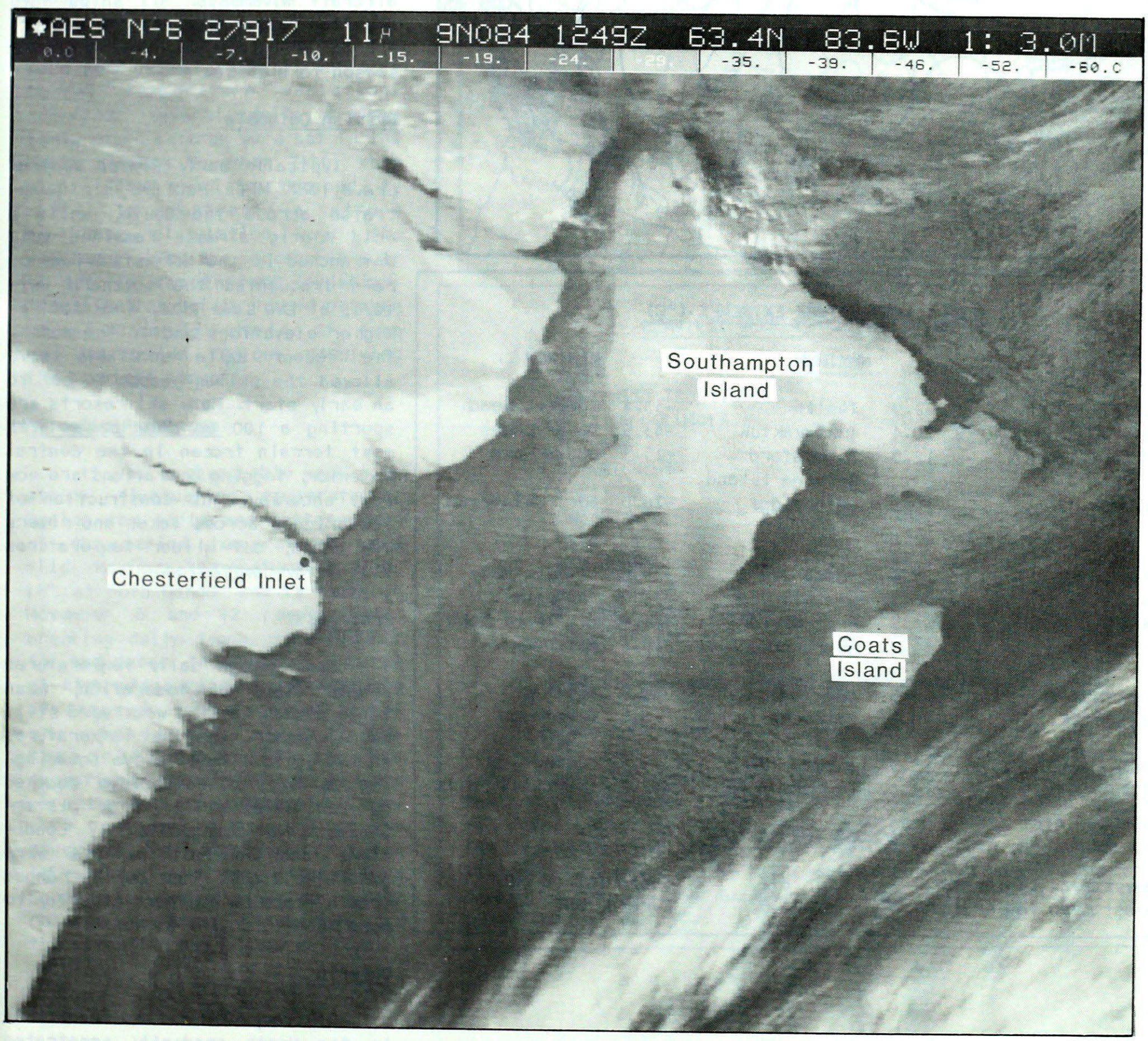
Climatic Perspectives

A WEEKLY REVIEW OF CANADIAN CLIMATE

NOVEMBER 16, 1984 | *(Aussi disponible en français)* | VOL. 6 NO. 45

FOR THE PERIOD NOVEMBER 6 TO 12, 1984

• *B.C. snow and cold beneficial to logging and skiing*



The NOAA 6 weather satellite shows the beginning of freze-up in Hudson Bay. See page 5 for more details.

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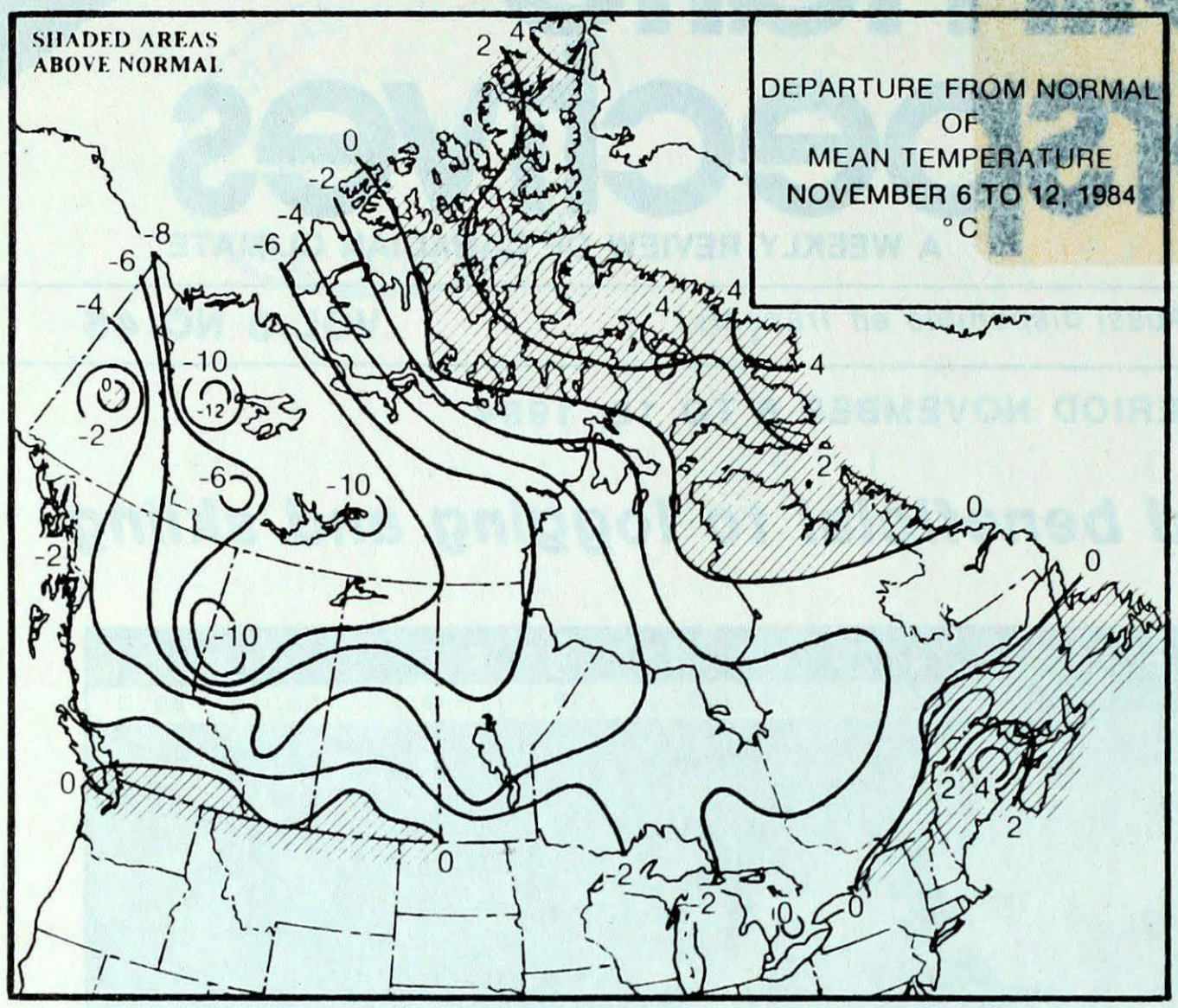
NOTE: The data shown in this publication are based on unverified reports from approximately 225 Canadian synoptic stations.

Canada



WEEKLY TEMPERATURE EXTREMES (°C)

	MAXIMUM		MINIMUM	
YUKON TERRITORY	-2.9	Teslin	-33.4	Komakuk Beach
NORTHWEST TERRITORIES	20.4	Tuktoyaktuk	-43.5	Dewar Lakes
BRITISH COLUMBIA	12.0	Abbotsford Saturna Island	-25.3	Dease Lake
ALBERTA	10.1	Lethbridge	-26.0	Fort Chipewyan
SASKATCHEWAN	8.4	Moose Jaw	-29.6	Uranium City
MANITOBA	6.2	Bissett	-30.0	Thompson
ONTARIO	14.3	Port Weller	-23.9	Big Trout Lake
QUEBEC	15.2	Sherbrooke	-19.8	Nitchequon
NEW BRUNSWICK	17.3	Moncton	-9.5	Chatham
NOVA SCOTIA	18.0	Yarmouth	-8.6	Greenwood Truro
PRINCE EDWARD ISLAND	15.9	Summerside	-5.3	Summerside
NEWFOUNDLAND	19.4	Comfort Cove	-17.2	Churchill Falls

ACROSS THE NATION

Warmest mean temperature	8.2	Sable Island (NS)
Coolest mean temperature	-28.5	Eureka, NWT

ACROSS THE COUNTRY...

Yukon and Northwest Territories

Near normal temperatures returned to the central and southern Yukon while mean temperature in the Beaufort still remained well below normal. The coldest reading, -43° occurred at Dewar Lake on Baffin Island on November 9. A strong low level inversion in the valleys, combined with the larger lakes still remaining open, has produced extensive low cloud and occasional freezing drizzle which hampered aircraft movements. All ships have departed Hudson Bay and the eastern Arctic bringing the 1984 shipping season to a close.

British Columbia

Typically early winter weather prevailed. Mild Pacific air penetrated across the South, while a cold Arctic airmass remained well entrenched in the North. Periods of rain frequented the southern valleys; at the same time, snow fell at higher elevations and in the North. The recent ample snowfalls have allowed the skiing season to get to an early start. Many ski resorts are sporting a 100 cm snow base. With most terrain frozen in the central interior, logging operations are now well underway. The construction of ice bridges across lakes and rivers has begun, but milder temperatures will delay completion.

Prairies

Even though daily temperatures showed signs of moderation, mean temperatures for the week were still below normal. Daytime temperatures in the South climbed above freezing. The mercury at Lethbridge reached 10° on November 11. Weak disturbances gave changeable sky conditions and snowfall amounts were generally light. Snow depths ranged from a trace in southern Alberta, to more than 30 cm in the North.

Ontario

Blustery winter-like conditions in the North gradually penetrated into southern Ontario. Heavy rains preceded the Arctic outbreak in the South with amounts in the 25 to

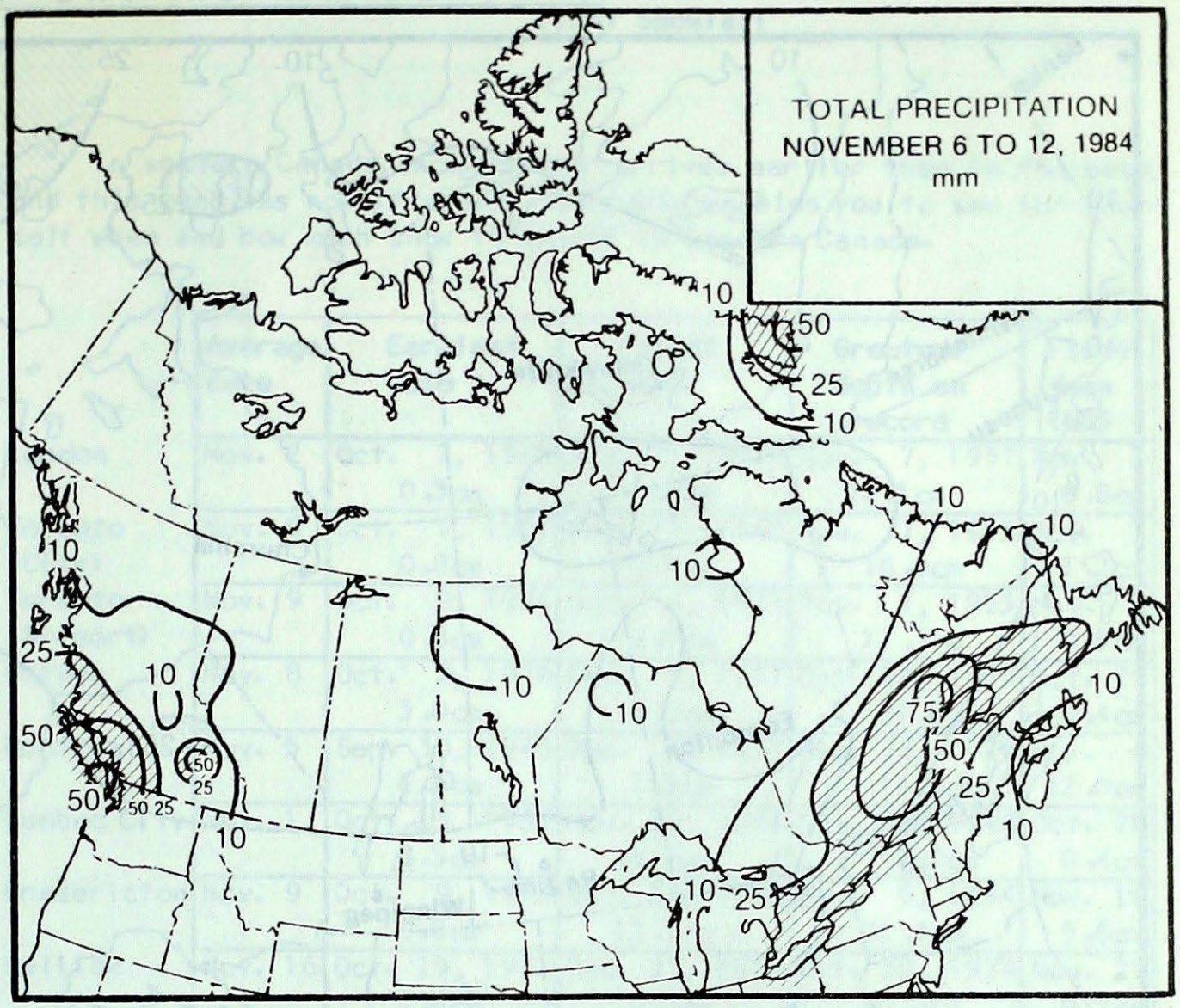
35 mm range. Temperatures dropped sharply over the weekend and many communities received their first snowfall of the season. Strong winds blowing across the relatively warm waters of the Great Lakes triggered streamers of locally heavy snow squalls. Some localities to the lea of the Great Lakes received up to 20 cm of new snow.

Quebec

Although mean temperatures were near normal, significant day-to-day temperature variations occurred. Several daily minimum temperature records were set in the South between November 7-10, when night time readings dropped to -12°. In contrast a strong southerly circulation over the weekend allowed the mercury to soar to 15° in the Eastern Townships. Precipitation totals ranged between 10 and 70 mm with the Lac St. Jean and Laurentian regions receiving the heaviest amounts.

Atlantic Provinces

It was a changeable week with widely fluctuating temperatures. During the early and latter parts of the period temperatures were mild. Maximum temperatures reached 18° at both Gander and Yarmouth on November 6 and 12 respectively, breaking daily temperature records for the dates. In contrast, an area of high pressure during the middle of the week lead to clear nights and resultant record low temperatures. With a few exceptions, precipitation amounts were light. In New Brunswick, concern has been expressed about the unusually low water levels in the lakes and rivers. In southwest Nova Scotia, Liverpool's water supply reserve continues to dwindle and the situation has become critical.



HEAVIEST WEEKLY PRECIPITATION (mm)

YUKON	9.7	Dawson
NORTHWEST TERRITORIES	64.3	Cape Dyer
BRITISH COLUMBIA	70.3	Comox
ALBERTA	10.2	Grande Prairie
SASKATCHEWAN	9.0	Uranium City
MANITOBA	12.4	Thompson
ONTARIO	38.4	Petawawa
QUEBEC	77.0	Baie-Comeau
NEW BRUNSWICK	25.3	Charlo
NOVA SCOTIA	21.9	Sable Island
PRINCE EDWARD ISLAND	10.2	Summerside
NEWFOUNDLAND	32.3	Burgeo

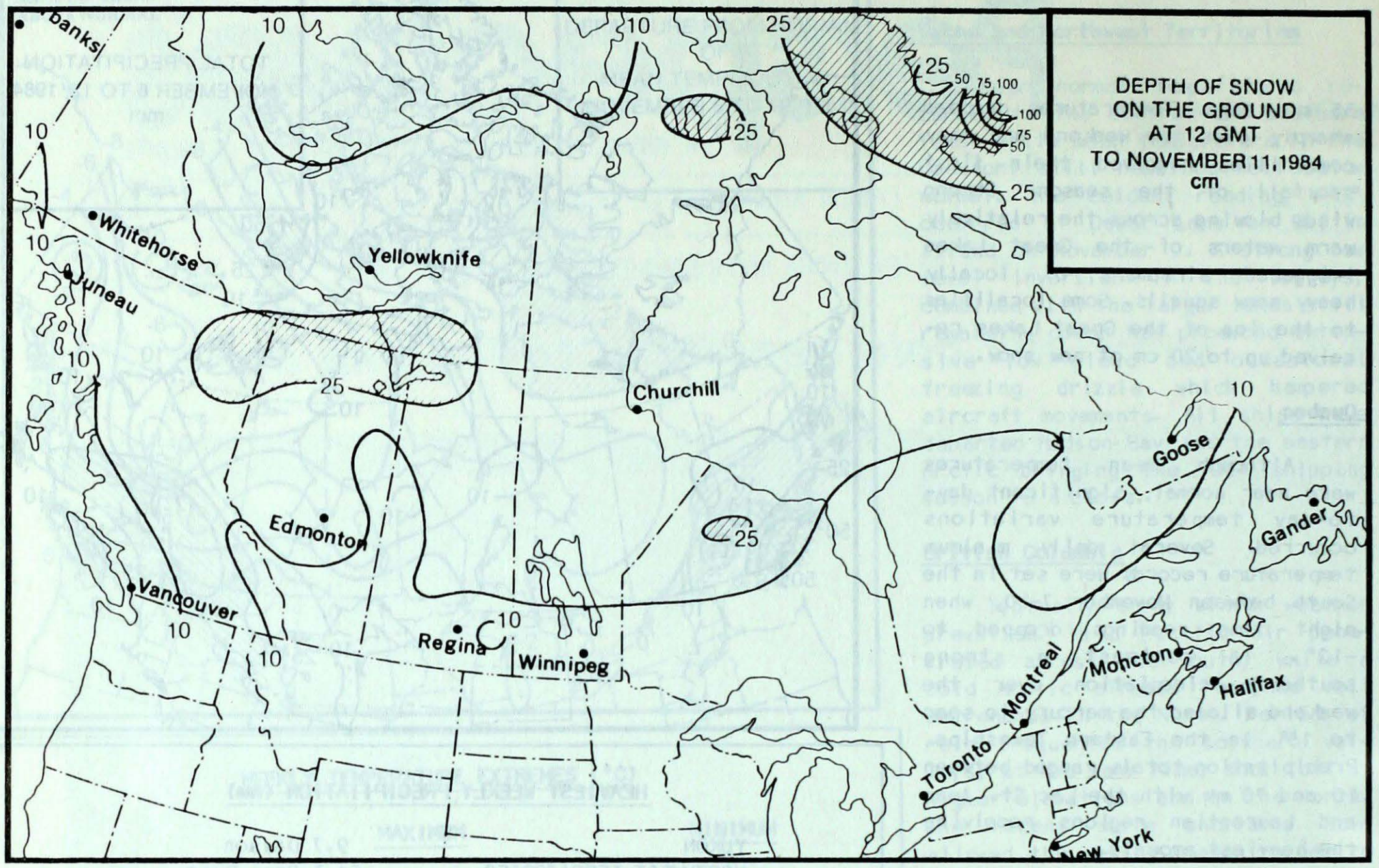
1984 St. Lawrence Navigation Season coming to an end

Freeze-up is expected to occur later than normal in both the Gulf of St. Lawrence and the Seaway due to slightly above normal water temperatures and favourable air temperature forecasts until the end of November. Freeze-up will begin approximately the second week of December in the lower St. Lawrence River, late December in the Seaway west of Montreal and possibly as late as January in the Gulf of St. Lawrence. The St. Lawrence Seaway locks are expected to close for the season December 15. The Welland Canal will cease operating December 30.

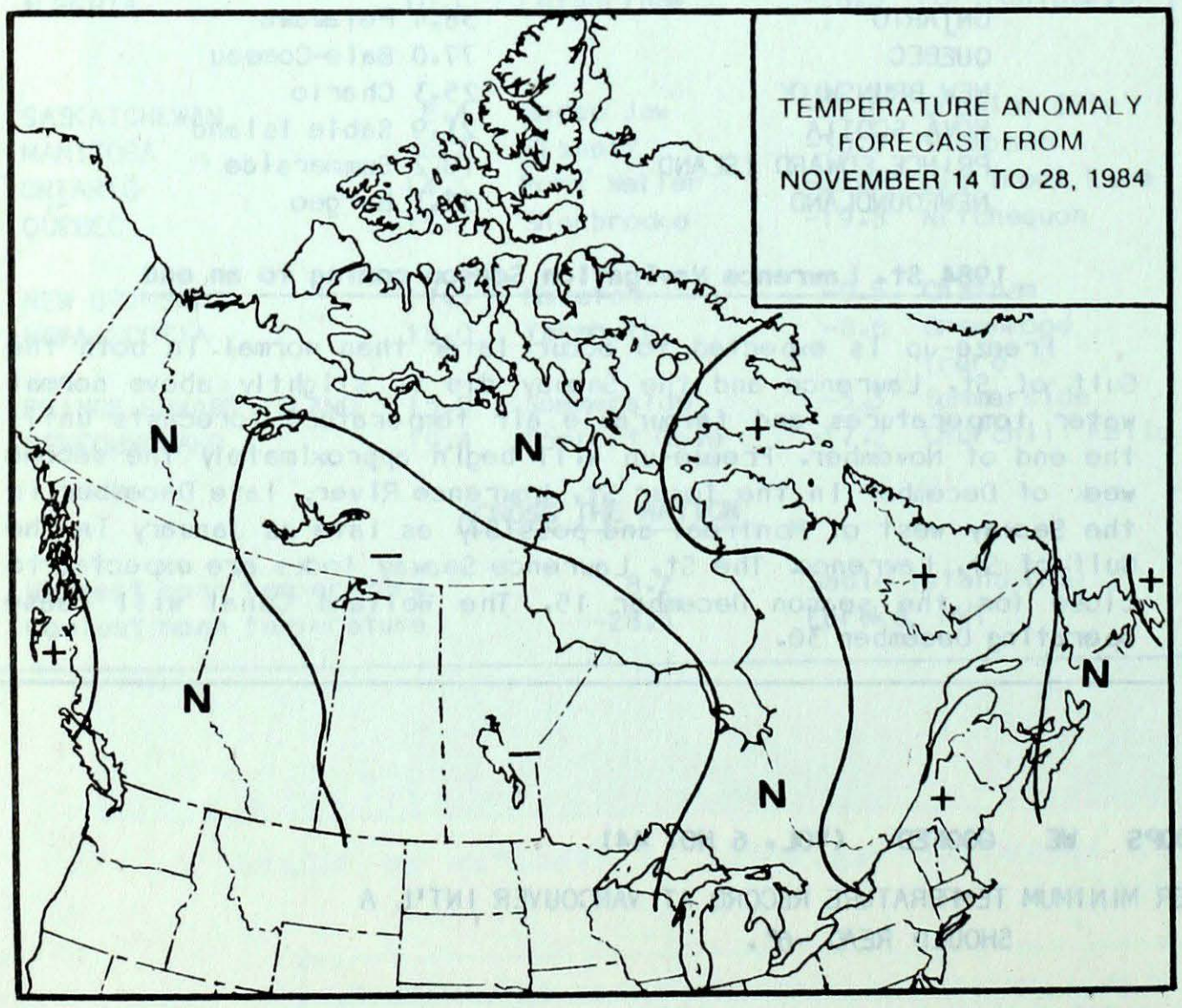
OOPS WE GOOFED (VOL. 6 NO. 44)

THE NEW OCTOBER MINIMUM TEMPERATURE RECORD AT VANCOUVER INT'L A SHOULD READ -6°.

SNOW DEPTH ON THE GROUND



TEMPERATURE ANOMALY FORECAST



Temperature Anomaly Forecast

The temperature anomaly forecast, for each of the 70 Canadian stations, is prepared by searching historical weather maps to find cases similar to the present one. The principle used is that a prediction for the next 15 days may be based on what is known to have actually happened during 15-day periods. After the five best cases are selected, the surface temperature anomalies are calculated. This results in five separate forecasts, which are averaged to provide the forecast depicted.

++ much above normal

+ above normal

N normal

– below normal

–– much below normal

The Front Cover

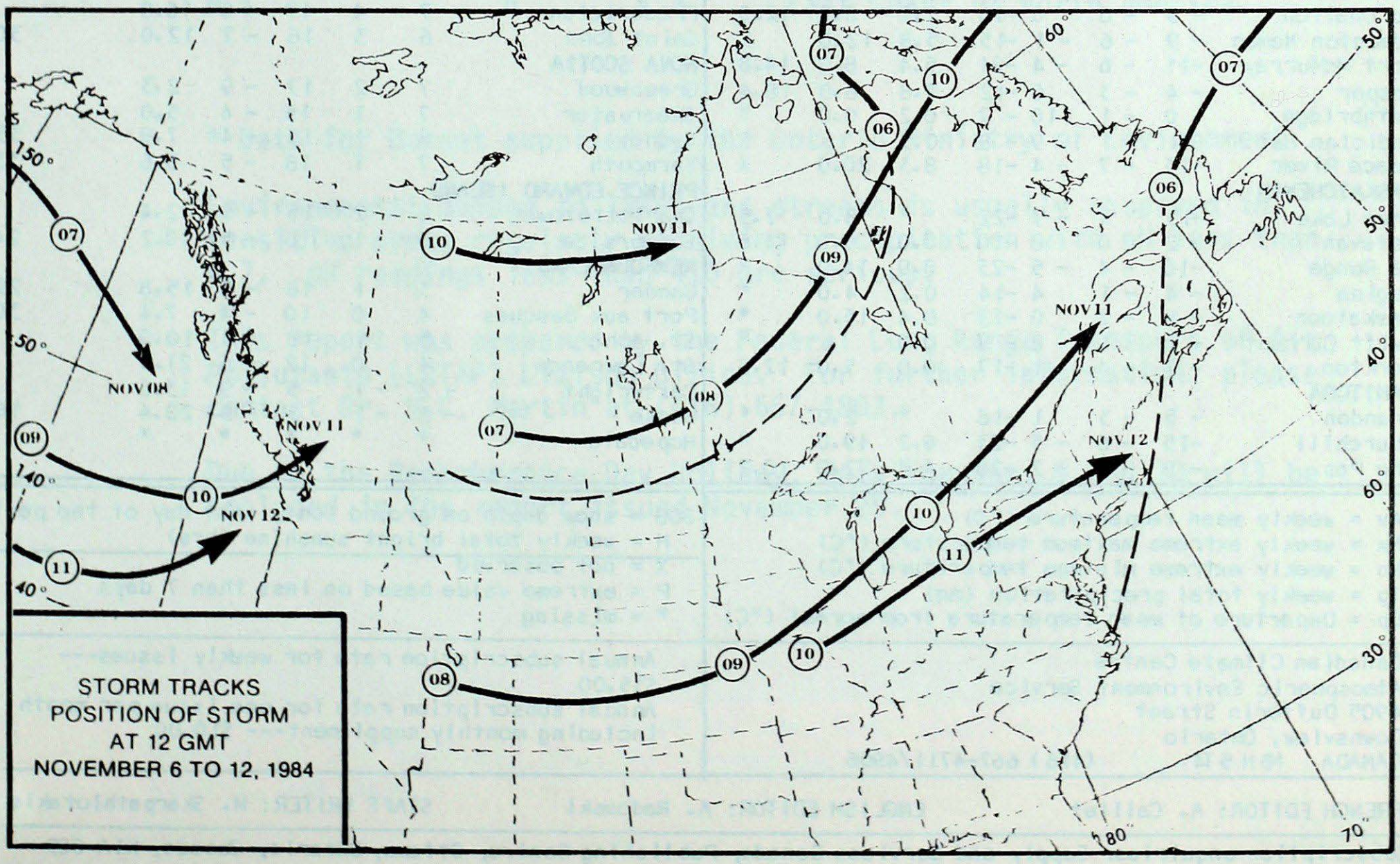
This NOAA 6 weather satellite image taken on November 9, 1984 shows that Hudson Bay is starting to freeze. Air temperatures in the region have been below freezing, on the average, since the end of September. At the time of this particular picture (taken at the infra-red wavelength of 11 microns) the temperature at Chesterfield Inlet was about -30°C. The land is very cold (and white in the picture) in contrast to the much warmer water which appears dark. Skeins of new gray ice have formed offshore from the mainland for a distance of about 200 kilometres, and also off the northeast shore of Southampton Island. The first ice in Hudson Bay typically forms along the western shore because this area takes the full brunt of the early arctic outbreaks. In travelling across the relatively warm water of the Bay, the temperature of the cold air is modified enough to delay freeze-up on the east side. The picture also reveals a bank of stratus cloud between Chesterfield Inlet and Wagner Bay to the north.

First Snowfall

In western Canada snow usually arrives earlier than in the east, and this year was no different. The table enables you to see for yourself when and how much snow to expect in Eastern Canada.

	Average date	Earliest date	Latest date	Greatest depth on record	First snow 1983
London	Nov. 2	Oct. 2, 1945 0.3cm	Nov. 25, 1946 1.8cm	Nov. 7, 1957 22.1cm	Nov. 3 0.8cm
Toronto (City)	Nov. 9	Oct. 1, 1920 0.8cm	Dec. 15, 1948 5.1cm	Nov. 7, 1953 16.8cm	Nov. 3 1.2cm
Toronto (Airport)	Nov. 9	Oct. 9, 1976 0.8cm	Dec. 4, 1937 2.5cm	Nov. 7, 1953 12.7cm	Nov. 3 0.5cm
Ottawa	Nov. 8	Oct. 2, 1974 3.0cm	Dec. 5, 1937 6.9cm	Oct. 24, 1933 21.6cm	Oct. 29 0.4cm
Montreal	Nov. 5	Sep. 30, 1946 6.1cm	Dec. 1, 1957 1.3cm	Nov. 23, 1978 15.0cm	Nov. 4 12.0cm
Quebec City	Nov. 1	Oct. 13, 1964 0.3cm	Nov. 30, 1944 18.0cm	Nov. 30, 1944 18.0cm	Oct. 28 0.4cm
Fredericton	Nov. 9	Oct. 9, 1979 9.8cm	Dec. 14, 1953 12.7cm	Nov. 6, 1894 25.4cm	Nov. 16 5.6cm
Halifax	Nov. 16	Oct. 19, 1972 7.6cm	Dec. 23, 1973 3.3cm	Oct. 20, 1974 33.0cm	Nov. 29 0.2cm
Charlottetown	Nov. 10	Oct. 5, 1883 0.8cm	Nov. 30, 1959 2.5cm	Nov. 18, 1956 28.0cm	Oct. 29 3.0cm
St. John's	Oct. 24	Sep. 30, 1965 0.3cm	Dec. 3, 1942 5.1cm	Nov. 19, 1962 7.9cm	Oct. 10 0.2cm

STORM TRACKS



TEMPERATURE, PRECIPITATION AND BRIGHT SUNSHINE DATA FOR THE WEEK ENDING 0600 GMT NOVEMBER 13, 1984

STATION	TEMP				PRECIP		SUN
	Av	Dp	Mx	Mn	Tp	SOG	H
YUKON TERRITORY							
Dawson	-14	- 2	- 9	-30	9.7	14.0	X
Mayo A	-11	1	- 7	-18	4.4	15.0	X
Watson Lake	-16	- 6	- 7	-26	0.9	16.0	0.3
Whitehorse	- 8	- 2	- 5	-13	3.4	11.0	2.2
NORTHWEST TERRITORIES							
Fort Smith	-19	-10	- 9	-30	4.4	28.0	*
Inuvik	-26	- 8	-20	-34	0.0	10.0	*
Norman Wells	-28	-13	-21	-35	2.2	7.0	*
Yellowknife	-20	- 9	-13	-36	*	10.0	*
Baker Lake	-24	- 7	-15	-31	*	20.0	*
Cape Dyer	- 9	6	- 2	-21	64.3	120.0	X
Clyde	-11	4	- 2	-21	8.0	48.0	2.3
Frobisher Bay	- 9	3	- 1	-17	13.2	13.0	*
Alert	-21	5	-17	-25	0.4	42.0	*
Eureka	-28	1	-19	-36	*	27.0	*
Hall Beach	-15	4	- 2	-29	9.9	14.0	X
Resolute	-20	3	- 9	-27	0.6	9.0	*
Cambridge Bay	-22	- 1	-12	-30	*	14.0	*
Mould Bay	-26	- 2	-18	-34	0.4	13.0	*
Sachs Harbour	-26	- 5	-15	-32	*	12.0	0.0
BRITISH COLUMBIA							
Cape St. James	6	- 1	10	3	21.7		33.1
Cranbrook	0	0	8	- 6	13.1	5.0	*
Fort Nelson	-17	- 8	-12	-25	5.4	26.0	9.1
Fort St. John	-14	-10	- 2	-21	8.9	23.0	X
Kamloops	3	- 1	12	- 1	8.9		13.6
Penticton	6	2	11	- 1	10.1		12.3
Port Hardy	4	- 2	8	- 1	32.7		7.7
Prince George	- 4	- 4	3	-11	10.5	18.0	8.0
Prince Rupert	2	- 3	9	- 6	24.0		23.1
Revelstoke	1	- 1	7	- 2	62.6	22.0	5.6
Smithers	- 5	- 5	2	-16	11.8	19.0	7.8
Vancouver	7	0	12	3	54.4		6.6
Victoria	7	0	11	3	48.2		9.4
Williams Lake	- 2	- 2	5	-12	9.4	11.0	13.0
ALBERTA							
Calgary	- 4	- 3	7	-13	0.8	0.0	31.3
Cold Lake	- 7	- 4	- 2	-15	8.0	10.0	12.7
Coronation	- 9	- 6	0	-16	2.2	8.0	12.0
Edmonton Namao	- 9	- 6	- 1	-15	5.8	12.0	X
Fort McMurray	-11	- 6	- 4	-21	5.4	8.0	14.8
Jasper	- 4	- 3	6	-12	5.8	6.0	18.4
Lethbridge	0	- 1	10	- 7	0.2	0.0	*
Medicine Hat	- 1	- 1	9	- 8	0.3		*
Peace River	-13	- 7	- 4	-18	8.3	20.0	X
SASKATCHEWAN							
Cree Lake	-13	X	- 7	-22	*	8.0	7.5
Estevan	- 2	0	8	-10	0.0	0.0	13.6
La Ronge	-10	- 4	- 5	-23	8.9	14.0	X
Regina	- 4	- 1	4	-14	0.2	4.0	*
Saskatoon	- 6	- 2	0	-13	0.4	15.0	*
Swift Current	- 1	1	8	- 9	0.0		*
Yorkton	- 7	- 4	1	-17	0.0	5.0	12.6
MANITOBA							
Brandon	- 5	- 3	1	-16	*	2.0	*
Churchill	-15	- 6	- 5	-23	6.2	19.0	*
The Pas	- 8	- 4	- 2	-20	4.4	22.0	10.2
Thompson	-15	- 6	- 6	-30	12.4	18.0	*
Winnipeg	- 4	- 2	5	-15	0.4	0.0	32.1
ONTARIO							
Big Trout Lake	-11	- 5	- 3	-24	11.4	38.0	X
Earlton	- 1	- 1	9	- 9	*	1.0	X
Kapuskasing	- 4	- 2	6	-13	5.9	0.0	*
Kenora	- 3	- 1	6	-10	3.0	3.0	X
London	5	0	13	- 5	25.9		*
Moosonee	- 5	- 3	6	-14	1.0		17.9
Muskoka	2	- 1	11	- 8	*	*	X
North Bay	- 1	- 2	8	- 7	15.6	3.0	2.9
Ottawa	2	- 1	11	- 7	37.8		14.9
Pickle Lake	- 7	- 3	3	-18	2.8	5.0	X
Red Lake	- 5	- 2	2	-13	9.4	3.0	26.0
Sudbury	0	- 1	9	- 9	16.8	3.0	16.8
Thunder Bay	- 3	- 2	8	-12	3.2		*
Timmins	- 3	- 2	9	-12	12.8	11.0	X
Toronto	4	0	13	- 4	39.0	0.0	X
Trenton	4	- 1	12	- 7	33.0		X
Wiarton	4	- 1	12	- 4	44.2	19.0	6.7
Windsor	5	- 1	13	- 4	37.2	6.0	X
QUEBEC							
Bagotville	0	0	6	- 7	55.4	1.0	X
Blanc-Sablon	- 1	- 1	7	-11	13.8	2.0	*
Inukjuak	- 5	1	1	- 9	14.4	26.0	2.1
Kuujjuaq	- 6	0	1	-13	2.6	20.0	10.0
Kuujjuarapik	- 5	- 1	2	-10	*	5.0	9.5
Manlwaki	0	- 1	8	-10	44.8		13.5
Mont-Joli	1	0	8	- 7	71.6	*	21.9
Montréal	4	- 1	11	- 7	36.6		19.1
Natashquan	- 1	- 1	6	-13	16.6	2.0	20.0
Nitchequon	- 9	- 3	1	-20	6.8	13.0	*
Québec	2	0	9	- 8	62.0		*
Schefferville	- 8	- 1	1	-16	2.3	8.0	*
Sept-Iles	- 2	- 1	5	-11	50.2	12.0	24.1
Sherbrooke	4	1	15	-11	27.0		*
Val-d'Or	- 4	- 2	5	-14	27.0	13.0	13.3
NEW BRUNSWICK							
Charlo	2	1	10	- 9	25.3		25.0
Fredericton	7	4	17	- 8	16.8		*
Saint John	6	3	16	- 7	12.0		30.5
NOVA SCOTIA							
Greenwood	7	2	17	- 9	2.3		X
Shearwater	7	1	15	- 4	5.0		*
Sydney	6	1	15	- 4	7.8		35.3
Yarmouth	7	1	18	- 5	5.6		33.7
PRINCE EDWARD ISLAND							
Charlottetown	6	2	15	- 5	2.4		*
Summerside	6	1	16	- 5	10.2		24.5
NEWFOUNDLAND							
Gander	3	1	18	- 6	15.8		29.6
Port aux Basques	4	0	10	- 4	7.4		30.5
St. John's	5	1	18	- 6	10.0		*
St. Lawrence	4	0	12	- 6	21.5		X
Cartwright	- 2	- 1	5	- 9	13.6		X
Goose	- 3	- 1	5	- 9	20.4		16.2
Hopedale	*	*	*	*	*		*

Av = weekly mean temperature (°C)
Mx = weekly extreme maximum temperature (°C)
Mn = weekly extreme minimum temperature (°C)
Tp = weekly total precipitation (mm)
Dp = Departure of mean temperature from normal (°C)

SOG = snow depth on ground (cm), last day of the period
H = weekly total bright sunshine (hrs)

X = not observed
P = extreme value based on less than 7 days
* = missing

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ACID RAIN REPORT ISSUED BY ENVIRONMENT CANADA
FOR NOV. 4- NOV. 8, 1984

SITE	DAY	pH	AIR PATH TO SITE
Longwoods, near London, Ont.	4	4.3	U.S. Midwest.
	5	4.4	Wisconsin, Michigan, Southern Ontario.
Dorset,* Muskoka, Ont.	4	4.3	U.S. Midwest
	5	4.5	Wisconsin, Lake Superior, Lake Huron.
Chalk River Ottawa Valley, Ont.			Data not available.
Montmorency, Quebec City Que.	4	5.0	New York State, New England States.
	5	5.0	New York State, New England States.
	6	5.8	Northern Ontario, northern Quebec.
Kejimkujik, Southwestern N.S.	5	5.1	East Cost of North America.
	6	4.3	East Coast of North America.

* Data for Dorset supplied by the Ontario Ministry of Environment.

Environmental damage to lakes and streams is usually observed in sensitive areas regularly receiving precipitation with pH less than 4.7. pH readings less than 4.0 are serious.

This report was prepared by the Federal Long Range Transport of Air Pollutants (LRTAP) Liaison Office. For further information, please contact Dr. H.C. Martin at (416) 667-4803.

Due to the Rememberance Day Holiday, data for Nov. 9 and 10 will be included in the report issued November 20.