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adian Climate Centre

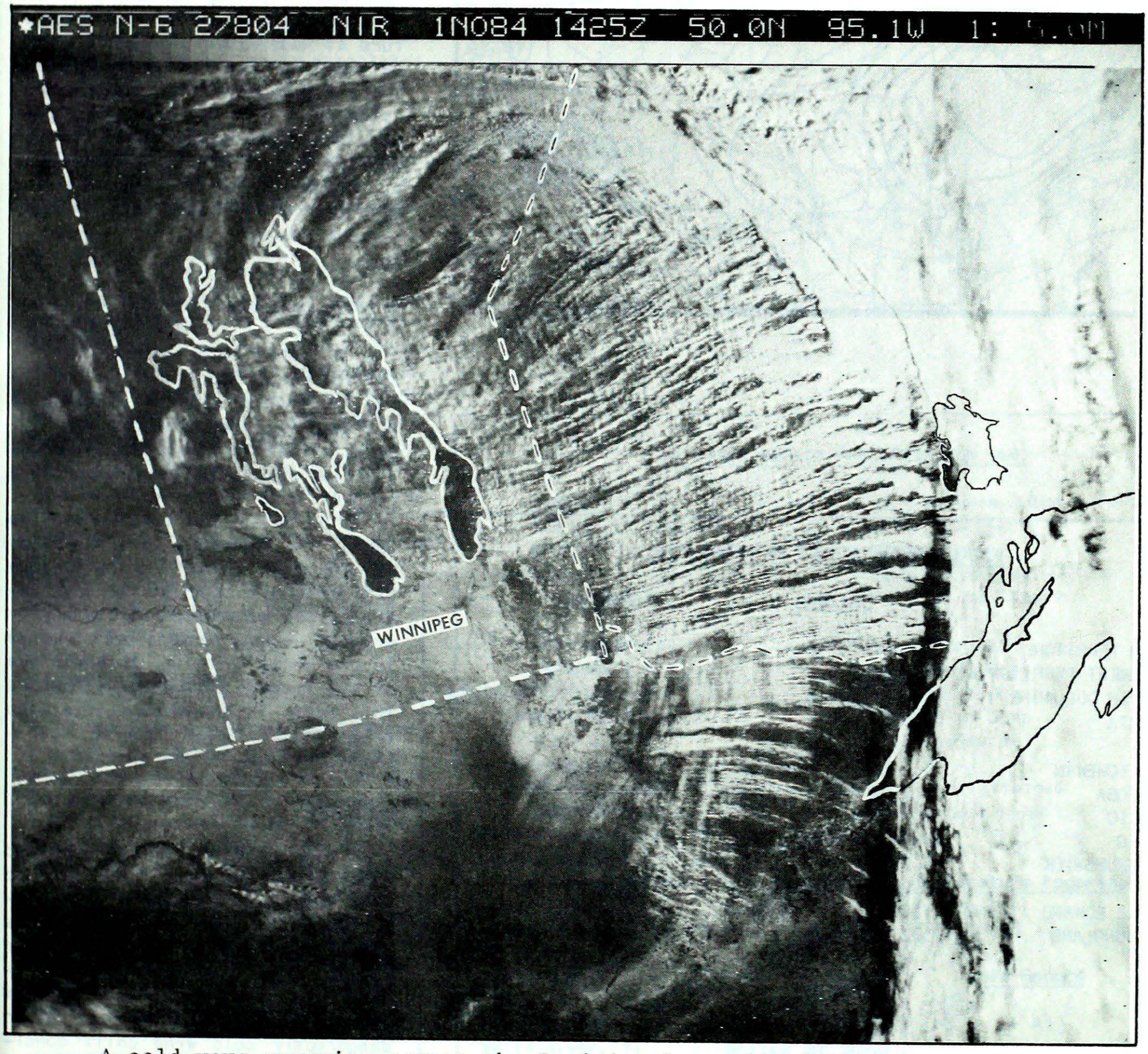
Climatic Perspectives

A WEEKLY REVIEW OF CANADIAN CLIMATE

NOVEMBER 9 ,1984 (Aussi disponible en français) VOL.6 NO.44

FOR THE PERIOD OCTOBER 30 TO NOVEMBER 5, 1984

Extreme cold encompasses Western Canada



A cold wave sweeping across the Prairies is outlined in this satellite picture taken on November 1, 1984. See page 5 for more information about the features shown by the photograph.

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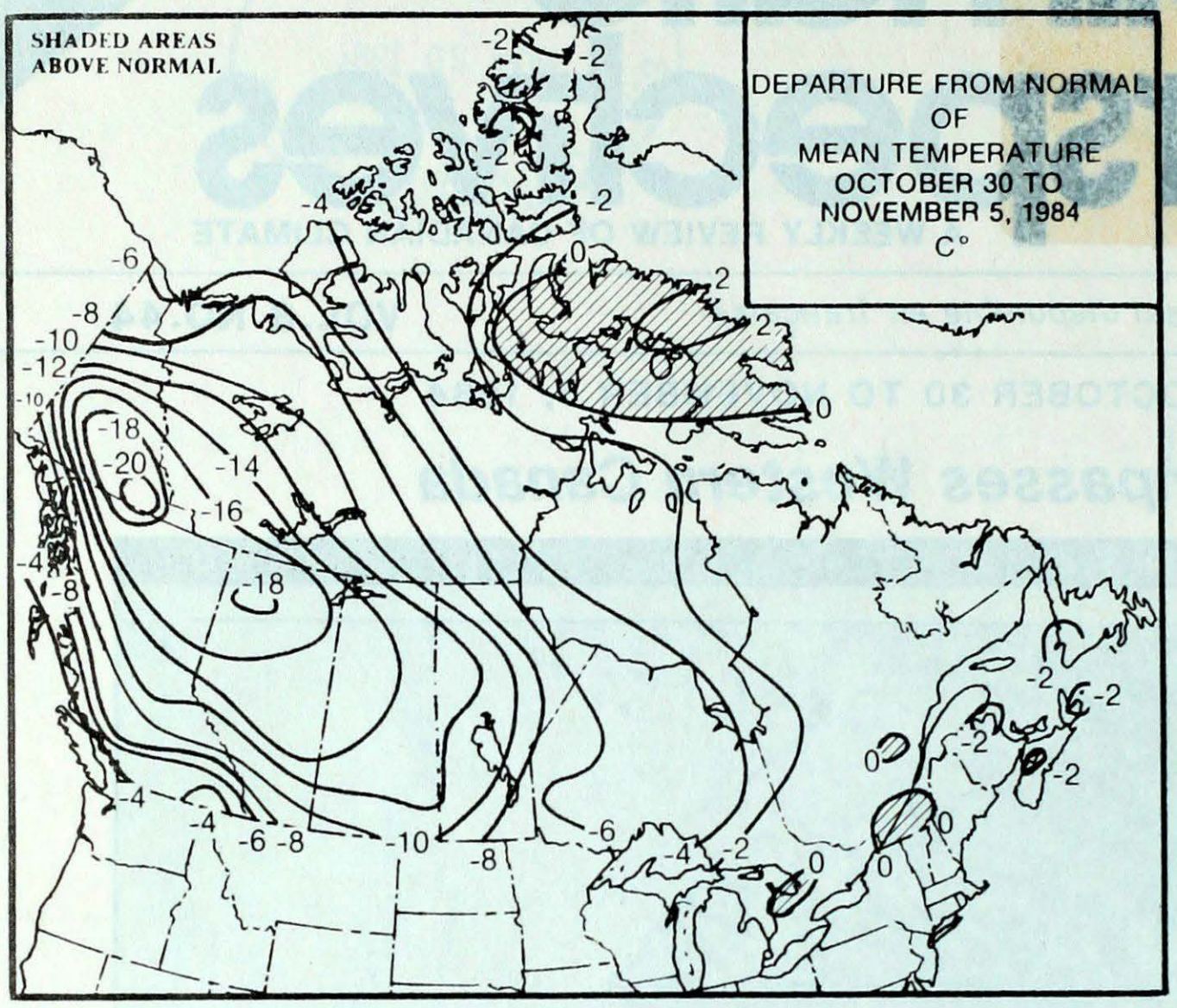
NOTE: The data shown in this publication are based on unverified reports from approximately 225 Canadian synoptic stations.

Canada



WEEKLY TEMPERATURES EXTREMES (°C)

	MAXIMUM		MINIMUM	
YUKON TERRITORY	- 0.8	Whitehorse	-42.0	Ogilvie
NORTHWEST TERRITORIES	-1.1	Cape Dyer	-38.5	Eureka
BRITISH COLUMBIA	12.3	Victoria	-34.7	Puntzi Mountain
ALBERTA	6.8	Calgary	-36.3	High Level
SASKATCHEWAN	3.7	Eastend Cypress	-27.0	Kindersley
MANITOBA	6.6	Gretna	-25.7	Thompson
ONTARIO	20.9	Toronto	-18.0	Winisk
QUEBEC	15.9	Montréal/Dorval	-13.5	Schefferville
NEW BRUNSWICK	16.2	Moncton	- 8.6	Fredericton
NOVA SCOTIA	20.0	Shelburne	- 7.6	Greenwood
PRINCE EDWARD ISLAND	17.8	Charlottetown	- 3.6	Charlottetown
NEWFOUNDLAND	15.2	Deer Lake	-13.6	Wabush Lake

ACROSS THE NATION

Warmest mean temperature	9.3	Sable Island
Coolest mean temperature	-31.2	Eureka, NWT

ACROSS THE COUNTRY...

Yukon and Northwest Territories

A strong Arctic high pressure cell exerted its influence over a large portion of the North. Mean temperatures in the southern Yukon and Mackenzie District were more than 15° below normal. Numerous daily and monthly low temperature records were shattered. The mercury at Ogilvie on October 29, dropped to -42°, the lowest temperature ever recorded in Canada for any previous October. On November 2, the temperature at Ross River plunged to -43°. Watson Lake set new daily minimum temperature records for nine consecutive days. On the other hand, temperatures were above normal in the eastern Arctic. The ice breaker John A. MacDonald and the ore carrier M.V. Arctic were making slow headway through heavy ice in Lancaster Sound.

British Columbia

A very cold Arctic outflow spilled across the Province, resulting in several days of winter-like weather. Mean temperatures were 17° below normal in the North. Numerous all time minimum October temperature records were shattered everywhere. Up to 53 cm of snow fell across the South; the Kootenays were the hardest hit. Sections of the TransCanada Highway were closed for two days until passes were reopened. In northern B.C., where temperatures dropped to the minus thirties, this was one of the longest cold snaps on record this early in the season. The deep freeze has allowed logging operations to resume in the interior.

Prairies

Very cold Arctic air remained well entrenched until the weekend when temperatures moderated slightly. In Alberta, minimum temperatures plummetted to all-time low October values. Passing disturbances deposited some snow, but generally less than 10 cm. Strong winds resulted in dangerously cold wind chill conditions. Several Alberta ski hills have opened for the season, including Sunshine Valley in Banff.

Ontario

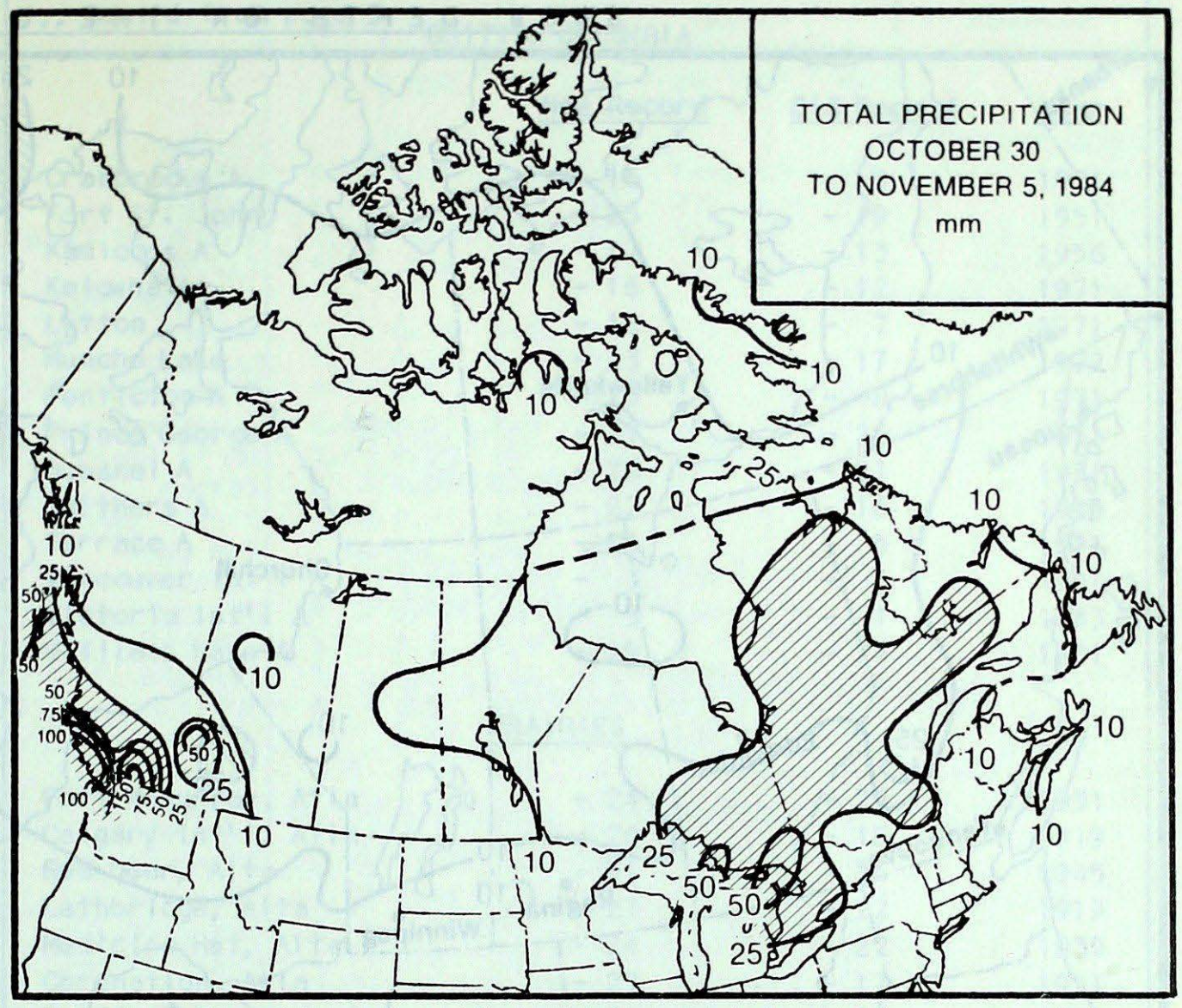
Unseasonably mild conditions across the lower Great Lakes early in the week gave way as a frigid Arctic airmass spilled out of the Prairies and covered the Province. On November 3, several low maximum and minimum temperature records were broken as the mercury dropped below freezing everywhere. Toronto City marked the first frost of the season. Snow depths of up to 36 cm. were reported at Trout Lake in the North, although southern Ontario remained snow free. Two significant weather systems and their associated frontal zones crossed the Province. Central Ontario received between 30 and 70 mm of precipitation, while in the South on November 4, some communities received more rain, than during the entire month of October.

Québec

Northern and central portions of the Province were cloudy and wet due to the proximity of the storm track. Overall, mean temperatures were near normal, but vigorous frontal systems crossing the southern half of the Province caused significant daily temperature variations. On October 30, strong winds, gusting to 98 km/h at Val d'Or, uprooted hundreds of trees, overturned small planes and damaged roofs. At Sherbrooke on November 2, winds gusted to 96 km/h causing a 22-metre hydro tower to collapse.

Atlantic Provinces

Changeable weather conditions ensued with widely fluctuating temperatures. Brief surges of mild air raised temperatures to the mid to high teens; otherwise daily temperatures hovered in the single digits. With the exception of Labrador and western Newfoundland precipitation was generally light. A ground water shortage still persists in southwestern Nova Scotia. Strong winds and snow associated with a strengthening disturbance whipped across Labrador. Trees were uprooted, roofs damaged and hydro lines were downed. Winds speeds at Goose Bay reached 74 km/h with gusts to 130 km/h, a new November wind speed record.



HEAVIEST WEEKLY PRECIPITATION (mm)

YUKON	2.4	Shingle Point
NORTHWEST TERRITORIES	33.3	Cape Dyer
BRITISH COLUMBIA	177.0	Hope
ALBERTA	14.0	Whitecourt
SASKATCHEWAN	18.3	Prince Albert
MANITOBA	21.9	Churchill
ONTARIO	68.2	North Bay
QUÉBEC	49.7	Val d'Or
NEW BRUNSWICK	19.5	Saint John
NOVA SCOTIA	16.0	Shelburne
PRINCE EDWARD ISLAND	6.2	Charlottetown
NEWFOUNDLAND	36.9	Wabush Lake

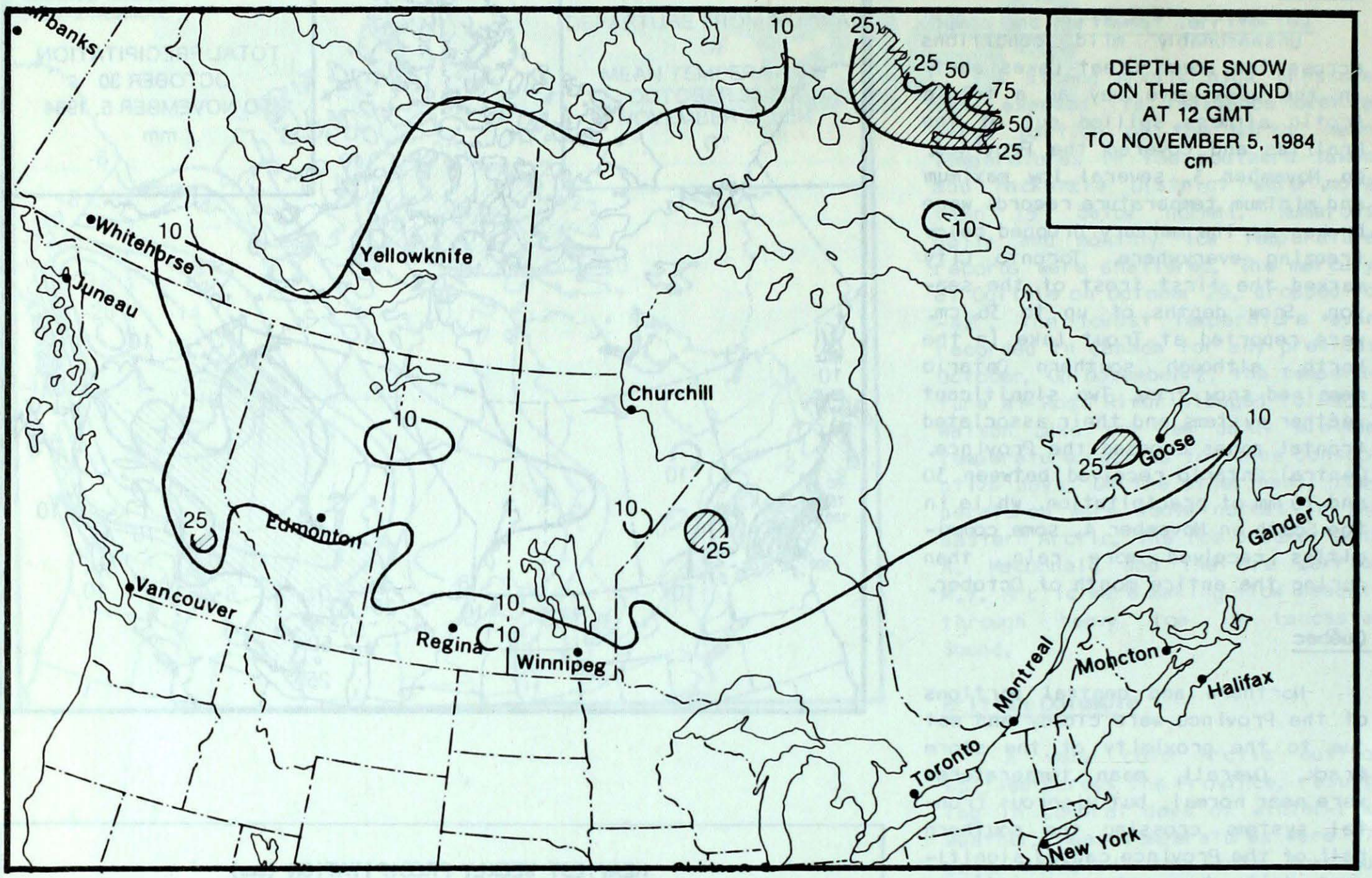
Selected new October minimum temperature records

YUKON AND NORTHWEST TERRITORIES

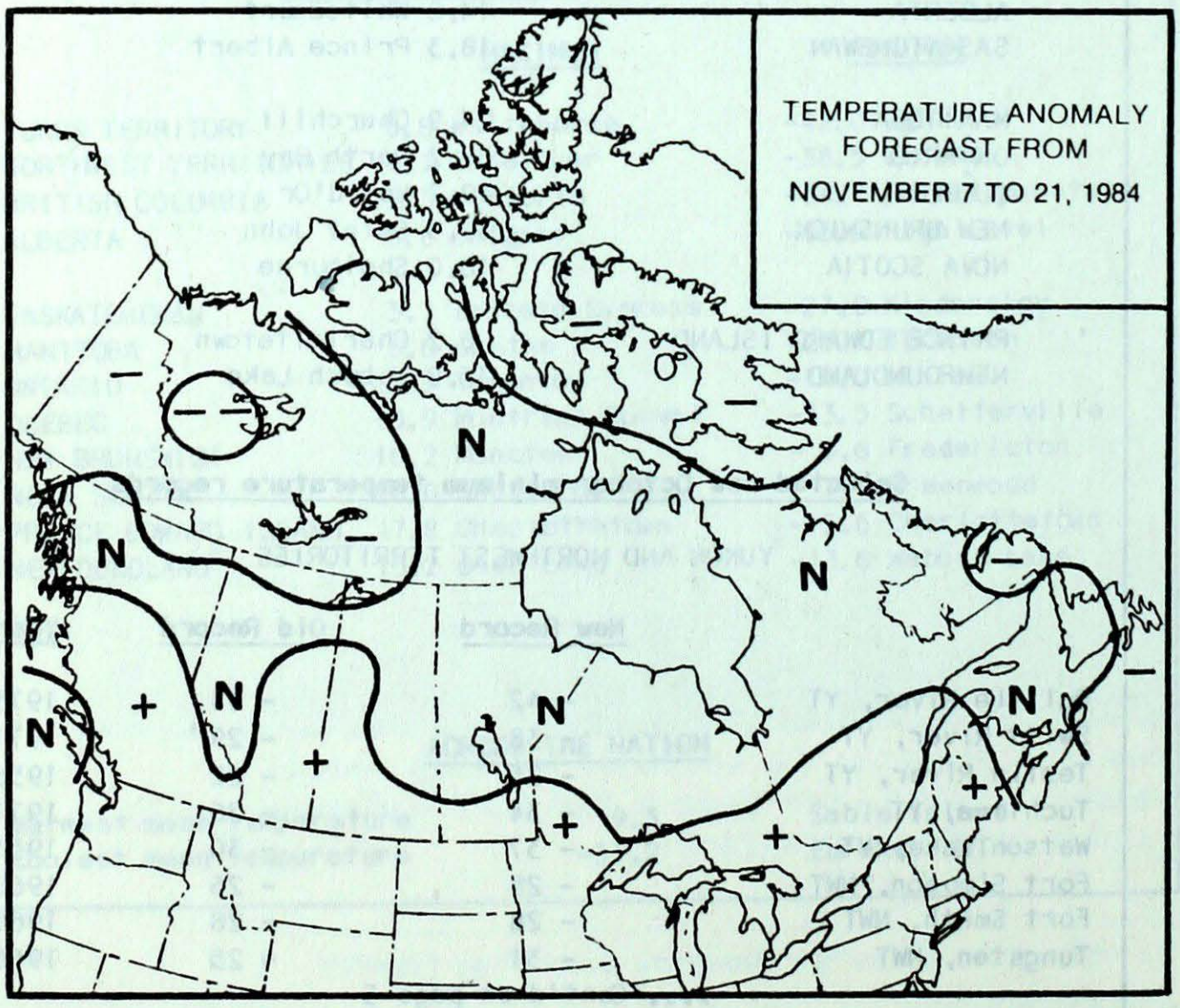
	New Record	Old Record	Year
Ogilvie River, YT	- 42	- 41	1975
Swift River, YT	- 38	- 29	1971
Teslin River, YT	- 25	- 22	1956
Tuchitua, YT	- 34	- 26	1971
Watson Lake, YT	- 37	- 30	1951
Fort Simpson, NWT	- 28	- 26	1966
Fort Smith, NWT	- 28	- 28	1966
Tungsten, NWT	- 31	- 25	1966

.... Cont'd on page 5

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 Cover

From 820 km above the earth, the NOAA 6 weather satellite has taken an image of an Arctic outbreak across the prairies. The line of clouds curving northwards from Lake Superior indicates the leading edge of the cold airmass. As the cold air crosses Lake Winnipeg, Lake of the Woods and Red Lake in Minnesota it becomes saturated and unstable and is streamed by the cold winds into parallel lines of snowsqualls. This phenomena is frequently seen over the Great Lakes, but is rarely as well developed to the lee of the large Manitoba lakes as in this example. The picture also reveals the extent of snowcover deposited by the retreating storm system. The dark lines of the Qu'Appelle, Assiniboine and Red Rivers wind through snow covered terrain, and the backwaters of the Garrison Dam can also be seen contrasting against the surrounding snow. The southern edge of snowcover is located south of the international boundary through Minnesota and North Dakota.

... Cont'd from page 3

BRITISH COLUMBIA

	New Record	Old Record	Year
Cranbrocke A	- 16	- 9	1971
Fort St. John	- 25	- 19	1951
Kamloops A	- 17	- 13	1956
Kelowna A	- 16	- 12	1971
Lytton	- 18	- 7	1971
Muncho Lake	- 33	- 17	1972
Penticton A	- 15	- 8	1971
Prince George A	- 27	- 26	1951
Quesnel A	- 28	- 21	1951
Smithers A	- 22	- 16	1945
Terrace A	- 14	- 5	1971
Vancouver Int'l A	- 3	- 1	1951
Victoria Int'l A	- 3	- 1	1943
Williams Lake A	- 29	- 24	1951

PRAIRIES

Fort McMurray, Atla	- 24	- 22	1951
Calgary Int'l, Alta	- 26	- 18	1919
Red Deer, Alta	- 31	- 16	1945
Lethbridge, Alta	- 27	- 22	1919
Medicine Hat, Alta	- 24	- 22	1935
Coronation, Atla	- 27	- 17	1951
Banff, Alta	- 31	- 22	1935
Jasper, Atla	- 29	- 12	1951
Edmonton Int'l, Atla	- 27	- 10	1963
Rocky Mtn. House, Atla	- 28	- 13	1956
High Level, Atla	- 36	- 16	1975
Lloydminister, Atla	- 24	- 18	1924
Swift Current, Sask.	- 24	- 23	1919

STORM TRACKS

STORM TRACKS
POSITION OF STORM
AT 12 GMT
OCTOBER 30
TO NOVEMBER 5, 1984

TEMPERATURE, PRECIPITATION AND BRIGHT SUNSHINE DATA FOR THE WEEK ENDING 0600 GMT NOVEMBER 6, 1984

STATION	TEMP				PRECIP		SUN
	Av	Dp	Mx	Mn	Tp	SOG	H
YUKON TERRITORY							
Dawson	-26	-17	-15	-35	2.3	7.0	X
Mayo A	-26	-18	-14	-34	2.2	7.0	X
Watson Lake	-28	-22	-12	-38	0.2	14.0	27.5
Whitehorse	-19	-15	- 1	-30	0.0	4.0	*
NORTHWEST TERRITORIES							
Fort Smith	-19	-14	-12	-28	2.0	27.0	*
Inuvik	-22	- 6	-12	-35	1.4	12.0	*
Norman Wells	-23	-12	-13	-31	*	7.0	*
Yellowknife	-20	-13	-11	-27	4.4	10.0	34.2
Baker Lake	-16	- 2	- 7	-26	5.8	20.0	15.7
Cape Dyer	- 8	2	- 1	-16	33.3	98.0	X
Clyde	-10	2	- 2	-17	23.4	38.0	51.3
Frobisher Bay	- 9	- 1	- 2	-18	0.4	7.0	18.3
Alert	-24	0	-12	-32	0.0	44.0	*
Eureka	-31	- 4	-23	-38	0.0	27.0	*
Hall Beach	-16	1	- 2	-24	0.2	5.0	X
Resolute	-22	- 3	-18	-27	0.9	8.0	*
Cambridge Bay	-21	- 2	-14	-30	0.0	9.0	*
Mould Bay	-27	- 4	-17	-32	1.2	13.0	*
Sachs Harbour	-23	- 5	-13	-34	2.0	12.0	0.8
BRITISH COLUMBIA							
Cape St. James	5	- 3	10	- 2	33.7		13.9
Cranbrook	- 3	- 4	7	-16	25.7	5.0	23.9
Fort Nelson	-22	-17	-14	-32	*	22.0	28.6
Fort St. John	-17	-17	3	-29	3.4	17.0	X
Kamloops	- 4	- 8	7	-17	10.5	5.0	17.1
Penticton	0	- 5	10	-14	12.4		18.8
Port Hardy	4	- 3	10	- 5	39.4		8.1
Prince George	-11	-12	3	-26	11.5	18.0	19.7
Prince Rupert	0	- 7	9	-11	7.4		20.2
Revelstoke	- 3	- 6	8	-13	62.1	25.0	10.6
Smithers	- 9	-11	1	-22	4.0	5.0	15.4
Vancouver	5	- 3	12	- 6	51.4		17.9
Victoria	6	- 2	12	- 3	105.5		16.7
Williams Lake	-10	-12	5	-29	14.9	14.0	21.9
ALBERTA							
Calgary	-13	-15	7	-27	1.2	5.0	25.9
Cold Lake	-15	-15	- 2	-27	10.2	12.0	29.7
Coronation	-15	-15	1	-27	5.2	8.0	29.5
Edmonton Namao	-14	-15	2	-26	8.1	16.0	X
Fort McMurray	-16	-14	- 1	-27	1.4	6.0	34.7
Jasper	-12	-13	6	-29	8.0	4.0	18.3
Lethbridge	- 8	-12	7	-27	2.4	1.0	*
Medicine Hat	-10	-12	5	-27	2.3	3.0	30.3
Peace River	-18	-17	0	-30	4.1	15.0	X
SASKATCHEWAN							
Cree Lake	-18	*	-10	-27	2.3	5.0	29.3
Estevan	- 8	-10	4	-21	0.0	5.0	31.8
La Ronge	-16	-14	- 6	-24	*	13.0	X
Regina	-11	-11	2	-22	2.0	9.0	21.2
Saskatoon	-13	-13	5	-25	9.8	16.0	*
Swift Current	-10	-11	2	-25	*		*
Yorkton	-13	-12	- 5	-22	2.0	8.0	29.0
MANITOBA							
Brandon	-10	-10	1	-21	0.2	4.0	*
Churchill	-12	- 6	- 2	-20	21.9	13.0	18.2
The Pas	-13	-11	- 7	-20	15.5	24.0	15.5
Thompson	-16	-12	- 8	-26	16.1	17.0	22.8
Winnipeg	- 8	- 9	4	-18	0.8	0.0	29.6
ONTARIO							
Big Trout Lake	- 9	- 5	- 1	-14	23.7	36.0	8.0
Earlton	1	- 1	13	- 8	*		X
Kapuskasing	- 4	- 4	4	-11	44.6	6.0	*
Kenora	- 4	- 5	2	-18	19.8	10.0	X
London	6	0	18	- 6	31.6		26.4
Moosonee	- 4	- 4	5	-12	19.8	2.0	8.8
Muskoka	5	0	17	- 3	*		X
North Bay	2	- 1	13	- 6	68.2		17.5
Ottawa	5	0	17	- 5	19.8		*
Pickle Lake	- 8	- 6	0	-13	23.2	16.0	X
Red Lake	- 7	- 7	0	-14	11.0	7.0	13.9
Sudbury	1	- 1	13	- 7	32.8		*
Thunder Bay	- 2	- 4	6	-13	23.8		22.8
Timmins	- 1	- 3	8	-11	43.3		X
Toronto	6	- 1	21	- 5	26.8		X
Trenton	6	- 1	18	- 6	29.0		X
Wiarton	6	0	19	- 1	67.8		21.4
Windsor	7	- 1	19	- 2	18.6		X
QUEBEC							
Bagotville	2	0	13	- 8	17.4		X
Blanc-Sablon	0	- 1	8	- 6	12.8		94.5
Inukjuak	- 4	- 1	- 2	- 8	20.5	14.0	8.3
Kuujjuaq	- 5	- 1	1	-10	26.6	19.0	20.1
Kuujjuarapik	- 3	- 2	2	- 7	27.0		8.3
Maniwaki	3	0	15	- 8	20.8		36.0
Mont-Joli	3	0	12	- 7	19.6		35.4
Montréal	6	0	16	- 5	22.8		45.3
Natashquan	1	- 1	8	- 8	19.8		*
Nitchequon	- 4	0	2	-13	21.8	8.0	6.8
Québec	3	- 1	14	- 7	29.0		42.1
Schefferville	- 5	0	2	-13	20.7	17.0	16.3
Sept-Iles	0	- 2	8	- 8	37.4		29.6
Sherbrooke	3	0	14	- 9	29.3		*
Val-d'Or	0	- 1	12	-11	49.7		15.7
NEW BRUNSWICK							
Charlo	1	- 2	13	- 6	9.2		36.0
Fredericton	3	- 2	14	- 9	11.0		*
Saint John	5	- 1	15	- 5	19.5		37.0
NOVA SCOTIA							
Greenwood	5	- 2	20	- 8	5.8		X
Shearwater	7	- 1	16	- 4	15.2		*
Sydney	5	- 2	15	- 2	6.6		*
Yarmouth	7	- 1	17	- 4	8.0		47.3
PRINCE EDWARD ISLAND							
Charlottetown	5	- 1	18	- 4	6.2		*
Summerside	5	- 1	16	- 3	3.6		35.2
NEWFOUNDLAND							
Gander	3	- 2	14	- 3	*		*
Port aux Basques	5	- 1	11	- 1	15.6		*
St. John's	4	- 2	15	- 5	2.6		54.7
St. Lawrence	4	- 1	12	- 3	8.8		X
Cartwright	0	- 1	8	-11	9.6		X
Goose	- 1	- 1	8	- 9	18.6	0.0	29.8
Hopedale	*	*	*	*	*		X

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 OCT. 28-NOV. 3, 1984

SITE	DAY	pH	AIR PATH TO SITE
Longwoods, near London, Ont.	1	4.2	U.S. Midwest.
Dorset,* Muskoka, Ont.	30	3.7	Minnesota, Wisconsin, Michigan, southern Ontario.
	31	3.9	Minnesota, Wisconsin, Michigan, southern Ontario.
	1	4.2	U.S. Midwest, southern Ontario.
Chalk River Ottawa Valley, Ont.	30	3.9	Minnesota, Wisconsin, Michigan, southern Ontario.
	1	4.2	U.S. Midwest, southern Ontario.
Montmorency, Quebec City Que.	30	4.0	Wisconsin, Michigan, southern Ontario, southern Quebec.
	1	4.0	Kentucky, Ohio Valley, ST. Lawrence River Valley.
Kejimkujik, Southwestern N.S.	1	4.6	New York, New England States.
	2	3.9	Central Ontario, southern Quebec, Maine.

* 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.