

Climatic Perspectives

A WEEKLY REVIEW OF CANADIAN CLIMATE

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Canadian Climate Centre

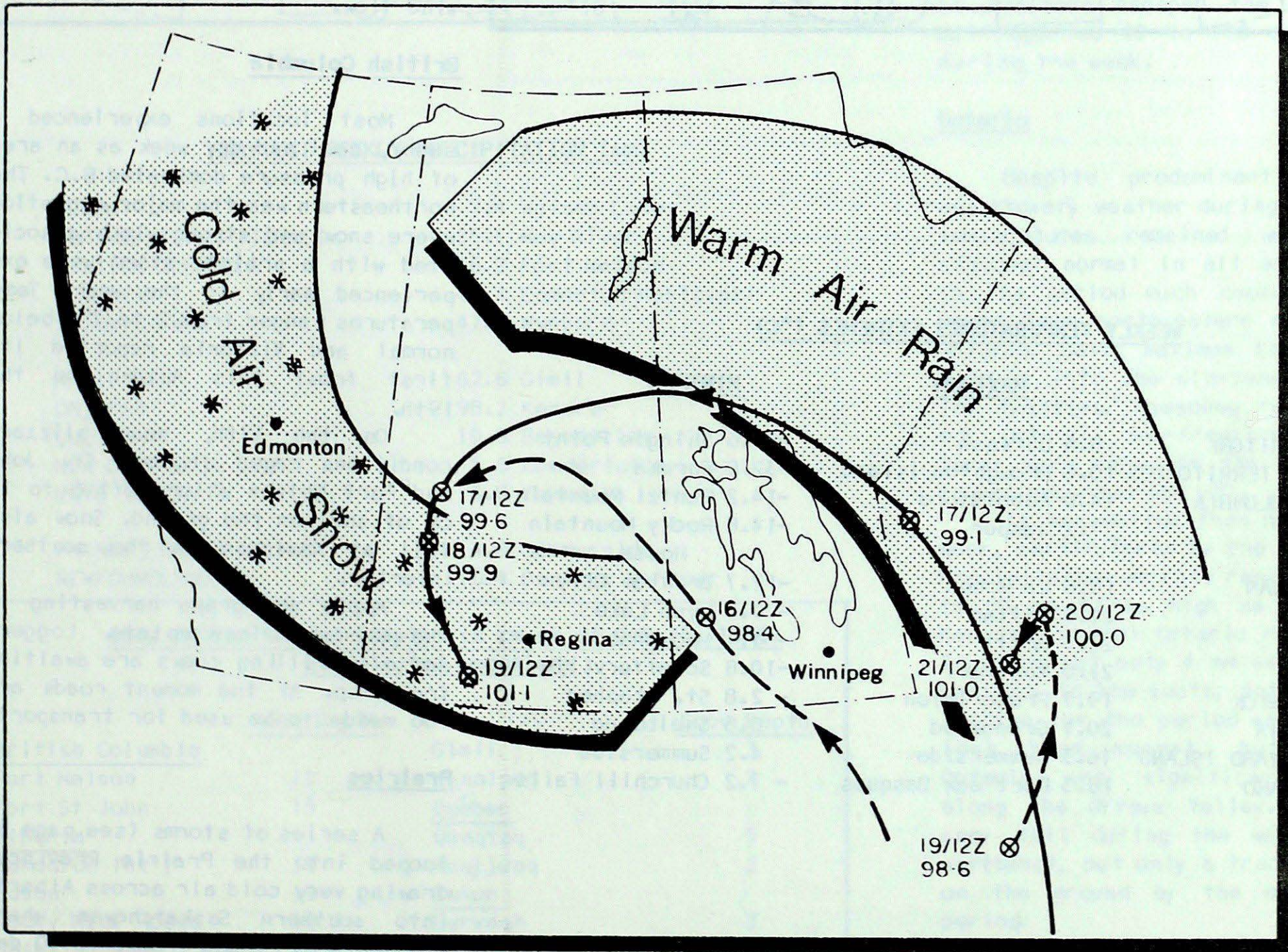
OCTOBER 26, 1984

(Aussi disponible en français)

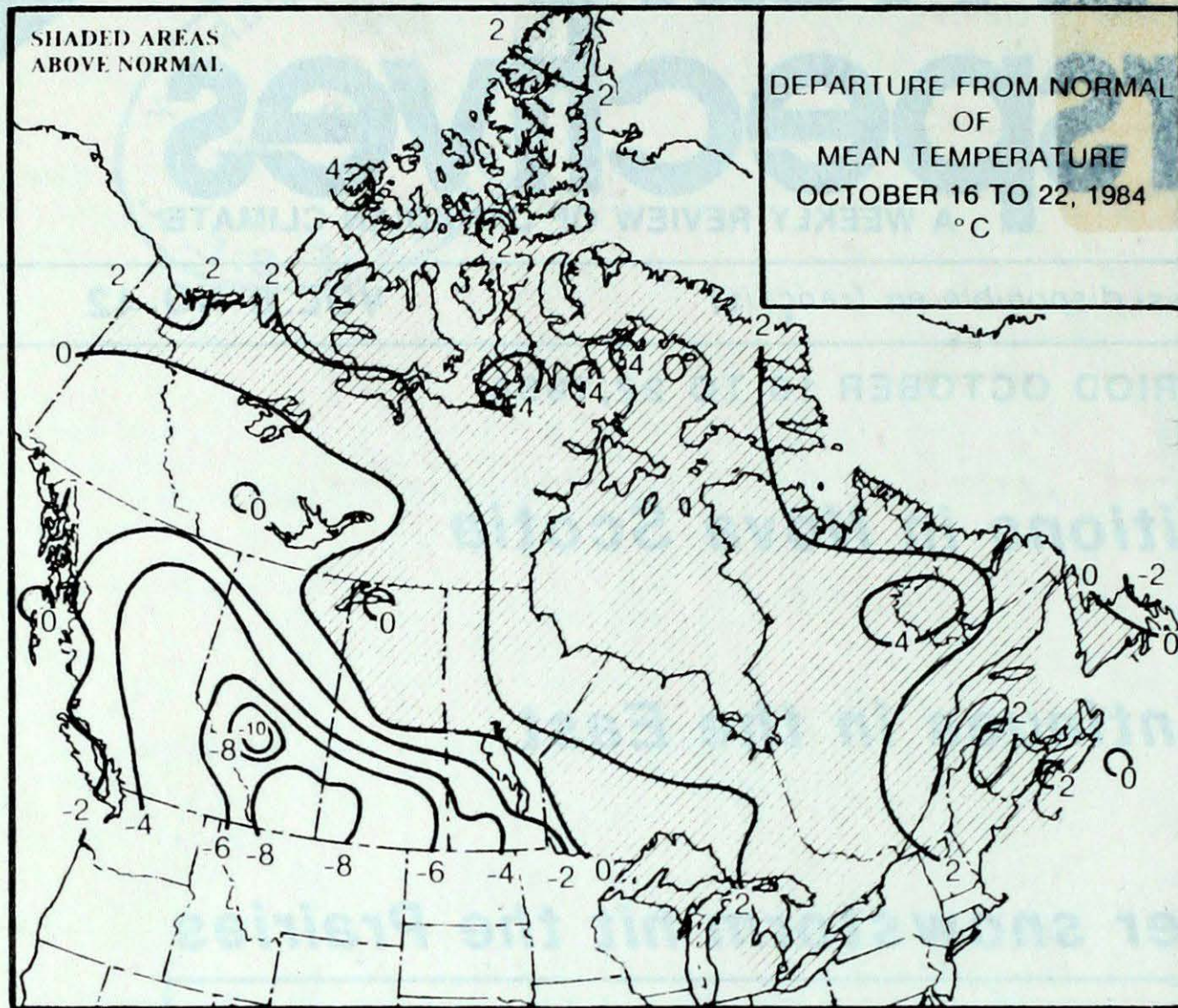
VOL. 6 NO. 42

FOR THE PERIOD OCTOBER 16 TO 22, 1984

- ***Drought-like conditions in Nova Scotia***
- ***Indian Summer continues in the East***
- ***Winter-like weather snowstorm hit the Prairies***



Map storm tracks and general trajectory of warm and cold airmass which resulted in winter-like weather over portions of the prairies.



ACROSS THE COUNTRY...

Yukon and Northwest Territories

Above normal temperature persisted in the Northwest Territories, while above to near normal temperatures were recorded in the Yukon. Daily mean values were near zero in the south, -5° in the interior and -10° in the North. Snow fell almost everywhere, from several centimetres in the northern Yukon to 15 cm in the Ogilvie Mountains. The Alaska Highway was closed late in the week due to snow and strong winds which caused a temporary shortage of food provisions in Whitehorse. Some roads are already closed for the winter and the ferry services on the Peel and Mackenzie River are only operating on a day to day basis. Favourable ice conditions prevail in Lancaster Sound but old ice poses a hazard near the entrance to Lancaster Sound due to a northeasterly wind flow.

British Columbia

Most locations experienced a sunny, cool and dry week as an area of high pressure dominated B.C. The northeastern was the major exception where snow and strong winds associated with a prairie storm were experienced early in the week. Temperatures ranged from 2 to 7°C below normal and Victoria reported its first frost this Autumn on the 19th.

On the 17th, near blizzard conditions raged at Fort St. John and Fort Nelson which left 6 to 15 cm of snow on the ground. Snow also fell at Kamloops in the southern interior.

Apple and grape harvesting in the Okanagan is complete. Loggers and oil drilling crews are awaiting freeze-up. At the moment roads are too muddy to be used for transport.

Prairies

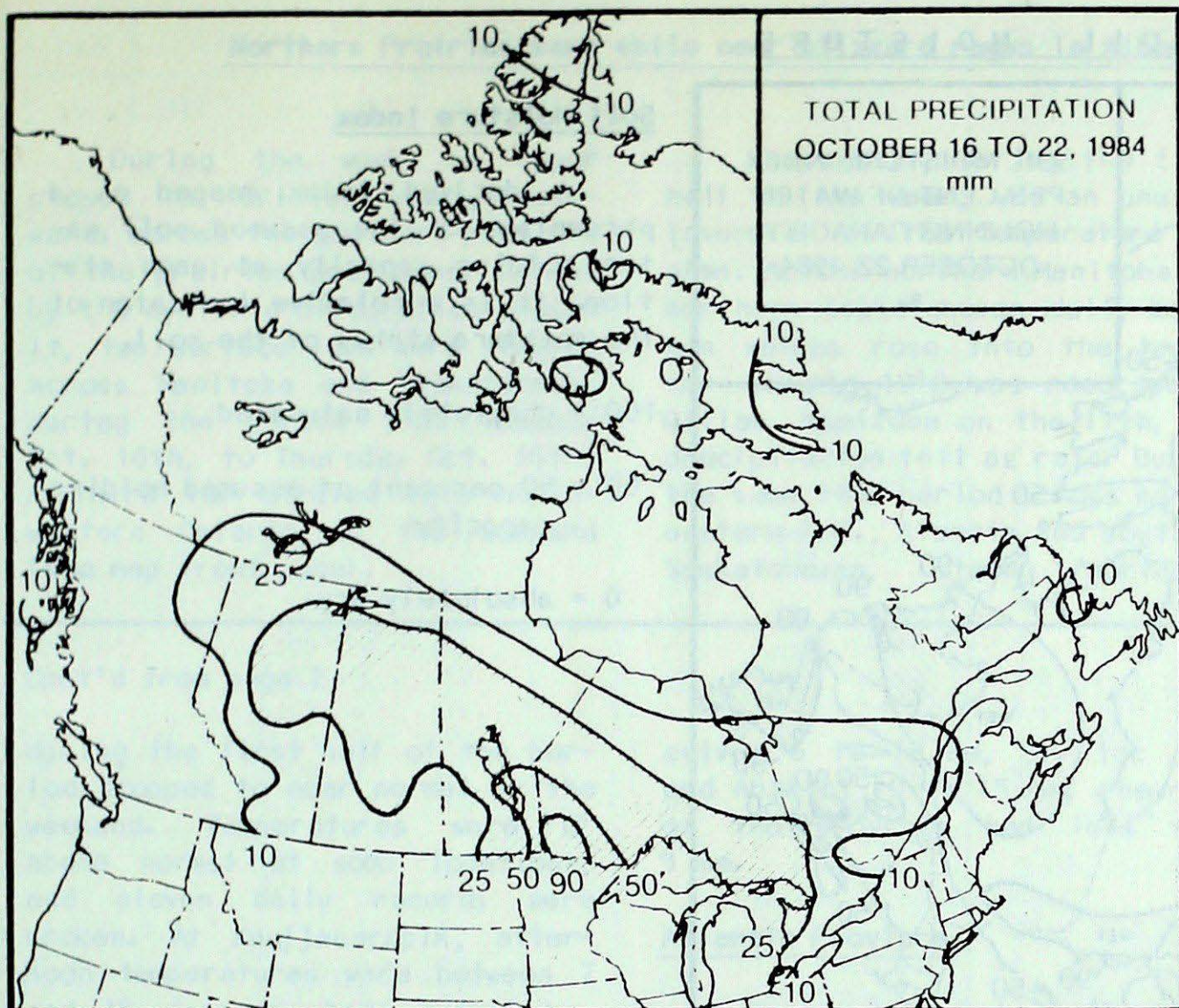
A series of storms (see page 5) looped into the Prairie Provinces drawing very cold air across Alberta into southern Saskatchewan where temperatures ranged from 2 to 10 degrees below normal. Warm air spread into northern regions of Manitoba and Saskatchewan with temperatures reaching as high as 19°C .

WEEKLY TEMPERATURES EXTREMES ($^{\circ}\text{C}$)

	<u>MAXIMUM</u>	<u>MINIMUM</u>
YUKON TERRITORY	8.6 Burwash	-25.6 Shingle Point
NORTHWEST TERRITORIES	10.6 Broughton Island	-32.8 Eureka
BRITISH COLUMBIA	14.0 Abbotsford	-14.2 Puntzi Mountain
ALBERTA	7.2 Jasper	-14.8 Rocky Mountain House
SASKATCHEWAN	10.6 La Ronge	-12.7 Uranium City
MANITOBA	21.3 Gillan	- 9.3 Lynn Lake
ONTARIO	22.7 Britt	- 4.4 Moosonee
QUEBEC	21.0 Maniwaki	-10.8 Schefferville
NEW BRUNSWICK	19.7 Fredericton	- 2.8 St. Stephen
NOVA SCOTIA	20.1 Greenwood	0.8 Shelburne
PRINCE EDWARD ISLAND	16.3 Summerside	4.2 Summerside
NEWFOUNDLAND	18.3 Port aux Basques	- 7.2 Churchill Falls

ACROSS THE NATION

Warmest mean temperature	13.3	Windsor, ONT
Coollest mean temperature	-20.9	Eureka, NWT



In Alberta and Saskatchewan, snow, winds of 50 to 80 km/h and near zero visibility on October 16th, resulted in treacherous driving conditions. In Edmonton City well over 150 vehicle accidents were reported to police. Transportation was chaotic and flight schedules were disrupted. A second blast on the 18th, caused highway and rural school closings. A new October record snowfall was experienced in Edmonton where the 46.4 cm of snow eclipsed the old record of 46.0 set in 1919. Elsewhere in Alberta and Saskatchewan total snowfalls ranged from 7 cm at Calgary to 28 cm at Saskatoon and Regina to 32 cm at Fort McMurray.

Snow cover in the Peace District has left an estimated 30 to 35 per cent of crops worth \$105 to \$126 millions unharvested. At the end of the week snow on the ground across central and southern Saskatchewan ranged from 9 to 16 cm. Most of Manitoba escaped the snowstorm but reported 40 to 100 mm of rain during the week.

HEAVIEST WEEKLY PRECIPITATION (mm)

YUKON	7.4 Watson Lake
NORTHWEST TERRITORIES	25.1 Hay River
BRITISH COLUMBIA	16.2 Fort Nelson
ALBERTA	46.4 Edmonton Municipal
SASKATCHEWAN	47.2 Wynyard
MANITOBA	62.6 Gimli
ONTARIO	98.2 Kenora
QUEBEC	19.8 Bagotville
NEW BRUNSWICK	5.6 Fredericton
NOVA SCOTIA	3.8 Yarmouth
PRINCE EDWARD ISLAND	4.8 Summerside
NEWFOUNDLAND	10.4 Daniels Harbour

Ontario

Despite predominantly cloudy and showery weather during the week, temperatures remained well above seasonal normal in all areas. Late in the period much cooler weather moved into northwestern regions of Ontario. Daily maximum temperatures climbed into the mid-teens and the low twenties. Moosonee reached 22° on, Oct 17. Sub-freezing temperatures were rare. In the far north, lowest recorded was -5°.

It was wetter than normal this week, particularly in the northwest. Precipitation amounts ranged from 40 to 60 mm to as high as 100 mm at Kenora. Central Ontario received 20 to 25 mm but only 4 mm was recorded Earlton. In the south, total precipitation for the period was slightly less than normal, but Eastern Ontario was significantly dryer along the Ottawa Valley. Some wet snow fell during the week in the northwest, but only a trace remained on the ground by the end of the period.

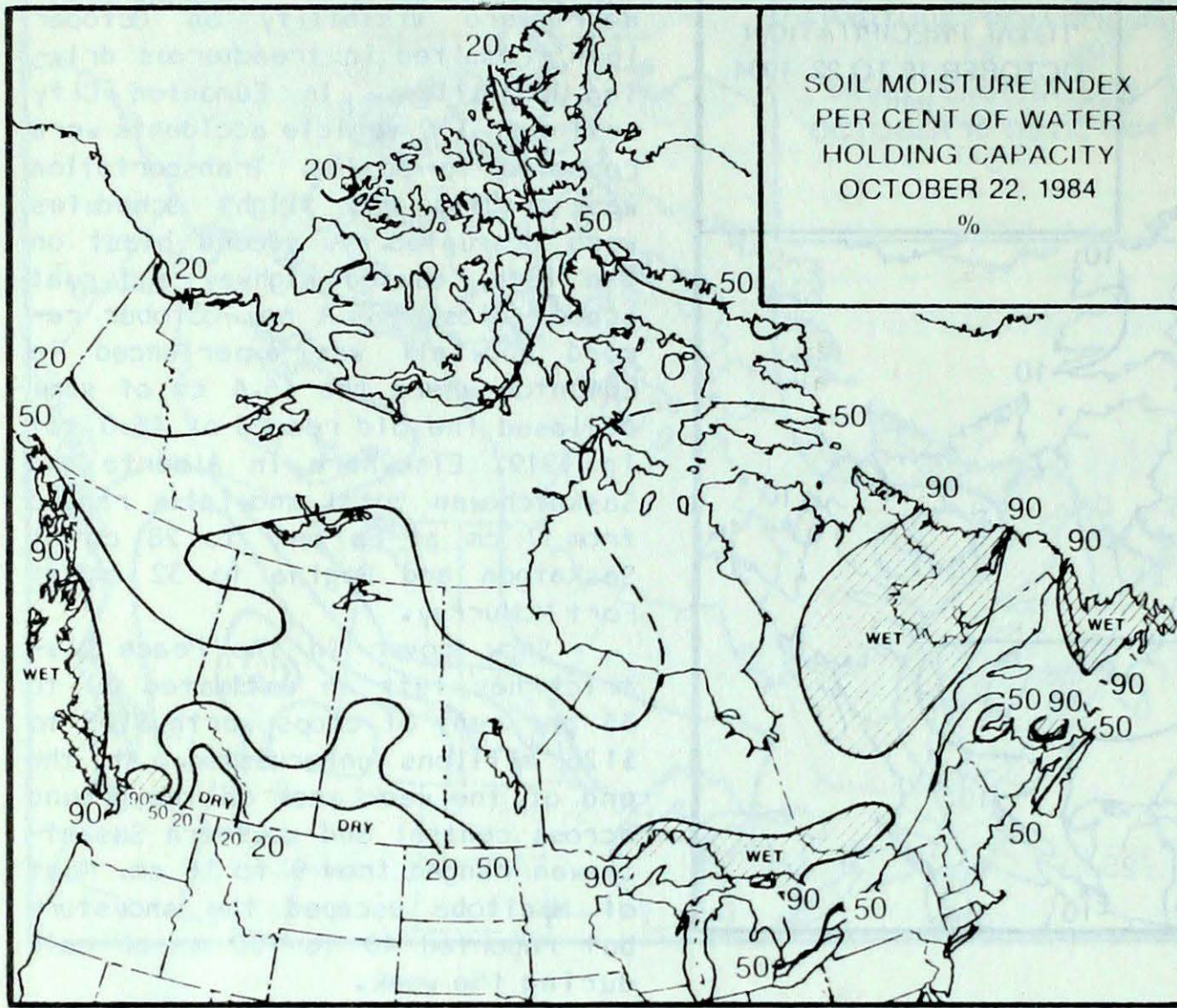
Québec

Above normal temperatures
...Cont'd on page 5

Snow on the Ground (depths in cm as of Oct 21, 1984) at Selected Locations

	Snow Depth		Snow Depth
<u>British Columbia</u>		Gimli	3
Fort Nelson	15	Winnipeg	2
Fort St John	15	<u>Québec</u>	
<u>Alberta</u>		Quaqtaq	5
Edmonton Int'l	31	Kuujuuaq	2
Edson	19	<u>Yukon</u>	
Rocky Mtn. House	10	Burwash	2
<u>Saskatchewan</u>		Watson Lake	1
Estevan	11	<u>Northwest Territories</u>	
Saskatoon	12	Dewas Lake	58
Wynyard	16	Yellowknife	3
<u>Manitoba</u>		Frosbisher Bay	12

SOIL MOISTURE



Soil Moisture Index

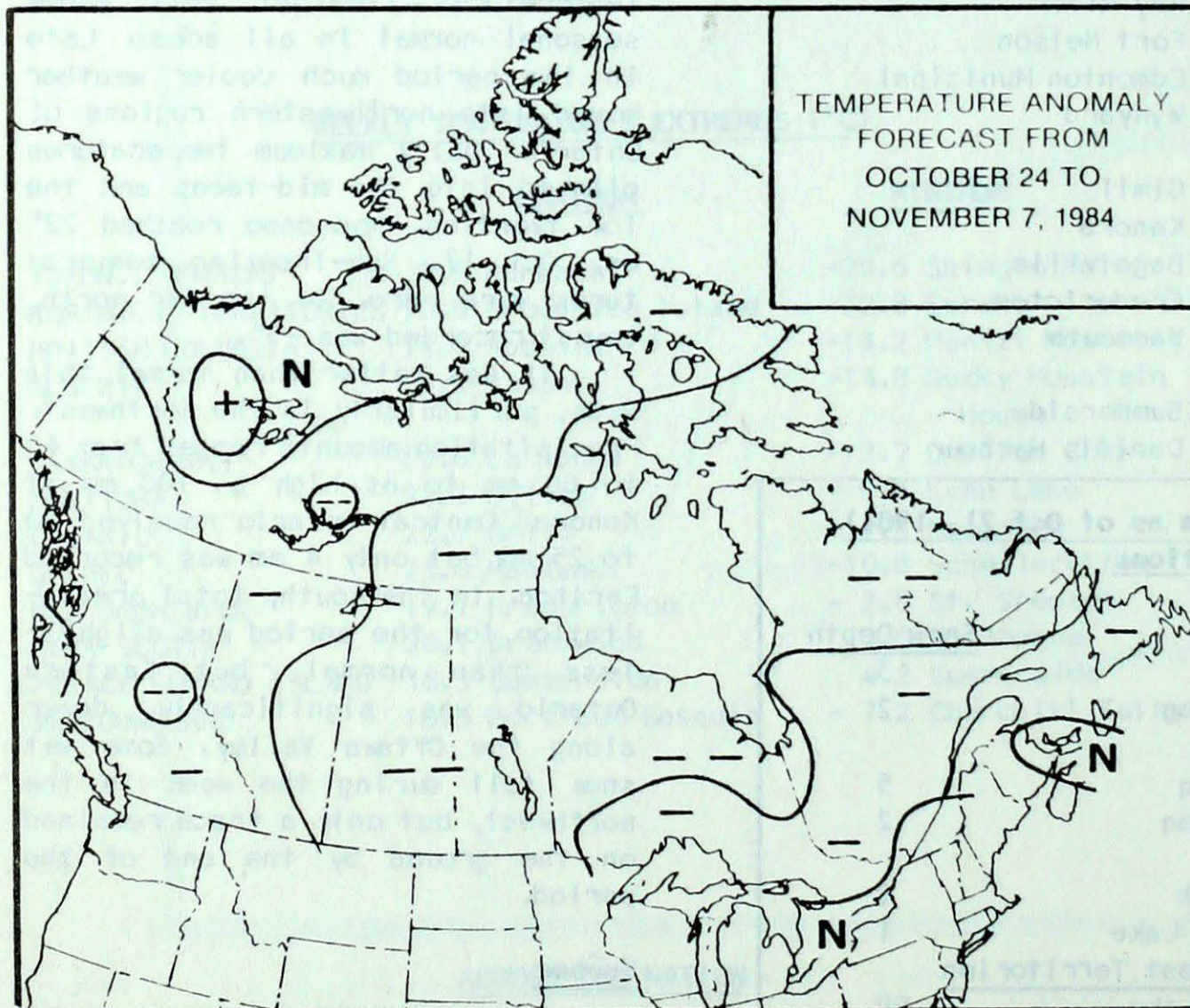
A derived index mapped as a percentage of the assumed soil water holding capacity at each station. It is a relative indicator of the moisture status of the soil.

100 = completely saturated

50 = 50 per cent of assumed holding capacity

0 = absolutely dry

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 the 15-day anomaly periods. After the five best sets are selected, the surface temperature anomalies are calculated. This results in five separate forecasts, which are averaged to provide the consensus forecast depicted.

++ much above normal

+ above normal

N normal

- below normal

-- much below normal

Northern Prairies warm while near blizzard rages in Alberta and Southern Saskatchewan

During the week an upper closed low drifted slowly eastwards across the southern portions of the prairies provinces. Guided by the cyclonic circulation around it, two surface lows were steered across Manitoba and Saskatchewan during the period from Tuesday Oct. 16th, to Thursday Oct. 18th. A third low circled into northwestern Ontario on the weekend (see map front page).

The result, during the first half of the week, was an unusual inversion of the temperature regime. Across northern Manitoba and northern Saskatchewan daily maximum values rose into the teens, for example 19°C was recorded at Gillam, Manitoba on the 17th, and precipitation fell as rain. During the same time period across northeastern B.C., Alberta and southern Saskatchewan, strong northwest

winds brought sub zero temperatures and, in some places, knee deep snow.

During the second half of the week the winter-like storm conditions eased and temperatures across the north fell to more normal values as the storm track shifted eastwards towards the Great Lakes drawing the moisture and warm air away from the prairies.

Cont'd from page 2

during the first half of the period dropped to near normal by the weekend. Temperatures were 6° above normal at some locations, and eleven daily records were broken. At Kuujjauarapik, afternoon temperatures were between 7 and 15 degrees above normal between October 15 and 18. On October 18, the mercury rose to 20° breaking the 29 year old record of 18°.

Precipitation was generally light. The Southwest regions re-

ceived 6 to 12 mm, St. lac Jean and Abitibi 10 to 15 mm, the rest of the province had less than 5 mm.

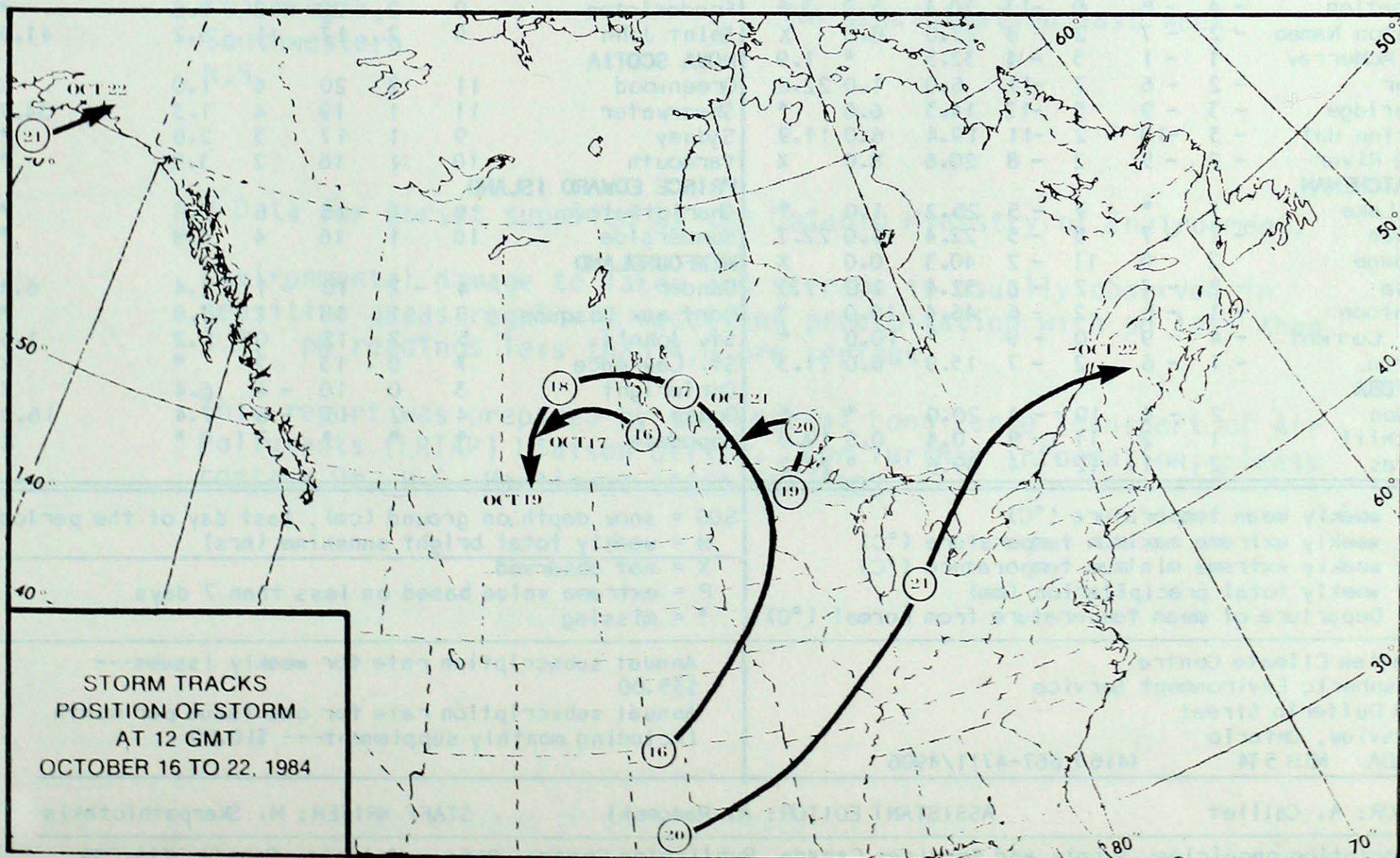
Atlantic Province

During the early part of the period, the only effects from hurricane Josephine were over cast skies and northeasterly winds. Temperatures were generally near or above normal. During the weekend, a southerly circulation

brought a taste of Indian Summer to the East Coast.

Precipitation was generally light, less than 5 mm. Precipitation in southwestern Nova Scotia has been below normal for the last four consecutive months and the situation is particularly serious in Liverpool. Hospitals have resorted to using paper plate to save water. Brush fires are also burning in the outskirts of the Halifax metropolitan area.

STORM TRACKS



TEMPERATURE, PRECIPITATION AND BRIGHT SUNSHINE DATA FOR THE WEEK ENDING 0600 GMT OCTOBER 23, 1984

STATION	TEMP				PRECIP		SUN	STATION	TEMP				PRECIP		SUN
	Av	Dp	Mx	Mn	Tp	SOG	H		Av	Dp	Mx	Mn	Tp	SOG	H
YUKON TERRITORY								Thompson	2	3	16	-7	36.4	1.0	15.3
Dawson	-7	-2	5	-19	0.2		X	Winnipeg	3	-3	10	-2	40.8		13.0
Mayo A	-5	-2	2	-14	1.4	1.0	X	ONTARIO							
Watson Lake	-1	-1	3	-7	7.4	4.0	5.6	Big Trout Lake	4	3	16	-4	12.0	0.0	18.1
Whitehorse	-2	-2	6	-14	2.0	1.0	*	Earlton	8	2	21	1	*		X
NORTHWEST TERRITORIES								Kapuskasing	7	2	22	-1	17.8		*
Fort Smith	0	0	3	-8	18.3	4.0	*	Kenora	4	-2	11	0	98.2		X
Inuvik	-8	2	0	-17	0.2	6.0	*	London	13	3	21	5	11.9		17.7
Norman Wells	-7	-1	-2	-12	7.9	14.0	*	Moosonee	7	2	22	-4	14.2		25.4
Yellowknife	-3	-1	2	-14	7.8		*	Muskoka	11	4	22	2	*		X
Baker Lake	-6	3	2	-15	0.8	1.0	21.3	North Bay	10	3	20	1	30.6		24.3
Cape Dyer	-7	1	9	-22	17.2	55.0	X	Ottawa	11	3	20	6	4.2		33.9
Clyde	-5	2	1	-10	*	27.0	*	Pickle Lake	5	1	17	-2	38.6	0.0	X
Frobisher Bay	-5	1	5	-16	13.2	12.0	7.7	Red Lake	5	0	15	0	61.0	0.0	1.7
Alert	-19	2	-12	-28	20.9	40.0	*	Sudbury	9	2	20	2	39.2		28.2
Eureka	-21	3	-9	-33	*	27.0	*	Thunder Bay	6	0	14	-2	48.2		13.9
Hall Beach	-5	6	2	-14	1.7	4.0	X	Timmins	6	1	23	-3	24.6		X
Resolute	-16	1	-2	-26	3.5	8.0	6.3	Toronto	12	3	20	5	11.1		X
Cambridge Bay	-11	3	-2	-18	0.2	5.0	30.1	Trenton	12	2	21	4	12.0		X
Mould Bay	-15	5	0	-25	9.2	13.0	0.0	Warton	12	2	21	3	29.8		*
Sachs Harbour	-11	3	-2	-24	4.2	7.0	6.9	Windsor	13	2	21	5	9.7		X
BRITISH COLUMBIA								QUEBEC							
Cape St. James	9	0	12	6	9.1		30.2	Bagotville	7	1	15	-4	19.8		X
Cranbrook	0	-5	9	-7	0.0		23.6	Blanc-Sablon	3	1	9	-6	8.7		*
Fort Nelson	-2	-3	1	-5	16.2	14.0	*	Inukjuak	2	3	9	-7	5.0	1.0	10.5
Fort St. John	-3	-7	4	-6	10.4	5.0	X	Kuujuuaq	0	1	12	-9	*	1.0	3.7
Kamloops	3	-4	11	-5	0.0		36.8	Kuujuarapik	5	4	20	-2	0.0		*
Penticton	3	-5	11	-6	0.0		42.8	Maniwaki	9	3	21	1	11.8		31.5
Port Hardy	6	-2	11	-1	0.0		45.5	Mnt-Joli	7	1	13	-2	5.2		42.2
Prince George	-1	-5	7	-8	0.0		34.8	Montréal	12	3	19	3	12.8		42.1
Prince Rupert	5	-2	12	-2	6.8		32.7	Natashquan	5	1	13	-2	3.2		*
Revelstoke	4	-2	12	-3	0.0		31.3	Nitchequon	3	3	11	-4	8.8	0.0	13.3
Smithers	2	-2	7	-4	0.2		18.3	Québec	9	2	16	0	11.4		35.8
Vancouver	6	-3	11	0	0.0		50.5	Schefferville	3	4	13	-11	0.4	0.0	17.7
Victoria	6	-3	12	0	0.0		44.8	Sept-Îles	6	2	13	-2	1.2		33.7
Williams Lake	-1	-6	9	-10	0.2		39.2	Sherbrooke	9	1	19	-4	7.8		42.1
ALBERTA								Val-d'Or	7	2	21	0	16.0		23.1
Calgary	-4	-9	3	-14	7.4	4.0	18.1	NEW BRUNSWICK							
Cold Lake	1	-3	6	-4	30.0	0.0	0.0	Charlo	7	3	16	-2	3.8		*
Coronation	-4	-8	0	-13	20.4	5.0	3.6	Fredericton	9	2	20	-2	5.6		*
Edmonton Namao	-2	-7	2	-8	22.0	8.0	X	Saint John	9	2	17	1	3.2		41.9
Fort McMurray	1	-1	5	-4	32.5	*	1.9	NOVA SCOTIA							
Jasper	-2	-6	7	-11	6.0	1.0	22.6	Greenwood	11	2	20	4	1.0		X
Lethbridge	-3	-9	5	-12	14.5	6.0	*	Shearwater	11	1	19	4	1.3		34.7
Medicine Hat	-3	-10	2	-11	19.4	6.0	11.9	Sydney	9	1	17	3	2.8		*
Peace River	-2	-5	2	-8	20.6	8.0	X	Yarmouth	10	1	16	2	3.8		*
SASKATCHEWAN								PRINCE EDWARD ISLAND							
Cree Lake	1	*	7	-5	25.2	1.0	*	Charlottetown	9	1	16	6	3.8		*
Estevan	-1	-7	5	-5	22.4	11.0	22.7	Summerside	10	1	16	4	4.8		*
La Ronge	2	0	11	-2	40.3	0.0	X	NEWFOUNDLAND							
Regina	-2	-7	2	-8	32.4	1.0	7.0	Gander	4	-2	10	-1	2.4		6.4
Saskatoon	-1	-5	2	-6	46.4	10.0	*	Port aux Basques	8	1	18	1	7.8		*
Swift Current	-4	-9	0	-9	*	10.0	*	St. John's	5	-2	12	0	5.2		1.6
Yorkton	-1	-6	2	-7	15.9	0.0	11.3	St. Lawrence	7	0	13	2	*		X
MANITOBA								Cartwright	3	0	10	-4	6.4		X
Brandon	2	-4	10	-4	20.0	*	*	Goose	4	2	13	-6	7.4		16.0
Churchill	1	2	11	-9	0.4	0.0	19.0	Hopedale	*	*	*	*	*		X
The Pas	2	-1	12	-4	39.6	*	22.2								

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 OCTOBER 14-20, 1984

SITE	DAY	pH	AIR PATH TO SITE
Longwoods, near London, Ont.	14	3.7	Air which stagnated over southern Ontario, Lake Ontario and Ohio.
	17	3.6	U.S. Midwest.
	18	4.1	U.S. Midwest.
	20	3.9	U.S. Midwest.
Dorset,* Muskoka, Ont.	17	3.8	U.S. Midwest.
	19	3.9	Kentucky, Indiana, Ohio, southern Ontario.
	20	4.0	Wisconsin, Michigan, Lake Huron and Georgian Bay.
Chalk River Ottawa Valley, Ont.	19	3.8	Kentucky, Ohio, southern Ontario.
Montmorency, Quebec City Que.	19	4.1	Southern Ontario and southern Quebec.
Kejimkujik, Southwestern N.S.			No precipitation last week.

* 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.