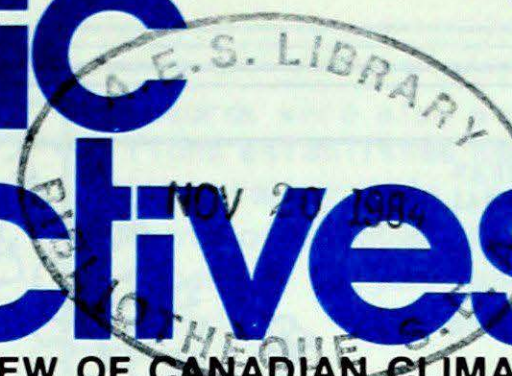


Climatic Perspectives

A WEEKLY REVIEW OF CANADIAN CLIMATE



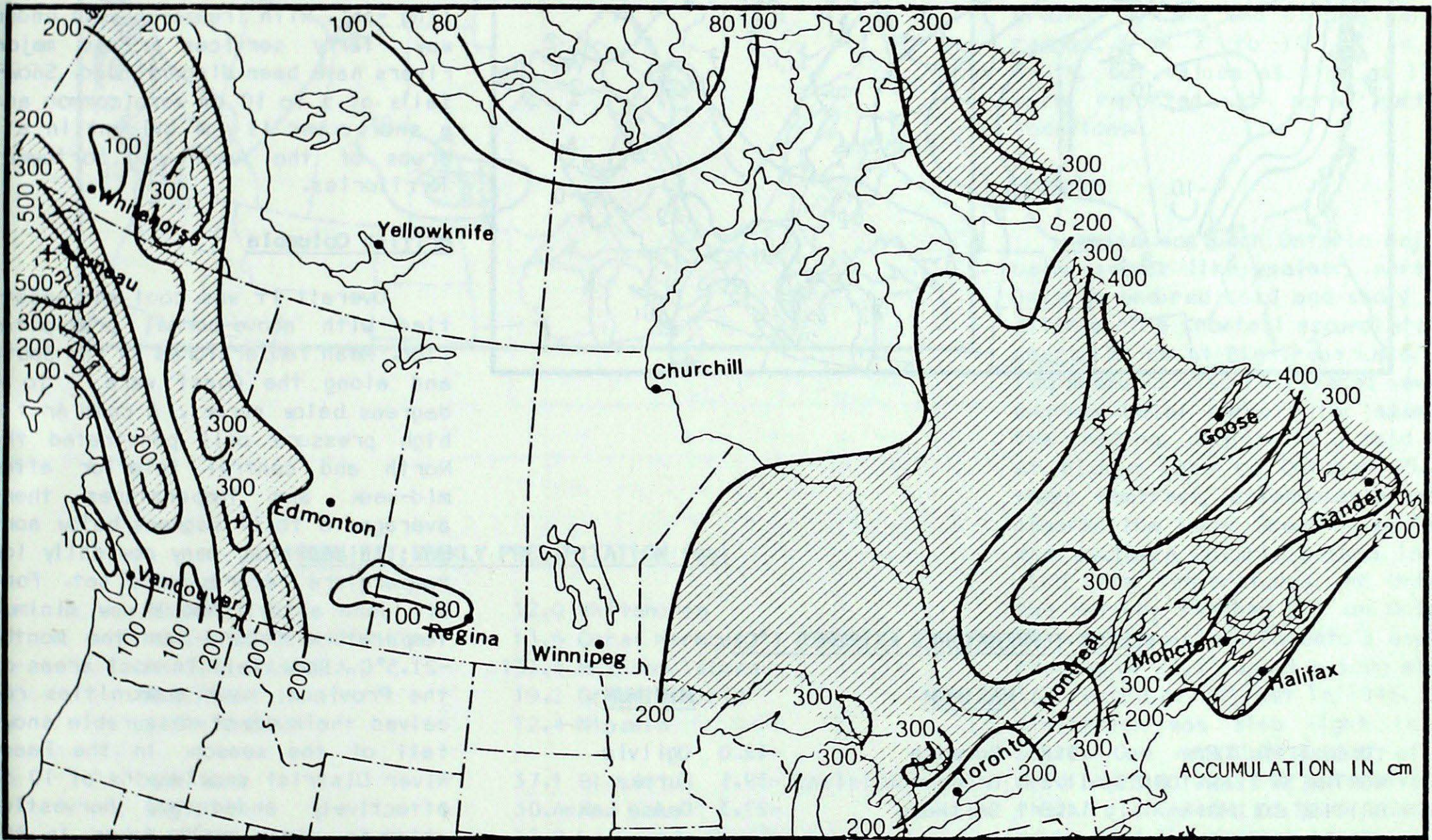
NOVEMBER 2, 1984

(Aussi disponible en français)

VOL. 6 NO. 43

FOR THE PERIOD OCTOBER 23 TO 29, 1984

Mean Annual Snowfall Across Canada

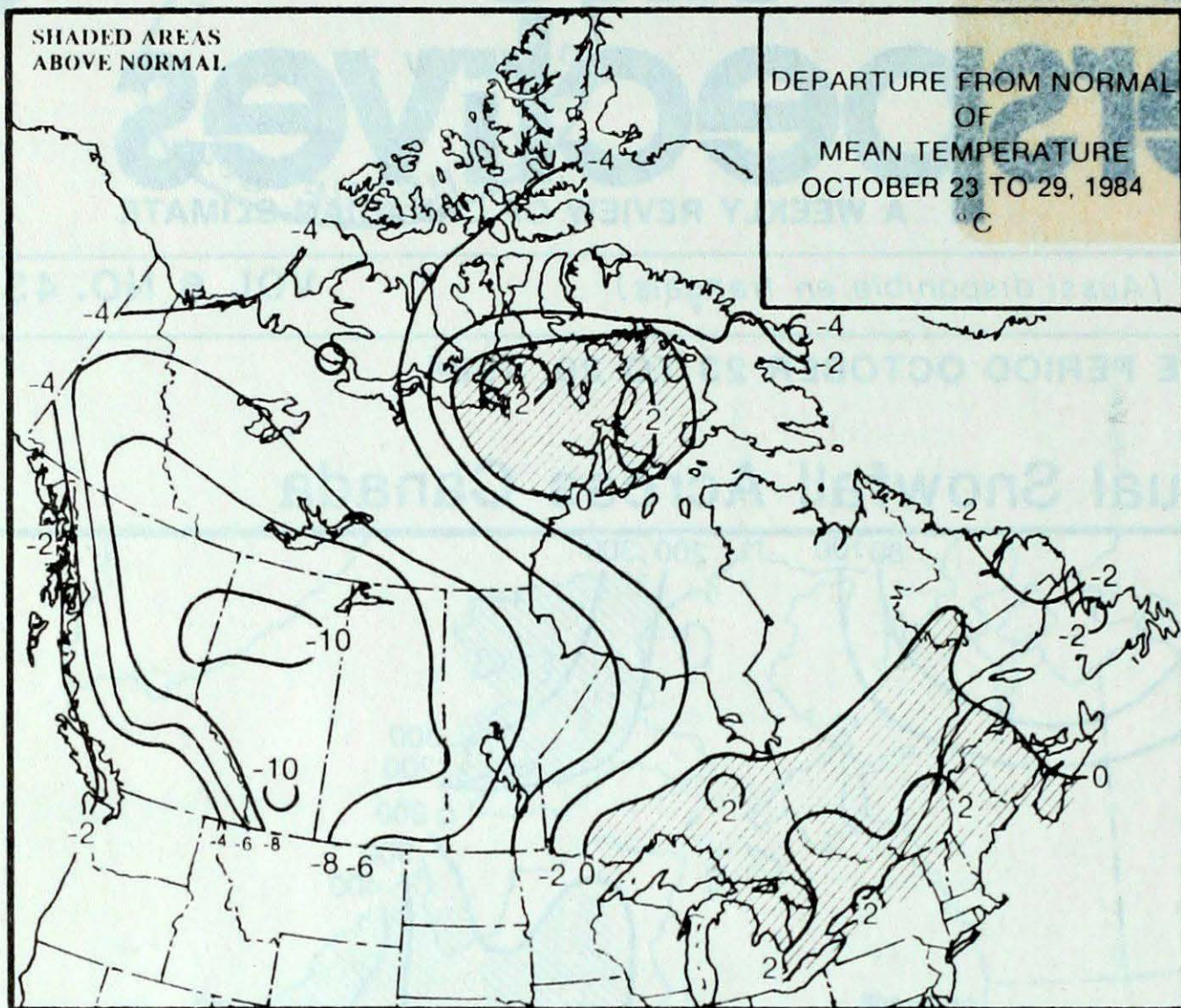


Additional snowfall maps inside

- **The Prairies endure mid-Winter weather - snow, cold and high winds**
- **Unseasonable warmth continues in Eastern Canada**
- **Rains alleviate water shortage in Nova Scotia**

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



ACROSS THE COUNTRY...

Yukon and Northwest Territories

A pool of cold Arctic air penetrated the Yukon and the Mackenzie District during the latter part of the week. Temperature, above normal at the beginning of the week, dropped steadily, and by the week's end the mercury at most localities failed to climb above -10° . The minimum temperature at Old Crow on October 29 dropped to a bone chilling -36° . With freeze-up well under way, ferry services across major rivers have been discontinued. Snowfalls of 5 to 10 cm were common and a snow cover is now evident in all areas of the Yukon and Northwest Territories.

British Columbia

Overall it was cool and unsettled with above-normal precipitation. Mean temperatures in the South and along the Coast were 2 to 4 degrees below normal. A cold Arctic high pressure cell penetrated the North and central interior after mid-week and temperatures there averaged 8 to 11 degrees below normal; in addition, many new daily low temperature records were set. Fort St. John established a new minimum temperature record for the month, -21.5°C . Snow fell in most areas of the Province; many communities received their first measurable snowfall of the season. In the Peace River District snow depths of 10 cm effectively ended all harvesting attempts. Many small lakes in the North are frozen over and the forest industry is anticipating an early start to the logging season. In the southern interior, snow fell at higher elevations and many mountain roads were snow covered and treacherous.

Prairies

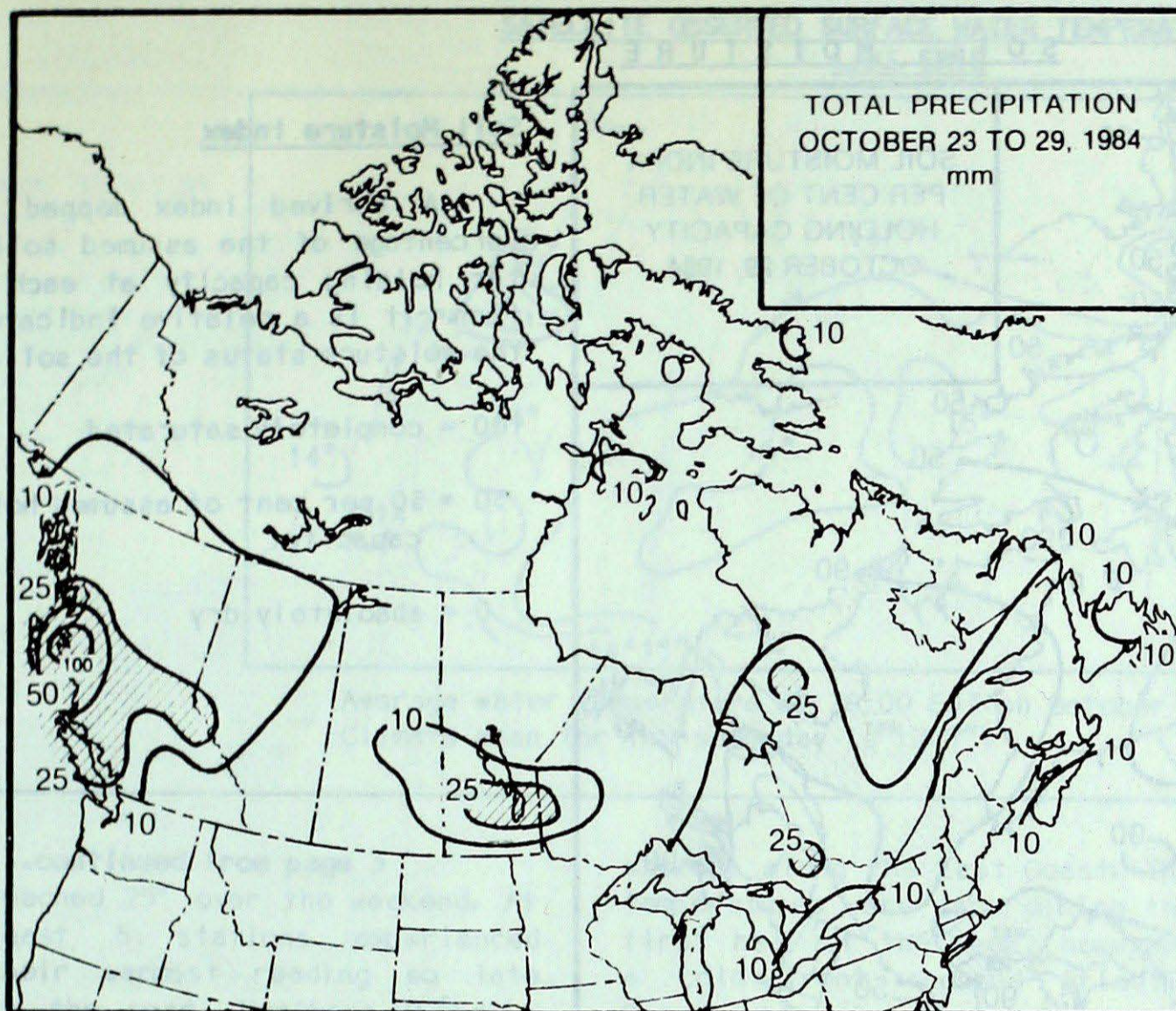
Extremely cold winter-like weather conditions prevailed as a strong northerly circulation allowed a Siberian Arctic air mass to spill southeastwards. Numerous longstanding daily minimum temperature records were toppled; in addition, many new low maximum temperature

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

		<u>MAXIMUM</u>		<u>MINIMUM</u>
YUKON TERRITORY	5.2	Burwash	-42.0	Ogilvie
NORTHWEST TERRITORIES	11.8	Broughton Island	-39.1	Eureka
BRITISH COLUMBIA	14.8	Smithers	-27.3	Dease Lake
ALBERTA	15.4	Medicine Hat	-31.2	Edson
SASKATCHEWAN	11.9	Eastend Cypress	-22.5	Eastend Cypress
MANITOBA	10.7	Pilot Mound	-21.2	Thompson
ONTARIO	24.0	Windsor	-14.0	Winisk
QUEBEC	24.0	Montréal/Dorval	-12.8	Inukjuak
NEW BRUNSWICK	15.3	Moncton	-6.6	Charlo
NOVA SCOTIA	16.5	Shelburne	-2.7	Inverness Sydney
PRINCE EDWARD ISLAND	14.6	Charlottetown	-4.5	Charlottetown
NEWFOUNDLAND	13.8	Badger	-16.1	Badger

ACROSS THE NATION

Warmest mean temperature	12.3	Windsor, ONT
Coollest mean temperature	-27.6	Alert, NWT



HEAVIEST WEEKLY PRECIPITATION (mm)

YUKON	12.0	Whitehorse
NORTHWEST TERRITORIES	13.6	Coral Harbour
BRITISH COLUMBIA	131.4	McInnes Island
ALBERTA	19.2	Grand Prairie
SASKATCHEWAN	12.4	Nipawin
MANITOBA	37.1	Bissett
ONTARIO	30.4	Red Lake
QUEBEC	27.8	La Grande Rivière
NEW BRUNSWICK	16.8	Saint John
NOVA SCOTIA	13.4	Yarmouth
PRINCE EDWARD ISLAND	24.5	Charlottetown
NEWFOUNDLAND	23.3	St. Lawrence

Ice Conditions

A near normal freeze-up pattern continues in the High Arctic. Ice thickness in Lancaster Sound varies between 25 and 35 cm. The ice-strengthened ore carrier *MV ARCTIC*, arrived at Little Cornwallis Island this week, encountering little difficulty. Treacherous old ice drifting southward in western Baffin Bay poses a potential hazard for departure slated in the

first week of November. New ice is forming along the shores of northern Hudson Bay and Hudson Strait. The ice pack continues to extend southward along the Baffin Island coast. The Beaufort drill sites are ice covered; ice thickness ranges from 25 to 35 cm, but some leads of open water were still evident.

records were also set. Several locations established new all time minimum temperature records for the month of October. Overnight temperatures at Calgary and Edmonton plummeted to -22° and -20° , respectively.

During the weekend, a rapidly moving disturbance spread several centimetres of snow across the extreme South and the eastern third. Accompanying strong winds whipped the snow, causing near-blizzard conditions and the closure of many highways. Snow accumulations on the ground, by the end of the period, ranged from 2 to 10 cm in the South, but values as high as 15 cm were reported at more northern locations.

Ontario

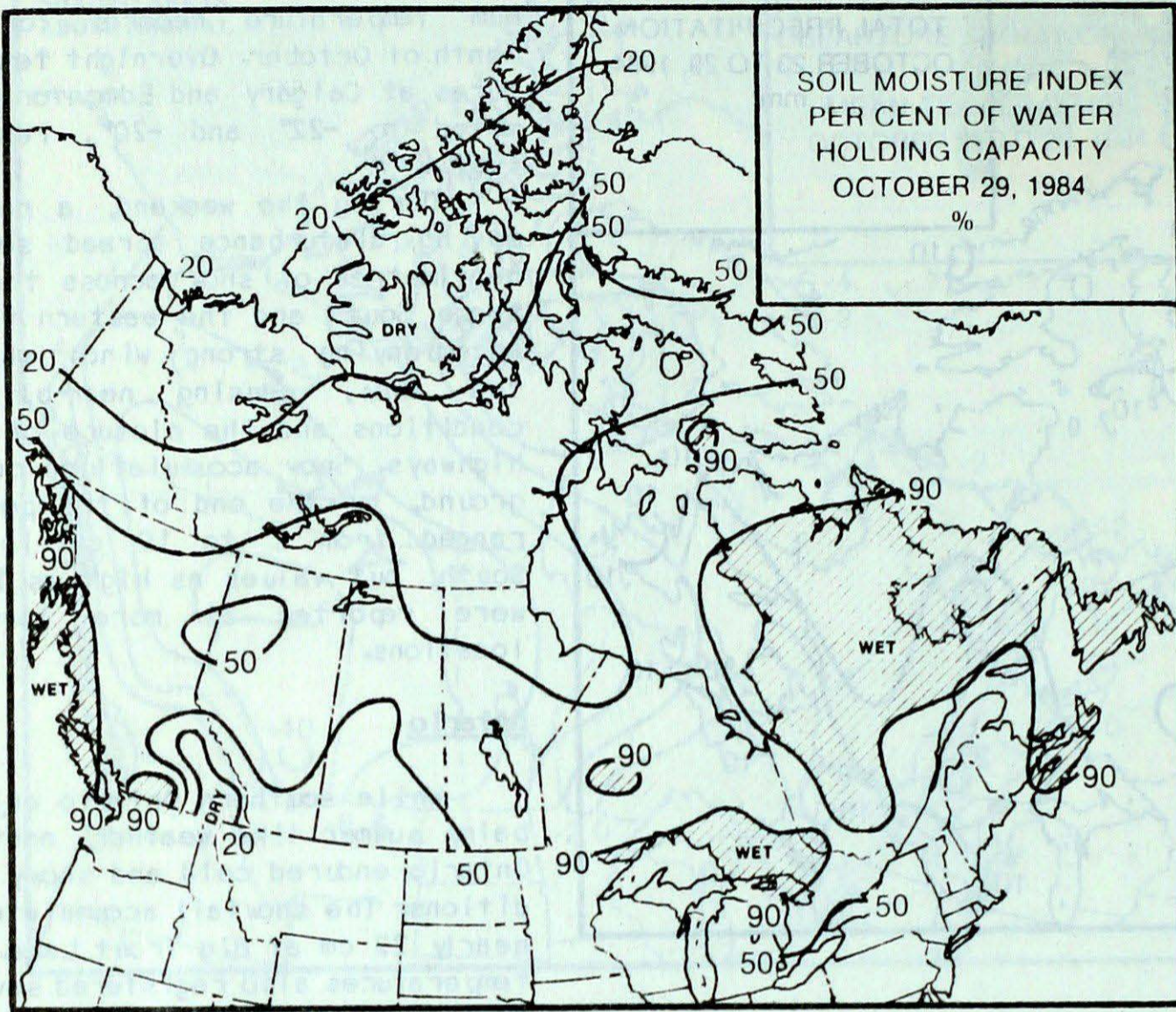
While southern Ontario enjoyed balmy summer like weather, northern Ontario endured cold and snowy conditions. The snowfall accumulated to nearly 22 cm at Big Trout Lake. The temperatures also registered several degrees below normal; for example, the readings dropped to a cold -13° at Pickle Lake on October 25. In sharp contrast, unseasonable warmth covered the lower Great Lakes Basin and southern Ontario basked in record warm temperatures. At Ottawa, the mercury reached 23° on October 28 and in downtown Toronto a daytime reading of 23.5° upset a long standing record of 22° set in 1946. Precipitation was also light in the South. One negative aspect of the mild weather was the extensive fog that blanketed southern Ontario on most of the morning hours.

Quebec

Near normal temperatures and light precipitation dominated the weather along the St. Lawrence Valley. Cold air swept the Province on October 27. Over southeastern Québec, many daily record-low temperatures were established including -10° at Gaspé that broke the old record of -5° . At La Grande, a 12° drop in temperature occurred in 4 hours and wind gusts of 120 km/h were recorded. Summer-like weather arrived over the southwestern areas of the Province as the mercury

...continued on page 5

SOIL MOISTURE



Soil Moisture Index

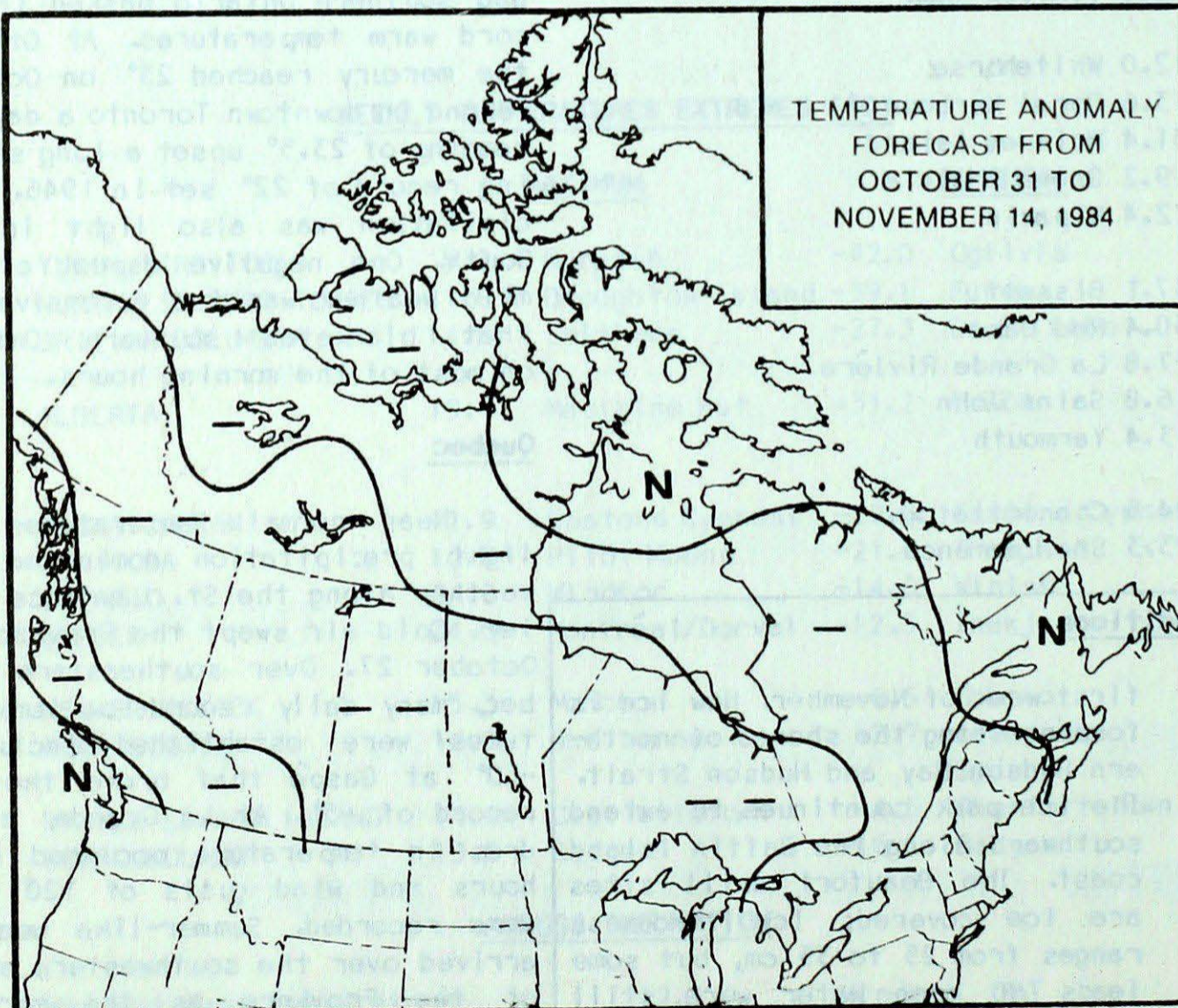
A derived index mapped as a percentage of the assumed soil water holding capacity at each station. It is a relative indicator of the moisture status of the soil.

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

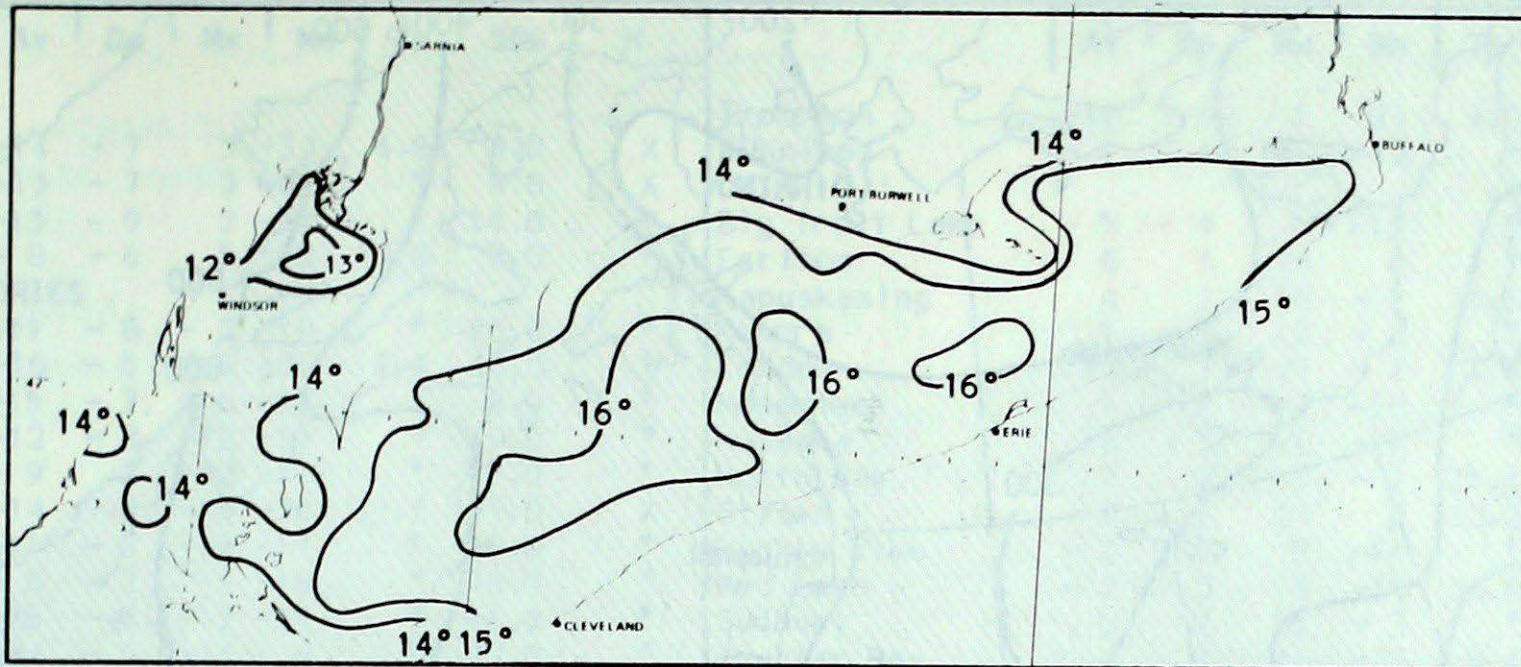
+ above normal

N normal

- below normal

-- much below normal

**SATELLITE OBSERVED SURFACE WATER TEMPERATURES (°C)
LAKE ERIE**



Average water temperature at 20:00 EDT on October 25, 1984 was 15.2°. Climate mean for the same day is 12.7°.

...continued from page 3

reached 25° over the weekend. At least 6 stations experienced their warmest reading so late in the year. Northern Québec's weather was cold and snowy. The depth of snow on the ground was in the 12 to 10 cm range throughout the North.

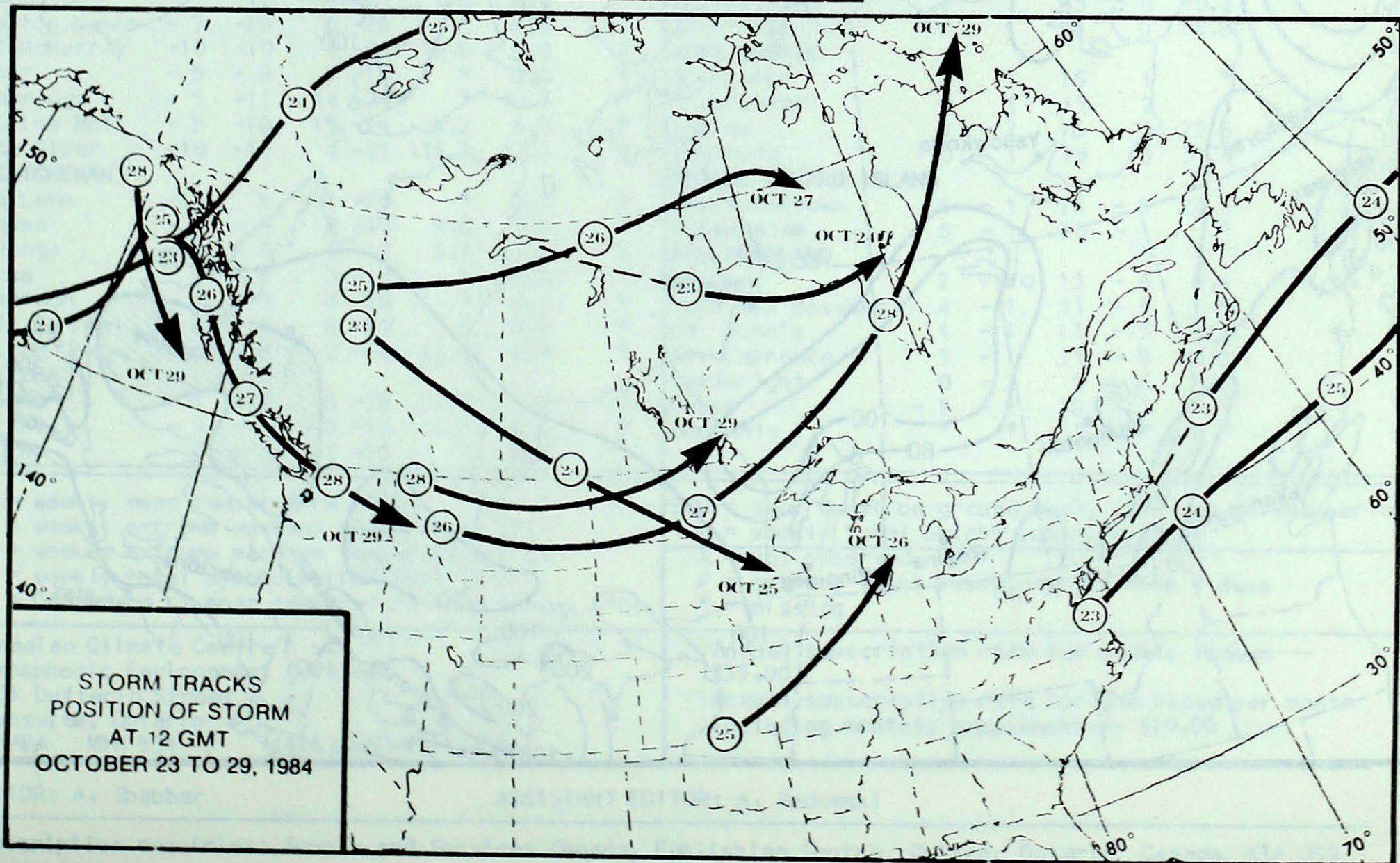
Atlantic Provinces

The weather was dull and

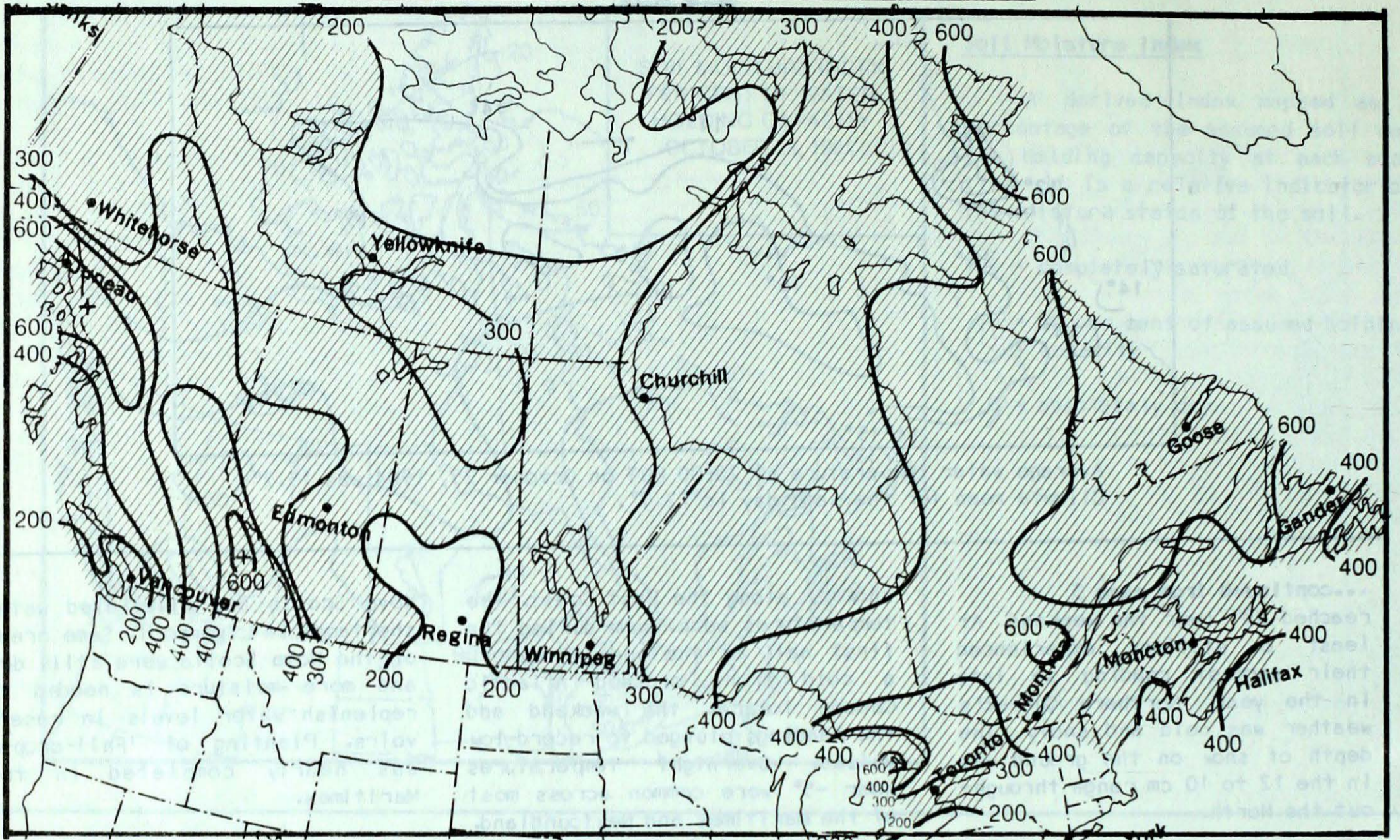
showery along the East Coast. The temperatures were warm during the first half of the week, however, a cold front crossed Atlantic Canada towards the weekend and the readings plunged to record-low values. Overnight temperatures near -5° were common across most of the Maritimes and Newfoundland. Snow accompanied the cold air in Newfoundland but the accumulation was minimal. Beneficial rains in the 15 to 30 mm range arrived in

Nova Scotia and alleviated water shortages in Liverpool. Some areas of the Nova Scotia were still dry and more moisture is needed to replenish water levels in reservoirs. Planting of 'Fall-crops' was nearly completed in the Maritimes.

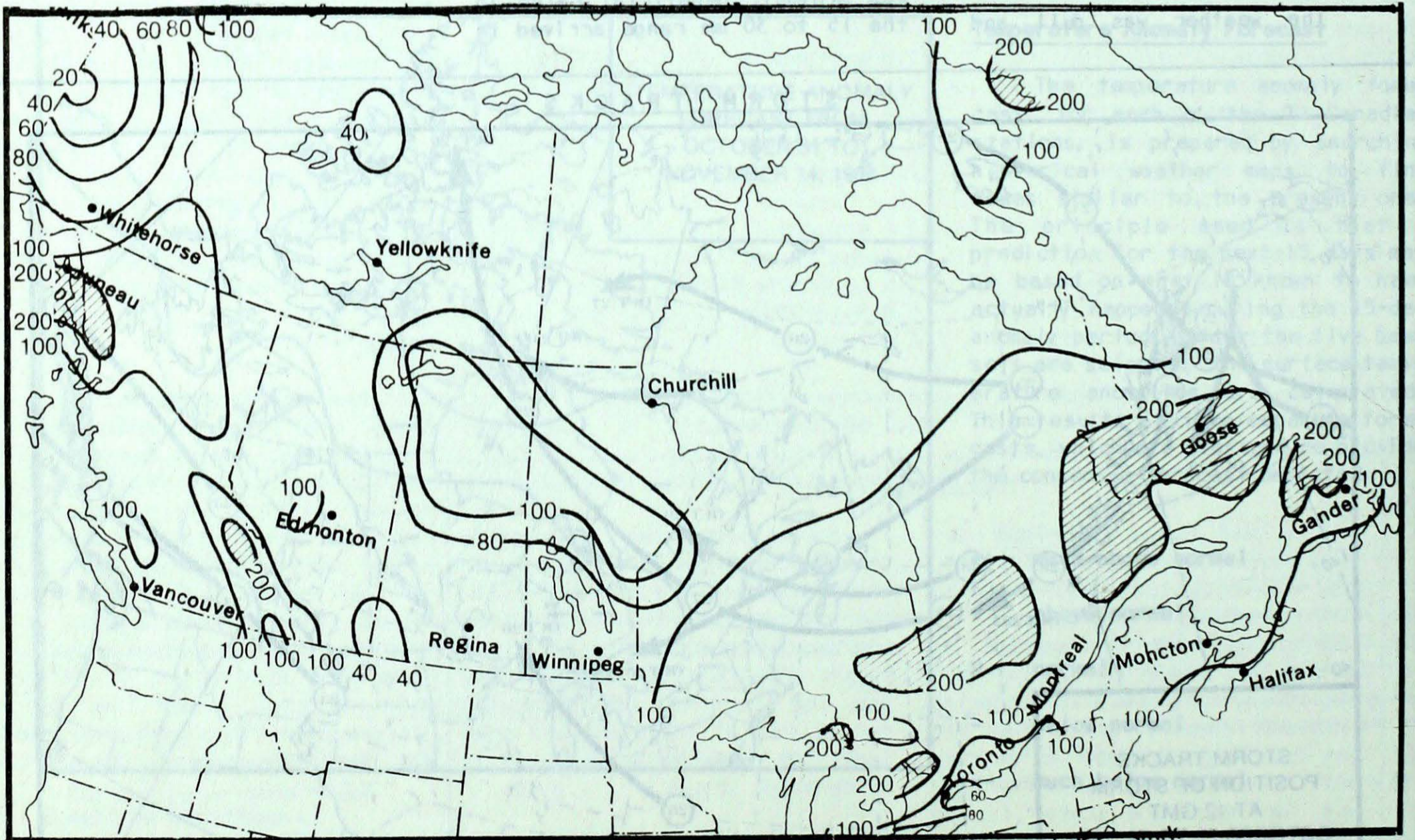
STORM TRACKS



HEAVIEST ANNUAL SNOWFALL (cm)



LIGHTEST ANNUAL SNOWFALL (cm)



TEMPERATURE, PRECIPITATION AND BRIGHT SUNSHINE DATA FOR THE WEEK ENDING 0600 GMT OCTOBER 30, 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	-10	-8	1	-21	4.0	5.0	*
Dawson	-14	-7	5	-33	4.8	5.0	X	Winnipeg	-1	-4	10	-12	*	3.0	*
Mayo A	-13	-7	3	-32	*	6.0	X	ONTARIO							
Watson Lake	-13	-9	2	-31	*	14.0	*	Big Trout Lake	-5	-4	5	-13	*	22.0	X
Whitehorse	-8	-6	5	-23	12.0	4.0	*	Earlton	6	3	16	0	*		X
NORTHWEST TERRITORIES								Kapuskasing	4	2	16	-5	14.6		*
Fort Smth	-11	-8	-2	-19	*	26.0	*	Kenora	1	-2	12	-8	*	7.0	X
Inuvik	-16	-5	-6	-30	8.4	18.0	*	London	10	2	21	-1	4.4		*
Norman Wells	-15	-7	-6	-32	*	6.0	*	Moosonee	1	-1	17	-10	*		*
Yellowknife	-12	-8	-2	-21	*	9.0	*	Muskoka	8	3	20	-2	*		X
Baker Lake	-9	2	-2	-17	*	12.0	*	North Bay	7	2	18	-2	25.4		*
Cape Dyer	-14	-5	-3	-26	11.7	71.0	X	Ottawa	8	2	23	2	10.2		*
Clyde	-11	-2	-4	-17	*	26.0	*	Pickle Lake	-2	-2	9	-14	*	5.0	X
Frobisher Bay	-8	-2	1	-18	*	18.0	*	Red Lake	-2	-3	9	-11	30.4	7.0	*
Alert	-28	-5	-17	-34	*	44.0	*	Sudbury	6	2	16	-3	*		*
Eureka	-31	-5	-14	-39	0.0	27.0	*	Thunder Bay	4	1	16	-85	8.4		*
Hall Beach	-11	3	-2	-19	*	5.0	X	Timmins	4	2	16	-3	*		X
Resolute	-20	-2	-15	-26	0.1	13.0	*	Toronto	10	2	22	0	7.4		X
Cambridge Bay	-16	-1	-9	-24	*	10.0	*	Trenton	9	2	22	-1	3.0		X
Mould Bay	-25	-4	-14	-32	*	12.0	*	Warton	9	2	21	-1	10.9		*
Sachs Harbour	-19	-4	-7	-31	*	12.0	*	Windsor	12	3	24	3	3.0		X
BRITISH COLUMBIA								QUEBEC							
Cape St. James	7	-2	12	1	47.0		*	Bagotville	4	1	21	-5	*		X
Cranbrook	0	-3	10	-6	*	1.0	*	Blanc-Sablon	-1	-3	8	-10	22.8		*
Fort Nelson	-12	-9	-1	-26	17.6	24.0	*	Inukjuak	-3	-1	3	-13	*	5.0	*
Fort St. John	-10	-11	4	-21	20.8	10.0	X	Kuujuuaq	-4	-1	8	-12	*	3.0	*
Kamloops	1	-5	10	-10	5.0		*	Kuujuarapik	-1	-1	12	-8	*	0.0	*
Penticton	3	-4	12	-4	9.8		*	Maniwaki	7	2	22	-3	21.6		*
Port Hardy	9	1	52	-2	86.2		*	Mont-Joli	5	1	19	-7	*		*
Prince George	-5	-8	-8	-23	25.6	5.0	*	Montréal	9	2	24	3	*		*
Prince Rupert	4	-3	12	-8	67.3	3.0	*	Natashquan	1	-1	7	-10	*		*
Revelstoke	2	-2	8	-3	*		*	Nitchequon	-2	0	11	-8	*		*
Smithers	-2	-4	15	-15	20.4		*	Québec	7	2	23	-1	*		*
Vancouver	6	-2	11	2	42.0		*	Schefferville	-4	0	8	-11	*		*
Victoria	6	-3	13	0	14.8		*	Sept-Îles	1	-1	9	-8	*		*
Williams Lake	-5	-9	6	-24	13.9		*	Sherbrooke	8	3	22	-4	10.4		*
ALBERTA								Val-d'Or	4	2	18	-3	*		*
Calgary	-6	-9	14	-24	*	5.0	*	NEW BRUNSWICK							
Cold Lake	-8	-9	4	-18	*	2.0	*	Charlo	4	0	13	-7	*		*
Coronation	-7	-10	4	-21	5.0	6.0	*	Fredericton	7	1	15	0	10.2		*
Edmonton Namao	-7	-10	6	-20	*	6.0	X	Saint John	7	1	14	0	16.8		*
Fort McMurray	-10	-10	3	-21	10.0	6.0	*	NOVA SCOTIA							
Jasper	-5	-8	7	-17	*	0.0	*	Greenwood	8	1	16	1	*		X
Lethbridge	-5	-11	14	-25	*	10.0	*	Shearwater	9	1	15	2	*		*
Medicine Hat	-5	-10	15	-24	8.2	6.0	*	Sydney	6	-2	16	-3	22.6		*
Peace River	-10	-11	4	-21	18.2	12.0	X	Yarmouth	10	1	15	4	31.4		*
SASKATCHEWAN								PRINCE EDWARD ISLAND							
Oree Lake	-11	X	-1	-20	*	3.0	*	Charlottetown	6	-1	15	-5	24.5		*
Estevan	-2	-6	8	-15	9.6	8.0	*	Summerside	6	-1	13	-1	*		*
La Ronge	-8	-9	1	-17	5.3	3.0	X	NEWFOUNDLAND							
Regina	-5	-8	3	-17	*	7.0	*	Gander	2	-2	13	-6	9.4		*
Saskatoon	-7	-9	4	-19	*	9.0	*	Port aux Basques	4	-1	11	-3	*		*
Swift Current	-6	-9	8	-20	*	2.0	*	St. John's	4	-1	13	-3	*		*
Yorkton	-6	-8	2	-18	10.6	7.0	*	St. Lawrence	5	-1	11	-6	23.3		X
MANITOBA								Cartwright	0	-2	8	-6	5.0		X
Brandon	-4	-6	8	-18	12.0	8.0	*	Goose	-1	-2	10	-11	*		*
Churchill	-9	-5	-3	-16	6.2	4.0	*	Hopedale	*	*	*	*	*		X
The Pas	-6	-8	2	-15	*	6.0	*								

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 21-27, 1984

SITE	DAY	pH	AIR PATH TO SITE
Longwoods, near London, Ont.			Data not available.
Dorset,* Muskoka, Ont.	21	3.8	U.S. Midwest.
	23	4.1	From west across Lake Superior and Lake Huron.
	25	4.5	Iowa, Wisconsin, Michigan.
	26	3.5	U.S. Midwest, Michigan, southern Ontario.
	27	4.0	U.S. Midwest, Michigan, southern Ontario.
Chalk River Ottawa Valley, Ont.	21	3.8	Illinois, Indiana, Ohio, Southern Ontario.
	25	4.4	Wisconsin, Michigan, Lake Huron, Sudbury Basin.
	26	3.6	U.S. Midwest, Michigan, Southern Ontario.
	27	4.0	U.S. Midwest, Michigan, Southern Ontario.
Montmorency, Quebec City Que.	21	4.4	U.S. Midwest, St. Lawrence River Valley.
	27	3.9	Wisconsin, Michigan, Lake Huron, central Ontario, southern Quebec.
Kejimikujik, Southwestern N.S.	22	4.3	U.S. Midwest, New England States.
	23	4.7	U.S. Midwest, southern Ontario, New England States.
	25	5.0	Lake Huron, central Ontario, southern Quebec, Maine.
	27	4.4	St. Lawrence River Valley, New England States.

* 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) 667-4000.