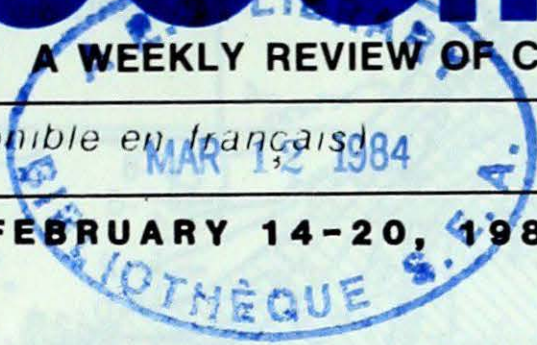




CLIMATIC PERSPECTIVES

A WEEKLY REVIEW OF CANADIAN CLIMATE



FEBRUARY 24, 1984

(Aussi disponible en français)

VOL.6 NO.7

FOR THE PERIOD FEBRUARY 14-20, 1984

• **Warm weather creates widespread flooding in Ontario**

Unseasonable warmth and heavy downpours of 20 to 40 mm created severe flooding throughout southern Ontario. Rivers and creeks swelled to flood stages forcing people to flee their homes in boats. At Chatham, 25 people were moved to safety and at least 85 homes suffered water damage in Port Bruce, 20 km southwest of St. Thomas. In Toronto, two brothers were swept to their deaths by the icy waters of Black Creek, and major thoroughfares were covered with waters up to 2 metres deep. Many highways and roads were closed and there were massive traffic tie-ups. At Beachville, flood waters weakened the railroad bed, which resulted in a 24-car freight train derailment.

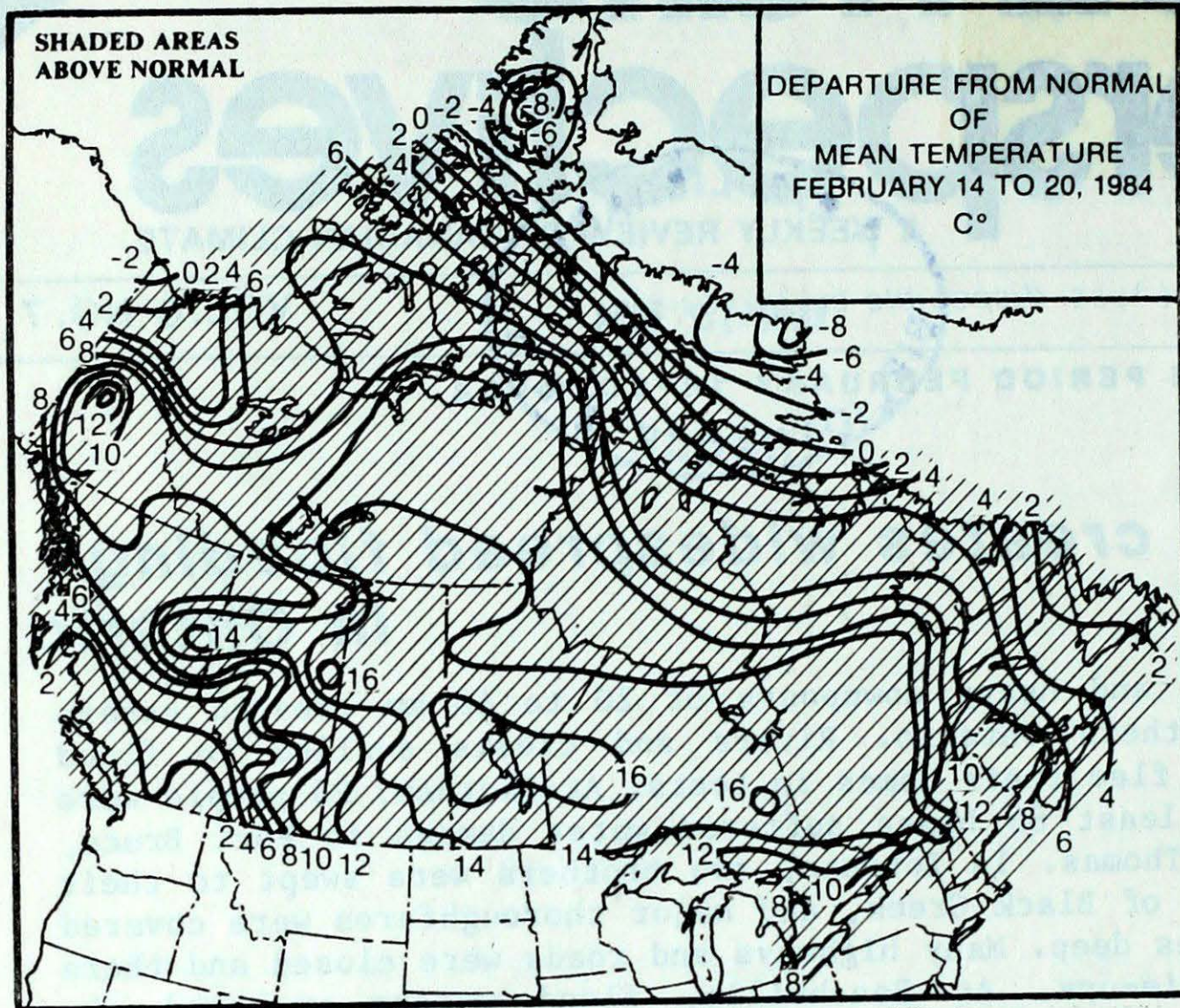
• **Ice alert off the East Coast**

A huge ice floe, about the size of Prince Edward Island, came within 30 km of the drill sites and posed a potential hazard to the oil rigs in the Hibernia oil fields. Two oil drilling rigs 'John Shaw' and 'Sedco-760' lifted their anchors and moved 50 km south of the sprawling pack that was about 320 km southeast of St. John's. Supply vessels were on alert for possible evacuation. The pack ice, about 40 cm thick, was slowly drifting northeastward, however, a shift in the wind direction can change its motion.

• **Great Lakes water levels on the rise**

• **Below-normal snowfall on the Prairies ... possibility of low water-tables in spring**

ACROSS THE COUNTRY...



Yukon and Northwest Territories

An influx of mild air resulted in well above normal temperatures across the Arctic. Mean values were 12 to 18 degrees above average and many locations in the southern Yukon and the Mackenzie District experienced record-high readings as the mercury rose above freezing. Only the High Arctic was abnormally cold, and at Eureka, the temperatures did not climb above -45° all week. Snowfall was light and sporadic throughout the North.

British Columbia

It was a mild spring-like week everywhere with mean temperatures running as high as 14° above normal in the north. Frequent disturbances gave overcast, damp weather conditions to the Coast but in the interior and the north it was generally bright and sunny. Logging has become difficult due to the mild weather and the resulting muddy roads, loggers are being laid off until drier conditions return.

Prairies

It was predominantly sunny in the west and cloudy in the east. Mean temperatures in Saskatchewan and Manitoba were 12 to 17 degrees above normal. Daytime temperatures in southern Alberta reached the double digits during the latter part of the week. Precipitation amounts were light. Concern has been expressed about the low soil moisture reserves in southern Saskatchewan, due to the lack of snow cover and possible soil erosion problems if winds should increase in strength. Good spring skiing continued at higher elevations in the Rockies.

Ontario

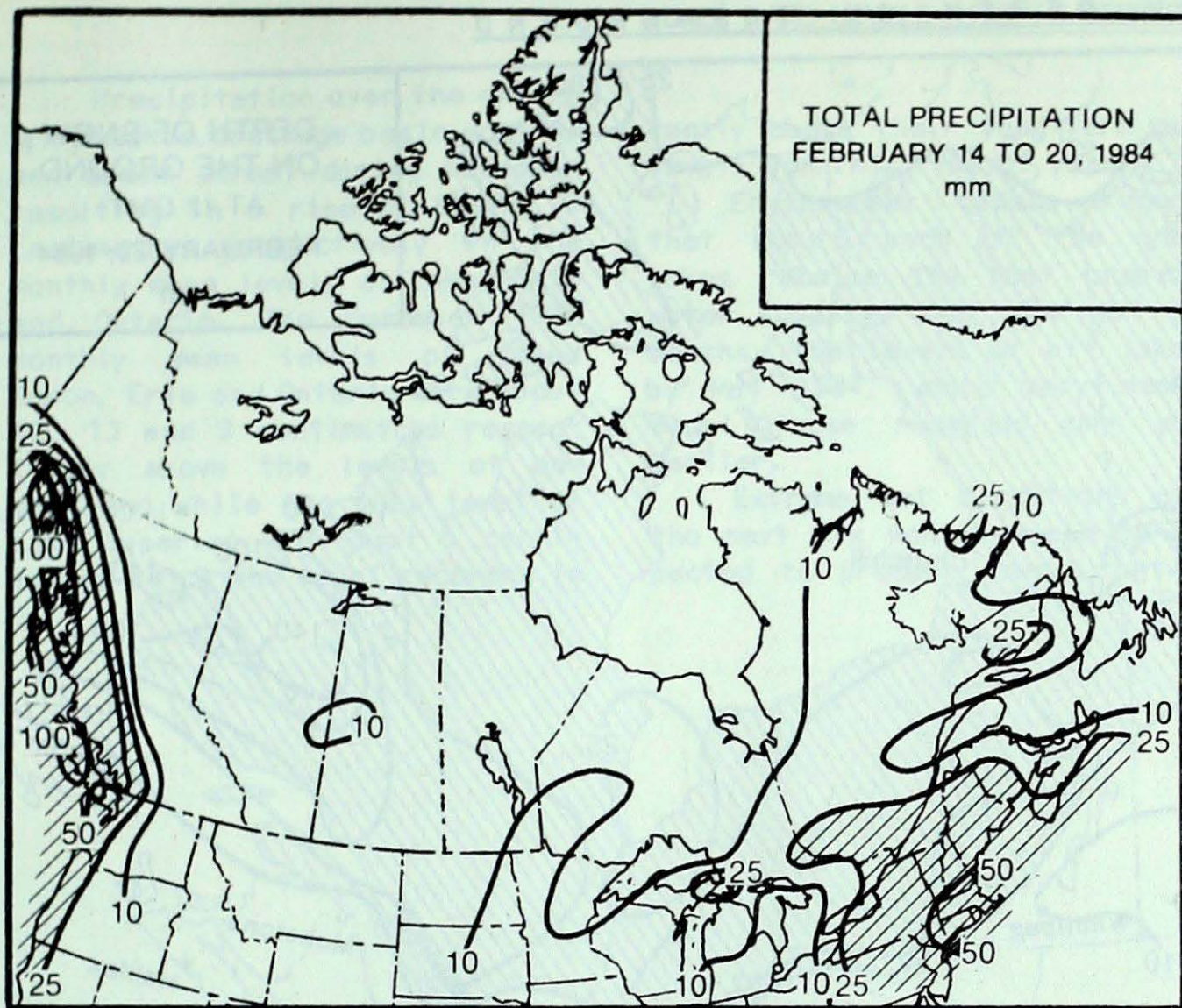
Heavy rains, rapidly melting snow and record-warm temperatures highlighted Ontario's weather. Deluges of 15 to 40 mm of rains caused severe floodings in many southern Ontario communities between the 13th and 15th of February. Rivers and creeks rose to flood

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

	<u>MAXIMUM</u>	<u>MINIMUM</u>
YUKON TERRITORY	6.8 Mayo	-43.0 Teslin
NORTHWEST TERRITORIES	4.5 Fort Simpson	-48.8 Eureka
BRITISH COLUMBIA	33.2 Burns Lake	-24.1 Fort Nelson
ALBERTA	16.0 Calgary	-24.1 High Level
SASKATCHEWAN	10.9 Buffalo Narrows	-21.0 La Ronge
MANITOBA	8.1 Dauphin	-20.3 Churchill
ONTARIO	12.2 Toronto	-17.0 Winisk
QUEBEC	11.5 Roberval	-32.0 Border
NEW BRUNSWICK	12.6 Moncton	-12.2 Charlo
NOVA SCOTIA	15.9 Greenwood	-7.3 Amherst
PRINCE EDWARD ISLAND	9.5 Charlottetown	-6.9 Charlottetown
NEWFOUNDLAND	7.1 Deer Lake	-25.4 Deer Lake

ACROSS THE NATION

Warmest mean temperature	6.6	Cape St. James and McInnes Island, BC
Coollest mean temperature	-47.0	Eureka, NWT



HEAVIEST WEEKLY PRECIPITATION (mm)

YUKON	7.5	Shingle Point
NORTHWEST TERRITORIES	10.0	Mackay Inlet
BRITISH COLUMBIA	143.0	Estevan Point
ALBERTA	11.2	Vermilion
SASKATCHEWAN	10.4	Meadow Lake
MANITOBA	15.4	Bissett
ONTARIO	34.3	North Bay
QUEBEC	44.5	Sherbrooke
NEW BRUNSWICK	33.1	Fredericton
NOVA SCOTIA	48.2	Yarmouth
PRINCE EDWARD ISLAND	7.5	Charlottetown
NEWFOUNDLAND	25.3	Hopedale

**Winter precipitation about half the normal on the Prairies
- A concern for spring seeding -**

	Winter precipitation (to date) % of normal	Soil moisture % of soil capacity
Winnipeg	52	10
Brandon	56	10
Dauphin	50	15
Estevan	68	7
Regina	75	20
Calgary	60	-
Edmonton	65	-

stages and ice jams added to the flooding problems.

At Toronto, 35.6 mm of rain on 13th-14th was the heaviest February rainfall since February 23, 1925 (40.1 mm). In addition, 9.2° was the warmest February 14 reading since 1840. The snow cover has quickly eroded and by the week's end areas south of a line from Ottawa through Muskoka to Thunder Bay were free of snow.

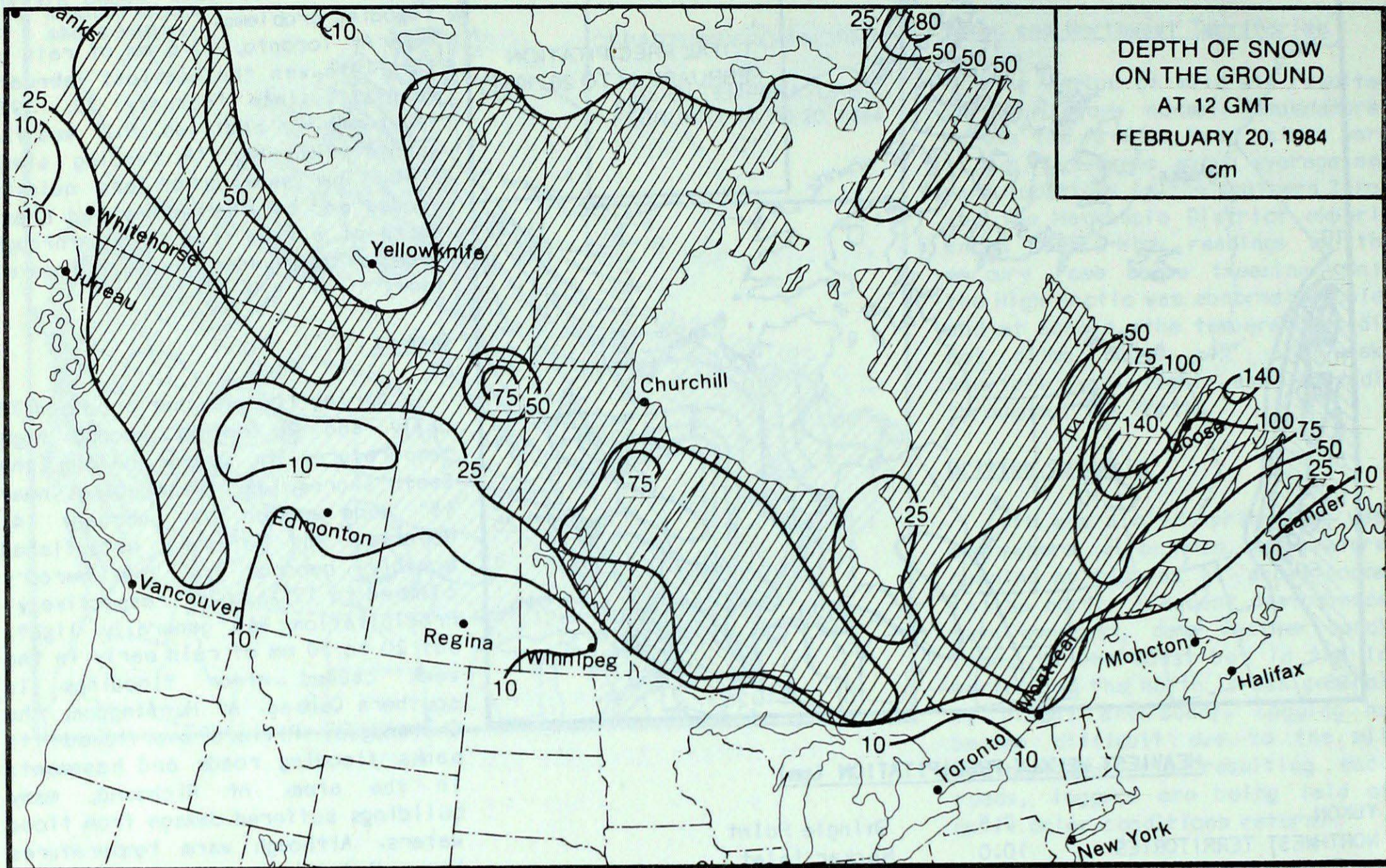
Québec

Spring-like weather produced 78 daily and 2 monthly record high temperatures in Québec. Along the South shores, daytime readings near 15° were common. On February 14, Roberval and Maniwaki established monthly records as the mercury climbed to 12° and 10° respectively. Precipitation was generally light, but 20 to 30 mm of rain early in the week caused minor floodings in southern Québec. At Huntingdon, the Châteauguay Riviere overflowed its banks flooding roads and basements in the area. At Richmond, many buildings suffered damage from flood waters. Although warm temperatures have diminished the snow cover a great deal this past week along the St. Lawrence Valley, skiing was still described as good in the Laurentians and the Eastern Townships. Owing to the mild weather, the maple sap has started running, and near Victoriaville, farmers were starting to tap the syrup.

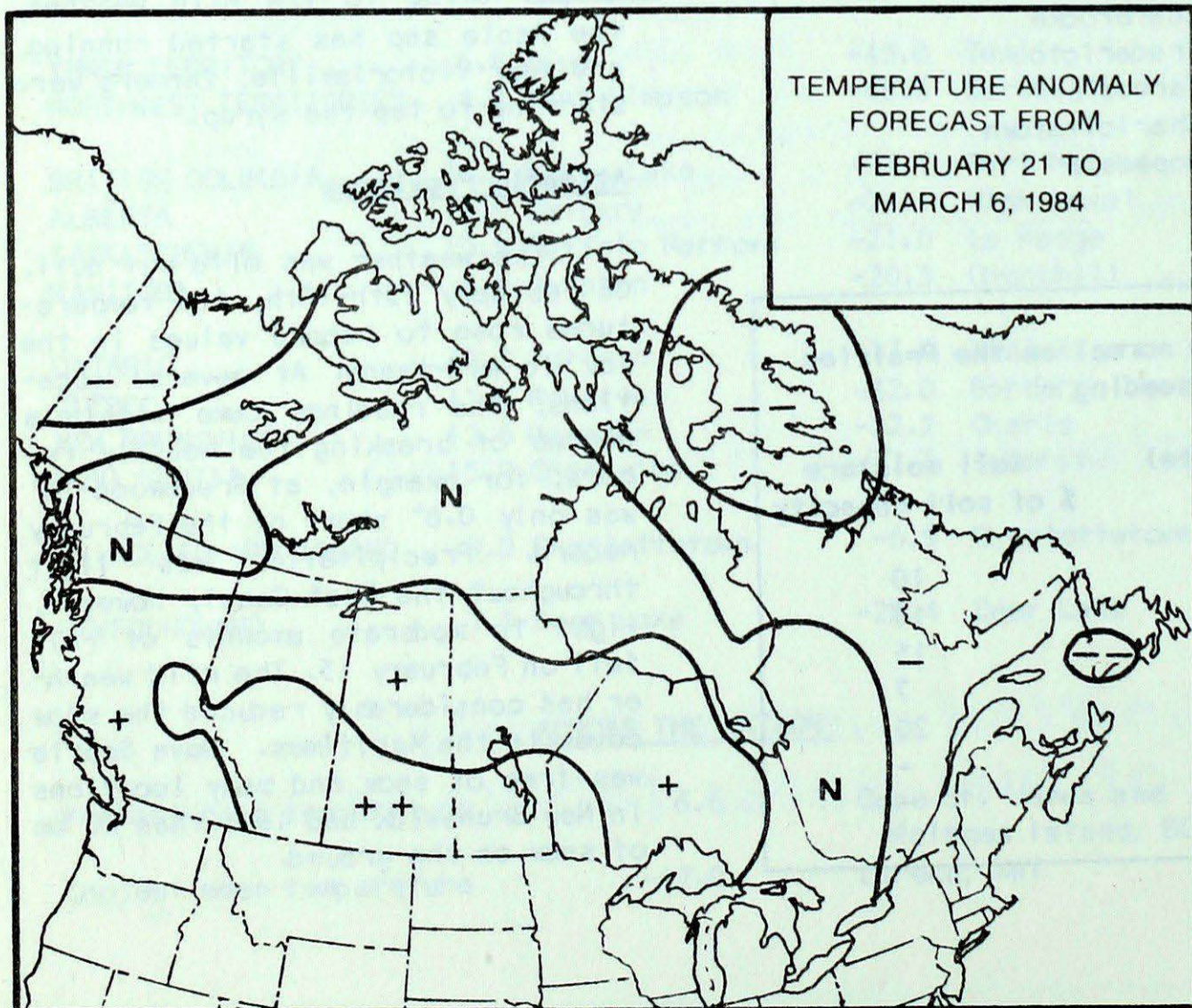
Atlantic Provinces

The weather was mild but dull. On February 15th-16th, the temperatures rose to record values in the low to mid-teens. At several locations, the readings came within a degree of breaking the monthly record; for example, at Greenwood 16° was only 0.8° short of the February record. Precipitation was light throughout the East Coast, however, light to moderate amounts of rain fell on February 15. The mild weather has considerably reduced the snow cover in the Maritimes. Nova Scotia was free of snow and many locations in New Brunswick had less than 20 cm of snow on the ground.

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

LOWER LAKE LEVELS RISE IN DECEMBER

Precipitation over the entire Great Lakes drainage basin continued above normal during December resulting in a rise of 9 and 12 centimetres respectively in the monthly mean levels of Lakes Erie and Ontario. The December 1983 monthly mean levels of Lakes Huron, Erie and Ontario were about 12, 13 and 9 centimetres respectively above the levels of one year ago while the mean level of Lake Superior was about 5 centimetres below the level recorded in

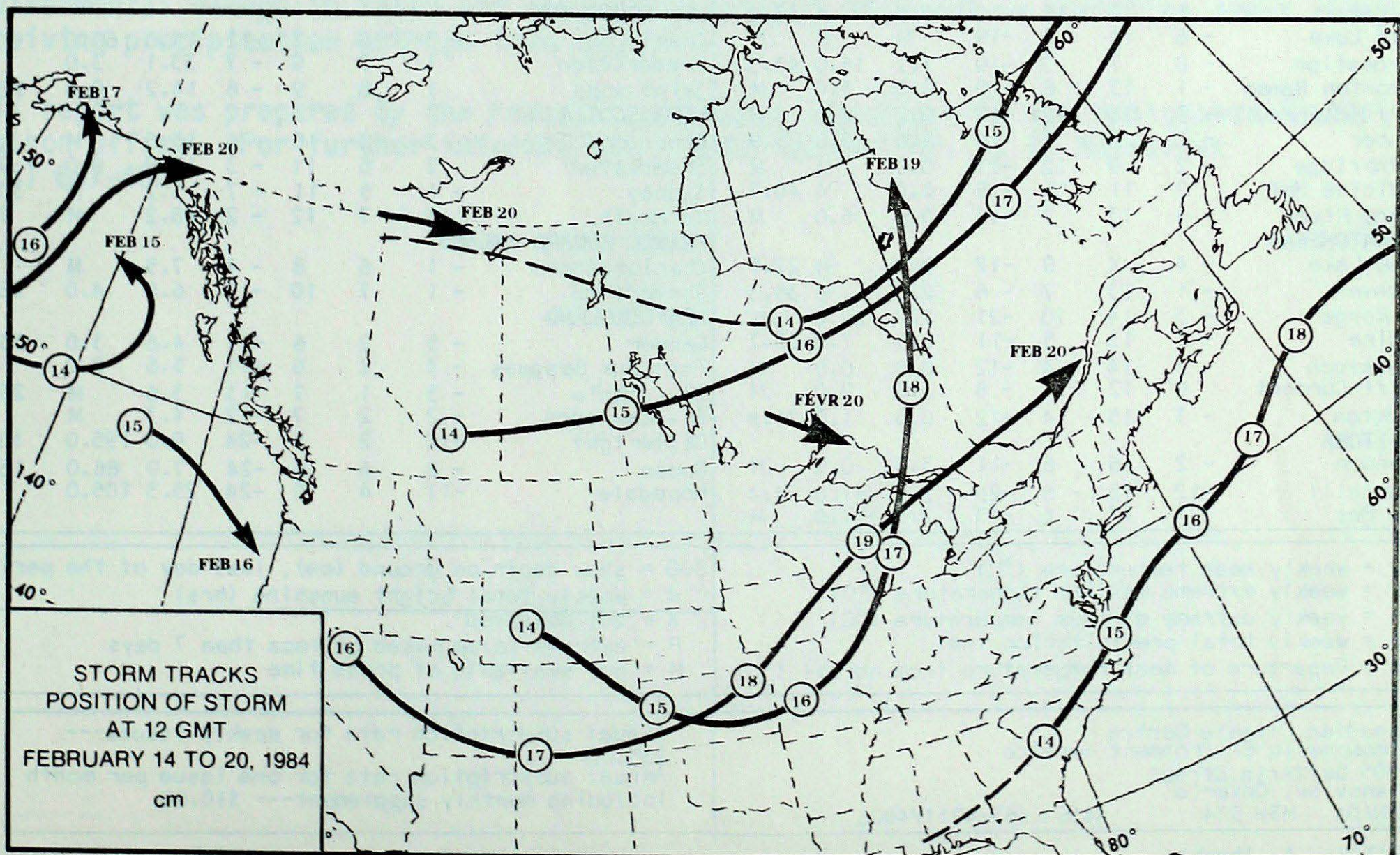
rently above their long term mean levels for this time of year.

Environment Canada reports that should each of the great Lakes receive the most probable water supplies over the next six months, the levels of all lakes, by May 1984, would very nearly equal those recorded one year earlier.

Extreme wet conditions over the next six months would be expected to produce levels on all

lakes higher than those recorded during a similar period in 1983. Under these conditions some localized flooding could occur, particularly on the lower lakes, during periods of onshore winds. With extreme dry conditions, the levels of Lakes Superior and Ontario would fall below normal by April 1984. The levels of Lakes Huron and Erie would remain above normal but by June 1984 would be substantially below those recorded one year earlier.

STORM TRACKS



TEMPERATURE, PRECIPITATION AND BRIGHT SUNSHINE DATA FOR THE WEEK ENDING 0600 GMT FEBRUARY 21, 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	- 8	13	- 1	-19	3.7	38.0	10.0
Dawson	-14	9	3	-28	3.5	58.0	M	Winnipeg	- 2	15	3	-13	5.0	4.0	18.5
Mayo A	- 4	17	7	-15	1.7	54.0	M	ONTARIO							
Watson Lake	-11	9	2	-26	1.0	43.0	25.1	Big Trout Lake	- 7	15	1	-13	6.2	71.0	M
Whitehorse	- 2	13	4	- 7	1.0	24.0	31.0	Earlton	0	14	9	- 8	M	26.0	M
NORTHWEST TERRITORIES								Kapusking	- 1	15	8	- 9	9.1	17.0	M
Fort Smith	-10	15	3	-29	0.2	35.0	31.3	Kenora	- 2	14	2	- 8	20.6	25.0	M
Inuvik	-29	3	-22	-34	1.0	64.0	1.0	London	3	9	11	- 3	8.1	M	22.8
Norman Wells	-25	3	-16	-34	1.4	18.0	23.4	Moosonee	- 3	15	9	-16	2.0	11.0	26.7
Yellowknife	-14	14	- 2	-27	4.4	15.0	11.7	Muskoka	3	12	11	- 5	M	4.0	M
Baker Lake	-20	14	-11	-33	4.7	46.0	8.2	North Bay	2	13	8	- 7	34.3	16.0	20.8
Cape Dyer	-30	- 9	-23	-40	1.1	41.0	M	Ottawa	2	12	7	- 4	31.2	12.0	M
Clyde	-32	- 4	-25 ^P	-40	0.0	80.0	17.4	Pickle Lake	- 3	17	2	-10	10.4	71.0	M
Frobisher Bay	-25	0	-17	-33	1.2	24.0	16.3	Red Lake	- 2	16	2	- 9	19.2	42.0	3.3
Alert	-37	- 3	-33	-45	0.9	21.0	M	Sudbury	0	12	7	- 7	19.4	11.0	14.9
Eureka	-47	- 8	-45	-49	M	18.0	M	Thunder Bay	0	13	5	- 8	1.2	13.0	8.0
Hall Beach	-30	3	-22	-40	0.8	25.0	M	Timmins	0	17	9	- 8	11.2	44.0	M
Resolute	-32	2	-27	-38	0.8	25.0	2.9	Toronto	3	9	12	- 3	14.0	0.0	M
Cambridge Bay	-22	13	-10	-41	M	33.0	M	Trenton	3	9	8	- 2	31.4	0.0	21.7
Mould Bay	-29	8	-18	-39	1.4	26.0	M	Warton	1	8	8	- 5	5.4	0.0	M
Sachs Harbour	-25	9	-16	-35	0.7	10.0	M	Windsor	5	8	12	- 1	M	M	M
BRITISH COLUMBIA								QUEBEC							
Cape St. James	7	2	9	3	40.7	M	19.5	Bagotville	- 1	13	7	-10	6.2	36.0	M
Cranbrook	- 1	1	7	-12	0.0	M	34.7	Blanc-Sablon	- 9	1	0	-22	4.0	91.0	M
Fort Nelson	-10	9	6	-24	0.0	27.0	33.4	Inukjuak	-18	7	0	-27	4.4	37.0	29.7
Fort St. John	0	14	8	- 8	0.0	3.0	M	Kuujuaq	-15	7	1	-26	14.9	43.0	12.8
Kamloops	3	4	10	- 4	1.2	M	23.4	Kuujuarapik	-12	11	4	-24	5.6	25.0	20.3
Penticton	3	2	8	- 5	1.0	M	M	Maniwaki	1	13	10	-11	38.0	16.0	24.3
Port Hardy	4	1	9	- 2	46.9	M	21.3	Mont-Joli	- 1	9	7	-11	8.6	15.0	34.4
Prince George	0	7	9	-11	2.7	0.0	30.5	Montréal	2	11	9	- 4	25.4	0.0	27.1
Prince Rupert	5	1	9	- 2	126.0	M	7.2	Natashquan	- 7	4	2	-18	25.6	48.0	21.7
Revelstoke	0	1	6	- 7	5.8	32.0	13.5	Nitchequon	- 6	15	3	-20	14.2	27.0	M
Smithers	1	7	8	- 8	12.2	0.0	25.6	Québec	0	11	7	- 5	27.4	63.0	32.1
Vancouver	6	1	10	- 1	72.0	M	20.0	Schefferville	-10	11	3	-21	18.4	70.0	14.3
Victoria	6	1	10	- 1	19.0	M	19.9	Sept-Îles	- 5	7	4	-13	11.6	55.0	25.4
Williams Lake	- 1	3	6	-12	1.8	25.0	29.0	Sherbrooke	3	16	11	- 7	44.5	5.0	31.0
ALBERTA								Val-d'Or	0	15	9	- 9	23.6	27.0	20.0
Calgary	1	10	16	-10	0.0	M	43.8	NEW BRUNSWICK							
Cold Lake	- 6	11	8	-19	M	M	M	Charlo	- 3	9	7	-12	14.0	69.0	M
Coronation	- 8	7	3	-19	1.2	16.0	43.3	Fredericton	1	9	9	- 7	33.1	3.0	M
Edmonton Namao	- 1	13	8	-10	0.0	3.0	M	Saint John	1	8	9	- 6	14.2	0.0	22.1
Fort McMurray	- 3	16	12	-17	0.2	8.0	M	NOVA SCOTIA							
Jasper	- 2	6	7	-14	2.6	6.0	25.9	Greenwood	3	8	16	- 6	13.6	M	M
Lethbridge	2	9	12	-11	0.0	M	M	Shearwater	2	6	11	- 3	15.8	0.0	9.2
Medicine Hat	2	11	14	- 8	0.0	M	40.5	Sydney	- 1	5	11	- 7	3.2	M	30.0
Peace River	- 4	13	7	-15	0.0	6.0	M	Yarmouth	4	7	12	- 2	48.2	M	7.4
SASKATCHEWAN								PRINCE EDWARD ISLAND							
Cree Lake	- 4	X	9	-12	0.8	M	22.5	Charlottetown	- 1	6	8	- 7	7.5	M	M
Estevan	- 1	13	7	- 6	2.0	M	35.3	Summerside	- 1	7	10	- 7	6.0	4.0	26.5
La Ronge	- 3	14	10	-21	2.2	24.0	M	NEWFOUNDLAND							
Regina	- 3	13	5	-11	0.5	1.0	33.7	Gander	- 5	2	6	-17	4.6	3.0	33.0
Saskatoon	- 3	14	4	-12	0.0	0.0	M	Port aux Basques	- 3	2	6	-11	5.6	8.0	M
Swift Current	0	12	11	- 8	3.0	0.0	M	St. John's	- 3	1	7	-13	3.6	M	26.8
Yorkton	- 3	15	4	-12	0.5	1.0	21.8	St. Lawrence	- 2	2	7	-12	4.7	M	M
MANITOBA								Cartwright	-10	2	5	-24	9.0	195.0	18.8
Brandon	- 2	16	6	-11	3.6	0.0	M	Goose	- 8	6	6	-24	7.9	86.0	16.0
Churchill	-12	15	- 6	-20	2.3	41.0	4.4	Hopedale	-11	4	5	-24	25.3	105.0	M
The Pas	- 3	17	6	-13	2.3	17.0	M								

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
M = not available at press time

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ACID RAIN REPORT ISSUED BY ENVIRONMENT CANADA FOR FEB. 12-18, 1984

**LONGWOODS
NEAR LONDON
ONTARIO**

On Feb. 13, Longwoods received a large amount of moderately acidic rain, with a pH reading of 4.3. This rain was associated with air which had passed over Virginia, West Virginia and Ohio.

**DORSET*
MUSKOKA
ONTARIO**

Dorset received strongly acidic rain on Feb. 13 and 14, with pH readings of 4.1 and 3.6 respectively. This rain was produced in air which had passed over Virginia, West Virginia, Pennsylvania and southern Ontario. Data supplied by the Ontario Ministry of the Environment.

**CHALK RIVER
OTTAWA VALLEY
ONTARIO**

The rain which fell Feb. 13 and 14 had a pH reading of 4.2 and was produced in air which came from Virginia, Pennsylvania, New York and southern Ontario. Chalk River received moderately acidic rain on Feb. 17 with a pH reading of 4.4. This rain was associated with air which moved south from Quebec into New England and New York and then moved north to Chalk River. Air which passed over New York, Pennsylvania, Ohio and southern Ontario brought a small amount of strongly acidic rain with pH 3.4 to the region on Feb. 18.

**MONTMORENCY
QUEBEC CITY
QUEBEC**

Montmorency received a large amount of moderately acidic rain on Feb. 14, with a pH reading of 4.6. This event was associated with air from the Ohio Valley, Pennsylvania and New England.

**KEJIMIKUJIK
SOUTHWESTERN
NOVA SCOTIA**

Air from the Atlantic Ocean brought heavy rain to the region on Feb. 15. This rain was slightly acidic, with a pH reading of 4.8.

*Data supplied by the Ontario Ministry of the Environment.

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

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.