Climatic Perspectives

A WEEKLY REVIEW OF CANADIAN CLIMATE

JANUARY 27 ,1984 (Aussi disponible en français) VOL.6 NO.3

FOR THE PERIOD JANUARY 17-23,1984

Record-cold covers eastern half of the nation

Wet weather returns to British Columbia

Good skiing conditions continue across most of the country

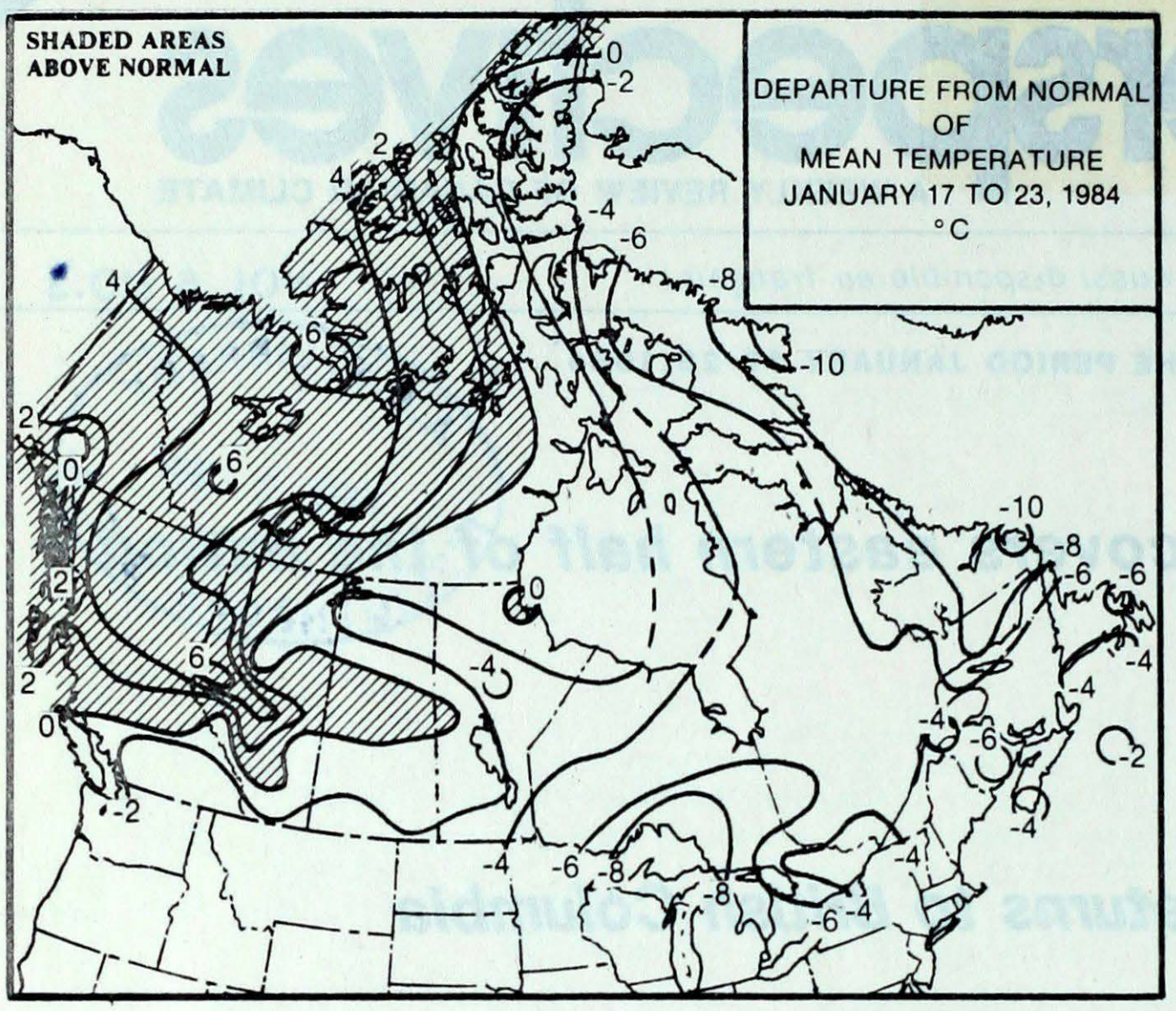
Heavy snow and extreme cold threaten Ontario's deer population

January thaw - a break from the cold weather: see next week's issue

ISSN 0225-5707
UDC: 551.506.1(71)

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	-6.2	Komakuk Beach	-49.3	Old Crow
NORTHWEST TERRITORIES	-4.2	Clinton Point	-47.7	Shepherd Bay
BRITISH COLUMBIA	10.8	Victoria	-37.4	Puntzi Mountain
ALBERTA	8.7	Whitecourt	-39.5	Fort Chipewyan
SASKATCHEWAN	5.4	North Battleford	-41.0	Cree Lake
MANITOBA	3.0	Portage la Prairie	-39.9	Bissett
ONTARIO	2.0	Simcoe	-43.1	Geraldton
QUEBEC	0.0	Lac Eon	-42.5	Schefferville
NEW BRUNSWICK	-2.1	St. Stephen	-36.5	Charlo
NOVA SCOTIA	4.0	Sable Island	-26.0	Truro
PRINCE EDWARD ISLAND	0.0	East Point	-24.0	Charlottetown
NEWFOUNDLAND	0.7	St. Lawrence	-38.6	Wabush Lake

ACROSS THE NATION

Warmest mean temperature	6.0	Cape St. James, BC
Coolest mean temperature	-40.8	Eureka, NWT

ACROSS THE COUNTRY...

Yukon and Northwest Territories

Northwesterly flow of extremely cold air mass replaced the mild air towards the week's end over the western two-thirds of the Arctic. At Eureka, the temperatures remained below -39° for 5 consecutive days. With a reading of -49.3°, Old Crow was the coldest place across the North. Despite the deep freeze during the latter part of the week, mean temperatures were 5 to 8 degrees above normal. After many weeks of dry weather, appreciable snow fell in the southern Yukon. Whitehorse received about 31 cm, and established a record 24-hour snowfall for January as 17.6 cm fell on January 21. Heavier snowfalls in the 50 to 65 cm range fell over the Cassiar Mountains.

British Columbia

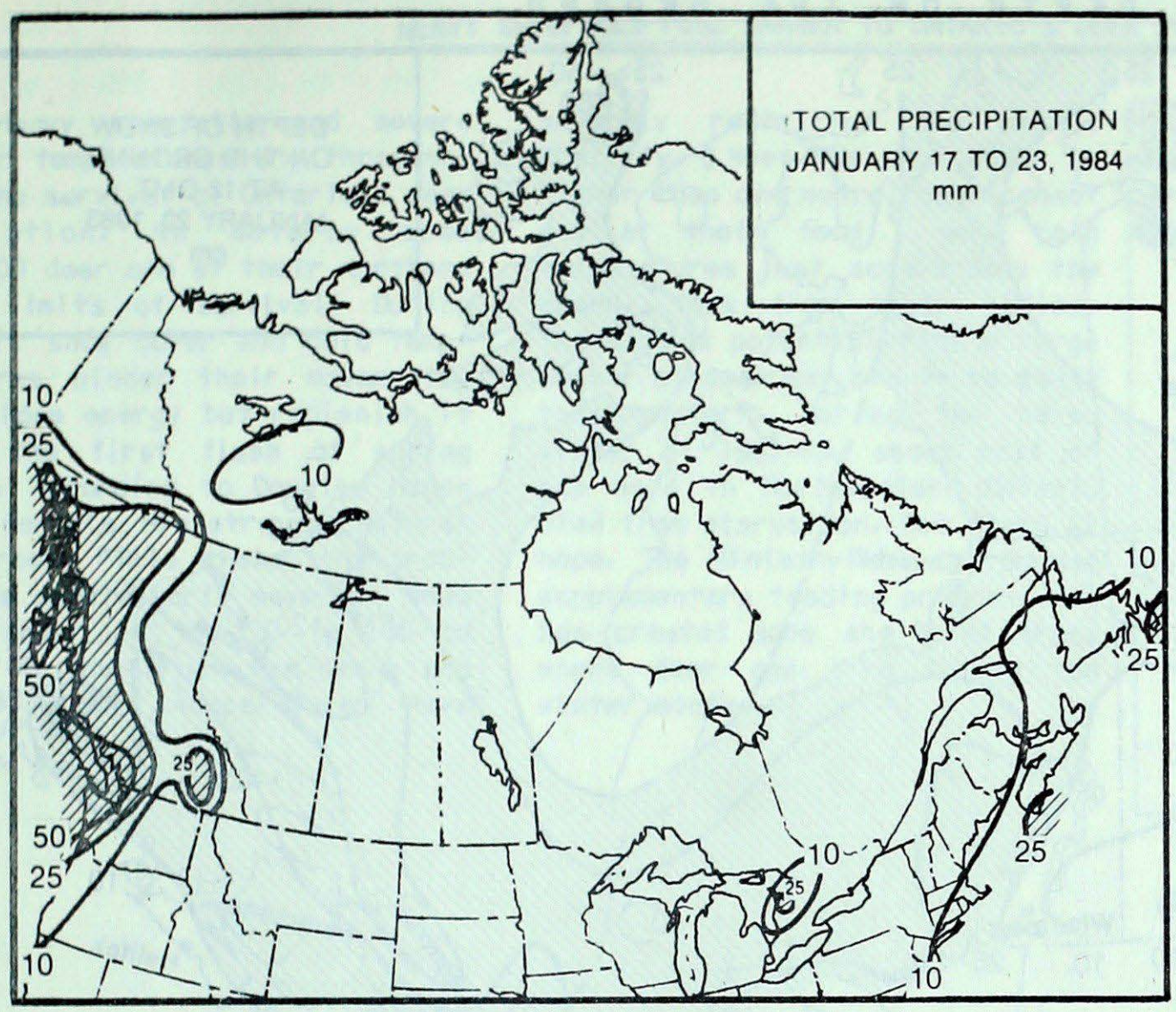
After nearly two weeks of dry and cool weather, heavy rains in the 50 to 100 mm range and mild temperatures arrived in British Columbia. The rain was particularly heavy in the coastal areas. Mean temperatures were 4 to 6 degrees below normal across the South but rose to about 7° above normal in the Peace River District. Owing to the warm temperatures, snow cover at some ski resorts has dwindled to only a few centimetres.

Prairies

It was mostly sunny and cold in the eastern areas, but predominantly cloudy and milder across the western regions. Westerly winds, blowing downslope out of the Rockies produced a warming and daytime temperatures rose near 8° in the foothills. Depth of snow on the ground ranged from a few centimetres in the South to as high as 50 cm in the North.

Ontario

Very cold weather continued. Mean temperatures were 5 to 12 degrees below normal. Once again this week, the temperatures did not



HEAVIEST WEEKLY PRECIPITATION (mm)

YUKON	29.6	Watson Lake
NORTHWEST TERRITORIES	11.3	Fort Smith
BRITISH COLUMBIA	98.8	Estevan Point
ALBERTA	9.4	Fort McMurray
SASKATCHEWAN	8.8	Collins Bay
MANITOBA	5.0	Thompson
ONTARIO	32.6	Wiarton
QUEBEC	12.2	Natashquan
NEW BRUNSWICK	8.8	Fredericton
NOVA SCOTIA	25.6	Yarmouth
PRINCE EDWARD ISLAND	16.0	Summerside
NEWFOUNDLAND	32.6	St. John's

Historically This Week ...

A look into the past reveals some extreme weather events that happened near the end of January.

January 19-20, 1935 Extremely low temperatures were recorded in Vancouver and Victoria which resulted in fuel shortages and frozen water supplies. Temperatures as low as -16°C at Vancouver were followed by 44.5 cm of snow on the 20th. Many roads were impassable for days. A mild spell and rain followed causing the Forum and other roofs to collapse in Vancouver. Weatherwise, the winter of 1934-35 was one of the worst on record throughout southern British Columbia, and especially at Vancouver and Victoria.

January 23, 1935 The lowest temperature ever officially reported from any station in eastern Canada, -58.3°C, occurred at Iroquois Falls, Ont.

climb above freezing in many locations. January 21 was particularly cold; Windsor set an all-time record minimum of -27.2°, erasing the old record of -26.1° set in 1982. Several other locations established record-low temperatures as the mercury plunged to near -32°. A stagnant high pressure cell over the southern region created a temperature inversion over the City of Toronto. The inversion trapped the pollution and contributed to the third highest pollution index ever. Some industries were asked to curtail emissions until the conditions improved by mid-week. Wiarton received the heaviest snowfall of nearly 50 cm, while other locations had light falls.

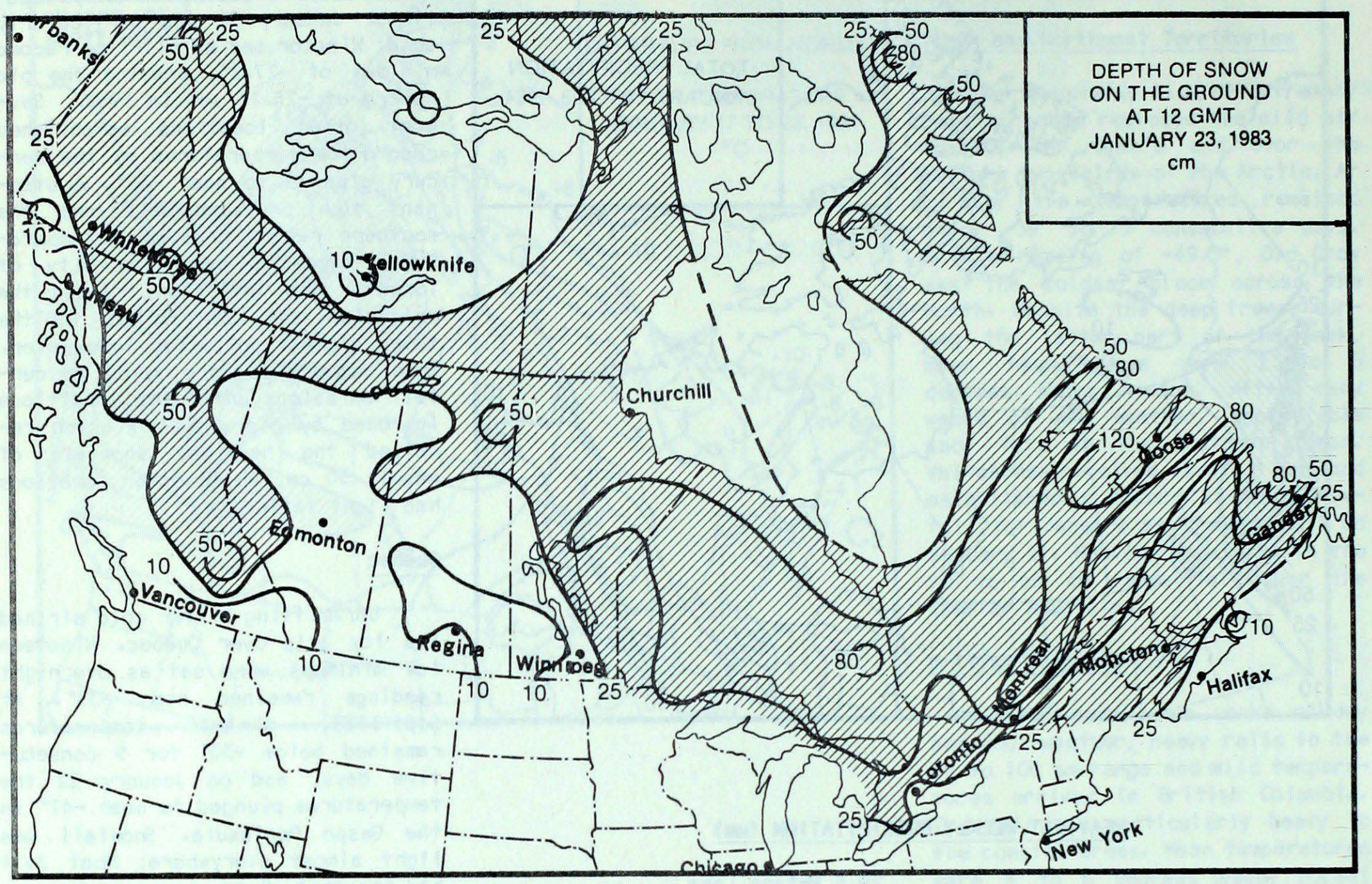
Québec

Unremitting bitter cold air had its icy grip over Québec. Nineteen low minimums were set as overnight readings remained near -35°. At Sept-Iles, minimum temperatures remained below -30° for 5 consecutive days, and on January 22 the temperatures plunged to near -42° in the Gaspe Peninsula. Snowfall was light almost everywhere; Mont Joli had the most, 8 cm.

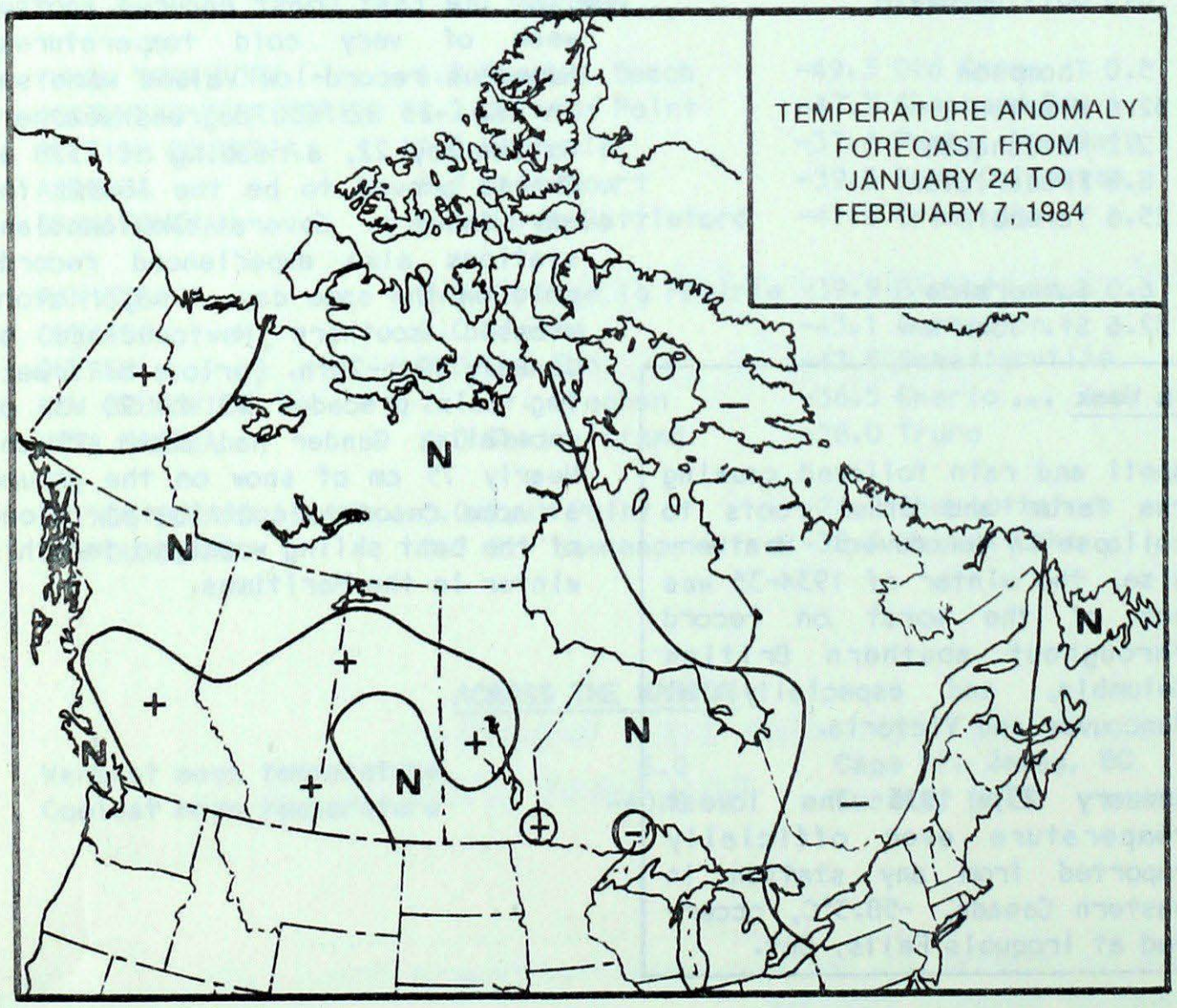
Atlantic Provinces

The East Coast endured another week of very cold temperatures. Numerous record-low values were set in the -25 to -30 degrees weather. On January 22, a reading of -37° at Charlo proved to be the lowest for any January. Several Newfoundland stations also experienced record-cold on the same day. A major storm crossed southern Newfoundland on January 19th-20th. Periods of freezing rain preceded 15 to 25 cm of snowfalls; Gander had about 25 cm. Nearly 75 cm of snow on the ground at some resorrts contributed to one of the best skiing weeks so far this winter in the Maritimes.

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**

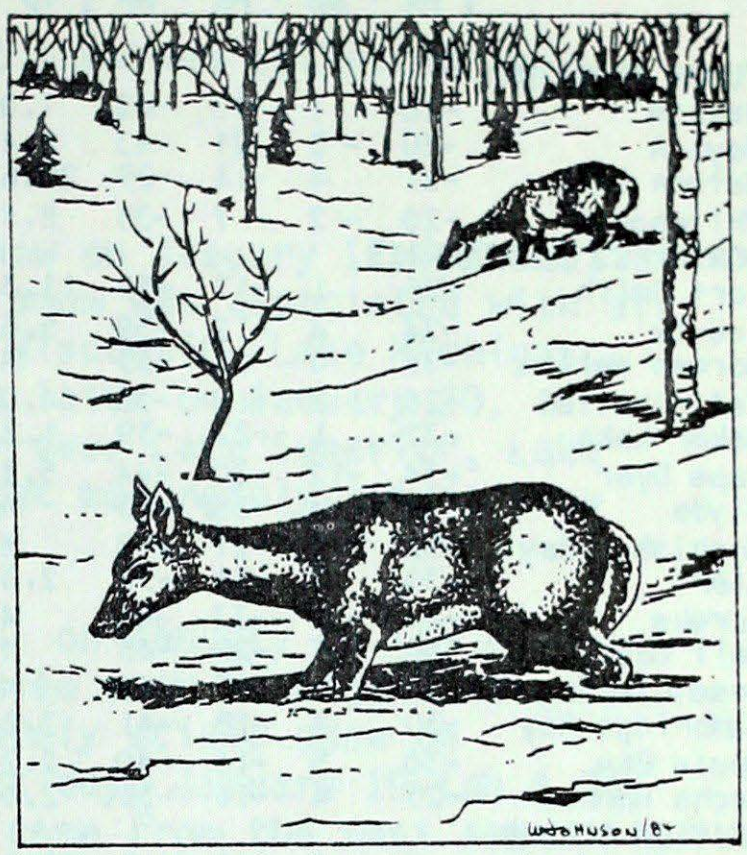
N **normal**

\- **below normal**

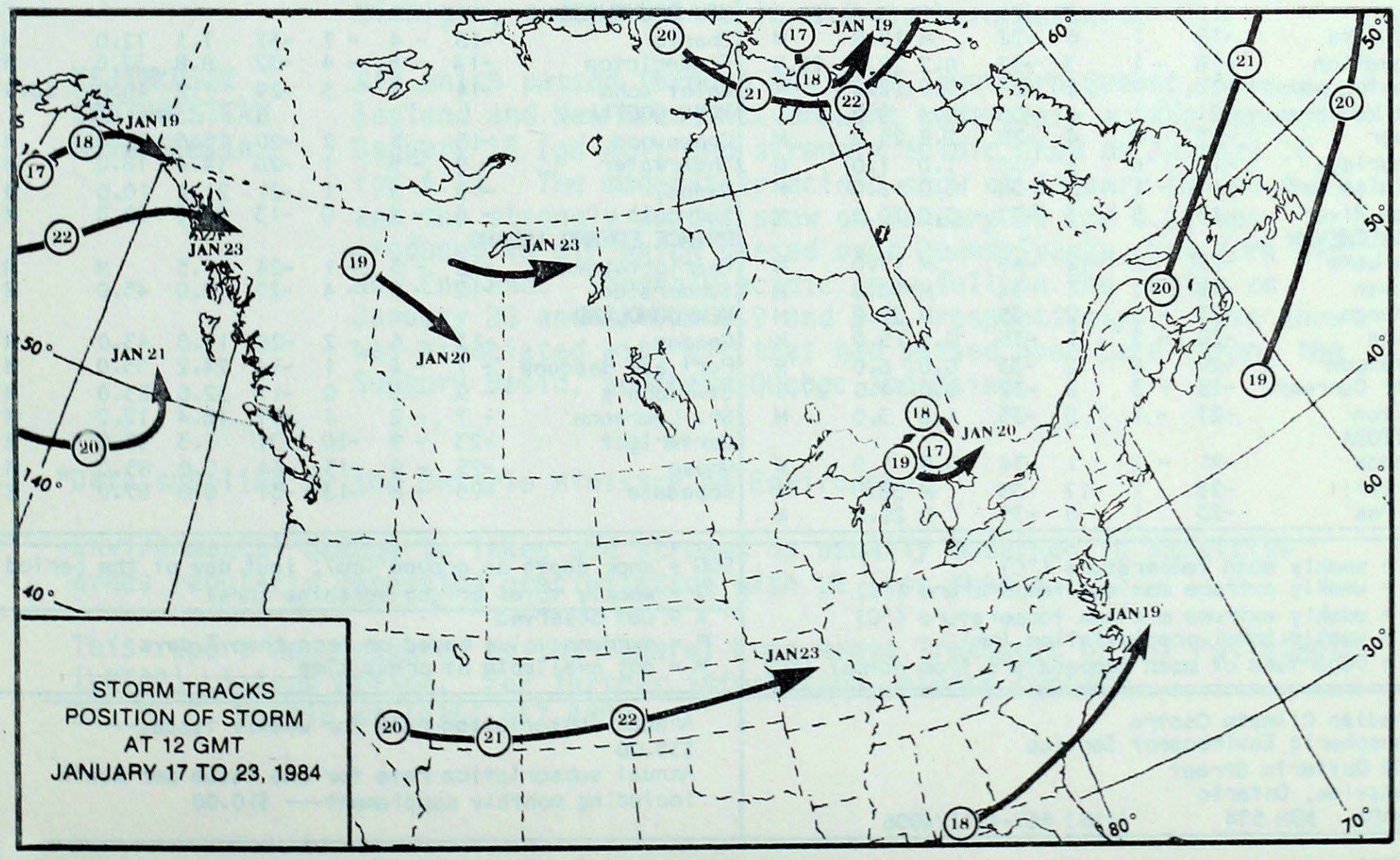
-- **much below normal**

HEAVY SNOWFALLS POSE DANGER TO ONTARIO'S DEER POPULATION

Heavy snowfalls and severe winter temperatures are threatening the survival of Ontario's deer population. In Ontario some 160,000 deer are at their northern most limits of survival. During winter, snow cover and cold temperatures hinder their movements. They lose energy but replenish it with the first flush of spring green. According to Douglas Hagan of Ontario's Ministry of Natural Resources: "This winter the problem is particularly severe. Deep snow cover in the 70 to 100 cm range in the Bruce Peninsula and bitterly cold temperatures have severely restricted the herd's mobility. When the snow cover is higher than one metre, deer cannot get at their food; very cold temperatures just accelerates the energy loss from their bodies. There is a potential that a large number of deer may starve to death this winter". During the harsh winter of 1965-66, about half of the herd in Northwestern Ontario died from starvation. But there is hope. The Ministry has introduced supplementary feeding programs and has created some sheltered areas where deer can live during the winter months.



STORM TRACKS



TEMPERATURE, PRECIPITATION AND BRIGHT SUNSHINE DATA FOR THE WEEK ENDING 0600 GMT JANUARY 24, 1984

STATION	TEMP				PRECIP		SUN
	Av	Dp	Mx	Mn	Tp	SOG	H
YUKON TERRITORY							
Dawson	-26	1	-13	-42	1.0	40.0	M
Mayo A	-30	- 5	-21	-43	2.4	44.0	M
Watson Lake	-21	4	-14	-29	29.6	51.0	0.1
Whitehorse	-20	- 2	- 7	-35	8.4	30.0	5.7
NORTHWEST TERRITORIES							
Fort Smith	-26	1	-17	-39	11.3	27.0	4.7
Inuvik	-24	4	-12	-39	5.6	69.0	M
Norman Wells	-25	4	-13	-35	M	12.0	M
Yellowknife	-26	2	-18	-36	4.0	8.0	9.3
Baker Lake	-32	1	-22	-39	1.2	30.0	M
Cape Dyer	-34	-12	-20	-44	5.2	45.0	M
Clyde	M	M	-26P	-43	M	80.0	M
Frobisher Bay	-32	- 5	-21	-42	M	29.0	M
Alert	-30	2	-24	-38	2.0	22.0	M
Eureka	-41	- 3	-33	-46	M	20.0	M
Hall Beach	-36	- 7	-25	-45	M	23.0	M
Resolute	-33	0	-26	-40	M	25.0	M
Cambridge Bay	-30	4	-18	-41	3.2	24.0	0.0
Mould Bay	-30	5	-16	-40	2.2	26.0	M
Sachs Harbour	-25	4	-14	-35	2.4	19.0	M
BRITISH COLUMBIA							
Cape St. James	6	2	8	3	45.2	M	M
Cranbrook	-13	- 7	2	-25	2.3	9.0	M
Fort Nelson	-20	3	-14	-28	7.1	26.0	9.1
Fort St. John	-12	5	6	-22	3.8	11.0	M
Kamloops	-10	- 3	0	-19	M	19.0	M
Penticton	- 6	- 3	6	-13	2.4	0.0	9.6
Port Hardy	2	0	8	- 4	68.2	M	M
Prince George	-11	2	6	-24	M	29.0	M
Prince Rupert	2	2	9	- 7	63.8	M	M
Revelstoke	- 9	- 5	2	-16	44.0	72.0	M
Smithers	- 9	3	7	-23	3.0	9.0	M
Vancouver	1	- 1	9	- 7	62.4	M	M
Victoria	2	- 1	11	- 7	18.4	M	M
Williams Lake	-13	- 2	4	-28	6.7	49.0	12.7
ALBERTA							
Calgary	-10	2	7	-25	1.0	3.0	26.3
Cold Lake	-18	1	6	-32	M	18.0	M
Coronation	-18	- 1	3	-33	0.2	22.0	28.5
Edmonton Namao	-12	4	6	-27	0.9	12.0	M
Fort McMurray	-21	1	1	-33	9.4	9.0	18.0
Jasper	-13	0	4	-29	2.8	25.0	M
Lethbridge	-10	0	5	-30	1.0	1.0	M
Medicine Hat	-14	- 1	5	-30	0.0	12.0	M
Peace River	-15	5	6	-27	3.2	10.0	M
SASKATCHEWAN							
Cree Lake	-25	X	-12	-41	M	15.0	M
Estevan	-18	- 1	1	-34	M	10.0	M
La Ronge	-22	- 3	2	-35	M	22.0	M
Regina	-20	- 2	1	-35	0.6	15.0	M
Saskatoon	-20	0	2	-33	0.0	6.0	M
Swift Current	-18	- 3	2	-32	0.0	14.0	27.8
Yorkton	-21	- 1	0	-35	1.0	3.0	M
MANITOBA							
Brandon	-21	- 2	1	-34	0.0	1.0	M
Churchill	-28	1	-17	-35	M	38.0	M
The Pas	-23	1	0	-35	M	20.0	M
Thompson	-27	- 4	- 9	-39	5.0	34.0	M
Winnipeg	M	M	- 6	-33P	M	M	M
ONTARIO							
Big Trout Lake	-28	- 3	- 5	-39	1.3	75.0	M
Earlton	-21	- 5	- 4	-38	M	59.0	M
Kapuskasing	-25	- 6	- 4	-37	M	50.0	M
Kenora	-24	- 5	- 6	-38	4.1	43.0	M
London	-14	- 8	- 1	-26	7.5	23.0	M
Moosonee	-27	- 6	- 3	-40	0.4	27.0	M
Muskoka	-14	- 4	- 3	-33	M	72.0	M
North Bay	-17	- 4	- 5	-31	5.8	58.0	M
Ottawa	-15	- 4	- 4	-29	4.4	49.0	M
Pickle Lake	-28	- 6	- 7	-41	M	66.0	M
Red Lake	-25	- 5	- 6	-38	2.2	44.0	M
Sudbury	-17	- 4	- 4	-31	5.4	48.0	M
Thunder Bay	-24	- 8	- 2	-35	3.8	28.0	M
Timmins	-23	- 6	- 4	-36	M	98.0	M
Toronto	-13	- 7	- 1	-25	0.2	9.0	M
Trenton	-11	- 4	- 1	-27	6.1	28.0	M
Wiarton	-11	- 5	- 2	-22	32.6	78.0	M
Windsor	-13	- 9	0	-27	2.2	14.0	M
QUEBEC							
Bagotville	-21	- 5	- 9	-38	2.6	52.0	M
Blanc-Sablon	-20	- 8	- 4	-32	4.0	34.0	M
Inukjuak	-29	- 3	-22	-38	1.8	19.0	12.5
Kuujjuaq	-30	- 5	-16	-38	0.2	32.0	M
Kuujjuarapik	-29	- 5	-12	-41	M	18.0	M
Maniwaki	-18	- 5	- 6	-38	6.0	49.0	M
Mont-Joli	-14	- 3	- 8	-31	8.2	41.0	M
Montréal	-14	- 5	- 5	-26	3.8	20.0	M
Natashquan	-21	- 9	- 4	-39	12.2	49.0	M
Nitchequon	-30	- 6	-16	-39	M	40.0	M
Québec	-17	- 5	- 8	-31	6.0	87.0	M
Schefferville	-30	- 7	-17	-43	M	54.0	M
Sept-Iles	-23	- 8	-12	-38	5.2	68.0	M
Sherbrooke	-15	- 5	- 1	-34	6.4	41.0	M
Val-d'Or	-23	- 6	- 6	-41	2.4	66.0	M
NEW BRUNSWICK							
Charlo	-18	- 4	- 7	-37	7.3	72.0	M
Fredericton	-14	- 6	- 4	-32	8.8	37.0	M
Saint John	-14	- 7	- 3	-29	7.2	40.0	30.9
NOVA SCOTIA							
Greenwood	-10	- 5	- 2	-20	15.6	28.0	M
Shearwater	- 9	- 5	1	-20	14.4	18.0	M
Sydney	- 9	- 5	1	-21	21.2	10.0	M
Yarmouth	- 6	- 4	0	-13	25.6	22.0	M
PRINCE EDWARD ISLAND							
Charlottetown	-12	- 5	- 1	-24	7.5	M	M
Summerside	-12	- 5	- 4	-23	16.0	45.0	M
NEWFOUNDLAND							
Gander	-13	- 6	- 2	-20	15.8	43.0	M
Port aux Basques	- 7	- 4	1	-14	24.2	35.0	M
St. John's	- 9	- 5	0	-17	32.6	23.0	M
St. Lawrence	- 7	- 2	1	-17	18.4	12.0	M
Cartwright	-23	- 9	-10	-31	1.3	95.0	M
Goose	-25	- 9	-13	-34	0.0	85.0	M
Hopedale	-25	- 8	-13	-31	0.0	87.0	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

Canadian Climate Centre
Atmospheric Environment Service
4905 Dufferin Street
Downsview, Ontario
CANADA M3H 5T4 (416) 667-4711/4906

Annual subscription rate for weekly issues--- $35.00
Annual subscription rate for one issue per month including monthly supplement--- $10.00

EDITOR: A. Shabbar

STAFF WRITER: A. Radomski

Subscription enquiries: Supply and Services Canada, Publishing Centre, Ottawa, Ontario, Canada, K1A 0S9

ACID RAIN REPORT ISSUED BY ENVIRONMENT CANADA FOR JANUARY 15-21, 1984

LONGWOODS NEAR LONDON ONTARIO

No report this week. Insufficient snow was collected to permit analysis.

DORSET* MUSKOKA ONTARIO

Dorset received strongly acidic snow on January 17 (pH 4.0) and on January 18 (pH 4.1). This snow was associated with air that had moved from the west over Wisconsin, Lake Michigan, Michigan and Lake Huron. Two days later on January 20, air which had a more northerly pathway over Lake Superior, Lake Huron and the Sudbury basin, brought moderately acidic snow (pH 4.4) to the region.

CHALK RIVER OTTAWA VALLEY ONTARIO

The strongly acidic snow which fell on January 16 (pH 4.1) was produced in air which had passsed over Michigan and Lake Huron. The region received moderately acidic snow on January 18 (pH 4.5) and on the next day, January 19 (pH 4.3). The air associated with this snow came from the west over northern Wisconsin, Lake Michigan, Michigan, Lake Huron and the Sudbury basin. Air which came from the west and passed over Lake Superior and the Sudbury basin brought strongly acidic snow to the region on January 20 (pH 3.9).

MONTMORENCY QUEBEC CITY QUEBEC

The region received strongly acidic snow on three consecutive days last week: January 17 (pH 4.0), January 18 (pH 3.8), January 19 (pH 4.2). The snow on January 17 and 18 was associated with air which had passed over Wisconsin, Michigan, the Sudbury basin and southwestern Quebec. The snow on January 19 was produced in air which passed through southern Michigan, southern Ontario and southern Quebec.

KEJIMKUJIK SOUTHWESTERN NOVA SCOTIA

Air which passed through New York, southern Quebec, New England and New Brunswick brought moderately acidic snow on January 15 (pH 4.4) and strongly acidic snow on January 16 (pH 4.1). The moderately acidic snow on January 18 (pH 4.4) and the strongly acidic snow on January 19 (pH 4.2) was produced in air which passed over Pennsylvania, New York and New England. Strongly acidic snow fell in the region on January 20 and 21 (pH 3.9 and 3.8, respectively). This snow was associated with air that had passed over Lake Huron, the Sudbury Basin, southern Quebec and Maine.

*Data 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.

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.