Climatic Perspectives

A WEEKLY REVIEW OF CANADIAN CLIMATE

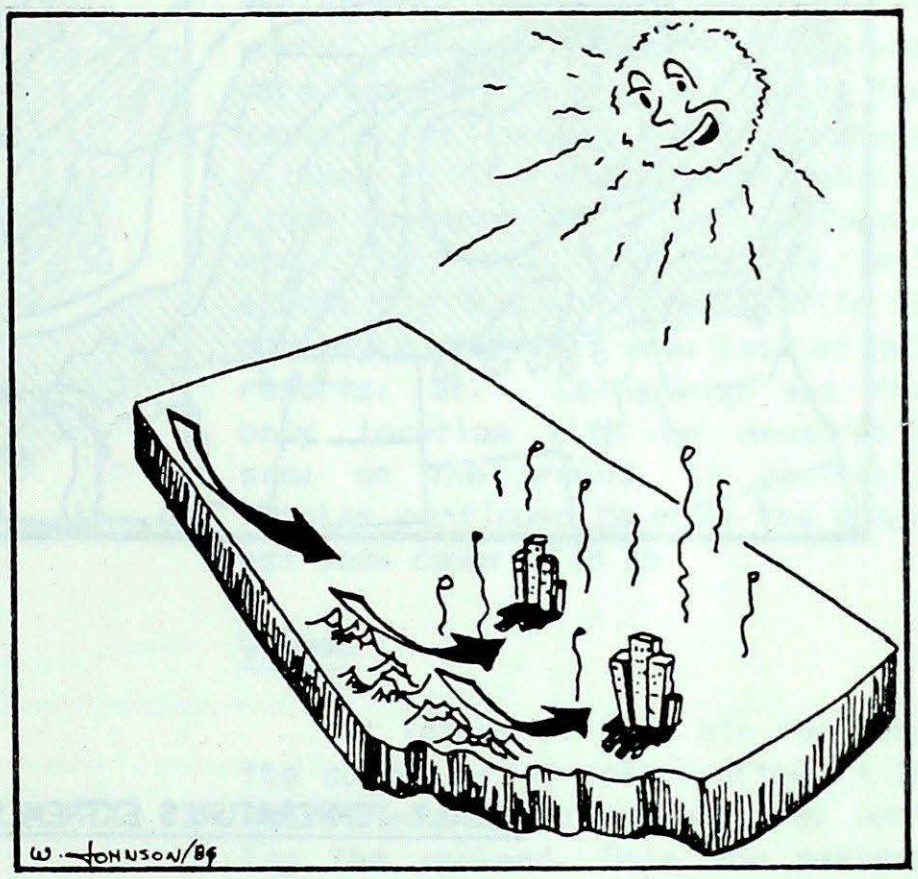
FEBRUARY 10,1984 (Aussi disponible en français) VOL.6NO.5

FOR THE PERIOD JANUARY 31 TO FEBRUARY 6, 1984

Chinook winds produce unusual warmth in Alberta

.....more of the same for next 2 weeks page 4

Chinook winds continued to bring very mild weather into Alberta. In the southwestern regions, the temperatures soared into the record mid to high teens and left most of the extreme southern locations free of snow. But skiing at higher elevations was described as excellent. At Lethbridge, the temperatures rose to 18° on February 5, just one degree shy of the all-time high. Strong winds gusting near 100 km/h accompanied the warmth and created soil erosion problems in some agricultural areas. Statistically, chinook winds occur with moderate frequency in southwestern Alberta (1 in 3 days) and ranchers depend upon it to remove the snow so that cattle may find feed throughout the winter. (more on the chinook winds in next monthly supplement)

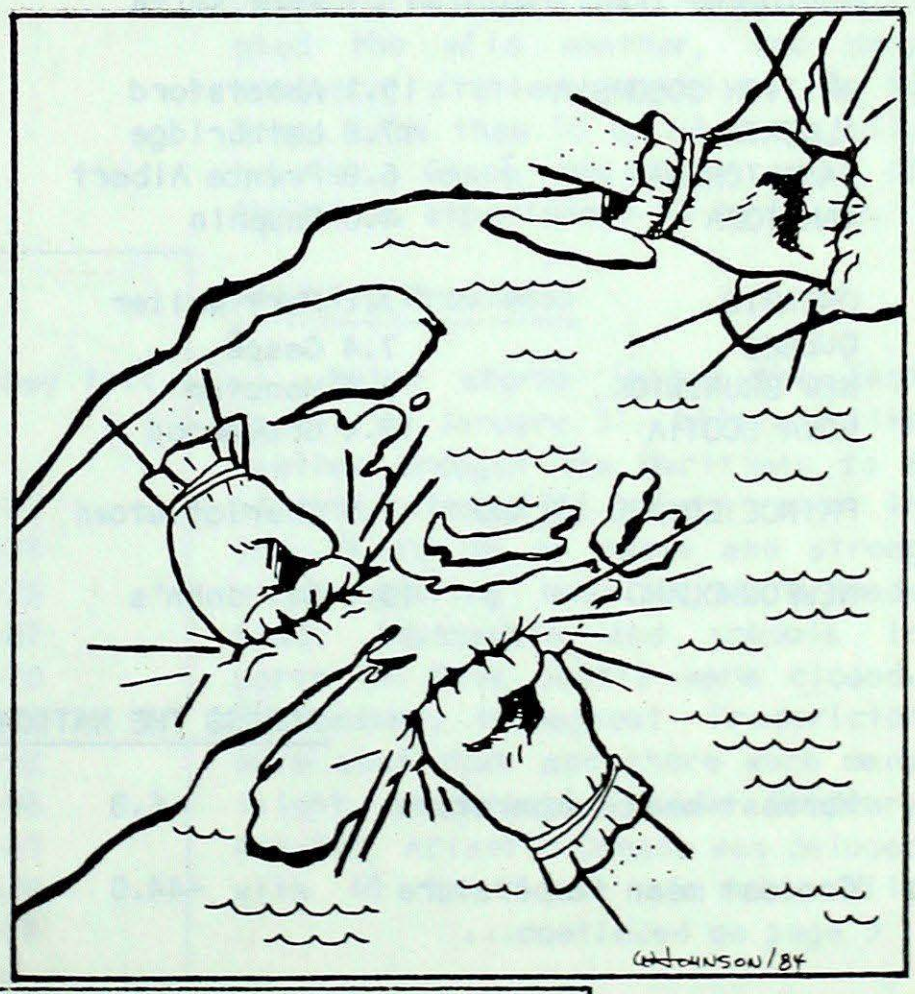


Atlantic Canada hit by major winter storms

.....blizzard like weather in the Maritimes

.....extensive flooding near Truro

Major winter storms battered the East Coast. Heavy snow accompanied by gale-force winds gusting near 95 km/h resulted in blizzard like weather in Nova Scotia and parts of New Brunswick. Over the weekend, moisture bearing storm dumped 40 to 65 mm of rain on the East Coast causing extensive flooding near Truro. Families had to be evacuated from their water logged homes.



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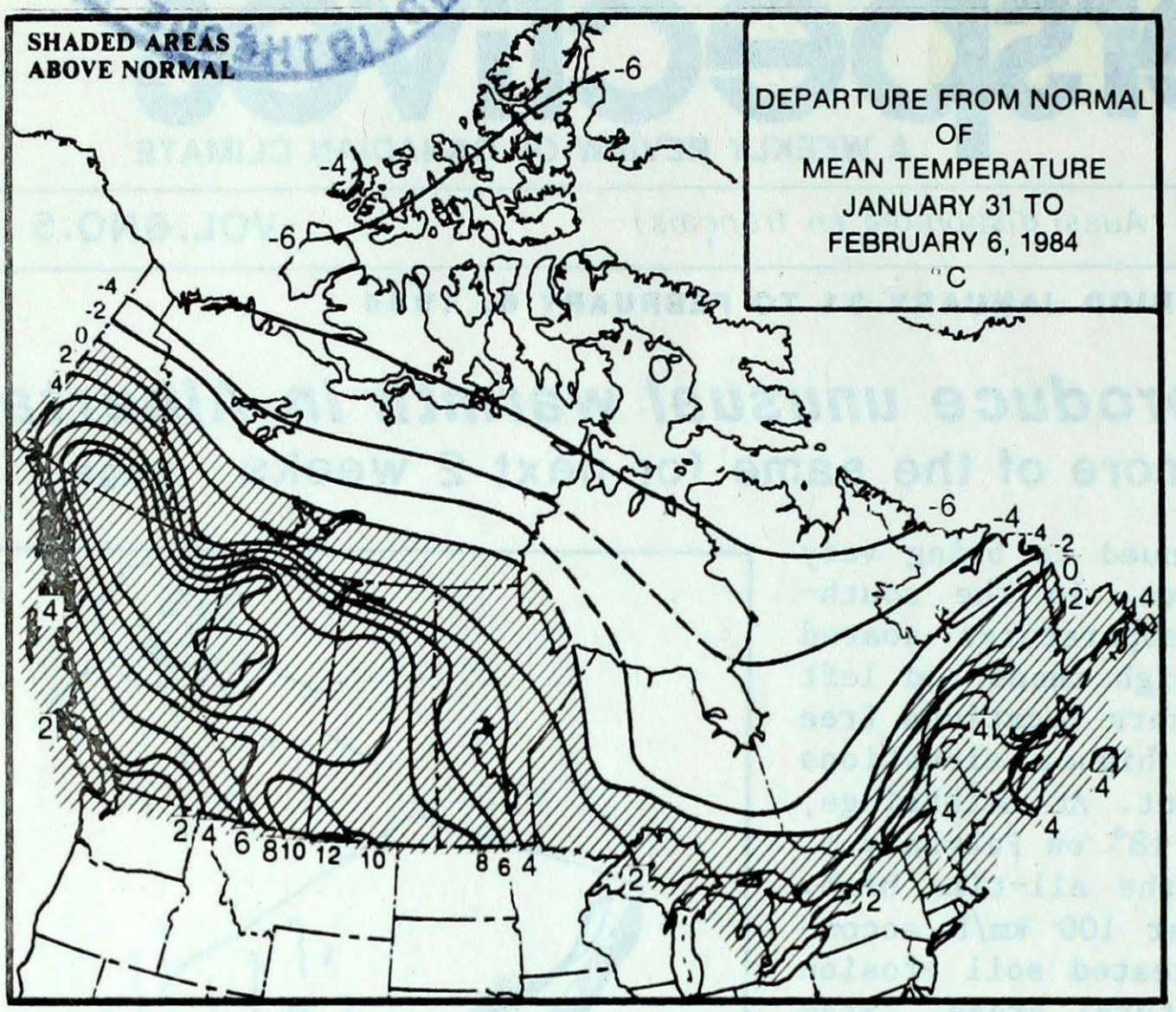
NOTE: The data shown in this publication are based on unverified reports from approximately 225 Canadian synoptic stations.

Canada



WEEKLY TEMPERATURES EXTREMES (°C)

	MAXIMUM		MINIMUM	
YUKON TERRITORY	8.0	Ross River	-53.0	Ogilvie
NORTHWEST TERRITORIES	-11.7	Fort Smith	-49.4	Shepherd Bay
BRITISH COLUMBIA	15.1	Abbotsford	-26.0	Fort Nelson
ALBERTA	17.8	Lethbridge	-36.0	Fort Chipewyan
SASKATCHEWAN	6.8	Prince Albert	-36.8	Uranium City
MANITOBA	4.0	Dauphin	-41.8	Thompson
ONTARIO	7.1	Port Weller	-41.2	Geraldton
QUEBEC	7.4	Gaspé	-42.6	Kuujjuarapik
NEW BRUNSWICK	8.4	Moncton	-27.0	Charlo
NOVA SCOTIA	12.4	Greenwood	-19.8	Amherst
PRINCE EDWARD ISLAND	7.5	Charlottetown	-17.8	Charlottetown Summerside
NEWFOUNDLAND	15.6	St. John's	-36.7	Churchill Falls

ACROSS THE NATION

Warmest mean temperature	6.8	McInnes Island BC
Coolest mean temperature	-44.0	Eureka, NWT

ACROSS THE COUNTRY...

Yukon and Northwest Territories

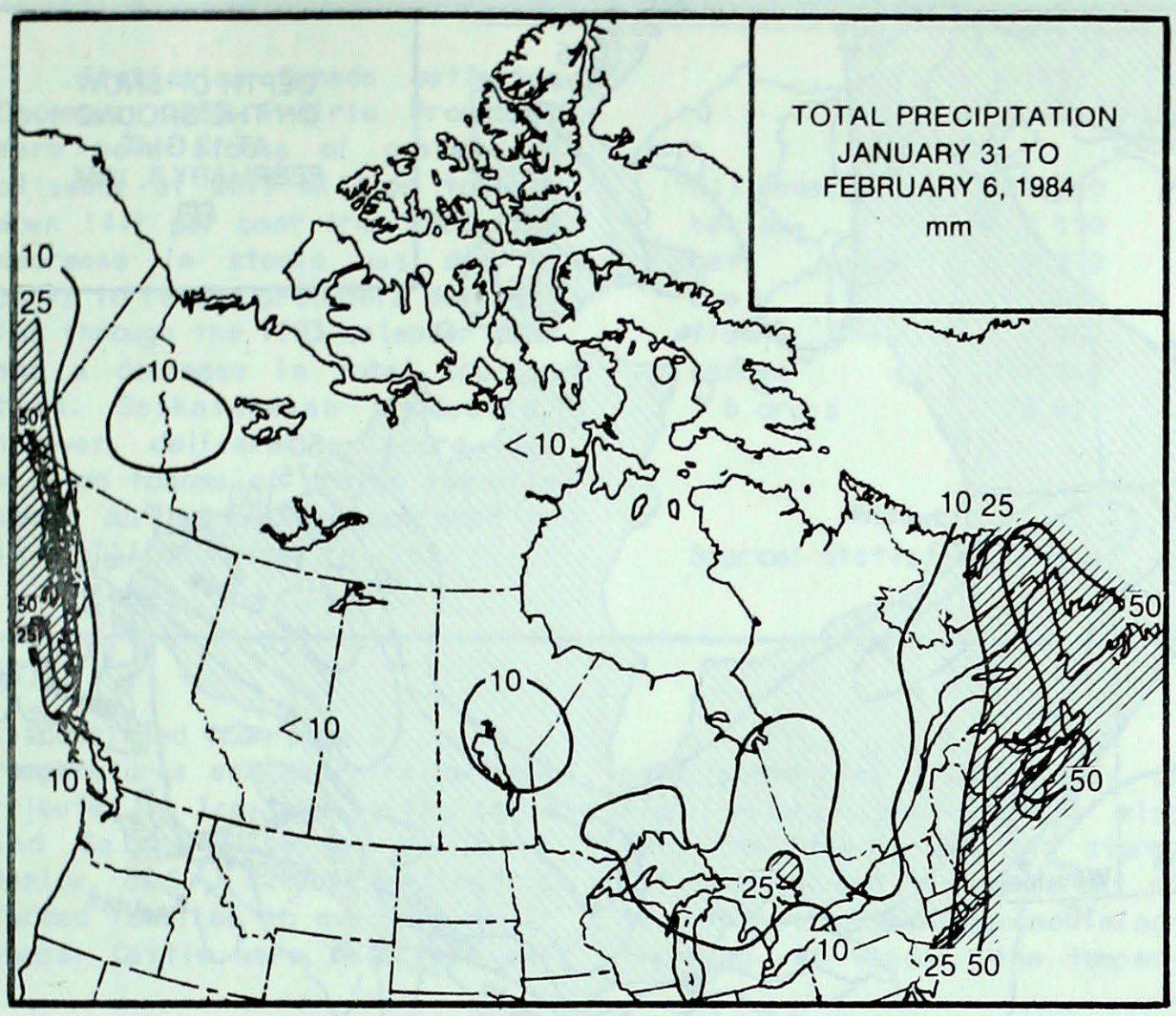
Record-high temperatures in the South and record-low values in the North exemplified the extremes in the weather across the Yukon. On February 3, the temperatures dropped to -53° at Ogilvie - just 2° off the monthly record. In contrast, the mercury climbed to 8° at Ross River on February 4, which was also the Canadian warm spot for that day. Mean temperatures ranged from nearly 10° above normal in the southern Yukon to about 14° below normal in the eastern Arctic. Once again this week, precipitation was light across the North, but Haines Junction had 36 cm of snow on February 3. Strong winds and low temperatures created extreme wind chill values in the northern Yukon, hampering transportation on the Dempster Highway between Dawson and Inuvik. Owing to the blowing snow, the Alaska Highway was closed for 36 hours. Avalanches clogged the Nahanni Highway near Tungsten and destroyed a vacant house.

British Columbia

It was a relatively pleasant and mild week. A large high pressure area kept precipitation amounts to a minimum, especially in the interior, where many communities had no measurable precipitation. Low clouds and fog plagued many inland valleys, but frequently burned off by afternoon. Skiing conditions continued to deteriorate along the coast, but interior resorts boast an excellent snow base.

Prairies

Under predominantly sunny skies in the west, a southerly flow kept temperatures above normal. In Alberta several long standing maximum temperature records were broken. On February 5, Lethbridge and Calgary reached 18 and 17 degrees, respectively. In the eastern half of the Prairies mild temperatures gave way to a much colder weather regime by the weekend, when cold Arctic air spilled southeastwards. By week's end the temperatures plumetted to



HEAVIEST WEEKLY PRECIPITATION (mm)

YUKON	36.0	Haines Junction
NORTHWEST TERRITORIES	12.9	Norman Wells
BRITISH COLUMBIA	57.8	Prince Rupert
ALBERTA	7.2	Slave Lake
SASKATCHEWAN	6.3	Collins Bay
MANITOBA	15.4	Norway House
ONTARIO	28.4	Sudbury
QUEBEC	55.2	Blanc Sablon
NEW BRUNSWICK	75.9	Fredericton
NOVA SCOTIA	65.7	Sable Island
PRINCE EDWARD ISLAND	53.0	Charlottetown
NEWFOUNDLAND	89.6	Burgeo

Winters with most snowfall

Extreme seasonal snowfalls in cm and the year in which they fell at various locations across Canada:

St. John's	598.2	1881-82
Halifax	475.1	1970-71
Québec City	508.5	1875-76
Montréal	442.5	1886-87
Toronto	313.7	1869-70
Windsor	257.6	1872-73
Winnipeg	252.6	1955-56
Regina	194.4	1955-56
Edmonton	238.5	1906-07
Calgary	245.2	1947-48
Vancouver	208.5	1916-17

well below normal across most of Saskatchewan and Manitoba. In southern Manitoba near blizzard conditions were experienced on February 4. High winds, blowing snow and falling temperatures temporarily closed many highways, stranding many motorists. Skiing conditions in Banff and Jasper remain excellent at higher elevations.

Ontario

Cold weather prevailed during the first half of the week but the temperatures rose above freezing during the weekend almost everywhere. Several record-high values were set in the mild air mass; for example, at Toronto the temperature climbed to 6° - the highest reading since November 28. Over the weekend, light rain and drizzle fell across the South, but did little to reduce an excellent snow base at ski resorts. St. Catharines was the only location with no measurable snow on the ground. In contrast, Timmins continued to have the deepest snow cover, 118 cm

Québec

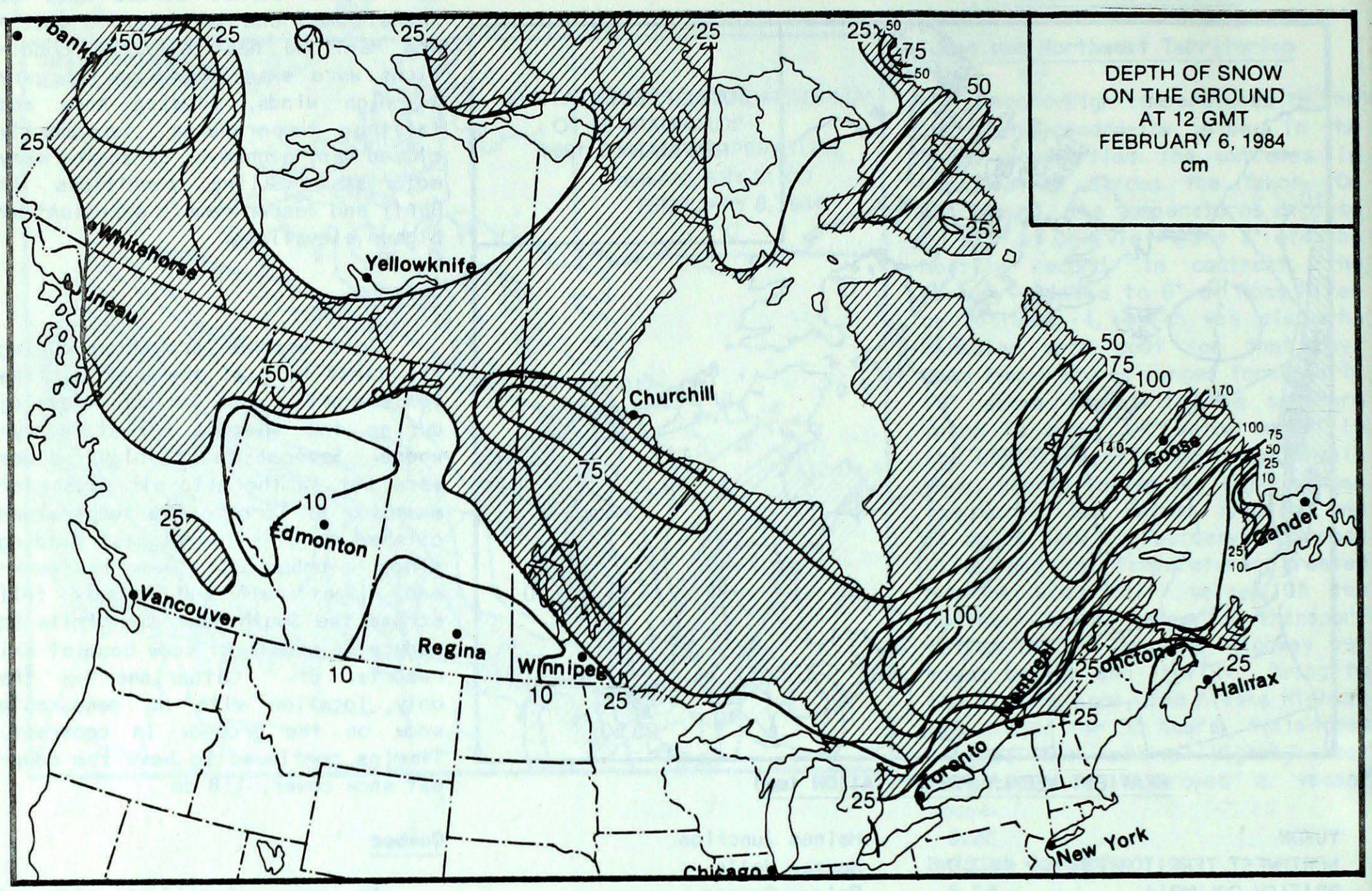
An influx of mild air replaced the colder brand and resulted in 16 daily record-high temperatures during the weekend. Only the extreme North remained very cold. Daytime temperatures in the 5 to 7 degree range were common along the St. Lawrence Valley. Light rain accompanied the mild weather, and many southern stations received 3 to 5 mm. Less than 10 cm of snow fell; however, Gaspé and areas east of Sept-Iles experienced 15 to 20 cm.

Atlantic Provinces

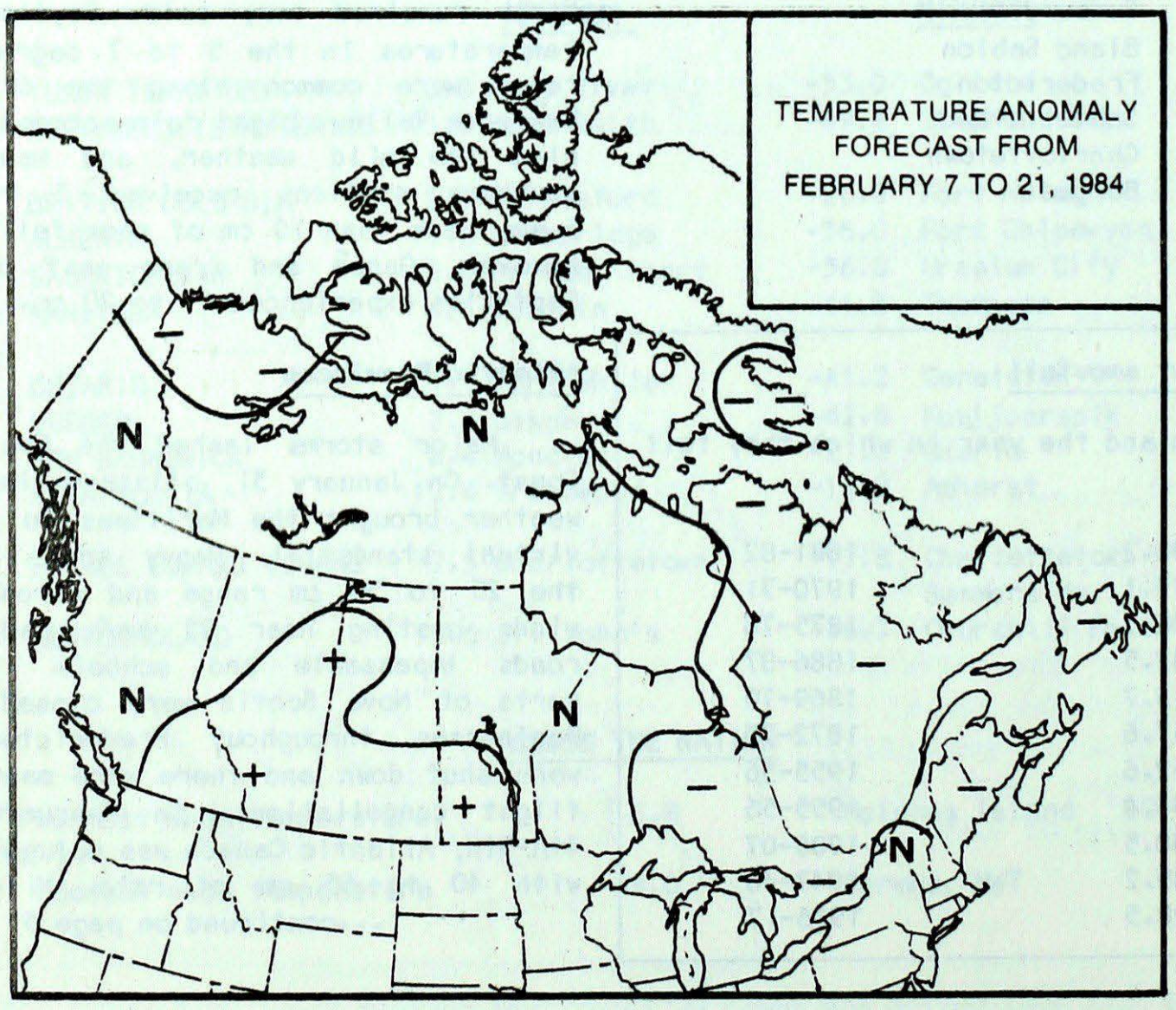
Major storms lashed the East Coast. On January 31, blizzard-like weather brought the Maritimes to a virtual standstill. Heavy snow in the 25 to 36 cm range and strong winds gusting near 95 km/h made roads impassable and schools in parts of Nova Scotia were closed. Businesses throughout Fredericton were shut down and there were many flight cancellations. On February 4th-5th, Atlantic Canada was deluged with 40 to 65 mm of rain. Mild

...continued 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**

STOCKS OF CROPS ON THE PRAIRIES AT DECEMBER 31, 1983

Statistics Canada estimates December 1983 Prairie Provinces farm held stocks of grains and oilseeds at 28.9 million tonnes, down 14.1 per cent from 1982. The decrease in stocks was due in parts to record producers deliveries through the 1983 calendar year and a decrease in total production. Saskatchewan producers, however, delivered a record 18.7 million tonnes of grains and oilseeds during 1983 as compared to 16.6 million tonnes in 1982.

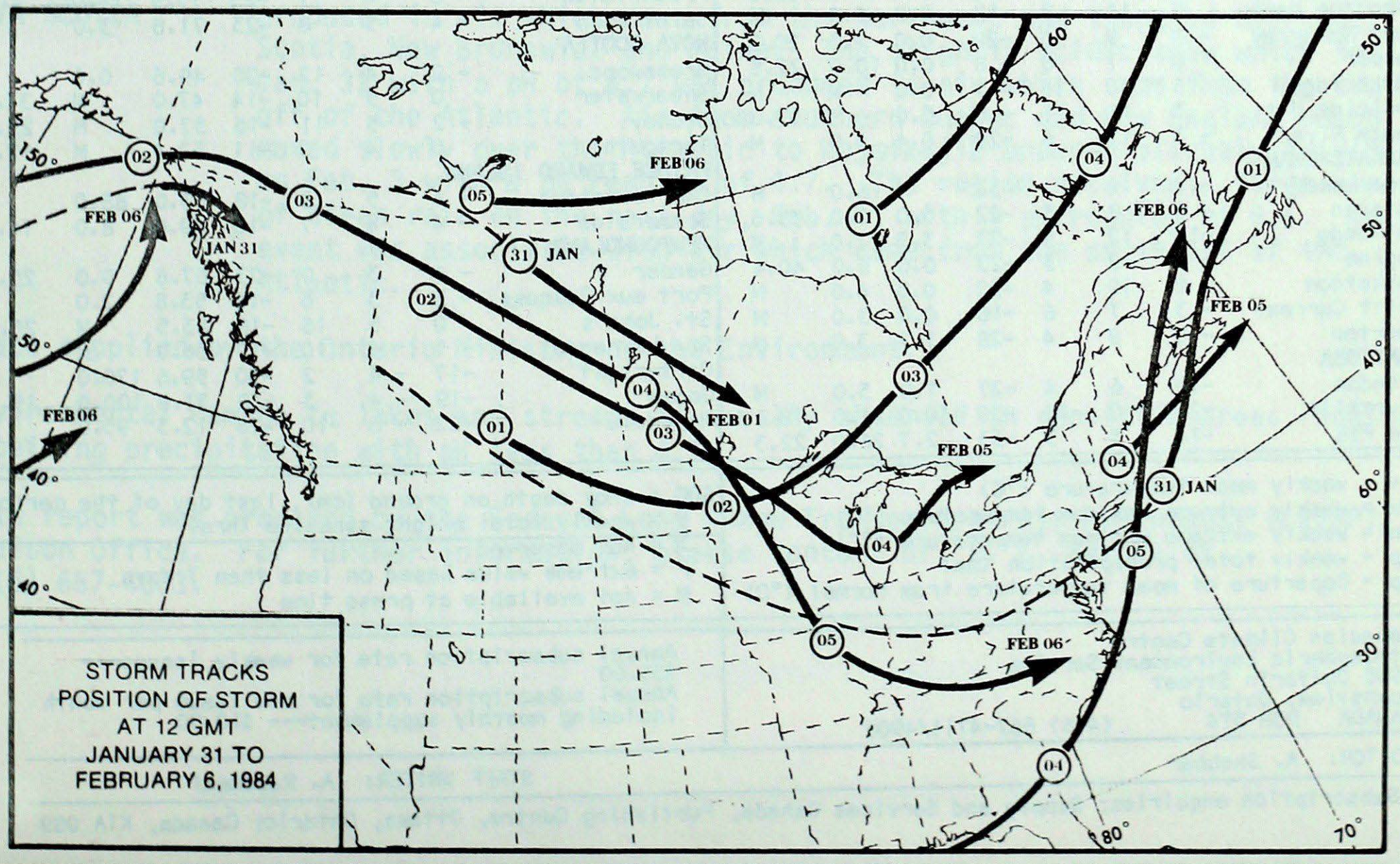
	1983	1982	%83/82
	000 tonnes		
all wheat	17 350	18 120	95.8
barley	7 550	10 700	70.6
oats	1 910	2 480	77.0
rye	565	620	91.1
flax	262	510	51.4
canola	1 290	1 230	104.9
* 6 crops	28 927	33 660	85.9

Source: Statistics Canada

...continued from page 3

temperatures and heavy rains contributed to ice jams on the North and Salmon Rivers. At Upper Onslow, N.S., extensive flooding forced families to evacuate their homes. Cattle were relocated and some properties floated away on high waters. Newfoundland also felt the effects of this storm. The central and eastern areas of the Province experienced minor flooding. At Gander, the temperature rose from -22.6° to 2.6° in 24 hours and at St. John's the mercury climbed to 16° setting a record high for February.

STORM TRACKS



TEMPERATURE, PRECIPITATION AND BRIGHT SUNSHINE DATA FOR THE WEEK ENDING 0600 GMT FEBRUARY 7, 1984

STATION	TEMP				PRECIP		SUN
	Av	Dp	Mx	Mn	Tp	SOG	H
YUKON TERRITORY							
Dawson	-25	2	-17	-40	8.3	51.0	M
Mayo A	-18	5	- 9	-29	12.9	52.0	M
Watson Lake	- 6	16	3	-18	7.5	46.0	9.2
Whitehorse	- 4	13	5	-17	5.2	25.0	15.0
NORTHWEST TERRITORIES							
Fort Smith	-22	2	-12	-36	M	40.0	M
Inuvik	-39	- 6	-28	-49	1.8	55.0	1.1
Norman Wells	-30	- 3	-24	-40	12.9	22.0	M
Yellowknife	M	M	-18	-37P	6.1	13.0	9.6
Baker Lake	-37	- 3	-26	-43	1.3	32.0	12.5
Cape Dyer	-38	-15	-28	-45	M	39.0	M
Clyde	M	M	-31P	-43	0.2	80.0	5.6
Frobisher Bay	-39	-11	-31	-43	0.4	24.0	M
Alert	-37	- 5	-33	-41	0.4	19.0	M
Eureka	-44	- 7	-38	-48	0.6	20.0	M
Hall Beach	-41	-10	-34	-45	0.0	23.0	M
Resolute	-41	- 7	-34	-45	M	25.0	M
Cambridge Bay	-40	- 5	-30	-47	0.8	25.0	0.0
Mould Bay	-39	- 4	-35	-45	M	25.0	M
Sachs Harbour	-39	- 6	-30	-45	0.0	19.0	M
BRITISH COLUMBIA							
Cape St. James	7	2	8	5	22.6	M	2.7
Cranbrook	- 2	6	5	-10	0.0	M	42.6
Fort Nelson	-17	3	- 7	-26	0.0	26.0	19.8
Fort St. John	0	14	8	-22	2.0	3.0	M
Kamloops	- 3	- 1	4	-11	0.0	10.0	17.7
Penticton	0	1	5	- 7	0.0	M	14.5
Port Hardy	6	2	11	- 1	13.1	M	M
Prince George	1	9	8	- 7	0.4	15.0	27.4
Prince Rupert	6	4	10	- 1	57.8	M	7.4
Revelstoke	- 2	3	4	-10	0.0	43.0	10.2
Smithers	1	8	8	- 6	1.8	0.0	17.6
Vancouver	4	0	11	- 1	1.4	M	16.0
Victoria	5	1	12	- 1	0.6	M	24.1
Williams Lake	1	4	8	- 7	0.0	29.0	34.5
ALBERTA							
Calgary	4	11	17	- 7	0.0	M	38.5
Cold Lake	- 3	11	6	-23	0.0	15.0	30.0
Coronation	- 5	9	5	-15	1.4	19.0	30.6
Edmonton Namao	0	11	8	-12	0.0	2.0	M
Fort McMurray	- 9	9	6	-29	0.0	7.0	20.2
Jasper	0	7	8	- 8	0.0	10.0	22.8
Lethbridge	5	10	18	- 7	0.0	M	M
Medicine Hat	3	11	11	- 6	0.0	M	37.0
Peace River	- 3	12	6	-20	0.4	3.0	M
SASKATCHEWAN							
Cree Lake	-14	X	1	-34	M	16.0	M
Estevan	- 6	8	5	-22	0.0	2.0	35.6
La Ronge	-10	12	5	-27	3.3	27.0	M
Regina	- 6	9	3	-23	0.0	5.0	40.4
Saskatoon	- 6	10	4	-22	0.0	4.0	M
Swift Current	- 3	7	6	-16	0.0	3.0	M
Yorkton	- 9	8	4	-28	1.2	3.0	M
MANITOBA							
Brandon	-10	6	4	-27	1.0	3.0	M
Churchill	-27	0	-15	-39	10.0	41.0	18.1
The Pas	-14	5	3	-33	2.7	26.0	22.3
Thompson	-24	2	- 8	-42	4.1	38.0	23.5
Winnipeg	-13	3	- 1	-30	1.4	10.0	23.1
ONTARIO							
Big Trout Lake	-24	- 2	-10	-39	4.7	76.0	M
Earlton	-15	0	2	-31	M	88.0	M
Kapuskasing	-19	- 2	- 1	-34	5.8	58.0	M
Kenora	-13	3	- 3	-29	4.6	36.0	M
London	- 6	1	7	-22	6.3	16.0	19.0
Moosonee	-21	- 2	- 6	-34	7.0	32.0	31.0
Muskoka	- 8	3	3	-32	M	57.0	M
North Bay	-12	1	0	-25	20.8	81.0	19.3
Ottawa	- 8	3	4	-22	6.2	M	23.3
Pickle Lake	-20	- 1	- 7	-35	5.0	68.0	M
Red Lake	-15	3	- 4	-32	7.2	53.0	10.3
Sudbury	-13	1	0	-25	28.4	81.0	16.2
Thunder Bay	-13	1	- 1	-30	8.3	40.0	16.6
Timmins	-19	- 3	1	-37	15.3	118.0	M
Toronto	- 6	1	6	-22	6.0	9.0	M
Trenton	- 6	2	4	-23	12.5	9.0	M
Wiarton	- 7	0	5	-23	24.2	47.0	17.4
Windsor	- 4	0	5	-16	8.7	5.0	M
QUEBEC							
Bagotville	-11	4	5	-30	2.7	56.0	M
Blanc-Sablon	-12	0	2	-30	55.2	66.0	14.5
Inukjuak	-31	- 5	-19	-39	5.8	32.0	32.1
Kuujjuaq	-31	- 6	-18	-40	2.2	36.0	24.5
Kuujjuarapik	-29	- 6	-14	-43	2.8	23.0	35.9
Maniwaki	-10	3	3	-31	2.2	46.0	22.9
Mont-Joli	- 8	3	6	-20	20.6	40.0	12.9
Montréal	- 7	3	5	-23	6.0	15.0	19.4
Natashquan	-11	1	1	-33	29.4	56.0	17.1
Nitchequon	-26	- 4	- 6	-38	1.6	35.0	34.2
Québec	- 8	5	4	-23	18.5	98.0	16.3
Schefferville	-28	- 6	-10	-40	4.0	68.0	35.5
Sept-Iles	-13	2	3	-27	17.4	64.0	18.0
Sherbrooke	- 9	2	6	-30	21.0	44.0	14.0
Val-d'Or	-16	0	1	-33	12.8	84.0	26.2
NEW BRUNSWICK							
Charlo	- 9	4	3	-27	37.0	85.0	16.3
Fredericton	- 6	4	7	-23	75.9	14.0	M
Saint John	- 4	5	8	-23	71.8	3.0	M
NOVA SCOTIA							
Greenwood	- 2	4	12	-20	49.6	0.0	M
Shearwater	0	5	10	-14	47.0	M	37.6
Sydney	- 2	5	11	-16	57.0	M	25.1
Yarmouth	0	4	9	-11	52.4	M	12.4
PRINCE EDWARD ISLAND							
Charlottetown	- 4	5	8	-18	53.0	88.0	M
Summerside	- 4	4	7	-18	49.6	8.0	16.5
NEWFOUNDLAND							
Gander	- 4	3	9	-23	67.6	9.0	25.8
Port aux Basques	- 2	3	6	-16	53.8	2.0	M
St. John's	0	5	16	-16	63.5	M	26.9
St. Lawrence	- 1	4	10	-17	56.0	M	M
Cartwright	-17	- 4	2	-30	59.6	170.0	M
Goose	-19	- 4	3	-30	31.8	100.0	19.8
Hopedale	-22	- 6	-10	-28	12.3	95.0	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 JAN. 29-FEB.4, 1984

LONGWOODS NEAR LONDON ONTARIO

The region received strongly acidic precipitation on three occasions last week. The snow which fell on Jan. 31 had a pH reading of 4.0 and was associated with air that came from the northwest across Michigan and the Detroit/Sarnia area. Air from the U.S. industrial midwest produced rain with pH of 3.8 on Feb. 1 and snow with pH of 3.7 on Feb. 3.

DORSET* MUSKOKA ONTARIO

The region received strongly acidic mixed snow and rain Feb. 2, 3 and 4 with pH readings of 3.8, 3.9 and 3.7, respectively. On all three days the precipiitation was associated with air from the U.S. industrial midwest.

CHALK RIVER OTTAWA VALLEY ONTARIO

On Jan. 29, the region received strongly acidic snow with a pH reading of 3.9. This event was associated with air that had moved from the northwest into southern Ontario, Pennsylvania, New York and back into southern Ontario. Air from the U.S. industrial midwest brought strongly acidic snow with a pH reading of 4.1 on Feb. 2 and moderately acidic snow with a pH reading of 4.3 on Feb. 3. The strongly acidic snow with a pH of 3.9 which fell on Feb. 4 was produced in air which had passed over Wisconsin, Michigan and Southern Ontario.

MONTMORENCY QUEBEC CITY QUEBEC

Montmorency received two strongly acidic snowfalls last week. The snow which fell on Jan. 29, with a pH reading of 3.9, was associated with air that had moved from the northwest into Maine and then swung north and passed over the Quebec City area. The snow on Feb. 2 had a pH reading of 4.1 and was produced in air which came from the west over the Rouyn/Noranda area.

KEJIMIKUJIK SOUTHWESTERN NOVA SCOTIA

The moderately acidic snow which fell on Jan. 29 with a pH of 4.4 and the strongly acidic snow which fell the next day, Jan. 30, with pH 4.2, was produced in air which came from the northwest and lingered over Nova Scotia, New Brunswick and Maine. The slightly acidic snow which fell Jan. 31 with a pH of 4.7 was produced in air which came from the south off of the Atlantic. Air from southern Quebec and New England which moved slowly over the Atlantic to Kejmikujik brought slightly acidic snow on Feb. 3 with a pH reading of 4.7. The region received a large amount of clean rain on the next day, Feb. 4, with a pH reading of 5.1. This event was associated with air which came from the south off of the Atlantic.

*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.