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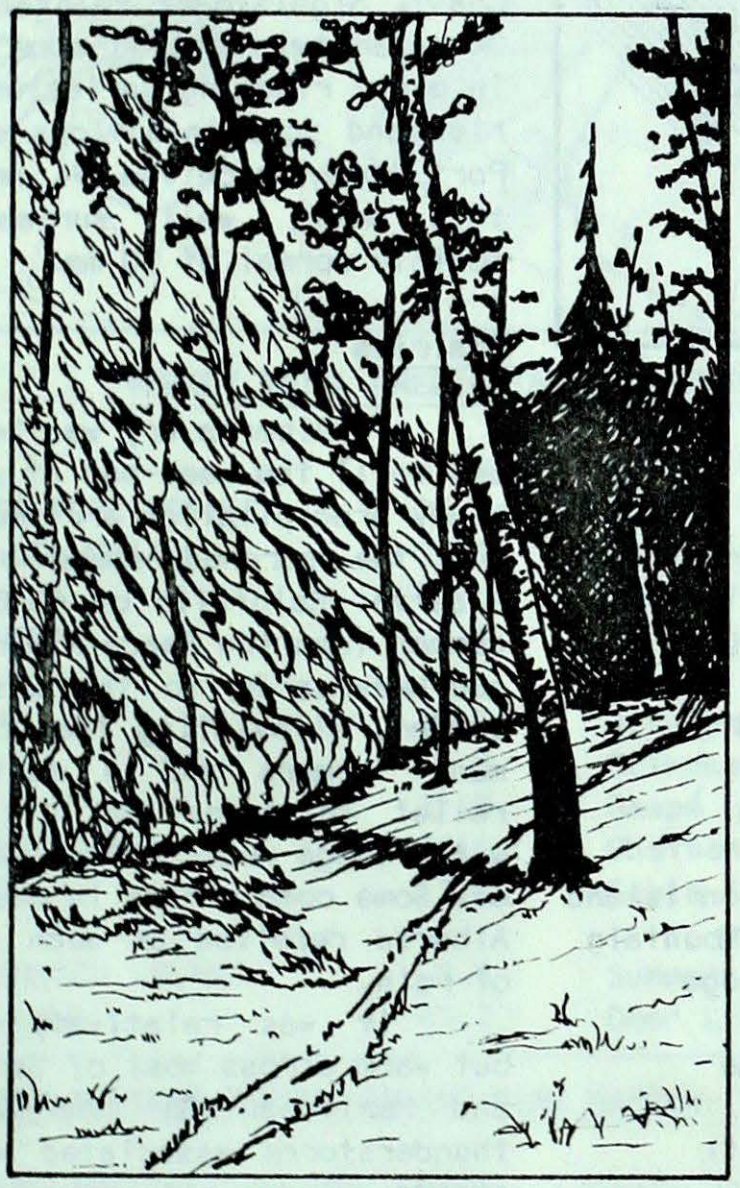
Climatic Perspectives

A WEEKLY REVIEW OF CANADIAN CLIMATE

JUNE 24,1983 | (Aussi disponible en français) | VOL.5 NO.25

FOR THE PERIOD JUNE 14-20, 1983

• Major forest fires burning out of control in Québec and Labrador



Lightning strikes in the hot and dry weather ignited major forest fires in east-central Québec and southern Labrador. In Québec, a record-breaking heat wave kindled over 100 new fires. Residents of Nemaska, 480 km northeast of Rouyn, had to be evacuated when the fire came within 2 km of their village. Three major forest fires were raging out of control between Churchill Falls and Labrador City. In contrast, the cool and showery weather helped control numerous forest fires in British Columbia, where the number of fires dropped from 227 to 136 in one week.

(Also see the discussion of the impact of the past winter on the forest fire climate/page 5).

• "Multi-million dollar" rain arrives on time in central Alberta

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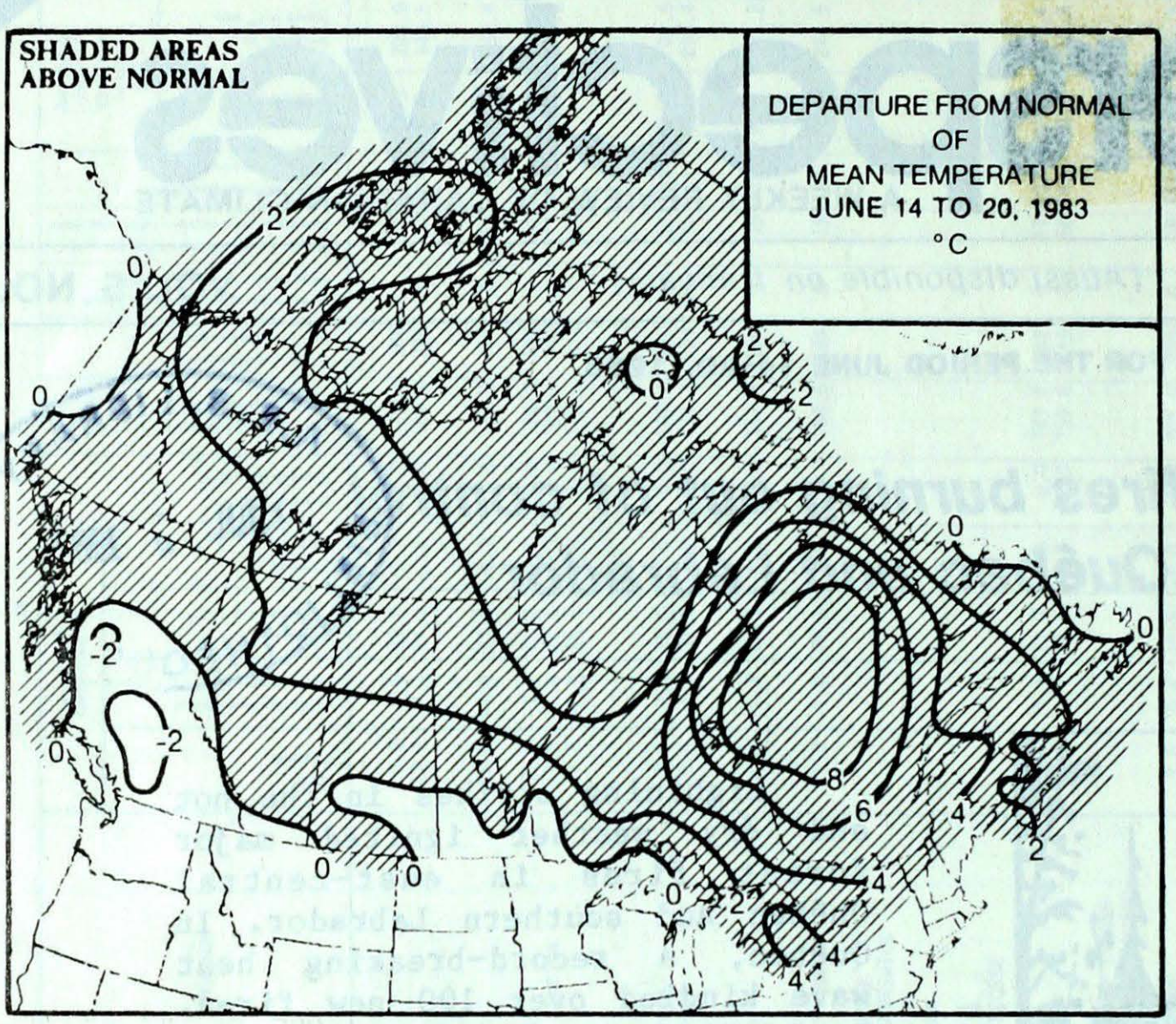
NOTE: The data shown in this publication are based on unverified reports from approximately 225 Canadian synoptic stations.

Canada



WEEKLY TEMPERATURES EXTREMES (°C)

	MAXIMUM		MINIMUM	
YUKON TERRITORY	25.0	Dawson Mayo	-1.7	Burwash
NORTHWEST TERRITORIES	29.5	Hay River	-5.8	Broughton Island
BRITISH COLUMBIA	28.4	Kamloops	-0.9	Puntzi Mountain
ALBERTA	29.3	Fort McMurray Lac La Biche	0.5	Lethbridge
SASKATCHEWAN	32.2	Uranium City	1.5	La Ronge
MANITOBA	30.9	Gillam	0.3	Churchill
ONTARIO	34.0	Moosonee	-7.5	Timmins
QUEBEC	34.7	La Grande Rivière	0.0	Blanc-Sablon
NEW BRUNSWICK	32.3	Chatham	8.9	Charlo
NOVA SCOTIA	28.1	Shelburne	2.4	Sydney
PRINCE EDWARD ISLAND	25.4	Charlottetown	6.7	East Point
NEWFOUNDLAND	33.3	Wabush Lake	-2.0	St Anthony

ACROSS THE NATION

Warmest mean temperature	23.2	Montréal, QUE
Coolest mean temperature	0.1	Alert, NWT

ACROSS THE COUNTRY...

Yukon and the Northwest Territories

Mean temperatures were uniformally above normal across the North, Hay River had the highest temperature, 30°. Precipitation was light almost everywhere; only central Yukon and northern Baffin Island received more than 25 mm of rain. The recent cool and damp weather has kept the forest fire danger at low levels in the Yukon.

British Columbia

Unsettled, showery weather prevailed in most areas as several disturbances approached the Pacific Coast. Significant rainfalls in the Okanagan have caused some splitting in early ripening varieties of cherries and scab infections on apples. Port Hardy received 94 mm of rain this week, well surpassing the monthly normal of 70 mm.

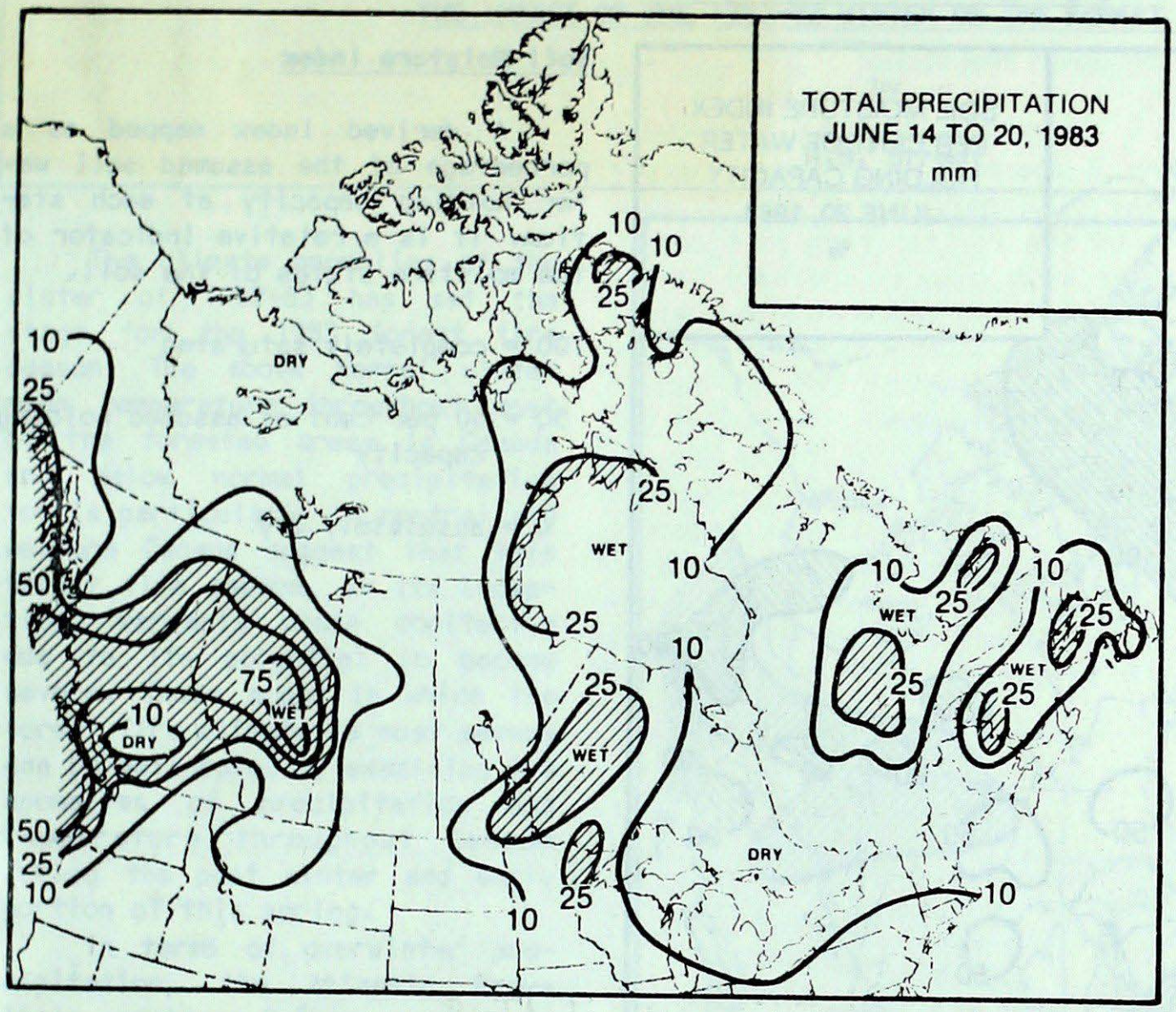
Prairies

In Alberta dry weather continued until the week-end at which time heavy precipitation arrived throughout the parched areas of central Alberta. Rainfalls of 60-80 mm were common from the Peace River District southeastwards to the Saskatchewan border, alleviating the concerns of many farmers and a most welcome relief in towns and cities where water usage restrictions were imposed. Some communities in east-central Alberta received as much as 130 mm of rain.

It was relatively unsettled but warm across most of Saskatchewan and Manitoba. On June 20, heavy thunderstorms associated with hail, strong winds and heavy downpours rolled across parts of southern Manitoba. In Winnipeg, 24.4 mm of rain fell in a 20-minute period. Several house-trailers were turned over and numerous roofs were blown off, including a church roof.

Ontario

Sultry, muggy weather continued. Between the 12th and 15th of June, most of the province experienced record high temperatures as



WEEKLY TOTAL PRECIPITATION EXTREMES (mm)

YUKON	31.0	Beaver Creek
NORTHWEST TERRITORIES	56.1	Rankin Inlet
BRITISH COLUMBIA	93.6	Port Hardy
ALBERTA	88.0	Coronation
SASKATCHEWAN	11.6	La Ronge
MANITOBA	35.5	Winnipeg
ONTARIO	42.8	Atikokan
QUEBEC	25.8	Gaspé
NEW BRUNSWICK	29.4	Chatham
NOVA SCOTIA	11.1	Sable Island
PRINCE EDWARD ISLAND	8.4	Summerside
NEWFOUNDLAND	49.7	Deer Lake

SHOWERY WEATHER LOWERS FOREST FIRE DANGER IN BRITISH COLUMBIA

The arrival of cool and damp weather considerably improved the forest fire situation in the Province. During the last week, the number of fires burning dropped from 227 to only 136. "This is the weather we needed after the earlier hot, dry period, when our resources were being taxed" commented a provincial Duty officer. Twenty-nine out of the 37 new fires last week were man-caused.

The clean up of the two largest fires this year (18,000 hectares south of Houston and 10,000 hectares south of Pink Mountain) continued. There were no campfire restrictions in the province. To date 775 fires have burned 78,900 hectares of timber compared with last year's figures of 773 fires and 6,680 hectares. Total costs for combating fires is $12 million compared with $7.8 million to date last year.

- Information provided by the Ministry of Forests, B.C.

the readings soared into the low thirties. At Moosonee, a daytime temperature of 34° even equalled the record high for the month. Precipitation was generally light across the south; however, local thunderstorms produced golf ball size hail at Sarnia and walnut size hail northwest of Toronto. In northwestern Ontario, rain in the 15-40 mm range considerably lessened the threat of serious forest fires.

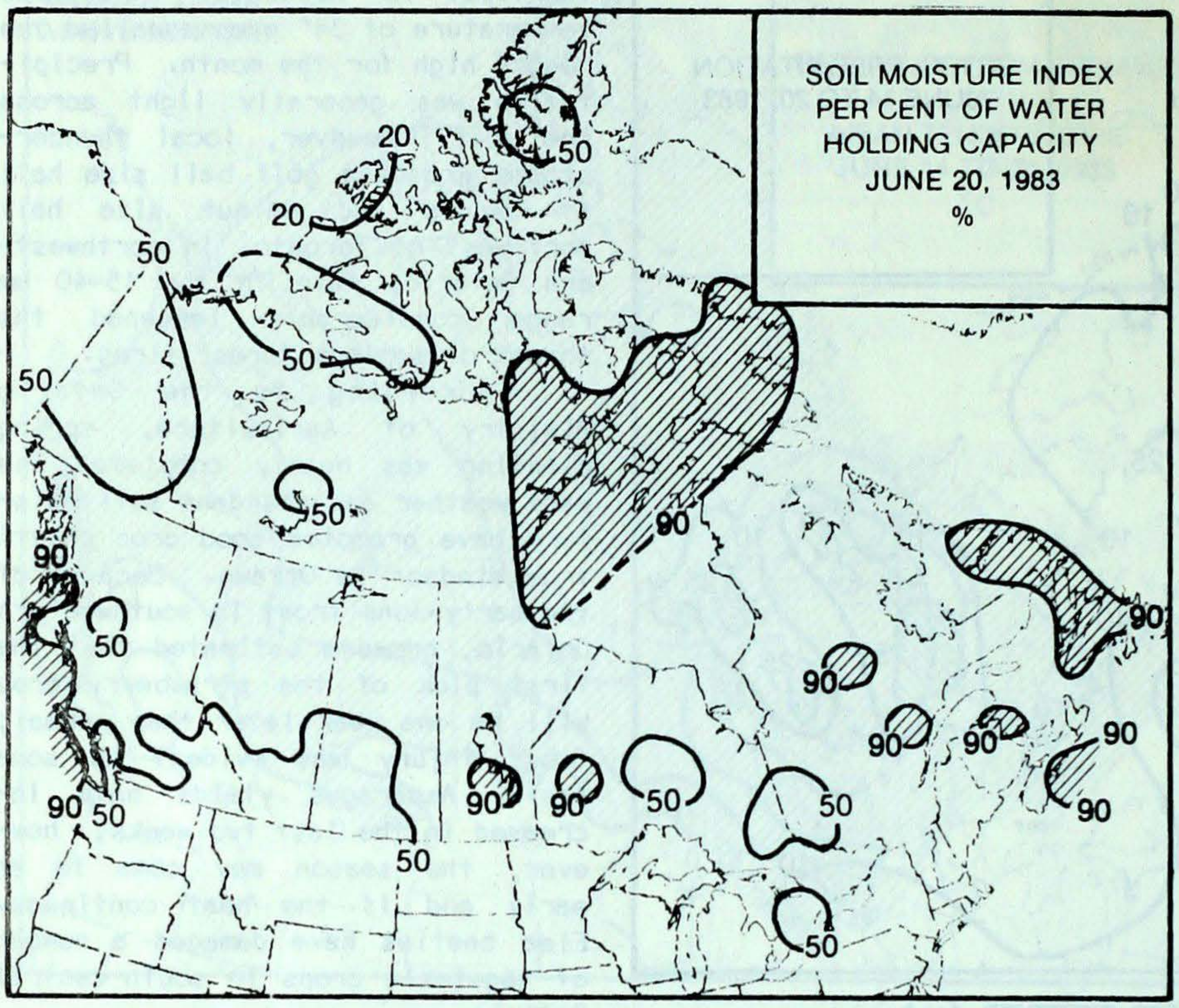
According to the Ontario Ministry of Agriculture, spring planting was nearly complete. The warm weather and abundant soil moisture have promoted good crop growth from Windsor to Ottawa. Because of the early-June frost in southwestern Ontario, growers estimated that the first pick of the strawberry crop will be one week later than normal; frost injury was evident on some fruit. Asparagus yields have increased in the last two weeks; however, the season may come to an early end if the heat continues. Flea beetles have damaged a number of vegetable crops in south-central Ontario.

Québec

Record-breaking warmth and pleasant sunshine controlled Québec's weather. More than 28 stations established daily record highs as the temperatures hovered in the low thirties. On June 15, La Grande Rivière recorded the highest, 35°. The hot weather helped ignite over 100 forest fires in central and northern Québec. To date, fires have burned nearly 12,000 hectares. On June 17, residents of Nemaska, 480 km northeast of Rouyn, had to be airlifted when the fire came within 2 km of their village. On June 14, strong winds accompanying severe thunderstorms disrupted power in Sherbrooke. The hot and dry weather was good for germination in the St. Lawrence Valley.

(Cont'd on pg. 6)

SOIL MOISTURE



Soil Moisture Index

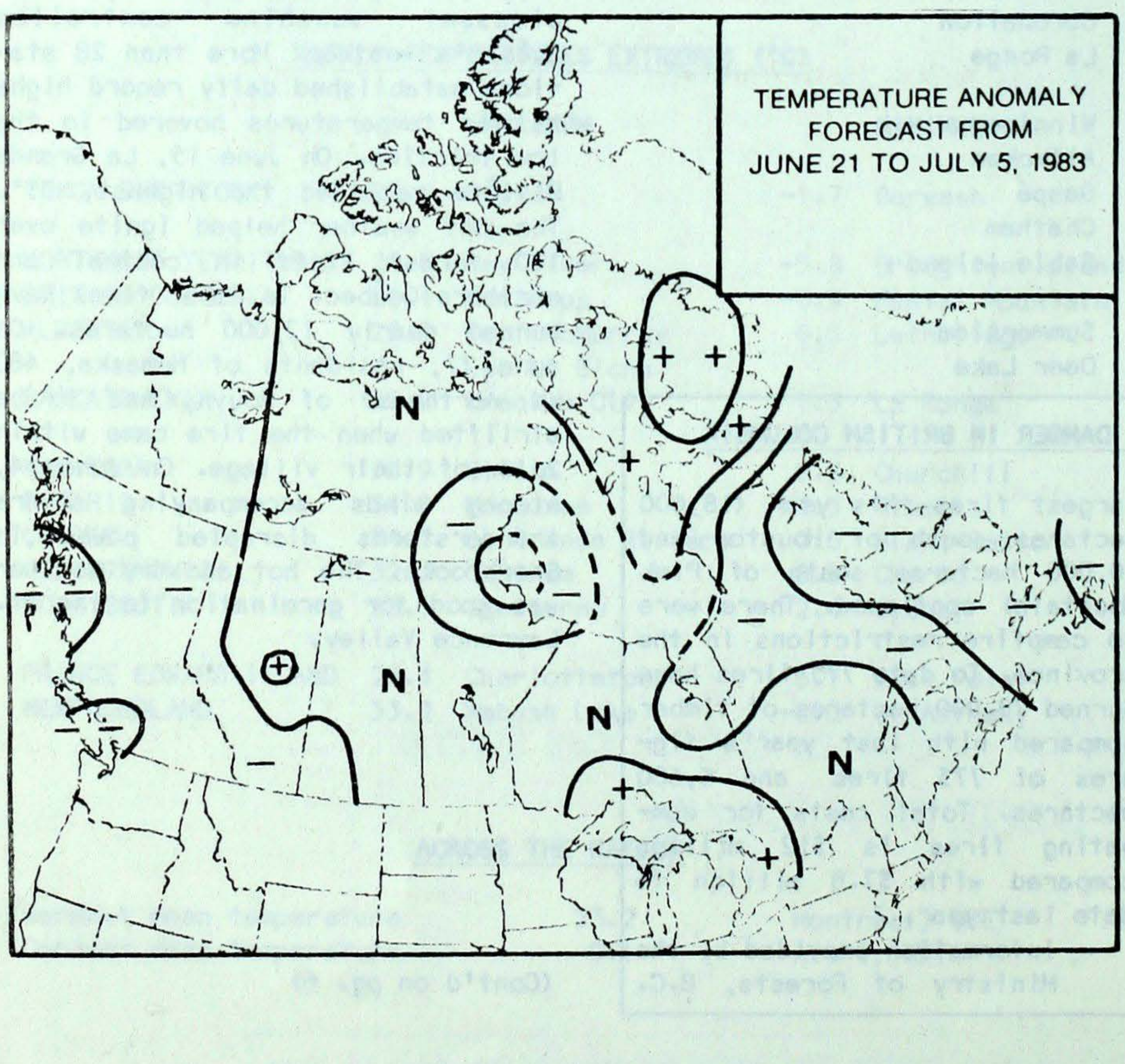
A derived index mapped as a percentage of the assumed soil water holding capacity at each station. It is a relative indicator of the moisture status of the soil.

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

THE IMPACT OF THE 1982-83 WINTER ON THE FOREST FIRE CLIMATE

by

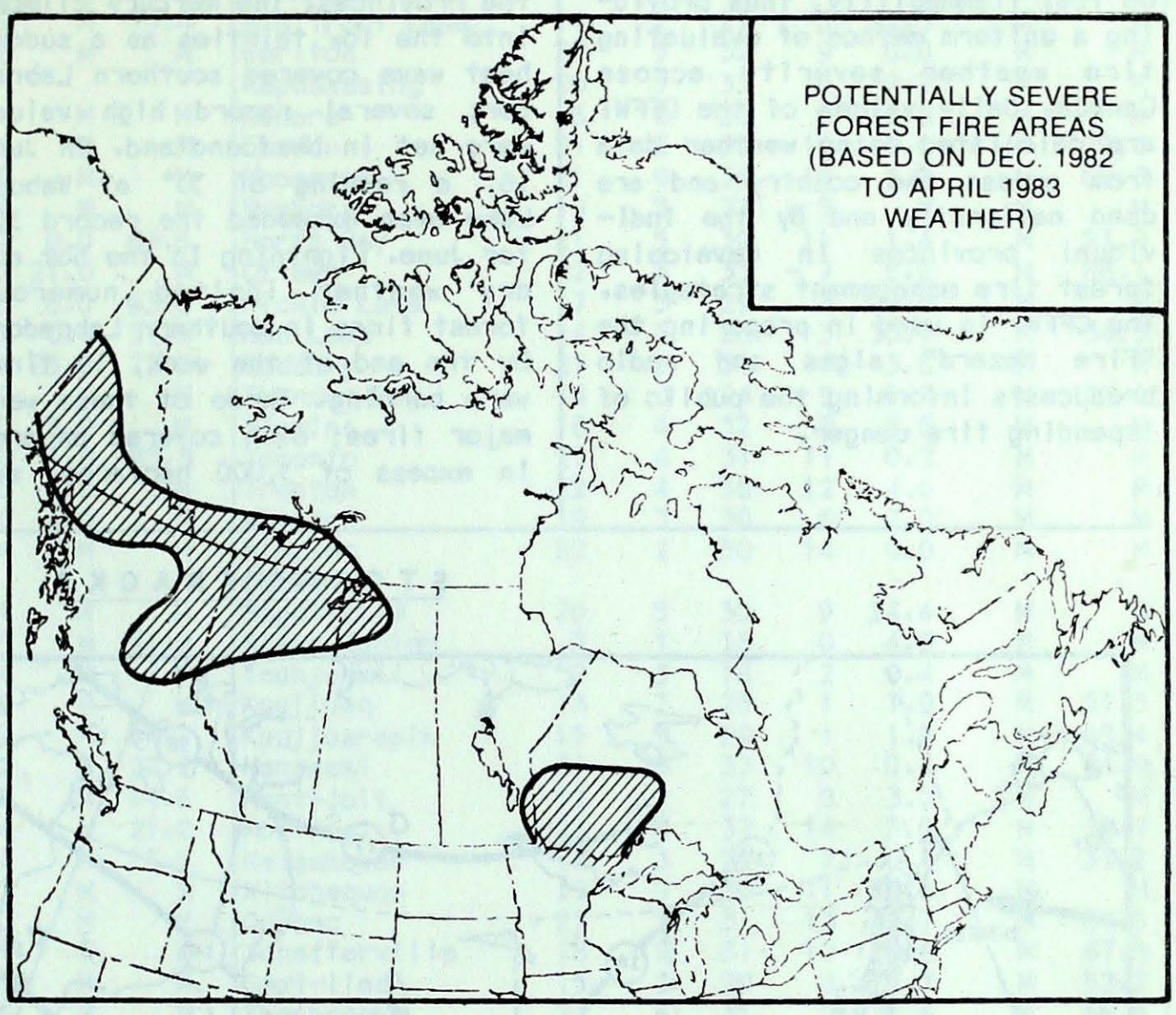
R.B. Street

The climate anomalies of the winter of 1982-83 has set the stage for the 1983 forest fire season. The above normal winter mean temperature throughout most of the forested areas in Canada and below normal precipitation totals particularly in central and western Canada suggest that this forest fire season, at its inception, warrants close monitoring due to its potential to become severe. Those areas in which the forest fire climate is most severe can be delineated by examining the anomalies of precipitation and temperature throughout Canada during the past winter and early portion of this spring.

In terms of overwinter precipitation, the Atlantic Provinces, southern Québec, northwestern Ontario, central Alberta, British Columbia and the Yukon all experienced below normal totals. During the month of April 1983, the below normal precipitation totals continued in some of these areas. In northwestern Ontario, northern Alberta, central British Columbia, central Yukon and Great Slave Lake area of the Northwest Territories most locations experienced less than 50 per cent of monthly total precipitation. However, in the Atlantic Provinces most locations experienced precipitation totals well above normal during April 1983.

These types of precipitation deficits suggest that less than normal water (snowmelt and rain) has been available in these areas during this spring thereby increasing the available forest-fuel. In the Atlantic Provinces, however, the greater than normal precipitation total during April increased the supply of water to the forest-fuels thus decreasing the severity of the fire climate.

The positive temperature anomalies during the month of



April in northwestern Ontario heightened the potential greatly of the respective fire climates. Forest-fuel drying is enhanced under the influence of these types of temperature regimes.

A composite map of these climate factors delineates those areas where the fire climate is most severe. The Atlantic Provinces has been defined as having a relatively less severe fire climate than the hatched areas due to the greater than normal precipitation received during April 1983.

The forest fire situation report compiled by the Canadian Interagency Forest Fire Centre in Winnipeg details the fire occurrences across the country with 2,060 fires burning approximately 98,100 hectares reported till early June. The majority of these fires have occurred in the province of Alberta, British Columbia, Ontario and Québec. The areas delineated as having a severe fire climate this spring are those in which the fire seasons have been particularly severe during most of this decade. Prolonged periods of dry weather in western and central Canada during the fire seasons of 1980-82 resulted in significant increases in the area burned and number of fires. Alberta, for example, has experienced a significant increase in the area burnt during the past three years as compared to the 1970-79 average. On the basis of this analysis, the 1983 fire season and its associated weather warrants close monitoring.

Fire danger can be monitored by examining the constant and variable factors that influence the ignition, spread rate, difficulty of control of fires and the impact of fire on the forest environment. The Canadian Forest Fire Weather Index (CFFWI) provid-

es the national numerical rating of relative fire potential and is the backbone of the Canadian Forest Fire Danger Rating System. The CFFWI is based solely on the effect of past and current weather on fuel flammability, thus providing a uniform method of evaluating fire weather severity across Canada. Daily values of the CFFWI are calculated using weather data from across the country and are used nationally and by the individual provinces in developing forest fire management strategies. The CFFWI is used in preparing the "Fire Hazard" signs and radio broadcasts informing the public of impending fire danger.

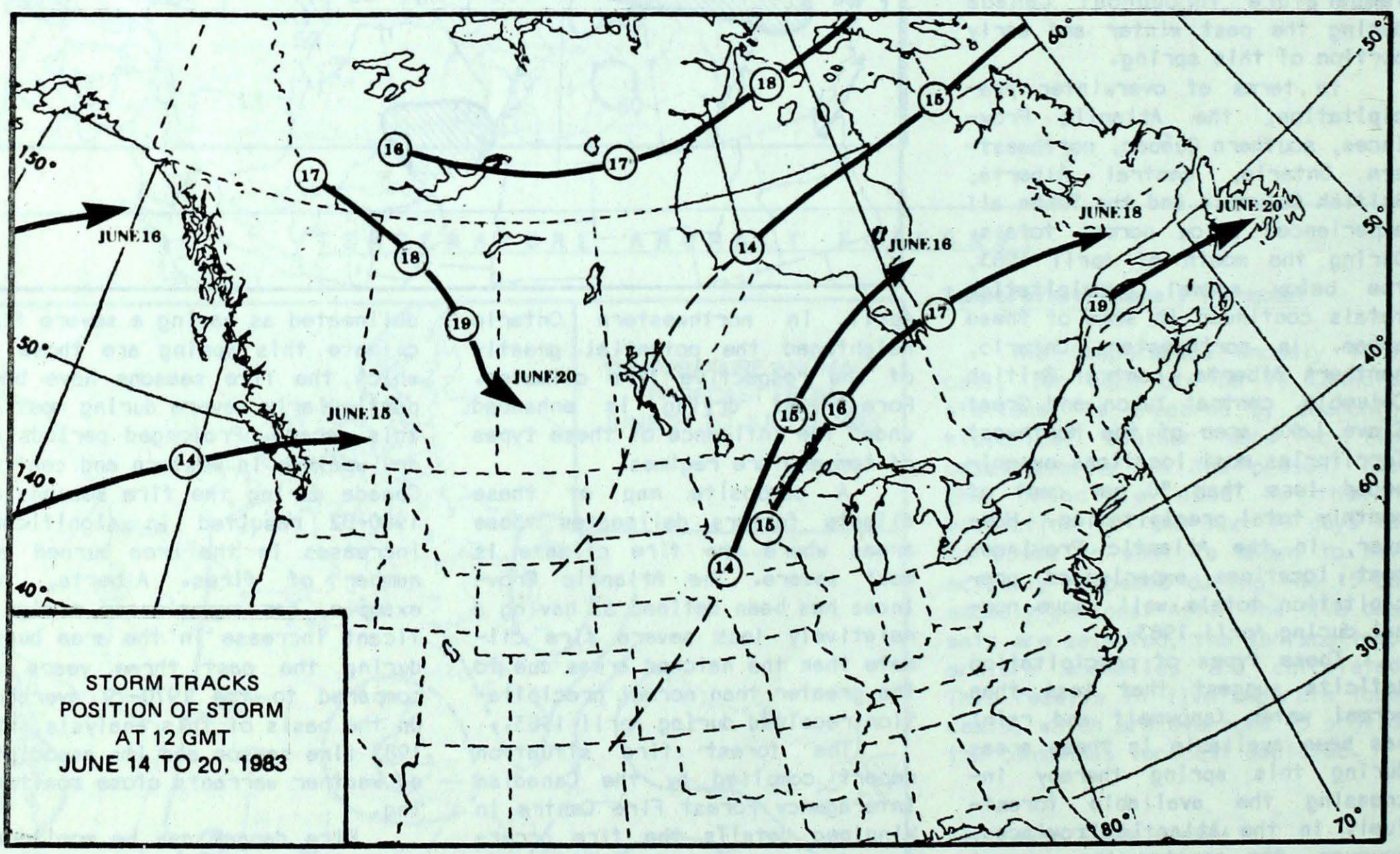
... continued from pg. 3

Atlantic Provinces

Warm temperatures averaged 2 to 4 degrees above normal across the Provinces. The mercury climbed into the low thirties as a sudden heat wave covered southern Labrador; several record high values were set in Newfoundland. On June 16, a reading of 33° at Wabush Lake even exceeded the record 30° for June. Lightning in the hot and dry weather ignited numerous forest fires in southern Labrador. By the end of the week, 15 fires were burning. Three of these were major fires; each covered an area in excess of 3,000 hectares, and raged out of control between Churchill Falls and Labrador City.

Precipitation was light almost everywhere, only western Newfoundland and eastern New Brunswick received more than 25 mm of rain. Planting was almost complete throughout the Maritimes. The warmth and dryness provided good germination weather. Except for Newfoundland, the hay harvest was well under way. The strawberry harvest was expected to start fairly soon in the Maritimes. On June 16, heavy fog blanketed Halifax harbour. Five men had to be rescued when their boat collided with a Norwegian supply vessel in the dense fog; the boat sank a short time later.

STORM TRACKS



TEMPERATURE, PRECIPITATION AND BRIGHT SUNSHINE DATA FOR THE WEEK ENDING 0600 GMT JUNE 21, 1983

STATION	TEMP				PRECIP		SUN
	Av	Dp	Mx	Mn	Tp	SOG	H
YUKON TERRITORY							
Dawson	13	- 2	25	3	14.9	M	M
Mayo A	14	0	25	3	5.0	M	M
Watson Lake	13	- 1	22	2	8.9	M	50.4
Whitehorse	14	1	22	4	1.6	M	M
NORTHWEST TERRITORIES							
Fort Smith	18	4	29	5	M	M	M
Inuvik	14	3	26	5	0.6	M	M
Norman Wells	18	4	29	11	5.0	M	M
Yellowknife	16	3	26	7	3.6	M	M
Baker Lake	6	2	14	1	9.2	0.0	69.6
Cape Dyer	3	3	12	- 3	3.2	21.0	M
Clyde	2	1	8	- 2	5.8	6.0	63.8
Frobisher Bay	4	1	10	1	12.2	0.0	31.9
Alert	0	0	11	- 5	4.8	25.0	72.9
Eureka	4	1	12	- 1	0.0	M	M
Hall Beach	1	1	4	- 1	16.0	3.0	M
Resolute	3	2	8	- 3	0.0	1.0	83.8
Cambridge Bay	4	2	10	- 1	0.8	0.0	M
Mould Bay	3	2	8	- 2	2.0	4.0	M
Sachs Harbour	M	M	12P	0P	M	M	M
BRITISH COLUMBIA							
Cape St. James	13	2	20	8	54.4	M	M
Cranbrook	14	- 1	25	7	8.5	M	51.8
Fort Nelson	17	1	27	8	24.4	M	M
Fort St. John	14	0	24	7	55.8	M	M
Kamloops	17	- 2	28	7	14.9	M	34.2
Penticton	15	- 2	27	4	30.2	M	37.2
Port Hardy	12	0	17	6	53.8	M	14.6
Prince George	12	- 1	22	6	38.4	M	21.0
Prince Rupert	12	0	16	6	20.2	M	16.1
Revelstoke	15	- 1	26	9	29.2	M	M
Smithers	12	- 1	20	5	12.0	M	M
Vancouver	15	- 1	21	10	34.7	M	M
Victoria	14	- 1	22	7	20.5	M	M
Williams Lake	12	- 3	23	5	38.6	M	M
ALBERTA							
Calgary	15	2	27	7	5.0	M	48.7
Cold Lake	17	2	28	6	21.7	M	M
Coronation	15	0	27	4	88.0	M	47.5
Edmonton Namao	17	2	28	7	84.1	M	M
Fort McMurray	19	5	29	5	11.1	M	M
Jasper	12	0	23	4	31.0	M	21.8
Lethbridge	15	0	28	1	2.8	M	M
Medicine Hat	16	0	29	8	14.9	M	71.7
Peace River	15	2	26	7	41.4	M	M
SASKATCHEWAN							
Cree Lake	17	X	28	6	0.4	M	89.5
Estevan	16	0	27	4	3.2	M	72.9
La Ronge	16	3	28	2	11.6	M	M
Regina	15	0	26	4	7.4	M	88.2
Saskatoon	17	2	29	8	0.0	M	M
Swift Current	15	0	26	3	M	0.4	M
Yorkton	16	0	27	6	6.3	M	80.0
MANITOBA							
Brandon	15	- 1	27	3	0.6	M	M
Churchill	8	1	26	0	31.6	0.0	52.5
The Pas	16	2	28	6	4.5	M	83.7
Thompson	16	4	30	3	0.2	M	79.0
Winnipeg	17	0	26	4	35.5	M	59.7
ONTARIO							
Big Trout Lake	14	2	27	3	34.3	M	M
Earlton	20	5	32	9	0.0	M	M
Kapuskasing	20	5	33	6	2.7	M	M
Kenora	16	0	26	5	20.8	M	M
London	21	3	30	10	0.0	M	75.9
Moosonee	21	9	34	10	2.2	M	68.3
Muskoka	19	3	32	- 5	M	M	M
North Bay	21	5	30	11	1.4	M	91.9
Ottawa	22	4	33	- 7	8.2	M	88.1
Pickle Lake	17	3	29	3	9.6	M	M
Red Lake	14	- 1	26	3	33.1	M	34.5
Sudbury	21	5	31	11	3.8	M	M
Thunder Bay	14	0	24	5	5.3	M	59.1
Timmins	18	4	32	- 8	0.5	M	M
Toronto	21	4	31	11	0.2	M	M
Trenton	22	4	30	12	4.6	M	M
Wiarton	19	3	30	6	0.0	M	M
Windsor	22	2	30	14	0.0	M	M
QUEBEC							
Bagotville	20	5	30	9	24.4	M	M
Blanc-Sablon	9	1	16	0	4.8	M	M
Inukjuak	7	3	18	2	0.4	M	M
Kuujjuaq	14	7	25	1	1.0	M	57.5
Kuujjuarapik	15	9	29	1	1.2	M	63.4
Manawaki	21	6	33	10	0.4	M	84.9
Mont-Joli	17	2	27	8	3.0	M	M
Montréal	23	5	32	14	3.0	M	78.7
Natashquan	14	3	20	7	0.4	M	31.2
Nitchequon	19	9	30	11	25.6	M	M
Québec	21	5	31	13	0.7	M	68.5
Schefferville	18	9	31	10	20.6	M	67.8
Sept-Iles	15	3	29	8	2.7	M	53.2
Sherbrooke	21	6	31	9	5.6	M	66.6
Val-d'Or	21	7	32	9	0.0	M	M
NEW BRUNSWICK							
Charlo	18	3	29	9	18.1	M	64.6
Fredericton	19	3	29	12	7.5	M	M
Saint John	16	2	27	10	0.6	M	35.7
NOVA SCOTIA							
Greenwood	17	1	26	6	6.4	M	M
Shearwater	15	1	25	8	10.8	M	M
Sydney	17	3	27	2	1.8	M	66.0
Yarmouth	16	2	24	10	6.2	M	32.7
PRINCE EDWARD ISLAND							
Charlottetown	17	2	25	9	2.6	M	M
Summerside	17	2	24	10	8.4	M	48.7
NEWFOUNDLAND							
Gander	12	- 1	27	0	6.8	M	35.4
Port aux Basques	11	2	15	4	24.6	M	M
St. John's	10	- 1	29	0	4.8	M	38.7
St. Lawrence	10	2	19	1	13.2	M	M
Cartwright	8	- 1	21	- 2	12.2	M	44.4
Goose	13	1	25	5	27.1	M	39.0
Hopedale	8	1	27	0	1.8	M	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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