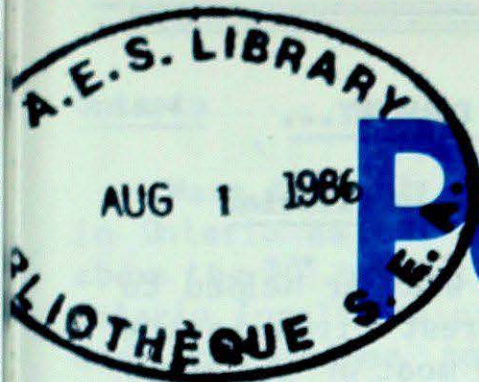
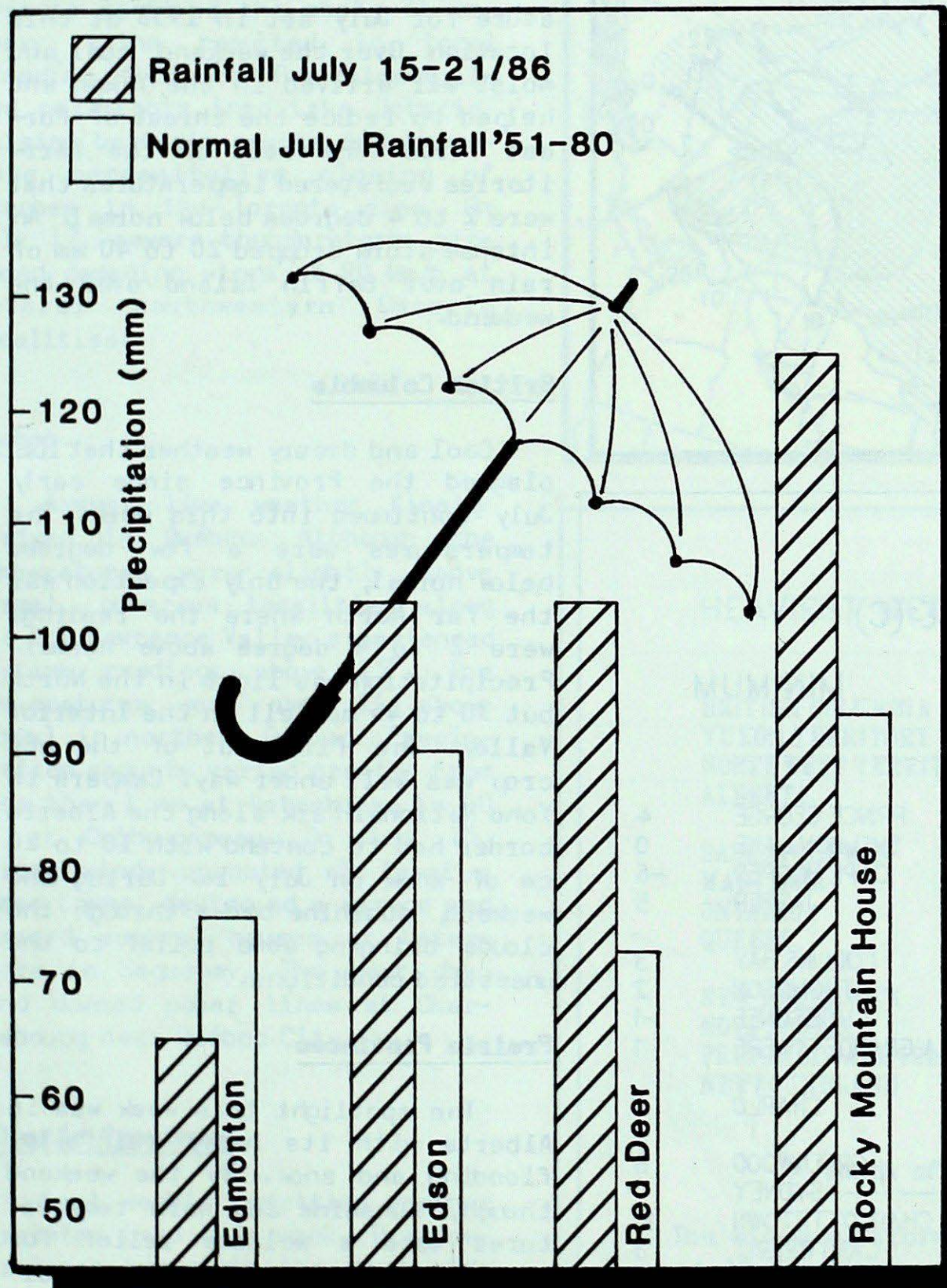




Climatic Perspectives



● Floods inundate central Alberta

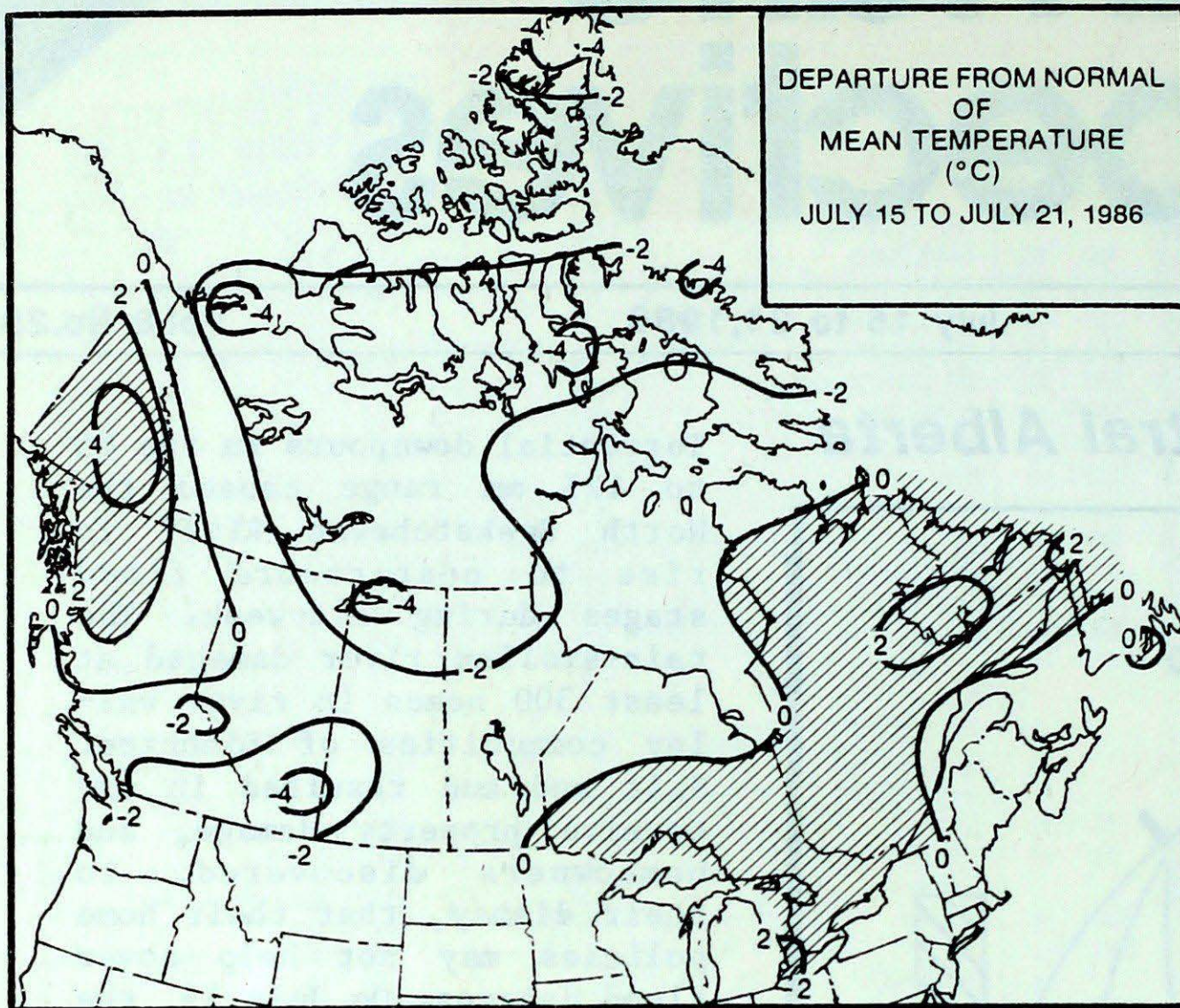


W. J. WILSON/86

Torrential downpours in the 65 to 125 mm range caused the North Saskatchewan River to rise to near-record flood stages during mid-week. The rain-swollen river damaged at least 300 homes in river valley communities of Edmonton. Silt and mud resulted in extensive property damage, and homeowners discovered, to their dismay, that their home policies may not help cover flood damages. On July 19, the flood water peaked at 11.6 metres, 7.6 metres above normal. Two deaths were attributed to the floods. Several other rivers in central Alberta, including the Athabasca River, overflowed their banks and flooded neighbouring farmland. Huge tracts of farmland along the Pembina River were waterlogged. In North Central Alberta about 20 per cent of the hay crop lay rotting and 80 per cent of the forage crops were submerged under water.

Many central Alberta communities received between 85 to 135 per cent of their average July rainfall in a few days; for example, 125 mm at Rocky Mountain House was 134 per cent of normal July rainfall. The worst flood on record in Edmonton occurred in 1915 when the North Saskatchewan River crested at 13.7 metres, leaving 2,000 people homeless.

● Campers blanketed by snow in Banff and Jasper National Parks



ACROSS THE COUNTRY...

Yukon and Northwest Territories

Hot and dry weather helped to sustain major forest fires in the central Yukon for most of the week. Numerous daily record-high temperatures were set in the searing heat as the values reached above 30°. On July 19, the overnight reading remained above 15° at Whitehorse, this tied the record high minimum temperature for July set in 1958 at this location. Over the weekend, cool and moist air arrived in the Yukon and helped to reduce the threat of forest fires. The rest of the territories registered temperatures that were 2 to 4 degrees below normal. An intense storm dropped 20 to 40 mm of rain over Baffin Island over the weekend.

British Columbia

Cool and dreary weather that has plagued the Province since early July continued into this week. The temperatures were a few degrees below normal, the only exception was the far North where the readings were 2 to 4 degree above normal. Precipitation was light in the North but 30 to 45 mm fell in the Interior Valley. The first cut of the hay crop was well under way. Campers in Yoho National Park along the Alberta border had to contend with 10 to 20 cm of snow on July 16. During the weekend, sunshine broke through the clouds bringing some relief to the unsettled conditions.

Prairie Provinces

The spotlight this week was in Alberta with its heavy rainfalls, flooding and snow. By the weekend though, sunshine and warm temperatures were a welcome relief for Alberta. Elsewhere across the prairies, the weather was generally unsettled with widespread showers and thunderstorms along with near to below normal temperatures. The storm that drenched Alberta gave only 10-20 mm of rain to western portions of Saskatchewan. Maple Creek in extreme southwest Saskatchewan though did receive 70 mm. On July 16, funnel clouds were sighted west of Niverville Manitoba.

WEEKLY TEMPERATURE EXTREME (C)

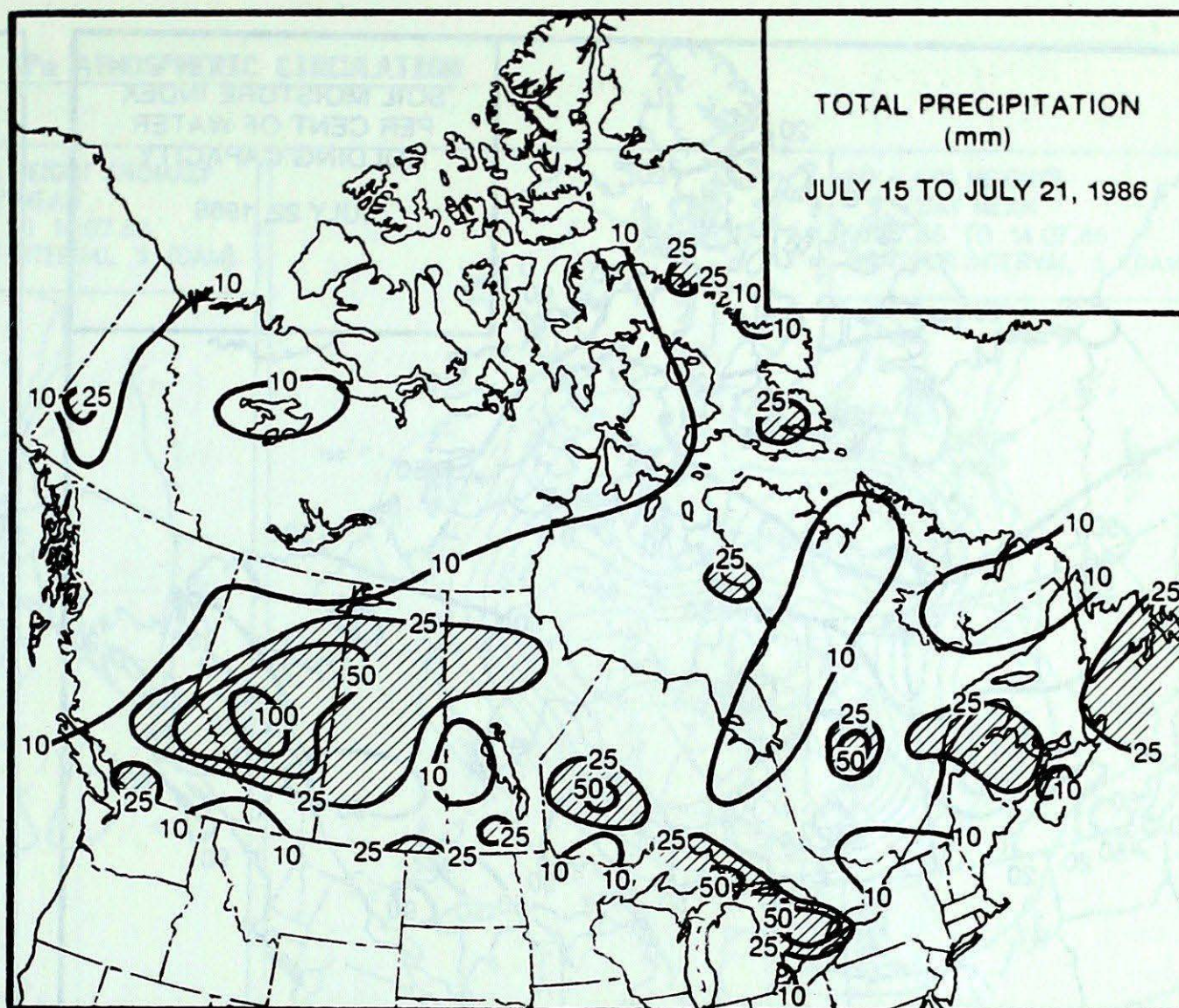
| | | MAXIMUM | | MINIMUM |
|-----------------------|----------------|---------|-------------------|---------|
| BRITISH COLUMBIA | LYTTON | 35 | PRINCE GEORGE | 4 |
| YUKON TERRITORY | DAWSON | 31 | SHELDON LAKE | 0 |
| NORTHWEST TERRITORIES | NORMAN WELLS | 30 | CAPE HOOPER | -6 |
| ALBERTA | MEDICINE HAT | 30 | JASPER | 5 |
| SASKATCHEWAN | MOOSE JAW | 30 | COLLINS BAY | 3 |
| MANITOBA | ISLAND LAKE | 29 | THOMPSON | 2 |
| ONTARIO | WINDSOR | 35 | MOOSONEE | -1 |
| QUEBEC | MONTREAL INT'L | 30 | LA GRANDE RIVIERE | 1 |
| NEW BRUNSWICK | CHATHAM | 30 | CHARLO | 9 |
| | FREDERICTON | | | |
| NOVA SCOTIA | GREENWOOD | 29 | GREENWOOD | 8 |
| | | | SYDNEY | |
| PRINCE EDWARD ISLAND | CHARLOTTETOWN | 27 | CHARLOTTETOWN | 10 |
| NEWFOUNDLAND | BATTLE HARBOUR | 30 | CARTWRIGHT | 3 |

ACROSS THE NATION

| | | | |
|--------------------------|----|---------|-----|
| WARMEST MEAN TEMPERATURE | 26 | WINDSOR | ONT |
| COOLEST MEAN TEMPERATURE | 0 | ALERT | NWT |

Ontario

Warm but wet weather arrived in Ontario as the mercury soared above the 30° mark at many Southern Ontario localities over the weekend. The weather, however, turned cool in central Ontario near the end of the period and a few daily record-low temperatures were set; for example, 2° at Timmins on July 21. Copious amounts of rain fell over the lower Great Lakes Basin, Toronto received the most, 71 mm. Heavy rains resulted in local flooding of rivers. The rains spilled pollutants into Lake Ontario, raising bacteria counts and therefore necessitating closing of beaches in the Toronto area. On July 17, severe thunderstorms produced damaging winds of 90 km/h at several southwestern Ontario localities.

**Quebec**

Summer like weather finally arrived in Québec. Although the temperatures were slightly above normal, numerous localities along the St. Lawrence Valley experienced daytime readings above 25°. The temperatures were over 2° above normal in northern Québec. Precipitation amounts varied greatly from less than 1 mm at Natashquan to 50 mm at Chibougameau. On July 15, strong winds uprooted at least a dozen trees, destroyed a garage and damaged several houses at Laterrière in Saguenay. The next day, wind downed power lines at Charlesbourg near Québec City.

Atlantic Provinces

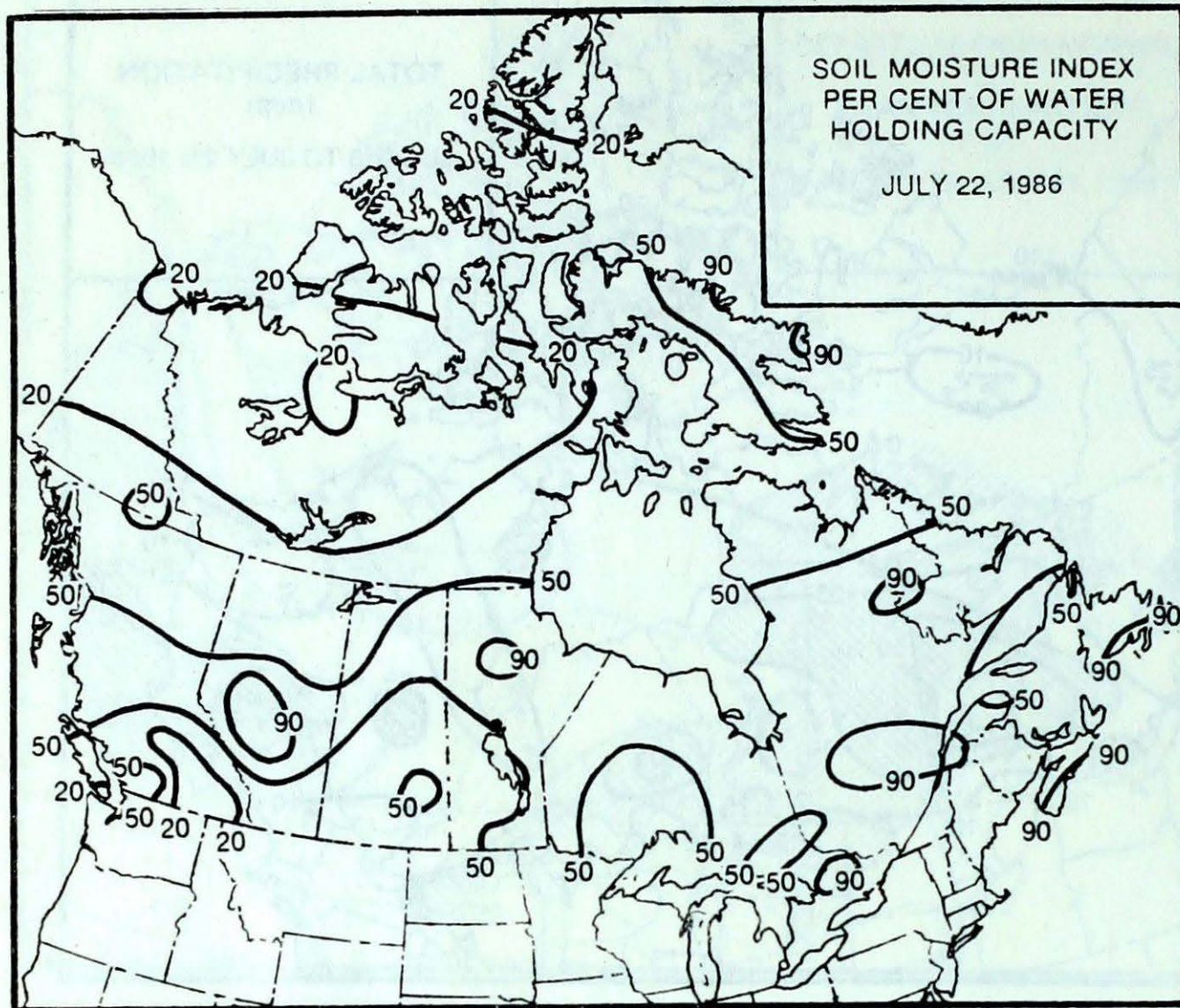
Last week's unsettled weather persisted into this week. The temperatures began on the cool side but quickly rebounded to more seasonable values in the Maritimes. Much needed rain in the 30 to 40 mm range fell in parts of New Brunswick. July's cool and dull weather has kept campers away in some areas as attendance at a number of campgrounds was down. Very warm air reached Labrador towards the weekend as daytime temperatures reached near 30°. Nine forest fires were burning in Labrador.

HEAVIEST WEEKLY PRECIPITATION (mm)

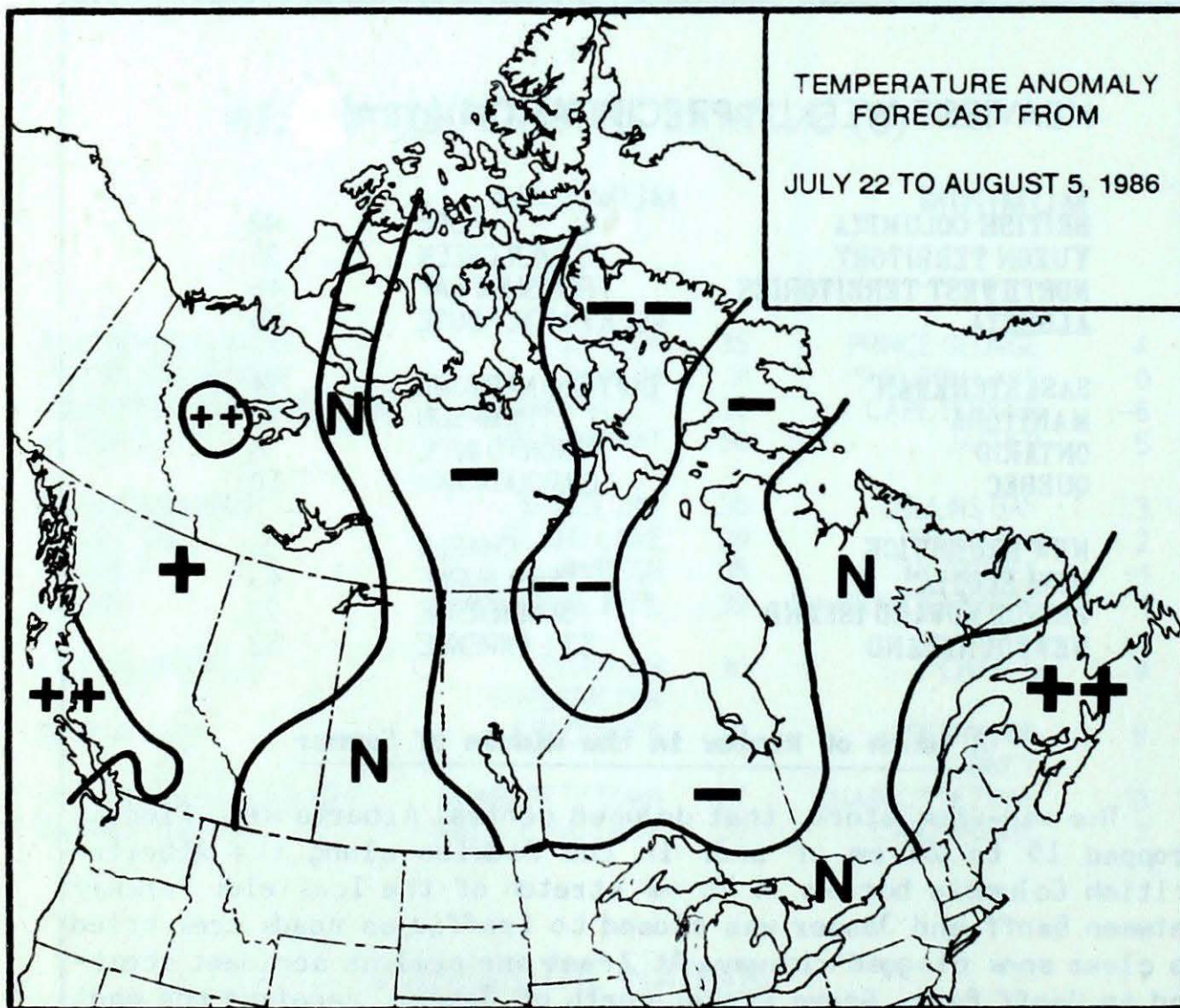
| | | |
|-----------------------|------------------|-----|
| BRITISH COLUMBIA | HOPE | 42 |
| YUKON TERRITORY | BEAVER CREEK | 25 |
| NORTHWEST TERRITORIES | FROBISHER BAY | 46 |
| ALBERTA | ROCKY MTN. HOUSE | 125 |
| SASKATCHEWAN | BUFFALO NARROWS | 54 |
| MANITOBA | THOMPSON | 45 |
| ONTARIO | TORONTO INT'L | 71 |
| QUEBEC | CHIBOUGAMAU | 50 |
| NEW BRUNSWICK | CHARLO | 51 |
| NOVA SCOTIA | SHELBURNE | 43 |
| PRINCE EDWARD ISLAND | SUMMERSIDE | 23 |
| NEWFOUNDLAND | ST LAWRENCE | 53 |

A touch of Winter in the middle of Summer

The mid-week storm, that deluged central Alberta with floods, dropped 15 to 25 cm of snow in the Rockies along the Alberta-British Columbia border. A 70 km stretch of the Icefields Parkway between Banff and Jasper was closed to traffic as roads crew tried to clear snow clogged highway. At least one serious accident occurred in Banff Park. Grave Flats, north of Jasper, received the most snowfall, 25 cm. Campers and tourists in Banff, Jasper and Yoho National Parks had to endure wintery weather. Although snowfall in summer at these high elevations is not unusual, heavy snowfall clogging roadways and causing traffic accidents is rare.



SOIL MOISTURE INDEX
PER CENT OF WATER
HOLDING CAPACITY
JULY 22, 1986



TEMPERATURE ANOMALY
FORECAST FROM
JULY 22 TO AUGUST 5, 1986

Temperature Anomaly Forecast

This forecast is prepared by searching historical weather maps to find cases similar to the present. The historical outcome during the 15 days subsequent to the chosen analogues is assumed to be a forecast for the next 15 days from now.

- ++ much above normal
- + above normal
- N normal
- below normal
- much below normal

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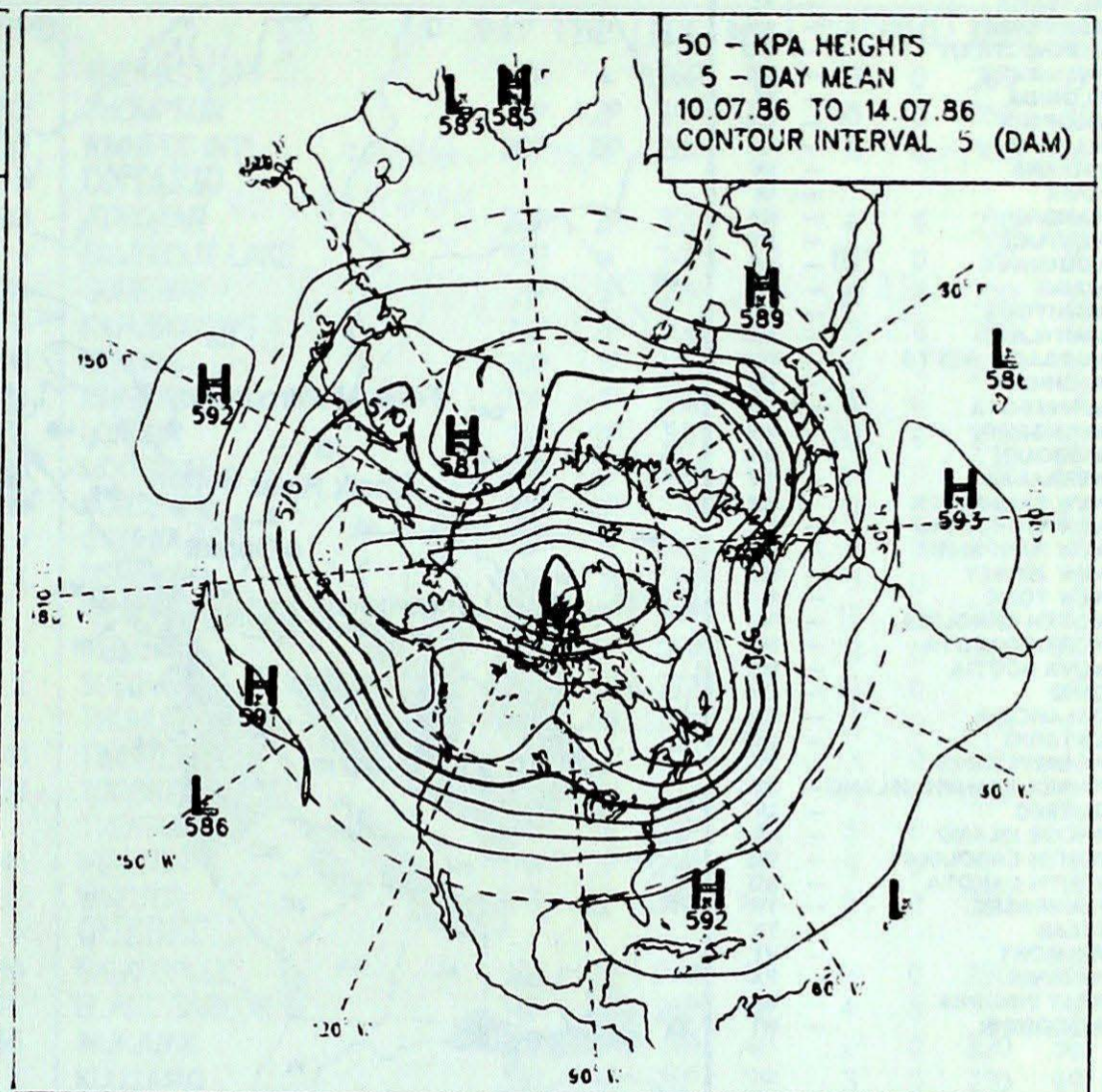
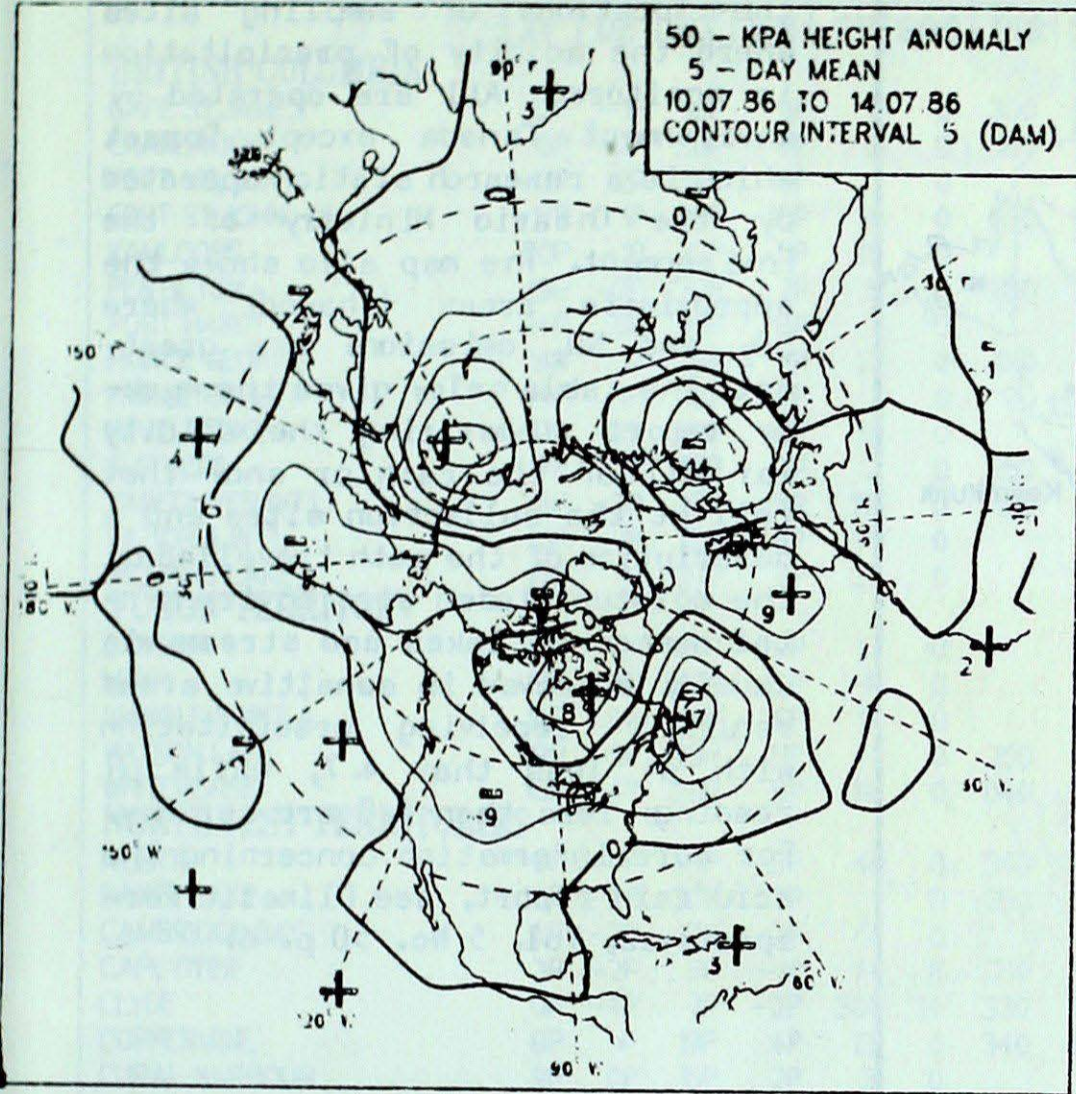
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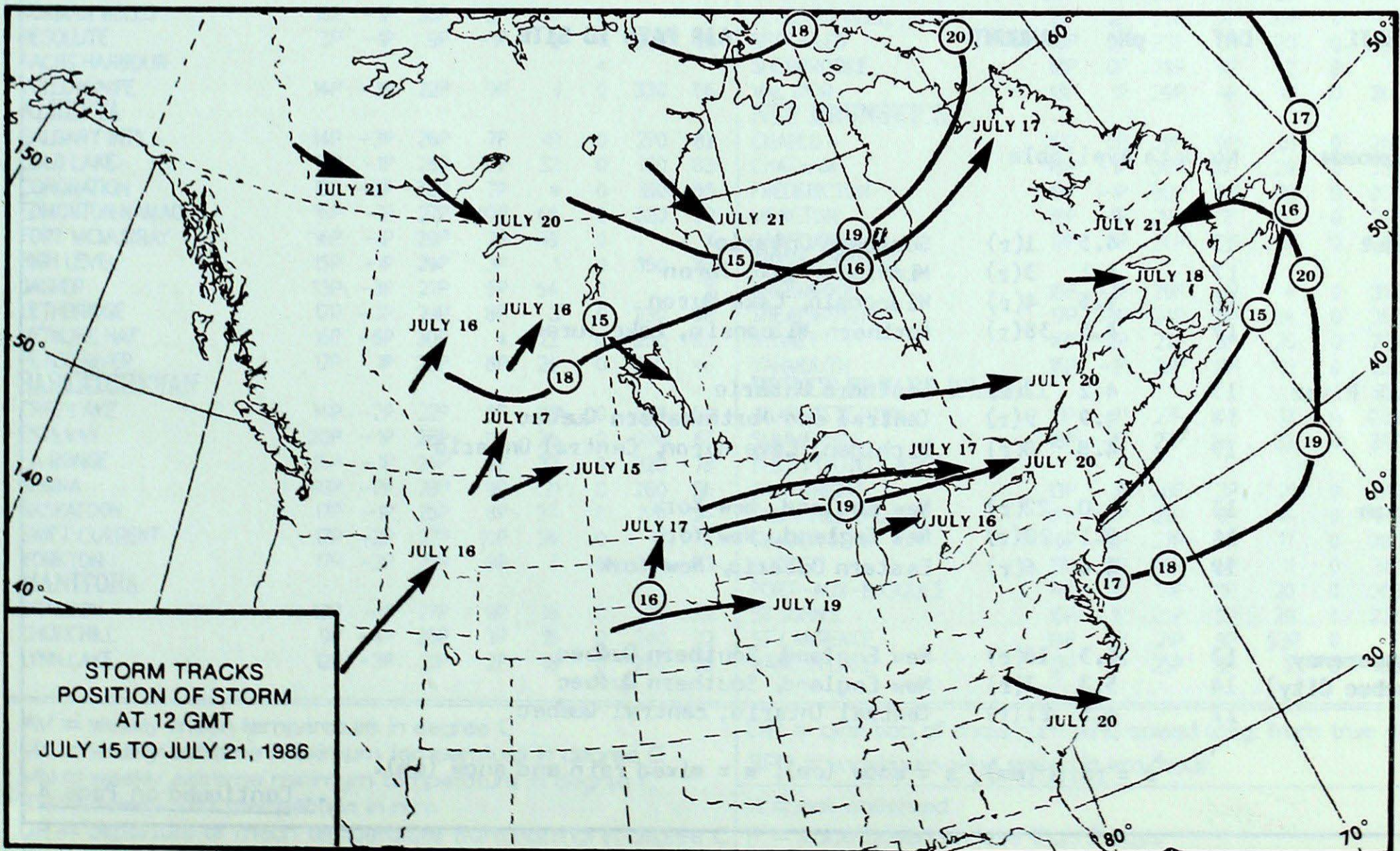
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50 KPa ATMOSPHERIC CIRCULATION

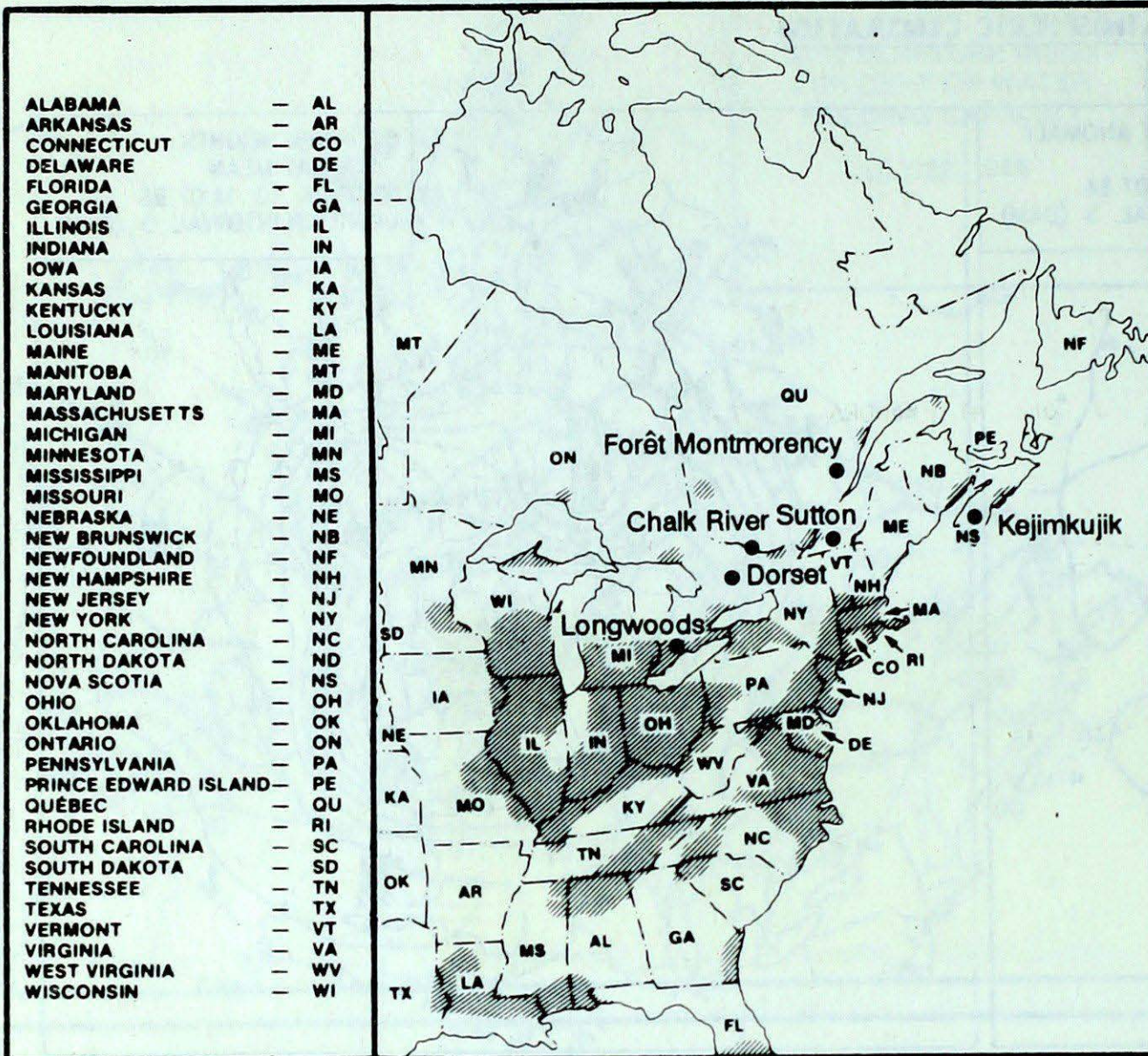


MEAN 50 KPa HEIGHT ANOMALY (dam)
July 10 to July 14, 1986

MEAN 50 KPa HEIGHTS (dam)
July 10 to July 14, 1986



ACID RAIN REPORT



The reference map (left) shows the locations of sampling sites where the acidity of precipitation is monitored. All are operated by Environment Canada except Dorset which is a research station operated by the Ontario Ministry of the Environment. The map also shows the approximate areas (shaded) where SO₂ and NO_x emissions are greatest. The table below gives the weekly report summarizing the acidity (or pH) of the rain or snow that fell at the collection sites and a description of the path travelled by the moisture laden air. Environmental damage to lakes and streams is usually observed in sensitive areas regularly receiving precipitation with pH less than 4.7, while pH readings less than 4.0 are serious. For more information concerning the acid rain report, see Climatic Perspectives, Vol. 5 No. 50 p. 6.

JULY 13 TO JULY 19, 1986

| SITE | DAY | pH | AMOUNT | AIR PATH TO SITE |
|--------------------------------------|-------------------|-----|--------|---------------------------------------|
| Longwoods | No Data Available | | | |
| Dorset | 13 | 4.5 | 1(r) | Southern Ontario |
| | 17 | 4.1 | 3(r) | Michigan, Lake Huron |
| | 18 | 4.5 | 4(r) | Wisconsin, Lake Huron |
| | 19 | 4.5 | 38(r) | Northern Wisconsin, Lake Huron |
| Chalk River | 13 | 4.2 | 12(r) | Southern Ontario |
| | 14 | 4.9 | 9(r) | Central and Northwestern Quebec |
| | 19 | 4.8 | 8(r) | Michigan, Lake Huron, Central Ontario |
| Sutton | 13 | 5.0 | 22(r) | New England, New York |
| | 14 | 5.1 | 20(r) | New England, New York |
| | 19 | 4.4 | 6(r) | Eastern Ontario, New York |
| Montmorency (Quebec City) | 13 | 5.3 | 18(r) | New England, Southern Québec |
| | 14 | 5.3 | 3(r) | New England, Southern Québec |
| | 17 | 4.5 | 21(r) | Central Ontario, central Québec |

r = rain (mm), s = snow (cm), m = mixed rain and snow (mm).

... Continued on Page 8

TEMPERATURE, PRECIPITATION AND MAXIMUM WIND DATA FOR THE WEEK ENDING 0600 GMT JULY 22, 1986

| STATION | TEMPERATURE | | | | PRECIP. | | WIND MX | | STATION | TEMPERATURE | | | | PRECIP. | | WIND MX | |
|------------------------------|-------------|-----|-----|-----|---------|-----|---------|-----|-----------------------------|-------------|-----|-----|-----|---------|-----|---------|-----|
| | AV | DP | MX | MN | TP | SOG | DIR | SPD | | AV | DP | MX | MN | TP | SOG | DIR | SPD |
| BRITISH COLUMBIA | | | | | | | | | THE PAS | 17P | * | 26P | 5P | 3 | 0 | 260 | 56 |
| CAPE ST. JAMES | 12P | -1P | 16P | 9P | 1P | 0 | 300 | 83 | THOMPSON | 14P | -2P | 24P | 2P | 45 | 0 | 050 | 91 |
| CRANBROOK | 16P | -2P | 30P | 4P | 2 | 0 | 180 | 37 | WINNIPEG INT'L | 20P | 0P | 28P | 11P | 8 | 0 | 100 | 44 |
| FORT NELSON | 19P | 2P | 30P | 7P | 1 | 0 | | * | ONTARIO | | | | | | | | |
| FORT ST. JOHN | 17P | 1P | 28P | 10P | 14 | 0 | 030 | 33 | ATIKOKAN | 20P | 2P | 32P | 8P | 4 | 0 | 270 | 35 |
| KAMLOOPS | 20P | -1P | 32P | 11P | 16 | 0 | | * | BIG TROUT LAKE | 16P | * | 24P | 5P | 19P | 0 | 310 | 74 |
| PENTICTON | 19P | -2P | 32P | 7P | 11 | 0 | 280 | 39 | GORE BAY | 21P | 1P | 27P | 11P | 19 | 0 | 300 | 56 |
| PORT HARDY | 14P | 0P | 20P | 8P | 1 | 0 | | * | KAPUSKASING | 19P | 2P | 30P | 4P | 8 | 0 | 200 | 41 |
| PRINCE GEORGE | 14P | * | 29P | 4P | 7 | 0 | 010 | 41 | KENORA | 20P | 1P | 30P | 13P | 10 | 0 | 330 | 37 |
| PRINCE RUPERT | 14P | 1P | 18P | 9P | 2 | 0 | | * | KINGSTON | 20P | -1P | 25P | 14P | 28P | 0 | | X |
| REVELSTOKE | 17P | -2P | 29P | 10P | 16 | 0 | | * | LONDON | 22 | 2P | 33 | 11 | 28 | 0 | 280 | 80 |
| SMITHERS | 17P | 3P | 27P | 7P | 2 | 0 | 350 | 41 | MOOSONEE | 14P | -2P | 30P | -1P | 6P | 0 | 010 | 44 |
| VANCOUVER INT'L | 16P | -2P | 23P | 9P | 23 | 0 | 130 | 31 | NORTH BAY | 19P | 0P | 27P | 6P | 12 | 0 | 360 | 43 |
| VICTORIA INT'L | 16P | -1P | 25P | 8P | 1 | 0 | | * | OTTAWA INT'L | 22P | 1P | 30P | 13P | 6 | 0 | | X |
| WILLIAMS LAKE | 15P | * | 27P | 7P | 27 | 0 | | X | PETAWAWA | 20P | 1P | 31P | 7P | 3 | 0 | | X |
| YUKON TERRITORY | | | | | | | | | PICKLE LAKE | 18P | 0P | 30P | 9P | 17 | 0 | 340 | 43 |
| DAWSON | 17P | * | 31P | 9P | 12 | 0 | | * | RED LAKE | 19P | 0P | 29P | 9P | 28 | 0 | 240 | 44 |
| MAYO | 19P | 4P | 30P | 10P | 4 | 0 | | X | SUDBURY | 19P | 0P | 27P | 9P | 19 | 0 | | X |
| SHINGLE POINT A | 12P | 0P | 25P | 5P | 17 | 0 | | * | THUNDER BAY | 18P | 0P | 30P | 11P | 12 | 0 | 210 | 41 |
| WATSON LAKE | 19P | 5P | 29P | 11P | 1 | 0 | 250 | 41 | TIMMINS | 19P | 1P | 31P | 2P | 13 | 0 | 330 | 41 |
| WHITEHORSE | 18P | 4P | 29P | 8P | 14 | 0 | 040 | 59 | TORONTO INT'L | 22P | 1P | 30P | 13P | 71 | 0 | 030 | 57 |
| NORTHWEST TERRITORIES | | | | | | | | | TRENTON | 21P | 0P | 31P | 13P | 5 | 0 | | X |
| ALERT | 0P | -4P | 1P | -3P | 4P | 0 | 340 | 41 | WIARTON | 21P | 2P | 29P | 9P | 19 | 0 | | X |
| BAKER LAKE | 10P | -2P | 26P | 3P | 1 | 0 | 250 | 52 | WINDSOR | 26P | 3P | 35P | 16P | 3 | 0 | 330 | 37 |
| CAMBRIDGE BAY | 6P | -2P | 12P | 2P | 2 | 0 | | * | QUEBEC | | | | | | | | |
| CAPE DYER | 3P | -2P | 8P | -1P | 19 | 8 | 210 | 39 | BAGOTVILLE | 18P | 0P | 29P | 8P | 33 | 0 | 280 | 48 |
| CLYDE | 0P | -4P | 7P | -2P | 30P | 14 | 330 | 74 | BLANC SABLON | 14P | * | 26P | 5P | 4 | 0 | | X |
| COPPERMINE | 8P | * | 19P | 4P | 13 | 0 | 340 | 56 | INUKJUAQ | 11P | 1P | 17P | 4P | 33P | 0 | 320 | 56 |
| CORAL HARBOUR | 9P | 0P | 15P | 2P | 3 | 0 | | X | KUUJUAQ | 13P | 1P | 26P | 3P | 3 | 0 | 270 | 69 |
| EUREKA | 5P | 0P | 11P | 1P | 0P | 0 | 270 | 33 | KUUJUAPIK | 11P | 1P | 27P | 1P | 2 | 0 | 150 | 52 |
| FORT SMITH | 14P | -3P | 23P | 5P | 9 | 0 | | X | MANIWAKI | 20P | 1P | 30P | 7P | 13P | 0 | 350 | 35 |
| FROBISHER BAY | 8P | 0P | 12P | 4P | 46 | 0 | 320 | 70 | MONT JOLI | 17P | -1P | 25P | 9P | 25 | 0 | 290 | 44 |
| HALL BEACH | 5P | 0P | 10P | 1P | 8 | 0 | 280 | 41 | MONTREAL INT'L | 22P | 0P | 30P | 13P | 6 | 0 | 260 | 43 |
| INUVIK | 14P | -1P | 26P | 6P | 4 | 0 | | X | NATASHQUAN | 15P | 0P | 24P | 9P | 3P | 0 | 270 | 50 |
| MOULD BAY | 3 | -1 | 9 | -1 | 3 | 0 | | X | QUEBEC | 20P | 0P | 28P | 10P | 20 | 0 | 010 | 56 |
| NORMAN WELLS | 16P | -1P | 30P | 8P | 10 | 0 | | X | SCHEFFERVILLE | 15P | 2P | 25P | 7P | 39P | 0 | 190 | 50 |
| RESOLUTE | 3P | -1P | 9P | -1P | 2 | 0 | 350 | 48 | SEPT-ILES | 16P | 0P | 23P | 8P | 20 | 0 | 340 | 63 |
| SACHS HARBOUR | | | | | | | | * | SHERBROOKE | 18P | 0P | 29P | 9P | 2 | 0 | | * |
| YELLOWKNIFE | 14P | -3P | 22P | 9P | 1 | 0 | 330 | 56 | VAL D'OR | 18P | 1P | 29P | 4P | 10 | 0 | 360 | 44 |
| ALBERTA | | | | | | | | | NEW BRUNSWICK | | | | | | | | |
| CALGARY INT'L | 14P | -3P | 26P | 7P | 41 | 0 | 270 | 87 | CHARLO | 18P | 0P | 29P | 9P | 51 | 0 | 280 | 59 |
| COLD LAKE | 17P | -1P | 26P | 9P | 32 | 0 | 160 | 63 | CHATHAM | 18P | -1P | 30P | 10P | 29 | 0 | 330 | 44 |
| CORONATION | 15P | -3P | 28P | 7P | * | 0 | 180 | 56 | FREDERICTON | 19P | -1P | 30P | 10P | 29 | 0 | 030 | 63 |
| EDMONTON NAMAQ | 16P | -1P | 27P | 10P | 66 | 0 | 020 | 70 | MONCTON | 18P | -1P | 29P | 11P | 40 | 0 | 260 | 41 |
| FORT MCMURRAY | 16P | -1P | 29P | 7P | 49 | 0 | | X | SAINT JOHN | 17P | 0P | 26P | 10P | 17 | 0 | 060 | 46 |
| HIGH LEVEL | 15P | -1P | 29P | 3P | 1 | 0 | 350 | 33 | NOVA SCOTIA | | | | | | | | |
| JASPER | 13P | -3P | 27P | 5P | 54 | 0 | | X | GREENWOOD | 18P | -2P | 29P | 8P | 4 | 0 | 350 | 59 |
| LETHBRIDGE | 17P | -3P | 29P | 8P | 3 | 0 | 230 | 98 | SHEARWATER | 17P | -1P | 24P | 11P | 34 | 0 | 360 | 54 |
| MEDICINE HAT | 16P | -5P | 30P | * | 22 | 0 | 250 | 83 | SYDNEY | 16P | -2P | 27P | 8P | 26 | 0 | 220 | 65 |
| PEACE RIVER | 17P | 1P | 28P | 8P | 24 | 0 | 350 | 46 | YARMOUTH | 16P | -1P | 25P | 11P | 12 | 0 | 220 | 48 |
| SASKATCHEWAN | | | | | | | | | PRINCE EDWARD ISLAND | | | | | | | | |
| CREE LAKE | 14P | -2P | 22P | 8P | 35 | 0 | 270 | 50 | CHARLOTTETOWN | 18P | -1P | 27P | 10P | 13 | 0 | 030 | 37 |
| ESTEVAN | 20P | -1P | 28P | 11P | 26 | 0 | 090 | 67 | SUMMERSIDE | 18P | -1P | 27P | 12P | 23 | 0 | 200 | 52 |
| LA RONGE | 16P | -1P | 24P | 5P | 33 | 0 | 320 | 78 | NEWFOUNDLAND | | | | | | | | |
| REGINA | 18P | -2P | 28P | 9P | 21 | 0 | 260 | 56 | CARTWRIGHT | 13P | 1P | 28P | 3P | 21 | 0 | 210 | 56 |
| SASKATOON | 17P | -1P | 25P | 8P | 34 | 0 | 270 | 54 | CHURCHILL FALLS | 17P | 3P | 27P | 6P | 4 | 0 | 010 | 52 |
| SWIFT CURRENT | 17P | -2P | 27P | 10P | 24 | 0 | | X | GANDER INT'L | 16P | -1P | 27P | 8P | 17 | 0 | 080 | 35 |
| YORKTON | 17P | -2P | 25P | 9P | 7 | 0 | 240 | 63 | GOOSE | 17P | 2P | 29P | 6P | 11 | 0 | 240 | 44 |
| MANITOBA | | | | | | | | | PORT-AUX-BASQUES | 14P | 1P | 19P | 11P | 20 | 0 | 080 | 61 |
| BRANDON | 18P | -1P | 27P | 9P | 18 | 0 | 310 | 52 | ST JOHN'S | 15P | -1P | 25P | 9P | 29 | 0 | 220 | 81 |
| CHURCHILL | 9P | -4P | 20P | 3P | 15 | 0 | 340 | 72 | ST LAWRENCE | 14P | 1P | 21P | 9P | 53P | 0 | | X |
| LYNN LAKE | 12P | -3P | 21P | 2P | 18 | 0 | 290 | 52 | WABUSH LAKE | 17P | 3P | 25P | 8P | 11 | 0 | 180 | 46 |

AV = weekly mean temperature in degree C
 MX = weekly extreme maximum temperature in degree C
 MN = weekly extreme minimum temperature in degree C
 TP = weekly total precipitation in mm
 DP = departure of mean temperature from normal in degree C
 SOG = snow depth on ground in cm, last day of the period

DIR = direction of maximum wind speed (deg. from true north)
 SPD = maximum wind speed in km/hour

X = not observed

P = value based on less than 7 days

* = missing

