

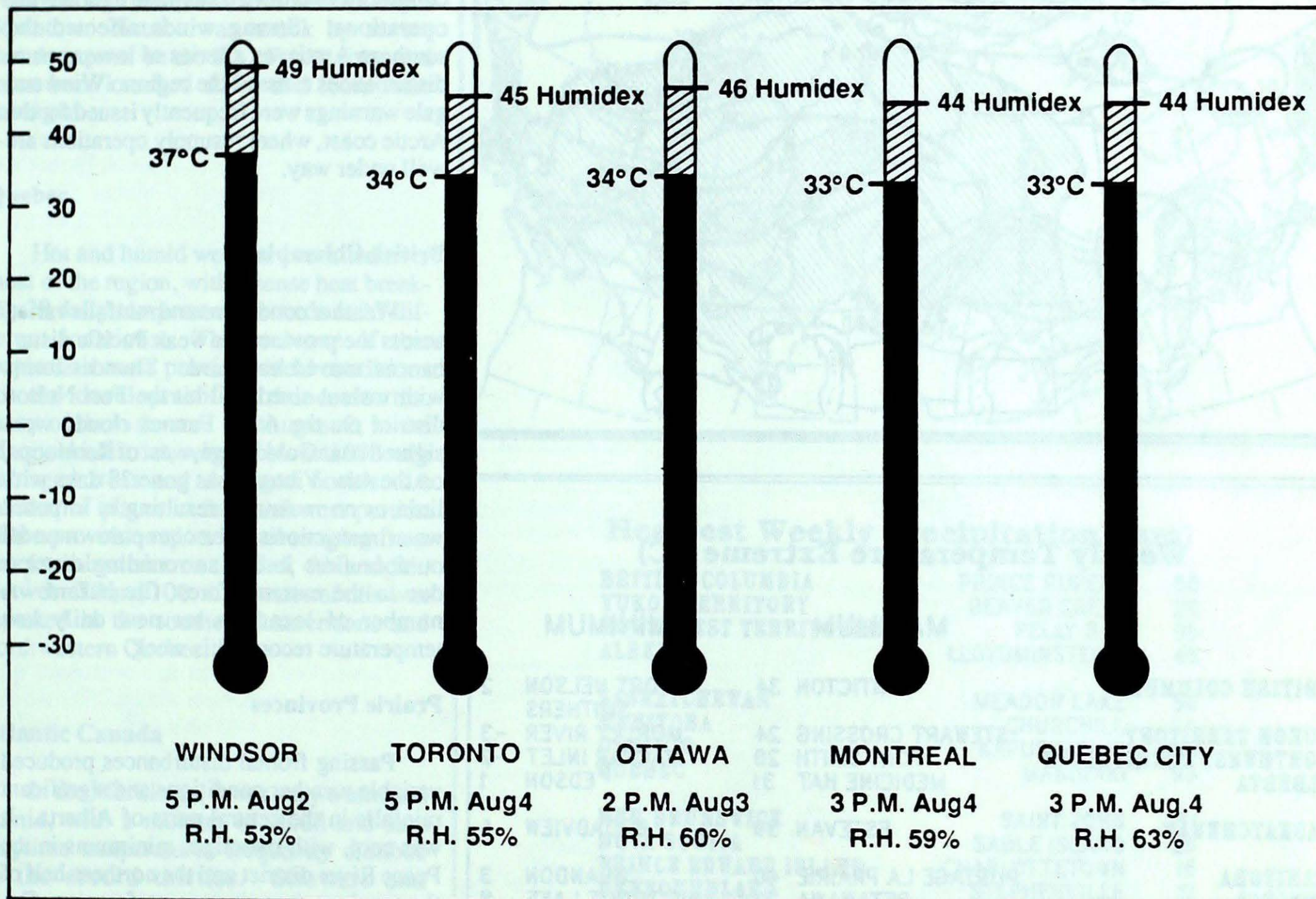
# Climatic Perspectives



August 2 to 8, 1988

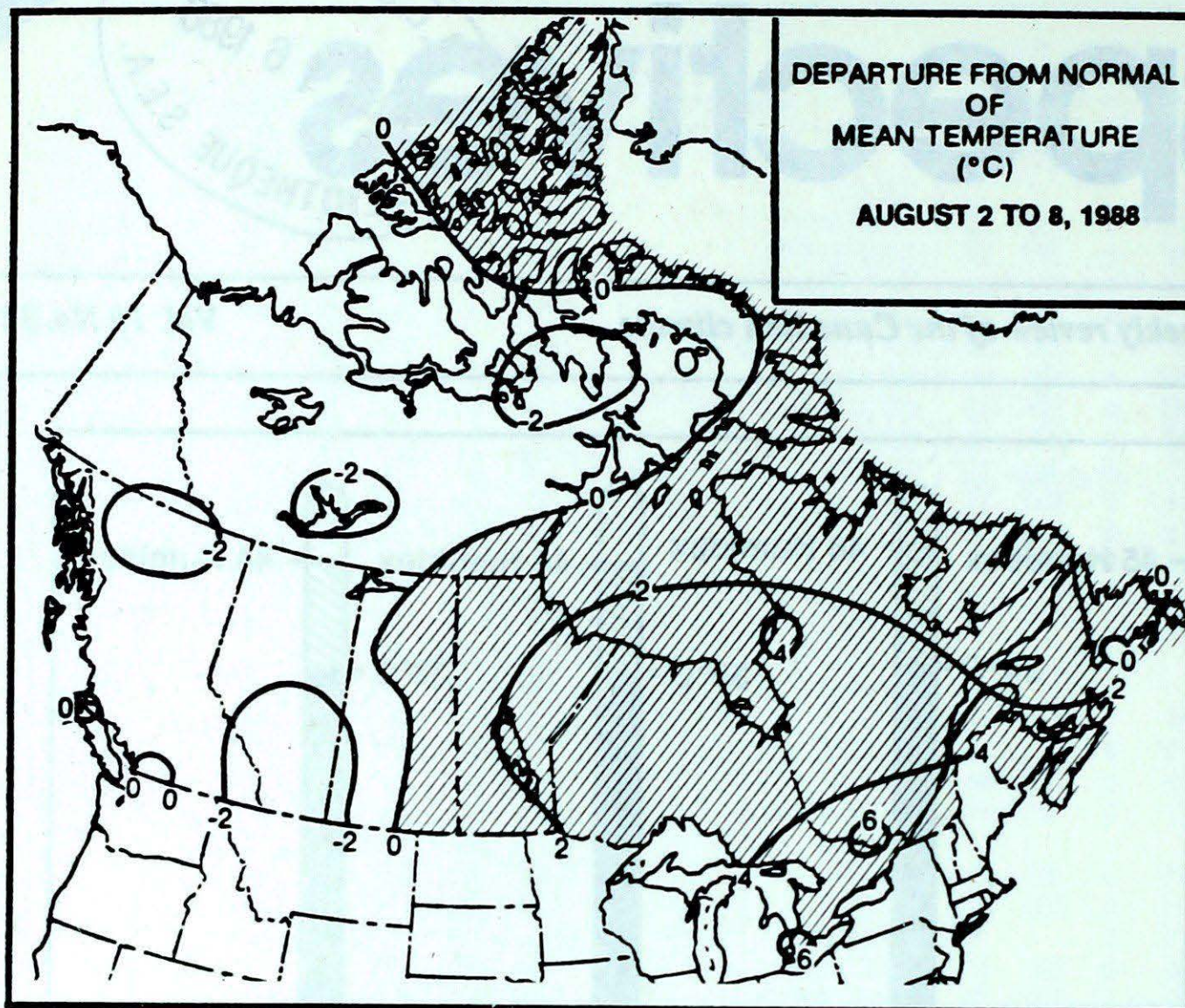
A weekly review of the Canadian climate

Vol. 10 No. 32



Last week's high relative humidity (*R.H.*) values in excess of 50 percent, combined with temperatures in the mid-thirties throughout southern Ontario and Quebec, drove up the human discomfort index (humidex) into the mid-forties. The date and time of maximum humidex values are shown. See page 3 for more details.

- **Hot humid weather spawns numerous severe thunderstorms over most of Eastern Canada**
- **Cool and unsettled in the West**



**Across the country ...**

**Yukon and the Northwest Territories**

With few exceptions, it was dull and wet in the Yukon. Temperatures were near or slightly below normal. The cool, cloudy and wet weather this summer has been a disappointment for tourists. Ranchers are anxiously awaiting sunnier, drier weather conditions in order to complete their haying operations. Strong winds affected the southern Arctic, as a series of low pressure disturbances crossed the region. Wind and gale warnings were frequently issued for the Arctic coast, where resupply operations are well under way.

**British Columbia**

Weather conditions and rainfalls varied across the province, as weak Pacific disturbances moved eastward. Thunderstorms with walnut sized hail hit the Fort Nelson district on the 6th. Funnel clouds were sighted near Gold Ridge, west of Kamloops, on the 4th. Victoria has gone 28 days with little or no moisture, resulting in imposed water restrictions and a clamp-down on all outdoor fires in the surrounding districts due to the extreme forest fire hazard. A number of locations set new daily low temperature records this week.

**Prairie Provinces**

Passing frontal disturbances produced variable weather conditions and significant rainfalls in the central parts of Alberta. It was cool, with overnight minimums in the Peace River district and the northern half of the province dropping to near freezing. Except in the extreme south, where crops have already wilted because of the lack of rain, this weeks rainfalls were very beneficial.

Saskatchewan and Manitoba started off cool and wet, with grain growing areas receiving substantial amounts of rain during the early and latter parts of the period. On Saturday, southern Manitoba experienced the hottest day of the year. Most locations experienced maximums over 38C, with Portage La Prairie the hottest at 40C, Winnipeg and Brandon at 39C.

**Ontario**

The province suffered through yet another heat wave, as hot sultry air moved

**Weekly Temperature Extreme (°C)**

	MAXIMUM	MINIMUM
<b>BRITISH COLUMBIA</b>	PENTICTON 34	FORT NELSON 2 SMITHERS
<b>YUKON TERRITORY</b>	STEWART CROSSING 24	MORLEY RIVER -3
<b>NORTHWEST TERRITORIES</b>	FORT SMITH 28	MACKAR INLET -2
<b>ALBERTA</b>	MEDICINE HAT 31	EDSON 1
<b>SASKATCHEWAN</b>	ESTEVAN 39	BROADVIEW 4
<b>MANITOBA</b>	PORTAGE LA PRAIRIE 40	BRANDON 3
<b>ONTARIO</b>	PETAWAWA 37	BIG TROUT LAKE 8 MOOSONEE
<b>QUEBEC</b>	MONTREAL INT'L 33	LA GRANDE RIVIERE 4
<b>NEW BRUNSWICK</b>	FREDERICTON 34	CHARLO 11
<b>NOVA SCOTIA</b>	GREENWOOD 32	WESTERN HEAD 9
<b>PRINCE EDWARD ISLAND</b>	SUMMERSIDE 29	CHARLOTTETOWN 16
<b>NEWFOUNDLAND</b>	GOOSE 29	DEER LAKE 2

**ACROSS THE NATION**

<b>WARMEST MEAN TEMPERATURE</b>	28	WINDSOR	ONT
<b>COOLEST MEAN TEMPERATURE</b>	2	MOULD BAY	NWT

up from the Gulf of Mexico. Daytime temperatures and the humidex soared to the mid-thirties and forties, respectively, August 3 through August 5. The high heat and humidity resulted in the development of many severe afternoon and evening thunderstorms, with frequent lightning, strong gusty winds and hail. On August 2, a tornado was sighted near Petawawa. On August 4, tornadoes were reported near Peterborough and Bancroft. North Bay's downtown district was struck by severe thunderstorms on the 5th. Power lines and trees were knocked down and roofs were damaged.

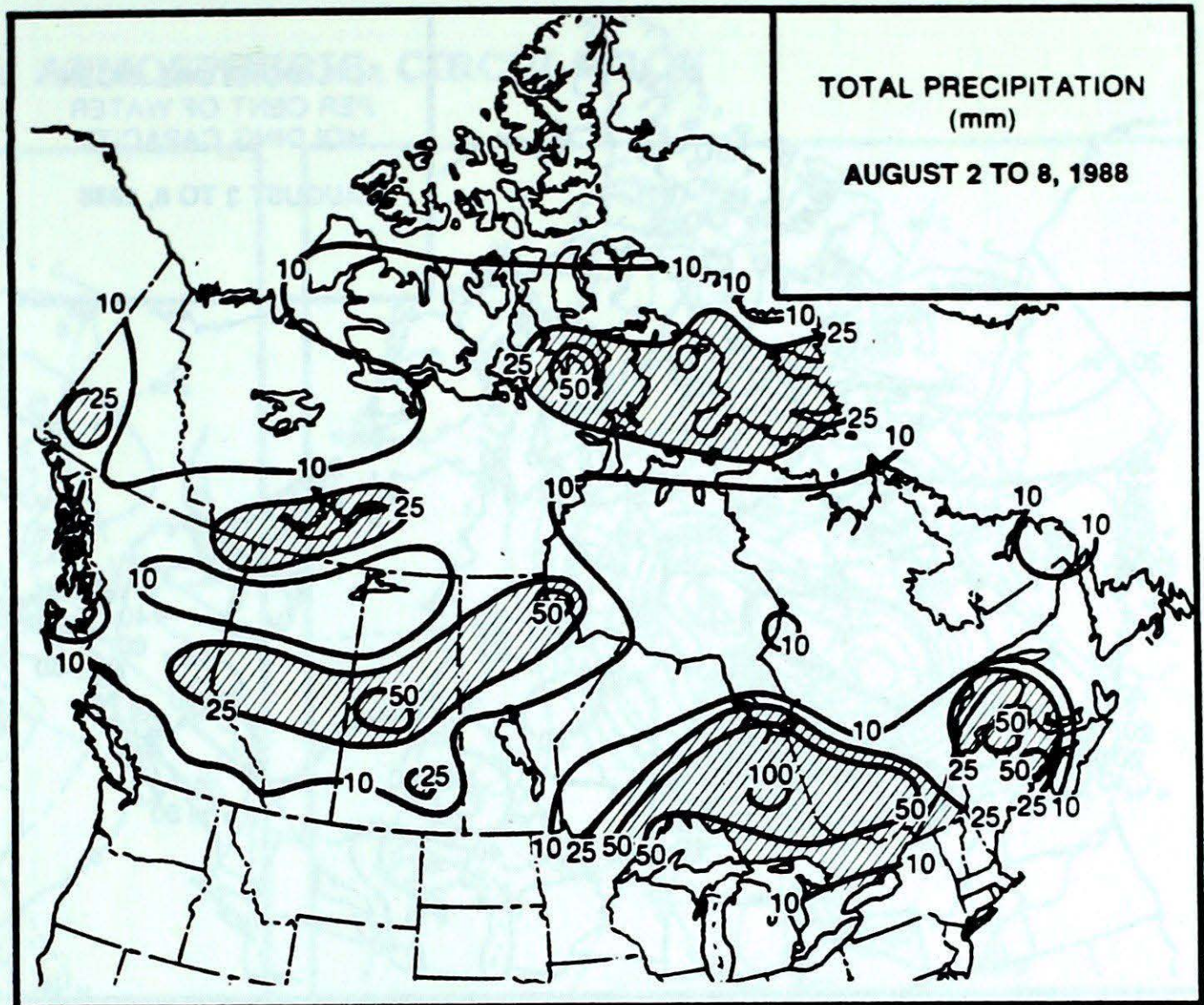
**Quebec**

Hot and humid weather prevailed over most of the region, with intense heat breaking 28 daily temperature records at 13 different locations. The presence of this tropical air mass provided ideal conditions for the development of thunderstorms, many of them severe. On August 2, in the Maniwaki district, wind gusts to 100 km/h damaged trees and damaged homes. A number of places in the southwest portion of the province reported hail ranging from pea to walnut size on the 3rd, 4th and 5th. Between 70 and 100 millimetres of rain was reported in the southern Laurentians and northwestern Quebec.

**Atlantic Canada**

In the Maritimes, it was very warm and humid, with a mixture of cloud and sun. Daytime temperatures frequently climbed to the record thirties. Showers and thunderstorms were reported most days, producing wide ranging precipitation. Several funnel clouds were spotted near Greenwood early in the evening on the 8th. Tropical Storm Alberto fizzled out as it moved through southeastern New Brunswick on the 7th, but not before winds reached nearly 80 km/h at both Saint John and Yarmouth.

Labrador and Newfoundland experienced generally fair weather with near seasonable temperatures. Showers and occasional thunderstorms crossed the province during the middle of the week and again towards the weekend. The remnants from tropical storm Alberto approached the western sections of the Island on Monday.



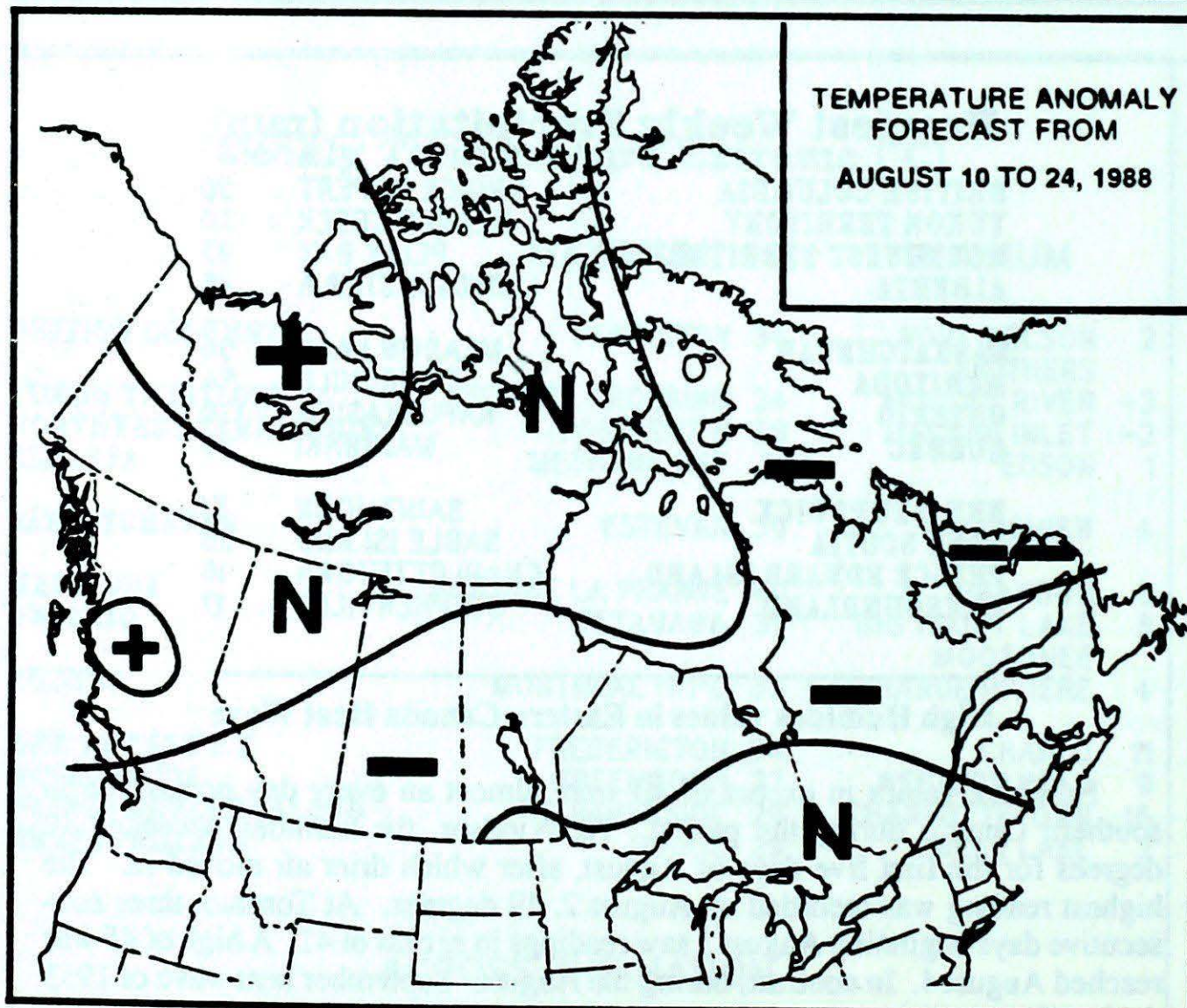
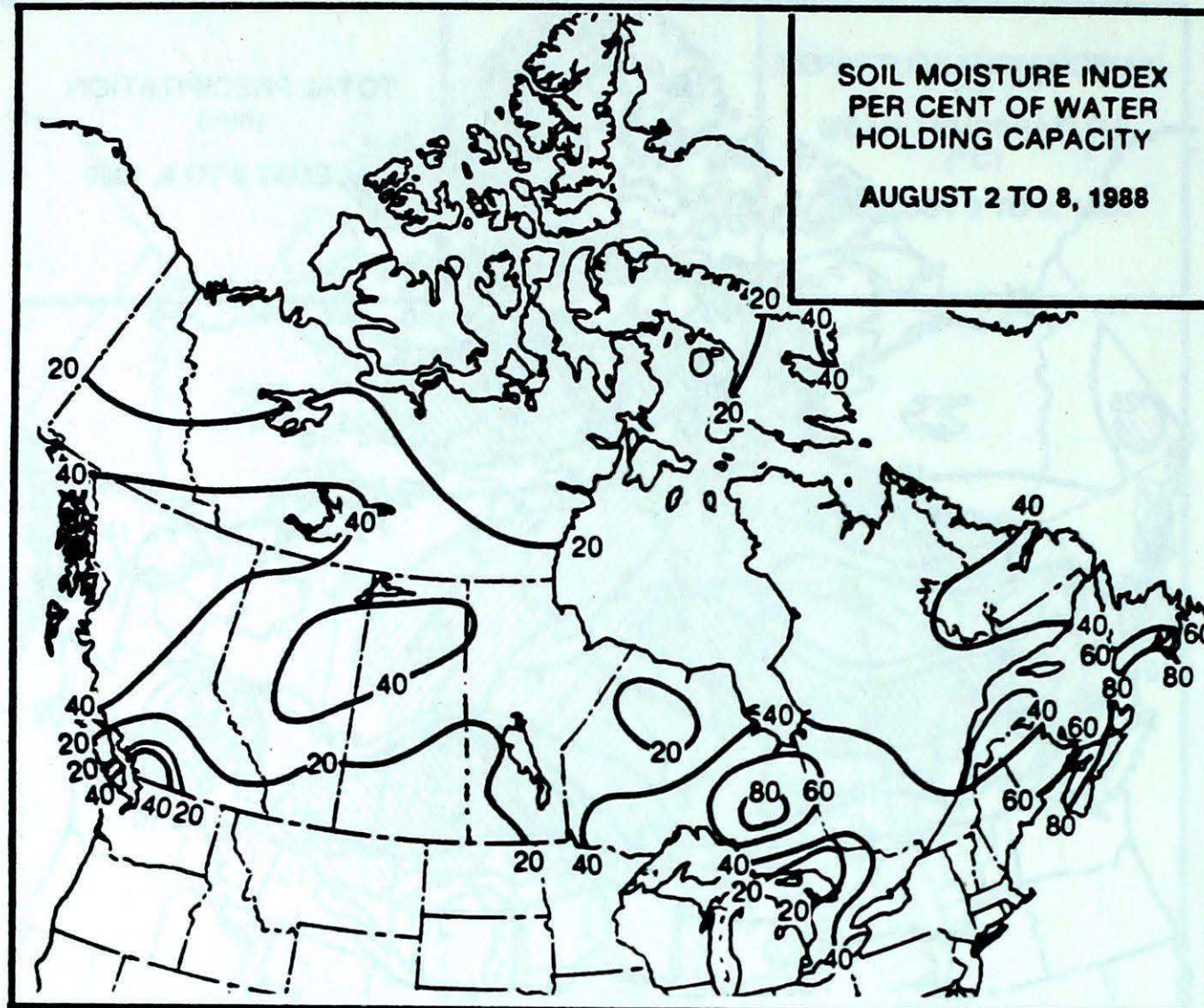
**Heaviest Weekly Precipitation (mm)**

<b>BRITISH COLUMBIA</b>	PRINCE RUPERT	50
<b>YUKON TERRITORY</b>	BEAVER CREEK	30
<b>NORTHWEST TERRITORIES</b>	PELLY BAY	95
<b>ALBERTA</b>	LLOYDMINSTER A	45
<b>SASKATCHEWAN</b>	MEADOW LAKE	56
<b>MANITOBA</b>	CHURCHILL	54
<b>ONTARIO</b>	KAPUSKASING	120
<b>QUEBEC</b>	MANIWAKI	99
<b>NEW BRUNSWICK</b>	SAINT JOHN	51
<b>NOVA SCOTIA</b>	SABLE ISLAND	25
<b>PRINCE EDWARD ISLAND</b>	CHARLOTTETOWN	16
<b>NEWFOUNDLAND</b>	STEPHENVILLE	17

**High Humidex values in Eastern Canada Heat Wave**

Humidex values in excess of 40 were almost an every day occurrence in southern Ontario during the period. At Windsor, the humidex exceeded 42 degrees for the first five days of August, after which drier air moved in. The highest reading was recorded on August 2, 49 degrees. At Toronto, three consecutive days beginning August 3 saw readings in excess of 41. A high of 45 was reached August 4. In contrast, during the August - September heat wave of 1953 the humidex at Toronto reached an all time high of 48 degrees.

Humidex is a measure of discomfort, resulting from the combined effects of high temperature and humidity. Ranges of humidex and associated levels of discomfort are as follows: 20 - 29 comfortable; 30 - 39 varying degrees of discomfort; 40 - 45 almost everyone uncomfortable; over 45 many types of labour must be restricted



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

**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.

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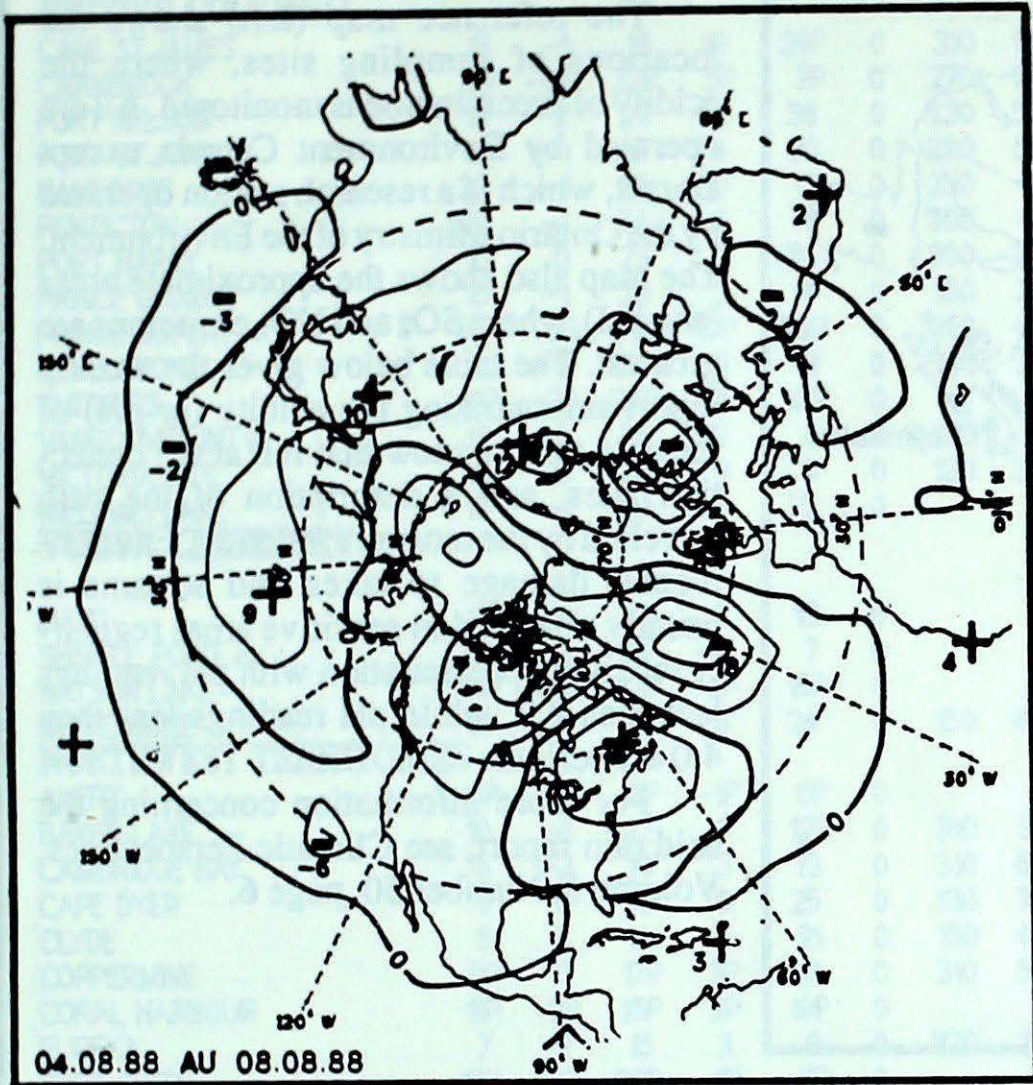
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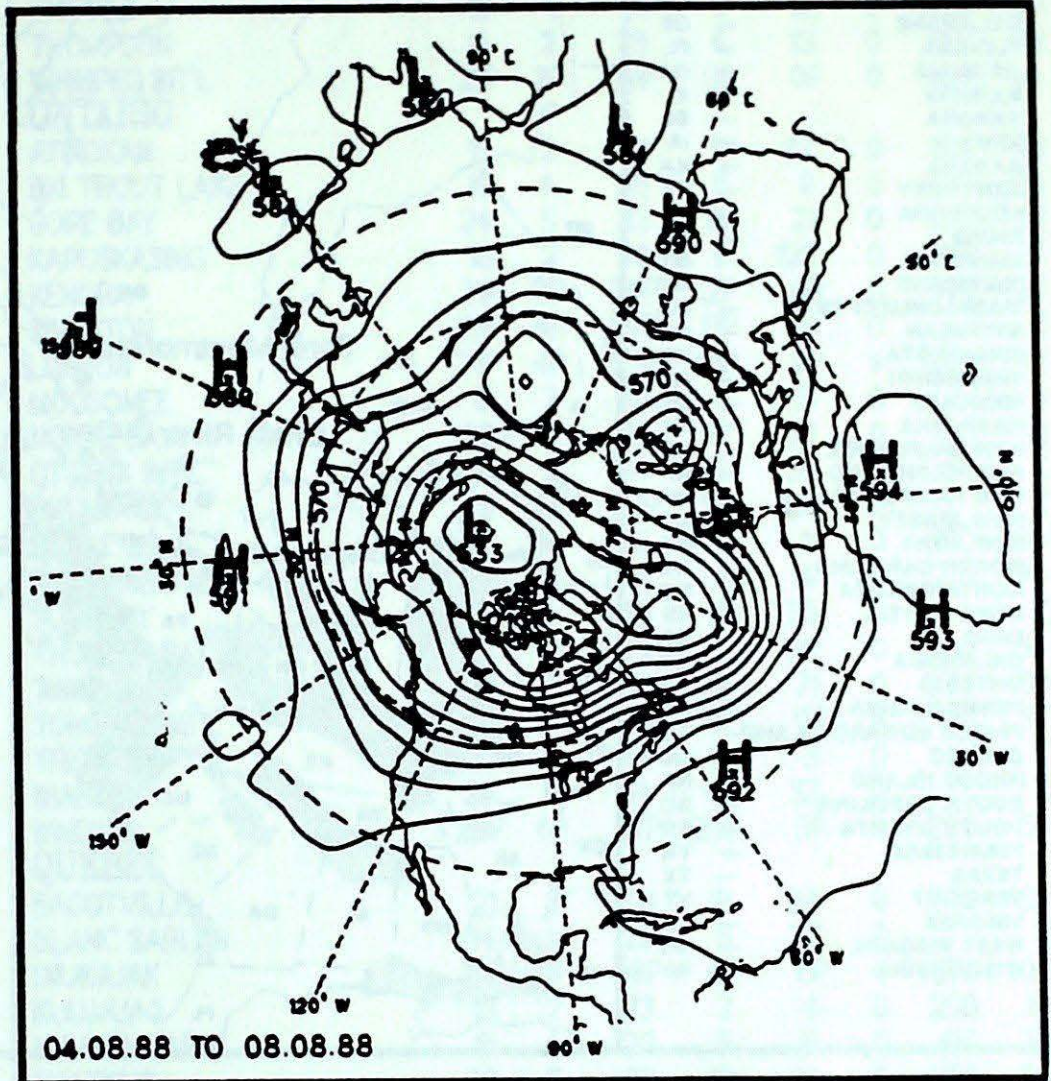
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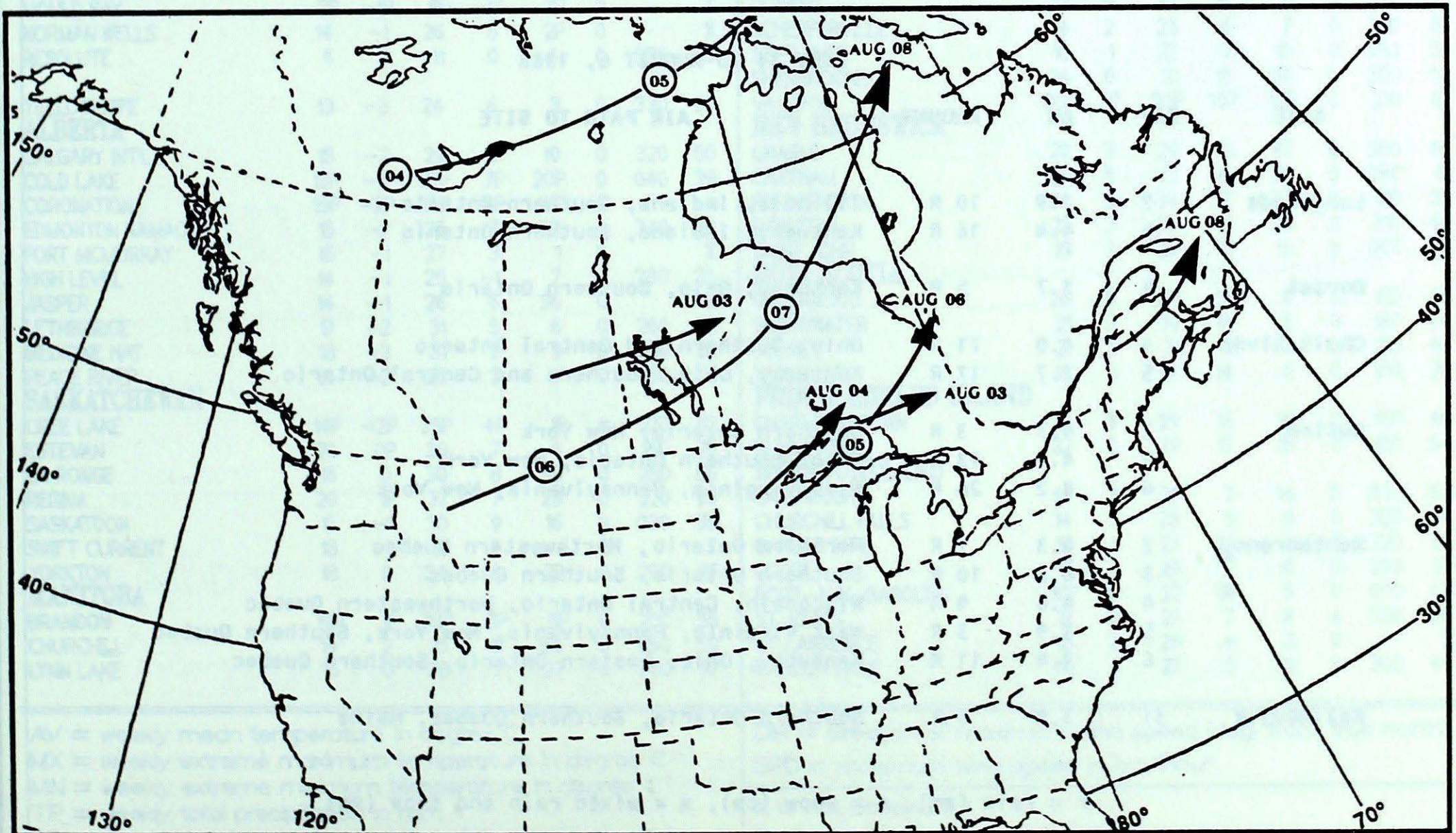
### 50 kPa ATMOSPHERIC CIRCULATION



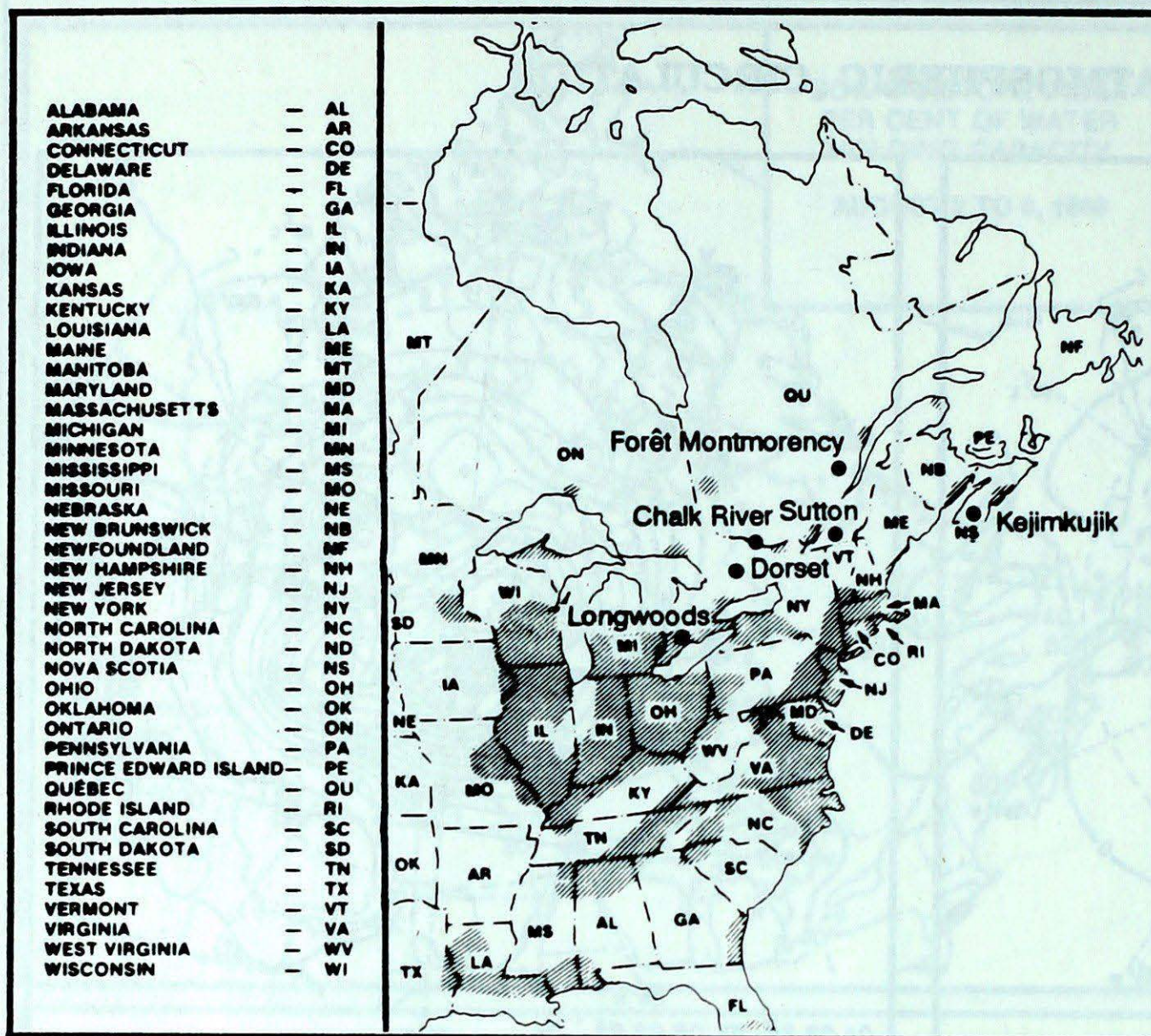
Mean geopotential height anomaly  
50 kPa level (5 decameter intervals)



Mean geopotential height  
50 kPa level (5 decameter intervals)



Storm track - Position of storm at 12 GMT during the period: August 2 to 8, 1988



### 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 SO<sub>2</sub> and NO<sub>x</sub> emissions are greatest. The table below gives the weekly report summarizing the acidity (or pH) of the acid 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 readings less than 4.7, while pH readings less than 4.0 are serious.

For more information concerning the acid rain report, see Climatic Perspectives, Volume 5, Number 50, page 6.

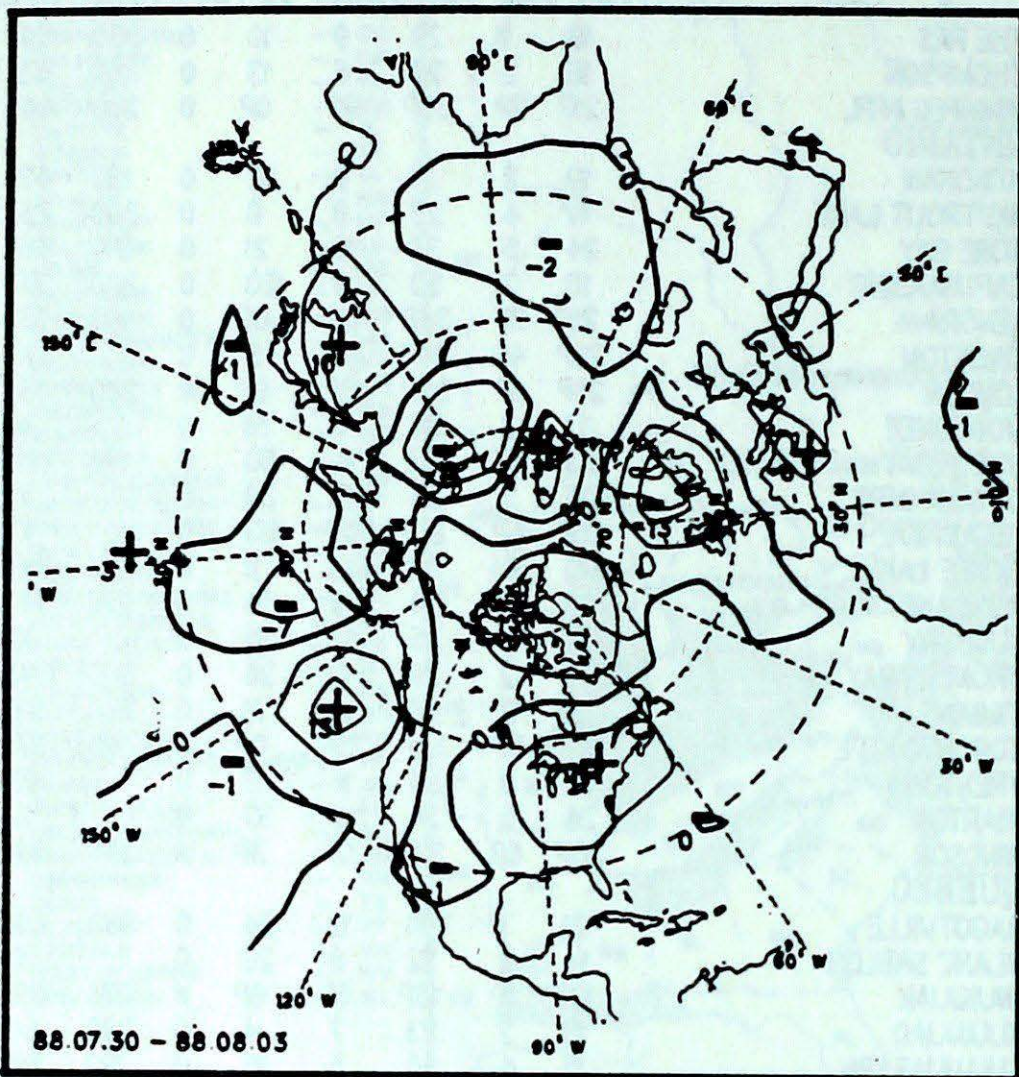
#### JULY 31 TO AUGUST 6, 1988

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	2	3.9	10 R	Illinois, Indiana, Southern Ontario
	5	4.4	16 R	Kentucky, Indiana, Southern Ontario
Dorset	5	3.7	5 R	Kentucky, Ohio, Southern Ontario
Chalk River	4	4.0	71 R	Ohio, Southern and Central Ontario
	5	3.7	17 R	Kentucky, Ohio, Southern and Central Ontario
Sutton	2	4.3	3 R	Southern Ontario, New York
	3	4.1	13 R	Ohio, Southern Ontario, New York
	6	4.2	26 R	West Virginia, Pennsylvania, New York
Montmorency	2	4.3	7 R	Northern Ontario, Northwestern Quebec
	3	4.2	10 R	Southern Ontario, Southern Quebec
	4	4.6	4 R	Wisconsin, Central Ontario, Northwestern Quebec
	5	3.9	3 R	West Virginia, Pennsylvania, New York, Southern Quebec
	6	3.4	11 R	Kentucky, Ohio, Eastern Ontario, Southern Quebec
Kejimikujik	31	3.9	6 R	Southern Ontario, Southern Quebec, Maine

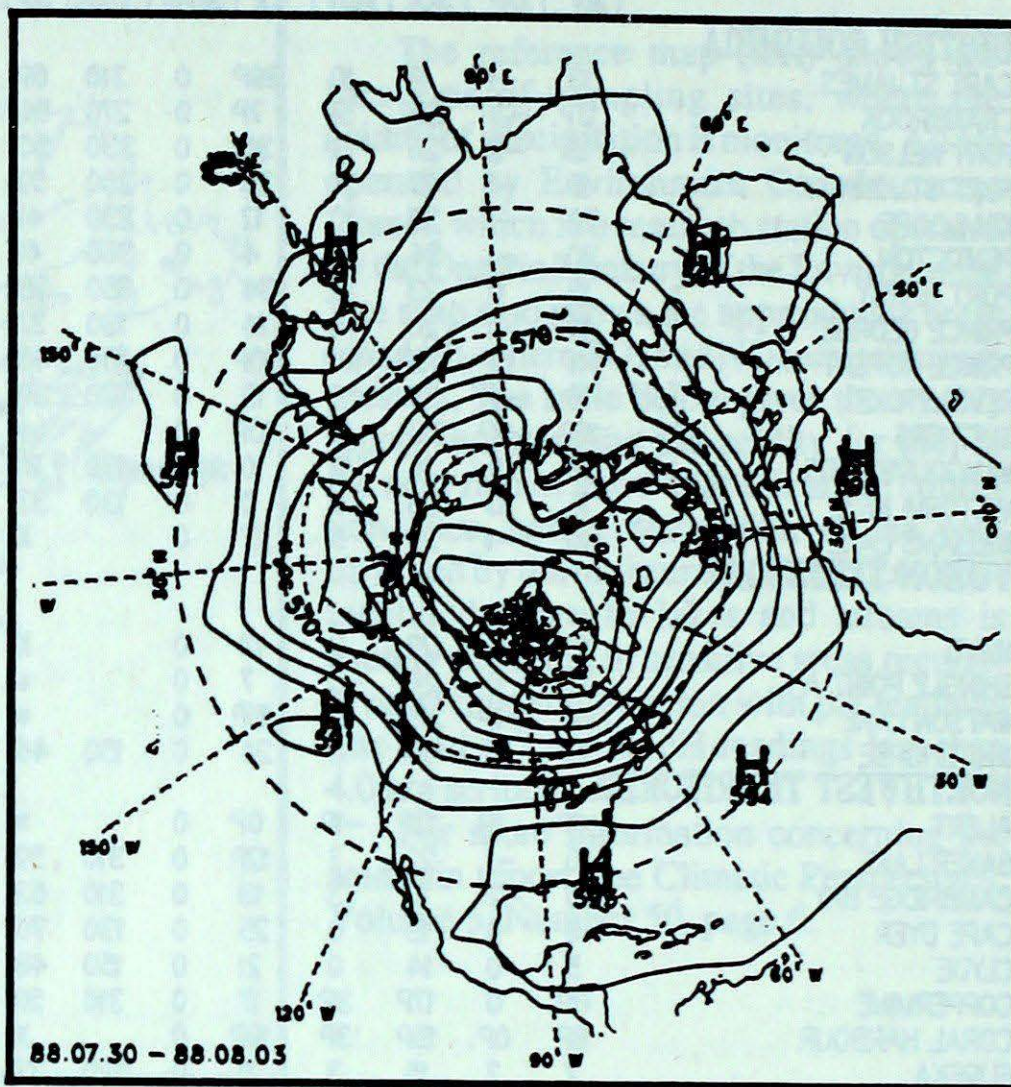
r = rain (mm), s = snow (cm), m = mixed rain and snow (mm)



### 50 kPa ATMOSPHERIC CIRCULATION



Mean geopotential height anomaly  
50 kPa level ( 5 decameter intervals)



Mean geopotential height  
50 kPa level ( 5 decameter intervals)

