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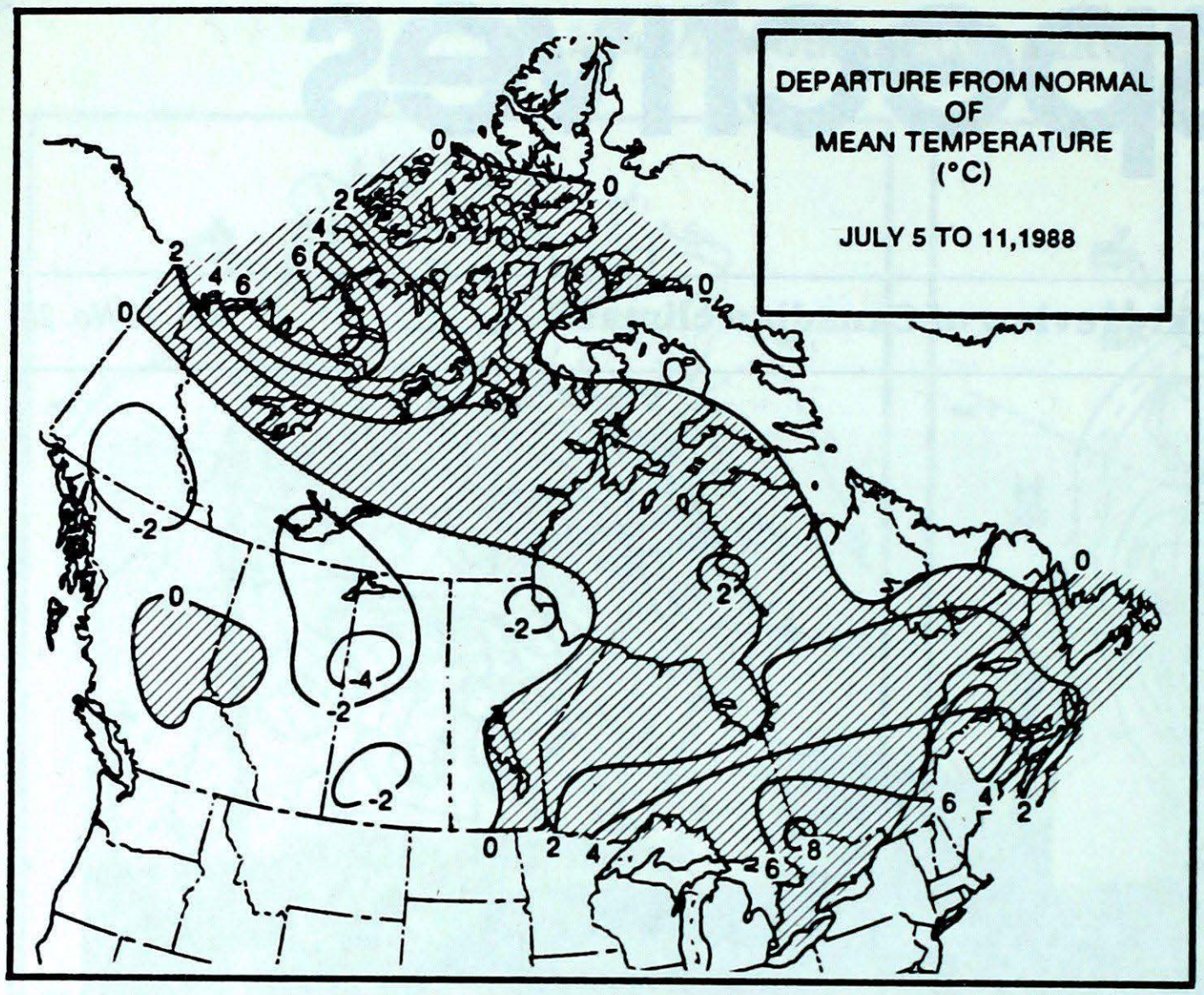
Climatic Perspectives

July 5 to 11, 1988 **A weekly review of Canadian climate** *Vol. 10 No. 28*

In Edmonton, on July 7th, crews were kept busy opening flood-catch basins after the city's worst rainstorm in 35 years dumped up to 96 mm of rain in 30 hours. The storm flooded about 400 basements, several roads and overwhelmed the city's storm-drain system. See page 3 for more details on the Alberta rainstorm.

- **Record heat intensifies drought in southern Ontario**
- **More rain and flooding in central and northern Alberta**

Canada



Weekly Temperature extreme (°C)

	Maximum temperature		Minimum temperature	
BRITISH COLUMBIA	KAMLOOPS PENTICTON	34	ABBOTSFORD	1
YUKON TERRITORY	MAYO	24	KOMAKUK BEACH A	1
NORTHWEST TERRITORIES	CAPE YOUNG A NORMAN WELLS	26	CAPE HOOPER	-3
ALBERTA	MEDICINE HAT	33	COLD LAKE	-9
SASKATCHEWAN	MOOSE JAW	32	BROADVIEW	3
MANITOBA	GRETNA	32	CHURCHILL	1
ONTARIO	WINDSOR	38	MOOSONEE	3
QUEBEC	MANIWAKI	37	CHIBOUGAMAU	-7
NEW BRUNSWICK	CHATHAM	36	SAINT JOHN	10
NOVA SCOTIA	GREENWOOD	33	SHELBURNE	6
PRINCE EDWARD ISLAND	CHARLOTTETOWN	29	SUMMERSIDE	14
NEWFOUNDLAND	GOOSE	31	ST ANTHONY	2

ACROSS THE NATION

WARMEST MEAN TEMPERATURE	28	WINDSOR	ONT
COOLEST MEAN TEMPERATURE	1	BROUGHTON ISLAND	NWT
		LANGARA	BC

Across the country...

Yukon and Northwest Territories

In the Yukon, temperatures were near normal in all areas except the far north which was above normal. Dawson city recorded the weekly high with 24.3°C on the 6th. Precipitation was generally in the 5 to 15 mm range throughout the Yukon except at Beaver Creek where 66.7 mm fell. Across the Northwest Territories, wet weather was primarily confined to the Great Slave Lake region with Fort Smith recording a weekly total of 45.0 mm.

British Columbia

The week was generally cloudy and cool with precipitation in most areas. During the weekend though, the province enjoyed sunny, dry weather. Kamloops, which has been dry recently, received 11.4 mm of welcome rain. The only dry area in the province now remains along the east coast of Vancouver Island. Wet weather in the Okanagan Valley orchards has continued the problem of cherry splitting. Heavy rain along the Alaska Highway near Dawson Creek caused the road to washout.

Prairie Provinces

In Alberta, heavy rains made headlines in north and central regions. Both Flat Top Lookout and Deer Mountain Lookout in the Slave Lake region had 48-hour rainfall totals of 161.4 mm. Drought conditions persisted in the Medicine Hat and Coronation regions of southeastern Alberta.

In Manitoba and Saskatchewan, the early part of the period was hot and unsettled then cool and dry thereafter. On July 5th, there were numerous reports of funnel clouds and tornado sightings as well as extremely strong and damaging thunderstorm-associated winds. Severe weather continued on the 6th with some heavy rainfalls (70.8 mm at Brandon). Across northern areas of Saskatchewan and Manitoba, general rains of between 20 and 35 mm helped dampen any forest fires.

Ontario

Record breaking, hot, dry weather made headlines all across southern and central Ontario this week. A stationary ridge of high pressure over the eastern United States caused hot, dry smog-filled air to be pumped into the province. No less than 11 monthly maximum temperature records were shattered across central and southern Ontario. The new daily record of 37.2°C recorded in the city of Toronto on the 7th was the hottest day ever since September 2, 1953 (37.8°C). Once again rainfall was scarce in the south until the passage of cold front Sunday night brought slight relief of 2 to 4 mm in most areas. Meanwhile, storms entering north-western Ontario on the west side of a ridge, dumped a weekly total of 104.5 mm at Kenora. Widespread thunderstorm activity west of Thunder Bay caused power outages, downed trees and hail damage.

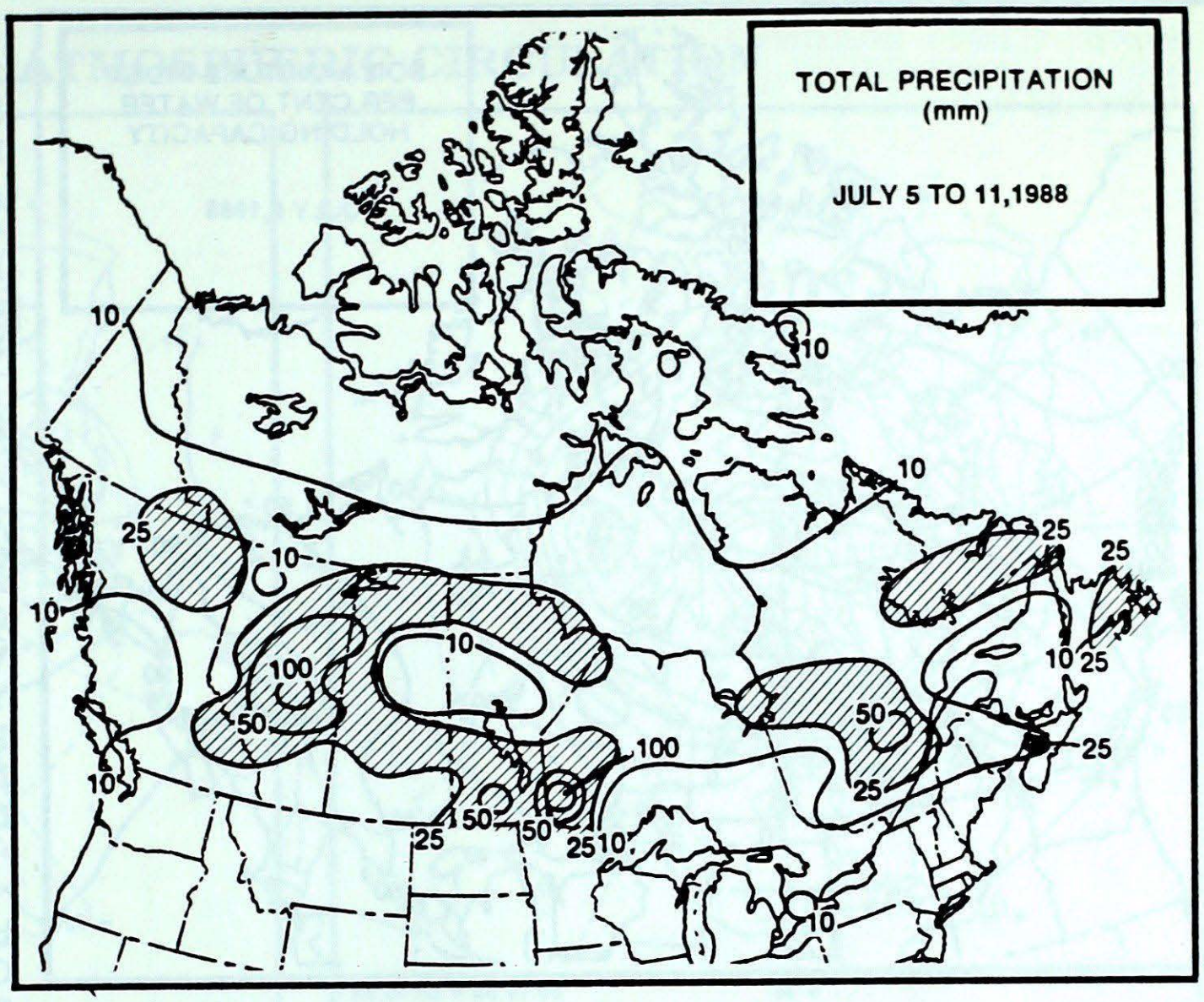
Quebec

After last week's cold wave, intense heat returned rapidly to affect the entire province except the far north. No less than 33 daily records and two monthly high temper-ature records were broken at 13 different localities. The monthly maximum temperature records were at Sainte-Agathe-des-Monts (33.6°C from 32.8°C in 1975) and Maniwaki (36.8°C from 36.7°C in 1977). In general, precipitation was less than 15 mm, but, local thunderstorms dumped some heavy rain. On the 8th, a storm dropped 18 mm of rain on Quebec City in 30 minutes, flooding basements and uprooting trees.

Atlantic Provinces

The heat wave of central Canada spread east to the Maritimes this week. Temperatures were as high as 33.4°C at Greenwood N.S. on July 11. Scattered showers and thunderstorms deluged some localities, such as Greenwood with 41.4 mm on July 10, while other places had no rain. On the 9th, a severe thunderstorm in the area of Astle Crossing N.B. knocked down trees and dumped hail

...Continued on page 8, Regions

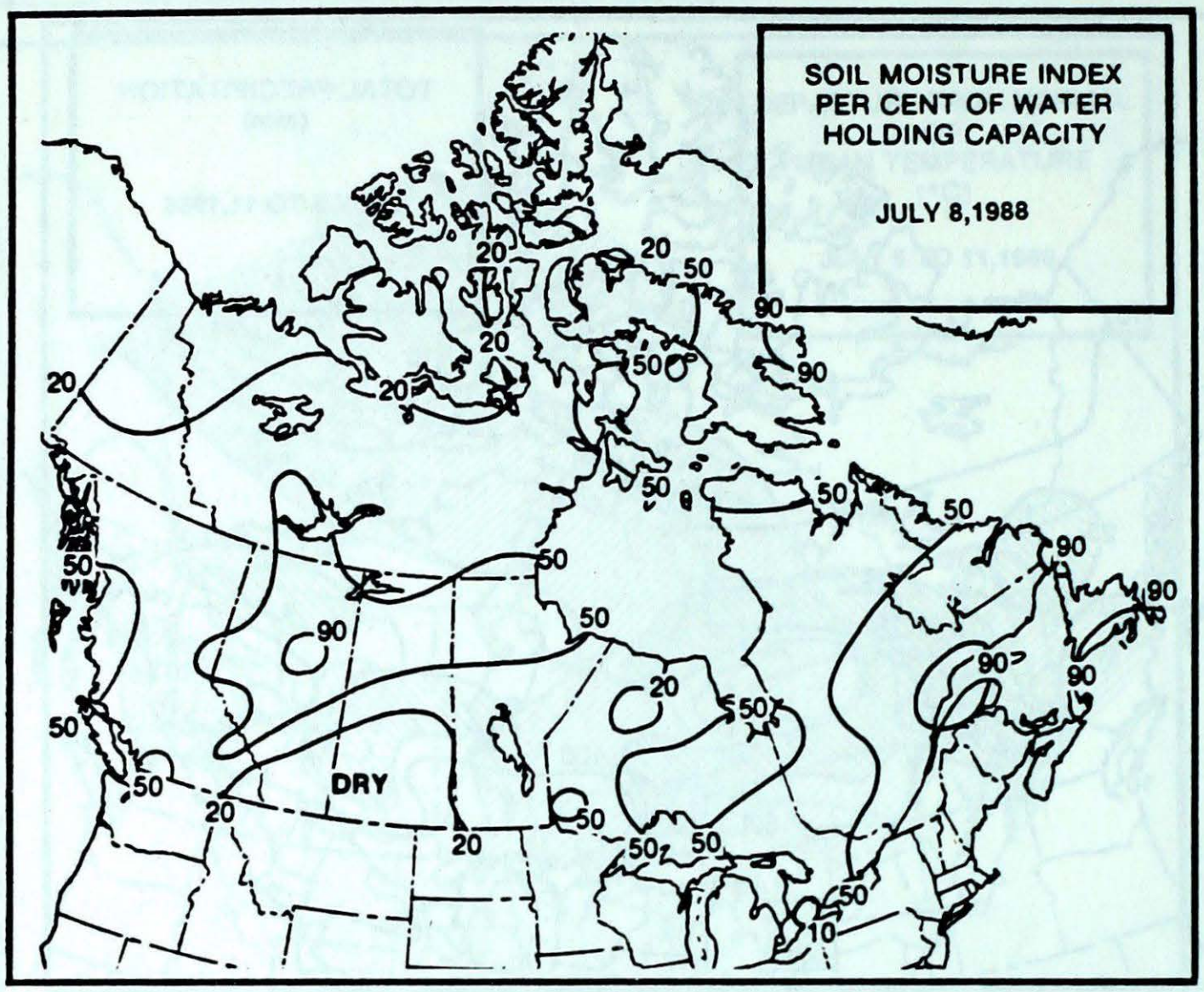


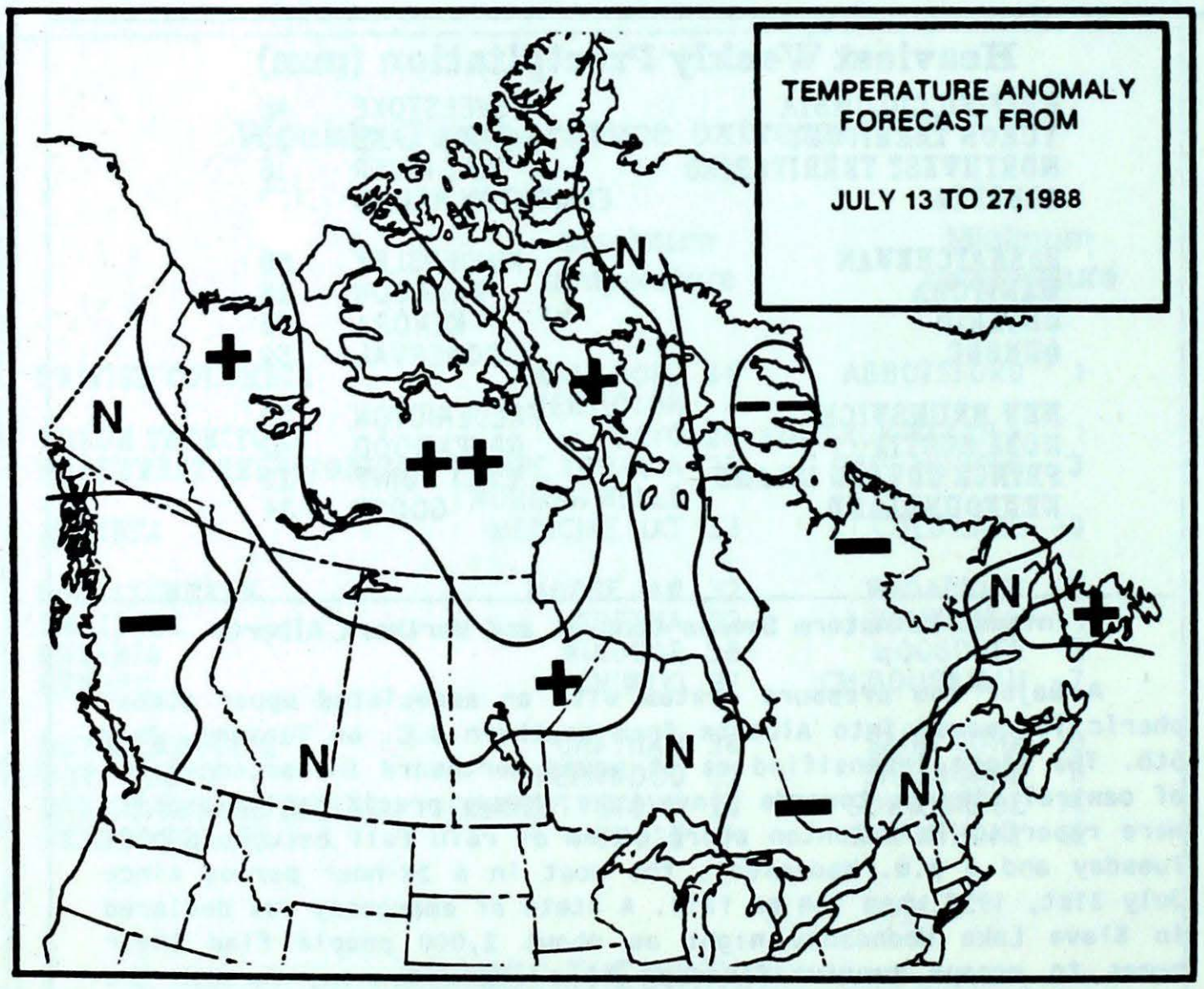
Heaviest Weekly Precipitation (mm)

BRITISH COLUMBIA	REVELSTOKE	45
YUKON TERRITORY	WATSON LAKE	25
NORTHWEST TERRITORIES	HAY RIVER	16
ALBERTA	EDMONTON NAMAO	105
SASKATCHEWAN	KINDERSLEY	58
MANITOBA	BRANDON	86
ONTARIO	KENORA	105
QUEBEC	ROBERVAL	59
NEW BRUNSWICK	FREDERICTON	23
NOVA SCOTIA	GREENWOOD	42
PRINCE EDWARD ISLAND	EAST POINT	23
NEWFOUNDLAND	GOOSE	34

Intense Rainstorm Swamps Central and Northern Alberta

A major low pressure system with an associated upper atmos-pheric low moved into Alberta from southern B.C. on Tuesday, July 5th. The storm intensified as it moved northward in eastern parts of central Alberta towards Slave Lake. Heavy precipitation amounts were reported in Edmonton where 84 mm of rain fell between 6 p.m. Tuesday and 6 p.m. Wednesday, the most in a 24-hour period since July 31st, 1953 when 114 mm fell. A state of emergency was declared in Slave Lake Wednesday night as about 2,000 people fled their homes to escape massive flooding of a creek running through the east section of this town located 220 km northeast of Edmonton. More than 51 mm of rain fell over a period of 36 hours raising the creek's water level more than four metres above normal. Meanwhile, the 260 residents of the Assumption Indian Reserve, 760 km north-west of Edmonton, were still evacuated from their homes because of flooding.





+ +	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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Unsolicited articles are welcome but should be at maximum about 1500 words in length. They will be subject to editorial change without notice due to publishing time constraints. The contents may be reprinted freely with proper credit.

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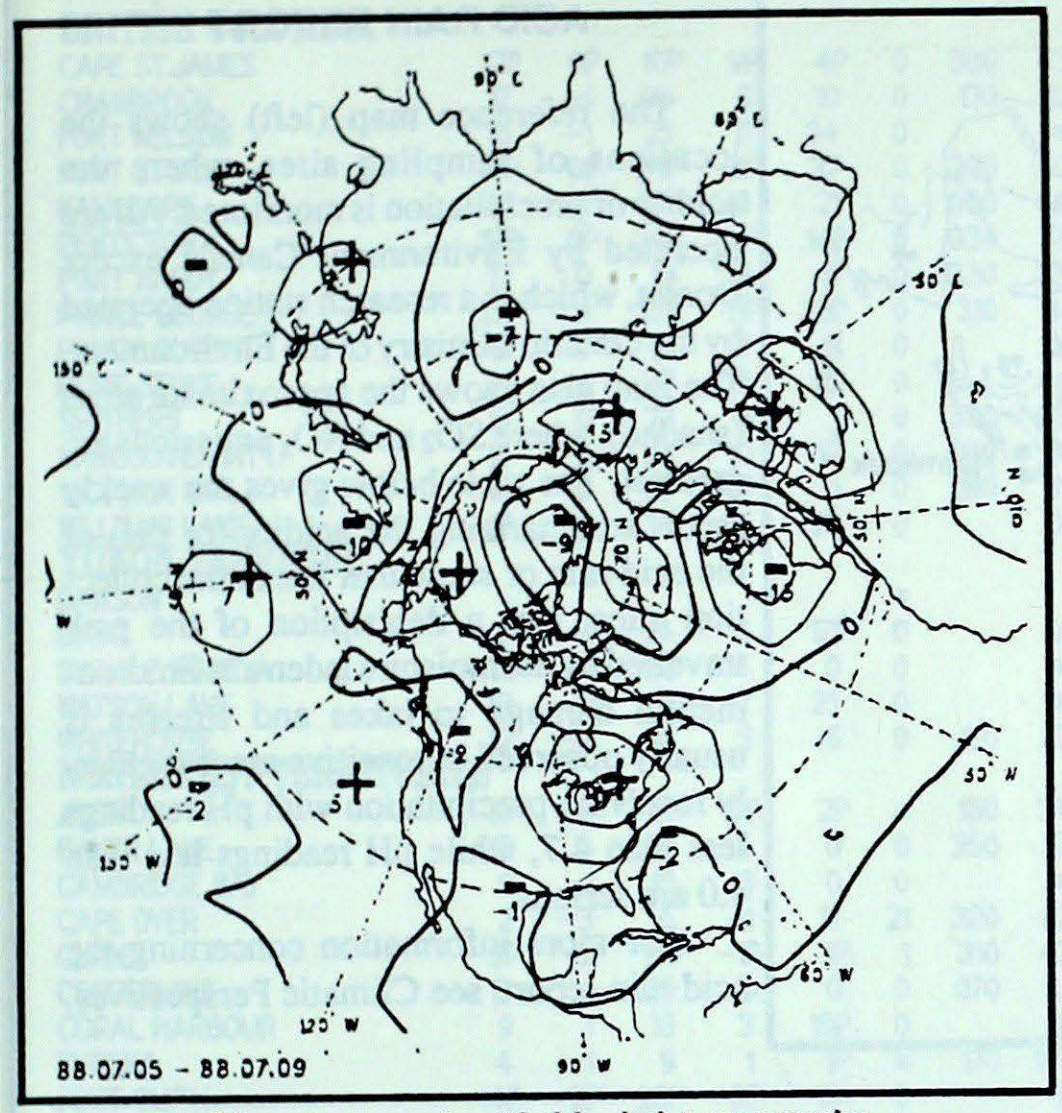
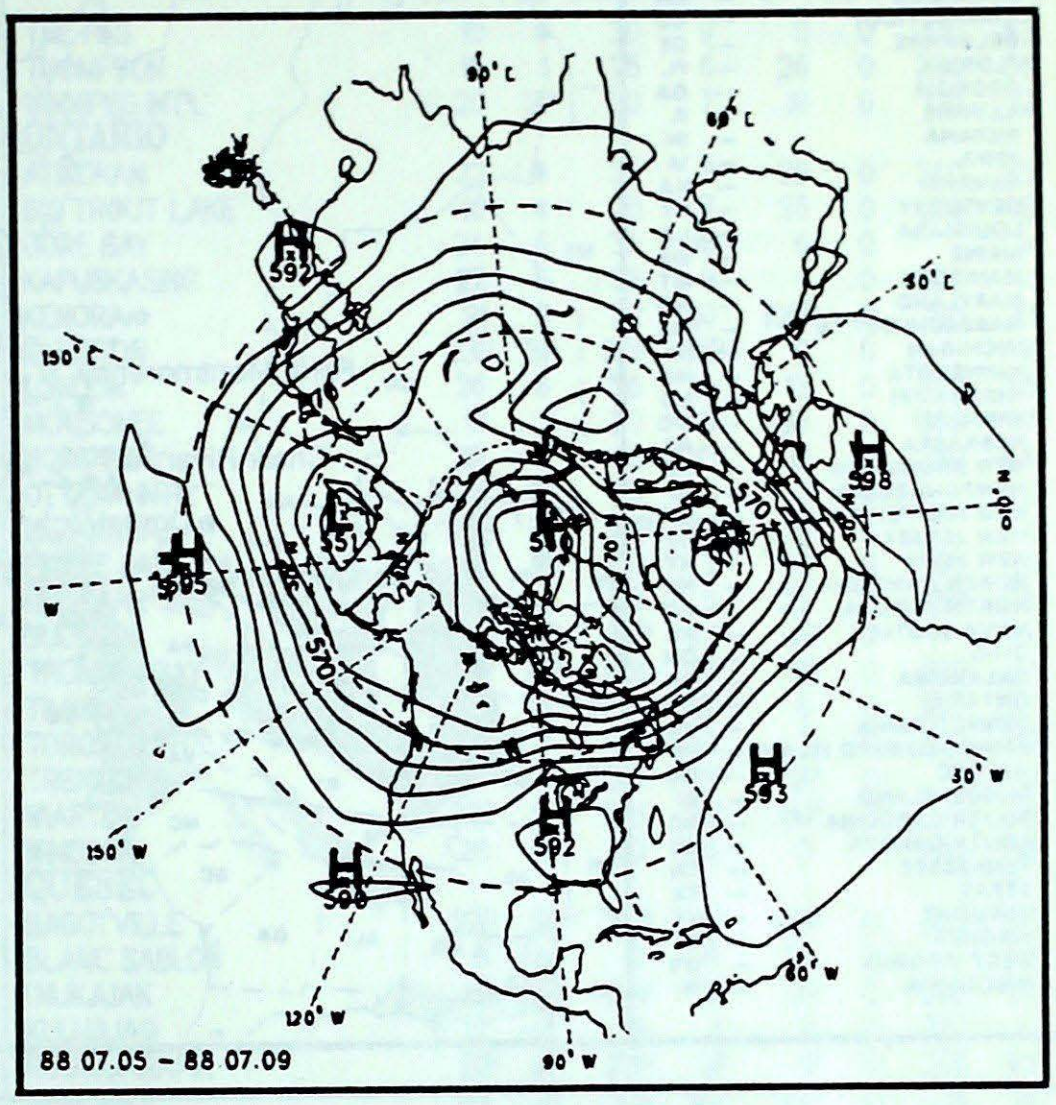
50 kPa ATMOSPHERIC CIRCULATION



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



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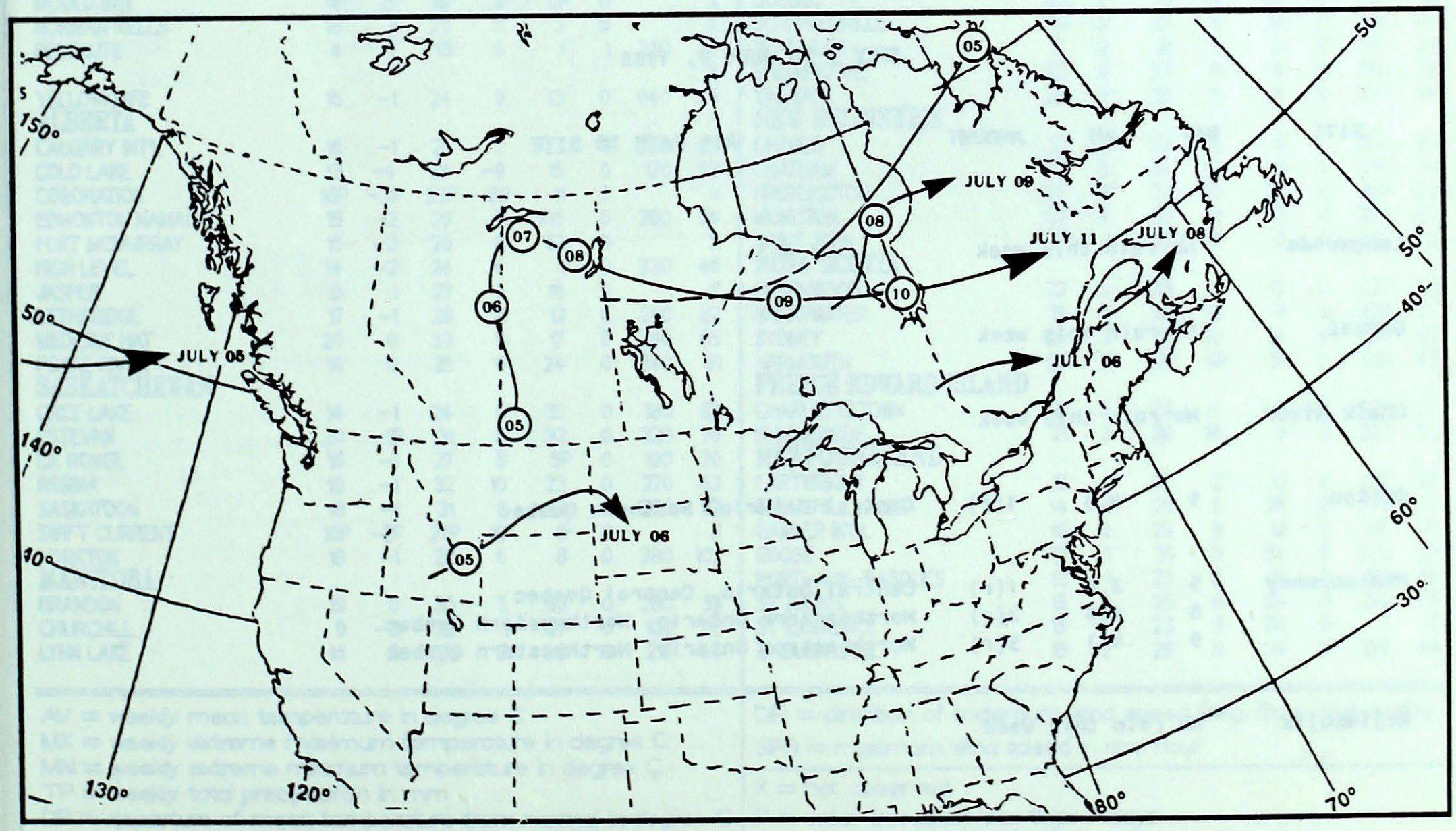
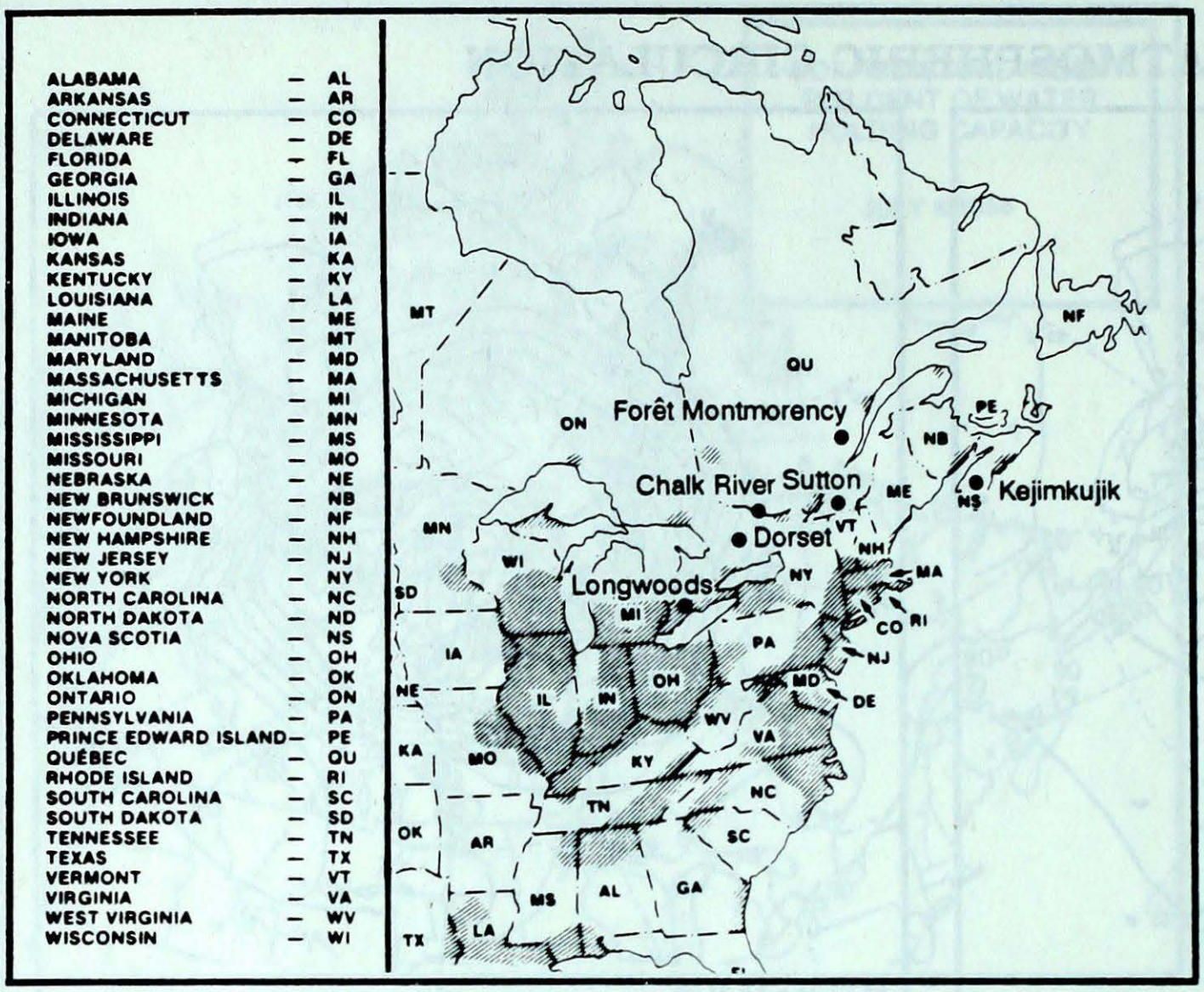


Storm track - Position of storm at 12 GMT during the period: July 5 to 11, 1988



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_2 and NO_x 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,

JULY 3 TO JULY 9, 1988

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	No rain this week			
Dorset	No rain this week			
Chalk River	No rain this week			
Sutton	9	4.5	1(r)	Central Ontario, Southern Quebec
Montmorency	5	3.8	1(r)	Central Ontario, Central Quebec
	8	4.6	3(r)	Northeastern Ontario, Northwestern Quebec
	9	4.1	5(r)	Northeastern Ontario, Northwestern Quebec
Kejimkujik	No rain this week			

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

TEMPERATURE, PRECIPITATION AND MAXIMUM WIND DATA FOR THE WEEK ENDING 0600 GMT JULY 12,1988

STATION	TEMPERATURE				PRECIP.		WIND MX	
	AV	DP	MX	MN	TP	SOG	DIR	SPD
BRITISH COLUMBIA								
CAPE ST.JAMES	12P	0P	16P	9P	4P	0	300	63
CRANBROOK	17	-1	30	5	10	0	170	52
FORT NELSON	15	-1	25	6	34	0		*
FORT ST.JOHN	15P	0P	24P	8P	37	0	290	50
KAMLOOPS	20	0	34	10	21	0	060	44
PENTICTON	19P	0P	34P	7P	14P	0	030	37
PORT HARDY	13	0	19	8	5	0	330	37
PRINCE GEORGE	15P	*	27P	5P	23P	0	310	41
PRINCE RUPERT	12	0	16	7	11	0		*
REVELSTOKE	16	-1	27	8	45	0		*
SMITHERS	15	0	22	3	1	0	330	39
VANCOUVER INT'L	16	-1	24	10	12	0	090	31
VICTORIA INT'L	15	0	25	7	1	0	280	31
WILLIAMS LAKE	17	*	30	6	20	0		X
YUKON TERRITORY								
DAWSON						*		
MAYO	15	-1	24	6	17P	0		X
SHINGLE POINT A	12	1	23	4	0	0		*
WATSON LAKE	13	-2	20	7	25	0		*
WHITEHORSE	12	-2	19	3	16	0	120	37
NORTHWEST TERRITORIES								
ALERT	2P	-1P	7P	0P	2P	*	180	54
BAKER LAKE	12	2	24	4	0	0	350	37
CAMBRIDGE BAY	9	1	18	3	0	0		*
CAPE DYER	2	-3	6	-1	12	21	320	52
CLYDE	5P	1P	10P	-1P	1P	1	310	43
COPPERMINE	12	*	25	3	0	0	070	52
CORAL HARBOUR	9	1	18	3	15P	0		X
EUREKA	4	-1	9	1	1P	*	170	107
FORT SMITH	14P	-2P	25P	5P	14	0		X
IQALUIT	7P	-1P	13P	0P	6P	0	320	65
HALL BEACH	8P	3P	16P	2P	1P	0	310	52
INUVIK	16	2	24	5	6	0		X
MOULD BAY	6P	2P	16P	1P	0P	0		X
NORMAN WELLS	18	1	26	11	3	0		X
RESOLUTE	4	0	13	0	1	1	360	52
								X
YELLOWKNIFE	15	-1	24	9	13	0	040	56
ALBERTA								
CALGARY INT'L	16	-1	25	5	23	0	260	63
COLD LAKE	13	-4	24	-9	15	0	170	93
CORONATION	16P	-2P	23P	8P	11	0		*
EDMONTON NAMAO	15	-2	25	7	105	0	280	74
FORT MCMURRAY	15	-2	26	8	62	0		X
HIGH LEVEL	14	-2	24	4	1	0	330	46
JASPER	15	1	27	5	16	0		X
LETHBRIDGE	17	-1	29	8	12	0	260	87
MEDICINE HAT	20	0	33	9	17	0	240	65
PEACE RIVER	16	0	25	9	24	0	340	61
SASKATCHEWAN								
CREE LAKE	14	-1	24	6	35	0	180	65
ESTEVAN	20	-1P	31	8	32	0	320	76
LA RONGE	16	-1	27	5	5P	0	190	70
REGINA	18	-1	32	10	23	0	270	63
SASKATOON	18	-1	31	9	29	0	280	67
SWIFT CURRENT	16P	-2P	27P	8P	1P	0		X
YORKTON	18	-1	28	6	8	0	280	102
MANITOBA								
BRANDON	19	0	30	7	86	0	280	59
CHURCHILL	9	-3	22	1	27	0	100	78
LYNN LAKE	16	0	27	7	38	0	210	44
THE PAS	18	*	30	9	11	0	100	63
THOMPSON	16	1	26	6	26	0	230	56
WINNIPEG INT'L	20	2P	30	7	19	0	120	72
ONTARIO								
ATIKOKAN	22	4	35	8	29	0	240	65
BIG TROUT LAKE	16	*	28	7	26	0	270	48
GORE BAY	24	6	36	16	6	0		*
KAPUSKASING	22	6	35	8	4	0	300	41
KENORA	21	2	32	10	105P	0	150	61
KINGSTON	23P	3P	30P	18P	0	0		X
LONDON	26	6	36	14	13	0	220	56
MOOSONEE	17	1	33	3	36	0	300	37
NORTH BAY	25	7	35	15	12	0	250	44
OTTAWA INT'L	26	6P	36	17	3	0		X
PETAWAWA	26P	7P	37P	15P	5P	0		X
PICKLE LAKE	18	1	29	7	49	0	280	81
RED LAKE	19	1	28	5	25	0	060	54
SUDBURY	27P	8P	37P	16P	4P	0		X
THUNDER BAY	21P	4P	36P	8P	6P	0	320	61
TIMMINS	23	6	37	12	6	0	250	37
TORONTO INT'L	26	7	38	13	7	0	230	52
TRENTON	25P	5P	35P	11P	2P	0		X
WIARTON	23P	5P	32P	16P	14P	0		X
WINDSOR	28	6P	38	16	3	0	260	46
QUEBEC								
BAGOTVILLE	22P	5P	30P	15P	40P	0	020	41
BLANC SABLON	11	*	17	6	29	0		X
INUKJUAK	11P	2P	20P	1P	0P	0	280	44
KUUJJUAQ	10	-1	19	1	2	0	270	81
KUUJJUARAPIK	12P	2P	23P	2P	1P	0	250	43
MANIWAKI	25P	7P	37P	14P	36P	0	210	50
MONT JOLI	20	3	28	12	5	0	240	59
MONTREAL INT'L	25	5	33	17	5	0	240	30
NATASHQUAN	16	2	26	9	2	0	180	43
QUEBEC	23	5	33	14	48	0	320	61
SCHEFFERVILLE	12	0	25	5	19	0	300	63
SEPT-ILES	17	2	31	9	2	0	310	39
SHERBROOKE	23	6	33	11	4	0	280	31
VAL D'OR	24	7	35	11	11	0	330	46
NEW BRUNSWICK								
CHARLO	21	4	33	11	6	0	250	43
CHATHAM	23	5	36	13	9	0	240	41
FREDERICTON	23	5P	33	10	22	0	160	72
MONCTON	22	4	32	10	3	0	250	63
SAINT JOHN	17	1	25	10	0	0	230	33
NOVA SCOTIA								
GREENWOOD	22	3	33	9	42	0	230	46
SHEARWATER	19	2	26	10	0	0	220	37
SYDNEY	20	3	31	10	14	0	190	37
YARMOUTH	17P	1P	23P	9P	2P	0	210	43
PRINCE EDWARD ISLAND								
CHARLOTTETOWN	21	3	29	14	8	0	220	37
SUMMERSIDE	21	3	28	14	3	0	220	33
NEWFOUNDLAND								
CARTWRIGHT	12	-1	27	3	32	0	010	67
CHURCHILL FALLS	14	1	25	5	28	0	300	52
GANDER INT'L	16	0	29	8	12	0	110	41
GOOSE	17	1	31	8	34	0	230	59
PORT-AUX-BASQUES	13	1	23	8	19	0	190	46
ST JOHN'S	15	0	25	6	24	0	250	37
ST LAWRENCE	15	4	23	9	26	0		X
WABUSH LAKE	15	2	28	5	39	0	270	59

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

Regions, continued from page 3

the size of ice cubes. Near Fredericton during the evening of July 11, 21 mm fell in 10 minutes. Frequent intense lightning with this storm also created numerous power outages. Hail 2.5 mm in diameter also pounded the area.

Newfoundland had no major systems for the period with temperatures near seasonable normals. During the mid-week period, Labrador had warm temperatures but cooled by the end of the period. Two forest fires were burning about 100 km north of Goose Bay. Meanwhile, along the coast, pack ice still lingers. Due to the ice conditions, some fishermen along the Labrador coast have suffered considerable damage to fishing gear.