Environment Canada Environnement Canada

dian Climate Centre

Climatic Perspectives

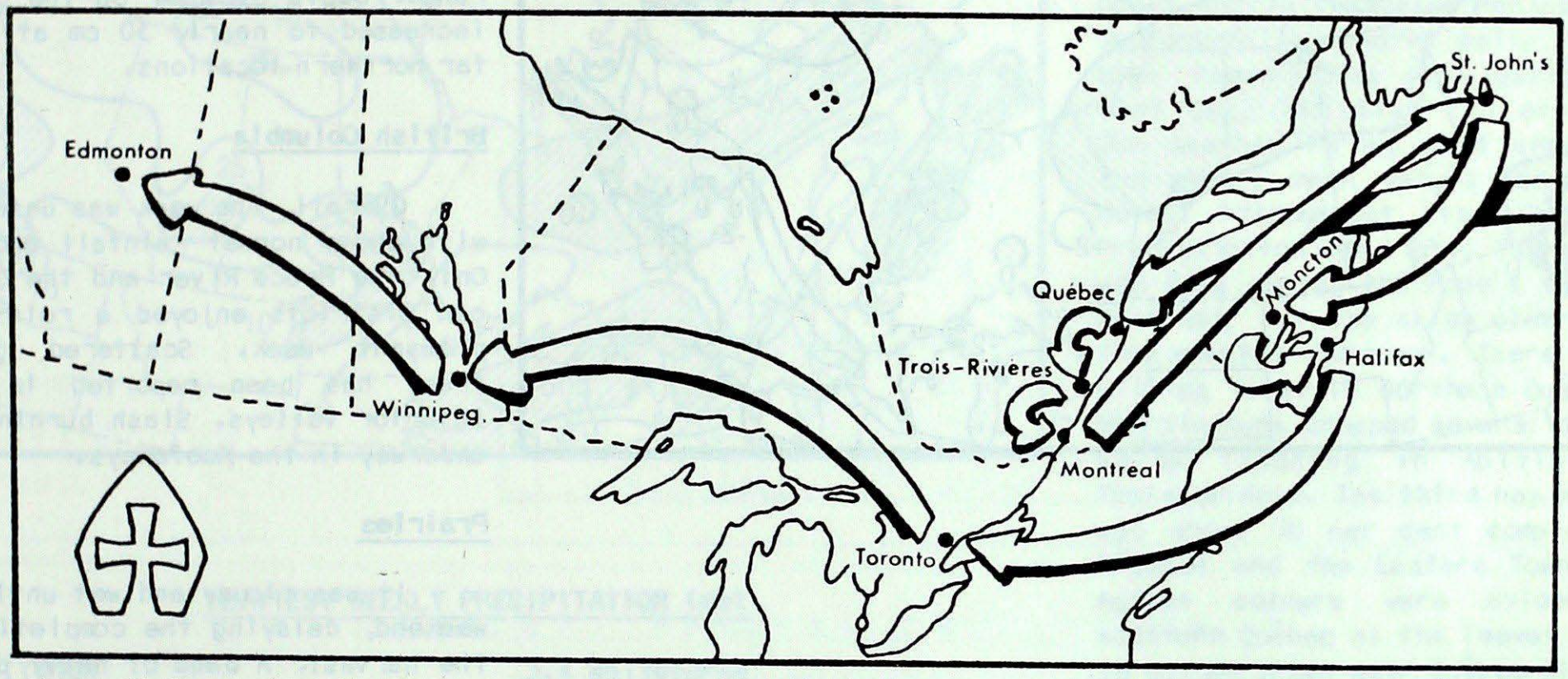
MONTHLY SUPPLEMENT INCLUDED

A WEEKLY REVIEW OF CANADIAN CLIMATE

SEPTEMBER 21 ,1984 *(Aussi disponible en français)* VOL. 6 NO. 37

FOR THE PERIOD SEPTEMBER 11 TO 17, 1984

• Weather during the Papal tour



Montréal	- (Sept. 11)	Showers, 15°
St. John's	- (Sept. 12)	Rain, 16°
Halifax	- (Sept. 14)	Rain, windy and cool, 16°
Toronto	- (Sept. 15)	Cloudy, cool and windy, 12°
Winnipeg	- (Sept. 16)	Windy, 13°
Edmonton	- (Sept. 17)	Cloudy, windy, 12°

• Crop production on the Prairies-1984

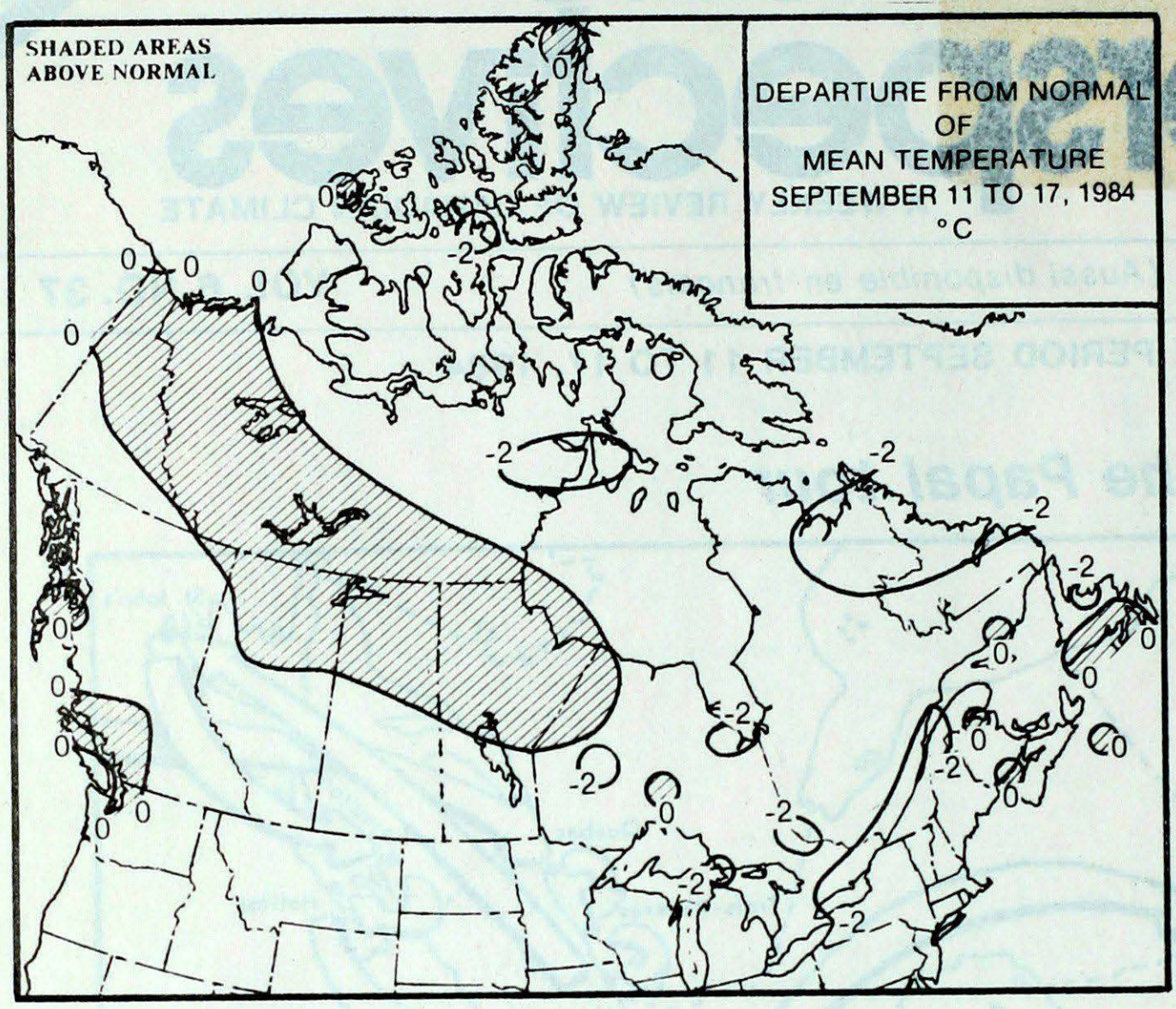
INSIDE THE AUGUST MONTHLY SUPPLEMENT...

- Climatic data in Energy Decisions
- Summer of '84 – a review

ISSN 0225-5707
UDC: 551.506.1(71)

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	16.9	Faro	- 7.5	Burwash
NORTHWEST TERRITORIES	21.6	Hay River	-14.3	Cape Dyer
BRITISH COLUMBIA	29.6	Penticton	- 2.1	Dease Lake
ALBERTA	30.4	Medicine Hat	- 3.5	Edson
SASKATCHEWAN	30.0	Estevan	- 1.7	Hudson Bay
MANITOBA	29.4	Gretna	- 2.3	Norway House
ONTARIO	25.1	Windsor	- 1.8	Moosonee
QUEBEC	24.5	Gaspé	- 3.5	Kuujjuaq
NEW BRUNSWICK	26.2	Chatham	- 0.4	St Stephen
NOVA SCOTIA	26.1	Greenwood	0.6	Greenwood
PRINCE EDWARD ISLAND	22.6	Charlottetown	6.3	Summerside
NEWFOUNDLAND	21.8	Gander	- 2.5	Churchill Falls
		St. John's		

ACROSS THE NATION

Warmest mean temperature	15.6	Windsor, ONT
Coolest mean temperature	- 8.9	Alert, NWT

ACROSS THE COUNTRY...

Yukon and Northwest Territories

Unseasonably cool temperatures continued across the Territories as the Arctic air mass became firmly established over the North. Only parts of the Mackenzie Valley registered above normal readings, the mercury rose to 22° at Hay River on September 15. Precipitation was light this week, eastern Arctic received the most in the 10 to 15 mm range. Depth of snow on the ground increased to nearly 30 cm at a few far northern locations.

British Columbia

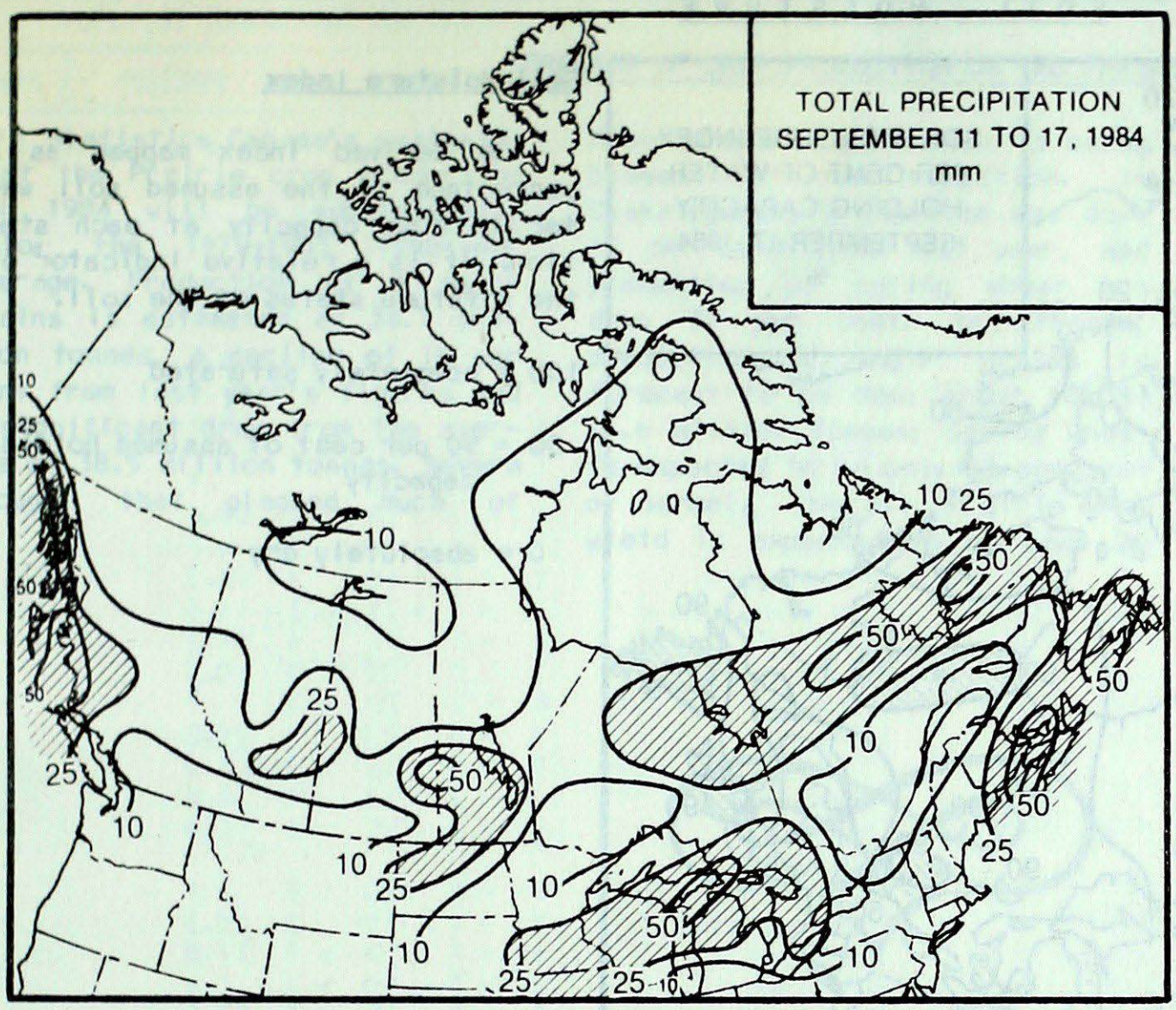
Overall, the week was unsettled with above normal rainfall amounts. Only the Peace River and the Okanagan Districts enjoyed a relatively pleasant week. Scattered ground frost has been reported in many interior valleys. Slash burning was underway in the Kootanays.

Prairies

It was cloudy and wet until the weekend, delaying the completion of the harvest. A band of heavy precipitaion fell across the southern and central agricultural districts. Some localities received more than 50 mm. Ground frost occurred frequently and the growing season ended in several farming communities. Pleasant autumn-like weather returned in time for the weekend; a good opportunity to view the changing fall colours at their peak.

Ontario

The weather was dull, wet and decidely cooler than normal in Ontario. Mean temperatures were 2 to 3 degrees below normal almost everywhere. Heavy rains in the 30 to 80 mm range inundated the Province during the early part of the week. Sault Ste. Marie received 59 mm and over 55 mm fell at Hamilton on September 14. In addition, severe weather struck central Ontario on September 10. Funnel clouds were reported near Sudbury and North Bay, and a possible tornado on Canal Lake, 25 km east of Orillia, damaged



HEAVIEST WEEKLY PRECIPITATION (mm)

YUKON	3.4	Whitehorse
NORTHWEST TERRITORIES	22.3	Baker Lake
BRITISH COLUMBIA	74.6	McInnes Island
ALBERTA	67.8	Coronation
SASKATCHEWAN	68.8	Yorkton
MANITOBA	47.5	Portage la Prairie
ONTARIO	104.0	Port Weller
QUEBEC	62.0	Nitchequon
NEW BRUNSWICK	53.3	Moncton
NOVA SCOTIA	65.4	Greenwood
PRINCE EDWARD ISLAND	74.4	Charlottetown
NEWFOUNDLAND	60.2	Burgeo

Weather Statistics on the Pope's Tour

	Average Temperature and Probability of Rain on the Papal Visit		Temperature and rainfall on the day of the visit	
Québec City	14°	37%	19°	0 mm
Trois Rivières	15°	60%	15°	19.4 mm
Montréal	17°	47%	15°	1.2 mm
St. John's	13°	55%	16°	11.2 mm
Moncton	13°	32%	11°	1.8 mm
Halifax	13°	36%	16°	7.4 mm
Toronto	16°	32%	12°	0 mm
Winnipeg	13°	33%	13°	0 mm
Edmonton	10	30%	12°	0 mm

a marina. The rains came too late for soybean crops in the South Simcoe County and adjacent area. Very dry July and August weather took a heavy toll on this crop. Moreover, the rains slowed down harvest work on fields with clay soils.

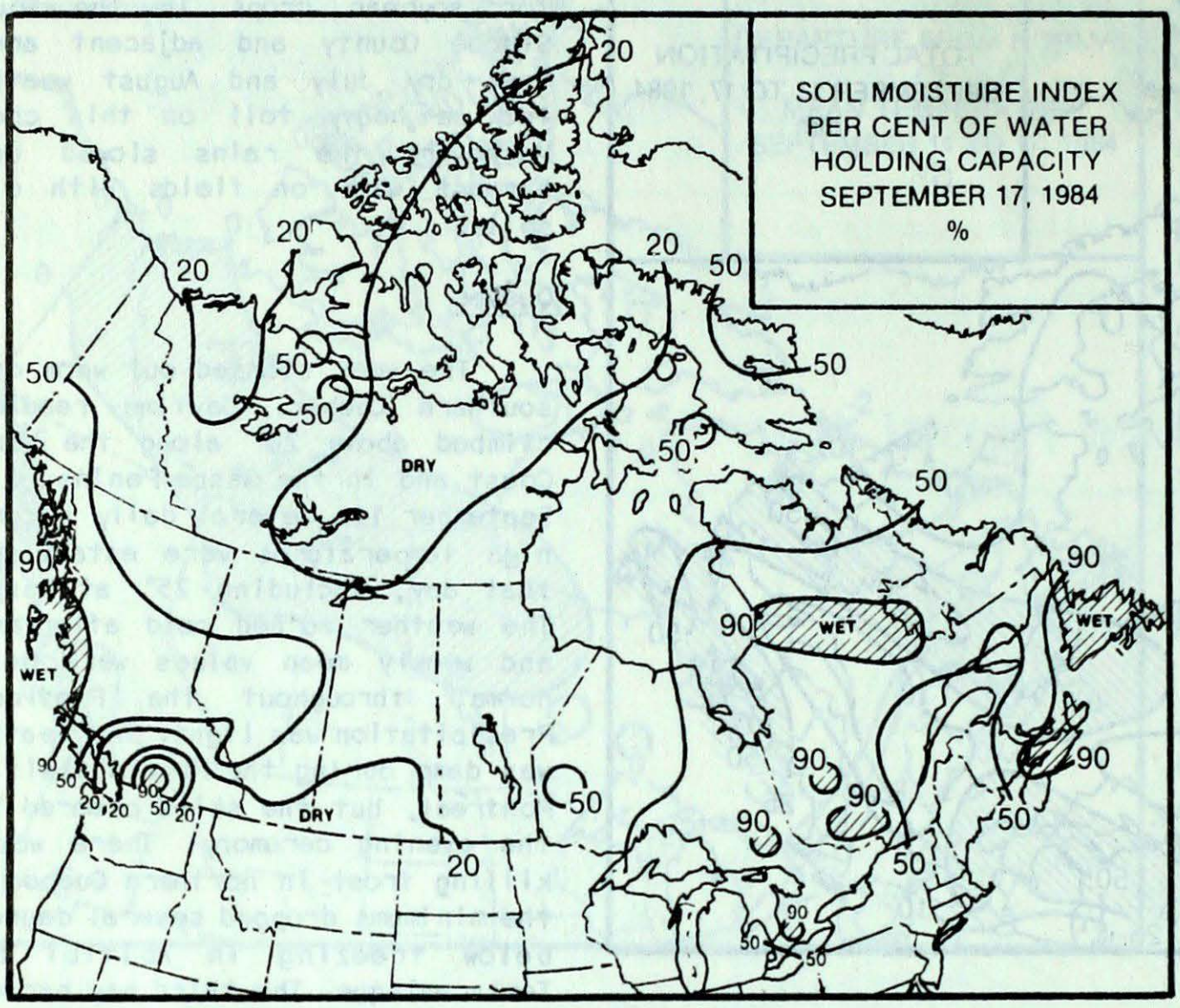
Québec

The week started out warm over southern Québec. Daytime readings climbed above 20° along the North Coast and in the Gaspé Peninsula on September 11. Several daily record-high temperatures were established that day, including 25° at Gaspé. The weather turned cold afterwards and weekly mean values were below normal throughout the Province. Precipitation was light. The weather was damp during the Pope's visit to Montréal, but the skies cleared for the evening ceremony. There was a killing frost in northern Québec as the minimums dropped several degrees below freezing in Abitibi and Temiscaminque. The third hay harvest was about 50 per cent complete in Nicolet and the Eastern Townships. Autumn colours were evident in southern Québec as the leaves turned to golden brown near Québec City and in the Eastern Townships.

Atlantic Provinces

Clouds and rains dominated the weather over Atlantic Canada. The remnant of Hurricane Diana passed south of Nova Scotia towards central Newfoundland on September 16. Strong winds and deluges of rain accompanied the tropical storm. Two oil rigs were evacuated off Nova Scotia. The strongest winds of 130 km/h was recorded at one of these rigs; at Sable Island, winds were clocked at 113 km/h. Heavy rains of 30 to 50 mm fell along the path of the storm as it crossed central Newfoundland. The Papal visit to the East Coast was marred by the rain, fog and unseasonable cold. Cool and damp weather covered St. John's during the Pope's visit to the City, and people braved the strong winds and uncomfortably cool temperatures during the mass at Halifax.

SOIL MOISTURE



Soil Moisture Index

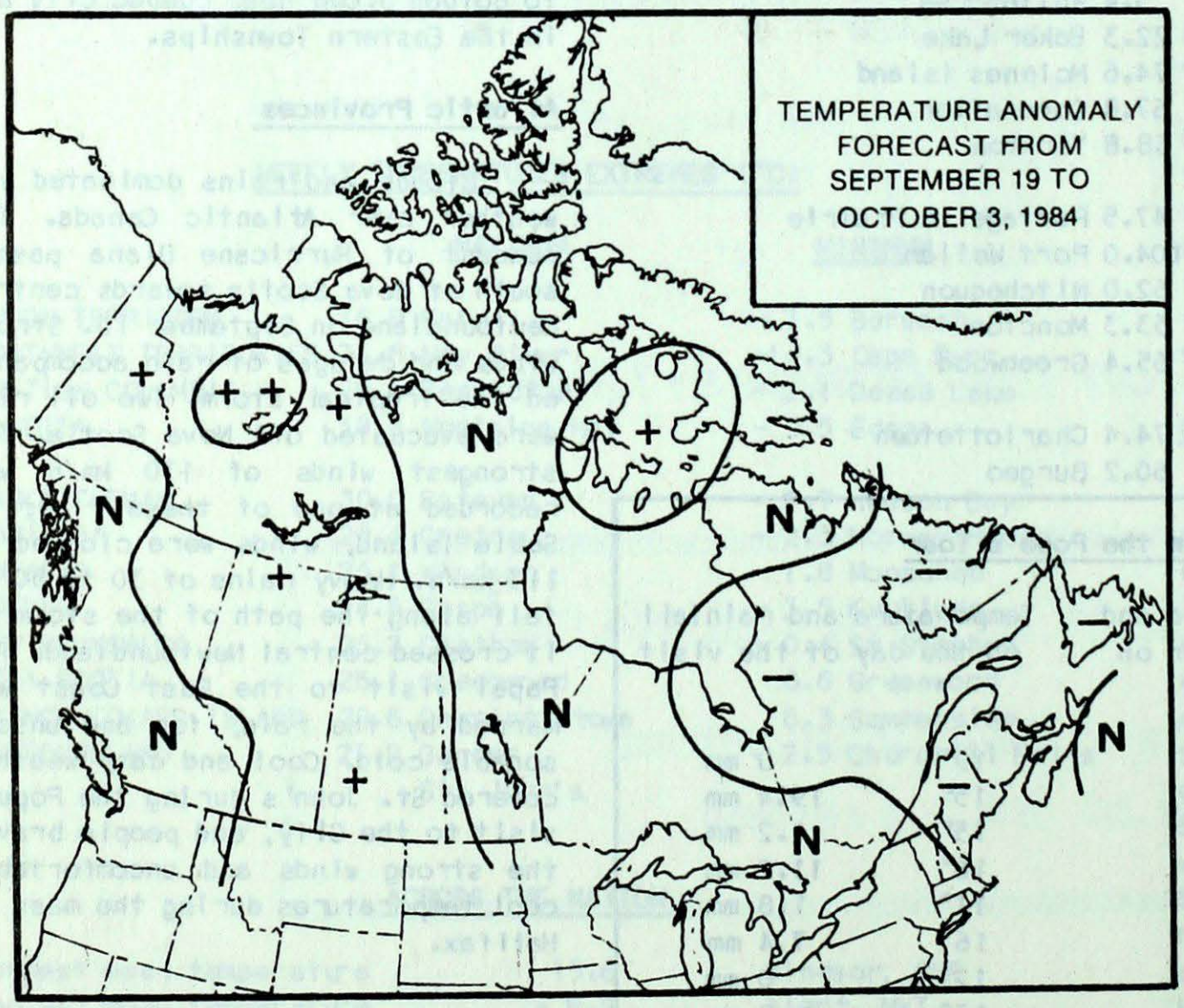
A derived index mapped as a percentage of the assumed soil water holding capacity at each station. It is a relative indicator of the moisture status of the soil.

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

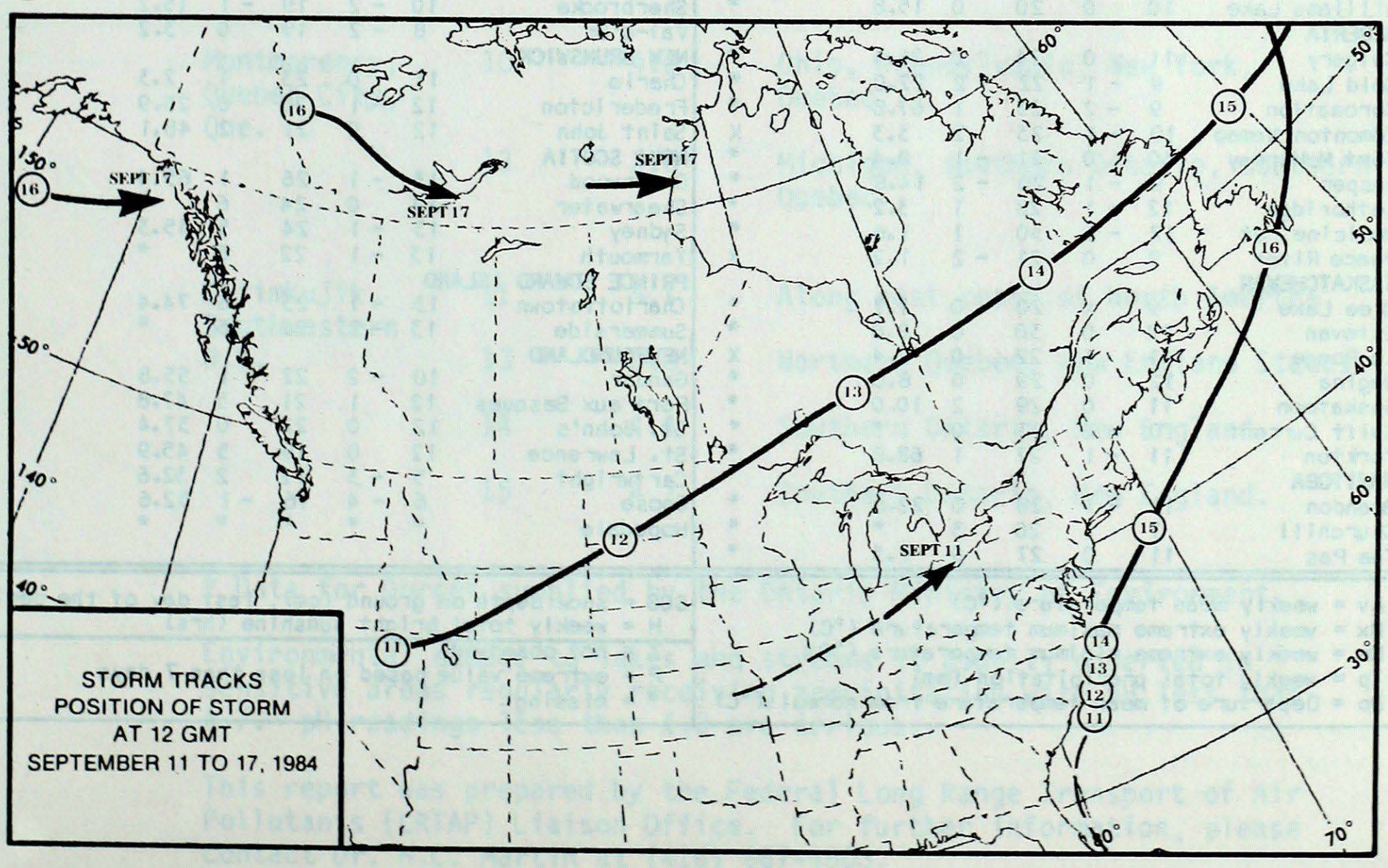
–– much below normal

FORECAST OF CROP PRODUCTION ON THE PRAIRIES

Statistics Canada's estimates that the Prairie crop production for 1984 will be substantially below the 1979-1983 five-year average. Production of 6 major grains is estimated at 34.1 million tonnes, a decline of 16 per cent from last year's figures and a significant drop from the average of 38.5 million tonnes. Severe drought that plagued much of Alberta and Saskatchewan is being blamed for the reduction. In Saskatchewan, production was down 32 per cent from last year, and production of spring wheat was down 30 per cent. In Alberta, production of major grains is forecast to be down about 10% at 11.6 million tonnes; spring wheat is expected to be only 68 per cent of normal. Overall, Prairie crop yield is expected to be down 20 per cent from the 5-year average. According to Mike Shumski, agricultural statician at Statistics Canada: "The 1984 drought has resulted is significant yield reductions and this will affect Canadian grain export. Prairie crop yield, this year, is expected to be the worst since 1961".

- Source Statistics Canada

STORM TRACKS



TEMPERATURE, PRECIPITATION AND BRIGHT SUNSHINE DATA FOR THE WEEK ENDING 0600 GMT SEPTEMBER 18, 1984

STATION	TEMP				PRECIP		SUN
	Av	Dp	Mx	Mn	Tp	SOG	H
YUKON TERRITORY							
Dawson	7	- 1	16	- 6	0.4		X
Mayo A	8	1	15	- 3	*		X
Watson Lake	7	- 1	16	- 2	*		*
Whitehorse	7	- 2	15	- 2	3.4		*
NORTHWEST TERRITORIES							
Fort Smith	9	0	21	- 3	20.6		*
Inuvik	6	2	16	- 2	3.1		*
Norman Wells	8	1	17	- 1	1.1		*
Yellowknife	9	1	19	2	3.6		*
Baker Lake	1	- 2	8	- 5	22.3		*
Cape Dyer	- 5	- 4	2	-14	6.8	27.0	X
Clyde	- 1	- 1	4	- 6	*	2.0	*
Frobisher Bay	1	- 2	6	- 6	10.5	3.0	*
Alert	- 9	1	- 1	-13	1.2	25.0	*
Eureka	- 7	0	- 2	-13	4.8		*
Hall Beach	- 1	- 1	2	- 6	*	0.0	X
Resolute	- 6	- 2	- 1	-13	1.4	9.0	*
Cambridge Bay	- 1	- 2	2	- 4	*		*
Mould Bay	- 5	0	- 3	- 8	*	1.0	*
Sachs Harbour	- 2	- 1	3	- 8	*	0.0	*
BRITISH COLUMBIA							
Cape St. James	13	0	17	9	41.8		*
Cranbrook	10	- 1	27	0	7.5		*
Fort Nelson	9	0	20	- 1	0.0		*
Fort St. John	9	- 2	17	- 1	1.0		X
Kamloops	15	0	27	5	7.0		*
Penticton	13	- 1	29	3	*		*
Port Hardy	12	0	19	5	47.4		*
Prince George	10	0	19	- 1	36.1		*
Prince Rupert	13	2	21	5	*		*
Revelstoke	11	- 1	17	3	13.1		*
Smithers	9	- 1	19	0	12.6		*
Vancouver	15	1	23	7	3.2		*
Victoria	14	0	22	7	*		*
Williams Lake	10	0	20	0	15.8		*
ALBERTA							
Calgary	11	0	24	0	26.4		*
Cold Lake	9	- 1	22	- 2	22.0		*
Coronation	9	- 2	23	1	67.8		*
Edmonton Namao	10	- 1	23	2	3.3		X
Fort McMurray	10	0	21	- 1	0.4		*
Jasper	9	- 1	20	- 2	14.8		*
Lethbridge	12	- 1	28	1	3.2		*
Medicine Hat	12	- 1	30	1	1.6		*
Peace River	9	0	21	- 2	1.2		X
SASKATCHEWAN							
Cree Lake	9	X	20	0	1.7		*
Estevan	12	0	30	0	8.0		*
La Ronge	11	1	22	0	2.4		X
Regina	12	0	29	0	8.0		*
Saskatoon	11	0	29	2	10.0		*
Swift Current	10	- 2	23	0	*		*
Yorkton	11	- 1	27	1	68.8		*
MANITOBA							
Brandon	11	- 1	28	0	22.6		*
Churchill	7	1	20	3	*		*
The Pas	11	0	27	0	7.5		*
Thompson	9	1	23	- 2	1.0		*
Winnipeg	12	- 1	27	2	*		*
ONTARIO							
Big Trout Lake	9	0	21	4	28.2		X
Earlton	9	- 2	20	1	*		X
Kapuskasing	9	- 1	20	0	20.1		*
Kenora	11	- 1	21	5	6.0		X
London	14	- 2	23	4	28.6		*
Moosonee	8	- 2	20	- 2	*		*
Muskoka	12	- 2	20	2	*		X
North Bay	10	- 2	18	4	40.6		*
Ottawa	13	- 2	20	3	4.6		*
Pickle Lake	8	- 2	19	2	28.2		X
Red Lake	11	- 1	22	1	14.8		*
Sudbury	11	- 1	21	4	34.2		*
Thunder Bay	11	0	21	2	10.3		*
Timmins	8	- 2	20	- 1	*		X
Toronto	14	- 2	23	3	29.2		X
Trenton	13	- 3	22	3	18.4		X
Wiarton	13	- 2	20	5	38.8		*
Windsor	16	- 2	25	6	10.4		X
QUEBEC							
Bagotville	10	- 2	20	3	2.1		X
Blanc-Sablon	8	- 1	15	2	26.2		*
Inukjuak	4	- 1	9	- 1	11.8		*
Kuujjuaq	3	- 3	10	- 4	1.4		*
Kuujjuarapik	6	- 2	15	- 1	24.0		*
Maniwaki	11	- 1	20	2	8.0		*
Mont-Joli	10	- 2	19	- 3	1.8		*
Montréal	13	- 3	20	4	5.5		*
Natashquan	11	1	19	4	*		*
Nitchequon	5	- 2	12	0	62.0		*
Québec	11	- 2	21	2	3.7		*
Schefferville	2	- 3	7	- 2	*	0.0	*
Sept-Iles	9	- 1	20	1	*		*
Sherbrooke	10	- 2	19	- 1	15.2		*
Val-d'Or	8	- 2	19	0	3.2		*
NEW BRUNSWICK							
Charlo	11	0	23	1	2.3		*
Fredericton	12	- 1	25	0	25.9		*
Saint John	12	0	21	2	48.1		*
NOVA SCOTIA							
Greenwood	13	- 1	26	1	65.4		X
Shearwater	14	0	24	6	*		*
Sydney	13	- 1	24	5	45.3		*
Yarmouth	13	- 1	22	6	*		*
PRINCE EDWARD ISLAND							
Charlottetown	13	- 1	23	6	74.4		*
Summerside	13	- 2	22	6	*		*
NEWFOUNDLAND							
Gander	10	- 2	22	1	55.8		*
Port aux Basques	12	1	21	5	47.8		*
St. John's	12	0	22	0	37.4		*
St. Lawrence	12	0	19	5	45.9		X
Cartwright	5	- 3	12	2	32.6		X
Goose	6	- 4	16	- 1	52.6		*
Hopedale	*	*	*	*	*		X

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
* = missing

ACID RAIN REPORT ISSUED BY ENVIRONMENT CANADA
FOR SEPTEMBER 9-15, 1984

SITE	DAY	pH	AIR PATH TO SITE
Longwoods, near London, Ont.	9	4.1	U.S. Midwest.
	10	3.9	U.S. Midwest.
	12	4.2	Wisconsin, Michigan.
	14	4.5	Northwestern Ontario, across Lake Superior and Lake Huron.
Dorset,* Muskoka, Ont.	9	4.2	U.S. Midwest.
	10	4.2	U.S. Midwest.
	11	4.4	Wisconsin, Michigan, lake Huron, southern Ontario.
	12	4.2	Northwestern Ontario, Sudbury Basin.
Chalk River Ottawa Valley, Ont.	9	4.1	U.S. Midwest.
	10	4.4	U.S. Midwest.
	12	4.9	Northwestern Ontario.
Montmorency, Quebec City, Que.	10	4.6	Ohio, Pennsylvania, New York, Quebec.
	13	3.8	Michigan, southern Ontario, southern Quebec.
Kejimkujik, Southwestern N.S.	11	5.1	Along east coast of North America.
	13	3.8	Northern Quebec, New England States.
	14	4.4	Southern Ontario, New England.
	15	4.7	Southern Ontario, New England.

* Data for Dorset supplied by the Ontario Ministry of Environment.

Environmental damage to lakes and streams is usually observed in sensitive areas regularly receiving precipitation with pH less than 4.7. pH readings less than 4.0 are serious.

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.