

Environment  
Canada

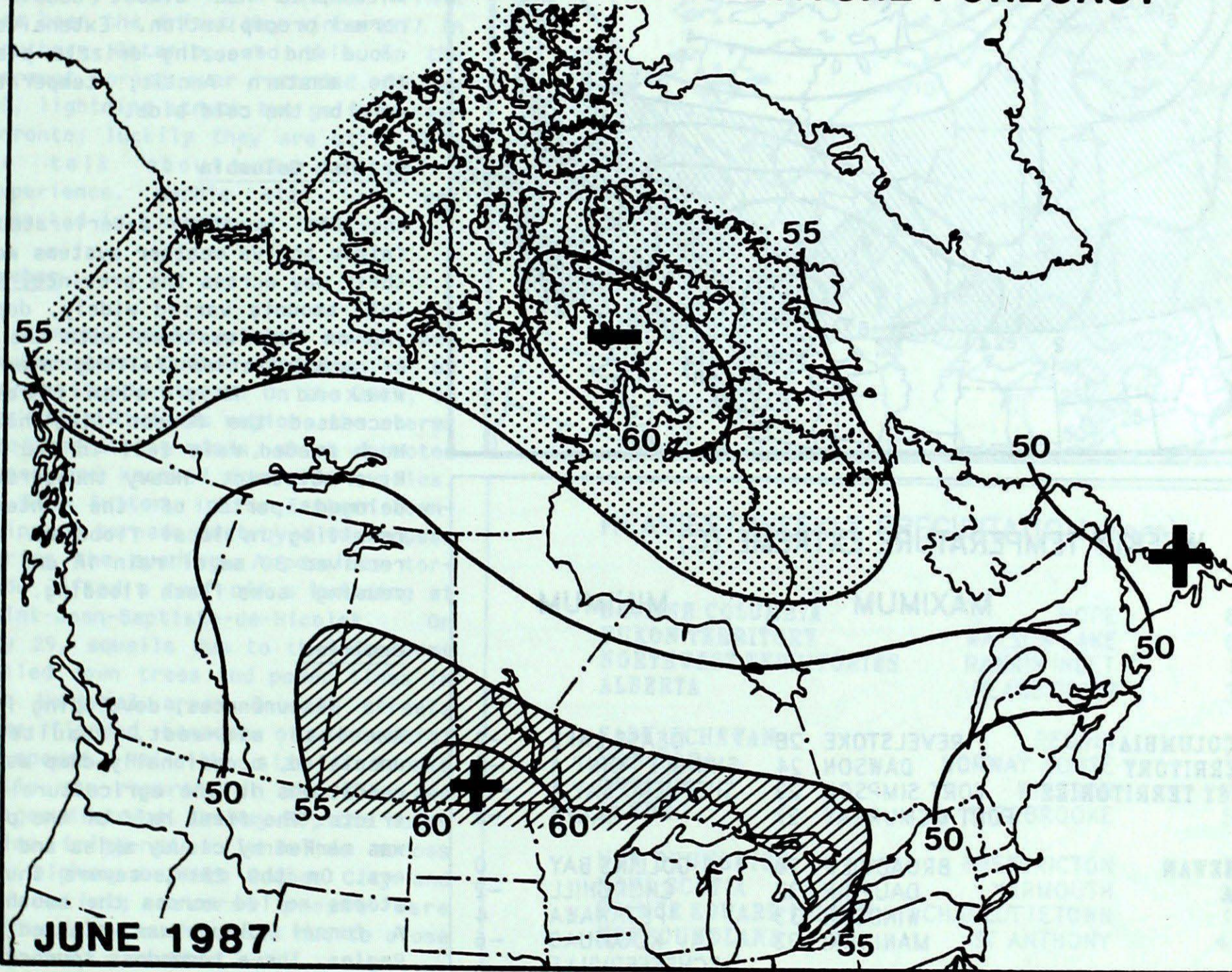
Environnement  
Canada

# Climatic Perspectives

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A weekly review of the Canadian climate May 26 to June 1, 1987 Vol. 9 No.22

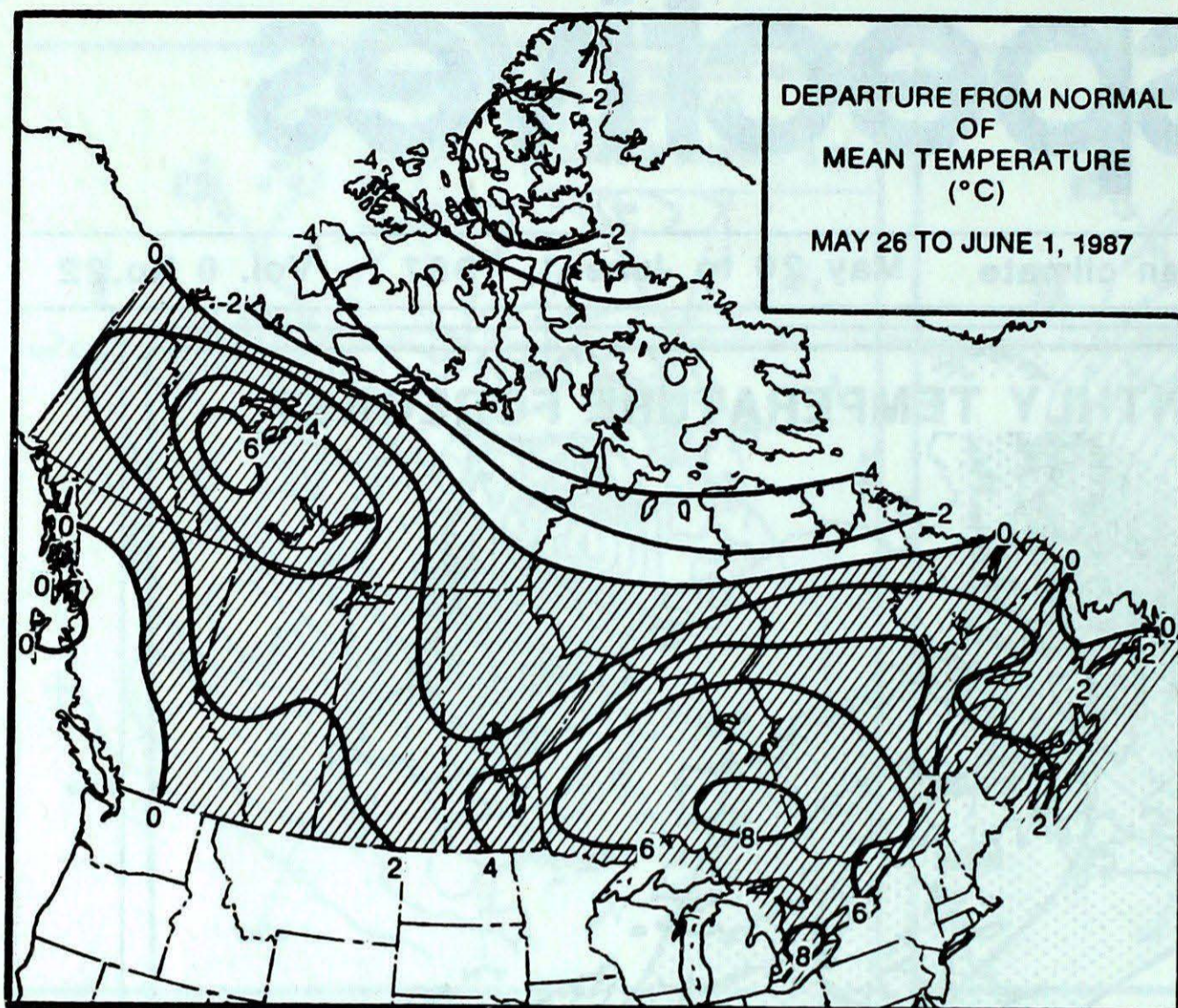
## EXPERIMENTAL MONTHLY TEMPERATURE FORECAST



A steamy, hot airmass pushed across the Great Lakes this past week, resulting in well above above normal, record high temperatures across central Canada. In contrast, temperatures for a number of weeks, have been below normal in the north, and near normal in the west and east. This general cross-country pattern is expected to continue, as born out by the monthly and seasonal temperature forecasts issued by the Monitoring and Prediction Division of the Canadian Climate Centre. Summer temperature forecast on page 8. More information on page 3.

- **Early summer heat wave in Ontario and Quebec**  
- Hail and tornadoes in a number of areas
- **Several tornadoes touch down in Manitoba**

# TEMPERATURE



## WEEKLY TEMPERATURE EXTREME (C)

	MAXIMUM	MINIMUM
<b>BRITISH COLUMBIA</b>	REVELSTOKE 28	DEASE LAKE -2
<b>YUKON TERRITORY</b>	DAWSON 24	SHINGLE POINT A -5
<b>NORTHWEST TERRITORIES</b>	FORT SIMPSON 29	SHEPHERD BAY A -19
<b>ALBERTA</b>	FORT MCMURRAY 27	BANFF -2
<b>SASKATCHEWAN</b>	BROADVIEW 29	COLLINS BAY 0
<b>MANITOBA</b>	DAUPHIN 32	CHURCHILL -2
<b>ONTARIO</b>	WINDSOR 33	PETAWAWA 4
<b>QUEBEC</b>	MANIWAKI 32	KUUJJUAQ -6
		SCHEFFERVILLE
<b>NEW BRUNSWICK</b>	ST STEPHEN 27	ST STEPHEN 2
<b>NOVA SCOTIA</b>	SHELBURNE 30	SHELBURNE -1
<b>PRINCE EDWARD ISLAND</b>	SUMMERSIDE 20	CHARLOTTETOWN 1
<b>NEWFOUNDLAND</b>	GOOSE 26	BATTLE HARBOUR -4

## ACROSS THE NATION

WARMEST MEAN TEMPERATURE	24	WINDSOR	ONT
COOLEST MEAN TEMPERATURE	-11	SHEPHERD BAY A	NWT

## ACROSS THE COUNTRY...

### Yukon and Northwest Territories

In the Yukon, the weather started out relatively pleasant, but by the weekend showers and thunder-showers affected the Territory. During May, Watson Lake received 114 mm of precipitation, almost four times the normal for the month. Whitehorse had almost double the normal precipitation. Extensive low cloud and freezing drizzle plagued the eastern Arctic; temperatures were on the cold side.

### British Columbia

The weather deteriorated as fairly active weather systems worked their way across the province. Rain-fall amounts varied widely, depending on the location, with the bulk of precipitation falling over the weekend. This significantly decreased the forest fire hazard. Much needed rain fell in the Peace River District. Heavy thunderstorms deluged parts of the interior, resulting in local flooding. Trail received 30 mm of rain in one hour, causing some flash flooding.

### Prairies

Disturbances, developing in the American mid-west, resulted in unsettled, occasionally damp weather conditions in the agricultural districts. The first half of the period was marked by cloudy skies and showers. On the 28th, severe thunderstorms rolled across the southeast. A funnel cloud was sighted near Regina. Three tornadoes touched down briefly in western Manitoba, but no damage was reported. More than 100 mm of rain fell near Elkhorn, Manitoba near the Saskatchewan border.

### Ontario

Sticky summer weather arrived early this year, as a southerly circulation pumped very warm, humid air northward from the Gulf of Mexico. Daily high temperature records were broken right across Ontario over the weekend, with the mercury climbing into the thirties. Downtown Toronto hit 33°C on Satur-

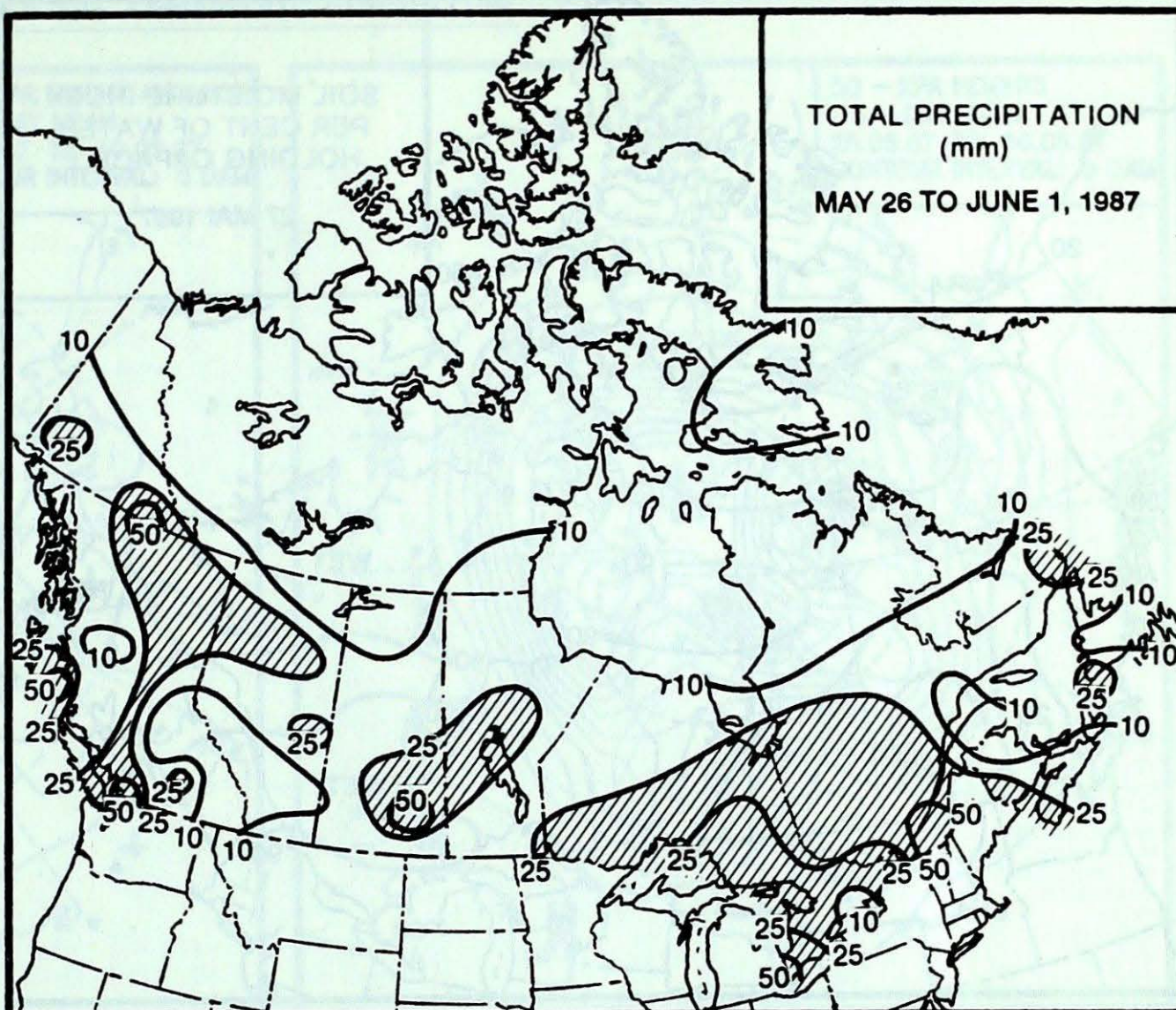
day, with the humidex reaching the muggy forties. Hot, sultry weather conditions are frequently accompanied by scattered thunderstorms in the afternoons, and this weekend was no exception. Cloudbursts dumped almost 50 mm of rain at some locations, while other areas remained bone dry. A funnel cloud was spotted east of Toronto. Some communities in the south have started implementing voluntary water restrictions. This has been the driest May since 1977 in southern Ontario, and this is the warmest spring ever recorded. On May 30, lightning struck two golfers near Toronto; luckily they are still able to talk about the shocking experience. Marble size hail was reported in a number of locations.

#### Quebec

Warm, humid weather moved into southwestern Québec accompanied by severe thunderstorms. On the 28th, in the Trois Rivières region, the storms produced strong winds, which uprooted trees and knocked down hydro poles. At Glen Sutton, in the Eastern Townships, a tornado destroyed two houses during the evening. A possible tornado lifted a roof off a building at Saint-Jean-Baptiste-de-Nicolet. On May 29, squalls due to thunderstorms pulled down trees and power lines in the Montréal area. Several streets were flooded because of torrential downpours. Hail the size of tennis balls was reported in the Côte des Neiges district. On May 30, the heavy rains triggered a landslide across the highway between Québec City and Chicoutimi; several people were injured, and authorities had to close Parc des Laurentide.

#### Atlantic

On the Island of Newfoundland, the weather was quite variable, as minor disturbances moved across from the northwest. Temperatures fluctuated. Heaviest precipitation of up to 25 mm fell at the start of the weekend. Unsettled weather conditions prevailed in Labrador, especially along the coast, which was affected by a cool on-shore flow. Heaviest precipitation fell on Sunday. In the Maritimes, the first two days were sunny, with intervals of cloud, showers and drizzle thereafter.



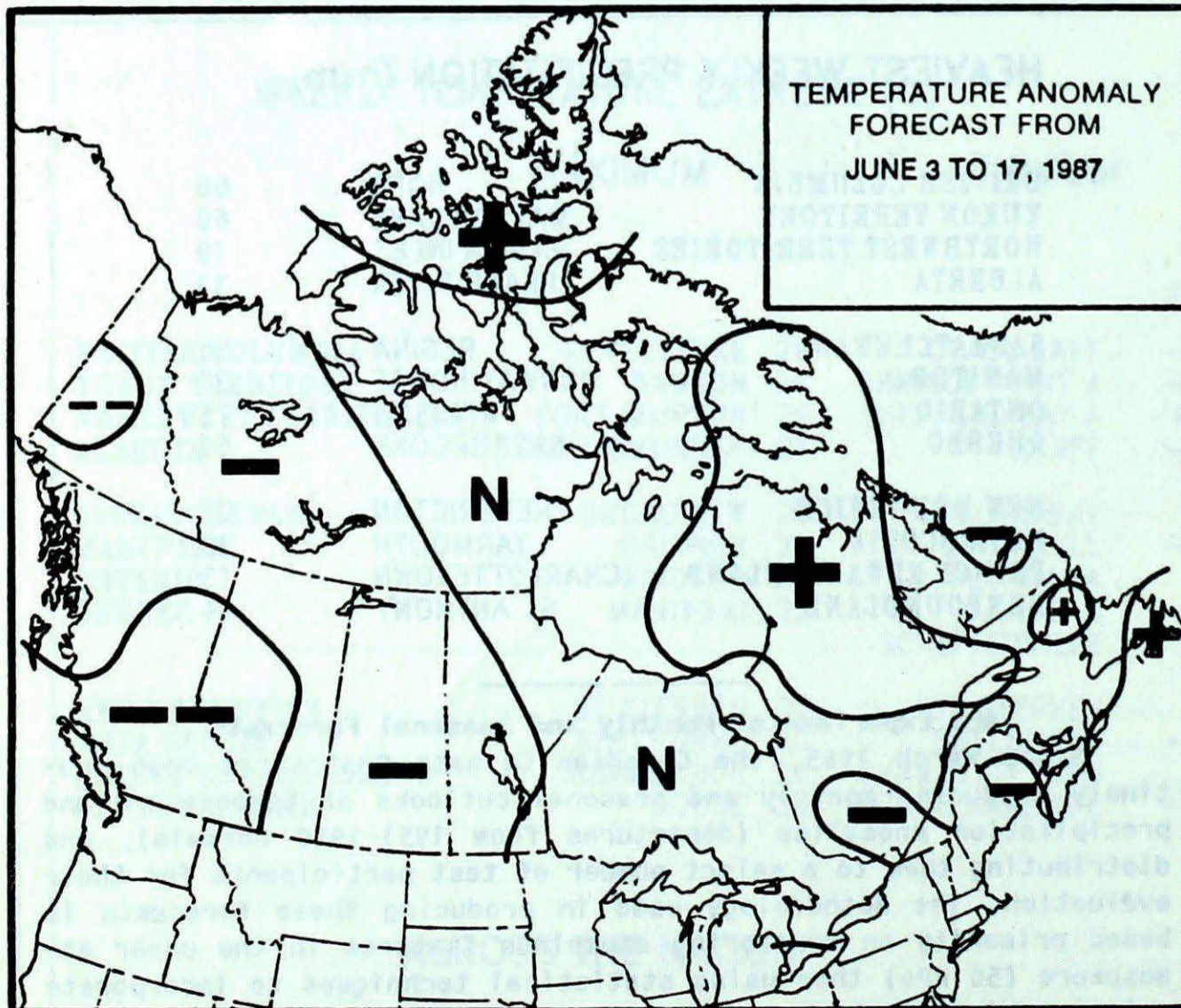
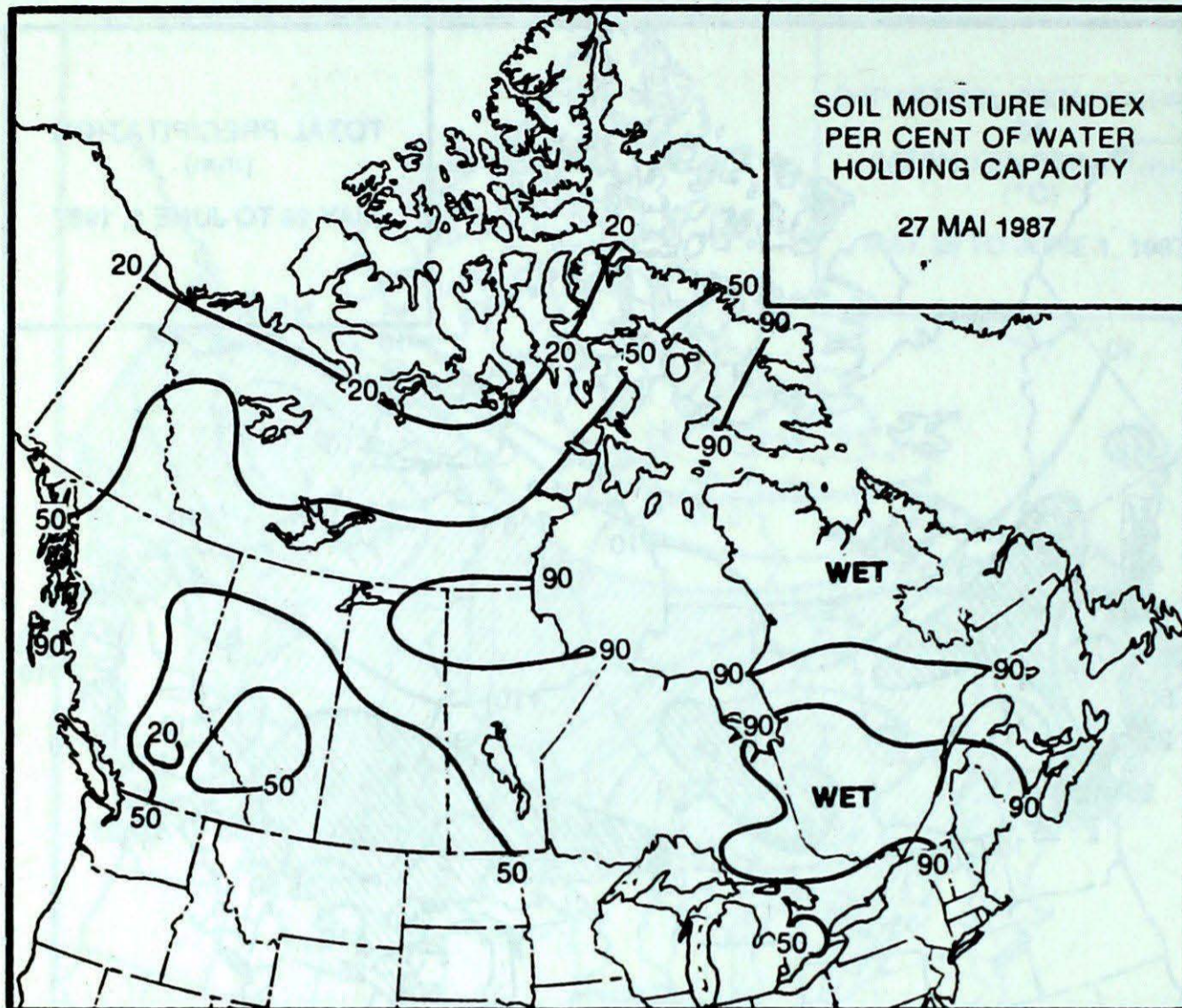
#### HEAVIEST WEEKLY PRECIPITATION (mm)

BRITISH COLUMBIA	HOPE	66
YUKON TERRITORY	WATSON LAKE	60
NORTHWEST TERRITORIES	RANKIN INLET	18
ALBERTA	PEACE RIVER	32
SASKATCHEWAN	REGINA	56
MANITOBA	NORWAY HOUSE	37
ONTARIO	WINDSOR	75
QUEBEC	SHERBROOKE	59
NEW BRUNSWICK	FREDERICTON	27
NOVA SCOTIA	YARMOUTH	30
PRINCE EDWARD ISLAND	CHARLOTTETOWN	13
NEWFOUNDLAND	ST ANTHONY	44

#### AES Experimental Monthly and Seasonal Forecasts

Since March 1985, the Canadian Climate Centre has been routinely producing monthly and seasonal outlooks of temperature and precipitation anomalies (departures from 1951-1980 normals), and distributing them to a select number of test participants for their evaluation. The methodology used in producing these forecasts is based primarily on monitoring anomalous features in the upper atmosphere (50 kPa) then using statistical techniques to incorporate relevant historical upper atmosphere and surface data. The verification procedure checks whether the sign (positive or negative) of the anomaly was correctly forecast at 110 locations across the country. Results for 1986 were not encouraging (no skill in precipitation forecasting); however, applying a recently implemented technique to the 1986 data improved the verification scores for monthly temperature forecasts from a cross-country average of 55% to 69% correct.

# FORECAST



### Temperature Anomaly Forecast

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

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.

The data in this publication are based on unverified reports from approximately 225 Canadian synoptic weather stations. Information concerning climatic impacts is gathered from AES contacts with the public and from the media. Articles do not necessarily reflect the views of the Atmospheric Environment Service.

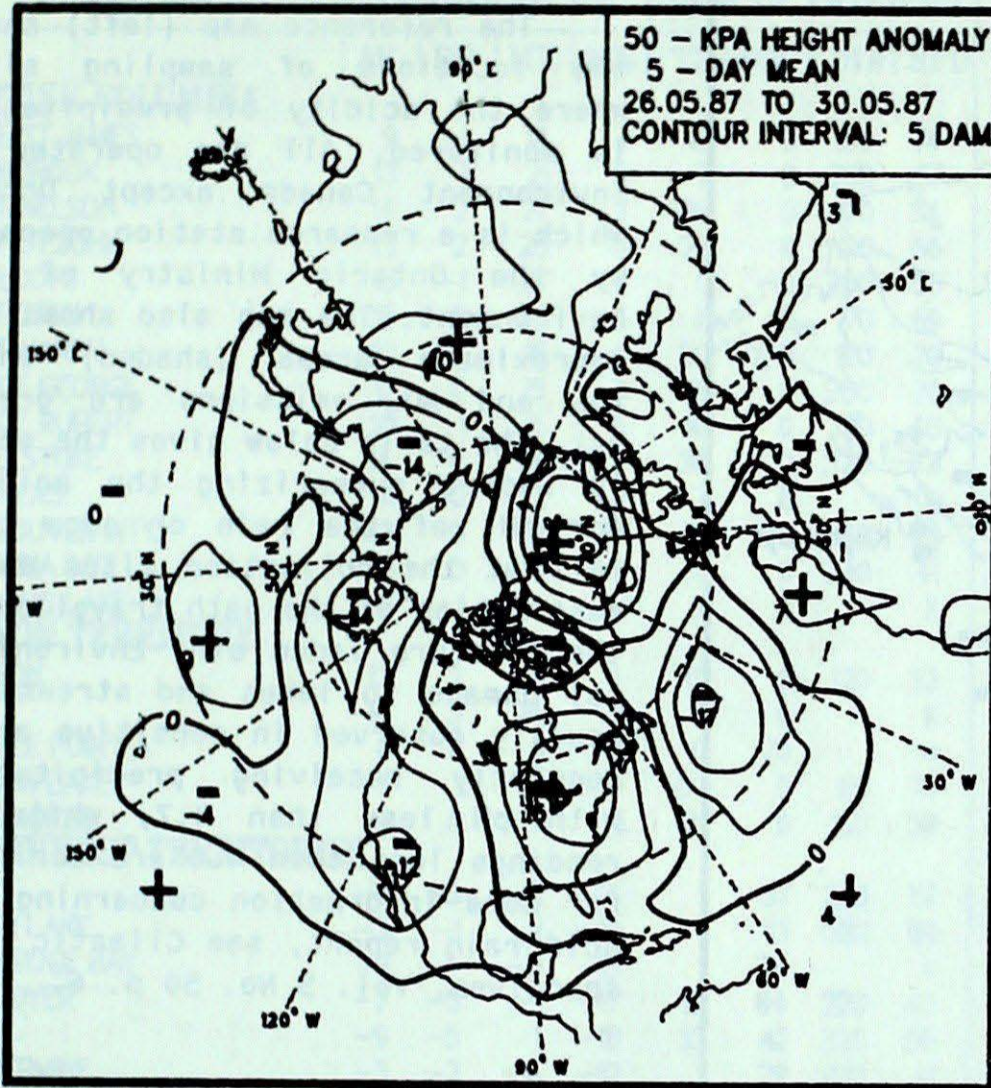
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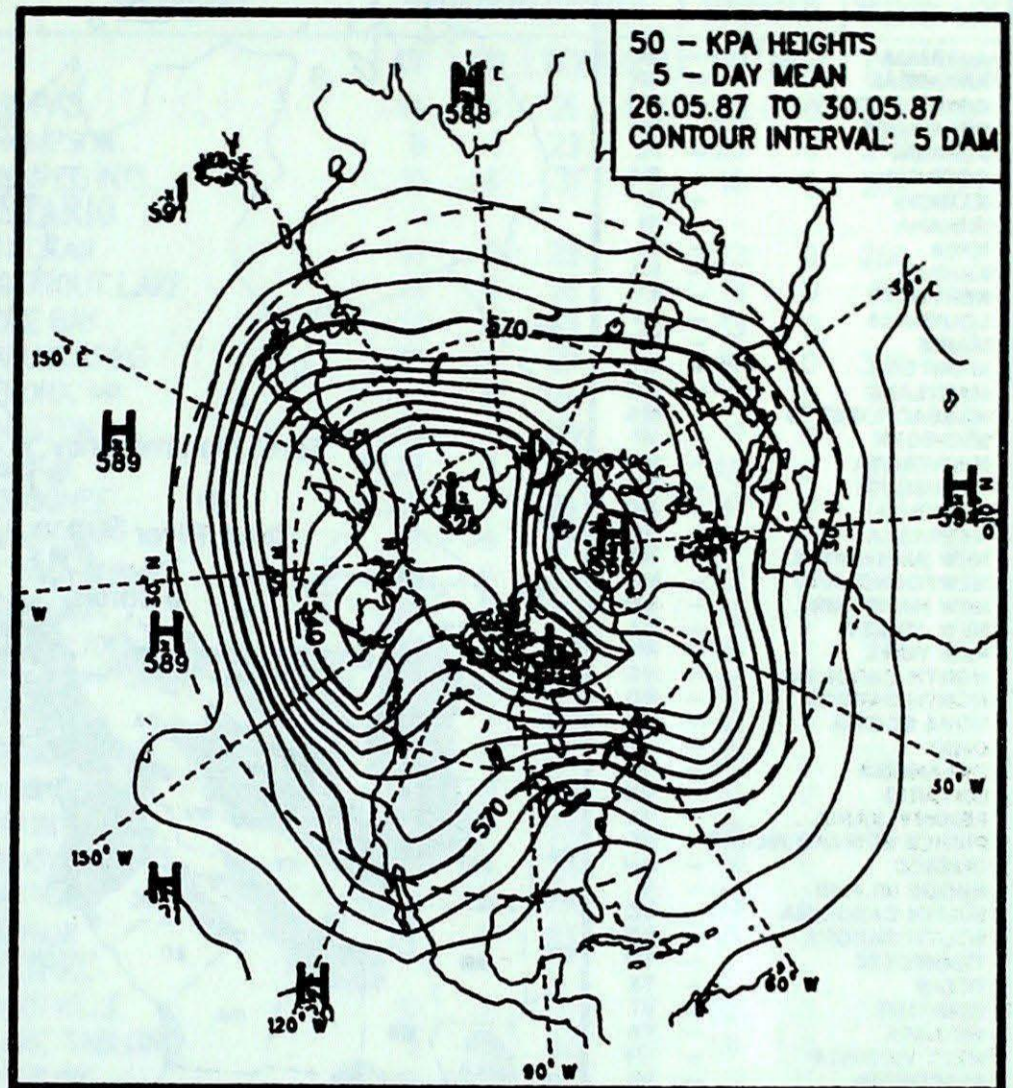
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# CIRCULATION

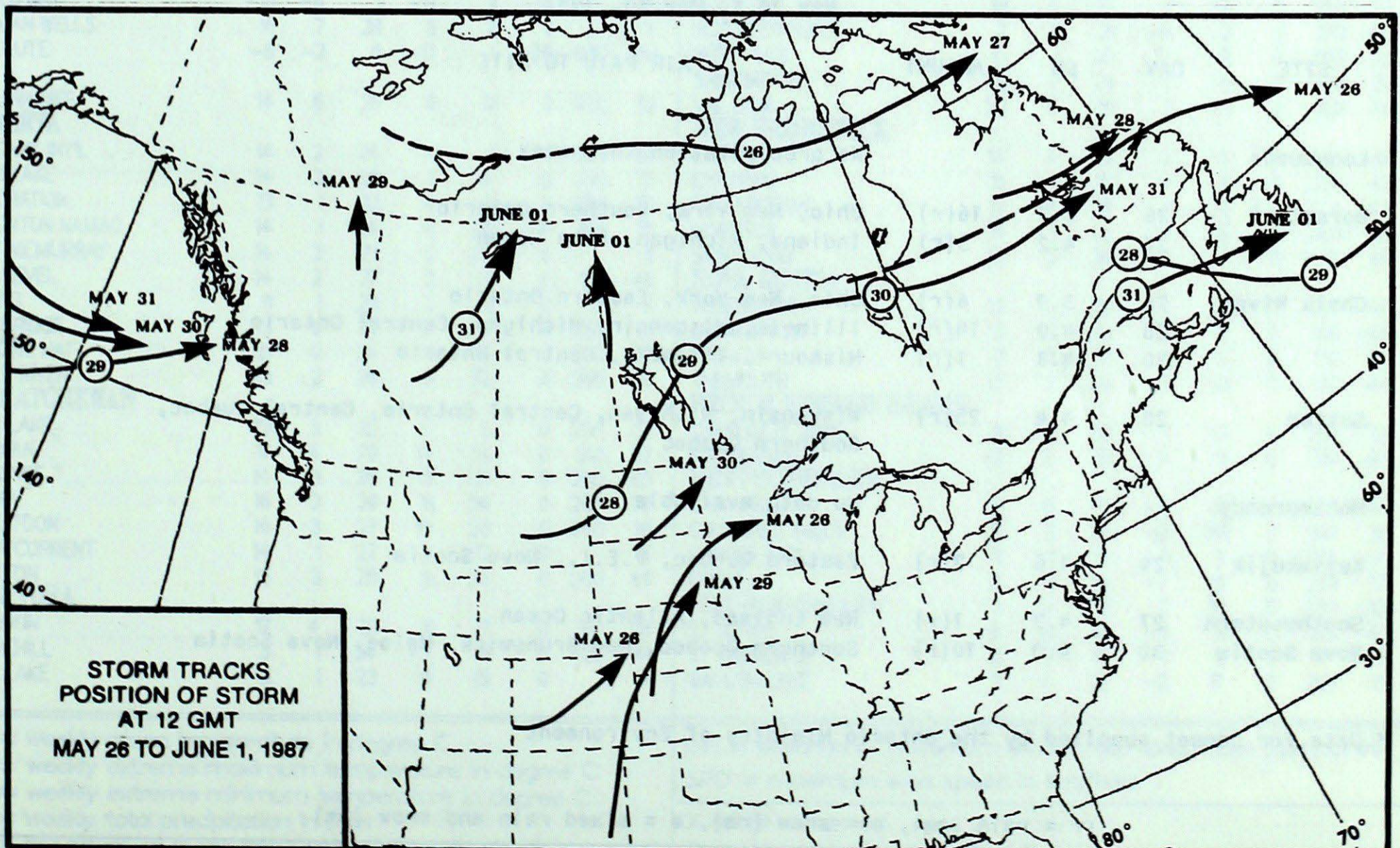
## 50 KPa ATMOSPHERIC CIRCULATION



MEAN 50 KPa HEIGHT ANOMALY (dam)  
May 26 to 30, 1987



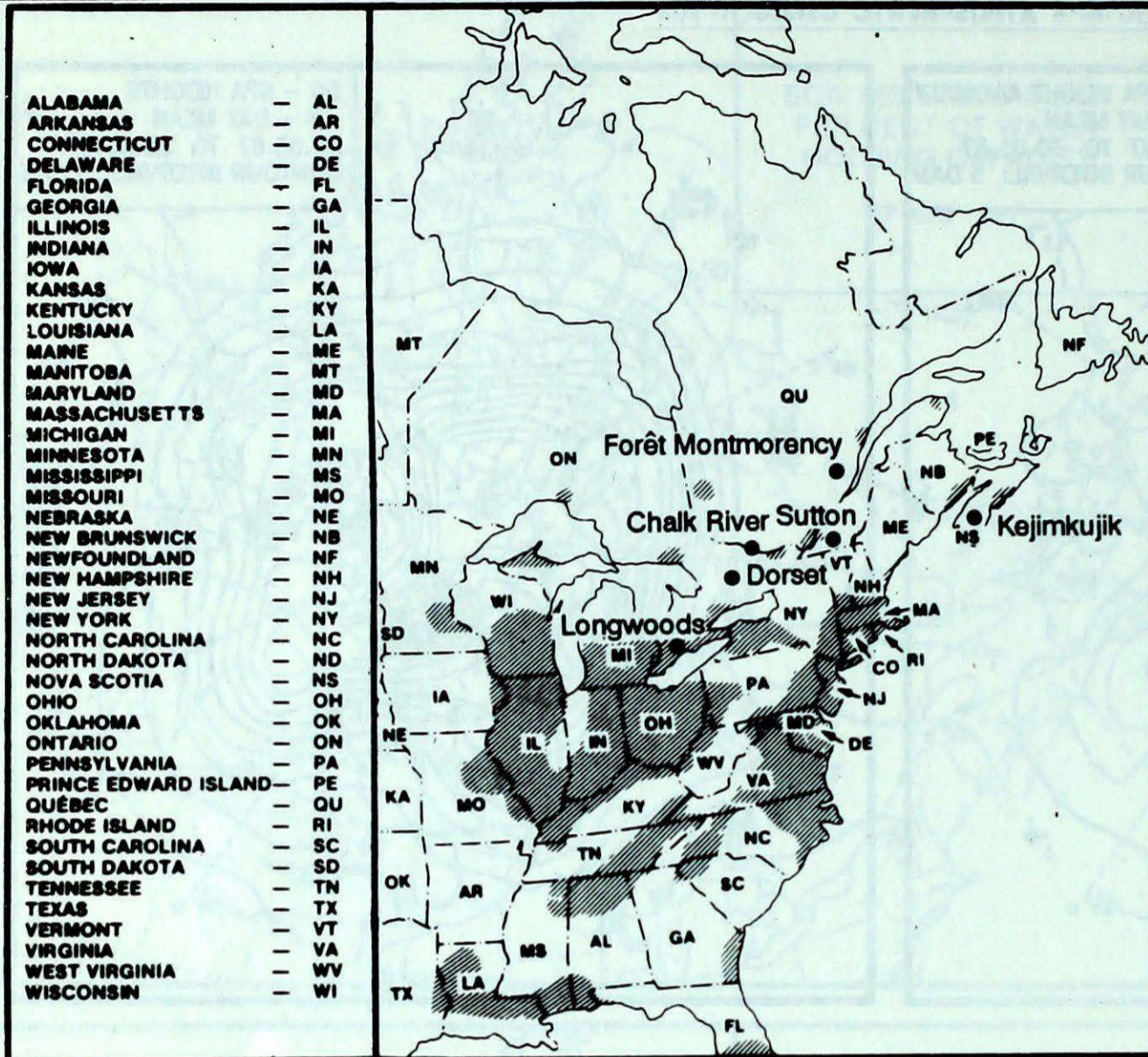
MEAN 50 KPa HEIGHTS (dam)  
May 26 to 30, 1987



ATMOSPHERIC ENVIRONMENT SERVICE LIBRARY

# ACID RAIN

## 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 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.

May 24 to May 30, 1987

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods				No precipitation this week
Dorset *	26	3.7	16(r)	Ohio, New York, Southern Ontario
	27	4.2	5(r)	Indiana, Michigan, Lake Huron
Chalk River	26	3.9	6(r)	Ohio, New York, Eastern Ontario
	28	4.0	14(r)	Illinois, Wisconsin, Michigan, Central Ontario
	30	4.3	1(r)	Missouri, Illinois, Central Ontario
Sutton	28	4.4	25(r)	Wisconsin, Michigan, Central Ontario, Central Quebec, Southern Quebec
Montmorency				No data available
Kejimikujik	24	4.6	2(r)	Eastern Quebec, P.E.I., Nova Scotia
Southwestern	27	4.3	1(r)	New England, Atlantic Ocean
Nova Scotia	30	4.0	10(r)	Southern Quebec, New Brunswick, Maine, Nova Scotia

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

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

**STATISTICS**

**TEMPERATURE, PRECIPITATION AND MAXIMUM WIND DATA FOR THE WEEK ENDING 0600 GMT JUNE 2, 1987**

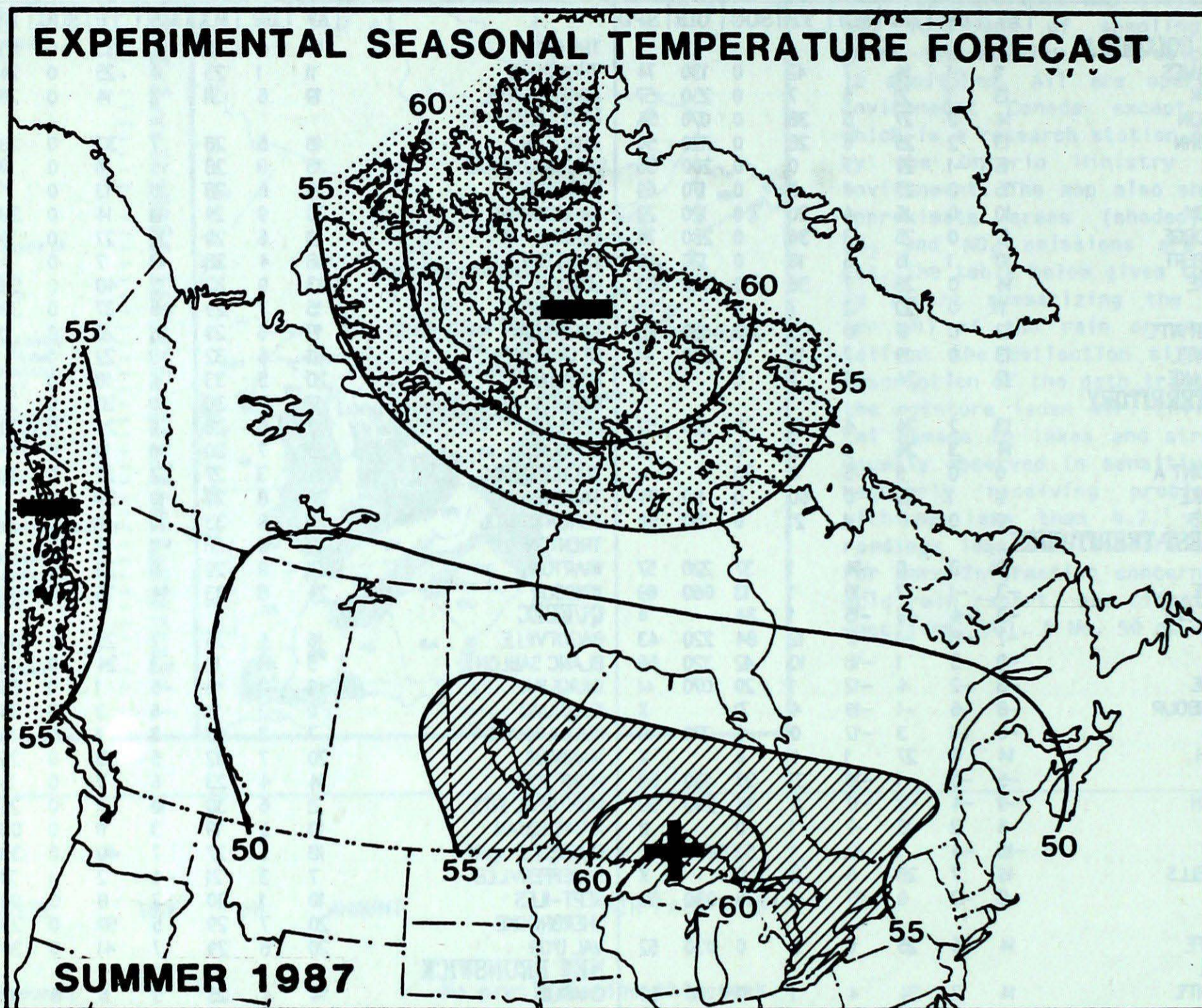
STATION	TEMPERATURE				PRECIP.		WIND MX		STATION	TEMPERATURE				PRECIP.		WIND MX	
	AV	DP	MX	MN	TP	SOG	DIR	SPD		AV	DP	MX	MN	TP	SOG	DIR	SPD
<b>BRITISH COLUMBIA</b>									<b>THE PAS</b>								
CAPE ST. JAMES	9	-1	14	7	42	0	130	74	THOMPSON	11	1	23	4	25	0	240	54
CRANBROOK	13	1	21	5	7	0	250	57	WINNIPEG INT'L	19	6	31	11	14	0	260	63
FORT NELSON	14	2	27	5	38	0	070	54	<b>ONTARIO</b>								
FORT ST. JOHN	13	2	25	6	28	0	120	56	ATIKOKAN	18	5	28	7	33	0	280	69
KAMLOOPS	15	-1	27	7	0	0	200	56	BIG TROUT LAKE	15	8	28	5	11	0	170	56
PENTICTON	15	0	27	4	11	0	170	69	GORE BAY	19	6	28	10	13	0		*
PORT HARDY	10	0	15	4	20	0	120	70	KAPUSKASING	20	9	29	12	14	0	330	37
PRINCE GEORGE	12	0	25	3	36	0	280	76	KENORA	19	6	29	10	27	0	190	46
PRINCE RUPERT	10	1	15	6	16	0	120	48	KINGSTON	18	4	28	12	7	0		X
REVELSTOKE	14	0	28	7	36	0	330	63	LONDON	23	9	32	12	40	0	280	46
SMITHERS	11	0	22	2	7	0		*	MOOSONEE	15	7	29	5	37	0	330	39
VANCOUVER INT'L	13	0	17	10	45	0	150	46	NORTH BAY	19	6	29	8	26	0	210	44
VICTORIA INT'L	13	0	19	7	16	0	230	41	OTTAWA INT'L	21	6	32	8	22	0		X
WILLIAMS LAKE	12	1	24	2	2	0		X	PETAWAWA	20	5	33	4	18	0		X
<b>YUKON TERRITORY</b>									PICKLE LAKE	17	7	30	10	20	0	270	72
DAWSON	13	2	24	4	10	0	120	52	RED LAKE	17	5	28	9	24	0	200	50
MAYO	14	3	24	3	2	0		X	SUDBURY	20	7	30	10	19	0		X
SHINGLE POINT A	0	0	5	-5	0	20		*	THUNDER BAY	14	3	27	7	27	0	300	48
WATSON LAKE	11	1	22	0	60	0	110	74	TIMMINS	20	8	29	10	29	0		*
WHITEHORSE	9	0	17	1	21	0	150	50	TORONTO INT'L	22	8	33	10	21	0	260	48
<b>NORTHWEST TERRITORIES</b>									TRENTON	21	6	31	11	8	0		X
ALERT	-9	-3	0	-14	1	37	220	57	WIARTON	21	8	29	8	23	0		X
BAKER LAKE	-3	-1	2	-10	1	13	060	69	WINDSOR	24	8	33	14	75	0	200	72
CAMBRIDGE BAY	-9	-4	-3	-15	1	34		*	<b>QUEBEC</b>								
CAPE DYER	-7	-5	-1	-17	12	84	220	43	BAGOTVILLE	16	4	26	7	25	0	300	33
CLYDE	-9	-5	1	-18	10	42	320	56	BLANC SABLON	5	1	12	-3	24	0		X
COPPERMINE	-3	-2	4	-12	1	29	070	41	INUKJUAQ	0	-1	6	-5	1	0	040	43
CORAL HARBOUR	-8	-6	-1	-19	4	71		X	KUUVJUAQ	0	-3	15	-6	3	0	350	39
EUREKA	-6	-1	3	-12	0	3	270	46	KUUVUARAPIK	7	3	26	-3	1	0	150	43
FORT SMITH	14	4	27	1	4	0		X	MANIWAKI	20	7	32	5	13	0	250	43
IQALUIT	-5	-5	1	-10	31	37	130	63	MONT JOLI	14	4	23	6	7	0	150	44
HALL BEACH	-9	-4	-2	-17	2	36	290	50	MONTREAL INT'L	21	6	30	10	11	0	260	43
INUVIK	6	2	15	-2	1	0		X	NATASHQUAN	10	2	19	3	11	0	030	41
MOULD BAY	-10	-4	1	-17	1	52		X	QUEBEC	18	5	27	7	49	0	330	57
NORMAN WELLS	16	7	28	5	2	0		X	SCHIEFFERVILLE	7	3	21	-6	2	1	210	44
RESOLUTE	-8	-2	0	-17	1	26	030	50	SEPT-ILES	10	1	20	3	8	0	090	48
<b>YELLOWKNIFE</b>									SHERBROOKE	20	7	29	5	59	0	230	33
<b>ALBERTA</b>									VAL D'OR	20	8	29	7	41	0	360	44
CALGARY INT'L	14	2	24	4	1	0	260	65	<b>NEW BRUNSWICK</b>								
COLD LAKE	14	2	24	7	14	0	290	78	CHARLO	14	4	25	5	6	0	090	46
CORONATION	13	1	23	4	9	0	300	70	CHATHAM	15	3	27	4	9	0	330	43
EDMONTON NAMAO	14	1	24	6	26	0	310	81	FREDERICTON	17	3	26	6	27	0	200	44
FORT McMURRAY	14	3	27	5	26	0		X	MONCTON	14	2	24	3	19	0	360	59
HIGH LEVEL	14	2	27	2	17	0	150	46	SAINT JOHN	14	3	26	4	17	0	220	46
JASPER	11	1	23	2	2	0		X	<b>NOVA SCOTIA</b>								
LETHBRIDGE	13	0	22	5	19	0	260	91	GREENWOOD	15	2	26	3	21	0	360	46
MEDICINE HAT	15	0	24	6	16	0	270	52	SHEARWATER	13	2	24	3	18	0	010	44
PEACE RIVER	13	2	26	5	32	0	280	76	SYDNEY	9	0	17	1	4	0	190	54
<b>SASKATCHEWAN</b>									YARMOUTH	13	2	23	5	30	0	190	44
CREE LAKE	13	3	22	4	8	0	230	52	<b>PRINCE EDWARD ISLAND</b>								
ESTEVAN	17	4	29	10	14	0	310	87	CHARLOTTETOWN	11	0	20	1	13	0	360	33
LA RONGE	14	3	25	3	21	0	280	63	SUMMERSIDE	12	0	20	3	8	0	210	48
REGINA	16	3	29	8	56	0	290	76	<b>NEWFOUNDLAND</b>								
SASKATOON	16	3	27	10	28	0	290	78	CARTWRIGHT	5	0	19	-3	6P	0	320	46
SWIFT CURRENT	14	1	27	7	17	0		X	CHURCHILL FALLS	8	3	22	-3	16P	0	360	39
YORKTON	16	3	28	9	35	0	200	69	GANDER INT'L	8	-1	20	-3	7	0	050	46
<b>MANITOBA</b>									GOOSE	8	1	26	-2	15	0	260	33
BRANDON	17	4	31	8	17	0	290	78	PORT-AUX-BASQUES	9	2	21	2	31	0	280	63
CHURCHILL	3	1	24	-2	11	0	220	41	ST JOHN'S	6	-2	16	-1	8	0	020	67
LYNN LAKE	11	1	23	6	19	0		*	ST LAWRENCE	8	3	19	-1	11	0		X
									WABUSH LAKE	9	4	22	-2	17	0	280	37

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

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# FORECAST



The contours in both the June and Summer forecasts delineate the areas in which the average temperature is expected to be above (+) or below (-) normal for the forecast periods. The numerical values (in percent) are estimates of the probability of the occurrence of the indicated class. In the unshaded areas, the probabilities of the two classes are nearly equal.

