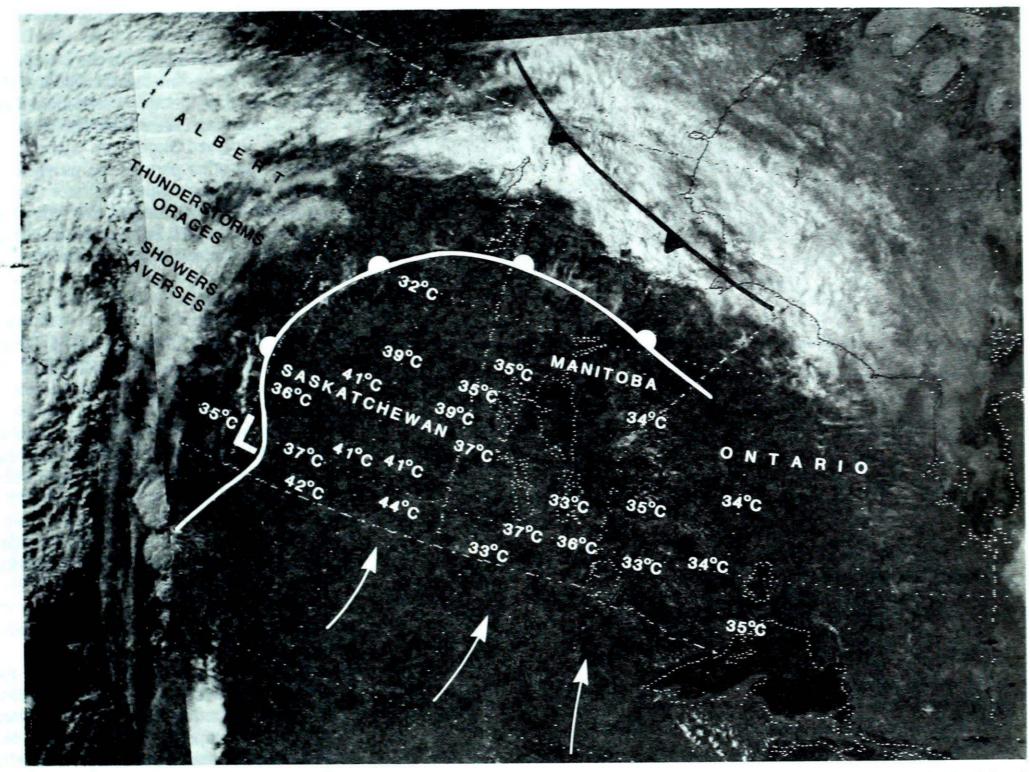
# Climatic Perspectives

May 31 to June 6, 1988

A weekly review of the Canadian climate

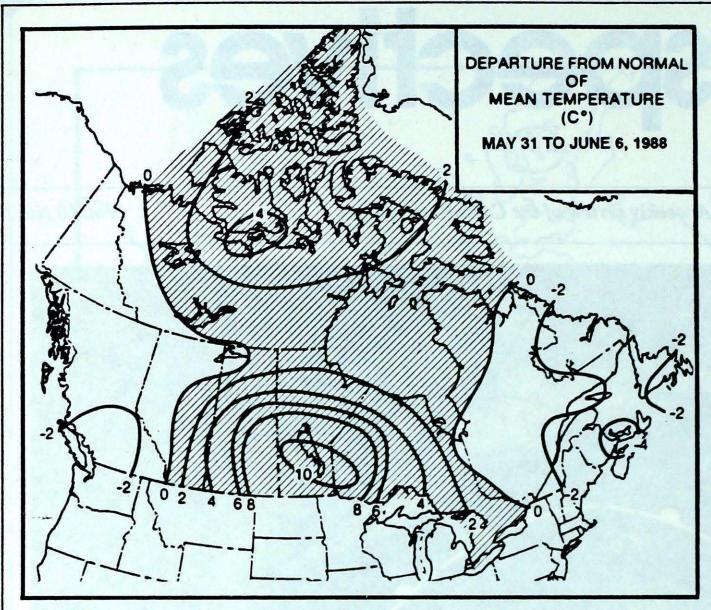
Vol. 10 No. 23



This NOAA satellite photo of June 5, 1988, indicates the extent of the hot and dry weather, which has baked the Prairies for almost two weeks. The northern edge of this air mass is well depicted by the band of cloud curving across the north. The area of cloud over Alberta is associated with the severe weather, which hit the central portions of that province during the morning hours. Note the many record setting maximum temperature spot values observed on June 5.

- Severe weather and searing heat in the Prairies.
  - Tornados rip across central Alberta
  - Damaging winds Eastern Canada





# Weekly Temperature Extreme (°C)

MAXIMU	M	MINIMUM				
MAYO	25	SMITHERS -4 KOMAKUK BEACH A -4 ALERT -10				
MEDICINE HAT	35	MOULD BAY BANFF 0				
BRANDON THUNDER BAY	37 35	COLLINS BAY 3 CHURCHILL -1 MOOSONEE -1 SCHEFFERVILLE -5				
ST STEPHEN	24	FREDERICTON 1 ST STEPHEN				
SHELBURNE SUMMERSIDE GOOSE	20 18 19	TRURO -1				
	DEASE LAKE MAYO NORMAN WELLS MEDICINE HAT MOOSE JAW BRANDON THUNDER BAY MONTREAL INT'L ST STEPHEN SHELBURNE SUMMERSIDE	MEDICINE HAT 35  MOOSE JAW 41 BRANDON 37 THUNDER BAY 35 MONTREAL INT'L 27  ST STEPHEN 24  SHELBURNE 20 SUMMERSIDE 18				

## ACROSS THE NATION

WARMEST MEAN TEMPERATURE	27	WINNIPEG INT'L	MAN
COOLEST MEAN TEMPERATURE	-3	MOULD BAY	NWT

#### **ACROSS THE COUNTRY...**

#### Yukon and Northwest Territories

In the Yukon, the week started damp and cool, with a gradual return to sunny and warmer weather. Overnight lows dipped below freezing. Whitehorse set a new daily low temperature record of -2°C on June 1.

#### **British Columbia**

A cold low just off the coast produced unsettled, damp weather conditions. Although the dry Thompson area missed out on this moisture, the southern fringes of the interior received significant amounts of rain, as did other parts of the province. A funnel cloud was sighted at Prince George on June 1. In the Okanagan, the cherry harvest is one week behind normal. Dry weather is needed for the hay harvest.

#### **Prairie Provinces**

In Alberta, it was an unsettled, variably cloudy week. Cool temperatures in the teens slowly moderated during the period. Scattered afternoon showers developed daily. A much warmer air mass reached southern Alberta by the weekend, allowing maximum readings to climb into the thirties. Medicine Hat set a new daily record of 35°C on the 3rd. Very intense thunderstorms moved across central Alberta Saturday night, spawning funnel clouds and tornados. The storms developed early Saturday evening near Banff, and cut a 300 km wide swath towards the northeast. More details on page 3.

In Saskatchewan and Manitoba, the heat wave, which started towards the end of May, continued unabated. In southern Manitoba, temperatures have exceeded 30°C for more than ten consecutive days. In Saskatchewan some temperature readings are all time highs. The mercury at Regina and Moose Jaw soared to 41°C on June 5, and there were 42°C and 44.4°C (112°F) temperature readings at Palmer, Lafleche and Trosfachs. This is close to the all-time Canadian high of 45°C set at Midale and Yellow Grass on July 5, 1937. Thunderstorms have produced heavy, but localized downpours. Western Saskatchewan received heavy rainfalls earlier in the week, but not enough to offset the drying sun and heat. In contrast, temperatures in northern Manitoba remained in the single digits.

#### Ontario

Last week's heat wave came to an end on June 1, with a cold front approaching from the northeast. It was sunny but cool, with minimal amounts of rain. In northwestern Ontario, temperatures rose to the thirties by the weekend. Very windy conditions were experienced on June 5, with gusts to 75 km/h, resulting in considerable blowing dust due to the dry conditions. In the Holland Marsh, a key vegetable producing area, some crops sustained damaged due to wind erosion. Welcomed showers developed in the south on the evening of the 6th.

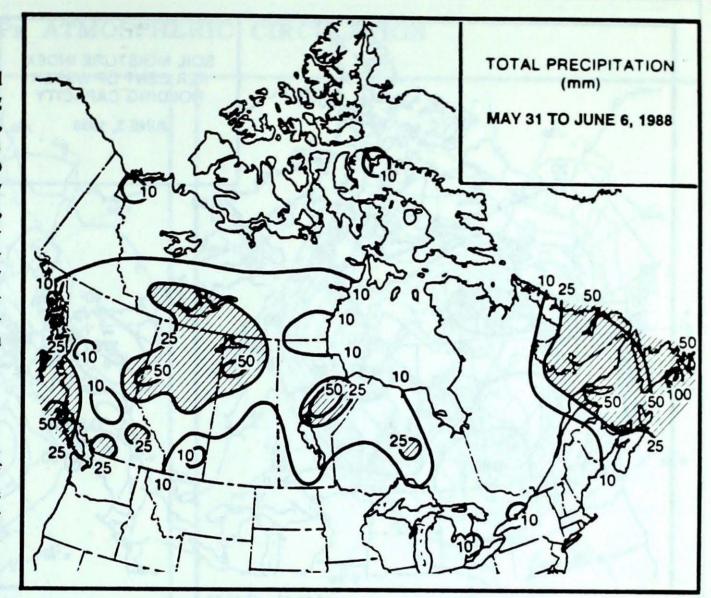
#### Quebec

It was a cool week, with heaviest rainfalls occurring over the eastern portions of the province. An intensifying storm near the east coast produced very strong winds over the Gulf of St. Lawrence on Sunday. The southern portions of the province were buffeted by winds gusting to almost 100 km/h, which broke tree limbs and caused a number of power failures. More than half the lobster traps positioned near the Magdalen Islands were destroyed. The Ottawa Valley and the Eastern Townships were especially hard hit. Six-metre waves damaged the wharves of a marina near Boucherville on the St. Lawrence. Late in the afternoon on June 5, golf ball size hail pounded the Eastern Townships, and a tornado touched down east of Thetford Mines.

#### **Atlantic Provinces**

The period was mainly cloudy and cool as an atmospheric disturbance plagued the area, producing showers nearly every day. A number of locations in central and northern New Brunswick experienced frost towards the weekend, although daytime highs managed to nudge the low twenties. Rain pushed into the region over the weekend, after which new daily record low maximum readings were set on Sunday.

In Newfoundland, disturbances deposited a mixture of rain and light, but record-setting, snowfalls. Temperatures remained generally in the single digits. It was a windy period. On Friday, strong northerly winds damaged fishing equipment along sections of the northeast coast. Thirty to 50 millimetres of rain fell on the Island on Sunday. In Labrador, daytime highs hovered just above the freezing mark.

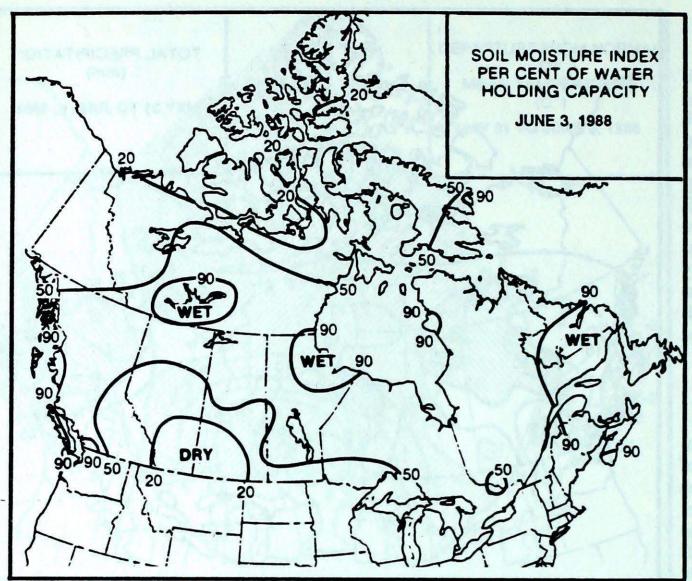


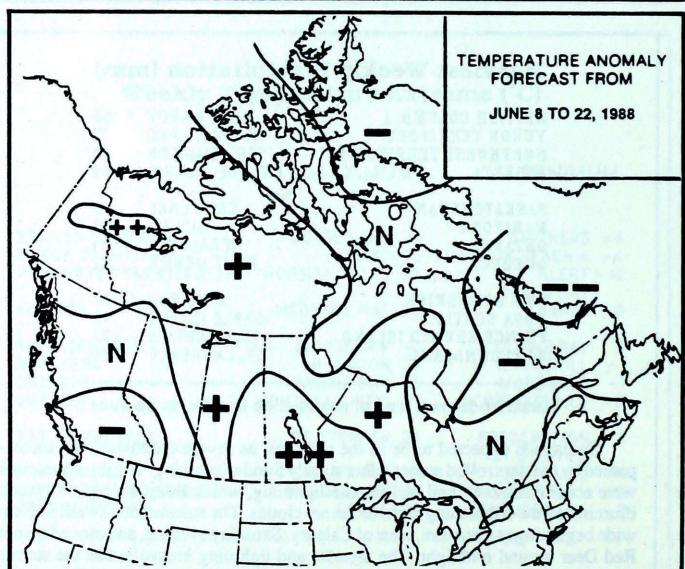
# Heaviest Weekly Precipitation (mm)

BRITISH COLUMBIA YUKON TERRITORY NORTHWEST TERRITORIES ALBERTA	PORT HARDY WATSON LAKE FORT SIMPSON GRANDE PRAIRIE	50 22 29 69
SASKATCHEWAN MANITOBA ONTARIO QUEBEC	CREE LAKE GILLAM GERALDTON PORT MENIER	86 59 31 82
NEW BRUNSWICK NOVA SCOTIA PRINCE EDWARD ISLAND NEWFOUNDLAND	MONCTON SABLE ISLAND SUMMERSIDE ST. LAWRENCE	37 45 27 106

#### Tornados leave a trail of destruction in Alberta on June 5

Damage is expected to be in the millions, as severe thunderstorms accompanied by twisters rolled across Alberta early Sunday morning. The thunderstorms were accompanied by hail and intense lightning, which lit up the night sky, and illuminated the frightening sight of funnel clouds. The storms cut a swath 300 km wide beginning at Canmore, west of Calgary, Saturday evening, and moved across Red Deer around midnight. The thunder and lightning intensified as the storms approached the farming communities near Camrose, southeast of Edmonton, where the worst damage occurred between 3 a.m. to 4 a.m. The violent winds caused extensive damage to houses and barns, which were moved right off their foundations. Cattle and horses were injured as they were flung by the winds, some having to be destroyed. Granaries, concrete and steel silos, sheds and trees were toppled or flattened. Luckily there were no deaths or injuries to the 20,000 inhabitants affected. The thunderstorms weakened a few hours later.





- ++ 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.

#### **CLIMATIC PERSPECTIVES VOLUME 10**

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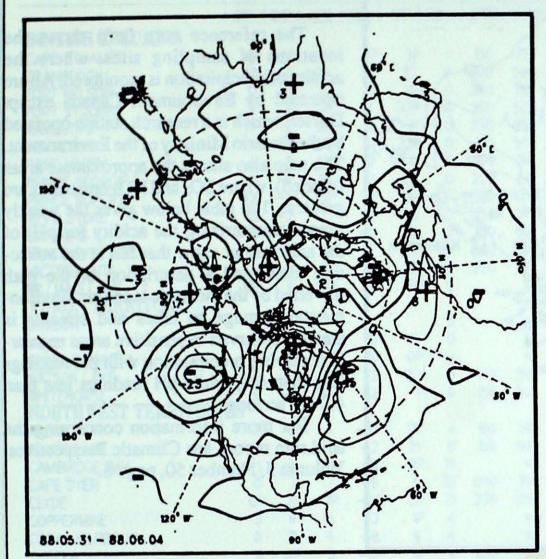
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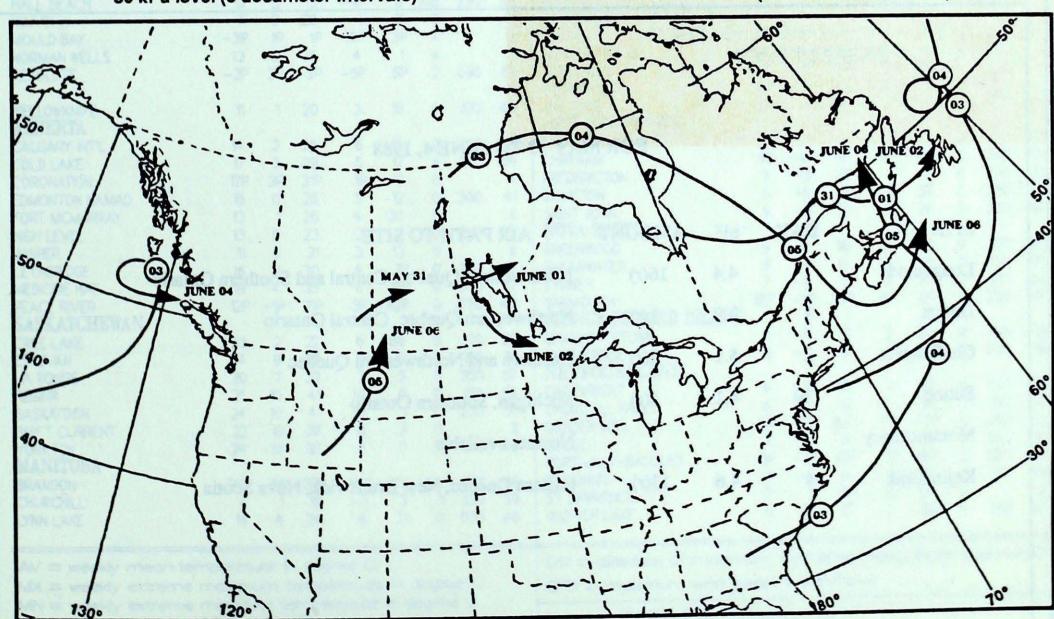
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## 50 kPa ATMOSPHERIC CIRCULATION



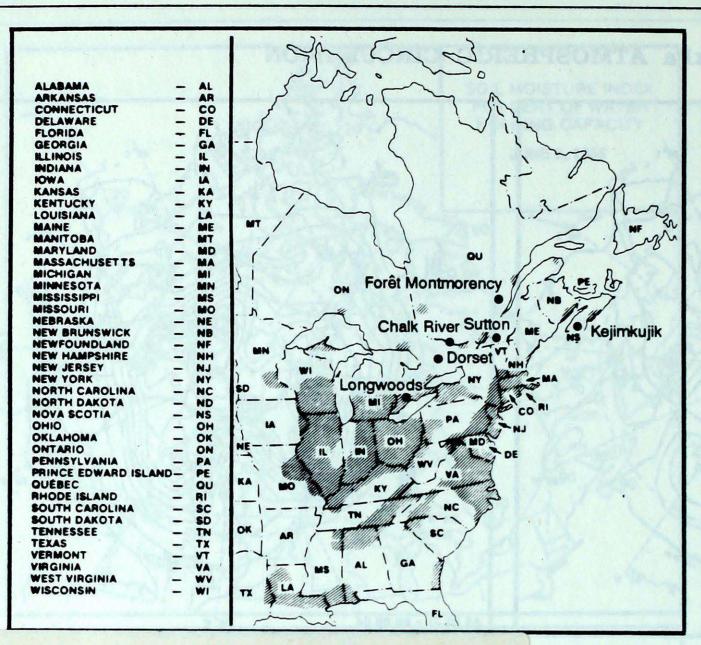
Mean geopotential height anomaly 50 kPa level (5 decameter intervals)

Mean geopotential height
50 kPa level (5 decameter intervals)



88.05.31 - 88.06.04

Storm track - Position of storm at 12 GMT during the period: May 31 to June 6, 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.

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ARCHIVES-----PERIODICALS
CLIMATIC PERSPECTIVES

OTM

ON WAL 27 10 JUNE 4, 1988

SITE	DAY	pН	AMOUNT	AIR PATH TO SITE
Longwoods	1	4.4	16(r)	Northwestern Quebec, Central and Southern Ontario
Dorset	1	3.9	1(r)	Northwestern Quebec, Central Ontario
Chalk River	2	5.1	2(r)	Northern and Northwestern Quebec
Sutton	30	4.1	1(r)	Michigan, Southern Ontario
Montmorency				No data available
Kejimkujik	4	4.6	13(r)	Eastern Quebec, New Brunswick, Nova Scotia

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

### STATISTICS FOR THE WEEK ENDING 0600 GMT June 7, 1988

STATISTICS FOR THE WEEK ENDING 0600 GMT June 7, 1988																	
STATION			RATU		PRE			XM C	STATION	TE	MPER			PREC		WIND	
	AV	DP	MX	MN	TP	SOG	DIR	SPD		AV	DP	MCX			OG		SPD
BRITISH COLUMBIA								_		23	*	36	11	0	0	150	52
CAPE STUAMES	10P		13P	7P	3F		150	72	THOMPSON	18	7	34	7	13	0	060	54
CRANBROOK	13	-1	24	4	22	0	200	54	WINNIPEG INT'L	27	11	36	15	0	0	180	57
FORT NELSON	12	-1	20	1	12	0	230	78 50	ONTARIO ATIKOKAN	20	7	32	9	5	0	130	35
FORT STJOHN	11	-2 -3	18	4	30F	0	360 230	85	BIG TROUT LAKE	16	*	30	5	22	0	110	63
KAMLOOPS	14 13P		22P	4P	23F	III GOVERN	190	50	GORE BAY	16	3	29	6	2	0	280	56
PENTICTON PORT HARDY	131	-2	14	2	50	0	100	76	KAPUSKASING	13	1	29	0	ō	0	050	44
PRINCE GEORGE	11	*	18	2	22	0	200	61	KENORA	26	12	33	17	1	0	230	46
PRINCE RUPERT	10P	-1P	18P	1P	15F	0	170	65	KINGSTON	16P	1P	29P	4P	0	0		X
REVELSTOKE	13	-2	21	2	38	0	150	37	LONDON	17	1	30	5	5	0	020	52
SMITHERS	8	-4	18	-4	16	0	220	69	MOOSONEE	8	-1	29	-1	0	0	360	31
VANCOUVER INT'L	12	-2	18	7	20	0	080	50	NORTH BAY	14	0	26	4	2	0	350	61
VICTORIA INT'L	11	-3	18	5	12	0	250	67	OTTAWA INT'L	16	0	27	7	0	0		X
WILLIAMS LAKE	_10P	*	18P	1P	5F	, 0		X	PETAWAWA	14	0	27 34	2 7	2	0	180	43
YUKON TERRITORY						0			PICKLE LAKE RED LAKE	20 23	10	35	11	10	0	240	85
DAWSON	44		25	0	5	0		X	SUDBURY	15	1	28	4	7	0	210	X
MAYO SHINGLE POINT A	11 1P			-3P	OF			*	THUNDER BAY	18	5	35	2	8	o	120	33
WATSON LAKE	10	-1	21	2	22		100	39	TIMMINS	14P	1P	29P			0	360	52
WHITEHORSE	Q	-1	24	-2	1	O	150	50	TORONTO INT'L	17	1	30	4	5	0	300	57
NORTHWEST TERRITORI	ES Í	400							TRENTON	17	1	31	5	13	0		X
ALERT	-3	3	4	-10	2	*	190	59	WIARTON	14	0	24	4	OP.	0		X
BAKER LAKE	2	2	7	-2	21	8	150	69	WINDSOR	20	2	34	9	22	0	030	54
CAMBRIDGE BAY	1	4	5	-2	91			*	QUEBEC					•		200	
CAPE DYER	0	2	7	-6	5		040	39	BAGOTVILLE	11	-2	23	-1	8	0	290	54
CLYDE	OF	2P			2		230	80	BLANC SABLON	6P	*	13P			0	350	46
COPPERMINE	3	*	16	-2	1			*	INUKJUAK	3 4P	-1P	10 12P	-2 -2P	4 1P	0	350	54
CORAL HARBOUR	0		4	-8	9		260	X	KUWUAQ	5	-1	72	-1	1	0	270	46
EUREKA	1F		5 21	-2P	28		260	80 X	KUUWUARAPIK MANIWAKI	13	-2	24	2	1	O	330	74
FORT SMITH	14 1F	2 1P			1		330	41	MONT JOLI	9	<b>√</b> −3	20	1	10	0	360	63
IQALUIT HALL BEACH	0	3	3	-6	6		330	69	MONTREAL INT'L	15	-1	27	5	1	0	350	59
INUVIK	7	0	26	-1	1	407	330	X	NATASHQUAN	7	-1	12	3	49	0	180	78
MOULD BAY	-3F							X	QUEBEC	13	-1	25	4	9	0	010	50
NORMAN WELLS	13		26	4		1 *		X	SCHEFFERVILLE	4	-2	17	-5	10	1	340	65
RESOLUTE	-25	3P	3P	-5P	5	P 2	090	69	SEPT-ILES	9P	-1P				0	330	70
								X	SHERBROOKE	12	-2	23	2	5 1P	0	290 310	52 74
YELLOWKNIFE	11	1	20	3	18	0	070	43	VAL D'OR	12	-1	24		IP	0	310	/4
ALBERTA							250	400	NEW BRUNSWICK	<b>9</b> P	-3P	21	45	10	0	330	67
CALGARY INT'L	14		25	6	16		260	100	CHARLO CHATHAM	9P					o	310	61
COLD LAKE	17	100 100	29	5 1P	17		340	59	FREDERICTON	11	-3	23		Contract Con	0	330	72
CORONATION EDMONTON NAMAO	171		31P 26	5	12		300	41	MONCTON	9	-5	19		37	0	030	70
FORT MCMURRAY	13		26	4	30		500	X	SAINT JOHN	9	-3	17	2	24	0	320	56
HIGH LEVEL	13		23	2			010		NOVA SCOTIA								
JASPER	11		21	3	13			X	GREENWOOD	9	-6	16			0	010	56
LETHBRIDGE	16			4	2	P 0	240	67	SHEARWATER	9	-3	15		21	0	350	57 63
MEDICINE HAT	19	4	35	6	17		090		SYDNEY	100	-4	17			0	010 330	46
PEACE RIVER	121	-1P	21F	3P	42	P 0	030	48	YARMOUTH DRINGE EDWARD ISLAND	10P	-2P	16F	4	107	U	330	70
SASKATCHEWAN			8 -113 1						PRINCE EDWARD ISLAND	7	-5	17	2	23	0	190	52
CREE LAKE	13			6	86		270		CHARLOTTETOWN SUMMERSIDE	8		18			ŏ	030	76
ESTEVAN	24		1100000000		(	A CONTRACTOR	150 350		NEWFOUNDLAND	3							
LA RONGE	20		32 41			0 0	160		CARTWRIGHT	4	-2	16		14 1 20	0	340	78
REGINA SASKATOON	24					1 0	230		CHURCHILL FALLS	6		18	-2		1	180	50
SWIFT CURRENT	20					3 0	200	X	GANDER INT'L	5P					0	090	83
YORKTON	24					*	160		GOOSE	7	-2			2.22	0	050	61
MANITOBA									PORT-AUX-BASQUES	6P					1000	020 260	83 69
BRANDON	24	P 9	37	10F		P O			ST JOHN'S	7	-1	19		62 106	0	200	Y
CHURCHILL	4	1	19			3 1	130		ST LAWRENCE	7 5		16			1000	010	56
LYNN LAKE	14	4	24	6	2	1 0	030	48	WABUSH LAKE	2	-2	V	-2	201		0.10	
											Sill Septiment						

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