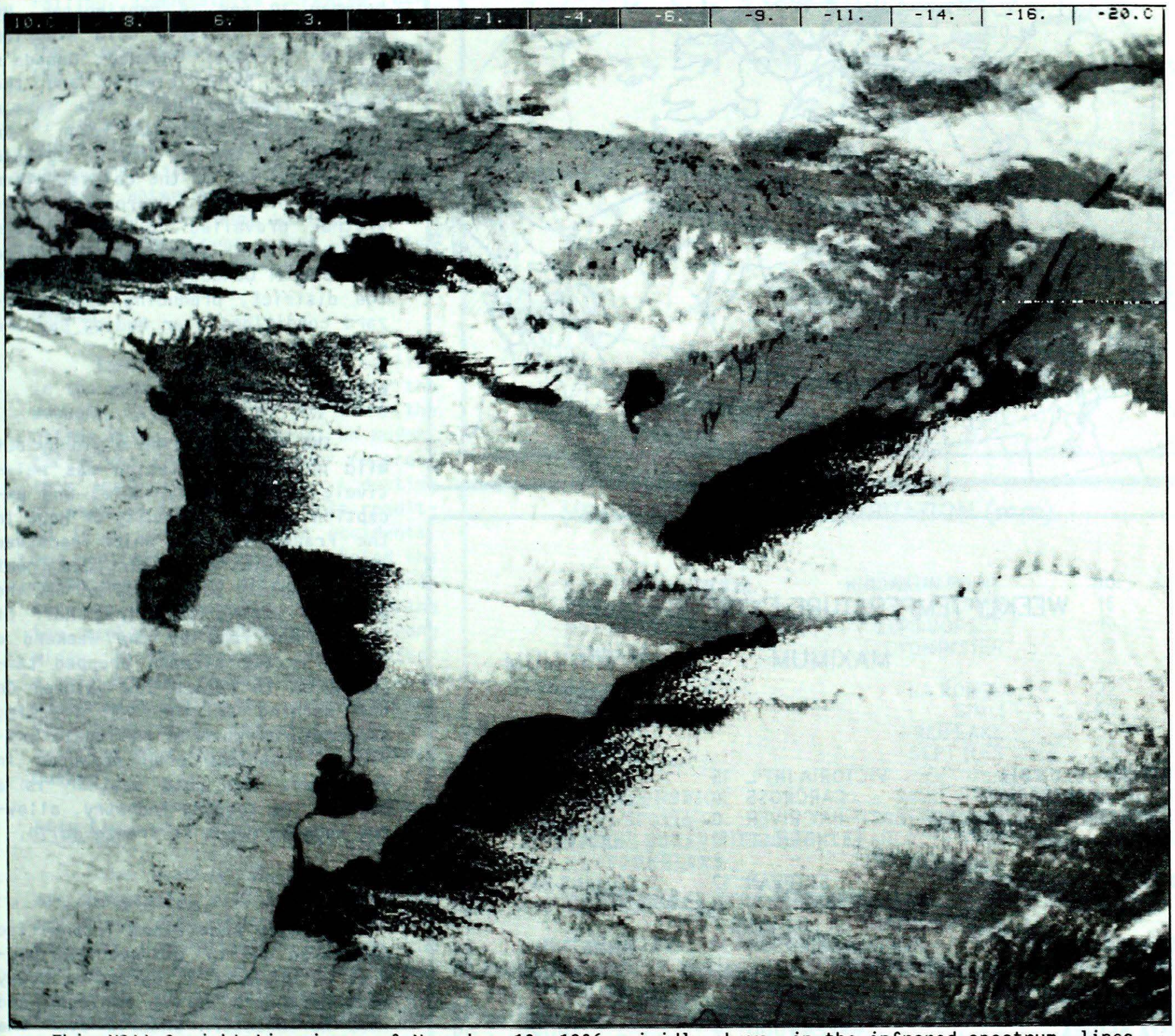
Environment Canada Environnement Canada

Climatic Perspectives

Weekly review of Canadian climate November 4 to 10, 1986 Vol.8 No.45

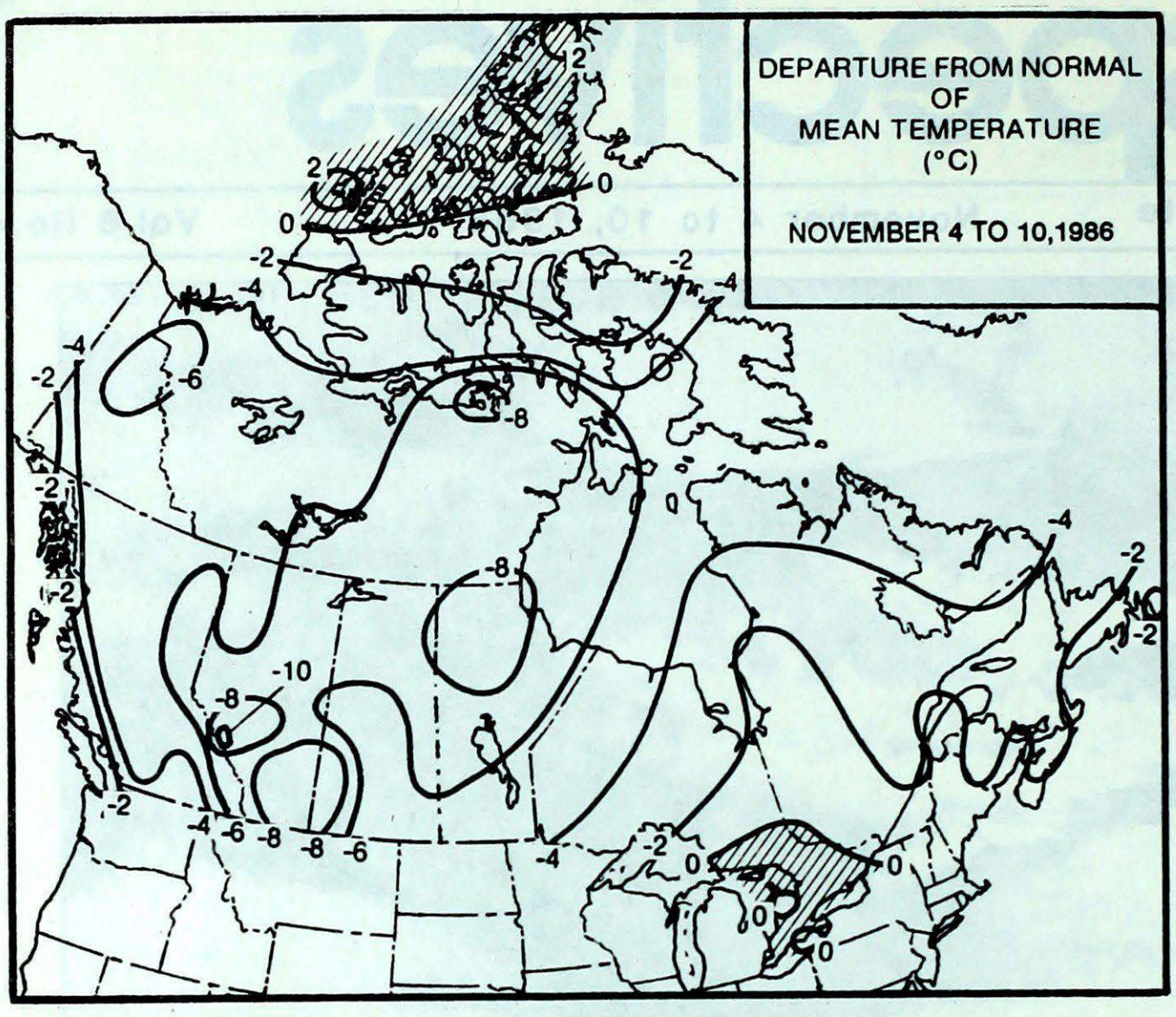


This NOAA 9 night-time image of November 10, 1986, vividly shows, in the infrared spectrum, lines of snow squalls developing over the Great Lakes, and being streamed downwind onto the lee shores. Snow squalls are a common winter-time phenomenon near the Great Lakes, and occur when a cold Arctic airmass crosses a large, relatively warm body of open water, picking up moisture and destabilizing.

- ***Major storm dumps heavy snow on southern Manitoba***
  — a bitterly cold airmass invades western Canada
- ***Great Lakes shorelines lashed again by gales***

Canada

TEMPERATURE



WEEKLY TEMPERATURE EXTREME (C)

	MAXIMUM		MINIMUM	
BRITISH COLUMBIA	VICTORIA INT'L	15	FORT NELSON	-30
YUKON TERRITORY	CARCROSS	9	OGILVIE	-43
NORTHWEST TERRITORIES	HAY RIVER	0	PELLY BAY	-42
ALBERTA	LETHBRIDGE	12	HIGH LEVEL	-34
SASKATCHEWAN	ESTEVAN	12	COLLINS BAY	-28
MANITOBA	BRANDON	8	THOMPSON	-31
	PORTAGE LA PRAIRIE			
ONTARIO	WINDSOR	21	ARMSTRONG	-24
QUEBEC	MONTREAL INT'L	14	KUUJJUAQ	-20
NEW BRUNSWICK	MONCTON	16	CHARLO	-12
NOVA SCOTIA	GREENWOOD	19	TRURO	-9
PRINCE EDWARD ISLAND	EAST POINT	15	CHARLOTTETOWN	-8
NEWFOUNDLAND	ST JOHN'S	13	CHURCHILL FALLS	-19

ACROSS THE NATION

WARMEST MEAN TEMPERATURE	8	ESTEVAN POINT	BC
COOLEST MEAN TEMPERATURE	-30	SHEPHERD BAY A	NWT

ACROSS THE COUNTRY...

Yukon and Northwest Territories

In the Yukon, relatively mild weather was prevalent at the beginning of the week. Snowfalls ranged between 10 and 16 centimetres. By mid-week, a bitterly cold Siberian Arctic airmass invaded Canada's northwest. Skies cleared and the coldest temperatures of the season were registered in the Yukon. On November 9, the mercury at Ogilvie plunged to -43°C, the coldest place in the country. Overcast, windy weather prevailed in the eastern Arctic. A major storm, which earlier hit central Canada, tracked south of the district, producing near blizzard conditions near Hudson Bay and on Baffin Island.

British Columbia

The week began on a cloudy but mild note. Precipitation was relatively light and variable. One exception was the community of Hope in the Fraser Valley, which received 70 mm of rain. An Arctic cold front pushed rapidly southwards across the province during the first half of the period, and by the weekend a frigid Arctic airmass dropped temperatures to record low values. On the morning of the 9th freezing temperatures covered the whole province. Snow was even reported in Vancouver. The cold weather is a boon to the logging industry, allowing logging roads to freeze solid.

Prairies

A major snow storm intensified and moved out of the American midwest on November 7, spreading heavy snow northward across Manitoba and into northwestern Ontario over the weekend. The storm, which dumped 30 cm of snow, was the worst snowstorm to hit southern Manitoba since March 1966, when 35 cm was recorded. Winds gusting to 90 km/h produced heavy blowing snow, reducing visibilities to zero. The brunt of the storm missed Alberta and Saskatchewan, which had falls in the 5 to 10 centimetre range; some freezing rain was reported in extreme southern Alberta. By the weekend, all three provinces were in the grips of a record cold Arctic outbreak.

PRECIPITATION

Ontario

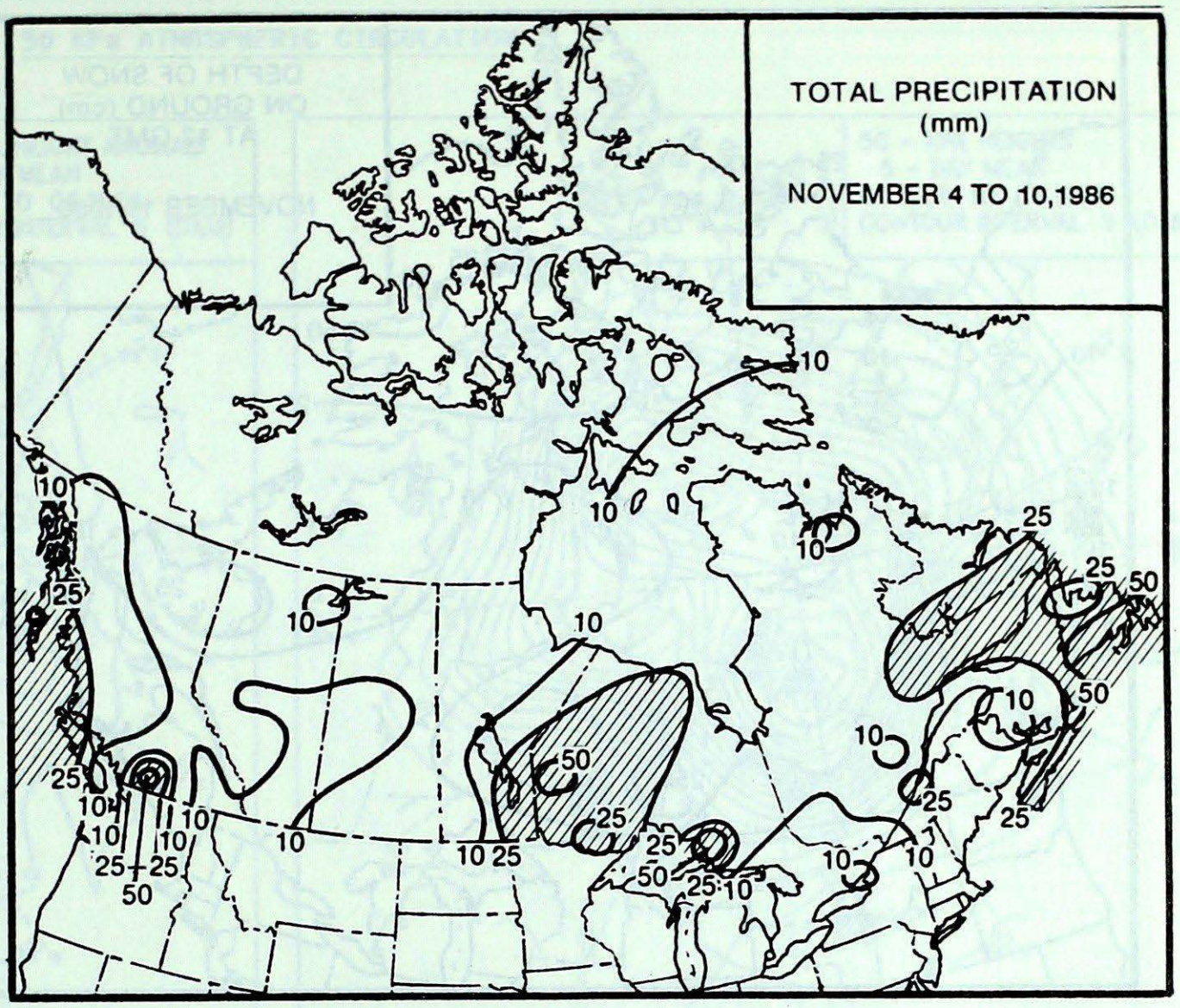
Typically changeable autumn weather prevailed until the weekend, when a major snow storm tracked northward across northwestern Ontario, dumping between 30 and 50 centimetres of snow. Blowing snow and falling temperatures created near blizzard conditions on November 9. The storm pumped very mild air into the southern portions of the province over the weekend, until a cold frontal passage on Sunday. The storm produced gale-force winds over the Great Lakes, resulting in a repeat scenario of high water and pounding waves on the lee shores. Snow squalls streaming off the Great Lakes deposited 10 cm of snow in cottage country.

Québec

Record low temperatures earlier in the week rebounded in time for the weekend. A reading of -10°C in the Ottawa Valley and at Dorval on November 4 was the coldest ever recorded this early in the season. A dusting of snow in the Montréal area resulted in a rash of traffic accidents. Ten centimetres of snow blanketed the north coast. Very mild air infiltrated the St. Lawrence Valley during the weekend, accompanied by strong winds. In the Saguenay region, after a cold frontal passage, winds exceeded 90 km/h during the evening of the 9th. High winds caused blowing and drifting snow in central and northern Québec.

Atlantic

The weather in the Maritimes was changeable, with a mixture of sun and cloud and varying temperatures. Heaviest precipitation fell on the 6th an 9th. Snow was reported in New Brunswick on the 4th and 6th. Low temperature records were broken during the early part of the week. Strong northwest winds accompanied a cold front on November 10. In Newfoundland, the thermometer climbed to the double digits over the weekend. A cold frontal passage late on Sunday changed the precipitation to freezing rain and snow. Winds gusted to 120 km/h at the Hibernia oil fields during the middle of the week. Snow fell on a number of occasions in Labrador, where snow depths range to 20 cm.



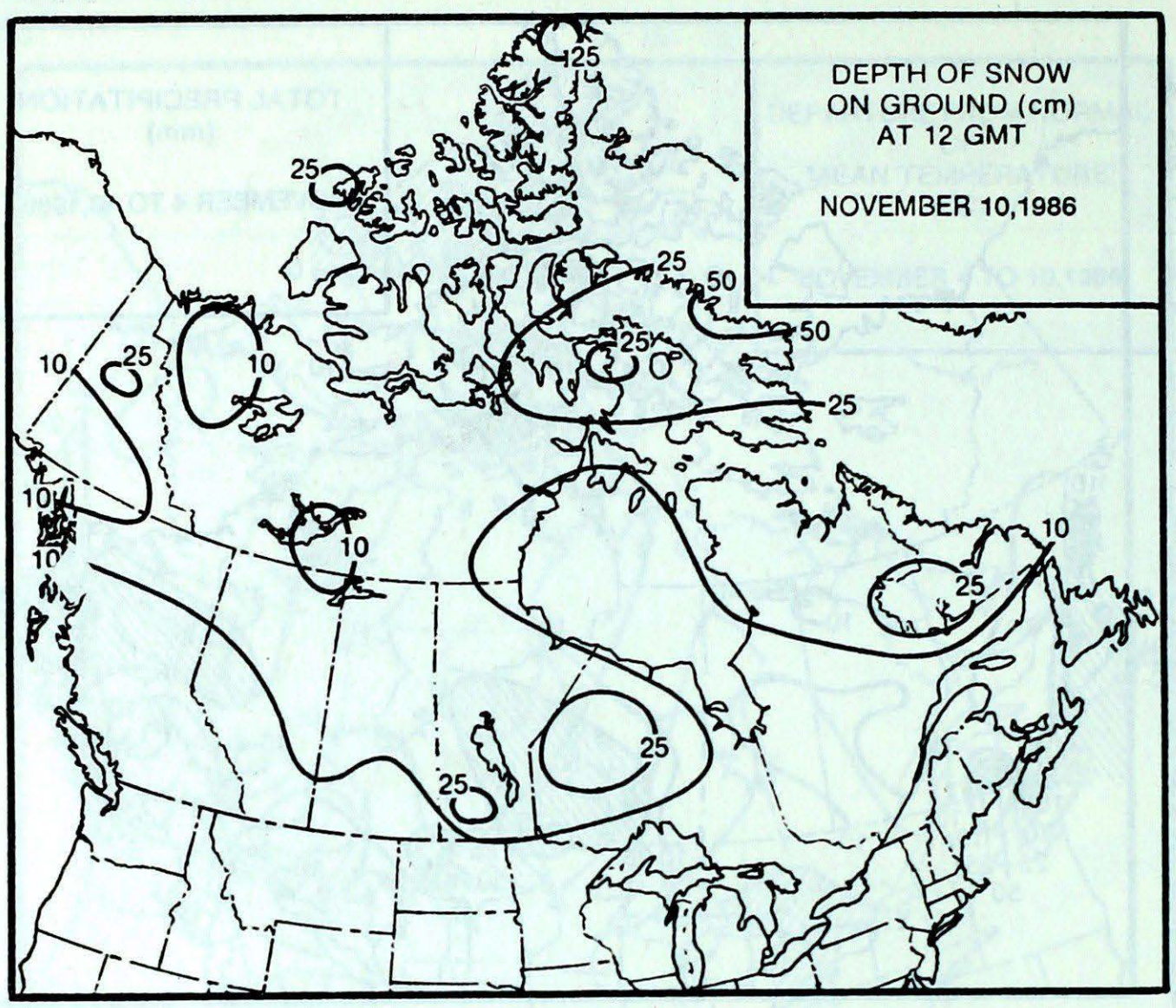
HEAVIEST WEEKLY PRECIPITATION (mm)

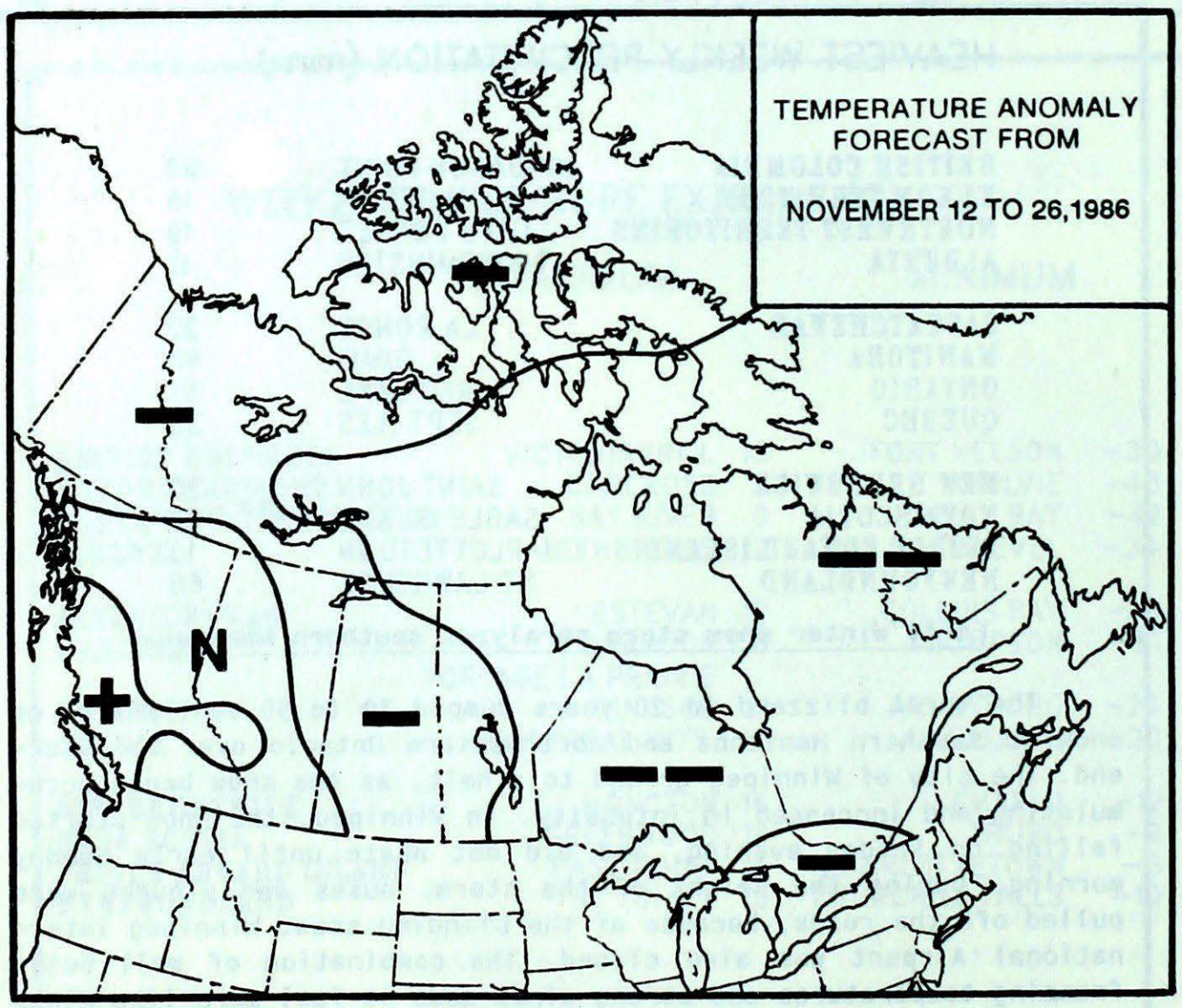
BRITISH COLUMBIA	KINDAKUN POINT	80
YUKON TERRITORY	TESLIN	16
NORTHWEST TERRITORIES	CAPE DORSET	19
ALBERTA	LLOYDMINSTER	17
SASKATCHEWAN	LA RONGE	22
MANITOBA	GIMLI	40
ONTARIO	RED LAKE	57
QUEBEC	SEPT ILES	33
NEW BRUNSWICK	SAINT JOHN	20
NOVA SCOTIA	SABLE ISLAND	53
PRINCE EDWARD ISLAND	CHARLOTTETOWN	13
NEWFOUNDLAND	ST LAWRENCE	68

Early winter snow storm paralyzes southern Manitoba

The worst blizzard in 20 years dumped 30 to 50 centimetres of snow on southern Manitoba and northwestern Ontario over the weekend. The city of Winnipeg ground to a halt, as the snow began accumulating and increased in intensity. In Winnipeg, the snow started falling on Friday evening, and did not abate until early Sunday morning. During the height of the storm, buses and ploughs were pulled off the roads, because of the blinding snow. Winnipeg International Airport was also closed. The combination of well below freezing temperatures and strong winds made it feel more like minus thirty outdoors. The snow on some city streets was piled into two-metre high drifts, which took several days to totally clean up. At least two deaths were attributed to the storm. Cost estimates for clearing the snow in Winnipeg from this one storm alone are 2.5 million, approximately one quarter of Winnipeg snow removal budget for this coming winter.

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.

CLIMATIC PERSPECTIVES VOLUME 8

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ISSN 0225-5707 UDC 551.506.1(71)

Climatic Perspectives is a weekly bilingual publication of the Canadian Climate Centre, Atmospheric Environment Service, 4905 Dufferin St., Downsview, Ont. Canada M3H 5T4. **Phone (416)667-4906/4711.**

The purpose of the publication is to make topical information available to the public concerning the Canadian Climate and its socio-economic impact.

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The data shown 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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Weekly & monthly supplement: $35.00
foreign: $42.00
Monthly issue: $10.00
foreign: $12.00

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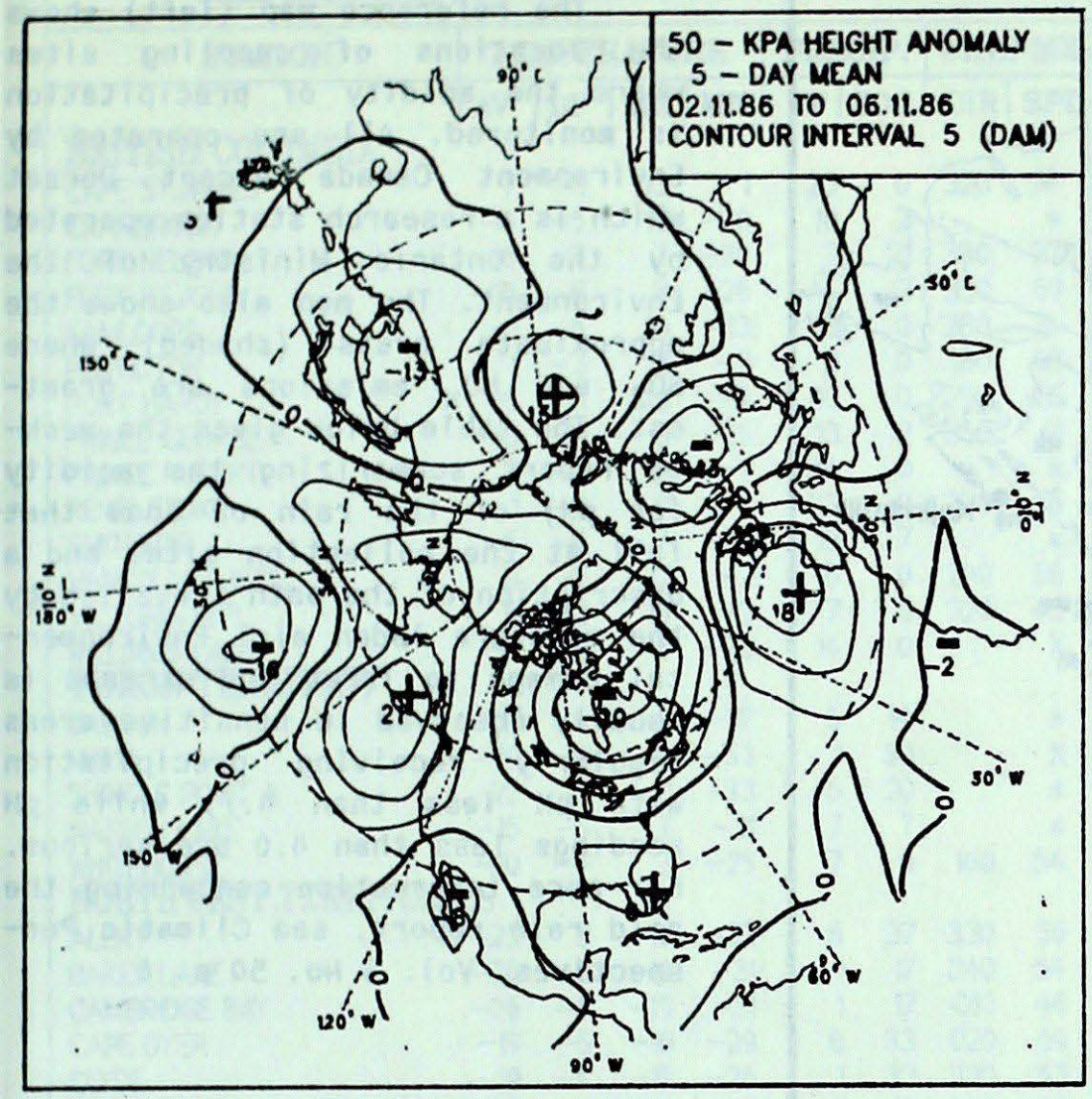
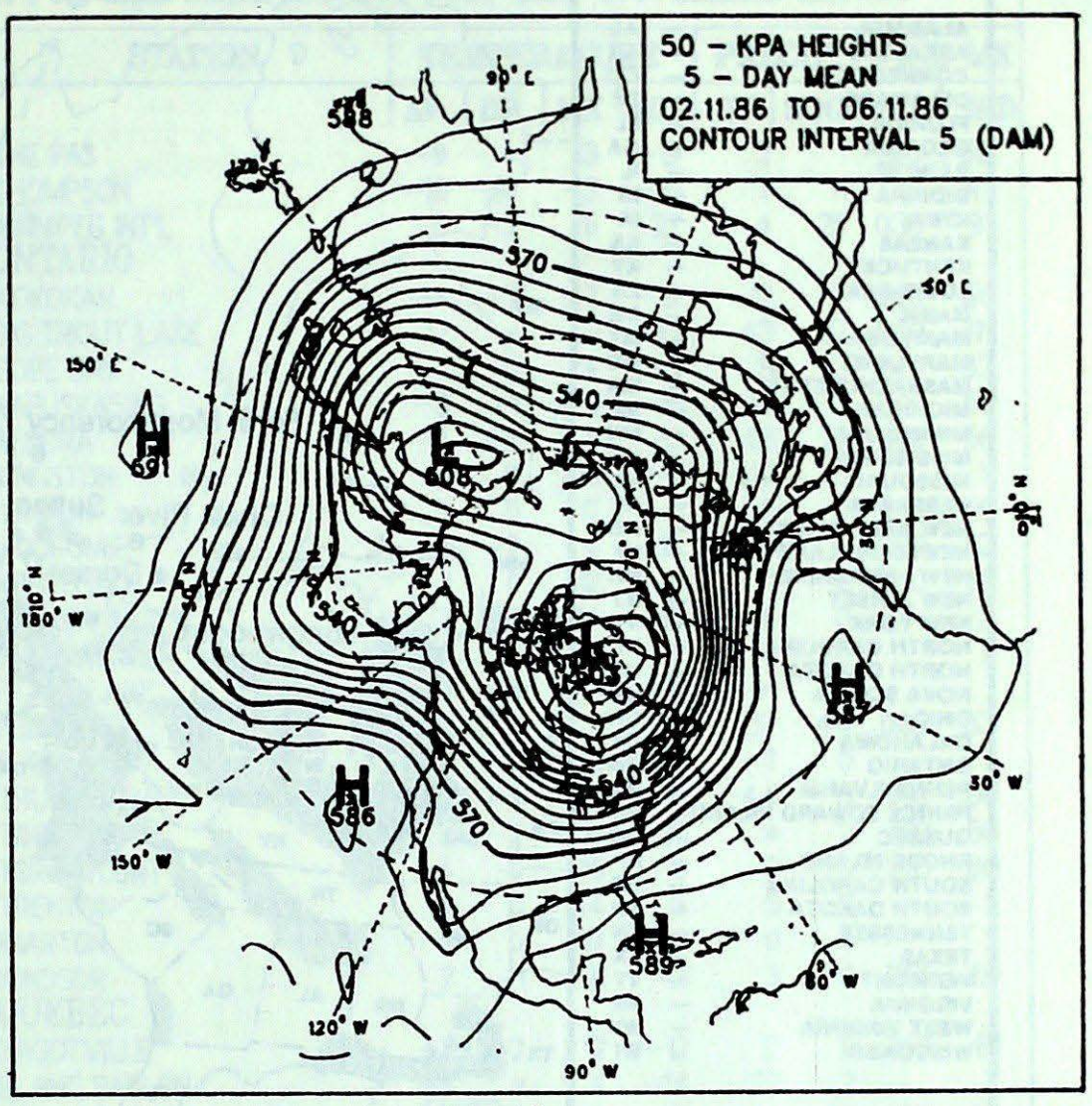
CIRCULATION

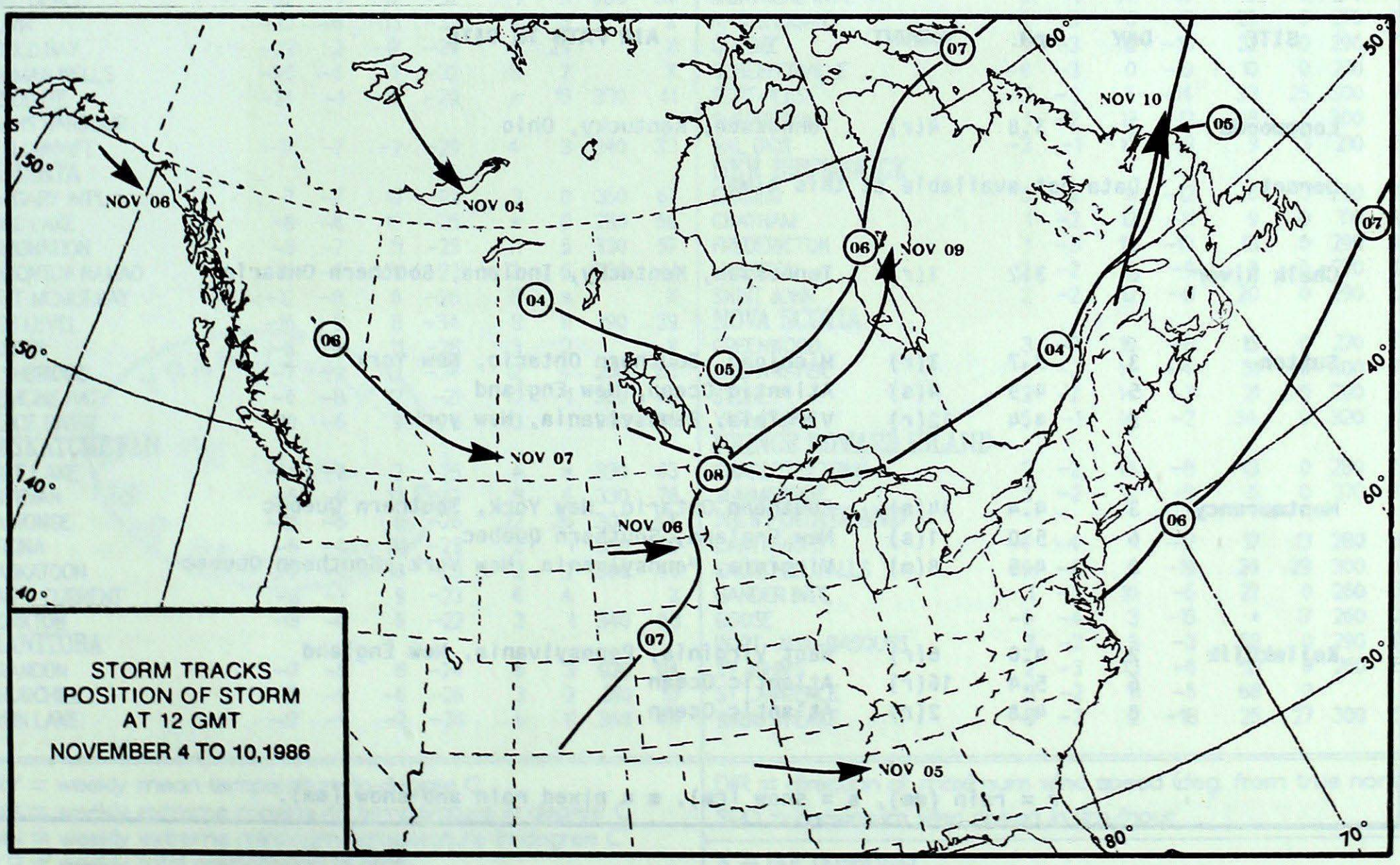
50 KPa ATMOSPHERIC CIRCULATION



MEAN 50 KPa HEIGHT ANOMALY (dam)
November 2 to November 6, 1986

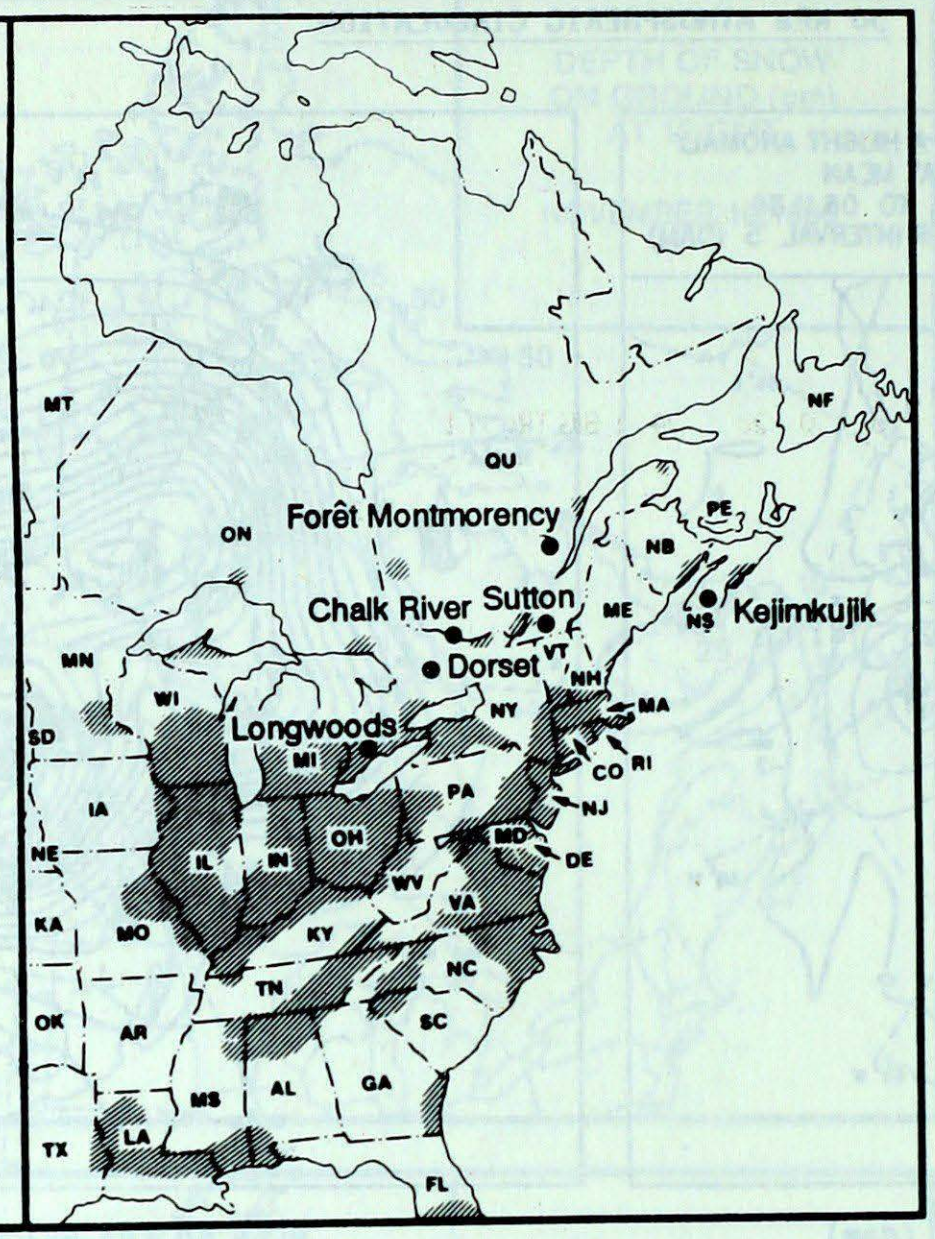


MEAN 50 KPa HEIGHTS (dam)
November 2 to November 6, 1986



ACID RAIN

ALABAMA	—	AL
ARKANSAS	—	AR
CONNECTICUT	—	CO
DELAWARE	—	DE
FLORIDA	—	FL
GEORGIA	—	GA
ILLINOIS	—	IL
INDIANA	—	IN
IOWA	—	IA
KANSAS	—	KA
KENTUCKY	—	KY
LOUISIANA	—	LA
MAINE	—	ME
MANITOBA	—	MT
MARYLAND	—	MD
MASSACHUSETTS	—	MA
MICHIGAN	—	MI
MINNESOTA	—	MN
MISSISSIPPI	—	MS
MISSOURI	—	MO
NEBRASKA	—	NE
NEW BRUNSWICK	—	NB
NEWFOUNDLAND	—	NF
NEW HAMPSHIRE	—	NH
NEW JERSEY	—	NJ
NEW YORK	—	NY
NORTH CAROLINA	—	NC
NORTH DAKOTA	—	ND
NOVA SCOTIA	—	NS
OHIO	—	OH
OKLAHOMA	—	OK
ONTARIO	—	ON
PENNSYLVANIA	—	PA
PRINCE EDWARD ISLAND	—	PE
QUÉBEC	—	QU
RHODE ISLAND	—	RI
SOUTH CAROLINA	—	SC
SOUTH DAKOTA	—	SD
TENNESSEE	—	TN
TEXAS	—	TX
VERMONT	—	VT
VIRGINIA	—	VA
WEST VIRGINIA	—	WV
WISCONSIN	—	WI



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 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.

NOVEMBER 2 TO NOVEMBER 8, 1986

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	7	3.8	4(r)	Tennessee, Kentucky, Ohio
Dorset	Data not available at this time			
Chalk River	8	3.2	1(r)	Tennessee, Kentucky, Indiana, Southern Ontario
Sutton	3	3.7	3(r)	Michigan, Southern Ontario, New York
	5	4.9	4(s)	Atlantic Ocean, New England
	8	4.4	12(r)	Virginia, Pennsylvania, New york
Montmorency	3	4.4	14(s)	Southern Ontario, New York, Southern Quebec
	6	5.0	1(s)	New England, Southern Quebec
	8	4.5	8(m)	Virginia, Pennsylvania, New York, Southern Quebec
Kejimkujik	2	4.0	6(r)	West Virginia, Pennsylvania, New England
	6	5.4	16(r)	Atlantic Ocean
	8	4.8	2(r)	Atlantic Ocean

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 NOVEMBER 11,1986

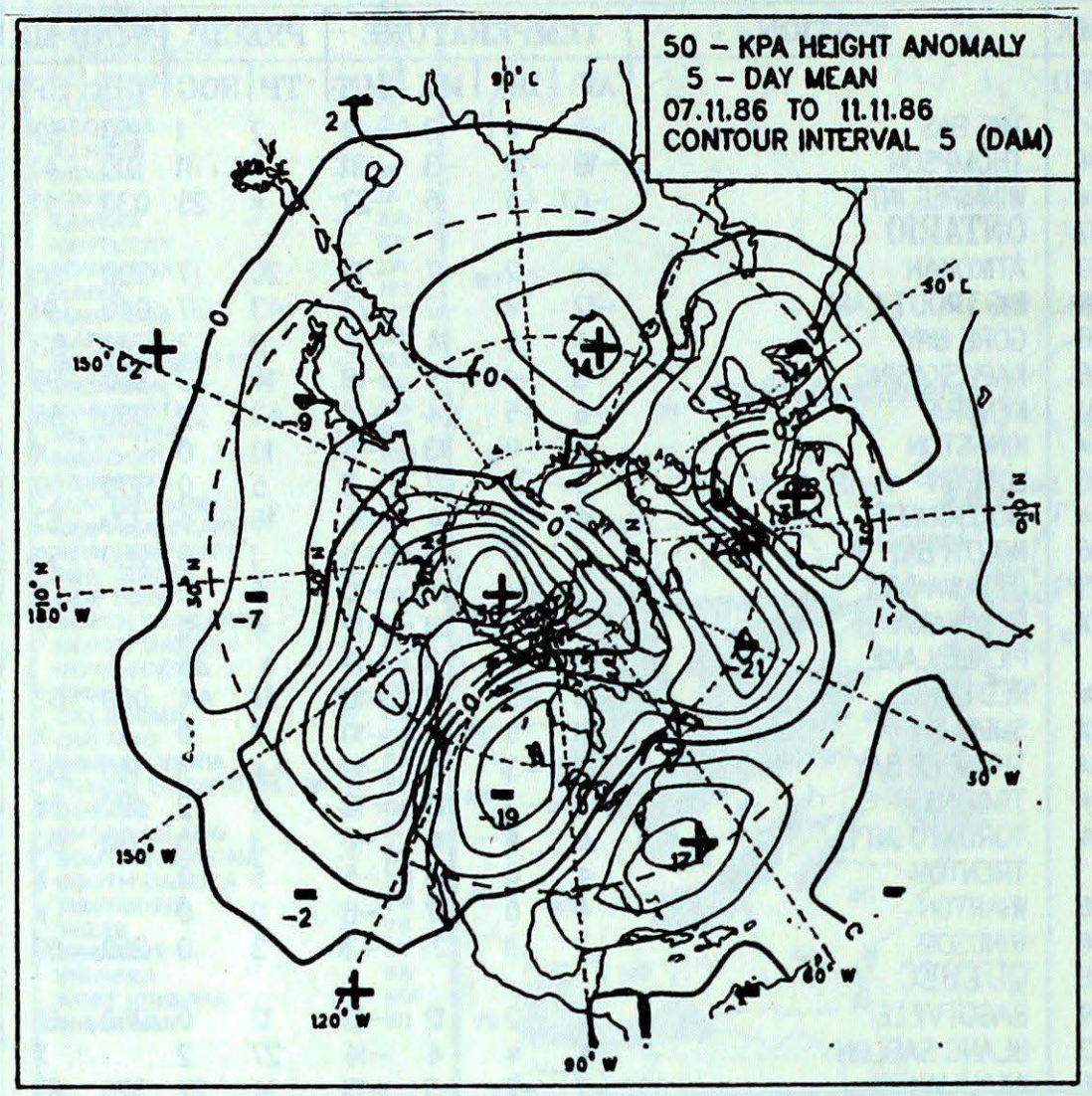
STATION	TEMPERATURE				PRECIP.		WIND MX	
	AV	DP	MX	MN	TP	SOG	DIR	SPD
BRITISH COLUMBIA								
CAPE ST.JAMES	7	-1	13	1	23	0	320	94
CRANBROOK	-4	-5	10	-20	10	2		*
FORT NELSON	-15	-7	7	-30	2	21	330	37
FORT ST.JOHN	-10	-8	8	-26	4	2	350	69
KAMLOOPS	-1	-5	10	-13	3	0	280	74
PENTICTON	1	-3	12	-11	8	0	180	48
PORT HARDY	6	-1	13	-2	49	0	290	56
PRINCE GEORGE	-8	-8	8	-26	13	2	350	41
PRINCE RUPERT	3	-2	11	-7	34	0		*
REVELSTOKE	1	-2	11	-11	23	0	320	56
SMITHERS	-6	-6	7	-22	13	7		*
VANCOUVER INT'L	5	-2	12	-2	5	0	290	56
VICTORIA INT'L	6	-2	15	-2	7	0	320	43
WILLIAMS LAKE	-7	-8	8	-23	14	0		X
YUKON TERRITORY								
DAWSON	-21	*	-2	-37	5	14		*
MAYO	-19	-7	-4	-33	1	30		X
SHINGLE POINT A	-22	-6	-11	-33	5	20		*
WATSON LAKE	-15	-5	7	-31	7	7		*
WHITEHORSE	-10	-4	7	-25	7	6	160	54
NORTHWEST TERRITORIES								
ALERT	-23	3	-10	-32	6	37	330	56
BAKER LAKE	-26	-8	-19	-31	1	17	340	54
CAMBRIDGE BAY	-26	-4	-19	-31	1	17	010	46
CAPE DYER	-19	-6	-10	-29	8	33	020	59
CLYDE	-19	-4	-15	-26	1	33	320	63
COPPERMINE	-20	*	-11	-27	4	16	320	56
CORAL HARBOUR	-22	-6	-9	-31	2	7		X
EUREKA	-29	2	-15	-38	2	13	330	72
FORT SMITH	-15	-7	-1	-25	2	7		X
FROBISHER BAY	-11	-1	-3	-19	*	11	070	81
HALL BEACH	-22	-1	-12	-32	1	11	080	50
INUVIK	-23	-6	-13	-32	*	8		X
MOULD BAY	-22	2	-17	-29	4	29		X
NORMAN WELLS	-20	-6	-7	-32	8	7		X
RESOLUTE	-24	-1	-16	-29	*	10	330	41
SACHS HARBOUR								
YELLOWKNIFE	-17	-7	-2	-29	4	3	340	33
ALBERTA								
CALGARY INT'L	-7	-7	12	-22	3	0	350	67
COLD LAKE	-8	-6	10	-25	*	0	280	56
CORONATION	-8	-7	11	-25	11	5	330	57
EDMONTON NAMAO	-8	-6	11	-23	12	6	330	61
FORT MCMURRAY	-12	-8	6	-26	8	*		X
HIGH LEVEL	-16	-9	8	-34	8	11	290	39
JASPER	-8	-7	11	-28	3	2		X
LETHBRIDGE	-7	-9	12	-24	12	4	260	63
MEDICINE HAT	-6	-8	12	-21	10	1	330	46
PEACE RIVER	-10	-6	9	-25	3	1	360	56
SASKATCHEWAN								
CREE LAKE	-14	-7	2	-25	*	*	330	43
ESTEVAN	-5	-5	12	-23	8	6	330	76
LA RONGE	-10	-5	6	-26	22	26	300	44
REGINA	-6	-4	11	-23	2	1	300	50
SASKATOON	-6	-4	10	-23	2	2	300	46
SWIFT CURRENT	-8	-7	9	-23	4	4		X
YORKTON	-8	-6	6	-22	3	1	340	63
MANITOBA								
BRANDON	-7	-5	8	-24	6	3	020	94
CHURCHILL	-18	-9	-6	-26	3	2	310	57
LYNN LAKE	-17	-9	-2	-30	6	11	340	44
THE PAS	-9	*	3	-19	2	1	350	59
THOMPSON	-18	-10	-3	-31	7	11	010	41
WINNIPEG INT'L	-6	-5	6	-22	*	25	030	91
ONTARIO								
ATIKOKAN	-4	-2	7	-19	20	7	200	56
BIG TROUT LAKE	-12	*	-2	-23	43	37	040	91
GORE BAY	4	0	14	-5	8	3	240	83
KAPUSKASING	-3	-1	9	-18	14	3	300	59
KENORA	-6	-5	4	-17	43	22	060	56
KINGSTON	5	0	13	-5	10	0		X
LONDON	5	0	17	-3	5	0	270	59
MOOSONEE	-4	-2	4	-16	16	4	320	52
NORTH BAY	1	0	12	-11	1	0	250	59
OTTAWA INT'L	2	-1	14	-10	6	0		X
PETAWAWA	1	-1	13	-12	4	0		X
PICKLE LAKE	-9	-6	1	-19	*	36		
RED LAKE	-8	-5	2	-18	57	44	060	63
SUDBURY	1	0	12	-10	7	0		X
THUNDER BAY	-3	-3	10	-18	44	1	140	106
TIMMINS	-3	-2	10	-18	*	2	180	56
TORONTO INT'L	4	0	16	-6	3	0	270	80
TRENTON	4	0	14	-5	5	0		X
WIARTON	4	0	17	-8	0	0		X
WINDSOR	7	1	21	-3	3	0	260	69
QUEBEC								
BAGOTVILLE	-2	-2	12	-12	12	0	250	81
BLANC SABLON	-4	*	4	-14	27	2		X
INUKJUAK	-7	-2	-3	-13	14	22	320	87
KUUJJUAQ	-11	-5	-1	-20	9	12	280	74
KUUJJUARAPIK	-5	-2	3	-12	23	8	320	83
MANIWAKI	0	-2	12	-14	12	0	260	50
MONT JOLI	1	-1	10	-8	18	0	280	78
MONTREAL INT'L	3	-1	14	-10	6	0	270	81
NATASHQUAN	-2	-3	6	-12	29	0	270	93
QUEBEC	-1	-3	12	-10	32	0	290	78
SCHEFFERVILLE	-9	-3	0	-19	10	0	270	78
SEPT-ILES	-3	-3	5	-14	33	25	300	80
SHERBROOKE	1	-2	12	-12	18	2	300	80
VAL D'OR	-3	-1	10	-18	9	3	210	69
NEW BRUNSWICK								
CHARLO	0	-2	9	-12	16	0	290	78
CHATHAM	1	-2	12	-11	9	0	310	63
FREDERICTON	1	-3	13	-10	13	0	290	63
MONCTON	2	-2	16	-9	9	0	270	81
SAINT JOHN	2	-2	12	-8	20	0	290	57
NOVA SCOTIA								
GREENWOOD	3	-2	19	-8	15	0	270	83
SHEARWATER	5	-2	14	-4	31	0	300	74
SYDNEY	3	-2	14	-7	21	0	290	85
YARMOUTH	5	-1	14	-2	34	0	320	65
PRINCE EDWARD ISLAND								
CHARLOTTETOWN	2	-2	14	-8	13	0	280	59
SUMMERSIDE	3	-2	13	-5	5	0	270	70
NEWFOUNDLAND								
CARTWRIGHT	-4	-4	1	-12	17	13	280	83
CHURCHILL FALLS	-9	-4	0	-19	24	29	300	81
GANDER INT'L	1	-3	10	-5	27	0	260	89
GOOSE	-6	-4	3	-15	*	17	260	74
PORT-AUX-BASQUES	3	-2	9	-3	58	0	290	93
ST JOHN'S	2	-3	13	-6	52	0	260	85
ST LAWRENCE	3	-2	11	-5	68	0		X
WABUSH LAKE	-8	-3	2	-18	25	27	300	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

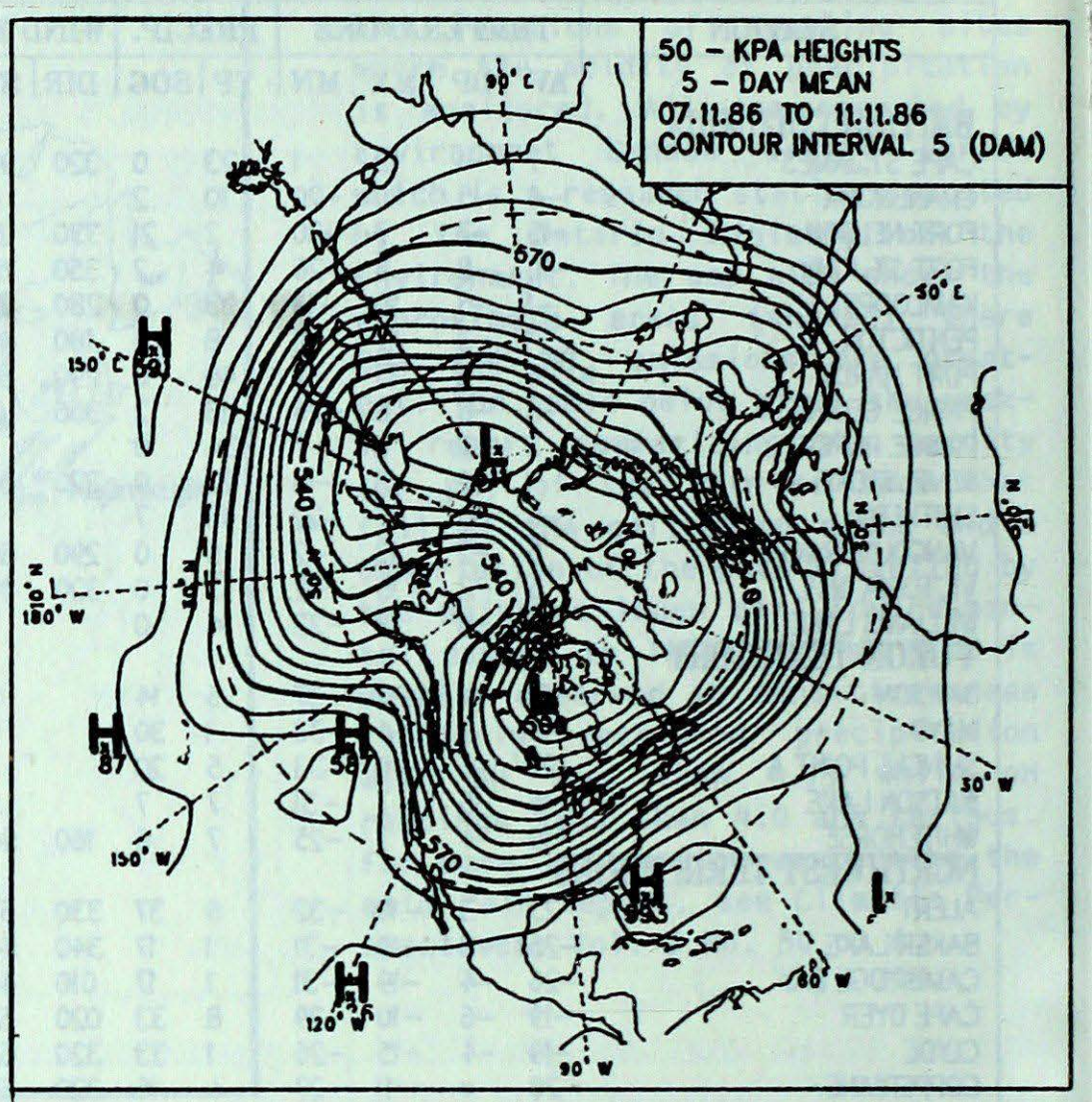
DIR = direction of maximum wind speed (deg. from true north)
SPD = maximum wind speed in km/hour

X = not observed
P = value based on less than 7 days
* = missing

50 KPa ATMOSPHERIC CIRCULATION



MEAN 50 KPa HEIGHT ANOMALY (dam)
November 7 to November 11, 1986



MEAN 50 KPa HEIGHTS (dam)
November 7 to November 11, 1986