

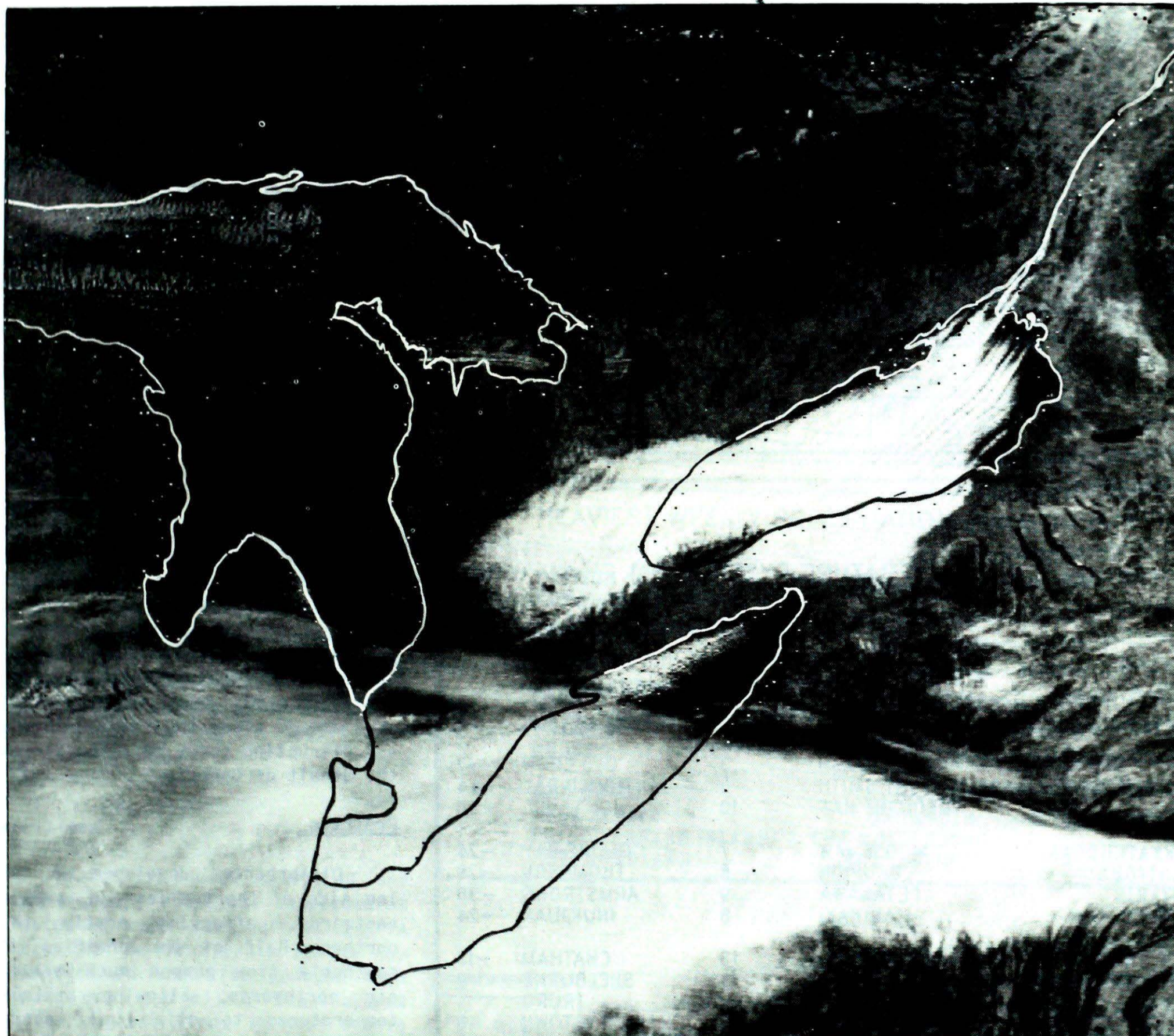
Climatic Perspectives



weekly review of Canadian climate

November 25 to December 1, 1986

Vol.8 No.48

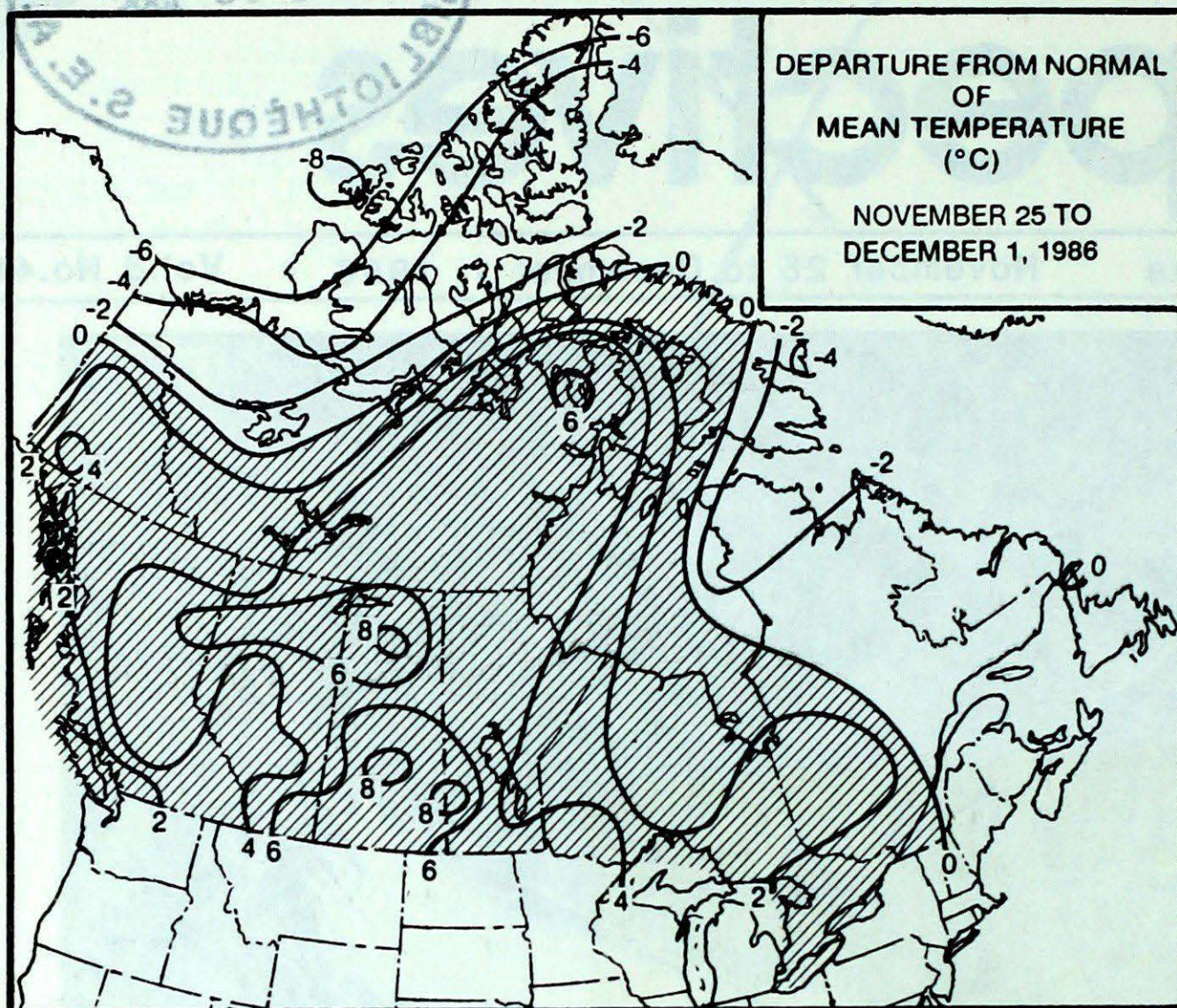


The Great Lakes play a major roll in controlling local weather patterns, as seen in this NOAA 10 photo of December 1, 1986. High pressure gave predominantly sunny weather to most of Ontario, except where a cold easterly wind crossed the relatively warm waters of Lake Ontario, picking up enough moisture to produce a low cloud deck. Thin cirrus cloud invades southwestern Ontario from a storm brewing in the American south.

● **Strong winds buffet both coasts**

- ferry service disrupted to Vancouver Island
- lobster boats swamped off Nova Scotia

TEMPERATURE



ACROSS THE COUNTRY...

Yukon and Northwest Territories

Temperatures in the southern Yukon moderated significantly this week, but in the north it remained bitterly cold, with readings in the minus forties. Freeze-up is not yet complete in the southern Yukon, as many of the larger lakes are still only partially ice covered. The eastern Arctic was primarily clear and cold. Several new daily minimum temperature records were set on Baffin Island. Blizzard conditions and dangerous wind chills were reported in the central Arctic over the weekend. For the third consecutive month, the Frobisher Bay area recorded a significantly less than normal snowfall.

British Columbia

Temperatures continued on the mild side, especially inland where daytime readings in the south registered in the double digits. Many southern interior valleys were dry and pleasantly sunny. An on-shore flow produced heavy rains along the central and north coasts; in some cases almost 200 mm. Inland areas of the north coast received substantial snowfalls. Strong winds buffeted the coastline during the early part of week, causing minor wind damage along the lower mainland and disrupting ferry services across the Strait of Georgia.

Prairies

Disturbances developed on the lee side of the Rockies and tracked eastwards, affecting mostly the northern half of the prairies. A southerly flow pumped much milder air northwards, allowing maximum temperatures to climb well above freezing in agricultural districts. A ridge of high pressure over Alberta produced mainly sunny skies. Rapidly moving frontal disturbances, further to the east, touched off some rain shower activity in the south, while periods of light snow were reported further north. Temperatures cooled off somewhat over the weekend. Southern Saskatchewan and southwestern Manitoba were snow-free by week's end.

WEEKLY TEMPERATURE EXTREME (C)

	MAXIMUM		MINIMUM
BRITISH COLUMBIA	KAMLOOPS 11	FORT NELSON	-25
	LYTTON		
YUKON TERRITORY	BURWASH 3	OLD CROW	-47
NORTHWEST TERRITORIES	FORT SMITH 0	MOULD BAY	-44
ALBERTA	MEDICINE HAT 10	HIGH LEVEL	-30
SASKATCHEWAN	MOOSE JAW 7	COLLINS BAY	-24
MANITOBA	DAUPHIN 6	THOMPSON	-29
ONTARIO	PETAWAWA 9	ARMSTRONG	-30
QUEBEC	MANIWAKI 8	INUKJUAK	-24
NEW BRUNSWICK	ST STEPHEN 13	CHATHAM	-13
NOVA SCOTIA	GREENWOOD 15	SHELBURNE	-9
		TRURO	
PRINCE EDWARD ISLAND	EAST POINT 11	CHARLOTTETOWN	-8
NEWFOUNDLAND	ST JOHN'S 10	CHURCHILL FALLS	-25

ACROSS THE NATION

WARMEST MEAN TEMPERATURE	7	LAWN POINT	BC
COOLEST MEAN TEMPERATURE	-38	MOULD BAY	NWT

Ontario

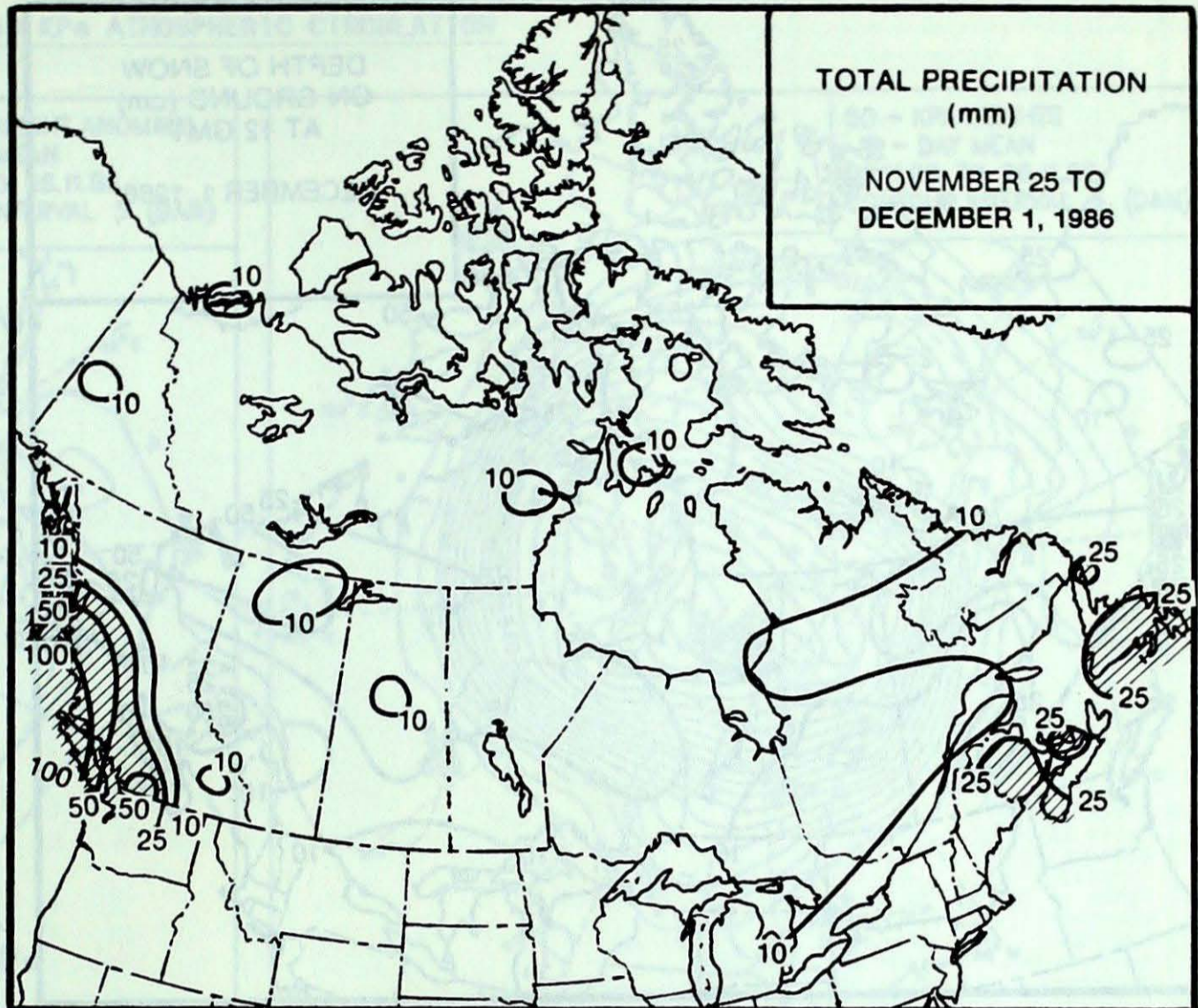
Milder temperatures dominated this week's weather across the province. During the first half of the period, temperatures climbed well above the freezing mark, everywhere. On November 26, a 10 to 25 millimetre rainfall across the south erased the last remnants of snow from the previous week's snow storm. Overnight freezing temperatures were attributed to an 18 car pile-up near Barrie, north of Toronto, on the morning of the 27th. Falling temperatures over the weekend helped maintain the substantial snow cover in central and northern Ontario.

Quebec

Several disturbances moved rapidly eastward across the province, producing changeably cloudy conditions. Temperatures were considerably warmer than last week throughout southern Québec, and as a result, most of the snow has disappeared in the Ottawa and upper St. Lawrence Valleys. Fresh snowfalls blanketed central and northern Québec, where temperatures remained cold. A fresh Arctic outbreak covered the whole province over the weekend, dropping temperatures to below normal values. Despite the thaw earlier in the period, ski centres, particularly in the Québec City region, report good snow conditions.

Maritimes

Varying amounts of cloud and sunshine were reported. Temperatures fluctuated near seasonal values. A storm that moved rapidly across New Brunswick on the 27th brought high winds, rain and milder temperatures to the region. Winds in Nova Scotia were gusting to nearly 100 km/h along the coast. The lobster season in southwestern Nova Scotia got off to a disastrous start on November 24, when strong winds and rough seas swamped several lobster boats, claiming the life of one fisherman and prompting the rescue of several others.

**HEAVIEST WEEKLY PRECIPITATION (mm)**

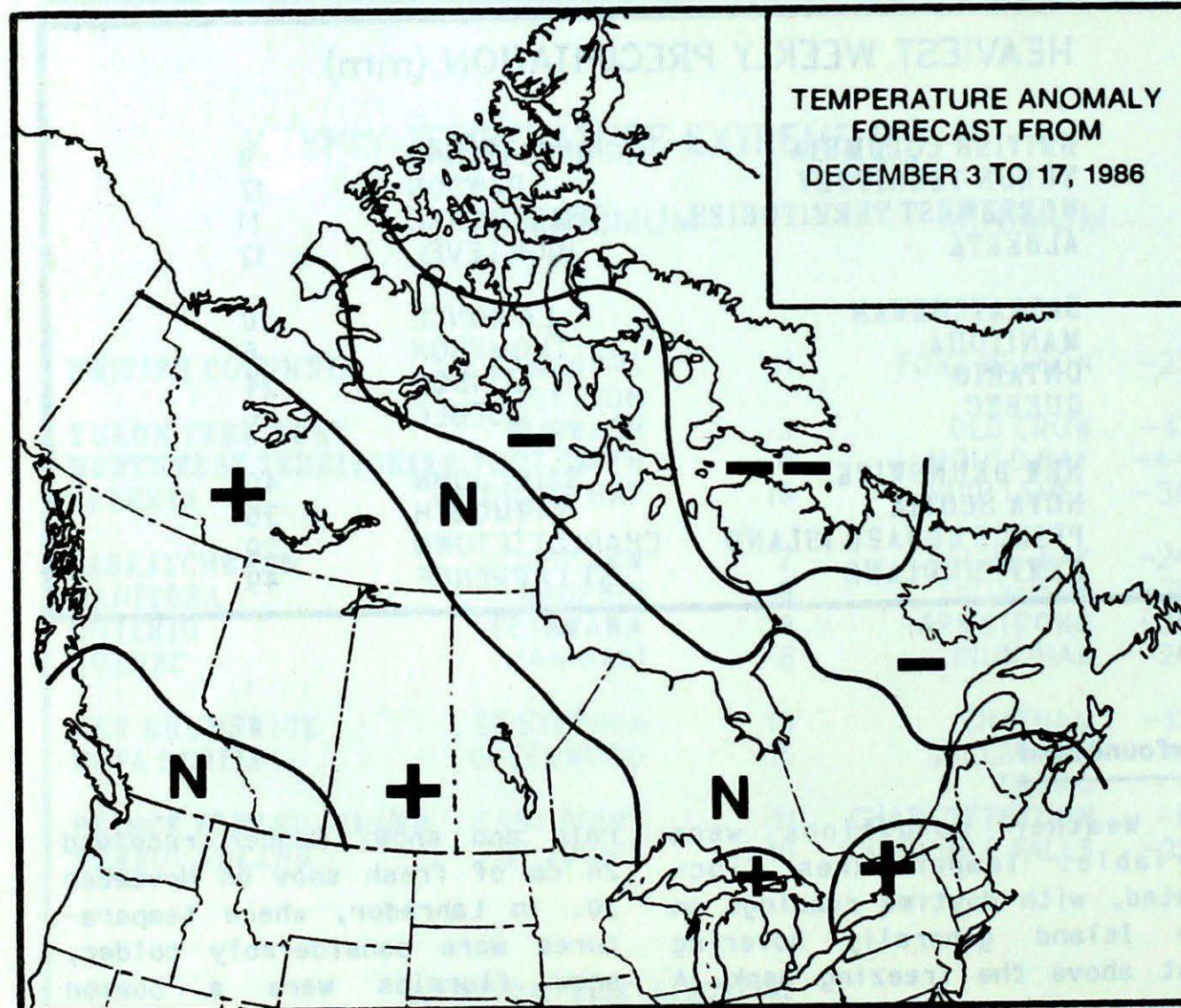
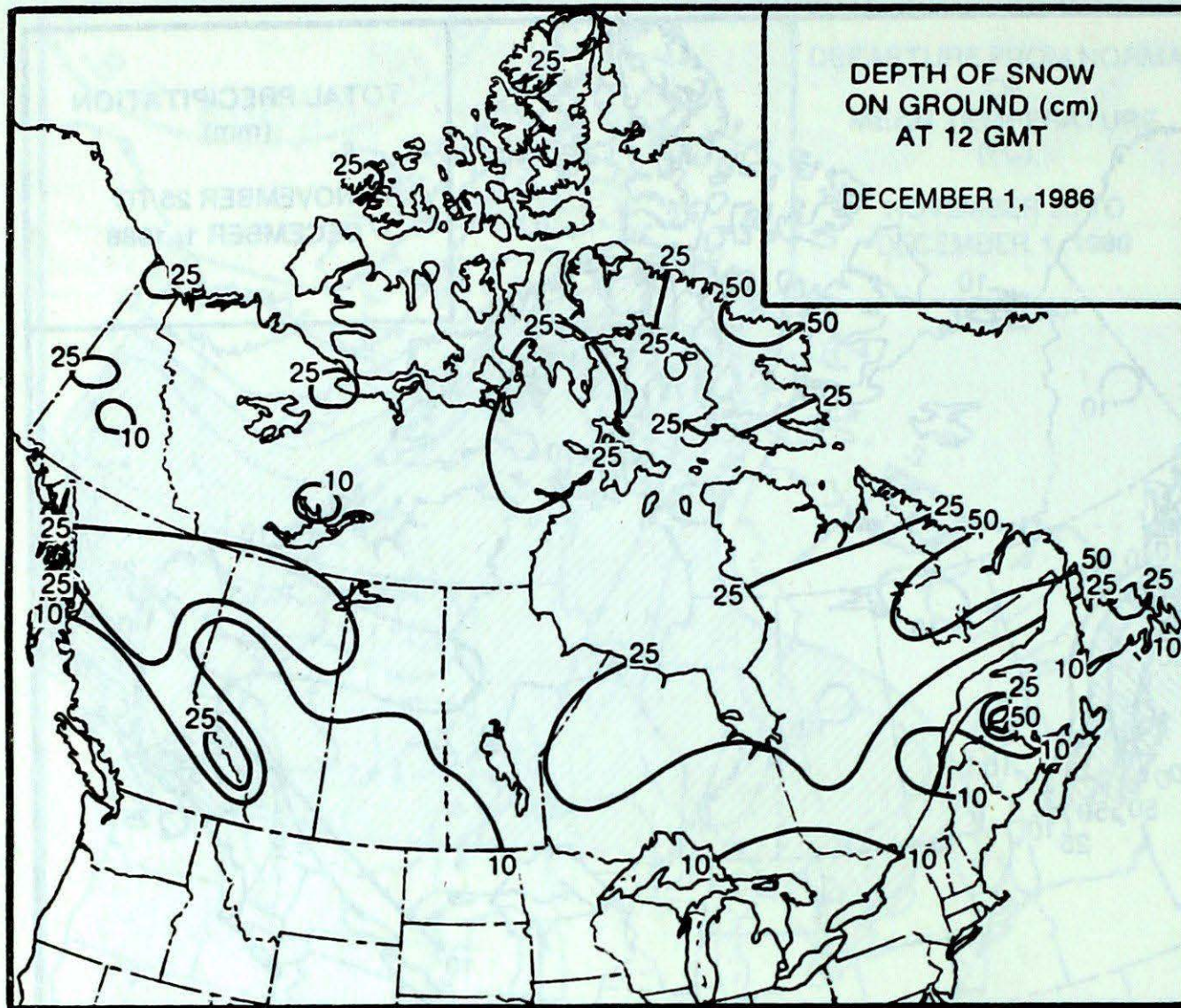
BRITISH COLUMBIA	MCINNIS ISLAND	199
YUKON TERRITORY	DAWSON	17
NORTHWEST TERRITORIES	BAKER LAKE	11
ALBERTA	HIGH LEVEL	12
SASKATCHEWAN	LA RONGE	10
MANITOBA	THOMPSON	6
ONTARIO	LONDON	24
QUEBEC	QUEBEC	24
NEW BRUNSWICK	SAINT JOHN	40
NOVA SCOTIA	YARMOUTH	26
PRINCE EDWARD ISLAND	CHARLOTTETOWN	29
NEWFOUNDLAND	ST LAWRENCE	49

Newfoundland

Weather conditions were variable. Temperatures fluctuated, with daytime readings on the Island generally hovering just above the freezing mark. A storm crossing the Island on the 27th produced strong winds, with gusts to 124 km/h. Heaviest precipitation fell on the 27th and 30th, a combination of both

rain and snow. Gander received 24 cm of fresh snow on November 30. In Labrador, where temperatures were considerably colder, snow flurries were a common occurrence. Skies were generally cloudy, but there were some sunny breaks most days. Winds were brisk.

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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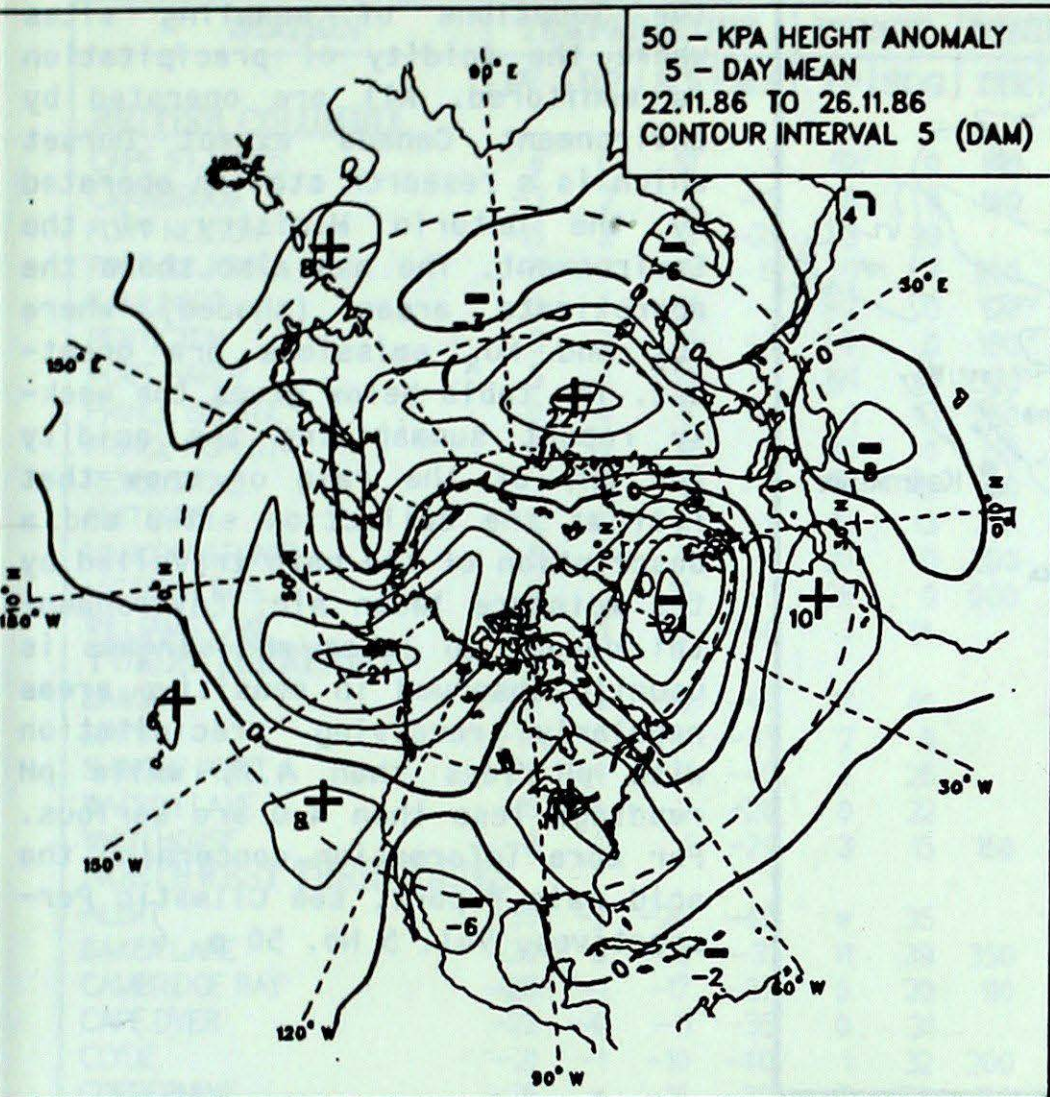
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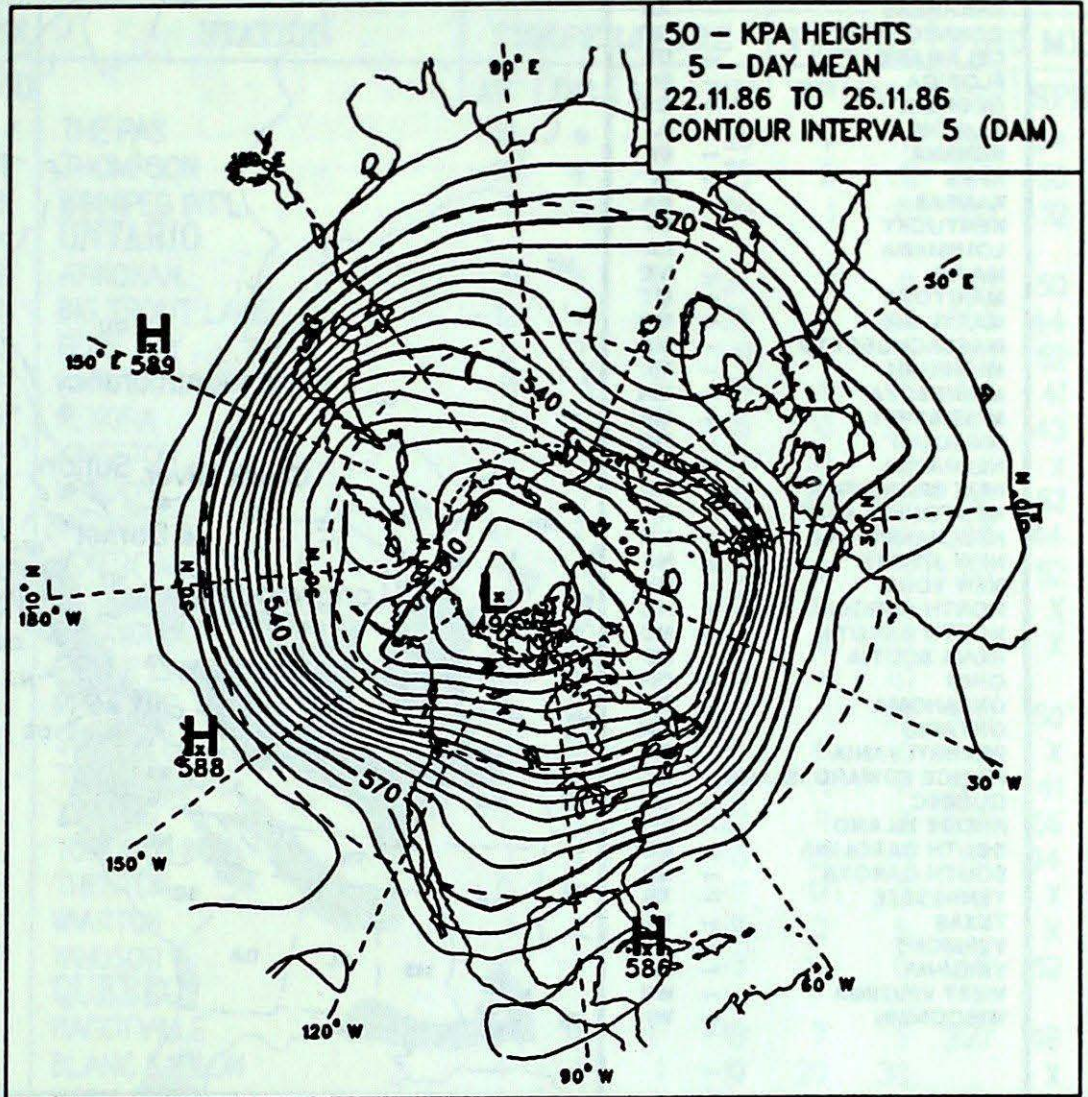
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CIRCULATION

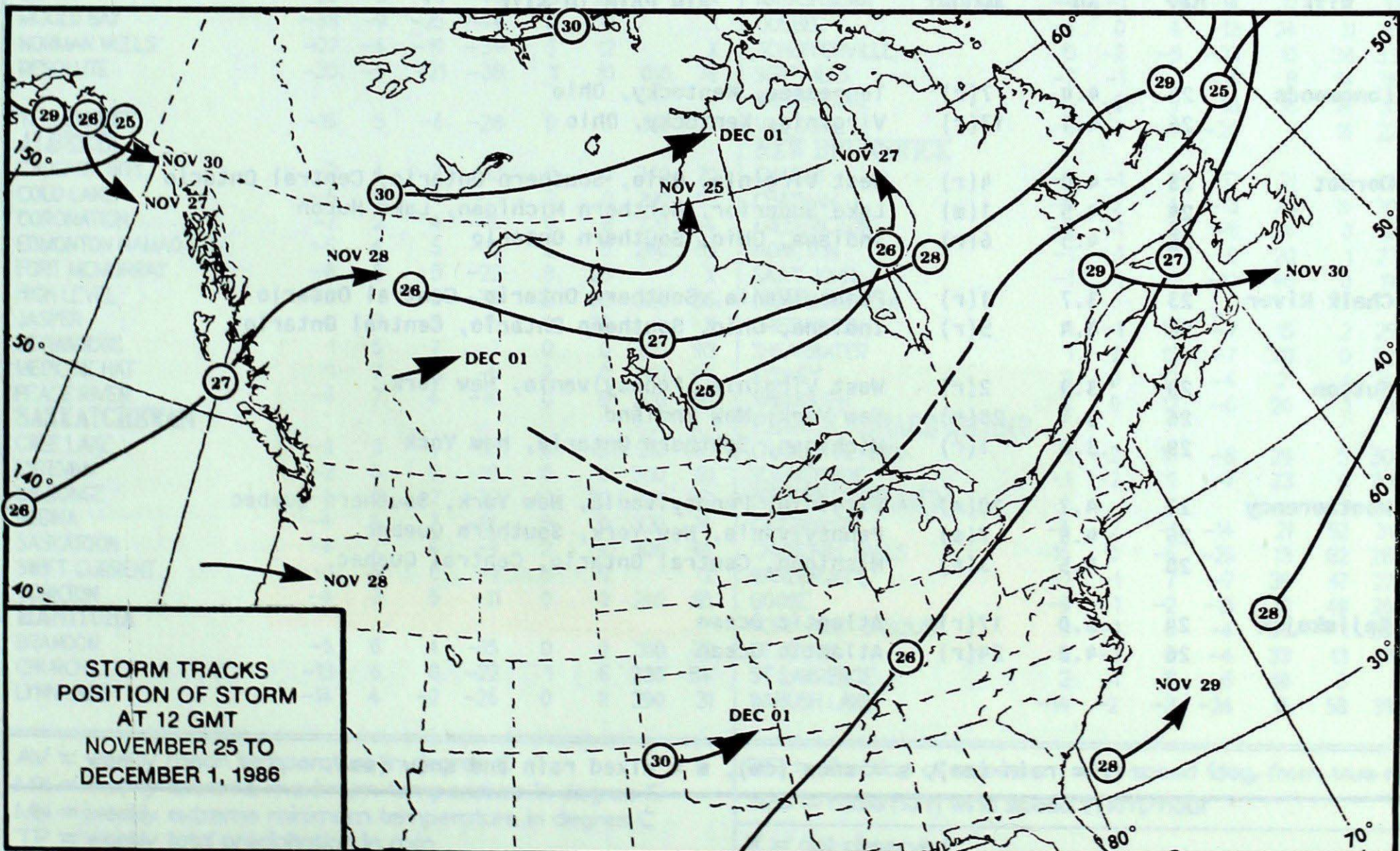
50 KPa ATMOSPHERIC CIRCULATION



MEAN 50 KPa HEIGHT ANOMALY (dam)
November 22 to November 26, 1986

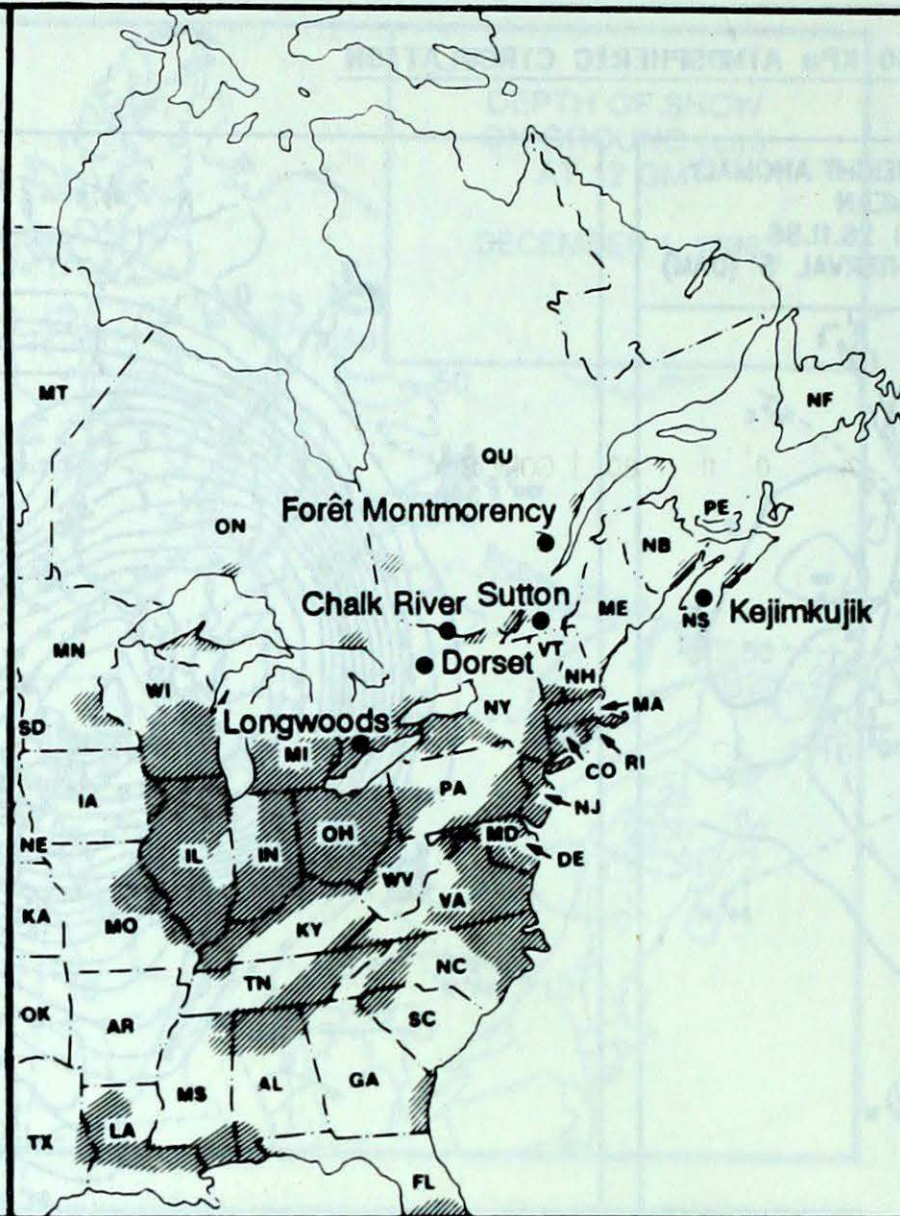


MEAN 50 KPa HEIGHTS (dam)
November 22 to November 26, 1986



ACID RAIN REPORT

- 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



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 SO₂ 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 23 TO NOVEMBER 29, 1986

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	25	4.4	7(r)	Tennessee, Kentucky, Ohio
	26	4.1	17(r)	Virginia, Kentucky, Ohio
Dorset	23	4.0	4(r)	West Virginia, Ohio, Southern Ontario, Central Ontario
	24	4.5	1(m)	Lake Superior, Northern Michigan, Lake Huron
	26	4.5	6(r)	Indiana, Ohio, Southern Ontario
Chalk River	23	3.7	1(r)	Pennsylvania, Southern Ontario, Central Ontario
	26	4.4	5(r)	Indiana, Ohio, Southern Ontario, Central Ontario
Sutton	23	3.9	2(r)	West Virginia, Pennsylvania, New York
	26	5.1	28(r)	New York, New England
	29	3.8	1(r)	Michigan, Southern Ontario, New York
Montmorency	23	4.2	10(m)	Virginia, Pennsylvania, New York, Southern Quebec
	26	4.8	7(s)	Pennsylvania, New York, Southern Quebec
	28	4.5	3(s)	Michigan, Central Ontario, Central Quebec
Kejimikujik	24	5.0	17(r)	Atlantic Ocean
	26	4.8	24(r)	Atlantic Ocean

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

TEMPERATURE, PRECIPITATION AND MAXIMUM WIND DATA FOR THE WEEK ENDING 0600 GMT DECEMBER 2, 1986

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
BRITISH COLUMBIA									THE PAS	-10	*	1	-25	4	11	290	54
CAPE ST. JAMES	6	0	10	2	52	0	190	91	THOMPSON	-14	4	-3	-29	6	11	290	35
CRANBROOK	-3	2	5	-15	8	9	140	33	WINNIPEG INT'L	-7	3	4	-20	1	15	180	52
FORT NELSON	-15	2	-3	-25	3	28		*	ONTARIO								
FORT ST. JOHN	-3	7	4	-15	0	7	240	63	ATIKOKAN	-6	5	6	-24	1	11	270	50
KAMLOOPS	3	4	11	-7	2	0	120	59	BIG TROUT LAKE	-12	*	-1	-24	6	47	320	44
PENTICTON	3	2	11	-4	4	0	180	80	GORE BAY	0	2	6	-11	0	0	220	52
PORT HARDY	5	1	10	-1	191	0	110	89	KAPUSKASING	-8	1	3	-21	4	16	190	41
PRINCE GEORGE	0	*	6	-9	1	10	280	85	KENORA	-5	5	4	-16	0	22	250	43
PRINCE RUPERT	5	2	9	-1	80	0	150	93	KINGSTON	0	1	7	-10	0	0		X
REVELSTOKE	1	3	8	-4	13	2	140	76	LONDON	1	1	7	-6	24	0	120	52
SMITHERS	-2	4	5	-9	15	13	260	81	MOOSONEE	-7	2	4	-18	8	19	200	44
VANCOUVER INT'L	5	1	11	-1	26	0	280	70	NORTH BAY	-4	1	3	-15	0	5	110	52
VICTORIA INT'L	6	1	10	-1	28	0	080	46	OTTAWA INT'L	-2	1	6	-12	13	0		X
WILLIAMS LAKE	-2	5	5	-10	7	14		X	PETAWAWA	-3	2	9	-16	8	0		X
YUKON TERRITORY									PICKLE LAKE	-10	3	2	-30	*	41		
DAWSON	-27	*	-14	-43	17	45		*	RED LAKE	-10	3	2	-27	1	38	300	50
MAYO	-16	4	-1	-33	2	9		X	SUDBURY	-3	3	5	-14	0	0		X
SHINGLE POINT A	-28	-4	-21	-40	7	25		*	THUNDER BAY	-3	4	8	-13	1	0	290	41
WATSON LAKE	-15	4	-2	-26	0	22		*	TIMMINS	-7	2	4	-22	1	7	230	56
WHITEHORSE	-8	4	1	-29	3	15	150	74	TORONTO INT'L	1	1	8	-8	15	0	110	54
NORTHWEST TERRITORIES									TRENTON	0	0	8	-11	17	0		X
ALERT	-35	-7	-24	-40	*	35		*	WIARTON	1	1	6	-8	2	0		X
BAKER LAKE	-20	5	-13	-31	11	39	350	61	WINDSOR	2	1	7	-3	19	0	050	52
CAMBRIDGE BAY	-28	-1	-17	-37	5	20	110	46	QUEBEC								
CAPE DYER	-22	-4	-11	-35	0	31		*	BAGOTVILLE	-6	0	4	-18	7	5	260	48
CLYDE	-21	-1	-10	-40	1	32	200	50	BLANC SABLON	-4	1	1	-10	20	38		X
COPPERMINE	-26	*	-16	-35	7	30	100	37	INUKJUAQ	-14	-4	-7	-24	9	23	090	70
CORAL HARBOUR	-18	4	-11	-28	10	8		X	KULUJUAQ	-13	-1	-6	-22	7	15	250	44
EUREKA	-36	-4	-22	-44	1	15	280	41	KULUJUAPIK	-8	1	0	-17	16	25	250	87
FORT SMITH	-12	5	0	-26	10	20		X	MANIWAKI	-3	2	8	-14	4	0		*
FROBISHER BAY	-21	-3	-10	-30	2	17		*	MONT JOLI	-4	-1	4	-10	8	3	280	54
HALL BEACH	-20	6	-13	-32	4	19	160	59	MONTREAL INT'L	-1	1	6	-11	15	0	250	48
NUVIK	-28	-3	-20	-40	8	20		X	NATASHQUAN	-4	-1	1	-14	12	17	310	57
MOULD BAY	-38	-9	-25	-44	0	30		X	QUEBEC	-4	0	4	-13	24	11	260	41
NORMAN WELLS	-27	-4	-19	-34	5	12		X	SCHEFFERVILLE	-15	-2	-5	-23	10	38	330	46
RESOLUTE	-30	-4	-21	-38	1	10	010	78	SEPT-ILES	-7	-1	1	-16	8	14	360	56
YELLOWKNIFE	-16	5	-6	-28	0	7	160	37	SHERBROOKE	-4	-2	7	-18	18	14	310	39
ALBERTA									VAL D'OR	-6	2	4	-20	1	16	220	52
CALGARY INT'L	-2	4	7	-13	0	0	340	70	NEW BRUNSWICK								
COLD LAKE	-6	5	4	-15	2	0	290	65	CHARLO	-5	-1	2	-12	21	59	290	48
CORONATION	-7	2	4	-16	0	8	220	54	CHATHAM	-4	-2	4	-13	26	16	300	56
EDMONTON NAMAQ	-5	4	5	-16	2	5	260	59	FREDERICTON	-2	-1	5	-11	34	0	320	48
FORT MCMURRAY	-8	5	5	-22	8	25		X	MONCTON	-1	-1	11	-9	20	1	270	74
HIGH LEVEL	-14	1	-3	-30	12	33	360	56	SAINT JOHN	-1	-1	12	-10	40	0	190	83
JASPER	-4	3	3	-15	9	26		X	NOVA SCOTIA								
LETHBRIDGE	1	5	7	-7	0	0	260	93	GREENWOOD	1	-1	15	-7	15	2	250	85
MEDICINE HAT	1	7	10	-6	2	0	290	96	SHEARWATER	1	-2	13	-7	20	0	320	52
PEACE RIVER	-6	7	4	-16	0	8	200	56	SYDNEY	2	0	12	-4	21	1	200	81
SASKATCHEWAN									YARMOUTH	3	0	12	-6	26	1	190	87
CREE LAKE	-9	9	-4	-18	0	15	210	46	PRINCE EDWARD ISLAND								
ESTEVAN	-2	6	5	-10	0	0	300	81	CHARLOTTETOWN	-1	-2	10	-8	29	5	300	46
LA RONGE	-9	5	-2	-22	10	20	290	43	SUMMERSIDE	-1	-2	9	-7	23	6	300	57
REGINA	-4	6	7	-14	0	0	320	74	NEWFOUNDLAND								
SASKATOON	-4	7	4	-9	2	4	300	65	CARTWRIGHT	-6	-2	-1	-14	21	52	310	65
SWIFT CURRENT	-1	6	8	-9	6	0		X	CHURCHILL FALLS	-14	0	-5	-25	13	82	280	56
YORKTON	-4	7	5	-11	0	0	240	65	GANDER INT'L	-1	-1	7	-7	39	47	270	78
MANITOBA									GOOSE	-9	-1	-2	-15	10	49	260	46
BRANDON	-5	6	4	-15	0	0	310	72	PORT-AUX-BASQUES	1	-1	6	-4	36	1	280	74
CHURCHILL	-13	6	0	-22	1	6	230	54	ST JOHN'S	1	-1	6	-4	33	13	170	91
LYNN LAKE	-14	4	-2	-26	0	11	290	31	ST LAWRENCE	2	-1	8	-5	49	3		X
									WABUSH LAKE	-14	-2	-3	-24	15	58	310	52

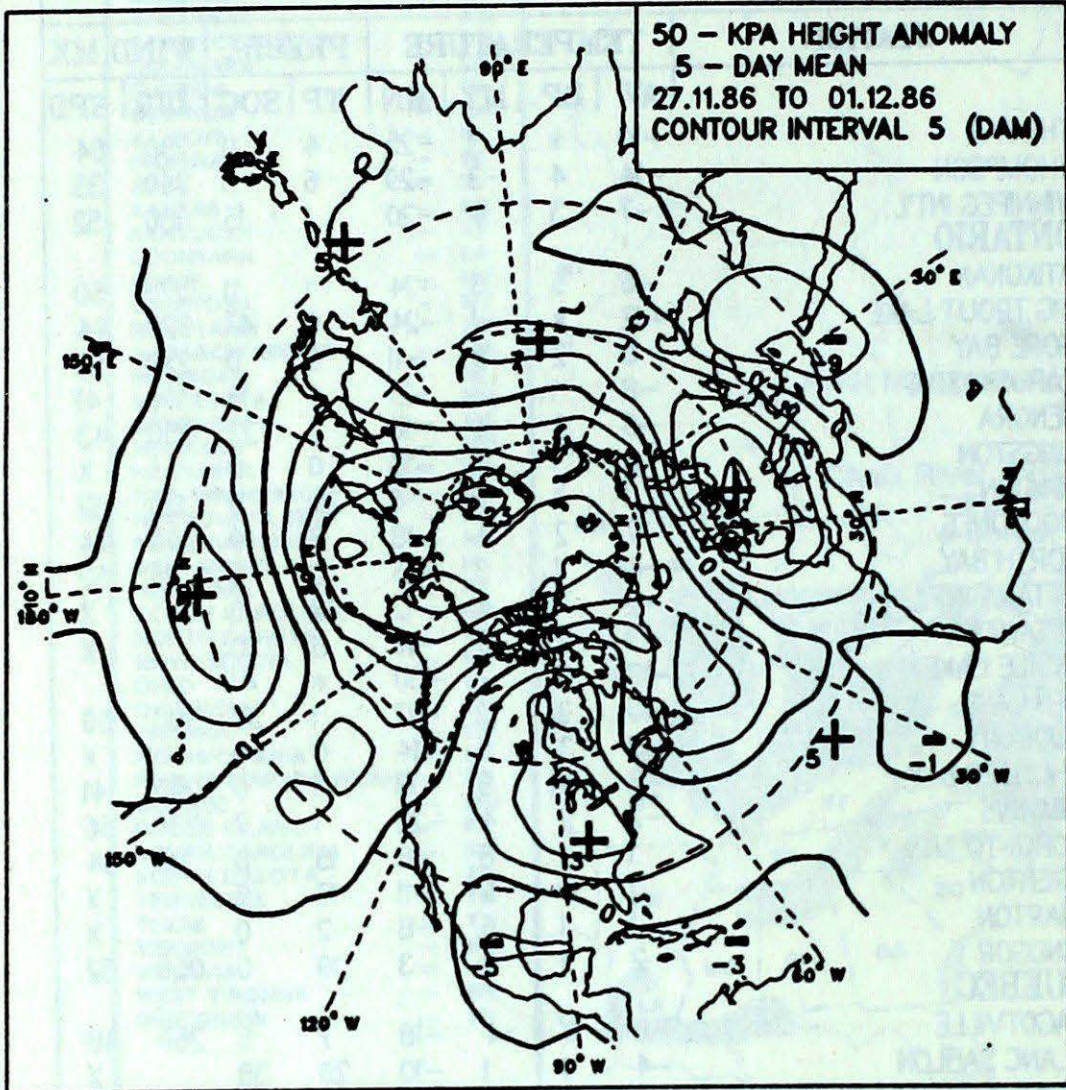
AV = weekly mean temperature in degree C
 MX = weekly extreme maximum temperature in degree C
 MN = weekly extreme minimum temperature in degree C
 TP = weekly total precipitation in mm
 DP = departure of mean temperature from normal in degree C
 SOG = snow depth on ground in cm, last day of the period

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

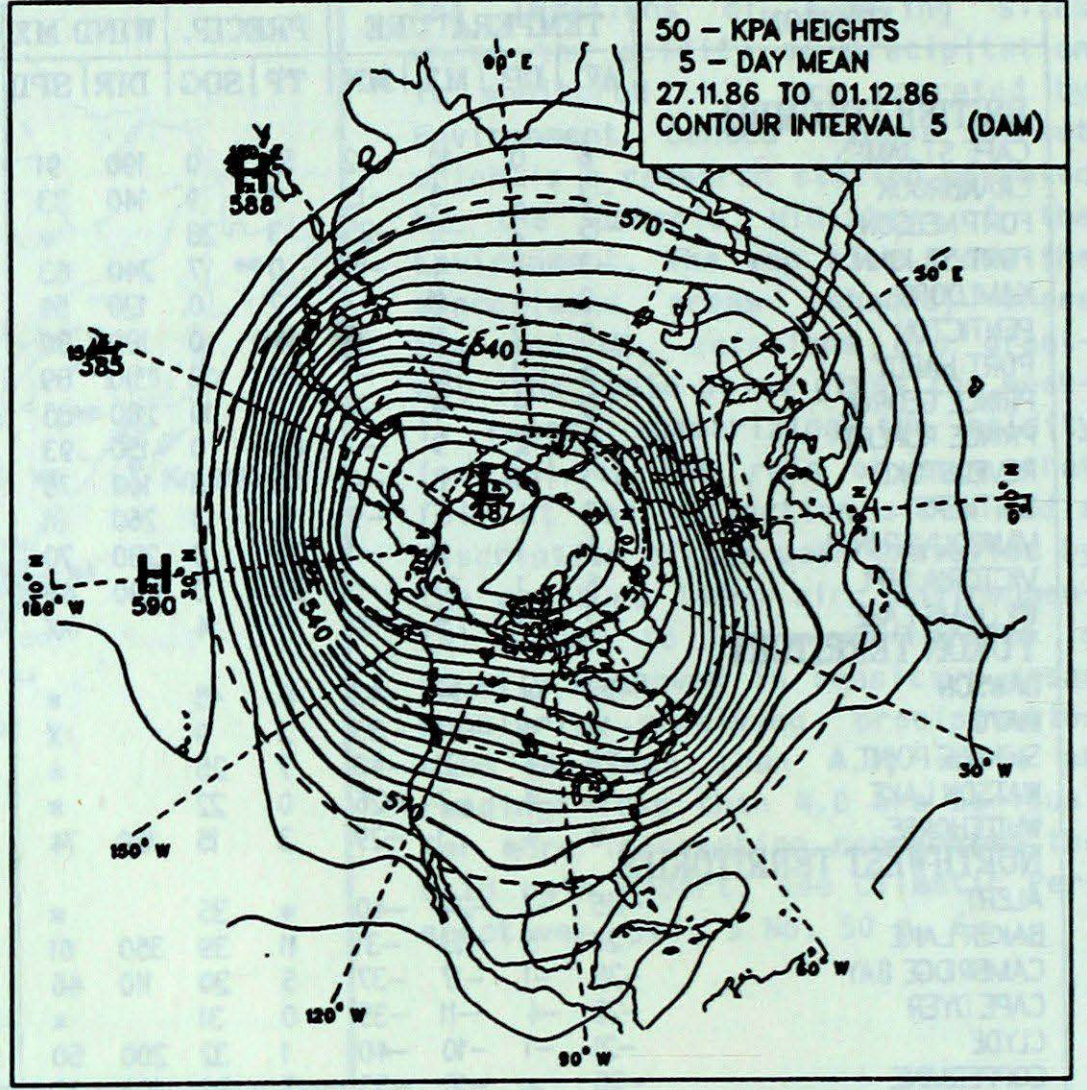
X = not observed
 P = value based on less than 7 days
 * = missing

CIRCULATION

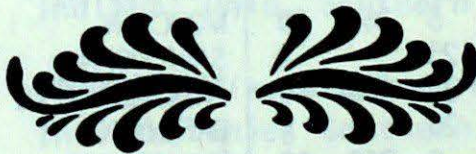
50 KPa ATMOSPHERIC CIRCULATION



MEAN 50 KPa HEIGHT ANOMALY (dam)
November 27 to December 1, 1986



MEAN 50 KPa HEIGHTS (dam)
November 27 to December 1, 1986



STATION	DATE	TEMPERATURE	WIND	PRECIPITATION	WIND DIRECTION
PORT-AUX-BASQUES	11/27	0	0	0	0
PORT-AUX-BASQUES	11/28	0	0	0	0
PORT-AUX-BASQUES	11/29	0	0	0	0
PORT-AUX-BASQUES	11/30	0	0	0	0
PORT-AUX-BASQUES	12/01	0	0	0	0
PORT-AUX-BASQUES	12/02	0	0	0	0
PORT-AUX-BASQUES	12/03	0	0	0	0
PORT-AUX-BASQUES	12/04	0	0	0	0
PORT-AUX-BASQUES	12/05	0	0	0	0
PORT-AUX-BASQUES	12/06	0	0	0	0
PORT-AUX-BASQUES	12/07	0	0	0	0
PORT-AUX-BASQUES	12/08	0	0	0	0
PORT-AUX-BASQUES	12/09	0	0	0	0
PORT-AUX-BASQUES	12/10	0	0	0	0
PORT-AUX-BASQUES	12/11	0	0	0	0
PORT-AUX-BASQUES	12/12	0	0	0	0
PORT-AUX-BASQUES	12/13	0	0	0	0
PORT-AUX-BASQUES	12/14	0	0	0	0
PORT-AUX-BASQUES	12/15	0	0	0	0
PORT-AUX-BASQUES	12/16	0	0	0	0
PORT-AUX-BASQUES	12/17	0	0	0	0
PORT-AUX-BASQUES	12/18	0	0	0	0
PORT-AUX-BASQUES	12/19	0	0	0	0
PORT-AUX-BASQUES	12/20	0	0	0	0
PORT-AUX-BASQUES	12/21	0	0	0	0
PORT-AUX-BASQUES	12/22	0	0	0	0
PORT-AUX-BASQUES	12/23	0	0	0	0
PORT-AUX-BASQUES	12/24	0	0	0	0
PORT-AUX-BASQUES	12/25	0	0	0	0
PORT-AUX-BASQUES	12/26	0	0	0	0
PORT-AUX-BASQUES	12/27	0	0	0	0
PORT-AUX-BASQUES	12/28	0	0	0	0
PORT-AUX-BASQUES	12/29	0	0	0	0
PORT-AUX-BASQUES	12/30	0	0	0	0
PORT-AUX-BASQUES	12/31	0	0	0	0