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Climatic Perspectives

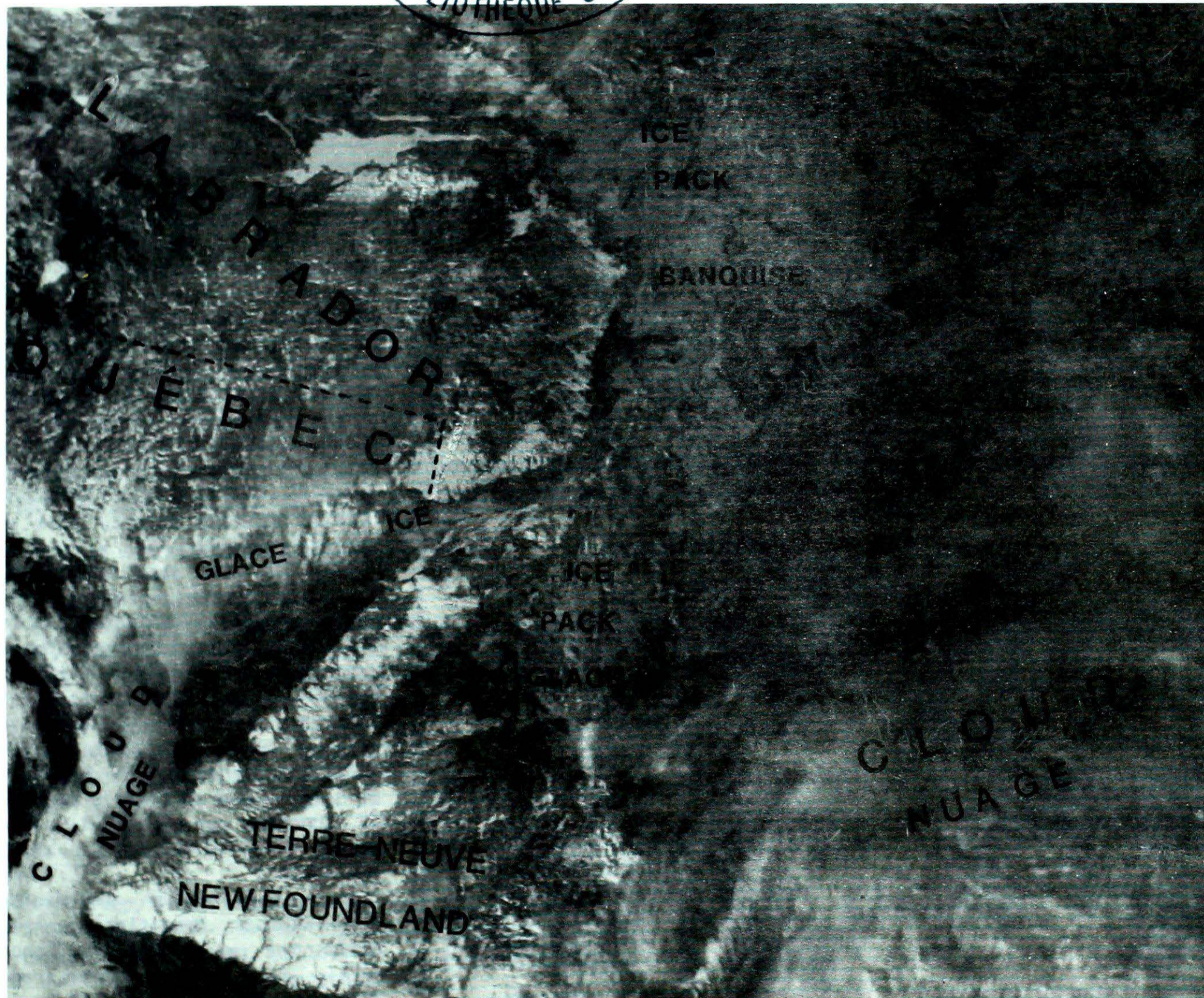
A weekly review of Canadian climate

FEB 8 1988

January 19 to 25, 1988

Vol.10 No.4

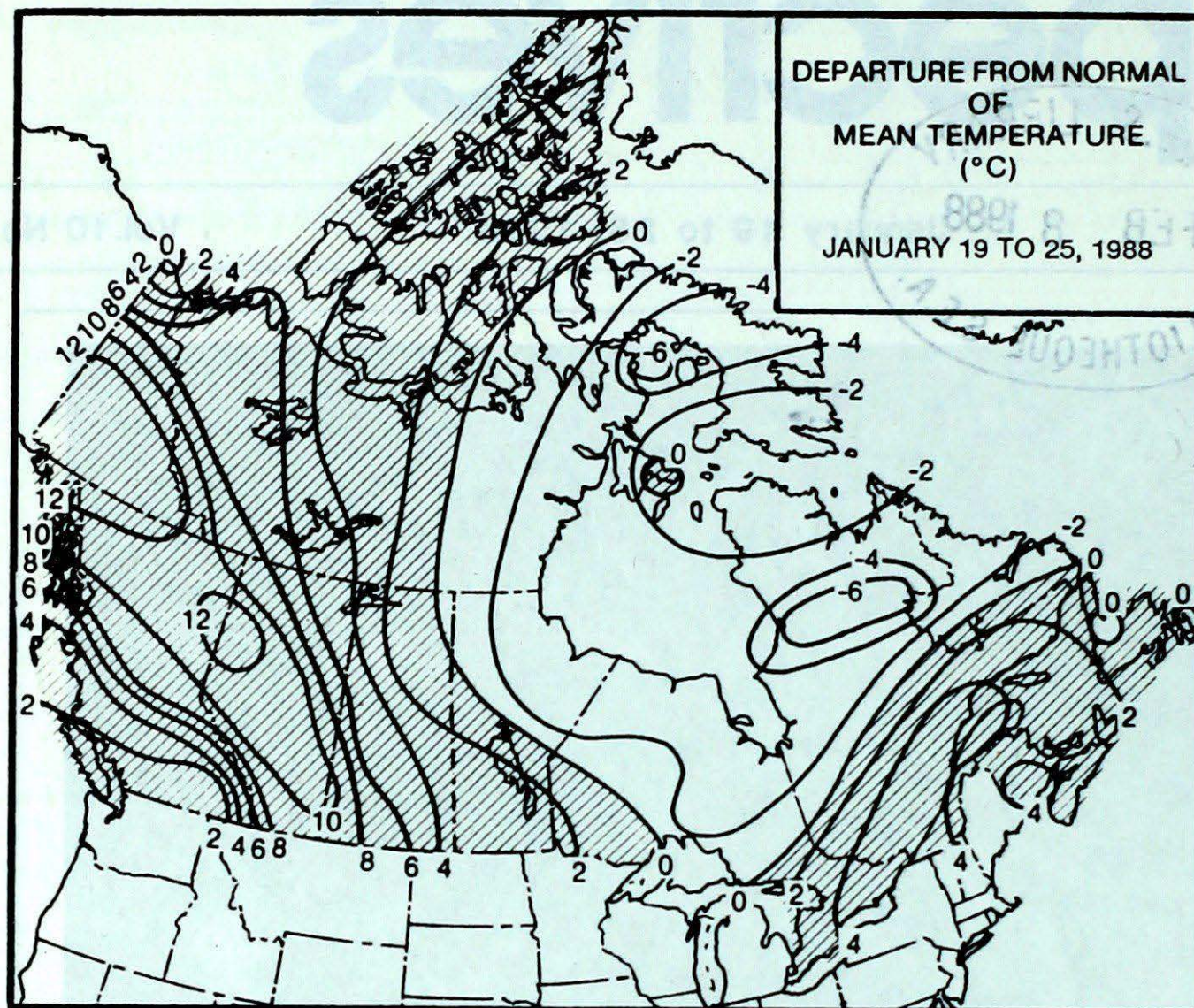
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This NOAA 9 visual satellite photo of January 24, 1988, shows the recent heavy snowfalls along the Newfoundland coast, and the extensive band of ice stretching southwards along the Labrador coastline to the Strait of Belle Isle.

- **Mild weather covers Southern Canada**
- **Blizzards and dangerous wind chills in the Arctic**

TEMPERATURE



ACROSS THE COUNTRY

Yukon and Northwest Territories

A mild Pacific airmass remained well entrenched in the Yukon. Temperatures climbed above freezing in the south. Heavy snowfall warnings were issued for the coastal mountains and the north. In contrast, blizzard and wind chill warnings were issued for a large portion of the Arctic, where temperatures dipped as low as -47°C .

British Columbia

A ridge of high pressure affected the province for a good portion of the period. Arctic air retreated from the northern districts by the middle of the week. Pacific storms gave heavy precipitation amounts to the north coast. It was predominantly sunny across the south. A chinook affected the Peace River district on January 22 and 23.

Prairie Provinces

Mild weather in Alberta was in part related to chinooks, as were the strong gusty winds, which blew down from the Rockies. Wind speeds reached almost 100 km/h at some locations. Daytime temperatures climbed above the freezing mark early in the week. The temperature at Calgary soared to 10°C on January 22. Sunshine was plentiful, although cloudy skies were more prevalent in the north.

In Saskatchewan and Manitoba, mild weather conditions persisted until the weekend, when another Arctic outbreak swept the region. Weak passing weather systems gave alternating periods of cloud and sun, and occasional light snowfalls. Northern locations managed to pick up 5 to 10 centimetres of snow this week, with southern areas receiving more significant amounts of snow over the weekend.

Ontario

The weather was mild, but by the weekend there were sharp temperature differences from north to

WEEKLY TEMPERATURE EXTREME (C)

	MAXIMUM	MINIMUM
BRITISH COLUMBIA	VICTORIA INT'L 11	FORT NELSON -26
YUKON TERRITORY	DRURY CREEK 4	SHINGLE POINT A -42
NORTHWEST TERRITORIES	FORT SMITH -7	SHEPHERD BAY A -48
ALBERTA	CALGARY INT'L 10	FORT CHIPEWYAN -35
SASKATCHEWAN	ESTEVAN 3	CREE LAKE -39
MANITOBA	PORTAGE LA PRAIRIE 1	CHURCHILL -38
ONTARIO	TORONTO INT'L 11	BIG TROUT LAKE -40
QUEBEC	MONTREAL 5	KUUJJIARAPIK -43
NEW BRUNSWICK	SAINT JOHN 5	CHARLO -25
NOVA SCOTIA	SHELBURNE 11	GREENWOOD -15
PRINCE EDWARD ISLAND	SUMMERSIDE 5	CHARLOTTETOWN -15
NEWFOUNDLAND	PORT-AUX-BASQUES 3	CHURCHILL FALLS -34

ACROSS THE NATION

WARMEST MEAN TEMPERATURE	7	CAPE ST. JAMES	BC
COOLEST MEAN TEMPERATURE	-38	POND INLET	NWT

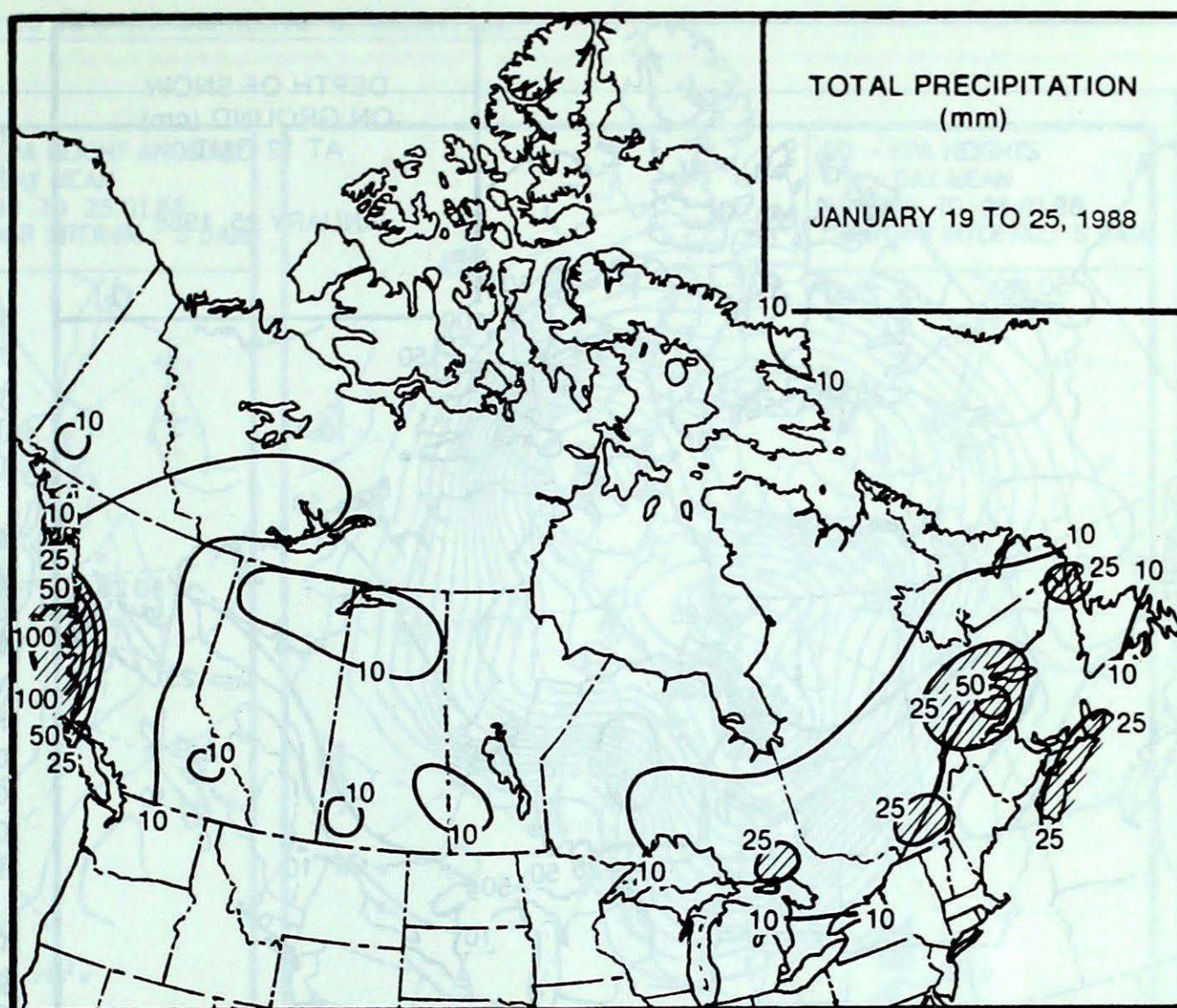
south. While northwestern Ontario was setting minimum temperature records over the weekend, readings in the south were at daily record high values. Trout Lake plunged to a low of -41.1°C on the 23rd, while the Niagara Peninsula basked in 12°C weather. The colder air moved gradually southwards over the weekend, triggering heavy flurry activity to the lee of the lakes. Strong winds on Sunday caused blowing and drifting snow, making the return drive from the snow belt ski areas treacherous. A few highways were closed or littered with accidents. Again this week, several snowmobilers broke through thin ice covering many of the resort lakes.

Quebec

On January 19, a storm dumped nearly 50 cm of snow on the Gaspé Peninsula. Heavy amounts of snow were also reported in the mountainous regions east of Quebec City and the lower St. Lawrence Valley, where winds were clocked gusting to 113 km/h. This is the 3rd week in a row that schools have had to close because of heavy blowing and drifting. Elsewhere precipitation was generally light. Six daily maximum temperature records were broken in the south, while the same number of new minimum temperature records were set in the north. Several ski slopes in the Eastern Townships have been closed due to lack of snow.

Atlantic Provinces

Relatively minor weather systems tracked north of the Maritimes and across Newfoundland, allowing warmer air from the south to penetrate the region. The mercury in Nova Scotia climbed to 11°C over the weekend. Skies were overcast during the first half of the period, with the bulk of precipitation falling as rain. In Newfoundland, easterly winds produced above normal temperatures. Ten to 15 centimetre snowfalls were common, especially in the north. Fair weather was experienced on the east coast during the weekend. In Labrador, the early and latter parts of the period were fair and cold. Ten centimetres of snow fell during the middle of the week.



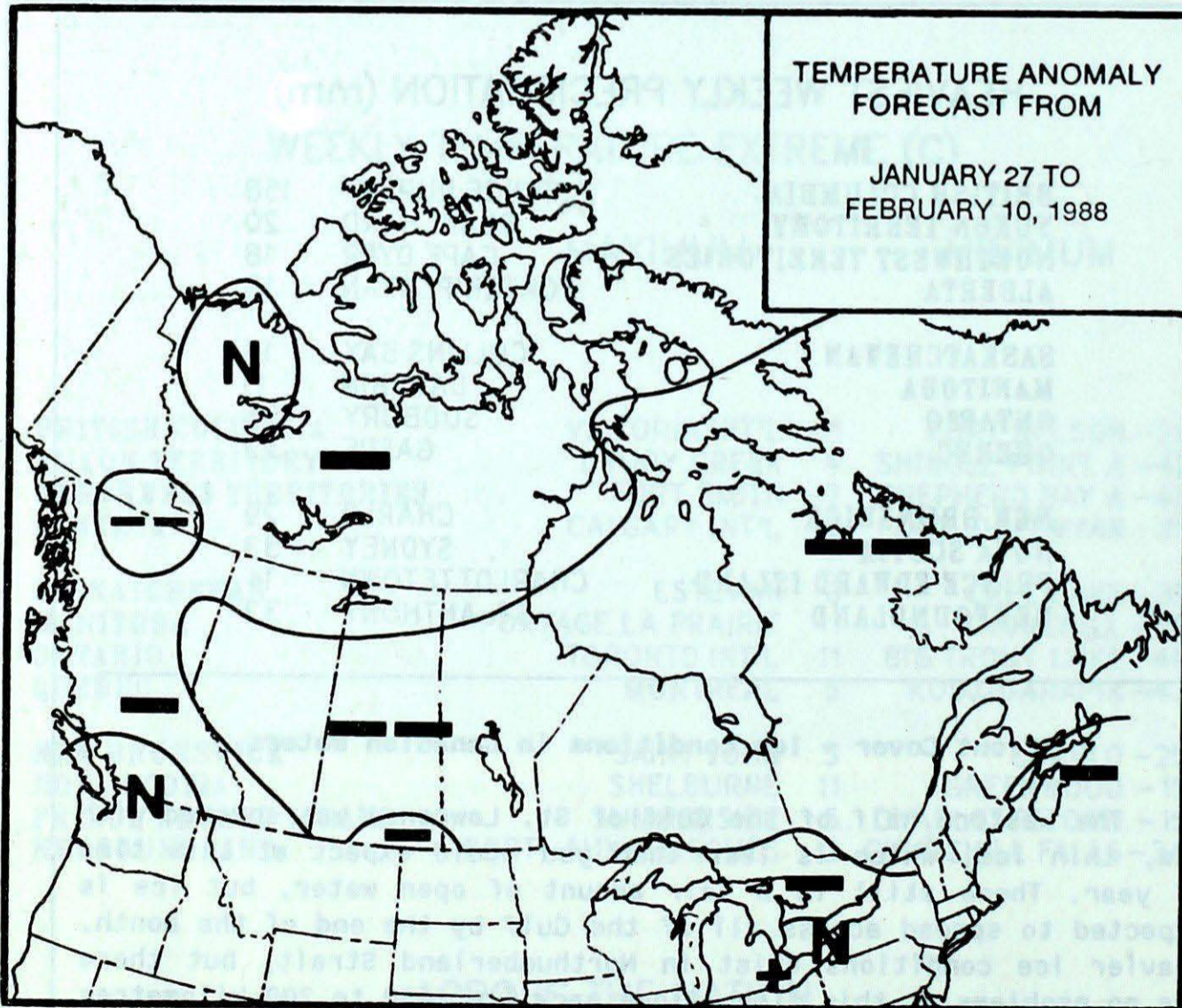
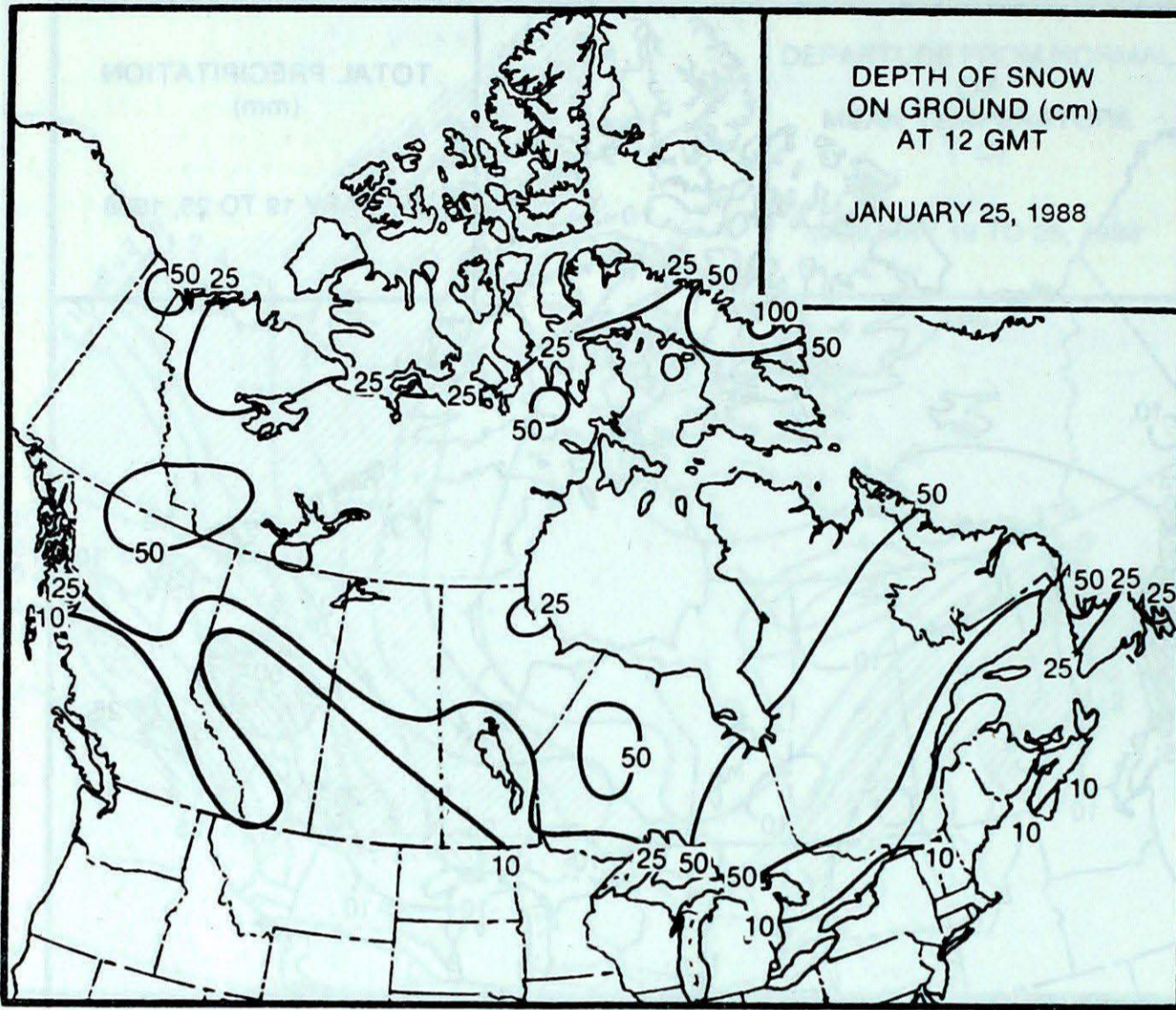
HEAVIEST WEEKLY PRECIPITATION (mm)

BRITISH COLUMBIA	PRINCE RUPERT	158
YUKON TERRITORY	BLANCHARD	20
NORTHWEST TERRITORIES	CAPE DYER	18
ALBERTA	FORTCHIPEWYAN	13
SASKATCHEWAN	COLLINS BAY	13
MANITOBA	DAUPHIN	11
ONTARIO	SUDBURY	26
QUEBEC	GASPE	52
NEW BRUNSWICK	CHARLO	29
NOVA SCOTIA	SYDNEY	33
PRINCE EDWARD ISLAND	CHARLOTTETOWN	14
NEWFOUNDLAND	ST. ANTHONY	33

Front Cover - Ice conditions in Canadian Waters

The western half of the Gulf of St. Lawrence was covered with new, thin ice, which is less than you would expect at this time of year. There still is a fair amount of open water, but ice is expected to spread across all of the Gulf by the end of the month. Heavier ice conditions exist in Northumberland Strait, but there are no problems at this time. Close pack ice, 150 to 200 kilometres wide, stretches along the Labrador coast. In Notre Dame Bay and near the Strait of Belle Isle, the ice is in narrow bands and strips, with overall distribution a little behind normal. To-date, icebergs have remained north of Newfoundland. In the Great Lakes Basin, cold spells have been brief; as a result, ice development has been slow and mainly near the shallows and shorelines.

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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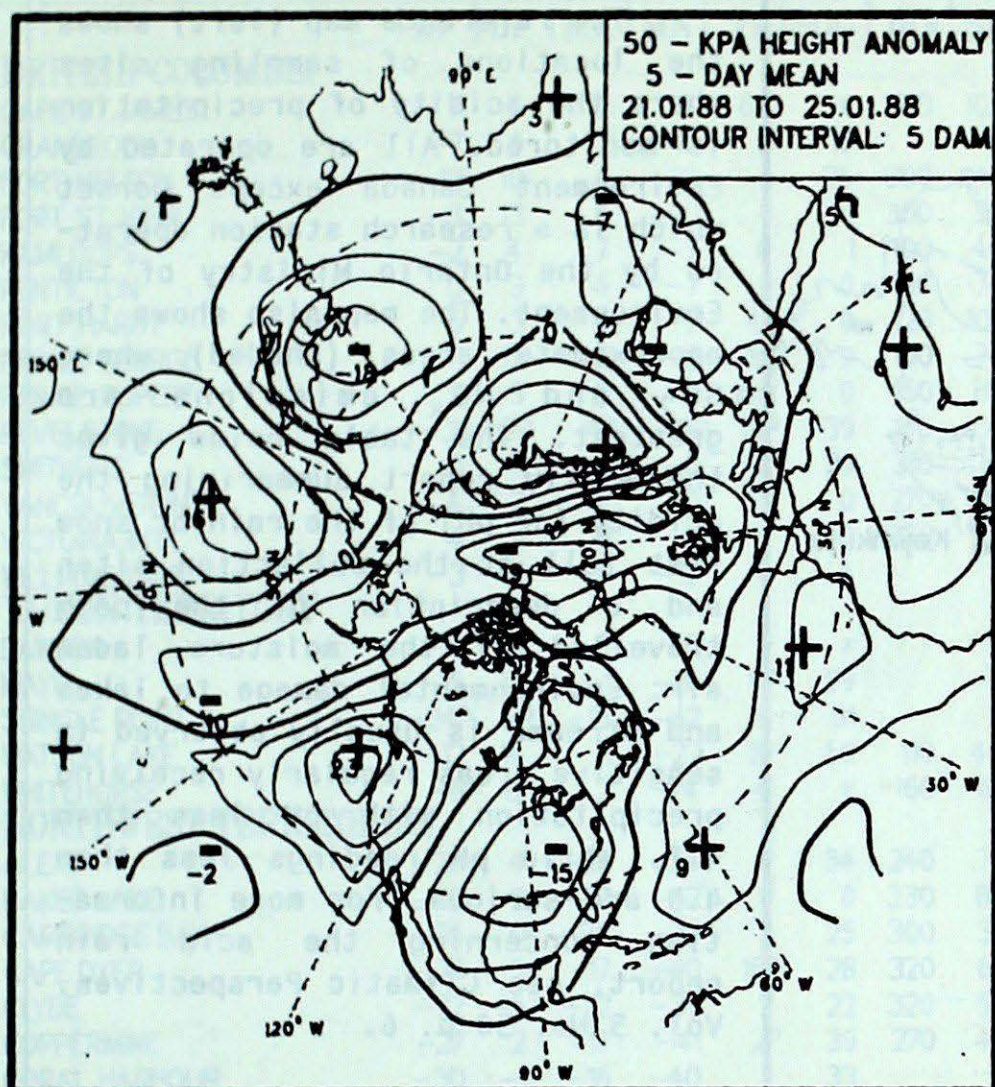
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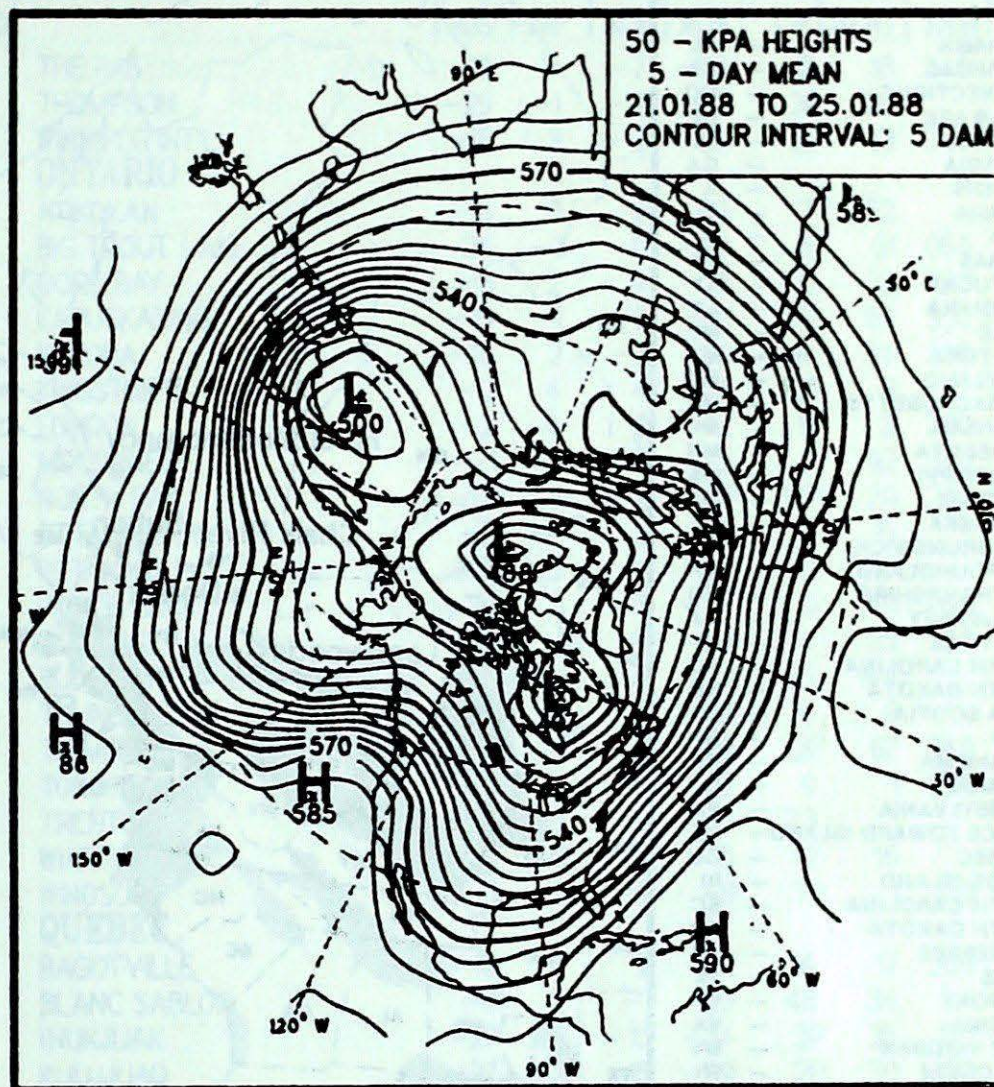
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CIRCULATION

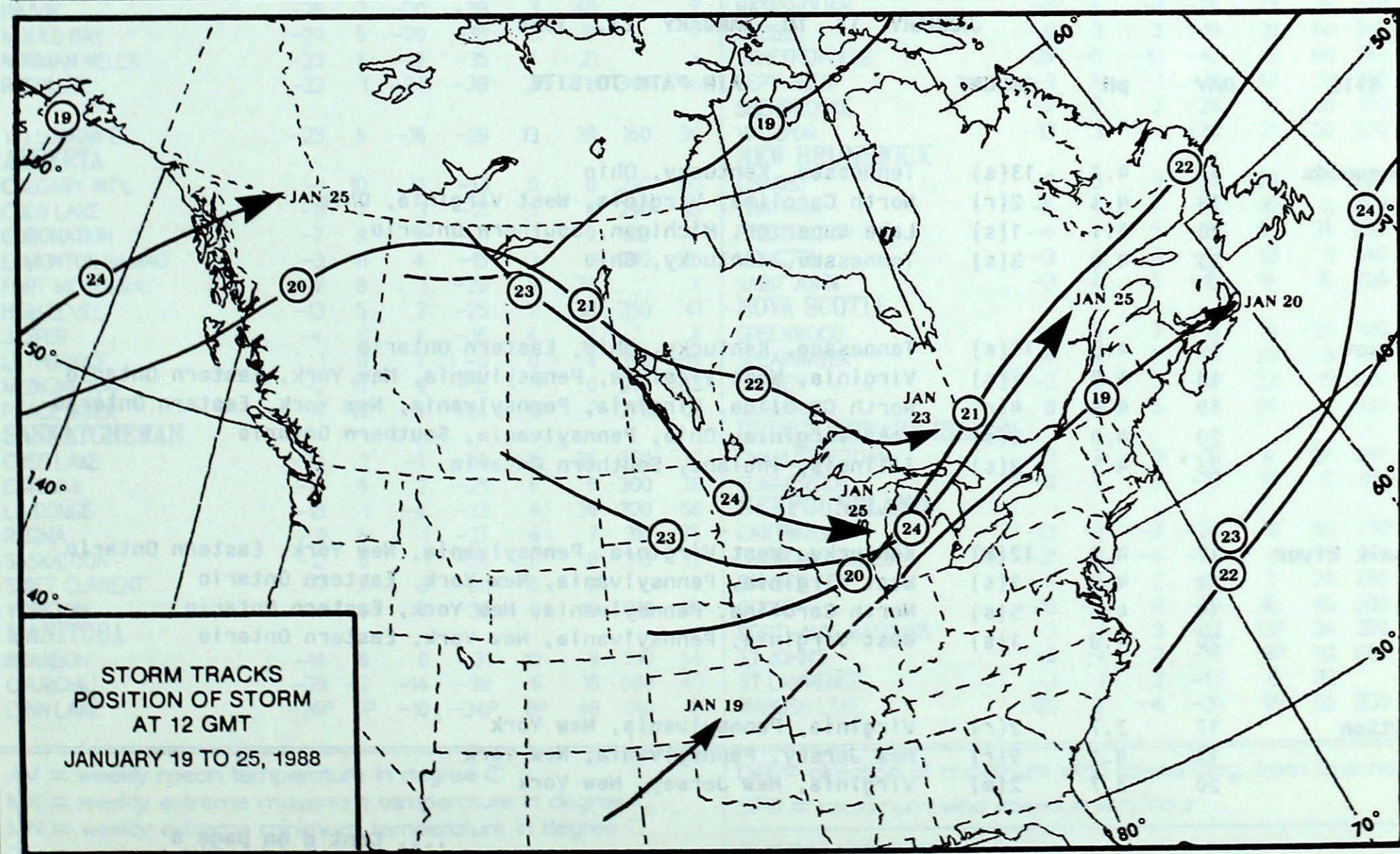
50 KPa ATMOSPHERIC CIRCULATION



MEAN 50 KPa HEIGHT ANOMALY (dam)

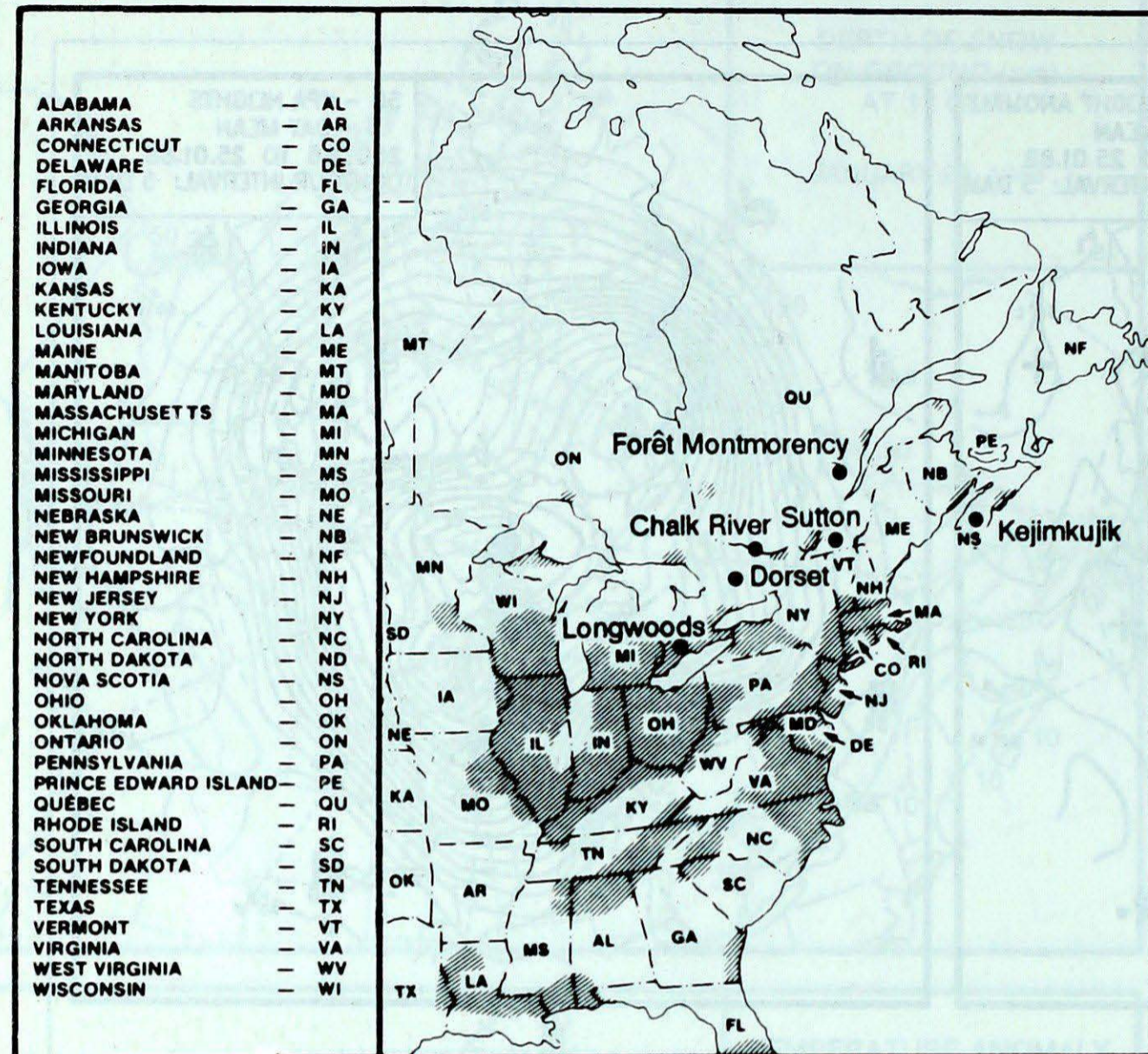


MEAN 50 KPa HEIGHTS (dam)



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_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.

JANUARY 17 TO JANUARY 23, 1988

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	17	4.7	13(s)	Tennessee, Kentucky, Ohio
	19	4.3	2(r)	North Carolina, Virginia, West Virginia, Ohio
	20	4.1	1(s)	Lake Superior, Michigan, Southern Ontario
	23	4.0	3(s)	Tennessee, Kentucky, Ohio
Dorset	17	4.5	16(s)	Tennessee, Kentucky, Ohio, Eastern Ontario
	18	4.0	2(s)	Virginia, West Virginia, Pennsylvania, New York, Eastern Ontario
	19	4.4	4(r)	North Carolina, Virginia, Pennsylvania, New York, Eastern Ontario
	20	4.0	2(s)	West Virginia, Ohio, Pennsylvania, Southern Ontario
	23	4.1	2(s)	Illinois, Indiana, Southern Ontario
Chalk River	17	4.2	12(m)	Kentucky, West Virginia, Pennsylvania, New York, Eastern Ontario
	18	4.0	2(s)	West Virginia, Pennsylvania, New York, Eastern Ontario
	19	4.6	5(s)	North Carolina, Pennsylvania, New York, Eastern Ontario
	20	4.0	1(s)	West Virginia, Pennsylvania, New York, Eastern Ontario
Sutton	17	3.7	2(r)	Virginia, Pennsylvania, New York
	18	4.1	9(r)	New Jersey, Pennsylvania, New York
	20	3.7	2(m)	Virginia, New Jersey, New York

.... Cont'd on page 8

TEMPERATURE, PRECIPITATION AND MAXIMUM WIND DATA FOR THE WEEK ENDING 0600 GMT JANUARY 26, 1988

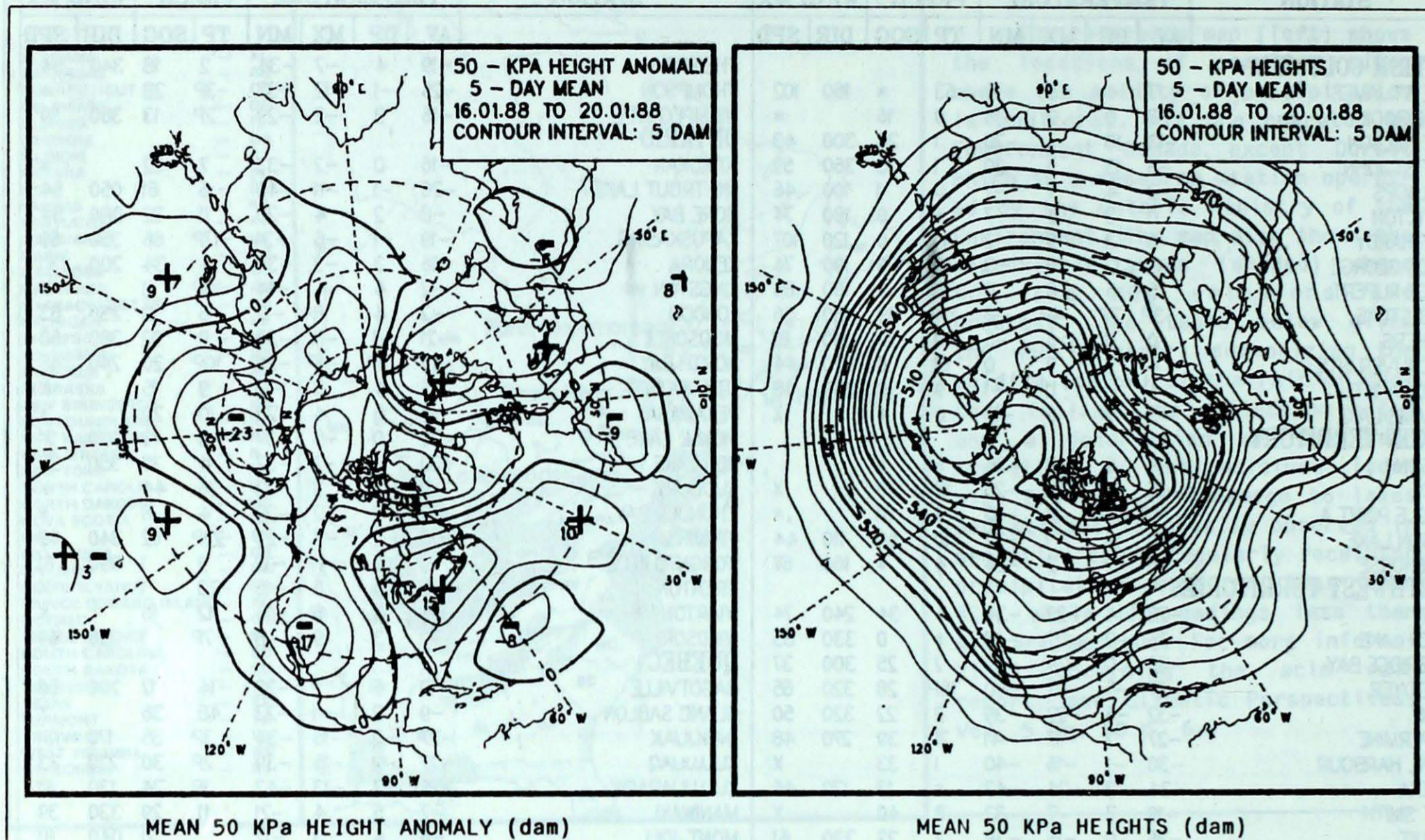
STATION	TEMPERATURE				PRECIP.		WIND MX		STATION	TEMPERATURE				PRECIP.		WIND MX	
	AV	DP	MX	MN	TP	SOG	DIR	SPD		AV	DP	MX	MN	TP	SOG	DIR	SPD
BRITISH COLUMBIA									THE PAS	-19	4	-7	-34	2	18	340	54
CAPE ST. JAMES	7	4	9	4	63	*	160	102	THOMPSON	-25	-1	-12	-37	3P	28		*
CRANBROOK	-7	0	2	-16	0	16		*	WINNIPEG INT'L	-16	3	-2	-29	2P	13	360	59
FORT NELSON	-13	10	6	-26	1	26	300	43	ONTARIO								
FORT ST. JOHN	-3	13	5	-20	1	13	360	59	ATIKOKAN	-16	0	-2	-33	7	22		*
KAMLOOPS	-2	4	7	-7	0	1	100	46	BIG TROUT LAKE	-26	-1	-11	-40	6	61	050	54
PENTICTON	0	3	4	-7	*	0	180	74	GORE BAY	-8	2	4	-20	11	22	080	54
PORT HARDY	6	3	9	2	41	0	120	107	KAPUSKASING	-19	-1	-6	-31	17P	66	350	59
PRINCE GEORGE	-1	12	6	-8	10	9	190	74	KENORA	-16	3	-3	-30	4	34	200	41
PRINCE RUPERT	5	5	8	0	158	0	160	89	KINGSTON	-2	4	4	-14	10P	3		X
REVELSTOKE	-3P	2P	4P	-9P	19P	39	180	56	LONDON	-2	4	8	-12	6	3	230	63
SMITHERS	0	11	6	-6	11	29	310	81	MOOSONEE	-21	-1	-8	-35	9	92	360	50
VANCOUVER INT'L	4	2	9	0	13	0	270	44	NORTH BAY	-11P	1P	-1P	-21P	10P	20	240	48
VICTORIA INT'L	4	1	11	-1	9	0	230	48	OTTAWA INT'L	-5	4	3	-17	9	15		X
WILLIAMS LAKE	-3	7	6	-12	0	4		X	PETAWAWA	-7	5	4	-23	10	20		X
YUKON TERRITORY									PICKLE LAKE	-20	0	-5	-37	9	49	020	31
DAWSON	-19	9	-8	-26	*	*			RED LAKE	-20	1	-7	-37	4	35	350	35
MAYO	-15	13	-1	-26	8P	29		X	SUDBURY	-11	1	3	-23	26	44		X
SHINGLE POINT A	-24P	2P	-18	-42	2	51		*	THUNDER BAY	-13	2	2	-29	4	8		*
WATSON LAKE	-12	14	1	-27	10	50	110	44	TIMMINS	-18	-2	-7	-29	22P	62	340	48
WHITEHORSE	-6	12	2	-24	4	*	160	67	TORONTO INT'L	-1	6	11	-12	9	1	090	61
NORTHWEST TERRITORIES									TRENTON	-2	5	6	-15	23	1		X
ALERT	-28	4	-22	-34	4	34	240	74	WIARTON	-4	3	6	-16	12	16		X
BAKER LAKE	-36	-2	-27	-42	*	0	330	85	WINDSOR	-1	3	9	-8	7P	1	220	69
CAMBRIDGE BAY	-35	0	-24	-39	2	25	300	37	QUEBEC								
CAPE DYER	-27	-5	-17	-40	18P	28	320	65	BAGOTVILLE	-10	5	2	-22	14	17	200	56
CLYDE	-32	-5	-22	-39	2	22	320	50	BLANC SABLON	-9	2	-1	-23	48	36		X
COPPERMINE	-27	2	-17	-41	2P	39	270	48	INUKJUAQ	-27	-2	-15	-34	3P	35	170	31
CORAL HARBOUR	-30	-1	-16	-40	1	33		X	KULUJUAQ	-27	-2	-15	-39	2P	30	220	33
EUREKA	-34	3	-24	-43	*	13	120	46	KULUJUAPIK	-29	-7	-13	-43	1P	24	130	41
FORT SMITH	-19	7	-7	-32	8	40		X	MANIWAKI	-7	5	4	-21	11	29	330	39
IQUALUIT	-26	0	-15	-38	7	23	330	61	MONT JOLI	-6	4	3	-17	29	21	040	81
HALL BEACH	-37	-6	-25	-44	2P	30		*	MONTREAL INT'L	-4	6	5	-14	11	4	220	50
INUVIK	-26	2	-20	-38	3	40		X	NATASHQUAN	-7	4	-1	-26	23	28	340	59
MOULD BAY	-29	5	-20	-38	0	17		X	QUEBEC	-8	3	3	-19	31	60	240	50
NORMAN WELLS	-23	6	-12	-35	6	21		X	SCHIEFFERVILLE	-29	-6	-10	-42	8	68	340	48
RESOLUTE	-32	1	-24	-38	2P	8	340	46	SEPT-ILES	-9	4	-1	-21	42	20	340	63
YELLOWKNIFE	-23	5	-16	-29	13	38	160	39	SHERBROOKE	-7	3	3	-26	12	15	190	61
ALBERTA									VAL D'OR	-13	3	1	-30	21	50	330	46
CALGARY INT'L	-1	10	10	-13	0	0	290	80	NEW BRUNSWICK								
COLD LAKE	-11	7	3	-21	5	6	290	65	CHARLO	-9	3	1	-25	29	67	280	56
CORONATION	-7	9	2	-21	1	9	310	74	CHATHAM	-5	4	4	-21	15	*	300	56
EDMONTON NAMAQ	-3	11	4	-15	3	1	310	76	FREDERICTON	-4	4	5	-18	14	24	290	59
FORT MCMURRAY	-11	8	1	-28	8	30		X	MONCTON	-3	4	5	-17	13	11	340	80
HIGH LEVEL	-13	5	2	-25	11	38	350	41	SAINT JOHN	-3	4	5	-15	14	15	200	56
JASPER	-4	8	4	-16	4	17		X	NOVA SCOTIA								
LETHBRIDGE	1	11	7	-8	0	*	250	89	GREENWOOD	-2	3	7	-15	9	26	010	69
MEDICINE HAT	-2	10	9	-15	1	0	240	63	SHEARWATER	-4	2	5	-11	28	5	320	59
PEACE RIVER	-4	15	4	-24	3	7	270	52	SYDNEY	-3	2	3	-10	33	15	000	61
SASKATCHEWAN									YARMOUTH	0	2	5	-9	26	1	330	65
CREE LAKE	-20	1	-6	-38	11	35	360	37	PRINCE EDWARD ISLAND								
ESTEVAN	-10	6	3	-25	6	6	300	78	CHARLOTTETOWN	-3	3	3	-15	14	24	280	56
LA RONGE	-18	1	-4	-33	9	36	320	56	SUMMERSIDE	-3	4	5	-12	13	17	010	61
REGINA	-11	6	1	-27	6	7	310	74	NEWFOUNDLAND								
SASKATOON	-12	6	-1	-24	6	8	310	72	CARTWRIGHT	-13	-1	-2	-24	6	90	330	65
SWIFT CURRENT	-7	7	3	-20	10	11		X	CHURCHILL FALLS	-21	-1	-4	-34	11	95	310	52
YORKTON	-14	6	0	-30	8	10	310	57	GANDER INT'L	-6	1	2	-16	7	24	280	78
MANITOBA									GOOSE	-18	-2	0	-29	16	65	280	65
BRANDON	-14	6	0	-31	10	9	310	54	PORT-AUX-BASQUES	-3	1	3	-12	13P	24	270	85
CHURCHILL	-29	-2	-14	-38	6	18	080	43	ST JOHN'S	-3	-1	2	-14	9P	32	040	59
LYNN LAKE	-26P	0P	-10	-34P	8P	48	010	41	ST LAWRENCE	-3	1	2	-13	8	32		X
									WABUSH LAKE	-20	2	-4	-31	9P	55	330	44

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



Cont'd from page 6

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Montmorency	17	4.3	3(s)	Kentucky, Ohio, Eastern Ontario, Southern Quebec
	18	4.5	13(m)	New England, Quebec
	20	4.4	15(s)	New Jersey, New England, Southern Quebec
	21	4.2	4(s)	Northwestern Quebec, Southern Quebec
Kejimikujik	18	4.8	11(r)	Atlantic Ocean
	20	4.8	11(r)	Atlantic Ocean

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