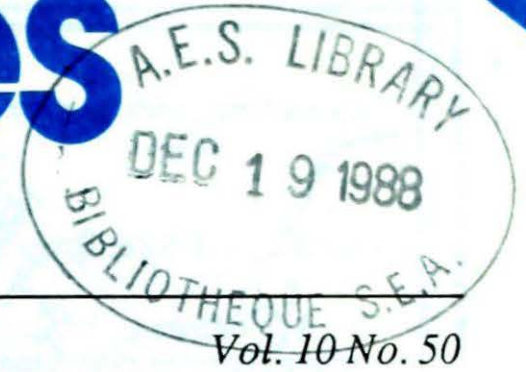


# Climatic Perspectives



December 6 to 12, 1988

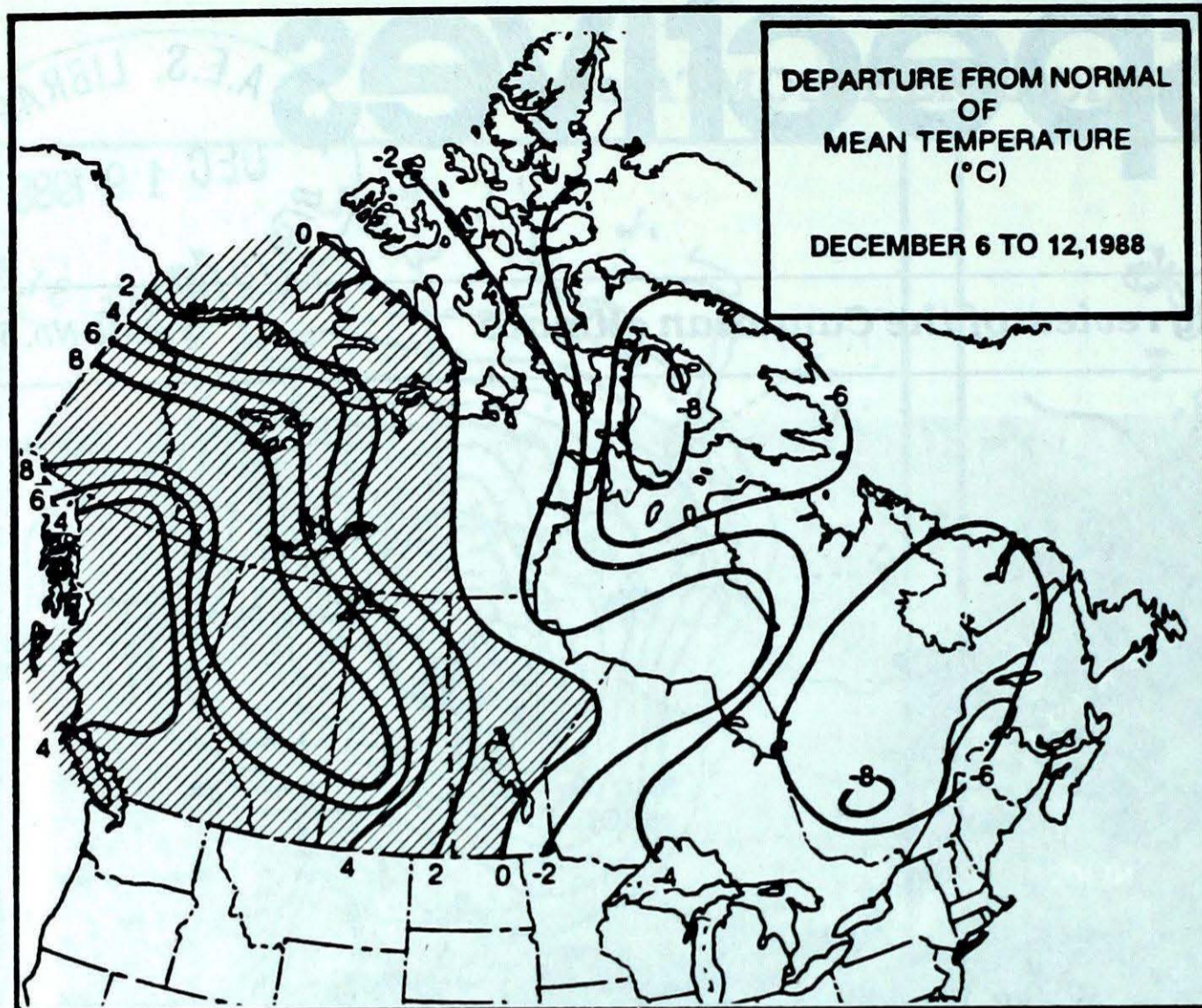
*A weekly review of the Canadian climate*

Vol. 10 No. 50



In this NOAA-10 satellite photograph of December 12, snow deposited by lake-effect squalls during the preceding three days is visible to the lee of the Great Lakes. Heaviest falls occurred to the south and east of the Great Lakes. Cloud streamers, although considerably weaker, are still apparent, stretching across to the lee shores of the relatively warm lakes.

- **Mild weather hampers skiing and logging operations in western Canada**
- **Record cold air plunges into eastern Canada**



**ACROSS THE COUNTRY**

**Yukon and Northwest Territories**

In the Yukon, there was a dramatic rise in temperatures as gusty southwesterly winds pumped mild Pacific air inland, flushing the cold Arctic air mass out of the valleys. Except for the coastal mountains and the south, precipitation was minimal. Very cold temperatures and blizzards were reported in the eastern Arctic. On Baffin Island, readings dropped to the record minus thirties and forties. Eureka registered minimum temperatures in the mid-minus forties for four consecutive days, with daytime highs being only a few degrees better. Blizzards occurred throughout much of the southern Arctic and the Keewatin district

**British Columbia**

Although a weak ridge of high pressure prevailed, mild but predominantly cloudy weather ensued. The Arctic front, which lay over the northeast corner of the province for the past number of weeks was finally pushed out of the province by week's end. At Prince George, the Canada Cup Cross Country ski race had to be moved to higher ground due to the lack of snow. The logging industry is still suffering and hoping for colder weather. Ski conditions in the south have deteriorated. At Victoria, due to the mild weather, 20 percent of the ornamental Japanese Cherry trees are in bloom, a couple of months earlier than usual.

**Prairie Provinces**

In Alberta, it was a pleasant late fall week, with varying amounts of cloud and sun. Over the weekend, temperatures in the north nudged above the freezing mark, while in the south the balmy double digits were reached. The coldest day was the 7th. A major snow storm approached the province the final day of the period.

In Saskatchewan and Manitoba, temperatures fluctuated markedly. The early and latter parts of the period saw readings in agricultural districts nudging above the freezing mark. A dome of Arctic air crossing southeastwards during the middle of the week saw temperatures plunge down to the minus thirties. Dangerously high wind chills added to the brief, but intense cold before a moderating trend set in over the weekend.

**Weekly Temperature Extreme (°C)**

Location	Maximum	Minimum
British Columbia . . . . .	Victoria Int'l 13	Fort Nelson -28
Yukon Territory . . . . .	Whitehorse 2	Watson Lake -37
Northwest Territories . . . . .	Fort Smith -5	Eureka -46
Alberta . . . . .	Lethbridge 11	High Level -33
Saskatchewan . . . . .	Prince Albert 5	Cree Lake -37
Manitoba . . . . .	Dauphin 3	Thompson -36
	Portage la Prairie	
Ontario . . . . .	Windsor 11	Geraldton -39
Québec . . . . .	Montréal Int'l 7	Parent -38
New Brunswick . . . . .	Moncton 10	Charlo -26
Nova Scotia . . . . .	Greenwood 11	Truro -20
Prince Edward Island . . . . .	Summerside 8	Charlottetown -17
Newfoundland . . . . .	St. Lawrence 6	Churchill Falls -35

**Across The Country...**

Warmest Mean Temperature . . . . .	Estevan Point (BC) 9
Coollest Mean Temperature . . . . .	Eureka (NWT) -39

88/12/06-88/12/12

**Ontario**

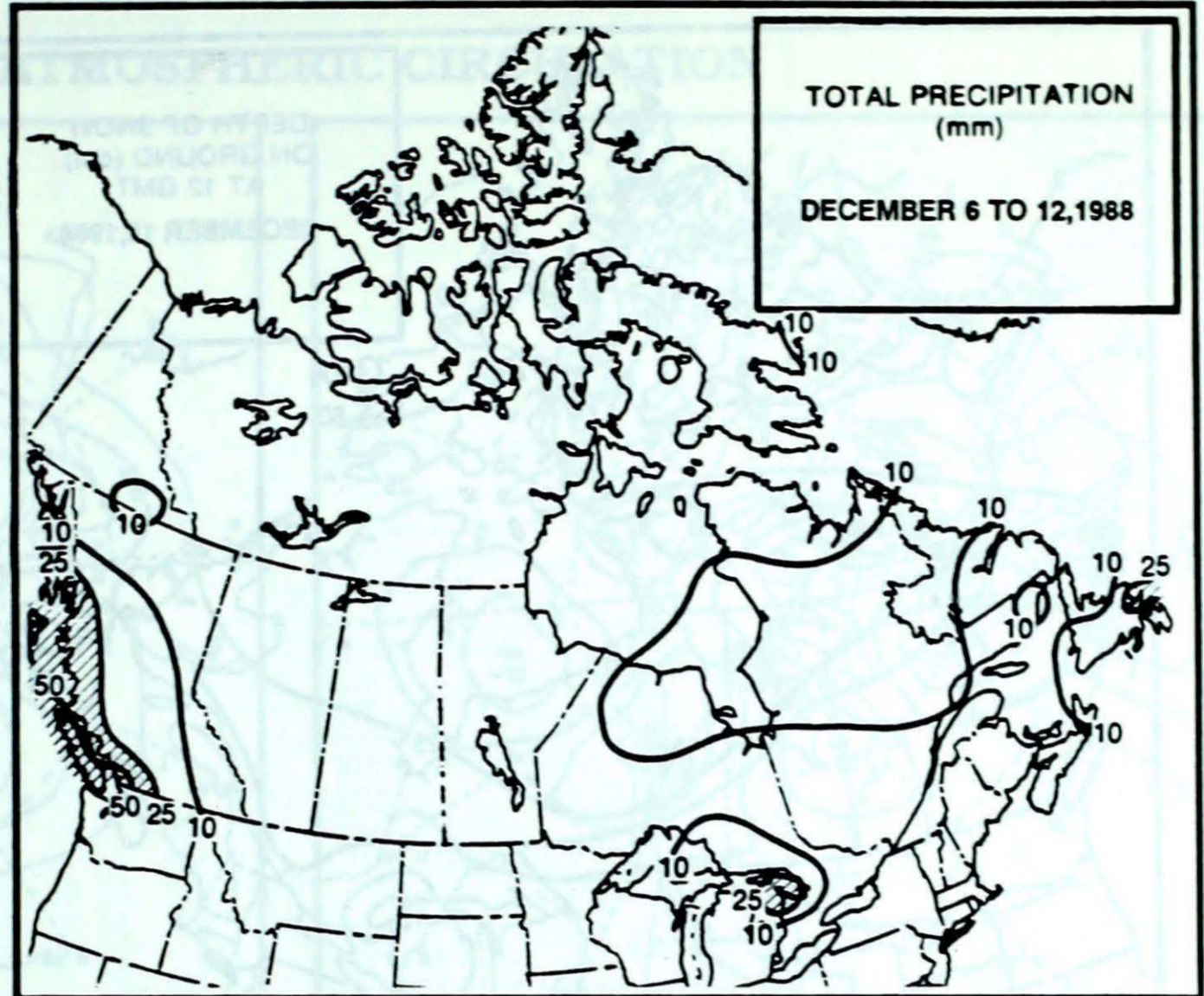
A frigid Arctic air mass reached the lower Great lakes by the weekend. Heavy snow squalls developed to the lee of the Great Lakes, as Arctic air streamed over the relatively warm waters. On the Bruce Peninsula, squalls deposited nearly 50 cm of snow, while in other snow belt areas 20 to 30 centimetres was more common. On December 11 and 12, temperatures plunged to daily record low values - the coldest of the season. In northern Ontario, the thermometer plunged to -39°C on the 11th. At Toronto, a -20°C minimum temperature reading on December 12 was the lowest in nearly two years. The first measurable snowfall of the season fell in the Toronto area on December 9. Ski resort operators were delighted, as persistent northwesterly winds pushed snow streamers inland. Cold temperatures allowed snow making to get into full swing, and many resorts were able to open for the first time this season.

**Quebec**

The week started off mild, but a cold wave associated with an area of Arctic high pressure descended from the north and encompassed the whole province after the middle of the week. Temperatures plunged, and even under predominantly sunny skies numerous daily minimum temperature records were broken on December 10 and 11. Heaviest snowfalls, of 10 to 15 centimetres, occurred in central and eastern Quebec.

**Atlantic Provinces**

A cold frontal passage during the middle of the week insured a cold period. An area of high pressure resulted in a fair amount of sunshine, but flurries and squalls were evident where the wind blew off large bodies of open water. A number of daily low temperature records were broken in the Maritimes during the last four days of the period. Newfoundland also experienced a mixture of cloud and sun, with snow showers common along the windward coasts. On Sunday, an Atlantic storm, which brushed past the Avalon Peninsula, dumped up to 30 cm of fresh snow, with winds reaching 90 km/h. It was cold in Labrador, with temperatures dropping to the minus thirties. Weak passing disturbances provided some snow most days. Snow depths along the coast exceed 100 cm.

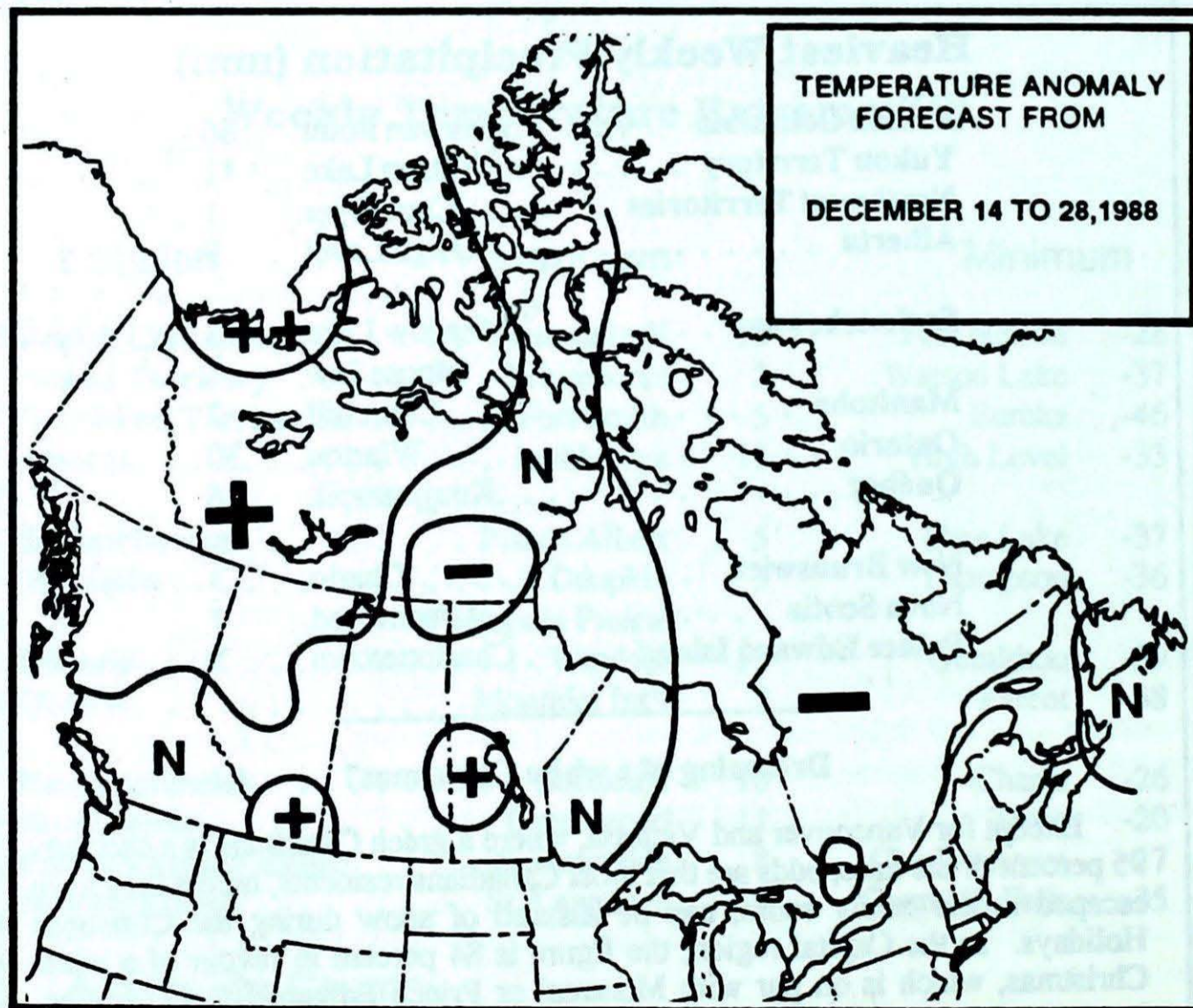
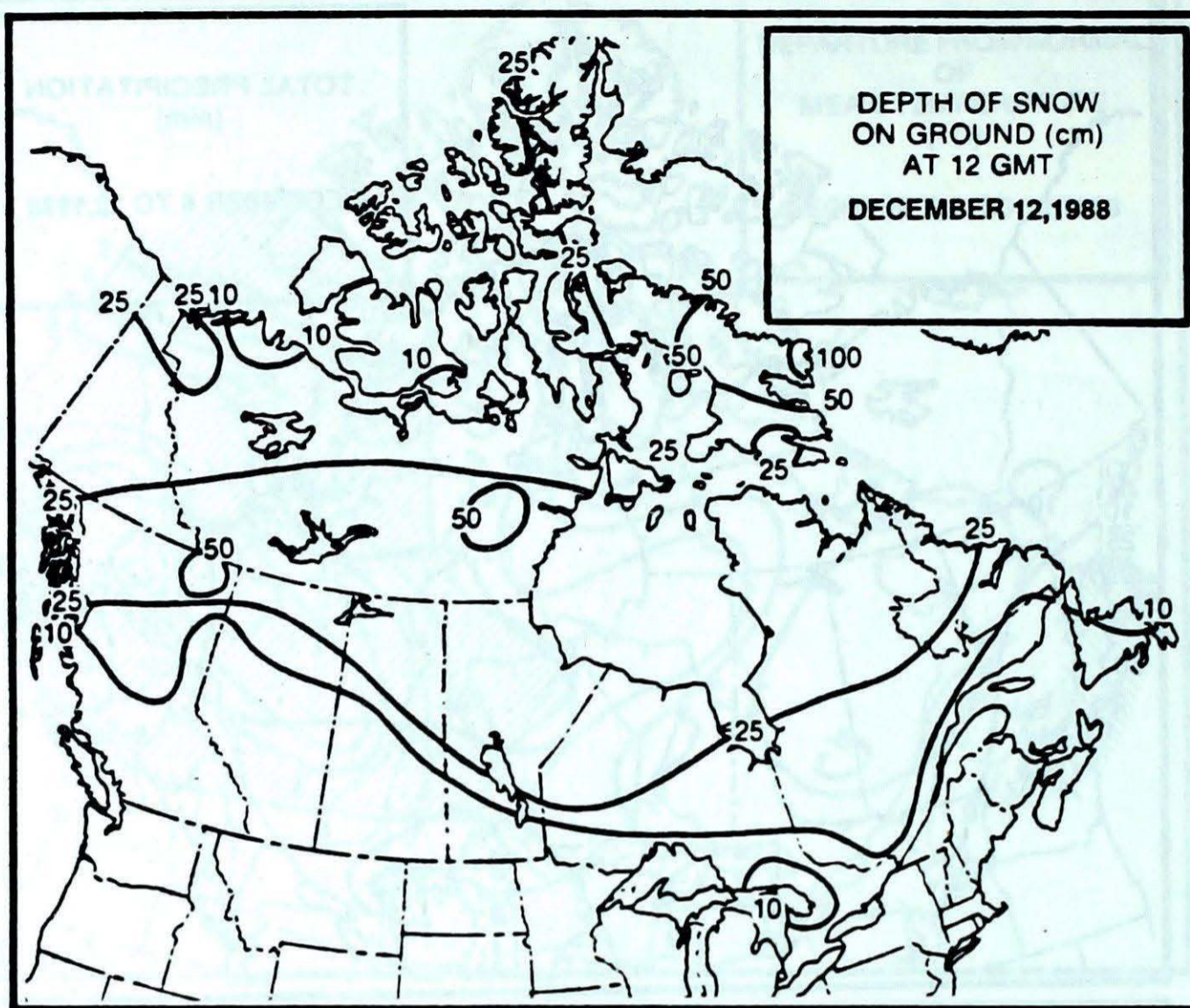


**Heaviest Weekly Precipitation (mm)**

British Columbia	Estevan Point	86
Yukon Territory	Watson Lake	11
Northwest Territories	Cape Dyer	21
Alberta	High Level	9
Saskatchewan	Meadow Lake	3
	Moose Jaw	
Manitoba	Churchill	7
Ontario	Warton	30
Québec	Kuujuarapik	16
New Brunswick	Charlo	3
Nova Scotia	Greenwood	7
Prince Edward Island	Charlottetown	5

**Dreaming of a white Christmas?**

Except for Vancouver and Victoria, where a green Christmas is a certainty 95 percent of the time, odds are that most Canadians residents, unless they have escaped to the sunny south, can be assured of snow during the Christmas Holidays. In the Capital region, the figure is 84 percent in favour of a white Christmas, which is on par with Montreal or Prince Edward Island. In Saskatchewan and Manitoba, the likelihood is almost 100 percent, as it is in most of Quebec and throughout the Canadian north. In Alberta, chinooks play an important role and snow cover can vary widely from one area to the next. For those who don't like snow, southern Ontario is next best place to be, where it is close to an even split. Atlantic Canada usually has a white Christmas except in coastal areas of Nova Scotia. Across southern Canada, however, it is a fact that the holiday period during the last five years has been unusually green.



- ++ 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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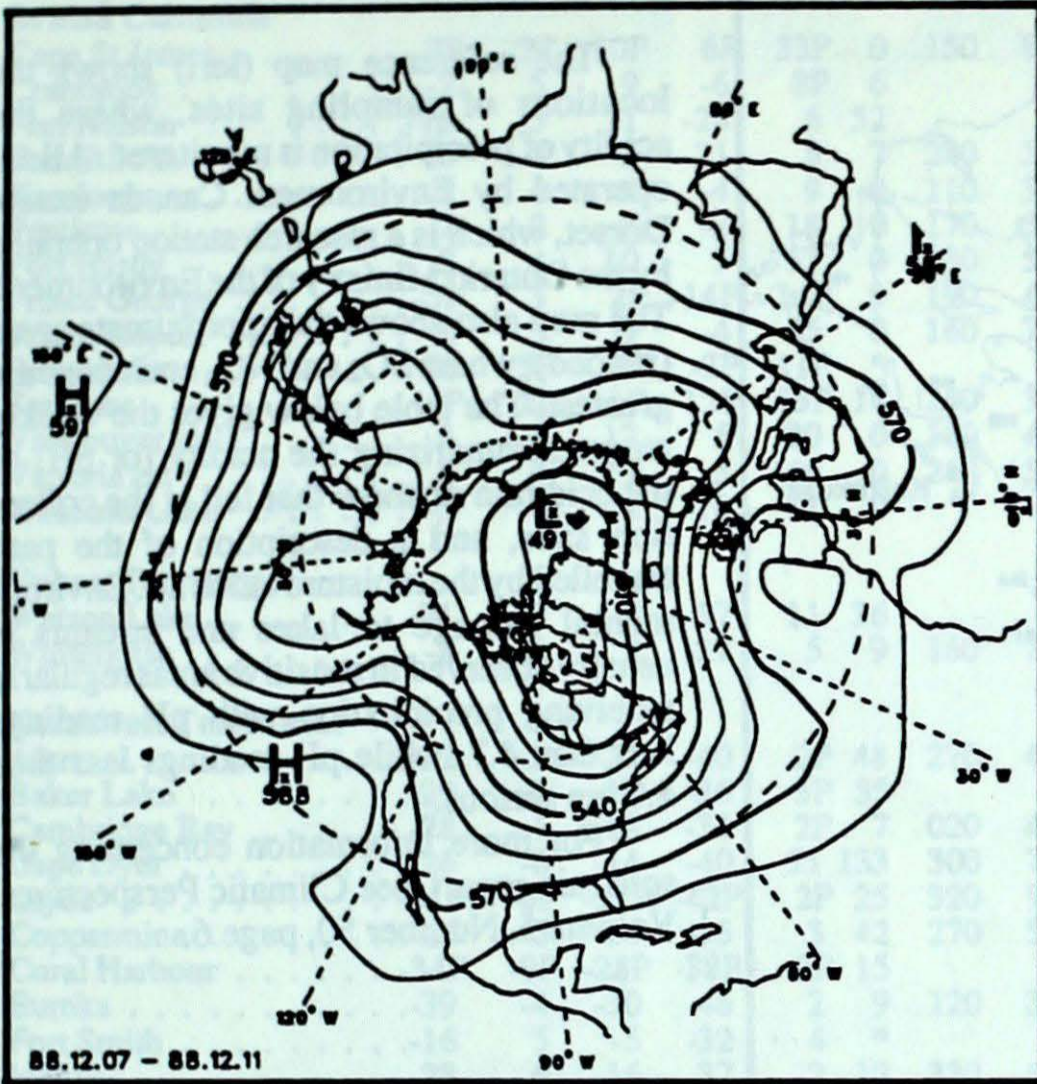
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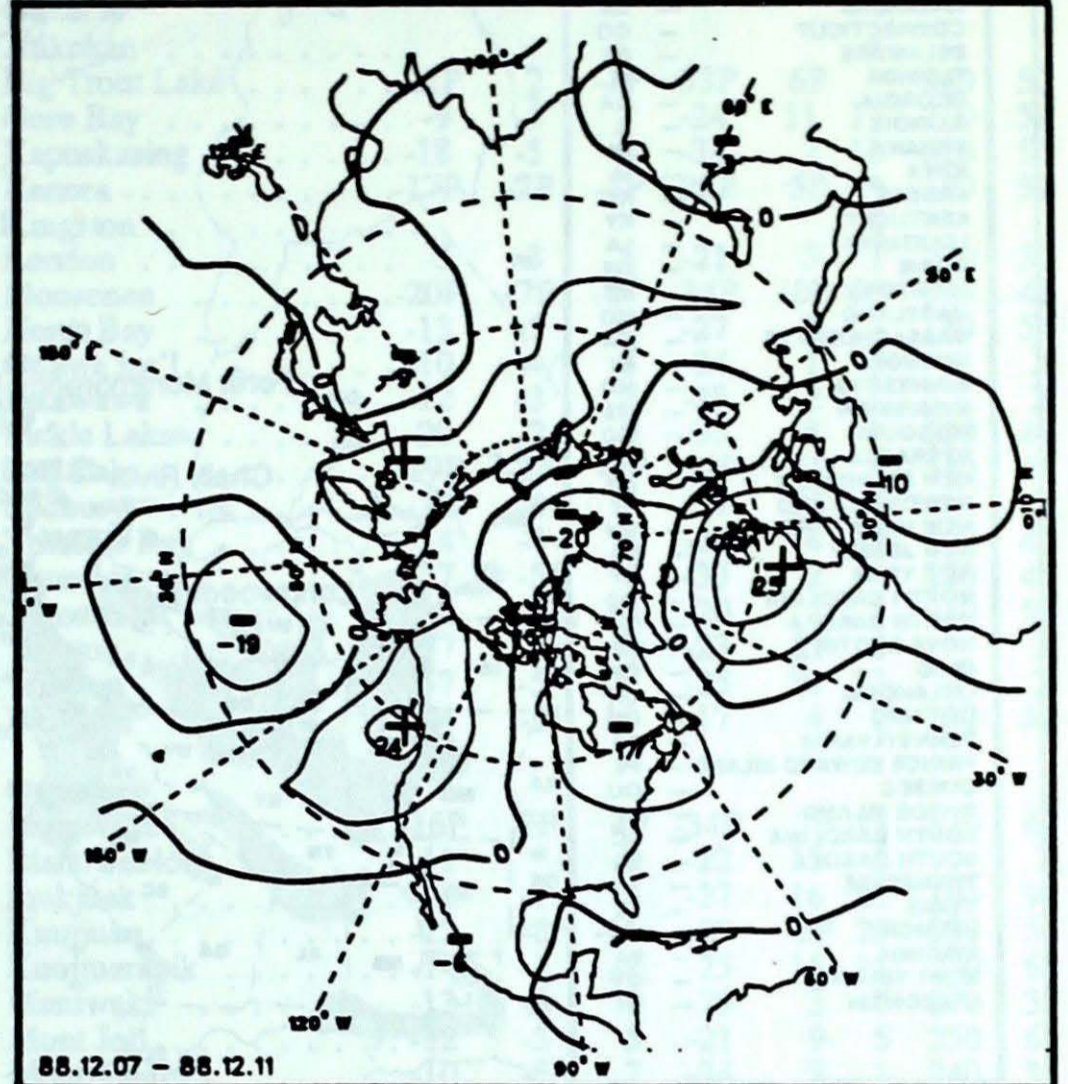
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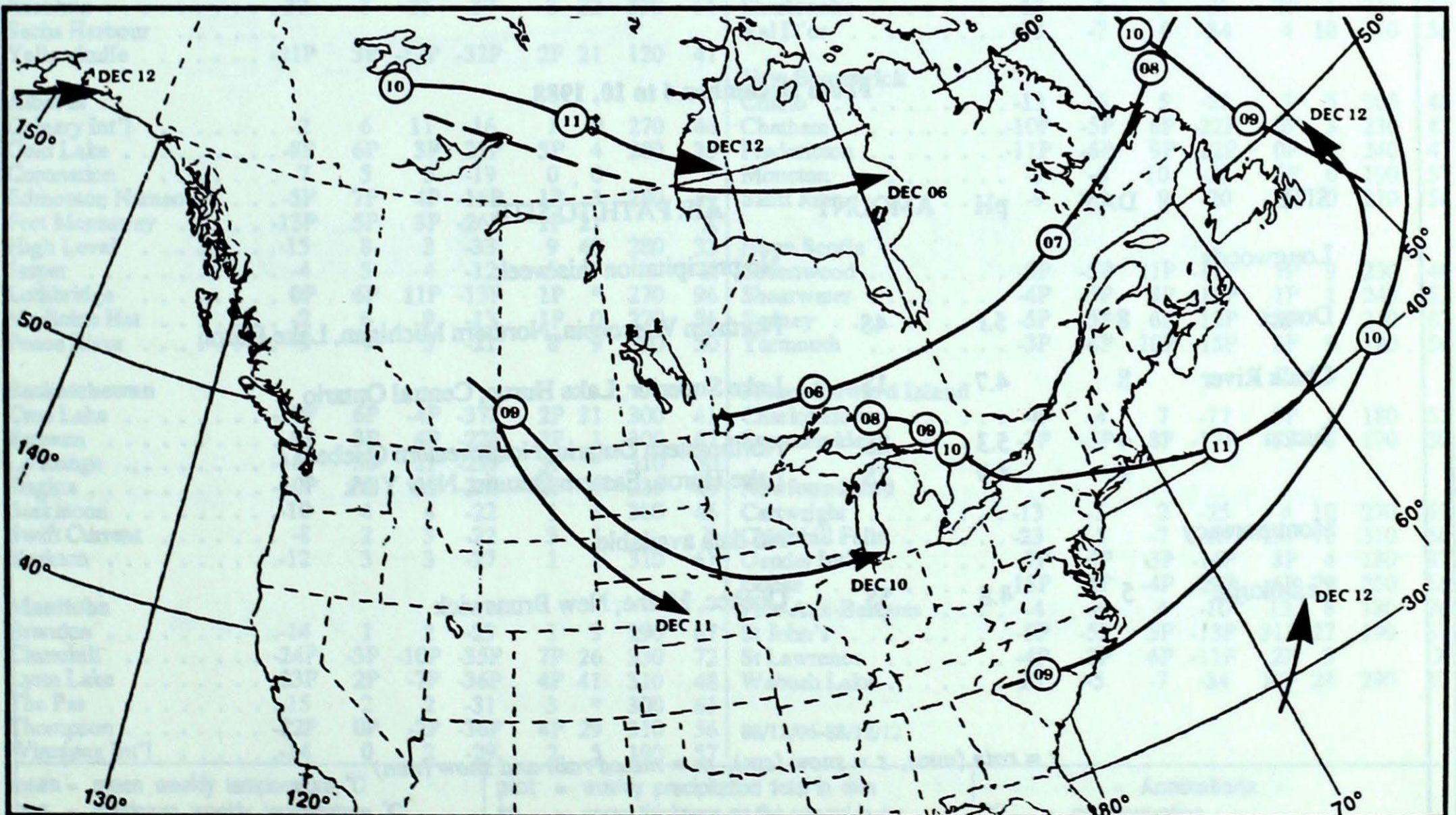
### 50 kPa ATMOSPHERIC CIRCULATION



Mean geopotential height  
50 kPa level (10 decameter intervals)



Mean geopotential height anomaly  
50 kPa level (10 decameter intervals)

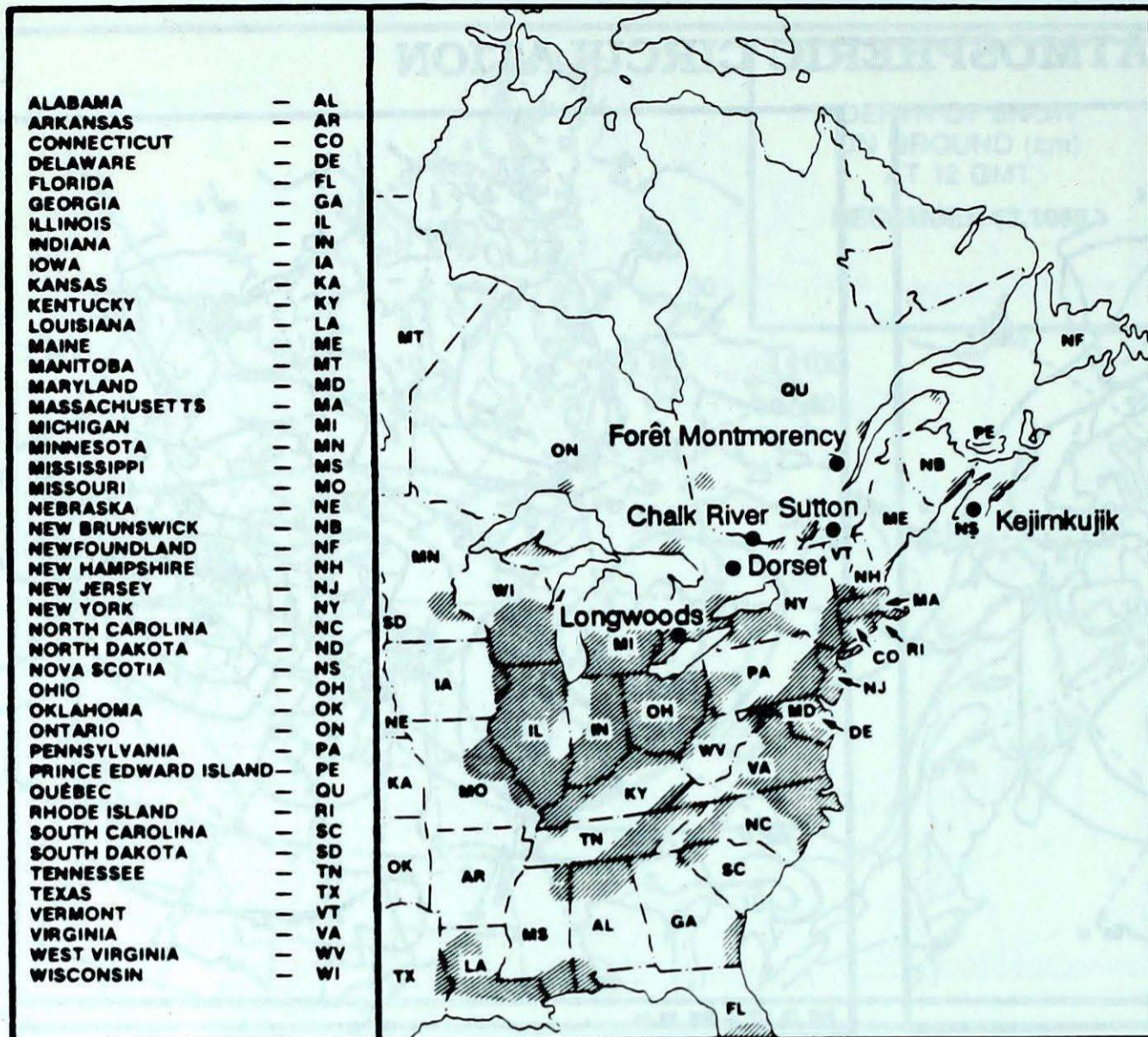


Storm track - Position of storm at 12 GMT each day during the period.

**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.



From December 4 to 10, 1988

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods				No precipitation this week
Dorset	8	5.1	4S	Northern Wisconsin, Northern Michigan, Lake Huron
Chalk River	8	4.7	1S	Lake Superior, Lake Huron, Central Ontario
Sutton	4	5.3	2S	Northeastern Ontario, Northwestern Quebec
	9	4.9	1S	Lake Huron, Eastern Ontario, New York
Montmorency				No data available
Kejimikujik	5	4.8	5S	Quebec, Maine, New Brunswick

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

STATION	temperature				precip. ptot	st	wind dir	max vit	STATION	temperature				precip. ptot	st	wind dir	max vit							
	mean	anom	max	min						mean	anom	max	min											
<b>British Columbia</b>								<b>Ontario</b>																
Cape St James	7P	2P	10P	6P	33P	0	150	80	Atikokan	*														
Cranbrook	-2	5	9	-6	8P	6		*	Big Trout Lake	-21P	2	-1P	-33P	6P	*	340	50							
Fort Nelson	-16	5	-1	-28	6	52		*	Gore Bay	-9	-5	7	-24	11	11	210	59							
Fort St John	-6	7	5	-21	8	7	240	56	Kapuskasing	-18	-5	3	-34	2	10	320	50							
Kamloops	2	4	4	-4	9	0	110	33	Kenora	-17P	-2P	-1P	-28P	5P	*	180	59							
Penticton	2	2	5	-2	18	0	170	50	Kingston															
Port Hardy	8	4	10	5	53	0	230	52	London	-5	-3	8	-21	3	1	240	50							
Prince George	-5P	3	2P	-14P	14P	9	190	48	Moosonee	-20P	-7P	-1P	-34P	10P	20	300	41							
Prince Rupert	5	3	9	-4	65	0	160	70	North Bay	-13	-5	4	-27	2	1	180	54							
Revelstoke	0P	5P	3P	-2P	11P	*		*	Ottawa Int'l	-10	-4	8	-24	1	0		X							
Smithers	-4P	2P	1P	-12P	13P	16	140	39	Petawawa	-12	-3	8	-28	2	1		X							
Vancouver Int'l	8	4	12	5	80	0	180	44	Pickle Lake	-20	-2	0	-35	8	*	330	48							
Victoria Int'l	8	4	13	5	46	0	260	54	Red Lake	-19P	-3P	-2P	-31P	6P	*	340	46							
Williams Lake	-3	4	2	-10	11	0		X	Sudbury	-13	-4	5	-27	6P	5		X							
<b>Yukon Territory</b>								<b>Thunder Bay</b>																
Watson Lake	-21	2	-8	-37	11	36		*	Timmins	-17	-5	6	-33	2	4	200	46							
Whitehorse	-8	9	2	-27	5	9	160	72	Toronto Int'l	-6	-4	10	-20	2	1	230	52							
<b>Northwest Territories</b>								<b>Trenton</b>																
Alert	-32	-2	-20	-40	2P	48	270	44	Warton	-7	-4	8	-23	2P	0		X							
Baker Lake	-29	-2	-19	-36	3P	55		*	Windsor	-4	-3	11	-17	4	2	200	54							
Cambridge Bay	-28	1	-18	-33	2P	7	020	48	<b>Québec</b>															
Cape Dyer	-26	-6	-14	-40	21	133	300	74	Bagotville	-16P	-7P	4P	-34P	7P	13	320	67							
Clyde	-31P	-6P	-21P	-42P	2P	25	320	91	Blanc Sablon	-11	*	2	-22	15	5		X							
Coppermine	-24	5	-14	-35	3	42	270	56	Inukjuak	-16	-1	-2	-27	16	21	190	94							
Coral Harbour	-34P	-9P	-28P	-38P	2P	15		X	Kuujuuaq	-22	-6	-11	-29	3P	29	330	56							
Eureka	-39	-4	-30	-46	2	9	120	31	Kuujuarapik	-14	-1	-1	-25	16	18	220	67							
Fort Smith	-16	5	-5	-32	4	*		X	Maniwaki	-13	-5	4	-29	3	7	270	35							
Iqaluit	-28	-6	-16	-37	2	12	330	63	Mont Joli	-12	-5	5	-21	9	5	250	61							
Hall Beach	-36	-8	-29	-41	2	48	320	37	Montréal Int'l	-10	-5	7	-24	3	1	240	35							
Inuvik	-23P	5P	-13P	-31P	1P	39		X	Natashquan	-15	-7	3	-27	8	3	280	80							
Mould Bay	-32	-2	-26	-37	2	17		X	Québec	-13P	-6P	5P	-22P	2P	1	310	50							
Norman Wells	-21	7	-12	-34	2	13		X	Schefferville	-23	-6	-9	-35	7	35	330	54							
Resolute	-32	-3	-25	-37	2	22	330	56	Sept-Iles	-15	-6	3	-31	15	12	220	48							
Sachs Harbour									Sherbrooke	-12	-6	5	-25	2P	1	260	39							
Yellowknife	-21P	3P	-12P	-32P	2P	21	120	41	Val D'or	-18	-7	4	-34	4	10	310	56							
<b>Alberta</b>								<b>New Brunswick</b>																
Calgary Int'l	-2	6	11	-16	1	0	270	46	Charlo	-13	-6	5	-26	3	5	300	46							
Cold Lake	-8P	6P	3P	-21P	5P	4	280	35	Chatham	-10P	-5P	6P	-22P	0P	3	230	41							
Coronation	-7	5	5	-19	0	0		*	Fredericton	-11P	-6P	9P	-22P	0P	0	240	41							
Edmonton Namao	-5P	7P	4P	-16P	1P	3	280	39	Moncton	-9	-6	10	-22	0P	0	190	57							
Fort McMurray	-13P	5P	3P	-26P	1P	21		X	Saint John	-9	-6	9	-20	1	0	210	56							
High Level	-15	8	3	-33	9	40	280	33	<b>Nova Scotia</b>															
Jasper	-4	5	4	-12	5	*		X	Greenwood	-5P	-5P	11P	-17P	7P	9	230	48							
Lethbridge	0P	6P	11P	-13P	1P	*	270	96	Shearwater	-4P	-5P	8P	-16P	1P	1	240	52							
Medicine Hat	-2	6	9	-13	1P	0	270	56	Sydney	-5P	-5P	6P	-12P	2P	1	210	67							
Peace River	-9	7	3	-21	8	9	290	50	Yarmouth	-3P	-4P	10P	-15P	6P	9	180	56							
<b>Saskatchewan</b>								<b>Prince Edward Island</b>																
Cree Lake	-19P	6P	-4P	-37P	2P	31	300	41	Charlottetown	-6	-4	7	-17	5P	1	180	52							
Estevan	-8P	3P	4P	-22P	2P	1	300	67	Summerside	-7P	-5P	8P	-17P	2P	1	170	50							
La Ronge	-16P	3P	1P	-29P	3P	*	310	50	<b>Newfoundland</b>															
Regina	-10P	3P	3P	-24P	2P	3	280	48	Cartwright	-13	-5	2	-25	4	10	270	69							
Saskatoon	-10	4	4	-22	1	1	300	46	Churchill Falls	-23	-5	-7	-35	13P	70	310	50							
Swift Current	-8	2	3	-22	3	1		X	Gander Int'l	-7P	-4P	3P	-16P	8P	4	180	87							
Yorkton	-12	3	3	-27	1	1	310	61	Goose	-18P	-8P	-4P	-29P	6P	23	250	56							
<b>Manitoba</b>								<b>Port-Aux-Basques</b>																
Brandon	-14	1	2	-29	1	3	290	67	St John's	-4	-4	4	-10	12	8	180	96							
Churchill	-24P	-3P	-10P	-35P	7P	26	330	72	St Lawrence	-5P	-5P	5P	-13P	31P	27	190	67							
Lynn Lake	-23P	2P	-7P	-36P	4P	41	310	48	Wabush Lake	-4P	-3P	6P	-11P	2P	3		X							
The Pas	-15	2	2	-31	3	*	300	61	<b>88/12/06-88/12/12</b>															
Thompson	-22P	0P	-2P	-36P	4P	29	310	56	<p>mean = mean weekly temperature, °C  max = maximum weekly temperature, °C  min = minimum weekly temperature, °C  anom = mean temperature anomaly, °C  ptot = weekly precipitation total in mm  st = snow thickness on the ground in cm  dir = direction of max wind, deg. from north.  vit = wind speed in km/h  - Annotations -  X = no observation  P = less than 7 days of data.  * = missing data when going to printing.</p>															
Winnipeg Int'l	-14	0	2	-29	2	5	190	57																