



# Climatic Perspectives

*Archives*

*Ref 1*

Feb. 25 to Mar. 3, 1991

A weekly review of Canadian climate and water

Vol. 13 No. 09

## Late winter storms affect much of Canada

*Although spring does not arrive officially until the latter part of March, in southern British Columbia it usually seems to make its presence felt one to two months earlier than in the rest of Canada.*

A stretch of balmy spring-like weather in British Columbia, came to an abrupt end on March 1 and 2, as cold Arctic air and a late winter snow storm moved across the province. In Victoria, where spring flowers were out in bloom, it all seemed like a bad dream, as 10 to 15 centimetres of snow piled up on the ground. Outside the city, as much as 35 cm of snow fell, causing road closures. On B.C.'s lower mainland this was the fourth major snowfall of the season. The winter storm dumped between 15 to 25 centimetres of snow; well in excess of the usual March snowfall of approximately 7 cm. A multi-car pileup on the Trans Canada Highway near Chilliwack was attributed to the more than 40 cm of snow that fell in the area accompanied by strong winds. Snowfalls in the interior valleys varied widely. Hope, in the eastern end of the Fraser Valley, received 33 cm, more than twice the normal for the month of March. The snow is unlikely to affect gardens and flowers already in bloom, as it is usually the low temperatures that do the damage.

On the Prairies, March ushered in like a lion as Arctic air spilled southwards accompanied by drifting and blowing snow. Temperatures dipped to the minus twenties and thirties, causing concern for ranchers, as calving season is underway.

### Freezing rain coats eastern Canada

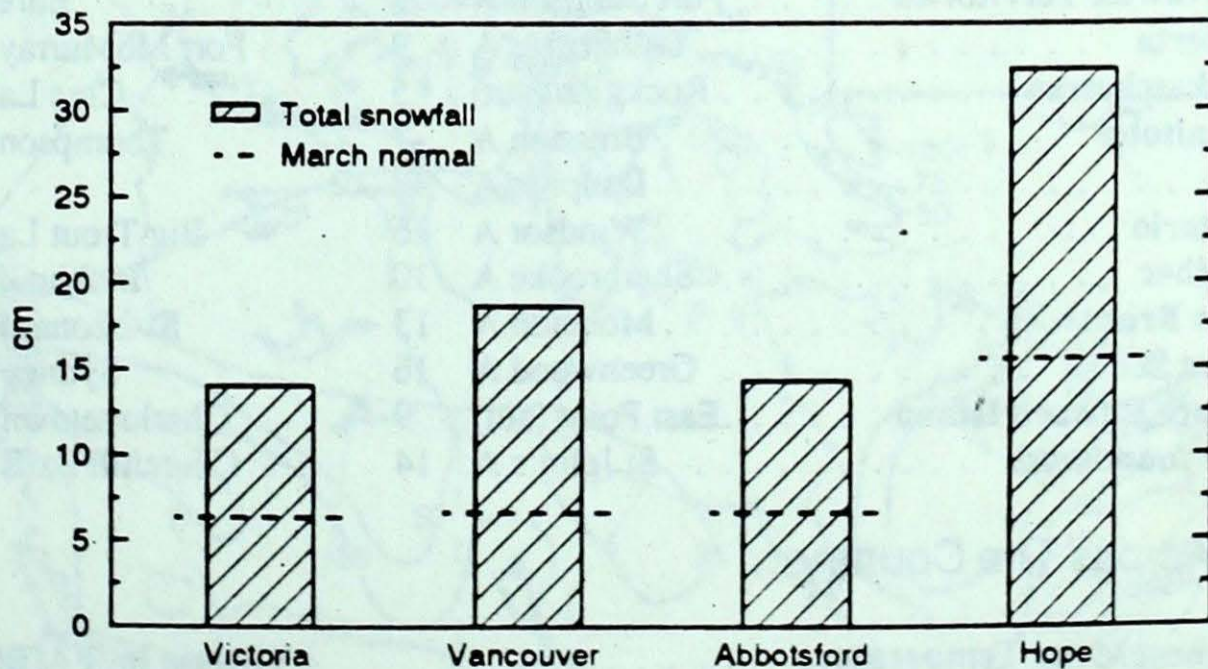
Following two days of record mild weather, a large area of freezing rain developed over the Great Lakes Basin and spread eastwards into Quebec and the Maritimes over the weekend. In Ontario, the freezing rain started on the evening of the 2nd and redeveloped the next day, coating exposed objects with one to two centimetres of ice and ice pellets. In Quebec, the storm began as freezing rain late on March 3, and changed over to snow the next day, while in the Maritimes, residents woke up to a major ice storm that brought down trees and power lines. Freezing rain episodes in eastern Canada are not unusual. On average, freezing precipitation can occur 10 to 20 days of

the year. The mean number of days it occurs during March varies between 1 and 3, but this can be observed more frequently in some areas of Nova Scotia and Newfoundland.

### A look ahead ...

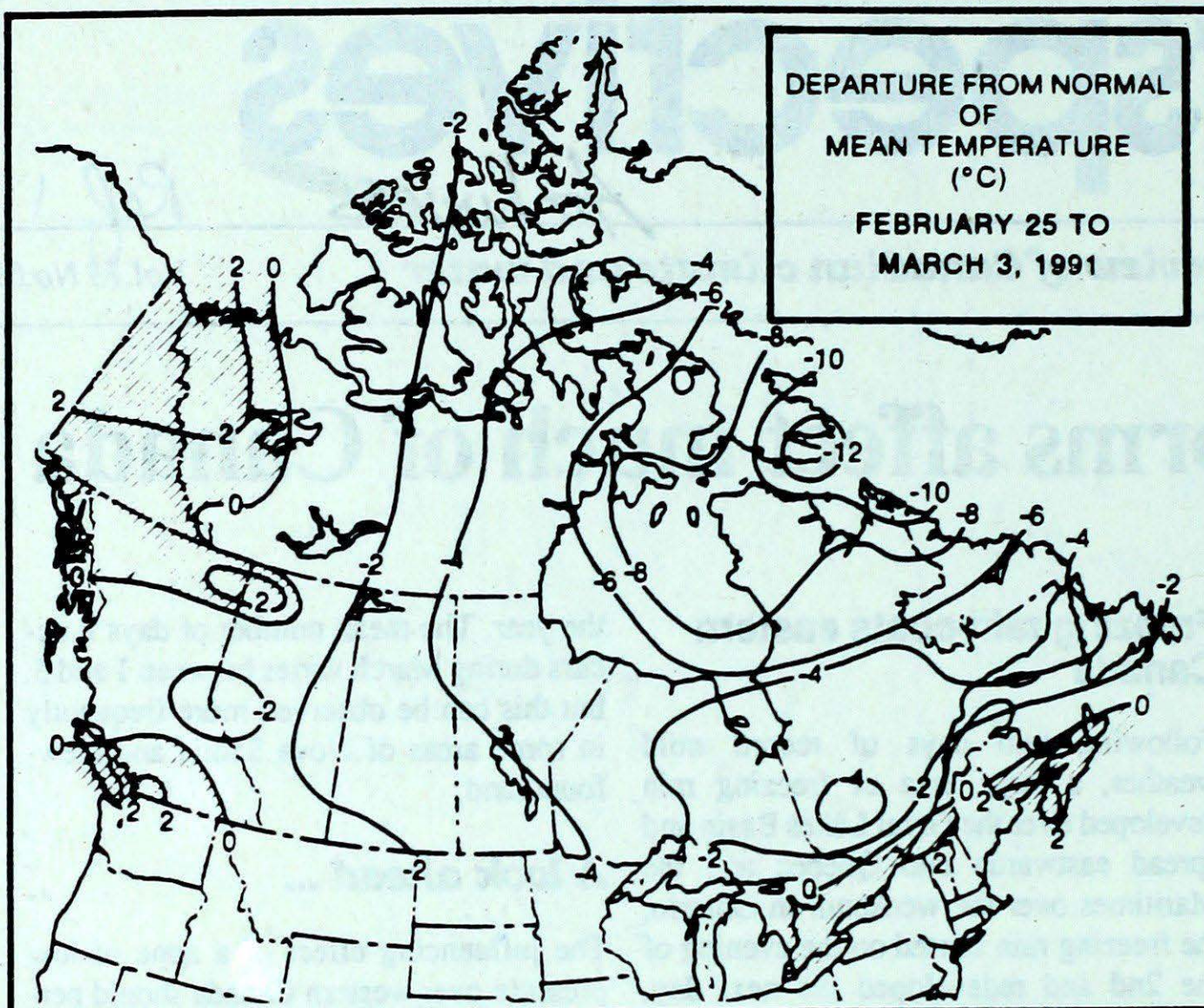
The influencing effect of a zone of low pressure over western Canada should persist for the week of March 11. As a result, cold Arctic air will dictate the temperatures from the Yukon through B.C. and into Saskatchewan. In southern Ontario, Quebec and the Atlantic Provinces the temperatures are expected to be above normal. Manitoba and northwestern Ontario will experience near normal temperatures.

Total snowfall for March 1 - 2, 1991



Snowfalls during the first few days of March on British Columbia's south coast and southern Vancouver Island have exceeded the average snowfall for the month.





**Weekly normal temperatures (°C)**

	max.	min.
Whitehorse A	-6.0	-16.7
Iqaluit A	-20.9	-29.8
Yellowknife A	-17.9	-28.0
Vancouver Int'l A	7.6	0.9
Victoria Int'l A	7.9	0.6
Calgary Int'l A	-2.6	-13.6
Edmonton Int'l A	-5.4	-17.3
Regina A	-7.2	-18.3
Saskatoon A	-8.4	-19.4
Winnipeg Int'l A	-7.5	-18.2
Ottawa Int'l A	-1.7	-10.5
Toronto (Pearson Int'l A)	0.7	-7.6
Montréal Int'l A	-1.5	-10.1
Québec A	-3.1	-12.5
Fredericton A	0.0	-11.5
Saint John A	0.0	-10.2
Halifax (Shearwater)	1.2	-6.6
Charlottetown A	-1.6	-9.5
Goose A	-7.3	-18.5
St John's A	-0.4	-7.2

**Weekly temperature and precipitation extremes**

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Abbotsford A 19	Dease Lake -32	Hope A 59
Yukon Territory	Watson Lake A 6	Watson Lake A -39	Shingle Point A 9
Northwest Territories	Fort Simpson A -2	Eureka -48	Clinton Point 6
Alberta	Lethbridge A 9	Fort McMurray A -37	Edson A 20
Saskatchewan	Rockglen (aut) 5	Cree Lake -42	Moose Jaw A 9
Manitoba	Brandon A -7	Thompson A -42	Brandon A 6
	Dauphin A -7		
Ontario	Windsor A 16	Big Trout Lake -35	Warton A 45
Québec	Sherbrooke A 10	Inukjuak A -41	Sherbrooke A 29
New Brunswick	Moncton A 13	St-Léonard A -26	Saint John A 30
Nova Scotia	Greenwood A 16	Sydney A -18	Sable Island 40
Prince Edward Island	East Point (aut) 9	Charlottetown A -18	Summerside A 9
Newfoundland	St John's A 14	Churchill Falls A -37	Burgeo 49

**Across The Country...**

Highest Mean Temperature	Victoria Int'l A(BC) 6
Lowest Mean Temperature	Eureka(NWT) -42



CLIMATIC PERSPECTIVES  
VOLUME 13

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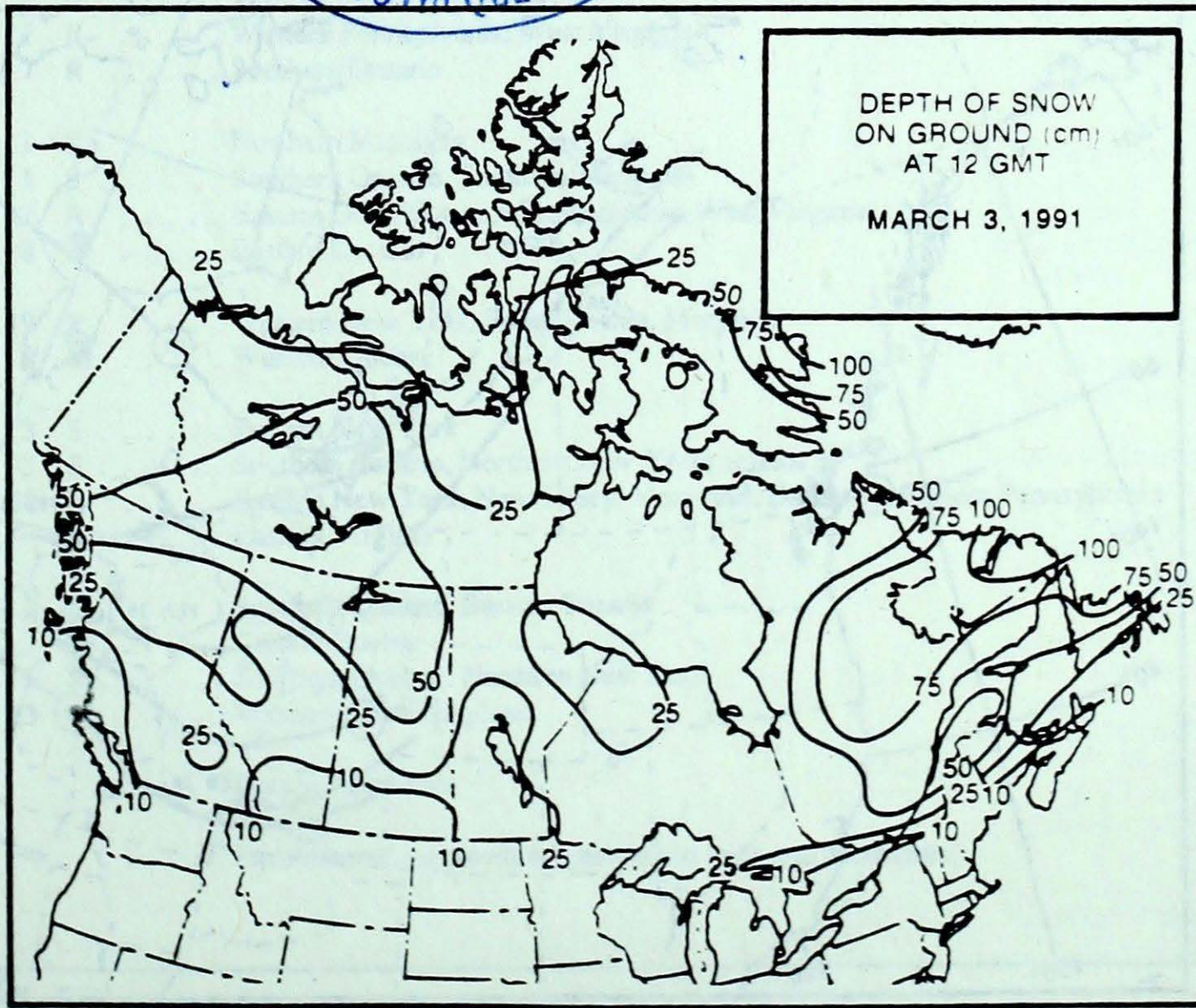
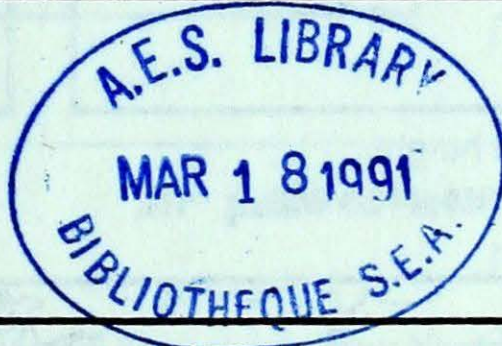
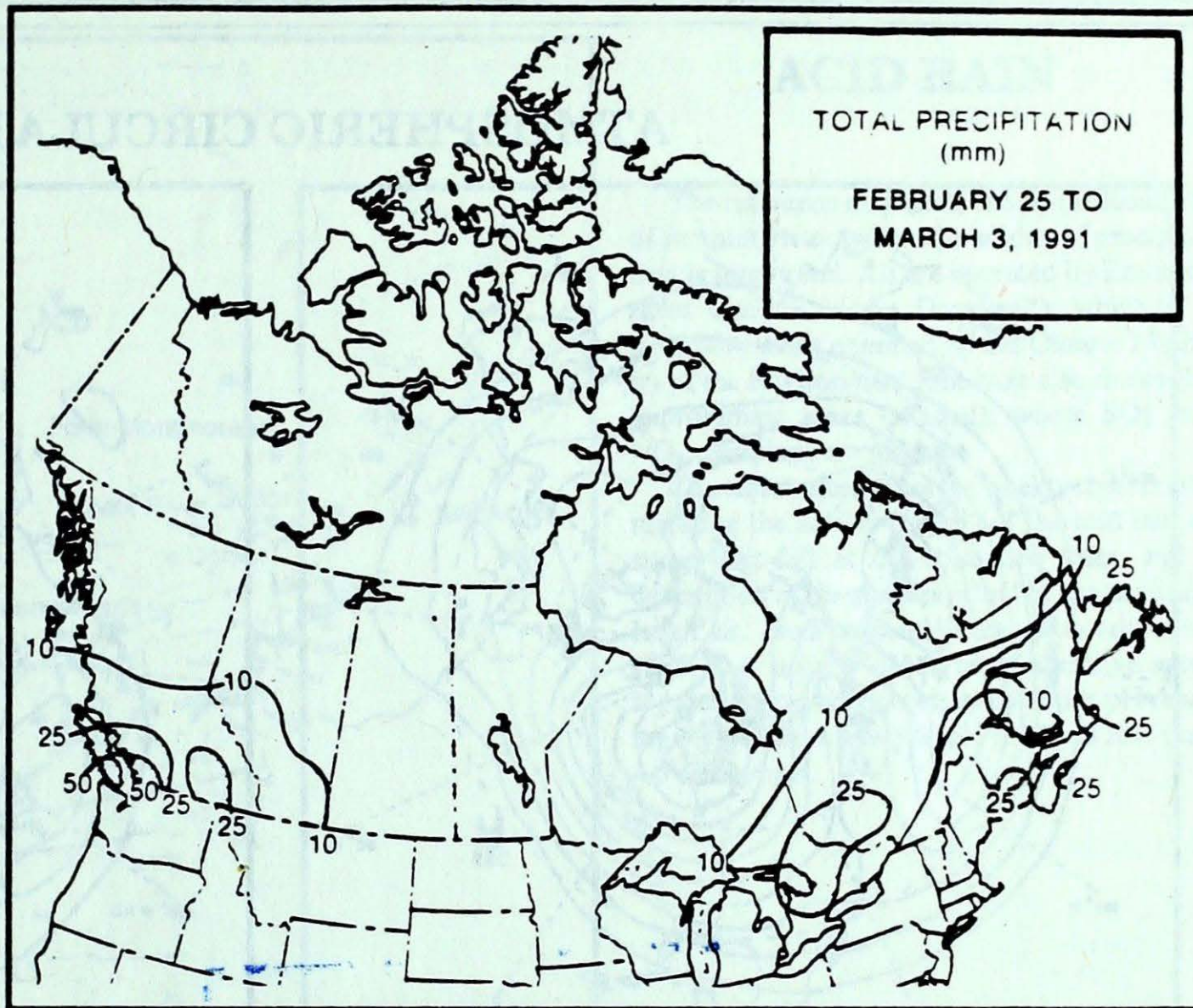
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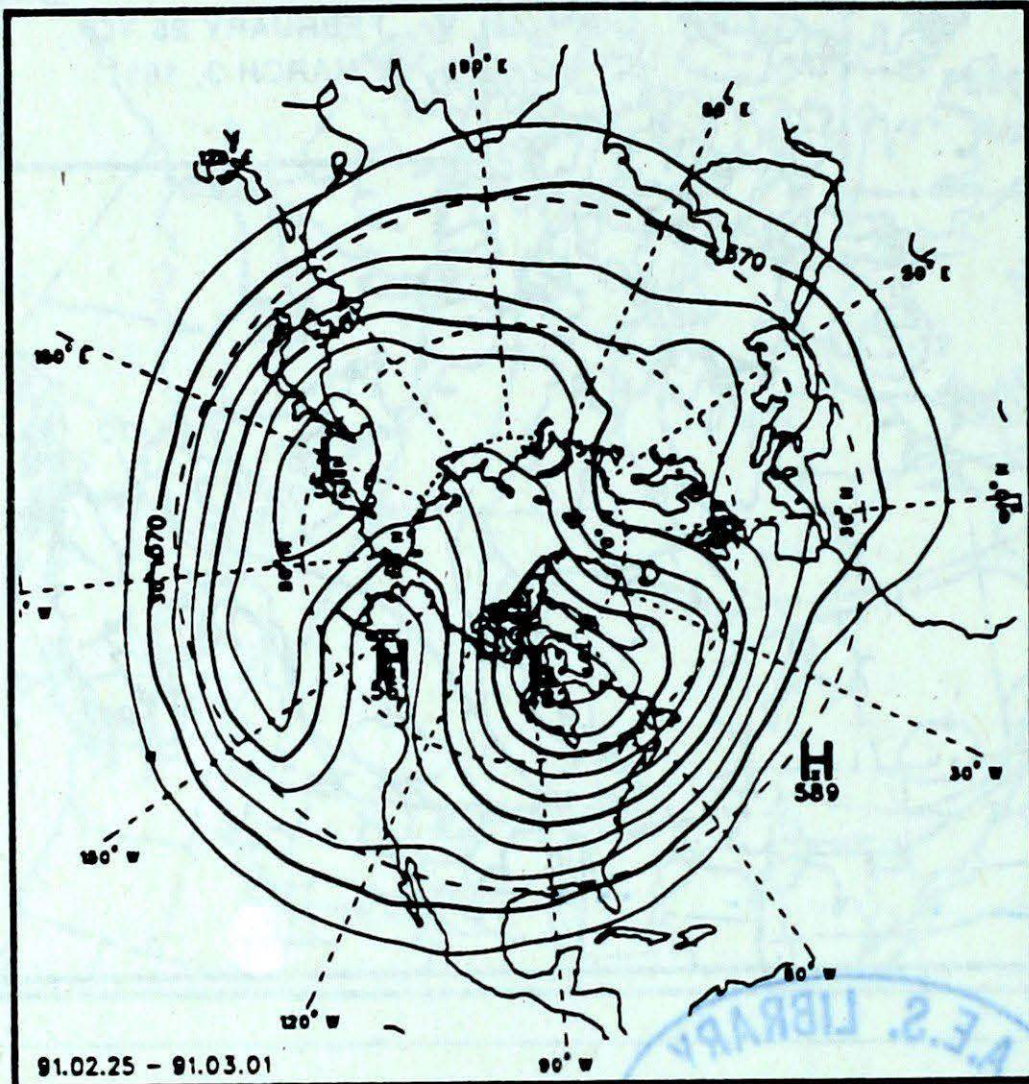
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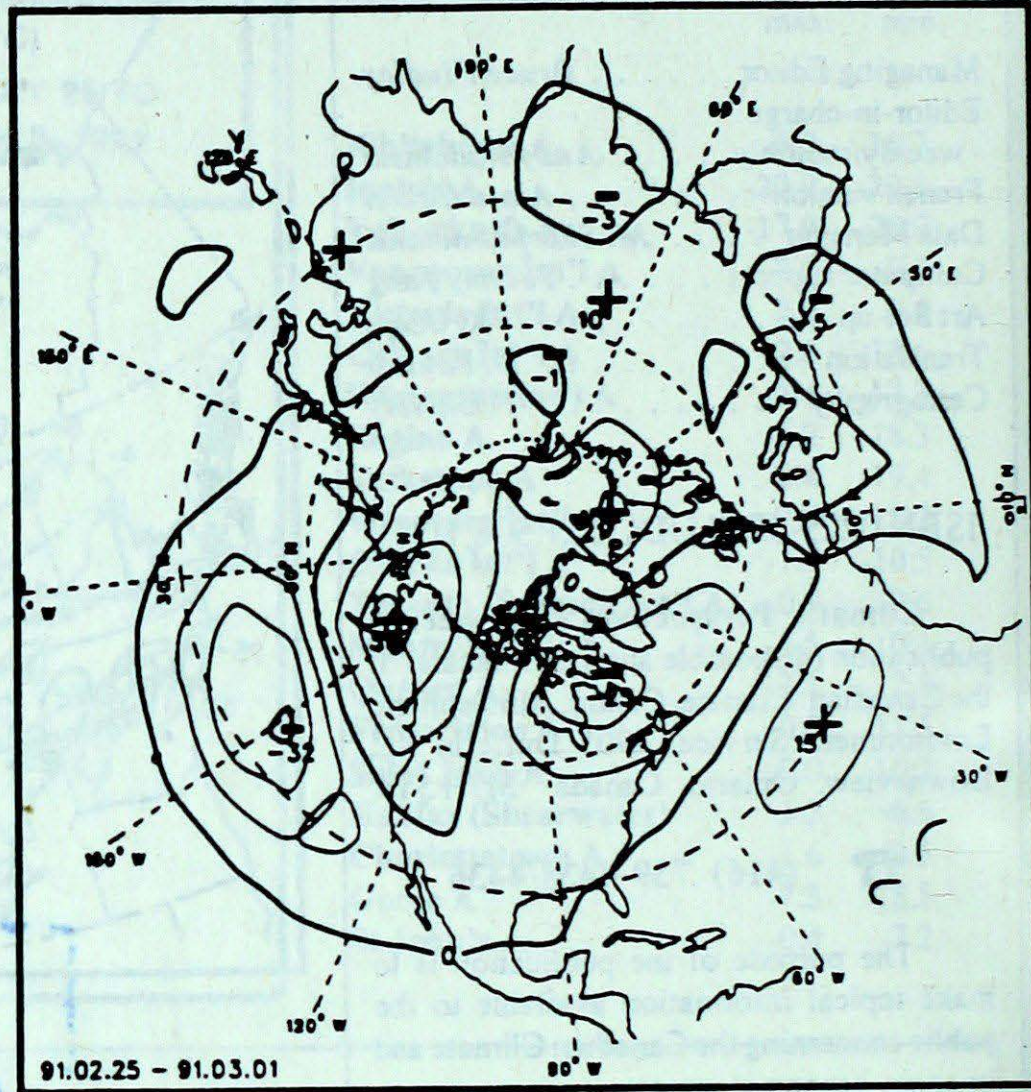




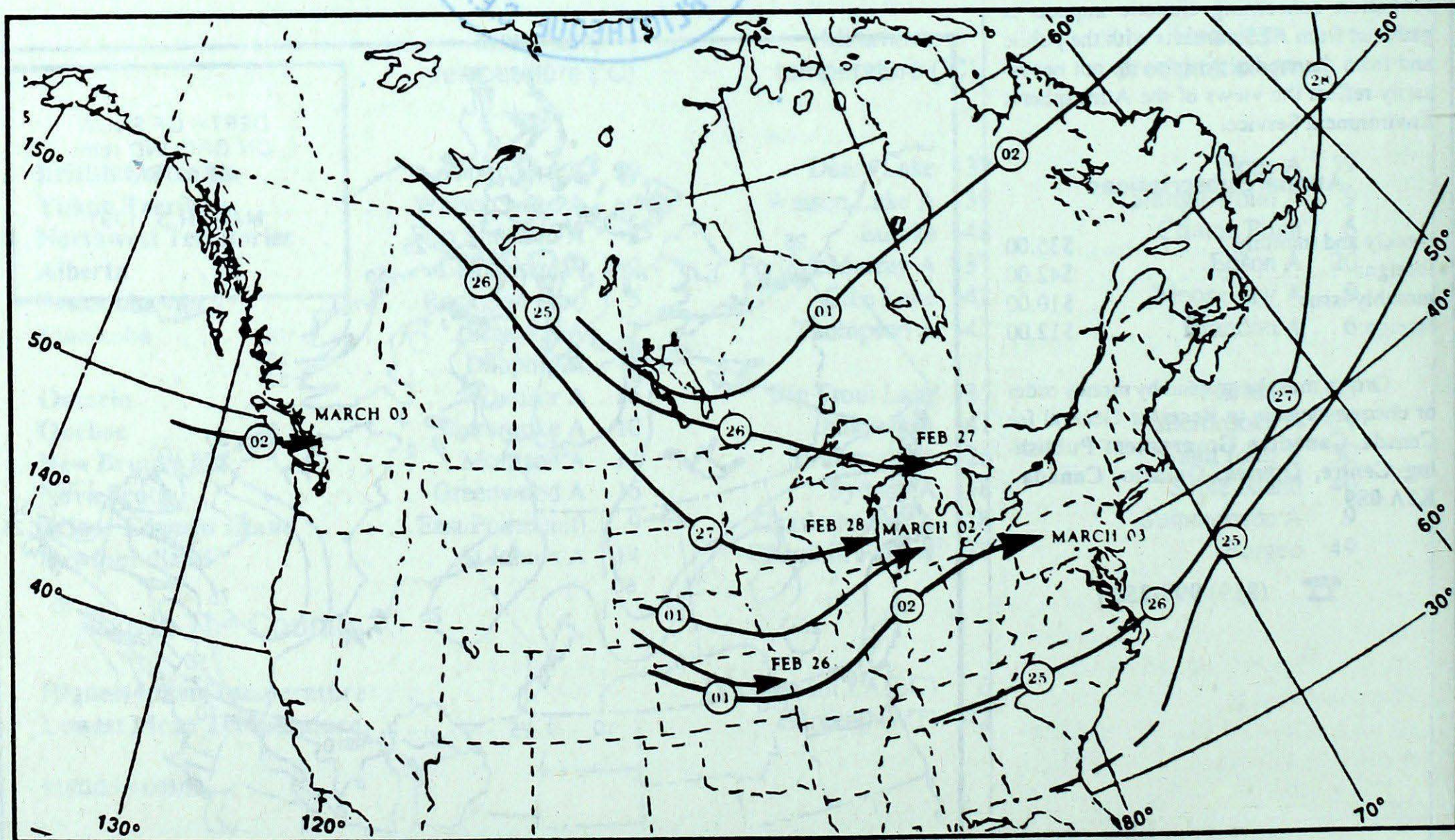
### ATMOSPHERIC CIRCULATION



Mean geopotential height  
50-kPa level (10-decametre intervals)

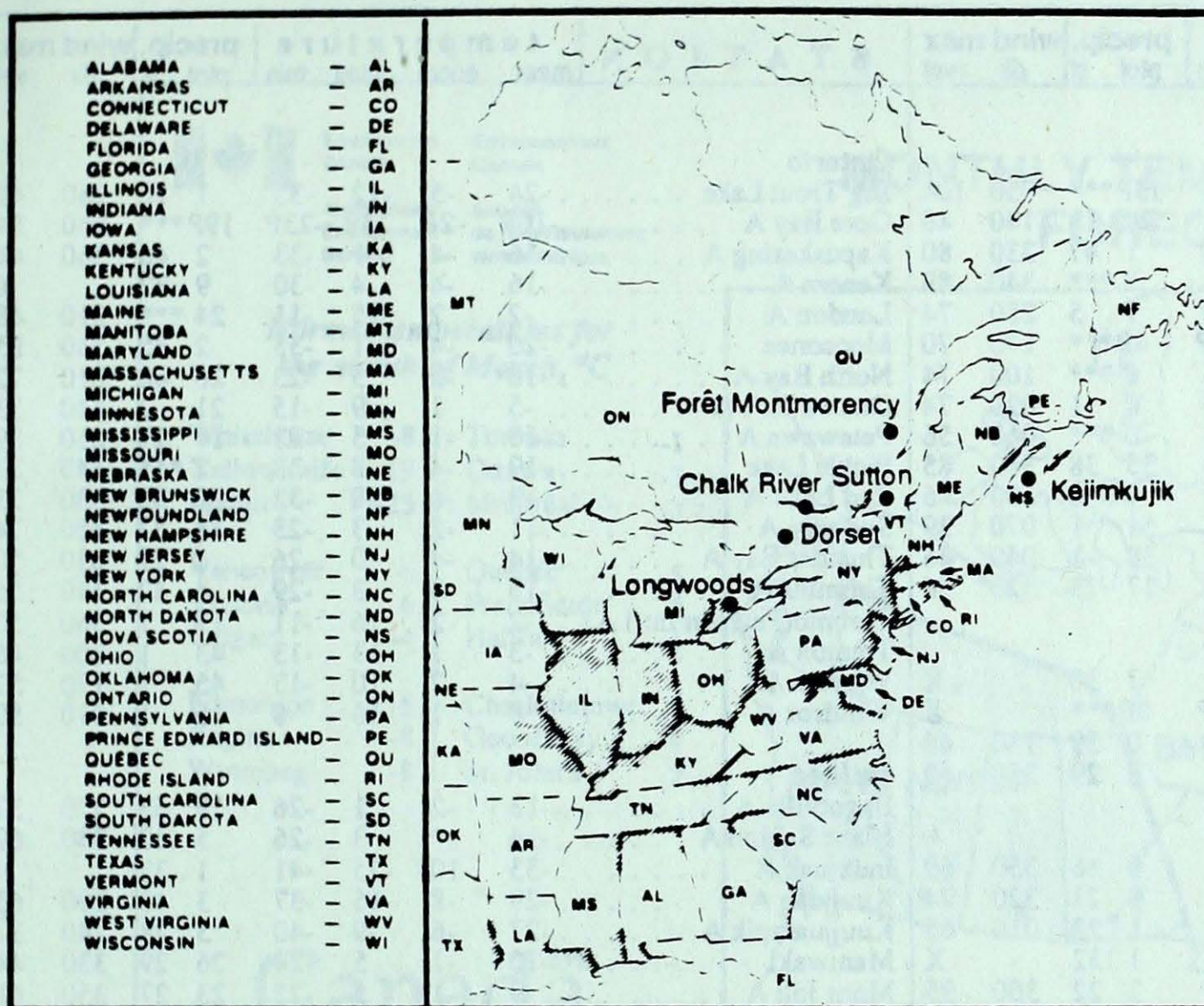


Mean geopotential height anomaly  
50-kPa level (10-decametre intervals)



Tracks of low pressure centres at 12:00 U.T. each day during the period.





## ACID RAIN

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.

Site	day	pH	amount	air path to site
February 24 to March 2, 1991				
Longwoods	01	3.8	11 R	Western Pennsylvania, West Virginia
	02	4.3	7 R	Southern Ontario
Dorset*	27	4.5	1 S	Northern Michigan
	28	3.8	1 S	Southern Ontario, Southern Michigan
	01	4.4	22 R	Eastern Ohio, Western Pennsylvania, West Virginia
	02	4.3	8 R	Eastern Ontario
Chalk River	01	4.3	19 R	Western New York, Pennsylvania, Maryland
	02	4.3	9 M	Western Quebec
Sutton	24	4.2	3 S	Eastern New York
	28	4.1	3 S	Southern Ontario, Northern New York
	2	4.4	20 R	Eastern New York, New Jersey, Maryland, Delaware, Eastern Pennsylvania Eastern Virginia
Montmorency	24	4.2	2 S	Southern Quebec, Eastern Ontario
	26	3.9	1 S	Central Quebec
	01	4.4	5 S	Southern Quebec, Northern New York
	02	4.7	13 M	Vermont, New England
Kejimikujik				Data not available
r=rain(mm), s=snow(cm), m=mixed rain and snow(mm)				



STATION	temperature				precip.		wind max		STATION	temperature				precip.		wind max										
	mean	anom	max	min	ptot	st	dir	vel		mean	anom	max	min	ptot	st	dir	vel									
<b>British Columbia</b>									<b>Ontario</b>																	
Cape St James	3P	-2P	12P	-4P	13P***		050	104	Big Trout Lake	-24	-5	-12	-35	1	10	280	48									
Cranbrook A	-4	-2	9	-15	24	18	140	46	Gore Bay A	-10P	-2P	4P	-23P	19P***		040	54									
Fort Nelson A	-11	3	9	-28	1	47	330	80	Kapuskasing A	-16	-4	1	-33	2	48	360	44									
Fort St John A	-12	-1	9	-28	1	***	340	89	Kenora A	-16	-4	-4	-30	9	32		X									
Kamloops A	-1	0	13	-10	7	5	280	74	London A	-2	2	15	-11	24	***	210	48									
Penticton A	2P	1P	9P	-4P	4P***		170	70	Moosonee	-20	-4	1	-35	2	35	330	63									
Port Hardy A	3	0	11	-3	6	***	100	74	North Bay A	-10	-2	5	-23	26	48	010	72									
Prince George A	-8	-1	8	-19	0	1	020	74	Ottawa Int'l A	-5	1	9	-15	21	2	340	33									
Prince Rupert A	1	-1	11	-8	0	***	060	56	Petawawa A	-10	-1	5	-23	17	27	010	39									
Revelstoke A	-2	-1	8	-9	35	38	340	85	Pickle Lake	-19	-4	-8	-33	2	***	340	33									
Smithers A	-7	-2	1	-19	0	6	190	46	Red Lake A	-19	-6	-8	-32	2	35	330	33									
Vancouver Int'l A	5	1	12	-1	51	1	070	39	Sudbury A	-11	-2	3	-23	38	37	350	74									
Victoria Int'l A	6	2	17	-1	38	1	040	46	Thunder Bay A	-14	-4	0	-26	1	27	030	50									
Williams Lake A	-7	-2	11	-19	17	13	320	56	Timmins A	-15	-3	3	-29	4	42	340	56									
<b>Yukon Territory</b>									<b>Toronto (Pearson Int'l A)</b>																	
Komakuk Beach A	-20	5	-9	-31	7	30		X	Trenton A	-3	1	13	-13	43	1	300	46									
Teslin (aut)	-14P	*	6P	-32P	0P***			X	Warton A	-4	2	10	-13	45	1	170	57									
Watson Lake A	-17	-1	6	-39	0	59	130	46	Windsor A	0	1	16	-8	16	1	010	50									
Whitehorse A	-10	2	5	-26	2	29	350	41	<b>Québec</b>																	
<b>Northwest Territories</b>									Bagotville A																	
Alert	-36	-1	-30	-46	0	16	350	69	Blanc Sablon A	-16	*	3	-26	5	60	330	69									
Baker Lake A	-36	-5	-29	-43	0	21	320	74	Inukjuak A	-33	-10	-25	-41	1	32		X									
Cambridge Bay A	-36	-3	-29	-41	1	23	010	65	Kuujuuaq A	-29	-8	-15	-37	3	40	290	63									
Cape Dyer A	-33	-9	-27	-41	1	132		X	Kuujuuarapik A	-27	-6	-9	-40	3	28	240	37									
Clyde A	-33	-6	-24	-45	2	22	300	95	Maniwaki	-10	-1	5	-24	26	29	330	44									
Coppermine A	-28P	-1P	-17P	-38P	3P	93	340	78	Mont Joli A	-9	-1	5	-22	23	27	350	61									
Coral Harbour A	-37	-10	-31	-45	0	31	340	52	Montréal Int'l A	-5	1	7	-17	17	1	250	37									
Eureka	-42	-3	-30	-48	1	7	300	57	Natashquan A	-14	-5	1	-27	16	82	150	33									
Fort Smith A	-22	-2	-8	-37	3	72	330	52	Québec A	-8	-1	5	-20	18	79	090	69									
Hall Beach A	-36	-5	-28	-43	1	30	340	54	Schefferville A	-26	-7	-4	-37	5	76	310	56									
Inuvik A	-20	5	-2	-34	2	44	330	56	Sept-Îles A	-15	-5	0	-27	11	51	350	44									
Iqaluit A	-39	-13	-32	-45	1	27	310	46	Sherbrooke A	-5	3	10	-23	29	16	260	35									
Mould Bay A	-36	-1	-30	-41	0	19	260	50	Val-d'Or A	-16	-4	2	-30	25	44	360	59									
Norman Wells A	-20	3	-6	-34	2	33	300	48	<b>New Brunswick</b>																	
Resolute A	-36	-3	-28	-43	2	18	340	72	Charlo A	-10	-1	5	-26	16	83	270	33									
Yellowknife A	-24	-1	-12	-37	2	52	340	50	Chatham A	-7	-1	10	-24	20	7	200	44									
<b>Alberta</b>									Fredericton A																	
Calgary Int'l A	-10	-2	8	-24	11	4	360	102	Moncton A	-5	1	13	-17	15	2	210	52									
Cold Lake A	-15	-3	6	-35	2	20	010	54	Saint John A	-3	2	9	-16	30	2	200	83									
Edmonton Namao A	-11	-1	5	-28	10	8	320	74	<b>Nova Scotia</b>																	
Fort McMurray A	-16	-2	4	-37	4	24	350	57	Greenwood A	-3	1	16	-13	13	1	200	72									
High Level A	-17	2	2	-35	4	52	020	52	Shearwater A	-2	0	10	-11	36	***	210	74									
Jasper	-10	-2	7	-23	12	23		X	Sydney A	-6	-1	11	-18	33	***	240	80									
Lethbridge A	-8	-2	9	-24	16	10	350	93	Yarmouth A	0	2	10	-7	13	***	200	74									
Medicine Hat A	-8	0	7	-21	11	10	010	59	<b>Prince Edward Island</b>																	
Peace River A	-14	-1	5	-32	4	10	010	69	Charlottetown A	-6	-1	9	-18	6	8	190	65									
<b>Saskatchewan</b>									Summerside A																	
Cree Lake	-21	-1	-8	-42	1	51	330	46	-6	-1	9	-18	9	17	170	54										
Estevan A	-12	-1	3	-23	4	7	320	39	<b>Newfoundland</b>																	
La Ronge A	-20	-4	-7	-38	3	52	320	43	Cartwright	-17	-5	-2	-27	9	222	340	82									
Regina A	-14	-1	-1	-27	6	8	350	50	Churchill Falls A	-22	-4	-2	-37	7	98	300	63									
Saskatoon A	-16	-2	-3	-29	4	5	350	41	Gander Int'l A	-9	-4	7	-18	40	57	340	65									
Swift Current A	-11	-1	1	-27	9	15	010	52	Goose A	-18	-5	-1	-30	6	101	330	61									
Yorkton A	-18	-4	-4	-31	8	28	160	35	Port Aux Basques	-8	-3	5	-17	33	48	320	69									
<b>Manitoba</b>									St John's A																	
Brandon A	-17	-3	-7	-32	6	26		X	-4	0	14	-14	25	7	240	63										
Churchill A	-29	-4	-19	-37	0	19	320	46	St Lawrence	-6	-3	6	-15	48	***		X									
Lynn Lake A	-25	-5	-13	-40	1	36	320	33	Wabush Lake A	-23	-4	-2	-36	5	73	220	32									
The Pas A	-20	-4	-9	-34	1	12	310	43	91/02/25-91/03/03																	
Thompson A	-25	-6	-10	-42	1	67	260	39	— Annotations —																	
Winnipeg Int'l A	-17	-4	-8	-30	4	14	170	39	X = no observation																	
mean = mean weekly temperature, °C									ptot = weekly precipitation total in mm									P = less than 7 days of data								
max = maximum weekly temperature, °C									st = snow thickness on the ground in cm									* = missing data when going to printing.								
min = minimum weekly temperature, °C									dir = direction of max wind, deg. from north.																	
anom = mean temperature anomaly, °C									vel = wind speed in km/h																	

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 X = no observation  
 P = less than 7 days of data  
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Canada

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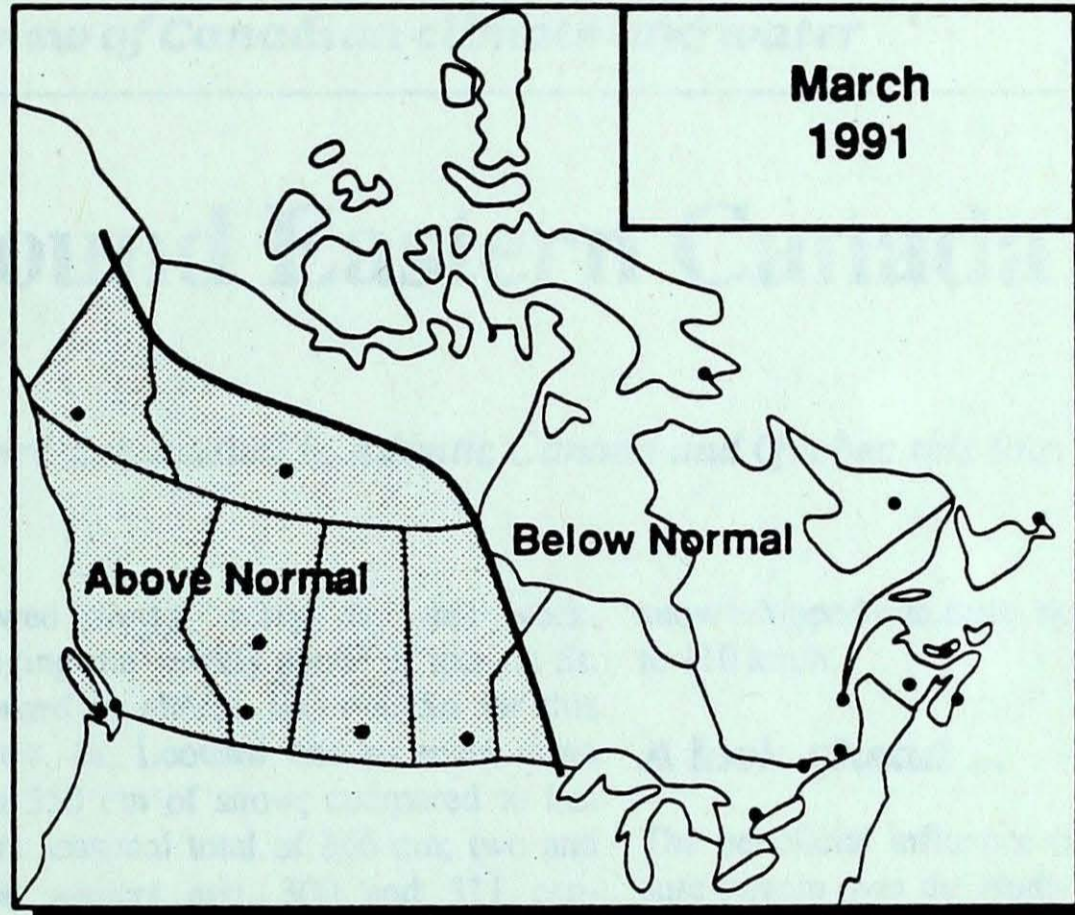
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## MONTHLY TEMPERATURE FORECAST

### Normal temperatures for the month of March, °C

Whitehorse	-8	Toronto	-1
Yellowknife	-19	Ottawa	-3
Iqaluit	-23	Montréal	-3
Vancouver	6	Québec	-5
Victoria	6	Fredericton	-2
Calgary	-4	Halifax	-1
Edmonton	-6	Charlottetown	-3
Regina	-8	Goose Bay	-9
Winnipeg	-8	St. John's	-2



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