

# Climatic Perspectives

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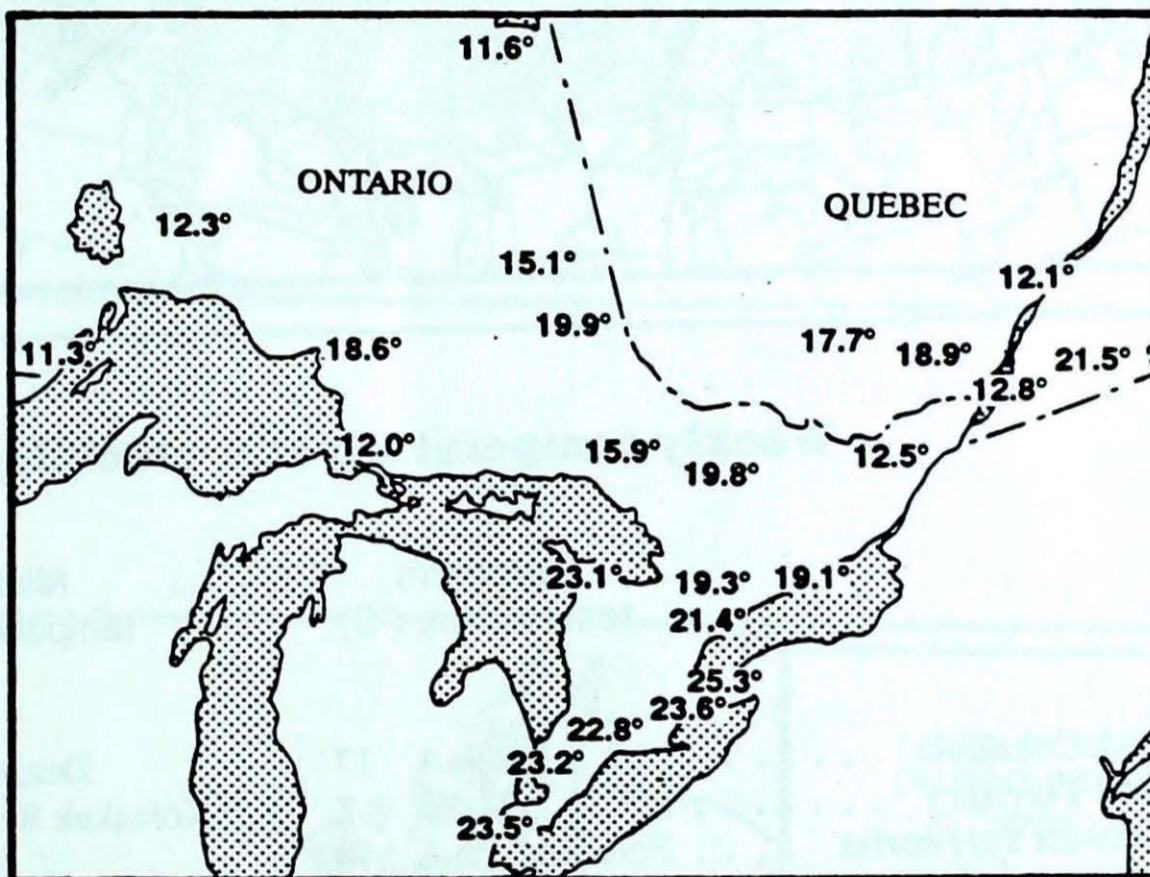
March 12 to 18, 1990

A weekly review of Canadian climate

## Unusual March warmth causes flooding in Ontario and Quebec

A southerly flow of moist, warm air arrived in Ontario and Quebec giving a brief taste of summer-like weather. Record-high temperatures in southern Ontario reached the mid-twenties and in the north, were well into the teens. It was the earliest on record in the year that temperatures have exceeded 20°C. In southern Quebec, many maximum temperature records were also broken. A combination of the warm weather, rainshowers, quickly-melting snow cover and ice-jams created flooding conditions. In central Ontario flooding occurred especially where the swollen rivers empty into ice-covered lakes which restrict the rivers' flows. The area of most flood damage was along Beaverton and Pefferlaw Creeks where they empty into Lake Simcoe. Preliminary estimates indicate damage to boats, boathouses, homes and businesses at about \$1 million. Flooding occurred along the Nottawasaga River near Angus, the Pine River and along rivers and creeks in the Cobourg and Colborne regions. Other rivers in central Ontario came close to but did not flood their banks. In eastern Ontario there are currently high flows on the Rideau, Mississippi and Moira Rivers. Northeastern Ontario's snowpack is approximately 200% of normal and there is the potential for flooding.

In Sainte-Monique, southern Quebec, the bridge spanning the Nicolet River was carried away by the ice, and the bridge at Kingsey Falls was damaged and closed to



Record warmth contributes to rapid snow melt, run-off and flooding

traffic. Seventy-eight dairy cattle drowned in Saint-Christophe. Most of the ski centres in the Eastern Townships have closed due to lack of snow. The warm weather has had an adverse effect on some of the maple sugar operations: in areas where the maximum temperatures reached 20°C, buds began to burst which caused the syrup to take on the unpleasant taste of the buds, and will render the syrup unsalable.

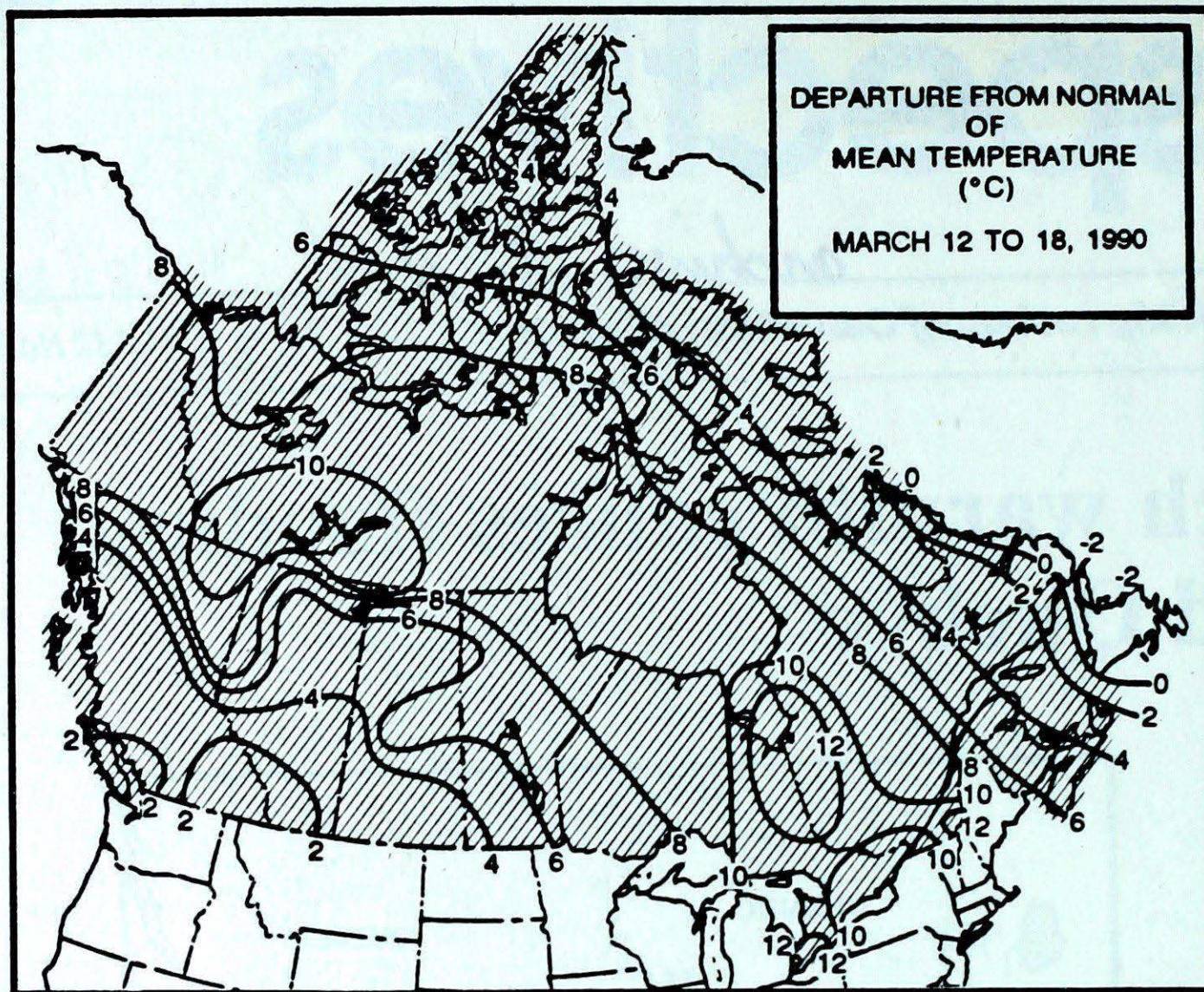
### Mountain snowpack in British Columbia

The British Columbia Ministry of Environment, Water Management Branch, re-

ports as of March 1st, that in all-probability, this year's melting of the mountain snowpack will produce above-normal peak flows on the Fraser, Thompson, Columbia, Peace and Liard Rivers, while a below-normal water supply is expected in the Okanagan, Kettle and Nicola basins.

### Wintry weather to revisit...

A flow from the High Arctic will bring well-below-normal temperatures from the Prairies to Atlantic Canada for the week starting March 26. British Columbia and the Yukon, however, will have above-normal readings.



**Weekly normal  
temperatures (°C)**

	max.	min.
Whitehorse A	-2.7	-14.7
Iqaluit A	-19.3	-28.6
Yellowknife A	-13.5	-25.0
Vancouver Int'l A	9.4	2.4
Victoria Int'l A	9.6	1.8
Calgary Int'l A	2.4	-9.0
Edmonton Int'l A	-0.4	-11.6
Regina A	-2.2	-12.8
Saskatoon A	-2.9	-13.7
Winnipeg Int'l A	-2.9	-13.6
Ottawa Int'l A	0.8	-7.6
Toronto (Pearson Int'l A)	2.8	-5.3
Montréal Int'l A	0.9	-7.2
Québec A	-0.6	-10.0
Fredericton A	1.6	-8.2
Saint John A	1.3	-7.6
Halifax (Shearwater)	2.2	-5.2
Charlottetown A	-0.1	-7.3
Goose A	-4.0	-15.1
St John's A	0.4	-6.4

**Weekly temperature and precipitation extremes**

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Hope A 17	Dease Lake -16	Estevan Point (aut) 86
Yukon Territory	Teslin 8	Komakuk Beach A -33	Shingle Point A 2
Northwest Territories	Fort Simpson A 10	Eureka -44	Pelly Bay 12
Alberta	Fort McMurray A 14	High Level A -23	Lethbridge A 18
Saskatchewan	Cree Lake 9	Uranium City -23	Estevan A 37
Manitoba	Gretna (aut) 6	Lynn Lake A -21	Portage La Prairie A 48
Ontario	St. Catharines 25	Big Trout Lake -19	Red Lake A 44
Québec	Sherbrooke A 22	Schefferville A -35	Chibougamau-Chapais A 28
New Brunswick	Moncton A 15	Chatham A -11	St-Léonard A 24
Nova Scotia	Greenwood A 18	Sydney A -11	Truro 24
Prince Edward Island	Charlottetown A 11	Charlottetown A -11	Charlottetown A 17
Newfoundland	St John's A 13	Wabush Lake A -33	Stephenville A 39

**Across The Country...**

Highest Mean Temperature	Windsor A(ONT) 13
Lowest Mean Temperature	Eureka(NWT) -35

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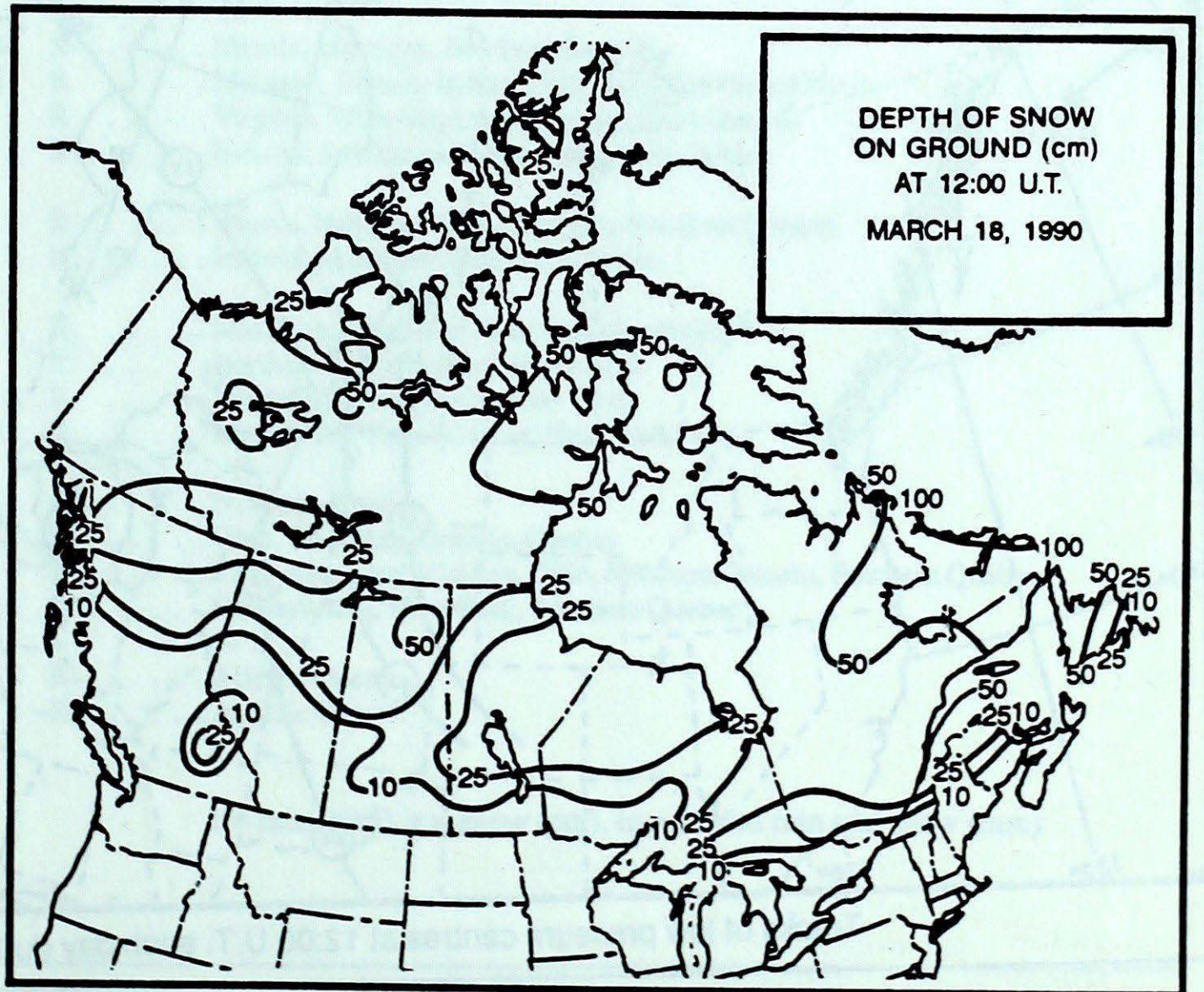
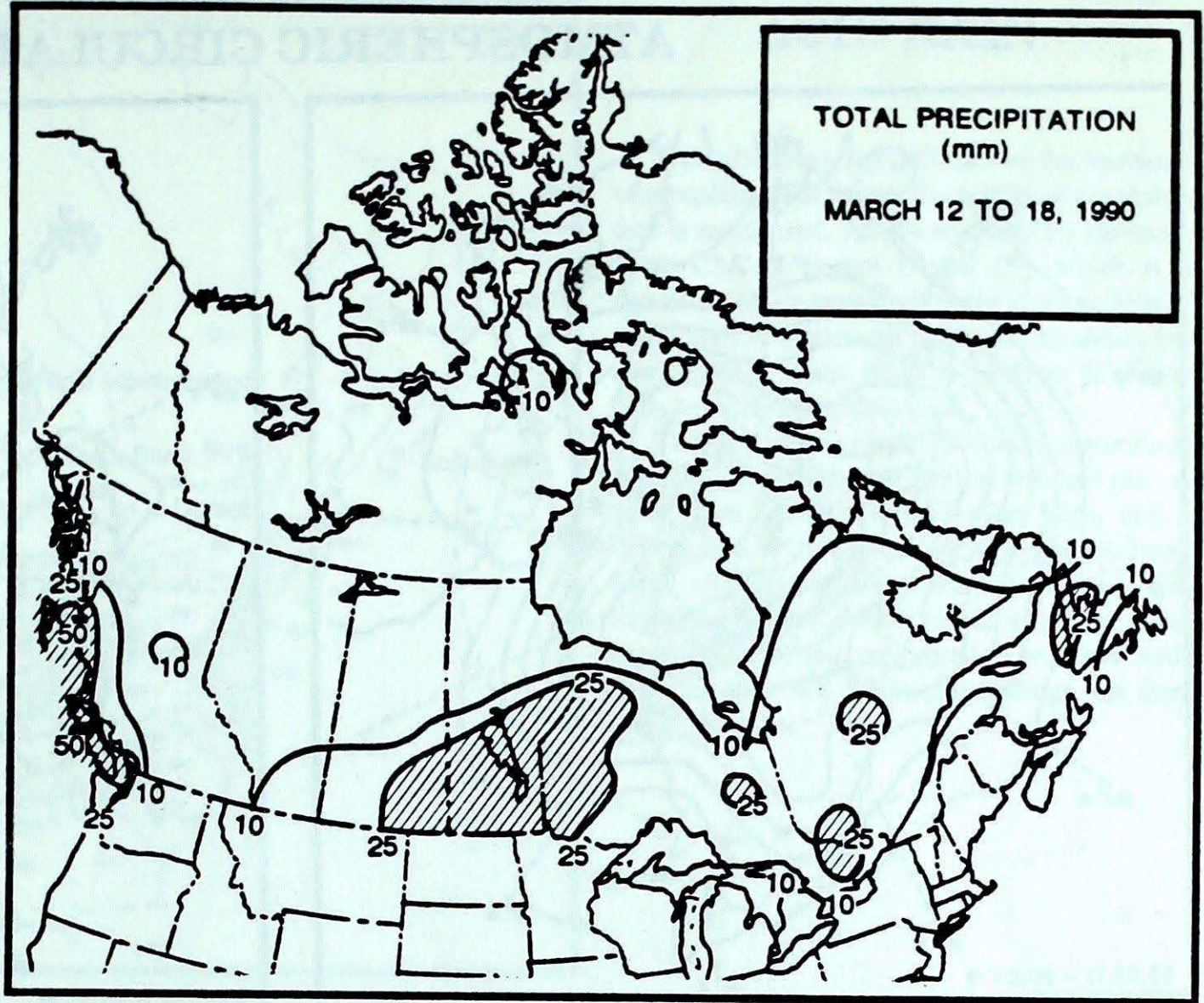
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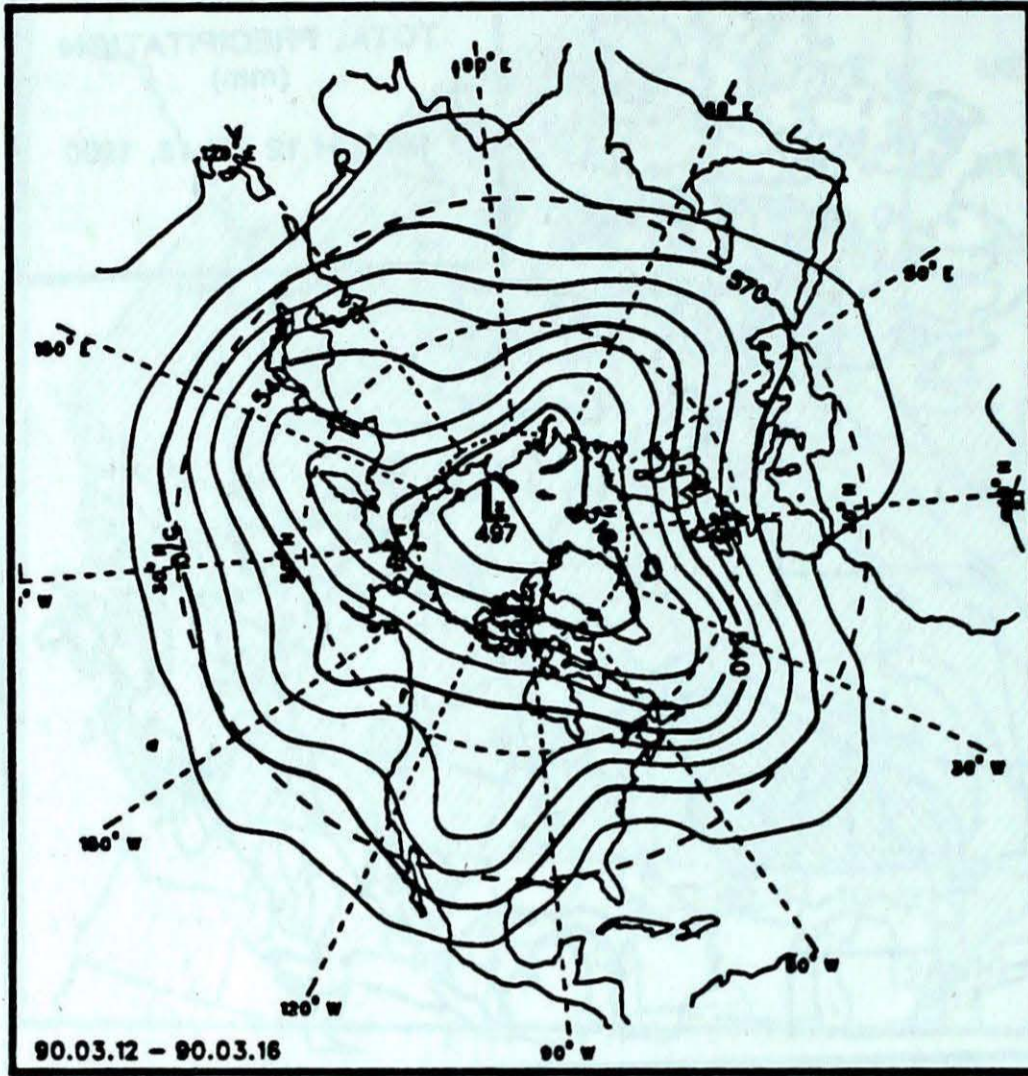
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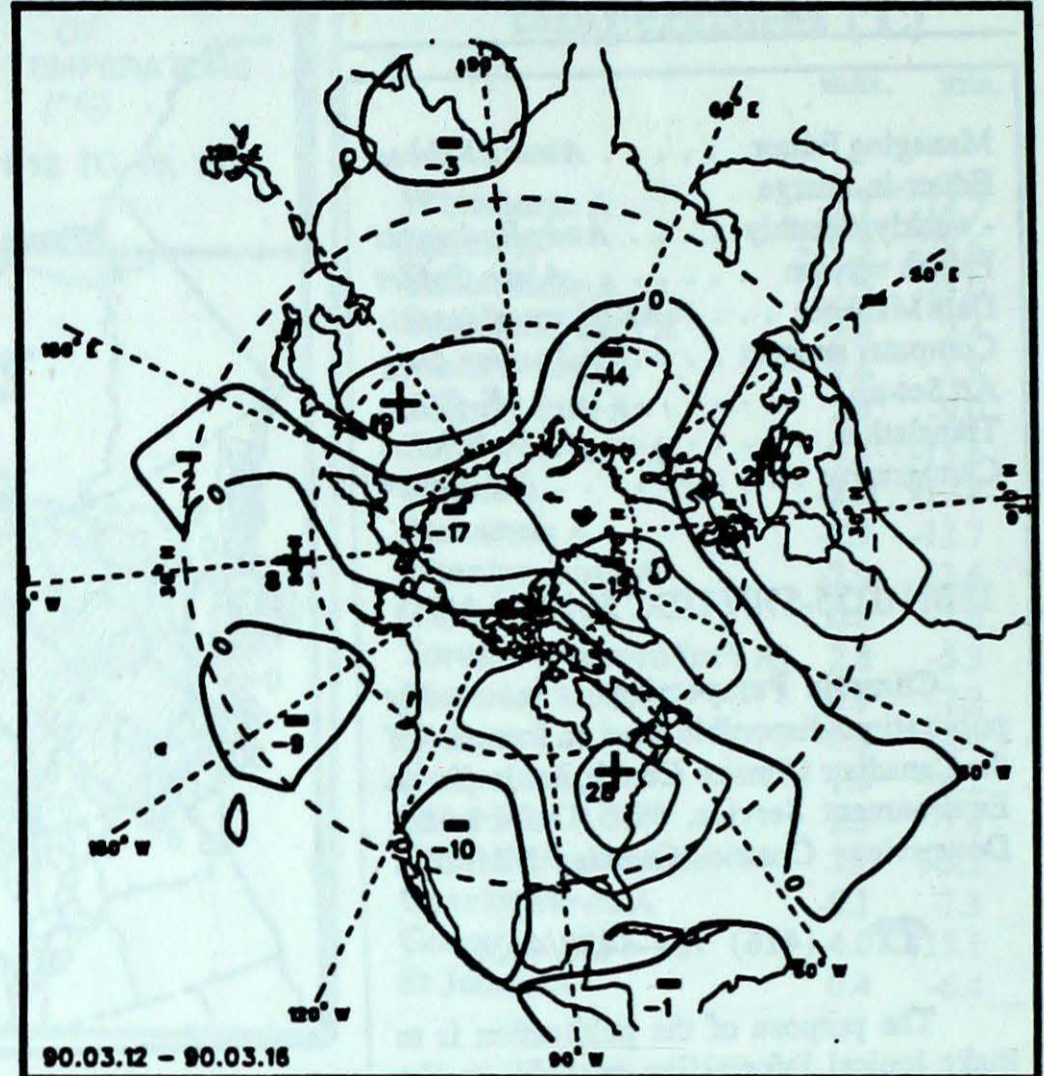
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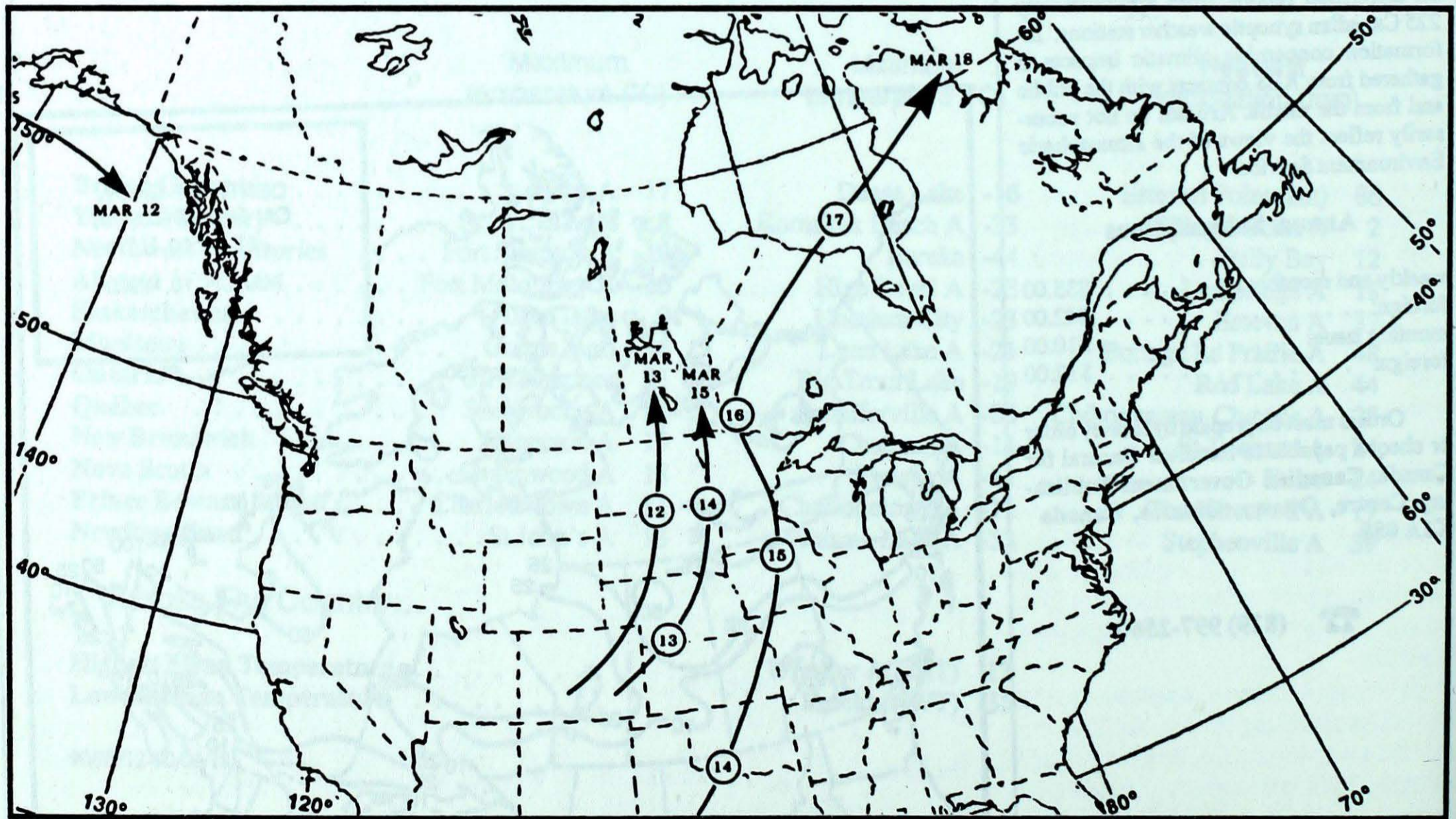
### ATMOSPHERIC CIRCULATION



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



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

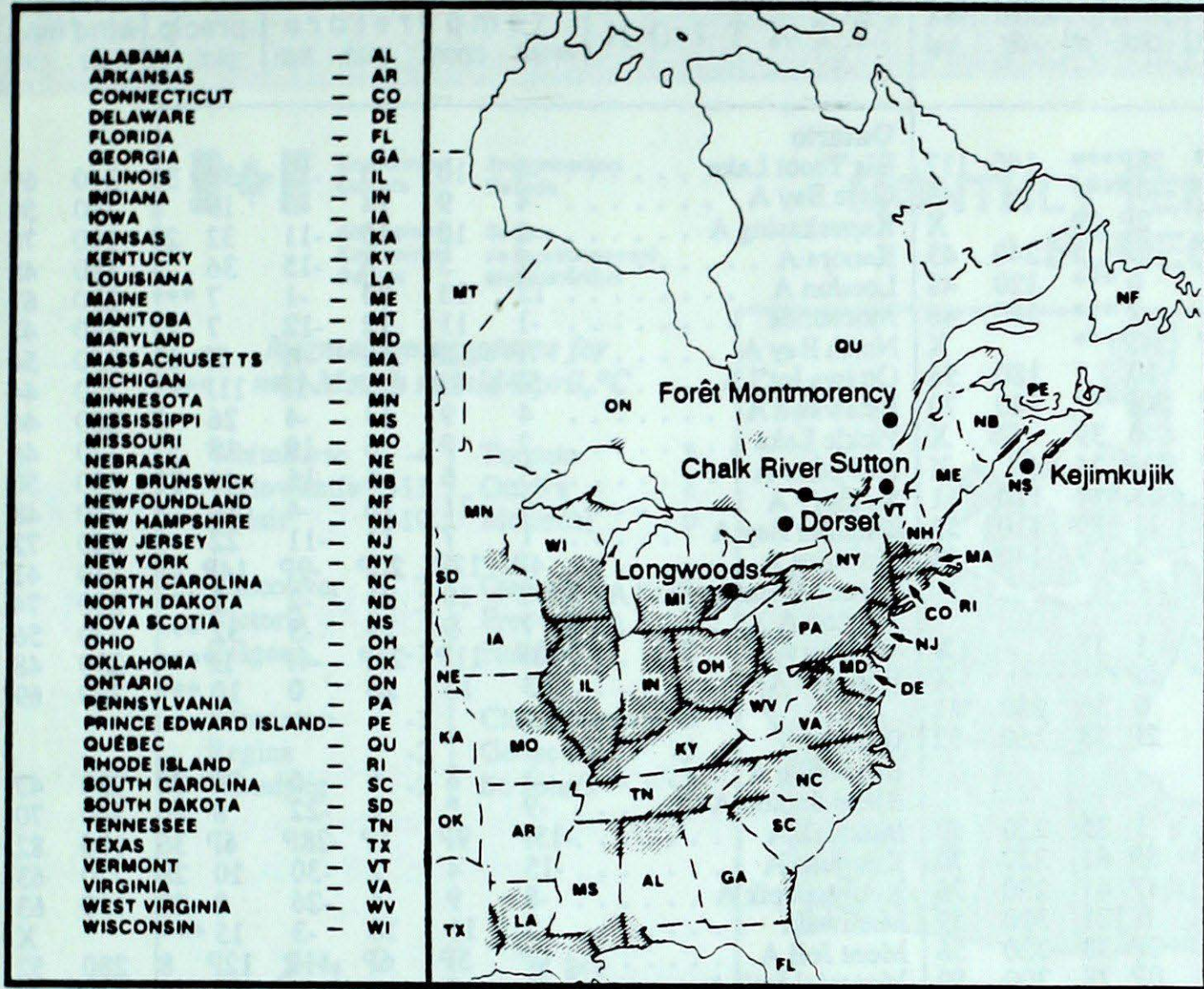


Tracks of low pressure centres at 12:00 U.T. each day during the period.

### 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	From March 11 to 17, 1990
Longwoods	11	3.7	2 R	Illinois, Indiana, Ohio, Southern Ontario	
	16	4.1	5 R	Virginia, West Virginia, Ohio	
Dorset	11	4.8	14 R	Illinois, Michigan, Southern Ontario	
	12	4.6	11 R	Missouri, Illinois, Indiana, Michigan, Southern Ontario	
	16	4.0	1 R	Virginia, West Virginia, Ohio, Southern Ontario	
	17	4.4	1 S	Indiana, Southern Michigan, Southern Ontario	
Chalk River	12	4.5	6 R	Illinois, Indiana, Ohio, Michigan, Southern Ontario	
	14	4.1	6 R	Indiana, Michigan, Southern Ontario	
Sutton	12	4.1	8 R	Michigan, Southern Ontario, Southern Quebec	
	13	3.8	1 R	Northwestern and Southern Quebec	
	16	3.9	4 R	Virginia, Pennsylvania, New York	
	17	4.1	15 R	New Jersey, Pennsylvania, New York	
Montmorency	12	4.5	1 S	Northern Quebec	
	14	4.4	19 R	Ohio, Michigan, Ontario, Quebec	
	16	4.2	9 R	Kentucky, West Virginia, Ohio, Southern Ontario, Southern Quebec	
	17	4.1	13 R	Pennsylvania, New York, Southern Quebec	
Kejimikujik	14	4.1	18 R	Atlantic Ocean	
	17	4.5	2 R	Atlantic Ocean	

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	7P	2P	10P	5P	28P***		140	117	Big Trout Lake	-4	10	3	-19	33	36	310	69							
Cranbrook A	3P	2P	11P	-5P	0P***			X	Gore Bay A	4	9	14	-5	19	8	190	50							
Fort Nelson A	0P	11P	11P	-10P	2P	29		X	Kapuskasing A	2	12	15	-11	32	20	180	70							
Fort St John A	3P	10P	12P	-4P	0P	5	240	43	Kenora A	-2	5	6	-15	36	5	180	48							
Kamloops A	6	3	16	-6	0	***	120	48	London A	12	13	23	-1	7	***	230	67							
Penticton A	5	1	13	-6	2	***	180	46	Moosonee	-1	11	12	-12	7	21	180	41							
Port Hardy A	7P	2P	14P	-2P	24P***			X	North Bay A	7P	12P	20P	-4P	5P	19	250	54							
Prince George A	2	3	8	-7	10	1	180	56	Ottawa Int'l A	5P	8P	13P	-1P	11P***		250	44							
Prince Rupert A	6P	3P	11P	3P	80P***		140	70	Petawawa A	4	9	13	-4	26	2	260	44							
Revelstoke A	3	1	12	-7	0	39		X	Pickle Lake	-2	9	6	-18	15	37	170	46							
Smithers A	2P	3P	7P	-6P	11P	24		X	Red Lake A	-3	6	6	-16	44	21	320	50							
Vancouver Int'l A	7	1	14	-1	33	***	120	61	Sudbury A	4	11	16	-4	19	8	240	48							
Victoria Int'l A	7	1	13	-2	11	***	110	52	Thunder Bay A	1	7	11	-11	22	1	220	72							
Williams Lake A	2	3	12	-14	2	9	140	48	Timmins A	4P	12P	20P	-9P	14P	43	230	41							
<b>Yukon Territory</b>								<b>Quebec</b>																
Komakuk Beach A	-19	8	1	-33	1	31		X	Bagotville A	1	8	6	-6	19	20	280	43							
Teslin (aut)	-2P	*	6P	-12P	0P***			X	Blanc Sablon A	-9	*	2	-22	8	80	340	70							
Watson Lake A	-2	9	7	-17	0	58	250	41	Inukjuak A	-13P	9P	1P	-28P	6P	36	100	82							
Whitehorse A	-1P	8P	7P	-13P	2P	38	160	52	Kuujuuaq A	-15	4	2	-30	10	28	270	63							
<b>Northwest Territories</b>								<b>New Brunswick</b>																
Alert	-28	5	-16	-37	3	35	220	69	Charlo A	-1	5	8	-9	***	27	270	44							
Baker Lake A	-20P	8P	-7P	-32P	6P	61	320	70	Chatham A	1	5	10	-11	16	35	260	44							
Cambridge Bay A	-24P	8P	-11P	-35P	6P	41	290	76	Fredericton A	3	6	11	-5	17	4	210	37							
Cape Dyer A	-21	2	-13	-27	0	121	310	59	Moncton A	2P	6P	15P	-8P	18P	5	240	56							
Clyde A	-24P	3P	-15P	-39P	2P	38	320	56	Saint John A	2	5	11	-3	23	***	210	56							
Coppermine A	-20P	10P	-5P	-30P	0P	78	300	59	<b>Nova Scotia</b>															
Coral Harbour A	-21	5	-9	-33	0	50	010	74	Greenwood A	5	6	18	-4	22	1	230	65							
Eureka	-35	2	-19	-44	0	14	150	57	Shearwater A	2	4	11	-6	22	***	220	61							
Fort Smith A	-4P	11P	10P	-20P	0P	51	290	37	Sydney A	-2	2	12	-11	2	5	210	41							
Hall Beach A	-25	6	-13	-33	5	44	340	41	Yarmouth A	4	5	11	-1	18	***	210	70							
Inuvik A	-17	9	2	-32	2	50	320	46	<b>Prince Edward Island</b>															
Iqaluit A	-21P	3P	-11P	-31P	4P	25	330	52	Charlottetown A	-1P	3P	11P	-11P	17P	5	240	63							
Mould Bay A	-28	5	-16	-36	2	28	260	48	Summerside A	-1	3	8	-10	14	31	210	57							
Norman Wells A	-14P	7P	5P	-26P	1P	10	300	41	<b>Newfoundland</b>															
Resolute A	-27	5	-20	-34	2	27	120	63	Cartwright	-10	-1	5	-22	8	232	330	69							
Yellowknife A	-9P	11P	0P	-19P	1P	40	350	50	Churchill Falls A	-10	4	4	-28	10	85	290	56							
<b>Alberta</b>								<b>90/03/12-90/03/18</b>																
Calgary Int'l A	0P	3P	13P	-10P	3P***		350	56	Gander Int'l A	-6	-2	9	-17	20	25	330	56							
Cold Lake A	-2	5	10	-13	5	12	350	33	Goose A	-8	2	7	-22	4	80	290	44							
Edmonton Namao A	0	5	9	-11	1	1	350	39	Port Aux Basques	-5	-2	5	-15	21	56	260	82							
Fort McMurray A	-1	7	14	-19	0	33		X	St John's A	-4	-1	13	-13	5	1	240	89							
High Level A	-5	5	10	-23	0	38		X	St Lawrence	-4	-2	6	-13	5	4		X							
Jasper	1	3	11	-13	0	14		X	Wabush Lake A	-10	6	3	-33	9	35	240	46							
Lethbridge A	0P	2P	12P	-7P	18P	4	270	83																
Medicine Hat A	-3	0	9	-15	16	1	320	46																
Peace River A	0	8	9	-17	0	1	280	37																
<b>Saskatchewan</b>																								
Cree Lake	-8	4	9	-24	0	36	210	46																
Estevan A	-3	3	4	-12	37	4	320	78																
La Ronge A	-5	4	7	-20	2	44	320	50																
Regina A	-2	5	4	-11	27	9	340	63																
Saskatoon A	-1	7	7	-9	1	***	320	44																
Swift Current A	-4	1	3	-16	20	12	320	48																
Yorkton A	-3	6	5	-16	28	28	330	78																
<b>Manitoba</b>																								
Brandon A	-3	6	2	-14	25	16	300	69																
Churchill A	-12	9	-7	-20	7	19	330	76																
Lynn Lake A	-9	4	3	-21	1	21	330	59																
The Pas A	-4	7	3	-17	2	8	340	61																
Thompson A	-8	6	-3	-18	6	30	350	56																
Winnipeg Int'l A	-2	7	5	-13	27	4	340	63																

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.  
 vel = wind speed in km/h

— Annotations —  
 X = no observation  
 P = less than 7 days of data  
 \* = missing data when going to printing.

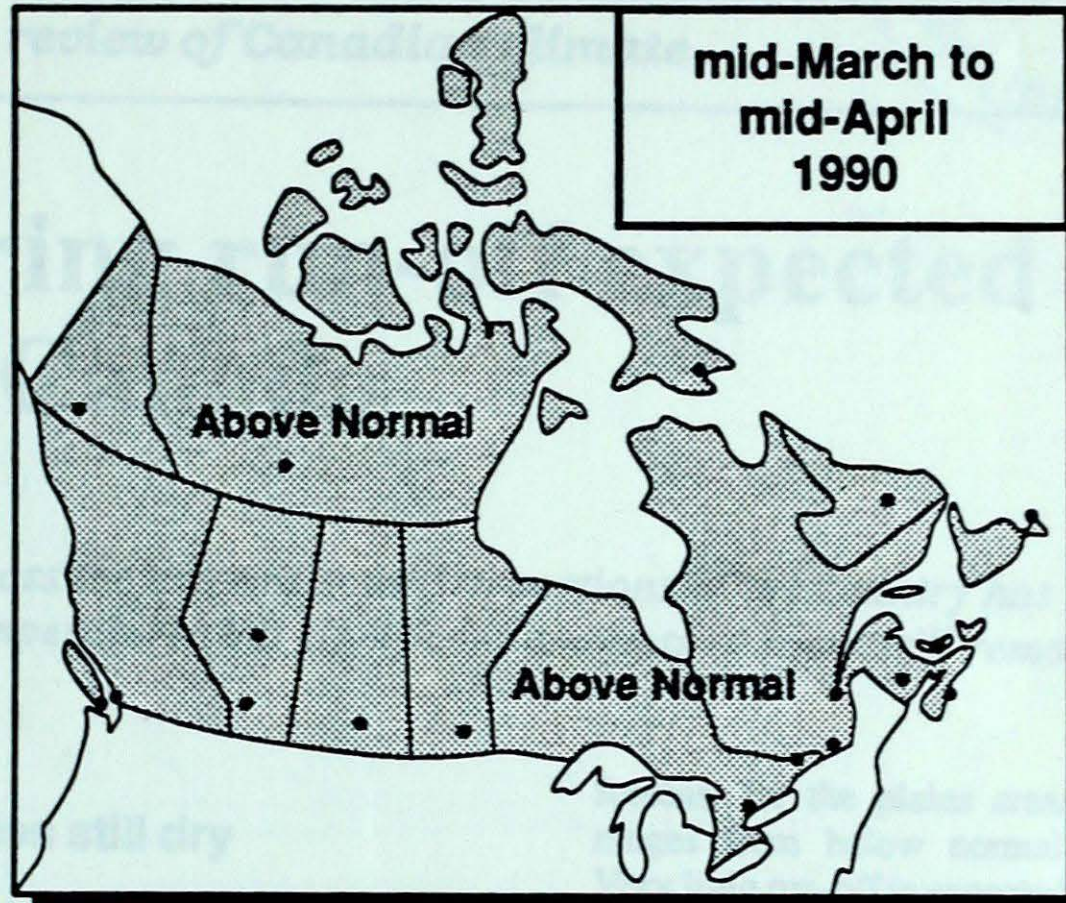


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## MONTHLY TEMPERATURE FORECAST

### Normal temperatures for mid-March to mid-April, °C

Whitehorse	-4	Toronto	3
Yellowknife	-13	Ottawa	1
Iqaluit	-19	Montréal	0
Vancouver	7	Québec	-1
Victoria	7	Fredericton	1
Calgary	-1	Halifax	2
Edmonton	-1	Charlottetown	0
Regina	-2	Goose Bay	-5
Winnipeg	-2	St. John's	-1



Canada

### Depth of snow on ground (cm) as of March 25

Location	1990	Normal (range)
Whitehorse, YT.	26	27
Fort Smith, NWT	47	49
Hay River, NWT	30	33
Edmonton, BC	24	24
Fort McMurray, AB	28	26
Yellowknife, Sask.	25	24
Dauphin, Man.	18	24
Quincy, P.Q.	49	53
Charlottetown, NB	19	18
Cambridge, Ont.	22	11-6



### Mild weather for the Prairies...

For the week of April 2, above-normal temperatures are expected across the Prairies. Northwest Territories, British Columbia, the Prairies and Ontario. Significant snowmelt and ice melt is expected in the Great Lakes and St. Lawrence regions of Ontario.

At the present, above-normal run-off is expected in northern British Columbia, and the High Level and Soan Creek areas of Alberta. North above normal run-off is expected in the Fort Chipewyan area of northern Alberta. Flooding could occur in the Swan River and Interlake regions of Manitoba. On the North Shore along the St. Lawrence, there is the potential for flooding of rivers that flow into the St. Lawrence. In Ontario and Quebec the threat potential is from heavy rainfalls and rapidly melting snow, particularly for areas with less than 15 cm of compacted snow cover. The Manitowish have mostly ice-free streams and rivers with no reports of flooding. Newfoundland's snowpack is above normal only in western regions and there have been no reports of flooding.