



# Climatic Perspectives

March 18 to 24, 1991

A weekly review of Canadian climate and water

Vol.13 No.12

## Snow ushers in the spring season

*Although spring has officially arrived, it seems Mother Nature is resisting the change. Heavy snow has fallen on parts of central Ontario, southern Quebec and once again in the Maritimes. Beneficial snowfalls have been reported over portions of the southern Prairies.*

The Maritimes were besieged by another snowstorm - the third major snowfall this month. Snow began falling on the 24th and by the time it was all over, 10 to 30 centimetres of snow covered the ground. Some areas of New Brunswick received as much as 40 cm of the white stuff, this in addition to the more than 100 cm of snow that fell earlier in the month. Almost all locations in New Brunswick have surpassed their average March snowfall. In northern New Brunswick, St. Leonard has a whopping 110 cm of snow covering the ground.

Newfoundland missed the snow, but not the winds, which have contributed to severe ice conditions along the northeast coast of the Island, compressing the ice pack from the usual 200 km to a 60 km wide band. Shipping is disrupted, and a number of coastal communities have been cut off, without ferry services for two weeks. There is little that can be done until the winds become more favourable.

In Ontario, a storm produced a variety of weather. Central Ontario received 10 to 25 centimetres of snow, eastern Ontario freezing rain, while the south escaped with rain. There were two heavy snowfall events in Quebec this week. On the 20th, the Sainte-Anne-des-Monts region received 10 to 25 centimetres of snow. Later on the 24th, additional falls of up to 26 cm fell along the St. Lawrence Valley.

A spring snowstorm over southern Al-

berta dumped 5 to 15 centimetres of snow over the southern agriculture districts on the 25th. Unfortunately, the much needed moisture decreased to just a few millimetres to the east, in Saskatchewan.

### Fluctuating temperatures good for the sugar bush

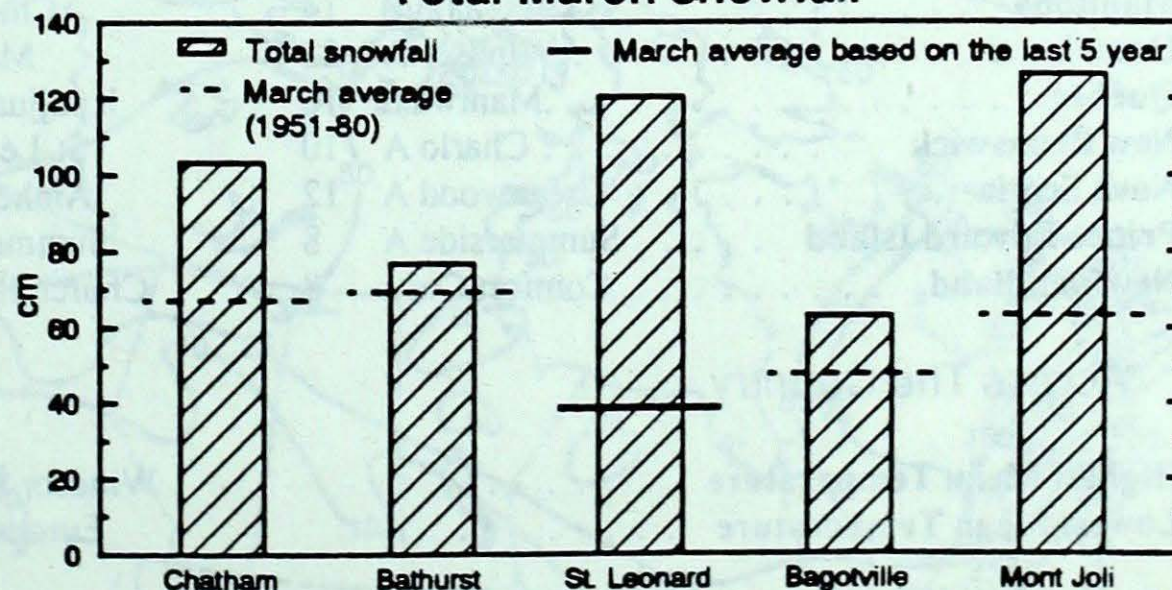
Frosty, cool nights and relatively mild days are what is needed for a good maple sap run. If temperatures become mild for any length of time the sap becomes bitter. In southwestern Ontario, the sap started running by mid-February, and producers feel that this year has been the best one in the last four. In Quebec, and eastern Ontario, maple syrup production began in

mid-March and is still continuing. The weather has been favourable, and producers are optimistic. In New Brunswick, producers hope the recent heavy snowfalls will prolong the season.

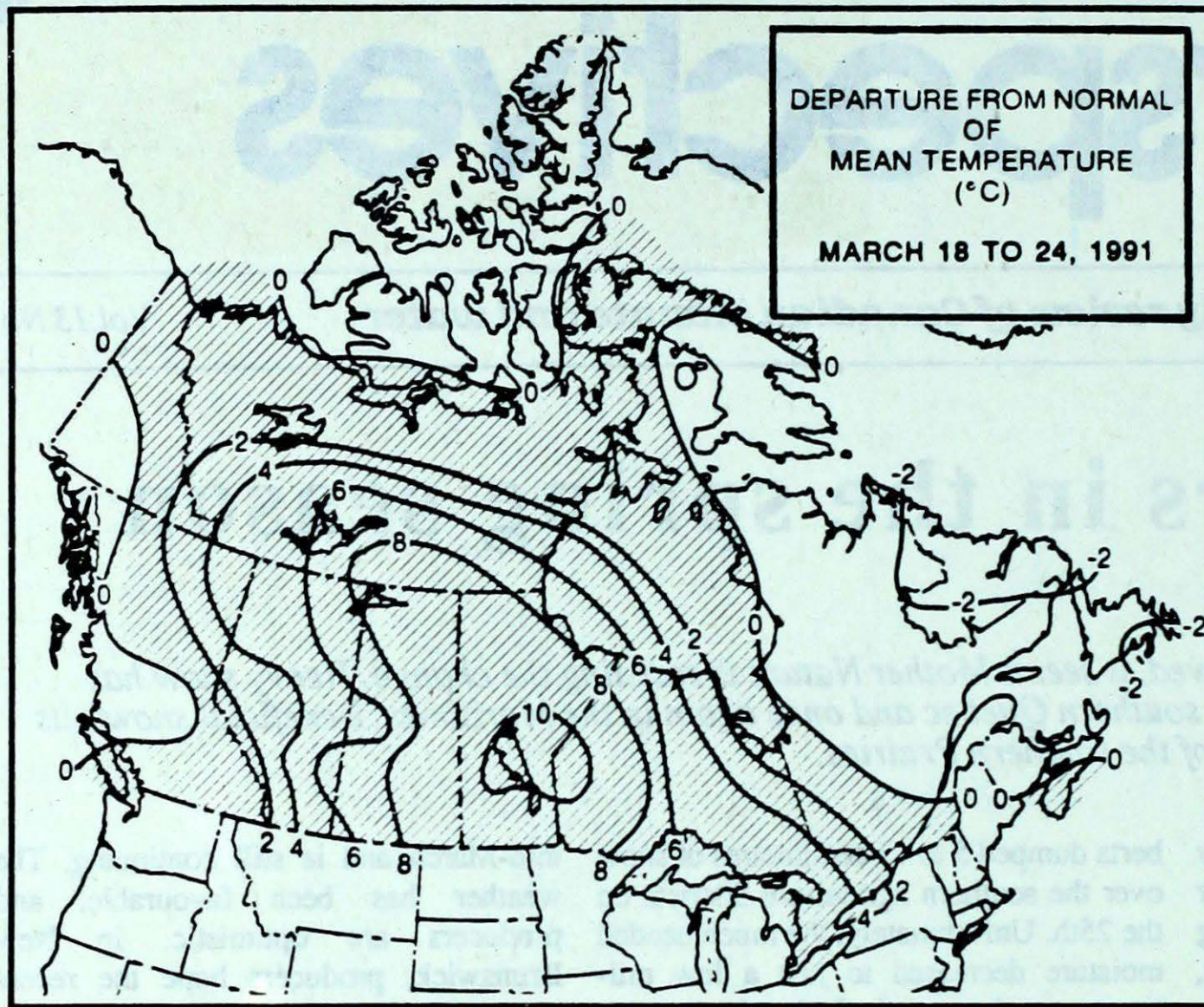
### A look ahead ...

The week of April 1, will see a high pressure system move over the Prairies, bringing generally mild Pacific air and above normal temperatures to the regions west of Manitoba, and cooler Arctic air and below normal readings to the regions east of it. The Atlantic provinces, nevertheless, should remain in a mild southerly air flow and experience above normal temperatures.

Total March snowfall



March snowfalls in some parts of New Brunswick and along Quebec's south shore have exceeded the monthly normal by a significant amount this year.



DEPARTURE FROM NORMAL OF MEAN TEMPERATURE (°C)  
MARCH 18 TO 24, 1991

**Weekly normal temperatures (°C)**

	max.	min.
Whitehorse A	-1.1	-13.1
Iqaluit A	-16.8	-26.6
Yellowknife A	-12.2	-24.6
Vancouver Int'l A	10.2	2.6
Victoria Int'l A	10.4	2.1
Calgary Int'l A	3.0	-7.7
Edmonton Int'l A	0.2	-10.5
Regina A	-0.8	-10.9
Saskatoon A	-1.5	-11.7
Winnipeg Int'l A	-1.3	-11.6
Ottawa Int'l A	2.5	-6.0
Toronto (Pearson Int'l A)	4.3	-4.5
Montréal Int'l A	2.9	-5.4
Québec A	1.4	-7.6
Fredericton A	4.1	-6.5
Saint John A	3.3	-6.3
Halifax (Shearwater)	3.6	-3.9
Charlottetown A	1.6	-6.0
Goose A	-1.7	-12.7
St John's A	1.0	-5.1

**Weekly temperature and precipitation extremes**

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Hope A 16	Dease Lake -24	Vancouver Int'l A 26
Yukon Territory	Whitehorse A 4	Komakuk Beach A -37	Watson Lake A 3
Northwest Territories	Fort Smith A 8	Eureka -42	Hay River A 14
Alberta	Medicine Hat A 17	High Level A -25	Fort McMurray A 20
Saskatchewan	Estevan A 17	Collins Bay -24	Saskatoon A 7
Manitoba	Gretna (aut) 14	Churchill A -24	Churchill A 1
Ontario	Windsor A 22	Moosonce -25	Thunder Bay A 28
Québec	Maniwaki 10	Kuujuarapik A -32	Montréal Int'l A 30
New Brunswick	Charlo A 10	St-Léonard A -18	St-Léonard A 44
Nova Scotia	Greenwood A 12	Amherst (aut) -10	Yarmouth A 51
Prince Edward Island	Summerside A 8	Summerside A -10	Summerside A 13
Newfoundland	Comfort Cove 8	Churchill Falls A -26	Burgeo 53

**Across The Country...**

Highest Mean Temperature	Windsor A(ONT) 8
Lowest Mean Temperature	Eureka(NWT) -39

CLIMATIC PERSPECTIVES  
VOLUME 13

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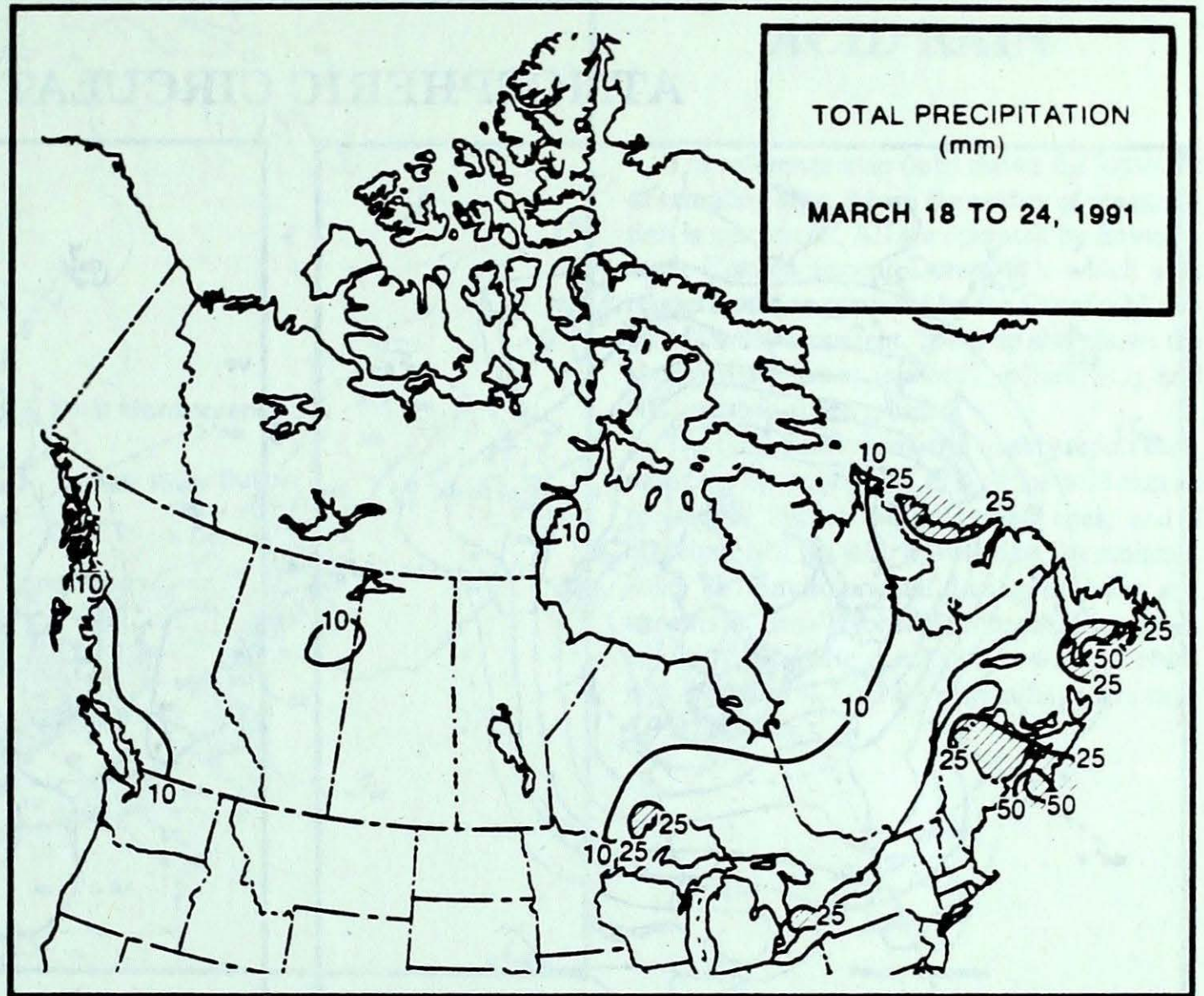
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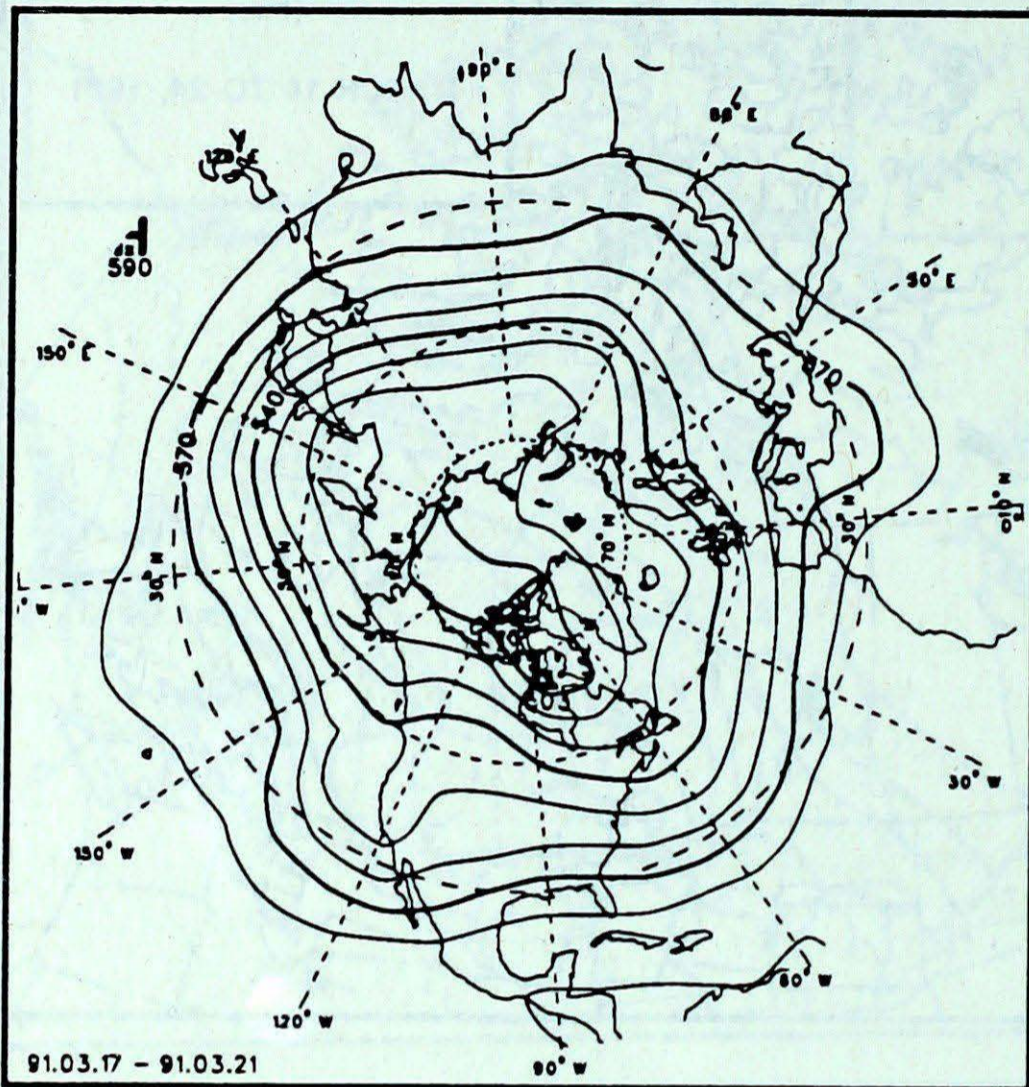
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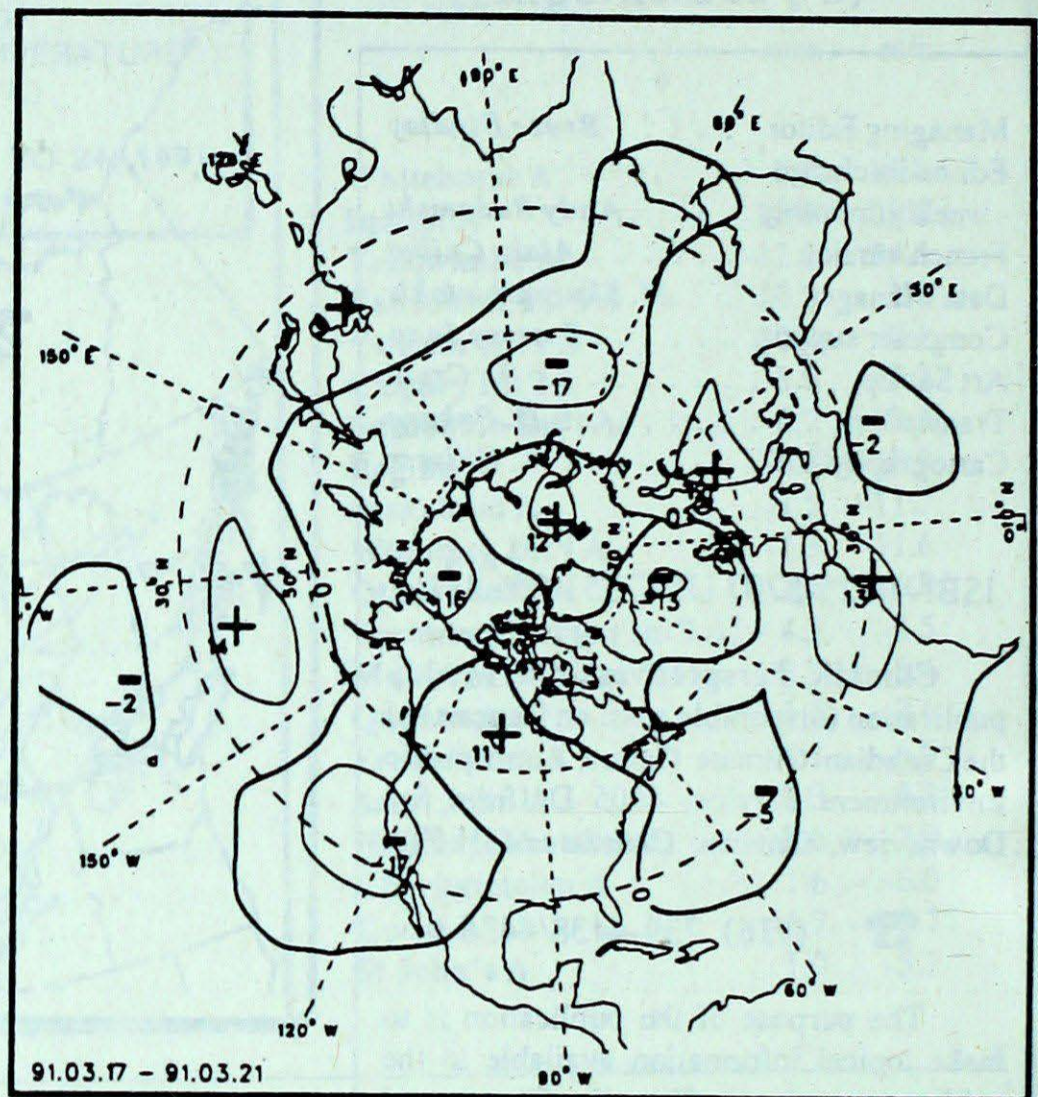
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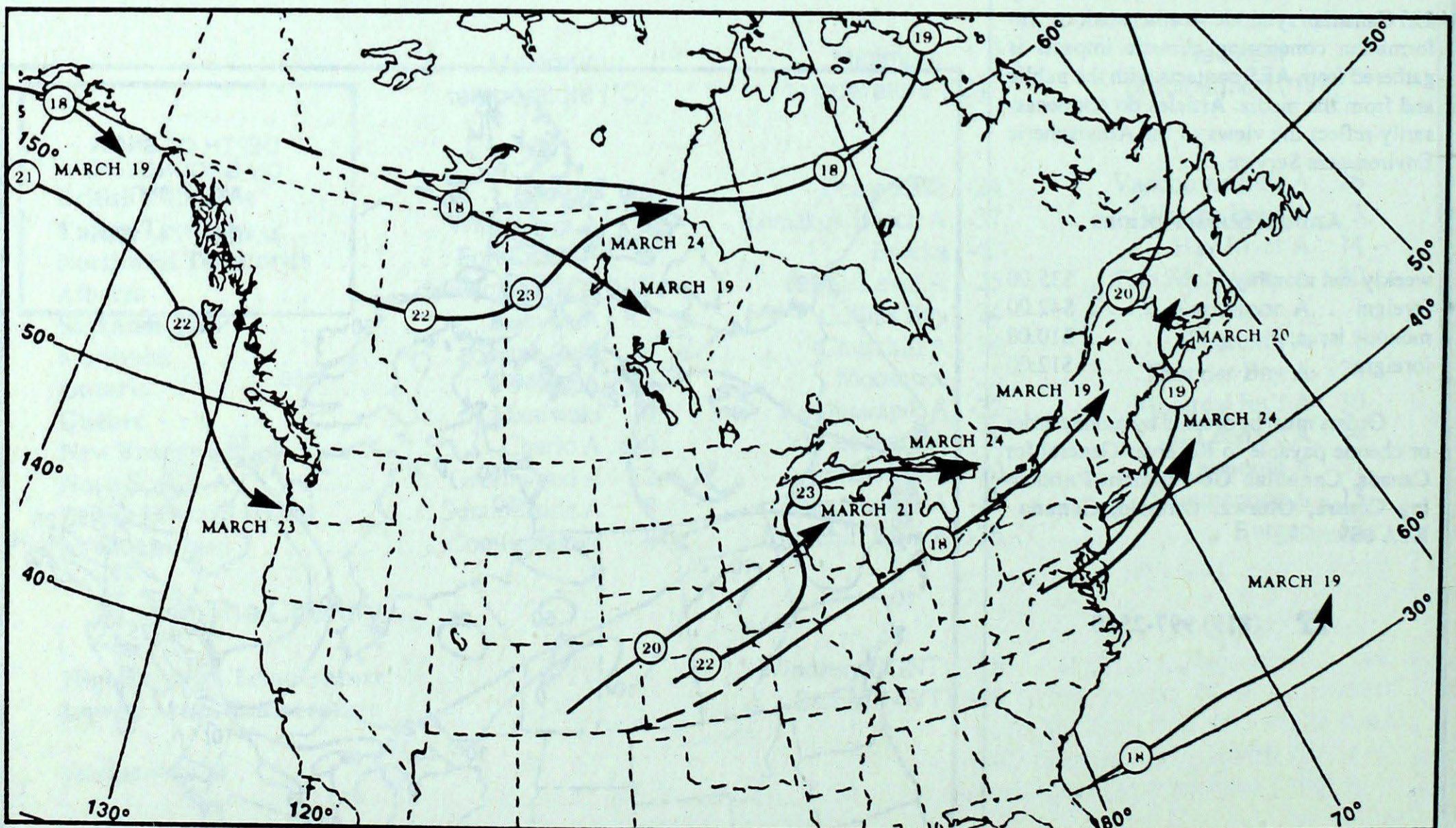
### ATMOSPHERIC CIRCULATION



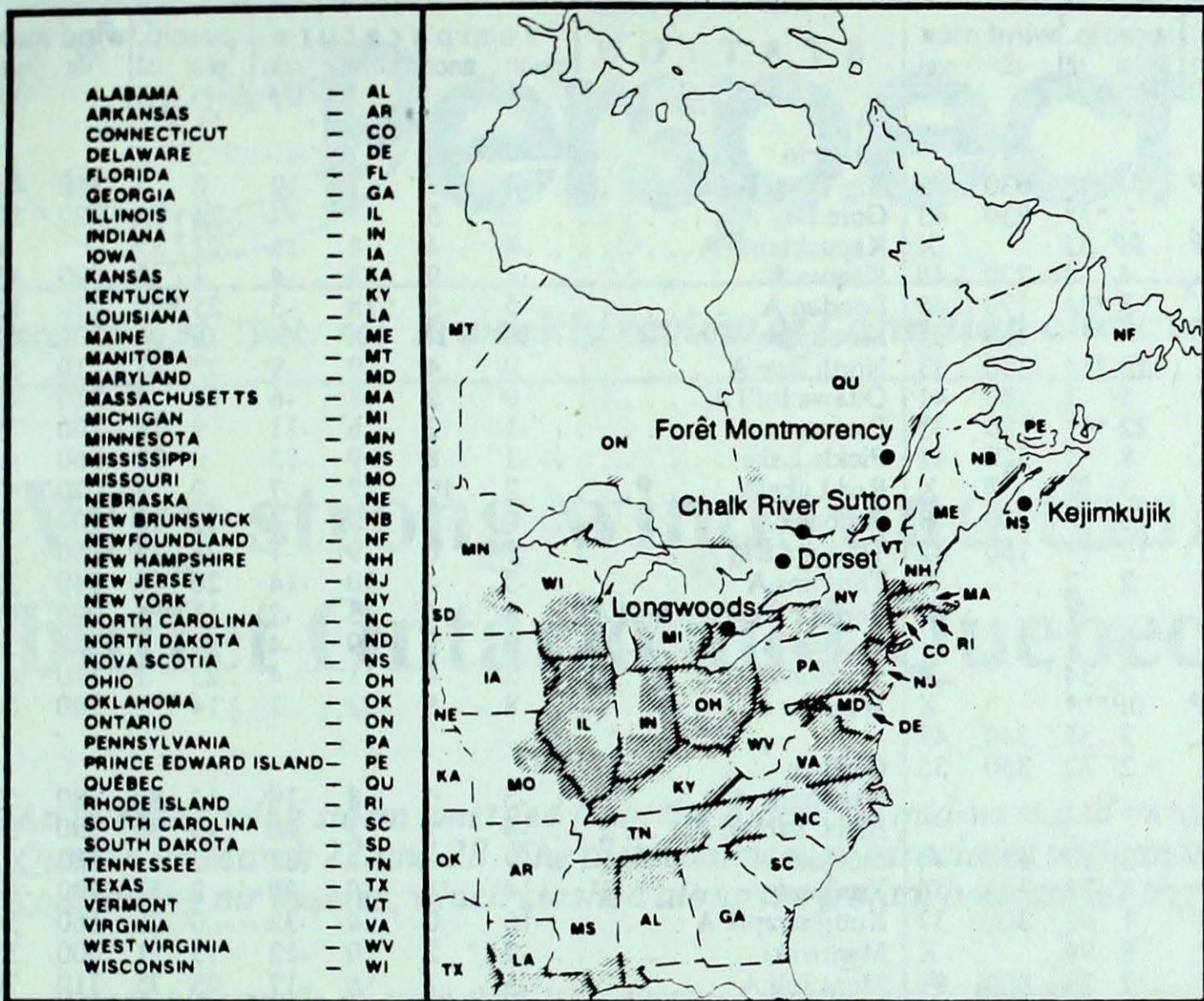
Mean geopotential height  
50-kPa level (10-decametre intervals)



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
March 17 to 23, 1991				
Longwoods	17	4.1	6 R	Ohio
	18	3.9	1 R	Lake Huron
	22	3.6	2 R	Ohio, West Virginia, Eastern Kentucky
	23	4.3	9 R	Southern New York, Western Pennsylvania
Dorset*	18	3.8	1 M	Southern Ontario
	21	4.5	16 S	Southern Ontario
	22	3.9	1 M	Southern Ontario
	23	4.1	5 R	Western New York, Western Pennsylvania
Chalk River	23	4.1	11 R	Western New York, Pennsylvania
Sutton	18	4.2	7 R	New England
	23	4.9	9 M	New England
Montmorency	18	4.2	4 S	New England
	23	4.8	8 S	Western Maine
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	5P	-1P	10P	1P	5P***		030	85	Big Trout Lake	-7	7	7	-19	0	2	350	46
Cranbrook A	3	1	11	-7	5 ***		230	43	Gore Bay A	2	5	7	-4	24	4	120	80
Fort Nelson A	-5P	4P	9P	-15P	8P 52			X	Kapusking A	-4	4	8	-16	21	35		X
Fort St John A	-1	5	11	-14	4 8		220	46	Kenora A	4	9	13	-4	1	5	090	43
Kamloops A	7	2	16	-4	3 ***		170	46	London A	5	5	18	-3	25 ***		230	85
Penticton A	6	1	14	-6	4 ***		330	35	Moosonee	-9P	1P	10P	-25P	0P	24	070	41
Port Hardy A	4	-1	11	-3	10 ***		330	33	North Bay A	0	4	9	-9	27	33	110	52
Prince George A	-2	-1	8	-11	5 1		180	41	Ottawa Int'l A	0	2	8	-6	18	3	310	44
Prince Rupert A	2	-1	9	-5	22 ***		180	33	Petawawa A	-1	2	6	-11	9	18	320	39
Revelstoke A	3	1	10	-6	8 1		320	41	Pickle Lake	-1	8	9	-13	0	33	060	43
Smithers A	0	0	10	-10	3 1			X	Red Lake A	2	10	12	-7	0	8	070	43
Vancouver Int'l A	7	0	13	0	26 ***		300	43	Sudbury A	0	4	9	-8	19	10	100	37
Victoria Int'l A	7	1	13	-1	17 ***		150	32	Thunder Bay A	1	6	9	-7	28	15	080	50
Williams Lake A	-1	-1	10	-10	2 2			X	Timmins A	-3	4	10	-14	20	60	340	35
<b>Yukon Territory</b>								<b>Toronto (Pearson Int'l A)</b>									
Komakuk Beach A	-28	-2	-19	-37	2 34			X	Trenton A	2	2	9	-4	24	1	280	56
Teslin (aut)	-7P	*	1P	-21P	0P***			X	Warton A	2	4	11	-4	23	1	110	61
Watson Lake A	-7	3	3	-24	3 56		340	43	Windsor A	8	6	22	1	14 ***		240	80
Whitehorse A	-9	-2	4	-24	2 32		330	35	<b>Québec</b>								
<b>Northwest Territories</b>								<b>Bagotville A</b>									
Alert	-31	2	-23	-38	3 17		330	44	Blanc Sablon A	-8	*	3	-20	13	38	080	59
Baker Lake A	-25	2	-12	-32	8 33		340	56	Inukjuak A	-19	1	-4	-31	3	33	180	61
Cambridge Bay A	-31	0	-18	-37	1 42		300	37	Kuujuuaq A	-18	-1	0	-29	2	39	300	67
Cape Dyer A	-21	2	-11	-29	8 99			X	Kuujuuarapik A	-16	0	4	-32	0	26	160	54
Clyde A	-24	1	-17	-37	7 23		300	89	Maniwaki	-2	2	10	-12	13	21	300	33
Coppermine A	-27	0	-20	-37	1 100		360	41	Mont Joli A	-5	-1	6	-17	25	75	310	70
Coral Harbour A	-24	1	-13	-36	4 37		310	56	Montréal Int'l A	0	1	10	-7	30	2	290	48
Eureka	-39P	-3P	-36P	-42P	0P 8			X	Natashquan A	-5P	0P	3P	-14P	12P	53	090	63
Fort Smith A	-5	9	8	-28	2 57		310	57	Québec A	-3	0	5	-12	23	86	300	61
Hall Beach A	-28	1	-17	-37	1 34		290	67	Schefferville A	-16	-3	3	-28	6	84	350	65
Inuvik A	-23	2	-7	-34	1 46		310	37	Sept-Îles A	-7	-1	4	-18	18	54	340	83
Iqaluit A	-23	-2	-7	-35	8 33		320	52	Sherbrooke A	-2	1	8	-11	16	10	280	52
Mould Bay A	-33	-1	-27	-41	1 18		270	56	Val-d'Or A	-6	0	7	-18	12	46	330	46
Norman Wells A	-17	2	-1	-31	5 33		280	54	<b>New Brunswick</b>								
Resolute A	-31	-1	-20	-39	0 11		280	41	Charlo A	-4	0	10	-16	20	64	290	74
Yellowknife A	-12	7	-1	-34	8 56		340	52	Chatham A	-3	0	9	-13	22	12	290	69
<b>Alberta</b>								<b>Fredericton A</b>									
Calgary Int'l A	2	5	11	-8	9 1		340	59	Moncton A	-3	-1	8	-13	24	12	280	61
Cold Lake A	0	6	11	-12	8 2		290	44	Saint John A	-2	0	7	-12	27	10	090	56
Edmonton Namao A	0	4	10	-9	7 1		300	43	<b>Nova Scotia</b>								
Fort McMurray A	-1	8	12	-19	20 11		340	44	Greenwood A	0	0	12	-9	30	10	150	74
High Level A	-4	6	10	-25	5 35		340	52	Shearwater A	0	0	10	-8	22	5	110	69
Jasper	1	3	11	-9	0 5			X	Sydney A	-3	-1	8	-10	24 ***		290	65
Lethbridge A	5	5	17	-4	6 ***		240	69	Yarmouth A	1	0	9	-6	51	12	110	70
Medicine Hat A	5	6	17	-4	3 ***			X	<b>Prince Edward Island</b>								
Peace River A	-2	6	8	-15	0 3			X	Charlottetown A	-2P	0P	8P	-9P	2P	4	290	56
<b>Saskatchewan</b>								<b>Summerside A</b>									
Cree Lake	-5	8	8	-24	2 43		300	54	-2	0	8	-10	13	7	300	65	
Estevan A	4	8	17	-5	0 ***		110	46	<b>Newfoundland</b>								
La Ronge A	0	9	12	-14	2 5		280	59	Cartwright	-10	-3	5	-20	19	228	310	65
Regina A	3	9	11	-5	1 ***		290	50	Churchill Falls A	-13	-2	4	-26	21	107	320	67
Saskatoon A	2	9	14	-5	7 ***		290	37	Gander Int'l A	-4	-1	8	-14	18	7	170	70
Swift Current A	4	7	16	-8	1 ***		290	41	Goose A	-9	-2	7	-19	14	83	260	44
Yorkton A	-2	6	5	-10	0 15			X	Port Aux Basques	-4	-1	3	-9	31	7	310	89
<b>Manitoba</b>								<b>St John's A</b>									
Brandon A	2	9	9	-8	0 1		310	44	St Lawrence	-4P	-2P	5P	-11P	21P	6		X
Churchill A	-13	7	1	-24	1 16		280	80	Wabush Lake A	-12	0	4	-26	13	66	340	56
Lynn Lake A	-4	11	9	-20	0 15		290	50	<b>91/03/18-91/03/24</b>								
The Pas A	0	10	9	-9	0 2		290	48									
Thompson A	-4	9	9	-14	0 50		280	48									
Winnipeg Int'l A	4	10	14	-5	0 1		360	39									

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.