

# Climatic Perspectives



March 5 to 11, 1990

A weekly review of Canadian climate

Vol.12 No.10

## Another dry start for the Prairie growing season

*Snowfalls are very important to the prairie agricultural community. The snow cover helps stop soil erosion and conserves soil moisture through the winter season. Snow melt in the spring replenishes the moisture necessary for crop germination.*

### Spring shaping up dry

It has been another relatively snow-free winter across the Prairies, and by the end of May there may be several drought-stricken areas if heavy precipitation does not materialize. The largest possible trouble spot is the stretch from Lacombe, Alta, east to North Battleford and Scott, Sask. Further to the south, another sector includes the area bounded by Medicine Hat, Alta, Shaunavon, West Poplar River and Yellow Grass, Sask. In Manitoba, Portage la Prairie, Pilot Mound and Brandon define a third area. *Forage Drought Early Warning System, Agriculture Canada.*

### Water reserves in southern Manitoba critical

A surface water supply crisis exists in southern Manitoba. This is the third year of the current hydrologic drought. Less than 25% of normal run-off is expected in the extreme south this spring. At least 100 mm of precipitation is needed before the freshet in order for there to be a median run-off. Unfortunately, even median run-

off would not solve the problem. One municipal water supply reservoir may go dry by this fall and others could suffer the same fate in 1991 if dry conditions persist. *Winnipeg Climate Centre, AES.*

### Snowstorm hits Alberta

After almost 3 weeks of spring-like temperatures heavy snow fell in a band from southern Alberta to west-central Saskatchewan on March 11. The 10 to 15 centimetres of snow was a welcome sight to ranchers whose spring crops will need this additional moisture.

### Warming trend on the eastern Prairies

A new calculation of mean daily February temperatures averaged over the last thirty years (1961-90) indicates that the eastern prairies are becoming warmer. Thirty-year averages are re-calculated every ten years at the start of each new decade. The results determine the new normal temperatures at each location.

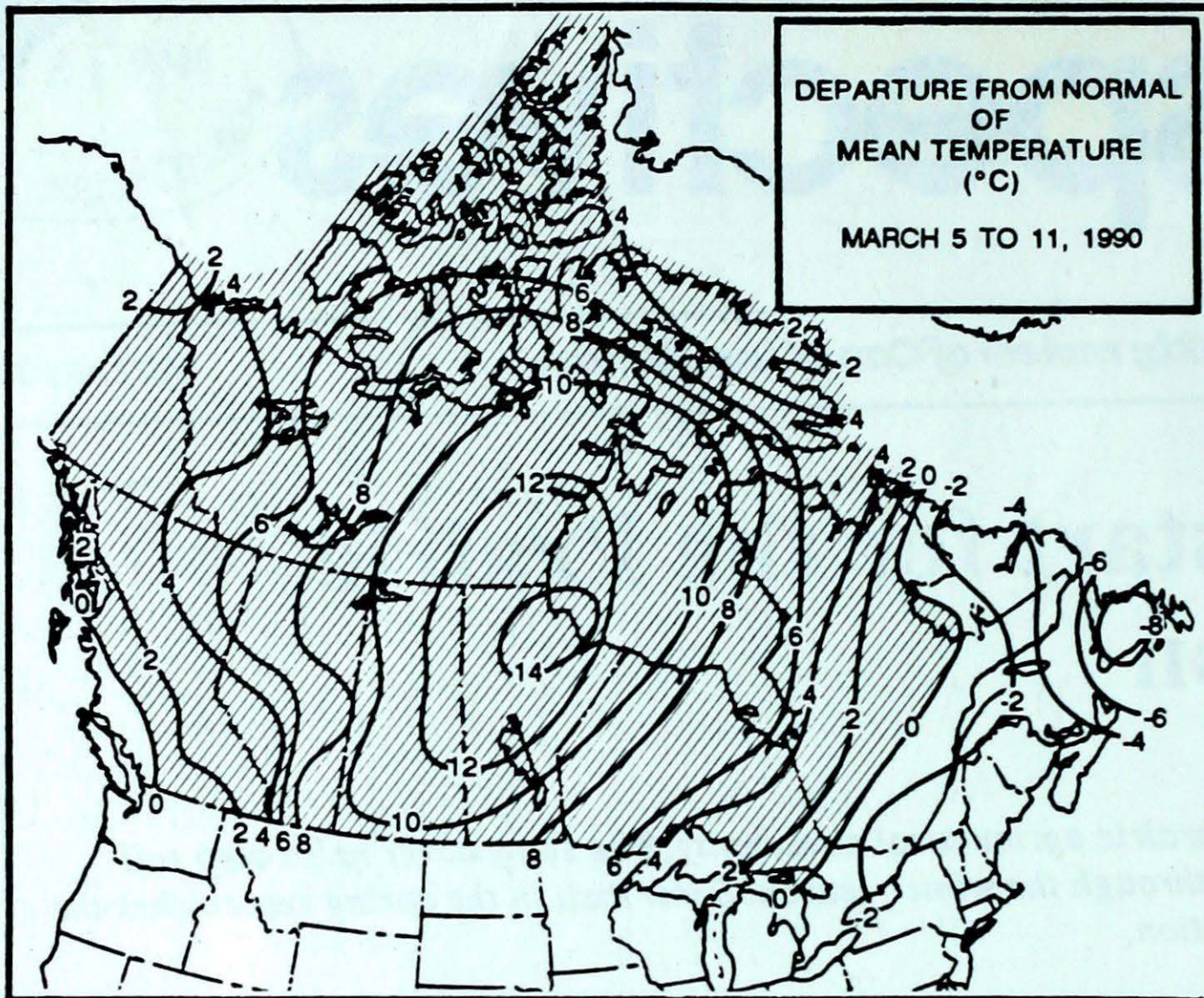
### Spring arrives on time...

For the week of March 19, above-normal temperatures, are forecast for the entire country, except near-normal temperatures are expected for the southern parts of British Columbia and southwestern Alberta. Ontario, the southern half of Quebec and the Atlantic provinces will most likely experience temperatures 3 to 5 degrees above normal.

### New normal February mean daily temperatures

Station	1961-90	1951-80
Winnipeg	-15.1	-15.6
Brandon	-14.8	-15.2
Saskatoon	-14.0	-14.6
Regina	-13.0	-13.6
Estevan	-11.2	-12.0

Data provided by  
Winnipeg Climate Centre



**Weekly normal temperatures (°C)**

	max.	min.
Whitehorse A	-4.5	-16.0
Iqaluit A	-19.3	-28.6
Yellowknife A	-15.7	-26.9
Vancouver Int'l A	8.5	1.4
Victoria Int'l A	9.0	0.9
Calgary Int'l A	0.2	-11.6
Edmonton Int'l A	-1.9	-14.3
Regina A	-4.4	-16.1
Saskatoon A	-5.6	-17.0
Winnipeg Int'l A	-5.3	-16.7
Ottawa Int'l A	-0.4	-9.5
Toronto Int'l A	1.5	-6.8
Montréal Int'l A	-0.2	-8.7
Québec A	-1.7	-10.8
Fredericton A	1.2	-9.0
Saint John A	0.9	-8.5
Halifax (Shearwater)	2.1	-5.3
Charlottetown A	-0.5	-7.9
Goose A	-4.9	-15.9
St John's A	0.3	-6.1

**Weekly temperature and precipitation extremes**

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Kamloops A 16	Dease Lake -22	Estevan Point (aut) 94
Yukon Territory	Teslin (aut) 6	Ogilvie -40	Shingle Point A 4
Northwest Territories	Hay River A 10	Eureka -46	Cape Dorset A 24
Alberta	Lethbridge A 16	High Level A -26	Lloydminster A 13
Saskatchewan	Swift Current A 16	Uranium City A -27	Meadow Lake A 9
Manitoba	Norway House A 10	Island Lake -30	Lynn Lake A 10
Ontario	Windsor A 13	Moosonee -36	Windsor A 22
Québec	Maniwaki 10	La Grande IV A -40	Schefferville A 7
	Sherbrooke A 10		
New Brunswick	Fredericton A 11	Fredericton A -25	Moncton A 1
Nova Scotia	Western Head (aut) 12	Greenwood A -20	Sydney A 6
Prince Edward Island	Summerside A 7	Charlottetown A -21	Charlottetown A 1
Newfoundland	Goose A 8	Badger (aut) -39	St Lawrence 8

**Across The Country...**

Highest Mean Temperature	Vancouver Int'l A(BC) 5
Lowest Mean Temperature	Eureka(NWT) -35

90/03/05-90/03/11

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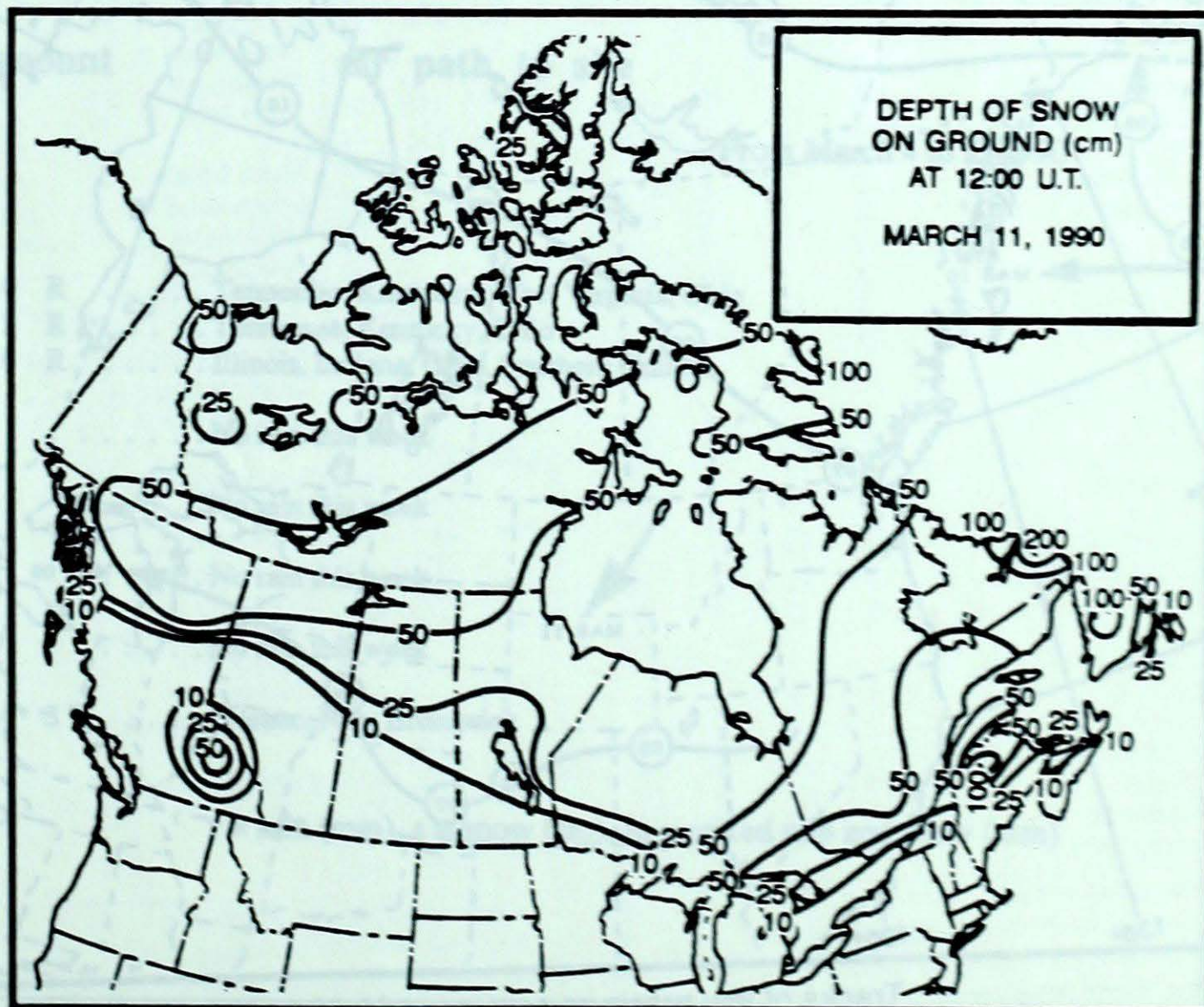
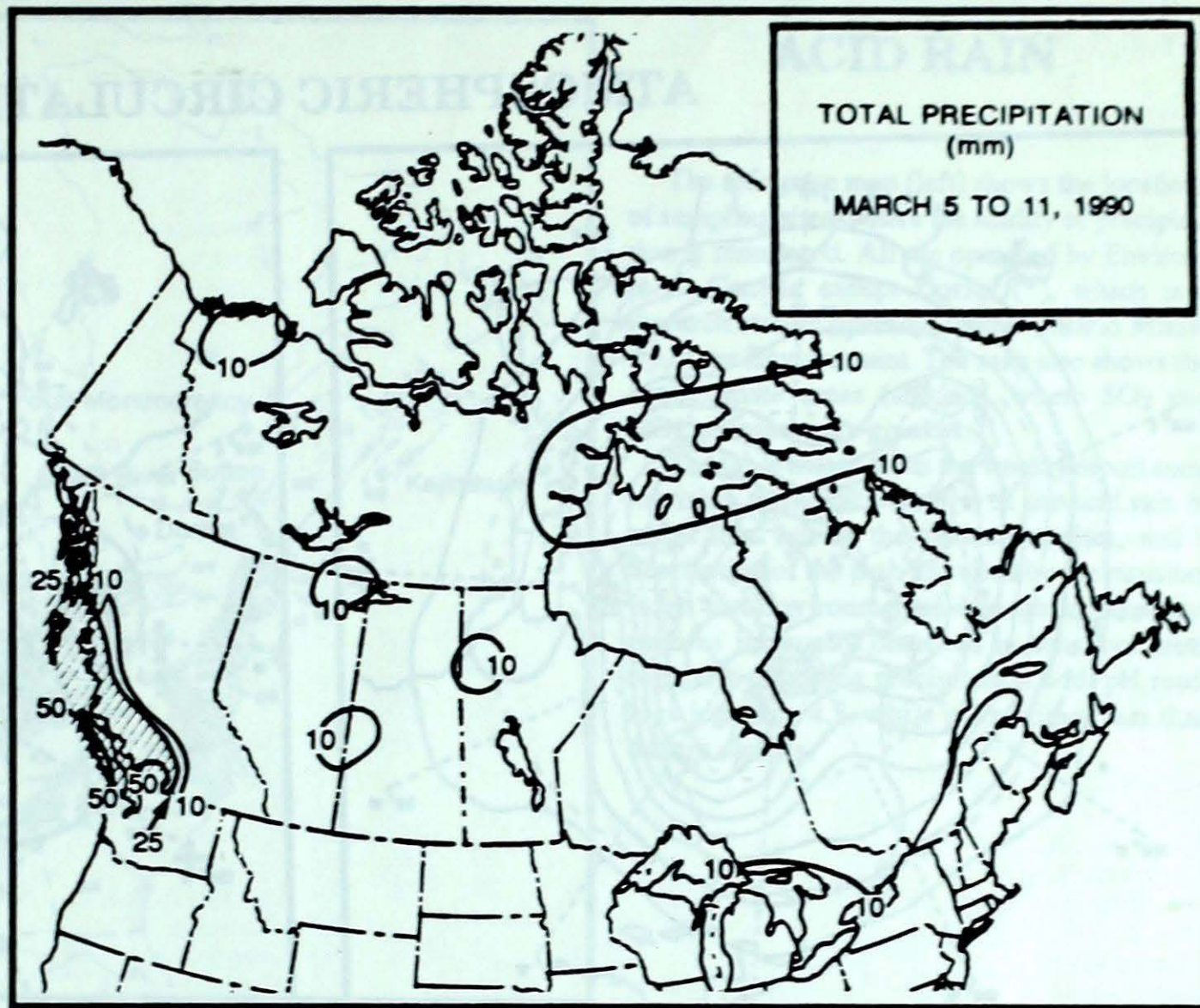
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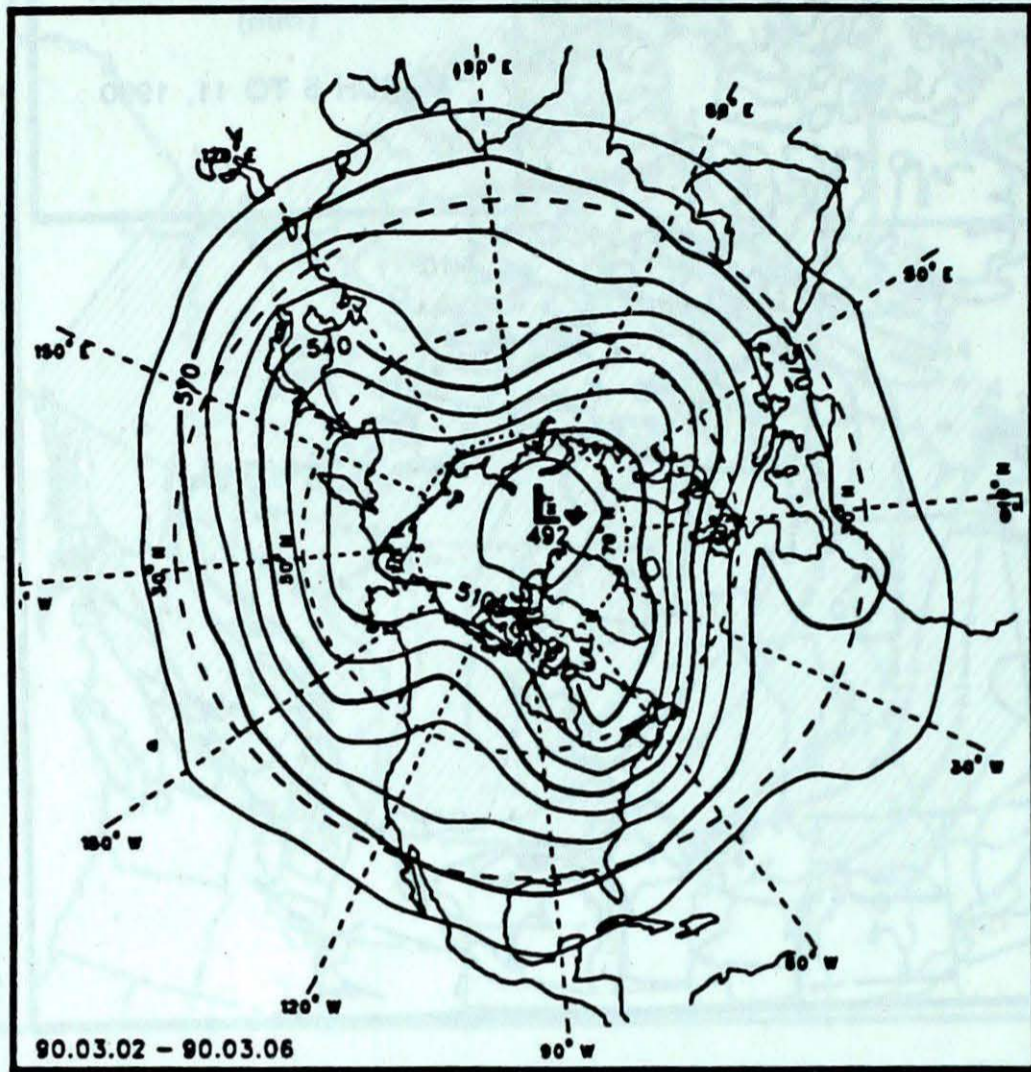
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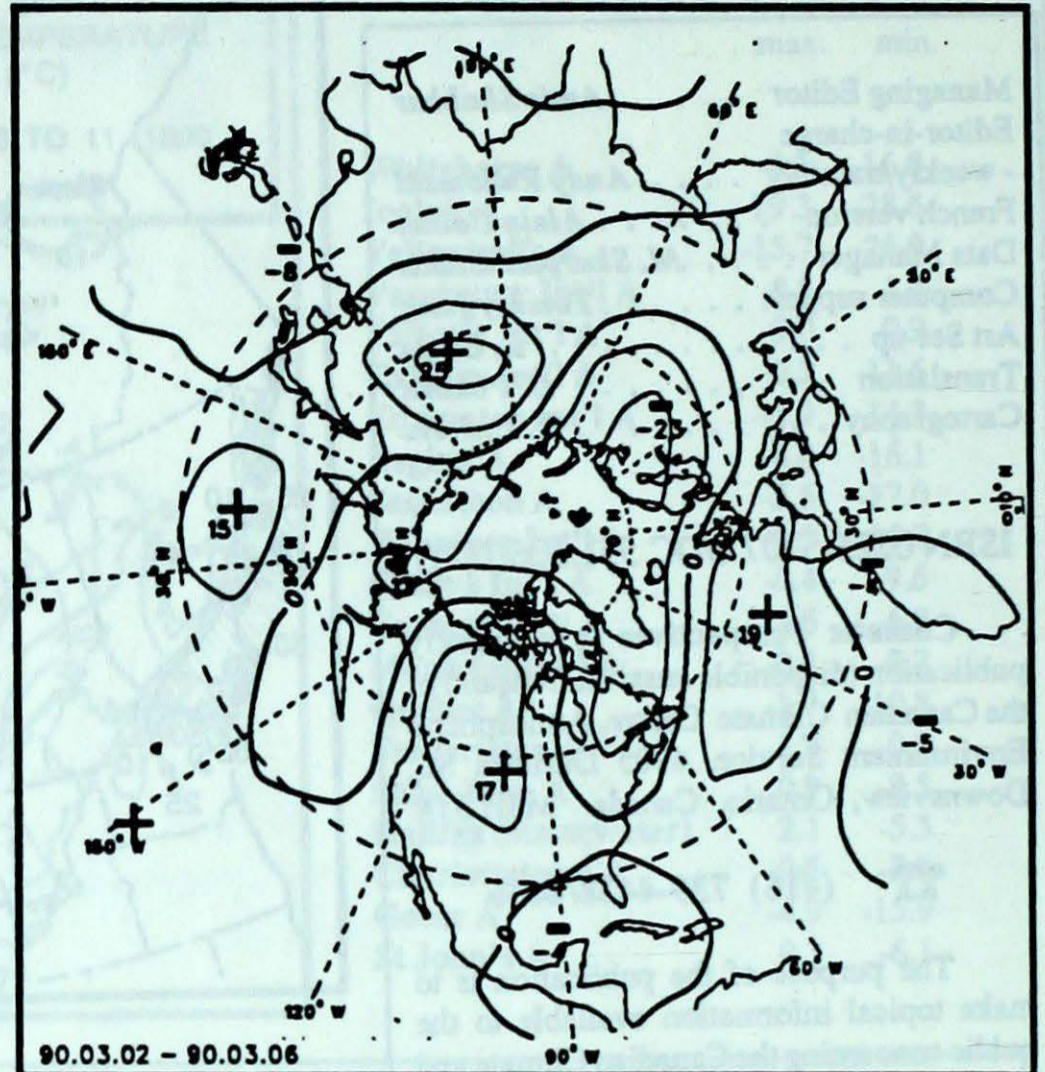
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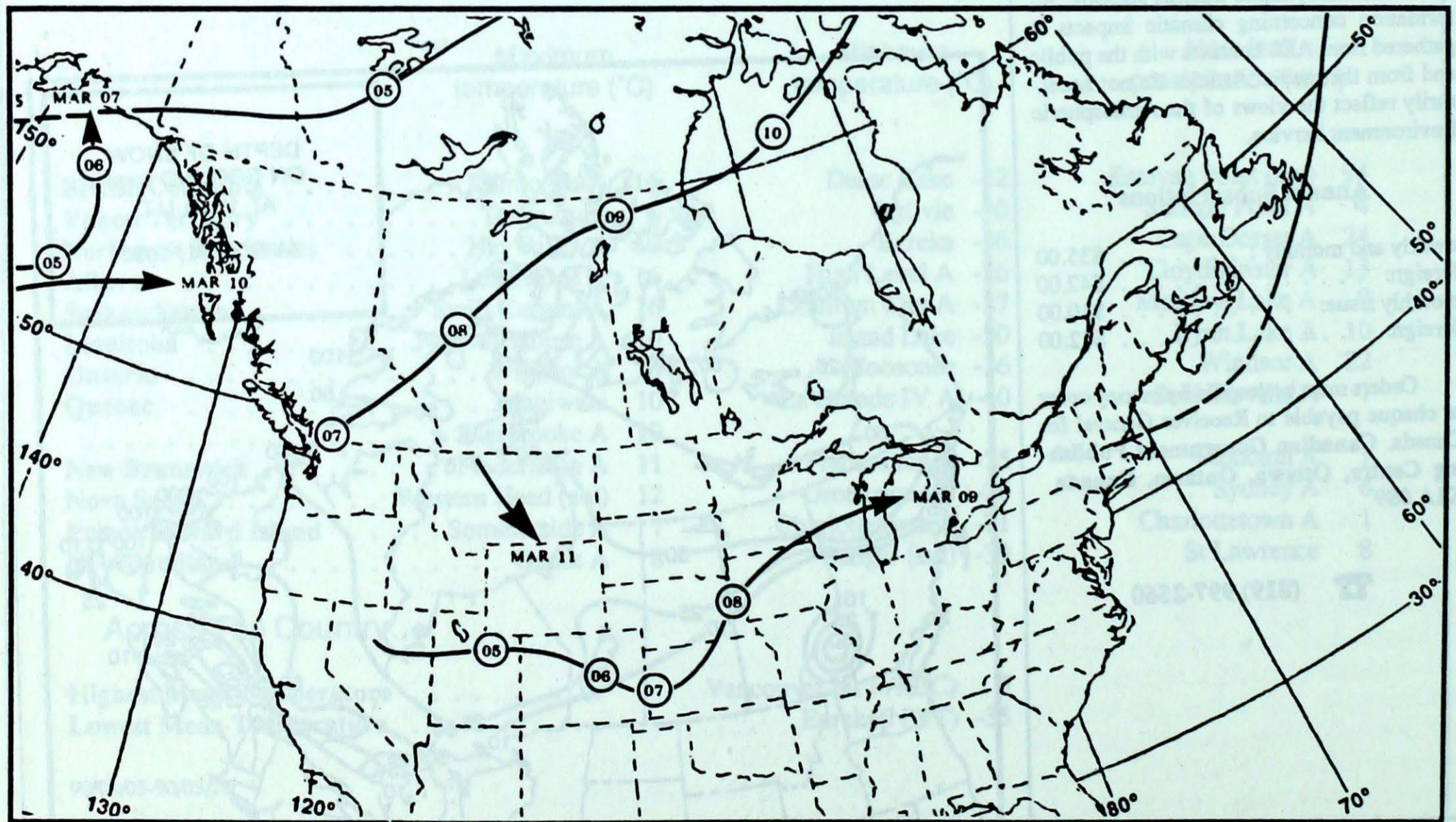
### ATMOSPHERIC CIRCULATION



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



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

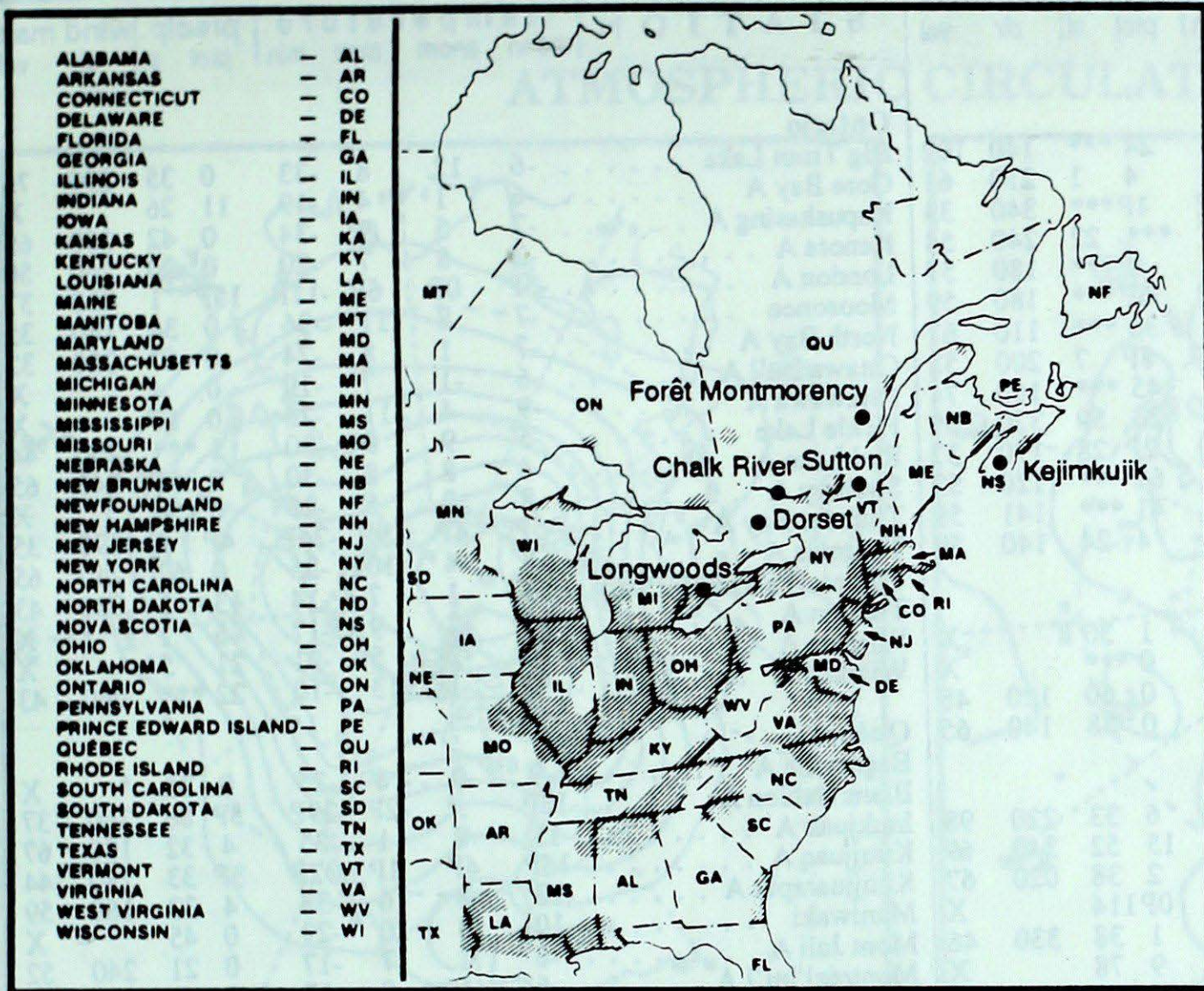


Tracks of low pressure centres at 12:00 U.T. each day during the period.

## 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 4 to 10, 1990

Longwoods	8	3.7	10 R	..... Tennessee, Kentucky, West Virginia, Ohio
	9	4.0	3 R	..... Tennessee, Kentucky, Ohio
	10	3.5	10 R	..... Illinois, Indiana, Ohio, Southern Ontario
Dorset				..... No rain this week
Chalk River				..... No rain this week
Sutton				..... No rain this week
Montmorency				..... No rain this week
Kejimikujik	4	4.0	4 S	..... Quebec, New Brunswick

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

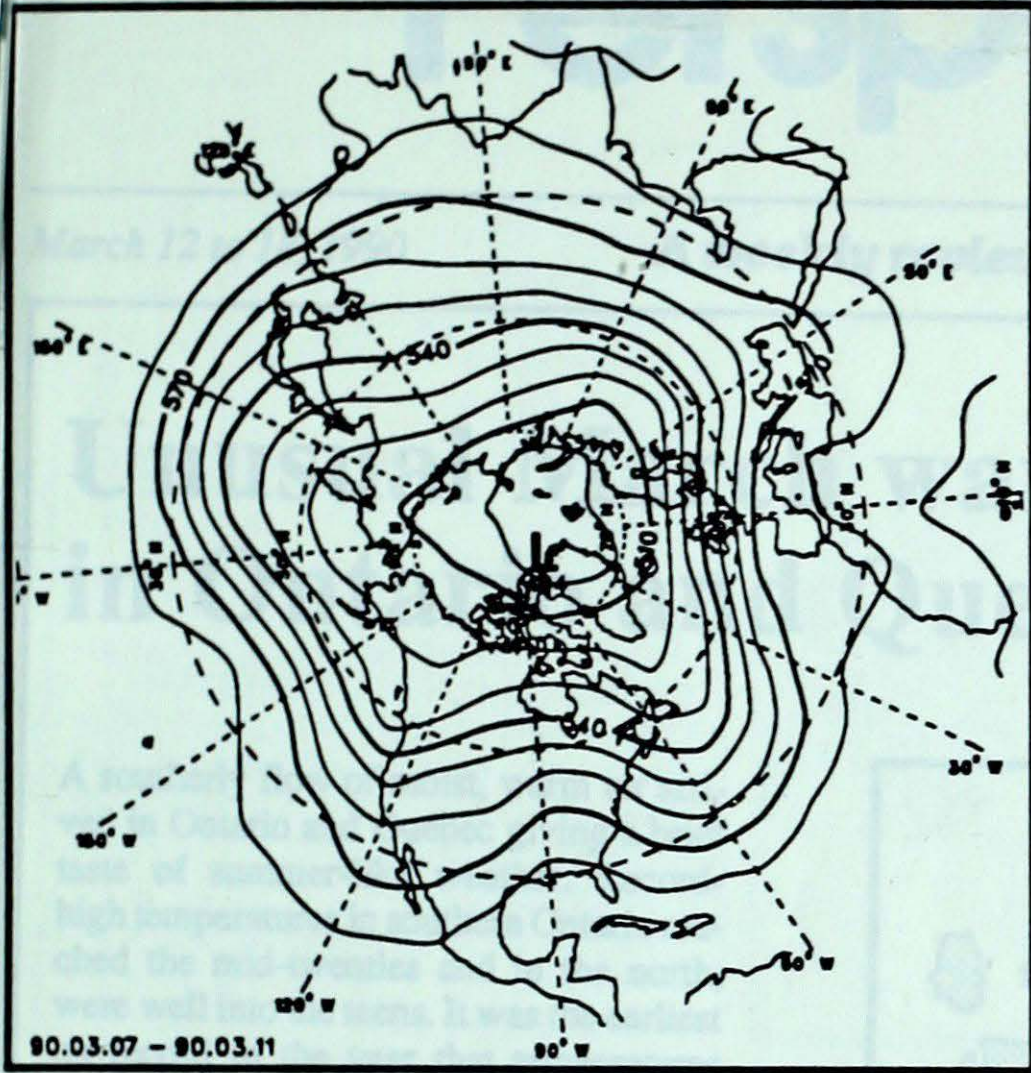
STATION	temperature				precip.		wind max		STATION	temperature				precip.		wind max	
	mean	anom	max	min	ptot	st	dir	vel		mean	anom	max	min	ptot	st	dir	vel
<b>British Columbia</b>								<b>Ontario</b>									
Cape St James	4	-1	10	0	24	***	140	102	Big Trout Lake	-6	12	8	-33	0	35	290	76
Cranbrook A	2	2	9	-5	4	1	210	61	Gore Bay A	-6	1	4	-19	11	26		X
Fort Nelson A	-6P	6P	9P	-19P	1P	***	340	33	Kapuskasing A	-7	5	9	-34	0	42	250	65
Fort St John A	-3	6	8	-13	***	22	240	54	Kenora A	-2	8	7	-20	0	20	260	50
Kamloops A	5	3	16	-5	0	***	180	57	London A	-3P	0P	6P	-11P	15P	1	050	37
Penticton A	4P	1P	14P	-6P	6P	***	180	59	Moosonee	-7	8	11	-36	0	34	180	35
Port Hardy A	4	0	9	-3	36	***	110	67	North Bay A	-7	1	8	-24	0	67	250	32
Prince George A	-1P	2P	8P	-14P	8P	7	200	52	Ottawa Int'l A	-6	-1	7	-19	0	4		X
Prince Rupert A	3	0	8	-4	45	***	160	74	Petawawa A	-9	-4	11	-28	0	17		X
Revelstoke A	1	1	5	-10	23	59	320	69	Pickle Lake	-5	9	9	-30	1	***	250	44
Smithers A	-1P	2P	7P	-9P	2P	28	170	37	Red Lake A	-4	8	8	-30	0	51	240	65
Vancouver Int'l A	5	0	10	0	61	***	120	52	Sudbury A	-8	0	5	-25	0	58		X
Victoria Int'l A	5	0	10	-1	41	***	141	59	Thunder Bay A	-5P	4P	9P	-24P	4P	4	290	35
Williams Lake A	-2	0	8	-12	4	24	140	59	Timmings A	-8	4	10	-35	0	67	240	65
<b>Yukon Territory</b>								<b>Québec</b>									
Komakuk Beach A	-26	1	-18	-33	1	30		X	Bagotville A	-9	0	8	-25	0	35		X
Teslin (aut)	-8	*	6	-21	0	***		X	Blanc Sablon A	-18P	*	-2P	-29P	5P	86	360	37
Watson Lake A	-10	4	5	-25	0	60	120	48	Inukjuak A	-15	8	-1	-35	4	32	190	67
Whitehorse A	-7	3	4	-22	0	38	140	65	Kuujuuaq A	-16P	4P	1P	-32P	3P	33	280	44
<b>Northwest Territories</b>								<b>New Brunswick</b>									
Alert	-30	5	-19	-38	6	33	220	98	Charlo A	-7	0	8	-22	0	64	290	59
Baker Lake A	-17	13	-8	-32	15	52	340	69	Chatham A	-7	-2	10	-22	0	43	280	43
Cambridge Bay A	-24	9	-12	-34	2	38	020	67	Fredericton A	-7	-3	11	-25	0	18	290	44
Cape Dyer A	-24P	1P	-14P	-34P	0P	114		X	Moncton A	-7	-3	9	-22	1	14	330	37
Clyde A	-26	2	-16	-38	1	38	330	46	Saint John A	-7	-3	10	-22	0	15	220	44
Coppermine A	-23	9	-8	-38	9	78		X	<b>Nova Scotia</b>								
Coral Harbour A	-19	8	-5	-35	15	54	010	80	Greenwood A	-5	-3	9	-20	0	2	300	46
Eureka	-35	4	-17	-46	2	15	160	83	Shearwater A	-4	-3	8	-15	0	1	300	43
Fort Smith A	-8	10	7	-24	10	71	320	59	Sydney A	-10	-7	5	-19	6	12	280	35
Hall Beach A	-25P	6P	-15P	-38P	1P	41	150	43	Yarmouth A	-3	-3	8	-12	0	***	340	46
Inuvik A	-23	4	-17	-33	16	53	340	46	<b>Prince Edward Island</b>								
Iqaluit A	-20	4	-3	-35	16	28	140	57	Charlottetown A	-11P	-7P	5P	-21P	1P	16	330	44
Mould Bay A	-29	6	-18	-36	3	26	190	50	Summerside A	-7	-3	7	-20	1	46	210	52
Norman Wells A	-19	3	-9	-30	0	9	300	59	<b>Newfoundland</b>								
Resolute A	-29	4	-17	-37	1	27	130	56	Cartwright	-16	-6	4	-31	3	230	300	59
Yellowknife A	-16	6	2	-29	1	42	270	50	Churchill Falls A	-16	-1	6	-34	2	80	280	59
<b>Alberta</b>								<b>90/03/05-90/03/11</b>									
Calgary Int'l A	2	8	13	-10	4	***	350	70	Gander Int'l A	-13	-8	2	-25	6	47	250	48
Cold Lake A	-2	8	6	-10	7	16	310	44	Goose A	-14	-3	8	-27	0	94	290	50
Edmonton Namao A	-1	7	9	-6	6	1	310	46	Port Aux Basques	-12P	-9P	0P	-21P	3P	94	300	65
Fort McMurray A	-3	9	8	-12	3	39		X	St John's A	-10	-7	4	-18	5	1	260	74
High Level A	-9	5	9	-26	9	51	350	57	St Lawrence	-9	-7	2	-19	8	5		X
Jasper	-1	3	7	-11	10	18		X	Wabush Lake A	-15	2	3	-32	3	48	300	43
Lethbridge A	4	8	16	-5	9	***	260	104									
Medicine Hat A	5	10	15	-6	3	***	250	89									
Peace River A	-4	6	6	-15	2	7	350	43									
<b>Saskatchewan</b>																	
Cree Lake	-5	11	8	-24	1	39	310	56									
Estevan A	2	11	13	-12	1	***	280	67									
La Ronge A	-3	10	6	-20	7	48	290	61									
Regina A	2	12	12	-10	1	***	260	82									
Saskatoon A	1	12	8	-9	0	1	280	70									
Swift Current A	4	12	16	-4	0	***	250	83									
Yorkton A	-3	9	3	-17	0	11	220	80									
<b>Manitoba</b>																	
Brandon A	-3	8	4	-19	1	8	260	56									
Churchill A	-8	15	6	-25	6	13	290	83									
Lynn Lake A	-5P	12P	9P	-17P	10P	29	300	67									
The Pas A	-2	11	8	-14	6	12	260	82									
Thompson A	-2P	14P	8P	-14P	8P	29	270	74									
Winnipeg Int'l A	-2	9	6	-21	0	1	180	44									

mean = mean weekly temperature, °C  
 max = maximum weekly temperature, °C  
 min = minimum weekly temperature, °C  
 anom = mean temperature anomaly, °C

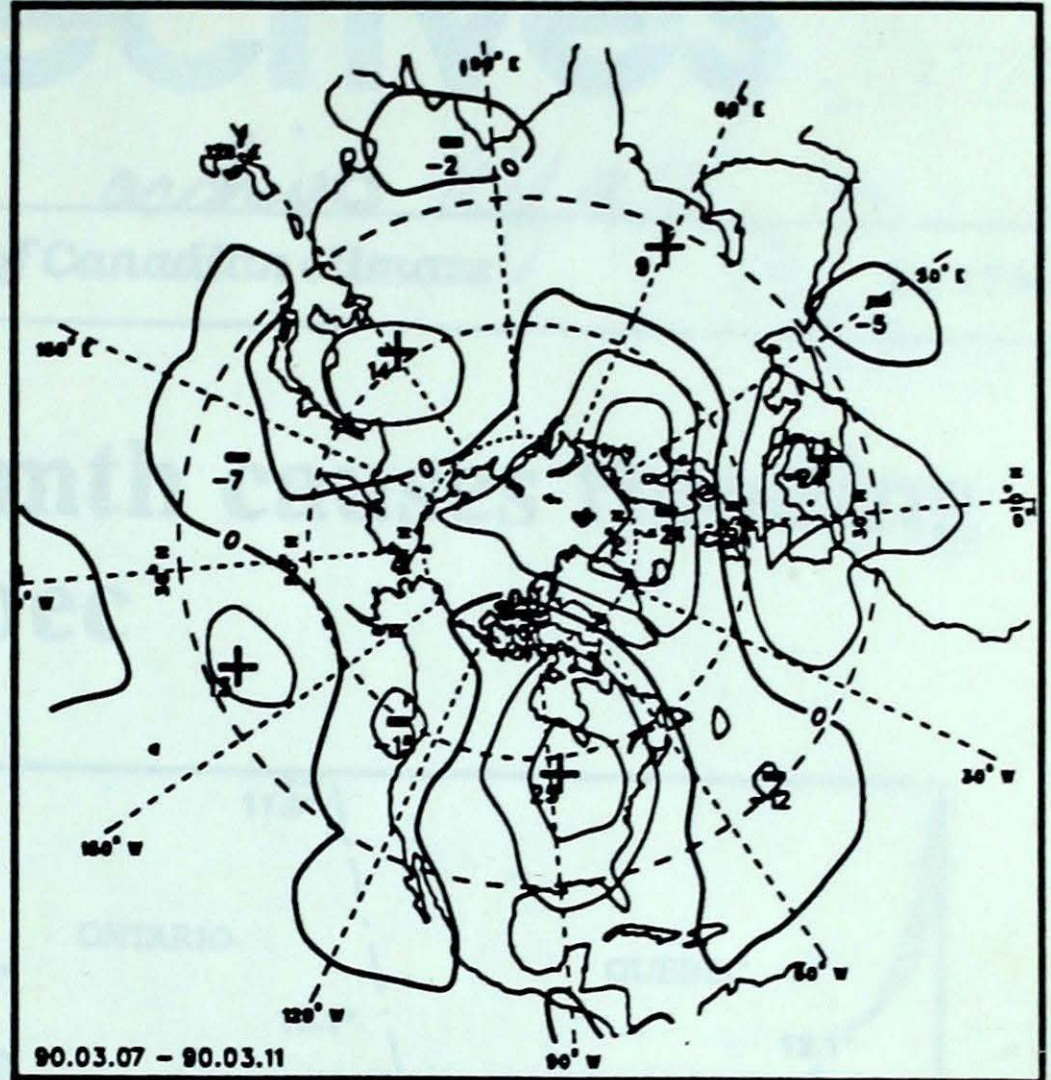
ptot = weekly precipitation total in mm  
 st = snow thickness on the ground in cm  
 dir = direction of max wind, deg. from north.  
 vel = wind speed in km/h

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

### ATMOSPHERIC CIRCULATION



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



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



also brings a combination of warm weather, rainstorms, quickly melting snow cover and ice-jams caused 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 Beaveron and Pufferlaw Creeks where they empty into Lake Simcoe. Preliminary estimates indicate damage to homes, businesses, farms and businesses is about \$1 million. Flooding occurred along the Humber River near Angus, the Pelee River and along rivers and creeks in the Chubbuck 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 Madawaska Rivers. Northwestern Ontario's snowpack is approximately 20% of normal and there is the potential for flooding.

In Saint-Maximilien, southern Quebec, the bridge spanning the Nicolet River was carried away by the ice, and the bridge at Kingsley Falls was damaged and closed to

traffic. The majority of roads drowned in Saint-Christophe. Most of the old canals 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 Search, in-

mountain snow pack, run-off and flooding  
 part as of March 1st. But 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 Clearwater, Kettle and Nicola basins.

#### Wintry weather to rekindle...

A low 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.