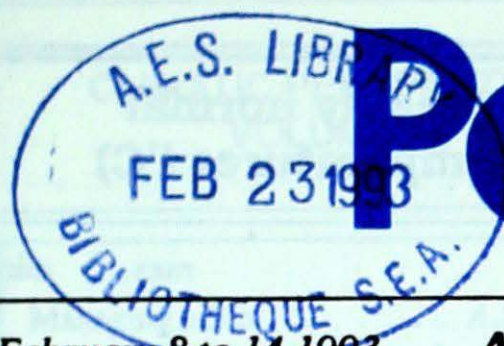




# Climatic Perspectives

MONTHLY  
SUPPLEMENT  
INCLUDED



February 8 to 14 1993

A weekly review of Canadian climate and water

Vol. 15 No. 07

## Heavy rain and record snowfall pounds the East

*A weather system, which brushed the lower Great lakes on Friday, February 12, redeveloped off the Eastern Seaboard Saturday, and produced heavy rain and snow over much of the eastern half of the country.*

A major storm hit the Maritimes on February 13, bringing with it strong winds and a mixed bag of precipitation. Heavy rain, between 30 and 50 millimetres, drenched Nova Scotia and southern New Brunswick, while 30 cm of snow buried northern New Brunswick. Winds gusting to 137 km/h were reported at Grand Etang, situated on the west coast of Cape Breton Island. The maximum temperature climbed to 8.7°C at Halifax, breaking the old February 13 record maximum of 8.3°C. The combination of heavy rain, rapidly melting snow and plugged catch basins and sewers, due to previous hefty snowfalls, resulted in many flooded city streets, wet basements, stalled cars and power outages. In some parts of Halifax, roadways were covered by more than half a metre of water.

The heavy snow spread north and curved westwards across all of southern Quebec, with the Ottawa and St. Lawrence Valleys receiving between 20 and 40 centimetres. At Montreal's Dorval Airport, the 32.2 cm that fell on the 13th was the greatest one-day snowfall since 1979. As much as 39 cm of fresh snow was reported south of Montreal. The storm letup just in time for the Quebec Winter Carnival Parade.

It was eastern Ontario that took the brunt of the February 12 - 13 snowstorm

in Ontario. Although most of the province received only 5 to 10 centimetres of snow from this storm, Ottawa recorded a two-day total of 37 cm, with 34.4 cm falling on February 13. This one-day amount has been exceeded only three times since the weather office opened in 1938. The only other heavier snow-days included: March 2, 1947 (40.6 cm); February 16, 1954 (39.6 cm); and January 30, 1966 (38.6 cm). Kingston received 23 cm of snow the same day.

### Elsewhere...

In the Yukon, a strengthening ridge of high pressure deflected most Pacific weather systems into Alaska. Relatively pleasant weather prevailed for the start of the 1600 km "Quest" dog team race from Whitehorse to Fairbanks, Alaska. For a change, there were no reports of road closure due to avalanches or blizzards. In the District of Mackenzie, at the beginning of the period, the first truck convoy reached the Lupin gold mine on the newly opened winter ice road, heading north from Yellowknife. Strong winds and blowing snow hampered further trucking activity.

Generally sunny, spring-like weather prevailed over much of B.C., with slightly cooler temperatures towards the end of the week. On Vancouver Island, February so far has been dry. In Victoria, precipitation amounts have been below normal

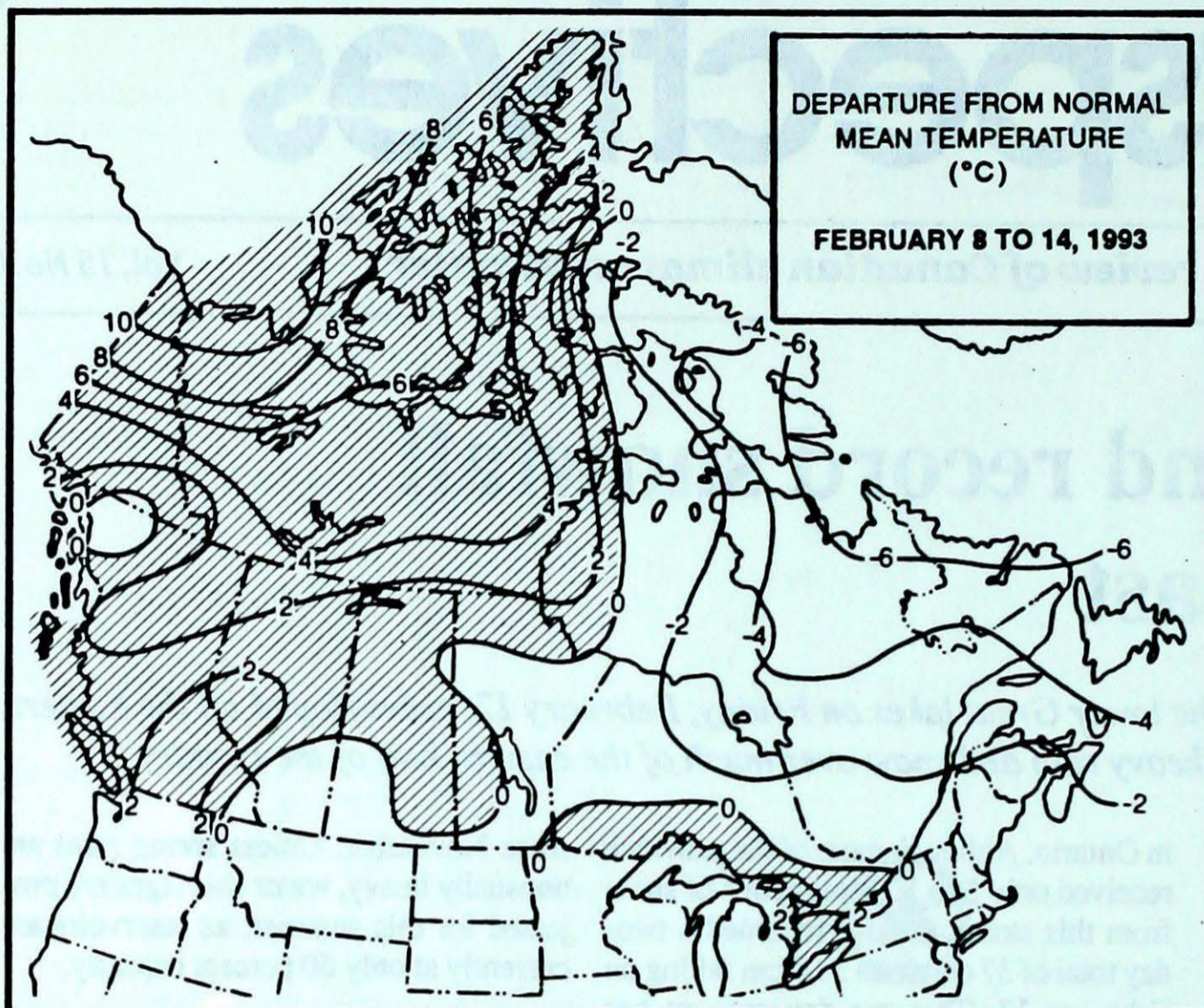
since November. Unless spring rains are unusually heavy, water shortages are projected for this summer, as reservoirs are currently at only 60 percent capacity.

Typical winter weather prevailed over the Prairies, with generally cold, but fluctuating temperatures and light snowfalls. Local blizzard conditions were experienced in central Alberta over the weekend.

Newfoundland missed the heavy precipitation from the February 13 storm. What did fall, was a mixture of rain and freezing rain, but very strong winds, with gusts to 128 km/h, were reported at Sagona Island, off the south coast. A few days earlier, the more northern portions of the Island received 30 cm of snow. Labrador was sunny but cold for the first part of the week, with some snow and milder temperatures thereafter. At times, winds created bitterly cold windchills.

### A look ahead...

For the week of February 22, below-normal temperatures are expected for most of the country, except above-normal values are likely across the Yukon and the western Arctic. Unsettled weather is expected over southern British Columbia and southwestern Alberta. Stormy weather will occur across southern Ontario and Quebec, and the Atlantic Region.



**Weekly normal temperatures (°C)**

	max.	min.
Whitehorse A	-9.1	-18.4
Iqaluit A	-20.9	-29.6
Yellowknife A	-21.1	-30.3
Vancouver Int'l A	7.6	1.5
Victoria Int'l A	8.1	1.5
Calgary Int'l A	-2.1	-12.6
Edmonton Int'l A	-5.4	-15.8
Regina A	-8.0	-18.5
Saskatoon A	-9.2	-19.5
Winnipeg Int'l A	-10.1	-21.0
Ottawa Int'l A	-5.8	-15.5
Toronto (Pearson Int'l A)	-2.5	-11.7
Montréal Int'l A	-5.3	-14.6
Québec A	-7.1	-17.0
Fredericton A	-3.2	-15.0
Saint John A	-2.8	-13.5
Halifax (Shearwater)	-0.8	-8.9
Charlottetown A	-3.5	-11.8
Goose A	-9.5	-19.9
St John's A	-0.5	-7.2

**Weekly temperature and precipitation extremes**

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Abbotsford A 16	Fort Nelson A -28	Abbotsford A 11
Yukon Territory	Komakuk Beach A 4	Old Crow -40	Watson Lake A 1
Northwest Territories	Clinton Point -6	Eureka -44	Cape Dyer A 9
Alberta	Pincher Creek (aut) 10	High Level A -30	Whitecourt A 7
Saskatchewan	Moose Jaw A 9	Cree Lake -39	Moose Jaw A 4
Manitoba	Dauphin A 2	Thompson A -42	Norway House A 16
Ontario	Windsor A 5	Lansdowne House -41	Ottawa Int'l A 29
Quebec	Blanc Sablon A 4	La Grande IV A -44	Montréal Int'l A 38
New Brunswick	Moncton A 8	St-Léonard A -25	Miscou Island (aut) 42
Nova Scotia	Greenwood A 11	Truro -27	Sydney A 61
Prince Edward Island	Charlottetown A 7	Charlottetown A -23	Charlottetown A 33
Newfoundland	Argentia A 12	Churchill Falls A -38	Stephenville A 47

**Across The Country...**

Highest Mean Temperature	Abbotsford A (B.C.)	7
Lowest Mean Temperature	Pond Inlet A (N.W.T.)	-35

CLIMATIC PERSPECTIVES  
VOLUME 15

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ISBN 0225-5707 UDC 551.506.1(71)

Climatic Perspectives is a weekly publication (disponible aussi en français) of the Canadian Climate Centre, Atmospheric Environment Service, 4905 Dufferin St., Downsview, Ontario, Canada M3H 5T4

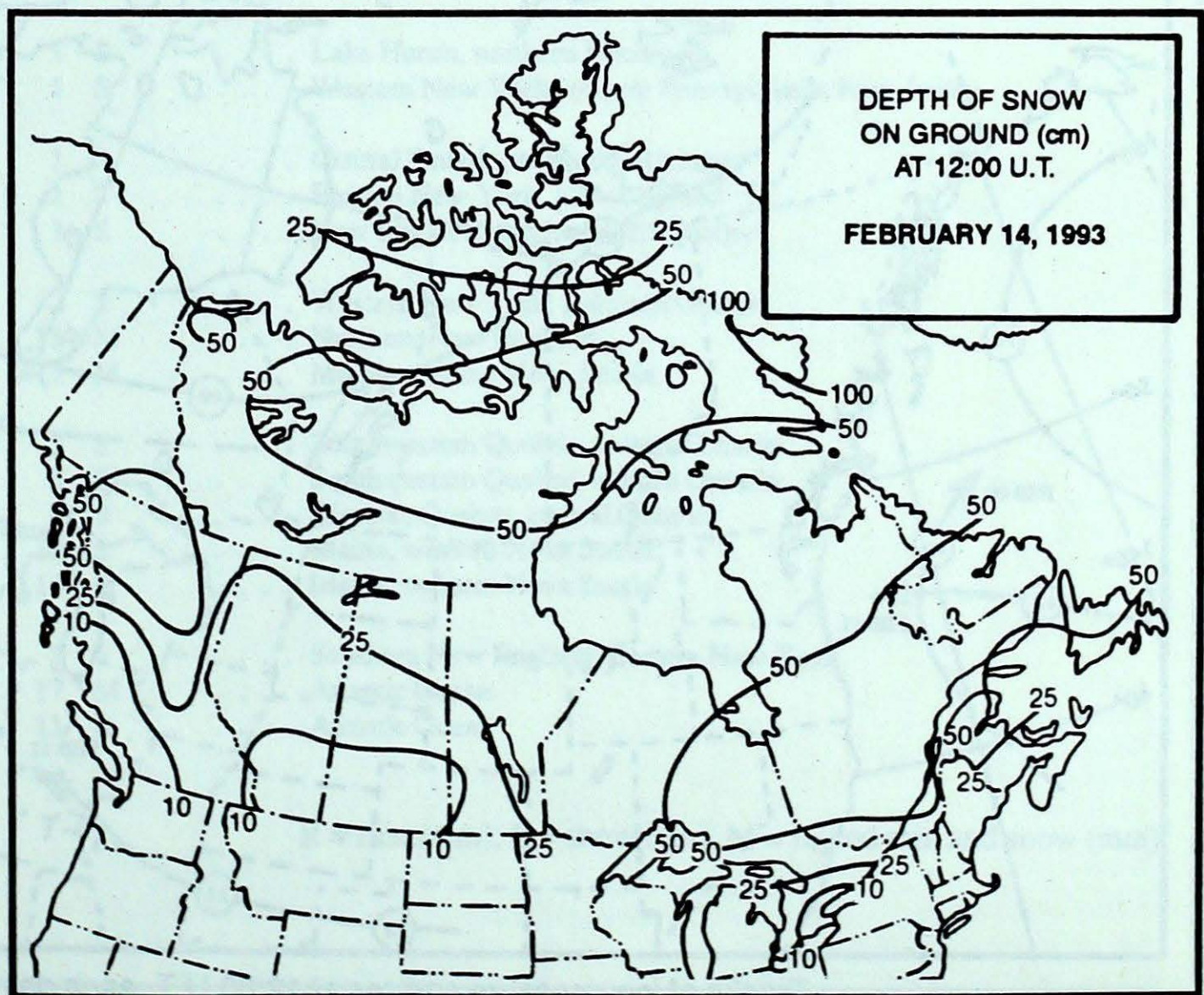
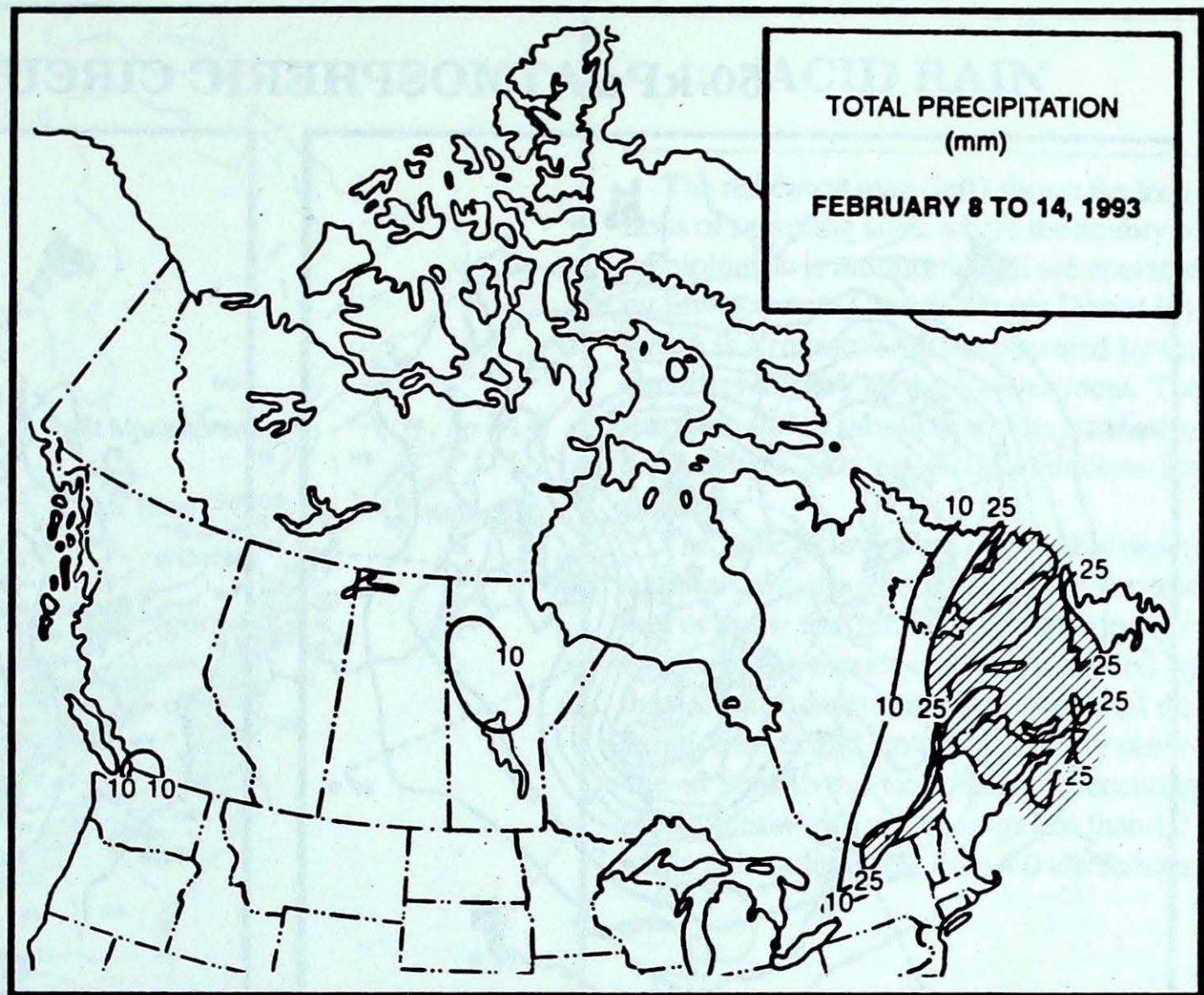
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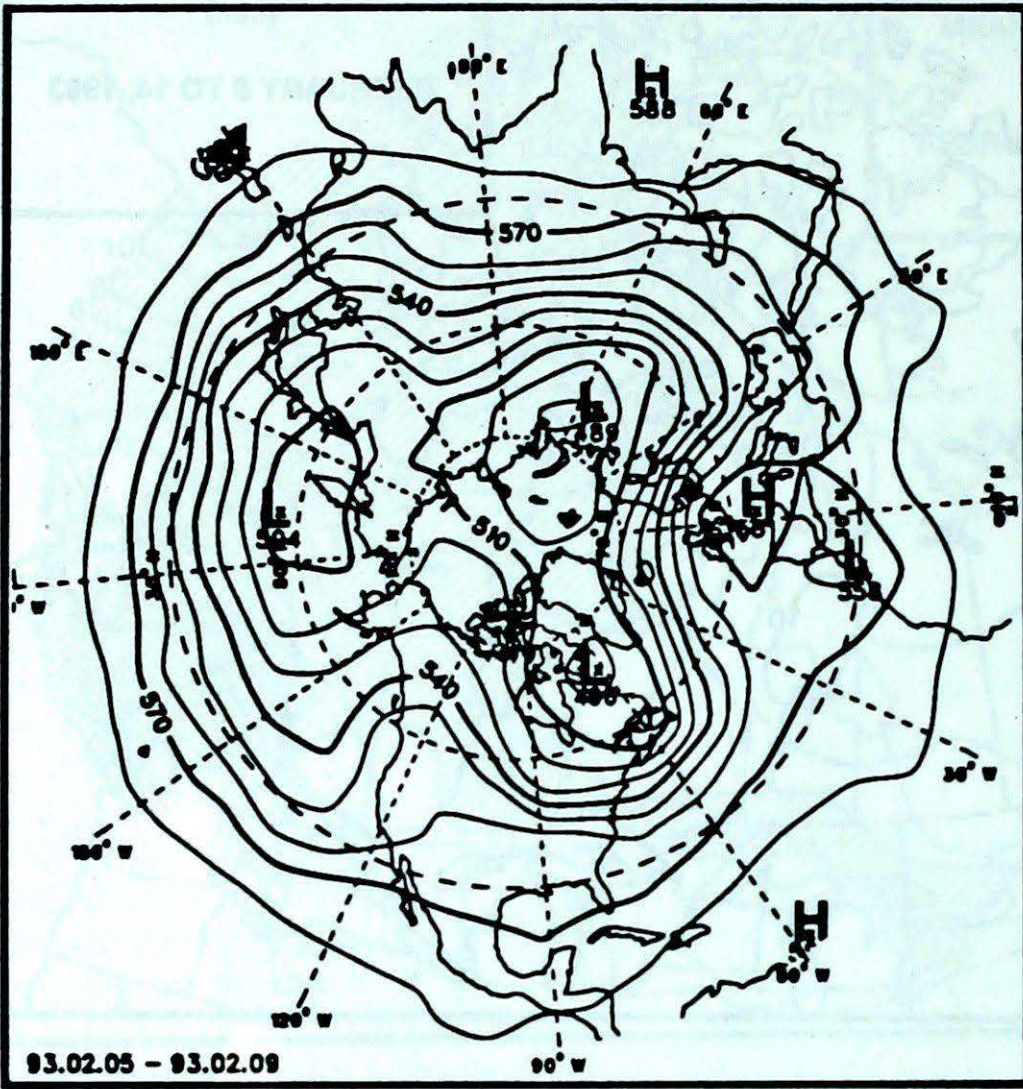
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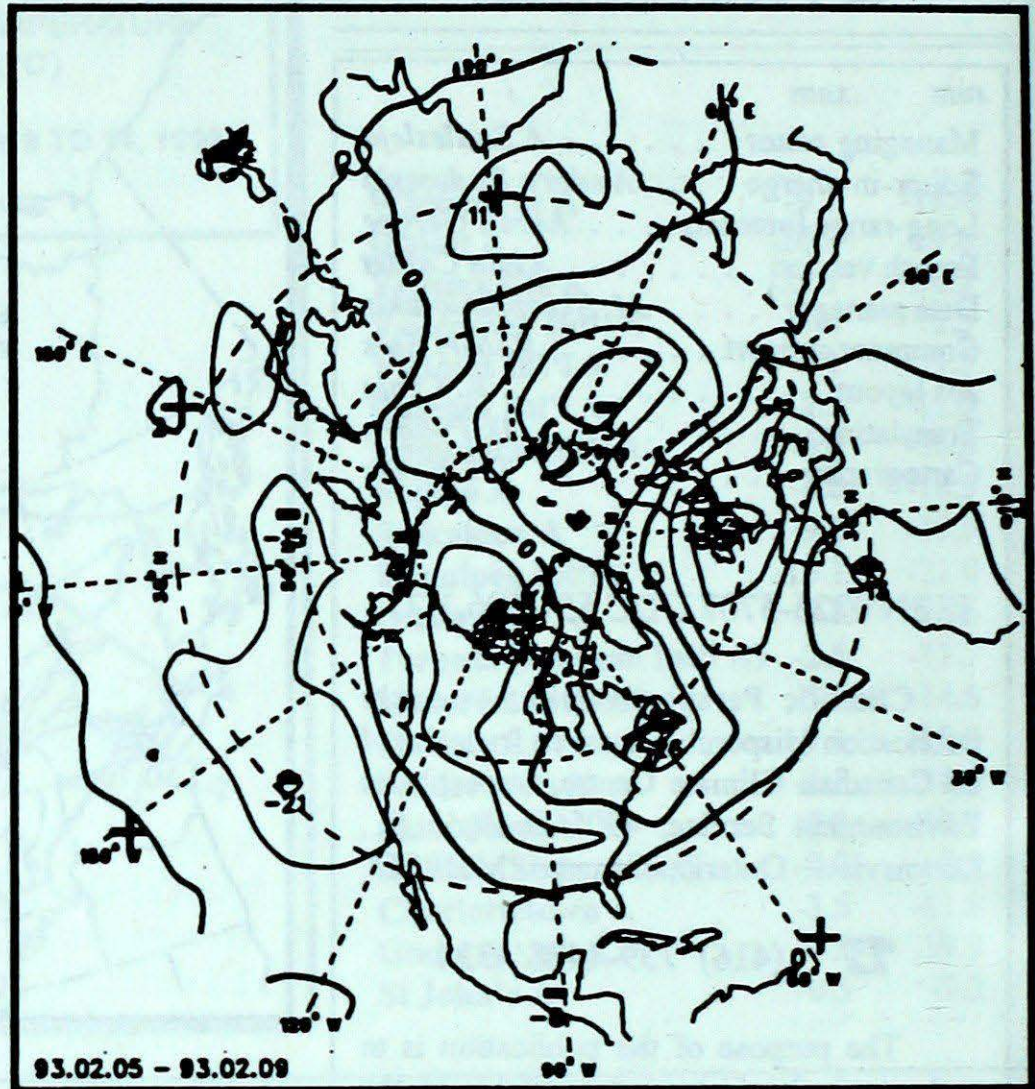
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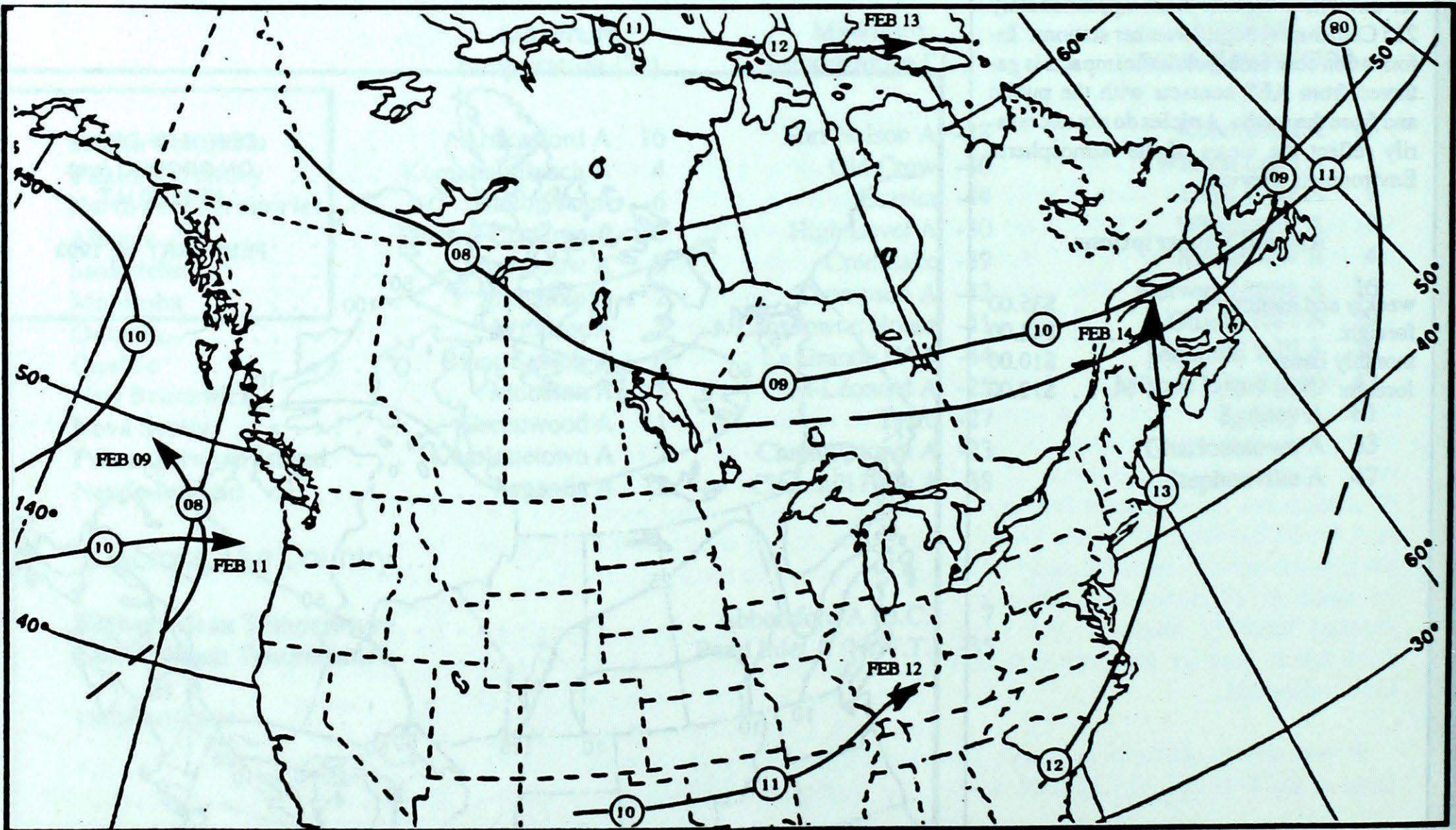
### 50-kPa ATMOSPHERIC CIRCULATION



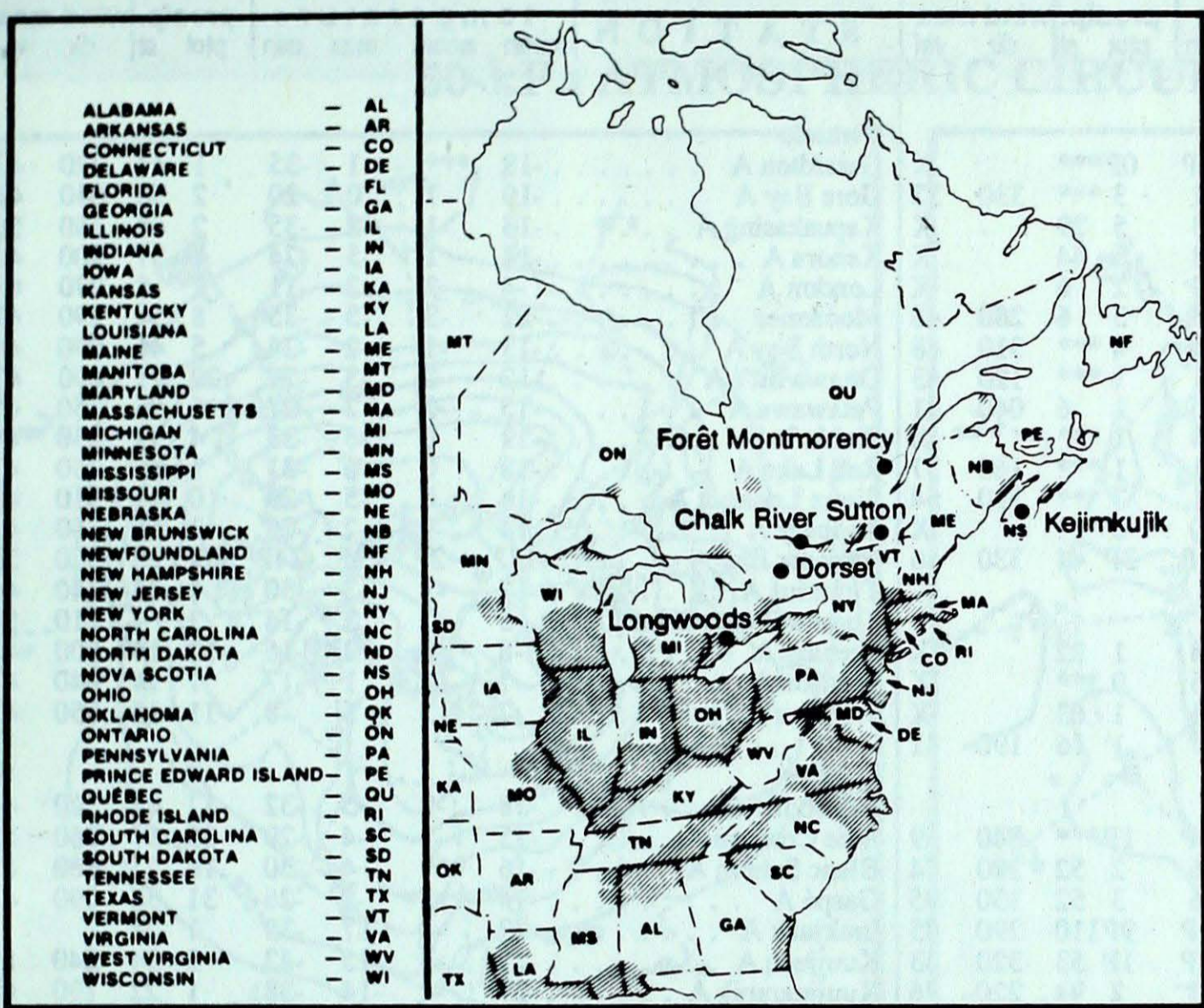
Mean geopotential height  
50-kPa level (10 decametre intervals)



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 7 to 13, 1993

Longwoods				NO PRECIPITATION THIS WEEK
Dorset *	07	5.2	1 S	Lake Huron, northern Michigan
	12	4.0	1 S	Western New York, eastern Pennsylvania, New Jersey
Chalk River	07	4.0	1 S	Central Ontario, northern Michigan
	12	4.7	1 S	Eastern New York, New England
	13	4.6	1 S	New England, southwestern Quebec
Sutton	07	4.2	2 S	Western New York, southern Ontario
	12	4.7	13 M	Northern New England
	13	4.5	7 M	Maine, western Nova Scotia
Montmorency	07	4.1	2 S	Southwestern Quebec, eastern Ontario
	09	4.2	3 S	Southwestern Quebec, eastern Ontario
	10	4.5	1 S	Western Quebec, central Ontario
	12	5.2	15 S	Maine, western Nova Scotia
	13	5.1	16 S	Maine, western Nova Scotia
Kejimikujik	08	4.9	3 S	Southern New England, Eastern New York
	12	5.0	17 M	Atlantic Ocean
	13	5.0	11 R	Atlantic Ocean

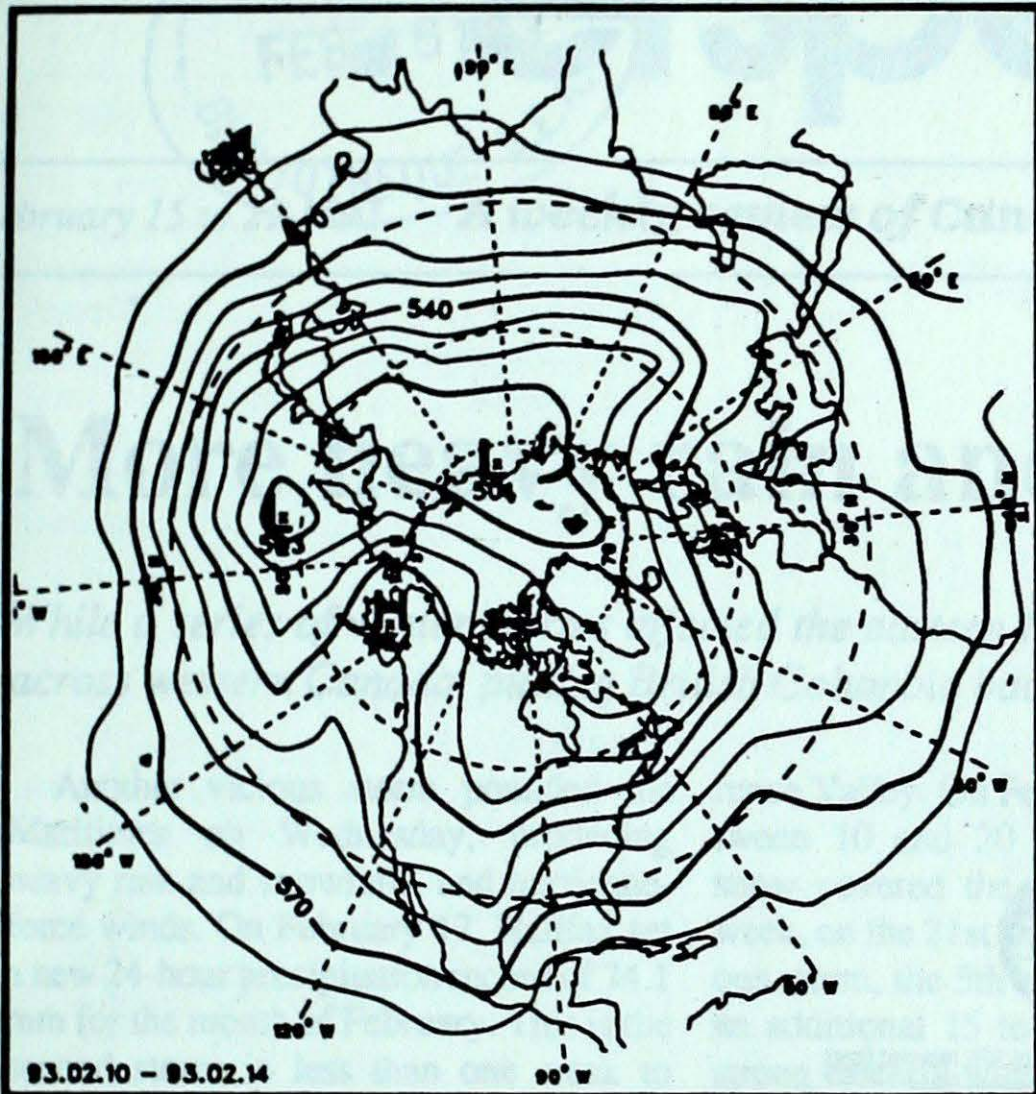
R = rain (mm), S = snow (cm), M = mixed rain and snow (mm)

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>								
Blue River A	-1P	4P	3P	-9P	0P***			X	Geraldton A	-18	***	-1	-35	1	47	220	48
Comox A	5	1	10	-1	3	***	330	32	Gore Bay A	-10	1	0	-20	2	36	040	43
Cranbrook A	-3	1	5	-13	5	29		X	Kapuskasing A	-18	-1	-2	-35	2	68	350	56
Fort Nelson A	-16	2	-6	-28	5	44		X	Kenora A	-14	1	-5	-24	1	37	200	46
Fort St John A	-10	2	6	-19	2	6		X	London A	-4	3	2	-11	7	8	070	65
Kamloops A	0	2	6	-5	3	6	280	48	Moosonee	-22	-3	-5	-35	8	54	290	46
Penticton A	3	2	8	-4	4	***	310	48	North Bay A	-13	-1	-2	-24	5	46	090	44
Port Hardy A	5	1	12	-1	1	***	120	43	Ottawa Int'l A	-12	-2	-3	-22	29	71	090	41
Prince George A	-6	1	6	-16	1	6	040	41	Petawawa A	-15	-2	-2	-27	6	26	350	41
Prince Rupert A	4	1	13	-3	1	***		X	Pickle Lake	-19	0	-6	-33	4	33	330	44
Smithers A	-2	4	6	-11	1	***	160	37	Red Lake A	-18	0	-6	-31	1	49	250	41
Vancouver Int'l A	5	1	13	-1	7	***	290	54	Sioux Lookout A	-16	0	-5	-29	0	41	310	48
Victoria Int'l A	6	1	13	0	6	***		X	Sudbury A	-14	-1	-2	-25	3	55	350	43
Williams Lake A	-4P	1P	7P	-13P	3P	44	330	46	Thunder Bay A	-12P	2P	3P	-24P	0P	20	320	39
<b>Yukon Territory</b>									<b>Timmins A</b>								
Komakuk Beach A	-17	11	4	-28	1	22		X	Toronto(Pearson Int'l A)	-5	2	3	-14	3	7	110	50
Teslin (aut)	-14	***	-5	-26	0	***		X	Trenton A	-8	0	3	-16	12	14	300	48
Watson Lake A	-22	-3	-7	-34	1	63		X	Warton A	-7	1	1	-17	7	14	040	44
Whitehorse A	-10	4	0	-27	1	16	190	41	Windsor A	-2	3	5	-8	11	12	050	43
<b>Northwest Territories</b>									<b>Québec</b>								
Alert	-30P	4P	-19P	-37P	1P***	340	59	Bagotville A	-18	-2	-5	-32	17	48	300	44	
Baker Lake A	-28	5	-14	-36	2	52	290	74	Baie Comeau A	-15	-1	-4	-29	35	57	060	57
Cambridge Bay A	-26	7	-15	-36	3	52	350	95	Blanc Sablon A	-16	***	4	-30	16	27	360	82
Cape Dyer A	-27P	-7P	-18P	-35P	9P110	290	85	Gaspé A	-14	-3	-2	-26	31	36	090	44	
Clyde A	-30P	-3P	-22P	-38P	1P	53	320	43	Inukjuak A	-29	-4	-17	-39	1	28		X
Coppermine A	-22	0	-12	-35	2	94	220	76	Kuujuuaq A	-29	-7	-15	-42	2	34	240	82
Coral Harbour A	-31	-1	-17	-42	1	22	260	61	Kuujuarapik A	-27	-4	-14	-38	1	22	190	67
Eureka	-33	5	-24	-44	0	18		X	La Grande Rivière A	-26	-4	-14	-36	6	71	110	41
Fort Smith A	-20	3	-9	-29	1	44	280	44	Mont Joli A	-14	-2	-5	-24	23	37	040	67
Hall Beach A	-32	-1	-19	-42	2	53	290	41	Montréal Int'l A	-12	-2	-3	-24	38	33	030	44
Inuvik A	-18	13	-8	-27	1	74		X	Natashquan A	-15	-4	3	-29	29	42	090	56
Iqaluit A	-33	-8	-21	-42	3	25	330	52	Québec A	-14	-1	-4	-25	21	54	070	67
Mould Bay A	-26P	9P	-21P	-34P	1P	15		X	Schefferville A	-27	-5	-15	-40	3	53	290	80
Norman Wells A	-19	8	-7	-35	1	37	270	52	Sept-Îles A	-17	-4	-4	-27	37	48	080	41
Resolute A	-29	4	-23	-36	0	18	050	93	Sherbrooke A	-13	-1	-3	-29	25	50	300	41
Yellowknife A	-23	3	-13	-31	2	32	340	56	Val-d'Or A	-19	-3	-5	-32	6	53	310	44
<b>Alberta</b>									<b>New Brunswick</b>								
Calgary Int'l A	-7	0	6	-18	5	9	340	57	Fredericton A	-10	-1	3	-23	27	14	220	52
Cold Lake A	-13	1	5	-23	0	26		X	Miscou Island (aut)	-11	-2	3	-21	42	***		
Edmonton Namao A	-11	0	1	-21	2	13		X	Moncton A	-10	-1	8	-22	20	8	210	54
Fort McMurray A	-16	0	-2	-24	1	17	330	41	Saint John A	-9	-1	7	-23	27	14	090	69
Grande Prairie A	-11	1	4	-22	3	***		X	St Leonard A	-14	***	-2	-25	36	56	300	52
High Level A	-18	2	-6	-30	2	20	310	46	<b>Nova Scotia</b>								
Lethbridge A	-6	-1	7	-18	4	7	350	37	Greenwood A	-9	-3	11	-26	19	14	160	76
Medicine Hat A	-7	0	8	-17	4	6		X	Shearwater A	-6	-2	9	-18	46	12	150	72
Peace River A	-12	1	4	-25	3	16		X	Sydney A	-10	-4	8	-22	61	9	160	87
<b>Saskatchewan</b>									<b>Yarmouth A</b>								
Cree Lake	-22	0	-8	-39	0	32	330	44	Greenwood A	-5	-1	9	-17	43	8	090	65
Estevan A	-13	-1	1	-23	1	9	310	50	<b>Prince Edward Island</b>								
La Ronge A	-18	1	-4	-29	0	17	320	44	Charlottetown A	-11	-3	7	-23	33	23	120	67
Regina A	-12	1	3	-19	1	12	010	43	East Point (auto)	-10	***	5	-20	19	***		
Saskatoon A	-15	-1	1	-25	2	10	320	44	<b>Newfoundland</b>								
Swift Current A	-10	0	8	-19	2	5	320	56	Cartwright	-19	-7	-3	-30	27	89	240	59
Yorkton A	-13	2	3	-23	0	9	310	41	Churchill Falls A	-24	-5	-10	-38	18	91	290	46
<b>Manitoba</b>									<b>Gander Int'l A</b>								
Brandon A	-15	0	-1	-25	0	15	210	41	Gander Int'l A	-12	-5	8	-26	21	14	150	98
Churchill A	-25	2	-14	-32	3	20	300	63	Goose A	-21	-6	-6	-33	30	37	280	59
Lynn Lake A	-24	-1	-12	-37	13	32	300	43	Stephenville A	-12	-6	9	-27	47	94	120	83
The Pas A	-18	0	-7	-30	1	10	300	48	St John's A	-9	-5	8	-22	34	24	190	93
Thompson A	-24	-2	-11	-42	11	34	030	41	St Lawrence	-7	-3	9	-21	16	14		X
Winnipeg Int'l A	-16	0	-5	-27	0	36	180	56	Wabush Lake A	-24	-3	-12	-35	17	74	290	46

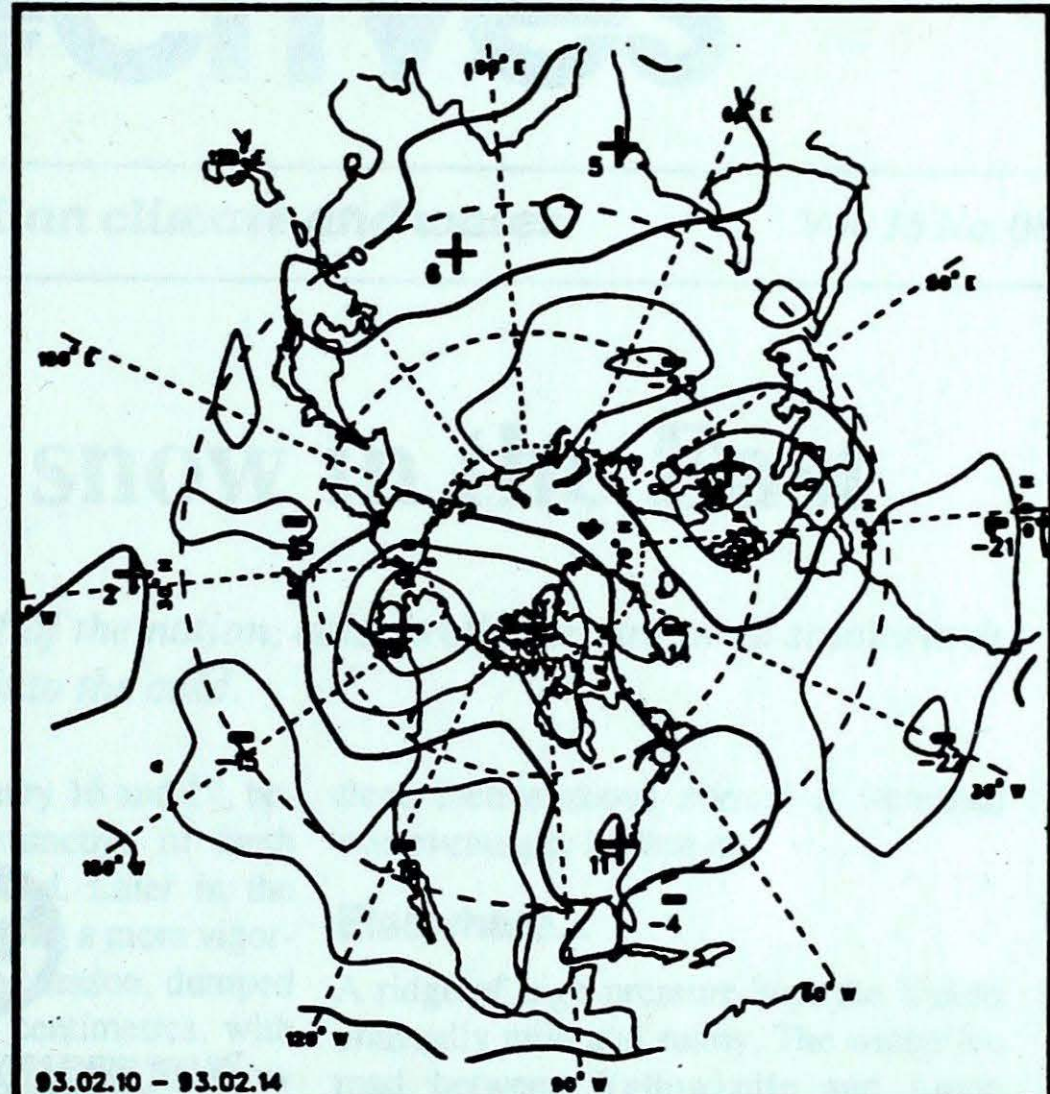
93/02/08-93/02/14

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.

### 50-kPa ATMOSPHERIC CIRCULATION



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



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

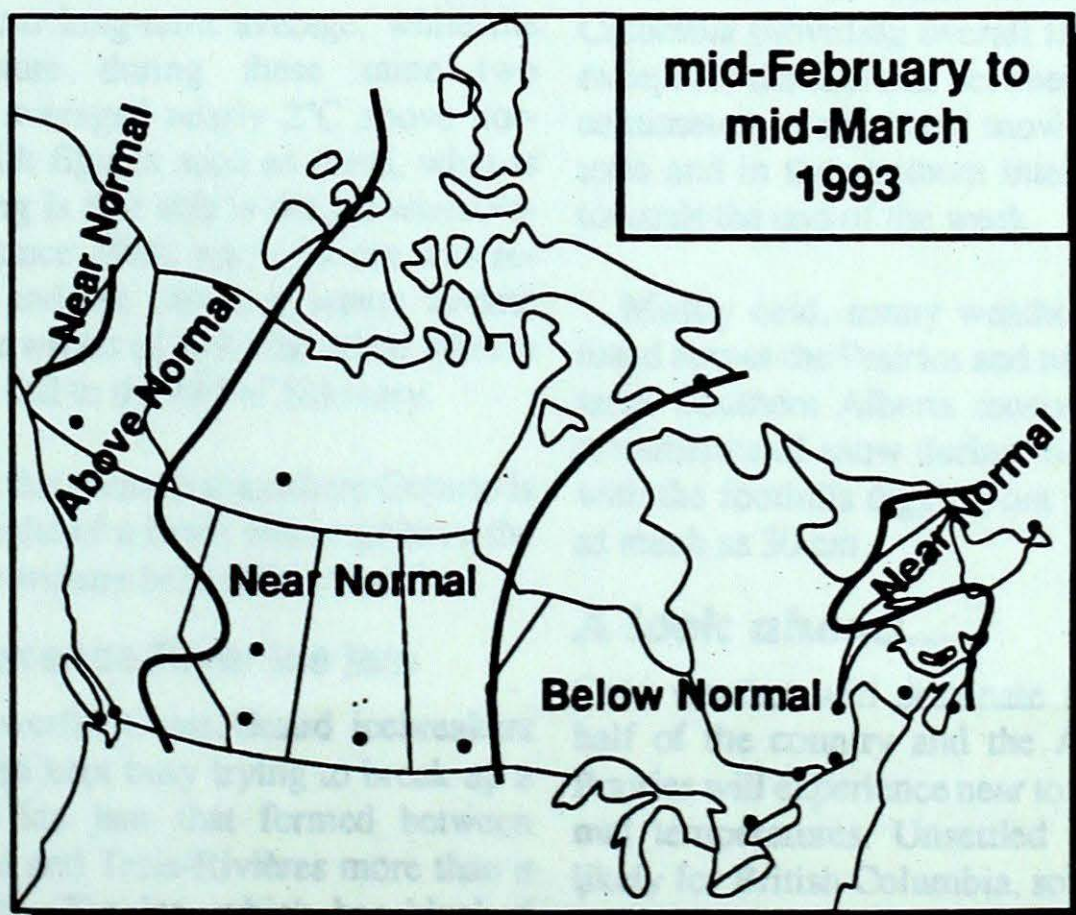


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### MONTHLY TEMPERATURE FORECAST

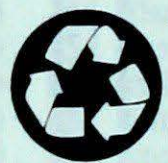
Normal temperatures for  
mid-February to mid-March, °C

Whitehorse	-11	Toronto	-4
Yellowknife	-22	Ottawa	-6
Iqaluit	-24	Montreal	-6
Vancouver	5	Quebec	-8
Victoria	5	Fredericton	-5
Calgary	-6	Halifax	-3
Edmonton	-8	Charlottetown	-5
Regina	-11	Goose Bay	-12
Winnipeg	-12	St. John's	-3



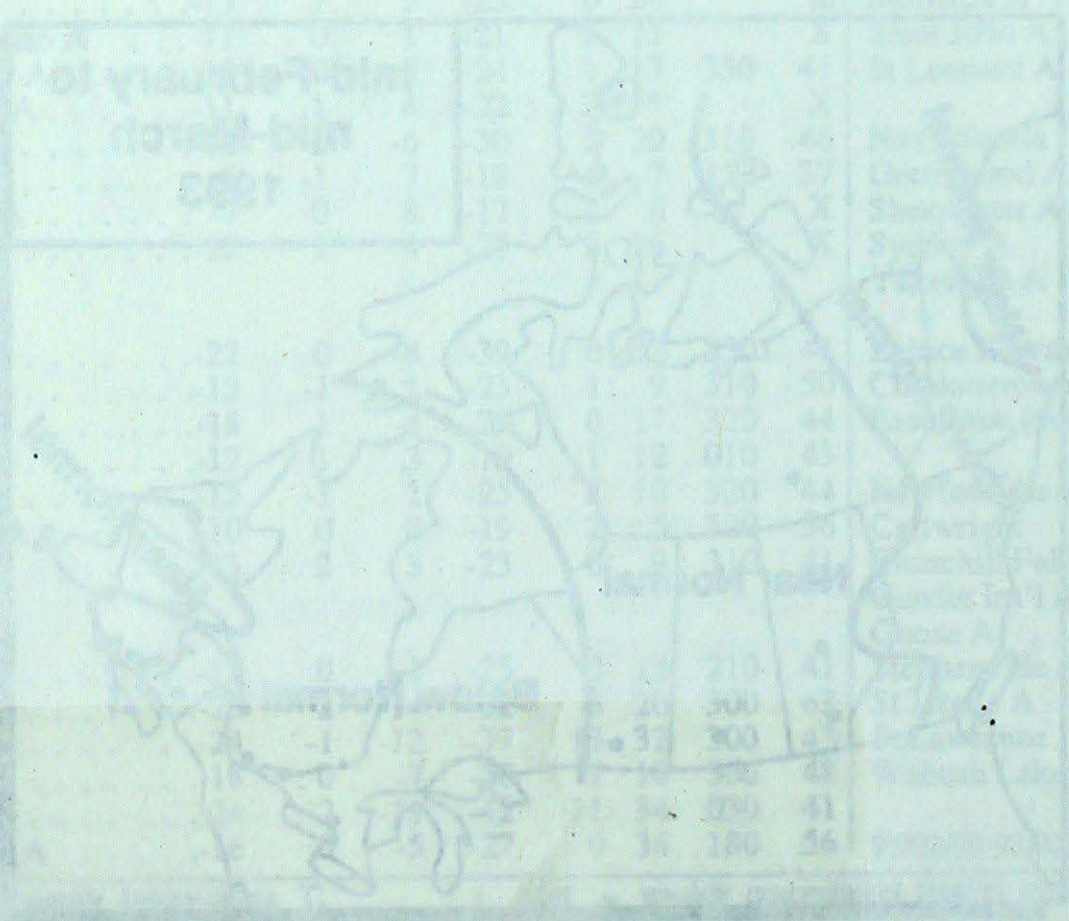
Canada

### BOA's ATMOSPHERIC CIRCULATION



This paper contains a minimum of 50% recycled fibres, including 10% post-consumer fibres.

### MONTHLY TEMPERATURE FORECAST



Station	Forecast	Actual	Deviation
Elm River A	23.0	23.0	0.0
Coeur A	24.0	24.0	0.0
Grandport A	25.0	25.0	0.0
Fort Assiniboia	26.0	26.0	0.0
Fort St. John	27.0	27.0	0.0
Kamloops A	28.0	28.0	0.0
Prince George	29.0	29.0	0.0
Prince Rupert	30.0	30.0	0.0
Smiths A	31.0	31.0	0.0
Vancouver	32.0	32.0	0.0
Victoria	33.0	33.0	0.0
Whitehorse	34.0	34.0	0.0
Yellowknife	35.0	35.0	0.0
Inuvik	36.0	36.0	0.0
Tuktoyaktuk	37.0	37.0	0.0
Cambridge Bay	38.0	38.0	0.0
Repulse Bay	39.0	39.0	0.0
Chester A	40.0	40.0	0.0
Cambridge Bay	41.0	41.0	0.0
Coeur A	42.0	42.0	0.0

Canada