



Climatic Perspectives

ARCH. e.2.

January 1 to 7, 1990

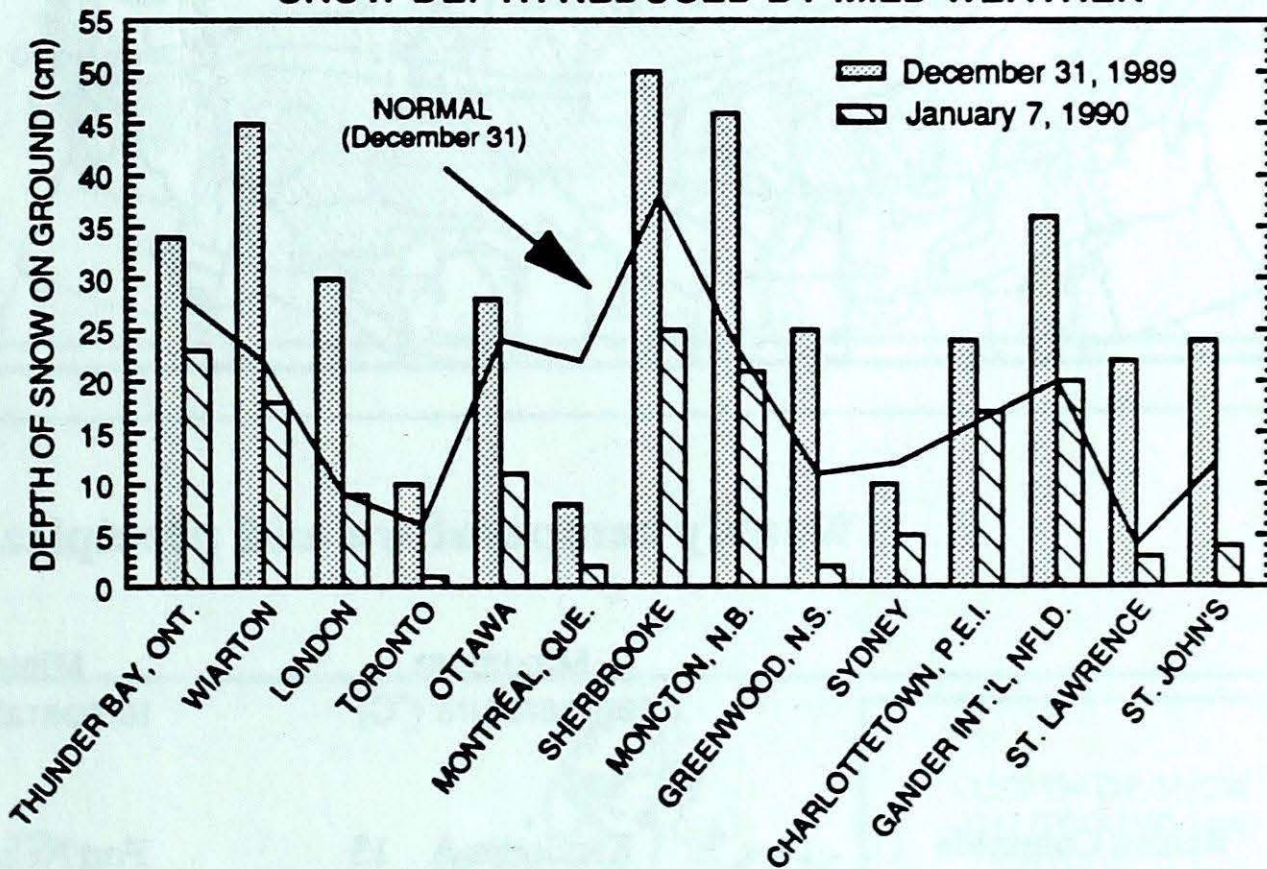
A weekly review of Canadian climate

Vol. 12 No.1

Winter reprieve across southern Canada

Mild Pacific air which dominated western Canada last week has spread eastwards, and covers southern Canada from coast to coast, depleting the snow cover. In central B.C., mild conditions which have prevailed this winter continue to interrupt most logging operations, and skiers are looking for snow and a cold snap. The southern Prairies need more snow to replenish the soil moisture for the 1990 growing season. Southern Ontario's snow has depleted to the point where there is only patchy snow cover at most. Southwestern Quebec and eastern Canada have also seen a decrease in snow cover in many areas.

SNOW DEPTH REDUCED BY MILD WEATHER



Ice conditions in Eastern Canada

St. Lawrence River

Persistently-cold temperatures in December caused a heavy build-up of ice in the River east of Montreal. Freezing degree-days (mean daily temperature below 0°C) are running 2 to 4 weeks ahead of normal. Ice along the River shoreline varies in thickness between 40 and 90 centimetres, and already extends out to its winter season maximum, normally not encountered until mid-February. Milder temperatures since the beginning of the new year have slowed ice growth and have induced the breaking away of large chunks of ice from the shores, making navigation more favourable. East of Québec City the ice is highly mobile and drifting into the Gulf of St. Lawrence.

Gulf of St. Lawrence

Most of the western Gulf is covered by new, thin ice. Heaviest ice conditions are in the southern sections of the Gulf, where winds have compacted the ice along the coastline. Ships have been encountering problems getting in and out of P.E.I. ports. Ice is already drifting eastwards out of Cabot Strait into the Atlantic, which is approximately 2 to 3 weeks earlier than normal. It is believed that ice caused a fishing vessel to sink in Cabot Strait over the weekend.

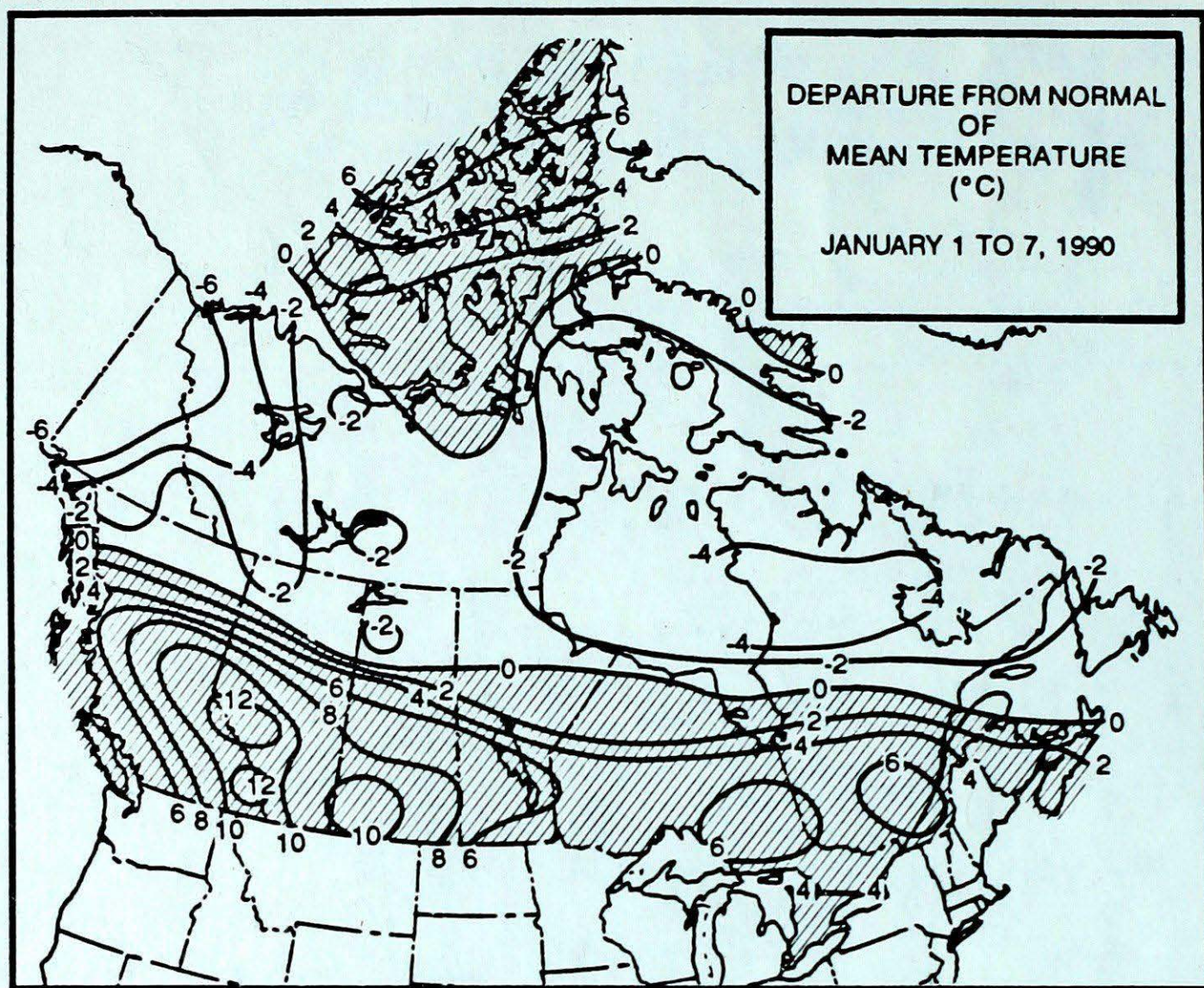
Newfoundland waters

Ice extent along the Labrador coast has

increased and is now considered to be close to normal. The ice pack is drifting south through the Strait of Belle Isle into the northern Gulf.

Above-normal temperatures for most of the country...

For the week of January 15, above-normal temperatures are anticipated for British Columbia, the Prairies, Ontario, the Atlantic provinces and the southern half of Quebec. The southern parts of B.C. and the Prairies can expect the greatest departures above normal. Below-normal temperatures are likely for the Arctic Islands and the northern parts of the Yukon and Baffin Island. Elsewhere, near-normal temperatures are forecast.



Weekly normal temperatures (°C)

	max.	min.
Whitehorse A	-15.3	-23.9
Iqaluit A	-20.9	-28.7
Yellowknife A	-23.6	-31.6
Vancouver Int'l A	4.6	-0.9
Victoria Int'l A	5.4	-0.7
Calgary Int'l A	-5.3	-16.6
Edmonton Int'l A	-10.4	-21.6
Regina A	-11.7	-22.9
Saskatoon A	-13.2	-23.4
Winnipeg Int'l A	-13.8	-23.3
Ottawa Int'l A	-5.9	-14.5
Toronto Int'l A	-1.7	-9.5
Montréal Int'l A	-5.3	-14.0
Québec A	-7.2	-15.9
Fredericton A	-3.9	-13.9
Saint John A	-2.6	-12.4
Halifax (Shearwater)	0.1	-7.7
Charlottetown A	-2.8	-10.3
Goose A	-11.7	-20.6
St John's A	-0.3	-6.3

Weekly temperature and precipitation extremes

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Kamloops A 13	Fort Nelson A -33	Estevan Point (aut) 130
Yukon Territory	Watson Lake A -9	Faro (aut) -44	Watson Lake A 22
Northwest Territories	Alert -12	Shepherd Bay A -44	Fort Smith A 7
Alberta	Lethbridge A 9	High Level A -40	Grande Prairie A 21
Saskatchewan	Swift Current A 9	Uranium City A -38	Prince Albert A 15
Manitoba	Portage La Prairie A 4	Lynn Lake A -37	Island Lake 14
Ontario	Windsor A 8	Big Trout Lake -35	North Bay A 29
Québec	Sherbrooke A 7	La Grande IV A -41	Québec A 37
New Brunswick	Moncton A 7	St-Léonard A -26	Charlo A 26
Nova Scotia	Greenwood A 9	Amherst (aut) -14	Sable Island 43
.	Sable Island 9		
Prince Edward Island	Charlottetown A 5	Summerside A -15	Charlottetown A 18
Newfoundland	St John's A 11	Churchill Falls A -38	Nain A 54
.		Wabush Lake A -38	

Across The Country...

Highest Mean Temperature	Estevan Point (aut)(BC) 6
Lowest Mean Temperature	Coral Harbour A(NWT) -35

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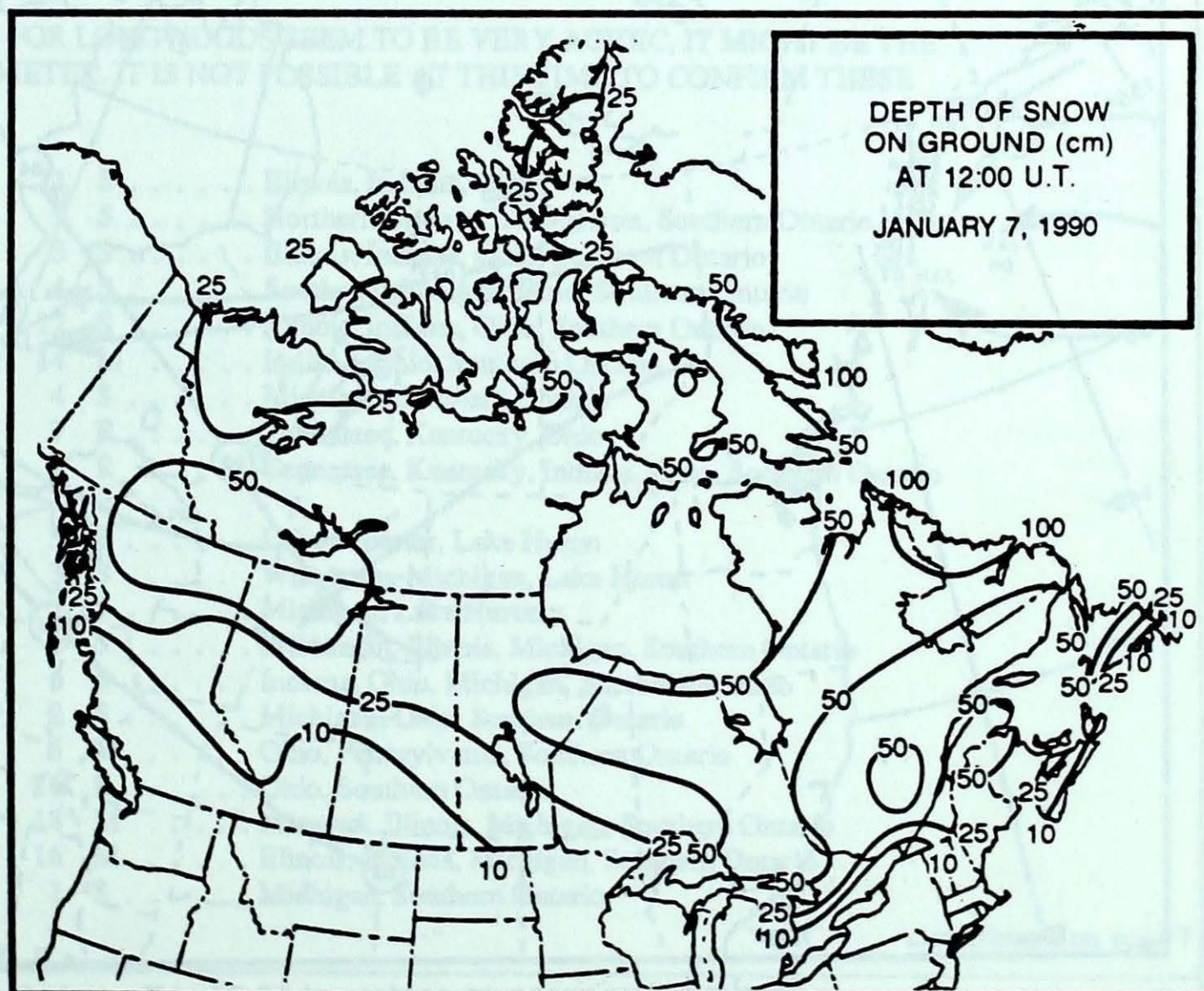
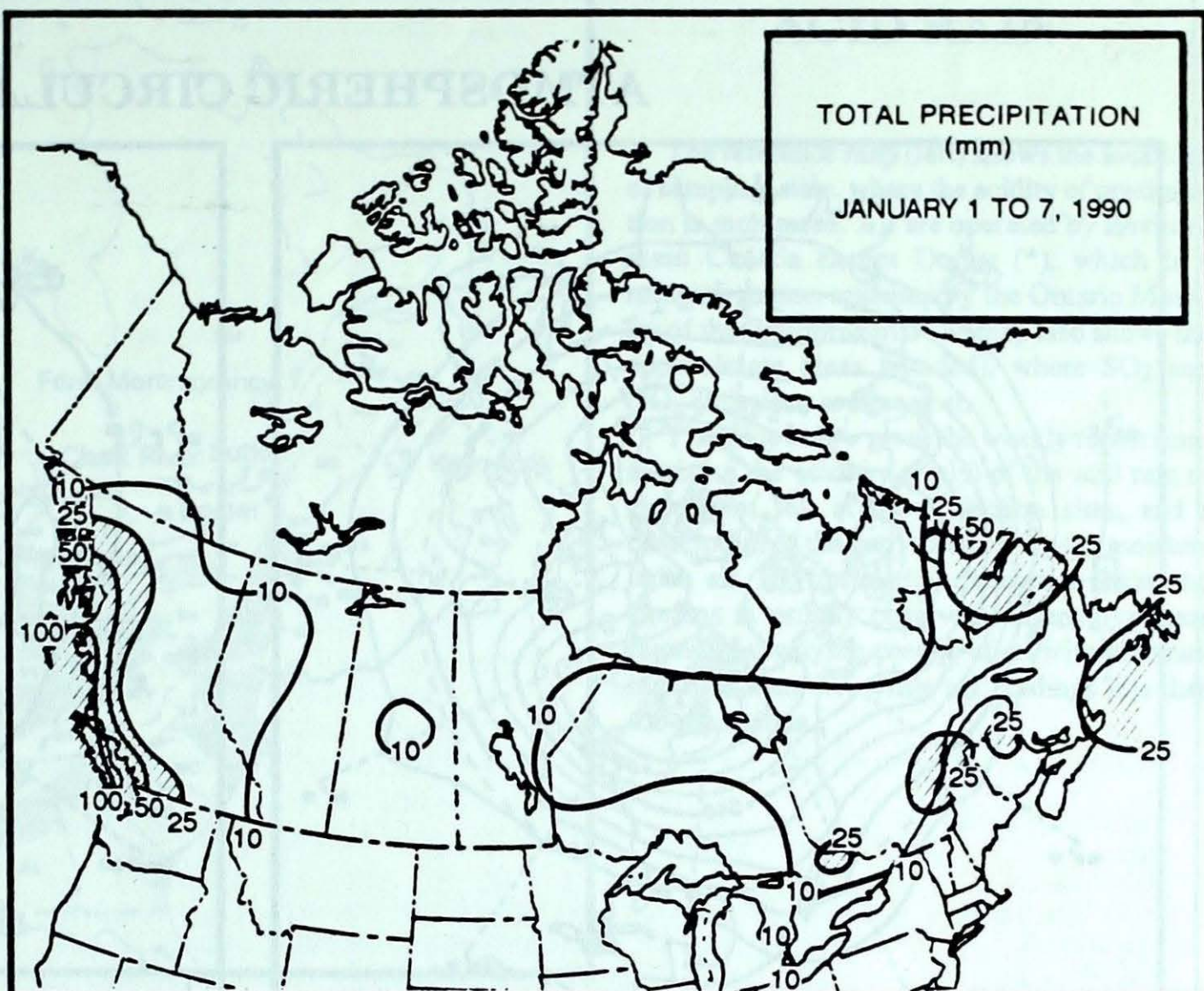
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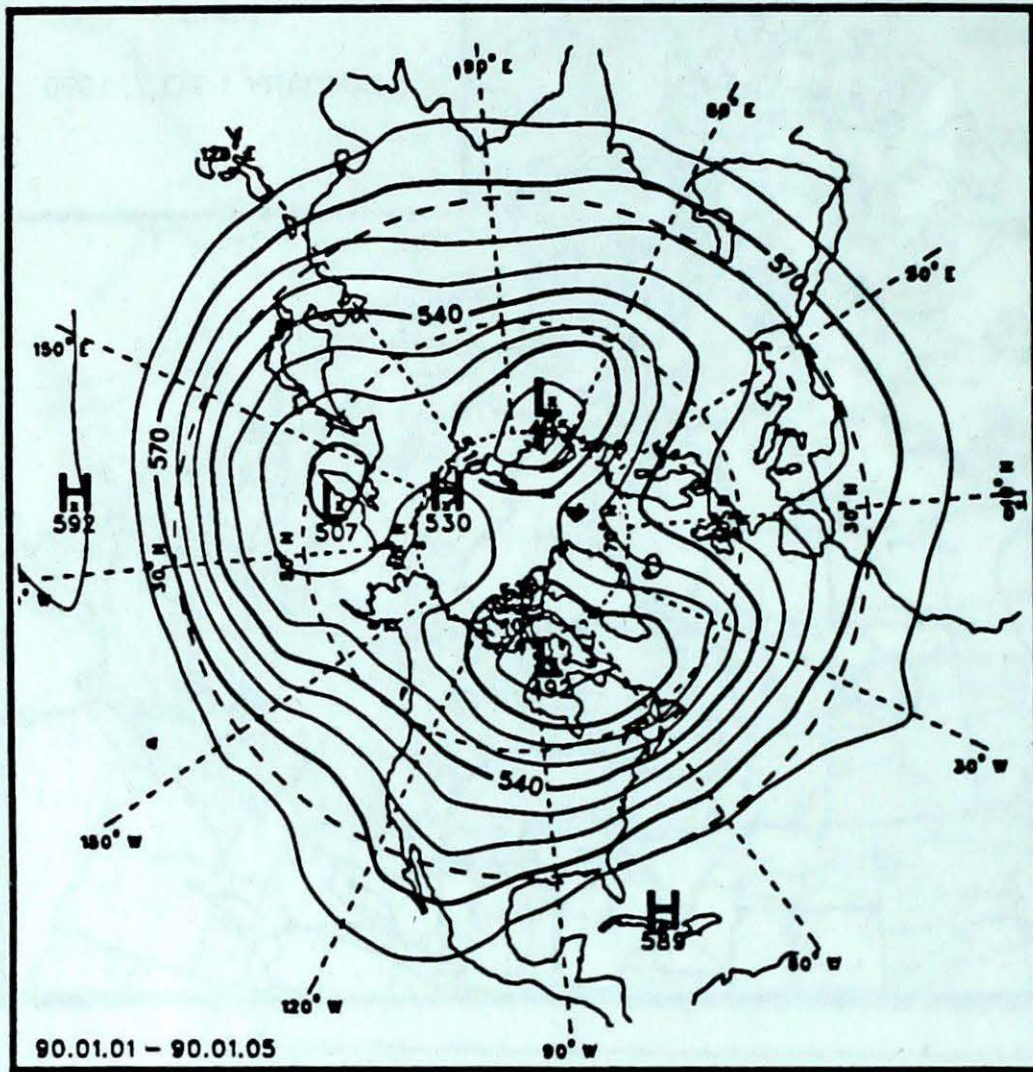
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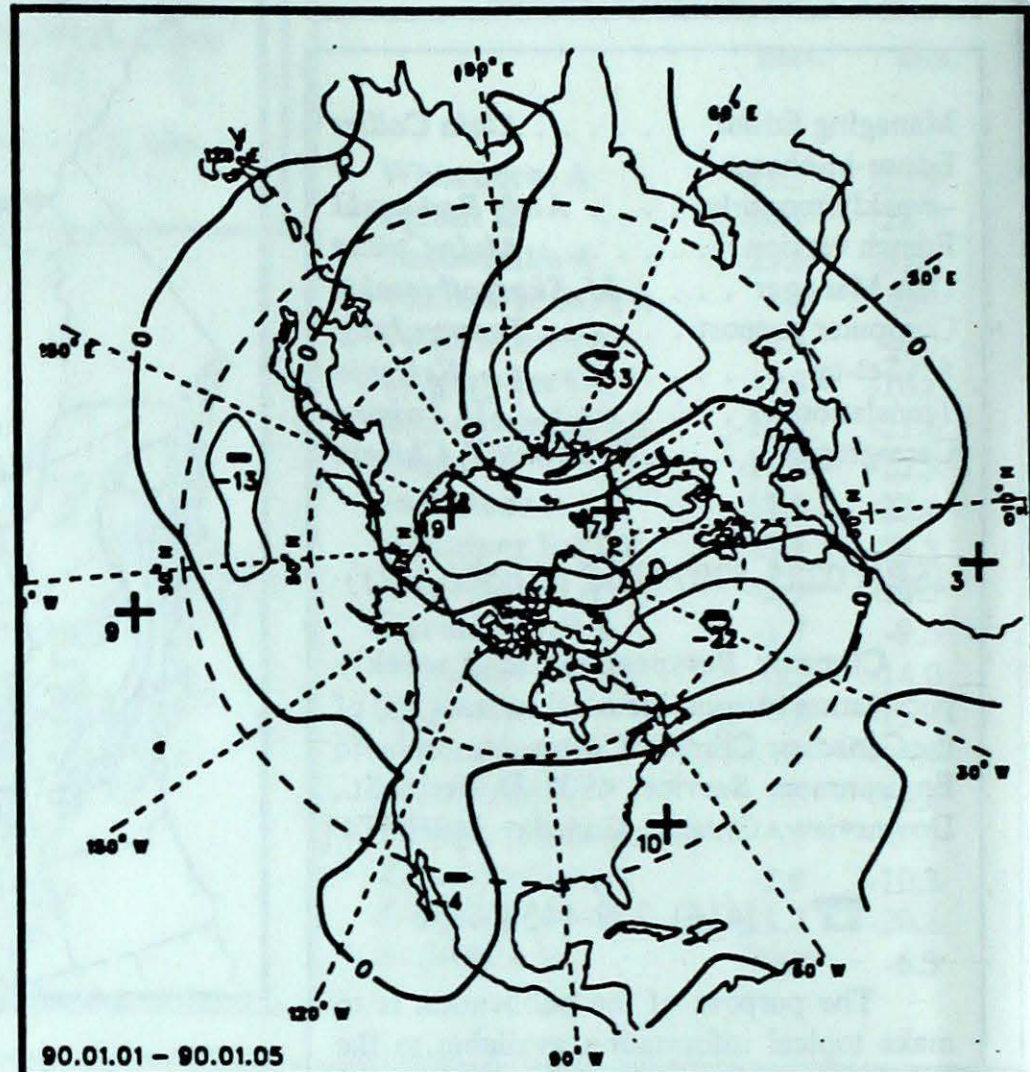
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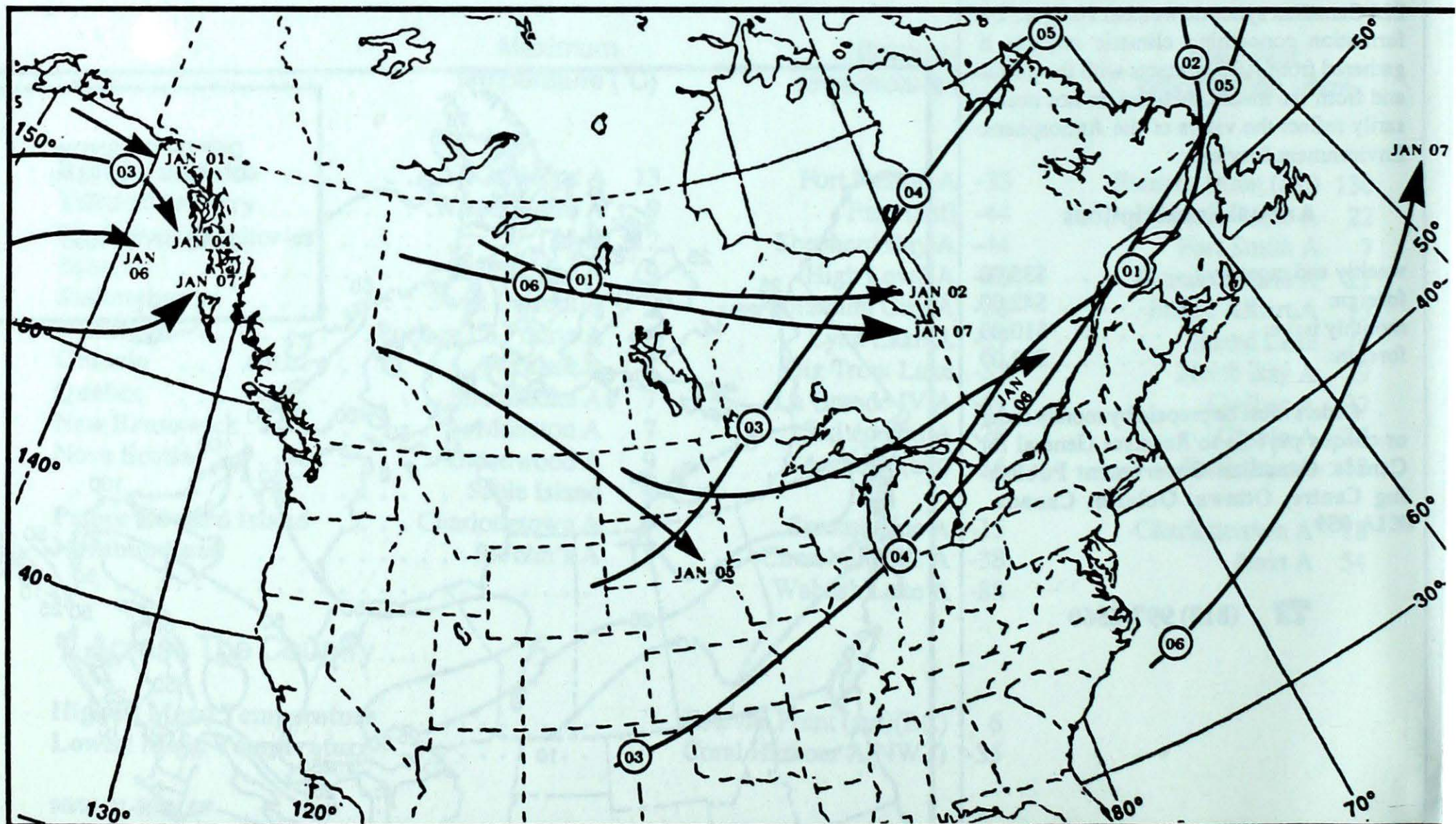
ATMOSPHERIC CIRCULATION



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

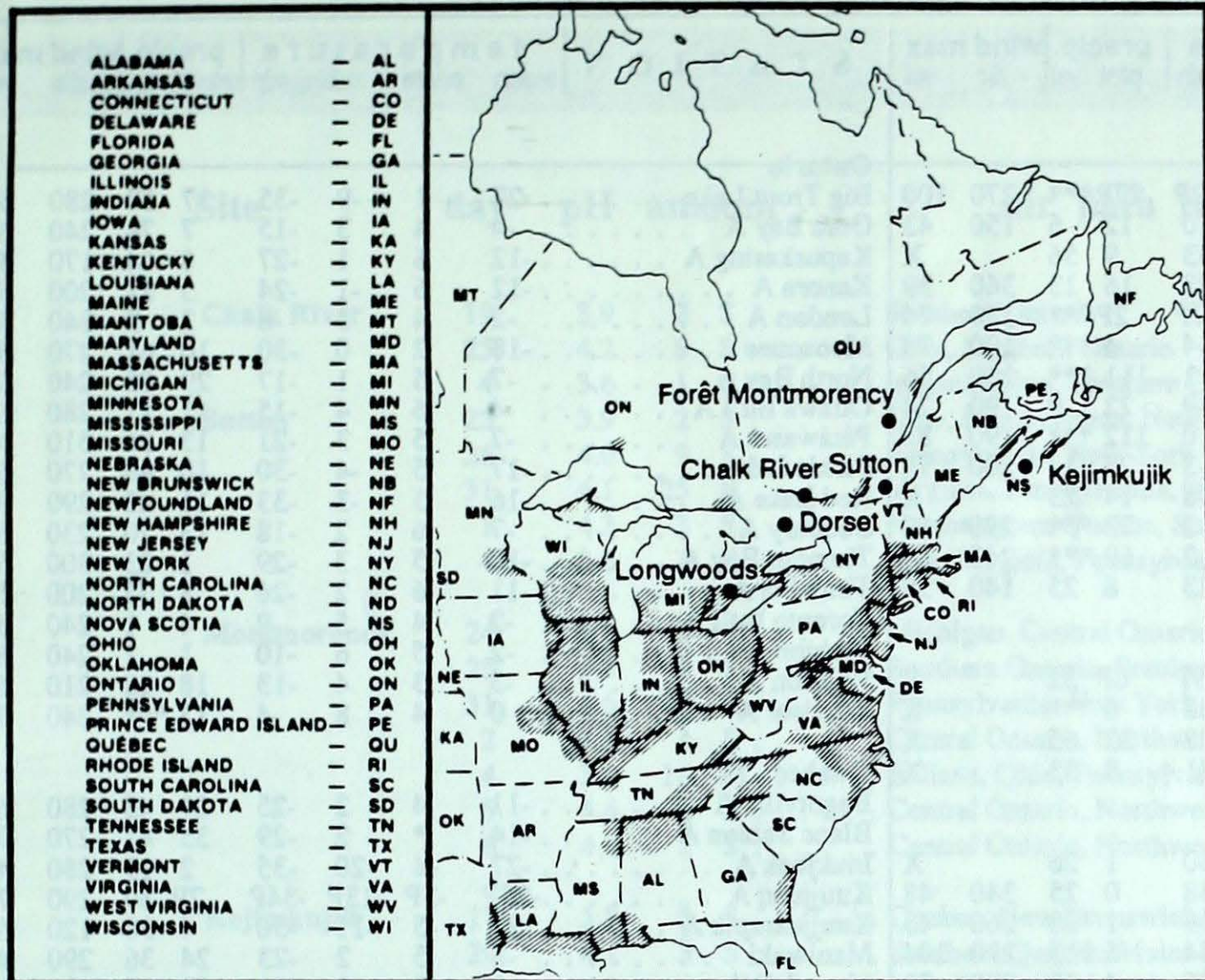


Mean geopotential height anomaly
50-kPa level (10-decametre intervals)



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 SO₂ and NO_x 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 December 17, 1989 to January 6, 1990

THE FOLLOWING VALUES FOR LONGWOODS SEEM TO BE VERY ACIDIC, IT MIGHT BE THE RESULT OF A FAULTY pH METER. IT IS NOT POSSIBLE AT THIS TIME TO CONFIRM THESE VALUES.

Longwoods	25	4.2	11	S	Illinois, Indiana, Ohio
	26	4.0	2	S	Northern Ontario, Lake Huron, Southern Ontario
	27	3.3	3	S	Illinois, Indiana, Ohio, Southern Ontario
	28	3.4	4	S	Southern Michigan, Ohio, Southern Ontario
	29	3.6	12	S	Illinois, Indiana, Ohio, Southern Ontario
	30	3.4	14	M	Indiana, Ohio, Southern Ontario
	31	3.5	4	S	Michigan, Southern Ontario
	3	4.3	7	R	Tennessee, Kentucky, Ohio
	4	3.8	5	R	Tennessee, Kentucky, Indiana, Ohio, Southern Ontario
	Dorset *	17	4.2	3	S
19		4.2	3	S	Wisconsin, Michigan, Lake Huron
20		4.6	1	S	Michigan, Lake Huron
24		3.9	1	S	Wisconsin, Illinois, Michigan, Southern Ontario
25		4.3	6	S	Indiana, Ohio, Michigan, Southern Ontario
27		4.0	2	S	Michigan, Ohio, Southern Ontario
30		4.3	5	M	Ohio, Pennsylvania, Southern Ontario
31		4.4	16	R	Ohio, Southern Ontario
3		4.5	18	M	Missouri, Illinois, Michigan, Southern Ontario
4		4.5	16	M	Illinois, Indiana, Michigan, Southern Ontario
5	4.2	1	S	Michigan, Southern Ontario	

...continued on page 7

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
British Columbia								Ontario									
Cape St James	6P	2P	9P	2P	27P***		270	100	Big Trout Lake	-23	1	-9	-35	17	57	280	56
Cranbrook A	-1	13	7	-10	12	6	150	43	Gore Bay A	-4	4	3	-15	7	74	240	67
Fort Nelson A	-24	-1	-14	-33	9	56		X	Kapuskasing A	-12	6	1	-27	6	64	170	52
Fort St John A	-14	2	3	-23	16	13	360	39	Kenora A	-12	6	-1	-24	5	21	200	52
Kamloops A	1P	7P	13P	-7P	2P***		170	74	London A	-2	4	5	-8	2	9	240	57
Penticton A	3	6	11	-4	4 ***		190	78	Moosonee	-18	2	0	-30	10	61	270	59
Port Hardy A	5	3	10	1	111 ***		100	56	North Bay A	-7	5	1	-17	29	85	240	59
Prince George A	-1	11	4	-9	22	9	190	74	Ottawa Int'l A	-4	6	4	-15	11	11	280	63
Prince Rupert A	5	6	10	0	112 ***		190	83	Petawawa A	-7	5	3	-21	13	26	310	48
Revelstoke A	1	11	4	-3	23	11	200	78	Pickle Lake	-17	5	-4	-30	10	48	270	65
Smithers A	-1	10	4	-8	14	23		X	Red Lake A	-16	5	-3	-33	11	48	290	56
Vancouver Int'l A	6	4	11	-2	73 ***		290	69	Sudbury A	-7	6	2	-18	13	70	230	80
Victoria Int'l A	6	3	11	-2	69 ***		240	69	Thunder Bay A	-10	5	3	-29	1	23	300	52
Williams Lake A	-3	9	6	-13	8	25	140	59	Timmings A	-11	6	2	-26	8	73	200	56
Yukon Territory								Toronto Int'l A									
Komakuk Beach A	-32P	-10P	-25P	-39P	0P	32		X	Trenton A	-2	5	6	-10	1	1	240	65
Teslin (aut)	-22	*	-13	-38	0 ***			X	Warton A	-3	3	4	-13	18	18	210	65
Watson Lake A	-26	-1	-9	-42	22	65		X	Windsor A	0	4	8	-4	13	***	240	56
Whitehorse A	-27	-7	-15	-41	8	33		X	Quebec								
Northwest Territories								Bagotville A									
Alert	-23	10	-12	-30	1	26		X	Blanc Sablon A	-14	*	2	-29	35	41	270	74
Baker Lake A	-33	-2	-27	-38	0	25	340	48	Inukjuak A	-27	-4	-20	-35	2	19	280	43
Cambridge Bay A	-30	2	-24	-39	1	28	260	43	Kuujuuaq A	-25P	-3P	-13P	-34P	7P	80	290	70
Cape Dyer A	-21	1	-15	-34	6	113	290	104	Kuujuarapik A	-26	-5	-11	-36	4	38	120	50
Clyde A	-26	0	-15	-36	4	40	320	72	Maniwaki	-8	5	2	-23	24	36	290	44
Coppermine A	-27	-2	-23	-34	1	44	310	59	Mont Joli A	-8	3	2	-19	23	27	280	85
Coral Harbour A	-35P	-7P	-26P	-40P	0P	30		X	Montréal Int'l A	-3	7	6	-14	13	2	240	65
Eureka	-32	5	-21	-41	0	18	280	43	Natashquan A	-15P	-3P	0P	-28P	22P	64	280	87
Fort Smith A	-26	0	-14	-35	7	68		X	Québec A	-7	5	3	-22	37	48	240	59
Hall Beach A	-34	-4	-25	-40	0	34	300	46	Schefferville A	-27P	-5P	-8P	-37P	4P	62	310	69
Inuvik A	-33	-4	-24	-39	0	32		X	Sept-Îles A	-16	-3	-3	-31	24	28	310	78
Iqaluit A	-28P	-4P	-23P	-33P	2P	15	340	70	Sherbrooke A	-5	6	7	-21	13	25	270	59
Mould Bay A	-26	7	-21	-34	6	40	350	50	Val-d'Or A	-12	4	1	-27	13	40	320	65
Norman Wells A	-34P	-6P	-24P	-41P	1P	8	290	46	New Brunswick								
Resolute A	-30	1	-24	-38	1	28	330	39	Charlo A	-11	2	1	-22	26	61	270	70
Yellowknife A	-29	-2	-21	-36	1	33		X	Chatham A	-8	2	4	-20	8	39	300	72
Alberta								Fredericton A									
Calgary Int'l A	-2	9	8	-12	1	1	270	76	Moncton A	-5	4	5	-17	12	40	290	69
Cold Lake A	-14	4	2	-29	8	19	240	32	Moncton A	-5	3	7	-16	8	21	290	78
Edmonton Namao A	-7	8	3	-18	4	4	250	35	Saint John A	-4P	3P	6P	-15P	20P	27	320	76
Fort McMurray A	-21	0	-7	-35	5	38	290	37	Nova Scotia								
High Level A	-25	-2	-13	-40	20	51	350	46	Greenwood A	-2	3	9	-10	12	2	310	72
Jasper	-2	11	4	-9	11	18		X	Shearwater A	-2	2	9	-8	24	2	290	74
Lethbridge A	-1	9	9	-13	1	1	250	95	Sydney A	-4	0	7	-14	27	5	300	69
Medicine Hat A	-2	10	8	-15	0	1	230	74	Yarmouth A	0	2	8	-6	14	1	300	67
Peace River A	-15P	4P	-2P	-22P	1P	10		X	Prince Edward Island								
Saskatchewan								Charlottetown A									
Cree Lake	-24	0	-8	-37	5	44	290	37	Summerside A	-6	1	5	-15	18	17	290	74
Estevan A	-8	8	6	-21	2	1	280	56	Newfoundland								
La Ronge A	-21	3	-3	-36	7	27	320	43	Cartwright	-16	-4	-2	-30	23	***	290	102
Regina A	-9	9	5	-24	3	5	280	54	Churchill Falls A	-23	-3	-8	-38	11	69	270	83
Saskatoon A	-12	7	3	-29	3	8	300	52	Gander Int'l A	-7	-2	7	-18	7	20	300	133
Swift Current A	-4	10	9	-15	0	1	250	85	Goose A	-18	-2	-8	-31	27	84	270	93
Yorkton A	-13	6	3	-30	7	20	270	54	Port Aux Basques	-5	-1	4	-12	34	77	280	133
Manitoba								St John's A									
Brandon A	-13	6	2	-27	3	13	240	50	St Lawrence	-3	0	7	-11	34	3		
Churchill A	-29	-3	-15	-36	5	25	280	43	Wabush Lake A	-25P	-3P	-9P	-38P	2P	35	290	51
Lynn Lake A	-27	-1	-13	-37	5	43	150	35	90/01/01-90/01/07								
The Pas A	-19	3	-1	-31	4	17	310	54									
Thompson A	-25	1	-13	-36	7	51	330	32									
Winnipeg Int'l A	-12	6	2	-26	6	11	180	59									

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.

continued from page 5

Site	day	pH	amount	air path to site
Chalk River	19	3.9	2 S	Southern Ontario
	25	4.2	8 S	Ohio, Southern Ontario
	4	3.6	1 R	Indiana, Ohio, Southern Ontario
Sutton	25	3.9	2 S	Ohio, Pennsylvania, New York
	26	4.0	9 S	Pennsylvania, New York
	31	4.1	25 R	Virginia, Pennsylvania, New York
	1	4.3	3 S	Northwestern Quebec, Southern Quebec
	4	3.5	1 R	West Virginia, Pennsylvania, New York
Montmorency	24	4.1	1 S	Michigan, Central Ontario, Southern Quebec
	25	3.8	5 S	Southern Ontario, Southern Quebec
	31	4.6	20 R	Pennsylvania, New York, Southern Quebec
	2	4.5	4 S	Central Ontario, Northwestern Quebec
	4	3.9	16 M	Indiana, Ohio, Pennsylvania, New York, Southern Quebec
	5	4.4	2 S	Central Ontario, Northwestern Quebec
Kejimikujik	6	4.8	2 S	Central Ontario, Northwestern Quebec
	17	5.8	5 S	Quebec, New Brunswick
	20	4.1	3 S	Southern Quebec, Maine
	26	4.0	4 M	New England, Atlantic Ocean
	27	4.3	5 S	Southern Quebec, New England
	31	4.9	31 R	Atlantic Ocean
	1	4.1	2 R	Atlantic Ocean
4	4.3	3 R	Virginia, New Jersey, Atlantic Ocean	

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

