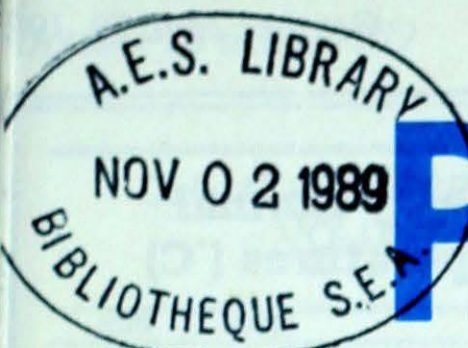




Climatic Perspectives



October 23 to 29, 1989

A weekly review of Canadian climate

Vol. 11 No 44

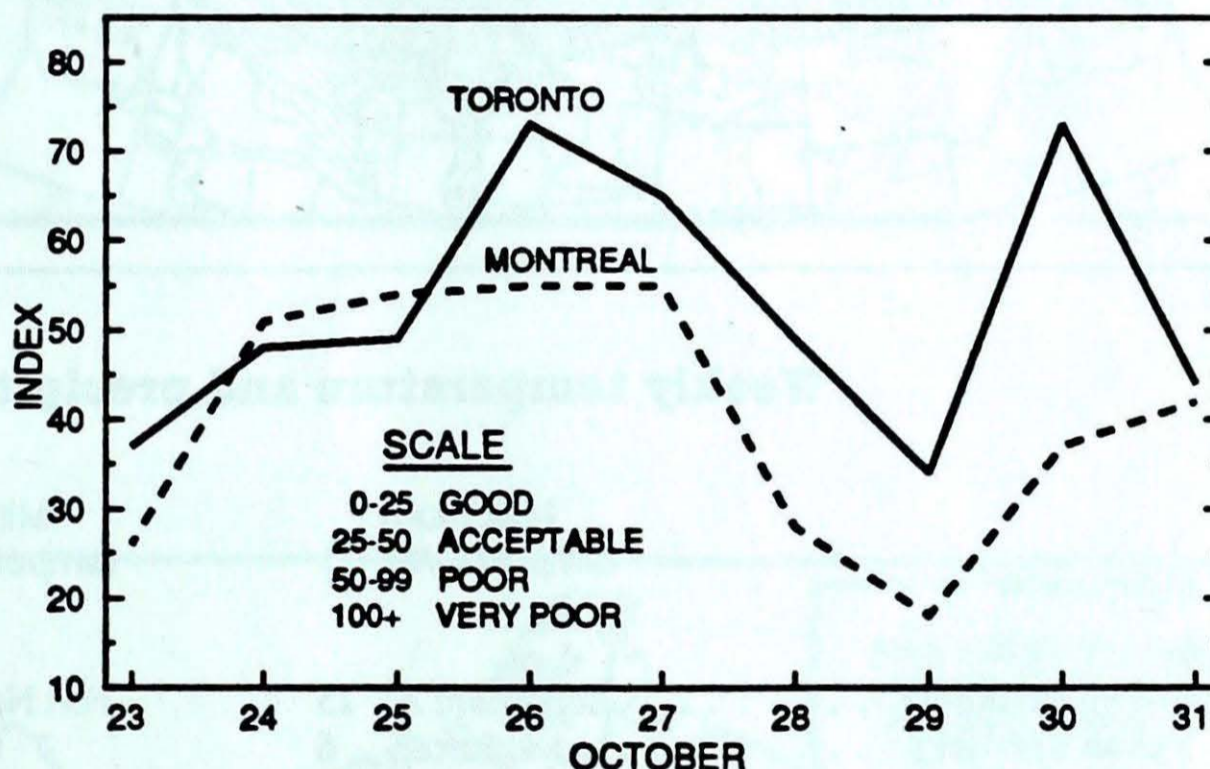
Prolonged Indian Summer in Ontario and Québec

Gorgeous mid-autumn weather prevailed for most of the week, as a strong atmospheric ridge of high pressure dominated a large portion of central and eastern Canada. A southerly flow of mild air from the American Gulf States allowed daytime temperature readings to rise to the mid-to-high teens and low twenties across most of Ontario and southwestern Québec. Many new daily temperature records were established from Manitoba through Québec, and towards the end of the period there were even a few in the Maritimes. Temperatures in southern Ontario this week topped 20°C or more on six consecutive days. This spell of Indian Summer has possibly been one of the finest this part of the country has seen since October 1971.

According to Brian Smith of the Ontario Climate Centre, Toronto registered 20°C or more on six days, compared to nine days in 1971 and 17 days in 1963; the latter was one of the warmest Octobers ever recorded in Ontario.

Historical information received from Jacques Miron, AES Montréal, shows periods of Indian summer weather at Montréal last an average of four days, and occur three times every two years. However, in two years out of five, there is no Indian Summer. A particularly long and warm period, with a temperature of 15°C or greater in the Montréal area, occurred in October 1947, when daily maximums ranged between 17°C and 26°C from the 11th to the 23rd, inclusive.

AIR QUALITY INDEX
HIGHEST RECORDED DAILY VALUES



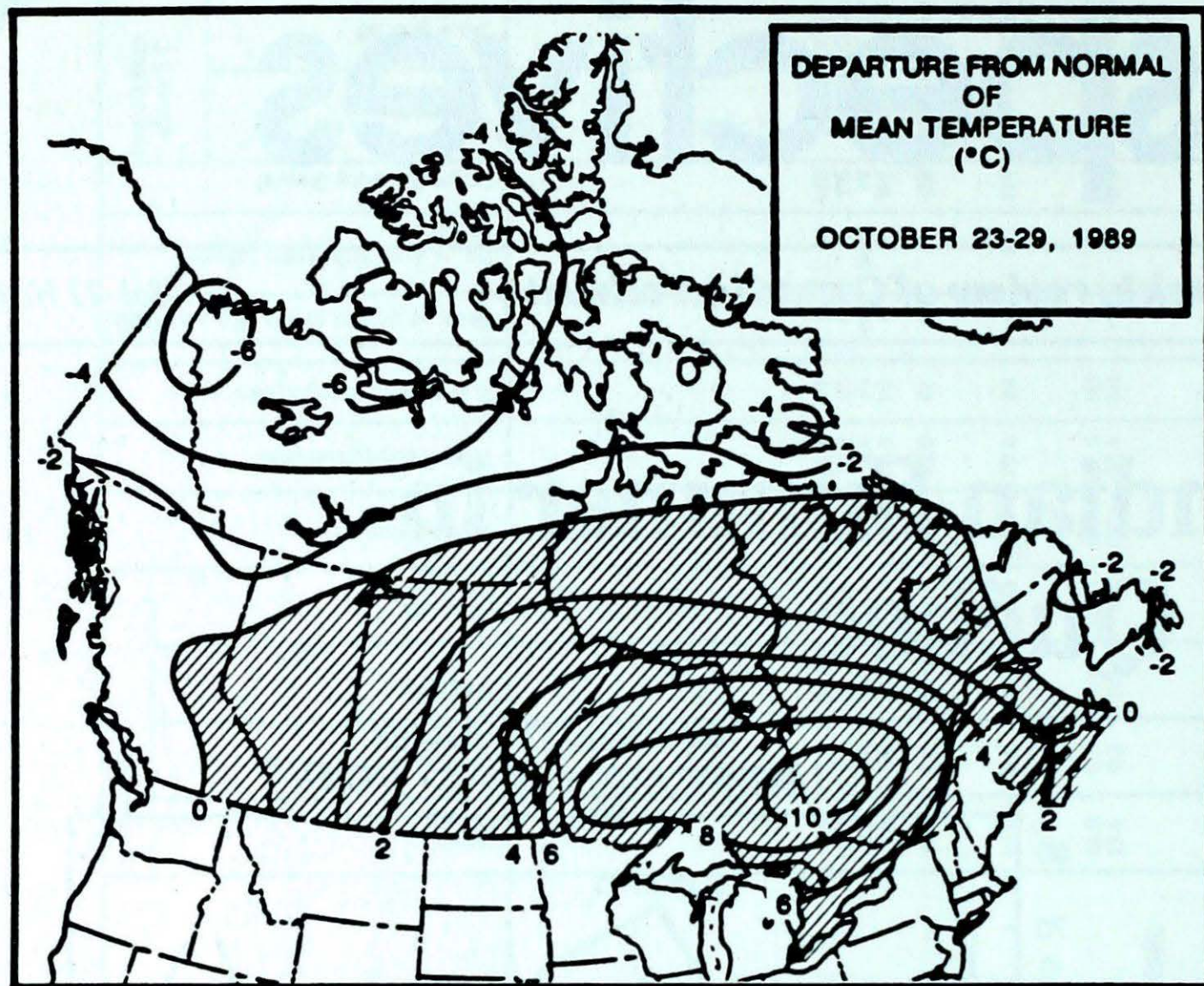
Smog prevalent

Due to the stable nature of the air mass, and the light winds, the lovely sunny weather was accompanied by increased air pollution levels, especially in industrialized, urban regions. Air quality readings climbed to unacceptable levels at both Montréal and Toronto, when pollutants were trapped by temperature inversions. High pollution levels are typical at this time of year during these types of weather situations. The pollution, combined with cooling during relatively clear nights, led to the formation of dense fog, which disrupted transportation during the morning

hours. By mid-morning, the fog dissipated into a yellowish haze on the horizon. In Toronto, the pollution index reached 73, on October 26 and 30. In Montréal, the index surpassed 50, on four consecutive days, but dropped to more acceptable values over the weekend.

Cooler weather for Eastern Canada

For the week of the 5th, a northwesterly circulation should bring cooler temperatures to eastern Canada while western regions will enjoy an influx of mild Pacific air.



Weekly normal temperatures (°C)

	max.	min.
Whitehorse A	1.5	-5.6
Iqaluit A	-4.3	-10.8
Yellowknife A	-1.2	-7.2
Vancouver Int'l A	12.1	5.1
Victoria Int'l A	12.4	4.5
Calgary Int'l A	9.8	-3.6
Edmonton Int'l A	8.0	-4.8
Regina A	8.6	-3.9
Saskatoon A	7.7	-3.6
Winnipeg Int'l A	8.5	-1.9
Ottawa Int'l A	10.5	1.5
Toronto Int'l A	12.1	2.4
Montréal Int'l A	10.9	2.4
Québec A	8.8	0.4
Fredericton A	11.2	0.5
Saint John A	10.3	1.8
Halifax (Shearwater)	11.8	4.1
Charlottetown A	10.5	2.6
Goose A	4.7	-2.9
St John's A	9.1	2.1

Weekly temperature and precipitation extremes

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Abbotsford A 15	Fort Nelson A -16	Prince Rupert A 122
Yukon Territory	Carcross 6	Ogilvie -34	Swift River 20
Northwest Territories	Coral Harbour A 3	Eureka -37	Cape Dyer A 44
Alberta	Medicine Hat A 22	High Level A -17	Red Deer A 15
Saskatchewan	Estevan A 23	Nipawin A -15	Broadview 40
Manitoba	Brandon A 25	Lynn Lake A -6	Thompson A 36
Ontario	Timmins A 24	Thunder Bay A -3	Wawa 11
Québec	Maniwaki 24	Schefferville A -15	Kuujuarapik A 23
New Brunswick	Chatham A 22	Charlo A -5	Miscou Island (aut) 3
	Saint John A 22		
Nova Scotia	Western Head (aut) 22	Truro -3	Truro 1
Prince Edward Island	Summerside A 20	Charlottetown A -1	Summerside A 0
Newfoundland	Gander Int'l A 12	Churchill Falls A -14	Daniels Harbour 9

Across The Country...

Highest Mean Temperature	Goderich (aut)(ONT) 15
Lowest Mean Temperature	Eureka(NWT) -28

89/10/23-89/10/29

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VOLUME 11**

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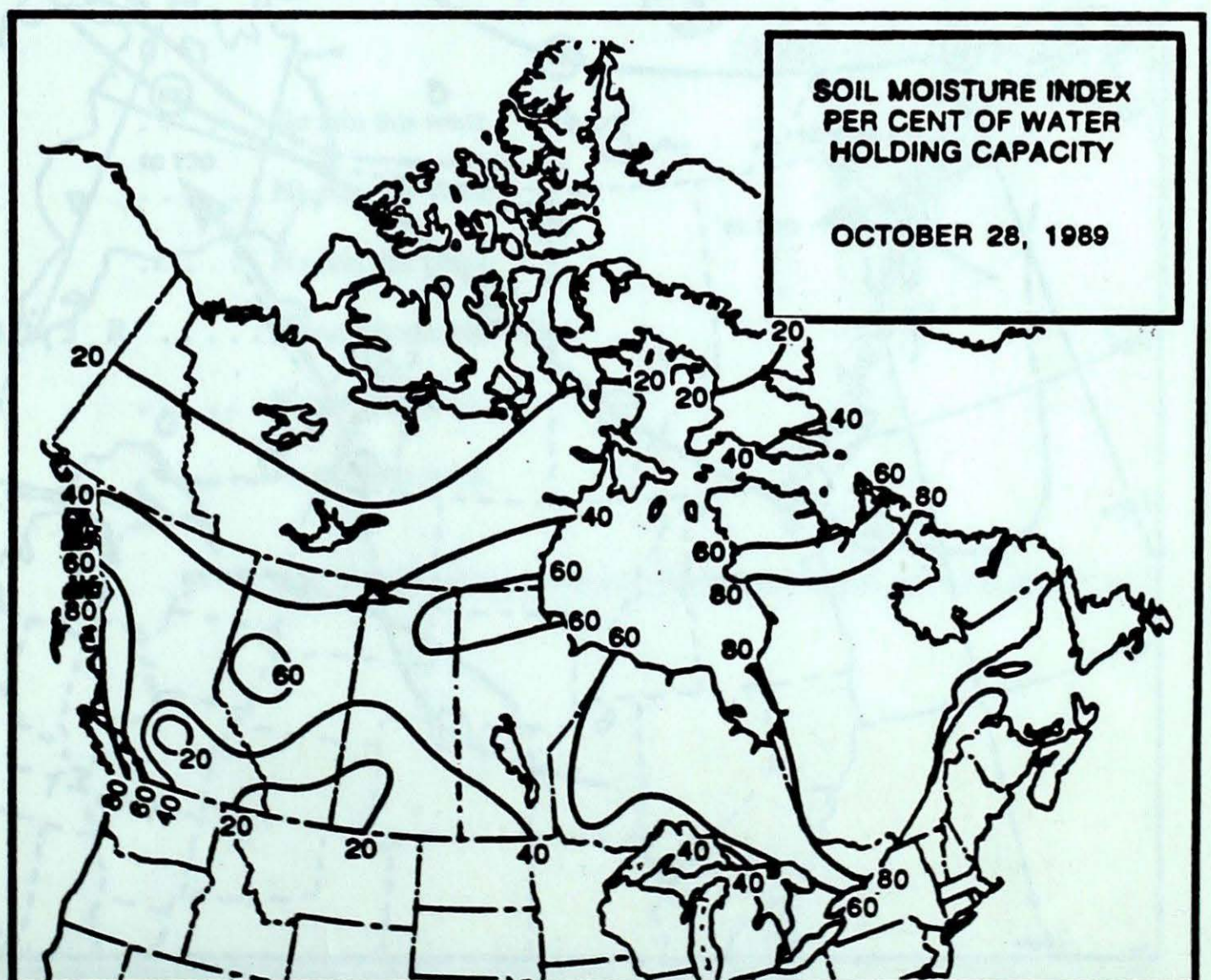
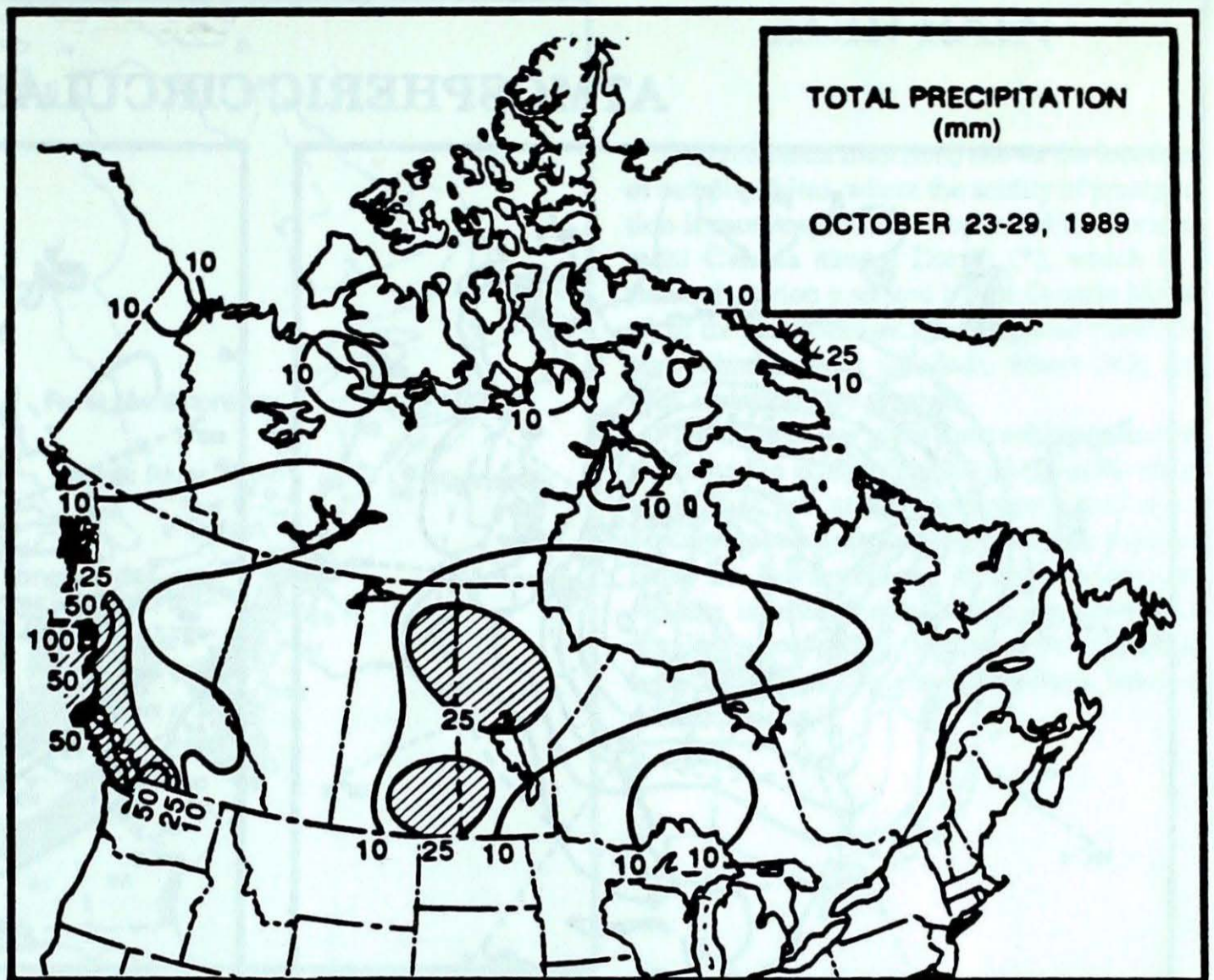
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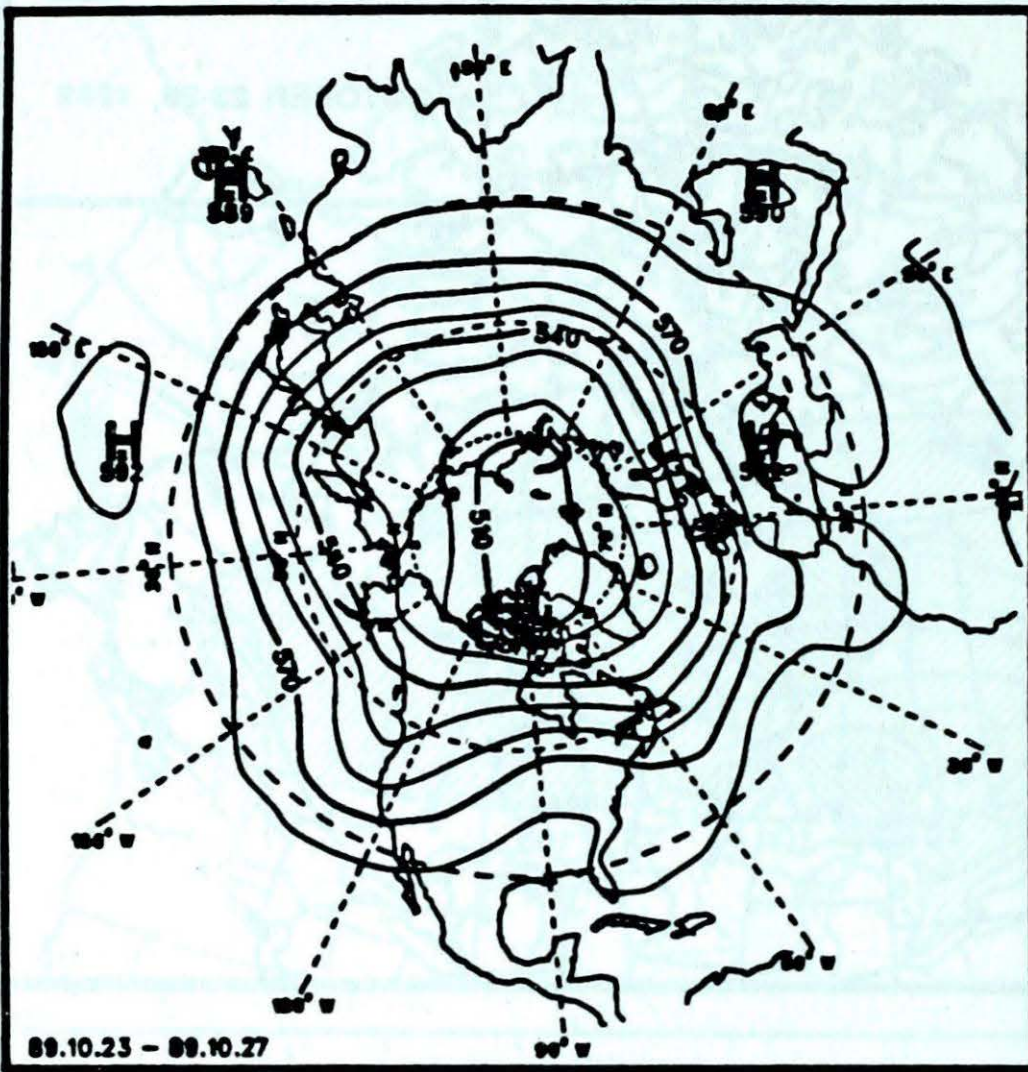
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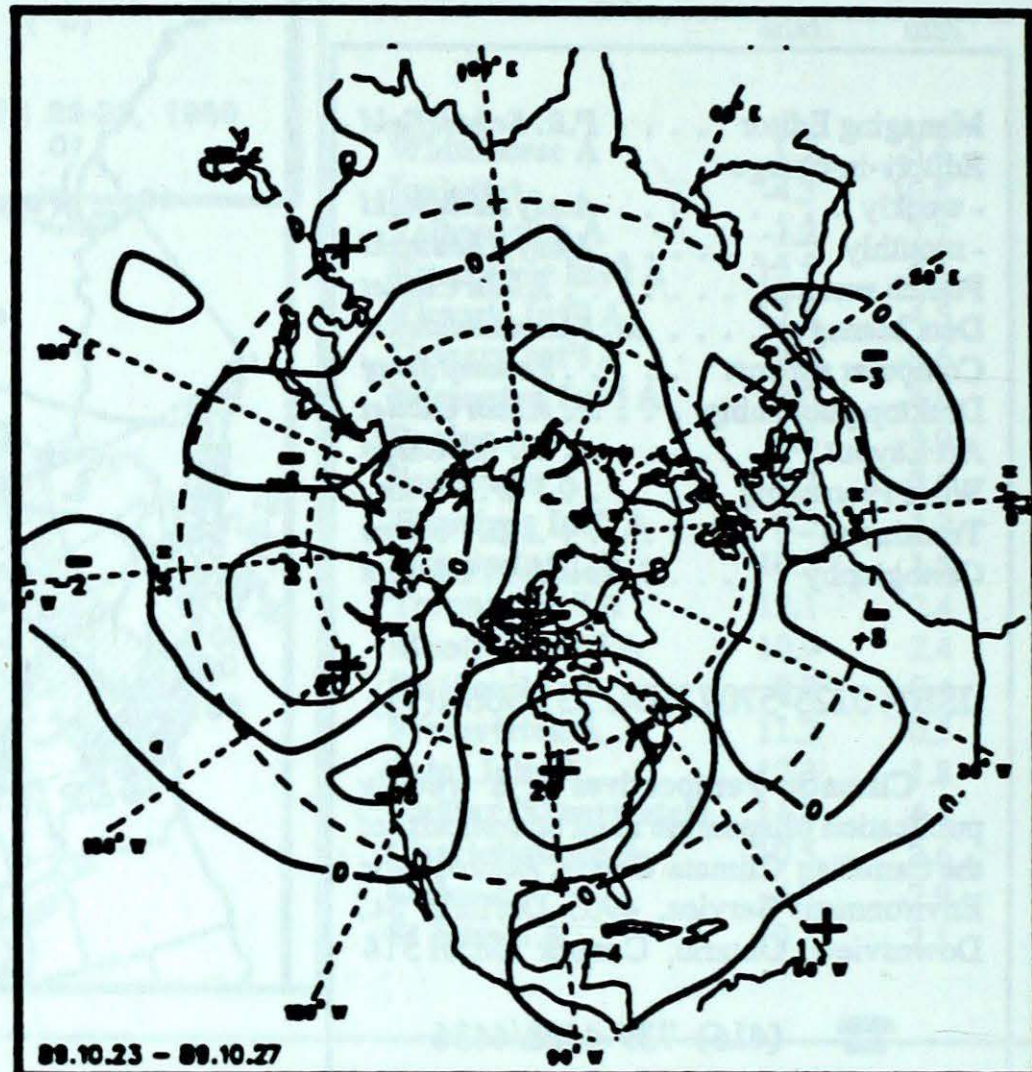
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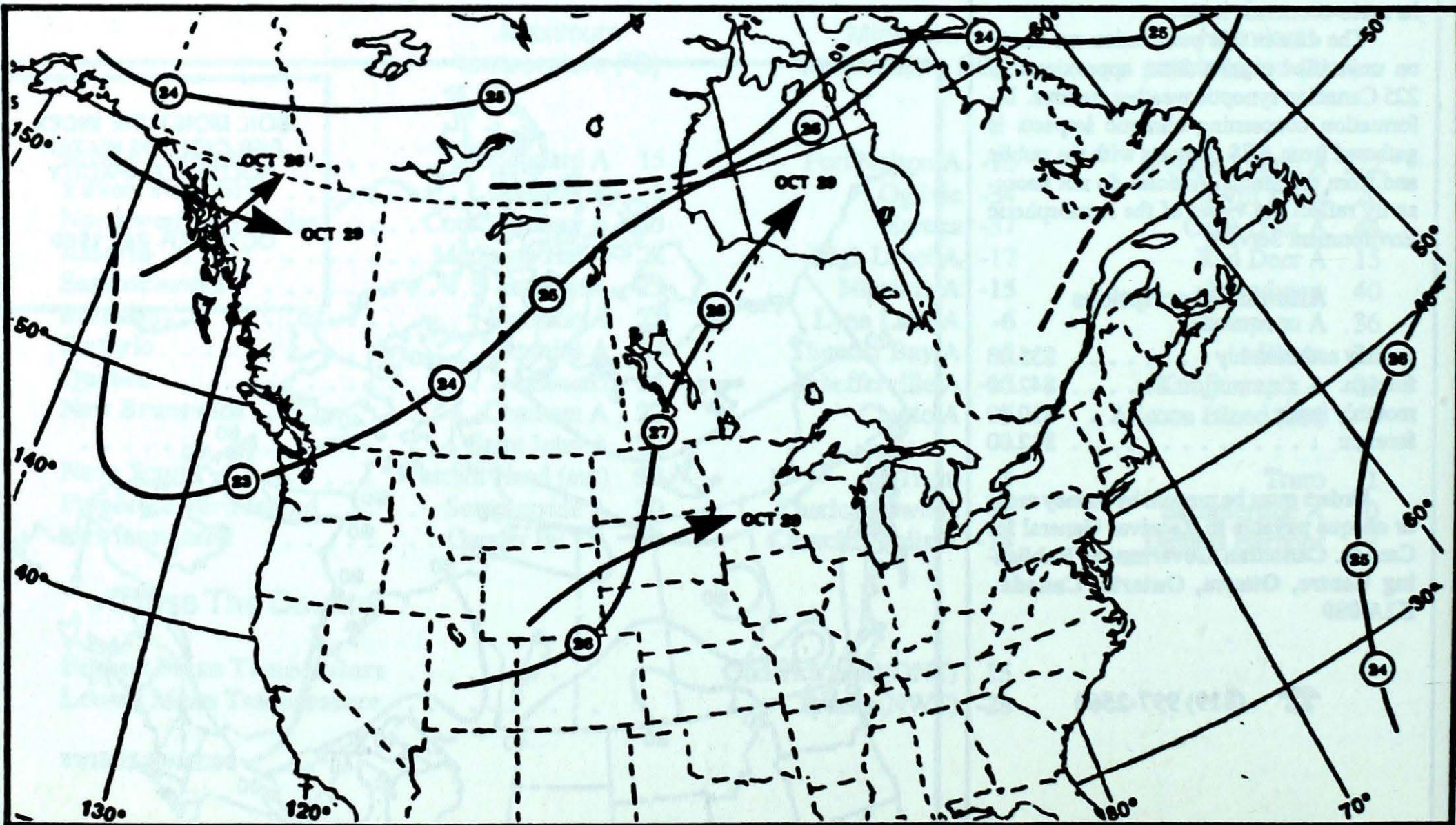
ATMOSPHERIC CIRCULATION



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



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



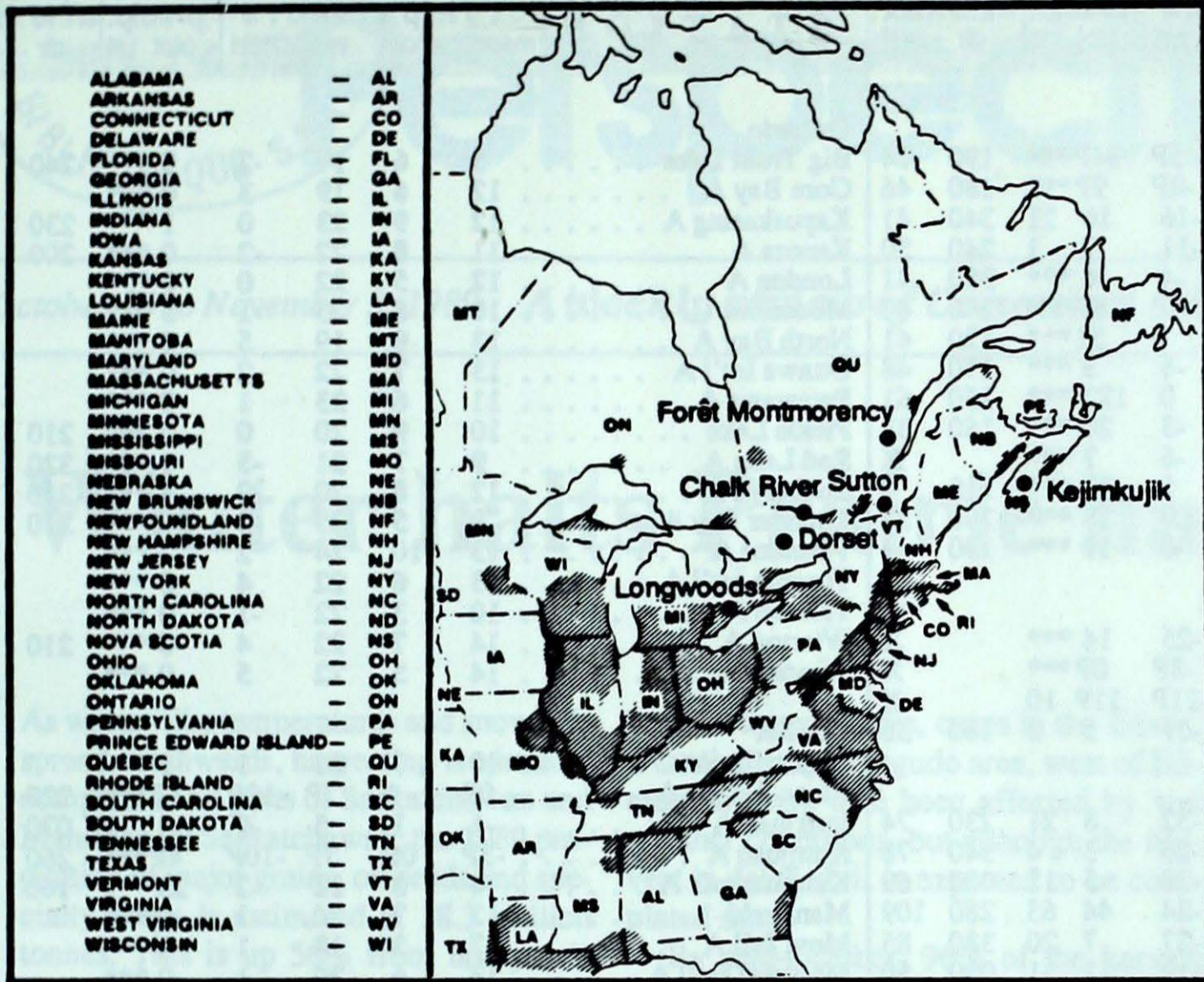
Tracks of low pressure centres at 12:00 U.T. each day during the period.

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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
------	-----	----	--------	------------------

October 22 to October 28, 1989

Longwoods			 No rain this week.
Dorset *			 No rain this week.
Chalk River			 No rain this week.
Sutton	22	4.4	3 R Pennsylvania, New York
Montmorency			 No rain this week.
Kejimikujik			 No rain this week.

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
British Columbia								Ontario									
Cape St James	9P	0P	13P	5P	34P***		190	74	Big Trout Lake	5	6	17	-2	8 ***	240	72	
Cranbrook A	4P	1P	11P	-8P	9P***		180	46	Gore Bay A	12	6	19	3	0 ***		X	
Fort Nelson A	-6	-3	1	-16	10	21	340	41	Kapuskasing A	12	9	23	0	1 ***	230	44	
Fort St John A	0	-2	8	-11	7	1	240	50	Kenora A	11	8	22	-2	0 ***	200	67	
Kamloops A	6	0	15	-4	6 ***		300	41	London A	12	5	22	0	0 ***		X	
Penticton A	6P	-1P	14P	-4P	8P***		200	41	Moosonee	10	8	23	-1	3 ***		X	
Port Hardy A	8	0	12	0	51***		120	41	North Bay A	13	9	19	5	0 ***		X	
Prince George A	4	1	9	-6	3 ***		170	48	Ottawa Int'l A	13	7	22	2	0 ***		X	
Prince Rupert A	5	-1	13	0	122 ***		150	61	Petawawa A	11	6	23	1	0 ***		X	
Revelstoke A	6	1	11	-3	20 ***		160	33	Pickle Lake	10	9	20	0	0 ***	210	57	
Smithers A	3	0	10	-6	7 ***		X		Red Lake A	9	7	21	-3	1 ***	320	37	
Vancouver Int'l A	9	0	15	1	38 ***		110	4	Sudbury A	12	8	20	2	4 ***	210	33	
Victoria Int'l A	8	-1	15	0	18 ***		150	35	Thunder Bay A	9	5	23	-3	10 ***	210	48	
Williams Lake A	4	0	12	-8	19 ***		130	44	Timmins A	13	10	24	2	2 ***		X	
Yukon Territory								Toronto Int'l A									
Komakuk Beach A	-18	-5	-10	-25	14 ***		X		Trenton A	10	3	22	-1	0 ***		X	
Teslin (aut)	-2P	*	4P	-8P	0P***		X		Warton A	14	7	22	4	0 ***	210	37	
Watson Lake A	-4P	0P	2P	-11P	11P 10		X		Windsor A	14	5	22	5	0 ***		X	
Whitehorse A	-4	-2	5	-17	5 3	160	56		Québec								
Northwest Territories								Bagotville A									
Alert	-24	-1	-13	-32	8 21	230	74	Blanc Sablon A	0P	*	7P	-10P	3P***	220	52		
Baker Lake A	-14	-2	0	-26	3 4	340	78	Inukjuak A	-1	1	5	-9	8 2	070	72		
Cambridge Bay A	-19	-4	-12	-28	5 12	020	69	Kuujuuaq A	-3P	0P	7P	-10P	4P***	260	72		
Cape Dyer A	-12	-2	-4	-24	44 65	280	109	Kuujuuarapik A	4	3	12	-2	23 1	160	56		
Clyde A	-15	-5	-7	-27	7 20	330	85	Maniwaki	12	7	24	-1	0 ***		X		
Coppermine A	-13	0	-4	-19	11 31	030	50	Mont Joli A	7	3	18	-1	0 ***		X		
Coral Harbour A	-12P	-1P	3P	-24P	12P 15	350	67	Montréal Int'l A	13	6	20	1	0 ***		X		
Eureka	-28	-2	-14	-37	3 12	260	54	Natashquan A	2	-1	8	-8	2 ***	010	41		
Fort Smith A	-2	0	2	-9	5 4		X	Québec A	10	5	18	1	0 ***		X		
Hall Beach A	-18	-3	-6	-29	8 32	310	89	Schefferville A	-4	-1	6	-15	6 12	240	56		
Inuvik A	-19	-7	-10	-28	5 20		X	Sept-Îles A	3	1	12	-4	2 ***	080	32		
Iqaluit A	-13	-5	2	-21	8 12	310	91	Sherbrooke A	10	6	22	-2	0 ***		X		
Mould Bay A	-25	-5	-16	-33	0 15	260	78	Val-d'Or A	13	11	21	2	0 ***	230	43		
Norman Wells A	-14	-5	-7	-21	8 9	280	33	New Brunswick									
Resolute A	-26	-7	-16	-36	3 32	280	61	Charlo A	6	2	21	-5	0 ***	270	39		
Yellowknife A	-5	-1	3	-12	10 5	160	52	Chatham A	8	2	22	-3	0 ***	080	54		
Alberta								Fredericton A									
Calgary Int'l A	5	2	15	-5	0 ***	260	57	Moncton A	8P	2P	21P	-3P	0P***	220	48		
Cold Lake A	4	2	14	-6	4 ***	260	37	Saint John A	9	2	22	-1	0 ***	310	35		
Edmonton Namao A	3	1	14	-6	9 1		X	Nova Scotia									
Fort McMurray A	0	-1	6	-12	6 1		X	Greenwood A	8	1	19	-3	0 ***	080	35		
High Level A	-4	-3	1	-17	5 10		X	Shearwater A	9	1	20	-1	0 ***	010	33		
Jasper	3P	0P	8P	-6P	0P***		X	Sydney A	7	0	16	-2	0 ***		X		
Lethbridge A	6	0	20	-6	7 2	270	76	Yarmouth A	9	0	19	-1	0 ***	330	37		
Medicine Hat A	6	2	22	-7	0 ***	240	67	Prince Edward Island									
Peace River A	1P	0P	10P	-6P	0P 1		X	Charlottetown A	7	0	18	-1	0 ***		X		
Saskatchewan								Summerside A									
Cree Lake	0P	1P	7P	-10P	4P 1	180	33	8	1	20	1	0 ***	210	43			
Estevan A	6	3	23	-5	33 ***	310	74	Newfoundland									
La Ronge A	2	2	13	-13	8 7	060	39	Cartwright	1	-1	8	-7	6 ***	330	67		
Regina A	6	3	21	-8	33 ***	360	50	Churchill Falls A	-3	0	6	-14	4 1	010	4		
Saskatoon A	5	3	19	-9	0 ***	240	46	Gander Int'l A	3	-2	12	-5	3 ***	030	65		
Swift Current A	4	1	20	-10	1 ***	240	44	Goose A	1	0	10	-12	2 ***	250	41		
Yorkton A	5	3	22	-7	28 ***	330	52	Port Aux Basques	4	-1	11	-1	6 ***	310	59		
Manitoba								St John's A									
Brandon A	6P	4P	25P	-6P	7P***	260	67	St Lawrence	4	-1	12	-4	0 ***		X		
Churchill A	-1	4	3	-3	18 10	070	78	Wabush Lake A	-2	1	7	-7	5 3		X		
Lynn Lake A	0	3	8	-6	26 26	060	46	89/10/23-89/10/29									
The Pas A	4	3	17	-4	13 ***	250	52										
Thompson A	2	4	16	-5	36 14	060	72										
Winnipeg Int'l A	9	6	23	-6	2 ***	170	72										

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.