

Climatic Perspectives

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November 23 to 29, 1992 **A weekly review of Canadian climate and water**

Vol. 14 No. 48

Changeable weather over Canada

A series of Pacific storms affected British Columbia's north coast once again this week. Elsewhere, weather systems that tracked eastwards across the country, produced variable weather regimes and contrasting temperatures.

In the Yukon and northern British Columbia, most of the precipitation fell along the coastal mountains, with some areas receiving well over 50 cm of snow. Snowfall advisories were issued for the Haines and Skagway roads, and wind warnings were posted for the Kluane Region of the Yukon and for the north B.C. coast. Although temperatures this week averaged well-above normal, readings still managed to drop down to the minus thirties in the Yukon.

Further to the east in the Mackenzie District, the above-normal temperature trend of the past few weeks hampered travel and the transport of heavy goods on the newly built ice roads, and has also resulted in lower than normal water levels on the Mackenzie and Liard Rivers. At Fort Providence, the drinking water supply has been affected because of the low water levels. The Fort Providence ferry is operating with minimal water depths, and the much needed ice bridge across the Mackenzie River is still far from complete. Ice bridge construction near Fort Simpson has also been delayed because of the record warm, above-freezing temperatures. Fog and low cloud has been in abundance in the western portions of the Northwest Territories due to the unsea-

sonably warm weather, which this week spread eastwards to Hudson Bay. On the other hand, the eastern Arctic experienced very cold temperatures and blizzards. In the high Arctic the thermometer dropped to -41.3°C at Eureka.

In central British Columbia, the mild weather was causing winter logging delays, as daytime temperature hovered near freezing. Further to the south, a ridge of high pressure produced relatively sunny weather, but approaching frontal disturbances from the west managed to produce some freezing rain and snow in the interior passes and valleys, closing the Coquihalla Highway on the 27th. On November 29, Port Hardy, on north Vancouver Island, set a new daily rainfall record of 42.6 mm. The ski season has begun in western Canada, with at least 80 cm of snow covering many of the ski runs.

Across the Prairies, high pressure produced sunny, cool weather during part of the period. Moderating temperatures, cloudy skies and periods of light rain or snow fell over the weekend. The 10.4 mm of rain that fell in Calgary on November 27 and 28, helped established a new rainfall record for the month. Lethbridge received 9 cm of snow during the same period. At this time, a substantial amount of snow covers all regions of the Prairies.

It was a typical November week across the Great Lakes Basin, as the moisture input of the Great Lakes played a significant role in producing the dull, cloudy and damp weather conditions. Northwest-

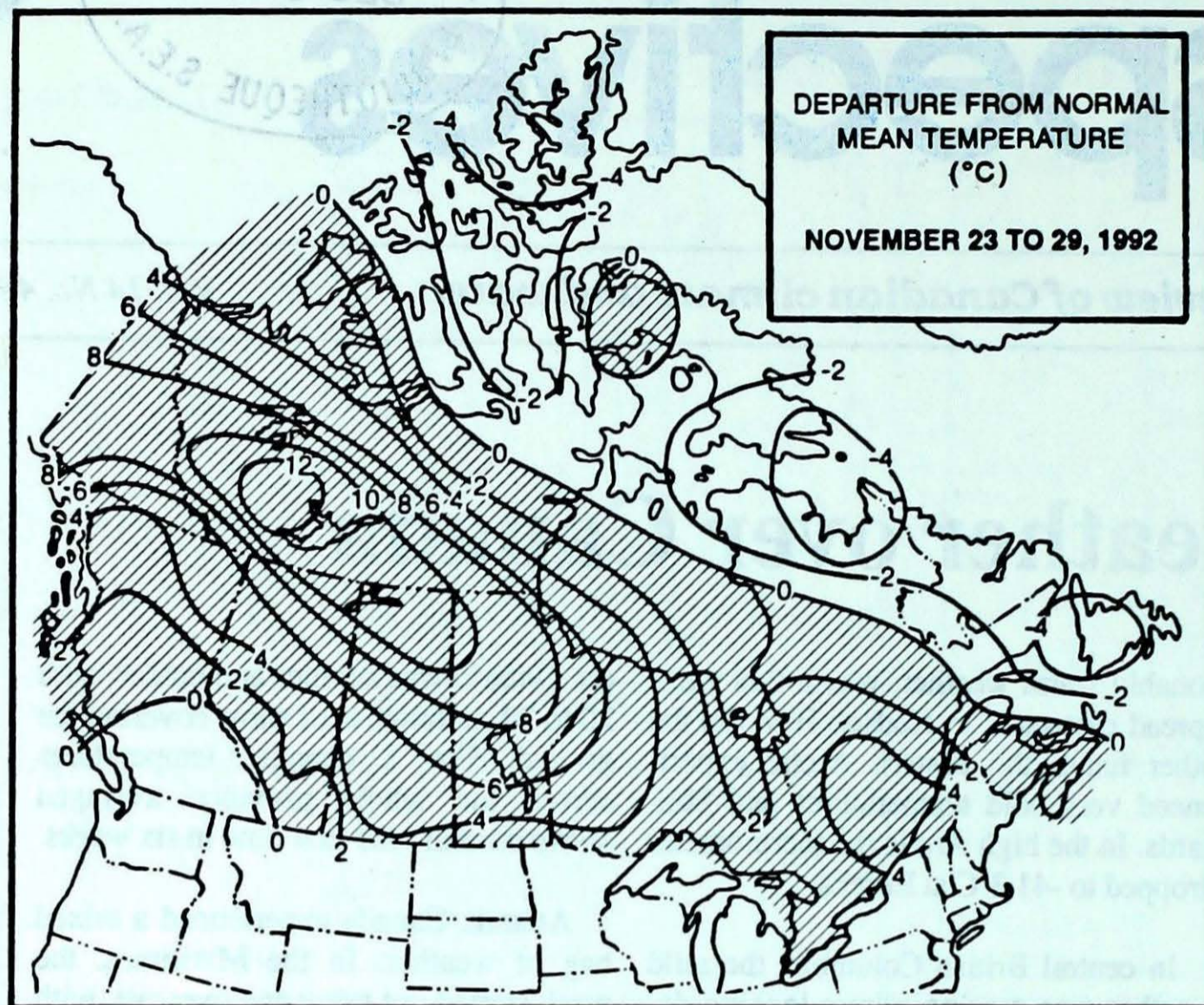
ern Ontario was sunnier and colder, with 20 to 30 centimetres of snow covering the ground. For a change, temperatures across the whole province averaged above normal - the first time in six weeks.

Atlantic Canada experienced a mixed bag of weather. In the Maritimes, the week started out rainy and overcast, with sharply colder temperatures during the middle of the week. Precipitation fell mostly as rain, but some snow was reported in all three provinces, with Fredericton receiving the most, 12 cm.

Newfoundland experienced abnormally cold weather, as a ridge of high pressure over Labrador pushed frigid Arctic air across the Island. As a result, a number of new daily low temperature records were established. Temperatures ranged from 8.3°C at Argentia to -22.9°C at Deer Lake. Precipitation fell as a mixture of rain and snow, mainly before the weekend. St. Anthony received 23 cm of the white stuff.

A look ahead...

For the week of December 7, above normal temperatures are expected for Manitoba, Ontario, Quebec and the eastern half of the Northwest Territories. Elsewhere, below normal temperatures are expected. Major snowstorms are possible for British Columbia, the Yukon, the Mackenzie District of the Northwest Territories, the Prairies and the Atlantic region.



**Weekly normal
temperatures (°C)**

	max.	min.
Whitehorse A	-7.7	-15.0
Iqaluit A	-12.4	-20.5
Yellowknife A	-15.2	-23.8
Vancouver Int'l A	7.4	1.5
Victoria Int'l A	8.2	1.3
Calgary Int'l A	0.4	-11.0
Edmonton Int'l A	-3.7	-14.2
Regina A	-4.3	-14.1
Saskatoon A	-5.3	-15.1
Winnipeg Int'l A	-4.8	-13.9
Ottawa Int'l A	2.0	-5.0
Toronto (Pearson Int'l A)	4.8	-2.3
Montréal Int'l A	2.8	-3.8
Québec A	0.6	-6.0
Fredericton A	3.6	-5.0
Saint John A	4.9	-3.2
Halifax (Shearwater)	6.9	-0.5
Charlottetown A	4.7	-2.3
Goose A	-2.6	-10.2
St John's A	5.7	-0.8

Weekly temperature and precipitation extremes

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Prince Rupert A 13	Fort Nelson A -22	Prince Rupert A 95
Yukon Territory	Teslin (aut) 3	Komakuk Beach A -33	Shingle Point A 8
Northwest Territories	Fort Simpson A 5	Eureka -41	Cape Parry A 15
Alberta	Calgary Int'l A 12	High Level A -24	Calgary Int'l A 10
Saskatchewan	La Ronge A 5	Meadow Lake A -20	Meadow Lake A 5
.	Moose Jaw A 5		
.	Wynyard 5		
Manitoba	The Pas A 6	Thompson A -23	Dauphin A 6
Ontario	Toronto Int'l A 12	Lansdowne House -21	Trenton A 32
Quebec	Montréal Int'l A 9	Schefferville A -31	Sherbrooke A 23
New Brunswick	Saint John A 9	St-Léonard A -6	Saint John A 41
Nova Scotia	Sable Island 13	Sydney A -3	Greenwood A 53
Prince Edward Island	Charlottetown A 8	Charlottetown A -2	Charlottetown A 22
Newfoundland	Argentia A 8	Churchill Falls A -26	St Lawrence 23
.	St John's A 8		

Across The Country...

Highest Mean Temperature	Estevan Point (aut) (B.C.) 7
Lowest Mean Temperature	Eureka (N.W.T.) -40

CLIMATIC PERSPECTIVES
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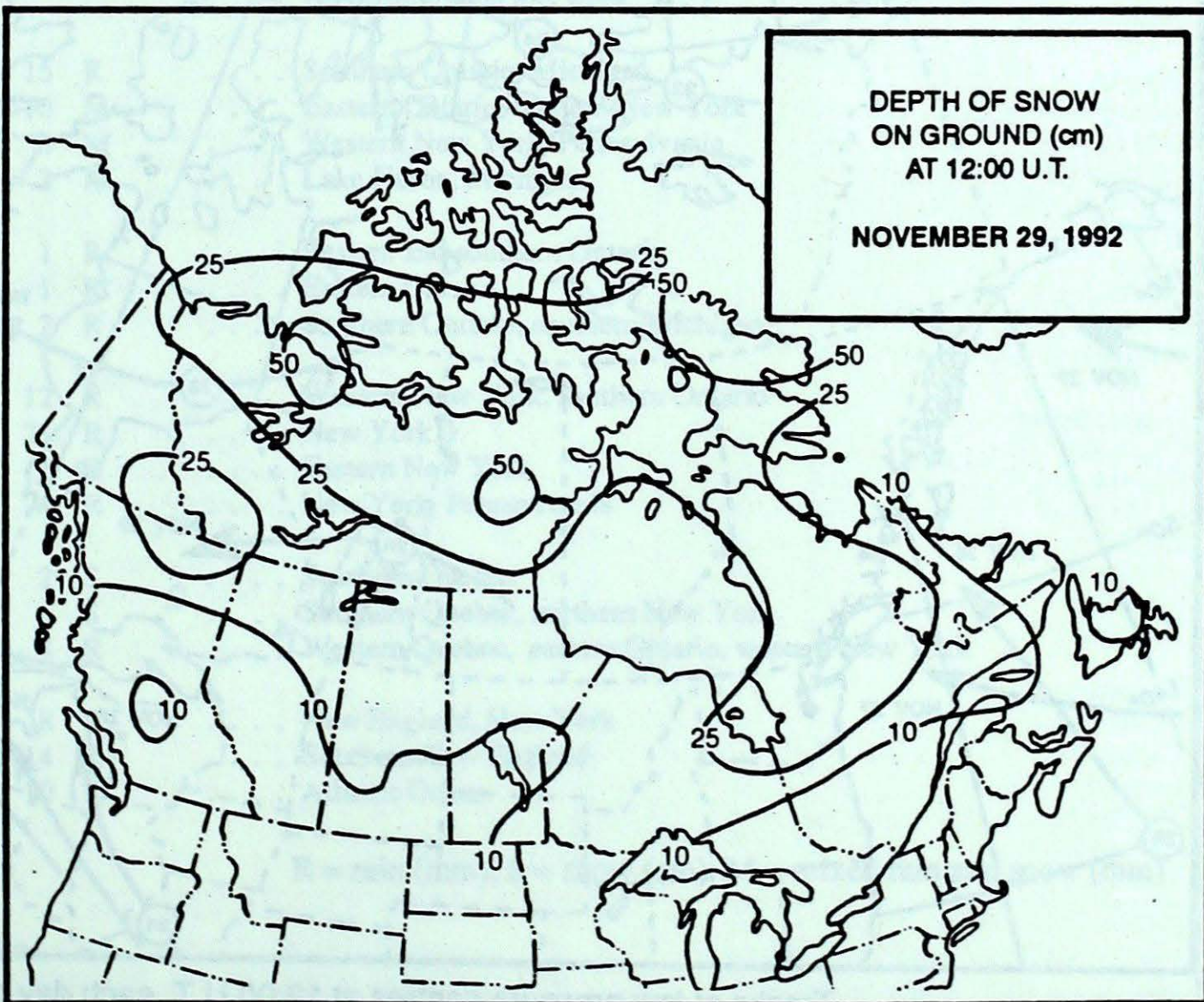
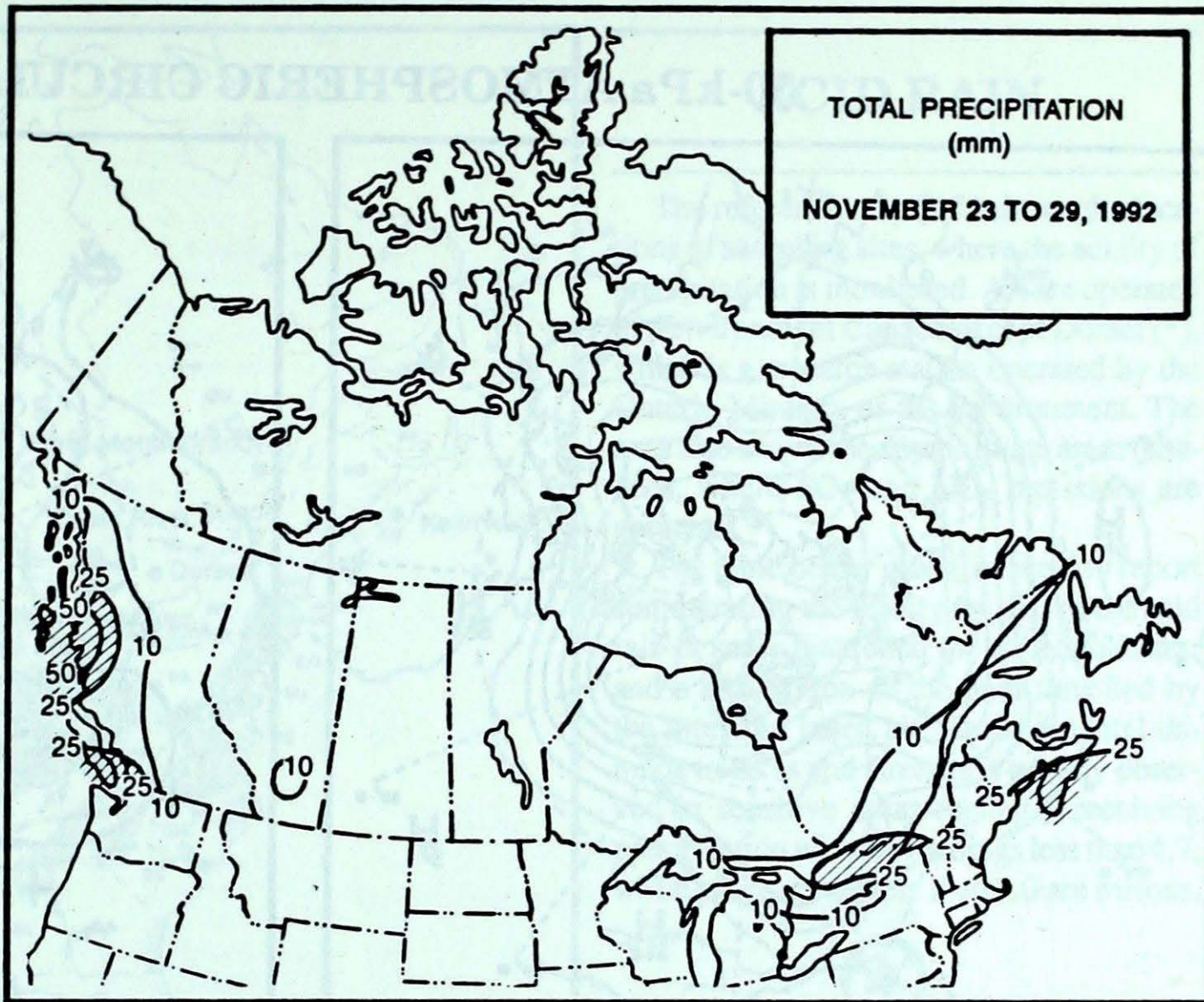
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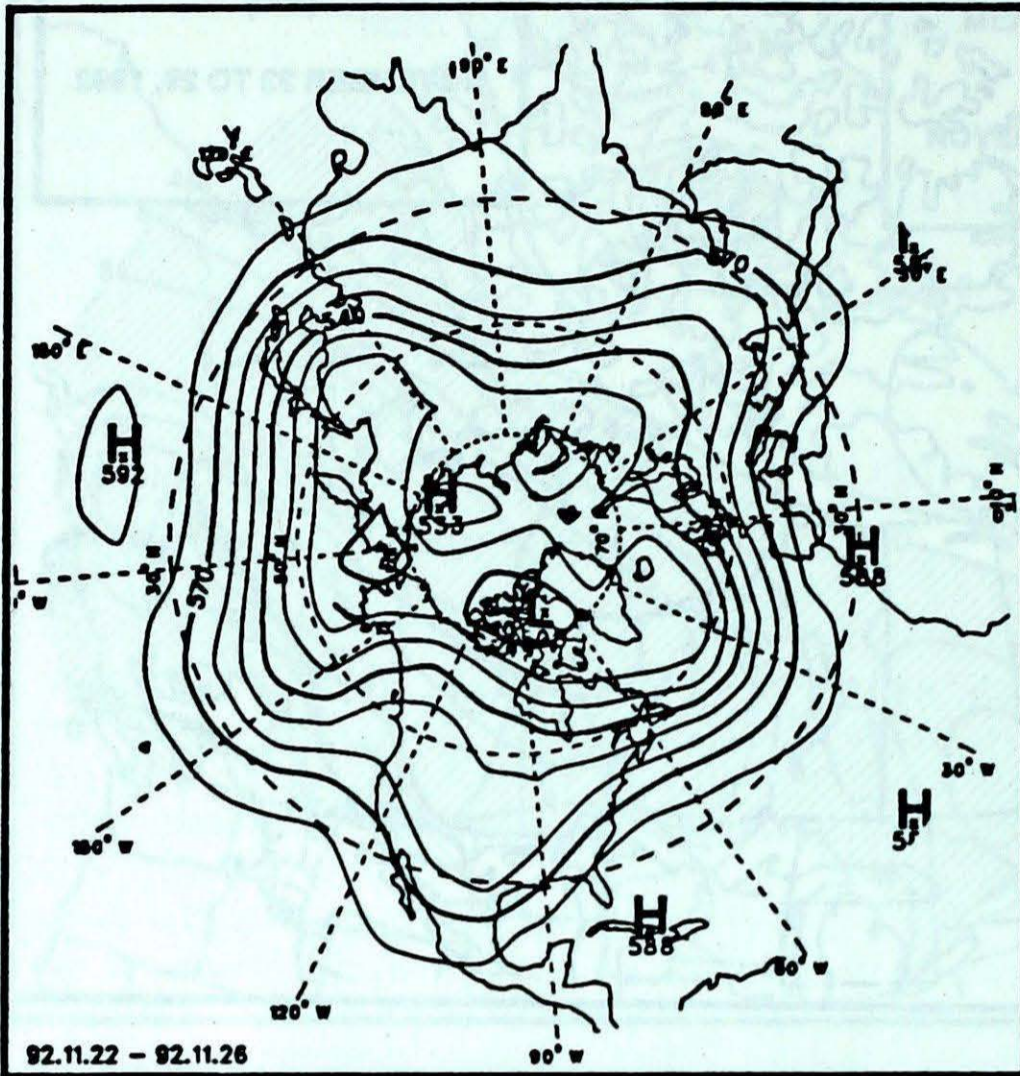
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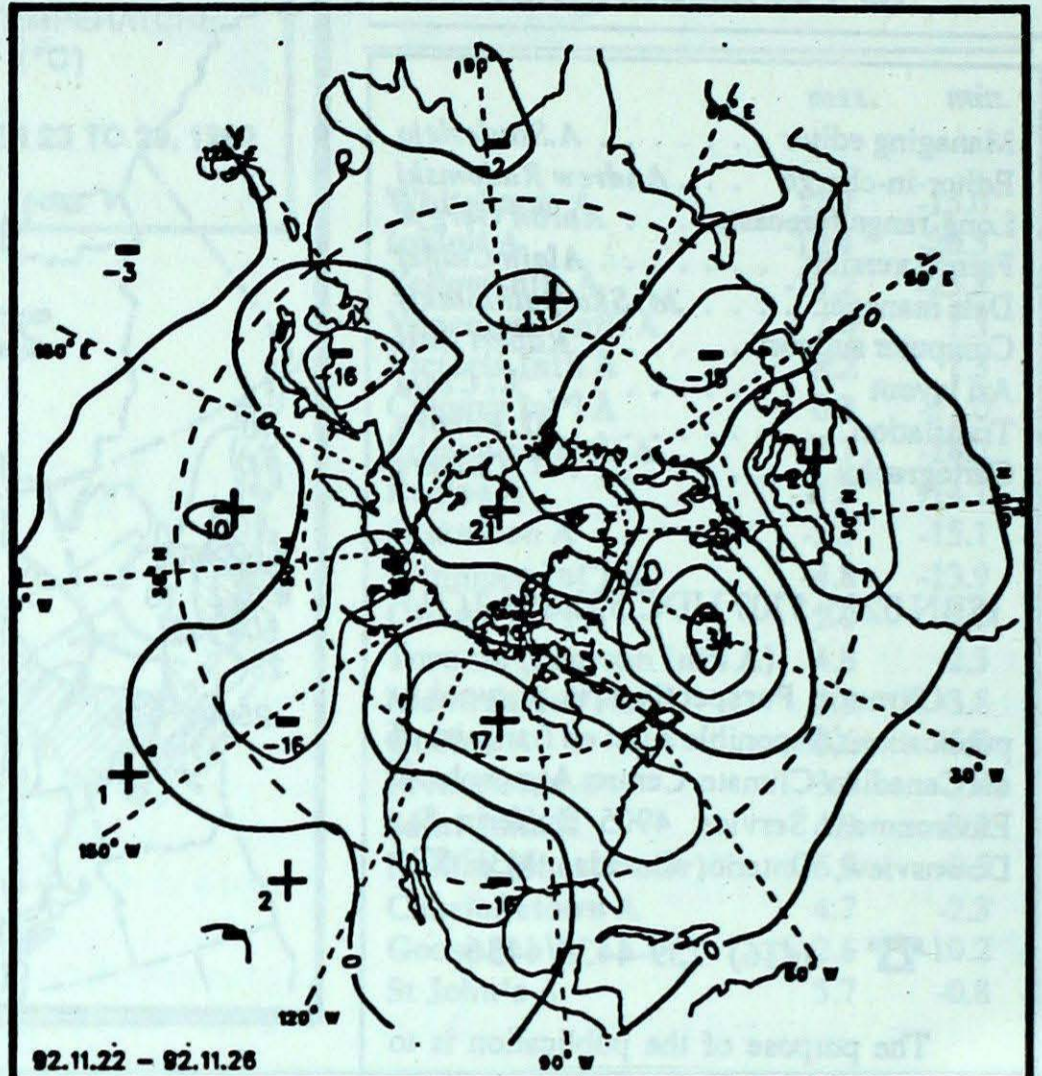
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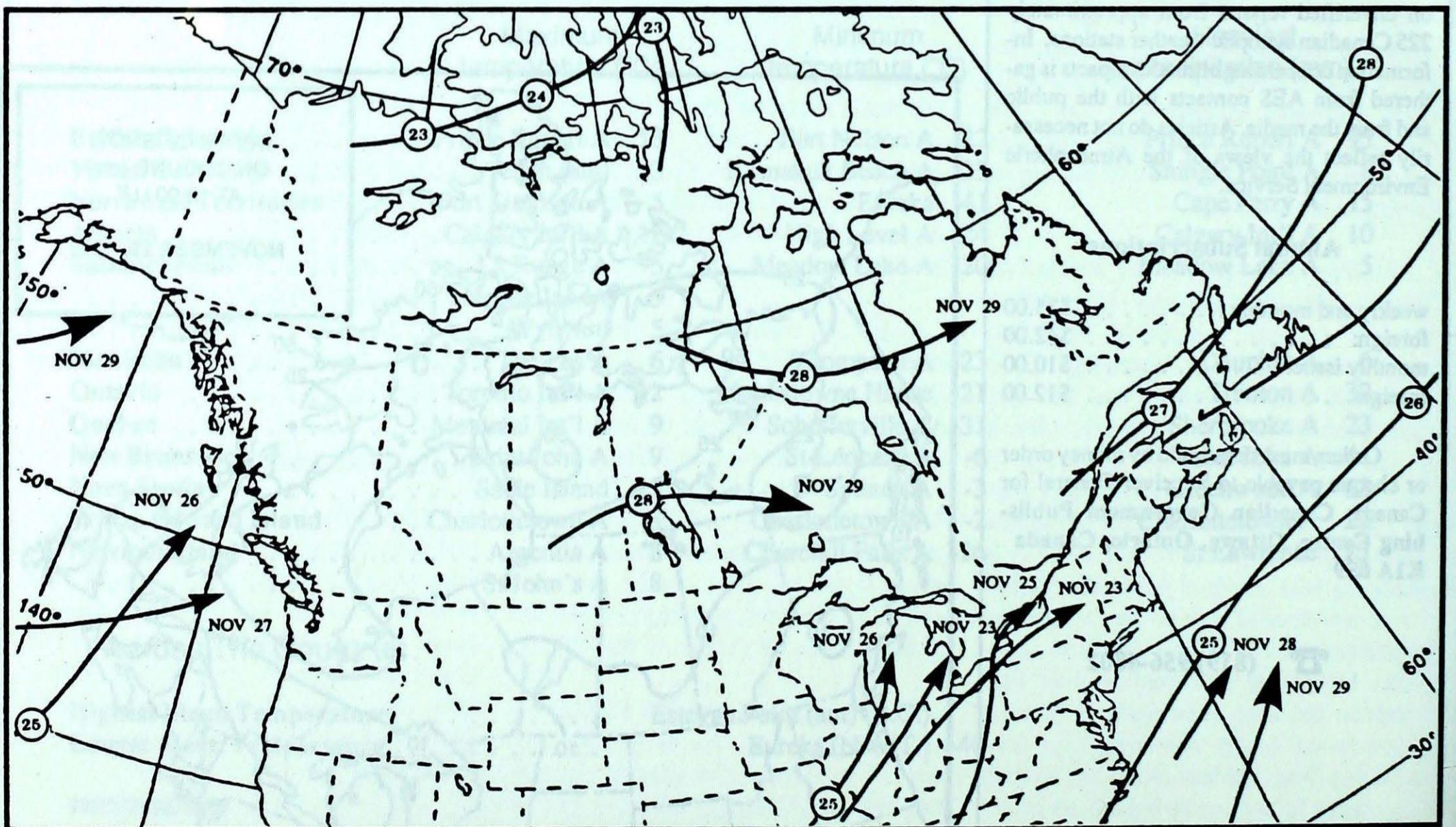
50-kPa ATMOSPHERIC CIRCULATION



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



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

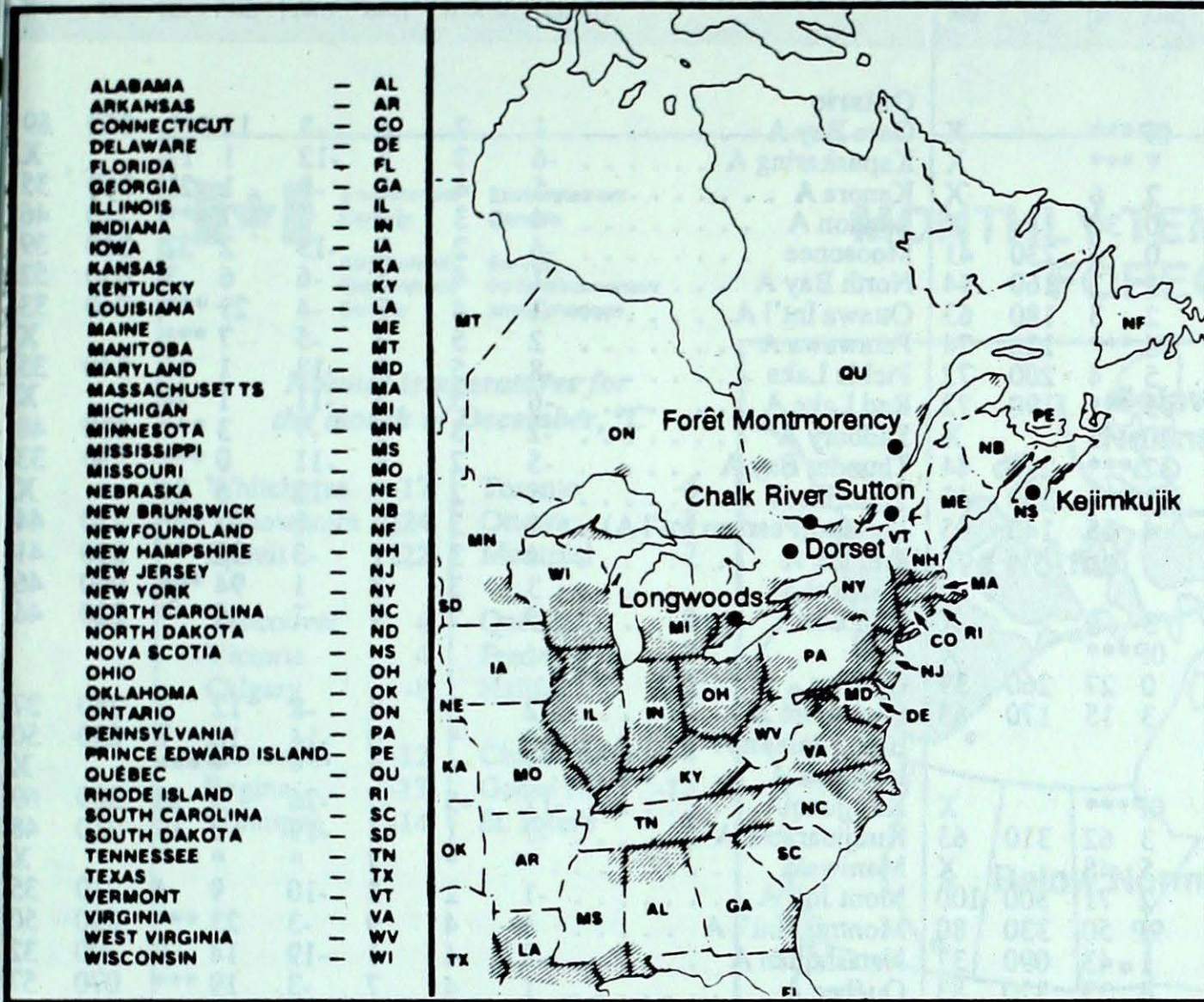


Tracks of low pressure centres at 12:00 U.T. each day during the period.

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 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.



- ALABAMA -- AL
- ARKANSAS -- AR
- CONNECTICUT -- CO
- DELAWARE -- DE
- FLORIDA -- FL
- GEORGIA -- GA
- ILLINOIS -- IL
- INDIANA -- IN
- IOWA -- IA
- KANSAS -- KA
- KENTUCKY -- KY
- LOUISIANA -- LA
- MAINE -- ME
- MANITOBA -- MT
- MARYLAND -- MD
- MASSACHUSETTS -- MA
- MICHIGAN -- MI
- MINNESOTA -- MN
- MISSISSIPPI -- MS
- MISSOURI -- MO
- NEBRASKA -- NE
- NEW BRUNSWICK -- NB
- NEWFOUNDLAND -- NF
- NEW HAMPSHIRE -- NH
- NEW JERSEY -- NJ
- NEW YORK -- NY
- NORTH CAROLINA -- NC
- NORTH DAKOTA -- ND
- NOVA SCOTIA -- NS
- OHIO -- OH
- OKLAHOMA -- OK
- ONTARIO -- ON
- PENNSYLVANIA -- PA
- PRINCE EDWARD ISLAND -- PE
- QUÉBEC -- QU
- RHODE ISLAND -- RI
- SOUTH CAROLINA -- SC
- SOUTH DAKOTA -- SD
- TENNESSEE -- TN
- TEXAS -- TX
- VERMONT -- VT
- VIRGINIA -- VA
- WEST VIRGINIA -- WV
- WISCONSIN -- WI

SITE	day	pH	amount	AIR PATH TO SITE
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November 22 to 28, 1992

Longwoods			 No precipitation this week
Dorset *	22	4.7	15 R Southern Ontario, Michigan
	23	4.7	10 M	..... Eastern Ontario, western New York
	24	4.0	4 M	..... Western New York, Pennsylvania
	26	4.2	3 R	..... Lake Huron, Michigan
Chalk River	24	4.4	1 R	..... Eastern and southern Ontario
	25	3.8	1 R	..... Eastern Ontario
	26	4.1	2 R	..... Southern Ontario, southern Michigan
Sutton	22	4.6	12 R	..... Western New York, southern Ontario
	23	4.9	21 R	..... New York
	24	4.3	1 R	..... Eastern New York
	26	3.9	4 R	..... New York, Pennsylvania
Montmorency	24	4.6	2 S	..... Southern Quebec
	25	4.3	1 S	..... Southern Quebec, northern New York
	26	4.3	8 R	..... Western Quebec, eastern Ontario, western New York
Kejimkujik	22	4.5	8 R	..... New England, New York
	23	4.4	14 R	..... Southern New England
	26	4.7	10 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
British Columbia									Ontario								
Blue River A	-7P	-1P	0P	-15P	0P***			X	Gore Bay A	1	2	6	-3	12 ***	060	69	
Cape St James	*	*	*	*	* ***			X	Kapuskasing A	-6	2	2	-12	1 17		X	
Cranbrook A	-7	-2	-1	-13	2 6			X	Kenora A	-5	4	1	-9	1 21	360	35	
Fort Nelson A	-12	4	4	-22	0 30			X	London A	4	3	10	0	7 ***	240	46	
Fort St John A	-2	7	4	-16	0 6	230	41		Moosonee	-6	2	2	-15	2 32	210	39	
Kamloops A	-2	-1	3	-8	1 3	160	44		North Bay A	-1	4	5	-6	6 3	050	52	
Penticton A	-2	-3	4	-9	2 3	180	63		Ottawa Int'l A	2	4	8	-4	29 ***	040	33	
Port Hardy A	6	2	10	-2	86 ***	120	74		Petawawa A	2	5	7	-5	7 ***		X	
Prince George A	-5	1	4	-13	5 4	200	72		Pickle Lake	-8	5	0	-13	1 16	340	35	
Prince Rupert A	6	3	13	-3	95 ***	190	72		Red Lake A	-6	5	3	-11	1 24		X	
Smithers A	-4	2	3	-10	20 3		X		Sudbury A	-2	3	3	-7	3 ***	030	48	
Vancouver Int'l A	4	0	10	-4	32 ***	290	44		Thunder Bay A	-5	2	6	-11	0 ***	330	33	
Victoria Int'l A	4	-1	11	-3	11 ***	150	43		Timmins A	-6	2	3	-12	6 24		X	
Williams Lake A	-6	0	2	-17	4 15	140	65		Toronto(Pearson Int'l A)	4	3	12	-1	17 ***	250	44	
Yukon Territory									Trenton A	4	3	11	-3	32 ***	030	41	
Komakuk Beach A	-18	3	2	-33	3 9		X		Warton A	3	3	8	1	94 ***	060	46	
Teslin (aut)	-3P	*	3P	-9P	0P***		X		Windsor A	4	2	9	-1	5 ***	220	46	
Watson Lake A	-15	3	-2	-25	0 27	260	39		Québec								
Whitehorse A	-2	9	3	-16	3 15	170	63		Bagotville A	-2	3	2	-8	12 3	280	37	
Northwest Territories									Blanc Sablon A	-8	*	0	-14	10 7	280	50	
Alert	-33P	-5P	-27P	-38P	0P***		X		Inukjuak A	*	*	*	*	* ***		X	
Baker Lake A	-24	1	-11	-33	3 62	310	63		Kuujuuaq A	-17	-5	-7	-26	5 28	300	69	
Cambridge Bay A	-28	-1	-14	-37	5 45		X		Kuujuuarapik A	-7	1	-1	-19	8 19	210	48	
Cape Dyer A	-18	-1	-10	-26	2 71	300	100		Maniwaki	*	*	7	*	* ***		X	
Clyde A	-22P	-1P	-12P	-28P	9P 50	330	80		Mont Joli A	-1	2	3	-10	9 4	210	35	
Coppermine A	-18	8	-7	-31	1 43	090	37		Montréal Int'l A	4	4	9	-3	23 ***	030	50	
Coral Harbour A	-23	-2	-8	-33	4 23	320	83		Natashquan A	-8	-4	1	-19	14 9	290	32	
Eureka	-40P	-7P	-37P	-41P	1P 10		X		Québec A	1	4	7	-3	19 ***	070	57	
Fort Smith A	-8	10	0	-17	1 18	300	37		Schefferville A	-15	-2	-4	-31	4 23	250	61	
Hall Beach A	-24	1	-11	-34	8 37	330	67		Sept-Îles A	-6	-1	0	-14	7 19	310	39	
Inuvik A	-20	5	-12	-27	3 38		X		Sherbrooke A	3	5	8	-2	23 ***	270	46	
Iqaluit A	-22P	-6P	-5P	-30P	1P 9	200	74		Val-d'Or A	-2	4	4	-10	4 3	310	32	
Mould Bay A	-29P	-1P	-19P	-38P	1P 21		X		New Brunswick								
Norman Wells A	-17	6	-10	-25	0 19		X		Fredericton A	1	2	9	-4	18 3	260	54	
Resolute A	-29	-3	-22	-36	1 12	340	56		Miscou Island (aut)	-1P	1P	4P	-5P	3P***			
Yellowknife A	-8	12	-2	-16	2 19	350	50		Moncton A	1	1	8	-3	12 ***	270	57	
Alberta									Saint John A	2	2	9	-3	41 ***	080	37	
Calgary Int'l A	-2	4	12	-15	10 ***	340	69		Nova Scotia								
Cold Lake A	-8	3	2	-18	1 10	310	50		Greenwood A	3	1	10	-2	53 ***	270	56	
Edmonton Namao A	-4	4	4	-18	1 9	300	44		Shearwater A	4	1	13	-1	32 ***	270	56	
Fort McMurray A	-5	8	4	-18	0 14		X		Sydney A	2	-1	12	-3	24 ***	270	48	
High Level A	-11	4	4	-24	1 14	310	37		Yarmouth A	5	1	12	-1	44 ***	090	56	
Jasper	*	*	3	*	* 5		X		Prince Edward Island								
Lethbridge A	-3	1	10	-14	10 5	250	93		Charlottetown A	2	1	8	-2	22 ***	270	41	
Medicine Hat A	-4	1	10	-15	5 4	230	59		Newfoundland								
Peace River A	-6	6	5	-18	0 3	240	48		Cartwright	-7	-4	-1	-14	0 3	300	56	
Saskatchewan									Churchill Falls A	-13	0	-2	-26	1 37	250	39	
Cree Lake	-8	9	0	-16	1 18	350	48		Gander Int'l A	-4	-4	4	-9	17 12	280	65	
Estevan A	-6	2	2	-14	2 4	330	61		Goose A	-10	-3	0	-19	0 3	270	48	
La Ronge A	-5	9	5	-14	4 19	330	46		St John's A	-1	-4	8	-8	14 ***	290	65	
Regina A	-5	4	3	-15	2 6	330	59		St Lawrence	-1	-4	7	-8	23 ***		X	
Saskatoon A	-8	2	1	-17	3 14	330	56		Wabush Lake A	-11	0	-2	-22	2 28	300	37	
Swift Current A	-4	3	4	-11	4 5	320	65		92/11/23-92/11/29								
Yorkton A	-7	4	4	-18	4 8	320	46										
Manitoba																	
Brandon A	-7	4	0	-15	3 7	290	48										
Churchill A	-11	7	-3	-23	2 22	010	48										
Lynn Lake A	-7	11	1	-17	2 22	160	32										
The Pas A	-5	8	6	-12	2 11	350	44										
Thompson A	-8	9	2	-23	4 16		X										
Winnipeg Int'l A	-7	3	-2	-15	1 22	340	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.



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MONTHLY TEMPERATURE FORECAST

Normal temperatures for the month of December, °C

Table with 2 columns of cities and their normal temperatures for December in degrees Celsius. Cities include Whitehorse, Yellowknife, Iqaluit, Vancouver, Victoria, Calgary, Edmonton, Regina, Winnipeg, Toronto, Ottawa, Montréal, Québec, Fredericton, Halifax, Charlottetown, Goose Bay, and St. John's.

Canada

