Climatic Perspectives

archives

November 19 to 25, 1990 **A weekly review of Canadian climate and water** Vol.12 No.47

Second deluge this month on B.C. south coast

For the second time this month an active Pacific frontal system has brought heavy rains to southwestern B.C. This latest disturbance, between November 21 and 24, brought more flooding to communities along the south coast and on Vancouver Island.

The heavy rains did not last as long as the November 8 to 12 event, but did extend further inland than before. Once again, Gold River, Squamish and Hope received the heaviest precipitation, 280.2, 275.4 and 247.8 millimetres, respectively. Two-day totals of more than 200 mm were reported at Gold River and Alice Springs, both situated on Vancouver Island. At Hope the 3 and 4 day rainfall totals of 245.1 and 273.5 millimetres can be expected to occur only once every 15 years. Princeton, located in a relative rain shadow area east of Hope, received a 3 day precipitation total of only 60 mm, but surprisingly, this relatively low precipitation amount statistically should only reoccur once every 25 years for that location.

Since the beginning of November, Hope and Squamish have received more than 800 mm of precipitation. At Hope, this surpasses the previous November record of 596.1 mm, set only last year and also establishes a new record precipitation total for any month of the year. The previous record of 713.5 mm, was set in January 1974.

Prairie agriculture in brief

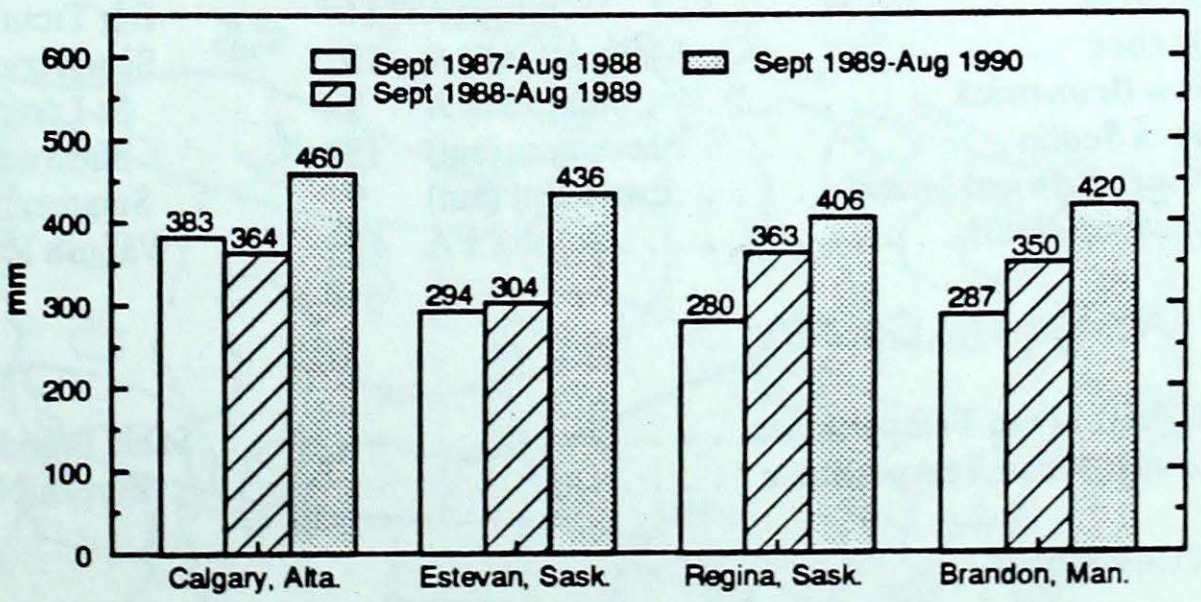
Soil moisture reserves were replenished somewhat last fall and winter for the 1990 growing season. Timely summer rainfalls and generally warm temperatures combined to produce good crop stands. Moisture stress was confined mainly to the southern portions of eastern Alberta and western Saskatchewan. In general, harvest weather was ideal with good crop yields and quality.

Since harvest time, very little rain has fallen across the southern agricultural districts, and precipitation amounts for this period now rival the lowest on record. There have been few significant precipitation events this fall, and the lack of rain has resulted in dry stubble fields and pastures, especially in the Palliser region of southwestern Saskatchewan. Many regions have received less than half their normal precipitation. Groundwater shortages are anticipated, if the moisture situation does not improve significantly over the winter months.

Warm weather for most of the country...

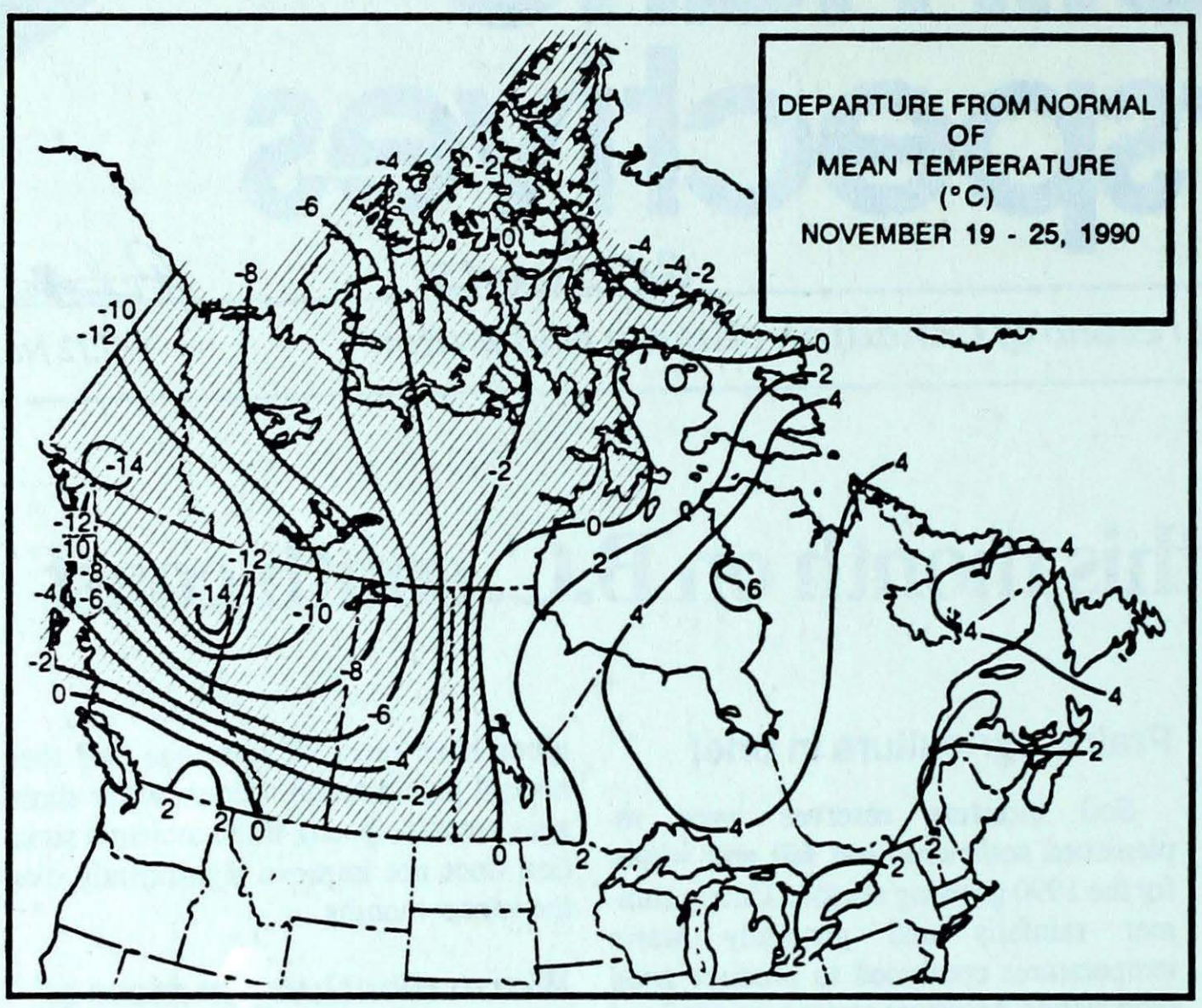
For the week of December 3, above-normal temperatures are expected across all of Canada except for the Yukon, Mackenzie District and northwestern British Columbia. The greatest above-normal departures will occur across southern Manitoba and Newfoundland, with temperatures about 5 to 7 degrees above normal. The northwestern corner of the Yukon will experience temperatures approximately 5 degrees below normal.

Agricultural year in historical perspective



Precipitation during the agricultural year September 1, 1989 to August 31, 1990, as compared to the two previous years.

Canada



Weekly normal temperatures (°C)

	max.	min.
Whitehorse A	-7.3	-14.4
Iqaluit A	-9.6	-18.1
Yellowknife A	-13.7	-22.1
Vancouver Int'l A	8.1	2.1
Victoria Int'l A	8.7	1.8
Calgary Int'l A	1.4	-10.3
Edmonton Int'l A	-2.9	-13.3
Regina A	-2.2	-12.6
Saskatoon A	-3.4	-13.2
Winnipeg Int'l A	-2.9	-11.2
Ottawa Int'l A	3.1	-4.0
Toronto (Pearson Int'l A)	5.9	-1.5
Montréal Int'l A	3.7	-3.0
Québec A	1.4	-5.2
Fredericton A	4.1	-4.7
Saint John A	4.8	-3.1
Halifax (Shearwater)	6.5	-0.2
Charlottetown A	4.5	-2.0
Goose A	-1.4	-8.9
St John's A	5.3	-0.7

Weekly temperature and precipitation extremes

	Maximum temperature (°C)		Minimum temperature (°C)		Heaviest precipitation (mm)	
British Columbia	Kamloops A	17	Fort Nelson A	-35	Hope A	264
Yukon Territory	Whitehorse A	-8	Watson Lake A	-42	Whitehorse A	2
Northwest Territories	Killinek	2	Fort Simpson A	-41	Rankin Inlet A	15
Alberta	Lethbridge A	11	High Level A	-40	Medicine Hat A	36
Saskatchewan	Rockglen (aut)	11	Cree Lake	-40	Cree Lake	35
Manitoba	Gretna (aut)	11	Lynn Lake A	-31	Thompson A	46
Ontario	Wawa A	14	Big Trout Lake	-22	Wawa A	42
Québec	Montréal Int'l A	10	Schefferville A	-23	Natashquan A	62
New Brunswick	Saint John A	9	St-Léonard A	-7	Charlo A	57
Nova Scotia	Inverness (aut)	15	Shearwater A	0	Sable Island	52
Prince Edward Island	East Point (aut)	9	Summerside A	1	Charlottetown A	37
Newfoundland	St John's A	16	Wabush Lake A	-27	Cartwright	67

Across The Country...

Highest Mean Temperature	Sable Island(NS)	8
Lowest Mean Temperature	Eureka(NWT)	-35

90/11/19-90/11/25

CLIMATIC PERSPECTIVES
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The data in this publication are based on unverified reports from approximately 225 Canadian synoptic weather stations. Information concerning climatic impacts is gathered from AES contacts with the public and from the media. Articles do not necessarily reflect the views of the Atmospheric Environment Service.

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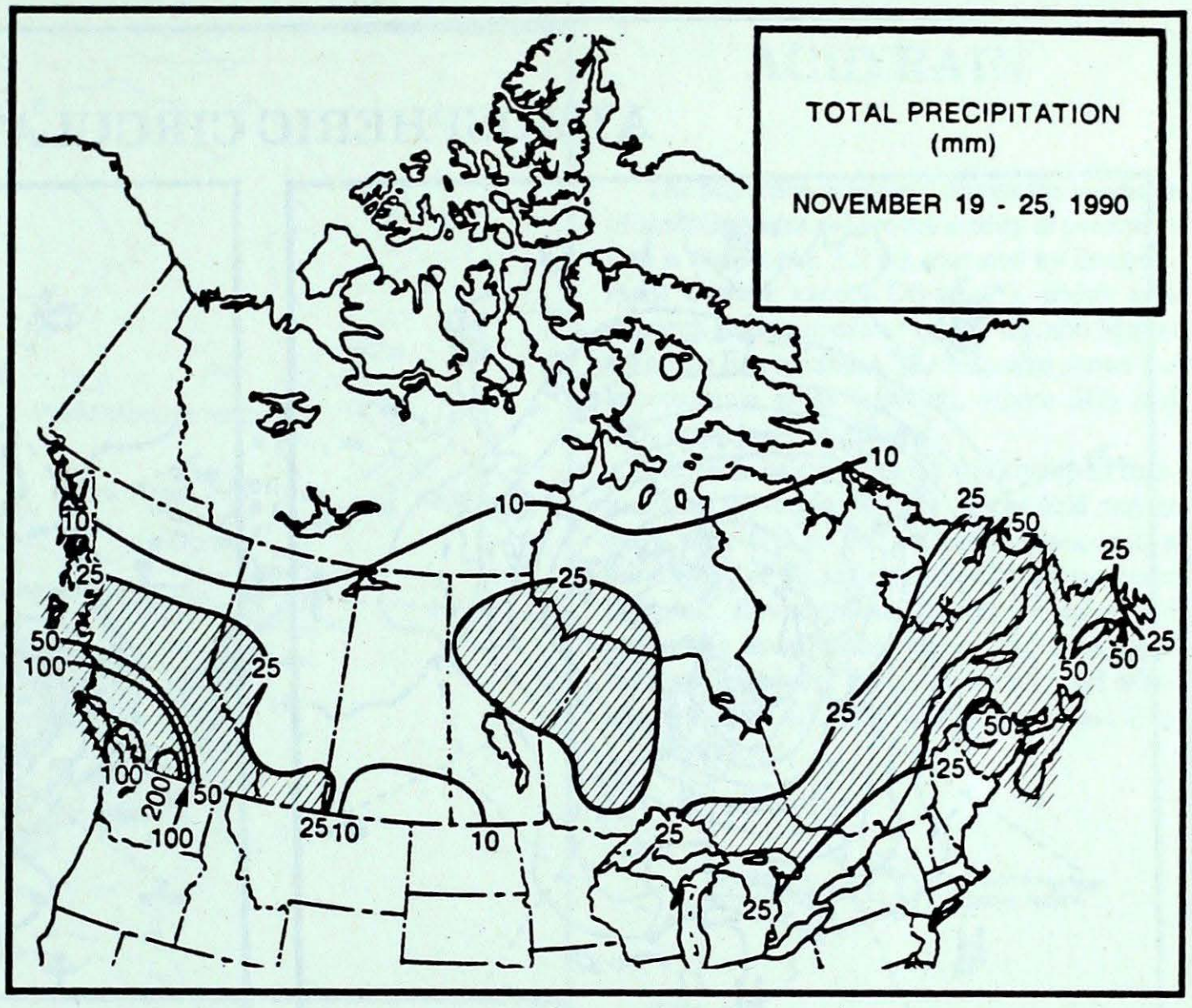

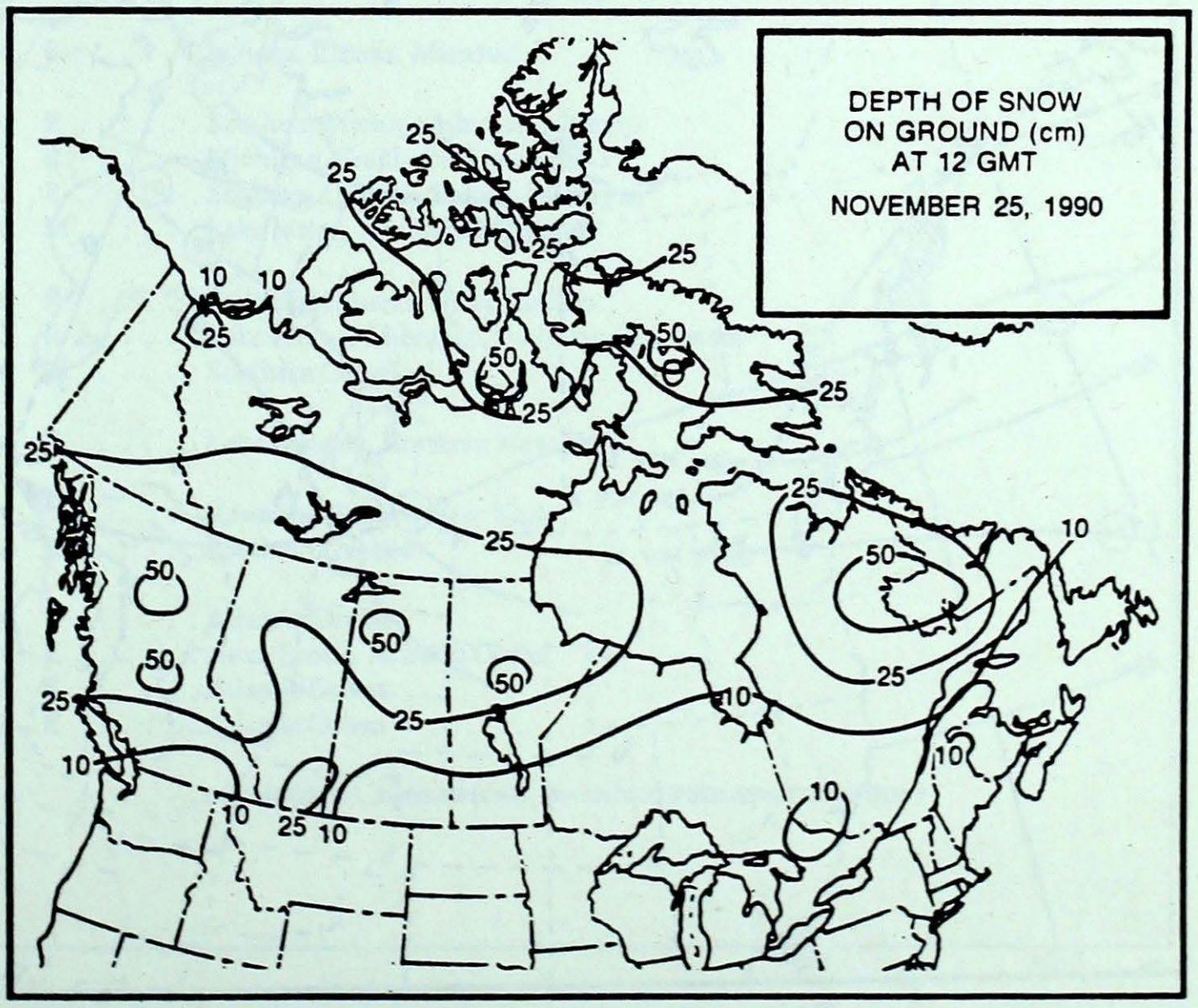

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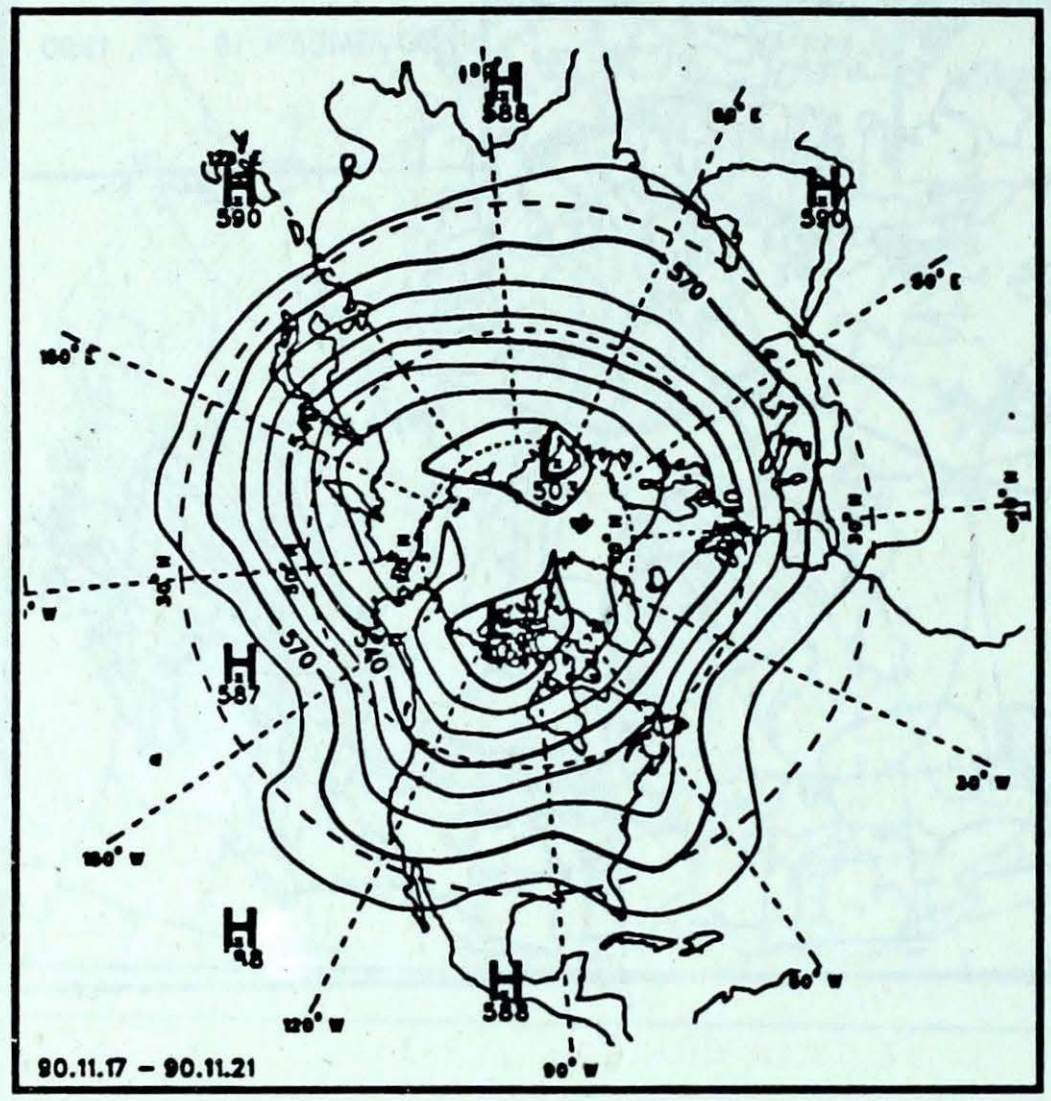
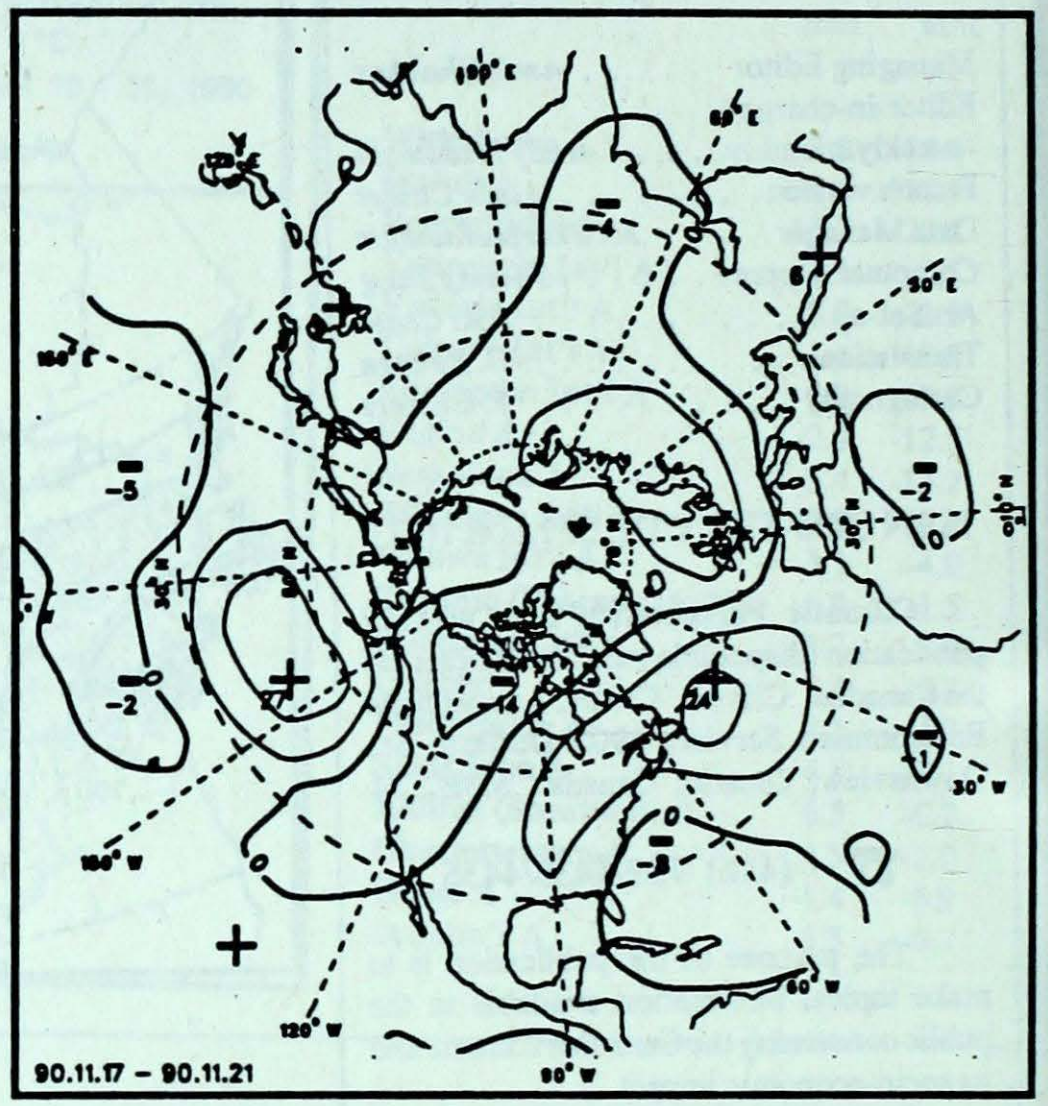
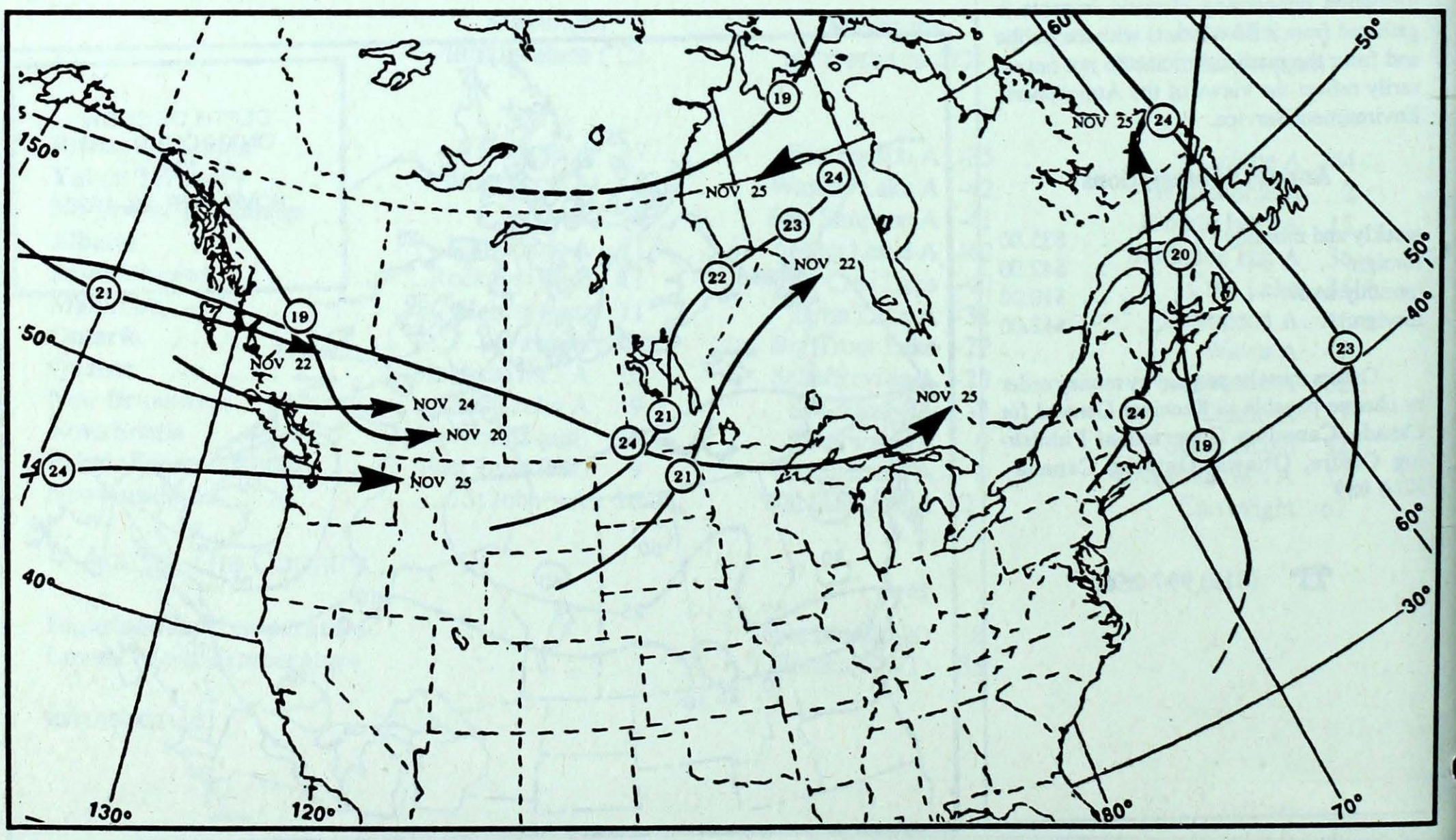


Mean geopotential height
50-kPa level (10-decametre intervals)

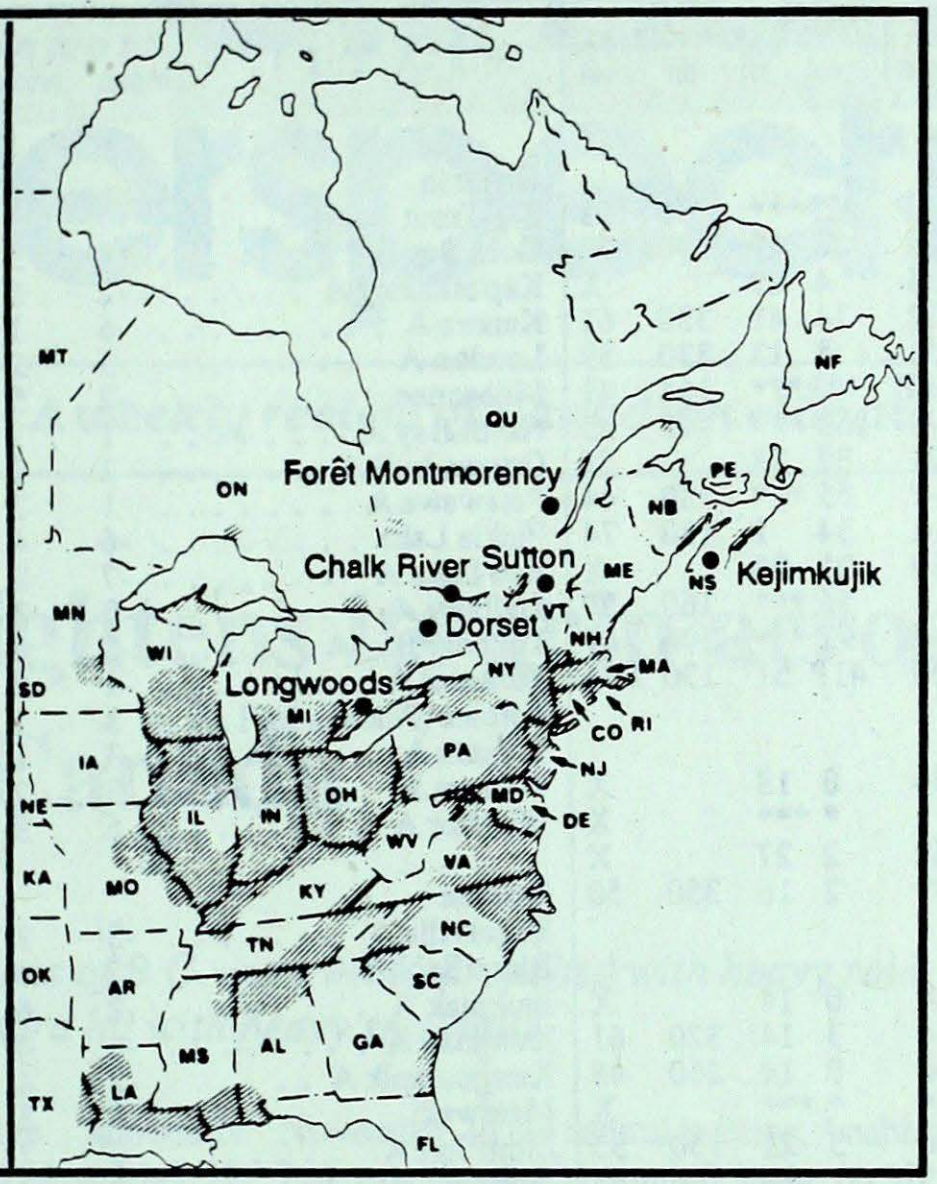


Mean geopotential height anomaly
50-kPa level (10-decametre intervals)



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

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



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_2 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.

November 18 to 24, 1990

Site	day	pH	amount		air path to site
Longwoods	21	4.0	16	R	Indiana, Illinois, Missouri
Dorset*	21	4.1	21	R	Southern Michigan, Indiana, Illinois
	22	4.4	3	R	Michigan, Southern Wisconsin
	23	4.9	5	S	Southern Ontario, Eastern Michigan
	24	4.6	5	M	Lake huron, Northern Michigan
Chalk River	21	4.1	12	R	Southern Ontario, Ohio, Indiana
	22	4.0	3	R	Lake Huron, Michigan, Southern Wisconsin
	24	4.1	6	M	Southern Ontario
Sutton	22	4.0	6	R	Lake Ontario, Northern New York
Montmorency	23	3.8	4	M	Vermont, Eastern New York
	24	4.2	2	M	Southern Quebec
Kejimkujik	18	5.4	69	R	Atlantic Ocean
	19	4.5	11	R	Nova Scotia, Atlantic Ocean
	23	4.0	5	R	Atlantic Ocean
	24	4.2	4	R	Atlantic Ocean

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

STATION	temperature mean	anom	max	min	precip. ptot	st	wind max dir	vel
British Columbia								
Cape St James	5P	-2P	8P	1P	22P	***	270	133
Cranbrook A	1	5	8	-8	36	19	190	52
Fort Nelson A	-26	-11	-15	-35	4	27		X
Fort St John A	-23	-15	2	-32	14	41	330	61
Kamloops A	1	1	17	-11	8	13	330	59
Penticton A	5P	3P	17P	-8P	19P	***	161	41
Port Hardy A	5	0	14	-1	153	***	110	35
Prince George A	-12	-8	0	-21	32	28		X
Prince Rupert A	0	-3	6	-7	55	***	130	44
Revelstoke A	2	4	9	-1	34	1	180	74
Smithers A	-9	-4	1	-19	21	30		X
Vancouver Int'l A	7	2	13	1	56	***	160	50
Victoria Int'l A	7	2	14	-2	97	***	190	67
Williams Lake A	-9P	-4P	3P	-19P	41P	51	130	56
Yukon Territory								
Komakuk Beach A	-30	-8	-22	-36	0	18		X
Teslin (aut)	*	*	-10	*	*	***		X
Watson Lake A	-29	-12	-8	-42	2	27		X
Whitehorse A	-25	-14	-8	-39	2	16	350	50
Northwest Territories								
Alert	-32	-4	-23	-38	0	14		X
Baker Lake A	-25	-2	-17	-34	3	14	320	61
Cambridge Bay A	-30	-4	-25	-36	0	14	260	48
Cape Dyer A	*	*	*	*	*	***		X
Clyde A	-21	-1	-14	-26	3	21	150	35
Coppermine A	-30	-6	-25	-35	1	24	260	43
Coral Harbour A	-21P	-1P	-10P	-33P	1P	13	040	113
Eureka	-35P	-3P	-22P	-40P	0P	8		X
Fort Smith A	-26	-11	-17	-40	7	41		X
Hall Beach A	-21	3	-7	-34	1	21	300	56
Inuvik A	-34	-10	-26	-41	1	30		X
Iqaluit A	-8	6	-1	-22	4	12	280	46
Mould Bay A	-33	-5	-21	-39	0	27		X
Norman Wells A	-30	-8	-22	-37	0	14	310	52
Resolute A	-24	2	-14	-35	0	27	040	50
Yellowknife A	-26	-9	-18	-38	6	22	030	32
Alberta								
Calgary Int'l A	-9	-5	4	-18	14	12	360	83
Cold Lake A	-16	-7	1	-33	24	18	300	37
Edmonton Namao A	-16	-8	1	-27	15	17	330	35
Fort McMurray A	-21	-10	-8	-33	9	16	300	32
High Level A	-26	-10	-13	-40	9	43	010	41
Jasper	-11	-5	2	-25	26	37		X
Lethbridge A	-4	-1	11	-15	23	16	220	124
Medicine Hat A	-6	-2	8	-17	36	45	310	83
Peace River A	-23	-12	-1	-33	14	23	020	52
Saskatchewan								
Cree Lake	-22	-8	-11	-40	35	52	310	43
Estevan A	-7	-1	9	-19	8	3	300	93
La Ronge A	-16	-5	-1	-34	23	31	090	46
Regina A	-8	-1	10	-18	1	1	330	69
Saskatoon A	-13	-5	1	-28	11	8	280	52
Swift Current A	-6	-1	8	-18	7	1	280	70
Yorkton A	-11	-3	5	-25	13	4	300	63
Manitoba								
Brandon A	-9	0	9	-20	9	1	290	78
Churchill A	-12	3	-1	-25	26	35	010	74
Lynn Lake A	-16	0	-6	-31	25	37	330	46
The Pas A	-12	-2	1	-27	24	26	300	59
Thompson A	-13	2	-1	-28	46	52	072	54
Winnipeg Int'l A	-7	0	9	-20	18	3	260	61

STATION	temperature mean	anom	max	min	precip. ptot	st	wind max dir	vel
Ontario								
Big Trout Lake	-7	5	4	-22	35	14	240	67
Gore Bay A	4	3	10	-3	39	1	150	59
Kapuskasing A	-2	5	10	-18	20	4	220	69
Kenora A	-6	1	11	-20	16	9	240	61
London A	3	2	13	-4	22	***	220	61
Moosonee	-2	5	8	-16	12	1	230	43
North Bay A	1	3	8	-8	38	10	190	54
Ottawa Int'l A	2	2	10	-6	17	2	270	76
Petawawa A	1	3	8	-12	13	2	290	39
Pickle Lake	-6	4	8	-21	37	2	240	56
Red Lake A	-7	2	7	-20	16	8	240	63
Sudbury A	0	3	8	-10	32	4	160	46
Thunder Bay A	-2	3	13	-13	20	3	260	56
Timmins A	-1	5	8	-12	23	8	180	46
Toronto(Pearson Int'l A)	3	1	13	-5	7	***	240	63
Trenton A	3	1	10	-8	12	***	240	56
Wiarton A	3	2	13	-2	32	***	280	80
Windsor A	6	3	13	-2	14	***	210	59
Québec								
Bagotville A	-3	1	2	-14	29	11	280	76
Blanc Sablon A	2	*	4	-1	17	1	070	78
Inukjuak A	-2	6	2	-5	15	18	140	69
Kuujjuaq A	-6	4	2	-18	14	33	140	50
Kuujjuarapik A	-2	4	5	-9	8	4	150	70
Maniwaki	1	3	8	-12	27	3	160	32
Mont Joli A	0	2	4	-6	22	8	330	41
Montréal Int'l A	3	2	10	-5	15	***	220	67
Natashquan A	1	4	4	-5	62	***	040	43
Québec A	0	2	4	-8	24	2	260	43
Schefferville A	-9	2	-1	-23	14	66	180	63
Sept-Îles A	0	4	3	-9	42	19	360	63
Sherbrooke A	0	2	7	-9	9	1	260	37
Val-d'Or A	-2	3	5	-12	15	10	170	46
New Brunswick								
Charlo A	0	3	3	-7	57	1		X
Chatham A	1	2	5	-4	50	2	240	48
Fredericton A	2	2	7	-3	44	1	270	44
Moncton A	2	2	8	-1	39	***	260	78
Saint John A	2	2	9	-1	42	***	210	50
Nova Scotia								
Greenwood A	4	2	10	1	40	***	040	63
Shearwater A	5	2	12	0	31	***	020	54
Sydney A	6	4	14	3	41	***	220	56
Yarmouth A	5	1	11	1	30	***	030	56
Prince Edward Island								
Charlottetown A	4	2	9	1	37	***	280	74
Summerside A	3	2	8	1	34	***	030	65
Newfoundland								
Cartwright	1	4	4	-3	67	18	340	63
Churchill Falls A	-6	5	0	-23	37	88	320	43
Gander Int'l A	7	6	14	1	25	***	170	37
Goose A	-1	4	2	-7	39	24	040	35
Port Aux Basques	6	4	11	2	47	***	100	67
St John's A	7	5	16	1	10	***	270	61
St Lawrence	7	5	12	2	64	***		X
Wabush Lake A	-7	3	-1	-27	12	29	190	37

90/11/19-90/11/25

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.