Environment Canada Environnement Canada

Climatic Perspectives

Nov. 26 to Dec. 2, 1990 **A weekly review of Canadian climate and water** *Vol.12 No.48*

Winter tightens its grip across western Canada

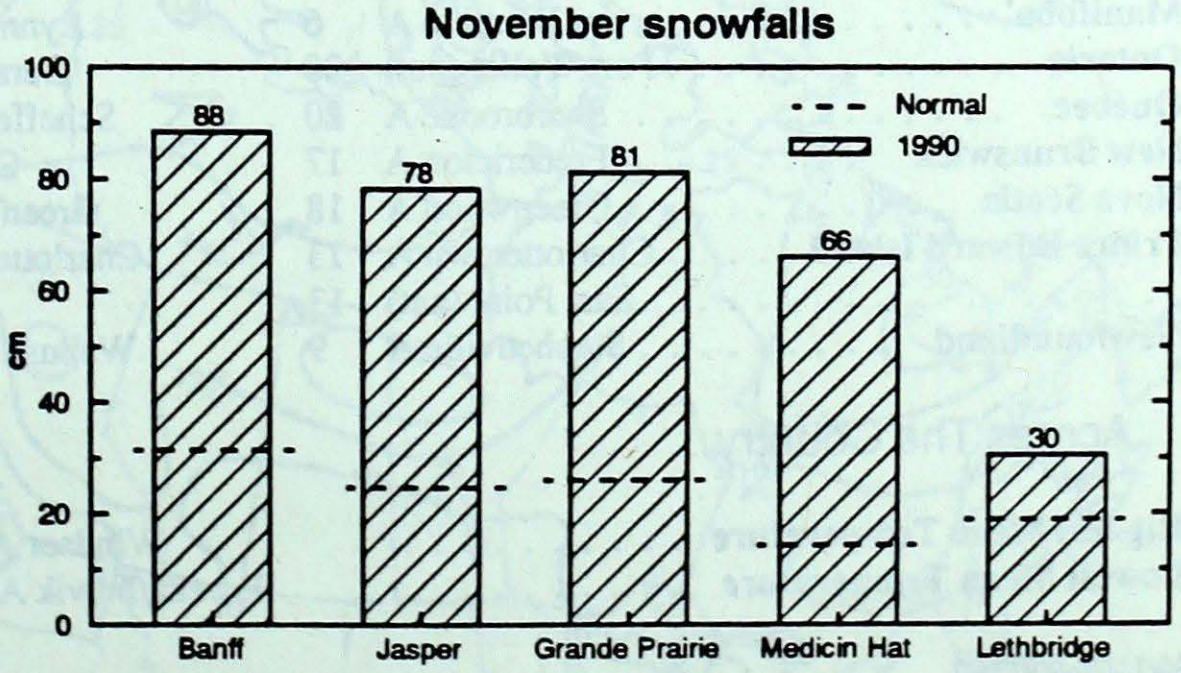
While the coastal regions of B.C. were being drenched with heavy rain, the B.C. interior, the Rockies and much of Alberta was hard hit with heavy snowfalls.

There were extensive snowfalls recorded during the period November 22 to 25, across a large part of Alberta and the western Cordillera. During the last two weeks of November, central and northern Alberta saw between 10 and 25 centimetres of fresh snow. On November 23, central Alberta received 15 to 25 centimetres of snow, with record amounts of snow falling in southern Alberta over the weekend. Amounts approaching 60 cm were reported at Medicine Hat, Cardston and Pincher Creek. The remainder of southern Alberta received between 25 and 50 centimetres of snow. Massive snowfalls of well over 100 cm were reported at Waterton National Park, the Crows Nest Pass, Kananaskis Country and Sunshine Village in Banff National Park. Banff's Sunshine Village has received 231 cm of snow since the opening of the ski season three weeks ago. This is the best start to the season since the resort opened in 1935. For Alberta farmers the snow is a blessing in disguise, as this additional moisture will serve to increase soil moisture reserves, and the snow cover will help prevent wind erosion.

The southern B.C. valleys also received substantial snowfalls, with 15 to 25 centimetres blanketing the ground. At Kelowna, a 17 cm snowfall on the 24th was the heaviest one-day snowfall for any November. In the central interior, Anahim Lake received 131 cm of snow on the 23rd, of which 94 cm fell during the day in less than 12 hours. Prince George has set a new record snowfall of 97 cm for the month of November. Needless to say avalanches are now a major concern in most mountainous areas. In some areas the heavy snowfalls have severely restricted travel.

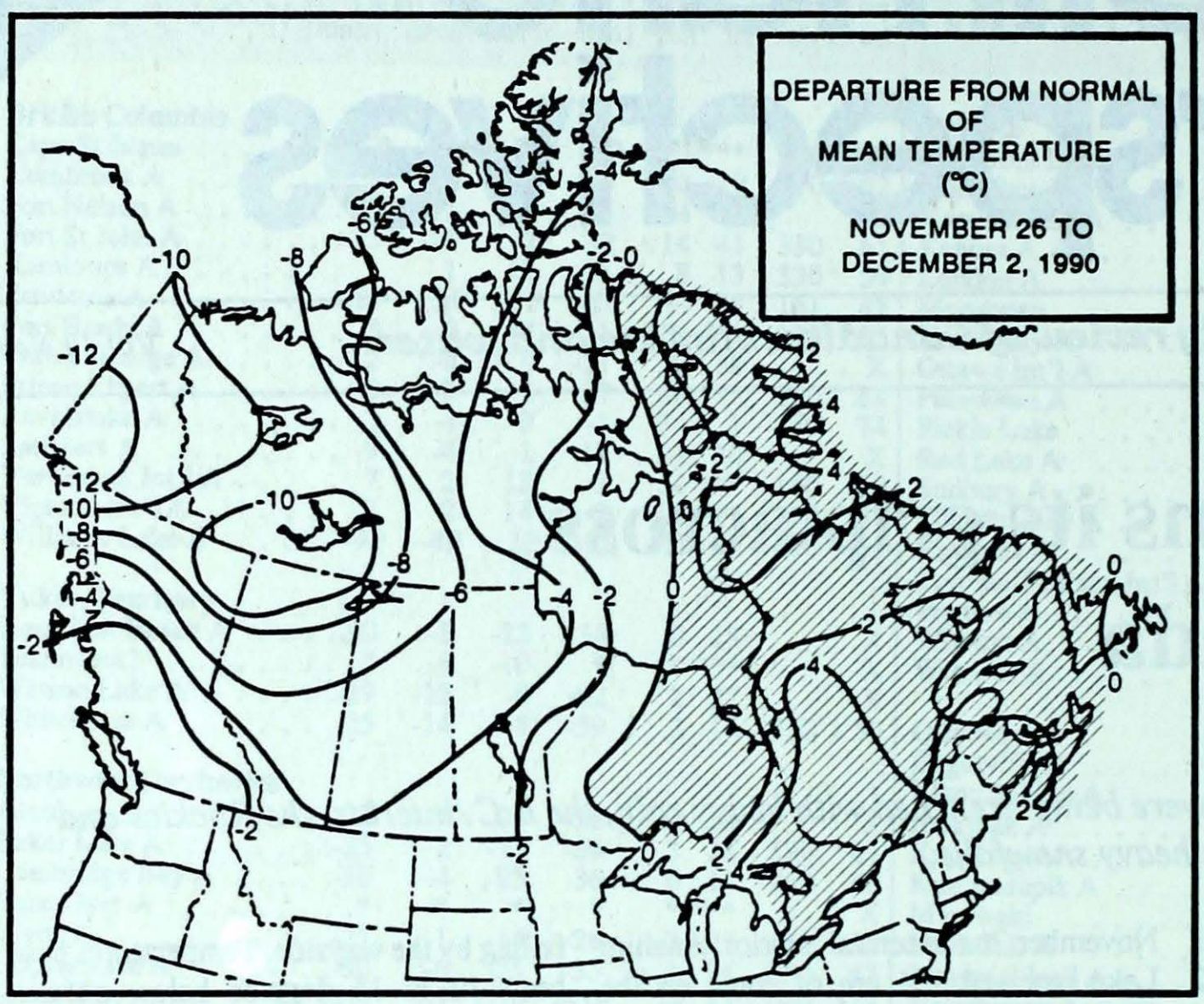
Canada's northwest extremely cold

In the last few weeks it has become bitterly cold, with temperature records falling by the wayside. Temperatures have been 10 to 15 degrees below normal. Readings in the Yukon and Mackenzie Valley have been regularly dropping down to the minus forties. Beaver Creek bottomed out at -54°C on December 2. Ferries pulled out of service at highway river crossings several weeks ago are slowly being replaced by ice bridges. The cold weather has been good news for the logging and petroleum industry, allowing winter roads to be completed into remote areas quickly.



Snowfalls in Alberta during November have been significantly above normal.

Canada



Weekly normal temperatures (°C)

	max.	min.
Whitehorse A	-8.8	-16.3
Iqaluit A	-13.9	-22.1
Yellowknife A	-16.4	-24.6
Vancouver Int'l A	7.4	1.7
Victoria Int'l A	8.1	1.5
Calgary Int'l A	-0.1	-11.4
Edmonton Int'l A	-5.4	-16.0
Regina A	-5.1	-15.3
Saskatoon A	-6.2	-16.0
Winnipeg Int'l A	-5.9	-15.2
Ottawa Int'l A	0.4	-7.0
Toronto (Pearson Int'l A)	3.2	-4.2
Montréal Int'l A	1.1	-5.8
Québec A	-0.9	-7.9
Fredericton A	2.4	-6.6
Saint John A	3.6	-4.7
Halifax (Shearwater)	5.8	-1.5
Charlottetown A	3.7	-3.4
Goose A	-3.9	-11.7
St John's A	4.9	-1.7

Weekly temperature and precipitation extremes

	Maximum temperature (°C)		Minimum temperature (°C)		Heaviest precipitation (mm)	
British Columbia	Port Alberni A	12	Dease Lake	-48	Port Hardy A	100
Yukon Territory	Whitehorse A	-16	Watson Lake A	-44	Watson Lake A	11
Northwest Territories	Cape Dorset A	-4	Eureka	-43	Fort Simpson A	10
Alberta	Red Deer A	7	High Level A	-39	Fort McMurray A	16
Saskatchewan	Moose Jaw A	9	Cree Lake	-46	Cree Lake	7
Manitoba	Dauphin A	6	Lynn Lake A	-39	Gillam A	29
Ontario	Port Weller (aut)	20	Geraldton A	-28	Wiarton A	48
Québec	Sherbrooke A	20	Schefferville A	-25	Bagotville A	30
New Brunswick	Fredericton A	17	Charlo A	-13	Fredericton A	5
Nova Scotia	Greenwood A	18	Greenwood A	-7	Sable Island	49
Prince Edward Island	Charlottetown A	13	Charlottetown A	-6	Charlottetown A	5
	East Point (aut)	13				
Newfoundland	Stephenville A	9	Wabush Lake A	-20	Bonavista A	47

Across The Country...

Highest Mean Temperature	Windsor A(ONT)	6
Lowest Mean Temperature	Eureka/Inuvik A(NWT)	-37

90/11/26-90/12/02

CLIMATIC PERSPECTIVES
VOLUME 12

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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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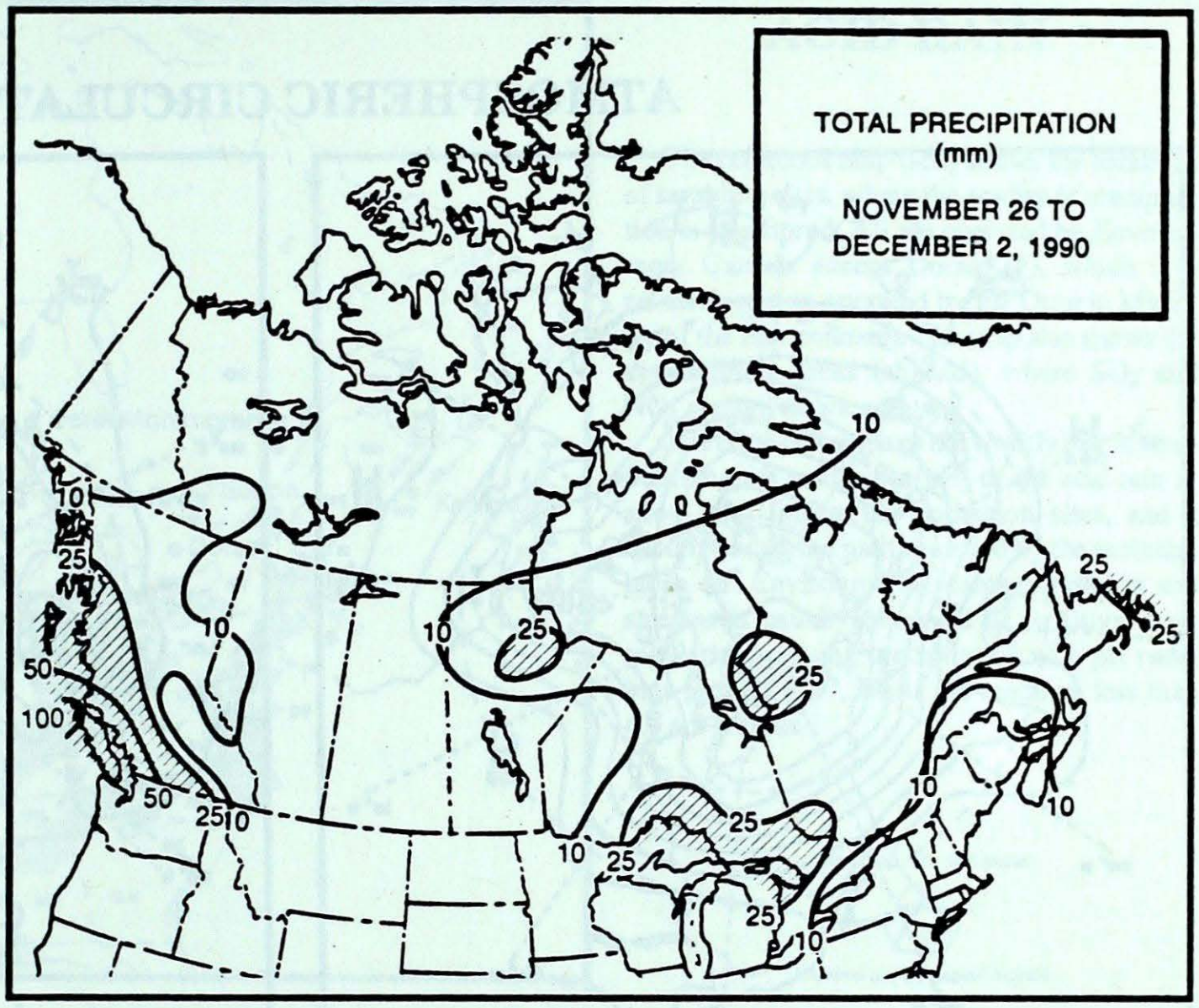

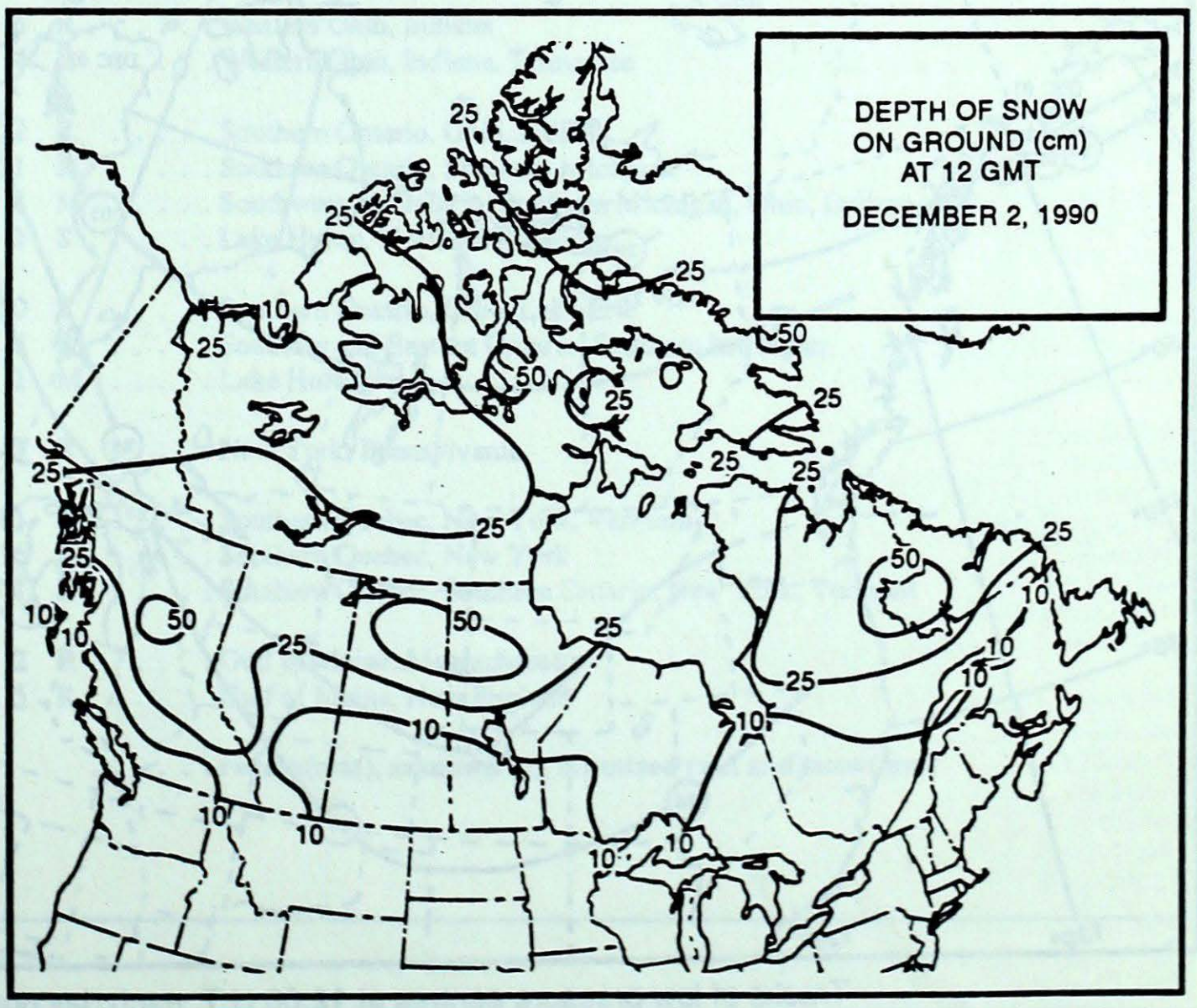

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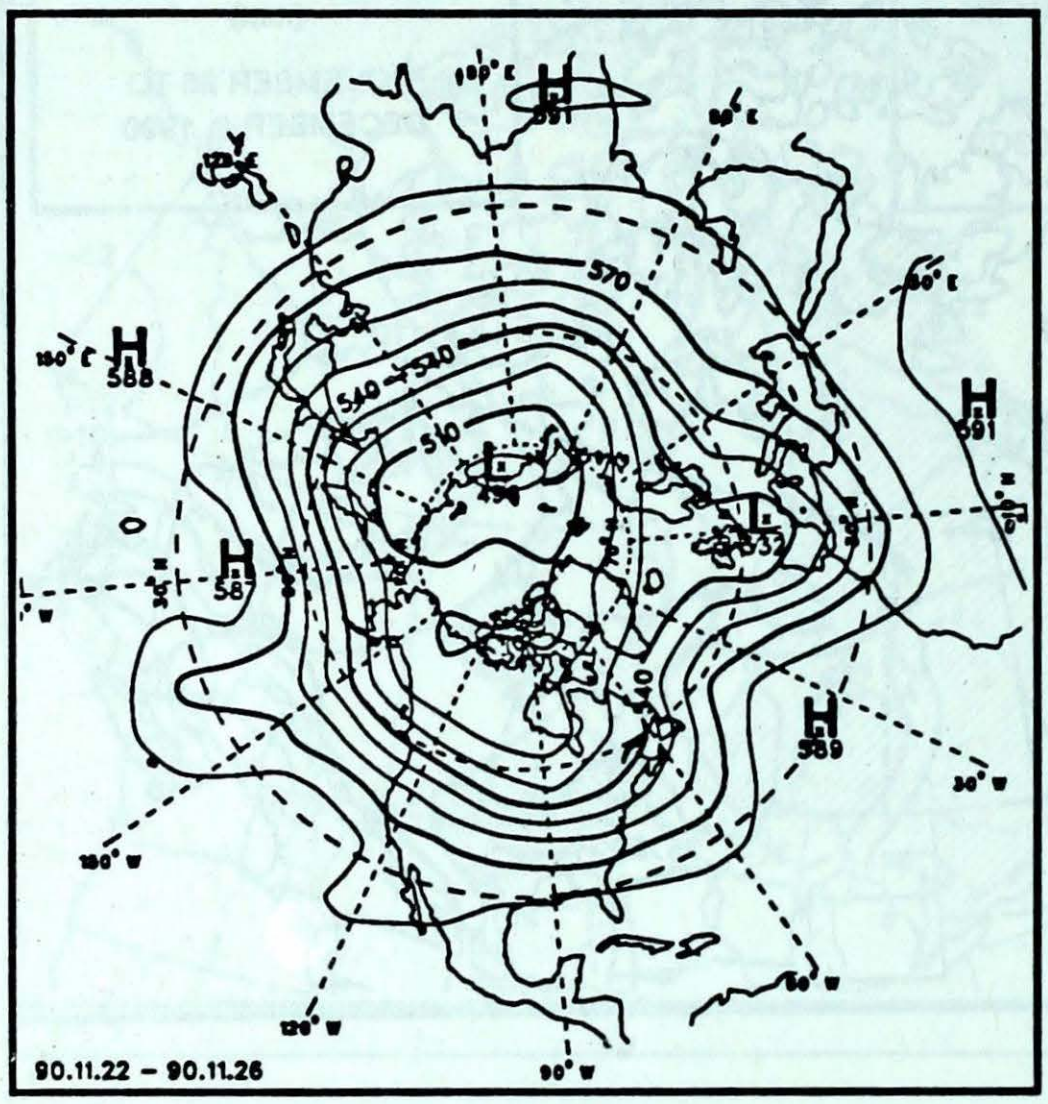
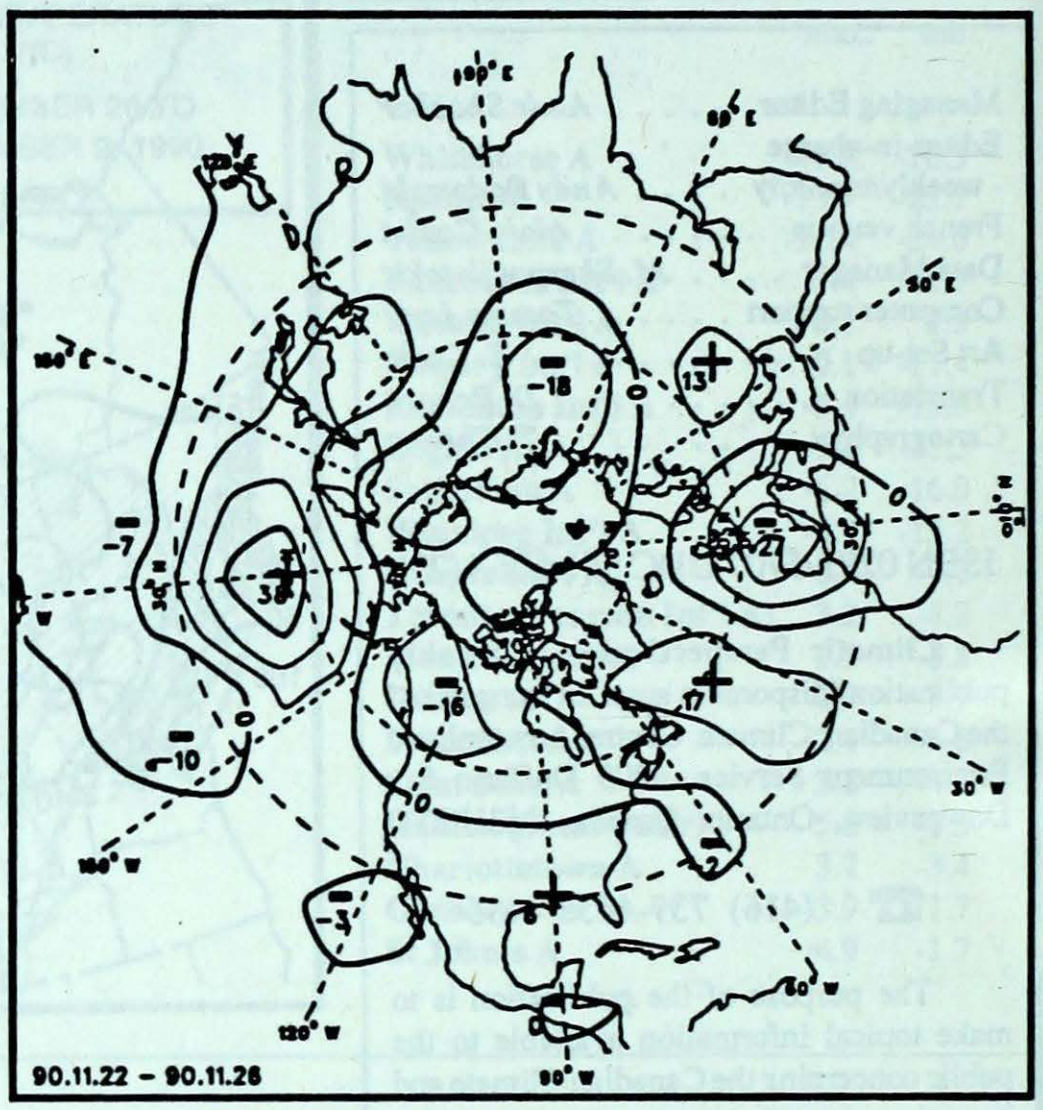
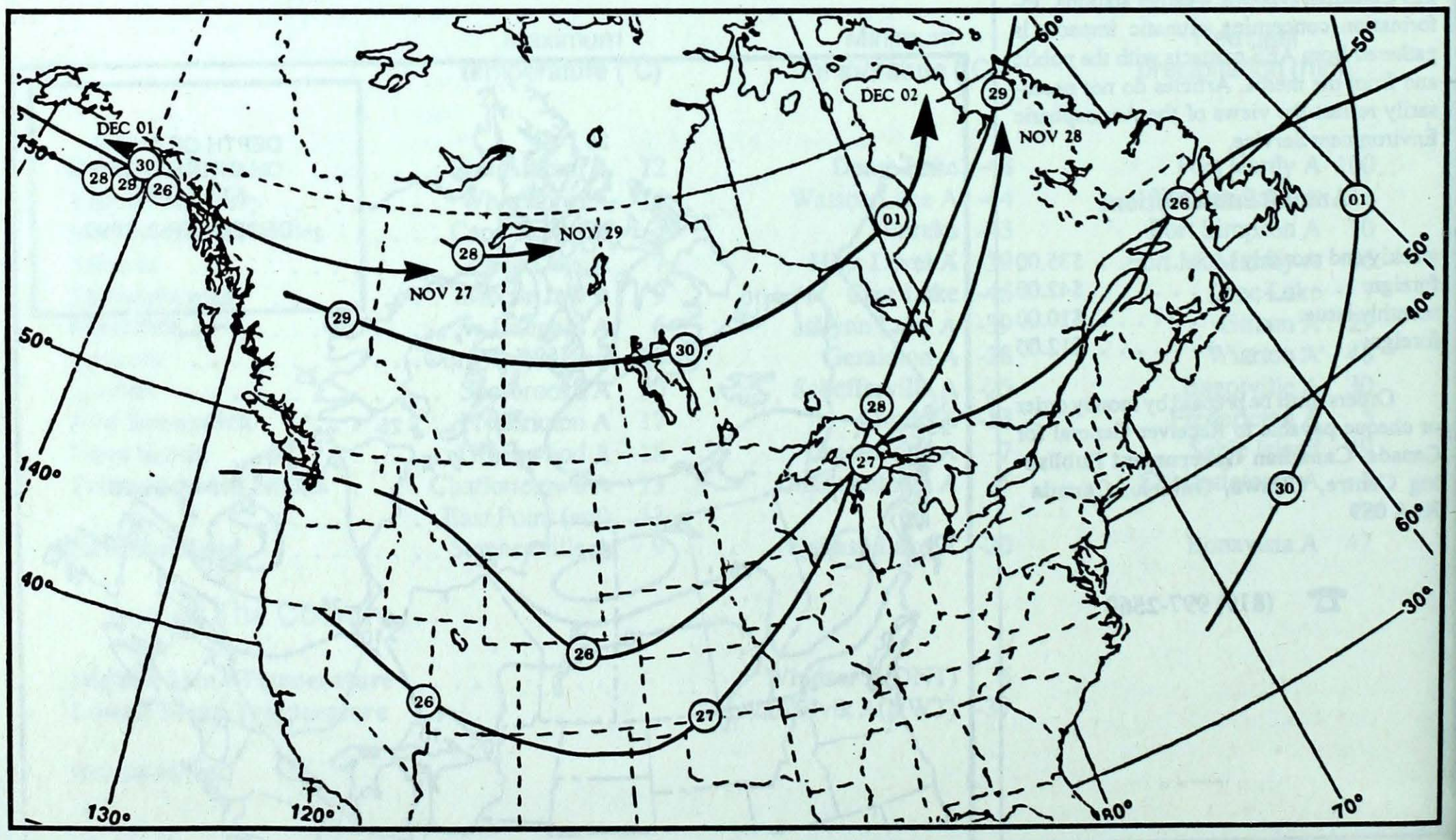


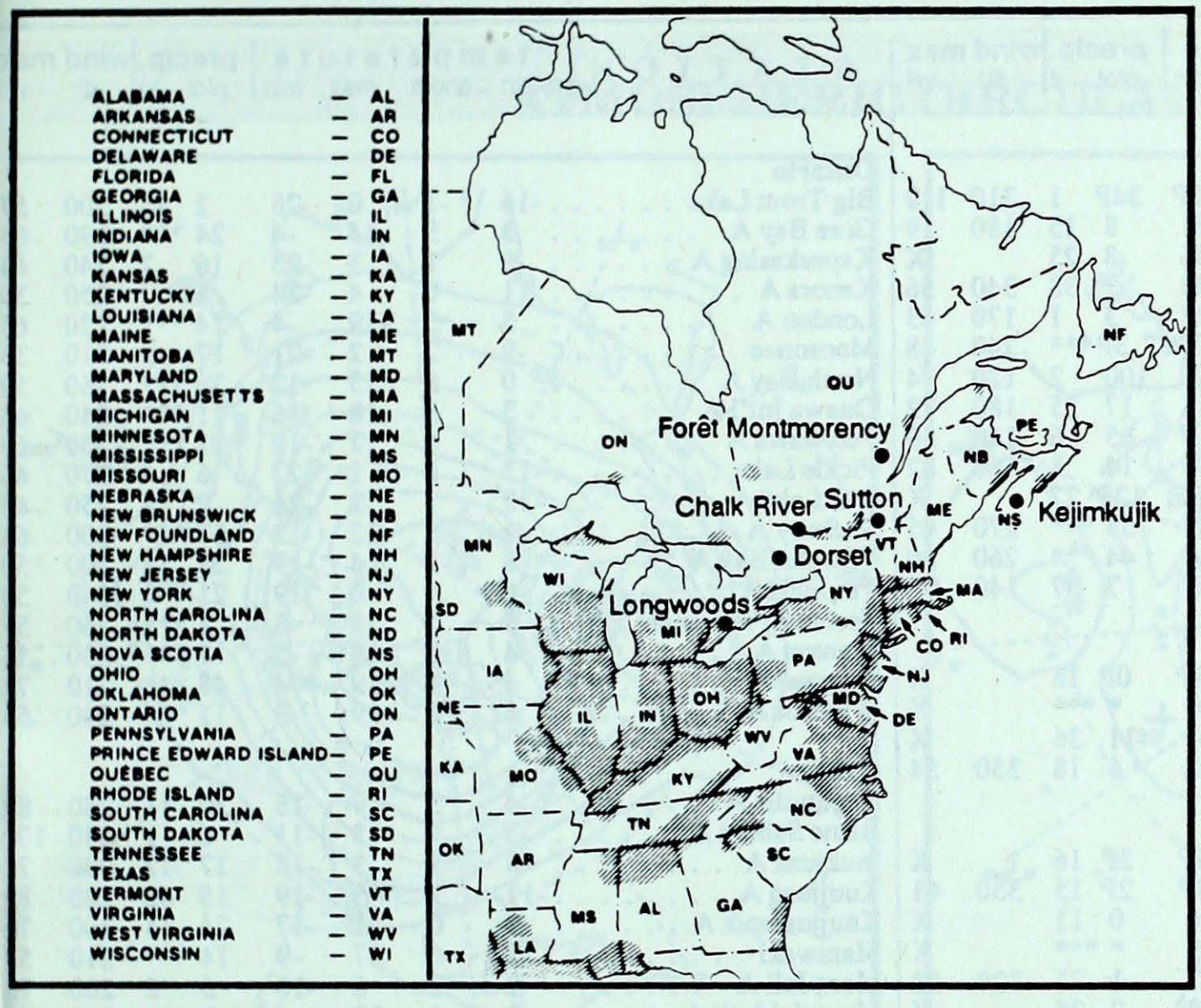
Mean geopotential height
50-kPa level (10-decametre intervals)



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.



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.

Nov. 25 to Dec. 1, 1990

Site	day	pH	amount		air path to site
Longwoods	26	3.5	6	R	. . . . . Western Ohio, Indiana
	27	3.7	4	R	. . . . . Western Ohio, Indiana, Tennessee
Dorset*	26	4.2	22	R	. . . . . Southern Ontario, Ohio, Indiana
	27	4.2	21	R	. . . . . Southern Ontario, Southern Michigan
	28	4.5	8	M	. . . . . Southwestern Ontario, Southern Michigan, Ohio, Indiana
	29	4.6	1	S	. . . . . Lake Huron, Northern Michigan
Chalk River	26	4.5	20	R	. . . . . Southern Ontario, Ohio, Lake Erie
	27	3.9	3	R	. . . . . Southern and Eastern Ontario, Southern Michigan
	28	4.1	1	M	. . . . . Lake Huron
Sutton	27	3.8	3	R	. . . . . New York, Pennsylvania
Montmorency	25	4.7	11	S	. . . . . Southern Quebec, New York, Vermont
	27	4.1	16	R	. . . . . Southern Quebec, New York
	28	3.5	1	R	. . . . . Southern Quebec, Southern Ontario, New York, Vermont
Kejimkujik	27	2.8	2	R	. . . . . Gulf of Maine, Massachusetts
	27	3.9	5	R	. . . . . Gulf of Maine, New England

. . . . . **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	4P	-2P	9P	0P	34P	1	310	119
Cranbrook A	-6	0	2	-11	8	15	180	19
Fort Nelson A	-28	-10	-20	-36	8	25		X
Fort St John A	-21	-11	0	-33	7	38	340	56
Kamloops A	-3	-2	10	-17	3	1	170	63
Penticton A	-1P	-2P	6P	-13P	3P	***	240	48
Port Hardy A	3	-1	7	-1	100	2	120	74
Prince George A	-8	-2	2	-18	17	25	180	72
Prince Rupert A	1	-2	7	-6	65	16	140	69
Revelstoke A	-1	1	5	-5	14	3	160	82
Smithers A	-9P	-3P	1P	-17P	12P	27		X
Vancouver Int'l A	4	-1	9	-1	53	***	270	65
Victoria Int'l A	3	-2	9	-3	44	***	260	50
Williams Lake A	-8	-1	2	-17	7	37	140	59
Yukon Territory								
Komakuk Beach A	-32P	-10P	-27P	-39P	0P	18		X
Teslin (aut)	*	*	-17	*	*	***		X
Watson Lake A	-27	-8	-19	-44	11	36		X
Whitehorse A	-26	-14	-16	-42	6	18	350	54
Northwest Territories								
Alert	-34P	-6P	-29P	-38P	2P	16		X
Baker Lake A	-27P	-2P	-21P	-33P	2P	15	350	61
Cambridge Bay A	-33	-5	-29	-36	0	11		X
Cape Dyer A	*	*	*	*	*	***		X
Clyde A	-21	0	-13	-27	1	21	320	52
Coppermine A	-32	-9	-25	-38	2	25		X
Coral Harbour A	-23	0	-8	-34	3	***	030	63
Eureka	-37	-4	-26	-43	0	9	290	43
Fort Smith A	-29	-11	-18	-39	2	42		X
Hall Beach A	-26	0	-9	-36	4	25	350	48
Inuvik A	-37	-12	-26	-42	0	30		X
Iqaluit A	-13	5	-4	-27	3	14	330	44
Mould Bay A	-34P	-5P	-27P	-40P	0P	27		X
Norman Wells A	-35	-12	-31	-41	2	14	290	35
Resolute A	-32	-5	-24	-38	0	27	330	61
Yellowknife A	-28	-8	-24	-39	2	22		X
Alberta								
Calgary Int'l A	-10	-4	7	-23	1	4	240	72
Cold Lake A	-18	-6	-3	-30	2	13	300	52
Edmonton Namao A	-14	-5	4	-29	2	15	300	44
Fort McMurray A	-23	-9	-3	-37	16	33		X
High Level A	-28	-11	-16	-39	2	44	340	37
Jasper	-11	-4	1	-27	10	31		X
Lethbridge A	-8	-4	6	-22	4	13	240	111
Medicine Hat A	-11	-5	5	-26	2	10	230	93
Peace River A	-22	-9	1	-35	3	20	360	37
Saskatchewan								
Cree Lake	-25P	-7P	-8P	-46P	7P	54	040	35
Estevan A	-14	-6	5	-29	3	6	320	65
La Ronge A	-20	-5	-6	-35	3	33	310	48
Regina A	-14	-4	6	-26	1	1	290	44
Saskatoon A	-16	-5	5	-30	1	4	300	56
Swift Current A	-11	-3	6	-22	3	3	260	65
Yorkton A	-16	-4	4	-28	0	2	290	69
Manitoba								
Brandon A	-15	-4	3	-27	4	3	290	69
Churchill A	-24	-5	-15	-32	1	28	340	59
Lynn Lake A	-24	-5	-12	-39	17	43	320	32
The Pas A	-18	-4	-3	-33	1	20	320	65
Thompson A	-24	-6	-14	-38	16	56	330	44
Winnipeg Int'l A	-13	-3	4	-26	1	***	300	52

STATION	temperature mean	anom	max	min	precip. ptot	st	wind max dir	vel
Ontario								
Big Trout Lake	-16	-1	0	-26	2	15	300	57
Gore Bay A	3	5	14	-4	24	***	190	63
Kapuskasing A	-9	1	3	-23	16	7	240	63
Kenora A	-11	0	4	-24	1	7	250	39
London A	5	5	19	-4	14	***	250	65
Moosonee	-9	2	2	-21	17	9	310	33
North Bay A	0	5	15	-12	38	***	260	59
Ottawa Int'l A	3	6	18	-6	11	***	240	63
Petawawa A	1	6	17	-10	21	***	250	63
Pickle Lake	-13	1	1	-27	6	4	270	46
Red Lake A	-12	1	2	-26	2	5	250	48
Sudbury A	-1	6	12	-12	37	***	200	63
Thunder Bay A	-8	-1	4	-19	28	14	300	50
Timmins A	-6	4	6	-19	21	4	040	50
Toronto(Pearson Int'l A)	5	5	19	-3	3	***	260	57
Trenton A	4	5	18	-5	7	***	230	56
Wiarton A	4	5	19	-4	48	***	210	74
Windsor A	6	6	19	-3	11	***	240	56
Québec								
Bagotville A	-4	3	9	-16	30	11	280	82
Blanc Sablon A	-3	*	3	-11	6	1	340	100
Inukjuak A	-8	3	-3	-16	17	12	230	74
Kuujjuaq A	-11	1	-5	-19	15	42	280	82
Kuujjuarapik A	-9	0	1	-17	26	14	300	70
Maniwaki	1	6	17	-9	14	***	210	57
Mont Joli A	-2	2	6	-10	5	5	280	78
Montréal Int'l A	2	4	19	-6	9	***	220	63
Natashquan A	-3	1	3	-11	15	2	270	76
Québec A	-1	4	10	-10	12	1	260	48
Schefferville A	-12	2	3	-25	20	75	270	76
Sept-Îles A	-5	1	3	-14	15	20	320	63
Sherbrooke A	1	5	20	-8	5	1	290	56
Val-d'Or A	-4	5	13	-19	26	1	240	76
New Brunswick								
Charlo A	-3	1	6	-13	5	2	280	69
Chatham A	0	3	11	-9	3	***	280	98
Fredericton A	2P	4P	17P	-8P	5P	***	290	72
Moncton A	3	4	16	-8	2	***	270	89
Saint John A	2	3	11	-8	3	***	290	63
Nova Scotia								
Greenwood A	4	3	18	-7	4	***	260	93
Shearwater A	4	2	15	-5	18	***	270	70
Sydney A	2	1	16	-5	18	***	290	96
Yarmouth A	4	1	13	-4	6	***	350	59
Prince Edward Island								
Charlottetown A	2	2	13	-6	5	***	270	83
Summerside A	2	2	11	-6	3	***	270	87
Newfoundland								
Cartwright	-4	1	3	-11	29	36	340	98
Churchill Falls A	-10	4	2	-19	11	85	260	70
Gander Int'l A	-1	-1	8	-9	30	6	290	80
Goose A	-6	2	4	-15	12	27	270	74
Port Aux Basques	1	0	7	-3	10	***	330	106
St John's A	0	-1	7	-4	33	8	320	96
St Lawrence	1	-2	9	-9	14	***		X
Wabush Lake A	-10	3	3	-20	14	32	280	65

90/11/26-90/12/02

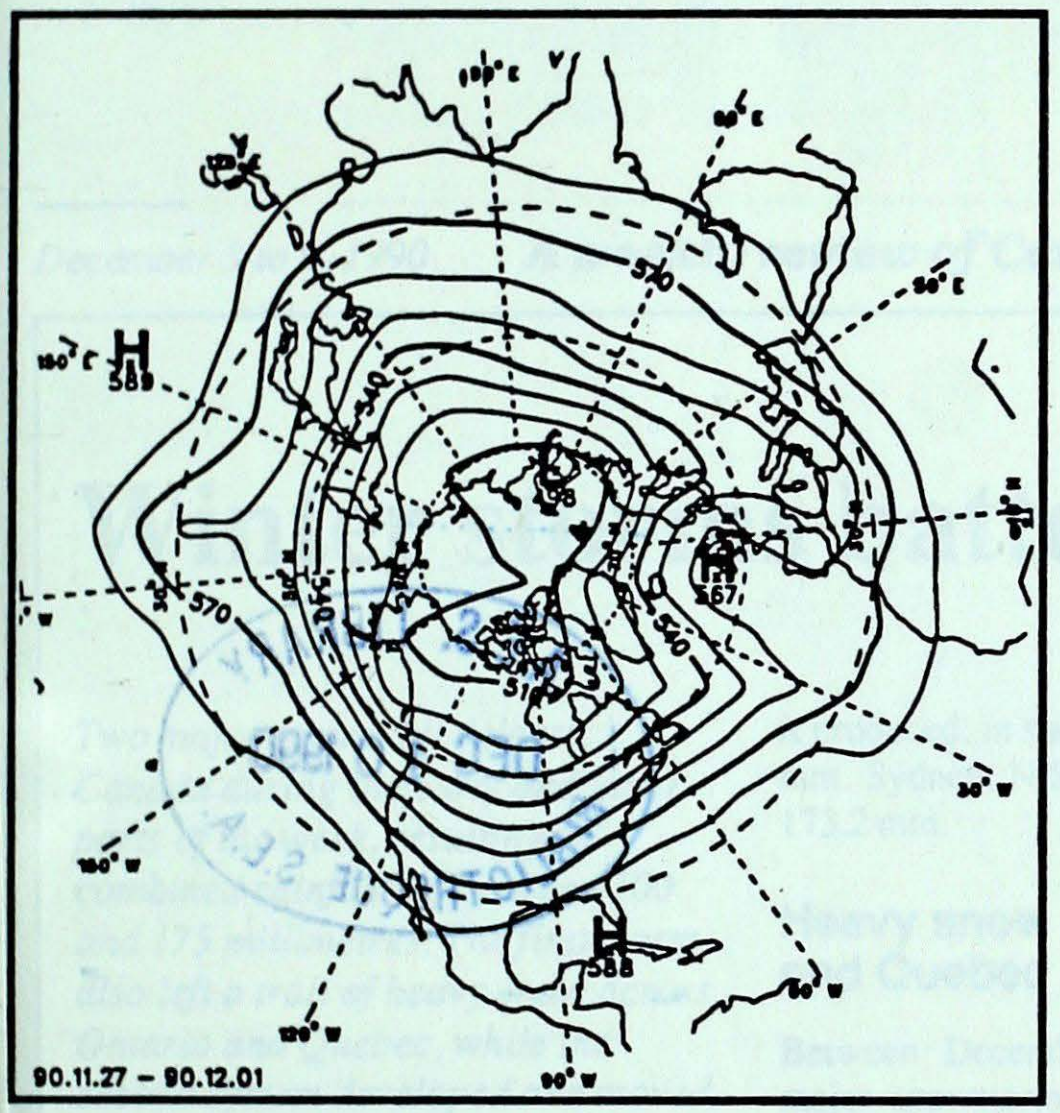
mean = mean weekly temperature, °C
max = maximum weekly temperature, °C
min = minimum weekly temperature, °C
anom = mean temperature anomaly, °C

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.

ATMOSPHERIC CIRCULATION



Mean geopotential height
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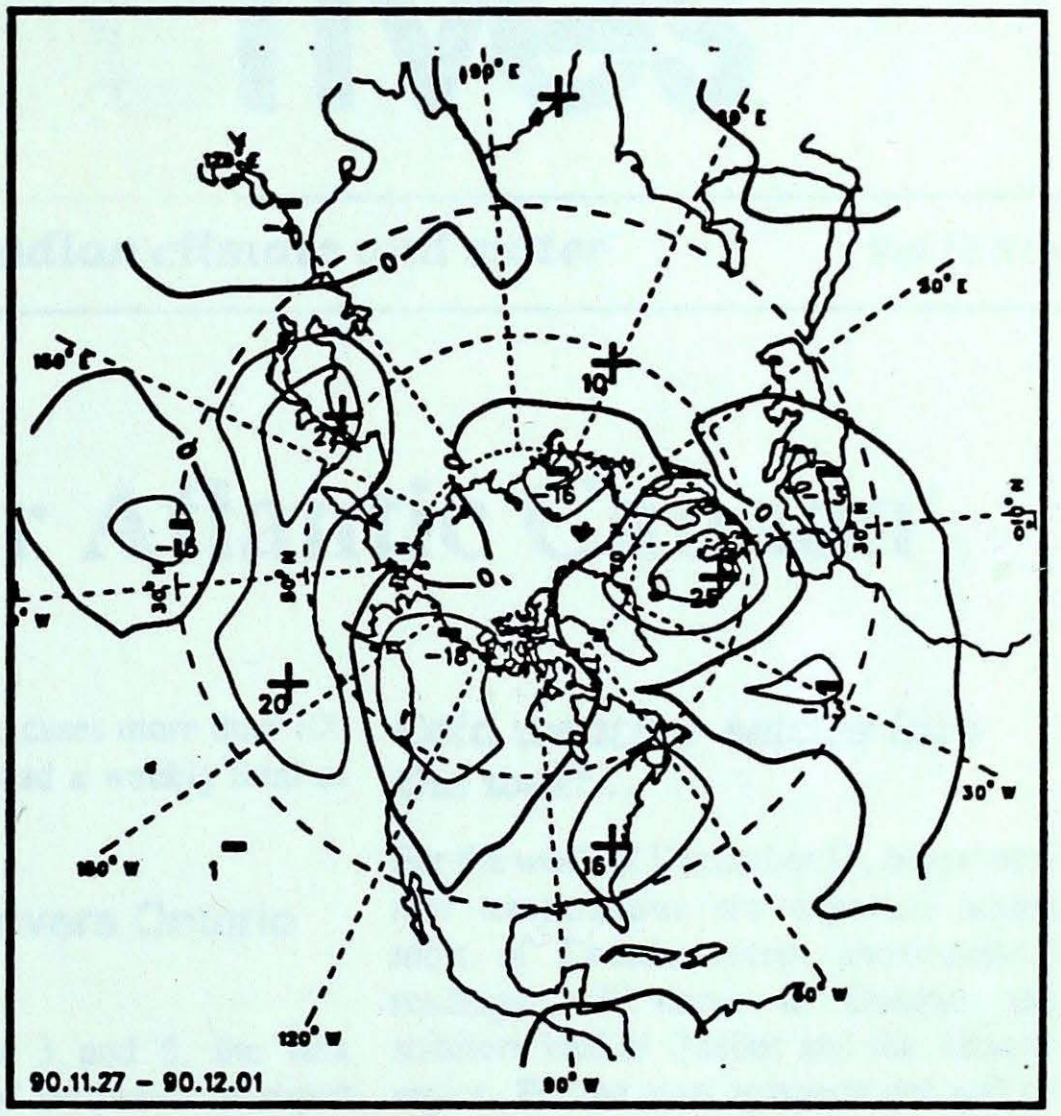


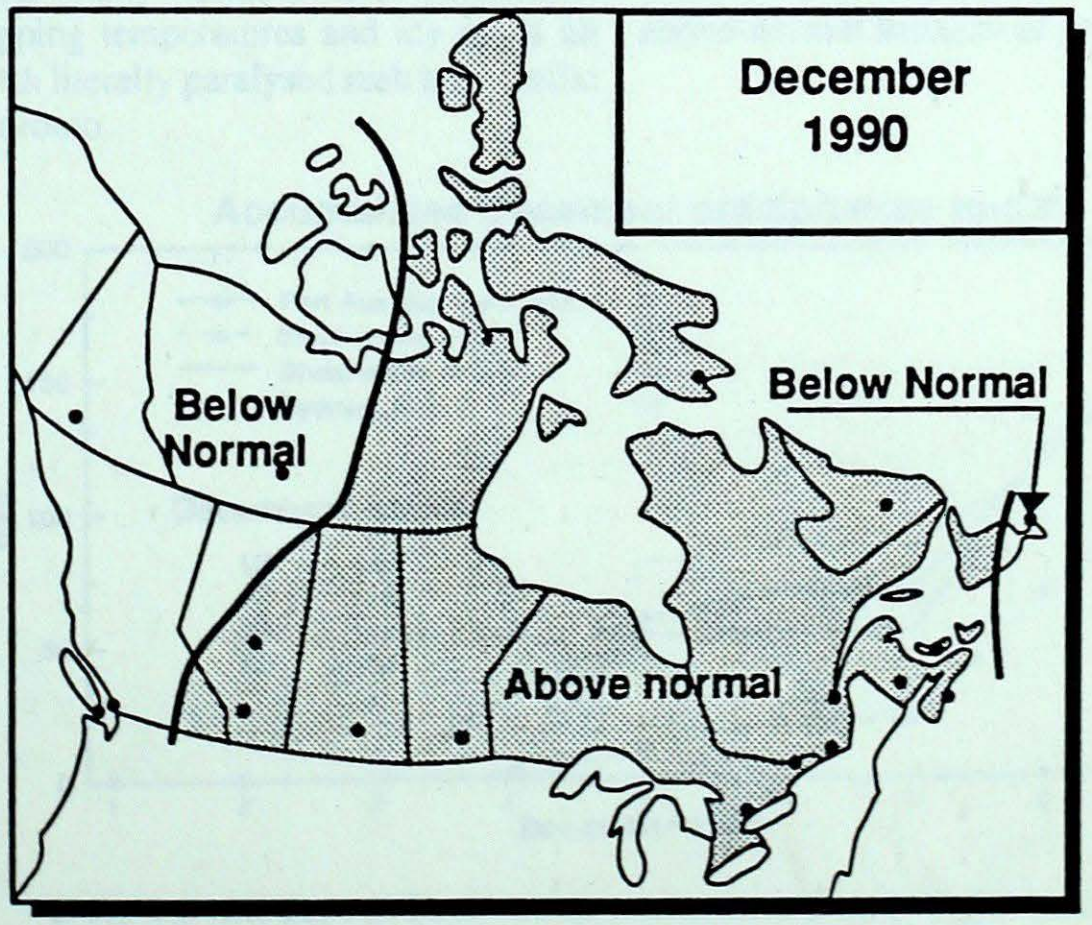
Mean geopotential height anomaly
50-kPa level (10-decametre intervals)

Environment Canada / Environnement Canada
Atmospheric Environment Service / Service de l'environnement atmosphérique

MONTHLY TEMPERATURE FORECAST

Normal temperatures for the month of December, °C

Whitehorse	-17	Toronto	-4
Yellowknife	-24	Ottawa	-8
Iqaluit	-22	Montréal	-7
Vancouver	4	Québec	-9
Victoria	4	Fredericton	-7
Calgary	-8	Halifax	-2
Edmonton	-12	Charlottetown	-4
Regina	-13	Goose Bay	-13
Winnipeg	-14	St. John's	-2



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