Environment Canada Environnement Canada

Climatic Perspectives

Jan 14 to Jan 20, 1991 **A weekly review of Canadian climate and water** *Vol.13 No.03*

Persistent cold weather accelerates ice extent on East Coast

Since Christmas, temperatures have been below normal in Atlantic Canada. As a result, ice has been developing quickly in the Gulf of St. Lawrence and along the Labrador coast.

Along the east coast of Newfoundland, the Labrador ice pack has been steadily edging southwards, and it's extent is now considered 2 to 3 weeks ahead of normal, reaching as far south as the Avalon Peninsula. The Strait of Belle Iles is completely ice covered and the Northumberland Strait, between P.E.I. and the mainland, has an extensive ice cover 15 to 30 centimetres thick. In the Gulf, ice started to form in December. Thicker than normal ice now covers most of the central Gulf, and is beginning to flow out through Cabot Strait. As the ice has not reached its normal maximum winter thickness yet, there are few navigational problems to report.

Great Lakes water levels

In December, the monthly mean levels of all the Great Lakes were above the levels recorded one year earlier, and the Great Lakes drainage basin received precipitation amounts equivalent to about 142 percent of normal for the month. The Lake Erie basin, received an estimated 159 mm of precipitation, exceeding the previous record high of 112 mm set in December 1923. Estimated Lake Ontario basin precipitation was almost a record December high. Water supply and outflow conditions in December resulted in substantial rises in the levels of Lakes St. Clair, Erie and Ontario during December. The levels of Lakes Superior, Huron and Michigan continued to decline during December at average rates for the month.

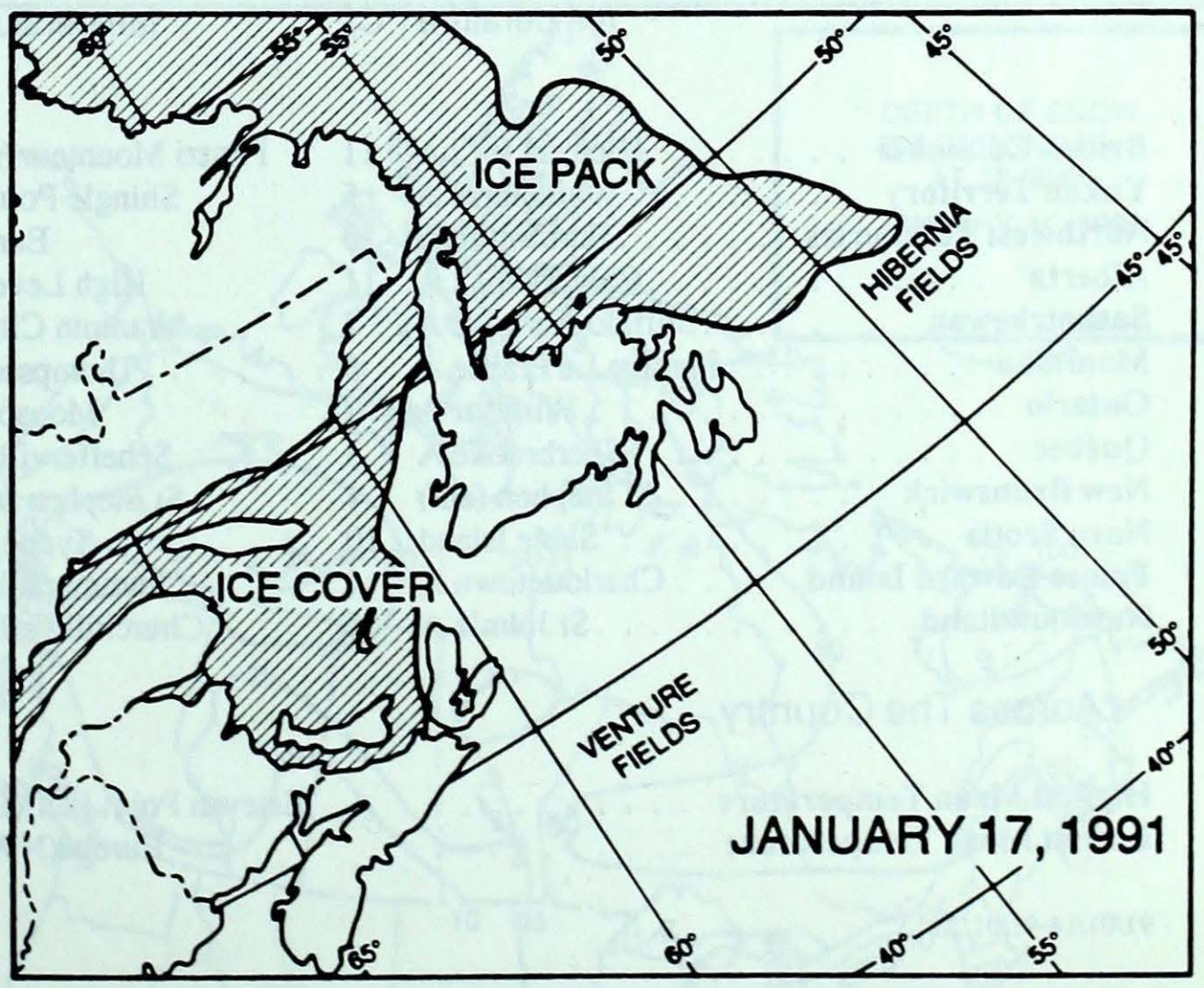
Western Canada's cold wave ends

The cold wave that plagued the west through much of December and into the first week of January has come to an end. Temperatures are much above normal, and numerous high temperature records are being broken.

Cold weather to dominate most of Canada...

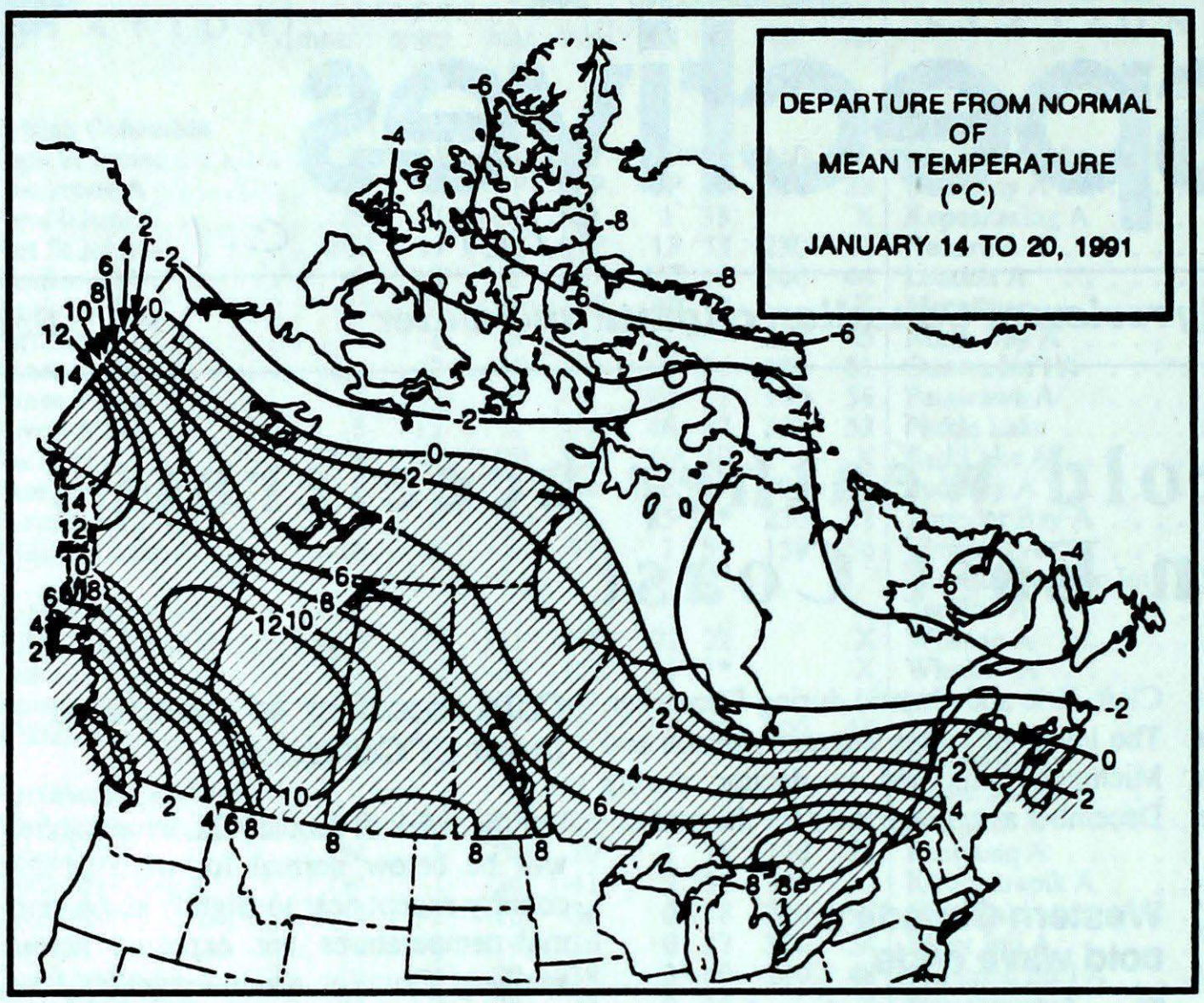
For the week of January 28, temperatures will be below normal for most of the country except near to slightly above normal temperatures are expected across southern Ontario, southwestern Quebec and the Atlantic region.

Bitterly cold temperatures are expected across the Yukon, British Columbia, the Prairies and the Arctic.



EAST COAST ICE PACK EXTENT

Canada



Weekly normal temperatures (°C)

	max.	min.
Whitehorse A	-16.3	-24.5
Iqaluit A	-21.4	-29.8
Yellowknife A	-24.4	-32.8
Vancouver Int'l A	5.8	0.6
Victoria Int'l A	6.5	0.8
Calgary Int'l A	-4.5	-16.7
Edmonton Int'l A	-8.9	-20.3
Regina A	-12.0	-22.8
Saskatoon A	-13.2	-23.8
Winnipeg Int'l A	-14.4	-24.4
Ottawa Int'l A	-6.9	-16.1
Toronto Int'l A	-2.8	-11.6
Montréal Int'l A	-6.3	-15.3
Québec A	-7.6	-17.4
Fredericton A	-4.0	-15.6
Saint John A	-2.6	-13.9
Halifax (Shearwater)	0.2	-8.6
Charlottetown A	-2.8	-11.9
Goose A	-11.1	-20.3
St John's A	-0.5	-7.6

Weekly temperature and precipitation extremes

	Maximum temperature (°C)		Minimum temperature (°C)		Heaviest precipitation (mm)	
British Columbia	Victoria Int'l A	11	Puntzi Mountain (aut)	-27	Prince Rupert A	72
Yukon Territory	Whitehorse A	5	Shingle Point A	-43	Watson Lake A	3
Northwest Territories	Fort Smith A	-10	Eureka	-51	Yellowknife A	11
Alberta	Calgary Int'l A	11	High Level A	-28	High Level A	5
Saskatchewan	Buffalo Narrows A	7	Uranium City A	-32	Cree Lake	5
Manitoba	Portage La Prairie A	5	Thompson A	-37	Norway House A	13
Ontario	Windsor A	7	Moosonee	-35	North Bay A	23
Québec	Sherbrooke A	3	Schefferville A	-41	Québec A	41
New Brunswick	St Stephen (aut)	4	St Stephen (aut)	-24	Charlo A	44
Nova Scotia	Sable Island	10	Sydney A	-21	Sable Island	38
Prince Edward Island	Charlottetown A	4	Summerside A	-22	Charlottetown A	35
Newfoundland	St John's A	5	Churchill Falls A	-37	Port Aux Basques	34

Across The Country...

Highest Mean Temperature	Estevan Point (aut)(BC)	6
Lowest Mean Temperature	Eureka(NWT)	-46

91/01/14-91/01/20

CLIMATIC PERSPECTIVES
VOLUME 12

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The purpose of the publication is to make topical information available to the public concerning the Canadian Climate and its socio-economic impact.

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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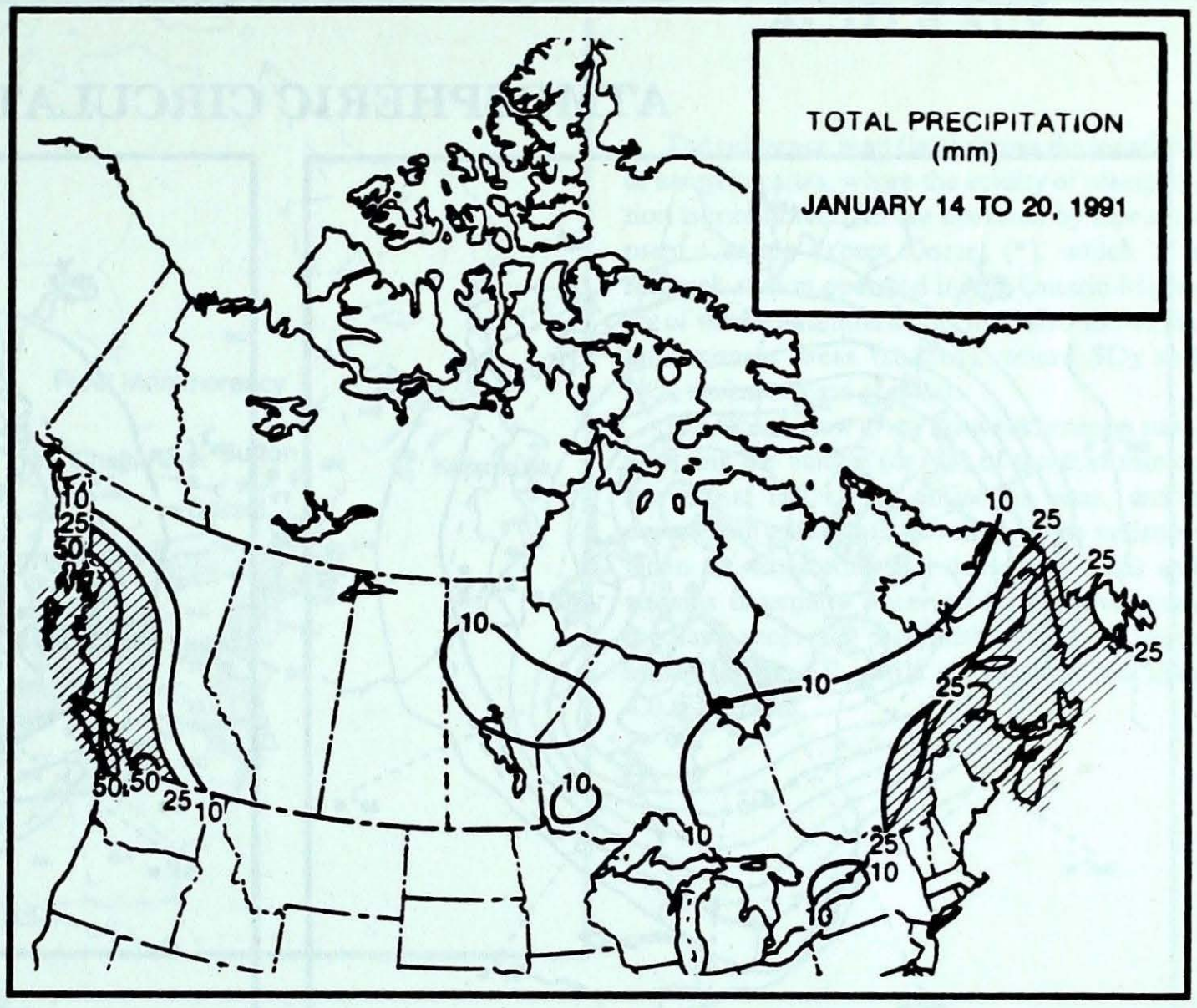
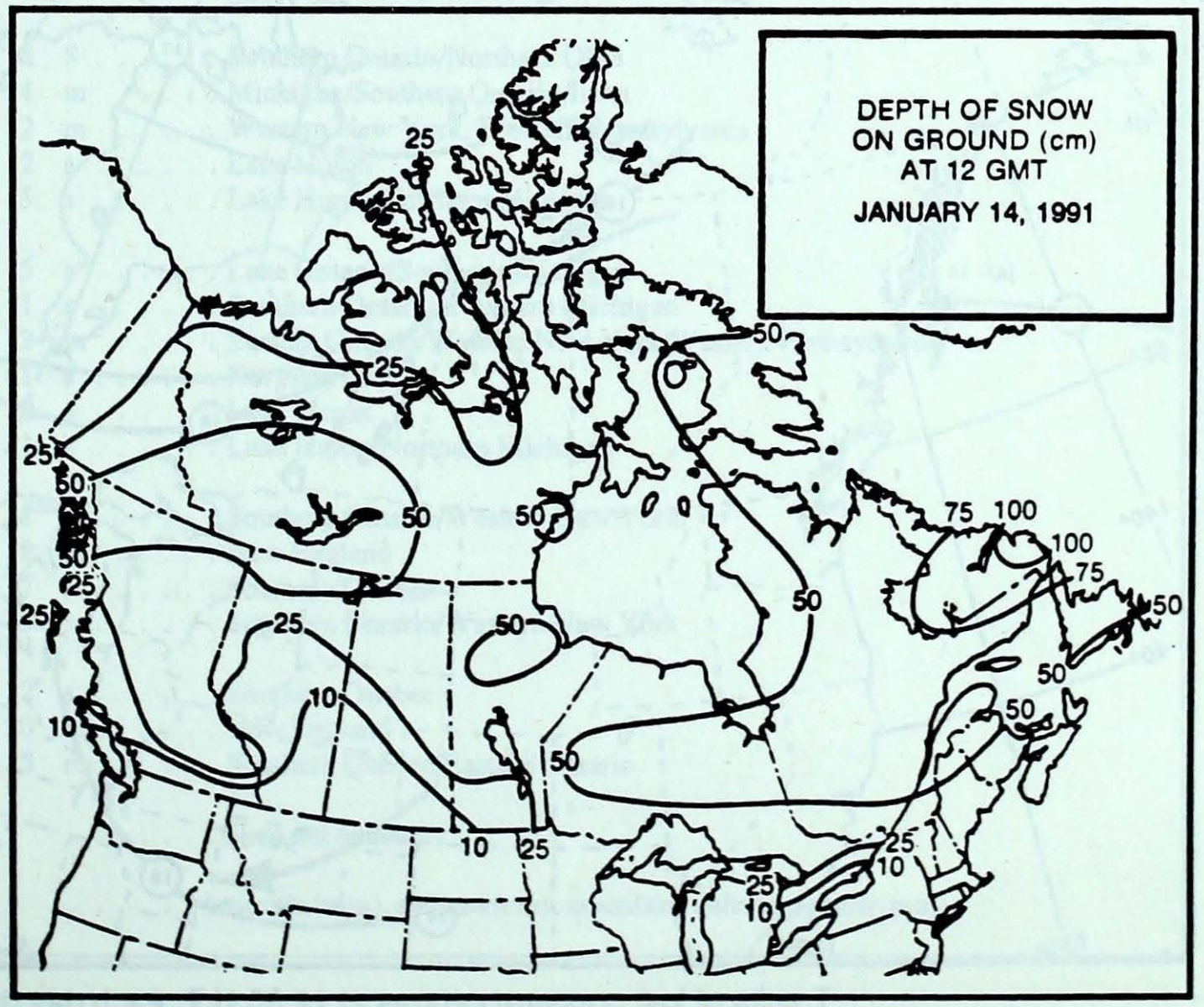
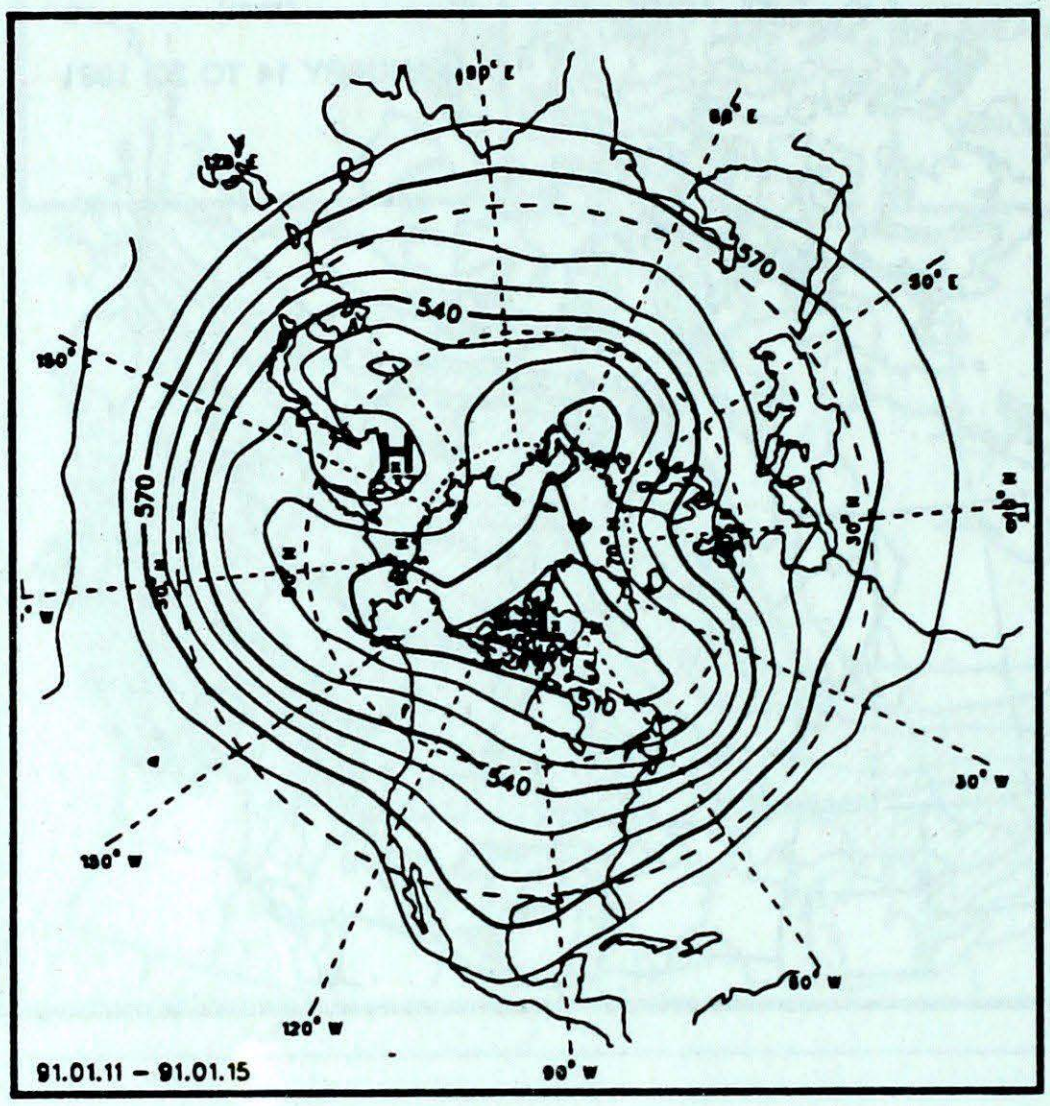
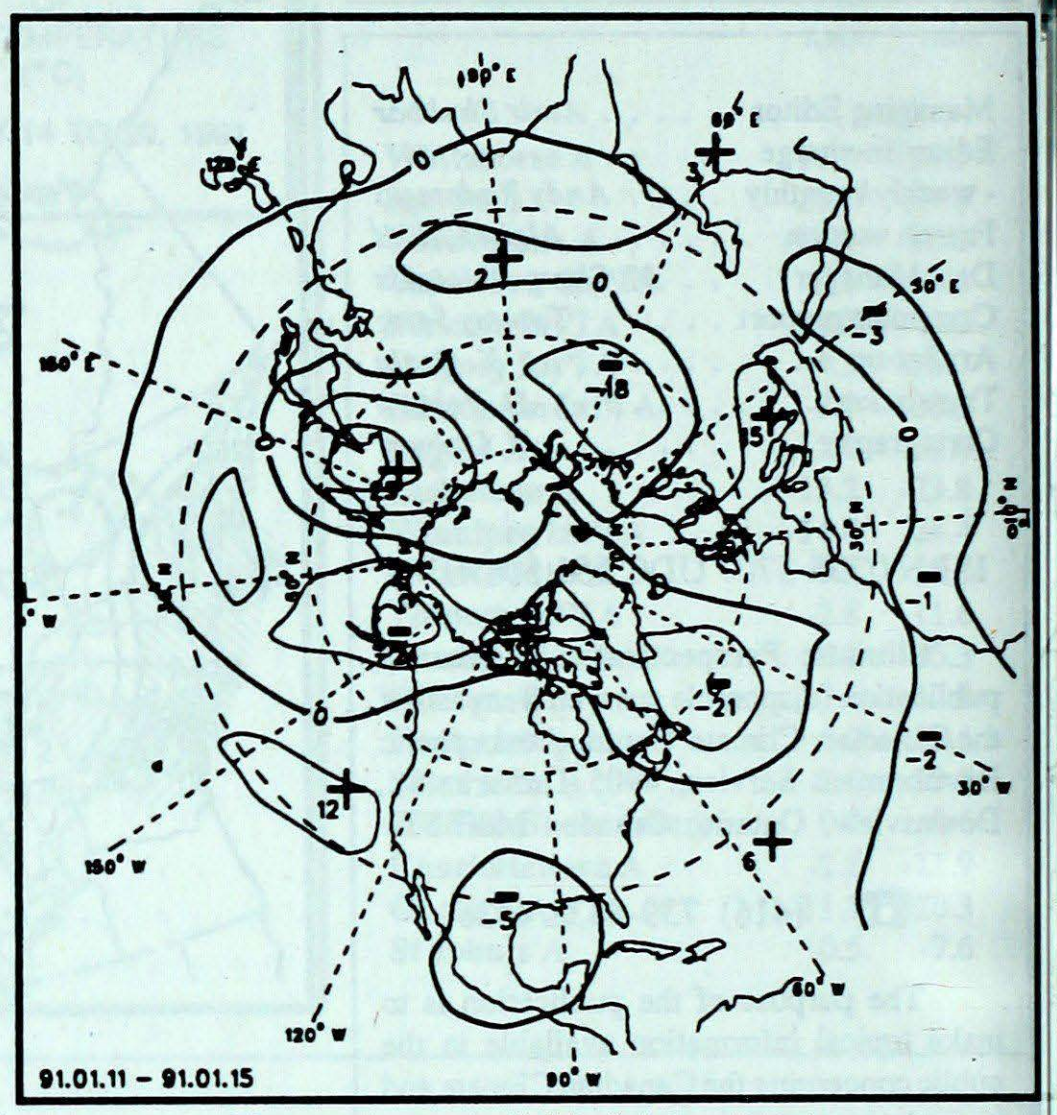




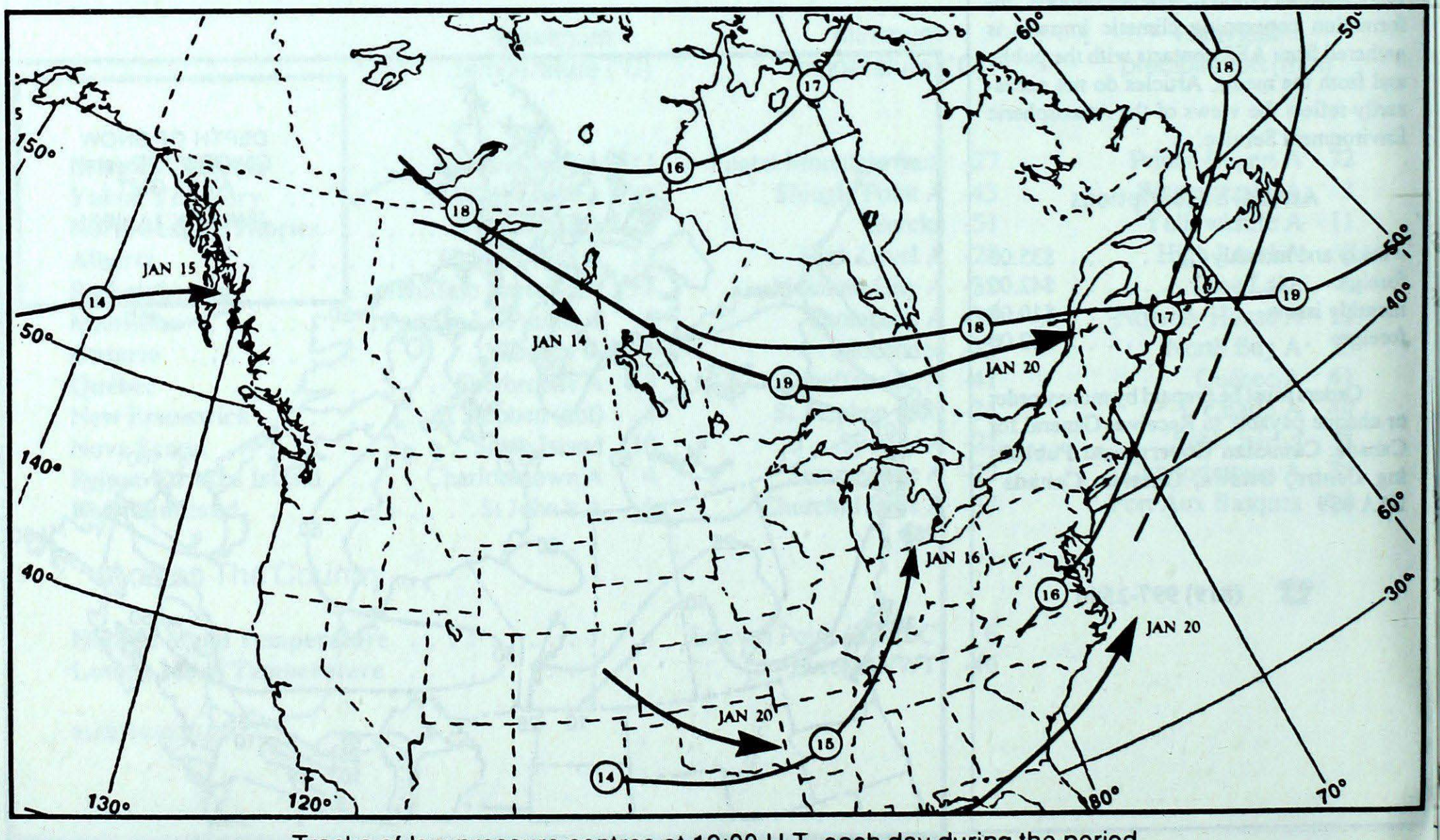
ATMOSPHERIC CIRCULATION



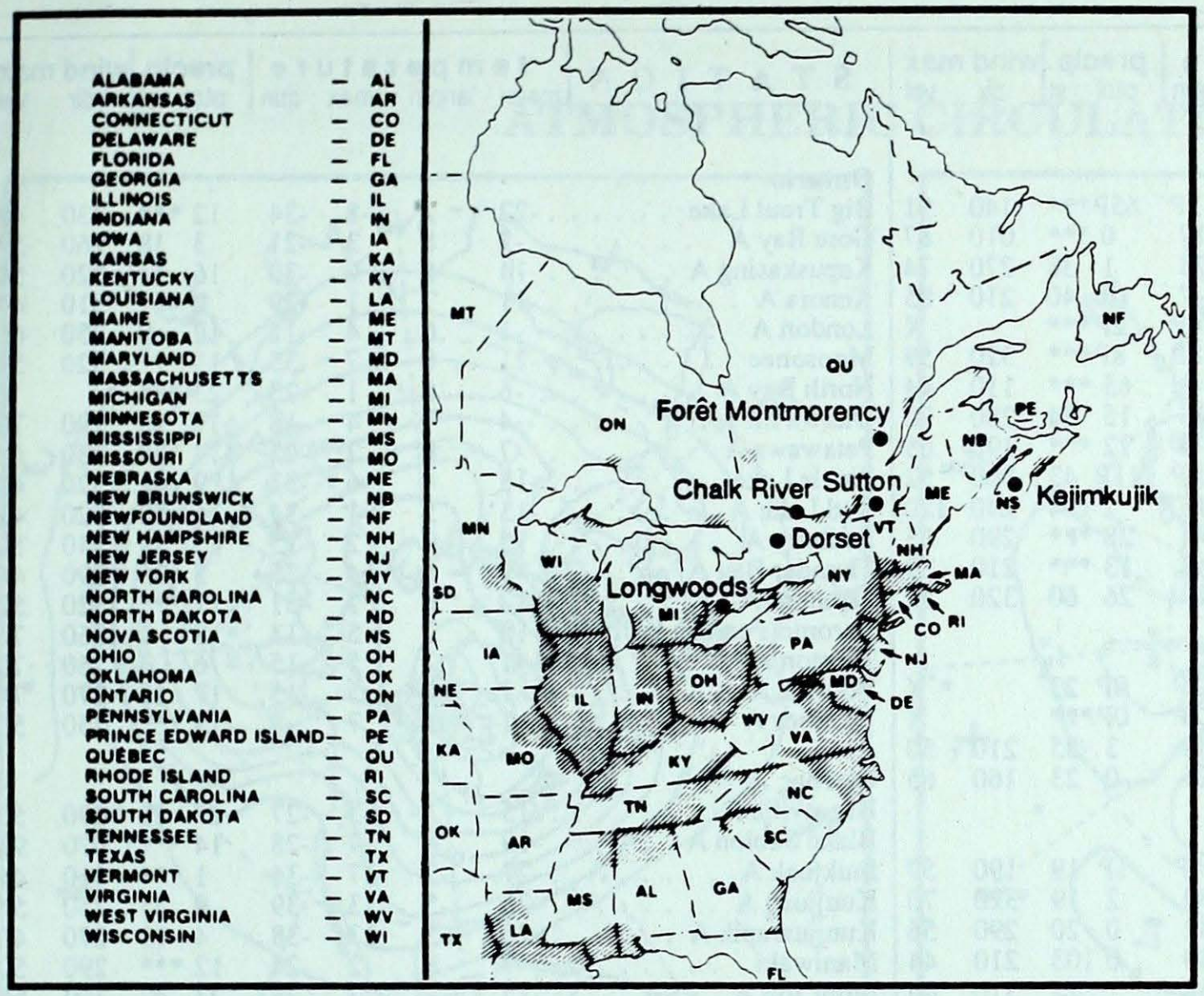
Mean geopotential height
50-kPa level (10-decametre intervals)



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 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.

Site	day	pH	amount		air path to site
					Jan.12 to Jan.19, 1991
Longwoods	15	3.3	2	r	Western Pennsylvania, Eastern Ohio, Western Virginia
	16	3.3	5	m	Ohio/Western Pennsylvania/West Virginia
	19	4.5	2	m	Southern Michigan/Illinois/Northern Indiana
Dorset*	13	4.3	3	S	Southern Ontario/Northern Ohio
	14	4.1	4	m	Michigan/Southern Ontario/Iowa
	16	4.2	2	m	Western New York, Western Pennsylvania
	17	4.4	2	s	Lake Huron
	18	4.7	5	s	Lake Huron/Northern Michigan
Chalk River	13	4.4	5	s	Lake Ontario/Southern Michigan
	14	3.8	1	s	Southern Ontario/Southern Michigan
	16	3.9	3	m	Eastern Ontario/Western New York/Western Pennsylvania
	17	4.1	1	s	Northern Ontario
	18	3.8	2	s	Lake Huron
	19	3.6	1	s	Lake Huron/Northern Michigan
Sutton	14	4.0	1	s	Southern Ontario/Western New York
	16	3.9	8	m	New England
	17	4.0	7	s	Southern Quebec
	18	4.3	3	s	Southern Ontario/Western New York
Montmorency	14	4.1	2	s	Southern Quebec
	16	4.5	20	m	New England
	18	4.3	15	m	Southern Quebec/Eastern Ontario
Kejimkujik					Data not available

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	6P	2P	8P	3P	65P	***	140	91
Cranbrook A	-3	4	6	-17	0	***	010	67
Fort Nelson A	-16	8	1	-23	1	38	270	74
Fort St John A	0	17	8	-7	0	40	210	85
Kamloops A	-2P	3P	5P	-14P	2P	***		X
Penticton A	1P	3P	6P	-8P	8P	***	320	59
Port Hardy A	5	2	9	-2	65	***	110	44
Prince George A	-3	8	4	-18	15	24	280	70
Prince Rupert A	3	3	9	-4	72	***	190	65
Revelstoke A	0P	6P	4P	-13P	11P	43	300	52
Smithers A	-3	7	7	-16	7	34	240	120
Vancouver Int'l A	5	2	9	-4	28	***	290	65
Victoria Int'l A	6	2	11	-3	13	***	210	39
Williams Lake A	-4	4	3	-19	26	60	320	52
Yukon Territory								
Komakuk Beach A	-29P	-3P	-17P	-42P	0P	23		X
Teslin (aut)	-6P	*	3P	-12P	0P	***		X
Watson Lake A	-13	13	5	-30	3	55	210	50
Whitehorse A	-5	16	5	-25	0	23	160	65
Northwest Territories								
Alert	-39P	-8P	-30P	-44P	1P	19	190	57
Baker Lake A	-32	0	-23	-39	2	19	320	70
Cambridge Bay A	-36	-2	-27	-42	0	20	290	56
Cape Dyer A	-27	-5	-15	-40	0	103	210	44
Clyde A	-35	-9	-29	-42	1	22	310	46
Coppermine A	-33	-4	-25	-41	1	51		X
Coral Harbour A	-29	0	-20	-38	5	***	030	89
Eureka	-46P	-10P	-40P	-51P	0P	***		X
Fort Smith A	-21	6	-10	-31	4	56	310	43
Hall Beach A	-36	-5	-24	-42	1	30		X
Inuvik A	-32	-1	-12	-46	3	41		X
Iqaluit A	-29	-4	-18	-39	2	***	330	54
Mould Bay A	-38	-4	-30	-46	0	***	280	39
Norman Wells A	-28	2	-17	-38	6	***	120	83
Resolute A	-39	-6	-31	-47	1	29	360	43
Yellowknife A	-25	3	-16	-33	11	50	110	43
Alberta								
Calgary Int'l A	1	11	11	-9	0	***	280	72
Cold Lake A	-8	10	6	-26	1	15	290	70
Edmonton Namao A	-1	12	8	-8	0	12	300	70
Fort McMurray A	-12	9	7	-27	3	27	250	89
High Level A	-17	5	2	-28	5	54	310	48
Jasper	-3	10	7	-20	0	23		X
Lethbridge A	2	11	11	-7	0	1	240	95
Medicine Hat A	-2	10	7	-9	0	1	250	61
Peace River A	-3	16	7	-11	0	9	280	83
Saskatchewan								
Cree Lake	-15	9	2	-31	5	***	320	74
Estevan A	-9	6	3	-28	0	5	300	70
La Ronge A	-11	10	6	-31	3	***	280	96
Regina A	-10	7	4	-28	1	***	290	65
Saskatoon A	-9	9	4	-27	0	6	310	48
Swift Current A	-6	8	5	-18	1	10	260	56
Yorkton A	-10	10	-2	-29	0	27	330	74
Manitoba								
Brandon A	-11	9	3	-30	0	22	300	72
Churchill A	-25	3	-14	-32	1	27	290	69
Lynn Lake A	-20	6	-7	-33	12	34	320	56
The Pas A	-13	10	1	-32	2	18	330	67
Thompson A	-22	2	-9	-37	12	68	340	46
Winnipeg Int'l A	-11	9	2	-29	0	13	320	61

STATION	temperature mean	anom	max	min	precip. ptot	st	wind max dir	vel
Ontario								
Big Trout Lake	-22	2	-8	-34	12	***	330	48
Gore Bay A	-2	8	3	-21	3	18	260	59
Kapuskasing A	-14	5	0	-30	16	54	320	54
Kenora A	-11	7	1	-29	2	31	310	44
London A	-1	6	4	-12	12	2	250	61
Moosonee	-21	0	-7	-35	13	***	320	59
North Bay A	-6	8	1	-25	23	***		X
Ottawa Int'l A	-4	7	4	-18	17	28	290	70
Petawawa A	-7	8	2	-23	14	38	330	61
Pickle Lake	-18	4	-6	-33	9	41	320	41
Red Lake A	-15	5	-1	-34	6	53	020	41
Sudbury A	-5	9	2	-25	15	24	340	50
Thunder Bay A	-9	6	4	-25	5	35	290	44
Timmins A	-12	6	1	-31	11	***	320	52
Toronto(Pearson Int'l A)	0	7	5	-13	8	2	260	74
Trenton A	-1	7	5	-15	6	3	260	70
Wiarton A	-1	7	5	-15	17	10	270	74
Windsor A	1	5	7	-8	15	***	250	50
Québec								
Bagotville A	-15	1	-3	-27	27	76	290	50
Blanc Sablon A	-19	*	-7	-28	14	***	070	93
Inukjuak A	-27	-2	-17	-36	1	***	310	44
Kuujjuaq A	-28	-5	-13	-39	9	55	250	54
Kuujjuarapik A	-26	-3	-13	-38	4	13	270	46
Maniwaki	-7	8	2	-24	12	***	290	50
Mont Joli A	-15	-3	-3	-29	23	47	300	56
Montréal Int'l A	-6	5	3	-18	25	***	280	67
Natashquan A	-19	-7	-6	-31	26	***	040	54
Québec A	-10	2	0	-24	41	79	310	54
Schefferville A	-28	-6	-11	-41	3	***	290	43
Sept-Îles A	-18	-4	-4	-29	22	54	060	56
Sherbrooke A	-6	8	3	-22	15	31	300	56
Val-d'Or A	-11	7	0	-34	19	***	330	50
New Brunswick								
Charlo A	-12	2	-1	-23	44	117	280	54
Chatham A	-10	-1	2	-22	32	19	310	59
Fredericton A	-7	3	3	-18	29	28	290	59
Moncton A	-8	1	3	-18	17	35	320	80
Saint John A	-5	3	4	-17	24	20	300	57
Nova Scotia								
Greenwood A	-4	2	7	-15	22	15	310	70
Shearwater A	-4	1	8	-13	36	***	160	74
Sydney A	-8	-3	6	-21	27	11	160	76
Yarmouth A	0	3	9	-11	29	***	310	70
Prince Edward Island								
Charlottetown A	-10	-2	4	-21	35	23	320	83
Summerside A	-8	-1	3	-22	19	***	130	74
Newfoundland								
Cartwright	-18	-5	-7	-28	12	128	330	63
Churchill Falls A	-26	-4	-12	-37	7	91	300	50
Gander Int'l A	-10	-4	3	-18	6	30	110	56
Goose A	-22	-6	-11	-31	9	***	260	39
Port Aux Basques	-6	-2	3	-13	34	57	090	115
St John's A	-7	-3	5	-14	11	28	140	65
St Lawrence	-6P	-2P	3P	-16P	14P	24		X
Wabush Lake A	-25	-2	-9	-36	4	***	280	35

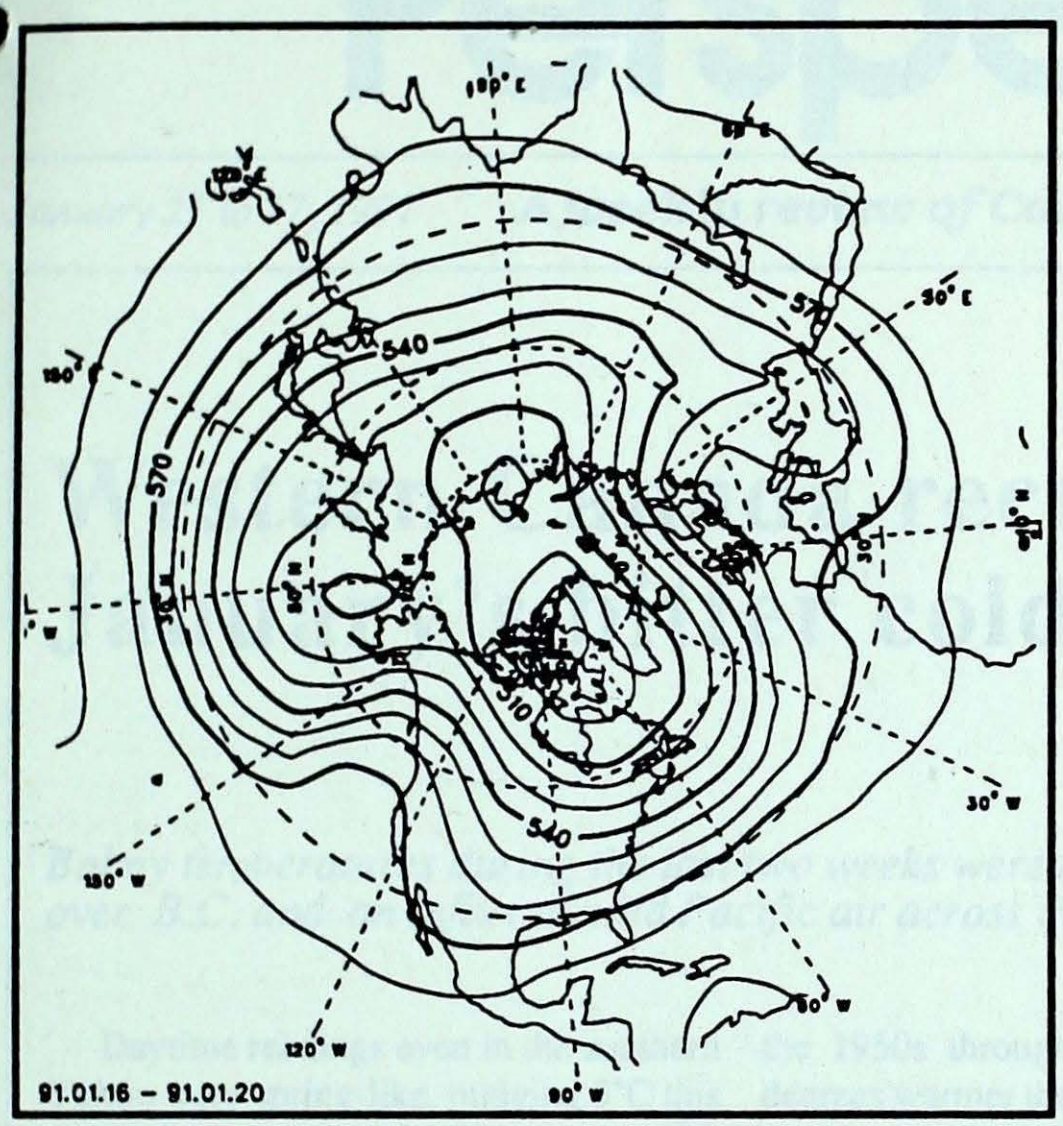
91/01/14-91/01/20

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

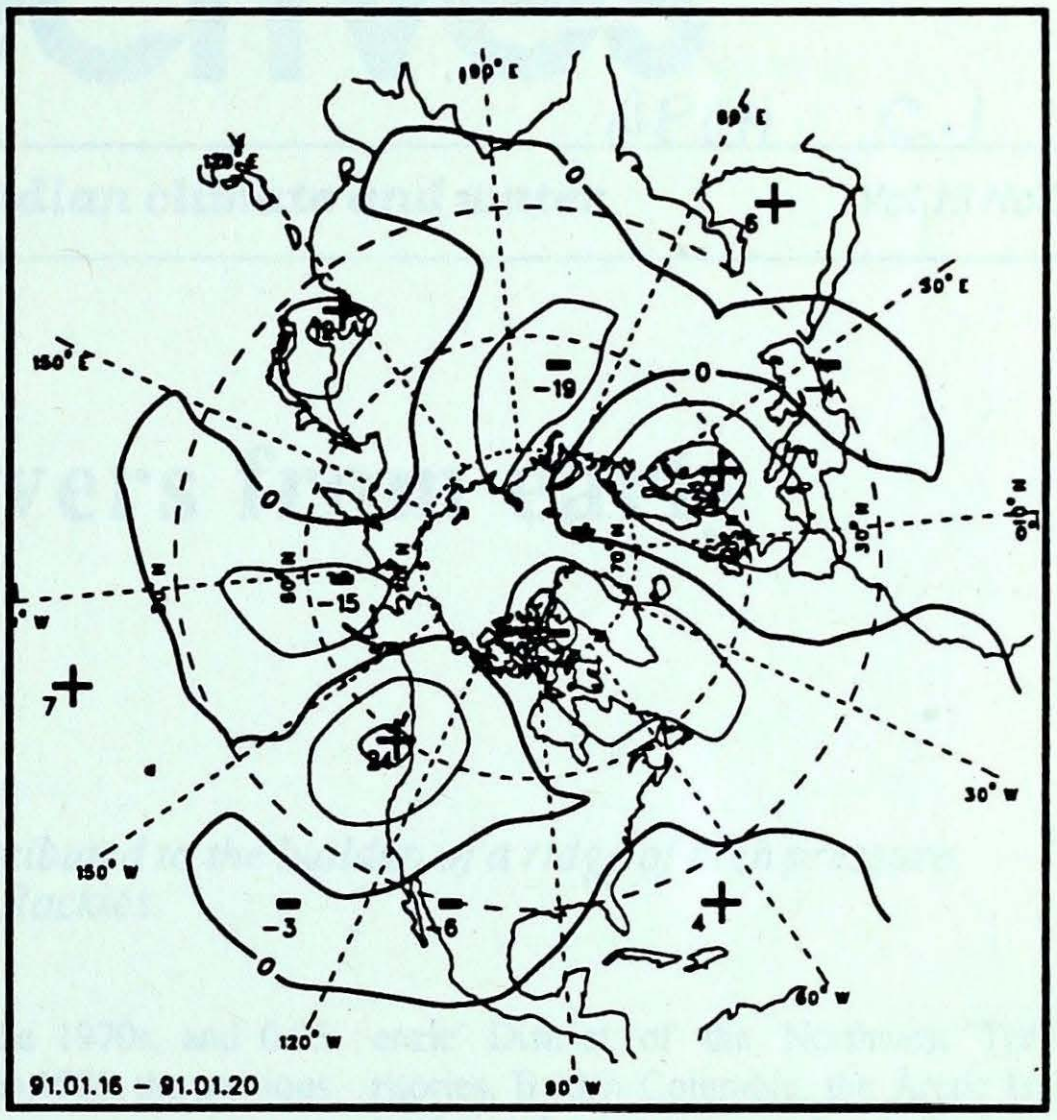
ptot = weekly precipitation total in mm
st = snow thickness on the ground in cm
dir = direction of max wind, deg. from north.
vel = wind speed in km/h

— Annotations —
X = no observation
P = less than 7 days of data
***** = missing data when going to printing.

ATMOSPHERIC CIRCULATION



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



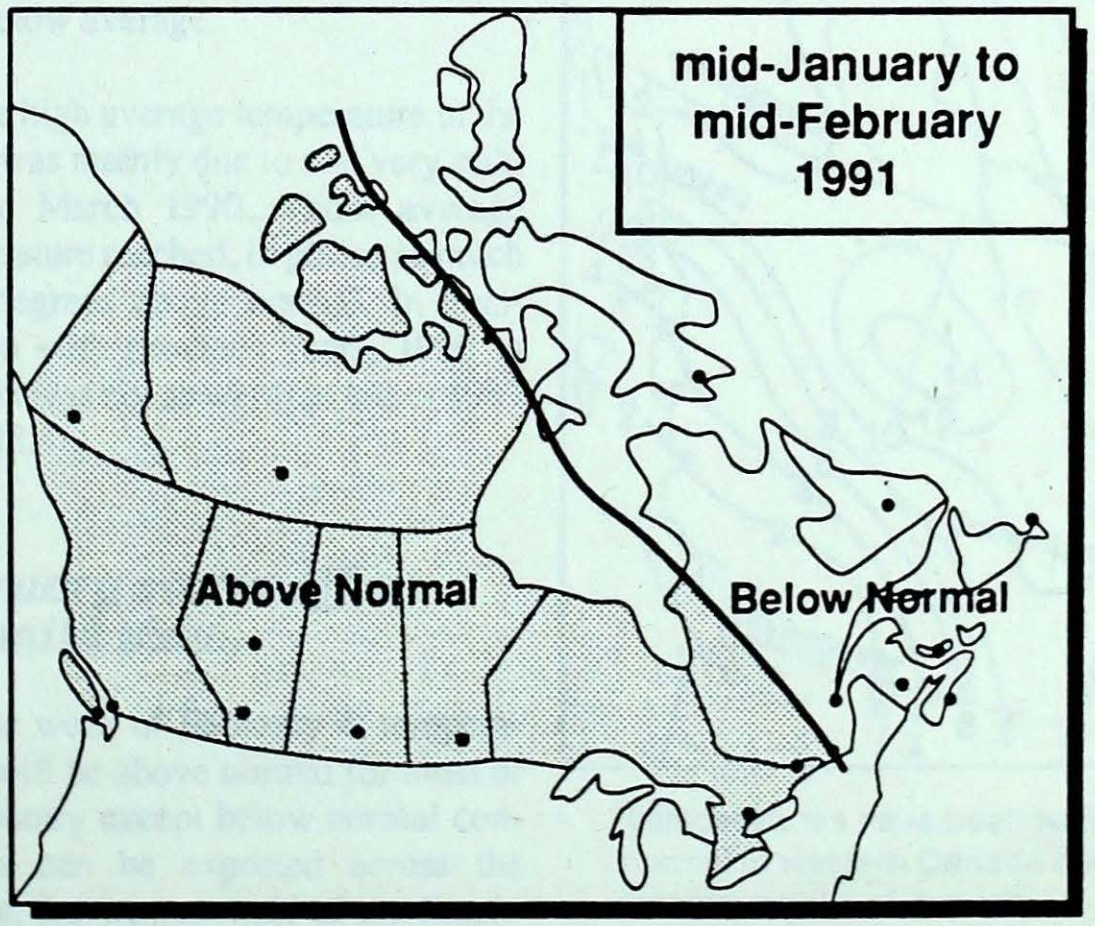
Mean geopotential height anomaly
50-kPa level (10-decametre intervals)

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

MONTHLY TEMPERATURE FORECAST

Normal temperatures for mid-January to mid-February, °C

Whitehorse	-17	Toronto	-6
Yellowknife	-27	Ottawa	-10
Iqaluit	-26	Montréal	-10
Vancouver	4	Québec	-11
Victoria	4	Fredericton	-9
Calgary	-10	Halifax	-4
Edmonton	-13	Charlottetown	-7
Regina	-16	Goose Bay	-15
Winnipeg	-17	St. John's	-4



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