Environment Canada Environnement Canada

Climatic Perspectives

February 22 to 28 1993 **A weekly review of Canadian climate and water** *Vol. 15 No. 09*

Snowpack below normal in the West

Concern is being expressed that the spring and summer water supply in British Columbia and on the Prairies will be below average this year. This winter, the mountain snowpack has not increased at its normal rate. In addition, below average snow conditions have been reported in the watersheds of many of the major rivers. As a result, the preliminary river water supply outlook is expected to be below-average during the summer.

After a rather snowy start to the winter in December, January was a cold and dry month across most of British Columbia and the Alberta foothills. February was even drier, with minimal snowfalls. In fact, several new record-low mountain snow packs were measured in the Bow, North Saskatchewan and Athabasca River Basin headwaters at the beginning of February, while a number of locations in British Columbia established new record low February precipitation records.

In Victoria, located on the southern tip of Vancouver Island, record-low precipitation amounts have left the region critically short of water - the worst drought this century. Residents are being asked to voluntarily curb the use of water immediately or face water rationing. The B.C. logging industry is also concerned about the dry weather and the expected lack of spring runoff and dry forest conditions this summer.

On the Prairies, winter precipitation has been normal or above normal in south-central and southeast Manitoba, but generally below or well-below normal elsewhere across the prairie provinces. Soil moisture reserves on continuously cropped lands are well-below normal in northeastern Alberta, northern and southeastern Saskatchewan and southwestern Manitoba, and below normal across much of Saskatchewan central and northern Alberta and the Peace River district.

The low level of spring soil moisture is significant, but not yet critical, to the success of the 1993 Prairie crops. Soil moisture at planting generally provides one-third of the annual moisture requirements of cereals and oilseeds, while two-thirds is provided by growing season rainfall.

One storm after another

Two more storms hit Atlantic Canada this week, adding another 20 to 40 centimetres of snow. The first one, after burying southern and central Ontario with as much as 30 cm on the 21st and 22nd, produced blizzard conditions across the Maritimes on Monday, closing schools and disrupting transportation. Winds reached 126 km/h, with gusts to 172 km/h, at Grand Etang on Cape Breton Island. Newfoundland received a mixture of snow, freezing rain and drizzle from this storm.

Another disturbance, moving up the eastern seaboard reached Nova Scotia on the 28th, providing more snow by the end of the day. The storm also produced ice pellets, freezing rain and wind gusts up to 107 km/h. Charlo, N.B., reports 153 cm of snow on the ground.

Elsewhere...

There are signs of spring in the Yukon, although some highways were closed due to blowing snow. The temperature managed to climb to 9°C at Haines Junction. In contrast, in the eastern Arctic record low temperatures as low as -51°C were reported.

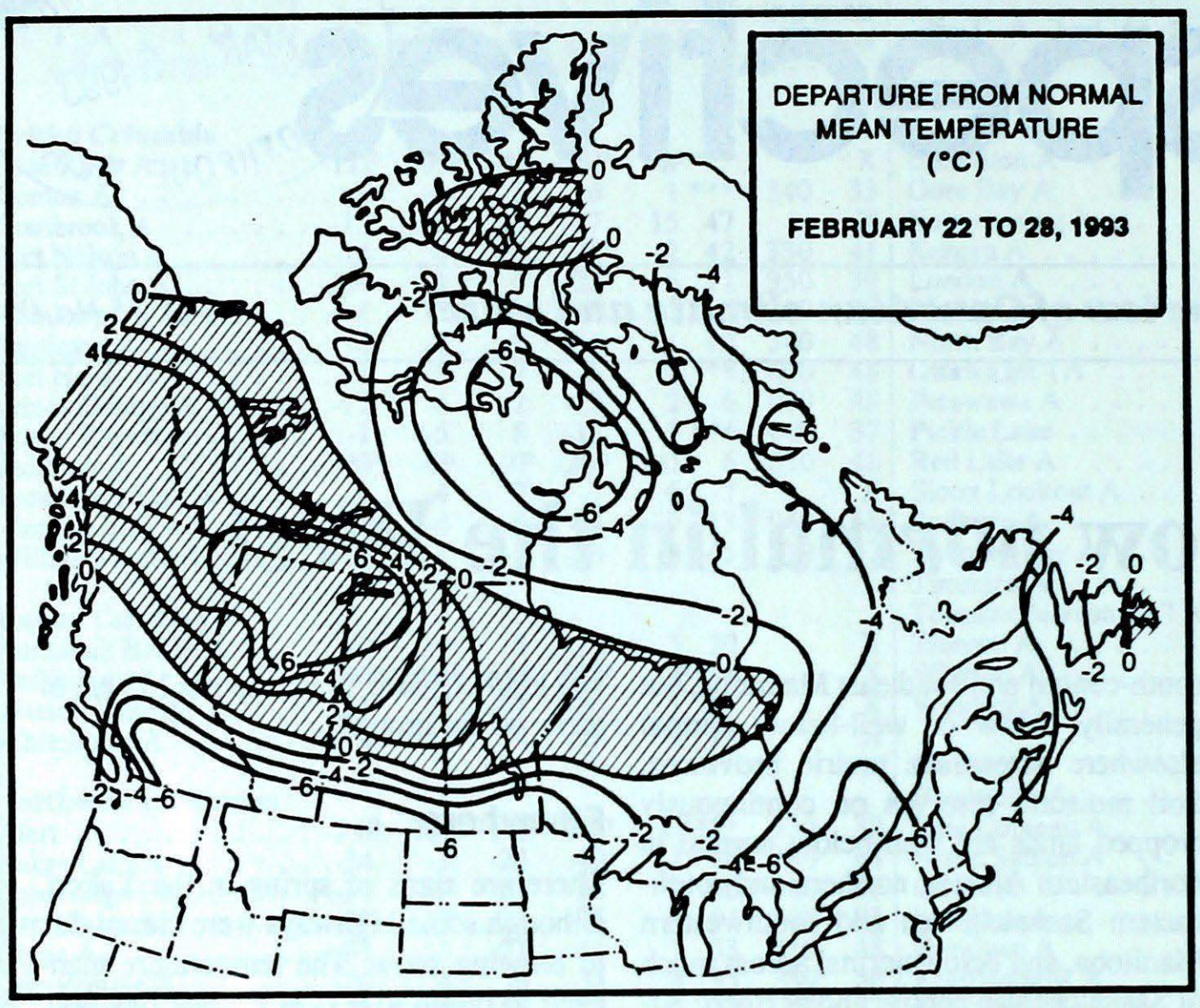
Except for the North Coast, B.C. was cold and dry. Terrace finally picked up 17 cm of snow, just in time for the B.C. Winter Games. In fact, the local ski slopes received 100 cm in a 24-hour period.

Warm air, accompanied by Chinooks, invaded Alberta. Temperatures in the province soared to the teens over the weekend. Milder weather gradually spread eastwards into Manitoba by week's end.

The depth of snow at Ottawa reached 97 cm on February 24. This is the greatest snow cover since March 1971, when 122 cm was recorded. There is now concern of possible spring flooding and high water levels in Ontario during March and April.

Look ahead...

For the week of March 8, above normal temperatures will dominate the entire country. Unsettled periods of weather are possible across British Columbia, southern Ontario, southwestern Quebec and the Atlantic provinces.



Weekly normal temperatures (°C)

	max.	min.
Whitehorse A	-5.1	-16.0
Iqaluit A	-21.6	-30.3
Yellowknife A	-17.5	-27.7
Vancouver Int'l A	8.2	1.3
Victoria Int'l A	8.4	1.1
Calgary Int'l A	-1.0	-12.4
Edmonton Int'l A	-3.9	-16.1
Regina A	-6.4	-17.2
Saskatoon A	-7.5	-18.2
Winnipeg Int'l A	-7.6	-18.4
Ottawa Int'l A	-2.5	-11.4
Toronto (Pearson Int'l A)	0.4	-8.3
Montréal Int'l A	-2.3	-10.9
Québec A	-4.0	-13.2
Fredericton A	-1.0	-12.4
Saint John A	-0.9	-11.3
Halifax (Shearwater)	0.6	-7.2
Charlottetown A	-2.3	-10.4
Goose A	-8.5	-19.6
St John's A	-0.7	-7.9

Weekly temperature and precipitation extremes

	Maximum temperature (°C)		Minimum temperature (°C)		Heaviest precipitation (mm)	
British Columbia	Abbotsford A	14	Puntzi Mountain (aut)	-35	Prince Rupert A	158
Yukon Territory	Whitehorse A	7	Watson Lake A	-35	Shingle Point A	2
Northwest Territories	Fort Smith A	7	Shepherd Bay A	-51	Yellowknife A	7
Alberta	Calgary Int'l A	15	Red Deer A	-32	Slave Lake A	9
Saskatchewan	La Ronge A	13	Cree Lake	-43	Broadview	1
					Moose Jaw A	1
Manitoba	Dauphin A	11	Thompson A	-43	Gillam A	5
Ontario	Thunder Bay A	6	Nagagami (aut)	-36	Wiarton A	26
Quebec	Val-d'Or	-2	La Grande IV A	-40	Blanc Sablon A	33
New Brunswick	Saint John A	-2	St-Léonard A	-25	Fredericton A	22
Nova Scotia	Sable Island	9	Sydney A	-23	Sydney A	44
Prince Edward Island	East Point (aut)	0	Charlottetown A	-22	Charlottetown A	17
Newfoundland	St John's A	12	Churchill Falls A	-40	St John's A	64

Across The Country...

Highest Mean Temperature	Sandspit A (B.C.)	4
Lowest Mean Temperature	Shepherd Bay A (N.W.T.)	-43

93/02/22-93/02/28

CLIMATIC PERSPECTIVES
VOLUME 15

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ISBN 0225-5707 UDC 551.506.1(71)

Climatic Perspectives is a weekly publication (disponible aussi en français) of the Canadian Climate Centre, Atmospheric Environment Service, 4905 Dufferin St., Downsview, Ontario, Canada M3H 5T4

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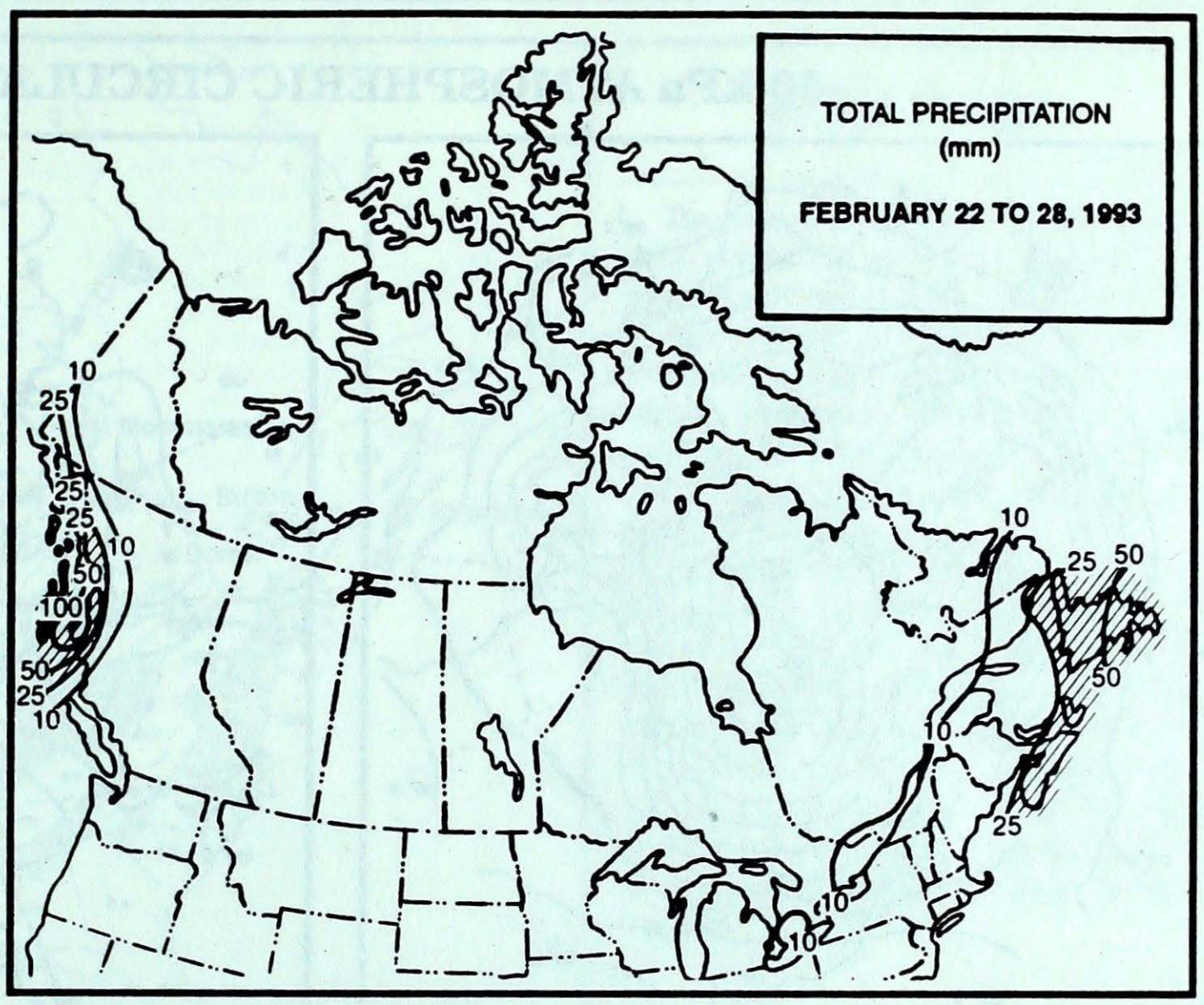
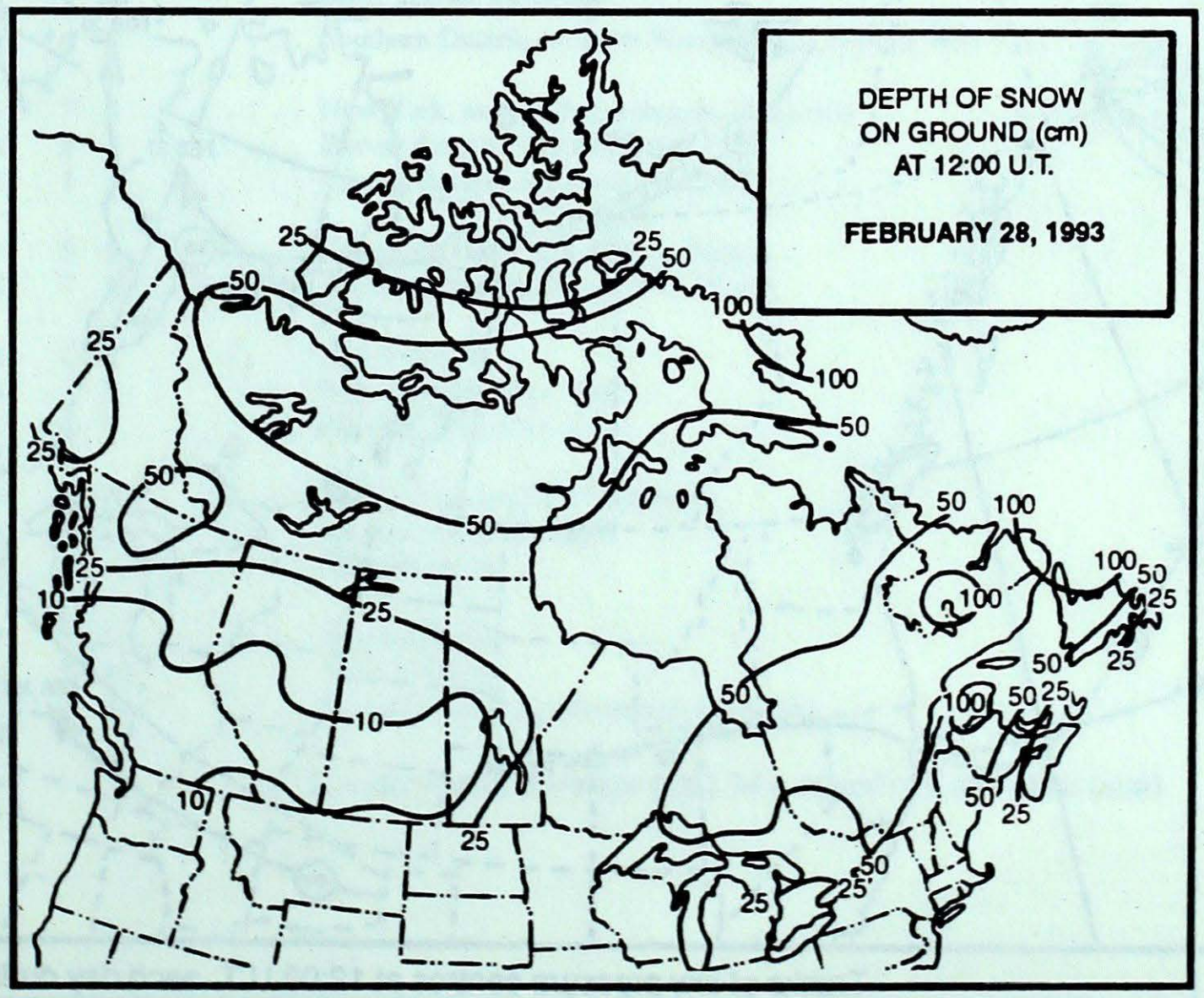
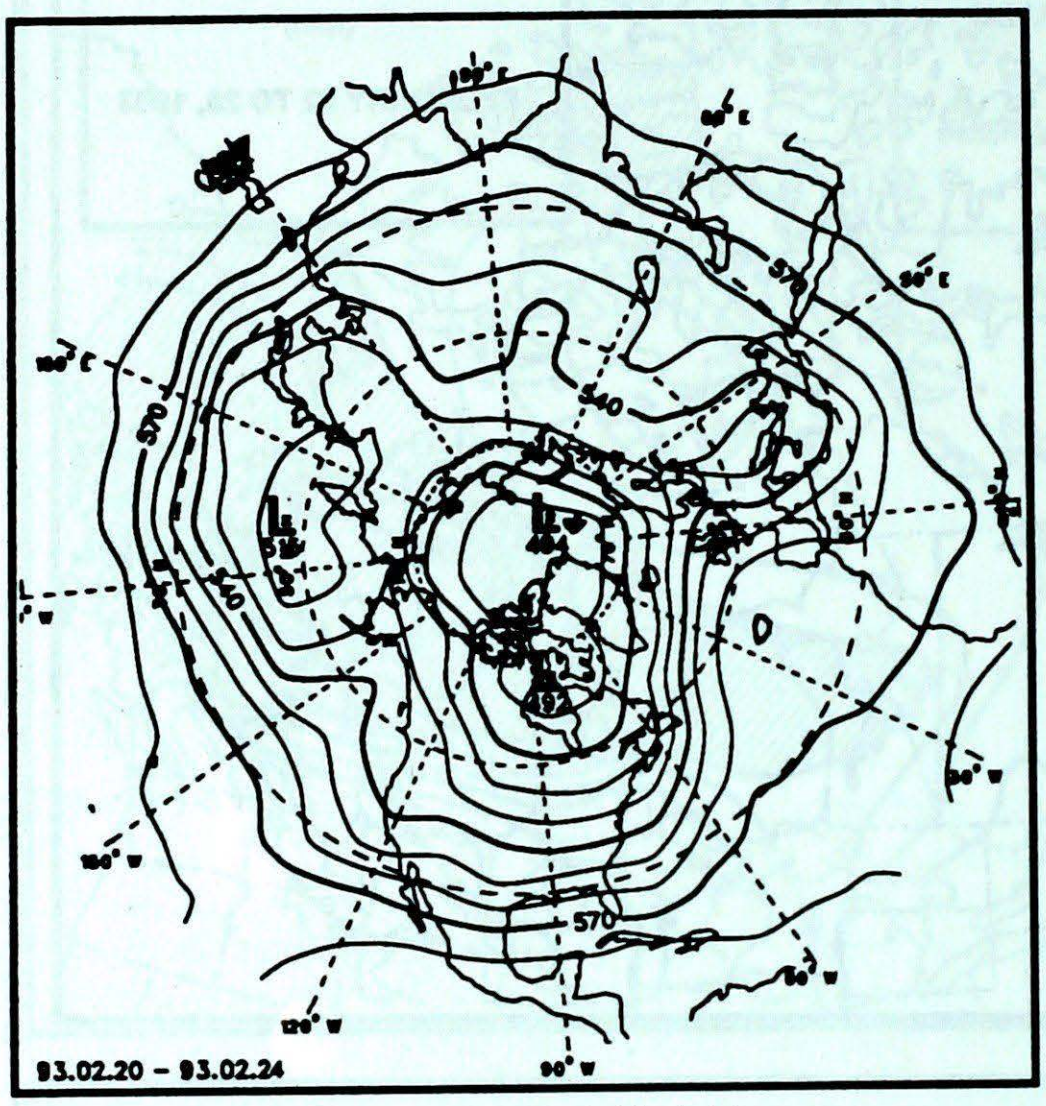
The purpose of the publication is to make topical information available to the public concerning the Canadian Climate and its socio-economic impact.

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.

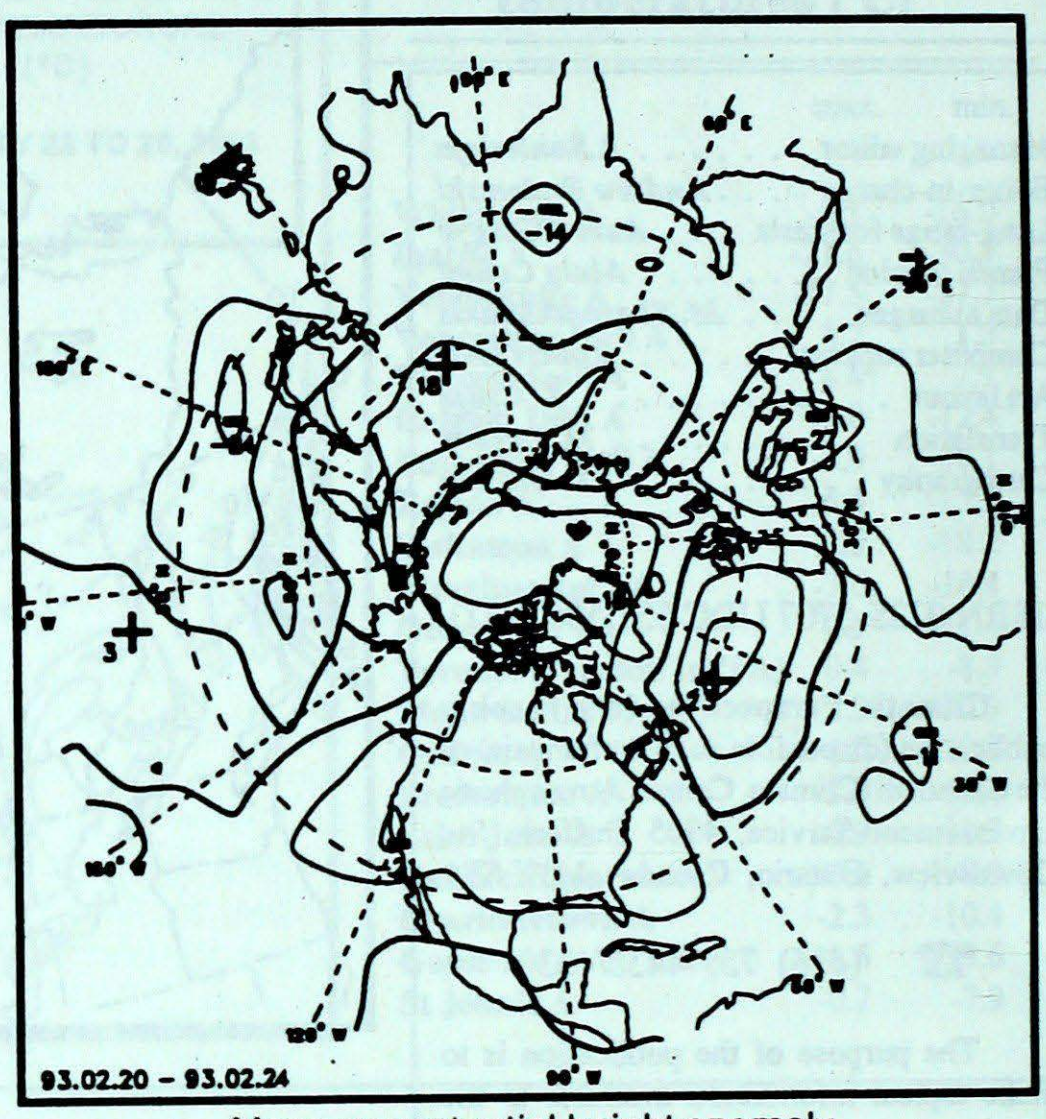




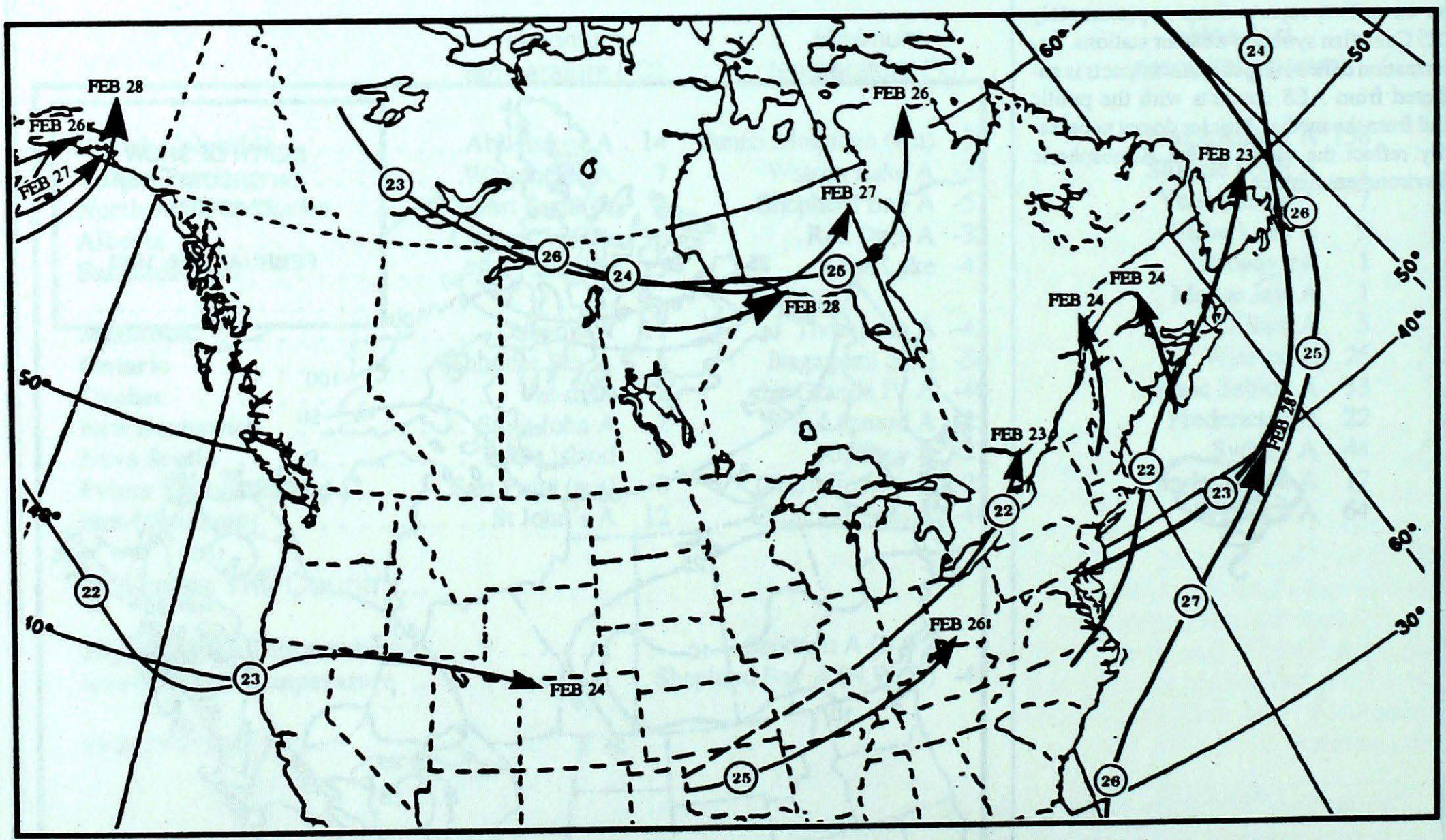
50-kPa ATMOSPHERIC CIRCULATION



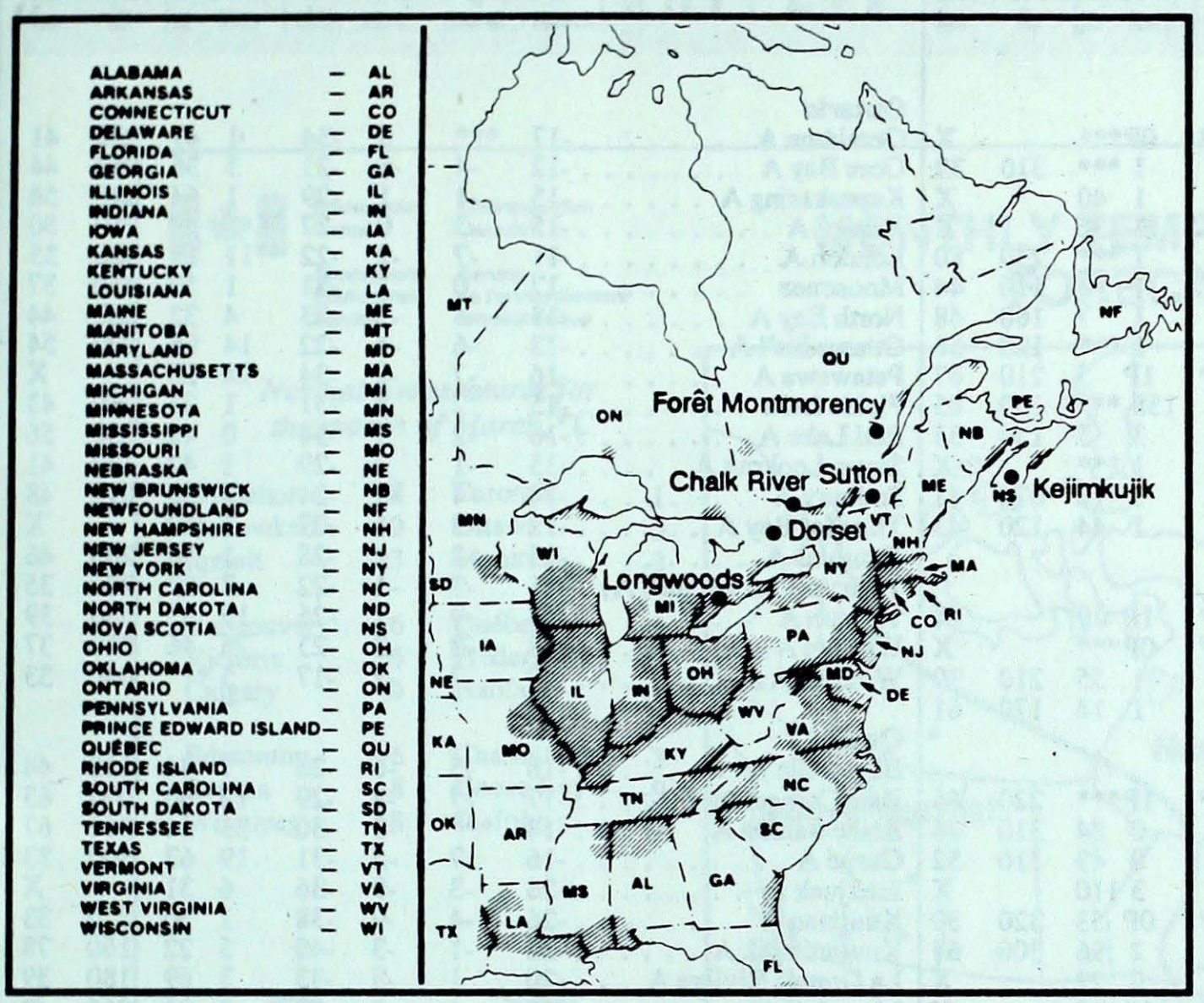
Mean geopotential height
50-kPa level (10 decametre intervals)



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 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
					February 21 to 27, 1993
Longwoods	21	5.0	18	M	. . . . Ohio, eastern Kentucky
	22	4.3	4	S	. . . . Southern Ontario, western Pennsylvania, western New York
Dorset *	21	4.3	7	S	. . . . New York, eastern Pennsylvania, Maryland
	22	4.4	6	S	. . . . Eastern Ontario, northern New York
	23	4.3	1	S	. . . . Central Ontario, northwestern Quebec
Chalk River	21	4.3	6	S	. . . . Eastern Ontario, eastern New York
	22	4.6	7	S	. . . . Southern Quebec, eastern New York
Sutton	21	4.4	3	S	. . . . New England
	22	3.9	3	S	. . . . New England, New York
	23	4.0	5	S	. . . . New England, New York
Montmorency	22	4.5	5	S	. . . . Maine, southern New Brunswick
	23	3.9	3	S	. . . . Southern Quebec, Maine
	24	4.2	2	S	. . . . Central Quebec
Kejimkujik	21	5.0	8	S	. . . . Atlantic Ocean
	22	4.8	3	M	. . . . Atlantic Ocean
	24	3.8	1	S	. . . . Northern New England, southern Quebec

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								
Blue River A	-12P	-9P	-1P	-23P	0P	***		X
Comox A	1	-3	6	-6	1	***	310	39
Cranbrook A	-10	-8	4	-23	1	40		X
Fort Nelson A	-6	8	13	-22	1	36		X
Fort St John A	-4	5	9	-22	1	***	230	80
Kamloops A	-6	-6	5	-17	1	5	110	44
Penticton A	-6	-8	4	-17	1	7	160	48
Port Hardy A	2	-1	8	-7	1	***	120	56
Prince George A	-8P	-2P	6P	-25P	1P	5	210	67
Prince Rupert A	1	-1	8	-11	158	***	140	85
Smithers A	-5	0	9	-19	3	5	150	35
Vancouver Int'l A	2	-3	10	-6	1	***		X
Victoria Int'l A	0	-4	10	-8	1	10	070	41
Williams Lake A	-11	-7	4	-28	1	44	120	43
Yukon Territory								
Komakuk Beach A	-26P	-2P	-17P	-34P	1P	19		X
Teslin (aut)	-8P	***P	6P	-28P	0P	***		X
Watson Lake A	-10	5	7	-35	1	55	210	39
Whitehorse A	-5	5	7	-25	1	14	170	61
Northwest Territories								
Alert	-34P	0P	-24P	-40P	1P	***	220	65
Baker Lake A	-37	-5	-26	-45	0	84	310	46
Cambridge Bay A	-39	-5	-23	-47	0	49	310	52
Cape Dyer A	-30	-6	-23	-37	3	110		X
Clyde A	-37P	-9P	-28P	-43P	0P	53	320	39
Coppermine A	-29	-1	-18	-40	2	96	300	67
Coral Harbour A	-36	-8	-28	-43	0	22		X
Eureka	-40P	-2P	-34P	-46P	0P	18		X
Fort Smith A	-12	7	7	-31	2	48		X
Hall Beach A	-31	0	-23	-42	1	49		X
Inuvik A	-23	1	-11	-36	5	76		X
Iqaluit A	-32	-6	-25	-41	3	23		X
Mould Bay A	-37	-2	-25	-45	1	19		X
Norman Wells A	-17	5	-9	-26	4	38	310	56
Resolute A	-32	1	-26	-40	2	19	110	59
Yellowknife A	-20	2	-12	-35	7	33	310	52
Alberta								
Calgary Int'l A	-8	-1	15	-26	1	5	270	67
Cold Lake A	-8	3	10	-27	1	26	240	37
Edmonton Namao A	-7	3	13	-26	1	18	270	43
Fort McMurray A	-6	7	13	-32	1	11	270	52
Grande Prairie A	-8	3	9	-29	1	21	250	46
High Level A	-9	8	14	-30	1	17	250	41
Lethbridge A	-11	-6	11	-29	1	10	250	83
Medicine Hat A	-13	-6	8	-30	1	7	220	44
Peace River A	-8	3	9	-28	1	12	240	56
Saskatchewan								
Cree Lake	-10	8	9	-43	0	32	220	37
Estevan A	-17	-7	6	-31	0	9	220	44
La Ronge A	-8	6	13	-33	0	15	240	32
Regina A	-16	-4	6	-29	1	14	250	32
Saskatoon A	-16	-3	3	-30	1	11	220	32
Swift Current A	-13	-4	7	-29	1	7	200	50
Yorkton A	-13	0	11	-27	1	8	210	41
Manitoba								
Brandon A	-17	-4	4	-30	0	13	220	39
Churchill A	-25	0	-18	-37	4	18	090	48
Lynn Lake A	-16	3	8	-42	2	29	320	41
The Pas A	-12	4	9	-35	1	9	260	41
Thompson A	-18	2	8	-43	1	32	330	33
Winnipeg Int'l A	-16	-3	2	-28	1	34	180	57

STATION	temperature mean	anom	max	min	precip. ptot	st	wind max dir	vel
Ontario								
Geraldton A	-17	***	0	-34	1	47	230	41
Gore Bay A	-12	-4	-1	-21	3	36	050	44
Kapuskasing A	-15	-1	1	-29	1	64	240	56
Kenora A	-15	-3	0	-27	2	38	210	50
London A	-11	-7	-2	-22	11	24	280	35
Moosonee	-17	0	1	-31	1	50	360	37
North Bay A	-13	-4	-2	-23	4	32	060	44
Ottawa Int'l A	-13	-6	-4	-22	14	96	070	54
Petawawa A	-16	-7	-3	-34	14	28		X
Pickle Lake	-15	2	3	-31	1	27	210	43
Red Lake A	-16	-2	3	-34	0	43	230	56
Sioux Lookout A	-15	-1	2	-29	1	42	180	41
Sudbury A	-14	-4	-2	-24	7	50	010	48
Thunder Bay A	-12	-2	6	-27	1	19		X
Timmins A	-15	-2	1	-28	1	76	200	46
Toronto(Pearson Int'l A)	-11	-7	-1	-22	7	23	280	35
Trenton A	-13	-9	-1	-26	16	33	330	39
Wiarton A	-13	-8	-3	-25	26	46	050	37
Windsor A	-9	-7	-2	-17	5	***	040	33
Québec								
Bagotville A	-16	-5	-6	-26	7	44	110	44
Baie Comeau A	-17	-7	-8	-29	12	60	070	63
Blanc Sablon A	-14	***	-3	-30	33	54	060	67
Gaspé A	-16	-7	-5	-31	19	63	300	33
Inukjuak A	-28	-3	-9	-36	6	31		X
Kuujjuaq A	-26	-4	-9	-38	1	30	220	33
Kuujjuarapik A	-22	-1	-3	-40	5	22	160	78
La Grande Rivière A	-20	1	-3	-33	3	69	180	39
Mont Joli A	-15	-6	-9	-24	7	39	060	43
Montréal Int'l A	-13	-7	-4	-23	10	26	260	48
Natashquan A	-15	-5	-7	-32	13	55		X
Québec A	-14	-5	-5	-24	12	61	070	70
Schefferville A	-25	-5	-9	-37	1	57	250	52
Sept-Îles A	-16	-5	-8	-28	9	57	070	44
Sherbrooke A	-15	-5	-3	-30	20	56		X
Val-d'Or A	-17	-5	-2	-32	3	51	200	37
New Brunswick								
Fredericton A	-13	-6	-3	-25	22	29	040	59
Miscou Island (aut)	-14P	-4P	-7P	-22P	1P	***		
Moncton A	-12	-6	-3	-20	16	18	040	69
Saint John A	-10	-4	-2	-18	19	32	010	69
St Leonard A	-15	***	-4	-25	15	96		X
Nova Scotia								
Greenwood A	-9	-4	-1	-18	25	24	040	78
Shearwater A	-6	-3	2	-15	25	10	080	89
Sydney A	-7	-2	1	-23	44	20	080	59
Yarmouth A	-5	-3	6	-11	25	14	130	89
Prince Edward Island								
Charlottetown A	-11	-5	-1	-22	17	19	030	65
East Point (auto)	-9	***	0	-17	7	***		
Newfoundland								
Cartwright	-18	-5	-8	-31	11	***	300	41
Churchill Falls A	-24P	-5P	-8P	-40P	1P	104		X
Gander Int'l A	-8	-1	1	-21	58	40	070	54
Goose A	-19	-5	-6	-28	7	53	250	39
Stephenville A	-10	-4	1	-25	25	96	070	67
St John's A	-2	3	12	-17	64	7	170	85
St Lawrence	-4	1	6	-16	61	8		X
Wabush Lake A	-23P	-4P	-7P	-39P	2P	67		X

93/02/22-93/02/28

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.

Environment Canada / Environnement Canada

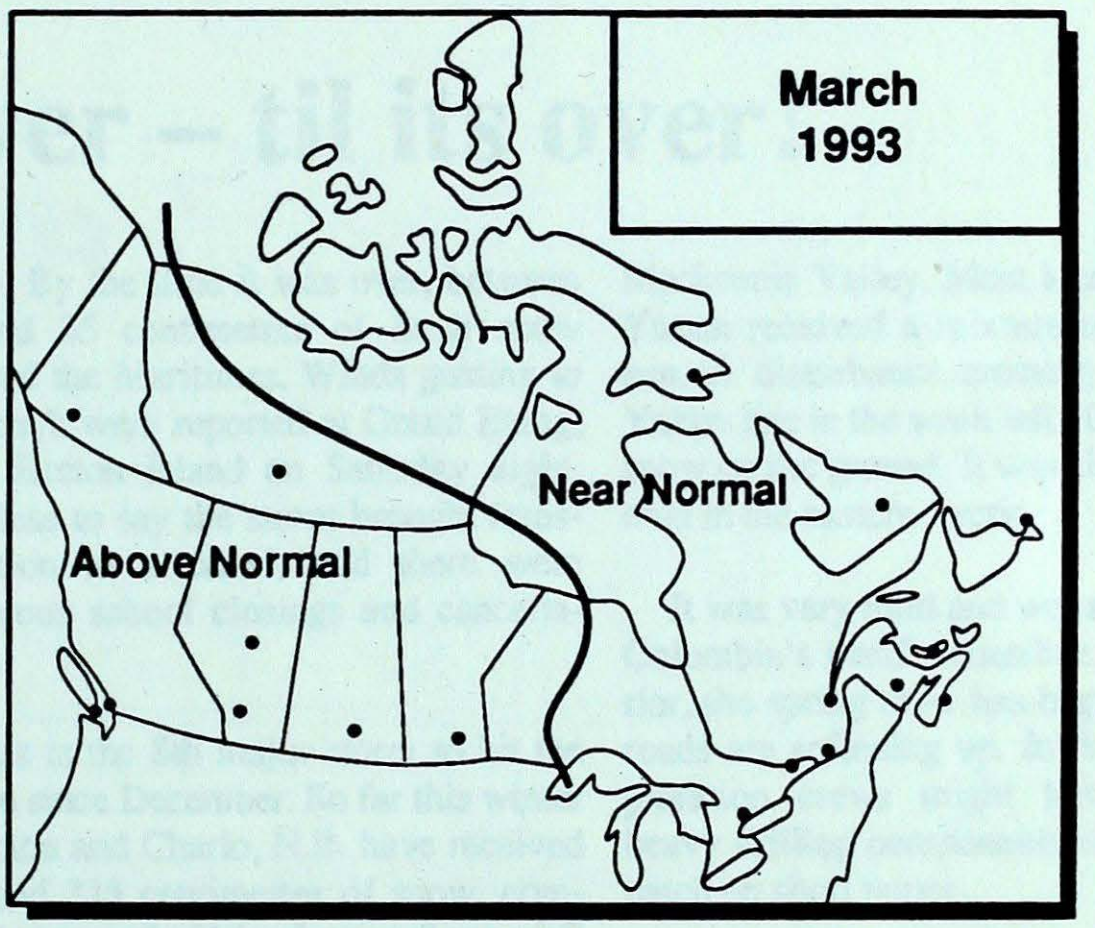
Atmospheric Environment Service / Service de l'environnement atmosphérique

Normal temperatures for the month of March, °C

Whitehorse	-8	Toronto	-1
Yellowknife	-19	Ottawa	-3
Iqaluit	-23	Montréal	-3
Vancouver	6	Québec	-5
Victoria	6	Fredericton	-2
Calgary	-4	Halifax	-1
Edmonton	-6	Charlottetown	-3
Regina	-8	Goose Bay	-9
Winnipeg	-8	St. John's	-2

Canada

MONTHLY TEMPERATURE FORECAST



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