

Climatic Perspectives

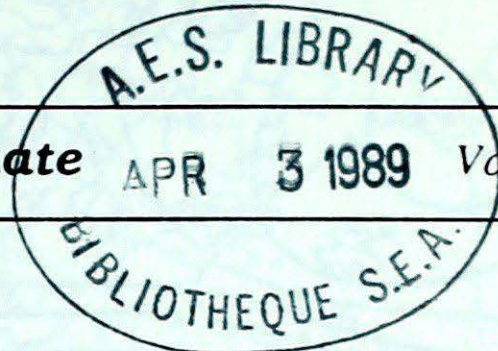
MONTHLY SUPPLEMENT INCLUDED

March 13 to 19, 1989

A weekly review of Canadian climate

APR 3 1989

Vol. 11 No. 12



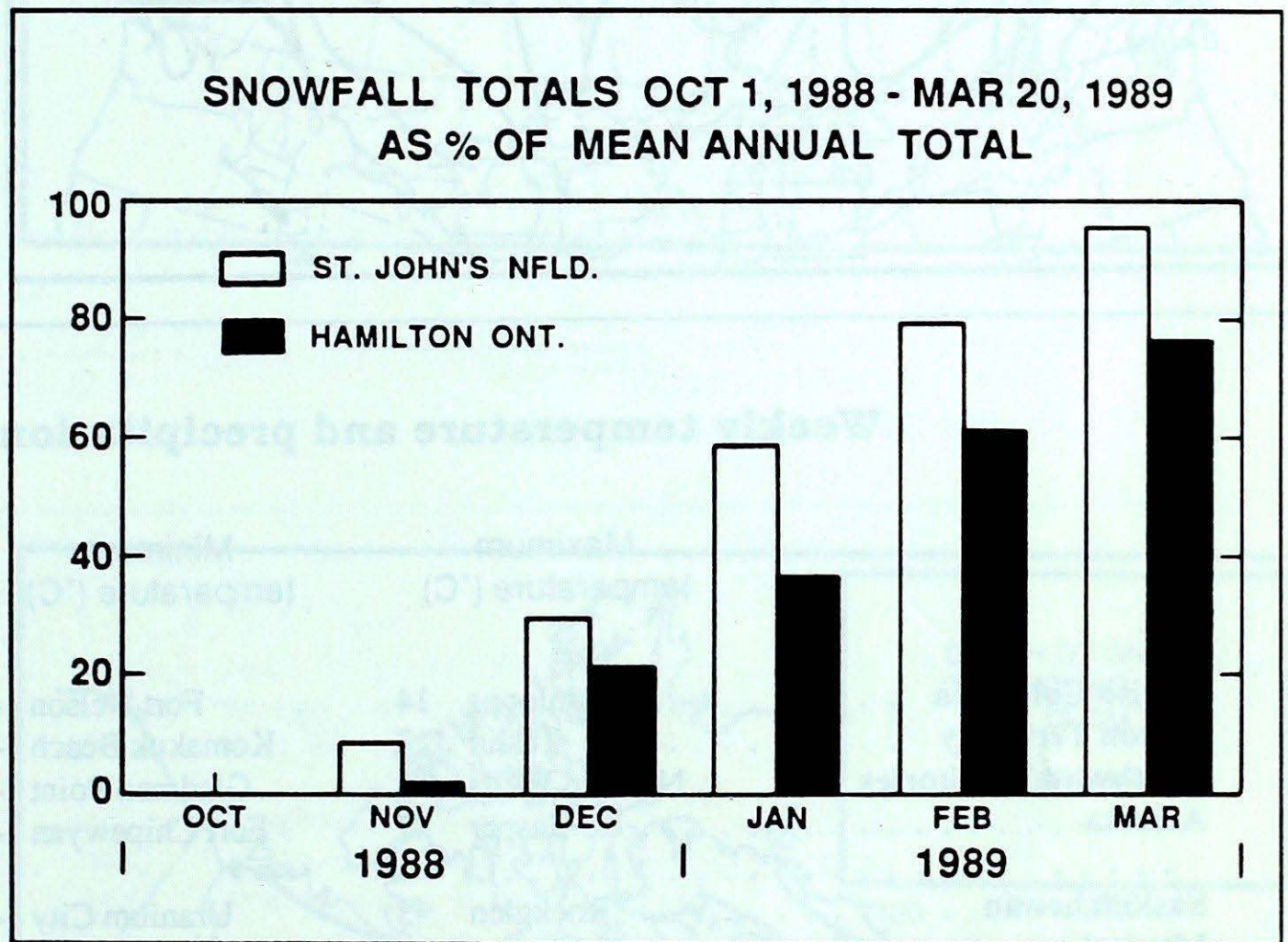
Winter hangs on doggedly despite official arrival of 'spring'

Although spring arrived on the afternoon of March 20, it was difficult to imagine the good days ahead as winter's icy fingers continued to touch most of Canada with frigid temperatures, especially on the Prairies. Major snowstorms in Ontario, Quebec and the Maritimes rudely reminded us that there may still be time to make up for the dearth of storms over the eastern part of the country.

Temperatures over the Prairies were running about 10 to 15 C below seasonal averages this week with numerous daily minimum records established. To add insult to injury, brisk winds on a few of the cold days brought dangerously high windchills to some northern communities.

Ontario experienced its worst storm of the season as a low pressure system south of Lake Erie brought a mixture of snow, freezing precipitation and thunderstorms to southern Ontario on the 17th and 18th. Further to the north, the largest snowfalls this winter combined with freezing rain wrought havoc. Earlier in the week, northern Ontario took the brunt of another winter-ending storm with 20 to 30 cm of snow.

In the Maritimes, a couple of weekend disturbances also brought a mixed bag of precipitation to the region causing numerous traffic accidents, one of which brought tragedy Saturday evening when a multiple vehicle accident near Truro, Nova Scotia killed one man and sent ten others to hospital. On Saturday, a low pressure system dumped 15-20 cm of snow across much of the province.



The storms this week have put some areas back on track towards a "normal" winter. Figure 1 shows accumulated snowfall totals from Oct '88 to March 20 '89 as a percentage of mean annual total.

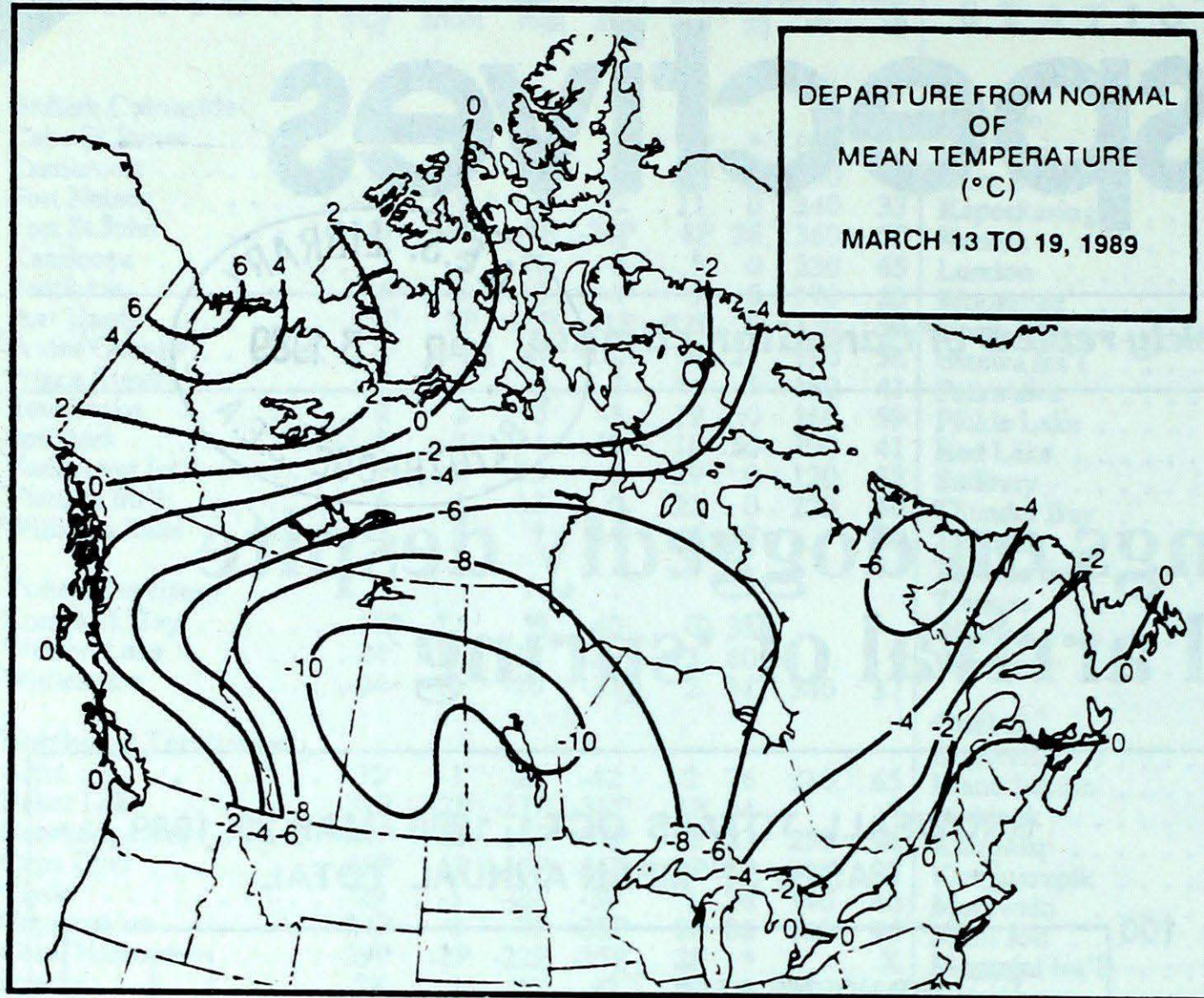
March to end on a mild note in eastern Canada

A flow of air from the High Arctic continued to bring unseasonably cold temperatures throughout most of Canada. Only Atlantic Canada and the Yukon ex-

perienced normal to above-normal readings.

Below-normal temperatures will prevail from British Columbia to Manitoba as a pool of cold air pushes southwards over the Prairies during the last week of this month. March will go out like a lamb in eastern Canada as a ridge of high pressure pumps a southerly flow of warm air from the Great Lakes to the East Coast.

A. Shabbar,
Canadian Climate Centre



Excerpts from
 Agriculture Canada
 Land Resource Research Centre
 Soil Moisture Evaluation Project
 (SMEP)
 March 5, 1989
 Prairie Report

The expected amount of water available in the snow-pack for soil infiltration is assumed, prior to spring, to be 30% of the water in the snow-pack. This is expected to amount to 6-8 cm over much of Saskatchewan, 10-20 cm in central Manitoba and central Alberta, and 1-5 cm in southern Alberta. This should contribute to moderately good surface moisture conditions for most of the Prairies in the spring except southern Alberta.

Weekly temperature and precipitation extremes

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Kamloops 14	Fort Nelson -27	Port Alberni 24
Yukon Territory	Teslin 7	Komakuk Beach -30	Komakuk Beach 1
Northwest Territories	Norman Wells -5	Gladman Point -46	Cape Dyer 5
Alberta	Jasper 7	Fort Chipewyan -36	Medicine Hat 5
Saskatchewan	Rockglen -3	Uranium City -38	Swift Current 2
Manitoba	Gretna -3	Dauphin -35	Winnipeg 2
Ontario	Windsor 17	Armstrong -35	Warton 48
Québec	Sherbrooke 13	La Grande Iv -38	Val D'or 35
New Brunswick	Moncton 13	St. Leonard -23	Moncton 33
Nova Scotia	Greenwood 16	Sydney -16	Truro 28
Prince Edward Island	Summerside 9	Charlottetown -16	Charlottetown 21
Newfoundland	Daniel's Harbour 11	Wabush Lake -36	St. Johns 42

Across The Country...

Warmest Mean Temperature	Cape St. James (BC) 6
Coollest Mean Temperature	Eurika (NWT) -38

CLIMATIC PERSPECTIVES
VOLUME 11

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ISBN 0225-5707 UDC 551.506.1(71)

Climatic Perspectives is a weekly bilingual publication of the Canadian Climate Centre, Atmospheric Environment Service, 4905 Dufferin St., Downsview, Ontario, Canada M3H 5T4

☎ (416) 739-4438/4436

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

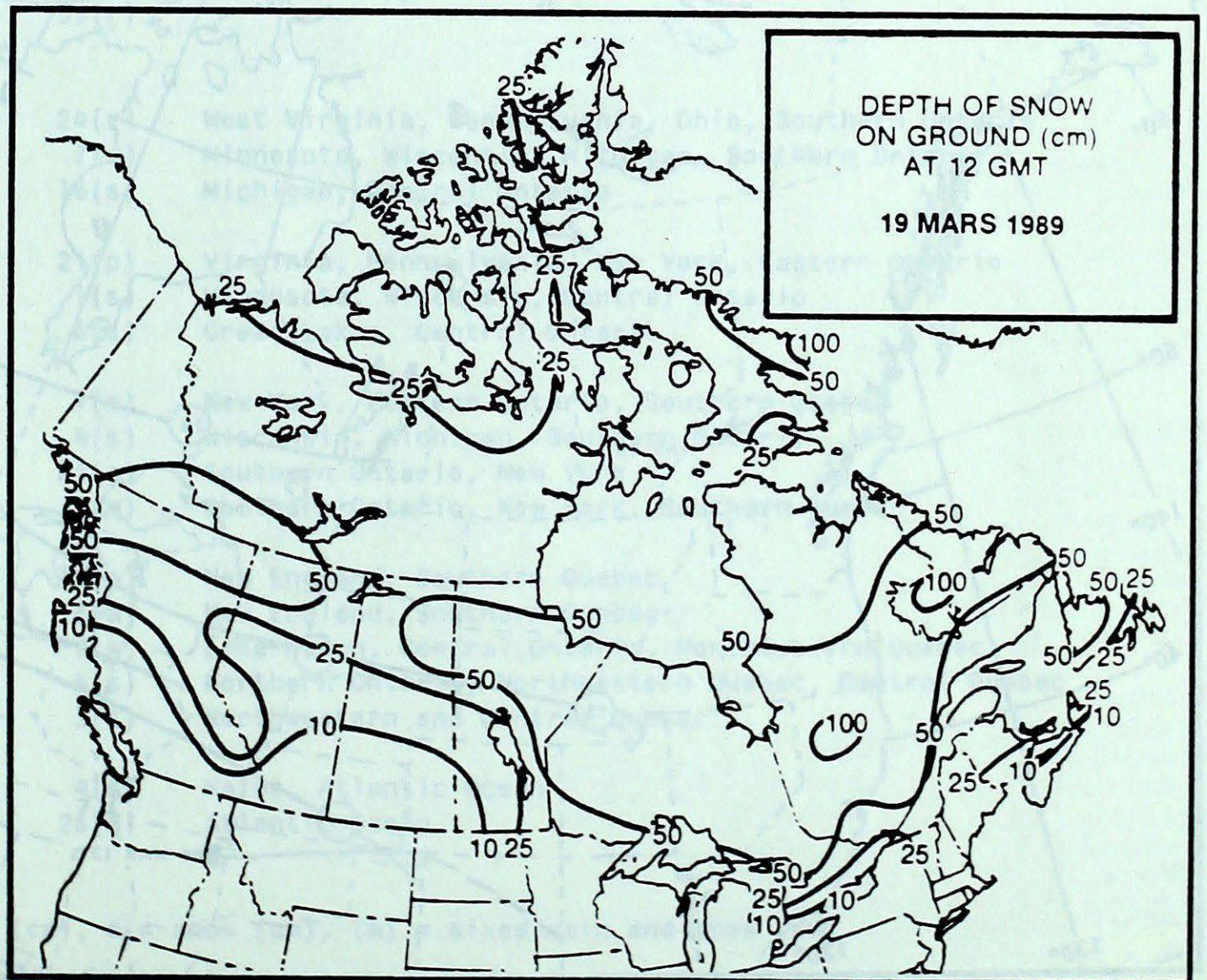
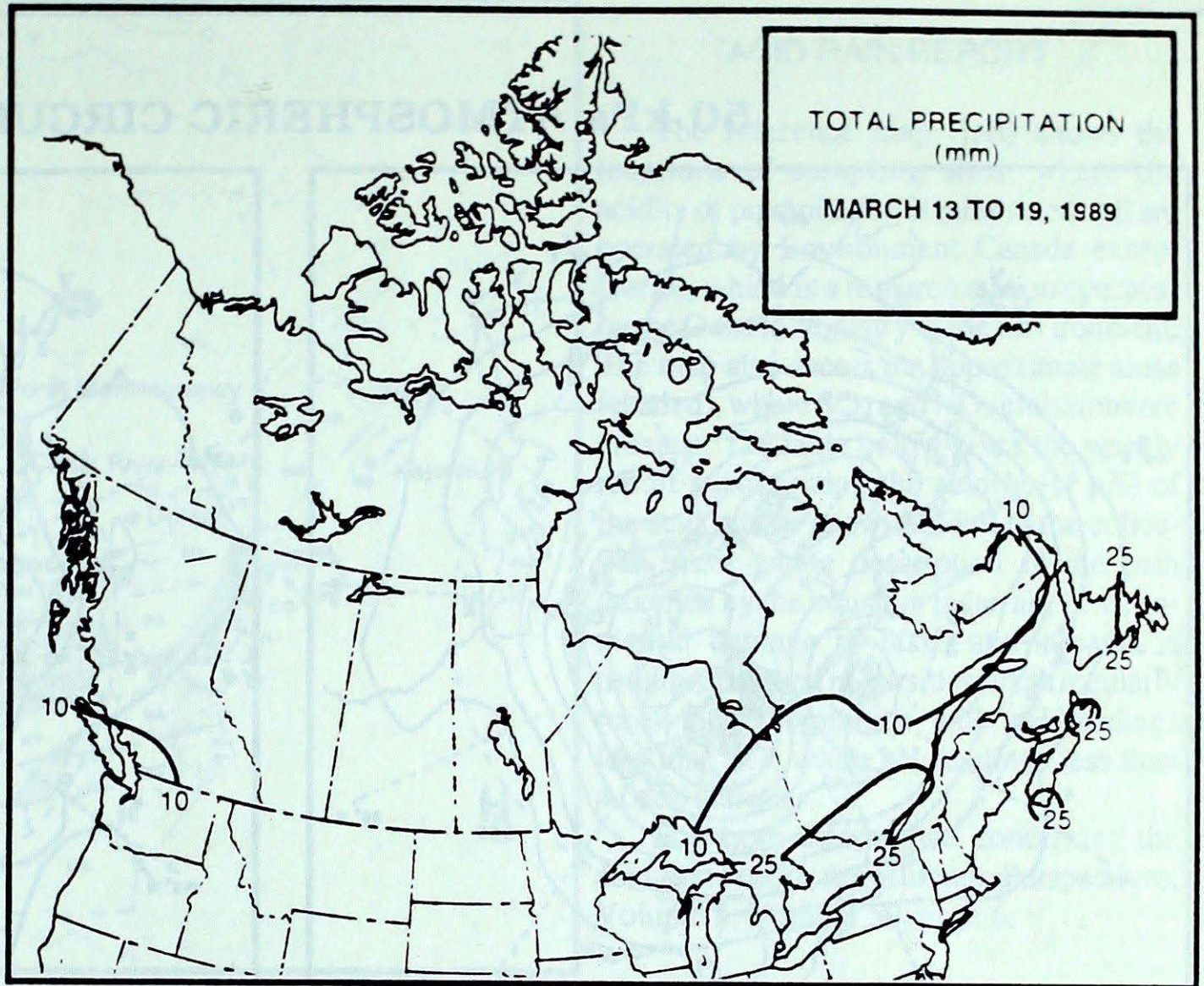
The data in this publication are based on unverified reports from approximately 225 Canadian synoptic weather stations. Information concerning climatic impacts is gathered from AES contacts with the public and from the media. Articles do not necessarily reflect the views of the Atmospheric Environment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

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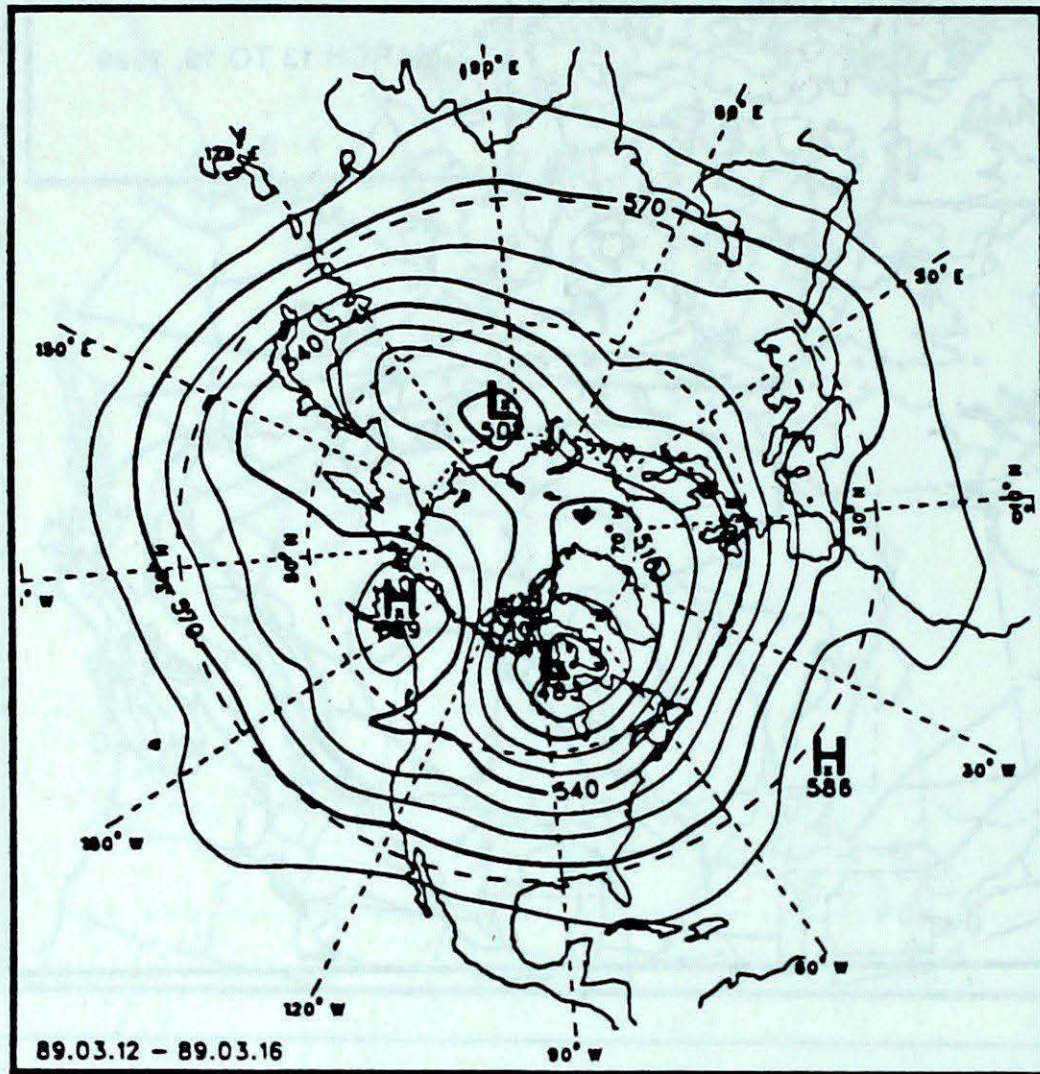
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foreign: \$42.00
monthly issue: \$10.00
foreign: \$12.00

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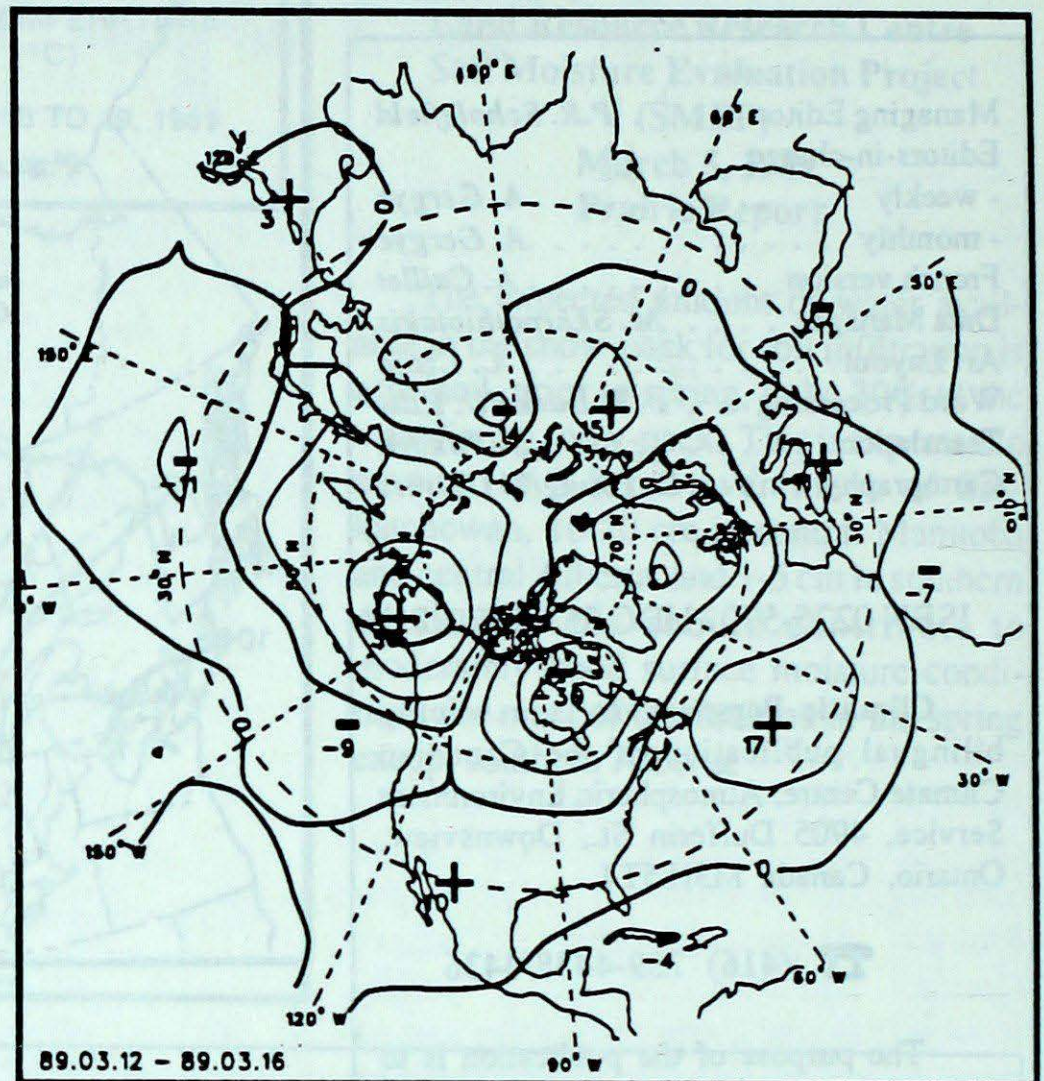
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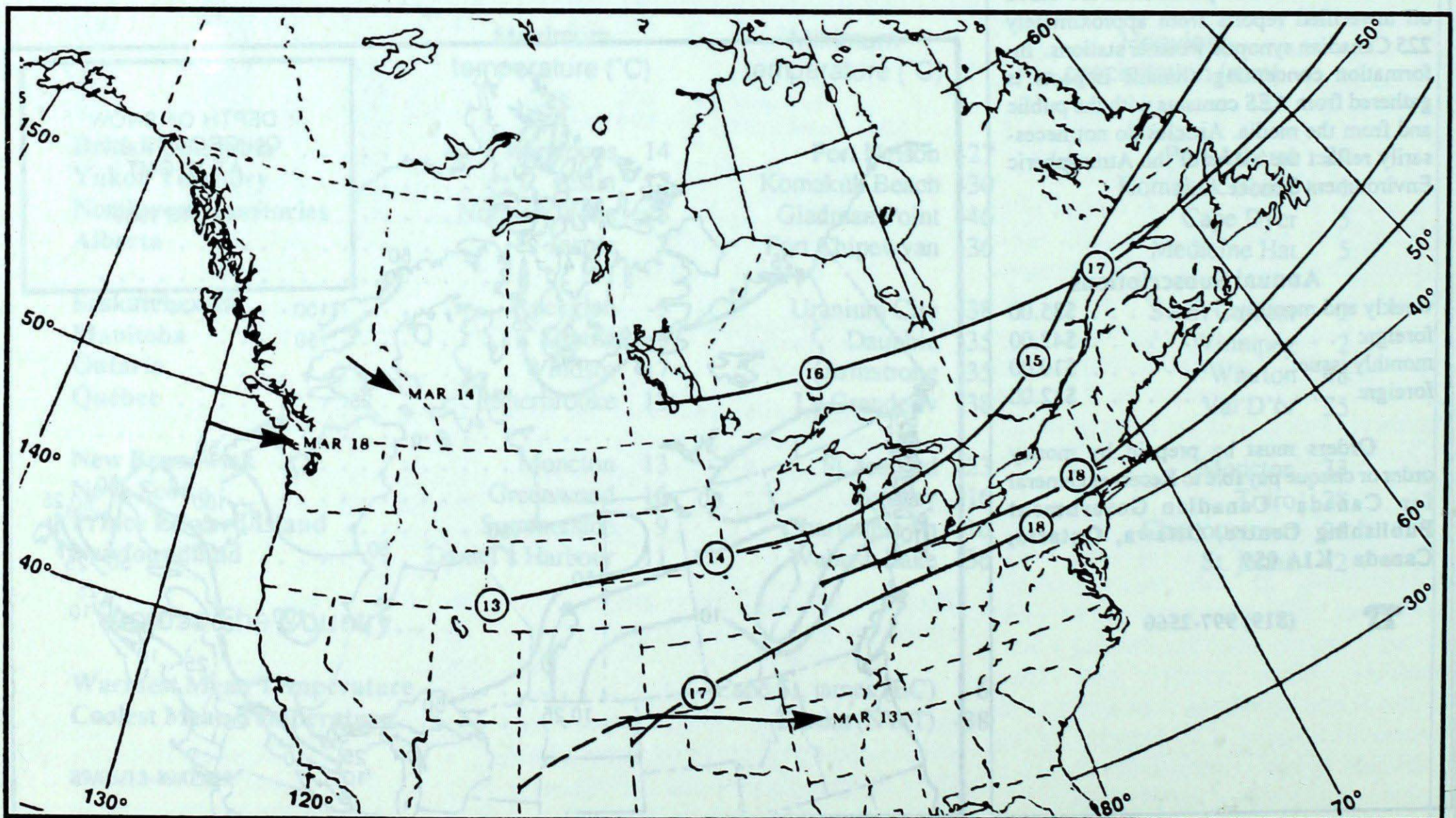
50 kPa ATMOSPHERIC CIRCULATION



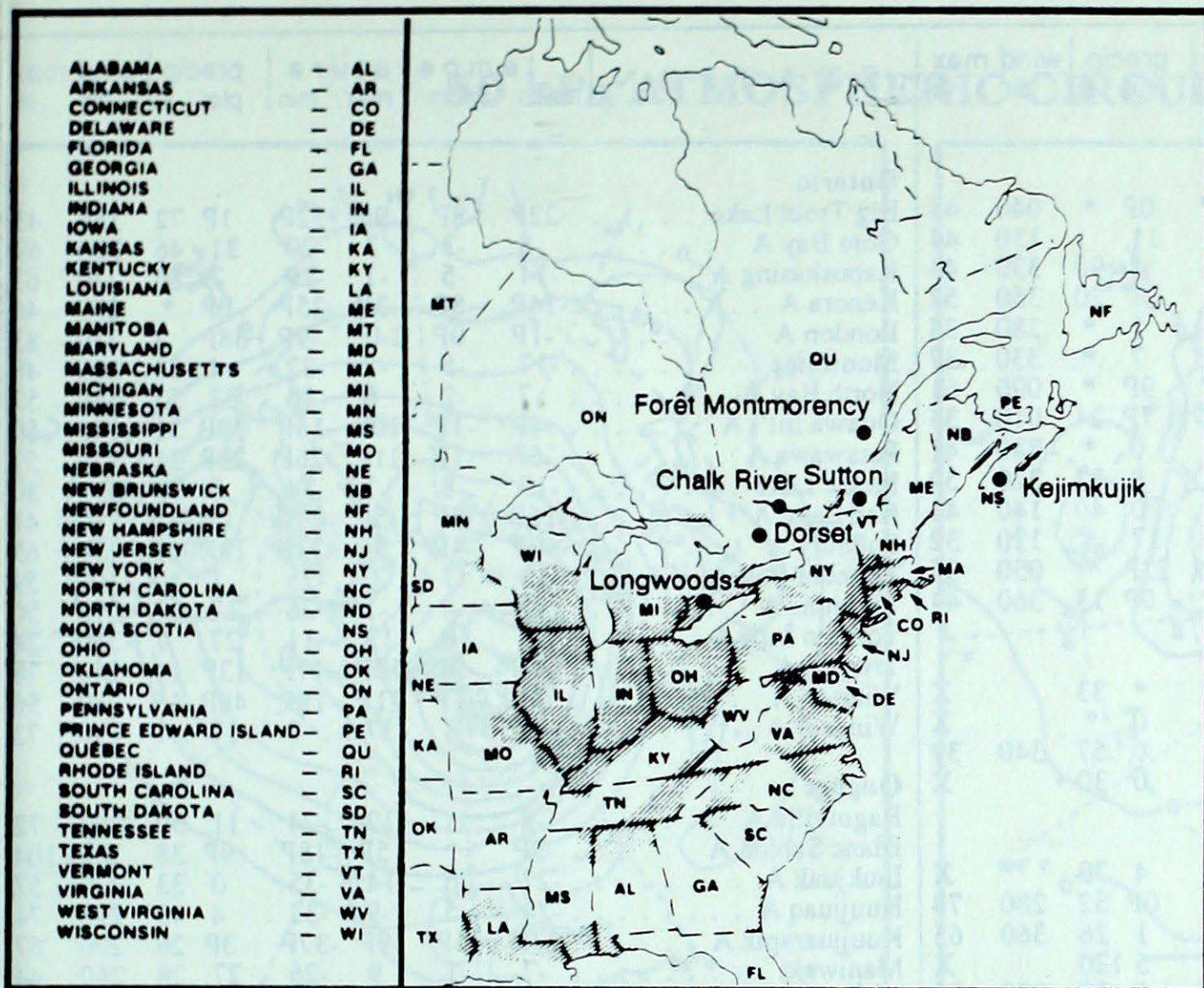
Mean geopotential height
50 kPa level (10 decameter intervals)



Mean geopotential height anomaly
50 kPa level (10 decameter intervals)



Storm track - Position of storm at 12 GMT each day during the period.



ACID RAIN REPORT

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.

For more information concerning the acid rain report, see Climatic Perspectives, Volume 5, Number 50, page 6.

MARCH 12 TO MARCH 18, 1989

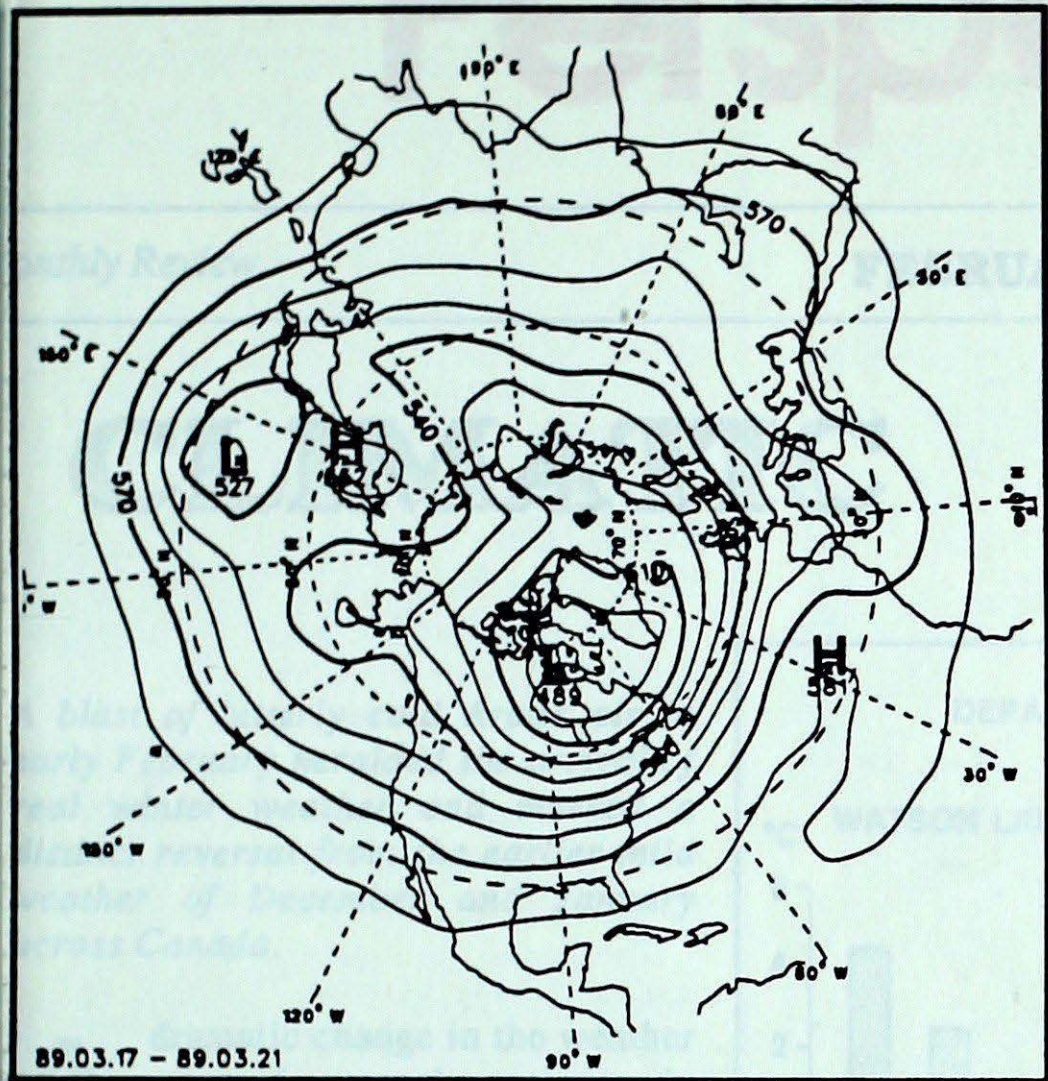
SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	17	N/A	39(r)	
Dorset	14	4.3	24(r)	West Virginia, Pennsylvania, Ohio, Southern Ontario
	16	4.5	7(s)	Minnesota, Wisconsin, Michigan, Southern Ontario
	17	4.7	16(s)	Michigan, Central Ontario
Chalk River	14	4.1	21(p)	Virginia, Pennsylvania, New York, Eastern Ontario
	16	4.1	1(s)	Minnesota, Wisconsin, Central Ontario
	17	4.6	6(s)	Great Lakes, Central Ontario
Sutton	15	5.1	1(m)	New York, Eastern Ontario, Southern Quebec
	16	4.1	4(s)	Wisconsin, Michigan, Southern Ontario
	17	4.2	21(s)	Southern Ontario, New York
	18	3.8	3(m)	Southern Ontario, New York, Southern Quebec
Montmorency	14	4.1	14(m)	New England, Southern Quebec
	15	5.8	8(m)	New England, Southern Quebec
	16	4.3	7(s)	Lake Huron, Central Ontario, Northwestern Quebec
	17	4.8	4(s)	Northern Ontario, Northwestern Quebec, Central Quebec
	18	4.6	3(s)	Northwestern and Central Quebec
Kejimikujik	12	4.3	4(s)	Maine, Atlantic Ocean
	18	4.4	26(m)	Atlantic Ocean

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

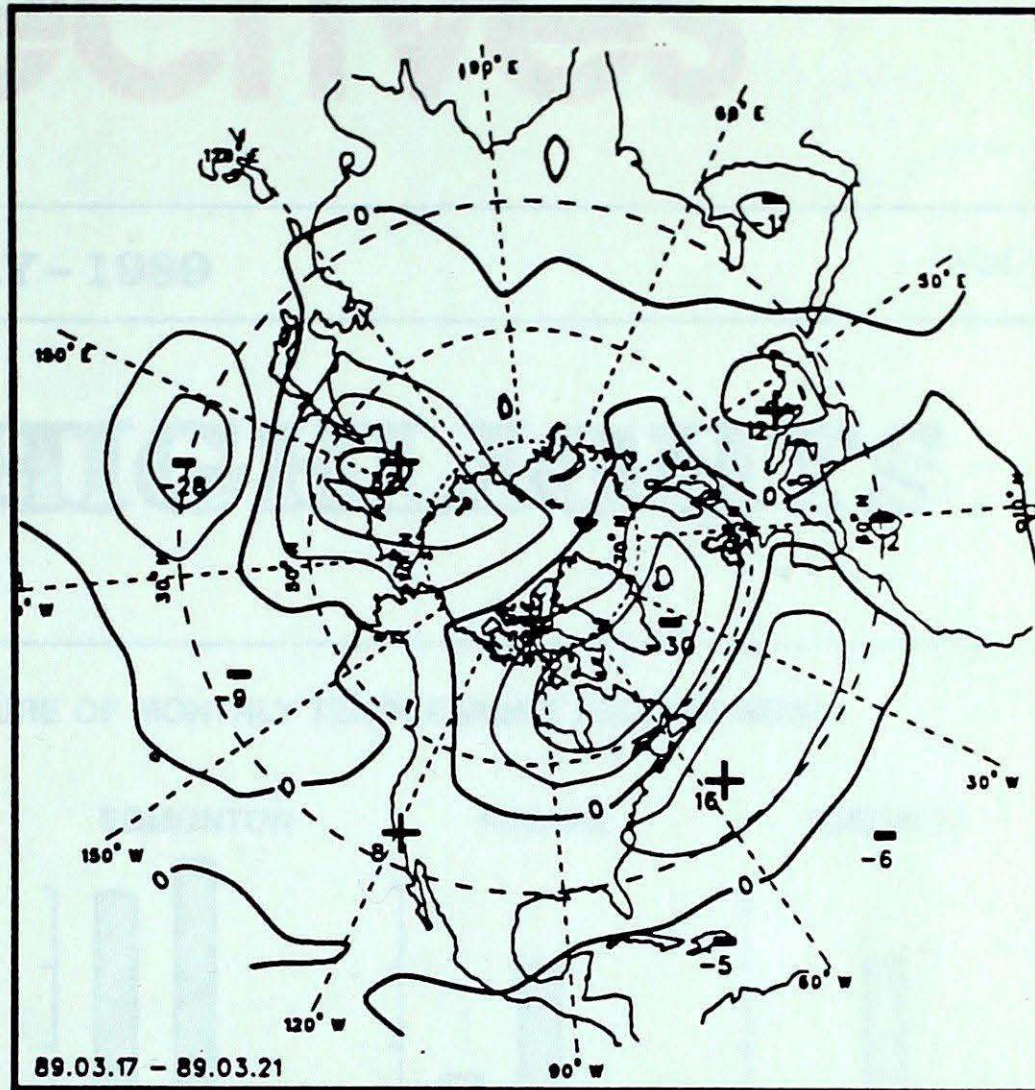
STATION	temperature				precip. plot	st	wind max		STATION	temperature				precip. plot	st	wind max	
	mean	anom	max	min			dir	vit		mean	anom	max	min			dir	vit
British Columbia								Ontario									
Cape St James	6P	1P	11P	3P	0P	*	040	48	Big Trout Lake	-22P	-8P	-9P	-32P	1P	72	350	43
Cranbrook A	-2	-4	9	-10	11	1	130	44	Gore Bay A	-8	-3	3	-20	31	46	300	69
Fort Nelson A	-12	-2	-1	-27	1	90	330	43	Kapuskasig A	-14	-5	-1	-29	7	86	270	63
Fort St John A	-13	-7	-2	-24	1	20	350	57	Kenora A	-14P	-8P	-3P	-25P	0P	*	290	46
Kamloops A	4	0	14	-4	1	*	280	33	London A	-1P	0P	14P	-9P	38P	3	230	83
Penticton A	4	0	11	-2	7	*	330	37	Moosonee	-17	-5	-2	-32	4	50	200	48
Port Hardy A	5P	0P	10P	-2P	9P	*	090	61	North Bay A	-7	-2	6	-16	33	53	360	57
Prince George A	-8P	-7P	5P	-25P	7P	24	010	35	Ottawa Int'l A	-4P	-1P	10P	-16P	32P	31	190	50
Prince Rupert A	1	-2	9	-7	0	*	340	41	Petawawa A	-6P	-1P	11P	-26P	22P	21	250	57
Revelstoke A	0	-1	8	-7	8	32	320	59	Pickle Lake	-19	-8	-7	-34	0	73	310	50
Smithers A	-5	-5	5	-20	0	40	140	41	Red Lake A	-16P	-8P	-5P	-29P	0P	82	290	41
Vancouver Int'l A	6	0	10	1	17	*	120	32	Sudbury A	-9P	-4P	3P	-17P	13P	68	270	65
Victoria Int'l A	5P	-1P	10P	0P	22P	*	050	35	Thunder Bay A	-13	-7	0	-25	1	40	300	59
Williams Lake A	-4P	-3P	8P	-14P	0P	13	360	44	Timmins A	-12	-4	-1	-26	17	57	010	50
Yukon Territory								Quebec									
Komakuk Beach A	-17P	10P	-2P	-30P	*	33		X	Bagotville A	-8	-1	12	-24	11	50	200	72
Teslin (aut)	-7	*	7	-20	0	*		X	Blanc Sablon A	-9P	*	5P	-18P	9P	38	190	104
Watson Lake A	-12	-1	5	-26	0	57	340	39	Inukjuak A	-27	-6	-14	-35	0	33	230	57
Whitehorse A	-8	0	5	-25	0	30		X	Kuujuuaq A	-24	-5	-9	-32	4	40	290	74
Northwest Territories								New Brunswick									
Alert	-34	-1	-21	-42	4	79		X	Charlo A	-6	-1	12	-22	5	60	280	70
Baker Lake A	-33P	-6P	-27P	-38P	0P	52	280	78	Chatham A	-3	1	12	-15	5	6	210	85
Cambridge Bay A	-31	0	-24	-37	1	26	360	65	Fredericton A	-3	1	10	-17	17	15	260	70
Cape Dyer A	-28	-5	-16	-37	5	120		X	Moncton A	-2	1	13	-19	33	28	270	83
Clyde A	-29	-2	-20	-42	5	38	320	76	Saint John A	-1P	2P	10P	-14P	21P	8	190	69
Coppermine A	-25	4	-21	-33	1	*	340	56	Nova Scotia								
Coral Harbour A	-29P	-4P	-17P	-38P	1P	*	360	39	Greenwood A	-1	0	16	-14	18	3	240	93
Eureka	-38	-1	-30	-45	1	20	300	61	Shearwater A	0	1	9	-12	19	2	240	67
Fort Smith A	-22	-7	-11	-34	0	37	310	37	Sydney A	-4	0	9	-16	28	15	210	78
Hall Beach A	-28	2	-17	-42	0	40	080	61	Yarmouth A	1	2	10	-10	25	1	230	59
Inuvik A	-20P	6P	-6P	-35P	1P	41	310	37	Prince Edward Island								
Iqaluit A	-28	-4	-15	-37	2	18		X	Charlottetown A	-4	0	9	-16	21	20	170	59
Mould Bay A	-32	1	-24	-37	0	16	010	57	Summerside A	-3P	1P	9P	-15P	1P	36	250	70
Norman Wells A	-18	3	-5	-35	5	22	310	59	Newfoundland								
Resolute A	-33	-1	-26	-38	0	22	300	56	Cartwright	-12P	-4P	5P	-24P	10P	114	190	70
Yellowknife A	-24	-5	-13	-34	0	34	360	35	Churchill Falls A	-19	-6	-2	-34	16	102	230	65
Alberta								Prince Edward Island									
Calgary Int'l A	-13P	-10P	-4P	-26P	2P	7	010	57	St John's A	-2	1	10	-8	42	19	270	91
Cold Lake A	-16	-9	-4	-30	0	15	190	33	St Lawrence	-2	0	4	-9	35	14		X
Edmonton Namao A	-15P	-10P	-6P	-26P	1P	18	330	43	Wabush Lake A	-20	-5	-6	-36	14	44	210	56
Fort McMurray A	-18	-10	-4	-33	0	39	300	39	89/03/13-89/03/19								
High Level A	-18	-8	-5	-35	0	53	330	46									
Jasper	-7	-5	7	-25	1	24		X									
Leihbridge A	-14P	-13P	-4P	-26P	3P	14	360	46									
Medicine Hat A	-10	-8	-2	-23	5	3		X									
Peace River A	-15P	-8P	-2P	-30P	0P	19	360	37									
Saskatchewan								Prince Edward Island									
Cree Lake	-23	-11	-11	-33	0	49	340	59	Charlottetown A	-4	0	9	-16	21	20	170	59
Estevan A	-13	-8	-4	-21	0	3	310	59	Summerside A	-3P	1P	9P	-15P	1P	36	250	70
La Ronge A	-19	-10	-6	-30	0	47	310	46	Newfoundland								
Regina A	-16	-9	-8	-27	1	8	320	54	Cartwright	-12P	-4P	5P	-24P	10P	114	190	70
Saskatoon A	-18P	-10P	-8P	-27P	0P	*		X	Churchill Falls A	-19	-6	-2	-34	16	102	230	65
Swift Current A	-14P	-9P	-3P	-23P	2P	7	290	52	Gander Int'l A	-5P	-1P	7P	-14P	40P	37	190	65
Yorkton A	-17P	-8P	-8P	-27P	0P	3	300	50	Goose A	-12P	-2P	4P	-26P	4P	60	330	54
Manitoba								Prince Edward Island									
Brandon A	-16P	-8P	-4P	-26P	1P	10	300	59	Port Aux Basques	-5P	-1P	5P	-13P	18P	40	360	61
Churchill A	-29	-9	-22	-35	0	35	300	76	St John's A	-2	1	10	-8	42	19	270	91
Lynn Lake A	-23P	-10P	-10P	-34P	0P	52	310	52	St Lawrence	-2	0	4	-9	35	14		X
The Pas A	-18	-7	-6	-27	0	18	280	50	Wabush Lake A	-20	-5	-6	-36	14	44	210	56
Thompson A	-22	-9	-7	-33	0	45	300	56									
Winnipeg Int'l A	-15	-7	-5	-24	2	*	020	52									

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.
 vit = wind speed in km/h
 - Annotations -
 X = no observation
 P = less than 7 days of data
 * = missing data when going to printing.

50 kPa ATMOSPHERIC CIRCULATION



Mean geopotential height
50 kPa level (10 decameter intervals)



Mean geopotential height anomaly
50 kPa level (10 decameter intervals)



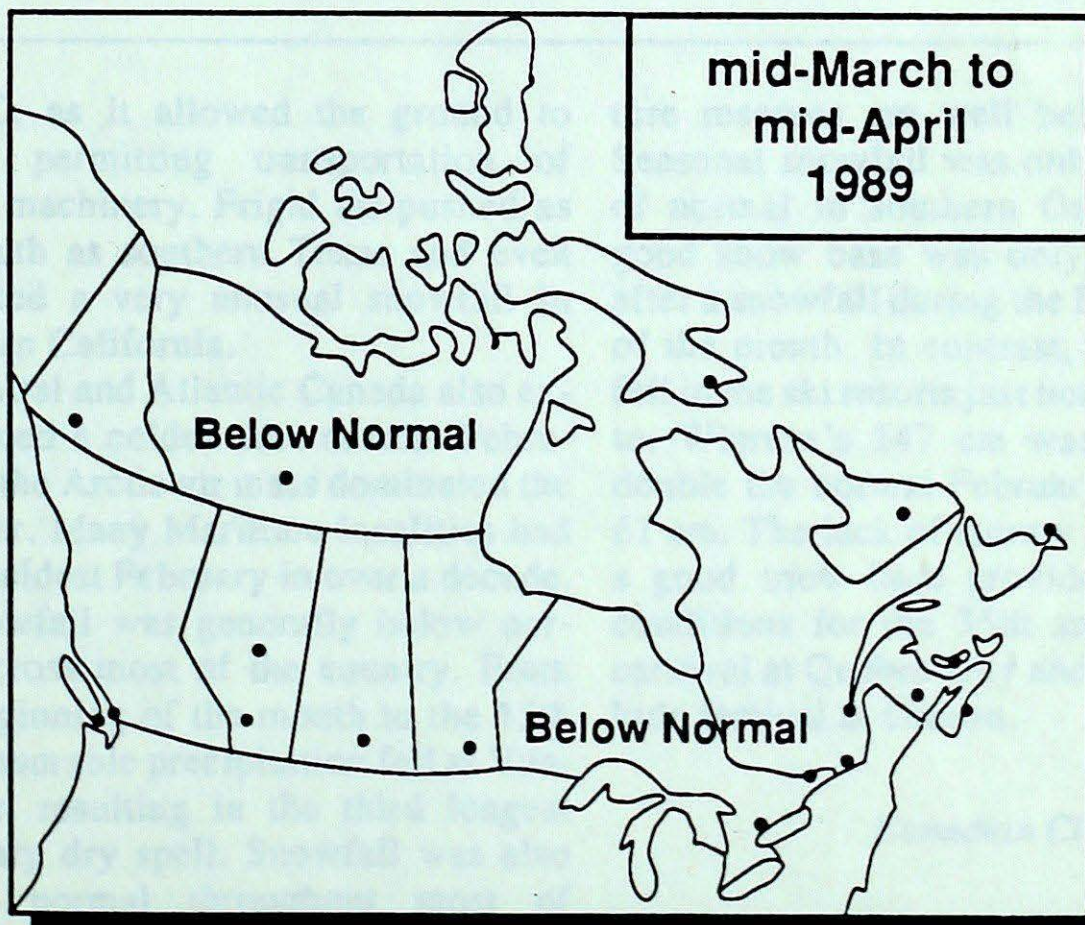
Environment Canada
Environnement Canada
Atmospheric Environment Service
Service de l'environnement atmosphérique

MONTHLY TEMPERATURE FORECAST

Normal temperatures for
mid-March to mid-April, °C

Whitehorse	-4	Toronto	3
Yellowknife	-13	Ottawa	1
Iqaluit	-19	Montreal	0
Vancouver	7	Quebec	-1
Victoria	7	Fredericton	1
Calgary	-1	Halifax	2
Edmonton	-1	Charlottetown	0
Regina	-2	Goose Bay	-5
Winnipeg	-2	St. John's	-1

mid-March to
mid-April
1989



Canada