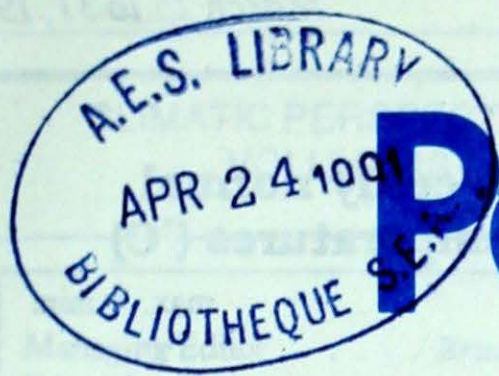




# Climatic Perspectives



Archives

Ref 1

March 25 to 31, 1991

A weekly review of Canadian climate and water

Vol.13 No.13

## Very strong winds and thunderstorms buffet Ontario and Quebec.

*An intense spring storm emerged from the American mid-west and moved across Ontario and into northern Quebec on March 27 and 28. The disturbance was associated with an intense circulation and strongly contrasting air masses, which clashed along the frontal boundaries triggering some severe weather.*

Record high winds of more than 100 km/h were recorded in southern Ontario during the evening of the 27th. Heavy showers and thunderstorms, which developed along well defined frontal zones, produced 20 to 50 millimetres of rain and winds gusting in excess of 150 km/h. Sarnia may have been the hardest hit area, where winds were clocked gusting to 159 km/h, surpassing the old record of 109 km/h, set in December 1980. But this is still shy of the all-time Ontario peak wind speed record of 161 km/h set at Rockcliffe Airport (Ottawa) May 11, 1959.

As the storm moved across southern and central Ontario it left a trail of damage. There have been reports of possible tornadoes, but as yet none have been confirmed. In Sarnia, the roofs of a shopping mall and apartment building were blown off. In Belleville and Owen Sound, east and north of Toronto, respectively, marinas storing boats over the winter received costly damage. In central Ontario thousands were without power for up to three days as trees knocked down power lines. Damage in the province because of the winds is estimated in the millions; fortunately there were no serious injuries. The strong gusty winds moved into

Quebec shortly after, knocking down signs, damaging roofing and triggering power failures in the Montreal area.

In the vicinity of, and to the north of the storm track, heavy snow was reported in northeastern Ontario and northern Quebec. Snowfalls between 20 and 35 centimetres were common. Strong winds and subfreezing temperatures produced dangerous windchills and blizzards.

### Flood alert in Quebec's Eastern Townships

The combination of melting snow, rain and ice have been attributed to the 1 1/2 to 2 metre rise of the Bécancour River near Bécancour. To the east on the Chaudière River, some residents of Beauceville, have had to leave their homes and a bridge was closed to traffic. Flooding on north-flowing streams in this region is a common spectacle every spring. A flood watch is in effect, but if little or no rain materialises in the next few days water levels should drop.

### A look ahead ...

The persistence of a high pressure area over central Canada should translate, for the week of April 8, into mostly sunny skies and normal to above normal temperatures for the provinces to the west of Quebec. For the same week, eastern Quebec and the Atlantic provinces can expect cooler than normal temperatures.

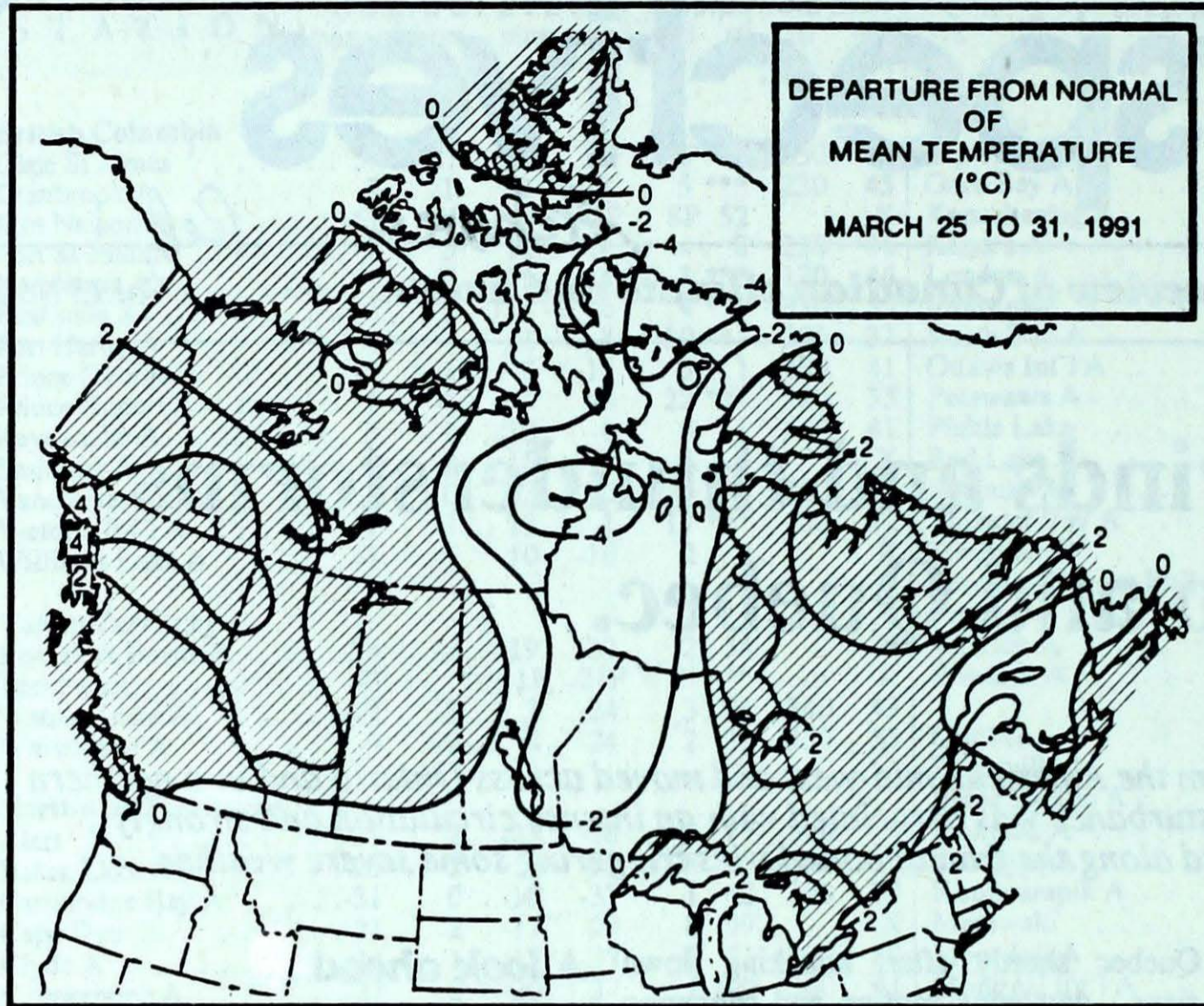
### Reported peak wind speeds

March 27 & 28, 1991

Location	wind speed	established record	date
Sarnia, Ont.	159 km/h	109 km/h	Dec. 1980
London, Ont.	100 km/h	128 km/h	Jan. 1978
Hamilton, Ont.	106 km/h	133 km/h	Jan. 1978
St. Catharines, Ont.	98 km/h	137 km/h	Jan. 1978
Petawawa, Ont.	95 km/h	111 km/h	July 1982
Toronto, Ont.	93 km/h	134 km/h	July 1956
St. Hubert, Que.	102 km/h	130 km/h	Nov. 1975

The peak wind speed at Sarnia was only 2 km shy of tying Ontario's all-time peak winds speed record of 161 km/h, set at Rockcliffe, May 11, 1959.





DEPARTURE FROM NORMAL OF MEAN TEMPERATURE (°C) MARCH 25 TO 31, 1991

**Weekly normal temperatures (°C)**  
max. min.

Whitehorse A	1.5	-10.1
Iqaluit A	-15.1	-25.2
Yellowknife A	-8.5	-20.8
Vancouver Int'l A	10.7	3.3
Victoria Int'l A	10.9	2.7
Calgary Int'l A	4.5	-6.6
Edmonton Int'l A	1.7	-9.3
Regina A	1.6	-8.9
Saskatoon A	1.0	-9.4
Winnipeg Int'l A	1.4	-8.6
Ottawa Int'l A	4.1	-4.9
Toronto (Pearson Int'l A)	5.9	-3.4
Montréal Int'l A	4.4	-4.1
Québec A	2.3	-6.3
Fredericton A	5.1	-4.8
Saint John A	4.1	-4.7
Halifax (Shearwater)	4.4	-2.7
Charlottetown A	2.5	-4.5
Goose A	-0.2	-10.6
St John's A	2.4	-3.8

**Weekly temperature and precipitation extremes**

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Hope A 22	Puntzi Mountain (aut) -20	Prince Rupert A 101
Yukon Territory	Watson Lake A 8	Komakuk Beach A -35	Shingle Point A 6
Northwest Territories	Fort Simpson A 8	Eureka -42	Iqaluit A 18
	Fort Smith A 8		
Alberta	Lethbridge A 19	Red Deer A -22	Medicine Hat A 14
Saskatchewan	Swift Current A 16	Uranium City A -32	Estevan A 25
Manitoba	Dauphin A 11	Lynn Lake A -29	Gimli 20
Ontario	Windsor A 19	Red Lake A -27	Wawa A 63
Québec	Montréal Int'l A 12	Inukjuak A -28	La Grande Rivière 32
New Brunswick	Chatham A 12	Moncton A -14	Charlo A 26
Nova Scotia	Greenwood A 11	Truro -10	Sable Island 32
Prince Edward Island	Charlottetown A 10	Charlottetown A -9	Charlottetown A 11
Newfoundland	St John's A 12	Wabush Lake A -24	St John's A 35

**Across The Country...**

Highest Mean Temperature	Port Alberni A(BC) 9
Lowest Mean Temperature	Pond Inlet A(NWT) -33



CLIMATIC PERSPECTIVES  
VOLUME 13

Managing Editor . . . . . *Bruce Findlay*  
Editor-in-charge  
- weekly/monthly . . . . . *Andy Radomski*  
French version . . . . . *Alain Caillet*  
Data Manager . . . . . *M. Skarpathiotakis*  
Computer support . . . . . *Tommy Jang*  
Art Set-up . . . . . *K. Czaja*  
Translation . . . . . *D. Pokorn*  
Cartography . . . . . *T. Chivers*

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

☎ (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.

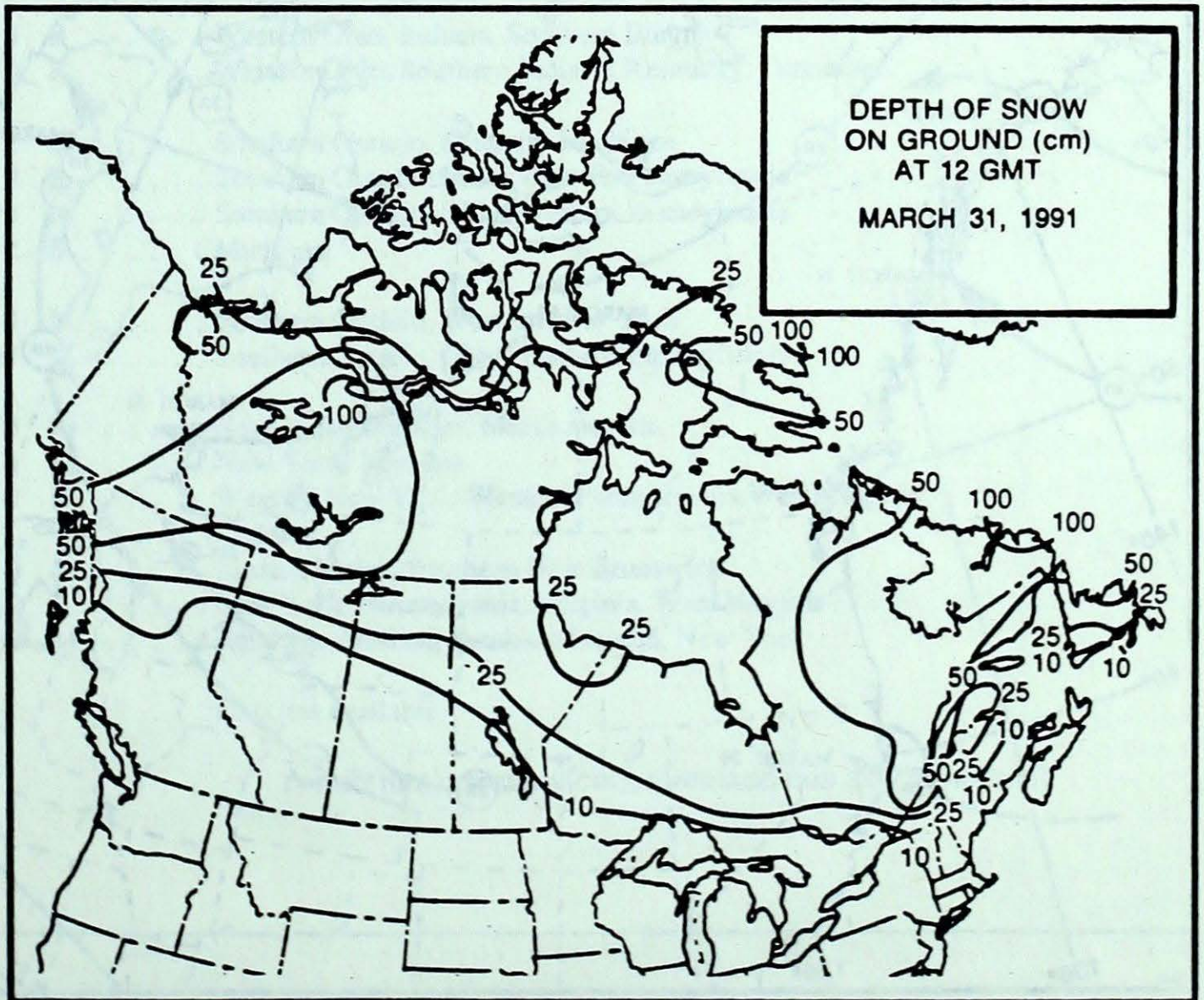
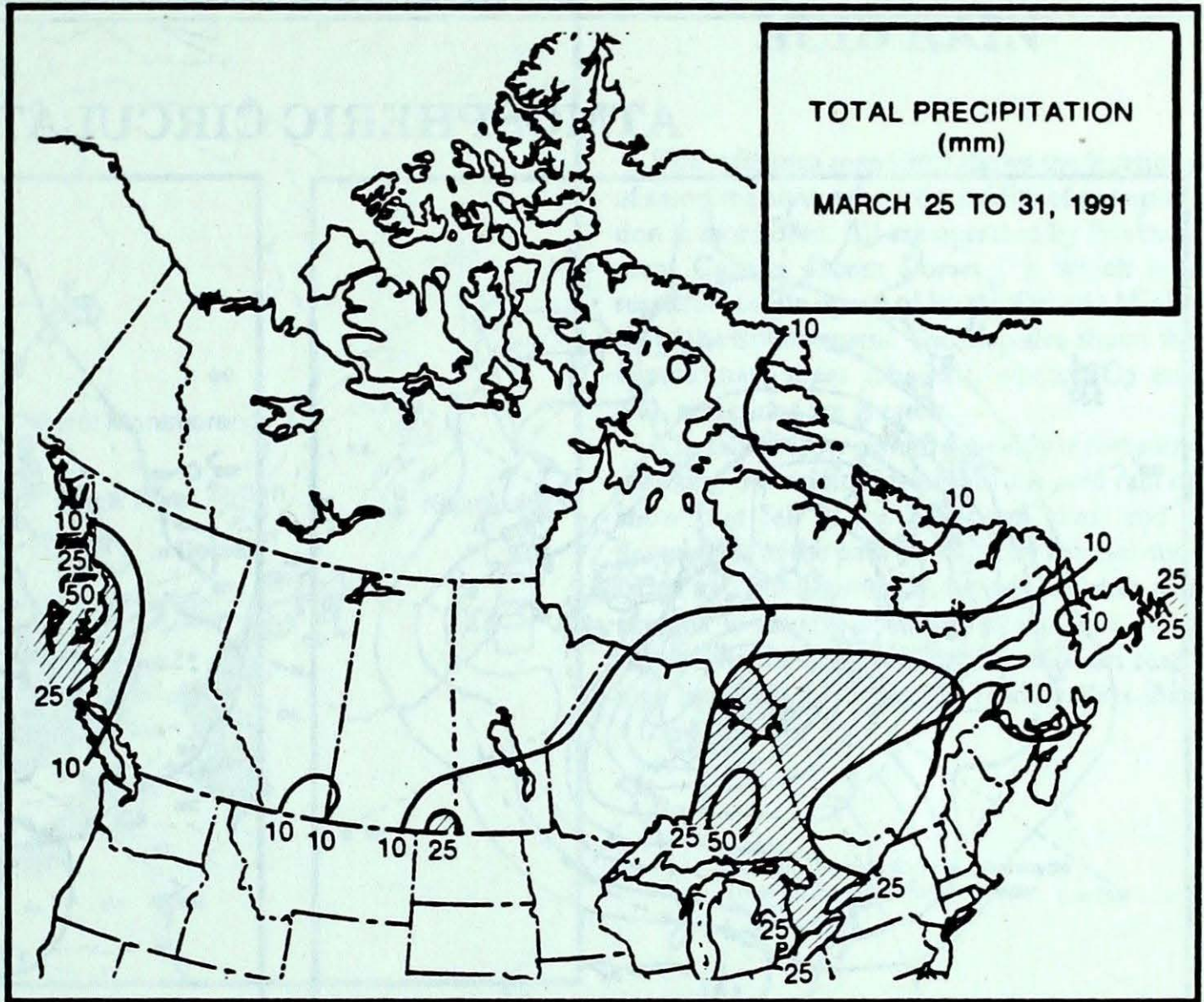
The data in this publication are based on unverified reports from approximately 225 Canadian synoptic weather stations. Information concerning climatic impacts is gathered from AES contacts with the public and from the media. Articles do not necessarily reflect the views of the Atmospheric Environment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

Annual Subscriptions

weekly and monthly : . . . . . \$35.00  
foreign: . . . . . \$42.00  
monthly issue: . . . . . \$10.00  
foreign: . . . . . \$12.00

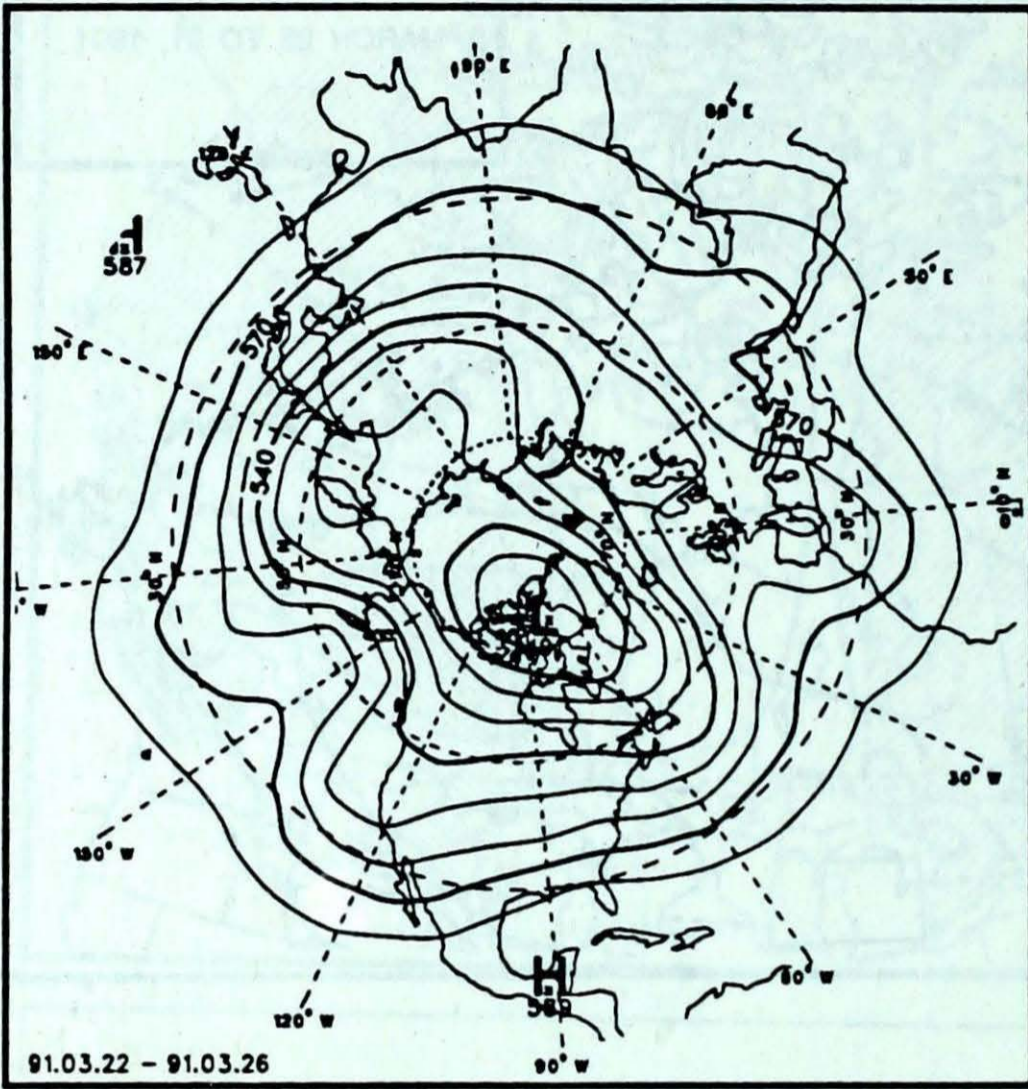
Orders must be prepaid by money order or cheque payable to Receiver General for Canada. Canadian Government Publishing Centre, Ottawa, Ontario, Canada K1A 0S9

☎ (819) 997-2560

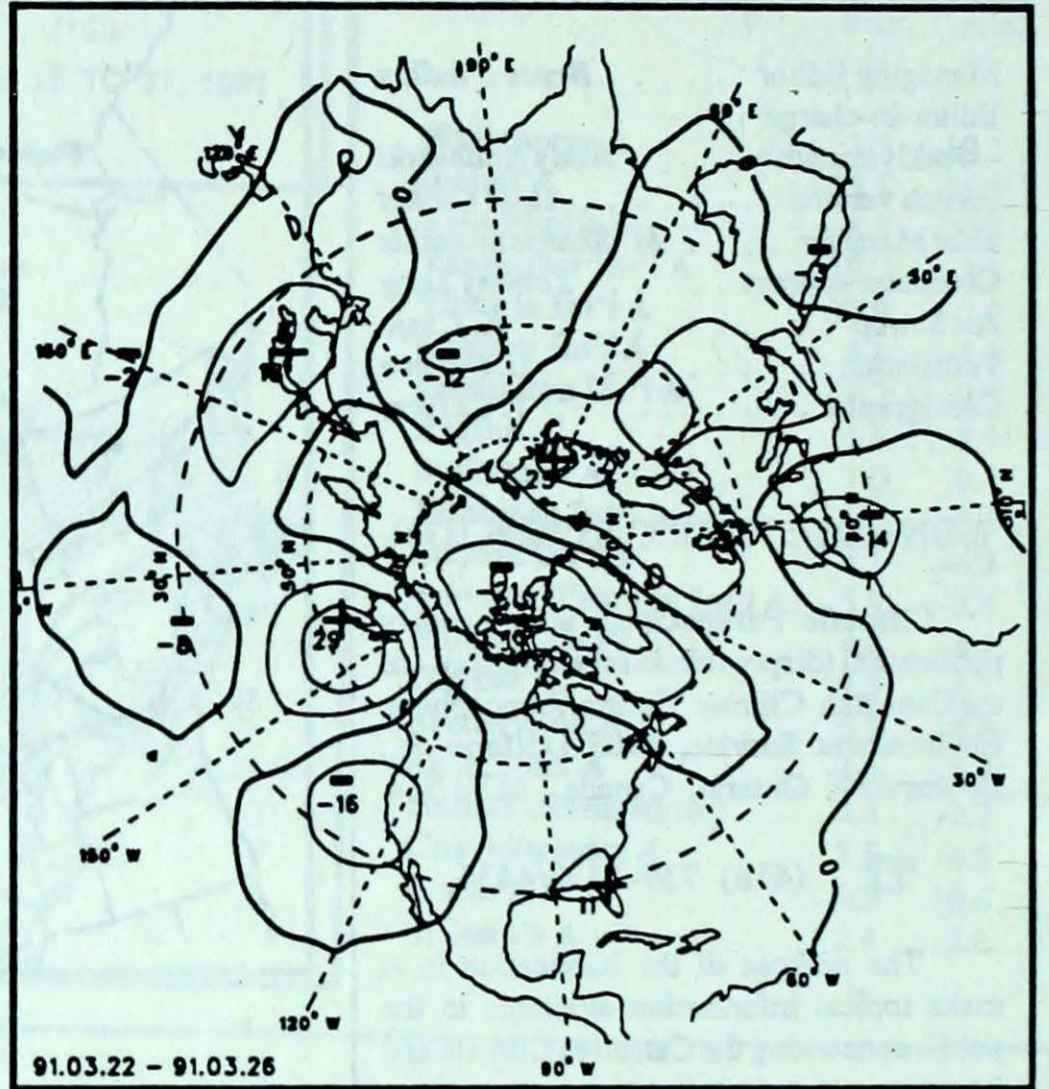




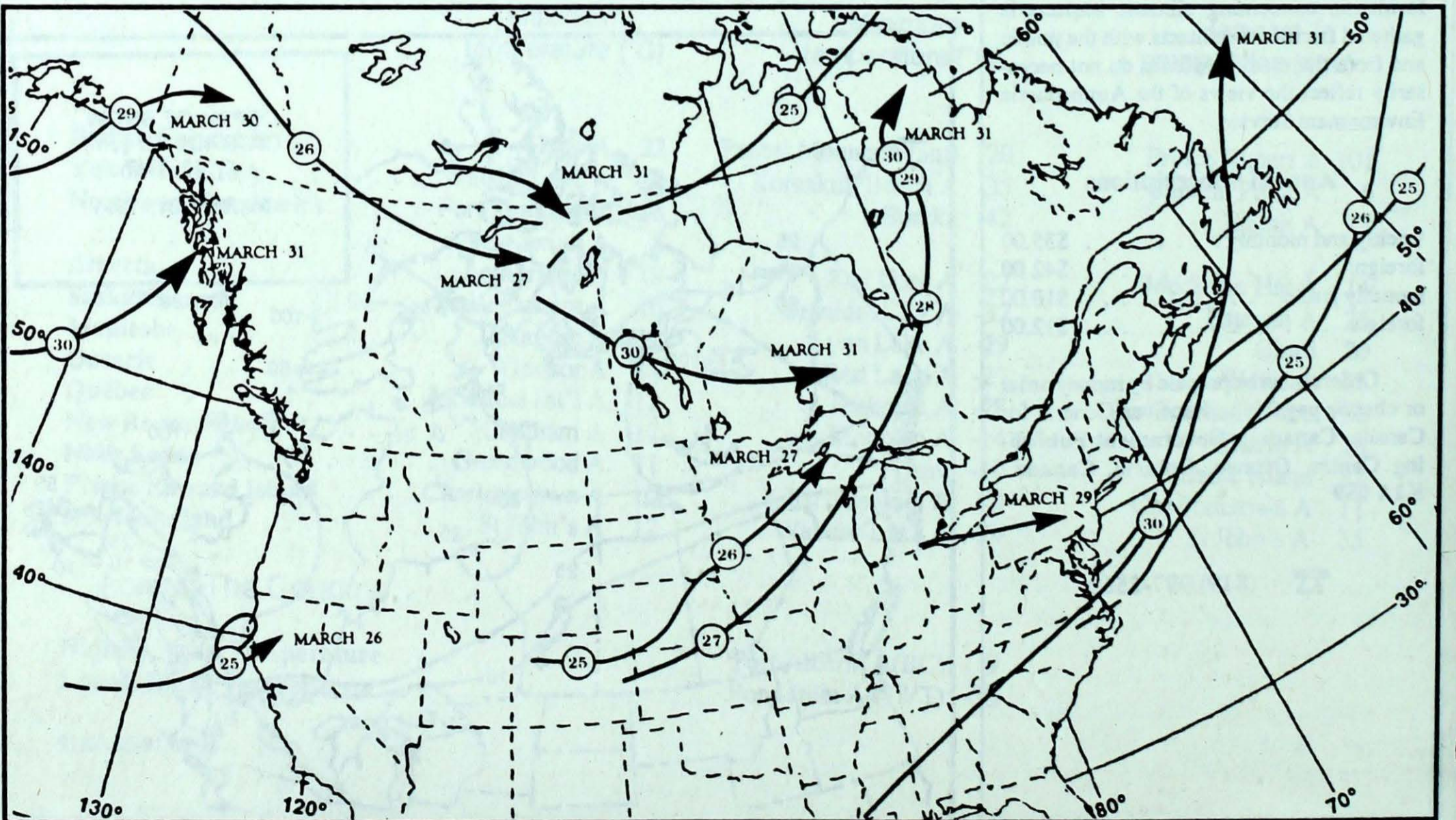
### ATMOSPHERIC CIRCULATION



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.



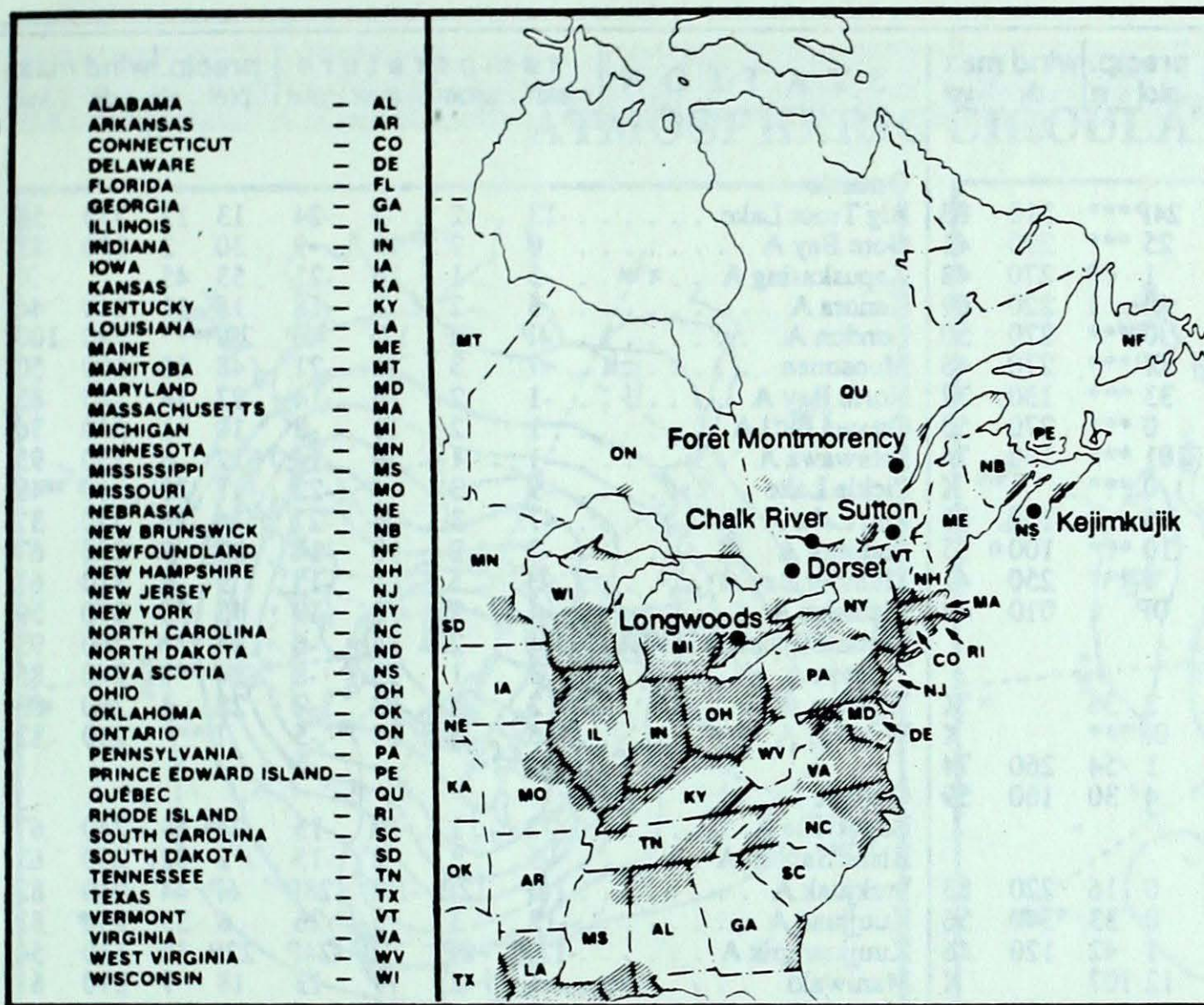
## ACID RAIN

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<sub>2</sub> and NO<sub>x</sub> 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.



Imprimé sur du papier recyclé  
Printed on recycled paper



Site	day	pH	amount	air path to site
				March 24 to 30, 1991
Longwoods	26	3.7	3 R	Western Ohio, Indiana, Southern Illinois
	27	3.9	10 R	Western Ohio, Southern Indiana, Kentucky, Tennessee.
Dorset*	24	4.1	2 M	Southern Ontario, Southern Michigan
	26	4.0	2 R	Southern Ontario, Ohio, Western Pennsylvania
	27	4.4	24 M	Southern Ontario, Ohio, Western Pennsylvania
	28	4.5	2 S	Michigan
Chalk River	24	4.2	1 M	Southern Ontario, Western New York
	27	4.2	21 R	Southern Ontario, Ohio, Western Pennsylvania
Sutton	24	5.0	7 M	New York, Vermont, Massachusetts
	25	4.5	1 M	New York, Vermont
	27	4.3	7 R	Western New York, Western Pennsylvania, West Virginia
Montmorency	24	4.6	2 S	Eastern Maine, Southern New Brunswick
	27	4.1	12 R	New York, Pennsylvania, Virginia, West Virginia
	28	4.7	6 M	Southern Quebec, Southern Ontario, New York
Kejimikujik				..... Data not available

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



STATION	temperature				precip. ptot st	wind max		STATION	temperature				precip. ptot st	wind max		
	mean	anom	max	min		dir	vel		mean	anom	max	min		dir	vel	
<b>British Columbia</b>								<b>Ontario</b>								
Cape St James	6P	1P	10P	4P	24P***	310	83	Big Trout Lake	-13	-2	-3	-24	13	12	350	56
Cranbrook A	0	-2	17	-14	25 ***	290	41	Gore Bay A	0	2	10	-9	30	2	290	83
Fort Nelson A	-1	4	10	-17	1 40	270	48	Kapusking A	-5	1	8	-21	53	45		X
Fort St John A	4P	7P	14P	-4P	0P 1	220	69	Kenora A	-5	-2	3	-18	15	11	210	44
Kamloops A	7	1	22	-6	0 ***	270	50	London A	4P	3P	17P	-6P	29P***	280	100	
Penticton A	5P	-1P	20P	-5P	0P***	270	46	Moosonee	-7	3	10	-21	48	50	290	50
Port Hardy A	6	1	13	-2	33 ***	130	37	North Bay A	-1	2	14	-14	27	14	240	85
Prince George A	2	1	15	-12	0 ***	270	50	Ottawa Int'l A	1	2	11	-8	10	1	240	76
Prince Rupert A	5	1	10	-5	101 ***	140	74	Petawawa A	-1	1	9	-14	12	6	250	95
Revelstoke A	3	1	17	-6	0 ***		X	Pickle Lake	-9	-3	4	-22	17	38	340	48
Smithers A	3	2	12	-8	5 1	180	63	Red Lake A	-7	-3	4	-27	16	16	330	37
Vancouver Int'l A	7	0	14	0	10 ***	100	35	Sudbury A	-2	2	10	-14	32	9	250	67
Victoria Int'l A	7	0	15	-1	4 ***	250	41	Thunder Bay A	-3	1	9	-15	9	2	310	61
Williams Lake A	1P	1P	16P	-15P	0P 1	010	44	Timmins A	-4	2	8	-19	45	55	310	59
<b>Yukon Territory</b>								<b>Toronto (Pearson Int'l A)</b>								
Komakuk Beach A	-25	0	-17	-35	2 36		X	Trenton A	3	1	13	-8	24 ***	240	85	
Teslin (aut)	-2P	*	4P	-14P	0P***		X	Warton A	2	3	18	-7	28 1	260	89	
Watson Lake A	-1	7	8	-13	1 54	260	74	Windsor A	6	3	19	-5	7 ***	230	82	
Whitehorse A	-1	4	6	-9	4 30	160	59	<b>Québec</b>								
<b>Northwest Territories</b>								Bagotville A								
Alert	-28	3	-21	-38	0 16	220	83	Blanc Sablon A	-5	*	2	-15	2 32	250	63	
Baker Lake A	-31	-6	-22	-39	0 33	340	56	Inukjuak A	-16P	2P	-10P	-28P	6P 44	040	82	
Cambridge Bay A	-28	1	-18	-39	1 42	120	46	Kuujuuaq A	-12	3	5	-26	6 33	250	61	
Cape Dyer A	-21	0	-10	-35	12 107		X	Kuujuarapik A	-12P	2P	1P	-24P	22P 30	310	54	
Clyde A	-30	-5	-24	-40	0 22	330	30	Maniwaki	-1	2	9	-13	18 7	210	61	
Coppermine A	-24	0	-11	-34	2 104	310	32	Mont Joli A	-3	-1	8	-15	13 41	160	76	
Coral Harbour A	-26P	-4P	-14P	-37P	2P 40	310	67	Montréal Int'l A	2	2	12	-8	12 ***	240	87	
Eureka	-30	6	-23	-42	0 7	160	59	Natashquan A	-5	-2	1	-15	22 45	230	57	
Fort Smith A	-10P	0P	8P	-27P	0P 57		X	Québec A	-1	1	8	-12	22 68	081	43	
Hall Beach A	-31	-4	-21	-39	0 34	340	41	Schefferville A	-7	5	3	-20	5 80	170	69	
Inuvik A	-21	2	-8	-34	11 54		X	Sept-Îles A	-6	-2	4	-16	20 54	230	33	
Iqaluit A	-19	2	-4	-36	18 49	070	50	Sherbrooke A	1	2	12	-11	12 1	270	57	
Mould Bay A	-31P	-1P	-25P	-42P	1P 18	260	48	Val-d'Or A	-4	1	9	-19	23 34	220	83	
Norman Wells A	-14	2	-4	-27	3 32	120	52	<b>New Brunswick</b>								
Resolute A	-30	-1	-18	-41	3 12	180	39	Charlo A	-3	0	6	-13	26 44	290	56	
Yellowknife A	-14	1	0	-30	1 55	150	43	Chatham A	-1	0	12	-14	14 3	220	52	
<b>Alberta</b>								Fredericton A								
Calgary Int'l A	0	1	16	-14	4 ***	280	57	Moncton A	-1	-1	10	-14	8 3	180	80	
Cold Lake A	-2	2	16	-16	1 2	300	43	Saint John A	0	0	9	-9	14 1	200	52	
Edmonton Namao A	1	3	16	-12	0 1	290	52	<b>Nova Scotia</b>								
Fort McMurray A	-4	1	15	-19	1 9	270	56	Greenwood A	1	0	11	-9	21 5	160	82	
High Level A	-5	2	10	-19	0 28	300	46	Shearwater A	2	1	9	-5	24 1	350	44	
Jasper	0	0	14	-19	0 1		X	Sydney A	1	1	11	-7	24 ***	360	56	
Lethbridge A	0	-1	19	-19	7 ***	260	78	Yarmouth A	3	1	9	-4	30 ***	150	65	
Medicine Hat A	0	-1	18	-19	14 ***	270	37	<b>Prince Edward Island</b>								
Peace River A	-1	4	15	-13	1 1	250	54	Charlottetown A	-1	0	10	-9	11 6	150	59	
<b>Saskatchewan</b>								Summerside A								
Cree Lake	-8P	3P	7P	-23P	2P 41	300	44	-1	0	9	-8	6 3	150	63		
Estevan A	-8	-6	10	-26	25 9	070	41	<b>Newfoundland</b>								
La Ronge A	-5	3	11	-21	1 3	300	48	Cartwright	-3	2	11	-15	0 214	280	63	
Regina A	-3	0	14	-22	9 ***	320	70	Churchill Falls A	*		5	*	* *	130	72	
Saskatoon A	-1	3	16	-10	1 ***	280	41	Gander Int'l A	-2	0	6	-11	9 4	280	56	
Swift Current A	-3	0	16	-18	11 1	300	59	Goose A	-3	2	11	-15	0 60	260	72	
Yorkton A	-6	-1	10	-19	4 17	190	41	Port Aux Basques	0	1	7	-5	10 2	300	74	
<b>Manitoba</b>								St John's A								
Brandon A	-8	-4	8	-25	19 6	040	61	1	2	12	-5	35 1	240	69		
Churchill A	-19	-2	-13	-27	0 16	290	59	St Lawrence	1P	1P	7P	-7P	15P***		X	
Lynn Lake A	-11	2	3	-29	2 12	300	41	Wabush Lake A	-7	2	6	-24	11 47	150	50	
The Pas A	-8	-1	8	-21	0 1	200	35	91/03/25-91/03/31								
Thompson A	-13	-2	0	-27	1 45	190	37									
Winnipeg Int'l A	-6	-3	6	-22	17 5	310	59									

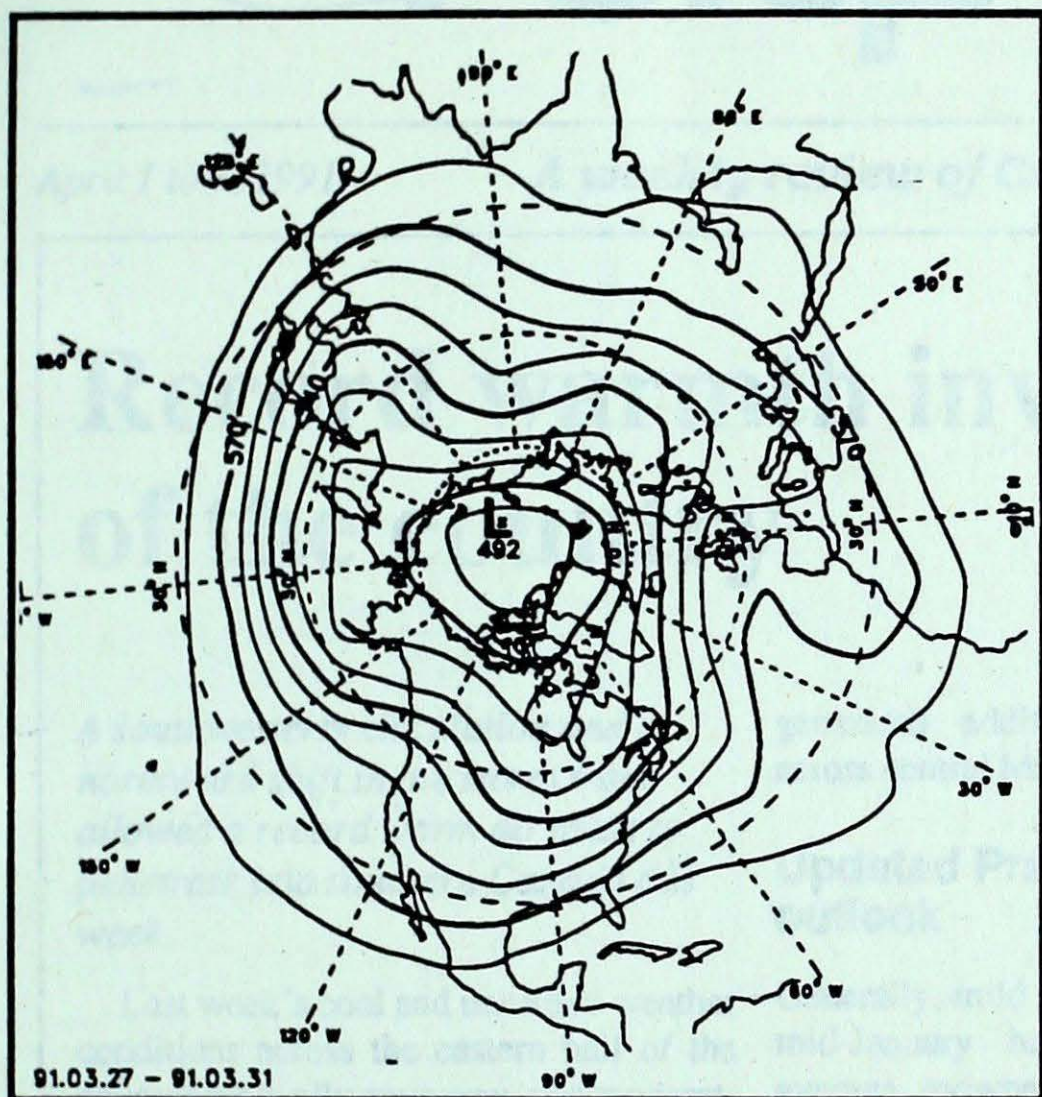
mean = mean weekly temperature, °C  
 max = maximum weekly temperature, °C  
 min = minimum weekly temperature, °C  
 anom = mean temperature anomaly, °C

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

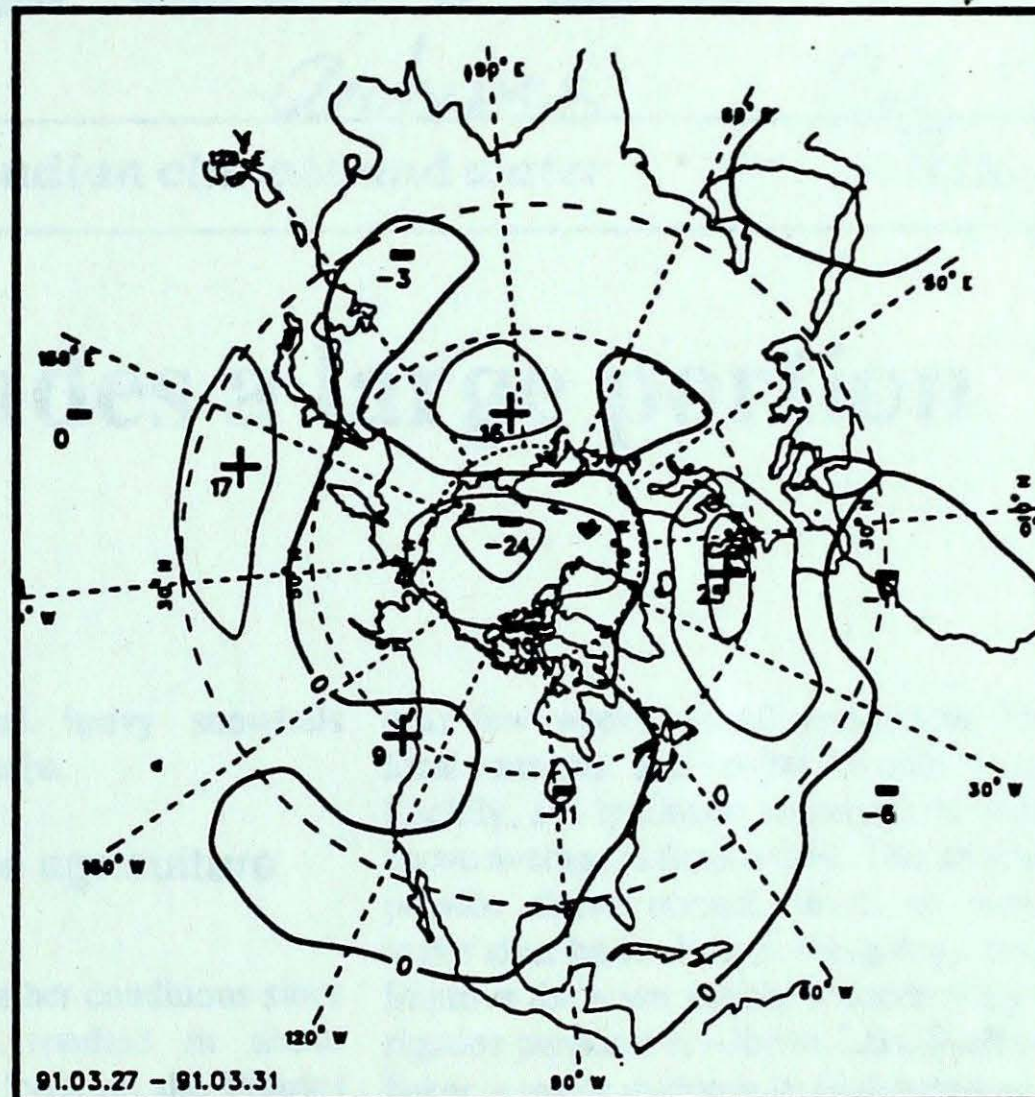
— Annotations —  
 X = no observation  
 P = less than 7 days of data  
 \* = missing data when going to printing.



### ATMOSPHERIC CIRCULATION



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



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



Environnement  
Canada

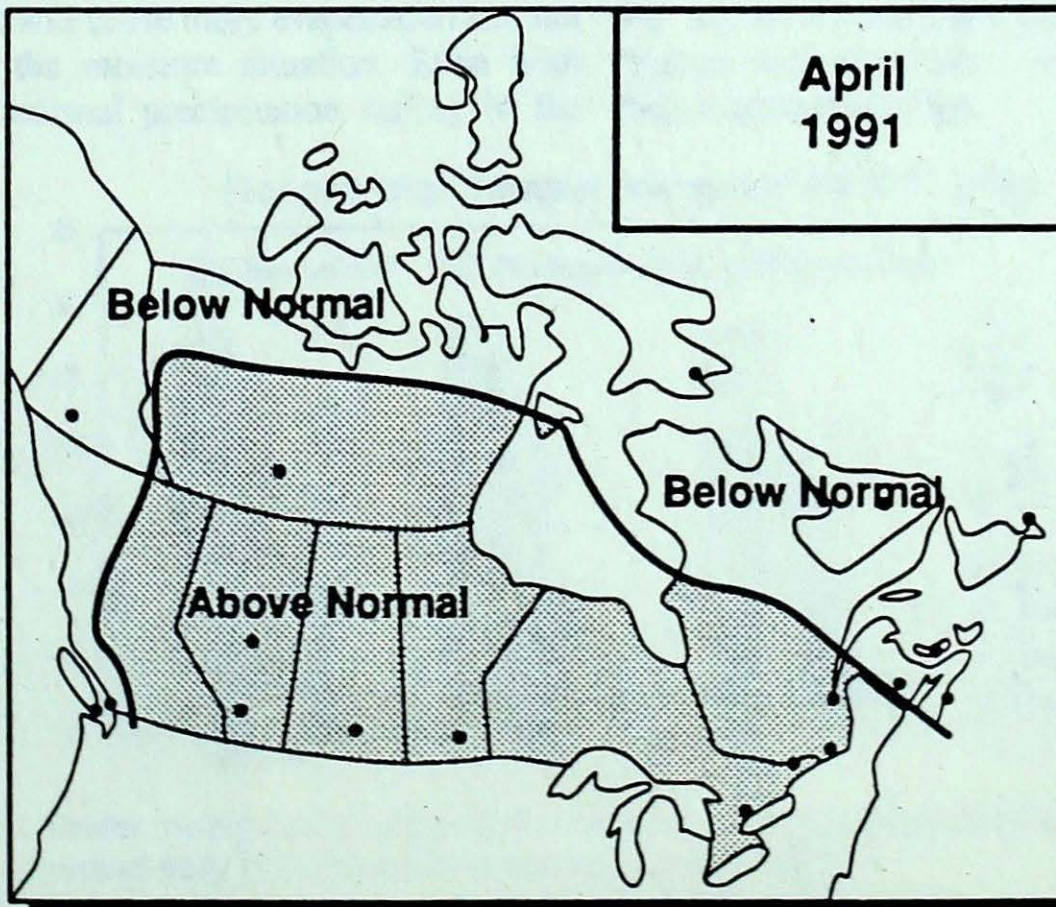
Service  
de l'environnement  
atmosphérique

### MONTHLY TEMPERATURE FORECAST

Normal temperatures for  
the month of April, °C

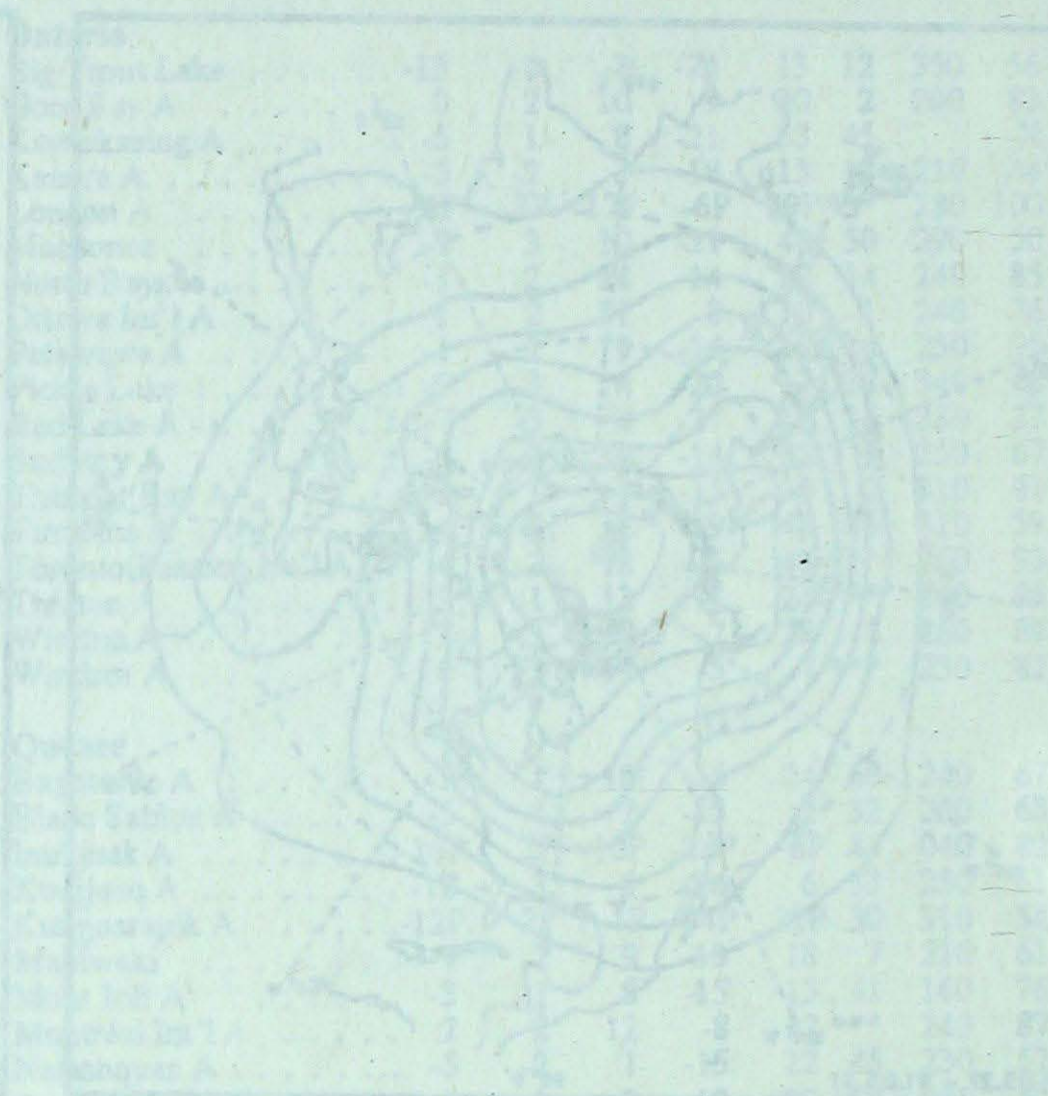
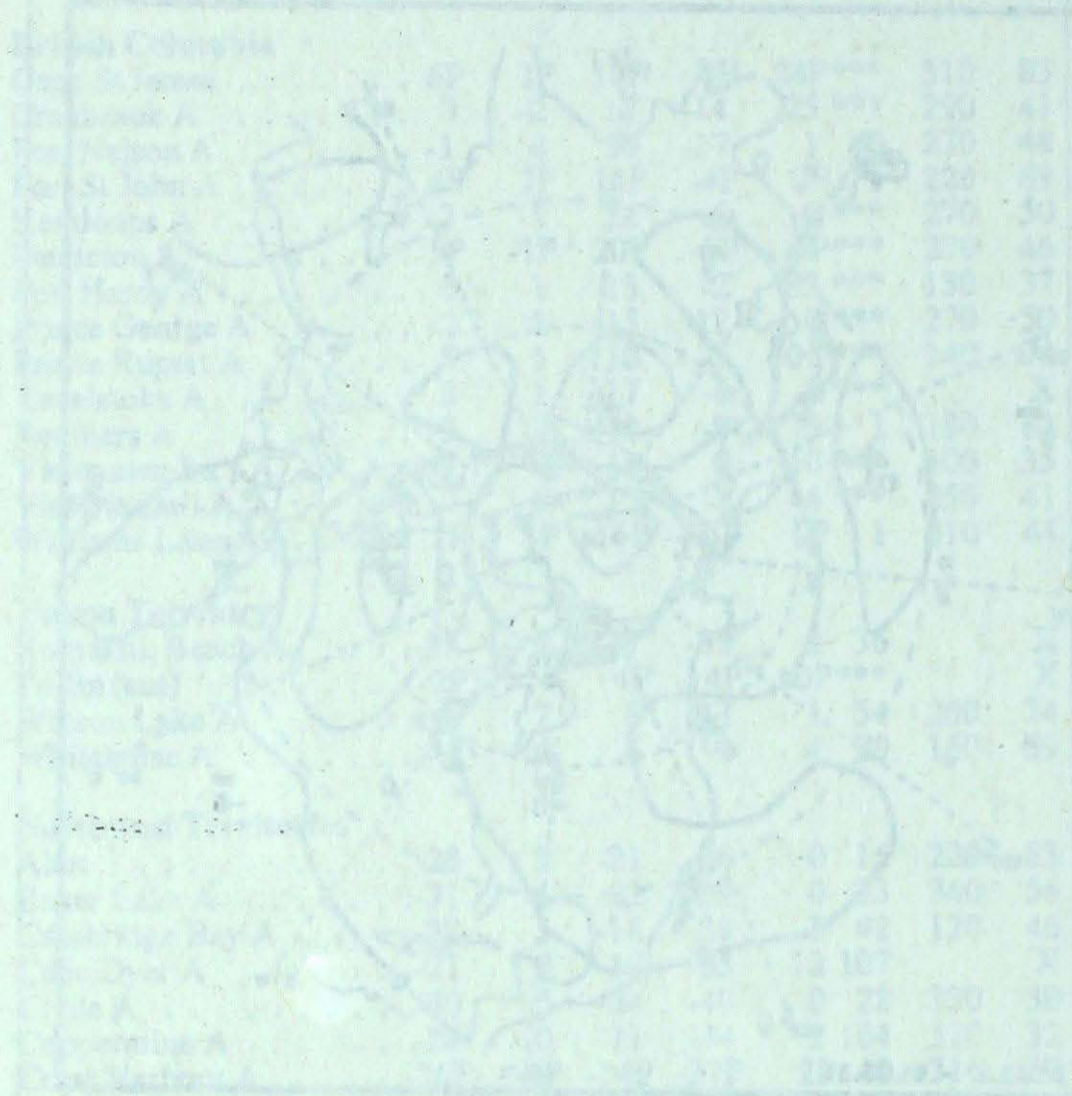
Whitehorse	0	Toronto	6
Yellowknife	-7	Ottawa	6
Iqaluit	-14	Montréal	6
Vancouver	9	Québec	3
Victoria	8	Fredericton	4
Calgary	3	Halifax	4
Edmonton	4	Charlottetown	2
Regina	3	Goose Bay	-2
Winnipeg	3	St. John's	1

Canada





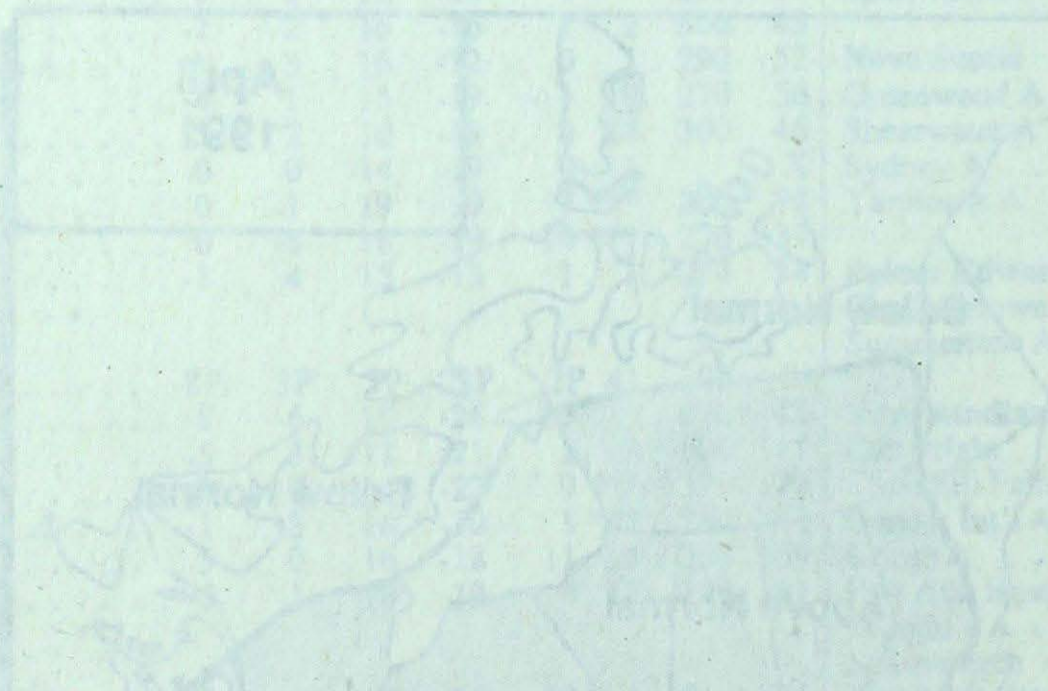
# ATMOSPHERIC CIRCULATION



Station	Mean monthly precipitation (mm)	Mean monthly snowfall (cm)
St. John's	102	10
Halifax	102	10
Moncton	102	10
Quebec	102	10
Ottawa	102	10
Windsor	102	10
Chicago	102	10
St. Louis	102	10
Denver	102	10
Phoenix	102	10
Los Angeles	102	10
San Francisco	102	10
Seattle	102	10
Portland	102	10
San Diego	102	10
Las Vegas	102	10
Phoenix	102	10
Los Angeles	102	10
San Francisco	102	10
Seattle	102	10
Portland	102	10
San Diego	102	10
Las Vegas	102	10

Station	Mean monthly precipitation (mm)	Mean monthly snowfall (cm)
St. John's	102	10
Halifax	102	10
Moncton	102	10
Quebec	102	10
Ottawa	102	10
Windsor	102	10
Chicago	102	10
St. Louis	102	10
Denver	102	10
Phoenix	102	10
Los Angeles	102	10
San Francisco	102	10
Seattle	102	10
Portland	102	10
San Diego	102	10
Las Vegas	102	10
Phoenix	102	10
Los Angeles	102	10
San Francisco	102	10
Seattle	102	10
Portland	102	10
San Diego	102	10
Las Vegas	102	10

# MONTHLY TEMPERATURE FORECAST



Station	Normal temperature for the month of April (°C)
St. John's	4.0
Halifax	4.0
Moncton	4.0
Quebec	4.0
Ottawa	4.0
Windsor	4.0
Chicago	4.0
St. Louis	4.0
Denver	4.0
Phoenix	4.0
Los Angeles	4.0
San Francisco	4.0
Seattle	4.0
Portland	4.0
San Diego	4.0
Las Vegas	4.0
Phoenix	4.0
Los Angeles	4.0
San Francisco	4.0
Seattle	4.0
Portland	4.0
San Diego	4.0
Las Vegas	4.0

Environment Canada Environnement

CLIMATIC PERSPECTIVES

Vol: 13 No: 13 Date: 910325

OTM

ARCH-

1005959D  
REF 1

