



# Climatic Perspectives



Archives

Ref 1

May 13 to 19, 1991

A weekly review of Canadian climate and water

Vol.13 No.20

## Prairie severe weather season begins

*During the spring season precipitation on the Prairies becomes more convective in nature, and with this change, occurrences of severe weather become more frequent.*

There have been a number of reports of severe weather related to thunderstorm activity in the last couple of weeks. On May 10, 35 to 50 millimetres of hail fell in a 15 minute period at Macoun, Sask. The same day, there were reports of heavy downpours and intense lightening at Bissett, Man. On May 12, small hail and damaging winds, gusting to nearly 100 km/h, were observed near Regina and Wapella, Sask. and at Melita and Belmont, Man. At Indian Head, Sask., very heavy rain flooded fields.

with many low level sites now free of snow. However, at a number of high elevations there has been an increase in water equivalent during the last two weeks. The upper Fraser River and the Peace River snowpacks still remain well above normal for this date. Likewise, the Similkameen River basin snowpack has increased from 161 to 172 percent of normal. Runoff is increasing, and the possibility of flooding, especially in unregulated streams and rivers, remains.

record low minimum temperatures. Although official damage estimates are not available just yet, growers have reported noticeable losses. In some orchards more than half the apple trees have been damaged by the frost; there is also damage to pears, plums and other soft fruit varieties. Although such crop damage is rare, a freeze to this extent is not unheard of, and can occur once every five or six years.

### Frost hits Nova Scotia's orchards

Blooming Annapolis Valley orchards succumbed to frost over the weekend, when the mercury dipped to -4°C at a few sites on the morning of the 19th, setting new

### A look ahead ...

With the persistence of a southerly air flow for the week of May 27, southern Canada should experience above normal temperatures. In contrast, readings in the Yukon and the Northwest Territories will be lower than normal.

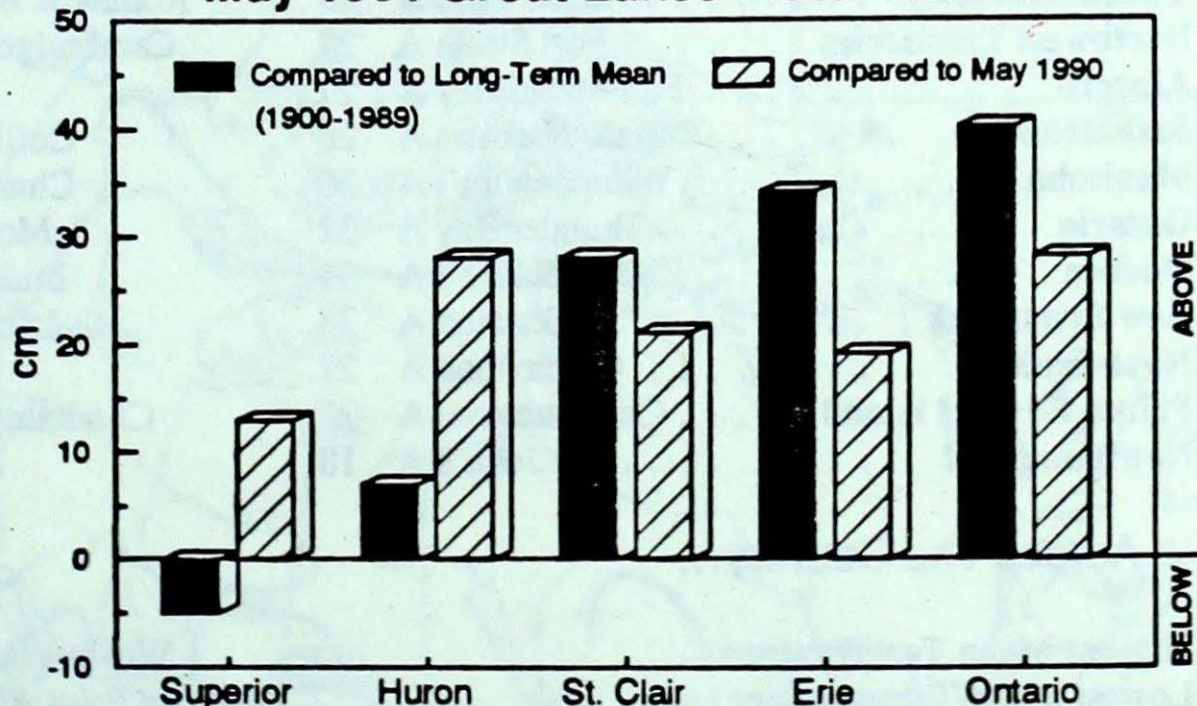
### Great Lakes water levels

The monthly mean levels of all the Great Lakes are well above the levels recorded one year earlier. Water supply and out-flow conditions resulted in a near average April rise in the levels of Lakes St. Clair and Ontario, but Lakes Superior and Huron rose more than average during the month. Currently, the level of Lake Superior is below its long term mean level for the month, while the levels of the other Lakes remain above the long-term average.

### Rocky Mountain snowpack

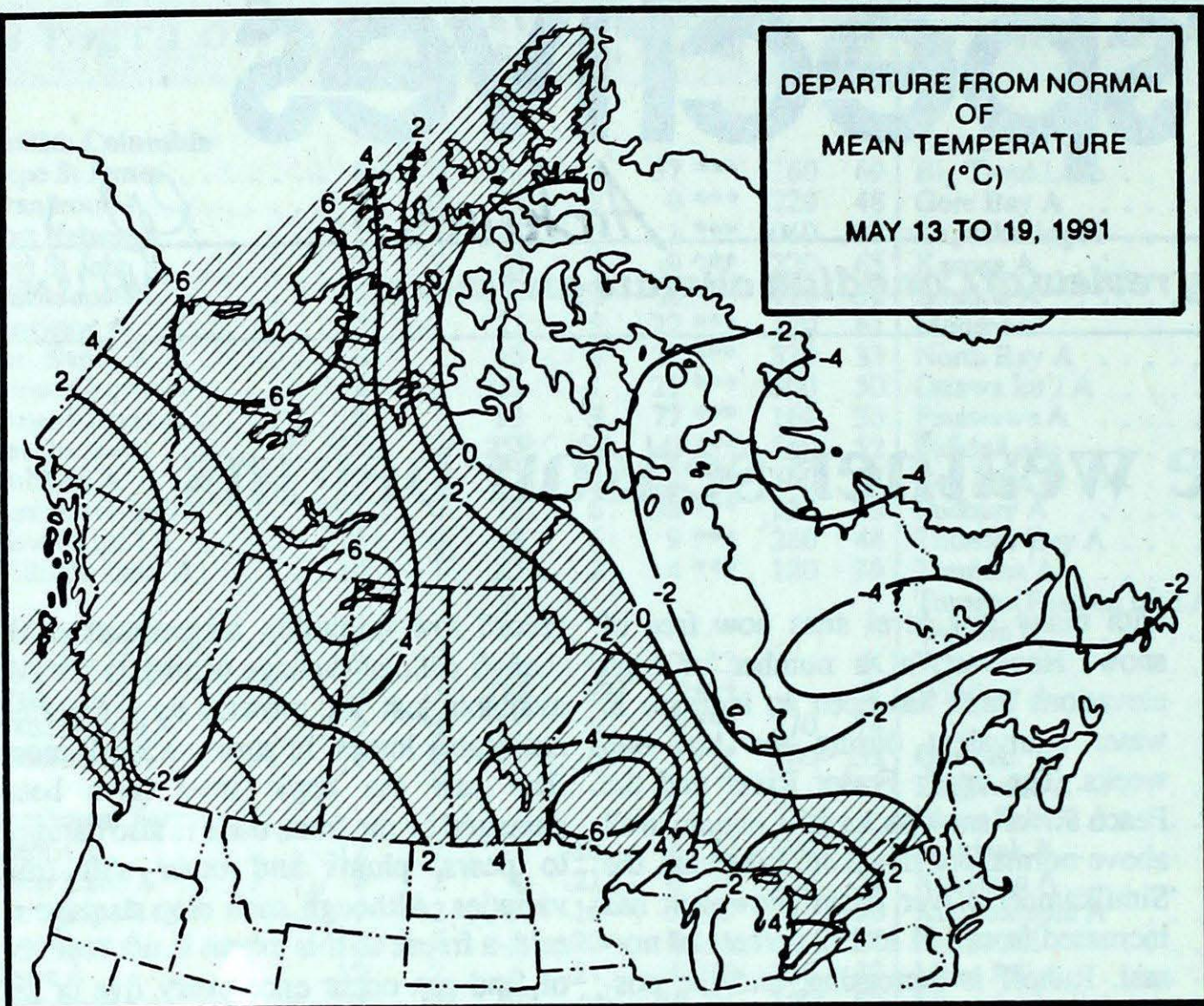
The latest snow surveys show snowmelt underway at lower and middle elevations,

May 1991 Great Lakes Water Levels



Great Lakes water levels are significantly higher than they were last year, and except for Lake Superior remain above the long-term (1900 - 1989) average.





**Weekly normal temperatures (°C)**

	max.	min.
Whitehorse A	13.0	0.8
Iqaluit A	0.2	-6.3
Yellowknife A	10.6	0.2
Vancouver Int'l A	16.9	7.9
Victoria Int'l A	16.9	6.8
Calgary Int'l A	16.6	2.9
Edmonton Int'l A	17.4	2.4
Regina A	19.0	4.0
Saskatoon A	18.5	4.1
Winnipeg Int'l A	18.5	4.6
Ottawa Int'l A	18.9	7.3
Toronto (Pearson Int'l A)	18.9	6.5
Montréal Int'l A	19.0	7.7
Québec A	17.4	5.3
Fredericton A	17.6	4.9
Saint John A	14.6	4.1
Hallifax (Shearwater)	13.5	4.5
Charlottetown A	14.0	3.9
Goose A	11.0	0.2
St John's A	10.3	1.3

**Weekly temperature and precipitation extremes**

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Kamloops A 30	Cranbrook A -7	Estevan Point (aut) 35
Yukon Territory	Watson Lake A 19	Komakuk Beach A -9	Watson Lake A 19
Northwest Territories	Fort Smith A 27	Cambridge Bay A -22	Fort Simpson A 13
Alberta	Fort McMurray A 27	Jasper -2	Edmonton Municipal A 62
Saskatchewan	Buffalo Narrows A 26	Collins Bay -1	Meadow Lake A 26
Manitoba	Winnipeg Int'l A 30	Churchill A -7	Norway House A 20
Ontario	Thunder Bay A 32	Moosonee -9	Windsor A 49
Québec	Montréal Int'l A 31	Inukjuak A -10	Bagotville A 18
New Brunswick	Fredericton A 28	St-Léonard A -4	Charlo A 6
Nova Scotia	Greenwood A 27	Truro -4	Sable Island 17
Prince Edward Island	Charlottetown A 22	Charlottetown A -3	Summerside A 3
Newfoundland	St John's A 18	Nain A -10	Gander Int'l A 33

**Across The Country...**

Highest Mean Temperature	Windsor A(ONT) 21
Lowest Mean Temperature	Gladman Point A(NWT) -12



CLIMATIC PERSPECTIVES  
VOLUME 13

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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.

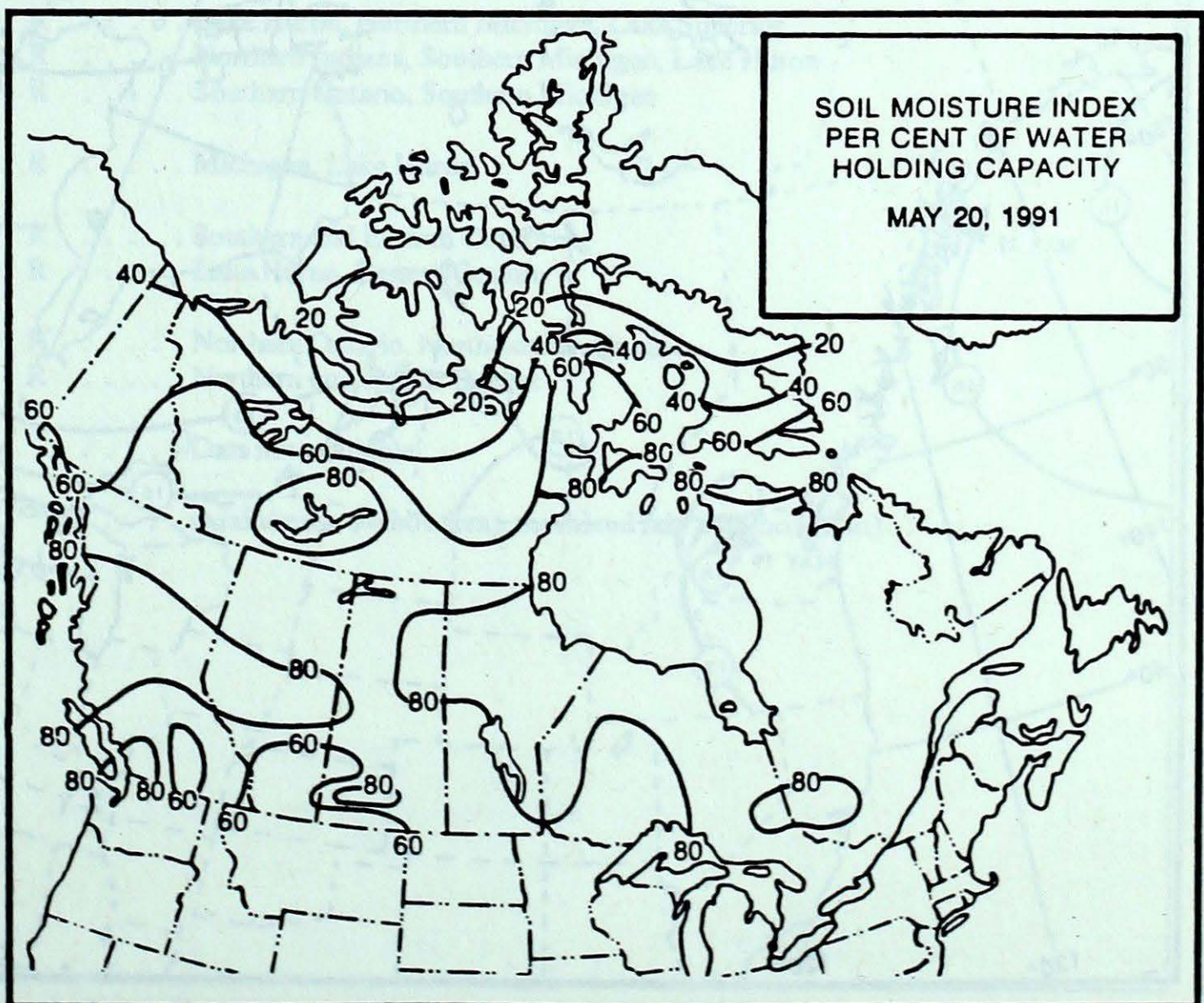
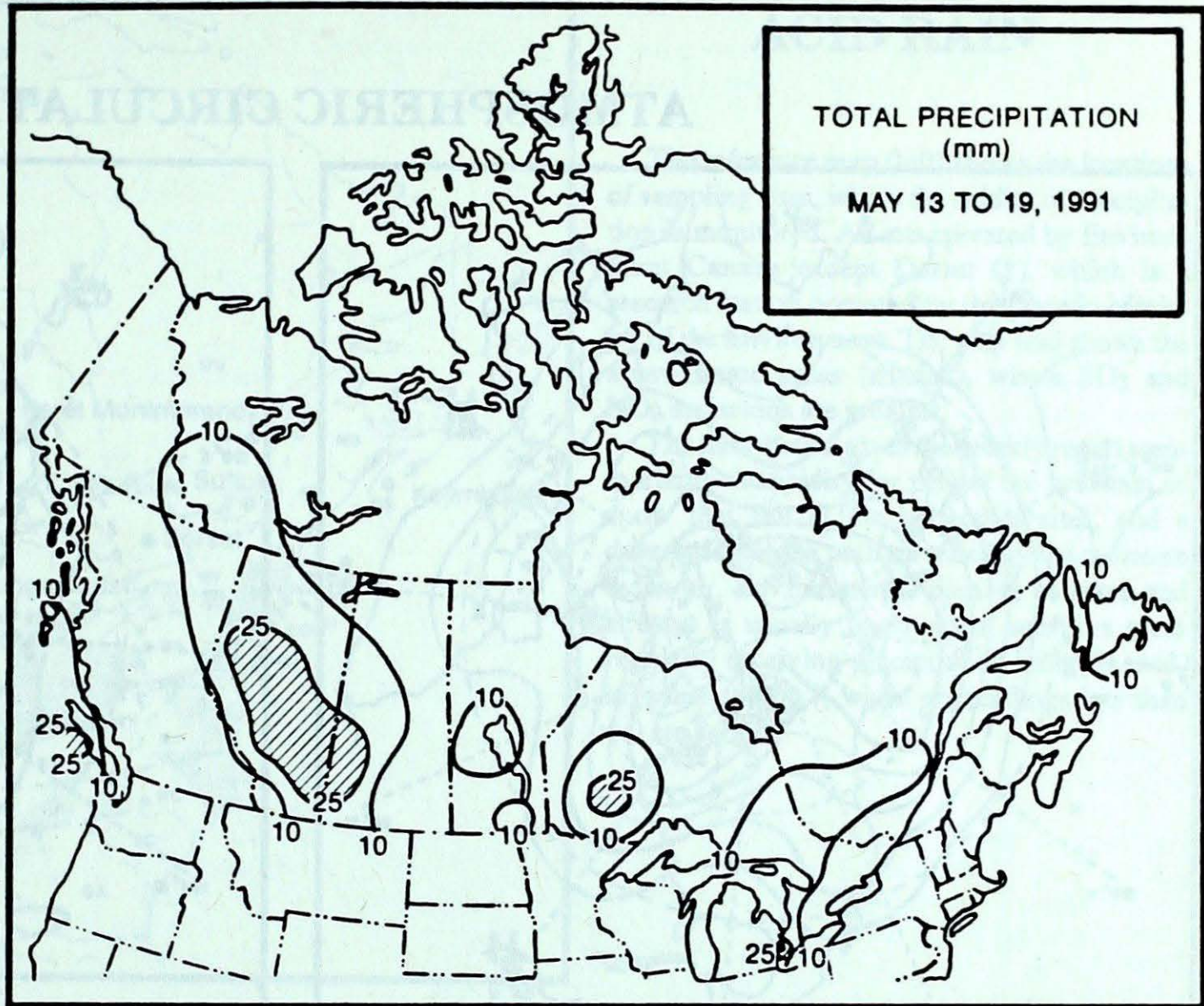
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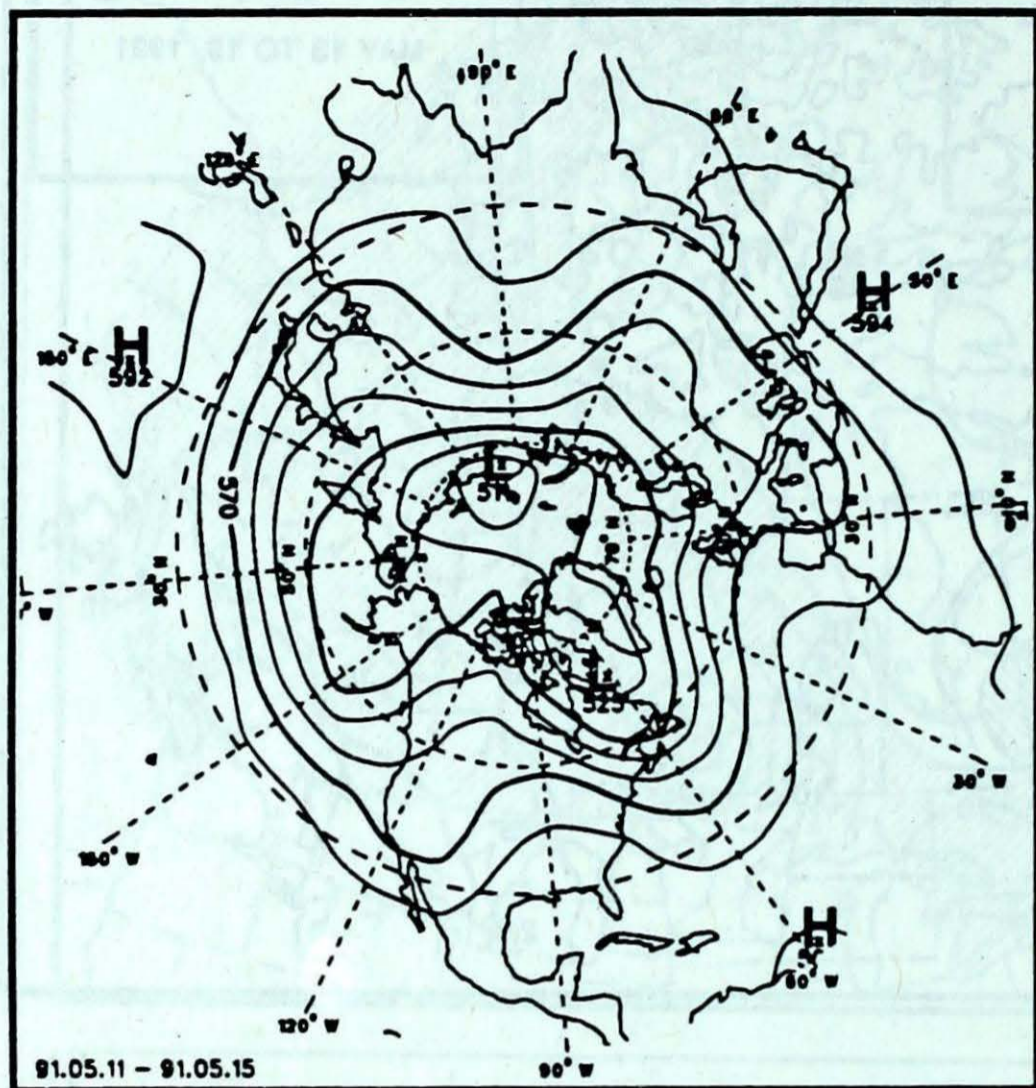
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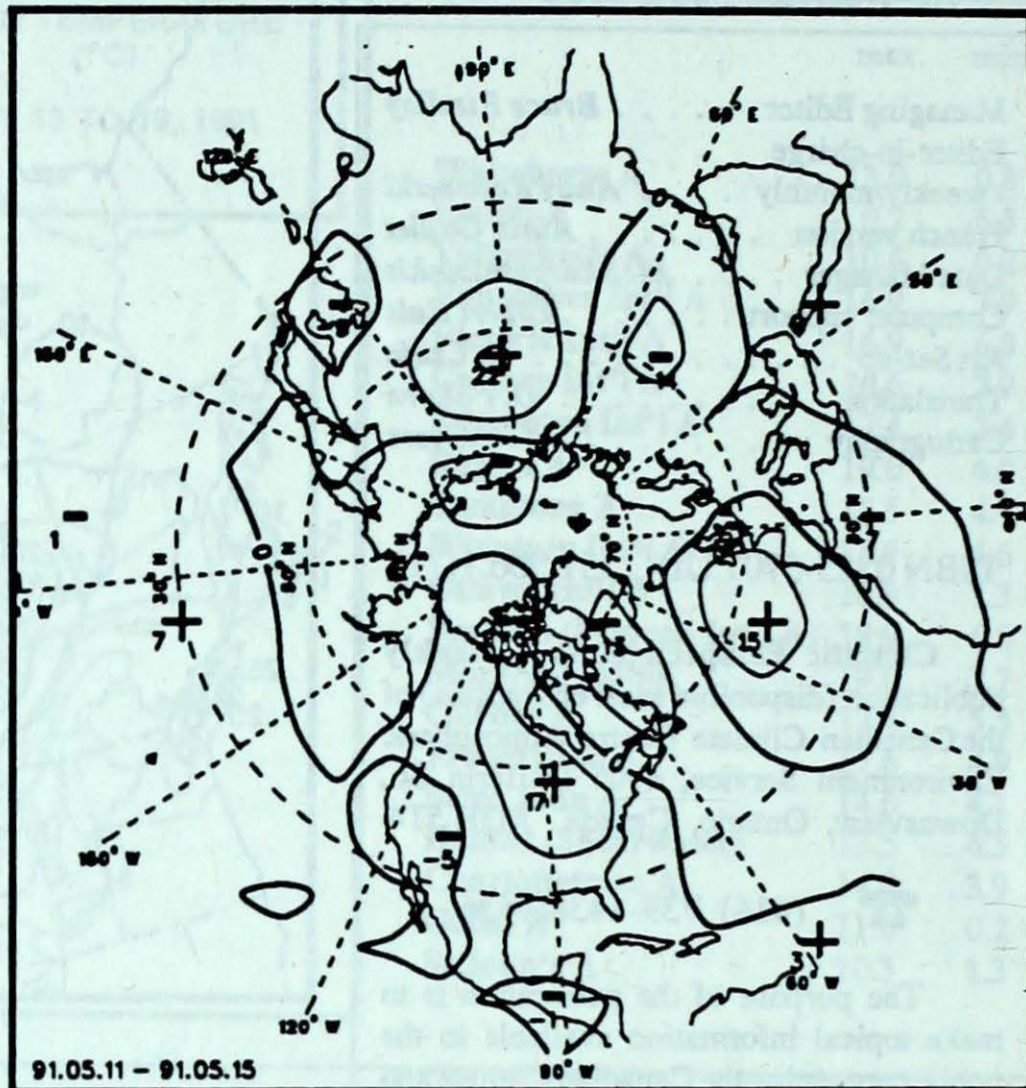




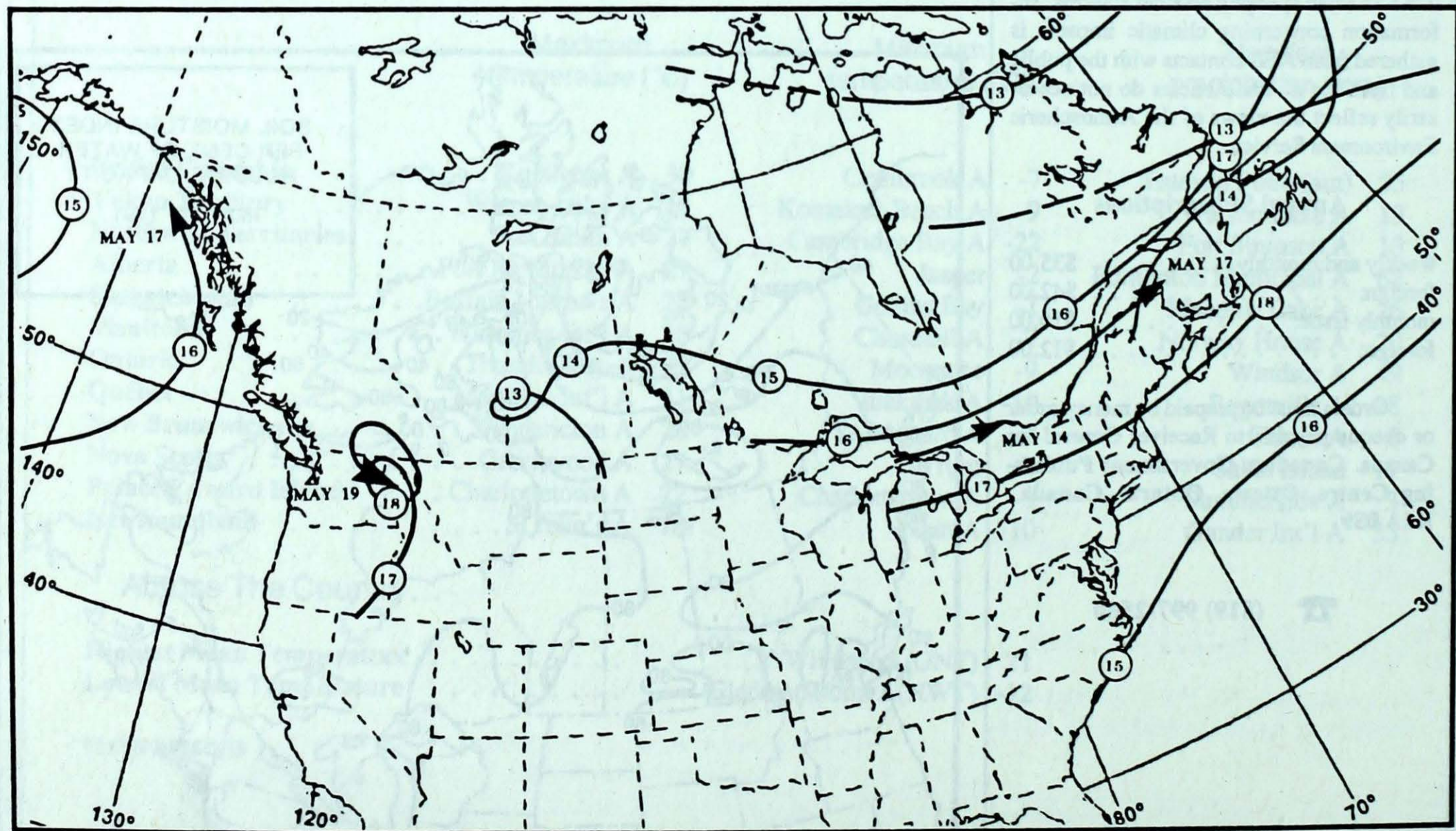
### ATMOSPHERIC CIRCULATION



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



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



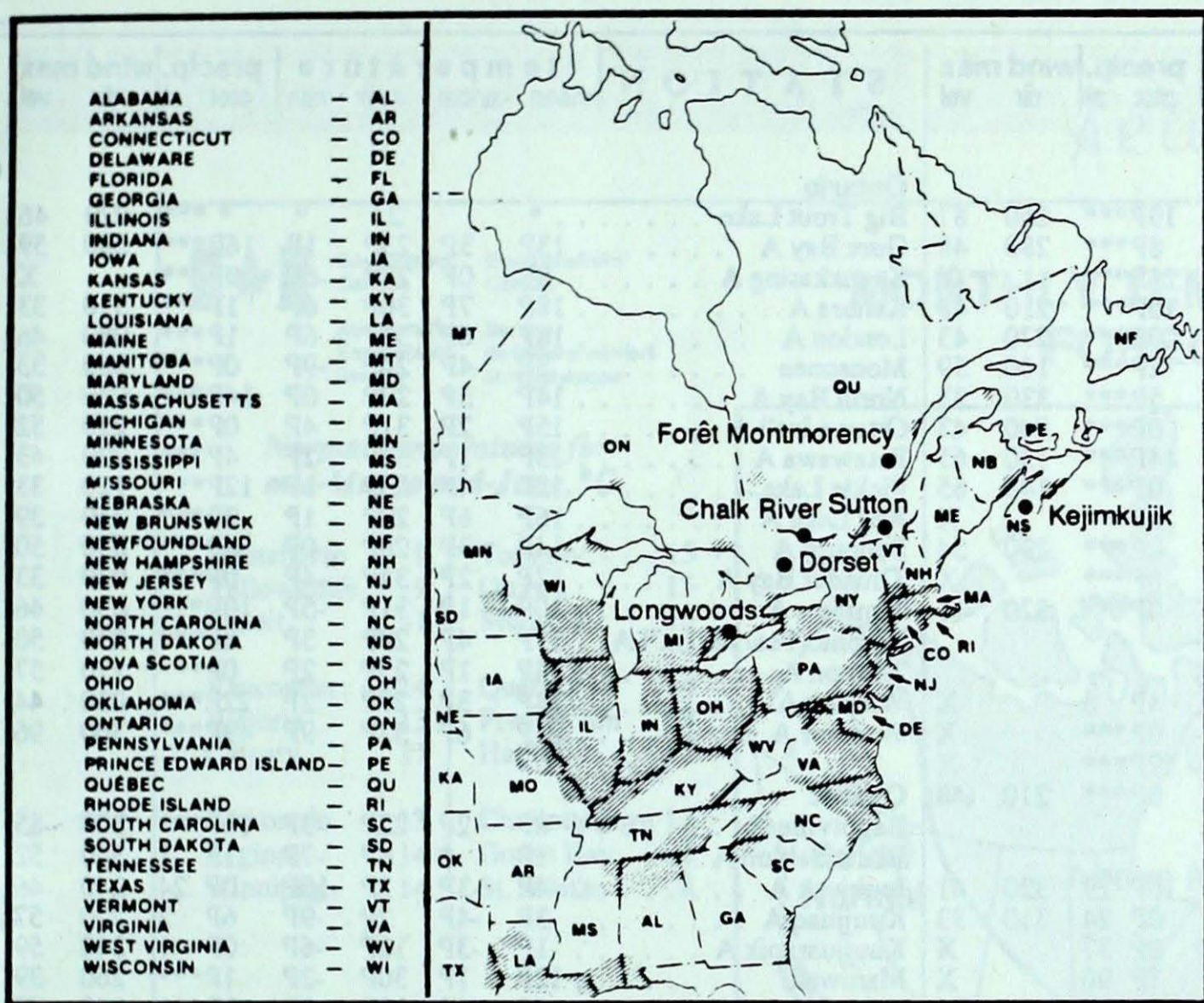
Tracks of low pressure centres at 12:00 U.T. each day during the period.



# 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<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.



Site	day	pH	amount	air path to site
May 12 to 18, 1991				
Longwoods	16	4.1	14 R	Western Ohio, Eastern Kentucky
Dorset*	13	4.6	3 R	Lake Huron, Northern Michigan, Lake Superior
	16	4.2	29 R	Northern Indiana, Southern Michigan, Lake Huron
	17	4.7	11 R	Southern Ontario, Southern Michigan
Chalk River	16	4.5	15 R	Michigan, Lake Huron
Sutton	16	3.7	2 R	Southern and Eastern Ontario
	17	4.1	20 R	Lake Huron, Eastern Ontario
Montmorency	16	4.4	20 R	Northern Ontario, Northwestern Quebec
	17	5.3	4 R	Northern and Center Quebec
Kejimikujik				Data not available

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



STATION	temperature				precip.		wind max		STATION	temperature				precip.		wind max	
	mean	anom	max	min	ptot	st	dir	vel		mean	anom	max	min	ptot	st	dir	vel
<b>British Columbia</b>								<b>Ontario</b>									
Cape St James	8P	0P	11P	6P	19P***		260	87	Big Trout Lake	*		23	*	* ***	070	46	
Cranbrook A	11P	0P	22P	7P	8P***		280	48	Gore Bay A	13P	3P	23P	1P	16P***	040	59	
Fort Nelson A	13P	3P	24P	2P	26P***			X	Kapuskasig A	9P	0P	27P	-6P	9P***		X	
Fort St John A	12P	2P	25P	1P	10P***		210	48	Kenora A	18P	7P	30P	6P	1P***	310	33	
Kamloops A	17P	3P	30P	9P	0P***		270	43	London A	18P	6P	30P	6P	1P***	080	46	
Penticton A	14P	0P	22P	4P	2P***		160	59	Moosonee	3P	-4P	24P	-9P	0P***	060	33	
Port Hardy A	10P	1P	17P	3P	5P***		330	33	North Bay A	14P	3P	27P	0P	14P***	030	50	
Prince George A	12P	2P	24P	1P	0P***		240	43	Ottawa Int'l A	15P	2P	31P	4P	0P***	210	52	
Prince Rupert A	9P	1P	13P	2P	14P***		150	65	Petawawa A	13P	1P	31P	-2P	4P***	220	43	
Revelstoke A	15P	3P	29P	3P	0P***		140	65	Pickle Lake	12P	4P	23P	1P	12P***	120	33	
Smithers A	10P	1P	23P	-2P	0P***			X	Red Lake A	16P	6P	29P	1P	2P***	250	39	
Vancouver Int'l A	13P	1P	18P	7P	0P***		290	54	Sudbury A	14P	3P	28P	0P	6P***	030	50	
Victoria Int'l A	12P	0P	19P	6P	0P***			X	Thunder Bay A	12P	2P	32P	-4P	0P***	030	33	
Williams Lake A	12P	3P	24P	0P	0P***		320	41	Timmins A	10P	1P	31P	-5P	10P***	030	46	
<b>Yukon Territory</b>								<b>Toronto (Pearson Int'l A)</b>									
Komakuk Beach A	-1P	5P	4P	-9P	4P	6		X	Trenton A	14P	1P	25P	2P	0P***	270	57	
Teslin (aut)	7P	*	16P	-2P	0P***			X	Warton A	14P	3P	27P	2P	22P***	030	44	
Watson Lake A	9P	2P	19P	-2P	19P***			X	Windsor A	21P	6P	32P	9P	49P***	300	96	
Whitehorse A	8P	1P	16P	-1P	0P***		210	48	<b>Québec</b>								
<b>Northwest Territories</b>								<b>Bagotville A</b>									
Alert	-12P	0P	-5P	-15P	10P	29	320	41	Blanc Sablon A	1P	*	8P	-7P	1P	1	340	52
Baker Lake A	-6P	1P	6P	-16P	0P	24	310	33	Inukjuak A	-4P	-3P	2P	-10P	0P	24	240	46
Cambridge Bay A	-11P	-1P	2P	-22P	0P	37		X	Kuujuuaq A	-3P	-4P	2P	-9P	6P	2	270	57
Cape Dyer A	-9P	-3P	-4P	-17P	1P	90		X	Kuujuarapik A	-1P	-3P	12P	-6P	0P	1	340	59
Clyde A	-7P	0P	3P	-13P	3P	15	310	59	Maniwaki	12P	1P	30P	-2P	1P***	260	39	
Coppermine A	-2P	6P	10P	-16P	0P	4	090	33	Mont Joli A	8P	0P	19P	-1P	3P***	240	70	
Coral Harbour A	-8P	-2P	3P	-19P	0P	55	320	46	Montréal Int'l A	14P	1P	31P	2P	0P***	030	54	
Eureka	-9P	2P	-3P	-13P	0P	10	330	70	Natashquan A	4P	-1P	13P	-4P	4P***	240	43	
Fort Smith A	15P	7P	27P	5P	3P***		130	37	Québec A	12P	1P	26P	0P	6P***	290	57	
Hall Beach A	-12P	-2P	0P	-20P	0P	27	310	48	Schefferville A	-2P	-4P	7P	-10P	5P	23	270	48
Inuvik A	7P	7P	20P	-1P	11P	1	070	33	Sept-Îles A	5P	-1P	16P	-5P	0P***	320	48	
Iqaluit A	-10P	-7P	-2P	-19P	0P	32	350	44	Sherbrooke A	10P	-2P	29P	-3P	0P***	270	48	
Mould Bay A	-9P	3P	1P	-19P	4P	23	080	39	Val-d'Or A	9P	-1P	24P	-3P	14P***	340	48	
Norman Wells A	11P	5P	22P	3P	7P***		290	46	<b>New Brunswick</b>								
Resolute A	-11P	-1P	-1P	-17P	0P	13	300	67	Charlo A	8P	0P	21P	-3P	6P***	270	59	
Yellowknife A	9P	4P	20P	0P	7P***		050	48	Chatham A	9P	-1P	22P	-3P	4P***	270	52	
<b>Alberta</b>								<b>Fredericton A</b>									
Calgary Int'l A	11P	2P	19P	4P	19P***		120	69	Moncton A	9P	-1P	24P	-4P	1P***	250	56	
Cold Lake A	13P	3P	25P	3P	14P***		110	41	Saint John A	8P	-1P	17P	-2P	2P***	230	65	
Edmonton Namao A	12P	2P	23P	3P	59P***		290	63	<b>Nova Scotia</b>								
Fort McMurray A	14P	5P	27P	4P	13P***		090	35	Greenwood A	10P	-1P	27P	-3P	7P***	260	74	
High Level A	12P	2P	24P	6P	17P***		340	33	Shearwater A	8P	-1P	21P	-2P	9P***	220	65	
Jasper	10P	2P	23P	-2P	1P***			X	Sydney A	7P	-1P	23P	-2P	7P***	350	72	
Lethbridge A	13P	2P	22P	3P	7P***		250	87	Yarmouth A	9P	-1P	17P	0P	5P***	210	65	
Medicine Hat A	13P	1P	24P	4P	32P***		280	96	<b>Prince Edward Island</b>								
Peace River A	14P	4P	25P	3P	33P***		180	44	Charlottetown A	8P	-1P	22P	-3P	2P***	320	63	
<b>Saskatchewan</b>								<b>Summerside A</b>									
Cree Lake	10P	3P	24P	2P	3P***		070	52	9P	-1P	19P	-2P	3P***	020	57		
Estevan A	14P	2P	22P	5P	1P***		220	63	<b>Newfoundland</b>								
La Ronge A	10P	2P	25P	1P	8P***		070	44	Cartwright	-1P	-4P	8P	-7P	4P	77	330	107
Regina A	13P	2P	21P	3P	8P***		220	74	Churchill Falls A	-1P	-5P	8P	-8P	4P	54	300	48
Saskatoon A	13P	2P	22P	4P	15P***		240	37	Gander Int'l A	3P	-4P	12P	-5P	33P	1	330	48
Swift Current A	12P	1P	23P	3P	11P***		240	93	Goose A	3P	-3P	12P	-4P	1P	1	330	46
Yorkton A	13P	2P	22P	3P	6P***		180	54	Port Aux Basques	4P	-1P	8P	0P	17P***	290	65	
<b>Manitoba</b>								<b>St John's A</b>									
Brandon A	15P	4P	25P	4P	0P***		140	57	St Lawrence	4P	-1P	12P	-2P	17P***		X	
Churchill A	2P	4P	23P	-7P	0P	1	240	43	Wabush Lake A	-1P	-4P	10P	-8P	1P***	280	46	
Lynn Lake A	9P	3P	25P	-2P	1P***		080	52	<b>91/05/13-91/05/19</b>								
The Pas A	11P	3P	24P	1P	10P***		180	52									
Thompson A	8P	2P	25P	-3P	0P***		070	59									
Winnipeg Int'l A	17P	5P	30P	7P	11P***		220	54									

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.



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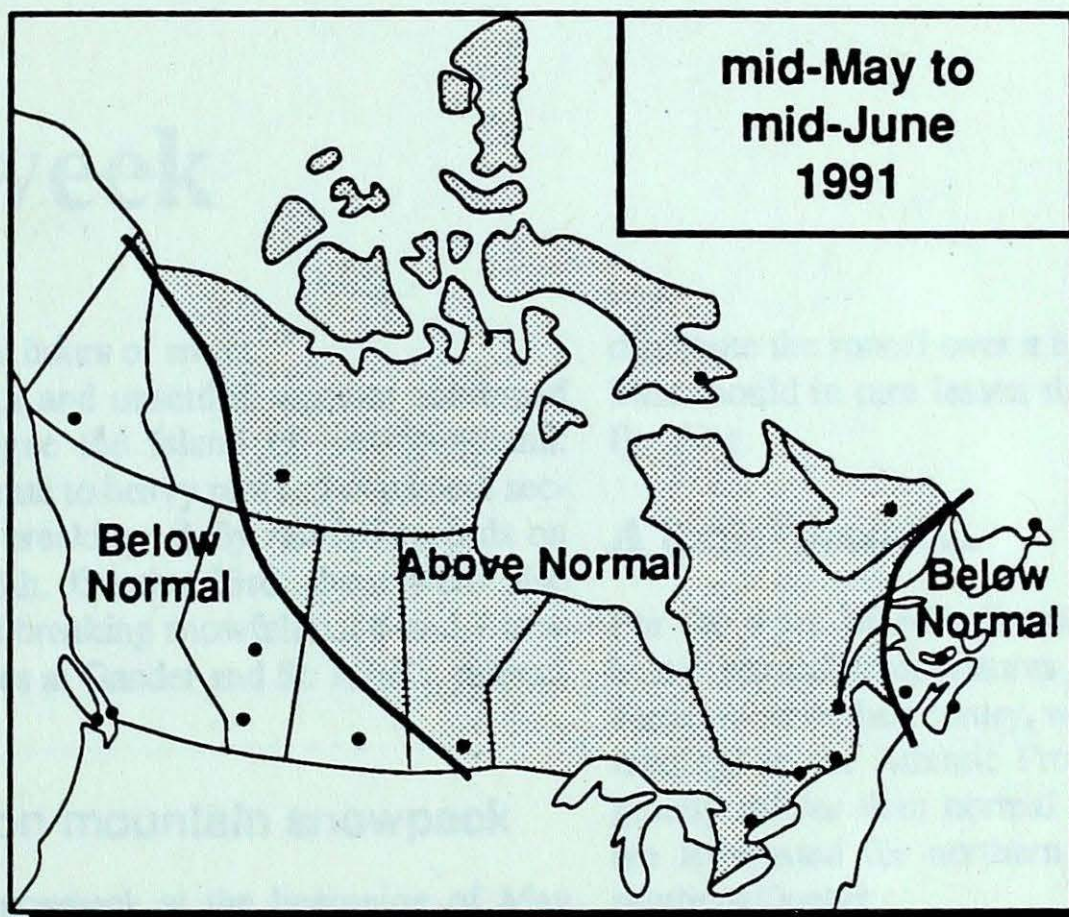
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# MONTHLY TEMPERATURE FORECAST

## Normal temperatures for mid-May to mid-June, °C

Whitehorse	9	Toronto	15
Yellowknife	9	Ottawa	15
Iqaluit	-1	Montréal	16
Vancouver	14	Québec	14
Victoria	13	Fredericton	13
Calgary	11	Halifax	11
Edmonton	13	Charlottetown	12
Regina	14	Goose Bay	8
Winnipeg	14	St. John's	8

mid-May to mid-June 1991



Canada

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