

# Climatic Perspectives



June 7 to 13, 1993

A weekly review of Canadian climate and water

Vol. 15 No. 24

## Severe weather hits central Canada

*Most of central Canada had a taste of warm, summer-like weather this week, with daytime highs reaching the mid to upper twenties.*

Thunderstorms accompanied a cold front, as it moved across Manitoba on the evening of the 12th. Hail was reported in the southwest part of the province, with the first Prairie tornado of the season touching down at Brookdale. The twister destroyed a cattle shed and knocked down hydro poles, trees and other buildings. The storms dumped up to 50 mm of rain across parts of southern Manitoba and western Saskatchewan, bringing this week's totals to 96 mm at Morden, Man., and 71 mm at North Battleford, Sask. Southern Saskatchewan and southwestern Manitoba missed most of the moisture with these storms, resulting in crop conditions to be near the critical stage in these dry areas.

In Ontario, a cold frontal passage during the late afternoon of June 9 triggered a line of severe thunderstorms, which spawned a small tornado. Torrential downpours, hail and damaging winds were reported in many parts of southern and central Ontario, including the Toronto area, where power outages and local street flooding were reported. The most severe damage was related to a downdraft along the southeast shore of Lake Simcoe. Eight houses and many large trees were damaged in the blowdown. A funnel cloud was spotted in a heavily industrialized portion of Mississauga, just west of Toronto. A tornado touched down in Muskoka. Damage in the area revealed twisting of tree trunks and branches.

### Western Canada turns wet

Across British Columbia, the weather became cool, wet and unsettled - quite a change from just a few weeks ago. Disturbances along the coast provided an endless stream of moisture which pushed inland. In the Okanagan Valley, this month's rainfall is already well-above the June average. Okanagan Lake is at its maximum level - a situation which will have to be watched carefully if the rainy weather continues. Farmers are attempting to cut and dry their first crop of hay, which is approximately two weeks early. On Vancouver Island, the fire hazard is low and growth is lush and green.

Much needed moisture drenched southeastern Alberta over the weekend. Rainfall amounts over 50 mm were common across the south this week. As much as 84 mm of rain fell in the foothills, with snow falling at higher elevations. On June 12, a number of new 24-hour precipitation records were set. Picture Butte, in southeastern Alberta, recorded 100 mm this week, of which 75 mm fell on the 11th and 12th. Since the beginning of June, Lethbridge and Medicine Hat received 82 and 67 millimetres of rain, respectively. This is nearly three times the normal for the whole month.

### Elsewhere....

The southern Yukon saw a fair amount of afternoon convective cloud and scattered showers and thundershower activity. Further to the north, after a dismal start to the period, skies became sunny, allowing temperatures to climb into the high teens. The

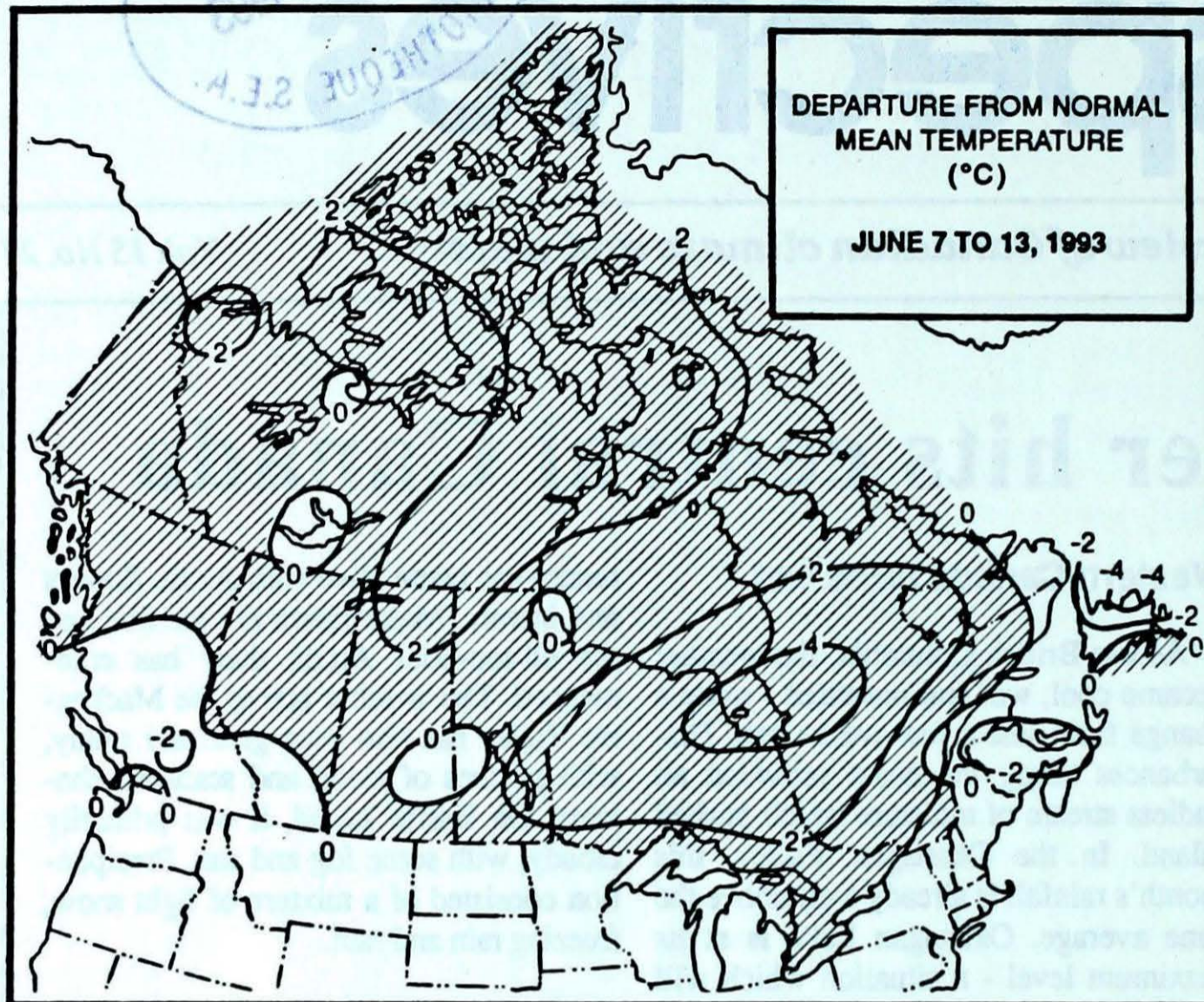
tundra has come alive with Arctic flowers and insects. Major rivers are ice-free and the all-too-brief Arctic thaw has commenced. The weather across the Mackenzie Valley has also been generally sunny, with patches of cloud and scattered showers. On Baffin Island, it was primarily cloudy, with some fog and sun. Precipitation consisted of a mixture of light snow, freezing rain and rain.

The Maritimes enjoyed a mixture of cloud and sunshine. Heavy thunderstorms were reported on the 10th. There were reports of small hail in parts of Nova Scotia. A lightning strike near a home in Hammonds Plains, N.S., cut a five-metre long trench in the ground, but luckily did little damage to the house. Cool temperatures and a lack of sunshine, so far this spring, have put many Nova Scotia farmers two weeks behind schedule.

In Newfoundland, the first day of the period was sunny - one of the few nice days this month. The remainder of the week was cold, cloudy and wet. Winds on the south coast gusted to more than 100 km/h. Later, cold northerly winds produced drizzle, fog and even some snow. Slightly better, sunnier weather prevailed across Labrador.

### A Look Ahead...

For the week of June 21, above-normal temperatures are expected across southern Ontario. Below-normal temperatures are likely across the Prairies, the Northwest Territories, northern Quebec and the Atlantic region. Elsewhere, temperatures will be near normal.



**Weekly normal temperatures (°C)**

	max.	min.
Whitehorse A	18.4	4.8
Iqaluit A	5.4	-0.7
Yellowknife A	16.3	6.6
Vancouver Int'l A	18.6	10.4
Victoria Int'l A	18.6	9.1
Calgary Int'l A	19.3	6.2
Edmonton Int'l A	20.3	7.0
Regina A	22.2	8.6
Saskatoon A	21.7	8.5
Winnipeg Int'l A	22.3	9.7
Ottawa Int'l A	23.0	11.2
Toronto (Pearson Int'l A)	23.5	11.0
Montréal Int'l A	22.8	11.5
Québec A	21.5	8.9
Fredericton A	21.3	7.7
Saint John A	18.0	7.1
Halifax (Shearwater)	17.4	8.1
Charlottetown A	17.5	7.6
Goose A	14.7	4.0
St John's A	13.4	4.3

**Weekly temperature and precipitation extremes**

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Lytton 25	Dease Lake -2	Abbotsford A 60
Yukon Territory	Watson Lake A 22	Whitehorse A -1	Watson Lake A 14
Northwest Territories	Fort Smith A 28	Clyde A -8	Fort Simpson A 20
Alberta	Fort McMurray A 29	Edson A 0	Picture Butte 100
	High Level A 29		
Saskatchewan	Cree Lake 29	Collins Bay 3	Cypress Hill 82
Manitoba	Brandon A 30	Grand Rapids (aut) -1	Morden 96
	Winnipeg Int'l A 30		
Ontario	Kapuskasing A 31	Lansdowne House 4	Sioux Lookout A 49
	Pickle Lake 31	Pickle Lake 4	
Quebec	La Grande Rivière 31	Kuujuarapik A -2	Bagotville A 31
New Brunswick	St-Léonard A 28	Moncton A 1	Moncton A 54
Nova Scotia	Greenwood A 24	Amherst (aut) 1	Greenwood A 23
	Shearwater A 24	Truro 1	Truro 23
Prince Edward Island	Charlottetown A 22	Charlottetown A 2	Charlottetown A 28
Newfoundland	Cartwright 23	Badger (aut) -4	Bonavista 31

**Across The Country...**

Highest Mean Temperature	Windsor A (Ont.) 20
Lowest Mean Temperature	Clyde A (N.W.T.) 0

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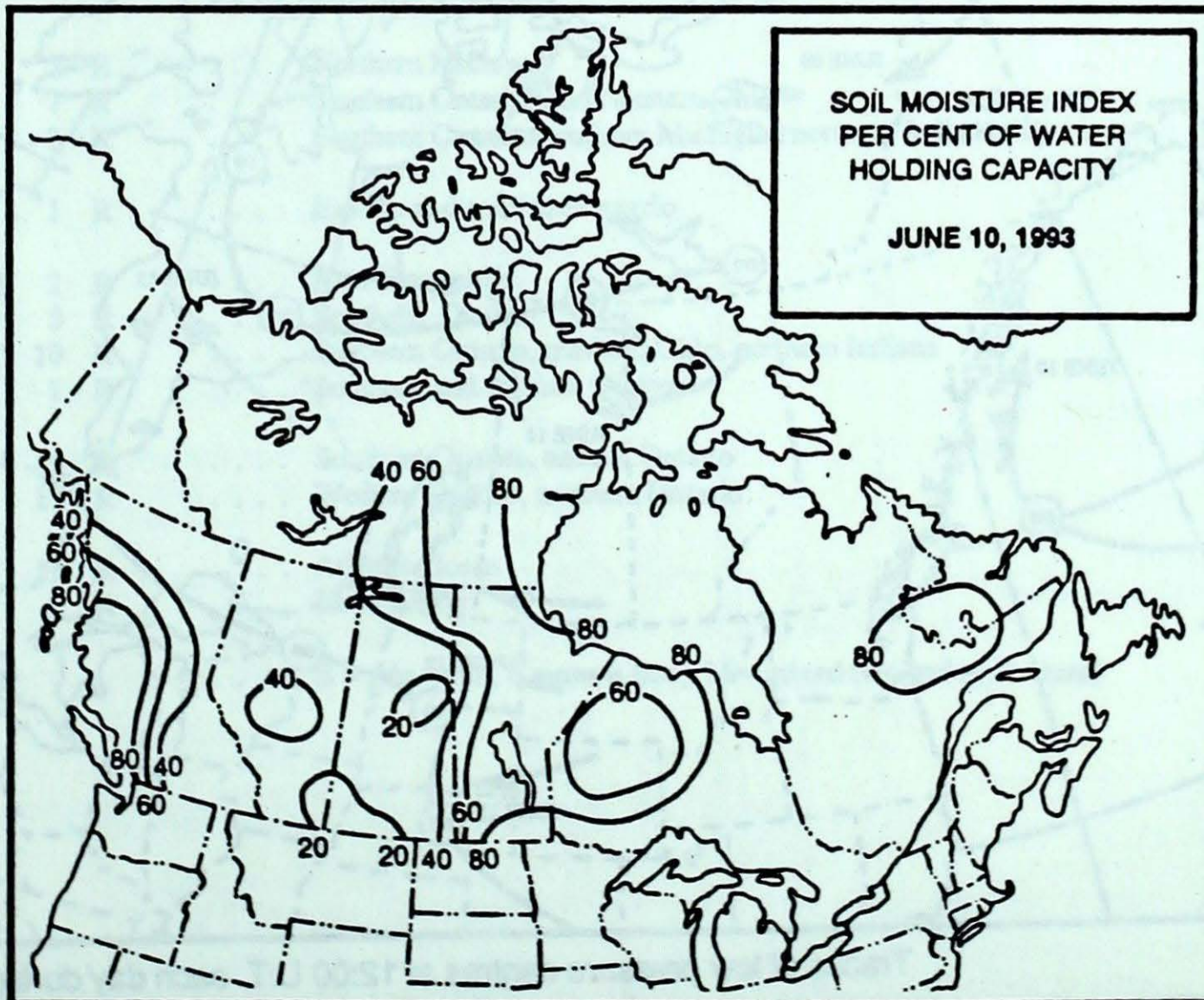
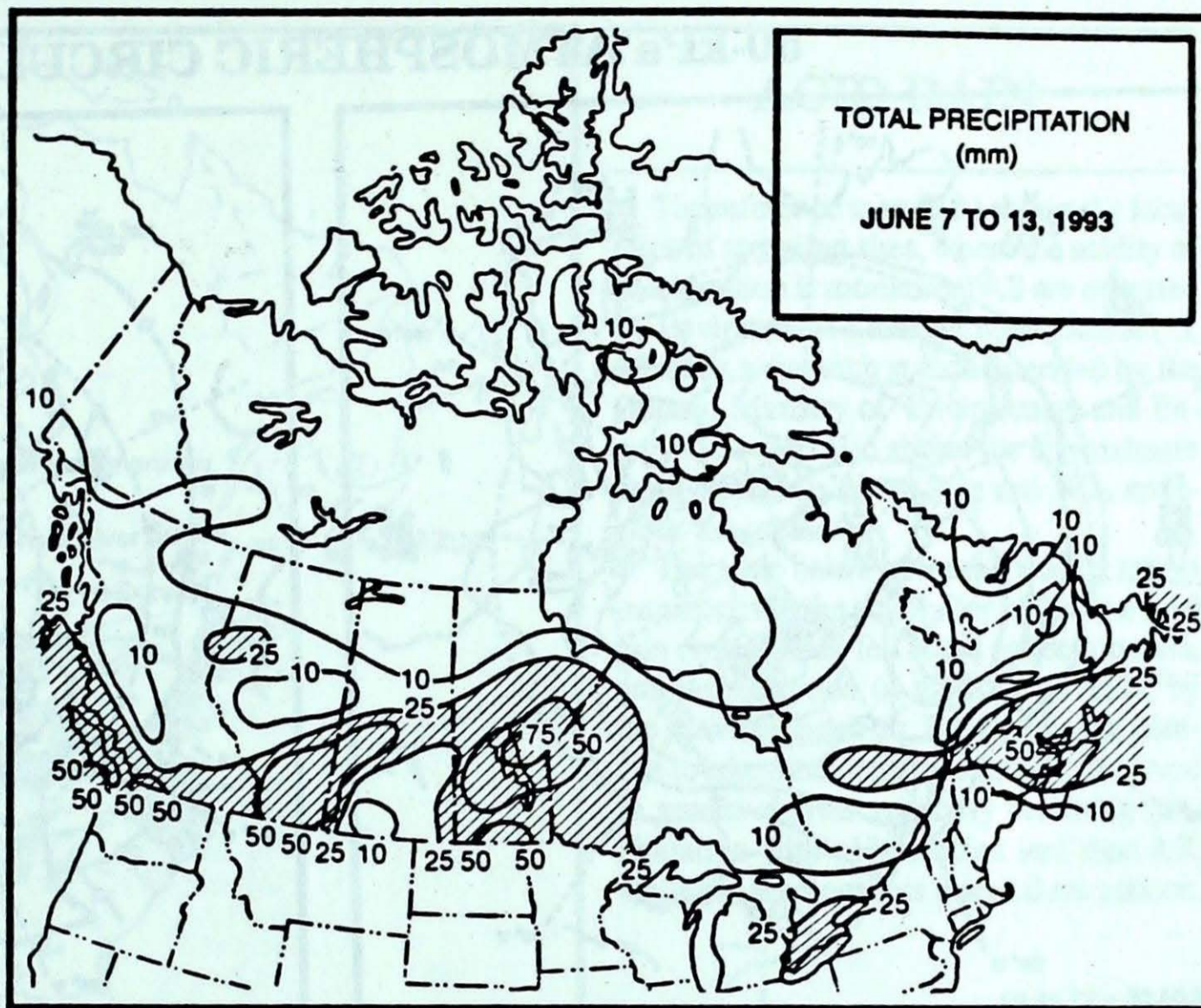
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The data in this publication are based on unverified reports from approximately 225 Canadian synoptic weather stations. Information concerning climatic impacts is gathered from AES contacts with the public and from the media. Articles do not necessarily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

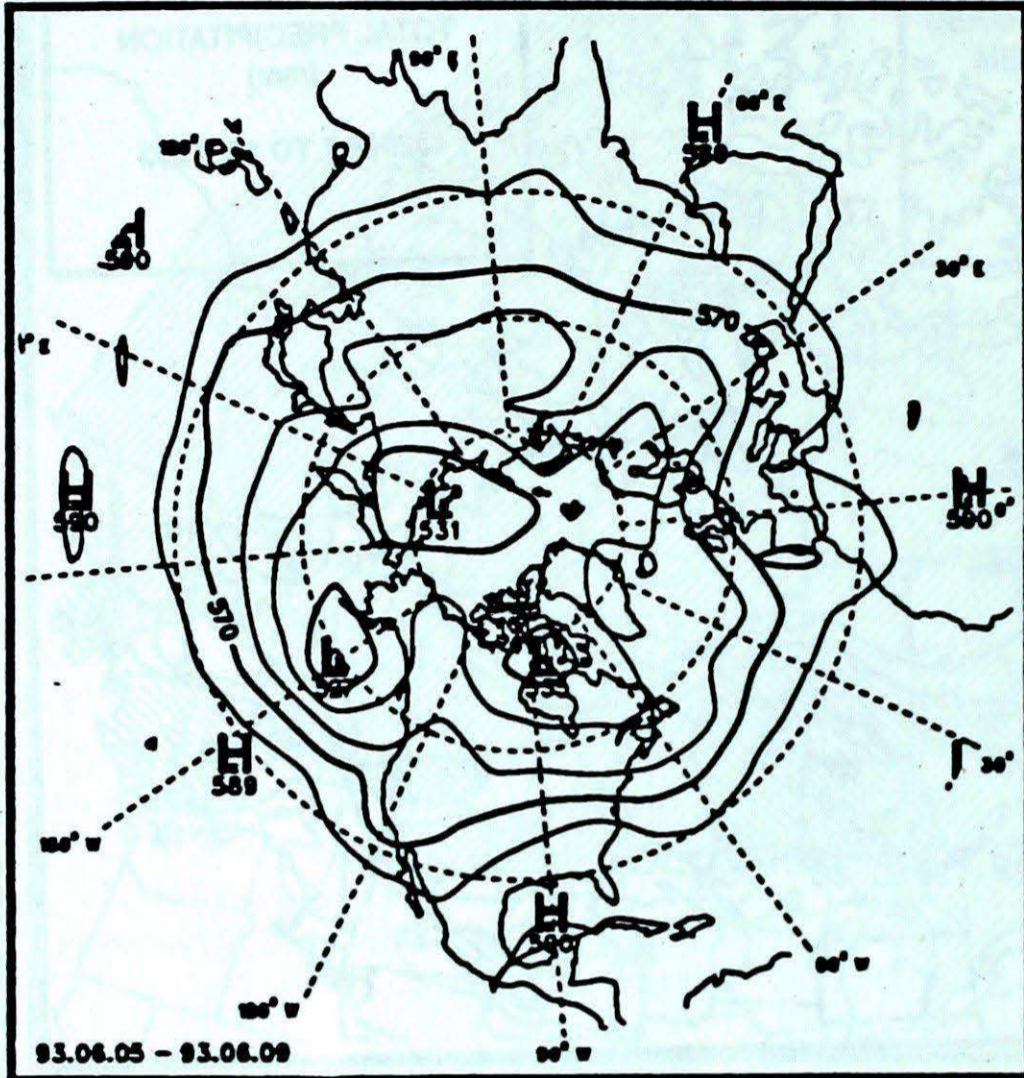
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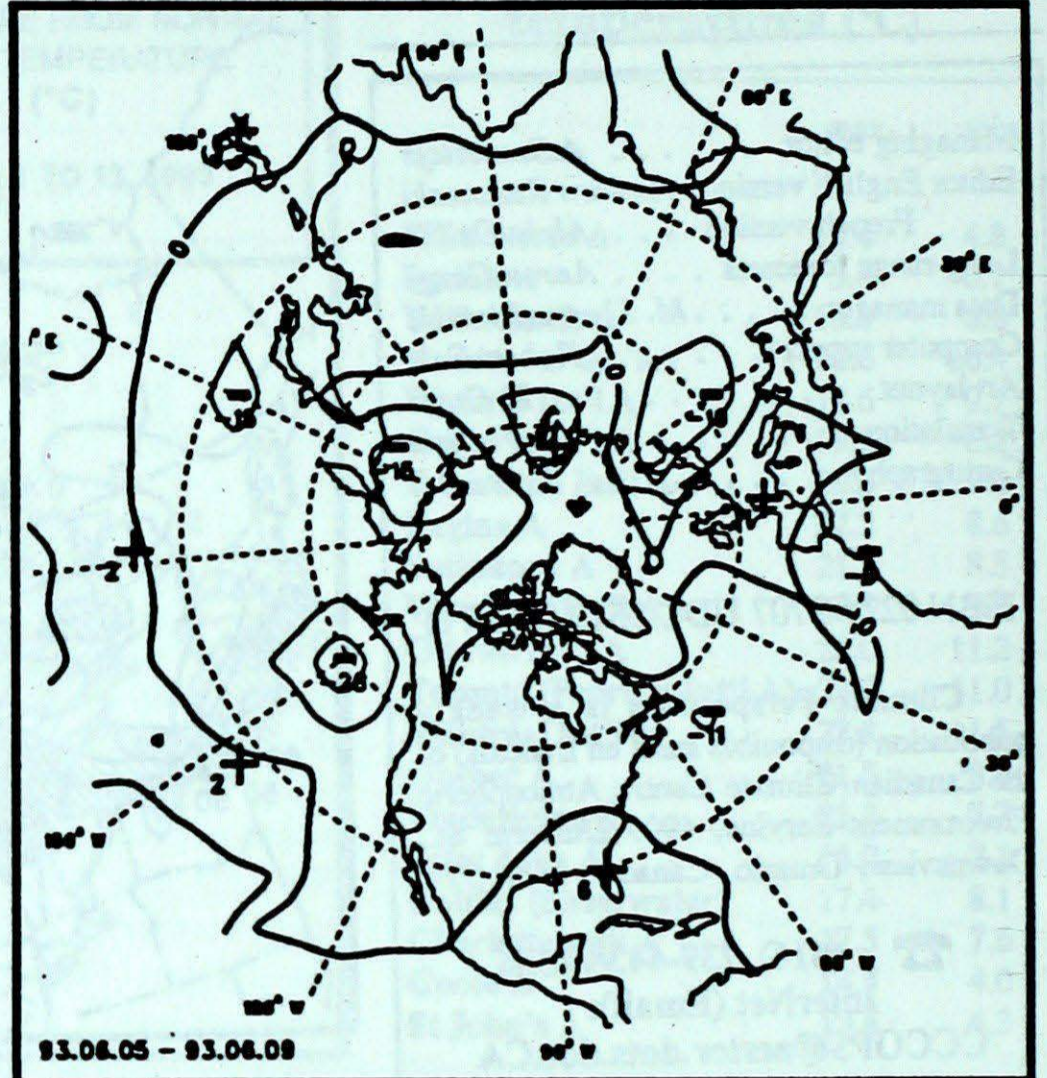
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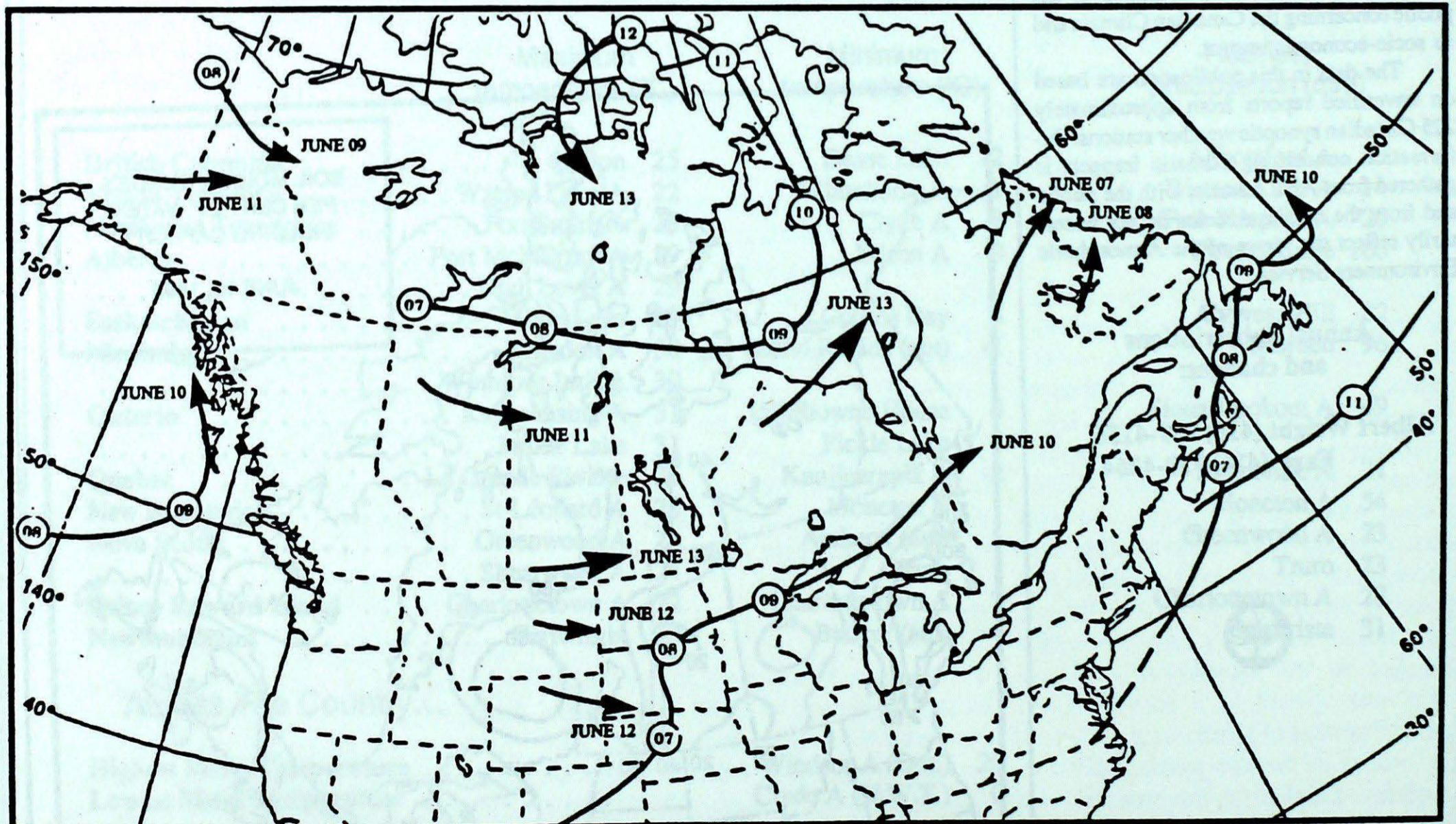
### 50-kPa ATMOSPHERIC CIRCULATION



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

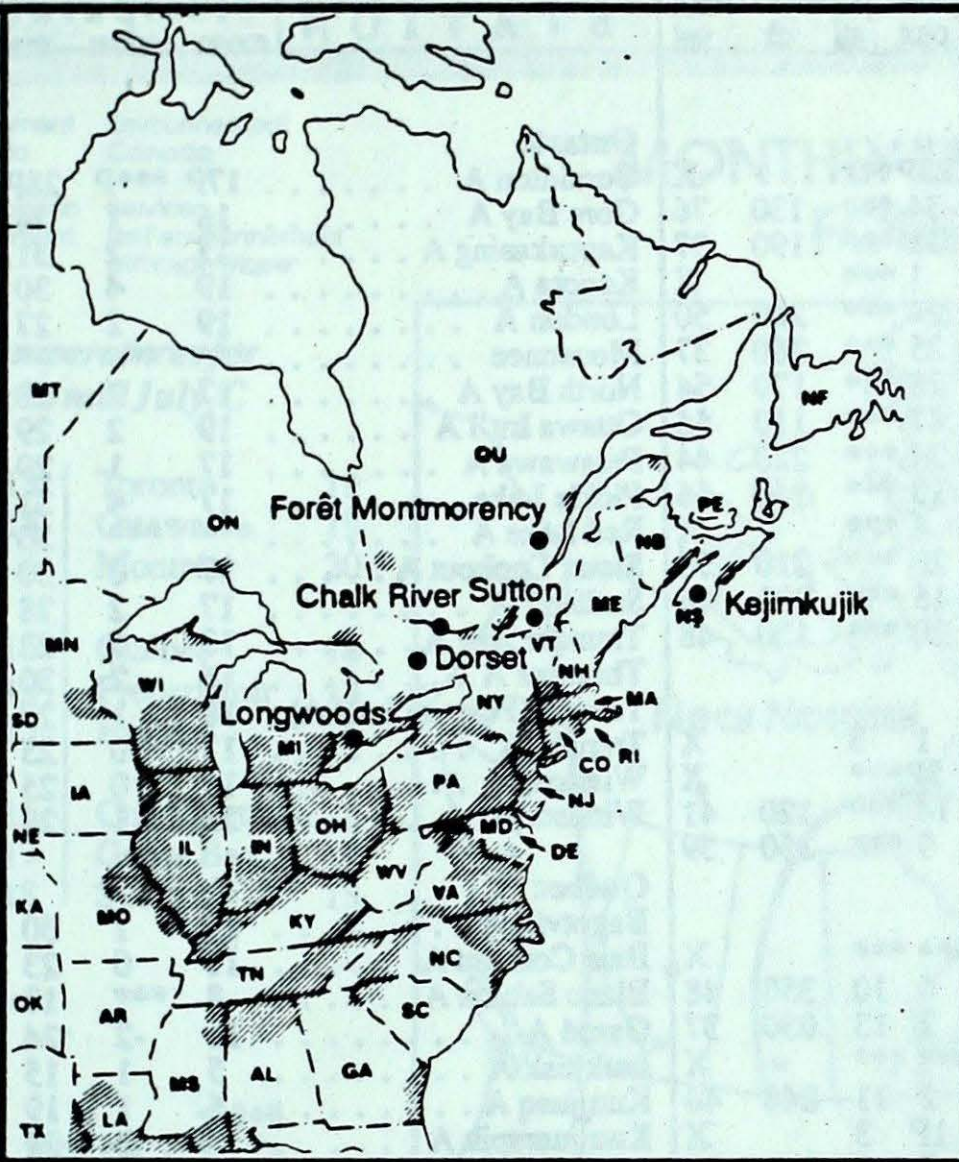


Mean geopotential height anomaly  
50-kPa level (10 decametre intervals)



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

- AL ALABAMA
- AR ARKANSAS
- CO CONNECTICUT
- DE DELAWARE
- FL FLORIDA
- GA GEORGIA
- IL ILLINOIS
- IN INDIANA
- IA IOWA
- KA KANSAS
- KY KENTUCKY
- LA LOUISIANA
- ME MAINE
- MA MASSACHUSETTS
- MI MICHIGAN
- MN MINNESOTA
- MS MISSISSIPPI
- MO MISSOURI
- NE NEBRASKA
- NB NEW BRUNSWICK
- NF NEW FOUNDLAND
- NH NEW HAMPSHIRE
- NJ NEW JERSEY
- NY NEW YORK
- NC NORTH CAROLINA
- ND NORTH DAKOTA
- NS NOVA SCOTIA
- OH OHIO
- OK OKLAHOMA
- ON ONTARIO
- PA PENNSYLVANIA
- PE PRINCE EDWARD ISLAND
- QC QUÉBEC
- RI RHODE ISLAND
- SC SOUTH CAROLINA
- SD SOUTH DAKOTA
- TN TENNESSEE
- TX TEXAS
- VT VERMONT
- VA VIRGINIA
- WV WEST VIRGINIA
- WI WISCONSIN



## 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 Environment and Energy. 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
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June 6 to 12, 1993

Longwoods				..... Data non available
Dorset *	06	4.5	2 R	..... Northern Michigan
	08	4.1	7 R	..... Southern Ontario, northwestern Ohio
	09	4.3	3 R	..... Southern Ontario, southern Michigan, northern Indiana, Illinois
Chalk River	08	4.2	1 R	..... Eastern and southern Ontario
Sutton	06	4.3	2 R	..... New Hampshire
	07	4.3	3 R	..... Southern Quebec
	09	4.6	10 R	..... Southern Ontario, northern Ohio, northern Indiana
	11	4.7	1 R	..... Southern and western Quebec
Montmorency	09	4.5	15 R	..... Southern Quebec, eastern Ontario
	10	4.8	11 R	..... Western Quebec, northern Ontario
Kejimikujik	06	4.9	13 R	..... Atlantic Ocean
	07	4.4	1 R	..... Nova Scotia

..... 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>																
Blue River A	15P	2P	23P	6P	20P***			X	Geraldton A	17P	***P	28P	6P	12P***	200	59								
Comox A	14	-1	19	8	34 ***	130	76		Gore Bay A	16	1	24	9	18 ***	170	33								
Cranbrook A	13	-2	22	4	31 ***	190	37		Kapuskasing A	15	2	31	4	17 ***	320	44								
Fort Nelson A	15	1	24	5	1 ***			X	Kenora A	19	4	30	7	34 ***	060	46								
Fort St John A	13	0	24	5	24 ***	260	50		London A	19	2	27	11	30 ***	240	85								
Kamloops A	16	-2	25	8	25 ***	280	37		Moosonee	***	***	***	***	***		X								
Penticton A	15	-2	25	6	28 ***	170	54		North Bay A	17	2	28	9	6 ***	340	46								
Port Hardy A	12	0	17	5	47 ***	110	56		Ottawa Int'l A	19	2	29	9	10 ***	270	56								
Prince George A	12	-1	19	3	24 ***	220	44		Petawawa A	17	1	29	5	10 ***	270	56								
Prince Rupert A	12	1	19	5	13 ***	140	56		Pickle Lake	17	4	31	4	26 ***	210	44								
Smithers A	12	0	22	2	4 ***			X	Red Lake A	***	***	30	***	***	200	56								
Vancouver Int'l A	15	0	19	9	20 ***	210	50		Sioux Lookout A	17	3	30	4	49 ***	260	50								
Victoria Int'l A	14	0	20	7	15 ***	230	46		Sudbury A	17	2	28	10	9 ***	250	50								
Williams Lake A	11	-2	20	3	20 ***	130	48		Thunder Bay A	13	0	23	5	11 ***	080	41								
<b>Yukon Territory</b>								<b>Québec</b>																
Komakuk Beach A	4	2	12	0	1 3			X	Bagotville A	15	1	30	3	31 ***	290	50								
Teslin (aut)	11P	***P	19P	0P	5P***			X	Bas Comeau A	11	0	23	4	6 ***	210	43								
Watson Lake A	13	1	22	1	14 ***	120	41		Blanc Sablon A	8	***	17	1	8 ***	020	52								
Whitehorse A	12	0	21	-1	9 ***	350	39		Gaspé A	11	-2	24	2	16 ***	340	41								
<b>Northwest Territories</b>								<b>New Brunswick</b>																
Alert	***	***	-3	***	***			X	Fredericton A	14	-1	26	4	25 ***	060	48								
Baker Lake A	5	3	14	-1	6 10	350	48		Miscou Island (aut)	10P	-2P	19P	4P	25P***		X								
Cambridge Bay A	1	1	3	-2	2 13	030	37		Moncton A	11	-3	24	1	54 ***	360	46								
Cape Dyer A	***	***	***	***	***			X	Saint John A	12	-1	23	4	23 ***	340	44								
Clyde A	0	0	8	-8	2 11	240	48		St Leonard A	13P	***P	28P	3P	23P***	330	48								
Coppermine A	2P	1P	6P	-2P	1P 3			X	<b>Nova Scotia</b>															
Coral Harbour A	3	3	9	-1	2 3	020	72		Greenwood A	12	-2	24	3	23 ***	040	57								
Eureka	4P	3P	10P	-2P	4P 3			X	Shearwater A	12	-1	24	4	14 ***	040	63								
Fort Smith A	13	1	28	3	1 ***	080	39		Sydney A	***	***	19	***	***	110	61								
Hall Beach A	2	4	6	-1	11 3	170	35		Yarmouth A	12	-1	18	5	5 ***	320	46								
Inuvik A	14P	4P	23P	3P	1P***	030	41		<b>Prince Edward Island</b>															
Iqaluit A	3	1	10	0	1 3	150	54		Charlottetown A	10	-2	22	2	28 ***	010	48								
Mould Bay A	1	3	6	-4	0 3			X	East Point (auto)	9P	***P	13P	6P	3P***		X								
Norman Wells A	14	1	24	5	2 ***	130	37		<b>Newfoundland</b>															
Resolute A	1	3	4	-3	1 5	040	63		Cartwright	6	-1	23	0	14 ***	340	56								
Yellowknife A	11	-1	18	5	3 ***	060	43		Churchill Falls A	10P	2P	21P	0P	3P***	340	44								
<b>Alberta</b>								<b>Alberta</b>																
Calgary Int'l A	12	0	21	6	54 ***	330	65		Gander Int'l A	6	-3	18	1	10 ***	330	67								
Cold Lake A	16	2	27	6	18 ***	280	37		Goose A	9	0	23	3	12 ***	180	43								
Edmonton Namao A	15	1	24	8	9 ***	020	52		Stephenville A	10	-1	16	4	4 ***	090	70								
Fort McMurray A	15	2	29	4	23 ***	340	41		St John's A	6	-3	17	2	30 ***	150	69								
Grande Prairie A	14	1	26	2	5 ***	260	65		St Lawrence	9	1	17	1	18 ***		X								
High Level A	14	1	29	5	1 ***			X	Wabush Lake A	11	4	21	2	14 ***	180	43								
Lethbridge A	14	-1	23	6	63 ***	320	72		<b>93/06/07-93/06/13</b>															
Medicine Hat A	16	0	26	8	68 ***	310	52		<p>mean = mean weekly temperature, °C      ptot = weekly precipitation total in mm</p> <p>max = maximum weekly temperature, °C      st = snow thickness on the ground in cm</p> <p>min = minimum weekly temperature, °C      dir = direction of max wind, deg. from north.</p> <p>anom = mean temperature anomaly, °C      vel = wind speed in km/h</p> <p style="text-align: right;">- Annotations -</p> <p>X = no observation</p> <p>P = less than 7 days of data</p> <p>* = missing data when going to printing.</p>															



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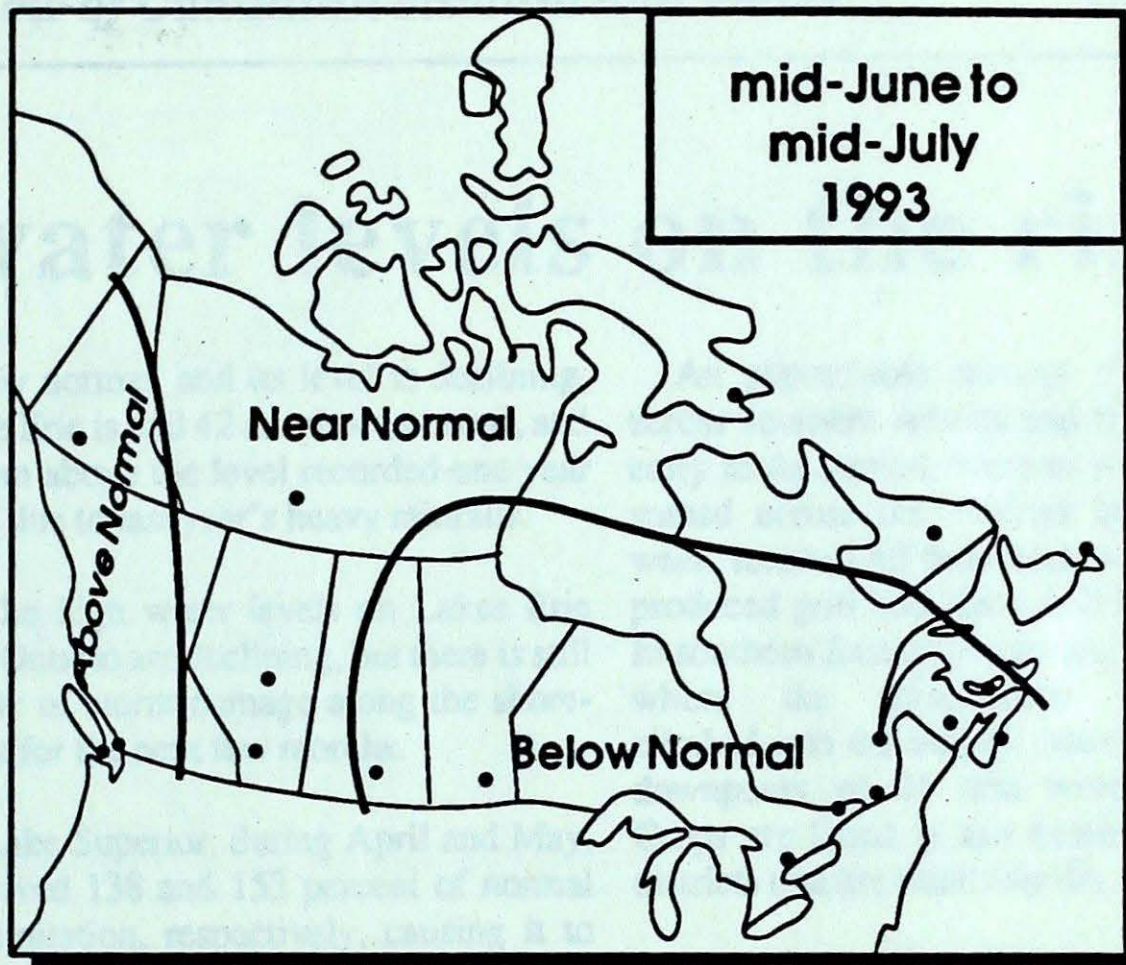
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atmosphérique

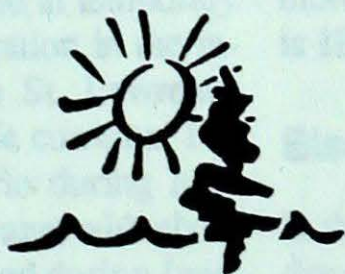
## MONTHLY TEMPERATURE FORECAST

### Normal temperatures for mid-June to mid July, C

Whitehorse	13	Toronto	19
Yellowknife	15	Ottawa	19
Iqaluit	6	Montréal	20
Vancouver	16	Québec	18
Victoria	15	Fredericton	18
Calgary	15	Halifax	16
Edmonton	16	Charlottetown	16
Regina	17	Goose Bay	14
Winnipeg	18	St. John's	13



Canada



## Environmental Citizenship

**One quarter of Canadians still put hazardous materials in with their regular garbage. Many common household products are poisonous, flammable, explosive or corrosive. Check product labels for warning symbols and always dispose of hazardous materials properly.**

**An environmental citizenship message from Environment Canada.**