

Climatic Perspectives

MONTHLY SUPPLEMENT INCLUDED

August 9 to 15, 1993

A weekly review of Canadian climate and water

Vol. 15 No. 33

More heavy rain on the Prairies!

For the third time in just as many weeks, heavy rain fell in the agricultural districts of the Prairies - a time when Prairie farmers are hoping for dry, sunny weather to be able to harvest their crops.

Another 59 mm of rain fell in Winnipeg on August 14, for a weekly total of 74.4 mm, making the summer of '93 the wettest summer in 120 years of records. Since June 1, a total of 432.0 mm was recorded at the Winnipeg Airport, shattering the previous record of 382.6 mm set in 1962. Needless to say, there were reports of local flooding, with many residents having to pump out their basements again - the third time in three weeks.

The same weather system that caused the heavy rain in Winnipeg on Saturday, created havoc in southwestern Saskatchewan the previous day, with reports of as much as 50 mm of rain. Along with the heavy rain, some parts of southwestern Saskatchewan were pelted with golf ball size hail, which covered the ground up to 5 cm deep.

Earlier in the week, a complex weather system dumped from 50 to 70 millimetres of rain across northern Alberta, while further to the south, an associated cold front spawned severe thunderstorms, which produced heavy downpours and hail. Later, a low pressure system heavily laden with moisture over the northwestern States, began to push into southwestern Alberta late Saturday, dumping up to

75 mm of rain across parts of southern Alberta.

Season's first frost on Prairies

At the beginning of the week, daytime temperatures in all three prairie provinces reached the low thirties. But this was short lived, as much colder Arctic air swept southwards during the middle of the week, in the wake of a complex low pressure system. On the morning of the 11th, frost was reported at a few locations in central Alberta. New minimum temperature records, some as low as -1.0°C, were set at Grande Prairie, Edson, Whitecourt and Peace River, just to name a few. Luckily, the light frost did little damage to the crops. This summer, weekly mean temperatures in some agricultural districts of the Prairies have been averaging below normal for the last seven to twelve weeks, causing crop maturation dates to be pushed back one to two weeks.

Elsewhere...

Fresh snow has been reported in the high Arctic, Baffin Island, and at the higher elevations of northern B.C. New daily record-low temperatures were set in the Mackenzie Valley and on Baffin Island.

Across southern British Columbia, the week started off sunny, with the weather deteriorating by week's end. But in the central interior and along the coast, the weather continued to be predominantly pleasant.

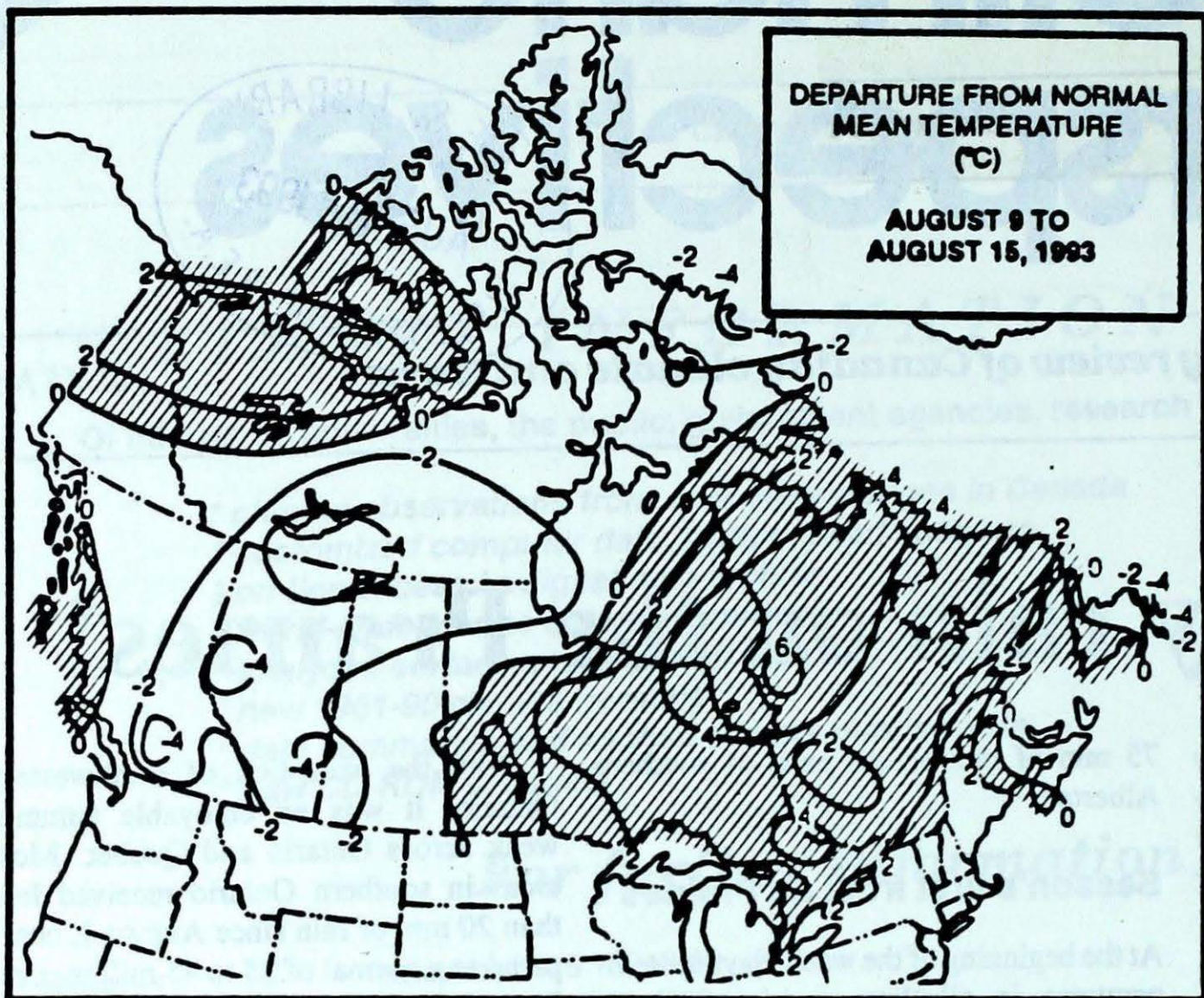
With the exception of northwestern Ontario, it was an enjoyable summer week across Ontario and Quebec. Most areas in southern Ontario received less than 20 mm of rain since August 1, compared to a normal of 35 to 45 millimetres. But rainfall has been more abundant in central Ontario's cottage country.

The Maritimes saw a good deal of sunshine, with near-seasonal temperatures. Heavy thunderstorms, some producing baseball size hail, were reported in northern New Brunswick early in the period. The hail caused extensive damage to trees, cars and blueberry fields near Bathurst, N.B.

Most regions of Newfoundland were sunny. One exception was the Avalon Peninsula, where fog and drizzle prevailed. A northeasterly onshore circulation led to three days of record breaking low temperatures at St. John's. Later in the period, disturbances brought cloud and rain to the southeastern corner of the Island. Thunderstorms with intense lightning caused power outages Saturday night.

A look ahead...

For the week of Aug 23, above-normal temperatures are expected across the Yukon, the northwestern part of the Mackenzie District in the Northwest Territories, and the Atlantic region. Below-normal temperatures are likely over Baffin Island and the Ungava Peninsula. Elsewhere, near-normal temperatures are expected.



Weekly normal temperatures (°C)

	max.	min.
Whitehorse A	19.5	7.1
Iqaluit A	10.9	3.8
Yellowknife A	18.5	10.3
Vancouver Int'l A	22.6	13.1
Victoria Int'l A	22.3	11.0
Calgary Int'l A	23.0	8.9
Edmonton Int'l A	22.4	8.3
Regina A	25.7	10.5
Saskatoon A	24.7	10.4
Winnipeg Int'l A	24.9	11.9
Ottawa Int'l A	24.8	14.2
Toronto (Pearson Int'l A)	25.8	13.7
Montréal Int'l A	24.9	14.9
Québec A	23.4	12.5
Fredericton A	25.0	12.7
Saint John A	21.9	12.0
Halifax (Shearwater)	22.4	14.2
Charlottetown A	23.0	14.1
Goose A	20.1	9.7
St John's A	20.0	12.1

Weekly temperature and precipitation extremes

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Penticton A 29	Fort Nelson A 1	Penticton A 20
Yukon Territory	Watson Lake A 23	Whitehorse A 4	Faro (aut) 12
Northwest Territories	Fort Simpson A 28	Cape Hooper -3	Coral Harbour A 34
	Norman Wells A 28		
Alberta	Medicine Hat A 31	Grande Prairie A -1	Calgary Int'l A 48
Saskatchewan	Estevan A 33	La Ronge A 1	Regina A 42
Manitoba	Brandon A 33	Thompson A 4	Winnipeg Int'l A 74
Ontario	Pickle Lake 32	Armstrong (aut) 4	Armstrong (aut) 40
Quebec	Val-d'Or A 29	Kuujuarapik A 3	Sept-Îles A 82
New Brunswick	Fredericton A 29	Saint John A 8	Miscou Island (aut) 11
Nova Scotia	Greenwood A 27	Greenwood A 10	Shearwater A 3
Prince Edward Island	Charlottetown A 25	Charlottetown A 12	East Point (aut) 1
Newfoundland	Goose A 29	St. John's A 4	Wabush Lake A 47

Across The Country...

Highest Mean Temperature	Windsor A (Ont.) 24
Lowest Mean Temperature	Cape Hooper (N.W.T.) 0

93/08/09-93/08/15

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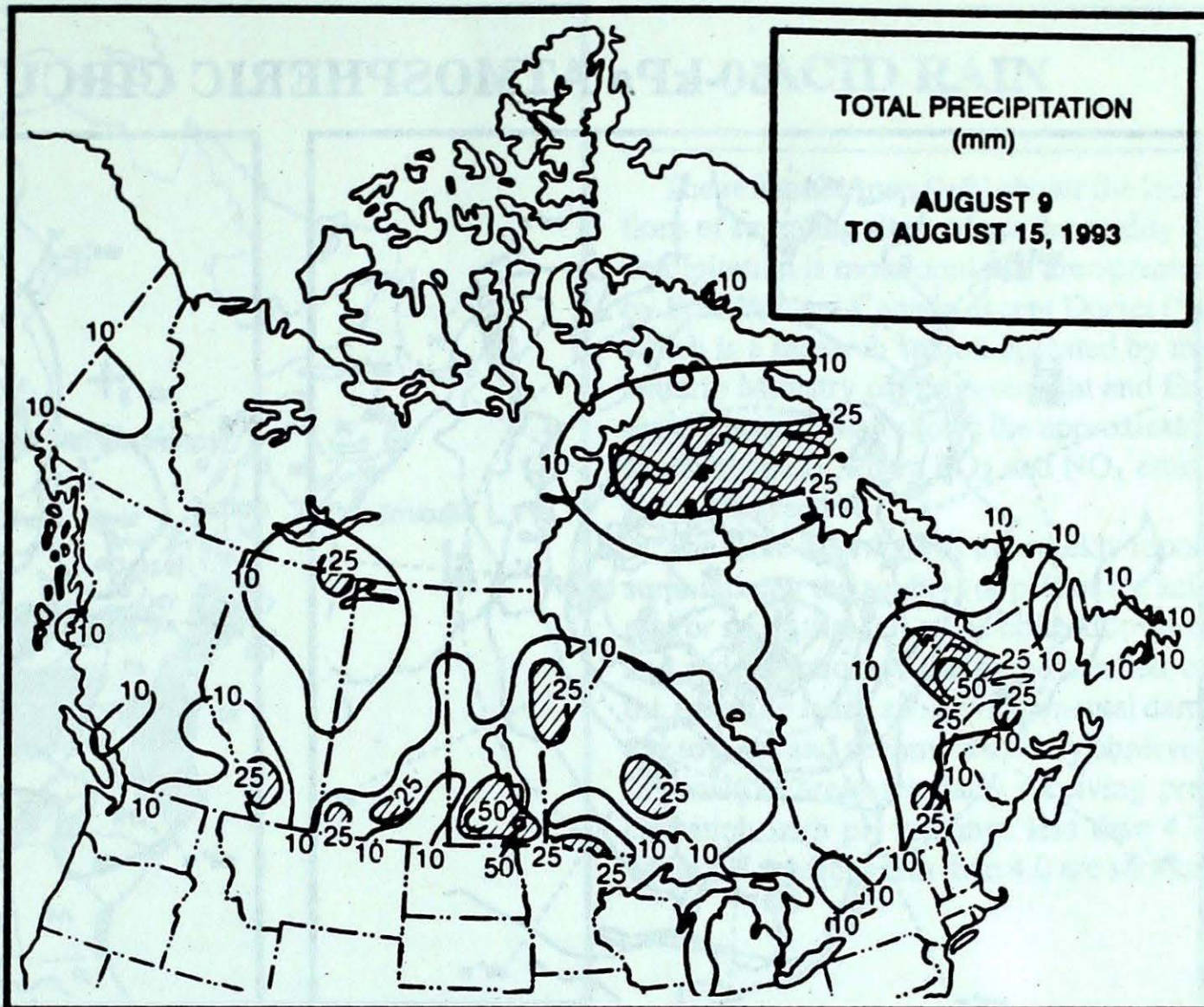
The purpose of the publication is to make topical information available to the public concerning the Canadian Climate and its socio-economic impact.

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.

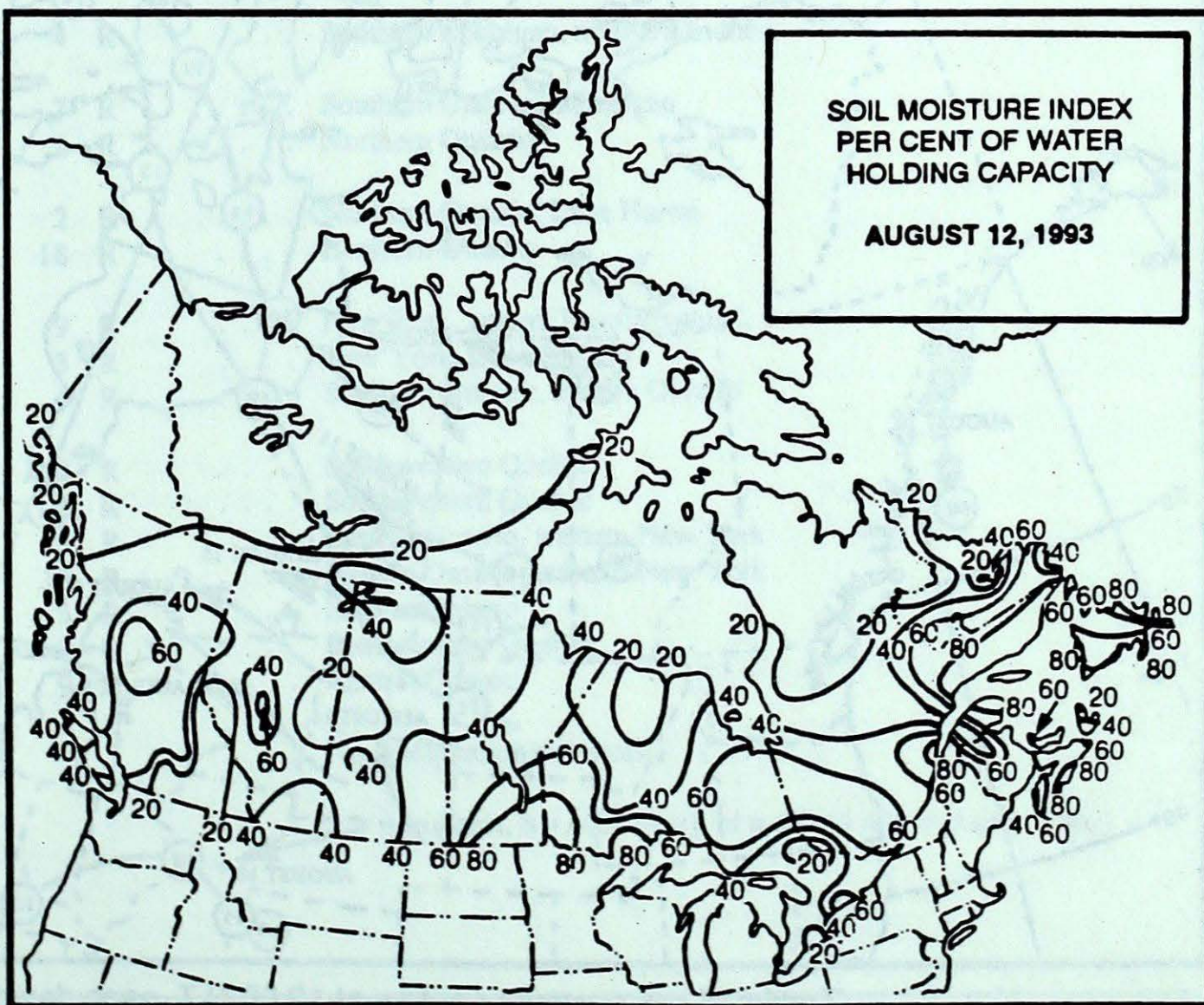
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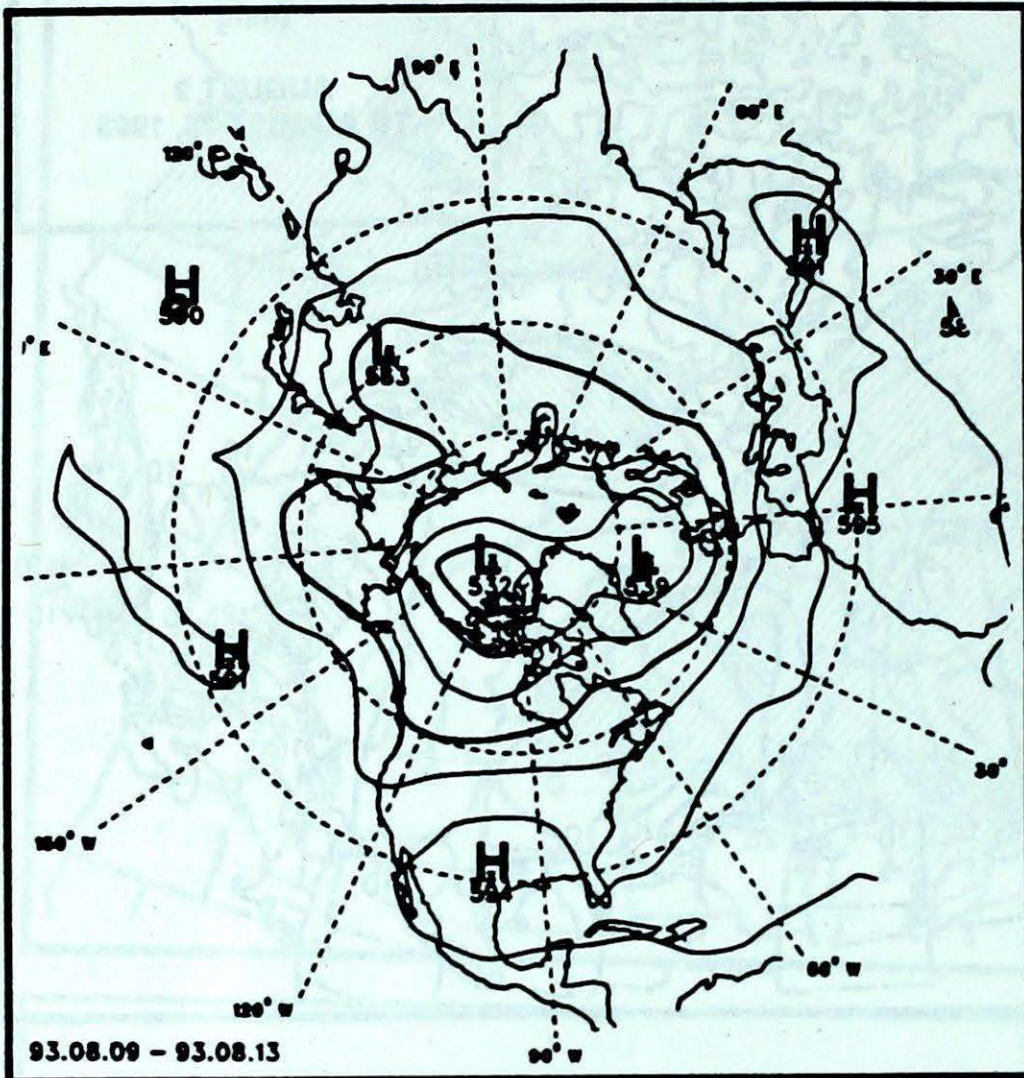
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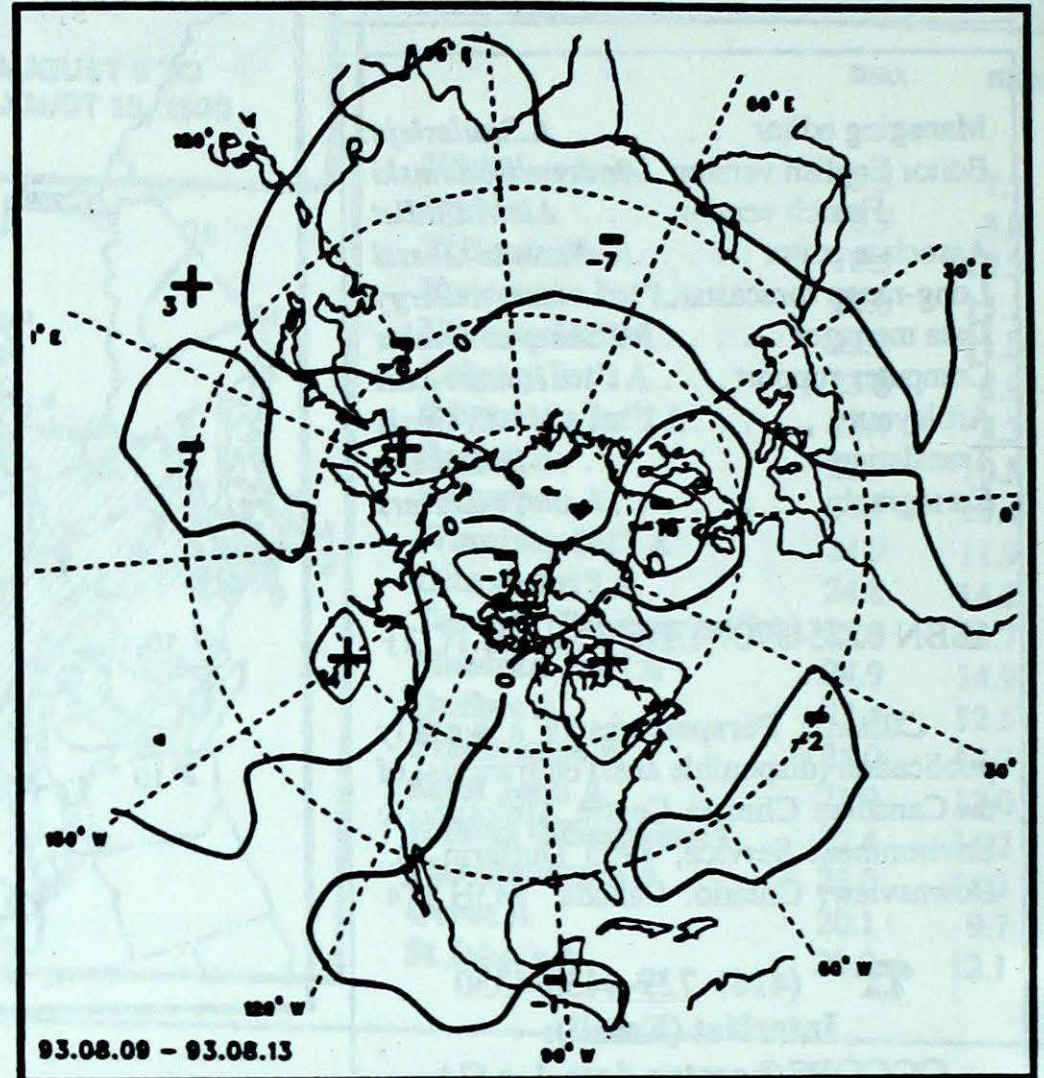
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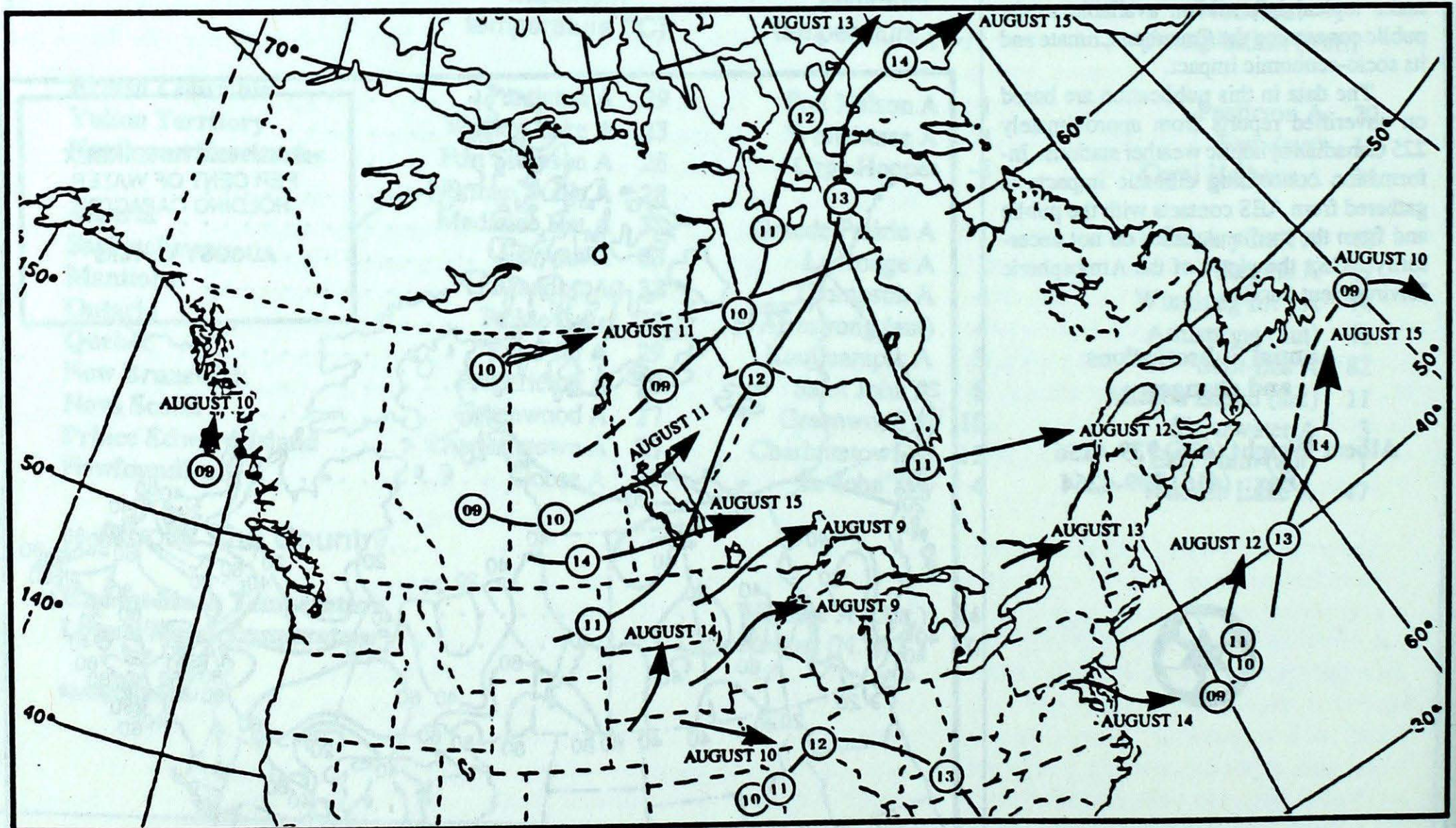
50-kPa ATMOSPHERIC CIRCULATION



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

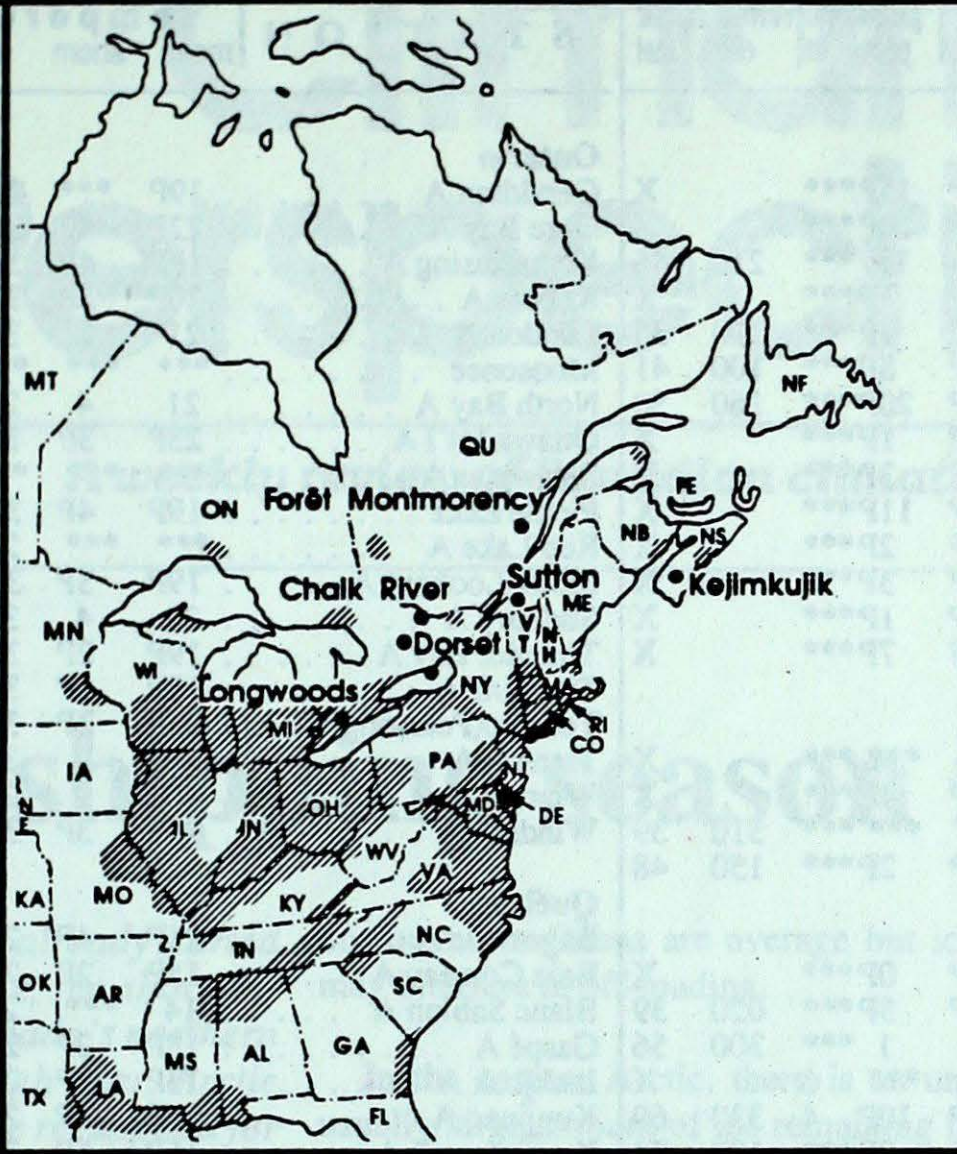


Mean geopotential height anomaly
50-kPa level (10 decametre intervals)



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

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



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 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.

SITE	day	pH	amount	AIR PATH TO SITE
Longwoods	10	4.3	4 R	Southern Michigan, northern Indiana
Dorset *	10	3.8	7 R	Southern Ontario, Michigan
	14	4.1	1 R	Northern Ontario
Chalk River	11	4.1	2 R	Northern Ontario, Lake Huron
	12	4.8	18 R	Northern Ontario
Sutton	10	3.6	9 R	New York, eastern Pennsylvania
	12	3.8	3 R	New York, Lake Ontario
	13	4.4	4 R	Southern Quebec, eastern Ontario
Montmorency	08	4.3	46 R	Southwestern Quebec
	09	4.1	8 R	Southwestern Quebec
	10	3.9	5 R	Eastern Ontario, western New York
	11	3.9	15 R	Eastern Ontario, western New York
	12	4.1	3 R	Eastern Ontario
	13	4.2	7 R	Southwestern Quebec
	14	4.4	9 R	Central Quebec
Kejimikujik				No precipitation this week

August 8 to 14, 1993

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								
British Columbia								Ontario															
Blue River A	15P	-2P	27P	8P	15P***		X	Geraldton A	19P	***	29P	6P	13P***	240	41								
Comox A	18P	0P	24P	13P	10P***		X	Gore Bay A	22P	4P	30P	15P	1P***	190	39								
Cranbrook A	16	-2	27	7	11 ***	210	56	Kapusking A	19P	4P	30P	9P	10P***	290	37								
Fort Nelson A	14P	-2P	27P	1P	7P***		X	Kenora A	20P	2P	30P	10P	7P***	140	46								
Fort St John A	12P	-3P	24P	3P	1P***	220	35	London A	21	2	30	10	6 ***	240	32								
Kamloops A	19P	-2P	29P	10P	8P***	100	41	Moosonee	***	***	***	***	*** ***		X								
Penticton A	18P	-2P	29P	8P	20P***	160	50	North Bay A	21	4	28	15	10 ***		X								
Port Hardy A	15P	1P	19P	10P	1P***		X	Ottawa Int'l A	23P	3P	30P	15P	5P***	100	56								
Prince George A	13P	-2P	24P	2P	3P***		X	Petawawa A	***	***	***	***	*** ***		X								
Prince Rupert A	14P	1P	19P	9P	11P***		X	Pickle Lake	19P	4P	32P	9P	28P***	200	44								
Smithers A	14P	-2P	26P	4P	2P***		X	Red Lake A	***	***	27	***	*** ***	230	52								
Vancouver Int'l A	17P	-1P	22P	13P	3P***		X	Sioux Lookout A	19P	3P	32P	8P	4P***		X								
Victoria Int'l A	17P	0P	23P	12P	1P***		X	Sudbury A	22	4	30	13	1 ***	020	37								
Williams Lake A	13P	-3P	23P	2P	7P***		X	Thunder Bay A	19P	2P	30P	8P	5P***		X								
Yukon Territory								Québec															
Komakuk Beach A	***	***	***	***	*** ***		X	Bagotville A	21P	4P	28P	14P	12P***		X								
Teslin (aut)	14P	***	21P	5P	4P***		X	Baie Comeau A	15P	2P	23P	13P	11P***		X								
Watson Lake A	***	***	23	***	*** ***	310	39	Blanc Sablon A	14	***	22	8	5 ***		X								
Whitehorse A	13P	0P	21P	4P	2P***	150	48	Gaspé A	18P	2P	25P	12P	31P***		X								
Northwest Territories								New Brunswick															
Alert	3P	1P	8P	-1P	0P***		X	Fredericton A	19P	0P	29P	9P	3P***	180	39								
Baker Lake A	10P	-1P	20P	4P	5P***	020	39	Miscou Island (aut)	18P	0P	24P	12P	11P***		X								
Cambridge Bay A	9	2	16	0	1 ***	300	56	Moncton A	18P	-1P	27P	10P	1P***	180	37								
Cape Dyer A	***	***	***	***	*** 6		X	Saint John A	17P	0P	29P	8P	1P***		X								
Clyde A	2P	-3P	15P	-1P	10P 4	330	69	St Leonard A	19P	***	27P	10P	0P***	190	32								
Coppermine A	13P	4P	25P	4P	0P***	180	74	Nova Scotia															
Coral Harbour A	7P	-1P	17P	2P	34P***	010	80	Greenwood A	18P	-1P	27P	10P	1P***	160	35								
Eureka	3P	-2P	5P	0P	4P***		X	Shearwater A	18P	0P	26P	14P	3P***	020	39								
Fort Smith A	9P	-6P	21P	-1P	26P***	020	33	Sydney A	***	***	22	***	*** ***	030	44								
Hall Beach A	4P	-2P	12P	0P	6P***	330	48	Yarmouth A	18P	1P	25P	11P	1P***		X								
Inuvik A	13P	2P	24P	3P	1P***	360	48	Prince Edward Island															
Iqaluit A	8P	0P	14P	3P	25P***	140	57	Charlottetown A	18P	-1P	25P	12P	1P***		X								
Mould Bay A	***	***	2	***	*** ***		X	East Point (auto)	18P	***	21P	16P	1P***		X								
Norman Wells A	16P	2P	28P	6P	2P***	120	44	Newfoundland															
Resolute A	2	-1	7	-2	9 3	270	59	Cartwright	16P	4P	26P	7P	16P***	210	46								
Yellowknife A	12P	-3P	18P	5P	1P***	160	56	Churchill Falls A	16P	3P	27P	6P	1P***		X								
Alberta								93/08/09-93/08/15															
Calgary Int'l A	12P	-4P	28P	6P	48P***	290	76	Gander Int'l A	15	-1	22	8	7 ***	210	39								
Cold Lake A	15	-1	25	6	24 ***	270	67	Goose A	18P	4P	29P	9P	10P***		X								
Edmonton Namao A	13	-3	24	5	7 ***	320	43	Stephenville A	18P	1P	26P	11P	5P***	250	39								
Fort McMurray A	12	-3	21	4	10 ***		X	St John's A	11P	-5P	19P	4P	12P***	320	50								
Grande Prairie A	11P	-5P	23P	-1P	1P***	280	39	St Lawrence	14	0	22	8	10 ***		X								
High Level A	11P	-4P	22P	3P	16P***	340	41	Wabush Lake A	16P	3P	26P	8P	47P***		X								
Lethbridge A	15P	-3P	30P	3P	22P***	030	43	Please note that much of the data for August 9, 1993 was not available.															
Medicine Hat A	17P	-3P	31P	4P	4P***		X																
Peace River A	11P	-4P	22P	2P	2P***		X																
Saskatchewan								Manitoba															
Cree Lake	***	***	18	***	*** ***		X	Brandon A	18P	0P	33P	6P	51P***	270	102								
Estevan A	18P	-1P	33P	7P	3P***	340	59	Churchill A	9P	-3P	20P	6P	5P***	350	56								
La Ronge A	14P	-1P	26P	1P	8P***		X	Lynn Lake A	13P	-2P	20P	8P	18P***	320	50								
Regina A	17P	-1P	31P	4P	42P***	350	41	The Pas A	16P	0P	25P	9P	12P***	270	43								
Saskatoon A	16P	-2P	27P	3P	5P***	230	48	Thompson A	14P	1P	24P	4P	1P***	260	48								
Swift Current A	16P	-2P	31P	5P	14P***	320	44	Winnipeg Int'l A	19P	0P	31P	9P	74P***	330	48								
Yorkton A	17P	-1P	32P	6P	4P***	020	32																

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.