Environnement Canada

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Climatic Perspectives

August 16 to 22,1993 ***A weekly review of Canadian climate and water*** *Vol. 15 No. 34*

Arctic shipping season in full swing

Although the snow has already started to fly in the high Arctic, the short navigation season in Canada's northern waters continues in high gear. Arctic communities have to be resupplied for the long winter ahead, zinc ore has to be shipped out of Nanisivik and Little Cornwallis Island and oil stored at Cameron Island has to be moved before the inevitable freeze-up.

In the Beaufort and along the southern Arctic coast of the western Arctic, the ice cleared out quickly this year and conditions remain excellent. Ice conditions in the central and eastern Arctic have not been as favourable, due to colder than normal temperatures during the first part of 1993.

The shipping season began during the latter part of July, with the inaugural trip of the ice strengthened bulk carrier M.V. Arctic to Nanisivik on July 3. On July 31, the Russian cruise ship Kapitan Khlebnikov, traversed the northwest passage eastbound to Resolute and Eureka and is presently near Greenland. Both ships are very powerful and capable ice breakers on their own. Ice conditions in the central Arctic are improving, and are considered to be relatively good, but do contain difficult areas. Conditions range from open pack ice in Victoria Strait and Peel Sound to heavy concentrations of ice in Larsen Sound and Franklin Strait, with old hard ice mixed in. Several ships, including a 35 foot fishing boat made their way across the frozen north, with ice breaker assistance. The resupply convoy to Eureka is on route; conditions are average but ice may interfere in off-loading.

In the eastern Arctic, there is an unusually large amount of ice remaining in Baffin Bay, with no open water passage to the north. Heavy concentrations of ice in eastern Foxe Basin and patches of old hard ice along the east coast of Baffin Island are expected to pose problems during resupply operations.

More rain on the Prairies!

Two more weather systems affected the region, dumping more than 100 mm of rain on southern Alberta and Saskatchewan. Lethbridge, Alta. set a new 24-hour rainfall record of 71.1 mm on the 16th, while baseball size hail fell near Maple Creek, Sask. Further to the east, The Pas, Man. tallied 68 mm during the first 3 days of the period. Brandon received 53 mm on the 22nd, while Swift Current, Sask. had a weekly total of 115 mm.

Elsewhere...

A series of Pacific disturbances affected the Yukon. Daytime temperatures were still quite pleasant, but fall colours and fireweed fluff have signalled the end of summer. Hail fell in Dawson on the 17th. Weather-wise it was a pleasant week in the Northwest Territories. Fires burning in the Norman Wells area spread smoke throughout the Mackenzie district.

Variable weather prevailed across B.C., but it was wetter in the south, where some farmers are still awaiting dry haying weather. The peach harvest is almost finished in the Okanagan, while pears are starting. There was a spectacular lightning display in the Kootanays on the 20th. On the 22nd, 64.4 mm of rain broke Port Hardy's one-day August rainfall record.

In Ontario rainfall has been light, with overnight temperatures a little on the cool side.

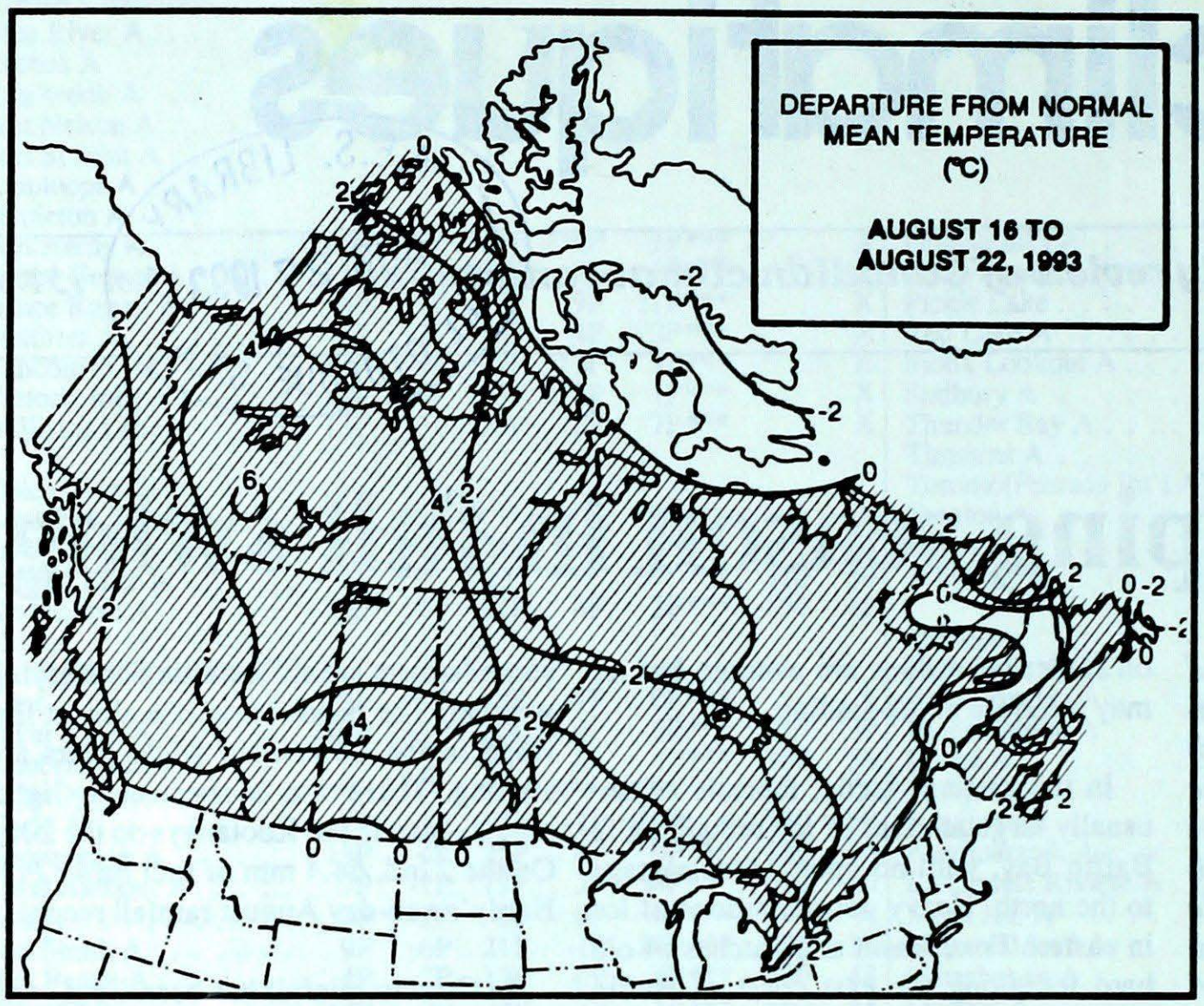
It was a mainly sunny and warm week in the Maritimes, with Newfoundland even receiving a fair amount of sunshine this week.

Deluge in Quebec's Eastern Townships

Thunderstorms Tuesday afternoon produced as much as 177 mm of rain in two hours at Beauceville, 50 km south of Quebec City, causing flooding and washouts in the area and disabling a water filtration plant. In St-Francois de Beauce, damage was estimated in excess of one million dollars.

A Look Ahead...

For the week of August 31, above-normal temperatures are expected for the southern half of British Columbia and the Arctic Islands. Below-normal temperatures are likely for the southern half of Baffin Island and the Ungava Peninsula. Elsewhere, near-normal temperatures are anticipated. Unsettled weather is expected for most of Canada except in the Yukon and the Mackenzie District.



Weekly normal temperatures (°C)

	max.	min.
Whitehorse A	17.9	6.2
Iqaluit A	10.1	3.3
Yellowknife A	17.9	9.9
Vancouver Int'l A	21.2	12.6
Victoria Int'l A	21.1	10.6
Calgary Int'l A	22.1	7.9
Edmonton Int'l A	21.3	7.4
Regina A	25.3	10.4
Saskatoon A	24.5	9.9
Winnipeg Int'l A	24.4	11.6
Ottawa Int'l A	24.1	12.9
Toronto (Pearson Int'l A)	25.4	12.8
Montréal Int'l A	24.1	13.5
Québec A	22.7	11.2
Fredericton A	24.3	11.3
Saint John A	21.7	11.2
Halifax (Shearwater)	22.1	13.3
Charlottetown A	21.9	12.9
Goose A	18.6	8.8
St John's A	19.0	10.8

Weekly temperature and precipitation extremes

	Maximum temperature (°C)		Minimum temperature (°C)		Heaviest precipitation (mm)	
British Columbia	Lytton	35	Fort Nelson A	-1	Port Hardy A	70
Yukon Territory	Watson Lake A	25	Teslin (aut)	1	Faro (aut)	3
Northwest Territories	Fort Simpson A	30	Cape Hooper	-5	Iqaluit A	18
Alberta	Lloydminster A	30	Pincher Creek (aut)	0	Lethbridge A	93
Saskatchewan	Meadow Lake A	31	La Ronge A	3	Swift Current A	115
Manitoba	Thompson A	29	Thompson A	4	The Pas A	72
Ontario	Britt (aut)	31	Timmins A	2	Armstrong (aut)	44
Quebec	Montréal Int'l A	30	Schefferville A	2	Natashquan A	62
New Brunswick	Fredericton A	29	St Stephen (aut)	6	Miscou Island (aut)	25
Nova Scotia	Greenwood A	29	Truro	6	Greenwood A	12
Prince Edward Island	Charlottetown A	26	Charlottetown A	9	East Point (aut)	9
Newfoundland	Goose A	26	Churchill Falls A	0	Daniels Harbour	52

Across The Country...

Highest Mean Temperature	Windsor A (Ont.)	23
Lowest Mean Temperature	Cape Hooper (N.W.T.)	-1

93/08/16-93/08/22

CLIMATIC PERSPECTIVES
VOLUME 15

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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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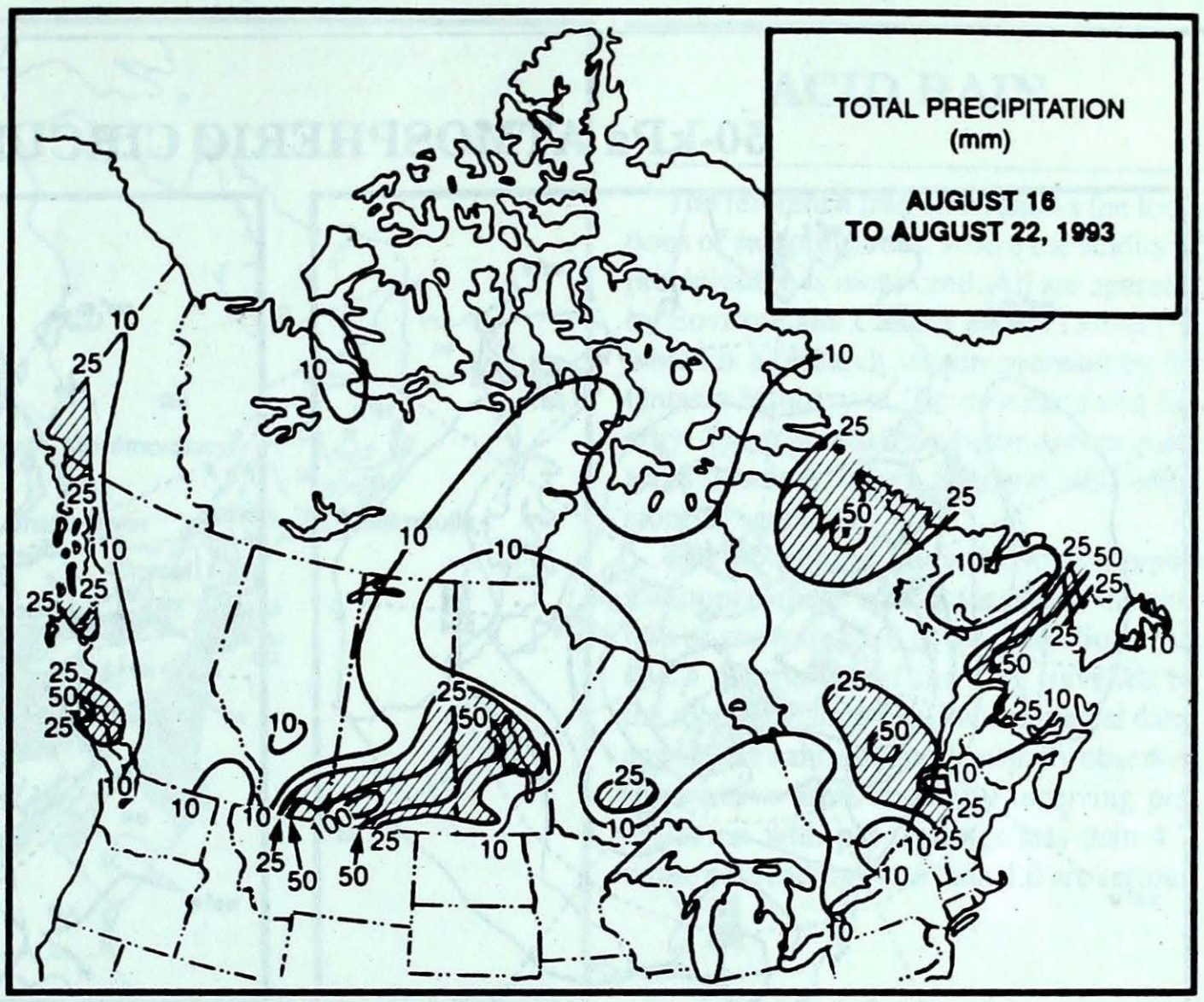
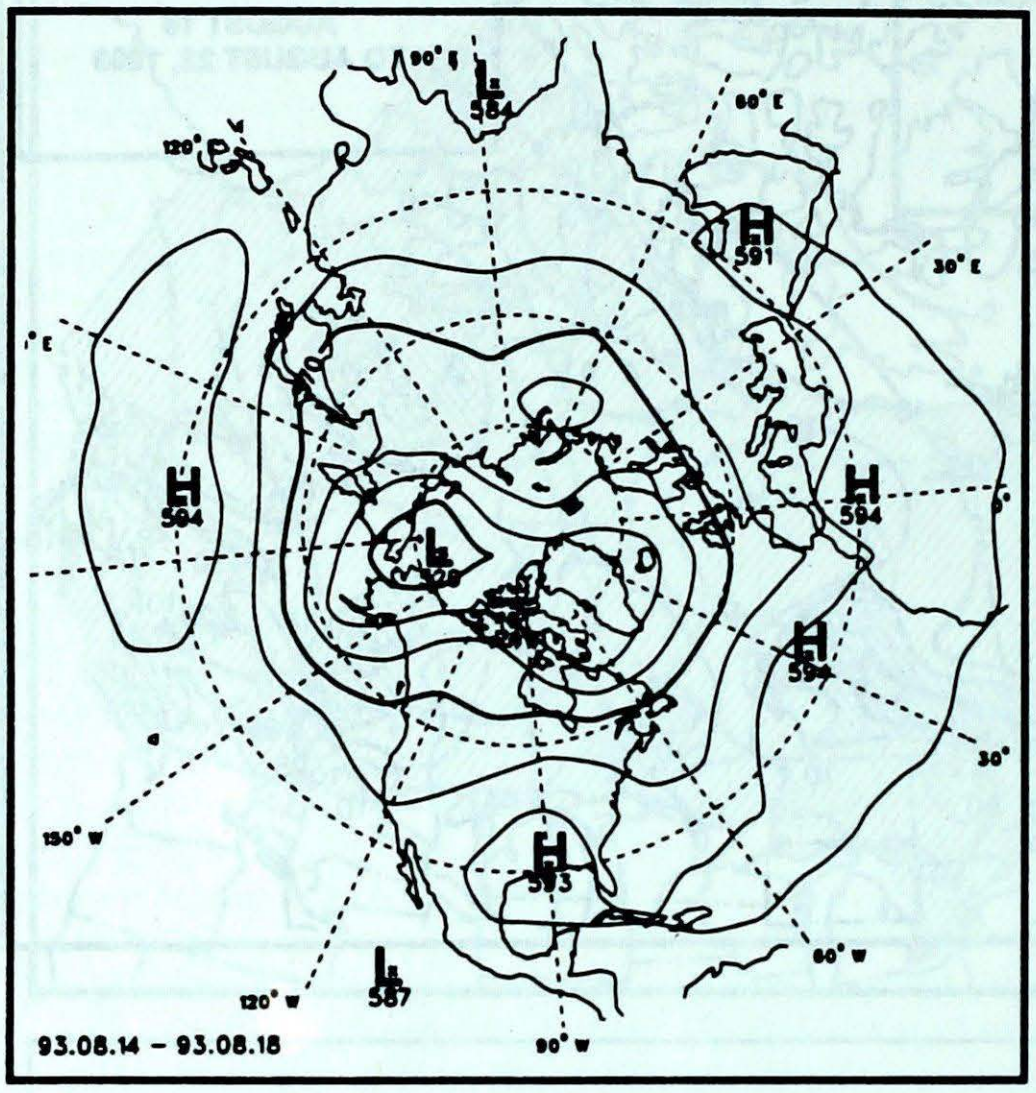
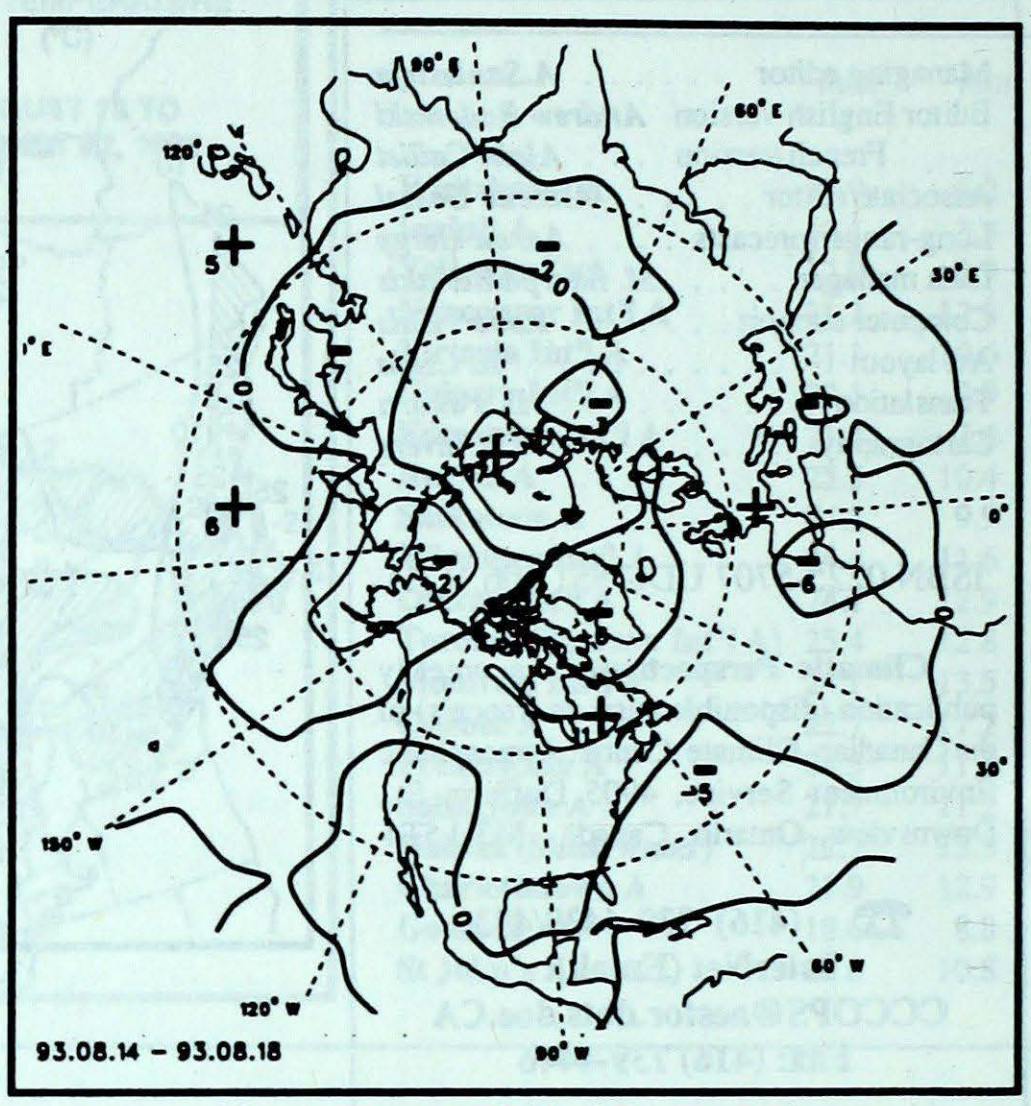


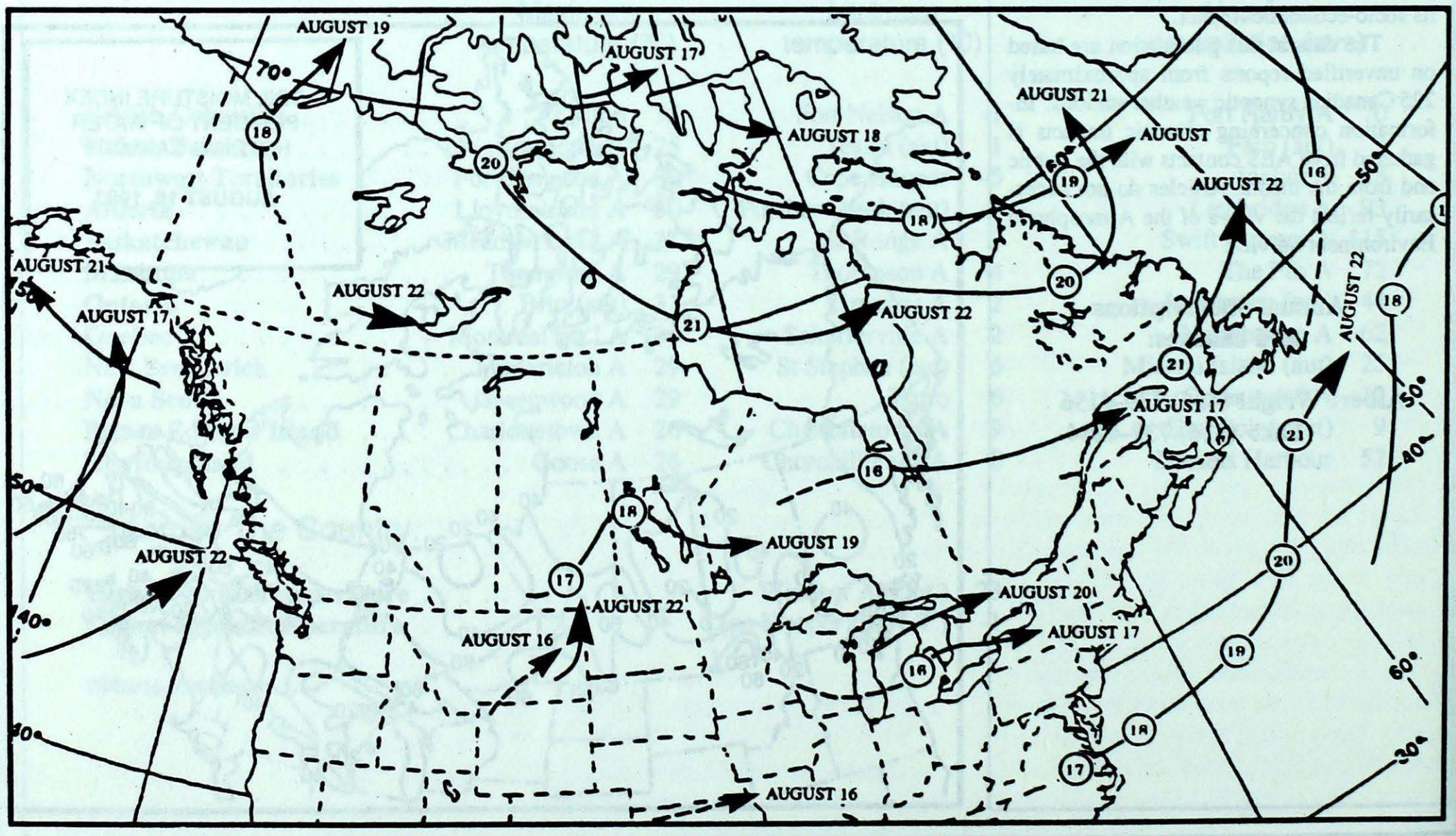
50-kPa ATMOSPHERIC CIRCULATION



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

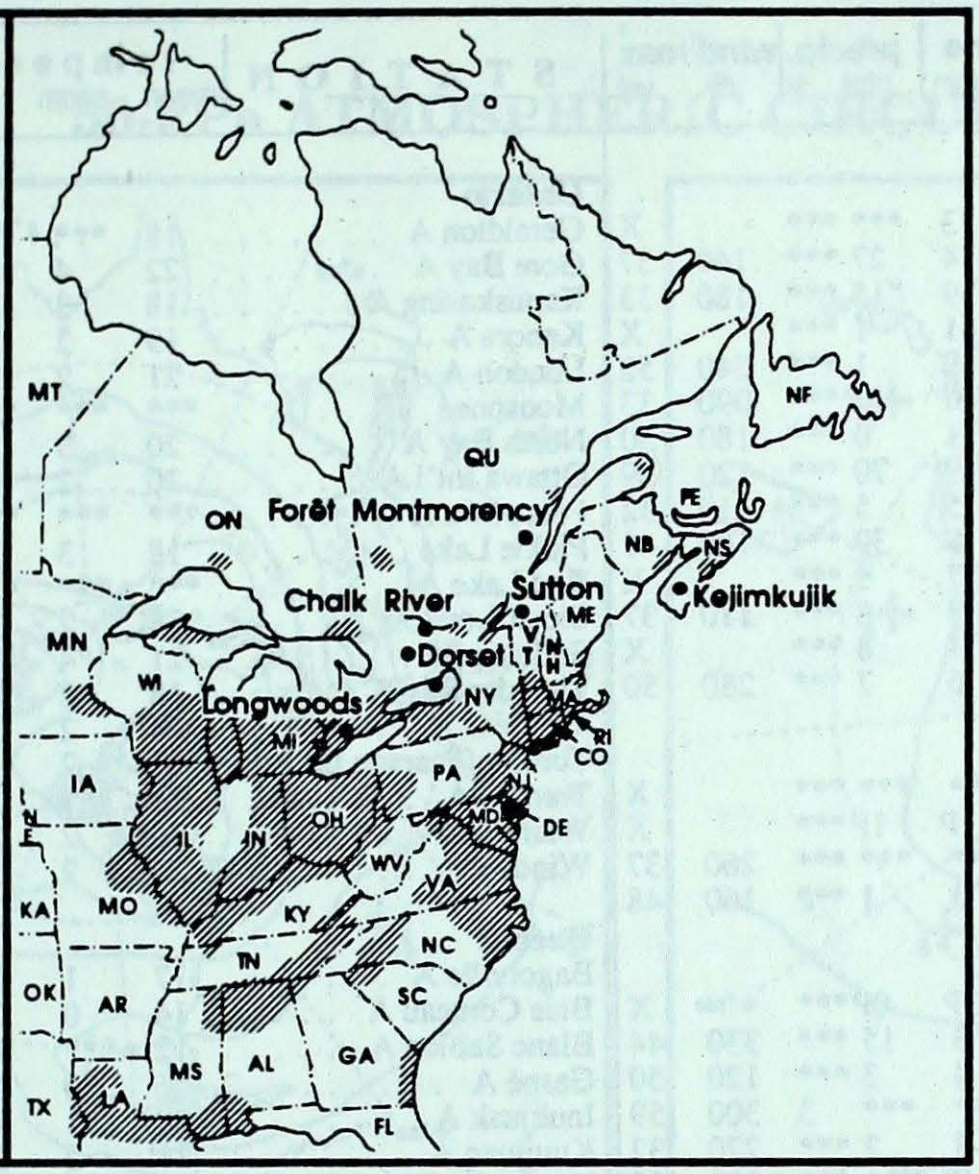


Mean geopotential height anomaly
50-kPa level (10 decametre intervals)



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
LOUSIANA	- LA
MAINE	- ME
MANITOBA	- ME
MARYLAND	- MT
MASSACHUSETTS	- MA
MICHIGAN	- MI
MINNESOTA	- MN
MISSISSIPI	- 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 SO_2 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
					August 15 to 21, 1993
Longwoods	20	4.3	1	R	Michigan
Dorset *	17	4.1	6	R	Eastern Ontario
	19	3.9	5	R	Southern and northern Ontario
	20	4.2	14	R	Southern and northern Ontario
Chalk River	16	4.6	16	R	Eastern Ontario, Northwestern Quebec
	17	4.3	4	R	Western Quebec, eastern Ontario
	19	4.1	21	R	Northern Ontario
	20	4.3	13	R	Northwestern Quebec, Northern Ontario
Sutton	20	4.6	11	R	Eastern Ontario, northwestern New York
Montmorency					Data not available
Kejimkujik	20	4.1	12	R	Central New England

R = rain (mm), S = snow (cm), M = mixed rain and snow (mm)

STATION	temperature mean	anom	max	min	precip. ptot	st	wind max dir	vel
British Columbia								
Blue River A	18	3	30	3	***	***		X
Comox A	18	2	27	14	27	***	140	57
Cranbrook A	17	1	29	9	15	***	180	33
Fort Nelson A	18	3	29	-1	1	***		X
Fort St John A	18	4	26	9	1	***	240	52
Kamloops A	21P	2P	32P	13P	3P	***	090	33
Penticton A	21	2	29	11	0	***	180	50
Port Hardy A	15	1	21	9	70	***	120	39
Prince George A	17	4	29	5	5	***	310	32
Prince Rupert A	14	1	18	9	39	***	180	41
Smithers A	16	2	27	7	6	***		X
Vancouver Int'l A	18	1	25	13	8	***	110	37
Victoria Int'l A	17	1	26	11	8	***		X
Williams Lake A	17	2	27	6	7	***	280	50
Yukon Territory								
Komakuk Beach A	***	***	***	***	***	***		X
Teslin (aut)	11P	***	21P	1P	1P	***		X
Watson Lake A	***	***	25	***	***	***	260	37
Whitehorse A	13	1	20	3	1	***	160	48
Northwest Territories								
Alert	0P	0P	3P	-3P	0P	***		X
Baker Lake A	11	2	24	3	15	***	330	44
Cambridge Bay A	10	3	17	4	3	***	120	50
Cape Dyer A	***	***	***	***	***	3	300	59
Clyde A	2	-2	6	-3	2	***	270	32
Coppermine A	13	5	23	7	11	***	080	32
Coral Harbour A	8	1	15	0	3	***	020	43
Eureka	2	0	7	-1	1	***		X
Fort Smith A	19	5	30	8	8	***		X
Hall Beach A	3	-1	9	0	9	***	300	35
Inuvik A	14	3	26	5	1	***		X
Iqaluit A	5	-2	11	1	18	***	320	59
Mould Bay A	***	***	9	***	***	***		X
Norman Wells A	18	5	28	7	1	***		X
Resolute A	2	0	8	-3	1	***	090	74
Yellowknife A	19	5	25	13	3	***		X
Alberta								
Calgary Int'l A	16	1	25	7	4	***	350	70
Cold Lake A	19	3	30	8	1	***	310	33
Edmonton Namao A	18	3	27	8	6	***	270	48
Fort McMurray A	19	4	29	8	9	***	340	61
Grande Prairie A	17P	3P	28P	4P	4P	***	260	59
High Level A	18	5	27	6	4	***	260	41
Lethbridge A	18	0	28	10	93	***	330	48
Medicine Hat A	19	0	30	11	37	***		X
Peace River A	17	3	27	6	1	***		X
Saskatchewan								
Cree Lake	***	***	26	***	***	***		X
Estevan A	19	0	28	10	17	***	290	65
La Ronge A	17	3	28	3	15	***	150	41
Regina A	19	1	28	12	62	***	160	44
Saskatoon A	19	2	29	10	45	***	020	50
Swift Current A	18	0	28	11	115	***	290	70
Yorkton A	17	1	27	9	57	***	360	46
Manitoba								
Brandon A	18	1	27	10	66	***	260	57
Churchill A	12	1	23	4	4	***	310	52
Lynn Lake A	18	5	27	8	0	***	250	35
The Pas A	18	2	27	11	72	***	120	41
Thompson A	17	4	29	4	7	***	030	48
Winnipeg Int'l A	19	1	27	11	7	***	160	93

STATION	temperature mean	anom	max	min	precip. ptot	st	wind max dir	vel
Ontario								
Geraldton A	18	***	27	5	9	***	240	52
Gore Bay A	22	4	30	9	1	***	360	37
Kapuskasing A	18	3	29	4	8	***	330	37
Kenora A	19	2	27	11	3	***	140	37
London A	21	2	30	8	3	***	330	52
Moosonee	***	***	***	***	***	***		X
North Bay A	20	3	29	5	2	***	010	46
Ottawa Int'l A	20	2	30	10	8	***	360	50
Petawawa A	***	***	***	***	***	***		X
Pickle Lake	18	3	27	8	15	***	010	44
Red Lake A	***	***	26	***	***	***	120	46
Sioux Lookout A	18	2	26	8	33	***	220	52
Sudbury A	21	4	30	8	1	***	340	44
Thunder Bay A	18	2	27	6	9	***	020	35
Timmins A	18	2	28	2	8	***	360	37
Toronto(Pearson Int'l A)	21	2	30	9	18	***	340	54
Trenton A	21	1	30	7	21	***	330	54
Wiarton A	20	2	29	7	6	***	010	35
Windsor A	23	2	31	11	9	***	320	50
Québec								
Bagotville A	17	1	27	3	42	***		X
Baie Comeau A	14	0	21	7	22	***	220	46
Blanc Sablon A	12	***	18	6	10	***	250	35
Gaspé A	16	0	28	5	23	***	340	48
Inukjuak A	10	1	17	5	19	***		X
Kuujjuaq A	11	2	21	3	55	***	350	70
Kuujjuarapik A	12	2	23	7	13	***	330	50
La Grande Rivière A	14P	1P	26P	6P	24P	***	310	39
Mont Joli A	15	0	22	9	23	***	050	41
Montréal Int'l A	20	1	30	6	7	***	360	46
Natashquan A	15	2	22	6	62	***	090	44
Québec A	18	1	26	7	6	***	270	41
Schefferville A	11	0	22	2	11	***	330	56
Sept-Îles A	14	1	21	5	19	***	330	43
Sherbrooke A	17	1	27	3	27	***		X
Val-d'Or A	18	3	28	6	16	***	360	46
New Brunswick								
Fredericton A	18	1	29	6	9	***	340	44
Miscou Island (aut)	18P	1P	25P	10P	25P	***		X
Moncton A	18	1	27	7	9	***	210	35
Saint John A	17	1	27	6	1	***	350	37
St Leonard A	17	***	27	7	23	***	340	43
Nova Scotia								
Greenwood A	18	0	29	7	12	***	160	39
Shearwater A	18	0	24	11	7	***	350	54
Sydney A	***	***	23	***	***	***	330	35
Yarmouth A	18	2	26	9	8	***	010	37
Prince Edward Island								
Charlottetown A	18	1	26	9	6	***	360	37
East Point (auto)	18P	***	21P	15P	9P	***		X
Newfoundland								
Cartwright	14P	2P	25P	5P	14P	***	210	56
Churchill Falls A	12P	0P	24P	0P	6P	***		Xs
Gander Int'l A	16	1	24	7	12	***	190	48
Goose A	16	2	26	6	5	***	280	56
Stephenville A	16	0	22	7	19	***	240	43
St John's A	12P	-3P	23P	5P	22P	***	330	46
St Lawrence	15	1	23	8	3	***		X
Wabush Lake A	12	1	23	3	14	***	240	39

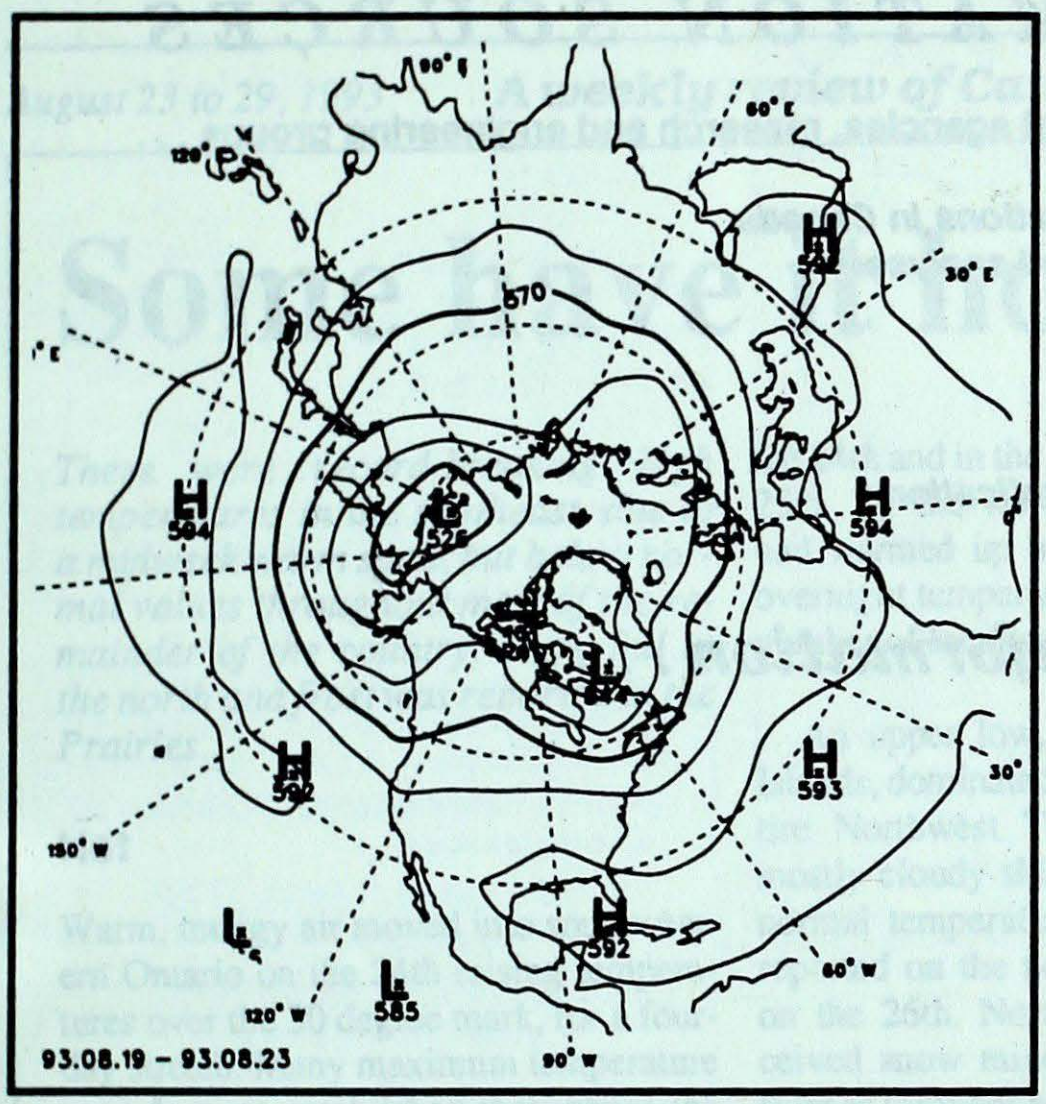
93/08/16-93/08/22

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

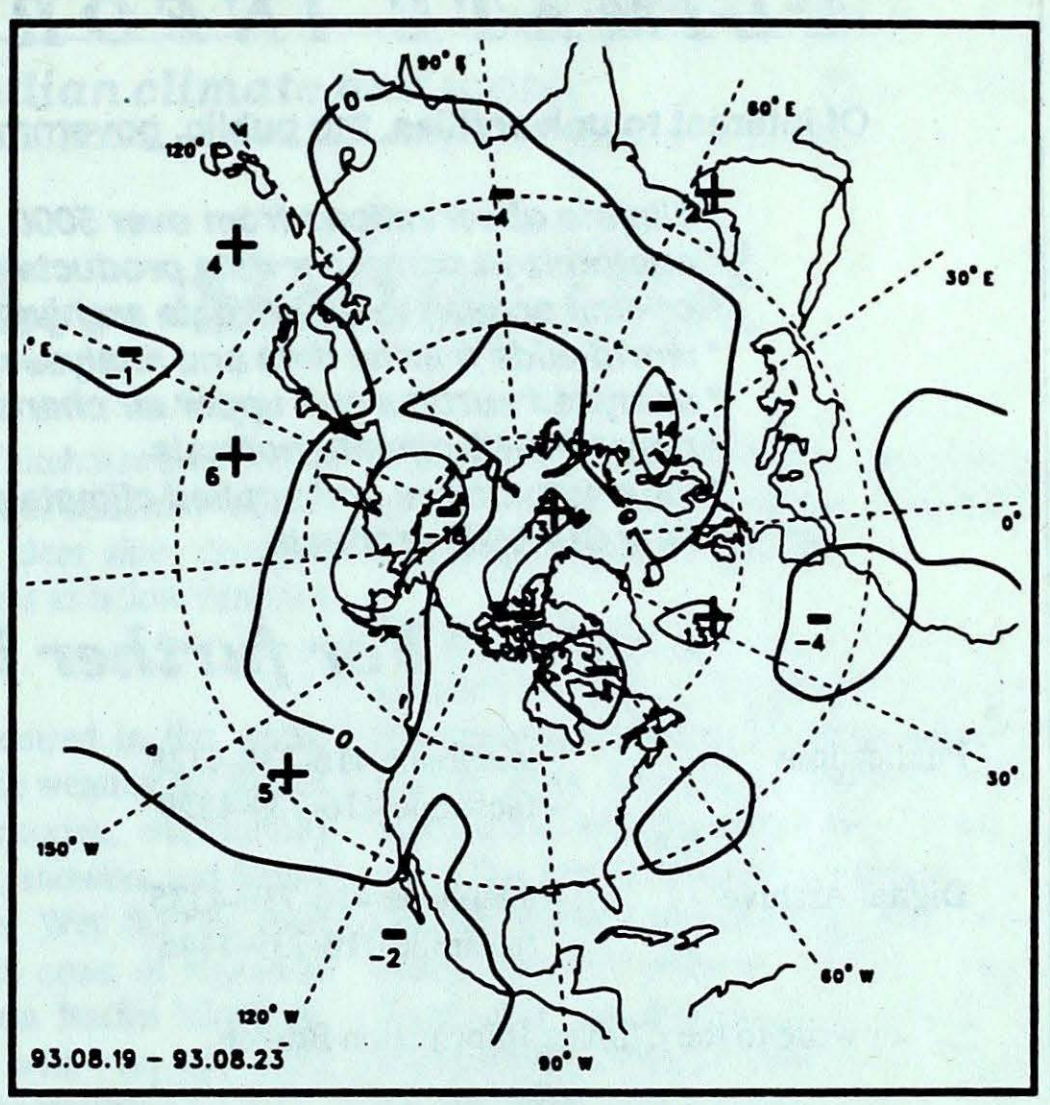
ptot = weekly precipitation total in mm
st = snow thickness on the ground in cm
dir = direction of max wind, deg. from north.
vel = wind speed in km/h

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

50-kPa ATMOSPHERIC CIRCULATION



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



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

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