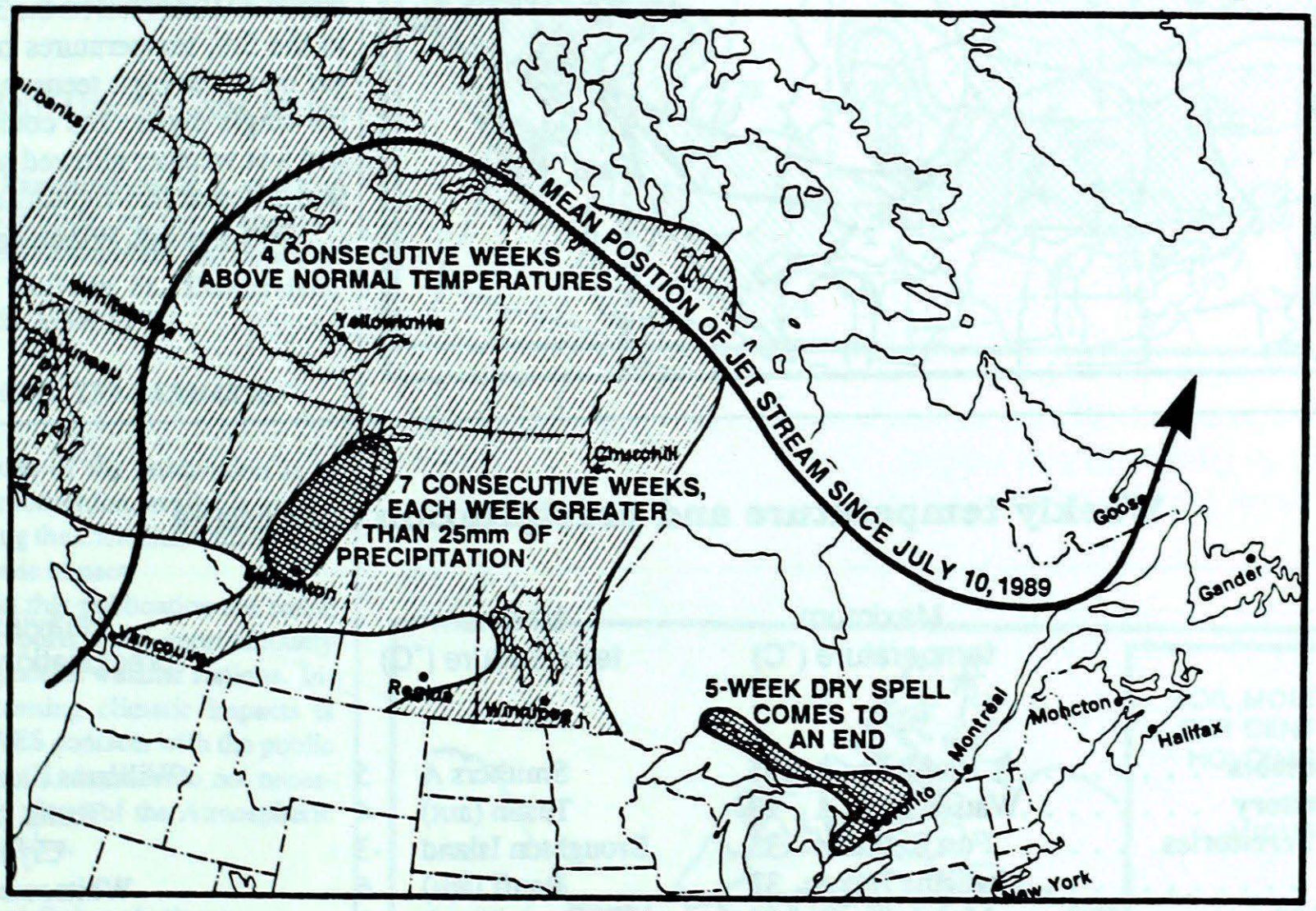
Environment Canada Environnement Canada

Climatic Perspectives

July 31 to August 6, 1989 — A weekly review of Canadian climate — Vol. 11 No 32

Persistent weather patterns contribute to warm spell in northern Canada



For the fourth consecutive week, above-normal temperatures prevailed over the northern prairie provinces, the Yukon and much of the adjacent Northwest Territories. The jet stream, which controls the flow of warm and cold air masses around the hemisphere, has persisted in an orientation that has delivered extremely warm air from the south into the higher latitudes of North America.

There has been some oscillation in the western position of the jet stream which permitted repeated intrusions of cooler, moist Pacific air into central Alberta. The result has been significant rainfalls during each of the past 7 weeks, with frequent occurrences of severe thunderstorms. On the 3rd, flood warnings and high water advisories were in effect for much of the countryside between Edmonton and the B.C. border.

Meanwhile, in central Ontario, a persistent flow of dry air from the west deprived central Ontario of any significant rainfall for 5 consecutive weeks. Finally, last week, thundershowers brought 25 to 50 mm of rain to the parched area, ending the dry spell. Wiarton, however, continued its dry trend into the sixth week, having received only 1 mm of rain since June 23rd.

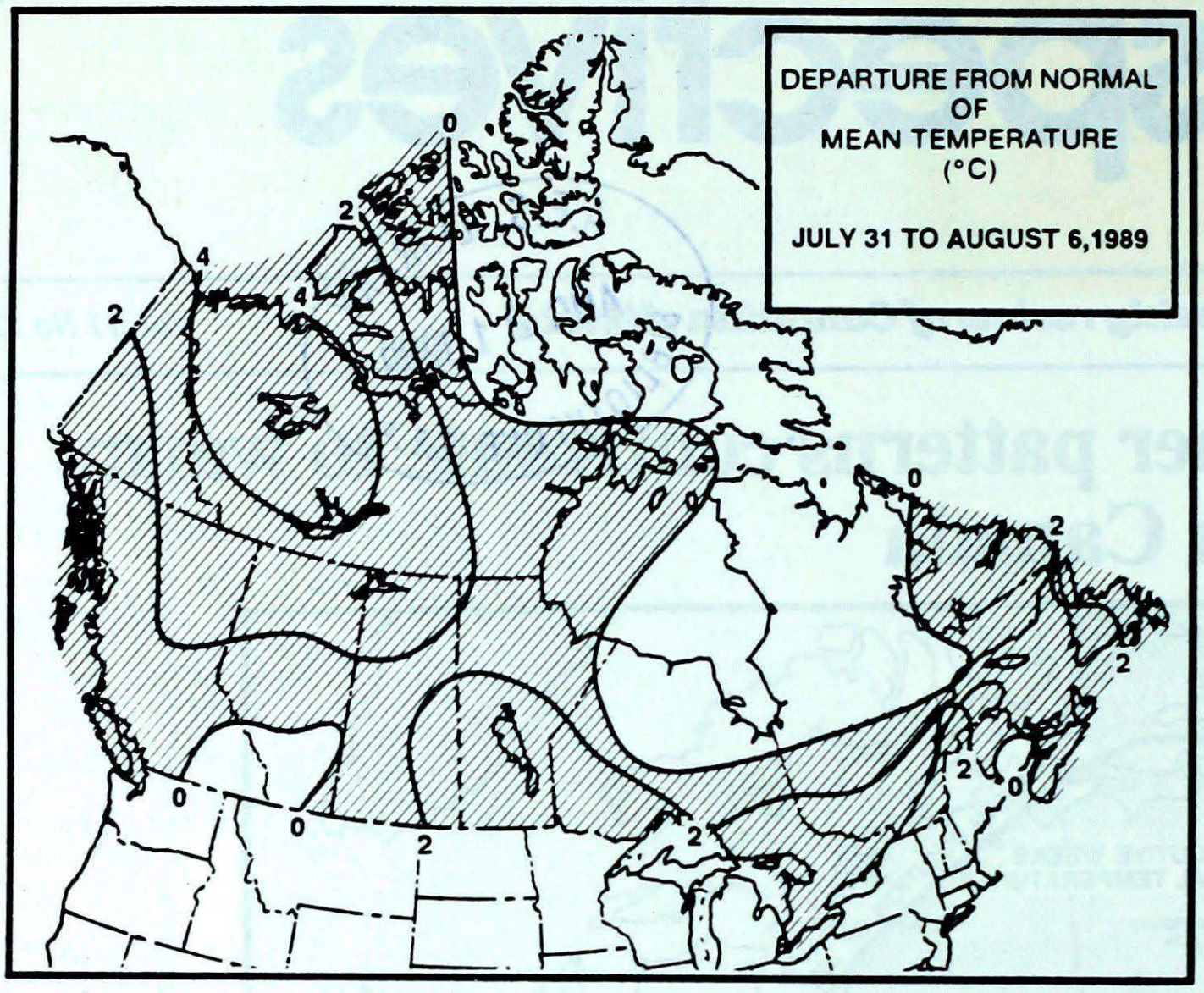
Amir Shabbar, Canadian Climate Centre

Hot Weather Continues...

Average temperatures for the week of August 14th are expected to be above normal for all of Canada, with the greatest departures from normal expected over the Northwest Territories, and the northern parts of the Prairies. Precipitation is expected to be below normal for the Northwest Territories, the Arctic islands, Manitoba, and the western half of northern Ontario. Precipitation is likely over British Columbia, the Yukon, the southern parts of Alberta and Saskatchewan, northern Québec, Labrador, and the Atlantic provinces.

— *prepared August 9, 1989*

Aaron Gergye, Canadian Climate Centre



Elsewhere ...

Northern Manitoba welcomes cooler, wetter weather

Showers, thundershowers, and cooler weather brought welcome relief to the forest fire areas of northern Manitoba. Norway House recorded 40.0 mm of rain on the 3rd and 68.4 mm on the 4th, and had a weekly total of 110.0 mm. Thompson received 58.8 mm during the week, of which 39.0 mm fell on the 3rd. From the 3rd to the 5th, temperatures only managed to get up to the high teens, and lows were in the single digits. The combination of cool and wet weather allowed some reorganization of forest fire-fighting activities.

John Bendell, Winnipeg Climate Centre

Weekly temperature and precipitation extremes

	Maximum temperature (°C)		Minimum temperature (°C)		Heaviest precipitation (mm)	
British Columbia	Kamloops A	35	Smithers A	5	Williams Lake A	49
Yukon Territory	Watson Lake A	27	Teslin (aut)	4	Teslin (aut)	17
Northwest Territories	Fort Reliance	33	Broughton Island	-3	Clyde A	36
Alberta	Medicine Hat A	32	Banff (aut)	6	Whitecourt A	115
Saskatchewan	Moose Jaw A	39	Uranium City A	1	North Battleford A	23
Manitoba	Winnipeg Int'l A	39	Thompson A	2	Norway House A	110
Ontario	Thunder Bay A	34	Winisk (aut)	0	Red Lake	69
Québec	Sherbrooke A	31	La Grande Iv A	1	Mont Joli A	75
New Brunswick	Chatham A	29	St Stephen (aut)	5	Fredericton A	159
Nova Scotia	Greenwood A	31	Greenwood A	6	Shearwater A	12
Prince Edward Island	East Point (aut)	27	Charlottetown A	11	Summerside A	24
Newfoundland	Gander Int'l A	30	Nain A	1	Stephenville A	133

Across The Country...

Highest Mean Temperature	Windsor A(ON)	24
Lowest Mean Temperature	Broughton Island(NWT)	2

89/07/31-89/08/06

CLIMATIC PERSPECTIVES
VOLUME 11

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ISBN 0225-5707 UDC 551.506.1(71)

Climatic Perspectives is a weekly bilingual publication 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

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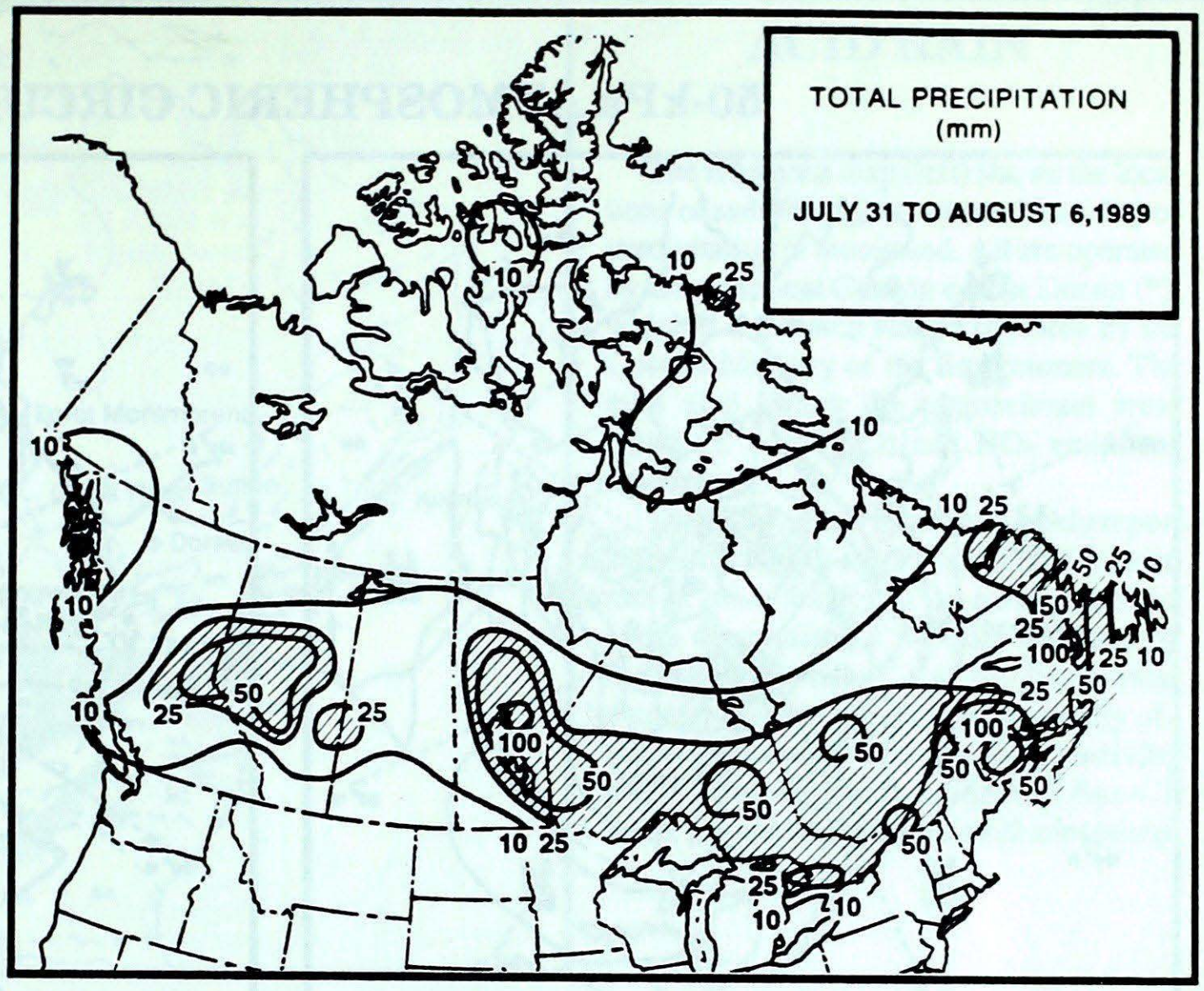
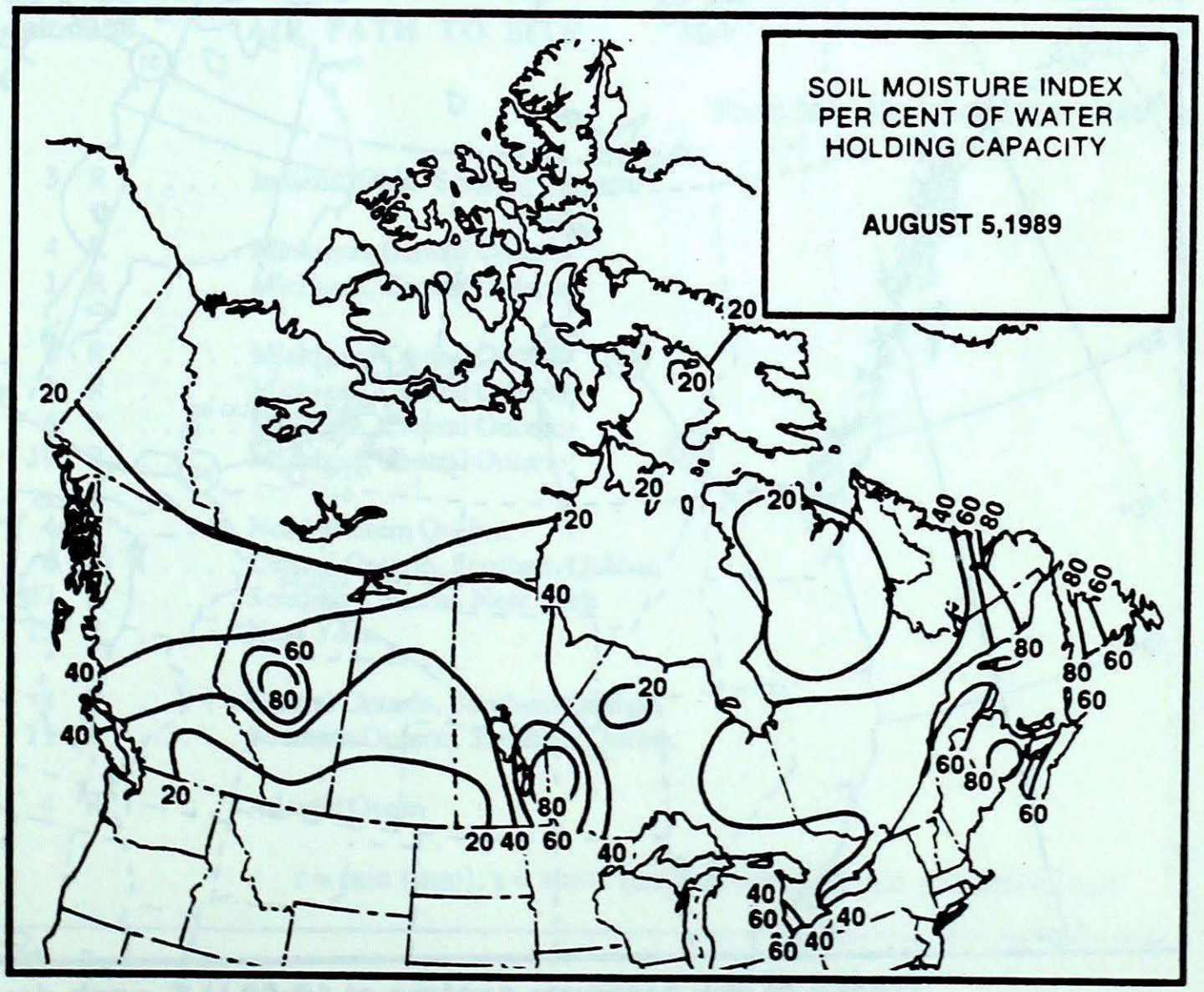
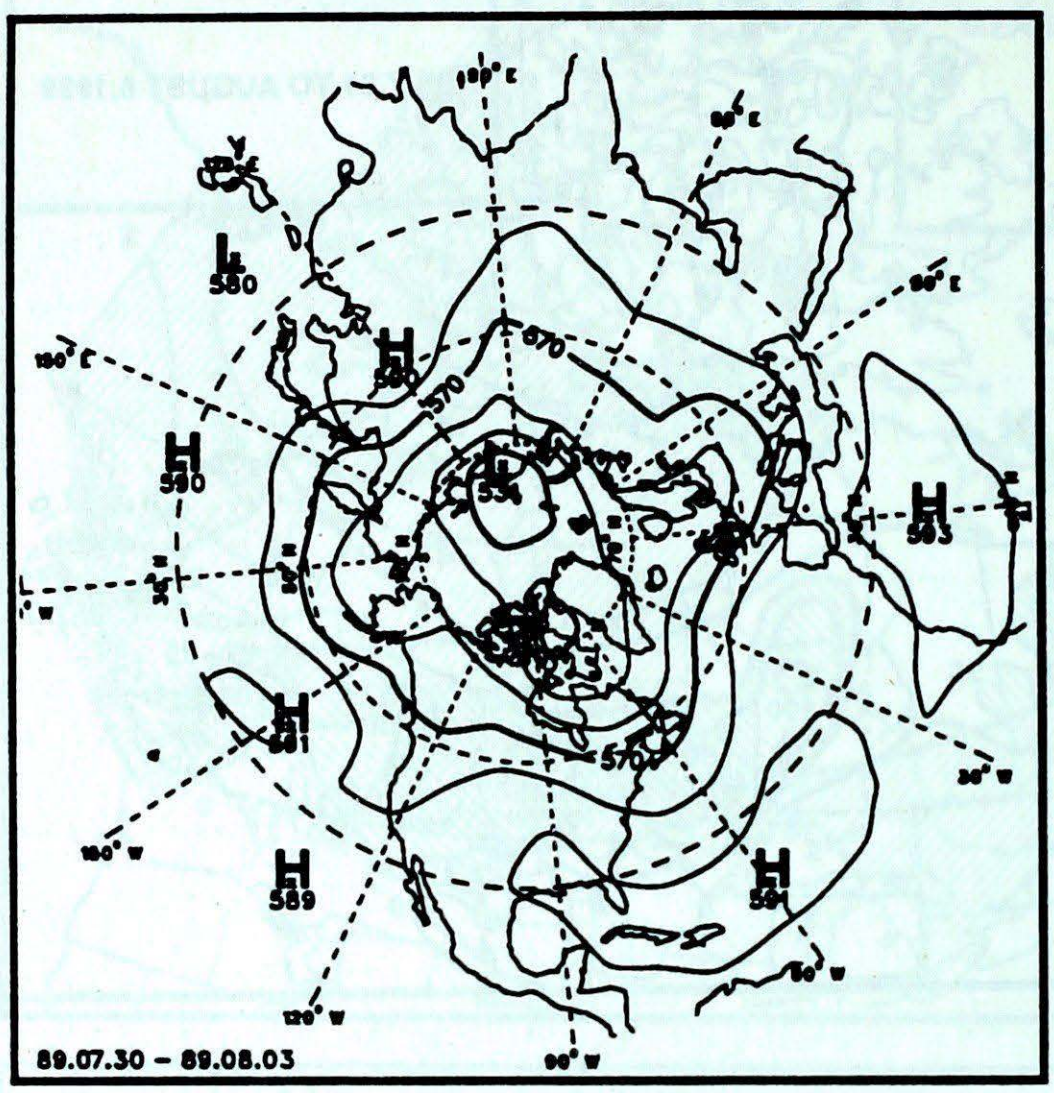
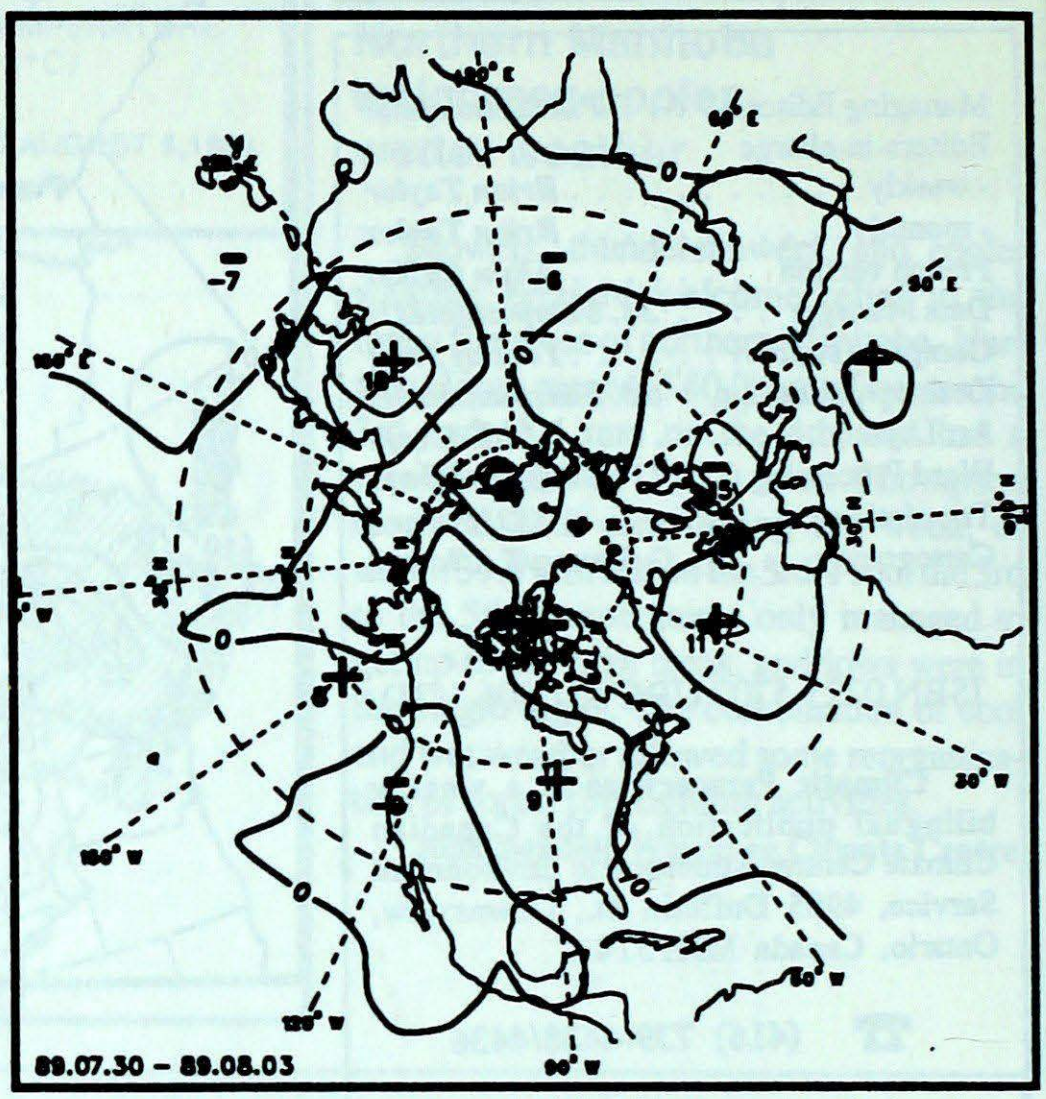




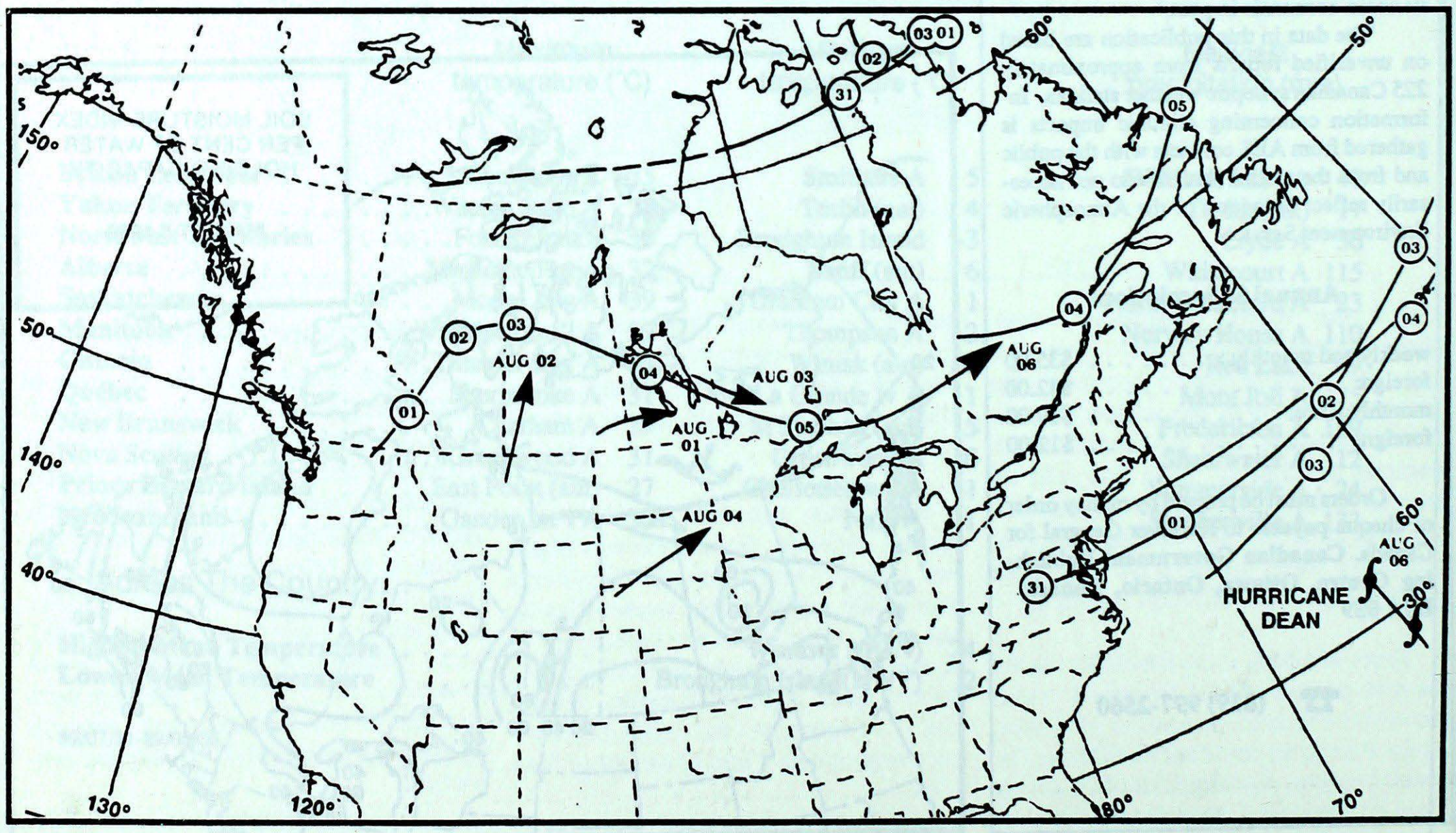
50-kPa ATMOSPHERIC CIRCULATION



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

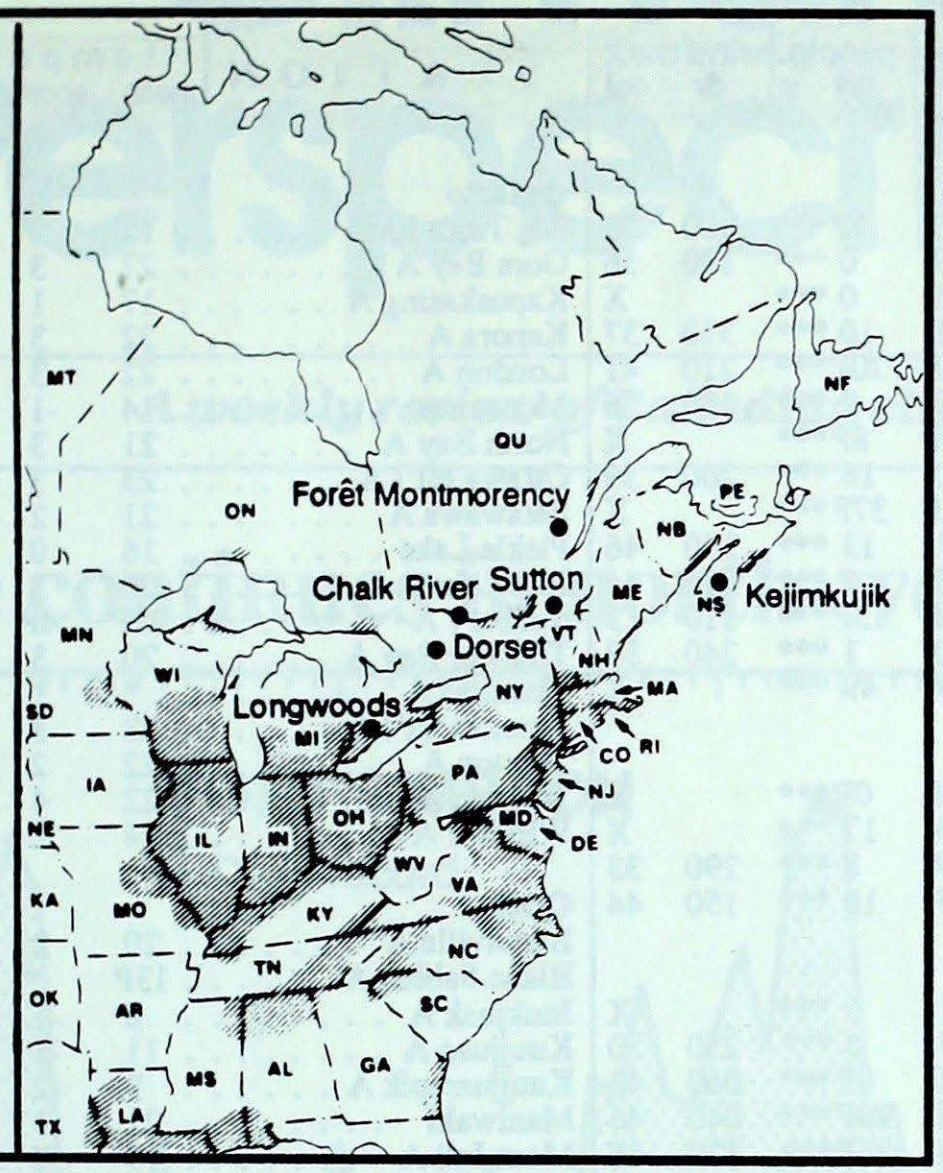


Mean geopotential height anomaly
50-kPa level (10 decametre intervals)



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 — MT
MARYLAND — MD
MASSACHUSETTS — MA
MICHIGAN — MI
MINNESOTA — MN
MISSISSIPPI — MS
MISSOURI — MO
NEBRASKA — NE
NEW BRUNSWICK — NB
NEWFOUNDLAND — 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 — QU
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 the Environment. 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
					From July 30 to August 5, 1989
Longwoods	4	5.1	3	R	. . . . . Indiana, Ohio, Southern Ontario
Dorset *	2	4.4	4	R	. . . . . Michigan, Central Ontario
	4	4.3	1	R	. . . . . Michigan, Central Ontario
Chalk River	1	4.3	2	R	. . . . . Michigan, Central Ontario
	2	4.4	1	R	. . . . . Michigan, Central Ontario
	3	4.3	6	R	. . . . . Michigan, Central Ontario
	5	4.7	19	R	. . . . . Michigan, Central Ontario
Sutton	30	5.3	4	R	. . . . . Northwestern Québec
	2	4.4	6	R	. . . . . Central Ontario, Southern Québec
	3	4.2	27	R	. . . . . Southern Ontario, New York
	4	4.1	15	R	. . . . . New York
Montmorency	2	4.5	8	R	. . . . . Central Ontario, Southern Québec
	3	4.4	11	R	. . . . . Southern Ontario, Southern Québec
Kejimkujik	5	4.3	4	R	. . . . . Atlantic Ocean

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								
Cape St James	14P	0P	18P	11P	1P***		300	56
Cranbrook A	20	0	34	9	0 ***		190	56
Fort Nelson A	20	4	30	11	0 ***			X
Fort St John A	19	3	27	11	10 ***		330	37
Kamloops A	22P	1P	35P	13P	20P***		210	41
Penticton A	21	0	34	10	2 ***		180	56
Port Hardy A	15P	1P	19P	10P	8P***			X
Prince George A	18	3	29	10	16 ***		200	39
Prince Rupert A	15P	1P	19P	11P	37P***			X
Revelstoke A	19	-1	34	11	13 ***		160	46
Smithers A	17	1	26	5	2 ***		010	46
Vancouver Int'l A	17P	-1P	26P	13P	13P***		110	3
Victoria Int'l A	17	0	26	10	1 ***		240	39
Williams Lake A	18	1	29	9	49 ***			X
Yukon Territory								
Komakuk Beach A	10P	3P	21P	5P	0P***			X
Teslin (aut)	15	*	25	4	17 ***			X
Watson Lake A	17	2	27	7	8 ***		290	33
Whitehorse A	16	1	26	7	10 ***		150	44
Northwest Territories								
Alert	3	-1	12	-1	5 ***			X
Baker Lake A	12	1	24	3	5 ***		250	50
Cambridge Bay A	9P	1P	18P	1P	0P***		060	43
Cape Dyer A	5P	-1P	12P	0P	20P***		040	46
Clyde A	3P	-1P	11P	-1P	36P***		320	46
Coppermine A	14P	4P	22P	6P	1P***			X
Coral Harbour A	9	0	18	2	11 ***		010	67
Eureka	5P	-1P	8P	1P	9P***		130	50
Fort Smith A	19P	3P	30P	10P	1P***			X
Hall Beach A	5P	0P	12P	2P	8P***		280	39
Inuvik A	20P	7P	28P	11P	0P***			X
Iqaluit A	7	0	16	2	23 ***		320	63
Mould Bay A	4P	1P	9P	-1P	7P***		270	48
Norman Wells A	21P	6P	32P	11P	0P***		090	33
Resolute A	3	-1	8	0	18 ***		220	43
Yellowknife A	20P	4P	28P	9P	0P***		170	32
Alberta								
Calgary Int'l A	18	2	30	11	16 ***		220	61
Cold Lake A	19	2	30	7	10 ***			X
Edmonton Namao A	18	0	29	9	9 ***		230	61
Fort McMurray A	20P	3P	31P	10P	19P***			X
High Level A	19	3	27	10	7 ***		330	39
Jasper	16	1	30	8	39 ***			X
Lethbridge A	19	0	31	10	4 ***		240	89
Medicine Hat A	21	0	33	10	4 ***		180	85
Peace River A	18	2	28	10	28 ***		360	41
Saskatchewan								
Cree Lake	16	1	29	5	12 ***		070	43
Estevan A	22	2	39	6	2 ***		320	59
La Ronge A	17	1	29	4	5 ***		120	56
Regina A	22	3	38	8	1 ***		250	63
Saskatoon A	21	2	35	7	5 ***		240	61
Swift Current A	20	1	36	6	8 ***		240	61
Yorkton A	19	1	34	3	18 ***		360	63
Manitoba								
Brandon A	21	3	38	5	1 ***		330	50
Churchill A	13P	1P	26P	4P	0P***		330	52
Lynn Lake A	16	1	27	4	20 ***		090	37
The Pas A	20	2	31	9	15 ***		030	43
Thompson A	16	2	30	2	59 ***		070	52
Winnipeg Int'l A	22	3	39	7	20 ***		290	76

STATION	temperature mean	anom	max	min	precip. ptot	st	wind max dir	vel
Ontario								
Big Trout Lake	15	0	26	4	17 ***		330	56
Gore Bay A	22	3	30	10	28 ***		310	46
Kapuskasing A	17	1	29	7	57 ***		320	37
Kenora A	22	3	34	9	59 ***		310	56
London A	22	3	31	13	2 ***		280	85
Moosonee	14	-1	28	3	20 ***		250	41
North Bay A	21	3	30	7	26 ***		210	52
Ottawa Int'l A	23	3	30	14	28 ***		350	43
Petawawa A	21	2	32	9	16 ***		320	44
Pickle Lake	16	0	33	5	33 ***		270	59
Red Lake A	20	3	33	8	69 ***		320	78
Sudbury A	22P	4P	32P	9P	34P***		210	41
Thunder Bay A	20	3	34	6	14 ***		330	44
Timmins A	*	*	30	6	62 ***		270	83
Toronto Int'l A	23	3	33	13	15 ***		300	35
Trenton A	22	2	30	11	33 ***		230	50
Wiarton A	22	4	31	12	1 ***		240	48
Windsor A	24	2	32	14	4 ***		270	63
Québec								
Bagotville A	20	2	30	7	37 ***		250	35
Blanc Sablon A	13P	*	18P	8P	43P***		200	44
Inukjuak A	8	-1	17	4	2 ***		340	52
Kuujjuaq A	11	-1	25	2	3 ***		280	70
Kuujjuarapik A	9	-2	29	1	3 ***		190	52
Maniwaki	21	3	30	7	34 ***		290	39
Mont Joli A	19	2	28	12	75 ***		180	39
Montréal Int'l A	23	3	31	13	56 ***		250	
Natashquan A	15	1	23	7	25 ***		270	39
Québec A	21	3	29	10	25 ***		240	50
Schefferville A	12	0	21	3	1 ***		251	48
Sept-Îles A	15	0	22	5	12 ***		220	37
Sherbrooke A	21	3	31	8	46 ***		210	50
Val-d'Or A	19	2	29	7	31 ***		320	52
New Brunswick								
Charlo A	19	1	28	8	19 ***			X
Chatham A	20	1	29	8	92 ***		220	50
Fredericton A	19P	0P	26P	8P	159P***		190	46
Moncton A	19P	1P	26P	9P	16P***		190	63
Saint John A	17	-1	24	9	42 ***		190	52
Nova Scotia								
Greenwood A	20	1	31	6	2 ***		190	61
Shearwater A	18	0	25	11	12 ***		210	52
Sydney A	20	1	29	9	6 ***		220	70
Yarmouth A	17	1	24	9	1 ***		190	59
Prince Edward Island								
Charlottetown A	20	1	25	11	7 ***		190	52
Summerside A	20	1	25	12	24 ***		200	65
Newfoundland								
Cartwright	14	1	26	5	38 ***		330	48
Churchill Falls A	14	1	25	5	18 ***		290	6
Gander Int'l A	20	2	30	11	20 ***		220	63
Goose A	17	2	30	7	27 ***		330	63
Port Aux Basques	16	1	23	10	60 ***		250	65
St John's A	19	2	26	10	1 ***		250	69
St Lawrence	17	2	24	10	0 ***			X
Wabush Lake A	14	1	23	6	16 ***		310	44

89/07/31-89/08/06

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.