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Climatic Perspectives

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July 10 to 16, 1989 ***A weekly review of Canadian climate*** *Vol. 11 No 29*

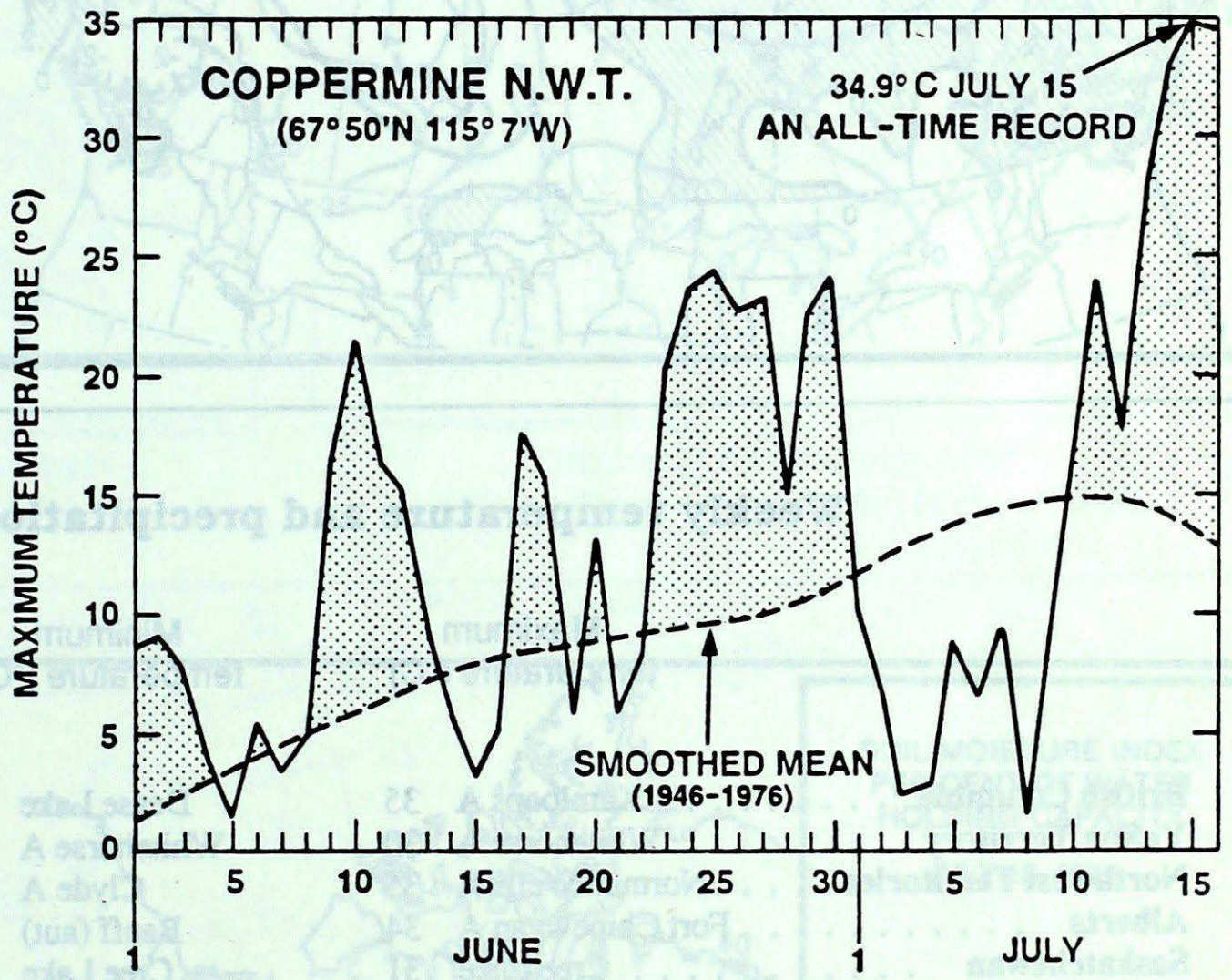
Record-breaking 30's in the western Arctic

A southerly flow of extremely warm air reached coastal areas of the western Arctic, causing a remarkable heatwave. The week was responsible for numerous daily record-breaking maximum temperatures throughout the Mackenzie Valley and along the Arctic coast. On the 12th, Inuvik reached a daily record maximum of 28.8°C. Several communities broke records extending back to the 1940's. At Coppermine, where records date back to 1931, the all-time record maximum temperature of 32.2°C set on July 9, 1964, was surpassed on 3 days. Cambridge Bay recorded temperatures of 24.0°C on the 15th, and 25.1°C on the 16th which broke daily maximum records for those days, established in 1929.

In Yellowknife, a temperature of 32.5°C was recorded on the 16th, which surpassed the all-time maximum of 32.2°C recorded on July 9, 1964.

The unusually warm weather has produced a hazardous forest fire situation. As of the 16th, over 30 forest fires were burning across the Mackenzie Valley, including a major blaze near Normal Wells.

Gary Burke, Yellowknife Weather Office



Dry weather in Ontario

Dry weather has returned to Ontario. No measurable rain has fallen in Toronto, London, or Sault Ste. Marie since June 28th. Elsewhere in southern and central Ontario, total July rainfall to date ranges from 5 to 10 mm. These amounts are well below normal, but due to high May and June totals, as well as predominantly cooler than normal temperatures so far this month, moisture shortages are not serious.

In most of northern Ontario, rainfall for July has been below normal also. Forest fires in northeastern Ontario, and northern Québec have sent much of their smoke well into southern Ontario, combined with suspended particles from vehicle exhaust, and produced hazy skies and very red sunsets.

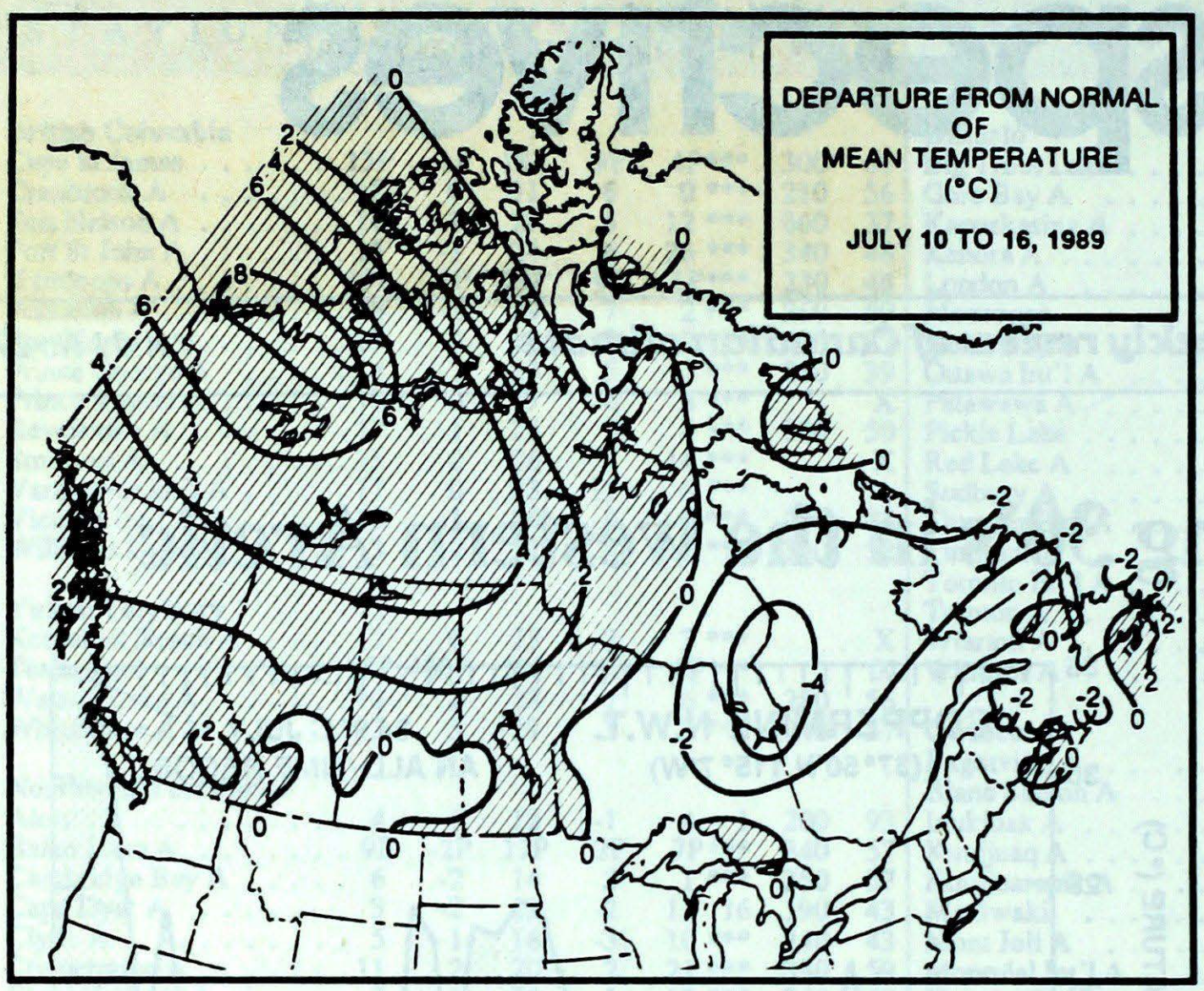
Bryan Smith, Ontario Climate Centre

A look ahead...

For the week of the 24th, temperatures are expected to be above normal for most of the country, except near-normal values are expected in Newfoundland. The greatest departures from normal will be on the Prairies and in the western half of Ontario. Precipitation is likely over the southern parts of British Columbia, Alberta, and Saskatchewan.

— *prepared July 18, 1989*

Aaron Gergye, Canadian Climate Centre



Elsewhere ...

Hot in the Northwest Territories

Between July 12th and 16th, very hot weather was experienced. Temperatures rose to record daily maximums, or all-time maximums (°C), at the following locations:

Cambridge Bay	25.1
Cape Parry	21.9
Coppermine	34.9
Fort Simpson	34.4
Fort Smith	34.2
Hay River	34.6
Inuvik	31.2
Norman Wells	35.0
Tuktoyaktuk	29.1
Yellowknife	32.5

Weekly temperature and precipitation extremes

	Maximum temperature (°C)		Minimum temperature (°C)		Heaviest precipitation (mm)	
British Columbia	Kamloops A	35	Dease Lake	5	Kamloops A	40
Yukon Territory	Whitehorse A	30	Whitehorse A	4	Teslin (aut)	15
Northwest Territories	Norman Wells A	35	Clyde A	-7	Inuvik A	38
Alberta	Fort Chipewyan A	34	Banff (aut)	5	Pincher Creek (aut)	68
Saskatchewan	Cree Lake	31	Cree Lake	4	Regina A	42
Manitoba	Lynn Lake A	32	Thompson A	4	Winnipeg Int'l A	17
Ontario	Windsor A	35	Winisk (aut)	-3	Ottawa	27
Québec	Montréal Int'l A	28	Kuujjuarapik A	1	Gaspé A	59
New Brunswick	Fredericton A	28	St-Léonard A	7	Miscou Island (aut)	94
Nova Scotia	Greenwood A	29	Sydney A	8	Greenwood A	54
Prince Edward Island	Charlottetown A	25	Charlottetown A	11	Charlottetown A	50
Newfoundland	Deer Lake A	27	Nain A	2	Cape Race (aut)	89

Across The Country...

Highest Mean Temperature	Norman Wells A(NWT)	23
Lowest Mean Temperature	Broughton Island(NWT)	1

89/07/10-89/07/16

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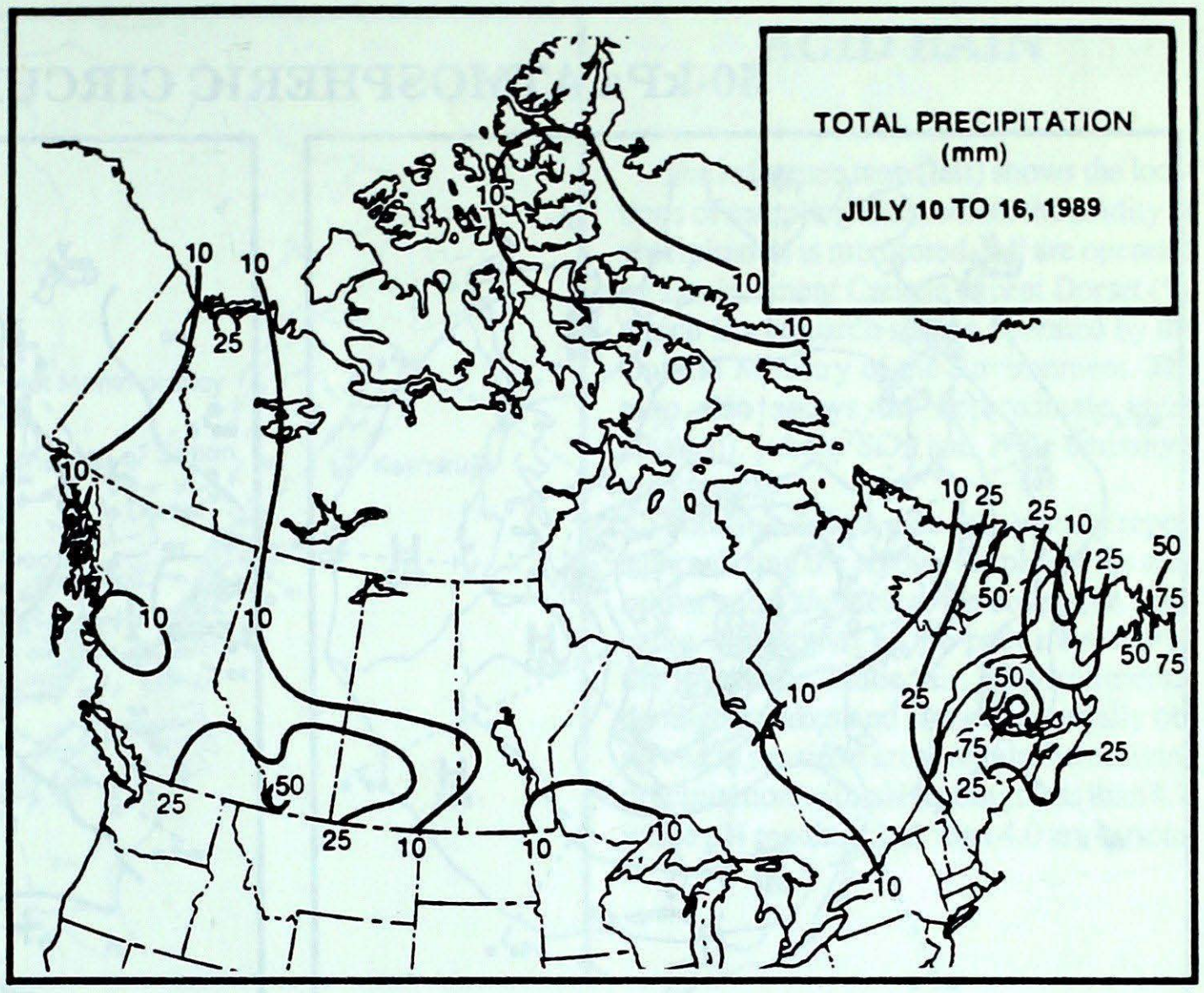
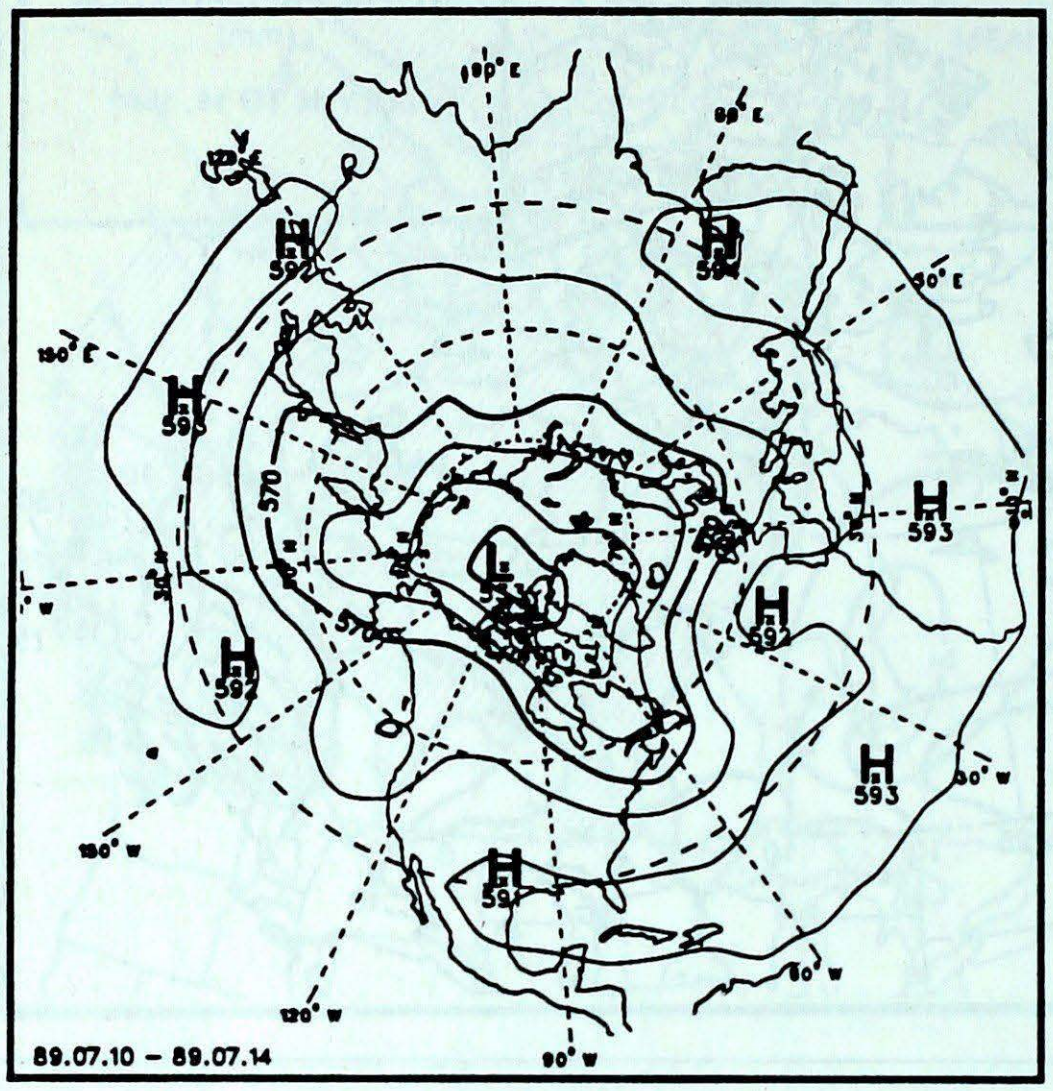
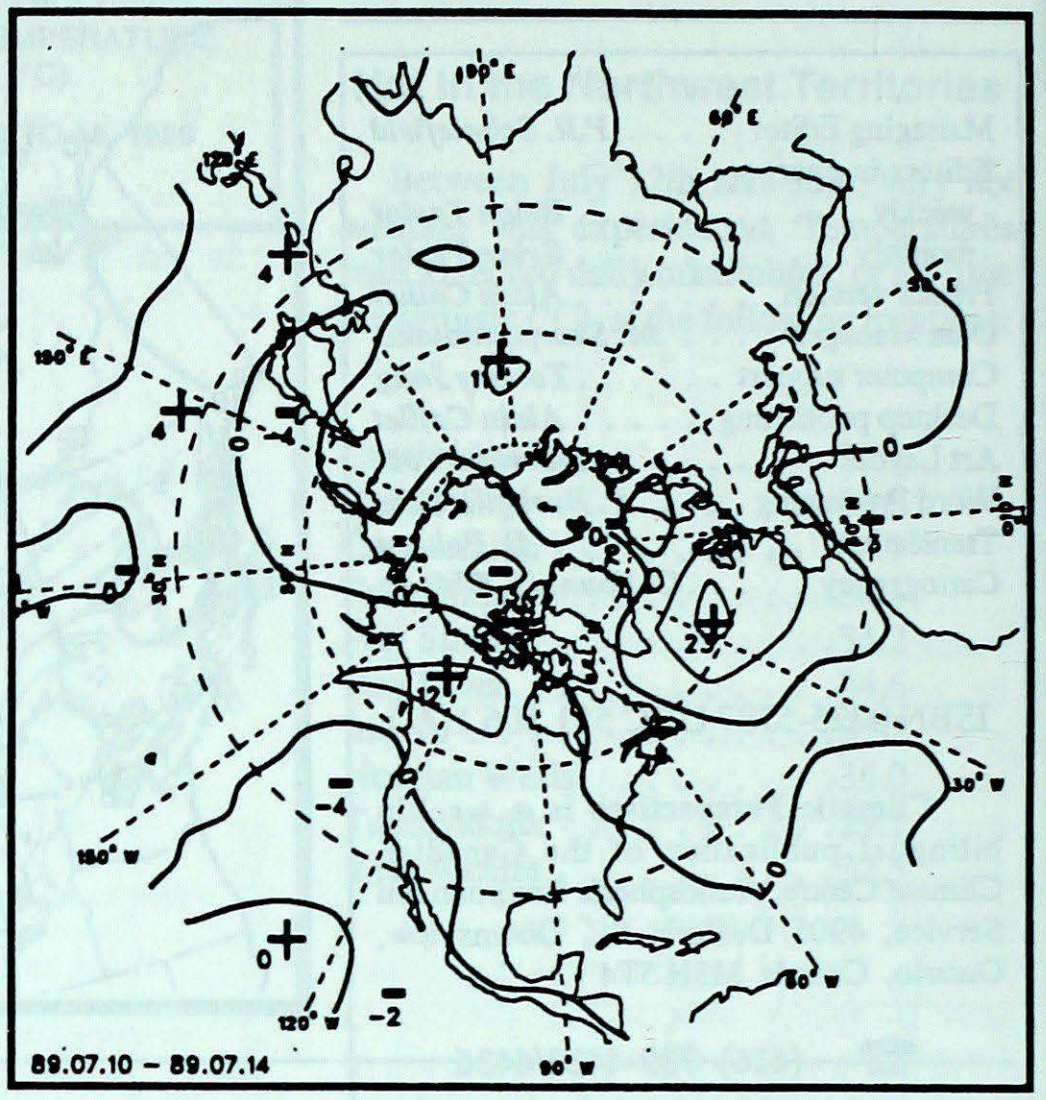


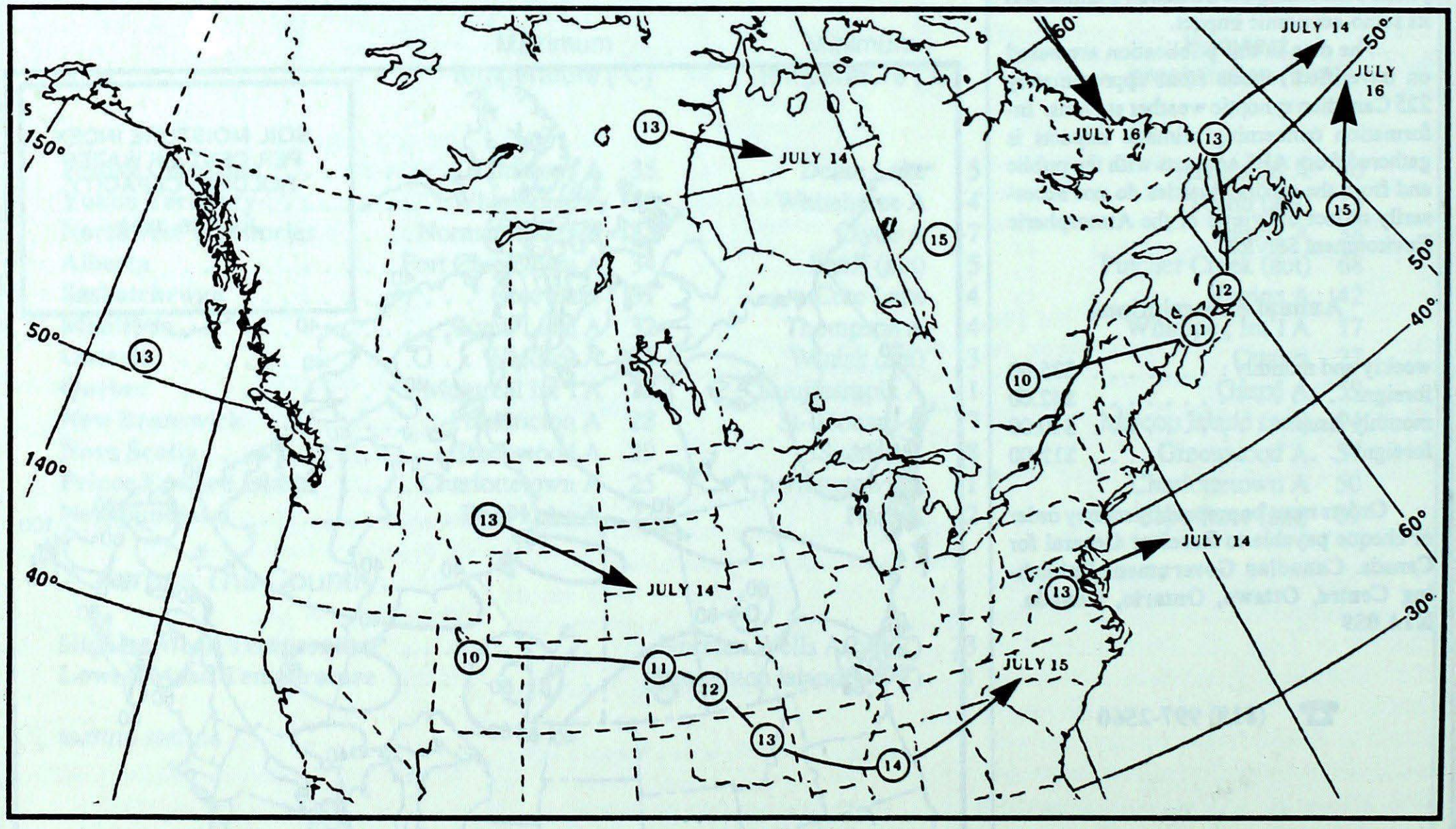
50-kPa ATMOSPHERIC CIRCULATION



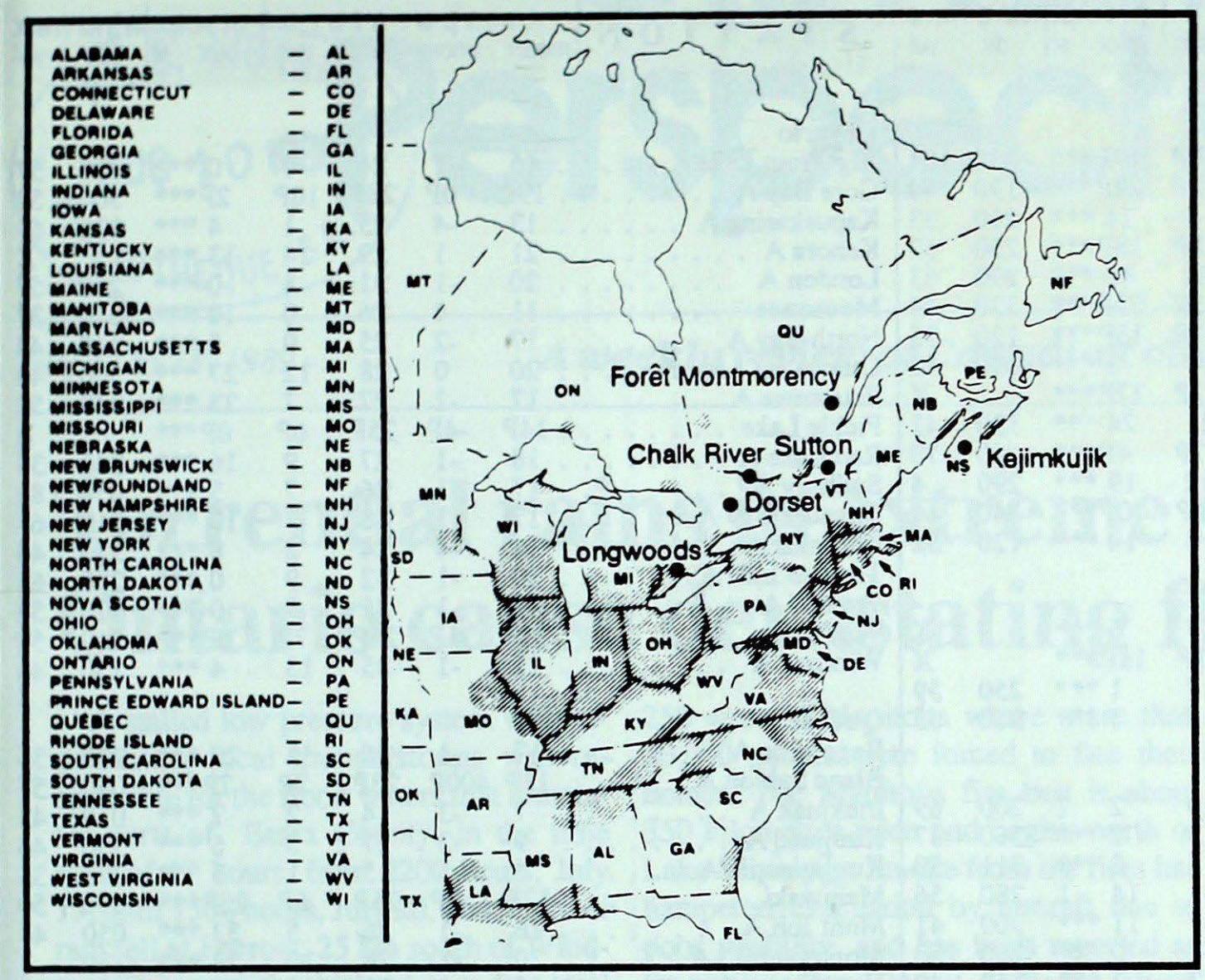
Mean geopotential height
50-kPa level (10 decametre intervals)



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.



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
					July 18, 1989
Longwoods					. . . . . No rain this week
Dorset *	9	4.3	1	R	. . . . . Michigan, Southern Ontario
Chalk River	9	4.3	15	R	. . . . . Southern Ontario
Sutton	9	4.4	9	R	. . . . . New York
	10	4.2	5	R	. . . . . New York
	11	4.6	5	R	. . . . . Northwestern and Southern Quebec
Montmorency					
	9	4.5	18	R	. . . . . Central Ontario, Southern Quebec
	10	5.0	17	R	. . . . . Eastern Ontario, New York, Southern Quebec
	11	5.1	2	R	. . . . . Eastern and Central Quebec
Kejimkujik	10	4.1	15	R	. . . . . New York, 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	13P	1P	17P	10P	19P***		130	104
Cranbrook A	20P	2P	32P	8P	22P***		190	44
Fort Nelson A	20	3	33	9	14 ***		290	33
Fort St John A	17P	2P	30P	8P	18P***		230	69
Kamloops A	22	1	35	12	40 ***		290	63
Penticton A	22P	2P	32P	13P	23P***		330	44
Port Hardy A	15P	1P	20P	10P	15P***		120	35
Prince George A	17	2	27	7	3 ***		090	43
Prince Rupert A	15P	2P	20P	11P	17P***			X
Revelstoke A	20	3	32	11	24 ***		130	41
Smithers A	18P	3P	30P	7P	4P***		240	70
Vancouver Int'l A	18	0	24	12	19 ***		290	4
Victoria Int'l A	17P	1P	28P	8P	0P***		140	44
Williams Lake A	17	2	28	8	14 ***		120	52
Yukon Territory								
Komakuk Beach A	16	8	30	7	6 ***			X
Teslin (aut)	20P	400P	28P	11P	15P***			X
Watson Lake A	20	4	30	7	1 ***		250	59
Whitehorse A	18	4	30	4	3 ***		360	65
Northwest Territories								
Alert	5	2	13	0	2	1	200	69
Baker Lake A	13	2	25	3	2 ***		360	57
Cambridge Bay A	12	4	25	2	0 ***		311	50
Cape Dyer A	3	-2	8	-1	14	1	280	56
Clyde A	3	-1	11	-7	11 ***		300	41
Coppermine A	19	9	35	7	0 ***		200	50
Coral Harbour A	9	0	20	2	2 ***		360	48
Eureka	4	-2	11	0	11 ***		160	80
Fort Smith A	21	5	34	4	0 ***		150	37
Hall Beach A	7	1	14	2	1 ***		330	43
Inuvik A	22P	7P	31P	12P	38P***		240	37
Iqaluit A	8	0	16	3	1 ***		330	37
Mould Bay A	5	1	16	-1	2 ***		270	67
Norman Wells A	23P	6P	35P	12P	15P***		250	100
Resolute A	4	-1	14	-2	12 ***		300	54
Yellowknife A	22	6	33	11	0 ***		190	41
Alberta								
Calgary Int'l A	17	0	28	7	6 ***		320	44
Cold Lake A	19	1	28	10	5 ***		110	43
Edmonton Namao A	18	1	27	10	38 ***		100	48
Fort McMurray A	20	3	32	5	0 ***			X
High Level A	20P	3P	31P	6P	1P***			X
Jasper	17	2	29	7	5 ***			X
Lethbridge A	18	-1	28	8	24 ***		350	50
Medicine Hat A	20	0	30	10	24 ***		200	74
Peace River A	19P	3P	30P	6P	8P***		210	56
Saskatchewan								
Cree Lake	19	3	31	4	11 ***		310	37
Estevan A	20	0	30	11	2 ***		160	52
La Ronge A	19	2	30	7	0 ***			X
Regina A	19	0	30	13	42 ***		150	50
Saskatoon A	19	0	30	9	8 ***		170	52
Swift Current A	18	-1	28	10	3 ***		140	46
Yorkton A	18	-1	30	8	21 ***		180	52
Manitoba								
Brandon A	19	0	31	11	0 ***		180	33
Churchill A	14	2	27	6	0 ***		330	67
Lynn Lake A	20	4	32	5	0 ***			X
The Pas A	19	1	30	11	10 ***			X
Thompson A	18	3	32	4	4 ***		010	57
Winnipeg Int'l A	21	0	30	13	17 ***		290	39

STATION	temperature mean	anom	max	min	precip. ptot	st	wind max dir	vel
Ontario								
Big Trout Lake	15	-1	24	7	0 ***		300	57
Gore Bay A	19P	0P	28P	10P	2P***		300	52
Kapuskasing A	13	-4	25	1	4 ***		330	69
Kenora A	21	1	29	14	13 ***			X
London A	20	-1	31	8	0 ***		250	57
Moosonee	11	-4	26	0	10 ***		010	37
North Bay A	17	-2	25	9	5 ***		340	44
Ottawa Int'l A	20	0	28	12	27 ***		300	48
Petawawa A	17	-2	27	7	23 ***		330	52
Pickle Lake	14P	-4P	25P	6P	0P***			X
Red Lake A	18	-1	27	9	16 ***		350	37
Sudbury A	17	-1	26	7	3 ***		030	82
Thunder Bay A	17	-1	28	7	10 ***		010	63
Timmins A	14	-4	24	2	8 ***		330	46
Toronto Int'l A	20	-1	32	9	0 ***		270	63
Trenton A	19	-1	31	7	0 ***		220	56
Wiarton A	18P	-1P	26P	7P	0P***		240	59
Windsor A	21	-1	35	13	4 ***		230	46
Québec								
Bagotville A	17	-1	26	8	29 ***		290	35
Blanc Sablon A	13P	400P	23P	7P	7P***		080	57
Inukjuak A	7	-3	14	2	7 ***		010	43
Kuujjuaq A	9	-3	17	3	6 ***		350	46
Kuujjuarapik A	6	-5	15	1	3 ***		270	35
Maniwaki	17P	-2P	26P	6P	25P***		330	50
Mont Joli A	16	-1	26	5	33 ***		050	44
Montréal Int'l A	20	-1	28	10	13 ***		330	
Natashquan A	15	1	22	10	13 ***		170	39
Québec A	19	-1	27	10	25 ***		070	48
Schefferville A	10	-3	21	4	4 ***		310	39
Sept-Îles A	15	-1	25	7	28 ***		010	43
Sherbrooke A	16	-2	25	7	26 ***		270	48
Val-d'Or A	15	-2	24	4	18 ***		190	41
New Brunswick								
Charlo A	16	-2	27	8	54 ***		330	43
Chatham A	18	-2	27	9	65 ***		050	46
Fredericton A	18	-1	28	10	44 ***		201	37
Moncton A	17	-2	27	9	45 ***		250	52
Saint John A	17	0	27	11	30 ***		310	63
Nova Scotia								
Greenwood A	18	-1	29	9	54 ***		270	50
Shearwater A	18	0	27	11	32 ***		150	56
Sydney A	16	-3	25	8	33 ***		150	56
Yarmouth A	16	-1	24	9	30 ***		300	52
Prince Edward Island								
Charlottetown A	18	-1	25	11	50 ***		130	52
Summerside A	18	-2	25	13	40 ***		330	56
Newfoundland								
Cartwright	11	-2	23	5	42 ***		260	33
Churchill Falls A	12	-2	20	4	3 ***		270	7
Gander Int'l A	15	-2	24	7	40 ***		020	65
Goose A	14	-2	25	7	74 ***		300	65
Port Aux Basques	13	0	18	9	21 ***		090	91
St John's A	15	-2	21	9	42 ***		310	65
St Lawrence	14	2	21	9	32 ***			X
Wabush Lake A	11	-3	20	3	8 ***		360	46

89/07/10-89/07/16

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.