Environment Canada Environnement Canada

Climatic Perspectives

August 3 to 9, 1992 **A weekly review of Canadian climate and water** *Vol. 14 No. 32*

Unsettled weather across the country

The pattern remains essentially unchanged from previous weeks. Disturbances continue to track eastwards across the country, giving changeable, unsettled weather conditions to most regions. In addition, an unstable air mass fostered the development of intense thunderstorms, which, considering that we are at the height of the severe weather season, is not all that unusual .

On August 2 and 3, thunderstorms ripped through southern Alberta, producing torrential rainfalls and hail. Golf-ball size hail pounded Monarch, Alta., with such force that birds were knocked out of the trees, crops were flattened and snowploughs had to be called out to clear the roads of 30 cm of hail. The storm dumped almost 100 mm of precipitation. The next day a thunderstorm, which developed in the foothills, caused serious flooding in sections of Calgary. A teenager was burned by lightning. On August 5, a tornado touched down at Lamond, north of Lethbridge.

Saskatchewan and Manitoba also saw their fair share of severe weather during the latter half of the period, consisting of very heavy localized downpours, large hail, wind gusts in excess of 100 km/h and several sightings of funnel clouds.

In Ontario a hailstorm on August 4, passed through the Niagara Peninsula destroying about one-quarter of the peach crop. The late afternoon storm cut a swath 9 km long. This is the second time in six years that hail has ravaged the peach crop. On August 8, heavy rain deluged a good portion of southern and central Ontario, with amounts approaching 50 mm. A couple of small tornadoes were reported, one near Chatham in southwestern Ontario, the other in Markham, just north of Toronto. The latter had a storm track several kilometres long, but luckily damage consisted mainly of downed trees and damaged roofs.

Severe weather also affected Quebec on August 4. During the late afternoon a downburst, producing straight line winds of 150 km/h, is suspected of cutting a 6 km long, 50 metre wide path of destruction between Martinville and Sainte-Edwidge-de-Clifton, 25 km southeast of Sherbrooke. Trees were downed, roofs torn off and some buildings were destroyed. Later in the evening torrential rains fell on the Beauce Region, approximately 90 km south of Quebec City. As much as 60 mm of rain fell in one hour, caused flash floods and damage amounting to $10 million.

In the middle of the week, a slow moving disturbance moved across Newfoundland and Labrador, producing strong winds and copious amounts of rain. In Burgeo, 76 mm of rain fell on the 5th, while 50 to 60 millimetres were reported in central Newfoundland. As the storm crossed Labrador, Churchill Falls received 32 mm of rain.

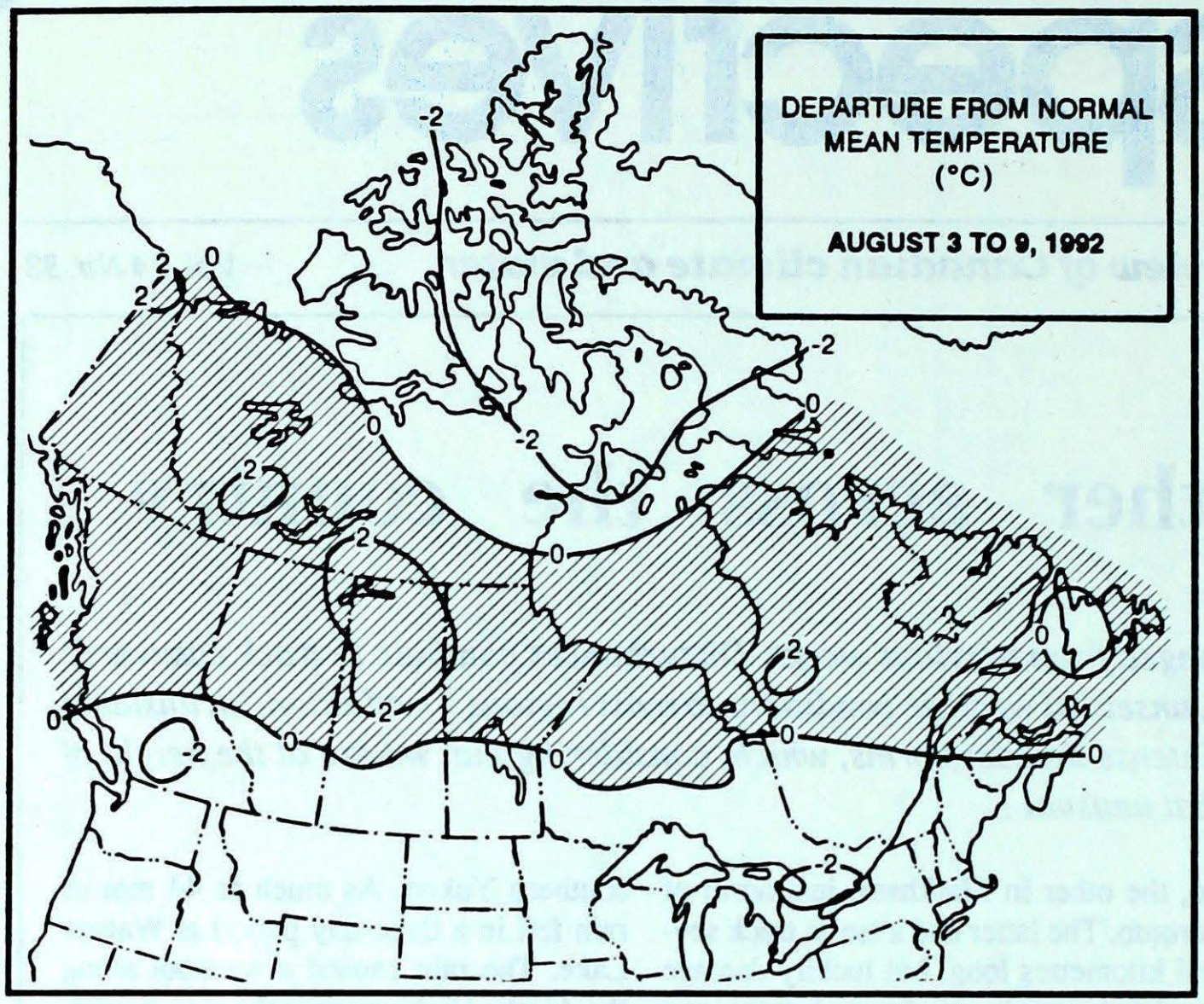
During the latter half of the week an area of heavy rain moved across the southern Yukon. As much as 44 mm of rain fell in a three-day period at Watson Lake. The rain caused a washout along the Alaska Highway near the B.C. border.

In British Columbia, 100 mm of rain was reported north of Fort Nelson at Petitot. Further to the south, showers and spotty thunderstorms were more common. A brief but sudden wind storm on the 4th, caused some damage to wharves and boats on Okanagan Lake near Kelowna.

On August 6, lightening knocked out the power to a portion of Yellowknife, NWT. And last but not least, just to remind us that winter is not far behind, a blizzard hit northern Baffin Island on August 3, dumping 8 cm of fresh snow on Pond Inlet.

A Look Ahead...

For the week of August 17, near to above-normal temperatures will occur across the country, while cool air will return to southern Ontario. Near to below-normal temperatures will continue across the high Arctic. Abundant precipitation will occur east of the lower Great Lakes and along coastal British Columbia.



Weekly normal temperatures (°C)

	max.	min.
Whitehorse A	19.8	7.7
Iqaluit A	11.0	3.9
Yellowknife A	19.9	11.6
Vancouver Int'l A	22.4	13.2
Victoria Int'l A	22.3	11.2
Calgary Int'l A	23.3	9.5
Edmonton Int'l A	22.5	9.8
Regina A	26.2	11.6
Saskatoon A	25.1	11.5
Winnipeg Int'l A	25.4	12.4
Ottawa Int'l A	25.8	14.6
Toronto (Pearson Int'l A)	26.3	14.3
Montréal Int'l A	25.7	15.3
Québec A	24.0	12.7
Fredericton A	25.6	12.9
Saint John A	22.5	12.2
Halifax (Shearwater)	22.3	14.2
Charlottetown A	23.2	14.4
Goose A	20.6	10.4
St John's A	20.3	12.0

Weekly temperature and precipitation extremes

	Maximum temperature (°C)		Minimum temperature (°C)		Heaviest precipitation (mm)	
British Columbia	Kamloops A	34	Smithers A	4	Estevan Point (aut)	81
Yukon Territory	Watson Lake A	27	Komakuk Beach A	-1	Watson Lake A	44
Northwest Territories	Fort Simpson A	31	Alert	-4	Rankin Inlet A	30
Alberta	High Level A	30	Edson A	2	Pincher Creek (aut)	47
Saskatchewan	Estevan A	34	Broadview	3	Eastend Cypress (aut)	16
Manitoba	Brandon A	31	Thompson A	1	Churchill A	27
Ontario	Windsor A	29	Moosonee	0	Toronto (Pearson Int'lA)	52
Quebec	Gaspé A	29	Kuujjuaq A	3	Sept-Îles A	58
New Brunswick	Fredericton A	28	St Stephen (aut)	8	St-Léonard A	10
Nova Scotia	Greenwood A	28	Western Head (aut)	8	Sydney A	25
Prince Edward Island	Charlottetown A	26	Charlottetown A	14	East Point (aut)	7
Newfoundland	Goose A	30	Cartwright	3	Burgeo	76

Across The Country...

Highest Mean Temperature	Windsor A (Ont.)	20
Lowest Mean Temperature	Broughton Island (N.W.T.)	1

92/08/03-92/08/09

CLIMATIC PERSPECTIVES
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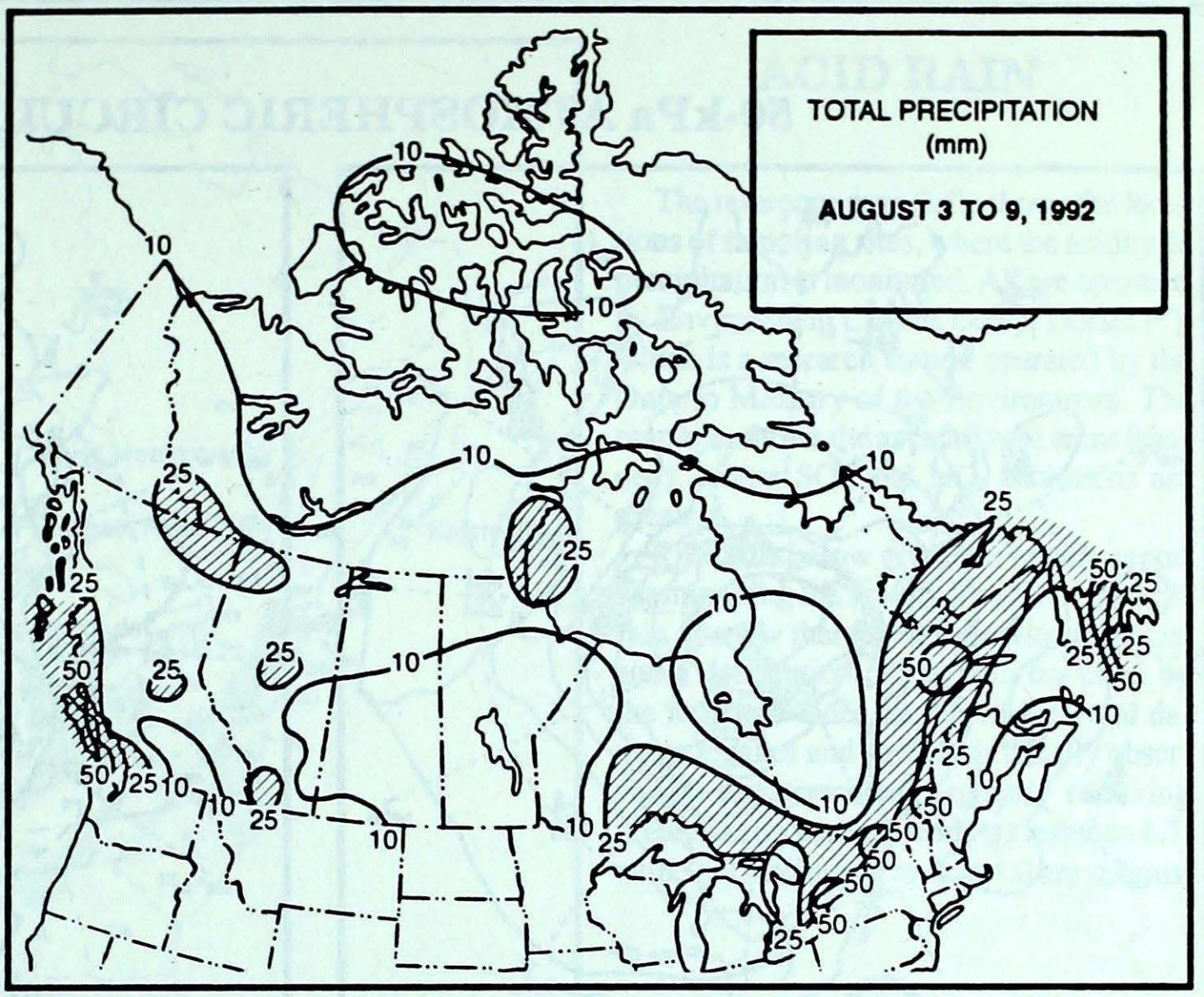
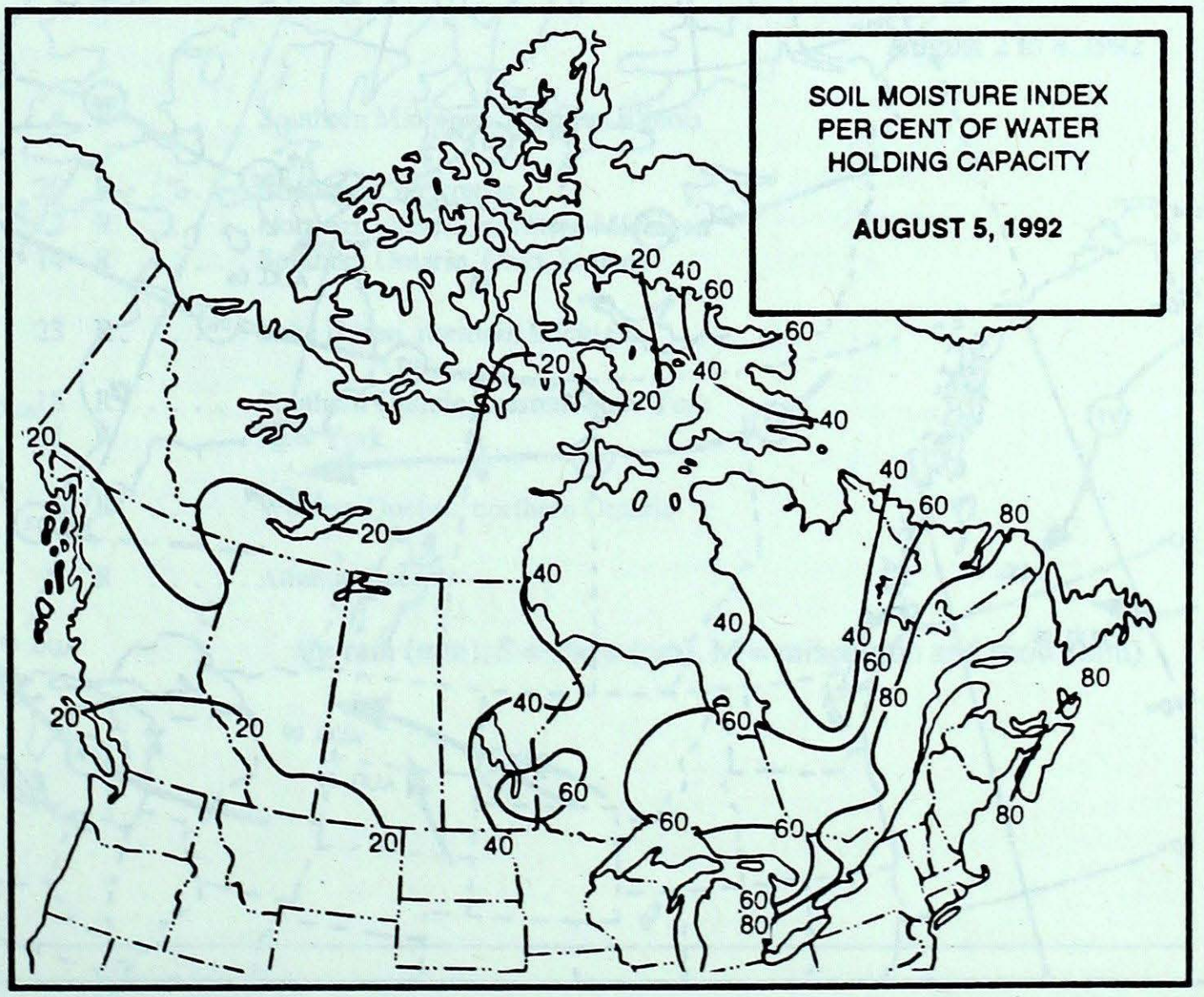
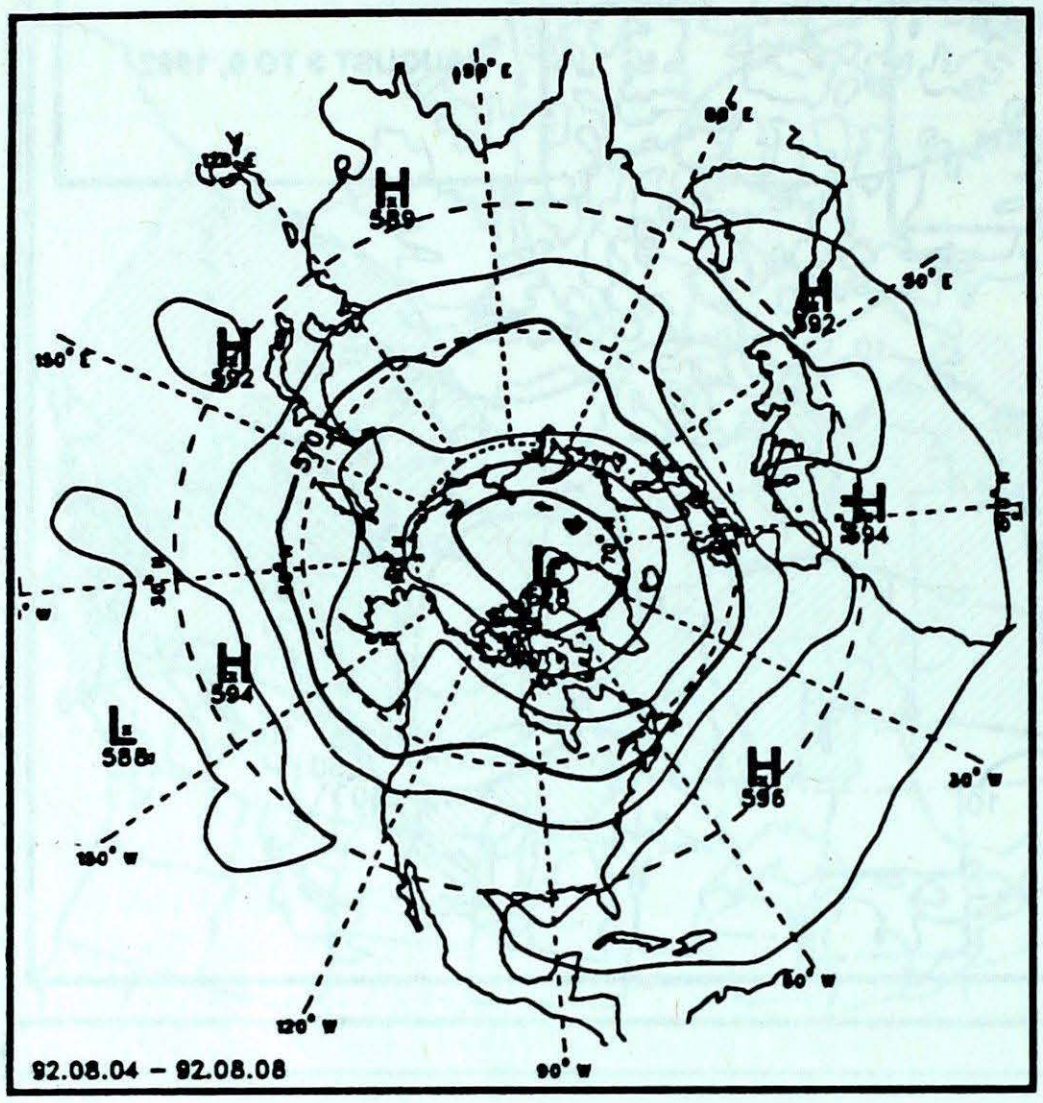
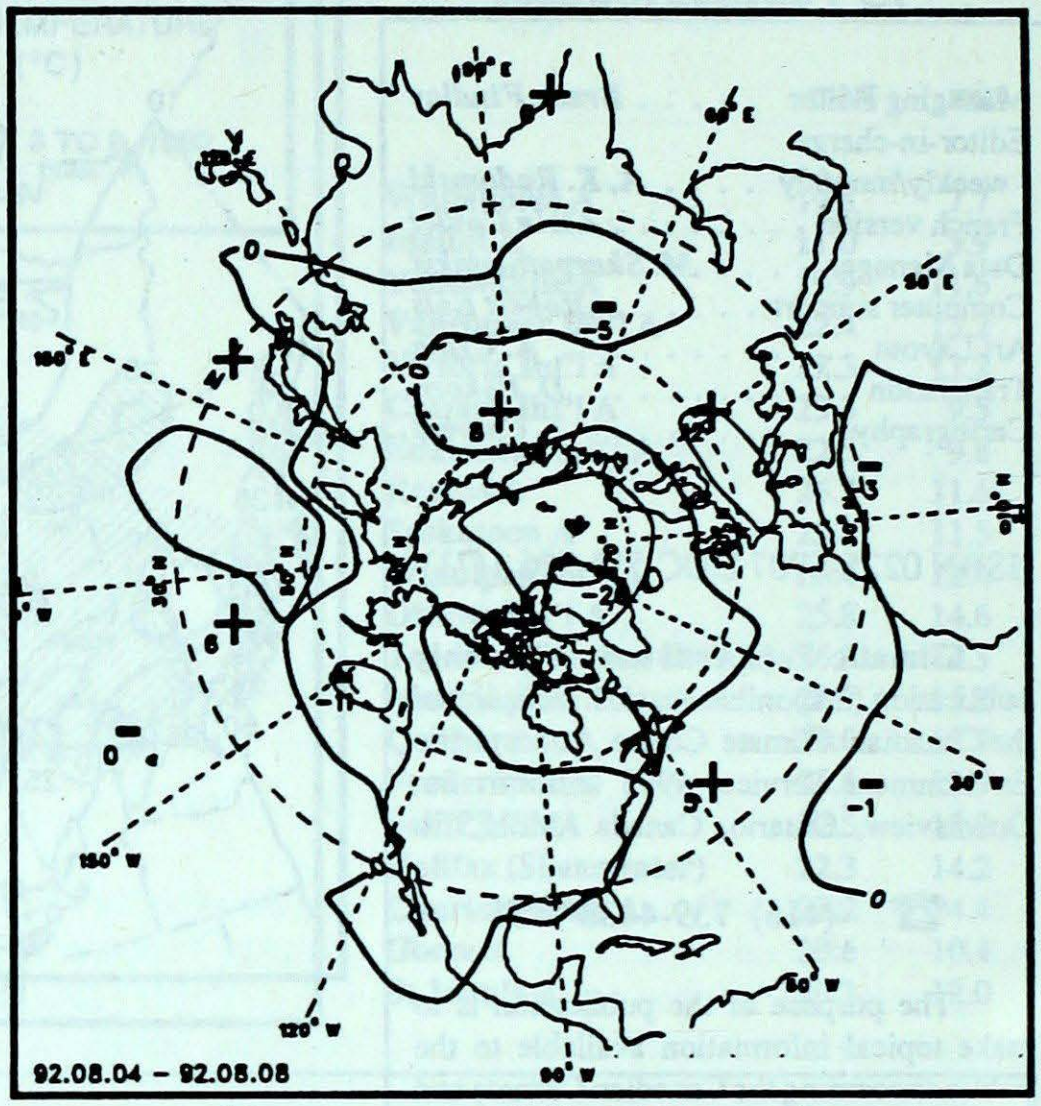




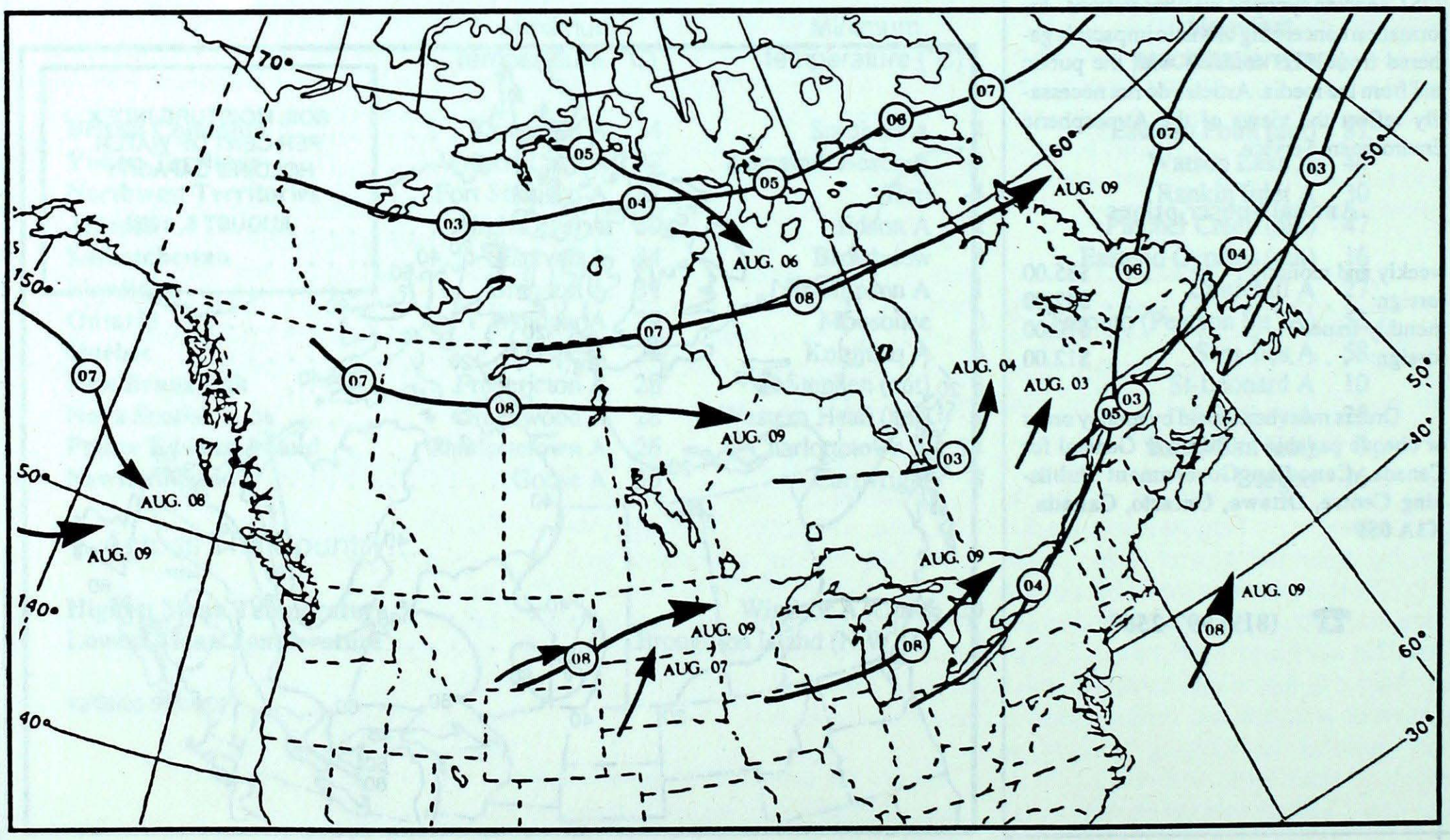
50-kPa ATMOSPHERIC CIRCULATION



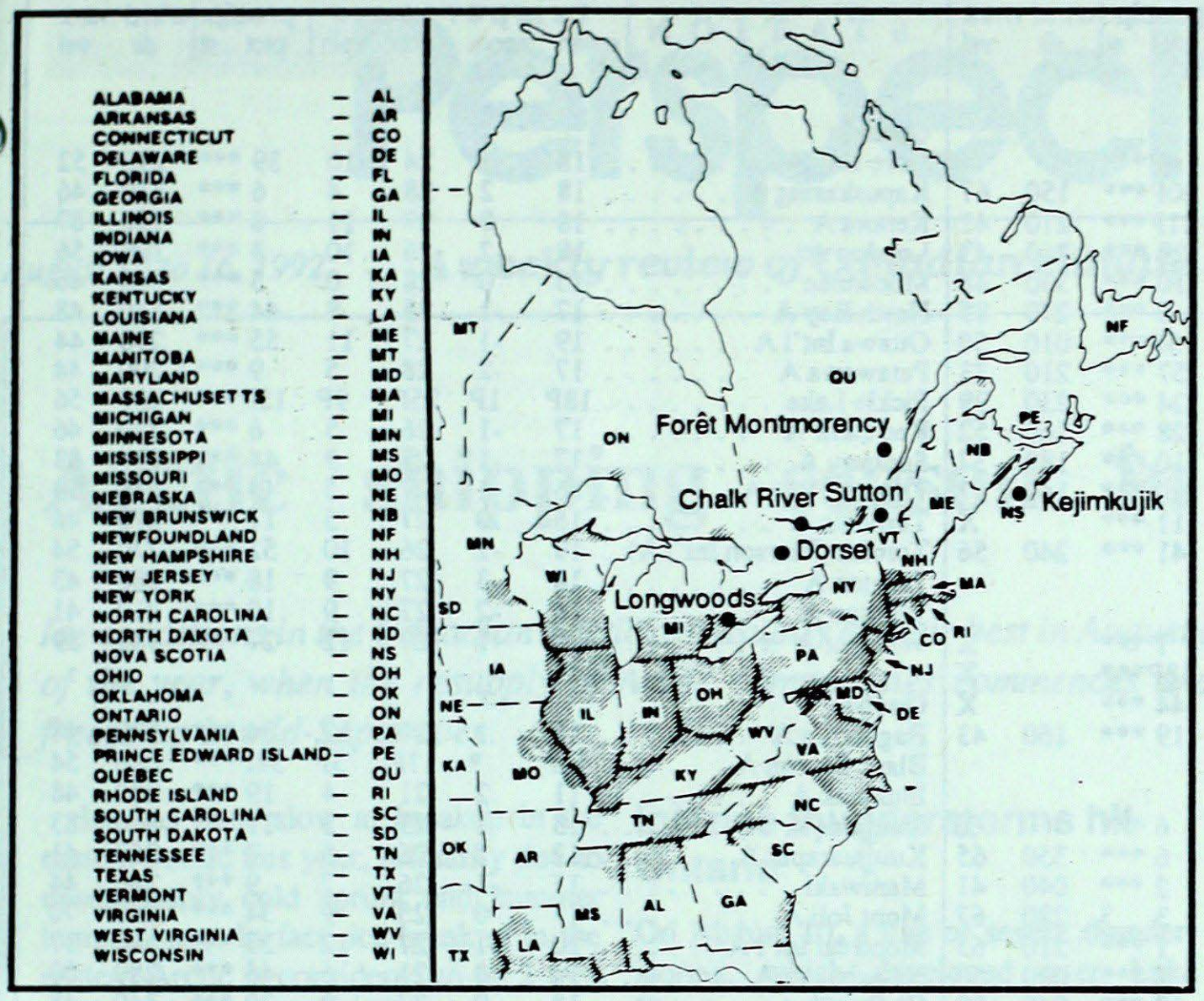
Mean geopotential height
50-kPa level (10 decametre intervals)



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
					August 2 to 8, 1992
Longwoods	02	3.8	4	R	. . . . . Southern Michigan, northern Illinois
Dorset *	02	4.7	20	R	. . . . . Michigan, Wisconsin
	04	4.4	2	R	. . . . . Northern Ontario, northern Michigan
	08	3.8	14	R	. . . . . Southern Ontario, Ohio, Indiana
Chalk River	02	5.1	23	R	. . . . . Lake Huron, northern Michigan
Sutton	03	4.0	18	R	. . . . . Southern Ontario, western New York
	04	3.9	51	R	. . . . . New York
Montmorency	07	4.3	6	R	. . . . . Western Quebec, northern Ontario
Kejimkujik	04	4.7	6	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								
Blue River A	20P	2P	29P	11P	0P***			X
Cape St James	16P	2P	18P	13P	30P***		150	67
Cranbrook A	18P	-2P	29P	5P	11P***		210	41
Fort Nelson A	17	1	30	9	29 ***		260	43
Fort St John A	18	2	29	8	10 ***		330	48
Kamloops A	20	-1	34	8	6 ***		270	85
Penticton A	20P	-1P	34P	9P	5P***		010	50
Port Hardy A	14	0	23	8	57 ***		210	33
Prince George A	16	1	30	7	24 ***		230	39
Prince Rupert A	14	1	19	10	28 ***		160	52
Smithers A	15	0	30	4	10 ***		180	37
Vancouver Int'l A	17	0	24	11	20 ***		140	37
Victoria Int'l A	16	-1	24	9	11 ***			X
Williams Lake A	15	-1	29	5	41 ***		240	56
Yukon Territory								
Komakuk Beach A	10	3	24	-1	7 ***			X
Teslin (aut)	13P	*	23P	6P	18P***			X
Watson Lake A	15	0	27	6	44 ***			X
Whitehorse A	14	0	21	6	19 ***		160	43
Northwest Territories								
Alert	2	-1	7	-4	6 ***			X
Baker Lake A	10	-1	24	1	6 ***		350	65
Cambridge Bay A	7	-2	16	2	2 ***		040	41
Cape Dyer A	5	-1	15	-1	3 3		280	67
Clyde A	5	0	12	-1	1 ***		210	65
Coppermine A	9	0	21	1	8 ***		090	50
Coral Harbour A	6	-3	13	-1	13 ***		040	39
Eureka	3	-3	7	-1	9 ***			X
Fort Smith A	19P	3P	30P	10P	18P***		180	39
Hall Beach A	6P	1P	14P	1P	1P***		340	46
Inuvik A	12	0	22	4	3 ***		130	32
Iqaluit A	8	0	15	2	3 ***		330	48
Mould Bay A	2	-1	6	-1	11 3			X
Norman Wells A	16	1	26	10	20 ***		290	46
Resolute A	1	-3	7	-2	7 3		350	69
Yellowknife A	16	1	27	9	4 ***		300	56
Alberta								
Calgary Int'l A	16	-1	25	6	23 ***		290	72
Cold Lake A	18	1	28	8	1 ***		260	56
Edmonton Namao A	18	1	28	8	2 ***		310	54
Fort McMurray A	18	2	30	9	20 ***		290	52
High Level A	17	2	30	9	25 ***			X
Jasper	*	*	26	*	* ***			X
Lethbridge A	18	-1	28	7	1 ***		240	61
Medicine Hat A	19	-1	29	9	5 ***		330	74
Peace River A	18	2	29	7	15 ***		270	44
Saskatchewan								
Cree Lake	18	2	28	9	14 ***		190	50
Estevan A	19	-1	34	6	0 ***		340	61
La Ronge A	19	3	28	8	15 ***		290	50
Regina A	19	0	30	9	5 ***		280	74
Saskatoon A	19	1	29	8	6 ***		240	52
Swift Current A	17	-1	27	9	4 ***		260	69
Yorkton A	17	-1	28	5	6 ***		220	37
Manitoba								
Brandon A	18	0	31	6	1 ***		290	54
Churchill A	12	0	28	3	27 ***		230	50
Lynn Lake A	17	2	28	6	9 ***		260	33
The Pas A	19	1	27	9	4 ***		250	41
Thompson A	16	2	30	1	3 ***		210	43
Winnipeg Int'l A	19	0	30	7	4 ***		030	54

STATION	temperature mean	anom	max	min	precip. ptot	st	wind max dir	vel
Ontario								
Gore Bay A	18	-1	24	10	39 ***		290	52
Kapuskasing A	18	2	28	4	6 ***		310	46
Kenora A	18	0	27	11	8 ***		150	87
London A	18	-2	26	10	3 ***		190	56
Moosonee	15	0	28	0	5 ***		340	46
North Bay A	17	-1	25	8	44 ***		140	48
Ottawa Int'l A	19	-1	27	11	55 ***		290	44
Petawawa A	17	-2	28	5	9 ***		290	44
Pickle Lake	18P	1P	25P	9P	12P***		230	56
Red Lake A	17	-1	26	5	6 ***		270	46
Sudbury A	17	-1	26	9	44 ***		230	33
Thunder Bay A	16	-1	27	5	46 ***		040	59
Timmins A	16	0	27	5	17 ***		270	46
Toronto(Pearson Int'l A)	19	-2	26	10	52 ***		270	54
Trenton A	18	-3	27	9	18 ***		280	43
Wiarton A	16	-2	27	9	10 ***		210	41
Windsor A	20	-1	29	12	27 ***		340	39
Québec								
Bagotville A	18	1	27	12	34 ***		330	48
Blanc Sablon A	12P	*	17P	5P	38P***		080	54
Inukjuak A	11	2	21	4	19 ***		200	48
Kuujjuaq A	13	1	23	3	17 ***		300	83
Kuujjuarapik A	12	2	26	5	7 ***		250	41
Maniwaki	17	-1	26	7	9 ***		280	44
Mont Joli A	17	0	25	9	34 ***		240	70
Montréal Int'l A	20	-1	27	12	38 ***		160	37
Natashquan A	14	0	21	6	46 ***		280	50
Québec A	18	0	27	9	29 ***		340	48
Schefferville A	13	1	22	5	22 ***		330	57
Sept-Îles A	14	-1	23	8	58 ***		080	74
Sherbrooke A	17	0	27	9	53 ***		270	48
Val-d'Or A	16	0	26	5	2 ***		150	43
New Brunswick								
Fredericton A	19	0	28	10	2 ***		260	54
Miscou Island (aut)	19P	1P	27P	13P	0P***			
Moncton A	19	1	28	12	6 ***		210	56
Saint John A	17	0	26	10	5 ***		200	41
Nova Scotia								
Greenwood A	19	-1	28	8	2 ***		250	61
Shearwater A	18	0	26	12	9 ***		260	39
Sydney A	19	1	27	9	25 ***		230	52
Yarmouth A	17	0	23	10	7 ***		230	46
Prince Edward Island								
Charlottetown A	20	1	26	14	6 ***		240	56
East Point (auto)	19	*	24	15	7 ***			
Newfoundland								
Cartwright	14	1	27	3	41 ***		130	56
Churchill Falls A	14	1	25	6	35 ***		320	59
Gander Int'l A	18	1	26	7	15 ***		320	74
Goose A	17	1	30	7	25 ***		290	44
St John's A	18	1	26	9	11 ***		320	93
St Lawrence	15	1	24	9	5 ***			X
Wabush Lake A	15	2	24	5	31 ***		290	56

92/08/03-92/08/09

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

ptot = weekly precipitati
st = snow thickness o
dir = direction of max w
vel = wind speed in kr