



Climatic Perspectives

CLIMATIC PERSPECTIVES

Ref 1

July 29 to August 4, 1991

Vol: 13 No: 31 Date: 910729

Vol. 13 No 31

1005959D
REF 1

Archives

Summer also means severe weather

In the Maritimes heavy thunderstorms developed on August 2 and 3. Cape Breton and Tatamagouche-New Annan areas of Nova Scotia had damaging hail. There were frequent lightning strikes in P.E.I and New Brunswick, which damaged buildings and killed cattle.

In Quebec, thunderstorm activity on July 31 produced heavy rainfalls near the Ottawa Valley. At Chénéville, northeast of Ottawa, 61 mm of rain fell in several hours. At St-Narcisse, hail and strong winds were reported. Grand-Détour, in the Manicouagan region, received 79 mm of rain. On August 1, severe thunderstorms rumbled over Montréal, Trois Rivières and the Eastern Township regions. There were numerous reports of hail.

In Ontario, torrential rain on the evening of July 29 into the 30th, left flooded fields and washed out roadways in the Delhi area of south-western Ontario. At Delhi, 139 mm of rain was recorded, but there were unofficial reports of up to 175 mm. Other agricultural areas of Brantford and Tillsonburg, received 85 and 50 millimetres of rain. After Ontario's July heat waves, widespread rainfalls are urgently needed. In retrospect, on July 18, a severe thun-

derstorm complex associated with high winds and torrential rains moved across northwestern Ontario. The winds, with gusts to 160 km/h, literally flattened 160,000 hectares of prime timber stands south of Red Lake. The storm lasted 20 minutes but in its wake left thousands of trees pulled out of the ground. This is the most significant forest blowdown in recent memory, and if left unharvested could, over the next 3 to 4 years, pose an extreme forest fire hazard.

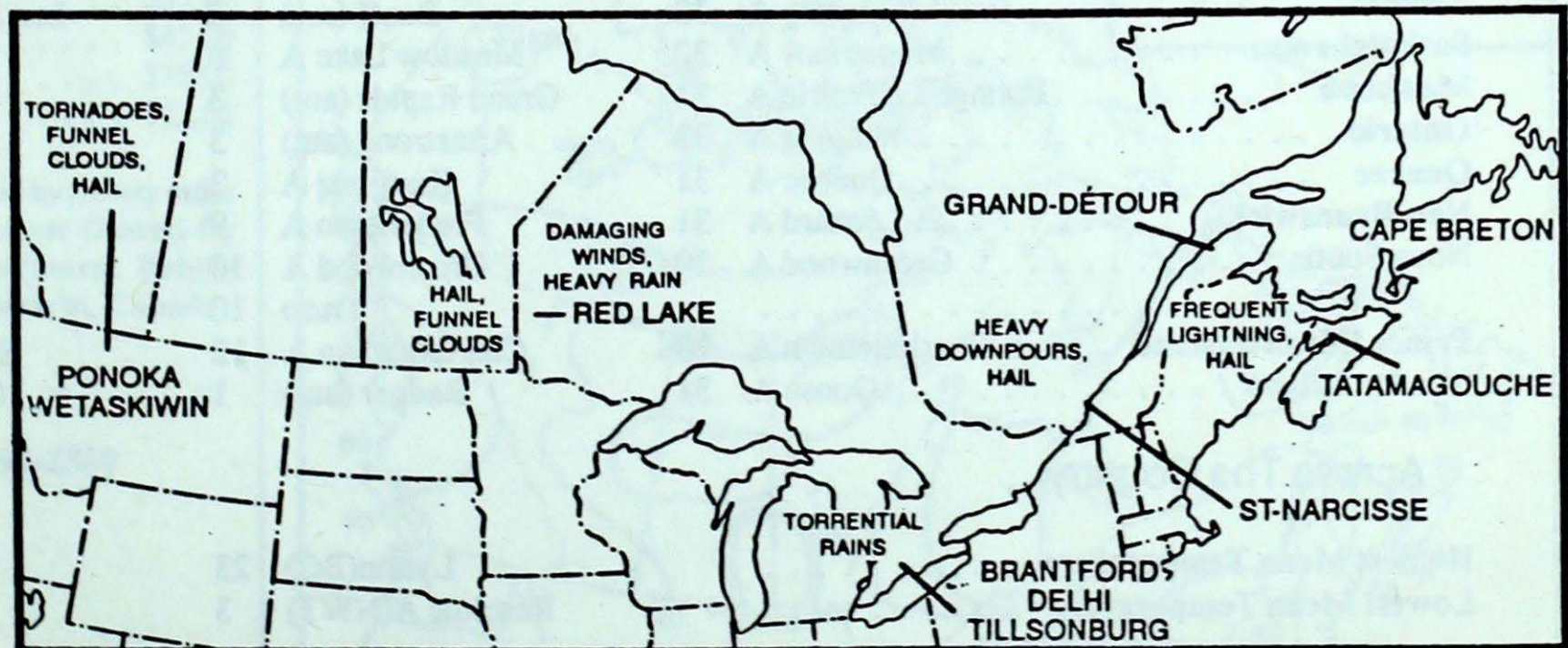
Alberta, which so far this summer has had a relatively quiet severe weather season, also received its fair share this week. On the evening of the 30th, a cold front triggered severe thunderstorms in central Alberta. Tornado warnings were issued and large hail was reported in a number of communities in the Ponoka and Wetaskiwin areas. On July 30, heavy thunderstorms developed in the central foothills

and moved eastwards. Two tornadoes were sighted in Edmonton and several funnel clouds were reported to the south. In Winnipeg the same day, hail pelted the region and a funnel cloud was sighted south of the Trans-Canada Highway.

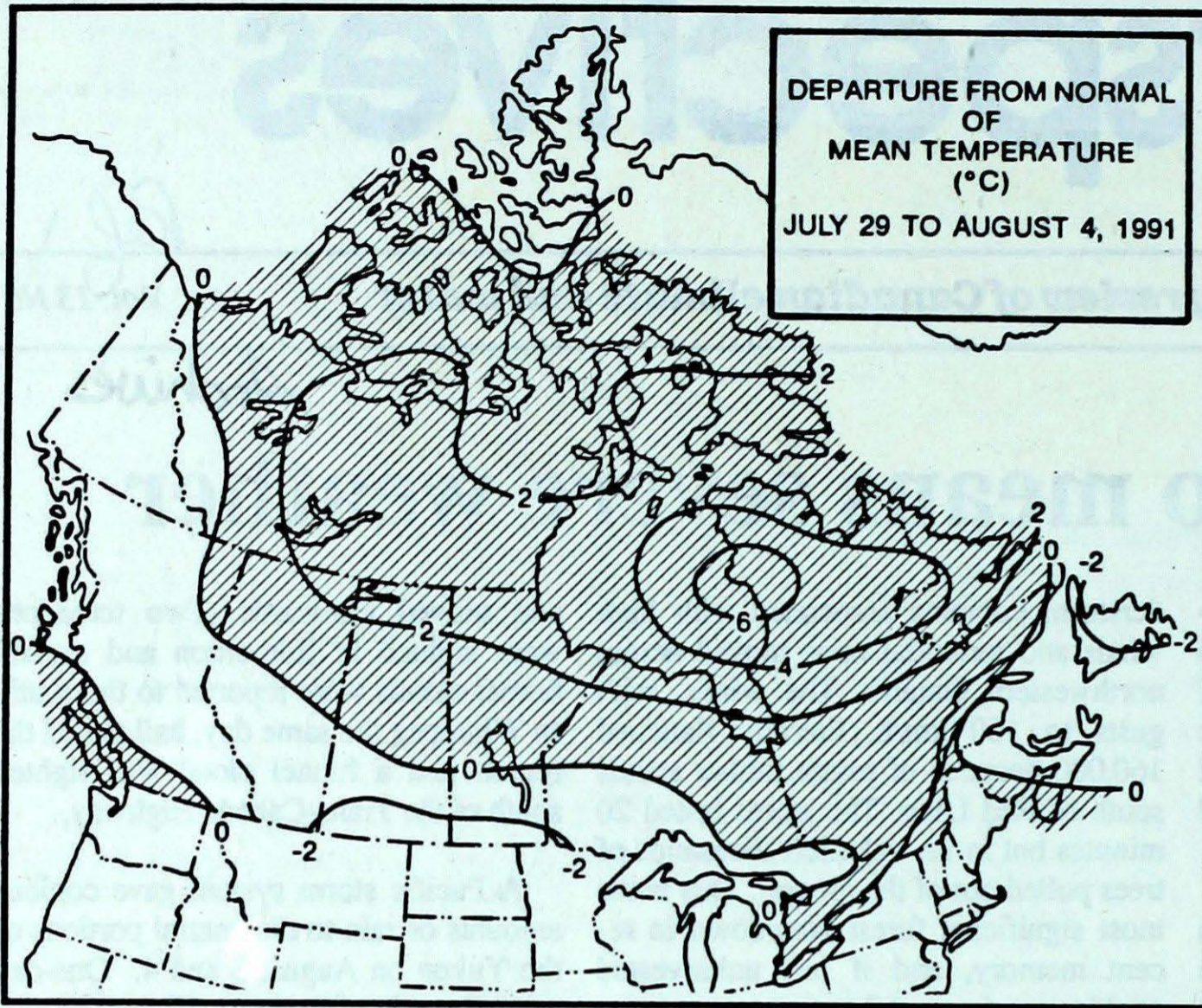
A Pacific storm system gave copious amounts of rain to the central portions of the Yukon on August 3 and 4. One-day rainfall totals of between 30 and 70 millimetres were recorded. The Dempster Highway at the upper Peel River crossing was washed out and remained closed to traffic for several days.

A look ahead . . .

The week of August 12 will see a high pressure system over almost the entire country. This will result in above normal temperatures everywhere except in the northern Yukon and Arctic.



Thunderstorms are common during the summer months, especially when temperatures and humidity climb.



Weekly normal temperatures (°C)

	max.	min.
Whitehorse A	20.8	8.3
Iqaluit A	11.1	4.1
Yellowknife A	20.5	11.5
Vancouver Int'l A	22.5	13.0
Victoria Int'l A	22.3	10.9
Calgary Int'l A	23.6	9.7
Edmonton Int'l A	22.9	9.8
Regina A	26.5	11.4
Saskatoon A	25.5	11.2
Winnipeg Int'l A	25.5	12.4
Ottawa Int'l A	25.8	14.6
Toronto (Pearson Int'l A)	26.4	14.1
Montréal Int'l A	26.0	15.6
Québec A	24.4	13.2
Fredericton A	25.6	13.3
Saint John A	22.3	12.2
Halifax (Shearwater)	22.1	14.2
Charlottetown A	23.5	14.7
Goose A	21.3	11.3
St John's A	21.0	12.2

Weekly temperature and precipitation extremes

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Penticton A 36	Puntzi Mountain (aut) 0	Prince Rupert A 86
Yukon Territory	Watson Lake A 22	Komakuk Beach A 0	Faro (aut) 6
Northwest Territories	Fort Smith A 33	MacKar Inlet -2	Inuvik A 31
Alberta	Fort McMurray A 32	Banff (aut) 2	Lac La Biche (aut) 21
Saskatchewan	Moose Jaw A 32	Meadow Lake A 6	Broadview 47
Manitoba	Portage La Prairie A 31	Grand Rapids (aut) 3	Lynn Lake A 53
Ontario	Windsor A 32	Armstrong (aut) 3	North Bay A 85
Quebec	Québec A 31	Kuujuuaq A 2	Parent (aut) 42
New Brunswick	St-Léonard A 31	Fredericton A 9	Chatham A 39
Nova Scotia	Greenwood A 30	Greenwood A 10	Sydney A 32
		Truro 10	
Prince Edward Island	Charlottetown A 28	Charlottetown A 12	East Point (aut) 36
Newfoundland	Goose A 31	Badger (aut) 1	Comfort Cove 48

Across The Country...

Highest Mean Temperature	Lytton(BC) 23
Lowest Mean Temperature	Resolute A(NWT) 3

CLIMATIC PERSPECTIVES
VOLUME 13

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ISBN 0225-5707 UDC 551.506.1(71)

Climatic Perspectives is a weekly publication (disponible aussi en français) 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.

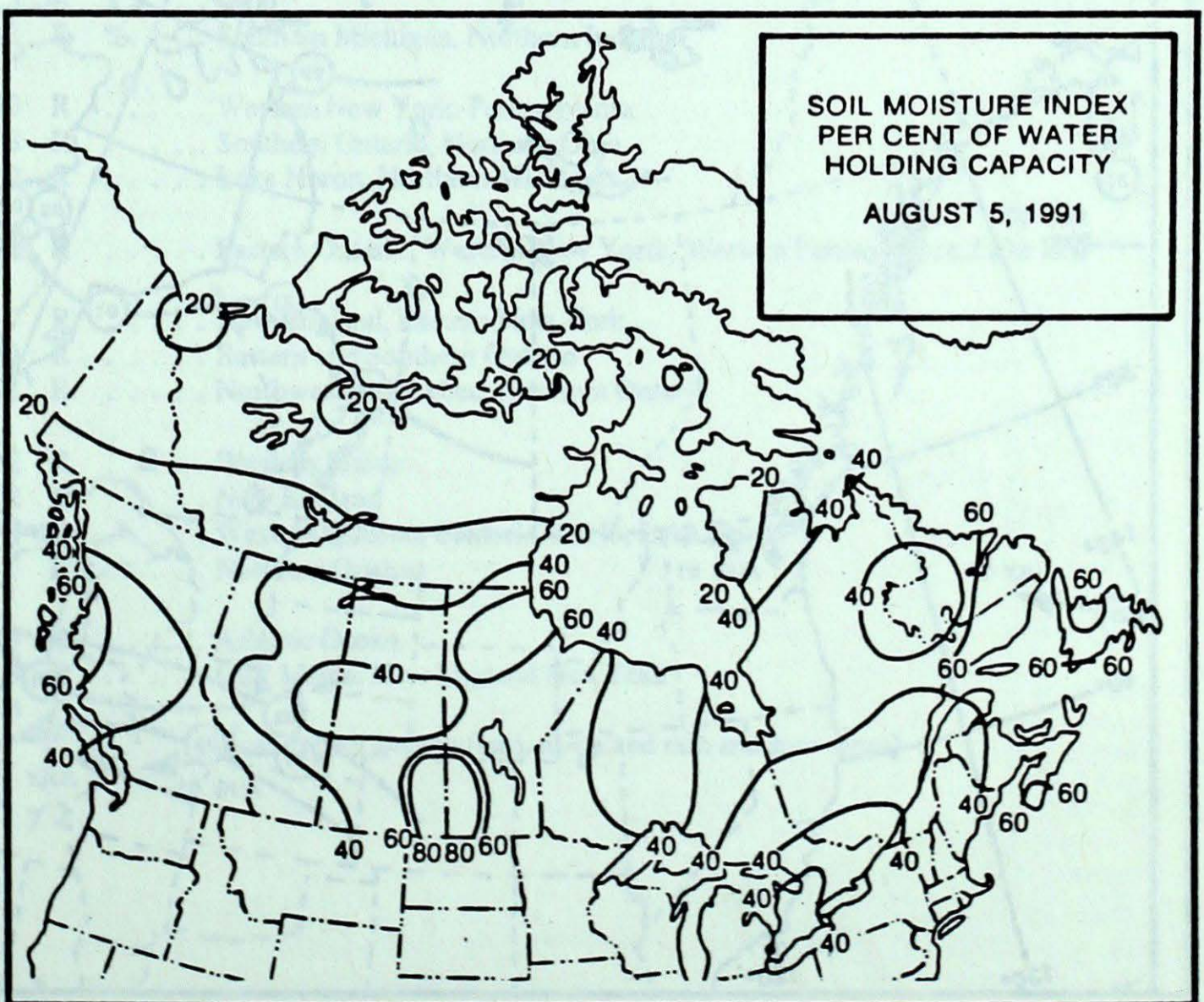
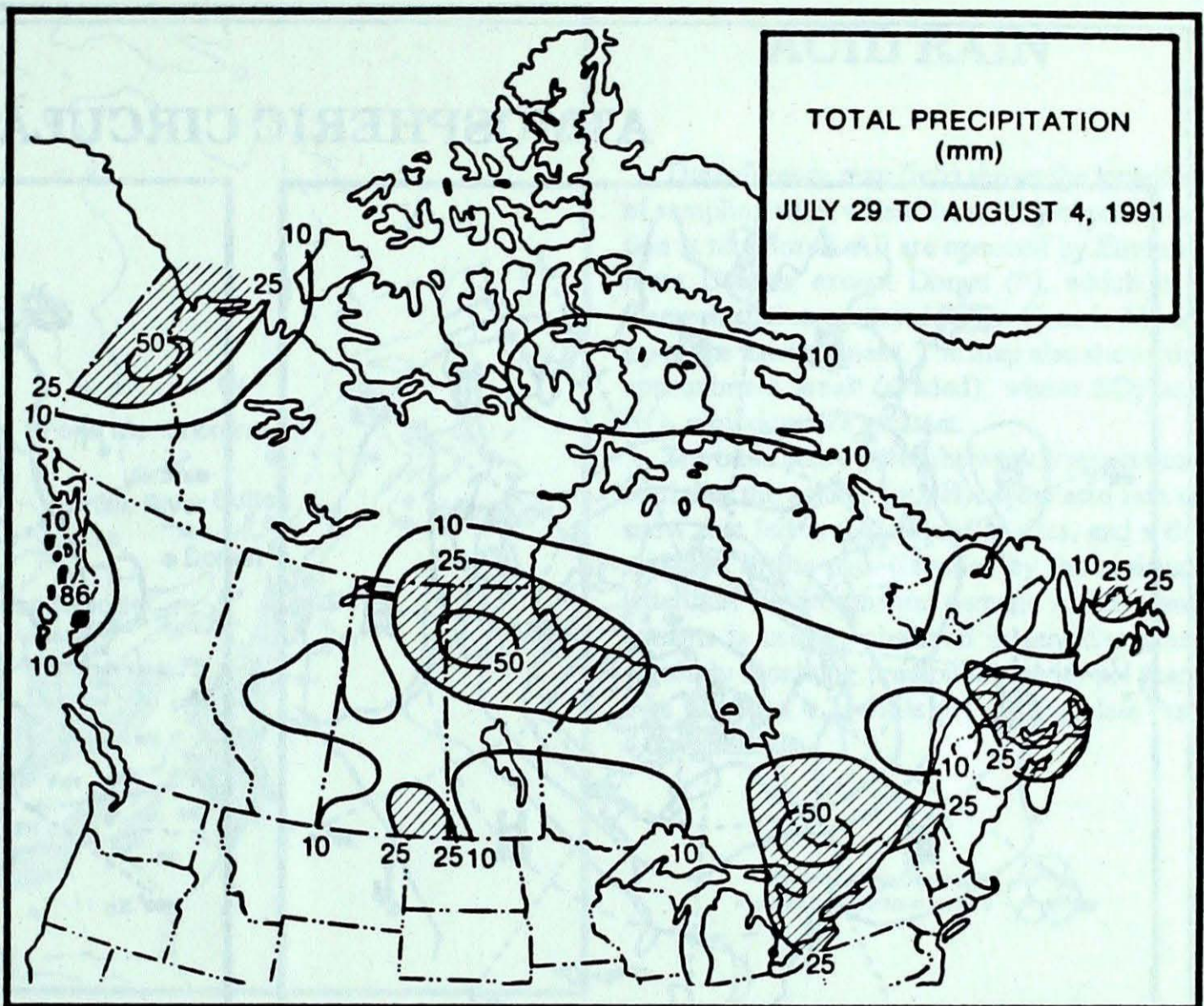
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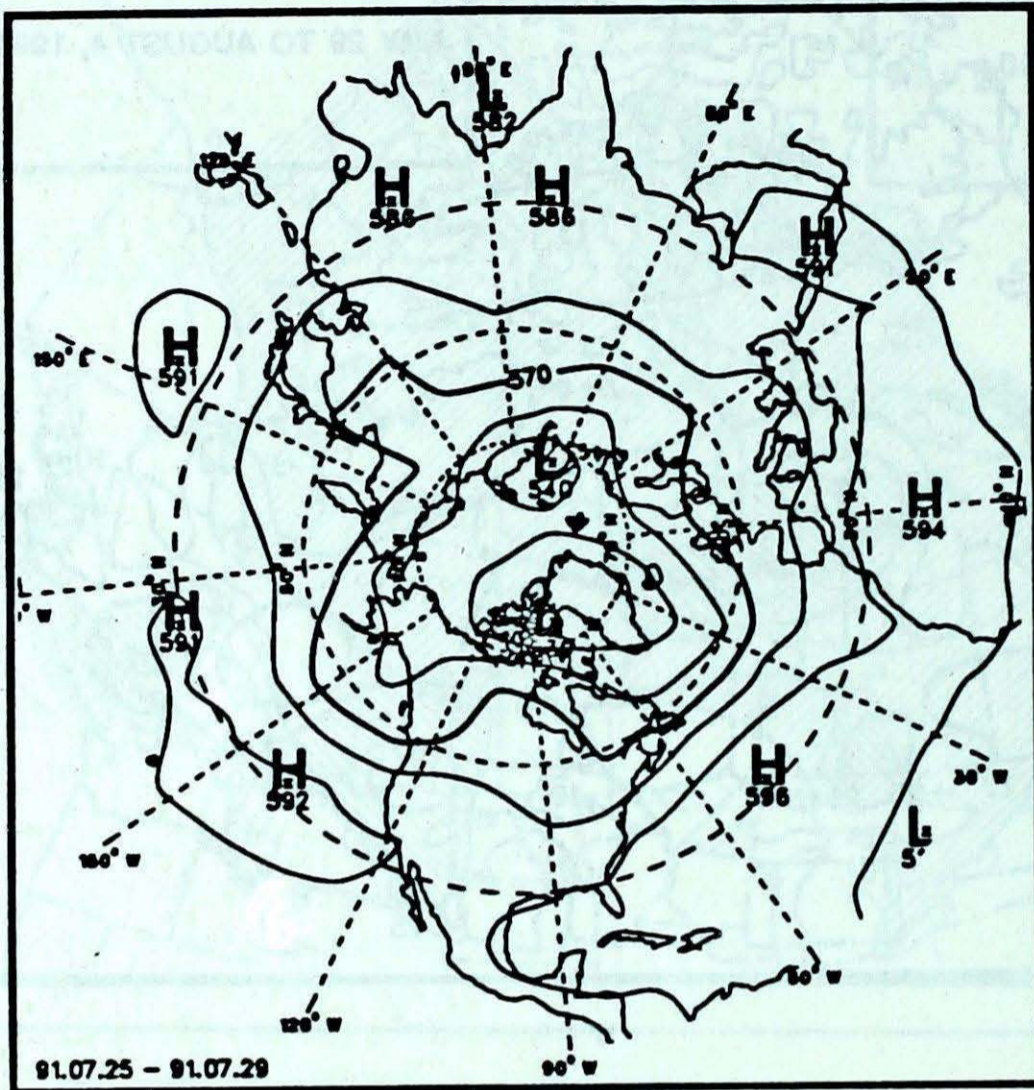
weekly and monthly : \$35.00
 foreign: \$42.00
 monthly issue: \$10.00
 foreign: \$12.00

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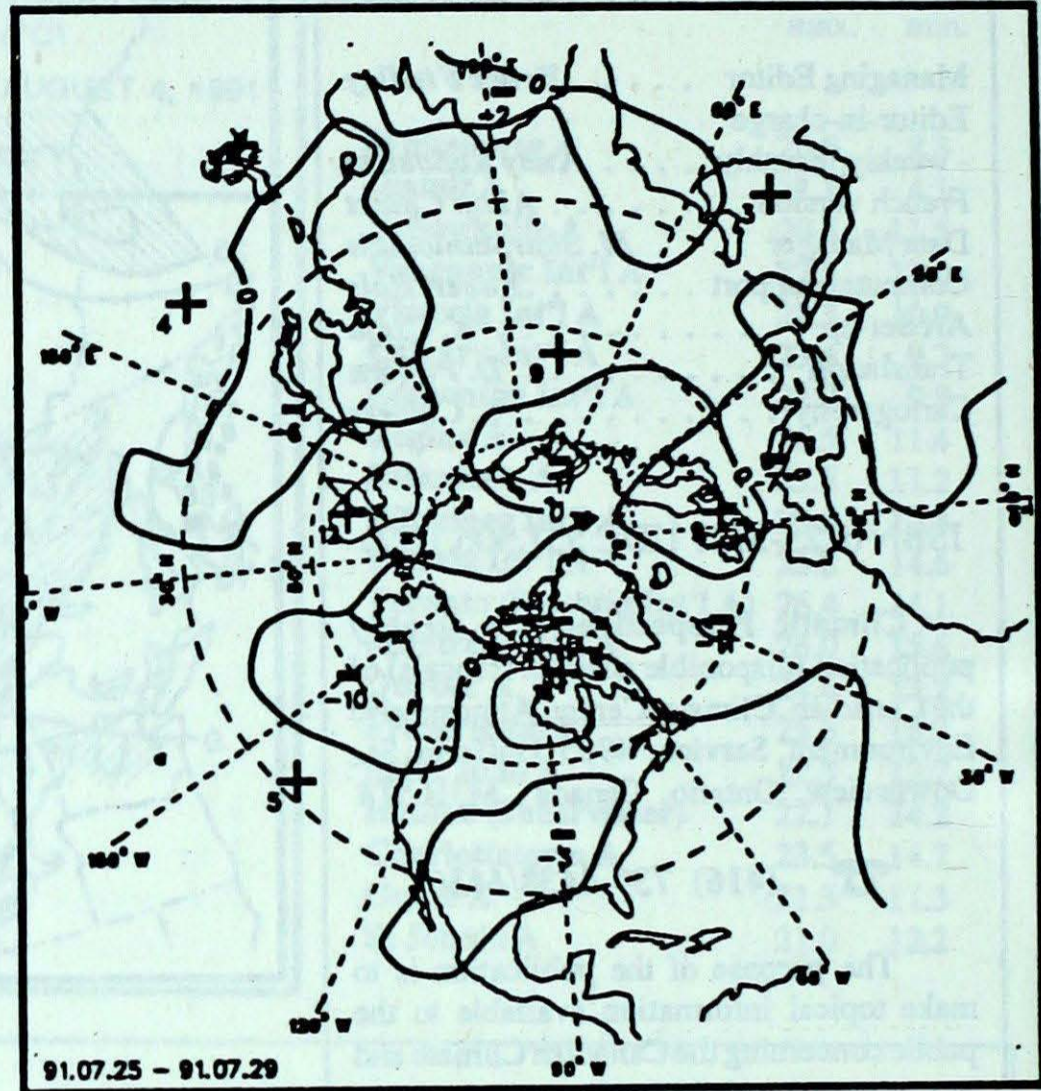
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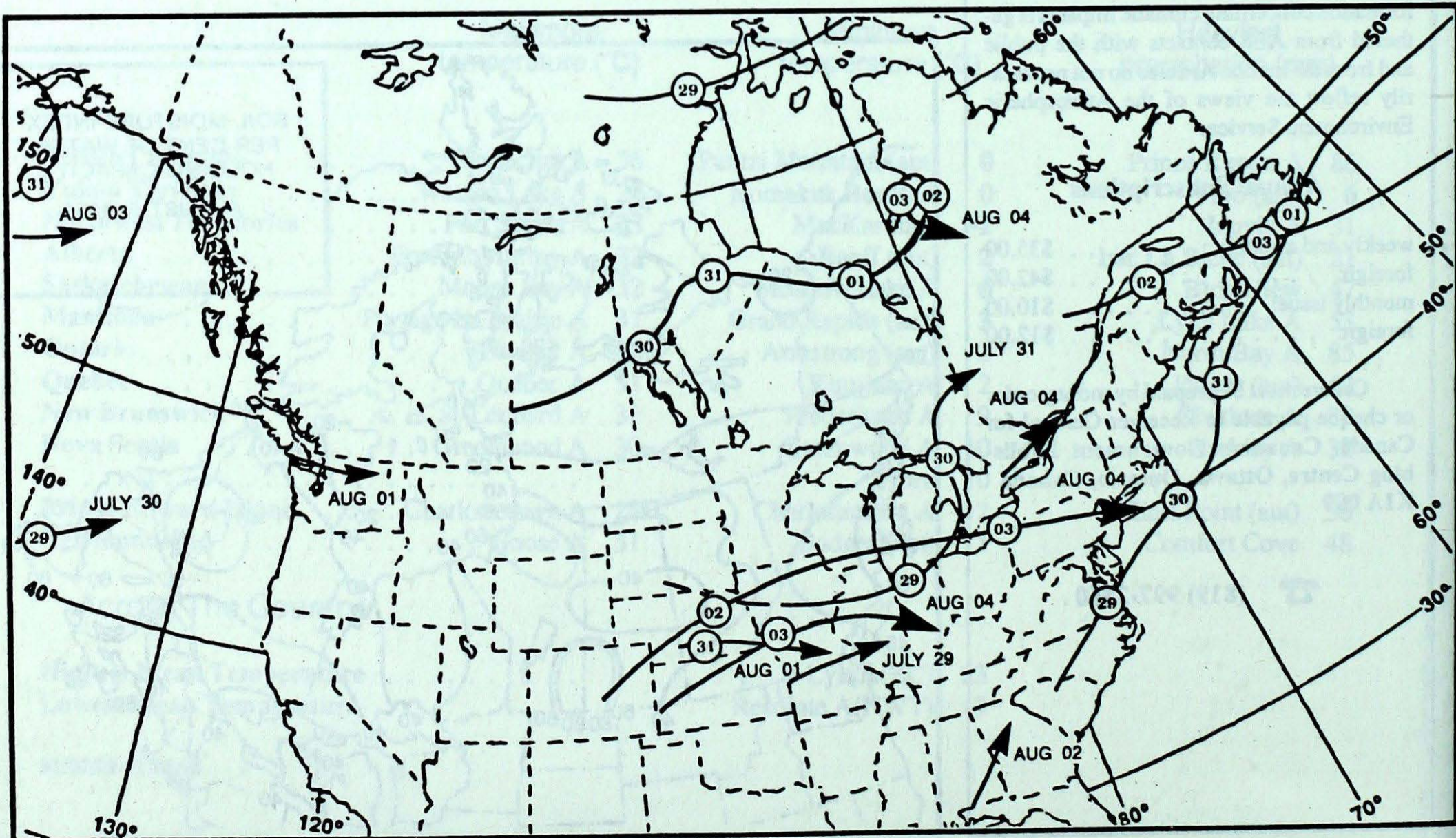
ATMOSPHERIC CIRCULATION



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



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



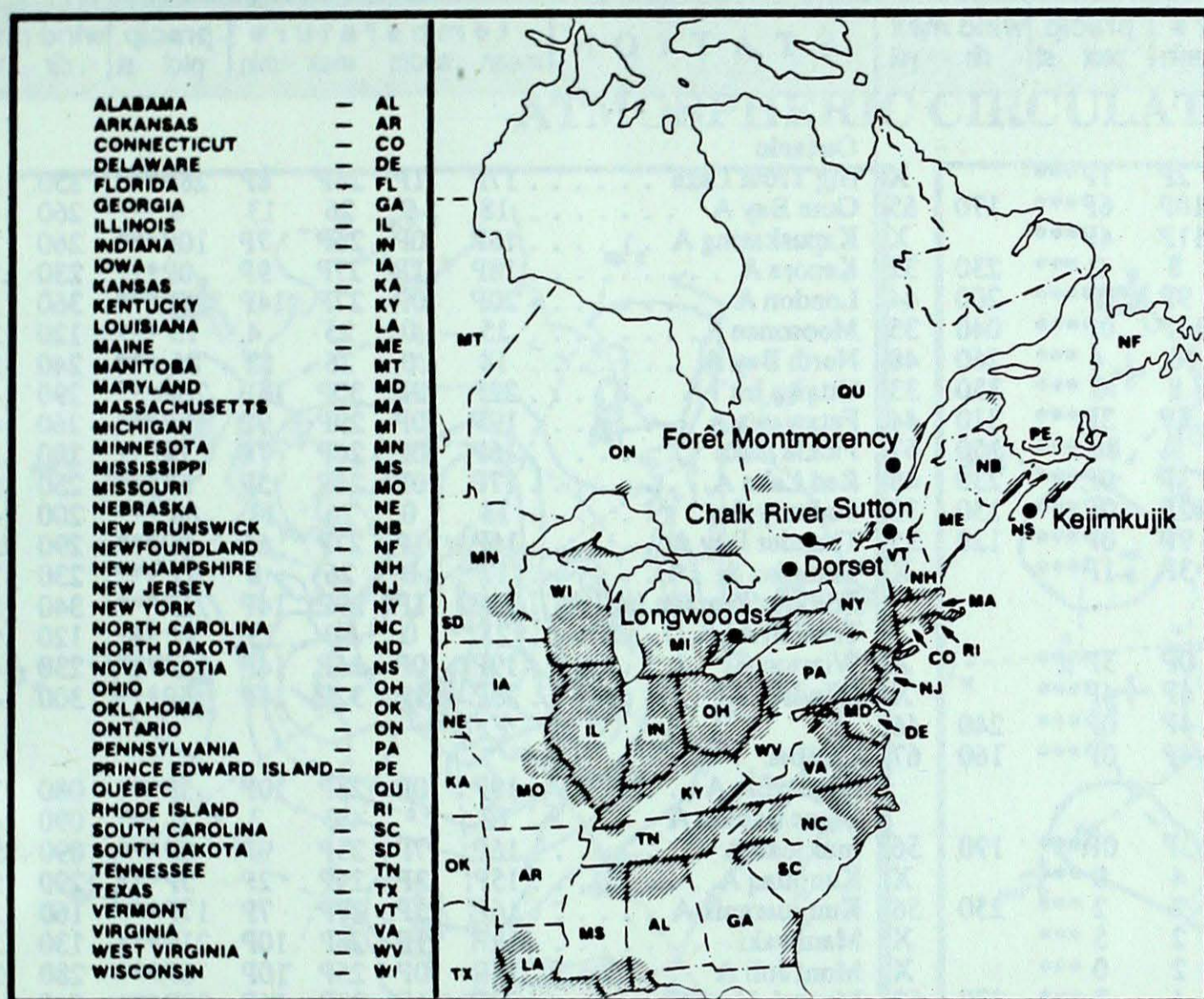
Tracks of low pressure centres at 12:00 U.T. each day during the period.

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 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.

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Site day pH amount air path to site

July 28 to August 4, 1991

Longwoods	29	3.7	3	R Ohio
	03	3.8	3	R	..... Southern Michigan, Northern Indiana
Dorset*	29	3.7	20	R	..... Western New York, Pennsylvania
	30	4.0	8	R	..... Southern Ontario, Northern Ohio
	31	4.7	2	R	..... Lake Huron, Northern Michigan
Chalk River	30	4.6	13	R	..... Eastern Ontario, Western New York, Western Pennsylvania, Lake Erie
Sutton	30	4.2	7	R	..... New England, Eastern New York
	01	4.6	12	R	..... Eastern and Southern Ontario
	03	4.6	1	R	..... Northwestern Quebec, Northern Ontario
Montmorency	30	4.3	2	R	..... Western Maine
	31	4.4	2	R	..... New England
	01	4.6	1	R	..... Western Quebec, Central Ontario, Lake Huron
	03	4.9	6	R	..... Northern Quebec
Kejimikujik	31	4.9	15	R	..... Atlantic Ocean
	01	4.0	3	R	..... Gulf Maine, New England New York

..... r=rain(mm), s=snow(cm), m=mixed rain and snow(mm)

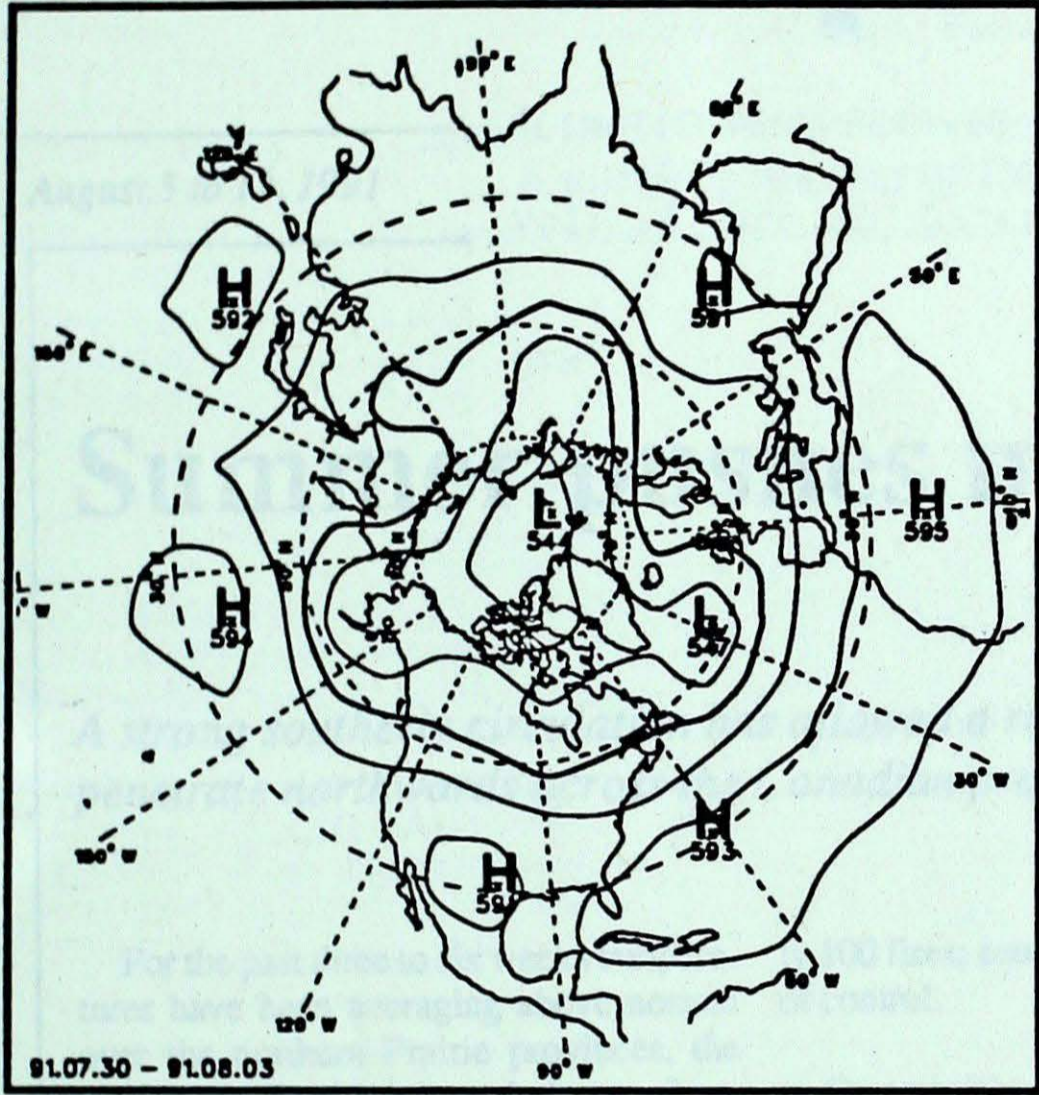
STATION	temperature				precip. ptot st	wind max		STATION	temperature				precip. ptot st	wind max	
	mean	anom	max	min		dir	vel		mean	anom	max	min		dir	vel
British Columbia								Ontario							
Blue River A	17P	-1P	32P	2P	1P***		X	Big Trout Lake	17P	1P	26P	8P	26P***	350	50
Cape St James	14P	0P	18P	10P	6P***	170	65	Gore Bay A	18	0	26	13	8 ***	260	48
Cranbrook A	19P	0P	31P	11P	4P***		X	Kapuskasing A	16P	0P	26P	7P	10P***	260	39
Fort Nelson A	17	0	28	8	2 ***	230	32	Kenora A	18P	-1P	27P	9P	0P***	230	59
Fort St John A	19P	3P	29P	9P	0P***	200	44	London A	20P	0P	27P	14P	36P***	360	54
Kamloops A	22P	1P	35P	11P	0P***	040	35	Moosonee	15	0	25	4	15 ***	120	37
Penticton A	23	2	36	10	4 ***	260	48	North Bay A	18	0	26	12	85 ***	240	54
Port Hardy A	14	0	23	8	3 ***	330	33	Ottawa Int'l A	22P	2P	30P	15P	26P***	290	44
Prince George A	15P	-1P	28P	5P	3P***	310	44	Petawawa A	19P	0P	29P	9P	48P***	260	48
Prince Rupert A	13	-1	17	7	86 ***	150	67	Pickle Lake	16P	0P	26P	7P	7P***	280	50
Smithers A	15P	-1P	26P	3P	0P***	230	48	Red Lake A	17P	0P	26P	5P	6P***	250	50
Vancouver Int'l A	18P	1P	26P	12P	0P***	130	32	Sudbury A	18	0	26	11	68 ***	200	48
Victoria Int'l A	16P	0P	25P	9P	0P***	120	35	Thunder Bay A	16P	-1P	27P	6P	0P***	290	57
Williams Lake A	15P	-1P	28P	3P	1P***		X	Timmins A	17	0	26	8	27 ***	230	37
Yukon Territory								Toronto(Pearson Int'l A)							
Komakuk Beach A	6P	-1P	14P	0P	3P***		X	Trenton A	21	0	30	13	37 ***	120	95
Teslin (aut)	12P	*	18P	6P	4P***		X	Warton A	19P	0P	26P	14P	14P***	230	46
Watson Lake A	14P	-2P	22P	4P	0P***	240	46	Windsor A	23P	1P	32P	16P	5P***	300	44
Whitehorse A	12P	-3P	19P	4P	0P***	160	67	Québec							
Northwest Territories								Bagotville A							
Alert	5P	1P	14P	-2P	0P***	190	56	18P	0P	28P	10P	5P***	080	33	
Baker Lake A	13	2	24	4	0 ***		X	Blanc Sablon A	12	*	20	3	0 ***	090	41
Cambridge Bay A	11	3	26	2	2 ***	250	56	Inukjuak A	16P	7P	25P	9P	0P***	090	56
Cape Dyer A	8	2	15	2	5 ***		X	Kuujuuaq A	15P	3P	29P	2P	5P***	290	52
Clyde A	7	2	17	2	0 ***		X	Kuujuarapik A	16P	5P	27P	7P	17P***	160	32
Coppermine A	13	4	28	4	7 ***	270	52	Maniwaki	19P	1P	28P	10P	21P***	130	32
Coral Harbour A	11P	2P	25P	3P	0P***		X	Mont Joli A	17P	0P	25P	10P	6P***	280	39
Eureka	5P	-1P	10P	1P	3P***		X	Montréal Int'l A	22P	1P	29P	14P	38P***	240	48
Fort Smith A	18P	3P	33P	7P	3P***	210	37	Natashquan A	16P	1P	25P	7P	3P***		X
Hall Beach A	7P	2P	15P	2P	10P***	280	44	Québec A	20P	1P	31P	12P	16P***	100	43
Inuvik A	14P	1P	23P	4P	31P***	340	32	Schefferville A	18P	5P	27P	11P	7P***	310	37
Iqaluit A	10P	3P	19P	5P	22P***	320	41	Sept-Îles A	16P	1P	24P	9P	39P***	080	39
Mould Bay A	5	1	11	-2	2 1	350	32	Sherbrooke A	18P	2P	28P	9P	29P***		X
Norman Wells A	16P	0P	27P	7P	1P***	200	65	Val-d'Or A	18P	1P	26P	9P	25P***	300	48
Resolute A	3P	-1P	9P	0P	1P***	080	54	New Brunswick							
Yellowknife A	19P	3P	31P	12P	7P***	280	43	Chatham A	20P	0P	30P	11P	39P***		X
Alberta								Fredericton A							
Calgary Int'l A	16P	-1P	30P	5P	2P***	350	70	19	0	30	9	14 ***	200	46	
Cold Lake A	17P	0P	28P	7P	7P***	300	67	Miscou Island (aut)	18	-1	25	13	0 ***		
Edmonton Namao A	16P	-1P	30P	6P	1P***	300	50	Moncton A	19P	0P	29P	11P	21P***	240	43
Fort McMurray A	17P	1P	32P	8P	12P***	280	39	Saint John A	19P	1P	28P	11P	20P***	150	32
High Level A	17	1	30	6	3 ***	300	35	Nova Scotia							
Jasper	15P	-1P	30P	3P	2P***		X	Greenwood A	19	-1	30	10	11 ***	160	33
Lethbridge A	18	-1	31	8	13 ***	250	63	Shearwater A	19P	1P	29P	13P	15P***	120	35
Medicine Hat A	19P	-1P	31P	11P	9P***	240	46	Sydney A	17P	-2P	27P	11P	32P***	080	50
Peace River A	17P	1P	32P	7P	2P***	260	43	Yarmouth A	18P	1P	26P	12P	19P***	100	43
Saskatchewan								Prince Edward Island							
Cree Lake	17P	2P	28P	8P	7P***	320	63	Charlottetown A	19P	0P	28P	12P	27P***	320	37
Estevan A	18P	-2P	30P	9P	41P***	300	57	East Point (auto)	17	*	21	15	36 ***		
La Ronge A	17	1	27	7	9 ***	290	74	Newfoundland							
Regina A	17P	-2P	29P	8P	32P***	290	57	Cartwright	15P	1P	28P	5P	3P***	330	32
Saskatoon A	18P	-1P	28P	7P	2P***	300	52	Churchill Falls A	18P	4P	28P	10P	12P***	290	33
Swift Current A	17P	-2P	30P	8P	18P***	260	37	Gander Int'l A	14P	-3P	29P	6P	15P***		X
Yorkton A	16P	-2P	27P	8P	18P***	310	65	Goose A	20P	4P	31P	12P	19P***	200	48
Manitoba								Port Aux Basques							
Brandon A	17P	-2P	27P	8P	11P***	290	63	14P	-1P	22P	9P	18P***	290	46	
Churchill A	14	2	27	7	33 ***	010	50	St John's A	13P	-3P	26P	6P	18P***	280	54
Lynn Lake A	15P	0P	27P	3P	53P***	320	63	St Lawrence	14P	0P	24P	9P	11P***		X
The Pas A	18P	1P	29P	11P	12P***	270	89	Wabush Lake A	17	3	27	8	5 ***		X
Thompson A	16P	2P	26P	7P	19P***	250	44	91/07/29-91/08/04							
Winnipeg Int'l A	19P	0P	30P	9P	1P***	280	74								

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

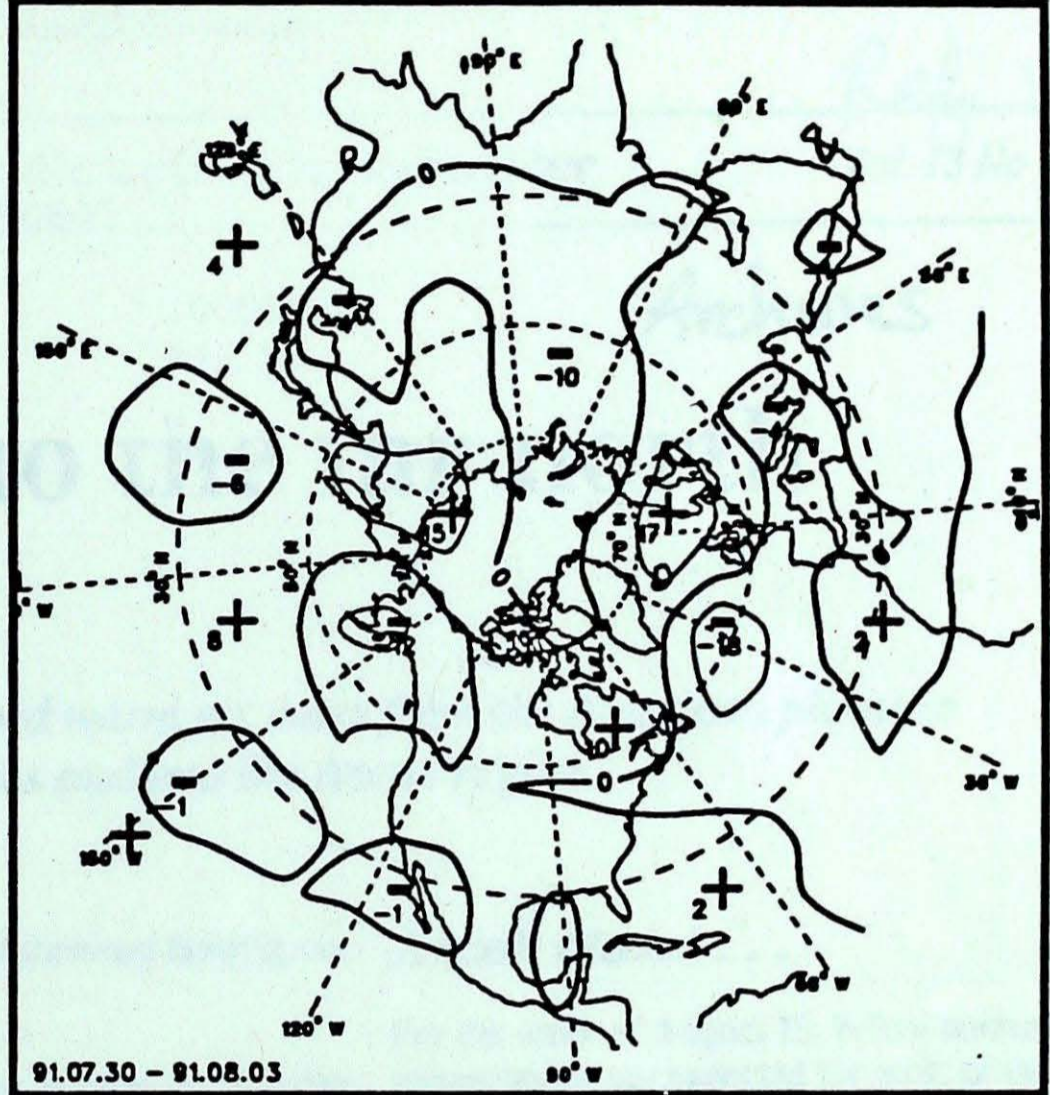
ptot = weekly precipitation total in mm
 st = snow thickness on the ground in cm
 dir = direction of max wind, deg. from north.
 vel = wind speed in km/h

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

ATMOSPHERIC CIRCULATION



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



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

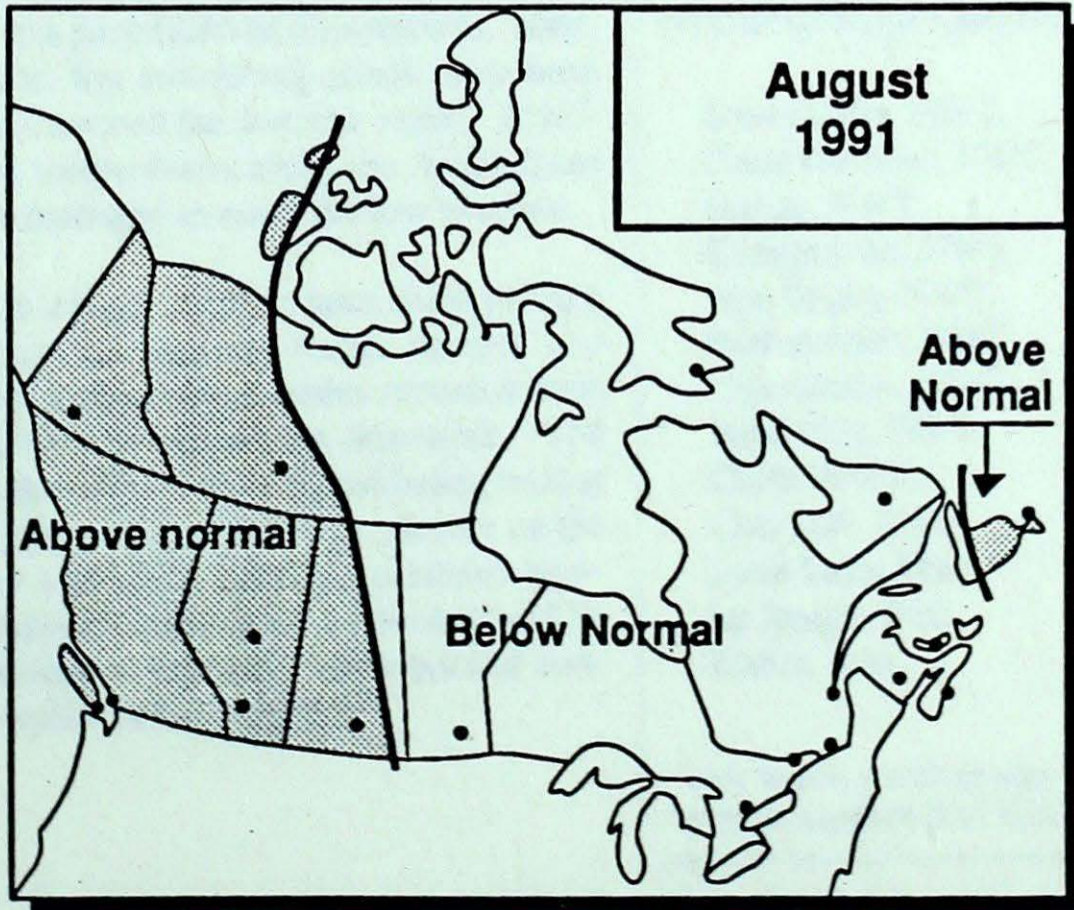


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MONTHLY TEMPERATURE FORECAST

Normal temperatures for
the month of August, °C

Whitehorse	13	Toronto	20
Yellowknife	14	Ottawa	19
Iqaluit	7	Montréal	20
Vancouver	17	Québec	18
Victoria	16	Fredericton	18
Calgary	15	Halifax	18
Edmonton	16	Charlottetown	18
Regina	18	Goose Bay	14
Winnipeg	18	St. John's	15



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