

Climatic Perspectives

archives

Ref 2

June 18 to 24, 1990

A weekly review of Canadian climate and water

Vol.12 No.25

Another winter of heavy ice conditions in the Arctic

The weather pattern this past winter had the effect of preventing warmer air masses over the Atlantic from reaching the northern regions of the eastern Arctic. As a result, the accumulation of freezing degree-days (an indicator of ice growth) was greater than average and ice growth was heavier than normal. In the Beaufort Sea, prevailing winds produced an onshore ice drift for most of the winter; in addition, freezing degree-days were also a little above normal.

At the end of May, old ice pack in the Beaufort was further south than in previous years, but a lead of open water had begun to open up off the Tuktoyaktuk Peninsula and Mackenzie Bay. The ice cover in the central and northern Arctic Islands was almost totally consolidated, and clearing in northwestern Baffin Bay was not as apparent as in previous years.

By mid-June, thicker than normal ice was still evident in the eastern Arctic, with more old ice embedded in the pack than would normally be expected. But key areas such as Lancaster Sound and Baffin Bay were showing signs of opening up. In the Beaufort, the ice has become mobile, and a significant open water lead had developed off the Tuktoyaktuk Peninsula.

The ice-strengthened ship, M.V. Arctic, completed its inaugural run to the Baffin

Island port of Nanisivik in early June, opening the 1990 Arctic shipping season. The powerful ship encountered little difficulty navigating northwards through Davis Strait and Baffin Bay, but the ice in Lancaster Sound was more consolidated and difficult to traverse. It took several days for the ore carrier to push its way through the more than one-metre-thick ice cover in Admiralty Inlet.

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T. Mullane (613) 996-4675

Flooding eases in western Canada

Although river levels in northern Alberta are falling, they are still above normal and will remain so for the next few days. Rivers in central Alberta are higher than average but will continue to fall. In southern Alberta, rivers originating in the mountains are rising slowly in response to snowmelt at higher elevations.

In southern B.C., Lake Okanagan has nearly peaked at 342.95 metres compared to a normal of 342.54 metres. In 1972 the lake reached a level of 342.812 metres, but during

the record flood year of 1948 the lake level rose to an all-time high of 343.135 metres.

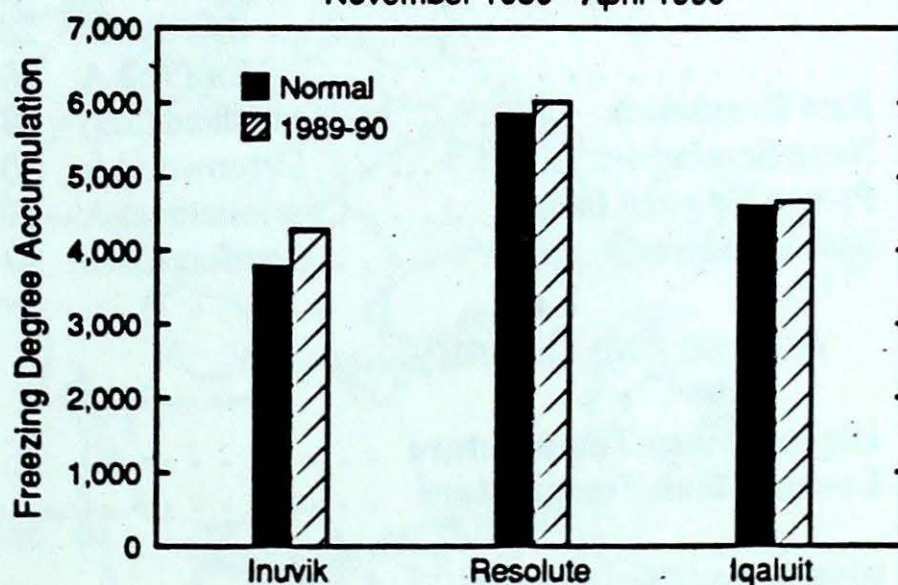
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Warm weather to continue in the west...

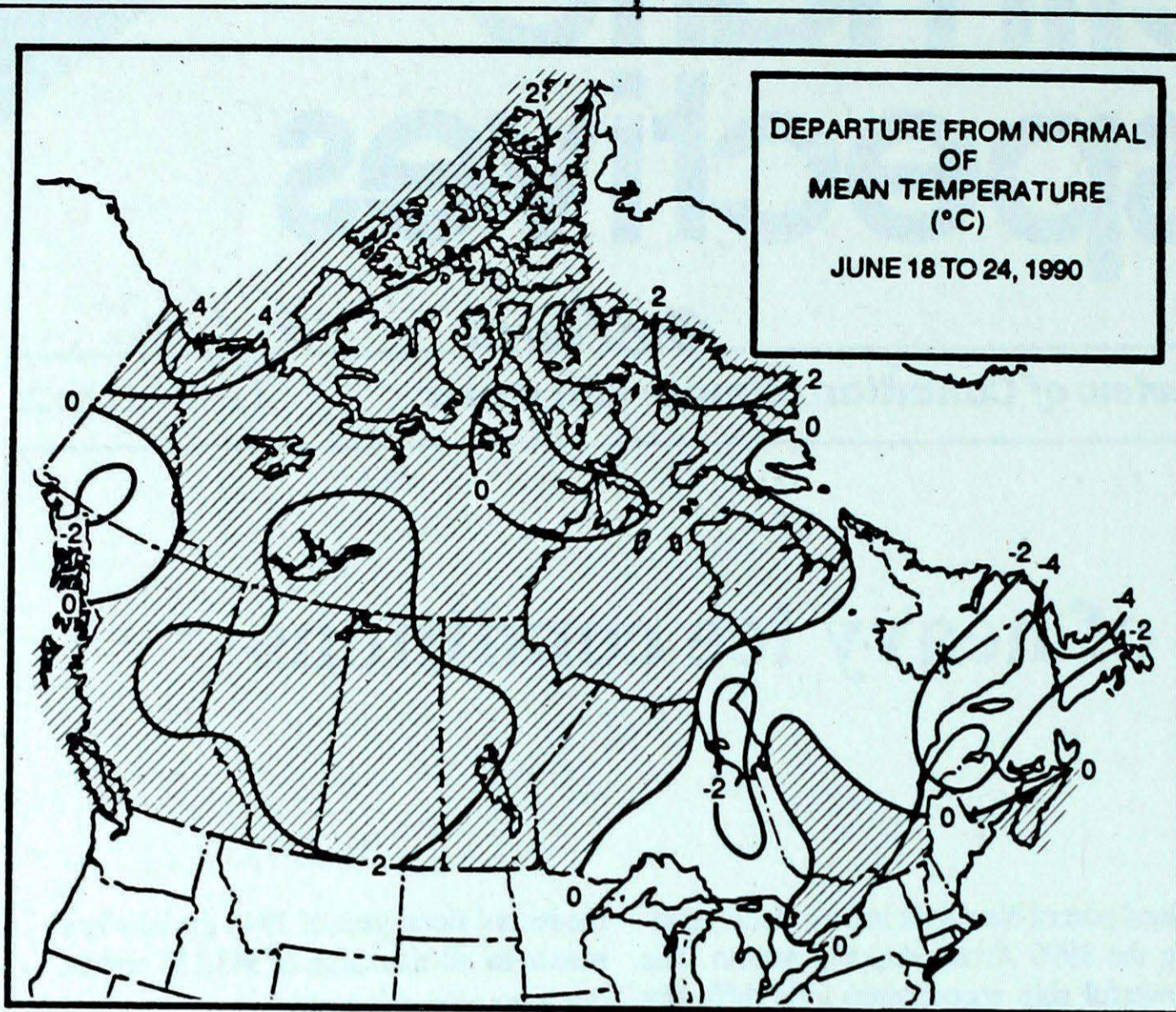
For the week of July 2, above-normal temperatures are forecast across most of the country except eastern Manitoba, Ontario, Quebec and the Atlantic provinces. British Columbia, the Yukon and the Mackenzie District of the Northwest Territories can expect temperatures of about 2°C above normal. Precipitation is likely across B.C., and western Alberta.

Freezing Degree Days

November 1989 - April 1990



Freezing degree-day accumulations are the sum of the mean daily temperatures that are below freezing



**Weekly normal
temperatures (°C)**

	max.	min.
Whitehorse A	18.7	6.1
Iqaluit A	7.6	1.1
Yellowknife A	19.1	9.3
Vancouver Int'l A	20.0	11.3
Victoria Int'l A	19.8	9.7
Calgary Int'l A	20.4	7.7
Edmonton Int'l A	21.4	7.7
Regina A	23.0	9.2
Saskatoon A	23.0	9.1
Winnipeg Int'l A	23.3	10.6
Ottawa Int'l A	24.3	13.1
Toronto (Pearson Int'l A)	24.3	11.9
Montréal Int'l A	24.5	14.2
Québec A	23.2	11.8
Fredericton A	24.0	11.2
Saint John A	20.3	9.4
Halifax (Shearwater)	19.3	10.2
Charlottetown A	21.2	11.3
Goose A	18.9	7.1
St John's A	17.7	7.4

Weekly temperature and precipitation extremes

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Kamloops A 34	Smithers A 0	Prince Rupert A 69
Yukon Territory	Shingle Point A 24	Whitehorse A 1	Watson Lake A 21
Northwest Territories	Fort Smith A 33	MacKar Inlet -6	Norman Wells A 35
Alberta	Medicine Hat A 32	Slave Lake A 2	Whitecourt A 22
Saskatchewan	North Battleford A 34	Meadow Lake A 5	Buffalo Narrows 21
Manitoba	Dauphin A 30	Grand Rapids (aut) 0	Gimli 28
Ontario	Ottawa Int'l A 31	Moosonee -1	North Bay A 69
Québec	Bagotville A 28	Schefferville A -6	Sept-iles A 86
. . . . .	.Maniwaki 28		
.	Mont Joli A 28		
New Brunswick	Miscou Island (aut) 28	Chatham A 7	St-Léonard A 47
Nova Scotia	Greenwood A 30	Sydney A 7	Sydney A 54
Prince Edward Island	Charlottetown A 27	Charlottetown A 10	Charlottetown A 66
Newfoundland	Comfort Cove 27	Badger (aut) -2	Daniels Harbour 96

Across The Country...

Highest Mean Temperature	Kamloops A(BC) 21
Lowest Mean Temperature	Alert(NWT) 0

CLIMATIC PERSPECTIVES
VOLUME 12

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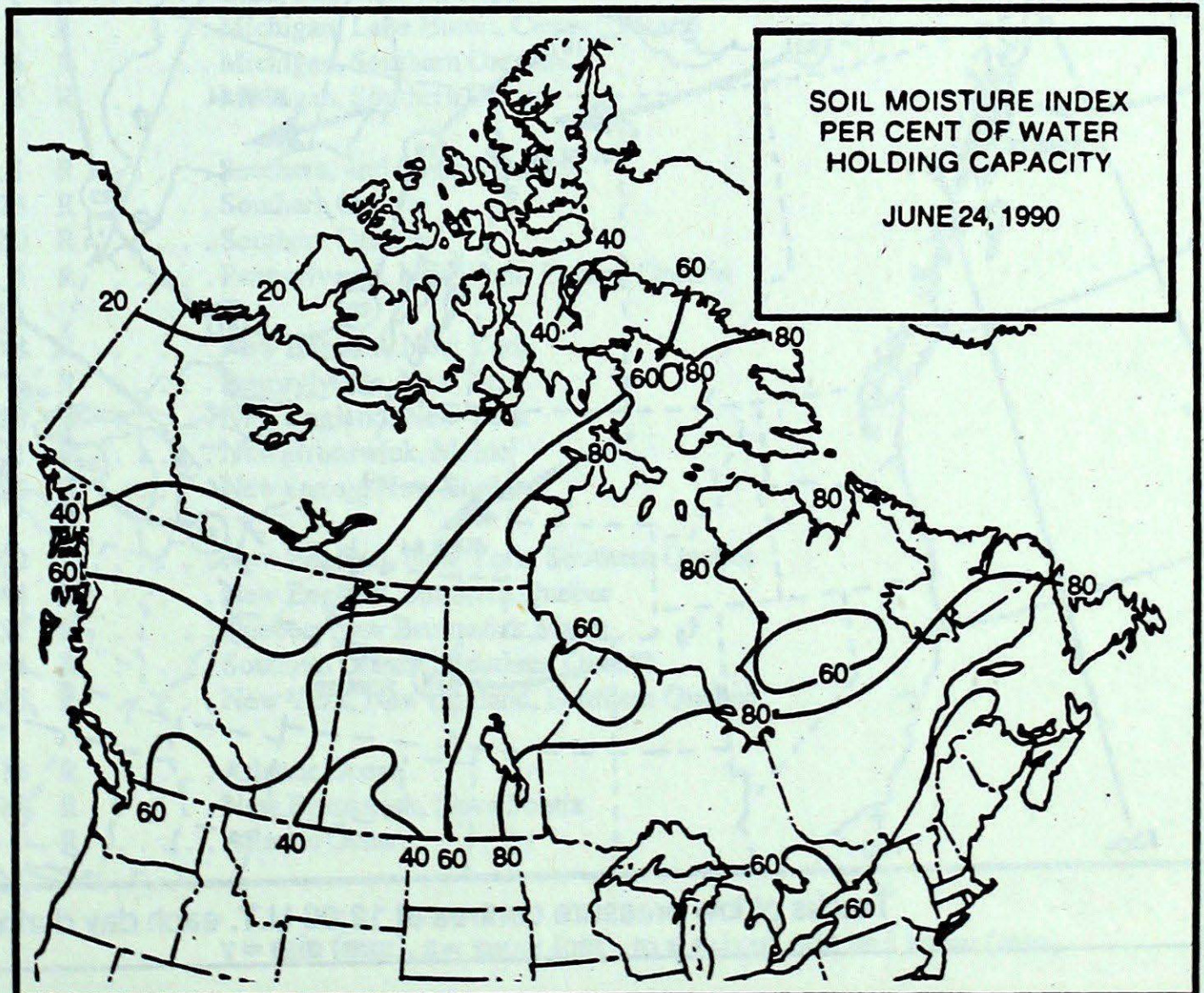
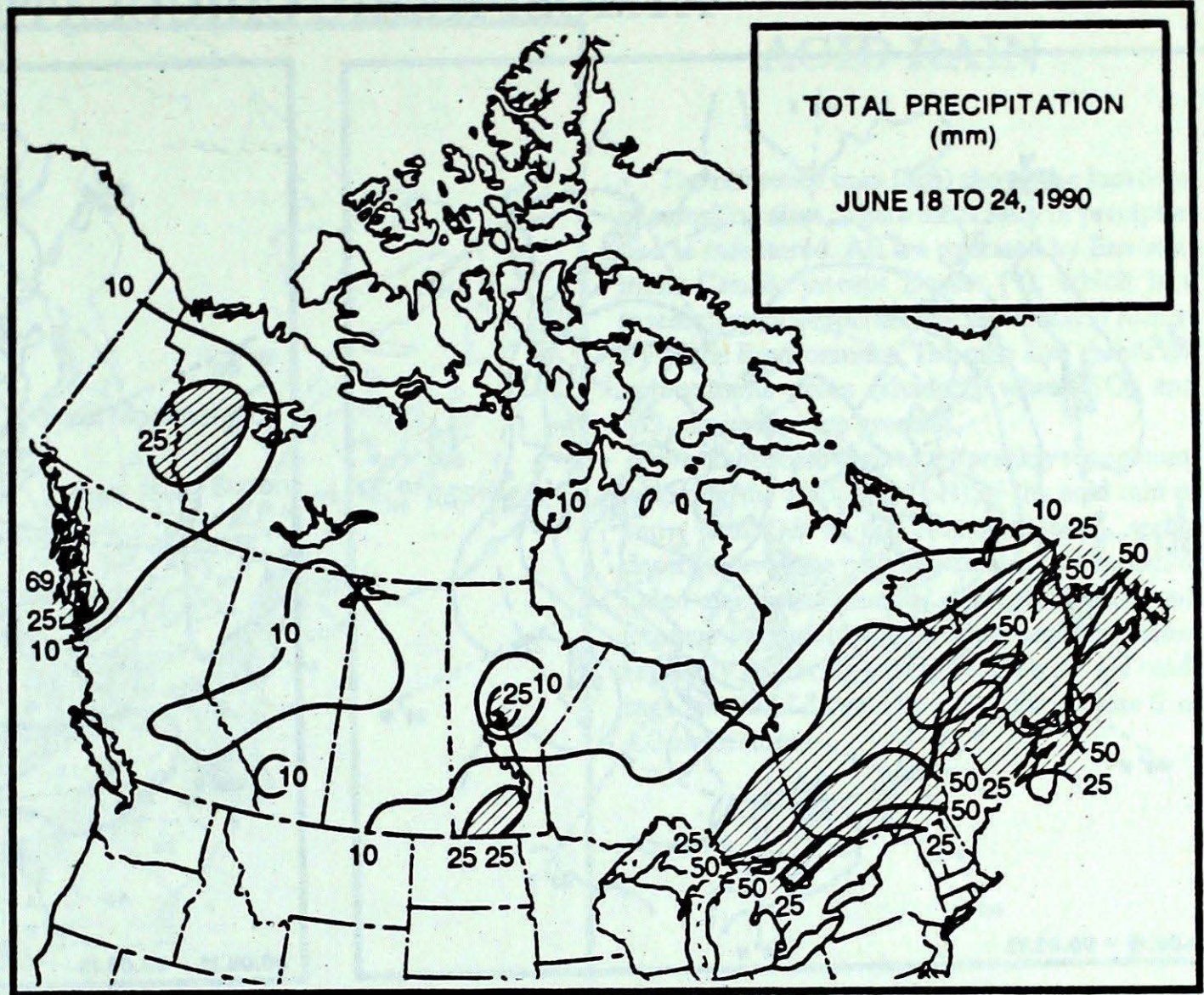
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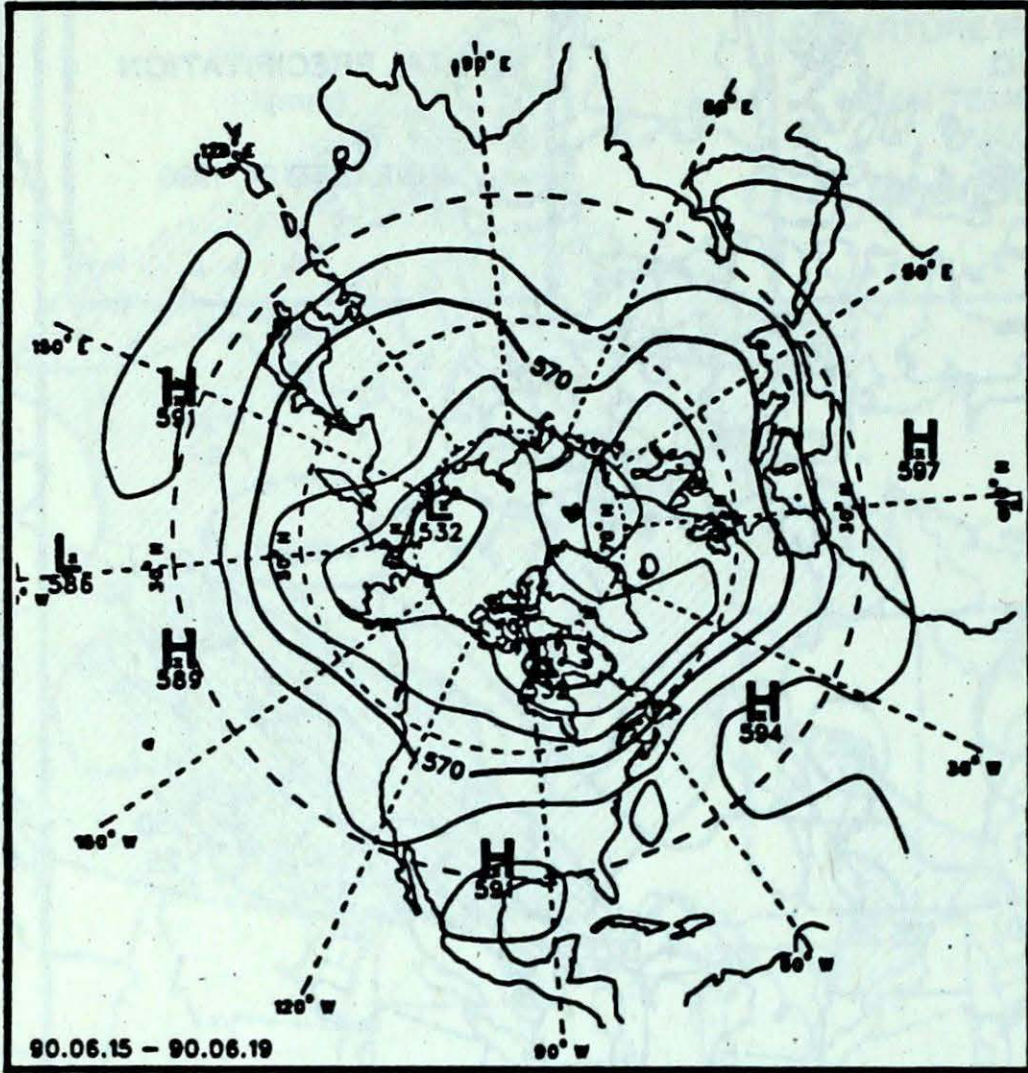
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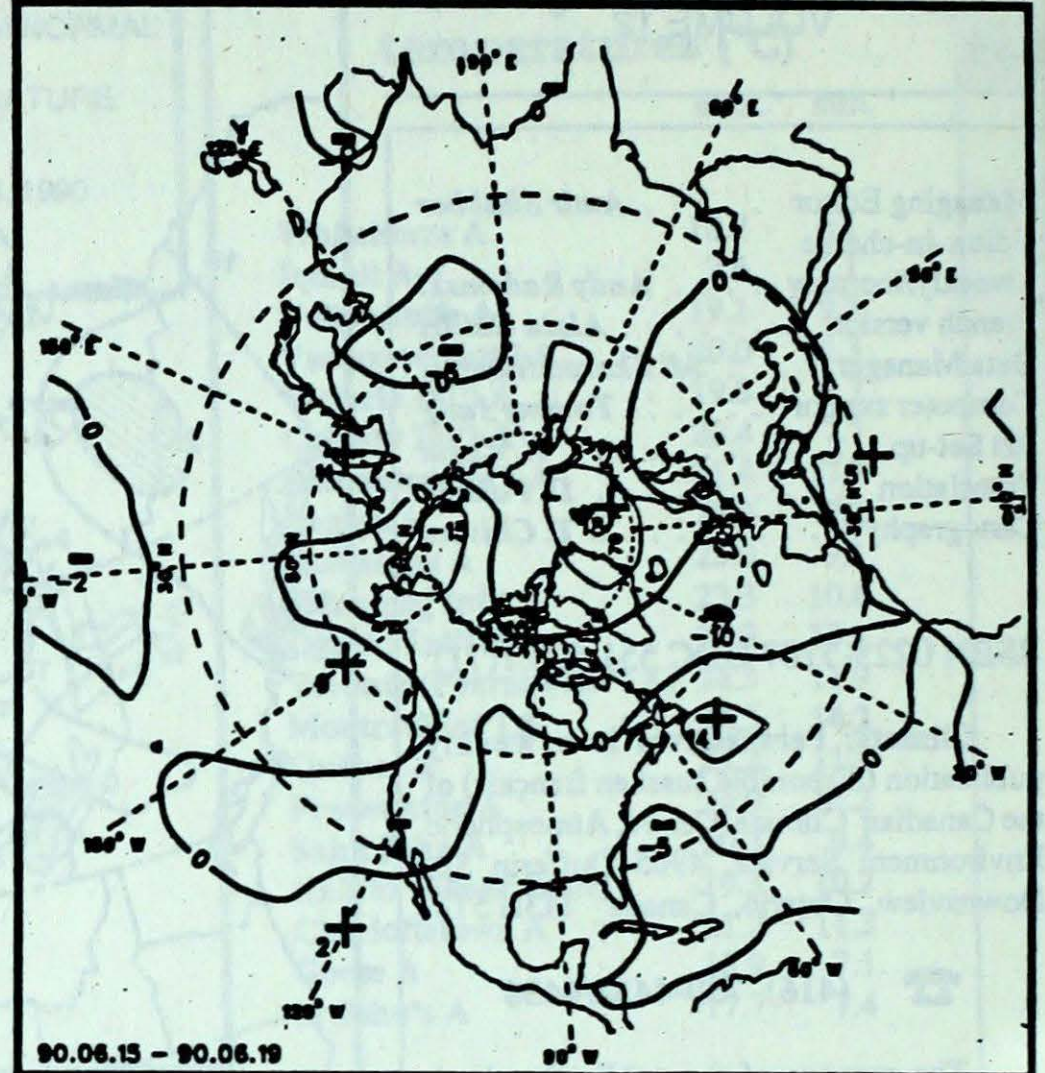
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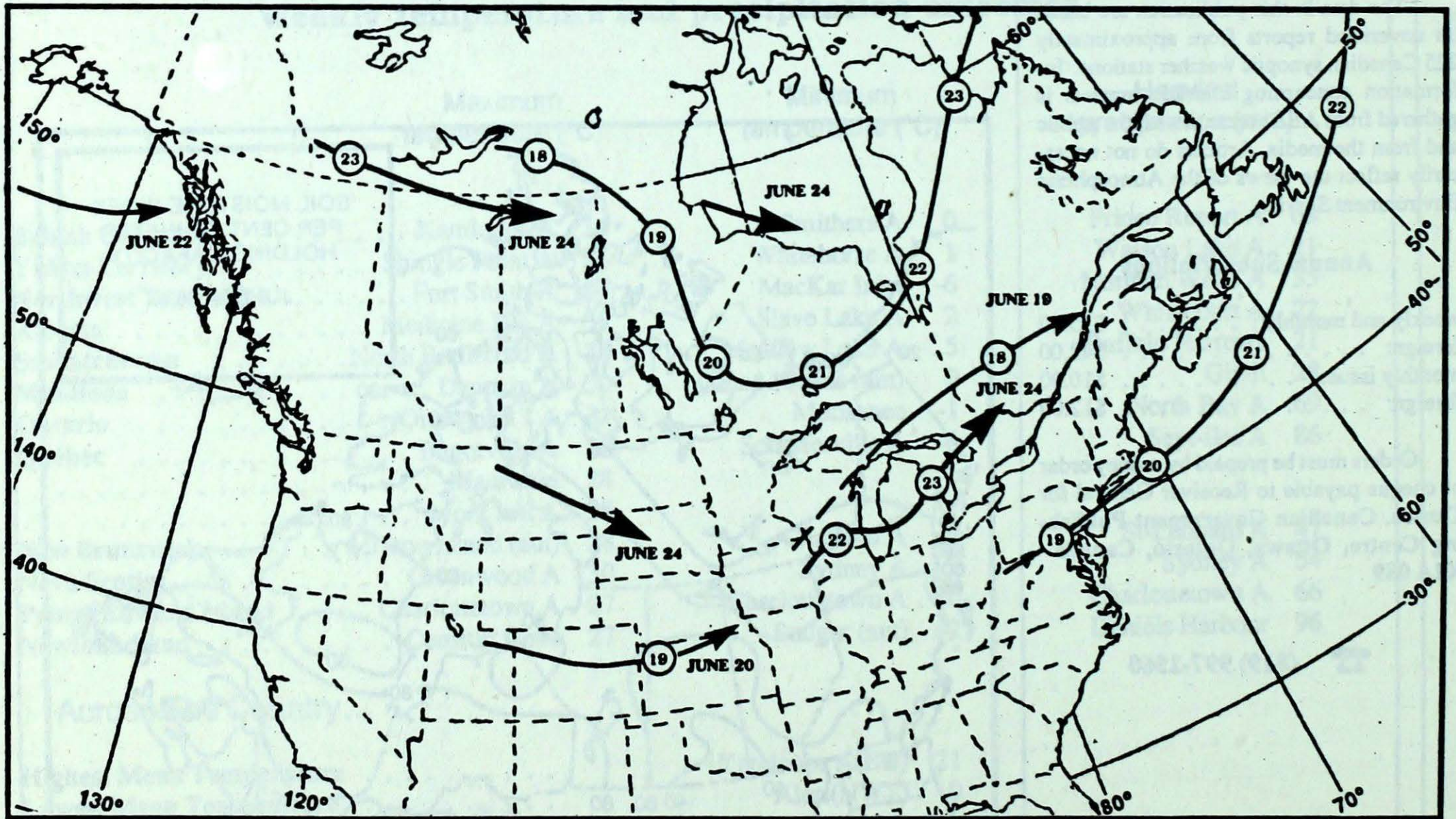
ATMOSPHERIC CIRCULATION



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



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



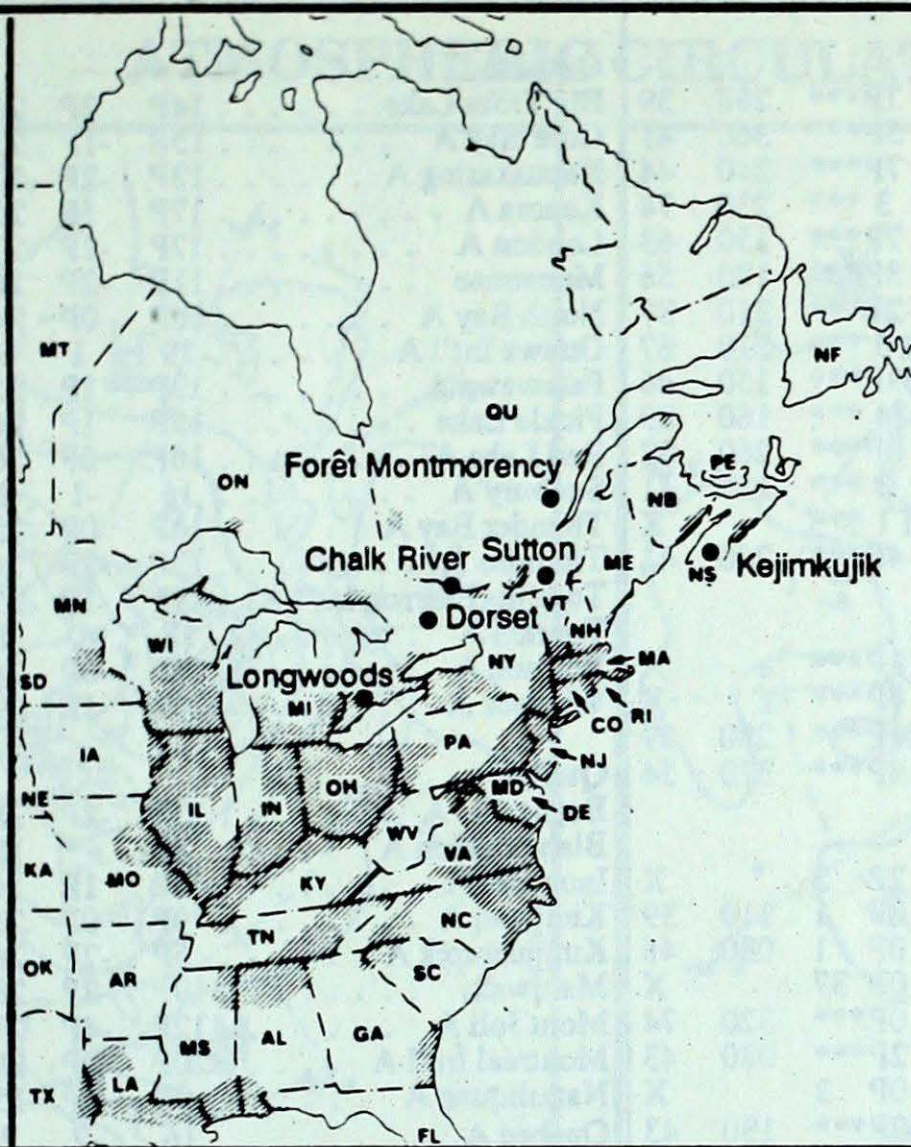
Tracks of low pressure centres at 12:00 U.T. each day during the period.

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.

- 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
- QUEBEC -- QU
- RHODE ISLAND -- RI
- SOUTH CAROLINA -- SC
- SOUTH DAKOTA -- SD
- TENNESSEE -- TN
- TEXAS -- TX
- VERMONT -- VT
- VIRGINIA -- VA
- WEST VIRGINIA -- WV
- WISCONSIN -- WI



Site	day	pH	amount	air path to site	June 17 to 23, 1990
Longwoods				..... No data available	
Dorset *	17	4.0	1 R	..... Ohio, Southern Ontario	
	18	4.5	1 R	..... Michigan, Lake Huron, Central Ontario	
	21	4.2	6 R	..... Michigan, Southern Ontario	
	22	4.0	5 R	..... Michigan, Southern Ontario	
Chalk River	18	4.5	1 R	..... Southern, and Central Ontario	
	21	4.3	23 R	..... Southern Ontario	
	22	4.2	10 R	..... Southern Ontario	
	23	3.9	5 R	..... Pennsylvania, New York, Eastern Ontario	
Sutton	17	4.0	8 R	..... New England, New York	
	18	4.0	5 R	..... Pennsylvania, New York	
	19	4.8	58 R	..... New England, New York	
	21	4.6	1 R	..... New Brunswick, Maine	
	23	4.2	12 R	..... New Jersey, New England	
Montmorency	17	3.6	2 R	..... New England, New York, Southern Quebec	
	18	4.5	44 R	..... New England, Southern Quebec	
	21	4.9	15 R	..... Quebec, New Brunswick, Maine	
	22	4.3	1 R	..... Southern Ontario, Southern Quebec	
	23	4.3	15 R	..... New York, New England, Southern Quebec	
Kejimikujik	20	4.6	18 R	..... Atlantic Ocean	
	21	4.4	18 R	..... New Brunswick, Nova Scotia	
	23	4.5	9 R	..... Atlantic Ocean	

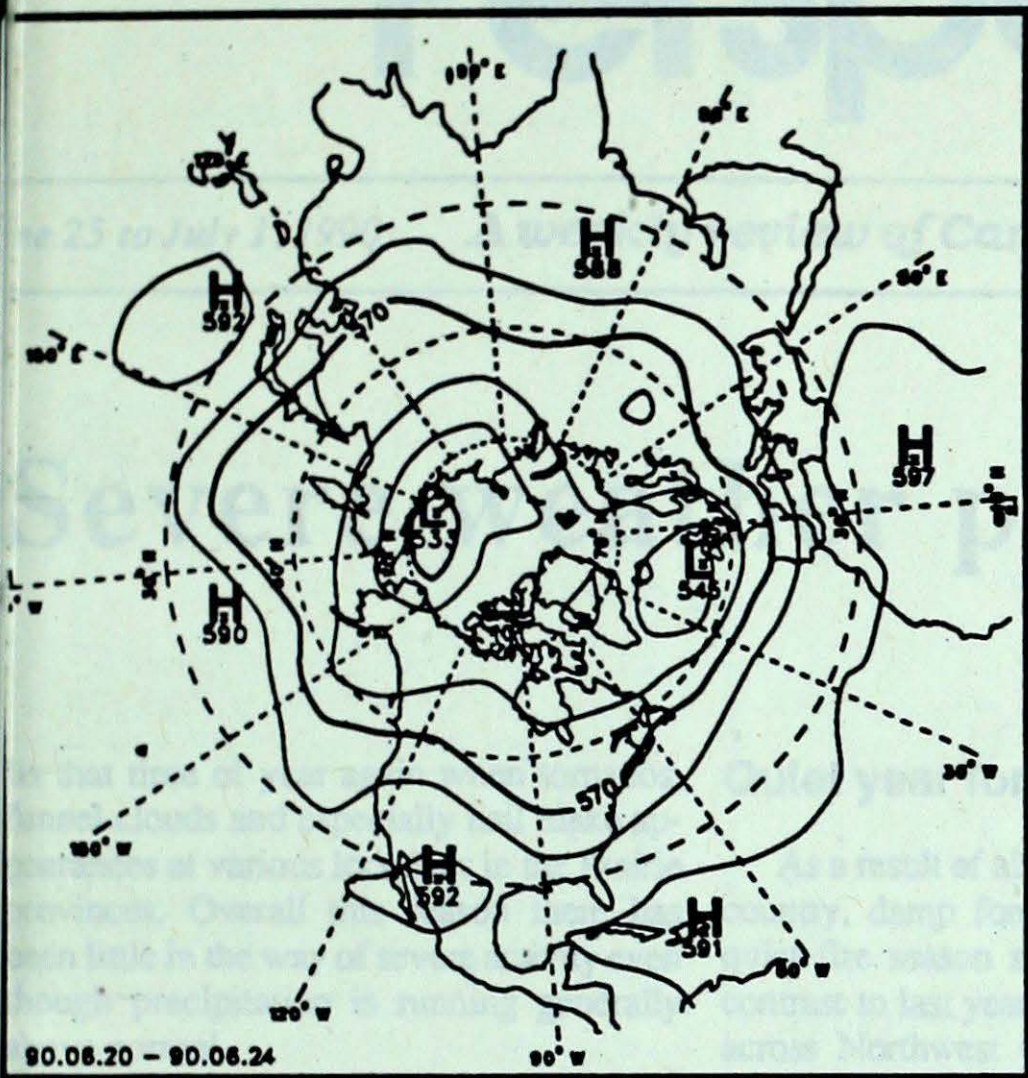
r = rain (mm), s = snow (cm), m = mixed rain and snow (mm)

STATION	temperature				precip. ptot	wind max dir	wind max vel	STATION	temperature				precip. ptot	wind max dir	wind max vel
	mean	anom	max	min					mean	anom	max	min			
British Columbia								Ontario							
Cape St James	12P	1P	16P	9P	7P***	280	39	Big Trout Lake	14P	2P	26P	5P	1P***	290	46
Cranbrook A	18P	1P	28P	7P	5P***	360	41	Gore Bay A	15P	-1P	23P	8P	58P***	060	46
Fort Nelson A	16P	1P	26P	5P	7P***	240	44	Kapuskasing A	12P	-2P	23P	0P	21P***	010	44
Fort St John A	17	3	28	9	3***	230	74	Kenora A	17P	1P	25P	11P	10P***	360	41
Kamloops A	21P	2P	34P	8P	7P***	150	63	London A	17P	-1P	27P	9P	41P***	260	57
Penticton A	20P	1P	32P	11P	3P***	180	56	Moosonee	11P	-2P	26P	-1P	17P***	340	44
Port Hardy A	13P	0P	19P	7P	2P***	310	37	North Bay A	16P	0P	24P	8P	69P***	210	54
Prince George A	16	3	30	4	5***	210	67	Ottawa Int'l A	19	1	31	12	18***	200	56
Prince Rupert A	13P	2P	18P	5P	69P***	150	46	Petawawa A	19P	1P	28P	11P	68P***	350	57
Revelstoke A	18	1	28	8	14***	160	39	Pickle Lake	15P	1P	26P	7P	11P***	360	35
Smithers A	14P	1P	28P	0P	0P***	260	37	Red Lake A	16P	0P	26P	9P	26P***	X	X
Vancouver Int'l A	17	2	25	12	3***	110	41	Sudbury A	16	-1	24	6	25***	350	44
Victoria Int'l A	17	2	28	8	1***	X	X	Thunder Bay A	14P	0P	25P	4P	7P***	010	50
Williams Lake A	17P	3P	30P	7P	4P***	240	41	Timmins A	13P	-2P	24P	1P	33P***	350	41
Yukon Territory								Toronto (Pearson Int'l A)							
Komakuk Beach A	7P	3P	24P	1P	3P***	X	X	Trenton A	18	0	29	11	40***	200	67
Teslin (aut)	10P	*	16P	4P	7P***	X	X	Warton A	16P	0P	24P	7P	32P***	240	41
Watson Lake A	13P	0P	21P	4P	21P***	280	59	Windsor A	20P	-1P	29P	12P	20P***	270	61
Whitehorse A	10P	-2P	18P	1P	18P***	320	54	Québec							
Northwest Territories								Bagotville A							
Alert	0P	0P	5P	-3P	2P 2	X	X	Blanc Sablon A	8P	*	18P	1P	42P***	090	41
Baker Lake A	5P	-1P	15P	-2P	0P 1	110	39	Inukjuak A	6P	1P	16P	-3P	0P***	010	57
Cambridge Bay A	6P	2P	12P	0P	0P 1	080	46	Kuujuuaq A	9P	0P	23P	0P	9P***	060	32
Cape Dyer A	5P	4P	9P	1P	0P 37	X	X	Kuujuuarapik A	5P	-2P	26P	-3P	0P***	010	54
Clyde A	4P	2P	11P	-1P	0P***	320	74	Maniwaki	19P	2P	28P	11P	58P***	200	46
Coppermine A	6P	2P	18P	0P	2P***	080	43	Mont Joli A	12P	-4P	28P	7P	26P***	140	76
Coral Harbour A	3P	-1P	12P	-3P	0P 3	X	X	Montréal Int'l A	20P	0P	28P	13P	16P***	240	69P
Eureka	6P	3P	15P	1P	0P***	130	43	Natashquan A	9P	-3P	15P	4P	83P***	110	46
Fort Smith A	20P	5P	33P	9P	14P***	230	87	Québec A	16	-2	24	10	45***	080	57
Hall Beach A	1P	-1P	4P	-5P	0P 13	X	X	Schefferville A	12P	1P	24P	-6P	12P***	350	52
Inuvik A	16P	5P	26P	5P	5P***	310	48	Sept-Îles A	11P	-3P	20P	5P	86P***	090	69
Iqaluit A	4P	-1P	10P	0P	4P***	330	48	Sherbrooke A	19P	2P	27P	12P	63P***	290	57
Mould Bay A	5P	4P	12P	0P	2P 1	X	X	Val-d'Or A	16P	0P	23P	6P	55P***	330	41
Norman Wells A	17P	1P	27P	9P	35P***	290	57	New Brunswick							
Resolute A	2P	0P	7P	-2P	0P 1	050	37	Charlo A	14P	-3P	27P	8P	37P***	090	48
Yellowknife A	18P	4P	30P	10P	0P***	180	52	Chatham A	15P	-3P	28P	7P	24P***	X	X
Alberta								Fredericton A							
Calgary Int'l A	17P	3P	27P	7P	18P***	300	61	Moncton A	16P	-1P	25P	10P	38P***	180	44
Cold Lake A	18	3	29	8	0***	290	54	Saint John A	15P	0P	18P	10P	20P***	210	54
Edmonton Namao A	18P	3P	29P	9P	1P***	290	46	Nova Scotia							
Fort McMurray A	18P	3P	30P	8P	2P***	300	32	Greenwood A	19	1	30	13	40***	130	46
High Level A	17P	2P	30P	5P	3P***	240	37	Shearwater A	15	0	21	9	28***	210	52
Jasper	15P	2P	28P	5P	6P***	X	X	Sydney A	14	-1	25	7	54***	230	70
Leihbridge A	18	1	30	6	0***	240	82	Yarmouth A	16P	2P	23P	10P	7P***	190	37
Medicine Hat A	20P	3P	32P	7P	0P***	330	74	Prince Edward Island							
Peace River A	16P	2P	29P	5P	0P***	280	48	Charlottetown A	15P	-1P	27P	10P	66P***	240	70
Saskatchewan								Summerside A							
Cree Lake	17P	2P	29P	8P	15P***	340	43	15P	-1P	24P	11P	38P***	200	67	
Estevan A	18	1	33	7	0***	330	67	Newfoundland							
La Ronge A	18P	4P	29P	8P	2P***	330	56	Cartwright	9	-1	25	0	7***	360	48
Regina A	18P	2P	33P	8P	4P***	350	63	Churchill Falls A	12P	-1P	25P	1P	16P***	120	46
Saskatoon A	19	3	32	7	4***	240	52	Gander Int'l A	10	-4	26	3	45***	040	35
Swift Current A	19P	3P	31P	8P	1P***	300	56	Goose A	13P	-1P	27P	4P	11P***	040	43
Yorkton A	19P	3P	33P	9P	2P***	340	56	Port Aux Basques	11P	1P	17P	6P	4P***	X	X
Manitoba								St John's A							
Brandon A	18P	2P	29P	9P	21P***	310	67	11	-1	22	3	41***	240	70	
Churchill A	8P	0P	23P	1P	3P***	340	56	St Lawrence	10P	1P	15P	4P	49P***	X	X
Lynn Lake A	17P	3P	29P	5P	1P***	190	41	Wabush Lake A	12P	0P	25P	1P	19P***	360	46
The Pas A	18P	3P	30P	7P	4P***	X	X	90/06/18-90/06/24							
Thompson A	15P	2P	26P	4P	18P***	100	35								
Winnipeg Int'l A	19	2	28	9	24***	360	50								

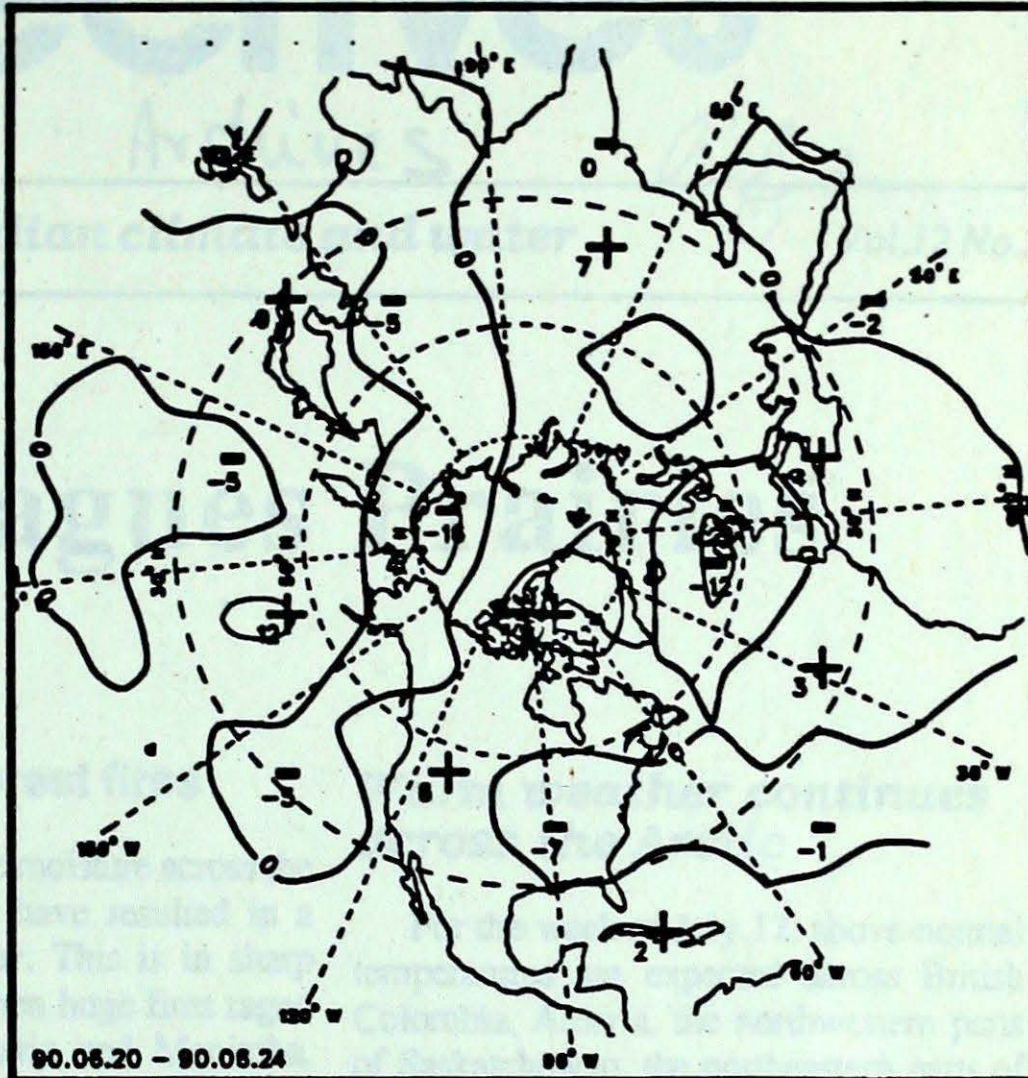
mean = mean weekly temperature, °C ptot = weekly precipitation total in mm
 max = maximum weekly temperature, °C st = snow thickness on the ground in cm
 min = minimum weekly temperature, °C dir = direction of max wind, deg. from north.
 anom = mean temperature anomaly, °C vel = wind speed in km/h

— 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)

Environment Canada Environnement

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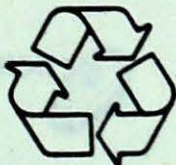
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