



Climatic Perspectives

ARCH. C.I.

May 27 to June 2, 1991

A weekly review of Canadian climate and water

Vol.13 No.22

Tornado outbreak in the Prairies

Tornadoes are violent, swirling, local wind storms of short duration spawned from severe thunderstorms. In western Canada tornadoes strike most frequently in southeastern Saskatchewan and southwestern Manitoba. Their frequency drops off rapidly as you go northeastwards and gradually to the north and west. Tornadoes are rare in the Alberta foothills except for a small area near Calgary.

On May 28, thunderstorms, which developed in a very unstable air mass, spawned at least nine tornadoes in Saskatchewan. The storms were accompanied by heavy rainfalls and hail. Locally, some torrential downpours produced as much as 43 mm of rain. To the west of Swift Current, hail covered the ground to a depth of 14 cm. Two tornadoes, one hour apart, were spotted by a weather observer near Moose Jaw, Sask., while at Neidpath, Sask., two tornadoes touched down at the same time. Tornadoes and funnel clouds were also observed near Tuxford, Herbert, Chamberlain, Riverhurst, Bulyea and Marquis, Sask. The tornado season in the Prairies extends from April through to September, but they are most frequent in June and July.

Another freeze in the Annapolis Valley

A second frost hit the Annapolis Valley on the morning of the 23rd, only four

days after a devastating weekend freeze damaged 10 to 60 percent of the apple blossoms. Specialists estimate that this time round another 25 to 30 percent of the valley fruit trees were frost-bitten. Buds that do survive might produce spotted or deformed fruit. In many orchards and fields, workers were spraying water all night in order to try to prevent frost from damaging the strawberry and blueberry crops.

Cold and snow plague Newfoundland

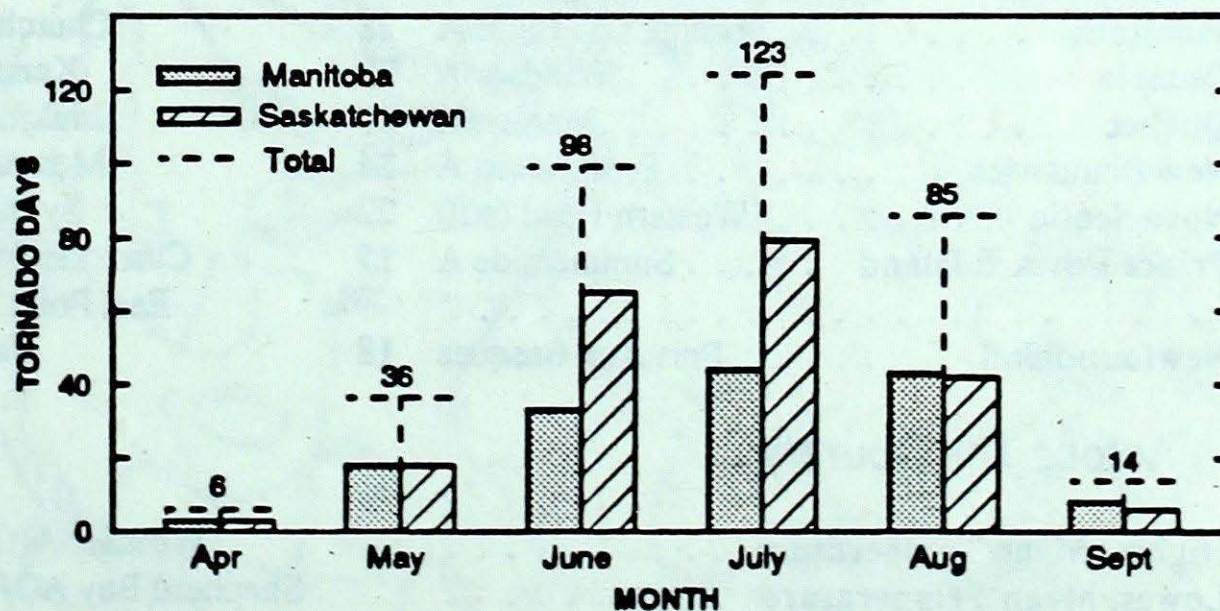
Weekly mean temperatures have been running below normal for more than a month, and this week was no exception, as a strong northerly flow continued to affect the Island. During the middle of the week maximum temperatures managed only to

climb a few degrees above freezing, setting new daily low temperature records. On May 29 and 30, St. John's received more than 11 cm of snow. A six centimetre snowfall on May 29 was a new record. Although snowfalls are not unheard of at this time of year, this month the weather office has already tallied 23.9 cm of the white fluffy stuff, which is more than twice the monthly normal and the most since 1972.

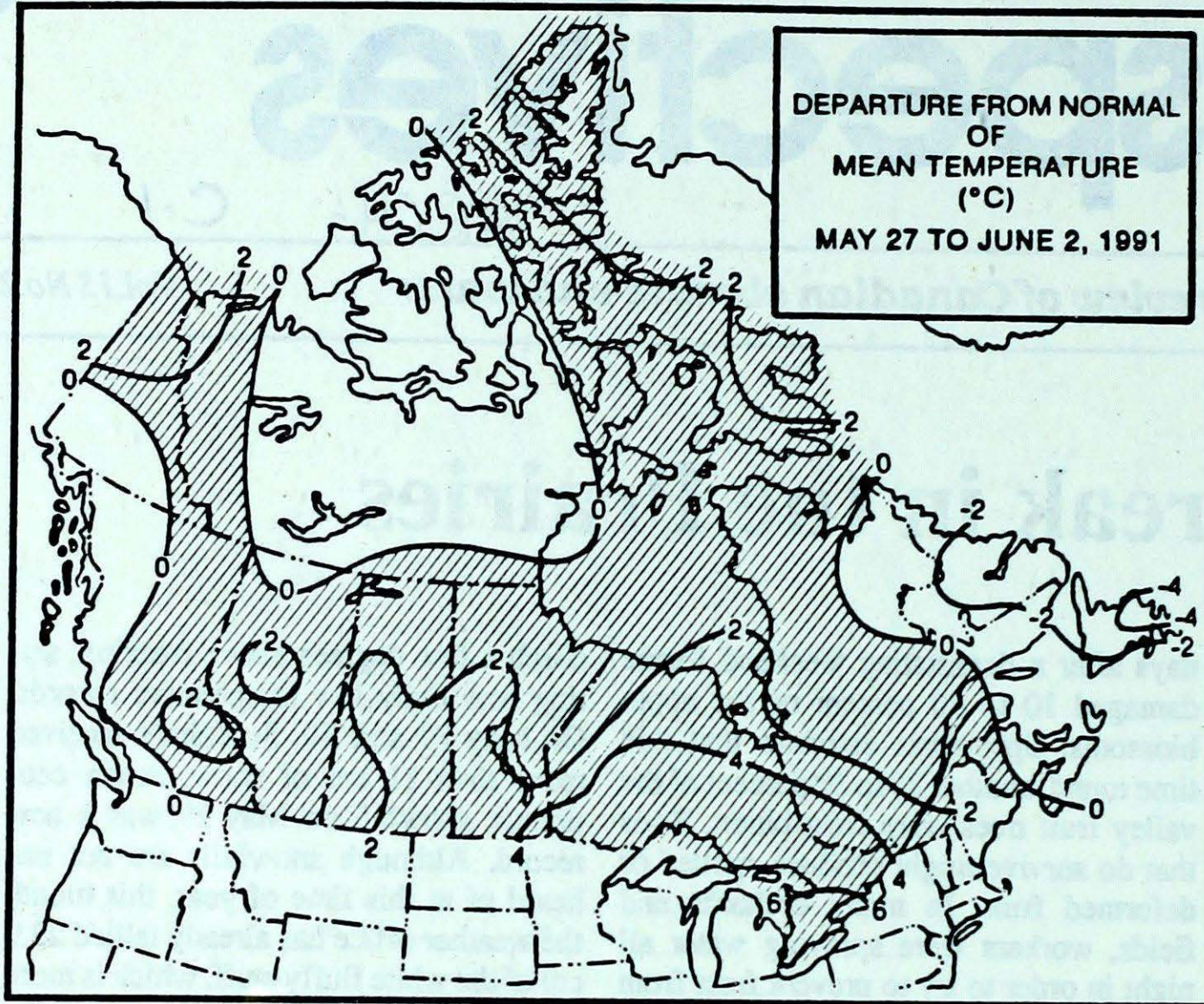
A look ahead ...

For the week of June 10, a zone of high pressure, building over the northwest, will bring cooler air masses and below normal temperatures to all regions east of Alberta. The Yukon, B.C. and Alberta should experience above normal readings for the same period.

Total Tornado Days per Month
1960-1989



The number of tornado days, defined as calendar days with at least one recorded tornado occurrence, is known with considerably more certainty than the total tornado count, which is somewhat unreliable.



**Weekly normal
temperatures (°C)**

	max.	min.
Whitehorse A	15.7	2.8
Iqaluit A	3.2	-2.6
Yellowknife A	14.1	4.0
Vancouver Int'l A	18.0	9.1
Victoria Int'l A	17.9	7.9
Calgary Int'l A	18.2	5.1
Edmonton Int'l A	19.4	5.3
Regina A	20.8	6.1
Saskatoon A	20.5	6.4
Winnipeg Int'l A	20.0	7.2
Ottawa Int'l A	21.2	9.8
Toronto (Pearson Int'l A)	20.8	8.5
Montréal Int'l A	21.2	10.2
Québec A	19.8	7.5
Fredericton A	20.4	7.1
Saint John A	16.9	6.0
Halifax (Shearwater)	16.0	6.6
Charlottetown A	16.6	6.4
Goose A	13.3	2.2
St John's A	12.5	2.9

Weekly temperature and precipitation extremes

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Fort Nelson A 27	Dease Lake -2	Estevan Point (aut) 30
Yukon Territory	Watson Lake A 22	Shingle Point A -6	Watson Lake A 2
Northwest Territories	Fort Simpson A 27	Gladman Point A -17	Coral Harbour A 17
Alberta	Medicine Hat A 28	Peace River A -1	Coronation 41
Saskatchewan	Nipawin A 29	Collins Bay -2	Eastend Cypress (aut) 45
Manitoba	Portage La Prairie A 28	Churchill A -4	Pilot Mound Po 49
Ontario	Windsor A 32	Kenora A -5	Windsor A 63
Québec	Maniwaki 28	Inukjuak A -4	Chibougamau Chapais a 37
New Brunswick	Fredericton A 24	Moncton A 3	St-Léonard A 37
Nova Scotia	Western Head (aut) 22	Sydney A 1	Amherst (aut) 16
Prince Edward Island	Summerside A 17	Charlottetown A 3	Charlottetown A 24
.....	.....	East Point (aut) 3	.....
Newfoundland	Port Aux Basques 18	Nain A -6	Cartwright 77

Across The Country...

Highest Mean Temperature	Windsor A(ONT)	23
Lowest Mean Temperature	Shepherd Bay A(NWT)	-7

CLIMATIC PERSPECTIVES
VOLUME 13

Managing Editor *Bruce Findlay*
Editor-in-charge
- weekly/monthly *Andy Radomski*
French version *Alain Caillet*
Data Manager *M. Skarpathiotakis*
Computer support *Robert Eals*
Art Set-up *K. Czaja*
Translation *D. Pokorn*
Cartography *T. Chivers*

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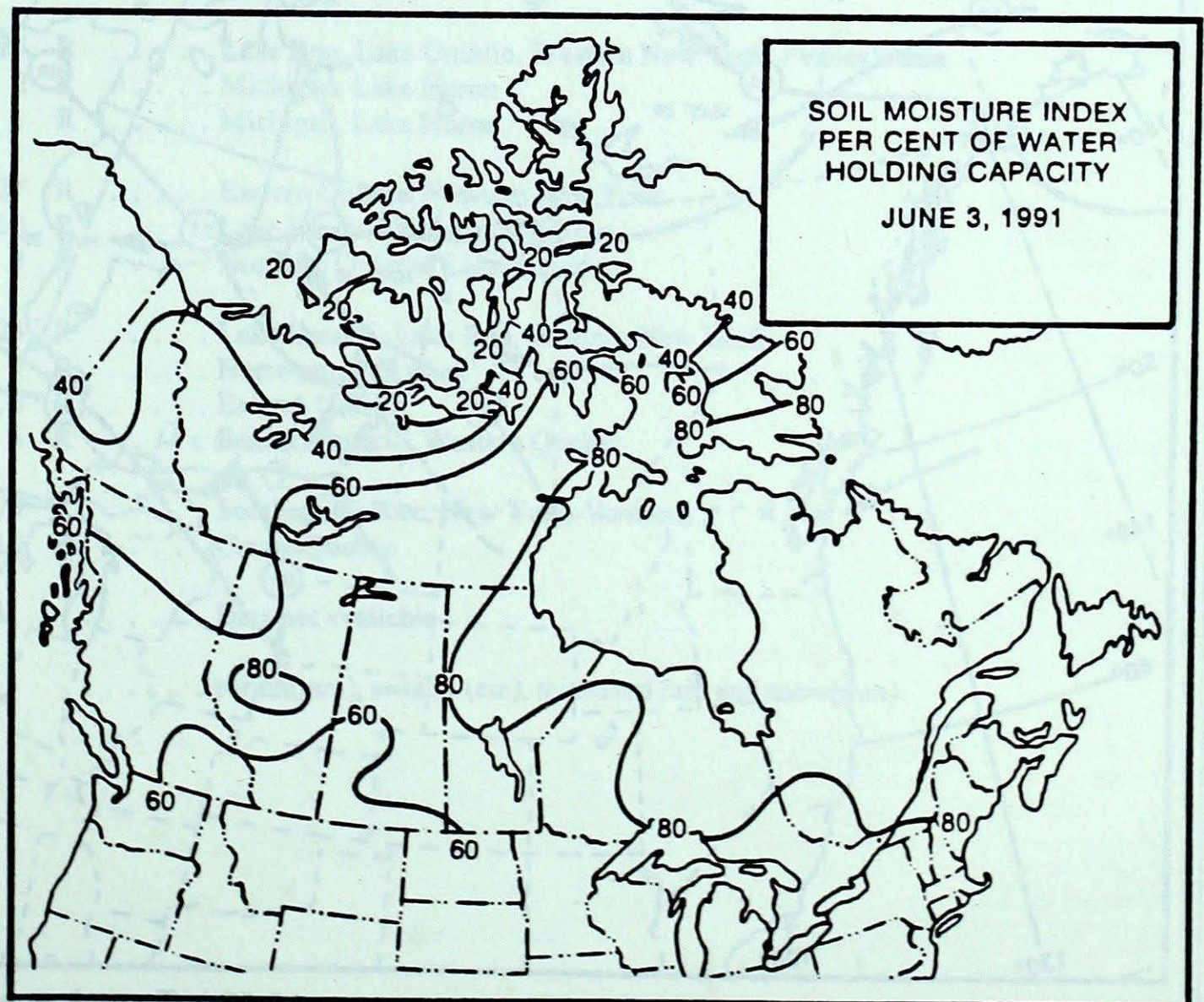
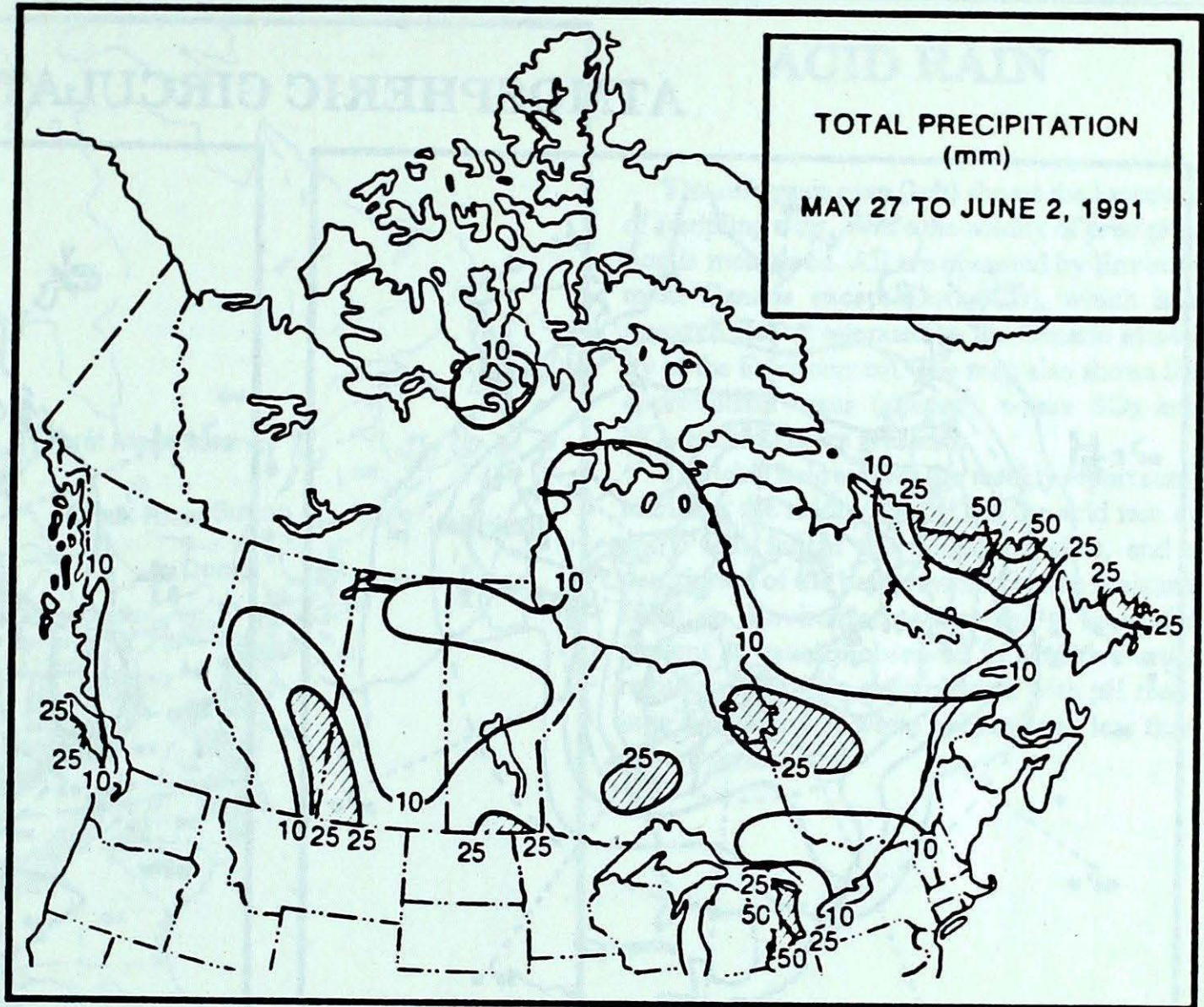
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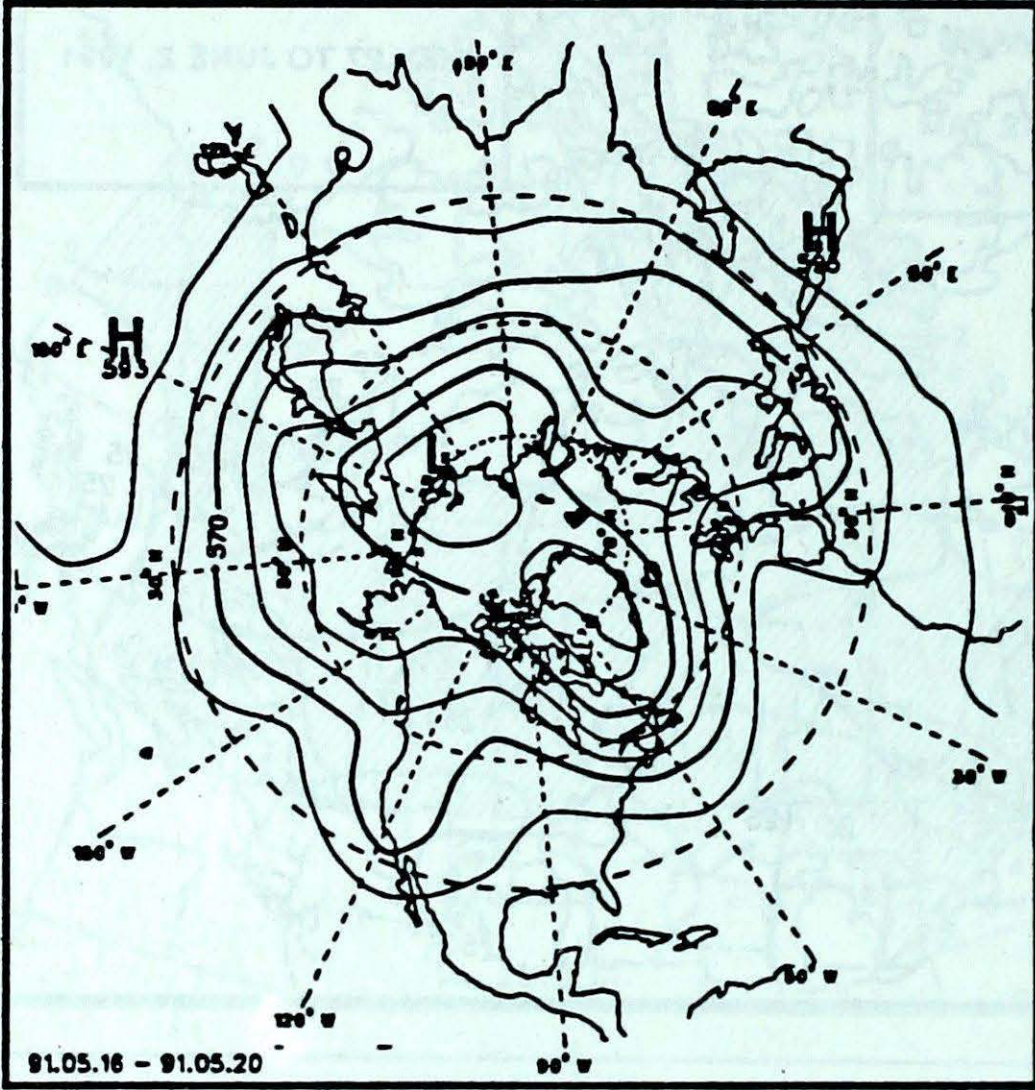
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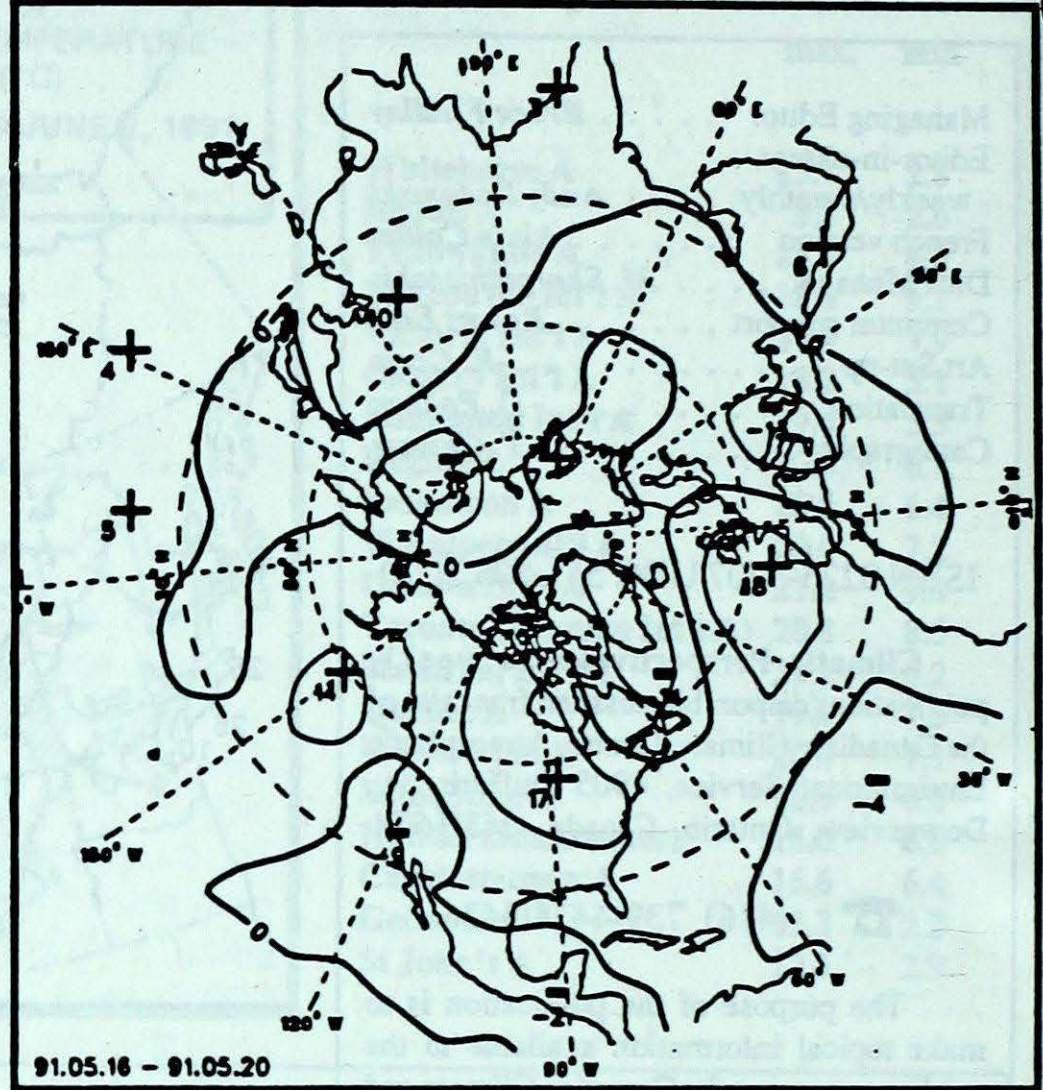
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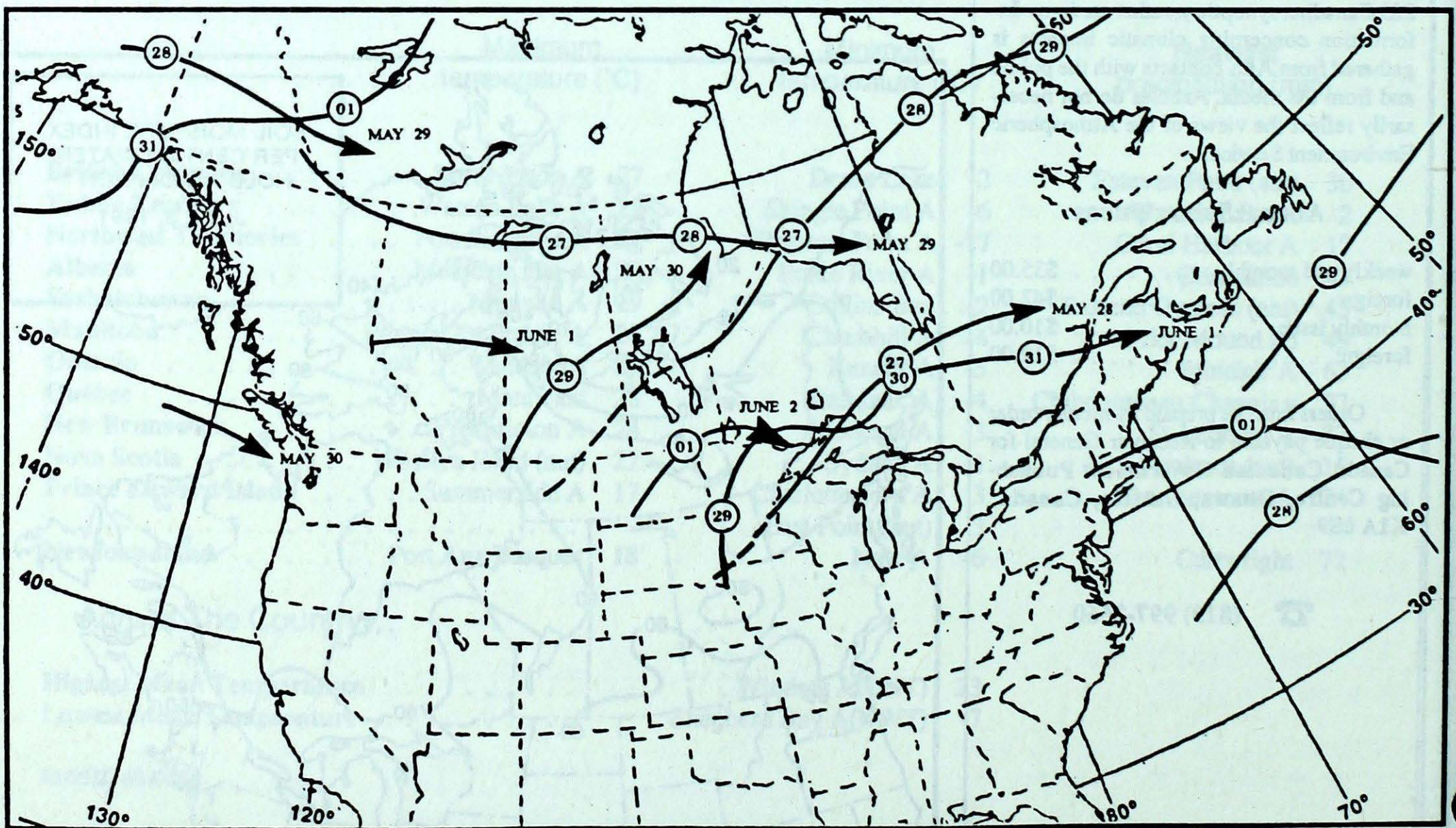
ATMOSPHERIC CIRCULATION



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



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

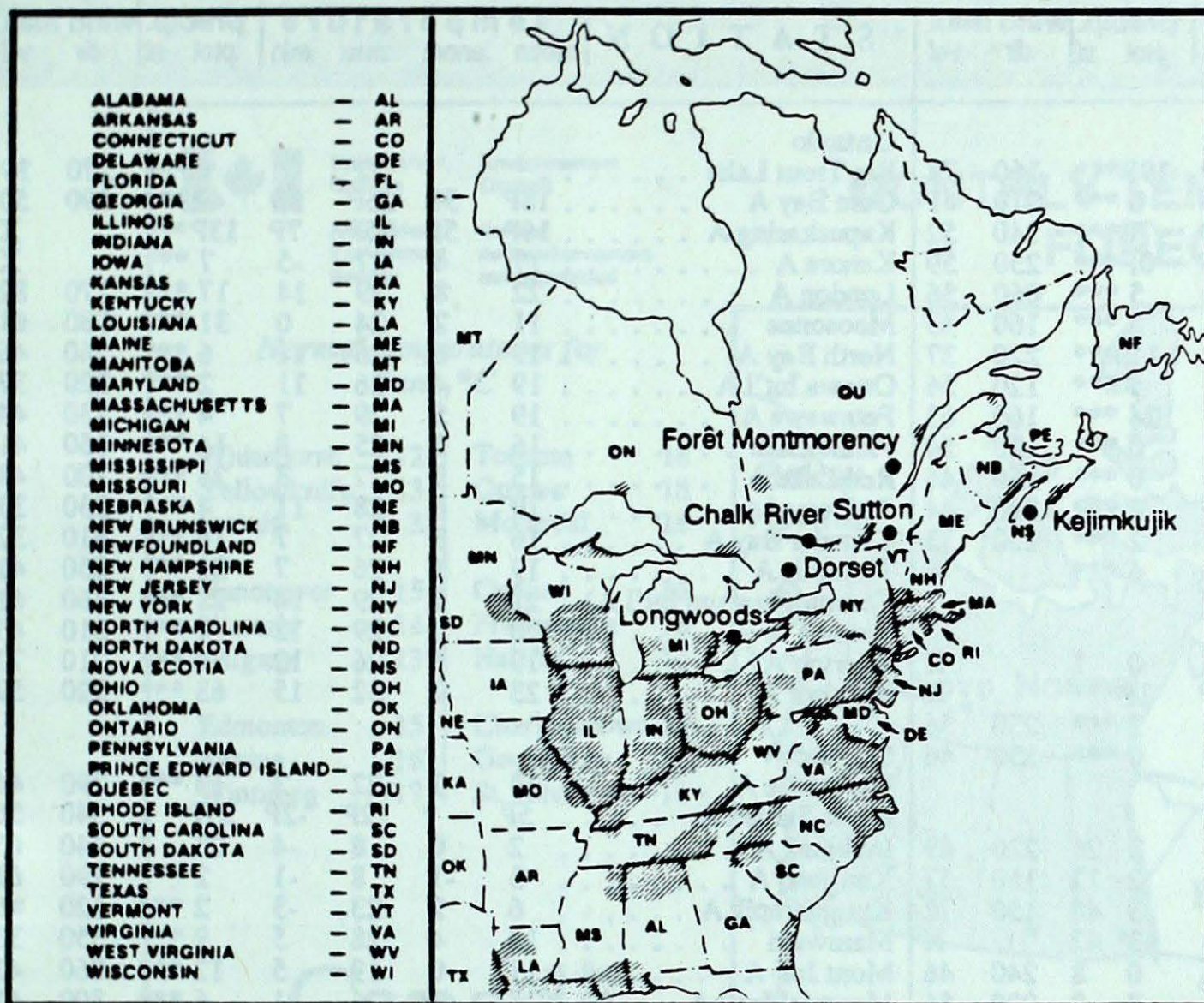


Tracks of low pressure centres at 12:00 U.T. each day during the period.

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.



Site day pH amount air path to site

May 26 to June 1, 1991

Longwoods					..... Data not available this week
Dorset*	26	4.3	28	R	..... Lake Erie, Lake Ontario, Western New York, Pennsylvania
	29	4.0	2	R	..... Michigan, Lake Huron
	30	3.8	1	R	..... Michigan, Lake Huron
Chalk River	26		27	R	..... Eastern Ontario, Western New York
	30	4.0	10	R	..... Lake Huron, Northern Michigan
	31	4.2	8	R	..... Northern Ontario, Lake Superior
Sutton	26	4.0	21	R	..... Lake Ontario, Lake Erie, Western New York
	29	4.3	1	R	..... Northwestern Quebec
	30	4.0	4	R	..... Eastern Ontario
	31	4.0	6	R	..... Eastern Ontario, Western Quebec
Montmorency	27	4.3	5	R	..... Southern Quebec, New York, Vermont
	30		10	R	..... Centre Quebec
Kejimikujik					..... Data not available

..... 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							
Cape St James	9P	0P	13P	6P	19P***	160	78	Big Trout Lake	*	22	*	* ***	270	39	
Cranbrook A	13	1	25	1	0 ***	210	41	Gore Bay A	18P	5P	26P	9P	4P***	190	50
Fort Nelson A	14P	2P	27P	2P	7P***	240	52	Kapuskasing A	16P	5P	25P	7P	13P***	X	X
Fort St John A	14P	2P	24P	4P	0P***	250	59	Kenora A	17	4	27	-5	7 ***	X	X
Kamloops A	17	1	26	6	5 ***	060	56	London A	22	8	29	14	17 ***	270	82
Penticton A	15	0	26	4	2 ***	160	43	Moosonee	11	2	24	0	31 ***	080	61
Port Hardy A	11	0	19	4	11 ***	220	37	North Bay A	19	6	26	11	6 ***	240	46
Prince George A	11	0	22	3	4 ***	120	56	Ottawa Int'l A	19	4	26	11	2 ***	220	37
Prince Rupert A	9	0	15	4	24 ***	160	63	Petawawa A	19	5	29	7	4 ***	230	44
Revelstoke A	16	2	25	6	0 ***	130	54	Pickle Lake	16	5	25	8	14 ***	150	41
Smithers A	10	-1	22	-1	0 ***	250	46	Red Lake A	15	3	27	3	24 ***	100	48
Vancouver Int'l A	13	-1	19	7	1 ***	290	44	Sudbury A	19	6	28	11	4 ***	230	33
Victoria Int'l A	12	-1	18	5	2 ***	130	33	Thunder Bay A	16	5	27	7	6 ***	310	32
Williams Lake A	12	1	22	3	6 ***	X	X	Timmins A	17	5	26	7	21 ***	250	41
Yukon Territory								Toronto (Pearson Int'l A)							
Komakuk Beach A	2	3	9	-4	0 1	X	X	Trenton A	20	5	29	12	1 ***	310	43
Teslin (aut)	9P	*	17P	-3P	1P***	X	X	Warton A	19	6	26	12	30 ***	210	72
Watson Lake A	10	0	22	-3	2 ***	230	56	Windsor A	23	7	32	15	63 ***	220	59
Whitehorse A	9	0	18	0	0 ***	230	46	Québec							
Northwest Territories								Bagotville A							
Alert	-4	3	6	-10	3 26	220	69	Blanc Sablon A	5P	*	12P	-2P	27P 1	340	56
Baker Lake A	-3	-2	3	-10	2 12	150	57	Inukjuak A	2	0	8	-4	23 1	340	65
Cambridge Bay A	-5	-1	3	-15	3 40	150	72	Kuujuuaq A	3	-1	8	-1	2 ***	290	61
Cape Dyer A	1	4	12	-8	3 42	X	X	Kuujuarapik A	6	2	23	-3	2 ***	120	46
Clyde A	-2	1	9	-12	0 8	240	46	Maniwaki	18	4	28	5	9 ***	350	33
Coppermine A	-2	2	8	-8	7 8	090	56	Mont Joli A	11	0	19	5	12 ***	060	41
Coral Harbour A	-1	1	6	-12	17 46	150	59	Montréal Int'l A	18	3	26	11	6 ***	300	41
Eureka	0	5	6	-5	0 1	170	56	Natashquan A	7P	-1P	18P	1P	3P***	350	39
Fort Smith A	11P	0P	27P	1P	0P***	X	X	Québec A	15	1	25	7	17 ***	310	35
Hall Beach A	-4	1	2	-14	3 20	110	57	Schefferville A	3	-1	12	-3	14 1	300	52
Inuvik A	10	5	22	-3	0 ***	110	37	Sept-Îles A	10	1	21	3	5 ***	100	54
Iqaluit A	2	2	12	-4	4 19	360	35	Sherbrooke A	16P	3P	23P	6P	24P***	X	X
Mould Bay A	-7	-2	2	-16	3 33	020	48	Val-d'Or A	16	5	26	7	14 ***	270	37
Norman Wells A	10	0	25	1	2 ***	180	61	New Brunswick							
Resolute A	-5	1	3	-12	3 15	120	104	Charlo A	11	0	21	4	20 ***	060	41
Yellowknife A	7	-2	17	-2	4 ***	140	56	Chatham A	13	0	23	7	21 ***	341	33
Alberta								Fredericton A							
Calgary Int'l A	13	1	25	2	2 ***	310	54	Moncton A	11	-1	19	3	20 ***	X	X
Cold Lake A	15	2	27	5	6 ***	270	56	Saint John A	12P	1P	22P	5P	1P***	330	48
Edmonton Namao A	14	1	24	6	9 ***	240	54	Nova Scotia							
Fort McMurray A	14	2	26	1	3 ***	250	52	Greenwood A	13	-1	22	4	10 ***	260	44
High Level A	12	0	26	0	0 ***	350	41	Shearwater A	11	-1	19	6	10 ***	340	41
Jasper	12	2	22	1	0 ***	X	X	Sydney A	8	-2	16	1	3 ***	010	54
Lethbridge A	15	1	28	3	3 ***	250	59	Yarmouth A	13	2	21	6	11 ***	120	37
Medicine Hat A	15	1	28	2	0 ***	180	44	Prince Edward Island							
Peace River A	13	1	26	-1	15 ***	280	56	Charlottetown A	10	-2	16	3	24 ***	160	37
Saskatchewan								Summerside A							
Cree Lake	11	1	25	-1	10 ***	200	67	11P	-1P	17P	6P	16P***	020	46	
Estevan A	16	2	27	6	9 ***	280	52	Newfoundland							
La Ronge A	13	1	29	0	3 ***	180	63	Cartwright	2	-3	12	-2	77 17	340	57
Regina A	17	3	29	3	10 ***	120	54	Churchill Falls A	3	-3	11	-5	9 1	310	50
Saskatoon A	16	2	29	2	0 ***	240	46	Gander Int'l A	4	-5	15	-1	27 ***	340	72
Swift Current A	15	1	28	4	19 ***	120	56	Goose A	5	-3	15	-1	18 ***	340	39
Yorkton A	15	2	28	5	11 ***	240	46	Port Aux Basques	7	1	18	2	13 ***	080	61
Manitoba								St John's A							
Brandon A	16	3	25	7	16 ***	280	52	St Lawrence	6	0	17	-1	22 ***	X	X
Churchill A	3	1	20	-4	1 ***	010	54	Wabush Lake A	6	0	18	-3	1 ***	330	50
Lynn Lake A	11	1	24	-1	17 ***	150	54	91/05/27-91/06/02							
The Pas A	15	3	24	6	9 ***	160	39								
Thompson A	12	2	24	1	7 ***	340	48								
Winnipeg Int'l A	18	5	28	7	33 ***	200	48								

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
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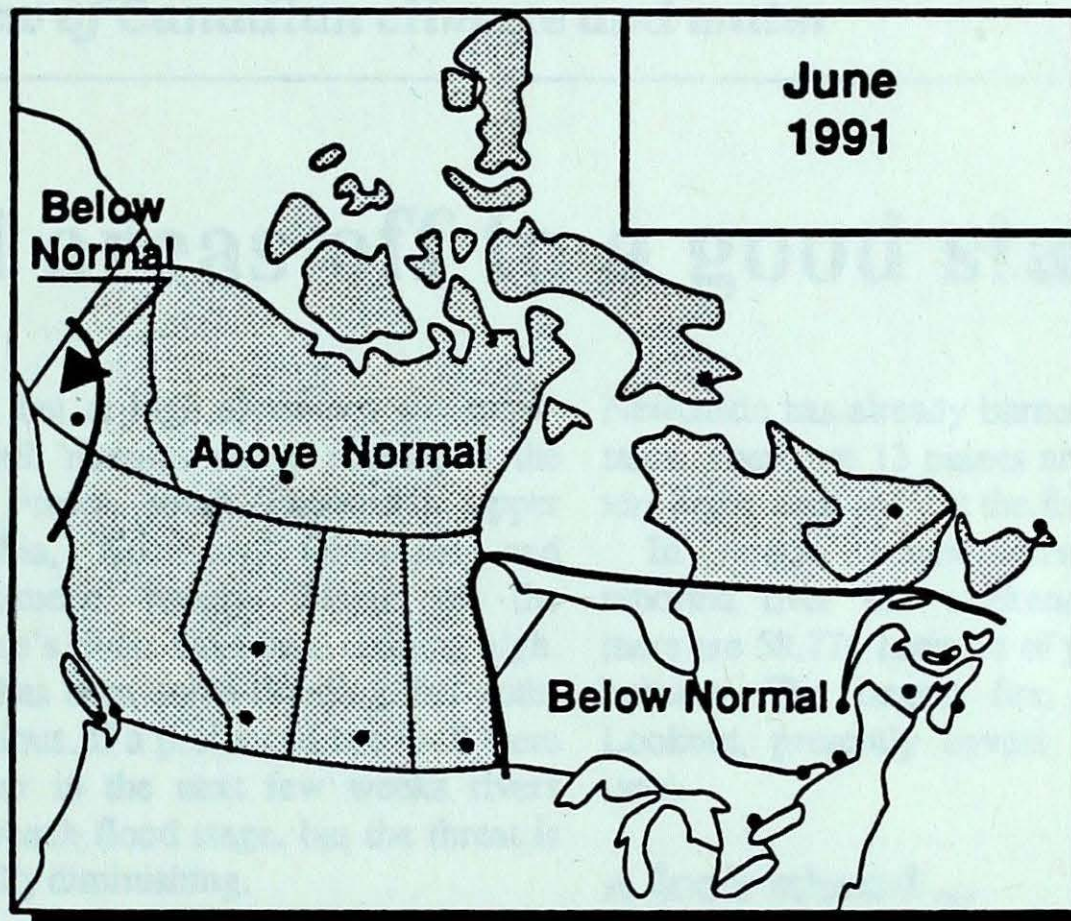
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MONTHLY TEMPERATURE FORECAST

Normal temperatures for June, °C

Whitehorse	12	Toronto	18
Yellowknife	13	Ottawa	18
Iqaluit	3	Montréal	18
Vancouver	15	Québec	16
Victoria	14	Fredericton	16
Calgary	13	Halifax	14
Edmonton	15	Charlottetown	15
Regina	16	Goose Bay	11
Winnipeg	17	St. John's	11

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