



Climatic Perspectives

April 27 to May 03, 1992 A weekly review of Canadian climate and water

Vol. 14 No. 18

Break-up begins in the Mackenzie District

Preserved in the folklore of the Northwest Territories are stories of the destructive spring floods at the mouths of the Hay and Liard rivers, where the villages of Hay River and Fort Simpson have found themselves underwater on more than a few occasions. Both of these rivers rise south of the 60th parallel where the break-up is earlier, and the surges of water released from the melt push the fractured river ice progressively downstream, jamming to form temporary dams along the way. Often, the channels of the Hay delta at the village and the ice on Great Slave Lake serve to constrict the flow, and in the case of the Liard, there can be a jam at the junction with the Mackenzie River, unless the latter breaks up first.

This year, the Hay has been running high since January, in response to the warm weather throughout much of the West. Also the ice has been thinner and softer than normal which is less effective in forming blockages during the flood stage. The mass of ice reached the mouth on the 26th, backing upstream 19 km and ice pans filled the west channel then the east. Remembering disastrous earlier floods, including one which destroyed the village in 1963, flood watch officials acted promptly, evacuating residents ahead of the crest on the 28th. Recently-built berms helped to direct the floating ice away from buildings, but there was some damage to transportation equipment on an island. By the 30th, the water levels had dropped and ice was flowing freely through both channels into Great Slave Lake.

Also on April 26th, the upper Liard River started to move, but cool weather and ice jams kept the flood above Fort Liard until the evening of the 29th, when residents were evacuated. Fortunately, damage was minimal. Normally it takes three days for the flood crest to reach the mouth from Fort Liard, but this year jamming slowed the process, and by the weekend the Mackenzie ice started to move, while the Liard was blocked by a 48-km long ice pack near Poplar River.

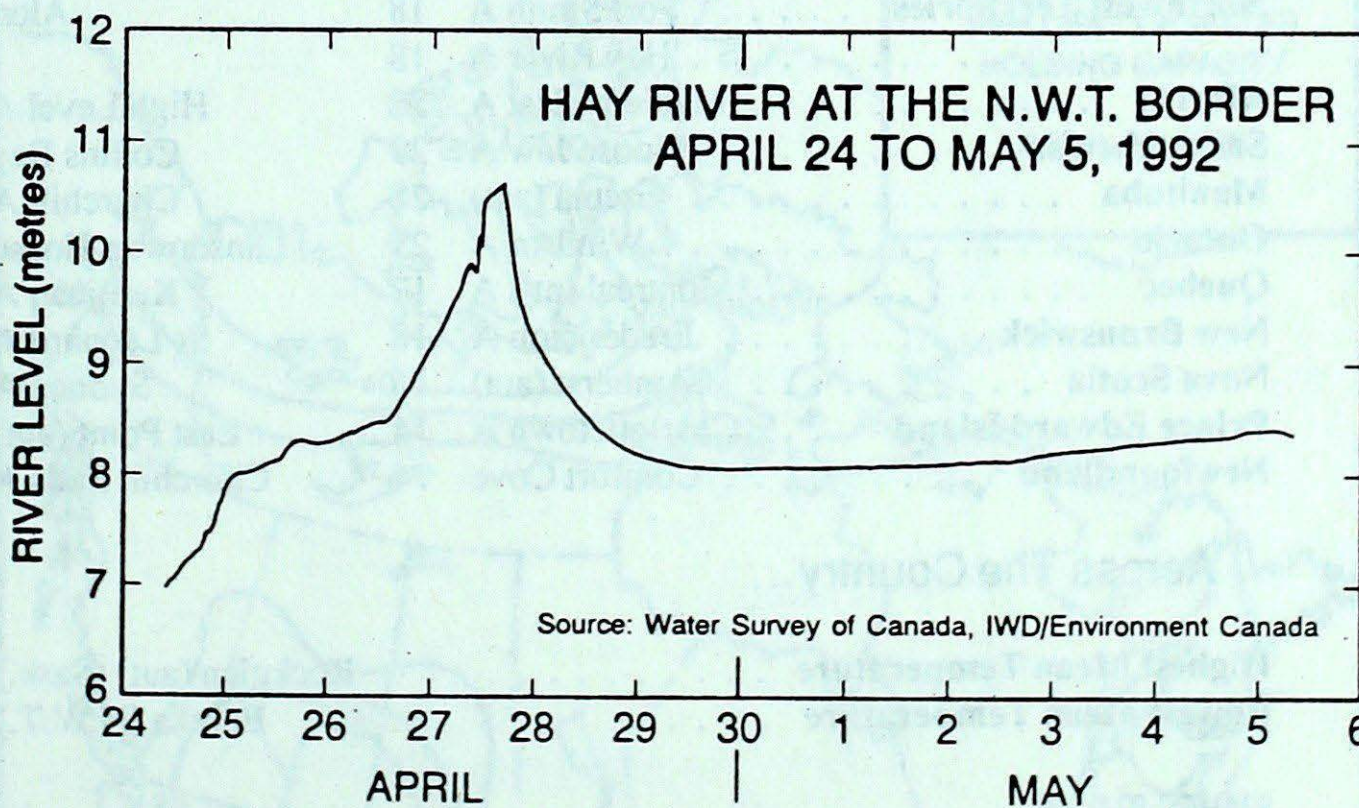
Heavy rains resume in Ontario

May continued the April pattern of wet, cool conditions as a third major rainstorm hit southern Ontario on the 2nd. Local flooding was reported from the Greater

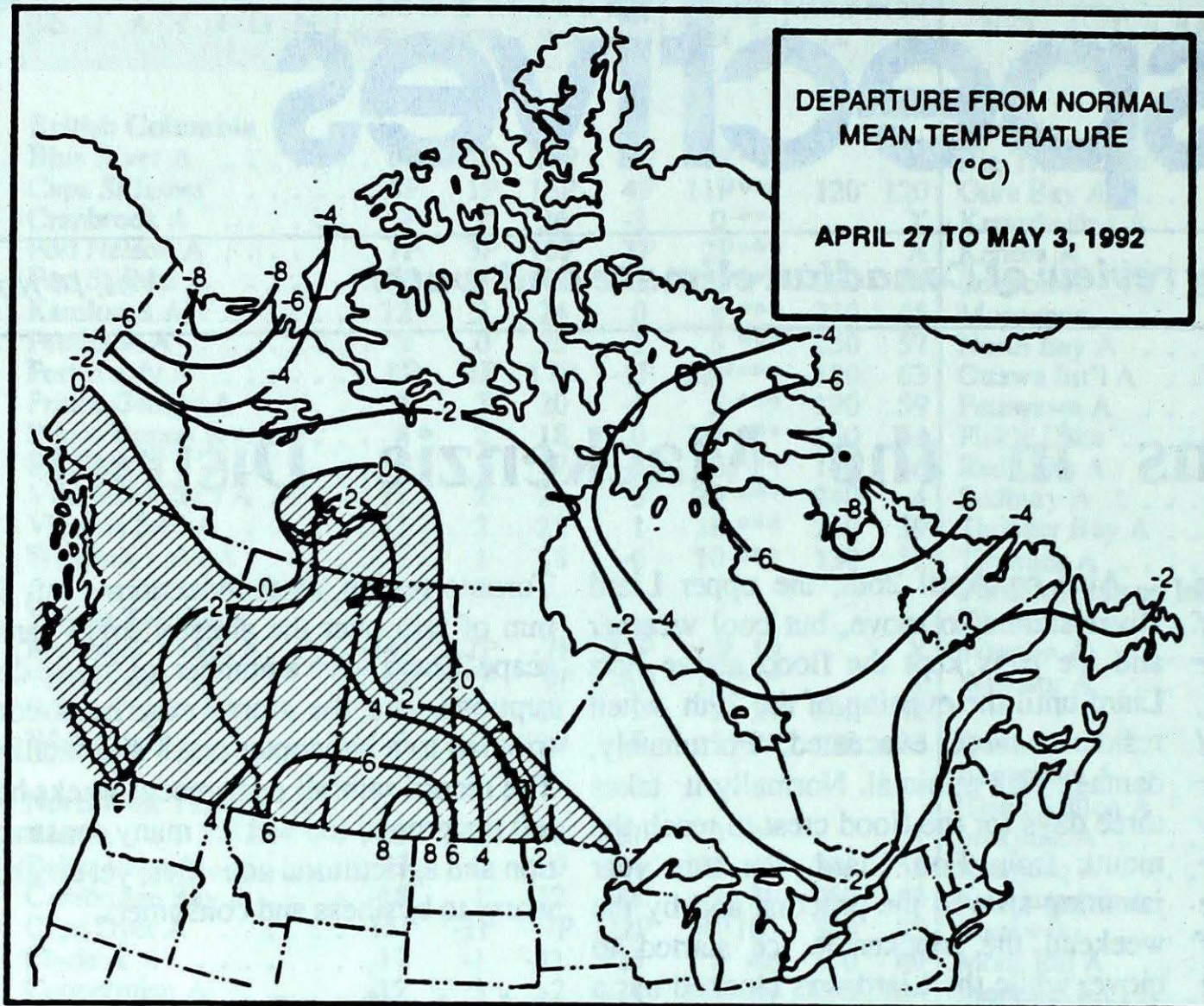
Toronto region, as thunderstorms left 50 mm of rain over the already soggy landscape. There were a number of traffic disruptions, and the storm may have contributed to a helicopter crash and fatality. The record rainfall over recent weeks has left the ground too wet for many construction and agricultural activities, yet another worry to business and consumers.

A look ahead...

For the week of May 11, temperatures should be above normal across Manitoba, Ontario and southwestern Quebec. Elsewhere, near to below normal temperatures are forecasted. Precipitation is likely west of Ontario and stormy weather can be expected across the Atlantic provinces.



Hay River spring flood 1992. The river level peaked and receded quickly, limiting the extent of damage.



**Weekly normal
temperatures (°C)**

	max.	min.
Whitehorse A	9.2	-2.2
Iqaluit A	-4.3	-13.0
Yellowknife A	4.2	-5.9
Vancouver Int'l A	14.5	6.2
Victoria Int'l A	14.4	5.2
Calgary Int'l A	11.9	-0.8
Edmonton Int'l A	14.4	0.2
Regina A	13.5	0.1
Saskatoon A	13.7	0.5
Winnipeg Int'l A	13.9	1.1
Ottawa Int'l A	15.2	3.6
Toronto (Pearson Int'l A)	15.0	3.3
Montréal Int'l A	15.3	4.0
Québec A	12.7	1.4
Fredericton A	12.9	1.0
Saint John A	11.2	0.7
Halifax (Shearwater)	10.2	1.6
Charlottetown A	9.1	0.3
Goose A	6.3	-2.8
St John's A	6.3	-0.8

Weekly temperature and precipitation extremes

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Kamloops A 27	Dease Lake -5	Prince Rupert A 71
Yukon Territory	Watson Lake A 12	Shingle Point A -27	Mayo A 26
Northwest Territories	Fort Smith A 18	Alert -31	Fort Smith A 16
.	Hay River A 18		
Alberta	Medicine Hat A 28	High Level A -3	Fort McMurray A 18
Saskatchewan	Moose Jaw A 29	Collins Bay -11	La Ronge A 35
Manitoba	Gretna (aut) 28	Churchill A -16	Lynn Lake A 18
Ontario	Windsor A 27	Lansdowne House -17	Toronto Int'l A 52
Quebec	Montréal Int'l A 17	Kuujuuaq A -25	Québec A 35
New Brunswick	Fredericton A 18	St-Léonard A -5	St-Léonard A 22
Nova Scotia	Amherst (aut) 15	Sydney A -6	Shearwater A 16
Prince Edward Island	Charlottetown A 14	East Point (aut) -3	Charlottetown A 7
Newfoundland	Comfort Cove 14	Churchill Falls A -18	Argentia A 78

Across The Country...

Highest Mean Temperature	Rockglen (aut) (Sask.) 17
Lowest Mean Temperature	Eureka (N.W.T.) -25

92/04/27-92/05/03

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Managing Editor *Bruce Findlay*
Editors-in-charge
- weekly/monthly . . . *A. Stapf / D. Lavigne*
French version *Alain Caillet*
Data Manager *M. Skarpathiotakis*
Computer support *Robert Eals*
Art Layout *K. Czaja*
Translation *D. Pokorn*
Cartography *T. Chivers*

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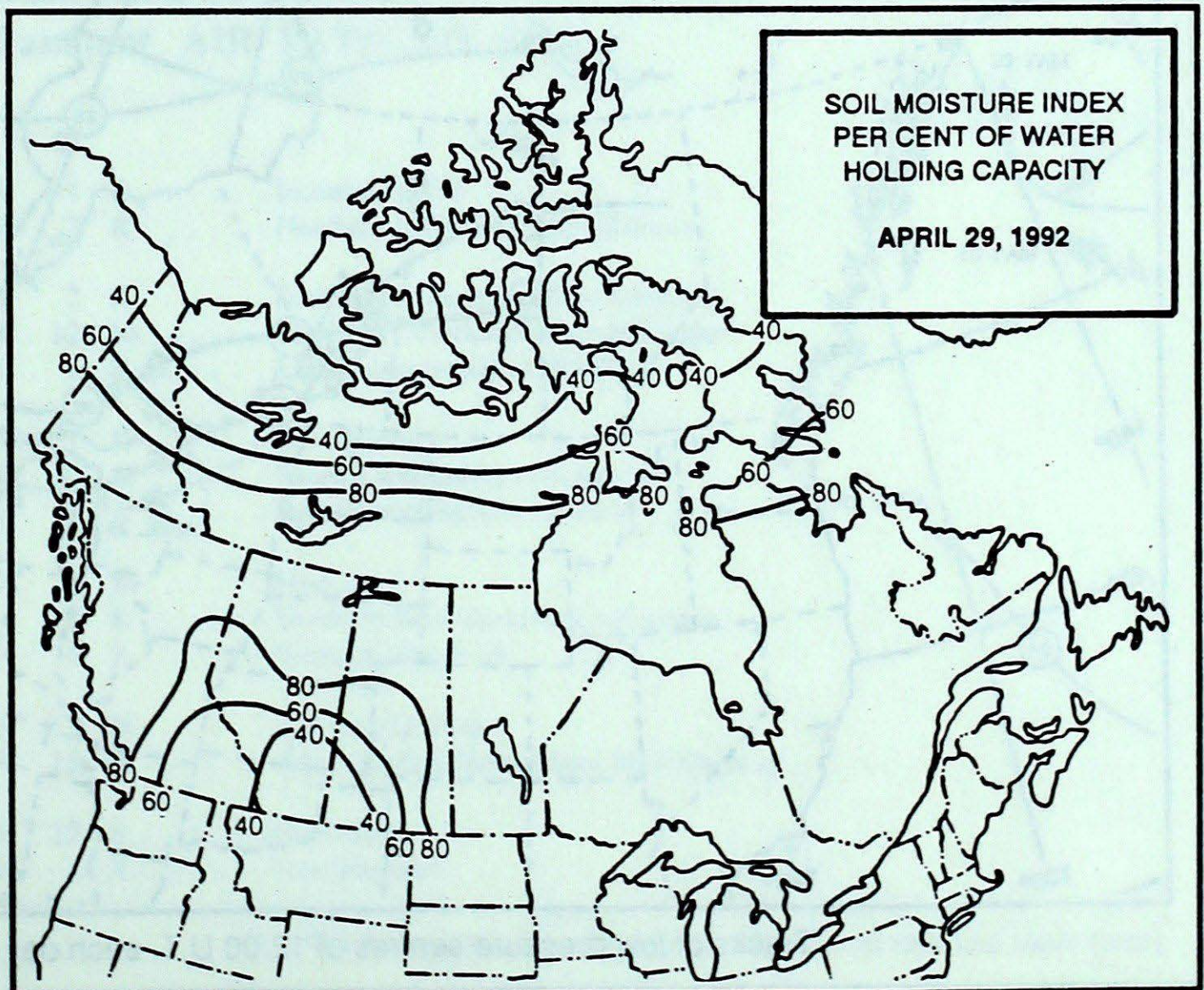
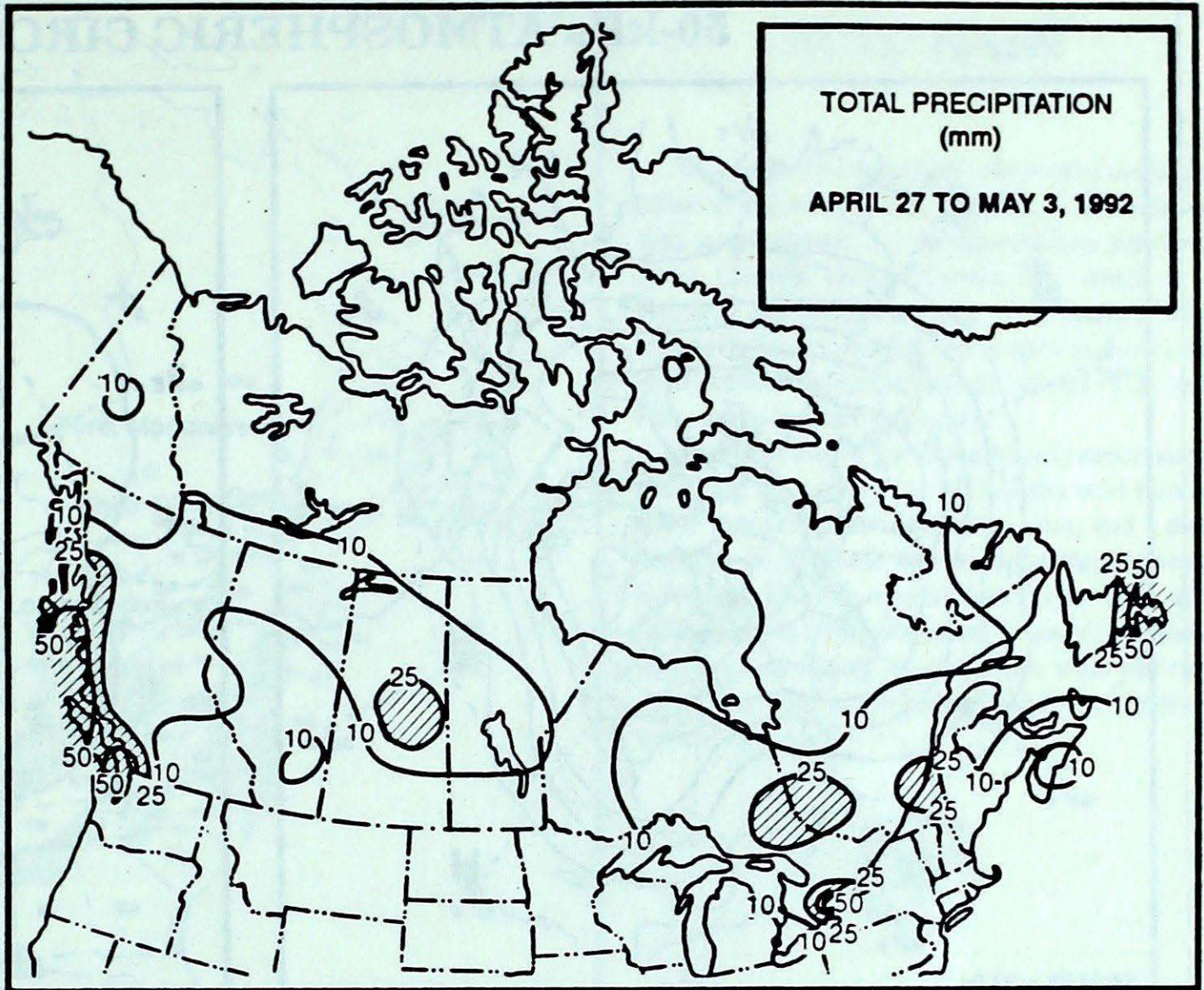
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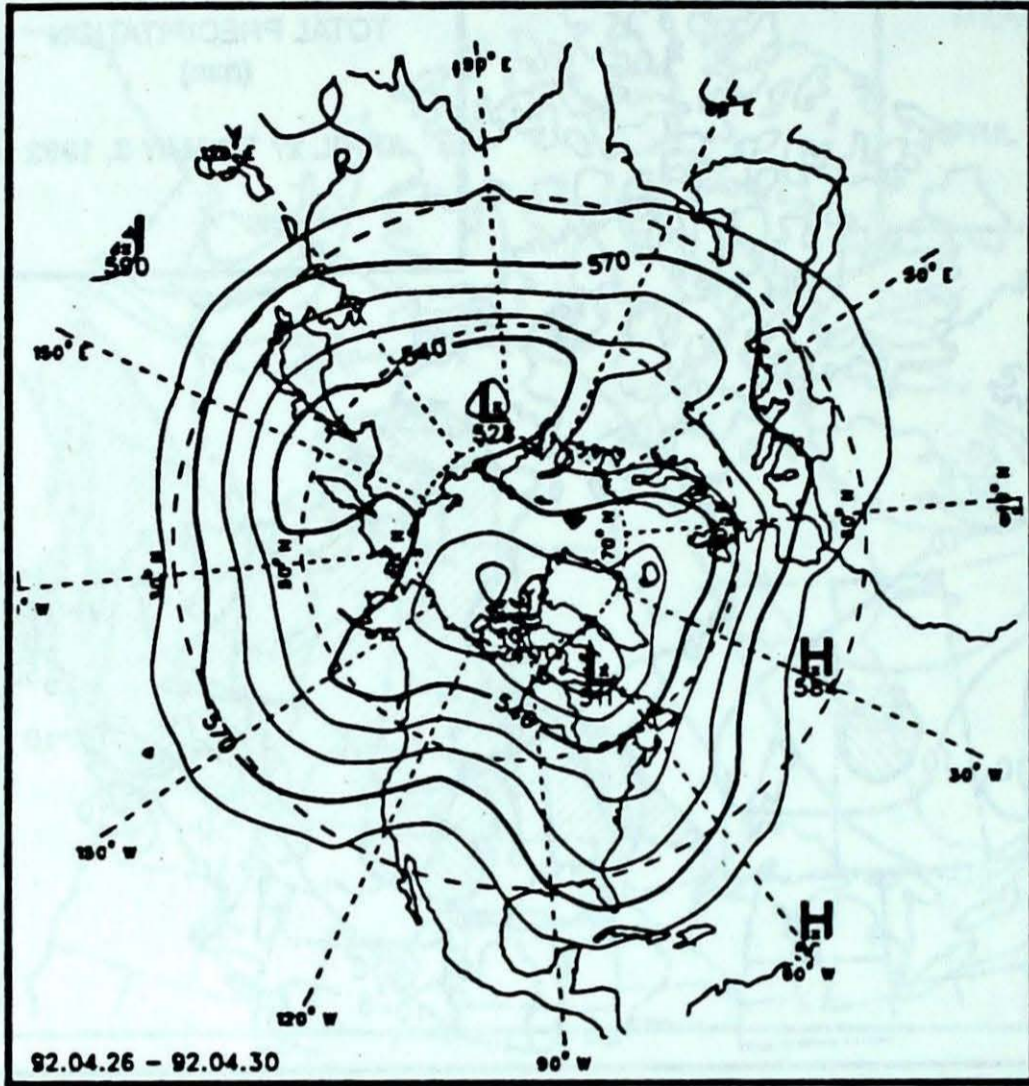
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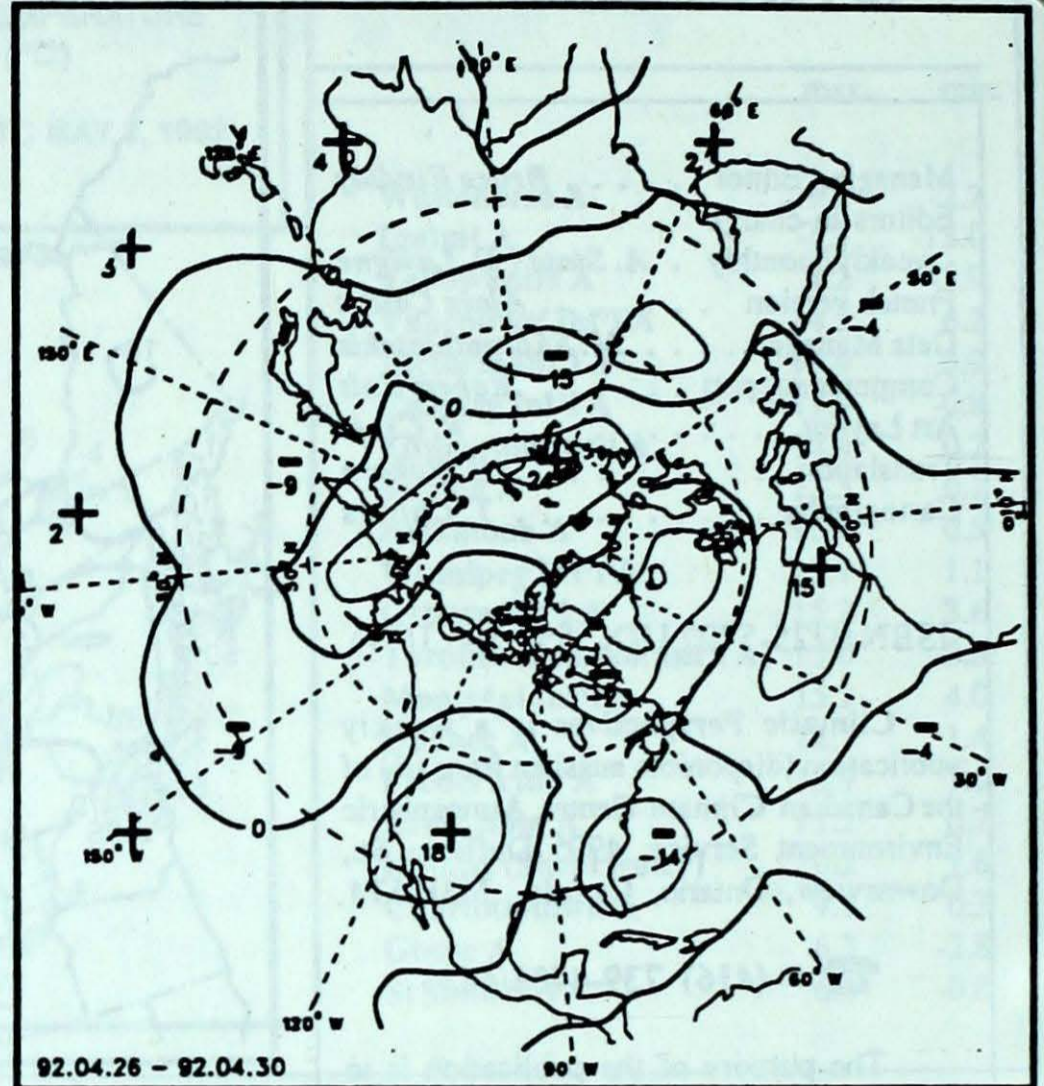
Correction : Vol.14, No.17 April 20-26, 1992 The high maximum temperature printed for Blanc Sablon, Quebec is in error. The correct temperature was 3.9°C, and the maximum for the province was 24.3°C for Montreal.



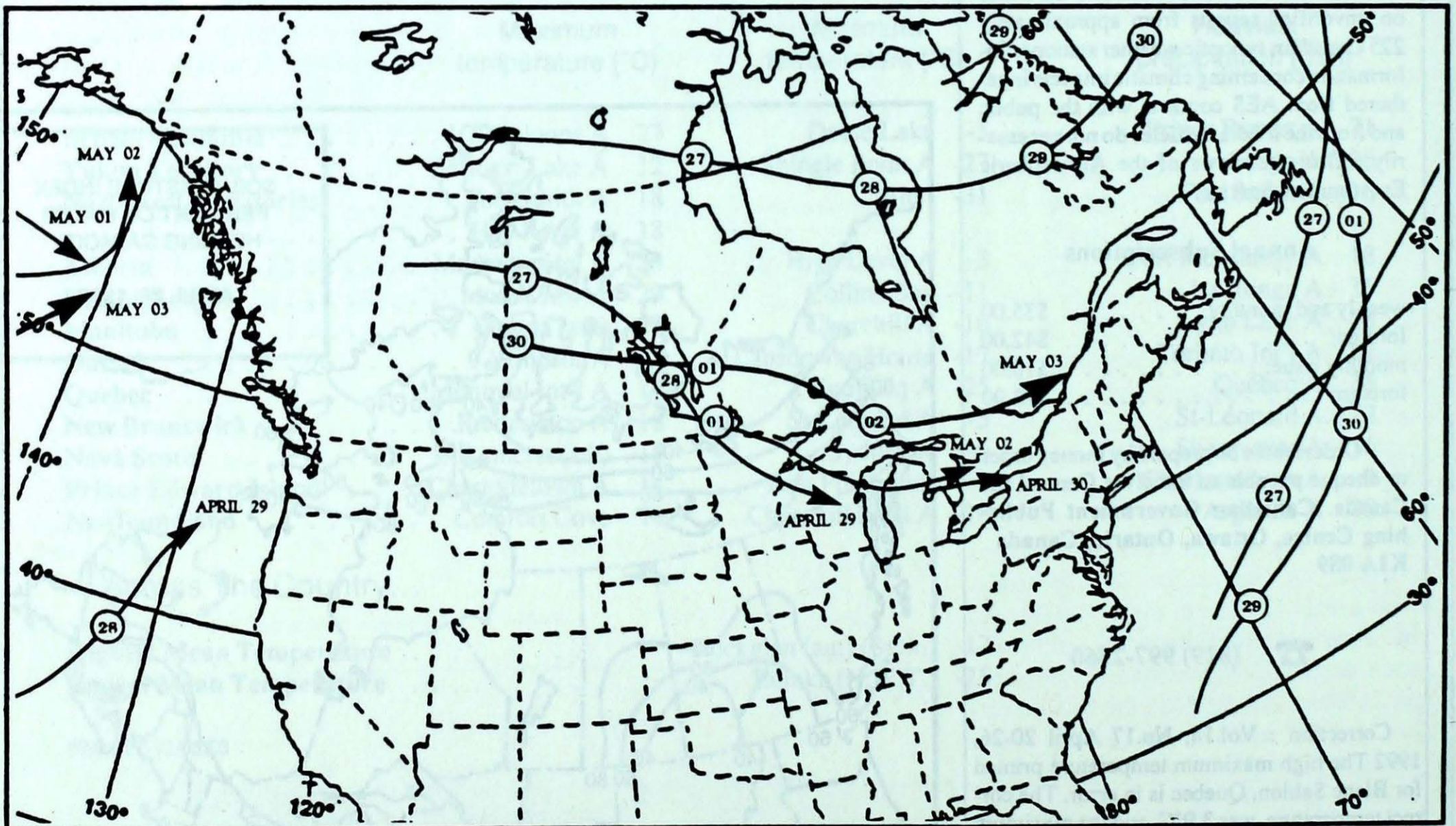
50-kPa ATMOSPHERIC CIRCULATION



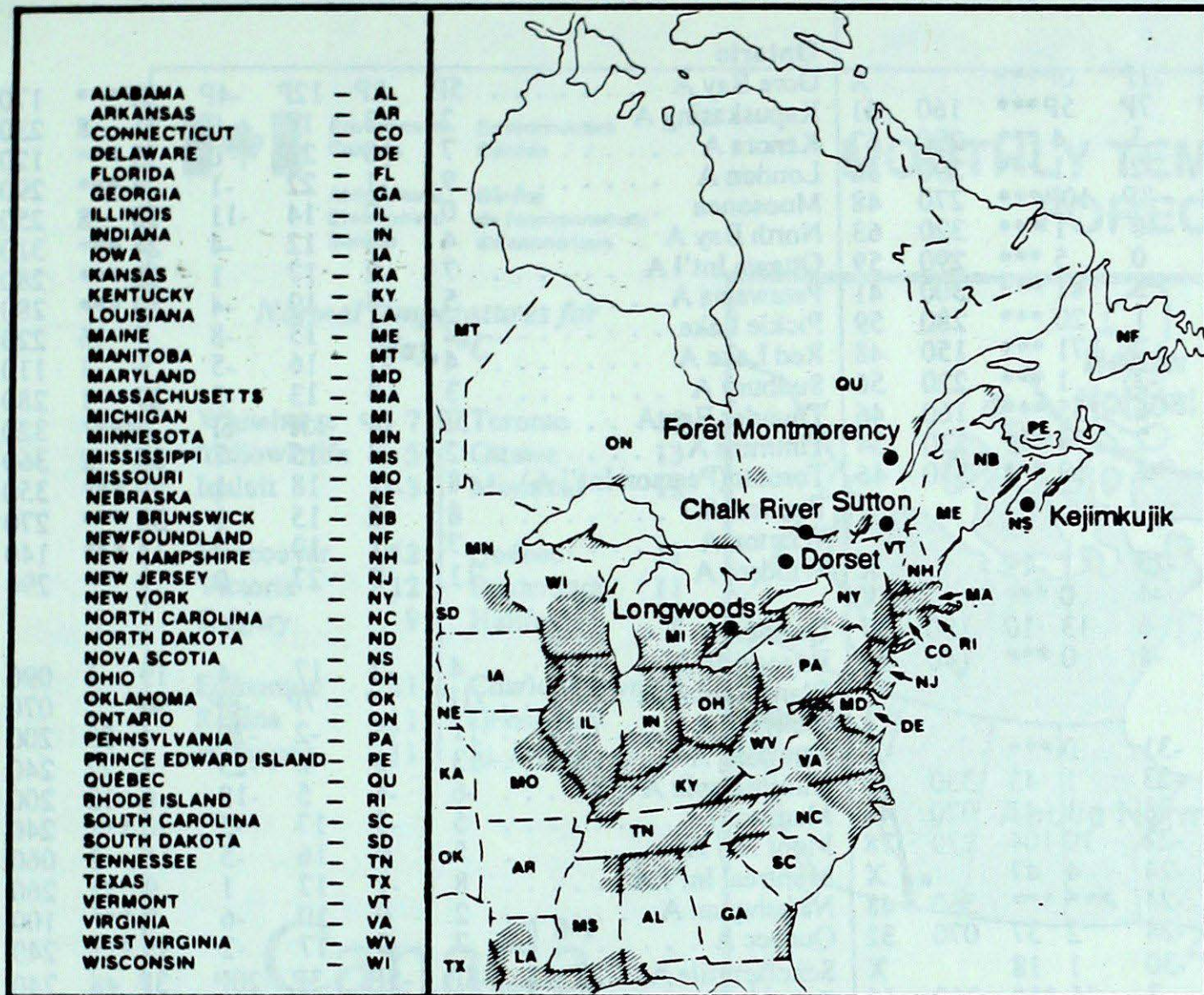
Mean geopotential height
50-kPa level (10 decametre intervals)



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



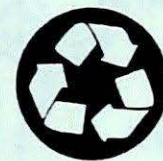
Tracks of low pressure centres at 12:00 U.T. each day during the period.



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 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
Longwoods	29	4.1	4 R	Indiana/Illinois
	02	5.9	3 R	Northern Indiana/northern Illinois
Dorset *	29	4.4	2 R	Southern Ontario/southern Michigan
	01	4.8	12 M	Southern Ontario/southern Michigan
	02	5.1	5 R	Lake Huron/northern Michigan
Chalk River	29	3.9	1 R	Lake Huron
	01	4.5	15 M	Eastern and southern Ontario
	02	4.3	2 R	Lake Huron/northern Ontario
Sutton	30	3.9	1 R	New York
	01	4.9	2 R	Northern New York/eastern Ontario
	02	4.7	6 R	Western New York
Montmorency	30	4.3	5 M	Southern Quebec
	02	4.7	15 M	Southern Quebec/northern New England
Kejimikujik	26	4.8	22 S	Nova Scotia
	02	4.2	1 R	New England

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	7P	0P	15P	-1P	0P***			X	Gore Bay A	5P	-2P	12P	-4P	9P***	170	59	
Cape St James	9P	2P	11P	7P	5P***	160	61		Kapuskasing A	2	-3	14	-9	21 8	230	56	
Cranbrook A	11	2	23	1	4 ***	290	67		Kenora A	7	0	20	0	5 ***	120	52	
Fort Nelson A	5	0	17	-2	11 ***	290	56		London A	9	-1	22	-1	4 ***	290	83	
Fort St John A	8P	2P	15P	3P	10P***	270	48		Moosonee	0	-2	14	-11	10 8	250	52	
Kamloops A	14	2	27	0	1 ***	320	63		North Bay A	4	-3	12	-4	24 ***	310	54	
Penticton A	14	3	25	0	5 ***	290	59		Ottawa Int'l A	7	-2	17	1	18 ***	280	57	
Port Hardy A	9	1	19	3	41 ***	300	41		Petawawa A	5	-4	19	-4	19 ***	280	50	
Prince George A	9	2	20	1	20 ***	280	59		Pickle Lake	2	-1	13	-8	7 16	220	39	
Prince Rupert A	8	2	14	2	71 ***	150	48		Red Lake A	4	-1	16	-5	8 1	110	61	
Smithers A	7	0	18	-2	1 ***	220	56		Sudbury A	3	-3	13	-3	27 1	280	50	
Vancouver Int'l A	12	2	18	6	55 ***	160	46		Thunder Bay A	5P	0P	15P	-6P	7P***	320	63	
Victoria Int'l A	12	2	22	2	24 ***	230	54		Timmins A	2	-3	15	-7	35 2	360	48	
Williams Lake A	8	1	21	-2	19 ***	310	46		Toronto(Pearson Int'l A)	8	-1	18	1	52 ***	350	52	
Yukon Territory								Québec									
Komakuk Beach A	-19	-7	-8	-25	1 19			X	Bagotville A	4	-2	17	-4	19 1	090	56	
Teslin (aut)	3	*	10	-4	0 ***			X	Blanc Sablon A	-1P	*	7P	-8P	4P 1	070	67	
Watson Lake A	3	0	12	-6	13 10	180	37		Inukjuak A	-11	-5	-2	-20	4 23	200	52	
Whitehorse A	4	0	11	-4	0 ***	140	59		Kuujuuaq A	-13	-8	0	-25	7 22	240	43	
Northwest Territories								New Brunswick									
Alert	-23	-6	-17	-31	0 ***			X	Fredericton A	6	-1	18	-4	5 ***	180	57	
Baker Lake A	-12	0	-3	-23	1 43	330	50		Miscou Island (aut)	3P	-1P	13P	-2P	0P***			
Cambridge Bay A	-19	-3	-6	-28	1 41	070	46		Moncton A	4	-1	16	-5	4 1	020	43	
Cape Dyer A	-14	-4	-10	-22	10 104	270	78		Saint John A	5	-1	15	-4	4 ***	030	50	
Clyde A	-16	-3	-10	-24	4 47			X	Nova Scotia								
Coppermine A	-12	-4	2	-24	*** ***	360	48		Greenwood A	5	-2	15	-4	15 ***	040	57	
Coral Harbour A	-16	-4	-9	-24	2 37	070	32		Shearwater A	4	-2	14	-2	16 ***	010	44	
Eureka	-25	-6	-20	-30	1 18			X	Sydney A	2	-2	11	-6	11 ***	350	43	
Fort Smith A	5	2	18	-3	16 ***	310	65		Yarmouth A	5	-2	11	-2	3 ***	020	37	
Hall Beach A	-19	-4	-11	-26	1 37	310	39		Prince Edward Island								
Inuvik A	-16P	-9P	-3P	-27P	7P 62	340	37		Charlottetown A	4	-1	14	-3	7 1	020	44	
Iqaluit A	-16	-8	-9	-23	3 11	330	54		East Point (auto)	1	*	8	-3	5 ***			
Mould Bay A	-19	-2	-14	-26	2 12			X	Newfoundland								
Norman Wells A	-5	-5	2	-11	5 1	290	41		Cartwright	-3	-4	8	-15	10 270	210	59	
Resolute A	-21	-4	-13	-27	1 12	050	48		Churchill Falls A	-4	-4	6	-18	10 77	240	50	
Yellowknife A	1	2	9	-10	1 2	030	44		Gander Int'l A	0	-3	10	-7	50 1	040	52	
Alberta								92/04/27-92/05/03									
Calgary Int'l A	12	7	22	-1	2 ***	270	82		Goose A	-1	-3	13	-12	21 20	060	44	
Cold Lake A	11	5	23	1	3 ***	280	56		St John's A	1	-2	11	-5	76 1	200	72	
Edmonton Namao A	12	5	21	4	4 ***	280	69		St Lawrence	2	-1	10	-6	55 1		X	
Fort McMurray A	9	3	21	-1	18 ***	260	69		Wabush Lake A	-4	-3	5	-16	3 30	020	43	
High Level A	7	-1	20	-3	16 ***	250	46										
Jasper	9	3	18	-2	17 ***			X									
Lethbridge A	15	8	27	4	1 ***	250	85										
Medicine Hat A	16	7	28	3	5 ***	260	82										
Peace River A	9	4	20	0	12 ***	280	72										
Saskatchewan																	
Cree Lake	5	1	20	-2	15 1	250	61										
Estevan A	14	7	28	1	2 ***	320	67										
La Ronge A	6	2	21	0	35 ***	100	39										
Regina A	13	7	29	-1	2 ***	260	76										
Saskatoon A	13	6	26	-1	2 ***	310	78										
Swift Current A	14	7	26	0	2 ***	260	74										
Yorkton A	12	6	28	0	1 ***	310	70										
Manitoba																	
Brandon A	11	4	25	-3	1 ***	300	72										
Churchill A	-6	-1	6	-16	2 16	200	46										
Lynn Lake A	1	-2	18	-8	18 7	100	37										
The Pas A	6	1	21	-2	14 ***	110	59										
Thompson A	2	-1	15	-7	15 ***	080	39										
Winnipeg Int'l A	9	2	20	-3	2 ***	191	69										

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.



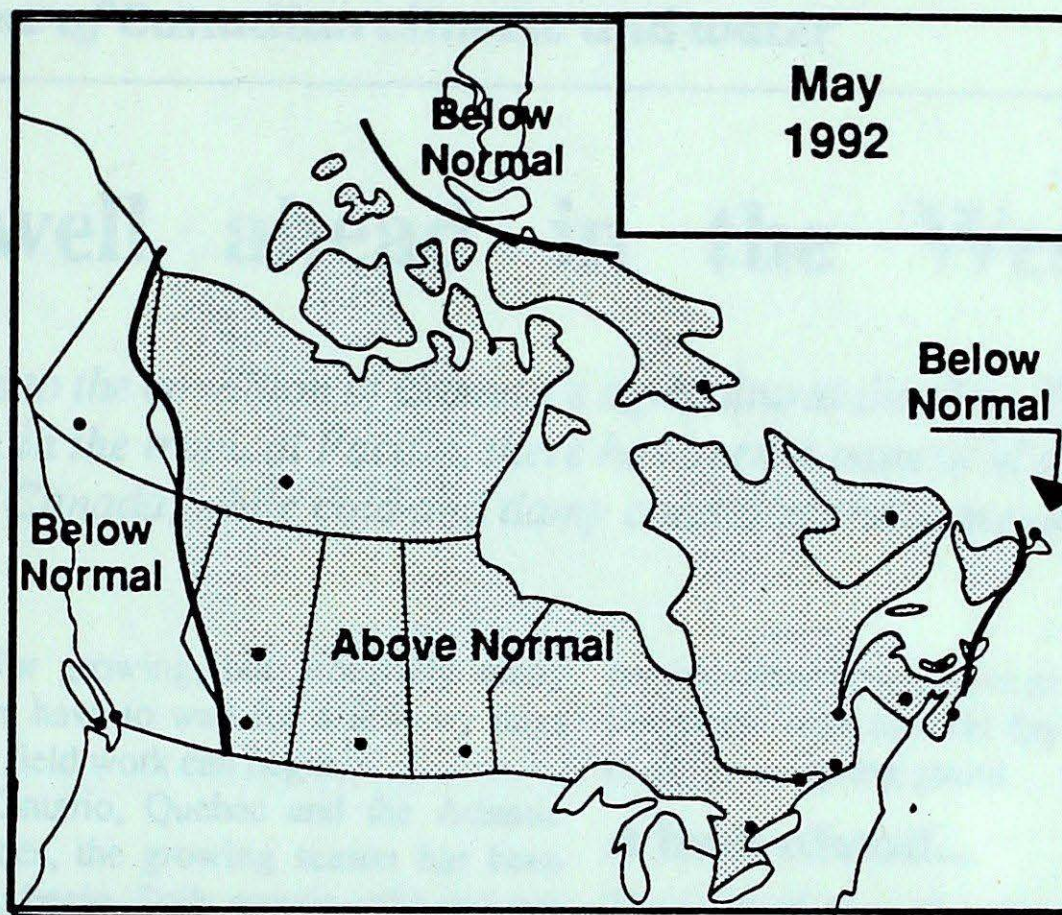
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 Atmospheric Environment Service / Service de l'environnement atmosphérique

MONTHLY TEMPERATURE FORECAST

Normal temperatures for May, °C

Whitehorse	7	Toronto	12
Yellowknife	5	Ottawa	13
Iqaluit	-3	Montréal	13
Vancouver	12	Québec	11
Victoria	12	Fredericton	11
Calgary	9	Halifax	9
Edmonton	11	Charlottetown	9
Regina	11	Goose Bay	5
Winnipeg	11	St. John's	5

Canada



Temperatures well in excess of normal since the spring have advanced horticultural activities. British Columbia by a few weeks. Early snowmelt has caused damage to occur in the Okanagan and Similkameen valleys. In the north, winter warmth has had other repercussions. Water reserves, from British Columbia to southern Alberta and Saskatchewan are generally noted as below average, as the early melting of the icepack snowpack has reduced the current watershed supply levels. Unless the season turns cool and wet, the forecast for the remainder of the spring and summer runoff is poor.

With the expected eastward shift of the high pressure ridge, which has persisted through the winter, rains and occasional some precipitation could occur in this region, but it may be insufficient to alleviate the moisture shortage. Already comparisons with the dry conditions of 1977 are being made for the Oldman River basin and other parts of the south Saskatchewan drainage.

Over the western Prairie, operations are generally well advanced except for areas of stubble, where planting is risky, until soil moisture improves. Strong winds are also causing erosion of parched soils, downgrading pasture conditions which may mean a late start for sheep. Fortunately, in Manitoba, the weather has been providing ideal conditions for crop growth.

been delayed by heavy snowfall, but well drained, sunny soils are showing a spring crop and some early planting. The forecast for the remainder of the season is good, with the possibility of a wet spring.

