Environment Canada Environnement Canada

Climatic Perspectives

Aug. 26 to Sept. 1, 1991 **A weekly review of Canadian climate and water** Vol. 13 No 35

Tornado strikes southern Quebec

A warm humid air mass triggered severe thunderstorms in the southern Mauricie, Trois-Rivières and Drummondville areas during the late afternoon and evening hours of August 27. One of these storms spawned a tornado.

A devastating tornado estimated at Force 3 on the Fujita Scale, packing winds of 250 - 330 km/h, touched down and tore through the town of Maskinongé, located north of Lake Saint-Pierre, leaving a trail of destruction varying from 75 to 150 metres wide and 1.5 km long. The storm described as "27 seconds of terror" completely destroyed or severely damaged many houses and buildings. Miraculously there were no deaths. Damage estimates are running over $17 million. High winds associated with these thunderstorms also caused damage at Trois-Rivières, Abitibi and Laurentians. Heavy downpours of 40 to 80 millimetres caused flooding in Grand-Mère and Shawinigan as well as Trois-Rivières. Thunderstorms redeveloped again the next day and on the 30th, producing hail, strong winds and heavy down pours in the St-Bernard-de-Lacolle area and near Montreal. A funnel cloud and waterspout were also sighted. At Gatineau Airport, 120 km/h winds overturned 16 aircraft.

Rains cause flooding in B.C.

As much as 100 to 150 millimetres of rain fell along the B.C. coast this week. Heaviest rainfalls, between 50 and 75 millimetres, fell on August 29 and 30, causing extensive flooding in the rugged Howe Sound area north of Vancouver, as creeks and streams swelled and overflowed their banks. This area is prone to washouts and mud slides during heavy rainfall events, and this week was no exception, with damage estimates running at more than $4 million. One of the hardest hit areas was Britannia Beach, which received 50 mm of rain in 24 hours. Located south of Squamish, the community was devastated by a torrent of flood water that went right through the centre of the town, resulting in one half million dollars worth of damage.

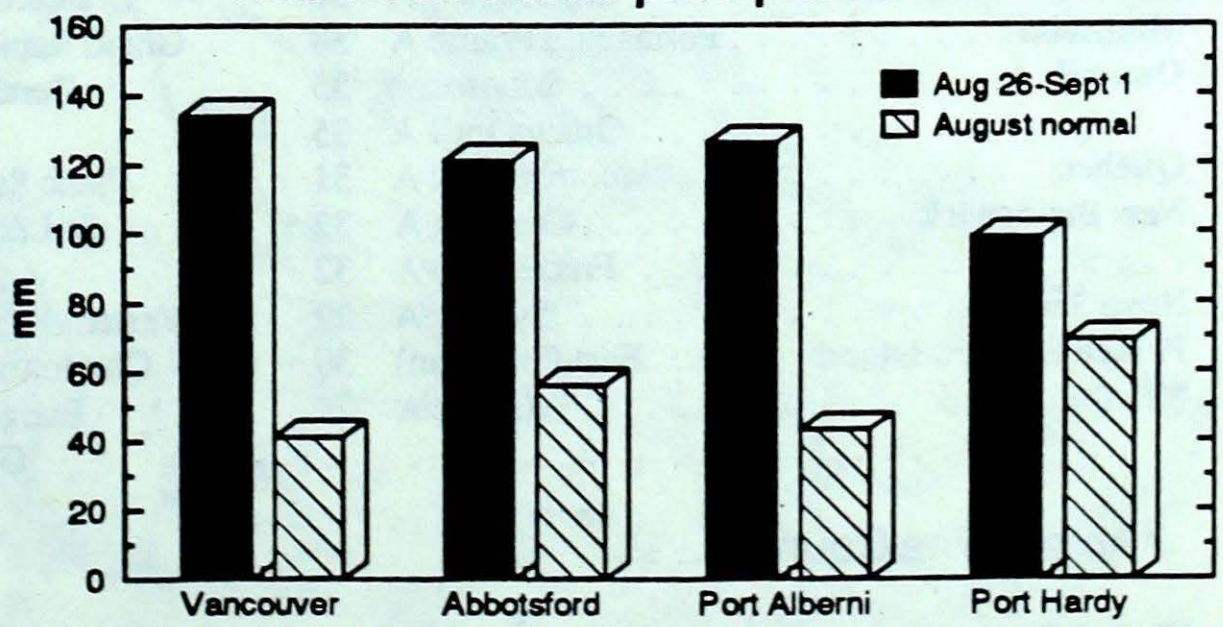
Snow in the northwest

Snow covered the mountains of northern B.C. and the Yukon at the beginning of the period, as Arctic air pushed southwards. Fort Nelson received 7 cm of the white stuff, a new one-day snowfall record for August. In contrast, central and more eastern portions of the country, including the Great Lakes Basin endured a heat wave that saw temperatures rise into the thirties during the same period.

A look ahead ...

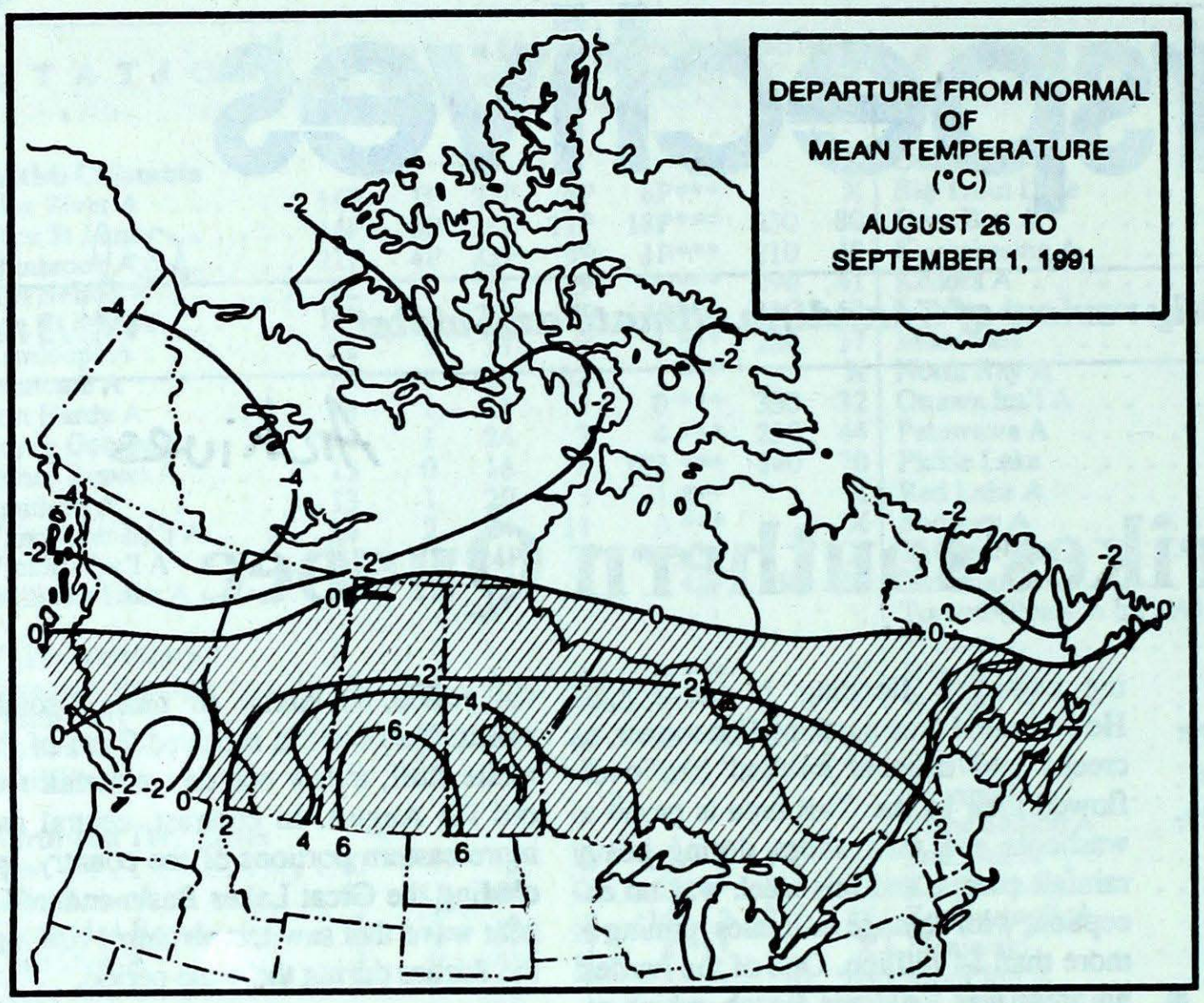
For the week of September 9, rapid seasonal adjustments to the circulation will bring variable temperatures to all sectors of Canada, keeping, on average, readings slightly above the seasonal values in the Yukon and the southern parts of the Prairies and near the seasonal values elsewhere.

This week's total precipitation in B.C.



The heavy rainfalls, which inundated B.C.'s coastal valleys this week, are significantly greater than what normally is expected during the whole month of August.

Canada



Weekly normal temperatures (°C)

	max.	min.
Whitehorse A	16.1	4.5
Iqaluit A	9.0	2.5
Yellowknife A	15.4	8.1
Vancouver Int'l A	20.2	11.7
Victoria Int'l A	20.3	10.1
Calgary Int'l A	19.6	6.5
Edmonton Int'l A	19.4	6.3
Regina A	22.9	8.6
Saskatoon A	21.6	8.5
Winnipeg Int'l A	23.2	10.9
Ottawa Int'l A	24.4	13.2
Toronto (Pearson Int'l A)	25.7	13.8
Montréal Int'l A	24.4	13.9
Québec A	22.4	11.3
Fredericton A	23.8	10.9
Saint John A	20.9	10.7
Halifax (Shearwater)	21.5	13.0
Charlottetown A	21.3	12.2
Goose A	17.8	7.9
St John's A	18.4	9.8

Weekly temperature and precipitation extremes

	Maximum temperature (°C)		Minimum temperature (°C)		Heaviest precipitation (mm)	
British Columbia	Cranbrook A	32	Puntzi Mountain (aut)	0	Estevan Point (aut)	155
Yukon Territory	Watson Lake A	16	Komakuk Beach A	-5	Whitehorse A	25
Northwest Territories	Hay River A	19	Alert	-6	Fort Simpson A	41
Alberta	Medicine Hat A	38	Red Deer A	2	Grande Prairie A	70
Saskatchewan	Moose Jaw A	36	Uranium City A	2	Collins Bay	74
Manitoba	Portage La Prairie A	38	Grand Rapids (aut)	1	Lynn Lake A	38
Ontario	Moosonee	35	Geraldton A	-2	Nagagami (aut)	65
	Ottawa Int'l A	35				
Québec	Montréal Int'l A	31	Blanc Sablon A	0	Ste Agathe Des Monts	50
New Brunswick	Chatham A	32	St-Léonard A	2	St-Léonard A	53
	Fredericton A	32				
Nova Scotia	Sydney A	29	Western Head (aut)	5	Greenwood A	26
Prince Edward Island	East Point (aut)	30	Charlottetown A	6	Charlottetown A	30
Newfoundland	Goose A	24	Badger (aut)	1	St Anthony	60
			Goose A	1		

Across The Country...

Highest Mean Temperature	Port Weller (aut)(ONT)	25
Lowest Mean Temperature	Mould Bay A(NWT)	-2

91/08/26-91/09/01

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

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The purpose of the publication is to make topical information available to the public concerning the Canadian Climate and its socio-economic impact.

The data in this publication are based on unverified reports from approximately 225 Canadian synoptic weather stations. Information concerning climatic impacts is gathered from AES contacts with the public and from the media. Articles do not necessarily reflect the views of the Atmospheric Environment Service.

Annual Subscriptions

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

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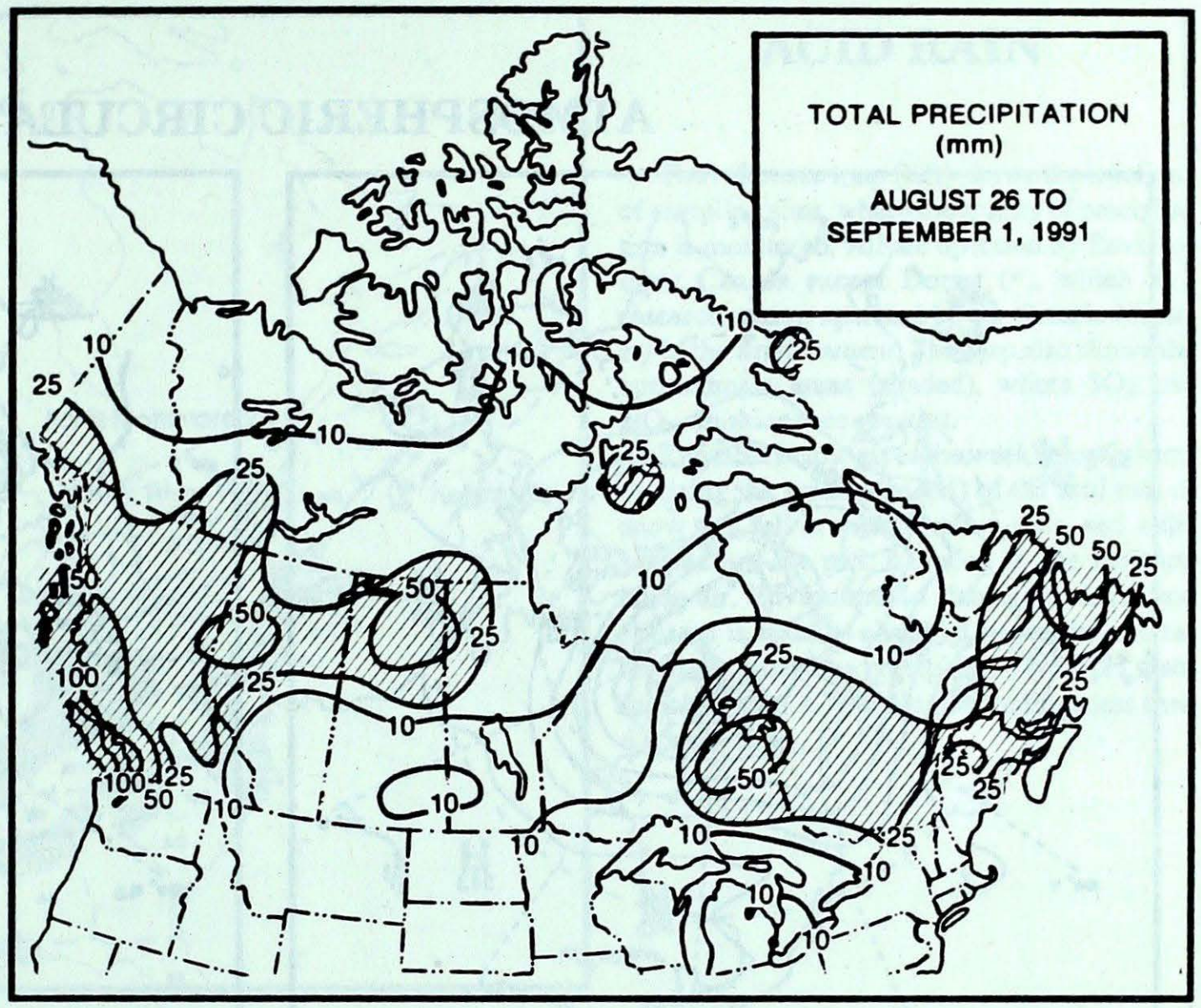
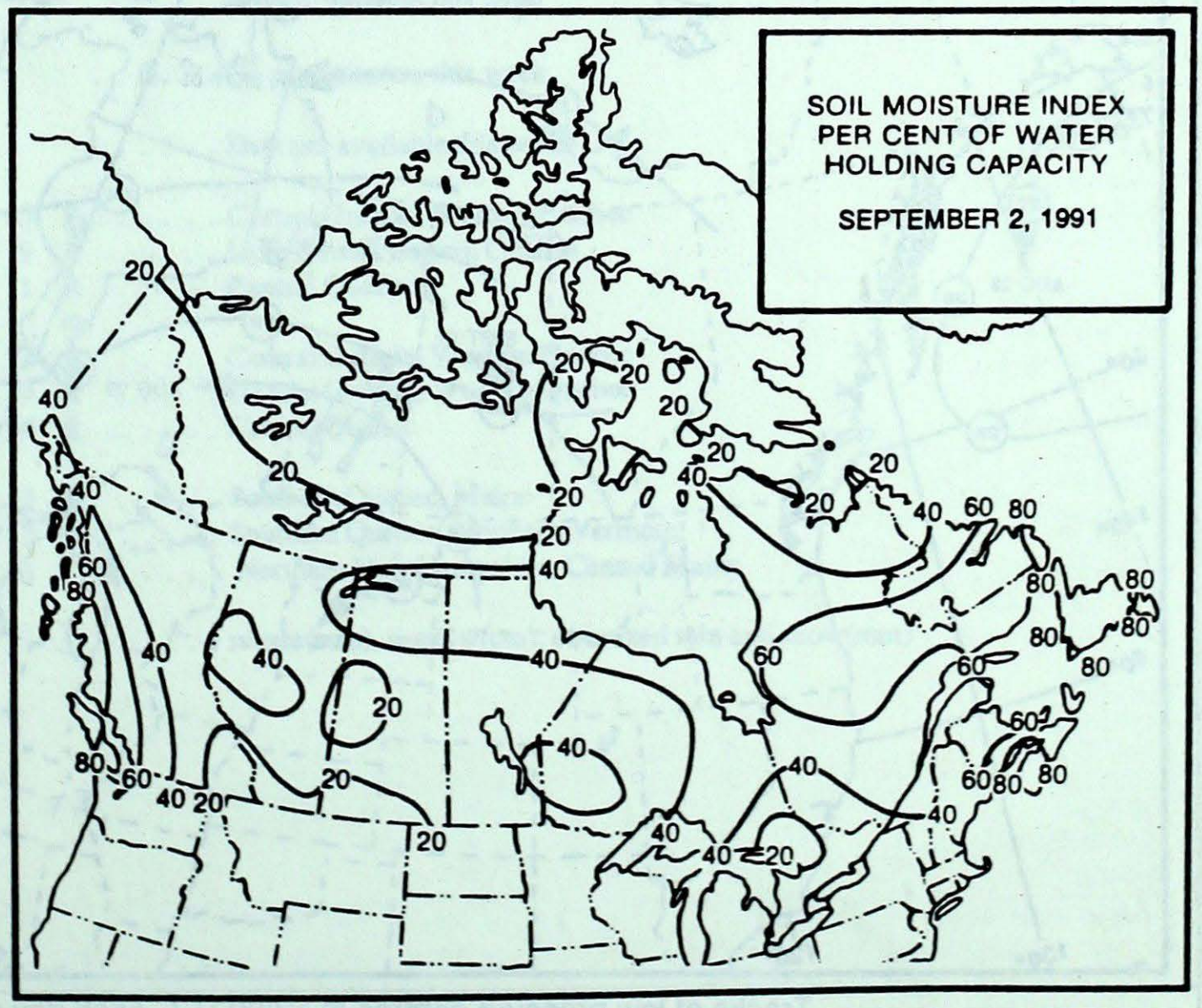
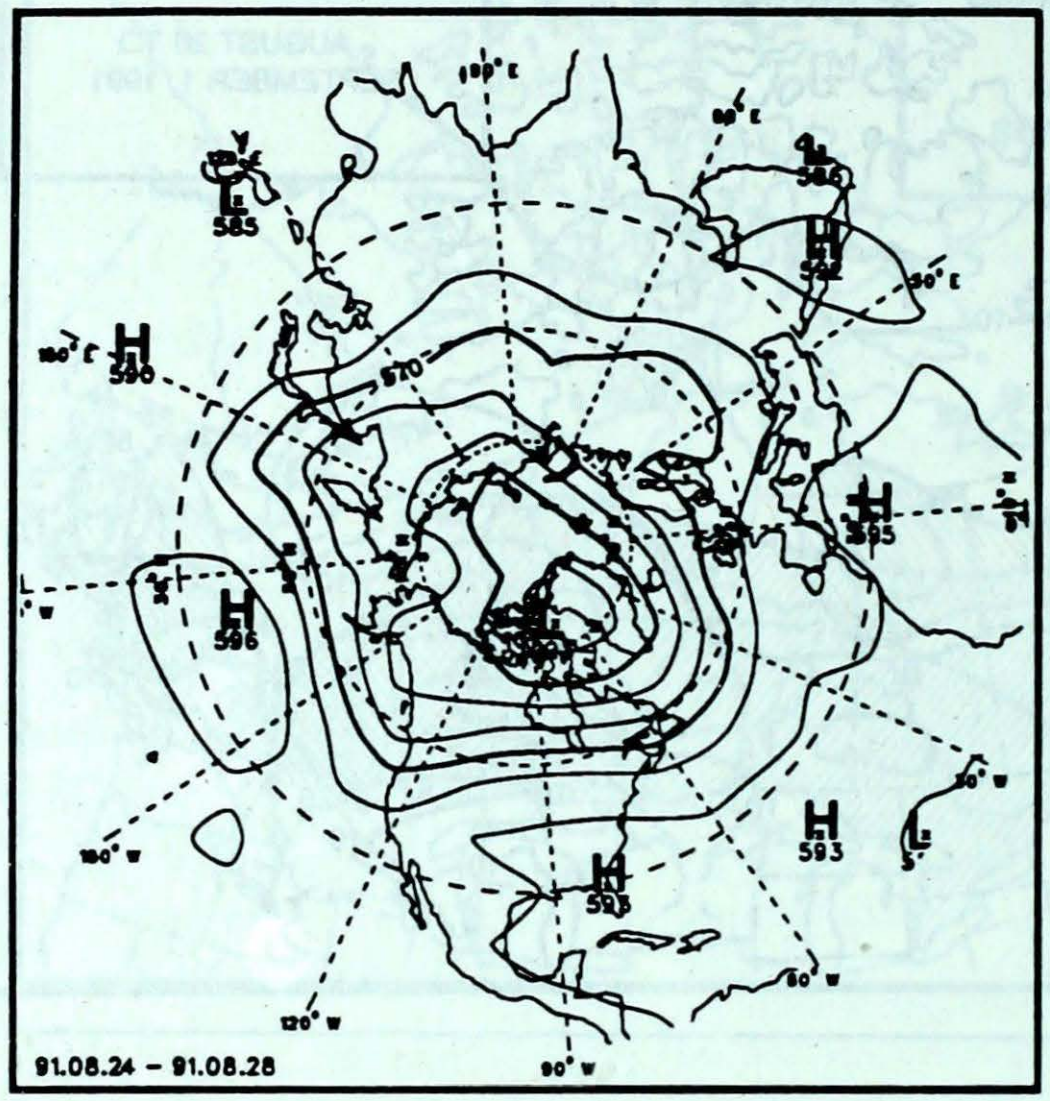
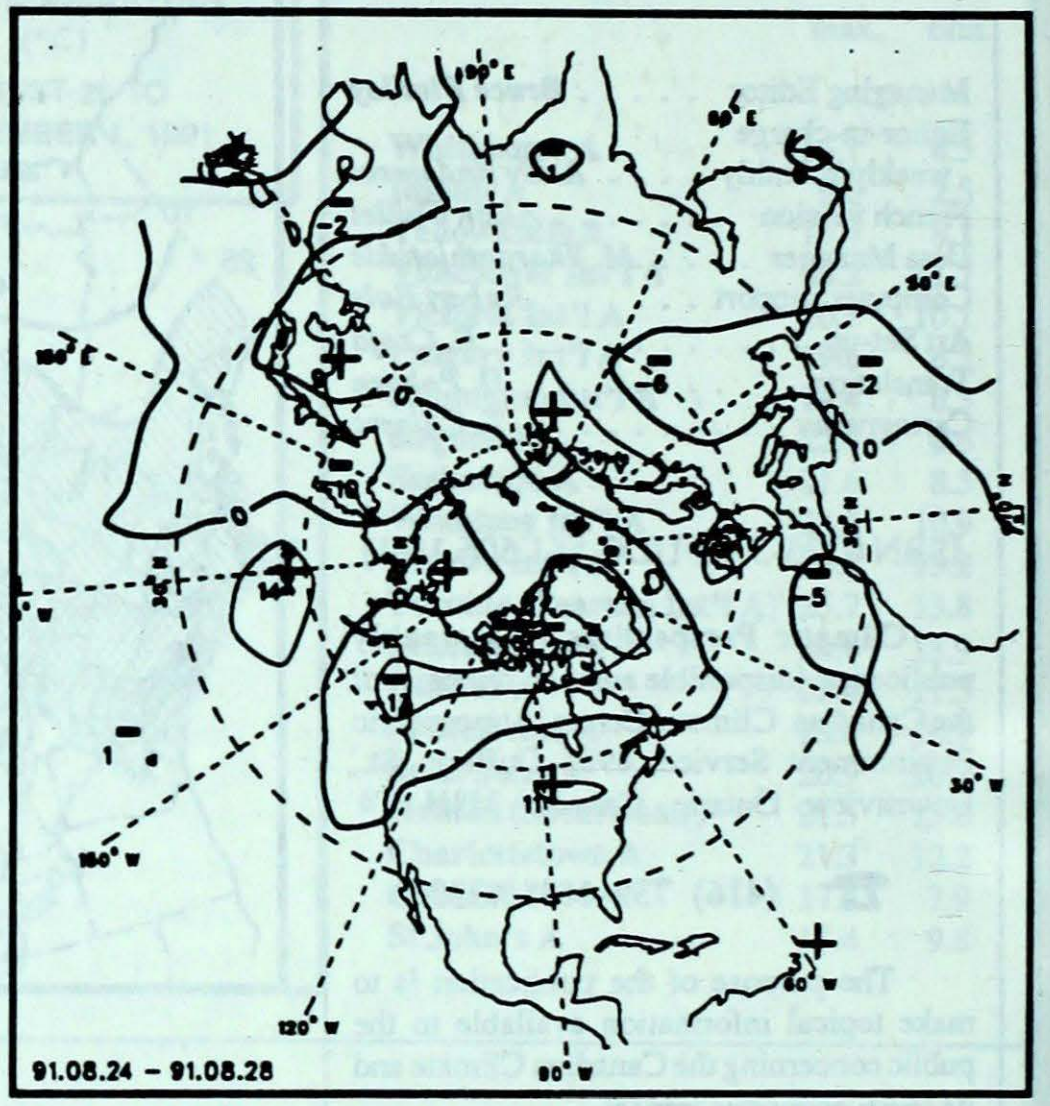




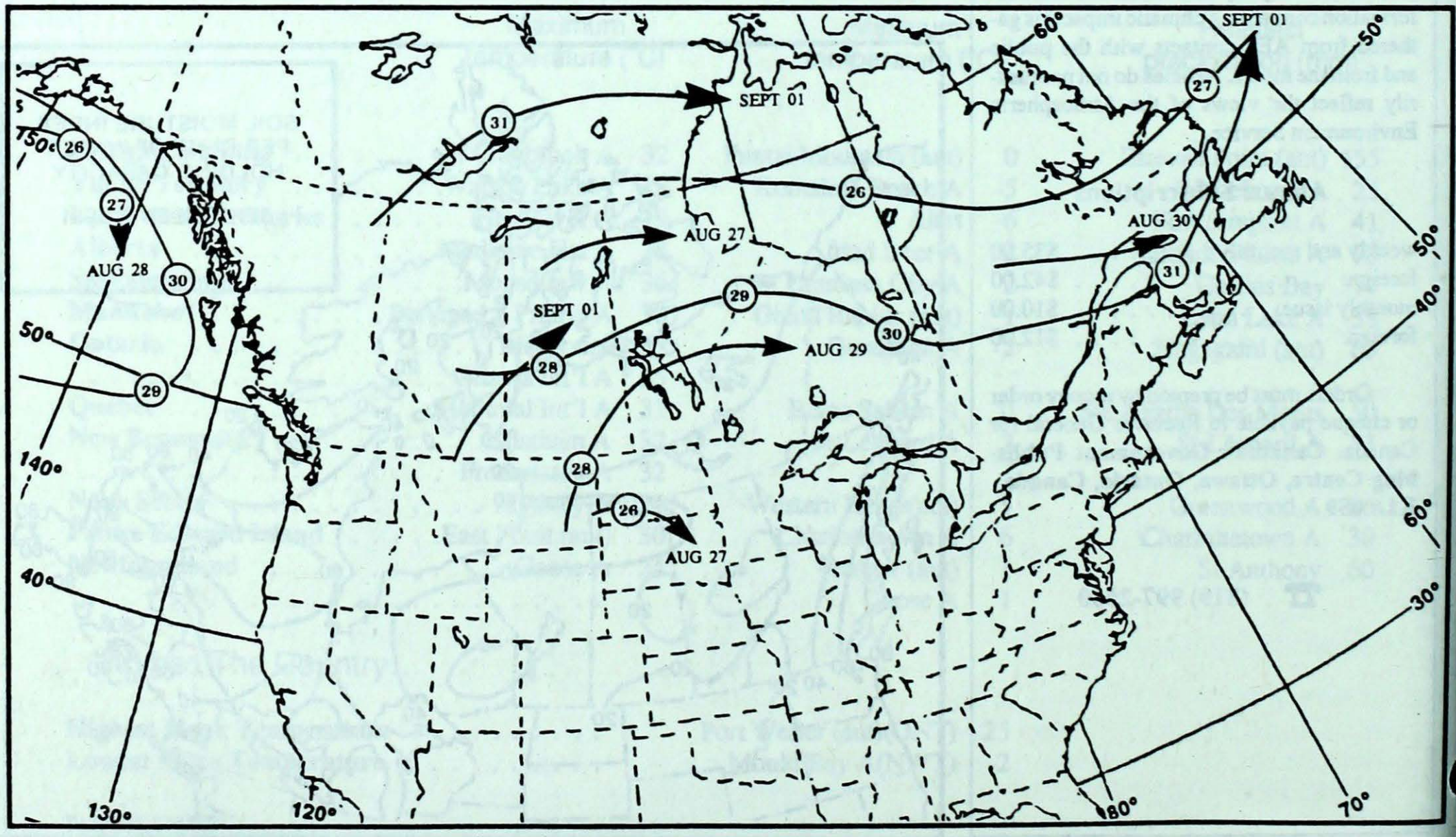
ATMOSPHERIC CIRCULATION



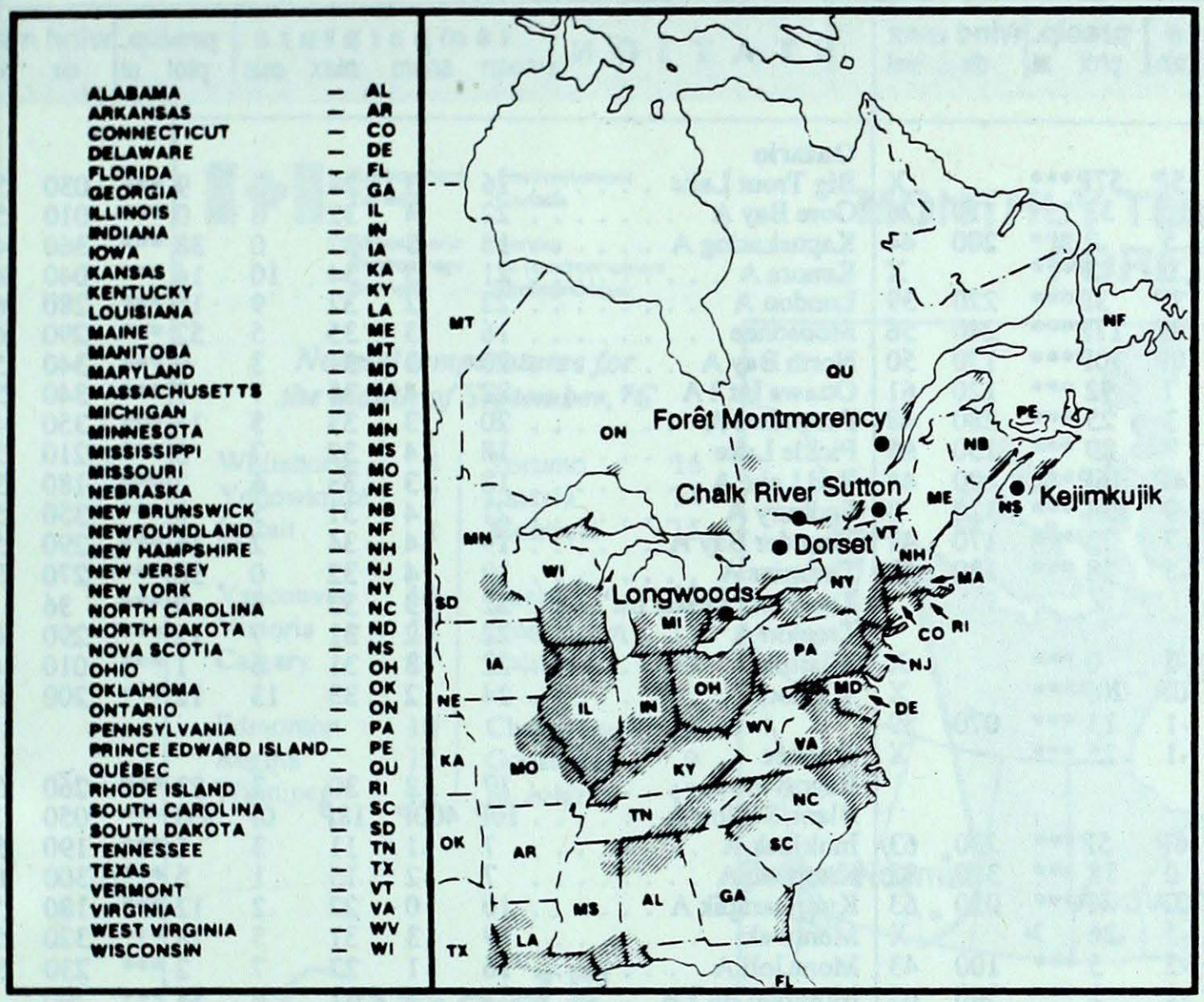
Mean geopotential height
50-kPa level (10-decametre intervals)



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 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.

August 25 to 31, 1991

Site	day	pH	amount		air path to site
Longwoods					. . . . . No precipitation this week
Dorset*					. . . . . No precipitation this week
Chalk River					. . . . . Data not available this week
Sutton	28	3.8	5	R	. . . . . Central Ontario, Western Quebec
	30	4.3	9	R	. . . . . Lake Huron, Eastern Ontario
	31	5.6	1	R	. . . . . Central Quebec
Montmorency	26	4.3	17	R	. . . . . Central Ontario, Western Quebec
	27	5.1	4	R	. . . . . Central Ontario, Western Quebec
	30	4.6	34	R	. . . . . Central Quebec
Kejimkujik	28	4.0	12	R	. . . . . Southern Quebec, Maine
	31	3.9	2	R	. . . . . Southern Quebec, Northern Vermont,
					. . . . . Northern New Hampshire, Central Maine

. . . . . 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
Colombie-Britannique								
Blue River A	11P	-3P	16P	5P	57P***			X
Cape St James	13	0	18	10	33 ***		110	126
Cranbrook A	17	2	32	5	2 ***		200	44
Fort Nelson A	6	-7	18	0	42 ***			X
Fort St John A	10P	-3P	19P	3P	3P***		220	39
Kamloops A	18P	0P	25P	12P	17P***		240	56
Penticton A	17P	0P	30P	8P	10P***		170	50
Port Hardy A	14	1	19	7	92 ***		120	61
Prince George A	13	1	18	3	25 ***		280	48
Prince Rupert A	12	0	16	7	89 ***		150	65
Smithers A	11P	-2P	17P	4P	16P***		190	44
Vancouver Int'l A	15	-1	21	9	134 ***		120	3
Victoria Int'l A	15	-1	20	7	73 ***		170	41
Williams Lake A	12	-1	19	5	18 ***		180	63
Yukon								
Komakuk Beach A	2	-2	15	-5	0 ***			X
Teslin (aut)	6P	400P	13P	0P	20P***			X
Watson Lake A	6	-5	16	-1	13 ***		070	59
Whitehorse A	6	-4	14	-1	25 ***			X
Territoires du Nord-Ouest								
Alert	-1P	1P	3P	-6P	5P***		230	63
Baker Lake A	5	-2	10	0	18 ***		310	83
Cambridge Bay A	2P	-3P	5P	-2P	4P***		030	63
Cape Dyer A	1	-2	7	-5	26 7			X
Clyde A	3	0	6	-2	5 ***		100	43
Coppermine A	4	-2	12	-2	2 ***		340	65
Coral Harbour A	4	-2	8	0	31 ***		310	89
Eureka	0	0	2	-2	5 ***			X
Fort Smith A	10	-2	19	-1	12 ***			X
Hall Beach A	3	0	7	-1	5 ***		040	52
Inuvik A	5P	-3P	15P	-4P	0P***		300	44
Iqaluit A	5	-1	12	0	10 ***		140	50
Mould Bay A	-2	-1	2	-5	5 3			X
Norman Wells A	6	-4	12	-1	3 ***		280	37
Resolute A	-1	-1	2	-3	5 1		290	37
Yellowknife A	8	-4	14	4	23 ***		070	48
Alberta								
Calgary Int'l A	18	5	32	7	0 ***		170	43
Cold Lake A	17	4	29	8	0 ***		260	54
Edmonton Namao A	16	3	30	7	2 ***		330	50
Fort McMurray A	15	2	28	6	46 ***		110	48
High Level A	10	-2	17	3	11 ***		360	32
Jasper	13	1	25	6	13 ***			X
Lethbridge A	19	4	37	4	0 ***		221	54
Medicine Hat A	21	5	38	7	6 ***		210	56
Peace River A	13	1	21	7	63 ***		030	46
Saskatchewan								
Cree Lake	12	1	22	5	56 ***		230	50
Estevan A	23	6	36	11	4 ***		160	59
La Ronge A	17	4	30	7	27 ***		130	39
Regina A	23	7	35	9	7 ***		260	61
Saskatoon A	22	7	36	8	1 ***		270	41
Swift Current A	22	7	36	9	4 ***		270	54
Yorkton A	21	6	34	10	9 ***		120	54
Manitoba								
Brandon A	21	5	35	7	9 ***		280	56
Churchill A	10	0	24	4	21 ***		080	54
Lynn Lake A	13	2	28	3	38 ***		230	67
The Pas A	18	4	31	9	6 ***		150	59
Thompson A	13	2	29	3	16 ***		150	50
Winnipeg Int'l A	23	5	37	7	0 ***		190	95

STATION	temperature mean	anom	max	min	precip. ptot	st	wind max dir	vel
Ontario								
Big Trout Lake	16	3	28	6	9 ***		030	52
Gore Bay A	22	4	32	8	0 ***		010	52
Kapuskasing A	18	3	32	0	38 ***		360	44
Kenora A	21	5	34	10	14 ***		040	80
London A	22	2	32	9	15 ***		280	65
Moosonee	16	3	35	5	52 ***		290	61
North Bay A	20	3	31	3	9 ***		340	50
Ottawa Int'l A	22	4	35	7	7 ***		340	52
Petawawa A	20	3	33	5	16 ***		350	48
Pickle Lake	18	4	32	7	5 ***		210	39
Red Lake A	18	3	33	6	7 ***		180	39
Sudbury A	21	4	31	5	0 ***		350	56
Thunder Bay A	19	4	34	2	16 ***		290	50
Timmins A	19	4	32	0	38 ***		270	56
Toronto(Pearson Int'l A)	22	3	33	6	0 ***		36	
Trenton A	22	2	31	7	12 ***		290	63
Wiarton A	22	3	31	6	1 ***		010	43
Windsor A	24	2	33	13	12 ***		200	63
Québec								
Bagotville A	17	2	30	3	23 ***		260	59
Blanc Sablon A	10P	400P	18P	0P	49P***		050	72
Inukjuak A	7	-1	11	3	6 ***		190	59
Kuujjuaq A	7	-2	15	1	5 ***		300	65
Kuujjuarapik A	10	0	22	2	12 ***		180	59
Maniwaki	19	3	31	5	28 ***		320	57
Mont Joli A	16	1	27	7	2 ***		230	54
Montréal Int'l A	21	2	31	6	34 ***		290	
Natashquan A	12	0	20	3	28 ***		300	41
Québec A	19	2	28	5	27 ***		360	46
Schefferville A	7P	-2P	17P	1P	2P***		350	104
Sept-Îles A	13	0	23	1	14 ***			X
Sherbrooke A	18	2	29	3	47 ***		320	39
Val-d'Or A	17	2	30	2	39 ***		340	80
Nouveau-Brunswick								
Chatham A	17	0	32	6	22 ***		250	48
Fredericton A	17P	0P	32P	6P	14P***		310	143
Miscou Island (aut)	400	400	400	400	400 ***			
Moncton A	17	0	30	3	40 ***		330	59
Saint John A	16	0	27	4	31 ***		320	57
Nouvelle-Écosse								
Greenwood A	18	0	29	5	26 ***		240	65
Shearwater A	17	0	27	7	12 ***		360	78
Sydney A	17	0	29	6	20 ***		260	74
Yarmouth A	16	0	24	8	7 ***		240	78
Île-du-Prince-Édouard								
Charlottetown A	17	0	28	6	30 ***		240	56
East Point (auto)	18P	400P	30P	12P	26P***			
Terre-Neuve								
Cartwright	9	-2	21	3	30 ***		320	96
Churchill Falls A	10	-1	20	3	28 ***		310	11
Gander Int'l A	13	-1	23	4	37 ***		290	59
Goose A	10	-3	24	1	8 ***		310	74
Port Aux Basques	14	0	21	6	19 ***		270	67
St John's A	15	1	22	6	7 ***		280	76
St Lawrence	14P	0P	22P	6P	0P***			X
Wabush Lake A	10	0	21	2	8 ***		300	65

91/08/26-91/09/01

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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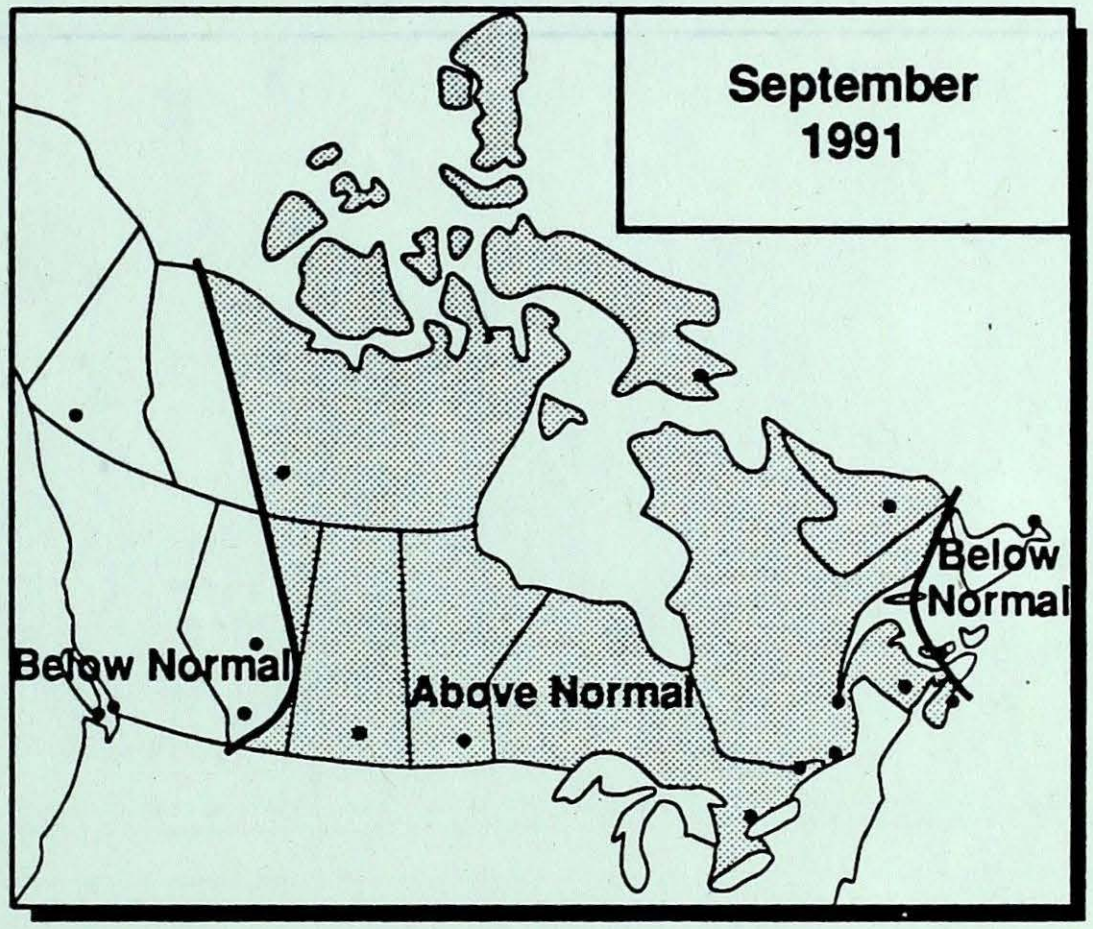
MONTHLY TEMPERATURE FORECAST

Normal temperatures for the month of September, °C

Whitehorse	8	Toronto	16
Yellowknife	7	Ottawa	14
Iqaluit	2	Montreal	15
Vancouver	14	Quebec	13
Victoria	14	Fredericton	13
Calgary	11	Halifax	15
Edmonton	10	Charlottetown	14
Regina	12	Goose Bay	9
Winnipeg	12	St. John's	12



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