Environment Canada Environnement Canada

Climatic Perspectives

July 15 to 21, 1991 **A weekly review of Canadian climate and water** *Vol. 13 No 29*

Heat wave sizzles Ontario and Quebec

A sweltering hot spell invaded Ontario, and extended eastward through Quebec into the Maritimes, causing discomfort to persons through day and night, parching already dry soils and accelerating the incidence of forest fires. Temperatures peaked at 35.7 degrees at Earlton in northern Ontario, near the heart of the fire zone, but were generally above 30 throughout Ontario and southern Quebec east to the Gaspé. Greenwood, Nova Scotia, reported a high of 34 degrees. There was some precipitation from showers, but it was unevenly distributed. Trenton, Ontario, received a meagre 2.2 mm, while the Abitibi region of Quebec exceeded 40 mm. The persisting warm, dry weather has caused a seasonally early drop in the levels of the lower Great Lakes and St. Lawrence River, but thanks to earlier rains lake levels have been above average this year.

Northern Quebec, like northern Manitoba received a deluge of rain, breaking long-term records as far north as Kuujuak, at the head of Ungava Bay. On the east coast of Hudson Bay, Kuujjuarapik received 65 mm, the greatest in one day since July 1933.

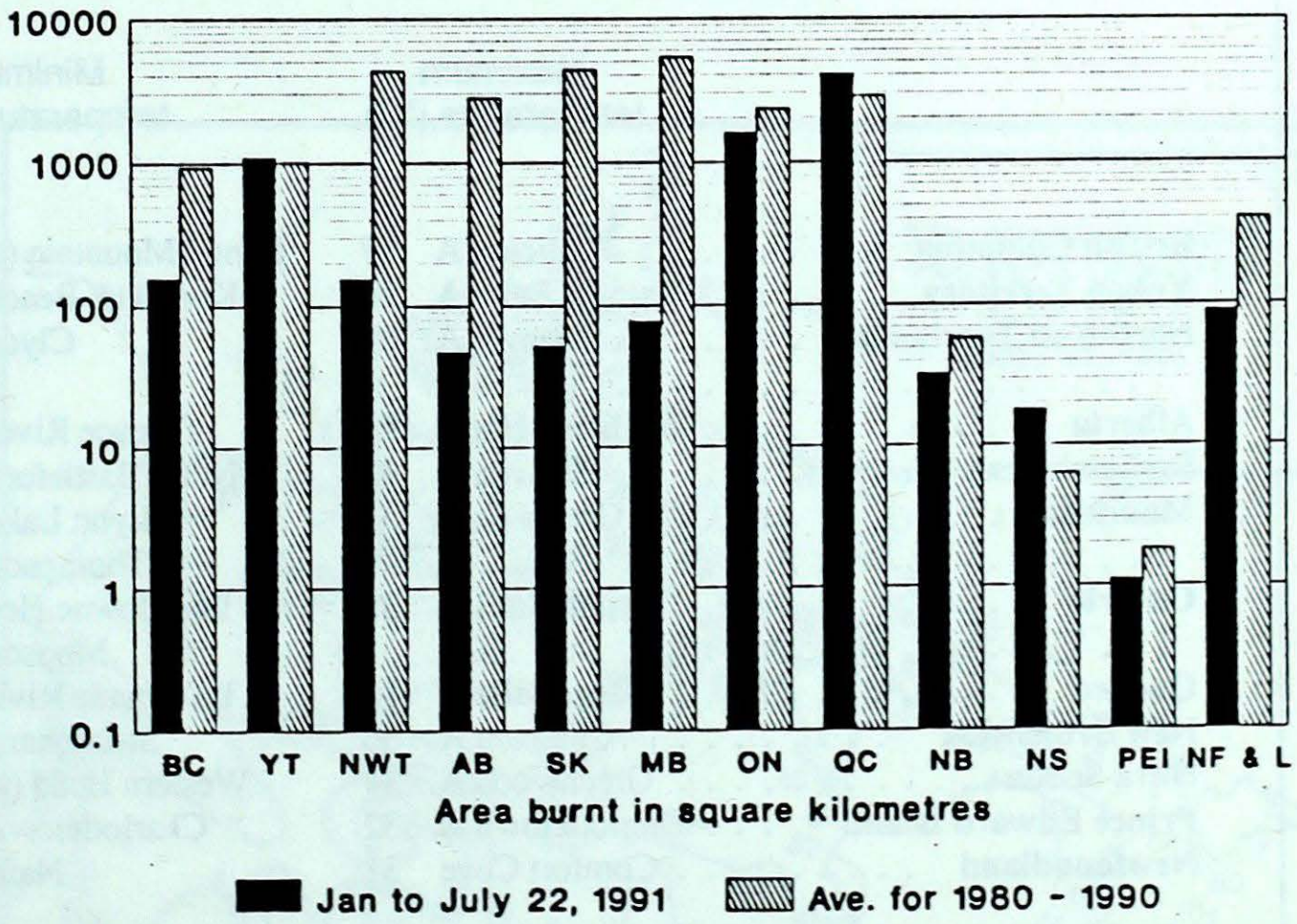
Severe weather peppered Manitoba with hail 20 mm in diameter covering the ground in Brandon, while in other areas maple trees were flattened and foundations were rocked by strong winds and heavy hail. Several sightings of funnel clouds were reported and one tornado went through a farmyard near Russell, but no significant crop or property damage occurred.

While localities in the Maritimes reported rainfalls in excess of 30 mm from thunderstorms, significant areas remain dry, favouring fire outbreaks in the areas of Antigonish and Shubenacadie. There is an overall need to conserve water, and municipalities have been requesting discretion in lawn watering, washing cars and other indulgences. Some farmers now have dry wells and must pay contractors to haul water for livestock.

A review of the areas burnt by forest fires this year reveals that droughty conditions in the provinces east of Manitoba (except Newfoundland) has led to above-average destruction. More unsettled weather in the West has protected more than the usual amount of forest land from fire, whereas warm, dry weather over northern Yukon has given the territory a more Eastern-like fire weather regime.

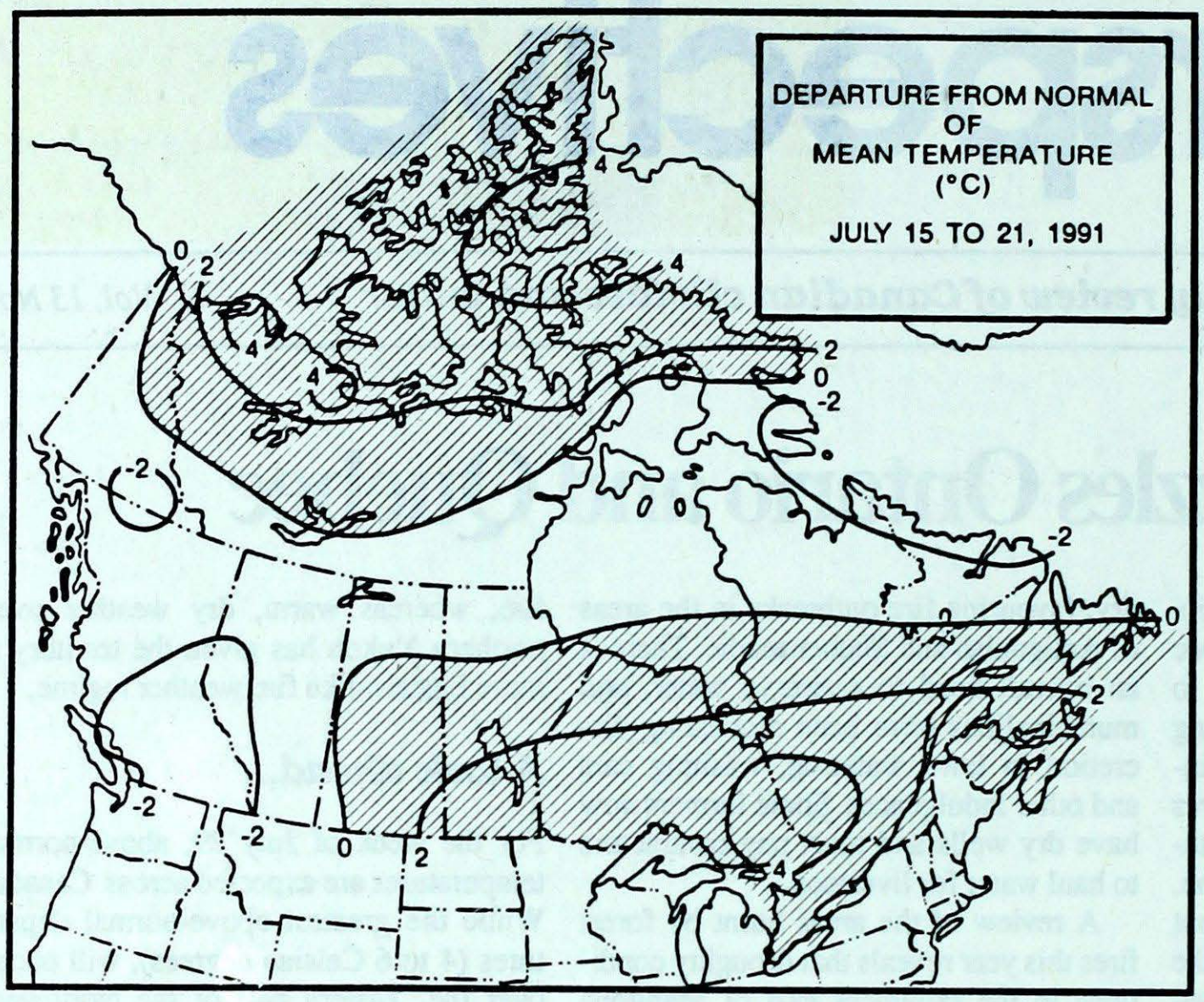
A look ahead...

For the week of July 29, above-normal temperatures are expected across Canada. While the greatest above-normal departures (4 to 6 Celsius degrees), will occur over the eastern half of the Northwest Territories and northern parts of Ontario and Quebec, conditions in British Columbia are expected to be close to normal.



The forested area burnt this year, up to July 22, 1991, has exceeded an 11-year annual average over much of eastern Canada. Hot, dry conditions in the East contrast with more unsettled weather in the West, where the fire incidence has been low. A logarithmic scale has been used because of the large range of data.

Canada



Weekly normal temperatures (°C)

	max.	min.
Whitehorse A	19.8	8.1
Iqaluit A	11.8	4.1
Yellowknife A	21.3	12.5
Vancouver Int'l A	22.2	12.9
Victoria Int'l A	22.1	11.1
Calgary Int'l A	24.0	10.0
Edmonton Int'l A	22.5	9.5
Regina A	27.0	12.2
Saskatoon A	26.1	12.1
Winnipeg Int'l A	26.6	13.9
Ottawa Int'l A	26.7	15.5
Toronto (Pearson Int'l A)	27.4	14.9
Montréal Int'l A	26.8	16.4
Québec A	25.4	14.0
Fredericton A	26.3	13.9
Saint John A	22.7	12.1
Halifax (Shearwater)	22.2	13.5
Charlottetown A	23.3	14.4
Goose A	21.4	10.2
St John's A	20.7	11.3

Weekly temperature and precipitation extremes

	Maximum temperature (°C)		Minimum temperature (°C)		Heaviest precipitation (mm)	
British Columbia	Penticton A	27	Puntzi Mountain (aut)	1	Blue River A	55
Yukon Territory	Shingle Point A	26	Komakuk Beach A	1	Watson Lake A	26
Northwest Territories	Inuvik A	29	Clyde A	-1	Coral Harbour A	29
					Cape Dorset A	29
Alberta	Medicine Hat A	29	Peace River A	2	High Level A	24
Saskatchewan	Estevan A	32	North Battleford A	4	Cree Lake	42
Manitoba	Gretna (aut)	33	Lynn Lake A	3	Lynn Lake A	52
			Thompson A	3		
Ontario	Toronto Int'l A	35	Lansdowne House	6	Kenora A	36
			Moosonee	6		
Quebec	Bagotville A	35	La Grande Rivière	3	Kuujjuaq A	88
New Brunswick	Chatham A	36	St-Léonard A	7	Moncton A	40
Nova Scotia	Greenwood A	34	Western Head (aut)	9	Sydney A	37
Prince Edward Island	Charlottetown A	32	Charlottetown A	14	Charlottetown A	12
Newfoundland	Comfort Cove	31	Nain A	2	St John's A	65

Across The Country...

Highest Mean Temperature	Windsor A (ONT)	26
Lowest Mean Temperature	Clyde A(NWT)	5

91/07/15-91/07/21

CLIMATIC PERSPECTIVES
VOLUME 13

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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.

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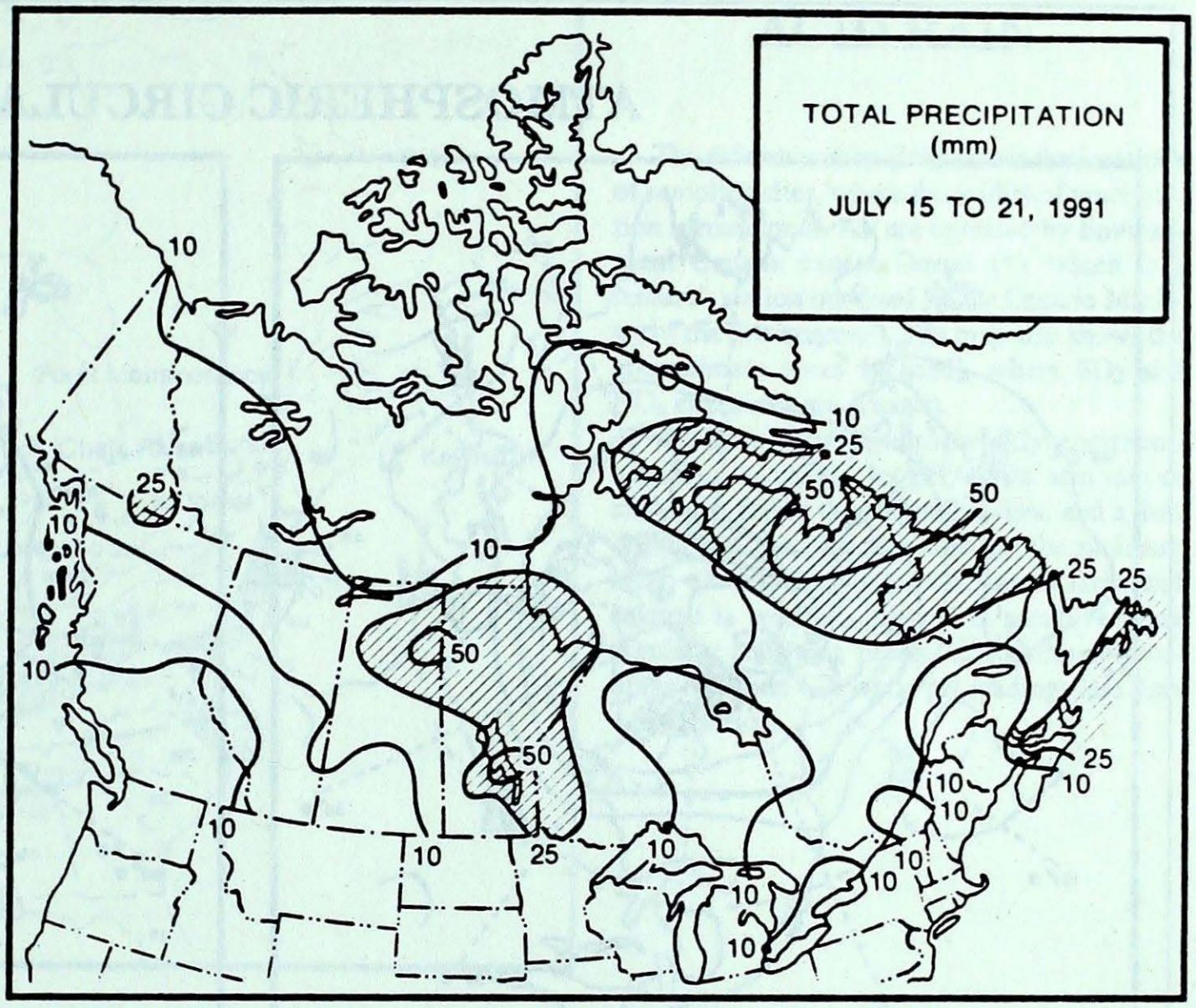
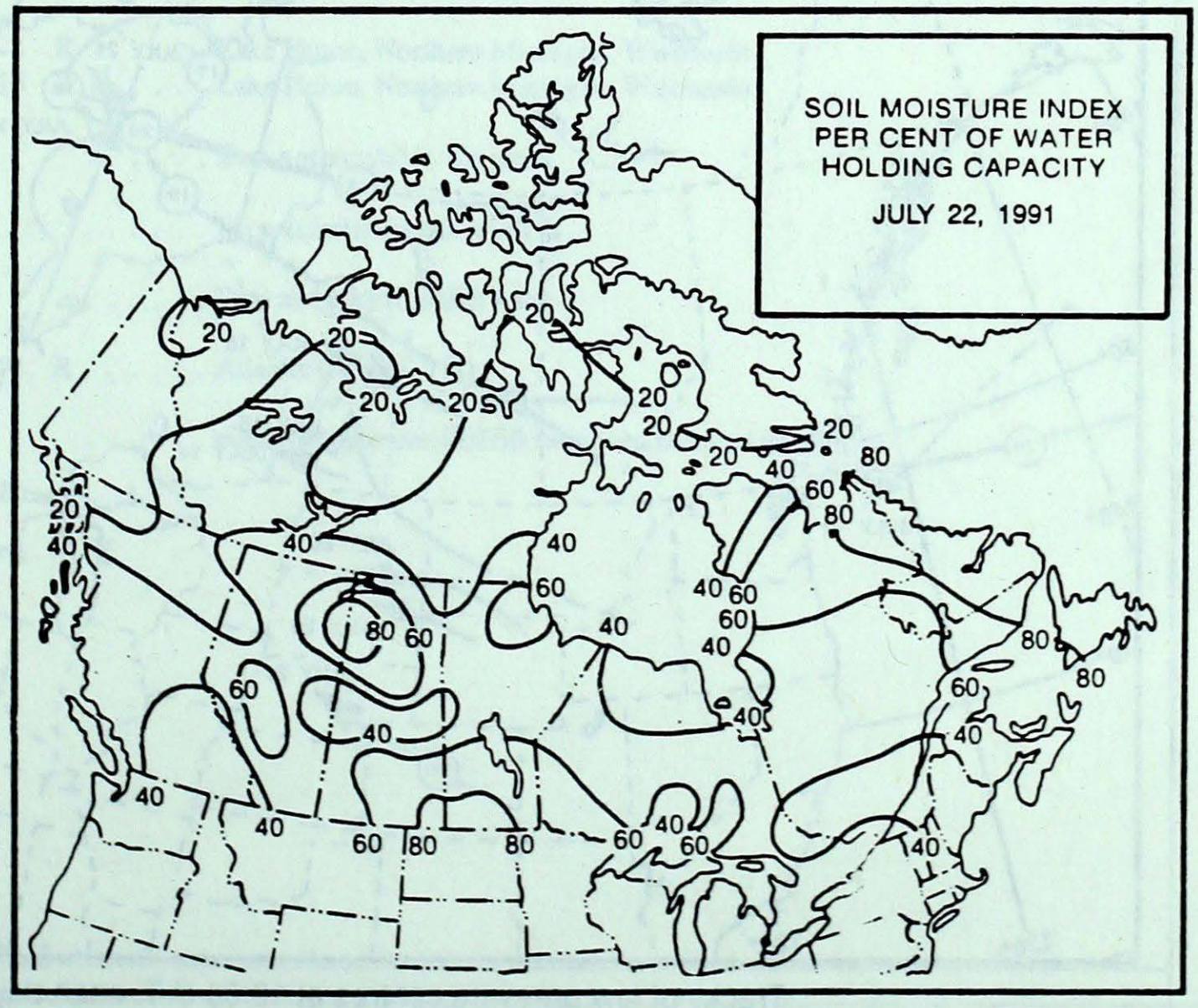
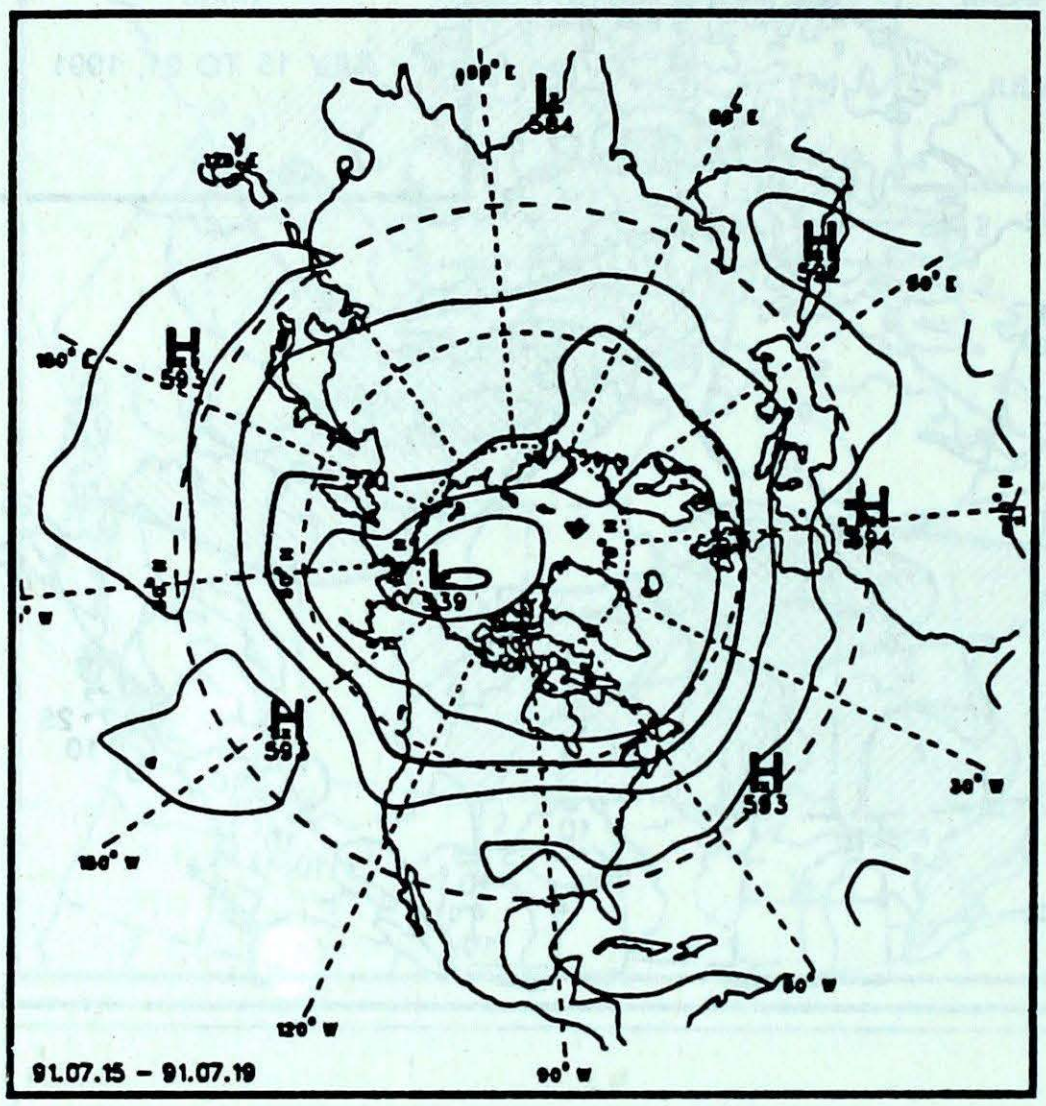
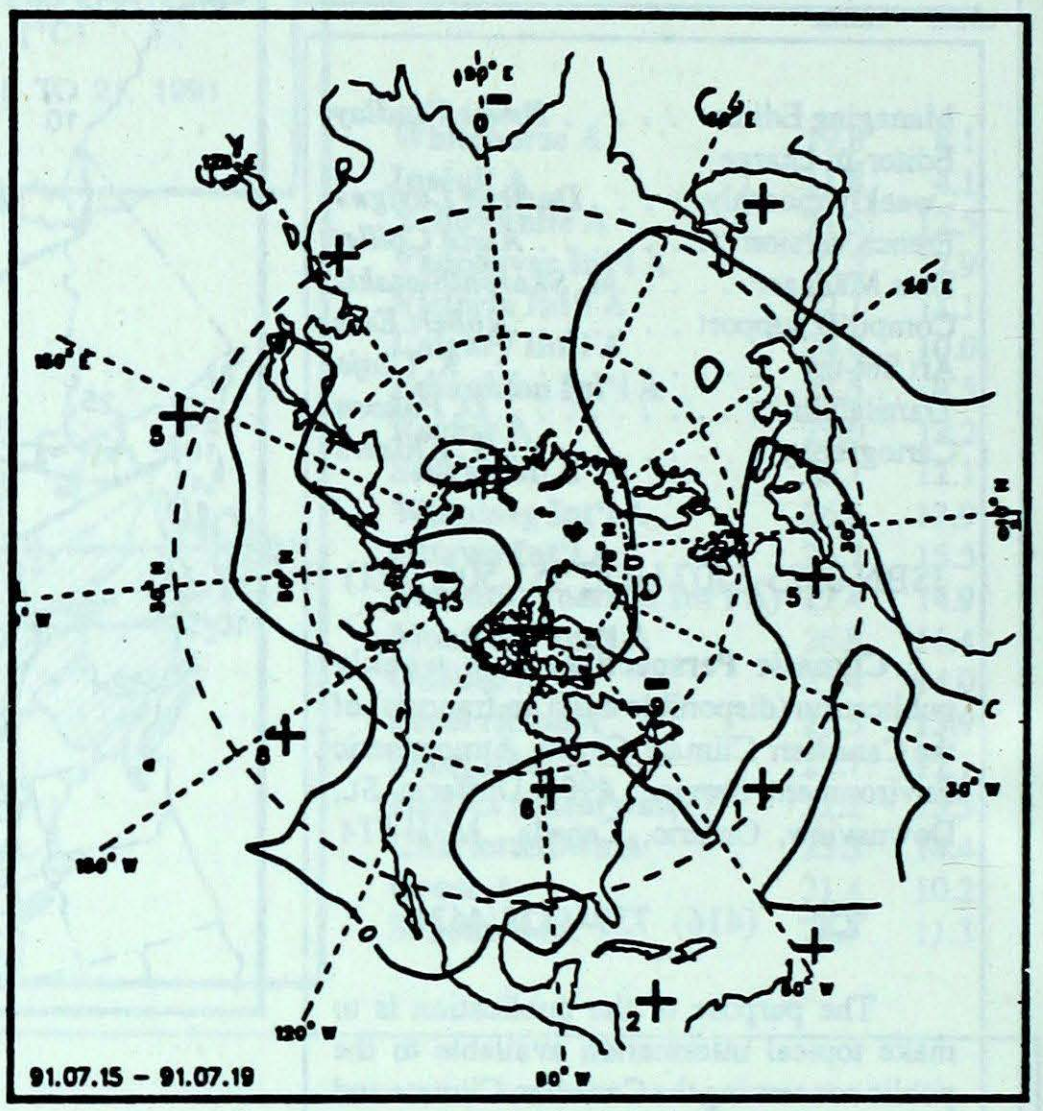




ATMOSPHERIC CIRCULATION



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



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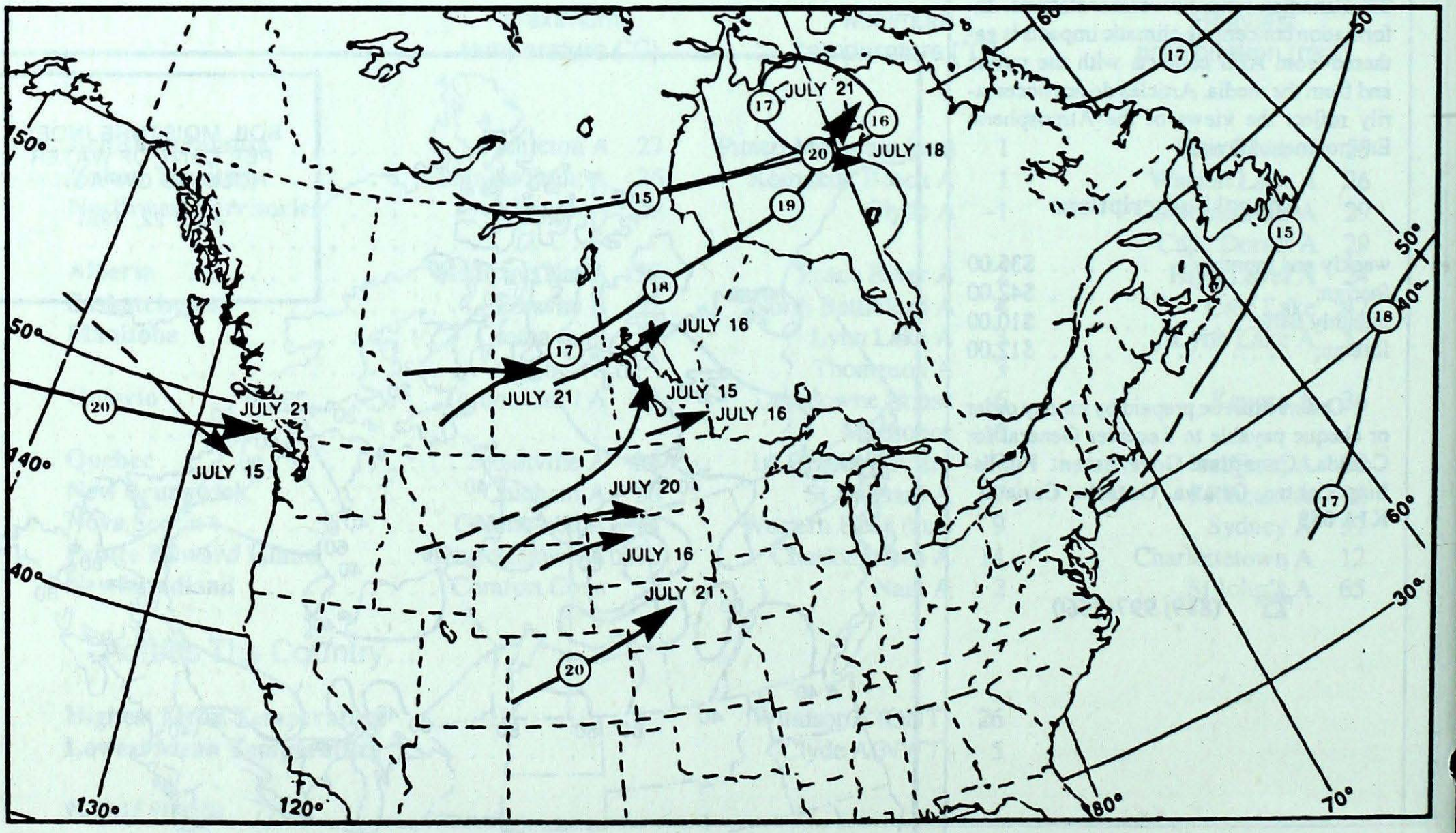
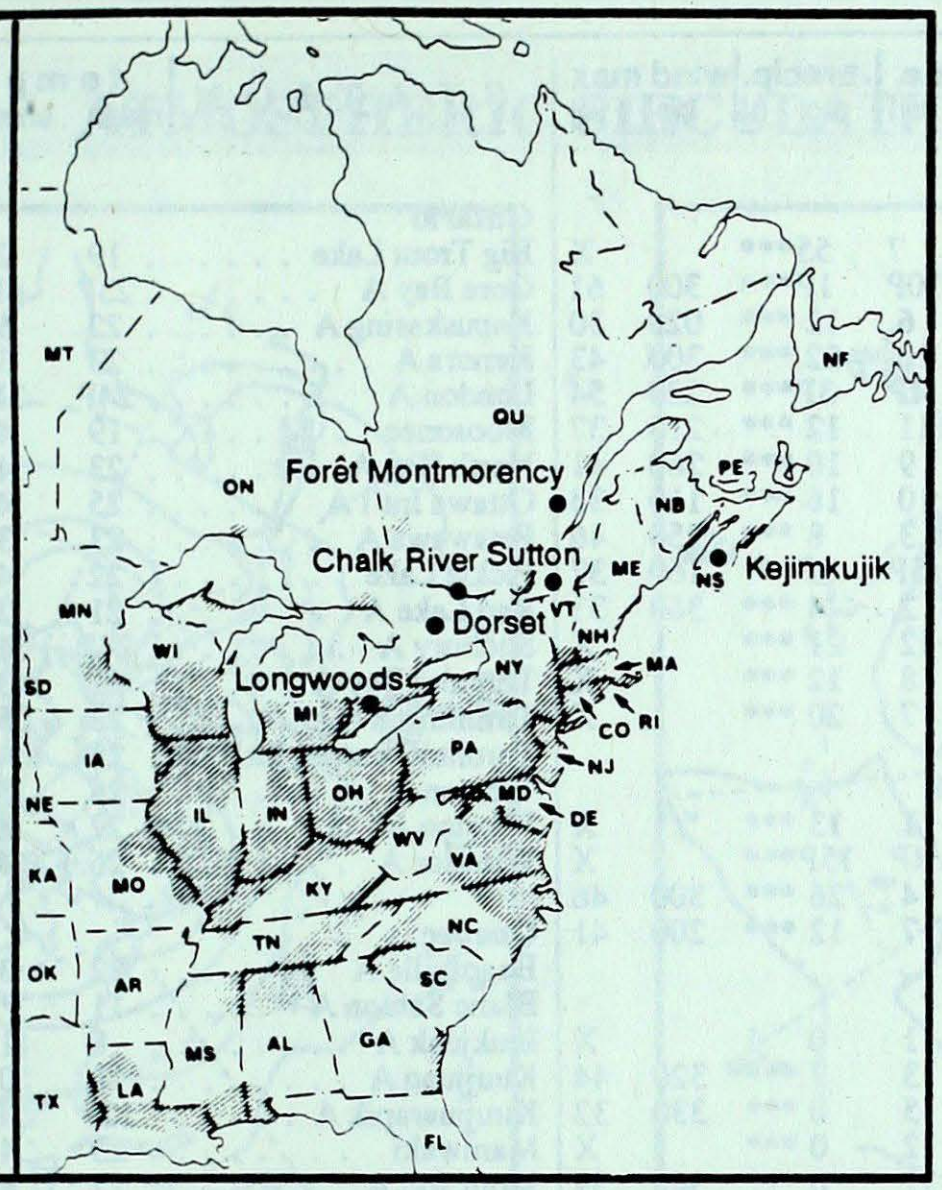


Tracks of low pressure centres at 12:00 U.T. each day during the period.

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



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.

Site	day	pH	amount		air path to site
					July 14 to 20, 1991
Longwoods					. . . . . No precipitation this week
Dorset*	17	4.4	4	R	. . . . . Lake Huron, Northern Michigan, Wisconsin
	20	3.9	15	R	. . . . . Lake Huron, Northern Michigan, Wisconsin
Chalk River					. . . . . Data not available this week
Sutton					. . . . . No precipitation this week
Montmorency					. . . . . Data not available this week
Kejimkujik	14	4.4	12	R	. . . . . Atlantic Ocean

. . . . . 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
British Columbia								
Blue River	14	-4	20	7	55***			X
Cape St James	14P	1P	18P	10P	1P***		300	61
Cranbrook A	16	-3	26	6	12 ***		020	30
Fort Nelson A	16	-1	24	10	22 ***		300	43
Fort St John A	15P	-1P	22P	7P	3P***		220	54
Kamloops A	19	-2	27	11	12 ***		210	37
Penticton A	19	-2	27	9	10 ***		260	41
Port Hardy A	14	0	20	10	16 ***		110	33
Prince George A	14	-1	21	3	8 ***		250	46
Prince Rupert A	12P	0P	18P	5P	1P***		160	37
Smithers A	13	-1	22	2	4 ***		360	33
Vancouver Int'l A	17	-1	22	12	21 ***			X
Victoria Int'l A	15	-1	22	8	12 ***			X
Williams Lake A	13	-2	19	7	20 ***			X
Yukon Territory								
Komakuk Beach A	7	-1	15	1	13 ***			X
Teslin (aut)	9P	*	13P	4P	15P***			X
Watson Lake A	12	-3	21	4	26 ***		300	46
Whitehorse A	13	-1	23	7	12 ***		200	41
Northwest Territories								
Alert	5	2	13	1	0	1		X
Baker Lake A	11	-1	22	3	7 ***		320	44
Cambridge Bay A	11	3	19	5	0 ***		330	32
Cape Dyer A	8	2	15	2	0 ***			X
Clyde A	5	0	13	-1	0 ***		340	39
Coppermine A	14P	6P	24P	4P	0P***		170	41
Coral Harbour A	7P	-2P	14P	2P	29P***		072	56
Eureka	9	3	16	2	0 ***		160	35
Fort Smith A	17P	0P	26P	8P	10P***		160	48
Hall Beach A	5	-1	14	1	4 ***		360	32
Inuvik A	17	3	29	8	0 ***		300	41
Iqaluit A	6	-2	13	2	11 ***		150	50
Mould Bay A	6	3	14	1	0	1	180	37
Norman Wells A	19	2	28	13	23 ***		300	46
Resolute A	9	5	16	3	0 ***		080	74
Yellowknife A	18	1	25	12	0 ***		100	35
Alberta								
Calgary Int'l A	16	-1	25	7	3 ***		270	70
Cold Lake A	17	0	27	8	4 ***		280	56
Edmonton Namao A	17	-1	26	9	4 ***		310	48
Fort McMurray A	16	-1	24	7	16 ***		270	67
High Level A	15	-1	23	6	24 ***		210	50
Jasper	13	-3	20	5	21 ***			X
Lethbridge A	18	-2	28	8	0 ***		240	63
Medicine Hat A	19P	-2P	29P	8P	0P***		230	63
Peace River A	14	-2	24	2	5 ***		280	44
Saskatchewan								
Cree Lake	15	0	22	10	42 ***			X
Estevan A	23P	2P	32P	12P	5P***		320	70
La Ronge A	18	1	28	8	29 ***		270	44
Regina A	22	2	32	10	3 ***		310	56
Saskatoon A	19	0	30	9	8 ***		280	46
Swift Current A	19	0	29	8	0 ***		250	52
Yorkton A	21	2	30	11	24 ***		330	72
Manitoba								
Brandon A	21	2	31	11	18 ***		310	78
Churchill A	12	-1	22	4	47 ***		360	67
Lynn Lake A	13	-2	24	3	52 ***		280	46
The Pas A	20	2	30	10	16 ***		340	59
Thompson A	16	0	29	3	29 ***		350	70
Winnipeg Int'l A	23	3	32	15	14 ***		170	70

STATION	temperature mean	anom	max	min	precip. ptot	st	wind max dir	vel
Ontario								
Big Trout Lake	19	2	29	9	2 ***		290	56
Gore Bay A	23P	4P	30P	15P	3P***		250	39
Kapuskasing A	22	5	34	12	3 ***		230	48
Kenora A	23	3	32	15	36 ***		270	78
London A	24P	3P	33P	10P	12P***		240	124
Moosonee	19	4	34	6	5 ***		240	52
North Bay A	23	4	33	12	4 ***		240	48
Ottawa Int'l A	25	4	35	15	13 ***		220	43
Petawawa A	23	3	35	8	14 ***		250	46
Pickle Lake	22	4	31	9	13 ***		240	63
Red Lake A	21	2	31	10	19 ***		320	54
Sudbury A	24P	5P	34P	14P	10P***		240	52
Thunder Bay A	21	3	33	10	17 ***		290	46
Timmins A	23	5	34	9	5 ***		210	48
Toronto(Pearson Int'l A)	25	4	35	12	0 ***		320	52
Trenton A	24	3	33	12	2 ***		260	56
Wiarton A	22	3	32	11	14 ***		230	37
Windsor A	26	4	35	15	0 ***		240	43
Quebec								
Bagotville A	22	3	35	10	13 ***		280	72
Blanc Sablon A	11	*	22	5	20 ***		090	41
Inukjuak A	8	-1	13	4	24 ***		250	63
Kuujjuaq A	12	0	27	3	88 ***		240	48
Kuujjuarapik A	12P	1P	28P	3P	20P***		240	69
Maniwaki	23	4	34	8	3 ***		230	35
Mont Joli A	22	4	32	13	6 ***		230	56
Montréal Int'l A	25	3	33	14	3 ***		230	39
Natashquan A	15	0	23	9	6 ***		260	44
Québec A	23	3	33	11	4 ***		240	54
Schefferville A	11	-2	21	3	37 ***		300	70
Sept-Îles A	17	1	27	8	10 ***		310	44
Sherbrooke A	21	2	32	8	12 ***		240	44
Val-d'Or A	22	5	33	6	19 ***		230	59
New Brunswick								
Chatham A	24	4	36	13	1 ***		250	43
Miscou Islannd	20P	1P	31P	11P	0P***			XP
Fredericton A	23	3	35	10	6 ***		340	52
Moncton A	22	3	33	12	40 ***		300	56
Saint John A	21	3	30	11	2 ***		220	52
Nova Scotia								
Greenwood A	23	4	34	12	4 ***		250	61
Shearwater A	22	4	31	15	2 ***		330	37
Sydney A	21	3	33	11	37 ***		270	50
Yarmouth A	19	2	27	12	3 ***		230	37
Prince Edward Island								
Charlottetown A	22	3	32	14	12 ***		260	48
East Point (auto)	20P	*	27P	14P	8P***			
Newfoundland								
Cartwright	11	-2	20	2	37 ***		350	56
Churchill Falls A	13	-1	23	4	37 ***		260	74
Gander Int'l A	17	1	30	8	11 ***		270	50
Goose A	15	-1	24	7	34 ***		290	56
Port Aux Basques	15	2	23	9	12 ***		270	44
St John's A	16	0	28	7	65 ***		250	56
St Lawrence	15	2	23	9	32 ***			X
Wabush Lake A	14P	0P	24P	4P	26P***		310	48

91/07/15-91/07/21

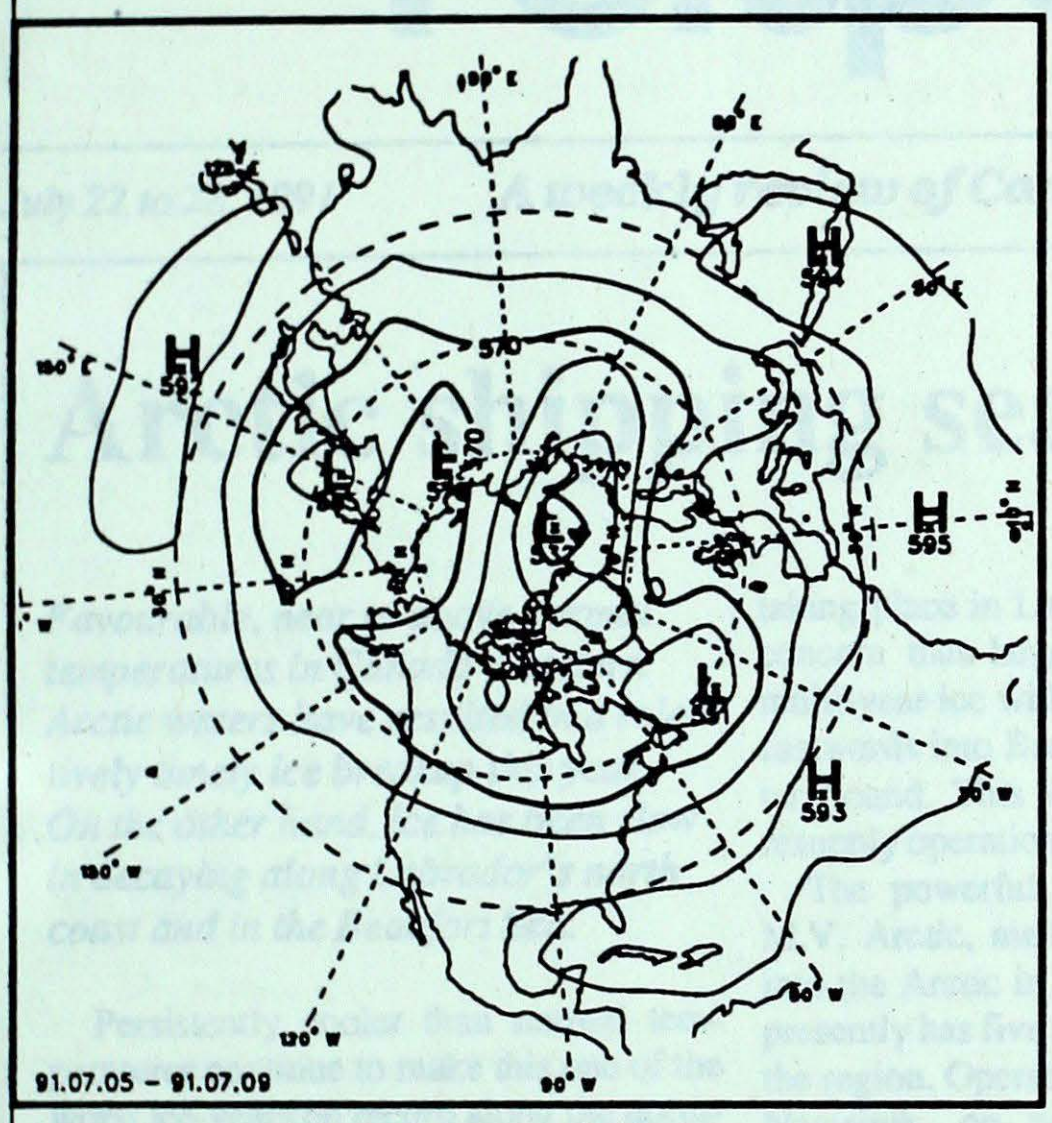
mean = mean weekly temperature, °C
max = maximum weekly temperature, °C
min = minimum weekly temperature, °C
anom = mean temperature anomaly, °C

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

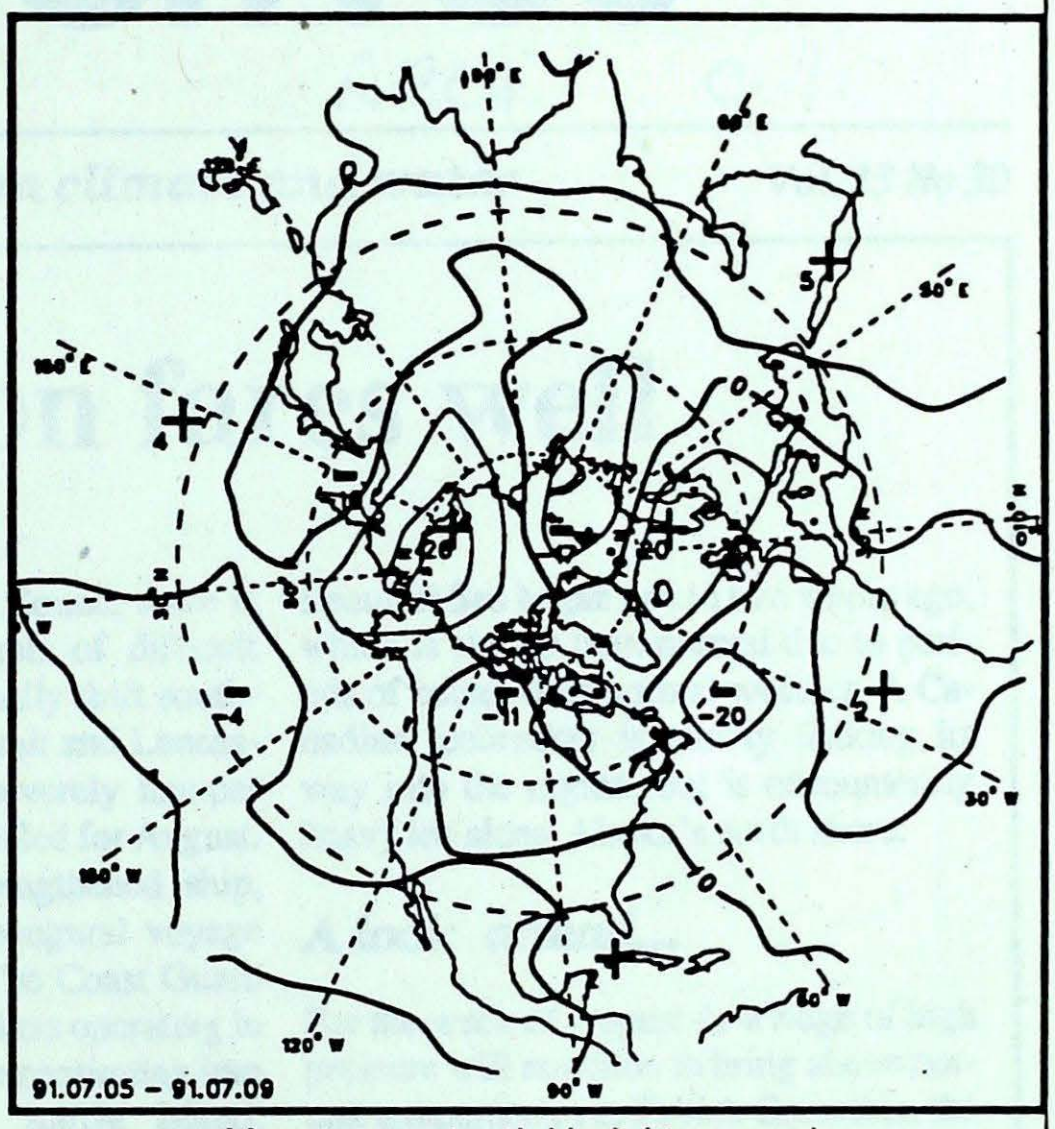
— Annotations —

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

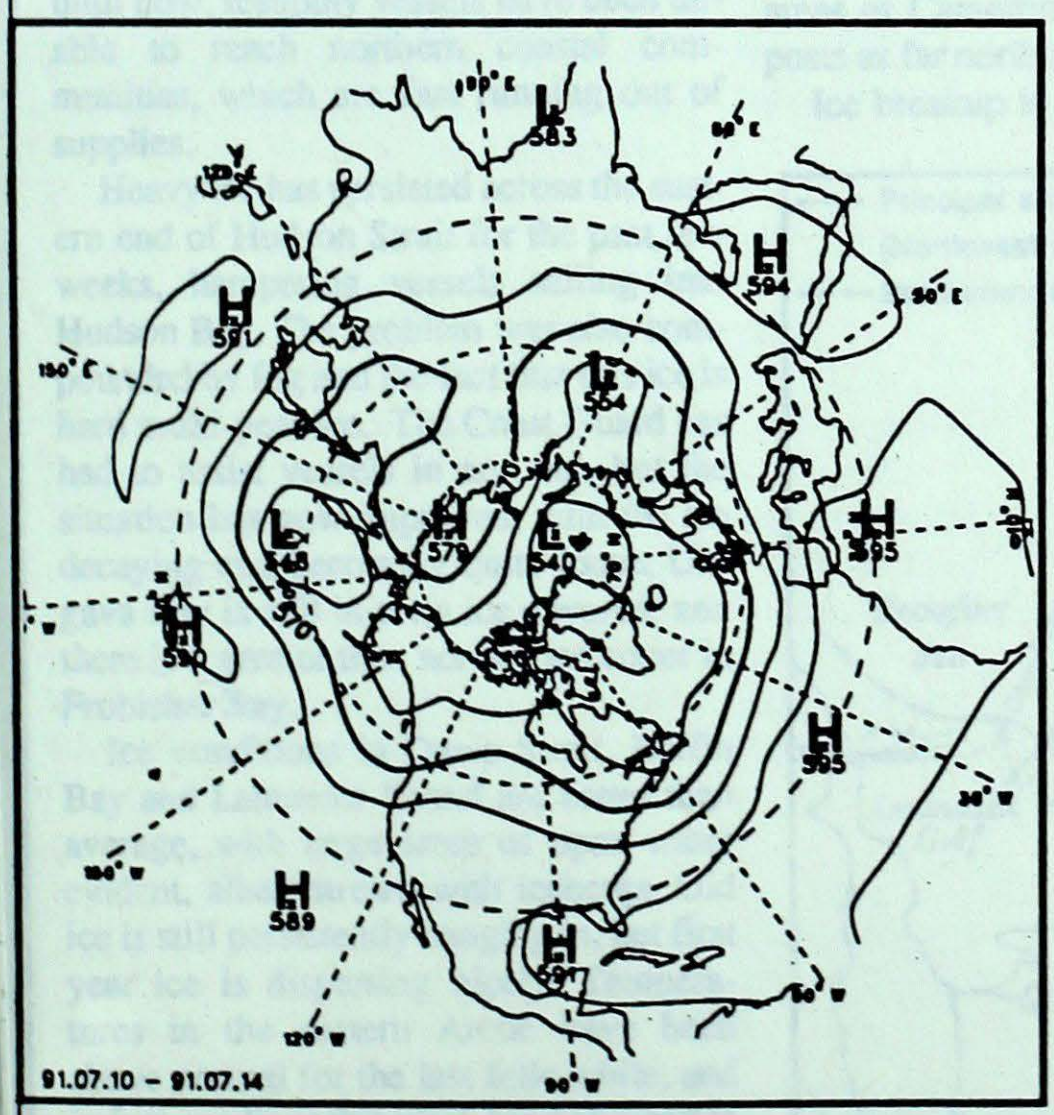
ATMOSPHERIC CIRCULATION



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



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



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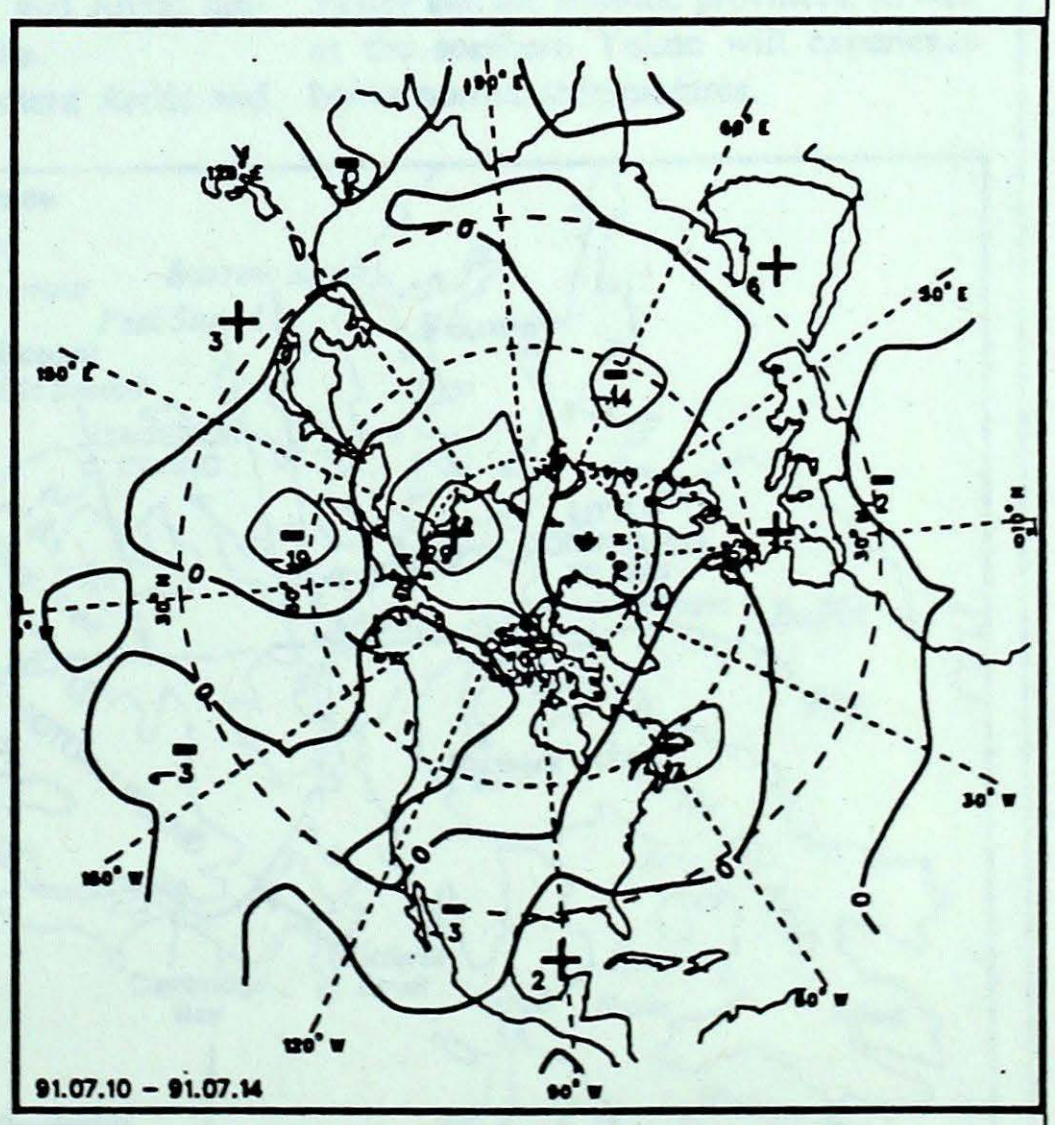

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50-kPa level (10-decametre intervals)