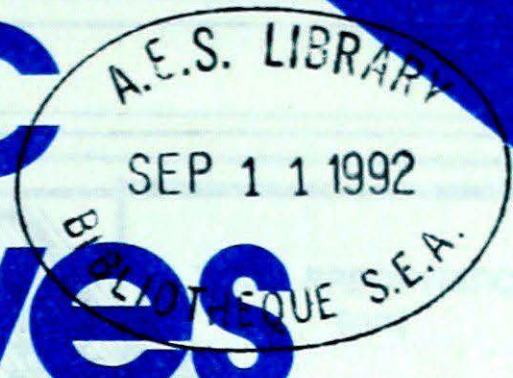




Climatic Perspectives



June 22 to 28, 1992

A weekly review of Canadian climate and water

Vol. 14 No. 26

Good prospects for Arctic marine shipping

The outlook for Arctic marine operations this year is optimistic, thus far; however, in some parts of the Hudson Bay region the ice breakup is expected to occur one to two weeks later than normal. A very stable position of the Arctic vortex, over northern Baffin Island during last winter and spring, has been responsible for more than 22 consecutive weeks of below normal temperatures. Over the Ungava and Hudson Bay regions this cold weather regime has meant an above normal number of the freezing degree days and a greater than normal sea-ice thickness. In the High Arctic, and over the western Arctic, the number of freezing degree days and the ice conditions were generally close to normal.

The development of the open water passage, for Arctic commercial ships, depends on both the initial ice conditions, as well as the meteorological parameters; like temperature, winds and cloudiness. In the Hudson Bay and Ungava regions,

where thicker than normal ice developed this year, and with the long range forecast of below-normal temperatures for mid-June to mid-July, the ice breakup and clearing could occur about one to two weeks later than normal. However, this situation is not considered serious enough to alter commercial shipping schedules.

The first Arctic supply ship will leave Montréal on the second week of July, and pass by the open channels near the frozen Labrador coast, en route toward the Hudson and Ungava bay communities. Although the Arctic supply ships are heavily reinforced to be able to deal with ice and stormy weather, it is very likely that, at the beginning of the season, they will require the assistance of ice breakers.

It is too early to assess the shipping situation in more northerly parts of the Arctic. In both Baffin Bay and Davis Strait, the present ice pack consists of closely concentrated thick and medium first year ice, with a trace of old ice; however, breakup is progressing ahead of schedule in northwestern Baffin Bay and

in Lancaster Sound, improving prospects for resupplying settlements and mining communities. Even though southern Beaufort Sea remains covered with close pack, thick, first year ice, the breakup is forecasted to occur in near-normal time.

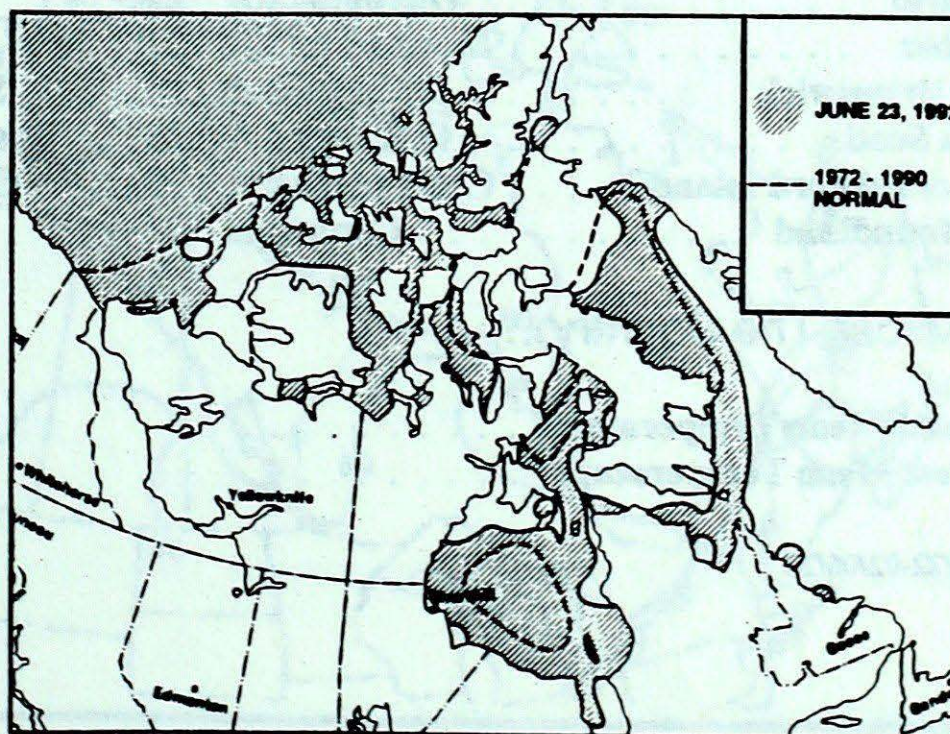
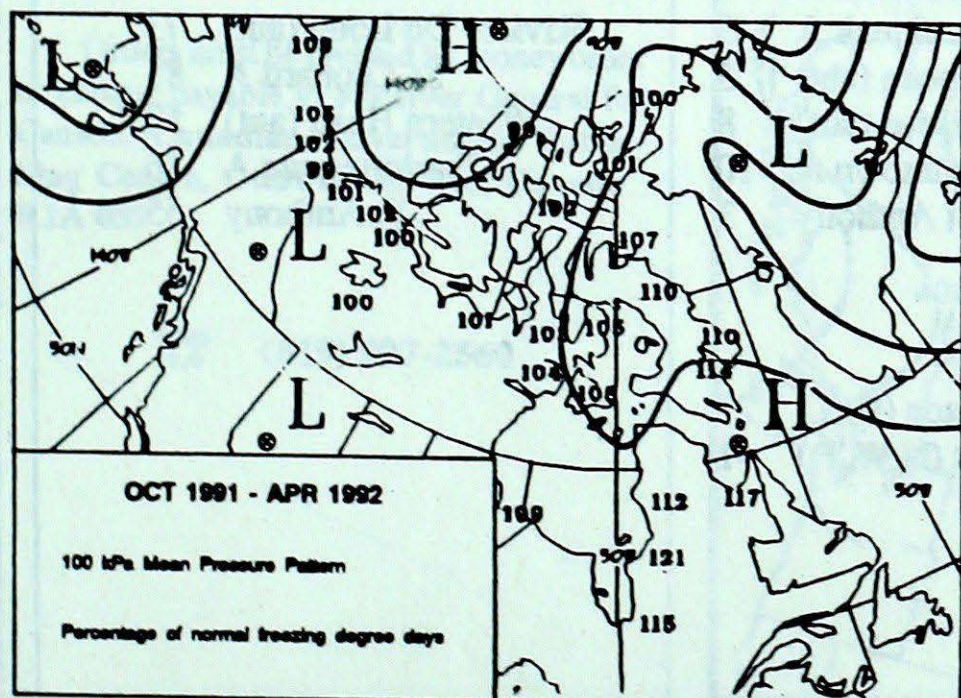
The ships going along the western Alaska coast, at the beginning of the marine season, could require the assistance of ice-breakers, but in general, the outlook for the Arctic marine operations looks normal. As the season progresses, the temperature, cloud and wind conditions will determine the extent to which the sea-ice will affect the marine traffic.

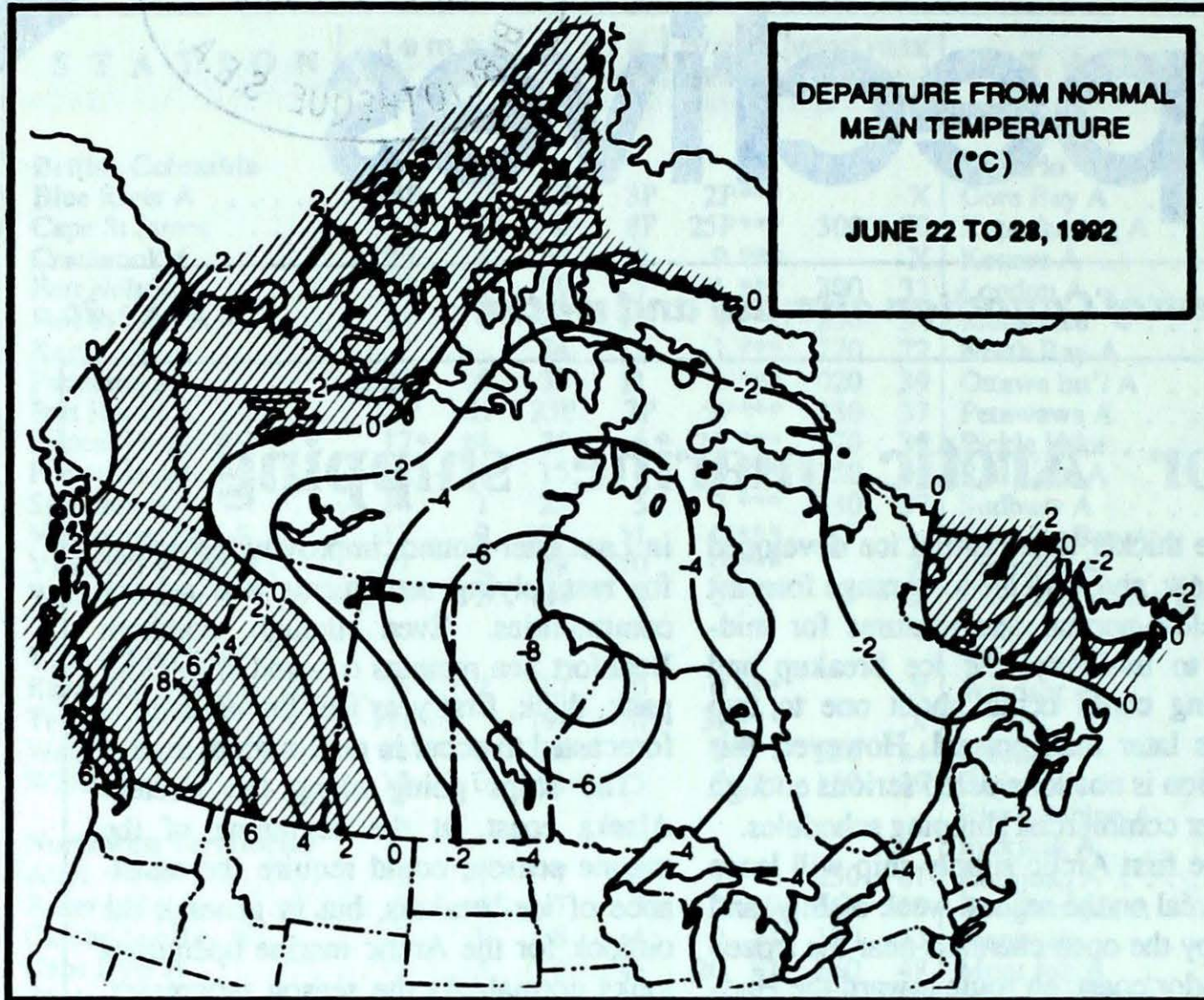
A look ahead...

For the week of July 6, a broad ridge of high pressure over western Canada will combine with a centre of low pressure over the Great Lakes to give, generally, above normal temperatures to the provinces west of Saskatchewan and below normal readings to Saskatchewan and all regions eastward.

Average winter conditions

Sea-ice conditions





Weekly normal temperatures (°C)

	max.	min.
Whitehorse A	18.7	6.5
Iqaluit A	8.9	1.9
Yellowknife A	19.5	10.3
Vancouver Int'l A	19.4	11.2
Victoria Int'l A	19.1	9.8
Calgary Int'l A	20.7	8.0
Edmonton Int'l A	20.9	8.0
Regina A	23.8	10.2
Saskatoon A	23.5	10.0
Winnipeg Int'l A	24.8	12.1
Ottawa Int'l A	24.9	13.7
Toronto Int'l A	25.1	12.7
Montréal Int'l A	25.0	14.6
Québec A	23.5	11.9
Fredericton A	24.3	11.6
Saint John A	20.9	9.8
Halifax (Shearwater)	20.4	10.9
Charlottetown A	21.4	11.6
Goose A	17.8	7.0
St John's A	17.7	7.9

Weekly temperature and precipitation extremes

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Lytton 38	Dease Lake 1	Clinton (aut) 20
Yukon Territory	Dawson A 31	Komakuk Beach A -1	Mayo A 13
		Shingle Point A -1	
Northwest Territories	Inuvik A 27	Hall Beach A -5	Fort Smith A 30
Alberta	Medicine Hat A 33	Fort McMurray A 2	Calgary Int'l A 38
Saskatchewan	Moose Jaw A 33	Meadow Lake A 3	Cree Lake 42
Manitoba	Brandon A 32	Churchil A -3	Gretna (aut) 30
Ontario	Ottawa Int'l A 27	Moosonee -4	Kenora A 66
Quebec	Montréal Int'l A 27	Inukjuak A -3	Riviere Du Loup (aut) 73
New Brunswick	Fredericton A 26	St Stephen (aut) 5	St-Léonard A 85
Nova Scotia	Greenwood A 25	Western Head (aut) 8	Western Head (aut) 52
Prince Edward Island	Charlottetown A 23	Charlottetown A 10	Charlottetown A 16
Newfoundland	Cartwright 24	St Anthony 3	St Anthony 55

Across The Country...

Highest Mean Temperature	Lytton (B.C.) 27
Lowest Mean Temperature	Alert (N.W.T.) -1

92/06/22-92/06/28

CLIMATIC PERSPECTIVES
VOLUME 14

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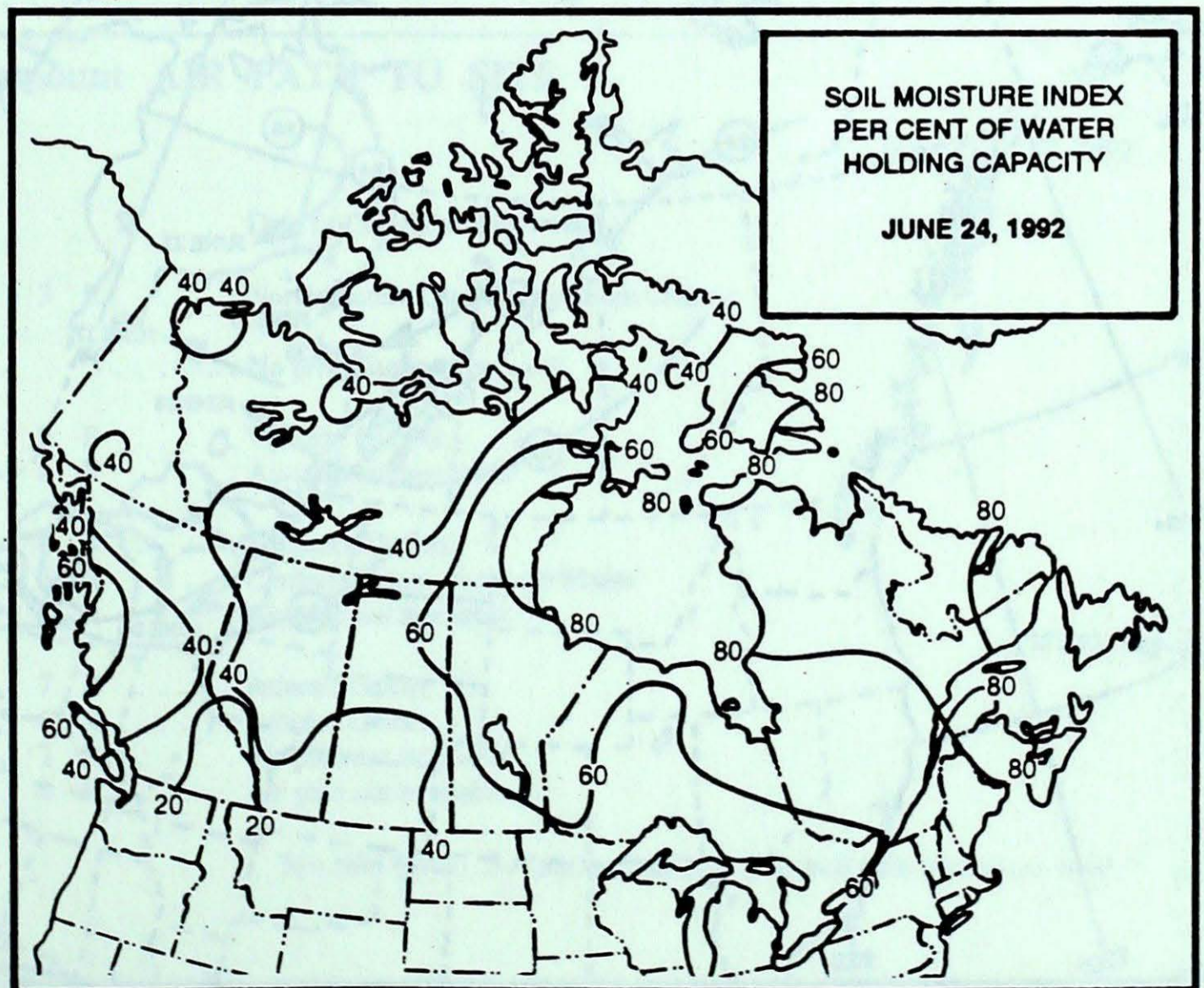
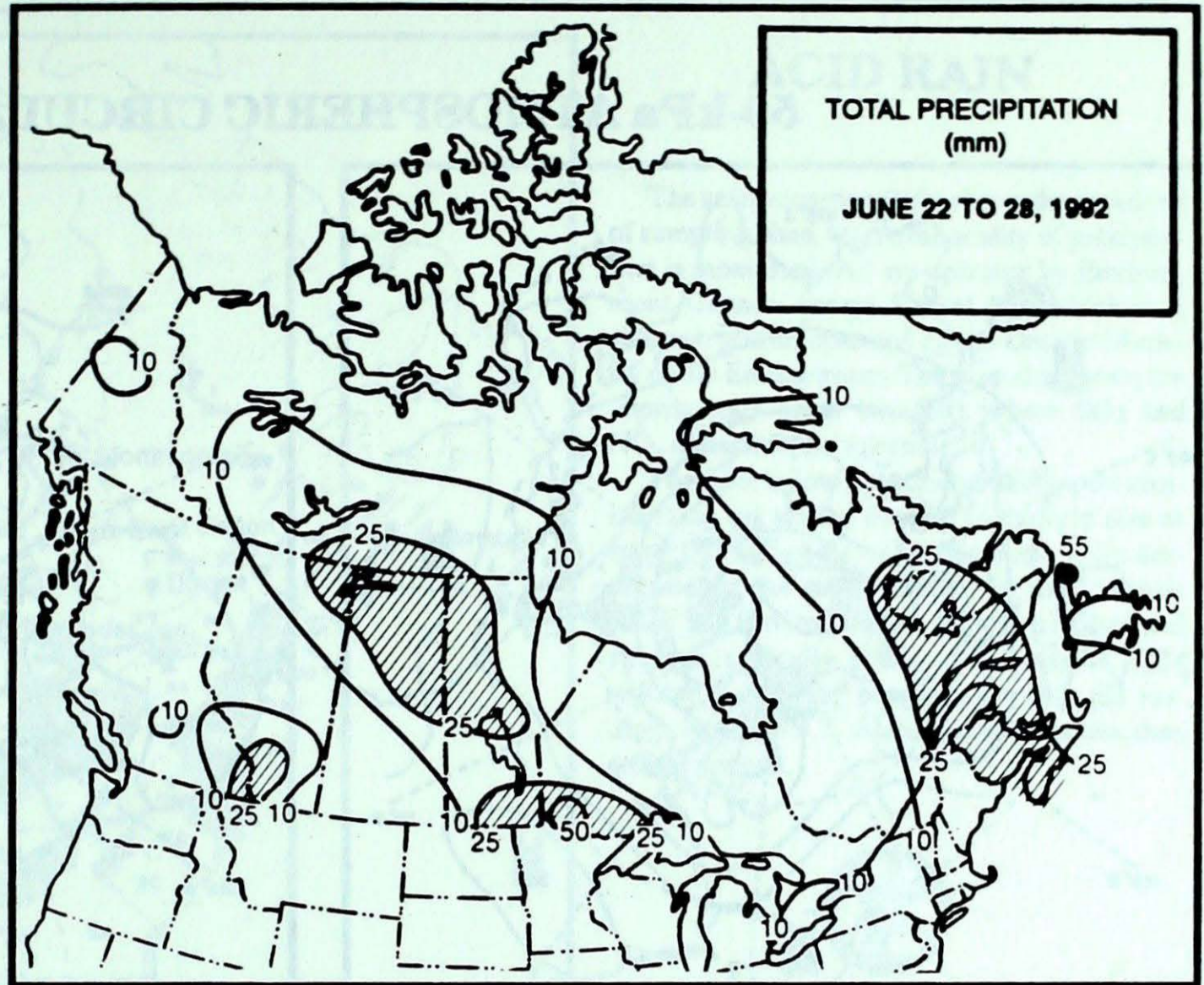
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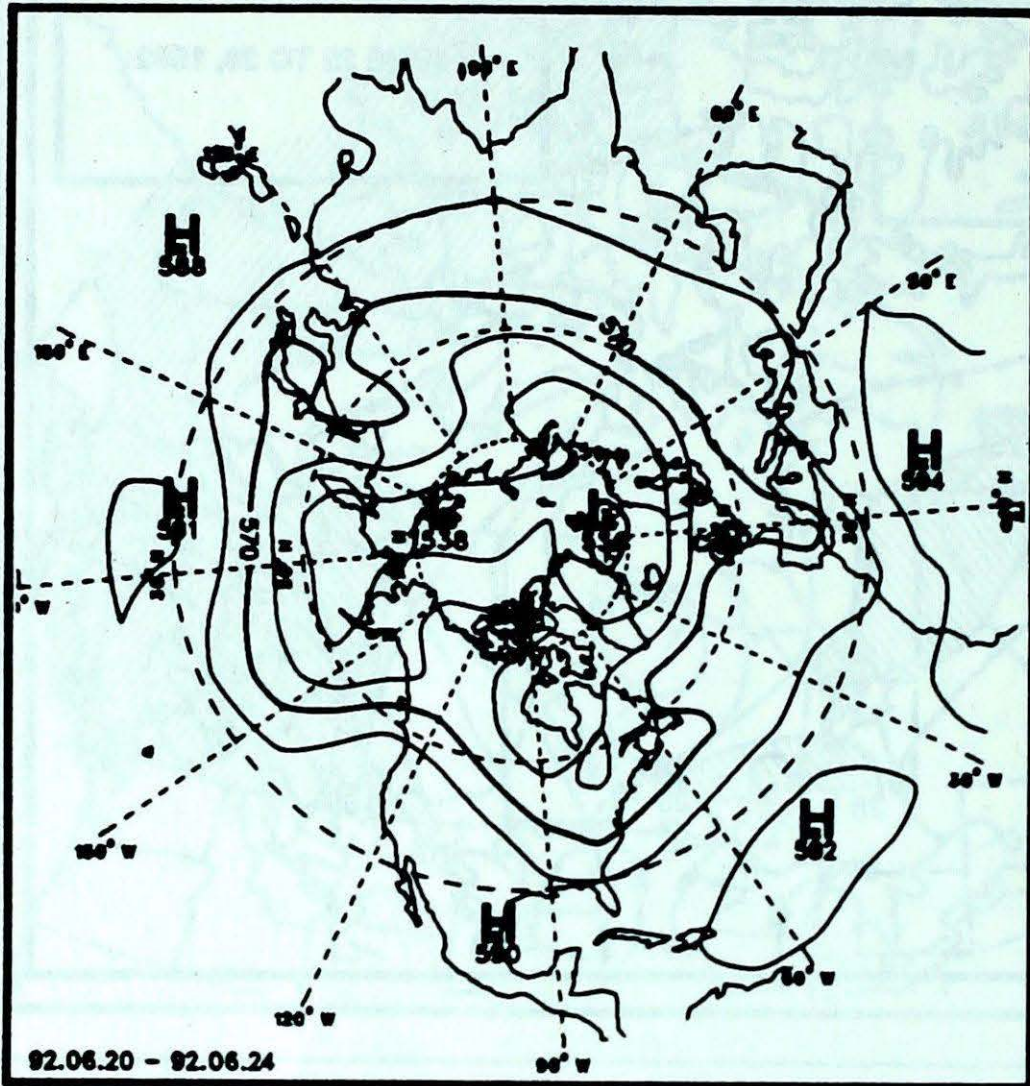
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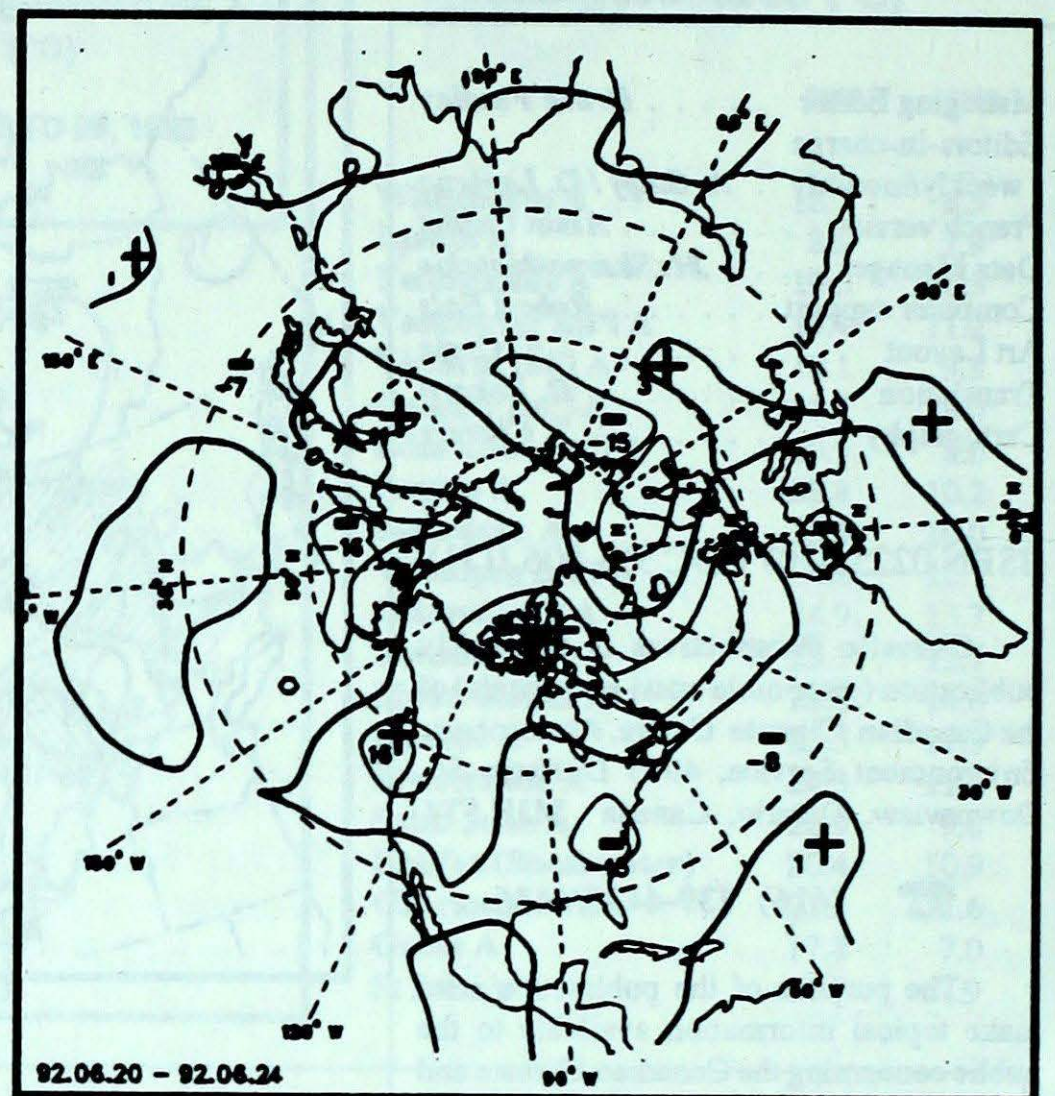
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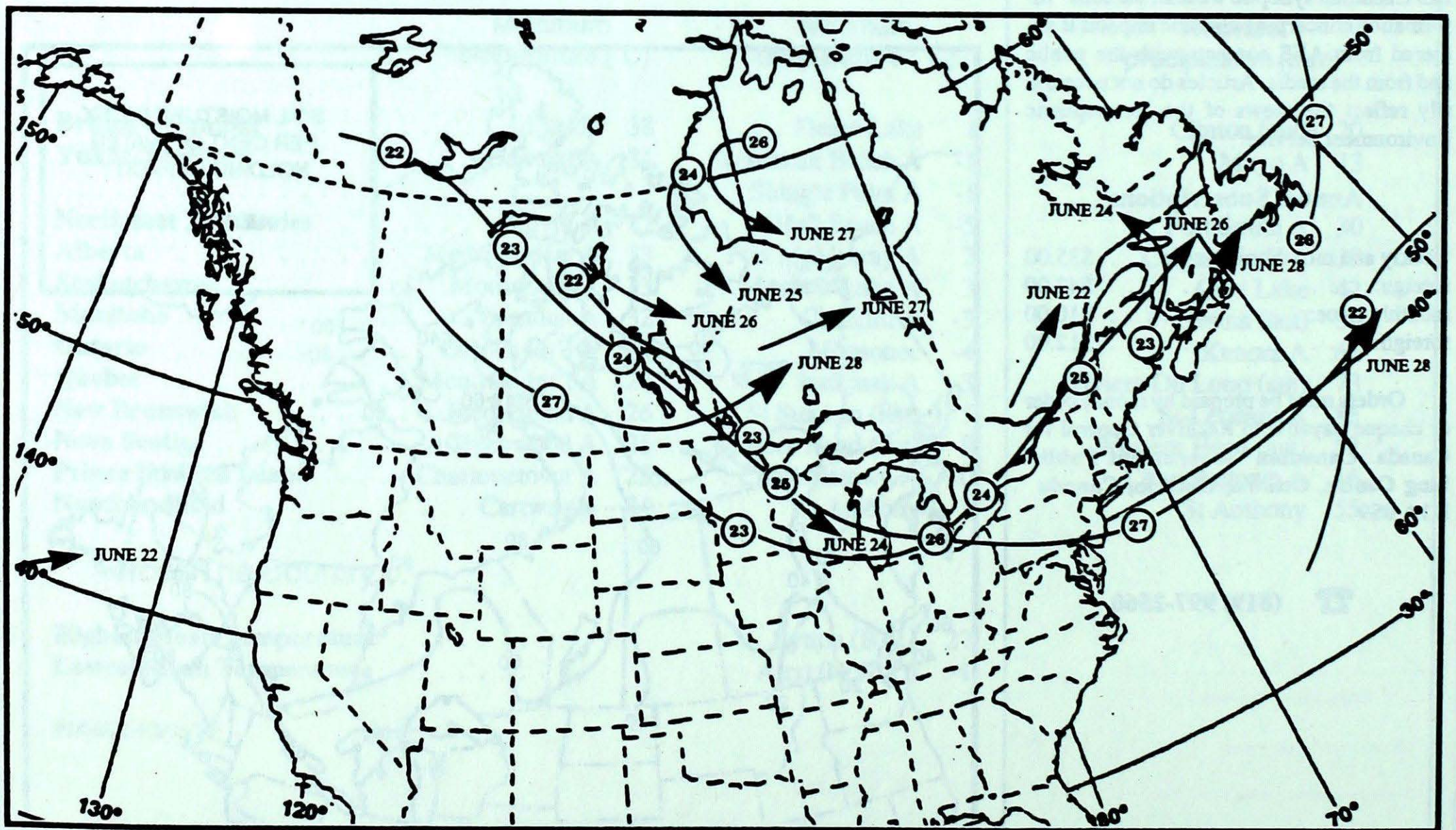
50-kPa ATMOSPHERIC CIRCULATION



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



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

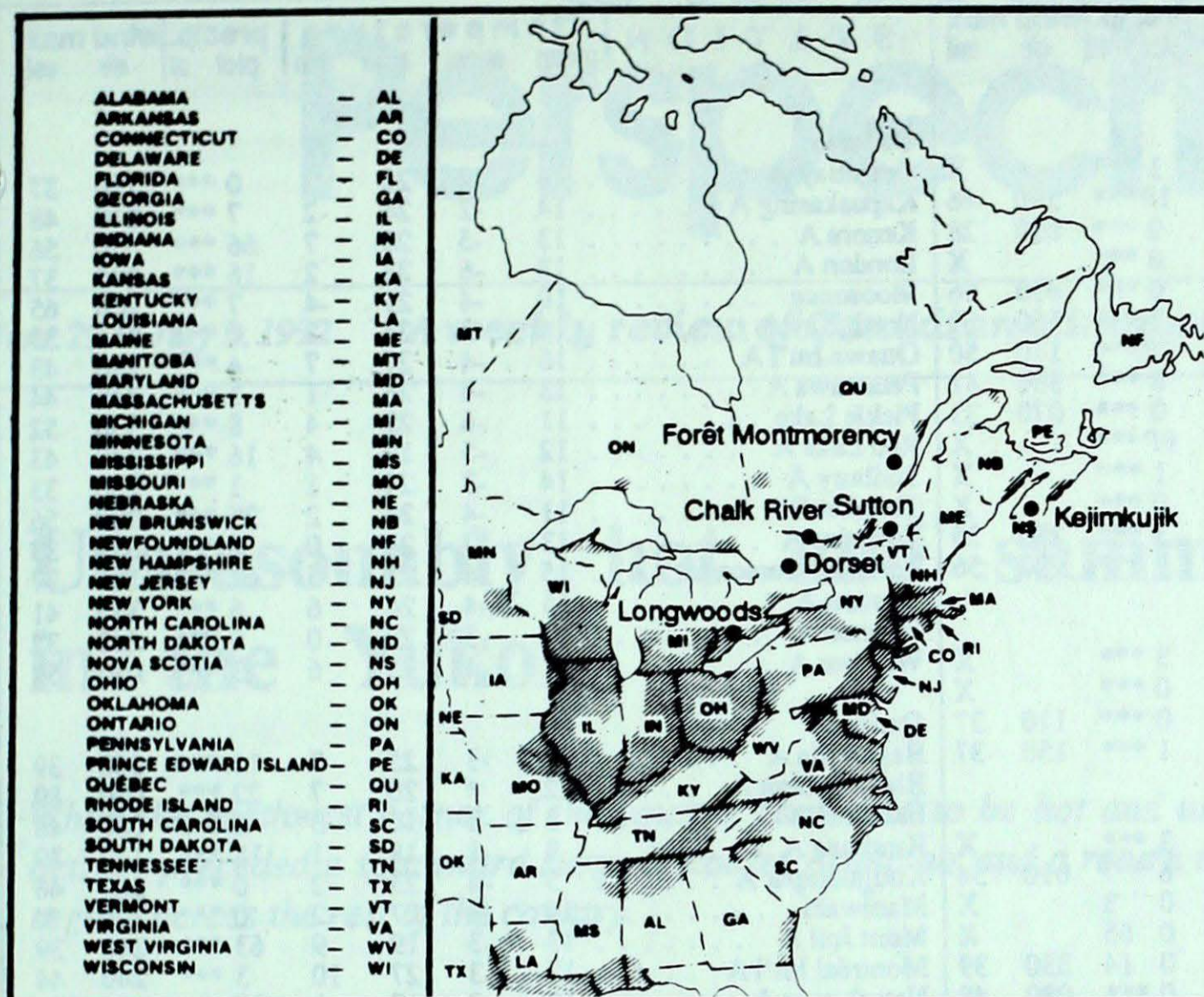


Tracks of low pressure centres at 12:00 U.T. each day during the period.

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
------	-----	----	--------	------------------

June 21 to 27, 1992

Longwoods				..... Data not available this week
Dorset *	21	4.5	3 R	..... Northwestern Quebec, Northern Ontario
Chalk River				..... No precipitation this week
Sutton	22	4.7	2 R	..... Western Quebec
	24	4.1	8 R	..... Air path not available
Montmorency	21	4.2	4 R	..... Southern Quebec
	22	4.7	3 R	..... Central Quebec, northern Maine
	24	4.0	1 R	..... Air path not available
Kejimikujik	21	4.9	7 R	..... Atlantic Ocean
	22	4.9	6 R	..... Atlantic Ocean
	24	4.1	7 R	..... Air path not available
	25	5.2	4 R	..... Air path not available

R= rain (mm), S = snow (cm), M = mixed rain and snow (mm)

STATION	temperature				precip. ptot	wind dir	wind max vel		STATION	temperature				precip. ptot	wind dir	wind max vel	
	mean	anom	max	min						mean	anom	max	min				
British Columbia								Ontario									
Blue River A	21	6	34	9	1 ***		X	Gore Bay A	14	-2	22	2	0 ***	130	37		
Cape St James	15P	4P	20P	10P	1P***	290	46	Kapuskasing A	14	-2	24	-2	7 ***	210	48		
Cranbrook A	23	7	35	15	0 ***	030	28	Kenora A	13	-5	20	7	66 ***	050	56		
Fort Nelson A	16	1	24	6	0 ***		X	London A	13	-6	23	2	16 ***	290	37		
Fort St John A	18	4	28	8	0 ***	010	56	Moosonee	10	-4	21	-4	7 ***	200	65		
Kamloops A	27	8	36	17	2 ***	150	59	North Bay A	14	-3	24	2	0 ***	340	33		
Penticton A	26P	8P	37P	16P	2P***	170	50	Ottawa Int'l A	16	-4	27	7	4 ***	280	43		
Port Hardy A	15	2	21	7	6 ***	330	41	Petawawa A	13	-4	26	1	1 ***	340	44		
Prince George A	19	6	32	6	0 ***	070	33	Pickle Lake	11	-6	22	4	8 ***	330	52		
Prince Rupert A	13P	2P	19P	8P	9P***		X	Red Lake A	12	-5	19	4	16 ***	240	43		
Smithers A	18	5	30	6	1 ***		X	Sudbury A	14	-3	24	1	1 ***	220	33		
Vancouver Int'l A	20	5	29	15	0 ***		X	Thunder Bay A	11	-4	24	2	25 ***	300	56		
Victoria Int'l A	19	5	29	12	3 ***	280	35	Timmins A	13	-3	24	0	4 ***	010	33		
Williams Lake A	22	9	34	10	7 ***	090	56	Toronto(Pearson Int'l A)	15	-4	25	5	12 ***	180	37		
Yukon Territory								Québec									
Komakuk Beach A	5	1	20	-1	3 ***		X	Bagotville A	14	-3	25	7	11 ***	060	39		
Teslin (aut)	12	*	29	1	0 ***		X	Blanc Sablon A	12	*	20	7	22 ***	050	89		
Watson Lake A	14	0	27	2	0 ***	110	37	Inukjuak A	3	-3	12	-3	2 3	080	48		
Whitehorse A	12	-1	29	1	1 ***	150	37	Kuujuuaq A	8	-1	18	1	18 ***	130	39		
Northwest Territories								New Brunswick									
Alert	-1	-2	4	-4	3 ***		X	Fredericton A	15	-3	26	7	57 ***	190	44		
Baker Lake A	3	-5	9	-1	6 7	010	54	Miscou Island (aut)	13P	-3P	18P	8P	0P***				
Cambridge Bay A	5	0	10	1	0 3		X	Moncton A	15	-2	24	9	44 ***	350	33		
Cape Dyer A	2	0	8	-4	0 65		X	Saint John A	14	-2	23	7	26 ***	120	37		
Clyde A	1	-1	7	-3	0 14	330	39	Nova Scotia									
Coppermine A	7	1	15	1	0 ***	080	48	Greenwood A	16	-2	25	9	28 ***	340	46		
Coral Harbour A	1	-5	5	-2	8 39	070	50	Shearwater A	15	-1	22	10	31 ***	090	41		
Eureka	5	1	10	1	0 ***		X	Sydney A	14	-2	21	8	18 ***	120	50		
Fort Smith A	13P	-3P	21P	5P	30P***		X	Yarmouth A	14	-1	22	9	26 ***	130	37		
Hall Beach A	0	-2	5	-5	1 21		X	Prince Edward Island									
Inuvik A	15	4	27	3	0 ***	180	37	Charlottetown A	15	-2	23	10	16 ***	110	37		
Iqaluit A	3	-3	7	-3	11 3		X	East Point (auto)	13	*	16	10	* ***				
Mould Bay A	4	2	10	-1	2 3		X	Newfoundland									
Norman Wells A	16	1	26	7	9 ***	110	50	Cartwright	12	3	24	3	11 ***	150	50		
Resolute A	2	0	9	-3	0 10	120	41	Churchill Falls A	13	1	19	5	40 ***	150	33		
Yellowknife A	12	-3	18	6	23 ***	060	33	Gander Int'l A	12	-2	21	5	13 ***	110	35		
Alberta								92/06/22-92/06/28									
Calgary Int'l A	18	4	29	11	38 ***	170	50	Environment Canada Environnement									
Cold Lake A	16	0	28	4	7 ***	340	54	CLIMATIC PERSPECTIVES : A WEEKLY REVIEW OF CA									
Edmonton Namao A	18	2	31	6	1 ***	320	44	NADIAN CLIMATE AND WEATHER									
Fort McMurray A	14	-1	25	2	14 ***	290	52	Vol: 14 No: 26 Date: 920622									
High Level A	16	0	24	7	2 ***	350	37	1005959D									
Jasper	*		32	*	* ***		X	DTM									
Lethbridge A	21	4	32	12	5 ***	040	61	COPY 1 ARCH.									
Medicine Hat A	21P	4P	33P	13P	4P***		X										
Peace River A	17	2	26	6	2 ***	020	46										
Saskatchewan																	
Cree Lake	11	-5	19	4	42 ***	050	46										
Estevan A	16	-2	30	5	2 ***	310	59										
La Ronge A	13	-3	22	3	31 ***	290	44										
Regina A	17	0	31	6	4 ***	330	61										
Saskatoon A	17	0	29	5	0 ***	320	54										
Swift Current A	17	1	29	5	8 ***	330	50										
Yorkton A	15	-2	26	4	3 ***	310	48										
Manitoba																	
Brandon A	15	-2	32	3	2 ***	320	69										
Churchill A	1	-8	6	-3	10 3	090	39										
Lynn Lake A	8	-7	15	2	28 ***	320	43										
The Pas A	12	-4	22	5	25 ***	290	43										
Thompson A	8	-7	16	-1	14 ***	300	37										
Winnipeg Int'l A	15	-4	27	6	14 ***	320	50										

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

ptot = weekly precipitat
 st = snow thickness
 dir = direction of max
 vel = wind speed in k

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CLIMATIC PERSPECTIVES : A WEEKLY REVIEW OF CANADIAN CLIMATE AND WEATHER

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