



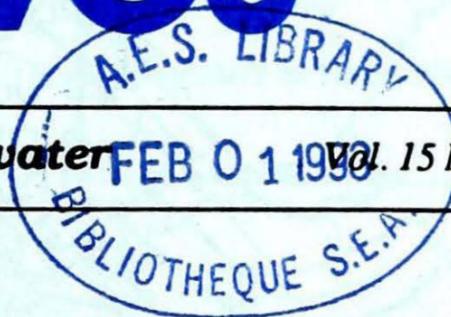
Climatic Perspectives

MONTHLY
SUPPLEMENT
INCLUDED

January 18 to 24 1993

A weekly review of Canadian climate and water

FEB 01 1993 15 No. 04



British Columbia finally warms up

The weather pattern that had given western Canada its unseasonably cold weather over the past few weeks gradually gave way, allowing milder Pacific air to push inland and flush the cold air mass out of the mountain valleys.

After enduring more than three weeks of below normal or subfreezing temperatures, residents of British Columbia finally got their long awaited reprieve from the chilly weather. But the change was not as placid as might be expected. The invading air mass produced heavy rainfalls on the west coast of Vancouver Island and across the lower mainland, while a combination of heavy snow and freezing rain was reported in the interior.

British Columbia's north coast inland valleys were hardest hit, with three heavy dumpings of snow this week, for a total accumulation of almost 70 cm at Terrace. The Kootanays, in southeastern B.C., were buried under almost 50 cm of the white stuff, causing problems for travellers. Highway passes had to be closed, as the combination of heavy snow, high winds and warmer weather created a severe avalanche hazard. In the Thompson region of the southern interior, many roads were also closed due to avalanche control operations. Over the weekend, the Coquihalla Highway received more than 20 cm of snow in a 24-hour period.

In northern B.C. and the southern Yukon, where maximum temperatures this week briefly climbed above freezing, Pacific disturbances produced heavy

snowfalls in and along the coastal passes. Reports indicated falls of 40 cm along the Skagway Highway.

On a wetter note, the west coast of Vancouver Island received more than 130 mm of rain this week. Fairing slightly better, but still quite wet, was B.C.'s lower mainland, where 50 to 90 millimetres of rain was reported.

Elsewhere...

Bitterly cold weather covered the northern Yukon. The minimum temperature at Old Crow registered in the minus fifties for six consecutive days, with the coldest reading down to -57°C . Winter ice roads and bridges in the north are standing up well to heavy traffic.

In Alberta, Chinook winds developed to the lee of the Rocky Mountains, pushing the temperature briefly up to 8°C , in the south. In the southwest, gusty Chinook winds reduced visibilities in blowing snow. The Pincher Creek area recorded gusts over 100 km/h.

Mild weather returned to Ontario, accompanied by rain and freezing rain at week's end. The combination of melting snow and liquid precipitation caused

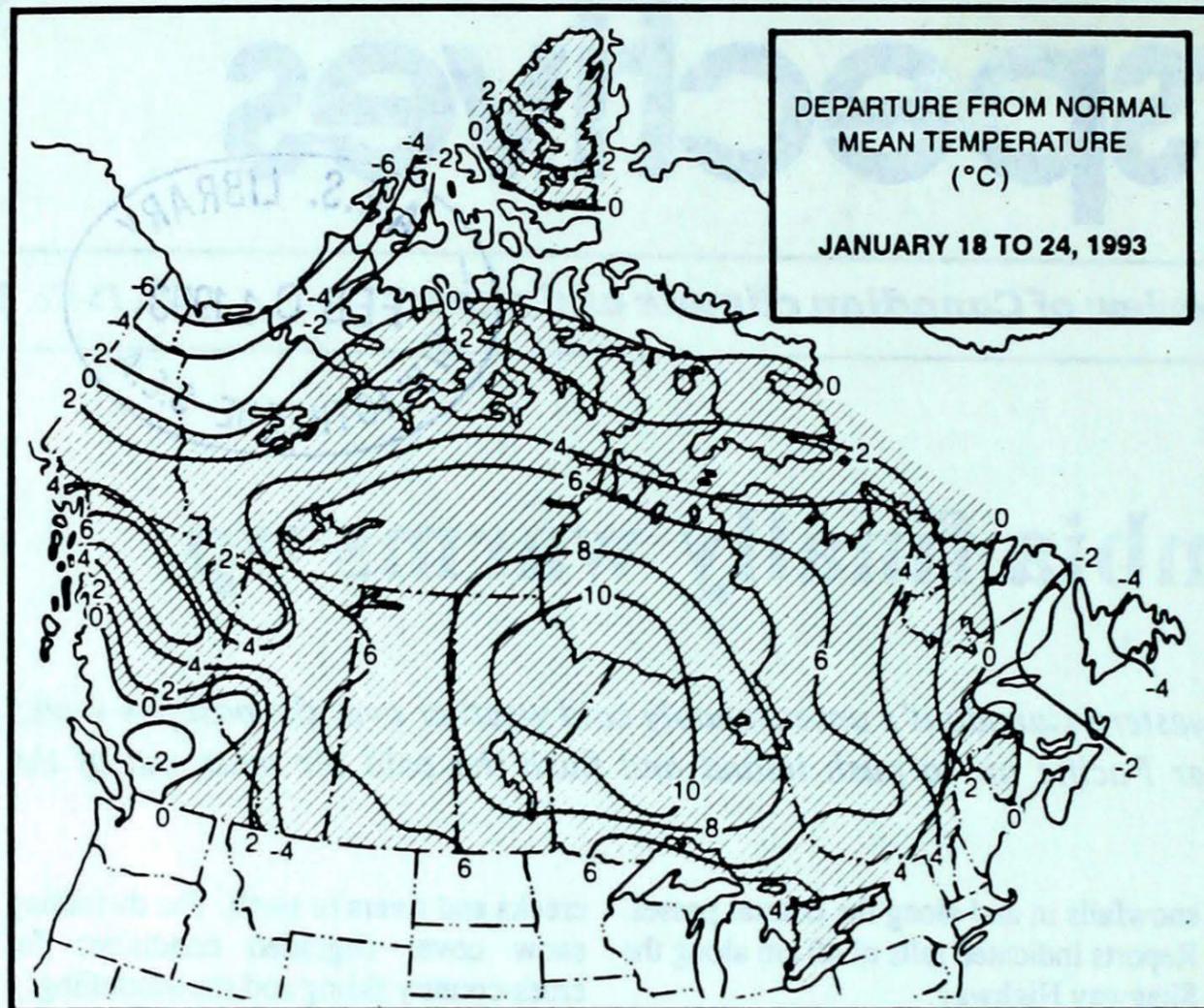
creeks and rivers to swell. The dwindling snow cover degraded conditions for cross-country skiing and snowmobiling.

The Maritimes savoured a relatively tranquil week; for the most part, a mixture of cloud and sun. The only significant disturbance crossed New Brunswick on Saturday, producing rain and some snow. The weather system pushed the mercury to 10°C at Yarmouth, N.S.

An intense low pressure system passed east of Newfoundland early in the period, producing a mixture of snow, freezing rain and ice pellets over the eastern half of the Island. In the wake of the system, cold air and strong northerly winds, with gusts to 95 km/h, produced snow squalls in the onshore flow. Milder conditions returned towards the end of the period. Labrador enjoyed a fair amount of sunshine with some light snowfalls.

A look ahead...

For the week of February 1, below-normal temperatures are expected for all of Canada, except for near-normal values across the southern Prairies, Ontario and southwestern Quebec. Unsettled weather is likely across B.C., southern Alberta and areas east of Manitoba.



Weekly normal temperatures (°C)

	max.	min.
Whitehorse A	-14.1	-22.5
Iqaluit A	-21.7	-30.3
Yellowknife A	-23.4	-31.6
Vancouver Int'l A	5.3	0.0
Victoria Int'l A	6.3	0.2
Calgary Int'l A	-4.9	-16.8
Edmonton Int'l A	-7.8	-19.5
Regina A	-11.7	-22.2
Saskatoon A	-13.0	-23.2
Winnipeg Int'l A	-13.8	-23.8
Ottawa Int'l A	-5.6	-14.9
Toronto (Pearson Int'l A)	-2.1	-11.0
Montréal Int'l A	-4.9	-14.2
Québec A	-6.6	-16.2
Fredericton A	-2.9	-14.4
Saint John A	-1.7	-12.9
Halifax (Shearwater)	0.5	-7.8
Charlottetown A	-2.6	-11.3
Goose A	-10.8	-20.2
St John's A	-0.2	-7.1

Weekly temperature and precipitation extremes

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Victoria Int'l A 10	Fort Nelson A -33	Estevan Point (aut) 134
Yukon Territory	Shingle Point A 0	Old Crow -57	Blanchard River 11
Northwest Territories	Fort Simpson A 1	Mould Bay A -48	Iqaluit A 19
Alberta	Calgary Int'l A 9	High Level A -33	Slave Lake A 9
Saskatchewan	Saskatoon A 5	Cree Lake -40	La Ronge A 2
Manitoba	Dauphin A 4	Thompson A -33	Gimli 3
Ontario	Port Weller (aut) 8	Lansdowne House -36	Windsor A 28
Quebec	Sherbrooke A 5	Kuujuaq A -36	Sept-Îles A 22
New Brunswick	St Stephen (aut) 8	St-Léonard A -24	Miscou Island (aut) 51
Nova Scotia	Yarmouth A 10	Greenwood A -22	Yarmouth A 25
Prince Edward Island	Charlottetown A 5	Charlottetown A -20	Charlottetown A 11
		East Point (aut) -20	
Newfoundland	Daniels Harbour 6	Churchill Falls A -38	Stephenville A 17

Across The Country...

Highest Mean Temperature	Estevan Point (aut) (B.C.)	4
Lowest Mean Temperature	Mould Bay, A (N.W.T.)	-42

93/01/18-93/01/24

CLIMATIC PERSPECTIVES
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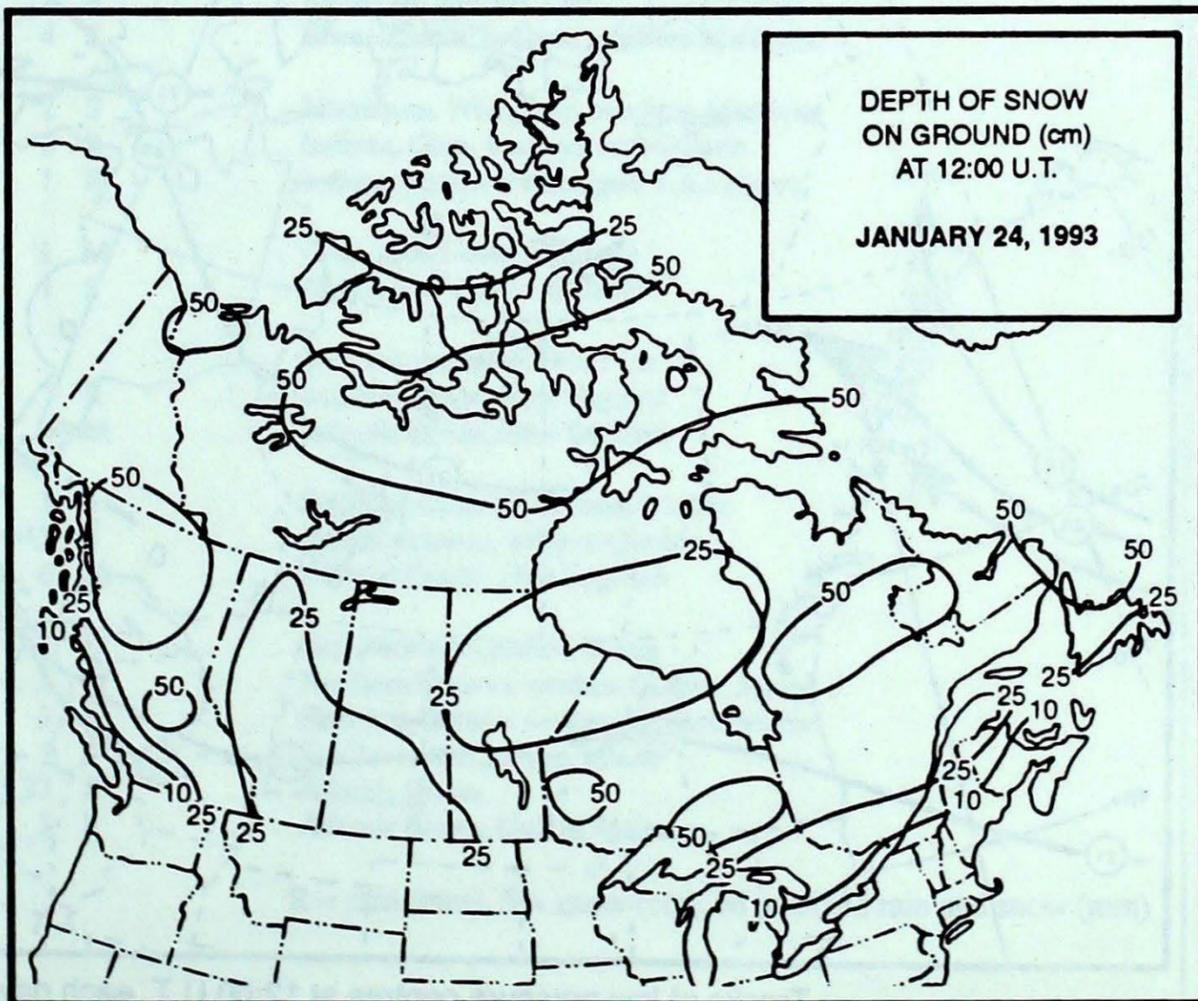
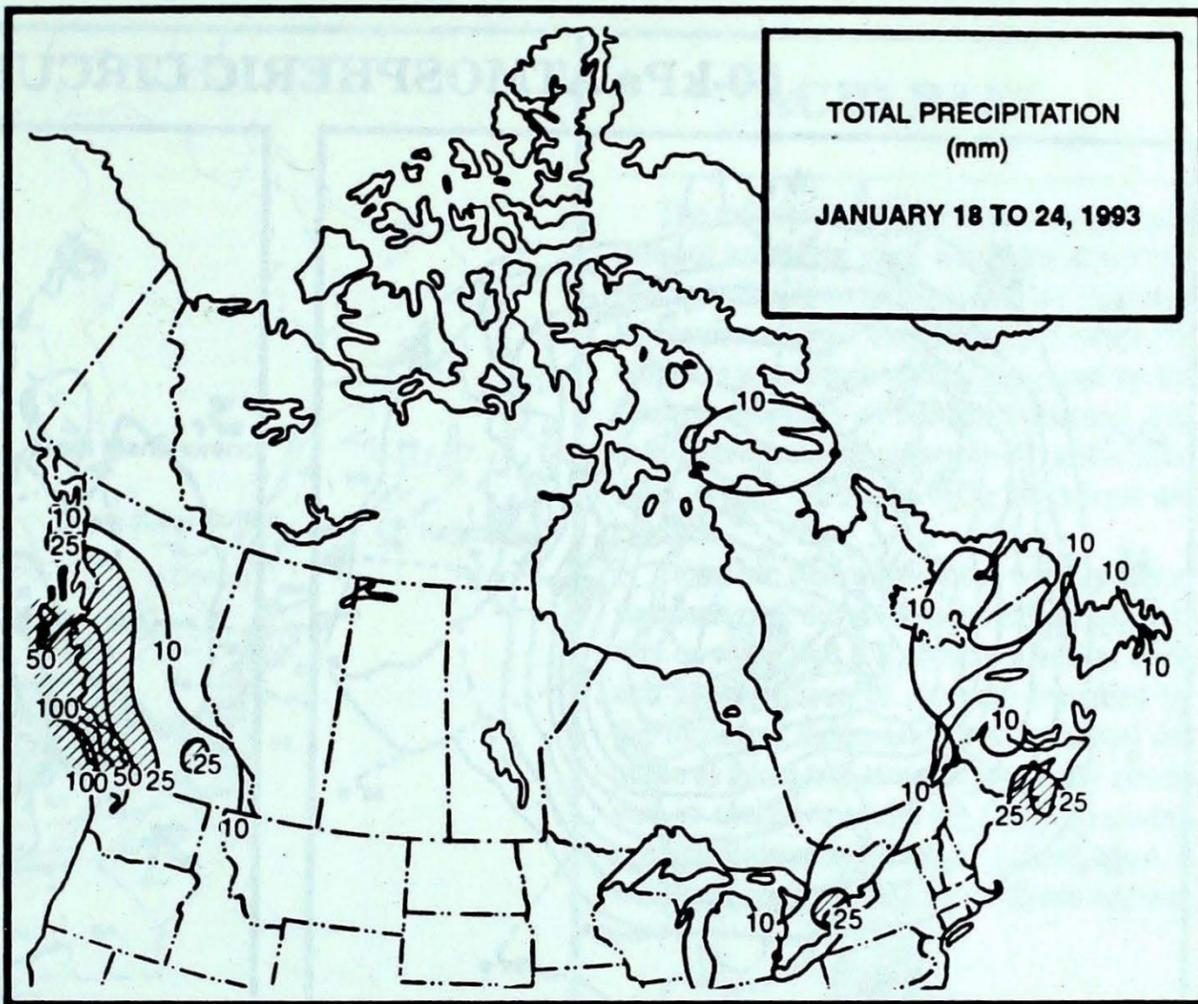
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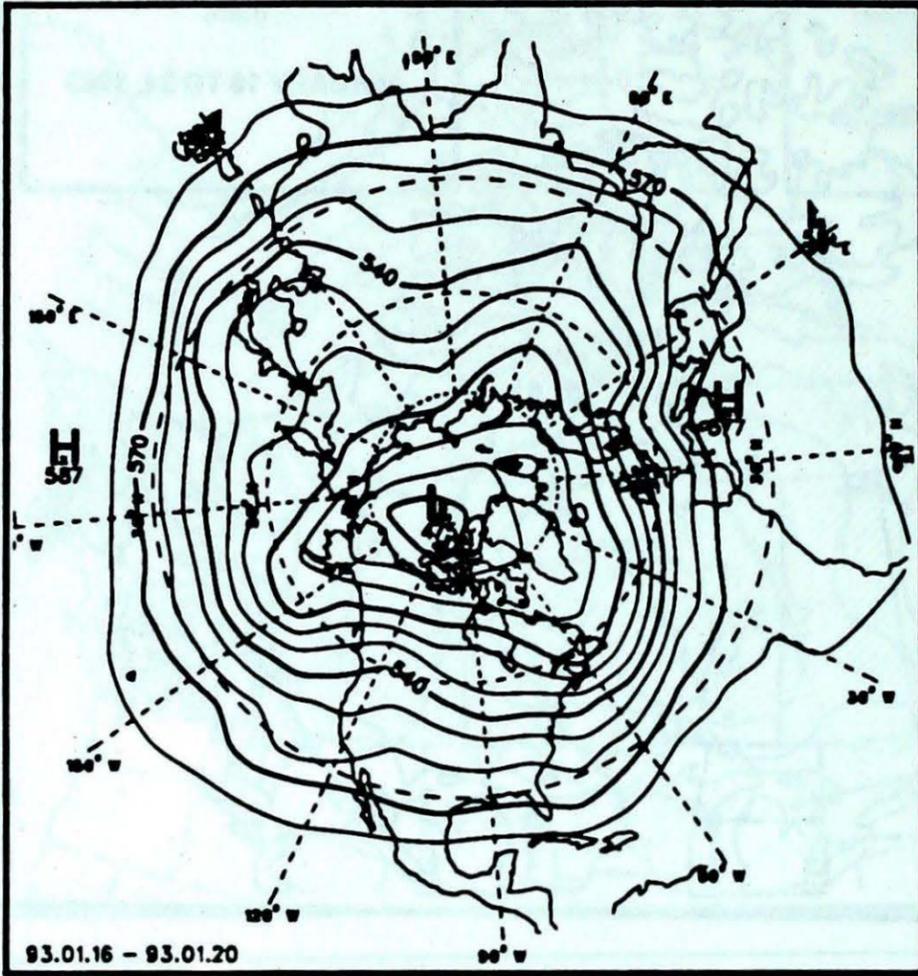
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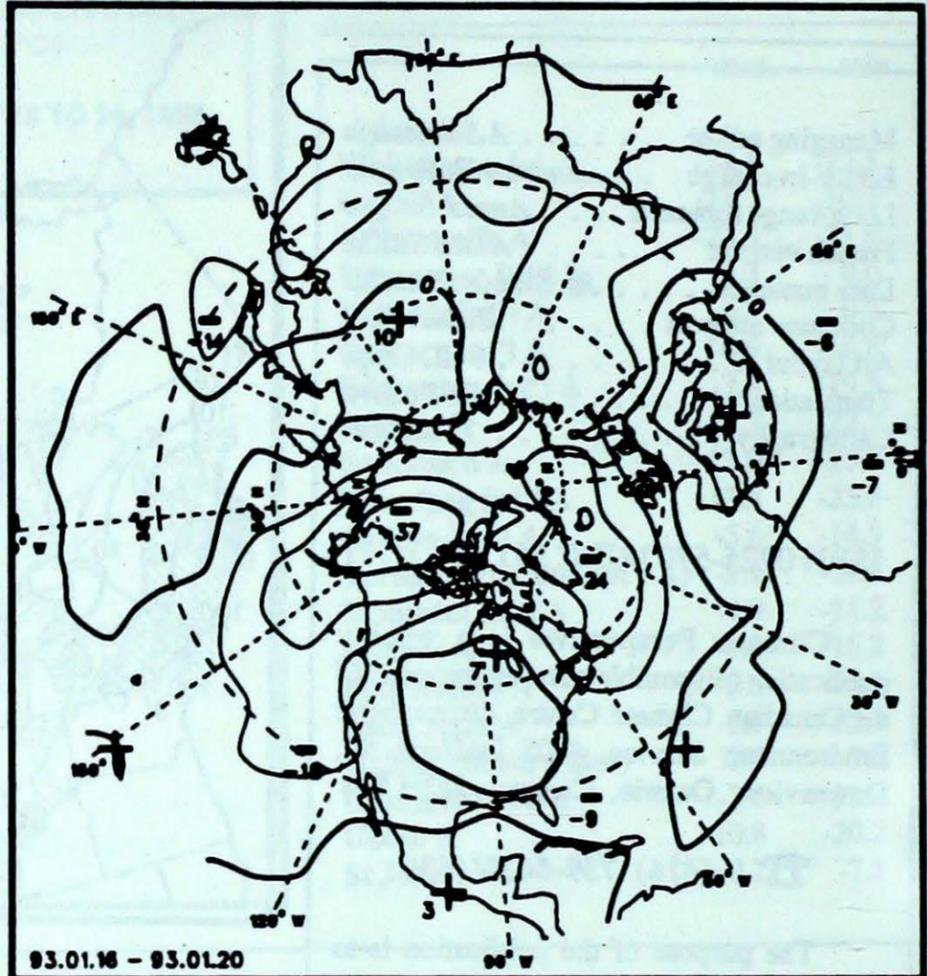
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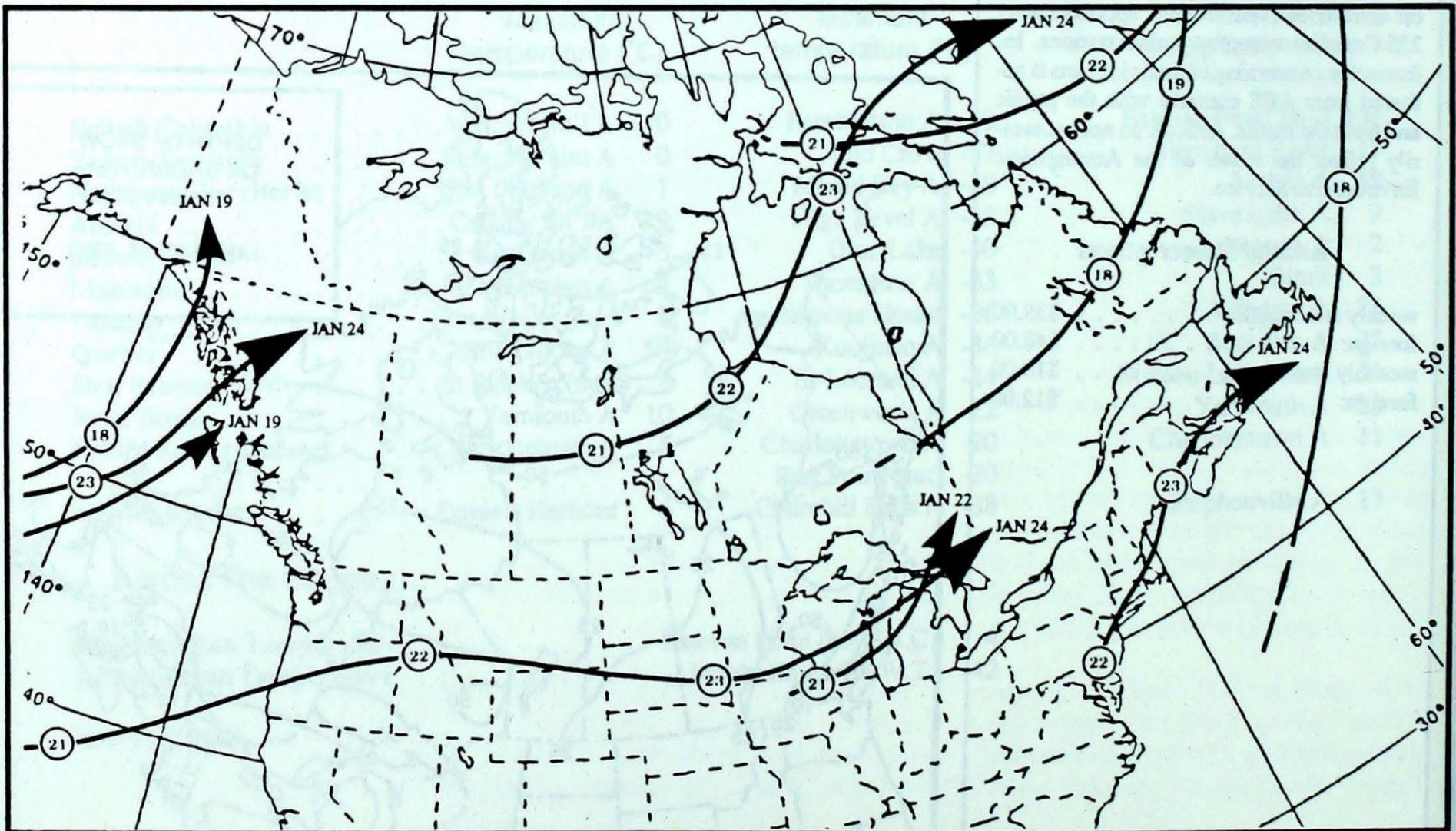
50-kPa ATMOSPHERIC CIRCULATION



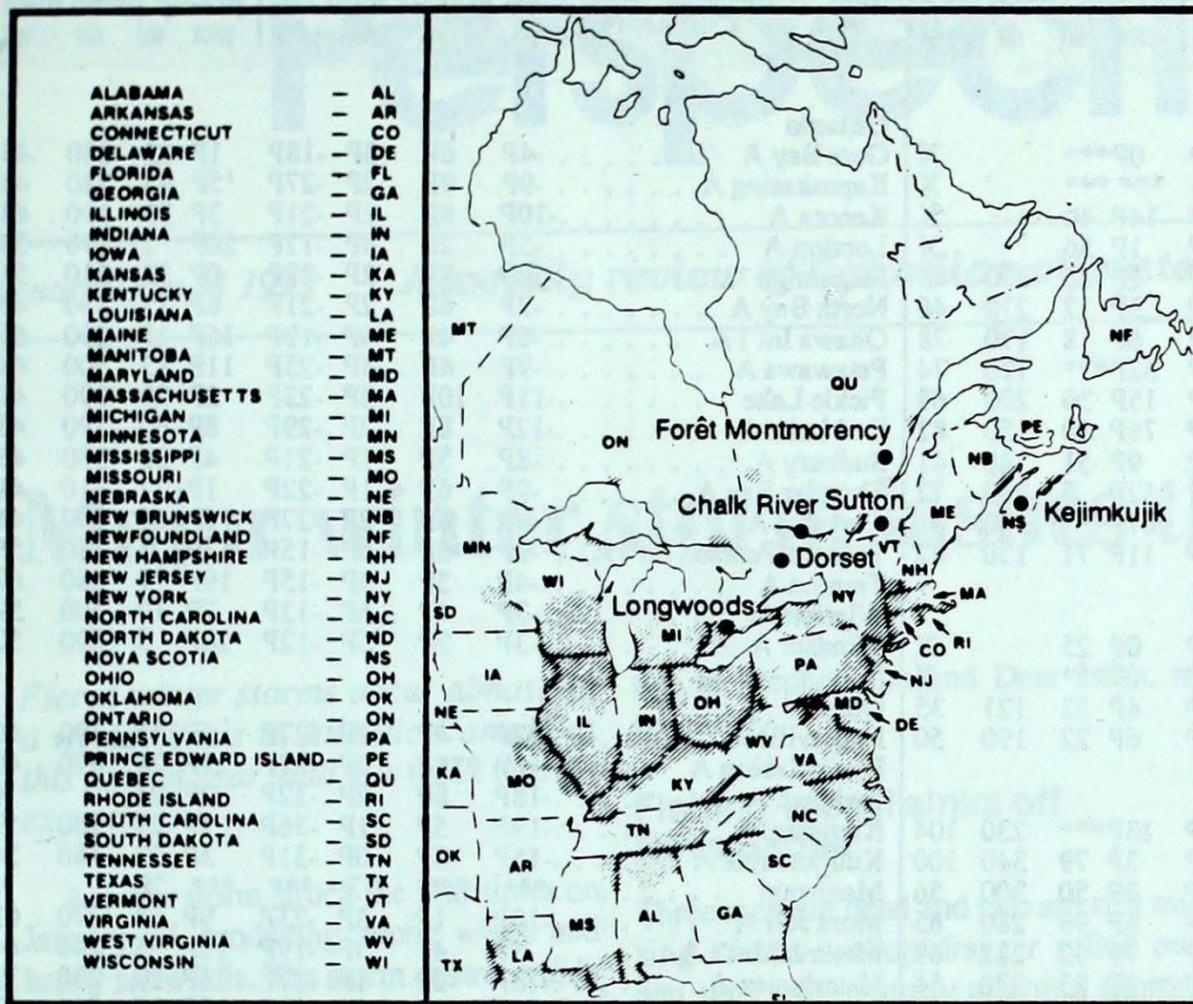
Mean geopotential height
50-kPa level (10 decametre intervals)



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
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January 17 to 23, 1993

Longwoods	21	4.2	13 R Kentucky, Indiana, Ohio
	23	4.3	4 S Iowa, Illinois, Indiana, southern Michigan
Dorset *	17	4.1	2 S Minnesota, Wisconsin, southern Michigan
	21	4.1	8 R Indiana, Ohio, southwestern Ontario
	22	3.9	1 R Indiana, southern Michigan, Lake Huron
Chalk River	21	4.2	1 M Ohio, southwestern Ontario
	22	4.5	1 S Ohio, southwestern Ontario
Sutton			 Data not available from 17 to 20
	21	4.9	7 R Atlantic Ocean, New England
	22	4.1	4 M Atlantic Ocean, New England
Montmorency	17	4.3	3 S Southern Ontario, southern Quebec
	19	4.4	3 S Central Ontario, western Quebec
	22	4.6	6 M Atlantic Ocean, New England
Kejimikujik	17	3.9	1 S Southwestern Quebec, Maine
	18	4.0	2 S Northern Ontario, western Quebec, Maine
	19	4.6	3 S Northern Ontario, western Quebec, Maine
	20	4.0	1 S Southwestern Quebec, Maine
	22	5.1	27 R Atlantic Ocean
	23	5.2	3 R Atlantic Ocean, Gulf of Maine

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	-11P	-4P	2P	-26P	0P***				X	Gore Bay A	-4P	6P	3P	-18P	1P	22	280	48	X	Kapuskasing A	-9P	9P	2P	-27P	5P	63	240	48
Cape St James	***	***	***	***	***	***			X	Kenora A	-10P	8P	-2P	-21P	3P	39	190	44	X	London A	-5P	2P	4P	-17P	20P	5	270	54
Cranbrook A	-7P	1P	4P	-19P	14P	40			X	Moosonee	-12P	8P	2P	-29P	0P	32	210	54	X	North Bay A	-7P	6P	2P	-21P	6P	15	330	46
Fort Nelson A	-20P	2P	-4P	-33P	1P	56			X	Ottawa Int'l A	-6P	4P	4P	-19P	16P	15	290	65	X	Petawawa A	-9P	4P	4P	-25P	11P	13	300	48
Fort St John A	-8P	8P	0P	-20P	1P	25	350	43	X	Pickle Lake	-11P	10P	-2P	-23P	2P	29	190	41	X	Red Lake A	-12P	8P	-2P	-29P	8P	60	190	43
Kamloops A	-6P	-1P	3P	-17P	3P	27	270	46	X	Sudbury A	-8P	5P	1P	-21P	4P	30	330	46	X	Thunder Bay A	-9P	6P	1P	-22P	1P	27	310	41
Penticton A	-1P	1P	6P	-11P	6P	8	170	78	X	Timmins A	-9P	8P	2P	-27P	6P	66	330	46	X	Toronto(Pearson Int'l A)	-3P	3P	5P	-15P	13P	5	280	56
Port Hardy A	2P	0P	6P	-6P	52P***		120	74	X	Trenton A	-4P	3P	5P	-15P	19P	7	280	67	X	Warton A	-3P	4P	5P	-13P	7P	10	300	59
Prince George A	-7P	4P	2P	-21P	15P	30	200	63	X	Windsor A	-3P	2P	5P	-12P	28P	5	290	50	X	Québec								
Prince Rupert A	2P	2P	6P	-2P	76P	20	150	82	X	Bagotville A	-12P	4P	1P	-27P	6P	31	290	46	X	Blanc Sablon A	-15P	***P	0P	-27P	1P	28	070	46
Smithers A	-11P	0P	-1P	-24P	9P	51	140	41	X	Inukjuak A	-18P	8P	-2P	-32P	2P	24		X	Kuujuaq A	-19P	5P	1P	-36P	1P	29	260	59	
Vancouver Int'l A	2P	-1P	7P	-8P	62P	5	280	72	X	Kuujuarapik A	-15P	8P	0P	-31P	3P	22	180	54	X	Maniwaki	***	***	3	***	***	20		X
Victoria Int'l A	3P	0P	10P	-4P	67P***		140	61	X	Mont Joli A	-10P	1P	3P	-23P	9P	14	270	61	X	Montréal Int'l A	-5P	4P	5P	-19P	11P	5	240	44
Williams Lake A	-7P	1P	-1P	-17P	11P	71	130	82	X	Natashquan A	-13P	-2P	1P	-27P	15P	29	280	39	X	Québec A	-9P	3P	2P	-22P	17P	27	260	37
Yukon Territory									New Brunswick																			
Komakuk Beach A	-30P	-5P	-24P	-44P	0P	25			X	Fredericton A	-8P	1P	6P	-22P	15P	5	161	37	X	Miscou Island (aut)	-7P	2P	2P	-20P	51P***			
Teslin (aut)	-16P	***P	0P	-32P	0P***				X	Moncton A	-8P	-1P	7P	-21P	11P	6	270	59	X	Saint John A	-8P	0P	8P	-23P	30P	5	100	56
Watson Lake A	-22P	4P	-4P	-33P	6P	53	121	35	X	Nova Scotia																		
Whitehorse A	-16P	3P	-1P	-36P	6P	22	190	50	X	Greenwood A	-6P	-1P	9P	-22P	18P***	310	59	X	Shearwater A	-5P	-2P	7P	-17P	19P***	300	56	X	
Northwest Territories									Prince Edward Island																			
Alert	-32P	1P	-26P	-35P	13P***	230	104		X	Charlottetown A	-9P	-2P	5P	-20P	11P***	280	48	X	East Point (auto)	-8P	***P	3P	-20P	10P***				
Baker Lake A	-27P	6P	-16P	-38P	3P	79	340	100	X	Newfoundland																		
Cambridge Bay A	-31P	4P	-16P	-43P	2P	50	300	56	X	Cartwright	-14P	-1P	-1P	-24P	3P	62	310	65	X	Churchill Falls A	-20P	1P	-4P	-38P	13P	70	300	50
Cape Dyer A	-25P	-2P	-13P	-37P	6P	99	280	65	X	Gander Int'l A	-11P	-5P	-1P	-22P	1P	30	280	72	X	Goose A	-16P	-1P	-3P	-28P	16P	22	290	44
Clyde A	-29P	-2P	-11P	-42P	7P	52	221	69	X	St John's A	-9P	-5P	0P	-19P	3P	14	280	65	X	St Lawrence	-8P	-4P	0P	-19P	14P	23		X
Coppermine A	-29P	1P	-12P	-39P	3P	83	270	56	X	Wabush Lake A	-18P	4P	-3P	-34P	9P	48	330	46	X	93/01/18-93/01/24								
Coral Harbour A	-24P	6P	-10P	-37P	2P***	020	80		X																			
Eureka	-33P	4P	-21P	-46P	4P	17			X																			
Fort Smith A	-18P	7P	-5P	-33P	1P	33	300	37	X																			
Hall Beach A	-29P	1P	-14P	-43P	1P	49	290	78	X																			
Inuvik A	-36P	-8P	-22P	-46P	4P	66	330	41	X																			
Iqaluit A	-24P	2P	-6P	-35P	19P	38	130	76	X																			
Mould Bay A	-42P	-7P	-31P	-48P	0P	19			X																			
Norman Wells A	-31P	-3P	-8P	-41P	2P	33	300	46	X																			
Resolute A	-33P	0P	-21P	-41P	6P	21	120	89	X																			
Yellowknife A	-22P	6P	-6P	-37P	3P	22	330	59	X																			
Alberta									Saskatchewan																			
Calgary Int'l A	-5P	6P	9P	-20P	0P	10	210	65	X	Cree Lake	-16P	4P	-3P	-40P	0P	41	310	37	X	Estevan A	-12P	4P	3P	-27P	2P	18	290	61
Cold Lake A	-12P	5P	0P	-25P	5P	31			X	La Ronge A	-13P	6P	0P	-31P	2P	38	280	48	X	Regina A	-12P	5P	2P	-24P	1P	19		
Edmonton Namao A	-8P	6P	1P	-15P	1P	21	270	37	X	Saskatoon A	-11P	7P	5P	-24P	1P	19	280	46	X	Swift Current A	-8P	6P	3P	-20P	1P***	270	80	
Fort McMurray A	-15P	5P	-3P	-27P	7P	31			X	Yorkton A	-12P	7P	2P	-25P	1P	34	280	52	X	Manitoba								
High Level A	-19P	-1P	-5P	-33P	1P	13	340	46	X	Brandon A	-14P	5P	1P	-27P	1P	31	260	56	X	Churchill A	-16P	12P	-2P	-31P	1P	12	320	80
Jasper	***	***	1	***	***	15			X	Lynn Lake A	-15P	10P	-2P	-33P	2P	29	300	52	X	The Pas A	-11P	11P	2P	-27P	0P	17	310	50
Lethbridge A	-5P	5P	6P	-19P	1P	12	260	91	X	Thompson A	-12P	11P	0P	-33P	1P	25	310	48	X	Winnipeg Int'l A	-11P	8P	-1P	-23P	2P	37	180	65
Medicine Hat A	-6P	6P	7P	-23P	1P	7	230	78	X																			
Peace River A	-12P	5P	-4P	-19P	1P	23			X																			

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.