Environment Canada Environnement Canada

Climatic Perspectives

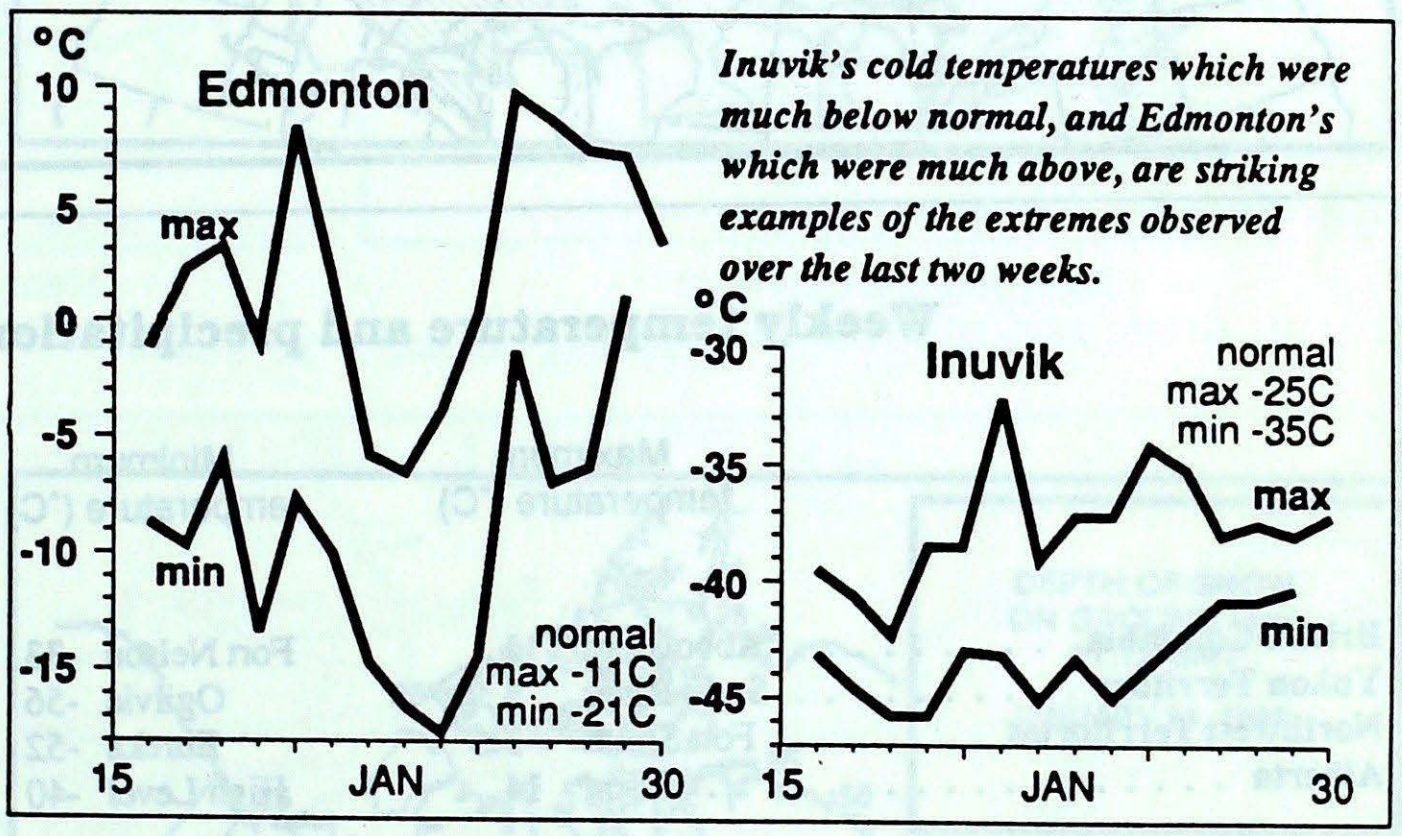
January 23 to 29,1989 — A weekly review of Canadian climate — Vol. 11 No. 5

Arctic deep freeze spreading south

While a bone-chilling Siberian Arctic air mass was poised over Alaska and the Yukon during the week, residents across the southern half of the country had premature visions of spring.

For the second consecutive weekend, temperatures in the Yukon plunged to the minus forties and fifties, as an other frigid air mass moved into the Territory. At Ogilvie on the 29th, the thermometer bottomed out at -56°C. Accompanying strong northerly winds produced very high and, at times, extreme windchills. Eureka, situated in the high Arctic, did not report a maximum temperature any higher than -41°C this week and, on the 29th, recorded a maximum reading of only -50°C.

The weight of this dome of Arctic air has produced the highest pressure readings ever recorded in North America and possibly the 3rd highest anywhere in the world. A central pressure of 107.5 Kpa at Northway, Alaska, on Sunday has surpassed the previous record of 106.8 kPa established at Mayo in the Yukon on January 1, 1974



Inuvik's cold temperatures which were much below normal, and Edmonton's which were much above, are striking examples of the extremes observed over the last two weeks.

La Niña

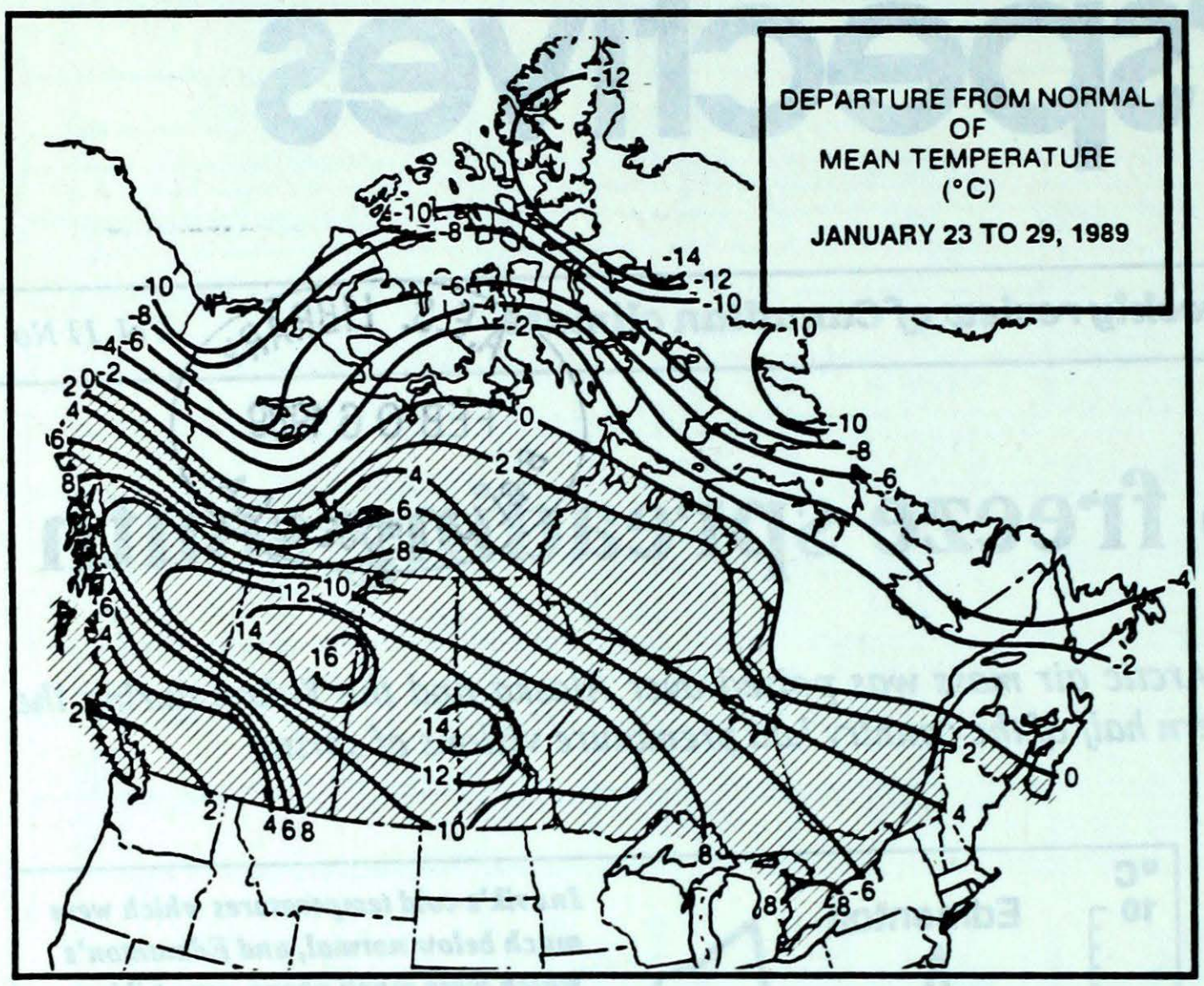
An issue of great interest to climatologists is the possible relationship between the cold winter in the Canadian northwest and the current La Niña event. La Niña is a phenomenon in which surface temperatures in the equatorial Pacific Ocean are much colder than normal. Whether La Niña is the cause of the current cold winter is debatable. However, it was noted by Jim Steele (AES, Whitehorse) that in the eight years in which La Niña had occured since 1950, White-horse has had below normal monthly average temperatures about 3 times out of 4 in the months from November through February.

Elsewhere... in northern B.C., rain and heavy snowfalls from approaching Pacific storms caused many avalanches and highway closures. Stewart's January snowfall has reached a record 452 cm. Across southern Canada, it continued to be mild, with readings nudging the record double digits.

Dramatic changes expected...

Bitterly cold air that produced temperatures in the -50s in the Yukon will continue to move southeastward. Below normal temperatures are forecast from the Rockies to the St. Lawrence Valley next week. On the B.C. west coast, temperatures are expected to recover from well-below normal values early next week. A flow of air from the southwest will bring mild conditions into Atlantic Canada after the weekend. February is expected to be below normal throughout most of Canada (see page 7). *Prepared February 1, 1989.*

Canada



Lack of Snow in Ontario

Below normal snowfall to date in Southwest and South central Ontario.

Seasonal Snowfall totals S. Ontario 88/89

	Total to Jan. 30/89	Normal (1951-80)
Windsor	42.2 cm	70.4 cm
London	95.0 cm	132.6 cm
Toronto City	31.4 cm	78.3 cm
Toronto Pearson A.	25.8 cm	74.8 cm
Ottawa	120.8 cm	132.0 cm

Weekly temperature and precipitation extremes

		Maximum temperature (°C)		Minimum temperature (°C)		Heaviest precipitation (mm)	
British Columbia	Abbotsford	11		Fort Nelson	-33	Estevan Point	147
Yukon Territory	Swift River	3		Ogilvie	-56	Blanchard River	35
Northwest Territories	Fort Smith	3		Eureka	-52	Fort Reliance	11
Alberta	Edson	14		High Level	-40	High Level	9
Saskatchewan	Buffalo Narrows A	8		Cree Lake	-40	Collins Bay	3
Manitoba	The Pas	6		Lynn Lake	-38	Churchill	7
Ontario	Windsor	10		Lansdowne House	-35	Ottawa Int'l	20
Québec	Montréal Int'l	6		Schefferville	-45	Blanc Sablon	20
New Brunswick	St Stephen	5		Fredericton	-24	Saint John	18
Nova Scotia	Western Head	8		Truro	-21	Shearwater	21
Prince Edward Island	Summerside	3		Charlottetown	-19	Charlottetown	12
Newfoundland	St John's	3		Churchill Falls	-40	Port-Aux-Basques	23

Across The Country...

Warmest Mean Temperature	Sandspit (BC)	6
Coolest Mean Temperature	Eureka (NWT)	-48

89/01/23-89/01/29

CLIMATIC PERSPECTIVES
VOLUME 11

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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.

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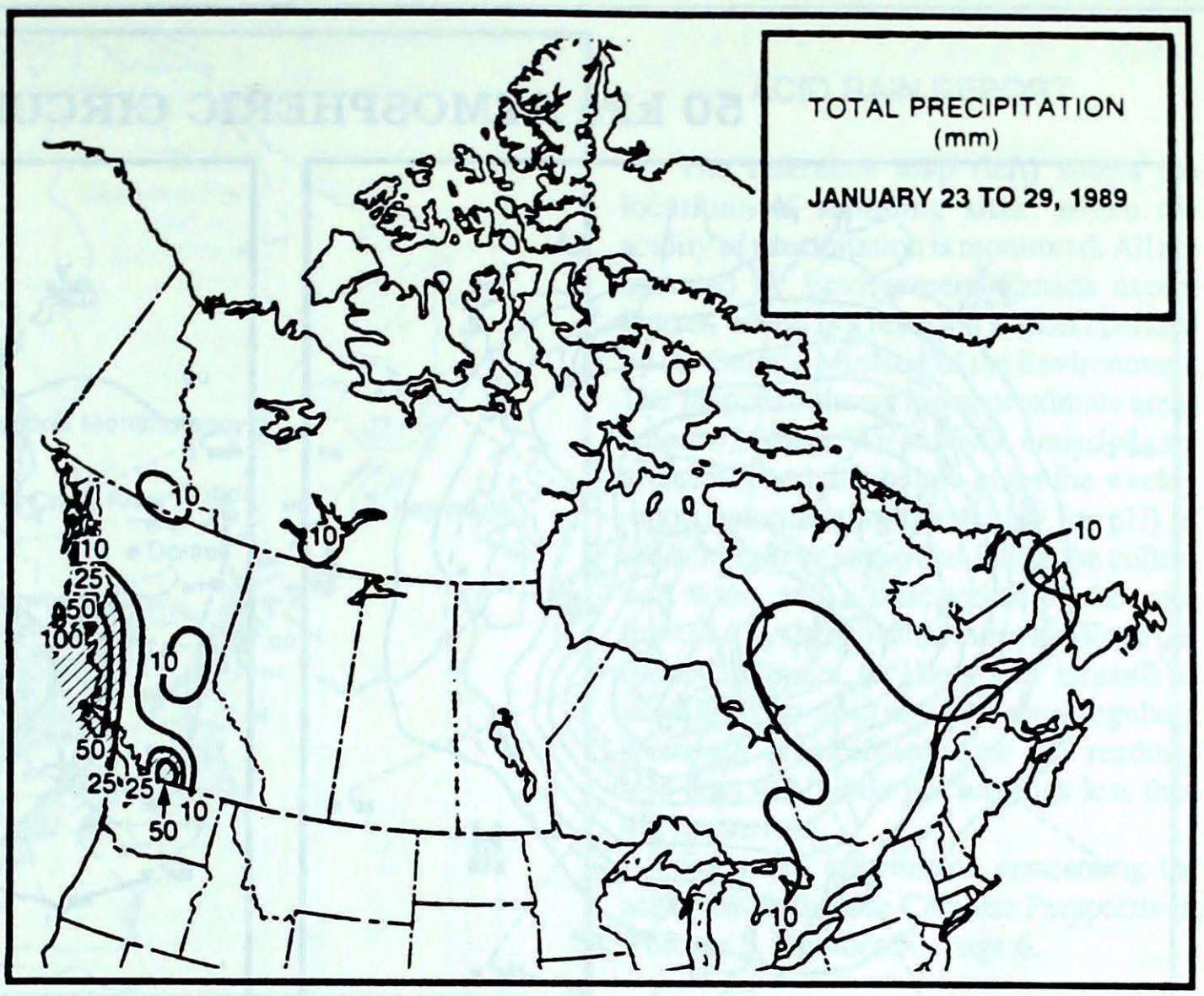
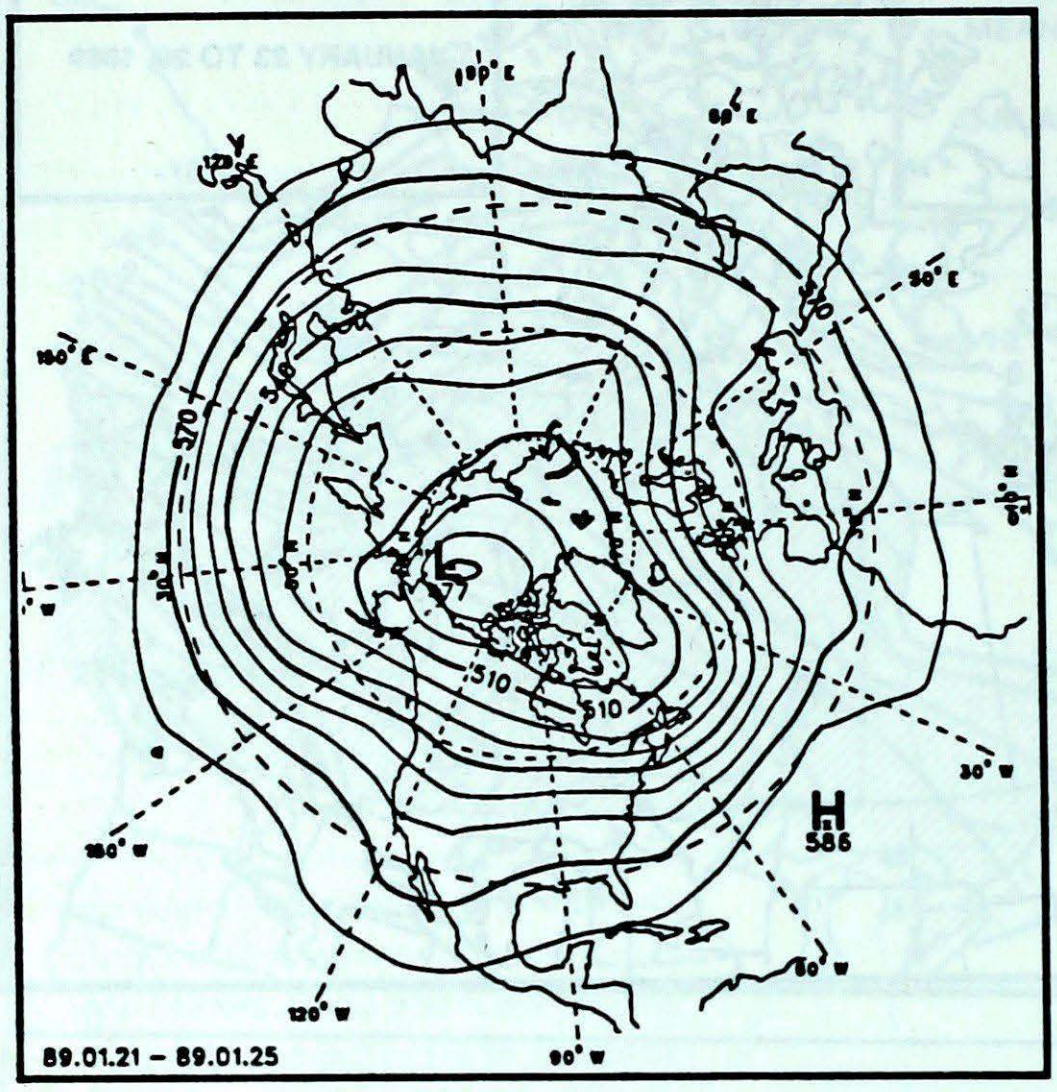
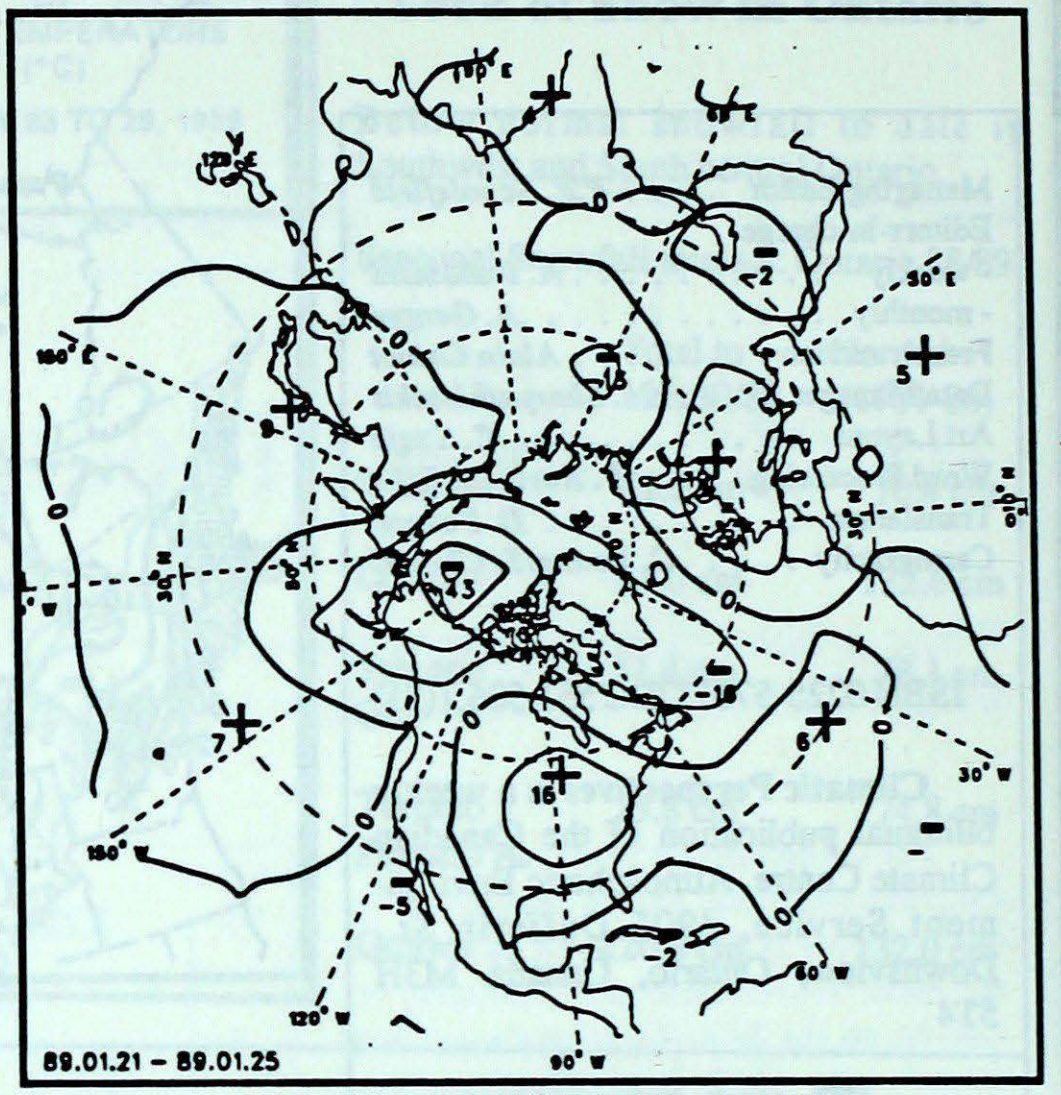


50 kPa ATMOSPHERIC CIRCULATION



Mean geopotential height
50 kPa level (10 decameter intervals)



Mean geopotential height anomaly
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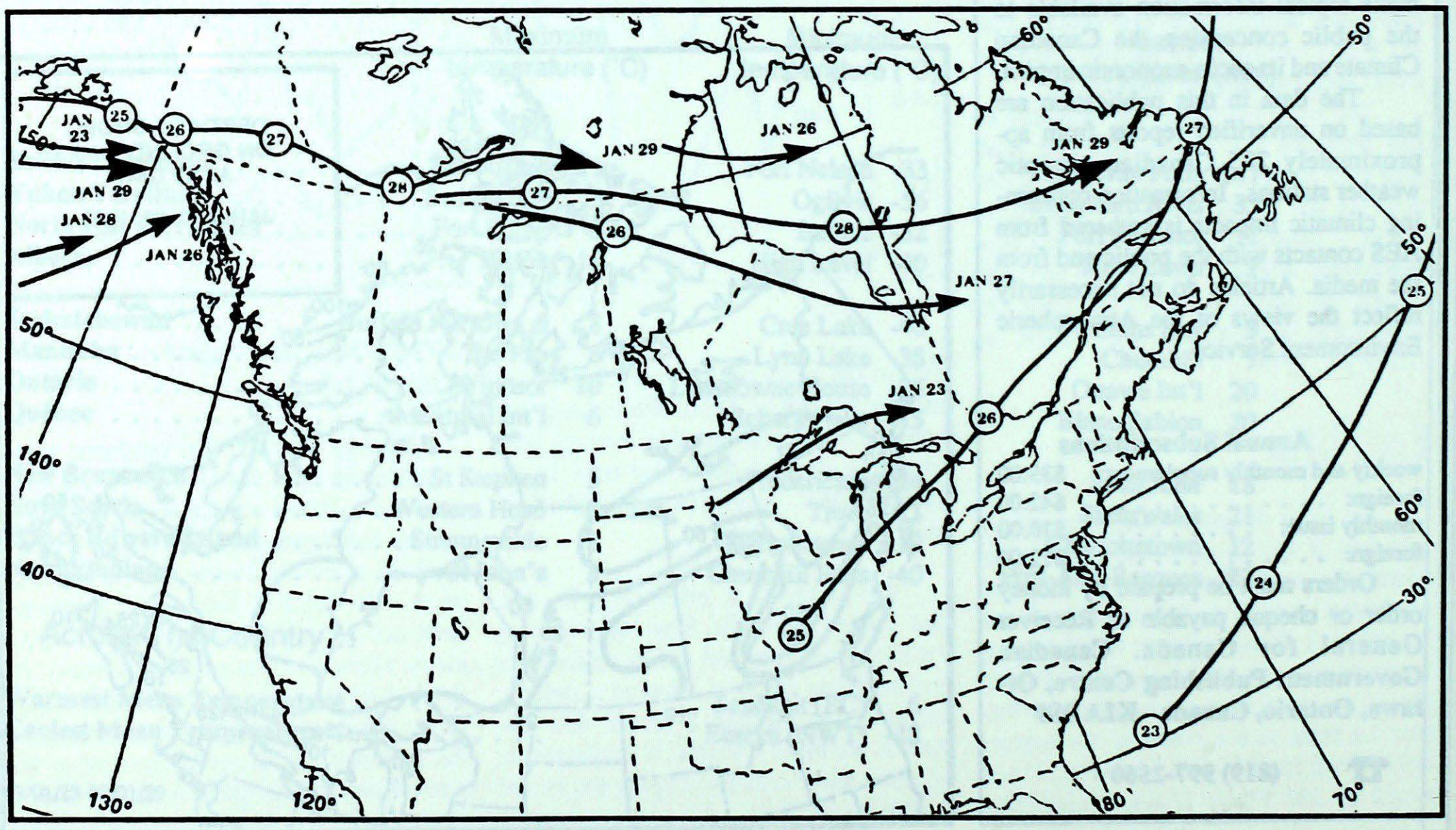
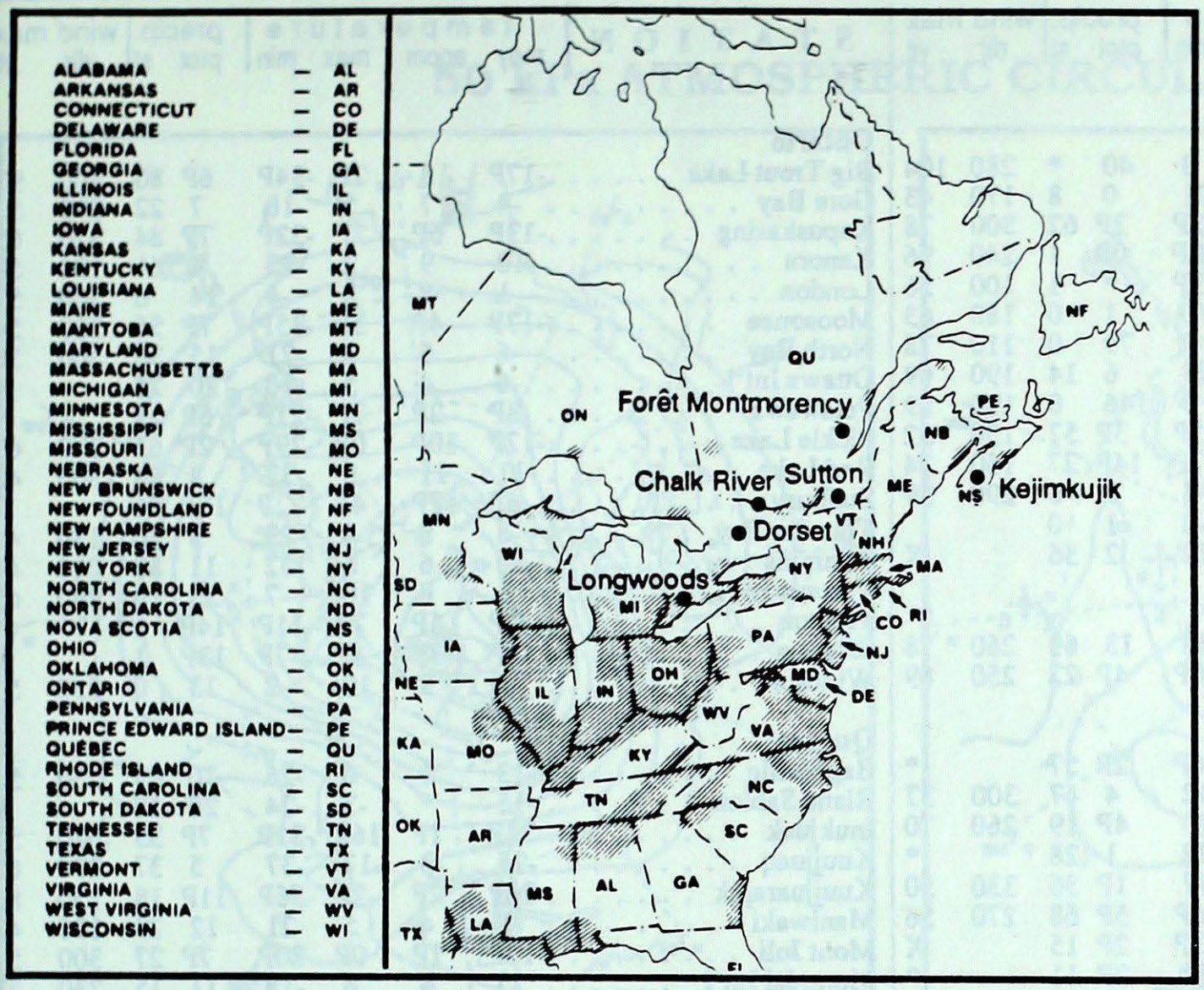


Storm track - Position of storm at 12 GMT each day during the period.



ACID RAIN REPORT

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.

For more information concerning the acid rain report, see Climatic Perspectives, Volume 5, Number 50, page 6.

JANUARY 22 TO JANUARY 28, 1989

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods				Data not available
Dorset	25	4.2	12(m)	Missouri, Illinois, Michigan, Southern Ontario
	26	4.5	3(s)	Minessota, Wisconsin, Michigan
Chalk River	25	4.1	8(s)	Indiana, Michigan, Southern Ontario
Sutton	25	4.1	4(s)	Kentucky, Virginia, Pennsylvania, New York
	26	3.8	7(m)	Ohio, Southern Ontario, New York
	27	4.3	2(s)	New York
Montmorency	25	4.9	4(s)	Eastern Ontario, New York, Pennsylvania, New York, Southern Ontario
	26	4.3	8(s)	Western Quebec, Southern Ontario, Southern Quebec
	28	4.4	3(s)	Michigan, Southern Ontario, Southern Quebec
Kejimkujik	26	4.3	21(m)	North Carolina, Virginia, Massachusett, Atlantic Ocean

r = rain (cm), s = snow (cm), m = mix rain and snow (mm)

STATION	temperature moy	anom	max	min	precip. ptot	st	wind max dir	vit
British Columbia								
Cape St.James	6	2	8	3	40	*	280	104
Cranbrook	-7	2	6	-21	0	8	170	43
Fort Nelson	-17P	6P	7P	-33P	2P	62	300	78
Fort St.John	-5P	13P	9P	-28P	0P	1	240	96
Kamloops	-3P	4P	7	-13P	*	1	100	56
Penticton	-1	2	3	-10	1	0	180	63
Port Hardy	4	2	9	-2	79	0	110	78
Prince George	-3	9	6	-23	6	14	190	69
Prince Rupert	4	5	9	0	146	0	190	89
Revelstoke	-5P	1P	3P	-15P	3P	57	150	52
Smithers	0P	11P	10P	-17P	14P	27	150	74
Vancouver Int'l	4	1	10	-3	7	0	290	39
Victoria Int'l	3	0	11	-2	1	0		
Williams Lake	-3	8	10	-22	2	36		X
Yukon Territory								
Watson Lake	-14	13	2	-38	13	69	260	78
Whitehorse	-17P	3P	1P	-36P	4P	22	250	89
Northwest Territories								
Alert	-42P	-11P	-37P	-46P	2P	57		*
Baker Lake	-34	0	-22	-42	4	47	300	37
Cambridge Bay	-36	-2	-30	-43	4P	19	260	70
Cape Dyer	-32	-10	-18	-42	1	128		*
Clyde	-35	-8	-27	-47	1P	36	330	50
Coppermine	-32P	-7	-23P	-36P	5P	68	270	56
Coral Harbour	-34P	-4P	-27P	-43P	2P	15		X
Eureka	-48	-12	-41	-52	2P	11		*
Fort Smith	-20P	7P	3P	-37P	1P	50		X
Iqaluit	-36	-10	-29	-43	1P	13	330	46
Hall Beach	-39	-7	-25	-45	2	40	310	33
Inuvik	-40P	-11P	-37P	-45P	4P	39		X
Mould Bay	-43	-10	-29	-48	2P	28		X
Norman Wells	-35P	-7P	-28P	-44P	3P	12		X
Resolute	-39	-7	-29	-45	2	22	120	37
Yellowknife	-29P	0P	-14P	-44P	6P	38	290	52
Alberta								
Calgary Int'l	-2	11	10	-23	0	3	290	74
Cold Lake	-15P	3P	-7P	-24P	0P	*		*
Coronation	-8P	8P	4P	-22P	0	0		*
Edmonton Namao	-3	13	10	-16	8	*		
Fort Mcmurray	-6P	17P	12P	-23P	1P	18		X
High Level	-14	8	10	-40	9	40	300	74
Jasper	-5	8	6	-26	4	31		X
Lethbridge	-2P	9P	8P	-12P	0P	1	260	104
Medicine Hat	-4	10	7	-17	0	1	230	57
Peace River	-6P	15P	6P	-30P	1P	4	240	89
Saskatchewan								
Cree Lake	-15P	10P	4P	-40P	3P	52	290	80
Estevan	-7P	11P	3P	-21P	1P	21	230	63
La Ronge	-10P	12P	6P	-32P	1P	30	290	81
Regina	-11	8	3	-25	1	11	280	54
Saskatoon	-9	12	4	-25	1	8	150	43
Swift Current	-7	9	4	-24	0	26		X
Yorkton	-11	10	5	-30	1	20	280	52
Manitoba								
Brandon	-12P	9P	2P	-27P	2P	17	270	50
Churchill	-25P	3P	-15P	-36P	7P	36	300	87
Lynn Lake	-19P	8P	-1P	-38P	2P	*	290	65
The Pas	-10	14	6	-30	0	12	290	80
Thompson	-15P	12P	4P	-34P	4P	*	290	81
Winnipeg Int'l	-11	9	2	-26	3	*	200	44

STATION	temperature moy	anom	max	min	precip. ptot	st	wind max dir	vit
Ontario								
Big Trout Lake	-17P	8	2P	-34P	6P	80	300	91
Gore Bay	-4	7	5	-16	7	22	280	52
Kapuskasing	-13P	6P	2P	-32P	7P	84	320	65
Kenora	-10	9	2	-25	4	61	190	50
London	1	8	8	-4	14	0	300	57
Moosonee	-17P	4P	3P	-35P	7P	56	220	54
North Bay	-6	6	4	-21	15	36	300	50
Ottawa Int'l	-6	4	5	-16	20	25		X
Petawawa	-8P	2P	7P	-21P	5P	23		X
Pickle Lake	-12P	10P	0P	-29P	2P	63	270	69
Red Lake	-11	11	3	-32	3	84	300	48
Sudbury	-6P	7P	4P	-22P	16P	56		X
Thunder Bay	-8	8	4	-23	3	40	130	46
Timmins	-10	6	6	-32	11	50	010	44
Toronto Int'l	1	8	10	-7	13	0	290	63
Trenton	-2P	5P	7P	-11P	14P	1		X
Wiarton	-1P	7P	4P	-7P	13P	1		X
Windsor	4	9	10	-2	13	0	250	52
Québec								
Bagotville	-13	1	0	-26	10	49	250	50
Blanc Sablon	-15	*	-3	-24	20	10		X
Inukjuak	-24P	1P	-16P	-31P	7P	33	070	57
Kuujjuaq	-26	-3	-17	-37	5	37	270	65
Kuujjuarapik	-20P	2P	-2P	-36P	11P	18	150	80
Maniwaki	-8	4	5	-21	12	29	190	43
Mont Joli	-10P	1P	0P	-20P	7P	27	300	57
Montréal Int'l	-5	4	6	-17	11	15	230	52
Natashquan	-16	-5	-1	-28	8	31	200	69
Québec	-9	2	2	-22	15P	42	310	37
Schefferville	-24	-2	-6	-45	10	46	260	65
Sept-Iles	-15	-2	-2	-23	10	27	220	46
Sherbrooke	-7	2	4	-22	16	31	190	54
Val D'or	-10	5	2	-30	11	40	190	50
New Brunswick								
Charlo	-12	-2	1	-23	10	91	290	57
Chatham	-9	-1	4	-24	4	28	330	54
Fredericton	-9P	-2P	3P	-24P	9P	25	280	48
Moncton	-7	0	4	-22	3	12	270	61
Saint John	-6	1	4	-20	18	5	200	65
Nova Scotia								
Greenwood	-4P	0P	5P	-16P	16P	1	270	70
Shearwater	-3P	0P	6P	-16P	21P	1	250	72
Sydney	-6	-1	4	-17	21	12	200	72
Yarmouth	-2P	0P	6P	-14P	14P	0	340	59
Prince Edward Island								
Charlottetown	-7	-1	2	-19	12	26	320	57
Summerside	-6P	0P	3P	-18P	1P	18	190	57
Newfoundland								
Cartwright	-17	-4	-5	-26	1	81	310	56
Churchill Falls	-23P	-4P	-7P	-40P	8P	76	280	57
Gander Int'l	-11	-5	1	-22	20	42	190	102
Goose	-18	-3	-5	-28	4	0	320	52
Port-Aux-Basques	-6	-2	0	-13	23	56	330	93
St John's	-9	-5	3	-18	21	28	190	111
St Lawrence	-7	-4	3	-16	12P	31		X
Wabush Lake	-21	-1	-7	-39	7	46	210	56

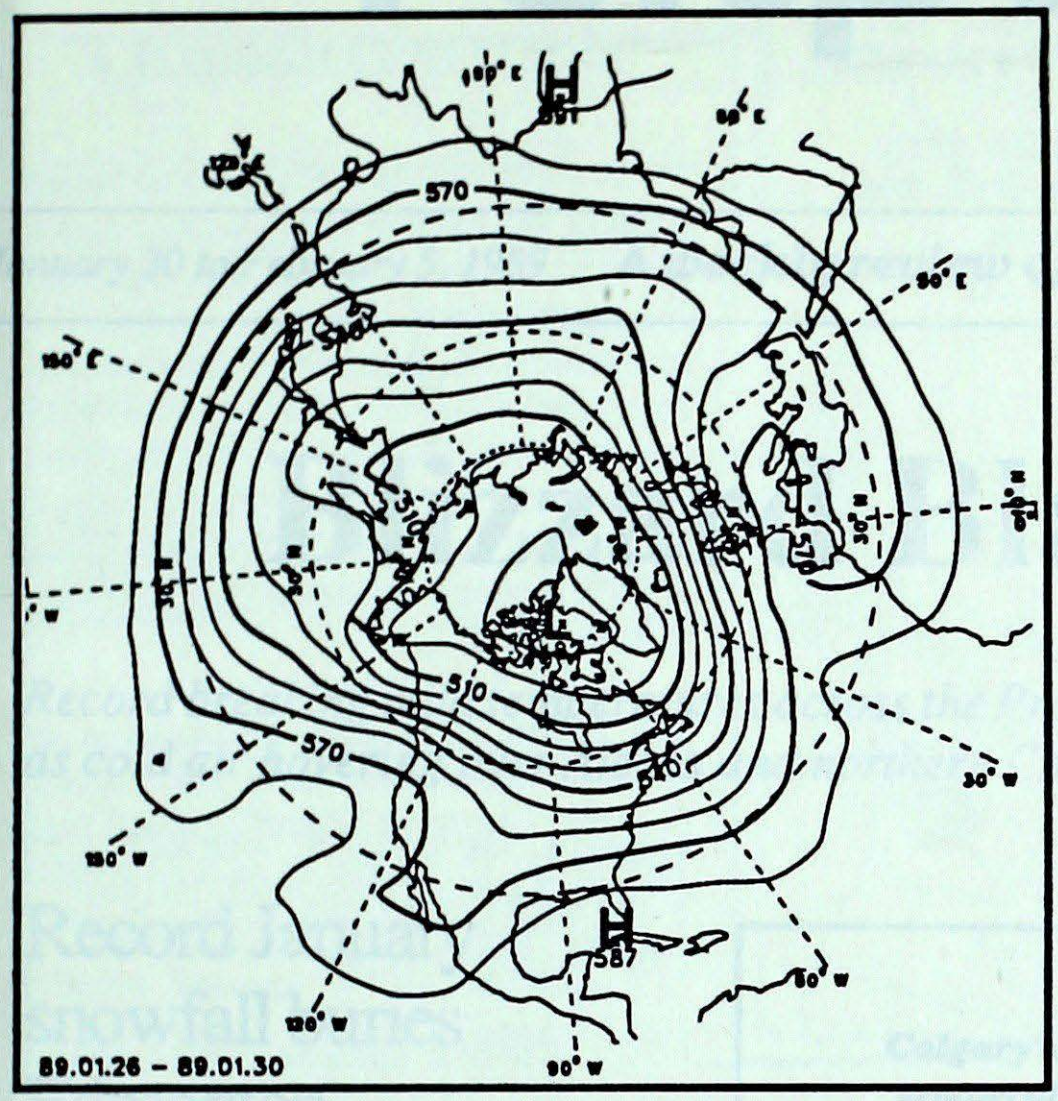
89/01/23-89/01/29

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

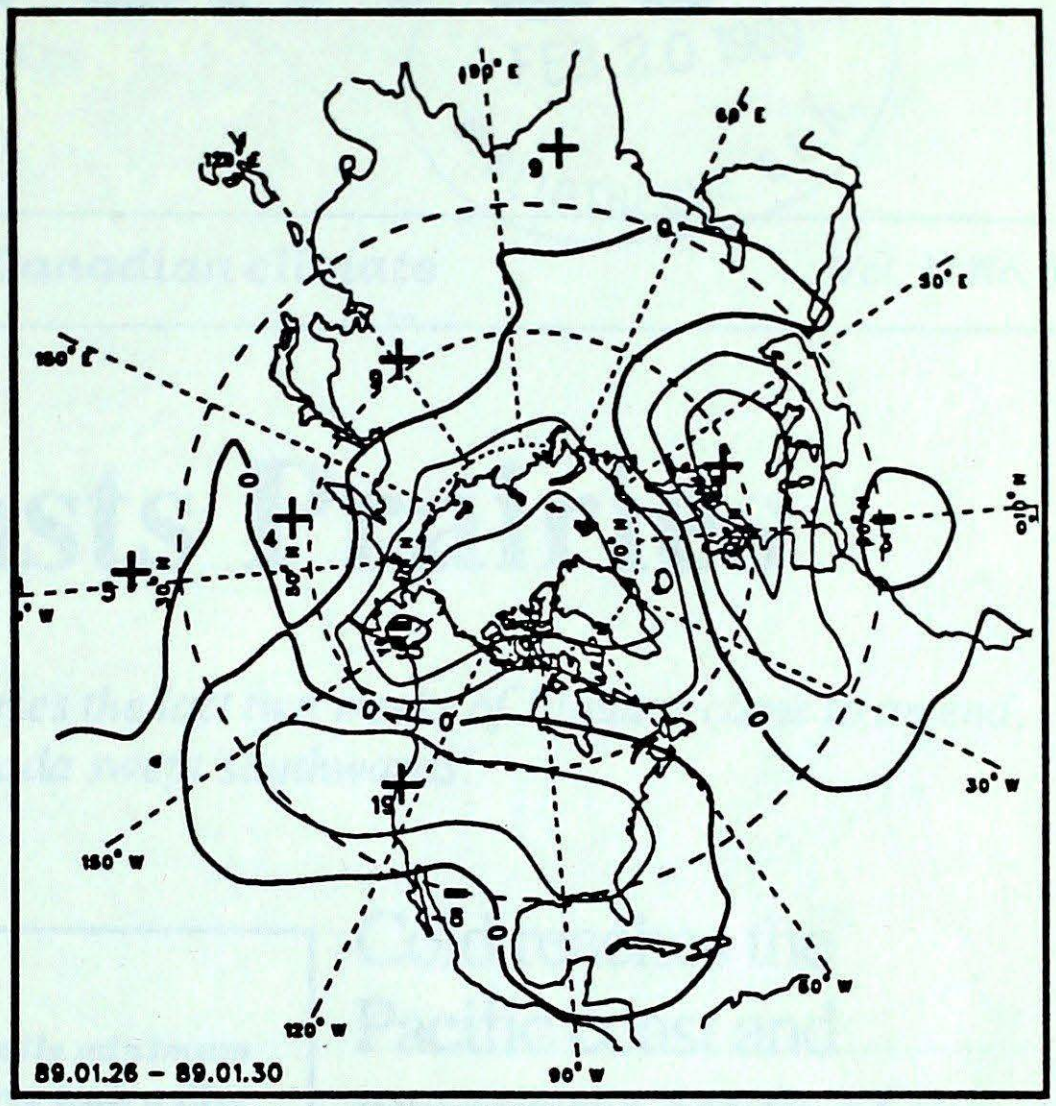
ptot = weekly precipitation total in mm
st = snow thickness on the ground in cm
dir = direction of max wind, deg. from north.
vit = wind speed in km/h

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

50 kPa ATMOSPHERIC CIRCULATION



Mean geopotential height
50 kPa level (10 decameter intervals)

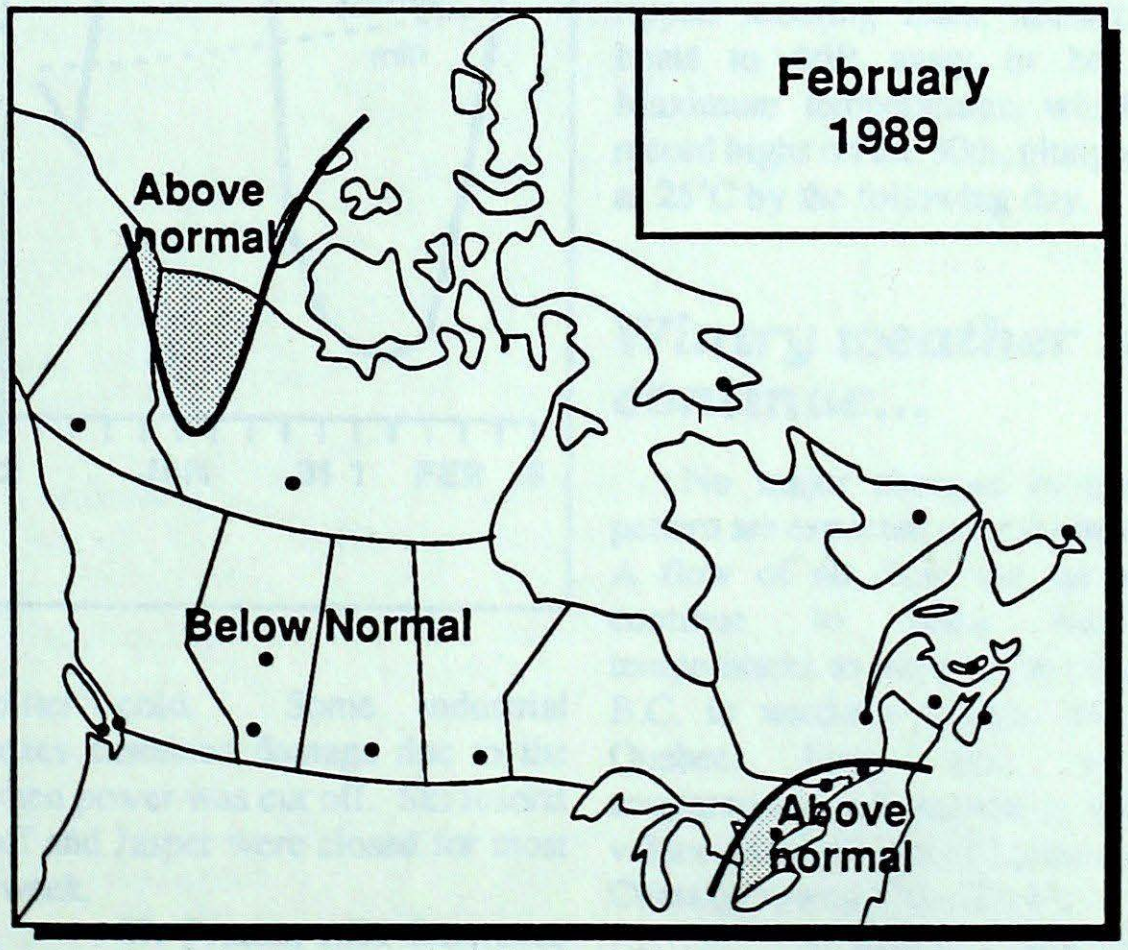


Mean geopotential height anomaly
50 kPa level (10 decameter intervals)

Environment Canada / Environnement Canada

Atmospheric Environment Service / Service de l'environnement atmosphérique

MONTHLY TEMPERATURE FORECAST



Normal temperatures for the month of February, °C

Whitehorse	-13	Toronto	-6
Yellowknife	-27	Ottawa	-10
Iqaluit	-26	Montreal	-9
Vancouver	5	Quebec	-11
Victoria	5	Fredericton	-8
Calgary	-7	Halifax	-5
Edmonton	-11	Charlottetown	-8
Regina	-14	Goose Bay	-15
Winnipeg	-16	St. John's	-5

Canada