



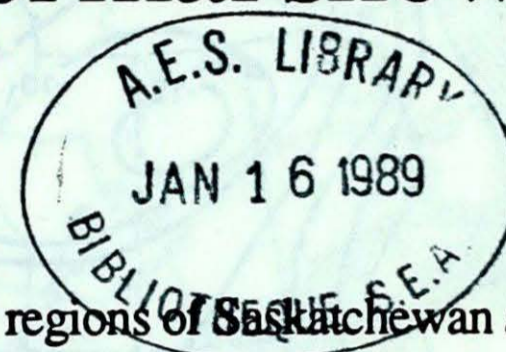
Climatic Perspectives

Dec 27, 1988 to Jan 2, 1989

A weekly review of Canadian climate

Vol. 11 No. 1

At last, a winter with near-normal snow on the Prairies



It was a welcome white Christmas season across most agricultural regions of Saskatchewan and Manitoba as the snow cover continued to build. This season's normal to above-normal snowfall seemed to come as a bit of a surprise to many who had become accustomed to the meagre snowfalls of the previous two winters. Winnipeg's seasonal snowfall total reached 65.4 cm this week which coincidentally equalled the total snowfall for all of last winter. The snowfall amounts have been even greater in southern Saskatchewan where Swift Current has received 150% of their normal snowfall for the period from November 1st to the end of the year. After struggling through one of the worst drought years ever, which was followed by a dry fall, the snow is good news for Prairie farmers who have been hoping for a decent cover of snow to help recharge depleted soil moisture reserves during the period of spring melt. Not all of the Prairies have been blessed with heavy snowfalls, as below-normal amounts have been recorded over central Saskatchewan and the southern two thirds of Alberta.

Another warm, dry year in the west

northward into the Mackenzie Valley where annual temperature anomalies were in the 4 - 6 °C range.

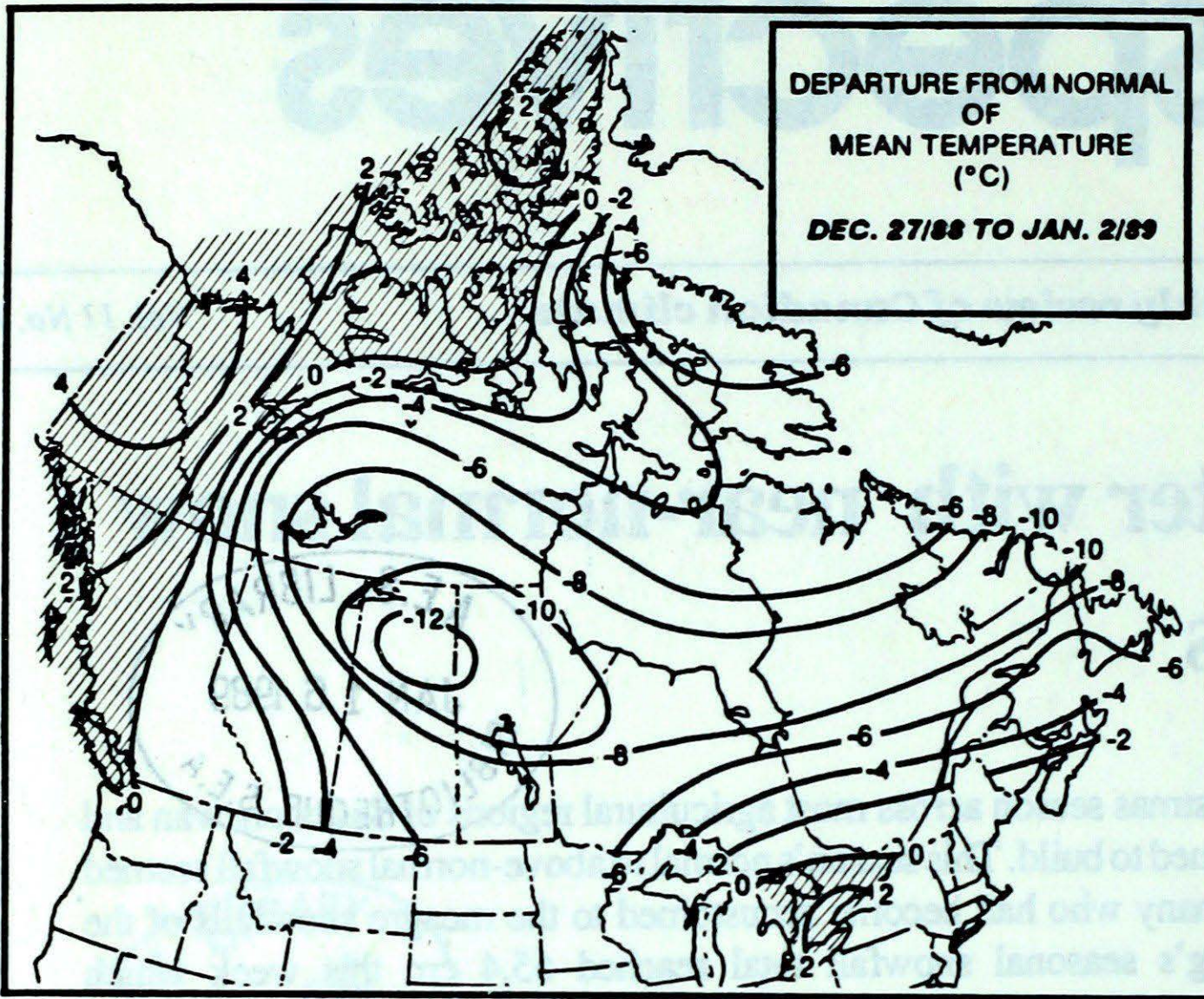
A look ahead...

1988 will probably be remembered as a hot, dry year when one of the worst droughts since the 1930's was experienced over the Canadian Prairies and the U.S. Plains. Despite the drought, 1988 did not rank as one of the five driest years at most locations, the main exception being at Moose Jaw where it was the driest year in the history of the station (back to 1899). For many locations though, 1988 did rank as one of the five warmest years, although not as warm as the record year of 1987. 1981 and 1986 were other years among the five warmest at some locations. This continues the pronounced warming trend for the 1980's in western Canada. Initial data indicates that the core of annual warmth was in central and northern Alberta and extended

Bitterly cold air ushered in the New Year across most of Canada east of the Rockies. By the middle of the week, the cold air pushed southward to cover the Great Lake Basin.

After a brief moderation over the weekend east of Manitoba, temperatures will, once again, drop to below normal values especially over Atlantic Canada. Over the Southwestern Prairies, cold should give away to milder Pacific air during the second week of January. Near normal temperatures are expected over B.C.

Mean January temperatures are expected to be above normal from B.C. to Manitoba and over the Great Lakes and the St. Lawrence Valley. Elsewhere, January will be colder than normal (see page 8).
A. Shabbar - 04/01/89



Across the country...

Yukon and Northwest Territories

The Yukon was generally mild the first week of the period with only small amounts of precipitation. The north was unseasonably mild with temperatures ranging from 6 to 12°C above normal. For the week of the 26th, cold air invaded the Yukon. Many of the southern valleys were covered by low cloud as a result of trapped moisture in the low levels. Clearer conditions in the higher elevations dropped temperatures into the minus 30°C range. By the weekend, a series of Pacific disturbances brought milder temperatures and some light snow. It was generally clear and cold across the western part of the Northwest Territories with overnight lows in the -30 to -40 C range. Most of the ice bridges were open to traffic, although restricted to light vehicles only. The eastern part was generally clear and cold with occasional strong northwest winds. During the week of the 26th, a weak low pressure system gave some snow to the southern part of Baffin Island. The re-development of this low in the Labrador Sea produced blizzard conditions on Baffin Island on the 30th and 31st.

British Columbia

Generally the weather was seasonable but variable as some fairly active low pressure systems passed over the province during the two-week period. Most of the precipitation fell as snow, especially in the interior. This snow was most welcome by the skiers. On the 29th, a combination of snow and strong winds created hazardous driving in the Fort St. John area while on the 30th, portions of the Rogers Pass were closed as blowing snow reduced visibility.

Prairies

In Alberta, temperatures were below normal as cold Arctic air engulfed the province by the 21st. On the 31st, minimum temperatures were in the minus 40°C range in the northern parts. For the first week of the period, Manitoba and Saskatchewan started off with very mild weather and ended on the bitterly cold side. By Christmas day, temperatures had dropped

Weekly Temperature extremes (°C)

	Maximum temperature	Minimum temperature
British Columbia	Vancouver Int'l 10	Puntzi Mountain -32
Yukon Territory	Komakuk Beach A -3	Beaver Creek -35
Northwest Territories	Clinton Point -11	Shepherd Bay A -47
Alberta	Pincher Creek A 3	Fort Chipewyan -42
Saskatchewan	Estevan -3	Cree Lake -43
Manitoba	Brandon -13	Thompson -43
Ontario	Goderich 5	Lansdowne House -43
	Windsor	
Québec	Montréal Int'l 3	La Grande Riviere -37
New Brunswick	Saint John 5	Charlo -26
Nova Scotia	Sable Island 11	Truro -19
Prince Edward Island	East Point 3	Charlottetown -19
Newfoundland	Cape Race 6	Wabush Lake -39

Across The Country...

Warmest Mean Temperature	Langara (BC) 5
Coollest Mean Temperature	Pond Inlet (NWT) -36

to the minus thirties. Several areas reported 5 to 10 cm of new snow. Cold temperatures and snow continued into the second week. Temperatures in northern Saskatchewan dipped into the -40°C range. Southeastern Manitoba received at least 10 cm of snow. The ample snow cover at most Prairie locations may be the harbinger of a good agricultural year as soil moisture reserves return to normal.

Ontario

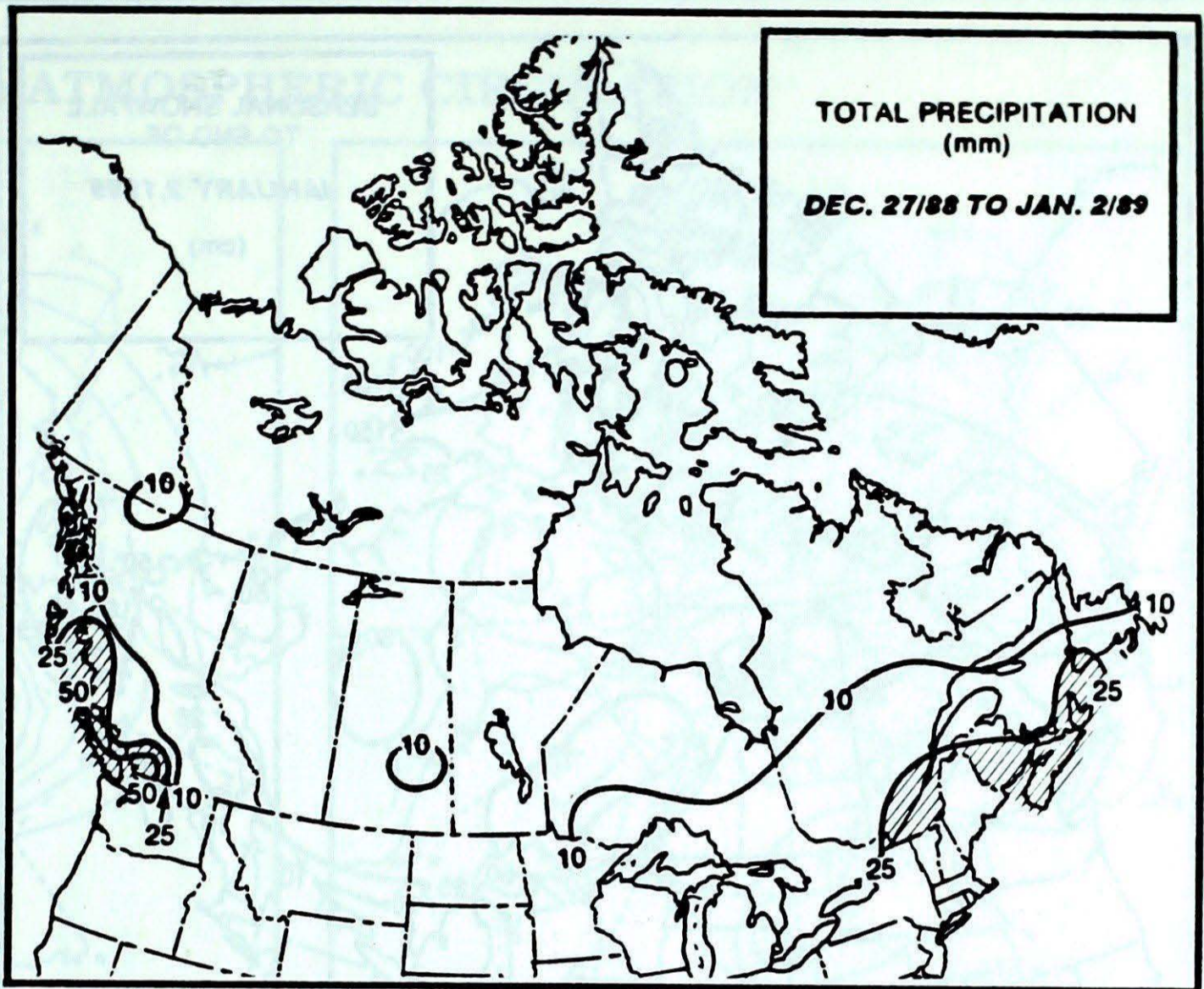
Southern and central Ontario were generally seasonable to mild while the north was cold. Snowfall was light except in the snowbelt areas and the northwest. The Sioux Lookout-Kenora area received 20 to 30 cm of snow during the holiday period with the heaviest snowfall on December 26th to 27th when 10 to 15 cm fell in northwestern Ontario. Most of Ontario had a white Christmas except for southern Ontario, Niagara and the north shore of Lake Ontario. Freezing rain on the 23rd and on the 29th created problems for holiday travellers.

Quebec

During the week of December 20 -26, temperatures were relatively mild, particularly in the south, and precipitation amounts were generally less than 25 mm, mostly in the form of snow. Freezing rain mixed with snow fell in the Quebec city region on the 23rd which produced very slippery road conditions. These icy conditions were likely the cause of two multiple-car collisions that occurred about 40 km east of Quebec city which killed two and injured more than 20 persons. The holiday weather conditions were favourable for the ski resorts. There was an increase in the usual number of skiers in the Eastern Townships due to the fact that they were able to make artificial snow. Temperatures nose dived to below seasonal normals during the week of December 27 to January 2. Many daily low temperature records were broken during the last five days of this period, most of them being in the south.

Maritimes

During the period of the 20th to 26th, no significant weather was reported. On



Heaviest Weekly Precipitation (mm)

British Columbia	Estevan Point	89
Yukon Territory	Watson Lake	11
Northwest Territories	Fort Simpson	4
Alberta	Whitecourt	11
Saskatchewan	Yorkton	15
Manitoba	Brandon	9
Ontario	Wawa	32
Québec	Ste Agathe Des Monts	37
New Brunswick	Saint John	45
Nova Scotia	Sydney	34
Prince Edward Island	Charlottetown	25
Newfoundland	St Lawrence	37

Christmas day, most areas were cloudy and mild. During the week of the 26th, cold air moved into area as maximums failed to climb above minus 10°C by the 1st. A major storm over Sable Island on the 2nd dumped at least 40 cm of snow.

Newfoundland

During the week of the 20th, temperatures were seasonable with light snow. On Christmas Day, a major storm dumped 25 to 30 cm of snow on most areas and on

the 29th, another storm brought high winds and snow to most areas. Port aux Basques reported winds gusting to 145 km/h. A northerly flow behind the storm brought cold air into the region as daily maximums of -10 to -15°C were reported. Labrador was generally cold with light amounts of snow. By the end of the month, daily maximums of minus 20°C were common. Wind gusts to 80 km/h accompanied by low temperatures created extreme wind chills.

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The purpose of the publication is to
 make topical information available to the
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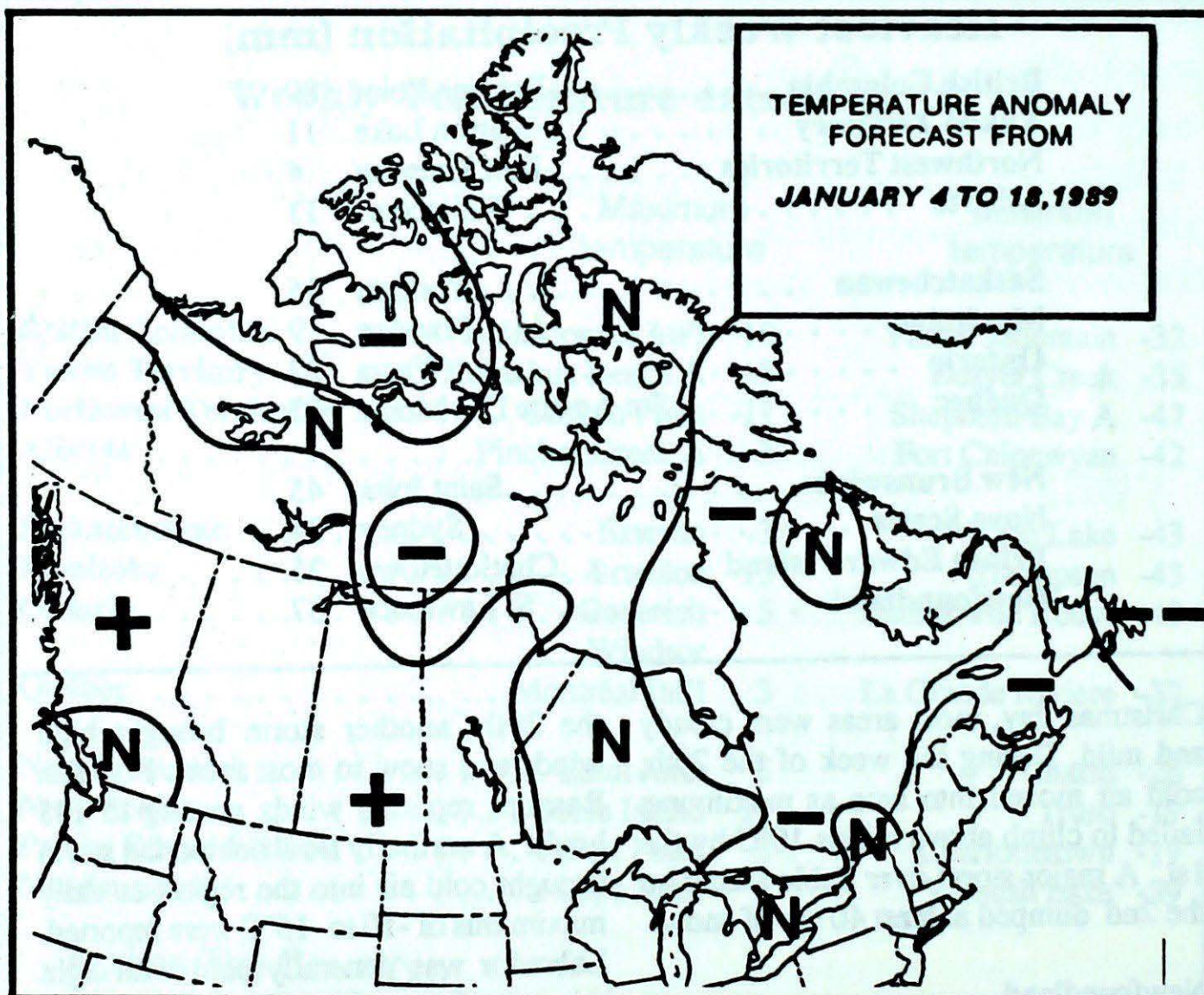
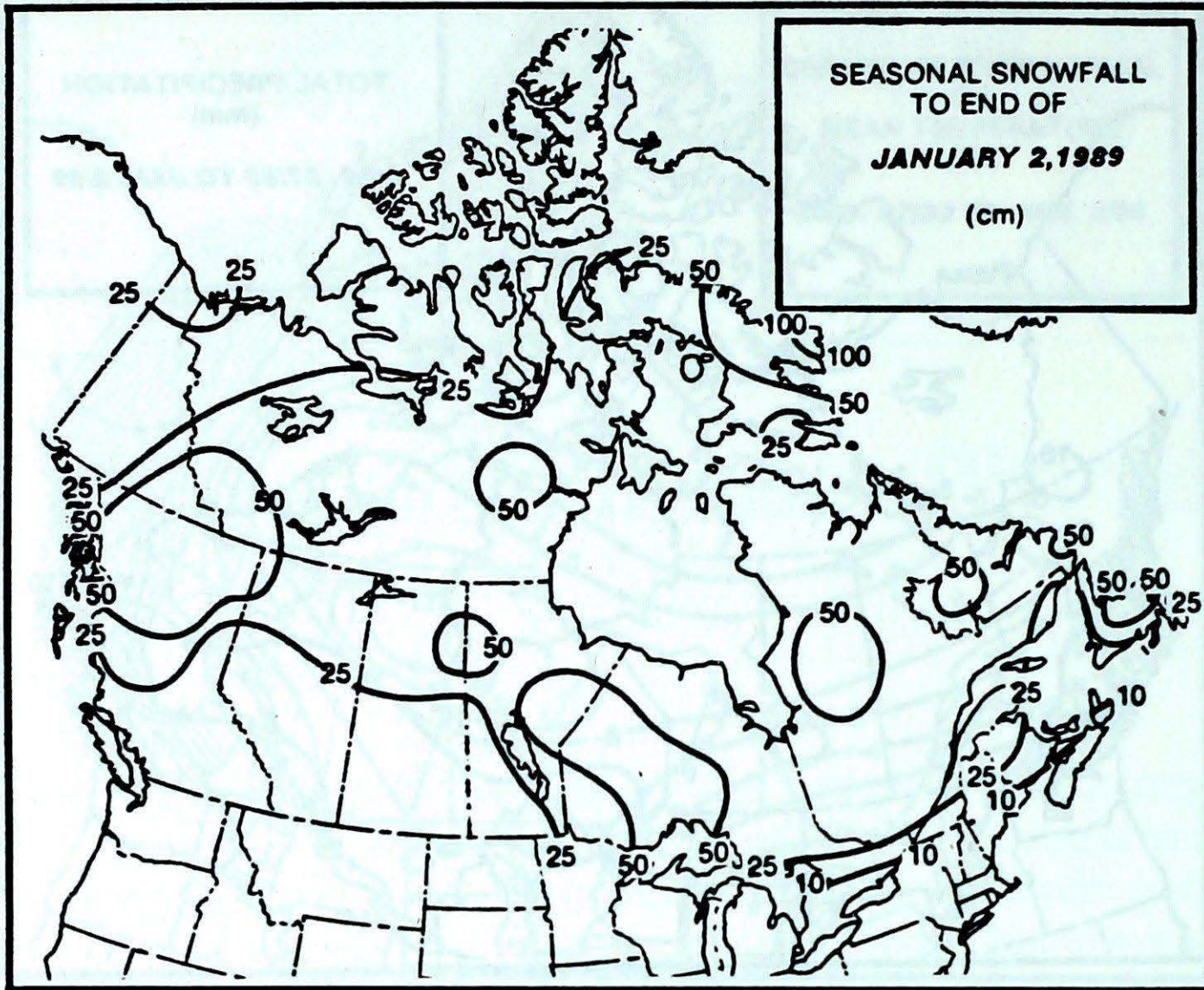
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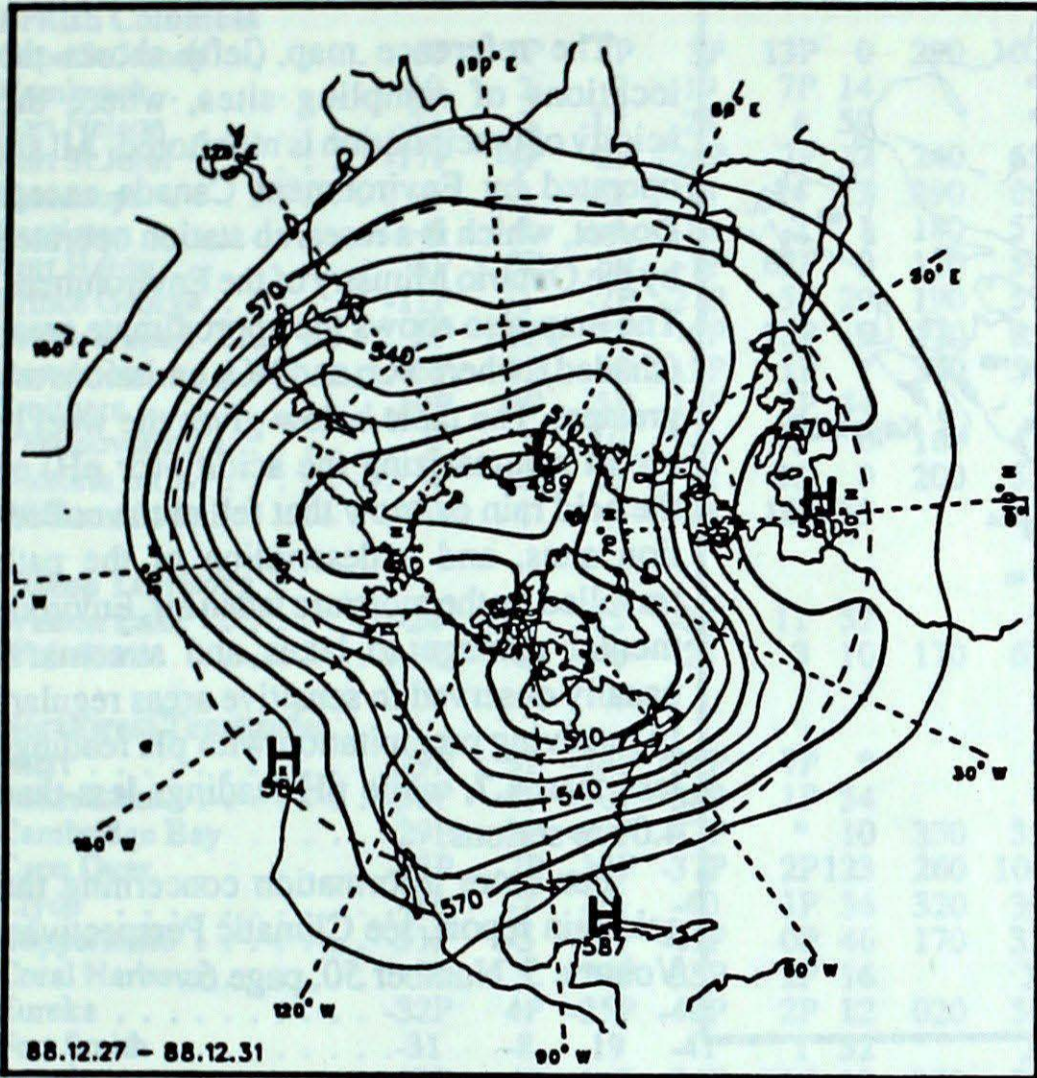


- ++ much above normal
- + above normal
- N normal
- below normal
- much below normal

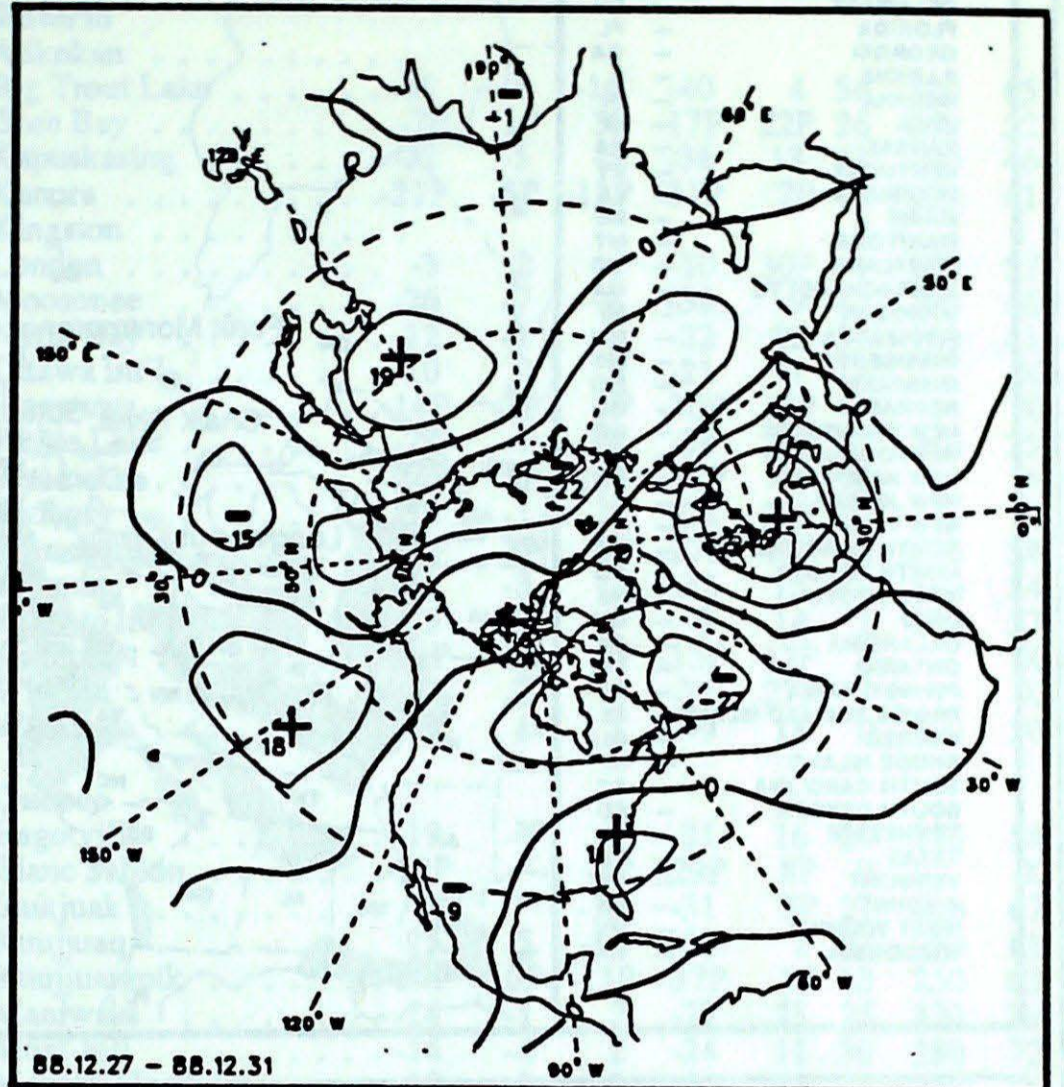
Temperature Anomaly Forecast

This forecast is prepared by searching historical weather maps to find cases similar to the present. the historical outcome during the 15 days subsequent to the chosen analogues is assumed to be a forecast for the next 15 days from now.

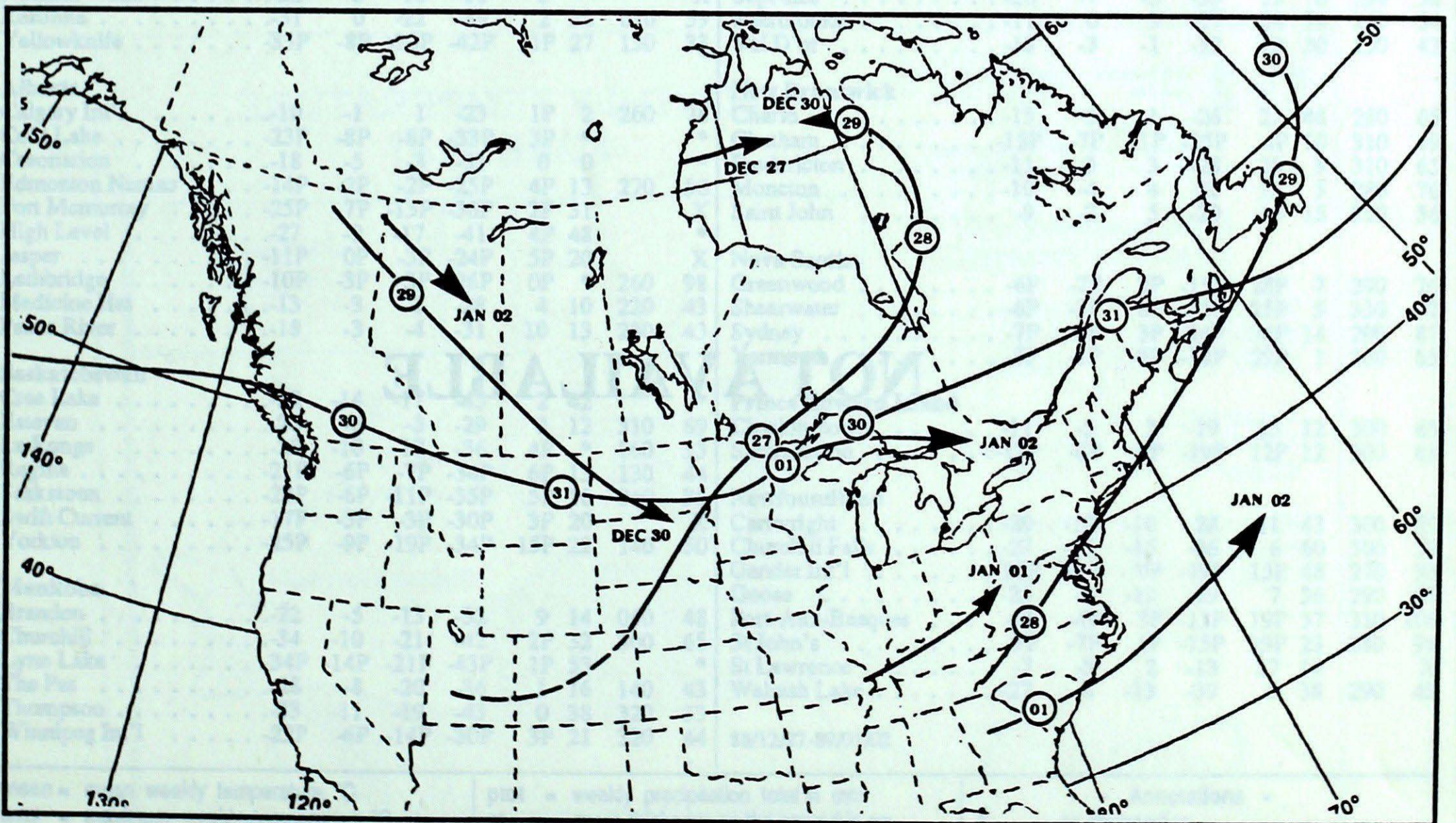
50 kPa ATMOSPHERIC CIRCULATION



Mean geopotential height
50 kPa level (10 decameter intervals)



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

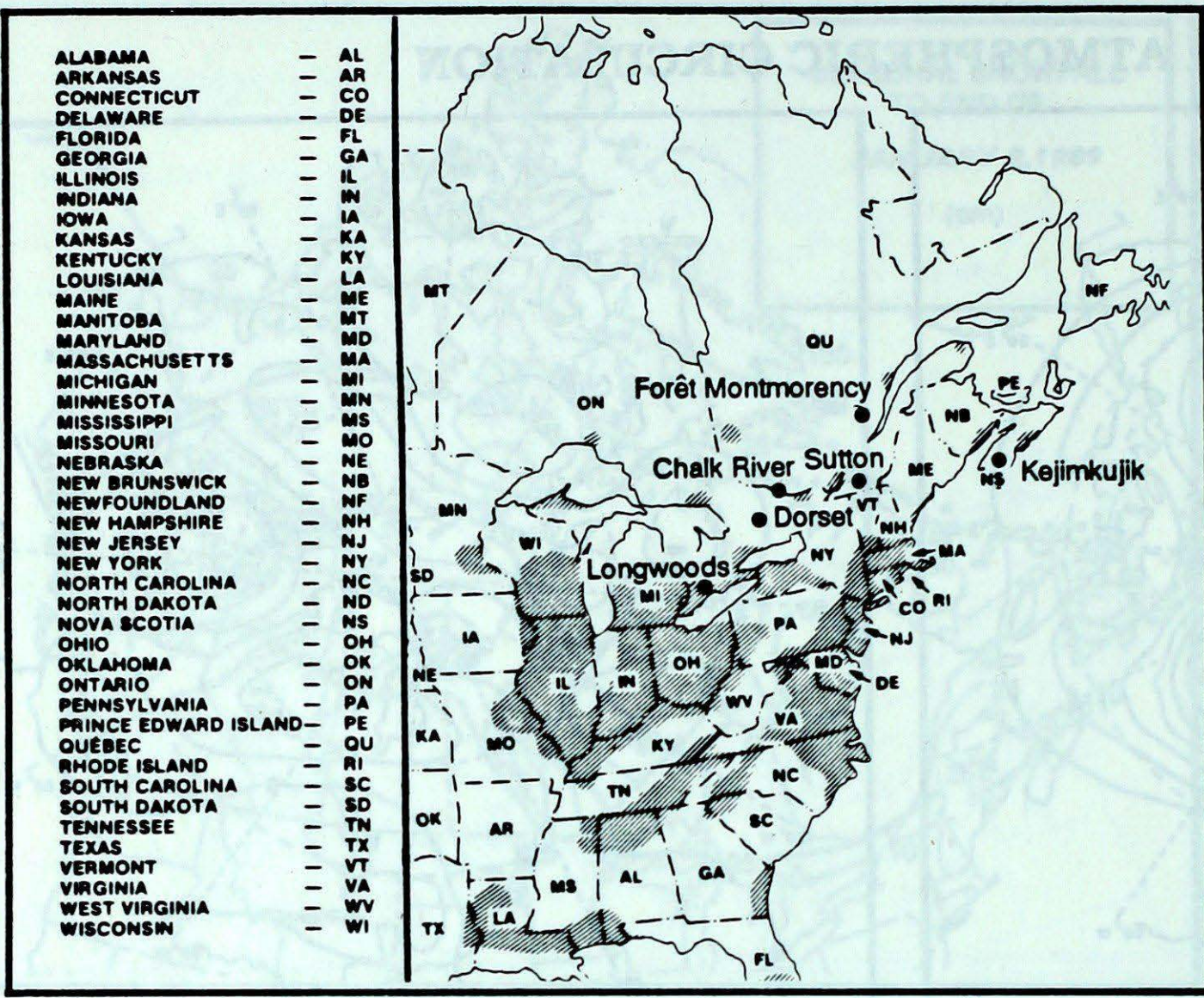


Storm track - Position of storm at 12 GMT each day during the period.

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 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.

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

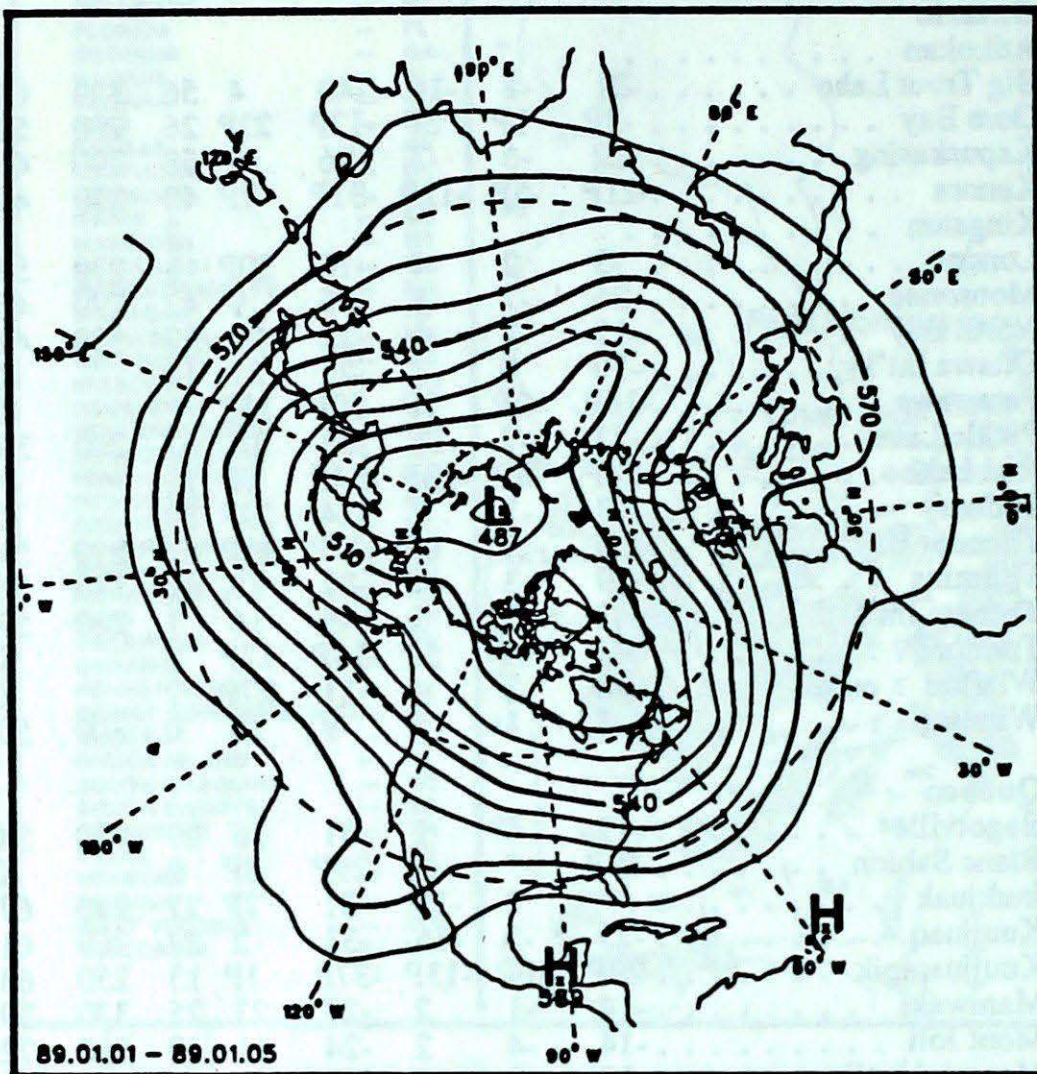


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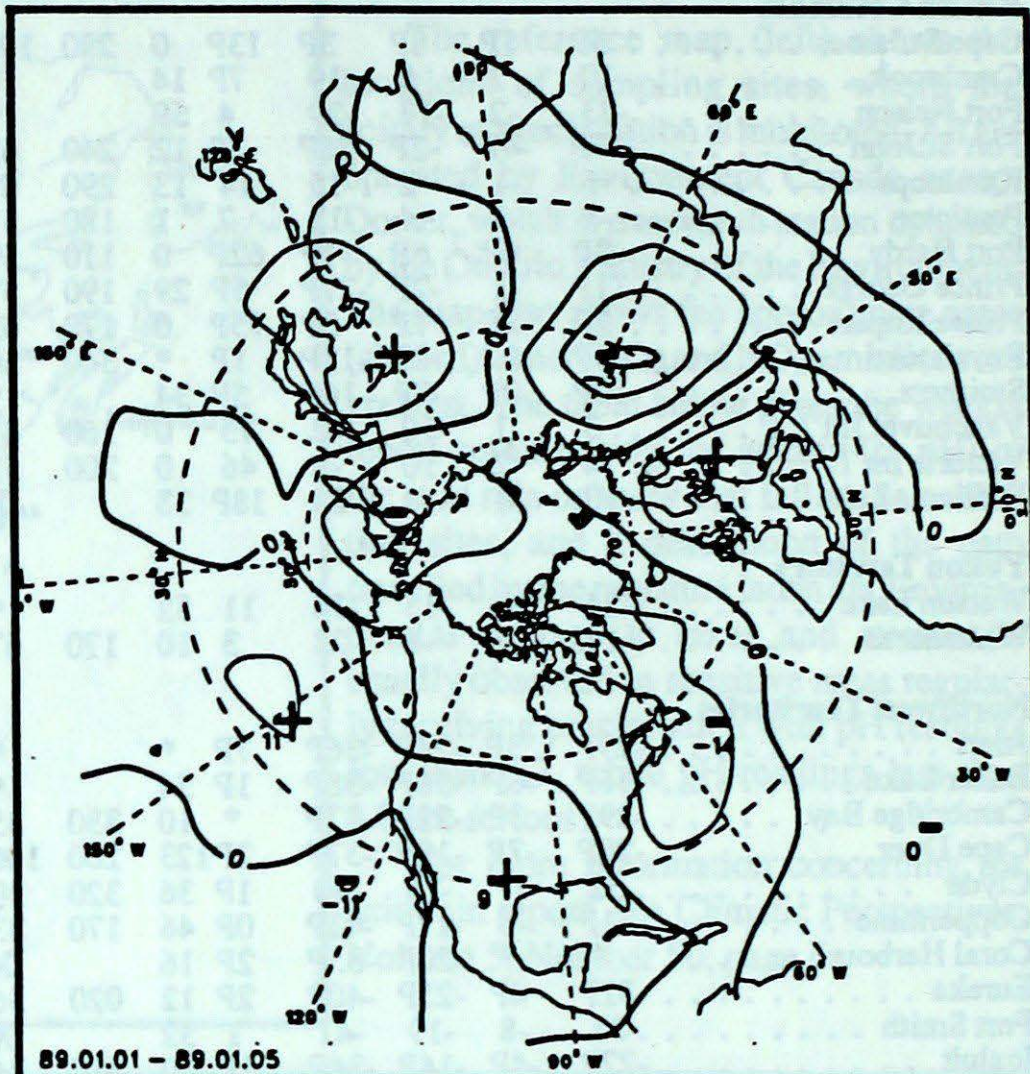
STATION	temperature				precip. ptot	wind max dir	wind max vit	STATION	temperature				precip. ptot	wind max dir	wind max vit	
	mean	anom	max	min					mean	anom	max	min				
British Columbia								Ontario								
Cape St James	5P	1P	8P	3P	13P 0	290	102	Atikokan						*		
Cranbrook	-10	2	0	-19	7P 14		*	Big Trout Lake	-31	-8	-16	-40	4	56	320	65
Fort Nelson	-23	-2	-17	-29	4 59		*	Gore Bay	-7P	1P	3P	-17P	22P	26	280	52
Fort St John	-17P	-4P	-2P	-26P	7P 12	240	65	Kapuskasing	-22	-5	-3	-36	13	58	300	46
Kamloops	-6	-1	2	-15	14 13	290	65	Kenora	-21P	-5P	-12P	-31P	7P	40	320	41
Penticton	-4	-2	4	-12	7 1	180	57	Kingston								
Port Hardy	3P	0P	6P	-1P	62P 0	110	59	London	-3	2	4	-10	30P	1	270	57
Prince George	-11P	-1	-2P	-27P	5P 29	190	57	Moosonee	-26	-7	-8	-36	9	42	290	46
Prince Rupert	2P	2P	7P	-5P	75P 0	170	65	North Bay	-12	-1	1	-22	22	32	180	41
Revelstoke	-6P	0P	-1P	-12P	1P *	340	56	Ottawa Int'l	-10	0	3	-21	21	14		X
Smithers	-10P	0P	-3P	-16P	5P 34		*	Petawawa	-14P	-2P	1P	-30P	15P	*		X
Vancouver Int'l	3	1	10	-2	73 0	160	41	Pickle Lake	-27	-7	-14	-38	10	67	260	35
Victoria Int'l	4	2	10	-2	46 0	200	52	Red Lake	-24P	-6P	-13P	-34P	7P	73		*
Williams Lake	-10	-1	-4	-23	18P 33		X	Sudbury	-13	-1	2	-24	29P	39		X
Yukon Territory								Thunder Bay								
Watson Lake	-24	0	-15	-34	11 52		*	Timmins	-19	-3	-1	-32	15	42	140	54
Whitehorse	-14	2	-6	-28	3 10	170	67	Toronto Int'l	-3	3	5	-9	14	1	280	57
Northwest Territories								Trenton								
Alert	-29P	3P	-24P	-36P	7P *		*	Warton	-4	2	4	-11	27P	7		X
Baker Lake	-36P	-6P	-30P	-38P	1P 54		*	Windsor	-3	1	5	-9	18	0	300	50
Cambridge Bay	-29P	3P	-22P	-37P	* 10	330	35	Québec								
Cape Dyer	-28P	-7P	-18P	-37P	2P 123	260	106	Bagotville	-19	-4	1	-31	16	29	270	54
Clyde	-32	-7	-25	-40	1P 36	320	39	Blanc Sablon	-19P	*	-4P	-29P	8P	9		X
Coppermine	-31P	-5	-17P	-41P	0P 46	170	33	Inukjuak	*	*	-13	-31	7P	27	240	67
Coral Harbour	*	*	-20P	-35P	2P 16		X	Kuujuuaq	-25	-5	-15	-33	2	27	260	61
Eureka	-32P	4P	-25P	-40P	2P 12	020	56	Kuujuuarapik	-29P	-10P	-13P	-37P	1P	13	250	63
Fort Smith	-31	-8	-19	-41	1 32		X	Maniwaki	-14	-1	2	-27	23	25	320	39
Iqaluit	-27P	-4P	-14P	-34P	1P 10	330	74	Mont Joli	-14	-4	2	-24	11	30	280	72
Hall Beach	-33	-5	-24	-42	2P 42	310	39	Montréal Int'l	-10	0	3	-20	27	6	240	46
Inuvik	-23P	5P	-14P	-36P	3P *		X	Natashquan	-19	-9	-1	-30	6	22	170	59
Mould Bay	-31P	2P	-18P	-42P	1P 26		X	Québec	-14	-3	1	-27	28	*	300	59
Norman Wells	-22	5	-16	-31	3 *		X	Schefferville	-28	-7	-15	-36	3	30	270	56
Resolute	-31	0	-22	-39	2 22	010	59	Sept-Iles	-20	-7	-5	-33	12	0	290	56
Yellowknife	-33P	-8P	-20P	-42P	1P 27	130	33	Sherbrooke	-11	0	3	-27	26	14	260	54
Alberta								Val D'or								
Calgary Int'l	-10	-1	1	-23	1P 2	260	78		-18	-3	-1	-32	13	30	150	43
Cold Lake	-23P	-8P	-8P	-33P	3P *		*	New Brunswick								
Coronation	-18	-5	-3	-31	0 0		*	Charlo	-15	-5	-1	-26	21	48	280	65
Edmonton Namao	-14P	-2P	-2P	-25P	4P 13	270	50	Chatham	-15P	-7P	1P	-25P	4P	10	310	59
Fort McMurray	-25P	-7P	-13P	-36P	2P 31		X	Fredericton	-11	-3	3	-23	25	8	310	65
High Level	-27	-9	-17	-41	4P 48		*	Moncton	-10	-4	4	-20	18	5	280	76
Jasper	-11P	0P	-3P	-24P	5P 20		X	Saint John	-9	-2	5	-20	45	15	210	56
Lethbridge	-10P	-3P	3P	-26P	0P *	260	98	Nova Scotia								
Medicine Hat	-13	-3	1	-28	4 10	220	43	Greenwood	-6P	-2P	7P	-15P	28P	7	290	76
Peace River	-18	-3	-4	-31	10 13	280	43	Shearwater	-6P	-3P	8P	-15P	25P	5	330	72
Saskatchewan								Sydney								
Cree Lake	-32	-14	-17	-43	2 42		*	Yarmouth	-3P	-1P	9P	-12P	29P	1	300	85
Estevan	-20	-6	-3	-29	3 12	310	69	Prince Edward Island								
La Ronge	-28	-10	-17	-36	4P *	160	33	Charlottetown	-11	-5	3	-19	25	12	300	65
Regina	-21P	-6P	-7P	-34P	6P 13	130	44	Summerside	-12P	-6P	0P	-19P	12P	12	300	81
Saskatoon	-23P	-6P	-11P	-35P	5P 16	040	35	Newfoundland								
Swift Current	-17P	-5P	-3P	-30P	3P 20		X	Cartwright	-20	-10	-10	-28	11	43	300	59
Yorkton	-25P	-9P	-19P	-34P	15P 22	140	50	Churchill Falls	-27	-10	-15	-36	6	60	300	59
Manitoba								Gander Int'l								
Brandon	-22	-5	-13	-32	9 14	060	48	Goose	-23	-9	-13	-29	7	36	290	57
Churchill	-34	-10	-21	-42	2P 32	300	65	Port-Aux-Basques	-6P	-4P	3P	-13P	19P	37	310	106
Lynn Lake	-34P	-14P	-21P	-43P	1P 53		*	St John's	-9P	-7P	1P	-15P	29P	23	280	98
The Pas	-28	-8	-20	-36	1 16	140	43	St Lawrence	-7	-5	2	-13	37	14		X
Thompson	-33	-11	-19	-43	0 38	320	33	Wabush Lake	-27	-8	-13	-39	5	38	290	43
Winnipeg Int'l	-22P	-6P	-14P	-30P	3P 21	320	44	88/12/27-89/01/02								

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

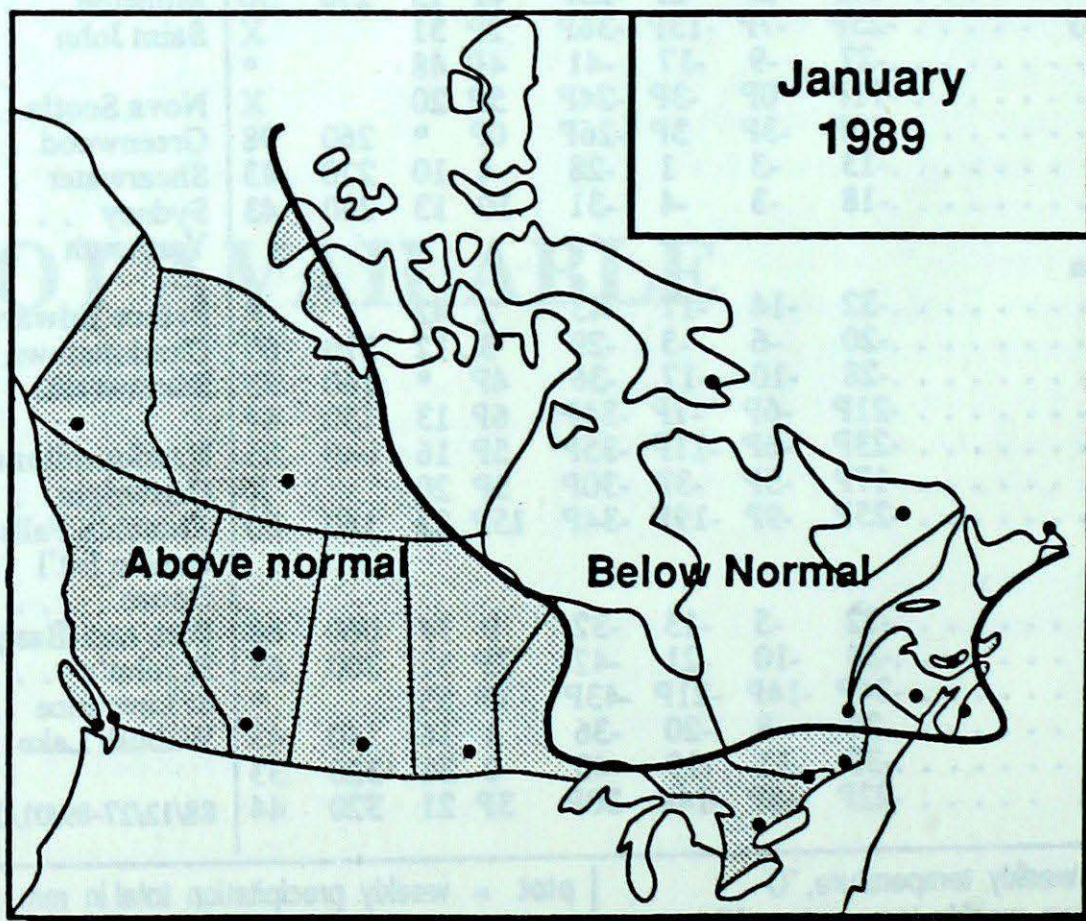
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de l'environnement
atmosphérique

*Normal temperatures for
the month of January, °C*

Whitehorse	-21	Toronto	-7
Yellowknife	-29	Ottawa	-11
Iqaluit	-26	Montreal	-10
Vancouver	6	Quebec	-12
Victoria	6	Fredericton	-9
Calgary	-12	Halifax	-4
Edmonton	-16	Charlottetown	-7
Regina	-18	Goose Bay	-16
Winnipeg	-19	St. John's	-4

MONTHLY TEMPERATURE FORECAST

January
1989



Canada