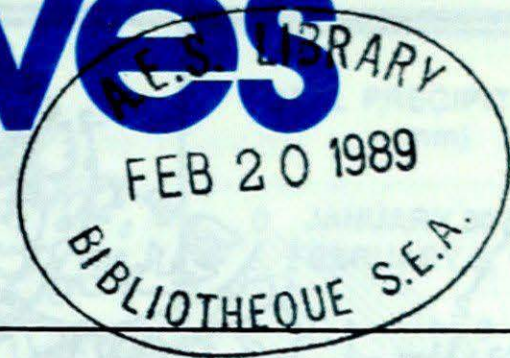


Climatic Perspectives



January 30 to February 5, 1989 A weekly review of Canadian climate

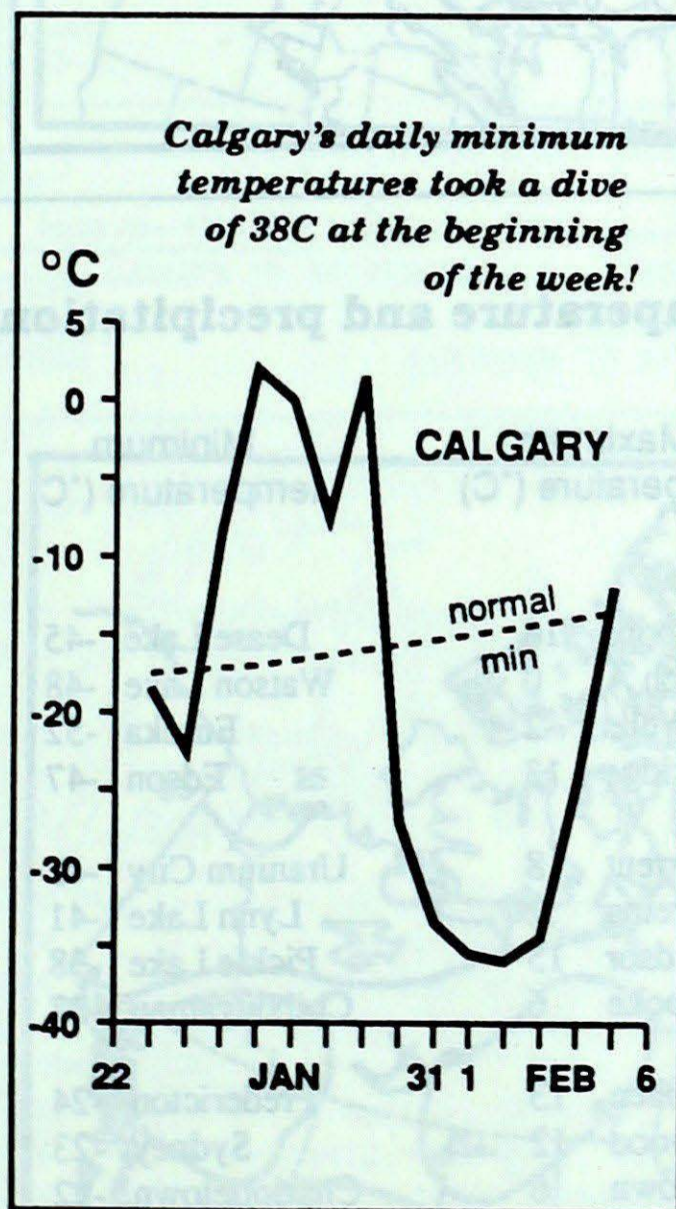
Vol. 11-No. 6

Blizzard Blasts Prairies

Record breaking mild temperatures across the Prairies the last two weeks of January came to an end, as cold air hovering over Alaska and northern Canada swept southwards.

Record January snowfall buries Edmonton

Spectacular temperature drops and fierce blizzard conditions accompanied the southward plunge of frigid air across the Prairies, particularly in Alberta on Monday, January 30. By late Monday afternoon and evening, all north central, central and southern regions were experiencing blizzard or near-blizzard conditions, with heavy drifting and blowing snow. At Lethbridge, the temperature dropped from 12°C at 4:00 p.m. to -9°C at 5:00 p.m. following the passage of the cold front. Highways and schools in rural areas were closed. Calgary received only 3.8 cm of snow, while conditions in Edmonton, with a record one-day January snowfall of 32.6 cm, were utter chaos. The previous one-day record for January was 25.9 cm, set on January 31, 1885. The city was choked with abandoned vehicles. The International Airport was closed at 5 p.m. after countless delays. In the aftermath, hospitals reported numerous severe cases of frostbite. At least seven storm-related deaths were reported. Edmonton power utilities recorded an all-time high power consumption, as residents tried to fend off



the bitter cold. Some industrial complexes sustained damage due to the cold when power was cut off. Ski resorts in Banff and Jasper were closed for most of the week.

W. Prusak, AES Edmonton

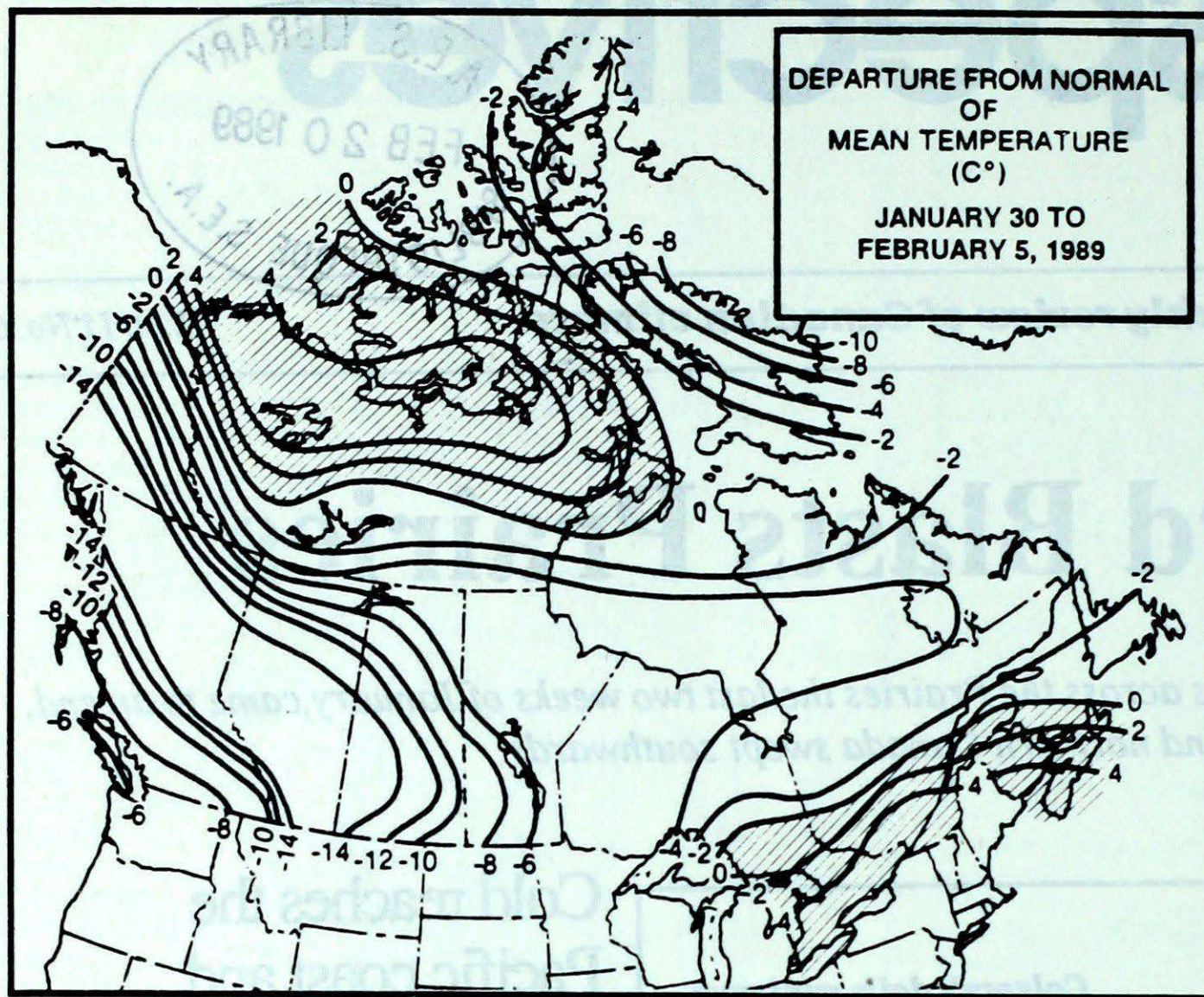
Cold reaches the Pacific coast and penetrates south of the border

Very strong, cold outflow winds funnelled out of the coastal valleys of British Columbia. Winds, with speeds up to 100 km/h, downed power lines, blew over trucks, flipped over aircraft and ripped mooring lines, allowing fishing boats to drift away or be damaged. Maximum temperatures, which reached record highs on the 30th, plunged as much as 25°C by the following day.

Wintry weather to continue...

No major changes in the weather pattern are expected over the next 10 days. A flow of air from the far north will continue to bring below-normal temperatures to most of the country from B.C. to northern Ontario and northern Quebec. Early next week, the temperatures will recover to near-normal values from the Great Lakes to the East Coast (prepared February 8).

A. Shabbar, AES Downsview



COLD INVADES U.S.A

A major change in the upper air pattern brought the bitterly cold air from Alaska and northwestern Canada southward into the northwestern and north-central U.S. near mid-week, displacing the unseasonably mild weather that had prevailed in the region earlier. Towards the end of the week, frigid conditions had pushed as far south as southern Texas. Only Florida, Georgia and South Carolina remained abnormally warm at week's end.

In less than 5 months, both the highest and lowest barometric pressures in the western hemisphere have been broken (Lowest: Hurricane Gilbert's central pressure of 26.13 inches in mid-September 1988, Highest: Northway Alaska 31.74 inches January 31, 1989).

Climate Analysis Center, NOAA

Weekly temperature and precipitation extremes

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia Kamloops	16	Dease Lake -45	Hope 90
Yukon Territory Komakuk Beach A	0	Watson Lake -48	Watson Lake 2
Northwest Territories Norman Wells	-2	Eureka -52	Lupin 8
Alberta Lethbridge	13	Edson -47	Jasper 44
Saskatchewan Swift Current	8	Uranium City -45	Prince Albert 11
Manitoba Gretna	2	Lynn Lake -41	Dauphin 6
Ontario Windsor	15	Pickle Lake -38	North Bay 18
Québec Sherbrooke	6	Chibougamau -37	Québec 25
New Brunswick St Stephen	13	Fredericton -24	Saint John 17
Nova Scotia Greenwood	12	Sydney -23	Sable Island 29
Prince Edward Island Charlottetown	6	Charlottetown -22	Charlottetown 14
Newfoundland Deer Lake	3	Wabush Lake -35	St Lawrence 29

Across The Country...

Warmest Mean Temperature	Cape St. James (BC) 2
Coollest Mean Temperature	Eureka (NWT) -42

CLIMATIC PERSPECTIVES
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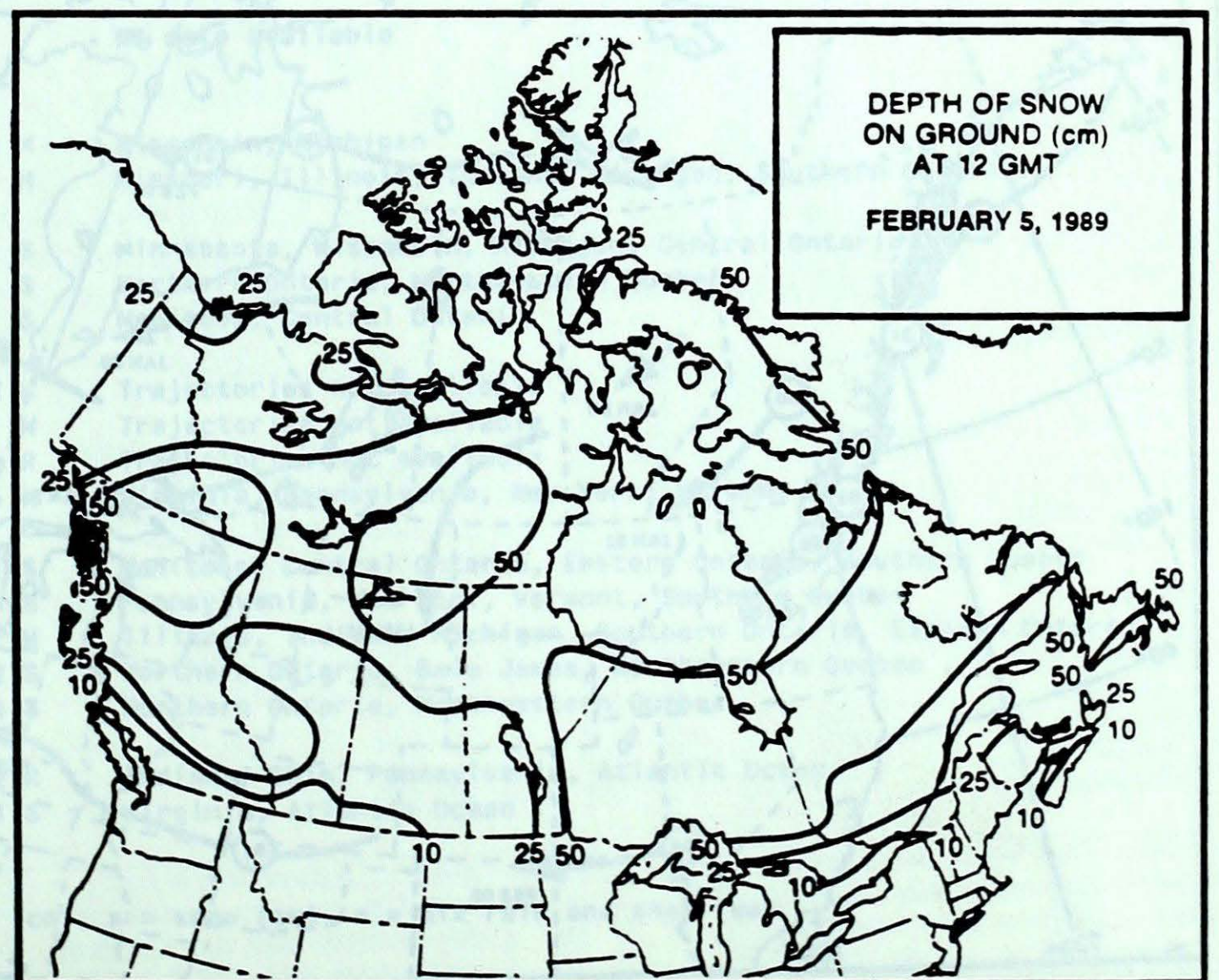
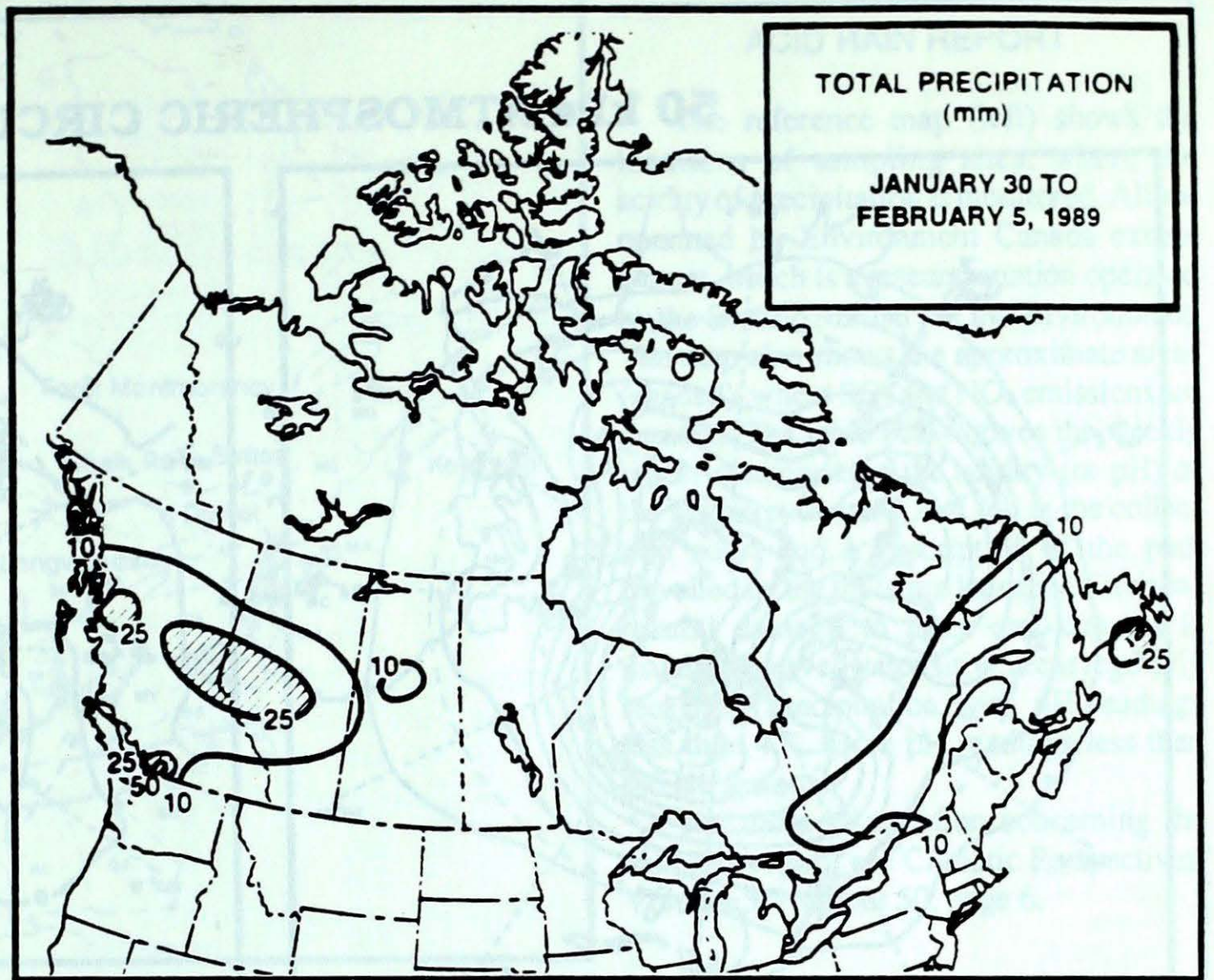
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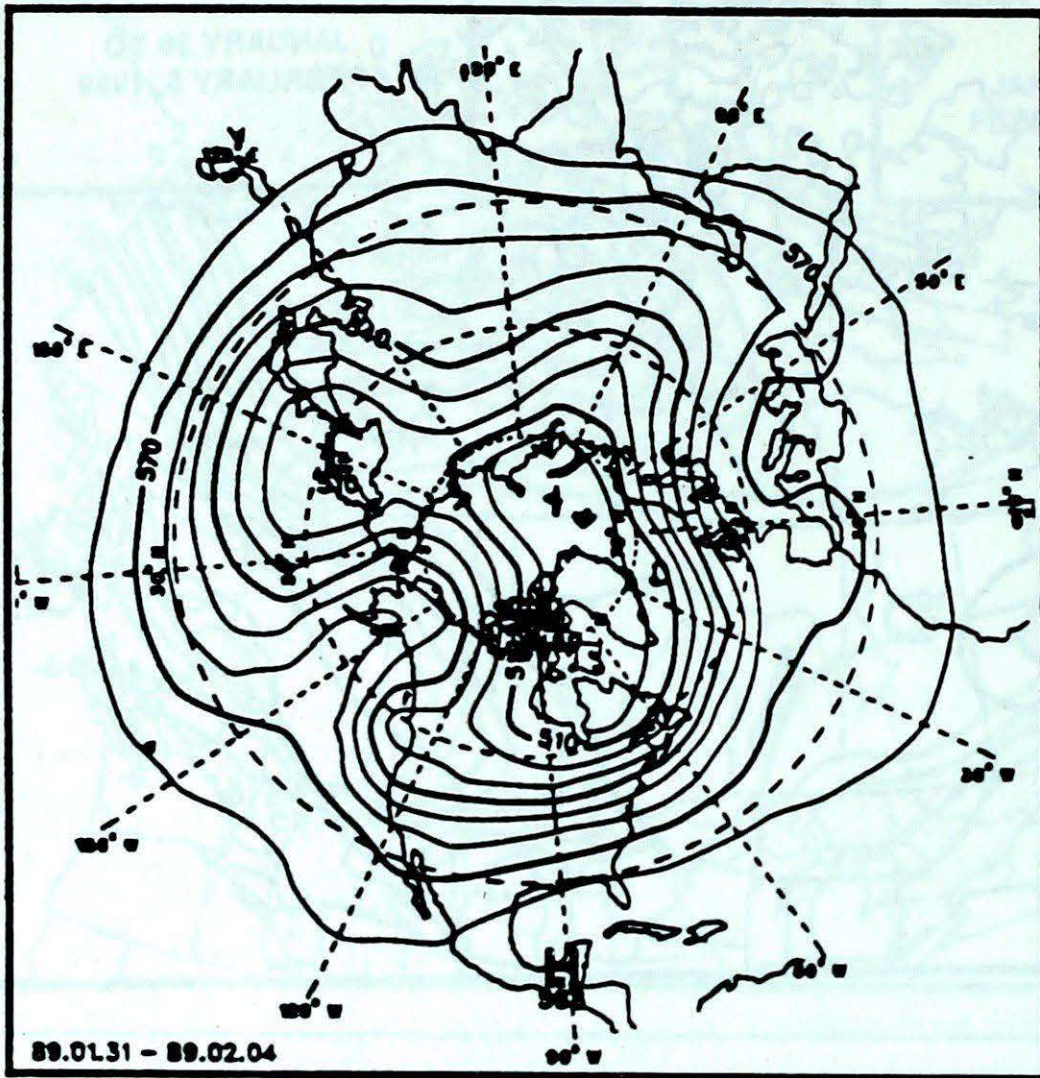
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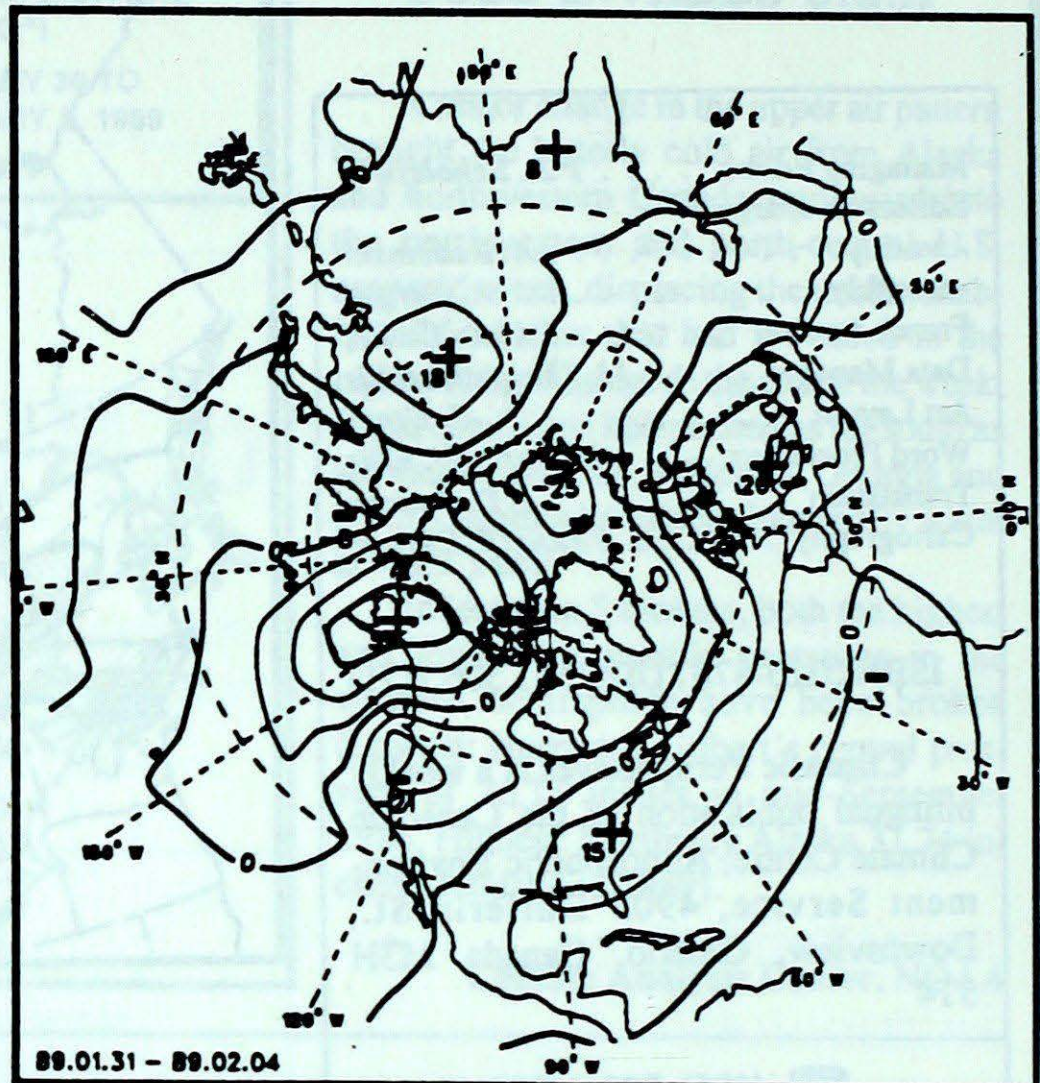
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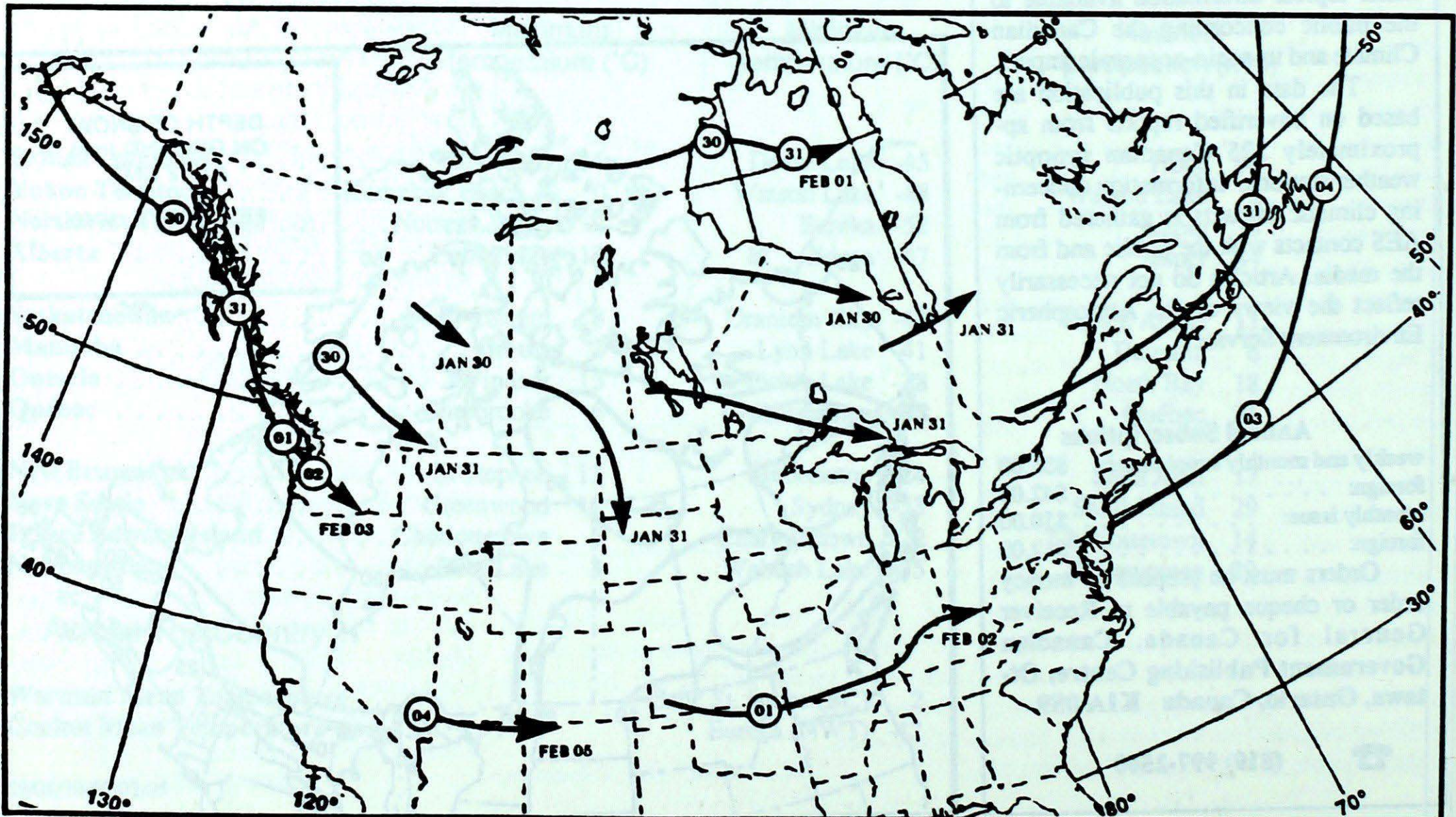
50 kPa ATMOSPHERIC CIRCULATION



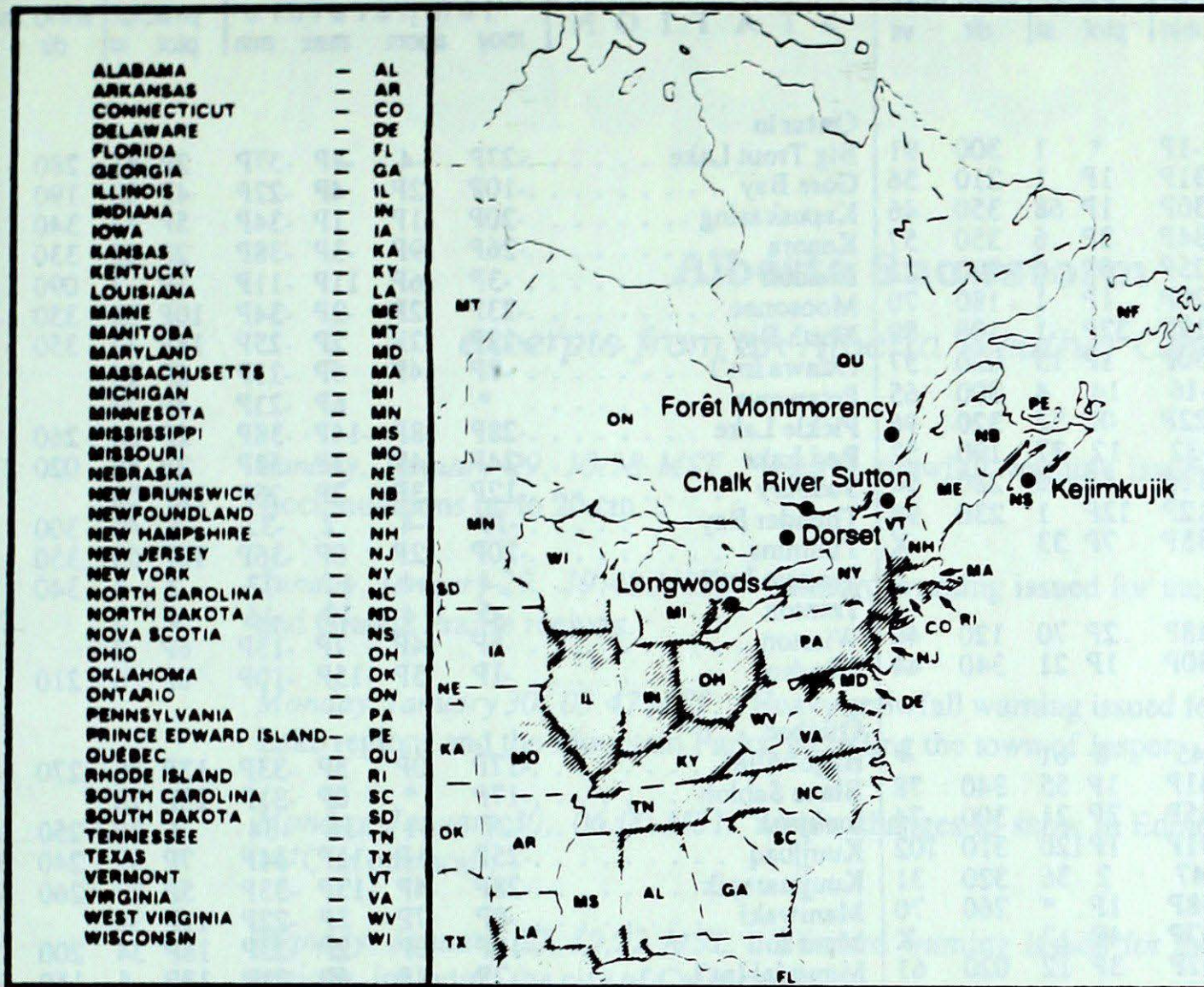
Mean geopotential height
50 kPa level (10 decameter intervals)



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.

JANUARY 29 TO FEBRUARY 4, 1989

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods				No data available
Dorset	30	4.6	3 M	Wisconsin, Michigan
	31	4.8	3 M	Missouri, Illinois, Indiana, Michigan, Southern Ontario
Chalk River	30	4.5	1 S	Minnesota, Wisconsin, Michigan, Central Ontario
	02	4.2	1 S	Northern Ontario, Northwestern Quebec
	04	4.8	1 S	Manitoba, Central Ontario
Sutton	30	3.7	3 M	Trajectories not available
	31	3.7	1 M	Trajectories not available
	01	3.7	4 R	Trajectories not available
	02	3.8	6 M	Virginia, Pennsylvania, New York, Vermont
Montmorency	29	4.1	1 S	Manitoba, Central Ontario, Eastern Ontario, Southern Quebec
	30	5.0	4 S	Pennsylvania, New York, Vermont, Southern Quebec
	31	4.5	1 M	Illinois, Indiana, Michigan, Southern Ontario, Eastern Ontario
	01	5.3	2 S	Northern Ontario, Baie James, Northwestern Quebec
	02	4.5	4 S	Northern Ontario, Northwestern Quebec
Kejimikujik	30	3.9	2 R	Indiana, Ohio, Pennsylvania, Atlantic Ocean
	03	4.6	11 S	Virginia, Atlantic Ocean

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

STATION	temperature				precip.		wind max		STATION	temperature				precip.		wind max									
	moy	anom	max	min	ptot	st	dir	vit		moy	anom	max	min	ptot	st	dir	vit								
British Columbia									Ontario																
Cape St. James	2P	-4P	4P	-1P	*	1	300	91	Big Trout Lake	-27P	-4	-4P	-37P	2P	81	280	59								
Cranbrook	-15P	-7P	9P	-31P	1P	1	210	56	Gore Bay	-10P	2P	4P	-22P	4P	20	190	43								
Fort Nelson	-24P	-4P	-17P	-30P	1P	68	350	46	Kapuskasing	-20P	-1P	1P	-34P	5P	83	340	39								
Fort St. John	-27P	-13P	-18P	-34P	2P	6	350	57	Kenora	-26P	-9P	-3P	-38P	2P	62	330	43								
Kamloops	-13P	-9P	16P	-25P	0P	0	290	83	London	-3P	6P	11P	-11P	5P	2	090	52								
Penticton	-8P	-7P	16P	-20P	1P	1	180	70	Moosonee	-23P	-2P	-2P	-34P	10P	66	350	39								
Port Hardy	-7P	-11P	2P	-12P	32P	1	100	89	North Bay	-12P	2P	2P	-25P	18P	37	350	41								
Prince George	-24P	-16P	-17P	-30P	1P	15	020	57	Ottawa Int'l	-8P	4P	5P	-21P	6P	14		X								
Prince Rupert	-8	-9	2	-16	14	4	300	65	Petawawa	*		6P	-23P	4P	21		X								
Revelstoke	-11P	-5P	10P	-22P	0P	52	320	96	Pickle Lake	-28P	-8P	-14P	-38P	2P	64	260	48								
Smithers	-20	-13	0	-32	12	37	190	52	Red Lake	-24P	-4P	-3P	-38P	2P	84	020	44								
Vancouver Int'l	-3P	-7P	12P	-11P	5P	0	280	54	Sudbury	-12P	3P	2P	-26P	12P	58		X								
Victoria Int'l	-5P	-9P	13P	-12P	12P	1	230	98	Thunder Bay	-19	-4	2	-32	1	40	300	35								
Williams Lake	-23P	-12	8P	-35P	7P	33		X	Timmins	-20P	-2P	0P	-36P	10P	55	350	46								
Yukon Territory									Toronto Int'l																
Watson Lake	-35P	-12P	-21P	-48P	2P	70	120	46	Trenton	-5	4	10	-16	4	3		X								
Whitehorse	-34P	-17P	-27P	-40P	1P	21	340	44	Warton	-5P	4P	7P	-13P	6P	2		X								
Northwest Territories									Windsor																
Alert	-34	-2	-24	-45	6	61		*		5P	15P	-10P	8P	6	210	48									
Baker Lake	-29P	4P	-18P	-41P	1P	55	340	78	Québec																
Cambridge Bay	-33P	2P	-17P	-45P	3P	21	300	74	Bagotville	-17P	0P	3P	-33P	13P	46	270	44								
Cape Dyer	-33P	-11P	-24P	-41P	1P	120	310	102	Blanc Sablon	-17P	*	0P	-31P	23P	18		X								
Clyde	-36	-8	-27	-47	2	36	320	31	Inukjuak	-27	-1	-18	-34	3	30	250	43								
Coppermine	-23P	6	-5P	-38P	1P	*	260	70	Kuujuuaq	-25P	-1P	-11P	-34P	7P	39	240	89								
Coral Harbour	-30P	1P	-21P	-37P	4P	17		X	Kuujuuarapik	-28P	-4P	-13P	-33P	5P	29	260	63								
Eureka	-42P	-5P	-23P	-52P	3P	12	020	61	Maniwaki	-8P	7P	3P	-22P	11P	34		*								
Fort Smith	-29P	-4P	-15P	-37P	1P	50		X	Mont Joli	-13P	0P	2P	-23P	18P	34	200	70								
Frøbisher Bay	-28P	-1P	-16P	-39P	3P	16	080	59	Montréal Int'l	-7P	4P	6P	-21P	13P	5	150	48								
Hall Beach	-32P	0P	-23P	-43P	2P	39	300	54	Natashquan	-15P	-2P	-1P	-26P	13P	35	260	46								
Inuvik	-25P	6P	-10P	-42P	3P	39		X	Québec	-9P	4P	3P	-20P	25P	43	070	52								
Mould Bay	-33P	1P	-9P	-46P	*	32		X	Schefferville	-28	-5	-9	-36	6P	*	270	61								
Norman Wells	-22P	6P	-2P	-34P	2P	8		X	Sept-Îles	-18P	-3P	-4P	-28P	15P	33	060	41								
Resolute	-34P	-2P	-24P	-45P	1P	20	350	85	Sherbrooke	-5P	7P	6P	-18P	8P	18	190	39								
Yellowknife	-27P	1P	-8P	-40P	1P	35	330	41	Val D'or	-19P	-2P	1P	-36P	11P	48	210	43								
Alberta									New Brunswick																
Calgary Int'l	-25P	-16P	12P	-36P	3P	4	350	69	Charlo	-11P	1P	5P	-21P	12P	90	300	56								
Cold Lake	-25	-9	-5	-39	9	12		*	Chatham	-7P	5P	6P	-17P	0P	16	240	46								
Coronation	-24P	-10P	4P	-37P	6P	0		*	Fredericton	-7P	3P	10P	-24P	8P	16	290	48								
Edmonton Namao	-35P	-20P	-32P	-38P	20	*		*	Moncton	-7P	3P	9P	-24P	9P	12	300	48								
Fort McMurray	-27P	-8P	-9P	-36P	4P	22		X	Saint John	-4P	5P	6P	-14P	17P	16	210	56								
High Level	-29P	-7P	-8P	-36P	1P	43	360	46	Nova Scotia																
Jasper	-29P	-22P	-14P	-40P	44	42		X	Greenwood	-1P	6P	12P	-10P	16P	12	230	54								
Lethbridge	-23	-16	13	-35	7	3	350	63	Shearwater	-4	2	7	-17	16P	7	240	41								
Medicine Hat	-25P	-15P	11P	-35P	6P	1	240	78	Sydney	-7P	0P	7P	-23P	18P	12	300	52								
Peace River	-30P	-13P	-21P	-35P	11P	12	360	56	Yarmouth	1P	5P	7P	-5P	11P	1	310	50								
Saskatchewan									Prince Edward Island																
Cree Lake	-31P	-7P	-8P	-42P	3P	*	320	54	Charlottetown	-8P	2P	6P	-22P	14P	25	310	46								
Estevan	-24P	-9P	4P	-37P	5P	20	240	61	Summerside	-5P	4P	4P	-14P	7P	10	210	54								
La Ronge	-25	-3	-7	-38	9	36	320	50	Newfoundland																
Regina	-24	-8	3	-40	6	10	360	59	Cartwright	-17P	-3P	-4P	-28P	2P	83	280	74								
Saskatoon	-30P	-13P	-14P	-39P	15P	6	040	63	Churchill Falls	-23P	-1P	-7P	-35P	6P	72	290	56								
Swift Current	-26P	-14P	8P	-39P	6P	20		X	Gander Int'l	-8P	0P	3P	-18P	12P	39	180	56								
Yorkton	-32P	-15P	-21P	-39P	4P	24	040	52	Goose	-19P	-2P	-4P	-29P	3P	34	250	61								
Manitoba									Port-Aux-Basques																
Brandon	-24	-7	1	-39	5	19	040	76	St John's	-7P	-1P	3P	-18P	13P	34	240	83								
Churchill	-32P	-5P	-22P	-37P	1P	35	310	94	St Lawrence	-4P	0P	3P	-15P	29P	33		X								
Lynn Lake	-28	-2	-8	-41	2	*	320	65	Wabush Lake	-25P	-4P	-7P	-35P	5P	45	260	46								
The Pas	-28P	-8	-3P	-37P	6P	16	310	59	89/01/30-89/02/05																
Thompson	-31P	-5P	-18P	-38P	1P	46	290	63																	
Winnipeg Int'l	-26P	-8P	-11P	-36P	5P	23	020	67																	

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.

Alberta Snowstorm

excerpts from an Alberta Weather Centre diary

Sunday, January 29, 10:18 MST. Heavy snowfall warning issued for the Mountain Parks. Accumulations up to 20 cm.

Sunday, January 29, 19:48 MST. Blizzard warning issued for the High Level, Fort St. John and Grande Prairie regions.

Monday, January 30, 03:47 MST. Heavy snowfall warning issued for Edmonton, Edson, Slave Lake regions and the Mountain Parks, including the town of Jasper.

Monday, January 30, 06:00 MST. Rain changes to snow in Edmonton. Temperature drops 14°C in one hour.

Monday, January 30, 10:22 MST. Blizzard warning issued for the Calgary and Coronation regions, including the city of Calgary.

Monday, January 30, 23:00 MST. Eighteen-hour snowfall accumulations from 5:00 a.m. to 11:00 p.m.:

Slave Lake 10.8 cm,
Edmonton Municipal Airport 29.0 cm,
Edmonton International Airport 33.6 cm,
Edson 24.4 cm,
Whitecourt 22.7 cm,
Jasper 14.4 cm.

The Edmonton Municipal snowfall is the largest one-day January snowfall on record (having occurred in only 18 hours). The previous 24-hour snowfall record of 27.9 cm was set on January 31, 1885. Western region emergency plans put into effect. Staff from both the Alberta and Arctic Weather Centres stayed at nearby hotels to ensure ability to return to work in the morning.

Tuesday, January 31, 11:00 MST. Thirty-hour snowfall accumulations from 5:00 am. Monday to 11:00 am Tuesday:

Edmonton Municipal 33.8 cm,
Edmonton International 37.6 cm,
Edson 25.8 cm.