

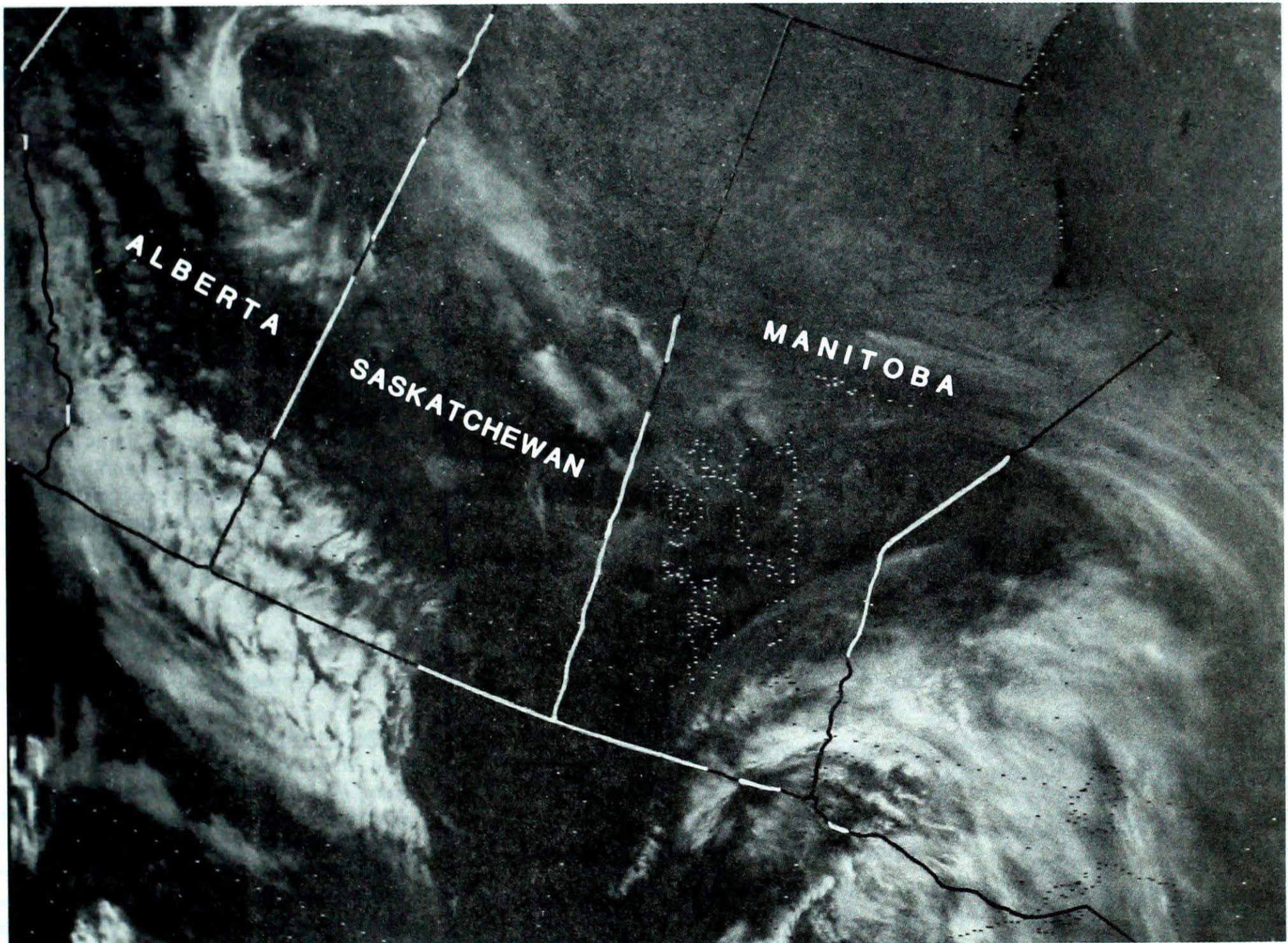
Climatic Perspectives

MONTHLY
SUPPLEMENT
INCLUDED

February 16 to 22, 1988

A weekly review of Canadian Climate

Vol. 10 No 8

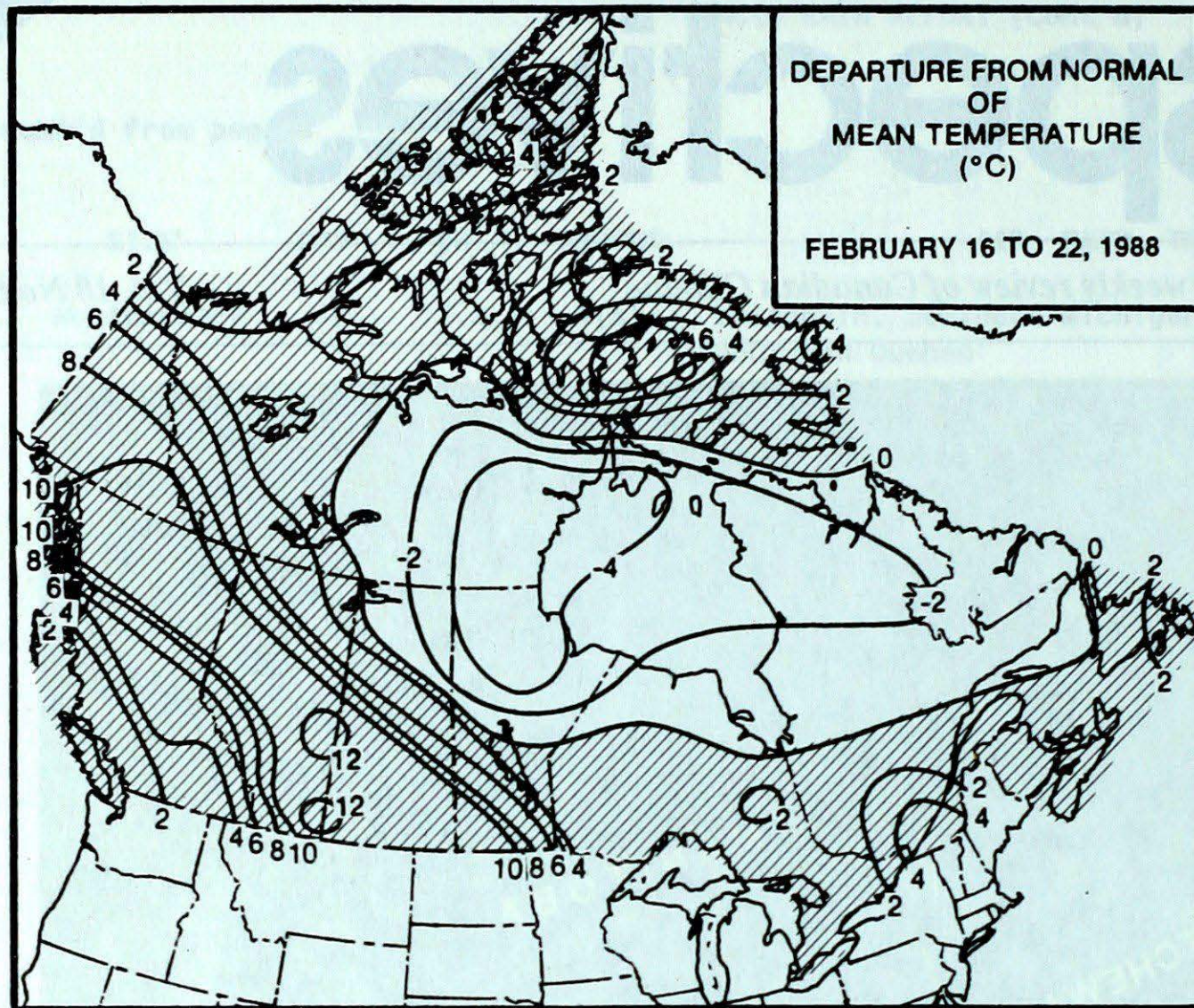


This NOAA-10 infrared satellite photograph of February 22, 1988, shows the tell tail sign of a mountain or standing wave, generated by strong winds blowing perpendicular to the mountain ranges. Parallel rows of nearly stationary lenticular wave cloud, at a height of 3000 metres, are aligned at regular wave length intervals downstream from the Rockies over southern Alberta and Saskatchewan. Frequently this event is associated with a chinook. There will be more information about this phenomena in an upcoming issue.

● Record mild western Canada & Yukon

– Chinook winds continue to play havoc with Olympics !

TEMPERATURE



ACROSS THE COUNTRY

Yukon and Northwest Territories

In the Yukon, temperatures were well above normal until the weekend, when Arctic air returned. In the extreme south, where temperatures climbed to almost 10°C, there was some rain. On February 19, freezing rain closed the Alaska Highway south of Watson Lake. The combination of wet snow and mild temperatures through the coastal mountains increased the avalanche hazard resulting in road closures. The Klondike Highway south of Whitehorse was closed twice due to avalanches. Heavy snowfall warnings were issued for Haines Road.

British Columbia

A ridge of high pressure produced relatively pleasant weather conditions. Temperatures were mild, especially in the southern interior, where it was mostly sunny. A number of locations set new monthly maximum temperature records on February 21. Readings climbed to the mid-teens. Penticton reach a high of 16.6°C. Strong winds were reported in the Kootenays, causing some minor damage. Precipitation was relatively light everywhere.

Prairie Provinces

In Alberta, it was a mild and variably sunny week, as strong chinooks affected the weather. Temperatures soared into the teens, breaking numerous daily records. At Calgary, the mercury climbed to 17°C on February 20. Double digit temperatures were even registered in the more northern areas of the province. It was a windy period; more details on page 3. Mild temperatures penetrated into Saskatchewan and southern Manitoba. A frontal zone, which lay across the district, gave light precipitation. A cold Arctic air mass spilled across the region Sunday evening.

WEEKLY TEMPERATURE EXTREME (C)

	MAXIMUM	MINIMUM
BRITISH COLUMBIA	PENTICTON 17	FORT NELSON -25
YUKON TERRITORY	WATSON LAKE 9	OGILVIE -41
NORTHWEST TERRITORIES	HAY RIVER -2	HALL BEACH -50
ALBERTA	CALGARY INT'L 17	FORT CHIPEWYAN -29
SASKATCHEWAN	ESTEVAN 8	CREE LAKE -34
MANITOBA	PORTAGE LA PRAIRIE 5	CHURCHILL -38
ONTARIO	WINDSOR 12	MOOSONEE -40
QUEBEC	SHERBROOKE 7	SCHEFFERVILLE -41
NEW BRUNSWICK	MONCTON 7	MONCTON -25
NOVA SCOTIA	GREENWOOD 10	AMHERST -16
PRINCE EDWARD ISLAND	CHARLOTTETOWN 5	SUMMERSIDE -18
NEWFOUNDLAND	BONAVISTA 14	WABUSH LAKE -44

ACROSS THE NATION

WARMEST MEAN TEMPERATURE	6	CAPE ST. JAMES	BC
COOLEST MEAN TEMPERATURE	-38	BAKER LAKE	NWT

Ontario

Typical mid-winter conditions prevailed, with a mixture of sun and cloud. On Friday, a low pressure system brought rain to the extreme

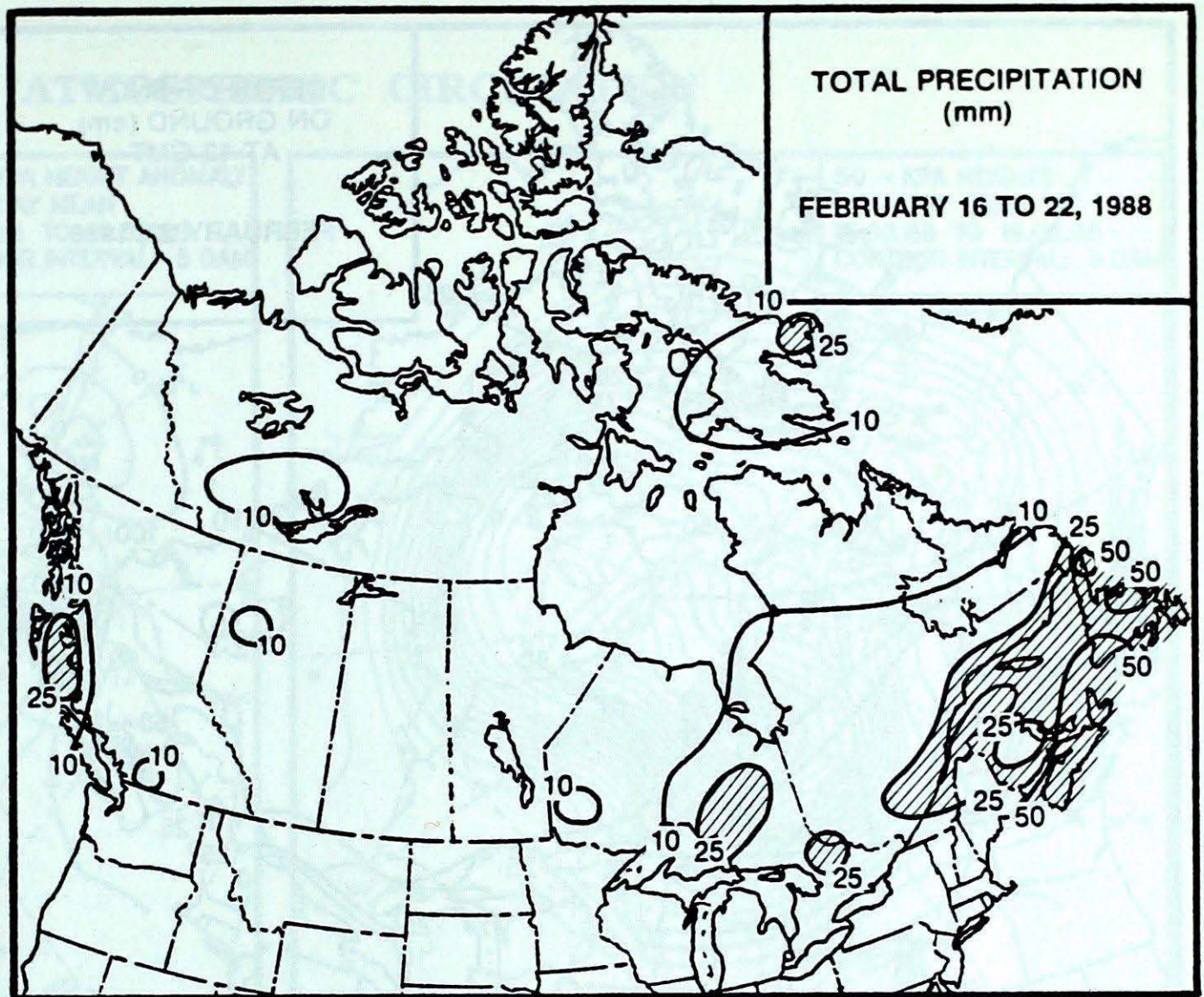
lower Great Lakes region, and a mixture of wet snow and rain to the rest of southern Ontario. Near freezing temperatures caused numerous traffic accidents. Very cold air replaced the mild weather over the weekend, and snow squalls developed on Saturday. A few new daily record minimums were established on the 21st. Warmer weather returned the last day of the period.

Quebec

It was a variable week, with periods of snow and fluctuating temperatures. Ten to 15 cm of snow fell in the southwest adding to the minimal snow cover. In the Eastern Townships, cross country ski conditions are not considered very good. A complex weather system affected eastern Quebec during the weekend, and dumped 20 to 40 cm of snow. Baie Comeau received 31 cm, bringing their monthly total to 131 cm, which breaks their previous monthly record of 108 cm. Snow depths are greater than 100 cm at Quebec City and Gaspé. A brief Arctic outbreak, accompanied by strong winds, swept the province on the 20th. Temperatures in the north dipped down to the minus forties.

Atlantic Provinces

An intense low pressure system crossed the region on the 16th and 17th, giving heavy rain to Nova Scotia. Shearwater recorded a 24-hour total of 76 mm on the 16th, which exceeds the February normal. Numerous streets and basements were flooded. Falling temperatures late in the day turned everything into an icy mess. Some schools were closed, and there were several multi-car accidents. Freezing rain on Cape Breton Island damaged trees, and brought down telephone and power lines. In Newfoundland, 40 to 60 cm of fresh snow covered the Island. Southern areas received a mixture of rain and freezing rain. Winds gusted to 133 km/h at Twillingate. Another storm on the 20th and 21st produced mixed precipitation in the Maritimes, and mostly rain in Newfoundland. High pressure gave generally fair weather to Labrador. A snow storm brushed southeastern Labrador on the 21st.



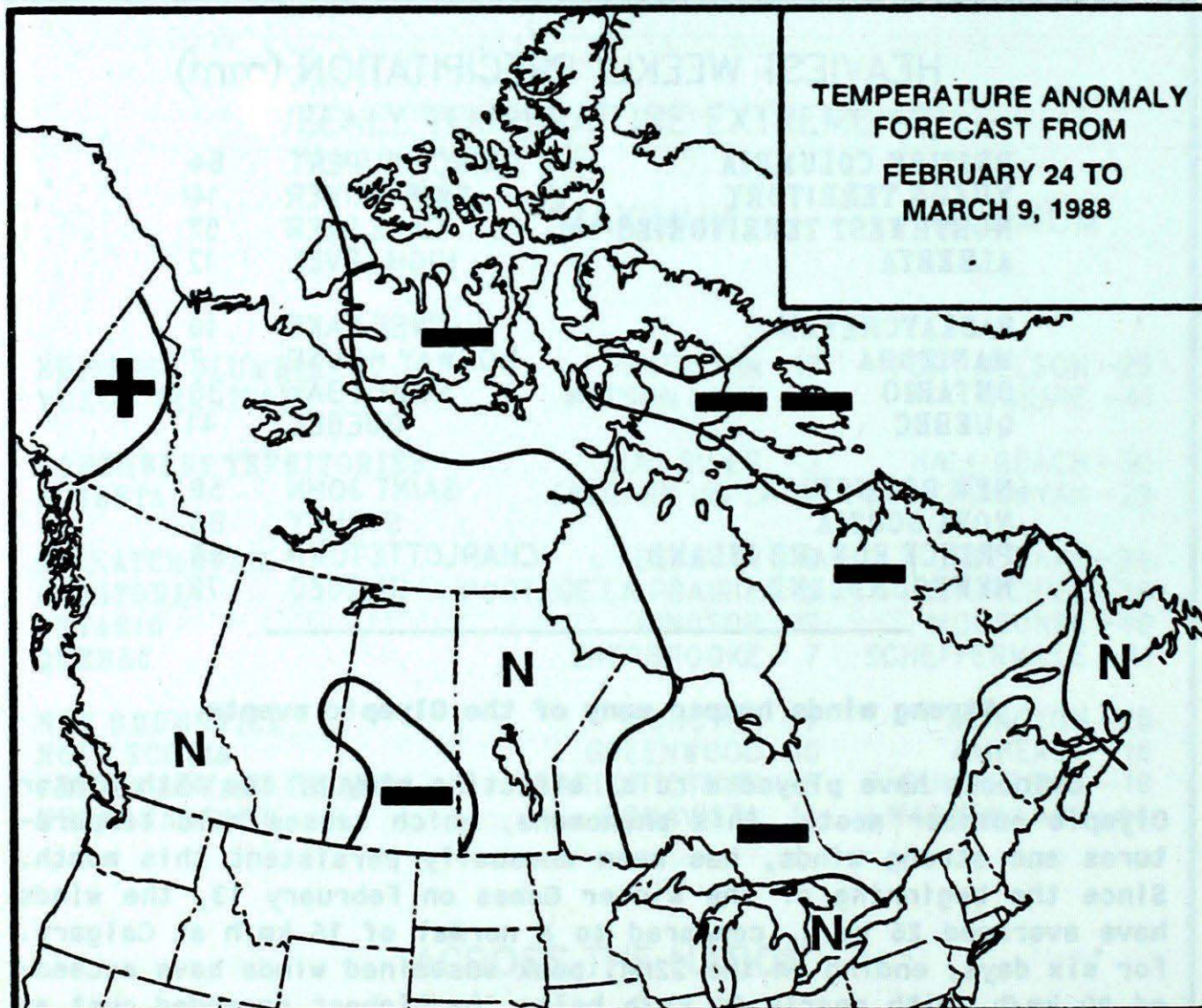
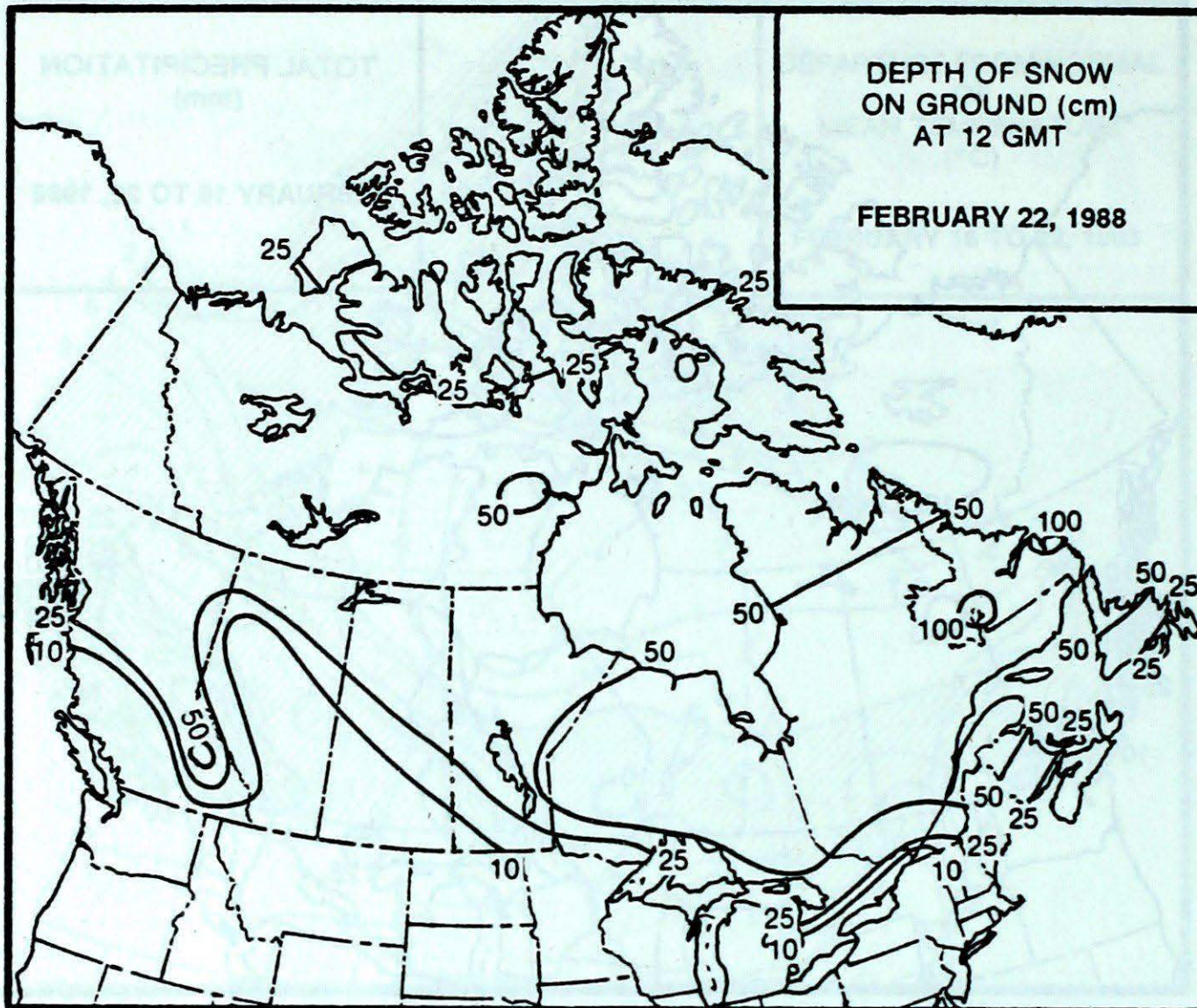
HEAVIEST WEEKLY PRECIPITATION (mm)

BRITISH COLUMBIA	PRINCE RUPERT	64
YUKON TERRITORY	SWIFT RIVER	14
NORTHWEST TERRITORIES	CAPE DYER	57
ALBERTA	HIGH LEVEL	12
SASKATCHEWAN	CREE LAKE	10
MANITOBA	NORWAY HOUSE	7
ONTARIO	NORTH BAY	30
QUEBEC	QUEBEC	41
NEW BRUNSWICK	SAINT JOHN	58
NOVA SCOTIA	SYDNEY	88
PRINCE EDWARD ISLAND	CHARLOTTETOWN	60
NEWFOUNDLAND	BURGIO	79

Strong winds hamper many of the Olympic events

Chinooks have played a role, affecting many of the 15th Winter Olympic outdoor meets. This phenomena, which causes mild temperatures and strong winds, has been unusually persistent this month. Since the beginning of the Winter Games on February 13, the winds have averaged 26 km/h, compared to a normal of 16 km/h at Calgary. For six days, ending on the 22nd, peak sustained winds have exceeded 40 km/h, with nearly 90 km/h being the highest recorded gust at Calgary. The winds have been much stronger on the slopes of Mount Allan. On February 13 and 18, speeds exceeded 200 km/h at the 2200 metre (7500 ft) ridge top. On the 21st, dust and sand was swirled up by strong winds blowing out of the north in excess of than 100 km/h at the Olympic Park. Sunday's 38.3 km/h average wind speed is the highest recorded daily average since 1966.

FORECAST



Temperature Anomaly Forecast

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

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.

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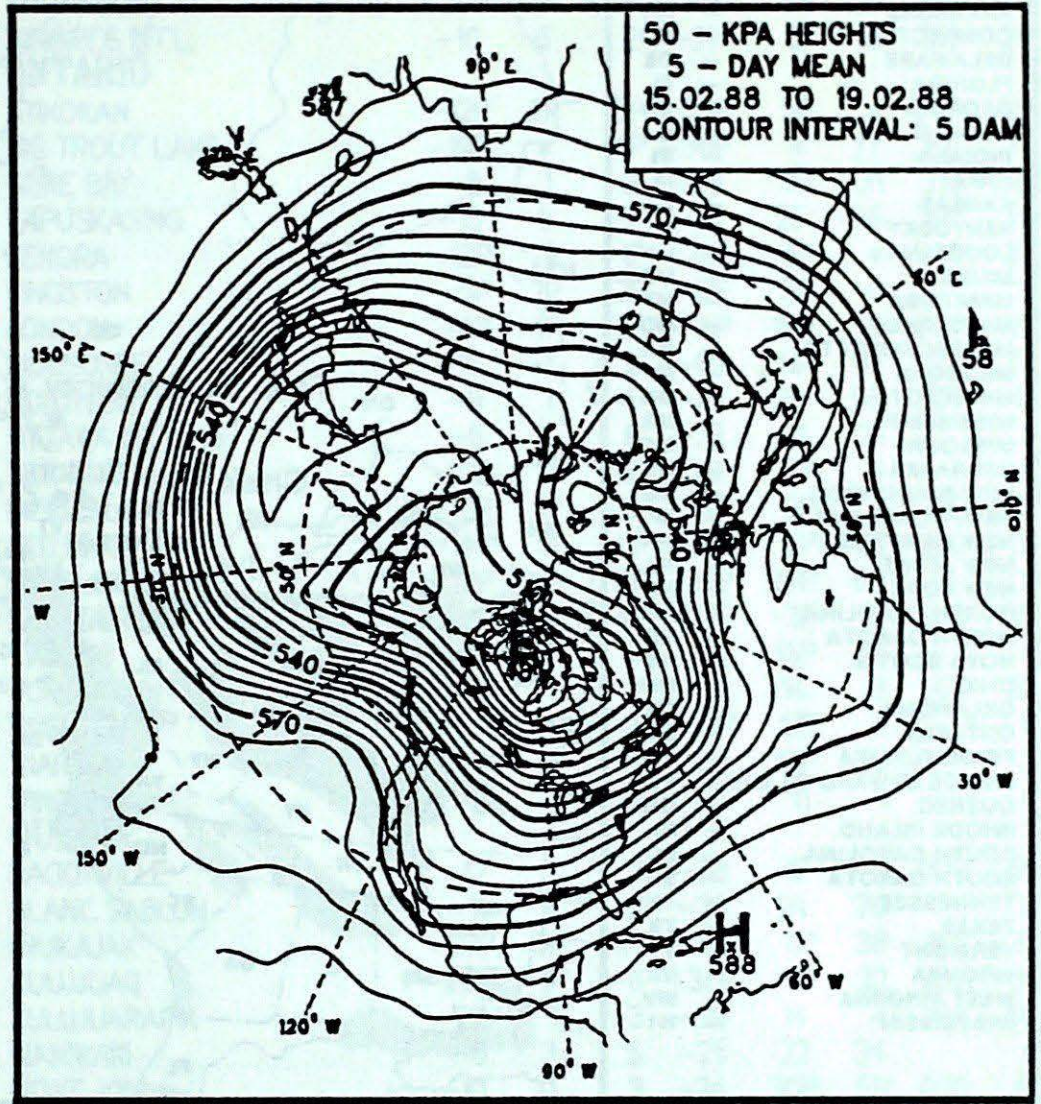
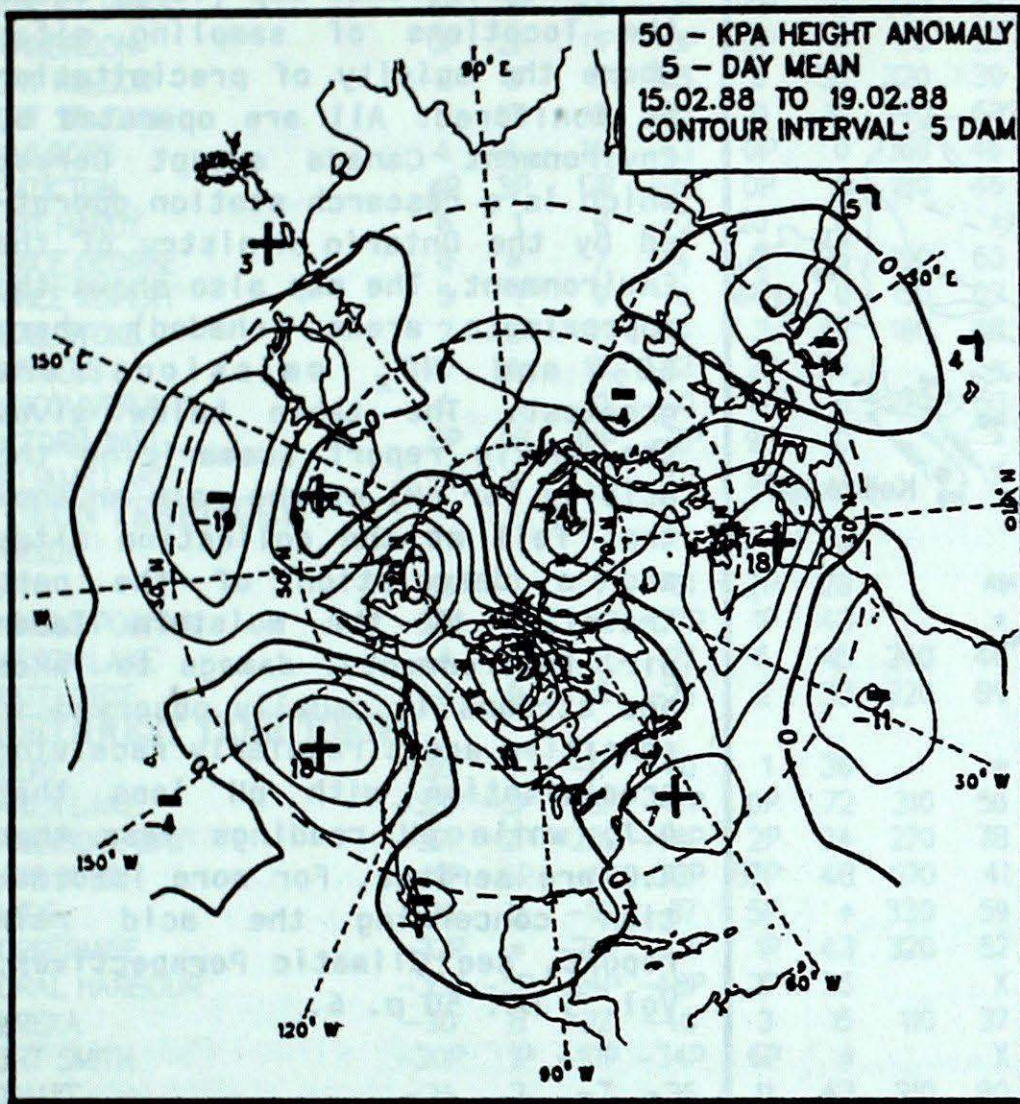
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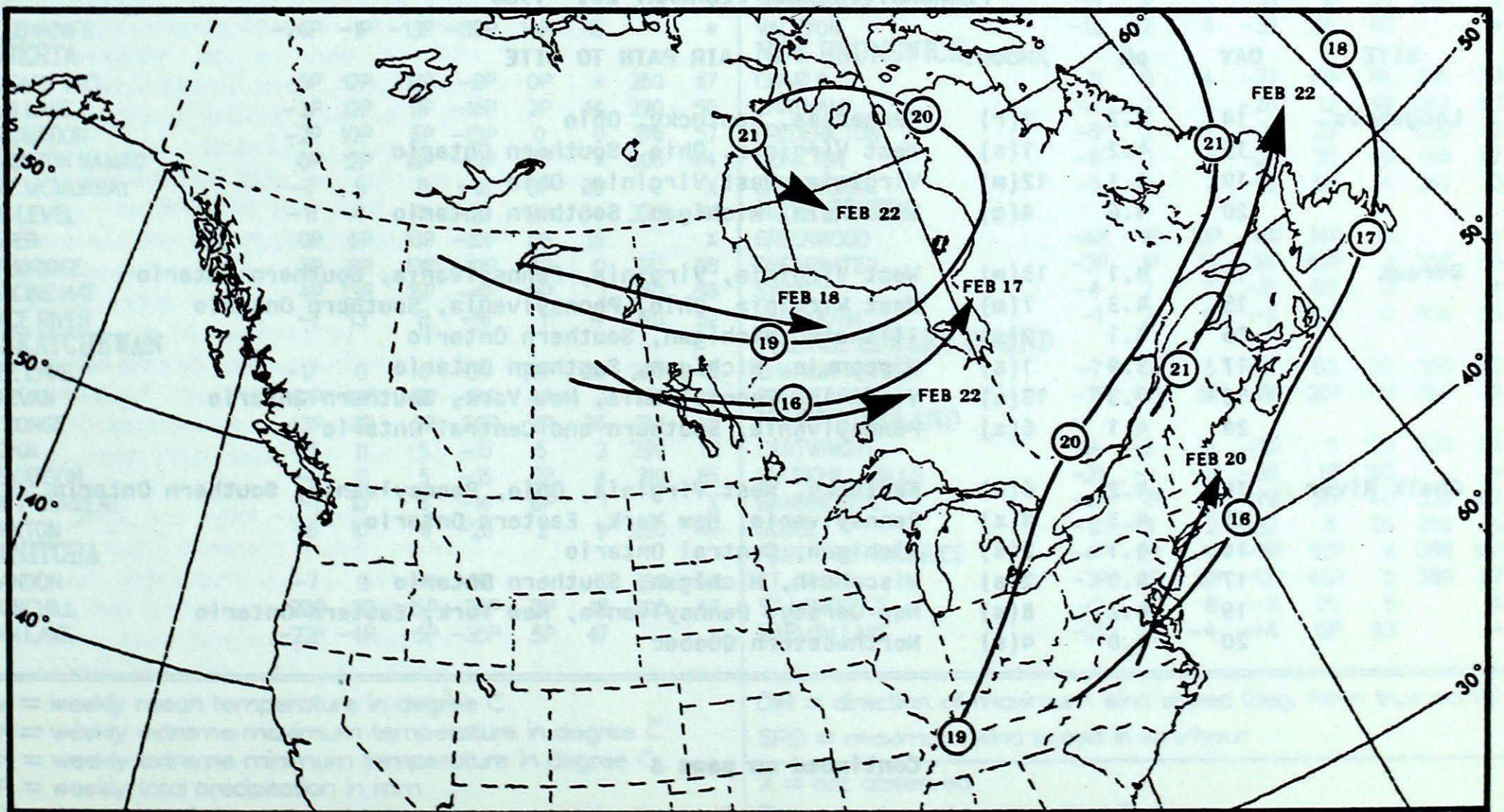
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50 kPa ATMOSPHERIC CIRCULATION



Mean geopotential heights
50 kPa level (in decameter)

Mean geopotential height anomaly
50 kPa level (in decameter)

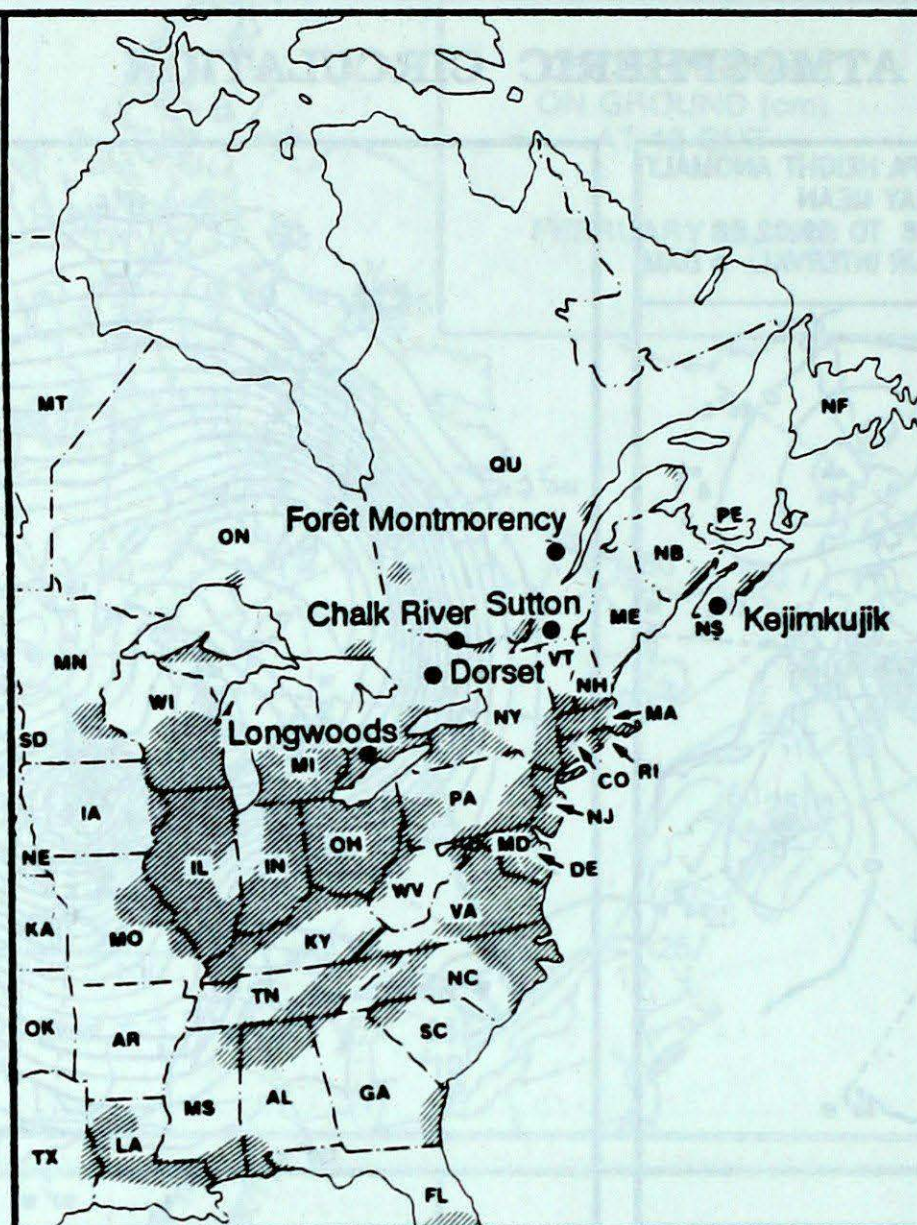


Storm track - Position of storm at 12 GMT during the period: February 16 to 22, 1988

ACID RAIN

ACID RAIN REPORT

ALABAMA -- AL
 ARKANSAS -- AR
 CONNECTICUT -- CO
 DELAWARE -- DE
 FLORIDA -- FL
 GEORGIA -- GA
 ILLINOIS -- IL
 INDIANA -- IN
 IOWA -- IA
 KANSAS -- KA
 KENTUCKY -- KY
 LOUISIANA -- LA
 MAINE -- ME
 MANITOBA -- MT
 MARYLAND -- MD
 MASSACHUSETTS -- MA
 MICHIGAN -- MI
 MINNESOTA -- MN
 MISSISSIPPI -- MS
 MISSOURI -- MO
 NEBRASKA -- NE
 NEW BRUNSWICK -- NB
 NEWFOUNDLAND -- NF
 NEW HAMPSHIRE -- NH
 NEW JERSEY -- NJ
 NEW YORK -- NY
 NORTH CAROLINA -- NC
 NORTH DAKOTA -- ND
 NOVA SCOTIA -- NS
 OHIO -- OH
 OKLAHOMA -- OK
 ONTARIO -- ON
 PENNSYLVANIA -- PA
 PRINCE EDWARD ISLAND -- PE
 QUÉBEC -- QU
 RHODE ISLAND -- RI
 SOUTH CAROLINA -- SC
 SOUTH DAKOTA -- SD
 TENNESSEE -- TN
 TEXAS -- TX
 VERMONT -- VT
 VIRGINIA -- VA
 WEST VIRGINIA -- WV
 WISCONSIN -- WI



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 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 less than 4.7, while pH readings less than 4.0 are serious. For more information concerning the acid rain report, see Climatic Perspectives, Vol. 5 No. 50 p. 6.

FEBRUARY 14 TO FEBRUARY 20, 1988

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	14	4.2	2(r)	Tennessee, Kentucky, Ohio
	15	4.2	1(s)	West Virginia, Ohio, Southern Ontario
	19	4.1	12(m)	Virginia, West Virginia, Ohio
	20	4.6	4(m)	Wisconsin, Michigan, Southern Ontario
Dorset	14	4.1	13(m)	West Virginia, Virginia, Pennsylvania, Southern Ontario
	15	4.3	7(m)	West Virginia, Ohio, Pennsylvania, Southern Ontario
	16	4.1	2(s)	Illinois, Michigan, Southern Ontario
	17	3.9	1(s)	Wisconsin, Michigan, Southern Ontario
	19	4.3	13(s)	Virginia, Pennsylvania, New York, Southern Ontario
	20	4.1	6(s)	Pennsylvania, Southern and Central Ontario
Chalk River	14	4.2	6(s)	Kentucky, West Virginia, Ohio, Pennsylvania, Southern Ontario
	15	4.3	4(s)	Pennsylvania, New York, Eastern Ontario
	16	4.1	2(s)	Michigan, Central Ontario
	17	4.0	2(s)	Wisconsin, Michigan, Southern Ontario
	19	4.2	8(s)	New Jersey, Pennsylvania, New York, Eastern Ontario
	20	4.0	4(s)	Northwestern Quebec

Continued on page 8

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

TEMPERATURE, PRECIPITATION AND MAXIMUM WIND DATA FOR THE WEEK ENDING 0600 GMT FEBRUARY 23, 1988

STATION	TEMPERATURE				PRECIP.		WIND MX		STATION	TEMPERATURE				PRECIP.		WIND MX	
	AV	DP	MX	MN	TP	SOG	DIR	SPD		AV	DP	MX	MN	TP	SOG	DIR	SPD
BRITISH COLUMBIA									THE PAS	-13P	*	2P	-33P	4P	29		*
CAPE ST. JAMES	6P	1P	10P	2P	14P	0	230	80	THOMPSON	-24P	-5P	-15P	-35P	5P	26	360	33
CRANBROOK	0P	2P	11P	-8P	0P	0	170	37	WINNIPEG INT'L	-10	6	2	-27	3	12	310	39
FORT NELSON	-8	9	8	-25	0	36	320	39	ONTARIO								
FORT ST. JOHN	1	13	10	-15	0	18	240	63	ATIKOKAN	-12P	2P	5P	-28P	5P	*	300	39
KAMLOOPS	4	4	14	-3	0P	0	160	46	BIG TROUT LAKE	-19P	*	-4P	-36P	*	77	160	37
PENTICTON	4P	3P	17P	-4P	0P	0	180	46	GORE BAY	-8	1	3	-29	7P	31	310	46
PORT HARDY	6	1	9	-2	20	0		*	KAPUSKASING	-15	0	2	-36	25	96	290	39
PRINCE GEORGE	0	*	7	-14	2	25	190	63	KENORA	-12P	2P	1P	-29P	6P	*	300	37
PRINCE RUPERT	5	1	9	-4	64	0	150	63	KINGSTON	-5P	2P	2P	-12P	3P	0		X
REVELSTOKE	2	3	11	-4	3	52	180	48	LONDON	-4P	1P	2P	-15P	18P	9	290	39
SMITHERS	0	4	10	-13	2P	36		*	MOOSONEE	-18	-1	2	-40	14	92	270	37
VANCOUVER INT'L	6	1	10	0	4	0	270	50	NORTH BAY	-9	1	4	-29	30	58	270	41
VICTORIA INT'L	5P	0P	10P	-2P	9P	0		*	OTTAWA INT'L	-6	3	6	-23	21	31		X
WILLIAMS LAKE	-1	*	7	-11	3P	7		X	PETAWAWA	-10P	1P	5P	-25P	7P	*		X
YUKON TERRITORY									PICKLE LAKE	-18P	1P	-2P	-34P	9P	*	310	43
DAWSON								*	RED LAKE	-14P	1P	0P	-32P	6P	62	300	31
MAYO	-13	7	7	-31	2P	28		X	SUDBURY	-10P	1P	3P	-29P	24P	63		X
SHINGLE POINT A	-27P	0P	-8P	-37P	1P	43		*	THUNDER BAY	-11P	2P	4P	-27P	3P	17	310	35
WATSON LAKE	-4	14	9	-27	6	45	240	46	TIMMINS	-13	3	4	-36	16P	97		*
WHITEHORSE	-4	9	6	-25	2	33	220	89	TORONTO INT'L	-5	1	7	-19	14	8	260	37
NORTHWEST TERRITORIES									TRENTON	-5P	1P	4P	-21P	17P	3		X
ALERT	-30	4	-17	-40	1	36		*	WIARTON	-5	2	5	-22	19P	30		X
BAKER LAKE	-38P	-5P	-26P	-47P	0P	72	310	56	WINDSOR	-2	1	12	-15	11	1		*
CAMBRIDGE BAY	-37P	-2P	-28P	-44P	2P	24	270	78	QUEBEC								
CAPE DYER	-19P	5P	-4P	-33P	57P	48	070	41	BAGOTVILLE	-12	1	1	-28	17	70	000	59
CLYDE	-26	2	-16	-37	5P	*	330	59	BLANC SABLON	-11	*	2	-20	24	70		X
COPPERMINE	-32P	*	-24P	-41P	1P	43	320	52	INUKJUAK	-27P	-3P	-17P	-37P	8P	38	150	37
CORAL HARBOUR	-35P	-5P	-24P	-48P	2P	35		X	KUUJUAQ	-23P	-1P	-1P	-36P	5P	32	260	59
EUREKA	-30	8	-22	-40	3	15	110	37	KUUJUARAPIK	-22	1	-3	-39	14	*	180	50
FORT SMITH	-20P	1P	-10P	-34P	6P	*		X	MANIWAKI	-8	3	5	-25	22	34		*
IQUALUIT	-24	2	-7	-36	11	43	310	80	MONT JOLI	-10	0	3	-24	30P	58	050	61
HALL BEACH	-25P	8P	-8P	-50P	4P	*	100	56	MONTREAL INT'L	-3	5	7	-21	11	6	250	33
INUVIK	-28	1	-15	-42	4P	47		X	NATASHQUAN	-12	-1	1	-23	25	50	010	46
MOULD BAY	-33	3	-28	-39	3	16		X	QUEBEC	-7	3	5	-20	41	101	080	54
NORMAN WELLS	-23	5	-13	-35	4P	11		X	SCHIEFFERVILLE	-23	-3	-4	-41	6P	78	280	37
RESOLUTE	-34P	0P	-27P	-41P	1P	6	130	87	SEPT-ILES	-13	-2	-2	-25	28	31	020	35
								X	SHERBROOKE	-5	6	7	-21	9P	34	280	31
YELLOWKNIFE	-26P	-1P	-13P	-38P	14P	45		*	VAL D'OR	-12	2	6	-32	20	60		*
ALBERTA									NEW BRUNSWICK								
CALGARY INT'L	5P	12P	17P	-8P	0P	*	260	67	CHARLO	-11	0	4	-22	29P	86	280	39
COLD LAKE	-3P	12P	11P	-16P	2P	14	290	56	CHATHAM	-7	2	4	-20	13	49	040	43
CORONATION	-2P	10P	6P	-13P	0	0	270	57	FREDERICTON	-5	3	7	-21	23	34	030	52
EDMONTON NAMAO	0P	12P	10P	-13P	0P	*	300	44	MONCTON	-6	1	7	-25	35	48	010	67
FORT MCMURRAY	-7	9	8	-18	5P	39		X	SAINT JOHN	-5	2	7	-18	58	14	360	72
HIGH LEVEL	-11	4	11	-29	12P	54	320	41	NOVA SCOTIA								
JASPER	0P	6P	10P	-10P	0P	16		X	GREENWOOD	-4P	1P	10P	-14P	34P	13		*
LETHBRIDGE	3P	8P	13P	-10P	0P	0	270	98	SHEARWATER	-3P	1P	7P	-14P	83P	1	350	85
MEDICINE HAT	4P	13P	16P	-4P	0P	1	240	56	SYDNEY	-4	2	7	-15	88	3		*
PEACE RIVER	-1	13	8	-16	1	4	270	52	YARMOUTH	-1	2	8	-11	50P	0	330	59
SASKATCHEWAN									PRINCE EDWARD ISLAND								
CREE LAKE	-17	0	0	-34	10P	36	290	43	CHARLOTTETOWN	-7	0	5	-17	60	20	350	83
ESTEVAN	-1P	11P	8P	-14P	4P	1	310	48	SUMMERSIDE	-7P	0P	5P	-18P	20P	51	360	78
LA RONGE	-13P	3P	5P	-30P	2P	36	310	43	NEWFOUNDLAND								
REGINA	-3	11	5	-15	5	2	290	61	CARTWRIGHT	-14	-2	5	-25	9	133	320	56
SASKATOON	-4	11	5	-15	5P	*	310	65	CHURCHILL FALLS	-21	-1	-3	-38	11P	102		*
SWIFT CURRENT	-1	10	6	-14	6P	1		X	GANDER INT'L	-6P	1P	6P	-15P	57P	40	320	87
YORKTON	-6	10	6	-26	2	9	230	46	GOOSE	-17	-3	2	-32	4	55	250	39
MANITOBA									PORT-AUX-BASQUES	-4P	2P	4P	-15P	57P	*	080	100
BRANDON	-7	9	4	-28	1	11	290	54	ST JOHN'S	-3P	2P	8P	-13P	48P	5	280	87
CHURCHILL	-28P	-3P	-15P	-38P	3P	18	300	43	ST LAWRENCE	-2	3	8	-11	35	5		X
LYNN LAKE	-22P	-4P	-5P	-35P	5P	47		*	WABUSH LAKE	-21	1	-4	-44	13P	83		*

AV = weekly mean temperature in degree C
 MX = weekly extreme maximum temperature in degree C
 MN = weekly extreme minimum temperature in degree C
 TP = weekly total precipitation in mm
 DP = departure of mean temperature from normal in degree C
 SOG = snow depth on ground in cm, last day of the period

DIR = direction of maximum wind speed (deg. from true north)
 SPD = maximum wind speed in km/hour

X = not observed
 P = value based on less than 7 days
 * = missing

Cont'd from page 6

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Sutton	15	4.0	5(s)	Southern Ontario, New York, Southern Quebec
	16	4.2	1(s)	Michigan, Southern Ontario
	19	4.3	5(s)	Atlantic Ocean, New England
Montmorency	14	4.1	5(s)	Southern Ontario, New York, Southern Quebec
	15	4.5	16(s)	Pennsylvania, New York, Southern Quebec
	17	4.0	2(s)	Michigan, Southern Ontario, Southern Quebec
	19	5.4	22(s)	Atlantic Ocean, New England, Southern Quebec
	20	4.1	13(s)	New York, New England, Southern Quebec
Kejimikujik	15	4.8	27(r)	Atlantic Ocean
	16	5.7	18(m)	Atlantic Ocean
	18	3.5	1(s)	Central Ontario, Southern Quebec, Maine
	20	4.4	21(r)	Atlantic Ocean

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

