

Climatic Perspectives

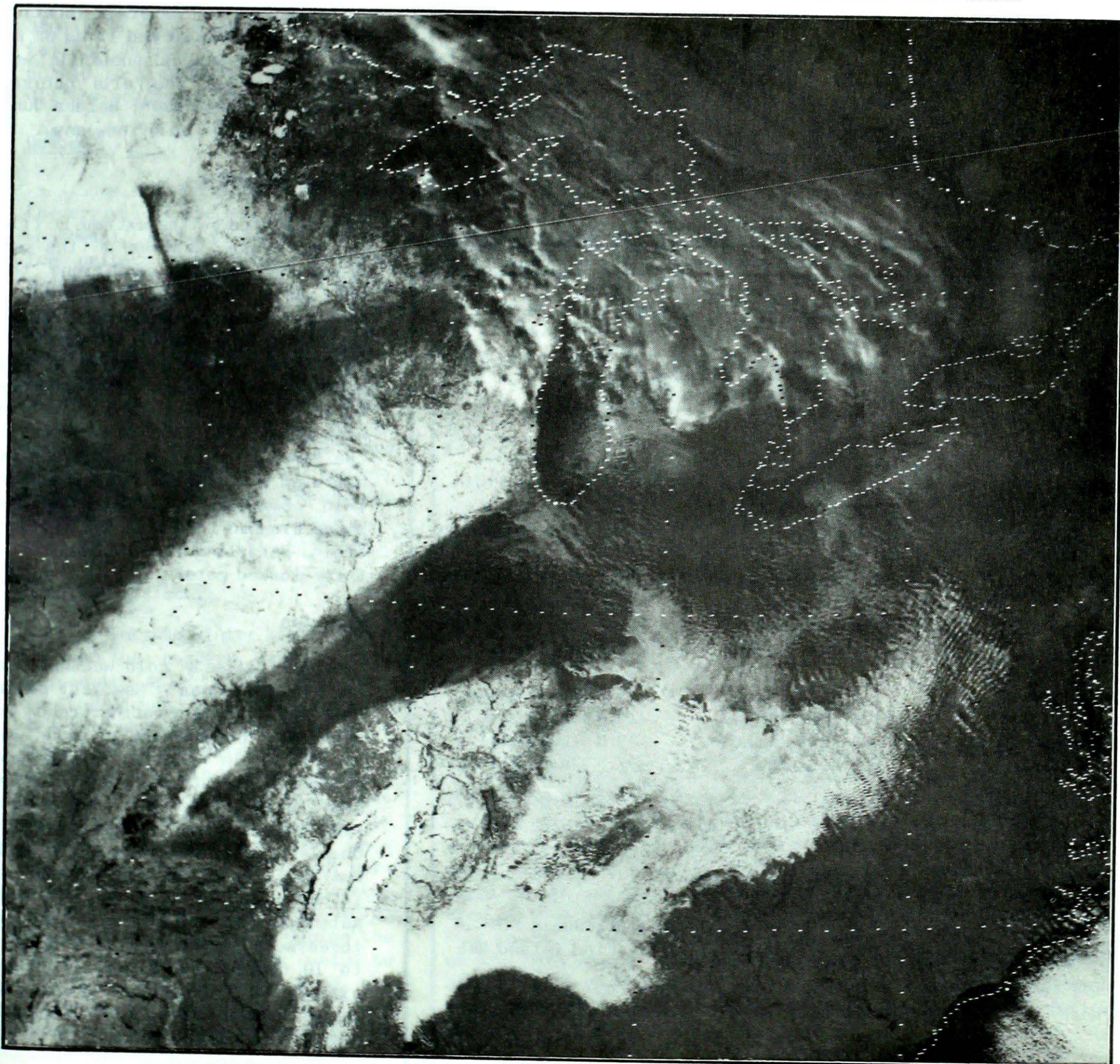
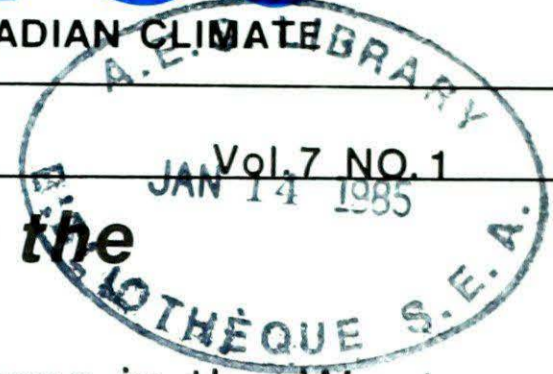
A WEEKLY REVIEW OF CANADIAN CLIMATE

Canadian Climate Centre

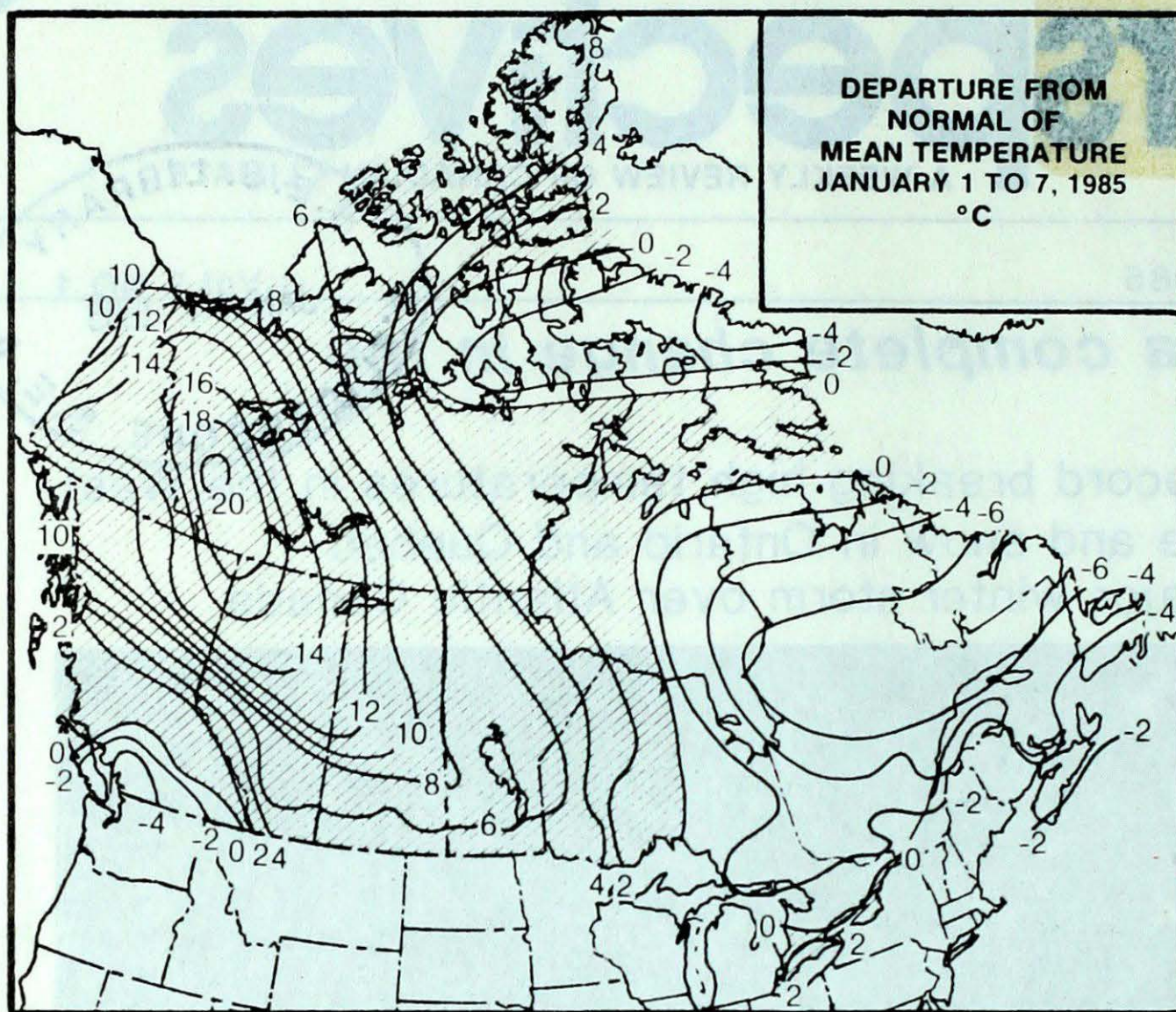
For the period January 1 to 7, 1985

● *New Year brings a complete change in the weather pattern :*

- Record breaking high temperatures in the West
- Ice and snow in Ontario and Quebec
- Major winter storm over Atlantic Canada



The NOAA near infrared image of January 5, 1985 reveals the swath of snow deposited by a Great Lakes storm. For more detail see page 3.

ACROSS THE COUNTRY...**Yukon and Northwest Territories**

The record cold temperatures last week were in stark contrast to the much above normal weather conditions that have been evident since the beginning of January. Mean temperatures in the Yukon and Mackenzie district were between 10 and 20 degrees above the normal. Many new daily maximum temperature records were set across the South. A Chinook allowed daytime temperatures at Hay River and Fort Simpson to climb to 11 and 13 degrees on January 2 and 3 respectively. Several locations received between 10 and 15 cm of new snow, but generally snowfalls were light. Heaviest snowfalls occurred in the southern Yukon; Haines Junction received 47 cm of new snow.

British Columbia

Compared to the extremely frigid and wintry weather of the previous two weeks, conditions this week were relatively tranquil. A southerly flow pumped a mild Pacific airmass inland and by mid-week temperatures rebounded sharply to well above normal values. Warm temperatures in the North caused problems with winter logging ice bridges. In the South, low valley cloud and fog hampered air travel. Near the mountain community of Field, a snow slide slammed into a CP Rail freight train, derailing as many as nineteen fully loaded cars.

Prairies

The bitterly cold weather during the Christmas - New Year period gave way to a moderating trend. The week was predominantly sunny and very mild. In Alberta, Chinook conditions caused blowing and drifting snow early in the week, but by mid-week temperatures soared into the double digits. Numerous daily maximum temperature records were broken in Alberta. Even though in Saskatchewan and Manitoba mean temperatures were lower, they were still 5 to 10 degrees above normal. Precipitation was very light. Snow depths ranged from a trace in the South, to more than 45 cm in the North.

WEEKLY TEMPERATURE EXTREMES (°C)

	MAXIMUM	MINIMUM
YUKON TERRITORY	5.0 Whitehorse	-31.3 Dawson
NORTHWEST TERRITORIES	13.2 Fort Simpson	-45.6 Gladman Point
BRITISH COLUMBIA	13.2 Prince Rupert	-33.2 Blue River
ALBERTA	10.8 Calgary	-38.0 Fort Chipewyan
SASKATCHEWAN	8.8 North Battleford	-39.3 Prince Albert
MANITOBA	5.0 The Pas	-36.9 Churchill
ONTARIO	9.6 London	-37.7 Big Trout Lake
QUÉBEC	8.8 Sutton Junction	-42.8 Nitchequon
NEW BRUNSWICK	1.0 Saint John	-25.2 St. Stephen
NOVA SCOTIA	11.7 Sable Island	-20.0 Eddy Point
PRINCE EDWARD ISLAND	0.8 Charlottetown	-20.8 Summerside
NEWFOUNDLAND	6.1 Argentia	-37.5 Churchill Falls

ACROSS THE NATION

Warmest mean temperature	6.7	Cape St. James BC
Coollest mean temperature	-34.5	Jenny Lind Island NWT

Ontario

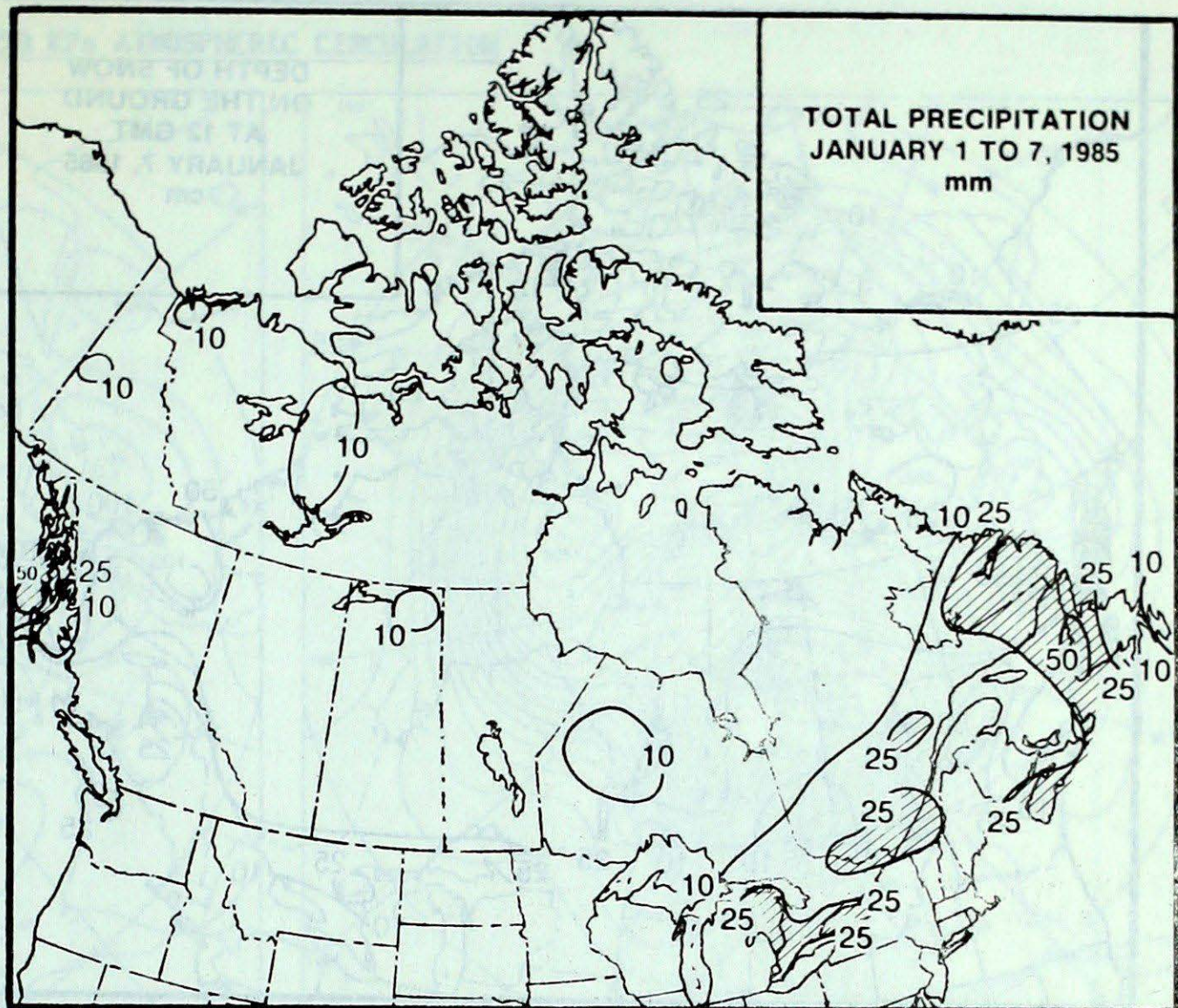
Very mild temperatures during the Christmas period returned to more seasonal values. Several weather systems affected the Province since the beginning of the New Year. On January 1, Toronto received more than 25 mm of freezing rain and ice pellets in addition to several centimetres of new snow which fell earlier; heavy snow fell to the North and rain was reported in the Southwest. Heavy icing closed Pearson International Airport, while ice loading caused numerous power outages. Freezing drizzle and rain on the evening of January 6, and a significant snowfall on January 7, once again resulted in treacherous driving conditions across southern Ontario.

Québec

Snow and freezing rain marked the arrival of the New Year. In the Southwest, 20 to 25 cm of snow and ice pellets were blown by winds gusting to 65 km/h. The Eastern Townships and the lower St. Lawrence received 10 to 15 cm of snow, but freezing rain left a coating of ice everywhere. In Quebec City, strong winds fanned a fire, which heavily damaged a nineteen storey building. Temperatures dropped sharply in the wake of the system, and eight daily low temperature records were broken. Ice fishing is well underway near Trois Rivières.

Atlantic Provinces

An intense winter storm tracked up the eastern seaboard and across the Atlantic Provinces during the weekend before stalling off the Labrador Coast. Up to 26 cm of snow fell in the Maritimes on January 5. Strong winds caused blowing and drifting snow, and many residents were left without power. In eastern Newfoundland the snow changed to rain, but blizzards were prevalent in the West and across the Northern Peninsula, where 40 to 50 cm of new snow fell. During the height of the storm winds gusted to 120 km/h. Schools were closed, and many roads including the Trans Canada Highway were impassable.

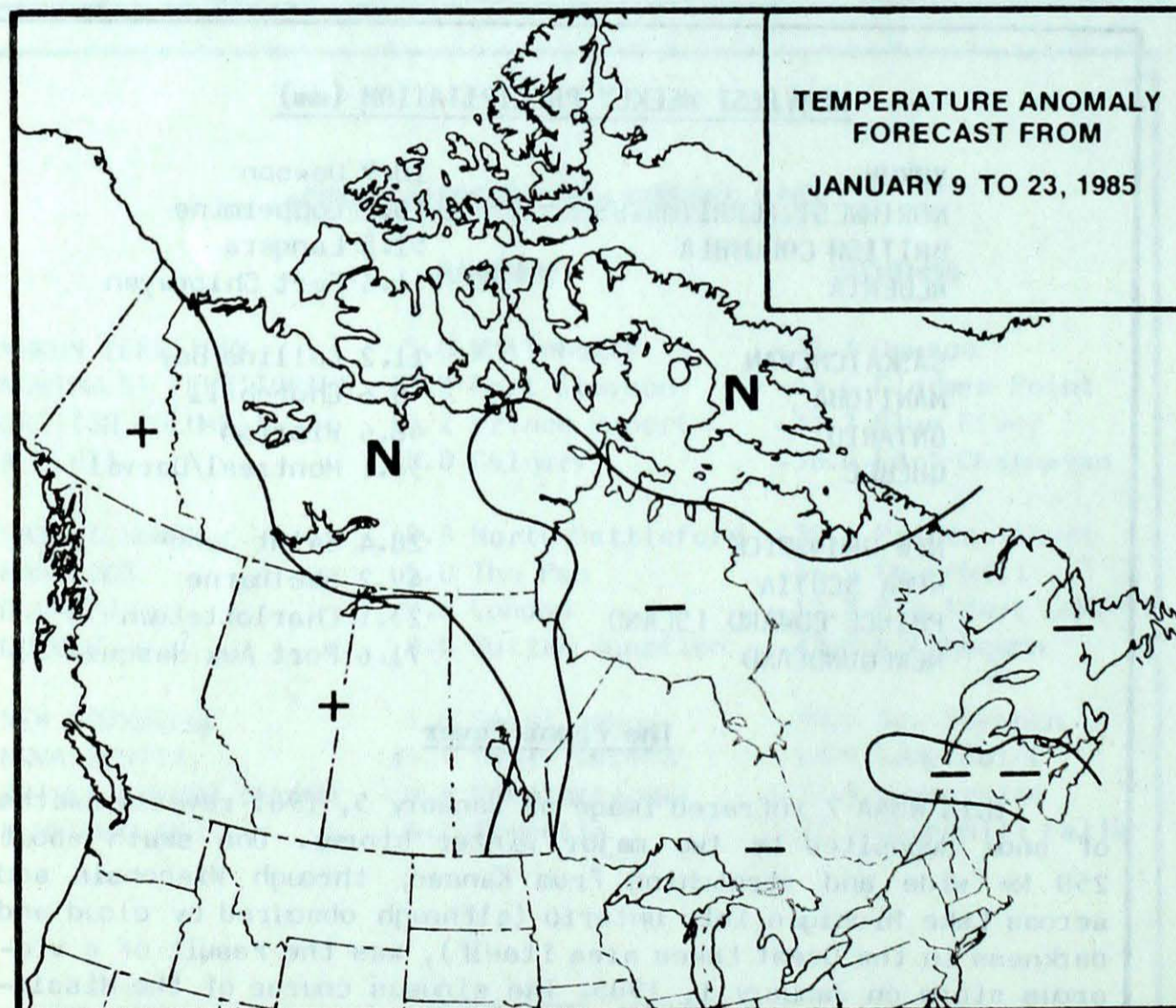
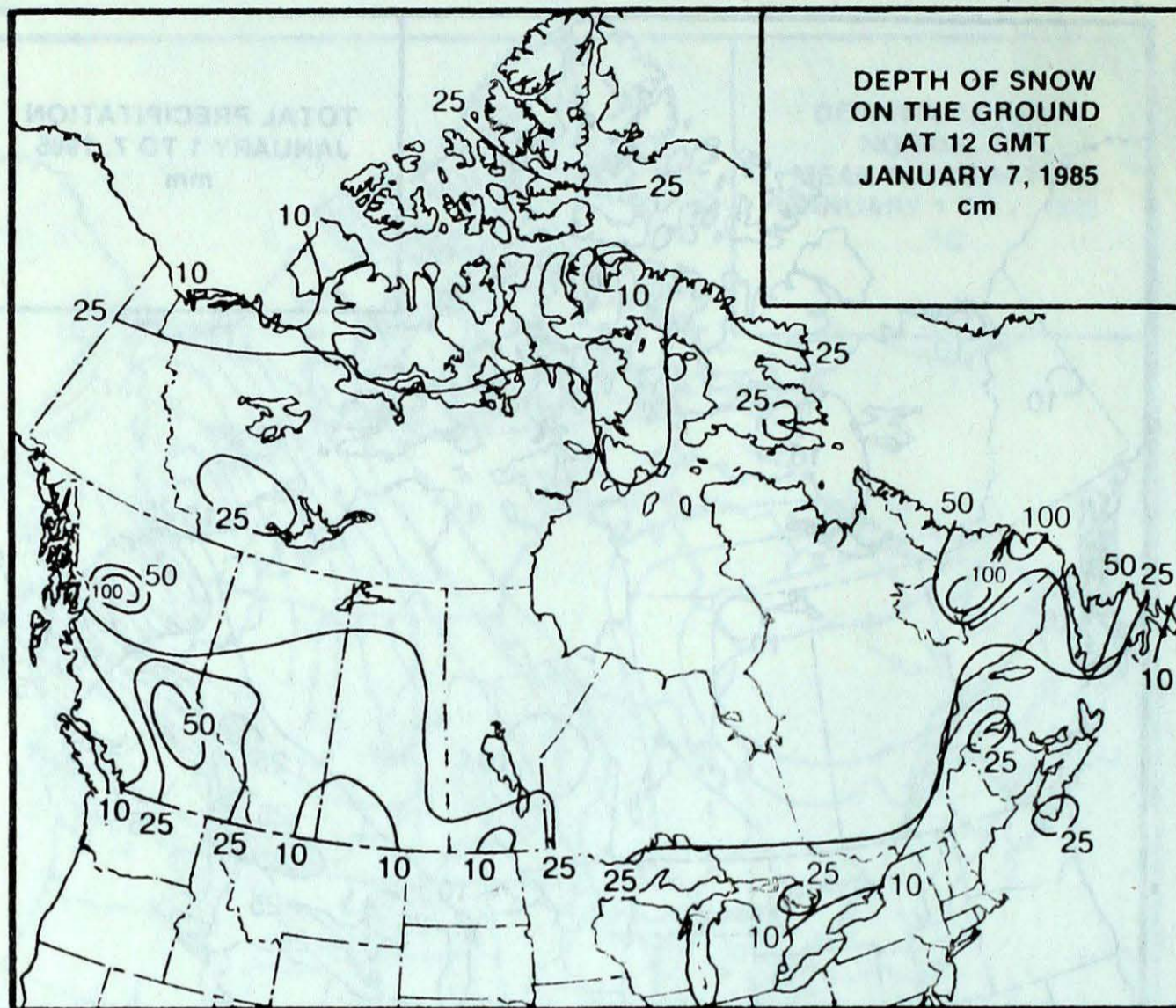


HEAVIEST WEEKLY PRECIPITATION (mm)

YUKON	10.9 Dawson
NORTHWEST TERRITORIES	15.8 Coppermine
BRITISH COLUMBIA	51.5 Langara
ALBERTA	1.6 Fort Chipewyan
SASKATCHEWAN	11.2 Collins Bay
MANITOBA	8.6 Churchill
ONTARIO	46.6 Wiarton
QUÉBEC	36.1 Montreal/Dorval
NEW BRUNSWICK	28.4 Saint John
NOVA SCOTIA	49.2 Shelburne
PRINCE EDWARD ISLAND	23.1 Charlottetown
NEWFOUNDLAND	71.6 Port Aux Basques

The Front Cover

This NOAA 7 infrared image of January 5, 1985 reveals swaths of snow deposited by two major winter storms. One swath about 250 km wide and stretching from Kansas, through Wisconsin and across Lake Michigan into Ontario (although obscured by cloud and darkness in the Great Lakes area itself), was the result of a vigorous storm on January 1, 1985. The sinuous course of the Mississippi River can be seen intersecting this snow band. The other area of snow on the ground can be seen in the states of Tennessee, Kentucky and Arkansas bordering the Mississippi and lower reaches of the Ohio River. This snow swath was produced by a storm whose centre swept northwards along the U.S. Atlantic Coast on January 4th and which paralyzed parts of Atlantic Canada the following day.



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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It began in 1978 and in 1983 was expanded to include a monthly supplement (formerly known as the *Canadian Weather Review*). The purpose of the publication is to make topical information available to the public concerning the Canadian climate and its socioeconomic impact.

Unsolicited articles are welcome but should be at maximum about 1500 words in length. They will be subject to editorial change without notice due to publishing time constraints. Black and white photographs can be used, but not colour. The contents may be reprinted freely with proper credit.

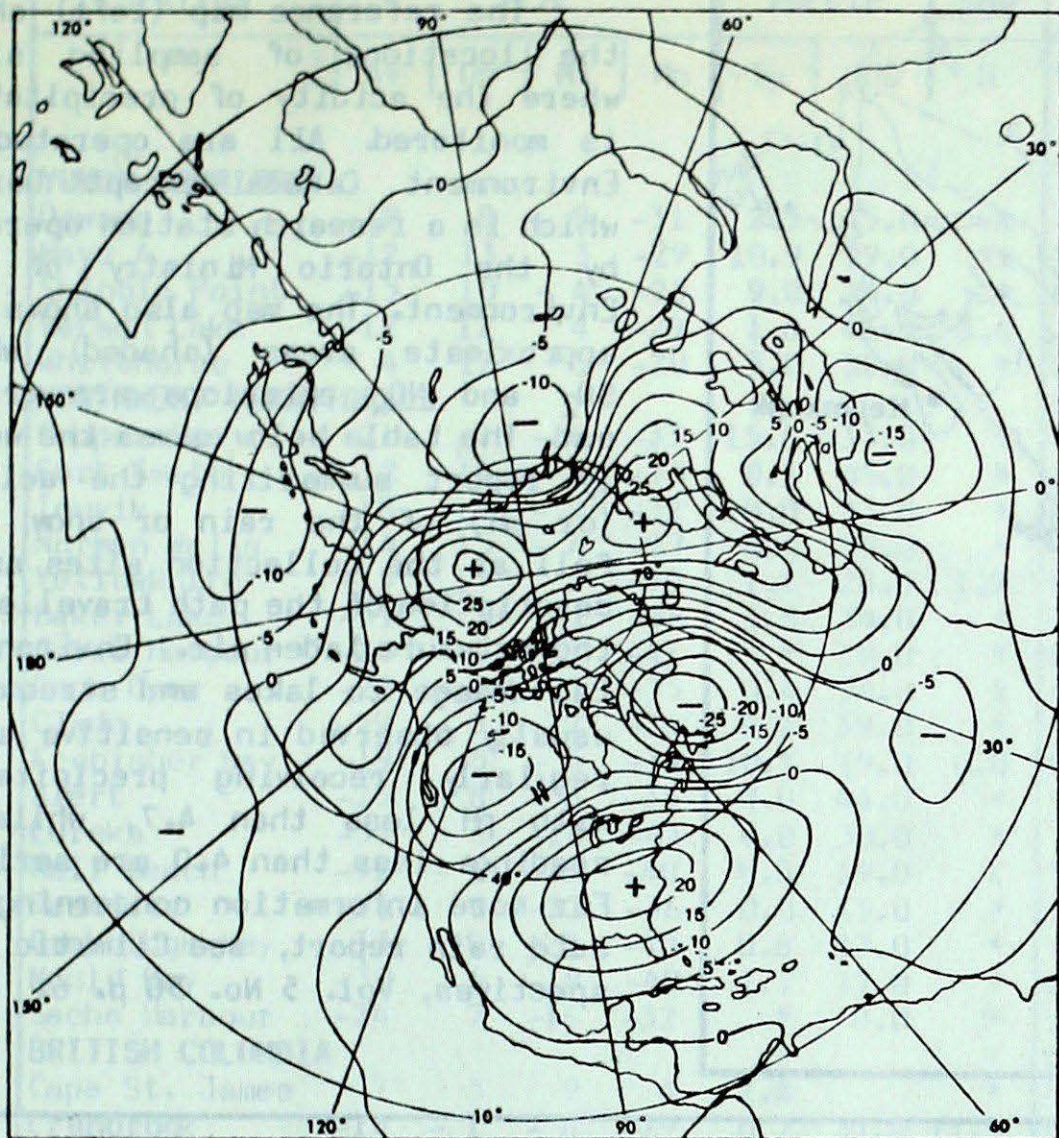
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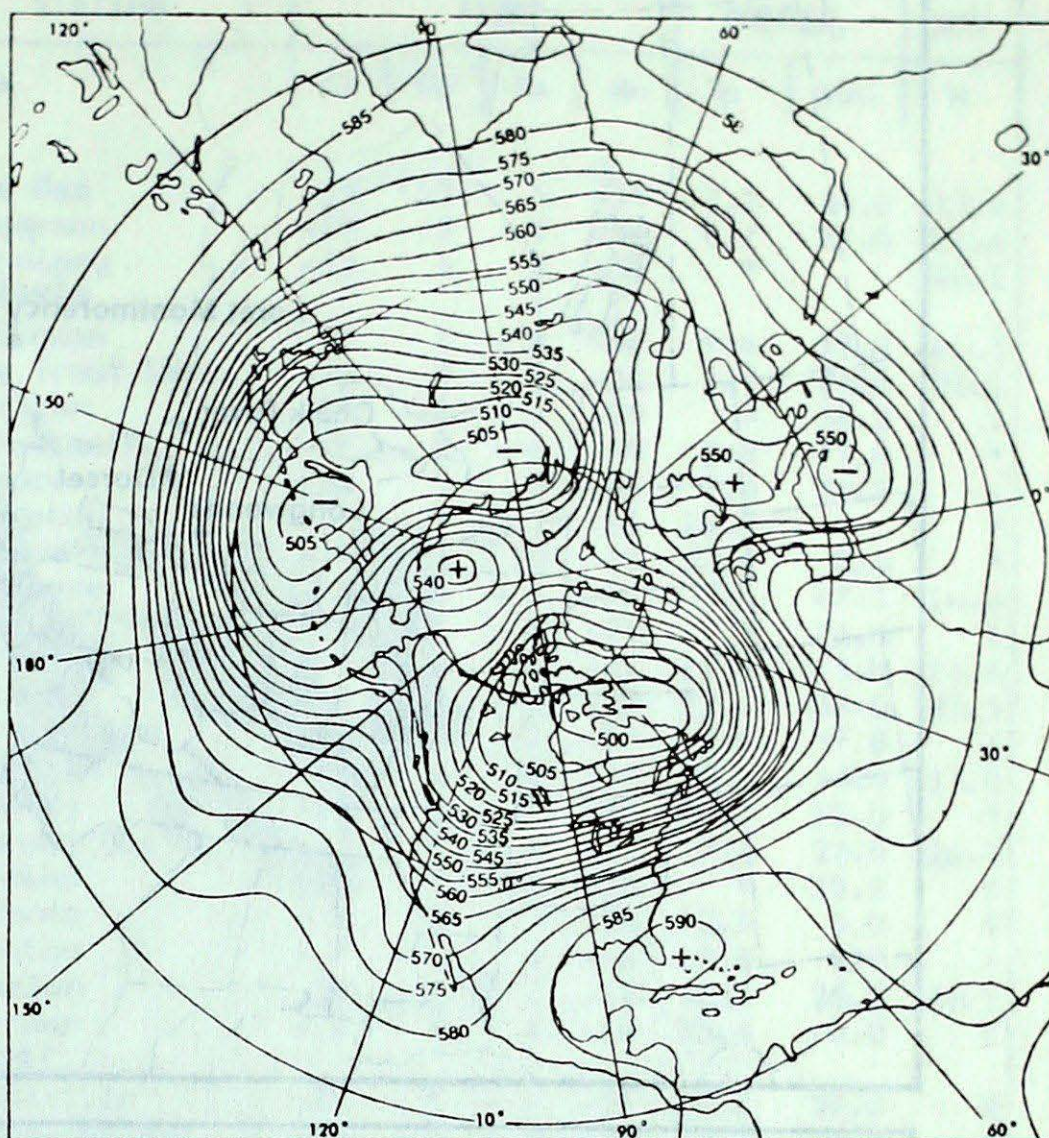
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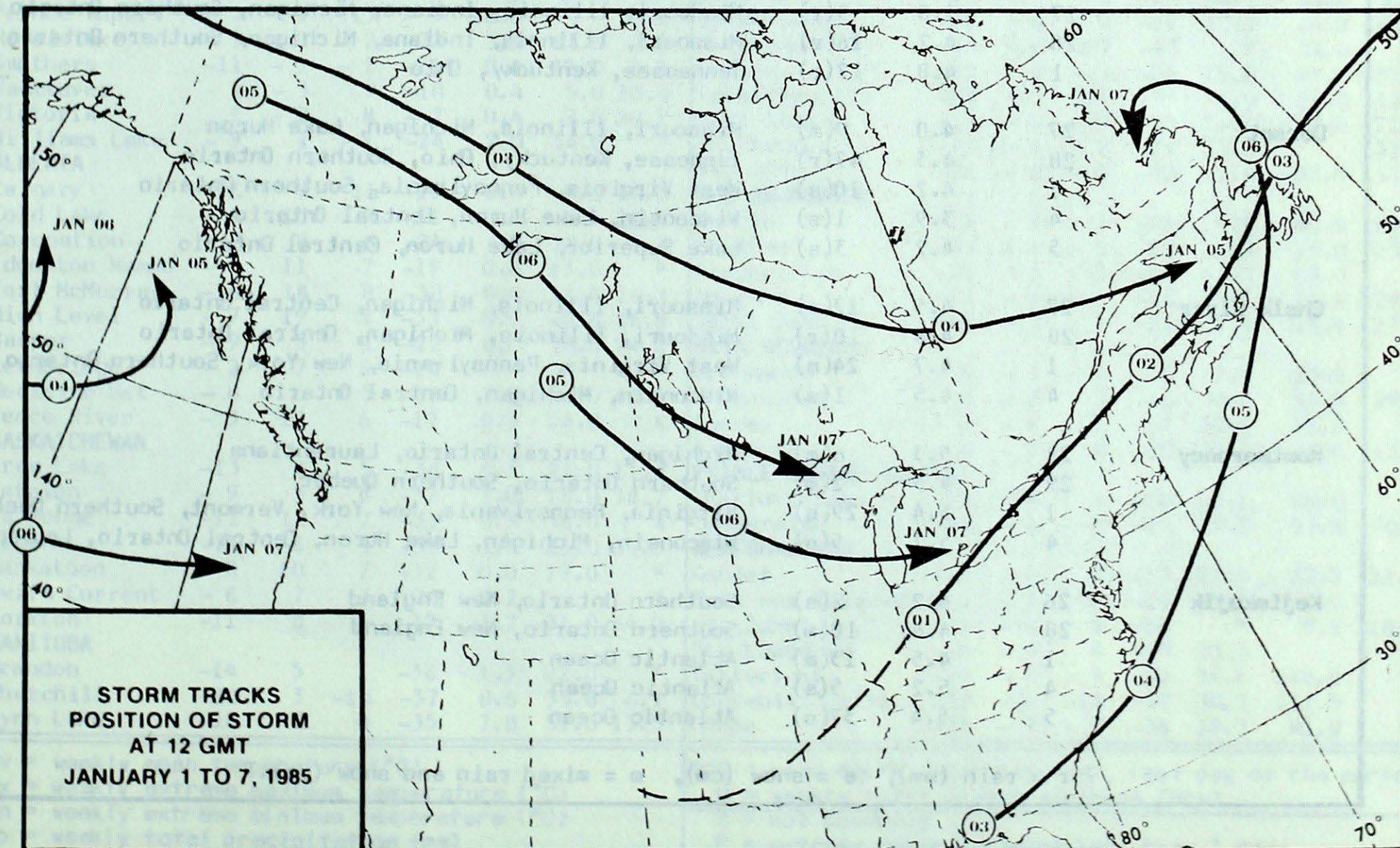
50 KPa ATMOSPHERIC CIRCULATION

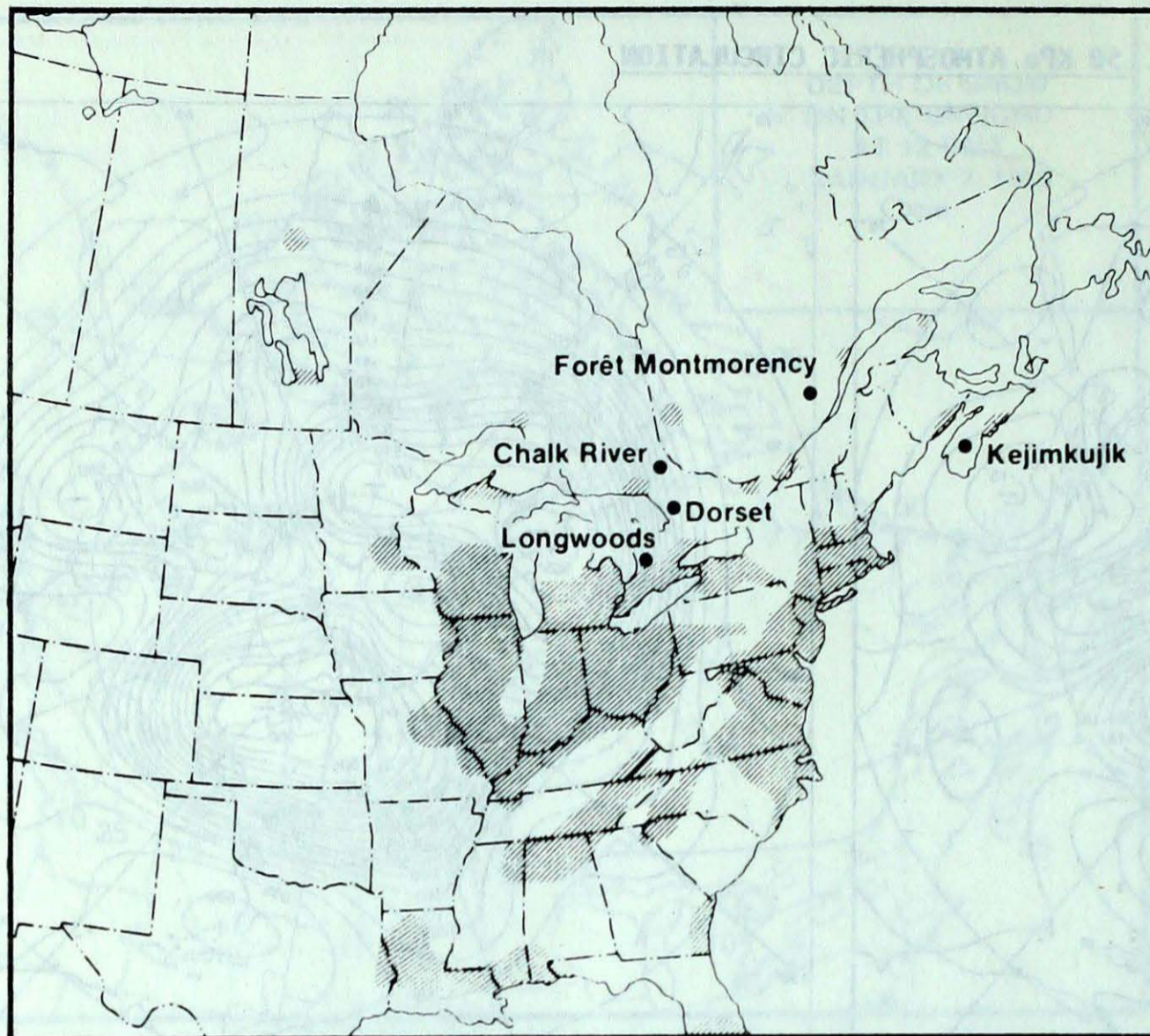


MEAN 50 KPa HEIGHT ANOMALY (dam)
December 27 to December 31, 1984



MEAN 50 KPa HEIGHTS (dam)
December 27 to December 31, 1984





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 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.

DECEMBER 26, 1984, to JANUARY 5, 1985

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	26	5.2	6(s)	Wisconsin, Michigan, Southern Ontario
	27	3.8	5(r)	Missouri, Illinois, Indiana, Michigan, Southern Ontario
	28	4.2	16(r)	Missouri, Illinois, Indiana, Michigan, Southern Ontario
	1	4.8	12(r)	Tennessee, Kentucky, Ohio
Dorset	27	4.0	9(m)	Missouri, Illinois, Michigan, Lake Huron
	28	4.3	47(r)	Tennessee, Kentucky, Ohio, Southern Ontario
	1	4.2	10(s)	West Virginia, Pennsylvania, Southern Ontario
	4	3.9	1(s)	Wisconsin, Lake Huron, Central Ontario
	5	4.2	3(s)	Lake Superior, Lake Huron, Central Ontario
Chalk River	27	4.5	17(r)	Missouri, Illinois, Michigan, Central Ontario
	28	4.6	10(r)	Missouri, Illinois, Michigan, Central Ontario
	1	4.7	24(m)	West Virginia, Pennsylvania, New York, Southern Ontario
	4	4.5	1(s)	Wisconsin, Michigan, Central Ontario
Montmorency	28	5.3	6(m)	Michigan, Central Ontario, Laurentians
	29	4.3	2(m)	Southern Ontario, Southern Quebec
	1	5.4	29(s)	Virginia, Pennsylvania, New York, Vermont, Southern Quebec
	4	5.7	5(s)	Wisconsin, Michigan, Lake Huron, Central Ontario, Laurentians
Kejimikujik	26	4.2	2(s)	Southern Ontario, New England
	28	4.6	10(m)	Southern Ontario, New England
	1	4.5	13(m)	Atlantic Ocean
	4	5.2	5(s)	Atlantic Ocean
	5	5.4	37(s)	Atlantic Ocean

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

TEMPERATURE, PRECIPITATION AND BRIGHT SUNSHINE DATA FOR THE WEEK ENDING 0600 GMT JANUARY 8, 1985

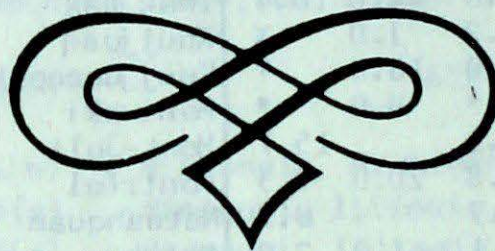
STATION	TEMP				PRECIP		SUN	STATION	TEMP				PRECIP		SUN
	Av	Dp	Mx	Mn	Tp	SOG	H		Av	Dp	Mx	Mn	Tp	SOG	H
YUKON TERRITORY								The Pas	-14	7	5	-33	7.2	34.0	17.4
Dawson	-19	8	-9	-31	2.5	45.0	X	Thompson	-19	8	3	-34	6.7	28.0	11.6
Mayo A	-12	13	3	-29	10.9	29.0	X	Winnipeg	-12	5	0	-31	*		40.1
Shingle Point	-15	10	-4	-25	9.0	24.0	*	ONTARIO							
Watson Lake	-12	12	4	-29	1.6	46.0	3.4	Atikokan	-13	7	-1	-34	9.4	32.0	61.3
Whitehorse	-4	12	5	-20	3.0	28.0	*	Big Trout Lake	-21	3	-1	-38	1.7	84.0	20.2
NORTHWEST TERRITORIES								Earlton	-18	-2	-3	-29	*	38.0	X
Coppermine	-21	9	-10	-33	15.8	33.0	*	Kapuskasing	-19	-1	-1	-34	2.0	35.0	*
Fort Smith	-12	14	8	-33	8.1	45.0	*	Kenora	-12	5	0	-31	8.4	34.0	X
Inuvik	-18	13	-9	-32	10.0	23.0	*	Kingston	*	*	7P	-16	16.0	*	
Norman Wells	-14	15	-4	-27	4.4	39.0	*	London	-3	2	10	-10	32.4	0.0	*
Yellowknife	-15	13	3	-30	11.2	28.0	1.9	Moosonee	-22	-3	-5	-36	4.6	47.0	14.6
Baker Lake	-31	1	-21	-38	3.8	34.0	*	Muskoka	-10	-1	-2	-20	*	21.0	X
Coral Harbour	-28	1	-17	-41	*	19.0	*	North Bay	-15	-3	-4	-22	11.8	13.0	23.6
Cape Dyer	-22	-2	-7	-35	0.4	94.0	X	Ottawa	-12	-2	-2	-19	29.6	38.0	83.5
Clyde	-29	-3	-22	-36	0.2	39.0	*	Pickle Lake	-19	2	-2	-35	4.4	57.0	X
Frobisher Bay	-19	5	-5	-34	10.1	19.0	0.0	Red Lake	-14	6	0	-34	12.4	54.0	13.0
Alert	-25	8	-8	-35	0.0	44.0	*	Sudbury	-15	-2	-3	-22	21.9	22.0	*
Eureka	-31	6	-16	-43	0.0	30.0	*	Thunder Bay	-13	1	2	-25	9.2	25.0	16.8
Hall Beach	-31	-3	-25	-40	0.0	19.0	X	Timmins	-14	3	-3	-26	*	28.0	X
Resolute	-31	0	-22	-36	0.0	15.0	*	Toronto	-6	0	3	-14	42.3	5.0	X
Cambridge Bay	-33	0	-25	-40	0.8	83.0	*	Trenton	-7	-1	4	-16	19.8	9.0	X
Mould Bay	-30	5	-18	-40	1.7	17.0	*	Warton	-6	-1	1	-12	46.6	28.0	10.2
Sachs Harbour	-24	7	-16	-32	*	8.0	*	Windsor	-2	1	4	-10	35.0	0.0	X
BRITISH COLUMBIA								QUEBEC							
Cape St. James	7	3	9	4	9.4		*	Bagotville	-19	-4	-7	-31	27.2	37.0	X
Cranbrook	-14	-1	-6	-29	0.2	31.0	11.3	Blanc-Sablon	-17	-7	-7	-30	34.4	35.0	*
Fort Nelson	-9	14	4	-27	0.0	44.0	18.4	Inukjuak	-26	-4	-17	-35	*	46.0	*
Fort St. John	0	15	7	-11	0.2	1.0	X	Kuujuuaq	-27	-5	-9	-39	*	44.0	*
Kamloops	-9	-4	-1	-22	0.0	18.0	*	Kuujuarapik	-27	-6	-14	-38	*	21.0	*
Penticton	-8	-6	-1	-16	*	8.0	*	Maniwaki	-16	-3	-7	-28	16.0	30.0	*
Port Hardy	3	0	9	-5	3.1		15.7	Mont-Joli	-14	-4	-6	-21	20.9	24.0	20.7
Prince George	-8	2	1	-28	5.8	20.0	8.3	Montréal	-13	-3	-2	-29	36.1	14.0	35.2
Prince Rupert	5	7	13	-3	18.7		0.3	Natashquan	-17	-6	-9	-28	10.8	24.0	20.2
Revelstoke	-9	1	-2	-23	5.1	61.0	2.0	Nitchequon	-28	-6	-17	-43	*	34.0	*
Smithers	-11	-1	-1	-21	0.4	22.0	6.1	Québec	-15	-4	-5	-26	18.0	49.0	31.0
Vancouver	-1	-3	9	-10	0.4	5.0	15.4	Schefferville	-28	-5	-16	-35	6.5	25.0	12.2
Victoria	1	-2	8	-7	0.4	7.0	20.1	Sept-Iles	-19	-6	-10	-33	16.2	17.0	22.5
Williams Lake	-9	1	-1	-24	2.0	54.0	*	Sherbrooke	-13	-1	2	-29	15.2		31.1
ALBERTA								Val-d'Or	-21	-4	-5	-33	11.4	37.0	11.8
Calgary	-1	9	11	-19	0.0	0.0	30.5	NEW BRUNSWICK							
Cold Lake	-4	13	9	-31	0.2		21.4	Charlo	-15	-2	-5	-24	19.9	40.0	25.9
Coronation	-7	8	6	-24	*	24.0	*	Chatham	-13	-5	-4	-22	11.0	19.0	25.8
Edmonton Namao	-3	11	7	-19	0.0	13.0	*	Fredericton	-12	-3	-3	-20	13.5	13.0	*
Fort McMurray	-6	14	8	-30	0.4	11.0	16.2	Moncton	-11	-4	-1	-21	22.1	19.0	29.8
High Level	-7	19	7	-33	0.0	40.0	14.8	Saint John	-10	-3	1	-21	28.4	20.0	27.7
Jasper	-9	3	1	-22	0.0	30.0	24.2	NOVA SCOTIA							
Lethbridge	-2	7	9	-24	*		*	Greenwood	-8	-3	1	-15	27.9	20.0	X
Medicine Hat	-6	5	5	-23	1.0	6.0	41.5	Shearwater	-6	-3	3	-16	32.0	17.0	29.0
Peace River	-3	17	6	-17	0.0	24.0	X	Sydney	-7	-4	1	-17	35.4	12.0	*
SASKATCHEWAN								Yarmouth	-4	-2	8	-10	45.1	26.0	12.6
Cree Lake	-13	X	5	-36	5.3	21.0	11.7	PRINCE EDWARD ISLAND							
Estevan	-9	5	4	-32	1.0	18.0	38.7	Charlottetown	-10	-4	1	-20	23.1	25.0	*
La Ronge	-12	12	7	-35	0.9	36.0	X	Summerside	-10	-4	0	-21	20.2	23.0	30.5
Regina	-11	6	3	-35	1.2	15.0	31.3	NEWFOUNDLAND							
Saskatoon	-8	10	7	-32	0.0	19.0	*	Gander	-10	-5	0	-19	24.6	22.0	21.4
Swift Current	-6	7	3	-24	0.2		*	Port aux Basques	-6	-3	4	-14	71.6	65.0	*
Yorkton	-11	8	5	-37	1.2	31.0	34.0	St. John's	-7	-4	5	-14	*	8.0	18.9
MANITOBA								St. Lawrence	-6	-3	4	-15	23.3		X
Brandon	-14	5	1	-36	1.3	22.0	*	Cartwright	-19	-7	-5	-30	39.0	142.0	X
Churchill	-24	3	-10	-37	8.6	35.0	6.7	Churchill Falls	-27	-6	-15	-37	30.2	117.0	X
Lynn Lake	-18	7	4	-35	7.8	51.0	13.5	Goose	-23	-7	-9	-34	19.7	81.0	*

Av = weekly mean temperature (°C)
Mx = weekly extreme maximum temperature (°C)
Mn = weekly extreme minimum temperature (°C)
Tp = weekly total precipitation (mm)
Dp = Departure of mean temperature from normal (°C)

SOG = snow depth on ground (cm), last day of the period
H = weekly total bright sunshine (hrs)
X = not observed
P = extreme value based on less than 7 days
* = missing

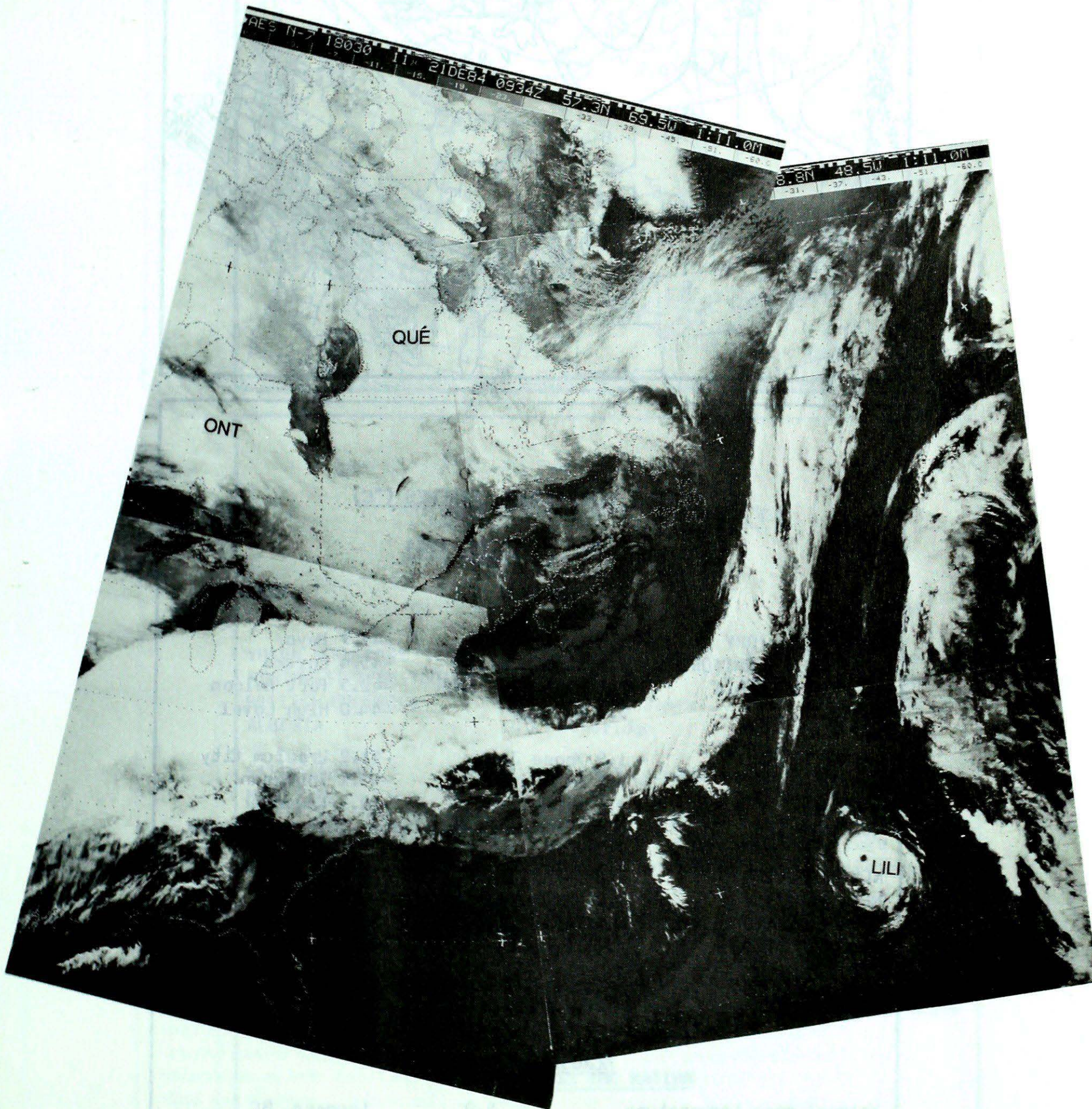
WEEKLY WEATHER DATA FOR THE WEEK ENDING OCTOBER 2, 1965

STATION	TEMPERATURE (°C)		WIND (km/h)		PRECIPITATION (mm)		WIND DIR	WIND SPC	WIND GUST	H (mm)	REL HUM (%)	VIS (km)	CLOUDS (%)	MOON
	Max	Min	Dir	Spd	Total	Max								
ALBERTA	12.0	-1.0	10	15	0.0	0.0				1015	75	10	100	X
BRITISH COLUMBIA	15.0	5.0	15	20	0.0	0.0				1012	80	15	100	X
ONTARIO	10.0	-5.0	12	18	0.0	0.0				1010	70	12	100	X
QUEBEC	8.0	-8.0	10	15	0.0	0.0				1008	65	10	100	X
MANITOBA	12.0	-2.0	12	18	0.0	0.0				1010	75	12	100	X
SASKATCHEWAN	10.0	-4.0	10	15	0.0	0.0				1008	70	10	100	X
PRINCE EDWARD ISLAND	12.0	2.0	12	18	0.0	0.0				1010	75	12	100	X
NEW BRUNSWICK	10.0	-2.0	10	15	0.0	0.0				1008	70	10	100	X
NEWFOUNDLAND	8.0	-6.0	8	12	0.0	0.0				1005	65	8	100	X
YUKON	5.0	-10.0	5	10	0.0	0.0				1000	60	5	100	X
NT	3.0	-12.0	3	8	0.0	0.0				995	55	3	100	X

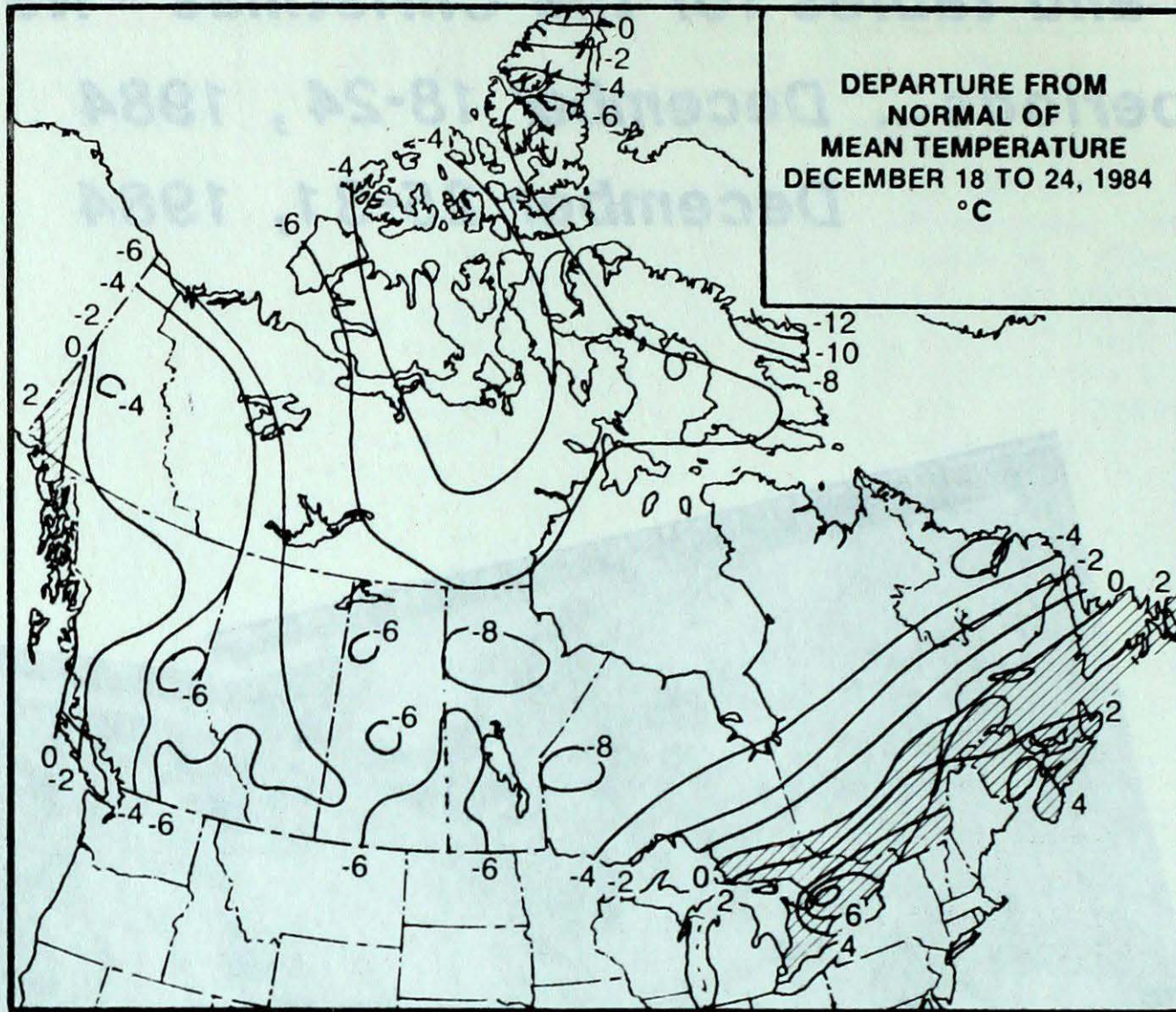


Cp = Report of mean temperature from normal (°C)
 T = Weekly total precipitation (mm)
 W = Weekly extreme minimum temperature (°C)
 Wx = Weekly extreme maximum temperature (°C)
 Ws = Weekly total precipitation (mm)
 Wd = Weekly total precipitation (mm)
 Wn = Weekly total precipitation (mm)
 Wp = Weekly total precipitation (mm)
 Wq = Weekly total precipitation (mm)
 Wr = Weekly total precipitation (mm)
 Ws = Weekly total precipitation (mm)
 Wt = Weekly total precipitation (mm)

**Maps and tables for the Christmas - New Year
periods... December 18-24, 1984
December 25-31, 1984**



This NOAA satellite image of December 21, 1984 shows a winter storm approaching the Great Lakes and hurricane "Lili". (For more information see page 12)



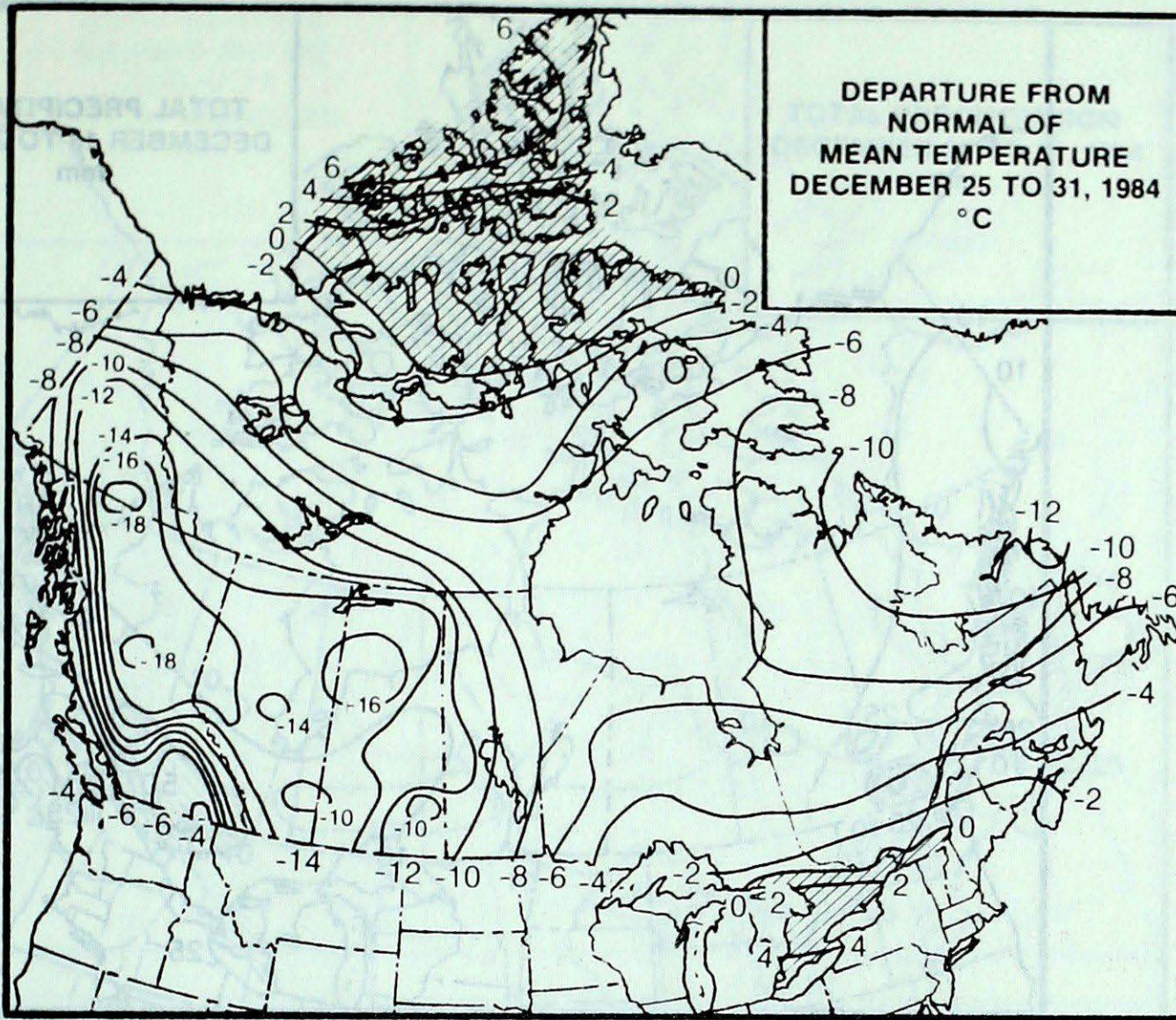
WEEKLY TEMPERATURE EXTREMES (°C)

DECEMBER 18 TO 24, 1984

	MAXIMUM	MINIMUM
YUKON TERRITORY	- 1.7 Burwash	-43.9 Mayo
NORTHWEST TERRITORIES	- 1.3 Norman Wells	-45.4 Eureka
BRITISH COLUMBIA	9.1 Cape St. James	-42.5 Fort Nelson
ALBERTA	3.3 Calgary	-44.0 High Level
SASKATCHEWAN	- 1.9 Moose Jaw	-41.2 Uranium City
MANITOBA	- 5.2 Dauphin	-45.1 Thompson
ONTARIO	9.0 Windsor	-40.1 Nagagami
QUÉBEC	5.0 Iles de la Madelaine	-39.0 Nitchequon
NEW BRUNSWICK	7.8 Saint John	-20.0 Charlo
NOVA SCOTIA	11.2 Shelburne	-14.2 Amherst
PRINCE EDWARD ISLAND	6.5 East Point	-12.5 Charlottetown
NEWFOUNDLAND	8.0 Argentia	-37.8 Churchill Falls

ACROSS THE NATION

Warmest mean temperature	5.0	Langara, BC
Coollest mean temperature	-40.9	Eureka, NWT



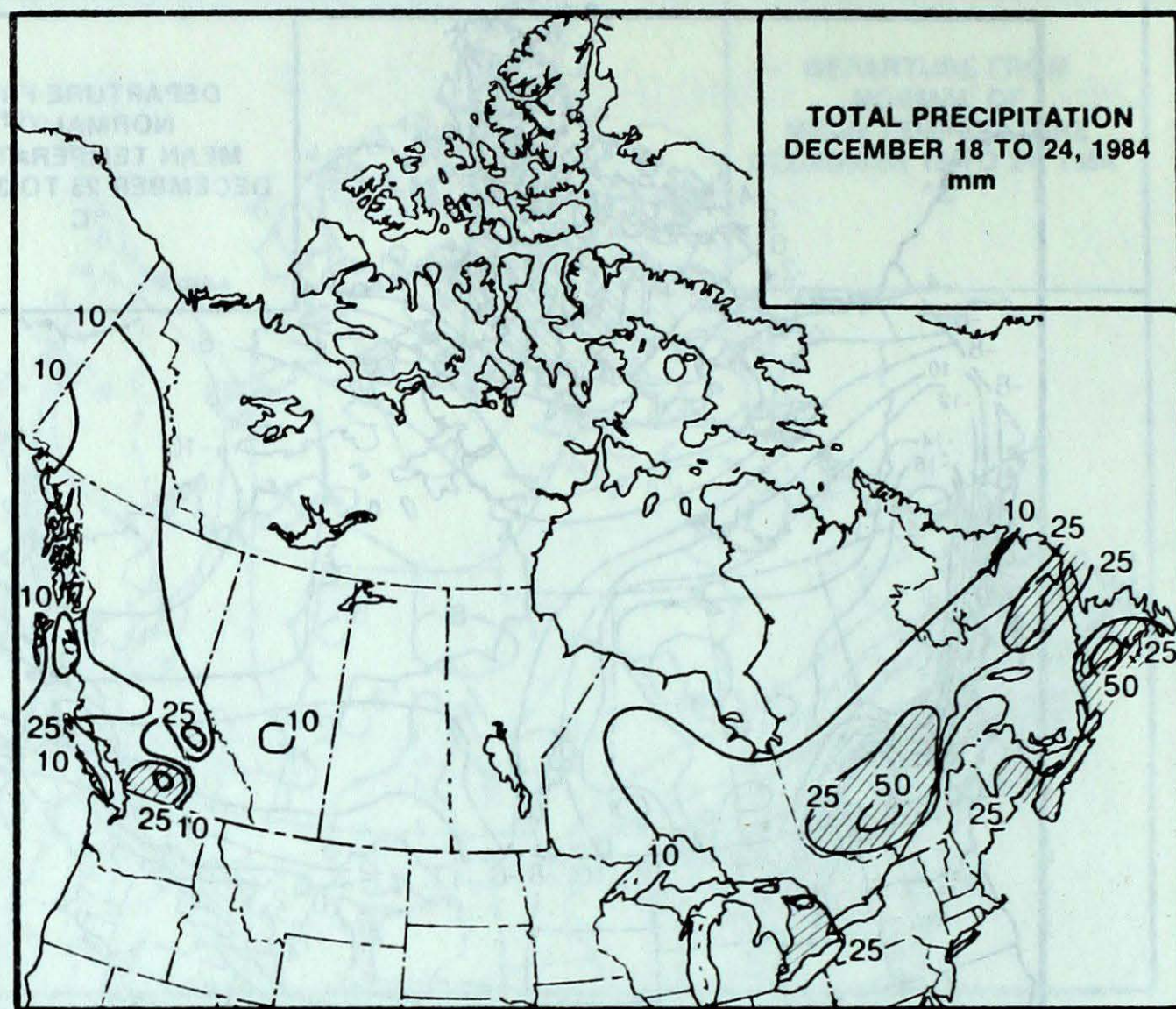
WEEKLY TEMPERATURE EXTREMES (°C)

DECEMBER 25 TO 31, 1984

	MAXIMUM	MINIMUM
YUKON TERRITORY	- 0.6 Burwash	-53.3 Watson Lake
NORTHWEST TERRITORIES	-10.6 Alert	-44.8 Fort Simpson
BRITISH COLUMBIA	7.4 Cape St. James	-48.3 Puntzi Mountain
ALBERTA	0.0 Lethbridge	-45.2 High Level
SASKATCHEWAN	- 8.3 Eastend Cypress	-45.9 Cree Lake
MANITOBA	-12.2 Bissett Winnipeg	-42.8 Lynn Lake
ONTARIO	16.7 Windsor	-42.1 Red Lake
QUÉBEC	6.1 Iles de la Madelaine	-42.7 Nitchequon
NEW BRUNSWICK	9.2 Saint John	-27.1 Charlo
NOVA SCOTIA	12.3 Shelburne	-22.6 Amherst Truro
PRINCE EDWARD ISLAND	9.0 East Point	-22.2 Charlottetown
NEWFOUNDLAND	10.5 Argentia	-36.9 Churchill Falls

ACROSS THE NATION

Warmest mean temperature	1.1	Windsor, ONT
Coolest mean temperature	-36.6	Yellowknife, NWT



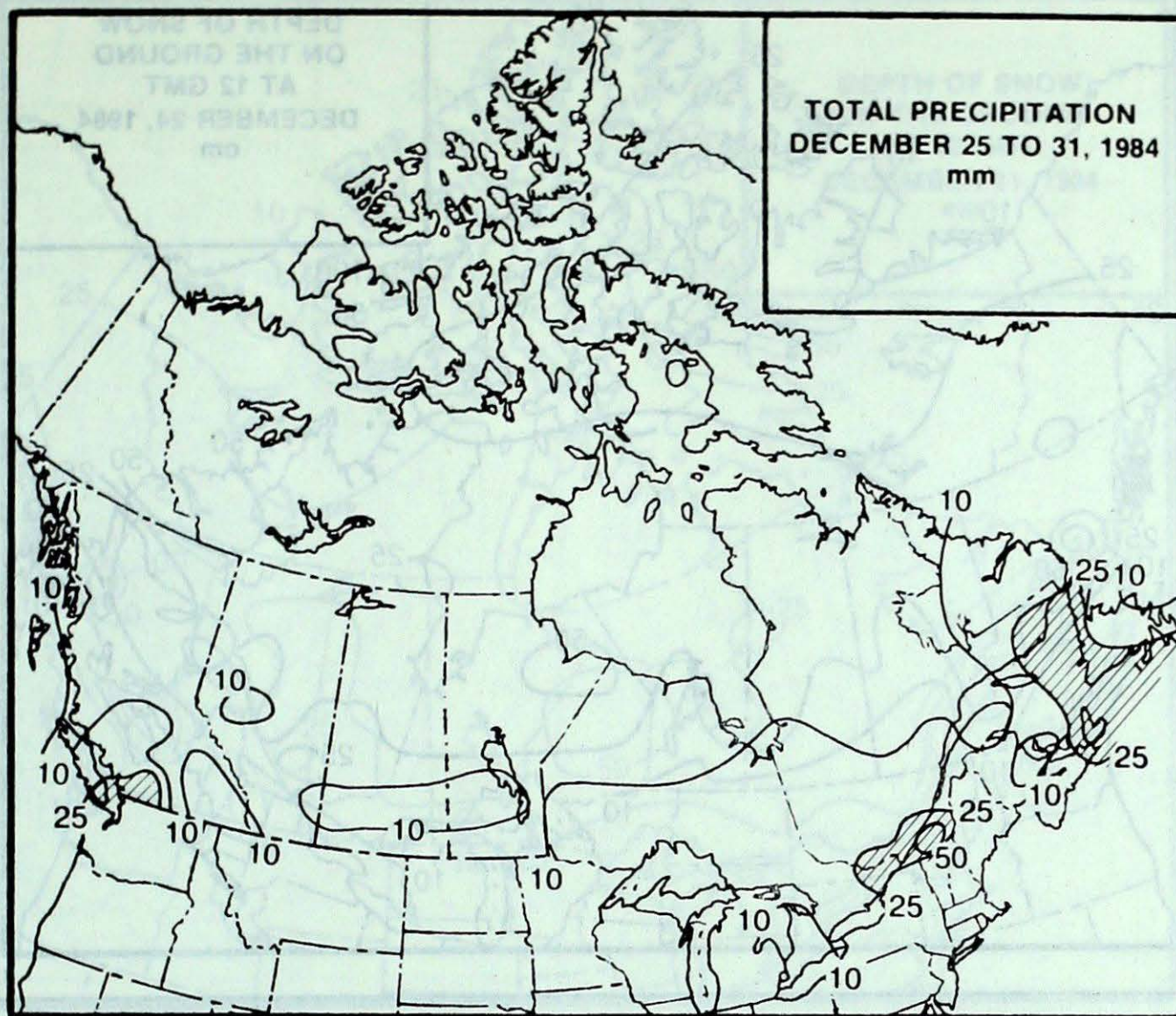
HEAVIEST WEEKLY PRECIPITATION (mm)

DECEMBER 18 TO 24, 1984

YUKON	21.4 Dawson
NORTHWEST TERRITORIES	11.0 Cape Dorset
BRITISH COLUMBIA	80.9 Prince Rupert
ALBERTA	15.7 Whitecourt
SASKATCHEWAN	5.6 La Ronge
MANITOBA	6.2 Bissett
ONTARIO	39.4 Warton
QUÉBEC	58.0 Ste Agathe des Monts
NEW BRUNSWICK	42.8 Saint John
NOVA SCOTIA	43.2 Shearwater
PRINCE EDWARD ISLAND	13.6 Charlottetown
NEWFOUNDLAND	67.7 Burgeo

SATELLITE PHOTO, PAGE 9

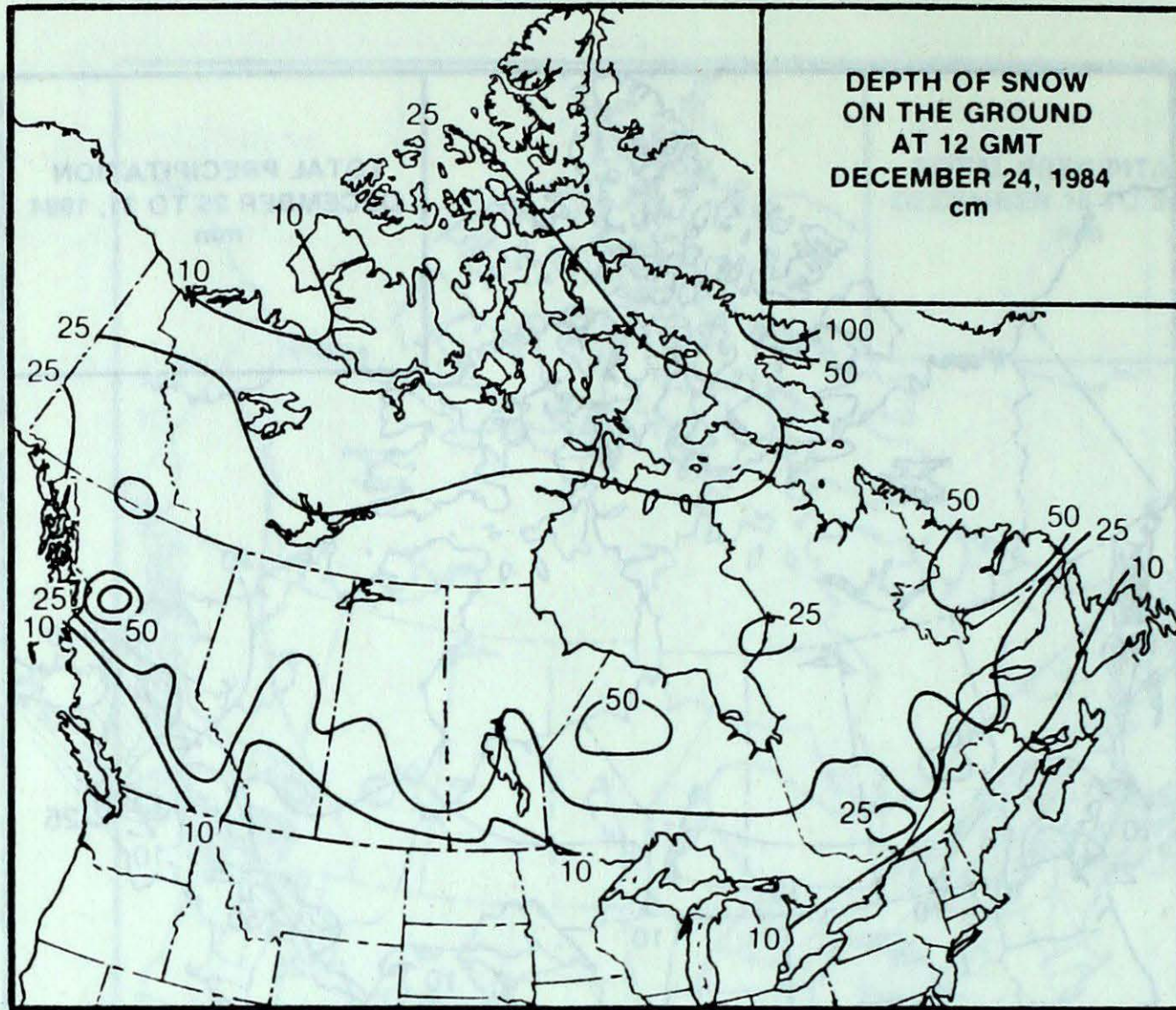
Taken during early morning hours of December 21, 1984 this NOAA infrared image shows a large bulge of storm clouds menacing the Great Lakes region, and hurricane Lili swirling far out in the Atlantic at about 30°N. Part of a frontal system stretching from the US southwest to the south of Greenland, the Great Lakes storm produced snow, freezing rain, ice pellets and heavy rain across parts of Ontario and Quebec as its centre intensified and tracked northeastwards. This was a very late date for a hurricane. In fact, during the 110-year period 1871 to 1980, when 882 tropical cyclones (tropical storms and hurricanes) have been recorded over the North Atlantic, only one has occurred at a later date ("Alice", December 30, 1954 - January 5, 1955).



HEAVIEST WEEKLY PRECIPITATION (mm)

DECEMBER 25 TO 31, 1984

YUKON	5.2	Shingle Point
NORTHWEST TERRITORIES	6.4	Cape Dyer
BRITISH COLUMBIA	40.2	Hope
ALBERTA	13.8	Medicine Hat
SASKATCHEWAN	13.2	Yorkton
MANITOBA	10.2	Dauphin
ONTARIO	40.9	Warton
QUÉBEC	52.1	Sherbrooke
NEW BRUNSWICK	20.2	Saint John
NOVA SCOTIA	31.8	Sydney
PRINCE EDWARD ISLAND	14.2	Charlottetown
NEWFOUNDLAND	43.5	St. Lawrence



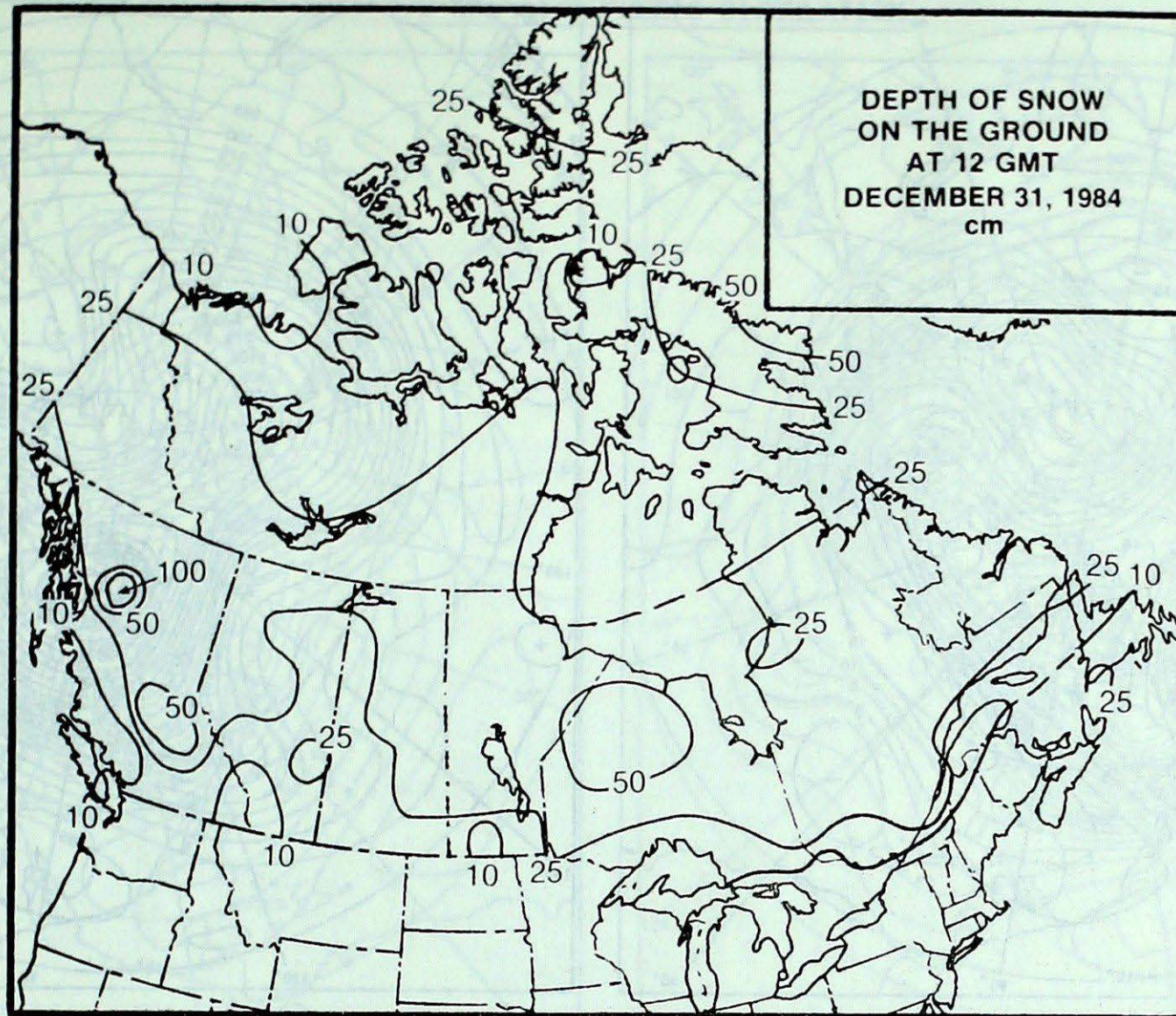
ACID RAIN REPORT

DECEMBER 16 to DECEMBER 25, 1984

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	19	4.2	7(s)	Iowa, Illinois, Indiana, Ohio
	21	4.6	23(r)	Tennessee, Kentucky, Ohio
	24	5.9	3(s)	Illinois, Indiana, Ohio
Dorset	16	3.5	1(r)	Kentucky, Indiana, Ohio, Southern Ontario
	19	4.4	5(s)	Wisconsin, Michigan, Southern Ontario
	21	4.4	12(s)	Kentucky, West Virginia, Pennsylvania, Southern Ontario
	22,23	4.3	15(s)	Manitoba, Minnesota, Wisconsin, Michigan, Southern Ontario
	24	4.4	6(s)	Illinois, Indiana, Ohio, Southern Ontario
	25	4.3	6(s)	Minnesota, Wisconsin, Michigan, Lake Huron
Chalk River	21	5.3	12(s)	Kentucky, West Virginia, Pennsylvania, Southern Ontario
	23	6.0	5(s)	Wisconsin, Michigan, Central Ontario
	24	5.0	4(s)	Illinois, Indiana, Ohio, Southern Ontario

... continued on next page

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



... continued from page 14

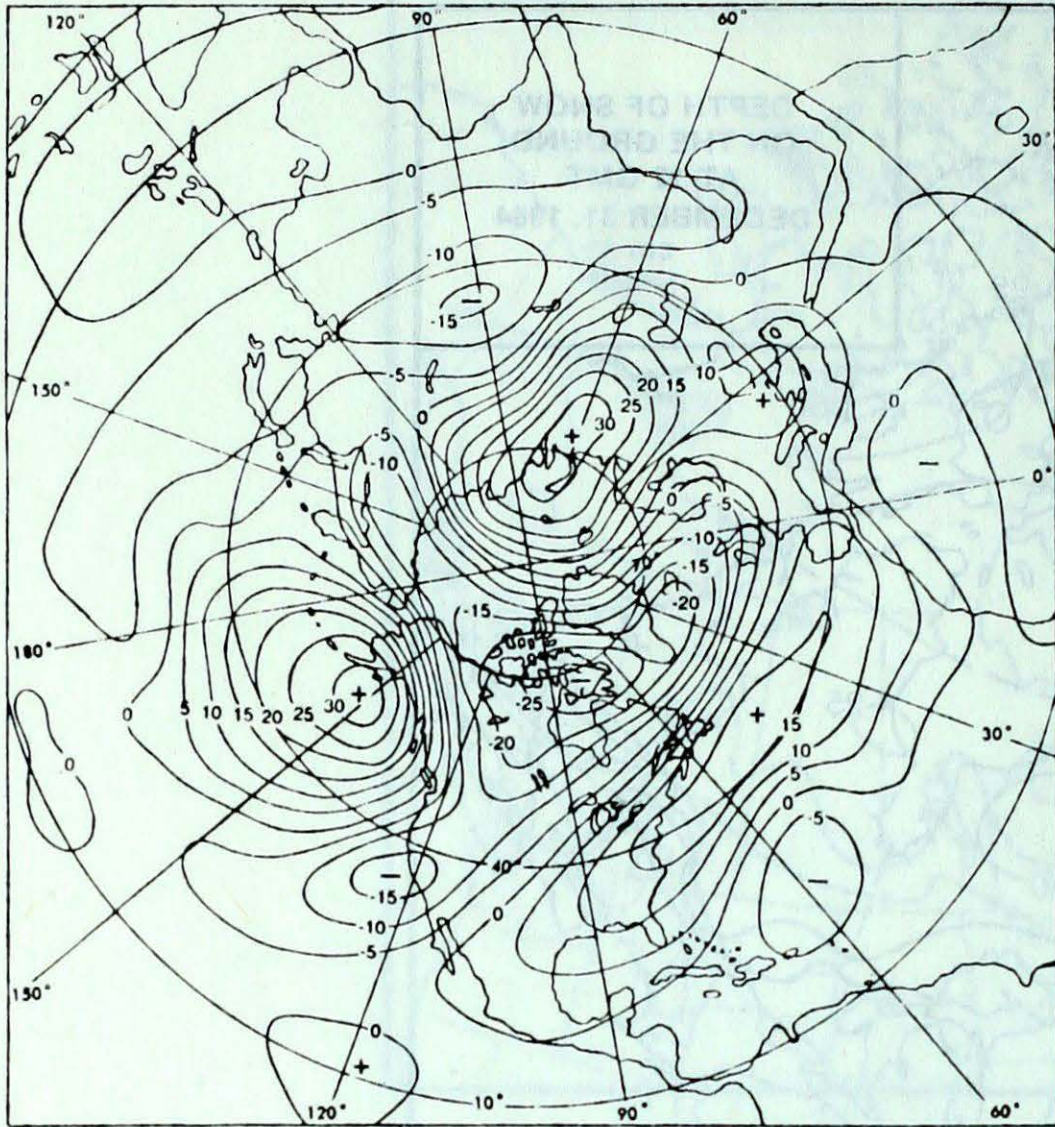
ACID RAIN REPORT

DECEMBER 16 to DECEMBER 25, 1984

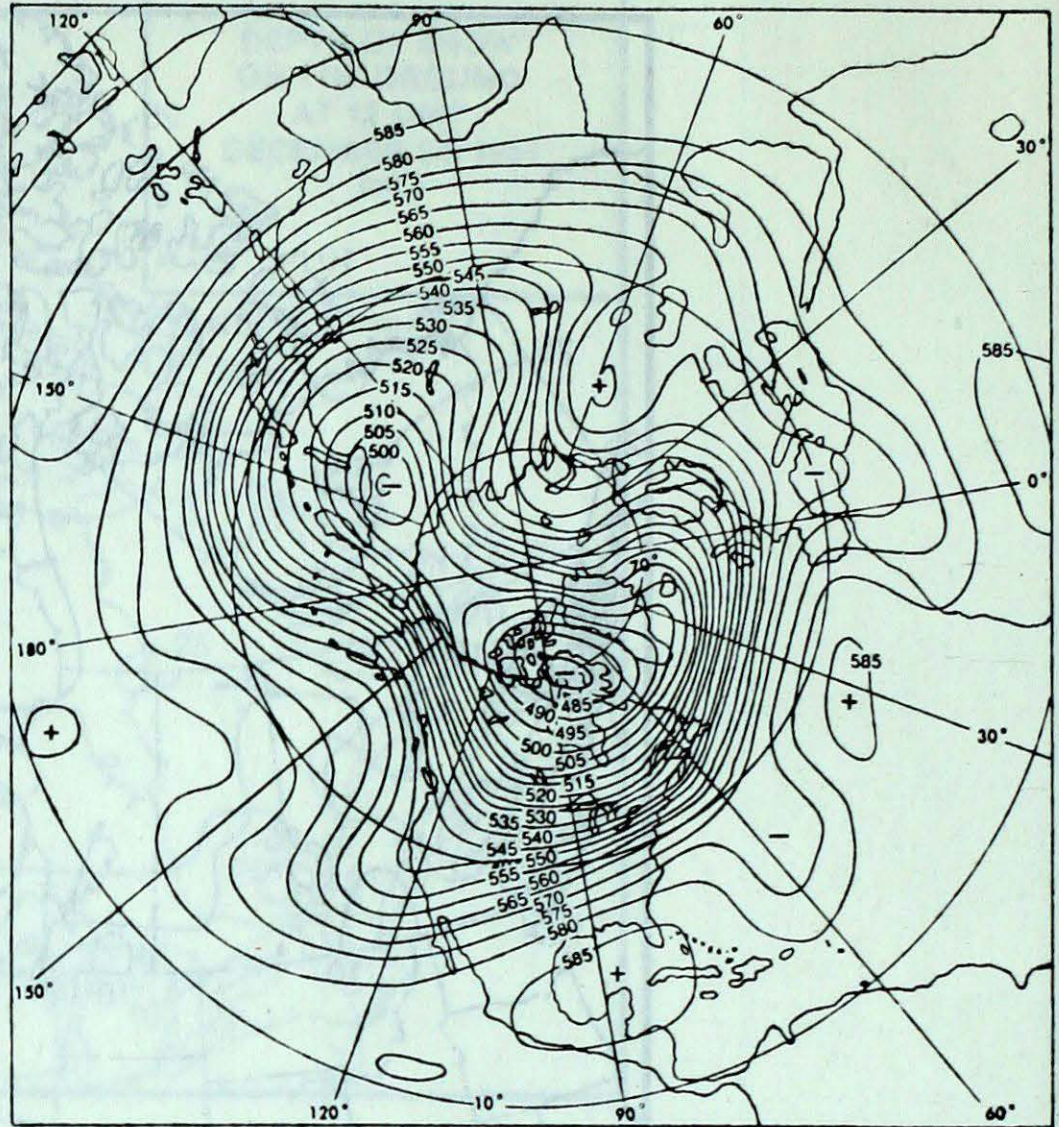
SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Montmorency	16	3.9	9(r)	Illinois, Indiana, Ohio, Lake Ontario, Southern Quebec
	17	4.8	2(m)	Northern Quebec
	18	5.0	2(s)	Northern Quebec
	19	4.8	5(s)	Northern Quebec
	20	4.5	7(s)	Wisconsin, Michigan, Central Ontario, Laurentians
	21	5.2	15(s)	North Carolina, New England, Southern Quebec
	22	4.3	4(s)	North Carolina, New England, Southern Quebec
	23	4.3	9(s)	Michigan, Southern Ontario, Southern Quebec
	24	4.2	12(s)	Indiana, Ohio, Pennsylvania
	25	4.6	2(s)	Lake Superior, Central Ontario, Laurentians
Kejmkujik	18	4.0	2(s)	Michigan, Southern Ontario, New England
	19	4.5	13(m)	Kentucky, New Jersey, Atlantic Ocean
	21	4.8	12(m)	Pennsylvania, Atlantic Ocean
	22	4.1	6(r)	Pennsylvania, Atlantic Ocean
	24	4.6	10(r)	West Virginia, New Jersey, Atlantic Ocean
	25	4.4	2(s)	Central Ontario, New England

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

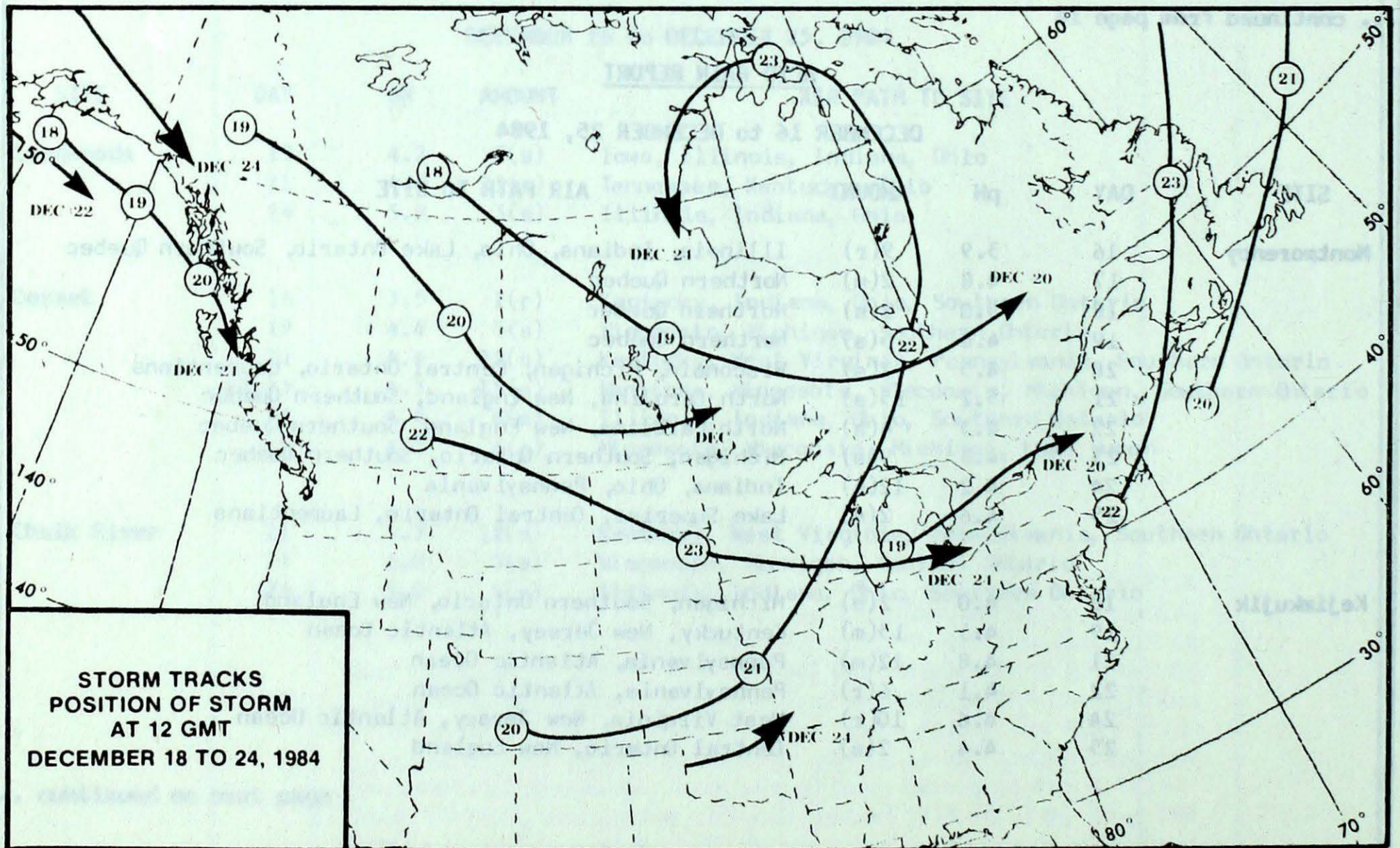
50 KPa ATMOSPHERIC CIRCULATION



MEAN 50 KPa HEIGHT ANOMALY (dam)
December 17 to December 21, 1984

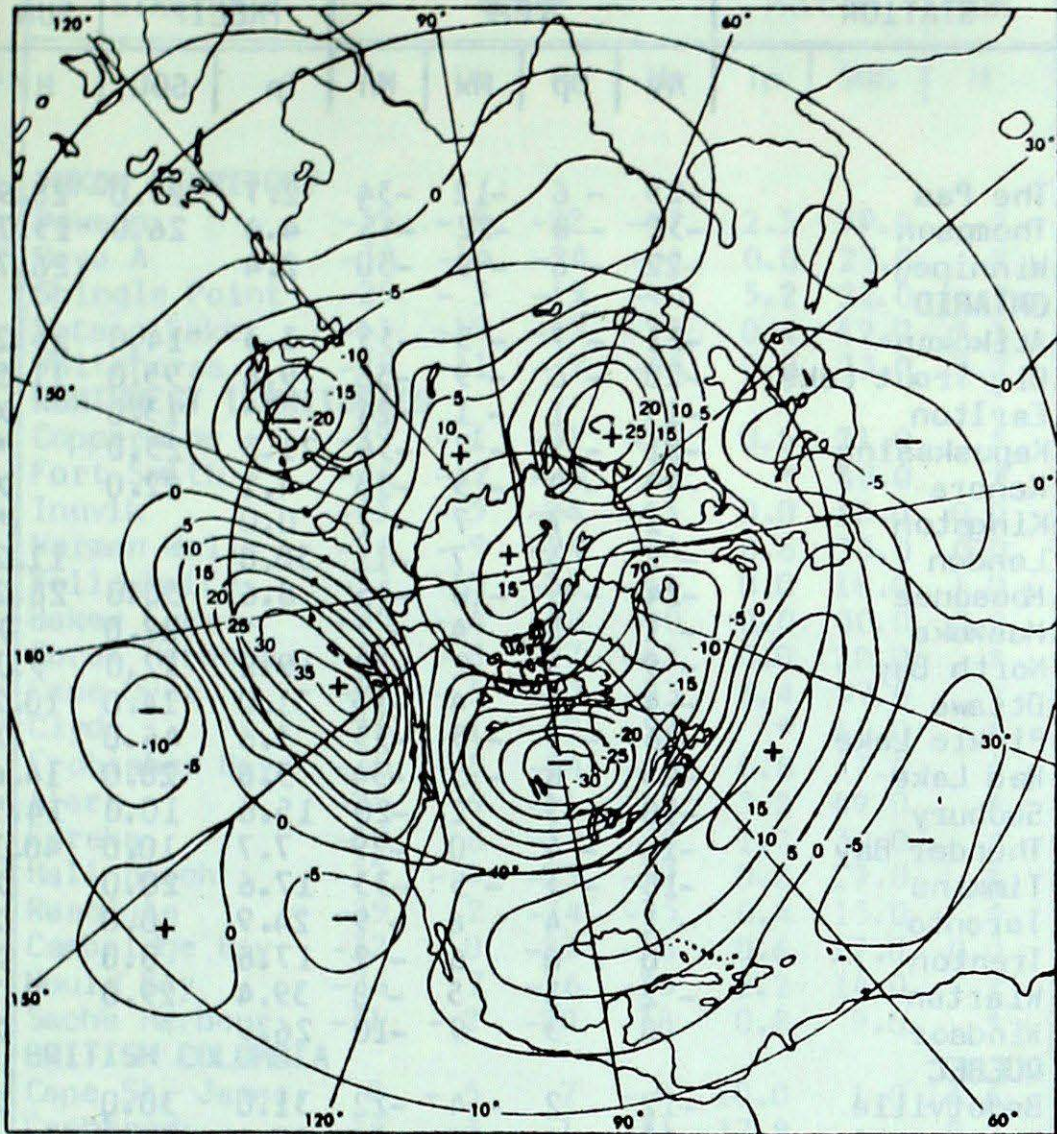


MEAN 50 KPa HEIGHTS (dam)
December 17 to December 21, 1984

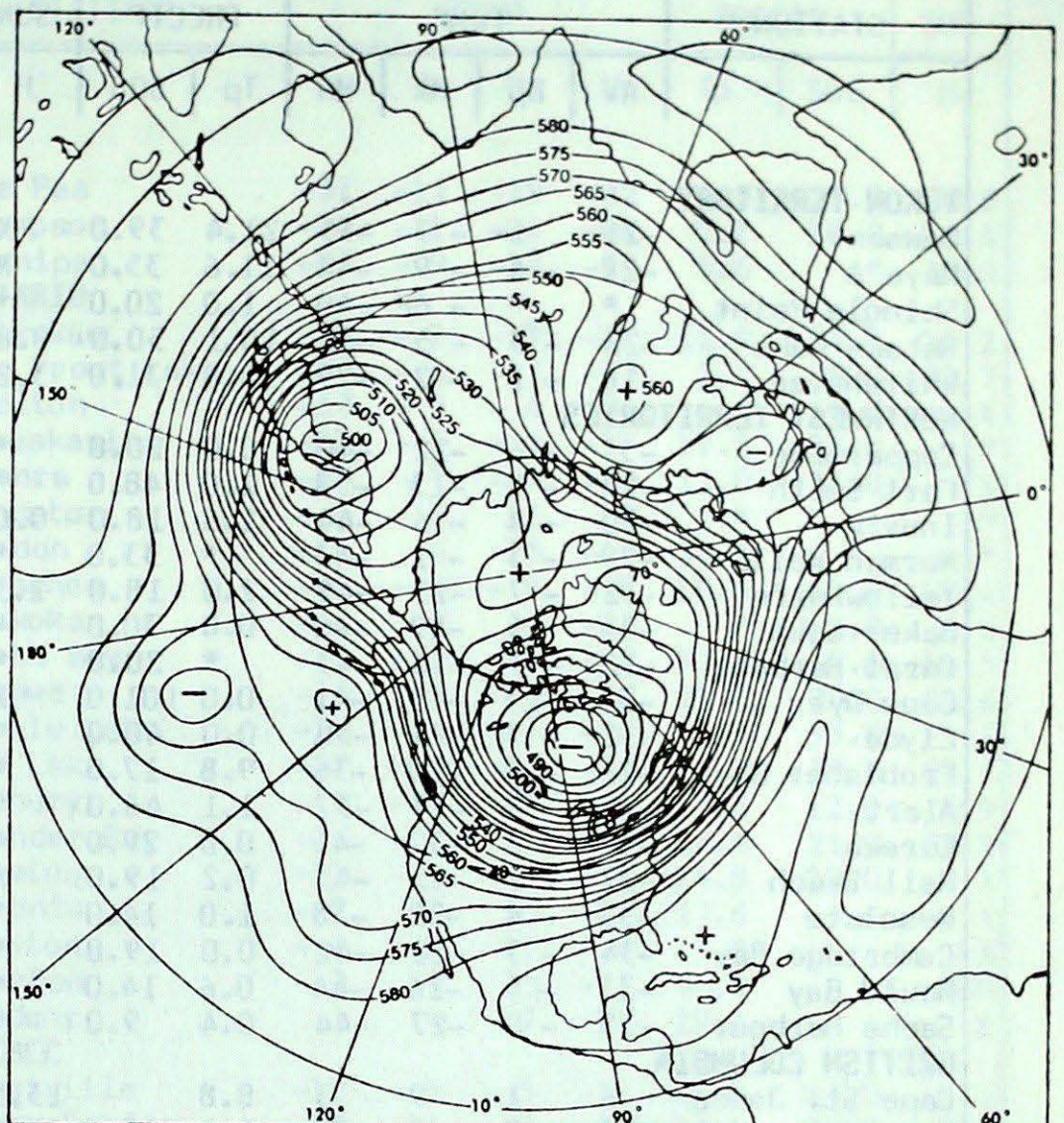


STORM TRACKS
POSITION OF STORM
AT 12 GMT
DECEMBER 18 TO 24, 1984

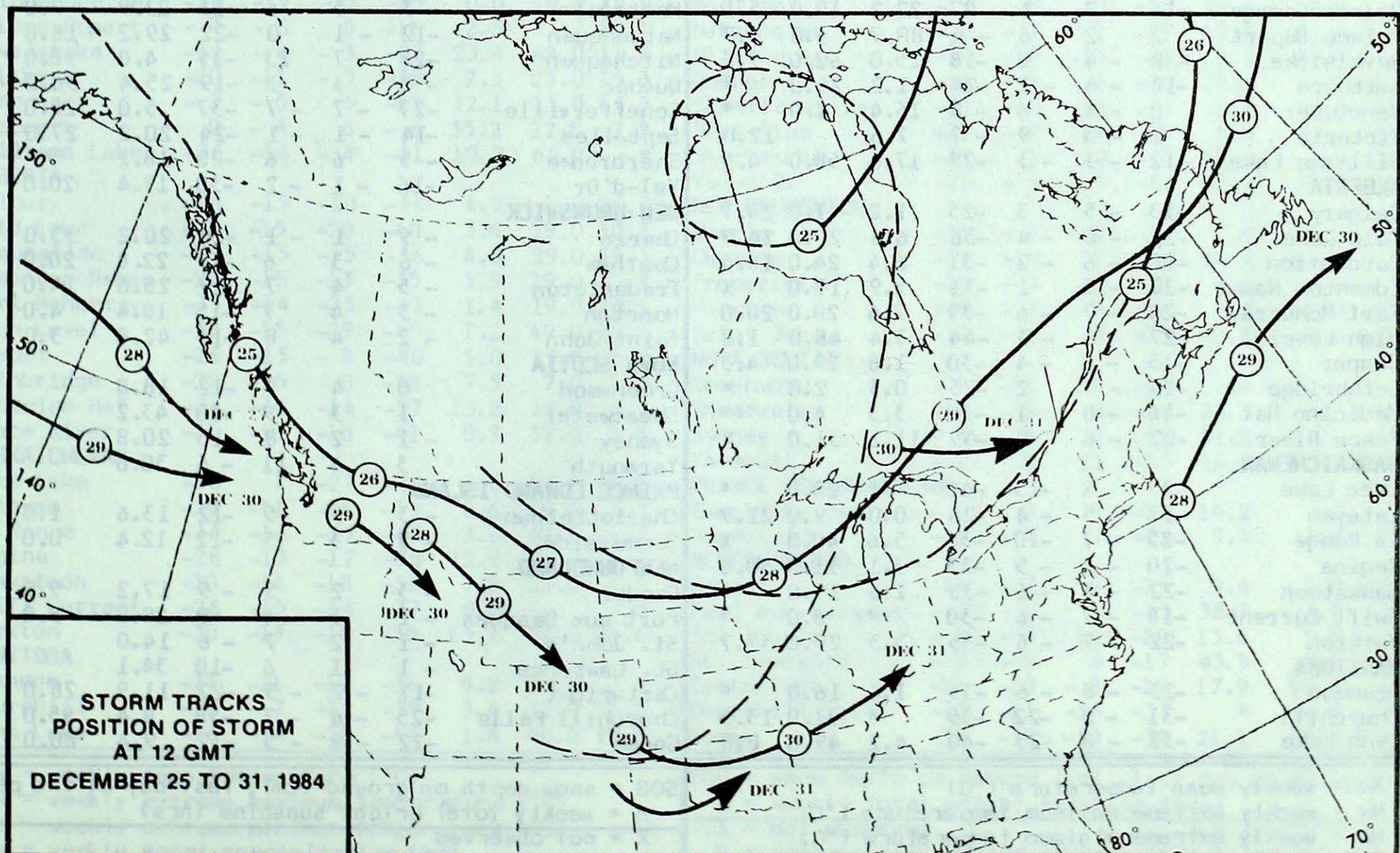
50 KPa ATMOSPHERIC CIRCULATION



MEAN 50 KPa HEIGHT ANOMALY (dam)
December 22 to December 26, 1984



MEAN 50 KPa HEIGHTS (dam)
December 22 to December 26, 1984



TEMPERATURE, PRECIPITATION AND BRIGHT SUNSHINE DATA FOR THE WEEK ENDING 0600 GMT DECEMBER 25, 1984

STATION	TEMP				PRECIP		SUN	STATION	TEMP				PRECIP		SUN
	Av	Dp	Mx	Mn	Tp	SOG	H		Av	Dp	Mx	Mn	Tp	SOG	H
YUKON TERRITORY															
Dawson	-25	1	-7	-35	21.4	39.0	X	The Pas	-25	-6	-12	-34	2.7	27.0	28.9
Mayo A	-28	-4	-9	-44	11.6	35.0	X	Thompson	-31	-8	-22	-45	4.4	26.0	13.7
Shingle Point	*	*	-6P	-40	1.0	20.0	*	Winnipeg	-22	-6	-8	-30	2.4		26.7
Watson Lake	-28	-3	-5	-42	10.1	50.0	8.8	ONTARIO							
Whitehorse	-18	-1	-2	-29	14.6	31.0	3.2	Atikokan	-22	-7	-5	-35	3.3	14.0	25.2
NORTHWEST TERRITORIES								Big Trout Lake	-28	-6	-9	-36	9.6	95.0	11.5
Coppermine	-33	-6	-22	-40	0.0	20.0	*	Earlton	-13	1	-1	-24	*	13.0	X
Fort Smith	-29	-5	-13	-38	2.0	48.0	*	Kapuskasing	-21	-5	-7	-36	21.3	25.0	*
Inuvik	-30	-4	-6	-44	2.6	18.0	0.0	Kenora	-23	-8	-5	-33	4.2	22.0	X
Norman Wells	-29	-3	-1	-43	*	33.0	*	Kingston	1	7	7	-7	0.0		*
Yellowknife	-32	-7	-15	-42	2.0	18.0	2.3	London	-2	3	7	-11	30.8		11.2
Baker Lake	-34	-5	-19	-40	0.8	30.0	*	Mosinee	-24	-6	-10	-35	8.6	30.0	28.2
Coral Harbour	-32	-7	-16	-43	*	20.0	*	Muskoka	-1	8	4	-7	*	22.0	X
Cape Dyer	-31	-13	-19	-41	0.0	101.0	X	North Bay	-9	3	2	-20	19.2	12.0	9.1
Clyde	-32	-7	-23	-38	0.0	40.0	*	Ottawa	-4	5	4	-15	31.0	14.0	10.2
Frobisher Bay	-26	-4	-10	-36	9.8	17.0	*	Pickle Lake	-26	-7	-5	-35	3.6	46.0	X
Alert	-29	0	-17	-37	1.1	46.0	*	Red Lake	-25	-8	-5	-34	3.6	28.0	14.6
Eureka	-41	-6	-32	-45	0.0	29.0	*	Sudbury	-10	3	2	-20	15.6	10.0	14.5
Hall Beach	-27	-2	-15	-43	0.2	19.0	X	Thunder Bay	-16	-4	0	-29	7.7	10.0	40.3
Resolute	-33	-4	-28	-38	1.0	14.0	*	Timmins	-18	-3	-5	-33	17.6	20.0	X
Cambridge Bay	-34	-3	-28	-42	0.0	19.0	*	Toronto	-1	4	6	-9	24.9	0.0	X
Mould Bay	-37	-5	-26	-44	0.6	14.0	*	Trenton	0	6	6	-9	17.6	0.0	X
Sachs Harbour	-35	-8	-27	-44	0.4	9.0	*	Warton	-2	3	5	-8	39.4	29.0	0.7
BRITISH COLUMBIA								Windsor	0	3	9	-10	26.9		X
Cape St. James	6	1	9	3	8.8		13.5	QUEBEC							
Cranbrook	-13	-7	0	-28	1.1	17.0	22.0	Bagotville	-12	2	-4	-22	31.0	30.0	X
Fort Nelson	-23	-2	-2	-42	9.2	41.0	10.3	Blanc-Sablon	-11	-4	0	-22	29.4	14.0	16.4
Fort St. John	-19	-5	-1	-35	3.6	3.0	X	Inukjuak	-26	-6	-12	-36	*	59.0	*
Kamloops	-10	-7	1	-23	7.6	20.0	7.7	Kuujuuaq	-27	-8	-9	-38	2.0	38.0	*
Penticton	-8	-7	3	-15	1.6	1.0	4.9	Kuujuarapik	-24	-6	-11	-34	7.0	19.0	*
Port Hardy	2	-1	8	-5	22.4		*	Maniwaki	-9	3	2	-23	29.2	17.0	8.8
Prince George	-16	-7	-5	-27	22.2	19.0	5.1	Mont-Joli	-9	1	-2	-17	18.5	9.0	12.3
Prince Rupert	2	2	6	-4	80.9	3.0	4.7	Montréal	-3	5	6	-15	23.9	9.0	10.6
Revelstoke	-8	-4	0	-18	25.0	62.0	7.6	Natashquan	-12	-1	0	-22	29.2	18.0	*
Smithers	-12	-4	-2	-24	11.2	25.0	*	Nitchequon	-28	-7	23	-39	4.0	30.0	13.5
Vancouver	0	-4	6	-8	16.4	1.0	*	Québec	-8	3	1	-19	25.4	36.0	9.1
Victoria	1	-3	9	-7	7.6		12.0	Schefferville	-27	-7	-7	-37	5.0	28.0	10.7
Williams Lake	-12	-3	-3	-29	17.6	58.0	4.5	Sept-Iles	-14	-1	-1	-24	20.2	27.0	14.2
ALBERTA								Sherbrooke	-5	6	6	-20	18.2		10.7
Calgary	-13	-5	3	-25	1.2	1.0	25.7	Val-d'Or	-16	-1	-2	-30	17.4	20.0	16.0
Cold Lake	-22	-8	-4	-36	6.6	29.0	24.9	NEW BRUNSWICK							
Coronation	-18	-6	-2	-31	6.4	24.0	16.5	Charlo	-9	1	-1	-20	20.2	35.0	13.8
Edmonton Namao	-18	-5	1	-31	5.9	17.0	X	Chatham	-6	3	6	-19	22.8	20.0	*
Fort McMurray	-24	-7	-6	-39	7.6	20.0	20.0	Fredericton	-5	4	7	-17	28.6	14.0	*
High Level	-27	-6	-3	-44	3.4	48.0	1.8	Moncton	-3	4	7	-15	18.4	4.0	*
Jasper	-15	-6	-4	-30	1.8	29.0	4.3	Saint John	-2	4	8	-13	42.8	3.0	23.1
Lethbridge	-13	-7	2	-25	0.3	2.0	*	NOVA SCOTIA							
Medicine Hat	-16	-8	1	-30	3.3	4.0	*	Greenwood	0	4	9	-12	18.8		X
Peace River	-22	-6	0	-39	11.1	31.0	X	Shearwater	1	3	9	-10	43.2		22.2
SASKATCHEWAN								Sydney	-1	2	8	-10	20.8		14.8
Cree Lake	-27	X	-13	-40	*	20.0	*	Yarmouth	3	4	11	-6	30.6		*
Estevan	-17	-5	-4	-28	0.0	9.0	21.9	PRINCE EDWARD ISLAND							
La Ronge	-25	-7	-10	-36	5.6	40.0	X	Charlottetown	-3	3	5	-12	13.6	1.0	*
Regina	-20	-6	-5	-33	3.1	11.0	30.6	Summerside	-3	3	5	-12	12.4	0.0	16.7
Saskatoon	-22	-7	-6	-35	2.6	15.0	*	NEWFOUNDLAND							
Swift Current	-18	-7	-6	-30	*	8.0	*	Gander	-3	2	5	-9	17.2	9.0	22.6
Yorkton	-22	-7	-6	-35	5.3	29.0	37.7	Port aux Basques	-1	1	4	-9	29.8	5.0	*
MANITOBA								St. John's	-1	2	7	-6	14.0		*
Brandon	-23	-8	-6	-33	1.6	16.0	*	St. Lawrence	-1	1	6	-10	34.1		X
Churchill	-31	-8	-22	-39	*	31.0	13.5	Cartwright	-17	-7	-3	-27	11.9	78.0	X
Lynn Lake	-32	-8	-23	-40	4.2	49.0	8.8	Churchill Falls	-25	-6	-7	-38	8.4	95.0	X
								Goose	-22	-8	-5	-32	9.4	60.0	20.0

Av = weekly mean temperature (°C)
Mx = weekly extreme maximum temperature (°C)
Mn = weekly extreme minimum temperature (°C)
Tp = weekly total precipitation (mm)
Dp = Departure of mean temperature from normal (°C)

SOG = snow depth on ground (cm), last day of the period
H = weekly total bright sunshine (hrs)
X = not observed
P = extreme value based on less than 7 days
* = missing

TEMPERATURE, PRECIPITATION AND BRIGHT SUNSHINE DATA FOR THE WEEK ENDING 0600 GMT JANUARY 1, 1985

STATION	TEMP				PRECIP		SUN	STATION	TEMP				PRECIP		SUN
	Av	Dp	Mx	Mn	Tp	SOG	H		Av	Dp	Mx	Mn	Tp	SOG	H
YUKON TERRITORY								The Pas	-31	-11	-19	-42	2.5	29.0	20.8
Dawson	-35	-8	-22	-47	2.5	39.0	X	Thompson	-34	-11	-26	-40	2.2	26.0	26.4
Mayo A	-38	-14	-24	-51	0.0	27.0	X	Winnipeg	-25	-9	-12	-35	8.6	*	19.0
Shingle Point	-29	-3	-19	-40	5.2	22.0	*	ONTARIO							
Watson Lake	-43	-19	-25	-53	0.4	49.0	5.1	Atikokan	-19	-2	-3	-37	11.8	24.0	25.2
Whitehorse	-28	-11	-7	-44	0.8	33.0	3.2	Big Trout Lake	-29	-6	-17	-37	2.7	98.0	23.7
NORTHWEST TERRITORIES								Earlton	-18	-3	-4	-31	*	30.0	X
Coppermine	-29	-1	-21	-38	0.5	21.0	*	Kapuskasing	-23	-5	-4	-37	17.2	38.0	*
Fort Smith	-36	-12	-26	-42	*	48.0	*	Kenora	-23	-7	-9	-35	11.0	31.0	X
Inuvik	-33	-5	-24	-43	0.0	18.0	0.0	Kingston	-4	3	12	-17	*	*	*
Norman Wells	-36	-9	-24	-44	0.6	33.0	0.0	London	-1	4	15	-15	35.3	*	*
Yellowknife	-37	-10	-26	-44	0.0	18.0	1.0	Moosonee	-25	-5	-9	-36	10.6	40.0	17.4
Baker Lake	-35	-4	-28	-40	0.0	30.0	0.0	Muskoka	-6	4	13	-21	*	2.0	X
Coral Harbour	-35	-8	-27	-42	0.0	20.0	*	North Bay	-13	-1	5	-23	32.8	5.0	14.5
Cape Dyer	-23	-5	-13	-33	6.4	97.0	X	Ottawa	-10	0	5	-23	29.4	20.0	21.6
Clyde	-24	1	-19	-29	*	41.0	*	Pickle Lake	-27	-6	-13	-38	7.8	53.0	X
Frobisher Bay	-30	-8	-24	-36	0.8	17.0	*	Red Lake	-27	-8	-13	-42	9.0	39.0	22.7
Alert	-25	6	-11	-35	3.2	49.0	*	Sudbury	-15	-2	3	-26	15.7	12.0	6.9
Eureka	-30	6	-17	-39	1.2	30.0	*	Thunder Bay	-16	-3	1	-29	14.6	21.0	26.2
Hall Beach	-32	-4	-23	-37	0.0	19.0	X	Timmins	-21	-5	-3	-34	14.8	29.0	X
Resolute	-29	2	-24	-35	0.4	15.0	*	Toronto	-2	4	15	-11	17.6	*	X
Cambridge Bay	-32	0	-23	-36	0.6	17.0	0.0	Trenton	-4	2	13	-16	13.0	*	X
Mould Bay	-26	7	-16	-35	2.2	14.0	*	Warton	-2	3	15	-12	40.9	*	3.0
Sachs Harbour	-31	-2	-20	-38	0.8	9.0	*	Windsor	1	4	17	-14	29.1	*	X
BRITISH COLUMBIA								QUEBEC							
Cape St. James	0	-5	7	-8	10.0	1.0	16.6	Bagotville	-19	-5	-5	-32	11.2	27.0	X
Cranbrook	-14	-3	-1	-31	17.8		9.2	Blanc-Sablon	-19	-11	3	-30	14.4	25.0	*
Fort Nelson	-35	-13	-25	-43	0.6	46.0	16.5	Inukjuak	-29	-7	-20	-38	1.6	55.0	20.1
Fort St. John	-20	-5	77	-37	*	5.0	X	Kuujuuaq	-32	-12	-22	-42	1.0	38.0	14.2
Kamloops	-15	-10	-2	-29	3.4	16.0	20.0	Kuujuarapik	-28	-8	-16	-35	4.0	20.0	12.3
Penticton	-8	-7	1	-16	6.9	10.0	1.3	Maniwaki	-14	-2	3	-29	15.2	19.0	22.7
Port Hardy	-2	-4	5	-8	7.6	1.0	*	Mont-Joli	-14	-5	-4	-26	8.9	12.0	9.6
Prince George	-28	-19	-5	-45	0.0	18.0	18.8	Montréal	-9	0	5	-22	24.4	9.0	*
Prince Rupert	-7	-6	5	-16	2.5		20.1	Natashquan	-18	-7	2	-29	25.8	21.0	*
Revelstoke	-11	-4	-3	-23	23.4	64.0	11.6	Nitchequon	-31	-10	-15	-43	2.2	31.0	*
Smithers	-20	-11	-3	-35	2.3	23.0	15.3	Québec	-14	-3	-1	-30	20.0	45.0	25.6
Vancouver	-2	-5	5	-11	12.1	11.0	13.2	Schefferville	-31	-10	-18	-41	1.4	22.0	18.8
Victoria	0	-4	6	-6	35.2	22.0	7.2	Sept-Iles	-21	-9	-10	-30	6.8	22.0	68.9
Williams Lake	-26	-16	-4	-41	10.7	63.0	*	Sherbrooke	-11	1	10	-31	52.1	6.0	21.1
ALBERTA								Val-d'Or	-20	-5	-5	-34	13.6	31.0	15.5
Calgary	-24	-15	-10	-36	4.5	6.0	26.7	NEW BRUNSWICK							
Cold Lake	-31	-15	-20	-40	3.6	29.0	30.7	Charlo	-15	-5	-1	-27	9.0	35.0	26.5
Coronation	-29	-15	-15	-36	4.8	29.0	32.3	Chatham	-19	-10	7	-26	14.9	10.0	*
Edmonton Namao	-27	-15	-13	-35	5.9	29.0	*	Fredericton	-10	-3	8	-24	6.5	4.0	*
Fort McMurray	-33	-14	-23	-43	1.4	19.0	29.1	Moncton	-9	-3	8	-24	8.6	1.0	27.2
High Level	-38	-15	-29	-45	1.2	49.0	19.6	Saint John	-7	-1	9	-23	20.2	0.0	25.5
Jasper	-26	-15	-8	-40	5.0	33.0	15.6	NOVA SCOTIA							
Lethbridge	-22	-15	0	-32	7.5	7.0	*	Greenwood	-4	-1	10	-18	11.4		X
Medicine Hat	-26	-16	-14	-37	13.8	18.0	9.7	Shearwater	-6	-4	8	-19	24.5		*
Peace River	-31	-13	-10	-41	0.9	32.0	X	Sydney	-6	-4	8	-17	31.8		*
SASKATCHEWAN								Yarmouth	-2	0	11	-15	16.6		20.3
Cree Lake	-36	X	-27	-46	1.6	21.0	24.4	PRINCE EDWARD ISLAND							
Estevan	-24	-11	-14	-35	8.6	18.0	8.3	Charlottetown	-9	-3	8	-22	14.2	1.0	*
La Ronge	-34	-16	-23	-43	3.6	41.0	X	Summerside	-9	-4	7	-22	9.4	5.0	21.6
Regina	-28	-13	-17	-38	12.0	23.0	16.8	NEWFOUNDLAND							
Saskatoon	-30	-14	-18	-38	7.8	21.0	*	Gander	-11	-7	7	-23	9.4	2.0	22.8
Swift Current	-26	-15	-14	-37	0.0		*	Port aux Basques	-7	-6	4	-21	38.3	13.0	*
Yorkton	-30	-13	-19	-39	13.2	36.0	24.6	St. John's	-8	-6	10	-20	13.6	5.0	18.1
MANITOBA								St. Lawrence	-6	-5	8	-17	43.5	0.0	X
Brandon	-27	-11	-17	-36	8.2	23.0	*	Cartwright	-21	-10	-8	-29	17.9	99.0	X
Churchill	-32	-7	-21	-39	3.4	32.0	25.5	Churchill Falls	-29	-11	-16	-37	*	94.0	X
Lynn Lake	-36	-14	-28	-43	1.4	48.0	19.9	Goose	-25	-10	-14	-34	21.1	72.0	28.1

Av = weekly mean temperature (°C)
Mx = weekly extreme maximum temperature (°C)
Mn = weekly extreme minimum temperature (°C)
Tp = weekly total precipitation (mm)
Dp = Departure of mean temperature from normal (°C)

SOG = snow depth on ground (cm), last day of the period
H = weekly total bright sunshine (hrs)
X = not observed
P = extreme value based on less than 7 days
* = missing