

Climatic Perspectives

A WEEKLY REVIEW OF CANADIAN CLIMATE

Canadian Climate Centre

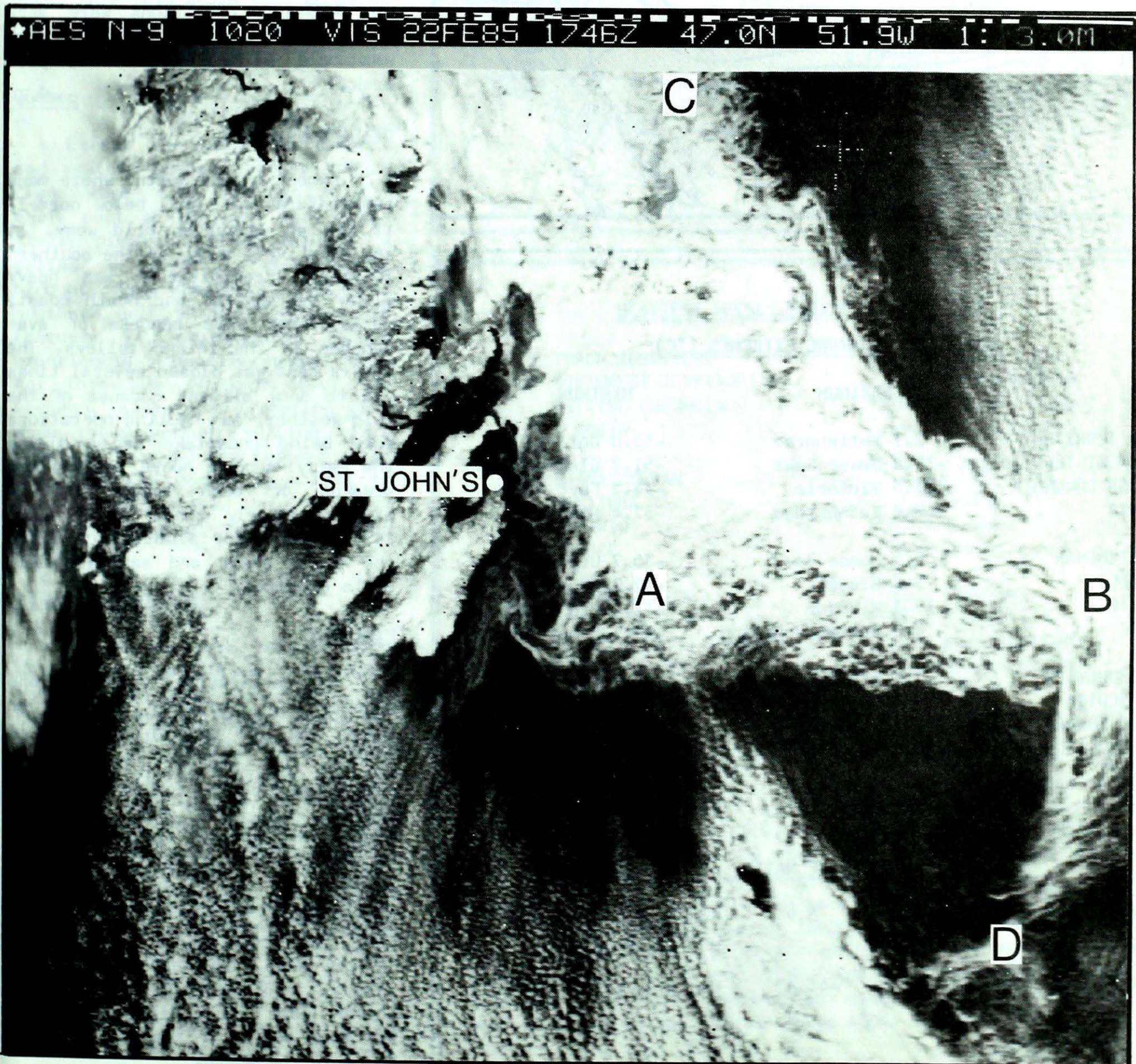
For the period February 19 to 25, 1985

Vol.7 NO.8

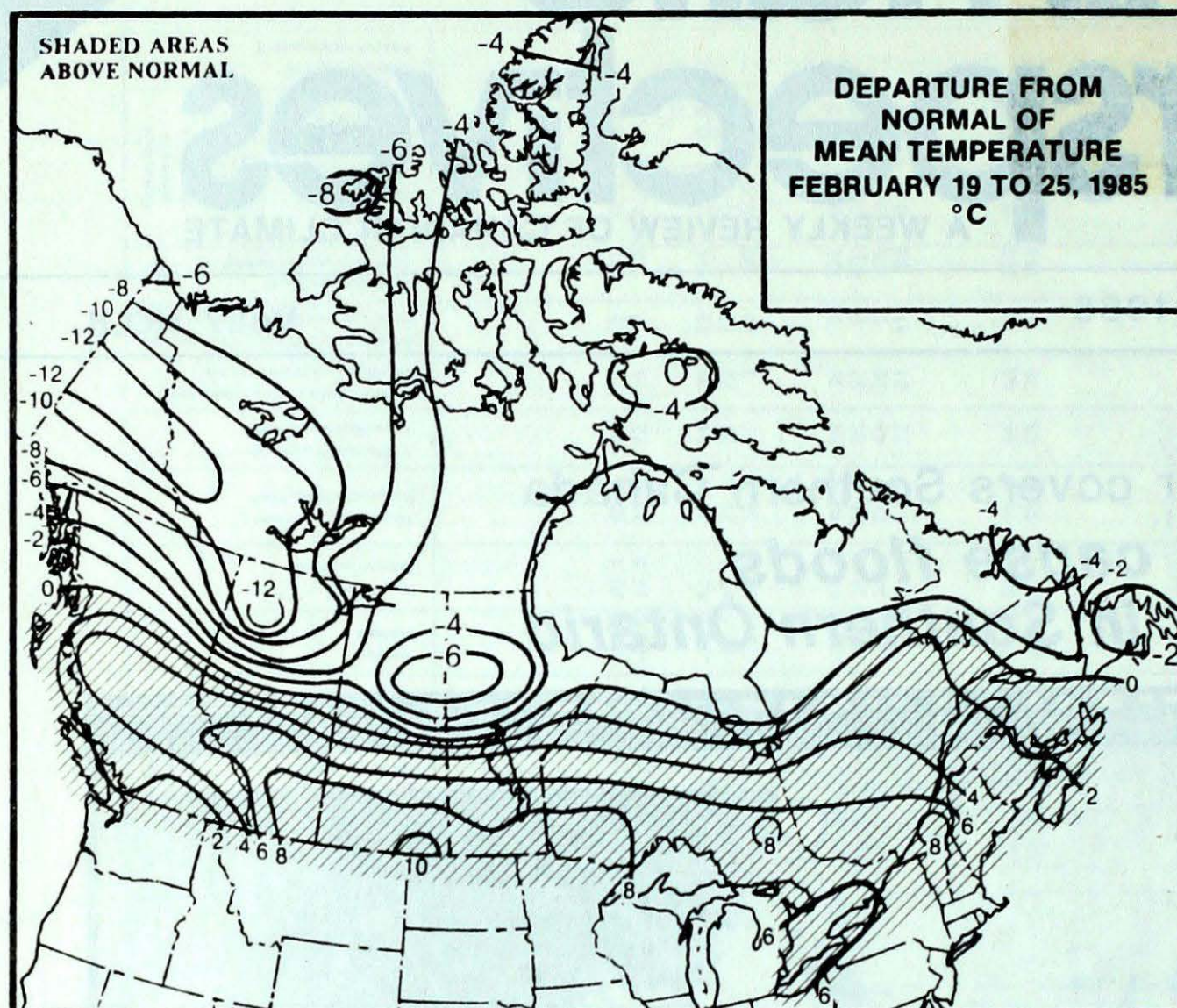
- ***A taste of spring***

- Mild air covers Southern Canada

- ***Rain and snowmelt cause floods in Southern Ontario***



The NOAA 9 satellite picture of 1746 GMT February 22, 1985 shows dense pack ice off the southeast tip of Newfoundland. For more details see page 3.

ACROSS THE COUNTRY...Yukon and Northwest Territories

Bitterly cold weather conditions prevailed across the North, with mean temperatures running 10 to 15 degrees below normal in the Northwest. Only in the southern Yukon did the temperature manage to climb above freezing, while elsewhere, minimum temperature readings in the minus forties occurred frequently. The temperature at Ogilvie, on the Dempster Highway, plunged to -52° on February 20. The heaviest snowfall occurred at Watson Lake, 24 cm. Although conditions were very cold another successful "Rendezvous" was held in Whitehorse this past week.

British Columbia

Except in the North, where mean temperatures were well below normal, it was an unusually mild week. It was relatively sunny in the southern interior. Precipitation was heavy along the central and north coast, while there were reports of avalanches in the inland valleys. The Rogers Pass was closed several times due to snow slides. Because of the mild weather, log hauling operations were being undertaken only during the early morning hours to keep the breakup of bush roads minimal. Strong westerly winds on February 24, caused minor wind damage along the south coast and several small boats capsized.

Prairies

An oscillating frontal zone resulted in variable amounts of cloud and fluctuating, but mainly above normal temperatures, in southern and central districts. Daytime readings in agricultural districts climbed several degrees above the freezing mark. At Lethbridge, the thermometer registered 10° on February 24. Precipitation was generally light, mainly as snow in the East, but occasionally rain showers in the West. Southern portions of Alberta and southwestern Saskatchewan were relatively snow-free, but snow depths increased to almost 90 cm in the North.

WEEKLY TEMPERATURE EXTREMES (°C)

	MAXIMUM	MINIMUM
YUKON TERRITORY	2.7 Whitehorse	-52.0 Ogilvie
NORTHWEST TERRITORIES	-12.8 Dewar Lake	-51.7 Gladman Point
BRITISH COLUMBIA	13.5 Victoria	-34.2 Fort Nelson
ALBERTA	9.8 Lethbridge	-37.4 High Level
SASKATCHEWAN	5.5 Moose Jaw	-35.7 Uranium City
MANITOBA	3.6 Bissett	-39.2 Thompson
ONTARIO	10.3 Windsor	-37.4 Big Trout Lake
QUÉBEC	8.8 Sutton Junction	-42.2 Schefferville
NEW BRUNSWICK	7.1 St. Stephen	-19.4 Charlo
NOVA SCOTIA	11.7 Shelburne	-19.5 Truro
PRINCE EDWARD ISLAND	4.7 Summerside	-18.1 Charlottetown
NEWFOUNDLAND	2.6 St. John's	-36.9 Churchill Falls

ACROSS THE NATION

Warmest mean temperature	5.9	Vancouver, Victoria, Lytton, BC
Coollest mean temperature	-44.4	Mould Bay, NWT

Ontario

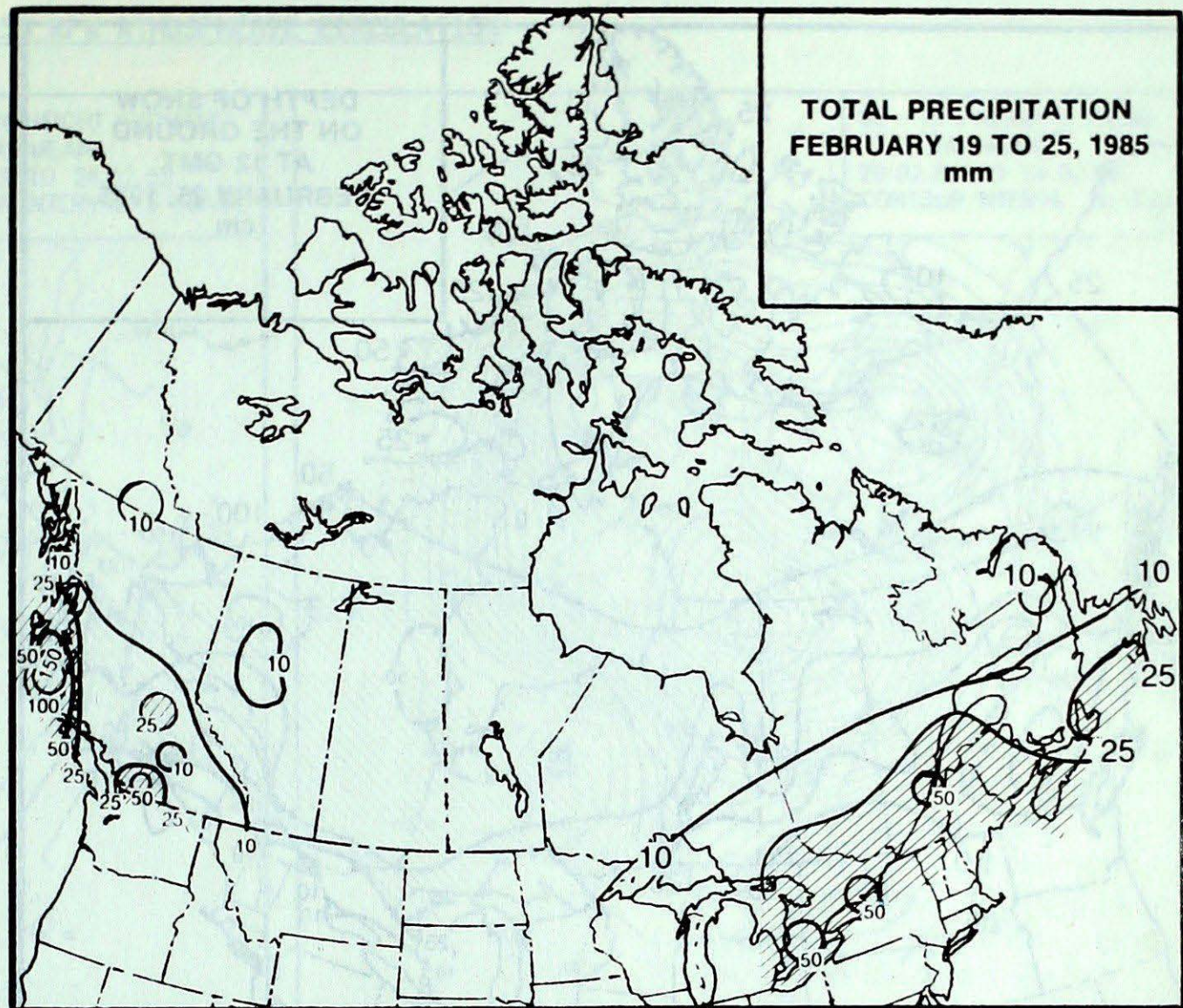
The long awaited mid-winter thaw finally arrived. Temperatures averaging 5 to 10 degrees above normal, rapidly depleted the snow cover. Heavy rains accompanied the mild weather, and in the southern half of the Province between 20 and 40 millimetres of rain fell over the weekend. Serious flooding occurred in the South as rain-swollen rivers overflowed their banks. In southwestern Ontario, ice jams compounded the problem, flooding farm lands. Deep pools of water covered many city streets and highways. More than seven feet of water flooded a major railway and highway tunnel under the Welland Canal.

Québec

Except for parts of central and eastern Quebec weather conditions were mild, and during the early part of the week were relatively pleasant. After mid-week a series of frontal disturbances brought heavy precipitation to the southern half of the Province. On February 22, southwestern Quebec experienced unusually heavy rains for this time of year. Over the weekend, a swath of freezing rain made roads virtual skating rinks near the St. Lawrence Valley, while more than 20 cm of snow fell in more northern areas. The snow caused numerous flight delays in Quebec City.

Atlantic Provinces

In Newfoundland, weather conditions were considered seasonable. Labrador was cold and sunny. The Maritimes were generally cloudy and mild. Precipitation amounts were light until February 24, when a complex weather system approached from the lower Great Lakes, bringing snow and freezing rain. Some areas in northwestern New Brunswick received 30 cm of new snow. Freezing rain disrupted flight schedules and resulted in treacherous driving conditions in many areas of Nova Scotia. Many schools were closed on February 25, and ferry service to Prince Edward Island was disrupted because of strong winds and heavy ice conditions.

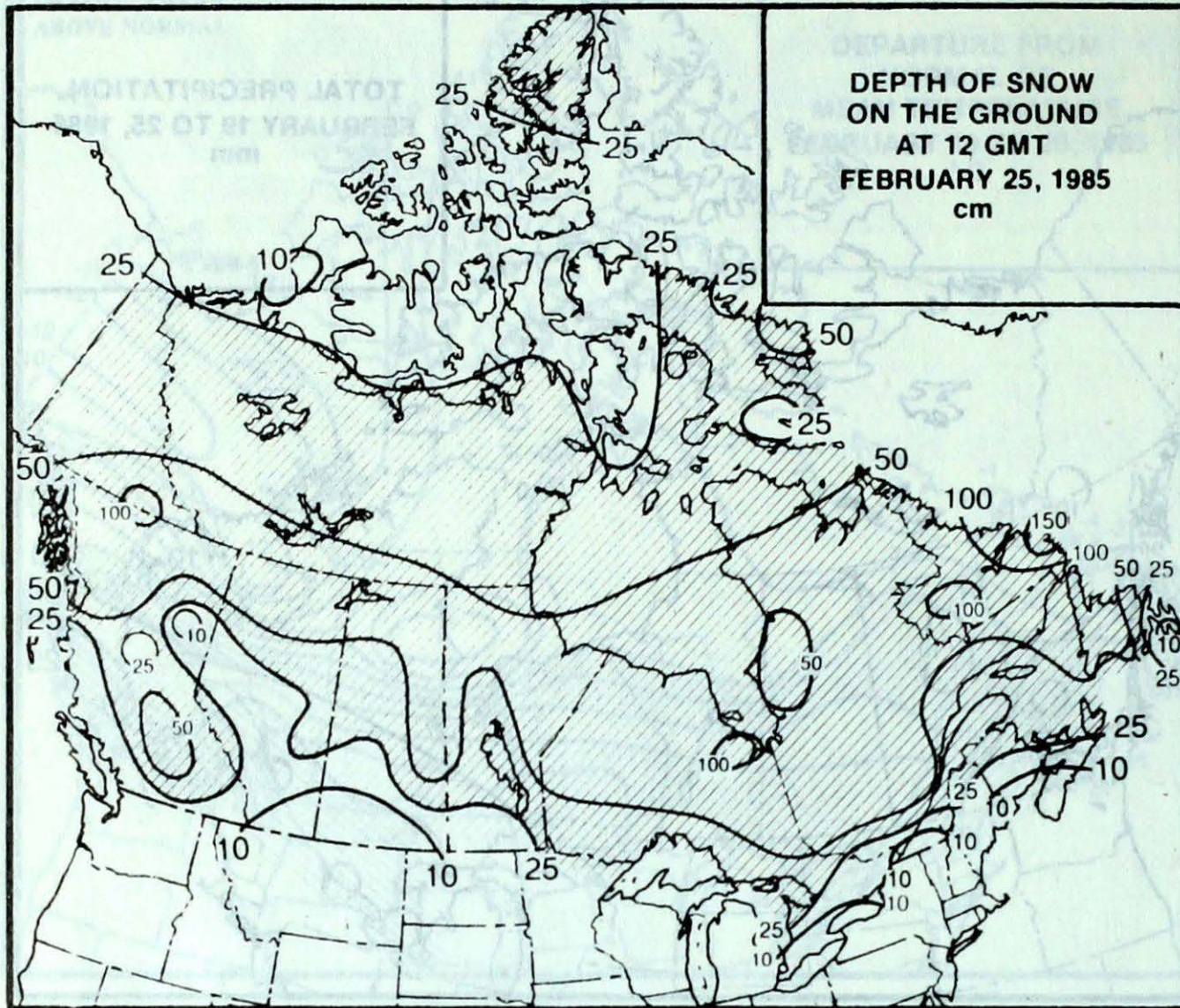


HEAVIEST WEEKLY PRECIPITATION (mm)

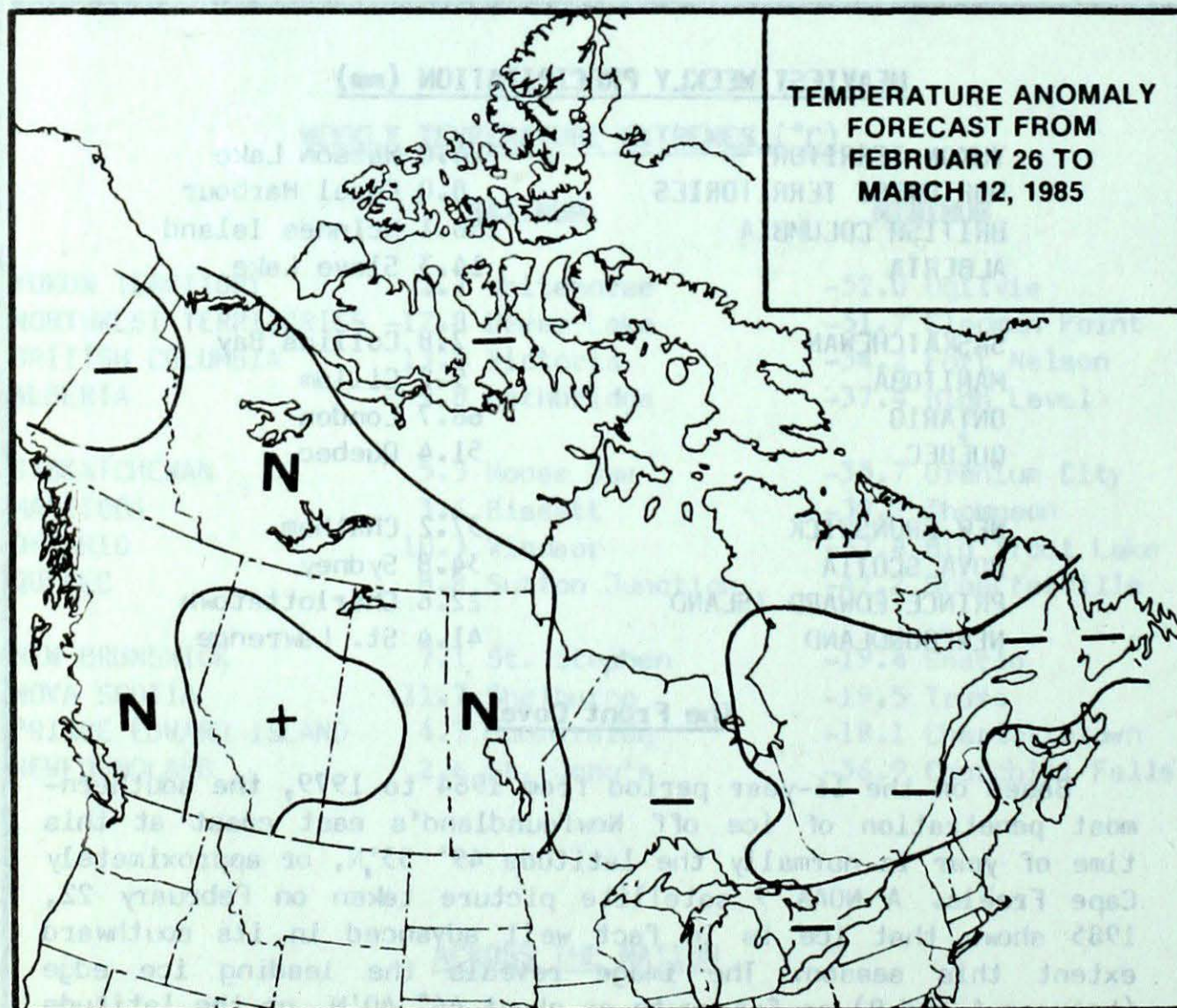
YUKON TERRITORY	24.0 Watson Lake
NORTHWEST TERRITORIES	8.0 Coral Harbour
BRITISH COLUMBIA	158.1 McInnes Island
ALBERTA	14.3 Slave Lake
SASKATCHEWAN	7.8 Collins Bay
MANITOBA	9.2 Gillam
ONTARIO	66.7 London
QUÉBEC	51.4 Quebec
NEW BRUNSWICK	37.2 Chatham
NOVA SCOTIA	34.8 Sydney
PRINCE EDWARD ISLAND	22.6 Charlottetown
NEWFOUNDLAND	41.4 St. Lawrence

The Front Cover

Based on the 16-year period from 1964 to 1979, the southernmost penetration of ice off Newfoundland's east coast at this time of year is normally the latitude $49^{\circ} 53'N$, or approximately Cape Freels. A NOAA 9 satellite picture taken on February 22, 1985 shows that ice is in fact well advanced in its southward extent this season. The image reveals the leading ice edge (between A and B) as far south as about $46^{\circ} 40'N$, or the latitude of Cape Race, with a tongue (between B and D) protruding even further south to $44^{\circ} 20'N$. The easternmost ice edge can be seen along the line C, B and D. The ice pack has advanced into the Hibernia offshore oil exploration area (near B) forcing all but one of the drilling rigs to leave their stations.



DEPTH OF SNOW ON THE GROUND AT 12 GMT FEBRUARY 25, 1985 cm



TEMPERATURE ANOMALY FORECAST FROM FEBRUARY 26 TO MARCH 12, 1985

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.

CLIMATIC PERSPECTIVES VOLUME 7

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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.

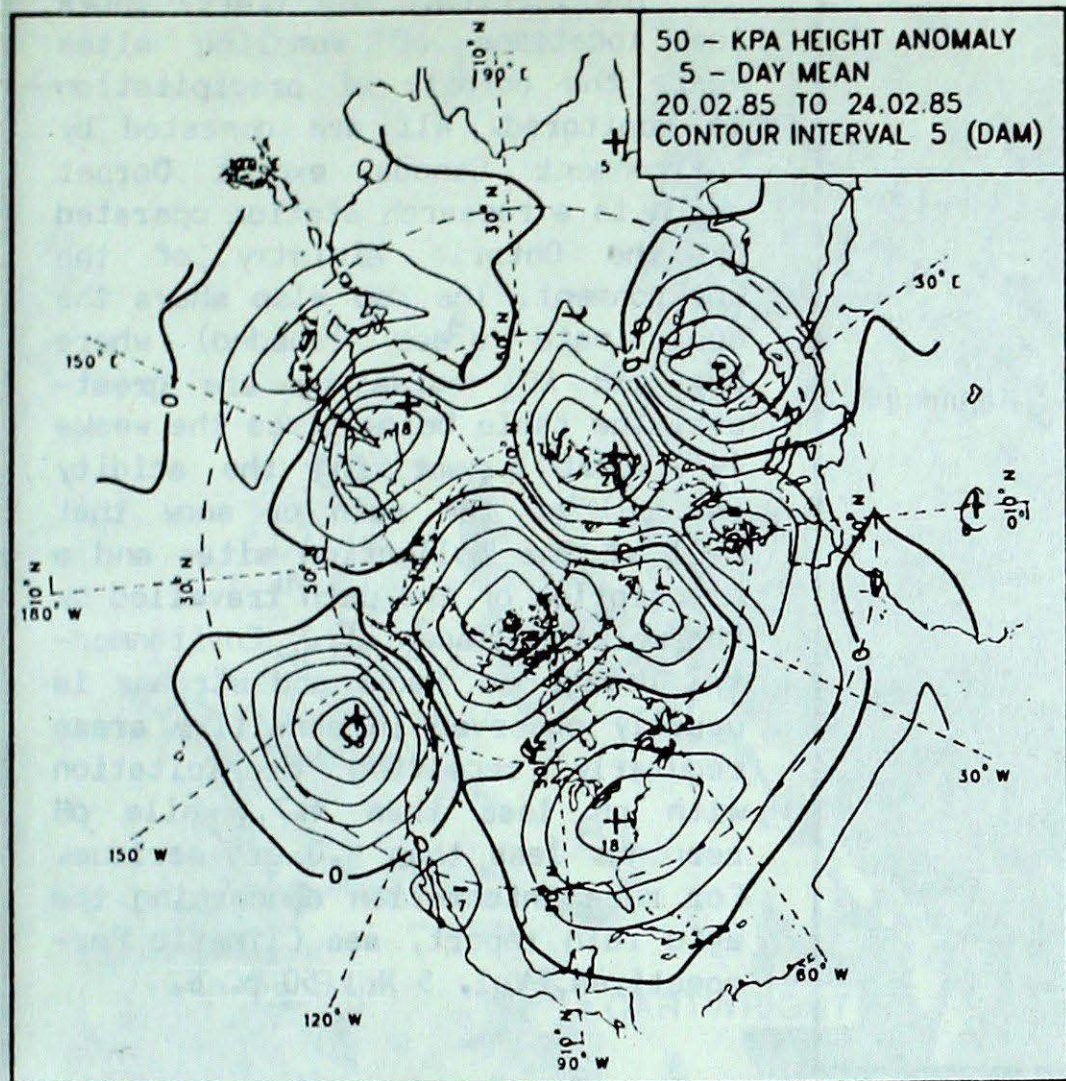
The data shown in this publication are based on unverified reports from approximately 225 Canadian synoptic weather stations. Information concerning climatic impacts is gathered from AES contacts with the public and from the media. Articles do not necessarily reflect the views of the Atmospheric Environment Service.

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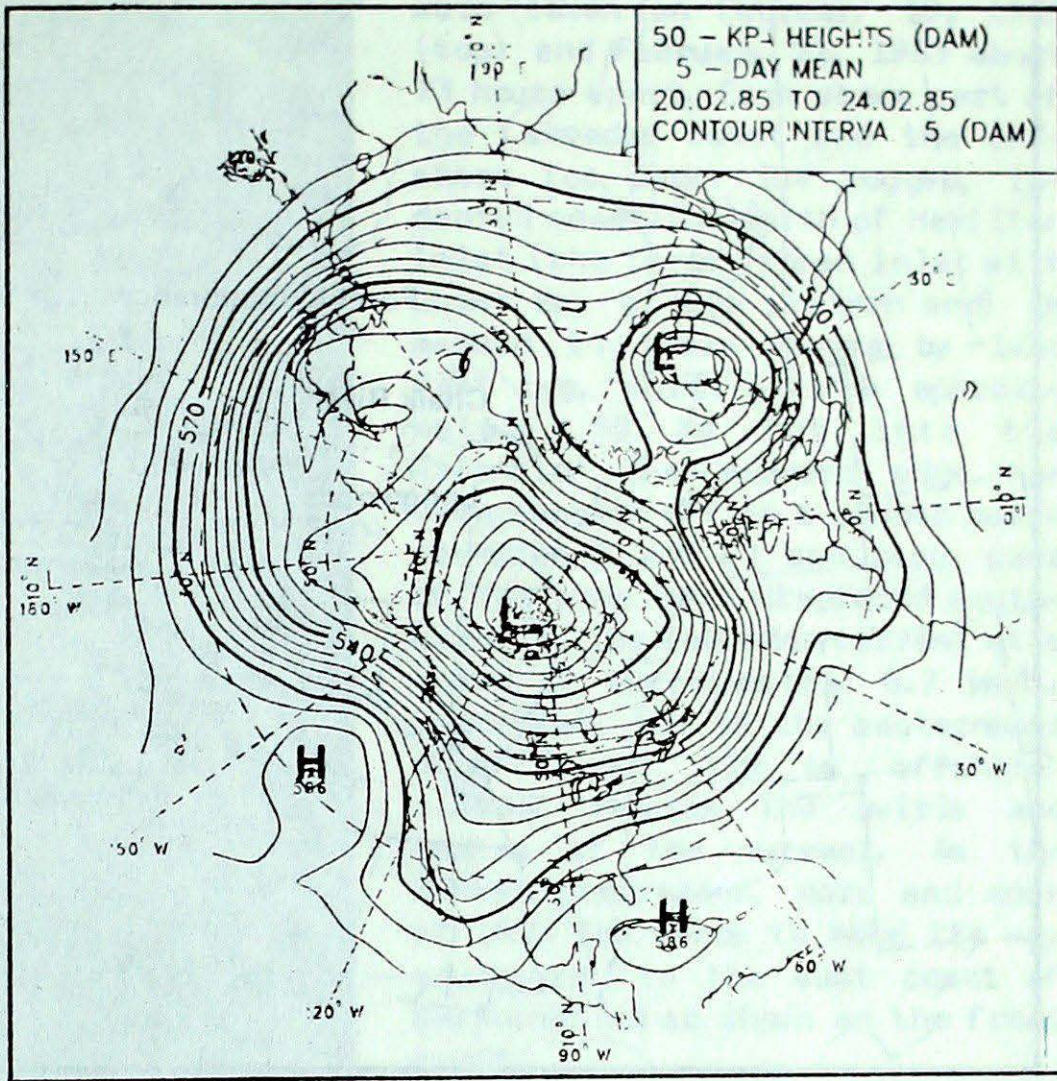
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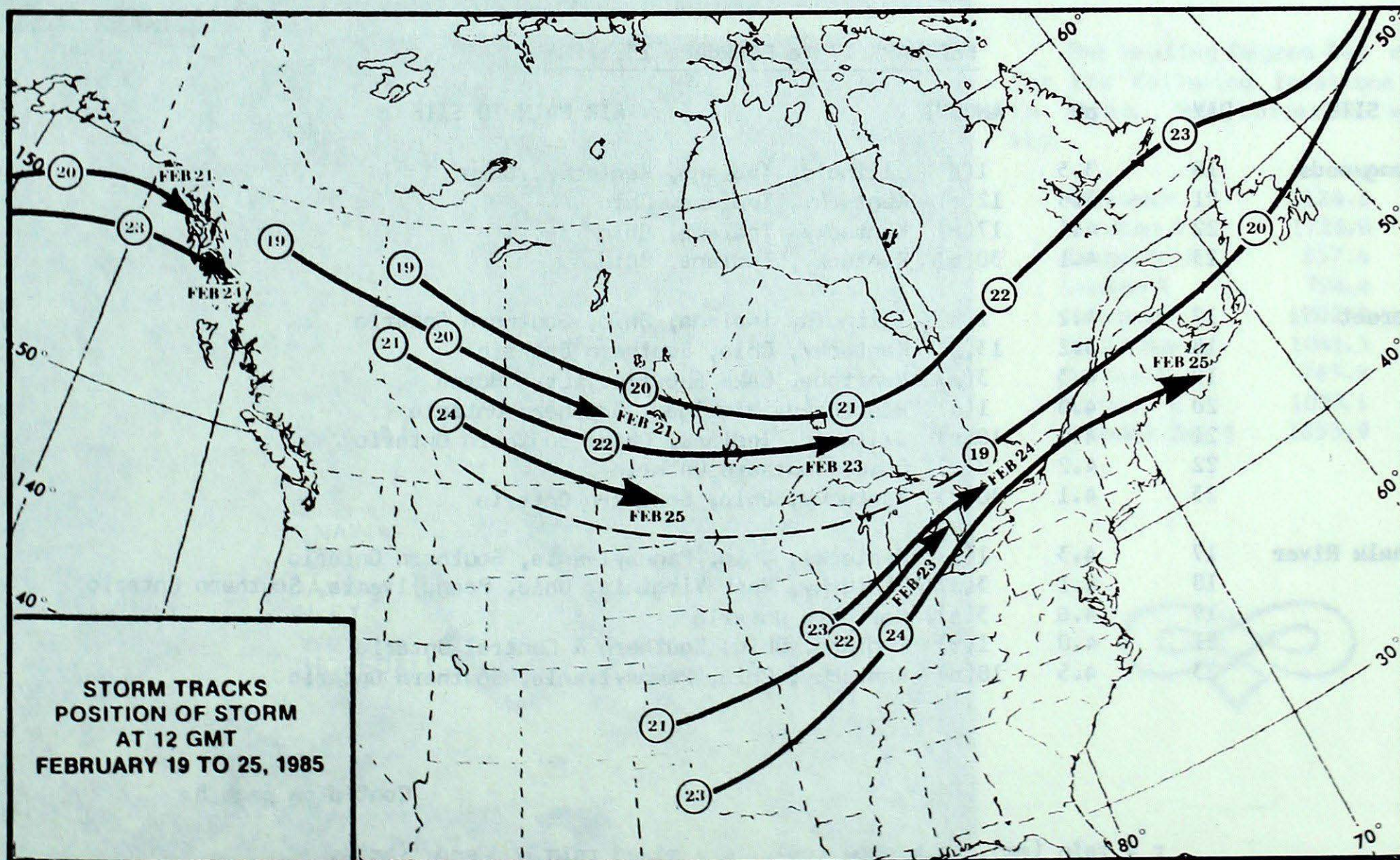
50 KPa ATMOSPHERIC CIRCULATION



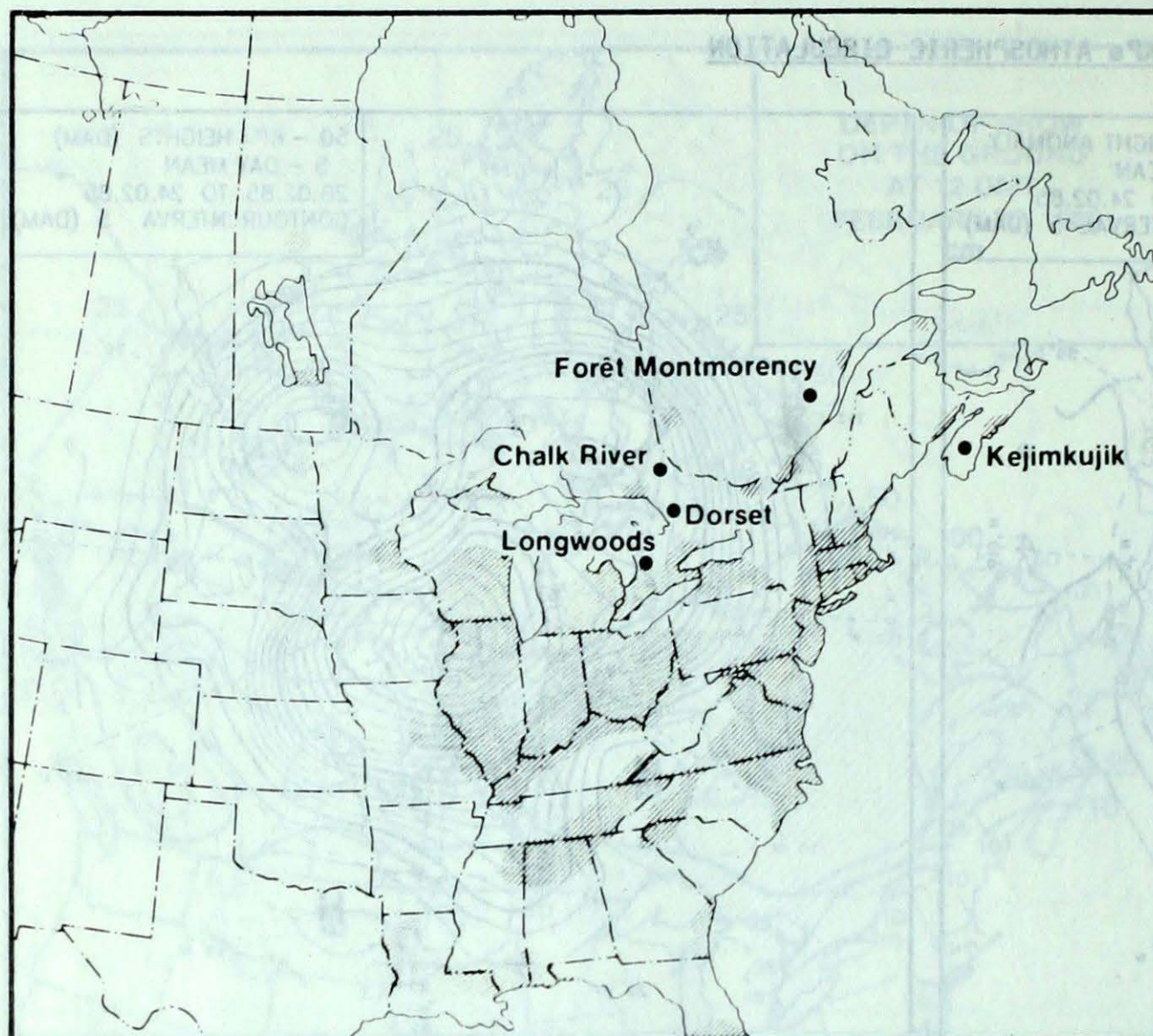
MEAN 50 KPa HEIGHT ANOMALY (dam)
February 20 to February 24, 1985



MEAN 50 KPa HEIGHTS (dam)
February 20 to February 24, 1985



ACID RAIN REPORT



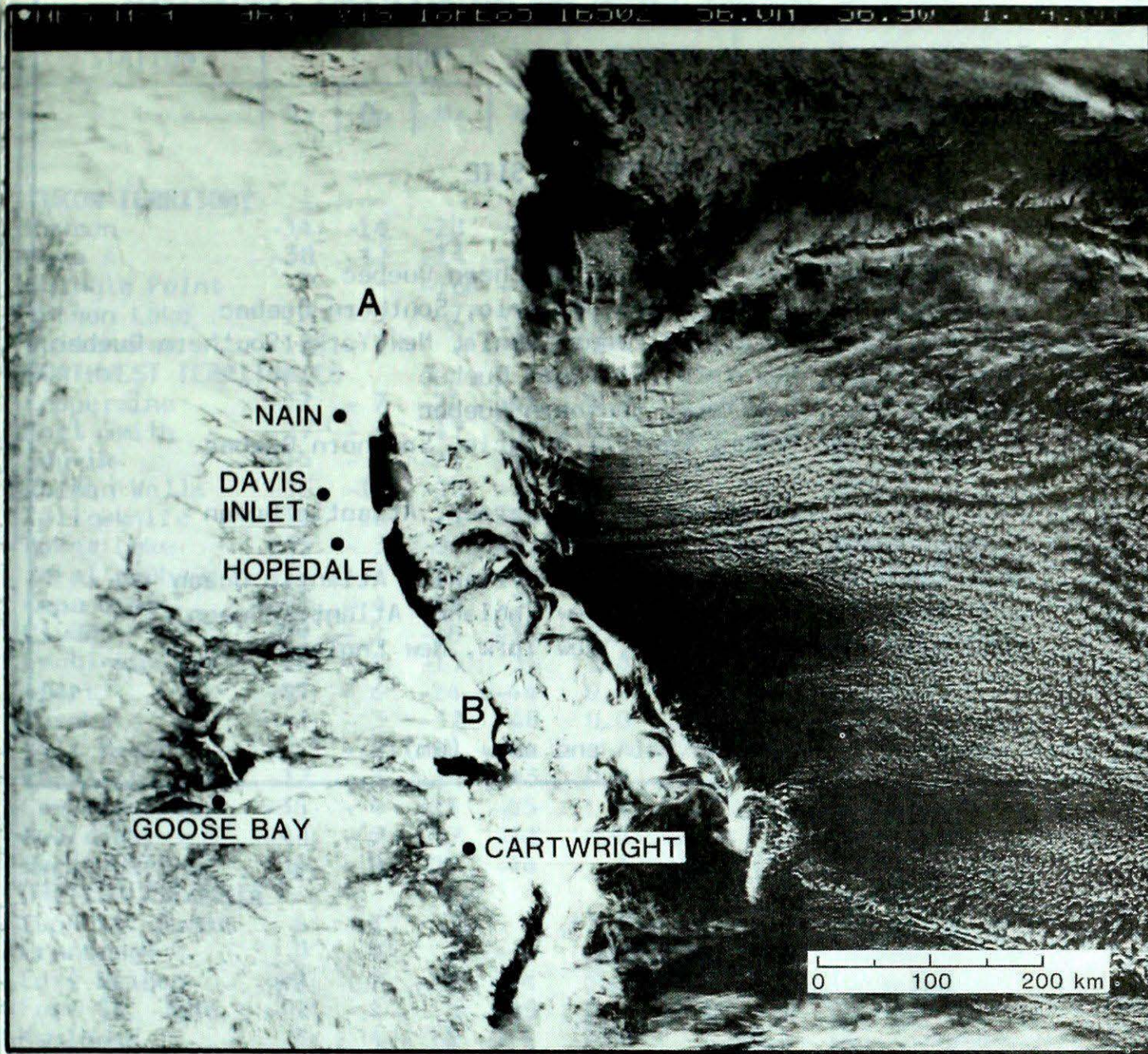
The reference map (left) shows the locations of sampling sites where the acidity of precipitation is monitored. All are operated by Environment Canada except Dorset which is a research station operated by the Ontario Ministry of the Environment. The map also shows the approximate areas (shaded) where 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.

FEBRUARY 17 to FEBRUARY 23, 1985

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	18	3.5	1(s)	Illinois, Indiana, Kentucky, Ohio
	21	3.8	12(r)	Kentucky, Indiana, Ohio
	22	4.1	17(r)	Kentucky, Indiana, Ohio
	23	4.1	30(r)	Kentucky, Indiana, Ohio
Dorset	17	4.2	1(s)	Illinois, Indiana, Ohio, Southern Ontario
	18	4.2	13(s)	Kentucky, Ohio, Southern Ontario
	19	4.3	3(s)	Manitoba, Lake Superior, Lake Huron
	20	4.0	1(s)	Wisconsin, Michigan, Southern Ontario
	21	4.1	10(r)	Illinois, Indiana, Ohio, Southern Ontario
	22	4.2	2(r)	Ohio, Southern Ontario
	23	4.1	30(r)	Kentucky, Ohio, Southern Ontario
Chalk River	17	4.3	1(s)	Kentucky, Ohio, Pennsylvania, Southern Ontario
	18	4.1	3(s)	Kentucky, West Virginia, Ohio, Pennsylvania, Southern Ontario
	19	4.6	3(s)	Northern Ontario
	21	4.0	1(r)	Indiana, Ohio, Southern & Central Ontario
	23	4.5	18(r)	Kentucky, Ohio, Pennsylvania, Southern Ontario

Cont'd on page 8

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



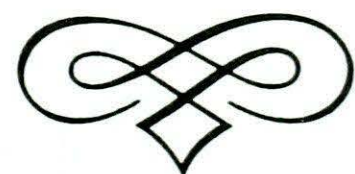
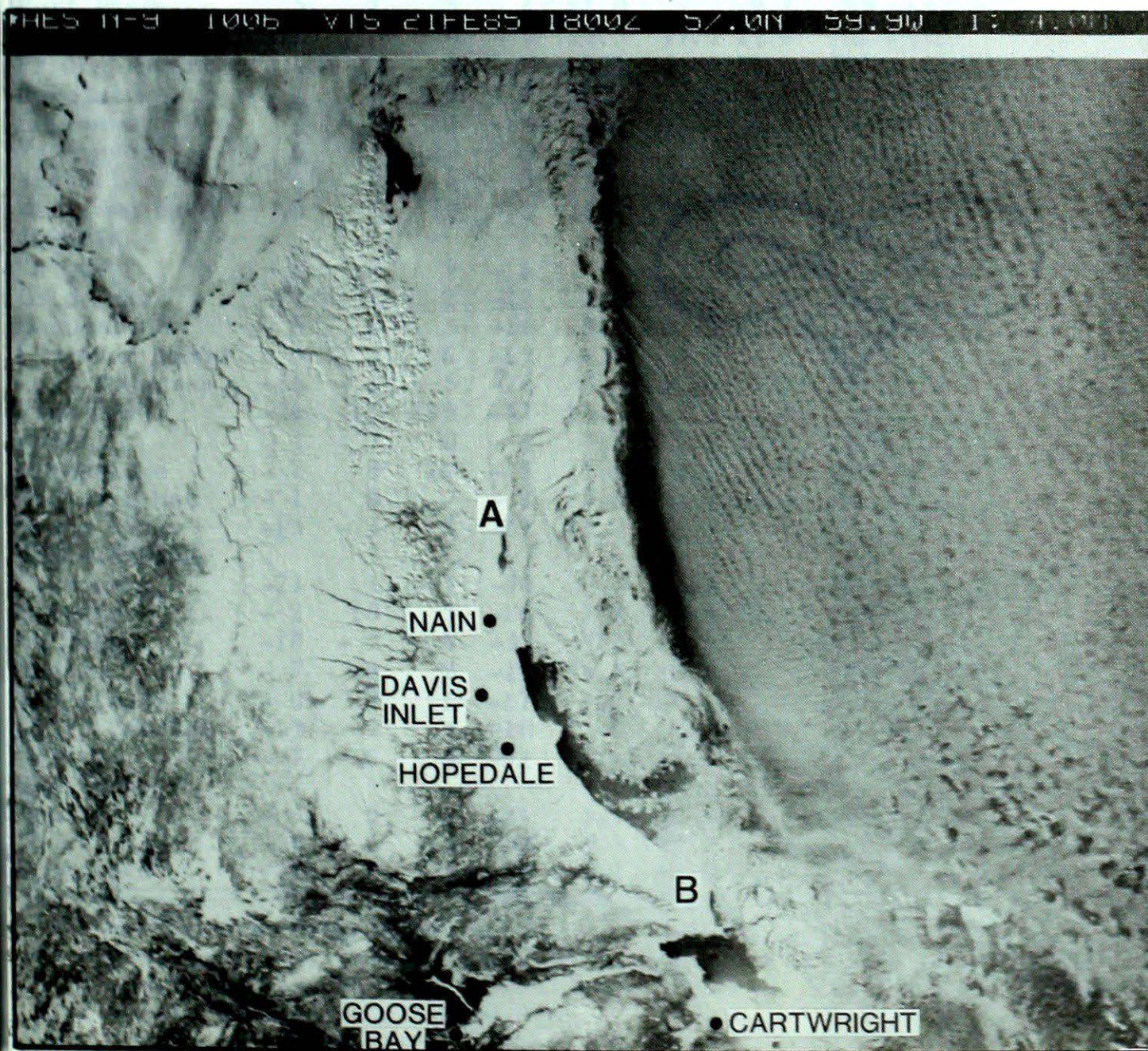
The NOAA 9 satellite pictures were taken on February 18, 1985 (top) and February 21, 1985 about 73 hours apart. Each shows part of the Labrador coast and the offshore ice pack. The rugged, indented coastline north of Hamilton Inlet (the large frozen inlet with Goose Bay at its western end) is masked in these images by land fast ice, which extends approximately 50 km out into the Atlantic. The seaward edge has been sheared off in a smooth curve (between A and B) and large pans of ice have been displaced southwards by the Labrador current at a speed of approximately 0.7 km/h. Loose pack ice on the easternmost edge (about 150 km offshore) clearly reveals the swirls and eddies of the current. As the winter progresses, more and more of this ice tends to make its way southwards to the east coast of Newfoundland as shown on the front cover.

CORRECTION

Vol. 7, January 1985
monthly supplement

The Heating Degree Day values for the following locations were in error. The corrected values are:

Atikokan	1124.6
Earlton A	1126.0
Kingston A	857.4
London A	794.4
Moosonee	1202.2
North Bay A	1041.5
Sarnia A	765.9
Sudbury A	1033.1
Thunder Bay A	1053.9

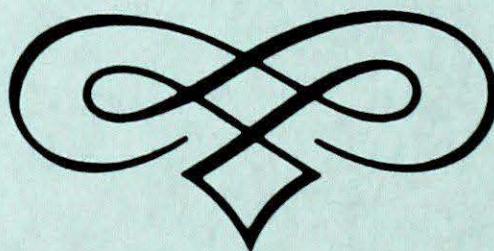


Acid Rain cont'd from Page 6

FEBRUARY 17 to FEBRUARY 23, 1985

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Montmorency	17	4.1	3(s)	Ohio, Pennsylvania, New York, Southern Quebec
	18	4.3	1(s)	Wisconsin, Michigan, Central Ontario, Southern Quebec
	19	4.2	5(s)	Kentucky, West Virginia, Pennsylvania, New York, Southern Quebec
	21	4.3	9(s)	Indiana, Ohio, New York, Southern Quebec
	22	4.4	2(m)	Indiana, Ohio, New York, Southern Quebec
	23	5.7	6(s)	Michigan, Lake Huron, Central Ontario, Southern Quebec
Kejimikujik	17	3.7	1(s)	U.S. Midwest, Pennsylvania, New Jersey, Atlantic Ocean
	18	4.0	1(s)	Central Ontario, Southern Quebec, Maine
	19	4.4	7(s)	Michigan, Southern Ontario, Pennsylvania, Atlantic Ocean
	22	4.1	4(r)	U.S. Midwest, Pennsylvania, New England, Atlantic Ocean
	23	4.3	8(r)	Michigan, Southern Ontario, New York, New England

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



TEMPERATURE, PRECIPITATION AND BRIGHT SUNSHINE DATA FOR THE WEEK ENDING 0600 GMT FEBRUARY 26, 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	-16	2	-7	-27	4.4	54.0	17.8
Dawson	-34	-14	-20	-45	3.2	61.0	X	Thompson	-23	-5	-10	-39	9.2	44.0	14.6
Mayo A	-30	-13	-14	-43	0.8	35.0	X	Winnipeg	-7	8	1	-18	4.7	24.0	31.0
Shingle Point	*	*	-16P	-40	0.0	25.0	*	ONTARIO							
Watson Lake	-19	-3	-7	-34	24.0	115.0	19.8	Atikokan	-4	9	4	-25	4.2	38.0	17.7
Whitehorse	-19	-9	3	-33	1.4	49.0	21.5	Big Trout Lake	-18	3	-5	-37	5.7	98.0	31.9
NORTHWEST TERRITORIES								Earlton	-6	7	3	-22	*	60.0	X
Coppermine	-37	-7	-25	-44	0.2	26.0	41.5	Kapuskasing	-11	4	3	-32	14.7	69.0	*
Fort Smith	-27	-6	-17	-39	3.9	70.0	28.9	Kenora	-6	8	4	-19	8.0	37.0	X
Inuvik	-35	-8	-21	-46	0.2	36.0	28.2	Kingston	-1	5	6	-14	0.0	*	*
Norman Wells	-36	-11	-22	-44	0.0		44.6	London	0	5	9	-12	66.7	5.0	15.7
Yellowknife	-34	-10	-24	-45	3.4	39.0	41.4	Mosoness	-17	0	-1	-35	3.8	100.0	19.7
Baker Lake	-35	-3	-23	-43	7.6	27.0	24.5	Muskoka	-1	8	5	-9	*	30.0	X
Coral Harbour	-30	-2	-17	-41	8.0	22.0	26.7	North Bay	-3	7	4	-12	45.6	38.0	15.2
Cape Dyer	-25	-4	-18	-30	*	86.0	X	Ottawa	-2	7	5	-13	47.3	10.0	12.6
Clyde	-29	-2	-18	-37	0.8	45.0	*	Pickle Lake	-11	7	-2	-29	14.0	73.0	X
Frobisher Bay	-26	-2	-15	-35	2.8	20.0	22.3	Red Lake	-9	6	2	-33	*	58.0	15.0
Alert	-39	-6	-24	-44	0.0	39.0	*	Sudbury	-4	8	5	-15	45.5	74.0	17.1
Eureka	-41	-3	-32	-48	0.0	34.0	*	Thunder Bay	-5	7	5	-24	4.7	20.0	6.3
Hall Beach	-35	-5	-18	-44	*	19.0	X	Timmins	-7	8	2	-23	21.2	82.0	X
Resolute	-37	-3	-24	-43	0.0	17.0	7.8	Toronto	0	5	9	-11	32.7	1.0	X
Cambridge Bay	-38	-4	-25	-45	1.2	25.0	10.9	Trenton	0	5	7	-16	54.0	5.0	X
Mould Bay	-44	-9	-37	-51	0.0	19.0	5.4	Warton	-1	6	6	-8	41.0	30.0	4.2
Sachs Harbour	-38	-8	-29	-44	*	7.0	14.0	Windsor	1	4	10	-9	48.5		X
BRITISH COLUMBIA								QUEBEC							
Cape St. James	6	1	7	3	37.5		*	Bagotville	-9	4	3	-25	33.4	45.0	X
Cranbrook	0	2	7	-9	0.0	21.0	29.9	Blanc-Sablon	-16	-5	-7	-26	10.0	72.0	*
Fort Nelson	-22	-7	-9	-34	5.6	72.0	18.0	Inukjuak	-25	-1	-12	-36	2.6	57.0	41.5
Fort St. John	-12	-2	5	-25	0.3	5.0	X	Kuujuuaq	-24	-3	-10	-35	0.8	90.0	38.9
Kamloops	3	4	10	-5	2.9		20.4	Kuujuuarapik	-24	-2	-7	-40	*	25.0	39.7
Penticton	2	1	9	-3	0.0		22.5	Maniwaki	-4	7	5	-19	*	42.0	14.5
Port Hardy	5	1	9	-1	81.0		9.1	Mont-Joli	-7	2	4	-18	28.4	25.0	22.0
Prince George	2	7	8	-5	12.3	17.0	21.6	Montréal	-2	6	5	-14	38.4	4.0	17.6
Prince Rupert	4	0	8	0	112.0		3.6	Natashquan	-13	-3	-3	-25	5.6	27.0	*
Revelstoke	1	2	7	-3	22.0	77.0	9.9	Nitchequon	-21	0	-4	-36	5.6	89.0	35.6
Smithers	1	5	10	-5	2.8	23.0	14.4	Québec	-5	5	3	-20	51.4	71.0	22.9
Vancouver	6	1	10	0	34.4		15.4	Schefferville	-24	-3	-8	-42	2.8		42.4
Victoria	6	1	14	0	7.5		21.9	Sept-Iles	-11	1	-1	-20	7.2	25.0	33.5
Williams Lake	0	3	10	-8	11.2	54.0	22.2	Sherbrooke	-3	10	6	-19	44.6	5.0	*
ALBERTA								Val-d'Or	-8	6	2	-24	30.4	62.0	23.8
Calgary	-1	9	9	-6	*		20.9	NEW BRUNSWICK							
Cold Lake	-11	2	2	-22	7.8	37.0	*	Charlo	-8	2	3	-19	27.4	34.0	*
Coronation	-6	6	3	-16	8.9	28.0	13.7	Chatham	-7	2	4	-17	37.2	27.0	18.9
Edmonton Nameo	-5	6	6	-15	4.4	13.0	*	Fredericton	-4	3	7	-17	34.7	6.0	*
Fort McMurray	-16	-1	5	-26	3.1	31.0	24.2	Moncton	-5	2	5	-17	26.2	20.0	18.3
High Level	-24	-13	-15	-37	13.6	86.0	*	Saint John	-4	3	6	-15	35.6	2.0	18.0
Jasper	1	7	8	-6	7.3	29.0	20.7	NOVA SCOTIA							
Lethbridge	2	8	10	-5	1.6	0.0	*	Greenwood	-3	2	7	-14	25.8	2.0	X
Medicine Hat	-1	8	7	-8	3.8	3.0	11.8	Shearwater	-2	2	7	-12	27.6	1.0	31.7
Peace River	-15	-3	3	-27	10.0	38.0	X	Sydney	-5	1	3	-17	34.8	9.0	27.5
SASKATCHEWAN								Yarmouth	1	4	9	-8	20.2	0.0	30.3
Cree Lake	-21	X	-3	-34	*	37.0	*	PRINCE EDWARD ISLAND							
Estevan	-2	10	5	-16	3.9	9.0	13.5	Charlottetown	-6	1	4	-18	22.6	25.0	*
La Ronge	-18	-5	-4	-31	2.8	56.0	X	Summerside	-5	2	5	-15	20.8	30.0	19.1
Regina	-7	8	2	-19	4.1	10.0	*	NEWFOUNDLAND							
Saskatoon	-8	7	1	-17	7.2	29.0	*	Gander	-9	-3	-1	-20	10.0	34.0	23.5
Swift Current	-3	9	4	-10	*	6.0	*	Port aux Basques	-6	0	0	-14	22.6	60.0	*
Yorkton	-7	8	0	-22	5.0	48.0	5.0	St. John's	-6	-2	3	-15	19.8	11.0	19.9
MANITOBA								St. Lawrence	-6	-1	1	-16	41.4	69.0	X
Brandon	-6	9	1	-21	5.9	26.0	*	Cartwright	-18	-6	-8	-28	7.4	265.0	X
Churchill	-28	-1	-14	-38	3.6	29.0	*	Churchill Falls	-22	-2	-9	-37	2.4	112.0	X
Lynn Lake	-25	-8	-12	-38	9.2	62.0	21.4	Goose	-17	-3	-5	-31	1.6	86.0	59.5

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