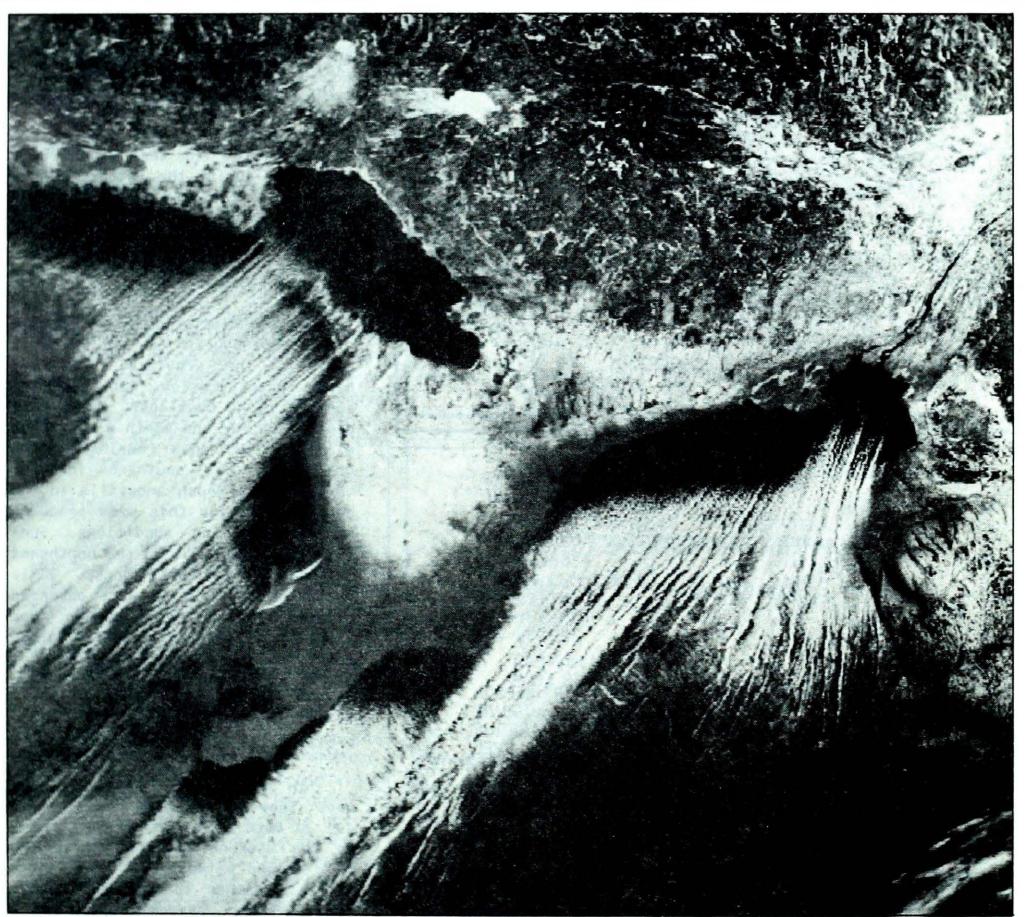
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A weekly review of the Canadian climate

March 10 to 16, 1987

Vol.9 No.11

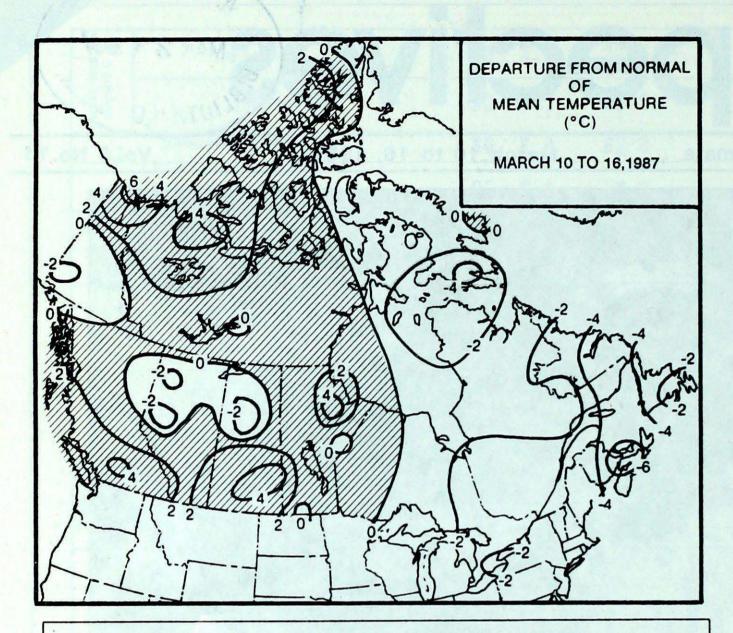


A couple of days after last week's photo of the Great Lakes was taken by NOAA 9, a cold Arctic airmass slipped southwards, covering a large portion of central Canada. Crisp, clear weather was associated with this area of high pressure, except where the flow was off the lakes. Streamers of cloud and snow squalls were the result, when northeasterly winds crossed the relatively warm, open waters of the Great Lakes. NOAA 10 photo, March 10, 1987.

- Late winter storm hits Atlantic Canada
- Fresh snow covers the western Prairies



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WEEKLY TEMPERATURE EXTREME (C)

MAXIMUM

MINIMUM

WHITEHORSE FORT SMITH	4	FORT NELSON OGILVIE CORAL HARBOUR HIGH LEVEL	-29 -41 -46 -36
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GREENWOOD CHARLOTTETOWN ORT-AUX-BASQUES	3 -2 4	TRURO SUMMERSIDE WABUSH LAKE	-25 -21 -29
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ACROSS THE NATION

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COOLEST MEAN TEMPERATURE	-35	EUREKA	NWT

ACROSS THE COUNTRY ...

Yukon and Northwest Territories

Low pressure disturbances in the vicinity of Baffin Island produced variably cloudy and blustery weather conditions over the eastern Arctic. Blizzard warnings were posted for Baffin Island. It was mostly clear in the high Arctic, with periods of snow further to the south. Sunny days and cold nights were reported in the Yukon. Some snow fell during the latter part of the period, with accumulations under 10 cm. Snow depths range as high as 50 cm in the valleys.

British Columbia

A southwesterly flow brought mild temperatures to the southern half of the province. Unusually heavy precipitation fell in the southeast. At Castlegar, total precipitation for the month was nearing a record. No snow remains on the ground in the southern interior valleys, but fresh snowfalls in the central interior this week produced excellent skiing conditions. Sunshine was plentiful in the northeast and along the north coast, while variably cloudy skies were observed elsewhere. The mild weather has slowed the logging industry right down. Logs are being hauled only at night to take advantage of frozen roads.

Prairies

In Alberta, it was a snowy week. Snow was reported almost every day in most districts right through to the weekend. Snowfalls for the week ranged between 5 and 15 centimetres. Further to the east sunny, cool weather predominated, as a large Arctic high pressure cell encompassed the region. Weak disturbances gave occasional periods of light snow. Saskatchewan picked up as much as 15 cm of fresh snow during the weekend, as warmer air pushed in from the southwest. Snow depths were only in the order of a few centimetres in the southwest, ranging as high as 60 to 90 centimetres across the north.

Ontario

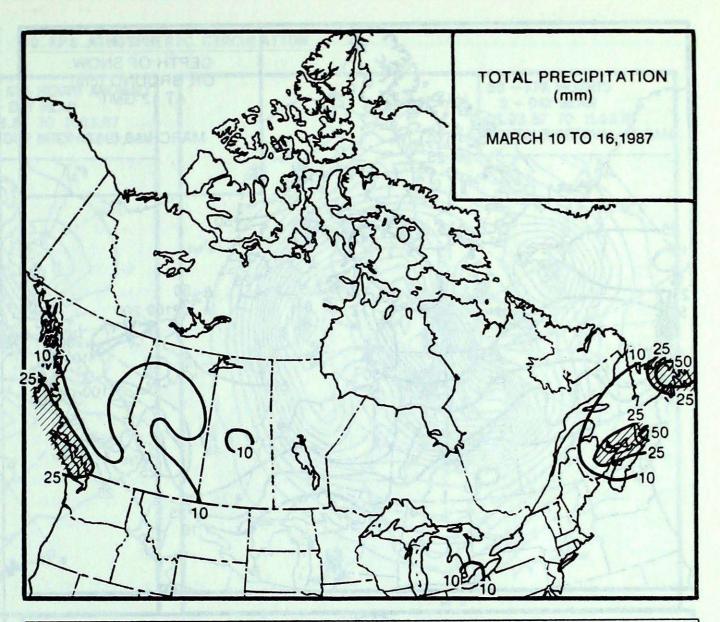
A large high pressure system produced sunny, but seasonably cool temperatures all week, excellent weather conditions for the maple syrup run. Precipitation was virtually nil across the province, with the exception of extreme southwestern Ontario, which was nicked by a storm travelling across the northern States on the 13th and 14th. As a result, Windsor picked up 10 cm of snow.

Quebec

Sunshine was plentiful, as a strong ridge of high pressure prevailed over the province. Clear skies at night allowed minimum readings to drop down to record or near record low values across the south. Daytime readings warmed up significantly by the middle of the week, climbing to above freezing in the southwest. The weather was excellent for outdoor sporting activities. The sunny days and cool nights are just what is needed to get the sap running in the sugar bush.

Maritimes

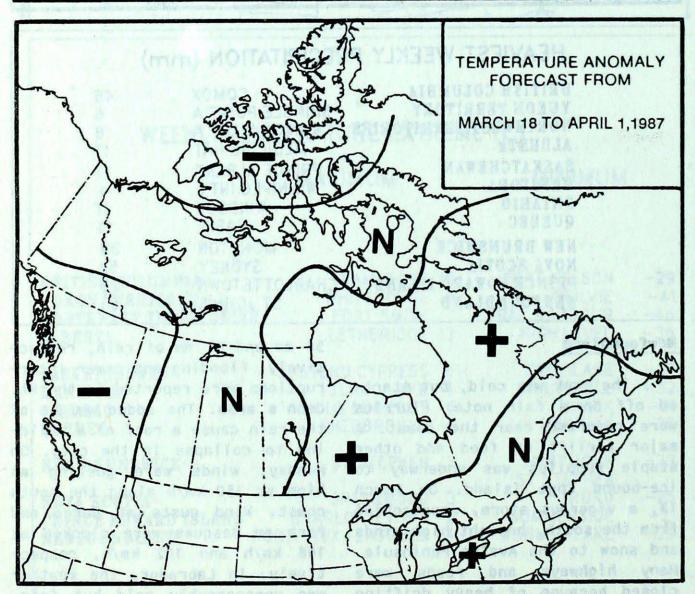
High pressure produced sunny, but very cold conditions during the first half of the week. Overnight readings dipped down to record low values. On the 11th, the temperature at Truro reached -26°C, the lowest temperature thus far this year. New minimum temperature records were also established on Prince Edward Island. A complex storm system moved up the eastern seaboard over the weekend, bringing heavy snow and strong winds to the region the final two days of the period. The storm stalled on the 16th, and by the end of the day 20 to 45 centimetres of new snow covered New Brunswick, Prince Edward Island and the northern half of Nova Scotia. The combination of heavy snow and winds, gusting to 75 km/h, disrupted all forms of transportation, with highway conditions in New Brunswick the worst in recent memory. At least eight highway deaths were attributed to the severe snow storm. Schools and many businesses were closed on Monday the last day of the period, with the snow still continuing to fall through the night and into Tuesday.



HEAVIEST WEEKLY PRECIPITATION (mm) BRITISH COLUMBIA COMOX 48 YUKON TERRITORY SHINGLE POINT A NORTHWEST TERRITORIES RANKIN INLET A ALBERTA MEDICINE HAT 17 SASKATCHEWAN PRINCE ALBERT 19 WINNIPEG INT'L MANITOBA 11 ONTARIO WINDSOR QUEBEC GASPE 19 38 MONCTON NEW BRUNSWICK 52 SYDNEY NOVA SCOTIA 28 PRINCE EDWARD ISLAND CHARLOTTETOWN 65 NEWFOUNDLAND ST JOHN'S

Newfoundland

The week was cold, but started off on a fair note. Flurries were reported near the coast. A major airlift of food and other staple supplies was underway to ice-bound Fogo Island. On March 13, a vigorous storm, approaching from the south, brought high winds and snow to the Avalon Peninsula. Many highways and roads were closed because of heavy drifting and near zero visibilities. A mixed bag of precipitation fell over the weekend, with eastern parts of the Island receiving rain or freezing rain. On March 16, Gander and St. John's received 54 mm and 47 mm of rain, respectively. Flooding and power interruptions were reported in the St. John's area. The added weight of the rain cause a roof of a building to collapse in the city. On Monday, winds were gusting as high as 150 km/h along the south coast. Wind gusts at Burgo and Port au Basques were clocked at 148 km/h and 102 km/h, respectively. In Labrador, the weather was unseasonably cold but fair, as a large area of high pressure prevailed over the area all week. Temperatures moderated some what towards the weekend. A few flurries were reported near the coast.



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 9

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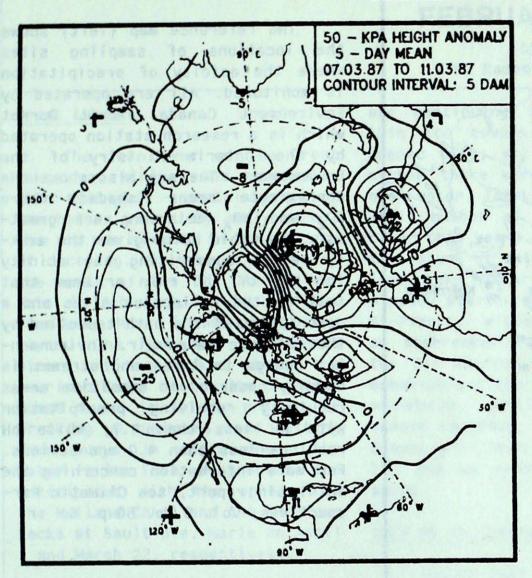
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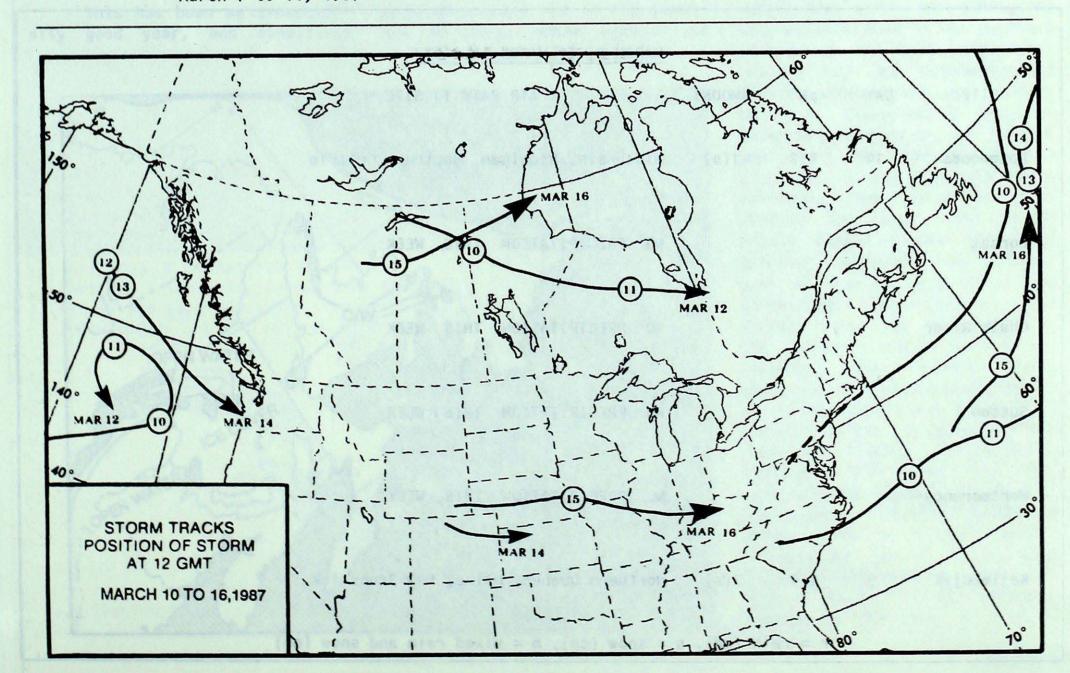
50 KPa ATMOSPHERIC CIRCULATION



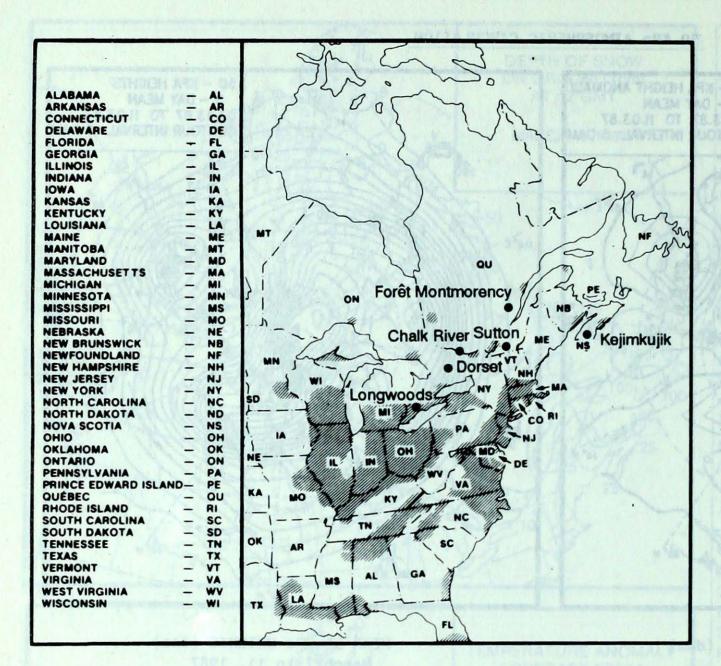
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MEAN 50 KPa HEIGHT ANOMALY (dam) March 7 to 11, 1987

MEAN 50 KPa HEIGHTS (dam) March 7 to 11, 1987



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_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.

				MARCH 8, TO MARCH 14, 1987
SITE	DAY	рН	AMOUNT	AIR PATH TO SITE
Long w oods	14	4.2	1(s)	Wisconsin, Michigan, Southern Ontario
Dorset				NO PRECIPITATION THIS WEEK
Chalk River				NO PRECIPITATION THIS WEEK
Sutton				NO PRECIPITATION THIS WEEK
Montmorency				NO PRECIPITATION THIS WEEK
Keji m kujik	9	3.9	3(s)	Northern Quebec, Maine, New Brunswick
				s = snow (cm), m = mixed rain and snow (mm)

ICE CONDITIONS IN CANADIAN WATERS FEBRUARY 1987

A.K. Radomski, CCRM

Great Lakes

The ice cover on the Great Lakes was minimal and abnormally thin this year - certainly one of the better years. By early March, the ice was already in the process of decaying. An ice jam formed at the mouth of the St. Clair River late in February, as loose flows from Lake Huron funnelled into the river. The jam was considered minor and was broken up by the American Coast Guard. The Canadian Coast Guard is in the process of breaking up harbours, and putting down buoys in areas where the water is ice free. No problems are anticipated with the opening of the Welland Canal and the American Locks at Sault Ste. Marie on April 1 and March 22, respectively.

St. Lawrence River

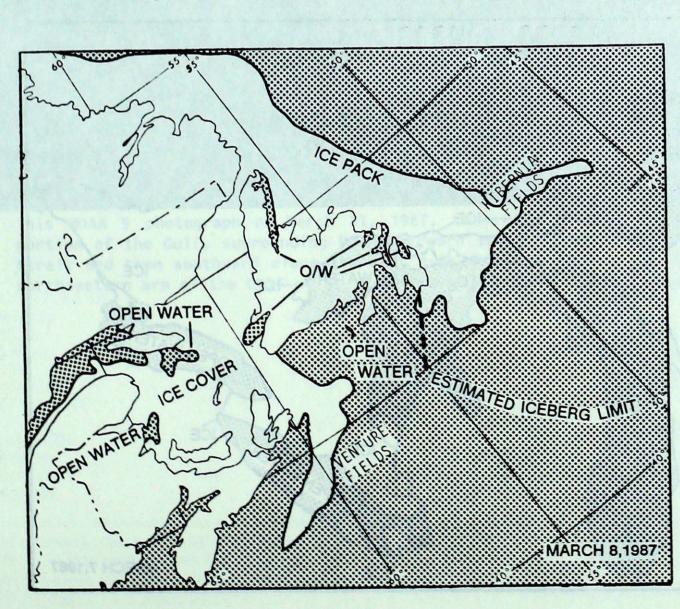
This has been an exceptionally good year, and conditions are continuing to improve. Only thin ice covers the river near Quebec City; while further downstream there were large areas of open water. There was an unusually small number of ice jams in the river this year, mainly because of the volume of water being released from Lake Ontario. The ice has already started breaking up on Lac St-Pierre, without the help of an icebreaker. A new icebreaker, the Sir Wilfred Laurier, will be breaking out the Saguenay River by mid-March, getting the shipping season underway. The St. Lawrence Seaway will open to traffic March 31, and no problems are anticipated.

Gulf of St. Lawrence

There was extensive ice covering in the Gulf in February particularly along the west coast of Newfoundland and in the southern portions, where because of

northeast winds the ice was compact tightly against the coast. There was a fair amount of ice flowing out through Cabot Strait, with strips of ice extending around Nova Scotia and even patches of ice approaching the Venture gas fields near Sable Island.

The Gaspé passage and the Estuary, although not ice free, were fairly easily navigable this past month, as was the main shipping route across the central part of Gulf of St. Lawrence. A lot of ice has congested around Cape Breton Island, but the large icebreaker Louis St. Laurent managed to keep navigation moving. Newfoundland ferries have slowdowns near encountered Sydney, although for the most part, the more powerful ones have managed to push through with little assistance from the Coast Guard. The worst ice conditions were concentrated in the southern portion of the Gulf, especially Chaleur Bay and Northumberland Strait, where there was a heavy build up. Occasionally leads of water have opened up, but for the most part the two icebreakers stationed in the area have had a difficult time escorting ships through the pack. Ferries to Prince Edward Island have been crossing Northumberland Strait with difficulty, but have been independently. A1proceeding though heavy ice is present in the northeast arm of Gulf of St. the Canadian Coast Lawrence, Guard has only experienced moderate difficulties, and nothing too serious as yet. Stephenville has independently almost remained navigable, but ships have been receiving assistance from the new icebreaker Edward Cornwallis going in and out of Corner Brook. Altogether there were five Canadian icebreakers working full time in the Gulf of St. Lawrence. Because of the long duration of



...continued

Ice Conditions ... continued

cold weather during February, there has been a lot of ice breaking done by the district Coast Guard in the smaller fishing harbours along the coast of Nova Scotia.

Newfoundland Waters

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This has been one of the more difficult years. A band of heavy ice extends all the way down the east coast to well south of Cape Race; but because of on-shore winds, the seaward extent of the ice pack is only in the order of around 200-250 km. The ice pack threatened the Hibernia oil fields, and the oil rig Bow Drill Three had to be moved off site.

The Canadian Coast Guard has experienced a lot of problems this year, especially during the latter half of February. Prevailing northeast winds jammed the ice tightly against the coastline, effectively halting all navigation without icebreaker assistance. Deep sea fishing trawlers, which fish well off the coast of Labrador, have not been able to bring in their catch to their

respective home ports; instead, they have had to resort to using more southern harbours and trucking their quota to their respective processing plants. Local fishing along the coast is almost nonexsistent; if it isn't the heavy pack ice, then it is the thick harbour ice hampering the fishing fleets.

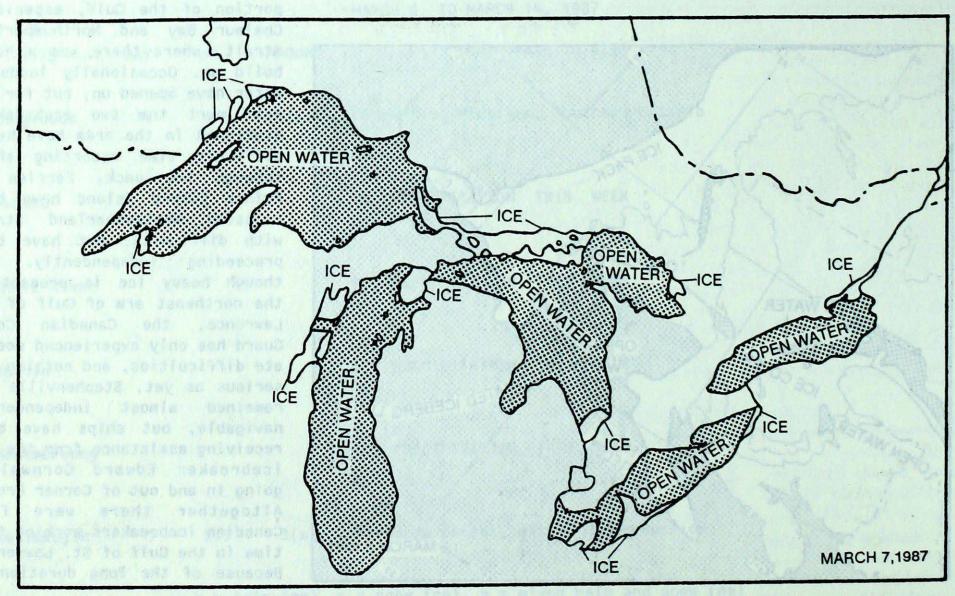
Ocean going ships trying to reach northern and eastern Newfoundland ports have been experiencing long delays. The heavy icebreaker Sir John Franklin has been having great difficulty escorting ships to and from Botwood and Lewisporte. In each case, it is taking well over a week to escort a ship through the pack because of the enormous ice pressure. The Sir Humphrey Gilbert, working off Cape Freels, was guiding a vessel through the pack for 9 days. A cargo ship inbound to Botwood was stuck in the ice for eight days before an icebreaker was able to assist. Ships were even experiencing delays getting in and out of St. John's harbour. Coastal ferry services are all but stopped because of the heavy ice conditions. Some island communities

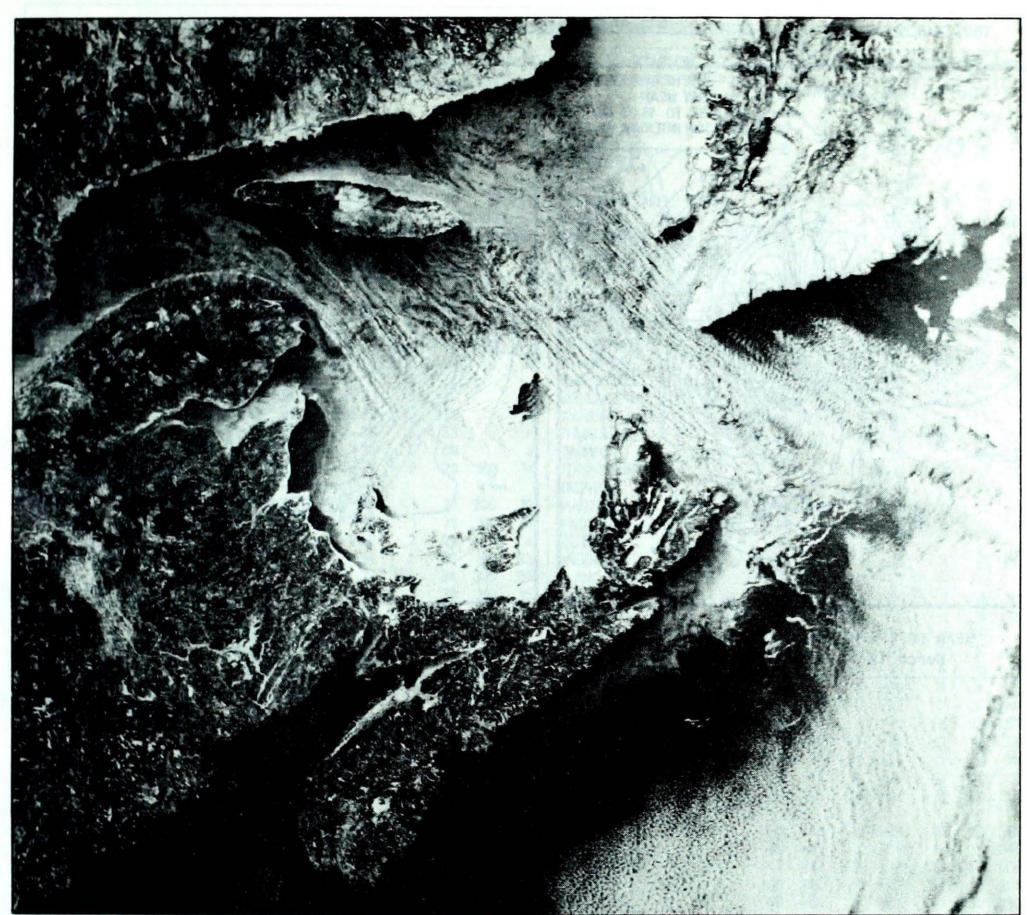
have been partially isolated for weeks, with staple supplies running short. The powerful ice-breaker C.C.G.S. Des Groseillier has been dispatched from Quebec City to Newfoundland to provide much needed assistance to the three icebreakers working in the area.

I wish to acknowledge the help and information provided by the Canadian Coastguard. Also, to thank in particular Capt. P. Whitehead, Capt. A. Rowsell and R. Charrier for their cooperation.

LATE NOTE:

Another ice jam has formed on the St. Clair River during the second week of March, and at this time still blocks the entire river. The ice is consolidated and in some places up to one and a half metres thick. Five American icebreakers have had little success in trying to breakup the major jam. The Canadian icebreaker C.C.G.S. Griffin has been dispatched to assist.

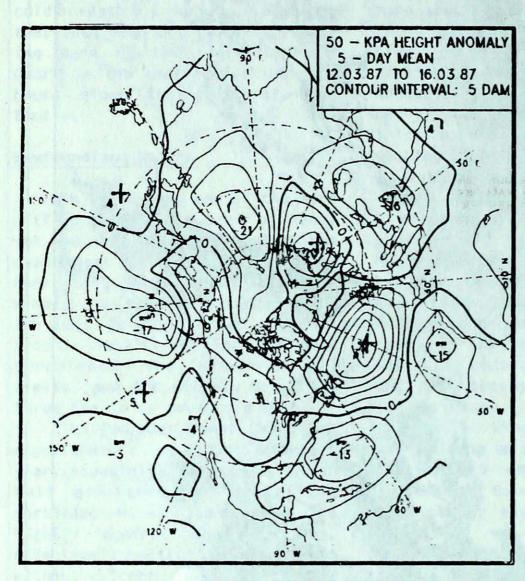




This NOAA 9 photograph of March 11, 1987, shows the heavy ice concentration in the southern portion of the Gulf, surrounding Prince Edward Island. Ice can be observed flowing through Cabot Strait and then southward along the east coast of Nova Scotia. Thick ice is also evident in the northeastern arm of the Gulf of St. Lawrence adjacent to the Newfoundland coast.

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50 KPa ATMOSPHERIC CIRCULATION



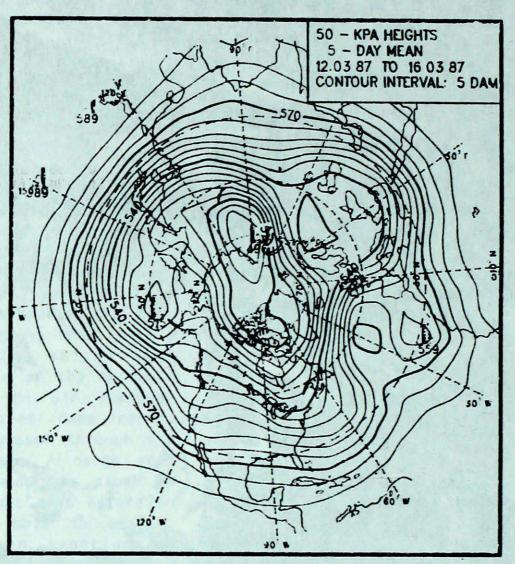
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MEAN 50 KPa HEIGHT ANOMALY (dam) March 12 to March 16, 1986



MEAN 50 KPa HEIGHTS (dam) March 12 to March 16, 1986

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* = missing

P = value based on less than 7 days

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

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