

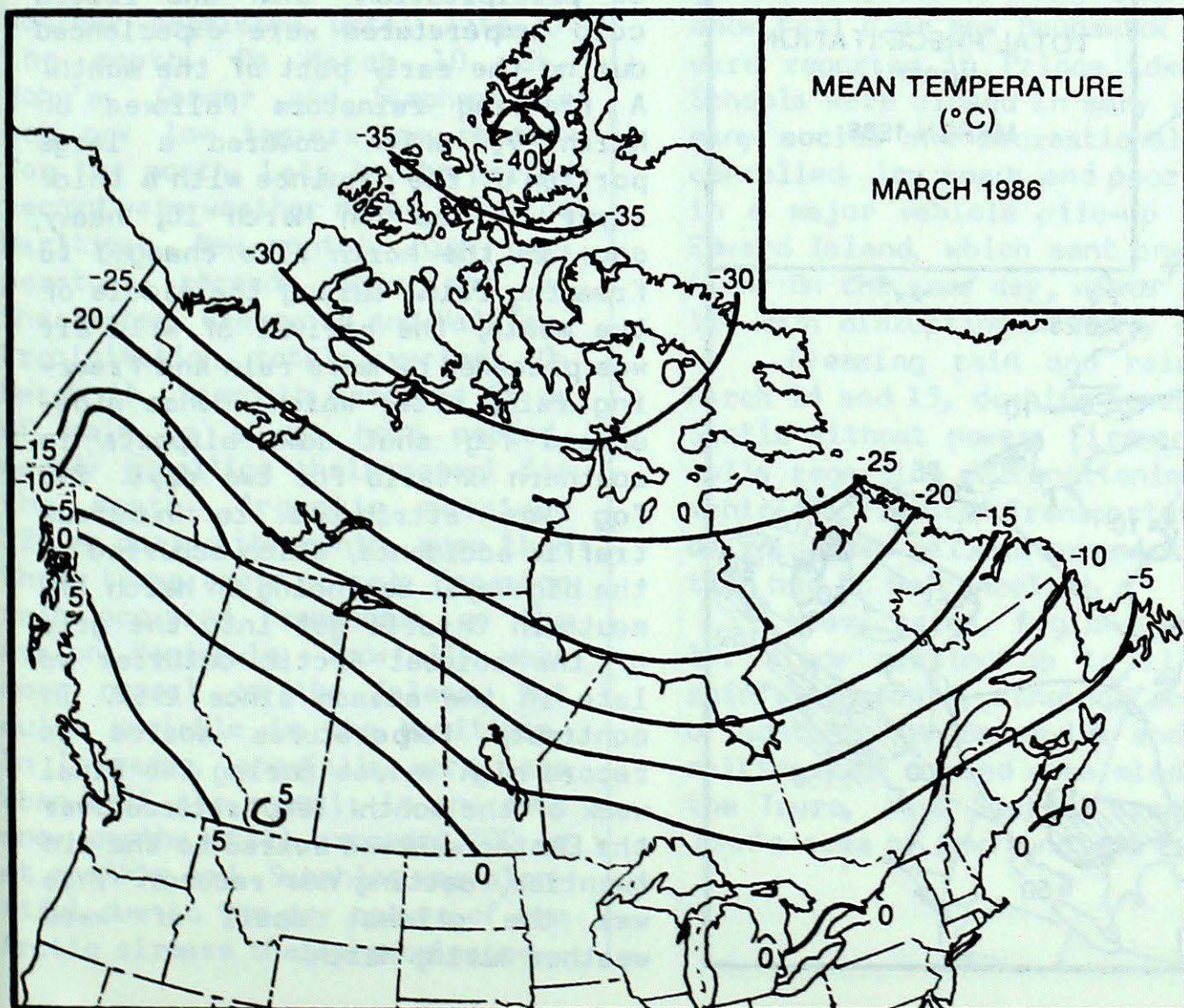
ACROSS THE COUNTRY

Yukon and Northwest Territories

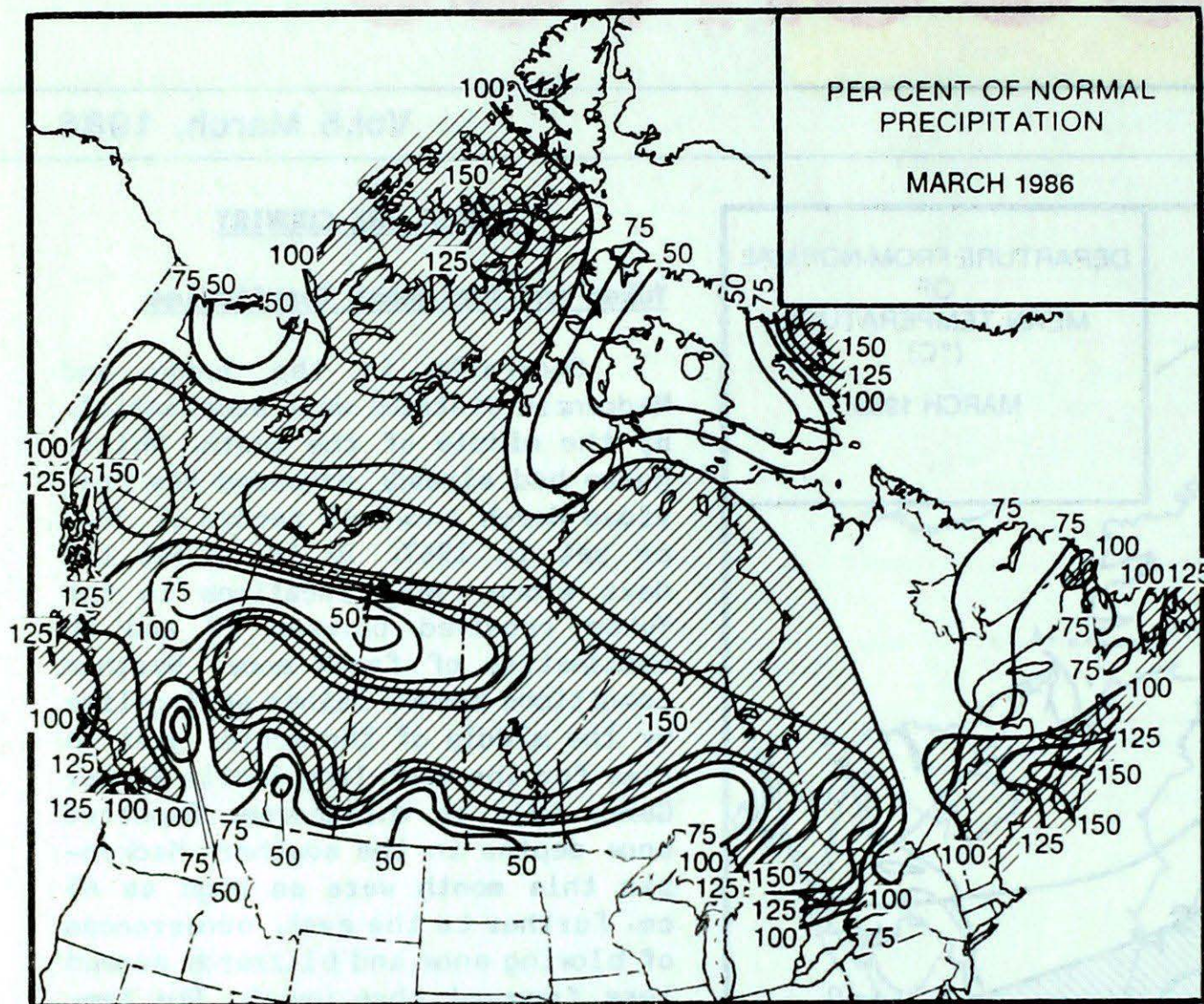
Snowfalls in the Yukon and Mackenzie District were substantial. By the middle of the month, Whitehorse had already exceeded its previous March snowfall record of 38.9 cm set in 1967. In the first ten days alone, many locations in the Yukon received between 20 and 50 centimetres of fresh snow. Weather conditions became rather spring-like by the middle of the month, just in time for the week-long Arctic Winter Games held at Whitehorse. Reported snow depths in the southern Mackenzie this month were as high as 65 cm. Further to the east, occurrences of blowing snow and blizzards seemed less frequent than usual. The temperatures at Eureka dipped as low as -50°C .

British Columbia

A persistent southwesterly flow of mild air kept temperatures well above normal, but also produced an extensive cloud cover, which resulted in below normal sunshine. At Kelowna, Terrace and Williams Lake this was the cloudiest March on record. Fourteen locations reported record high mean temperatures for the month. In addition, new monthly maximum temperature records were established at Kelowna and Vancouver Harbour, 20.3°C and 18.1°C , respectively. The avalanche hazard was increased considerably in the south, because of the mild weather. A snow slide near the Yellow Head Pass, during the Easter weekend, killed four snowmobilers. Precipitation was above normal along the coast, while parts of the interior were unusually dry. Williams Lake recorded only 4.7 mm of precipitation, a new monthly record. Gales occurred frequently along the coast. On March 20, winds off Cape St. James reached 124 km/h with gusts of 148 km/h.



PRECIPITATION

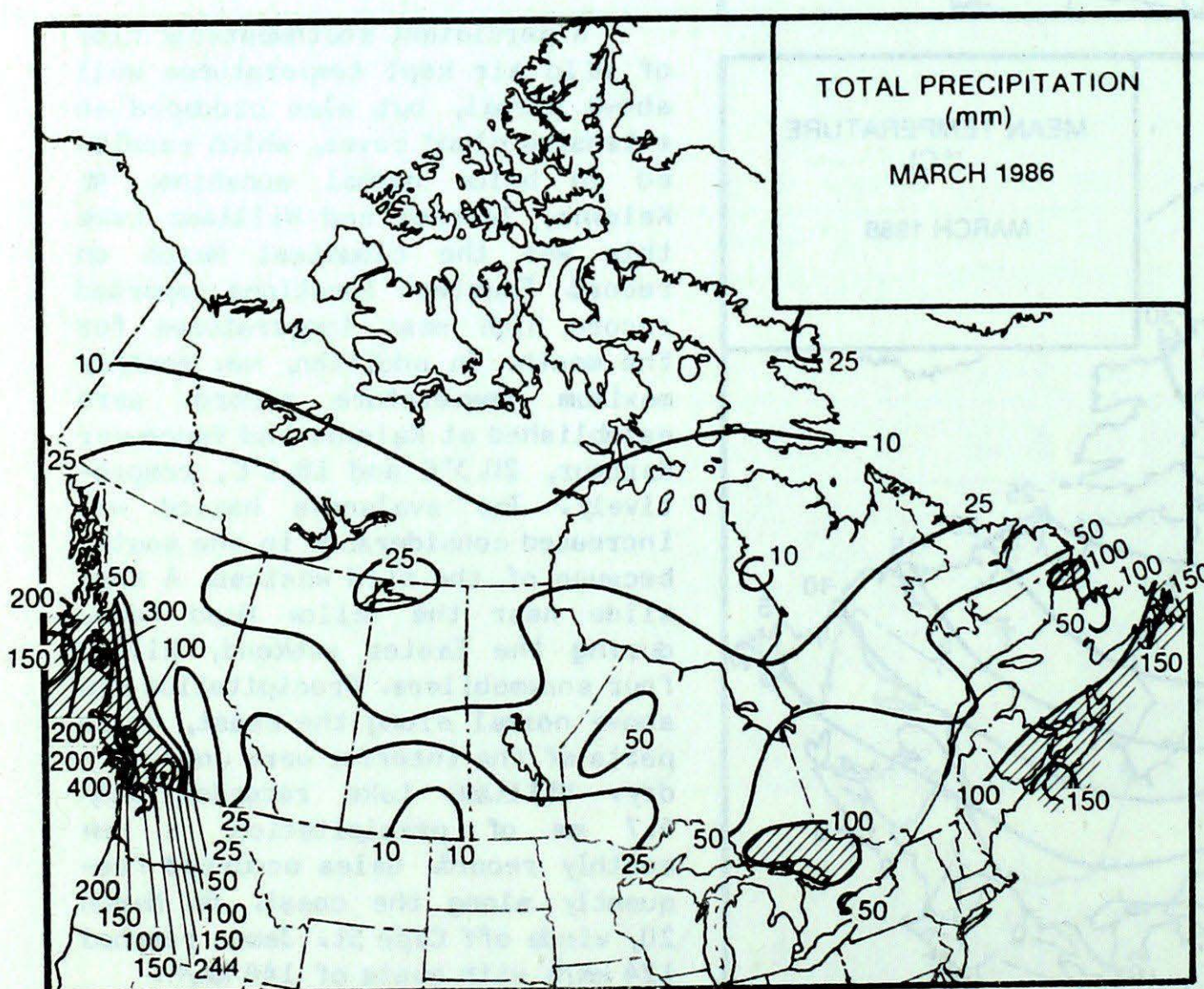


The Prairies

March was a warm month across the prairies, with many new daily high temperature records set. In Alberta, the majority of records were broken during the first and last week of the month. Readings at many locations climbed into the mid-teens. On March 27, the thermometer at Estevan registered 22°C. Above normal snowfalls were recorded at many locations, especially central Alberta and across the north, where in some cases snowfalls were double the normal. Whitecourt received the greatest amount of snow, 51.3 cm. Snowfalls were well below normal in southern Saskatchewan and the Fort McMurray-Cree Lake districts of the north. In southern Alberta, precipitation amounts varied significantly; in the dry areas, and where there was a lack of snow cover, strong winds caused blowing dust, and resulted in serious soil erosion problems. Except for the previously mentioned dry areas, sunshine was deficient.

Ontario

It was a typically variable month, with wide ranging temperatures, and varying amounts and types of precipitation. Snow and record cold temperatures were experienced during the early part of the month. A freezing rainstorm followed on March 9, which covered a large portion of the province with a thick layer of ice. On March 10, heavy snow in the north also changed to freezing rain. During the middle of the month, the arrival of mild air was preceded by more rain and freezing rain, after which, dense widespread fog shut down airports in southern Ontario for two days. The fog was attributed to numerous traffic accidents, which occurred on the highways. Beginning on March 19, southern Ontario got into the grip of the coldest Arctic outbreak so late in the season since 1967. In contrast, temperatures soared to record high values during the final week of the month. Temperatures over the Easter weekend soared to the mid twenties, setting new records. This was the mildest spell of warm weather during March.



Québec

Unusually mild weather during the last week of the month was in stark contrast to the wintry regime experienced just days earlier. The sharp up-swing in temperatures, in the southwest, resulted in broken daily temperature records, and flooding in the Eastern Townships. Elsewhere, it was cold, but sunny. At Blanc Sablon a new record low mean monthly temperature was established. Periods of snow and freezing rain affected the southern portions of the province regularly. Snowfalls in the Laurentians exceeded 50 cm, but heavier falls occurred along the north coast. Precipitation was well below normal in the lower St. Lawrence Valley especially the Gaspé, where two new low monthly precipitation records established; the least amount of snow for any March, 30.8 cm, and the lowest precipitation total for any previous month, 29.5 mm. The spring weather to date has not been very favourable for Maple syrup production.

Atlantic Provinces

With a few exceptions it was unusually sunny, but cold. In Newfoundland, record breaking cold weather persisted until late in the month. On March 10, St. John's, Gander and Stephenville set new low temperature records for the month. Late in the period record warm weather moved into the Maritimes. New monthly high temperature records were set at Shearwater, Greenwood and Halifax. Precipitation totals varied. On March 15, Yarmouth received 65 mm of rain in a six hour period, nearly equalling their normal for the month. Argentia received 228 mm during the month, more than three times their normal. Freezing rain occurred frequently on the Avalon Peninsula. Snowfalls were near normal on the Island, but quite variable in the Maritimes. In Labrador, snowfalls were less than half the normal; in any case snow depths still exceeded 200 cm at month's end. Sunshine was plentiful due to the dry nature of the Arctic airmass that predominated.

CLIMATIC EXTREMES IN CANADA - MARCH 1986

MEAN TEMPERATURE:			
WARMEST	Abbotsford, BC		8.4°C
COLDEST	Eureka, NWT		-41.9°C
HIGHEST TEMPERATURE:			
	Windsor, ONT		26.6°C
LOWEST TEMPERATURE:			
	Eureka, NWT		-50.3°C
HEAVIEST PRECIPITATION:			
	Amphitrite Point, BC		474.3 mm
HEAVIEST SNOWFALL:			
	St. Anthony, NFLD		107.5 cm
DEEPEST SNOW ON THE GROUND ON MARCH 31, 1986:			
	Battle Harbour, NFLD		106.0 cm
GREATEST NUMBER OF BRIGHT SUNSHINE HOURS:			
	Coral Harbour, NWT		214 hrs

MAJOR STORMS IN ATLANTIC CANADA

by

C.F. MacNeil and C.J. Power

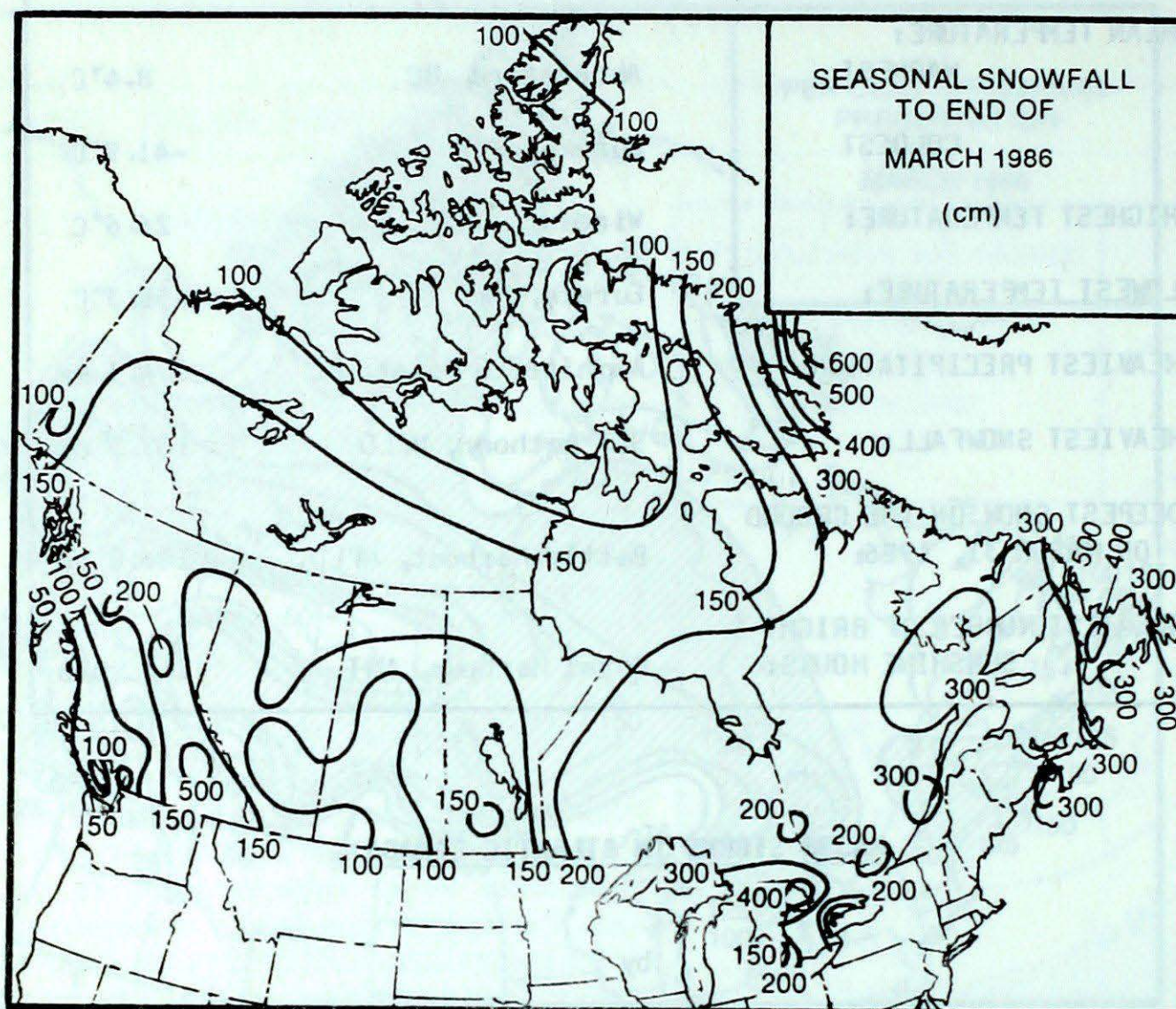
Very strong winds were reported in Newfoundland during the month. On March 7, a major snowstorm moved into Atlantic Canada giving moderate to heavy snowfalls. Twenty to thirty centimetres of snow fell over New Brunswick and Cape Breton, while lesser amounts were reported in Prince Edward Island and mainland Nova Scotia. Schools were closed in many areas, some flights were cancelled and many social and recreational activities were either postponed or cancelled. Icy roads and poor visibility were a contributing factor in a major vehicle pile-up on the Hillsborough Bridge on Prince Edward Island, which sent one person to hospital in serious condition. On the same day, winds in the Port-aux-Basques area gusted to 115 km/h disrupting CN ferry services across Cabot Strait.

Freezing rain and rain whipped across the region late on March 14 and 15, downing power lines and leaving many areas of Nova Scotia without power. Firemen and police were kept busy answering calls regarding malfunctioning fire alarms, downed trees and motor vehicle accidents. Transportation was disrupted, and in Nova Scotia buildings as well as basements were flooded. Many planned activities had to be cancelled.

Heavy rains, fog and strong winds pounded the area on March 19. Winds gusting up to 113 km/h were reported at Sydney, and rainfall amounts, ranging from 20 to 36 mm, were reported in parts of southern New Brunswick and Nova Scotia. The rain accompanied by melting snow caused some minor flooding in a number of areas, with the Truro, Nova Scotia, area being hardest hit. Winds in the St. John's area of Newfoundland reached 107 km/h.

SNOWFALL

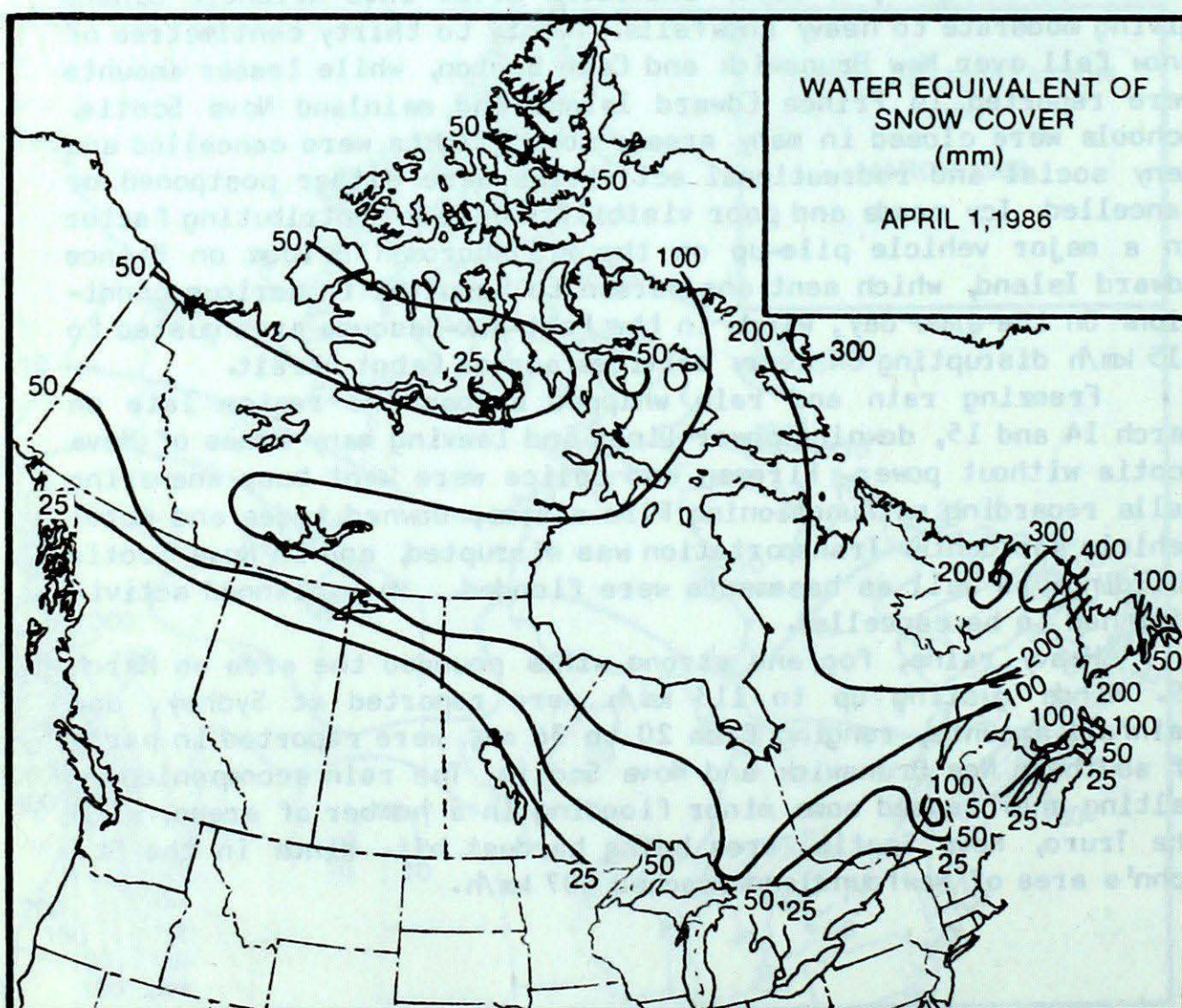
SNOWFALL



SEASONAL SNOWFALL TOTALS (CM)

TO END OF MARCH

	1986	1985	NORMAL
YUKON TERRITORY			
Whitehorse	161.2	174.9	122.3
NORTHWEST TERRITORIES			
Cape Dyer	633.8	400.0	476.2
Inuvik	106.6	113.2	144.9
Yellowknife	166.3	148.4	121.7
BRITISH COLUMBIA			
Kamloops	85.3	115.3	91.2
Port Hardy	27.6	50.5	70.8
Prince George	158.9	191.0	229.6
Vancouver	43.8	66.1	60.1
Victoria	100.9	73.8	49.6
ALBERTA			
Calgary	78.2	90.9	116.3
Edmonton	113.6	115.6	116.9
Grande Prairie	140.2	141.5	164.3
SASKATCHEWAN			
Estevan	92.4	123.0	98.0
Regina	93.1	134.8	101.6
Saskatoon	88.9	124.1	101.6
MANITOBA			
Brandon	141.9	83.5	103.5
Churchill	189.8	162.2	150.2
The Pas	134.8	151.8	144.6
Winnipeg	113.7	89.0	111.7
ONTARIO			
Kapuskasing	240.9	283.4	284.8
London	219.8	*	199.4
Ottawa	176.4	218.9	217.9
Sudbury	233.6	296.5	229.3
Thunder Bay	221.7	185.2	192.6
Toronto	86.4	134.0	123.7
Windsor	167.7	149.8	113.2
QUEBEC			
Baie Comeau	344.0	288.6	336.9
Montréal	202.6	212.5	223.7
Quebec	301.2	270.3	326.3
Sept-Îles	308.9	270.0	387.9
Sherbrooke	228.3	272.6	289.3
Val-d'Or	266.4	293.7	285.1
NEW BRUNSWICK			
Charlo	252.4	241.8	368.6
Fredericton	283.8	151.3	267.8
Moncton	350.3	208.7	310.6
NOVA SCOTIA			
Shearwater	195.2	169.1	183.8
Sydney	339.4	247.8	287.2
Yarmouth	200.3	*	200.9
PRINCE EDWARD ISLAND			
Charlottetown	283.7	216.4	301.2
NEWFOUNDLAND			
Gander	341.3	332.8	342.2
St. John's	287.0	254.9	311.7



SEASONAL TOTAL OF HEATING

DEGREE-DAYS TO END OF MARCH

	1986	1985	NORMAL
BRITISH COLUMBIA			
Kamloops	3469	3546	3316
Penticton	3312	3383	3038
Prince George	4599	4681	4571
Vancouver	2575	2689	2489
Victoria	2582	2735	2501

YUKON TERRITORY

Whitehorse	5618	5728	5860
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NORTHWEST TERRITORIES

Frobisher Bay	7265	7736	7859
Inuvik	8320	8323	8431
Yellowknife	7301	7472	7224

ALBERTA

Calgary	4293	4575	4518
Edmonton Mun	4557	4871	4857
Grande Prairie	5079	5449	5313

SASKATCHEWAN

Estevan	4640	4840	4824
Regina	5001	5286	5156
Saskatoon	5109	5452	5309

MANITOBA

Brandon	5452	5710	5258
Churchill	7445	7372	7403
The Pas	5752	5889	5862
Winnipeg	5268	5145	5152

ONTARIO

Kapuskasing	5516	5370	5381
London	3435	3383	3491
Ottawa	4027	3928	4073
Sudbury	4649	4525	4655
Thunder Bay	4956	4715	4845
Toronto	3468	3405	3494
Windsor	3120	3037	3126

QUÉBEC

Baie Comeau	5081	4951	4903
Montréal	3956	3895	3884
Quebec	4425	4309	4335
Sept-Îles	5207	5084	5015
Sherbrooke	4332	4345	4464
Val-d'Or	5345	5207	5214

NEW BRUNSWICK

Charlo	4568	4462	4315
Fredericton	4148	3975	3976
Moncton	4090	3925	3897

NOVA SCOTIA

Halifax	3453	3448	3294
Sydney	3762	3731	3506
Yarmouth	3273	3180	2674

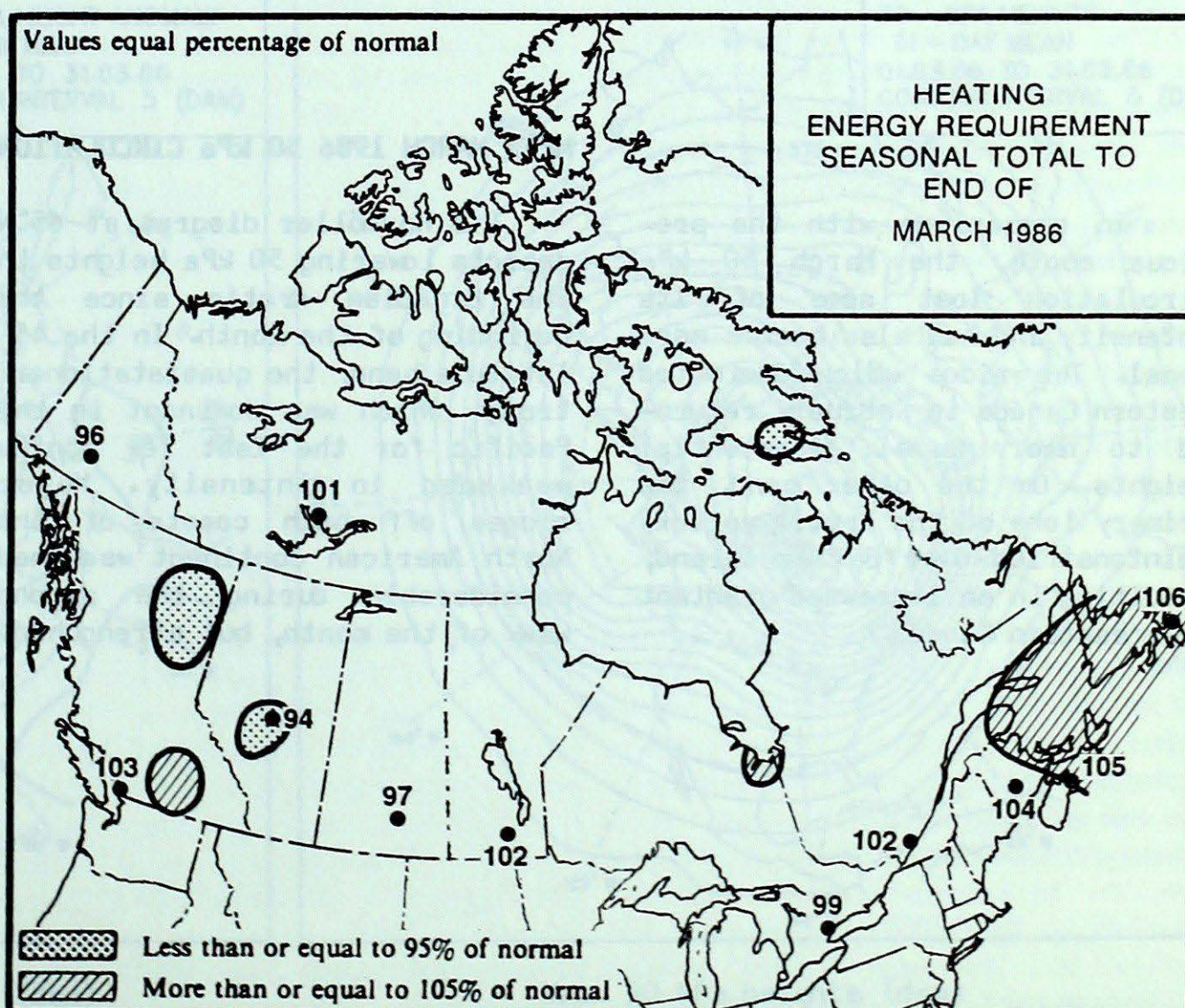
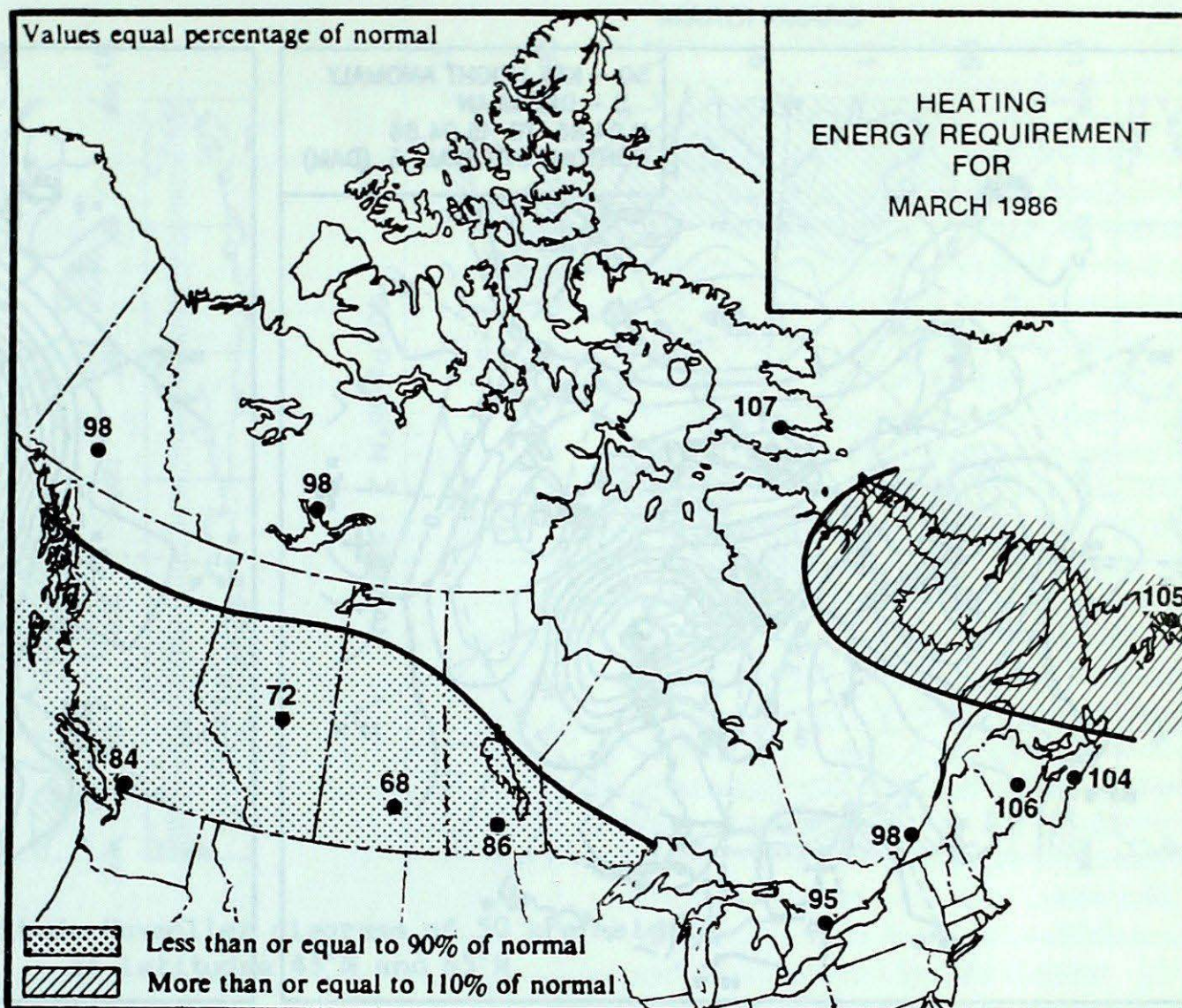
PRINCE EDWARD ISLAND

Charlottetown	3946	3907	3738
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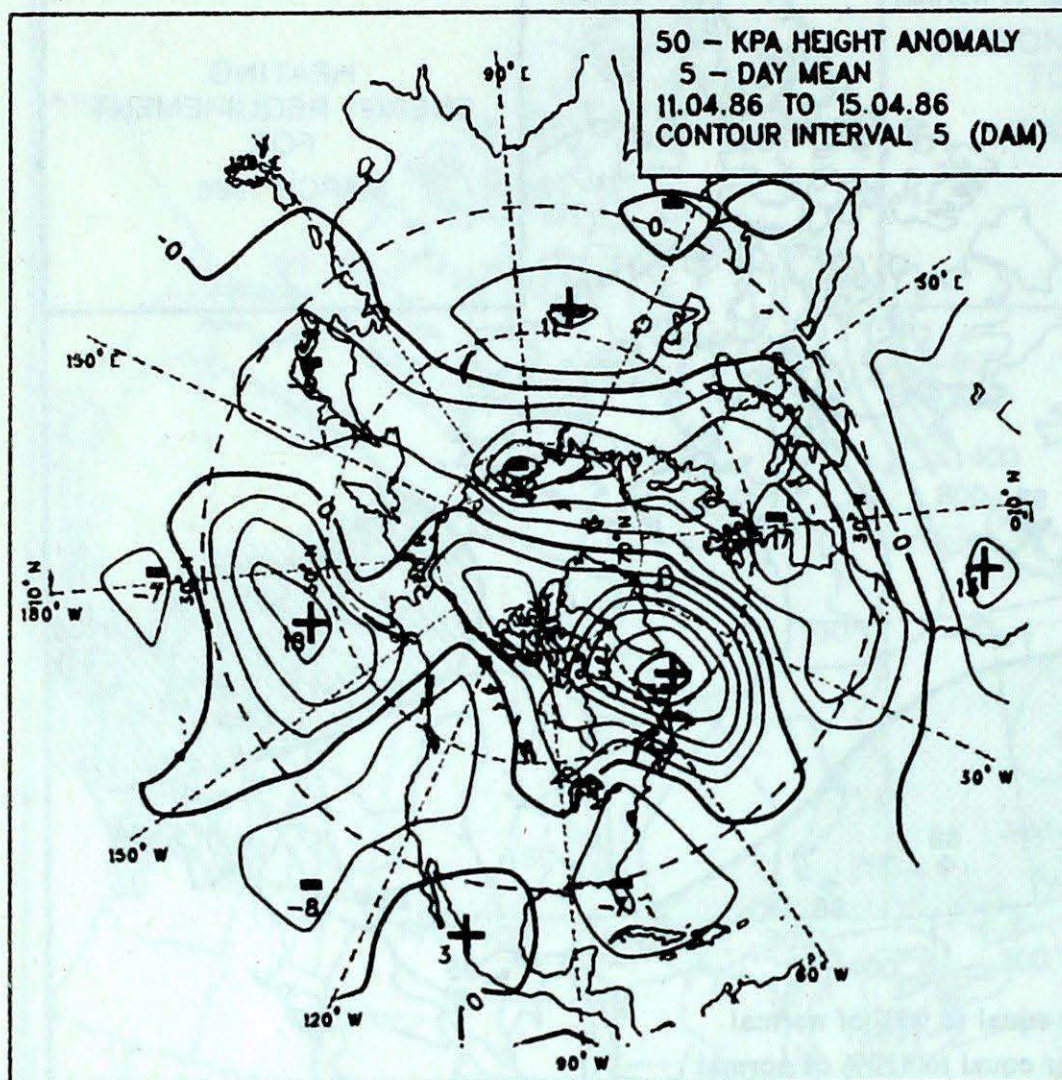
NEWFOUNDLAND

Gander	4245	4241	3970
St. John's	3900	3836	3686

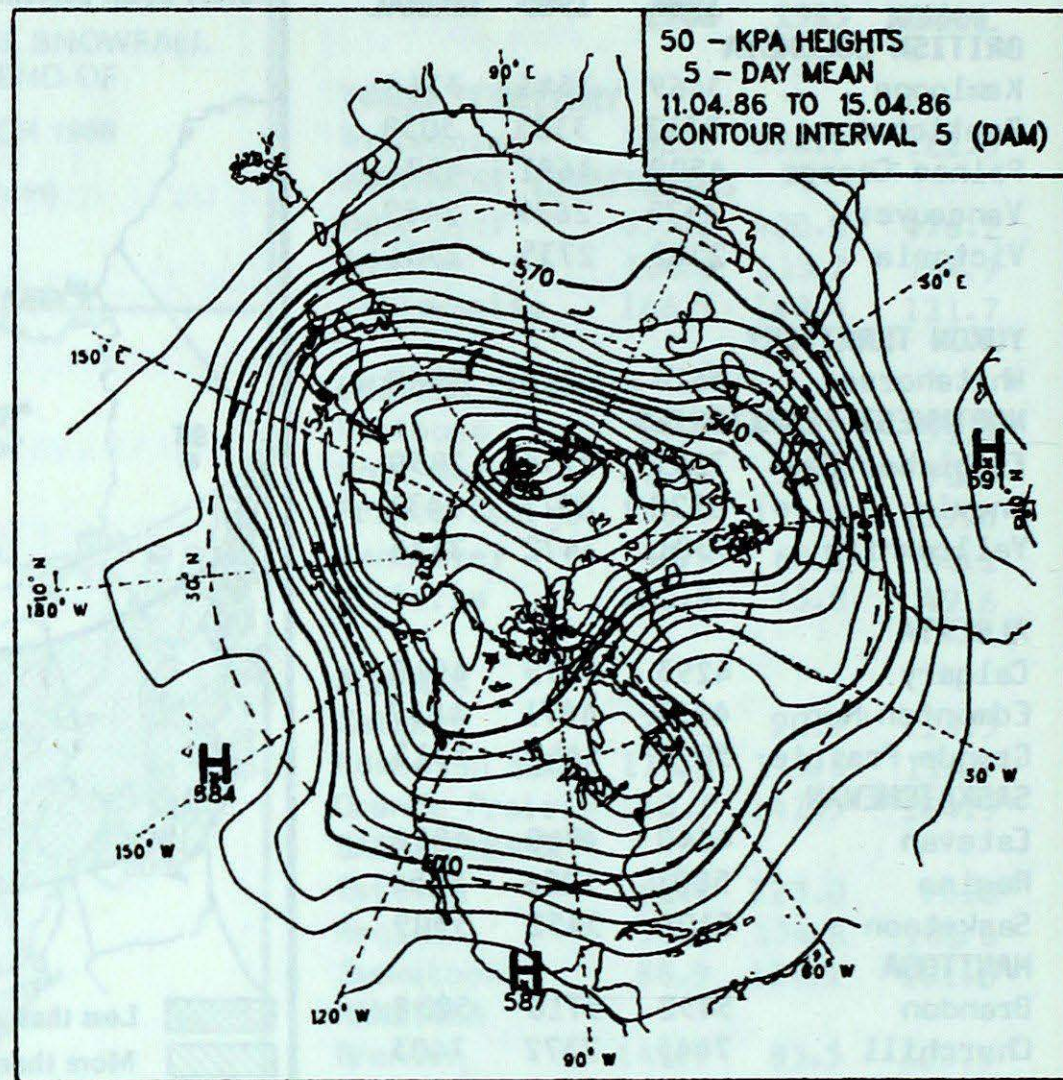
ENERGY REQUIREMENTS



ATMOSPHERIC CIRCULATION



Mean 50 kPa height anomaly (dam)
April 11 to April 15, 1986



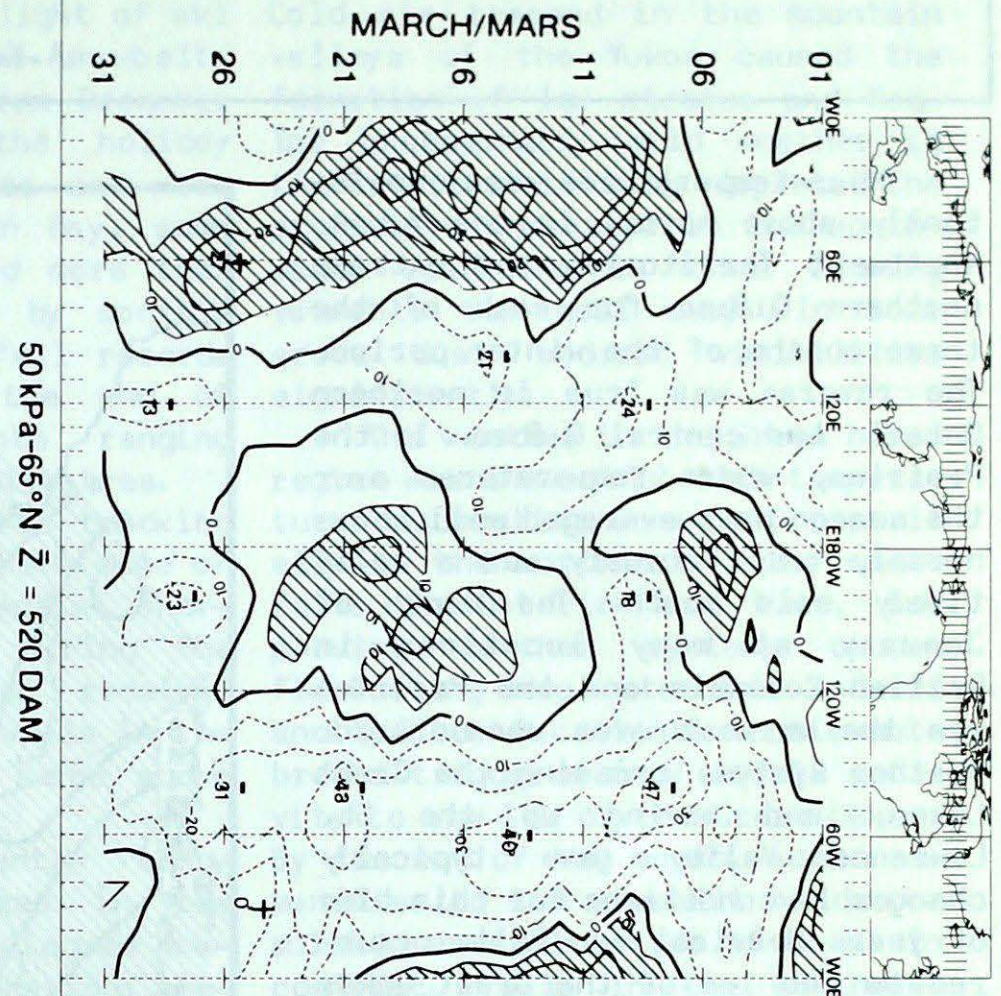
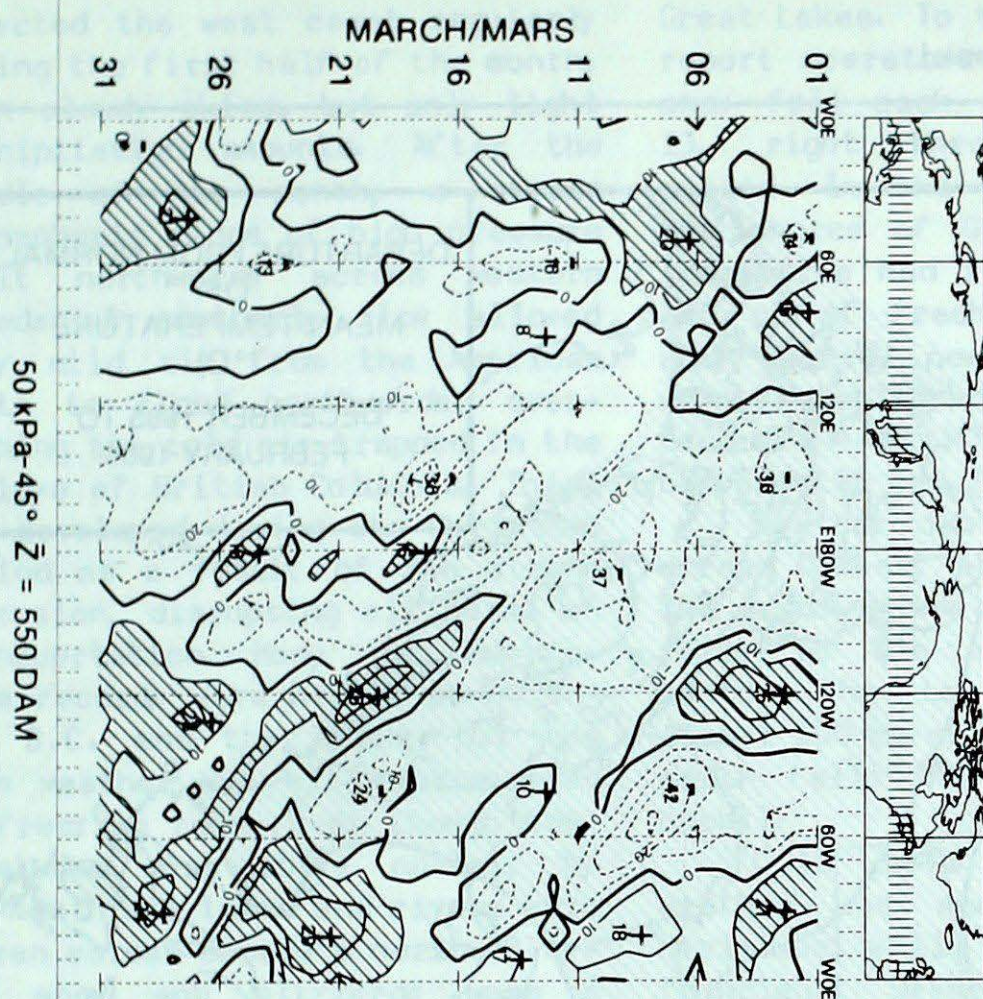
Mean 50 kPa heights (dam)
April 11 to April 15, 1986

MEAN MARCH 1986 50 kPa CIRCULATION

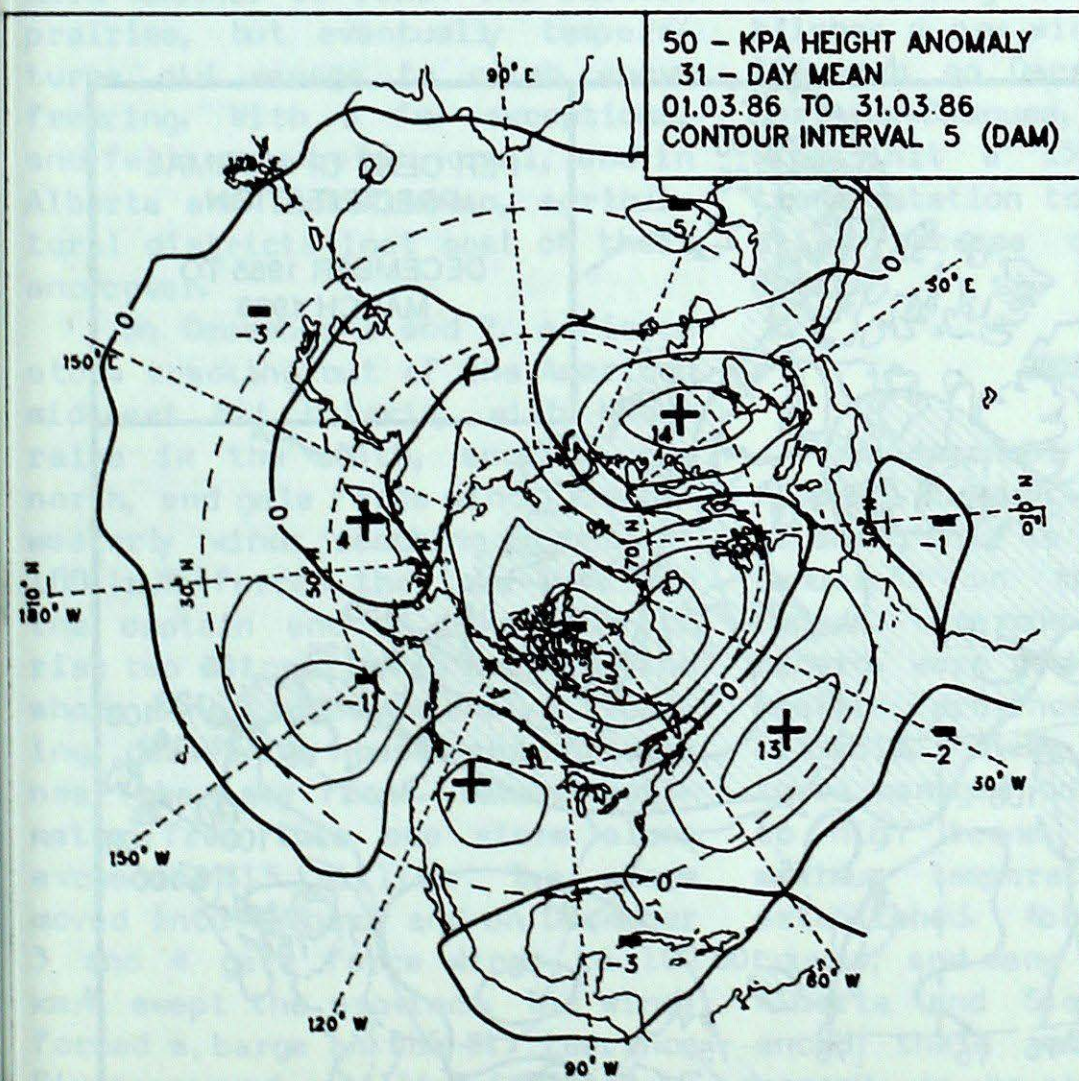
In comparison with the previous month, the March 50 kPa circulation lost some of its intensity and has also become more zonal. The ridge which dominated western Canada in February returned to near normal geopotential heights. On the other hand, the primary lobe of the Arctic vortex, reintensified over Baffin Island, resulting in an increased gradient over eastern Canada.

The Hovmöller diagram at 65°N depicts lowering 50 kPa heights in the Canadian Arctic since the beginning of the month. In the 45° latitude band, the quasistationary trough which was dominant in the Pacific for the last few months weakened in intensity. Major ridges off both coasts of the North American continent weakened considerably during the second week of the month, but strengthen-

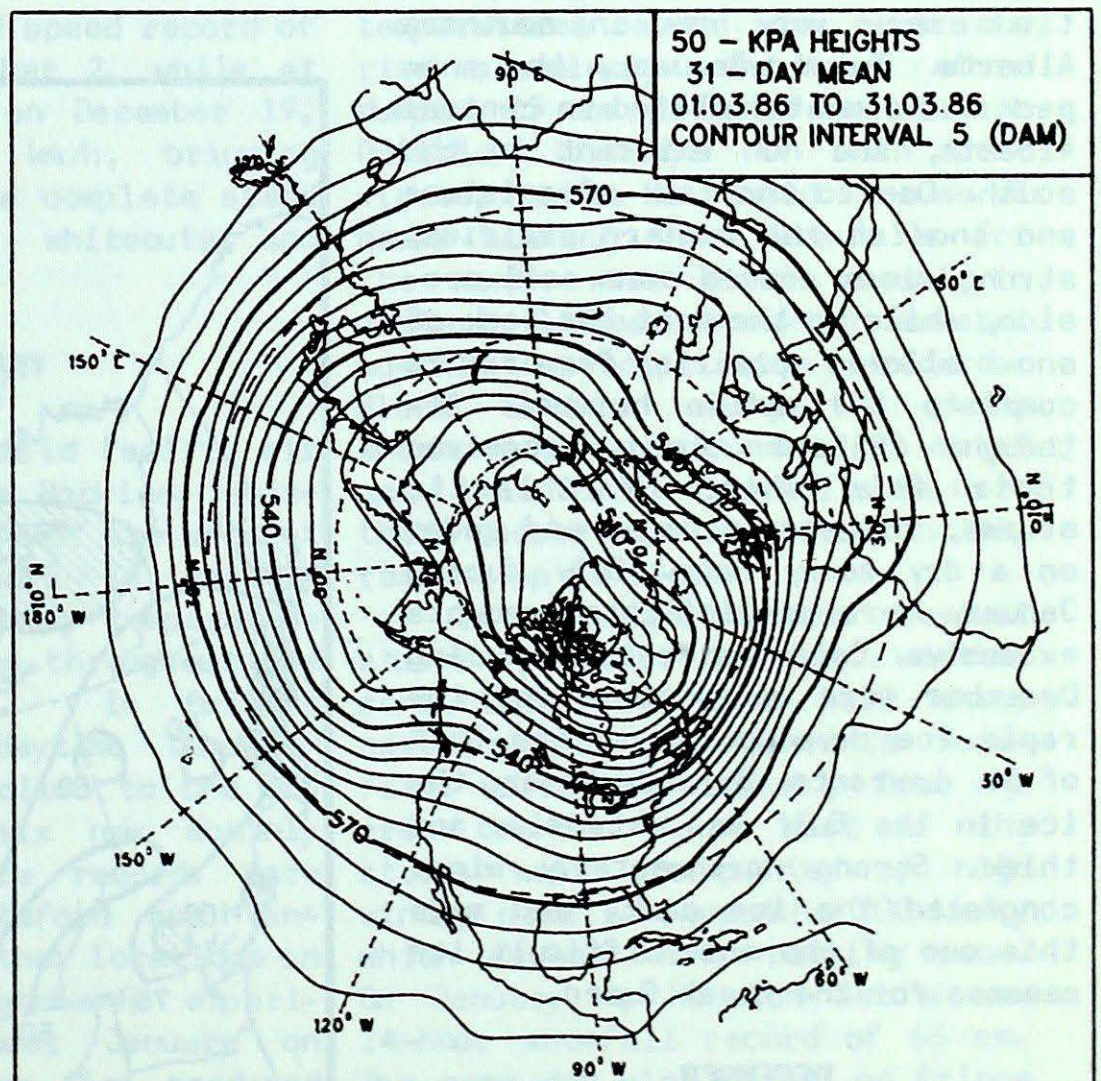
ed considerably thereafter. During the period that the ridges weakened, a trough over eastern Canada intensified significantly. Overall there has been decrease in heights over northeastern Canada while an anticyclonic pattern intensified over the American southwest. The mean temperature anomaly field at the surface was in good agreement with the height anomaly pattern at 50 kPa.

ATMOSPHERIC CIRCULATION

Time-longitude Hovmöller diagrams of 50 kPa heights
at latitudes 45°N and 65°N



Mean 50 kPa height anomaly (dam)
March 1986



Mean 50 kPa heights (dam)
March 1986

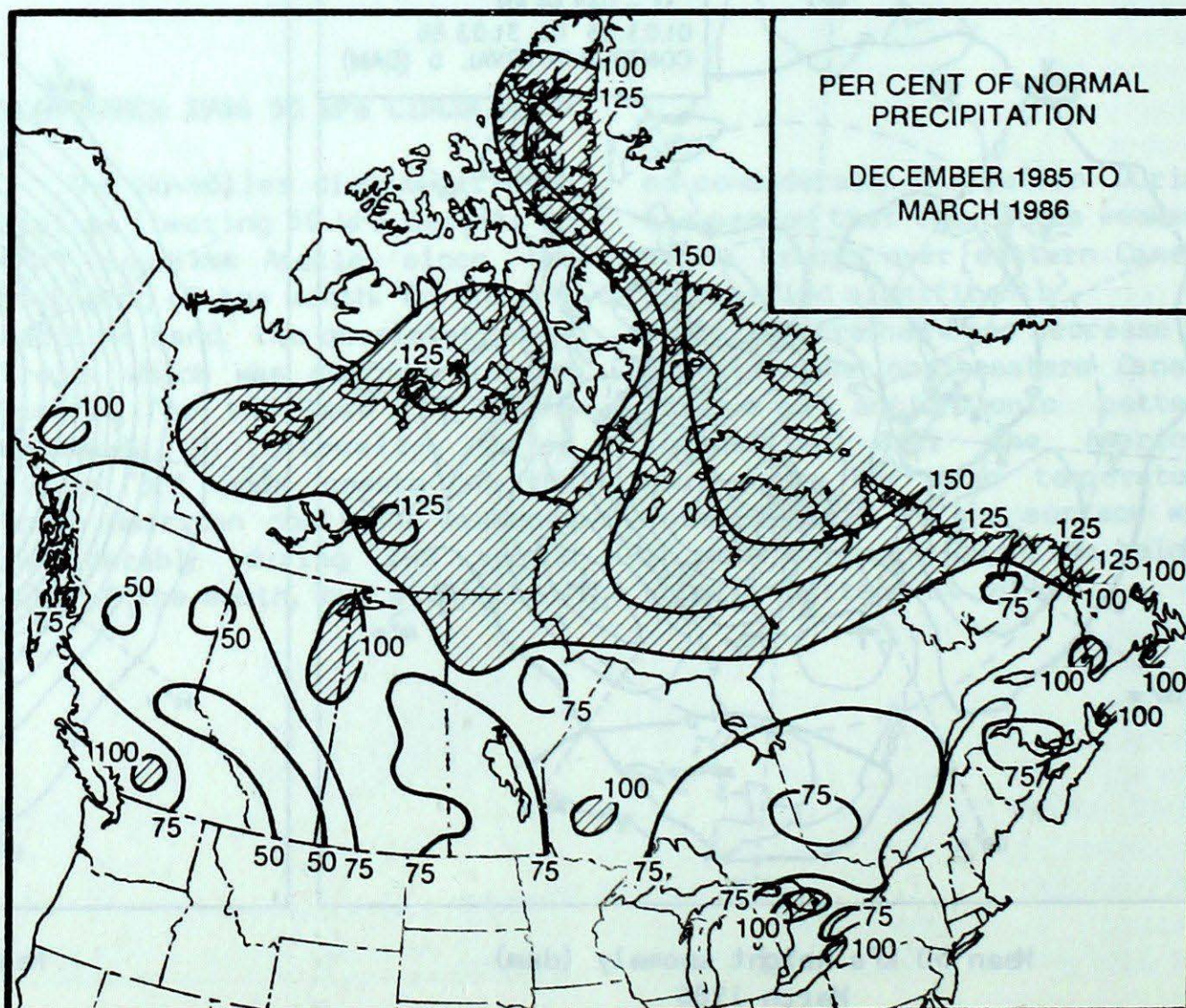
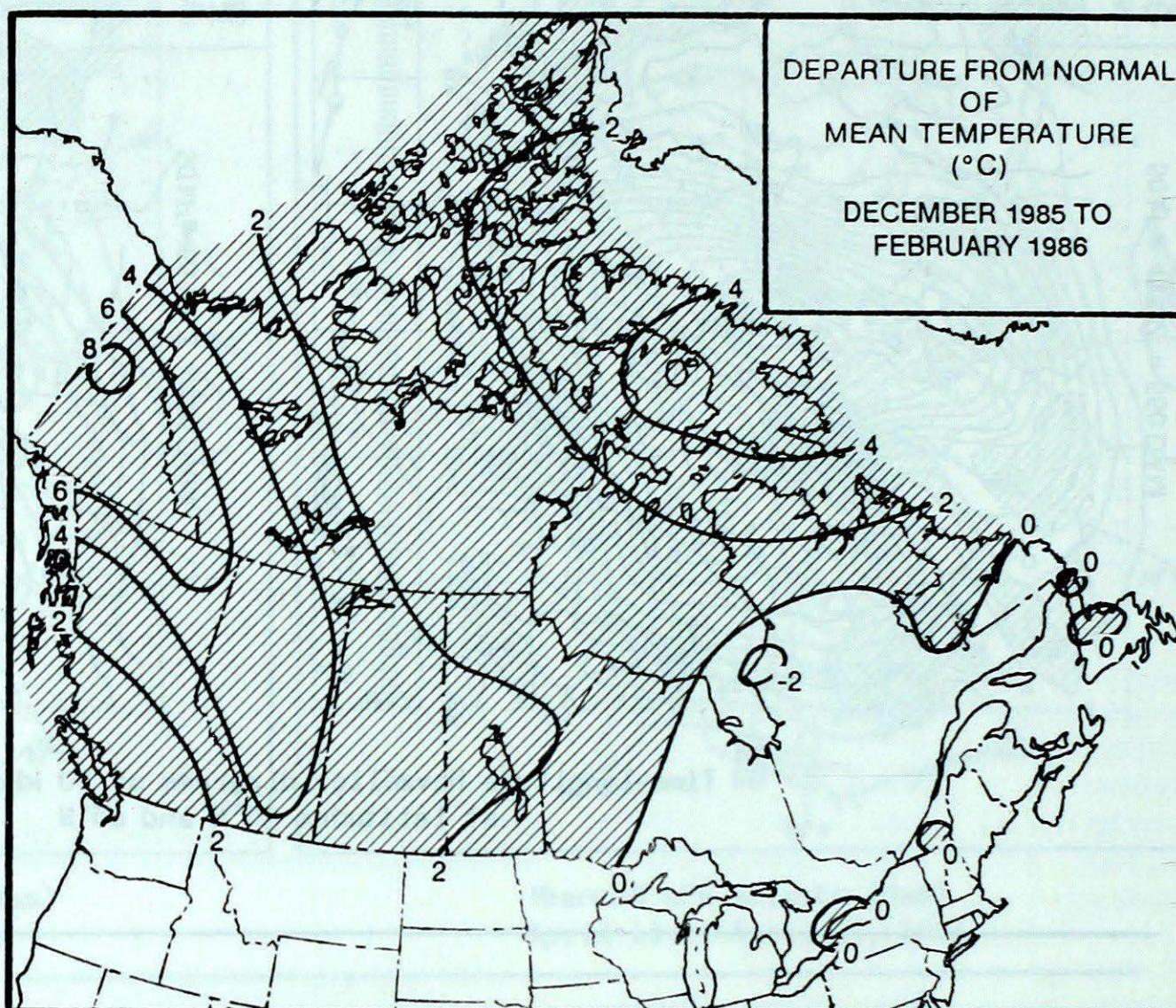
WINTER OF 1985-86 - A REVIEW

by
A.K. Radomski

Mean temperatures were consistently above normal in the Yukon, Northwest Territories and extreme northern Québec for each of the three months of the winter period. The reverse was true in northern Ontario and central Québec. In the Prairies, where temperatures over the season have averaged well above normal, only February was a relatively cold month. The month of January at many locations in British Columbia and the Prairies was the warmest ever encountered. Weather systems crossing the Great Lakes, and moving up the St. Lawrence Valley gave typically changeable conditions for this time of year. Heaviest snowfalls occurred to the lee of the Great Lakes in December, and in the Gulf of St. Lawrence in January. Overall, snowfalls were above normal across Canada's north, especially in northern Québec and Baffin Island, where in some areas falls were almost double the normal. Except for the month of February, conditions were very dry in southern Alberta. By mid-January, the snow pack was almost depleted in central Alberta, and non-existent in the south. Due to the lack of moisture and snow on the western prairies, strong winds caused some soil erosion, while to the east the lack of snow allowed prairie farmers to complete the autumn harvest. Although eastern Canada received their fair share of Atlantic storms, the season began and ended on a dry sunny note. Only during January were precipitation amounts excessive. Cold temperatures during December were responsible for the rapid ice development in the Gulf of St. Lawrence. By mid-winter, the ice in the Gulf was extensive and thick. Strong northwesterly winds congested the ice pack, and made this one of the more difficult ice seasons for the Coast Guard.

DECEMBER

The record cold weather which covered western Canada during



November slowly retreated eastwards, and was replaced by a much milder airmass. Weather systems affected the west coast regularly during the first half of the month, with cloudy skies, but only light precipitation amounts. After the middle of the month, a strong atmospheric ridge of high pressure built northwards across western Canada. A southerly flow allowed very mild air from the American south to flood northwards, overrunning the cold air trapped in the valleys of British Columbia. Thick fog developed during the Christmas period as a result of the strong inversion, disrupting all forms of transportation. Many new temperature records were broken in northern B.C. and the Yukon, but the warm weather was also accompanied by freezing rain. Even though temperatures were above normal, by mid-month all lakes and rivers were frozen across Canada's north. Blowing snow and blizzards were a common occurrence in the central and eastern Arctic.

In Alberta, where skies were predominantly sunny, temperatures soared into the teens during the holiday period, breaking many records. It took longer for the mild weather to reach the eastern prairies, but eventually temperatures did manage to climb above freezing. With a few exceptions, snowfalls were below normal, and in Alberta and Saskatchewan, agricultural districts lost most of their snowcover.

On December 1 and 2, a fierce storm tracking out of the American mid-west hit Ontario, with heavy rains in the south, snow in the north, and gale force winds. Southwesterly winds reaching speeds of 100 km/h forced the lake level in the eastern end of Lake Erie to rise two metres. Waves pounding the shore line caused extensive flooding, destroying houses and cottages near the lake front. Damage estimates from this one storm alone exceeded \$15 million. The storm moved into Québec, and on December 3 and 4 gale force winds to 100 km/h swept the province. The winds forced a barge on the St. Lawrence River aground, spilling fuel oil in the river. By the middle of the month, an Arctic airmass encompass-

ed most of eastern Canada. The cold outbreak triggered heavy snow squall activity to the lee of the Great Lakes. To the delight of ski resort operators in the snowbelt, snow fell each day from December 13, right through the holiday period. In the Muskokas and near the shores of Georgian Bay, some localities had received more than 300 cm of fresh snow by month's end. Several new snowfall records were established by the end of December, with amounts ranging between 100 and 200 centimetres.

Weather disturbances tracking across Québec, after the middle of the month, gave substantial snowfalls to the south. During the month, the Laurentians received almost 100 cm of snow, while in the north falls of 50 cm were above normal.

Cold but frequently sunny weather was encountered in the Maritimes, while cloud plagued Newfoundland. Several locations received record amounts of sunshine, while total precipitation in some cases was the lowest in three decades. Storms gave heavy snow to Cape Breton Island and Labrador. Strong winds were common throughout Atlantic Canada, causing blowing and drifting snow. Moncton establishes a new wind speed record of 126 km/h on December 2, while at Port-aux-Basques, on December 19, winds hit a 157 km/h, bringing transportation to a complete standstill because of whiteouts and drifts.

JANUARY

Unseasonably mild Pacific air flooded across the Rockies, establishing this as one of the warmest January's on record in western Canada. Numerous daily temperature records were broken throughout the western provinces. In British Columbia, where daytime temperatures managed to climb to the mid to high teens, six new monthly maximum temperature records were established. Abbotsford and Vancouver, and many other locations in Alberta and Saskatchewan experienced their warmest January on record. An on-shore flow produced cloudy skies and heavy rainfalls along the west coast; some loca-

tions received twice their normal precipitation. McInnes Island set a new January record of 395 mm. Cold air trapped in the mountain valleys of the Yukon caused the formation of low stratus and fog. The unseasonably mild weather in the Prairies virtually depleted the protective snowcover in the southwest, resulting in winds blowing valuable top soil away. In some areas dust reduced visibilities significantly.

The weather in the Great Lakes region was uneventful with temperatures moderating somewhat, especially in the northwest. Heavy snowfalls in Ontario were rare, but passing weather systems caused fluctuating temperatures in Ontario and Québec. Occasional Arctic outbreaks triggered snow squall activity to the lee of the Great Lakes. By the end of the month, some communities in the snowbelt had accumulated several metres of snow. In contrast, falls in the southwest were well below normal.

Heavy snow from several east coast storms fell in Québec. On January 27, the worst snow storm of the season dumped between 30 and 50 centimetres of snow along the St. Lawrence Valley. In the Eastern Townships, heavy rain and mild temperatures caused some rivers to rise alarmingly. The same storm dumped 25 cm of snow on eastern Ontario. Highways in both provinces, had to be closed because of heavy blowing snow. Snowfalls for the month were above normal in eastern Québec, breaking several monthly precipitation records. Blanc Sablon, along the north shore, was buried under 182 cm of snow this month. Snowfalls in northern Québec were also substantial, ranging up to 75 cm.

In Atlantic Canada several storms produced wintry weather conditions, and gave well above normal precipitation amounts. Snowfalls varied considerably from one area to the next. Most of the storms were accompanied by high winds, usually exceeding 100 km/h, which caused heavy blowing snow. On January 4, Moncton set a new 24-hour snowfall record of 66 cm. The same day wind speeds on Prince Edward Island reached 160 km/h, causing whiteouts. On January 14,

Winter Review ... cont'd

winds were clocked gusting to 148 km/h at Daniel's Harbour, Nfld. On January 20, heavy rains in excess of 40 mm fell on Nova Scotia, while southern Newfoundland was inundated with a record 75 mm of rain in a 24-hour period. There was heavy flooding along the Salmon River in central Nova Scotia. Blizzards occurred frequently in Labrador, and by month's end snow depths were nearly 200 cm. Total snowfall at St. Anthony, Nfld. was 161 cm.

Temperatures fluctuated during the month and both daily and monthly records were broken. There were several mild spells, but warmest temperature readings occurred towards the end of the month, climbing into the double digits.

On January 27 and 28, new monthly high temperature records were established in Prince Edward Island, Nova Scotia and Newfoundland. Ice conditions in the Gulf of St. Lawrence were severe. Persistent northwesterly winds pushed heavy pack ice through the Cabot Strait, and many ships were unable to make headway through the ice. Along the east coast of Newfoundland, ice conditions were not too unusual. Ice developed later than in the previous two years and ships and ferries required only occasional assistance navigating along the coast.

FEBRUARY

During the month temperatures moderated sharply in the Arctic, while cold Arctic air invaded western Canada. Many daily high temperature records were broken in the north, but at the same time, blizzards and blowing snow were quite common, with winds frequently gusting to 100 km/h. Watson Lake in the Yukon, established a new all-time high monthly maximum temperature of 9.4°C on February 23. In British Columbia, Pacific weather systems affected the province, giving periods of heavy precipitation throughout southern British Columbia and Alberta. Temperatures

fluctuated markedly during the month as Arctic and Pacific air-masses vied for supremacy. Heavy snowfalls, blizzards and whiteouts occurred in the interior. The Trans Canada Highway was closed on a number of occasions. At Vancouver Harbour a new monthly low temperature record was set, -6.7°C. One week later at Vancouver, the mercury climbed to 18.4°C, setting a new monthly high temperature record. At Victoria Gonzales, 17.4°C was the warmest February temperature since 1898. The warm weather, during the final week of the month triggered many avalanches, and caused considerable flooding on the lower mainland.

Record cold and snowy weather hit the western prairies during the middle of the month. The Pincher Creek area of Alberta received more than 70 cm of snow, between February 15 and 18. It was a very dry month in central Saskatchewan; The Pas, Manitoba, received only 2.8 mm of precipitation. It became very warm and windy the final week of the month. In southern Alberta 54 cm of snow on the ground disappeared in less than one week. The heavy runoff caused flash flooding in low lying areas, as many streams overflowed their banks. By the end of the month most of the snow had disappeared in the agricultural districts, which once again gave rise to increased incidents of blowing dust. Except in southern Manitoba, where it was one of the cloudiest months on record, sunshine was abundant in western Canada.

In northwestern and southwestern Ontario snowfalls were heavier than normal. Windsor received 67 cm of snow, almost three times their normal. Two major snowstorms crossed southern Ontario, each leaving behind 15 to 20 cm of snow. Widespread fog and freezing precipitation, which eventually made its way into southern Québec, covered a large portion of Ontario after mid-month, disrupting most forms of transportation.

Relatively fine, but cold weather prevailed in Québec during

the first part of the month, especially during the week-long Québec Winter Carnival. Gaspé set a new low monthly precipitation record of 15.4 mm, less than half the amount of the previously established record. Total snowfall of 21.6 cm at Gaspé was also a new low monthly record. Elsewhere across the province snowfalls generally exceeded 40 cm, and ranged as high as 72 cm at Blanc Sablon.

In the Maritimes, it was the sunniest February since 1972, but snowfalls were substantial in most areas, including Newfoundland. Sydney, Nova Scotia, received 152 cm of snow, more than double their normal, while Greenwood recorded their heaviest snowfall, 99 cm, since 1972. Snowfalls on the Burin Peninsula in Newfoundland exceeded 100 cm, and were more than twice the normal. On February 22 and 23, Cape Breton was paralyzed by the largest two-day snowfall, 75 cm, since records began in 1870. St. John's, Newfoundland, received more than 100 mm of rain, and even experienced a thunderstorm earlier in the month. Once again strong winds buffeted the East Coast, with winds frequently accelerating to near 100 km/h, causing blowing snow and whiteouts. At Twillingate, Newfoundland on February 16, winds peaked at 145 km/h in a snow storm, which dumped 45 cm of snow on parts of Newfoundland, while at the same time heavy rains caused flooding on the Avalon Peninsula. Below normal temperatures and the strong winds resulted in one of the worst ice situations in years on the Gulf of St. Lawrence. Four Canadian ice breakers were kept continuously busy trying to keep the shipping routes open through the heavy pack ice, which was congesting in Cabot Strait. Off the east coast of Newfoundland, the Labrador ice pack had extended itself further south than usual, and forced drilling rigs to leave the Hibernia oil fields. Along the coast an open water lead allowed ships to sail as far north as Bonavista without assistance.

WATER SUPPLY OUTLOOK FOR SOUTHERN AND CENTRAL ALBERTA

prepared by
The River Forecast Centre
Alberta Environment

SUMMARY

As of March 1, the water supply outlook for southern and central Alberta for the summer of 1986 ranges from slightly below average streamflow volume for the Oldman and Milk River basins to average volume for the Bow and North Saskatchewan River basins and slightly above average volume for the Red Deer River basin.

WEATHER CONDITIONS DURING THE AUTUMN OF 1985

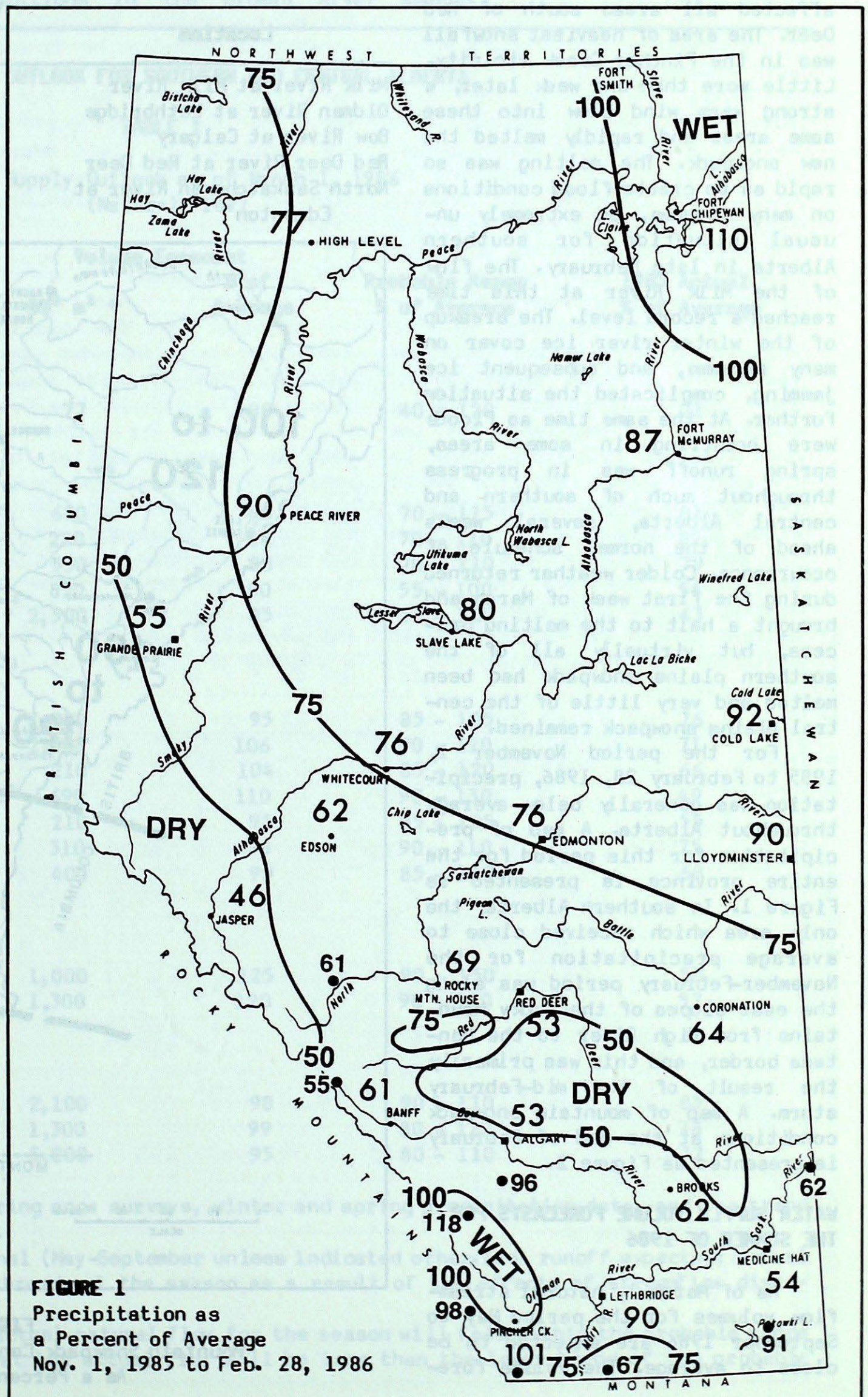
The autumn of 1985 was extremely wet throughout most of southern and central Alberta. Some areas received three times as much precipitation during September and October as would normally be expected.

In mid-September, a major storm centred near Calgary created extraordinarily high streamflow conditions for the time of year throughout the Bow and Oldman River basins. The high flow conditions were of great benefit in replenishing storage in some of the irrigation reservoirs in the Oldman basin.

Much of the precipitation during this period fell as snow. The mountain snowpack accumulation for 1985/86 was generally above average at the end of October.

WEATHER CONDITIONS DURING THE WINTER OF 1985/86

The weather turned extremely cold in early November. This month was one of the coldest on record for many locations. The arrival of the cold coincided with the beginning of a dry trend, which persisted until mid-February. In mid-December, the weather pattern shifted from cold and dry to warm and dry. The month of January was extremely mild, one of the warmest Januarys on record for most locations. By the end of January, very



FEATURE

little snow remained in the plains areas of southern Alberta, and the plains snowpack in central Alberta had also been largely depleted by the warm weather.

In the middle of February, winter returned in dramatic fashion with a major snowstorm, which affected all areas south of Red Deer. The area of heaviest snowfall was in the Pincher Creek vicinity. Little more than one week later, a strong warm wind blew into these same areas and rapidly melted the new snowpack. The melting was so rapid as to create flood conditions on many streams, an extremely unusual situation for southern Alberta in late February. The flow of the Milk River at this time reached a record level. The breakup of the winter river ice cover on many streams, and subsequent ice jamming, complicated the situation further. At the same time as floods were occurring in some areas, spring runoff was in progress throughout much of southern and central Alberta, several weeks ahead of the normal schedule of occurrence. Colder weather returned during the first week of March and brought a halt to the melting process, but virtually all of the southern plains snowpack had been melted and very little of the central plains snowpack remained.

For the period November 1, 1985 to February 28, 1986, precipitation was generally below average throughout Alberta. A map of precipitation for this period for the entire province is presented as Figure 1. In southern Alberta, the only area which received close to average precipitation for the November-February period was along the east slopes of the Rocky Mountains from High River to the Montana border, and this was primarily the result of the mid-February storm. A map of mountain snowpack conditions at the end of February is presented as Figure 2.

WATER SUPPLY VOLUME FORECASTS FOR THE SUMMER OF 1986

As of March 1, natural streamflow volumes for the period May to September 1986 are expected to be close to average. The volume fore-

casts as a percent of average for various key locations are presented in the table above. The 1985 actual volume figures are also provided

for comparison. Spring and summer precipitation will greatly affect the summer water supply in southern and cen-

Location	May to September 1986 Natural Streamflow Volume Forecast % of average	Actual Natural Streamflow Volume May-September 1985 % of average
Milk River at Milk River	80	21
Oldman River at Lethbridge	85	63
Bow River at Calgary	106	71
Red Deer River at Red Deer	120	57
North Saskatchewan River at Edmonton	95	72

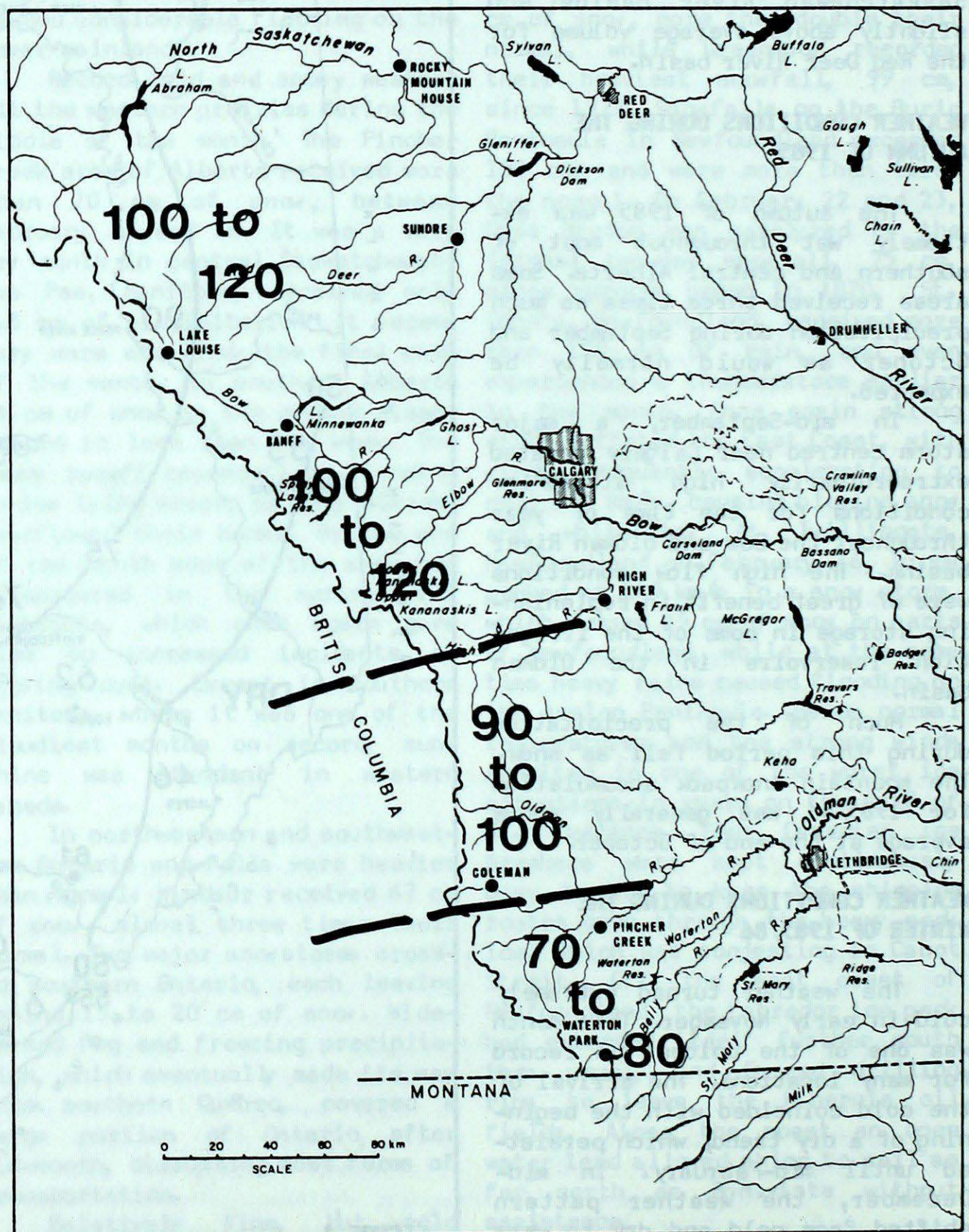


FIGURE 2
Mountain Snowpack Conditions - March 1, 1986
As a Percent of Average

FEATURE

tral Alberta. Accordingly, the streamflow volume forecasts will be updated monthly until mid-summer.

A detailed account of the streamflow volume forecasts for the summer of 1986 for the major streams of southern and central Alberta is presented as Table 1.

WATER STORAGE SITUATION

As of March 1, almost all of the major storage facilities were at normal levels for the time of year. The wet weather of last autumn did much to improve storage conditions in the Oldman River

Basin. The Eastern Irrigation District intends to begin its diversion from the Bow River at the Bassano Dam in mid-April to bring Lake Newell and the Crawling Valley Reservoir up to normal operating levels prior to the irrigation season.

WATER SUPPLY OUTLOOK FOR SOUTHERN AND CENTRAL ALBERTA

TABLE 1

Water Supply Outlook as of March 1, 1986
(Natural Flow)

	Volume Forecast 10 ⁶ m ³ *	% of Average	Probable Range % of Average	1985 Actual % of Average
Milk River Basin				
Milk River (April-September)	77	80	40 - 120	21
Oldman River Basin				
St. Mary River	690	95	70 - 115	81
Belly River	220	88	70 - 110	82
Waterton River	550	88	70 - 110	79
Oldman River near Brocket	890	80	55 - 100	54
Oldman River near Lethbridge	2,500	85	55 - 100	63
Bow River Basin				
Bow River at Banff	1,000	95	85 - 105	76
Bow River at Calgary	2,400	106	90 - 120	71
Elbow River	210	104	85 - 120	66
Highwood River	690	110	90 - 130	49
Lake Minnewanka Inflow	210	95	85 - 105	55
Spray Lake Inflow	310	98	90 - 110	75
Kananaskis River	400	99	85 - 110	68
Red Deer River Basin				
Gleniffer Lake Inflow	1,000	125	90 - 150	50
Red Deer River at Red Deer	1,300	120	90 - 150	57
North Saskatchewan River Basin				
Lake Abraham Inflow	2,100	98	90 - 110	83
Brazeau Reservoir Inflow	1,300	99	80 - 120	78
N. Saskatchewan R. at Edmonton	5,200	95	80 - 110	72

NOTES: Volume forecasts are based on spring snow surveys, winter and spring precipitation data, and the trend of natural flow in recent months.

Forecasts indicate natural seasonal (May-September unless indicated otherwise) runoff expected; actual streamflow conditions may vary throughout the season as a result of the effects of streamflow diversion and reservoir storage.

There is a 50% chance that the actual natural flow for the season will fall within the probable range given; there is a 25% chance that the actual flow will be less than the lower bound of the probably range given.

* 10⁶ m³ = 1,000 dam³ = 811 acre-feet = 409 cfs-days

ICE CONDITIONS IN CANADIAN WATERS

by
A.K. Radomski

GREAT LAKES

Because of the unseasonably warm weather during the latter part of March, the ice on the lakes decayed and melted rapidly. The Welland Canal and the Seaway opened on schedule at the beginning of April. The powerful ice breaker Pierre Radisson was called in from the East Coast in March, and stationed in Lake Erie for two weeks in anticipation of heavy ice conditions near the entrance of the Welland Canal. Unlike previous years, no problems materialized, and very little ice breaking assistance was required. The ice pack remained relatively loose in the eastern end of Lake Erie due to the lack of adverse southwesterly winds, and ships were able to reach the entrance of the canal without assistance. The ice has since drifted south and east of the Welland Canal. Ice still congests Whitefish Bay at the eastern end of

Lake Superior, but is not causing any major problems; an American ice breaker is standing by to assist, if necessary. Ice is still present in northern Georgian Bay, but elsewhere on the lakes very little ice remains. The Coast Guard has already commissioned most of the aids to navigation needed for the 1986 shipping season.

GULF OF ST. LAWRENCE

In the last few weeks, ice conditions have improved significantly, after a winter season of severe difficulty in the Gulf of St. Lawrence. The pattern last year was somewhat similar to this year's, but not quite as heavy. In comparison to the last five years, this year's ice season in the Gulf has been worse than average, but is also more reminiscent of the winter ice conditions experienced during the seventies. Currently, there is a residue of ice drifting loosely

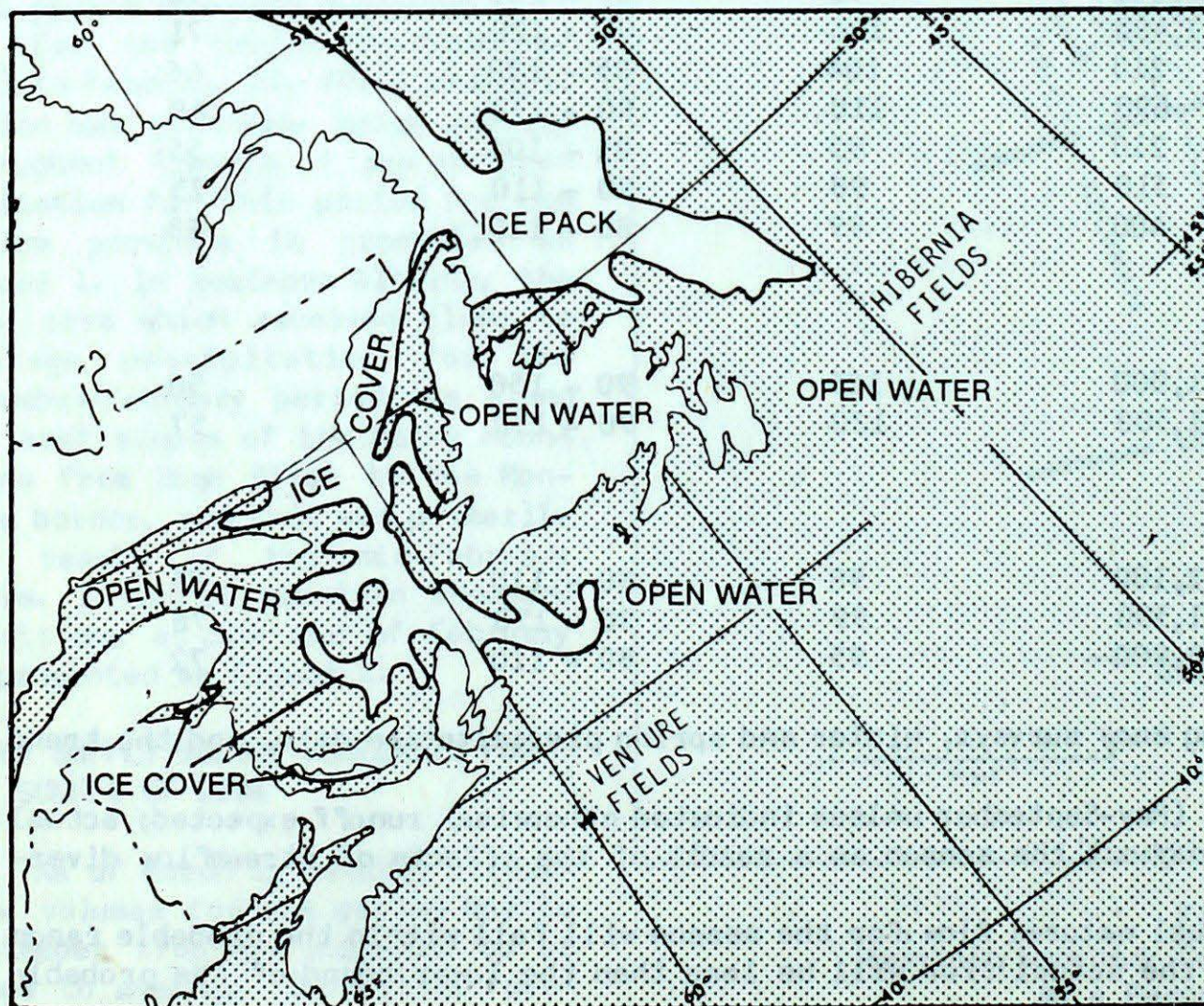
in the central portions of the Gulf. The ice is very mobile, and any shift in wind direction could quickly move the ice once again against the shore line. An area of heavy ice along the Québec shore of the northeastern arm of the Gulf is still impregnable to shipping and the Coast Guard has had great difficulty or has had to abort any attempts to lead ships through to port. Canadian Coast Guard ships are currently engaged in breaking up harbours along the southern portions of the Gulf and along the west Newfoundland coast.

EAST COAST

The ice pack did not pose any unusual problems this past month, as it remained well offshore. The pack is already well in the process of retreating northwards to its source region. Conditions are considerably better than they were last year at this time, with a good lead of open water extending all along the northeast coast of the island. Several inbound vessels navigating through the ice did require the usual ice breaker assistance. The ocean drilling rigs returned to the Hibernia oil fields by mid-March, after being idle for just a few weeks, because of the threatening ice conditions. Currently, the Coast Guard is in the process of breaking open harbours along the northeast coast of Newfoundland in time for the Lobster season, which begins on April 20.

At this time last year, harbour breakup was not even attempted this early in the season, since the coastline was still congested with ice.

We acknowledge the help and information provided by the Canadian Coast Guard this ice season, and wish to thank in particular Capt. P. Whitehead, Capt. A. Rowsell and R. Charrier.



STATION	Temperature C				Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C
	Mean	Difference from Normal	Maximum	Minimum									
BRITISH COLUMBIA													
ABBOTSFORD	8.4	2.8	19.7	-0.5	0.0		185.2	132	0	19	105	93	294.8
ALERT BAY	7.2	2.0	13.2	1.0	0.0		168.4	137	0		X		332.7
AMPHITRITE POINT	8.3	2.1	14.7	2.7	0.0		474.3	138	0	26	X		299.4
BLUE RIVER	2.8	4.3	13.6	-9.0	9.8	26	90.8	163	13	15	96	99	MSG
BULL HARBOUR	7.4	2.5	17.3	-0.6	1.2	11	167.3	100	0	22	X		329.5
CAPE SCOTT	7.6	2.2	14.1	3.1	0.0		260.8	111	0	28	X		323.4
CAPE ST. JAMES	6.6	1.7	11.2	3.2	0.0		143.0	109	0	28	77	*	351.7
CASTLEGAR	5.9	3.2	17.8	-4.3	1.0	3	48.0	82	0	8	115	93	374.4
COMOX	7.0	2.0	15.8	-1.2	0.0		95.7	85	0	14	X		342.1
CRANBROOK	4.9	4.8	17.3	-4.8			10.8	64	0	4	156	*	301.3
DEASE LAKE	-3.3	4.1	9.4	-18.7	42.3	159	37.7	169	49	11	103	77	670.7
ETHELDA BAY	8.8	4.6	13.6	-1.8	3.5	18	375.4	133	0	27	X		357.1
FORT NELSON	-7.7	2.1	12.6	-23.9	23.0	78	14.9	61	14	6	153	*	795.7
FORT ST. JOHN	-1.6	5.0	9.9	-17.5	27.8	85	22.6	76	0	5	X		608.1
HOPE	8.3	2.7	19.1	-0.5	0.0		243.9	165	0	21	85	84	302.0
KAMLOOPS	6.7	3.2	20.4	-3.3	0.0		3.9	40	0	1	130	89	349.7
KELOWNA	5.7	3.4	20.3	-4.7	0.0		24.4	131	0	7	128	95	382.1
LANGARA	6.0	2.2	10.5	1.5	2.0	11	200.2	151	0	27	X		372.1
LYTTON	8.0	2.9	18.0	-2.0	0.0		28.7	100	0	7	133	91	309.9
MACKENZIE	0.8	5.5	11.2	-13.2	38.8	91	39.2	73	8	9	122	97	579.1
MCINNES ISLAND	7.2	2.2	12.8	3.1			240.7	109	0	27	X		334.4
PENTICTON	6.7	2.8	18.1	-3.6	0.0		14.8	85	0	4	128	91	350.5
PORT ALBERNI	7.3	*	15.3	-1.7	0.0	*	294.6	*	0	23	78	*	330.7
PORT HARDY	7.0	2.6	15.6	-0.5	0.0		170.4	120	0	21	91	89	326.6
PRINCE GEORGE	2.9	4.7	12.2	-8.0	14.5	48	57.3	155	0	9	129	93	467.8
PRINCE RUPERT	6.4	3.4	15.4	-1.8			172.9	86	0	24	47	50	357.7
PRINCETON	4.2	3.2	19.2	-6.1	3.4	25	11.6	61	0	4	129	*	MSG
QUESNEL	4.2	4.6	15.6	-4.7	0.6	3	15.5	52	0	6	X		429.1
REVELSTOKE	3.1	2.4	11.0	-5.5	3.2	10	79.8	90	8	12	87	85	463.4
SANDSPIT	5.9	2.0	12.8	-0.7	0.0		123.5	123	0	24	70	57	185.8
SMITHERS	3.0	4.3	16.0	-5.3	24.9	111	29.5	115	0	8	106	86	464.8
TERRACE	4.5	3.0	12.9	-1.0	9.6	21	112.1	134	0	17	71	65	419.2
VANCOUVER HARBOUR	8.5	2.4	18.1	1.3	0.0		154.1	100	0	16	X		297.3
VANCOUVER INT'L	7.8	2.0	17.2	-0.2	0.0		111.5	110	0	14	101	78	314.4
VICTORIA GONZ. HTS	8.7	2.0	15.0	3.2	0.0		40.5	86	0	13	116	76	289.3
VICTORIA INT'L	7.6	1.9	15.5	0.1	0.0		56.0	78	0	15	102	70	323.4
VICTORIA MARINE	7.9	2.0	16.0	1.5	0.0		80.5	70	0	17	X		293.7
WILLIAMS LAKE	3.7	4.7	14.2	-5.8	1.7	7	4.7	20	0	1	111	68	442.3

STATION	Temperature C				Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C
	Mean	Difference from Normal	Maximum	Minimum									
YUKON TERRITORY													
BURWASH	-15.0	-2.2	4.2	-36.7	17.2	119	11.1	70	10	4	X		1021.4
DAWSON	-14.3	0.6	3.8	-38.3	6.6	54	3.2	30	30	1	X		1001.8
MAYO	-10.0	1.7	6.0	-37.2	26.8	248	14.5	140	28	4	X		872.6
WATSON LAKE	-8.4	2.9	6.6	-28.9	43.5	155	30.1	129	35	8	126	93	819.3
WHITEHORSE	-7.3	0.9	5.8	-26.6	62.2	379	43.9	325	38	8	127	82	784.6
NORTHWEST TERRITORIES													
ALERT	-36.2	-3.0	-22.5	-45.2	7.6	106	5.7	84	22	2	65	97	1682.0
BAKER LAKE	-27.9	0.0	-12.3	-38.2	6.4	77	5.2	68	37	2	175	92	1422.2
CAMBRIDGE BAY	-30.3	1.0	-10.8	-39.4	4.8	88	4.8	102	19	2	189	102	1497.7
CAPE DYER	-25.7	-2.8	-6.0	-38.9	92.6	270	46.0	156	170	3	X		1355.1
CAPE PARRY	-28.7	-1.1	-17.9	-37.7	2.8	26	2.0	32	11	0	X		1449.3
CLYDE	-30.4	-4.0	-15.5	-44.6	4.2	70	2.8	46	32	1	*		1500.5
COPPERMINE	-27.7	-0.6	-15.7	-38.4	10.0	96	9.8	100	22	3	201	123	1417.0
CORAL HARBOUR	-27.7	-2.5	-10.1	-42.1	12.9	119	12.9	119	26	4	214	107	1410.3
EUREKA	-41.9	-4.5	-28.0	-50.3	2.2	91	1.8	81	21	1	156	132	1854.7
FORT RELIANCE	-20.8	1.1	-3.2	-39.2	23.8	191	14.7	142	53	6	X		1202.1
FORT SIMPSON	-15.2	-0.3	2.2	-34.4	51.5	242	44.7	205	56	10	157	97	1031.3
FORT SMITH	-12.4	2.4	10.0	-34.1	32.3	203	23.0	159	28	6	136	76	945.7
FROBISHER BAY	-26.1	-3.4	-1.1	-38.4	9.0	35	8.3	35	20	3	160	90	1362.6
HALL BEACH	-31.5	-2.0	-14.2	-48.4	3.8	30	3.8	32	27	1	X		1535.2
HAY RIVER	-15.6	0.7	7.4	-31.8	42.5	221	39.0	213	61	6	X		1041.2
INUVIK	-26.2	-1.2	-9.8	-41.2	5.4	36	5.0	41	39	2	185	106	1369.9
MOULD BAY	-33.4	-0.6	-15.9	-43.0	3.0	100	2.6	108	30	1	112	102	1594.1
NORMAN WELLS	-20.1	-0.3	-5.5	-32.8	17.1	125	13.1	101	25	7	165	97	1180.7
POND INLET	-32.6	-2.5	-16.8	-45.0	12.6	114	8.6	110	18	4	X		1569.1
RESOLUTE	-34.1	-2.7	-15.9	-46.6	11.2	361	10.4	346	31	4	134	91	1613.6
SACHS HARBOUR	-30.1	-1.7	-18.7	-40.1	4.2	127	4.2	140	11	1	182	109	1491.9
YELLOWKNIFE	-17.9	1.0	-1.4	-34.8	23.8	165	18.8	151	40	6	139	70	1106.7
ALBERTA													
BANFF	2.5	5.9	14.0	-8.5	13.2	53	21.8	104	0	7	X		
BROOKS	3.4	8.0	21.5	-12.5	10.5	64	11.5	70	0		146	*	
CALGARY INT'L	2.9	6.9	19.3	-11.6	7.8	39	5.8	36	0	1	175	107	468.5
COLD LAKE	-1.5	6.1	13.9	-20.8	20.9	99	19.0	94		3	159	92	603.3
CORONATION	1.1	8.2	19.1	-16.4	30.1	128	31.9	154	0	8	153	83	524.3
EDMONTON INT'L	1.0	7.7	15.3	-15.4	21.9	117	22.4	140	0	8	149	86	528.1
EDMONTON MUNI.	1.7	6.7	15.1	-14.0	31.1	166	37.7	203		8	154	91	506.3
EDMONTON NAMAQ	0.8	6.4	13.9	-15.0	25.4	146	26.2	145	0	7	X		532.8
EDSON	0.3	6.5	15.0	-14.7	36.0	110	38.0	163	0	5	141	91	548.9
FORT CHIPEWYAN	-10.3	3.8	9.0	-36.5	22.4	135	23.0	149	33		X		

X = Not observed * = normal missing MSG = data missing

MARCH 1986

STATION	Temperature C				Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C
	Mean	Difference from Normal	Maximum	Minimum									
FORT MCMURRAY	-3.3	5.9	13.4	-25.6	9.0	37	7.6	36	0	4	173	104	655.0
GRANDE PRAIRIE	-1.9	5.3	10.7	-20.2	45.4	196	33.3	160	5	5	148	*	620.8
HIGH LEVEL	-9.0	2.8	10.9	-33.6	16.3	77	14.1	87	20	7	154	88	843.1
JASPER	2.3	5.0	14.4	-11.5	14.4	97	43.8	273	0	9	135	*	487.3
LETHBRIDGE	5.0	7.1	22.3	-9.7	18.9	71	20.9	86	0	3	148	113	401.4
MEDICINE HAT	4.4	7.2	22.9	-11.7	25.1	137	27.0	145	0	4	175	107	421.1
PEACE RIVER	-3.2	5.3	8.8	-18.1	26.2	127	26.2	152	3	5	X		656.2
RED DEER	1.3	7.5	19.2	-13.4	22.8	112	25.0	128	0	5	X		516.6
ROCKY MTN HOUSE	0.6	5.2	17.0	-14.5	17.2	57	17.4	65	0	5	X		538.6
SLAVE LAKE	-0.5	6.4	13.5	-16.0	31.4	113	24.4	115	0	6	162	96	574.7
SUFFIELD													
WHITECOURT	0.3	6.2	13.6	-17.8	51.3	201	52.2	217		9	X		547.9
SASKATCHEWAN													
BROADVIEW	-0.9	7.7	16.2	-20.2	7.0	39	16.3	98	0	5	165	95	584.8
COLLINS BAY	-12.6	3.1	7.9	-32.1	45.8	165	26.1	113	35	7	138	*	952.3
CREE LAKE	-9.4	4.2	8.6	-34.6	10.1	47	7.2	46	19	2	147	82	849.7
ESTEVAN	2.4	8.3	22.0	-14.1	7.6	43	7.3	37	0	2	151	81	482.9
HUDSON BAY	-4.2	5.5	11.9	-26.6	33.6	99	23.8	83	1	6	145	*	687.1
KINDERSLEY	0.3	6.9	18.6	-15.8	16.8	115	23.4	159	0	6	X		547.9
LA RONGE	-5.3	5.4	15.1	-28.0	23.9	109	16.9	109	0	5	X		721.7
MEADOW LAKE	-2.3	5.3	13.0	-21.5	21.4	118	21.6	110	0	6	136	*	625.8
MOOSE JAW	2.2	7.8	20.6	-14.4	2.2	11	6.4	36	0	3	125	75	486.5
NIPAWIN	-5.9	*	8.8	-26.0	32.2	*	27.0	*	1	6	123	73	739.8
NORTH BATTLEFORD	-1.6	7.0	13.8	-19.3	29.6	141	32.3	156	0	6	X		606.9
PRINCE ALBERT	-3.8	6.5	10.1	-26.2	33.7	171	31.5	164	0	5	106	64	675.1
REGINA	0.9	8.7	18.7	-16.8	7.4	40	8.6	48	0	2	146	93	531.8
SASKATOON	-0.9	7.7	16.8	-19.5	16.7	90	19.0	103	0	5	X		585.6
SWIFT CURRENT	1.9	7.6	19.6	-16.5	11.8	55	13.5	67	0	6	120	76	498.1
URANIUM CITY	-12.8	2.7	7.2	-34.2	50.2	211	38.5	220	65	7	X		956.2
WYNYARD	-1.7	7.1	12.7	-20.6	25.2	101	23.0	92	0	5	149	80	608.8
YORKTON	-3.8	5.8	13.0	-27.2	26.2	100	23.8	91	0	5	138	83	692.1
MANITOBA													
BRANDON	-3.7	5.0	15.1	-28.7	17.8	89	19.7	98	0	3	X		671.2
CHURCHILL	-20.0	0.4	-2.5	-34.4	35.7	191	29.4	162	22	7	156	82	1177.0
DAUPHIN	-3.6	5.5	12.7	-23.7	36.2	148	36.1	147	0	5	133	75	676.3
GILLAM	-15.4	1.8	6.9	-34.1	41.8	133	26.3	89	62	8	X		1034.6
GIMLI	-5.0	4.0	11.5	-28.4	30.8	131	35.8	139	0	5	176	90	712.4
ISLAND LAKE													
LYNN LAKE	-11.9	2.4	10.2	-33.0	17.0	68	14.4	66	5	6	X		925.8
NORWAY HOUSE	-8.5	*	11.6	-29.6	20.8	*	18.6	*	3	7	0	*	820.6

STATION	Temperature C				Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C
	Mean	Difference from Normal	Maximum	Minimum									
PILOT MOUND	-2.3	5.4	15.7	-24.5	10.6	50	14.2	60	0	4	X		617.7
PORTAGE LA PRAIRIE	-3.5	3.9	14.3	-25.5	20.4	116	25.0	91	0	4	X		664.5
THE PAS	-6.6	4.6	14.2	-26.8	35.8	126	36.0	152		9	171	97	757.1
THOMPSON	-11.9	3.0	12.4	-34.3	19.1	65	19.0	65	2	8	142	73	925.8
WINNIPEG INT'L	-4.4	3.8	11.9	-26.7	14.2	67	16.9	74	0	4	189	107	693.3
ONTARIO													
ATIKOKAN	-4.4	3.4	15.0	*	30.2	91	24.2	65	18	10	139	81	693.8
BIG TROUT LAKE	-13.0	1.5	7.7	-33.6	57.6	*	60.3	279	4	12	156	*	970.3
EARLTON	-5.5	2.1	13.4	-27.5	67.3	151	86.5	149	25	13	X		739.4
GERALDTON	-7.9	3.1	13.0	-32.0	19.6	50	24.0	62	35	8	X		803.0
GORE BAY	-3.1	1.2	13.4	-22.6	46.2	148	64.0	156	2	11	X		654.0
HAMILTON RBG	1.9	1.5	23.5	-19.5	12.2	60	65.1	86	0	8	158	*	538.8
HAMILTON	0.7	1.5	22.4	-20.0	12.8	63	57.5	81	0	8	X		785.4
KAPUSKASING	-7.3	2.1	13.1	-29.9	32.2	67	35.4	63	19	7	X		664.3
KENORA	-3.5	3.6	13.5	-28.2	19.2	65	22.6	75	6	6	X		582.2
KINGSTON	-0.8	0.8	19.0	-21.0	38.6	119	78.8	109		12	120	84	582.2
LANSDOWNE HOUSE													
LONDON	0.7	1.6	23.6	-17.0	24.5	87	59.4	79	0	11	118	97	535.5
MOOSONEE	-12.3	0.0	9.2	-33.8	27.5	83	50.0	133	40	9	118	79	937.6
MOUNT FOREST	-1.9	1.5	19.7	-25.0	42.8	101	73.2	90	0	16	X		614.4
MUSKOKA	-2.4	1.4	19.9	-29.3	70.0	189	104.8	158		15	X		621.7
NORTH BAY	-4.4	0.9	15.2	-26.7	52.7	136	103.3	169	10	14	89	59	693.3
OTTAWA INT'L	-1.5	1.5	21.4	-22.0	42.2	118	59.0	87	0	11	144	*	605.2
PETAWAWA	-3.8	0.8	23.4	-24.9	42.2	140	59.1	117		15	X		676.3
PETERBOROUGH	-0.8	1.7	22.5	-20.7	29.4	126	82.5	131	0	12	X		580.4
PICKLE LAKE	-8.3	2.4	9.6	-29.5	44.4	115	34.4	82	46	8	X		815.3
RED LAKE	-6.0	2.9	9.9	-30.8	38.4	160	49.9	191	18	10	147	*	742.5
ST. CATHARINES	1.9	1.2	23.2	-15.3	11.2	62	57.2	81		10	X		499.9
SARNIA	1.6	1.0	25.6	-22.0	17.5	79	50.2	81		7	121	94	509.6
SAULT STE. MARIE	-3.8	1.3	12.8	-25.4	57.9	191	99.5	164	27	14	X		676.6
SIMCOE	1.1	1.4	23.0	-19.0	17.9	72	68.5	84	0	14	X		523.9
SILOUX LOOKOUT	-4.9	3.4	12.8	-32.2	17.9	55	19.4	55	10	5	X		711.2
SUDBURY	-4.5	1.5	12.6	-26.3	57.9	165	102.7	186	8	13	102	67	699.9
THUNDER BAY	-3.8	2.5	17.0	-25.2	26.0	76	29.4	65	6	7	140	81	674.3
TIMMINS	-6.5	1.9	11.5	-30.0	64.1	118	62.5	106	53	13	X		759.4
TORONTO	2.2	1.5	23.6	-17.0	15.2	61	61.2	87	0	12	X		490.8
TORONTO INT'L	0.6	1.6	24.5	-20.0	11.2	50	48.8	79	0	10	X		539.7
TORONTO ISLAND	1.1	1.0	22.5	-16.8	15.6	73	68.2	113	0	11	X		523.6
TRENTON	-0.1	0.9	20.1	-20.2	36.4	136	83.2	115	0	10	X		560.5
WATERLOO-WELL	-0.3	1.5	22.4	-21.7	15.2	65	63.4	87	0	9	X		567.3
WAWA	-5.7	*	12.5	-32.4	68.7	*	78.8	*	45	16	*		732.0
WIARTON	-1.1	1.7	18.8	-23.9	24.4	56	87.0	133	0	9	120	86	592.4
WINDSOR	2.7	1.5	26.6	-15.5	21.1	105	64.6	90	0	8	X		475.4

STATISTICS

MARCH 1985

STATION	Temperature C				Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C
	Mean	Difference from Normal	Maximum	Minimum									
QUEBEC													
BAGOTVILLE	-6.8	-0.3	19.2	-26.0	52.5	109	62.9	122	14	10	X		770.3
BAIE COMEAU	-7.7	-1.3	8.2	-25.8	40.6	67	41.4	60	49	6	189	*	797.4
BLANC SABLON	-10.5	-4.7	3.4	-32.5	102.2	123	116.2	127	27	17	114	*	887.1
CHIBOUGAMAU	-11.1	-0.3	13.1	-36.4	54.4	123	55.4	123	68	13	164	104	902.8
GASPE	-6.2	-1.1	16.2	*	*		29.5	28	0	5	169	*	750.3
INUKJUAQ	-23.1	-2.5	-6.1	-38.0	11.0	122	9.8	108	26	3	226	140	1273.7
KUUVJUAQ	-22.4	-4.7	-0.9	-39.7	23.2	86	21.2	81	82	6	188	114	1252.2
KUUVJUARAPIK	-20.4	-3.3	1.4	-40.8	22.2	109	21.6	102	63	6	147	87	1194.2
LA GRANDE RIVIERE	-17.3	*	3.0	-38.2	19.2	*	17.4	*	51	5	147	*	1092.1
MANIWAKI	-3.4	1.7	22.0	-26.8	39.6	117	81.8	159		11	139	95	663.2
MATAGAMI	-10.0	1.6	10.6	-34.1	36.6	68			47	9	121	78	866.6
MONT JOLI	-4.8	0.2	15.8	-19.7	30.7	48	44.1	61	0	8	152	117	706.7
MONTREAL INT'L	-1.7	0.8	22.6	-21.6	38.0	106	60.6	82		11	161	103	608.1
MONTREAL M INT'L	-2.6	*	20.0	-22.1	35.6	*	71.4	*		12		*	639.5
NATASHQUAN	-10.3	-4.1	2.1	-28.5	59.4	103	65.2	80	28	11	168	118	876.6
QUEBEC	-5.0	-0.5	13.2	-22.1	62.8	115	91.2	111	58	10	152	108	711.5
ROBERVAL	-7.2	-0.3	16.8	-26.5	71.6	121	56.4	92	10	7	188	*	781.6
SCHEFFERVILLE	-18.9	-3.8	0.6	-38.0	34.5	82	33.5	80	60	10	155	*	1144.5
SEPT-ILES	-9.6	-3.0	5.9	*	43.2	61	49.0	59	47	9	186	121	856.7
SHERBROOKE	-2.8	1.5	21.6	-22.4	24.6	46	68.8	93		13	132	*	649.0
STE AGATHE DES MONTS	-4.4	1.3	17.1	-26.2	52.8	80	83.9	88	19	12	148	97	695.4
ST-HUBERT	-1.6	0.8	21.0	-21.3	35.9	94	66.9	84		14	0		608.1
VAL D'OR	-7.6	0.7	13.4	-29.7	73.2	153	90.7	153	38	15	135	86	793.6
NEW BRUNSWICK													
CHARLO	-5.6	-0.4	10.4	-24.2	60.2	79	57.6	62	11	8	170	115	733.5
CHATHAM	-4.1	-0.8	17.7	-20.9	77.2	114	83.6	86		12	172	117	685.5
FREDERICTON	-3.5	-1.1	18.6	-21.1	75.4	154	143.7	169	2	11	175	*	667.6
MONCTON	-4.0	-1.1	18.0	-20.5	99.3	146	122.7	109	7	10	164	119	680.9
SAINT JOHN	-3.5	-1.0	13.3	-21.3	55.8	111	137.8	120	0	10	158	110	663.7

STATION	Temperature C				Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C
	Mean	Difference from Normal	Maximum	Minimum									
NOVA SCOTIA													
GREENWOOD	-1.4	-0.5	23.9	-16.9	57.4	119	149.9	178		11	X		602.6
HALIFAX INT'L	-3.3	-1.7	18.7	-20.2	29.6	65	102.8	80		9	148		660.7
SABLE ISLAND	0.5	-0.2	10.6	-9.7	13.6	47	187.8	161	0	17	132	113	542.8
SHEARWATER	-1.3	-0.5	18.8	-14.8	25.5	65	147.8	126	0	9	146	99	599.0
SYDNEY	-4.4	-1.9	14.0	-19.5	86.6	135	141.3	107	13	10	154	121	693.3
TRURO													
YARMOUTH	0.4	0.1	14.3	-12.6	39.6	121	159.2	161	0	10	153	112	546.5
PRINCE EDWARD ISLAND													
CHARLOTTETOWN	-4.6	-1.5	12.2	-19.8	64.0	103	110.6	116	6	8	X		701.8
SUMMERSIDE	-3.9	-1.1	12.6	-18.2	70.1	127	80.6	95	14	9	140	98	680.1
NEWFOUNDLAND													
ARGENTIA	-2.6	-2.1	10.0	-22.5	34.2	110	228.1	323		16	X		638.2
BATTLE HARBOUR	-12.4	-6.4	4.0	-30.1	43.3	*	46.5	68	106	11	X		943.4
BONAVISTA	-4.3	-1.6	9.3	-24.3	59.2	151	99.4	113	20	11	X		691.3
BURGED	-4.1	-2.0	4.0	-25.2	52.8	110	95.0	76	30	14			714.6
CARTWRIGHT													
CHURCHILL FALLS	-16.8	-4.2	1.0	-36.0	42.5	66	37.2	56	89	9	168	121	1079.4
COMFORT COVE	-6.2	-2.6	11.4	-27.5	90.6	131	90.6	87	28	13	X		750.5
DANIEL'S HARBOUR	-7.8	-3.3	5.5	-28.0	47.7	77	50.2	66	8	12	143	124	798.5
DEER LAKE	-7.5	-2.7	11.6	-28.0	53.0	97	49.5	72	15	11	X		769.3
GANDER INT'L	-5.9	-2.4	10.5	-28.8	83.1	114			18	13	157	150	741.3
GOOSE	-12.9	-4.3	5.6	-33.6	48.7	65	44.3	61	43	8	167	129	956.0
PORT-AUX-BASQUES	-5.6	-2.9	6.2	-24.1	49.2	95	69.6	66	4	16	123	*	731.6
ST ANTHONY	-8.8	-2.9	4.6	-31.6	107.5	121	117.3	157	75	16	X		837.5
ST JOHN'S	-3.8	-1.5	11.6	-23.8	46.3	71	175.3	132		15	115	121	673.8
ST LAWRENCE	-3.7	-2.1	4.5	-21.4	58.5	132	153.4	120	6	15	X		
STEPHENVILLE	-6.3	-3.5	8.0	-25.2	61.3	104	84.7	104	19	14	122	116	752.6
WABUSH LAKE	-16.1	-2.3	1.1	-35.7	63.7	107	50.4	88	101	8	180	122	1055.8

X = Not observed * = normal missing MSG = data missing

AGROCLIMATOLOGICAL STATIONS

MARCH 1986

STATION	Temperature C				Snowfall (cm)	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	Degree days above 5 C	
	Mean	Difference from Normal	Maximum	Minimum							This month	Since jan. 1st
BRITISH COLUMBIA												
AGASSIZ	8.8	2.7	18.5	-0.5	0.0	165.3	112	0	21	110	117.5	190.5
KAMLOOPS												
SIDNEY												
SUMMERLAND	6.6	2.9	19.0	-1.0	0.0	15.4	104	0	5	144	58.2	67.0
ALBERTA												
BEAVERLODGE	-1.0	5.1	11.0	-17.0	26.8	31.6	128	0	7	144	1.5	2.0
ELLERSLIE	-0.2	6.9	15.0	-15.1	19.7	26.1	152	0	5	151	4.9	4.9
FORT VERMILLION												
LACOMBE	1.3	7.3	18.0	-13.0	15.8	15.8	82	0	6	152	12.6	13.8
LETHBRIDGE												
VAUXHALL												
VEGREVILLE	-1.0	7.1	12.5	-15.5	14.6	15.2	121	T	3		2.1	2.1
SASKATCHEWAN												
INDIAN HEAD	0.1	8.0	17.0	-18.0	7.8	12.2	56	0	4		14.5	14.5
MELFORT	-4.1	6.1	8.0	-24.5	29.4	32.4	181	0	7	118	0.0	0.0
REGINA	0.4	8.6	18.5	-16.0	11.0	10.6	66	0	2		0.0	0.0
SASKATOON	-1.0	7.5	17.0	-20.0	18.2	20.3	91	0	4	126	12.5	12.5
SCOTT	-1.9	7.0	12.5	-17.5	19.8	24.6	129	0	6	141	0.0	0.0
SWIFT CURRENT SOUTH	4.4	8.7	19.5	-16.0	6.6	10.8	70	0	4	87	19.6	22.2
MANITOBA												
BRANDON	-2.8	5.6	15.7	-31.6	17.3	19.3	82	0	4		11.8	11.8
GLENLEA	-6.5	3.5	12.0	-30.0	11.8	11.8	49	0	3	172	4.0	4.0
MORDEN	-1.4	5.3	16.5	-25.0	7.6	11.4	40	T	4	162	22.3	22.3
ONTARIO												
DELHI	0.9	1.2	22.5	-20.5	58.2	67.2	79	0	10	128	35.6	35.6
ELORA	-0.1	2.8	22.1	-22.9	11.0	58.0	78	0			31.3	31.3

STATION	Temperature C				Snowfall (cm)	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	Degree days above 5 C	
	Mean	Difference from Normal	Maximum	Minimum							This month	Since jan. 1st
QUELPH	0.4	2.3	23.4	-23.2	5.0	53.0	85	0	9	138	36.6	36.6
HARROW	2.3	1.1	23.0	-17.0	0.0	44.4	59	0	7	126	26.2	29.0
KAPUSKASING												
MERIVALE												
OTTAWA	-1.1	1.8	20.9	-22.2	22.6	51.9	87	0	10	144	24.6	24.0
SMITHFIELD	0.5	1.9	21.0	-19.0	26.9	97.9	115	0	11		29.0	29.5
VINELAND STATION	2.1	1.4	23.5	-16.4	10.4	61.2	87	0	8	149	46.9	49.5
WOODSLEE												
QUEBEC												
LA POCA TIERE	-4.6	-0.2	12.0	-21.0	49.4	56.1	83	5	9	167	3.3	3.3
L'ASSUMPTION	-2.7	1.0	19.0	-25.0	40.0	66.9	96	0	11	144	11.9	11.9
LENNOXVILLE												
NORMANDIN	-9.0	-0.3	16.0	-31.5	41.8	49.6	83	15	8	184	1.2	1.2
ST. AUGUSTIN												
STE CLOTHILDE	0.0	2.5	26.0	-20.5	34.6	63.2	85	0	12	151	37.1	37.1
NEW BRUNSWICK												
FREDERICTON												
NOVA SCOTIA												
KENTVILLE												
NAPPAN	-2.8	-0.3	18.5	-22.5	71.9	149.6	166	0	9	161	15.5	32.0
PRINCE EDWARD ISLAND												
CHARLOTTETOWN												
NEWFOUNDLAND												
ST. JOHN'S WEST												