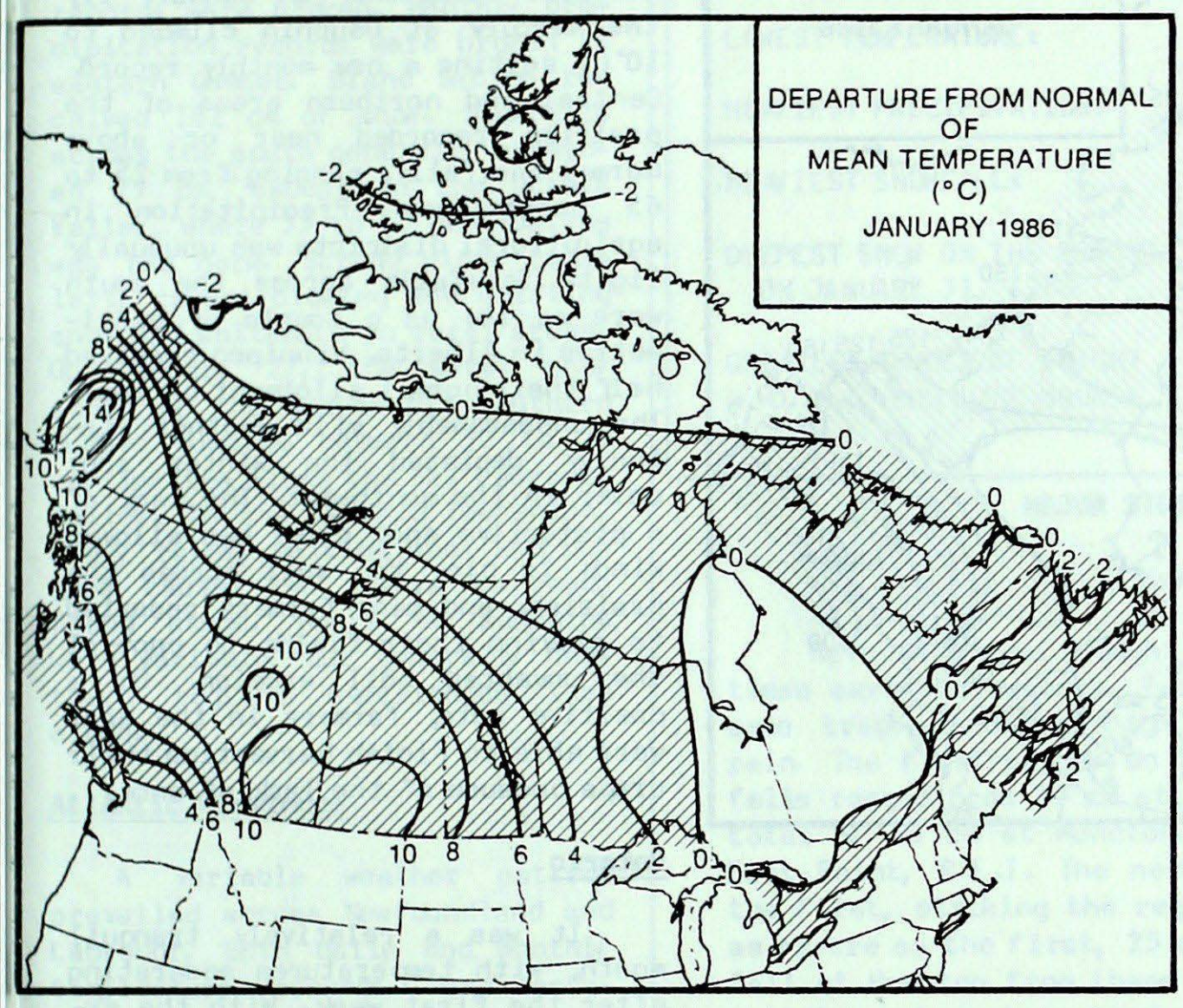
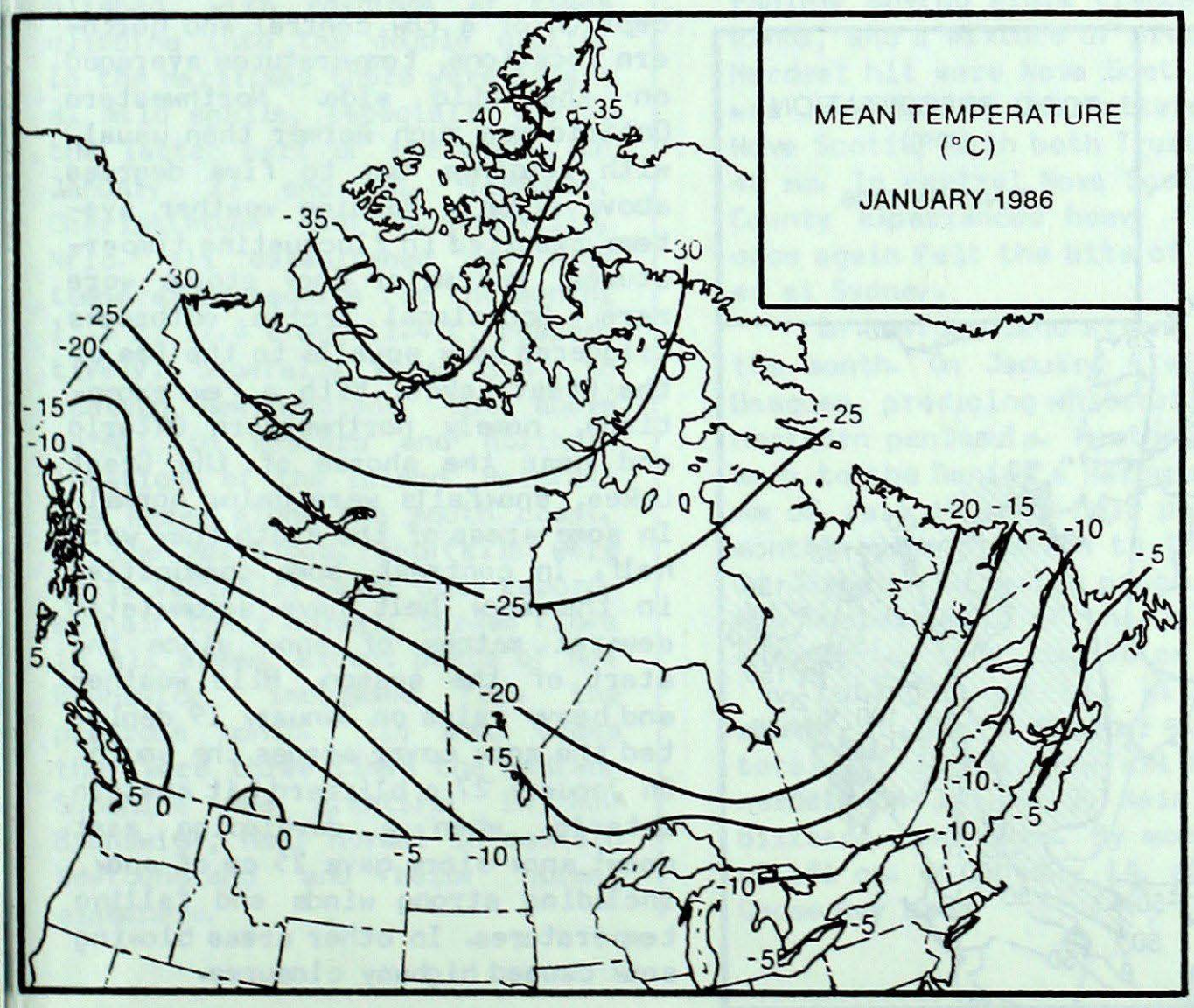
Environment Canada Environnement Canada

Climatic Perspectives

Monthly Supplement

Vol.8 January, 1986





ACROSS THE COUNTRY

Yukon and Northwest Territories

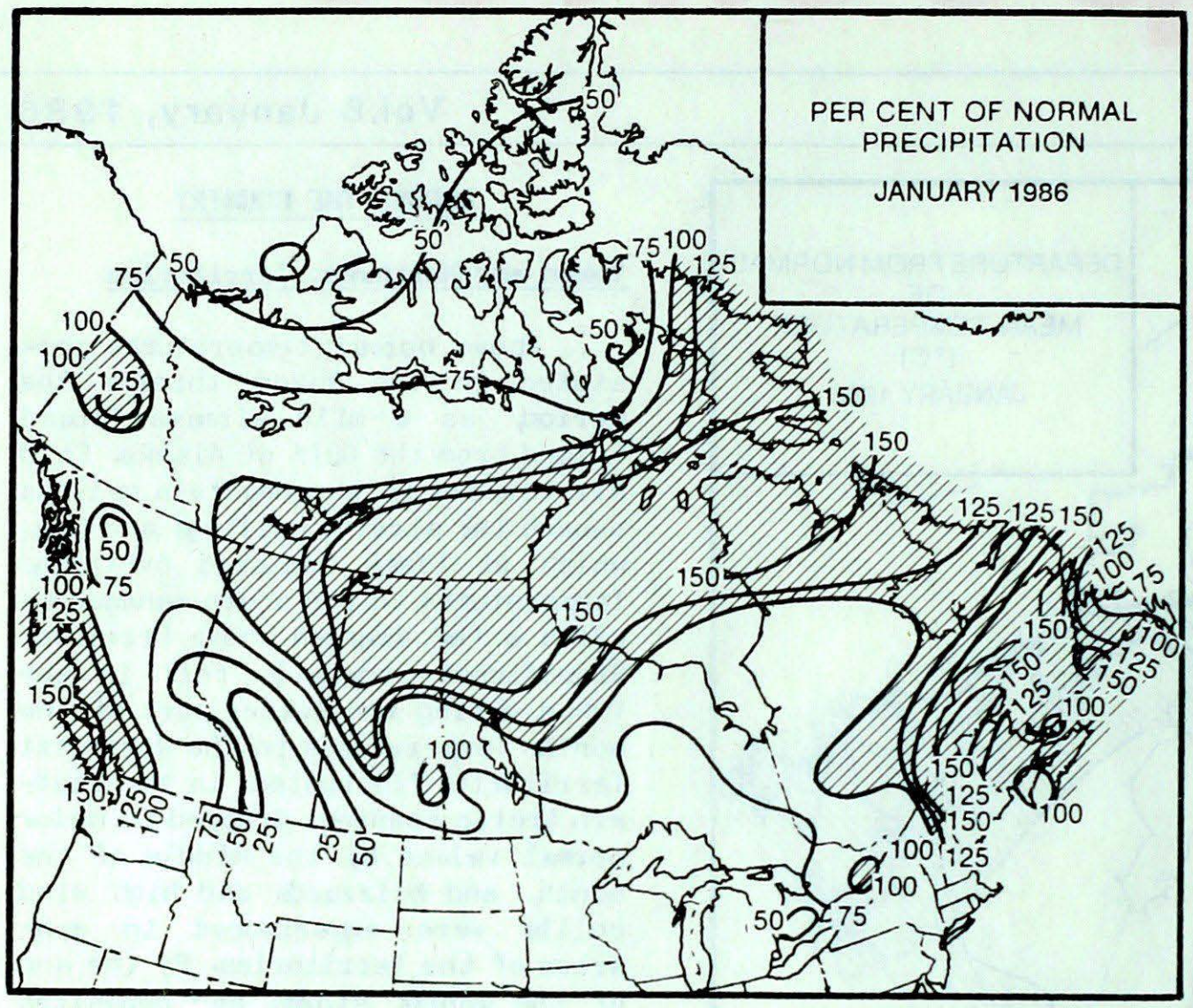
Above normal temperatures persisted in the Yukon through the period, as a mild airmass flowed inland from the Gulf of Alaska. Cold air trapped in the mountain valleys caused low stratus ceilings and fog, which at times hampered aviation. Temperatures in the south managed to climb a few degrees above freezing. Significant snowfalls fell in the Yukon during the latter part of the month. Temperatures in the Northwest Territories fluctuated. In the eastern Arctic readings dropped to below normal values by the middle of the month, and blizzards and high wind chills were experienced in many areas of the Territories. By the end of the month, storms had deposited heavy snow on Baffin Island and winds, exceeding 100 km/h, buffeted the Hudson Bay coastline.

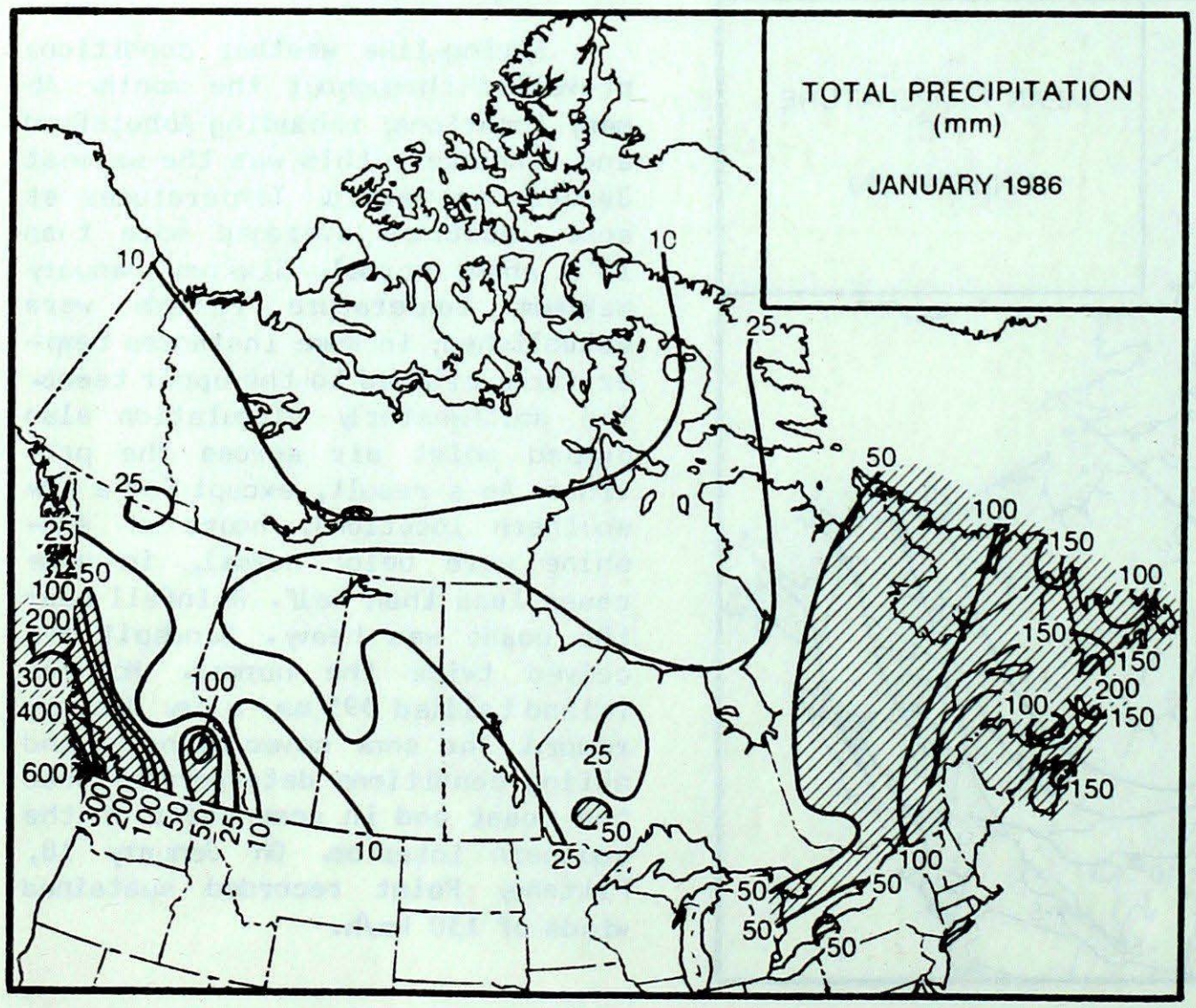
British Columbia

Spring-like weather conditions prevailed throughout the month. At many locations, including Abbotsford and Vancouver, this was the warmest January on record. Temperatures at some locations averaged more than 10°C above normal. Six new January maximum temperature records were established; in some instances temperatures climbed to the upper teens. The southwesterly circulation also pumped moist air across the province. As a result, except for a few southern locations, hours of sunshine were below normal, in some cases less than half. Rainfall near the coast was heavy. Sandspit received twice the normal. McInnes Island tallied 395 mm, a new January record. The snow cover dwindled and skiing conditions deteriorated near the coast and in some parts of the southern interior. On January 18, Pitteney Point recorded sustained winds of 130 km/h.

Canada

PRECIPITATION





The Prairies

In Alberta and Saskatchewan many locations experienced their warmest January ever, and in addition many new daily maximum temperature records were established on numerous occasions. On January 11, the mercury at Dauphin climbed to 10°C, setting a new monthly record. Central and northern areas of the prairies recorded near or above normal snowfalls, ranging from 25 to 65 centimetres. Precipitation in agricultural districts was unusually light. Snowfalls across the south were as low as a couple of centimetres in Alberta. Winnipeg received half their normal allotment of snow. The unseasonably mild weather virtually depleted the winter snow cover in the southwest. The lack of a protective snow cover has allowed winds to blow top soil across the prairies, and many farmers resorted to plowing their fields to control the unwanted soil erosion. On a positive note, farmers in the east were able to finish harvesting their crops because of the lack of snow.

Ontario

It was a relatively tranquil month, with temperatures moderating after the first week. With the exception of a few central and northern locations, temperatures averaged on the mild side. Northwestern Ontario was much warmer than usual, with readings two to five degrees above normal. Passing weather systems resulted in fluctuating temperatures, but major snow storms were rare. Occasional Arctic outbreaks triggered snow squalls to the lea of the Great Lakes. With a few exceptions, namely northwestern Ontario and near the shores of the Great Lakes, snowfalls were below normal. In some areas of the south they were half. In contrast, some communities in the snow belt have accumulated several metres of snow since the start of the season. Mild weather and heavy rains on January 19 depleted the snow cover across the south. On January 27 a blizzard hit eastern Ontario, when a developing east coast snow storm gave 25 cm of snow, including strong winds and falling temperatures. In other areas blowing snow caused highway closures.

Québec

After an initial cold start, temperatures fluctuated as frontal disturbances affected the province. On several occasions temperatures in southern Québec climbed above freezing, and both maximum and minimum daily temperature records were broken. Monthly precipitation records were broken in eastern Québec. Blanc Sablon received 182 cm of snow. Snowfalls across the south generally exceeded 75 cm, except in the Ottawa Valley, where 35 to 50 centimetres was the norm. Strong winds regularly caused blowing and drifting snow and whiteouts in rural areas. On January 27, the worst snow storm of the season hit southern Québec dumping between 30 to 50 centimetres along the St. Lawrence Valley. In the Eastern Townships, heavy rains, melting snow and ice jams caused two rivers to reach flood stage. Hours of sunshine were variable, but generally northern regions experienced less cloud.

Atlantic Provinces

A variable weather pattern prevailed across Newfoundland and Labrador. Both daily and monthly temperature records were established, with readings at times climbing into the double digits. In the Maritimes there were several mild spells, especially during the latter part of the month. On January 27 and 28, Yarmouth, Charlottetown and Stephenville, Nfld. all established new high temperature records for the month; 13.3°C, 12.4°C and 12.4°C, respectively. Snowfalls were light in eastern Newfoundland, but above normal in western and northern locations of the Island. Rainfall was heavy along the south coast. In the Maritimes, snowfalls were quite variable; Saint John recorded half their normal. Stream flows in all areas, except parts of New Brunswick, increased from the previous month. In some cases they were three times the median. Sunshine was plentiful in New Brunswick, near normal in eastern Newfoundland and below normal elsewhere.

CLIMATIC EXTREMES IN CANADA - JANUARY 1986

MEAN TEMPERATURE:		
WARMEST	Amphitrite Point, BC	7.5°C
COLDEST	Eureka, NWT	-41.2°C
HIGHEST TEMPERATURE:	Amphitrite Point, BC	18.2°C
LOWEST TEMPERATURE:	Eureka, NWT	-50.7°C
HEAVIEST PRECIPITATION:	Amphitrite Point, BC	603.5 mm
HEAVIEST SNOWFALL:	St. Anthony, NFLD	160.5 cm
DEEPEST SNOW ON THE GROUND ON JANUARY 31, 1986:	Nain, NFLD	191.0 cm
GREATEST NUMBER OF BRIGHT SUNSHINE HOURS:	Moncton, NB	120 hrs

MAJOR STORMS IN ATLANTIC CANADA

by

C.F. MacNeil and C.J. Power

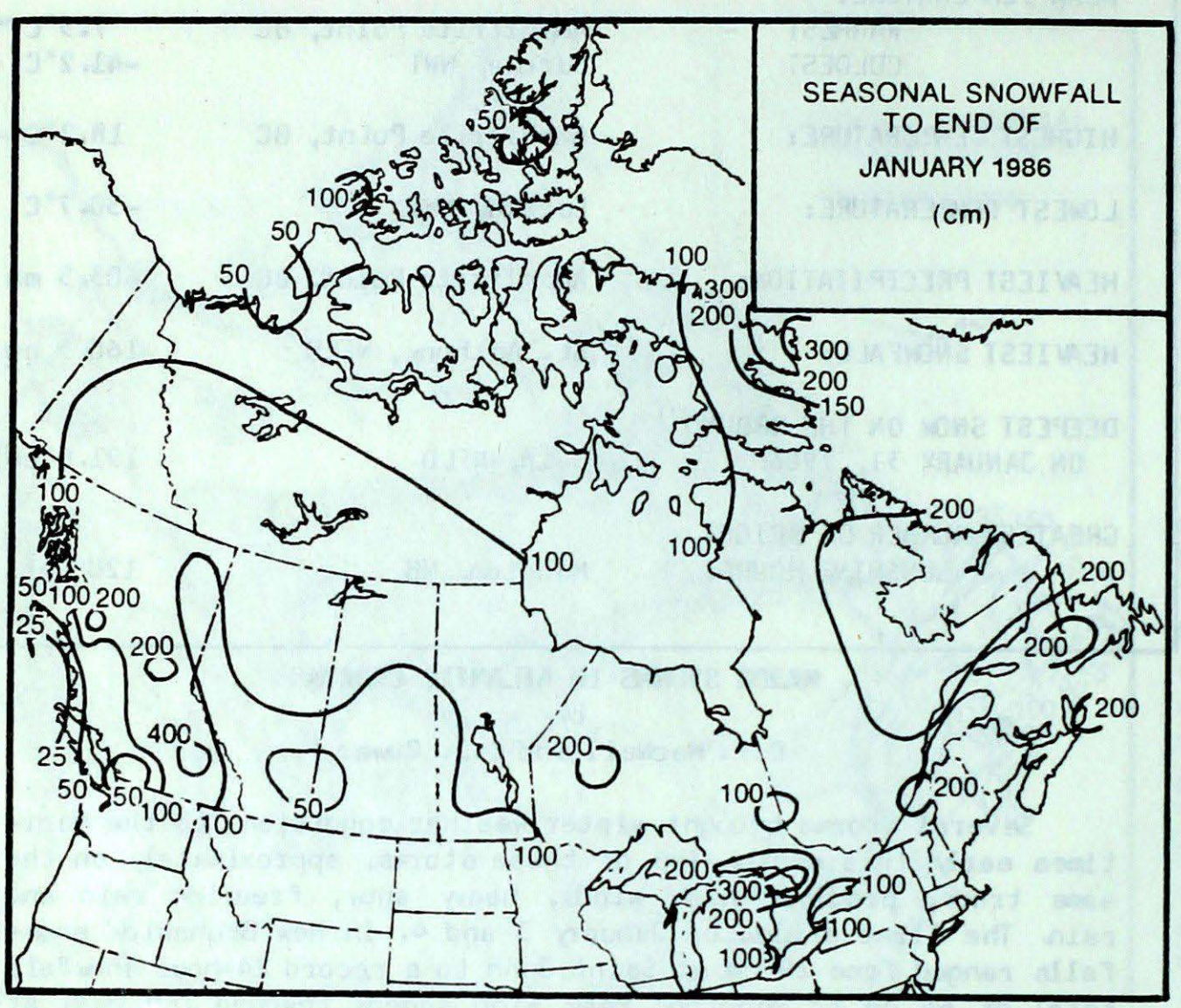
Several storms brought winter weather conditions to the Maritimes early this month. Two of these storms, approximately on the same track, produced high winds, heavy snow, freezing rain and rain. The first struck on January 3 and 4. In New Brunswick snowfalls ranged from 29 cm at Saint John to a record 24-hour snowfall total of 66 cm at Moncton. Peak wind speeds reached 160 km/h at East Point, P.E.I. The next storm followed close on the heels of the first, striking the region late on the 5th. Although not quite as severe as the first, 25 cm of snow fell at Moncton. Total snowfall at Moncton from these two storms was 91 cm. On January 14, a rapidly moving storm tracked south of Nova Scotia bringing strong winds, and a mixture of precipitation, causing chaos in many areas. Hardest hit were Nova Scotia and P.E.I., where up to 23 cm of snow was reported at Charlottetown. On January 20 heavy rains fell on Nova Scotia, with both Truro and the Halifax reporting in excess of 40 mm. In central Nova Scotia, the Salmon River area of Colchester County experienced heavy flooding. On January 30, the Maritimes once again felt the bite of winter; up to 28 cm of snow was reported at Sydney.

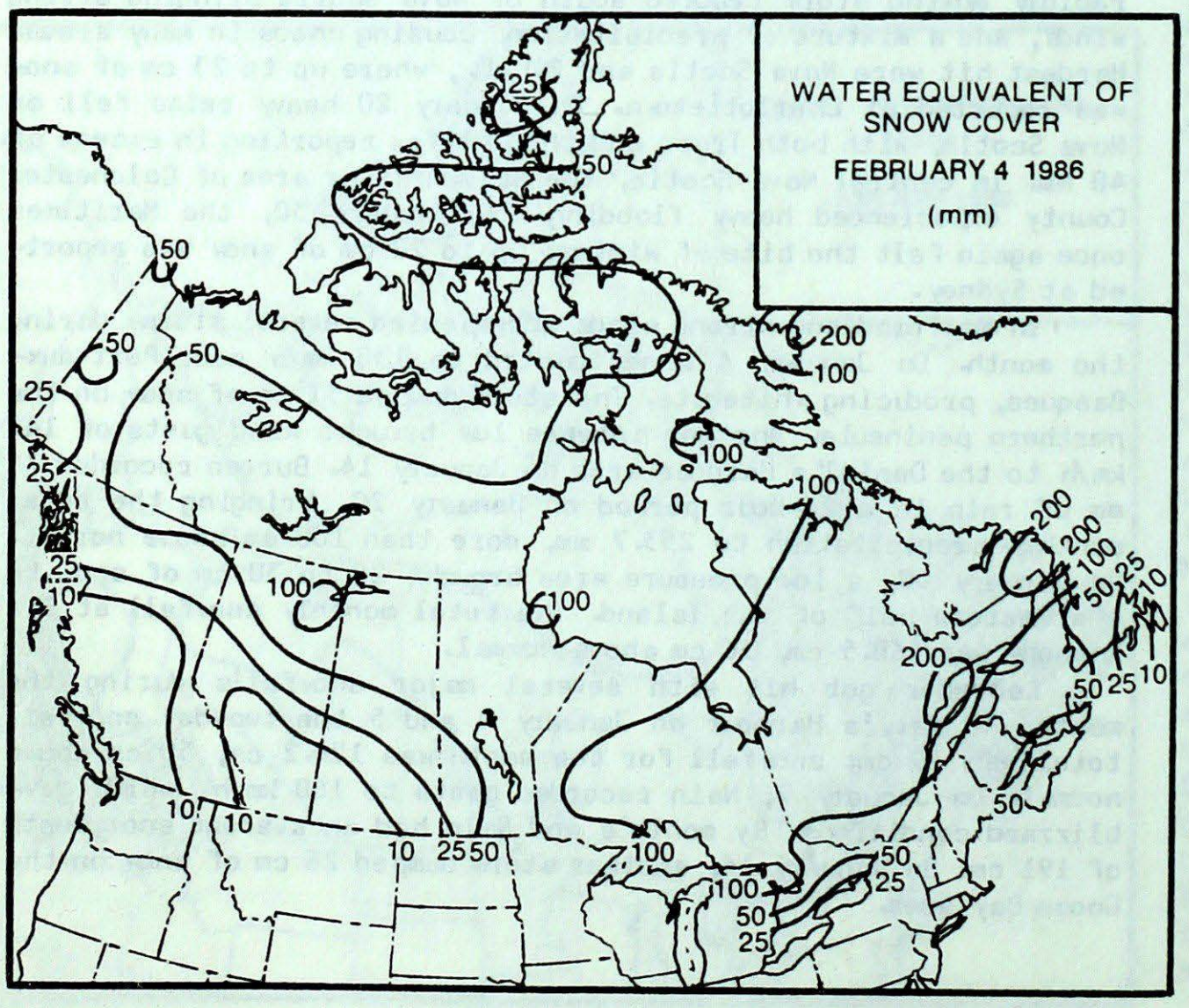
In Newfoundland strong winds accompanied several storms during the month. On January 4 winds gusted to 130 km/h near Port-aux-Basques, producing whiteouts. The storm dumped 31 cm of snow on the northern peninsula. Another intense low brought wind gusts of 148 km/h to the Daniel's Harbour area on January 14. Burgeo recorded 75 mm of rain in a 24-hour period on January 20, bringing the total monthly precipitation to 253.7 mm, more than 100 mm above normal. On January 30, a low pressure area brought 20 to 30 cm of snow to the western half of the Island. The total monthly snowfall at St. Anthony was 160.5 cm, 36 cm above normal.

Labrador got hit with several major snowfalls during the month. At Mary's Harbour on January 4 and 5 the two-day snowfall total was 36 cm; snowfall for the month was 124.2 cm, 50 cm above normal. On January 7, Nain recorded gusts to 100 km/h, which gave blizzard conditions. By month's end Nain had an average snow depth of 191 cm. On January 14, another storm dumped 28 cm of snow on the Goose Bay area.

SNOWFALL

S N O W F A L L





SEASONAL SNOWFALL TOTALS (CM)

TO END OF JANUARY

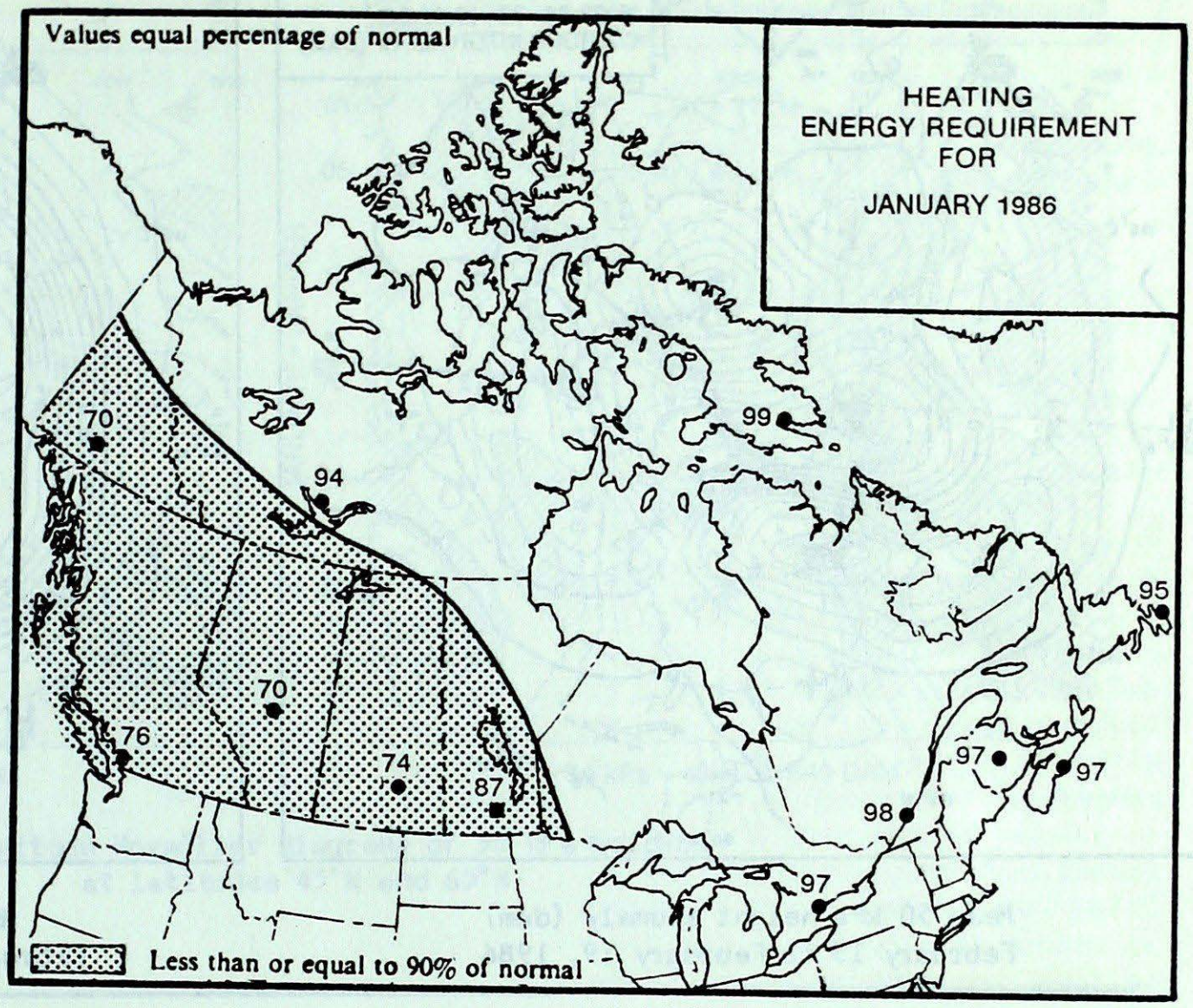
	1986	1985	NORMAL
YUKON TERRITORY			
Whitehorse	93.6	129.4	90.7
NORTHWEST TERRITORIES			
Cape Dyer	393.6	359.8	383.6
Inuvik	77.6	76.6	117.1
Yellowknife	126.1	92.6	94.2
BRITISH COLUMBIA			
Kamloops	51.2	74.2	74.0
Port Hardy	8.2	24.5	49.3
Prince George	125.0	140.7	164.0
Vancouver	26.2	36.0	46.0
Victoria	62.0	53.3	35.4
ALBERTA			
Calgary	50.2	65.6	77.1
Edmonton Namao	74.3	100.9	78.2
Grande Prairie	67.1	98.1	114.7
SASKATCHEWAN			
Estevan	67.0	94.6	63.1
Regina	66.1	100.2	65.0
Saskatoon	61.0	100.1	64.7
MANITOBA			
Brandon	112.6	64.7	64.0
Churchill	144.4	132.1	117.0
The Pas	95.4	123.7	95.6
Winnipeg	85.0	69.6	71.7
ONTARIO			
Kapuskasing	186.1	180.0	193.4
London	140.4	141.2	132.6
Ottawa	106.8	150.1	132.0
Sudbury	158.7	149.6	149.6
Thunder Bay	154.1	127.7	127.7
Toronto	55.0	64.4	74.8
Windsor	79.8	79.6	70.4
QUEBEC			
Baie Comeau	266.8	168.0	203.2
Montréal	134.0	136.0	134.4
Quebec	214.6	151.4	201.9
Sept-Iles	225.9	155.4	243.9
Sherbrooke	160.5	166.6	179.8
Val-d'Or	175.8	175.1	187.3
NEW BRUNSWICK			
Charlo	168.0	125.0	219.1
Fredericton	163.3	97.2	155.9
Moncton	193.5	106.9	174.6
NOVA SCOTIA			
Shearwater	99.1	107.1	92.9
Sydney	201.3	123.9	154.7
Yarmouth	115.3	110.6	114.2
PRINCE EDWARD ISLAND			
Charlottetown	150.8	125.9	173.8
NEWFOUNDLAND			
Gander	152.4	208.4	193.7
St. John's	175.1	131.1	172.1

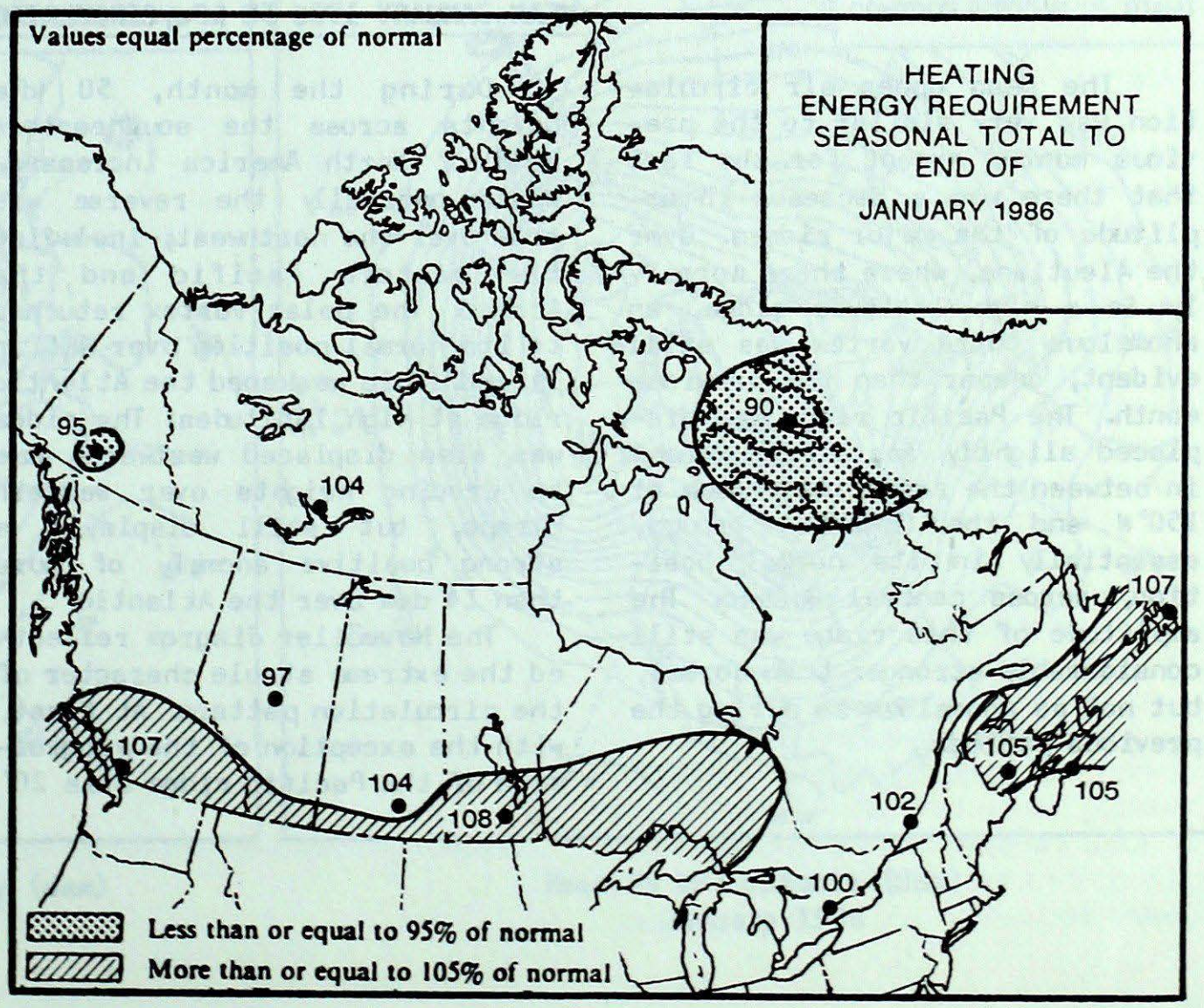
SEASONAL TOTAL OF HEATING

DEGREE-DAYS TO END OF JANUARY

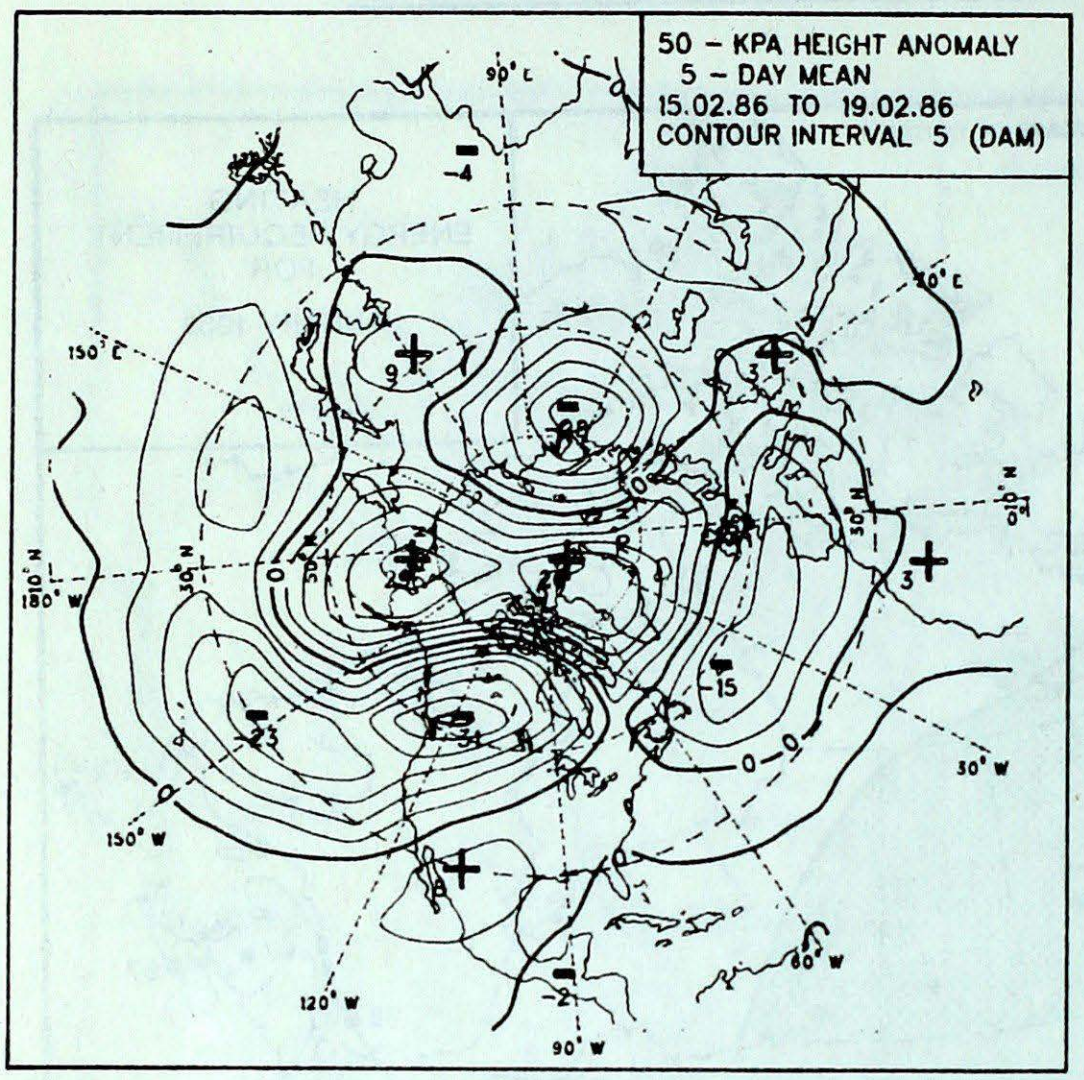
	1986	1985	NORMAL
BRITISH COLUMBIA			
Kamloops	2522	2541	2315
Penticton	2434	2374	2094
Prince George	3383	3481	3263
Vancouver	1855	1881	1729
Victoria	1861	1935	1748
YUKON TERRITORY			
Whitehorse	3974	4011	4181
NORTHWEST TERRITORIES			
Frobisher Bay	4856	5231	5368
Inuvik	5777	5783	5774
Yellowknife	5056	5061	4851
ALBERTA			
Calgary	3073	3290	3108
Edmonton Mun	3218	3502	3326
Grande Prairie	3575	3976	3662
SASKATCHEWAN			
Estevan	3316	3444	3221
Regina	3553	3740	3426
Saskatoon	3566	3829	3545
MANITOBA			
Brandon	3814	3785	3493
Churchill	5046	4939	4954
The Pas	4025	4082	3923
Winnipeg	3658	3535	3389
ONTARIO			
Kapuskasing	3780	3584	3584
London	2209	2165	2240
Ottawa	2631	2592	2641
Sudbury	3104	2978	3044
Thunder Bay	3454	3190	3689
Toronto	2236	2188	2236
Windsor	2011	1950	2000
QUÉBEC			
Baie Comeau	3393	3371	3253
Montréal	2542	2569	2491
Quebec	2885	2857	2833
Sept-Iles	3494	3429	3381
Sherbrooke	2856	2919	2932
Val-d'Or	3602	3496	3456
NEW BRUNSWICK			
Charlo	3041	2940	2825
Fredericton	2723	2629	2604
Moncton	2657	2547	2528
NOVA SCOTIA			
Halifax	2190	2182	2084
Sydney	2338	2338	2209
Yarmouth	2108	2071	2071
PRINCE EDWARD ISLAND			
Charlottetown	2498	2480	2368
NEWFOUNDLAND			
Gander	2787	2782	2614
St. John's	2585	2446	2423

ENERGY REQUIREMENTS

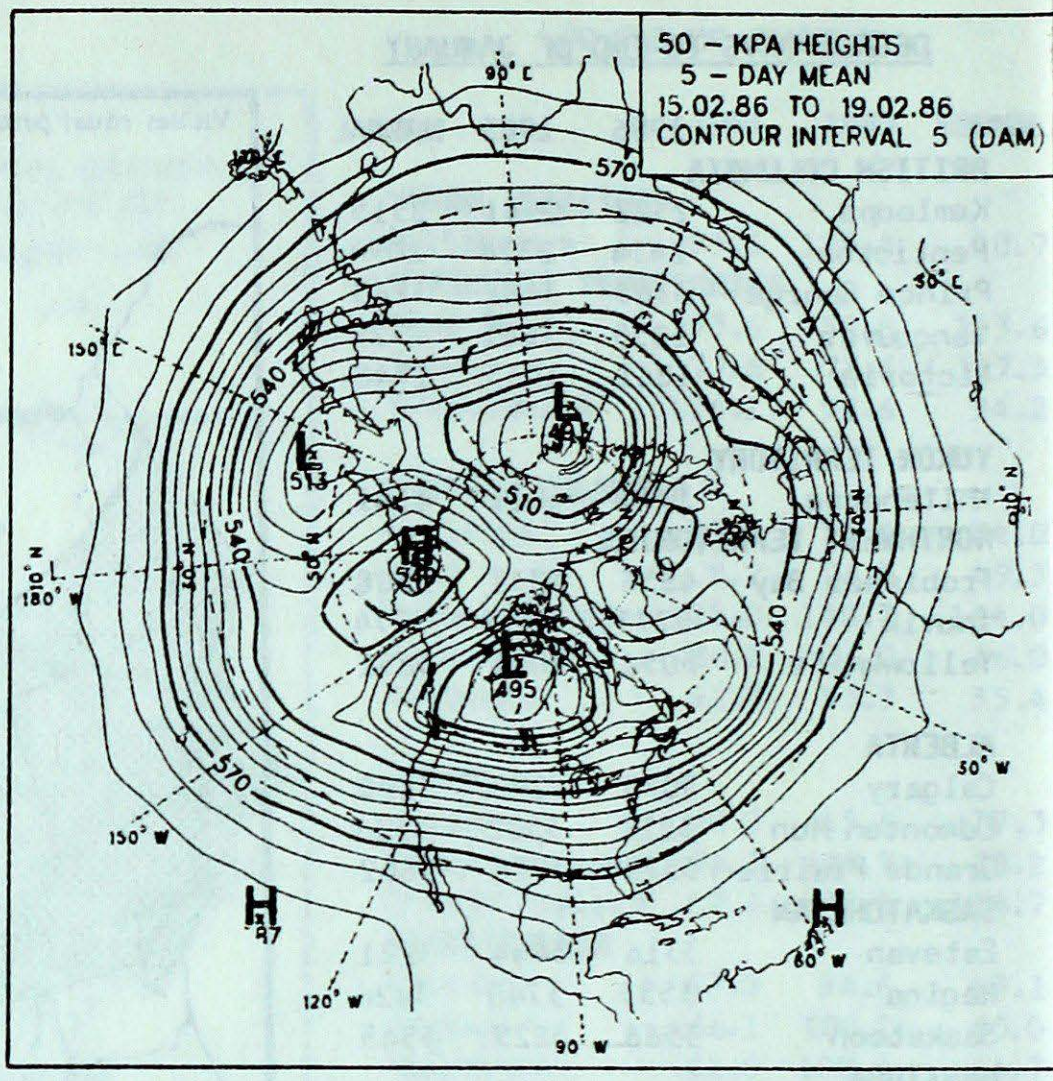




ATMOSPHERIC CIRCULATION



Mean 50 kPa height anomaly (dam)
February 15 to February 19, 1986



Mean 50 kPa heights (dam)
February 15 to February 19, 1986

MEAN JANUARY 1986 50 kPa CIRCULATION

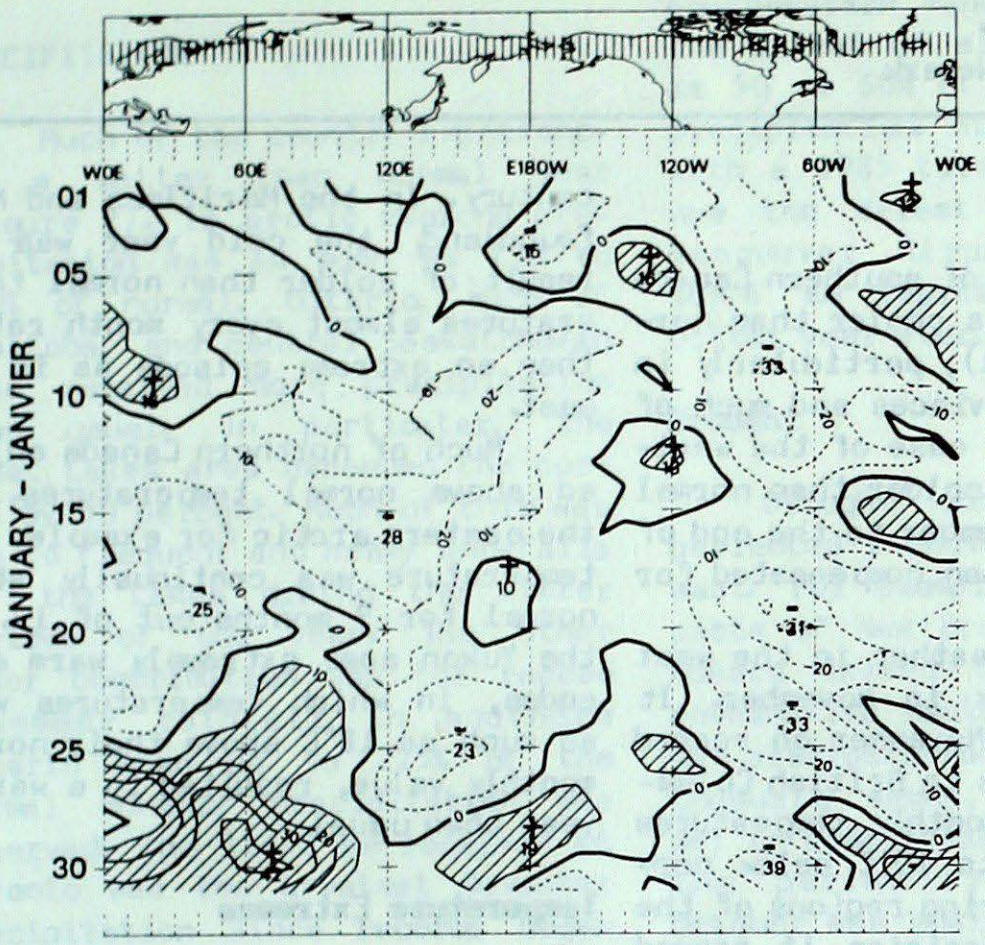
The mean upper air circulation was very similar to the previous month, except for the fact that there was a decrease in amplitude of the major ridges. Over the Aleutians, where there normally is a high latitude ridge, an anomalous third vortex was still evident, deeper than the previous month. The Pacific ridge was displaced slightly eastwards, caught in between the resulting trough at 150°W and the Canadian trough, essentially in its normal position, across central Québec. The amplitude of this ridge was still considerably stronger than normal, but not as anomalous as during the previous period.

During the month, 50 kPa heights across the southeastern half of North America increased, while generally the reverse was true over the northwest, including the eastern Pacific and the Arctic. The polar vortex returned to its normal position over Baffin Island. This weakened the Atlantic ridge at high latitudes. The ridge was also displaced westward, due to eroding heights over western Europe, but still displayed a strong positive anomaly of more than 14 dam over the Atlantic.

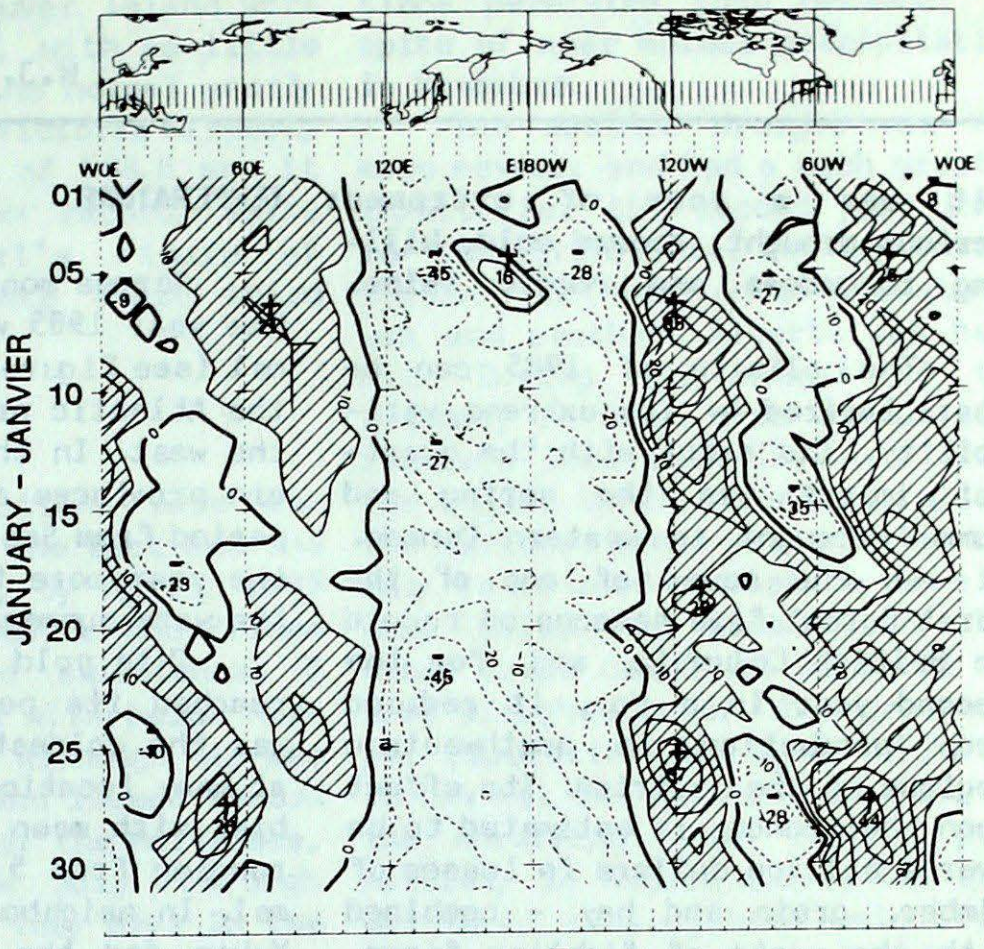
The Hovmöller diagram reflected the extreme stable character of the circulation pattern. At first, with the exception of the progression of the Pacific ridge axis 20° to the west, there was little change when compared to the previous period. The circulation was controlled by the blocking effects of the two previously mentioned ridges. The amalgamation of the Siberian and the anomalous Aleutian troughs resulted in a broad trough across the Pacific, and hence a quasi stationary wave 1 regime.

The the surface temperature reflected the anomaly pattern. Above normal temperatures in the Northwest Territories and western Canada were supported by a southwesterly anticyclonic circulation, which pumped a mild Pacific airmass inland.

ATMOSPHERIC CIRCULATION

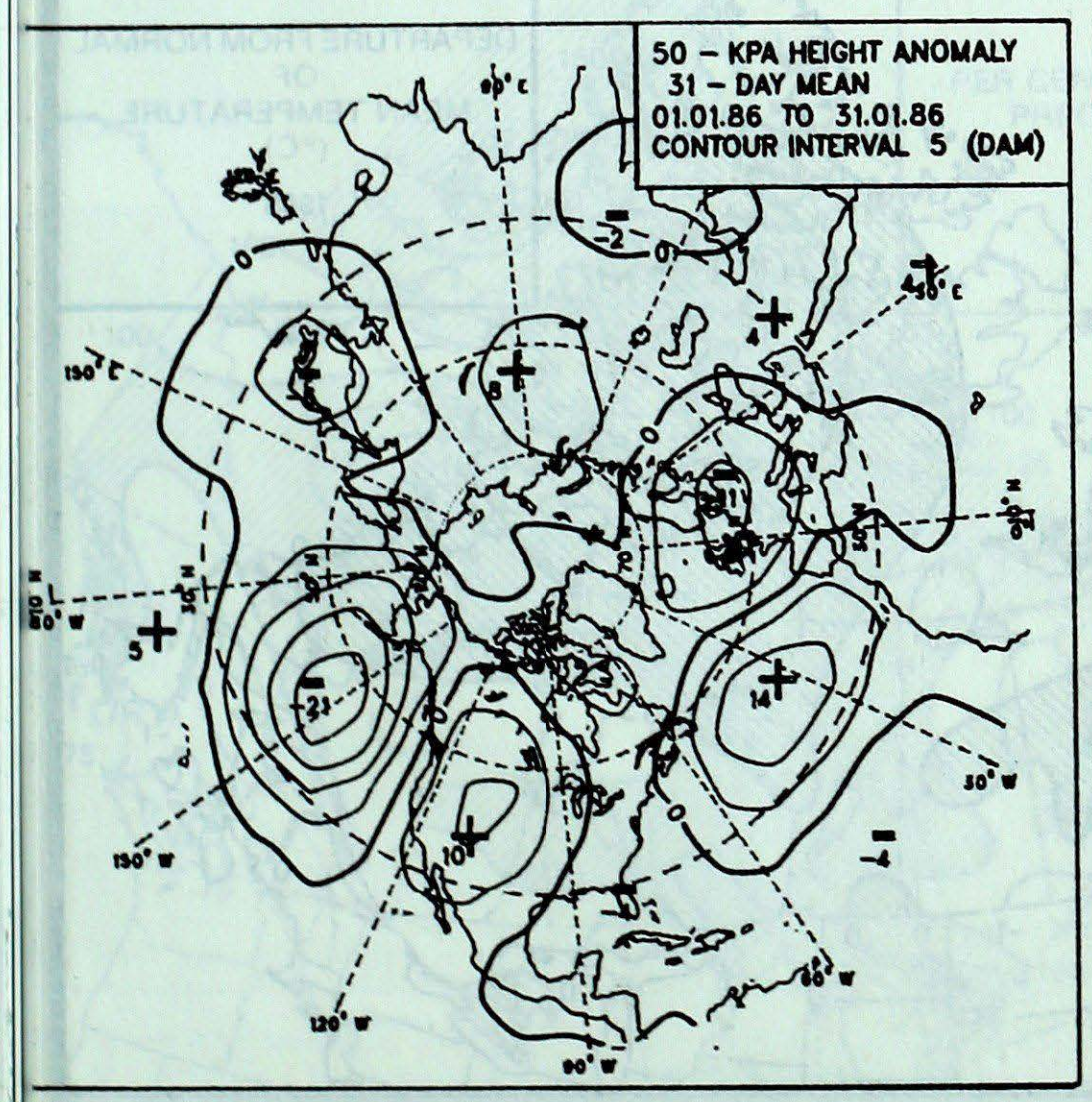


50 kPa - 65 N $\bar{Z}$=520 DAM

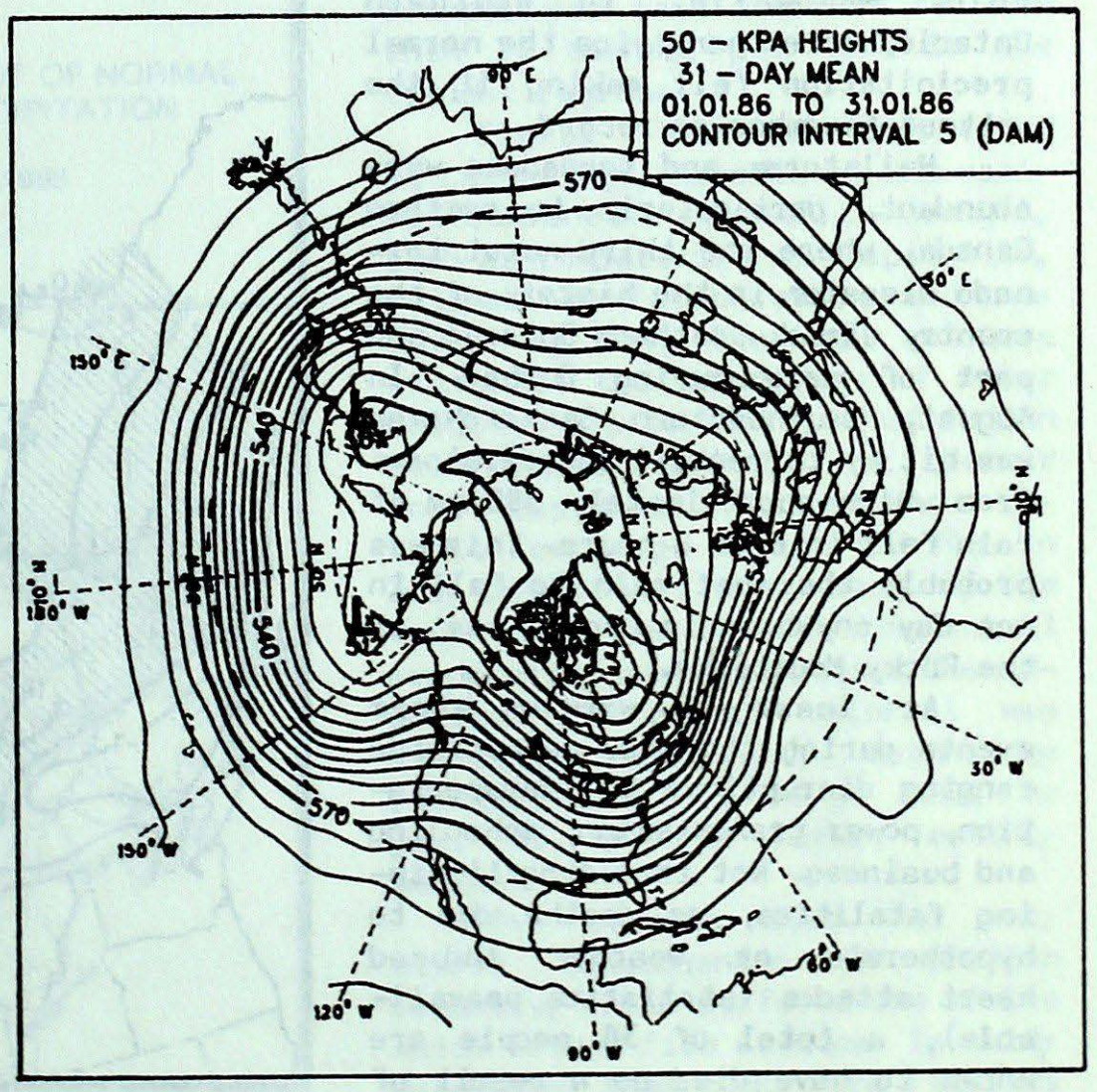


50 kPa - 45 N $\bar{Z}$=540 DAM

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



Mean 50 kPa height anomaly (dam)
January 1986



Mean 50 kPa heights (dam)
January 1986

FEATURE

1985 - THE CANADIAN CLIMATE IN REVIEW

by
M.J. Newark

It was a year of extremes: serious drought, record cold, killing tornadoes and record rains.

The climate of 1985 can be characterized by its extreme variability. The event with the greatest impact was the spring and summer drought in western Canada. It was the cause of one of the worst forest fire seasons on record in British Columbia, and, for the second year in a row, it reduced crop production in southwestern regions of the prairies. Its effect upon the economy is estimated to be over a billion dollars in losses of timber, grain and hay - combined with the costs of fighting fires, reseeding, insect sprays, etc.

Later in the year the weather turned extremely cold in British Columbia. November was the coldest on record at a number of locations in that province, while in neighbouring regions of the Yukon and the prairies it was close to record cold. Meanwhile, in southern Ontario, more than twice the normal precipitation fell making it the wettest November on record.

Hailstorms and tornadoes were abundant, particularly in eastern Canada, where the third worst tornado disaster in the history of the country struck southern Ontario and part of neighbouring Québec. In August, southeastern Saskatchewan was hit by torrential thunderstorms from which approximately 380 mm of rain fell in 6 to 8 hours. This was probably the most rain to fall in one day anywhere in Canada east of the Rocky Mountains.

At least 30 winter storm events during the year caused wide ranging disruptions to transportation, power transmission, schooling and business. Not including lightning fatalities, or deaths due to hypothermia or weather induced heart attacks (statistics unavailable), a total of 38 people are known to have died as a result of the weather, while hundreds more were injured.

TEMPERATURE

Across most of southern Canada the year 1985 was cooler than normal (see Figure 1), particularly in the Atlantic provinces and much of the west. In the case of the western provinces a colder than normal period from September to the end of the year more than compensated for the warm summer.

This cold weather in the west reached its peak in November. It was the coldest November on record at many locations in British Columbia, with mean monthly tempeatures ranging from 5 to 13°C below normal. In neighbouring regions of the Yukon and the prairies it ranged from 7 to 12°C below normal and ranked as the coldest November in some places since the turn of the century. In the Maritimes and Newfoundland, the cold year was the result of colder than normal temperatures almost every month rather than an extreme episode as in the west.

Much of northern Canada enjoyed above normal temperatures. In the eastern arctic for example, the temperature was continually above normal for 9 months out of 12. In the Yukon some extremely warm episodes, in which temperatures were as much as 18°C above their normal monthly value, resulted in a warmer year than usual.

Temperature Extremes

The highest reported temperature was 41°C on July 30 at Lytton, British Columbia. The lowest was

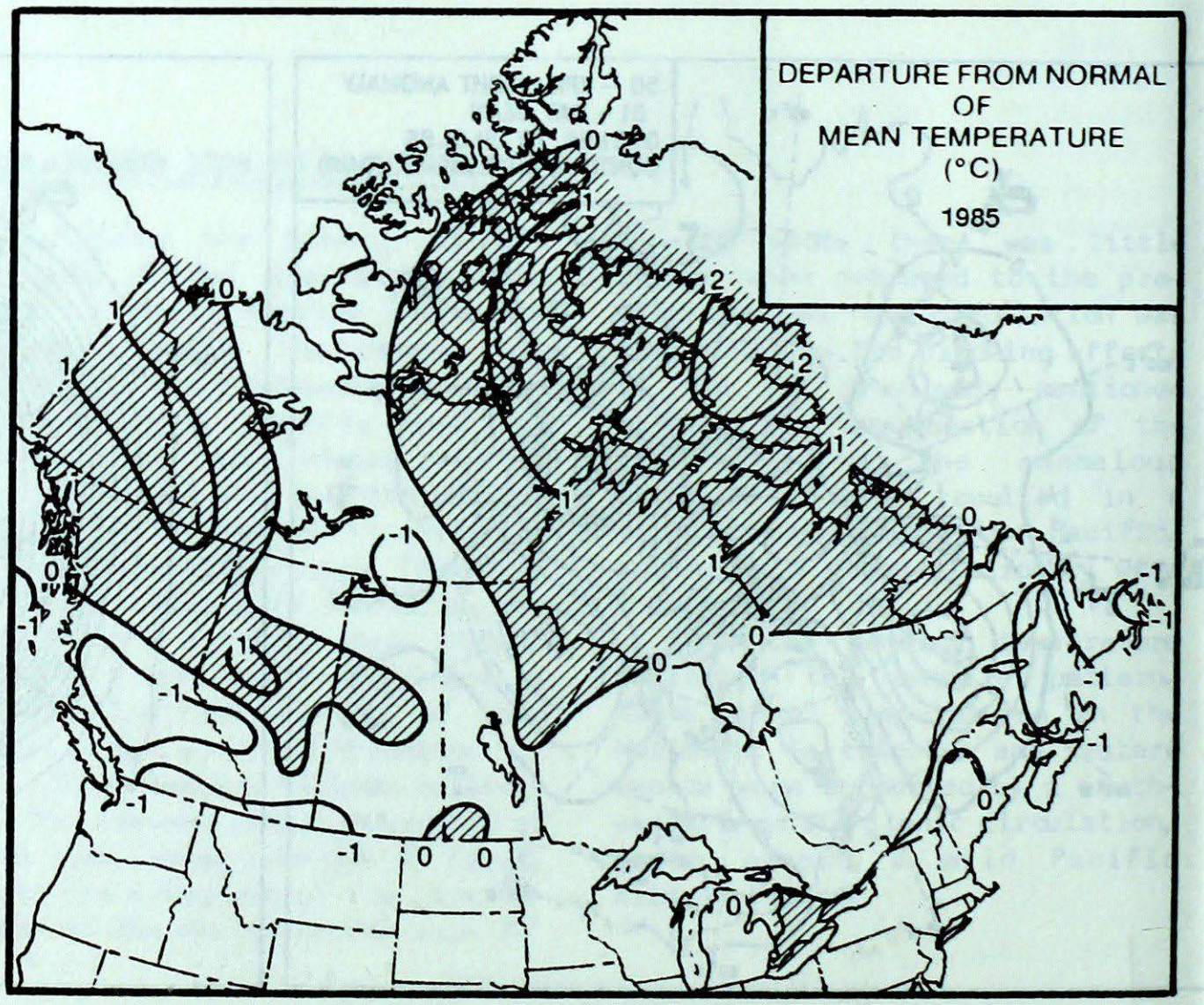


Figure 1

-52°C reported in February at Ogilvie in the Yukon.

PRECIPITATION

Much of the country experienced a wetter than normal year (Figure 2). In arctic regions precipitation was as much as 150 to 180% of normal. Ontario, much of Manitoba, and central Saskatchewan also received more precipitation than usual. In particular, the Great Lakes area exceeded the normal by 50 percent. Much of this was due to frequent and heavy snowfalls off the Lakes during the winter periods of the year. The other major contribution was the record November rainfall in southern Ontario when up to 225% of the normal monthly precipitation was observed. The 186.2 mm received at Toronto was the greatest November precipitation since records began in 1840, and it was also the wettest of any month in 70 years.

The western and eastern regions of southern Canada were on the dry side of normal. Parts of southeastern Vancouver Island were the driest of all, with as little as 50 or 60% of the normal yearly precipitation. At Victoria Airport, with a 1985 total of 508.8 mm, it was the driest on record, while Vancouver Airport's figure of 809.6 mm represents their third driest year ever.

Drought

Drought conditions were experienced in both the west and the east. For example, by April, 1985 parts of New Brunswick and Prince Edward Island had experienced 8 consecutive months with below normal precipitation. Although May was unusually snowy, and indeed record wet in some areas of the Maritimes, the period from July through October was again very dry. In the Canaan watershed area of New Brunswick, runoff was only 9% of normal during that time. Wells and streams began to dry up and some rivers had unprecedented low flows. Dry conditions persisted into December in spite of near normal precipitation in November.

The western drought was far more severe, and had a much greater impact. For the second year in a row the agricultural economy of the southwestern section of Saskatchewan and southern Alberta was hard hit. During the height of the drought, in July, some communities received less than 10 mm of rain the entire month. Stunted crops in the stricken areas were written off only to be used as pasture, or else were baled for green feed. Yet other crops could not be saved and were ploughed under. The grasshopper population was again high due to the hot and dry weather. Many of the surviving crops ripened prematurely in August due to low soil moisture, causing both weight and grade reduction. General rains in September helped the recovery of pastures, but slowed harvesting operations and further reduced crop grades.

In ironic contrast, eastern and northern prairie farmlands received plenty of rain and wheat yields there ranged from 30 to 40 bushels per acre compared to less than 15 bushels per acre in the drought regions.

Figure 3 shows the time trend at Lethbridge, Alberta of the various components crucial to drought, such as temperature, precipitation, soil moisture evaporation, and snow cover. By May, the soil moisture (shown as the percentage of water holding capacity (WHC)) had fallen below normal and did not recover until September. The moisture deficit for crops during the May to July period is clearly shown by the very large gap between the actual evaporation and the potential evaporation if normal rainfall was available. In June, Lethbridge received only 3.2 mm of rain, or just 3% of its normal monthly amount!

The drought also had very severe consequences in British Columbia, which suffered one of its worst forest fire seasons. In early July more than 6300 fire fighters were battling the blazes. Fighting the seasonal total of 3650 fires

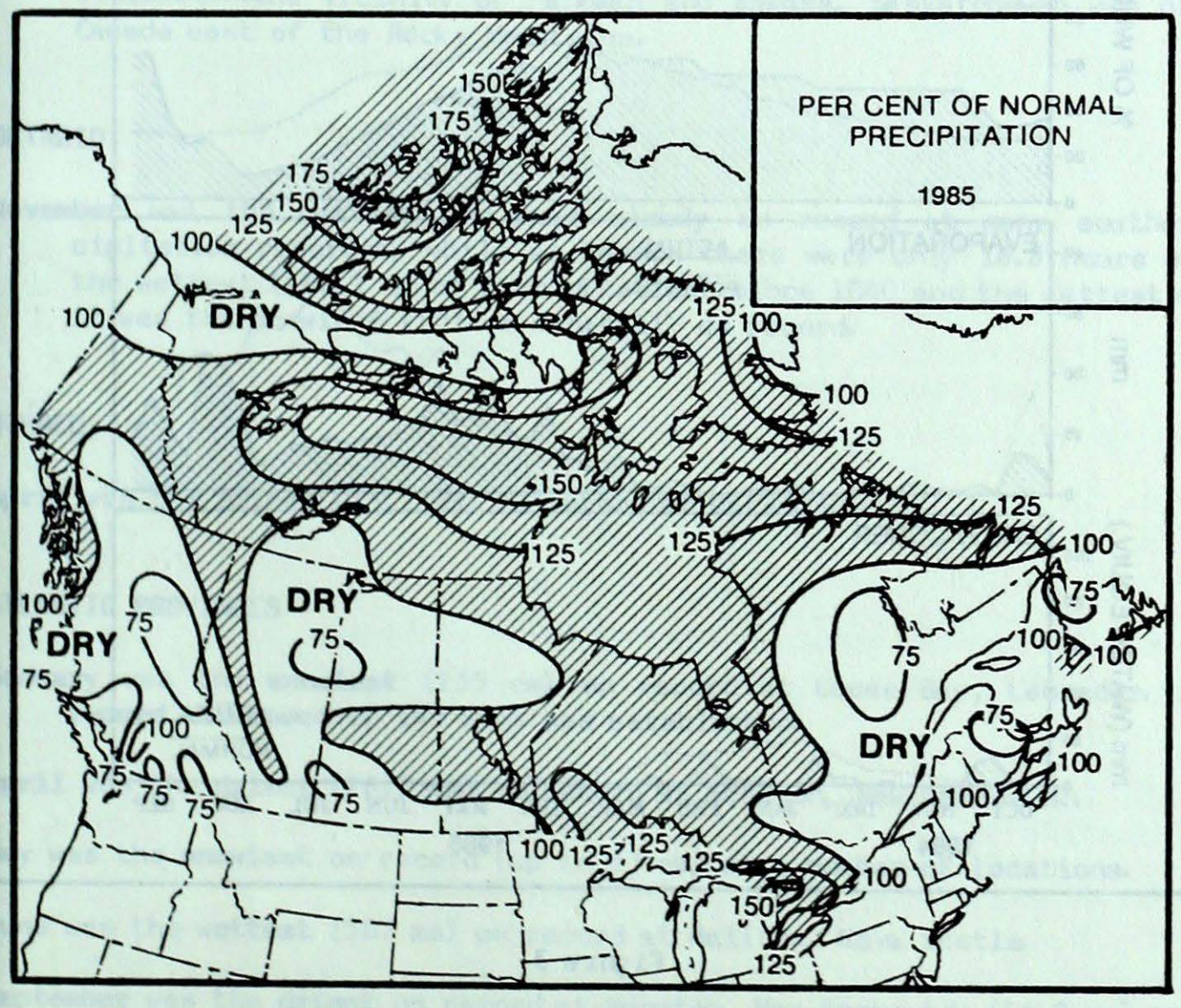


Figure 2

FEATURE

cost $125 million. Timber losses on 241,000 hectares was estimated at around $200 million. Several communities were evacuated.

Precipitation Extremes

The greatest precipitation in one month was 495 mm in February at Ethelda Bay, British Columbia. The greatest snowfall in one month was 248 cm in January at Wiarton Airport, Ontario. The greatest rainfall in one day, (as measured by a farmer's unofficial rain gauge) and probably a record for Canada east of the Rockies, was 380 mm on August 3 in the vicinity of Parkman-Wawosa, Saskatchewan.

EXTREMES

There were many extreme climatic events during the year, especially in British Columbia. It is not possible to list all of the many records which were set, however, a selection of the more significant extremes is presented in Table 1.

WEATHER AND CLIMATIC EVENTS, AND THEIR IMPACT

A summary list of significant events and their impact is given in Table 2. As with the extremes it is not possible to show every event that occurred, so a selection has been made of those judged to have had the most impact upon society and the economy. There were, for example, more days with severe local storms (tornadoes, hailstorms, flooding downspours, damaging thunderstorms) than shown on the list, but their impact was not as great as for those that are included. Likewise, there were more winter storms than shown, and even the remnants of hurricane Gloria, which crossed the St. Lawrence Valley on September 27th, but again their effects were not as significant as for those shown. The remnants of hurricane Juan (the first week of November) contributed greatly to the record wet month of November in southern Ontario, but it is not shown in the table as a seperate event.

The total number of 38 people killed in 1985 due to the weather represents the minimum because, in addition, there were those struck and killed by lightning, those who died from hypothermia and from heart attacks induced by weather related activitites. The two events contributing most to deaths and injuries were; (a) the southern Ontario tornadoes of May 31st with 12 killed and hundreds injured, and (b) the bitterly cold outbreak in British Columbia during November, which caused hundreds to seek treatment for frostbite.

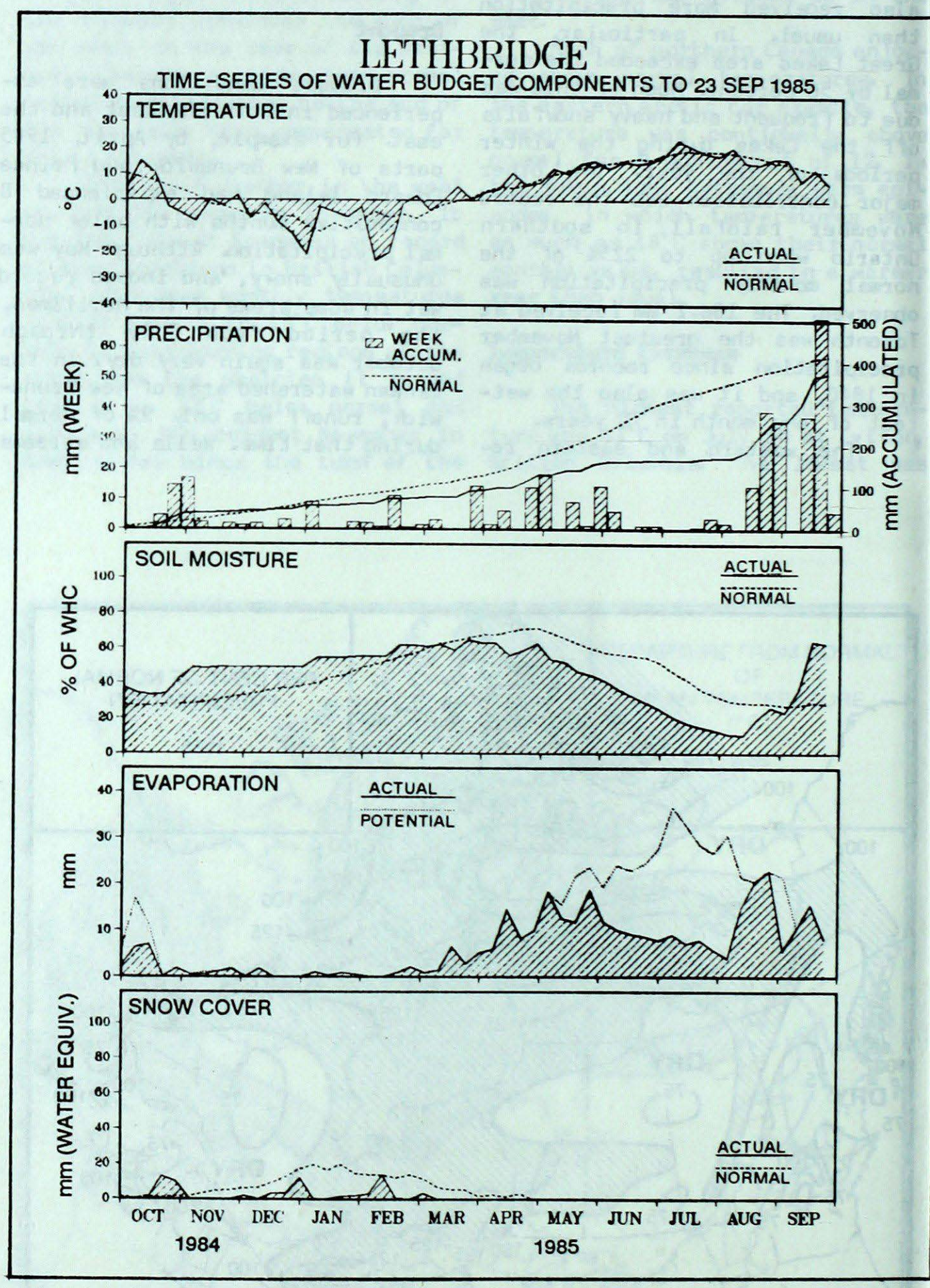


Figure 3

TABLE 1
NOTABLE 1985 EXTREMES

BRITISH COLUMBIA

January was the **driest** on record at many coastal and southern locations.

April was the **wettest** on record at Hope (370.6 mm) and Revelstoke (114.3 mm).

July was the **sunniest** on record (more than 400 hours of bright sunshine at several locations). It was also the **hottest** and **driest** month of July on record at many places.

August was the **driest** (11.8 mm) on record at Port Hardy.

September was the **wettest** on record at many locations in the southern interior.

October was the **wettest** on record at several locations. At Castlegar it was the **coldest** (-16°C) on record, while at Cranbrook it was the **most cloudy** (109 hours of bright sunshine or 64% of normal).

November was the **coldest** on record at many locations. At Victoria Gonzales, **snowfall** for the month (50.2 cm) was more than twice the previous record set in 1911.

The Year was the **driest** (508.8 mm of precipitation) on record at Victoria Airport.

PRAIRIES

April was the **snowiest** (45 cm) on record at Fort McMurray, Alberta.

June was the **driest** (3.2 mm, or 3% of normal) on record at Lethbridge, Alberta.

August was the **wettest** on record at a number of locations in southern Manitoba. At Winnipeg it was the wettest (218.0 mm) since records began in 1872. On the 3rd of the month, 380 mm of rain from thunderstorms in the vicinity of Parkman and Wawosa, Saskatchewan was probably a **record one-day rainfall** for Canada east of the Rocky Mountains.

ONTARIO

November was the **wettest** and **most cloudy** on record at many southern locations (up to 230 mm of precipitation recorded, while at London there were only 16.8 hours of bright sunshine). At Toronto it was the wettest (186.2 mm of precipitation) since 1840 and the wettest of any month in 70 years. At Geraldton it was the **snowiest** (101 cm snowfall) on record.

QUÉBEC

April was the **driest** (23.2 mm) on record at Natashquan.

ATLANTIC PROVINCES

January was the **snowiest** (235 cm) on record at Goose Bay, Labrador. At the same location on the 28th, a **record windspeed** of 143 km/h was established.

April was the **driest** (28.7 mm) on record at Moncton, New Brunswick.

May was the **snowiest** on record (up to 33 cm) at a number of locations.

June was the **wettest** (307 mm) on record at Halifax, Nova Scotia.

September was the **driest** on record at Moncton, New Brunswick (14.8 mm) and Truro, Nova Scotia (18.0 mm).

TABLE 2. SIGNIFICANT WEATHER AND CLIMATIC EVENTS AND THEIR IMPACT DURING 1985

DATE (1985)	EVENT	LOCATION	IMPACT	NUMBER KILLED OR INJURED (where known)
Jan 1	Freezing rain	Southern Ont., Southern Québec	Power outages, traffic accidents, airport closed.	
Jan 5-6	Major winter storm	Newfoundland	Schools closed, roads impassable.	
Jan 15-16	Snow and wind	Atlantic Provinces	Ferry Service to Prince Edward Island cancelled, schools and businesses closed.	
Jan 18-19	Freezing rain	Interior B.C.	Logging and airline schedules disrupted.	
Jan 19-20	Cold wave	Southern Ont.	Numerous roads impassable in the snowbelt.	
Jan 27-28	Heavy snow, blizzards and record winds	Newfoundland, eastern Québec	Schools and businesses closed, roads impassable. Numerous traffic accidents.	3 (car-bus collision)
Jan 29	Dense fog	Québec, eastern townships	Numerous traffic accidents.	2 (multi-car accident)
Feb 2-3	Major snowstorm heavy sea ice	Atlantic Provinces	Traffic accidents. Drilling rigs forced to move, shipping and ferry services disrupted.	1
Feb 12	Very heavy snow, blizzards, damaging winds	North Coast of B.C.	Wind damage. Transportation and logging halted.	
Feb 14	Severe thunderstorms	Central B.C. parts of Alta.	Wind damage.	
Feb 12-15	Major winter storm	Ontario	Transportation disrupted. Schools and businesses closed.	
Feb 23-24	Heavy rain, flooding	Southern Ont.	Ice jams. Farm lands, city streets flooded. Railway and highway tunnel under Welland Canal flooded	
Feb 23-24	Freezing rain, snow	Southern Qué., Atlantic Provinces	Flight delays, traffic accidents. Schools closed. Prince Edward Island ferry service disrupted.	
Mar 4-5	Heavy snow, freezing rain, strong winds	Southern Ont., Southern Qué., Labrador	Traffic chaos, inter-city buses cancelled, flights cancelled, snow removal hampered.	1(snow slide)
Mar 13	Heavy rain, snow, strong winds	Southern Qué., Atlantic Provinces	Streets and basements flooded, schools closed, power outages.	
Mar 21-22	Snow storm, strong winds	Newfoundland	Transportation disrupted, Corner Brook virtually closed.	
Mar 31-Apr 1	Freezing rain, heavy snow, strong winds	Southern Ont., Southern Qué., Nova Scotia	Power outages, trees toppled, schools closed.	

TABLE 2 Continued

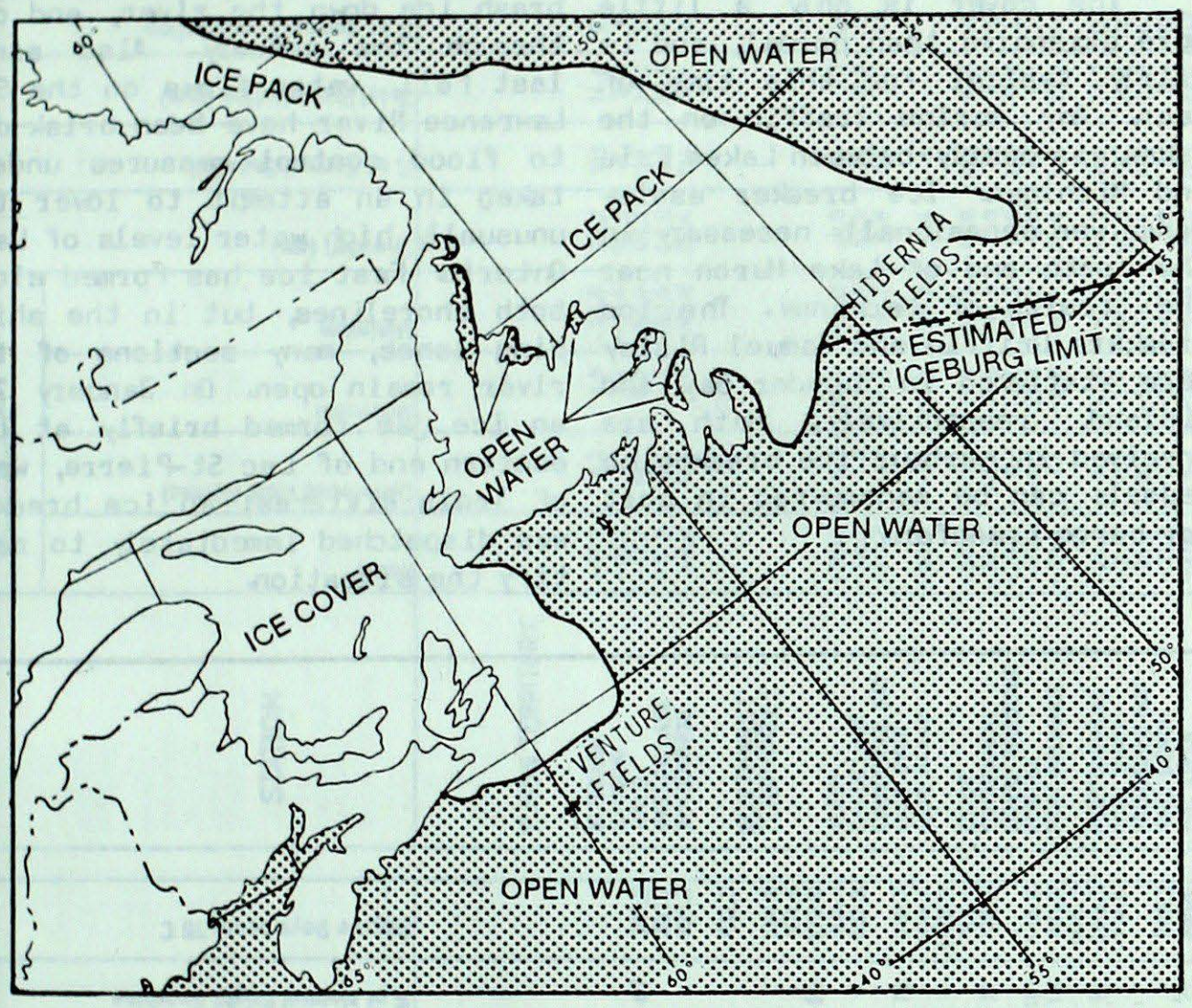
DATE (1985)	EVENT	LOCATION	IMPACT	NUMBER KILLED OR INJURED (where known)
Apr 6	Strong winds, heavy rain	Southern Ont.	Major flooding. Ice jam closed the Welland Canal.	
Apr 16-18	Snowstorm, damaging winds	Eastern Quebec, Atlantic Provinces	Schools closed, building damage, aircraft overturned, fishing boat capsized.	5(drowned)
Apr 19-21	Worst snowstorm in 30 years	Alberta	Highways closed.	
Apr 25-27	Windstorm, heavy snow	Northwest coastal B.C., southern Yukon	Four fishing trawlers sank. Alaska Highway impassable.	2(drowned)
May 4	Windstorm	Québec	Property damage. Fishing boat capsized.	3(drowned)
May 13	Severe thunderstorms	Québec, eastern townships	Hail and wind damage.	
May 30	Hailstorms	Southwestern Ontario	Greenhouses and newly planted vegetable crops ruined. Millions of dollars damage.	
May 31	Violent tornado outbreak	Southern Ont., part of Québec	Third worst Canadian tornado disaster. $100 million property losses.	12, hundreds injured
June 6	Heavy rain	Maritimes	Flooded streets and basements. Spring field work delayed.	
June 8	Wind and dust storm	Southern Sask., Manitoba	Heavy soil erosion, buildings and transmission lines damaged. Newly seeded crops blown away causing losses of $4 million.	
June 19	Tornado	Québec	Property losses of $1 million.	3 injured
July 3-8	Severe thunderstorms	Québec, southern Ontario, Nova Scotia	Buildings damaged, trees uprooted, power outages.	
July 12-16	Tornado, hailstorms	Saskatchewan, Manitoba	Buildings badly damaged, crops flattened.	
July	Peak of drought	B.C., Alberta, Saskatchewan	Raging forest fires in B.C. with several communities evacuated. Crops ploughed under and no hay or pasturelands on the Prairies.	
July 29	Severe thunderstorms, hail	Ontario and Québec	Power outages. $3 million in hail damage to farms.	5(drowned)
Aug 3	Hail and torrential rain	Southeastern Saskatchewan	Extensive flooding of fields. Soil erosion. Up to 380 mm of rain in 6-8 hour period (probably a record one-day rainfall for Canada east of the Rockies).	
Aug 17-18	Heavy rain	Southeastern Saskatchewan, Manitoba	Fields under water. Hundreds of homes flooded.	

TABLE 2 Continued

DATE (1985)	EVENT	LOCATION	IMPACT	NUMBER KILLED OR INJURED (where known)
Aug 26	Hailstorm	Southwestern Ontario	$\frac{1}{4}$ million damage to tobacco and tomato crops.	
Sept 7	Tornadoes	Southern Ont.	Houseboat overturned.	1
Sept 19	Hailstorms, heavy rain	Northern Ont.	Fields and basements flooded.	
Oct 8	Heavy snow	Southern Man., northwestern Ontario	Harvesting brought to a standstill. Traffic accidents.	
Oct 16	Wind storm	Northwest coast B.C.	Two fishing boats floundered and sank. A third had to be towed to port.	
Oct 24	Damaging wind, blizzard	Arctic	Buildings badly damaged. Power outage.	
Nov 12-16	Freezing rain storms	Ontario, Québec	Thousands of minor traffic accidents.	
Nov 15	Snow storm	Newfoundland	Power outages, road closures.	
Nov 19-21	Snow	Vancouver Is.	Transportation disrupted, power outages, schools closed.	
Nov 19-20	Blizzard, heavy snow, damaging wind	Southern Man., northern Ont., central Québec, Labrador	Schools closed, buildings damaged.	
Nov	Cold wave	Southern Yukon, B.C., Prairie Provinces, Northwestern Ontario	Coldest November on record at many locations in B.C. At prairie locations with records dating back over 100 years, it was the 3rd coldest November since records began. Logging and construction temporarily halted, even some ski resorts forced to close. Damage to orchards and vineyards.	Many people treated for frostbite
Nov	Record rainfall	Southern Ont.	The wettest November on record at many locations. Much of this moisture was contributed by the remnants of hurricane Juan.	
Dec 2-4	Wind storm, heavy snow	Great Lakes, Québec, Labrador	Lake Erie rose to an all time high water level causing extensive flooding and property damage. Barge blown from its moorings and ran aground spilling oil into the St. Lawrence River.	
Dec 13-15	Wind storm, snow	Great Lakes, Québec, Atlantic provinces	Damaging waves and high water level on Lake Erie. A small plane crashed during snow storm. Heavy seas off the east coast disabled 2 ocean-going vessels.	

ICE CONDITIONS IN CANADIAN WATERS

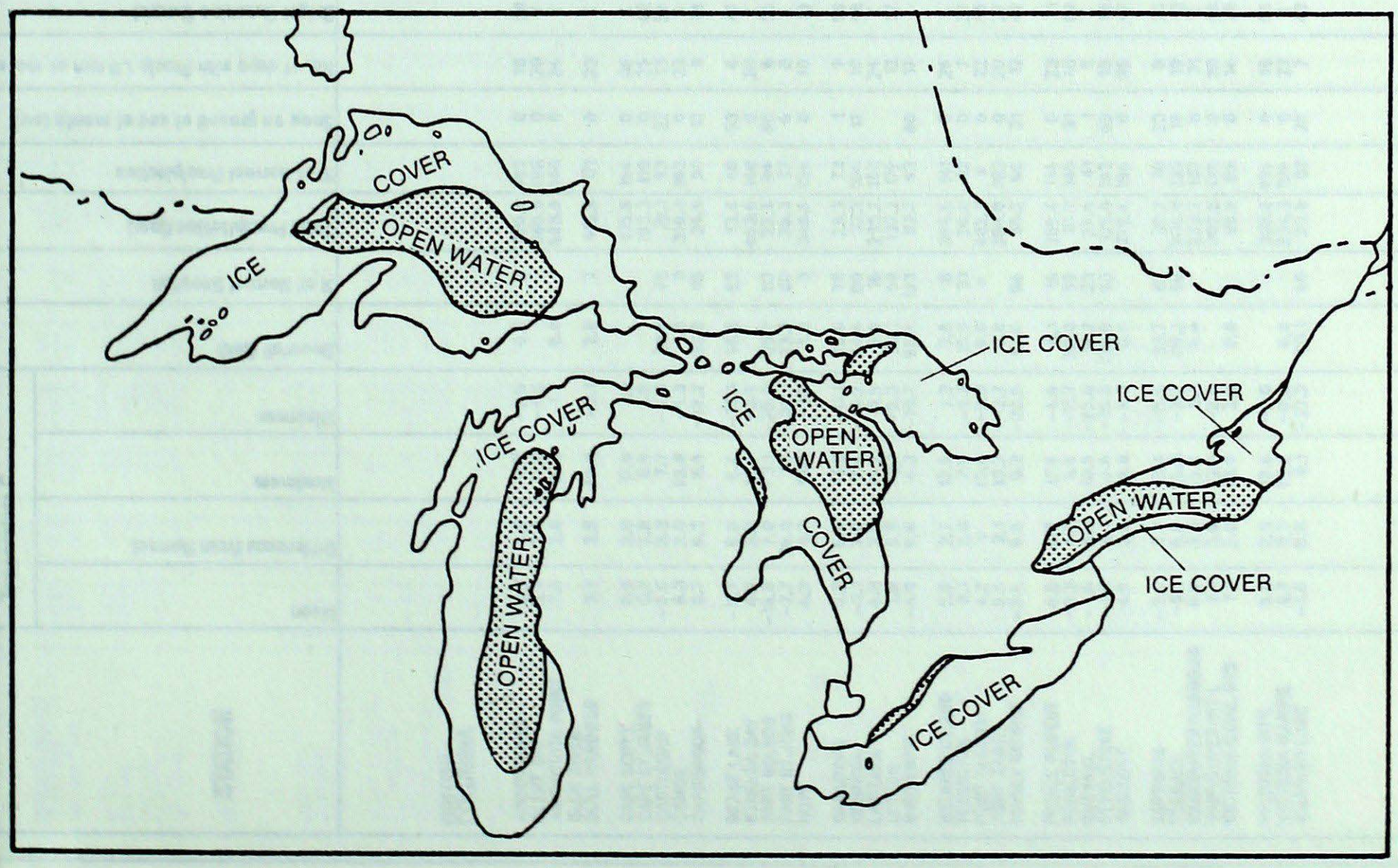
by
A.K. Radomski



East Coast

This year ice development has been later than the previous two seasons. At the present time, there is fairly heavy congestion along the northeast coast due to frequent on-shore winds. The ice pack extends almost 400 km out to sea, and is much further south than normal. The leading edge of the ice pack is less than 100 km north of the Hibernia oil fields, and is slowly edging southward, a potential threat to the drilling operations. The coastal shipping route along the east side of the Island was covered with new ice. The Change and Fogo Island ferries were being assisted by the ice breaker Sir Humphry Gilbert. The C.C.G.S. Franklin was assisting vessels in and out of Lewisporte and Botwood. Icebergs have not yet been much of a threat in east Newfoundland waters.

... continued



FEATURE

Ice Conditions .... cont'd

Gulf of St. Lawrence

It is a relatively severe ice-year in the Gulf. As is usually the case, freeze-up was well underway at the beginning of the year, with the ice developing and spreading rapidly during the month. At the present time, ice in the Gulf of St. Lawrence is significantly more extensive than normal. Ice in the northwestern portion of the Gulf and the Estuary was relatively thin, and ships experienced little difficulty in this area. In contrast, it was a different situation in the approaches to the Gulf. A persistant northwesterly wind flow has been pushing heavy broken ice eastwards through Cabot Strait, and a broad band of ice has drifted around Cape Breton Island. Many ships have required ice breaker assistance not being able to make headway through the heavy ice.

Great Lakes

Ice cover is only a little more extensive than normal, and is fairly typical for this time of year. Any marine traffic on the lakes was mostly between Lakes Erie and Michigan. Ice breaker assistance was occasionally necessary in the north end of Lake Huron near the Straits of Mackinaw. The ice breakers Griffin and Samuel Risley were stationed in Thunder Bay and Midland, respectively. Both are involved in harbour ice breakup so vessels can be manoeuvred in port for cargo transfer.

St. Lawrence River

Conditions on the St. Lawrence River have been very favourable this year. A predominately westerly circulation has helped push loose brash ice down the river, and out through the estuary. Also since last fall, water flows on the St. Lawrence River have been brisk due to flood control measures undertaken in an attempt to lower the unusually high water levels of Lake Ontario. Fast ice has formed along both shorelines, but in the shipping lanes, many sections of the river remain open. On January 27, an ice jam formed briefly at the eastern end of Lac St-Pierre, west of Trois Rivières; an ice breaker was dispatched immediately to rectify the situation.

STATION	Temperature C Mean	Difference from Normal	Maximum	Minimum	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
BRITISH COLUMBIA													
ABBOTSFORD	6.2	4.6	17.7	-0.6	0.9	2	220.8	105	0	18	59	87	365.2
ALERT BAY	5.4	2.6	11.8	-1.0			369.0	188	0	20	X		381.7
AMPHITRITE POINT	7.5	2.8	18.2	1.7	0.0		603.5	148	0	24	X		327.2
BLUE RIVER													
BULL HARBOUR	5.7	2.5	13.3	-2.1	2.0	7	415.9	171	0	23	X		412.3
CAPE SCOTT	6.9	2.8	17.9	1.1			475.5	154	0	26	X		354.5
CAPE ST.JAMES	6.7	2.8	8.9	1.8			193.3	119	0	25	40	*	371.6
CASTLEGAR	-0.6	3.3	7.7	-9.0	61.6	73	79.1	93	22	13	36	80	573.0
COMOX	9.2	3.0	13.8	-1.3	1.6	3	316.3	163	0	22	X		524.1
CRANBROOK	0.7	9.3	8.6	-13.2	22.0	45	24.9	50	12	9	79	*	652.5
DEASE LAKE	-11.7	8.0	6.4	-26.1	18.3	53	13.6	48	53	6	47	74	918.7
ETHELDA BAY	4.9	3.0	13.7	-2.9			463.6	140	0	28	X		406.6
FORT NELSON	-16.8	7.0	-3.1	-28.8	25.7	82	23.6	94	56	6	55	*	1078.0
FORT ST.JOHN	-7.7	10.0	7.1	-26.1	23.2	80	20.3	57	6	8	X		796.4
HOPE	4.3	4.7	12.4	-1.7	3.0	3	345.6	134	0	18	13	77	425.3
KAMLOOPS	0.3	6.4	11.3	-11.1	25.0	78	23.3	73	1	9	59	101	548.6
KELOWNA	-2.1	3.0	7.4	-14.7	24.4	80	32.2	104	12	10	49	111	621.8
LANGARA	4.8	2.5	10.2	0.5	5.0	16	235.2	148		24	X		408.3
LYTTON	1.8	5.6	12.1	-9.3	33.1	59	137.2	179		12	57	92	503.7
MACKENZIE	-4.9	9.4	4.3	-18.7	99.4	123	82.2	93	60	17			714.4
MCINNES ISLAND	5.6	2.7	12.6	1.3	3.0	8	394.5	141	0	26	X		385.1
PENTICTON	0.1	2.8	7.6	-9.2	15.0	51	26.4	82	0	7	37	77	555.4
PORT ALBERNI	4.2	*	13.0	-2.3	9.0	*	482.3	*	0	22	18	*	426.8
PORT HARDY	5.5	3.1	13.7	-2.7	0.0		384.8	182	0	20	27	41	389.3
PRINCE GEORGE	-2.6	9.5	9.3	-22.5	51.4	84	55.2	96	21	12	42	71	636.5
PRINCE RUPERT	4.5	4.7	17.6	-4.6	8.1	16	259.6	114	0	23	21	43	416.6
PRINCETON	-3.2	4.7	6.6	-11.7	33.0	59	81.7	149	31	10	59	*	MSG
QUESNEL	-1.6	9.5	10.5	-23.0	14.2	23	23.4	41	1	5	X		607.7
REVELSTOKE	-1.5	5.1	4.9	-15.3	135.6	93	125.9	103	63	18	16	36	603.9
SANDSPIT	4.5	2.5	9.8	-3.0	0.0		279.4	194	0	26	47	81	408.2
SMITHERS	-3.2	7.7	3.6	-11.6	35.7	62	39.2	70	23	8	22	40	667.6
TERRACE	-0.1	6.8	5.8	-8.2	111.2	95	204.0	132	19	19	18	34	560.0
VANCOUVER HARBOUR	6.9	3.5	13.4	0.1	0.0		233.7	107	0	21	X		345.4
VANCOUVER INT'L	6.1	3.6	12.9	-2.4			207.8	135	0	20	49	91	370.7
VICTORIA GONZ. HTS	7.1	3.0	13.0	2.2	0.0		95.9	86	0	14	75	110	336.8
VICTORIA INT'L	5.9	2.8	12.6	-2.0			207.0	134	0	16	55	86	377.1
VICTORIA MARINE	6.7	2.9	13.6	-0.6	0.0		234.3	104	0	22	X		348.8
WILLIAMS LAKE	-1.6	8.8	9.1	-22.2	30.1	60	23.0	52	26	7	49	70	607.0

STATION	Temperature C Mean	Difference from Normal	Maximum	Minimum	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
YUKON TERRITORY													
BURWASH	-15.7	9.2	1.0	-34.6	22.2	151	14.4	92	22	6	X		1044.2
DAWSON	-18.2	*	-2.4	-41.4	50.8	*	27.1	*	50	10	X		1120.7
MAYO	-13.7	15.3	0.8	-33.0	44.2	236	24.2	138	34	9	X		1176.3
WATSON LAKE	-17.0	9.7	-1.5	-32.5	44.8	116	28.5	87	40	11	40	89	1084.6
WHITEHORSE	-7.8	12.9	3.0	-20.8	24.4	114	15.4	87	24	6	37	80	797.9
NORTHWEST TERRITORIES													
ALERT	-35.9	-3.8	-27.4	-44.3	4.8	64	2.1	29	19	0	0		1670.4
BAKER LAKE	-32.0	1.0	-14.7	-40.6	10.9	136	8.6	112	25	3			1551.9
CAMBRIDGE BAY	-35.2	-1.9	-19.6	-41.2	4.8	54	3.7	60	12	1	11		1649.7
CAPE DYER											X		
CAPE PARRY	-30.3	-1.5	-18.1	-39.7	0.4	4			10	0	X		1498.0
CLYDE	-27.4	-0.9	-14.8	-44.6	18.0	180	12.6	127	35	5	1	250	1407.3
COPPERMINE	-32.4	-2.3	-17.0	-41.9	6.8	73	5.8	62	17	3	14	350	1562.1
CORAL HARBOUR	-29.6	0.1	-13.5	-41.3	11.0	129	11.0	132	35	4	63	143	1472.0
EUREKA	-41.2	-4.8	-29.2	-50.7	2.0	62	1.6	55	14	0	0		1833.3
FORT RELIANCE	-28.2	1.4	-5.8	-45.1	35.4	245	23.2	194	54	8	X		1430.4
FORT SIMPSON	-24.2	4.0	-10.6	-42.0	34.2	165	24.2	121	52	6	25	52	1268.9
FORT SMITH	-21.6	5.2	-3.4	-43.0	50.8	237	28.7	155	64	7	28	49	1226.5
FROBISHER BAY	-25.9	-0.3	-5.5	-39.5	44.4	160	42.5	162	40	9	42	119	1361.3
HALL BEACH	-31.7	-0.7	-9.6	-45.7	2.8	31	2.8	32	23	1	X		1541.5
HAY RIVER	-21.5	4.3	-5.0	-40.9	24.3	108	23.7	113	45	10	X		1226.7
INUVIK	-31.7	-2.1	-19.0	-46.5	19.0	93	9.5	53	34	3	2	27	1540.3
MOULD BAY	-35.7	-2.2	-25.0	-44.9	1.0	30	0.8	29	30	0	0		1663.6
NORMAN WELLS	-27.8	1.1	-17.1	-44.2	24.6	119	16.1	82	28	8	23	77	1418.3
POND INLET	-30.7	0.4	-7.7	-43.7	20.2	252	15.7	320	23	5	X		1509.5
RESOLUTE	-34.0	-1.9	-20.9	-43.8	2.9	85	2.9	87	28	0	0		1612.4
SACHS HARBOUR	-31.9	-1.5	-22.2	-41.5	0.2	5	0.2	6	8	0	0		154.6
YELLOWKNIFE	-25.8	3.0	-10.4	-42.6	18.4	118	11.4	85	44	4	35	79	1358.9
ALBERTA													
BANFF	-2.7	8.8	8.5	-18.0	19.8	44	14.8	38	17	4	X		
BROOKS	-1.8	12.1	13.5	-19.0	0.6	2	0.4	1	0		89	*	
CALGARY INT'L	-0.8	11.0	13.7	-15.7	1.2	5	0.7	4	0	0	118	115	580.5
COLD LAKE	-9.9	9.1	8.9	-23.1	40.0	168	35.7	161	26	7	72	79	864.3
CORONATION	-6.1	10.4	7.1	-20.3	10.6	42	7.4	34	3	4	103	86	748.4
EDMONTON INT'L	-6.2	10.3	8.0	-20.5	11.8	41	10.6	43	11	5	70	71	749.1
EDMONTON MUNI.	-5.1	9.9	8.4	-17.6	10.7	39	11.5	46	7	4	79	87	714.6
EDMONTON NAMAO	-6.1	9.5	7.7	-20.1	14.2	57	12.5	50	15	5	X		746.6
EDSON	-9.3	10.1	10.3	-17.7	3.4	9	7.9	30		1	73	87	722.3
FORT CHIPEWYAN	-21.1	5.0	-0.5	-39.5	28.0	131	28.0	146	74		X		

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

JANUARY 1986

STATION	Temperature C Mean	Difference from Normal	Maximum	Minimum	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
FORT MCMURRAY	-11.8	10.0	7.0	-28.0	40.2	152	34.4	151	29	8	51	57	922.7
GRANDE PRAIRIE	-8.7	9.0	5.8	-25.5	24.7	65	23.7	89	11	5	82	*	827.6
HIGH LEVEL	-16.8	7.8	0.9	-33.0	40.1	150	26.1	126	46	9	26	48	1080.2
JASPER	-3.1	9.7	10.7	-21.0	8.6	22	12.5	36	23	5	63	*	653.8
LETHBRIDGE	0.9	11.2	12.6	-16.8	6.0	21	5.8	24	3	3	89	93	529.8
MEDICINE HAT	-0.7	11.9	12.0	-15.6	3.3	12	3.0	13	1	1	112	120	578.3
PEACE RIVER	-9.6	10.8	5.4	-26.2	31.2	115	30.1	136	16	8	X		854.0
RED DEER	-8.9	11.6	9.5	-20.7	0.4	1	0.6	2		0	X		654.5
ROCKY MTN HOUSE	-4.6	8.4	12.6	-23.0	2.0	6	2.1	7	4	1	X		701.0
SLAVE LAKE	-8.9	9.1	8.2	-23.1	26.4	79	19.5	71	11	7	57	68	824.4
SUFFIELD	-1.4	12.3	14.7	-14.2	1.8	8	1.0	4		0	118	120	599.1
WHITECOURT	-6.3	10.3	11.8	-18.2	17.8	55	24.2	82	9	6	X		753.8
SASKATCHEWAN													
BROADVIEW	-9.5	9.4	6.9	-33.4	22.8	121	17.8	117	8	6	94	78	853.1
COLLINS BAY	-21.6	4.6	-1.7	-38.2	65.1	332	42.8	253	30	11	65	*	1227.2
CREE LAKE	-16.9	8.2	3.9	-39.9	27.4	131	23.5	158	30	6	59	69	1080.8
ESTEVAN	-6.8	9.5	7.2	-26.0	16.0	78	12.6	65	4	4	93	76	769.6
HUDSON BAY	-12.7	8.6	6.6	-38.3	15.5	61	11.9	60	22	3	81	*	951.2
KINDERSLEY	-7.7	9.5	6.2	-23.2	6.8	37	5.8	33	8	3	X		796.2
LA RONGE	-14.6	8.0	6.1	-37.2	14.0	63	14.2	72	15	5	X		1011.0
MEADOW LAKE	-13.4	6.1	6.1	-30.2	30.8	153	25.0	116	10	7	88	*	892.5
MOOSE JAW	-5.5	10.3	8.3	-22.1	16.3	70	14.6	78	8	3	81	76	721.8
NIPAWIN	-12.8	*	6.0	-35.4	23.4	*	15.4	*	11	5	82	76	955.3
NORTH BATTLEFORD	-9.2	9.8	7.2	-25.3	30.8	139	22.8	115	20	6	X		843.0
PRINCE ALBERT	-11.7	9.8	6.8	-35.5	25.5	140	23.7	142	18	8	83	86	921.9
REGINA	-8.2	9.7	5.4	-24.0	14.0	70	13.0	78	7	4	83	83	810.6
SASKATOON	-8.6	10.7	6.5	-25.4	30.2	151	25.4	142	15	5	X		823.2
SWIFT CURRENT	-4.4	10.3	8.7	-17.9	7.5	33	7.4	35	2	3	107	116	693.4
URANIUM CITY	-21.5	5.8	-6.2	-42.0	53.2	182	33.0	163	56	10	X		1225.4
WYNYARD	-9.4	9.8	7.2	-30.6	19.2	90	14.4	75	7	8	84	74	860.3
YORKTON	-11.4	8.5	-6.4	-34.2	31.2	126	22.9	100	20	9	64	77	912.3
MANITOBA													
BRANDON	-12.7	7.0	5.8	-34.0	22.8	108	22.0	113	14	8	X		950.9
CHURCHILL	-25.8	1.7	-8.1	-36.3	29.2	172	25.9	169	14	9	85	105	
DAUPHIN	-11.1	8.4	9.6	-33.9	15.6	60	11.8	47	5	5	95	79	903.1
GILLAM	-24.0	4.0	-3.1	-38.6	38.4	166	25.4	120	45	5	X		1303.6
GIMLI	-13.4	6.8	8.2	-32.8	14.4	44	13.4	50	16	3	102	83	974.7
ISLAND LAKE	-20.5	4.3	-5.0	-38.9	36.7	91	30.5	108	46	10	X		1193.4
LYNN LAKE	-22.0	4.9	-1.5	-46.0	31.1	116	29.8	133	41	8	*		1241.5
NORWAY HOUSE											X		

STATION	Temperature C Mean	Difference from Normal	Maximum	Minimum	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
PILOT MOUND	-12.0	6.7	5.5	-30.0	13.2	60	13.6	62	21	6	X		930.1
PORTAGE LA PRAIRIE	-11.6	6.7	8.5	-31.7	22.0	112	11.2	42	18	5	X		917.9
THE PAS	-15.1	7.6	3.6	-36.9	19.4	82	15.9	88	19	5	62	60	1024.9
THOMPSON	-22.4	4.2	-3.5	-43.0	34.0	134	32.6	150	48	7	86	91	1252.6
WINNIPEG INT'L	-13.1	6.2	7.3	-33.7	10.4	43	9.6	45	10	2	100	82	964.0
ONTARIO													
ATIKOKAN	-15.1	3.3	7.5	-39.8	44.1	97	25.6	83	50	6	90	83	1027.1
BIG TROUT LAKE	-22.4	2.1	-4.0	-36.8	23.2	*	19.6	79	41	5	98	*	1253.0
EARLTON	-16.2	0.1	4.5	-34.9	31.3	54	30.4	53	41	8	X		1061.5
GERALDTON	-18.6	1.4	1.8	-41.2	28.0	75	21.8	57	44	10	X		1134.5
GORE BAY	-10.1	0.0	4.6	-28.0	61.6	108	35.0	57	21	9	X		870.1
HAMILTON RBG	-4.3	0.7	9.2	-20.1	13.8	36	33.1	50	2	6	97	*	
HAMILTON	-5.3	1.1	7.9	-22.5	24.6	62	35.3	55	5	9	X		732.2
KAPUSKASING	-19.9	-1.3	1.8	-37.3	45.6	82	40.6	75	84	8	X		1150.5
KENORA	-13.9	4.6	7.4	-33.5	22.6	72	20.0	70	39	7	X		987.3
KINGSTON	-7.4	0.3	7.9	-24.8	32.6	63	54.2	78	12	8	94	93	787.0
LANSDOWNE HOUSE											X		
LONDON	-5.5	1.1	5.7	-25.2	51.9	94	44.6	59	10	13	69	97	729.4
MOOSONEE	-21.6	-1.2	1.2	-37.6	43.1	100	37.4	91	111	10	83	101	1226.2
MOUNT FOREST	-8.0	0.4	4.8	-24.8	54.8	89	53.2	71	10	13			834.4
MUSKOKA	-10.9	-0.5	6.4	-35.0	66.2	82	64.1	74	40	14	X		899.4
NORTH BAY	-13.6	-0.6	4.0	-28.4	42.2	71	40.0	62	30	13	78	80	978.7
OTTAWA INT'L	-9.8	1.1	5.2	-24.9	35.0	69	54.0	88	16	10	110	*	863.0
PETAWAWA	-12.5	0.3	5.2	-31.7	45.0	96	44.5	95	13	13	X		935.5
PETERBOROUGH	-6.5	0.8	5.5	-28.5	29.4	83	50.2	113	14	10	X		822.2
PICKLE LAKE	-19.8	1.6	0.3	-39.1	63.2	150	22.8	59	59	11	X		1171.8
RED LAKE	-16.8	4.2	5.3	-37.5	39.0	125	27.8	96	42	7	79	*	1079.1
ST. CATHARINES	-3.6	0.7	10.0	-17.4	31.8	96	53.2	93	5	9	X		667.9
SARNIA	-5.0	0.7	7.5	-19.6	23.0	79	27.4	52	3	9	81	96	711.3
SAULT STE. MARIE	-11.2	-1.1	-3.4		48.2	63	40.5	54	42	12	91	119	904.4
SIMCOE	-4.8	1.4	8.0	-23.6	30.5	76	39.5	58	8	11	X		707.2
SIOUX LOOKOUT	-16.0	3.4	3.9	-37.4	47.6	124	52.0	144	49	12	X		1049.7
SUDBURY	-13.8	-0.1	3.7	-31.2	39.6	73	29.4	51	33	8	89	88	985.0
THUNDER BAY	-13.1	2.3	6.6	-36.7	38.3	79	30.1	73	45	5	103	86	964.1
TIMMINS	-18.1	-0.8	2.3	-40.0	30.6	46	30.7	54	66	9	X		1114.4
TORONTO	-3.9	0.7	8.3	-19.2	25.0	68	31.6	51	5	6			679.7
TORONTO INT'L	-5.6	0.8	6.7	-21.9	18.8	56	26.5	52	1	6	X		730.7
TORONTO ISLAND	-3.7	1.2	7.5	-19.4	15.2	48	28.1	50	6	5			672.3
TRENTON	-6.9	0.7	8.0	-24.3	27.0	56	49.7	72	12	8	X		770.6
WATERLOO-WELL	-6.7	0.5	6.0	-26.4	25.0	61	29.2	52	4	8	X		765.5
WAWA	-15.4	*	2.5	-40.5	67.2	*	44.6	*	83	12		*	1034.8
WIARTON	-6.4	0.7	6.4	-22.1	101.4	99	70.9	73	52	18	56	82	759.2
WINDSOR	-4.3	0.6	8.8	-19.2	26.4	87	30.2	54	6	10	X		691.0

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

JANUARY 1986

STATION	Temperature C Mean	Difference from Normal	Maximum	Minimum	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
QUEBEC													
BAGOTVILLE	-15.1	0.7	8.8	-32.9	101.5	148	113.5	178	44	15	X		1026.8
BAIE COMEAU	-13.5	0.2	5.6	-32.6	153.0	180	165.6	182	50	13	106	*	977.2
BLANC SABLON													
CHIBOUGAMAU	-20.1	-0.4	0.7	-39.0	74.2	94	68.0	94	75	11	78	89	1181.6
GASPE	-10.6	0.3	10.5	-29.8	108.0	115	131.4	124	1	13	103	*	887.9
INUKJUAK	-24.8	-0.3	-11.2	-36.9	17.6	176	16.8	171	35	6	82	157	
KUUJJUAQ	-23.1	0.2	-0.2	-40.5	73.3	223	68.9	208	70	13	61	97	1274.4
KUUJJUARAPIK	-24.1	-1.6	-4.1	-40.9	24.8	92	24.8	96	28	7	54	75	1305.5
LA GRANDE RIVIERE	-24.3	*	-1.5	-38.3	27.3	*	24.4	*	53	8	18	*	1312.2
MANIWAKI	-12.8	0.7	6.2	-31.5	50.6	104	50.2	91	24	11	98	106	953.9
MATAGAMI	-20.1	0.0	1.0	-37.6	61.6	99	46.2	78	51	13	76	97	1183.0
MONT JOLI	-10.6	1.0	10.1	-26.6	114.8	132	136.0	155	21	18	60	73	884.7
MONTREAL INT'L	-9.4	0.8	5.5	-25.1	69.6	132	105.6	146	16	13	92	86	849.3
MONTREAL M INT'L	-10.8	*	4.5	-29.2	70.2	*	97.3	*	32	14	123	*	892.7
NATASHQUAN	-12.0	0.1	6.0	-30.7	114.6	166	148.5	162	29	20	89	81	930.5
QUEBEC	-12.1	0.0	5.9	-28.0	106.6	137	130.2	144	58	15	91	94	936.1
ROBERVAL	-17.1	-1.3	2.8	-33.5	71.3	101	86.1	127	70	13	84	*	1040.9
SCHEFFERVILLE	-22.6	0.2	5.1	-43.0	60.8	127	59.8	127	51	12	79	*	1259.5
SEPT-ILES	-14.7	-0.7	5.5	-33.3	116.2	124	136.0	142	29	12	83	76	1013.5
SHERBROOKE	-10.6	1.1	10.9	-31.7	53.8	86	111.3	156	21	15	82	*	886.7
STE AGATHE DES MONTS	-12.6	0.8	4.5	-29.9	90.8	110	97.2	104	66	16	83	86	948.1
ST-HUBERT	-9.4	0.7	5.2	-25.5	76.0	134	105.0	126	25	13	0		849.1
VAL D'OR	-17.5	-0.7	2.6	-35.5	65.2	109	66.6	110	68	12	77	76	1099.5
NEW BRUNSWICK													
CHARLO	-11.4	0.3	10.6	-26.8	85.6	102	110.4	123	19	13	110	93	903.8
CHATHAM	-9.7	0.0	11.6	-28.8	83.0	124	112.8	114	12	10	119	104	856.9
FREDERICTON	-8.2	1.0	14.0	-27.1	74.4	116	123.4	119	4	11	115	*	811.2
MONCTON	-7.6	0.5	13.4	-26.8	116.9	150	156.6	125		15	120	111	793.9
SAINT JOHN	-6.5	1.3	13.1	-25.0	46.8	61	135.4	90	0	12	111	104	759.7

STATION	Temperature C Mean	Difference from Normal	Maximum	Minimum	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
NOVA SCOTIA													
GREENWOOD	-4.0	1.0	14.2	-20.9	66.6	87	126.9	101	16	18	X		684.3
HALIFAX INT'L	-3.8	2.2	12.4	-21.8	41.7	66	177.9	116	14	14	0		676.8
SABLE ISLAND	0.8	0.7	10.9	-12.0	11.6	31	130.9	89		16	74	139	533.3
SHEARWATER	-3.1	1.0	9.2	-19.9	39.3	85	133.3	93	15	12	101	89	654.0
SYDNEY	-3.9	0.8	11.6	-22.5	52.4	70	175.8	117	33	16	95	110	678.5
TRURO	-5.0	1.8	14.4	-24.9	45.8	84	145.6	136	15	14	77	87	713.1
YARMOUTH	-1.4	1.3	13.3	-17.3	59.8	96	139.4	98	13	18	61	85	600.6
PRINCE EDWARD ISLAND													
CHARLOTTETOWN	-6.4	0.7	12.4	-25.2	53.6	69	95.9	82	7	13	X		753.8
SUMMERSIDE	-6.9	0.3	11.8	-25.7	71.2	106	107.2	104	12	14	108	99	744.4
NEWFOUNDLAND													
ARGENTIA	-1.1	0.4	14.6	-16.0	34.5	64	119.9	105	0	19	X		595.1
BATTLE HARBOUR	-10.8	-1.2	5.2	-30.8	124.2	181	154.2	241	75	15	X		893.1
BONAVISTA	-3.0	1.3	11.9	-17.0	46.6	91	80.6	89		13	X		649.8
BURGEO	-3.0	0.2	6.6	-18.8	40.3	70	253.7	168	1	21	70	83	678.6
CARTWRIGHT	-13.4	-0.2	10.0	-30.9	102.7	123	104.1	116	58	16	75	83	975.0
CHURCHILL FALLS	-20.2	0.1	6.9	-39.9	79.4	92	74.4	86	68	11	104	104	1190.8
COMFORT COVE	-5.1	1.3	12.4	-21.5	29.6	36	59.7	57	0	13	X		714.4
DANIEL'S HARBOUR	-6.0	0.9	14.0	-16.0	103.8	116	110.9	111	31	17	37	66	744.0
DEER LAKE	-5.8	2.3	12.6	-23.0	103.0	119	115.1	123	22	20	X		738.7
GANDER INT'L	-4.8	1.4	11.2	-22.2	31.0	39	73.4	67		13	91	106	706.9
GOOSE	-15.6	0.8	10.1	-35.0	93.9	117	76.6	102	18	12	83	93	1041.0
PORT-AUX-BASQUES	-4.1	0.2	6.7	-17.6	79.8	108	191.5	143	21	25	43	*	696.7
ST ANTHONY	-9.3	0.6	5.4	-28.3	160.5	129	189.9	240	70	21	X		847.7
ST JOHN'S	-2.7	1.2	13.4	-18.0	52.7	64	117.3	75	0	16	72	101	637.4
ST LAWRENCE	-2.4	0.7	10.2	-16.5	49.5	97	134.0	107		18	X		
STEPHENVILLE	-4.3	0.7	12.4	-19.6	120.3	126	188.2	163	30	26	30	86	693.9
WABUSH LAKE	-21.3	1.0	7.0	-42.0	61.0	84	60.1	68	60	16	91	112	1222.4

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

AGROCLIMATOLOGICAL STATIONS — JANUARY 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	6.0	4.8	12.5	-2.0	0.0	235.6	103	0	22	54	44.0	44.0
KAMLOOPS												
SIDNEY												
SUMMERLAND	-0.2	3.2	8.0	-9.5	16.4	38.0	107	0	7	51	0.0	0.0
ALBERTA												
BEAVERLODGE	-7.0	8.9	8.0	-23.0	23.0	24.0	73	7	6	68	0.0	0.0
ELLERSLIE												
FORT VERMILLION												
LACOMBE	-4.1	11.4	8.0	-19.5	1.5	1.5	7	0	1	91	0.0	0.0
LETHBRIDGE												
VAUXHALL												
VEGREVILLE	-9.3	8.8	11.0	-25.0	12.0	12.0	72	17	6		0.0	0.0
SASKATCHEWAN												
INDIAN HEAD	-8.5	9.4	8.0	-30.0	20.8	15.2	72	12	7		0.0	0.0
MELFORT	-11.4	9.5	6.0	-32.0	15.6	15.6	83	21	8	71	0.0	0.0
REGINA	-9.0	9.0	7.0	-26.0	10.2	9.4	52	4	4		0.0	0.0
SASKATOON	-8.6	10.5	7.0	-25.5	31.8	31.8	141	8	5	85	0.0	0.0
SCOTT	-9.6	9.5	7.0	-24.0	17.9	15.8	93	20	5	79	0.0	0.0
SWIFT CURRENT SOUTH	-3.9	10.9	12.0	-16.5	5.6	5.4	33	2	2	93	0.0	0.0
MANITOBA												
BRANDON	-11.7	7.6	7.2	-37.5	21.8	21.8	102	14	5		0.0	0.0
GLENLEA	-14.5	5.2	5.5	-35.0	11.4	11.4	45	48	4	96	0.0	0.0
MORDEN	-11.0	6.3	7.0	-30.5	16.2	16.2	69	11	5	85	0.0	0.0
ONTARIO												
DELHI	-5.3	0.7	7.5	-25.5	25.3	36.3	54	9	12	83	0.0	0.0
ELORA	-4.0	4.2	4.6	-27.4	13.0	24.0	41	6			0.0	0.0
GUELPH	-6.4	0.8	6.0	-29.0	31.0	48.0	85	6	14	79	0.0	0.0
HARROW	-4.4	0.4	8.0	-20.5	9.6	21.6	37	0	8	113	0.5	0.5
KAPUSKASING												
MERIVALE												
OTTAWA	-9.7	1.1	5.2	-24.6	31.8	46.0	83	10	10	110	2.6	0.0
SMITHFIELD	-6.2	1.3	8.0	-25.0	28.2	64.2	78	11	11		0.0	0.5
VINELAND STATION	-0.2	3.9	11.1	-19.6	20.6	59.8	95	2	10	92	0.0	2.6
WOODSLEE												
QUEBEC												
LA POCATIERE	-10.8	0.5	12.0	-25.0	91.0	124.8	158	27	10	94	0.0	0.0
L'ASSUMPTION	-11.0	0.9	5.0	-29.5	57.5	113.6	153	42	13	91	0.0	0.0
LENNOXVILLE												
NORMANDIN	-17.8	0.2	2.0	-38.0	63.8	78.6	124	50	12	101	0.0	0.0
ST. AUGUSTIN												
STE CLOTHILDE	-8.3	1.7	7.0	-25.0	52.5	108.2	152	17	12	93	0.0	0.0
NEW BRUNSWICK												
FREDERICTON												
NOVA SCOTIA												
KENTVILLE	-3.4	1.6	14.0	-21.0	77.2	133.5	98	15	16	77	11.1	11.1
NAPPAN												
PRINCE EDWARD ISLAND												
CHARLOTTETOWN												
NEWFOUNDLAND												
ST. JOHN'S WEST	2.3	1.5	11.0	-17.5	49.1	163.1	90	0	18	67	6.6	6.6