Environment Canada Environnement Canada

Climatic Perspectives

Monthly Review **January 1992** *Vol. 14*

CLIMATIC HIGHLIGHTS

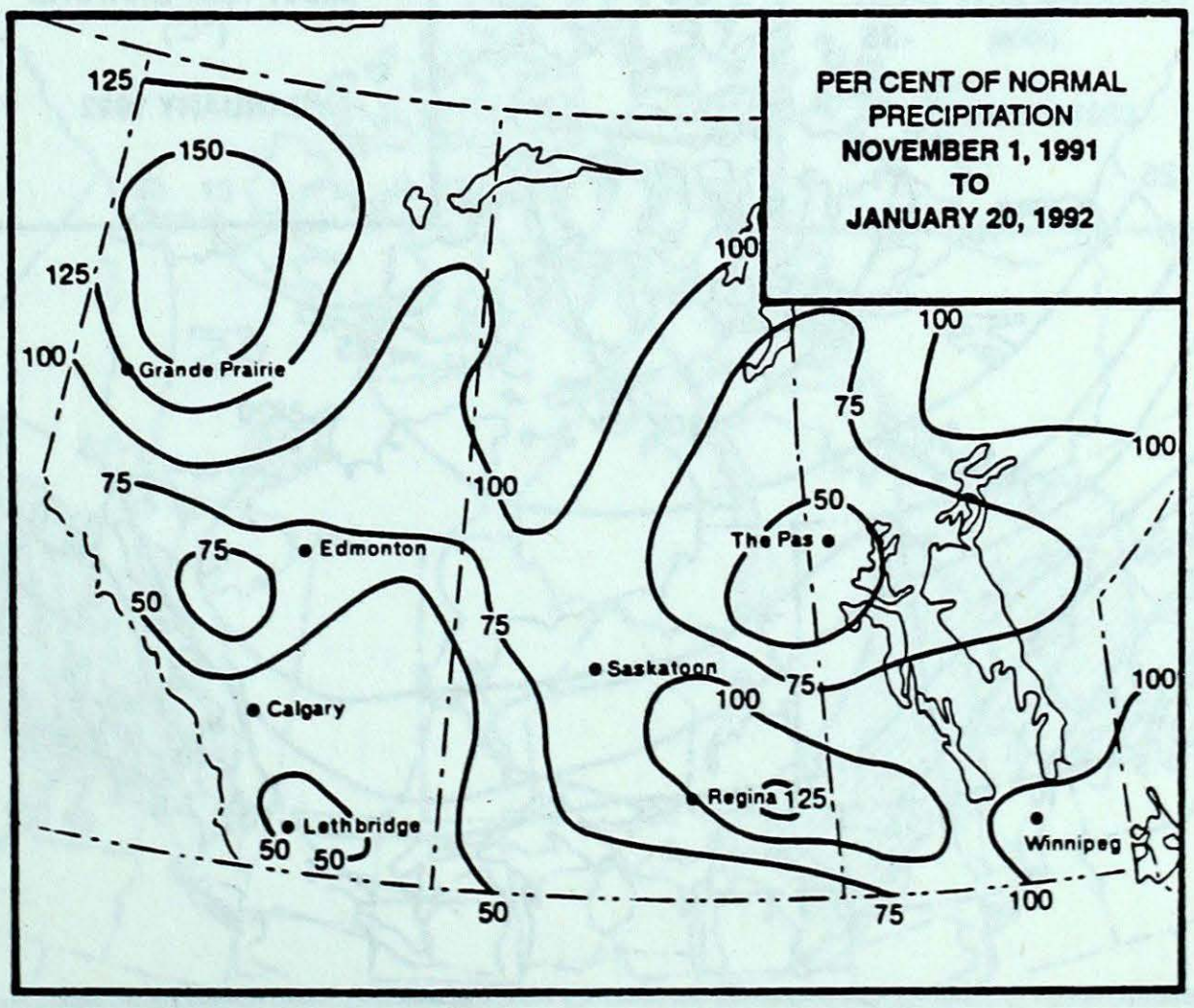
The unusual weather patterns which have dominated most of Canada this month, have been attributed to the influence of the El Nino Southern Oscillation (ENSO) phenomenon. One manifestation of this effect was seen as a deflection of the storm tracks, shifting them north and east from their normal positions. This resulted in a steady incursion of mild, Pacific air into the interior of the continent, shrinking the regions dominated by cold, Arctic air to the north of the western provinces, and over the eastern provinces. This pattern of an abnormally warm zone extending southeastward from Alaska has been observed during other recent ENSO episodes.

Record monthly temperature anomalies exceeded 10°C in the southern Yukon, British Columbia and the Prairies, breaking numerous daily high temperature records. Warm weekly anomalies have been consistently present over periods exceeding 11 weeks for the three regions mentioned.

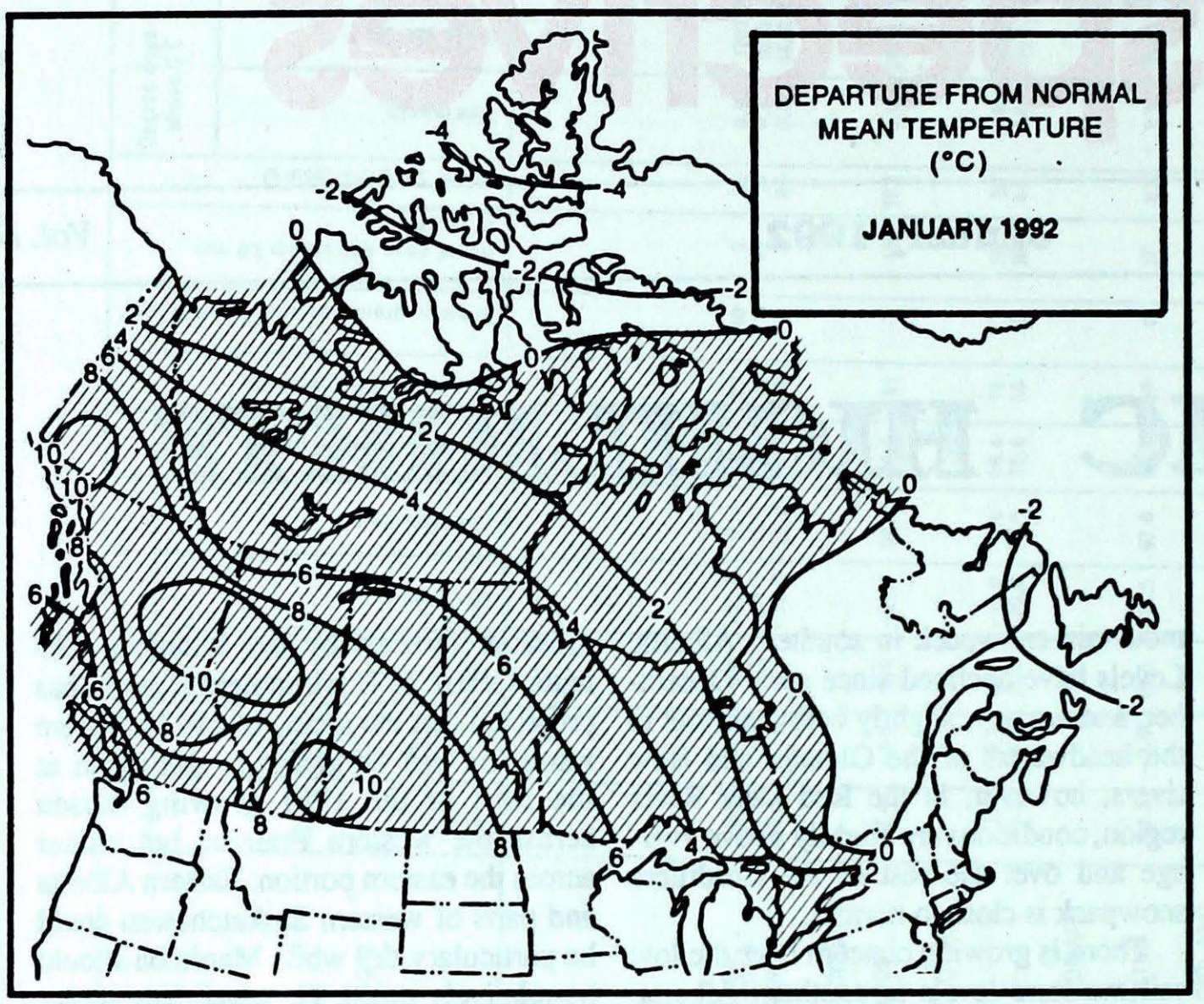
Precipitation patterns varied significantly over the western half of the country. The coastal areas, mountain passes and upslope regions received well above normal levels. However, the region between Calgary, Alberta and Kindersley, Sask. received, (since November 1991), only 33 to 50 percent of normal. The area from Hudson Bay, Sask. to The Pas, Man. was also very dry, with average precipitation reaching only 45 percent of normal.

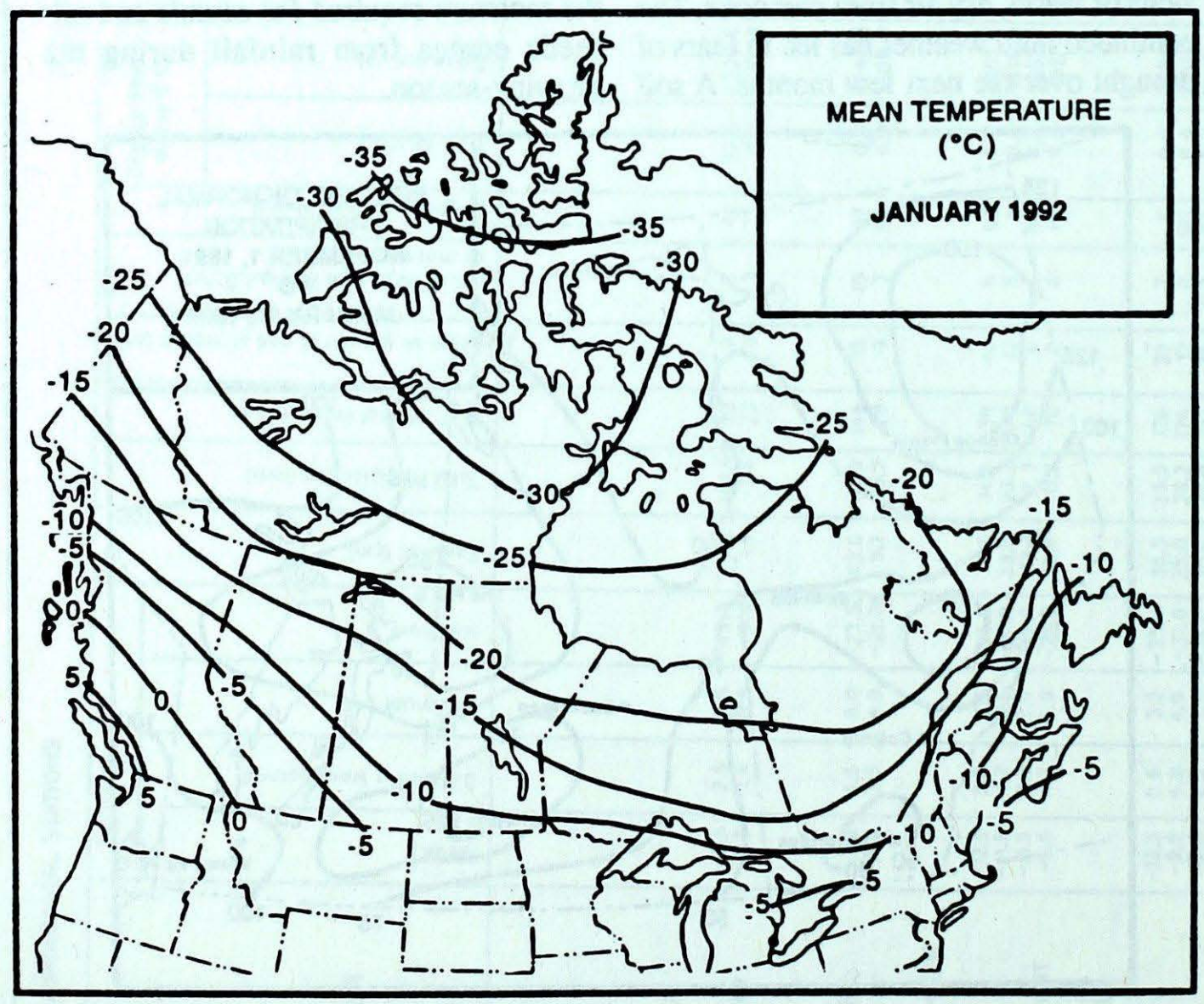
The constantly, mild weather conditions have affected the eastern Rocky mountain snowpack in southern Alberta. Levels have declined since early December, and are now slightly below normal in the headwaters of the Oldman and Bow rivers; however, in the Red Deer River region, conditions are slightly above average and over the rest of the Cordillera snowpack is close to normal.

There is growing concern over the low soil moisture levels in southern Alberta. Besides a lack of recent precipitation, the situation has been aggravated by incursions of warm, dry air from chinooks. The continued mild weather has led to fears of drought over the next few months. A soil moisture forecast by the Winnipeg Climate Centre of Environment Canada has projected that the spring of 1992 moisture resources will be generally drier than at the start of the 1991 growing season across the western Prairies, but wetter across the eastern portion. Eastern Alberta and parts of western Saskatchewan could be particulary dry while Manitoba should be relatively moist. However, low spring soil moisture levels are not necessarily a prophesy of a poor crop as two-thirds of the moisture required for cereals and oilseeds comes from rainfall during the growing-season.



Canada





Across the country

Yukon and Northwest Territories

Talk of El Nino's influence seems to be all the rage this winter and the Yukon Territority has basked under that influence this month. Except for the extreme northeast, where the monthly mean temperatures were close to normal, the rest of the territory experienced monthly means well above normal with the strongest anomalies, of 8°C to 10°C, through the southern sections. The coldest temperature was -49.5°C, on the 26th in Ogilvie, with Drury Creek recording the mildest temperature of 4°C, on the 29th.

Snowfalls were generally close to normal. The greatest amounts were recorded at Fraser Camp and Pleasant Camp, which received in excess of 250 cm and 200 cm, respectively; this was twice their normal amounts. While the majority of the interior received normal snow amounts, the north coast, west-central and south-central areas received 50 percent, and the extreme south-west received less than 50 percent of normal.

The sun is now above the horizon at Yukon sites and everyone is anticipating the arrival of spring. Chances are, however, that residents will have one last encounter with winter.

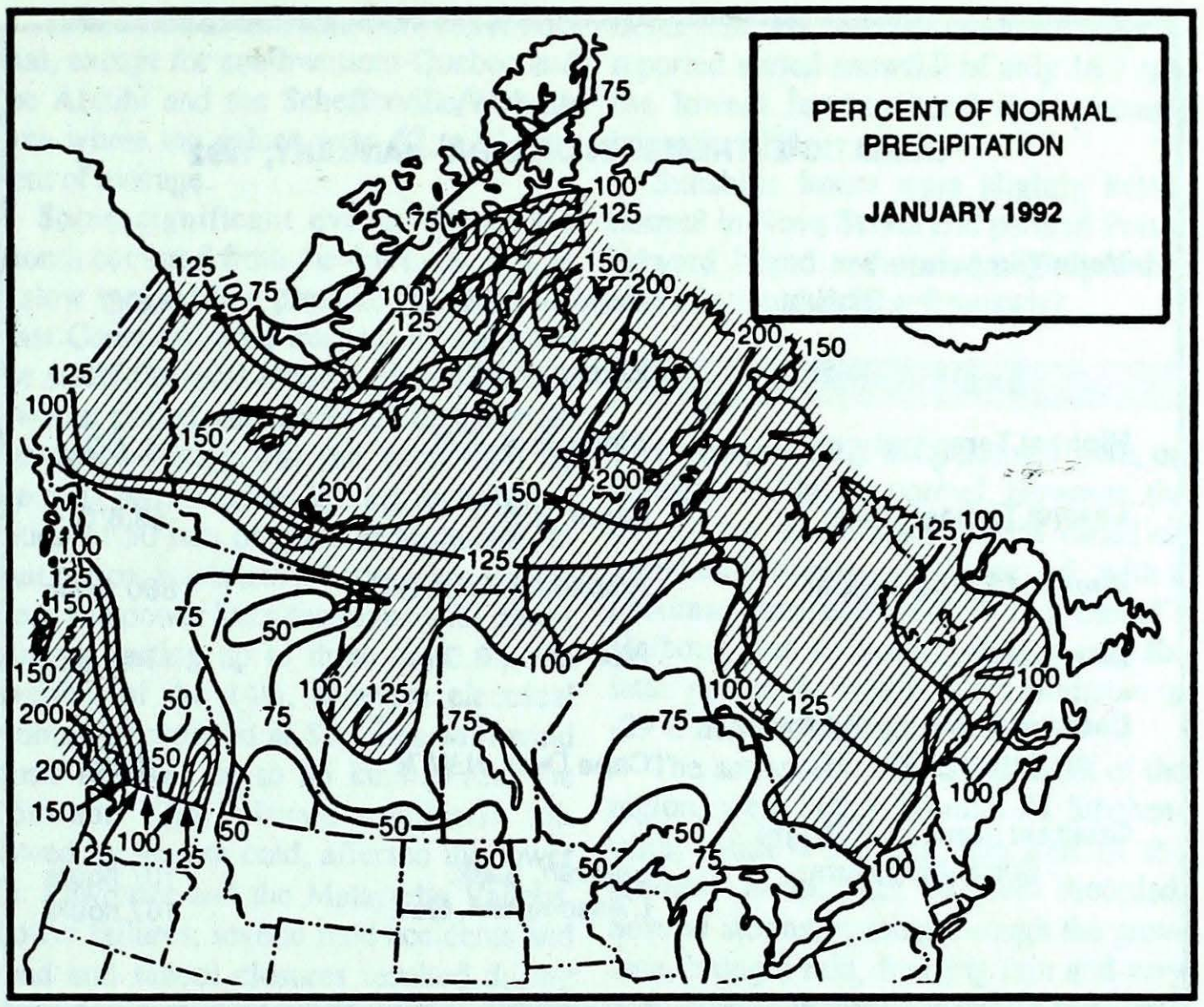
The climatic conditions were quite varied from the south to the north over the central part of the Northwest Territories. An abundance of snow, cloudy skies and temperatures, a few degrees above average, prevailed in south. In the north, however, very little precipitation and below normal temperatures were reported. The mean temperatures ranged from 2°C to 4°C below normal in the far north, and up to 5°C above normal in the south. Eureka was the coldest location, with a mean temperature of -40.7°C, (4.6°C below normal), but all Arctic Archipelago stations reported a minimum temperature around -40°C. Coral Harbour was the mildest with a mean temperature of -28.2°C.

Over Baffin Island, very cold and windy conditions prevailed as Iqaluit set low temperature records and experienced an extreme wind chill factor above 2700 W/m^2, causing outdoor activities and

travel to be extremely dangerous as exposed skin will freeze in less than a minute. Some relief from these temperatures came for a few days when temperatures rose to -2.2°C on 17th, influenced by a low pressure system situated over Labrador.

The battle of the air masses, for a dominating position over the North American continent, does not normally occur north of 60th parallel, but this year it did. The result was an increase in precipitation over the southern part of the Northwest Territories, in some cases amounts were three times greater than normal. Measurements of 24.4 mm at Coral Harbour (normal 8.3 mm), 17.0 mm at Hall Beach (normal 8.7 mm), and 14.8 mm at Rankin Inlet (normal 8.6 mm), illustrates the abnormally high precipitation levels. However, totals were minuscule at Mould Bay and Eureka with 0.6 mm and 2.4 mm, respectively.

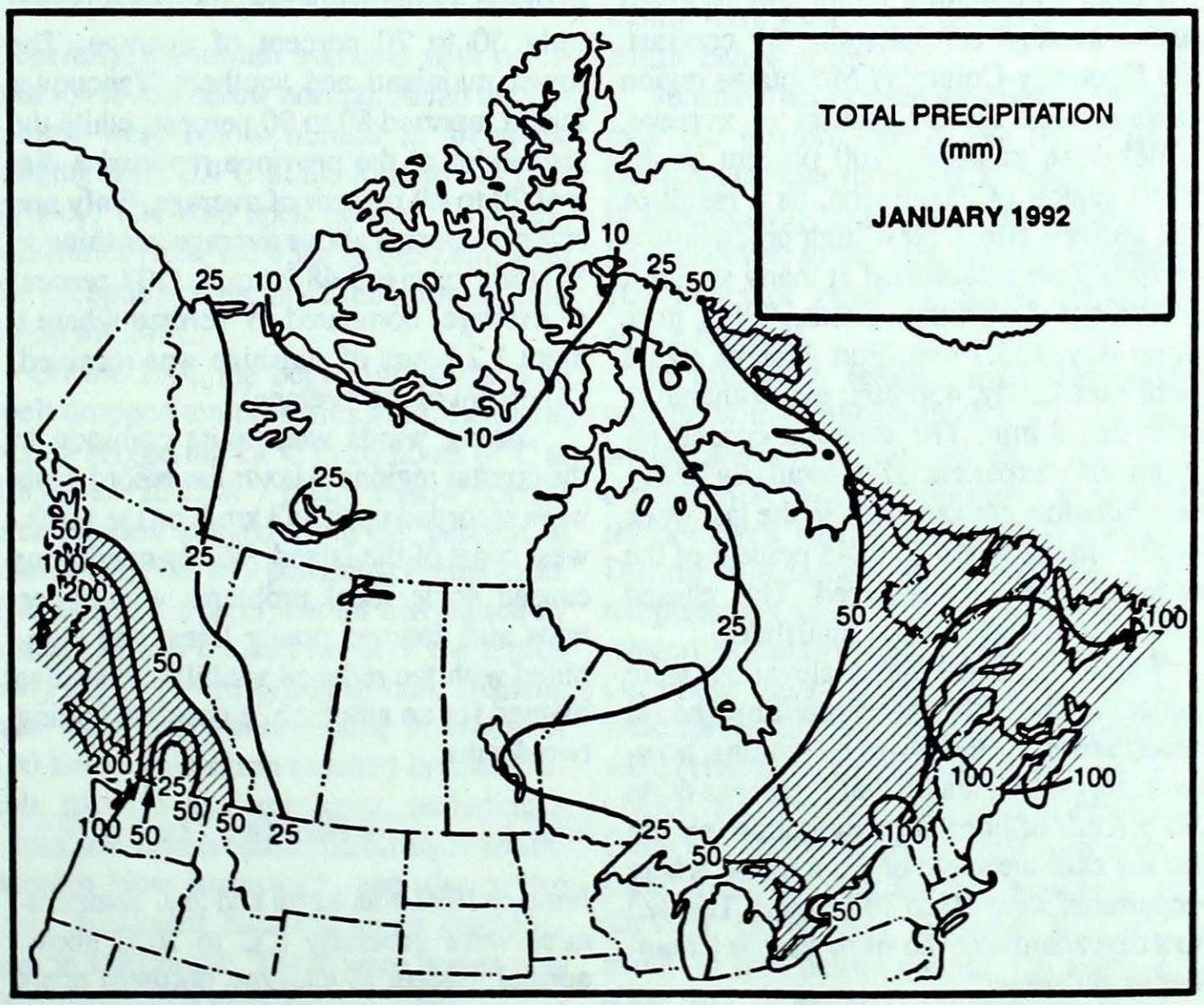
The darkness continues north of the Arctic Circle while in the south, frequent cloudy days kept the sunshine hours below average. Totals ranged from 5.7 hours at Baker Lake to 18.7 hours at Coral Harbour with the normal sunshine hours of 35.8 and 44.0 hours, respectively.



British Columbia

A southwesterly flow of air, which persisted over the province, resulted in extremely mild conditions this month, as temperature anomalies were as high as 11°C. There were many new record set for the high monthly mean temperature as Kelowna, Kamloops, Prince George and Blue River averaged 0.8°C, 2.3°C, -0.6°C and -3.0°C, respectively. The constantly mild conditions in the southwest helped spring plants and shrubs to sprout four to eight weeks ahead of schedule.

The disturbances, moving off the Pacific and across the interior, brought different forms of precipitation, but rain predominated. The highest amounts, 200 percent of normal, were reported over the southern part of the West coast. Interior precipitation was quite variable geographically during the month. Areas experiencing downslope reported deficits from 50 percent to near average amounts. In Okanagan region, precipitation was 70 percent below normal. Areas which were subject to



CLIMATIC EXTREMES IN CANADA - JANUARY, 1992

Mean Temperature:		
Highest	Cape Scott, B.C.	6.6°C
Coldest	Eureka, N.W.T.	-40.7°C
Highest Temperature:	Abbotsford, B.C.	16.2°C
Lowest Temperature:	Clyde, N.W.T.	-53.6°C
Heaviest Precipitation:	Amphitrite Point, B.C.	860.1 mm
Heaviest Snowfall:	Blue River, B.C.	114.6 cm
Deepest Snow on the Ground on January 31, 1992	Cape Dyer, N.W.T.	225 cm
Greatest number of Bright Sunshine Hours:	Estevan, Sask. L'Assomption, Qué.	107 hours 107 hours

lift from surrounding mountains received above average precipitation. By contrast, the Kootenay-Columbia Mountains region reported 130 to 150 percent of average, which rose to nearly 200 percent in the north region of Thompson, as a result of the upslope effect. New high precipitation records were established at many stations, including: Amphitrite Point, 806.8 mm; Alert Bay, 435.7 mm; Port Alberni, 627.2 mm; Port Hardy, 456 mm; and Vancouver with 281.8 mm. The southern coastal regions also experienced particularly heavy precipitation, concentrated in the last week of the month, when 35 to 45 percent of the monthly total was received. This caused minor local flooding and mudslides.

Snowfalls, in the higher elevations were generally above average benefitting the ski resort areas. At the lower elevations, however, reports indicated that there was 60 to 80 percent of normal precipitation, except for the extreme south of the interior, where departures were 20 to 30 percent. This led to a degradation of the snow base at a number of ski areas.

The sunshine hours for the province were below normal. In the far north and extreme southern interior, stations reported only 50 to 70 percent of average. The lower mainland and southern Vancouver Island reported 80 to 90 percent, while the remainder of the province reported a dismal 20 to 40 percent of average. Only one station reported above average sunshine as Victoria received 68.2 hours (107 percent of average) compared to Terrace where a mere 1.2 hours of sunshine was received, (2 percent of the average).

Strong winds were quite common in the coastal regions. Maximum record gusts were recorded up to 143 km/h on the northwest coast of the Island. Windy conditions caused some local problems with fallen trees and downed power lines, and combined with the reduced visibility, was also blamed for an automobile accident having two deaths.

Alberta

January 1992 was warm and dry. Temperatures were generally 8°C to 10°C above normal, except in extreme northern areas where it was only 5°C above. Mean temperature records were surpassed in Edmonton when they experienced the third warmest January in 111 years. Grande Prairie, with a monthly mean of -7.8°C, tied their previous record while Lethbridge with 0.6°C came within 0.3°C of their former record. Precipitation levels were down by over 50 percent over the southern areas, and combined with the warm temperatures, resulted in areas of continuous crop to have scarce snow cover, lowering the soil moisture reserves. Meanwhile, the northern regions recorded normal precipitation levels with generally good snow cover. Reports of budding trees and unusual bird sightings have accompanied these spring-like conditions.

Manitoba and Saskatchewan

Typically, mild Pacific air spilled over the Rocky Mountains crossing Alberta into southwestern Saskatchewan. This mild air frequently spread toward the north and east establishing monthly mean temperatures in the top 10 for the record, throughout much of the southern portion of the region. Monthly mean temperatures ranged from -5°C (9.7°C above normal) at Swift Current to -24.9°C (2.6°C above normal) at Churchill. All of Saskatchewan and the southwestern half of Manitoba were at least 6°C above normal.

Precipitation totals were mostly near to slightly below normal. However, parts of southern Saskatchewan were drier than the rest of the region. Estevan tallied only 5mm of precipitation, about 25 percent of normal making this the sixth driest January in 54 years.

Frequent, cloudy skies reduced the sunshine hours to well below average with only Swift Current reporting more than normal sunshine. Lynn Lake, Man. had the greatest deficit with a total of 41.6 hours, less than half of the mean of 94.0 hours.

Ontario

During the first part of the month, mild weather predominated over most of Ontario. A new record maximum temperature was set in Moosonee where the mercury reached 1.6°C on the 2nd, erasing the old record of 0.6°C, from 1955. The mild and relatively dry conditions caused snow co-

relatively dry conditions caused snow cover, along the Lake Ontario shore, to dwindle to nothing on the 13th. This situation was temporary; on January 14, storm force winds, rapidly falling temperatures, and heavy snow combined to create near-blizzard conditions across southern and central Ontario, dumping up to 25 cm of snow, in the London-Kitchener area. At the height of the storm, the Toronto Pearson International Airport was shut down for several hours, while schools, businesses and roads were also closed. Immediately following the passage of the storm, winds veered to the west and intense lake-effect snow squalls began over the traditional snowbelt areas. The accumulation, as of the 18th, was an unprecedented 75 to 100 cm, in the Orillia area.

The below normal temperatures continued through the middle of the month, but were interrupted on the 23rd by mild and wet weather. The heaviest rainfall, recorded this month, was along the St. Lawrence Valley. Kingston also recorded 17mm of rain, which resulted in a drop in snow cover from 20 cm to 1 cm. While it was rainy in the south, there were significant snowfalls over northern Ontario, with Kapuskasing recording the heaviest fall of 23 cm. At the end of the month temperatures returned to normal, with generally little precipitation.

Quebec

Monthly average temperatures were below seasonal values everywhere in Quebec, except in the Abitibi and the far northern districts, which had near normal values. The coldest air was situated mainly along the St. Lawrence River with mean temperature anomalies of -1.2°C at St. Hubert to -3.0°C at Blanc Sablon.

The heavy rainfall, which occurred during brief, warm periods, caused above normal precipitation totals for the region, establishing several maximum monthly rainfall records. The largest snowfall amounts were measured in the region from the Laurentains, northeast to the Saguenay/Lac St-Jean area, and from Baie Comeau to Wabush. Below normal precipitation occurred near Blanc Sablon, where a record low monthly total was established.

Total hours of sunshine were above normal, except for southwestern Quebec and the Abitibi and the Schefferville/Wabush area where the values were 62 to 91 percent of average.

Some significant events during the month occurred from the 4th to the 6th, as a slow moving low pressure area over the East Coast caused a major rain, sleet and ice storm. Several records of rainfall in a 24-hour period were broken. The lower St. Lawrence Valley was the hardest-hit by freezing precipitation, leaving an accumulation of 50 mm of glaze at Mont-Joli. In that region, roads and schools were closed, trees and power lines destroyed with power outages lasting up to three days. On the evening of the 14th, a severe electrical storm was reported at Sept-Îles with wind gusts reported up to 95 km/h. From the 15th and 17th, blizzard conditions, followed by intense cold, affected the lower St. Lawrence and the Matapedia Valleys. Power failures, several road accidents and road and school closures resulted during these severe, winter conditions.

Maritimes

Generally, the month was cold with precipitation levels below normal. Mean temperatures were below normal in all areas, ranging from 0.4°C at St. John to 1.8°C at Sydney. The cold spell persisted over the Maritimes from the 15th to the 28th, with the exception of the brief intrusion of mild air on the 24th.

On the 15th, the beginning of the cold spell dropped temperatures at St. Leonard, N.B. a staggering 24°C in 16 hours (4°C at 4 a.m. to -20°C at 7 p.m.). Below normal precipitation ranged from 39 percent at Yarmouth, N.S. to 9 percent at Fredericton. The bulk of the precipitation was caused by a storm which tracked north of the region early on the 24th, bringing rain, freezing rain, snow and winds gusting in excess of 100 km/h. This storm resulted in considerable damage to some areas, including a wharf, a fisheries research facility in southwestern New Brunswick, and also a five story apartment building under construction in Dartmouth. There were power outages and transportation disruptions.

Snowfall totals were reported as less than half their normal in a number of locations. The Halifax International Airport, reported a total snowfall of only 16.7 cm, the lowest January total since records began in 1961.

Sunshine hours were slightly below normal in Nova Scotia and parts of Prince Edward Island and varied slightly either side of normal in New Brunswick.

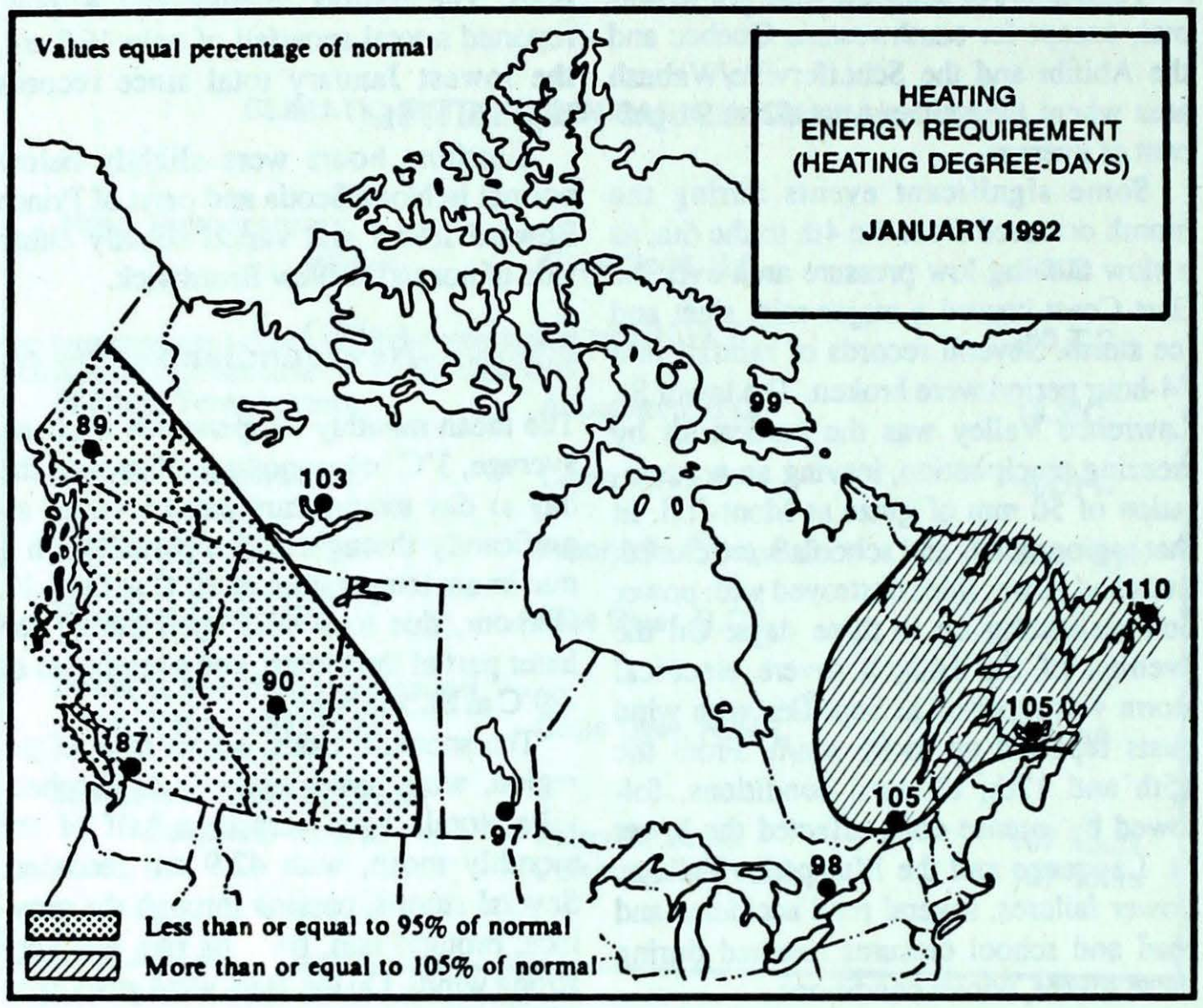
Newfoundland

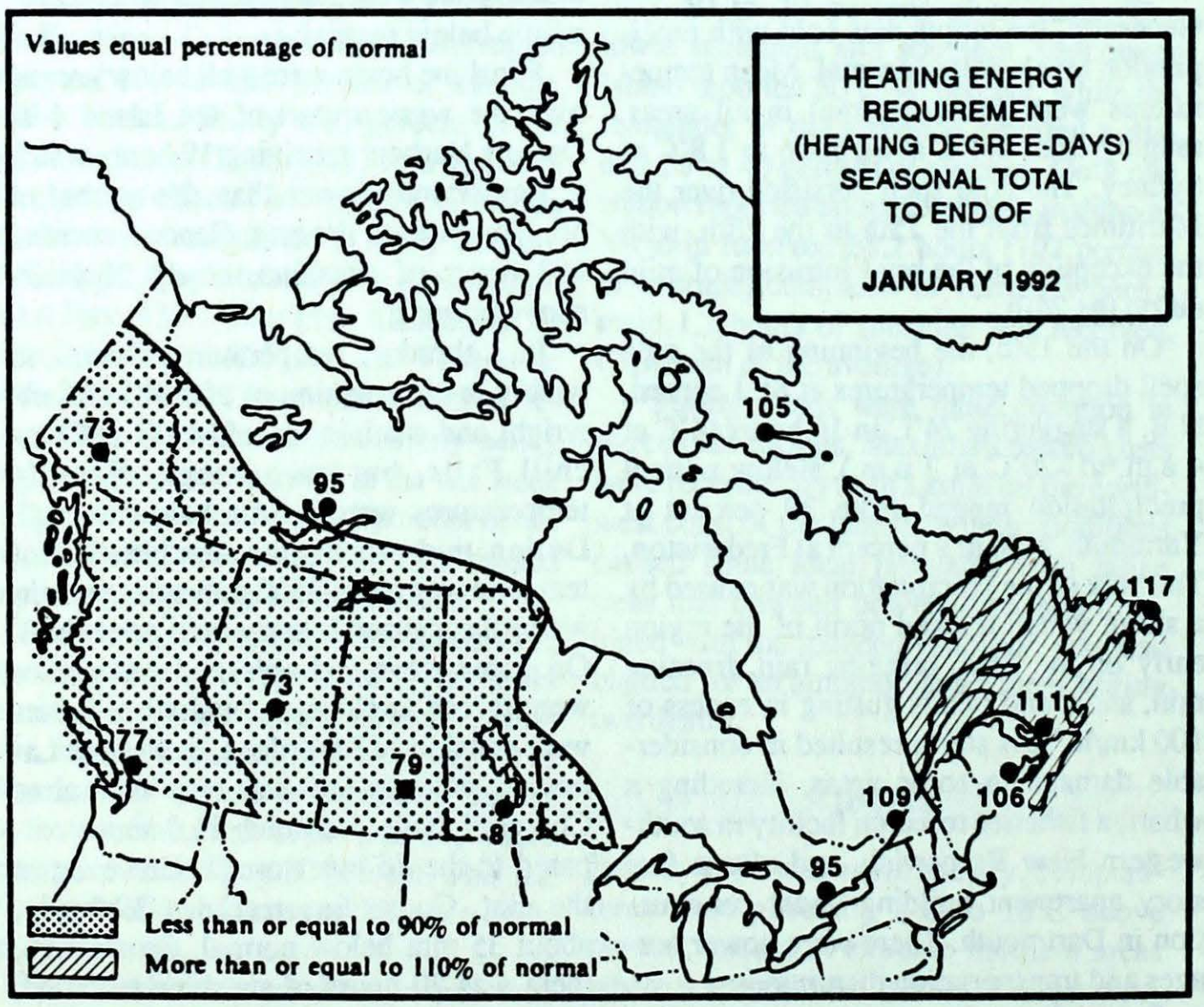
The mean monthly temperatures were, on average, 3°C below normal. However, the day to day temperature pattern varied significantly throughout the period, with a maximum temperature of 10°C at Daniel's Harbour, due to a mild spell during the latter part of the month, and a minimum of -29°C at St. Anthony.

The snowfall totals, across most of the region, were below normal. At Stephenville, totals were less than half of the monthly mean, with 42.9 cm recorded. Several storms, passing through the province, brought rain, freezing rain and very strong winds. On the 24th, wind gusts up to 130 km/h were reported over southern locations. The prevailing winds for the month were west at an average of 20 km/h, a little below normal.

Sunshine hours were well below normal over the western part of the Island with Daniels Harbour receiving 19 hours which is significantly lower than the normal of 56. However, to the east, Gander recorded 103 hours of sunshine, nearly 20 hours above normal.

In Labrador, temperatures fluctuated widely, with a maximum of 5.3°C at Cartwright and a minimum of -40°C at Churchill Falls, but on average, monthly temperatures were a little below normal. During mid-month, the combination of temperatures near -35°C and strong northwesterlies caused bitterly cold conditions. On some days, schools and businesses were forced to close, as outdoor activities were considered hazardous. In western Labrador, precipitation was near normal as Churchill Falls recorded 81.0 mm compared to the 86 mm normal. However, to the east, Goose Bay recorded 39.0 mm, about 35 mm below normal. On average, there was 70 hours of sunshine recorded, about 20 hours below the normal.



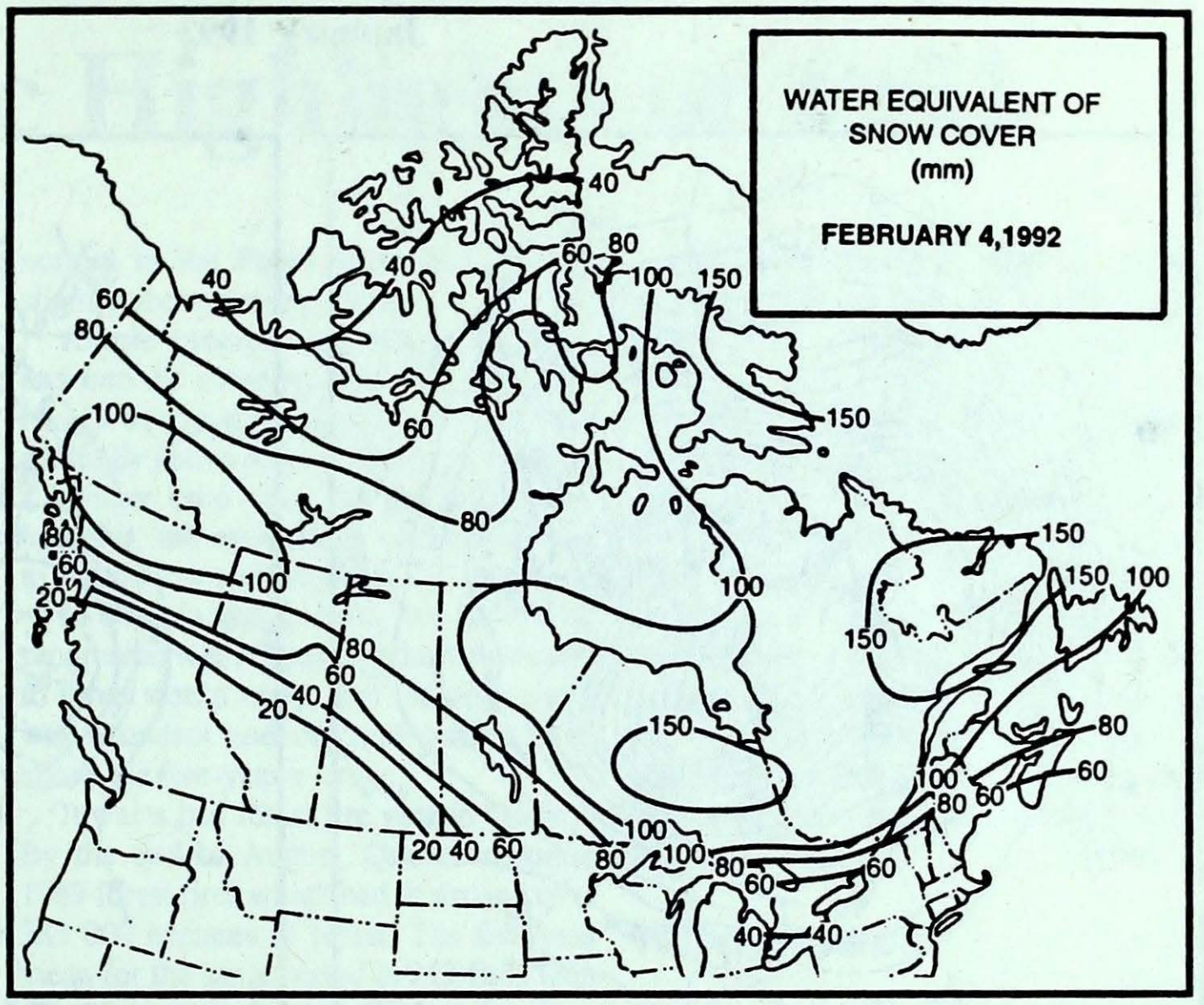


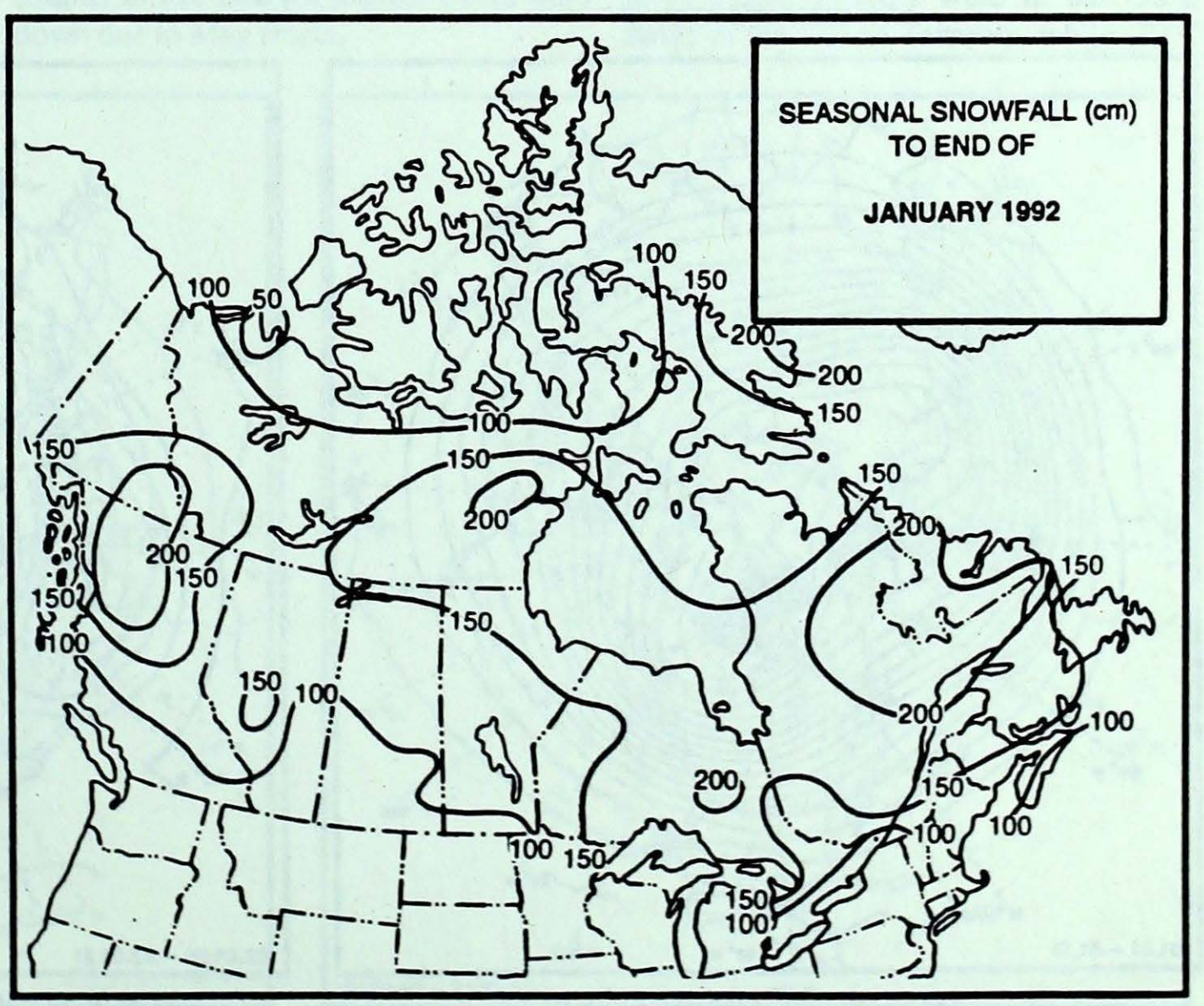
SEASONAL TOTAL OF HEATING DEGREE-DAYS TO END OF JANUARY

	1991	1990	NORMAL
BRITISH COLUMBIA			
Kamloops	2188	2446	2620
Penticton	1991	2161	2281
Prince George	2879	3383	3652
Vancouver	1675	1715	1915
Victoria	1758	1794	1955
YUKON TERRITORY			
Whitehorse	4229	4461	4749
NORTHWEST TERRITORIES			
Iqaluit	5916	5740	5975
Inuvik	6576	5724	6298
Yellowknife	5627	5226	5484
ALBERTA			
Calgary	2911	3047	3507
Edmonton Mun.	3294	3243	3674
Grande Prairie	3730	3804	4136
SASKATCHEWAN			
Estevan	3464	3392	3623
Regina	3620	3489	3870
Saskatoon	3811	3712	4025
MANITOBA			
Brandon	4079	3727	4029
Churchill	5732	5281	5580
The Pas	4390	4089	4470
Winnipeg	3770	3441	3886
ONTARIO			
Kapuskasing	4178	3746	34103
London	2535	2150	2556
Ottawa	3113	2568	3002
Sudbury	3521	2970	3419
Thunder Bay	3767	3341	3676
Toronto	2510	2123	2560
Windsor	2240	1879	2294
QUÉBEC			
Baie Comeau	3911	3440	3741
Montréal	3032	2469	2888
Québec	3485	2875	3257
Sept-Îles	4080	3618	3855
Sherbrooke	3368	2728	3283
Val d'Or	4057	3532	3904
NEW BRUNSWICK			
Fredericton	3081	2525	2941
Moncton	3032	2527	2862
NOVA SCOTIA			
Sydney	2707	2262	2523
Yarmouth	2439	1947	2370
PRINCE EDWARD ISLAND			
Charlottetown	2848	2422	2719
NEWFOUNDLAND			
Gander	3278	2744	2936
St. John's	2991	2486	2725

SEASONAL SNOWFALL TOTALS (cm)
TO END OF JANUARY

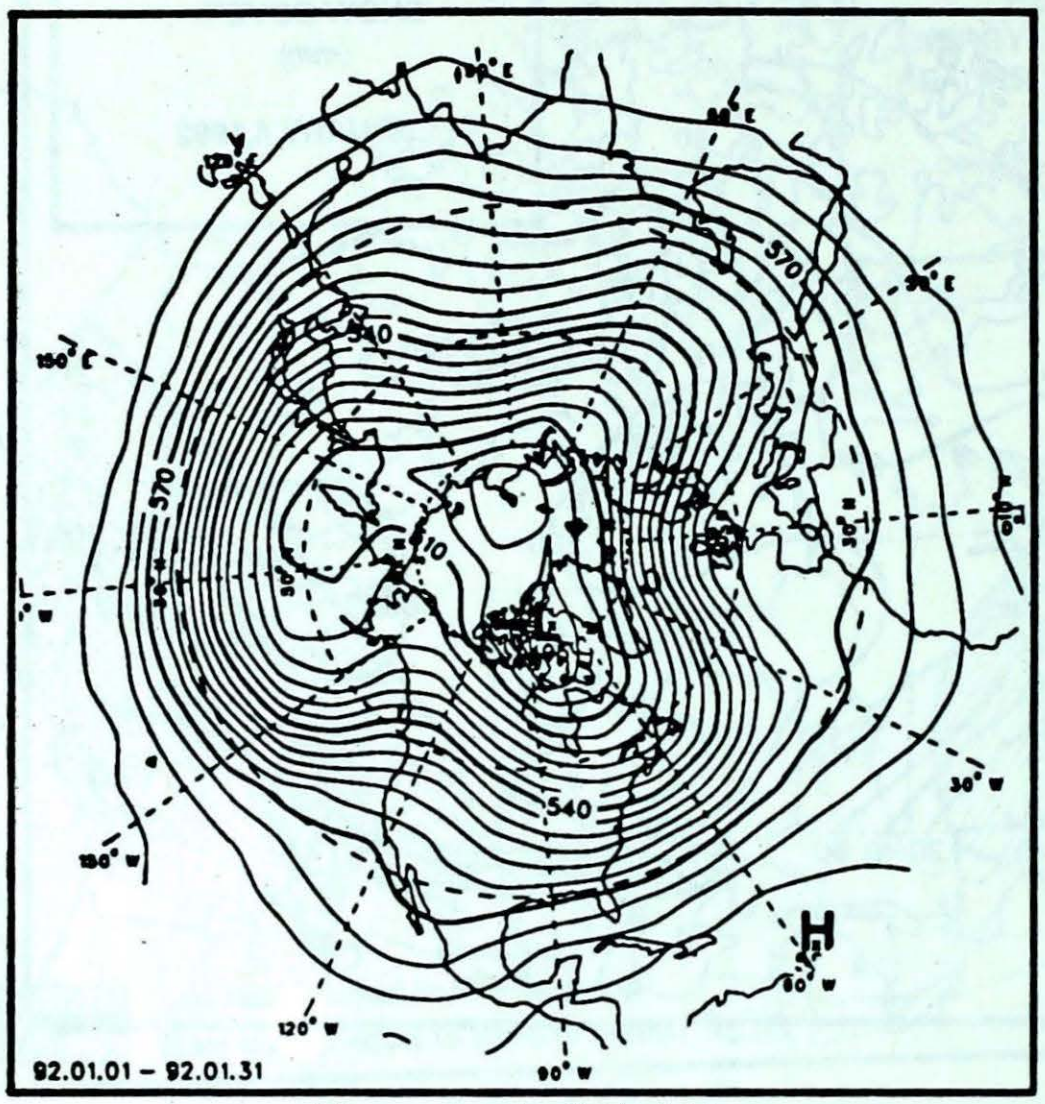
	1992	1991	NORMAL
BRITISH COLUMBIA			
Kamloops	30	84	74
Port Hardy	1	64	49
Prince George	166	277	164
Vancouver	2	99	46
Victoria	5	59	35
YUKON TERRITORY			
Whitehorse	174	140	91
NORTHWEST TERRITORIES	135	71	116
Clyde	105	108	117
Inuvik	125	124	94
Yellowknife			
ALBERTA	44	70	77
Calgary	86	73	78
Edmonton Namao	125	180	115
Grande Prairie			
SASKATCHEWAN	53	49	63
Estevan	60	33	65
Regina	82	49	65
Saskatoon			
MANITOBA	118	60	64
Brandon	164	180	117
Churchill	136	104	96
The Pas	63	53	72
Winnipeg			
ONTARIO	201	166	193
Kapuskasing	154	106	133
London	108	122	132
Ottawa	133	165	150
Sudbury	139	142	128
Thunder Bay	79	54	75
Toronto	80	53	70
Windsor			
QUÉBEC	212	281	203
Baie Comeau	53	123	134
Montréal	132	222	202
Québec	118	308	244
Sept-Îles	130	154	180
Sherbrooke	108	195	188
Val d'Or			
NEW BRUNSWICK	185	273	219
Charlo	88	162	156
Fredericton	158	163	175
Moncton			
NOVA SCOTIA	128	43	93
Sydney	88	52	114
Yarmouth			
PRINCE EDWARD ISLAND	164	134	174
Charlottetown	138	218	194
NEWFOUNDLAND	163	126	172
Gander			
St. John's			



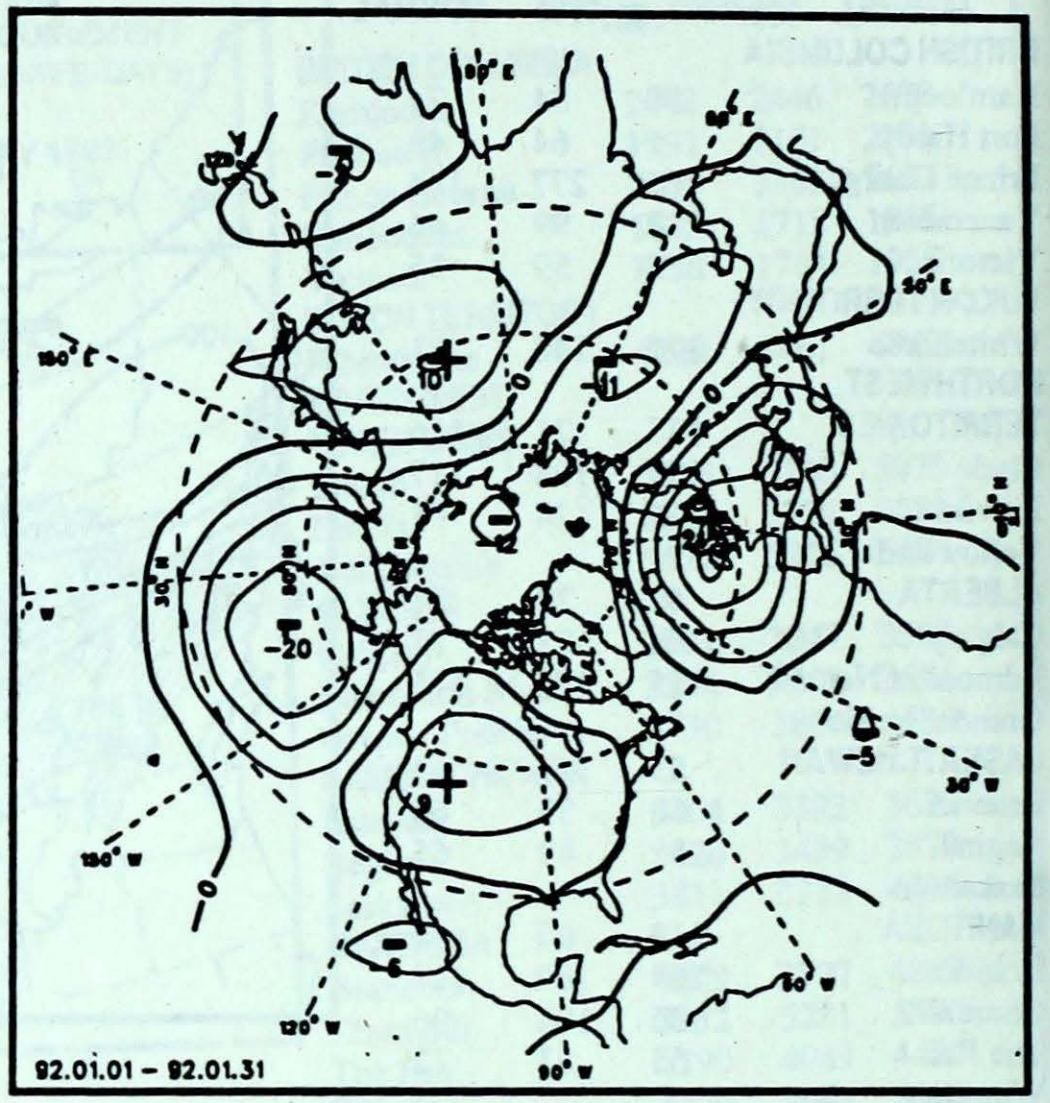


50-kPa ATMOSPHERIC CIRCULATION

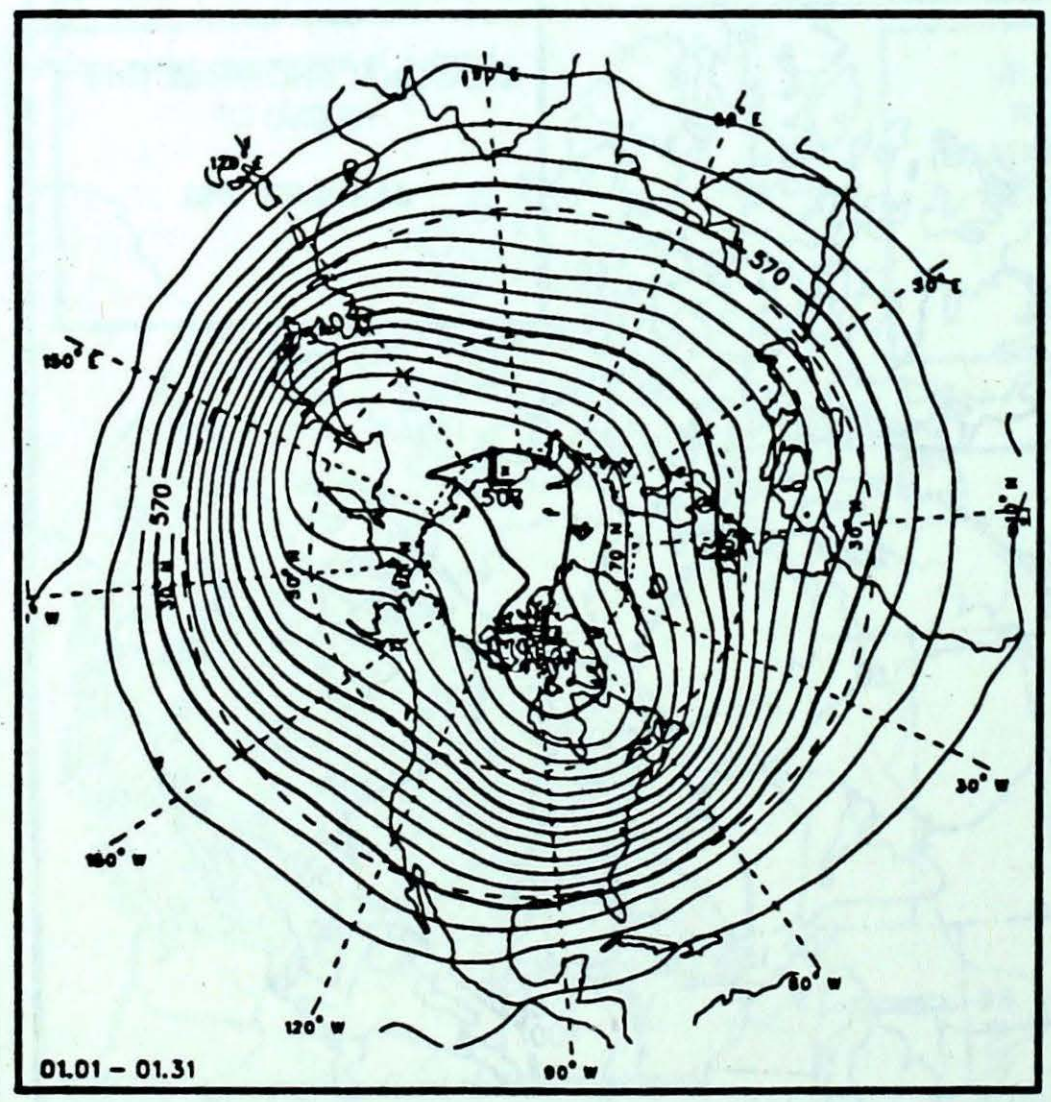
January 1992



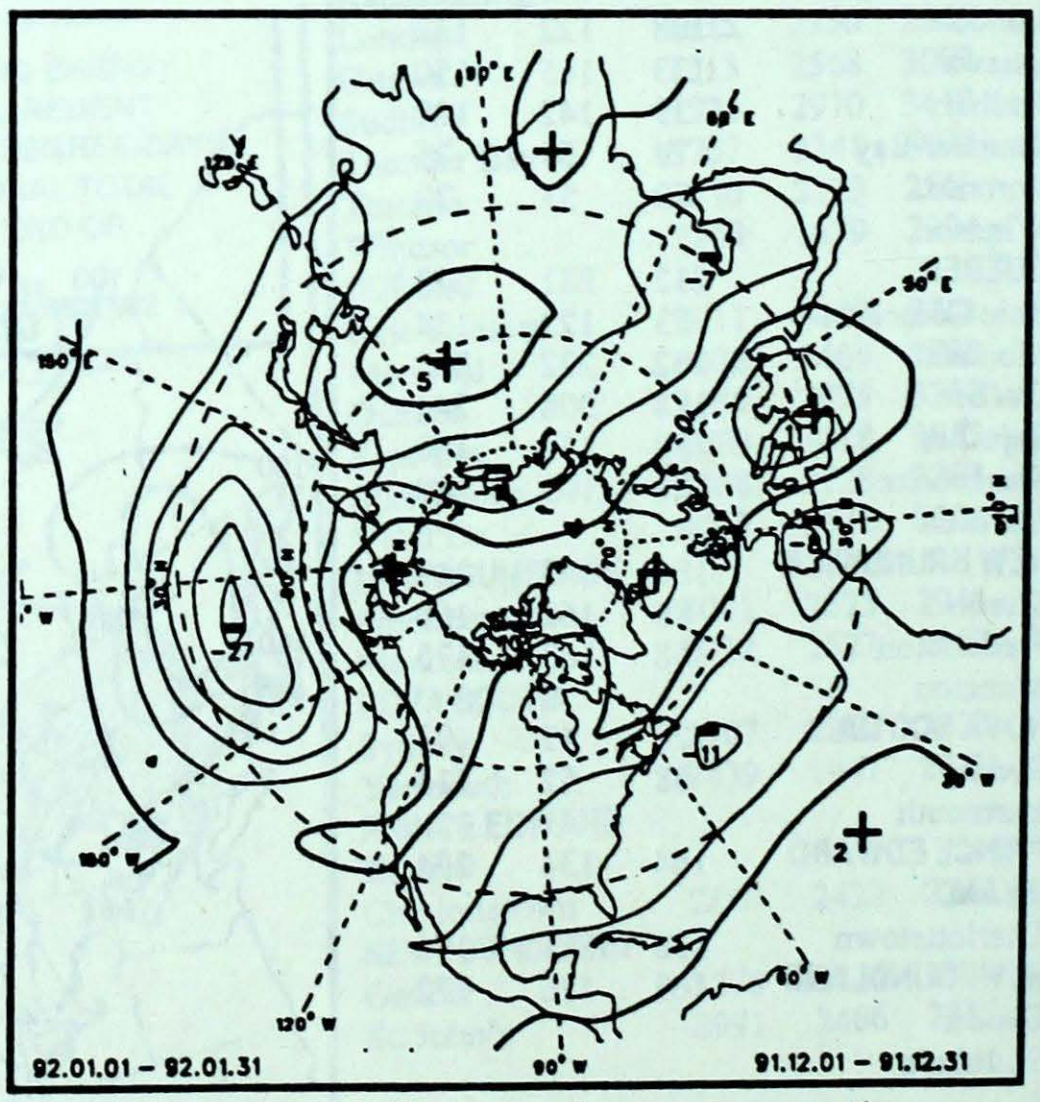
Mean geopotential heights
- 5 decametre interval -



Mean geopotential height anomaly
- 5 decametre interval-



Normal geopotential heights for the month
- 5 decametre interval -



Mean heights difference w/r to previous month
- 5 decametre interval -

Climatic Highlights of 1991

Overview

The combination of an amplified ridge on the west coast of North America and a more southerly migration of the Arctic vortex over Davis Strait (Fig. 1) resulted in a warmer than normal year for all of Canada except for the northeastern parts. This year was a continuation of the observed temperature anomaly pattern for the past decade with positive anomalies over most of the country except for the Keewatin District of the Northwest Territories, Baffin Island, Newfoundland and Labrador, and northeastern Quebec, where negative temperature anomalies prevailed (Fig. 2).

British Columbia's summer months were cool and unsettled, but a warm dry September extended the growing season in many areas, allowing fruit to mature. Farmers in the Fraser Valley were even able to pick a second strawberry crop, while the grain harvest was completed earlier than normal in the Peace River district with slightly above average yields.

Ample precipitation from mid-April and into the summer, raised soil moisture levels across the southern Prairies to generally above normal values, resulting in a bumper crop year. On the down side, however, the agricultural community had to endure low market prices.

In Ontario and Quebec, fall harvesting progressed well. Ontario corn matured two to three weeks early, and the apple crop was abundant and of good quality, well above the five-year average.

It was a bad forest fire year in Quebec. By the end of August, Quebec reported 1089 forest fires which had destroyed over 383 000 hectares of forest. The five-year mean for the same period is 913 fires with 43 400 hectares burned. With a dry summer across the Maritimes, apples were smaller in size than normal and yields were down due to May frosts.

A combination of continuing cool weather and prevailing northwest winds, which began in April and persisted across Newfoundland and Labrador, hindered the northward retreat of the Labrador ice pack. This year was one of the worst ice-years on record on Canada's east coast, seriously disrupting the fishing stocks and season length, coastal ferry services and supply shipping to Labrador. In some communities, essential supplies had to be airlifted in. Early in the month of August, the heavy ice conditions along the Labrador coast finally receded allowing the shipping season to begin some six to eight weeks later than normal.

Temperatures

The year began with frigid Arctic air covering the western half of Canada. Temperatures during January were in the -50°C range in the Yukon Territory, while -40°C

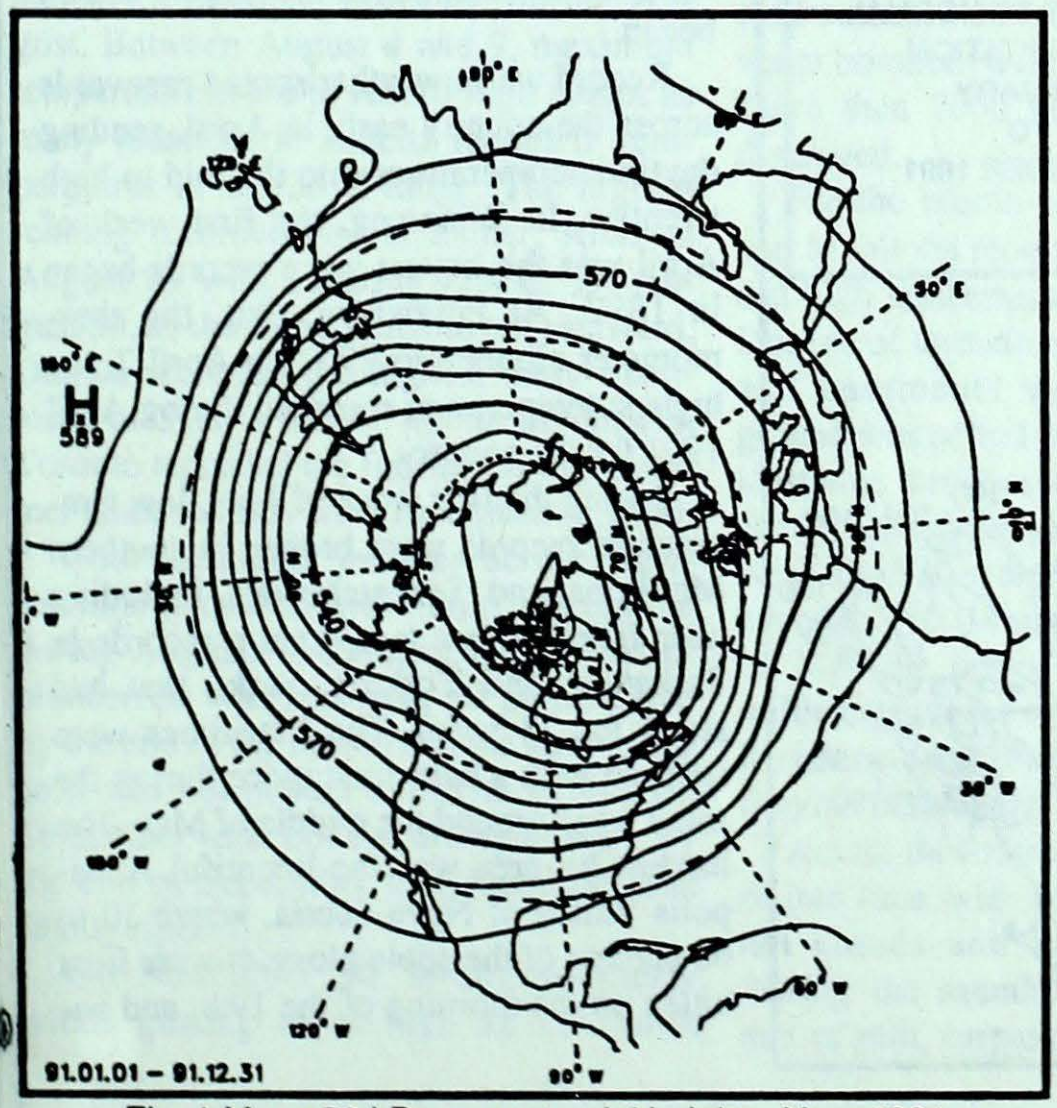


Fig. 1 Mean 50 kPa geopotential heights. Year 1991
- 5 decametre interval -

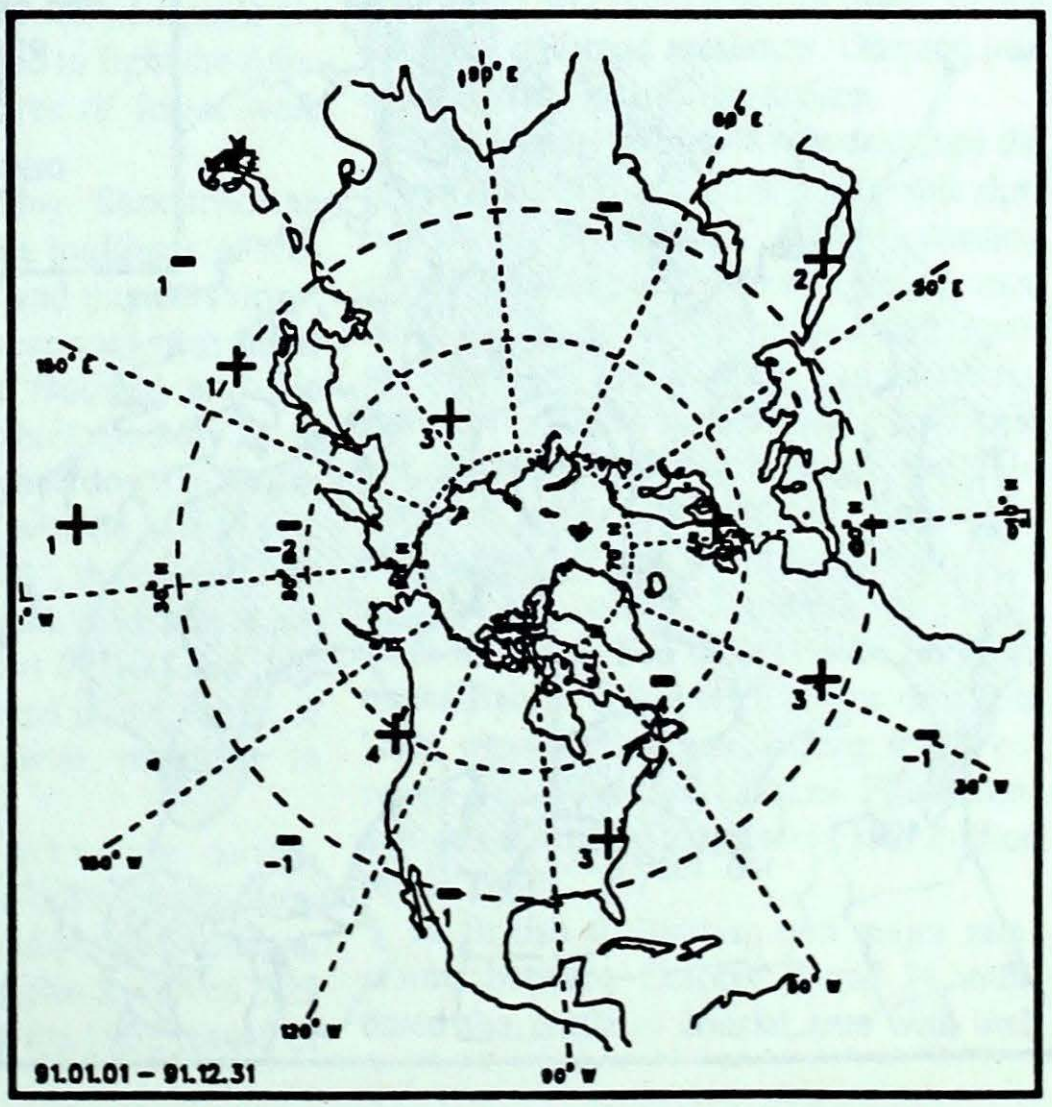
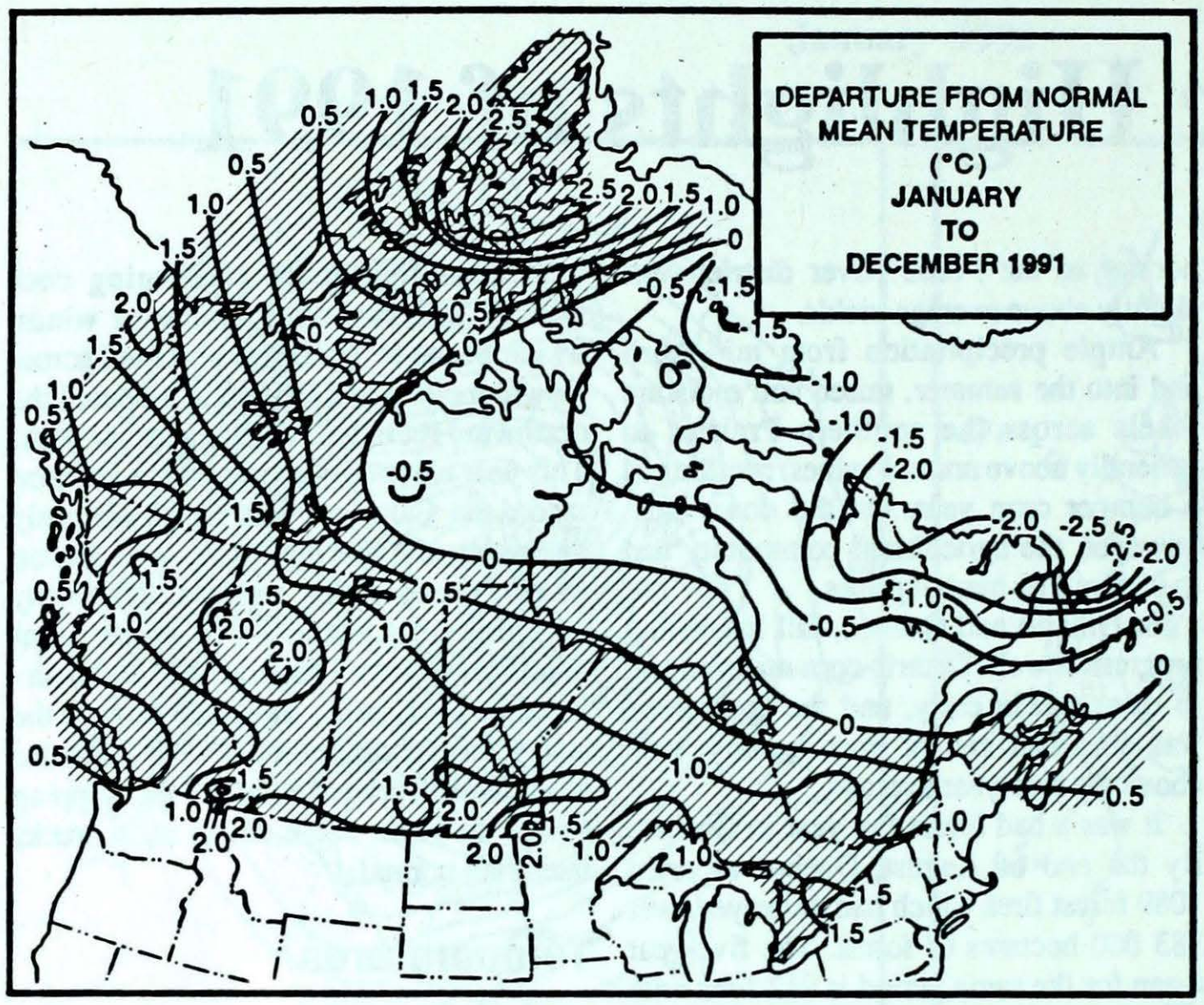
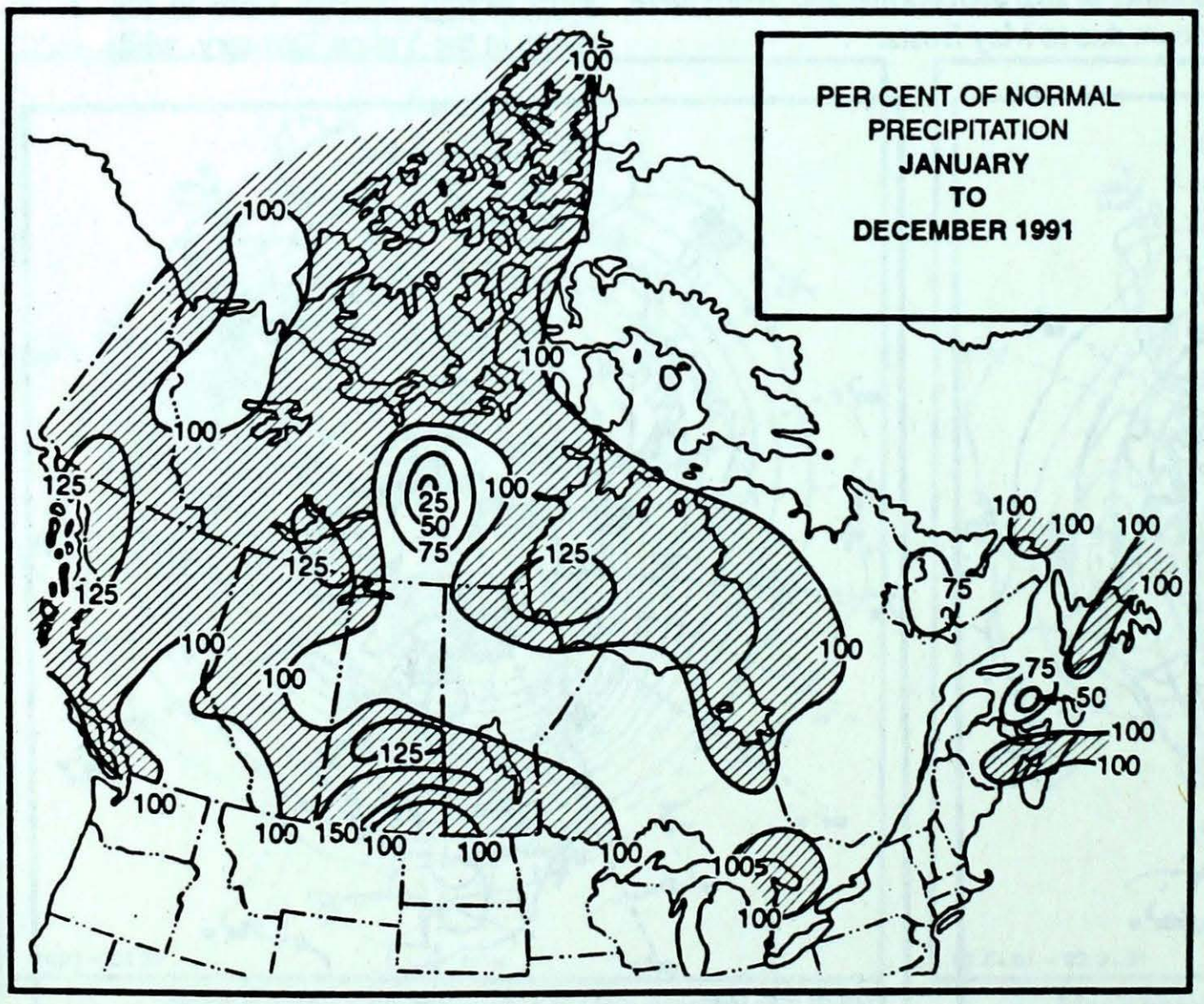


Fig. 2 Mean geopotential height anomaly. Year 1991
- 5 decametre interval-





minimum low temperatures were common across the Prairies.

Numerous minimum low temperature records were broken. During the second week of the month, temperatures did an about face. With Chinook winds sweeping down the eastern slopes of the Rocky Mountains, daily maximums jumped 40 to 60 degrees C in the Yukon and Northwest Territories. In southern Alberta, the thermometer soared into double-digit values.

Warm temperatures in February dominated the southern half of the country. Across British Columbia and the Prairies, many record-high mean monthly and daily maximum temperatures were established. Abbotsford, B.C. recorded the highest daily maximum for Canada during the month with 19.1°C , just short of their all time high of 20.6°C for the month. Across southern and central Ontario, it was the warmest February for many locations since 1984, while in Quebec, ninety new daily temperature records were set during the month.

During the first week of March, cold Arctic air spilled southwards across the Prairies. Snow, strong winds and temperatures in the minus 25°C range raised the concerns of ranchers, as the calving season began.

Record warm weather spread eastwards across the country early in April, sending daytime temperatures into the mid to high twenties. In Winnipeg, the first week of April was the hottest since records began in 1872. At Petawawa, Ont. the thermometer climbed to 29°C on April 7, the highest temperature recorded during April 1991 for the country.

During the first week of May, low temperature records were broken in southern Manitoba and Saskatchewan, including near freezing low temperature records in Saskatoon and Yorkton, Sask., that had stood for 78 years. The Maritimes were stricken with a hard frost twice during the same week around the middle of May. The hardest hit area was the bountiful Annapolis Valley of Nova Scotia, where 10 to 60 percent of the apple blossom were frost bitten on the morning of the 19th, and an-

other 25 to 30 percent were damaged on the 23rd. The Gravenstein apple variety was totally lost while other soft crops such as blueberries and strawberries were injured by the freeze.

Warm weather during the last three weeks of May led to rapid runoff from snowmelt, threatening nine communities in British Columbia with severe flooding. The Cascade Mountains had snowpacks over 60 percent of above normal amounts, the highest since 1972.

Ontario and Quebec also experienced unseasonably warm weather as temperatures jumped into the 30°C range. In southern Ontario, it was the warmest May on record for most locations from Kingston to Windsor. The city of Toronto tied the record monthly mean temperature set in 1975 as the warmest May in 151 years.

During June, sunny and dry conditions in Ontario promoted the warmest spring season ever recorded in the province. Five of the first six months of the year were warmer than normal, while the city of Toronto experienced the warmest first six months in 151 years of record, with a six month mean of 2.2°C above the 1951-80 normal.

Across the Prairies and Ontario, warm and dry conditions prevailed during August. Between August 4 and 9, maximum temperatures rose to record high values as many locations in Alberta recorded temperatures in the 30°C range. The highest reading recorded was at Esther, Alta. on August 10, with a searing 42.4°C. By August 30, as the warm core moved eastward, Ottawa recorded the highest daily maximum of 34.8°C for the month in Ontario. Toronto recorded the fourth warmest summer since records were first taken in 1840.

Cool unsettled weather across Newfoundland caused slow crop maturation during August. The annual fall harvest of blueberries was less than 50 percent ripe by the end of the month and the strawberry crop was not picked until late in August. September was cool and dreary as well. By the end of September the blueberries had finally ripened .

On November 30, strong southerly winds gusting to as high as 111 km/h pushed temperatures into the mid-teens across southern Ontario. In Toronto, the temperature reached 17.6°C toppling the 1908 record of 13.9°C.

Precipitation, Droughts and Floods

The combination of warm weather, and record monthly precipitation during April across southern and central Ontario caused some of the worst flooding in 60 years, especially along the Trent-Severn Waterway, northeast of Toronto. Muskoka, Ont. had the wettest April with records dating back to 1938. Farmers in southern Ontario were unable to seed the saturated fields and the most extensive flooding since 1957 occurred along Quebec's Chaudière River between April 7 and 10. Over 1000 residents along the river had to be evacuated and flood damage surpassed 10 million dollars.

During mid-May, serious forest fires occurred in northeastern Ontario. Two fires burned out of control near Chapleau, while a third blazed near Timmins. All were man-started but were assisted by dry ground litter, low relative humidities and low foliage moisture in conifers due to cold seasonal dormancy. At one point six water bombers were used to fight the fires. More than 7000 hectares of forest were destroyed.

For the month of May, Saskatchewan and Manitoba reported a multitude of record high temperatures and thunderstorms. Dozens of tornadoes were spawned; fields and basements were flooded and the ground was pelted with hail. On May 28, at least nine torndoes touched down in southern Saskatchewan, but with no loss of life. Near Swift Current, Sask., the ground was covered with 14 cm of hail. In Manitoba, on May 22, heavy rains of 100 and 150 millimetres were reported in the towns of Rossburn and Foxwarren, resulting in flooded basements.

Across the Prairies, wet weather persisted into June, with numerous reports of funnel clouds and tornadoes in Alberta. During the month, Regina received 329 mm of rain, surpassing the 1902 record of 286.7 mm. Some areas of Saskatchewan were inundated with up to 300 percent of their normal monthly amounts.

From Ontario eastward, dry weather became a concern to the agricultural community as well as the forest industry. In southern Ontario, high temperatures and drying winds left potentially bountiful crops in dire need of moisture. The worst forest fires in almost half a century were burning along the north shore of the St. Lawrence River. The two principal fires located in the Bestiamites and Forestville areas of Quebec covered 1900 square km and 900 square km, respectively. Across the Maritimes, the dry weather which began in mid-May caused wells to dry up and river levels to drop well below normal values. Crops began to be stressed by the lack of moisture while some municipalities restricted the use of their water supplies.

Dry, sunny weather continuaed into June, across the Maritime provinces and caused a record number of forest fires in Nova Scotia, dry wells, and record low lake and river levels. Farmers experienced dwinding yields of fruits, vegetables, hay and silage.

On August 19 and 20, Essex County, just south of Windsor, Ont. was inundated with up to 300 millimetres of rain, causing flooding and road washouts. Damage was estimated at one million dollars.

More than 130 mm of rain drenched the lower mainland of British Columbia during the final week of August, causing severe flooding in the Howe Sound area, north of Vancouver. Washouts and flooding occurred along many points of the Squamish Highway between Vancouver and Whistler. At Brittania Beach, the highway was under 30 cm of water, as a normally tranquil creek cut a new channel through the town. Hundreds of people were forced to flee their homes. Footings on the British Columbia Rail line near Alta Lake were washed out, halting trains between Vancouver and Lillooet. Flood damage was estimated to be in the four million dollar range.

In British Columbia, two major rainstorms between October 8 and 14 inundated the northern coastal area with well

over 200 mm of rain, with some areas receiving up to 340 mm. Raging floods stranded more than 1000 residents in this remote area. A number of small communities, along the Nass River, including the towns of Greenville and Canyon City, 140 km northwest of Terrace, were isolated for days until road crews could repair washed out roads.

On November 10 and 11, a slow-moving storm, with winds gusting to 110 km/h, waterlogged Nova Scotia. The hardest hit region was the southwest shore, where amounts as much as 154 mm of rain was recorded at Liverpool. Halifax received 126 mm. A state of emergency was declared in Queen's county. Due to extensive flooding of roads and homes evacuations were necessary.

November produced record rainfalls of between 100 and 200 mm on British Columbia's north coast. As well, snowfalls in excess of 200 cm were reported in northwestern British Columbia. Some mountain passes in British Columbia and the southern Yukon received almost 300 cm of snow.

Storms, Blizzards, and Tropical Storms

On January 12, a major Atlantic storm intensified over Newfoundland waters producing 20-metre high seas and a reported wind gust of 169 km/h at Bonavista. The storm resulted in the sinking of a cargo ship, 400 km off the southeast coast of Newfoundland, claiming 33 lives.

On February 14th, a storm producing 15 to 25 cm of snow across southern Quebec resulted in the death of one person in the Eastern Townships. On the same day, heavy rain and lightning caused flooding and power outages in southwestern Nova Scotia. In Quebec on the 19th, freezing precipitation south of Quebec City resulted in a traffic accident which claimed three lives. Across Newfoundland, several winter storms during the month caused blizzard-like conditions, closing schools and highways. Winds reached 130 km/h in some coastal communities.

Traditionally a fickle month across Canada, March 1991 was no exception. The Vancouver area received 15 to 25 cm of snow and as much as 40 cm near Chilliwack, east of Vancouver. Even in balmy Victoria, where flowers were already in bloom, 15 cm of snow blanketed the city, while outside the city, as much as 35 cm of snow was reported on the ground. On March 10, scattered thunderstorms across British Columbia's lower mainland spawned several funnel clouds and a tornado touched down at Pitt Meadows, east of Vancouver. Tornadoes in this part of the country are rare at any time of the year.

Eastern Canada also experienced late winter storms. During the first week of March, freezing precipitation coated the southern parts of Ontario and Quebec. Some areas reported up to 25 mm of ice accretion.

Across the Maritimes several storms struck during the month. On March 4, up to 13 hours of freezing rain was reported in Sydney, while in Fredericton, freezing rain and ice pellets lasted almost 24 hours. The storm was one of the most expensive on record for the Nova Scotia Power Corporation.

On the evening of the 11th, a major storm stalled just to the east of Cape Breton Island, N.S. Strong easterly winds across Cape Breton and Newfoundland pushed sea ice tightly against the coastline, causing disruptions to shipping and ferry services.

Another storm on March 27 and 28 churned wind gusts in excess of 100 km/h across the southern parts of Ontario and Quebec. Sarnia, Ont. recorded gusts up to 159 km/h, the highest winds ever reported in southwestern Ontario, with the second highest in the province at 161 km/h recorded at Ottawa's Rockcliffe Airport, on May 11, 1959.

During July, there were numerous severe weather outbreaks across the country. Some notable events occurred when a tornado was reported 55 km west of Prince George, B.C. on the 2nd, and also when golf ball-size hail peppered Red Deer, Alta., on the 3rd. On the 18th, a violent storm passing through Eriksdale, Man. flattening 46 cm diameter maple trees and moving 800 kg bales of hay a distance of 150 metres. A tornado ripped through a farm near Russell, Man. on the 21st , while in the Riding Mountain National Park area, there were reports of over 100 mm of rain in less than three hours causing creeks and rivers to overflow.

On the 18th, severe thunderstorms across northwestern Ontario produced torrential rains and wind gusts up to 160 km/h, ripping down 160 000 hectares of mature forest just south of Red Lake, in less than half an hour. The area was the largest blowdown of trees in the history of Ontario, representing five to seven years of wood to saw mills in the Kenora area. The millions of strewn trees, if left unharvested, could over the next few years become an extreme forest fire hazard.

On August 19, hurricane BOB moveed up the eastern seaboard packing winds of up to 220 km/h. As BOB moved into New Brunswick, the storm was downgraded to a tropical storm. Digby, N.S. reported the strongest wind gusts of 130 km/h. Northern New Brunswick received the most rain between 60 and 100 mm. Elsewhere, 50 km/h winds and 50 mm rainfalls were common.

On August 27, a Force three tornado with winds of 250 to 330 km/h cut a swath of destruction 75 to 150 metres wide along a distance of 1.5 km through the town of Maskinongé, Que. Damage was estimated at 17 million dollars, with no loss of life. A tornado of this magnitude occurs only about once every 15 years in this part of Canada. On August 30, thunderstorms with winds gusting to 120 km/h overturned 16 aircraft at Gatineau Airport, Que.

In southern British Columbia, winds exceeding 100 km/h on October 12, caused a plane to flip over at Kamloops Airport. On the 16th, gusts to 156 km/h were reported at Vernon, B.C., causing considerable damage, while in the Vancouver area, two docked freighters collided as a result of dragging anchors, and a commercial passenger aircraft parked at Vancouver Airport was pushed into the side of a terminal building.

During the latter half of October, six snowstorms dumped more than 10 times the monthly normal on parts of the Prairies. The central portions received the most snow during the month, recorded between 60 and 90 cm by month's end. There were prolonged power outages and road closures as a result of these storms.

Between October 28 and 30, the Maritimes experienced a major windstorm with gusts to 120 km/h. There were power outages as well as reports of damaged fishing boats. Hurricane force winds prevailed off the southeastern coast of Nova Scotia. Average wave heights were 17.4 m on the Scotian Slope, with a maximum of 30.7 m at the same location. A bulk carrier took on water near Sable Island and a Japanese fishing vessel lost power. Both returned safely to the port of Halifax.

On November 15 and 16, storm force winds in excess of 100 km/h ravaged the coast and to a lesser extent the interior valleys. Solander, on the exposed outer coast of northwest Vancouver Island reported a maximum gust of 171 km/h, and many other locations reported gusts in excess of 125 km/h.

During the first week of December, most of the country received heavy snowfalls. The mountain passes of the Yukon Territory and northwestern British Columbia had two heavy snowfalls. Whitehorse received 44.5 cm of snow. Numerous daily snowfall records were set between December 2 and 4, causing transportation problems and avalanches.

Across the Prairies, 20 to 30 cm of snow, during the first week, gave accumulations near December monthly averages for many locations.

On Baffin Island, blizzard conditions on December 5 paralysed the town of Iqaluit for 24 hours. Schools, offices and stores were all closed.

Across southern and central Ontario, snow and freezing rain caused school closures and many power outages on December 2 and 3. Yet another snowstorm on December 5 and 6 dumped another 10 to 20 cm of snow on southern Ontario.

Three snowstorms buried the Maritimes with 35 to 60 cm of snow. Across Newfoundland, rain, freezing rain, snow and winds gusting to 111 km/h dealt hardship to public and marine concerns.

Aaron Gergye
Canadian Climate Centre
Forecasting and Real Time Reporting

Norman Green's Report on the Recent Wet Spell in the Terrace Area, British Colombia

On January 20, 1992, we received a letter from Mr. Norman Green, volunteer weather observer at Vanderhoof, B.C., which contained some valuable tabulations from the station at Terrace Airport, shedding light on the record wet spell experienced over the watersheds of the Skeena and Nass Rivers in the last months of 1991. One repercussion was the disasterous Nass River flooding reported above in the annual national summary. Referring to observations taken at Terrace A, Mr. Green wrote:

"The final quarter of 1991 was so unusually wet there-October was very wet with a week of flooding and slides...November had a record total precipitation, and December was even wetter, the wettest month they have had."

The three-month period and the annual total were also records. Mr. Green enclosed a tabulation sheet on which he noted the daily cumulative precipitation, and some other records. For example, he drew attention to a consecutive period of 58 days of measurable precipitation between November 2 and December 30. A check of Terrace observations going back to 1912, indicated that there were 22 periods with more than 20 consecutive days with precipitation, with the longest being a stretch of 34 days beginning on November 5, 1933.

Cumulative precipitation, October through December, totalled 1115.3 mm, compared to a normal of 588.6 mm. Indeed, the annual normal sum of 1312.2 mm seems paltry in comparison. Some days were real drenchers: 159.0 mm on December 20, beat the old one-day record at Terrace A of 114.8 mm on October 31, 1978. The entire month was the wettest one on record. For all of 1991, the gauges totalled 1829.6 mm which may be compared to 1666.7 in 1959 and 1579.6 in 1968. Perhaps reports of an ark being constructed were not in error?

Our sincere thanks to Norman Green for contributing his information to Climatic Perspectives. Mr. Green exemplifies a corps of 2100 volunteer weather observers across Canada, whose dedication in watching the weather every day of the year, year-in, year-out, is viewed with much pride and appreciation by the Atmospheric Environment Service. Mr. Green has been an observer at Vanderhoof since 1985, and formerly manned the Aldergrove station, a few kilometres west-southwest of Mission in the lower Fraser Valley, from 1953-1980. For many years he has tabulated his own climatological archive from not only surrounding stations, but throughout Canada, and regularly makes this information available to the community.

Aaron Gergye and Bruce Findlay
Canadian Climate Centre
Forecasting and Real Time Reporting

JANUARY 1992

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 A	5.5	3.9	16.2	-4.3	0.0	0	308.9	148	0	21	55	81	384.9
ALERT BAY	5.4	2.6	12.2	-1.7	0.0	0	435.7	223	0	24	*	*	390.8
AMPHITRITE POINT	7.1	2.4	12.9	-0.3	0.0	0	806.1	198	0	24	*	*	336.6
BLUE RIVER A	-3.0	8.4	7.0	-16.1	114.6	117	164.1	201	90	20	13	27	*
CAPE ST JAMES	6.5	2.6	9.8	2.5	0.0	0	181.0	112	0	22	27	*	356.8
CAPE SCOTT	6.6	3.0	12.6	-1.0	0.4	2	457.7	136	0	27	*	*	353.8
CASTLEGAR A	0.4	4.8	6.9	-9.6	55.2	66	124.4	155	9	17	27	60	544.4
COMOX A	5.4	3.2	12.4	-3.9	0.0	0	360.2	186	0	20	44	*	389.7
CRANBROOK A	-2.9	7.6	8.2	-15.2	11.2	21	18.0	41	0	7	46	58	647.6
DEASE LAKE	-10.1	9.6	4.5	-24.1	27.8	82	20.0	72	90	6	43	68	872.0
FORT NELSON A	-18.1	5.7	-2.6	-28.7	22.0	70	22.2	89	54	8	54	*	1119.8
FORT ST JOHN A	-5.8	11.9	7.3	-21.4	26.9	70	20.9	59	30	6	48	*	738.1
HOPE A	4.4	4.8	10.2	-2.4	0.9	1	387.0	151	0	21	7	39	422.1
KAMLOOPS A	2.3	8.4	15.6	-6.3	8.6	27	14.4	46	0	6	46	80	489.2
KELOWNA A	0.8	7.3	13.6	-8.4	23.2	73	28.1	84	0	10	22	49	534.0
MACKENZIE A	-2.7	11.8	6.2	-14.0	66.8	83	70.1	108	83	17	18	32	640.9
PENTICTON A	2.3	5.0	12.8	-5.8	7.8	27	9.6	30	0	4	26	55	485.7
PORT ALBERNI A	5.3	4.5	12.7	-1.6	0.8	1	627.2	256	0	21	8	*	422.5
PORT HARDY A	5.4	3.0	12.0	-3.0	0.2	1	456.1	216	0	24	25	39	392.2
PRINCE GEORGE A	-0.6	11.5	8.4	-10.1	37.4	61	49.5	86	0	15	22	37	576.7
PRINCE RUPERT A	4.7	5.2	11.1	-3.2	4.2	8	355.3	154	0	27	4	9	411.0
PRINCETON A	-2.7	5.2	7.5	-14.6	19.8	36	37.4	68	13	8	41	*	*
REVELSTOKE A	0.4	8.2	5.5	-5.8	110.8	76	161.8	146	24	21	21	47	548.4
SANDSPIT A	4.9	2.9	11.4	-2.4	0.0	0	205.0	142	0	25	21	36	406.7
SMITHERS A	-3.2	7.7	6.6	-18.9	43.7	77	43.7	79	29	16	17	31	655.8
TERRACE A	0.9	6.8	5.2	-6.0	39.6	34	254.3	165	0	22	1	2	530.8
VANCOUVER INT'L A	5.8	3.3	14.8	-4.5	0.0	0	281.8	183	0	18	51	94	377.1
VICTORIA INT'L A	5.9	2.8	12.8	-3.4	0.0	0	228.4	148	0	22	68	107	375.1
VICTORIA MARINE	6.1	2.8	14.5	-2.2	0.0	0	315.3	162	0	21	*	*	366.7
WILLIAMS LAKE A	-1.7	8.7	9.2	-11.2	40.0	81	38.5	88	12	7	30	43	609.7

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									
YUKON TERRITORY													
DAWSON A	-19.6	*	-7.6	-38.9	37.4	*	24.2	*	*	*	*	*	*
WATSON LAKE A	-17.8	8.9	2.1	-32.6	31.2	77	25.2	76	67	11	39	86	1009.3
WHITEHORSE A	-8.2	12.5	3.3	-24.4	30.9	145	22.8	129	26	5	26	56	812.3
NORTHWEST TERRITORIES													
BAKER LAKE A	-30.9	2.1	-7.5	-40.5	*	*	9.8	127	29	5	6	16	1517.3
CAMBRIDGE BAY A	-34.8	-1.2	-18.1	-41.6	8.2	155	7.4	154	39	4	0	0	1636.4
CAPE PARRY A	-28.7	0.1	-14.0	-37.1	5.6	57	4.0	56	16	1	*	*	1446.4
CLYDE A	-29.7	-3.2	-19.2	-53.6	30.6	306	27.0	273	47	11	0	*	1477.7
COPPERMINE A	-29.6	0.5	-14.1	-42.2	14.6	159	11.0	118	49	5	1	18	1476.9
CORAL HARBOUR A	-28.2	1.5	-5.4	-41.4	24.4	287	24.4	294	33	5	19	43	1433.2
EUREKA	-40.7	-4.3	-27.4	-49.1	2.4	75	2.4	83	18	0	0	*	1818.0
FORT SIMPSON A	-23.3	5.0	-7.3	-40.0	20.2	98	18.0	100	58	8	25	53	1280.0
FORT SMITH A	-20.8	6.0	0.8	-41.5	27.5	129	18.6	101	64	6	54	95	1201.5
IQALUIT	-25.4	0.2	-2.2	-44.8	34.6	125	32.0	123	24	6	33	93	1345.9
HALL BEACH A	-29.6	1.4	-9.0	-41.3	17.0	193	17.0	195	30	7	*	*	1476.4
HAY RIVER A	-20.8	5.0	0.1	-40.8	21.7	97	21.7	104	63	7	*	*	1222.9
INUVIK A	-28.7	0.9	-19.1	-42.1	28.6	140	24.0	134	41	9	0	0	1445.8
MOULD BAY A	-35.6	-2.1	-22.5	-45.5	0.6	18	0.6	22	13	0	0	*	1664.5
NORMAN WELLS A	-26.4	2.5	-23.3	-29.5	44.5	216	29.2	150	9	9	11	36	1376.9
POND INLET A	-33.8	-3.1	-30.8	-43.5	13.2	165	8.8	150	12	5	0	*	1606.7
RESOLUTE A	-34.3	-2.2	-21.5	-42.8	4.2	124	4.2	127	9	2	0	*	1619.8
YELLOWKNIFE A	-24.7	4.1	-5.0	-43.4	37.6	243	28.2	212	55	8	33	23	1334.0
ALBERTA													
BANFF	-4.2	7.3	7.0	-22.1	38.0	86	25.8	68	19	8	*	*	686.6
CALGARY INT'L A	-1.2	10.6	13.8	-15.9	4.2	20	2.2	14	0	1	93	91	593.3
COLD LAKE A	-11.0	8.0	6.5	-29.0	29.6	124	24.2	110	24	8	50	55	902.9
CORONATION A	-8.0	8.5	4.4	-24.4	12.8	51	10.0	47	9	4	89	75	806.2

JANUARY 1992

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EDMONTON INT'L A	-7.1	9.4	7.5	-26.8	21.0	73	21.0	86	19	4	77	79	777.0
EDMONTON MUNICIPAL	-5.1	9.9	5.6	-21.2	21.0	*	20.2	82	12	4	71	79	716.2
EDMONTON NAMAO A	-5.9	9.7	6.8	-23.5	21.7	88	20.6	83	18	4	*	*	739.0
EDSON A	-5.6	8.7	9.5	-22.6	18.0	50	17.8	70	32	6	41	49	734.5
FORT CHIPEWYAN A	-18.4	7.3	5.0	-41.0	9.6	45	9.6	47	39	*	*	*	*
FORT MCMURRAY A	-12.8	9.0	5.3	-34.0	31.2	118	19.8	87	33	6	49	56	953.3
GRANDE PRAIRIE A	-7.8	9.9	8.0	-26.6	26.9	71	27.3	81	37	9	45	*	798.1
HIGH LEVEL A	-18.2	5.0	0.8	-35.0	14.6	55	14.9	64	43	7	28	52	1123.3
JASPER	-2.9	9.9	6.3	-18.0	22.4	59	28.2	82	10	9	40	*	646.2
LETHBRIDGE A	0.6	10.9	14.4	-22.6	11.2	40	11.4	48	0	6	91	96	540.8
MEDICINE HAT A	-1.7	10.9	15.6	-22.6	10.3	40	10.7	47	0	2	104	111	609.2
PEACE RIVER A	-9.0	11.4	6.0	-26.4	11.4	42	10.8	49	26	4	*	*	835.8
RED DEER A	-6.2	9.3	8.0	-21.6	14.1	57	13.1	55	6	6	*	*	751.5
ROCKY MTN HOUSE A	-5.7	7.3	13.2	-24.2	16.0	53	14.6	53	34	4	*	*	730.9
SLAVE LAKE A	-8.5	8.7	8.8	-27.7	29.8	90	23.2	88	22	5	59	70	815.1
SUFFIELD A	-2.1	*	14.7	-20.1	6.6	*	6.8	*	0	3	96	*	620.9
WHITECOURT A	-5.8	10.8	7.7	-22.0	25.4	80	20.1	69	30	7	*	*	739.2
SASKATCHEWAN													
BROADVIEW	-10.1	9.6	4.8	-35.9	20.2	107	18.0	102	18	6	100	84	870.3
CREE LAKE	-18.0	6.9	0.7	-41.5	20.8	100	15.4	102	40	6	64	75	1113.8
ESTEVAN A	-8.1	8.2	8.2	-30.8	6.6	32	5.0	26	1	2	107	88	809.4
HUDSON BAY A	-12.8	*	2.8	-36.1	30.4	*	19.4	*	32	5	80	*	954.4
KINDERSLEY	-8.9	8.3	9.1	-30.0	21.6	119	15.2	89	19	6	95	*	833.3
LA RONGE A	-14.7	8.0	7.3	-38.0	23.1	105	23.1	133	48	7	*	*	1017.9
MEADOW LAKE A	-12.9	*	5.1	-37.5	29.0	*	23.8	*	31	6	54	*	954.0
MOOSE JAW A	-6.3	9.5	10.3	-27.0	13.0	56	11.2	60	1	6	90	85	752.8
NIPAWIN A	-13.8	*	0.8	-37.8	17.6	*	10.4	*	47	3	69	*	984.9
NORTH BATTLEFORD A	-10.8	8.2	3.3	-33.5	21.4	97	19.2	97	23	6	*	*	891.2
PRINCE ALBERT A	-13.2	8.3	0.1	-36.0	20.4	112	17.0	102	35	6	70	73	966.6
REGINA A	-9.4	8.5	4.9	-31.8	12.4	62	10.0	60	8	7	86	86	850.0
SASKATOON A	-10.4	8.9	2.1	-31.7	16.2	81	17.6	99	17	6	*	*	879.5
SWIFT CURRENT A	-5.0	9.7	10.0	-29.7	18.4	83	18.8	89	0	3	93	101	716.9
YORKTON A	-12.0	7.9	3.7	-35.1	18.0	74	16.5	73	36	7	80	74	909.1
MANITOBA													
BRANDON A	-13.1	6.6	3.1	-35.2	19.8	94	14.4	74	25	6	88	*	964.4
CHURCHILL A	-24.9	2.6	-2.0	-38.0	25.2	149	15.4	101	55	7	54	67	1319.2
DAUPHIN A	-11.9	7.6	4.1	-34.7	24.6	96	16.0	65	19	6	*	*	927.8
GILLAM A	-23.2	4.8	0.1	-38.5	34.0	148	18.8	106	51	8	*	*	1275.7
ISLAND LAKE	-19.2	5.6	2.5	-39.2	25.4	63	21.4	97	42	7	*	*	1153.8
LYNN LAKE A	-20.2	6.7	-3.3	-39.3	28.4	107	17.0	92	33	6	42	44	1184.0
NORWAY HOUSE A	-17.6	*	-0.6	-36.9	25.6	*	18.0	*	26	5	*	*	1104.8
PORTAGE LA PRAIRIE	-10.7	7.6	5.7	-31.7	24.2	79	12.4	47	9	3	*	*	890.5
THE PAS A	-15.2	7.5	-2.2	-36.2	17.4	74	11.4	63	25	4	68	66	1028.7
THOMPSON A	-21.0	5.6	-1.9	-40.5	20.3	80	16.1	85	45	5	63	67	1215.1
WINNIPEG INT'L A	-11.5	7.8	4.4	-31.3	15.0	63	14.0	66	14	3	91	75	913.1
ONTARIO													
BIG TROUT LAKE	-20.1	4.4	1.6	-38.9	20.8	77	19.8	80	30	10	93	*	1180.5
EARLTON A	-15.3	1.0	2.3	-37.2	36.0	63	37.0	66	24	11	*	*	1032.8
GERALDTON A	-16.6	*	1.6	-39.5	41.2	*	37.6	*	58	5	*	*	1073.0
GORE BAY A	-7.5	2.6	3.0	-25.8	67.6	119	68.4	111	27	14	*	*	789.5
HAMILTON RBG	-3.3	*	7.0	-21.5	13.4	*	46.6	*	0	8	46	*	*
HAMILTON A	-4.0	2.4	6.6	-19.4	24.0	61	57.6	81	5	7	*	*	680.9
KAPUSKASING A	-16.6	2.0	2.3	-38.4	57.8	105	27.6	51	90	10	*	*	1083.9
KENORA A	-12.4	6.1	0.8	-33.7	16.5	53	15.5	55	37	5	*	*	951.2
KINGSTON A	-7.0	0.7	4.4	-25.5	28.2	55	79.0	99	2	10	83	83	780.6
LONDON A	-4.3	2.3	5.3	-18.9	69.2	126	93.2	124	15	13	33	47	692.2
MOOSONEE	-19.2	1.2	2.7	-39.9	20.6	48	16.8	41	32	6	91	111	1155.3
MUSKOKA A	-9.5	0.9	4.1	-37.3	58.0	72	71.9	84	22	15	*	*	851.4
NORTH BAY A	-12.7	0.3	3.6	-36.1	47.4	80	58.0	91	30	10	73	76	953.6
OTTAWA INT'L A	-11.6	-0.7	3.2	-30.2	38.2	76	72.8	119	25	10	90	91	916.8
PETAWAWA A	-13.2	-0.1	3.4	-37.8	54.2	116	58.9	104	20	10	*	*	968.6
PETERBOROUGH A	-7.4	2.2	4.0	-26.9	24.6	70	52.0	93	7	10	*	*	787.7
PICKLE LAKE	-17.0	4.4	0.8	-37.4	27.8	66	22.4	59	39	8	*	*	1085.8
RED LAKE A	-15.6	5.4	0.7	-37.5	29.8	96	27.2	95	40	6	85	*	1040.8
ST CATHARINES A	-2.5	2.2	7.9	-17.4	29.8	90	52.5	90	0	8	54	*	634.4
SARNIA A	-3.5	3.0	8.2	-20.9	42.4	147	53.0	101	15	11	51	61	665.4
SAULT STE MARIE A	-8.7	2.0	3.9	-26.4	98.8	129	77.3	97	21	17	52	69	825.9
SIOUX LOOKOUT A	-14.5	4.9	0.8	-36.0	39.1	103	36.9	102	60	8	*	*	998.7
SUDBURY A	-13.1	0.6	1.9	-34.4	52.0	96	61.5	107	40	13	64	63	963.9
THUNDER BAY A	-11.3	4.1	4.1	-32.6	24.8	51	12.8	31	27	4	78	66	910.1
TIMMINS A	-16.8	0.5	1.4	-43.2	62.5	95	63.0	112	56	12	*	*	1078.6
TORONTO	-2.7	*	6.4	-20.8	16.2	*	43.0	*	0	7	*	*	640.6
TORONTO INT'L A	-4.2	2.5	7.2	-22.1	26.6	80	37.2	74	4	5	*	*	687.9
TORONTO ISLAND A	-2.8	*	6.0	-20.6	10.6	34	38.4	*	0	4	*	*	646.8
TRENTON A	-7.0	0.6	5.3	-24.3	28.4	59	63.6	92	0	9	*	*	766.6
WATERLOO WELLINGTON	-4.7	3.0	4.4	-19.9	39.2	97	48.3	80	3	10	*	*	704.1
WAWA A	-12.3	*	1.9	-34.8	51.4	*	42.8	*	46	14	*	*	939.8
WIARTON A	-5.3	1.8	5.6	-21.5	87.5	86	75.5	78	8	14	41	60	723.2
WINDSOR A	-2.6	2.3	6.7	-17.7	48.6	161	54.2	99	2	11	*	*	637.2

JANUARY 1992

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 A	-16.9	-1.1	0.4	-34.6	87.1	128	95.1	150	62	13	*	*	1082.7
BAIE COMEAU A	-14.6	-0.6	2.2	-32.9	80.8	95	159.0	175	45	12	96	98	1011.2
BLANC SABLON A	-13.4	-2.1	3.5	-30.2	34.2	30	65.6	50	6	11	89	*	971.7
CHIBOUGAMAU CHAPAIS	-20.0	*	1.6	-40.5	71.0	*	62.8	*	70	14	90	104	1177.9
GASPE A	-11.9	*	8.6	-28.3	23.8	*	122.6	*	2	9	110	*	926.2
INUKJUAK A	-24.4	0.1	-0.7	-37.0	10.6	106	7.8	80	19	2	60	115	131.4
KUUJJUAQ A	-23.1	0.2	2.1	-39.9	45.2	138	45.2	137	29	7	68	108	1272.7
KUUJJUARAPIK A	-22.5	0.0	1.2	-36.6	24.3	90	34.3	133	27	7	*	*	1256.0
LA GRANDE IV A	-24.2	*	1.8	-43.1	43.3	*	35.6	*	*	9	68	*	1259.9
LA GRANDE RIVIERE A	-22.2	*	0.1	-37.6	23.4	*	22.6	*	43	6	*	*	1247.3
MANIWAKI	-13.5	0.0	4.4	-37.3	62.0	128	66.8	121	41	11	81	88	977.3
MONT JOLI A	-12.4	-0.8	3.4	-25.5	66.2	76	122.0	140	27	16	77	*	940.8
MONTREAL INT'L A	-11.0	-0.8	4.6	-27.7	49.9	95	92.5	128	3	11	91	86	899.7
MONTREAL MIRABEL I/	-13.0	*	2.9	-30.4	35.4	*	121.7	*	15	10	112	*	959.5
NATASHQUAN A	-13.3	-1.1	2.8	-33.7	74.0	108	120.8	132	26	13	93	*	994.1
QUEBEC A	-13.6	-1.5	2.3	-30.6	61.0	79	101.2	113	61	13	109	113	980.1
ROBERVAL A	-16.6	-0.8	0.4	-33.3	94.0	134	94.4	140	72	13	83	*	1074.8
SCHEFFERVILLE A	-23.4	-0.6	0.1	-43.2	72.8	152	70.4	150	73	11	59	75	1284.2
SEPT-ILES A	-15.6	-1.6	2.2	-33.3	72.4	78	118.8	124	*	5	*	*	1041.4
SHERBROOKE A	-12.1	-0.5	5.2	-30.9	36.0	58	59.0	80	*	14	84	*	931.5
STE AGATHE DES MONT	-14.3	-1.0	*	-34.0	76.0	93	113.0	118	67	11	84	88	1002.5
ST HUBERT A	-11.3	-1.2	5.7	-27.3	26.9	*	87.3	105	4	13	87	*	907.1
VAL D'OR A	-16.5	0.3	2.3	-39.2	68.8	116	67.2	112	54	10	***	***	1068.1
NEW BRUNSWICK													
CHARLO A	-12.9	-0.2	7.3	-26.4	60.1	72	93.6	104	25	10	108	92	907.7
FREDERICTON A	-9.7	-0.5	10.5	-24.0	26.4	41	94.5	91	12	11	101	*	859.9
MONCTON A	-9.1	-1.0	10.8	-23.6	52.1	67	94.4	75	5	10	112	104	838.6
SAINT JOHN A	-8.2	-0.4	9.8	-23.2	33.6	44	93.4	63	4	8	119	113	811.8

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 A	-6.2	-1.2	12.5	-22.3	54.2	71	89.0	71	1	10	*	*	747.8
HALIFAX INT'L A	-6.9	-0.9	10.1	-20.2	16.7	26	141.6	93	1	10	*	*	772.5
SABLE ISLAND	-1.7	-1.8	10.6	-13.1	9.6	26	81.5	56	0	10	49	92	611.1
SHEARWATER A	-5.6	-1.5	8.2	-18.7	9.2	20	108.2	76	4	9	100	89	730.2
SYDNEY A	-6.5	-1.8	7.9	-19.1	42.8	57	107.2	72	1	12	80	93	760.1
YARMOUTH A	-3.9	-1.2	10.8	-17.6	32.1	52	86.1	61	0	15	62	87	674.5
PRINCE EDWARD ISLAND													
CHARLOTTETOWN A	-8.5	-1.4	9.4	-21.8	37.0	48	96.0	82	1	10	*	*	822.2
NEWFOUNDLAND													
BONAVISTA	-6.0	-1.7	6.5	-16.8	30.3	60	64.6	72	19	10	*	*	743.3
BURGEO	-6.4	-1.6	6.1	-18.5	25.2	44	69.7	45	5	11	0	0	758.4
CARTWRIGHT	*	*	*	*	*	*	*	*	*	*	*	*	*
CHURCHILL FALLS A	-21.7	-0.4	0.6	-39.8	79.2	92	81.0	112	103	11	84	84	1229.7
COMFORT COVE	-8.9	-1.5	6.6	-23.6	39.1	48	51.1	53	11	9	*	*	830.8
DANIELS HARBOUR	-8.4	-1.5	10.0	-22.2	41.1	46	58.5	59	9	13	19	34	816.9
DEER LAKE A	-9.6	-1.2	8.2	-25.5	60.5	70	58.0	62	25	13	*	*	855.0
GANDER INT'L A	-8.4	-2.2	7.0	-21.0	40.2	51	61.4	56	6	12	103	121	819.9
GOOSE A	-17.3	-0.9	3.6	-34.2	51.9	65	39.0	52	42	8	68	78	1092.5
MARY'S HARBOUR	-13.3	-3.0	5.0	-30.9	33.6	45	43.4	51	42	7	*	*	974.6
PORT AUX BASQUES	-6.3	-2.2	5.5	-17.0	62.2	85	114.1	85	8	20	38	*	752.0
ST ANTHONY	-12.0	-0.7	3.5	-29.2	45.6	80	48.4	50	49	9	*	*	929.9
ST JOHN'S A	-6.7	-2.8	6.6	-19.0	42.4	52	89.3	57	18	17	60	84	765.8
ST LAWRENCE	-5.6	-1.8	7.6	-18.3	54.9	108	122.3	103	4	13	*	*	732.0
STEPHENVILLE A	-7.2	-2.2	7.3	-18.5	42.9	45	48.0	42	18	17	33	75	780.2
WABUSH LAKE A	-21.9	0.4	-1.0	-38.3	95.6	131	79.2	122	73	13	63	78	1237.0

AGROCLIMATOLOGICAL STATIONS — JANUARY 1992

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	Mean	Difference from Normal	Maximum	Minimum							This month	Since jan. 1st
BRITISH COLUMBIA												
AGASSIZ	5.5	4.3	12.5	-0.5	0.0	380.9	166	0	21	40	31.8	31.8
SUMMERLAND	1.5	4.9	12.5	-4.5	5.8	12.2	34	0	5	39	12.3	12.3
ALBERTA												
BEAVERLODGE	-5.3	10.6	9.0	-22.0	20.5	25.2	76	18	9	50	0.5	0.5
LACOMBE	-6.0	9.5	9.0	-19.5	12.7	11.1	52	10	4	64	0.0	0.0
SASKATCHWAN												
INDIAN HEAD	-8.9	9.0	4.5	-32.0	10.8	16.6	79	34	6	**	*.*	0.0
MELFORT	-11.7	9.2	0.5	-33.0	13.9	13.9	74	50	5	51	0.0	0.0
REGINA	-10.8	7.2	5.0	-35.0	11.5	12.0	67	18	7	**	*.*	0.0
SCOTT	-10.1	9.0	7.0	-32.0	29.7	23.7	140	15	7	72	0.0	0.0
SWIFT CURRENT	-4.8	10.0	9.5	-28.5	14.6	13.6	82	0	3	78	1.0	1.0
MANITOBA												
BRANDON	-12.8	6.5	4.0	-36.4	13.1	13.1	62	38	5	**	*.*	0.0
MORDEN	-10.0	9.7	6.0	-30.0	26.8	32.2	126	16	8	109	0.0	0.0
GLENLEA	-13.0	4.3	1.0	-34.0	19.4	19.4	83	44	7	86	0.0	0.0
ONTARIO												
DELHI	-3.7	2.3	8.0	-19.5	36.7	96.7	145	5	12	**	0.0	0.0
ELORA	-5.7	2.5	4.1	-23.1	47.0	53.9	92	12	6	**	*.*	0.0
GUELPH	-4.0	3.0	5.8	-22.5	26.9	37.1	66	9	6	40	0.0	0.0
HARROW	-1.8	3.0	7.0	-12.0	38.6	47.6	81	6	7	46	0.0	0.0
KAPUSKASING	-16.9	1.7	2.0	-41.5	44.4	50.4	104	54	9	44	0.0	0.0
OTTAWA	-10.8	0.0	3.5	-30.5	31.6	83.6	151	9	10	90	0.0	0.0
SMITHFIELD	-5.6	1.9	7.3	-24.2	38.6	72.9	88	2	13	**	0.0	0.0

Courtesy of Agriculture Canada

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	Mean	Difference from Normal	Maximum	Minimum							This month	Since jan. 1st
QUEBEC												
LA POCATIERE	-12.3	-1.0	5.0	-28.0	93.4	137.3	174	35	14	86	0.0	0.0
L'ASSOMPTION	-12.0	-0.1	3.5	-30.0	25.1	99.5	134	12	8	107	0.0	0.0
NORMANDIN	-19.4	-1.4	1.0	-42.0	77.2	80.0	126	38	9	93	0.0	0.0
NEW BRUNSWICK												
FREDERICTON	-9.2	-0.1	11.0	-24.5	18.4	113.6	110	5	8	101	0.0	0.0
NOVA SCOTIA												
KENTVILLE	-6.0	-1.0	12.0	-19.0	37.7	114.5	84	2	12	60	0.8	0.8
NAPPAN	-7.7	-0.9	11.0	-22.0	76.1	138.8	122	2	10	85	0.5	0.5
PRINCE EDWARD ISLAND												
CHARLOTTETWN	-8.1	-1.5	9.5	-21.8	42.8	85.5	84	0	7	**	*.*	*.*
NEWFOUNDLAND												
ST.JOHN'S WEST	-2.6	1.2	6.5	-19.0	50.6	110.4	61	14	17	50	0.0	0.0

Courtesy of Agriculture Canada