Environment Canada | Environnement Canada

Climatic Perspectives

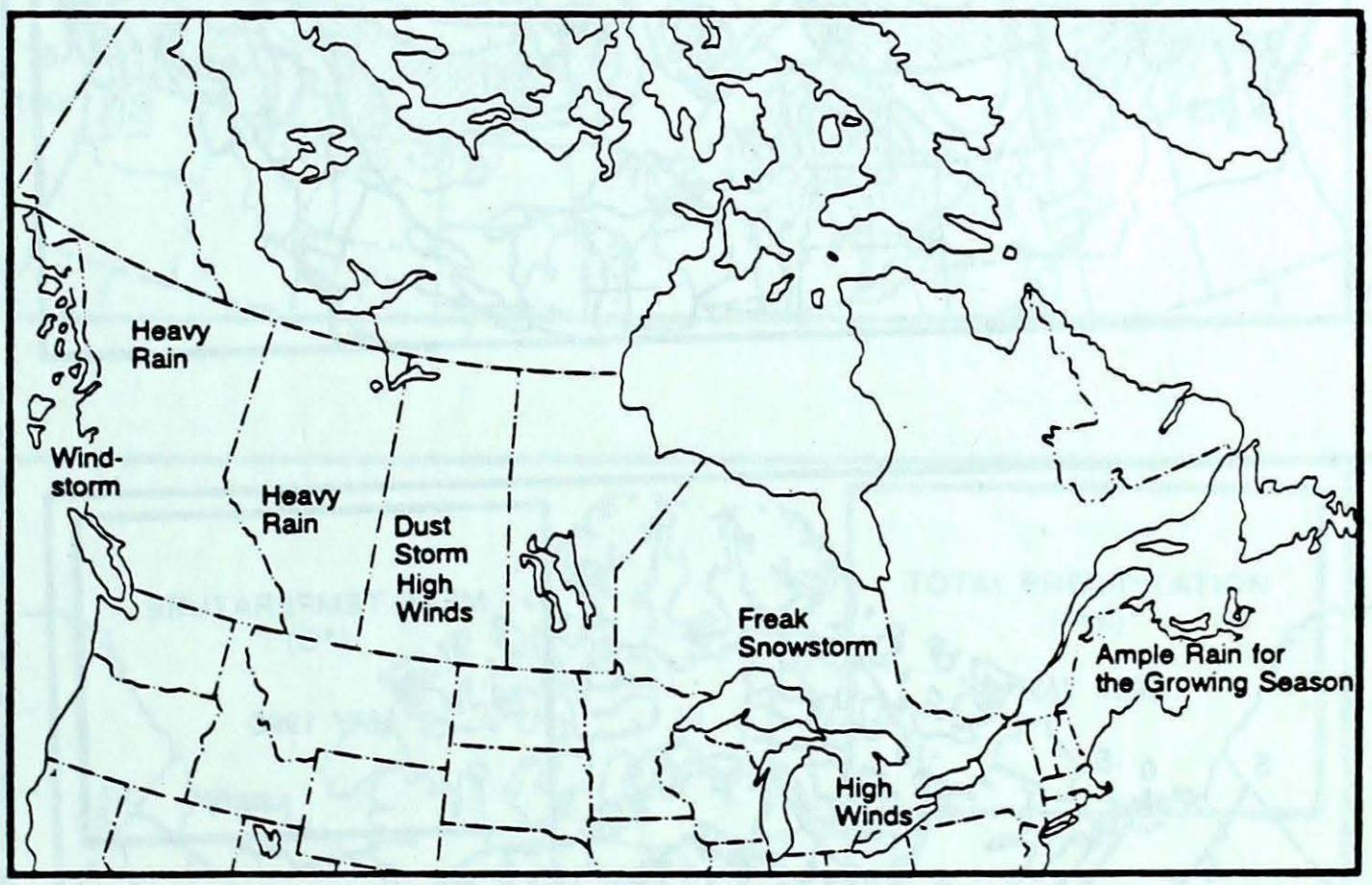
Monthly Review | MAY – 1990 | Vol. 12

CLIMATIC HIGHLIGHTS

Stormy weather: A mixed blessing across the country this May.

Since April, the Atlantic region has received copious amounts of precipitation. The fresh water supply is most welcome for the upcoming growing season, the recharging of bodies of water and the ground water table. In central Newfoundland, stream flows have been excessive.

On May 10, a unusual storm dumped 40 cm of snow on northeastern Ontario, while southern and central parts of the province were lashed by winds gusting to almost 100 km/h. Traffic accidents, personal injuries and property damage resulted. Wet weather this month across the agricultural areas delayed the planting of soybeans and corn. Although grains and cereals were doing well, the cool weather curbed their growth.

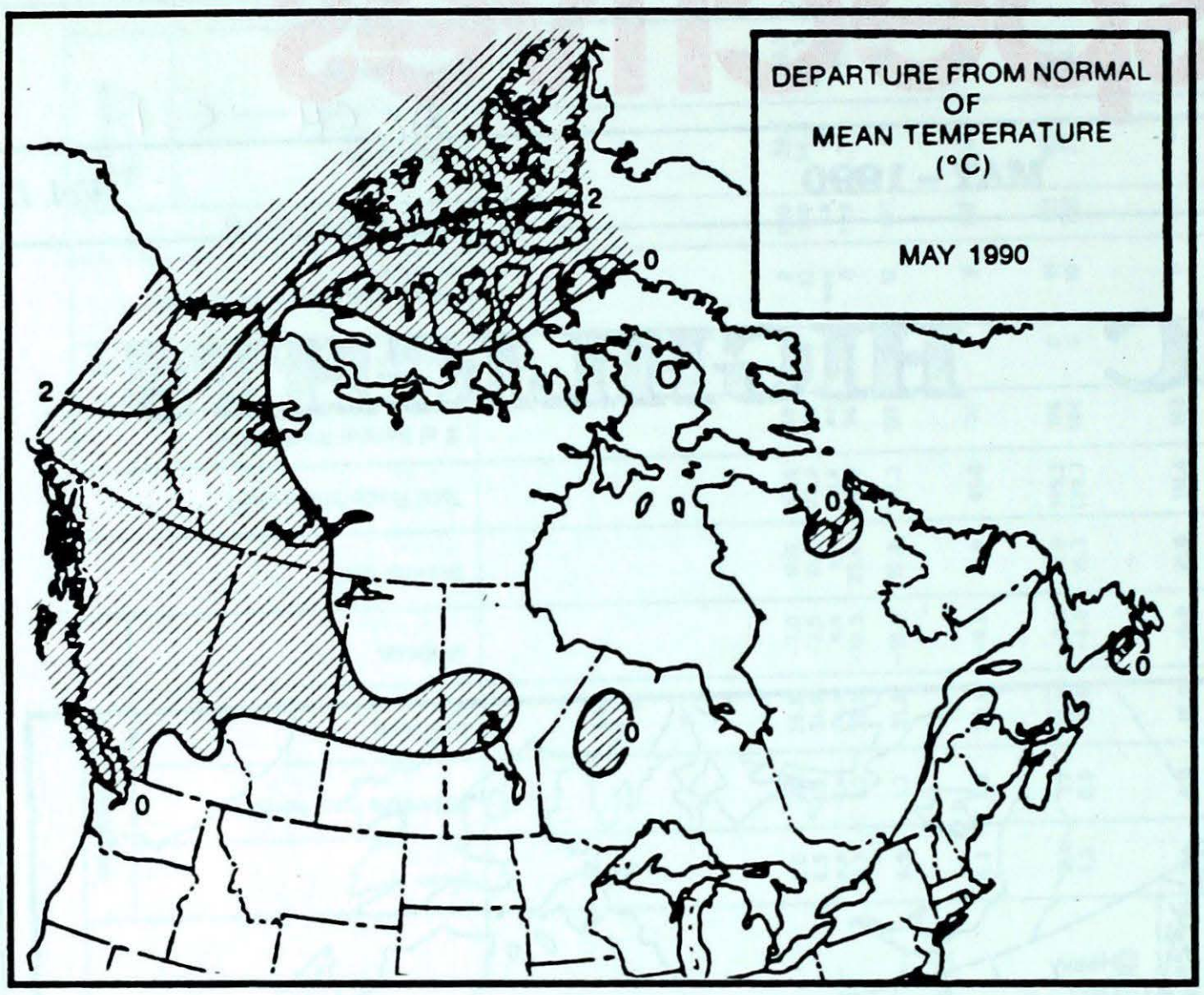


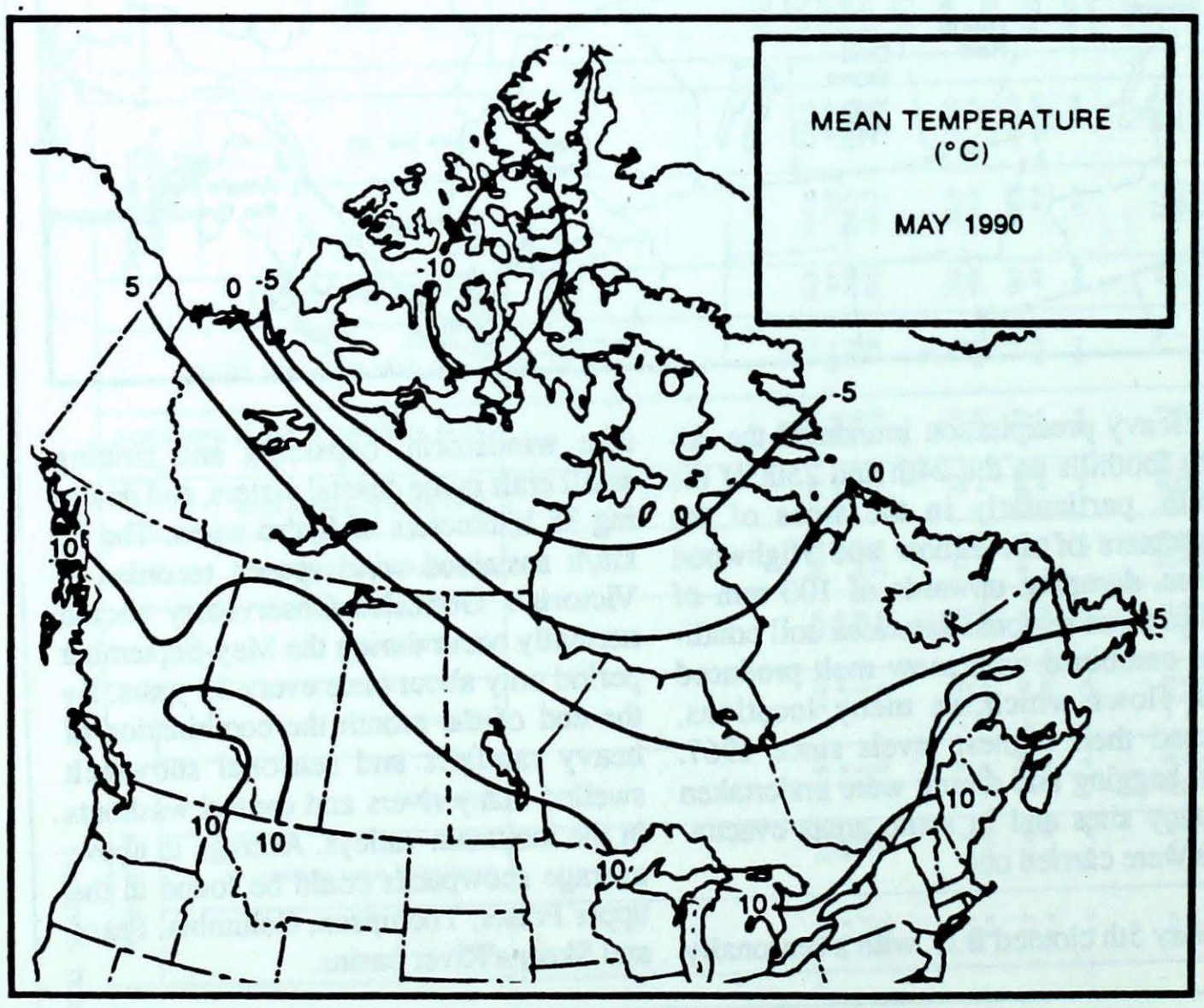
News of the completion of a climatic study on frequency, effects and controls of dust storms presaged the arrival of a severe dust storm on May 25th, which brought 80-85 km/h winds to central Saskatchewan. Strong winds caused soil erosion and the depletion of topsoil moisture in the west central areas. Although generally persistent Prairie rains raised the soil moisture index above the 70% level, southwestern and south central Saskatchewan remains relatively dry with soil moisture levels below 50% of its water holding capacity.

Heavy precipitation inundated the Alberta foothills on the 24th and 25th of the month, particularly in the areas of the headwaters of the Elbow and Highwood Rivers, dumping upwards of 100 mm of rain in these regions. Saturated soil conditions combined with snow melt produced peak flows which, in many locations, reached their highest levels since 1967. Sand bagging and diking were undertaken at many sites and in some areas evacuations were carried out.

May 5th clouted B.C. with a seasonally rare windstorm, capsizing and sinking small craft in the coastal waters, and downing 35 kilometers of hydro wires. The 80 km/h sustained wind speeds recorded at Victoria's Gonzales Observatory should normally occur during the May-September period only about once every 35 years. By the end of the month the combination of heavy rainfalls and seasonal snowmelt swelled many rivers and caused washouts in the mountain valleys. Average to above average snowpacks could be found in the upper Fraser, Thompson, Columbia, Peace and Skeena River basins.

Canada





Across the country

Yukon and Northwest Territories

In the Yukon, for the most part, it was a dull, damp and dreary month, but surprisingly temperatures did average out above normal. There was definitely a lack of sunshine. Whitehorse established a new record for the fewest number of hours of bright sunshine, 206.7 hours as opposed to a May normal of 260 hours.

The southern Yukon received more than twice their normal rainfall and Whitehorse also set a new record for the number of days with precipitation during May, 14 days compared to the May normal of 5 days. The latter part of the month saw rainfalls of between 50 and 100 millimetres throughout the southeastern Yukon. This combined with mountain snowmelt caused flooding and washouts, and the Alaska Highway had to be closed at Muncho Lake.

By the middle of the month most of the snow had gone in the southern Mackenzie District. The ferry crossing the Mackenzie River at Fort Providence went back into service on May 10 after a rather uneventful breakup of the river ice.

In the Arctic, blizzards were still observed during the early part of the month, as weather systems tracked across Hudson Bay. Baffin Island got its fair share of snow and blowing snow. By the middle of the month, fog was common along the Beaufort Sea coastline, a sure sign of spring. The latter half of the month saw a significant warming take place in the Northwest Territories, which progressed eastward towards Baffin Island. Fort Smith, in the Great Slave Lake District, was the hot spot in Canada during the week of the 21st, with a temperature reading of 26°C. In fact, daily maximum temperature records were also broken along the Arctic Coast and on Baffin Island. The final week of the month saw temperatures in the southern Mackenzie nudge the 30s. This contrasted sharply with the wind, freezing rain and snow which moved back into the Keewatin District of the Northwest Territories and Baffin Island.

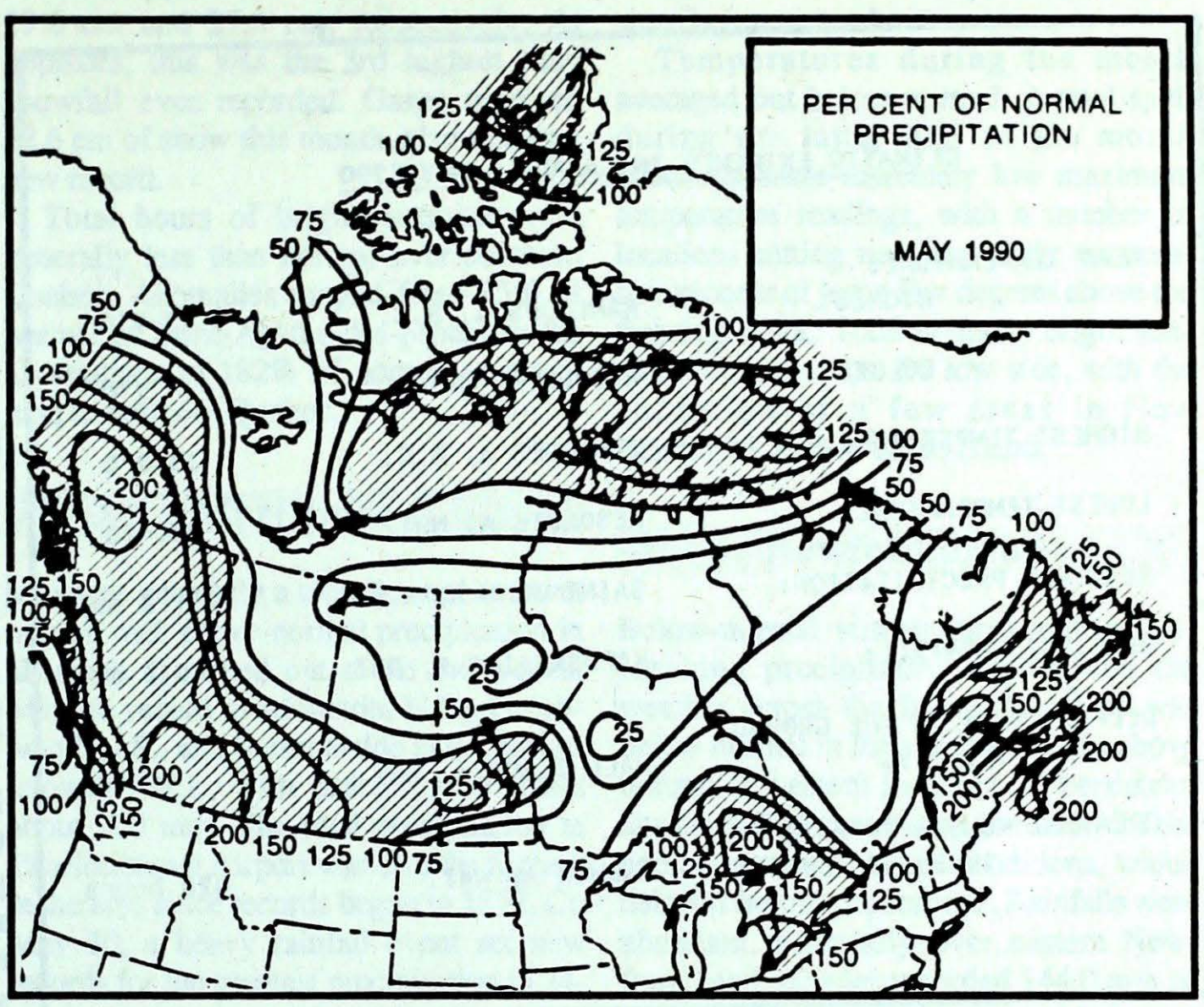
British Columbia

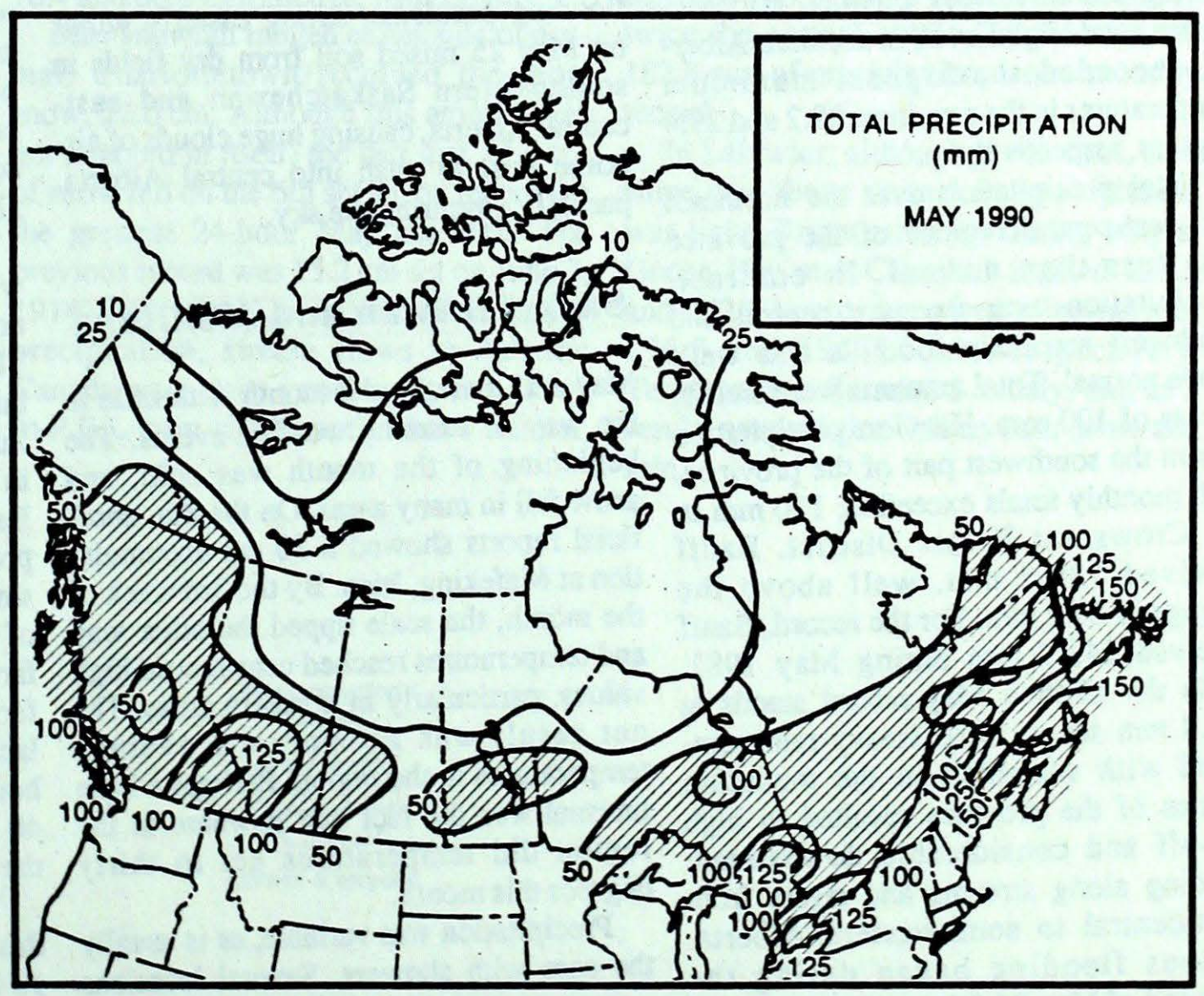
After a relatively pleasant April weather-wise, the month of May did not turn out to be as nice. Although temperatures did not stray far from long-term averages, it was a very wet and dull month.

The Okanagan, Kootenay, Fraser canyon and Kamloops areas reported precipitation amounts two to nearly four times above the average, with record high May values reported at Castlegar, Cranbrook, Kamloops, Kelowna, Penticton and Princeton. This has caused a lot of concern about the state of the orchards and hay crop in the southern interior, especially since June has also started out wet. Northern sections of the province were also unusually wet, and the heavy precipitation combined with mountain snowmelt caused some flooding and washouts along the lower valleys towards the end of the month. Surprisingly, areas along the north coast were drier than normal.

It was a dull month in almost all areas of the province. Only Terrace reported above average amounts of sunshine, while other areas of the province received 75 to 90 percent of their average sunshine. Once again the Okanagan and Kootenays had the greatest negative departures, in some cases half their normal sunshine. New record-low May values were established at Cranbrook, Penticton, Lytton and Williams Lake.

Strong winds associated with a frontal system wreaked havoc in the interior and southern coastal areas on May 5. Winds gusting up to 100 km/h caused extensive damage in the Prince George area. The winds knocked down trees and hydro towers, which in turn resulted in extensive power outages and damage in the millions. On the coast, in what started out as a pleasant, sunny day turned out to be a nightmare for many sailors, who did not need the advanced weather warnings.





Alberta

Above-normal temperatures were evident at the beginning of the month, and daily temperature records were set in the west-central and Peace regions. The middle of the month saw an unsettled, cool weather

CLIMATIC EXTREMES IN CANADA - MAY 1990

MEAN TEMPERATURE:		
HIGHEST	KAMLOOPS A, B.C.	13.9°C
COLDEST	RESOLUTE, NWT.	-10.2°C
HIGHEST TEMPERATURE:	KAMLOOPS A, B.C.	33.0°C
LOWEST TEMPERATURE:	RESOLUTE A, NWT.	-24.4°C
HEAVIEST PRECIPITATION:	SAINT JOHN A, N.B.	231.8 mm
HEAVIEST SNOWFALL:	KAPUSKASING A, ONT.	40.5 cm
DEEPEST SNOW ON THE GROUND ON MAY 31, 1990	HALL BEACH A, NWT.	50 cm
GREATEST NUMBER OF BRIGHT SUNSHINE HOURS:	INUWIK A, NWT.	428 hours

regime dominate the weather picture. During the final week of May, Fort McMurray and High Level, in northern Alberta, recorded the highest maximum temperatures in the province, 29.2 and 29.4 degrees, respectively.

Total precipitation over the northeast and east-central regions of the province was less than normal. In contrast, precipitation over the west-central and southwest mountain foothills was well-above normal. Total amounts were well in excess of 100 mm. Heaviest precipitation was in the southwest part of the province, with monthly totals exceeding 170 mm in the Crowsnest Forest District. Banff received 130.2 mm, well above the average of 51.2 mm. For the record, Banff received 149.7 mm during May 1981, while the all-time May record stands at 193.8 mm set in 1902. Heavy rain combined with snowmelt in the mountain regions of the province resulted in high run-off and considerable downstream flooding along streams and rivers from west-central to southwestern Alberta. Serious flooding began during the weekend of May 25 following heavy rainfalls of 50 to 75 millimetres in the foothills.

While the excessive moisture created flooding problems, strong easterly winds on May 25 raised soil from dry fields in southwestern Saskatchewan and east-central Alberta, causing huge clouds of airborne dust to push into central Alberta, partially obscuring the sky.

Saskatchewan and Manitoba

May was a very quiet month with little in the way of extreme weather events. The beginning of the month was cold, and snow fell in many areas. On the 8th, unofficial reports showed a 30 cm accumulation at Mafeking, Man. By the 3rd week of the month, the scale tipped the other way and temperatures reached near-record high values, particularly in northern areas. The net result was near-normal average temperatures in the region. Perhaps a little unusual was the fact that nowhere in the region did temperatures get to thirty degrees this month.

Precipitation was variable, as is usually the case with showers. Several locations were extremely dry, such as Thompson, Man., with only 2.8 mm. In the south, precipitation was more variable, although in general, amounts were near or below normal. Brandon received 83.2 mm, nearly double the normal for the month, while Winnipeg received approximately half their normal 65.7 mm. This was the 5th consecutive year with well-below normal precipitation at Winnipeg.

Northern Saskatchewan and all of Manitoba were much sunnier than usual. Some locations reported as much as 60 hours of bright sunshine above their normal allotment. More cloud cover in southern Saskatchewan kept sunshine totals there to as much as 50 hours below normal.

Ontario

May was less than a pleasant spring month this year. It was too wet for farmers and gardeners and too cloudy and cool for just about everyone else. Temperatures were as much as 2°C below normal across the southern half of the province, and unlike March and April there were no late-month heat waves. In fact, from May 10 to 12, winter made a brief reappearance, with snow flurries as far south as Windsor, and near record heavy snowfalls of 20 to 40 centimetres in northeastern Ontario. The cool weather slowed crop growth considerably.

In addition to the cool weather, May was the wettest since 1984 in much of northeastern, southern and central Ontario. The heaviest precipitation fell in the Sudbury - North Bay areas of central Ontario. Sudbury's 143 mm May total was the most in 37 years of weather records, and North Bay's 161 mm was not only the most in the province, but also their greatest amount since 1970. Hamilton also set a May record of 125 mm of rain. All this rain delayed farming and field work and attempts by farmers to plant corn and soybeans. The lack of sunshine did not help either, as total hours of bright sunshine lagged from 5 to 40 hours short of the expected average in the southern regions of the province.

Thunderstorms were relatively scarce this month, but storm-force winds on May 10 and 17 caused widespread damage in southern Ontario. In addition, serious flooding occurred in the Lake Nipissing

area of central Ontario as a result of the torrential rains on May 16 and 18.

In contrast, northwestern Ontario was significantly drier and sunnier than normal, but not nearly as dry as in previous years, when forest fires became a serious problem.

Quebec

It was a cooler than normal May everywhere except in northern Quebec, with temperatures averaging as much as 1.6°C below normal. Precipitation amounts varied widely from 3.2 mm or 10% of normal at Kuujjuaq, to as much as 151.6 mm or 2 1/2 times the normal on the Magdalen Islands. Except along the Ottawa and St. Lawrence Valleys, total precipitation averaged below normal. A new record for the least amount of precipitation was set at La Grande Rivière with 26.4 mm. The old record of 27.6 mm was established in 1982. The very dry conditions in some areas of the province prompted officials to order a fire ban in the Laurentians and Lac St-Jean region.

Thunderstorms produced hail during the early and latter parts of the month. Severe thunderstorms crossed the Lac St-Jean and Saguenay areas on May 28, causing significant wind damage to the downtown area of Jonquière in the late afternoon and evening. Some 150 trees were uprooted. The total price tag was estimated at 1/4 million dollars. Strong winds, gusting as high as 104 km/h, were also reported the week of the 7th at Cap-de-la-Madeleine and Cap Chat.

Total snowfalls were less than 25 cm this month everywhere except at Scheffer-ville and Sept-Iles, where amounts totalled 29.6 cm and 27.6 cm, respectively. At Sept-Iles, this was the 3rd highest May snowfall ever recorded. Gaspé received 12.6 cm of snow this month, also setting a new record.

Total hours of bright sunshine were generally less than normal over southern Quebec. Anomalies ranged from 75% of normal at Saint-Agathe-des-Monts in the Laurentians to 182% of normal at Kuujjuaq in northern Quebec.

Maritimes

May was generally a cloudy, cool and wet month, with above-normal precipitation in all areas. It turned out to be the wettest May on record at Moncton, N.B., Greenwood, N.S., and Summerside and Charlottetown, P.E.I., with precipitation totals about 200 mm. The total precipitation at Charlottetown Airport was also the highest in the area since records began in 1872. On May 30, a heavy rainfall event set new records for the greatest precipitation in 24-hours during May at both Charlottetown, P.E.I., and Greenwood, N.S., with totals of 70.4 and 60.6 millimetres, respectively.

May snowfall ranged either side of normal. Charlottetown received the most snow, 22.6 cm. Although this amount was not a record in itself, the fact that 17.4 cm of snow fell on the 6th set a new record for the greatest 24-hour May snowfall. The previous record was 15.2 cm set on June 2, 1914. Surprisingly, even with all the heavy precipitation, stream flows in Atlantic Canada were quite variable. Stream flows in P.E.I. were significantly above normal, while stream flows on Cape Breton Island were below normal.

Temperatures during the month averaged out below normal. A cool spell during the latter half of the month produced some extremely low maximum temperature readings, with a number of locations setting new low daily temperature records of just a few degrees above the freezing mark. Total hours of bright sunshine were also on the low side, with the exception of a few areas in New Brunswick and on Sable Island.

Newfoundland

Below-normal temperatures and record-breaking precipitation highlighted the weather across the Island. Sunshine was below normal in the east, but a little above normal at western locations. A persistent, northerly flow was the main reason for the cool, unsettled weather conditions, which delayed farming operations. Rainfalls were abundant, especially over eastern Newfoundland. Gander recorded 144.0 mm of rain, beating the previous monthly record of 140.9 mm set in 1980. St John's received 183.3 mm of precipitation, nearly twice the normal, while Gander received 182.8 mm of precipitation, a new monthly record.

In Labrador, although it was cool, sunshine was above normal and precipitation was light. Bright sunshine during May at Goose Bay and Churchill totalled 235.5 and 272.4 hours, compared to normals of 176.3 and 196.0 hours, respectively. Temperatures fluctuated widely, and as a result, precipitation fell as both snow and rain.

CLIMATIC EXTREMES IN CANADA - MAY 1990

MEAN TEMPERATURE:		
HIGHEST	KAMLOOPS A, B.C.	13.9°C
COLDEST	RESOLUTE, NWT.	-10.2°C
HIGHEST TEMPERATURE:	KAMLOOPS A, B.C.	33.0°C
LOWEST TEMPERATURE:	RESOLUTE A, NWT.	-24.4°C
HEAVIEST PRECIPITATION:	SAINT JOHN A, N.B.	231.8 mm
HEAVIEST SNOWFALL:	KAPUSKASING A, ONT.	40.5 cm
DEEPEST SNOW ON THE GROUND ON MAY 31, 1990	HALL BEACH A, NWT.	50 cm
GREATEST NUMBER OF BRIGHT SUNSHINE HOURS:	INUWIK A, NWT.	428 hours

regime dominate the weather picture. During the final week of May, Fort McMurray and High Level, in northern Alberta, recorded the highest maximum temperatures in the province, 29.2 and 29.4 degrees, respectively.

Total precipitation over the northeast and east-central regions of the province was less than normal. In contrast, precipitation over the west-central and southwest mountain foothills was well-above normal. Total amounts were well in excess of 100 mm. Heaviest precipitation was in the southwest part of the province, with monthly totals exceeding 170 mm in the Crowsnest Forest District. Banff received 130.2 mm, well above the average of 51.2 mm. For the record, Banff received 149.7 mm during May 1981, while the all-time May record stands at 193.8 mm set in 1902. Heavy rain combined with snowmelt in the mountain regions of the province resulted in high run-off and considerable downstream flooding along streams and rivers from west-central to southwestern Alberta. Serious flooding began during the weekend of May 25 following heavy rainfalls of 50 to 75 millimetres in the foothills.

While the excessive moisture created flooding problems, strong easterly winds on May 25 raised soil from dry fields in southwestern Saskatchewan and east-central Alberta, causing huge clouds of airborne dust to push into central Alberta, partially obscuring the sky.

Saskatchewan and Manitoba

May was a very quiet month with little in the way of extreme weather events. The beginning of the month was cold, and snow fell in many areas. On the 8th, unofficial reports showed a 30 cm accumulation at Mafeking, Man. By the 3rd week of the month, the scale tipped the other way and temperatures reached near-record high values, particularly in northern areas. The net result was near-normal average temperatures in the region. Perhaps a little unusual was the fact that nowhere in the region did temperatures get to thirty degrees this month.

Precipitation was variable, as is usually the case with showers. Several locations were extremely dry, such as Thompson, Man., with only 2.8 mm. In the south, precipitation was more variable, although in general, amounts were near or below normal. Brandon received 83.2 mm, nearly double the normal for the month, while Winnipeg received approximately half their normal 65.7 mm. This was the 5th consecutive year with well-below normal precipitation at Winnipeg.

Northern Saskatchewan and all of Manitoba were much sunnier than usual. Some locations reported as much as 60 hours of bright sunshine above their normal allotment. More cloud cover in southern Saskatchewan kept sunshine totals there to as much as 50 hours below normal.

Ontario

May was less than a pleasant spring month this year. It was too wet for farmers and gardeners and too cloudy and cool for just about everyone else. Temperatures were as much as 2°C below normal across the southern half of the province, and unlike March and April there were no late-month heat waves. In fact, from May 10 to 12, winter made a brief reappearance, with snow flurries as far south as Windsor, and near record heavy snowfalls of 20 to 40 centimetres in northeastern Ontario. The cool weather slowed crop growth considerably.

In addition to the cool weather, May was the wettest since 1984 in much of northeastern, southern and central Ontario. The heaviest precipitation fell in the Sudbury - North Bay areas of central Ontario. Sudbury's 143 mm May total was the most in 37 years of weather records, and North Bay's 161 mm was not only the most in the province, but also their greatest amount since 1970. Hamilton also set a May record of 125 mm of rain. All this rain delayed farming and field work and attempts by farmers to plant corn and soybeans. The lack of sunshine did not help either, as total hours of bright sunshine lagged from 5 to 40 hours short of the expected average in the southern regions of the province.

Thunderstorms were relatively scarce this month, but storm-force winds on May 10 and 17 caused widespread damage in southern Ontario. In addition, serious flooding occurred in the Lake Nipissing

area of central Ontario as a result of the torrential rains on May 16 and 18.

In contrast, northwestern Ontario was significantly drier and sunnier than normal, but not nearly as dry as in previous years, when forest fires became a serious problem.

Quebec

It was a cooler than normal May everywhere except in northern Quebec, with temperatures averaging as much as 1.6°C below normal. Precipitation amounts varied widely from 3.2 mm or 10% of normal at Kuujjuaq, to as much as 151.6 mm or 2 1/2 times the normal on the Magdalen Islands. Except along the Ottawa and St. Lawrence Valleys, total precipitation averaged below normal. A new record for the least amount of precipitation was set at La Grande Rivière with 26.4 mm. The old record of 27.6 mm was established in 1982. The very dry conditions in some areas of the province prompted officials to order a fire ban in the Laurentians and Lac St-Jean region.

Thunderstorms produced hail during the early and latter parts of the month. Severe thunderstorms crossed the Lac St-Jean and Saguenay areas on May 28, causing significant wind damage to the downtown area of Jonquière in the late afternoon and evening. Some 150 trees were uprooted. The total price tag was estimated at 1/4 million dollars. Strong winds, gusting as high as 104 km/h, were also reported the week of the 7th at Cap-de-la-Madeleine and Cap Chat.

Total snowfalls were less than 25 cm this month everywhere except at Scheffer-ville and Sept-Iles, where amounts totalled 29.6 cm and 27.6 cm, respectively. At Sept-Iles, this was the 3rd highest May snowfall ever recorded. Gaspé received 12.6 cm of snow this month, also setting a new record.

Total hours of bright sunshine were generally less than normal over southern Quebec. Anomalies ranged from 75% of normal at Saint-Agathe-des-Monts in the Laurentians to 182% of normal at Kuujjuaq in northern Quebec.

Maritimes

May was generally a cloudy, cool and wet month, with above-normal precipitation in all areas. It turned out to be the wettest May on record at Moncton, N.B., Greenwood, N.S., and Summerside and Charlottetown, P.E.I., with precipitation totals about 200 mm. The total precipitation at Charlottetown Airport was also the highest in the area since records began in 1872. On May 30, a heavy rainfall event set new records for the greatest precipitation in 24-hours during May at both Charlottetown, P.E.I., and Greenwood, N.S., with totals of 70.4 and 60.6 millimetres, respectively.

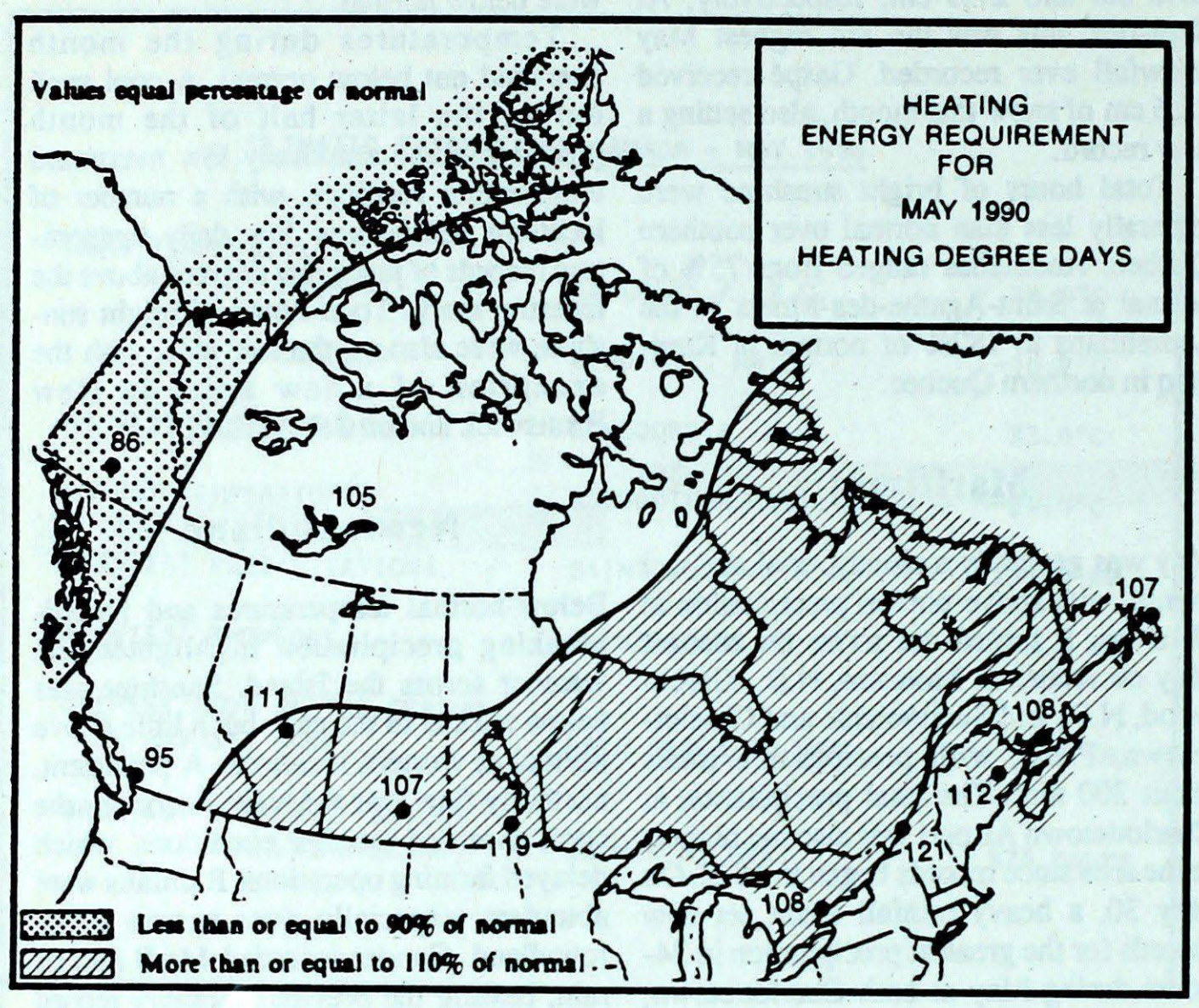
May snowfall ranged either side of normal. Charlottetown received the most snow, 22.6 cm. Although this amount was not a record in itself, the fact that 17.4 cm of snow fell on the 6th set a new record for the greatest 24-hour May snowfall. The previous record was 15.2 cm set on June 2, 1914. Surprisingly, even with all the heavy precipitation, stream flows in Atlantic Canada were quite variable. Stream flows in P.E.I. were significantly above normal, while stream flows on Cape Breton Island were below normal.

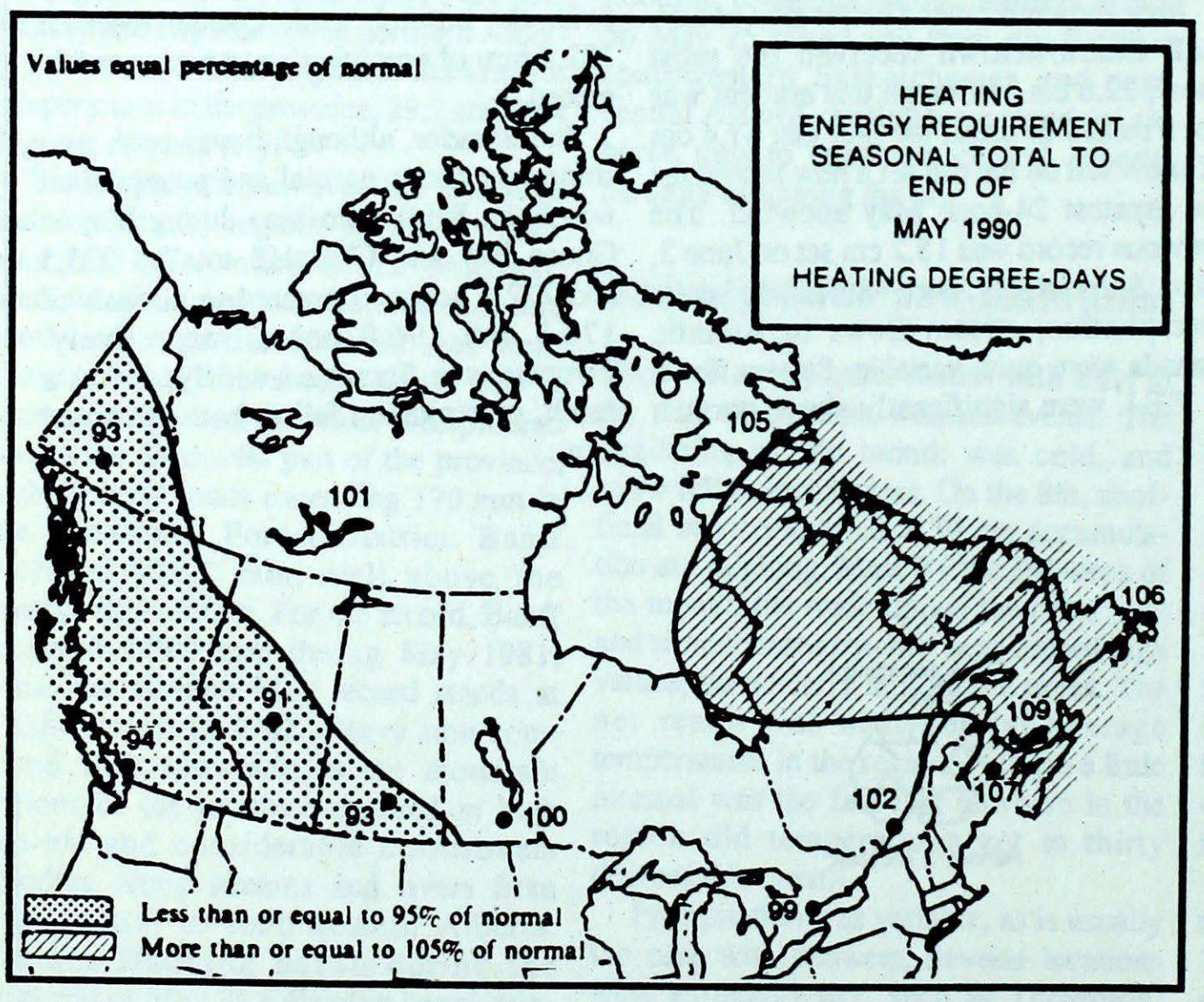
Temperatures during the month averaged out below normal. A cool spell during the latter half of the month produced some extremely low maximum temperature readings, with a number of locations setting new low daily temperature records of just a few degrees above the freezing mark. Total hours of bright sunshine were also on the low side, with the exception of a few areas in New Brunswick and on Sable Island.

Newfoundland

Below-normal temperatures and record-breaking precipitation highlighted the weather across the Island. Sunshine was below normal in the east, but a little above normal at western locations. A persistent, northerly flow was the main reason for the cool, unsettled weather conditions, which delayed farming operations. Rainfalls were abundant, especially over eastern Newfoundland. Gander recorded 144.0 mm of rain, beating the previous monthly record of 140.9 mm set in 1980. St John's received 183.3 mm of precipitation, nearly twice the normal, while Gander received 182.8 mm of precipitation, a new monthly record.

In Labrador, although it was cool, sunshine was above normal and precipitation was light. Bright sunshine during May at Goose Bay and Churchill totalled 235.5 and 272.4 hours, compared to normals of 176.3 and 196.0 hours, respectively. Temperatures fluctuated widely, and as a result, precipitation fell as both snow and rain.



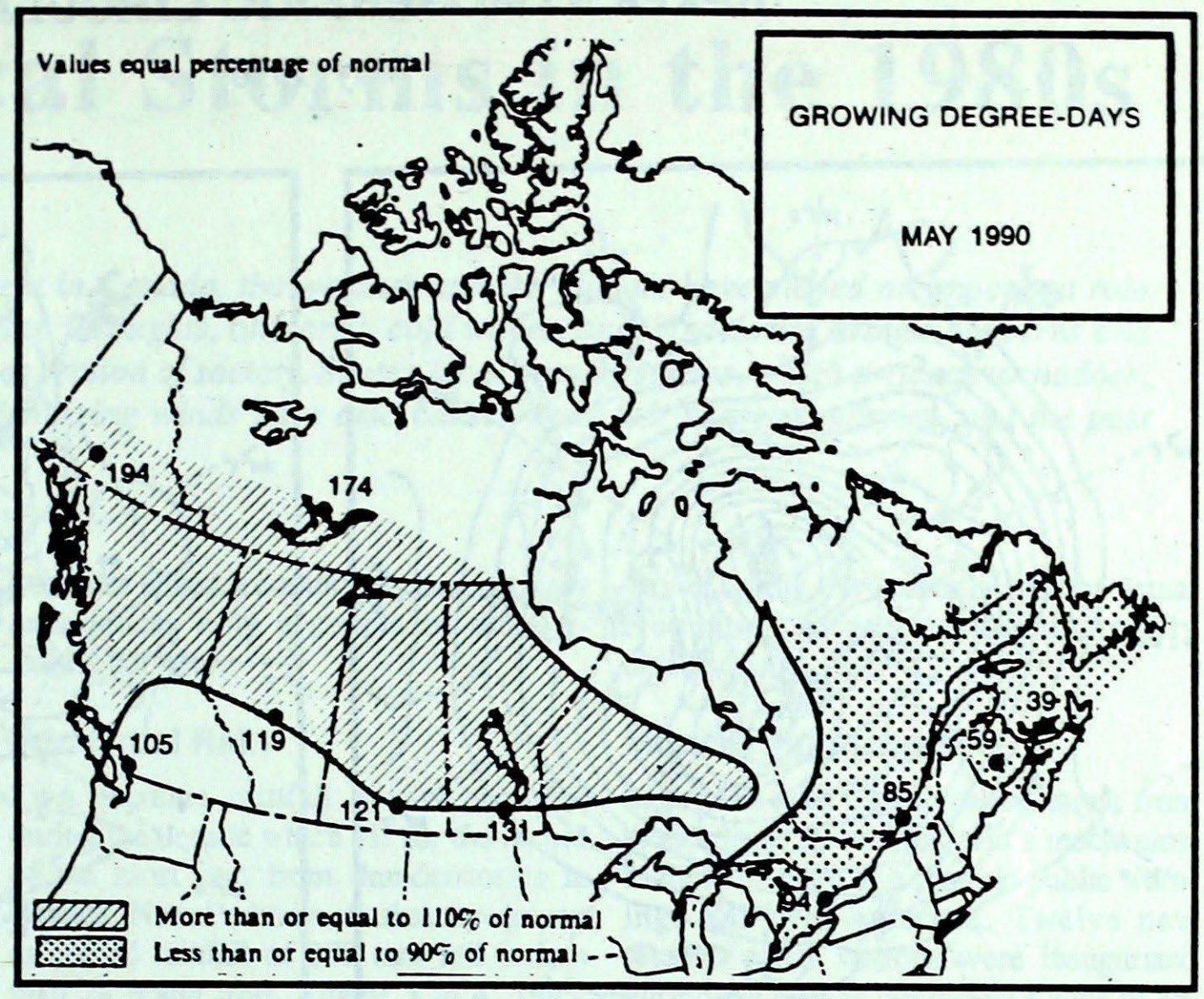


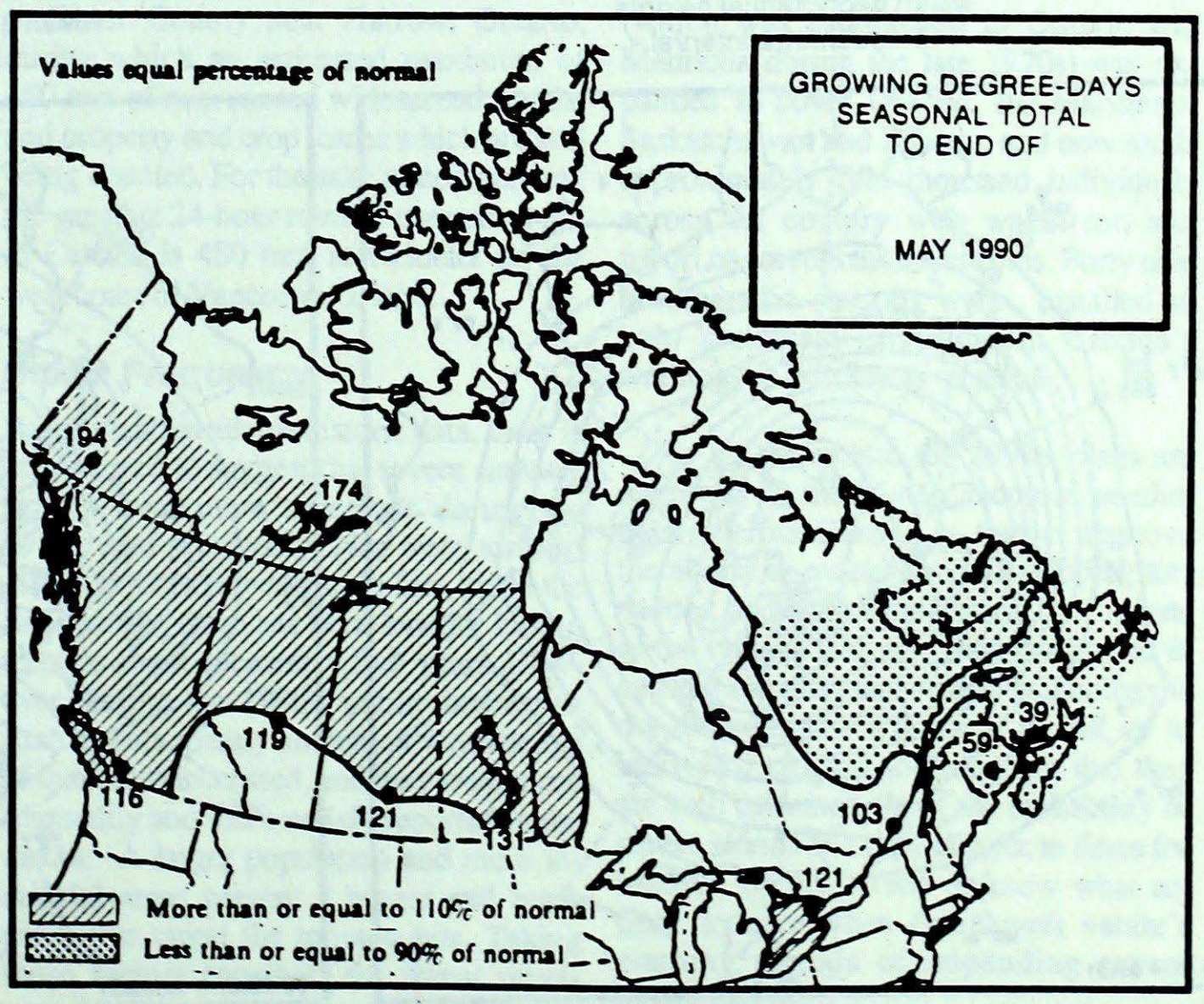
SEASONAL TOTAL OF HEATING DEGREE-DAYS TO END OF MAY

	1990	1989	NORMAL
BRITISH COLUMBIA			
Kamloops	3356	3547	3663
Penticton	3173	3419	3412
Prince George	4656	5124	5203
Vancouver	2734	2835	2912
Victoria	2877	3028	2987
YUKON TERRITORY			
Whitehorse	6341	6755	6793
NORTHWEST TERRITORIES			
Iqaluit	9927	*	9632
Inuvik	9551	9367	9856
Yellowknife	8381	8372	8334
ALBERTA			
Calgary	4613	5104	5186
Edmonton Mun	4815	5174	5323
Grande Prairie	5316	5805	5976
SASKATCHEWAN			
Estevan	5042	5319	5350
Regina	5282	5735	5710
Saskatoon	5583	5803	5895
MANITOBA			
Brandon	5806	5978	5960
Churchill	8899	8985	8806
The Pas	6741	6475	6646
Winnipeg	5750	5826	5764
ONTARIO			
Kapuskasing	6295	6278	6232
London	3966	3912	4009
Ottawa	4633	4650	4574
Sudbury	5380	5291	5282
Thunder Bay	5707	5722	5580
Toronto	3975	4002	4022
Windsor	3457	3503	3530
QUÉBEC			
Baie Comeau	6071	5918	5819
Montréal	4505	4534	4432
Québec	5225	5198	5027
Sept-Iles	6417	6073	5953
Sherbrooke	4991	5021	5081
Val-d'Or	6140	6138	5975
NEW BRUNSWICK			
Charlo	5558	5446	5387
Fredericton	4901	4709	4595
Moncton	4885	4616	4602
NOVA SCOTIA			
Sydney	4748	4514	4325
Yarmouth	4067	3846	3911
PRINCE EDWARD ISLAND			
Charlottetown	4923	4589	4513
NEWFOUNDLAND			
Gander	5333	4971	4842
St. John's	4882	4664	4579

SEASONAL TOTAL OF GROWING DEGREE-DAYS TO END OF SEPTEMBER

	1990	1989	NORMAL
BRITISH COLUMBIA			
Abbotsford	503	352	391
Kamloops	516	414	459
Penticton	478	362	418
Prince George	97	52	76
Vancouver	448	345	386
Victoria	386	301	355
ALBERTA			
Calgary	82	*	84
Edmonton Mun.	141	26	118
Grande Prairie	112	32	98
Lethbridge	110	*	130
Peace River	135	*	97
SASKATCHEWAN			
Estevan	139	187	138
Prince Albert	131	119	102
Regina	135	172	112
Saskatoon	131	127	119
Swift Current	105	109	103
MANITOBA			
Brandon	133	173	126
Churchill	*	*	*
Dauphin	87	208	70
Winnipeg	104	197	79
ONTARIO			
London	332	204	296
Mount Forest	102	*	*
North Bay	64	183	64
Ottawa	336	216	307
Thunder Bay	83	129	87
Toronto	349	206	288
Trenton	316	244	300
Windsor	433	295	375
QUEBEC			
Baie Comeau	6	80	15
Maniwaki	88	222	116
Montréal	328	304	319
Quebec	235	221	219
Sept-Iles	*	52	*
Sherbrooke	19	238	33
NEW BRUNSWICK			
Charlo	8	83	20
Fredericton	16	249	27
Moncton	4	217	15
NOVA SCOTIA			
Sydney	4	40	11
Truro	*	194	*
Yarmouth	20	203	19
PRINCE EDWARD ISLAND			
Charlottetown	5	204	13
NEWFOUNDLAND			
Gander	*	46	*
St. John's	*	34	*
Stephenville	*	116	*

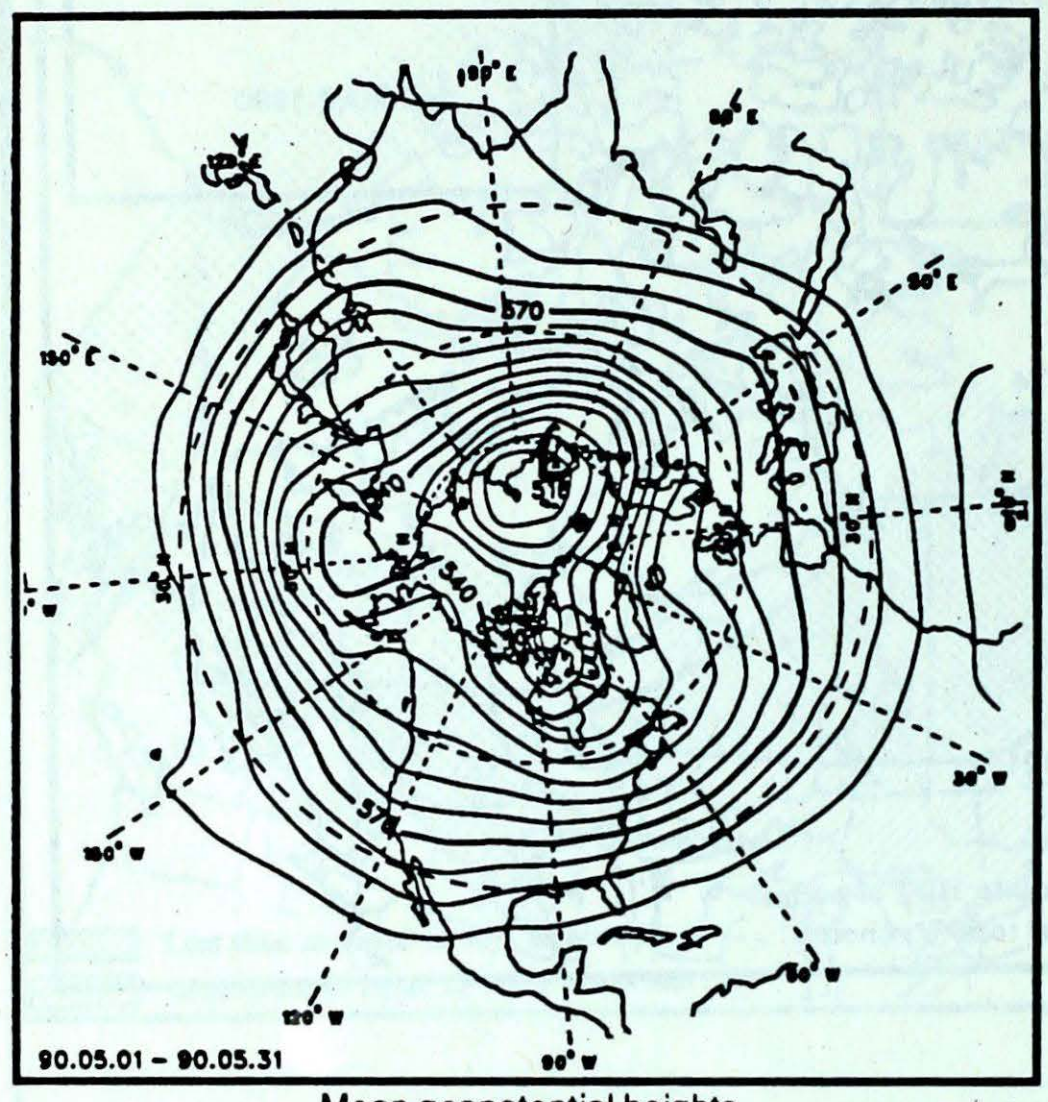




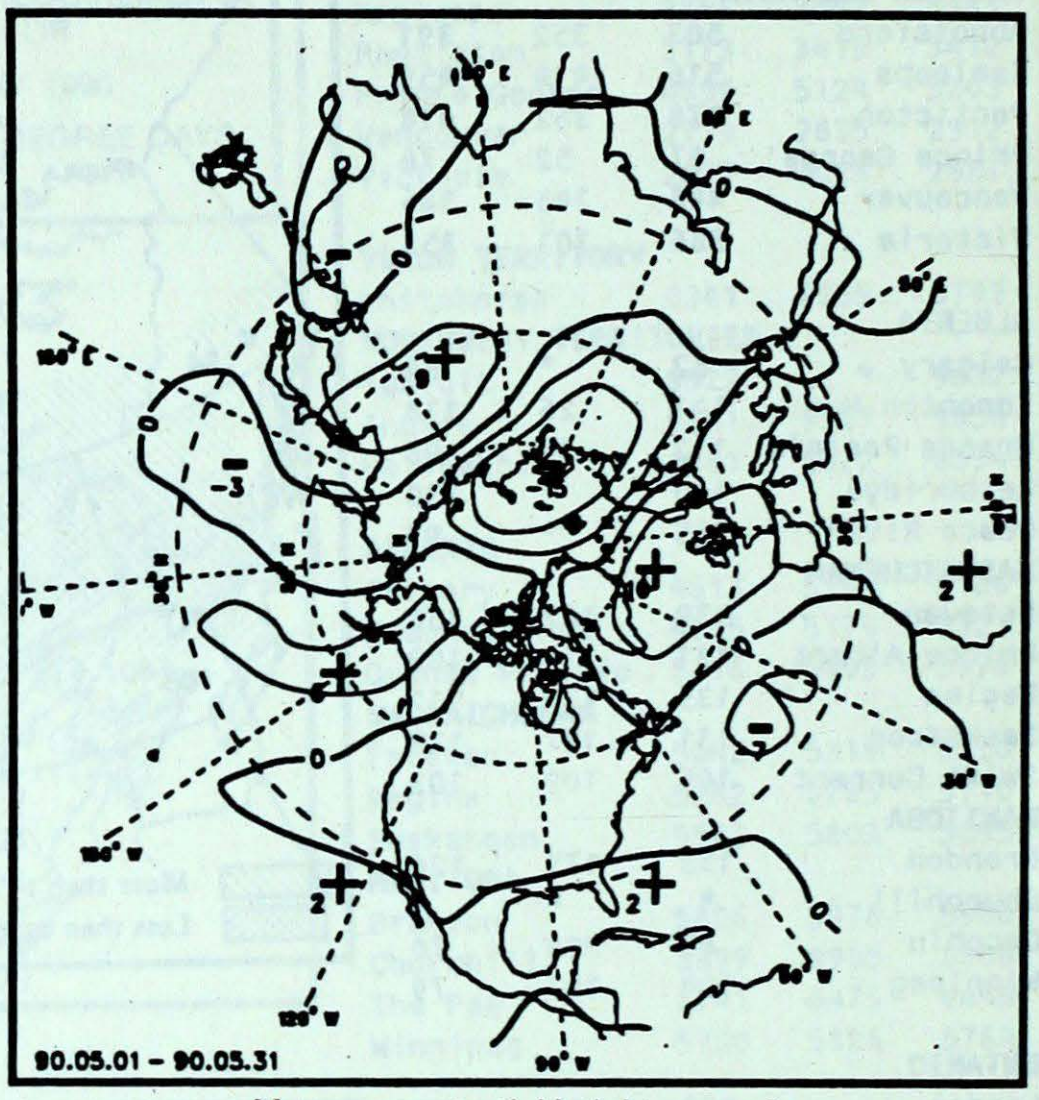
Canada

50-kPa ATMOSPHERIC CIRCULATION

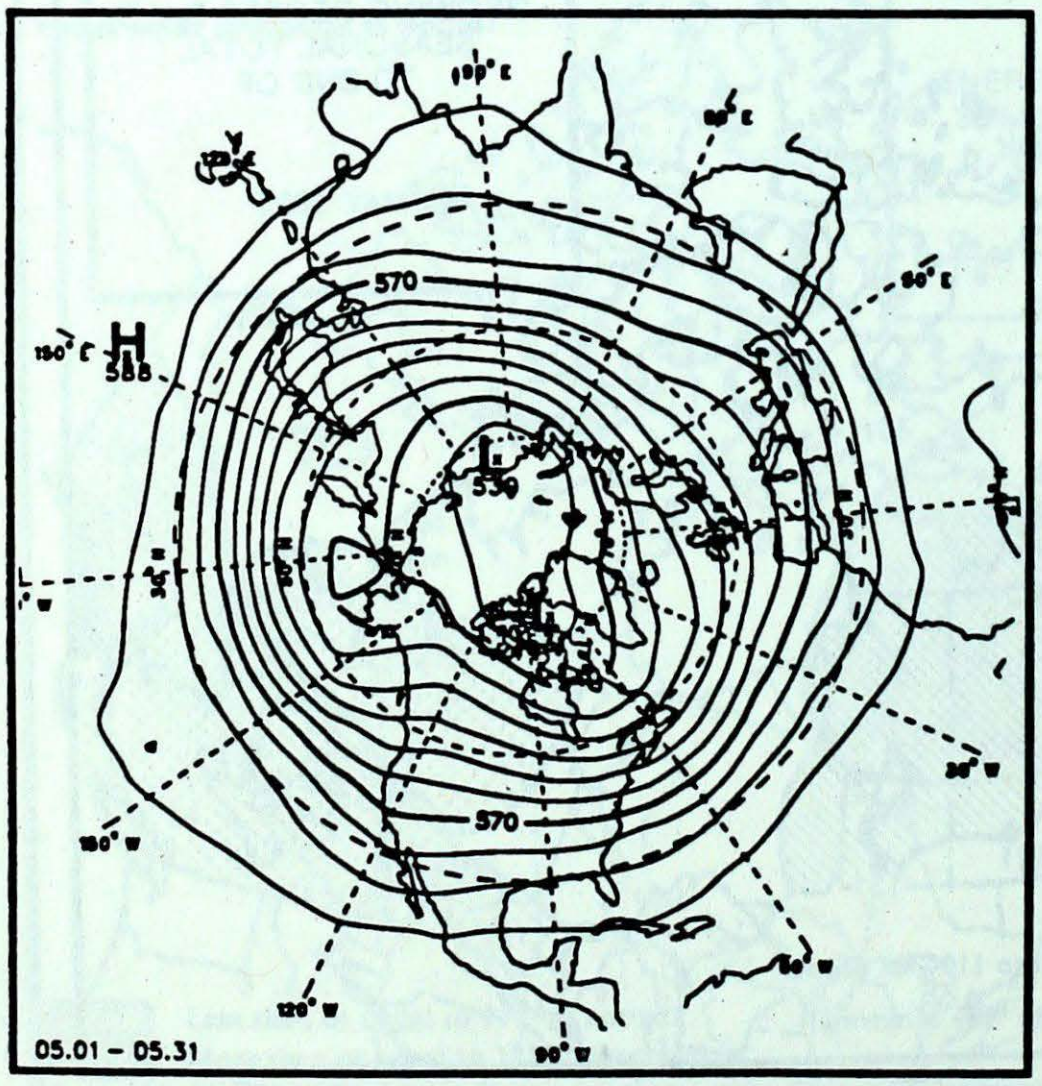
May 1990



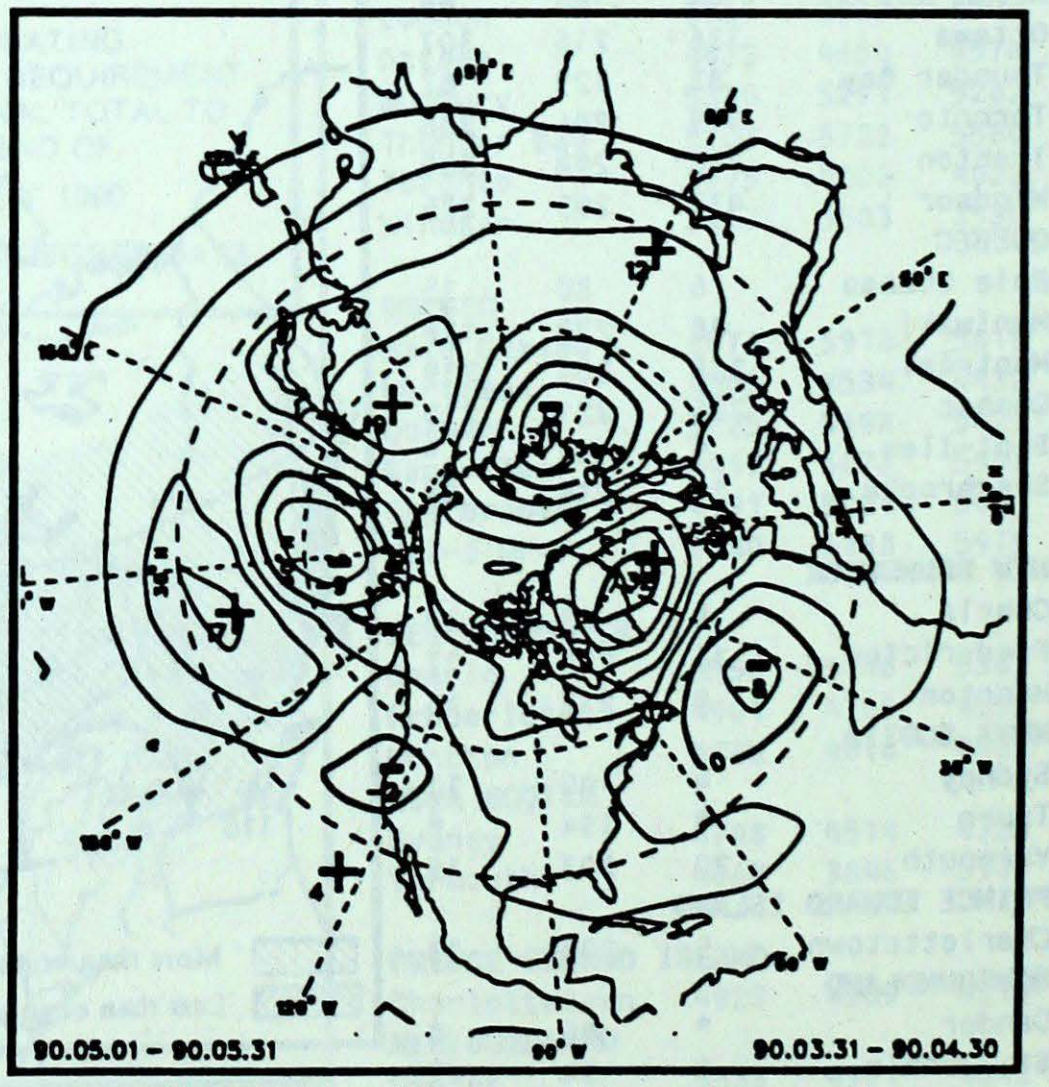
Mean geopotential heights
- 5 decametre interval -



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 -

Severe Local Storms in the 1980s

Ever since the time of earliest settlement in Canada, the weather and the climate have played an important role in shaping the course of human activities. Droughts, blizzards, cold waves, and windstorms arouse concerns and aggravate anxieties among a large cross section of society. Severe local thunderstorms, which produce tornadoes, hailstorms, flooding downpours and damaging winds have also caused their fair share of worries, and the past decade was no exception.

The collection of complete statistics concerning severe local thunderstorms began on a national scale about 1984. Since that time at least 60 Canadians have lost their lives due to atmospheric tantrums of this type, and more than 400 have been injured. On average, this amounts to 10 fatalities and 70 injuries per year across Canada. A complete accounting of the damage caused by severe summer storms is unavailable, but it is estimated that on average, about a billion dollars in crop and property losses is suffered each year.

Tornadoes

From Alberta to the Maritime Provinces, approximately 670 tornadoes are known to have occurred since 1980. Of this number, two events caused disasters, namely the tornado outbreak which swept through southern Ontario on May 31, 1985, which took 12 lives (8 of them in Barrie), and the Edmonton tornado of July 31, 1987, which was Canada's second worst tornado, killing 27 people.

Hail

The 1980s decade also witnessed the most damaging hailstorm on record which occurred during 1981 in Calgary, Alberta, causing losses of $100 million. Hailstones as large as grapefruit were observed almost every year somewhere in the region stretching from the Rocky Mountains to Quebec. In 1989, a severe thunderstorm complex, which formed in the northern interior of Quebec produced damaging golfball sized hail as it swept over the remote community of Nain on the northern Labrador Coast, a community that normaly experiences only a couple of thunderstorms per year.

Torrential Rain

Two extreme rainfall events occurred during the decade which vie for the record of the most rain from thunderstorms in Canada. Near Parkman, Saskatchewan, an estimated rainfall of 380 mm fell in less than 24 hours from August 3 to 4, 1985. However, on July 20th, 1989 the Parkman storm was eclipsed by a torrential rainfall in Essex County near Harrow, Ontario, during which an estimated maximum of 450 mm of rain caused widespread floods, and property and crop losses which are still being counted. For the sake of comparison, the greatest 24-hour rainfall ever observed in Canada is 480 mm at Ucluelet on the west coast of Vancouver Island.

Storm Frequency

Based on all available historic data, there is no evidence to suggest that severe summer storms were more numerous during the 1980s than previously. Nor were tornado disasters more prevalent. In fact, since the last century, there has been a major killing tornado about once every five years. However, during the 1980s, public interest in such events greatly increased, knowledge of them also increased, and they were more frequently and more widely reported in the media. A larger population and more industrial areas present a bigger and more expensive target for tornado hits. Taking these factors together, the threat represented by tornadoes is perceived to have grown during the decade, while the actual frequency of storms has not really changed.

Monitoring Storms

In parallel with the increasing threat from severe local storms, Canada's mechanism to monitor them and provide public warnings has also enlarged. Twelve new weather radar stations were inaugurated during the decade, including a state of the art Doppler radar near King City, Ontario. The volunteer weather watcher network (which was established in Ontario and Manitoba during the late 1970s) was expanded to cover Quebec, the Maritimes, Saskatchewan and Alberta, and now totals approximately five thousand individuals across the country who watch for, and report on, severe thunderstorms. Forty new Weatheradio stations were installed to help broadcast Environment Canada's warnings as quickly as possible.

As we move into the 1990s, plans are underway to install new Doppler weather radars across Canada to further improve the ability to quickly spot developing tornadoes, and also thunderstorm downbursts of the type which have been implicated in causing aircraft crashes. But technology is not the complete answer. It is still up to individual citizens to make sure that they are well informed about the probability of severe storms and their effects; to listen for weather warnings; and to know what actions to take when faced with nature's warning signals of impending severe thunderstorms.

Canada

Definitions of various meteorological terms that are sometimes mistakenly used synonymously. The windspeeds given are simple estimations of the maximum possible. Only a very small percentage of all storms actually approach these values.

Cyclone

A storm which rotates counterclockwise in the Northern Hemisphere. In modern usage, this term applies to the large-scale storms (diameters ranging from hundreds to thousands of kilometres) which produce rain, freezing rain or snow, and sometimes gale force or storm force winds with extensive property damage across large regions. Typical maximum windspeed 200 km/h.

Gale

A strong wind in the Beaufort wind scale, it is defined as a wind whose speed ranges from 51 to 101 km/h.

Dust Devil

A dry atmosphere vortex of small diameter (metres or a few tens of metres) which is not associated with clouds. Characteristically, it forms over land on very dry days with hot sunshine. The most vigorous types are capable of causing minor property damage. Typical maximum windspeed 120 km/h.

Funnel Cloud

A rotation cloudbase appendage in the shape of a funnel (or rope) which does not reach the ground. If it reaches the ground it is called a tornado (or in some circumstances, a waterspout). By definition, a funnel cloud does not cause any damage.

Waterspout

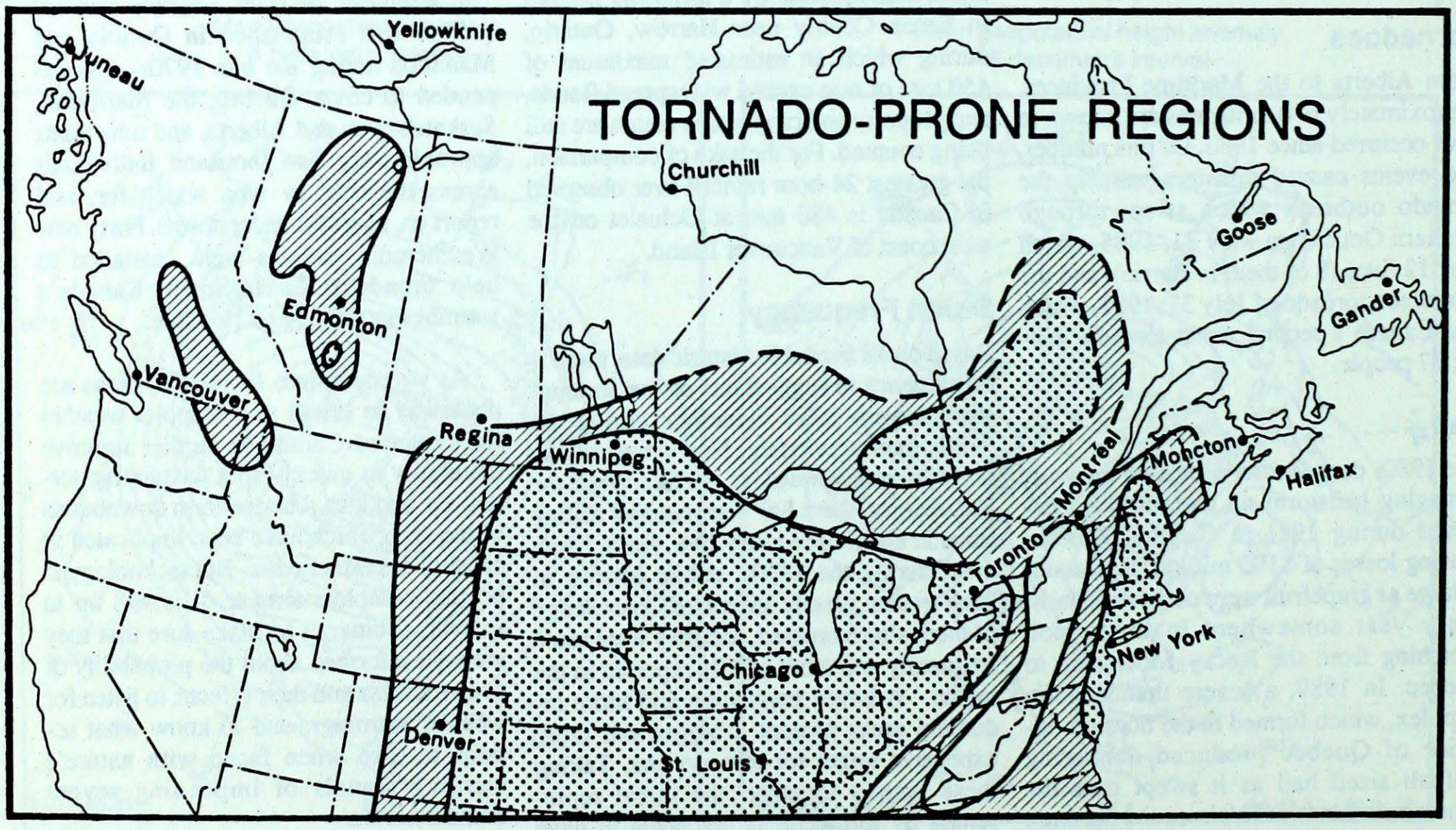
An intensely whirling funnel - shaped vortex which extends from cumulus-type cloud to a water surface. Its behaviour is characterized by a tendency to dissipate upon reaching shore. It looks like, but is not, a tornado and can be easily confused with a real tornado which happens to be crossing a body of water. Waterspouts form in different meteorological circumstances than tornadoes and usually cause little damage. Typical maximum windspeed 150 km/h.

Tornado

(Sometimes called a twister) - An intense rotary storm of small diameter (tens or hundreds of metres) characterized by at least one vortex reaching the earth's surface from a thunderstorm. The vortex may be either visible as a funnel cloud, or invisible, but in either case damage results at the earth's surface in a long narrow track. Typical maximum windspeed 500 km/h.

Hurricane

A rotating tropical storm with a diameter of hundreds of kilometres that originates over warm oceans near the equator. Typically, the winds spiral inwards towards the hurricane "eye" and can cause wide spread property damage at more southerly latitudes. Typical maximum windspeed 320 km/h.



The hatched shaded areas, show where one tornado can be expected on average every two years per 10,000 square kilometres (100 km by 100 km), while in the dotted shaded areas at least one tornado on average can be expected to touch down every year.

MAY 1990

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	12.8	0.8	25.5	4.7	0.0	*	63.3	81	0	12	147	70	160.6
ALERT BAY	10.7	0.5	18.6	3.8	0.0	*	61.2	102	0	8		*	225.6
AMPHITRITE POINT	10.9	0.5	16.7	4.5	0.0	*	100.1	77	0	11		*	221.0
BLUE RIVER A	10.2	0.5	25.6	-3.2	0.0	0	63.4	101	0	15	171	87	*
CAPE ST JAMES	9.5	0.8	15.8	4.0	2.2	***	45.6	53	0	12	176	*	263.5
CAPE SCOTT	9.8	0.7	16.8	4.6	0.0	*	70.7	43	0	14		*	253.3
CASTLEGAR A	12.0	-1.0	29.4	1.1	0.0	*	139.2	254	0	17	148	64	185.6
COMOX A	12.5	0.7	21.8	4.4	0.0	*	58.0	155	0	10	216	*	171.3
CRANBROOK A	9.4	-1.5	26.3	-2.6	0.0	0	118.0	281	0	15	188	74	249.5
DEASE LAKE	7.5	1.4	20.7	-3.3	1.4	30	56.8	246	0	7	185	88	326.7
FORT NELSON A	9.9	0.3	27.6	-2.8	1.6	27	77.2	185	0	7	242	*	253.0
FORT ST JOHN A	10.1	0.4	24.6	-1.5	18.2	217	69.6	179	0	8	219	*	245.7
HOPE A	13.0	0.0	27.5	4.8	0.0	*	82.2	115	0	13	133	73	159.2
KAMLOOPS A	13.9	-0.2	33.0	4.9	0.0	*	58.5	325	0	13	210	83	130.9
KELOWNA A	12.7	0.6	30.5	1.9	0.0	*	89.0	281	0	16	171	72	166.4
LYTTON	13.6	-0.7	29.1	5.1	0.0	*	36.9	254	0	11	134	53	136.0
MACKENZIE A	9.3	1.2	25.2	-3.6	*	*	16.0	42	0	8	191	78	269.7
PENTICTON A	13.1	-0.3	27.6	2.5	0.0	*	86.4	297	0	12	168	68	149.6
PORT ALBERNI A	12.4	1.2	27.2	0.4	0.0	*	26.2	40	0	8	164	*	175.2
PORT HARDY A	10.7	1.4	17.6	3.4	0.0	*	54.3	79	0	6	135	72	227.0
PRINCE GEORGE A	10.1	0.8	26.9	-3.7	0.0	0	67.8	143	0	17	170	67	243.7
PRINCE RUPERT A	9.9	1.8	19.8	2.1	0.0	0	80.0	55	0	12	163	86	251.8
PRINCETON A	10.2	-0.6	28.8	0.3	0.0	0	78.5	379	0	17	172	*	0.0
REVELSTOKE A	12.3	0.2	27.5	2.4	0.0	*	80.4	144	0	13	165	77	178.6
SANDSPIT A	10.5	1.8	18.8	5.6	0.0	0	54.2	104	0	9	198	94	231.6
SMITHERS A	10.2	1.2	16.5	3.9	0.0	0	31.5	105	0	8	196	87	240.8
TERRACE A	11.7	1.8	21.8	3.7	0.0	0	67.4	156	0	10	195	109	195.8
VANCOUVER INT'L A	12.7	0.5	23.1	4.8	0.0	*	56.2	109	0	10	173	71	164.0
VICTORIA INT'L A	11.4	-0.2	22.5	2.2	0.0	*	45.0	158	0	7	215	84	205.4
VICTORIA MARINE	10.8	0.4	18.7	2.4	0.0	*	49.2	133	0	8	*	*	222.2
WILLIAMS LAKE A	9.4	0.4	25.2	-2.1	0.0	0	38.9	123	0	11	198	77	267.0

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	9.8	*	26.8	-4.8	0.0	*	45.1	*	0	*	*	*	*
MAYO A	9.7	2.2	26.0	-0.6	0.0	0	23.0	118	0	*	*	*	*
WATSON LAKE A	8.3	1.4	22.0	-2.0	2.4	44	54.0	184	0	7	226	89	298.8
WHITEHORSE A	8.3	1.6	19.7	-4.6	5.2	179	34.1	264	0	7	207	80	300.8
NORTHWEST TERRITORIES													
ALERT	-7.9	3.8	1.4	-16.8	14.4	113	14.2	137	37	5	408	100	799.2
BAKER LAKE A	-6.7	-0.3	7.7	-18.8	0.4	6	11.4	95	5	7	186	70	764.4
CAMBRIDGE BAY A	-9.4	0.0	4.3	-22.1	6.0	63	11.2	118	25	2	266	103	849.0
CAPE PARRY A	-6.9	-0.1	5.0	-19.3	5.8	48	3.8	42	2	1	*	*	771.8
CLYDE A	-8.1	-0.8	7.0	-22.3	11.0	64	8.8	52	15	5	314	125	808.6
COPPERMINE A	-6.2	-0.9	14.8	-20.1	7.6	94	6.4	53	10	4	252	112	750.8
CORAL HARBOUR A	-7.2	-0.9	1.9	-20.0	25.2	173	24.8	147	24	8	152	54	780.4
EUREKA	-7.2	3.5	2.3	-19.8	5.0	143	4.2	131	18	1	417	80	781.3
FORT RELIANCE	0.2	-1.8	24.1	-16.9	1.0	19	15.0	111	0	5	*	*	550.7
FORT SIMPSON A	9.2	0.7	29.9	-5.0	4.6	90	14.2	43	0	4	267	97	283.7
FORT SMITH A	8.5	0.6	30.8	-6.4	1.3	27	18.6	67	0	6	343	*	298.3
IQALUIT	-5.0	-1.8	6.8	-17.7	34.2	145	36.4	144	4	7	202	101	712.3
HALL BEACH A	-9.4	-0.3	2.1	-24.0	16.0	99	20.8	128	50	7	*	*	843.4
HAY RIVER A	6.0	0.4	29.9	-5.6	1.0	26	17.6	88	0	4	*	*	372.0
INUVIK A	1.6	2.4	19.4	-16.3	0.0	0	0.2	1	0	0	428	145	508.9
MOULD BAY A	-7.4	3.8	1.3	-15.5	4.6	58	4.4	64	10	2	201	61	788.6
NORMAN WELLS A	5.9	0.5	27.8	-6.2	7.0	83	17.5	103	0	3	307	108	376.0
POND INLET A	-8.6	*	6.5	-20.9	16.4	*	12.8	*	36	2	265	*	823.9
RESOLUTE A	-10.2	0.7	-1.3	-24.4	9.4	102	7.1	88	33	3	286	98	875.4
YELLOWKNIFE A	4.8	-0.2	25.1	-6.9	2.2	59	4.0	23	0	2	318	95	410.8
ALBERTA													
BANFF	7.6	-0.1	23.0	-3.5	22.0	154	130.2	251	0	17	*	*	*
CALGARY INT'L A	9.0	-0.4	25.9	-3.0	13.8	164	100.2	206	0	16	177	70	278.7
COLD LAKE A	10.9	0.5	27.1	-5.0	7.0	233	20.6	52	0	6	304	112	224.4
CORONATION A	10.1	-0.2	26.4	-3.9	9.2	317	36.2	101	0	8	286	98	247.2

MAY 1990

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									
EDMONTON INT'L A	10.6	0.5	26.0	-2.7	4.8	166	53.7	127	0	9	279	98	231.7
EDMONTON MUNICIPAL	11.8	0.5	26.5	-1.6	3.2	*	42.3	100	0	7	288	104	196.9
EDMONTON NAMAO A	11.2	0.4	25.6	-2.0	4.0	138	42.0	111	0	6	*	*	212.3
EDSON A	8.6	0.1	26.9	-2.5	0.4	3	81.6	135	0	12	183	75	289.7
FORT CHIPEWYAN A	8.4	-0.2	28.0	-9.0	4.2	65	12.0	39	0	*	*	*	*
FORT MCMURRAY A	11.2	1.5	29.2	-4.7	1.0	37	29.5	81	0	4	337	122	229.3
GRANDE PRAIRIE A	10.5	0.5	27.8	-5.2	5.0	139	58.2	162	0	8	245	*	232.8
HIGH LEVEL A	10.3	1.0	29.4	-3.8	3.0	70	36.9	89	0	5	313	111	246.7
JASPER	8.9	0.2	23.5	-2.5	0.0	0	51.4	155	0	9	194	*	283.8
LETHBRIDGE A	10.2	-0.8	26.9	-4.0	2.2	35	64.1	126	0	10	233	*	243.0
MEDICINE HAT A	11.6	-0.7	28.4	-4.9	2.4	150	55.2	138	0	9	276	102	196.4
PEACE RIVER A	11.1	1.5	26.3	-3.7	3.9	122	21.3	71	0	2	*	*	222.1
RED DEER A	9.2	-0.6	25.8	-3.1	4.6	96	80.7	166	0	12	*	*	273.7
ROCKY MTN HOUSE A	8.2	-1.0	25.0	-1.8	6.8	78	91.0	150	0	15	*	*	304.9
SLAVE LAKE A	9.9	0.5	27.2	-3.9	3.2	68	20.8	47	0	3	273	97	253.3
SUFFIELD A	11.3	*	28.1	-2.9	1.0	*	50.2	*	0	10	260	*	209.8
WHITECOURT A	10.1	0.9	25.5	-2.0	0.4	12	52.6	97	0	12	*	*	245.9
SASKATCHEWAN													
BROADVIEW	10.5	0.3	28.5	-4.8	0.4	6	47.2	111	0	8	255	92	238.7
COLLINS BAY	5.0	*	27.4	-11.3	1.6	*	8.6	*	0	2	347	*	405.6
CREE LAKE	6.5	-0.8	28.1	-9.9	1.4	4	14.0	52	0	4	338	116	357.7
ESTEVAN A	11.1	-0.3	29.7	-4.1	0.0	0	38.2	70	0	8	241	83	219.6
HUDSON BAY A	9.1	*	27.0	-9.5	23.4	*	38.8	*	0	6	298	*	276.0
KINDERSLEY	10.6	-0.3	18.6	2.6	1.2	300	23.8	70	0	7	274	*	229.8
LA RONGE A	8.3	-0.2	26.5	-10.9	11.5	172	21.0	48	0	4	*	*	301.1
MEADOW LAKE A	10.6	*	28.9	-5.7	3.2	*	11.2	*	0	2	330	*	232.7
MOOSE JAW A	11.1	-0.4	27.7	-5.6	0.4	16	45.2	102	0	8	254	91	216.0
NIPAWIN A	10.1	*	27.7	-10.8	9.6	*	20.0	*	0	6	316	*	248.2
NORTH BATTLEFORD A	11.2	0.0	27.9	-5.5	2.0	143	26.4	75	0	7	*	*	216.9
PRINCE ALBERT A	10.3	0.3	27.7	-5.1	9.6	300	53.6	136	0	7	298	110	243.5
REGINA A	11.3	0.2	28.7	-3.7	0.4	13	41.4	89	0	8	252	91	213.2
SASKATOON A	10.8	-0.3	28.3	-5.7	0.6	30	27.6	69	0	5	*	*	230.0
SWIFT CURRENT A	9.8	-0.7	25.1	-5.5	1.5	32	52.7	132	0	8	235	85	286.1
YORKTON A	10.1	-0.3	*	-3.8	*	*	38.8	87	0	8	265	94	246.4
MANITOBA													
BRANDON A	10.3	-0.4	27.8	-5.7	1.0	48	83.2	176	0	7	285	*	239.7
CHURCHILL A	-1.2	0.3	26.5	-8.5	8.0	41	11.6	36	0	5	211	108	594.8
DAUPHIN A	9.2	-1.1	27.1	-6.6	1.3	29	67.2	142	0	8	271	102	275.2
GILLAM A	3.9	-1.1	27.9	-14.1	3.8	22	9.4	24	0	3	*	*	441.6
GIMLI	8.0	*	27.2	-6.7	1.4	*	55.9	*	0	6	309	109	313.5
ISLAND LAKE	6.3	-1.7	27.0	-10.0	2.0	4	42.7	110	0	4	*	*	363.1
LYNN LAKE A	5.7	-0.9	28.1	-15.5	7.6	46	15.4	30	0	4	360	133	382.7

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									
NORWAY HOUSE A	7.0	*	27.6	-11.3	1.2	*	5.6	*	0	2	*	*	340.7
PORTAGE LA PRAIRIE	10.2	-1.0	28.6	-5.5	2.0	63	42.7	69	0	5	314	*	243.0
THE PAS A	8.6	0.2	22.7	-12.2	8.6	154	15.6	42	0	3	331	120	303.3
THOMPSON A	6.5	0.2	28.7	-14.7	0.0	0	2.8	6	0	1	316	122	375.9
WINNIPEG INT'L A	10.3	-1.0	27.8	-6.0	0.6	24	29.7	45	0	4	314	118	243.0
ONTARIO													
BIG TROUT LAKE	5.1	0.6	27.8	-9.0	1.0	7	3.6	8	0	3	302	*	400.0
EARLTON A	9.3	-0.5	27.3	-3.4	1.3	39	72.4	118	0	8	*	*	269.0
GERALDTON A	6.8	*	26.8	-6.5	7.4	*	36.6	*	0	9	*	*	347.1
GORE BAY A	10.1	-0.1	23.9	-0.9	1.0	100	72.2	119	0	9	*	*	243.2
HAMILTON RBG	12.2	*	25.8	0.9	0.0	*	127.8	*	0	11	225	*	*
HAMILTON A	11.2	-1.4	23.6	0.4	0.0	*	124.5	189	1	13	*	*	210.5
KAPUSKASING A	7.2	-1.1	28.4	-7.0	40.5	422	106.0	143	0	11	*	*	335.5
KENORA A	10.1	-0.4	26.2	-5.0	2.5	56	32.5	57	0	7	*	*	244.5
KINGSTON A	10.7	-1.0	23.9	1.1	0.0	0	107.6	143	0	11	205	89	226.7
LONDON A	11.5	-0.9	24.6	0.1	1.4	467	125.8	188	0	12	192	83	201.9
MOOSONEE	4.4	-1.3	27.7	-6.3	30.8	335	52.2	84	0	7	225	114	422.7
MUSKOKA A	9.7	-1.2	23.7	-4.6	2.0	80	100.5	129	0	12	*	*	252.5
NORTH BAY A	9.8	-0.8	24.0	-2.0	4.4	176	160.8	232	0	11	216	88	255.0
OTTAWA INT'L A	11.6	-1.2	26.8	2.2	0.0	0	54.0	80	0	9	200	84	197.5
PETAWAWA A	10.2	-1.3	27.0	-3.4	*	*	46.0	77	0	8	*	*	244.5
PETERBOROUGH A	10.6	-2.0	23.7	-3.1	*	*	88.0	138	0	14	*	*	229.4
PICKLE LAKE	7.4	0.0	28.1	-6.5	17.9	172	21.1	29	0	2	*	*	330.6
RED LAKE A	8.5	-0.7	26.8	-6.5	12.4	214	58.0	113	0	7	292	*	*
ST CATHARINES A	12.1	-1.4	25.2	0.7	0.0	*	122.4	172	0	11	205	*	185.2
SARNIA A	11.4	-1.2	26.0	0.1	0.0	0	95.8	145	0	9	243	98	206.6
SAULT STE MARIE A	8.7	-0.9	22.9	-3.2	3.4	189	81.3	109	0	9	227	88	287.4
SIOUX LOOKOUT A	8.6	-0.6	27.5	-6.0	2.6	28	48.5	74	0	8	*	*	366.2
SUDBURY A	9.7	-0.8	24.5	-2.0	3.8	152	142.7	213	0	10	202	82	255.3
THUNDER BAY A	7.9	-0.9	28.1	-5.7	*	*	58.7	80	0	5	266	106	312.7
TIMMINS A	8.0	-1.0	27.9	-4.4	24.0	369	99.1	141	0	11	*	*	309.4
TORONTO	12.7	*	23.4	4.0	0.0	*	89.2	*	0	12	*	*	163.3
TORONTO INT'L A	11.6	-0.7	25.2	-0.2	*	*	86.6	131	0	9	*	*	198.9
TORONTO ISLAND A	11.4	*	23.0	3.0	0.0	*	96.8	*	0	11	*	*	201.6
TRENTON A	11.0	-1.5	24.3	-0.7	0.0	0	117.6	161	0	13	*	*	218.8
WATERLOO WELLINGTON	10.9	-1.6	24.5	-1.5	0.0	*	98.0	136	0	10	*	*	220.9
WAWA A	6.7	*	23.1	-4.6	13.8	*	81.2	*	0	7	*	*	352.1
WIARTON A	9.8	-0.6	25.8	-1.4	0.4	33	86.7	141	0	9	263	103	255.7
WINDSOR A	13.5	-0.7	26.5	3.3	0.0	*	117.4	167	0	11	*	*	145.0

MAY 1990

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	8.9	-0.4	27.1	-2.9	0.0	0	48.1	70	0	10	*	*	280.3
BAIE COMEAU A	5.8	-0.8	24.7	-4.9	6.2	388	100.6	140	0	12	232	106	376.5
BLANC SABLON A	*	*	12.4	*	15.8	107	*	*	0	7	175	*	498.6
CHIBOUGAMAU CHAPAIS	5.8	*	23.5	-7.3	14.4	*	83.2	*	*	13	223	97	376.1
GASPE A	6.0	*	27.0	-4.4	12.6	*	120.8	*	0	12	173	*	370.5
INUKJUAK A	-2.7	-1.1	13.5	-15.6	11.6	105	11.8	50	1	5	186	129	641.7
KUUJJUAQ A	0.3	0.1	20.4	-14.6	2.0	13	3.2	10	0	1	251	182	549.6
LA GRANDE IV A	1.6	*	21.7	-13.5	10.8	*	42.2	*	0	4	251	*	508.1
LA GRANDE RIVIERE A	2.8	*	22.3	-12.3	21.0	*	26.4	*	0	7	256	*	472.8
MANIWAKI	9.9	-0.9	26.1	-3.5	0.0	0	42.2	67	0	5	205	84	249.6
MATAGAMI A	*	*	24.3	-6.8	16.8	*	59.3	*	0	10	213	91	355.0
MONT JOLI A	7.7	-0.4	25.4	-3.3	1.0	36	119.0	190	0	13	248	107	317.7
MONTREAL INT'L A	11.6	-1.4	25.7	2.2	0.0	0	79.2	121	0	8	190	79	198.8
MONTREAL MIRABEL I/	10.6	*	25.5	-2.2	0.0	*	68.8	*	0	9	205	*	227.4
QUEBEC A	10.0	-0.8	25.8	-1.1	0.0	0	84.0	97	0	11	209	95	246.0
ROBERVAL A	9.2	-0.3	26.1	-2.0	0.0	0	51.7	74	0	10	26	*	*
SCHEFFERVILLE A	-0.1	-1.3	19.4	-15.5	29.6	119	40.0	81	1	10	268	160	*
SEPT-ILES A	5.0	-0.9	15.5	-3.6	27.6	460	88.5	105	0	11	227	98	403.3
SHERBROOKE A	9.3	-1.3	24.9	-3.5	0.0	0	69.6	77	0	13	199	*	270.3
STE AGATHE DES MONT	9.1	-0.7	24.5	-3.4	0.6	15	84.2	97	0	8	185	75	276.9
ST HUBERT A	11.2	-1.6	26.1	0.1	0.0	*	92.1	127	0	9	207	*	210.0
VAL D'OR A	8.5	-0.3	24.6	-4.0	3.6	100	51.8	81	0	6	203	85	292.5
NEW BRUNSWICK													
CHARLO A	7.1	-0.7	23.0	-3.4	0.6	17	91.2	100	0	11	204	98	340.6
CHATHAM A	8.2	-1.3	27.2	-0.8	4.2	156	134.2	164	0	12	175	83	304.9
FREDERICTON A	9.4	-1.4	28.3	-1.4	7.9	718	187.6	226	0	14	195	*	265.8
MONCTON A	8.0	-1.4	26.3	-1.2	8.2	373	221.3	265	0	14	175	84	308.3
SAINT JOHN A	8.4	-0.6	21.9	-0.5	3.4	170	231.8	215	0	15	178	88	296.6

STATION	Temperature C				Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C
	Mean	Difference from Normal	Maximum	Minimum									
NOVA SCOTIA													
GREENWOOD A	9.4	-1.1	24.6	-1.0	0.2	10	187.0	253	0	13	*	*	267.2
HALIFAX INT'L A	8.0	-1.2	25.8	0.5	0.9	26	177.4	167	0	15	*	*	309.8
SABLE ISLAND	6.3	-0.4	15.0	1.4	0.0	0	128.4	126	0	12	155	95	363.5
SHEARWATER A	8.1	-0.8	25.0	1.0	0.0	0	148.2	146	0	14	164	78	307.7
SYDNEY A	5.9	-1.5	25.9	-3.0	13.2	249	202.9	213	0	18	178	90	373.4
YARMOUTH A	8.8	-0.4	20.8	-0.7	2.0	222	192.8	209	0	12	190	86	286.7
PRINCE EDWARD ISLAND													
CHARLOTTETOWN A	7.1	-1.4	24.1	-1.7	22.6	***	217.8	261	0	14	*	*	337.4
SUMMERSIDE A	7.5	-1.5	24.2	0.2	12.0	667	184.6	227	0	17	169	83	324.4
NEWFOUNDLAND													
BONAVISTA	4.0	-0.5	20.8	-1.5	21.2	307	115.6	172	0	15	*	*	435.1
BURGEO	4.8	-0.6	16.3	-4.0	15.5	500	131.8	103	*	11	*	*	406.9
CARTWRIGHT	1.3	-1.6	18.8	-7.1	29.9	172	56.6	90	26	13	133	98	518.2
CHURCHILL FALLS A	1.8	-1.0	18.4	-13.8	19.0	106	46.0	84	1	10	272	139	501.9
COMFORT COVE	4.7	-1.1	26.4	-2.8	36.6	212	160.2	184	0	18	*	*	408.9
DANIELS HARBOUR	4.4	-0.5	20.6	-3.8	29.6	411	85.2	124	2	7	202	110	421.0
DEER LAKE A	4.9	-1.5	21.4	-3.6	23.0	397	68.0	99	0	9	*	*	395.0
GANDER INT'L A	4.8	-1.4	24.0	-3.0	38.6	295	182.8	261	0	19	133	82	410.5
GOOSE A	3.3	-1.7	19.8	-6.6	28.8	157	51.6	81	2	8	236	134	442.5
MARY'S HARBOUR	1.9	-0.2	17.1	-6.3	11.8	77	60.4	105	0	8	*	*	499.3
PORT AUX BASQUES	4.3	-0.4	15.1	-4.9	10.2	300	152.6	129	0	14	201	*	423.3
ST ANTHONY	1.2	-1.4	17.0	-3.8	37.0	330	110.9	116	0	15	*	*	517.3
ST JOHN'S A	4.3	-1.1	22.6	-2.3	8.5	77	183.3	180	0	13	116	73	423.3
ST LAWRENCE	5.7	1.2	16.0	-3.0	2.4	63	137.2	124	0	12	*	*	382.0
STEPHENVILLE A	6.2	-0.7	16.4	-3.7	11.6	276	108.4	134	0	9	202	108	366.7
WABUSH LAKE A	1.9	-0.8	20.7	-10.7	22.2	92	43.0	72	0	7	230	113	494.5

AGROCLIMATOLOGICAL STATIONS — MAY 1990

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	12.3	-0.7	26.0	5.0	0.0	88.9	104	0	15	142	245.5	581.0
KAMPLOOPS	*.*	*.*	*.*	*.*	*.*	*.*	**	***	***	**	*.*	*.*
SIDNEY	11.4	-0.3	23.0	3.0	0.0	55.1	203	0	13	220	200.3	454.3
SUMMERLAND	12.6	-0.9	28.0	4.0	0.0	90.6	329	0	15	173	237.6	453.3
ALBERTA												
BEAVERLODGE	9.7	0.3	26.5	-4.5	8.0	66.9	172	0	11	239	154.0	189.8
ELLERSLIE	*.*	*.*	*.*	*.*	*.*	*.*	**	***	***	**	*.*	*.*
LACOMBE	9.6	-0.3	25.5	-3.0	0.0	85.1	177	0	11	241	144.0	192.9
LETHBRIDGE	*.*	*.*	*.*	*.*	*.*	*.*	**	***	***	**	*.*	*.*
VEGREVILLE	*.*	*.*	*.*	*.*	*.*	*.*	**	***	***	**	*.*	*.*
SASKATCHWAN												
INDIAN HEAD	11.4	0.8	29.0	-6.0	0.0	37.6	76	0	6	**	189.5	257.3
MELFORT	10.5	0.2	27.5	-7.0	7.0	21.1	55	0	4	260	316.9	367.7
REGINA	10.8	0.0	29.5	-6.0	0.0	41.6	96	0	7	**	188.0	252.8
SASKATOON	*.*	*.*	*.*	*.*	*.*	*.*	**	***	***	**	*.*	*.*
SCOTT	10.9	0.6	27.5	-5.0	2.0	23.3	71	0	7	282	187.9	252.6
SWIFT CURRENT	10.3	-0.3	25.5	-4.5	0.4	50.4	140	0	11	196	171.8	250.1
MANITOBA												
BRANDON	10.9	-0.1	29.0	-6.4	0.0	86.0	173	0	6	**	189.9	267.6
GLENLEA	10.2	-1.2	27.7	-5.0	0.0	43.6	78	0	5	303	209.5	307.0
MORDEN	10.8	-1.1	28.0	-7.5	0.0	37.2	56	0	6	297	191.0	273.3
ONTARIO												
DELHI	11.6	-1.2	25.0	-2.0	0.0	112.9	154	0	13	**	205.4	387.5
ELORA	10.3	-1.1	24.9	-2.3	0.0	87.5	113	0	10	**	*.*	332.4
GUELPH	10.8	-0.9	25.0	-3.5	0.0	98.2	135	0	12	187	180.0	357.2
HARROW	13.0	-1.2	25.0	3.5	0.0	117.5	162	0	10	118	256.9	482.5
KAPUSKASING	6.6	-1.7	26.5	-8.0	43.7	127.4	175	0	10	182	97.6	165.8
OTTAWA	12.0	-0.8	26.5	1.3	0.0	54.3	80	0	8	200	217.4	344.7
SMITHFIELD	11.8	-0.1	25.6	0.1	0.0	130.6	166	0	12	**	210.8	369.8
VINELAND	*.*	*.*	*.*	*.*	*.*	*.*	**	***	***	**	*.*	*.*
WOODSLIE	*.*	*.*	*.*	*.*	*.*	*.*	**	***	***	**	*.*	*.*

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
QUEBEC												
LA POCATIERE	9.2	-0.7	25.0	-2.0	2.0	71.5	103	0	10	227	134.1	173.2
L'ASSOMPTION	11.3	-1.0	26.5	-2.5	0.0	69.4	96	0	8	210	195.3	289.6
LENNOXVILLE	*.*	*.*	*.*	*.*	*.*	*.*	**	***	***	**	*.*	*.*
NORMANDIN	8.1	-0.6	26.0	-5.0	0.0	75.0	106	0	10	243	102.5	139.6
STE.CLOTILDE	11.4	-1.0	17.1	5.7	0.0	67.4	89	0	10	199	198.8	315.9
NEW BRUNSWICK												
FREDERICTON	9.8	-0.8	28.5	-0.5	0.0	154.1	174	0	12	199	*.*	*.*
NOVA SCOTIA												
KENTVILLE	9.4	-1.0	25.0	-1.0	0.0	198.4	257	0	15	164	139.3	222.9
NAPPAN	8.4	-0.8	22.5	-3.0	7.2	238.7	315	0	16	168	111.8	151.8
PRINCE EDWARD ISLAND												
CHARLOTTETWN	7.7	-1.3	25.0	0.0	30.4	218.2	273	0	13	170	*.*	*.*
NEWFOUNDLAND												
ST.JOHN'S WEST	4.9	-0.9	22.0	-3.0	14.8	196.5	184	0	17	117	45.0	78.7