Environment Canada Environnement Canada

Climatic Perspectives

Monthly Review **JULY - 1990** *Vol. 12*

CLIMATIC HIGHLIGHTS

A brief spell of heavy rainfall in British Columbia, Alberta and Saskatchewan, which, in the end, alleviated the relatively low soil moisture problems across the southern agricultural areas of the Prairies; and record warm temperatures which stoked numerous forest fires across British Columbia, the Yukon and the Northwest Territories highlighted July's weather across Western Canada

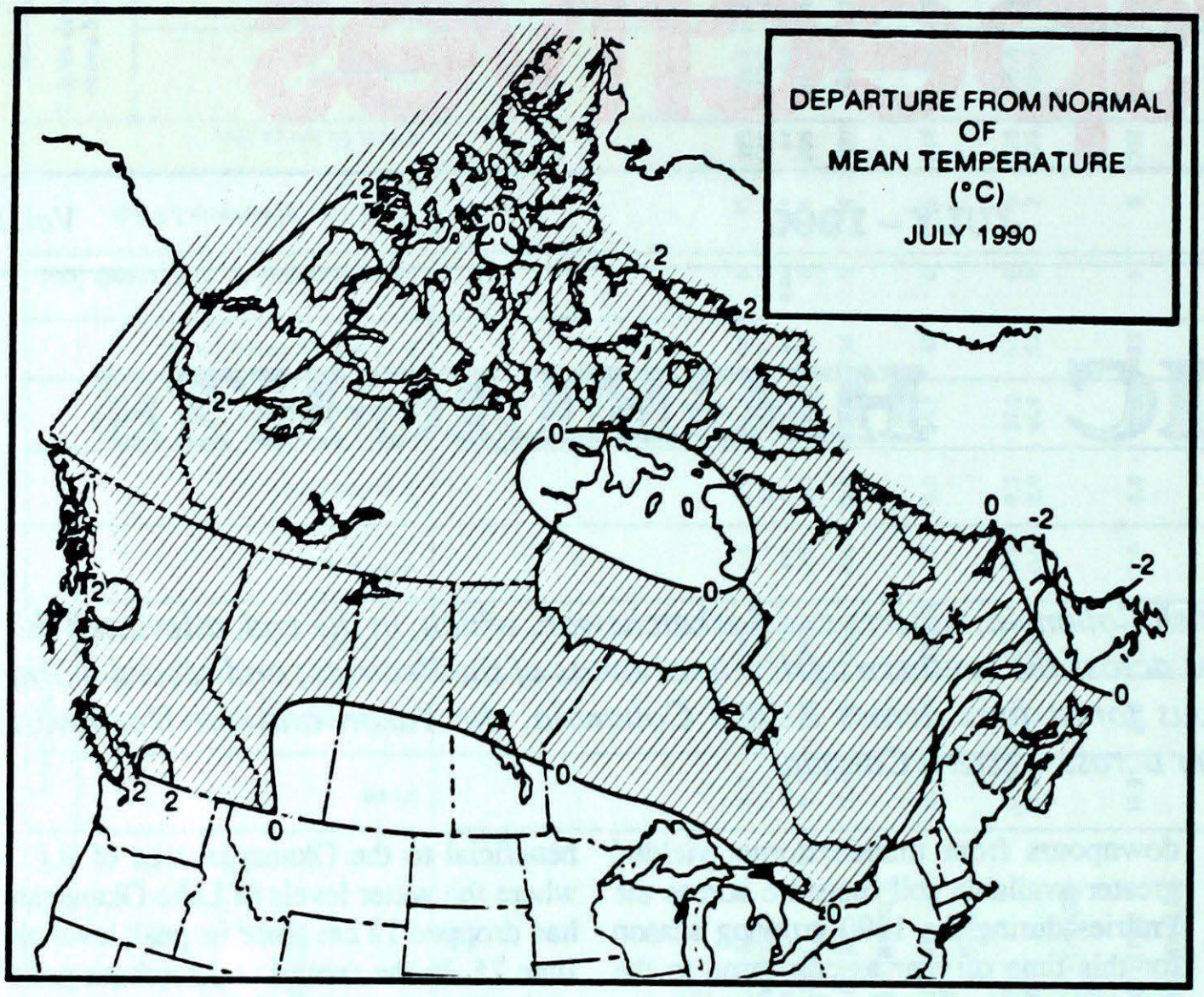
Heavy rainfall and severe weather occurred during the first few days of July across British Columbia and the southern halves of Alberta and Saskatchewan - a carryover from late June. During the first week of the month, thundershowers at Kelowna, B.C. dumped 33.8 mm of rain during a 24 hour period, the greatest 24 hour total for any month. Soda Creek, B.C., received golf-ball size hail, which stripped the leaves off Aspen trees, damaged the Douglas Firs and uprooted many large trees. In the Okanagan area, there was widespread damage to the cherry crop, and hay bales were water-logged. On the 2nd, Edmonton, Alta. received 110 mm of rain in a 24 hour period, 10 mm short of the record set in 1953. In the areas surrounding Edmonton over 150 mm of rain was recorded, overloading the sewer systems, subsequently dumping 15 million litres of raw sewage and 300 million litres of storm water into the North Saskatchewan River. The floodwaters also caused extensive damage to roads, bridges and farmland. Weyburn, Sask. was flooded on the 2nd when 80 mm of rain fell in 45 minutes, with a 24 hour total of 120mm.

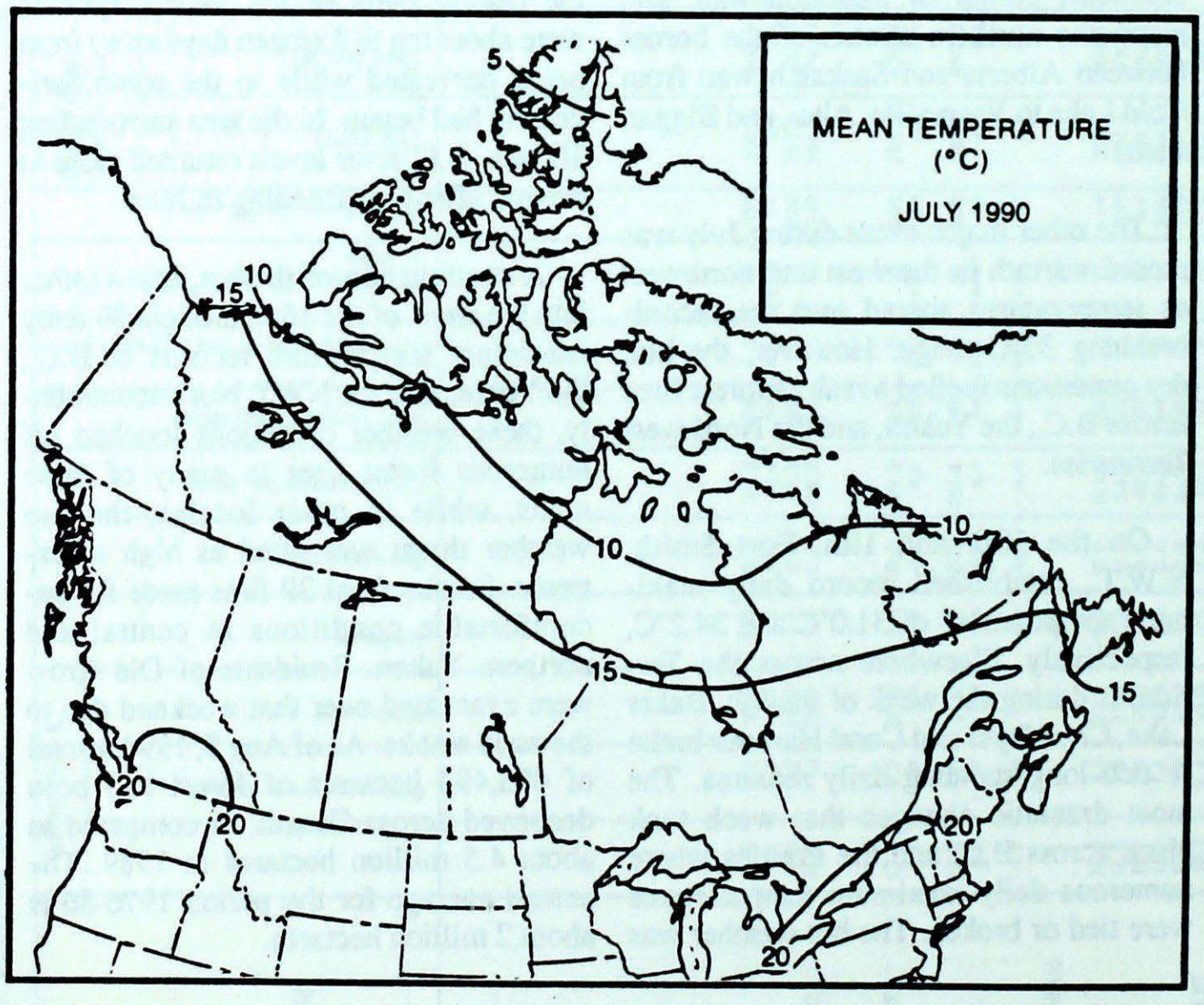
For the remainder of the month, downpours from thunderstorms yielded greater available soil moisture across the Prairies during the 1990 growing season for this time of year as compared to the last two years. Significant soil moisture improvements were observed across the southeast corner of Saskatchewan, and along the northern stretch of the border between Alberta and Saskatchewan from Cold Lake to Vegreville, Alta., and Biggar, Sask.

The other major event during July was record warmth in the west and northwest as temperatures soared into the record-breaking 30°C range. However, the hot, dry conditions fuelled a rash of forest fires across B.C., the Yukon, and the Northwest Territories.

On the 10th and 11th, Fort Smith, N.W.T., established record daily maximum temperatures of 31.0°C and 34.2°C, respectively. Elsewhere across the Territories during the week of the 9th, Baker Lake, Cape Dyer and Coral Harbour broke or tied long standing daily maxima. The most dramatic changes that week took place across B.C. and the Prairies where numerous daily maximum temperartures were tied or broken. The hot weather was beneficial to the Okanagan area of B.C., where the water levels of Lake Okanagan had dropped 12 cm since its peak level on June 25. In the central and southern parts of the Okanagan Valley the cherry harvest was well under way or near completion. In the central parts of the Valley, apricots were about ten to fourteen days away from being harvested while to the south, harvesting had begun. In the area surrounding Terrace, B.C. river levels returned close to normal after near flooding in June.

A continuation of the hot, dry weather into the week of the 16th, brought 39 daily maximum temperature records in B.C., the Yukon, and the NWT. Not uncommonly, these weather conditions touched off numerous forest fires in many of these areas, while in other locales, the fire weather threat was rated as high to extreme. Smoke from 29 fires made for uncomfortable conditions in central and northern Yukon. Residents of Old Crow were evacuated over that weekend due to the acrid smoke. As of Aug 8, 1990, a total of 493,494 hectares of forest had been destroyed across Canada as compared to about 4.5 million hectares in 1989. The annual average for the period 1976-86 is about 2 million hectares.





Across the country

Yukon and Northwest Territories

Central and northern Yukon started the month warm and dry while the south was cooler and showery. Forest fires plagued the northern areas, particularly the community of Old Crow. Except for Klondike, all stations recorded mean monthly temperatures near or above normal. To the north, temperatures were 2 to 3 degrees above normal as was the Ross River area. Most stations experienced record-breaking temperatures around the 20th, but by the 25th, daily maxima had dipped well below normal. The hot spots were Mayo, on the 21st, along with Carmacks and Stewart Crossing on the 22nd, all recording 32°C. The cold spots were Beaver Creek and Drury Creek with morning temperatures of minus 3°C on the 9th and 11th respectively. The wettest areas were the Dempster Highway with over 150% of the monthly normal and the heaviest rains fell at Ogilvie with 100.2 mm for the month, with one record-breaking downpour of 42.5 mm in a 24 hour period.

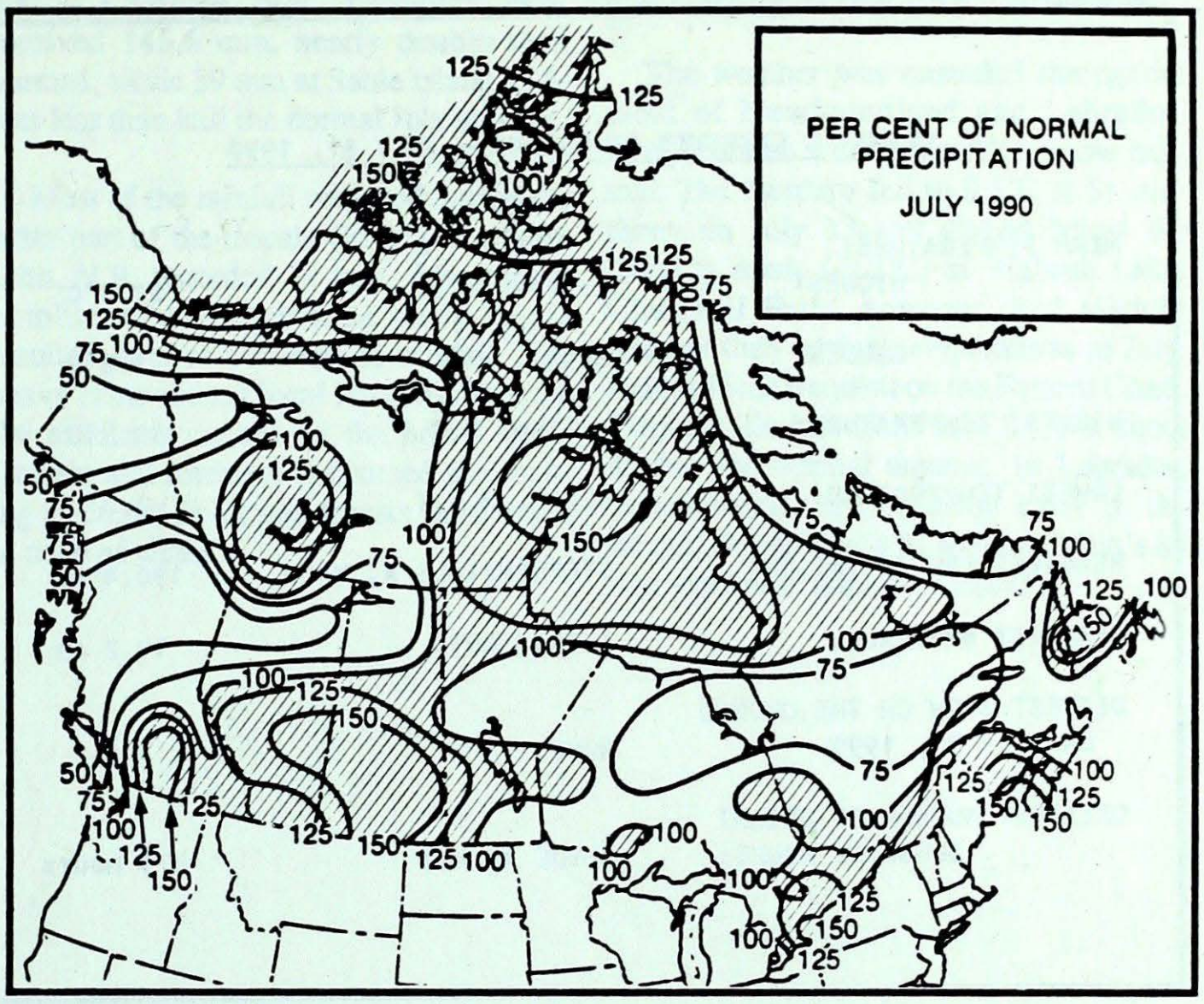
Across the Northwest Territories, temperatures were near to above normal except for the Keewatin district which was slightly below normal. The northwestern corner of the Mackenzie District recorded temperatures in excess of 2 degrees above the monthly normal. Mean daily temperatures of 18.4°C and 18.5°C were near 1 to 1.5 degrees higher than many centres in southern and central Alberta. Precipitation amounts were in excess of 100 mm at Chesterfield and Coral Harbour, with over 200% of the normal monthly amounts, while Yellowknife exceeded the 200% mark this month as well.

British Columbia

Sunny, hot, dry weather dominated the province resulting in concerns over high to extreme forest fire hazards. Temperatures

were above normal across the province with the area surrounding Terrace recording temperatures of about 1.5 to 2.5 degrees above normal. Record high mean monthly temperatures were reported at Sooke, Cape Scott, Cape St. James and Prince Rupert.

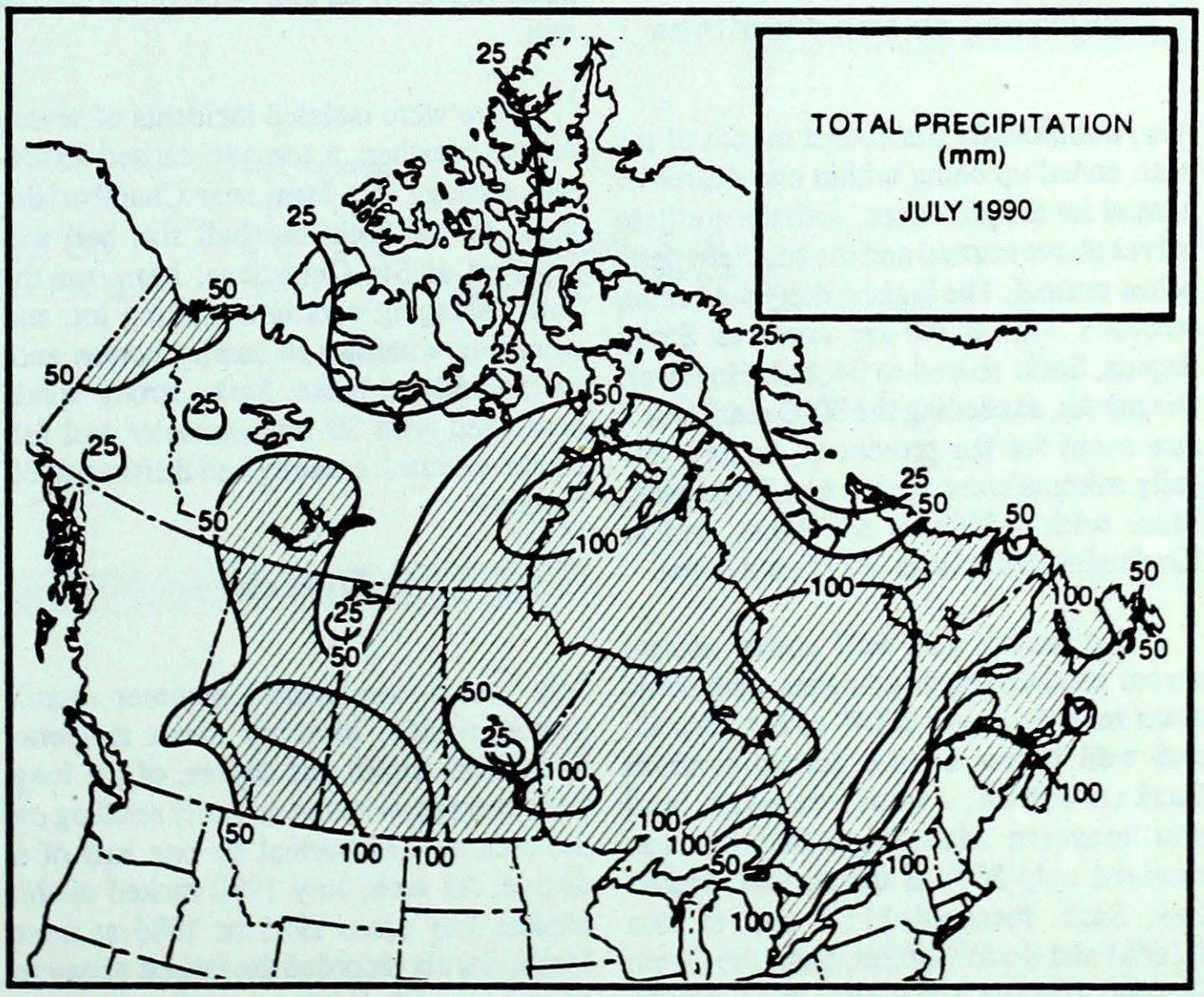
Precipitation was generally below normal except above normal in the northwestern corner while in the southern interior, local heavy thundershowers early in the month gave Kamloops 322% of the monthly normal. A number of reports of severe weather accompanied by flash flooding occurred in the Kamloops and Prince George areas. Kamloops reported a record high 72.5 mm for the month while Cape St. James reported a record low of 6.6 mm of rain, 11% of the monthly normal.



Alberta

Average daily temperatures for the month were about one degree above normal for most of the province except the southwestern parts were about one degree below normal. All localities recorded extreme maximum daily temperatures of at least 30°C. The highest daily maximum was 35.7°C at Medicine Hat on the 12th. During the month, Medicine Hat reported 10 days with temperatures of at least 30°C

Except for High Level, which experienced two heavy rainfall events, total precipitation was below normal across the northern two-thirds of the province. Of the 81.0 mm recorded at High level this month, 28.8 mm fell on the 12th and 31.6 mm fell on the 31st. Fort McMurray was the driest across the north with only 18.8 mm of rain, about 25% of the monthly normal. The heaviest rainfalls occurred across central Alberta with amounts in excess of 100 mm. Total rainfall in the Edmonton area was in excess of 136 mm with 151.6 mm recorded at Edmonton Municipal airport. The 112.0 mm recorded at the Municipal airport during the 2nd and 3rd was the second greatest two day total since records began in 1937.



CLIMATIC EXTREMES IN CANADA - JULY 31, 1990

MEAN TEMPERATURE:		
HIGHEST	LYTTON, B.C.	22.6°C
COLDEST	ALERT, NWT	3.8°C
HIGHEST TEMPERATURE:	LYTTON, B.C.	39.9°C
LOWEST TEMPERATURE:	ALERT, N.W.T.	-3.0°C
HEAVIEST PRECIPITATION:	STEPHENVILLE A, NFLD.	190.4 mm
HEAVIEST SNOWFALL:	ALERT, NWT.	14.2 cm
DEEPEST SNOW ON THE GROUND ON JULY 31, 1990	NONE	
GREATEST NUMBER OF BRIGHT SUNSHINE HOURS:	CLYDE A, NWT	379 hours

Saskatchewan and Manitoba

July, traditionally the hottest month of the year, ended up being within one degree of normal for the provinces, with the northern halves above normal and the southern parts below normal. The highest daily maximum recorded was in the far north as Stony Rapids, Sask. soared to 34.4°C. However, this month, exceeding the 30°C mark was a rare event for the provinces. Record low daily minima were reported at Thompson, Man. with 2.2°C on the 10th, and at Kindersley, Sask. with 3.7°C on the 21st.

Precipitation was well above normal across southern Saskatchewan, with some areas receiving over 200% of the normal, and well below normal across northern Saskatchewan, west central and southeastern Manitoba. Some areas received only 50% of the normal. Moose Jaw, Sask. received 111.2 mm of rain (208%) and Swift Current, Sask 109.8 mm (234%). The driest spot was Grand Rapids, Man. with only 22 mm (40% of normal) of rain.

There were isolated incidents of severe Prairie weather: a tornado caused extensive damage to a farm near Chamberlain, Sask. on the 26th; baseball size hail was reported at Ste Genevieve, Man. on the 2nd, damaging cars in a parking lot, and smashing windows in nearby homes and; on the 16th, at Dilke, Sask., strong winds combined with 20 mm diameter hail fell for ten minutes, creating hail drifts up to 30 cm deep.

Ontario

July was a comfortable summer month province-wide. Monthly mean temperatures were within one degree, of the long term average, with the majority residing on the cool side of normal by one half of a degree. As such, July 1990 ranked as the coolest July since 1985 or 1986 at most locals. Sarnia recorded the largest negative anomaly with a mean temperature of 19.9°C, which was one degree below normal for their coolest July since 1979. On the other hand, Moosonee's 16.9°C mean was their warmest since 1981.

In contrast to recent July's, the number of hot days (temperatures above 30°C) was markedly less this July than the recent hot July's of 1987 and 1988. In Toronto for example, there were only 3 days this July with an afternoon temperature reading of above 30°C. In contrast, Toronto endured 14 such hot days in July 1987, and eleven in July 1988. Given that the usual number based on past records is five, July 1990 was actually a return to a more typical summer pattern.

The month was also a near normal month for rainfall across most of Ontario despite the fact that 3 of the 4 July weekends were rather soggy. Northern Ontario was near to slightly drier than normal, as total July precipitation ranged from 60 to 90 millimetres. Pickle Lake's 33 mm proved to be the driest location in the province as well as being their driest since 1940. A major exception in the north was the corridor from Wawa to Timmins where record one-day torrential rains of 90 mm pushed their July totals to as high as 174 mm at Timmins - the wettest July since 1968.

Quebec

Pleasant summer-like temperatures under abundant sunshine characterized July's weather in Quebec. Temperatures were above normal except near the south shores of Montreal, the Gaspe Peninsula, Baie-Comeau and extreme northern Quebec. The readings ranged from 1.0°C above normal at Matagami to 1.3°C below normal at Inukjuak.

Precipitation remained near to below normal, except in the area from Ottawa/Hull to Sherbrooke, over Quebec City, Val d'or and Schefferville regions. At Montreal, 132 mm was nearly 150% of normal. Inukjuak received nearly 99 mm of rain (182% of normal). Record amounts for July, 101.4 mm, of rain fell at La Grande Riviere erasing the old record set

in 1978. A few snowflakes fell over northern Quebec during the month with Injukjuak receiving the most, -3.8 cm.

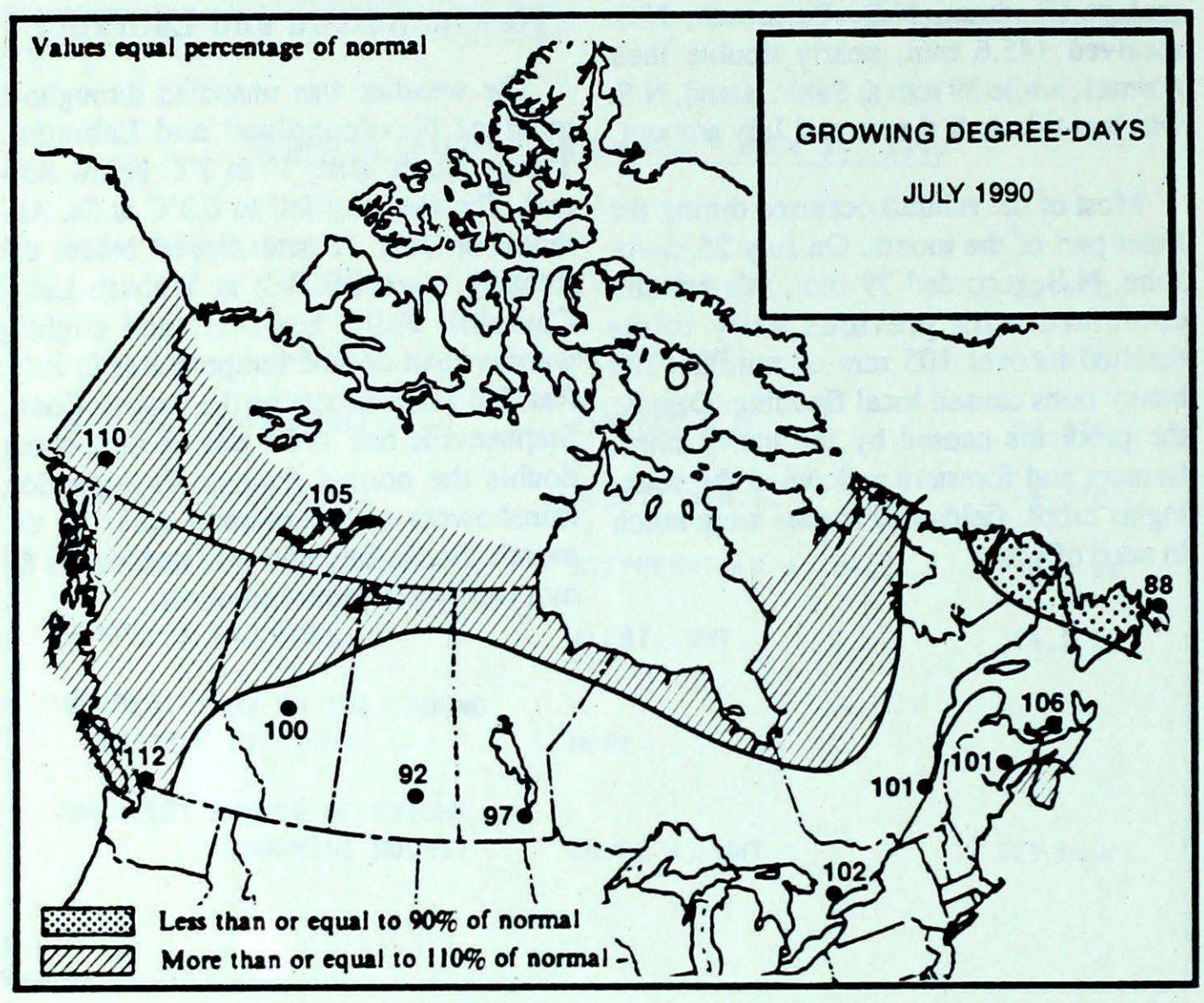
Maritimes

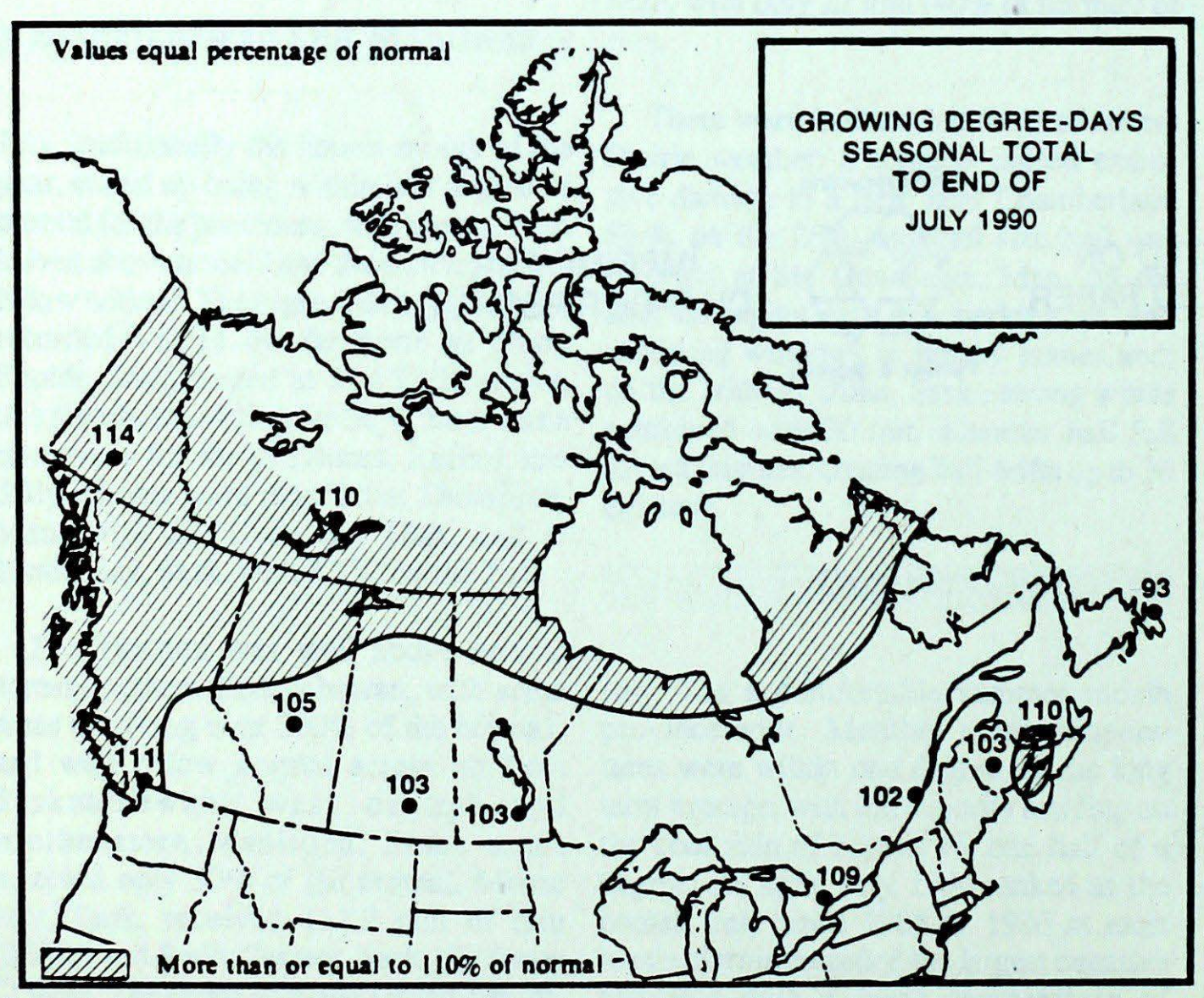
Warm temperatures and ample rainfall highlighted July's weather across the Maritimes. Temperatures were generally above normal. Shearwater's departure of 1.6°C proved to be the highest July reading in the Halifax-Dartmouth area since 1952. A wide range of precipitation totals were reported. The values ranged from 71% of normal at Moncton, N.B. to 168% of normal at Chatham, N.B. Yarmouth, N.S. received 145.6 mm, nearly double their normal, while 39 mm at Sable Island, N.S. was less than half the normal July amount.

Most of the rainfall occurred during the latter part of the month. On July 25, Saint John, N.B. recorded 79 mm, this amount combined with previous daily totals resulted in over 105 mm of rainfall. The heavy rains caused local flooding. Despite the problems caused by the heavy rains, farmers and foresters welcomed the soaking as crops, fields and forests were much in need of water.

Newfoundland and Labrador

The weather was unsettled throughout most of Newfoundland and Labrador. Temperatures were 1° to 2°C below normal. The mercury fell to 0.3°C at St. Anthony on July 13 and dipped below the freezing mark (-0.2°C) at Wabush Lake. Churchill Falls, however, had slightly warmer than normal temperatures in July. Rainfall was frequent on the Eastern Coast. Stephenville had 190.4 mm of rain, about double the normal amount. In Labrador, rainshowers were common early in the month. Goose Bay's 91 mm and Nain's 86 mm were near normal amounts.



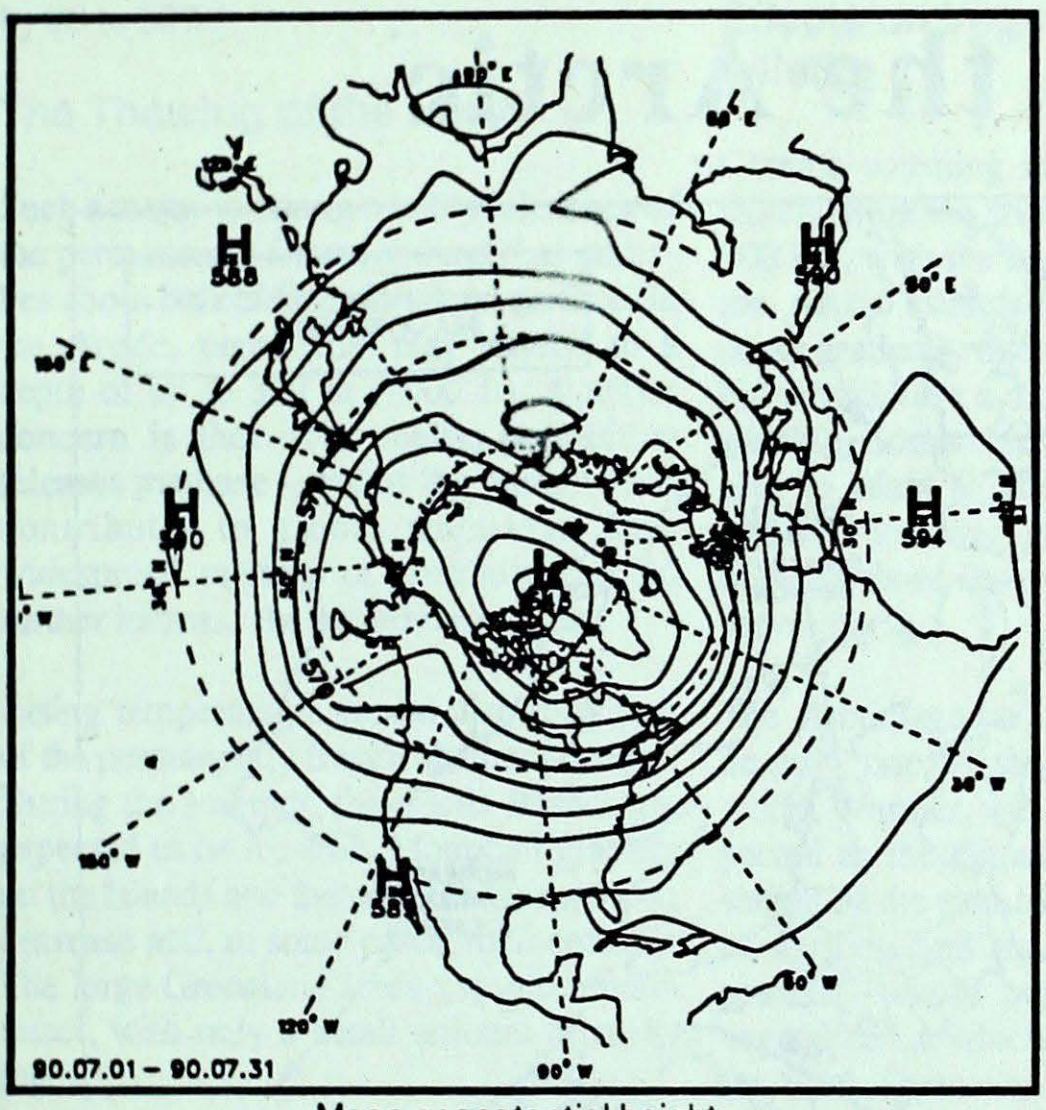


SEASONAL TOTAL OF GROWING DEGREE-DAYS TO END OF JULY

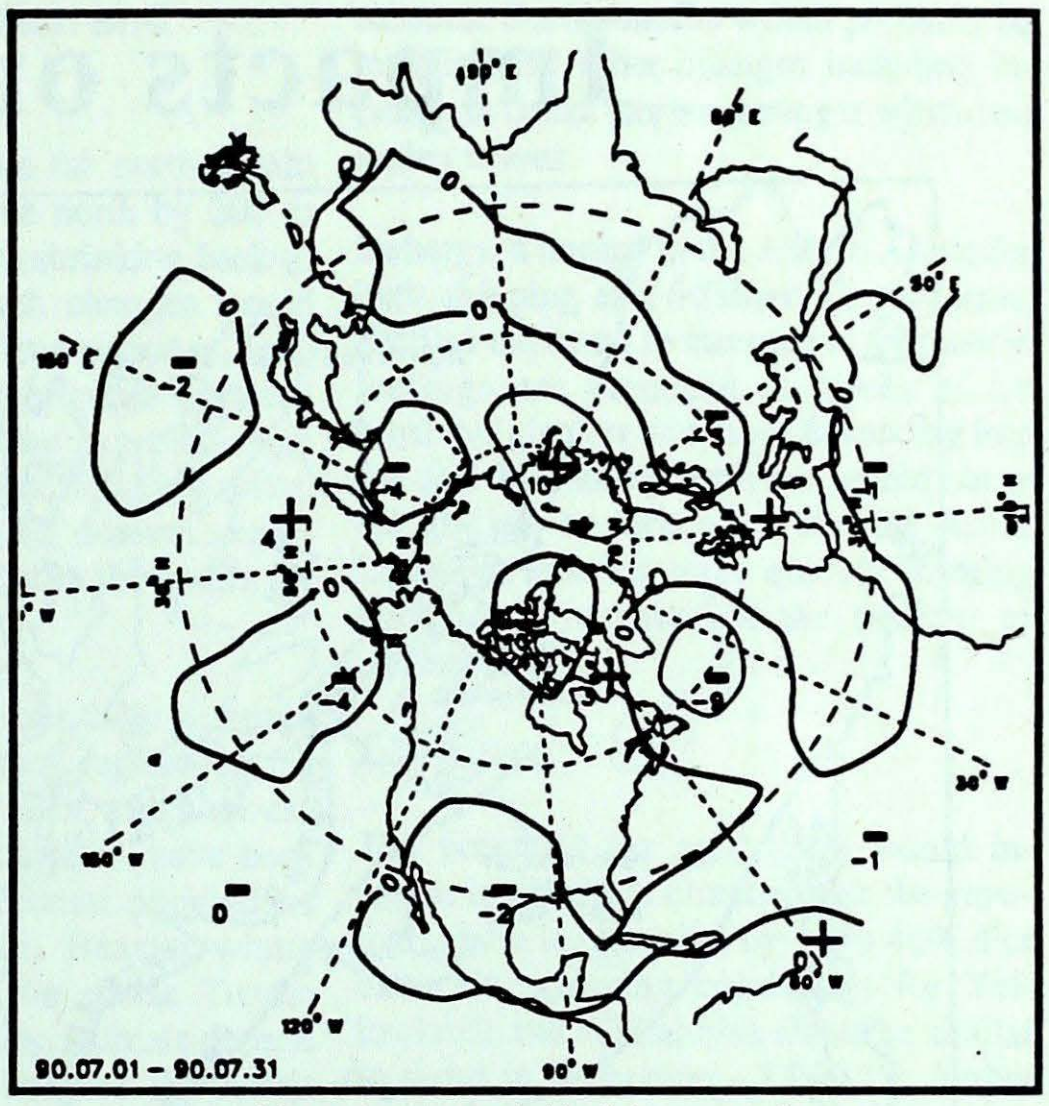
	1990	1989	NORMAL
BRITISH COLUMBIA			
Abbotsford	1258	1065	1051
Kamloops	1406	1330	1336
Penticton	1339	1263	1257
Prince George	701	660	623
Vancouver	1183	1052	1068
Victoria	1061	947	982
ALBERTA			
Calgary	695	647	689
Edmonton Mun.	842	744	806
Grande Prairie	767	679	696
Lethbridge	807	732	862
Peace River	774	849	687
SASKATCHEWAN			
Estevan	897	1061	943
Prince Albert	849	892	775
Regina	893	1028	868
Saskatoon	885	951	855
Swift Current	808	884	818
MANITOBA			
Brandon	874	977	882
Churchill	261	323	216
Dauphin	831	1005	811
Winnipeg	911	1066	885
ONTARIO			
London	1181	1107	1155
North Bay	802	969	795
Ottawa	1251	1160	1179
Thunder Bay	738	775	748
Toronto	1251	1117	1151
Trenton	1169	1141	1164
Windsor	1405	1291	1349
QUEBEC			
Baie Comeau		*	*
Maniwaki	860	1013	852
Montréal	1222	1235	1210
Quebec	1012	1023	995
Sept-Iles	506	606	496
Sherbrooke	751	995	746
NEW BRUNSWICK			
Charlo	747	766	705
Fredericton	828	1011	806
Moncton	788	921	731
NOVA SCOTIA			
Sydney	696	647	652
Yarmouth	675	800	620
PRINCE EDWARD ISLAND			
Charlottetown	777	883	709
NEWFOUNDLAND			
Gander	544	457	559
St. John's	394	*	424
Stephenville	549	735	522

50-kPa ATMOSPHERIC CIRCULATION

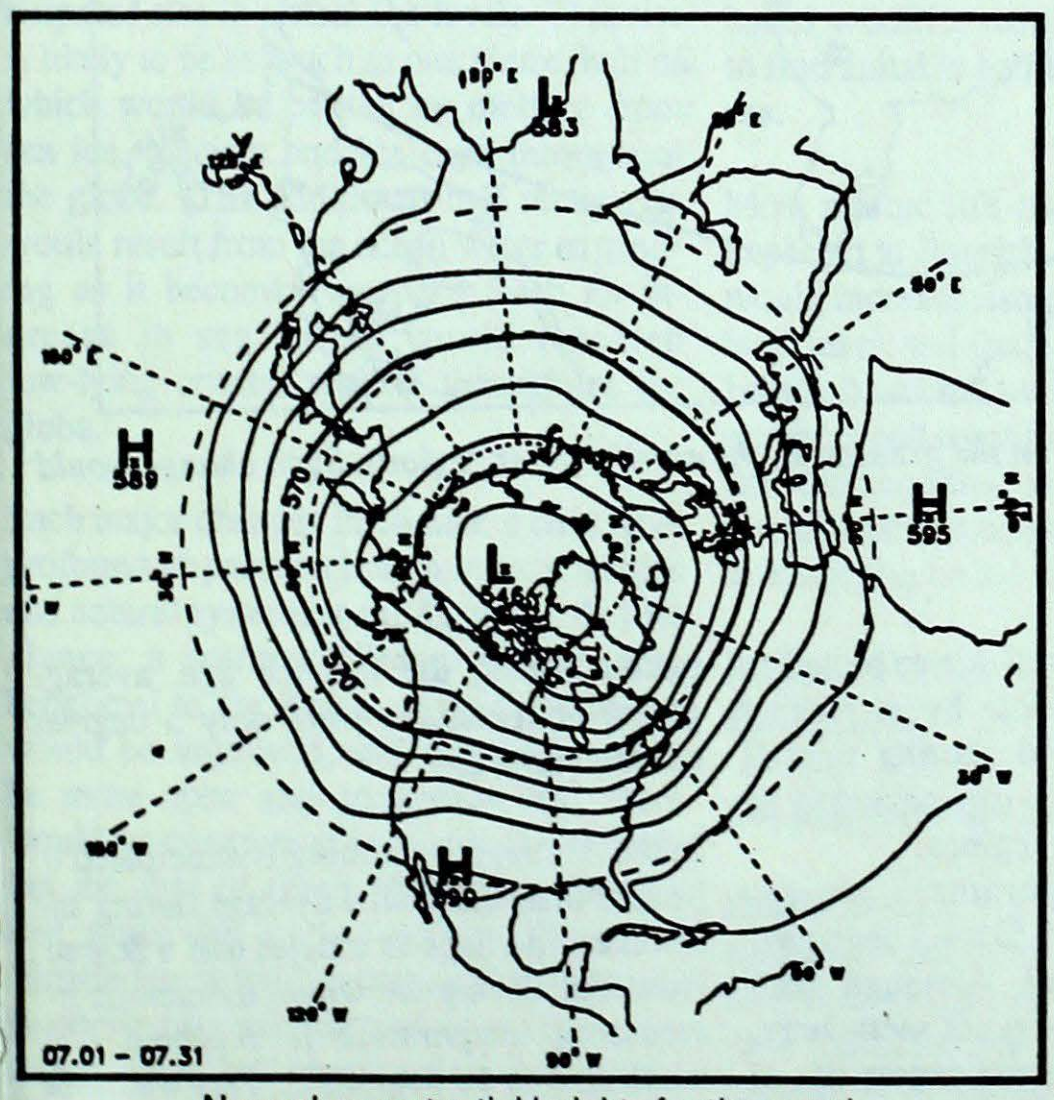
July 1990



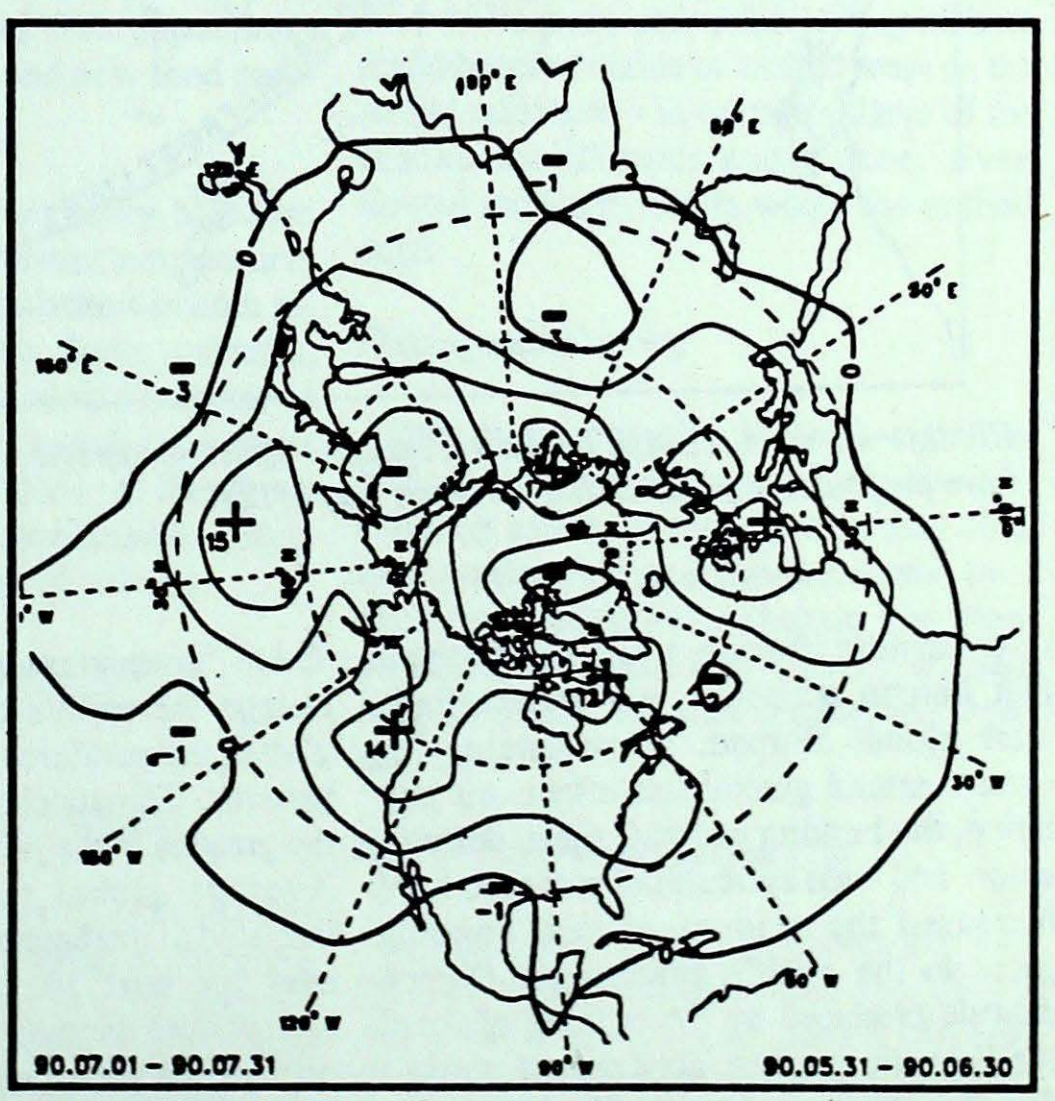
Mean geopotential heights
- 5 decametre interval -



Mean geopotential height anomaly
- 5 decametre interval-

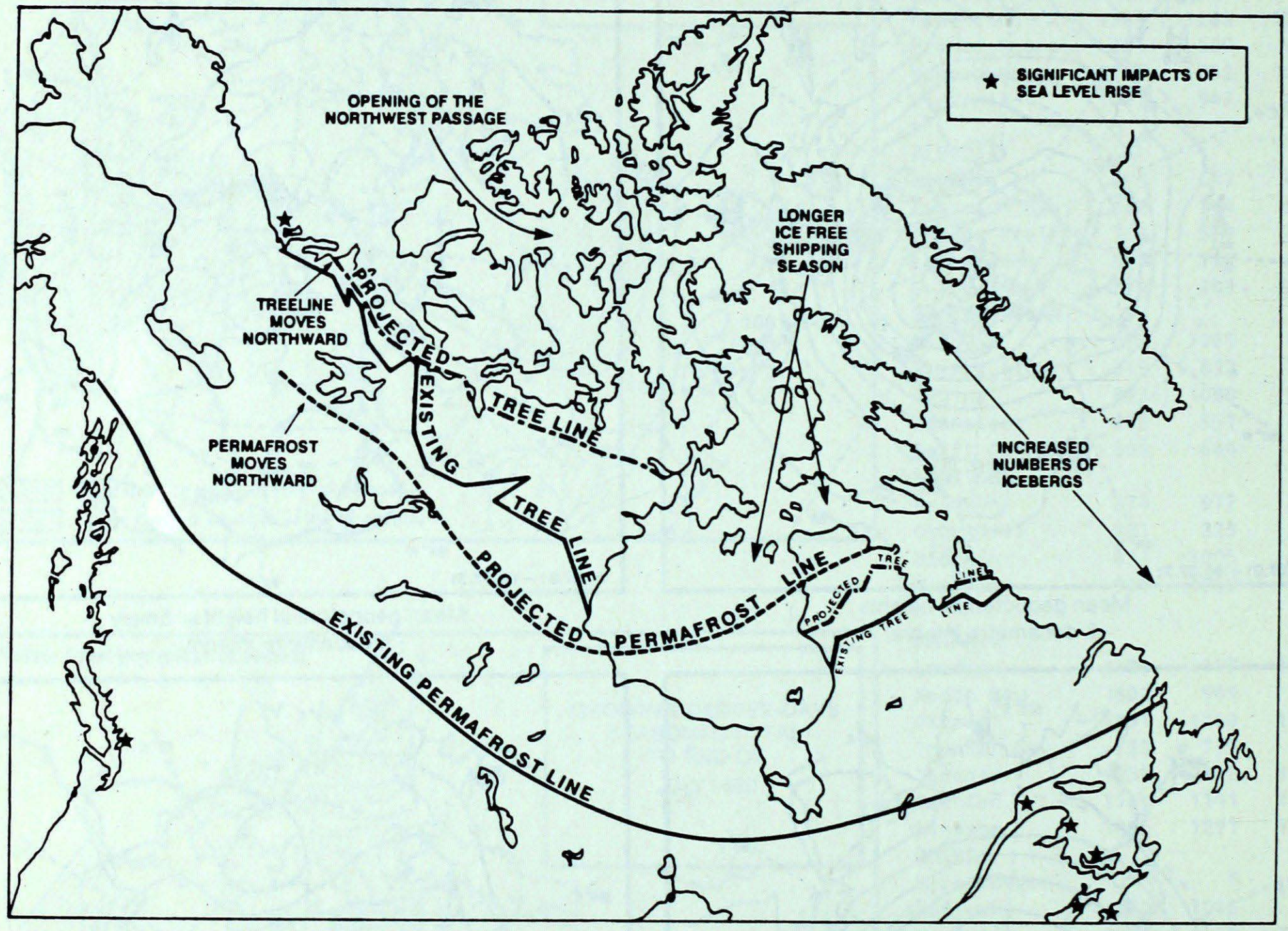


Normal geopotential heights for the month
- 5 decametre interval -



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

The Greenhouse Effect: Impacts on the Arctic



Climate warming, caused by the greenhouse effect, is expected to be the greatest in the earth's polar regions. Such change would have profound impacts on the northern way of life.

Over the next 50 years, scientists anticipate that human activities will substantially alter global climate, by enhancing the earth's natural greenhouse effect. Air pollution, the burning of fossil fuels, deforestation, and even agricultural practices have increased the amount of heat-trapping gases in the earth's atmosphere. Carbon dioxide produced by the burning of fossil fuels, is the greatest concern, as world's demand for energy is steadily increasing. These "greenhouse gases" are expected to change the earth's climate by increasing global temperatures and altering rainfall patterns. Climate change is expected to be the greatest in the polar regions.

Average global temperatures are anticipated to increase by 1.5 to 4.5 degrees C over the next 50 years. Although such temperature increases may not seem large, on a global scale even a one degree rise in average temperature could have major impacts. During the last ice age, average global temperatures were only 5 degrees cooler than today.

In the Arctic, the warming is anticipated to be less than the global average during the summer - perhaps as little as half a degree. However, during the winter a dramatic increase in temperature is expected - as much as 8 to 10 degrees C. This would be at least twice the global average. In addi-

tion, rainfall which presently falls in southern Canada is expected to shift northward, increasing Arctic precipitation by 20 to 30%.

The Thawing of the North

Such a major warming would melt much of the permanently frozen ground that underlies about half of Canada's land surface. In the Arctic, permafrost may extend to a depth of up to 300 m (1000 ft). A major concern is that as it melts, permafrost releases methane - one of the gases which contributes to global warming. Thus widespread melting of permafrost could further increase the greenhouse effect.

Rising temperatures would also melt part of the permanently frozen northern oceans. During the summer, the Arctic Islands are expected to be ice-free. Mountain glaciers on the islands and the mainland would also decrease and, in some cases, melt entirely. The large Greenland Icecap would remain intact, with only a small amount of melting.

Such melting would contribute to the anticipated rise in global sea levels. This rise is likely to be as much as one metre, half of which would be caused by melting from sea ice, glaciers and ice caps throughout the globe. (The additional half metre rise would result from the ocean water expanding as it becomes warmer.) Such an increase in sea levels would threaten low-lying coastal regions throughout the globe.

Such major changes in climate would have profound impacts on both human activities and natural systems in the far north. At first glance, a warmer climate might seem beneficial to the Arctic - living conditions would be improved, and the north would be more open and accessible. Yet there would be negative effects as well, including the loss of those very characteristics that make the Arctic unique. The harsh climate has helped to isolate the far north, preserving its wildlife and allowing its native peoples and their culture to endure. Climate warming is likely to end this isolation by eliminating the Arctic's natural barriers.

Effects on Vegetation and Wildlife

Climate warming in the far north would slowly shift the tree-line north by 200 to 300 km, with the tundra shrinking back to the Arctic Islands. Such changes would occur gradually over a long period of time, but would have a major effect on northern wildlife. Some species are expected to be able to adapt to changes in their habitat. Others, however, would decline - particularly those dependent on the tundra for survival.

The Arctic tundra is essentially a frozen desert - one of the driest regions in the world. Warmer, wet winters, which are expected as the climate changes, have been shown in the past to decimate populations of caribou and muskox. Heavier winter snowfall would bury the sparse Tundra vegetation on which these animals depend for food. Open water between the Arctic Islands would also cut off the migration of caribou and the movements of other land-based wildlife, reducing their opportunity to find suitable habitat and new food sources.

Most marine life and migratory birds are expected to flourish. Warmer temperatures would increase fish populations in both inland lakes and the ocean. Seals, walruses, beluga bowhead whales would increase in numbers and spread northward. Polar bears are also expected to survive as they have already demonstrated considerable ability to adapt to a broad range of habitats.

Impacts on Society and the Economy

Shipping and Offshore Oil Drilling

Sea ice and extreme winter cold have been traditional obstacles to northern shipping and the development of offshore oil resources. Reduced sea ice would mean less damage to ships and oil rigs, resulting in decreased design and construction costs and greater safety. The shipping season is expected to lengthen by six to eight weeks and permanent ice could be greatly reduced. Such benefits would probably be tempered by other changes including increase in ocean storms, stronger winds and higher waves.

Icebergs, a hazard in the eastern Arctic for both shipping and offshore oil platforms, are also expected to increase in frequency. Icebergs are produced as pieces of ice break off glaciers which are advancing into the sea. Increasing snowfall would cause the glaciers on Greenland and the Arctic Islands to advance more quickly, creating significant increase in the number of icebergs.

Agriculture

The potential for agriculture would increase in a warmer climate, with the growing season lengthening by 30 to 40%. For example, growing conditions for Yellowknife and Whitehorse would be similar to those in Edmonton - 1,000 km further south. Yet most of the north would remain unsuitable for agriculture, as Arctic soils tend to be poor and infertile. Agriculture could become viable in limited areas on the Arctic mainland - in certain valleys of the Mackenzie District and Yukon. Even limited local agriculture would lower food costs.

Fishing and Hunting

Although most marine life and migratory birds should increase in numbers, their distribution and migratory patterns may alter in response to changed environmental conditions. Settlements chosen for their proximity to hunting or fishing grounds may no longer be well located for these activities.

Building on melting permafrost

The anticipated widespread melting of permafrost would damage roads, buildings, power lines and pipelines which are now resting on permanently frozen ground. Over much of the Arctic, existing struc-

tures would have to be reinforced to withstand the anticipated seasonal freezing and thawing, much like structures further south. Construction costs for new developments will increase accordingly.

Opening of the Northwest Passage

The melting of permanent sea ice between the Arctic Islands would open the Northwest Passage. This long-sought passage - the quickest route from Europe to Japan - would become a viable shipping route during the summer months. This would have implications for Canada's sovereignty over the Arctic as the north would draw increased interest from foreign nations for scientific, military and commercial purposes.

Increased Accessibility and Development

Warming in the Arctic would reduce the harsh living conditions and open new shipping lanes, leading to increased development in the north. The Arctic's natural resources, including its minerals, forests and sea ports, would be more easily utilized. Large reserves of oil natural gas, lead, zinc and iron ore have already been discovered in the Arctic. Shipping and tourism would increase. Commercial fishing could become viable. Settlement would expand and spread northward among the Arctic Islands.

Impacts on the native people would be mixed as increased economic activity would bring increased and more diverse employment opportunity, but also greater pressure on traditional cultures and environmental values.

How certain is climate warming?

Scientists from around the world agree that significant climate warming now appears "inevitable". However, many uncertainties still remain about the timing and magnitude of this warming, and the specific regional impacts. Nevertheless, scientists strongly recommend that the probability of major change in climate be considered in the planning of future development, especially for large projects with anticipated life-spans of several decades. This is particularly important in the Arctic, as climate is a significant factor in virtually every northern activity.

Environment Canada's Role

We have only begun to understand the complexities of the earth's atmosphere and how it is being changed by human activities. Environment Canada is striving to learn more about global warming and its impact on the Arctic. Our Canadian Climate Program combines the efforts of governments and universities to further our understanding of this complex issue.

Many scientists feel the first evidence of global warming will be found in the Arctic, as climate change is expected to be greatest in the earth's polar regions. Environment Canada is well prepared to detect such a change. For decades, we have maintained a network of weather monitoring stations in the Arctic to keep tabs on current weather conditions. We also monitor sea ice conditions and the state of ocean waves. Such information is necessary for accurate weather forecasts and to ensure the safety of shipping lanes and offshore oil rigs. These records have already contributed to our understanding of Arctic climate, and will continue to be important in the future detection of global change.

Environment Canada also monitors the gradual increase of gases contributing to the greenhouse effect. We operate the world's most northerly research station - an air pollution measuring lab at Alert, in the northern tip of Ellesmere Island.

Canada is also working to reduce climate warming. Steps have already been taken to reduce CFCs (chlorofluorocarbons), industrial chemicals which threaten the ozone layer and are a major contributor to climate warming. Our nation played a key role in the development of the Montreal Protocol, an international agreement to reduce CFCs by 50% by 1999. The use of the most damaging CFCs has already decreased, and international action is underway to strengthen the Montreal Protocol and encourage further reductions.

In addition, Canada is studying ways reduce carbon dioxide, the most serious of the greenhouse gases. As the global increase in CO_2 had been produced primarily by the burning of fossil fuels, Canada is considering ways to reduce our energy use, through conservation and improved efficiency.

JULY 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	19.5	2.5	33.4	7.4	0.0	*	21.4	52	0	5	318	109	12.7
ALERT BAY	15.1	1.1	25.2	8.0	0.0	*	21.7	42	0	3	*	*	90.7
AMPHITRITE POINT	15.1	1.2	22.6	10.1	0.0	*	21.6	30	0	1	*	*	91.7
BLUE RIVER A	17.6	1.1	32.2	2.5	0.0	*	56.2	77	0	9	266	109	*.*
CAPE ST JAMES	14.5	1.8	20.7	10.4	0.0	*	6.6	11	0	2	272	*	108.6
CAPE SCOTT	14.6	1.6	19.7	10.3	0.0	*	10.6	12	0	4	*	*	104.4
CASTLEGAR A	20.9	0.8	35.8	8.6	0.0	*	40.9	104	0	7	310	98	7.2
COMOX A	18.9	1.5	30.8	9.0	0.0	*	15.8	57	0	3	364	*	14.3
CRANBROOK A	19.3	1.0	33.6	7.2	0.0	*	31.7	119	0	7	302	91	27.3
DEASE LAKE	14.0	1.5	28.8	0.7	0.0	0	61.9	112	0	10	274	138	124.8
FORT NELSON A	18.1	1.5	32.9	6.3	0.0	*	23.1	27	0	5	362	*	32.0
FORT ST JOHN A	16.7	1.1	30.4	7.2	0.0	*	38.6	50	0	6	355	*	64.3
HOPE A	20.4	1.9	35.0	8.6	0.0	*	38.5	104	0	3	290	112	11.9
KAMLOOPS A	21.9	1.1	37.8	10.0	0.0	*	72.5	322	0	9	345	109	7.9
KELOWNA A	20.5	1.9	34.7	7.6	0.0	*	42.4	155	0	4	317	102	7.2
LYTTON	22.6	1.0	39.9	10.7	0.0	*	13.7	151	0	3	261	88	5.4
MACKENZIE A	16.2	1.6	32.1	1.3	0.0	*	28.2	46	0	7	330	122	68.5
PENTICTON A	21.7	1.4	37.5	6.6	0.0	*	25.4	120	0	6	304	98	5.4
PORT ALBERNI A	19.1	2.0	35.7	7.3	0.0	*	10.9	39	0	2	338	*	15.3
PORT HARDY A	15.0	1.4	25.2	7.7	0.0	*	15.2	29	0	3	256	129	91.7
PRINCE GEORGE A	16.5	1.4	31.3	3.2	0.0	*	31.0	52	0	9	336	115	63.8
PRINCE RUPERT A	14.2	1.5	26.0	7.2	0.0	*	49.2	44	0	8	232	163	115.8
PRINCETON A	19.2	1.4	37.5	3.7	0.0	*	40.7	181	0	8	328	*	*.*
REVELSTOKE A	19.6	1.4	31.9	6.4	0.0	*	36.8	67	0	7	276	103	15.7
SANDSPIT A	15.7	1.7	24.2	8.8	0.0	*	16.4	38	0	4	272	145	74.9
SMITHERS A	16.2	1.5	23.6	8.7	0.0	*	29.0	63	0	6	304	125	73.9
TERRACE A	18.7	2.6	32.9	7.3	0.0	*	16.8	30	0	2	319	182	28.2
VANCOUVER INT'L A	18.7	1.4	29.7	11.9	0.0	*	10.8	34	0	3	340	111	12.6
VICTORIA INT'L A	17.8	1.5	32.4	8.3	0.0	*	4.4	24	0	2	349	106	29.9
VICTORIA MARINE	15.8	1.8	28.6	7.2	0.0	*	13.9	66	0	2	*	*	79.2
WILLIAMS LAKE A	16.5	1.1	33.9	5.7	0.0	*	41.5	86	0	10	323	104	65.8

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									
YUKON TERRITORY													
DAWSON A	16.4	*	31.3	3.1	0.0	*	63.8	*	0	*	*	*	*
MAYO A	16.8	1.6	31.9	3.6	0.0	*	31.9	62	0	*	*	*	*
WATSON LAKE A	16.3	1.4	30.7	3.6	0.0	*	46.0	79	0	5	338	129	61.6
WHITEHORSE A	15.0	0.9	29.8	2.7	0.0	*	15.7	46	0	6	275	110	98.8
NORTHWEST TERRITORIES													
ALERT	3.8	0.2	15.6	-3.0	14.2	128	29.9	153	0	8	201	67	440.7
BAKER LAKE A	10.4	-0.6	28.6	1.2	0.0	*	77.7	204	0	8	254	84	237.6
CAMBRIDGE BAY A	8.5	0.6	22.8	1.3	0.0	0	12.6	64	0	5	351	115	294.2
CAPE PARRY A	7.9	2.2	22.4	0.0	0.2	29	32.6	192	0	8	*	*	311.1
CLYDE A	6.4	2.3	19.7	-0.2	0.0	0	30.2	132	0	6	379	146	359.8
COPPERMINE A	11.4	1.7	30.1	1.0	0.0	0	22.6	88	0	7	353	111	209.3
CORAL HARBOUR A	8.3	-0.4	24.4	0.9	0.0	0	101.0	247	0	13	196	69	301.4
EUREKA	5.6	0.2	13.2	0.0	0.0	0	7.6	63	0	2	288	85	385.4
FORT RELIANCE	14.3	0.4	29.2	4.5	0.0	*	27.0	79	0	5	*	*	122.1
FORT SIMPSON A	18.5	1.9	31.7	5.9	0.0	*	62.0	132	0	5	364	126	30.1
FORT SMITH A	17.1	1.1	34.2	4.6	0.0	*	31.8	56	0	9	321	*	67.3
IQALUIT	8.2	0.6	22.4	0.1	*	*	21.8	34	*	5	297	147	301.2
HALL BEACH A	6.9	1.5	18.4	-0.5	0.4	133	41.7	121	0	7	*	*	344.7
HAY RIVER A	16.7	0.9	31.3	4.6	0.0	*	52.6	109	0	6	*	*	41.4
INUVIK A	15.5	1.9	29.4	2.3	0.0	0	58.0	173	0	6	288	85	105.8
MOULD BAY A	7.2	3.3	16.3	-0.5	14.0	424	22.6	153	0	6	230	83	421.6
NORMAN WELLS A	18.4	2.1	31.6	8.7	0.0	0	21.8	39	0	5	320	111	27.4
POND INLET A	6.7	*	18.8	-0.2	4.0	*	63.2	*	0	9	372	*	350.0
RESOLUTE A	4.0	-0.1	11.1	-1.1	1.0	30	23.5	104	0	6	254	93	433.9
YELLOWKNIFE A	16.8	0.5	30.3	8.2	0.0	*	70.2	208	0	5	304	80	59.5
ALBERTA													
BANFF	15.7	0.9	31.5	5.0	0.0	*	80.6	190	0	13	*	*	*
CALGARY INT'L A	16.2	-0.2	31.2	4.1	0.0	*	83.7	128	0	13	259	80	69.5
COLD LAKE A	17.2	0.3	31.0	6.1	0.0	*	130.6	153	0	9	277	88	60.5
CORONATION A	17.1	-0.2	32.3	4.6	0.0	*	88.8	141	0	13	304	90	71.3
EDMONTON INT'L A	16.4	0.6	30.7	5.8	0.0	*	149.3	163	0	7	323	103	69.3
EDMONTON MUNICIPAL	17.3	-0.1	30.8	6.3	0.0	*	151.6	171	0	6	318	104	52.7

JULY 1990

STATION	Temperature C Mean	Difference from Normal	Maximum	Minimum	Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C
EDMONTON NAMAO A	16.7	−0.2	29.9	5.8	0.0	*	136.2	179	0	7	*	*	64.0
EDSON A	15.3	0.8	31.6	1.9	0.0	*	118.4	110	0	9	304	108	93.5
FORT CHIPEWYAN A	17.2	1.1	33.5	4.5	0.0	*	35.2	55	0	*	*	*	*
FORT MCMURRAY A	17.7	1.3	35.6	4.9	0.0	*	18.6	25	0	5	309	108	57.4
GRANDE PRAIRIE A	16.9	1.0	31.8	5.1	0.0	*	39.5	61	0	9	360	*	55.3
HIGH LEVEL A	17.3	1.3	30.2	3.1	0.0	*	81.0	129	0	16	350	119	54.7
JASPER	15.9	0.8	31.3	4.0	0.0	*	70.6	142	0	9	275	*	73.7
LETHBRIDGE A	17.7	−0.9	33.6	5.0	0.0	*	41.3	95	0	8	320	*	41.4
MEDICINE HAT A	19.6	−0.3	35.7	6.0	0.0	*	46.4	115	0	6	352	101	26.8
PEACE RIVER A	16.8	1.1	30.7	5.9	0.0	*	23.9	40	0	4	*	*	58.3
RED DEER A	16.1	0.0	30.7	4.0	0.0	*	107.3	138	0	12	*	*	72.0
ROCKY MTN HOUSE A	14.9	−0.4	29.9	1.9	0.0	*	125.0	134	0	8	*	*	99.7
SLAVE LAKE A	16.8	1.5	31.9	7.3	0.0	*	83.8	88	0	9	308	105	56.8
WHITECOURT A	16.1	1.0	31.6	4.3	0.0	*	106.3	105	0	7	*	*	73.7
SASKATCHEWAN													
BROADVIEW	17.0	−0.7	31.8	6.8	0.0	*	100.2	195	0	13	292	87	52.6
COLLINS BAY	*	*	*	*	*	*	*	*	*	*	*	*	*
CREE LAKE	16.2	0.6	30.7	4.6	0.0	*	60.8	64	0	9	250	90	94.4
ESTEVAN A	18.1	−1.8	32.4	4.2	0.0	*	78.0	144	0	8	291	82	36.2
HUDSON BAY A	*	*	*	*	*	*	*	*	*	*	*	*	*
KINDERSLEY	17.9	−0.4	32.6	3.7	0.0	*	47.2	99	0	10	312	*	56.8
LA RONGE A	17.2	0.6	31.0	3.5	0.0	*	92.1	101	0	9	*	*	64.4
MEADOW LAKE A	15.9	*	30.7	4.4	0.0	*	107.2	*	0	8	286	*	77.0
MOOSE JAW A	18.1	−1.6	32.8	5.5	0.0	*	111.2	208	0	9	304	88	33.9
NIPAWIN A	17.1	*	29.8	6.5	0.0	*	89.2	*	0	9	297	*	48.0
NORTH BATTLEFORD A	17.0	−1.1	31.2	6.0	0.0	*	100.6	155	0	10	*	*	62.4
PRINCE ALBERT A	17.3	−0.1	31.0	6.8	0.0	*	104.8	160	0	13	284	96	53.4
REGINA A	17.8	−1.1	32.6	6.6	0.0	*	95.8	180	0	8	298	87	40.3
SASKATOON A	17.7	−0.8	30.9	4.8	0.0	*	75.9	140	0	8	*	*	49.6
SWIFT CURRENT A	17.1	−1.2	31.2	2.5	0.0	*	109.8	234	0	11	323	94	54.7
YORKTON A	17.0	−1.3	31.0	6.4	0.0	*	86.4	152	0	11	293	89	53.4
MANITOBA													
BRANDON A	17.5	−1.3	31.1	6.1	0.0	*	67.8	102	0	11	320	*	37.2
CHURCHILL A	13.2	1.4	33.4	3.1	0.0	*	59.0	129	0	12	250	88	162.4
DAUPHIN A	17.8	−0.7	31.0	7.3	0.0	*	71.7	112	0	9	303	94	43.0
GILLAM A	16.0	1.1	32.2	4.0	0.0	*	84.4	93	0	7	*	*	87.5
GIMLI	18.4	*	29.6	8.1	0.0	*	101.3	*	0	11	321	98	28.4
ISLAND LAKE	17.5	0.3	30.0	6.8	0.0	*	97.3	95	0	12	*	*	53.5
LYNN LAKE A	16.2	0.6	33.4	4.7	0.0	*	78.1	102	0	13	283	101	84.9
NORWAY HOUSE A	17.6	*	30.1	5.5	0.0	*	31.8	*	0	6	*	*	48.8

STATION	Temperature C Mean	Difference from Normal	Maximum	Minimum	Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C
PORTAGE LA PRAIRIE	19.2	−0.5	32.2	8.1	0.0	*	53.6	70	0	6	*	*	20.7
THE PAS A	17.7	0.0	30.5	7.0	0.0	*	24.6	35	0	9	300	99	46.8
THOMPSON A	15.8	0.5	31.6	2.2	0.0	*	61.0	63	0	11	269	106	90.9
WINNIPEG INT'L A	19.2	−0.4	30.8	7.4	0.0	*	33.2	44	0	7	333	105	17.9
ONTARIO													
BIG TROUT LAKE	17.0	1.0	29.9	5.6	0.0	*	74.4	79	0	10	229	*	67.6
EARLTON A	17.9	0.2	32.6	5.8	0.0	*	58.4	72	0	10	*	*	83.0
GERALDTON A	17.1	*	30.1	4.2	0.0	*	64.0	*	0	9	*	*	54.0
GORE BAY A	19.0	0.2	28.9	9.9	0.0	*	47.4	78	0	6	*	*	12.9
HAMILTON RBG	21.7	*	35.8	13.4	0.0	*	76.6	*	0	8	305	*	*
HAMILTON A	20.5	0.0	33.9	9.7	0.0	*	77.4	110	0	7	*	*	4.8
KAPUSKASING A	17.4	0.6	31.2	3.9	0.0	*	80.3	83	0	10	*	*	57.3
KENORA A	19.1	−0.1	31.5	10.9	0.0	*	64.4	70	0	10	*	*	15.5
KINGSTON A	20.5	0.4	29.3	9.1	0.0	*	47.2	79	0	7	276	98	5.1
LONDON A	20.0	−0.3	34.6	8.8	0.0	*	144.0	199	0	10	264	97	8.0
MOOSONEE	16.9	1.6	32.1	1.0	0.0	*	66.5	69	0	7	274	116	81.9
MUSKOKA A	18.4	0.1	30.2	5.1	0.0	*	102.4	132	0	8	*	*	23.9
NORTH BAY A	18.5	0.2	31.3	7.0	0.0	*	127.2	124	0	6	280	102	30.2
OTTAWA INT'L A	21.4	0.8	32.0	10.6	0.0	*	114.3	133	0	10	297	108	2.3
PETAWAWA A	19.2	0.3	31.5	5.1	0.0	*	87.1	111	0	10	*	*	22.9
PETERBOROUGH A	19.3	−0.1	33.1	6.6	0.0	*	94.4	123	0	8	*	*	14.8
PICKLE LAKE	17.9	0.8	30.6	6.6	0.0	*	32.9	30	0	10	*	*	45.6
RED LAKE A	17.5	−0.7	29.4	5.4	0.0	*	127.8	144	0	9	298	*	51.5
ST CATHARINES A	21.4	−0.3	35.0	10.7	0.0	*	61.2	94	0	6	290	*	3.3
SARNIA A	19.9	−0.8	36.3	8.6	0.0	*	80.0	118	0	11	281	96	11.7
SAULT STE MARIE A	17.0	−0.5	29.7	5.6	0.0	*	45.6	66	0	6	257	89	51.0
SIOUX LOOKOUT A	18.4	0.1	31.6	7.0	0.0	*	89.5	96	0	8	*	*	34.1
SUDBURY A	18.8	0.1	30.6	7.0	0.0	*	38.2	46	0	5	260	90	25.8
THUNDER BAY A	17.3	−0.3	30.6	6.1	0.0	*	91.0	121	0	8	283	93	36.3
TIMMINS A	17.4	0.2	31.0	4.8	0.0	*	174.2	193	0	9	*	*	52.7
TORONTO	22.1	*	35.9	14.1	0.0	*	69.6	*	0	9	*	*	0.3
TORONTO INT'L A	20.9	0.3	35.4	10.7	0.0	*	68.4	96	0	10	*	*	3.8
TORONTO ISLAND A	20.5	*	34.7	11.7	0.0	*	59.5	*	0	7	*	*	1.8
TRENTON A	20.3	−0.3	31.2	8.8	0.0	*	68.6	113	0	7	*	*	4.2
WATERLOO WELLINGTON	19.4	−0.2	36.0	7.7	0.0	*	107.3	150	0	10	*	*	12.2
WAWA A	14.5	*	29.4	4.0	0.0	*	160.6	*	0	7	*	*	122.5
WIARTON A	18.6	0.1	29.7	8.6	0.0	*	99.8	133	0	7	309	105	22.5
WINDSOR A	21.9	−0.3	36.7	13.1	0.0	*	59.8	72	0	9	*	*	1.1

JULY 1990

STATION	Temperature C Mean	Difference from Normal	Maximum	Minimum	Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C
QUEBEC													
BAGOTVILLE A	18.5	0.6	33.8	7.4	0.0	*	80.2	67	0	11	*	*	32.6
BAIE COMEAU A	15.1	−0.7	28.5	3.9	0.0	*	58.0	68	0	9	285	123	91.2
BLANC SABLON A	*.*	*	23.0	2.0	*	*	*	*	*	12	151	*	*
CHIBOUGAMAU CHAPAIS	16.2	*	30.6	3.6	*	*	107.2	*	*	13	256	103	82.7
GASPE A	17.2	*	30.4	4.0	0.0	*	69.2	*	0	11	*	*	*
INUKJUAK A	8.6	−0.7	*	*	0.0	*	98.9	182	0	*	157	76	310.4
KUUJJUAQ A	11.8	0.4	31.3	−1.1	0.0	*	22.8	40	0	6	196	100	192.0
KUUJJUARAPIK A	10.8	0.3	31.0	−0.7	0.0	0	108.2	131	0	12	178	105	238.4
LA GRANDE IV A	13.4	*	30.3	1.4	0.0	*	108.1	*	0	14	193	*	156.1
LA GRANDE RIVIERE A	13.8	*	32.3	0.2	0.0	*	101.4	*	0	10	239	*	171.2
MANIWAKI	18.8	0.5	31.3	4.6	0.0	*	66.0	72	0	10	272	101	31.3
MATAGAMI A	*	*	30.8	1.6	0.0	*	77.4	*	0	7	290	116	86.2
MONT JOLI A	17.5	0.2	29.4	8.1	0.0	*	51.2	68	0	7	304	120	48.1
MONTREAL INT'L A	21.1	0.2	31.0	8.4	0.0	*	132.4	147	0	11	278	101	8.7
MONTREAL MIRABEL I/	19.6	*	30.4	6.1	0.0	*	100.8	*	0	8	277	*	19.9
QUEBEC A	19.2	0.1	31.7	7.6	0.0	*	118.2	101	0	13	260	105	21.7
ROBERVAL A	18.7	0.8	31.4	8.1	0.0	*	91.0	76	0	12	260	*	32.1
SCHEFFERVILLE A	13.2	0.6	29.6	1.1	0.0	0	102.4	106	0	17	179	96	160.2
SEPT-ILES A	15.5	0.3	32.0	6.1	0.0	*	50.9	52	0	5	246	101	75.5
SHERBROOKE A	18.2	0.4	30.2	3.9	0.0	*	117.0	97	0	11	263	*	36.6
STE AGATHE DES MONT	17.9	0.3	28.8	4.7	0.0	*	103.8	94	0	14	261	95	40.4
ST HUBERT A	20.6	−0.1	31.1	8.0	0.0	*	126.1	130	0	10	280	*	11.9
VAL D'OR A	17.2	0.1	30.4	4.0	0.0	*	123.6	122	0	11	279	107	56.6
NEW BRUNSWICK													
CHARLO A	18.1	0.3	32.9	6.5	0.0	*	81.0	82	0	10	274	108	42.8
CHATHAM A	19.3	0.1	33.2	5.6	0.0	*	153.2	168	0	10	235	93	27.1
FREDERICTON A	19.7	0.4	32.0	4.6	0.0	*	89.2	100	0	10	265	*	25.0
MONCTON A	19.5	1.0	31.7	6.4	0.0	*	67.3	71	0	9	254	104	29.4
SAINT JOHN A	18.2	1.3	29.3	6.8	0.0	*	155.1	150	0	8	233	107	31.2

STATION	Temperature C Mean	Difference from Normal	Maximum	Minimum	Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C
NOVA SCOTIA													
GREENWOOD A	20.5	1.4	32.1	7.7	0.0	*	91.0	117	0	7	*	*	17.8
HALIFAX INT'L A	19.7	1.5	31.5	8.5	0.0	*	50.0	53	0	5	*	*	21.8
SABLE ISLAND	14.9	−0.6	23.2	6.2	0.0	*	38.3	42	0	5	206	127	102.4
SHEARWATER A	19.6	2.2	31.2	9.5	0.0	*	61.8	64	0	9	236	108	20.8
SYDNEY A	18.0	0.3	31.9	7.1	0.0	*	48.4	59	0	6	235	97	50.8
YARMOUTH A	17.4	1.1	25.9	8.9	0.0	*	145.6	187	0	8	235	114	38.8
PRINCE EDWARD ISLAND													
CHARLOTTETOWN A	19.1	0.8	29.6	6.8	0.0	*	65.0	77	0	10	*	*	32.5
SUMMERSIDE A	20.0	1.1	30.4	10.3	0.0	*	80.2	103	0	9	259	98	19.0
NEWFOUNDLAND													
BONAVISTA	13.6	−1.1	24.4	4.8	0.0	*	85.2	140	0	15	*	*	141.3
BURGEO	12.8	−0.7	25.9	5.8	0.0	*	116.5	83	0	13	*	*	159.6
CARTWRIGHT	11.1	−1.6	29.5	1.3	0.0	*	42.0	50	0	10	163	83	216.7
CHURCHILL FALLS A	14.0	0.1	29.7	1.8	0.0	*	124.9	114	0	11	218	109	133.5
COMFORT COVE	14.4	−2.1	27.7	3.0	0.0	*	80.1	98	0	13	*	*	121.7
DANIELS HARBOUR	13.3	−1.1	21.0	3.1	0.0	*	102.4	115	0	12	179	88	144.8
DEER LAKE A	15.6	−0.8	29.2	2.0	0.0	*	114.6	145	0	7	*	*	83.9
GANDER INT'L A	14.6	−1.9	29.6	3.4	0.0	*	101.0	146	0	15	237	111	113.5
GOOSE A	15.9	0.1	31.8	3.9	*	*	91.0	87	*	11	188	96	131.1
MARY'S HARBOUR	12.5	2.3	31.0	2.8	0.0	*	71.6	105	0	11	*	*	173.4
PORT AUX BASQUES	13.2	0.0	22.0	4.5	0.0	*	89.6	83	0	14	188	*	148.7
ST ANTHONY	11.6	−1.3	23.5	0.3	0.0	*	67.4	67	0	11	*	*	163.0
ST JOHN'S A	14.2	−1.3	27.3	5.2	0.0	*	41.7	55	0	7	251	114	124.7
ST LAWRENCE	13.8	1.7	25.5	5.2	0.0	*	79.7	81	0	8	*	*	130.1
STEPHENVILLE A	15.8	−0.2	25.2	6.4	0.0	*	190.4	198	0	13	192	93	79.1
WABUSH LAKE A	14.0	0.5	29.6	−0.2	0.0	*	70.9	67	0	11	225	114	123.8

AGROCLIMATOLOGICAL STATIONS — **JULY 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	20.2	2.3	33.5	8.5	0.0	30.3	65	0	3	291	471.3	1373.8
KAMPLOOPS	*.*	*.*	*.*	*.*	*.*	*.*	**	***	***	**	*.*	*.*
SIDNEY	18.5	2.0	31.0	10.0	0.0	5.0	28	0	3	325	390.0	1107.8
SUMMERLAND	21.4	0.5	33.5	7.0	0.0	36.4	164	0	7	318	504.4	1297.5
ALBERTA												
BEAVERLODGE	16.3	1.1	31.5	4.5	0.0	58.7	92	0	6	358	348.7	787.0
ELLERSLIE	*.*	*.*	*.*	*.*	*.*	*.*	**	***	***	**	*.*	*.*
LACOMBE	15.5	-0.6	30.0	2.5	0.0	82.9	115	0	10	314	323.2	776.2
LETHBRIDGE	*.*	*.*	*.*	*.*	*.*	*.*	**	***	***	**	*.*	*.*
VEGREVILLE	*.*	*.*	*.*	*.*	*.*	*.*	**	***	***	**	*.*	*.*
SASKATCHWAN												
INDIAN HEAD	17.6	-1.0	31.0	8.0	0.0	105.1	198	0	10	**	408.5	1017.0
MELFORT	17.1	-0.3	30.5	7.0	0.0	72.7	113	0	10	251	379.0	1098.2
REGINA	17.5	-1.1	32.5	5.0	0.0	90.7	172	0	9	**	388.5	986.8
SASKATOON	17.5	-0.9	31.5	6.5	0.0	78.0	139	0	7	293	379.5	985.0
SCOTT	16.4	-0.8	31.0	4.5	0.0	113.3	189	0	11	309	353.1	926.9
SWIFT CURRENT	16.8	-1.7	31.5	4.5	0.0	82.6	215	0	8	287	381.8	967.9
MANITOBA												
BRANDON	18.4	-0.8	31.9	6.0	0.0	51.0	73	0	6	**	416.5	1066.6
GLENLEA	19.6	0.0	31.0	8.5	0.0	42.4	57	0	5	298	457.5	1157.5
MORDEN	19.0	-1.2	30.5	6.5	0.0	45.8	63	0	5	311	*.*	1074.8
ONTARIO												
DELHI	20.4	-0.3	33.0	7.0	0.0	83.7	118	0	7	**	478.6	1259.6
ELORA	18.8	-0.3	32.4	8.4	0.0	60.8	83	0	9	**	426.2	1110.9
GUELPH	19.5	-0.2	34.5	5.6	0.0	120.9	147	0	8	284	448.6	1175.1
HARROW	21.5	-0.5	34.0	10.0	0.0	48.8	62	0	7	265	516.2	1901.7
KAPUSKASING	17.2	0.3	30.5	3.0	0.0	74.0	80	0	7	244	*.*	799.1
OTTAWA	21.5	0.9	31.5	9.1	0.0	135.0	158	0	7	297	511.3	1270.7
SMITHFIELD	21.3	1.1	31.9	11.3	0.0	63.4	94	0	8	**	515.1	1294.1
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	19.0	0.3	32.0	7.0	0.0	41.6	44	0	10	280	433.7	936.1
L'ASSOMPTION	20.5	0.3	31.0	7.5	0.0	88.2	95	0	9	291	*.*	1157.2
LENNOXVILLE	*.*	*.*	*.*	*.*	*.*	*.*	**	***	***	**	*.*	*.*
NORMANDIN	17.2	0.3	30.5	4.5	0.0	70.8	62	0	12	258	381.2	820.5
STE.CLOTILDE	20.7	0.5	31.0	9.0	0.0	101.8	113	0	12	267	486.8	1189.4
NEW BRUNSWICK												
FREDERICTON	20.2	1.1	32.0	7.0	0.0	71.2	79	0	7	131	480.7	1063.4
NOVA SCOTIA												
KENTVILLE	20.6	1.4	32.5	8.0	0.0	79.2	113	0	8	237	475.4	1063.3
NAPPAN	18.8	0.8	29.0	5.0	0.0	112.4	133	0	8	231	428.0	801.5
PRINCE EDWARD ISLAND												
CHARLOTTETWN	19.7	0.8	29.5	7.0	0.0	63.9	79	0	9	264	456.4	935.4
NEWFOUNDLAND												
ST.JOHN'S WEST	14.8	-0.8	27.0	5.0	0.0	46.6	63	0	12	237	304.6	618.4