



Environment
Canada

Environnement
Canada

Climatic Perspectives

Ref 1

Monthly Review

JULY - 1991

Vol. 13

CLIMATIC HIGHLIGHTS

Labrador plagued by heavy ice

The Labrador ice pack, which choked northern Newfoundland waters during the spring and early summer was slow in retreating northwards along the Labrador coast. The combination of a northwesterly circulation, and the fact that for the last three months temperatures in this part of the country have been averaging below normal, contributed to one of the worst ice-years on record on Canada's east coast. Only towards the end of July did the hard multi-year ice start decaying and breakup into patches. Shipping routes leading into the coastal communities of Labrador were effectively blocked, preventing supply vessels from getting in. In fact, some communities were running low on essential supplies, and resupply by airlift was necessary. An ocean vessel was damaged by ice, trying to navigate into Goose Bay this month.

Sultry and hot weather reaches the Great Lakes Basin

During the middle of the month, a tropical air mass moved northwards from the Gulf States and covered most of Ontario and Quebec, pushing maximum daytime temperatures into the thirties. Uncomfortable, humid conditions accompanied this air mass; humidex readings soared into the forties. Numerous daily maximum temperature records were broken, with Earlton

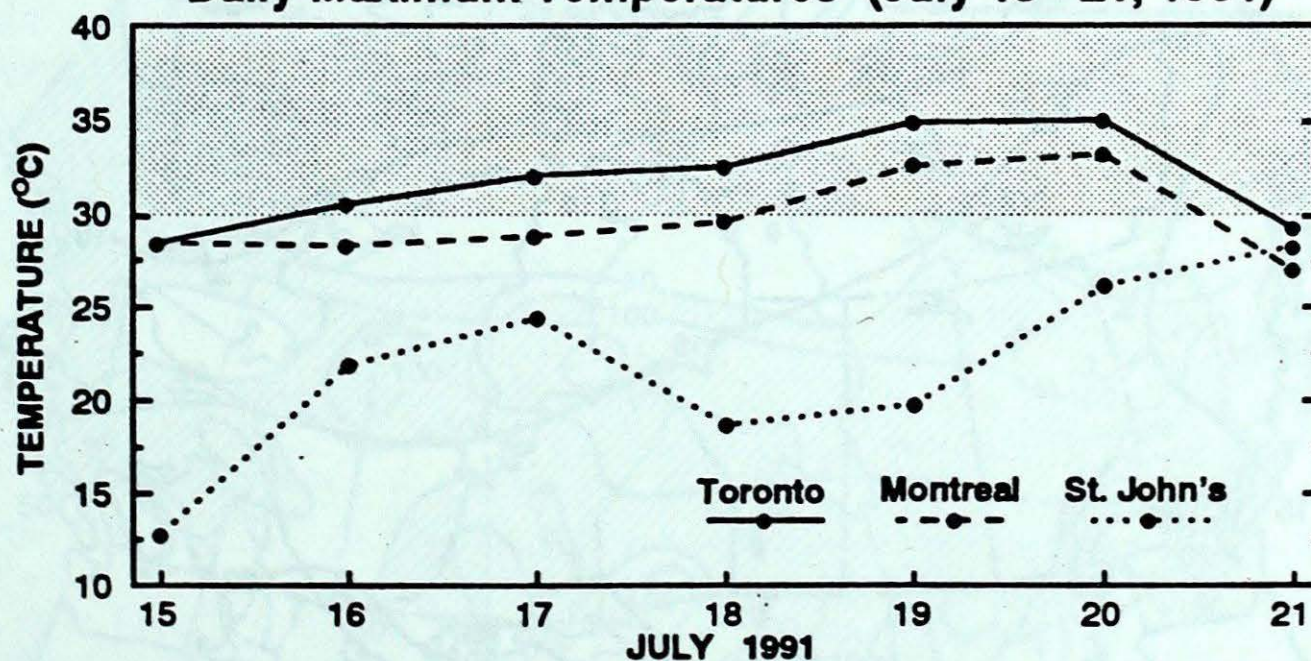
on July 19, being the hot spot with a high of 36°C. Thirty degree readings were commonplace along the lower Great Lakes and the Ottawa and St. Lawrence Valleys. Nights were uncomfortably sticky, with overnight minimums remaining above 20°C. This heat wave lasted five days, and was the most intense in Ontario since the summer of 1988. Afternoon showers and thundershowers did develop, but the spotty nature of this kind of precipitation left most farming districts parched and dry.

High winds flattened huge timber tract

An intense thunderstorm complex, associated with high winds and rain moved

across northwestern Ontario on July 18, ripping down huge stands of prime lumber south of Red Lake. The severe thunders-torms, which took less than half an hour to pass, produced wind gusts of up to 160 km/h and torrents of rain, flattening 160,000 hectares of mature forest. The area, two and a half times the size of Metro Toronto, is the largest blowdown in the history of Ontario, and is worth 5 to 7 years of cut to saw mills in Kenora. The storm left millions of trees strewn across the ground like pick-up sticks, which if left unharvested, could over the next 3 to 4 years pose an extreme forest fire hazard.

Daily Maximum Temperatures (July 15 - 21, 1991)



The island of Newfoundland did not benefit from the hot weather that was experienced in Ontario and Quebec during the week of July 15.

Canada

Across the country

Yukon and Northwest Territories

Warmer than usual weather was enjoyed at all locations except in the west. One of the highest readings was 33.2°C, at Baker Lake, with the coldest minimum dipping to -2.2°C at Mould Bay.

More than the usual amount of snow fell during July at the most northerly stations. By the end of the month, however, all snow had disappeared, except for trace amounts. Rainfall was above normal in most areas, especially at Alert, where 29.5 mm was recorded, compared to the usual 8.1 mm.

Alert and Mould Bay had 20 to 40 hours less sunshine than usual for the month of July. All other locations reported more than normal, with Resolute Bay receiving nearly 100 hours more than the long term average of 274.4 hours.

In the Yukon, the north was cool and dry, while the south was cooler and wetter than normal. Swift River was the only station to break the thirty degree mark. At Whitehorse, the warmest temperature recorded this month was a near record low maximum of 23.4°C - the third lowest since records began in 1942.

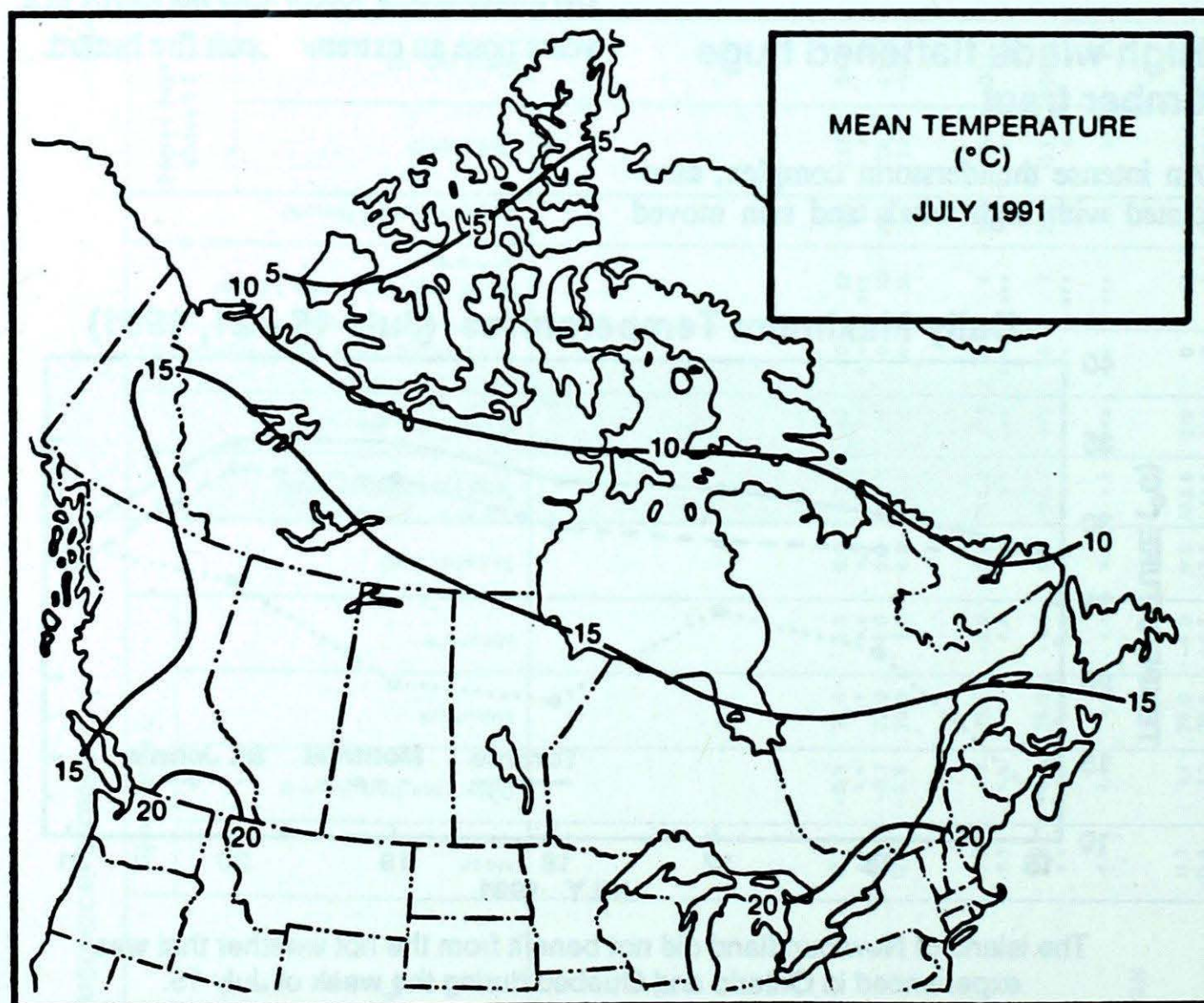
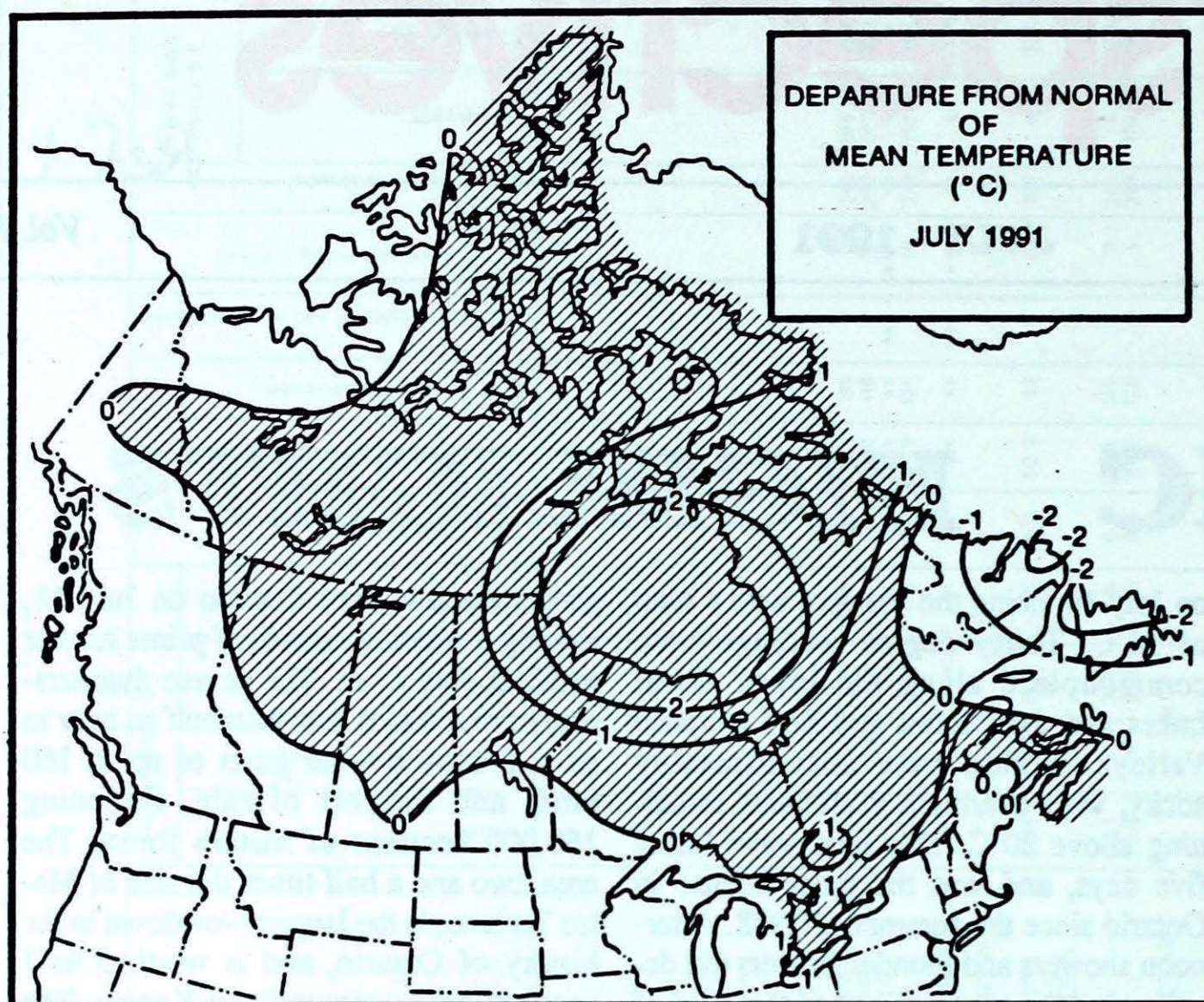
The Yukon did not have very many traditional warm, sunny days one would expect in July, and precipitation was unusually heavy. Three locations even had snow. At Old Crow, snow coupled with the monthly rainfall exceeded the normal amount of precipitation two times over. Tuchitua, in the Rocky Mountain Trench, had the greatest amount of rain, 136 mm.

Whitehorse set a new low sunshine record for the month of July, of 185.7 hours, breaking the July 1988 record.

British Columbia

After a very poor May and June weather-wise, July's weather was at least acceptable:

Most interior sites recorded monthly maximum temperatures in the mid-thirties. Coastal areas recorded highs in the upper twenties and low thirties. Only one temperature record was established. Mackenzie set a monthly minimum temperature



record of -1.0°C , breaking the old record of -0.1°C set in 1988.

As is common during the summer, much of the precipitation fell in the form of local showers or thunderstorms. This resulted in large precipitation differences over short distances, and similar variations in departures from long term averages. While the Kootenays and Victoria had almost twice their normal precipitation, the Peace River area around Fort St. John had less than half. There were no new precipitation records established.

Local heavy rains were reported in the Prince George area on the 2nd, as severe thunderstorms moved across the region. The airport recorded 15.4 mm of rain in 25 minutes, and there were reports of heavier showers and hail, causing local flooding. This same system produced a tornado 55 kilometres west of Prince George, which caused some damage.

Active weather systems caused thunderstorms again on the July 5 and 13, in many parts of the southern interior. The associated strong, gusty winds caused local power outages and at least one boating mishap on Shuswap Lake. Wind gusts up to 95 kilometres per hour were recorded.

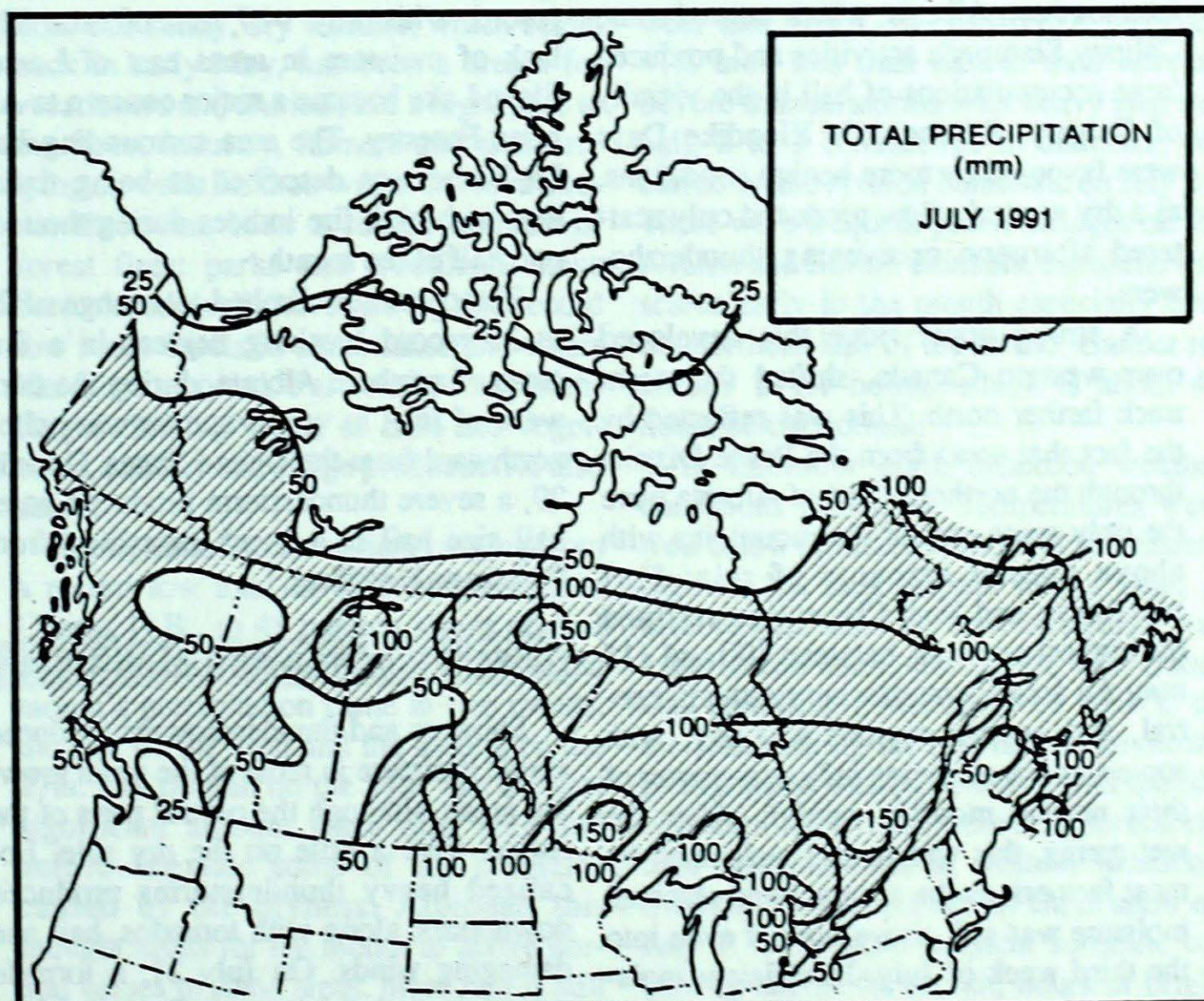
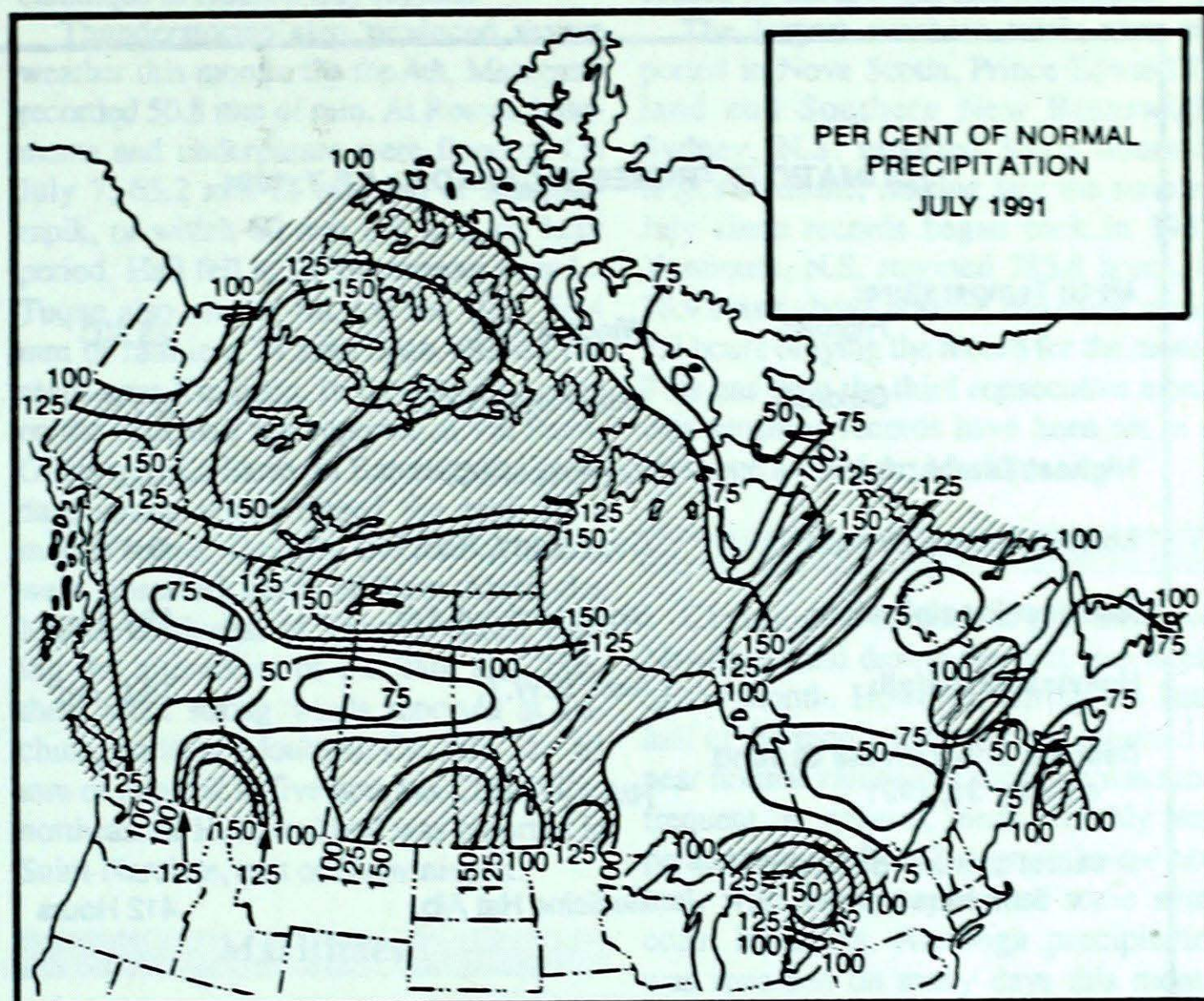
Even the south coast, not known for thunderstorms, received a taste of them on the 24th. Although the storms bypassed the heavily populated Fraser Valley, Victoria and southern Vancouver Island did get some local heavy showers and winds. Only minor local flooding was reported.

Most of the province received near normal amounts of sunshine.

Alberta

During the first week, the province was still being affected by the same pattern that gave generally unsettled, wet weather through the spring season. Any warming of the moist air mass produced widespread thundershowers, prompting frequent issuance of severe thunderstorm warnings. One of the more notable events produced golf ball size hail in Red Deer on July 3, resulting in extensive damage.

Conditions began to stabilize the second week of July. However, the fair weather pattern still allowed disturbances



CLIMATIC EXTREMES IN CANADA - JULY, 1991

Mean Temperature:		
Highest	Windsor, ON.	23.5°C
Coldest	Mould Bay, N.W.T.	3.1°C
Highest Temperature:		
	Kamloops, BC.	36.2°C
Lowest Temperature:		
	Cape Parry, N.W.T.	-3.4°C
Heaviest Precipitation:		
	Sioux Lookout, ON.	183.8 mm
Heaviest Snowfall:		
	Alert, N.W.T.	15.0 cm
Deepest Snow on the Ground on July 31, 1991		
	N/A	
Greatest number of Bright Sunshine Hours:		
	Medicine Hat Alb.	412 Hours

into southern Alberta, which marred some Calgary Stampede activities and produced large accumulations of hail in the vicinity of Calgary. Edmonton's Klondike Days were favoured by more benign conditions, as a dry westerly flow produced only scattered afternoon or evening thundershowers.

A strong upper ridge that developed over western Canada, shifted the storm track farther north. This was reflected by the fact that areas from the Peace District through the northern third of Alberta were the only areas east of the mountains with above normal amounts of rain. Fort McMurray and Fort Chipewyan reported the highest amounts, between 100 and 115 mm. An area encompassing southern, central, and eastern regions was dry, with some stations receiving only one quarter of their normal monthly rainfall. After the wet spring, this was in fact welcomed by most farmers, as the accumulated seasonal moisture was still above normal even into the third week of July. Insufficient moisture was becoming a concern by the end of the month, especially in eastern regions. Edmonton had the second driest July on

record, with only 14.7 mm of rain. The lack of moisture in areas east of Lesser Slave Lake became a major concern to Alberta Forestry. The area surrounding Lac La Biche was described as being tinder dry, with high fire indices during the second half of the month.

Temperatures climbed to a range of 29 to 31 record breaking degrees in a few areas of northern Alberta, during the third week of July, as very warm air was pulled northward from the United States. On July 29, a severe thunderstorm produced baseball size hail in a swath extending from Ponoka to Red Deer.

Saskatchewan and Manitoba

Showers and thundershowers produced ample moisture in most of the grain growing areas, although the central parts of the region were a little on the dry side. Localized heavy thunderstorms produced downpours, along with tornados, hail and damaging winds. On July 21, a tornado ripped through a farm near Russell, Man., moving buildings off their foundations. That same day, in the Riding Mountain

Park area, there were reports of over 100 mm of rain in less than 3 hours, causing creeks and rivers to overflow. A violent storm passing through Eriksdale, Man. on the 18th, flattened maple trees 46 cm in diameter, and moved 800 kg bales of hay a distance of 150 metres.

Precipitation amounts for the month were much higher than usual across the north and south, except for a small area in southeastern Manitoba. Churchill had a whopping 168.2 mm compared to their usual monthly total of 45.6 mm. Dauphin, to the south, recorded 175 mm, which was nearly 111 mm above normal. In contrast, central areas did not reach normal precipitation values. The driest area was at North Battleford, where only 28.0 mm was reported, compared to a normal of 65.1 mm. In Winnipeg, July was much drier than the last few months have been, but the number of days with measurable precipitation was quite high at 14, as compared to the normal 11.

Temperatures were very close to normal over the southern parts of both provinces and warmer over the north. At Churchill, the mean temperature was nearly 3°C above normal. The warmest temperature was a maximum of 32.9°C degrees at The Pas, Man., while the coldest was 1.5°C at Meadow Lake, Sask.

Hours of bright sunshine were higher than normal at many locations in southern and central areas, as much 66 hours at Prince Albert, Sask.

Ontario

July featured yet another warmer than normal month in Ontario, while total rainfall, on the other hand, revealed huge variations, as thundershowers left torrents in some areas and barely traces in others.

A mid-month heat wave - the most intense in Ontario since the summer of 1988 - was mainly responsible for pushing monthly mean temperatures above normal for the 9th successive month (November 1990 to July 1991, inclusive) at the majority of Ontario weather stations. In comparison to the recent hot summers of 1987 and 1988, July 1991 was more comfortable, as overall, the mean temperature was only one-half to one degree warmer than

average. The northeastern town of Earleton recorded the highest afternoon temperature, hitting 35.7°C on July 19.

While the warmth provided excellent potential for agricultural crops to flourish, the "all or nothing" pattern of July's rainfall disrupted the promise of bumper harvests in many Ontario counties. At the one extreme, both southwestern Ontario (Windsor's 25 mm of rain represented the driest July in 51 years) and eastern Ontario (Peterborough's 30 mm was their least since 1988) suffered through very dry weather. Meanwhile, the other extreme, saw numerous locations with over 100 mm of rain, including Sioux Lookout's 184 mm (wettest July in 53 years of record), Kitchener's 183 mm, Muskoka's 142 mm and Hamilton's 136 mm. Other locales in Ontario received close to the expected average; however, in many cases heavy showers caused considerable runoff, and as a result much of the moisture was not available for the crops. This sporadic summer pattern left many farms and gardens in need of adequate moisture.

Sunshine was abundant in the south, where total sunshine hours were 10 to 30 hours above normal. In the north, cloudy weather reduced the sunshine by 20 to 50 hours.

Severe weather was thankfully spotty this month although on July 3, funnel clouds and hail hit the Wingham/Exeter area of western Ontario. On July 5, high winds and a probable small tornado struck Caledon, a community north of Toronto, and on July 30, torrential rain dumped 180 mm in less than 24 hours in the Delhi/Simcoe area of southwestern Ontario.

Quebec

July was a relatively sunny, mild and dry month. With the exception of the more eastern areas, monthly mean temperatures and hours of bright sunshine were above seasonal values.

Precipitation was heavy in the lower St. Lawrence region, with totals, in some cases, in excess of 100 mm. Several new monthly precipitation records were set during the month. Chibougamau set a new low precipitation record of 44.9 mm. In contrast, La Grande Rivière set a new high rainfall record of 111.3 mm. Heavy rains

were reported on July 4 to 7 in the Temiscamisque to Hudson Bay regions.

Thunderstorms also produced severe weather this month. On the 4th, Matagami recorded 50.8 mm of rain. At Rouyn, basements and underpasses were flooded. On July 7, 65.2 mm of rain fell at Kuujua-rapik, of which 60 mm fell in a six hour period. Hail fell at Le Bostonnais near La Tuque also on the 7th. On the 19th, 56.4 mm of rain in a 24 hour span washed out roads near Kuujuaq. In the Abitibi region on the 19th, hail was reported at Val Saint-Gilles near La Sarre. In Barraute, the same day, strong winds ripped the roof off a mobile home. On July 24, funnel clouds were observed north of Saint-Alexis-des Monts, northwest of Trois-Rivières. During the afternoons of the 24th and 25th, there were strong winds reported at Lachute, north of Montreal. On July 31, 61 mm of rain fell in five hours at Chénéville, northeast of Hull, and hail was reported in Saint-Narcisse, east of Shawinigan.

Maritimes

It has been a sunny dry summer in the Maritimes to-date, with well above normal sunshine and well below normal precipitation. The sunny, dry weather, which began back in early May, has been a dream for vacationers and tourists, and a nightmare to the forest industry, farmers and those relying on wells for their water. In Nova Scotia, there has been a record number of forest fires; parks and woodlands have been closed, wells have run dry and record low water levels in some lakes and rivers has been reported. Farmers are experiencing dwindling yields of fruit and vegetables, and hay and silage production is also down.

Precipitation totals varied, ranging from a record low total of 40.7 millimetres at Charlo, N.B., to 48 percent above normal or 114 mm at Yarmouth, N.S. Much of the month's precipitation came in two events, the first on the 14th and the second on the 27th. The rainfall on the 14th was the first significant amount since mid May and helped alleviate some of the problems caused by the dryness. Although this brought totals for the month to above normal values in some areas, more rain is still

needed to help overcome the problems caused by the drought-like conditions.

The largest sunshine totals were reported in Nova Scotia, Prince Edward Island and Southern New Brunswick. Sydney, N.S. reported 305.3 hours of bright sunshine, making this the sunniest July since records began back in 1948. Yarmouth, N.S. reported 285.8 hours, or 78.9 hours above normal, and came within 7.7 hours of tying the record for the month. This has been the third consecutive month that sunshine records have been set in at least one area of the Maritimes.

Newfoundland

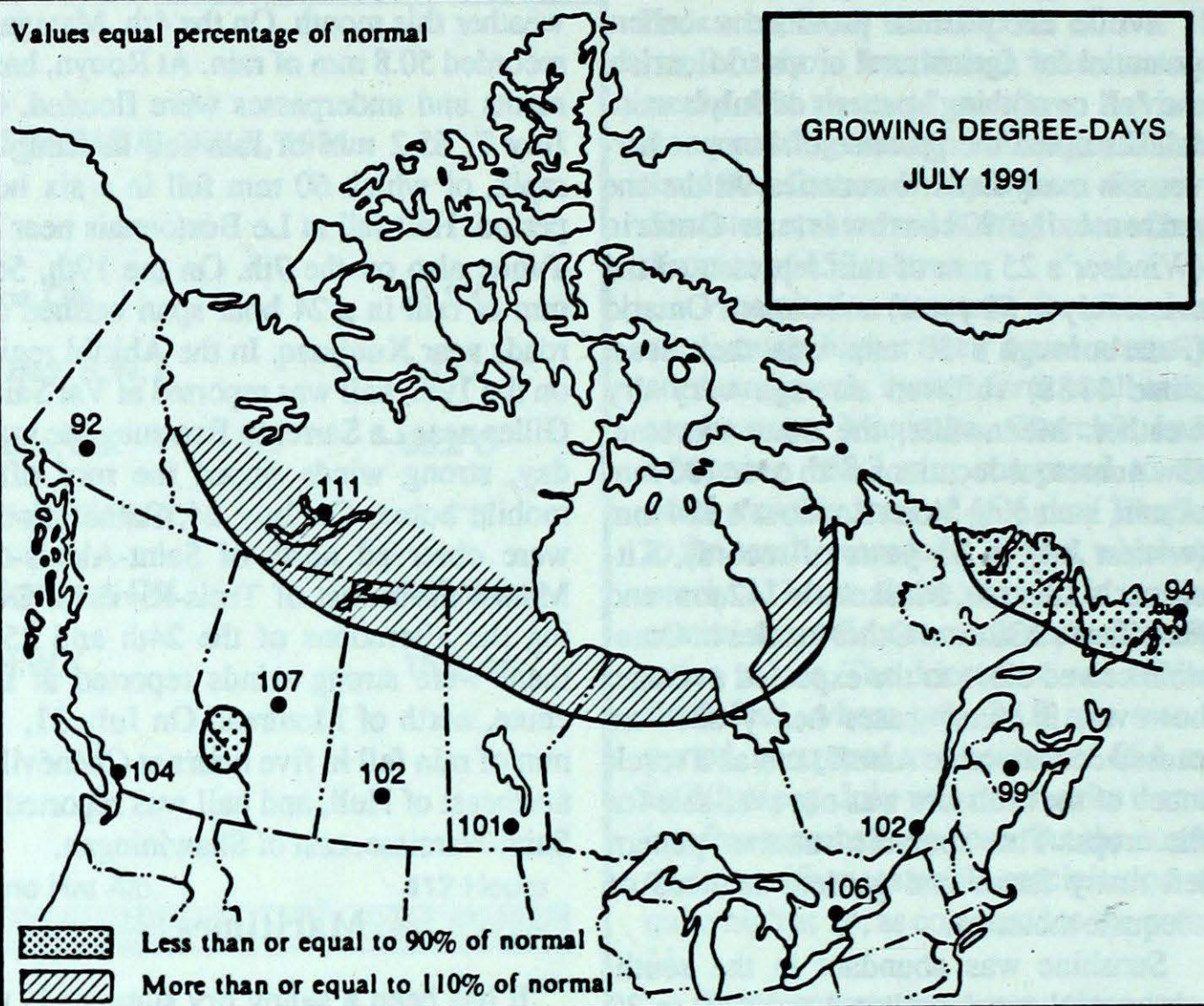
Cloudy, cool conditions prevailed over Newfoundland during the first two weeks of the month. However, during the latter half of the month temperatures returned to near normal values and sunshine was more frequent. In general, mean monthly temperatures were 2 to 3 degrees below normal, with the exception of some south coast locations. Although precipitation was recorded on many days this month, daily totals were mostly light. Total monthly rainfall at eastern locations was near normal, but was below normal in the west and south. St. Lawrence recorded 41.8 mm, less than half of their normal. Severe thunderstorms with heavy rain and hail, 2 to 3 centimetres in diameter, occurred on the Avalon Peninsula on July 21. There were frequent power outages on the Avalon and Burin Peninsula. Sunshine was scarce early in the month especially over the northern half of the Island. Gander recorded 171.1 hours, which is about 43 hours below normal.

In Labrador cool, unsettled weather conditions prevailed. Temperatures were well below normal over central and eastern regions, but near normal in the west. A brief respite from the cool conditions was experienced late in the month, with Goose Bay recording a maximum of 30.9 °C on the 30th. During the first half of the month precipitation was light, but overall monthly precipitation totals were near normal except below normal at western locations. Churchill Falls reported 4.4 cm of snow on July 1. With more frequent sunshine occurring late in the month, hours of bright sunshine were generally close to normal.

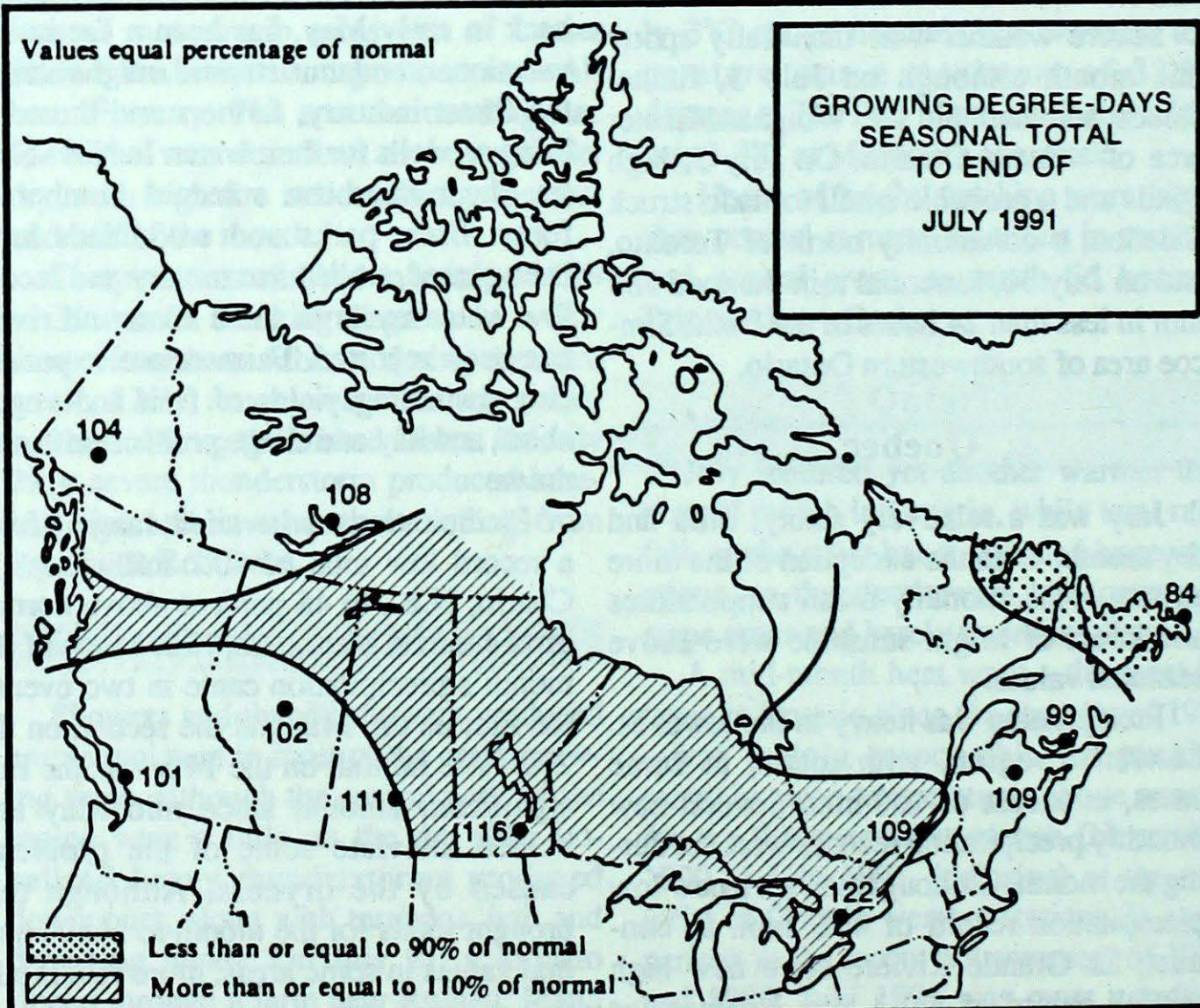
SEASONAL TOTAL OF GROWING DEGREE-DAYS TO END OF JULY

	1991	1990	NORMAL
BRITISH COLUMBIA			
Abbotsford	1065	1258	1008
Kamloops	1333	1406	1313
Penticton	1185	1339	1213
Prince George	740	701	689
Vancouver	1048	1183	1042
Victoria	930	1061	955
ALBERTA			
Calgary	709	695	725
Edmonton Mun.	873	842	852
Grande Prairie	778	767	766
Lethbridge	859	807	887
Peace River	790	774	722
SASKATCHEWAN			
Eastvan	1010	897	961
Prince Albert	921	849	798
Regina	1009	893	907
Saskatoon	948	885	890
Swift Current	870	808	852
MANITOBA			
Brandon	1016	874	898
Churchill	271	261	203
Dauphin	980	831	871
Winnipeg	1107	911	955
ONTARIO			
London	1372	1181	1138
Mount Forest	918	*	*
North Bay	1077	802	878
Ottawa	1362	1251	1161
Thunder Bay	808	738	707
Toronto	1377	1251	1129
Trenton	1284	1189	1142
Windsor	1592	1405	1348
QUÉBEC			
Baie Comeau	608	*	582
Maniwaki	1081	860	941
Montréal	1299	1222	1190
Québec	1115	1012	978
Sept-Îles	521	506	510
Sherbrooke	979	751	909
NEW BRUNSWICK			
Charlo	739	747	722
Fredericton	1071	828	979
Moncton	739	788	739
NOVA SCOTIA			
Sydney	622	696	657
Truro	566	*	*
Yarmouth	687	675	641
PRINCE EDWARD ISLAND			
Charlottetown	712	777	716
NEWFOUNDLAND			
Gander	388	544	510
St. John's	266	394	315
Stephenville	477	549	548

Values equal percentage of normal

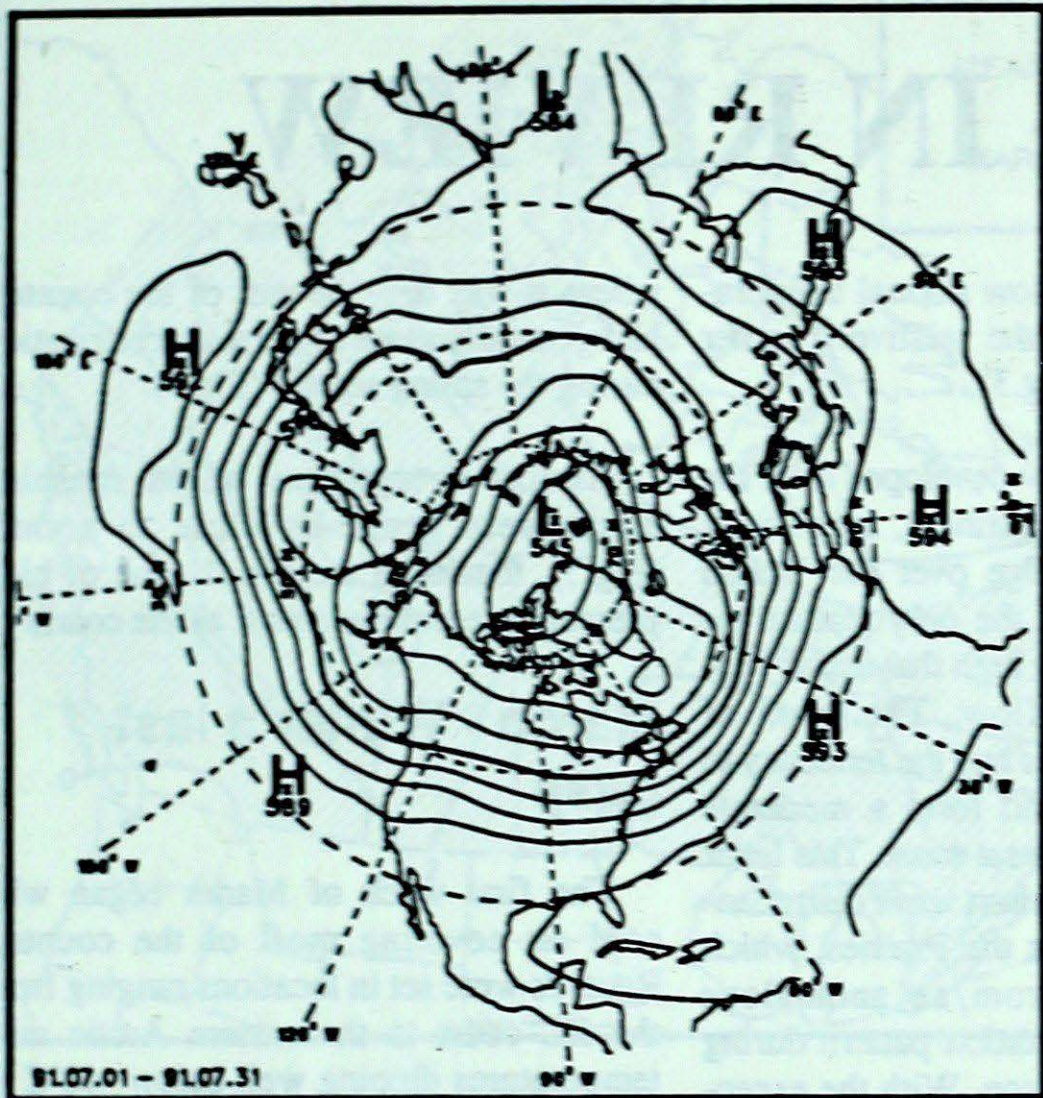


Values equal percentage of normal

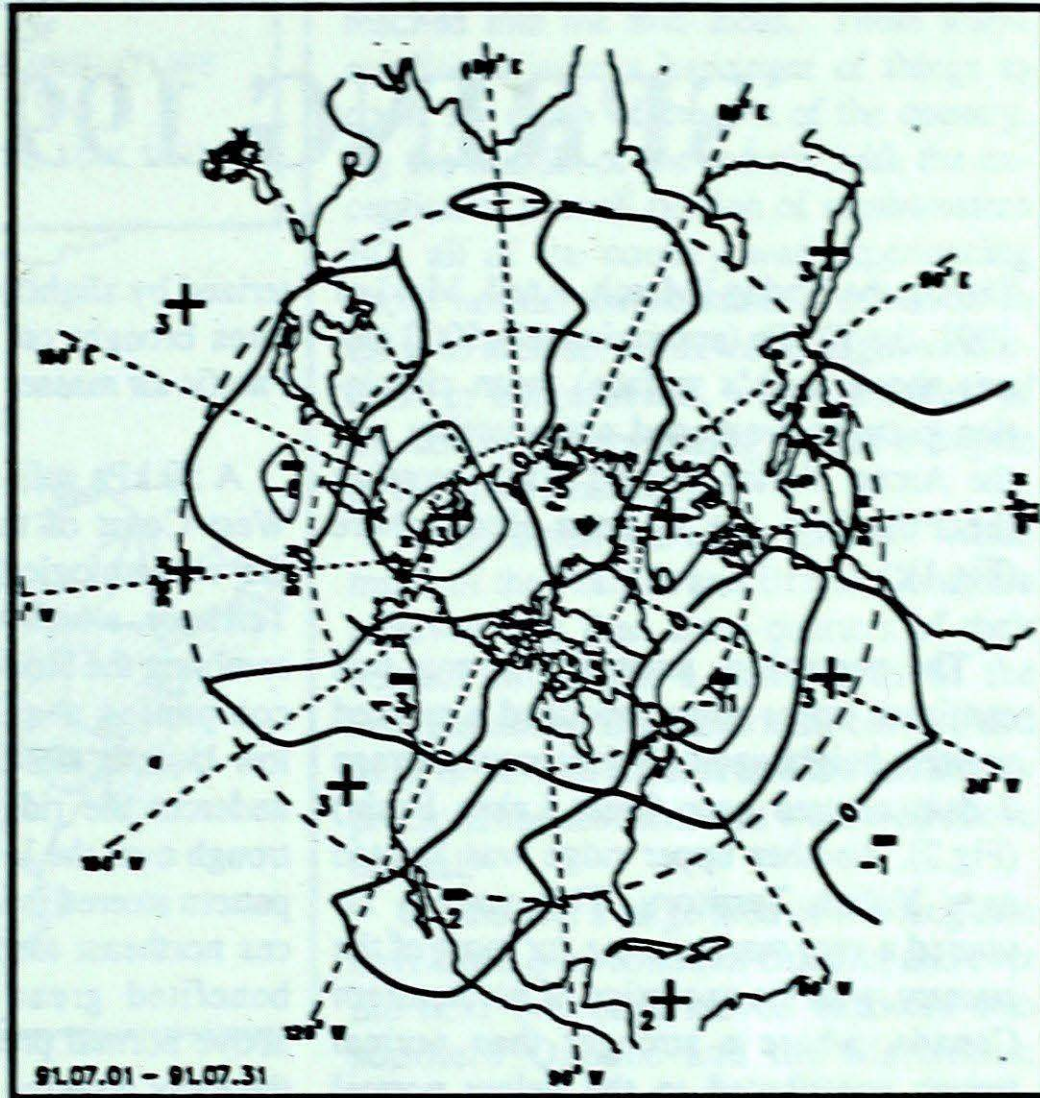


50-kPa ATMOSPHERIC CIRCULATION

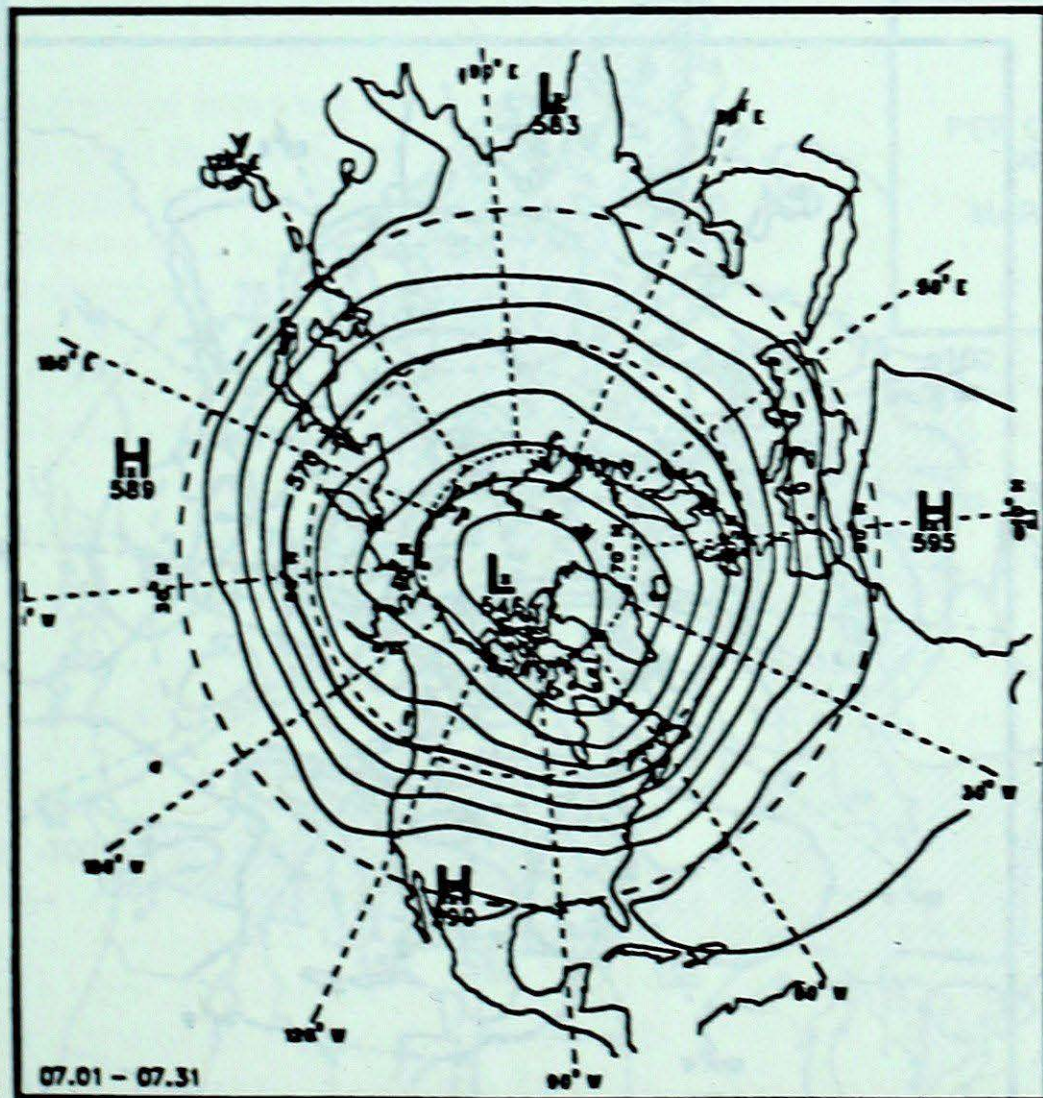
July 1991



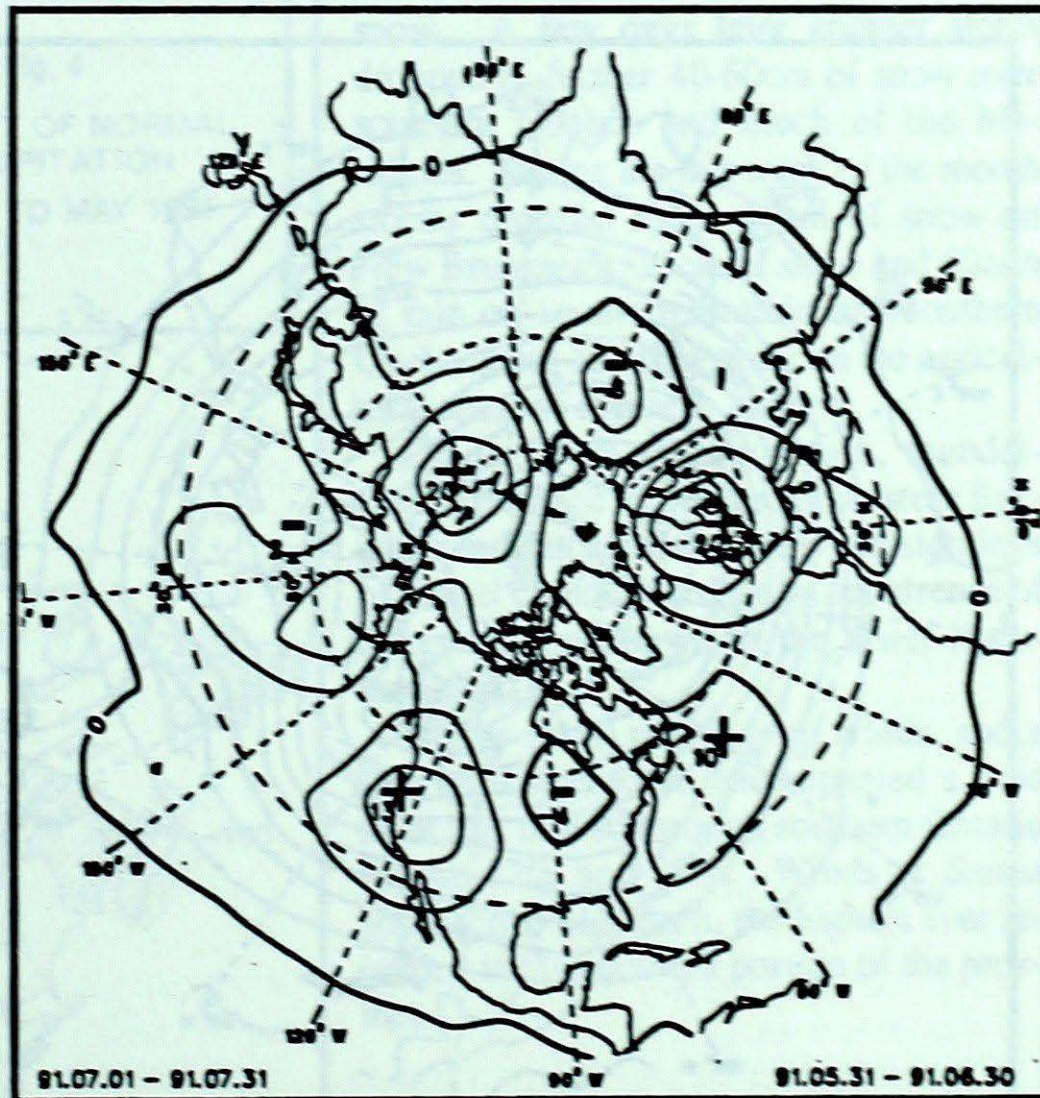
Mean geopotential heights
- 5 decametre interval -



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 -

SPRING 1991 IN REVIEW

During the Spring (March, April, May) of 1991, the 50 kPa (approximately 5000 metres above earth's surface) mean circulation patterns weakened considerably and the Arctic Vortex moved north crossing the Pole into the Eastern Hemisphere (Fig.1).

The persisting, unusually strong mid continent upper ridge produced a marked positive height anomaly (seasonal average 7 dam centred over Great Lakes Basin) (Fig.2). Another upper ridge was located over Yukon Territory. This pattern favoured a very warm spring for most of the country, with the exception of northeastern Canada, where a stronger than normal trough contributed to the below normal mean temperatures. A very narrow band along the Pacific Coast was also charac-

terized by slightly below normal temperatures brought on by the relatively cooler Pacific air masses (Fig.3).

A 50 kPa split flow developed over the West Coast of the continent, amplifying the climatological ridge over the Yukon Territory, which was the only feature resembling the blocking high that usually accompanies a split flow. The band of low-latitude westerlies had the tendency to undercut the ridge and form a moderate trough over the U.S. west coast. This latter pattern steered many short wave disturbances northeast towards the Prairies, which benefited greatly from an anomalous above normal precipitation pattern during the early growing season. With the exception of both the Atlantic and Pacific coastal areas as well as the Arctic Archipelago,

where it was dry, the rest of the country, had generally close to normal precipitation during the spring season (Fig.4).

Almost everywhere bright sunshine hours were generally close to normal (Fig.5), thanks to the broad zone of high pressure present over most of the country.

March - Winter's last gasp

The first week of March began with cold air covering most of the country. Records were set in locations ranging from the BC coast to the eastern Arctic with temperatures dipping well below -40°C in the Prairies and on Baffin Island. Southern Ontario and the Maritimes were exceptions

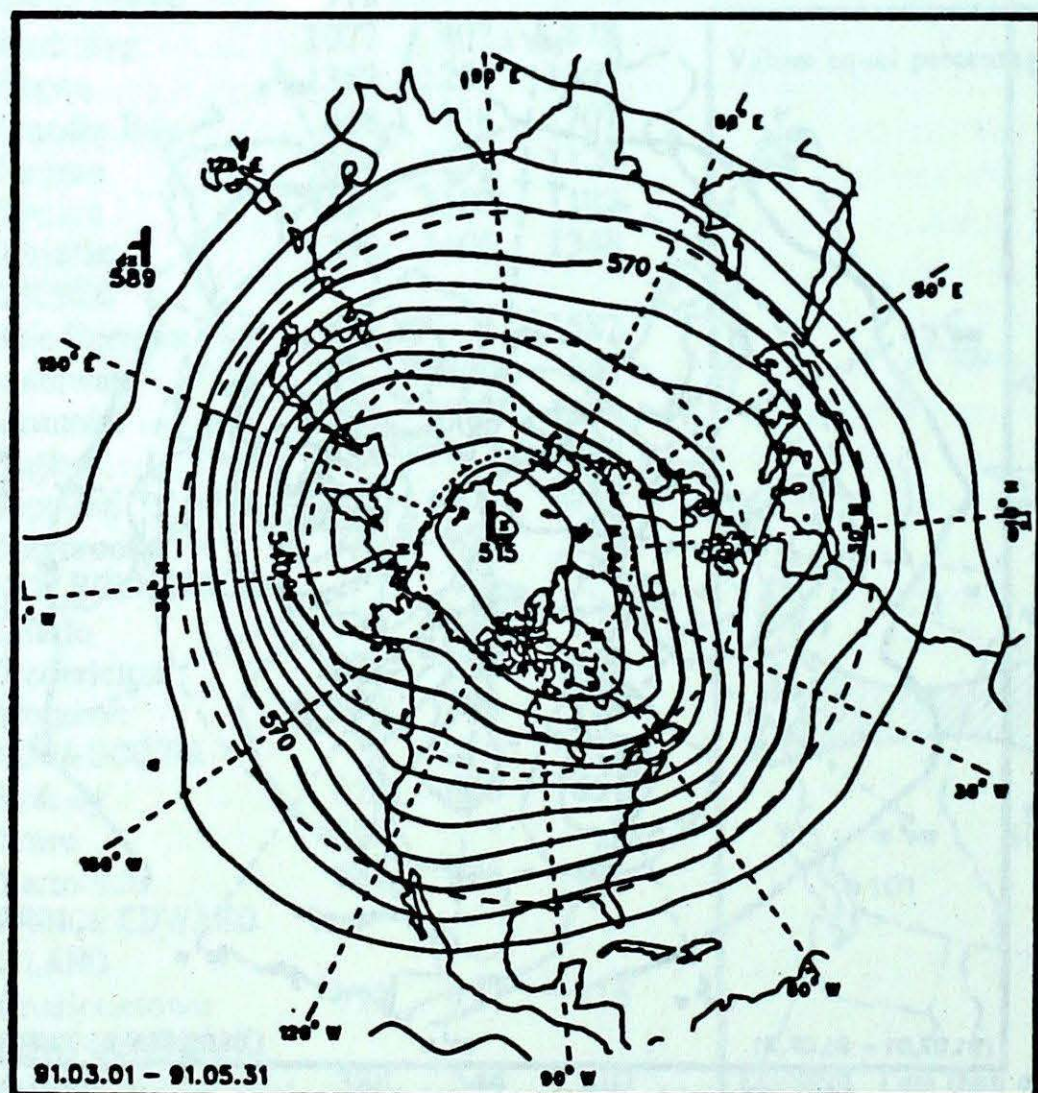


Fig. 1. Mean geopotential heights
- 5 decametre interval -

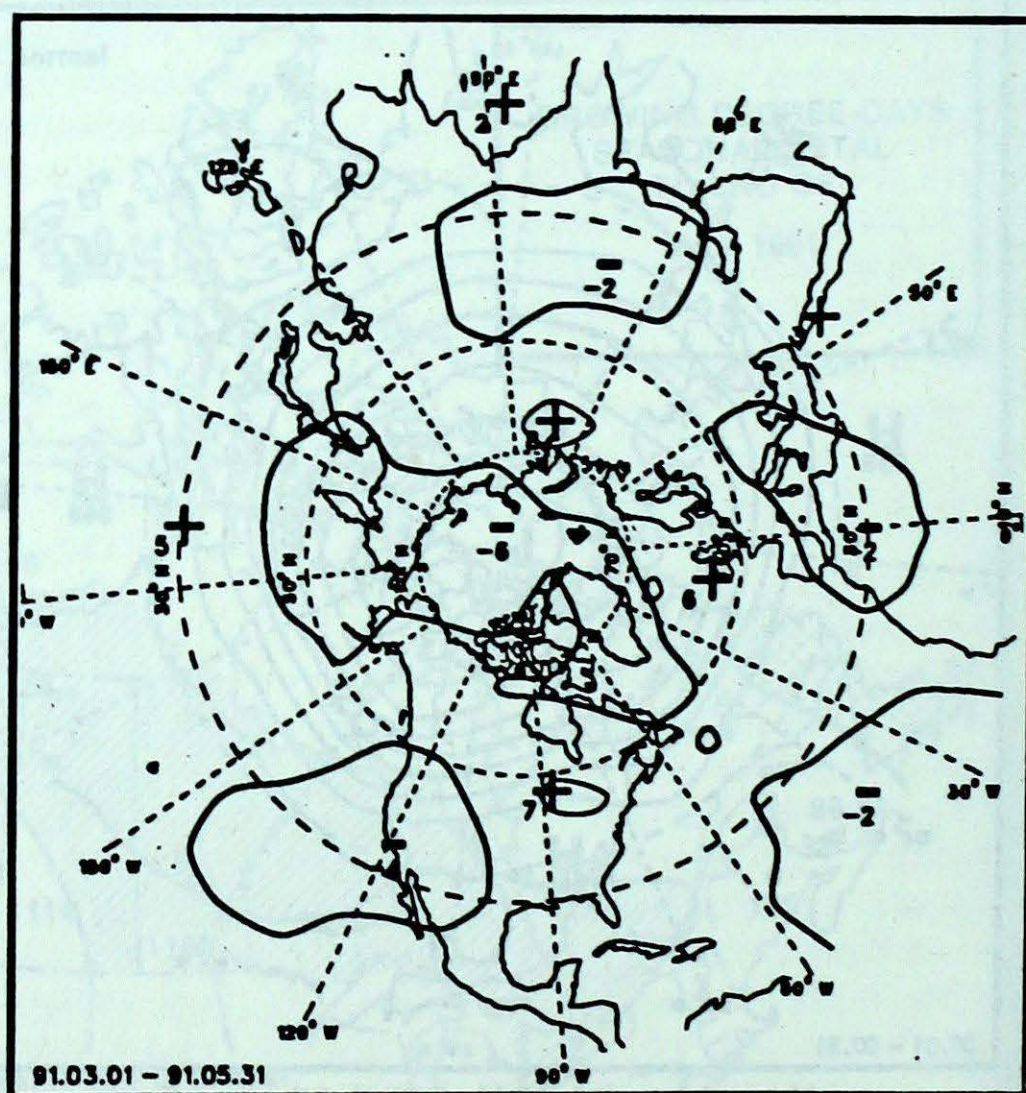


Fig. 2. Mean geopotential height anomaly
- 5 decametre interval -

Fig. 3
DEPARTURE FROM NORMAL
OF
MEAN TEMPERATURE
(°C)
MARCH TO MAY 1991

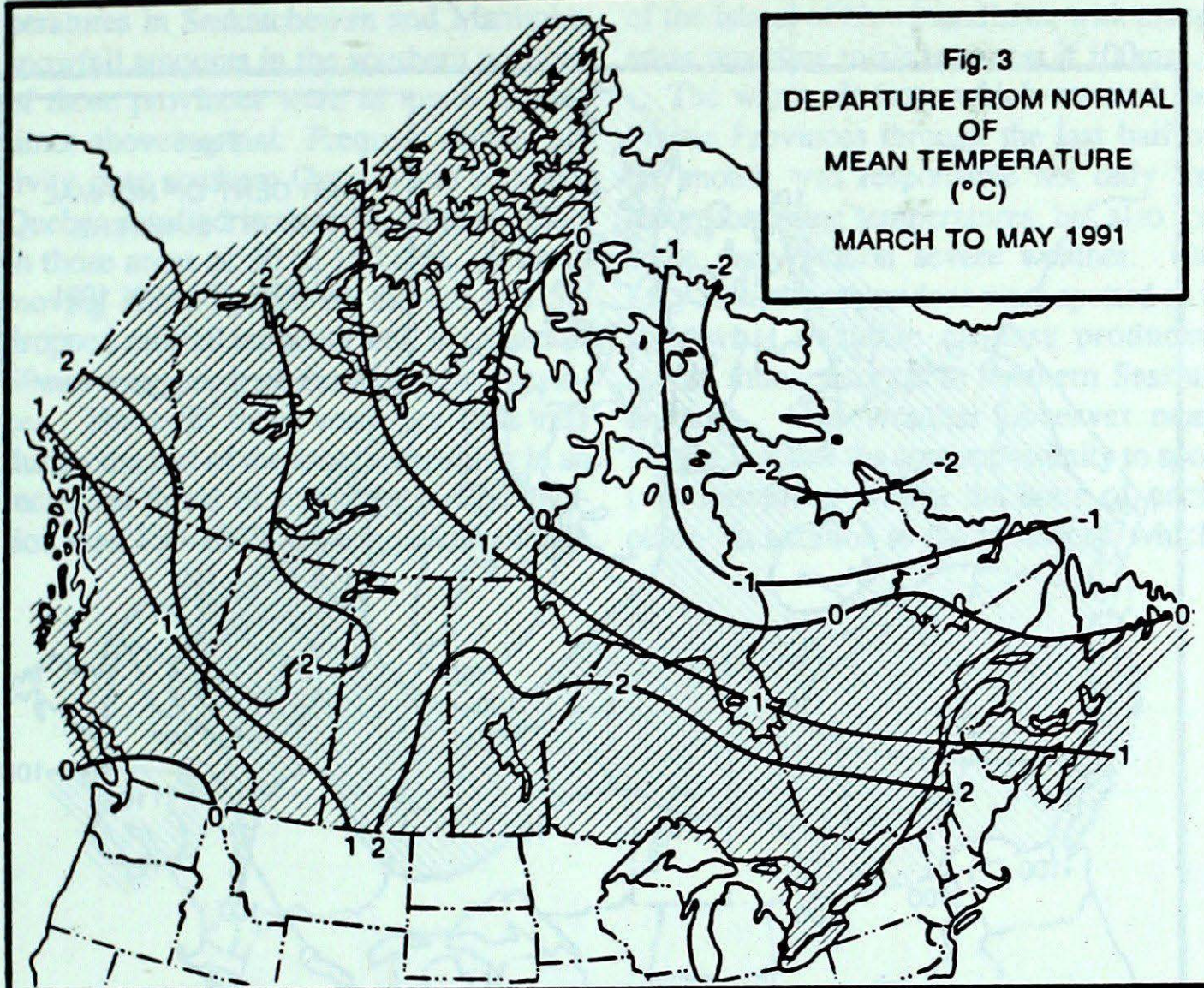
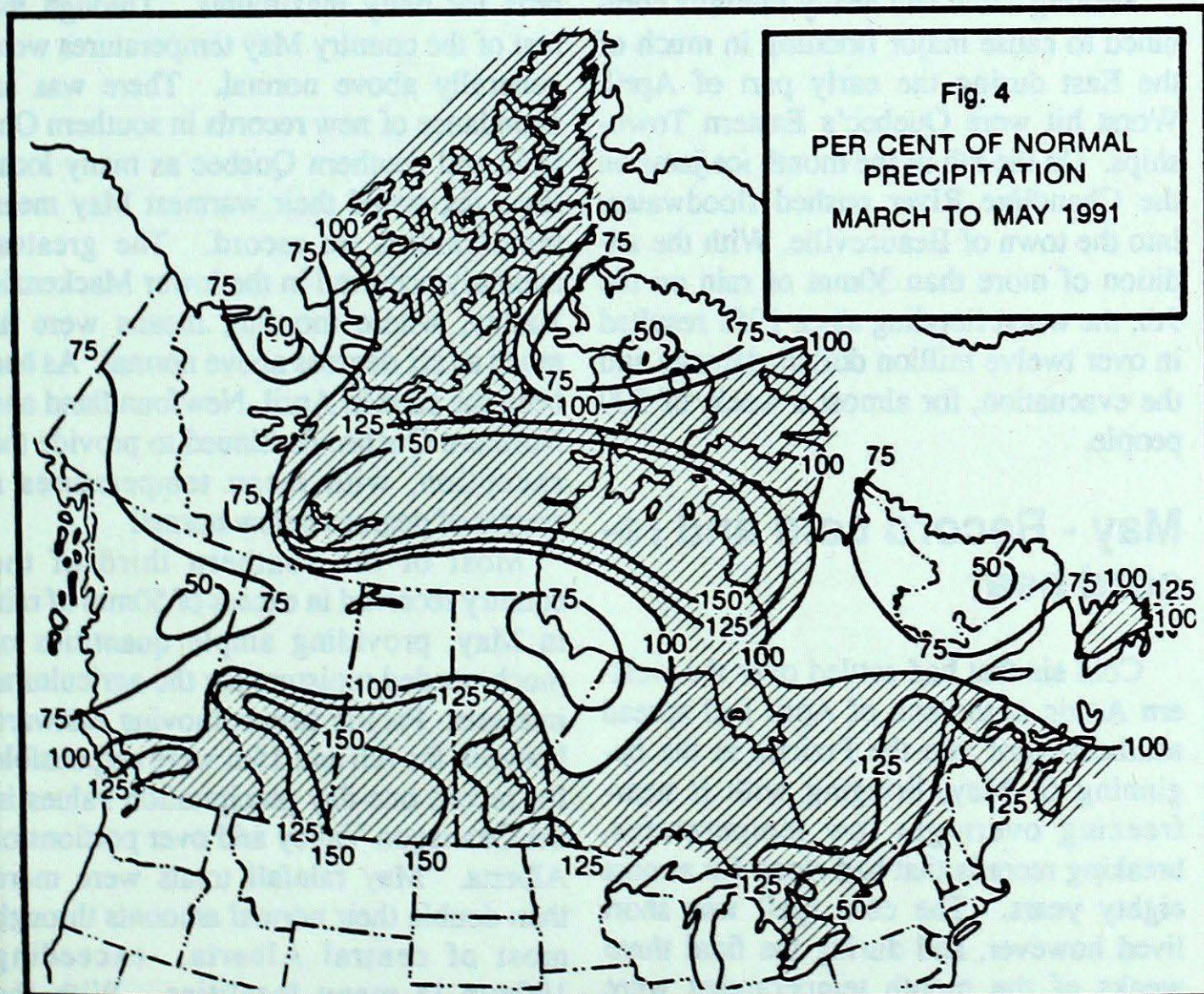


Fig. 4
PER CENT OF NORMAL
PRECIPITATION
MARCH TO MAY 1991



to the reprise of winter as new daily temperature marks were set by maximums that reached into the mid teens. These warm conditions were a harbinger of things to come for much of the rest of the country. By the middle of the month, with the exception of a small portion of southwestern BC, all of the country was experiencing above normal temperatures. As the month drew to a close, there was a slight moderation in temperatures, with most parts of the country experiencing values a degree or two above normal.

Precipitation was quite variable. While much of the Prairies and British Columbia received less than three-quarters of their normal moisture, a small area of the Prairies along the American border, and most of eastern Canada and the Arctic saw precipitation amounts that were well above normal.

On the 2nd a large area of freezing rain developed over southern Ontario, and over the next two days moved eastward into southern Quebec and the Maritimes; 25mm of ice accretion was not uncommon, while those area on the northern edge of the storm received as much as 50cm of snow. A few days later another storm dropped a further 40-60cm of snow over southern Quebec and much of the Maritimes. During the last week of the month storms dropped up to 40cm of snow on New Brunswick, 25cm of snow and 50mm of rain on southern Ontario and southern Quebec, and 15cm of snow on the agricultural areas of southern Alberta.

On the 10th of the month, thunderstorms rumbled through southwestern British Columbia, resulting in several sightings of funnel clouds and the rare occurrence of a tornado touchdown in the lower mainland area.

Heavy rains, record high winds, and a few weak tornadoes accompanied a cold front that moved through southern Ontario on the 27th and 28th. Winds at Sarnia approached 160 km/h, the highest ever recorded in the southern portion of the province.

April - Warm and wet

April began with very warm conditions through much of the country. Temperatures were above normal from British Columbia to Quebec and in much of the Arctic. The start of the month was the warmest on record for Winnipeg as the mean of 10.4°C for the first week was 11°C higher than the 30-year average and 2°C higher than the previous record for the week. Further east, temperatures in the Ottawa Valley on the 7th reached 29°C, breaking the previous record for the day by almost 10°C. After beginning April with several days with temperatures as much as six degrees above normal, the Mackenzie Valley and much of the Yukon closed out the month with values six degrees below normal.

Newfoundland, Labrador, and Northern Quebec, all of which had enjoyed warm conditions for a good portion of March, experienced a reversal in April as final mean values were as much as three degrees below normal. These were the only areas of the country that did not have above normal temperatures during April.

On the 3rd a major Pacific storm was responsible for more than 50mm of rain at Victoria BC. With another 30 mm during the next few days it appeared that there would be a new April precipitation record; however, dry conditions moved in for the rest of the month with many areas receiving no precipitation at all during the last three weeks of the month.

Soil moisture conditions in the Prairies improved considerably in April. During the last ten days of the month, a series of spring storms dropped 25 to 60 mm of rain in a band from southern Alberta to Northwestern Ontario. As the result of a notable late winter storm more than 80cm of snow fell in the Lloydminster area on the 27th and 28th, leaving many residents without power for two days, and bringing transportation to a halt.

Rainfall amounts exceeding 150mm resulted in new records for precipitation in Southern Ontario and Southern Quebec.

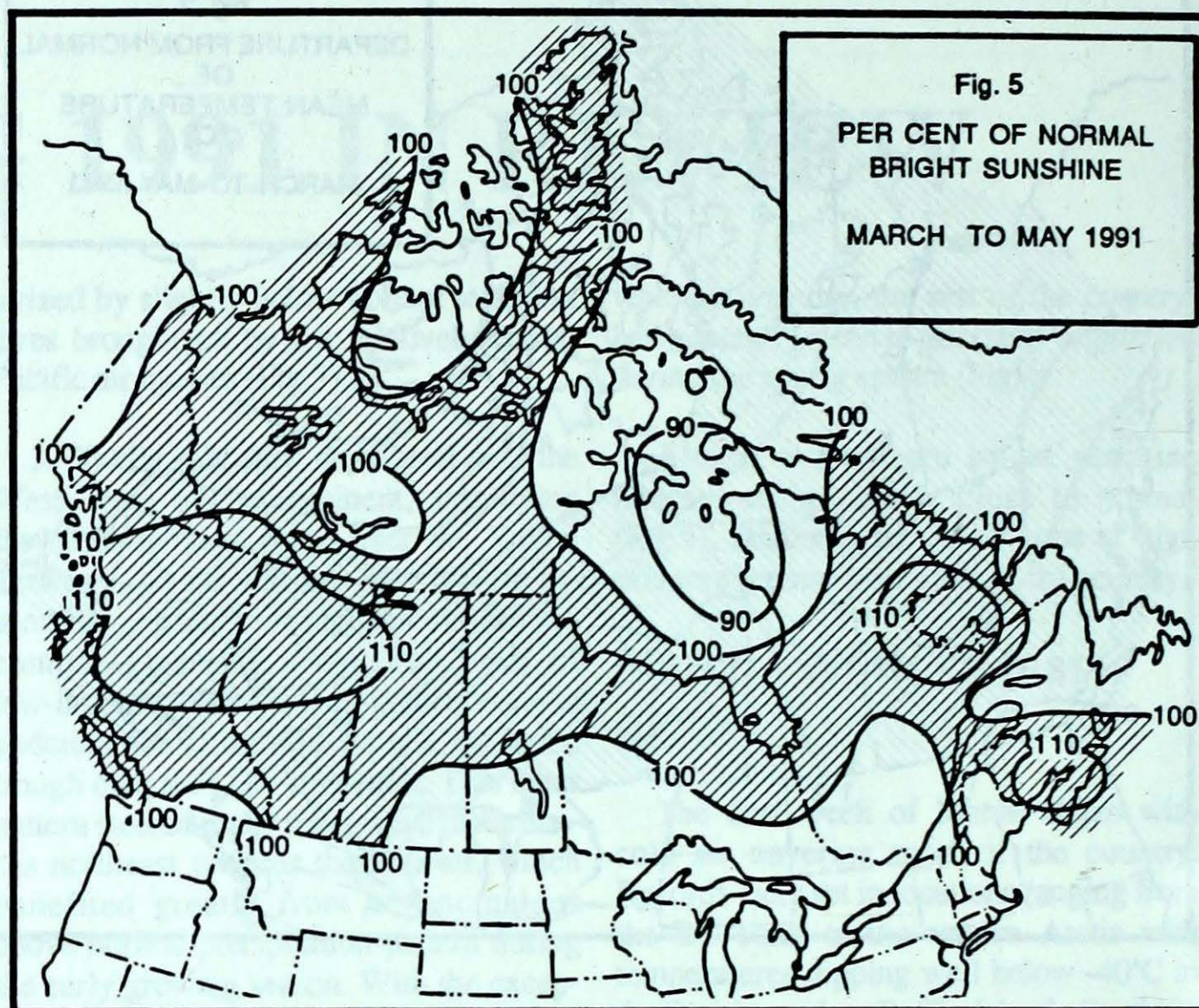


Fig. 5
PER CENT OF NORMAL
BRIGHT SUNSHINE
MARCH TO MAY 1991

Melting snow and heavy rainfalls combined to cause major flooding in much of the East during the early part of April. Worst hit were Quebec's Eastern Townships. On the 6th of the month ice jams on the Chaudière River pushed floodwaters into the town of Beauceville. With the addition of more than 30mm of rain on the 9th, the worst flooding since 1957 resulted in over twelve million dollars damage and the evacuation, for almost a week, of 500 people.

May - Record cold and record heat

Cold air that had settled over the western Arctic at the end of April had spread southeastward into the Prairies at the beginning of May, bringing with it near-freezing overnight low temperatures, breaking records that had stood for almost eighty years. The cold spell was short lived however, and during the final three weeks of the month temperatures were drastically higher, breaking numerous rec-

ords for daily maximums. Through the rest of the country May temperatures were generally above normal. There was an abundance of new records in southern Ontario and southern Quebec as many locations registered their warmest May mean temperatures on record. The greatest anomaly occurred in the lower Mackenzie Valley, where monthly means were as much as six degrees above normal. As had been the case in April, Newfoundland and Northern Quebec continued to provide the exception, with mean temperatures a couple of degrees below normal.

Most of the southern third of the country received in excess of 50mm of rain in May, providing ample quantities of much-needed moisture for the agricultural interests. Pacific storms moving eastward between the 8th and 15th were responsible for record one-day precipitation values in the Okanagan Valley and over portions of Alberta. May rainfall totals were more than double their normal amounts through most of central Alberta, exceeding 100mm in many localities. With the month beginning with record-cold tem-

peratures in Saskatchewan and Manitoba, snowfall amounts in the southern portions of those provinces were as much as nine times above normal. Frequent shower activity over southern Ontario and southern Quebec resulted in monthly rainfall totals in those areas of 50 to 150 mm. A slow-moving storm system on the 4th and 5th dropped rainfall amounts well in excess of 50mm over much of the Maritime Provinces. However there was very little rain during the rest of the month, resulting in an increased threat of forest fires. Precipitation was 150-200% of normal over much

of the island of Newfoundland, with many areas reporting totals in excess of 100mm.

The warm air mass which covered the Prairie Provinces through the last half of the month was responsible not only for record-breaking temperatures, but also for some early season severe weather. On May 28th, nine tornadoes were spotted as a somewhat unstable airmass produced severe thunderstorms in southern Saskatchewan. One weather observer near Moose Jaw had the rare opportunity to spot two tornadoes within an hour of each other. In addition to the tornadoes, which

were responsible for little damage, hail covered the ground near Swift Current to a depth of 14cm, and rainfall ranged from 50-150 mm during the event.

In the Maritimes there were two cold spells during that middle of the month that produced freezing temperatures overnight. New records were set for overnight lows, and there was frost damage to Annapolis Valley orchards.

*Anna Deptuch-Stapf
Malcolm Geast
Canadian Climate Centre*

JULY 1991

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	18.2	1.2	36.1	8.8	0.0	*	29.2	71	0	7	303	104	23.4
ALERT BAY	14.4	0.4	28.5	7.8	0.0	*	80.6	154	0	11	*	*	111.9
AMPHITRITE POINT	13.5	-0.4	25.0	9.2	0.0	*	100.9	139	0	10	*	*	140.0
BLUE RIVER A	16.0	-0.5	33.0	1.9	0.0	*	152.0	208	0	17	213	87	*
CAPE ST JAMES	12.9	0.2	18.2	9.0	0.0	*	66.4	114	0	9	189	*	156.4
CAPE SCOTT	13.1	0.1	17.5	10.2	0.0	*	125.3	136	0	11	*	*	152.1
CASTLEGAR A	20.1	0.0	34.3	7.4	0.0	*	62.5	159	0	5	314	99	7.2
COMOX A	17.4	0.0	30.7	9.3	0.0	*	37.4	135	0	9	272	*	32.6
CRANBROOK A	18.3	0.0	31.3	6.1	0.0	*	43.1	162	0	5	336	102	26.0
DEASE LAKE	12.3	-0.2	26.8	2.3	0.0	0	63.8	115	0	15	179	90	176.5
FORT NELSON A	16.6	0.0	32.7	1.6	0.0	*	97.6	116	0	14	252	*	60.7
FORT ST JOHN A	16.1	0.5	30.7	4.3	0.0	*	26.5	34	0	9	331	*	69.7
HOPE A	18.8	0.3	35.8	9.2	0.0	*	44.1	119	0	9	268	104	13.7
KAMLOOPS A	21.3	0.5	36.2	9.4	0.0	*	22.3	99	0	4	314	99	1.9
KELOWNA A	19.8	1.2	35.3	6.0	0.0	*	25.0	91	0	5	321	103	10.9
LYTTON	21.5	-0.1	38.1	9.1	0.0	*	6.0	66	0	2	*	*	1.9
MACKENZIE A	14.5	-0.2	33.1	-1.0	0.0	*	38.6	63	0	10	262	97	124.0
PENTICTON A	20.8	0.5	35.5	8.5	0.0	*	14.5	69	0	3	310	100	2.4
PORT ALBERNIA	17.4	0.3	34.6	6.3	0.0	*	20.1	72	0	5	270	*	34.6
PORT HARDY A	14.2	0.6	26.1	7.1	0.0	*	91.9	177	0	11	174	88	118.7
PRINCE GEORGE A	15.3	0.2	31.8	2.5	0.0	*	61.3	103	0	11	295	101	89.6
PRINCE RUPERT A	13.1	0.4	24.4	5.4	0.0	*	146.6	132	0	17	141	99	151.7
PRINCETON A	17.5	-0.3	34.3	2.4	0.0	*	15.6	69	0	4	341	*	*
REVELSTOKE A	18.3	0.1	33.6	6.0	0.0	*	52.4	95	0	8	245	92	22.1
SANDSPIT A	13.9	-0.1	21.0	9.4	0.0	*	34.4	80	0	12	136	73	127.4
SMITHERS A	14.5	-0.2	32.6	1.5	0.0	*	33.6	73	0	9	223	92	109.8
TERRACE A	15.3	-0.8	34.2	6.8	0.0	*	83.2	147	0	13	143	82	97.0
VANCOUVER INT'L A	17.8	0.5	29.0	11.7	0.0	*	33.6	105	0	6	291	95	20.7
VICTORIA INT'L A	16.4	0.1	31.7	7.6	0.0	*	35.1	194	0	7	315	96	58.7
VICTORIA MARINE	14.1	0.1	28.9	7.0	0.0	*	30.8	145	0	6	*	*	12.9
WILLIAMS LAKE A	15.1	-0.3	31.0	3.0	0.0	*	56.4	117	0	12	299	96	96.4

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	14.7	*	26.4	2.7	0.0	*	56.8	*	0	*	*	*	*
MAYO A	15.6	0.4	26.0	5.5	0.0	*	43.9	85	0	*	*	*	*
WATSON LAKE A	14.2	-0.7	29.1	2.1	0.0	*	69.3	119	0	14	205	78	122.2
WHITEHORSE A	13.4	-0.7	23.4	3.7	0.0	*	57.1	168	0	10	186	74	144.2
NORTHWEST TERRITORIES													
ALERT	3.9	0.3	15.0	29.5	15.0	135	*	*	0	4	271	91	435.7
BAKER LAKE A	11.8	0.8	33.2	-0.7	0.0	*	27.6	72	0	7	352	117	207.4
CAMBRIDGE BAY A	8.4	0.5	20.1	0.4	0.0	0	27.0	137	0	8	330	108	299.5
CAPE PARRY A	4.8	-0.9	19.8	-3.4	0.0	0	27.0	159	0	3	*	*	410.9
CLYDE A	6.4	2.3	18.4	0.4	*	0	23.4	102	0	8	*	*	358.6
COPPERMINE A	9.6	-0.1	31.3	1.2	0.0	0	47.6	184	0	10	353	111	263.0
CORAL HARBOUR A	10.0	1.3	26.5	1.9	0.0	0	43.6	107	0	7	291	102	248.5
EUREKA	6.3	0.9	16.1	0.1	0.2	18	12.4	102	0	4	380	112	362.8
FORT RELIANCE	14.3	0.4	28.0	2.0	0.0	*	32.6	96	0	0	*	*	115.3
FORT SIMPSON A	16.7	0.1	35.2	3.7	0.0	*	75.3	160	0	13	286	99	68.3
FORT SMITH A	17.2	1.2	32.6	1.8	0.0	*	86.6	152	0	10	306	*	63.4
IQUALUIT	9.3	1.7	23.2	2.1	0.0	0	30.4	48	0	6	283	140	271.4
HALL BEACH A	6.4	1.0	18.4	0.4	0.0	0	23.4	68	0	8	*	*	358.6
HAY RIVER A	16.4	0.6	34.0	3.6	0.0	*	41.6	86	0	7	*	*	51.0
INUVIK A	12.4	-1.2	28.8	0.4	0.4	80	16.7	50	0	3	295	87	177.9
MOULD BAY A	3.1	-0.8	13.8	-2.2	8.4	255	11.8	80	0	3	234	85	461.4
NORMAN WELLS A	16.3	0.0	34.0	3.0	0.0	0	64.2	114	0	9	184	64	93.7
POND INLET A	8.0	*	22.0	0.0	0.0	*	27.4	*	0	6	381	*	308.9
RESOLUTE A	5.1	1.0	15.8	-1.6	6.2	188	20.4	91	0	6	373	136	399.1
YELLOWKNIFE A	17.5	1.2	29.7	5.8	0.0	*	16.9	50	0	4	391	102	52.0
ALBERTA													
BANFF	14.9	0.1	29.8	3.0	0.0	*	41.4	98	0	9	*	*	102.6
CALGARY INT'L A	16.4	0.0	29.5	4.8	0.0	*	29.6	45	0	10	355	110	59.9
COLD LAKE A	17.8	0.9	31.6	1.5	0.0	*	27.0	32	0	7	343	110	91.7
CORONATION A	16.7	-0.6	29.6	4.8	0.0	*	70.8	112	0	9	353	105	47.6

JULY 1991

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	Mean	Difference from Normal	Maximum	Minimum									
EDMONTON INT'L A	16.7	0.9	28.1	5.3	0.0	*	19.0	21	0	7	365	117	48.3
EDMONTON MUNICIPAL	18.3	0.9	30.8	7.9	0.0	*	14.7	17	0	4	373	122	21.9
EDMONTON NAMAO A	17.3	0.4	30.0	6.0	0.0	*	23.2	30	0	5	*	*	39.0
EDSON A	14.6	0.1	28.0	0.8	0.0	*	84.3	78	0	9	310	110	106.6
FORT CHIPEWYAN A	17.3	1.2	33.0	1.0	0.0	*	110.2	172	*	*	*	*	*
FORT MCMURRAY A	17.3	0.9	31.3	2.3	0.0	*	114.1	151	0	7	301	106	49.6
GRANDE PRAIRIE A	15.5	-0.4	25.3	0.8	0.0	*	73.8	113	0	12	268	*	138.2
HIGH LEVEL A	15.9	-0.1	30.7	0.1	0.0	*	82.2	131	0	10	276	94	73.6
JASPER	12.1	-3.0	25.5	-0.2	0.0	*	31.4	63	0	11	188	*	178.3
LETHBRIDGE A	18.3	-0.3	30.5	7.1	0.0	*	19.6	45	0	1	390	*	18.3
MEDICINE HAT A	16.0	-3.9	33.2	7.7	0.0	*	25.4	63	0	4	412	118	12.8
PEACE RIVER A	15.8	0.1	32.3	1.8	0.0	*	34.6	57	0	6	*	*	78.4
RED DEER A	15.7	-0.4	28.8	5.3	0.0	*	77.3	99	0	10	*	*	75.0
ROCKY MTN HOUSE A	15.0	-0.3	27.9	3.1	0.0	*	66.4	71	0	7	*	*	95.6
SLAVE LAKE A	16.6	1.3	30.6	5.5	0.0	*	78.8	82	0	10	339	116	55.8
SUFFIELD A	18.9	*	32.7	7.1	0.0	*	37.5	*	0	7	389	*	14.6
WHITCOURT A	15.8	0.7	28.4	4.6	0.0	*	98.8	97	0	15	*	*	73.9
SASKATCHEWAN													
BROADVIEW	17.8	0.1	30.8	6.5	0.0	*	74.8	145	0	10	339	101	36.8
CREE LAKE	16.6	1.0	29.1	3.0	0.0	*	81.2	85	0	17	279	100	66.7
ESTEVAN A	19.1	-0.8	32.1	8.0	0.0	*	97.8	181	0	10	343	96	15.6
HUDSON BAY A	17.8	*	31.8	5.7	0.0	*	99.4	*	0	12	329	*	36.1
KINDERSLEY	17.7	-0.6	31.1	6.1	0.0	*	119.2	249	0	10	374	*	23.9
LA RONGE A	17.9	1.3	29.9	4.8	0.0	*	77.8	86	0	11	*	*	34.3
MEADOW LAKE A	17.1	*	31.3	1.5	0.0	*	77.6	*	0	11	352	*	51.1
MOOSE JAW A	19.7	0.0	32.3	8.5	0.0	*	82.8	155	0	10	366	106	10.0
NIPAWIN A	18.4	*	30.2	8.7	0.0	*	44.0	*	0	9	353	*	17.9
NORTH BATTLEFORD A	18.1	0.0	32.4	3.2	0.0	*	28.0	43	0	10	*	*	32.8
PRINCE ALBERT A	18.5	1.1	29.6	5.6	0.0	*	42.7	65	0	9	362	122	19.8
REGINA A	19.2	0.3	31.9	7.8	0.0	*	80.1	150	0	9	353	103	16.6
SASKATOON A	18.7	0.2	30.2	6.1	0.0	*	49.2	91	0	8	*	*	23.7
SWIFT CURRENT A	18.2	-0.1	29.8	7.6	0.0	*	52.0	111	0	8	373	109	26.2
YORKTON A	17.8	-0.5	30.4	7.5	0.0	*	102.9	181	0	11	344	105	36.7
MANITOBA													
BRANDON A	18.1	-0.7	30.7	5.6	0.0	*	125.8	189	0	13	337	*	30.0
CHURCHILL A	14.7	2.9	29.9	3.6	0.0	*	168.2	369	0	11	275	96	122.9
DAUPHIN A	18.3	-0.2	30.9	5.5	0.0	*	175.0	273	0	14	337	104	31.5
GILLAM A	16.6	1.7	30.7	5.2	0.0	*	105.4	116	0	11	*	*	65.6
GIMLI	18.7	*	30.4	7.5	0.0	*	59.1	*	0	10	311	95	20.4

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	Mean	Difference from Normal	Maximum	Minimum									
ISLAND LAKE	17.9	0.7	29.7	8.1	0.0	*	102.6	101	0	9	*	*	33.8
LYNN LAKE A	16.5	0.9	30.0	2.6	0.0	*	113.9	149	0	12	276	99	72.4
PORTAGE LA PRAIRIE	19.6	-0.1	32.4	8.7	0.0	*	85.2	112	0	12	*	*	*
THE PAS A	18.4	0.7	*	*	0.0	*	44.4	63	0	10	327	107	26.9
THOMPSON A	16.5	1.2	30.7	1.7	0.0	*	58.8	61	0	1	286	112	59.0
WINNIPEG INT'L A	19.7	0.1	31.5	8.9	0.0	*	51.2	67	0	10	318	101	9.0
ONTARIO													
BIG TROUT LAKE	17.1	1.1	28.8	5.7	0.0	*	105.6	112	0	10	284	*	59.4
EARLTON A	18.8	1.1	35.7	4.5	0.0	*	59.5	74	0	9	*	*	30.3
GORE BAY A	19.6	0.8	30.3	10.0	0.0	*	90.2	148	0	11	*	*	11.3
HAMILTON A	20.7	0.2	33.7	8.2	0.0	*	135.5	192	0	8	*	*	4.0
KAPUSKASING A	17.5	0.7	34.4	2.9	0.0	*	80.9	84	0	14	*	*	57.1
KENORA A	19.2	0.0	31.9	8.9	0.0	*	116.4	127	0	11	*	*	17.7
KINGSTON A	21.1	1.0	31.6	10.5	0.0	*	62.8	105	0	7	289	103	1.9
LONDON A	20.8	0.5	33.2	8.6	0.0	*	99.6	138	0	9	304	111	4.9
MOOSENEE	15.2	-0.1	22.5	7.9	0.0	*	64.5	67	0	12	259	*	110.1
MUSKOKA A	18.6	0.3	31.9	6.8	0.0	*	141.7	183	0	11	0	*	25.9
NORTH BAY A	19.5	1.2	33.3	8.3	0.0	*	122.8	120	0	9	256	93	19.5
OTTAWA INT'L A	21.7	1.1	34.5	11.3	0.0	*	49.1	57	0	9	114	42	*
PETAWAWA A	19.5	0.6	34.6	5.7	0.0	*	61.4	78	0	8	*	*	18.6
PETERBOROUGH A	19.7	0.3	34.4	5.6	0.0	*	30.0	39	0	9	*	*	12.5
PICKLE LAKE	17.7	0.6	31.0	7.1	0.0	*	78.4	71	0	12	*	*	47.0
RED LAKE A	17.8	-0.4	31.2	5.5	0.0	*	97.8	111	0	10	279	*	40.0
ST CATHARINES A	22.1	0.4	33.6	12.2	0.0	*	85.4	131	0	5	314	*	*
SARNIA A	21.5	0.8	35.0	10.3	0.0	*	73.4	109	0	9	333	113	3.1
SAULT STE MARIE A	17.5	0.0	32.5	4.4	0.0	*	79.8	116	0	11	252	87	40.5
SIOUX LOOKOUT A	18.4	0.1	32.7	7.1	0.0	*	183.8	196	0	12	*	*	40.8
SUDBURY A	19.5	0.8	34.1	8.2	0.0	*	109.8	132	0	9	231	80	18.5
THUNDER BAY A	17.4	-0.2	33.0	5.7	0.0	*	72.4	96	0	11	262	86	57.0
TIMMINS A	17.9	0.7	34.2	2.0	0.0	*	61.8	68	0	10	*	*	48.1
TORONTO	22.8	*	35.0	13.2	0.0	*	101.2	*	0	9	*	*	*
TORONTO INT'L A	21.7	1.1	35.1	10.7	0.0	*	91.0	127	0	8	*	*	0.8
TORONTO ISLAND A	21.6	*	33.9	12.2	0.0	*	73.0	*	0	9	*	*	0.6
TRENTON A	21.0	0.4	33.0	9.9	0.0	*	51.8	85	0	8	*	*	13.0
WATERLOO WELLINGTON	20.0	0.4	33.2	7.9	0.0	*	182.6	256	0	8	*	*	9.3
WAWA A	15.4	*	33.2	6.3	0.0	*	136.6	*	0	13	*	*	89.9
WIARTON A	19.1	0.6	32.0	8.8	0.0	*	119.9	160	0	12	286	97	17.2
WINDSOR A	23.5	1.3	34.5	13.3	0.0	*	25.2	30	0	6	0	*	0.0

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	Mean	Difference from Normal	Maximum	Minimum									
QUEBEC													
BAGOTVILLE A	18.0	0.1	34.8	4.2	0.0	*	110.1	92	0	11	*	*	39.0
BAIE COMEAU A	15.7	-0.1	29.4	4.2	0.0	*	100.6	119	0	10	231	99	78.2
BLANC SABLON A	10.0	-1.3	21.8	8.0	0.0	*	80.4	91	0	14	174	*	247.2
CHIBOUGAMAU CHAPAIS	16.1	*	33.8	3.3	0.0	*	44.9	*	0	12	236	95	81.7
GASPE A	16.2	*	31.2	2.4	0.0	*	51.2	*	0	10	251	*	73.1
INUKJUAQ A	12.4	3.1	26.5	4.1	0.0	0	34.8	64	0	5	269	131	176.1
KUUJJUAQ A	12.7	1.3	28.2	1.7	0.0	*	91.4	158	0	10	256	130	169.2
KUUJJUARAPIK A	12.8	2.3	33.1	7.5	0.0	0	142.6	173	0	13	217	128	162.2
LA GRANDE IV A	14.1	*	31.0	0.4	0.0	*	102.2	*	0	10	220	*	129.1
LA GRANDE RIVIERE A	14.5	*	31.2	2.6	0.0	*	111.3	*	0	10	248	*	124.6
MANIWAKI	18.9	0.6	34.4	4.5	0.0	*	32.6	35	0	8	263	98	25.8
MONT JOLI A	17.7	0.4	32.2	6.9	0.0	*	100.2	133	0	110	229	91	43.5
MONTREAL INT'L A	21.2	0.3	33.3	8.9	0.0	*	85.4	95	0	9	306	111	4.0
MONTREAL MIRABEL I/	19.8	*	33.2	5.6	0.0	*	86.4	*	0	11	*	*	13.7
NATASHQUAN A	13.5	-0.7	24.8	2.7	0.0	*	95.0	100	0	15	228	93	141.2
QUEBEC A	19.5	0.4	33.2	5.6	*	*	55.6	48	0	10	271	109	18.8
ROBERVAL A	18.4	0.5	33.9	7.4	0.0	*	75.0	63	0	11	268	*	28.7
SCHEFFERVILLE A	12.2	-0.4	27.0	0.7	0.0	0	66.0	68	0	16	143	77	181.4
SEPT-ILES A	14.8	-0.4	26.8	5.9	0.0	*	114.4	118	0	13	23	10	109.3
SHERBROOKE A	17.9	0.1	32.3	3.8	0.0	*	62.6	52	0	11	291	*	34.5
STE AGATHE DES MONT	18.1	0.5	31.3	5.0	0.0	*	63.2	58	0	10	296	108	32.5
ST HUBERT A	21.2	0.5	34.3	8.5	0.0	*	68.6	71	0	7	315	*	2.9
VAL D'OR A	17.9	0.8	32.7	4.1	0.0	*	49.8	49	0	9	279	107	46.4
NEW BRUNSWICK													
CHARLO A	18.0	0.2	34.3	5.4	0.0	*	40.7	41	0	9	254	100	50.2
CHATHAM A	19.4	0.2	35.9	7.2	0.0	*	25.9	28	0	7	233	92	24.8
FREDERICTON A	19.2	-0.1	34.9	6.0	0.0	*	59.5	67	0	7	245	*	24.2
MONCTON A	18.7	0.2	33.1	6.9	0.0	*	107.3	113	0	10	255	105	28.6
SAINT JOHN A	18.0	1.1	29.8	7.5	0.0	*	86.2	83	0	9	265	121	26.9

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	19.5	0.4	34.3	6.8	0.0	*	87.6	113	0	8	*	*	12.8
HALIFAX INT'L A	19.6	1.4	32.0	9.6	0.0	*	64.1	68	0	6	*	*	14.9
SABLE ISLAND	15.5	0.0	23.3	3.0	0.0	*	30.9	34	0	6	225	138	80.6
SHEARWATER A	18.9	1.5	31.4	8.4	0.0	*	77.8	80	0	7	281	128	23.6
SYDNEY A	17.6	-0.1	32.5	4.2	0.0	*	93.0	114	0	6	305	126	53.9
YARMOUTH A													
PRINCE EDWARD ISLAND	17.0	0.7	26.9	8.7	0.0	*	113.5	146	0	9	286	138	45.5
CHARLOTTETOWN A													
NEWFOUNDLAND	18.3	0.0	31.6	5.2	0.0	*	63.0	75	0	8	*	*	31.6
BONAVISTA	12.5	-2.2	26.5	4.1	0.0	*	57.0	94	0	11	*	*	173.4
BURGEON	12.8	-0.7	24.0	3.1	0.0	*	80.5	57	0	14	0	0	161.9
CARTWRIGHT	8.9	-3.8	27.0	5.2	0.0	*	101.8	122	0	17	172	87	279.5
CHURCHILL FALLS A	13.0	-0.9	27.9	0.9	4.4	*	63.8	58	0	12	197	98	159.4
COMFORT COVE	13.7	-2.8	29.0	3.4	0.0	*	50.6	62	0	13	*	*	137.2
DANIELS HARBOUR	12.2	-2.2	20.5	5.0	0.0	*	74.2	83	0	12	152	74	195.8
DEER LAKE A	14.7	-1.7	29.2	1.9	0.0	*	49.5	63	0	11	*	*	113.5
GANDER INT'L A	14.2	-2.3	30.0	4.4	0.0	*	59.8	87	0	9	171	80	128.0
GOOSE A	13.7	-2.1	30.9	0.8	0.4	*	91.6	87	0	14	187	*	148.4
MARY'S HARBOUR	10.3	0.1	28.9	1.0	0.0	*	42.6	63	0	*	*	*	235.1
PORT AUX BASQUES	13.1	-0.1	23.0	3.5	0.0	*	71.9	67	9	13	245	*	*
ST ANTHONY	9.8	-3.0	25.2	-2.0	0.0	*	78.2	96	0	12	*	*	254.0
ST JOHN'S A	13.8	-1.7	28.3	4.7	0.0	*	86.9	115	0	6	214	97	135.8
ST LAWRENCE	13.2	1.1	23.8	3.9	0.0	*	41.8	42	0	7	*	*	148.6
STEPHENVILLE A	14.8	-1.2	25.1	4.2	*	*	62.6	65	*	10	213	103	102.1
WABUSH LAKE A	13.7	0.2	27.8	1.3	0.2	*	75.9	72	0	15	232	118	134.5

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	18.8	0.9	35.0	8.5	0.0	40.8	88	0	8	281	428.5	1272.1
KAMPLOOPS	**	**	**	**	**	**	**	***	***	**	**	**
SIDNEY	16.7	0.2	31.0	9.0	0.0	36.4	202	0	7	294	358.7	1057.1
SUMMERLAND	20.6	-0.3	33.0	9.0	0.0	26.4	119	0	6	336	484.6	1209.8
ALBERTA												
BEAVERLODGE	**	**	**	**	**	**	**	***	***	**	**	**
ELLERSLIE	**	**	**	**	**	**	**	***	***	**	**	**
LACOMBE	15.9	-0.2	27.5	5.0	0.0	114.2	158	0	15	350	336.5	772.3
LETHBRIDGE	**	**	**	**	**	**	**	***	***	**	**	**
VEGREVILLE	**	**	**	**	**	**	**	***	***	**	**	**
SASKATCHEWAN												
INDIAN HEAD	19.6	1.0	34.0	8.0	0.0	48.0	90	0	9	**	381.0	1053.3
MELFORT	17.9	0.5	29.5	6.5	0.0	63.9	99	0	8	324	401.0	995.5
REGINA	19.3	0.7	32.5	7.0	0.0	80.8	153	0	9	**	442.0	1118.8
SASKATOON	**	**	**	**	**	**	**	***	***	**	**	**
SCOTT	17.6	0.4	31.0	4.0	0.0	19.0	32	0	5	319	389.9	967.1
SWIFT CURRENT	18.4	-0.1	30.0	7.0	0.0	42.1	110	0	7	341	415.5	1012.3
MANITOBA												
BRANDON	19.4	0.2	31.8	5.7	0.0	144.0	207	0	12	**	446.7	1252.2
MORDEN	19.7	0.1	33.0	10.0	0.0	116.8	158	0	15	309	460.0	1303.0
GLENLEA	19.4	-0.8	31.0	7.5	0.0	111.3	152	0	10	299	445.8	1268.6
ONTARIO												
DELHI	21.0	0.3	34.0	7.0	0.0	182.2	258	0	8	**	485.7	1464.9
ELORA	19.1	0.0	31.7	6.8	0.0	137.0	188	0	8	**	436.6	1244.6
GUELPH	20.3	0.6	33.7	6.7	0.0	133.1	162	0	9	*	484.3	1366.8
HARROW	23.0	1.0	34.0	12.0	0.0	17.0	21	0	3	292	584.1	1716.8
KAPUSKASING	17.2	0.3	33.0	2.0	0.0	82.0	88	0	14	224	387.1	974.1
OTTAWA	21.6	1.0	34.9	9.8	0.0	48.4	57	0	8	295	516.5	1405.7
SMITHFIELD	21.9	1.7	34.6	9.2	0.0	40.3	59	0	7	**	524.3	1480.6
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	34.0	8.0	0.0	35.4	37	0	6	279	437.5	994.6
L'ASSOMPTION	20.4	0.2	33.5	6.5	0.0	63.2	68	0	9	290	475.8	1253.0
LENNOXVILLE	*,*	*,*	*,*	*,*	*,*	*,*	**	***	***	**	*,*	*,*
NORMANDIN	17.4	0.5	36.0	4.0	0.0	58.7	51	0	16	266	384.0	868.6
STE.CLOTILDE	*,*	*,*	*,*	*,*	*,*	*,*	**	***	***	**	*,*	*,*
NEW BRUNSWICK												
FREDERICTON	20.0	0.9	35.5	7.5	0.0	59.5	66	0	6	245	481.7	1164.8
NOVA SCOTIA												
KENTVILLE	20.0	0.8	34.5	7.5	0.0	90.6	129	0	9	258	464.1	1087.3
NAPPAN	18.0	0.0	30.5	4.0	0.0	57.1	68	0	7	253	418.0	916.8
PRINCE EDWARD ISLAND												
CHARLOTTETWN	24.4	5.5	31.5	7.0	0.0	56.9	71	0	7	282	444.5	936.5
NEWFOUNDLAND												
ST.JOHN'S WEST	14.7	-0.9	29.0	3.5	0.0	60.2	82	0	9	212	*,*	484.4

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