



Climatic Perspectives

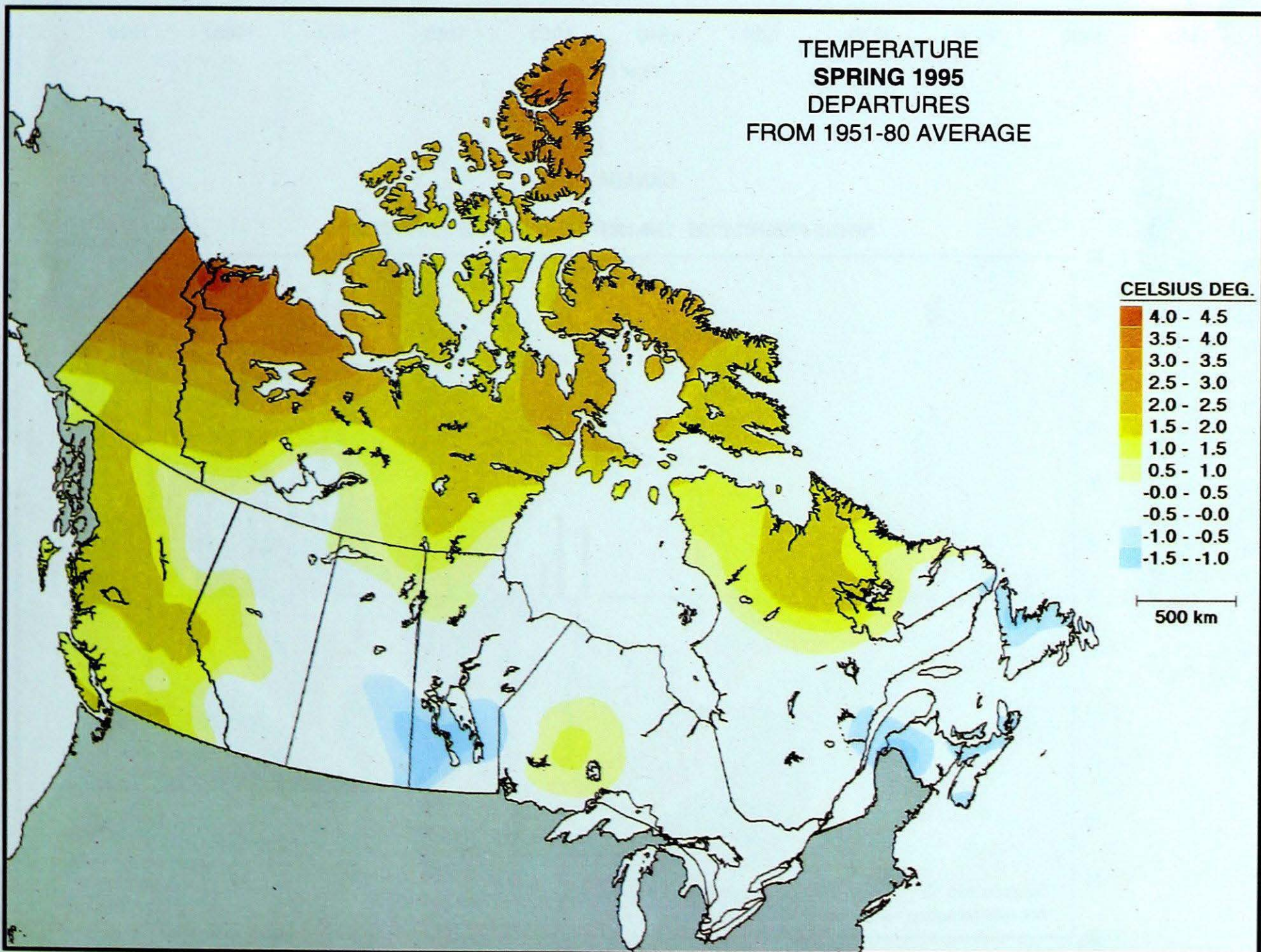
March-May 1995

Winter review of Canadian climate and water

vol. 17

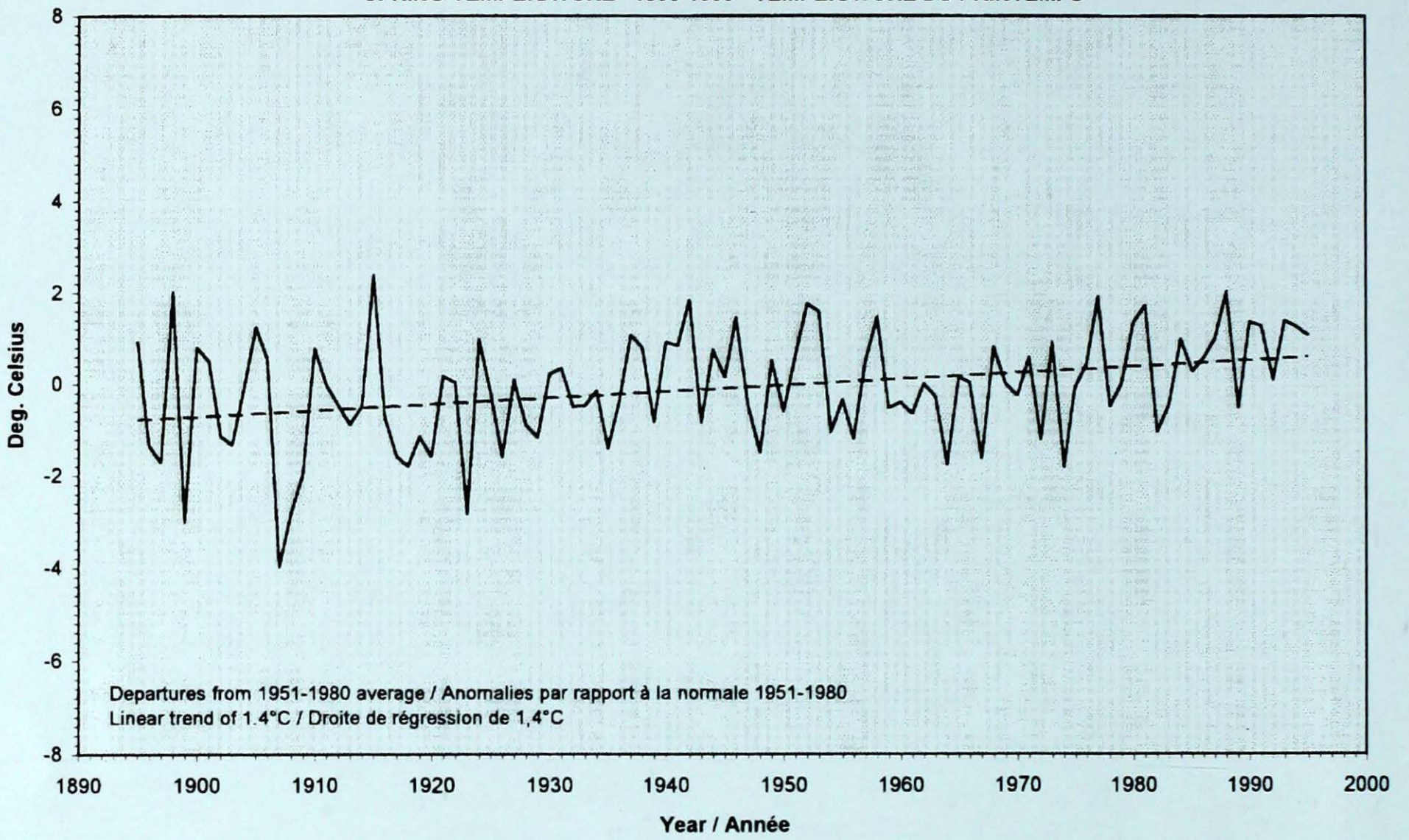
Spring 1995 Climate in Historical Perspective

The national average temperature for spring 1995 (March through May) was 1.1 degrees above the long-term mean making it the 18th warmest since national temperature records began in 1895. Nationally-averaged temperatures have been above average for 9 of the last 10 springs. An overall warming trend of 1.4 degrees is indicated for the 101-year period of analysis.



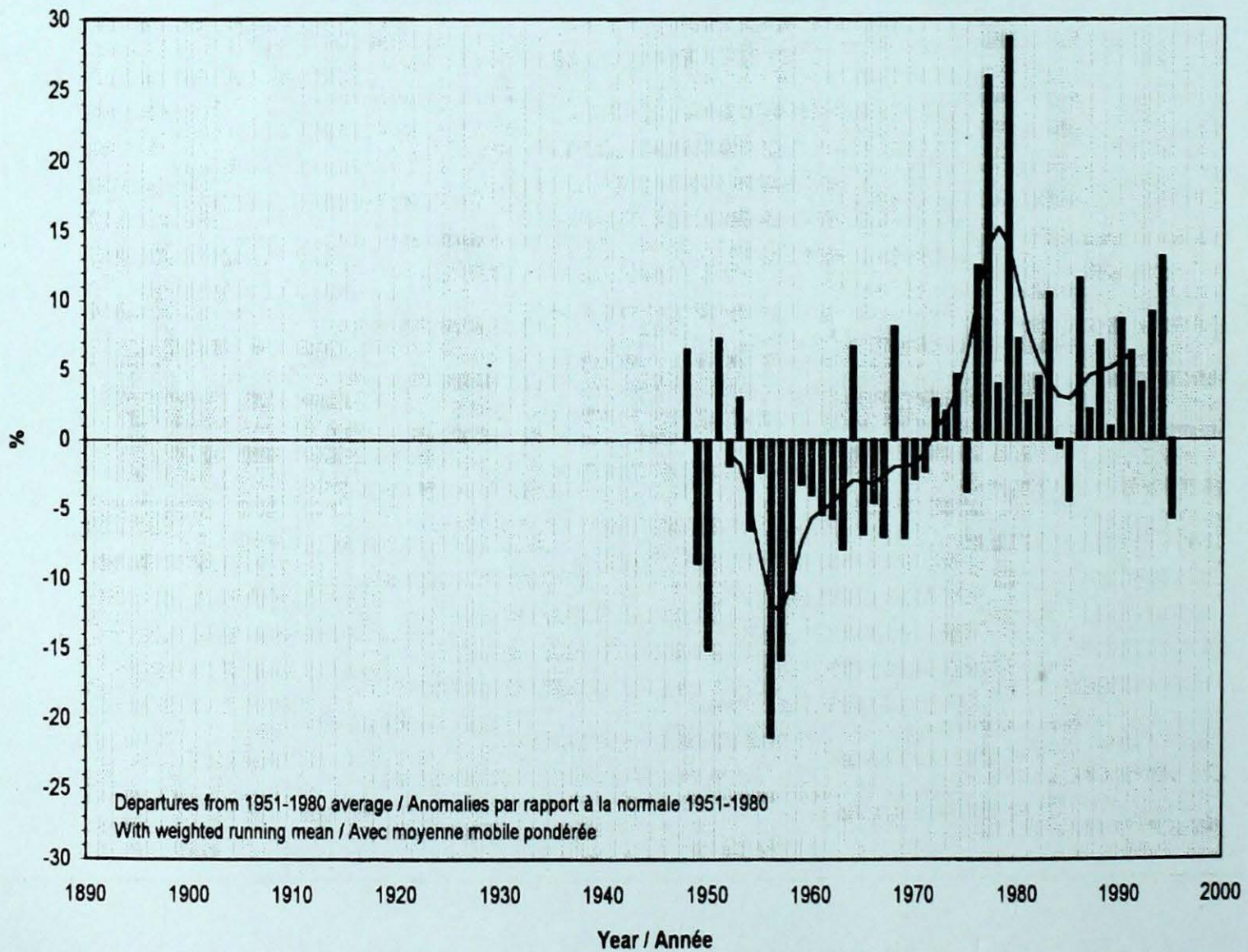
CANADA

SPRING TEMPERATURE 1895-1995 TEMPERATURE DU PRINTEMPS



CANADA

SPRING PRECIPITATION 1948-1995 PRÉCIPITATIONS DU PRINTEMPS

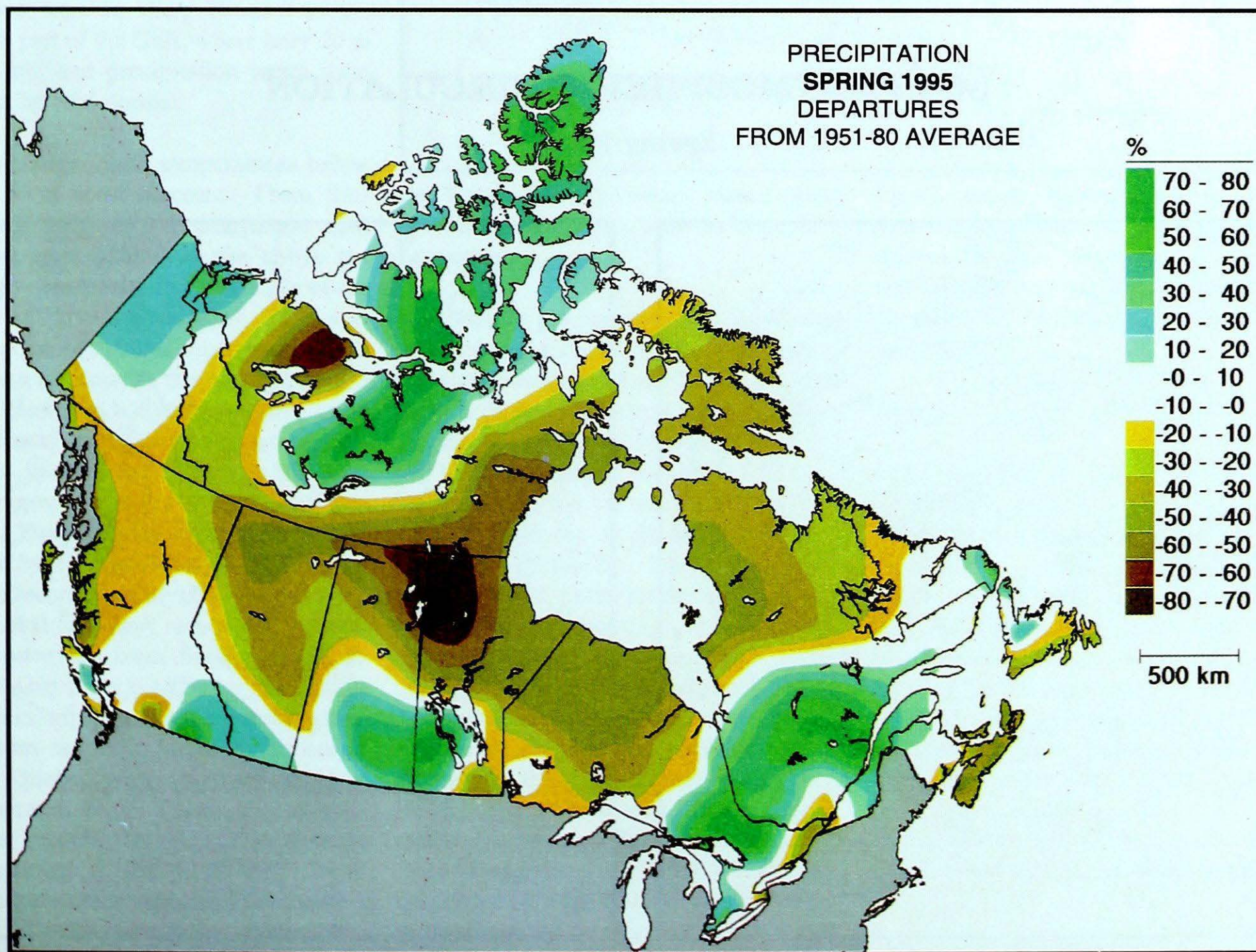


Average spring temperatures were above the long-term means over nearly 2/3 (60%) of the Canadian landmass, in a huge area that included the entire province of British Columbia, much of Alberta, a large part of northwestern Ontario north of Thunder Bay, and all areas from the Yukon to the high Arctic Islands, to Baffin Island, and south to northern Quebec and Labrador. In short, it was a warmer-than-average spring everywhere north of about 55 degrees north latitude. Only about 5% of the total land area was cooler than the long-term means in small patches in southern Saskatchewan and Manitoba in the west, and in each of the Atlantic Provinces in the east. Elsewhere most of Saskatchewan, Manitoba, and southern Ontario and Quebec (the remaining 35% of the land area), experienced spring temperatures ranging from slightly above to slightly below the long-term means.

Although warmer than average overall, spring 1995 temperatures were rather benign almost everywhere. On a regional basis, most of Atlantic Canada experienced temperatures that averaged about half a degree cooler than the long-term means. From Quebec in the east, to Alberta in the west, temperatures averaged generally only slightly above the long-term means. In Quebec 8 of the last 10 springs have been warmer than average and in southern Ontario 6 have been warmer. However, spring 1995 was only in the warmest 37% of springs in these areas in a hundred years of record keeping. In the Prairie Provinces temperatures were near-average in the south where 8 of the last 10 springs have been above average, and only very slightly above in the north, where 9 of the last 10 have been above. Relative to past springs, however, it was far from record-breaking with the north ranking only among the

warmest 44% of springs and the south among the coolest 42% since 1895. The true warmth of spring 1995 was mostly experienced in British Columbia and across the Arctic. In southern interior British Columbia the most recent 13 consecutive springs have been warmer than average and along the coast and in the northern BC/Yukon mountains 10 consecutive have been warmer. In the far north, in the Mackenzie Valley, 8 of the last 10 springs have been warmer than average and in the Arctic tundra, 6 of 10 have been warmer. Over the mountainous regions of Baffin and Ellesmere Islands spring 1995 was among the warmest 6% of springs there since records began in 1946.

The national average precipitation amount for spring 1995 was about 6% below the long-term mean making it the 11th driest overall (38th wettest), since national precipitation records began in 1948. For



the nation as a whole, spring 1995 marks the 1st since 1985 and the 2nd since 1975 with below average precipitation, and in fact, this was the driest spring nationally since the 1960s.

Average spring precipitation amounts were below the long-term means over 1/2 (53%) of the Canadian land area, in a massive mid-latitude band stretching from coast to coast. This band extended from northern British Columbia across the northern Prairie Provinces, across northwestern Ontario and northern Quebec, and east to the Labrador coast. In addition, the dry area also encompassed the Mackenzie Valley, southern Baffin Island, southern Newfoundland, all of Nova Scotia and Prince Edward Island, as well as small areas in southern interior British Columbia and in the St. Lawrence River valley. Less than 1/3 (30%) of the country was wetter

than average with bands of above-average precipitation in the Yukon, high Arctic Islands, southern British Columbia, southern Prairie Provinces, and much of northern Ontario and southern Quebec. Separating these contrasting regions was a narrow zone (the remaining 17% of the area) where spring precipitation amounts ranged from slightly above to slightly below the long-term means.

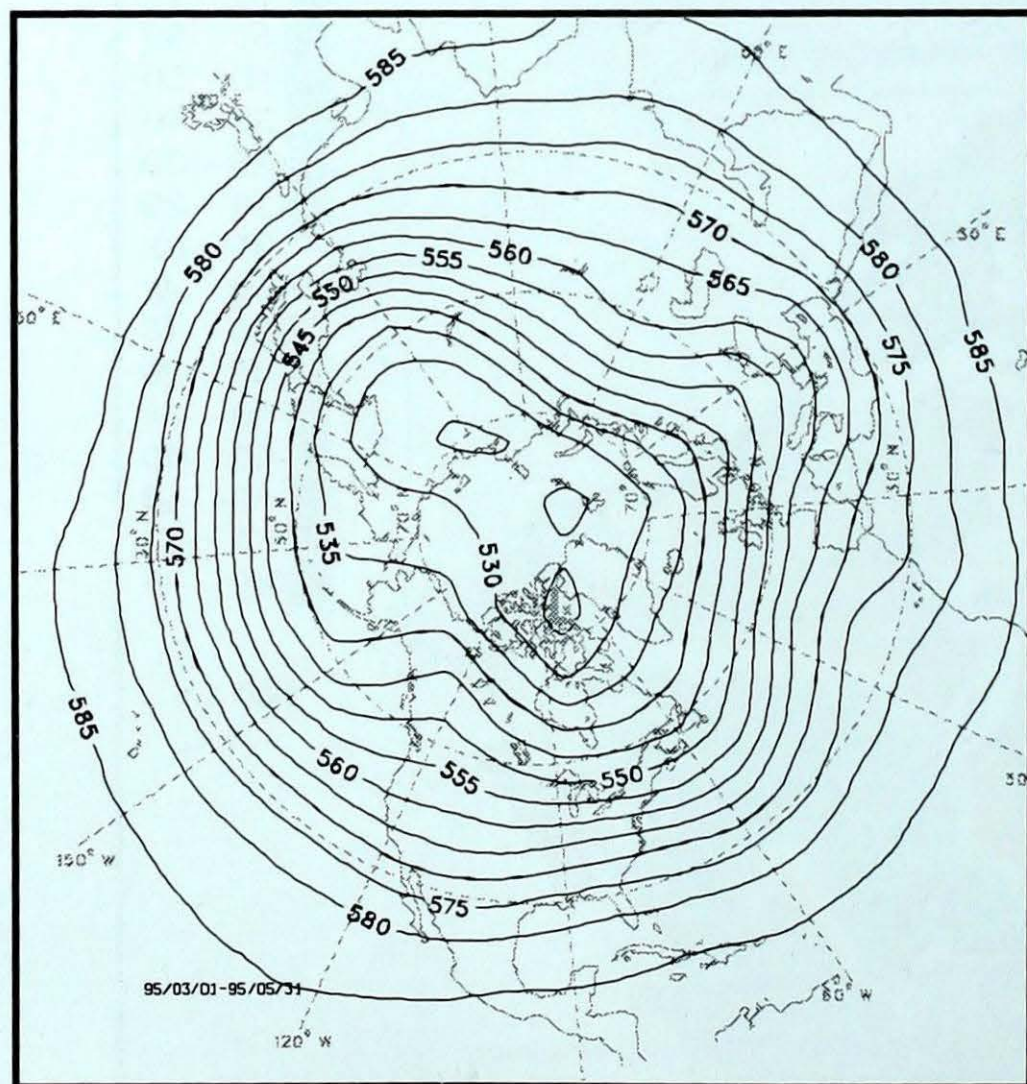
On a regional basis, Atlantic Canada this year was about 13% drier than average, ranking it 26th driest since 1895. This was in sharp contrast to a year ago when the region was a record 65% wetter than average. Across much of the remainder of southern Canada, from Quebec to southern British Columbia, spring average precipitation was above the long-term means. In southern Quebec it was the 17th wettest, Ontario the 28th, southern Prairie Prov-

inces the 26th, and in southern British Columbia the 45th wettest on record. Across the northern Prairie Provinces, along the Pacific coast, over the northern BC/Yukon mountains, through the Mackenzie Valley, and across the Arctic tundra spring 1995 was drier than average. Along coastal BC it was among the driest 15% of springs since regional precipitation records began in 1911, while across the northern Prairie Provinces it was among the driest 9% since 1932. In the high Arctic Islands it was among the wettest 35% of springs since 1948.

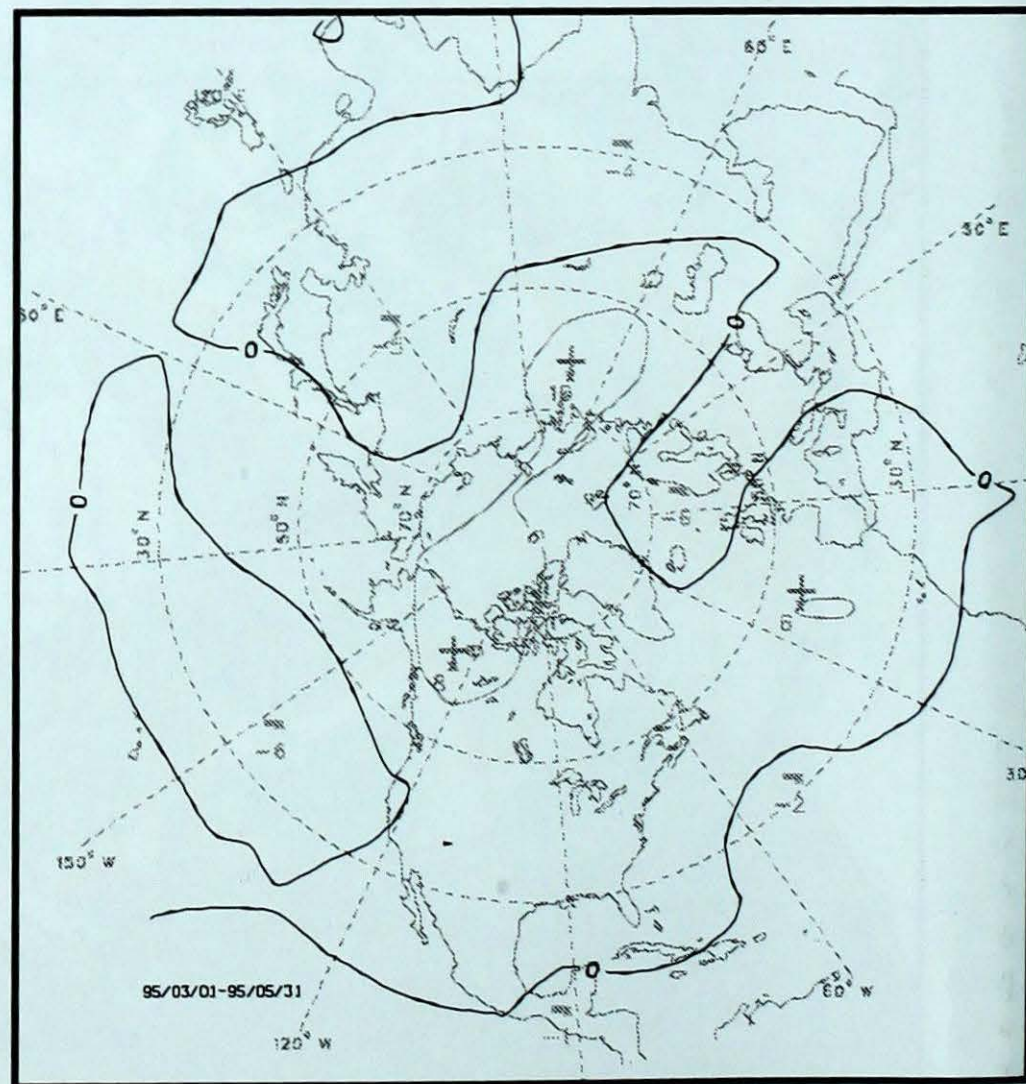
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50-kPa ATMOSPHERIC CIRCULATION

Spring 1995



Mean geopotential heights
5-decametre interval



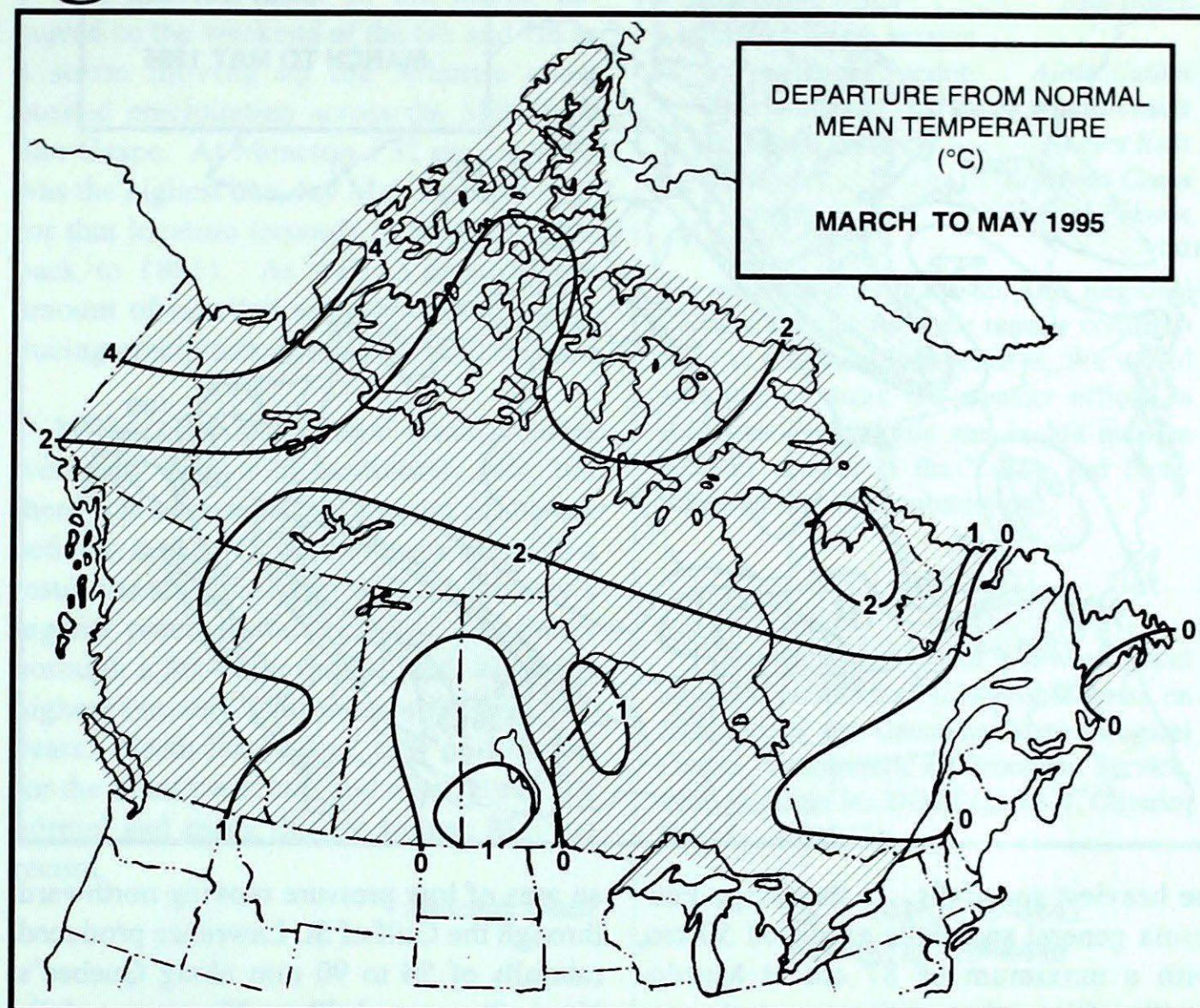
Mean geopotential height anomaly
5-decametre interval

Spring 1995 in review

March

Highly variable conditions dominated the weather picture across Canada in March. Although mean temperatures for the month were above normal over all but the western Arctic, eastern Quebec and the Atlantic provinces, all parts of the country saw periods of unseasonable cold and warmth. Precipitation was above normal in the central Arctic, in southern British Columbia, across the Prairies, and in much of the Atlantic Provinces. In southern and central Manitoba precipitation was as much as three times seasonal values, while just a few hundred kilometres away, in northwestern Ontario only half the usual amount was received. Heavy snowfalls of more than 200 cm in the northern Gulf of St. Lawrence were in sharp contrast to the southern part of the Gulf, where only 20 to 30 cm fell, and precipitation totals were less than half the normal.

March began with temperatures below normal from coast to coast. From Saskatchewan to the northern Maritimes, most locations were unable to rise above the freezing mark for the first few days of the month. At Eureka a value of -52°C was recorded, colder than any temperature reached in the country during the 1994-95 winter. However, a distinct warming trend over the next couple of weeks pushed temperatures into the upper teens in the three western provinces and in Ontario and Quebec. At Dauphin, Manitoba the temperature rose from a record-low of -31°C on the 8th to a record-high of 10°C on the 10th. For the next four days records daily maximums were set from Saskatchewan to northwestern Ontario. During the middle two weeks of the month, mean temperatures from northern Manitoba to northeastern Quebec were as much as 15°C above normal. In the Yukon, several locations set records for warmth as daytime highs approached 10°C on the 18th. Demonstrating the changeability of the month's weather, a week later many of the same locations set new record lows as temperatures dropped to near -40°C . The reappearance of cold air was mostly confined to



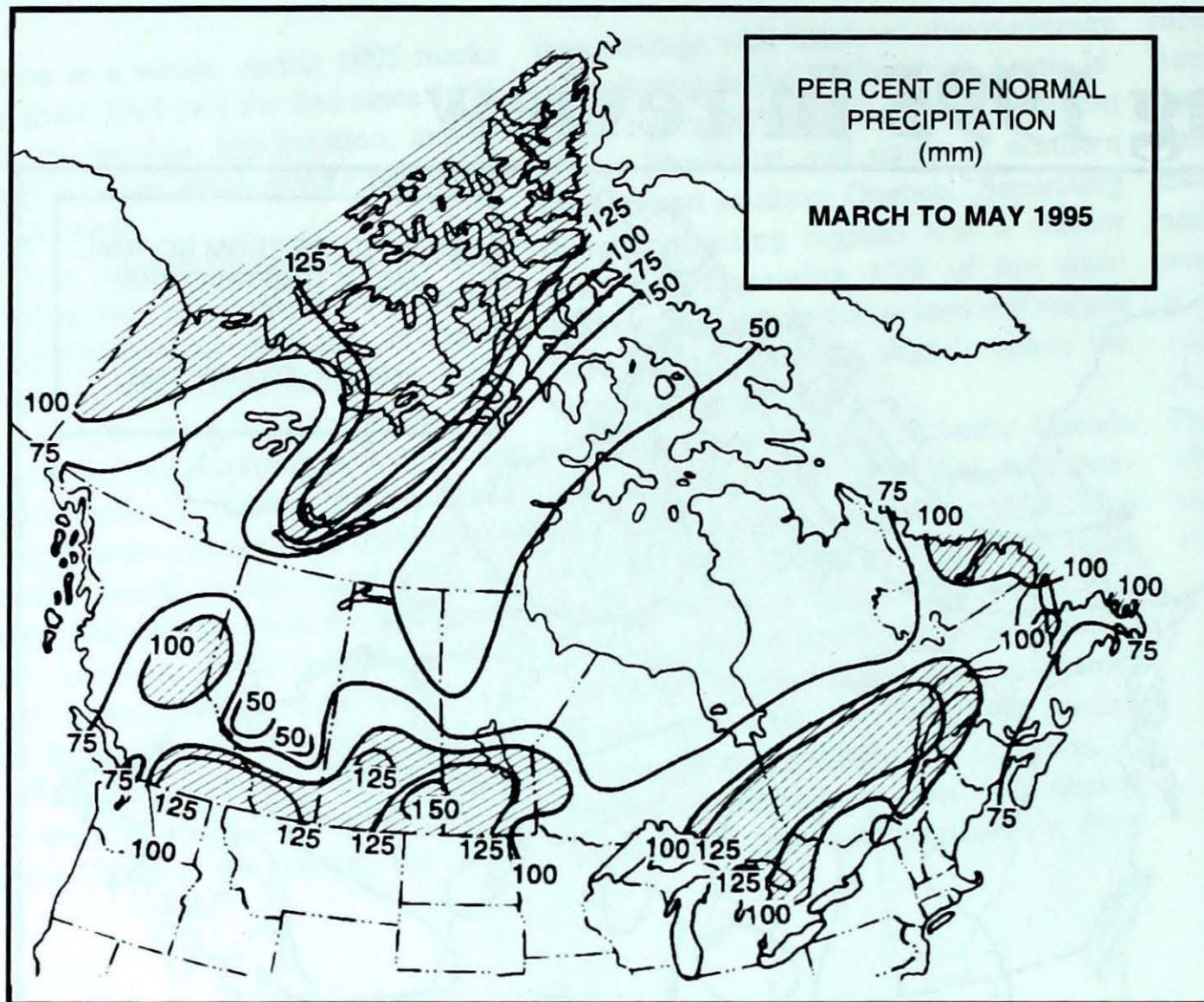
the Yukon, as daily means stayed above normal for most areas west the Gulf of St. Lawrence.

Although precipitation was above normal in many parts of the country, most of the significant events occurred in coastal areas. A seemingly continual parade of storms moved across Newfoundland during March. A record snowfall of 26 cm at St. John's on the 1st was followed by 22 cm at St. Anthony on the 6th and 10 cm at Deer Lake on the 7th. On the 10th a particularly harsh storm hit the area, depositing 10 mm of freezing rain across the northern part of the island and cutting power to some communities for four days. The same storm dropped 40 cm of snow on southern Labrador and extreme eastern Quebec. In Blanc Sablon two people were killed when a house was destroyed by an avalanche; rescue efforts were hampered by blowing snow and 120 km/h winds. On the 18th and 19th blizzard conditions hit the east coast of Newfoundland, adding another 26 cm of snow. Winter's final blow for the month came as 41 cm of snow fell at Goose Bay on the 25th and 26th. On the

Pacific coast, waterspouts were sighted near Victoria on the 14th, and three fishermen on the west side of Vancouver Island were drowned on the 18th when their boat was sunk as the result of a storm system with strong winds.

April

In a near-replay of April 1994, warm conditions that prevailed across the country during the first couple of days of the month were rapidly replaced by winter-like weather in the wake of a sharp cold front that swept across the country from the 3rd to the 5th. In contrast to the early spring weather enjoyed during the previous week, in which daytime highs in the upper teens had been reached, heavy snowfall warnings were required in Alberta, and near-blizzard conditions were felt across Saskatchewan and Manitoba. On the 4th, temperatures fell by 15°C across Ontario and snowsqualls deposited 15 cm of snow to the lee of Lake Huron. However, another low that developed along the cold front as it passed over the Gulf of St. Lawrence on the 5th was responsible for



the heaviest snowfalls. In the Gaspé Peninsula general snowfalls exceeded 50 cm, with a maximum of 87 cm at Murdochville. Blizzard conditions were also experienced in northern New Brunswick and Newfoundland, with both areas receiving 25 to 30 cm snowfalls. Over the next several days temperatures from Alberta to the Atlantic coast were four to eight degrees below normal, with overnight lows dropping below -10°C in the south and approaching -30°C in the northern Prairies. Through the rest of the month a slight warming took place in southern Canada, but temperatures remained below normal. During this period, several winter-like storms kept the weather picture interesting. On the 12th, the 15th, and the 23rd, 10 to 15 cm snowfalls occurred in the foothills of Alberta. On the 25th advisories were issued in Manitoba for snow and blowing snow in areas from Churchill to the Ontario border. Two days later several centimetres fell in central Saskatchewan. As well, the year's first signs of summer severe weather occurred as thunderstorms dropped hail on the Edmonton area on the 11th and 13th. In southern Ontario hail also fell on the 21st, along with heavy rains approaching 50 mm. But the heaviest precipitation occurred on the 14th and 15th as

an area of low pressure moving northward through the Gulf of St. Lawrence produced rainfalls of 50 to 90 mm along Quebec's North Shore, and 20 to 25 cm snowfalls inland.

Flooding occurred during the last week and a half of the month in eastern Saskatchewan and western Manitoba as the late-season snowfalls melted. Highways were closed and evacuations were necessary as the Assiniboine River overflowed its banks. As well, spring planting was delayed for almost a month in many areas. Damage estimates were as high as \$10 million, although the delay in seeding may be more costly if a cool summer further delays maturation.

The most unusual event of the month occurred on the 9th in northeastern British Columbia as Prince George received 17.8 cm of snow during a 16-hour snowfall. This was twice its normal monthly amount and greater than the total for the previous five Aprils added together. Higher elevations in the town received more than 25 cm. Making this such a noteworthy event was its localized nature, as 30 km from the town no precipitation at all was received.

In contrast to the cool and wet conditions experienced over most of the south, it was a warm and dry month for the Canadian North. Mean temperatures were two to four degrees above normal in the Yukon and the southern portion of the Territories. From the Arctic Circle northwards they were six to eight degrees above normal. Warm air pushed into the Arctic shortly after the beginning of April and remained for the rest of the month. By mid-April maximum temperatures on Ellesmere Island were only a few degrees below the freezing mark. Daytime highs reached 20°C along the Mackenzie on the 27th. Through most of the Arctic precipitation totals were less than 50% of normal; in many parts of the central Yukon there was no snow or rain recorded. As a result of the warm-dry combination, by month's end concern was rising for the forest fire potential.

May

May 1995 will be remembered for its sharp contrast between the precipitation "haves" and "have-nots". Above-normal amounts were received in a narrow band from southern Alberta to New Brunswick. Highest totals, almost 200 mm, were found near central Ontario's Lake Nipissing. It was a different story however in most areas to the north of this moist band. In British Columbia, and the northern portions of Ontario and Quebec, totals were only 50 to 75% of normal. Drier still were the northern Prairies and the southern Arctic. In these areas, where average amounts were only 10 to 20 mm, a few locations received less than 5 mm.

Mean temperatures for the month were near normal across most of the country. However there were two exceptions. In the east, southern Baffin Island and northeastern Quebec had values that were a little over 4°C above normal. As well, in most of British Columbia, all of the Yukon, and much of the Mackenzie Valley, means were generally three to six degrees above normal. The combination of warmth and dryness resulted in the most hazardous forest fire conditions in a decade for the northern Prairies Provinces. Several fires, each larger than 20,000 hectares, developed and by the end of the month were out of con-

trol. In northern Saskatchewan three fires combined to form one 70,000 hectare blaze. Numerous communities were evacuated and highways were closed as smoke reduced visibility to near-zero. At a cost of \$1 million a day, Alberta's \$35 million fire fighting budget was already one-third spent by month's end. In all, 2,000 people were fighting 100 fires, 50 of which were out of control. The warmth and dryness were also felt on Vancouver Island, where water restrictions were imposed in urban areas, and several small forest fires developed.

It was a completely different story in southern parts of the Prairies. A slow moving system over Montana brought 50 to 75 mm of rain to southern Alberta on the weekend of the 6th and 7th. Another 20 to 30 mm fell in the same area at the end of the following week. May 20th saw 10 to 20 cm of snow along the foothills and in the Calgary region while areas south of the city received rain. For Calgary, the 11.2 cm received was more than is usually received in the whole month, and was responsible for power failures for more than 24,000 homes. In southern Saskatchewan

and Manitoba, flooding that had started in April was still a problem in May as several storms moved through the area.

The heaviest snow of the month occurred on the weekend of the 6th and 7th as a storm moving up the Atlantic coast pushed precipitation across the Maritimes into Gaspé. At Moncton a 32 cm snowfall was the highest one-day May snowfall ever for that location (records at Moncton date back to 1881). As well, a considerable amount of rain fell with this system, producing precipitation totals of 30 to 65 mm.

In southern and central Ontario there were few days with continuous rain, but there was a considerable amount of shower activity, much of it on the heavy side. As a result the area ended up with the country's highest precipitation for May. At Peterborough a 50.4 mm rainfall was the third-highest one-day May total in the past 130 years. North Bay's final tally of 195 mm for the month was two and a half times the normal and made this its wettest May on record.

Malcolm Geast

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The purpose of the publication is to make topical information available to the public concerning the Canadian climate and its socio-economic impact.

The data in this publication are based on unverified reports from approximately 225 Canadian synoptic weather stations. Information concerning climatic impacts is gathered from AES contacts with the public and from the media. Articles do not necessarily reflect the views of Atmospheric Environment Service.