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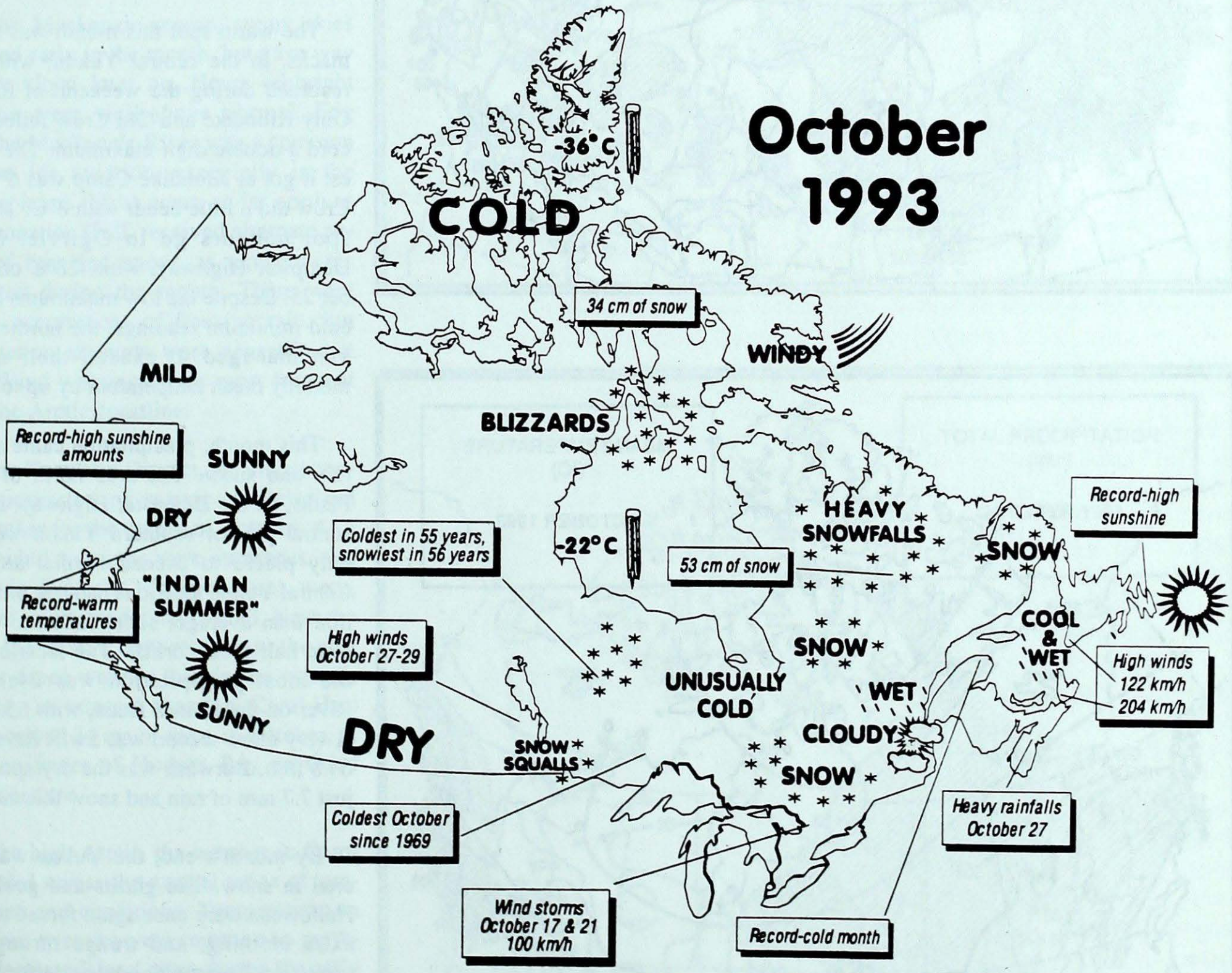
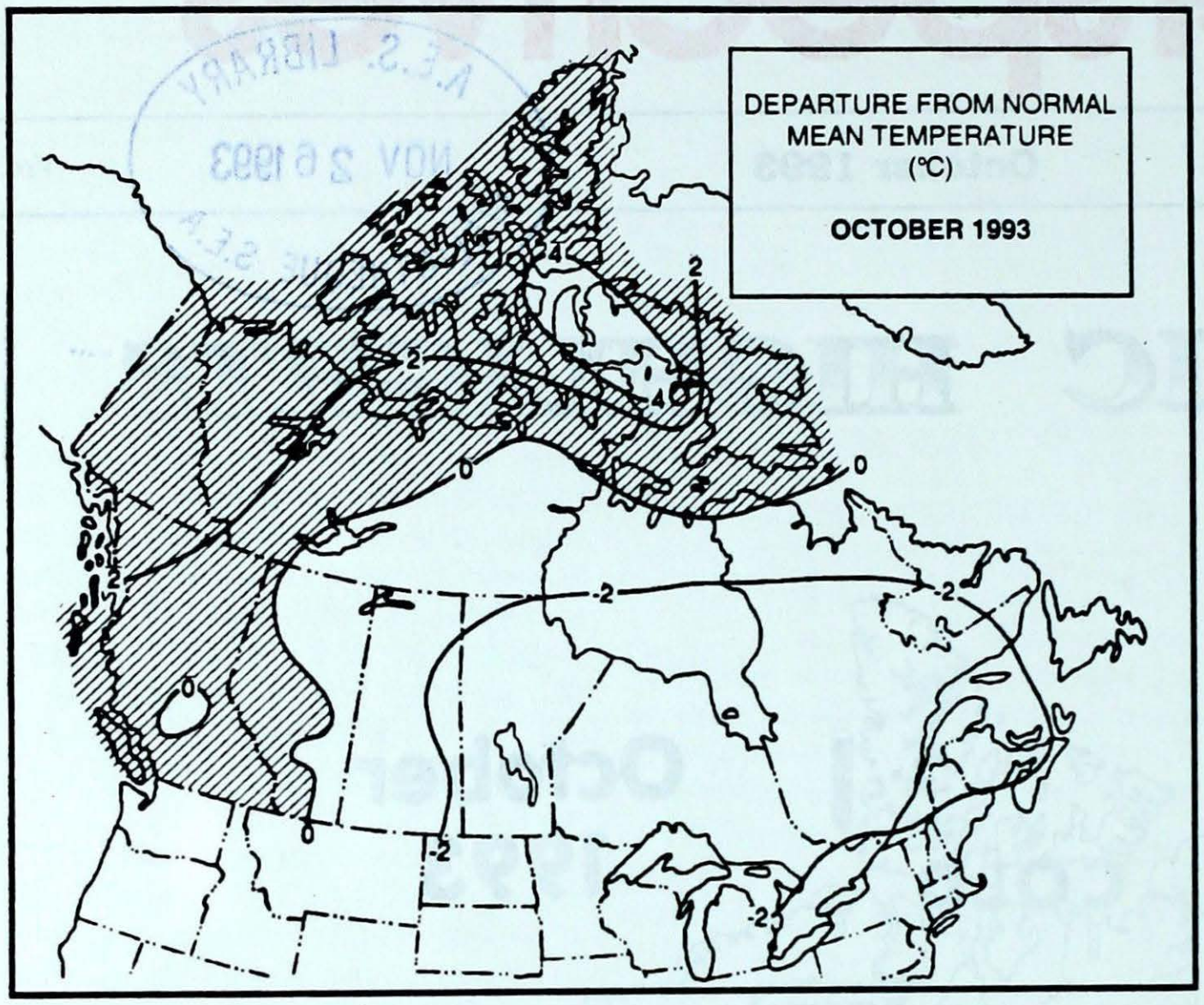
Climatic Perspectives

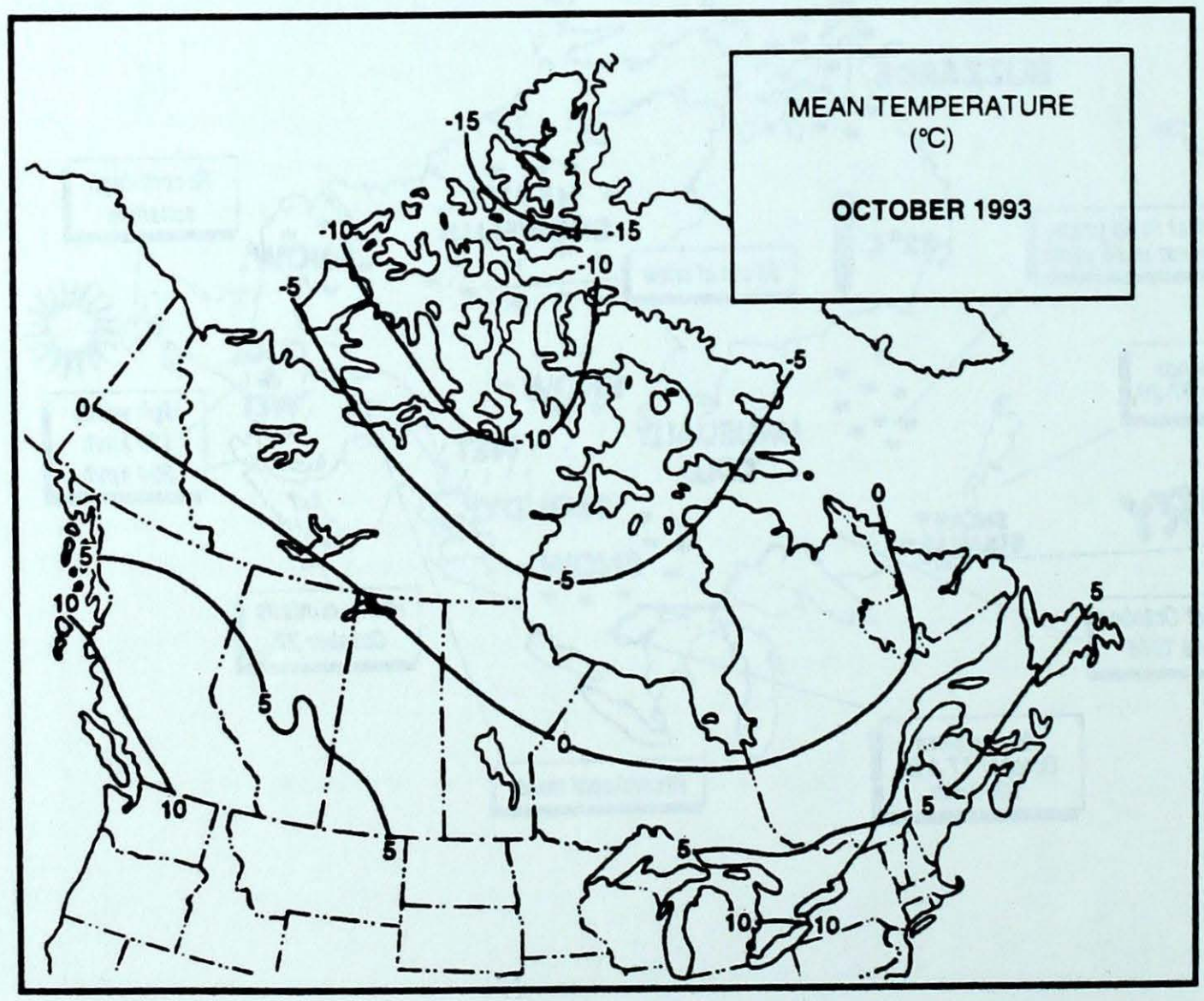
Monthly Review **October 1993** *Vol. 15*

CLIMATIC HIGHLIGHTS



Canada





Across the country

Yukon

As can be expected winter came earlier to the northern Yukon than it did to the south. Areas north of the Ogilvie Mountains had significant snowfalls during the early part of the month. However, a film crew had to wait until late October to get the right snow conditions in the White Pass, south of Whitehorse. Fraser Camp, situated in the White Pass, received 34 cm of snow during the last two weeks of the month.

The warm spot this month was at Carmacks, in the central Yukon, with 21°C recorded during the weekend of the 2nd. Only Klondike and Old Crow failed to record a double digit maximum. The warmest it got at Klondike Camp was 6°C; Old Crow did a little better with 8°C. The cold spot honours go to Ogilvie, on the Dempster Highway, with -28°C on October 25. Despite the low maximums and the cold minimum readings, the northern Yukon managed to exceed their normal monthly mean temperature by up to 4°C.

This month, precipitation came as both rain and snow. The area north of Eagle Plains, on the Dempster Highway, and the central part of southern Yukon were the only places to exceed normal amounts. Central Yukon locations had less precipitation than average; some failed to collect even half their normal. The location with the most precipitation was Blanchard River on the Haines Road, with 65.6 mm. A very close second was Swift River with 64.8 mm. Burwash was the dry spot, with just 7.7 mm of rain and snow this month.

By month's end, the Yukon was covered in snow. The ghosts and goblins of Halloween were once again forced to wear extra clothing, and trudge through the snow to collect their booty or perform their pranks. Luckily, the snow was not too deep and the temperature was relatively pleasant.

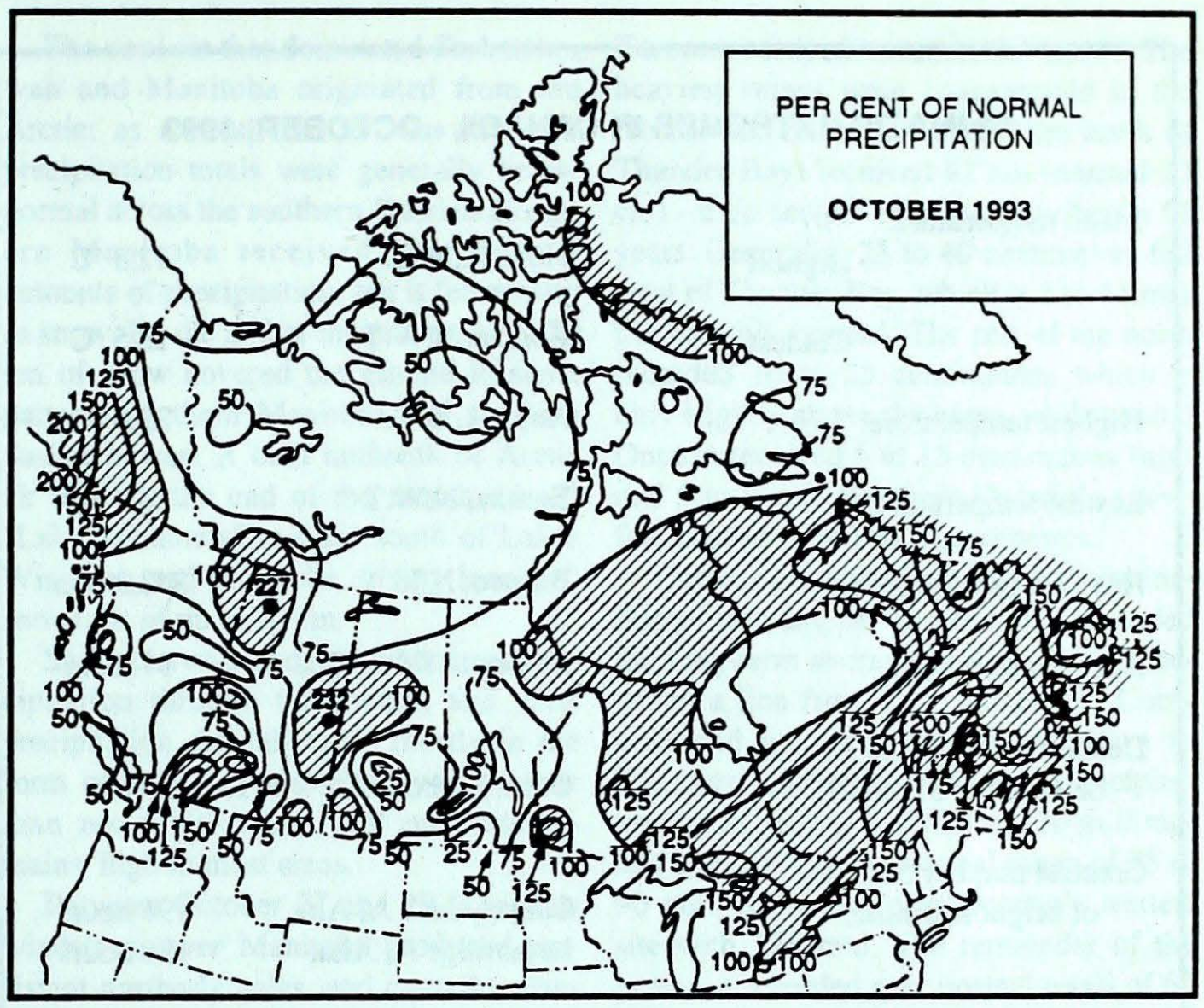
Northwest Territories

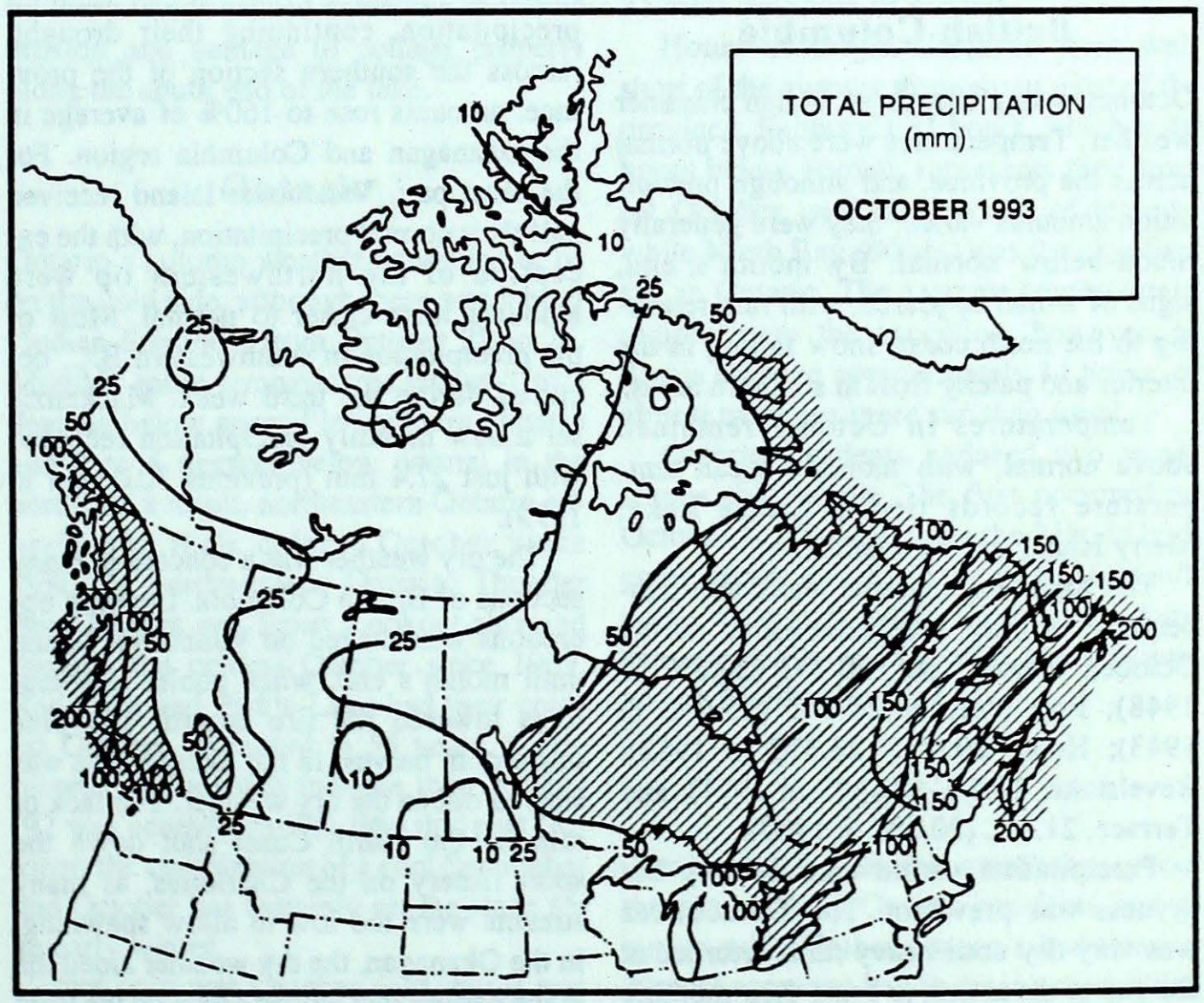
Above-normal temperatures were evident over a good portion of the Territories. The warmest reading was 17°C recorded at Fort Liard on the 10th, while the coldest was -36°C at Eureka on the 31st. The month began on a stormy note in the eastern regions and stayed that way through the month. At the beginning of the month, blizzard conditions were found to the west of Hudson Bay, while windy conditions affected Baffin Island. There were reports of downed power lines and damaged houses.

In the Mackenzie region, sunny skies prevailed early in the month, but gave way to more cloud later on. Hours of bright sunshine were well-above normal. Fog along the Mackenzie River was a common problem for aviation, especially in the morning hours. Most areas, as far north as the Coronation Gulf, received alternate periods of rain and snow, as temperatures fluctuated during the month. There were several occurrences of freezing rain, but precipitation amounts were generally not large. Wind warnings were most frequent along the Arctic coastline.

In the Keewatin District, an almost constant succession of storms characterized the weather for the month of October. As a result, wind warnings were numerous, and blizzards frequent. Temperatures were, however, quite moderate, overall. Near the end of the month, temperatures in the east were at times warmer than in the western districts - an unusual situation. Coral Harbour received 34 cm of snow in October, as the open water of Hudson Bay provided extra moisture.

In the high Arctic, the weather in October varied across the normal range of temperatures and conditions. Temperatures in the minus twenties were common on northern Ellesmere Island, even during the early part of the month, with one or two warmer periods. Strong winds were experienced in the Resolute area on a few occasions, as the storms in the Baffin area produced a strong northerly flow across the region.





CLIMATIC EXTREMES IN CANADA - OCTOBER, 1993

Mean temperature:		
Highest	Hope A, B.C.	12.3 ℃
Coldest	Eureka, N.W.T.	-18.5 ℃
Highest temperature:	Hope A, B.C.	29.0 ℃
Lowest temperature:	Eureka, N.W.T	-36.3 ℃
Heaviest precipitation:	Burgeo, Nfld.	248.3 mm
Heaviest snowfall:	La Grand IV A, Que.	97.2 cm
Deepest snow on the ground on October 31, 1993:	Coral Harbour A, N.W.T.	33 cm
Greatest number of hours of bright sunshine:	Calgary Int'l A, Alta. Lethbridge A, Alta.	196 hours 196 hours

British Columbia

October was a month of Indian Summer weather. Temperatures were above normal across the province, and although precipitation amounts varied, they were generally much-below normal. By month's end, signs of winter appeared, with rain returning to the north coast, snow falling in the interior and patchy frost in southern areas.

Temperatures in October remained above normal, with monthly mean temperature records tied at Dease Lake, Merry Island and Revelstoke.

The following extreme maximum temperature records were established during October: Dease Lake, 20.7℃ (20.6℃ in 1948); Fort Nelson, 26.7℃ (25.6℃ in 1943); Hope, 29.0℃ (28.3℃ in 1952); Revelstoke, 22.5℃ (21.3℃ in 1991); and Terrace, 21.4℃ (20.6℃ in 1980).

Precipitation varied considerably but dryness was prevalent. The Terrace area was very dry until heavy rains returned at the end of the month to bring their monthly precipitation to 83% of normal. The North Coast received only 60% of their average precipitation, continuing their drought. Across the southern section of the province, amounts rose to 160% of average in the Okanagan and Columbia region. For the most part, Vancouver Island received half their normal precipitation, with the exception of the northwestern tip were amounts were closer to normal. Most of the precipitation in southwestern B.C. occurred during the third week. Mackenzie set a new monthly precipitation recorded with just 27.4 mm (previous 30.0 mm in 1979).

The dry weather was a concern in many sections of British Columbia. Logging operations were halted on Vancouver Island until month's end, when cooler temperatures lowered the fire hazard. The pine mushroom harvest in the Skeena area was slowed due to the dry weather. The lack of rain on the North Coast shut down the sport fishery on the Charlottes, as many streams were too low to allow spawning. In the Okanagan, the dry weather aided the grape harvest that wound down by the third week. In the Peace district, farmers welcomed the dryness, allowing combining to continue in full swing.

Snow gradually returned to the north, although amounts were light except for a heavy snowfall over the higher elevations of the Alaska Highway on the 5th. The snow subsequently melted due to warmer weather. As the month progressed snow began to creep south, with 2 cm falling at Fort St. John on the 18th. In the south, snowfall was limited to the higher elevation of the Coquihalla were 20 cm fell on the 31st. Other signs of fall: fog hampered air traffic in Port Hardy at the beginning of the month and in Fort Nelson later in the month. The combination of a low level inversion and smoke from windrow burning reduced visibily, causing traffic delays and highway accidents near Prince George during the second week. A weather system accompanied by rain and strong winds downed trees and caused power outages in the Okanagan and southern Vancouver Island on the 23rd.

Sunshine was abundant across the province even though the days were growing shorter. The largest deviation was at Terrace, where there was almost double the normal sunshine. In fact, Terrace established a new sunshine record of 121.0 hours. The previous record was 97.9 hours set in 1987. At Revestoke, this was the 3rd sunniest October in 20 years.

Alberta

Autumn has been a classic battle between frosty Arctic air from the north and warm moist air from the southwest. The result has been several periods of above-normal temperatures punctuated by attention grabbing, although brief, cold spells. For example, during the first week, temperatures dropped to record lows on October 1, then rebounded sharply to the mid-twenties on the 2nd.

On October 5, an advancing cold front brought up to 15 cm of snow to the High Level region and the northern foothills, with snow and freezing rain spreading to southern Alberta on the 6th. It turn mild again after October 8.

During the middle of the month, cloudy skies and occasional flurries affected northern Alberta and the southern foothills, with 10 cm of snow falling at Banff. Above-normal temperatures were again evident from October 16 to 18, until Arctic air returned to produce another 15 cm of snow along the southern foothills on the 19th. By this time, minimums of -10°C across the province had most Albertans convinced that summer was over for good.

On October 24, a low pressure system, which drifted into north-central Alberta, produced cloud, showers and wet flurries in all regions, with up to 23 mm falling in the central districts. Winds in the south reached 120 km/h on the 24th, and surpassed 100 km/h again on the 26th. Record-maximum temperatures were set across the north on the 26th, before a vigorous push of Arctic air headed southwards again. Strong winds associated with the advance of this cold air caused considerable damage across central Alberta. The cold weather persisted until the end of the month.

Manitoba and Saskatchewan

Autumn continued to be cool, but somewhat drier than the past summer. By the end of October winter-like weather was already evident in most areas.

Temperatures in October were below normal everywhere. Readings reached twenty degrees a few times in the southern areas during the first half of the month, but by the end of October daytime highs were only reaching the single digits. Indian Summer weather did return to the southern regions briefly between the October 20 and 24, giving one last bout of warm weather. In the northern regions, temperatures were generally quite cool, especially in northern Manitoba, where numerous record-low minimum records were set during the month. On October 29, both Thompson and Churchill set new record-low minimums, when the mercury bottomed out at -22°C. Now it is just a matter of time until winter sets in for the long haul.

The cool air that dominated Saskatchewan and Manitoba originated from the Arctic; as a result the air was dry, and precipitation totals were generally below normal across the southern Prairies. Northern Manitoba received near-normal amounts of precipitation, but it fell mostly as snow. By the end of the month, 10 to 20 cm of snow covered the ground in some parts of northern Manitoba and northern Saskatchewan. A cold outbreak of Arctic air towards the end of the month caused "Lake Streamers" to form south of Lakes Winnipeg and Manitoba, giving localized snowfalls of up to 10 cm.

Saskatchewan had below-normal precipitation through the month, and what precipitation did fall came mostly in the form of rain showers. Even with a drier than normal October, soil moisture remains high in most areas.

Between October 27 and 29, a vicious windstorm over Manitoba produced persistent northerly gales, and caused unusually high water levels at the south end of Lake Winnipeg. The high waves produced by these winds caused extensive shoreline erosion and damage to cottage property along the south end of the lake.

Ontario

Ontario's autumn weather continued to be on the cold side, although there was a brief "Indian Summer" from October 22 to 24. Monthly mean temperatures lagged 1 to 2 degrees below normal in southern Ontario and 2 to 4 degrees below normal in the north. As a result, northeastern Ontario experienced their coldest October since 1980. In northwestern Ontario, Thunder Bay, Kenora and Sioux Lookout shivered through the coldest October since 1969. Red Lake and Pickle Lake had their coldest October on record in 55 years. While records in the south indicate that October '92 was actually chillier than this past October, the combination of a cool September and October has certainly set the stage for an early winter.

Not only was October cold, but it was relatively snowy as well. Only downtown Toronto escaped measurable snow. The heaviest snows were concentrated in the Northwest. Pickle Lake (450 km north of Thunder Bay) received 62 cm (normal 25 cm) - their second snowiest October in 56 years. Generally, 25 to 40 centimetres fell west of Thunder Bay, which is 2 to 4 times the monthly normal. The rest of the north recorded 10 to 25 centimetres, which is only slightly above the norm, while central Ontario received 5 to 15 centimetres (normal 5 to 8 cm). Southern Ontario's snowfall totalled only 1 to 5 centimetres.

October precipitation totals (a combination of rain and snow) generally exceeded the long-term average in a broad band between a line from Lake Simcoe to Cornwall and a second line from Wawa to Timmins. Throughout this area, precipitation totals ranged from 90 to 130 millimetres compared to the normal range of 75 to 90 mm. North Bay was Ontario's wettest site with 128 mm. The remainder of the province recorded near normal totals of 60 to 80 millimetres. In contrast, however, Thunder Bay had a dry October, with only 33 mm - just 54% of normal.

Hours of bright sunshine were well short of the average throughout most of the province. Sudbury's 81 hours, which is 40 hours below normal, represents their lowest October total in 21 years of records, while North Bay (80 hrs) was the cloudiest site in Ontario. The extreme southwestern regions were the exception, however, as Sarnia enjoyed approximately 14 hours, or almost two days more sun than usual.

Ontario residents endured two windstorms this month. The first occurred on October 17, the second on the 21st. In both cases, winds gusting in the 90 to 100 km/h range were responsible for property damage, especially in Muskoka, Parry Sound and on Manitoulin Island.

Quebec

October was a miserable month throughout the province, as Quebec residents had to put up with Mother Nature's bad temper. Almost everyone had to dress warmer than

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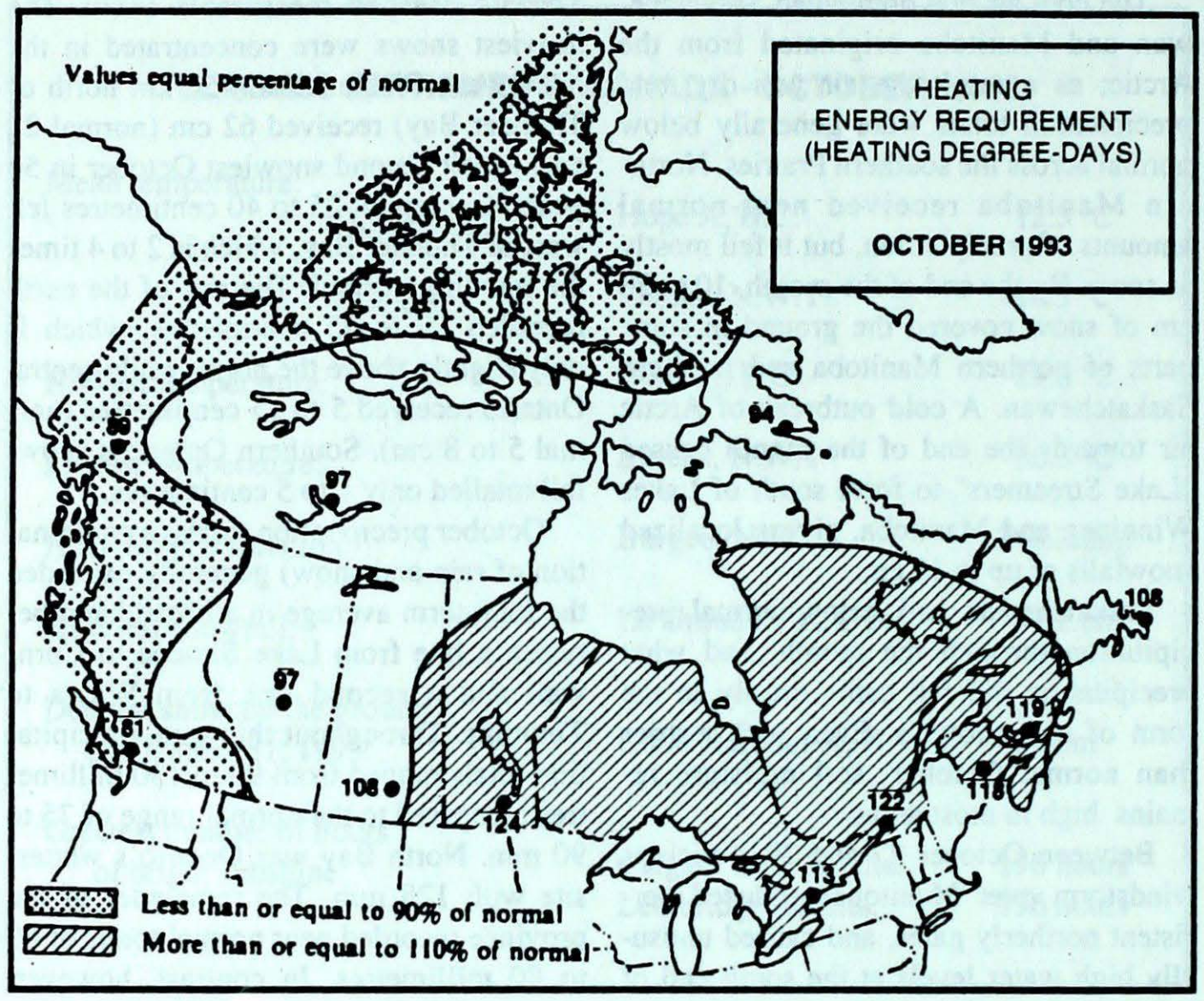
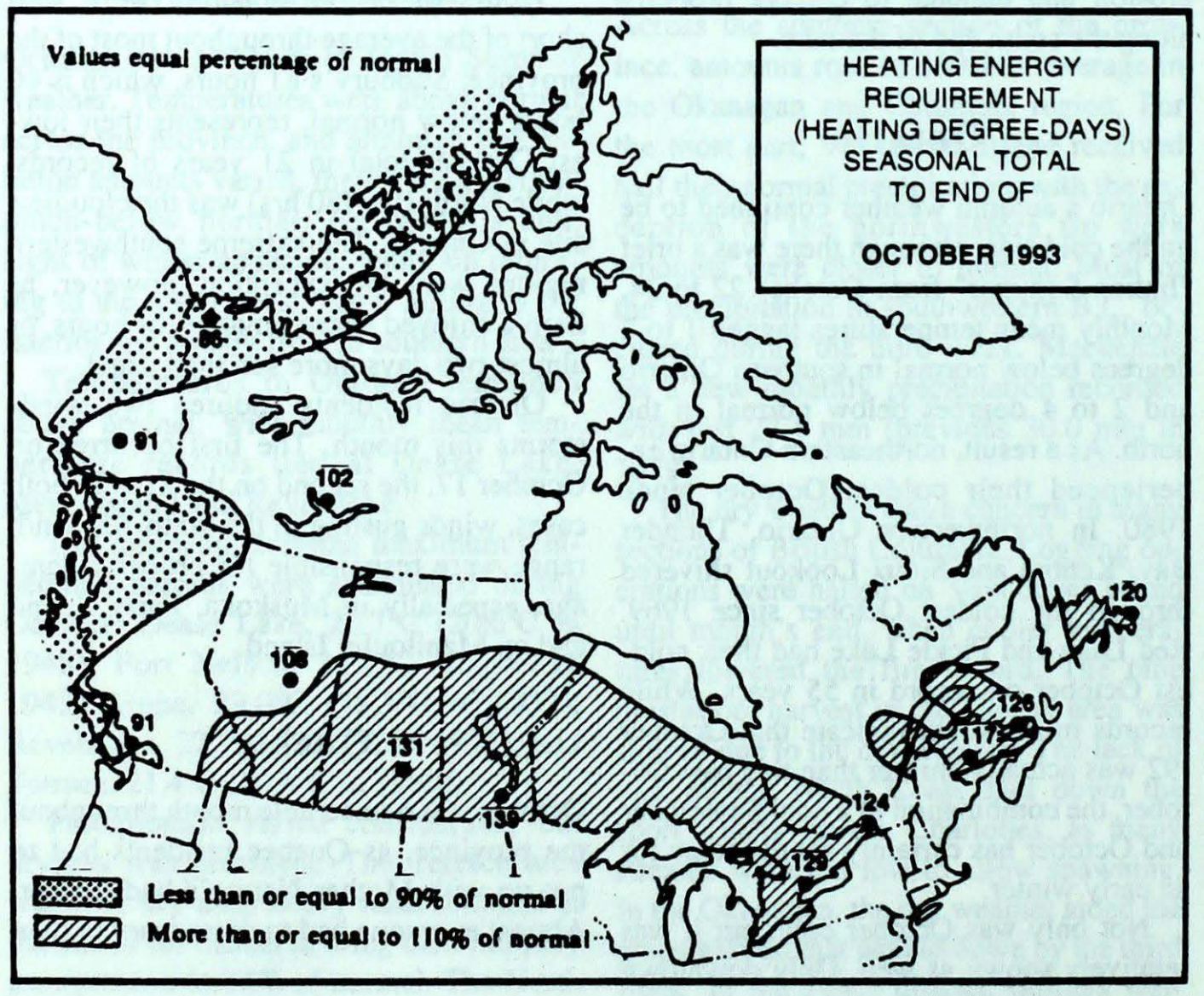


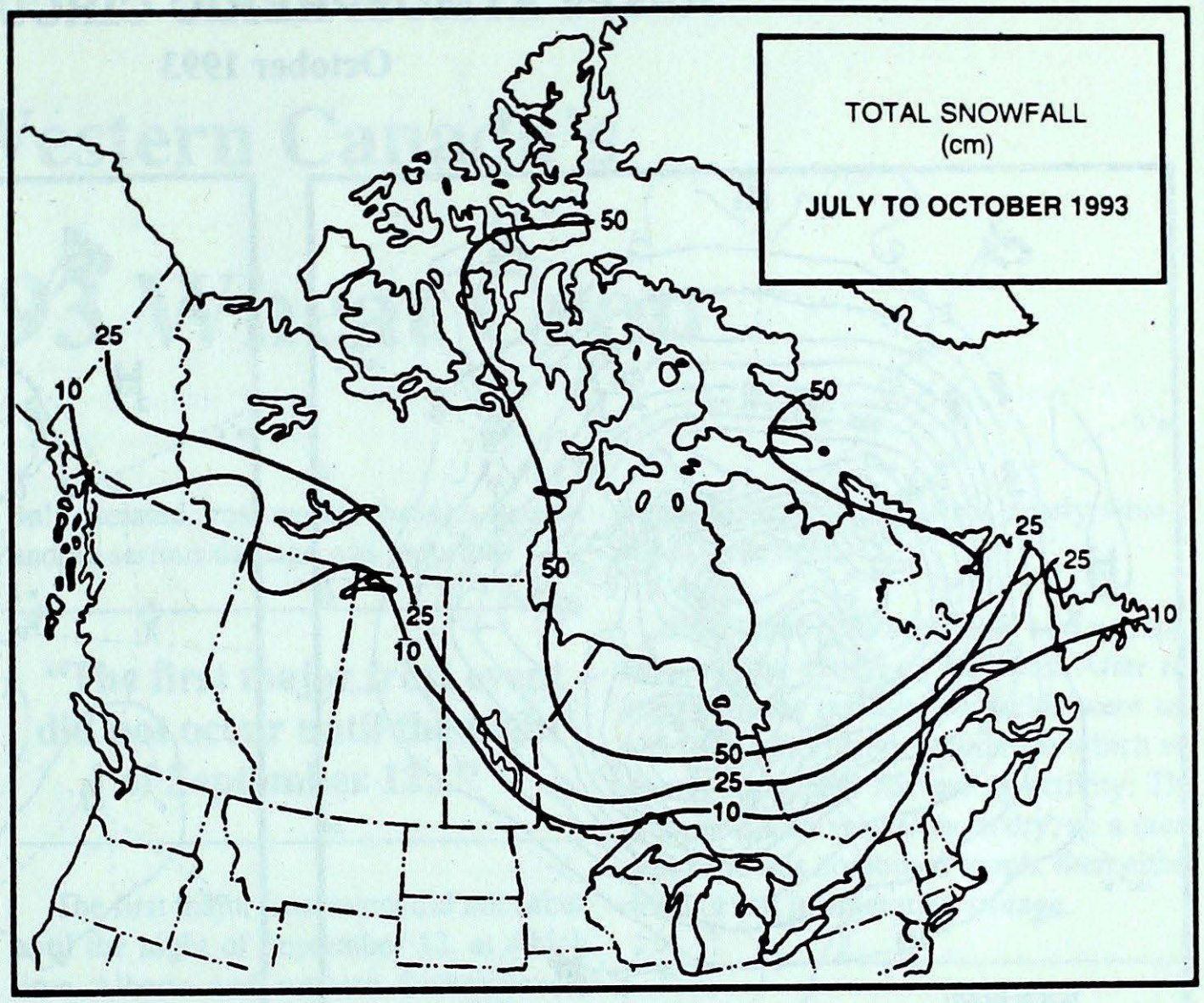


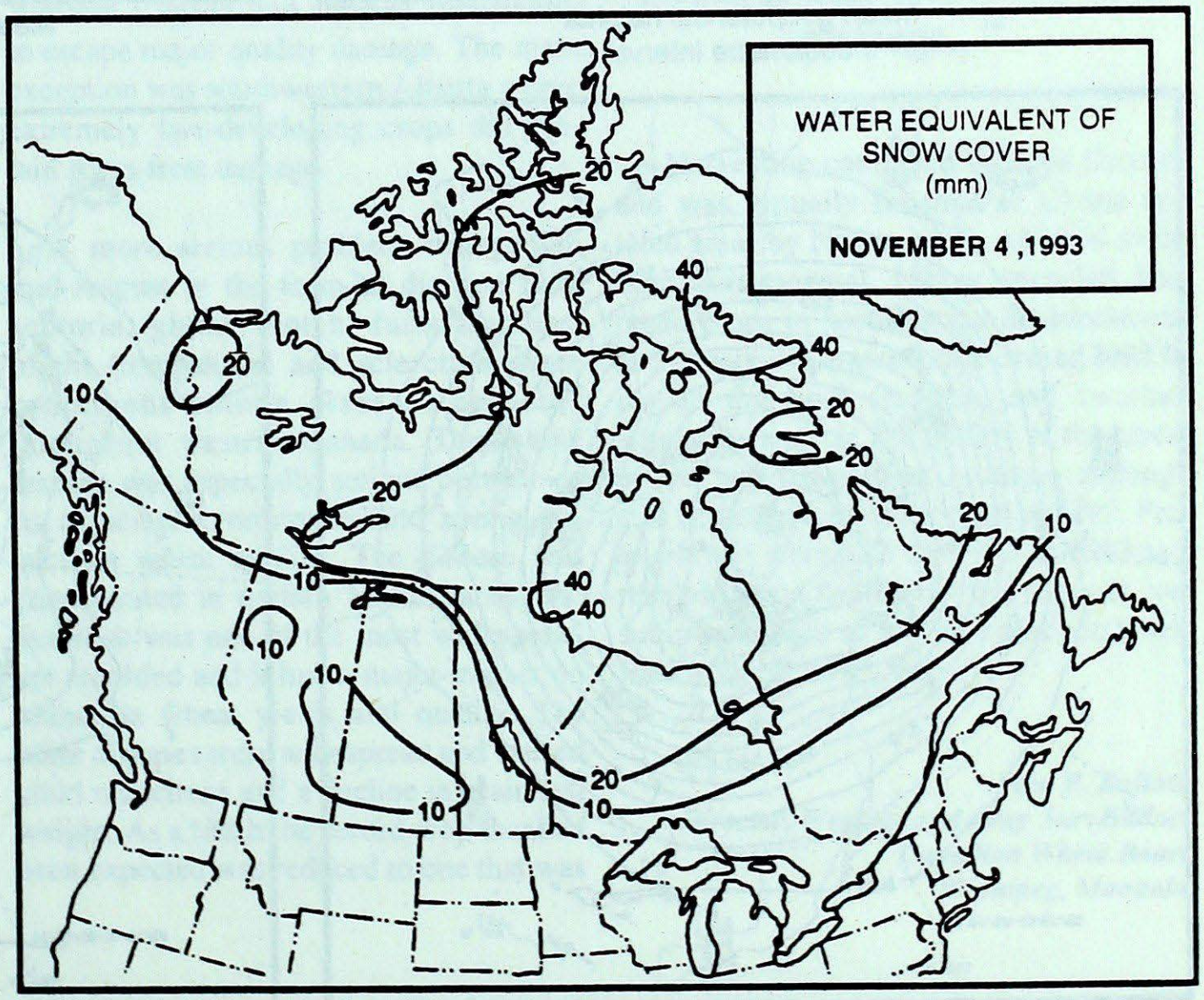
SEASONAL TOTAL OF HEATING DEGREE-DAYS TO END OF OCTOBER

	1993	1992	NORMAL
BRITISH COLUMBIA			
Kamloops	398	430	393
Penticton	395	385	393
Port Hardy	666	682	744
Vancouver	377	353	41
Victoria	461	475	492
YUKON TERRITORY			
Whitehorse	1040	1349	1149
NORTHWEST TERRITORIES			
Iqaluit	1872	1793	1850
Inuvik	1389	1790	1623
Yellowknife	1146	1244	1121
ALBERTA			
Calgary	853	882	748
Edmonton Mun.	720	806	667
Grande Prairie	831	960	844
SASKATCHEWAN			
Estevan	794	759	535
Regina	780	795	609
Saskatoon	844	825	645
MANITOBA			
Brandon	898	894	619
Churchill	1512	1613	1386
Dauphin	851	847	770
Winnipeg	757	740	547
ONTARIO			
Kapuskasing	890	945	786
London	465	505	597
Ottawa	513	553	420
Sudbury	703	753	565
Thunder Bay	828	825	658
Toronto	454	494	351
Windsor	344	344	249
QUEBEC			
Baie Comeau	907	938	848
Montréal	484	512	389
Québec	606	640	540
Sept-Îles	1009	984	919
Sherbrooke	626	716	612
Val d'Or	846	926	752
NEW BRUNSWICK			
Fredericton	563	550	483
Moncton	600	548	501
NOVA SCOTIA			
Sydney	471	535	471
Yarmouth	477	602	502
PRINCE EDWARD ISLAND			
Charlottetown	591	506	468
NEWFOUNDLAND			
Gander	854	800	694
St. John's	843	755	702

SEASONAL SNOWFALL TOTALS (cm)
TO END OF OCTOBER

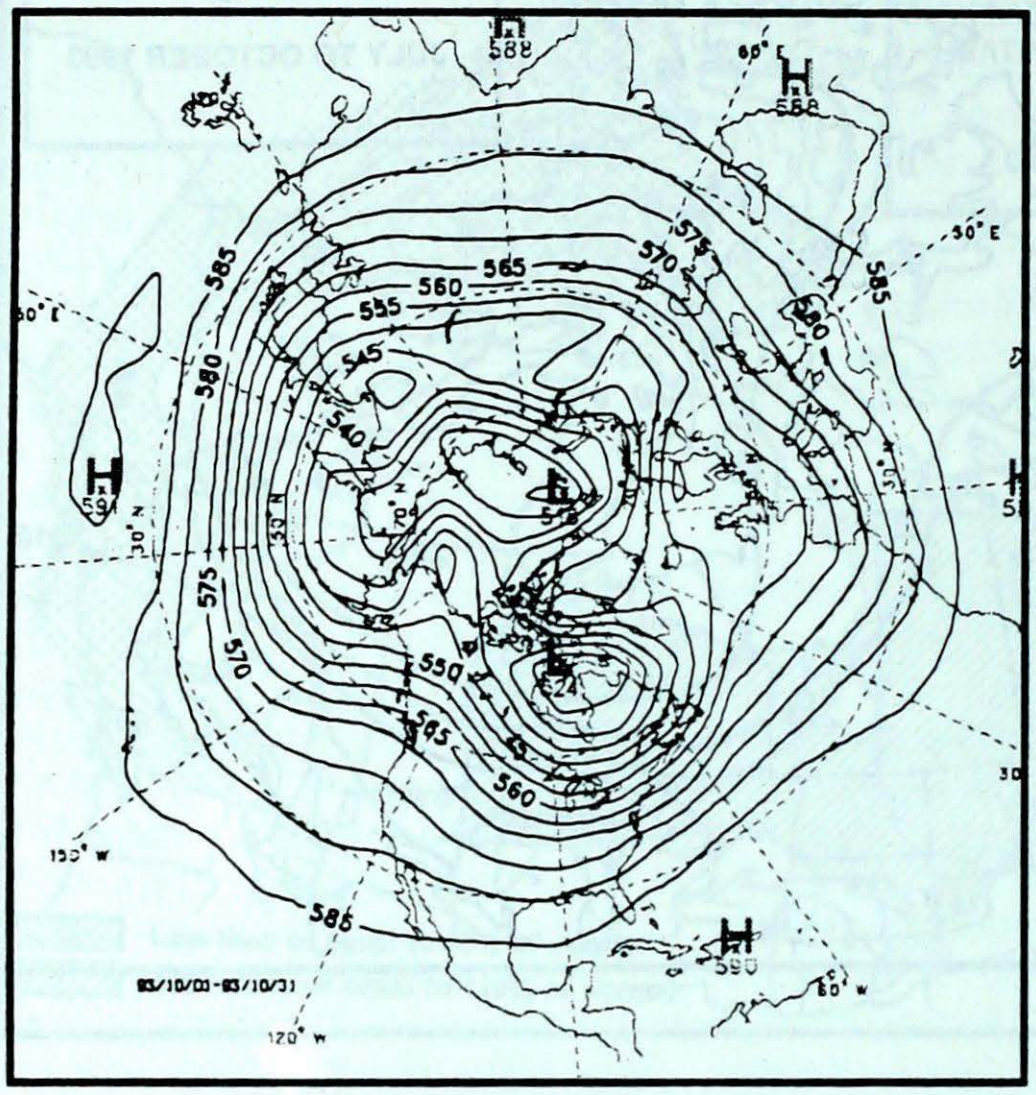
	1993	1992	NORMAL
BRITISH COLUMBIA			
Kamloops	0	0	0
Port Hardy	0	0	0
Prince George	0	38	10
Vancouver	0	0	0
Victoria	0	0	0
YUKON TERRITORY			
Whitehorse	21	67	21
NORTHWEST TERRITORIES			
Iqaluit	44	62	54
Inuvik	40	70	53
Yellowknife	20	23	27
ALBERTA			
Calgary	8	18	19
Edmonton Mun.	1	14	10
Grande Prairie	5	6	16
SASKATCHEWAN			
Estevan	1	14	8
Regina	4	10	10
Saskatoon	0	11	10
MANITOBA			
Brandon	0	12	7
Churchill	23	27	36
The Pas	9	18	12
Winnipeg	5	2	5
ONTARIO			
Kapuskasing	27	47	24
London	3	6	2
Ottawa	2	3	2
Sudbury	4	12	7
Thunder Bay	7	7	3
Toronto	1	0	0
Windsor	2	0	0
QUEBEC			
Baie Comeau	18	5	6
Montréal	1	0	2
Québec	0	0	4
Sept-Îles	30	2	11
Sherbrooke	5	5	6
Val d'or	35	19	16
NEW BRUNSWICK			
Fredericton	2	0	2
Moncton	1	0	3
NOVA SCOTIA			
Sydney	0	1	2
Yarmouth	0	2	3
PRINCE EDWARD ISLAND			
Charlottetown	2	0	3
NEWFOUNDLAND			
Gander	13	20	12
St. John's	1	0	4



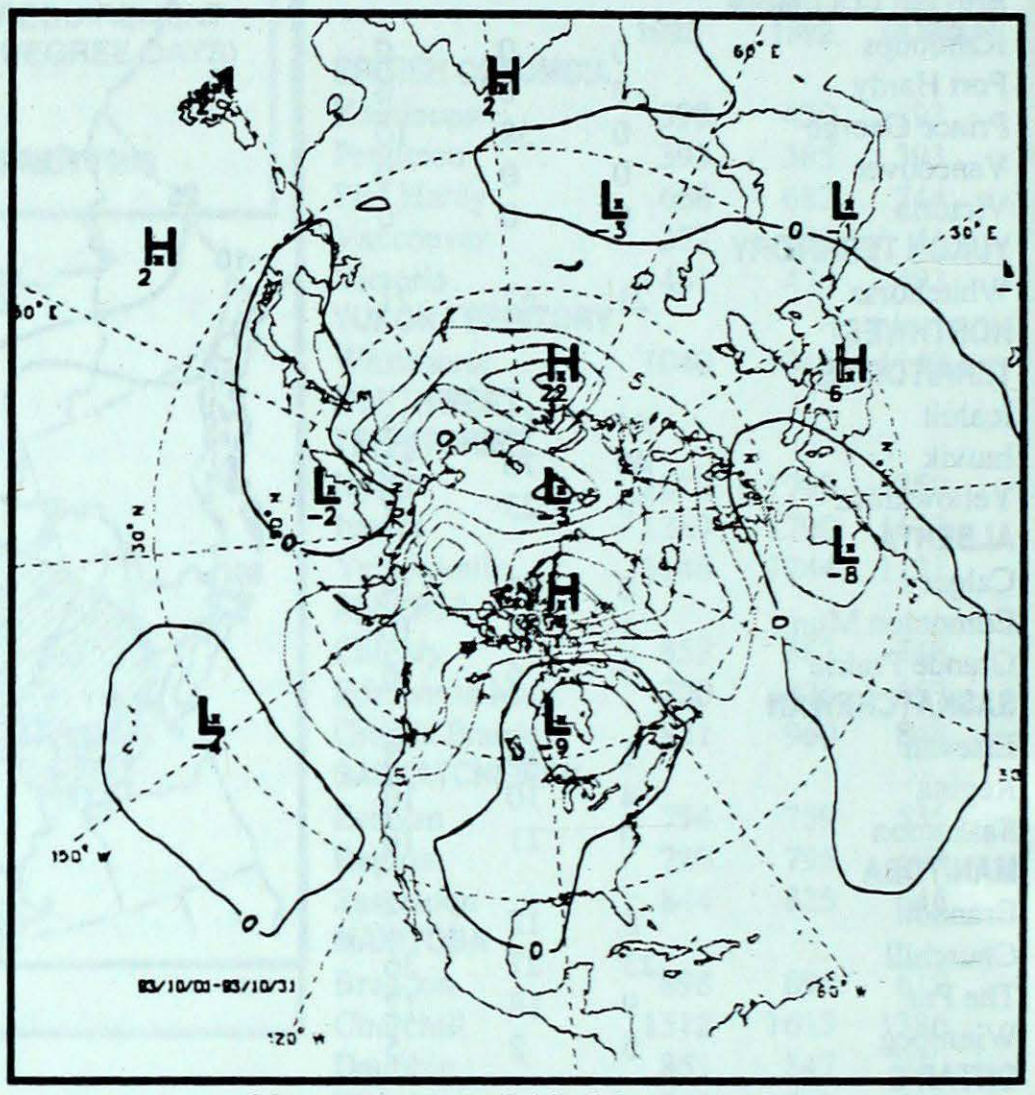


50-kPa ATMOSPHERIC CIRCULATION

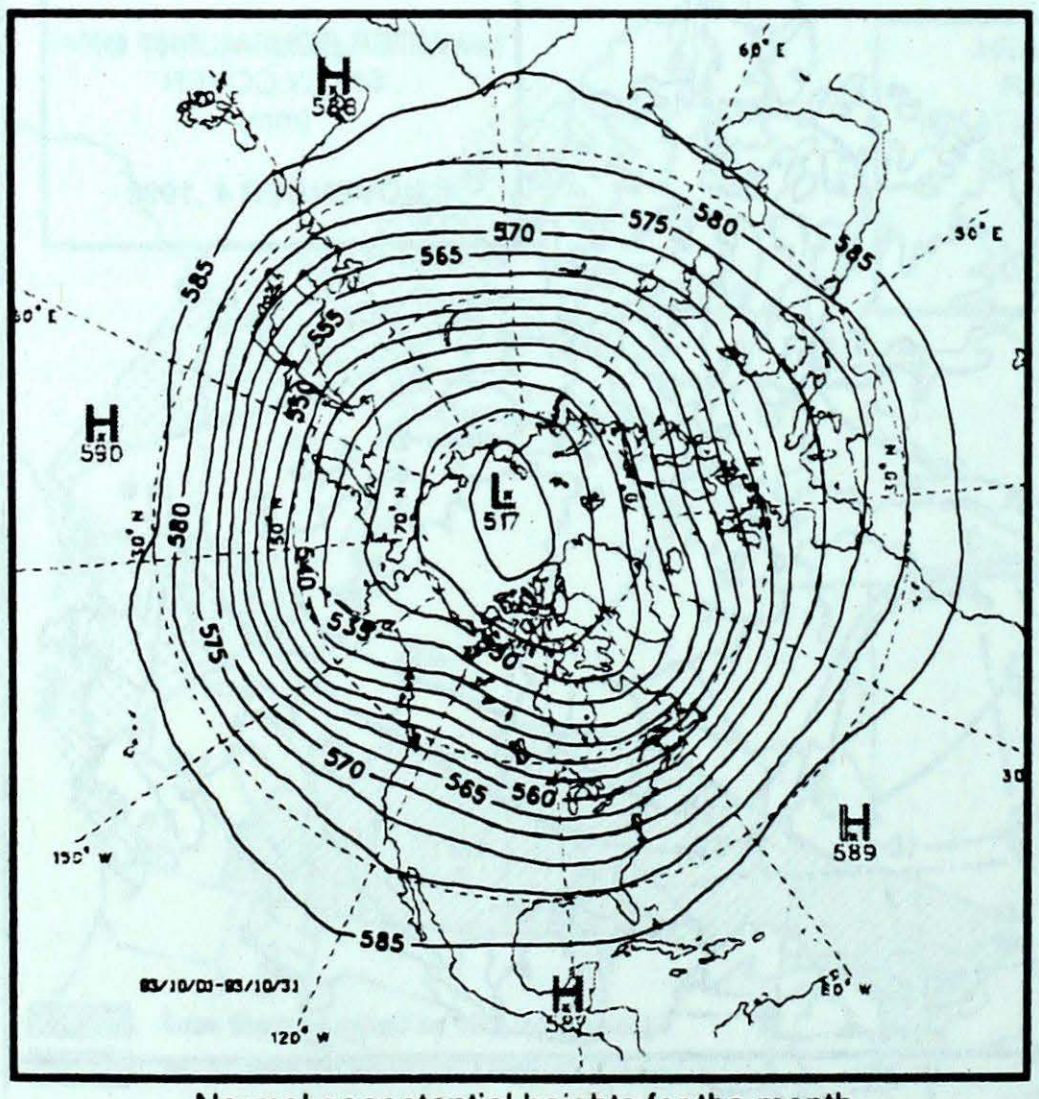
October 1993



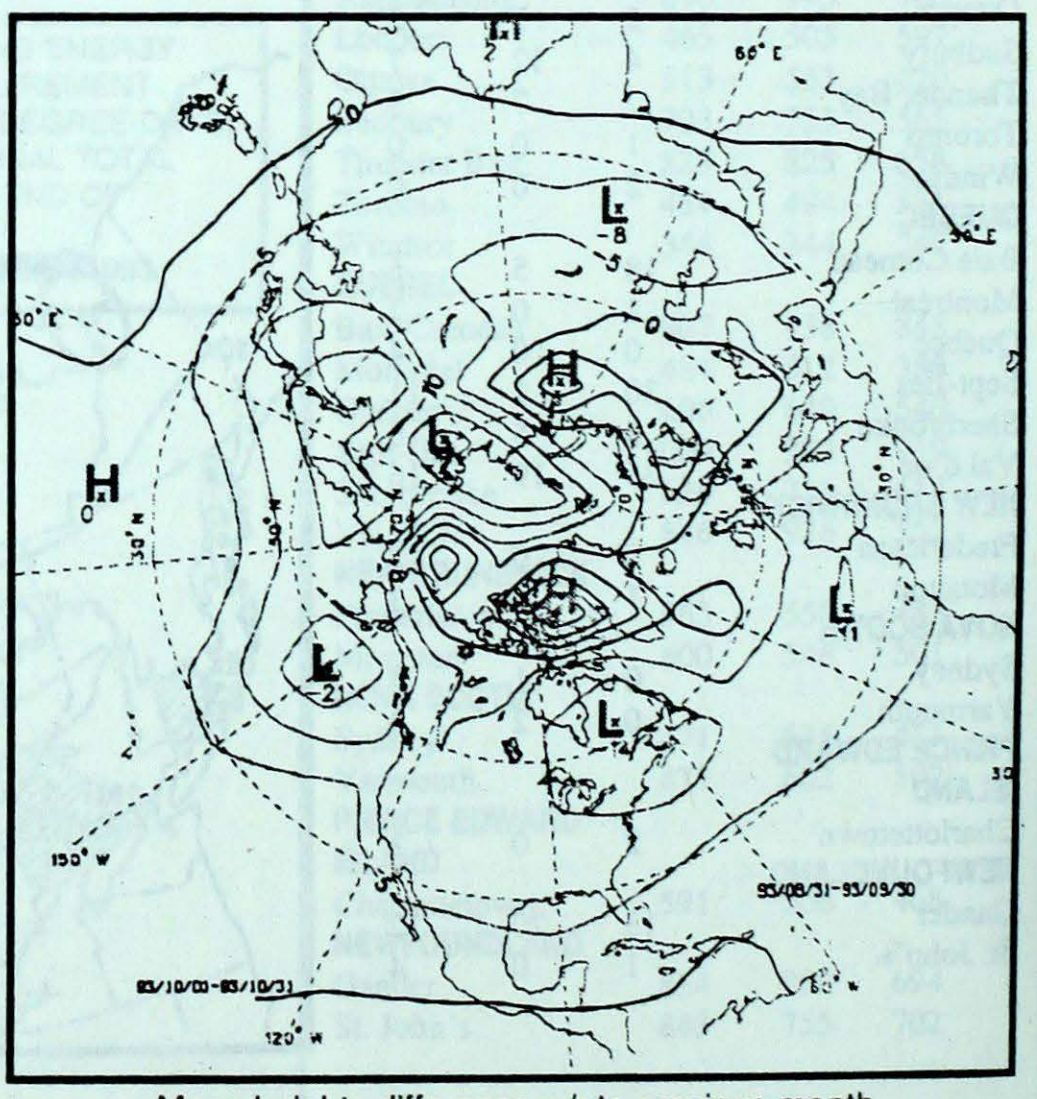
Mean geopotential heights
- 5 decametre interval -



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 -

Western Canada's 1993 Wheat Crop

In contrast to preceding years, soil moisture conditions were generally very favorable for spring planting in 1993. Farmers planted the crop very promptly and had completed seeding by the end of May. There was some crop damage as a result of spring frosts in the latter half of May and early June, mainly in eastern Saskatchewan and Manitoba. However, spring frost was not a significant problem since cool temperatures delayed germination which lowered crop vulnerability to freezing temperatures.

" Heavy summer rainfall and cool temperatures caused very lush crop growth..."

June rainfall was generous to most of the prairies and July rainfall erased all concerns about drought stress for 1993. Heavy summer rainfall and cool temperatures caused very lush crop growth and most locations across Western Canada had record yield potential. However, the concerns over frost damage continued to mount as the temperatures remained persistently cool through June, July and August and crop development lagged far behind normal.

By mid-July, the forecast ripening dates for spring wheat were expected to be late August or early September, only slightly ahead of the date when frost would normally be expected. However, there were only isolated frost events through August and no serious damage was reported.

"The first major frost event did not occur until the night of September 12..."

The first major frost event did not occur until the night of September 12, at which time Alberta and western Saskatchewan temperatures dropped to the -1 to -6 degree range. By this time, most of the wheat in Western Canada had ripened sufficiently to escape major quality damage. The main exception was southwestern Alberta where extremely late-developing crops did sustain some frost damage.

A more serious problem emerged in mid-August in the form of disease. Leaf septoria, glume blotch, fusarium head blight (tombstone) and sclerotinia were prominent among diseases reported throughout western Canada. Tombstone disease was especially serious because of its associated vomitoxins and strong impact on wheat quality. The disease was concentrated in eastern Manitoba but the outbreak was one of the most widespread yet recorded and it had a major impact on Manitoba wheat yields and quality. The other diseases were widespread and caused yield reductions and a decline in grain test weight. As a result the record crop that had been expected was reduced to one that was better than average but not nearly what it could have been.

September continued cool and wet and harvest was extremely delayed. After record summer rainfall, the fields were too wet to support heavy equipment which seriously hampered harvesting activity. The grain was also very slow to dry, so a great deal of it was combined tough, then either dried or put into aeration storage.

"As a result, the quality of the cereal grains was lower than average..."

Harvesting continued through October and was virtually finished in all but isolated areas by November 1, which is much later than normal. Heavy snowfall flattened crops in northeastern Saskatchewan and frequent rain elsewhere caused bleaching in the both standing and swathed wheat. As a result, the quality of the cereal grains was lower than average, although still better than the poor crop of 1992. Protein levels were also very low in 1993 as a result of heavy crop growth in the cool, wet summer as well as low soil nitrogen levels following the 1992 crops.

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Director, Weather and Crop Surveillance
Canadian Wheat Board
Winnipeg, Manitoba

Tornado Climatology

From the perspective of a climatologist, there are some striking similarities between tornadoes and cockroaches. Where you see one, you strongly suspect that there are more, and the number that you find depends very much upon the number of observers and how well located they are. Tornadoes are more often observed in urban areas; similarly cockroaches! It has been suggested that rural statistics are an underestimate (of tornado frequency) by at least a factor of 3 due to unseen or unreported tornadic events (note that the cockroach analogy begins to break down... tornadoes do not make an effort to avoid discovery).

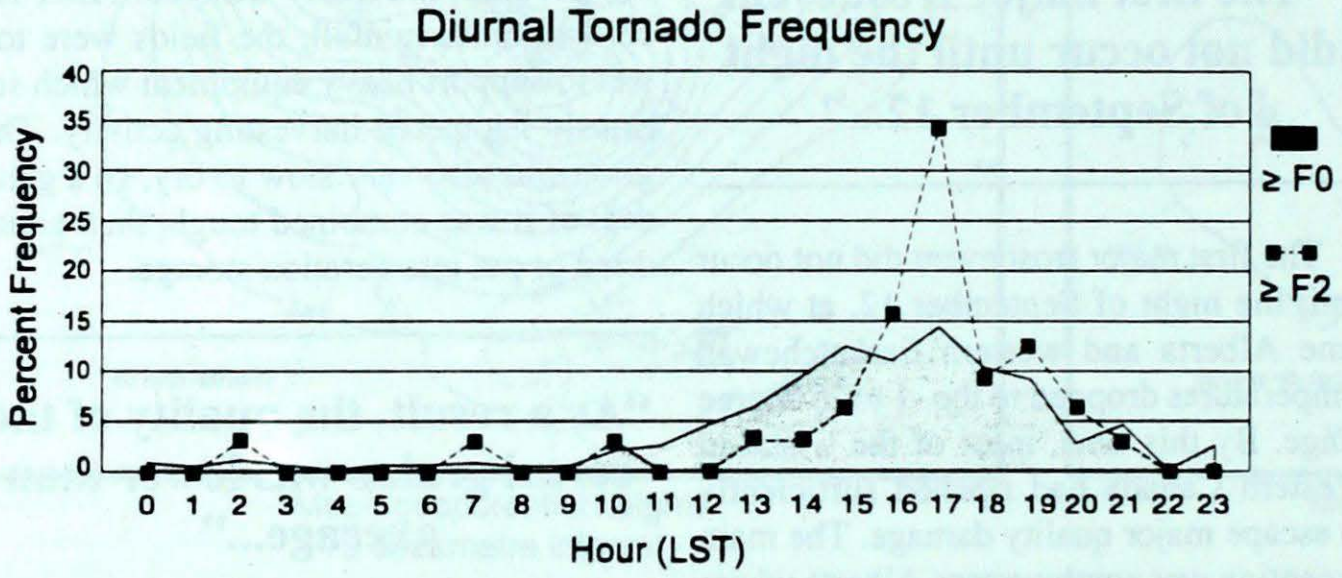

Figure 1: The relative frequencies of tornadoes according to local standard time. This graph is based upon 447 F0 or greater tornadoes and 33 F2 or greater tornadoes from the period 1950 to 1979 across Canada.

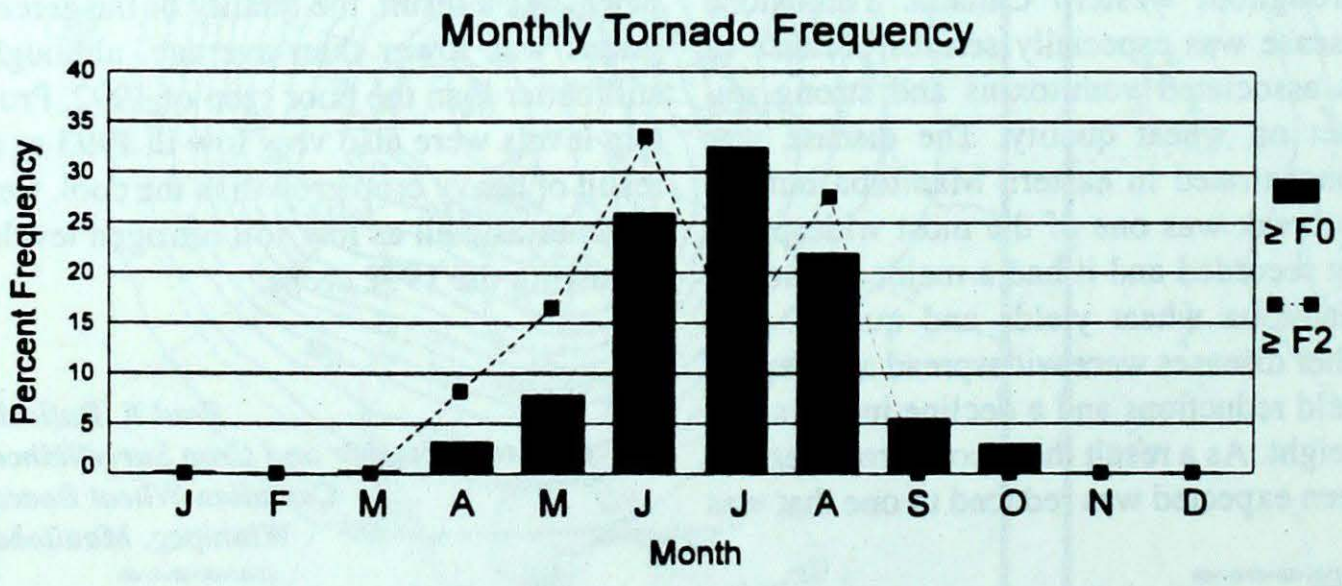

Figure 2: The relative frequencies of tornadoes by month across Canada for the period 1970-1979, based upon 617 F0 or greater tornadoes and 36 F2 or greater tornadoes.

Tornadoes, because of their microscale nature, are not easily caught by a synoptic scale observing network. In fact, for many years it was thought that tornadoes were virtually non-existent in Canada, being an event confined to our southern neighbour. For example, an article in the Toronto Globe dated September 7, 1883 notes that "The Canadian north-west is fortunately outside the great storm belt as it is appropriately called, and the destructive tornadoes so common in the American north-west are unknown here." We now have a much better awareness of the occurrence of tornadoes, though we know almost nothing about tornado climatology over unpopulated areas of Canada. It is mainly due to the laudable efforts of Michael Newark, that Environment Canada has developed a national tornado database.

Tornadoes occur most frequently in the mid to late afternoon, though they have been observed at all times of the day and night (**fig. 1**). The late afternoon peak becomes more pronounced if one considers more severe events. This is presumably because the solar heating trigger becomes more critical for the production of stronger tornadoes. The tornado season starts in April and ends in October, with July being the month of most frequency events (**fig 2**).

The intensity of tornadoes is rated on an F-scale, named after T. Fujita. The weakest tornado is an F0 while the strongest is an F5. The relative frequency of tornadoes by F-scale for Canada is shown in **figure 3**. Note that there has never been an F5 tornado in Canada (at least one that has been observed) though there have been a number in the U.S.

The worst U.S. tornado (or tornado family) occurred on March 18, 1925 in the states of Missouri, Illinois and Indiana. It

was rated as an F5 and killed 695 people. The worst Canadian tornado occurred at Regina on June 30, 1912. Twenty-eight people were killed, hundreds injured and property damage amounted to $4 million (1912 dollars). In comparison, the U.S. has experienced 94 tornadoes which resulted in more than 28 deaths. The ten worst Canadian tornadoes are listed in **table 1**, in order of death toll.

According to Grazulis (1991) Canada rates as second in the world for tornado occurrence (after the U.S.), followed by Russia.

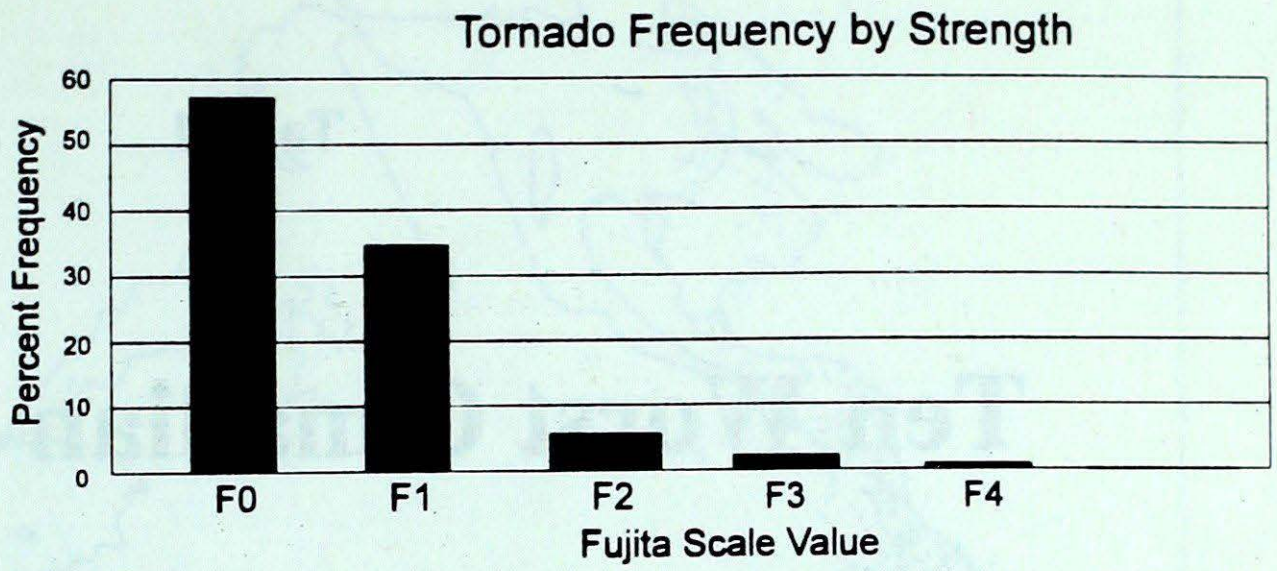

Figure 3: Relative frequencies of the F-scale of 437 Canadian tornadoes, for the period 1950-1979.

Figure 4 shows national tornado trends from 1918 through 1990. Note the large increase in tornadoes occurring around 1980. This observational increase results from a number of factors, including an increased awareness of tornadoes in the meteorological community and the public, the development of severe weather watcher networks and the use of radar in detecting severe weather.

A question of considerable interest is whether or not the number of tornadoes increased as well, though this is difficult to know. What is certain though, is that any 'probability of tornado' statistics generated using pre-1980 data is a greater underestimate than previously thought, particularly in western Canada. **Figure 5** shows the locations of all confirmed or suspected tornadoes from 1916 through 1989.

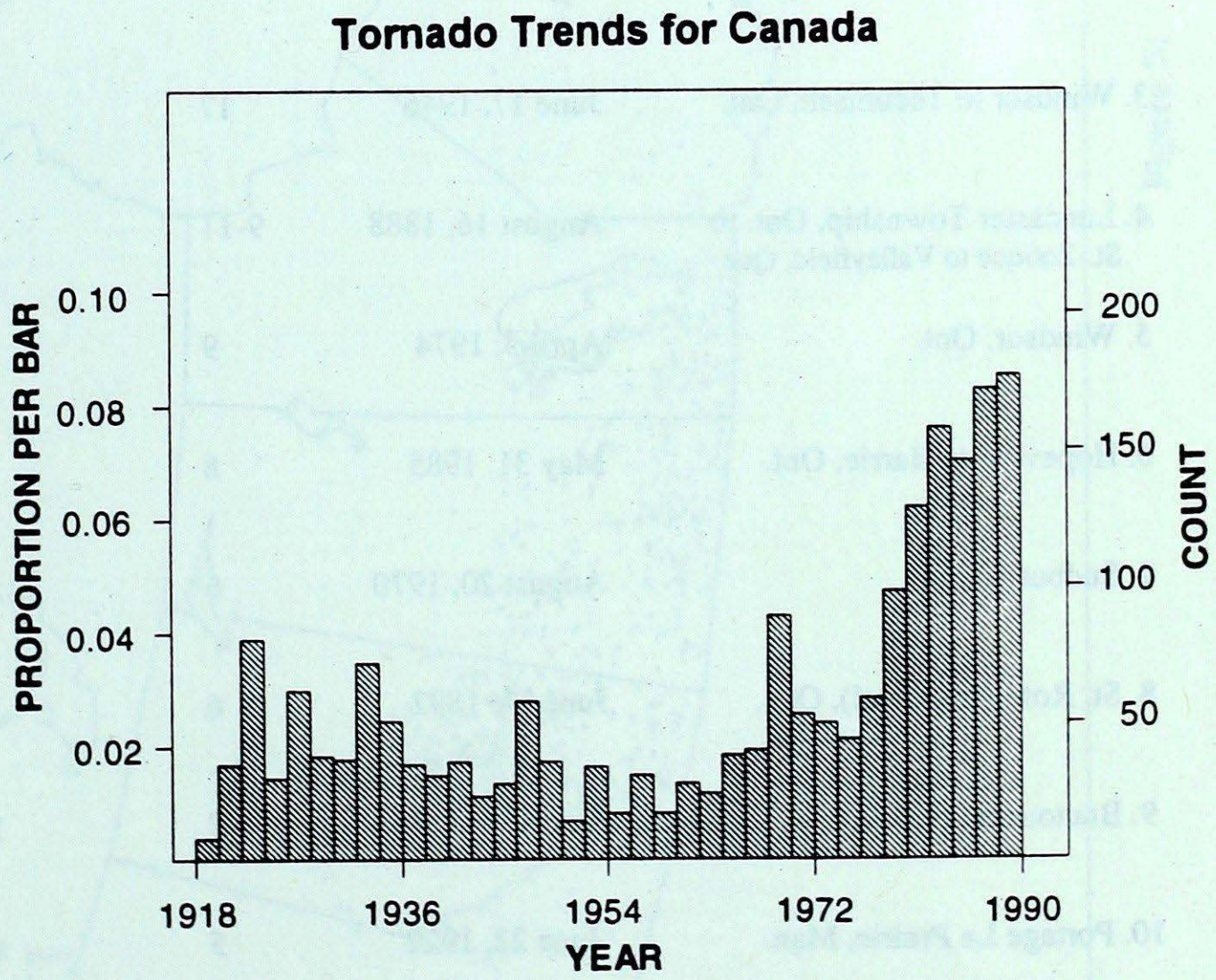

Figure 4: National tornado trends from 1918 through 1990.

References:

Grazulis, T.P. 1991 Significant Tornadoes, 1880-1989. Volume I: Discussion and Analysis. Environmental Films, St. Johnsbury, Vt., 526 pp.

Newark, M.J. 1983 Tornadoes in Canada for the Period 1950 to 1979. CLI-2-83, Atmospheric Environment Service, Canada, 88 pp.

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Table 1

Ten Worst Canadian Tornadoes

Location	Date	Deaths	Injured	Damage
1. Regina, Sask.	June 30, 1912	28	hundreds	$4 million
2. Edmonton, Alta.	July 31, 1987	27	300	$250 million
3. Windsor to Tecumseh, Ont.	June 17, 1946	17	hundreds	$1.5 million (conservative estimate)
4. Lancaster Township, Ont. to St.-Zotique to Valleyfield, Que.	August 16, 1888	9-11	14	extensive property damage
5. Windsor, Ont.	April 3, 1974	9	30	$500 thousand
6. Hopeville to Barrie, Ont.	May 31, 1985	8	155	> 1000 buildings damaged
7. Sudbury, Ont.	August 20, 1970	6	200	$10 million
8. St. Rose (Montreal), Que.	June 14, 1892	6	26	homes and barns flattened
9. Buctouche, N.B.	August 6, 1879	5-7	10	$100 thousand and 25 families homeless
10. Portage La Prairie, Man.	June 22, 1922	5	scores	$2 million

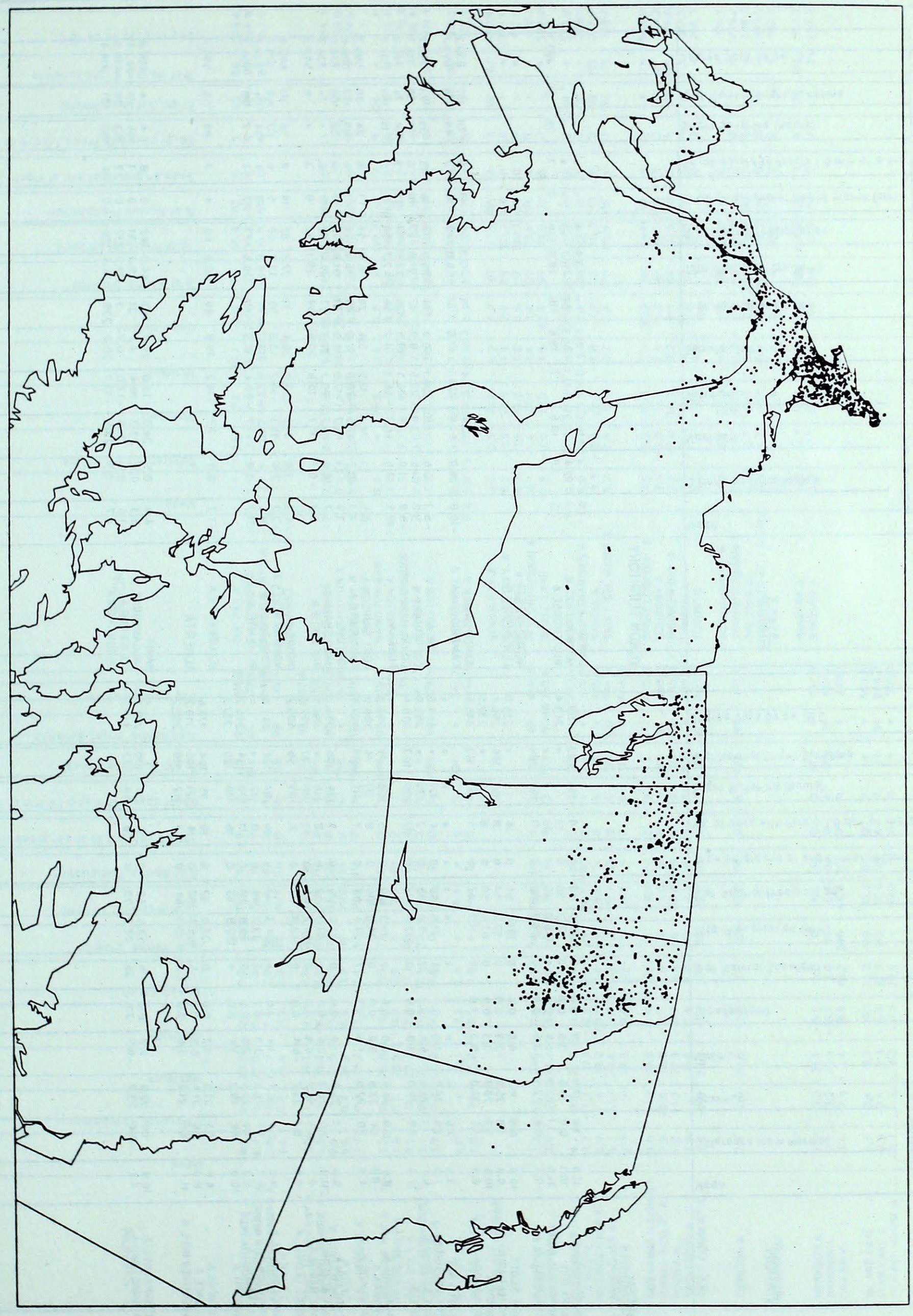

Figure 5:

OCTOBER 1993

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
BRITISH COLUMBIA													
ABBOTSFORD A	11.9	1.8	27.0	1.9	0.0	0	82.0	53	0	9	155	113	177.5
ALERT BAY	10.1	0.8	19.6	3.5	0.0	0	118.2	56	0	13	*	*	243.4
AMPHITRITE POINT	11.6	1.1	20.8	6.6	0.0	*	130.8	36	0	10	*	*	198.1
BLUE RIVER A	5.4	0.4	23.3	-3.6	0.0	0	76.2	100	0	11	100	109	*
CAPE SCOTT	10.6	0.8	15.1	6.0	0.0	0	191.6	54	0	14	*	*	226.0
CASTLEGAR A	9.6	1.8	25.9	-2.3	0.0	0	32.6	57	0	8	157	126	259.4
COMOX A	10.5	1.3	20.7	3.3	0.0	0	63.6	50	0	8	130	*	232.5
CRANBROOK A	6.9	1.5	22.0	-5.3	1.0	30	11.2	62	0	5	191	113	345.6
DEASE LAKE	3.9	2.6	*	*	*	*	*	*	*	*	*	*	*
FORT NELSON A	3.0	1.9	26.7	-7.0	6.4	34	21.9	90	0	4	121	*	464.8
FORT ST JOHN A	5.4	1.1	23.6	-6.4	2.2	12	9.8	35	0	2	179	*	389.9
HOPE A	12.3	1.9	29.0	3.8	0.0	0	132.0	77	0	12	108	103	180.4
KAMLOOPS A	8.4	0.0	24.4	-0.8	0.0	0	13.2	100	0	5	108	79	296.2
KELOWNA A	8.1	1.4	23.6	-5.0	0.0	0	34.8	180	0	8	111	74	308.0
MACKENZIE A	4.8	1.0	22.0	-4.6	1.2	7	27.4	54	0	7	117	101	407.9
PENTICTON A	9.8	1.1	25.4	-1.0	0.0	0	27.4	179	0	7	134	85	256.2
PORT ALBERNI A	11.8	2.0	26.0	0.0	0.0	*	91.3	52	0	8	116	*	191.9
PORT HARDY A	9.2	0.5	16.2	0.9	0.0	0	108.2	44	0	13	96	97	272.8
PRINCE GEORGE A	4.9	0.1	23.7	-6.4	0.0	0	42.8	72	0	8	105	96	405.2
PRINCE RUPERT A	9.0	0.9	18.4	1.4	1.0	*	224.3	61	0	16	87	134	283.0
PRINCETON A	8.3	1.7	26.5	-3.3	0.2	7	33.2	146	0	8	142	*	*
REVELSTOKE A	8.2	1.9	22.5	-2.0	0.0	0	78.8	111	0	11	120	134	305.2
SANDSPIT A	10.8	1.8	18.2	3.4	0.0	*	120.8	62	0	16	110	120	222.1
SMITHERS A	6.0	1.3	21.3	-3.2	0.0	0	27.0	42	0	10	95	104	372.6
TERRACE A	8.0	1.6	21.4	0.8	0.2	5	166.6	100	0	14	121	195	310.2
VANCOUVER INT'L A	11.4	1.4	21.2	3.6	0.0	*	73.1	64	0	7	142	118	202.2
VICTORIA INT'L A	10.9	1.0	22.5	2.8	0.0	*	53.5	68	0	4	157	109	219.3
WILLIAMS LAKE A	4.7	-0.4	23.2	-6.5	2.6	35	27.3	90	0	6	98	72	412.2

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
YUKON TERRITORY													
DAWSON A	-1.9	*	10.4	-14.0	11.1	*	13.9	*	*	*	*	*	*
MAYO A	0.1	2.4	13.2	-12.1	14.3	69	17.7	63	*	*	*	*	*
WHITEHORSE A	2.5	1.9	18.6	-7.7	18.6	116	28.8	134	2	7	76	81	482.7
NORTHWEST TERRITORIES													
BAKER LAKE A	8.8	-1.1	-0.4	-23.4	17.3	75	17.1	56	13	9	73	102	830.2
CAMBRIDGE BAY A	-10.8	0.9	-1.0	-26.1	7.8	51	6.8	46	14	2	44	76	893.7
CLYDE A	-6.3	0.6	1.8	-24.1	50.0	134	39.0	114	16	15	35	73	753.7
COPPERMINE A	-5.0	1.6	3.9	-20.5	9.8	47	21.6	67	10	6	69	150	714.3
CORAL HARBOUR A	-6.8	1.0	2.8	-19.5	33.6	126	33.8	91	33	9	64	74	770.8
EUREKA	-18.5	3.6	-6.2	-36.3	4.2	56	2.7	100	4	0	15	169	1132.0
FORT SIMPSON A	0.5	1.1	14.1	-17.5	5.4	29	15.4	57	1	6	84	99	585.2
FORT SMITH A	0.1	-0.2	12.5	-20.0	7.8	49	16.9	64	1	6	89	102	558.4
IQALUIT	-3.9	1.1	5.2	-17.0	36.0	91	31.6	72	9	6	58	100	678.6
HALL BEACH A	-5.7	4.8	0.7	-20.7	27.2	127	19.4	92	17	6	*	*	734.0
HAY RIVER A	0.2	-0.7	11.7	-10.6	20.6	109	28.1	92	0	3	*	*	549.3
INUVIK A	-4.3	3.8	11.0	-23.0	26.4	71	27.3	82	19	8	56	111	690.9
NORMAN WELLS A	-2.2	2.4	11.3	-16.2	13.8	55	13.4	50	5	6	112	190	625.7
POND INLET A	-8.5	*	4.5	-22.8	18.2	*	9.8	*	8	4	34	*	822.1
RESOLUTE A	-11.2	3.9	-1.7	-30.4	17.8	120	10.6	77	17	7	7	28	904.3
YELLOWKNIFE A	-1.3	0.3	7.7	-14.2	19.8	86	20.6	60	4	7	89	159	596.7
ALBERTA													
BANFF	4.9	0.5	24.0	-10.0	29.0	163	44.8	143	0	8	*	*	406.8
CALGARY INT'L A	6.3	0.8	23.3	-10.4	4.2	31	9.0	51	0	1	196	111	363.4
COLD LAKE A	3.6	-0.9	21.5	-13.0	0.2	3	39.2	232	0	3	153	99	446.5
CORONATION A	4.7	-0.1	23.5	-13.1	20.0	230	26.4	100	0	4	180	101	414.4

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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 INT'L A	4.7	0.0	23.2	-12.7	0.2	3	15.0	97	0	2	178	109	411.8
EDMONTON MUNICIPAL	6.0	0.2	23.0	9.6	0.6	*	15.2	92	0	2	184	114	372.5
EDMONTON NAMAO A	5.6	0.5	23.3	9.4	2.0	26	16.6	92	0	4	*	*	384.8
EDSON A	4.6	0.9	25.5	-11.5	9.8	49	16.9	86	0	6	148	98	415.4
FORT MCMURRAY A	1.8	-1.5	19.7	-14.9	2.6	20	17.2	61	0	5	122	97	502.6
GRANDE PRAIRIE A	5.5	1.3	25.2	-8.2	5.4	46	31.6	119	0	7	169	*	389.1
HIGH LEVEL A	0.9	-1.1	21.9	11.7	18.1	118	32.7	227	0	4	92	65	529.3
JASPER	5.6	0.9	24.2	6.6	1.0	19	16.0	55	0	6	158	*	383.8
LETHBRIDGE A	7.7	0.2	25.1	-13.7	7.4	63	19.9	112	0	6	196	112	326.1
MEDICINE HAT A	7.2	-0.2	25.8	-7.1	2.3	29	14.1	87	0	5	184	106	335.3
PEACE RIVER A	3.9	0.2	23.5	11.0	0.0	0	9.0	45	0	3	*	*	440.8
RED DEER A	4.5	0.1	23.3	12.3	7.1	60	12.7	62	0	4	*	*	407.1
ROCKY MTN HOUSE A	4.7	-0.2	25.3	-11.6	12.4	83	16.8	74	0	5	*	*	411.1
SLAVE LAKE A	3.9	-0.3	20.2	-10.9	0.0	0	22.6	91	0	6	139	94	429.5
SUFFIELD A	6.8	*	25.1	-7.2	6.8	*	18.4	*	0	5	184	*	347.2
WHITECOURT A	4.8	1.4	25.2	-10.5	0.6	4	16.7	61	0	4	*	*	410.1
SASKATCHEWAN													
BROADVIEW	3.2	-1.1	21.8	-11.6	1.2	14	14.4	100	0	5	155	97	458.7
ESTEVAN A	3.9	-2.5	24.2	-13.8	0.4	6	8.1	37	0	3	183	97	399.6
KINDERSLEY	4.7	0.6	22.3	-7.7	3.4	50	7.2	52	0	2	182	*	413.5
LA RONGE A	1.3	-1.3	17.1	-12.2	2.6	27	30.6	90	0	7	*	*	516.9
MEADOW LAKE A	3.0	*	16.2	-11.9	1.4	*	28.8	*	0	5	147	*	465.8
MOOSE JAW A	5.3	-1.1	23.4	-7.7	0.2	3	9.7	53	0	4	175	100	394.8
NIPAWIN A	2.3	*	18.5	10.0	1.0	*	11.0	*	0	4	114	*	484.8
NORTH BATTLEFORD A	3.8	-1.1	22.9	-11.4	0.0	0	8.1	51	0	3	*	*	440.0
PRINCE ALBERT A	2.9	-0.8	18.8	-12.4	0.6	6	11.0	51	0	3	138	94	468.0
REGINA A	4.0	-1.2	22.9	-10.7	3.8	46	12.8	68	0	5	171	102	435.3
SASKATOON A	3.8	-1.1	21.6	-10.4	0.0	0	2.5	14	0	0	163	*	439.0
SWIFT CURRENT A	5.0	-0.8	23.3	-7.9	5.4	59	19.0	105	0	7	181	107	403.2
YORKTON A	2.8	-2.0	20.4	-10.8	2.8	37	12.8	56	0	4	139	89	471.4
MANITOBA													
BRANDON A	2.0	-3.2	21.4	-15.5	0.0	0	4.4	20	0	2	142	*	497.8
DAUPHIN A	2.3	-3.2	20.5	-13.7	3.0	36	10.4	100	0	4	113	74	487.7
GILLAM A	-3.6	-2.9	3.4	-19.0	61.2	290	44.4	113	12	9	*	*	670.1
ISLAND LAKE	0.8	3.4	9.7	-10.1	23.0	140	35.2	64	12	7	*	*	563.4
LYNN LAKE A	-2.9	-2.4	5.3	-16.9	32.8	118	37.0	79	14	7	67	94	648.3
NORWAY HOUSE A	-0.7	*	9.2	-17.5	29.0	*	40.2	*	8	8	*	*	581.3
THE PAS A	1.1	-2.5	12.7	-10.7	9.2	90	30.4	92	0	5	103	86	523.6
THOMPSON A	3.4	3.1	7.4	-24.4	25.4	92	39.2	74	4	9	70	89	664.9
WINNIPEG INT'L A	3.1	3.0	17.7	9.1	4.6	88	19.8	64	0	4	128	84	463.9
ONTARIO													
EARLTON A	2.8	-2.6	13.8	6.0	18.4	245	103.8	148	0	13	*	*	469.3
GERALDTON A	0.5	*	17.7	-10.1	36.2	*	58.4	*	7	11	*	*	518.0
GORE BAY A	5.9	-2.4	15.0	-1.6	6.8	358	118.6	175	0	11	*	*	374.5
HAMILTON RBG	8.9	*	26.5	-3.0	0.0	*	89.2	*	0	9	124	*	*
HAMILTON A	7.7	-1.7	25.2	-4.2	9.2	708	99.0	162	0	10	*	*	319.0
KAPUSKASING A	1.2	-3.2	11.8	-7.8	25.1	119	74.6	96	2	14	*	*	518.1
KENORA A	2.0	-3.6	18.7	-7.7	36.8	497	55.1	135	5	9	*	*	495.4
KINGSTON A	7.9	-1.1	20.3	-3.5	5.0	500	76.2	93	0	9	118	78	314.1
LONDON A	8.0	-1.4	24.8	-2.9	3.2	168	77.7	106	0	11	116	82	311.0
MUSKOKA A	5.8	-1.7	20.2	-5.5	5.2	163	122.6	131	2	15	*	*	376.9
NORTH BAY A	3.7	2.7	15.4	6.2	4.2	61	127.5	145	0	13	80	67	442.4
OTTAWA INT'L A	6.2	-1.9	21.8	-3.9	2.4	89	101.2	149	0	13	*	*	365.6
PETAWAWA A	4.7	-1.6	19.3	-7.8	0.6	12	100.1	138	0	10	*	*	412.4
PETERBOROUGH A	6.1	-1.4	22.7	-8.4	1.4	127	77.4	125	0	11	*	*	370.1
PICKLE LAKE	-0.9	-3.6	16.0	-11.6	62.4	299	79.0	125	15	11	*	*	584.0
RED LAKE A	0.8	3.2	17.3	-8.5	27.6	253	40.0	79	13	10	84	*	533.8
ST CATHARINES A	9.0	-1.1	24.7	-3.1	1.4	700	82.9	116	0	9	131	*	280.1
SARNIA A	9.1	-0.8	25.5	-2.8	1.2	32	65.2	110	0	8	159	110	277.4
SAULT STE MARIE A	5.2	-2.4	15.6	-5.7	11.4	187	116.4	157	0	13	93	79	398.7
SIOUX LOOKOUT A	1.5	-3.2	19.3	-7.5	30.2	211	54.6	84	7	12	*	*	508.9
SUDBURY A	3.5	-2.8	15.2	-7.4	4.2	67	96.4	129	0	12	81	67	451.2
THUNDER BAY A	2.7	-3.0	20.4	-11.2	6.4	194	32.5	100	0	5	121	94	474.0
TIMMINS A	1.5	-3.3	12.5	-7.2	21.2	168	85.8	125	0	14	*	*	512.5
TORONTO	9.5	*	21.5	-0.8	0.0	*	76.4	*	0	7	*	*	264.3
TORONTO INT'L A	7.9	1.4	26.8	-4.4	0.8	89	71.0	115	0	9	*	*	316.9
TORONTO ISLAND A	8.4	*	19.0	-0.3	0.0	0	80.3	*	0	8	*	*	296.2
TRENTON A	6.5	-2.7	17.5	-5.4	2.0	333	99.6	142	0	9	*	*	338.7
WATERLOO WELLINGTON	6.9	-1.3	25.1	-5.4	4.4	629	70.8	104	0	10	*	*	345.5
WAWA A	2.4	*	14.6	-7.4	2.2	*	96.2	*	0	12	*	*	482.5
WIARTON A	6.9	2.1	19.4	2.4	10.5	318	104.8	127	1	15	107	80	357.3
WINDSOR A	10.0	-1.1	26.9	-0.7	1.6	***	57.0	100	0	7	*	*	250.3

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QUEBEC													
BAGOTVILLE A	2.6	-2.7	12.8	-9.4	24.2	207	117.9	164	0	17	*	*	478.3
BAIE COMEAU A	2.6	-1.7	13.1	-8.6	18.4	302	176.6	198	0	14	99	82	478.9
BLANC SABLON A	2.9	-0.8	12.9	-8.4	3.4	38	142.2	144	0	12	110	*	458.9
CHIBOUGAMAU CHAPAIS	-0.6	*	7.8	-10.0	*	*	106.2	*	0	20	*	*	575.4
GASPE A	3.4	*	17.0	-7.4	12.2	*	117.0	*	0	12	116	*	452.3
INUKJUAK A	-2.4	-2.0	4.8	-12.2	42.6	194	54.7	119	10	17	57	110	632.5
KUUJJUAQ A	-2.8	-1.9	8.0	-14.7	60.9	224	62.3	128	10	12	84	172	644.8
KUUJJUARAPIK A	-1.0	-3.0	7.1	-9.0	60.5	222	72.9	99	7	18	46	97	589.4
LA GRANDE IV A	-3.1	*	6.5	-16.0	97.2	*	92.6	*	16	19	35	*	653.1
LA GRANDE RIVIERE A	-1.9	*	5.9	-9.5	70.8	*	92.4	*	9	14	61	*	614.4
MONT JOLI A	3.8	-1.9	15.3	-8.4	8.4	114	158.2	209	0	15	107	92	441.2
MONTREAL INT'L A	6.5	-2.2	20.8	-5.3	0.8	47	123.2	163	0	13	122	89	358.0
MONTREAL MIRABEL I/	5.2	*	20.2	-7.1	1.8	*	144.4	*	0	14	136	*	397.3
NATASHQUAN A	2.1	-2.0	10.7	-9.4	12.0	308	175.2	162	0	15	117	90	495.7
QUEBEC A	4.3	-2.3	17.0	-6.6	0.2	5	156.2	172	0	15	108	93	425.3
ROBERVAL A	2.7	2.5	12.6	-9.9	13.4	133	80.6	126	0	12	74	*	475.9
SEPT-ILES A	1.2	-2.4	11.0	-11.5	29.8	281	188.5	195	0	14	101	80	520.5
SHERBROOKE A	4.9	-1.5	19.8	-7.8	5.2	93	138.2	151	0	13	114	*	406.3
ST HUBERT A	6.3	-2.1	20.5	-6.8	1.4	*	130.8	169	0	13	126	*	362.6
VAL D'OR A	1.8	-2.8	13.0	-12.9	35.2	243	116.2	141	0	18	63	70	503.0
NEW BRUNSWICK													
CHARLO A	3.3	-2.1	16.1	-7.7	9.2	161	110.0	119	0	12	127	100	451.6
FREDERICTON A	5.2	2.3	18.3	-6.1	2.2	96	158.2	163	0	17	*	*	389.9
MONCTON A	5.4	-2.2	19.1	-4.9	1.0	32	185.0	187	0	16	141	100	389.8
SAINT JOHN A	6.0	-1.6	15.9	-4.3	1.4	56	224.3	176	0	16	137	97	373.0

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	6.7	-1.9	23.1	-6.4	0.0	0	158.6	162	0	14	*	*	349.5
HALIFAX INT'L A	6.6	-2.0	18.3	-3.7	0.0	0	226.4	170	0	14	*	*	353.8
SABLE ISLAND	11.3	-0.2	19.6	1.4	0.0	*	202.2	174	0	12	124	104	206.7
SHEARWATER A	7.7	-1.8	17.9	-2.0	0.0	0	192.6	100	0	15	170	108	320.4
SYDNEY A	6.7	-1.7	18.6	5.2	0.0	0	211.2	172	0	16	130	99	350.5
YARMOUTH A	8.3	-1.2	18.5	-2.5	0.0	0	180.6	155	0	11	181	121	303.9
PRINCE EDWARD ISLAND													
CHARLOTTETOWN A	6.1	-2.0	19.9	-4.4	2.0	77	161.9	152	0	17	*	*	371.1
NEWFOUNDLAND													
BONAVISTA	6.8	-0.4	17.2	-1.3	1.2	71	170.4	167	0	12	*	*	348.4
BURGEO	6.4	-0.5	15.5	-3.0	0.0	0	248.3	152	0	18	*	*	364.6
CARTWRIGHT	2.8	-0.3	15.1	-6.2	24.4	203	117.1	163	11	17	96	108	470.4
COMFORT COVE	4.7	-1.1	17.5	-4.0	15.4	121	102.6	87	0	14	*	*	425.7
DANIELS HARBOUR	5.3	-0.6	19.9	-3.0	8.8	191	157.4	174	0	13	91	109	393.0
DEER LAKE A	3.6	-1.8	20.3	-8.4	20.3	278	100.0	87	0	15	*	*	435.8
GANDER INT'L A	4.8	-1.2	17.7	-4.9	13.4	110	84.6	81	0	14	144	130	407.6
GOOSE A	1.0	-1.7	13.1	-10.5	55.3	224	151.7	198	25	15	87	92	528.1
MARY'S HARBOUR	2.8	-0.8	16.3	-8.1	5.6	66	112.8	152	1	8	*	*	472.6
PORT AUX BASQUES	6.3	-0.7	15.0	-3.0	0.0	0	221.6	100	0	20	116	*	361.9
ST ANTHONY	2.8	-0.4	13.6	-6.5	43.4	505	166.3	157	0	16	*	*	470.0
ST JOHN'S A	5.9	-1.0	18.8	-2.8	1.2	27	164.0	113	0	11	150	*	374.9
ST LAWRENCE	6.5	-0.7	15.7	-5.4	0.0	0	224.6	152	0	16	*	*	341.8
STEPHENVILLE A	5.6	-1.4	16.9	-2.9	0.0	0	173.0	155	0	17	104	*	376.3
WABUSH LAKE A	-2.8	-2.1	4.8	-14.4	53.0	*	53.9	64	6	15	71	*	644.3

AGROCLIMATOLOGICAL STATIONS

OCTOBER 1993

STATION	Temperature C				Snowfall (cm)	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip ≥ 0.0 mm or more	Bright Sunshine (hours)	Degree days above 5 C	
	Mean	Difference from Normal	Maximum	Minimum							This month	Since jan. 1st
BRITISH COLUMBIA												
AGASSIZ	12.9	2.0	27.0	3.0	0.0	136.7	78	0	11	147	245.3	2356.1
SUMMERLAND	9.4	0.4	23.5	-0.5	0.0	19.1	109	0	3	133	142.5	2076.3
ALBERTA												
BEAVERLODGE	6.1	1.7	24.5	-6.0	6.0	28.7	100	0	6	172	70.7	1318.0
LACOMBE	4.8	0.1	24.0	-14.0	2.0	8.3	47	0	4	180	51.8	1170.7
SASKATCHWAN												
INDIAN HEAD	4.1	-1.2	21.0	-11.0	0.0	18.6	75	0	6	**	38.2	1396.5
MELFORT	3.0	-1.2	20.0	-11.5	11.0	14.2	54	11	1	124	*	1109.0
REGINA	3.5	-1.0	21.0	-12.5	0.0	18.7	102	0	5	**	23.8	1319.8
SCOTT	3.4	-0.8	22.0	-12.0	0.0	10.1	74	0	3	187	25.4	1201.7
SWIFT CURRENT	5.2	0.7	23.5	-8.5	2.4	16.0	99	0	5	165	58.7	1417.1
MANITOBA												
BRANDON	2.7	-2.9	22.5	-15.0	0.0	2.0	9	0	1	**	24.0	1409.2
MORDEN	4.6	-1.2	23.0	-15.0	10.0	23.2	62	2	7	156	58.0	1637.0
GLENLEA	2.5	-4.5	18.0	-9.5	1.6	32.6	103	0	6	129	18.5	1486.3
ONTARIO												
DELHI	8.7	-1.2	24.0	-4.0	3.6	90.5	121	3	9	**	121.5	2149.5
FLORA	6.9	-1.6	24.2	-4.6	0.0	70.8	107	11	***	**	*.*	*.*
HARROW	10.0	1.3	25.5	-1.0	0.0	64.7	116	0	8	159	161.0	2399.5
KAPUSKASING	1.2	-3.4	11.5	-8.5	35.7	80.4	107	0	13	64	2.8	1276.6
OTTAWA	6.9	-1.6	21.5	-4.8	4.2	108.8	160	0	12	121	91.0	2071.1
SMITHFIELD	9.3	0.4	27.7	-4.8	0.0	113.9	141	0	7	**	142.2	2262.7

Courtesy of Agriculture Canada

STATION	Temperature C				Snowfall (cm)	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip ≥ 0.0 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	5.0	-1.9	17.5	-7.0	0.0	82.6	116	0	12	118	40.7	1630.9
NORMANDIN	1.0	-3.6	11.5	-11.7	0.0	128.2	215	0	20	73	2.3	1258.4
NEW BRUNSWICK												
FREDERICTON	6.0	1.7	18.0	-5.5	1.0	159.2	158	1	14	127	48.8	1801.8
NOVA SCOTIA												
KENTVILLE	7.5	-1.6	23.0	-5.0	0.0	141.9	139	0	15	154	89.7	1819.2
NAPPAN	6.9	-1.4	21.5	-5.0	0.0	169.9	168	0	17	134	70.5	1643.3
PRINCE EDWARD ISLAND												
CHARLOTTETWN	*.*	*.*	*.*	*.*	*.*	*.*	**	***	***	**	*.*	*.*
NEWFOUNDLAND												
ST.JOHN'S WEST	6.1	-1.0	17.0	-3.5	0.0	156.8	108	0	15	144	57.0	1060.3

Courtesy of Agriculture Canada

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usual, use an umbrella more often and put away their sunglasses.

Temperatures were from 1 to 3 degrees below normal everywhere. The coldest area was north-central Quebec, where the mean temperature was -3.1°C, the coldest since the station opened in 1976. At Kuujjuarapik, it was the third coldest October since 1925. Along the St. Lawrence, mean temperatures were between 1.2°C and 6.5°C, almost 2°C below normal.

Quebec also experienced a bounteous dumping of rain and snow. From 125 to nearly 190 millimetres fell over southern Quebec; this is between 135 and 200 percent of normal. Snowfalls of between 15 and 35 centimetres were recorded in the Val d'Or - Natashquan corridor. If we include trace quantities, Val d'Or received precipitation every day this month. Further north, the snowy season got off to a roaring start, with between 50 and 100 centimetres reported.

The sun poked out of the clouds less than usual during this October. Except for the extreme northern part of the province, only 65 to 90 percent of normal sunshine was reported. Abitibi residents received only 62.9 hours of sunshine, which is 66% of normal. This is 21.3 hours less than Kuujjuaq, which received 84.2 hours or 159% of normal. But the Churchill Falls area was the gloomiest of all, with only 35.2 hours of bright sunshine.

Several low monthly temperature records were set at various stations. Gaspé recorded 3.4°C, as compared to 3.8°C in 1986 and La Grande Rivière recorded 1.9°C as compared to -1.0°C in 1980. Montreal's Mirabel Airport received the most October precipitation ever - 144.4 mm as compared to 144.1 mm in 1979.

Maritimes

October was a cool and wet month. Precipitation totals were generally well-above normal, ranging from 24% at Charlo, N.B., to 83% above average at Saint John. Several locations reported over 200 mm of precipitation this month.

Heavy rains were reported on several days. Halifax had a total of 66.6 mm on the 18th, coming within 0.2 mm of tying the October record for the most precipitation in one day. Totals in excess of 80 mm were reported from several locations during a storm that occured overnight on the 27th. Some snow was also recorded during the month, with the largest amounts falling in northern New Brunswick. Charlo reported 9.2 cm, which is 6.4 cm more than the October normal.

Mean temperatures were on the cool side of normal, ranging from 2.2°C below normal at Charlo, to 1.1°C below normal at Yarmouth. Record-low minimum temperatures were reported at a few locations on the 11th, 12th and 13th.

Hours of bright sunshine were generally a few hours below normal in New Brunswick and Prince Edward Island, while in Nova Scotia they were above normal. Yarmouth, reported the most sunshine, with a total of 181 hours, which is 29 hours above normal.

The highlight of the month was a major storm that brought strong winds and heavy rains to the Maritimes overnight on the 27th. Rainfalls greater than 60 mm were common, with a few locations reporting amounts over 80 mm. Winds gusting to more than 100 km/h were also recorded at a number of locations. There were reports of wind damage, flooded streets and basements, power outages and delays in marine transportation.

The storm also caused a "suete"; a strong localized wind that occassionally develops in the area of Cheticamp, N.S. Winds gusting up to 165 km/h were reported at Grand Etang, near Cheticamp. A ship approximately five kilometres from Cheticamp reported easterly winds of 139 km/h, with gusts to 204 km/h, due to the "suete" effect.

Newfoundland

Above-normal sunshine and below-normal temperatures prevailed across much of the Island during October, while rainfall varied across the region. Early in the month above-normal temperatures were reported, with a maximum of 20°C at Deer Lake on the 5th. However, temperatures fell during the latter half of the month, with minimums near -10°C recorded in the interior.

Rainfall was frequent on the south and west coasts during the latter half of the month. Burgeo recorded 248.3 mm or about 90 mm above normal. Periods of snow were also reported, especially in the northern sections of the Island. St. Anthony received a total of 43.4 cm of snow, approximately 25 cm above normal. Sunshine was common across much of the region with St. John's recording 149.8 hours, a new monthly record!

On October 29, a major storm brought very strong winds and heavy rain to the region. Rainfall in excess of 50 mm and wind gusts to 122 km/h were recorded in the Port-aux-Basques area. Local flooding occurred on the Avalon Peninsula. Gulf ferry services were disrupted and schools were closed on the west coast. The highway through the infamous Wreckhouse area was also closed due to the high winds.

In Labrador, below-normal temperatures and above-normal precipitation prevailed during the month. Temperatures varied, with maximums near 15°C early in the period and minimums of -15°C late in the month. Overall, mean temperatures were 1 to 2 degrees below normal. Frequent periods of rain early in the period gave way to periods of snow during the latter half. Wabush Lake reported 53 cm of snow, or about 8 cm above normal. Total monthly sunshine was near 90 hours, which is close to normal.