

Monthly Review

DECEMBER - 1989

Vol. 11

CLIMATIC HIGHLIGHTS

THE 1980s - A WARMER DECADE

The results are in. Canadian weather has changed significantly over the past decade. Although conditions have varied considerably year to year, average temperatures were warmer and most of Canada had less snowfall. This evidence comes as we close the decade during which the "greenhouse effect" became a household word. Nonetheless, we are reminded of the natural variability of weather as some parts of Canada have just experienced the coldest December in many years.

Temperatures were higher than longterm averages across most of Canada during the 1980's. The greatest departure from normal occurred in the Prairies, with up to a 1.4°C increase above normal. Milder winters were the main reason for the increase in average temperatures. The Maritimes were the only area with slightly cooler temperatures.

The effects of increases in temperature are widespread. During the 1980s, 24.4 experienced approximately 15% less snow, as compared to the previous 30 years. Whitehorse and Yellowknife were the only cities surveyed with a snowfall increase.

Globally, the seven warmest years this century occurred in the 1980s with 1989 in fifth position. While it remains possible that natural forces may be the cause of these climatic changes, the warm temperatures and weather extremes of the 1980s are consistent with the changes anticipated under an enhanced greenhouse effect.

Recent cold temperatures at or near record breaking levels in parts of the Prairies and central Canada may appear to contradict the long-term trend. Such conditions are rare but still within the range of the natural variability of weather. In the 80s, there were fewer cold spells and more frequent warm spells than in recent decades.

(text edited from a News Backgrounder prepared by the Communication Directorate)



million hectares of forest were destroyed by forest fires, almost double the amount burned in any other decade. The Prairie provinces experienced the most severe drought in 50 years. Increased extremes in temperature and dryness were contributing factors.

Snowfall decreased across Canada by 10% over the past decade. Among 15 cities surveyed, Prince George, B.C. had a 20% decrease. St. John's, Nfld. and Quebec City



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Across the country

Yukon

The stations along the North Slope were the only ones to end the month with slightly below-average temperatures. Communities throughout the rest of the territory experienced positive anomalies of 3 to 11 Celsius degrees. With the exception of the northern Yukon, all communities experienced at least one daily maximum above freezing during the month. One-half of the daily maximum temperature readings were above freezing in Whitehorse. The mild weather during the month was partly attributable to cloud cover acting as a blanket and keeping the warm air from escaping out to space.

The hot spot this month was shared by Carcross, 9.0°C on the 13th, and Haines Junction, 9.0°C on the 27th. The cold spots were -46.0°C at both Old Crow and Ogilvie Road Camp. Most stations along the eastern edge of the Yukon dipped into the minus forties.

Precipitation in the south central area was as little as 50% of normal. The greatest areas of precipitation were around Carcross, on the Dempster Highway and on the North Slope around Komakuk Beach. These areas experienced over 200% of their normal monthly precipitation. Most other areas had normal to above-normal amounts.

With the very mild conditions throughout the Yukon, especially in the south, the driving conditions along the Alaska Highway became very treacherous. Periods of freezing rain occurred on several occasions at various sites, and above-freezing thaws followed by a quick return to below-freezing temperatures gave drivers a real headache. As December ended, a major storm was developing blizzard conditions throughout the Pacific coastal passes, producing another driving hazard.

Northwest Territories

Temperatures for the month averaged as high as 3.2 Celsius degrees above normal, in Fort Simpson, but proceeding

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eastwards, below-normal temperatures for the month were reported, except for eastern Baffin Island, where the temperatures were slightly above normal. For the first half of the month, western and eastern regions were above normal with most of the central areas below normal. Very mild air reached Iqaluit on the 10th, -0.7°C, and on the 11th, -0.9°C. By the last week of the year, temperatures were well-above normal in western regions only, and Baffin Island which had been enjoying a very mild December, found itself in temperatures 6 to 10 Celsius degrees below normal.

Precipitation totals were generally below normal, except along the middle and upper Mackenzie Valley where totals were slightly-above normal. Most central areas received 1 to 15 mm of precipitation. Cape Dyer recorded the greatest precipitation, 40 mm.

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Winter road conditions as of the end of the month: the Dempster Road is in fair driving condition with some overflow problems; ice roads are rated at from 9,000 kg at Aklavik to 40,000 to 64,000 kg in the southern regions of the Mackenzie.

British Columbia

Winter was kept at bay over most of the province during the month, much to the disappointment of the skiing enthusiasts, particularly in the south. Temperatures were well-above average throughout the province. Several areas reported recordhigh December mean temperatures, in degrees Celsius: Prince Rupert, 4.6; Terrace, 5.0; Sandspit, 3.9; Cape St. James, 2.7; Port Hardy, 2.9; Alert Bay, 2.5; Cape Scott, 2.8; Comox, 2.5; Port Alberni, 3.2 and Revelstoke, 3.1. Above-average precipitation was reported northwestwards from Williams Lake, and the area centred on Prince Rupert, which reported 547.3 mm, 193% of average - this was a record December precipitation amount. Southern B.C. reported below-average precipitation. The driest areas were reported in the Kootenays with 36% in the Cranbrook area. South coastal areas reported values ranging between near 60 to near 70%. Victoria was



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	CLIMATIC EXTREMES	IN CANADA - DECEMBER 1989	
MEAN TEMPE	RATURE :		
	WARMEST	CAPE SCOTT A, B.C.	7.9°C
	COLDEST	EUREKA, NWT	-36.5°C
HIGHEST TE	MPERATURE:	LYTTON, B.C.	15.1°C
LOWEST TEM	PERATURE:	EUREKA, NWT	-49.8°C
HEAVIEST P	RECIPITATION:	PRINCE RUPERT A, B.C.	547.3 mm
HEAVIEST S	NOWFALL:	WIARTON A, ONT.	257.7 cm
DEEPEST SM	WOW ON THE GROUND		
ON DECEM	BER 31, 1989:	CARTWRIGHT, NFLD.	149 cm

on the 19th at Fort Chipewyan. The cold spell broke on the 22nd as mild air began spilling over the mountains and outwards across the province. Mild conditions prevailed over Christmas and into the New Year. In the south, Calgary reached 12.7°C on the 27th, and in the north, High Level reached 3.2°C on the 29th.

Snowfall during the month was slightly-above normal over southern Alberta. Snowfall was also greater in the colder air over northeastern Alberta southwards to the east-central Alberta-Saskatchewan border as milder air over-riding colder air produced frequent periods of snow. Snowfall at both Banff and Jasper was below normal: Banff, 16 cm, normal 45 cm and Jasper, 24 cm, normal 33 cm.

The least snowfall for the month was 8 cm at Peace River. The mild conditions during the last week of the month combined with a fairly extensive area of rain or patchy freezing rain to reduce snow cover to only patchy from Grande Prairie-Peace River southeastwards to the west central foothills and eastwards to Edmonton and Coronation.

the only location in the south to receive above-normal precipitation with 143% of their December average.

Snowfall in the southern areas has been non-existent at lower elevations along the coast, much to the dismay of the local skiers and resort owners. Lower mainland ski resort areas experienced the poorest conditions in some 15 years. The Okanagan and West Kootenays received between 15 and 20% of the average snowfall. Central and northern interior areas received above-normal snowfall, whereas west and east of these areas received much Coastal areas reported numerous days with gales: the north coast reported widespread gales on 8 days with local gales on an additional 6 days; the central coast, 12 days of widespread gales with 1 additional day of local gales and on the south coast there were 2 days of widespread gales and 2 other days of local gales.

Alberta

Frequent disturbances resulting in a milder westerly flow across the southern

Saskatchewan and Manitoba

December was extremely cold across most of the region. Mean temperatures were 4 to 6 Celsius degrees below normal. Southern Saskatchewan was less severe, averaging 1 to 2 degrees below normal. However, at the beginning of the month, temperatures approached 10 degrees at stations in southwestern Saskatchewan. Locations in northern Manitoba, while not that warm, set high-temperature records for the day on the 4th. From that point, a deep freeze began. A severe cold snap at midmonth lasted several days. Cold-tempera-

lesser amounts, to as little as 50% at Fort St. John and Terrace.

December was a very cloudy month with well-below average sunshine across the province. Most areas reported 30 to 80% of average. Record-low December sunshine values were reported at several sites, and at some of these locations there were record-low amounts for any month of the year. Kelowna recorded 12.8 hours or 31% of normal, and Prince Rupert recorded only 2.1 hours, just 7% of normal. two-thirds of the province predominantly kept the cold Arctic air confined to more northerly regions. Cold air, however, did surge southwards to briefly cover the province between the 8th and 10th and again between the 16th and 21st as a dome of very cold Arctic air moved in from the Mackenzie Valley. Temperatures during this period were 15 to 25 Celsius degrees below seasonal values. Central and southern regions saw temperatures in the minus thirty degree range. The coldest temperature across the north was -46.5°C ture records tumbled at many locations throughout the region. On the 20th, the maximum temperature at Saskatoon only reached -35.8°C, which was the lowest maximum reading ever recorded there in December since records began in 1892.

It was a very dry month in the northern part of the region; Gillam, Manitoba only received 9.8 mm compared to the normal 42.1 mm. Southern Saskatchewan was also dry, with amounts of only 25 to 50% of normal precipitation. Estevan recorded a

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total of only 5.2 mm. Precipitation increased to the east, as southern Manitoba had from 60 to near 100% of normal. Saskatoon-North Battleford area was the only area to receive above-normal precipitation, 132% of normal. The entire region was sunnier than usual, especially in southern Manitoba, where new record totals for December were established at Brandon, Dauphin, Gimli and Winnipeg - some values were as high as 153% of normal.

Ontario

December 1989 was the coldest December of the century everywhere except for the far north. Monthly mean temperatures ranged from 6 to 9 Celsius degrees below normal across the entire province. Early ice brought Great Lakes' shipping to a premature halt, home-heating bills soared, energy conservation became newsworthy again and Ontario's ski industry enjoyed an early start.

Toronto City recorded a mean of -7.8°C, which was the coldest December mean temperature since 1876, when the mean was -8.3°C. Thunder Bay's -17.9°C was 6.8 degrees below normal, and was a record-cold December. At one point across southern Ontario, 20 successive days passed (December 11 to 30) without the thermometer going above freezing. The last time a string of cold days exceeded this was a 22-day span from January 29 to February 19, 1979. Along with the record cold, record sunshine totals were a welcome by-product: North Bay recorded 133 hours, which was 60 hours above normal, and Kingston recorded 114 hours.

Snowfall was heavy in many areas to

In Toronto, only 4 mm of rain was recorded which is the least since 1958. Toronto also experienced its driest December overall since 1960.

Quebec

For southwestern Quebec, much like Ontario, the month of December 1989 was the coldest on record and for the extreme southern portion of the province, one of the coldest months ever. Mean monthly temperatures ranged from -15.6°C at Montréal (Dorval) to -23.5°C at Matagami. The greatest departure from normal was -9.9 Celsius degrees at Maniwaki.

Eastern and northern Quebec ranged from 1.2 to 5.7 Celsius degrees below normal. The Magdalen Islands with the warming influence of the Gulf of St. Lawrence and the Atlantic Ocean, had the warmest mean, -6.3°C. The coldest location was La Grande IV with an average temperature of -24.2°C.

Total precipitation in most of the province was close to 50% of normal, except for a few locations such as Mont Joli, 92%, and Kuujuuaq, 161%. Blanc Sablon was the only station to record greater than 100 mm of precipitation, having received 114 mm. Gaspé recorded the greatest total snowfall, 121.4 cm.

With the cold weather, sunshine was plentiful over southern Quebec. Dorval Airport recorded 144.6 hours, breaking the old December record of 110.2 hours set in 1980.

Maritimes

December, as in Ontario and Quebec, was sunny and extremely cold. It was the coldest December on record, with numerous locations setting both new record-low minimum and record-low mean temperatures for the month. The mean temperature of -13.2°C at Saint John, and -13.4°C at Moncton Airport, New Brunswick not only broke the December record, but also set a new record for the lowest mean for any month. The previous record was -12.6°C set in January, 1957 at both locations. The records for Saint John date back to 1871 and to 1939 at Moncton Airport. Fredericton Airport almost made it through the month of December without

climbing above the freezing mark until the last hour of the last day when the temperature reached 1°C.

Precipitation totals were well-below normal in all areas: Halifax International Airport reported only 44 mm, the lowest December precipitation total since records began in 1961. The previous record was 62.6 mm set in 1988.

Snowfall totals were above normal in New Brunswick with the exception of Charlo, where the total was 69% of normal. In Nova Scotia, totals were below normal with the exception of the southwestern end, where Yarmouth reported 149% of normal. CFB Summerside, P.E.I. reported 15.6 cm above normal while Charlottetown reported 5.8 cm below normal.

Sunshine totals were generally wellabove normal with several locations reporting their sunniest December on record. CFB Shearwater, Nova Scotia recorded the greatest number of hours of sunshine, 161.9 hours, compared to the old record of 129.0 hours, set in 1969.

Two major storms struck the Maritimes early in the month. The first arrived on the 3rd causing heavy snow and winds gusting well in excess of 100 km/h. At least two deaths have been attributed to this storm. By the morning of the 4th, snowfall totals ranged from less than 10 cm in some areas of Nova Scotia to over 50 cm in some areas of northern New Brunswick. Bathurst, New Brunswick reported 70 cm from the storm, setting a new 24-hour snowfall record for December, previous record being 61.0 cm, set in 1877.

The second storm raged through the Gulf of St. Lawrence on the 7th and 8th. Winds gusting in excess of 100 km/h and towering seas resulted in the loss of two cargo ships in the Gulf and a longliner south of Cape Race, Newfoundland. A total of 47 crew members were reported dead or missing. This storm shut down Marine Atlantic ferry service linking Cape Breton to Newfoundland and closed the Trans-Canada Highway through the Cape Breton Highlands.

the lee of the Great Lakes, due to snow streamers. Wiarton received a record December snowfall, totalling 258 cm which was close to 300% of normal for December. Suprisingly, Muskoka received only 47 cm of snow, which is 60% of normal, and the least recorded since 1974. In the north and northwest snowfall totals were near to slightly below normal.

Despite the locally-abundant snow, total precipitation was below normal provincewide. Cold temperatures resulted in low water-content snow as well as very minimal rainfalls. Most total precipitation values ranged from 50 to 90% of normal. A third major storm crossed New Brunswick on the weekend of the 16-17th, dumping up to 23 cm of snow on Chatham,

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SEASUNAL	IUTAL O	F HEATI	NG	
DEGREE-DAYS	TO END	OF DEC	EMBER	
	1000	1000		
BRITISH COLLEG	1989	1988	NURMAL	
Kanloone	1410	1440	No Deal	
Penticton	1419	1448	1533	
Prince Ceorge	1075	1393	1414	
Vancouver	1110	2184	2303	
Victoria	1226	1270	1218	
VICCOITA	1220	1279	1280	
YUKON TERRITORY				
Whitehorse	2703	2893	3025	
NORTHWEST TERR	TORIES	2075	3025	
Igaluit	4030	3814	4010	
Inuvik	4174	4233	4188	
Yellowknife	3558	3419	3382	
			0002	
ALBERTA				
Calgary	1969	2019	2168	
Edmonton Mun	2070	2054	2197	
Grande Prairie	2262	2424	2536	
SASKATCHEWAN				
Estevan	2238	2105	2085	
Regina	2344	2281	2257	
Saskatoon	2417	2293	2352	
MANITOBA				
Brandon	2524	2380	2337	
Church ill	3696	3523	3534	ĺ
The Pas	2939	2563	2637	•
Winnipeg	2504	2258	2214	
ONTARIO		「「「「」		
Kapuskasing	2753	2488	2468	
London	1737	1504	1461	
Uttawa	2066	1813	1721	
Sudbury	2399	2053	2015	
Inunder Bay	2515	2232	2176	
loronto	1/37	1515	1459	
windsor	1529	1341	1274	
OUEREC				
Raia Comonu	2526	9273	0210	
Montréel	2330	23/3	2318	
Ouébec	170/	1/02	1042	
Sent-Îloc	2230	2040	1942	
Sept-ries	2000	2419	2429	

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SEASONAL SNOWFALL TOTALS (Cm) TO END OF DECEMBER

1989 1988 NORMAL

YUKON TERRITOR	Y		142.0.1
Whitehorse	98.4	68.9	69.4
NORTHWEST TERR	ITORIES		1
Cape Dyer	440.4	452.2	303.0
Inuvik	106.8	88.0	96.4
Yellowknife	96.5	84.7	78.7
BRITISH COLUMB	AIA		
Kamloops	24.3	22.3	42.0
Port Hardy	0.0	8.6	19.7
Prince George	128.3	95.6	102.9
Vancouver	0.0	3.2	20.3
Victoria	0.0	0.6	15.4
			1.1.1.1
ALBERTA	100		
Calgary	41.1	30.8	56.5
Edmonton Namao	43.2	30.7	53.5
Grande Prairie	55.1	44.9	16.1
SASKATCHEWAN			
Estevan	25.1	52.4	42.7
Regina	43.1	35.2	45.0
Saskatoon	33.2	31.2	44.8
MANITOBA			
Brandon	45.4	46.0	42.9
Churchill	84.6	131.6	100.1
The Pas	76.0	48.2	72.1
Winnipeg	87.6	65.6	48.1
ONTARIO			
Kapuskasing	190.4	149.0	138.8
London	117.6	68.9	77.6
Ottawa	102.2	74.8	81.7
Sudbury	133.0	107.0	95.6
Thunder Bay	62.8	97.9	79.3
Toronto	35.6	15.2	41.4
Windsor	46.3	26.4	40.2
QUEBEC			
Bale Comeau	71.1	141.2	133.5
Montreal	76.4	76.2	81.7
Québeç	119.3	97.6	124.4
Sept-Iles	121.8	159.2	150.5
Sherbrooke	114.2	70.6	111.9
Val-d'Or	154.2	155.6	127.8
NEW BRUNSWICK			
Charlo .	97.6	115.8	146.9
Fredericton	144.9	46.8	92.0
MONCTON	168.4	64.7	96.8
Shearwatar		-	
Sudney	00.0	73 5	41.2
Varmouth	125 0	13.5	52.0
PRINCE EDWARD	ISLAND	41.0	52.0
Charlottetown	130 2	01 0	97.0
NEWFOUNDI AND	130.2	51.4	51.0
Gander	162 .	217 0	115 0
St. John's	87 0	05 7	00.7
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FALL 1989 IN REVIEW

Across the country, the fall of 1989 flaunted its broad spectrum of weather: striking fluctuations in temperatures; an early appearance of winter in some parts; and a plethora of intense storms - some remnants of tropical storms.

Aaron Gergye, Canadian Climate Centre

SEPTEMBER

The eastern half of the country experienced dramatic weather during the month. The first week gave Atlantic Canada unusually-low mininum temperatures, with some records being set. On the 4th, for example, St-Léonard, N.B. recorded a frosty 0.1°C minimum. The latter part of that week saw a vault to unseasonably warm days, yielding tied or broken records, some dating back to 1959. Maximum daily temperatures were generally in the high twenties. On the 10th, Chatham, N.B. winged to a lofty 30.9°C. That same day, Gander and Stephenville, Newfoundland warmed to a daily maximum of 26.8°C and 29.1°C, respectively; both temperatures were records for the day and record-high maxima for the month. The following day, Greenwood, N.S. set a new daily maximum record of 30.9°C.

Also during the first week of the month, tropical storm Gabrielle migrated northwards up the eastern seaboard, stalled south of Sable Island, N.S. and churned up record-high sea swells and waves. On the 9th, a wave height of 9.2 m was measured by a wave-riding buoy at the mouth of Halifax Harbour. Near Ketch Harbour, N.S., a man was swept out to sea. A couple of weeks later, the remnants of Hurricane Hugo sped through southern Ontario, then eastwards through Quebec and Labrador, producing strong winds and copious, but short-lived rains. The heaviest rain fell in a band stretching from the Niagara Peninsula to the Ottawa Valley and southern Quebec. Up to 70 mm fell in southern and eastern Ontario and between 50 and 100 mm in Quebec. Winds gusted to 124 km/h

at Moncton Airport on the 23rd, toppling the previous record of 100 km/h set on September 27, 1964. At Cape Chat, on the Gaspé, winds gusted to 129 km/h. Generally, wind damage was minor, but there were some power outages in Quebec and ferry disruptions in the Maritimes.

OCTOBER

The first week of the month saw warm temperatures across the western half of the country, particularly over the Yukon and the Mackenzie District of the Northwest Territories. By the end of the month, the core of the warm air had shifted into Ontario and southern Quebec, heralding a return to summer-time weather across the eastern half of the country. Daily-maximum temperatures rose to the mid-twenties across most of Ontario and southern Quebec. Many new daily temperature records were established from Manitoba to Quebec, and by the end of the warm spell, in the Maritimes as well. Temperatures in southern Ontario scaled the 20°C or more mark on six consecutive days. There was a down-side to the exquisite weather. Air pollution levels climbed over industrialized areas. The combination of light winds and a stable air mass trapped pollutants under temperature inversions causing a yellowish haze during the day and dense overnight fog. The sluggish dissipation of



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the overnight fog disrupted rush-hour traffic.

During the week of the 9th, a sharp cold front swept across southern Alberta. Behind the front, winds gusted to over 100 km/h, producing zero visibility due to blowing dust in Calgary and the surrounding districts. Calgary's winds were clocked at 117 km/h, transcending the previous October record of 115 km/h set in 1978. Howling winds overturned trailers and light aircraft, tore down trees and power lines, and damaged buildings. The passage of the front dropped temperatures from 18°C to 4°C in a matter of minutes. That same week, on the 14th, severe thunderstorms struck south-central Ontario, spawning funnel clouds, waterspouts, heavy rain, hail and winds exceeding 100 km/h. Winds of 104 km/h and 124 km/h were recorded at Toronto International Airport and at Toronto's waterfront, respectively. The storms left a track of wind and flood damage.

Astonishing water level drops, in some cases, as much as two metres, were reported on Lake Ontario, Lake Simcoe and Georgian Bay. This seiche phenomenon was due to strong winds and pressure differences generated by thunderstorms.

NOVEMBER

Winter took an early seat at the table across most of the country this month. Extremely cold temperatures in the Yukon by the second week of the month crippled many government facilities which had

son set a new monthly-low temperature of -47°C on the 13th. Whitehorse set new daily-low temperature records on five consecutive days. Most of the Northwest Territories and the northern parts of the Prairies also experienced an abnormallycold month. On the northern Prairies, temperatures took excursions into the -40°C range. In Ontario, record-cold temperatures, strong winds and heavy snowfalls were common. In northeastern Ontario, it was the coldest November since 1936. while in the central parts, it was the coldest November since 1959 or 1976. A myriad of storms produced record monthly precipitation and snowfall amounts, galeforce winds and bitterly cold temperatures in their wake. Heavy snowsqualls to the lee of the Great Lakes produced monthly snowfall records at five locations. The western half of Quebec had the coldest and wettest November in 50 years. On the 16th, thunderstorms ahead of a sharp cold front crossing Ontario and Quebec, spawned an uncommon late-season tornado, touching down near Mont-St-Hilaire, Quebec causing an estimated \$2 millon damage. Cold weather in the Maritimes was accompanied by record-high snowfall amounts for the month of November at several locations. During the week of the 20th, two major storms pummelled the east coast. The first storm on the 21st shrouded most of New Brunswick with up to 35 cm of snow and winds in excess of 100 km/h. Moncton Airport received a total of 30.7 cm, the greatest 24-hour total for the month of November since records began in 1939. On the 23rd, Nova Scotia was next to be lashed to the whipping post when up to 30 cm fell on the province. Yarmouth snapped a 24-hour snowfall record for the month; the old record dates back to 1912. The heavy snow moved into Newfoundland on the 24th. Winds at Twillingate and Burgeo gusted to a whopping 165 km/h. Highways in the western parts of the province were impassable due to blowing and drifting snow.

converted from the more traditional heating fuels to propane. Cold temperatures congealed the propane, disabling heating systems and thus, temporarily shutting down vital medical facilities. Ross River set a new record-low temperature of -52°C for the month of November, outgunning the old record of -49°C set in 1985. Daw-

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Newfoundland and Labrador

The month began and ended with below-normal temperatures, with only a brief respite from this trend when St. John's recorded 6.5°C. Overall meanmonthly temperatures were 2.0 to 3.4 Celsius degrees below normal.

Stormy conditions were common early in the month with heavy snowfalls on the west coast and heavy rain on the Avalon Peninsula. On December 4, a storm gave 51.6 mm of rain to St. John's causing major flooding, while central and western regions received 15 to 25 cm of snow, closing schools and some highways. Strong winds accompanied the storm with gusts to 139 km/h at Port-Aux-Basques. Another storm with winds to 128 km/h on December 7 gave 15 to 25 cm of snow to western locations. During the month, periods of snow prevailed in cold outbreaks along the west coast: Stephenville recorded a total of 218.5 cm of snow, about 140 cm above normal.

In Labrador, above-normal snowfall and below-normal temperatures highlighted the month's weather. During the first half of the month, snowfall was frequent. On December 8 and 9 the Cartwright area recorded 68 cm of snow. In general, snowfalls were more than double the normal. Nain recorded 190 cm, normal being 60.9 cm. Western Labrador was an exception, with monthly totals near the normal of around 60 cm. With the abundant snowfalls this month, Labrador has a snow cover of 70 cm in the south to 250 cm in the north.

The cold month in Labrador was broken up in the middle by milder air which reached coastal areas; Nain recorded a maximum reading of 6.3°C on the 11th. Cold air followed and late in the month the cold outbreak was accompanied by strong winds, producing very extreme wind chill factors.





													DECEME	ER 1989													
	Tern	peratur	e C			P.S			F	ore					Tem	peratur	eC						7	ore			10.000
STATION	Mean	Difference from Normal	Maximum	Minimum	Snowfall (cm)	Z of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (c.	No. of days with Precip 1.0 mm or m	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C	STATION	Mean	Difference from Normal	Maximum	Minimum	Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	X of Normal Precipitation	Snow on ground at end of month (cr	No. of days with Precip 1.0 mm or m	Bright Sunshine (hours)	Z of Normal Bright Sunshine	Degree Days below 18 C
BRITISH		10 S . C. W.		Curdia, costo										YUKON TERRITORY													
	4.3		14.4	-4.2	0.7		131.1	58		15	15	65	479 1	DAWSON A MAYO A WATSON LAKE A WHITEHORSE A	-18.2 -14.5 -16.1	9.7 7.4	0.4 1.0 6.3	-41.6 -42.6 -44.8	49.0 37.7 32.5	154 70	28.4 31.3 25.0 78.1	* 139 70	63 * 43 25	* 7	# 26 27	83 94	# 1056.2 769.6
ALERT BAY AMPHITRITE POINT BLUE RIVER A	6.4 7.1 -4.5	2.5 1.6 3.3	12.2 13.3 5.0	0.7 0.4 -20.9	0.0 0.0 59.3	0 0 54	204.8 309.7 75.6	88 69 62	0 0 43	22 15 12	* * 13	* * 43	359.7 335.6 *	NORTHWEST													1. 1.
CAPE ST JAMES CAPE SCOTT CASTLEGAR A COMOX A CRANBROOK A	7.7 7.9 0.2 6.2 -5.3	2.7 3.1 2.2 2.5 1.3	10.5 13.0 7.7 13.0 7.1	2.5 3.4 -8.2 -1.0 -21.0	0.0 0.0 17.0 0.0 18.2	0 0 22 0 44	212.2 334.7 43.4 125.5 14.2	111 90 40 59 31	00008	19 27 8 12 3	42 * 22 19 37	* 70 * 58	317.5 311.5 553.2 367.4 724.4	ALERT BAKER LAKE A CAMBRIDGE BAY A	-30.0 -30.4 -30.9	0.0 -2.2 -0.9	-14.1 -19.1 -20.4	-41.2	8.6 3.9 2.4	104 45 38	8.A 2.3 2.4	106 28 44	25 25 27	21	:	:	1487.0 1501.1 1515.0
DEASE LAKE FORT NELSON A FORT ST JOHN A	-9.3 -16.6 -6.3	6.7 4.4 6.9	2.4 9.7 8.3	-28.6 -41.3 -33.5	71.4 25.4 16.5	172 94 41	52.7 19.7 23.6	157 92 65	60 47 0	9 6 10	14 34 50	35	845.2 1073.9 753.2	CAPE PARRY A CLYDE A	-26.8	-1.8	-18.4	-30.3	1.2	12 115	0.6	9	3 40	0	*	•	1382.9
KAMLOOPS A KELOWNA A	-0.4	2.4 2.4 3.2	13.0 8.6 7.5	-10.0	2.0 19.6 8.4	65 22	20.5 20.8	63 48	20	10 7 8	26 13	113 54 31	432.9 570.0 557.1	COPPERMINE A CORAL HARBOUR A EUREKA FORT RELIANCE	-27.9 -25.6 -36.5 -27.8	-2.0 -0.1 -1.7 -3.9	-16.0 -8.5 -25.4 -5.4	-38.1 -38.5 -49.8 -45.7	9.8 10.9 2.0 32.2	85 101 80 169	0.0 10.6 1.6 20.8	59 104 67 139	30 17 34	406	* 12 * *	43	1349.9 1349.9 1690.1 1418.1
MACKENZIE A PENTICTON A PORT ALBERNI A PORT HARDY A	-4.1 1.4 5.9 6.4	3.3 6.6 1.8 3.3 2.9	8.0 13.4 11.7	-6.8 -6.8 0.7 -0.9	3.6 0.0 0.0	69 16 0	31.1 74.4 192.8 204.4	41 87 59 57 74	0000	5 17 6 13 23	31 16 20 2 12	42 52 * 26	496.1 684.1 516.1 377.3 359.3	FORT SIMPSON A FORT SMITH A IQALUIT HALL BEACH A HAY RIVER A	-21.6 -23.7 -21.3 -28.0 -21.5	3.2 -2.1 0.5 -0.6 -0.6	-9.6 -1.3 -0.7 -9.5 0.6	-40.9 -43.6 -38.1 -39.6 -39.7	22.2 33.7 21.2 3.3 26.0	93 135 86 36 100	22.0 30.8 14.4 3.3 27.0	119 139 65 38 110	45 57 17 34 59	65516	22 42 23 *	76 # 115 #	1237.3 1288.6 1216.8 1426.3 1223.3
PRINCE GEORGE A PRINCE RUPERT A PRINCETON A QUESNEL A REVELSTOKE A	-3.0 6.2 -2.6 * -0.7	4.9 4.8 3.1 * 3.5	8.1 12.3 2.9 * 5.8	-20.6 -0.5 -13.3 * -11.3	61.8 0.0 9.4 * 77.4	117 0 21 \$ 56	90.7 547.3 25.2 88.3	159 193 48 * 61	5 0 4 17	17 27 8 13	29 2 14 18	62 7 * 8 67	651.4 364.1 * 579.3	INUVIK A MOULD BAY A NORMAN WELLS A POND INLET A RESOLUTE A	-26.1 -30.5 -23.4 -30.3 -31.2	1.1 0.7 3.1 * -1.9	-14.8 -16.1 -11.5 -11.5 -20.5	-37.2 -42.5 -43.8 -40.5 -42.2	21.4 16.4 51.7 10.8 5.2	103 410 268 98	11.4 14.6 31.4 6.2 5.2	66 406 167 * 106	33 35 11 17 28	5 4 12 1 2	* * * * * * * * * * *	** 61 * *	1367.7 1504.1 1282.3 1495.8 1523.5
SANDSPIT A SMITHERS A TERRACE A VANCOUVER INT'L A	7.3 -3.3 1.6 5.0	3.9 4.3 5.0 1.1	12.7 7.6 8.6 12.7	1.6 -16.2 -11.5 -2.3	0.0 59.3 45.3 0.0	0 105 43 0	190.8 92.8 284.8 133.9	107 155 148 73	0 13 0 0	18 15 23 14	21 10 5 42	53 25 16 88	333.5 603.4 509.1 403.7	YELLOWKNIFE A ALBERTA	-26.1	-2.1	-5.3	-43.1	25.5	116	18.1	99	29	8	35	165	1364.8
VICTORIA INT'L A VICTORIA MARINE WILLIAMS LAKE A	5.4 6.3 -3.4	1.2 1.6 4.3	13.9 12.8 5.7	-2.3 -1.0 -21.6	0.0 0.0 93.0	0 0 188	110.2 145.9 66.4	70 65 161	0 0 35	10 17 11	29 * 27	55 * 56	390.7 364.7 662.6	BANFF CALGARY INT'L A COLD LAKE A CORONATION A	-6.5 -4.5 -13.8 -10.6	2.4 3.3 0.4 1.2	8.0 12.7 5.9 6.1	-29.0 -35.0 -43.7 -43.2	16.4 23.6 56.2 31.1	36 113 213 138	10.6 21.8 59.9 20.2	28 136 242 103	14 1 18 6	5 8 12 4	* 75 72 76	* 77 95 90	* 697.9 987.4 886.5
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Climatic Perspectives

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	Tre					-	r	-	-		-		DECEM	BER 1989	Tem	peratur				-			-	-	1	-		emb
	lem	peratur	••				0	uo	of month (cm)	1.0 mm or more		shine	u		Tem						0	uo	of month (cm)	1.0 mm or more	614	shine		er 1989 - 1
STATION	Mean	Difference from Normal	Maximum	Minimum	Snowfall (cm)	X of Normal Snowfall	Total Precipitation (mm	X of Normal Precipitati	Snow on ground at end	No. of days with Precip	Bright Sunshine (hours)	Z of Normal Bright Sun	Degree Days below 18 (STATION	Mean	Difference from Norma	Maximum	Minimum	Snowfall (cm)	Z of Normal Snowfall	Total Precipitation (mm	X of Normal Precipitati	Snow on ground at end	No. of days with Precip	Bright Sunshine (hours)	Z of Normal Bright Sun	Degree Days below 18 C	Vol. 11
EDMONTON INT'L A EDMONTON MUNICIPAL EDMONTON NAMAD A EDSON A FORT CHIPEWYAN A	-7.6 -6.4 -6.9 -5.6 -22.5	5.5 4.0 4.9 7.3 -2.0	7.7 8.7 8.6 10.2 0.0	- 38.0 - 33.1 - 35.2 - 39.5 - 46.5	13.2 13.2 12.4 12.6 35.4	51 * 46 57 129	15.3 15.1 15.8 11.4 29.4	70 61 60 47 140	2000	6 6 5 3 *	71 63 * 79 *	91 80 120 *	792.0 756.9 766.1 731.5 *	PORTAGE LA PRAIRIE THE PAS A THOMPSON A WINNIPEG INT'L A	-18.2 -22.6 -27.6 -19.8	-5.1 -5.0 -5.6 -5.8	5.0 1.3 -3.0 4.3	-37.0 -40.2 -45.0 -37.0	28.6 11.0 17.7 19.8	121 39 40 96	19.7 8.2 16.4 17.0	90 37 51 89	16 14 46 13	7 2 5 6	* 99 116 142	* 133 171 153	1122.0 1258.9 1411.4 1172.2	
FORT MCMURRAY A GRANDE PRAIRIE A HIGH LEVEL A JASPER LETHBRIDGE A	-17.3 -7.0 -18.0 -5.3 -3.9	-0.3 6.4 3.3 3.9 1.9	5.5 9.0 3.2 9.1 12.9	-41.6 -37.8 -45.7 -28.2 -37.8	36.8 18.9 16.2 24.2 29.9	126 55 52 74 117	24.9 19.8 15.8 22.0 32.4	100 62 65 67 148	33 0 30 12 2	4 7 9 11	40 61 37 45 61	65 * 99 *	1093.2 774.7 1116.9 722.3 676.1	ONTARIO BIG TROUT LAKE EARLTON A GERALDTON A	-25.1 -21.0 -22.1	-5.2 -8.4	-6.4 -3.9 -3.6	-40.1 -39.4 -38.5	20.2 46.0 51.4	64 86	19.4 42.2 34.8	66 75	43 48 33	998	95		1340.1 1244.8 1741.2	Clin
MEDICINE HAT A PEACE RIVER A RED DEER A ROCKY MTN HOUSE A SLAVE LAKE A	-7.1 -8.6 -7.8 -6.6 -8.6	0.5 6.7 3.6 2.5 6.2	12.2 7.8 9.1 13.4 8.3	-42.4 -33.5 -36.1 -38.3 -36.7	26.6 8.4 19.4 19.2 24.2	140 32 91 77 77	25.6 9.9 14.8 15.7 30.0	157 46 73 70 92	20790	84559	63 * * 48	72 * * * * * * * * * * * * * * * * * * *	783.3 822.8 799.9 763.2 825.6	GORE BAY A HAMILTON RBG HAMILTON A KAPUSKASING A KENORA A	-14.0 -8.4 -9.6 -21.7 -19.5	-8.5 -6.2 -7.0 -5.4	1.1 5.7 5.0 -4.0 0.2	-30.2 -21.2 -22.0 -37.3 -36.1	97.2 71.4 69.4 44.2 24.6	167 202 83 80	41.2 54.8 45.5 36.8 23.8	55 * 58 69 76	79 22 31 71 19	11 912 97	* 92 * *		992.9 * 856.8 1232.5 1164.6	atic Pers
BROADVIEW COLLINS BAY	-16.6	-2.6	3.4 -1.5	-37.4	13.6 30.2	64	10.4	/5 52	2 63	4	119 82	124	1071.8 1386.6	LONDON A MOOSONEE MUSKOKA A NORTH BAY A	-13.1 -9.9 -22.9 -15.2 -17.8	-6.4 -6.9 -8.1 -8.1	4.0 -8.2 1.4 -0.5	-30.5 -24.9 -36.4 -35.0 -31.7	51.6 73.6 28.5 47.3 94.6	143 71 65 155	48.8 72.2 19.6 44.4 65.5	83 49 45 87	23 30 49 30 76	10 16 9 11 10	114 55 80 *	148 99 150 * 173	963.0 865.7 1267.0 1030.5 1110.5	pectives
CREE LAKE ESTEVAN A HUDSON BAY A KINDERSLEY LA RONGE A	-24.1 -14.5 -20.4 -12.0 -21.5	-2.8 -3.4 *	-0.4 9.5 3.5 6.0	-46.6 -38.1 -40.0 -39.5 -44.3	20.4 9.2 13.6 15.8 8.3	63 47 * 77 30	15.5 5.2 8.6 9.4 8.3	11 27 * 49 37	40 0 15 3	01 2 4 2	49 108 106 72	88	1265.9 1007.6 1189.7 930.7	OT TAWA INT'L A PETAWAWA A PETERBOROUGH A PICKLE LAKE	-10.6 -19.5 -13.5 -23.4	-8.9 -9.3 -7.1 -5.7	3.0 1.0 3.4 -5.1	-29.1 -37.8 -32.0 -39.6	58.6 63.0 31.4 27.4	104 116 81 67	45.8 44.6 26.0 26.4	57 58 32 72	28 42 22 45	10 8 8 8	128	162	1073.4 1163.8 977.6 1285.1	
MEADOW LAKE A MOOSE JAW A NIPAWIN A NORTH BATTLEFORD A	-16.1 -12.5 -19.8 -15.0	-1.8	4.9 9.0 3.5 5.6	-38.4 -40.9 -41.4	43.2 13.9 10.5 31.7	55 *	26.0 9.7 7.6 24.0	# 46 #	12 1 13 10	955	53 89 96	103 *	1056.1 944.2 1172.3	ST CATHARINES A SARNIA A SAULT STE MARIE A SIQUX LOOKQUT A	-7.5 -9.2 -14.1	-6.0 -6.6 -7.4	6.2 4.1 1.2 -2.4	-17.8 -21.0 -30.2 -37.9	41.2 37.8 101.3 24.5	144 99 133 71	40.7 59.4 55.8 24.5	51 82 70 73	8 15 25 33	12 9 15 7	59 91 90	138 145	791.6 844.8 995.9	
PRINCE ALBERT A REGINA A SASKATOON A SWIFT CURRENT A	-17.6 -14.6 -15.8 -10.6	-1.1 -1.8 -1.7 -0.7	4.9 6.4 4.1 10.1	-44.1 -38.8 -41.9 -39.9	19.6 13.4 2.4 17.2	82 64 11 83	8.4 26.5 17.6	* 50 132 88	21 4 8 1	8 3 8 7	71 94 * 77	100 112 * 91	1130.1 1024.7 1048.2 861.9	SUDBURY A THUNDER BAY A TIMMINS A TORONTO	-18.5 -17.9 -21.6 -7.8	-8.3 -6.8 -7.6	-1.1 0.7 -3.5 5.1	-30.9 -31.8 -38.2 -22.2	59.0 39.2 54.3 42.2	104 85 76	46.1 26.2 45.2 35.0	71 63 71 *	63 34 75 12	9 9 9	103 93 *	121 100 *	1132.7 1113.1 1225.4 799.2	
MANITOBA	-18.5	-3.9	3.5	-41.9	20.0	84	21.6	96	14	6	104	119	1129.1	TORONTO INT'L A TORONTO ISLAND A TRENTON A WATERLOO WELLINGTON WAWA A	-10.1 -7.8 -12.5 -10.5 -18.1	-6.6 * -8.0 -6.2	5.0 5.2 4.4 4.6 0.4	-25.0 -22.0 -31.1 -22.8 -36.2	30.6 27.4 34.2 39.6 117.1	94 95 74 106	23.8 34.0 41.0 40.4 72.3	37 * 49 52 *	10 2 15 16 57	10 9 7 10 12			871.1 792.9 944.7 884.9 1107.5	
BRANDON A CHURCHILL A DAUPHIN A GILLAM A GIMLI	-18.5 -26.4 -18.5 -27.3 -19.8	-4.1 -4.2 -4.2 -3.8	2.6 -4.6 4.6 -6.7 4.2	-38.6 -36.9 -38.8 -41.7 -36.6	17.2 32.0 13.8 14.4 22.9	88 140 53 45 *	18.5 14.8 14.6 9.8 17.7	97 71 60 31	13 25 7 26 9	59565	129 60 132 * 135	# 110 142 # 133	1122.4 1375.3 1130.7 1403.6 1171.8	WIARTON A WINDSOR A	-9.9 -7.9	-6.2 -6.0	2.5 5.2	-25.0 -21.8	257.7 27.7	279 97	95.6 40.7	89 56	45 4	21 11	61	133	860.0 801.3	
ISLAND LAKE LYNN LAKE A NORWAY HOUSE A	-25.8 -28.0 -25.3	-5.1 -6.2	-2.0 -1.8 -0.2	-41.3 -47.1 -41.2	31.6 31.4 32.4	54 94 *	20.8 15.6 25.0	62 61 *	43 40 37	855	* 54 *	* 88 *	1358.2 1426.7 1340.8	to erbe	-		• •		2					14				pa
																												ige 13

	52809 7 25 7 3 18470 239×50 15
Degree Days below 18 C	835. 857. 618. 805. 773. 754. 913. 904. 913. 904. 851. 1448. 760.1 754.4 773. 773.4 979. 835. 701.5 835. 701.5 835. 701.5 835. 701.5 835. 726.4
% of Normal Bright Sunshine	* 133 174 175 96 * 161 * 78 92 * 53 * 128 67 * 135 * 60 105
Bright Sunshine (hours)	* 72 152 117 50 * 119 * 48 76 * 19 * 80 49 * 38 * 77 * 20 72
No. of days with Precip 1.0 mm or mu	14 9 11 6 9 17 11 13 18 15 16 19 15 19 15 14 27 ***********************************
Snow on ground at end of month (cn	25 927 10 17 24 40 24 14 49 61 66 * 50 36 70 67 88 * 24 22 29
% of Normal Precipitation	58 24 60 43 36 63 57 71 89 35 134 1 150 64 114 138 127 124 * 83 84 167 64 1
Total Precipitation (mm)	70.3 44.0 86.0 64.0 58.8 89.2 74.1 76.6 85.7 65.2 175.5 55.2 99.7 137.4 72.2 123.8 00.4 105.2 193.3 * 33.4 04.8 191.0 46.6
Z of Normal Snawfall	82 57 168 64 62 197 92 126 121 109 248 109 127 195 101 167 173 153 339 * 97 122 271 64
Snowfall (cm)	50.5 30.7 31.6 24.2 40.4 86.0 67.0 76.0 67.2 91.4 135.8 87.5 118.6 127.0 98.8 103.8 63.0 69.4 218.5 50.7
Minimum	-24.0 -23.0 -11.8 -23.5 -18.8 -18.8 -18.8 -18.8 -18.8 -24.6 -24.2 -14.7 -15.6 -31.5 -38.6 -20.0 -19.5 -10.9 -21.2 -32.6 -30.0 -7.3 * -17.4 -13.8 -15.4 -37.3
Maximum	4.7 5.5 9.5 7.2 6.4 8.2 2.7 1.9 5.3 5.7 2.1 0.7 3.0 2.5 -3.1 3.3 1.7 2.5 -1.9 * 6.5 5.5 5.2 -2.5
Difference from Normal	$\begin{array}{r} -6.7 \\ -6.7 \\ -4.6 \\ -6.5 \\ -5.2 \\ -6.1 \\ \\ -7.6 \\ -7.2 \\ \\ -2.4 \\ -3.1 \\ -0.3 \\ -0.2 \\ -2.4 \\ -2.5 \\ -1.8 \\ -3.1 \\ -0.6 \\ -1.9 \\ -2.9 \\ * \\ -3.4 \\ -3.0 \\ -2.8 \\ -1.4 \end{array}$
Mean	$\begin{array}{r} -9.0 \\ -9.6 \\ -2.0 \\ -8.0 \\ -7.0 \\ -6.4 \\ -11.5 \\ -11.2 \\ -3.9 \\ -4.9 \\ -4.9 \\ -9.4 \\ -19.0 \\ -6.5 \\ -6.4 \\ -7.0 \\ -6.9 \\ -13.6 \\ -9.0 \\ -4.6 \\ * \\ -4.9 \\ -4.0 \\ -5.4 \\ -20.0 \end{array}$
STATION	NOVA SCOTIA GREENWOOD A HALIFAX INT'L A SABLE ISLAND SHEARWATER A SYDNEY A YARMOUTH A PRINCE EDWARD ISLAND CHARLOTTETOWN A SUMMERSIDE A NEWFOUNDLAND BONAVISTA BURGEO CARTWRIGHT CHURCHILL FALLS A COMFORT COVE DANIELS HARBOUR DEER LAKE A GANDER INT'L A GOOSE A MARY'S HARBOUR PORT AUX BASQUES ST ANTHONY ST JOHN'S A ST LAWRENCE STEPHENVILLE A WABUSH LAKE A
Degrae Days below 18 C	1137.7 1008.3 831.2 1258.9 907.8 1194.7 1165.4 1229.5 1308.3 1304.2 1175.5 1286.8 967.9 1040.1 1096.0 925.4 1092.1 1134.9 1216.8 990.4 1114.8 1126.4 1043.8 1236.2 989.6 979.6 1004.2 975.1 967.7
X of Normal Bright Sunshine	* 110 * 144 * 85 83 * 154 146 125 181 * 94 151 * 94 151 * 142 117 130 * 154 167
Bright Sunshine (hours)	* 93 77 112 102 * 46 42 59 61 108 98 74 145 162 83 115 112 50 73 118 97 139 121 108 127 157 140 154
No. of days with Precip 1.0 mm or m	14 911 913 4 12 11 12 3 10 1012 7 8 12 7 10 15 12 13 9 8 11 8 9 9 13 9
Snaw on ground at end of month (c	27 13 30 22 22 14 78 36 67 42 32 39 15 8 31 45 53 45 53 45 22 50 49 22 42 42 56 846 82
X of Normal Precipitation	64 29 76 * 48 161 63 * 56 * 92 50 * 77 49 53 156 67 61 43 48 52 44 67 66 58
Total Precipitation (mm)	50.1 30.7 113.8 30.2 94.8 10.8 61.6 26.6 41.6 17.0 40.1 34.0 87.4 43.2 53.8 84.2 55.2 42.4 76.2 70.2 58.8 53.0 48.1 36.0 51.2 72.4 78.0 73.4 96.3
Z of Normal Snowfall	67 6 133 * 51 160 73 * 76 * 103 57 * 136 177 91 103 63 * 80 69 138 122 125 132
Snowfall (cm)	57.0 4.8 111.2 44.0 121.4 11.8 62.8 30.8 55.0 21.0 44.0 39.8 92.2 33.8 38.5 91.6 89.2 81.4 77.8 57.8 30.2 51.2 63.3 95.2 84.8 90.4 84.2
Minimum	-34.1 -28.8 -28.1 -39.4 -27.8 -32.2 -39.2 -38.4 -48.1 -29.5 -34.6 -40.2 -25.4 -27.3 -30.8 -31.6 -47.2 -30.9 -31.6 -47.2 -30.9 -35.7 -33.4 -29.9 -37.5 -28.3 -28.1 -33.8 -29.0 -34.4
Maximum	$\begin{array}{r} -3.7 \\ -1.4 \\ 3.0 \\ -7.6 \\ 0.2 \\ -4.3 \\ -3.7 \\ -0.1 \\ -12.7 \\ -12.5 \\ 0.0 \\ -7.9 \\ -0.3 \\ 3.9 \\ 3.0 \\ 2.0 \\ -7.9 \\ -0.3 \\ 3.9 \\ 3.0 \\ 2.0 \\ -1.1 \\ -4.2 \\ -1.0 \\ 0.0 \\ 4.9 \\ 2.9 \\ 4.1 \\ -4.5 \\ -1.0 \\ 0.0 \\ 4.9 \\ 2.9 \\ 4.1 \\ -4.5 \\ -1.0 \\ 0.0 \\ 4.9 \\ 2.9 \\ 4.1 \\ -4.5 \\ -5.0 \\ -0.1 \\ 1.3 \\ 1.7 \\ 5.0 \end{array}$
Difference from Normal	-6.6 -4.3 -1.2 * -2.6 -1.2 -5.7 * -9.9 * -4.9 -8.7 * -2.7 -8.2 -2.9 -2.9 -2.9 -2.9 -9.4 -7.7 -8.7 -8.7 -8.7 -8.7 -8.7 -8.7 -8.7
Mean	-18.7 -14.6 -8.8 -22.6 -11.3 -20.5 -19.6 -21.6 -24.2 -24.1 -19.9 -13.2 -15.6 -17.4 -11.9 -17.2 -18.5 -21.2 -13.9 -18.0 -18.3 -15.7 -21.9 -13.6 -14.4 -13.4 -13.2
ATION	C VILLE A DMEAU A SABLON A GAMAU CHAPAIS A AK A AQ A ARAPIK A NDE RIVIERE A KI MI A OLI A EAL INT'L A EAL INT'L A EAL MIRABEL I/ QUAN A CA VAL A ERVILLE A LES A ROOKE A ATHE DES MONT ERT A DR A RUNSWICK A ND A OHN A

5.2 5.2 5.9 0.8 -5.6 *.* *.* *.* 16.3 18.7 -16.1 *.* 10.4 18.3	Ditterence from Normal Ditterence from Normal	e C Unuixow 13.0 *.* 14.0 7.0 8.5 *.* 8.0 *.* *.* 5.0 3.0 7.0 *.* 5.5 9.5 3.3	En Eiuiii -3.5 *.* 0.0 -6.5 -38.0 *.* *.* *.* *.* *.* *.* *.* *.* *.* *	(urs) lipinous 0.0 25.0 25.0 25.0 25.0 10.6 *.* 10.6 *.* 10.6 *.* 10.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19		Total Precipitation (mm) 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6	X of Normal Precipitation 3 of Normal Precipitation 3 of Normal Precipitation	11 25 45 2 2 2 4 2 2 2 4 2 2 2 4 2 2 2 4 2 2 2 2 4 2 2 2 2 4 2	• Lo * Co *	Bright Sunshine (hours)	Degree c above 4 10 34.0 34.0 34.0 34.0 34.0 34.0 34.0 34.	DECEME days 5 C 1329.3 ** 2329.3 ** 2329.3 ** 2038.5 2288.8 1332.8 ** 1329.4 ** 1329.4 ** 1329.4 ** 1329.4 ** 1329.5 2288.8 1332.8 ** 1329.4 ** 1329.5 1329.5 1329.6 ** 1329.5 1329.6 ** 1329.7 ** ** 1329.7 ** 1329.7 ** ** 1329.7 ** 1329.7 ** 1329.7 ** ** 1329.7 ** ** 1329.7 ** ** 1329.7 ** 1329.7 ** 1329.7 ** 1329.7 ** 1329.7 ** 1329.7 ** 1329.7 ** 1329.7 ** 1214.7 1687.5 1937.7 **	BER 1989 STATION STATION QUEBEC LA POCATIERE L'ASSOMPTION LENNOXVILLE NORMANDIN STE.CLOTILDE NEW BRUNSWICK FREDERICTON NOVA SCOTIA KENTVILLE NOVA SCOTIA	Tem -15.1 -15.1 -15.9 *.* -20.4 -15.5 *.* -15.5 *.* -10.3 -3.7	-6.9 -8.4 *.* -6.3 -8.8 *.* -6.2 -7.8 -6.8 -2.5	2.0 4.5 ** -5.0 4.0 ** 9.0 7.0 5.5 5.5	-32.0 -33.5 -36.5 -30.0 *.* -21.0 -34.0 -23.5 -12.7	(W) IIJ NOUS 48.1 35.3 *** 37.4 33.4 *** 50.0 80.8	(um) 30.2 74.5 31.8 30.6 *.* 67.2 46.3 64.2 172.5	X of Normal Precipitation 253 26 Normal Precipitation 281 292 293 292 293 293 293 293 293 293	(m) 2004 on ground at end of month (cm) 28 24 20 20 40 24 20 24 20 24 20 24 20 24 20 24 20 24 24 20 24 24 24 24 24 24 24 24 24 24 24 24 24	0 10 10 mm 01 mm	Bright Sunshine (hours) 131 140 117 125 75	Degree d above 4100 sill 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	1783.9 2110.3 1503.5 2154.5 1809.0 1772.2 1486.3	December 1989 - Vol. 11 Climatic Perspectives	
-14.2 -10.4 -18.3 -17.1 -20.0	0.0 -0.1 -4.2 -2.7 -7.7	5.5 9.5 3.3 7.0 3.0	-41.0 -40.0 -38.7 -35.0 -40.0	14.2 14.0 15.1 12.4 22.0	1 18 1 18 1 18 1 18 14 22	1.6 1.6 1.6 8.9 4.6 2.0	57 72 94 63 99	5 2 11 10 19	63 454	48 76 ** 134 123	0.0 0.0 0.0 0.0	1214.7 1687.5 1932.0 2157.0 1926.8	NEWFOUNDLAND ST.JOHN'S WEST	-3.7	-2.5	5.5	-12.7	80.8	172.5	103	24	19	75	0.0	1486.3		
-9.0 -10.8 -10.6 -8.3 -21.9 -16.5 -11.2 *,* *,*	-6.1 -5.6 -6.5 -6.6 -7.2 -9.0 -6.7 *,* *,*	6.0 3.3 4.5 5.0 -4.5 3.4 4.7 *.*	-20.0 -24.9 -26.0 -39.5 -31.4 -30.6 *,4	44.0 0.0 28.5 35.2 57.2 47.1 53.4 *.*	0 47 5 35 2 35 2 42 1 34 67	7.0 2.1 9.1 5.2 2.8 4.8 7.8 *.* *.*	55 3 55 48 84 48 70 ** **	20 *** 13 5 44 24 14 ***	11 *** 10 9 11 11 10 ***	** 82 83 81 128 ** ** **	*.* *.* 0.0 0.0 0.0 0.0 0.0 *.* *.*	2196.9 ** 1991.4 2436.4 1394.5 2195.7 2215.9 ** *.*														page 1	