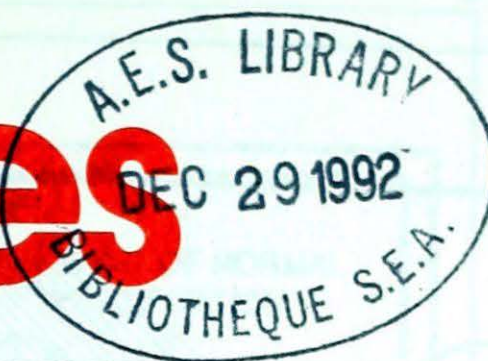




Climatic Perspectives



Monthly Review

November 1992

Vol. 14

CLIMATIC HIGHLIGHTS

Stormy weather across Canada

The combination of a strong upper ridge of high pressure over British Columbia and a moderately deep trough of low pressure extending from Baffin Island to Texas, at higher levels in the atmosphere, resulted in predominantly warm temperatures across the western half of the country, while cold persisted east of a line extending from Baffin Island to Lake Superior. Below-freezing temperatures were even recorded in the southeastern part of the States - weather which southerners are most certainly adverse to. Numerous snowstorms affected the country this month.

During the first week of the month, southeastern Manitoba and northwestern Ontario received their first major snowstorm of the season. Accumulations of up to 35 cm of snow at GERALTON, Ont., were accompanied by strong easterly winds, resulting in poor visibilities in blowing snow.

Also during the first week, southern and central British Columbia received frequent periods of rain. At Terrace, the precipitation amount during that week alone was as much as had fallen in the last two months. Prince George, during the first eight days of the month, was inundated with a precipitation amount equal to 85 percent of the normal for November. Kamloops received 51.6 mm of rain - more than four times the normal November rainfall total.

The second week of November was not any better, as intense early winter storms pummelled the Prairies and Ontario. On the 9th, Calgary and the southwest foothills were buried under 15 to 25 centimetres of snow. The next day, southern Manitoba and northeastern Ontario received 15 to 20 cm of the white stuff. In Winnipeg and surrounding areas, traffic was tied up, power disrupted, and the International Airport was shut down after a plane slid off the runway. A few days later in Ontario, on November 12 and 13, a storm which originated in the Dakotas, gave 20 to 60 millimetres of rain to the south and up to 38 cm of snow in the north. Winds over some areas of the Great Lakes Basin reached hurricane-force strength along the shorelines, uprooting trees, and felling powerlines. Point Petre, along the north shore of Lake Ontario, recorded a wind gust of 135 km/h. Some areas of Muskoka, north of Toronto, were without power for days, as hydro crews used helicopters to reach the affected areas and clear the debris.

In the wake of the storm, Arctic air streaming over the open waters of the Great Lakes and Georgian Bay produced snow squalls. The Muskoka and Haliburton areas received as much as 40 cm on the 14th and 15th.

The rest of southern Ontario received its first significant snowfall of the season on the 16th and the 17th. Between 5 and 15 centimetres of snow fell. Later in the week, on November 20 and 21, another storm dropped more than 20 cm of snow on

northeastern Ontario. To the south, precipitation took the form of rain and freezing rain. The abundance of precipitation this month resulted in high water levels in the Muskoka region. This may cause serious shoreline erosion and ice damage to docks and boathouses, if unprecedented high November water levels are not brought down before freeze-up. Water levels on the Great Lakes are also above normal.

During the week of the 16th, storms, which affected Ontario earlier, moved eastward, burying some parts of Atlantic Canada with snow. Charlottetown, P.E.I., received a weekly total of 25 cm and the Gaspé Peninsula recorded more than 30 centimetres.

On the 20th and 21st, a powerful Pacific storm pounded coastal British Columbia. Hurricane-force winds whistled over the north side of the Island; surprisingly, damage was reported to be minimal. The Nanoose Bay area, north of Nanaimo, did not fair as well. At Schooner Resort, about 300 boats were torn from their moorings, causing an estimated \$4 million damage. The Pacific storm then swooped over the Prairies, dumping 16 cm of snow on Edmonton, Alta., and North Battleford, Sask. Along with the snow, blizzard conditions developed over the eastern half of Alberta, and Saskatchewan.

During the last week of November, the coastal mountains of the Yukon and British Columbia received over 50 cm of snow, as a series of Pacific storms moved inland.

Across the country

Yukon

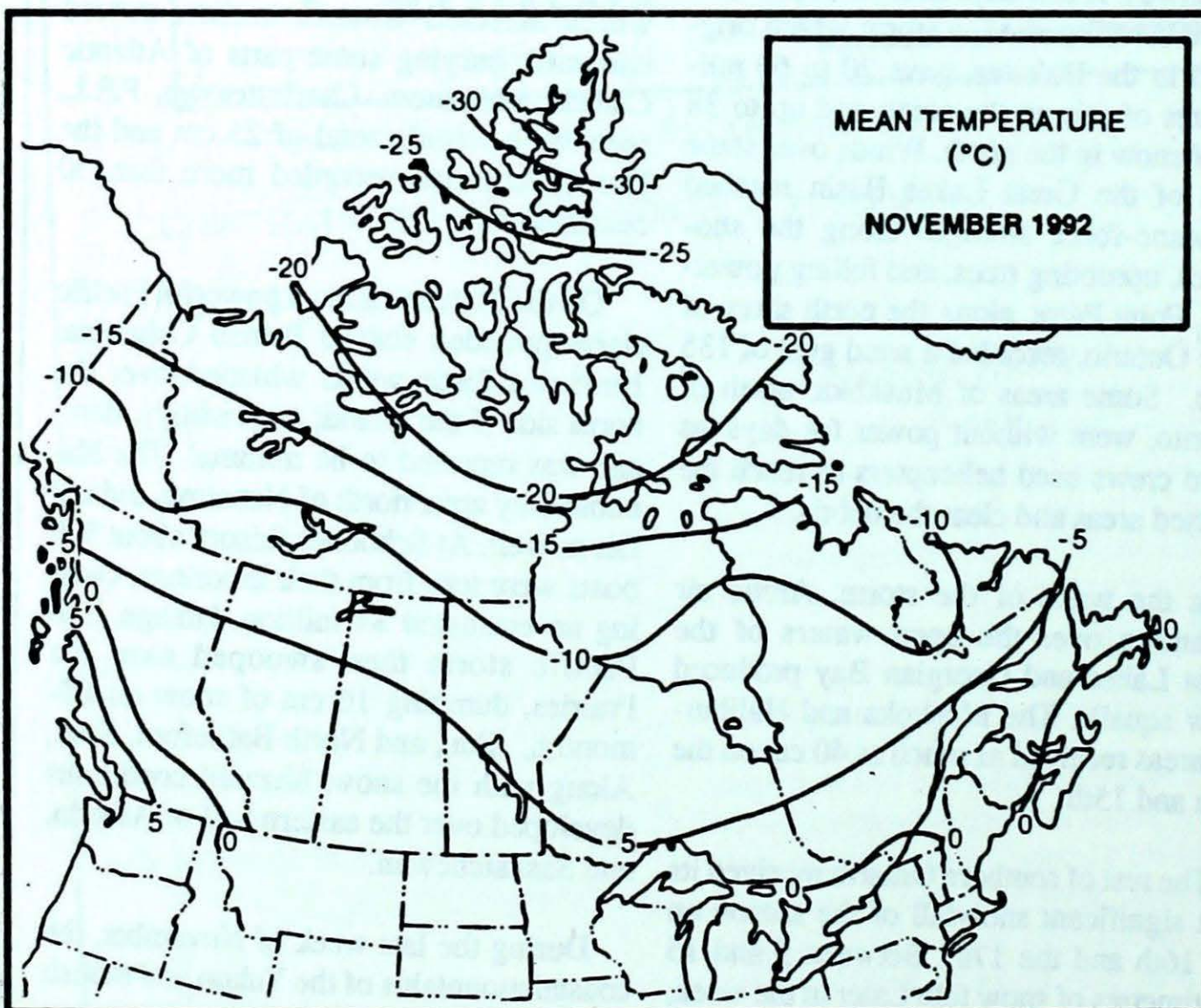
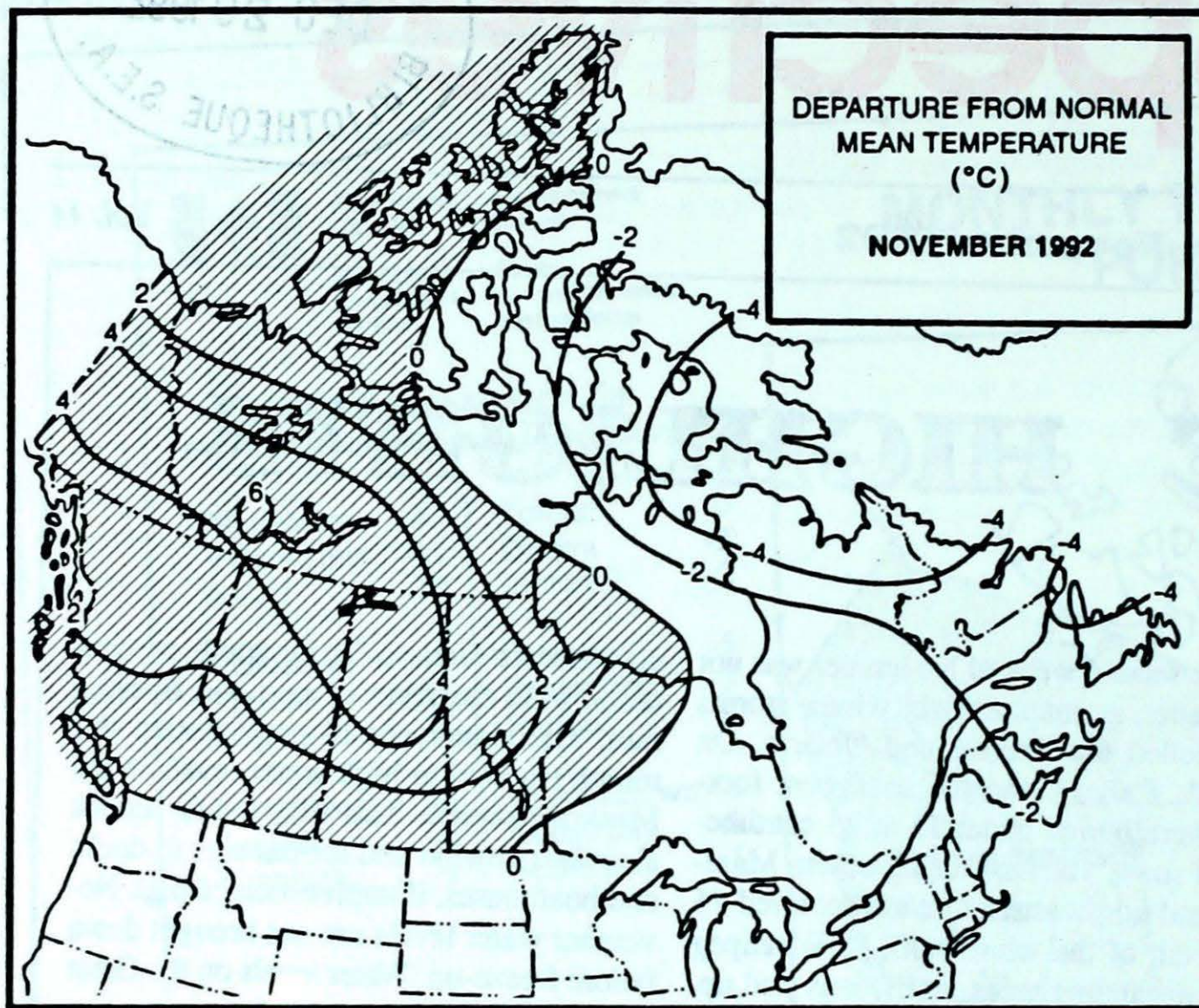
Even though it felt miserable, the statistics show that temperatures averaged near to above normal this month. At times, minimum temperatures dipped well into the minus thirties. Old Crow was the Territory cold spot, with a chilly -41°C . Most locations had a few days with readings on the plus side, but two communities failed to reach the freezing mark even once during the month - Shingle Point and Old Crow.

Precipitation was light across the Yukon, with very little precipitation falling in the form of rain this month. Most stations received between 20 and 30 cm of snow. The greatest total accumulation, 84 cm, was at Blanchard River on the Yukon side of the coastal pass to Haines Alaska. On the other hand, the coastal passes in British Columbia were inundated with snow. Fraser Camp, in the White Pass, had 276 cm of snow, leaving 101 cm of snow on the ground at month's end.

The south-central Yukon around Whitehorse, and the Dawson area, received a little more snow than average. Shingle Point had over 150% of their normal snowfall, while the rest of the Territory recorded less than their normal monthly amount.

Northwest Territories

The high Arctic was often clear and cold, but did experience the usual snowfalls. Baffin Island experienced numerous blizzards, due to low pressure systems moving into Davis Strait and Baffin Bay. Mild Atlantic air warmed up the southeastern Arctic to above freezing several times, but overall, temperatures averaged 4 to 5 degrees below normal. The western Arctic tended to be warmer, with Mold Bay averaging 2°C above normal. All areas reported a minimum temperature colder than -30°C and, not surprisingly, Eureka reported the coldest reading, a chilling -41.8°C . The weather along the Arctic coast varied with the passage of weather systems. Almost all regions had blizzards or near blizzard conditions at least once this month. East of Cambridge Bay, there was extensive low



cloud and fog during the first half of the month, but conditions cleared as the water froze and a solid ice cover developed.

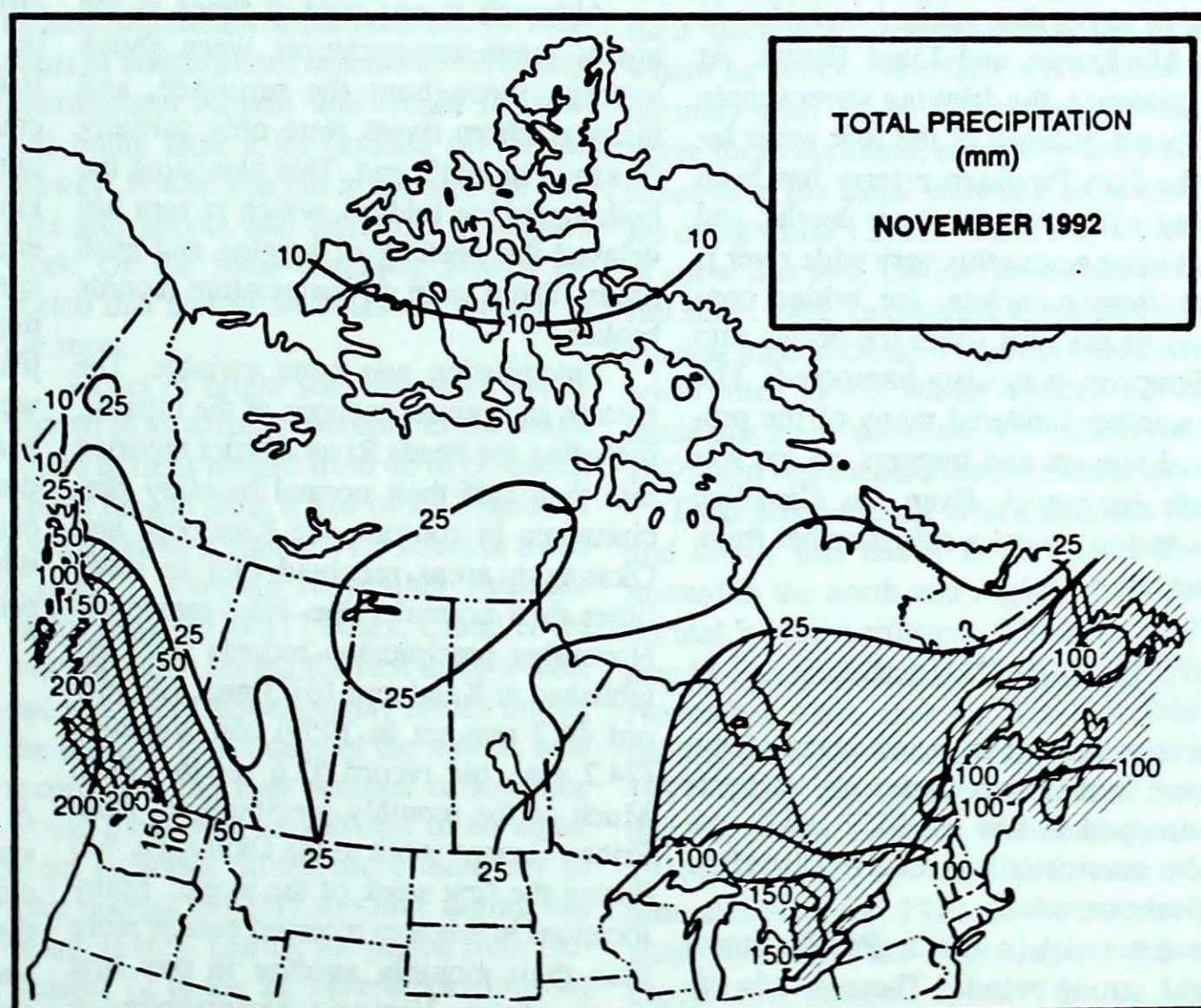
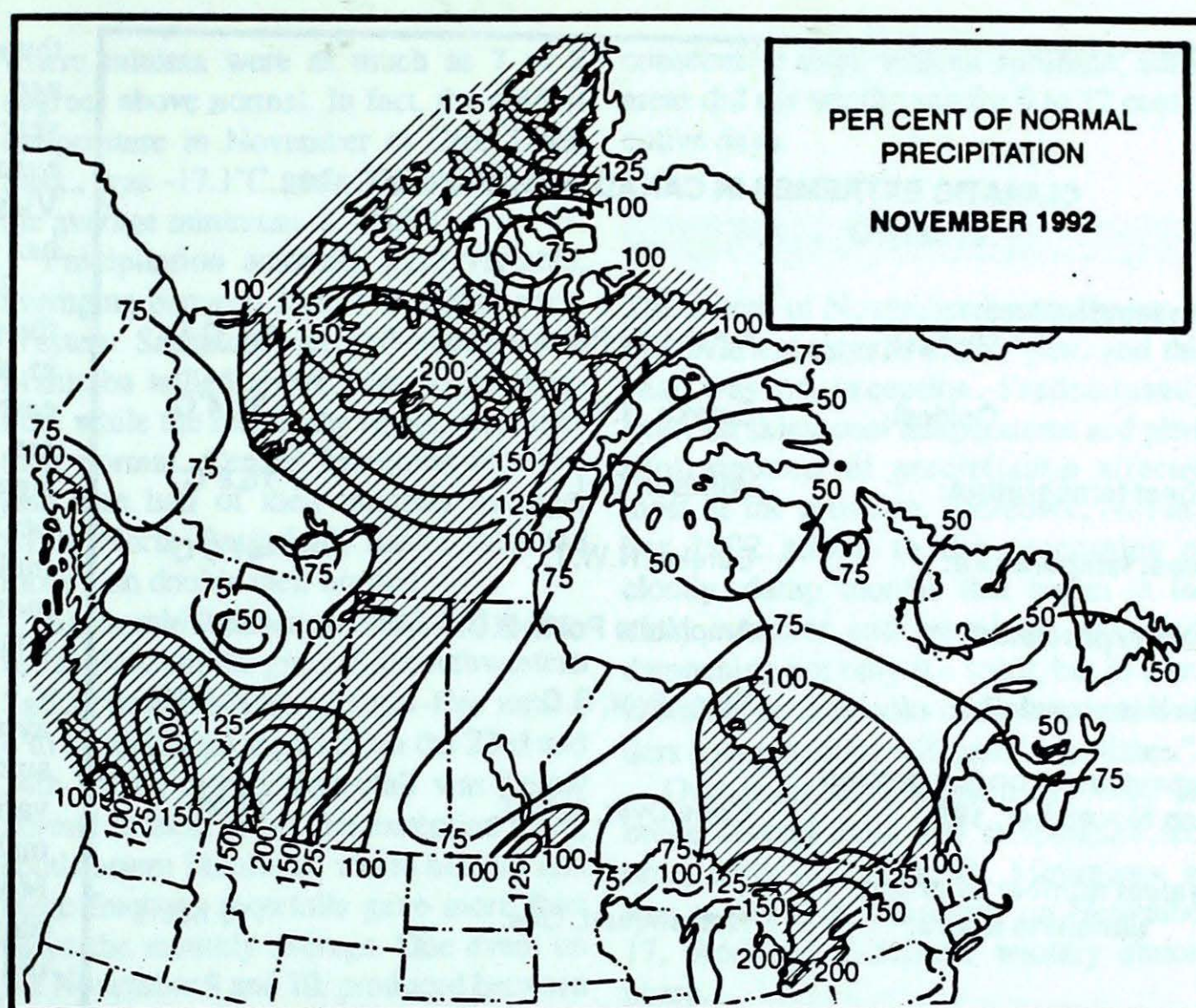
The sun failed to shine on Eureka, Mould Bay and Resolute Bay this month, but this should not be surprising, since the sun never rises at Eureka in November, and the maximum possible hours of bright sunshine at Mould Bay and Resolute Bay at this time of year are only 1 minute and 12 hours, respectively. The clouds cleared just long enough at Baker Lake to tally 15.3 hours of sunshine, while Coral Harbour enjoyed 46.4 hours of the golden rays.

Precipitation in the form of snow was close to normal in the Arctic Islands, ranging from 3.4 mm at Resolute to 4.3 mm at Eureka. Further south, amounts were variable. Hall Beach was close to normal, with 12.8 mm, but Coral Harbour was well below normal, with a tally of only 7.8 mm compared to a normal of 19.6 mm. Baker Lake received 25.1 mm, 5.8 mm more than normal.

The Keewatin district experienced typical November weather. Cold Arctic air dominated the region. Storms tracking through or near the region, resulted in many days of blizzard or near blizzard conditions. The south warmed to near freezing, when the warm sectors of these systems pushed northwards. Near Hudson Bay, fog, drizzle, snow and low status cloud was common. In the northern districts, temperatures dropped to minus forty several times.

In the Mackenzie district, above-normal temperatures were common. Northeast of Great Slave Lake, from Yellowknife to Lupin Mine and Contwoyto Lake, there was extensive low cloud and fog during the month, due to the low level moisture input of Great Slave Lake. Resupply flights into the Diamond exploration area were hampered. Although Yellowknife experienced its fifth warmest November on record, few new daily records were established. The coldest day was November 21, the day of their Santa Claus.

The unseasonably warm weather delayed the construction of ice roads in the Mackenzie Delta, although some drivers did risk the drive from Inuvik to Tukoyakuk. Above-normal temperatures also



CLIMATIC EXTREMES IN CANADA - NOVEMBER, 1992

Mean temperature:			
Highest	Amphitrite Point, B.C.	8.4°C	
Coldest	Eureka, N.W.T.	-31.4°C	
Highest temperature:			
	Windsor, Ont.	16.8°C	
Lowest temperature:			
	Eureka, N.W.T.	-41.8°C	
Heaviest precipitation:			
	Amphitrite Point, B.C.	456.9 mm	
Heaviest snowfall:			
	Blue River, B.C.	111.5 cm	
Deepest snow on the ground on November, 1992			
	Cape Dyer, N.W.T.	72 cm	
Greatest number of bright sunshine hours:			
	Natashquan, Que.	118 hours	

resulted in lower than normal water levels on the Mackenzie and Liard Rivers. At Fort Providence, the drinking water supply was affected because of the low water levels. The Fort Providence ferry has been operating with minimal water depths, and the ice bridge across this very wide river is still far from complete. Ice bridge construction of the Fort Liard ice bridge into Fort Simpson was also hampered. The warm weather hindered many of the professional hunters and trappers, as ice was not safe for travel. Even the Canadian Forces had to cancel a cold weather training exercise.

British Columbia

Winter has arrived in many areas of the province. In the north, minimum temperatures dropped as low as -25°C, while the southern interior valleys received their first significant snowfalls.

On the coast, a major Pacific storm brought strong winds. These winds affected even the protected waters of the South Coast.

Although it was cold at times in the north, mean temperatures were above average throughout the province, and many northern rivers were only partially frozen at month's end. This hampered the building of ice bridges, which in turn has delayed the opening of logging and bush roads. There were no temperature records broken.

Precipitation was quite variable. The eastern and central sections of the interior, including the Peace River district reported less than half their normal monthly precipitation. In contrast, the Kamloops and Okanagan areas received two to three times their normal value. New maximum November precipitation records were established at Kamloops (61.3 mm, old record 46.7 mm set in 1959) and Kelowna (74.2 mm, old record 52.6 set in 1973). Much of the monthly precipitation, from Prince George south to the Okanagan, fell during the first week of the month. Many locations in this area received near or more than their monthly average in this first week alone. Victoria experienced a

thunderstorm on the 8th. Victoria, on average, gets only three thunderstorms per year. Small hail was recorded as well, an even rarer occurrence since, statistically, Victoria averages less than one day with hail per year.

Snowfalls varied appreciably around the province. The greatest snowfalls were in the mountain areas, stretching south-eastwards from Williams Lake. The southern interior valleys received their first significant snowfall of the year on November 20 and 21. Although snow began accumulating in the mountains in late October, most ski areas opened near month's end, which is only a little earlier than normal.

Vancouver's sunshine equalled the average of 69.3 hours, but hours of bright sunshine in the remainder of the province varied from just less than half to near normal. One low monthly sunshine record was broken this month. Cranbrook received only 40.1 hours of sunshine, breaking the old November record of 55.3 set in 1973.

November was a windy month, with numerous widespread gales occurring along the coast. A violent Pacific storm crossed the south and central coastal areas on the 20th and 21st. Winds at Solander Island, on the northwest coast of Vancouver Island, reached a maximum sustained speed of 148 km/h with gusts to 184 km/h. Cape Mudge, located at the northern end of Georgia Strait, reported a wind speed of 115 km/h. This storm resulted in major damage to a marina at Nanoose Bay, just north of Nanaimo, where 300 boats were torn away from their moorings, beached and damaged. Initial estimates of damage ran to \$4 million. This same storm caused major power outages in Victoria, where storm generated waves forced authorities to close many waterfront roadways.

Alberta

A stagnant weather pattern early in November maintained a persistent layer of cloud and extensive fog. This dull start set the tone for the month, as most locations had 20 to 50 percent less hours of bright sunshine than normal. The cloud cover kept temperatures near the freezing mark,

and thus temperatures averaged above normal.

Southern regions received their normal monthly precipitation total during the first week, but continued to accumulate more as weather systems continued to track through. Extensive fog and snow, with temperatures fluctuating near freezing, resulted in hazardous driving conditions.

Calgary was hit by an intense disturbance on November 8 and 9, dumping 24 cm of snow on the city, but by the end of the week, Chinook conditions developed and melted most of the mess. Another major low pressure system crossed central Alberta on the 21st and 22nd, pulling cold Arctic air southwards across the province. Snowfalls were heaviest through the central areas, with Edmonton receiving 17.2 cm. Strong northwest winds pushed cold Arctic air southwards, and produced blizzard conditions over the eastern half of the province. Arctic air covered the whole province by the morning of the 23rd, when the lowest readings this season were registered, with lows dropping down to the minus twenties across northern and central Alberta. High Level was the coldest at -24.6°C.

This cold snap was short lived, however, as mild Pacific air flooded back within a few days. High Level recorded a new daily high of 4°C on the 27th, while southern Alberta had temperatures rebound to the 10 to 12 degree range. A Pacific cold front, moving east across the province on the 27th, produced freezing rain and rain in the Peace River district, rain through the central areas, and rain changing to snow in the south. Calgary received 10.4 mm of rain, while Lethbridge received 9.4 cm of snow. This allowed Calgary to set a new monthly rainfall record of 12.2 mm. Sunny skies and mild temperatures returned by the end of the month.

Saskatchewan and Manitoba

November was cloudy and mild. All but the southeast corner of Manitoba reported above normal temperatures. Cloudy skies kept nighttime readings well above normal in all areas, especially in the northwest,

where minima were as much as 7 or 8 degrees above normal. In fact, the coldest temperature in November at Cree Lake, Sask., was -17.1°C, only 2°C colder than the average minimum of -15.2°C.

Precipitation amounts were variable, averaging between 10 and 40 millimetres. Western Saskatchewan and southeastern Manitoba tallied above normal precipitation, while the rest of the region was drier than normal. Central Manitoba received less than half of their monthly average, while North Battleford, Sask., received more than double their normal.

By month's end, snow blanketed the entire region, but the ground in southwestern Saskatchewan remained snow-free until a 4 to 8 centimetre snowfall on the 23rd and 24th of the month. Snowfall was below normal in most areas, the exception being southeastern Manitoba, where heavier and more frequent snowfalls gave more than twice the monthly average. One event on the November 9 and 10, produced between 15 and 25 centimetres of snow. There was very little wind to whip the snow into drifts, but those 15 to 25 centimetres caused significant inconvenience to residents of southeastern Manitoba. Winnipeg International Airport was closed for several hours after a jet skidded off of the runway. Power was cut in parts of the district and people had difficulty getting to work. On the 10th, Winnipeg Transit reported that almost 50 buses were stuck in the snow.

Hours of bright sunshine were below normal in all areas, especially in the south, where deficits ranged from 40 to 60 hours. Totals ranged from a low of 23.7 hours at Lynn Lake to a high of 71.5 hours at Swift Current. Average November sunshine varies from 90 to 117 hours. Cloud cover was persistent during the first three weeks, and if not for frequent sunny breaks during the last five or six days of the month, new records for the least amount of sunshine would have been established in all areas. Most locations tallied more than half of their normal monthly sunshine during this sunny stretch. During the period from November 12 to the 24, several locations set new records for the greatest number of

consecutive days without sunshine; some areas did not see the sun for 9 to 12 consecutive days.

Ontario

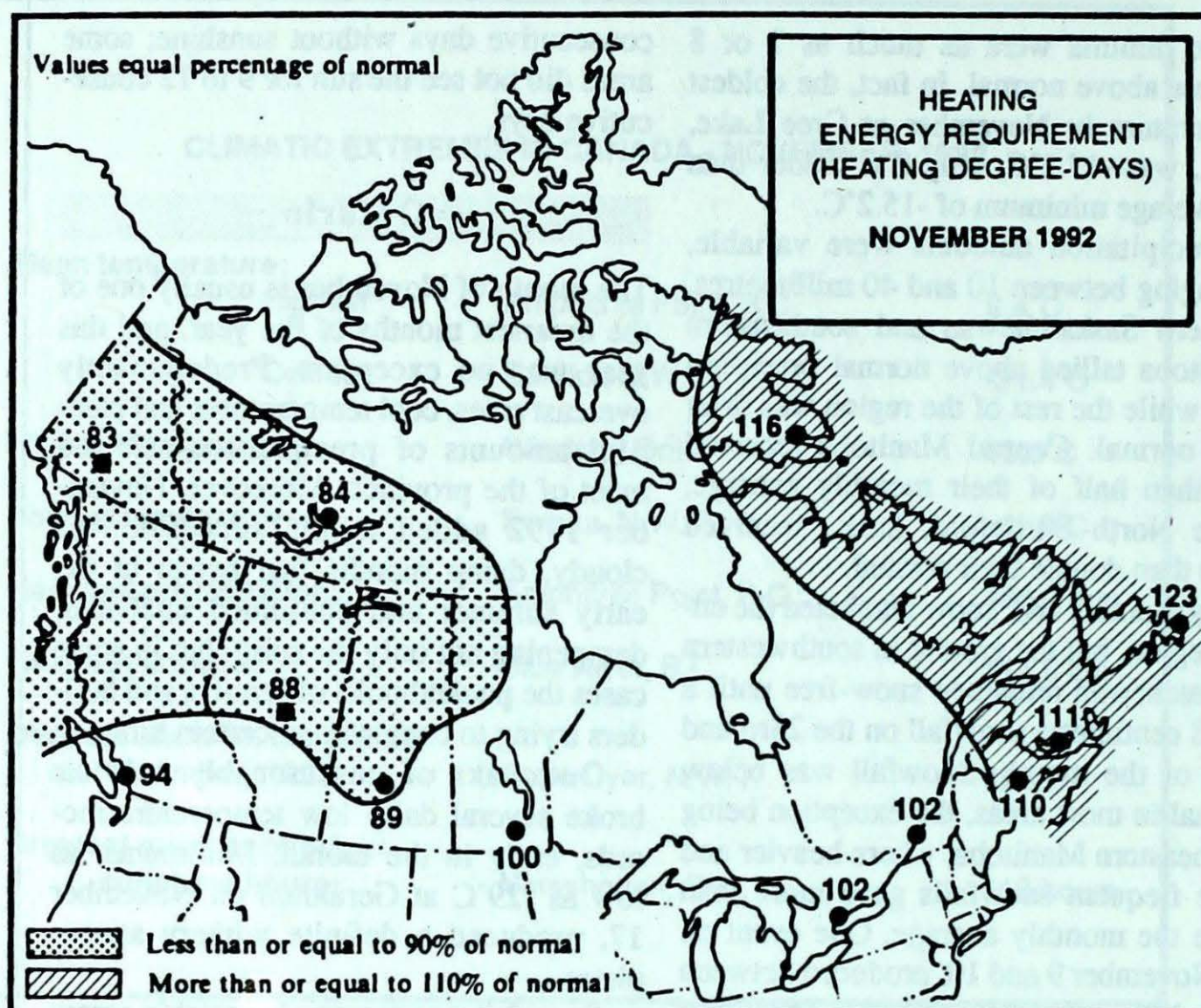
The month of November is usually one of the dreariest months of the year, and this year was no exception. Predominantly overcast skies, cool temperatures and plentiful amounts of precipitation affected most of the province. Moreover, November 1992 added to the succession of cloudy, damp months that began in the early summer and continued unabated, dampening not only the spirit, but in some cases the pocketbooks of farmers and builders trying to cope with uncertain times.

Outbreaks of unseasonably cold air broke several daily low temperature records, early in the month. Minimums, as low as -29°C at Geraldton on November 17, produced a definite wintery atmosphere.

Snowfall was extremely variable across the province. The Manitoulin Island-Earleton areas received approximately half of their normal November snowfall. Elsewhere however, snowfalls were closer to normal, with 10 to 30 centimetre falls being more common, except 40 to 70 centimetres in the usual snowbelt areas to the lee of the Great Lakes. North Bay's 13 cm of snow was their lowest November snowfall since 1962. In contrast, Geraldton's 78 cm was tops in Ontario (but only their snowiest since 1990), while Windsor's 5 cm made this their "snowiest" November since 1986, and represented the provincial low.

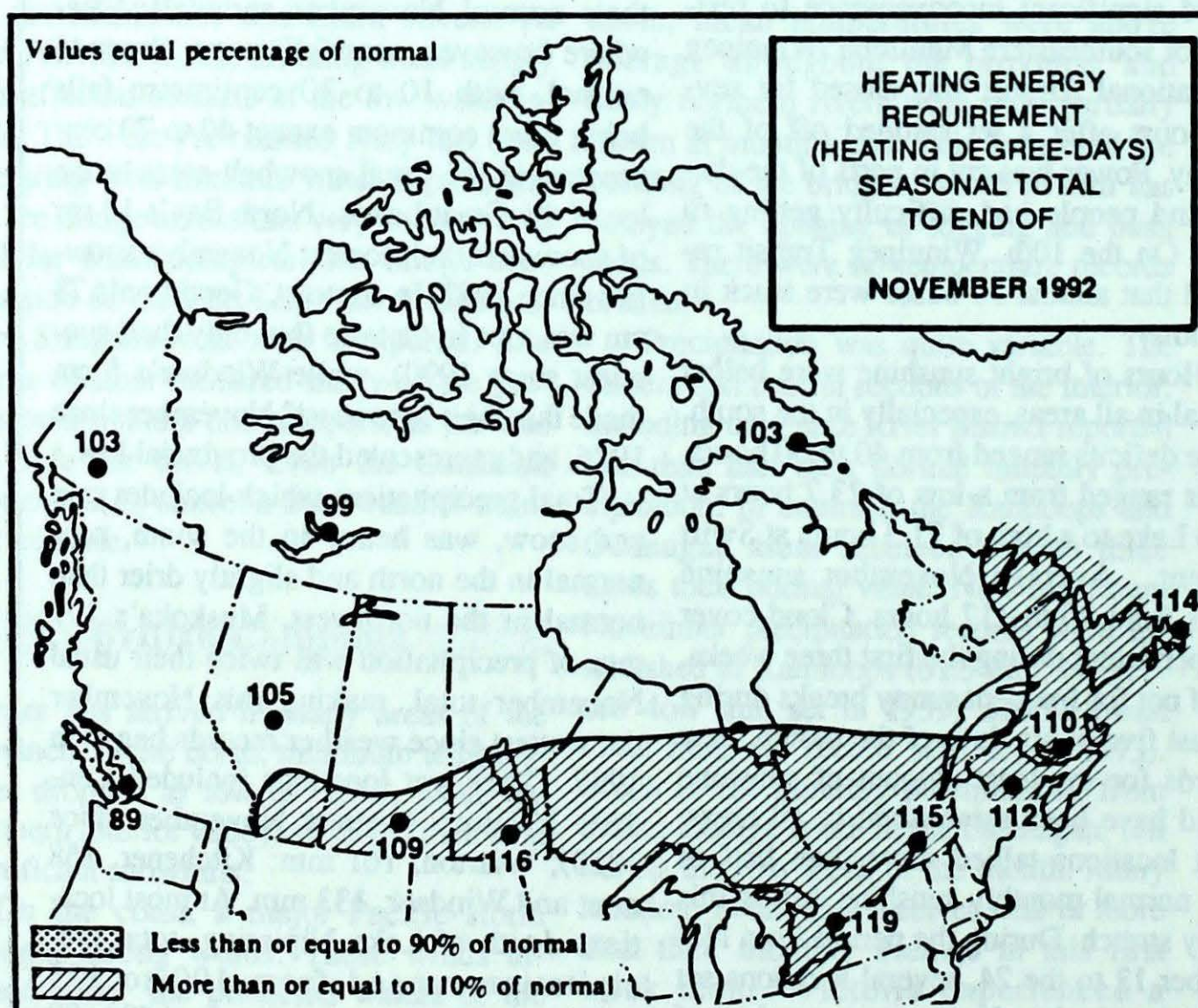
Total precipitation, which includes rain and snow, was heavy in the south, near normal in the north and slightly drier than normal in the northwest. Muskoka's 197 mm of precipitation was twice their usual November total, making this November the wettest since weather records began in 1937. Other wet locations included London, 162 mm (wettest November since 1950); Wiarton, 161 mm; Kitchener, 158 mm; and Windsor, 133 mm. At most locations south of Lake Nipissing, total precipitation ranged from 100 to 125 millimetres, compared to the usual 60 to 90

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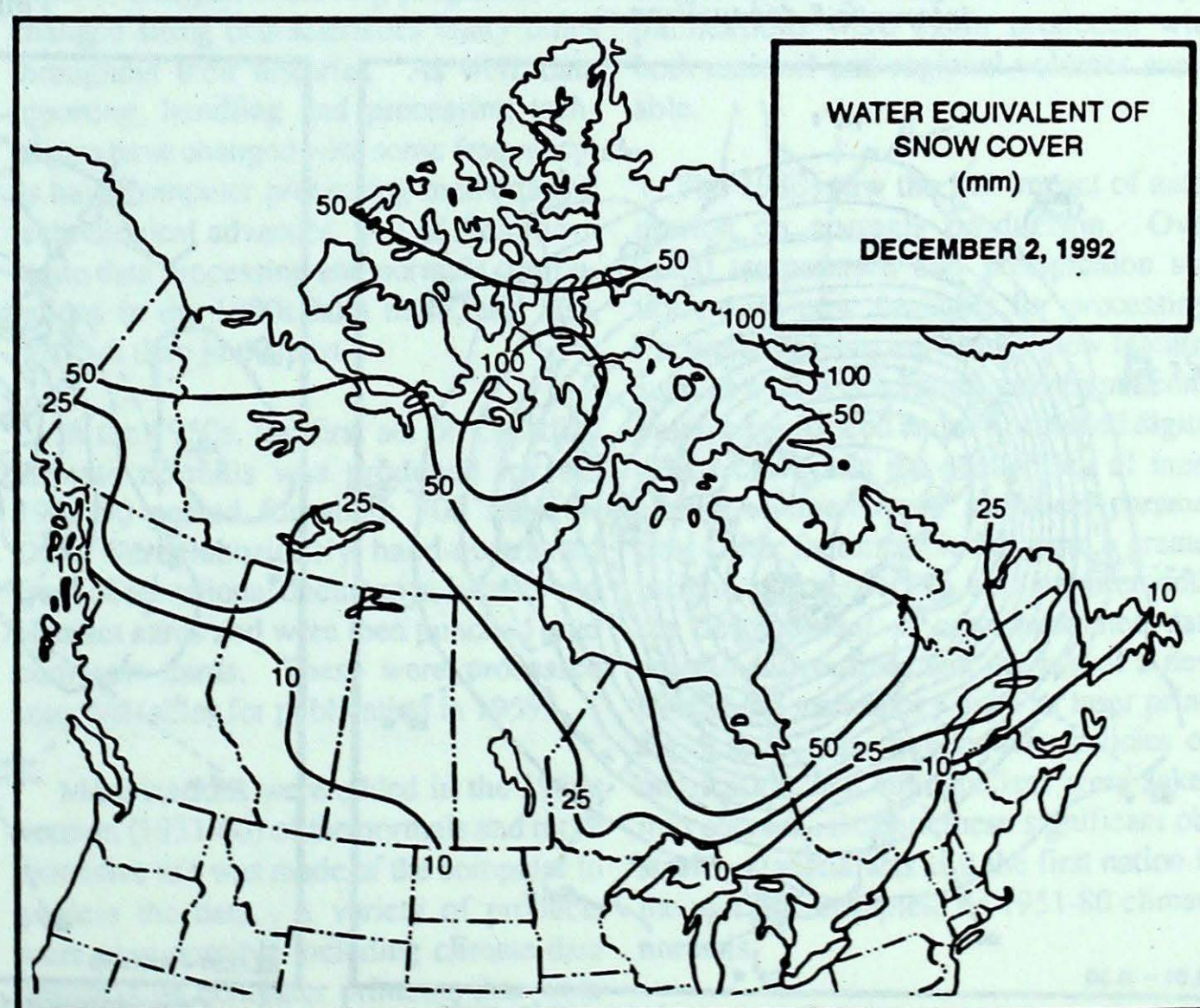
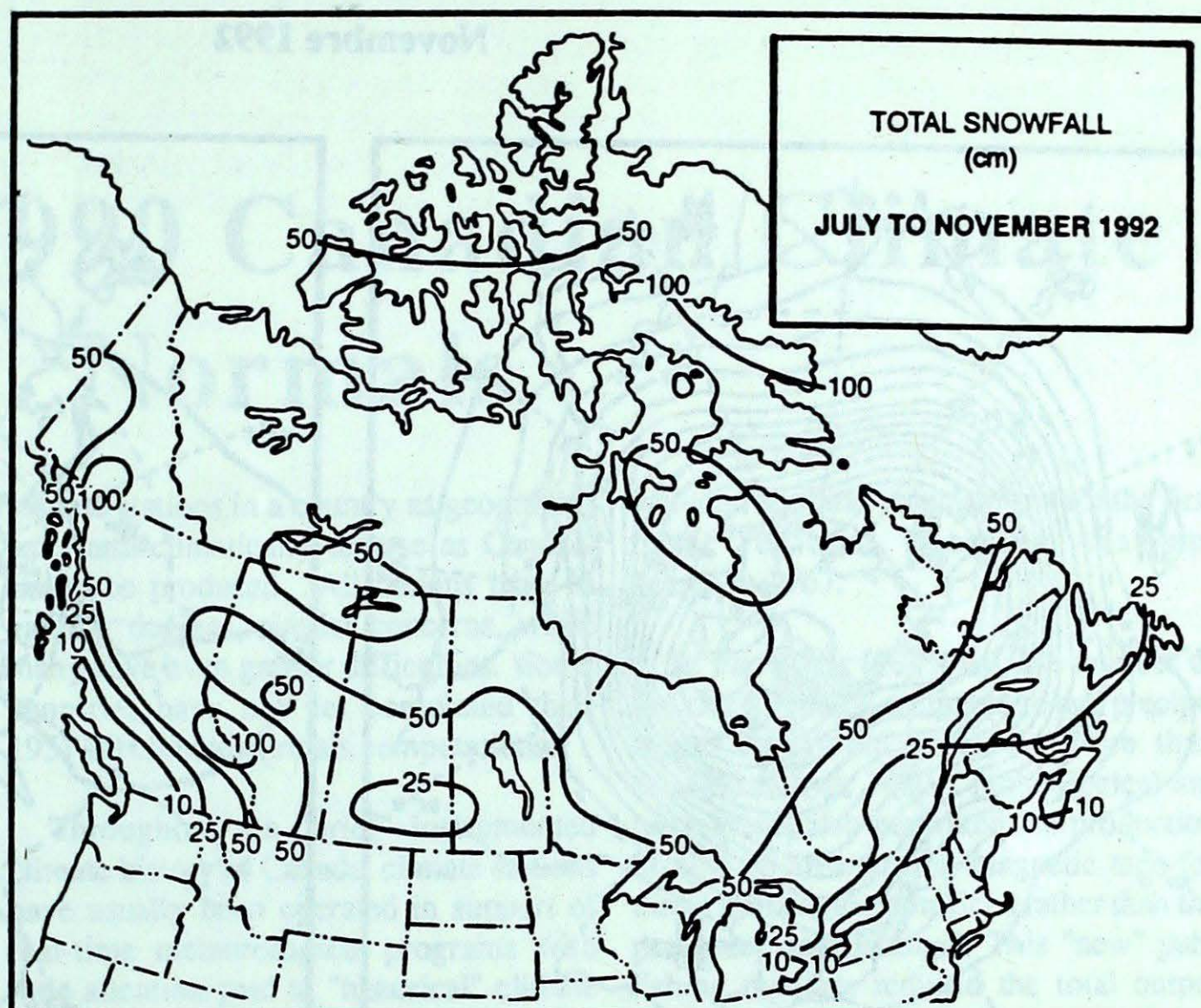
SEASONAL TOTAL OF HEATING DEGREE-DAYS TO END OF NOVEMBER

	1992	1991	NORMAL
BRITISH COLUMBIA			
Kamloops	887	887	887
Penticton	813	815	844
Port Hardy	1029	*	1127
Vancouver	695	750	779
Victoria	812	836	853
YUKON TERRITORY			
Whitehorse	2020	2073	1953
NORTHWEST TERRITORIES			
Iqaluit	2874	2606	2778
Inuvik	2891	2931	2788
Yellowknife	2054	2335	2083
ALBERTA			
Calgary	1456	1397	1369
Edmonton Mun.	1381	1424	1318
Grande Prairie	1670	1683	1563
SASKATCHEWAN			
Estevan	1392	1404	1183
Regina	1413	1448	1301
Saskatoon	1465	1564	1357
MANITOBA			
Brandon	1565	1659	1332
Churchill	2461	2403	2289
Dauphin	1492	*	1322
Winnipeg	1415	1504	1222
ONTARIO			
Kapuskasing	1617	1548	1456
London	955	845	795
Ottawa	1054	929	924
Sudbury	1354	1199	1141
Thunder Bay	1454	1487	1276
Toronto	945	830	793
Windsor	748	707	659
QUEBEC			
Baie Comeau	1557	1434	1442
Montréal	1001	886	870
Québec	1195	1119	1087
Sept-Îles	1661	1490	1532
Sherbrooke	1260	1118	1156
Val d'Or	1591	1444	1392
NEW BRUNSWICK			
Fredericton	1096	985	981
Moncton	1090	980	983
NOVA SCOTIA			
Sydney	1019	906	898
Yarmouth	1040	829	887
PRINCE EDWARD ISLAND			
Charlottetown	1011	895	923
NEWFOUNDLAND			
Gander	1399	1296	1180
St. John's	1297	1184	1141



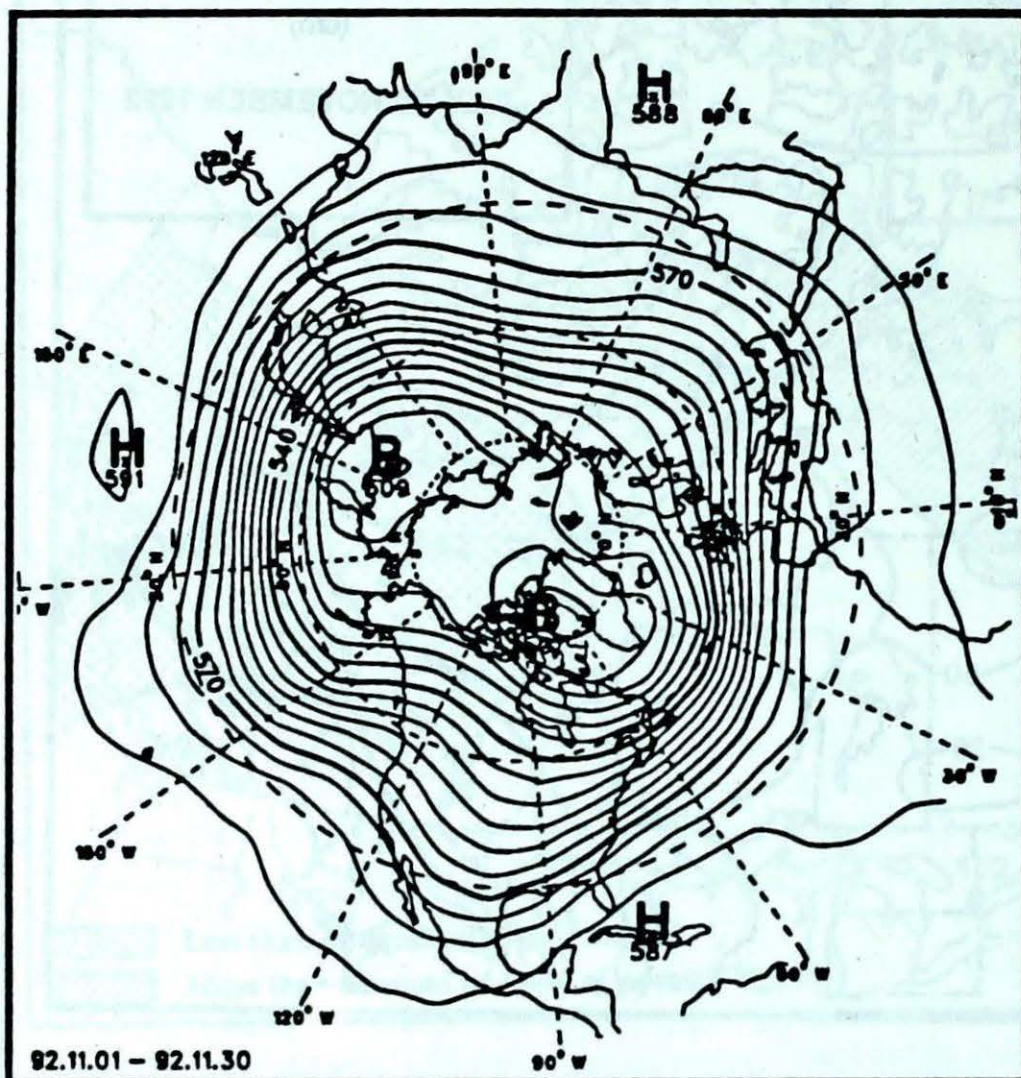
SEASONAL SNOWFALL TOTALS (cm) TO END OF NOVEMBER

	1992	1991	NORMAL
BRITISH COLUMBIA			
Kamloops	2	18	12
Port Hardy	1	1	4
Prince George	65	75	50
Vancouver	0	2	3
Victoria	0	5	2
YUKON TERRITORY			
Whitehorse	103	78	43
NORTHWEST TERRITORIES			
Iqaluit	77	58	91
Inuvik	97	67	76
Yellowknife	56	70	57
ALBERTA			
Calgary	57	38	36
Edmonton Mun.	32	47	27
Grande Prairie	24	47	42
SASKATCHEWAN			
Estevan	32	25	23
Regina	10	17	24
Saskatoon	31	50	23
MANITOBA			
Brandon	26	59	23
Churchill	56	112	77
The Pas	40	105	44
Winnipeg	42	41	27
ONTARIO			
Kapuskasing	114	96	85
London	27	17	26
Ottawa	16	2	26
Sudbury	25	37	39
Thunder Bay	38	76	33
Toronto	14	18	9
Windsor	6	3	12
QUEBEC			
Baie Comeau	37	47	42
Montréal	14	7	23
Québec	21	10	38
Sept-Îles	48	45	61
Sherbrooke	15	22	42
Val d'or	39	43	64
NEW BRUNSWICK			
Fredericton	14	2	23
Moncton	20	8	25
NOVA SCOTIA			
Sydney	20	6	15
Yarmouth	4	12	8
PRINCE EDWARD ISLAND			
Charlottetown	30	8	24
NEWFOUNDLAND			
Gander	54	52	44
St. John's	20	13	26

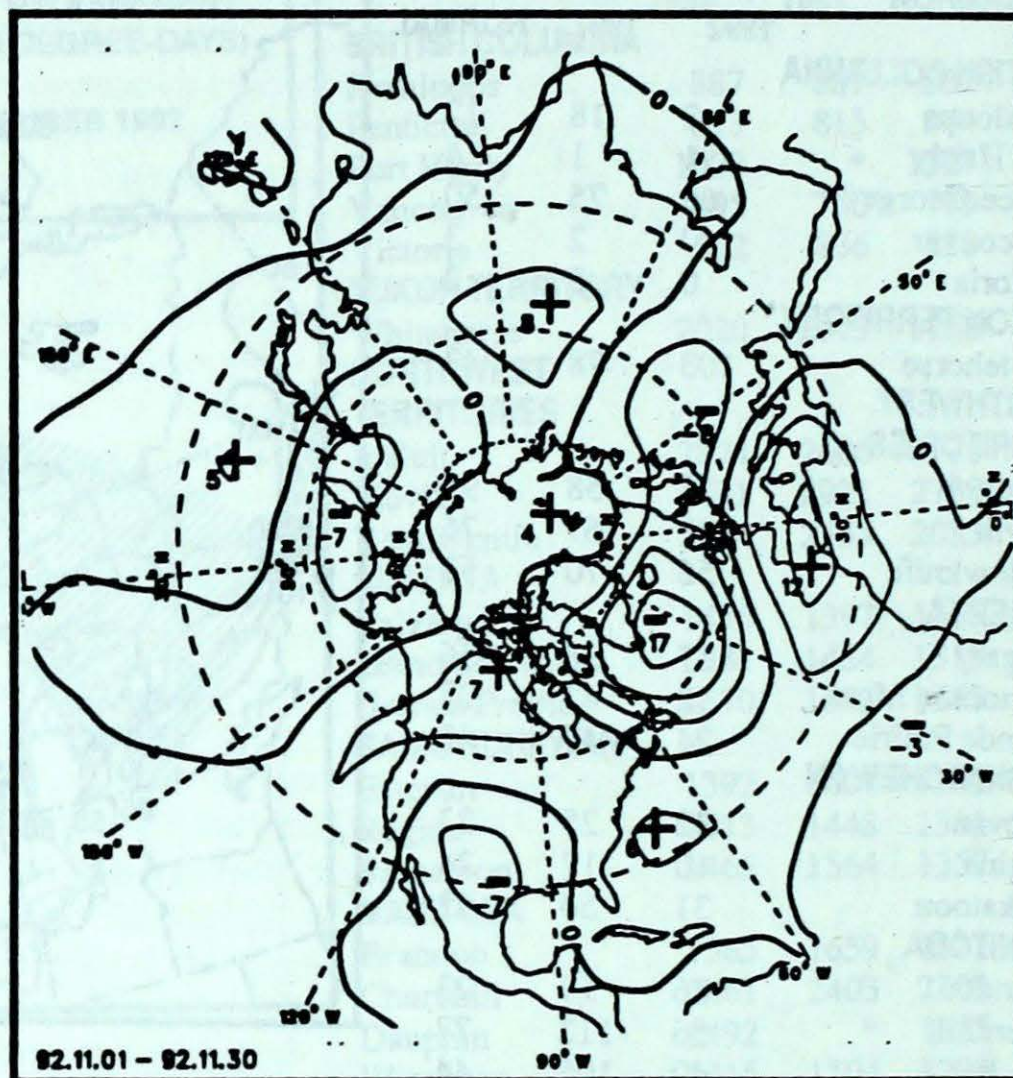


CIRCULATION ATMOSPHÉRIQUE MOYENNE AU NIVEAU 50 kPa

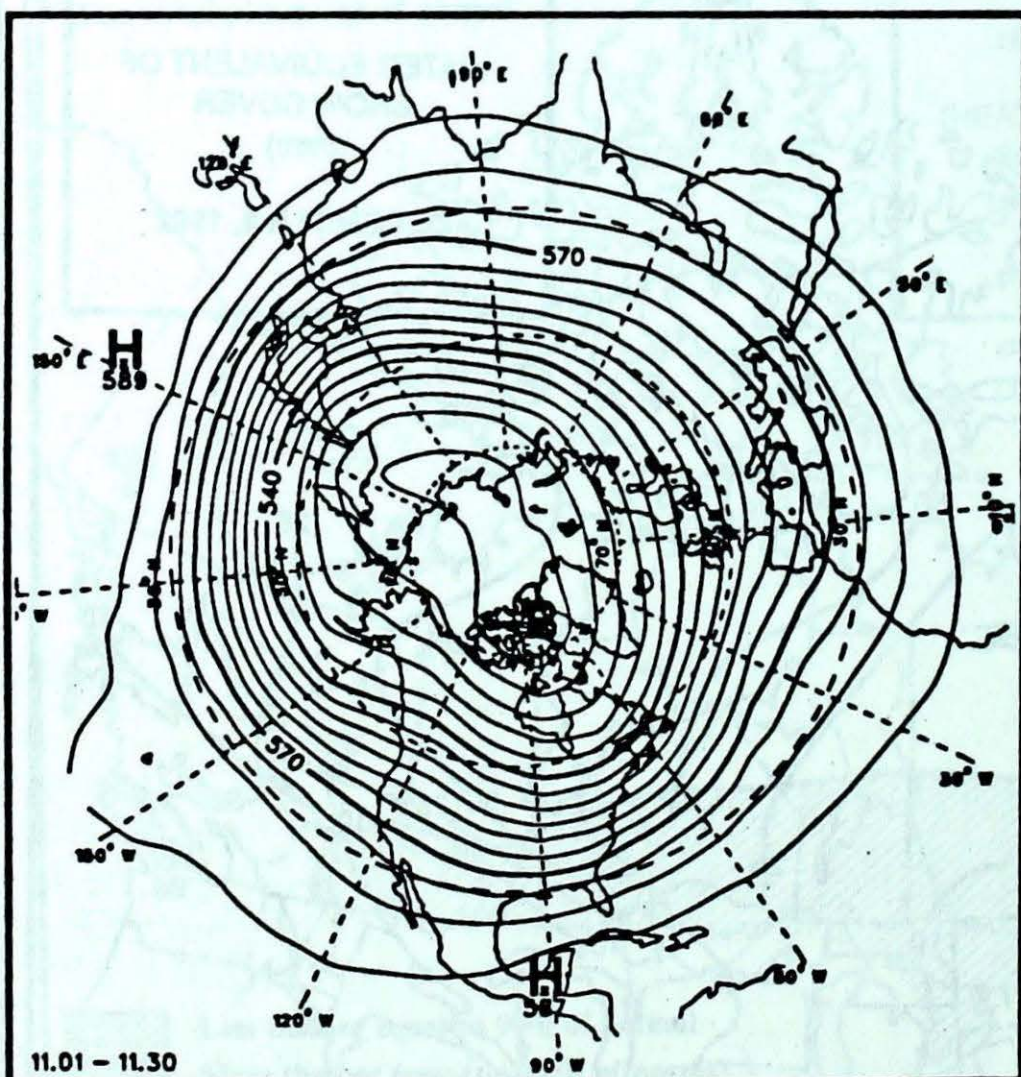
Novembre 1992



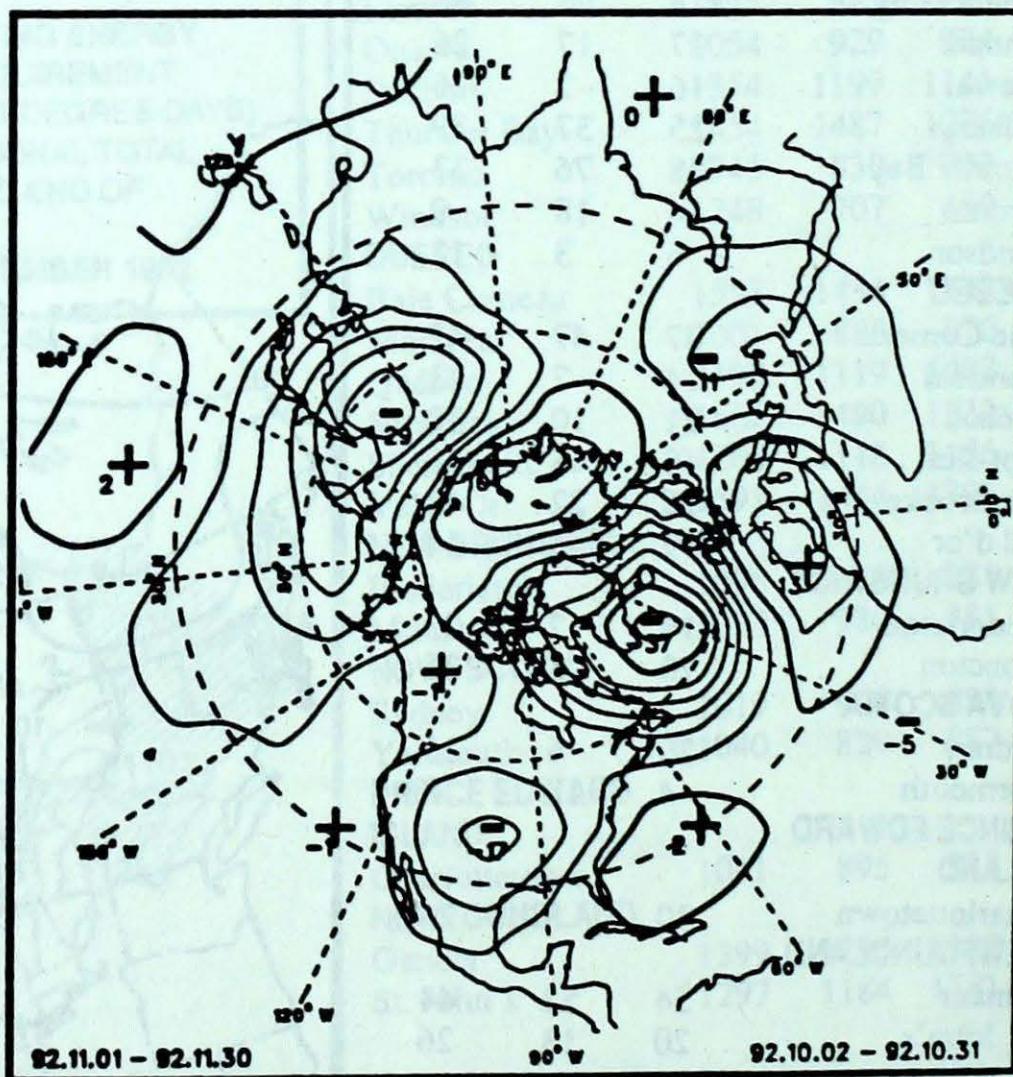
Hauteurs géopotentiellles moyennes
- intervalle 5 décammètres -



Anomalie des hauteurs géopotentiellles moyennes
- intervalle 5 décammètres -



Hauteurs géopotentiellles normales pour le mois
- intervalle 5 décammètres -



Changement des hauteurs moyennes p/r au mois
précédent - intervalle 5 décammètres -

The 1961-1990 Canadian Climate Normals

The Development Climatology Division of the Canadian Climate Centre is in the process of completing production of a comprehensive new climate data package, the 1961-1990 Canadian climate normals.

The concept of climate normals first came into usage in the 1930s when the International Meteorological Organization (predecessor to the World Meteorological Organization) (WMO) suggested that the period 1901 to 1930 be used as a reference period for calculating average climate values. In 1956, the WMO recommended the "most recent" 30 years as the averaging period with updates every 10 years. International adoption of this recommendation resulted in climate normals for 1921-50, 1931-60, 1941-70, 1951-80 and now, 1961-90.

A climate normal is by definition, an average value of a climate element, temperature, for instance, over any fixed period of years that is recognized as standard for the country concerned. According to the WMO Guide To Climatological Practices, normals are "period averages computed for a uniform and relatively long period comprising at least three consecutive ten-year periods." Normals have come to include more than just arithmetic averages and are usually accompanied by variability indicators such as extreme values, standard deviations and quantiles.

On the surface, normals are a pretty simple concept but underlying this apparent simplicity, are serious obstacles that make uniform and consistent computation difficult, if not impossible. Each must be dealt with, if normals for a large number of

climate stations in a country as geographically and climatically diverse as Canada, are to be produced. All nations have in varying degrees, similar concerns, while many have even greater difficulties. Some countries have not yet completed their 1951-80 climate normals computations.

Throughout the "brief" instrumented climate history of Canada, climate stations have usually been operated in support of real-time meteorological programs with little attention paid to "historical" climate requirements. As a result observing stations have opened and closed, changed locations, changed observing programs, and changed siting characteristics many times throughout their histories. As well, data reporting, handling and processing techniques have changed with some frequency, as have computer processing methods and technological advances. All of these have made data processing and normals computations in the 1990s both more, and less, difficult than in the past.

In the 1950s, the first set of Canadian climate normals was produced for the 1921-50 period for about 700 stations. Data were laboriously hand-abstracted from observational documents, ledgers and abstract cards and were then punched onto computer cards. These were processed into two tables for publication in 1959.

More stations were added in the 1960s version (1931-60) of the normals and more extensive use was made of the computer to process the data. A variety of products were now possible including climate data abstracts on computer printouts that were stored in large binders. Published normals

included national volumes, and for the first time, regional booklets, that appeared in 1967.

In the 1970s (1941-70), the number of stations for which temperature and precipitation data were available more than doubled to over 1600. Technological improvements also permitted the production of climate abstracts on magnetic tape for direct transfer to microfiche rather than the previous paper listings. This "new" publishing medium reduced the total output from hundreds of large, hard-covered binders to about 8,000 microfiche, housed in a single, specially designed cabinet. Paper publications were again produced with both national and regional volumes available.

The 1980s saw the full impact of automation on normals production. Over 2,200 temperature and precipitation stations were now available for processing. Factored into this were major new features such as a new generation mainframe computer, an enhanced and re-formatted digital data archive and the availability of more climate elements and statistical parameters. Other factors included were a greater insight with respect to user requirements, the development of new automated data adjustment routines and the use of a new publishing technology such as laser printing. Lastly, new government policies on metrification and bilingualism were taken into account. Despite these significant obstacles, Canada was still the first nation in the world to complete its 1951-80 climate normals.

In keeping with the spirit of the 1990s, a more compact, more efficient, but no less significant, version of climate normals has been assembled for the 1961-90 averaging period. The 1961-1990 Canadian Climate Normals will soon be available in a number of convenient formats: six regional booklets, micro-computer diskettes; and compact discs. A mainframe computer version will also be available.

The published normals are grouped regionally into Atlantic, Québec, Ontario, Prairies, British Columbia and the North. They contain normals of temperature, precipitation, wind, sunshine, humidity and pressure at over 1600 stations across Canada. These are arranged alphabetically by station within each province. These same data will also be available on micro-computer diskettes and can be easily accessed using the WordPerfect[™] software. A second diskette version will come with its own software, which will allow various analyses of

the data, or permit the user to convert them to ASCII format for use by spreadsheets or other software. This version will include, in addition to the above-mentioned parameters, monthly means of solar radiation, visibility, cloud amount, soil temperature and evaporation.

Monthly normals for all available climate elements, and in addition, hourly normals for temperature, humidity, pressure, visibility, cloud amount, sunshine and solar radiation are being produced in a new series, **Canadian Monthly Climate Data and 1961-1990 Normals (CMCD)**. This product will be available on compact disc along with the necessary software to access and display the information. Much more information will be possible by means of this medium, including monthly and annual averages for each year of record, decadal averages, and full-period averages for all years. Statistical summary data include, where applicable, monthly

standard deviations; hourly, daily and monthly extremes; and monthly percentile values. Six separate Series; 1 - Temperature, 2 - Precipitation, 3 - Wind, 4 - Sunshine, 5 - Hourly Data, and 6 - Soil Temperature and Evaporation, have been assembled comprising a total of 134 unique tables, for a complete station with a full observing program. Examples include, Table 001 - Mean Daily Maximum Temperature, Table 042 - Days With Rainfall Greater Than Or Equal To 25 mm, and Table 082 - Mean Daily Global Solar Radiation. Textual information about the data and instructions for using the software will be included.

For more information about these and other climate products, contact the Climate Products and Publications Division of the Canadian Climate Centre, 4905 Dufferin Street, Downsview, Ontario M3H 5T4. Information may also be obtained from re-



*Season's
Greetings*



NOVEMBER 1992

STATION	Temperature C				Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C
	Mean	Difference from Normal	Maximum	Minimum									
BRITISH COLUMBIA													
ABBOTSFORD A	6.2	0.6	13.2	-3.2	0.0	0	252.2	131	0	20	64	88	353.9
ALERT BAY	6.6	0.9	10.5	0.0	0.0	0	250.6	118	0	22	*	*	342.2
AMPHITRITE POINT	8.4	1.0	13.0	1.6	0.0	0	456.9	115	0	18	*	*	288.7
BLUE RIVER A	-1.5	1.2	8.3	-15.6	111.5	197	109.6	130	41	15	29	64	*
CAPE SCOTT	8.0	1.2	12.0	2.2	0.0	0	378.5	107	0	22	*	*	301.4
CASTLEGAR A	2.5	0.7	11.9	-5.3	29.1	97	78.4	102	13	11	35	62	465.7
COMOX A	6.1	0.8	12.4	-2.2	0.0	0	143.6	75	0	17	67	*	358.1
CRANBROOK A	-1.1	0.8	9.2	-12.8	26.5	109	34.8	113	4	11	40	48	591.0
DEASE LAKE	-6.1	2.4	6.9	-19.3	34.6	100	30.2	103	23	8	43	72	723.6
FORT NELSON A	-10.3	1.7	3.6	-25.3	20.4	72	18.3	81	27	5	57	*	848.7
FORT ST JOHN A	-3.5	2.5	6.4	-18.0	11.7	38	12.5	40	5	3	79	*	645.6
HOPE A	5.9	1.2	11.8	-1.2	0.0	0	215.2	96	0	18	17	60	362.8
KAMLOOPS A	2.4	0.8	12.6	-8.4	2.1	18	61.3	279	0	10	56	79	466.6
KELOWNA A	2.1	1.0	13.7	-10.3	13.4	116	74.2	285	7	13	45	78	475.7
MACKENZIE A	-2.1	2.3	5.1	-17.5	46.7	94	63.1	106	26	10	30	62	907.7
PENTICTON A	3.6	0.6	13.9	-9.2	1.8	23	50.8	213	0	13	56	93	433.9
PORT ALBERNI A	6.1	1.2	12.1	-1.5	0.0	0	234.9	82	0	12	31	*	357.3
PORT HARDY A	6.3	1.0	11.1	-2.4	1.0	25	266.9	109	0	19	48	77	350.8
PRINCE GEORGE A	-0.7	2.2	7.4	-13.6	27.0	68	66.3	131	2	11	48	74	561.0
PRINCE RUPERT A	6.0	2.1	13.1	-3.4	0.0	0	321.4	120	0	21	36	72	360.8
PRINCETON A	0.3	1.2	9.8	-13.1	10.5	45	53.6	142	4	14	49	*	*
REVELSTOKE A	1.8	1.5	9.5	-4.0	52.8	103	100.8	104	17	8	22	53	486.0
SANDSPIT A	6.8	1.3	13.2	-0.8	0.0	0	145.0	80	0	23	47	74	337.4
SMITHERS A	-0.3	2.0	8.3	-10.5	34.6	90	50.7	87	6	9	25	55	548.0
TERRACE A	2.3	2.0	8.9	-6.1	24.2	49	167.0	93	0	15	27	48	472.2
VANCOUVER INT'L A	6.4	0.5	11.9	-3.8	0.0	0	168.3	112	0	19	69	100	347.0
VICTORIA INT'L A	6.6	0.6	14.4	-3.0	0.0	0	110.0	84	0	17	65	84	341.9
WILLIAMS LAKE A	-1.9	0.7	9.1	-17.3	47.3	153	56.5	179	10	11	55	75	598.1

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	Mean	Difference from Normal	Maximum	Minimum									
YUKON TERRITORY													
DAWSON A	-13.9	*	2.8	-33.9	33.4	*	24.6	*	*	*	*	*	*
MAYO A	-9.3	5.9	5.6	-29.9	16.6	65	14.8	61	*	*	*	*	*
WATSON LAKE A	-12.4	1.4	0.4	-30.9	30.4	82	19.7	62	24	6	20	47	913.1
WHITEHORSE A	-4.6	4.2	4.5	-21.8	36.1	152	27.6	139	12	7	39	68	677.5
NORTHWEST TERRITORIES													
BAKER LAKE A	-21.1	-0.8	-0.5	-33.2	25.8	148	25.1	152	60	7	15	30	1174.3
CAMBRIDGE BAY A	-24.1	-0.3	-8.3	-36.7	24.8	276	15.6	203	43	5	7	67	1261.0
CLYDE A	-20.5	-3.1	-5.4	-32.4	23.2	141	20.7	137	48	5	0	0	1154.4
COPPERMINE A	-17.6	2.1	-2.6	-36.6	33.2	220	25.2	176	49	6	8	64	1066.9
CORAL HARBOUR A	-21.7	-4.2	-1.9	-33.3	7.6	42	7.8	43	21	3	46	81	1191.0
EUREKA	-31.4	0.1	-16.8	-41.8	4.3	143	4.3	172	8	2	0	*	1481.8
FORT SIMPSON A	-9.7	6.0	4.6	-27.0	25.7	102	21.9	90	24	6	31	60	841.4
FORT SMITH A	-6.9	4.7	3.1	-23.2	33.1	115	23.8	91	16	8	24	55	747.2
IQALUIT	-18.4	-5.4	-0.8	-30.5	15.0	41	10.6	31	7	3	51	110	1091.6
HALL BEACH A	-23.6	-2.1	-6.6	-35.0	13.2	102	12.8	102	35	4	*	*	1248.9
HAY RIVER A	-6.5	4.8	3.1	-22.8	13.6	35	10.8	29	11	4	*	*	743.6
INUVIK A	-19.0	1.7	-5.6	-37.7	27.5	122	14.8	83	37	7	7	36	1111.2
MOULD BAY A	-24.9	1.7	-8.3	-38.0	4.0	91	4.0	108	19	2	0	*	1286.6
NORMAN WELLS A	-14.7	3.5	-0.9	-29.6	22.6	106	15.1	72	17	6	25	77	980.2
POND INLET A	-24.9	*	-10.7	-35.2	6.0	*	4.6	*	19	1	0	*	1286.6
RESOLUTE A	-24.8	-0.3	-11.3	-35.7	3.4	56	3.4	60	10	1	0	*	1284.6
YELLOWKNIFE A	-9.2	4.9	1.3	-26.5	33.2	111	23.1	94	16	8	13	31	815.9
ALBERTA													
BANFF	-3.2	0.7	7.5	-21.0	27.5	85	15.8	51	7	2	*	*	*
CALGARY INT'L A	-1.4	1.3	12.0	-15.2	39.4	242	38.8	306	0	7	106	85	580.7
COLD LAKE A	-3.5	2.7	4.6	-18.3	25.8	122	23.8	117	7	5	59	62	645.2
CORONATION A	-4.0	0.9	5.5	-15.9	14.6	92	16.2	108	4	6	87	67	679.9

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	Mean	Difference from Normal	Maximum	Minimum									
EDMONTON INT'L A	-2.8	2.7	7.0	-21.4	15.8	88	18.4	110	1	4	90	87	623.5
EDMONTON MUNICIPAL	-1.4	2.3	8.1	-18.4	23.8	*	28.2	180	4	6	90	84	583.4
EDMONTON NAMAO A	-1.9	3.0	7.1	-18.0	18.6	111	17.4	97	7	4	*	*	596.2
EDSON A	-3.4	2.5	8.0	-23.0	20.8	81	25.8	141	5	4	71	76	*
FORT CHIPEWYAN A	-5.2	4.9	4.5	-18.5	22.9	92	27.6	115	*	*	*	*	*
FORT MCMURRAY A	-3.7	4.5	4.0	-18.5	29.0	100	22.8	90	12	10	40	48	652.0
GRANDE PRAIRIE A	-4.4	1.6	6.4	-23.0	17.6	67	15.4	55	3	6	75	*	671.4
HIGH LEVEL A	-7.8	2.9	4.9	-24.6	24.6	85	23.9	94	12	7	31	45	774.5
JASPER	-2.8	1.1	7.8	-17.5	22.0	89	20.6	70	4	7	57	*	620.6
LETHBRIDGE A	0.4	1.2	14.4	-14.0	26.0	138	31.4	187	2	7	98	84	528.8
MEDICINE HAT A	0.1	1.7	11.9	-14.9	10.8	77	16.4	112	2	8	111	99	537.8
PEACE RIVER A	-4.5	3.6	5.5	-18.5	7.9	36	8.1	40	1	3	*	*	669.3
RED DEER A	-3.4	1.2	8.3	-21.0	23.4	155	25.8	171	0	8	*	*	642.0
ROCKY MTN HOUSE A	-3.7	-0.1	10.7	-24.0	26.4	133	29.1	163	1	8	*	*	650.5
SLAVE LAKE A	-3.3	2.7	6.8	-21.4	16.8	71	14.4	69	4	6	69	70	637.7
SUFFIELD A	-0.6	*	11.4	-11.4	8.5	*	13.0	*	1	5	109	*	559.0
WHITECOURT A	-3.1	3.2	6.6	-19.7	31.2	142	27.2	116	4	6	*	*	624.9
SASKATCHEWAN													
BROADVIEW	-3.3	2.5	8.0	-15.7	*	*	6.8	50	3	3	49	45	640.8
CREE LAKE	-6.1	4.2	0.7	-17.1	24.6	88	22.2	105	16	10	37	59	723.7
ESTEVEAN A	-3.3	0.3	5.8	-14.2	18.2	122	14.8	91	2	7	55	46	641.1
KINDERSLEY	-3.6	1.6	6.3	-15.7	21.2	208	20.6	165	13	5	81	*	647.6
LA RONGE A	-3.8	4.6	5.2	-18.5	29.6	84	27.4	107	17	10	*	*	651.8
MEADOW LAKE A	-3.7	*	3.4	-20.2	24.8	*	31.2	*	10	7	47	*	650.6
MOOSE JAW A	-1.8	1.8	8.4	-12.1	9.9	53	11.6	69	4	2	62	56	595.0
NIPAWIN A	-3.5	*	5.1	-14.6	15.2	*	14.0	*	2	3	44	*	645.7
NORTH BATTLEFORD A	-3.4	2.4	7.0	-17.6	20.4	149	28.4	199	10	5	*	*	651.5
PRINCE ALBERT A	-3.2	4.0	4.0	-13.4	24.2	139	20.9	123	5	6	43	51	633.7
REGINA A	-2.9	2.2	7.3	-14.7	11.8	83	11.4	84	4	4	51	55	626.7
SASKATOON A	-3.4	2.3	5.1	-16.9	19.4	149	18.8	128	12	5	*	*	641.6
SWIFT CURRENT A	-2.2	1.5	7.9	-11.6	12.8	86	16.8	106	3	6	72	65	606.4
YORKTON A	-4.1	1.8	5.2	-17.9	14.2	73	14.2	71	7	3	44	49	664.4
MANITOBA													
BRANDON A	-4.6	1.1	2.7	-15.6	16.4	99	13.3	73	5	5	48	*	676.7
CHURCHILL A	-10.5	1.6	0.1	-24.4	29.0	70	18.8	48	19	8	41	83	844.2
DAUPHIN A	-3.7	1.5	5.5	-17.1	13.4	56	11.8	47	5	3	51	55	650.8
GILLAM A	-9.5	2.3	2.0	-30.0	45.0	101	27.8	88	14	8	*	*	823.6
ISLAND LAKE	-6.1	1.8	2.6	-22.4	13.0	26	8.2	22	6	4	*	*	724.1
LYNN LAKE A	-7.9	3.9	1.1	-25.5	35.8	95	27.0	92	20	10	24	39	775.6
NORWAY HOUSE A	-5.4	*	3.2	-16.8	18.4	*	11.6	*	2	5	*	*	702.4
THE PAS A	-4.4	3.1	5.7	-15.8	21.5	67	11.2	39	9	4	51	76	673.6
THOMPSON A	-8.3	3.1	1.6	-29.2	22.4	66	17.2	58	13	7	51	74	767.4
WINNIPEG INT'L A	-4.7	-0.2	5.1	-18.6	39.8	182	39.4	156	20	8	47	51	681.7
ONTARIO													
EARLTON A	-3.6	-1.1	8.9	-19.4	14.0	36	70.2	99	*	11	*	*	647.8
GERALDTON A	-7.8	*	6.2	-28.8	78.4	*	81.4	*	23	8	*	*	773.0
GORE BAY A	0.7	-1.2	10.2	-10.0	11.6	45	105.8	130	0	14	*	*	517.3
HAMILTON A	2.2	-1.2	15.8	-7.8	14.4	125	126.6	181	0	14	*	*	456.8
KAPUSKASING A	-5.3	-0.9	6.8	-25.4	66.2	108	90.4	113	12	11	*	*	700.2
KENORA A	-4.8	-0.2	3.5	-12.6	38.1	102	37.9	94	19	10	*	*	683.5
KINGSTON A	3.0	0.1	13.4	-7.7	8.4	58	122.2	130	0	16	56	72	450.9
LONDON A	2.8	-0.3	14.3	-8.0	19.2	79	162.3	192	0	15	50	67	453.4
MOOSONEE	-5.2	-0.7	6.2	-21.3	70.8	150	72.2	109	30	7	37	72	693.9
MUSKOKA A	-0.5	-1.6	14.0	-14.7	45.6	113	196.5	195	0	23	*	*	534.1
NORTH BAY A	-1.7	-0.7	8.9	-12.5	12.8	37	96.8	112	0	11	56	86	592.0
OTTAWA INT'L A	1.2	0.0	14.9	-9.5	12.4	54	94.0	121	0	12	60	75	506.6
PETAWAWA A	-0.3	0.2	15.1	-14.0	16.8	89	85.2	130	0	11	*	*	546.9
PETERBOROUGH A	1.7	-0.3	14.3	-9.0	10.2	64	100.4	147	0	12	*	*	490.6
PICKLE LAKE	-8.0	-0.4	2.5	-24.8	40.6	84	40.8	83	14	9	*	*	777.5
RED LAKE A	-5.9	0.2	2.8	-16.2	48.5	145	38.0	102	22	9	45	*	716.2
ST CATHARINES A	4.2	-0.4	16.6	-7.2	8.4	102	98.4	155	0	15	46	*	414.7
SARNIA A	3.7	-0.1	16.2	-5.7	10.6	66	113.6	154	0	14	55	60	429.7
SAULT STE MARIE A	-0.8	-1.5	8.4	-14.5	45.6	110	133.4	156	3	13	59	92	562.0
SIOUX LOOKOUT A	-5.7	-0.4	3.8	-18.5	22.5	50	30.5	61	10	6	*	*	710.4
SUDBURY A	-2.2	-1.0	9.1	-12.3	13.4	42	99.6	128	0	11	60	77	607.2
THUNDER BAY A	-3.2	-0.6	8.7	-15.4	31.0	104	37.1	70	0	5	72	83	635.3
TIMMINS A	-5.2	-1.4	6.2	-24.3	58.4	96	79.6	101	20	12	*	*	697.0
TORONTO	4.5	*	14.9	-4.8	7.2	*	115.2	*	0	15	*	*	406.9
TORONTO INT'L A	2.8	-0.5	14.9	-7.4	13.6	170	107.2	171	0	11	*	*	456.2
TORONTO ISLAND A	4.1	*	13.2	-4.2	8.4	142	115.0	*	0	14	*	*	417.6
TRENTON A	2.3	-0.9	14.5	-9.2	12.0	92	125.9	146	0	15	*	*	472.6
WATERLOO WELLINGTON	2.0	-0.5	15.2	-9.6	21.8	152	157.8	216	0	17	*	*	480.5
WAWA A	-3.4	*	8.6	-18.8	27.4	*	106.6	*	1	12	*	*	611.2
WIARTON A	1.9	-1.0	13.3	-10.4	33.0	84	160.8	170	0	20	34	57	482.5
WINDSOR A	4.3	-0.1	16.8	-3.5	5.4	47	133.1	204	0	13	*	*	410.0

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QUEBEC													
BAGOTVILLE A	-3.2	-1.2	13.7	-19.6	19.2	41	47.4	65	0	10	*	*	636.2
BAIE COMEAU A	-2.9	-1.1	8.2	-15.8	32.2	91	71.4	89	5	12	108	129	626.5
BLANC SABLON A	-5.6	-4.9	7.4	-18.9	14.8	41	33.6	34	5	5	104	*	698.7
GASPE A	-2.8	*	14.1	-17.0	38.1	*	57.3	*	12	9	92	*	625.6
INUKJUAQ A	-9.0	-1.8	-0.1	-21.9	15.6	41	13.6	34	9	5	27	95	810.7
KUUJJUAQ A	-12.4	-4.1	-0.1	-26.8	35.8	100	36.0	90	26	11	60	115	911.9
KUUJJUARAPIK A	-5.6	-0.7	2.4	-19.2	71.7	137	66.2	108	17	18	12	32	706.3
LA GRANDE IV A	-9.1	*	3.4	-24.5	79.0	*	63.8	*	30	13	29	*	811.9
LA GRANDE RIVIERE A	-6.9	*	2.7	-17.5	51.8	*	63.4	*	36	15	11	*	746.5
MANIWAKI	-0.8	-0.5	14.6	-14.8	11.0	42	89.4	121	0	11	49	74	565.0
MONT JOLI A	-1.7	-1.4	12.3	-14.1	24.6	69	48.2	65	2	12	10	13	591.5
MONTREAL INT'L A	1.5	-0.5	13.8	-10.9	13.8	65	100.2	124	0	15	79	92	495.1
MONTREAL MIRABEL I/	0.3	*	14.0	-13.0	7.2	*	105.4	*	0	13	93	*	531.8
NATASHQUAN A	-4.7	-3.6	7.5	-19.1	23.4	73	62.8	54	7	9	118	139	679.9
QUEBEC A	-0.9	-0.7	13.2	-16.1	20.8	61	99.6	103	0	13	74	101	566.2
SCHEFFERVILLE A	-12.1	-3.1	1.4	-32.6	38.8	64	32.8	50	21	10	51	115	903.4
SEPT-ILES A	-4.7	-2.2	7.2	-16.0	45.4	89	80.5	80	15	9	92	98	679.6
SHERBROOKE A	-0.4	-0.3	12.3	-14.8	10.0	27	81.2	84	0	11	69	*	568.5
ST HUBERT A	1.2	-0.6	14.6	-12.2	5.9	*	98.9	111	0	15	79	*	502.9
VAL D'OR A	-4.4	-1.0	9.6	-22.4	20.4	42	71.0	90	0	13	32	55	671.7
NEW BRUNSWICK													
CHARLO A	-4.2	-3.4	10.5	-15.9	42.4	114	68.8	87	4	11	95	101	611.4
FREDERICTON A	-0.5	-1.9	15.2	-15.4	13.6	67	71.0	67	0	11	99	*	553.2
MONCTON A	-0.5	-2.5	15.8	-14.5	12.9	60	48.0	44	0	12	83	86	555.6
SAINT JOHN A	0.6	-1.7	14.1	-12.2	17.8	123	142.8	98	0	13	107	111	523.9

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	Mean	Difference from Normal	Maximum	Minimum									
NOVA SCOTIA													
GREENWOOD A	1.7	-2.2	17.2	-13.7	25.6	175	124.7	115	0	16	*	*	491.3
HALIFAX INT'L A	1.4	-2.0	15.0	-10.9	26.2	220	109.7	72	0	13	*	*	499.7
SABLE ISLAND	6.0	-1.3	14.9	-0.6	0.4	13	120.8	89	0	16	41	59	359.5
SHEARWATER A	2.7	-1.9	14.5	-8.9	9.2	118	105.2	74	0	13	75	69	458.6
SYDNEY A	1.7	-2.1	15.0	-4.9	19.5	163	78.8	49	0	16	48	64	489.0
YARMOUTH A	2.6	-2.6	14.0	-6.7	2.4	38	149.0	111	0	15	81	91	441.4
PRINCE EDWARD ISLAND													
CHARLOTTETOWN A	1.0	-1.9	14.2	-8.8	30.4	141	85.8	71	0	16	*	*	511.2
NEWFOUNDLAND													
BONAVISTA	0.4	-3.0	13.8	-7.0	20.6	184	44.8	47	0	8	*	*	529.0
BURGED	0.2	-2.8	12.0	-9.0	25.8	219	119.3	65	0	10	*	*	535.4
CARTWRIGHT	-4.7	-2.9	5.7	-16.6	9.1	20	20.9	26	0	4	77	110	682.5
CHURCHILL FALLS A	-11.3	-3.2	3.5	-27.7	33.0	47	32.0	40	35	5	67	128	879.3
COMFORT COVE	-2.0	-3.6	13.6	-12.0	34.4	103	66.8	60	8	10	*	*	598.7
DANIELS HARBOUR	-1.7	-3.5	14.0	-13.2	38.6	147	77.0	75	0	10	47	96	587.0
DEER LAKE A	-2.0	-3.0	14.0	-23.1	28.2	81	54.9	51	2	8	*	*	600.0
GANDER INT'L A	-2.2	-4.0	13.4	-12.3	33.8	106	55.1	51	9	10	72	108	605.0
GOOSE A	-7.5	-3.7	5.1	-20.5	15.5	27	19.5	26	1	4	111	168	765.0
MARY'S HARBOUR	-5.2	-4.3	8.9	-18.0	8.4	20	15.6	17	0	4	*	*	698.8
PORT AUX BASQUES	0.5	-2.7	10.3	-10.0	27.4	240	117.6	76	0	14	36	*	524.0
ST ANTHONY	-4.5	-3.2	8.0	-15.5	40.6	106	66.8	53	11	11	*	*	674.2
ST JOHN'S A	-0.3	-3.7	15.3	-10.2	20.0	94	55.0	34	0	11	54	79	547.7
ST LAWRENCE	0.8	-2.7	11.2	-8.6	14.8	164	75.8	56	0	11	*	*	516.7
STEPHENVILLE A	-0.4	-3.3	11.3	-14.9	30.5	125	113.4	92	1	13	28	52	550.1
WABUSH LAKE A	-10.1	-2.0	3.3	-27.9	41.3	61	37.2	48	25	5	58	106	*

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AGROCLIMATOLOGICAL STATIONS

NOVEMBER 1992

STATION	Temperature C				Snowfall (cm)	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	Degree days above 5 C	
	Mean	Difference from Normal	Maximum	Minimum							This month	Since jan. 1st
BRITISH COLUMBIA												
AGASSIZ	6.7	0.7	13.5	-0.5	0.0	246.7	116	0	19	53	58.1	2580.8
SUMMERLAND	2.6	0.1	12.5	-8.5	2.2	51.1	201	2	12	55	88.0	2491.0
ALBERTA												
BEAVERLODGE	-2.3	2.8	7.5	-14.0	11.2	12.0	45	0	6	73	0.0	1348.5
LACOMBE	-3.0	1.4	9.0	-21.5	12.9	15.3	110	0	6	75	0.0	1280.6
SASKATCHEWAN												
INDIAN HEAD	-3.0	2.1	7.0	-16.0	11.8	12.4	73	5	4	**	0.0	1517.2
MELFORT	-3.4	3.5	3.0	-12.0	16.1	16.1	85	14	5	33	0.0	1289.5
REGINA	-3.3	2.4	7.5	-19.0	11.5	12.3	91	3	5	**	0.0	1371.5
SCOTT	-3.9	2.3	6.5	-17.0	15.5	30.0	217	11	4	62	0.0	1283.0
SWIFT CURRENT	-1.9	2.0	7.0	-11.5	7.3	12.9	99	2	6	68	0.0	1553.7
MANITOBA												
BRANDON	-3.9	1.1	3.3	-17.9	17.9	17.9	90	11	7	**	0.0	1536.1
MORDEN	-3.9	1.0	5.0	-15.0	35.8	45.2	187	11	8	50	0.0	1688.5
GLENLEA	5.0	8.5	5.5	-20.0	32.7	33.1	129	30	7	46	0.0	1530.3
ONTARIO												
DELHI	3.7	0.0	16.0	1.5	9.6	161.8	196	0	13	**	31.8	1980.8
ELORA	1.4	-0.5	14.2	-10.3	9.0	157.6	240	0	16	**	11.1	1674.3
GUELPH	1.9	-0.6	13.0	-10.0	17.5	155.5	208	0	15	64	14.8	1704.9
HARROW	4.5	0.0	15.0	-4.0	1.0	131.2	196	0	13	34	38.5	2199.1
KAPUSKASING	-4.8	-0.6	6.5	-26.0	62.8	91.1	124	25	8	28	0.0	1192.6
OTTAWA	1.6	0.0	15.2	-9.3	11.2	91.8	124	0	11	60	9.4	1872.8

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 1.0 mm or more	Bright Sunshine (hours)	Degree days above 5 C	
	Mean	Difference from Normal	Maximum	Minimum							This month	Since jan. 1st
QUEBEC												
LA POCAITIERE	-0.5	-0.9	14.0	-14.0	6.0	56.6	73	0	10	111	4.0	1602.1
L'ASSOMPTION	1.0	-0.1	14.0	-13.5	2.4	92.4	111	0	13	80	3.8	1817.1
NORMANDIN	-3.8	-0.9	10.9	-18.2	**	71.6	122	0	11	75	0.2	1234.3
NEW BRUNSWICK												
FREDERICTON	0.3	-1.4	15.0	-14.5	8.2	63.9	57	0	10	99	14.7	1900.2
NOVA SCOTIA												
KENTVILLE	2.3	-1.7	16.5	-12.0	24.8	106.5	89	0	11	56	18.5	1923.7
NAPPAN	1.2	-1.8	16.5	-13.0	14.2	66.7	62	0	10	71	15.5	1612.3
PRINCE EDWARD ISLAND												
CHARLOTTETOWN	**	**	**	**	**	**	**	***	***	**	**	**
NEWFOUNDLAND												
ST. JOHN'S WEST	0.0	-3.5	15.0	-10.5	16.6	56.4	34	0	8	59	5.5	1163.6

Courtesy of Agriculture Canada

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millimetres, resulting in the wettest November since 1985. Moreover, accumulated total precipitation to-date for 1992, reveals that across most of southern Ontario precipitation totals have already exceeded a normal year's supply. In London for example, 1162 mm has been recorded, compared to a normal annual total of 909 mm.

In the northern regions, 65 to 90 mm of precipitation fell this November, and although these totals are near normal, wetter pockets did exist, raising lake water levels. For example, Sault Ste. Marie recorded 133 mm (normal 86 mm) - the wettest in 5 years.

The main contrast appeared in north-western Ontario. Only 35 to 40 millimetres of precipitation was recorded, and although this area is traditionally known as the driest section of Ontario, these low totals are still only 60 to 90 percent of normal. In particular, Sioux Lookout's 31 mm was their driest November in 11 years.

The lack of sunshine was perhaps the most notable negative weather feature this month, with this month's meagre sunshine amounts 10 to 40 hours short of the paltry totals normally received in Ontario during November. Only November 1985 was cloudier by comparison. Wiarton recorded the least sun, with only 34 hours - the cloudiest month on the Bruce Peninsula in 5 years.

Quebec

November was a relatively cold month over most of the province, with below normal precipitation, except in the southwest quadrant, and above normal hours of bright sunshine, especially over the eastern half of Quebec. No significant weather events were reported this month other than Blanc Sablon setting a new low monthly mean temperature record.

Precipitation ranged from more than 100 mm at Montreal (125 percent of normal), to 13.6 mm at Inukjuak (34 percent of normal).

Measurable amounts of snow were recorded over the entire province. Over southern Quebec, amounts ranged from 5.4 cm at Trois-Rivières to 45.4 cm at Sept-Îles. Over northern Quebec, amounts exceeded 35 cm over all of the district, except at Inukjuak (15.6 cm). Kuujuaq and La Grande Rivière had the most, 71.7 and 79.0 centimetres, respectively. The final day of the month saw 30 cm of snow covering the ground at La Grande IV and 36 cm at La Grande Rivière.

Total hours of bright sunshine were above seasonal values east of a line from Quebec City to Kuujuaq, except for the Magdalen Islands, which recorded 70 percent of normal sunshine. West of that line, hours of sunshine decreased gradually to reach values that were less than half the average.

Maritimes

The mean temperatures across the Maritimes were much cooler than normal this month, with Charlo, N.B., having the greatest negative departure at -3.4°C . Luckily, winds were lighter than average, counteracting the chilling effect.

Precipitation was also on the light side of normal, with Moncton, N.B., being the driest area, receiving less than half their normal monthly allotment. Snowfall amounts throughout the region were very localized, with actual amounts varying significantly.

Hours of bright sunshine did show a pattern, in that most of New Brunswick was sunnier than normal, compared to the rest of the region. Halifax, Sable Island and Sydney were especially cloudy this month, tallying 30 hours less sunshine than average. Sydney in fact, established a new record low sunshine value for the month of November, 47.7 hours. The previous record was 47.8 hours set in 1966; records date back to 1948.

Newfoundland

Record-breaking low temperatures and below-normal rainfall highlighted the

weather picture across Newfoundland during November. Snowfall was near normal across the region and hours of bright sunshine varied, but with well below-normal totals in western locations. Except for a brief mild spell during the middle of the month, below normal temperatures were common, with daily and monthly records established. Deer lake reported a minimum reading of -23.1°C late in the month - a new monthly record. Mean monthly temperatures were generally 3 to 4 degrees below normal, with St. John's, Gander, Comfort Cove, Port-aux-Basques, and St. Anthony all establishing new record low mean temperatures. St. John's recorded -0.3°C compared to a normal of 3.4°C .

Rainfall was light across much of the region, with monthly totals about 25 percent of normal in eastern locations (Gander 19.7 mm compared to a normal of 74.8 mm). During the middle of the month, a weather system gave 10 to 15 centimetres of snow to many areas, the only major snowfall this month. Monthly snowfall totals were in the 25 to 35 centimetre range, which is close to normal.

Sunshine was below normal in western locations and close to normal in eastern Newfoundland. Prevailing winds this month were west at 23 km/h, which is close to normal.

In Labrador, record-breaking low precipitation amounts, and above-normal sunshine was observed. Temperatures were below normal most of the month, with mean values about 3°C below normal (Goose Bay -7.5°C compared to a normal of -3.8°C). Precipitation was light throughout the month, with totals approximately 25 percent of normal. Goose Bay reported only 15.5 cm of snow, a new record for November. Sunshine was frequent, especially during the latter half of the month, as a dry Arctic air mass brought fair but cold conditions to the region. Goose Bay recorded 111.1 hours of sunshine, which is about 45 hours above normal. Sunshine totals in western locations were closer to 60 hours, a little above normal.