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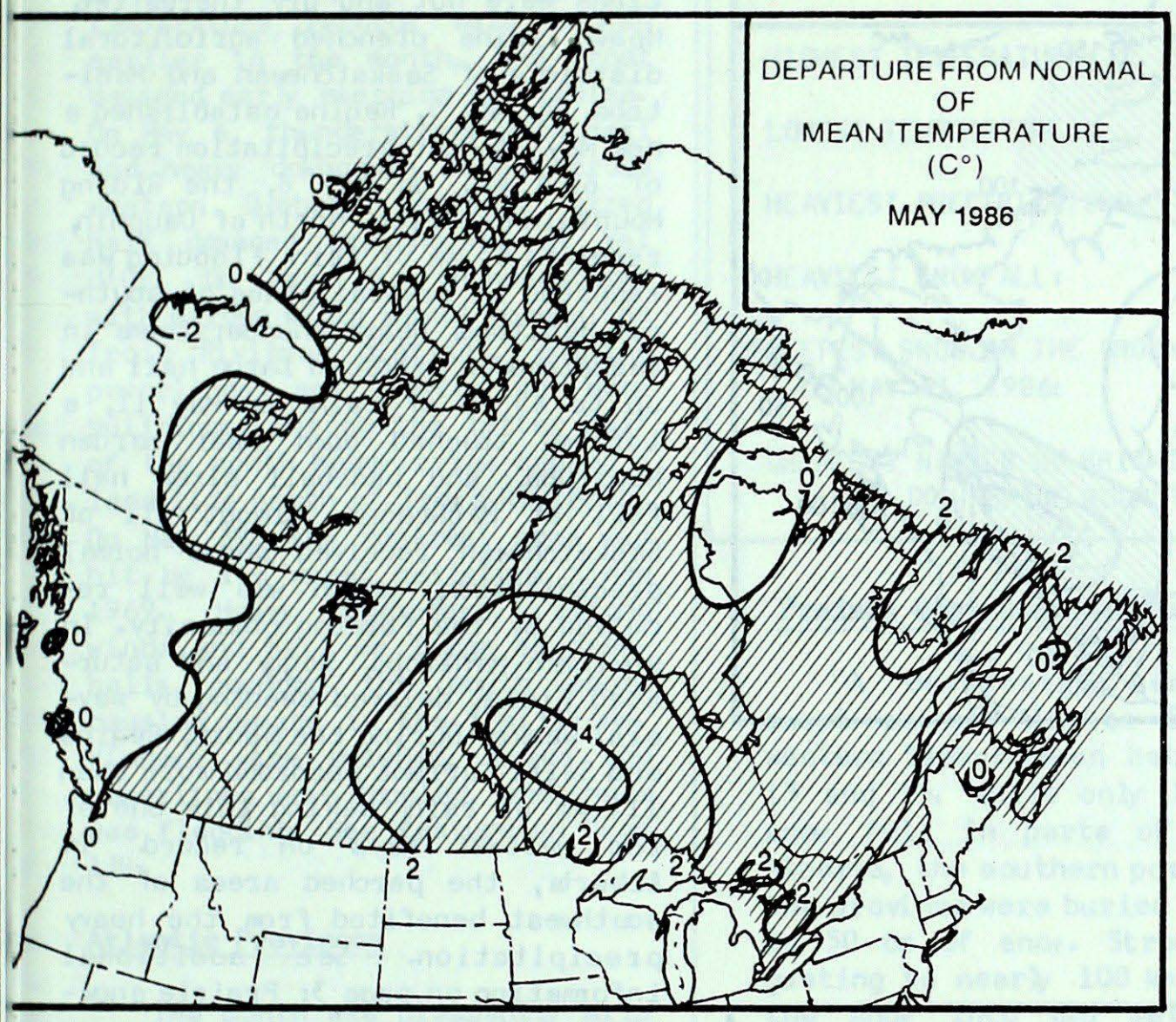
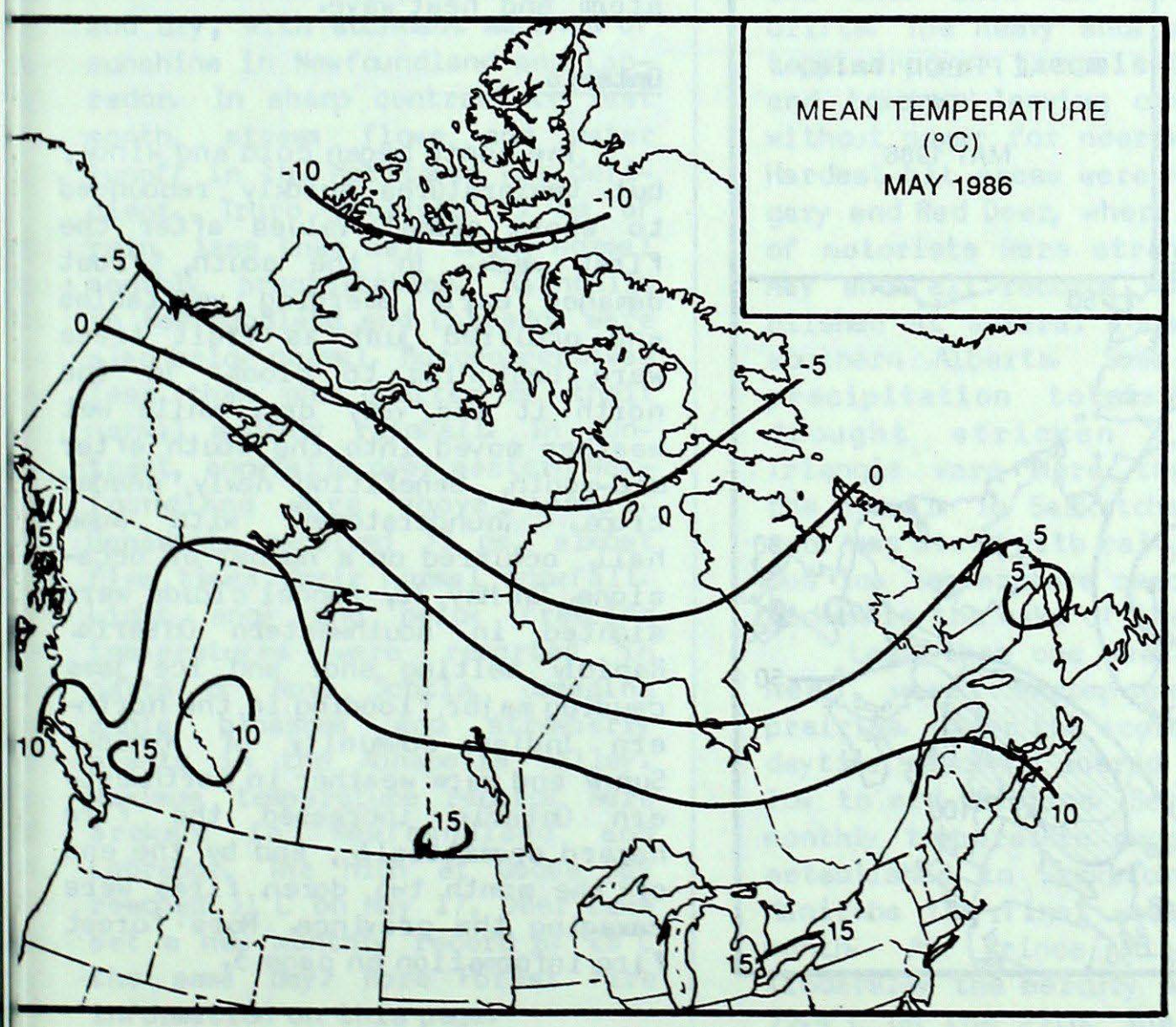
Climatic Perspectives

Monthly Supplement

Vol.8 May, 1986





ACROSS THE COUNTRY

Yukon and Northwest Territories

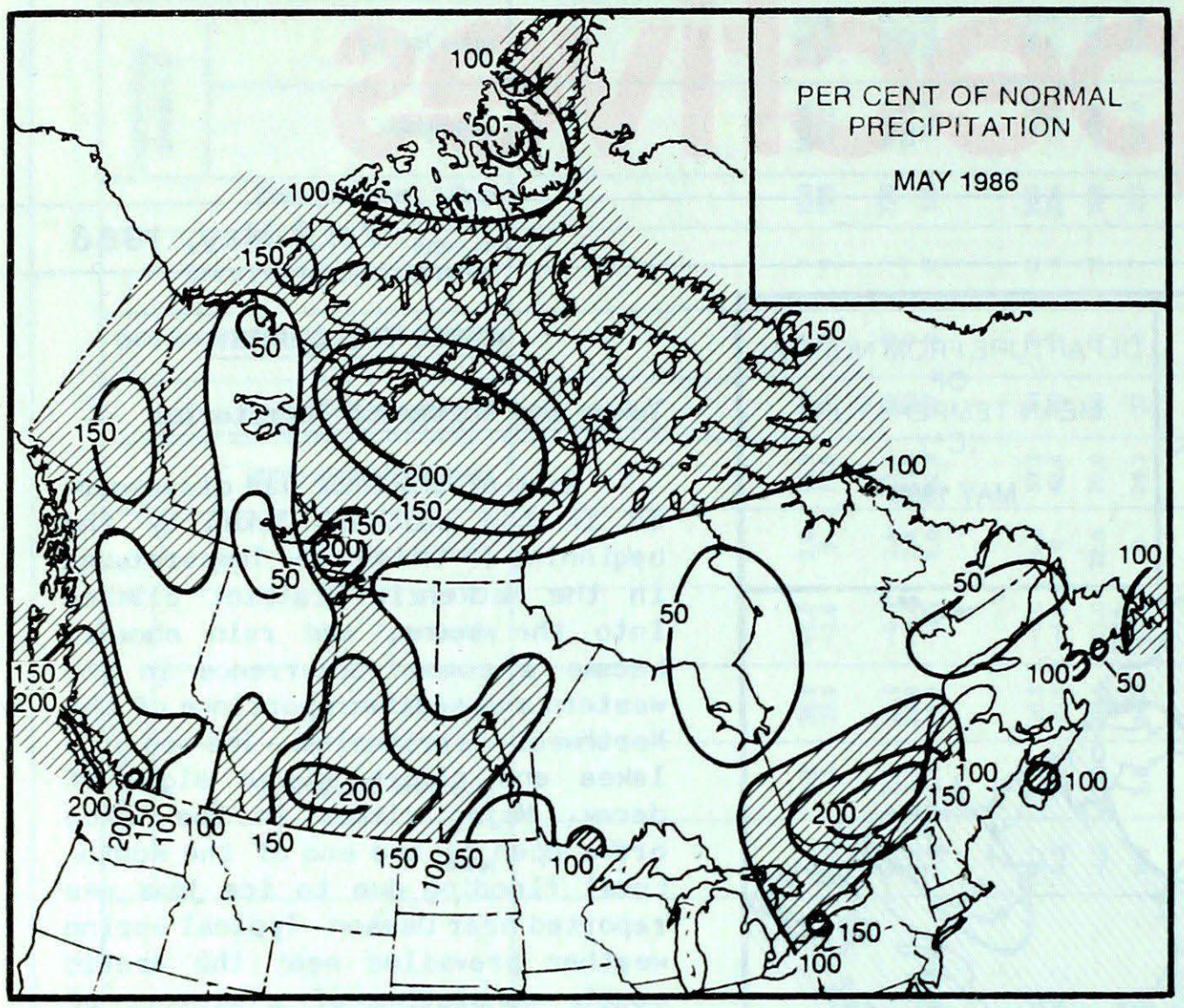
Most of the snow had disappeared in the southern Yukon by the beginning of the month. Temperatures in the Mackenzie District climbed into the teens, and rain showers became a common occurrence in the western and southern portions of the Northwest Territories. Ice on the lakes and rivers showed signs of decay. Major rivers in the Yukon broke open by the end of the month. Local flooding due to ice jams was reported near Dawson. Typical spring weather prevailed near the Arctic coast, consisting of a mixture of rain, freezing rain, snow and low cloud. Snow and blizzards occurred frequently in the eastern Arctic. Record warm weather moved into the high Arctic around mid-month, and the Mackenzie District towards the latter part of the period.

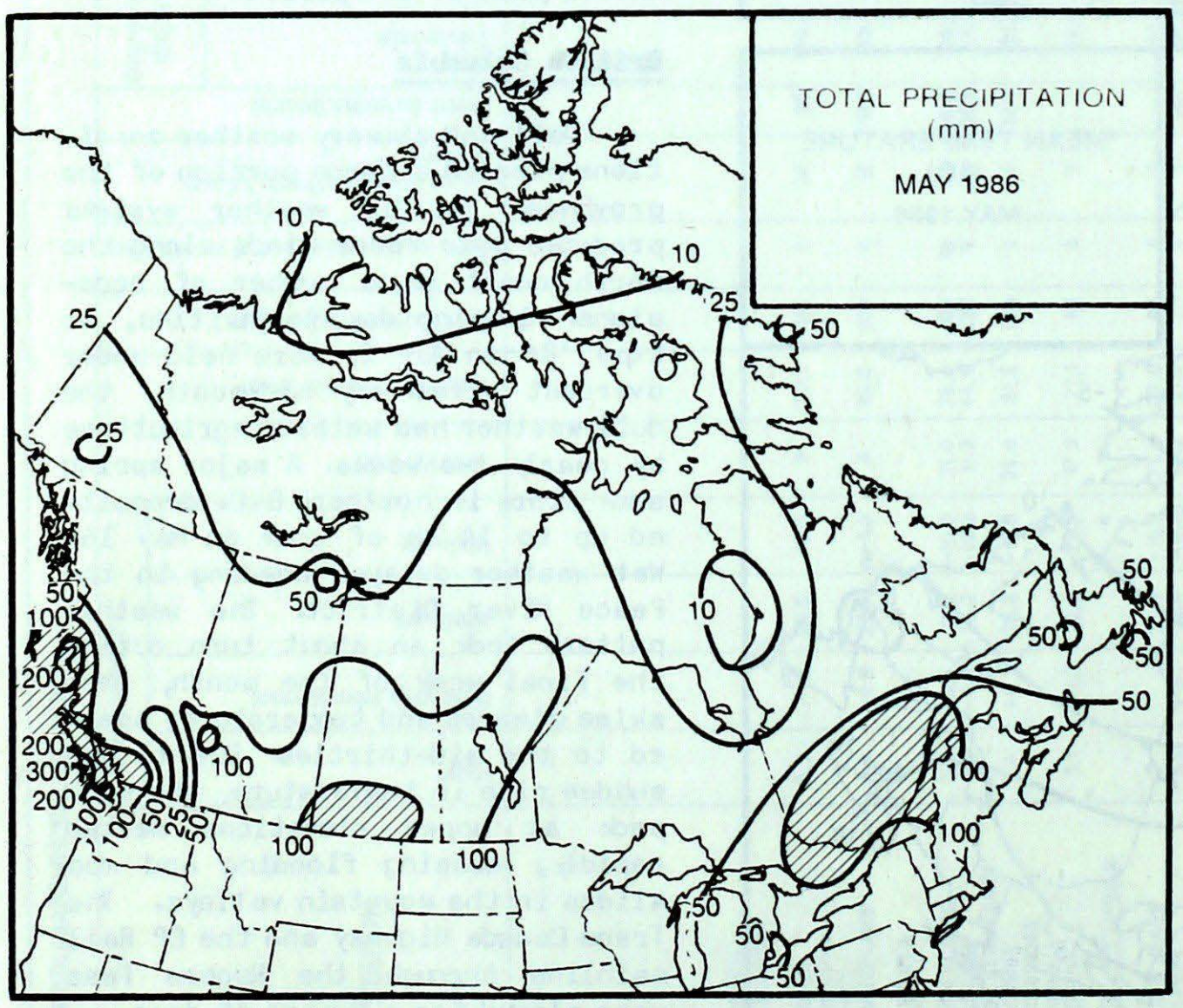
British Columbia

Dull and showery weather conditions plagued a large portion of the province. Pacific weather systems produced gale force winds along the north coast on a number of occasions. Opening day festivities, at Expo '86 on May 2, were held under overcast skies. By mid-month, the dull weather had setback agriculture by nearly two weeks. A major spring snow storm in northern B.C. deposited up to 34 cm of snow on May 16. Wet weather delayed seeding in the Peace River District. The weather pattern took an about turn during the final week of the month, when skies cleared and temperatures soared to the mid-thirties. Due to the sudden rise in temperature, the snow pack at upper elevations melted rapidly, causing flooding and mud slides in the mountain valleys. The Trans Canada Highway and the CP Rail mainline through the Rogers Pass were closed for a number of days.

Canada

PRECIPITATION





Prairie Provinces

Even though temperatures overall averaged out on the mild side, weather conditions were extremely vagarious. The first half of the month was cool and wet, but conditions were hot and dry thereafter. Heavy rains drenched agricultural districts of Saskatchewan and Manitoba. On May 5, Regina established a new May 24-hour precipitation record of 60.4 mm. On May 6, the Riding Mountain district, north of Dauphin, received 85 mm of rain. Flooding was reported in several areas of southern Manitoba. Heavy thunderstorms in Saskatchewan produced large hail and up to 45 mm of rain. On May 11, a tornado touched down near Morden Manitoba, and baseball sized hail fell at MacGregor. Almost all of Saskatchewan received above normal precipitation, which was well received by the farming community. In southern Manitoba, soggy and saturated fields delayed seeding by several weeks. During the month, Regina and Swift Current recorded more than 115 mm of rain, making this one of the wettest Mays on record. In Alberta, the parched areas of the southwest benefited from the heavy precipitation. See additional information on page 3: Prairie snowstorm and heat wave.

Ontario

The month began cold and windy, but temperatures quickly rebounded to above normal values after the first week. In the south, frost damaged early emerging vegetables and ocaurred just as fruit trees were beginning to bloom. In the north it was very dry, while wet weather moved into the south after mid-month, benefiting newly seeded crops. Thunderstorms, with some hail, ocaurred on a number of occasions. On May 22, funnel clouds were sighted in southwestern Ontario. Rapidly melting snow and ice jams causing major flooding in the northern Indian community of Winisk. Sunny and warm weather in northwestern Ontario increased the fire hazard dramatically, and by the end of the month two dozen fires were ravaging the province. More forest fire information on page 3.

Québec

Passing weather systems produced changeable weather conditions during the month. Heavy thunderstorms were a common occurrence in the southern half of the province. Daily and monthly low temperature records were broken earlier in the month, and frost damaged early emerging vegetables. On May 6, thunderstorms with hail and heavy downpours moved across western Quebec. Golfball sized hail damaged greenhouses at Val d'Or. On May 18, thunderstorms with strong winds moved across the Trois Rivières district, downing powerlines and destroying some buildings. During the latter half of the month heavy rains caused a landslide north of Trois-Rivières. On May 29, the Montréal area was hit by its worst hailstorm since 1969. Heavy downpours, strong winds and hail as large as baseballs pounded the south shore causing damage in the $ millions. Windows were smashed, trees and powerlines were toppled, and there was flooding. See feature on Page 11B.

Atlantic Provinces

The month was pleasantly mild and dry, with abundant amounts of sunshine in Newfoundland and Labrador. In sharp contrast to last month, stream flows and water runoff in the Maritimes was deficient. Truro received 35 mm of rain, less than half their normal monthly precipitation. Rainfalls in Newfoundland and Labrador were also below normal. Burgeo received less than one quarter of their normal monthly rainfall. In contrast, snowfalls over eastern Newfoundland were above normal. Bonavista received 33 cm, almost five times their normal snowfall. Light snow and below freezing temperatures were reported in parts of Nova Scotia, damaging apple blossoms and strawberry plants in the Annapolis Valley. Maximum temperature records were broken in Newfoundland and Labrador. The high at Goose Bay reached 31°C on May 17, Deer Lake set a new monthly record of 28°C the same day. More Forest fire information on this page.

CLIMATIC EXTREMES IN CANADA - MAY 1986

MEAN TEMPERATURE:		
WARMEST	Windsor, ONT	15.7°C
COLDEST	Mould Bay, NWT	-11.8°C
HIGHEST TEMPERATURE:	Lytton, BC	37.0°C
LOWEST TEMPERATURE:	Mould Bay, NWT	-24.5°C
HEAVIEST PRECIPITATION:	Amphitrite Point, BC	368.9 mm
HEAVIEST SNOWFALL:	Cape Dyer, NWT	75.2 cm
DEEPEST SNOW ON THE GROUND ON MAY 31, 1986:	Cape Dyer, NWT	140.0 cm
GREATEST NUMBER OF BRIGHT SUNSHINE HOURS:	Eureka, NWT	444 hrs

Prairie Snowstorm and Heat Wave

A devastating snowstorm swept across Alberta and into western Saskatchewan between May 13 and 15. While only 10 cm of snow fell in parts of central Alberta, the southern portions of the province were buried under 30 to 50 cm of snow. Strong winds gusting to nearly 100 km/h piled the snow into two metre high drifts. The heavy snow and winds toppled power transmission lines and towers, leaving communities without power for nearly a week. Hardest hit areas were near Calgary and Red Deer, where hundreds of motorists were stranded. New May snowfall records were established at several locations in southern Alberta. Some monthly precipitation totals in the drought stricken Palliser Triangle were more than twice the normal. In Saskatchewan, the snow was mixed with rain. Numerous low temperature records were broken in the wake of the storm.

Less than one week later a heat wave encompassed the prairies. Under the scorching sun daytime readings soared into the low to mid-thirties. Several new monthly temperature records were established in Saskatchewan and Manitoba the final week of the month. At Prince Albert and Kindersley the mercury soared to 35.4°C on the 29th. The hot and dry weather triggered a rash of forest fires and caused rapid snow melt in the Rockies. Many rivers and streams flowing out of the mountains were filled to capacity. The Bow River flooded its banks west of Calgary.

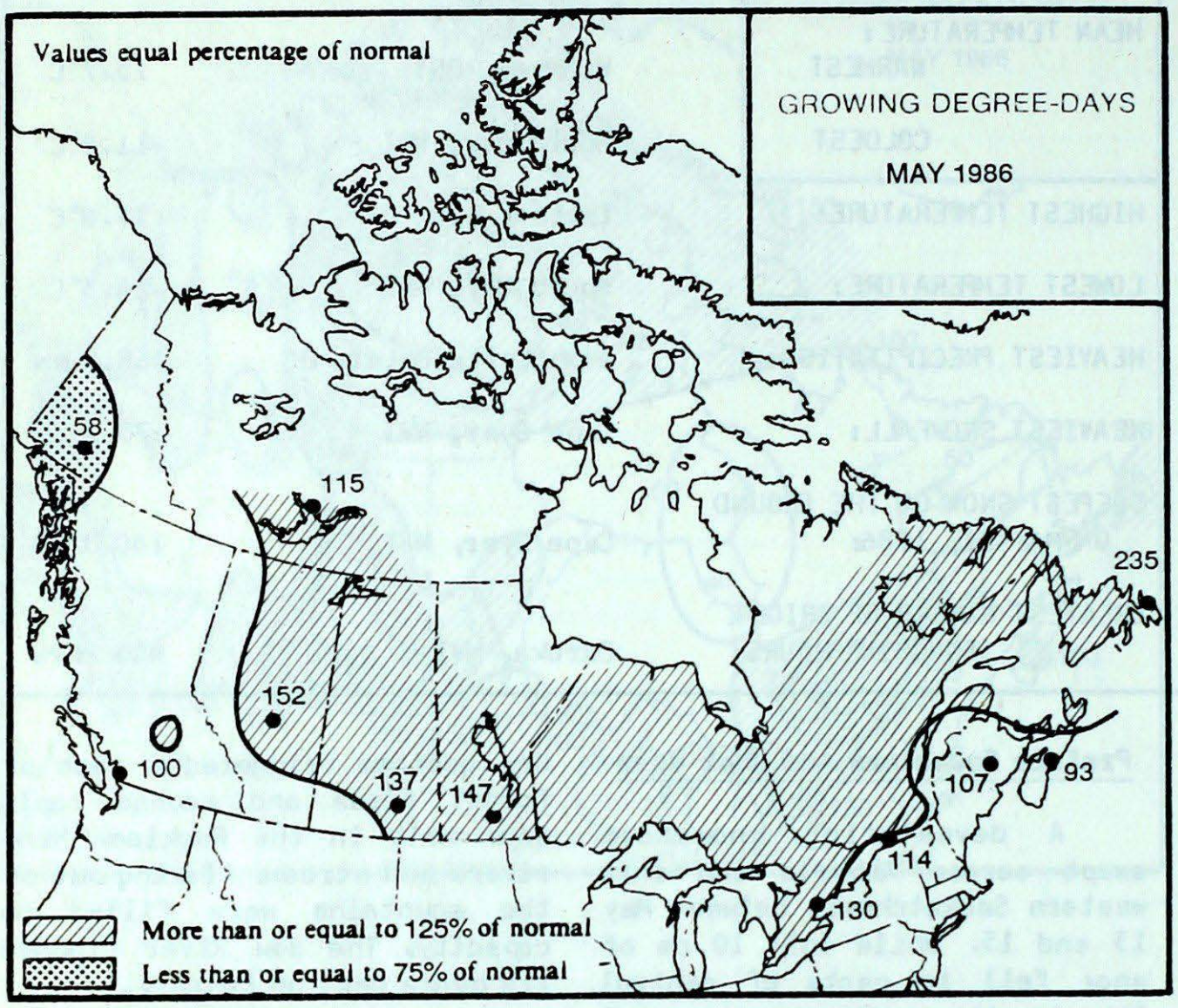
Forest Fires

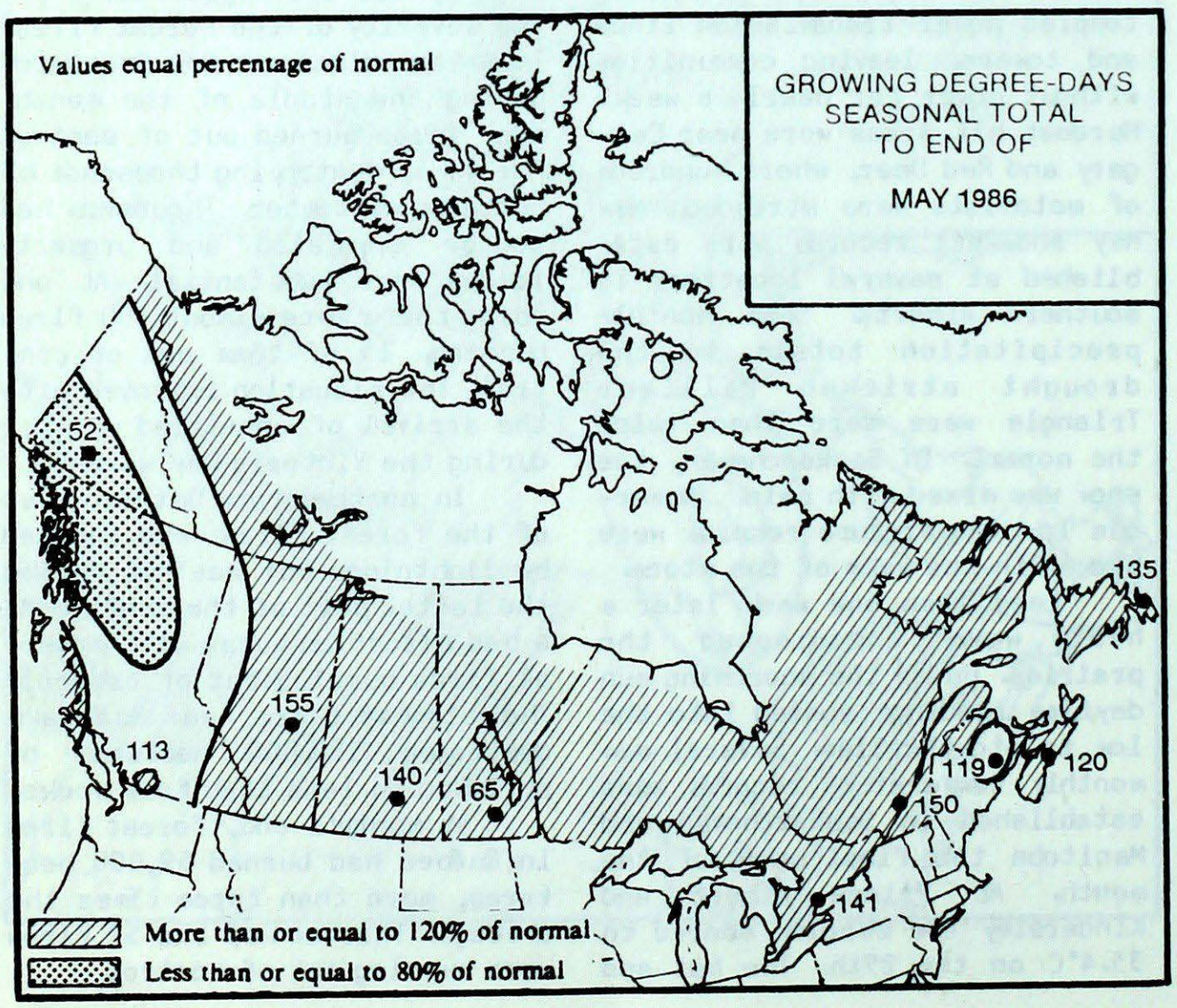
In Atlantic Canada, the record warm and dry weather during May was the major factor for the severity of the forest fires. In Newfoundland and New Brunswick during the middle of the month, many fires burned out of control for days, destroying thousands of hectares of timber. Thousands had to be evacuated and property losses were substantial. At one point there were almost 100 fires burning, 15 of them out of control. The situation improved with the arrival of unsettled weather during the Victoria Day weekend.

In northwestern Ontario most of the forest fires were ignited by lightning. Hot weather during the latter part of the month made a bad situation worse with several fires burning out of control. The biggest blaze near Red Lake destroyed 150,000 hectares of softwood in less than four weeks.

At month's end, forest fires in Québec had burned 59,000 hectares, more than three times the average. Thirteen of the 57 fires were burning out of control.

GROWING DEGREE DAYS





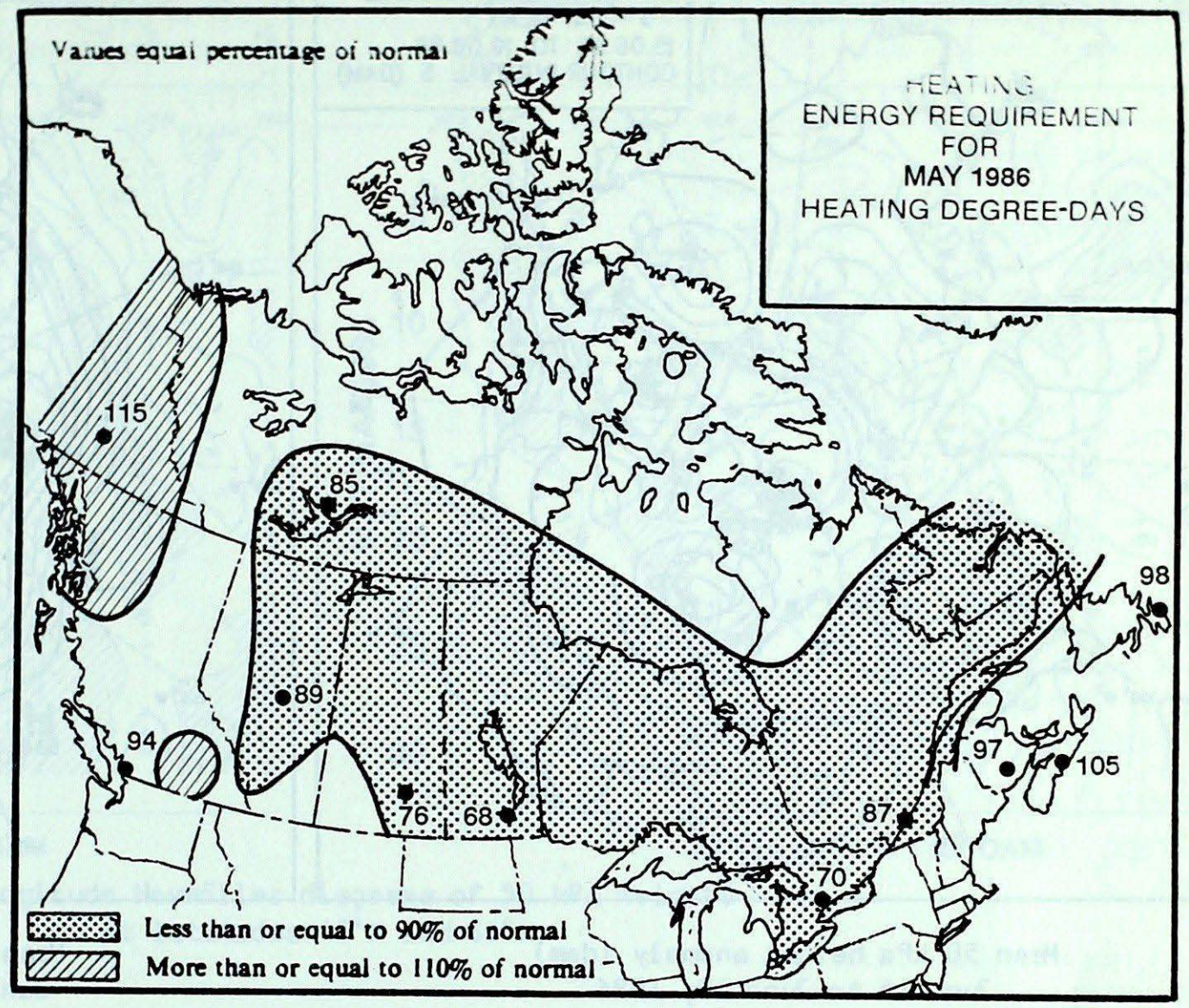
SEASONAL TOTAL OF GROWING DEGREE-DAYS TO END OF MAY

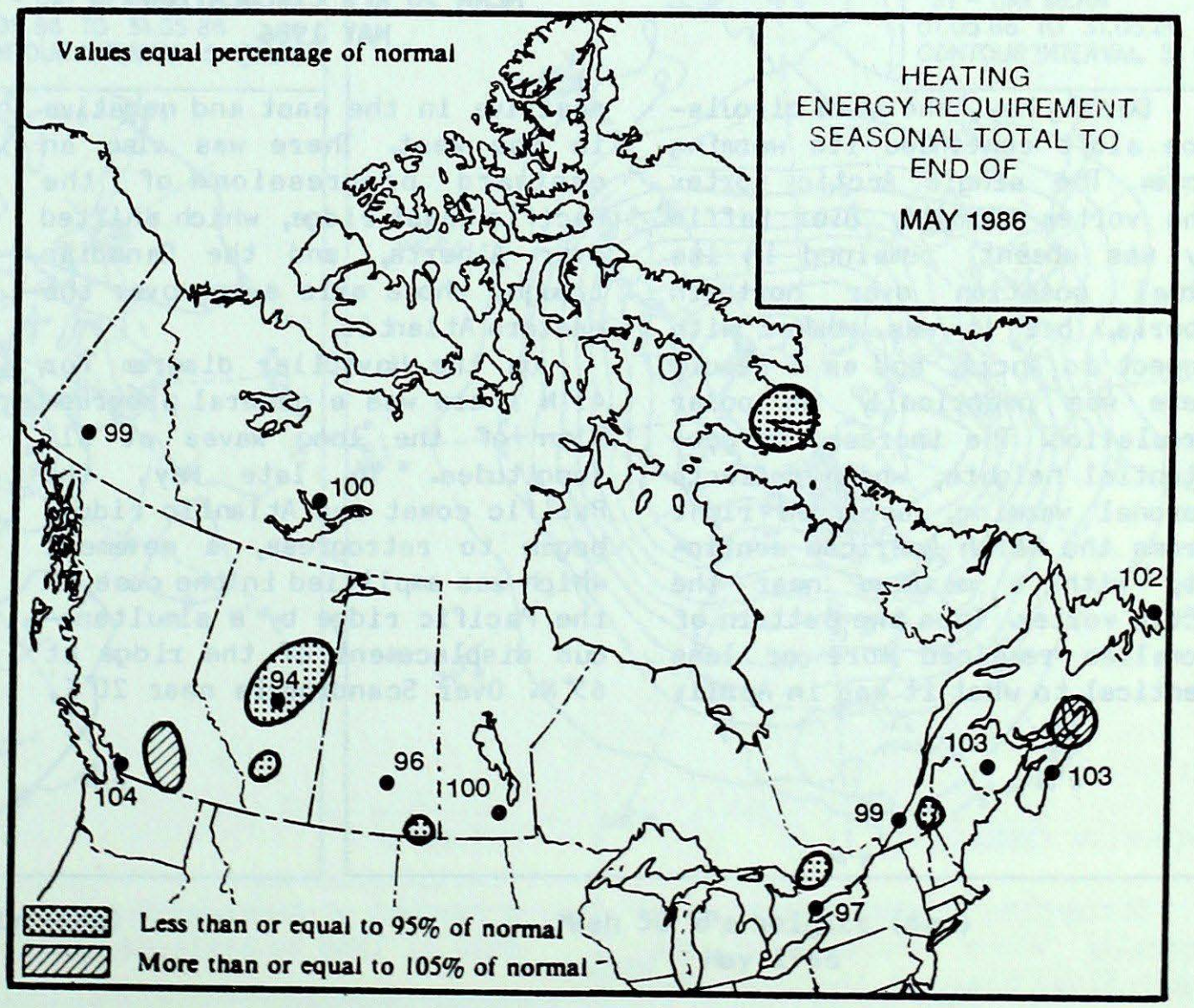
	1986	1985	NORMAL
BRITISH COLUMBIA			
Abbotsford	454	322	355
Kamloops	467	392	425
Penticton	431	370	392
Prince Rupert	114	174	151
Vancouver	439	315	389
Victoria	378	289	353
ALBERTA			
Calgary	218	211	154
Edmonton Mun.	269	257	174
Grande Prairie	167	189	167
Lethbridge	267	305	209
Peace River	181	195	151
SASKATCHEWAN			
Estevan	283	354	219
Prince Albert	229	245	162
Regina	275	321	197
Saskatoon	253	298	198
Swift Current	237	309	190
MANITOBA			
Brandon	253	306	188
Churchill	57	0	57
Dauphin	197	198	122
Winnipeg	327	347	198
ONTARIO			
London	382	435	298
Mount Forest	369	276	310
North Bay	322	253	188
Ottawa	437	346	274
Thunder Bay	238	193	120
Toronto	413	366	292
Trenton	411	348	285
Windsor	524	555	398
QUÉBEC			
Baie Comeau	100	50	67
Maniwaki	320	242	167
Montréal	414	326	276
Quebec	252	208	188
Sept-Iles	80	40	34
Sherbrooke	336	241	225
NEW BRUNSWICK			
Charlo	144	117	119
Fredericton	224	215	189
Moncton	178	160	142
NOVA SCOTIA			
Sydney	158	166	131
Truro	97	90	64
Yarmouth	220	165	151
PRINCE EDWARD ISLAND			
Charlottetown	171	117	96
NEWFOUNDLAND			
Gander	86	64	49
St. John's	63	34	27
Stephenville	167	69	65

SEASONAL TOTAL OF HEATING DEGREE-DAYS TO END OF MAY

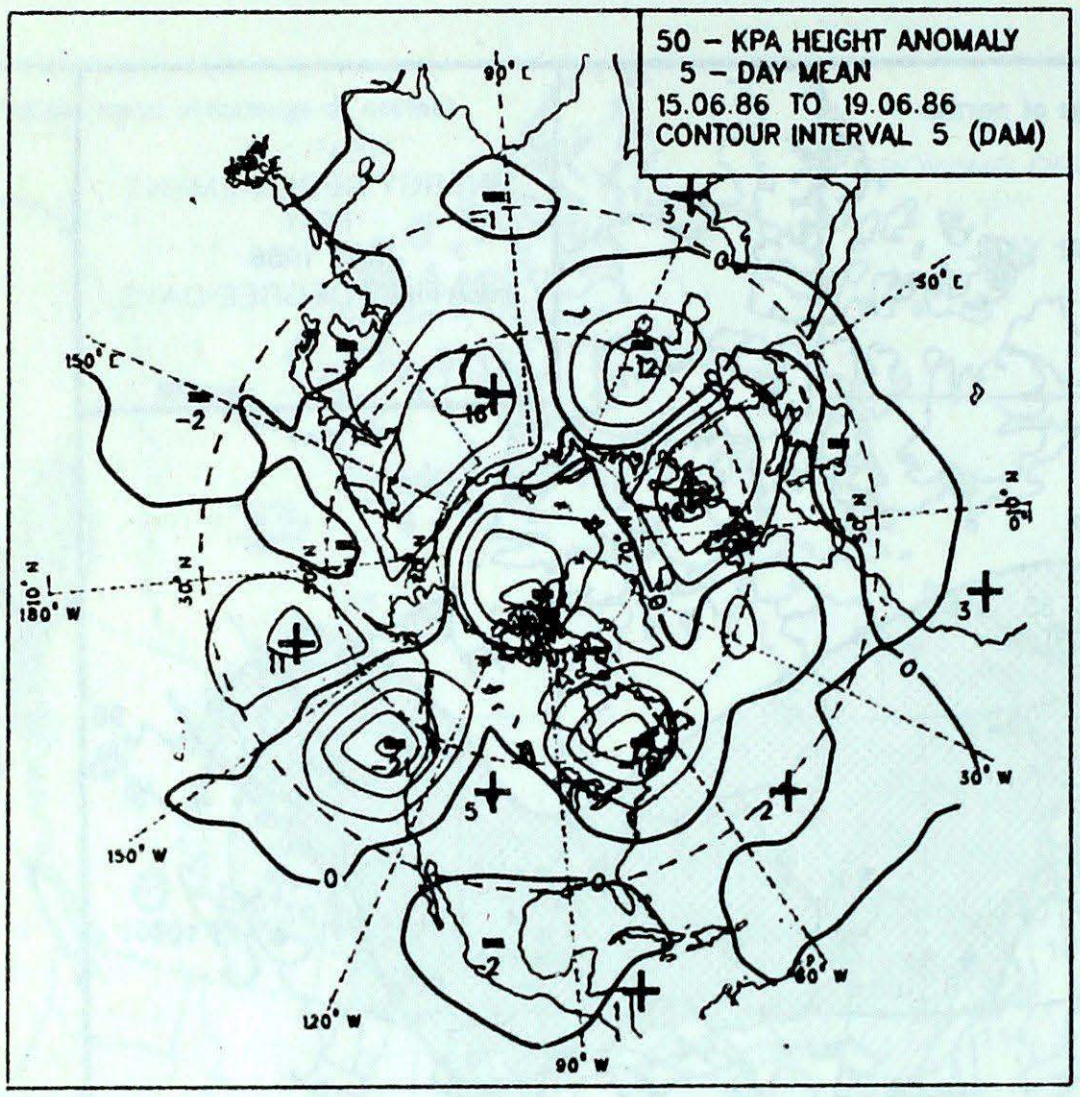
	1986	1985	NORMAL
BRITISH COLUMBIA			
Kamloops	3890	3918	3716
Penticton	3773	3783	3463
Prince George	5294	5337	5258
Vancouver	3043	3150	2935
Victoria	3102	3227	2974
YUKON TERRITORY			
Whitehorse	6681	6659	6741
NORTHWEST TERRITORIES			
Frobisher Bay	8855	9472	8230
Inuvik	10058	9952	9981
Yellowknife	8474	8603	8436
ALBERTA			
Calgary	4952	5150	5237
Edmonton Mun	5173	6095	5502
Grande Prairie	5790	6099	6032
SASKATCHEWAN			
Estevan	5211	5298	5476
Regina	5600	5784	5832
Saskatoon	5727	5990	5988
MANITOBA			
Brandon	6077	6230	5965
Churchill	8758	8774	8904
The Pas	6529	6591	6837
Winnipeg	5822	5643	5829
ONTARIO			
Kapuskasing	6170	6168	6220
London	3865	3788	4015
Ottawa	4440	4499	4624
Sudbury	5192	5184	5363
Thunder Bay	5567	5396	5615
Toronto	3914	3889	4029
Windsor	3470	3346	3561
QUÉBEC			
Baie Comeau	5897	5866	5827
Montréal	4384	4438	4420
Quebec	5013	5021	5008
Sept-Iles	6063	6036	5946
Sherbrooke	*	4997	5963
Val-d'Or	6021	6088	6024
NEW BRUNSWICK			
Charlo	5320	5286	5071
Fredericton	4752	4631	4529
Moncton	4755	4646	4505
NOVA SCOTIA			
Halifax	4123	4124	3991
Sydney	4543	4575	4301
Yarmouth	3855	3866	3884
PRINCE EDWARD ISLAND			
Charlottetown	4637	4713	4501
NEWFOUNDLAND			
Gander	5006	5170	4848
St. John's	4680	4780	4780

ENERGY REQUIREMENTS

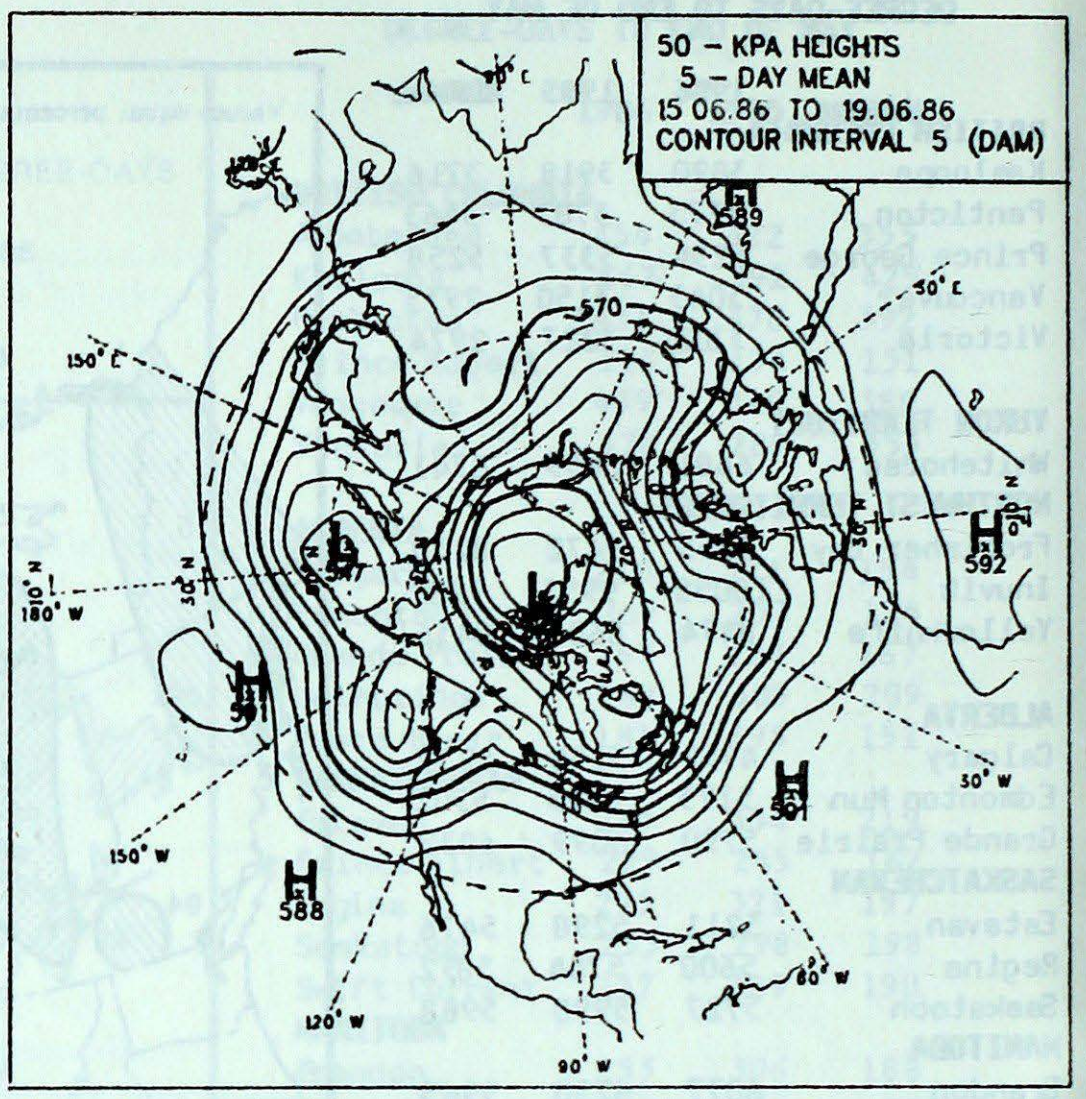




ATMOSPHERIC CIRCULATION



Mean 50 kPa height anomaly (dam)
June 15 to June 19, 1986



Mean 50 kPa heights (dam)
June 15 to June 19, 1986

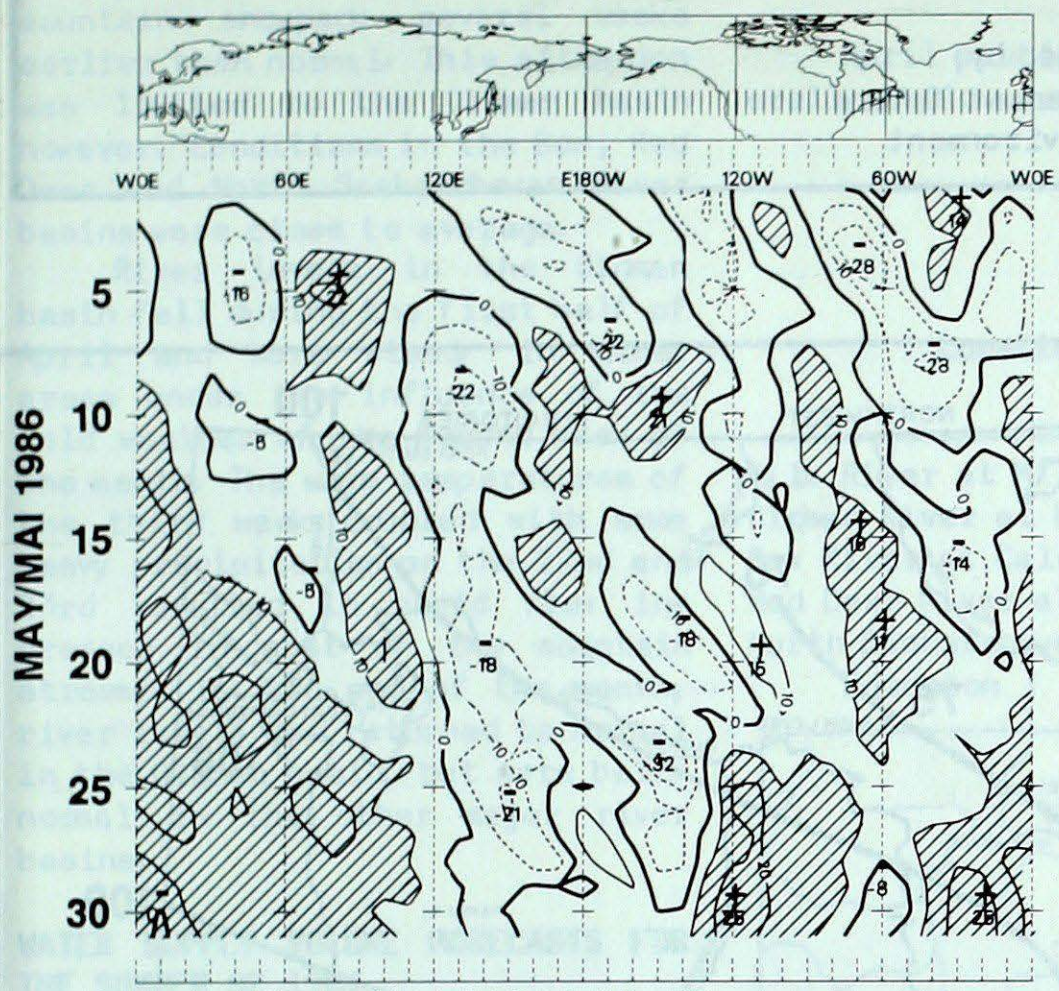
MEAN 50 kPa CIRCULATION
MAY 1986

During May, the mean circulation aloft continued its warming cycle. The single Arctic vortex (the vortex normally over Baffin Bay was absent) remained in its normal position over northern Siberia, but it was weaker with respect to April, and as a result there was practically no polar circulation. The increase in geopotential heights, which reflects seasonal warming, occurred right across the North American continent, with a maximum near the Arctic vortex. Thus the pattern of anomalies remained more or less identical to what it was in April; positive in the east and negative in the west. There was also an eastward progression of the Pacific Coast ridge, which shifted over Alberta, and the Canadian trough, whose axis swung over the eastern Atlantic.

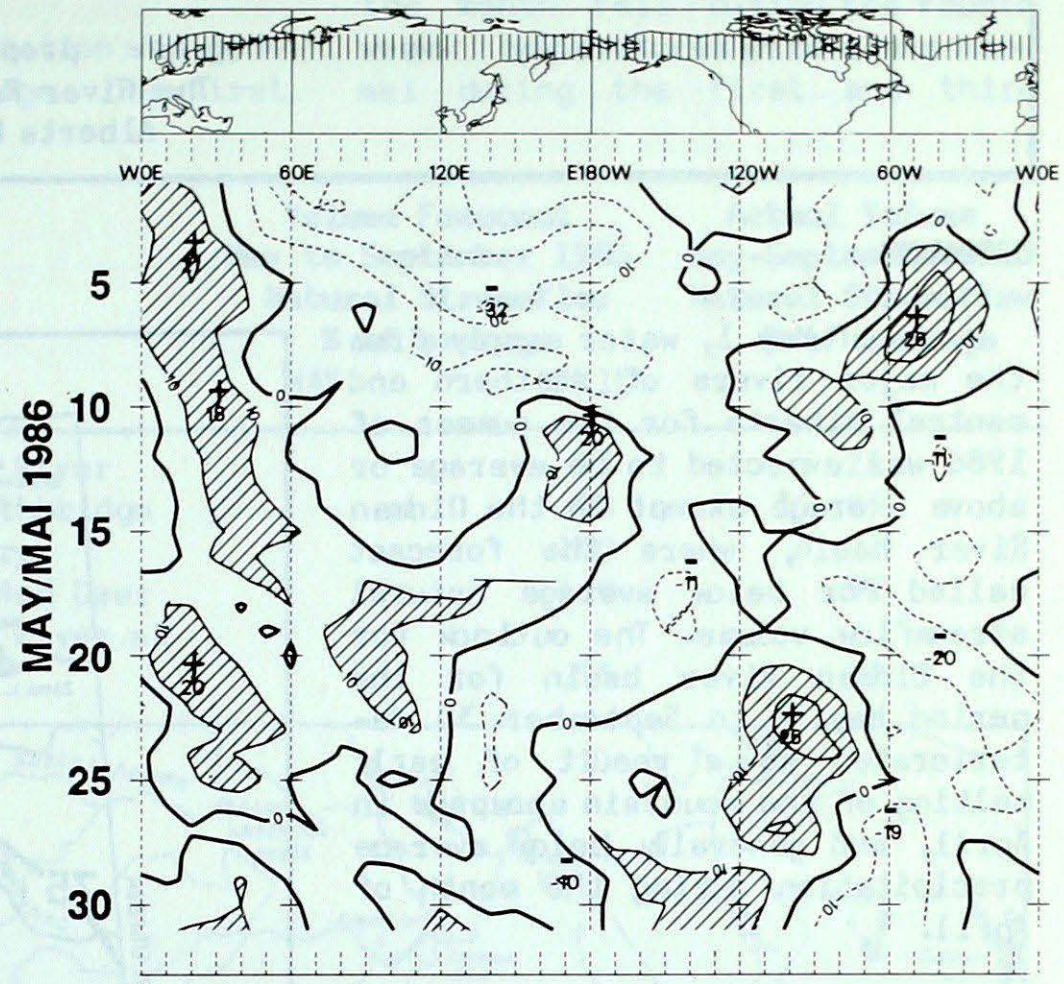
On the Hovmöller diagram for 45°N there was a general progression of the long waves at all longitudes. In late May, the Pacific coast and Atlantic ridges began to retrogress, a movement which was amplified in the case of the Pacific ridge by a simultaneous displacement of the ridge at 65°N. Over Scandinavia near 20°E, an abnormal ridge began developing at the beginning of the month (as seen on the Hovmöller diagram for 65°N), downstream from the Atlantic trough. It persisted and intensified at middle latitudes for the rest of the month, providing a much stronger than normal meridional component to the mean European circulation.

At the surface, the disappearance of the Canadian trough combined with the displacement of the Pacific ridge, resulted in above-normal temperatures throughout the country except in the northwest.

ATMOSPHERIC CIRCULATION

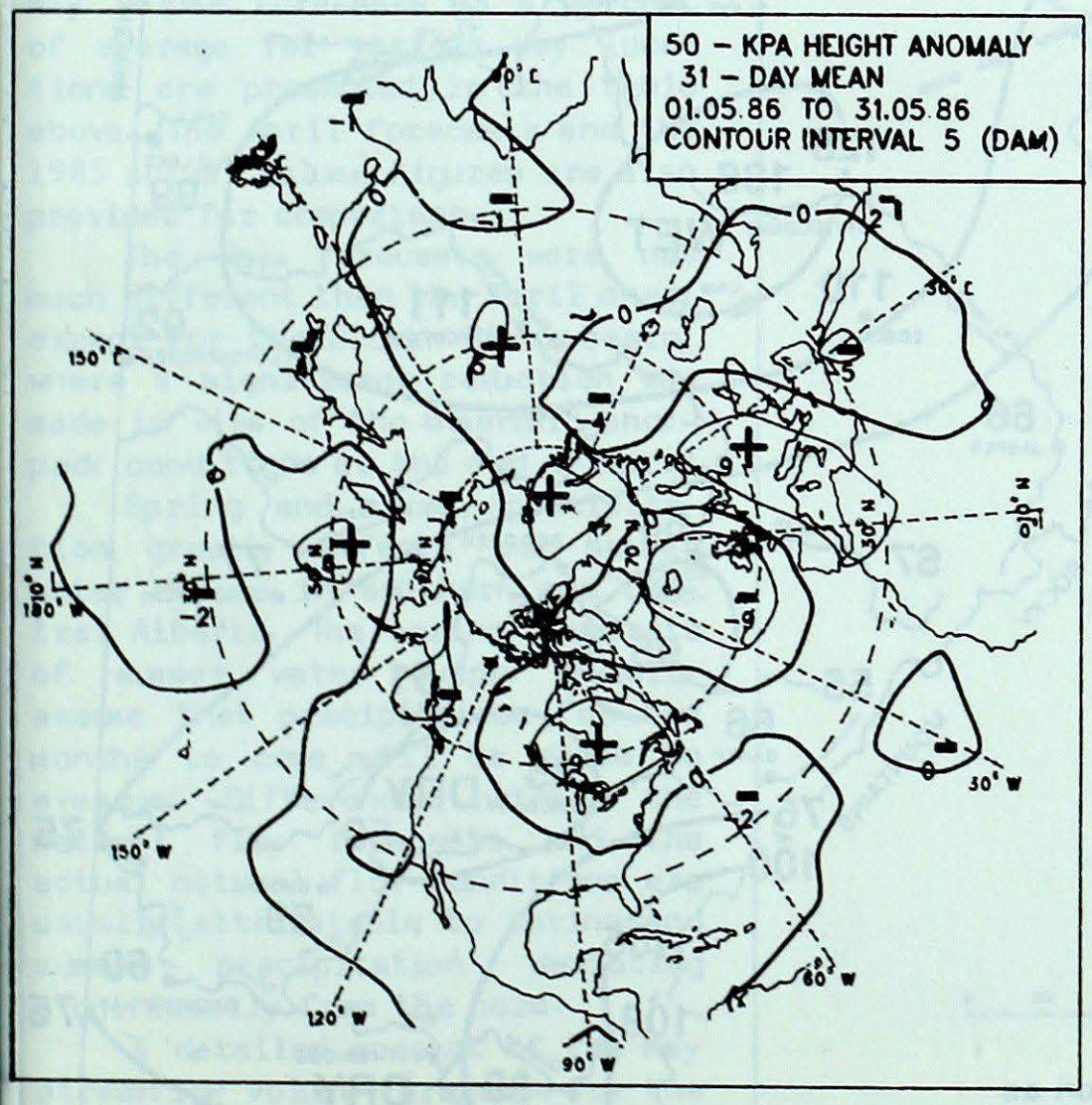


50 kPa 45° $\bar{Z}$ = 560 DAM

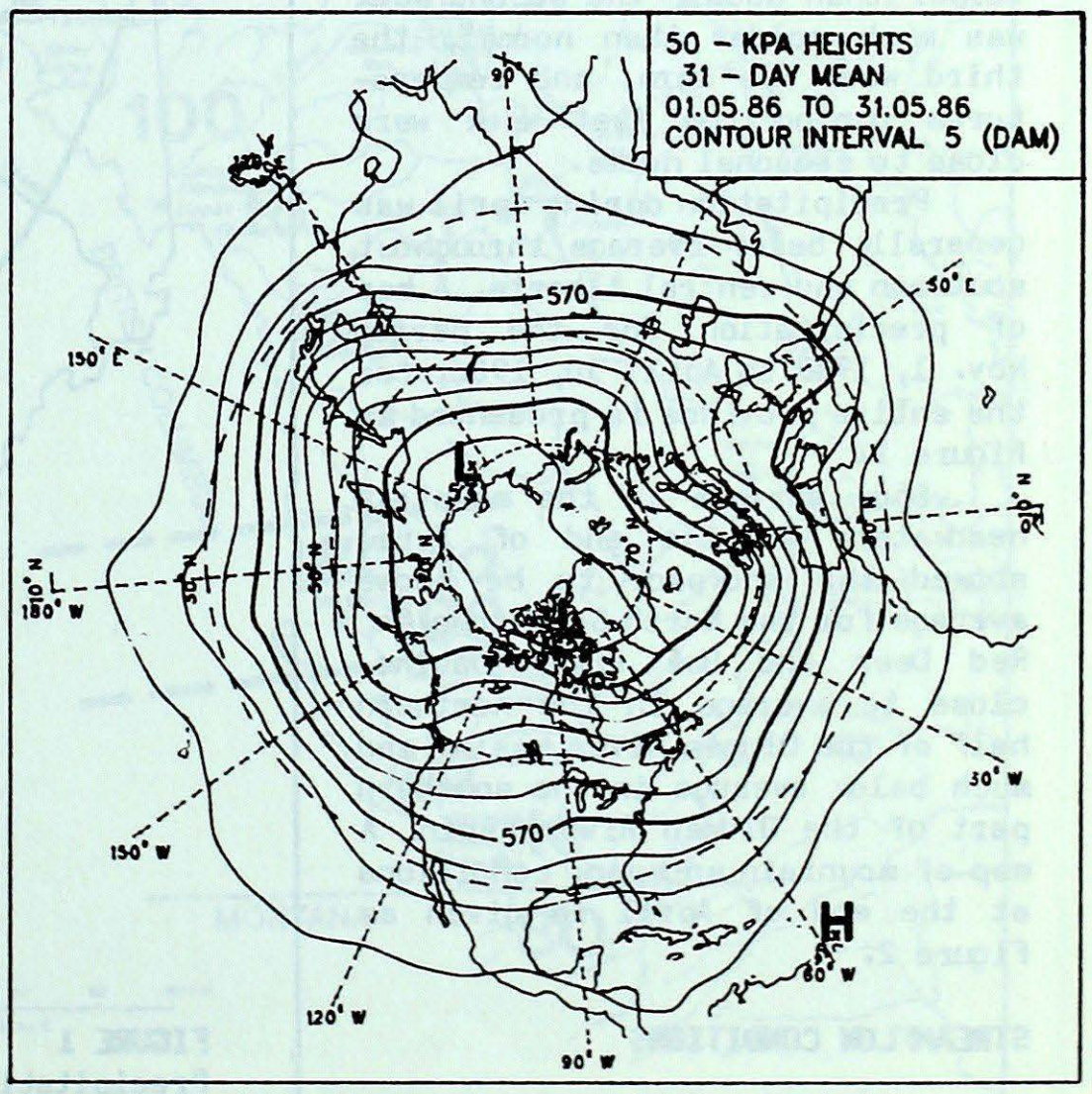


50 kPa 65°N $\bar{Z}$ = 530 DAM

Time-longitude Hovmöller diagrams of 50 kPa heights
at latitudes 45°N and 65°N



Mean 50 kPa height anomaly (dam)
May 1986



Mean 50 kPa heights (dam)
May 1986

FEATURE

WATER SUPPLY OUTLOOK FOR SOUTHERN AND CENTRAL ALBERTA

prepared by
The River Forecast Centre
Alberta Environment

SUMMARY

As of May 1, water supply from the major rivers of southern and central Alberta for the summer of 1986 was expected to be average or above average except in the Oldman River basin, where the forecast called for below average natural streamflow volume. The outlook for the Oldman River basin for the period May 1 to September 30 deteriorated as a result of early melting of the mountain snowpack in April, and generally below average precipitation during the month of April.

WEATHER CONDITIONS DURING APRIL 1986

Temperature conditions were close to average for the month of April taken as a whole, although week-to-week conditions varied considerably. The first week was warmer than usual, the second week was much colder than normal, the third week was warm, and temperatures during the last week were close to seasonal norms.

Precipitation during April was generally below average throughout southern and central Alberta. A map of precipitation for the period Nov. 1, 1985 to April 30, 1986, for the entire province is presented as Figure 1.

Snow surveys in the mountain headwaters at the end of April showed the snowpack to be above average for the North Saskatchewan, Red Deer and Bow River basins, close to average in the northern half of the Oldman River basin, and much below average in the southern part of the Oldman River basin. A map of mountain snowpack conditions at the end of April is given as Figure 2.

STREAMFLOW CONDITIONS

Streamflow conditions were generally above average in the Oldman River basin at the beginning

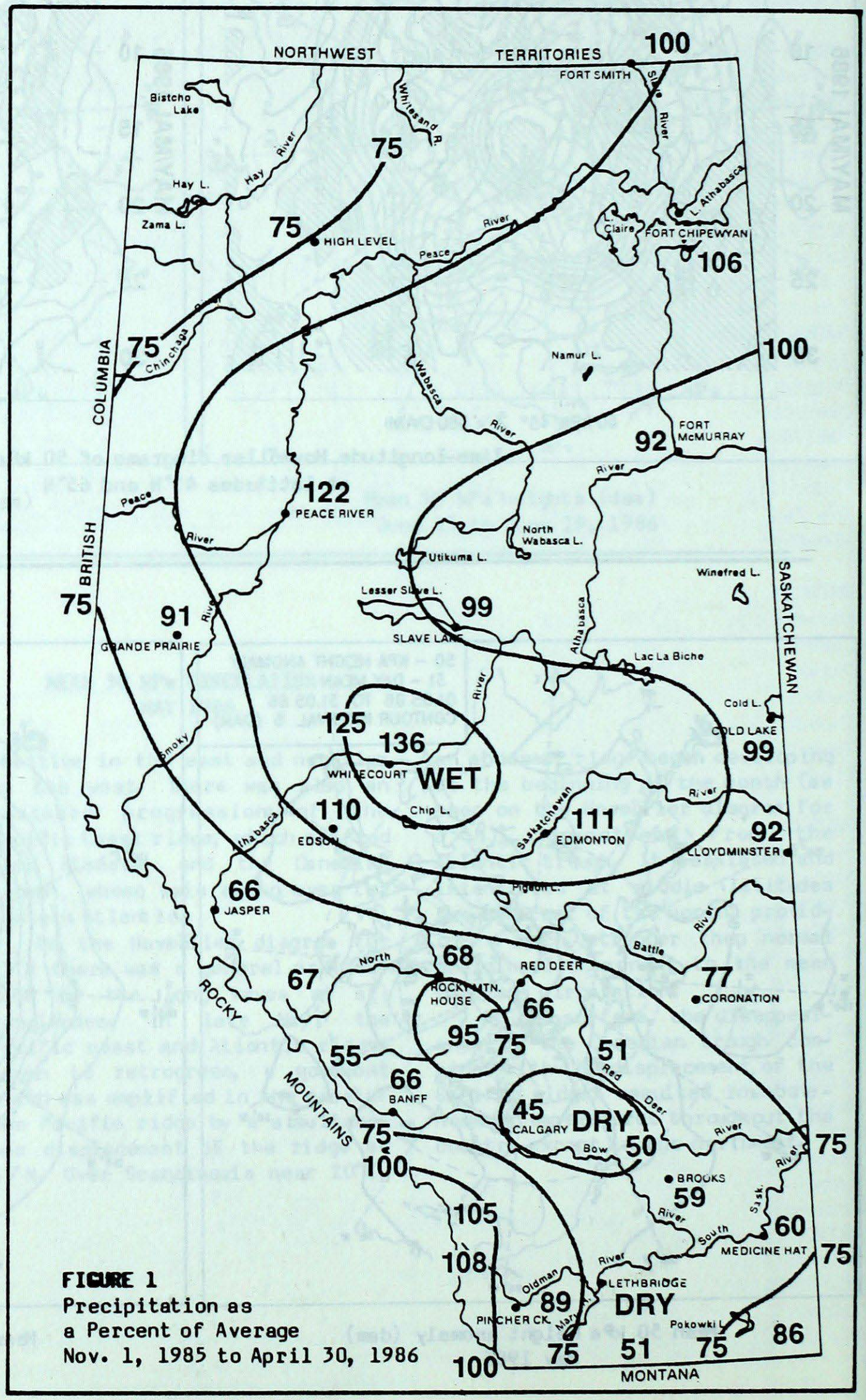


FIGURE 1
Precipitation as
a Percent of Average
Nov. 1, 1985 to April 30, 1986

of April because of warm weather in March, which began melting the mountain snowpack several weeks earlier than normal. This situation was limited to the Oldman basin however. Conditions in the Bow, Red Deer and North Saskatchewan River basins were close to average.

River levels in the Oldman basin fell during the first half of April and were steady in other areas under the influence of the cold weather of the second week of the month. The warm temperatures of the third week coupled with some heavy precipitation on the 22nd and 23rd resulted in rapid flow increases in most of the mountain streams. By the end of the month, river levels had returned to normal in the Oldman basin, but were below normal in the other major river basins.

WATER SUPPLY VOLUME FORECASTS FOR THE SUMMER OF 1986

At the beginning of May, the natural streamflow volume for the May to September period was expected to be below average in the Oldman and Milk River basins, and above average in the Bow, Red Deer and North Saskatchewan basins. The May volume forecasts as a percent of average for various key locations are presented in the table above. The April forecasts and the 1985 actual volume figures are also provided for comparison.

The May forecasts were not much different than the April ones, except for the Oldman River basin, where a significant reduction was made in view of the mountain snowpack conditions at the end of April.

Spring and summer precipitation greatly affects the summer water supply in southern and central Alberta. The spring forecasts of summer water supply usually assume that precipitation for the months to come will be close to average. Differences between the natural flow forecasts and the actual natural flow conditions are usually attributable to spring and summer precipitation deviating significantly from the norm.

A detailed account of the May streamflow volume forecasts for the summer of 1986 for the major streams of southern and central Alberta is presented as Table 1.

WEATHER CONDITIONS IN SOUTH-EASTERN ALBERTA

April precipitation was generally below average. The first three weeks of the month were quite dry. Most of the precipitation for the month fell during the fourth week. Temperatures were above normal during the first and third

Location	Volume Forecast May to September 1986 Natural Streamflow % of average MAY	APRIL	Actual Volume May-September 1985 Natural Streamflow % of average
Milk River at Milk River		75	21
Oldman River at Lethbridge		80	63
Bow River at Calgary		100	71
Red Deer River at Red Deer		110	57
North Saskatchewan River at Edmonton		95	72

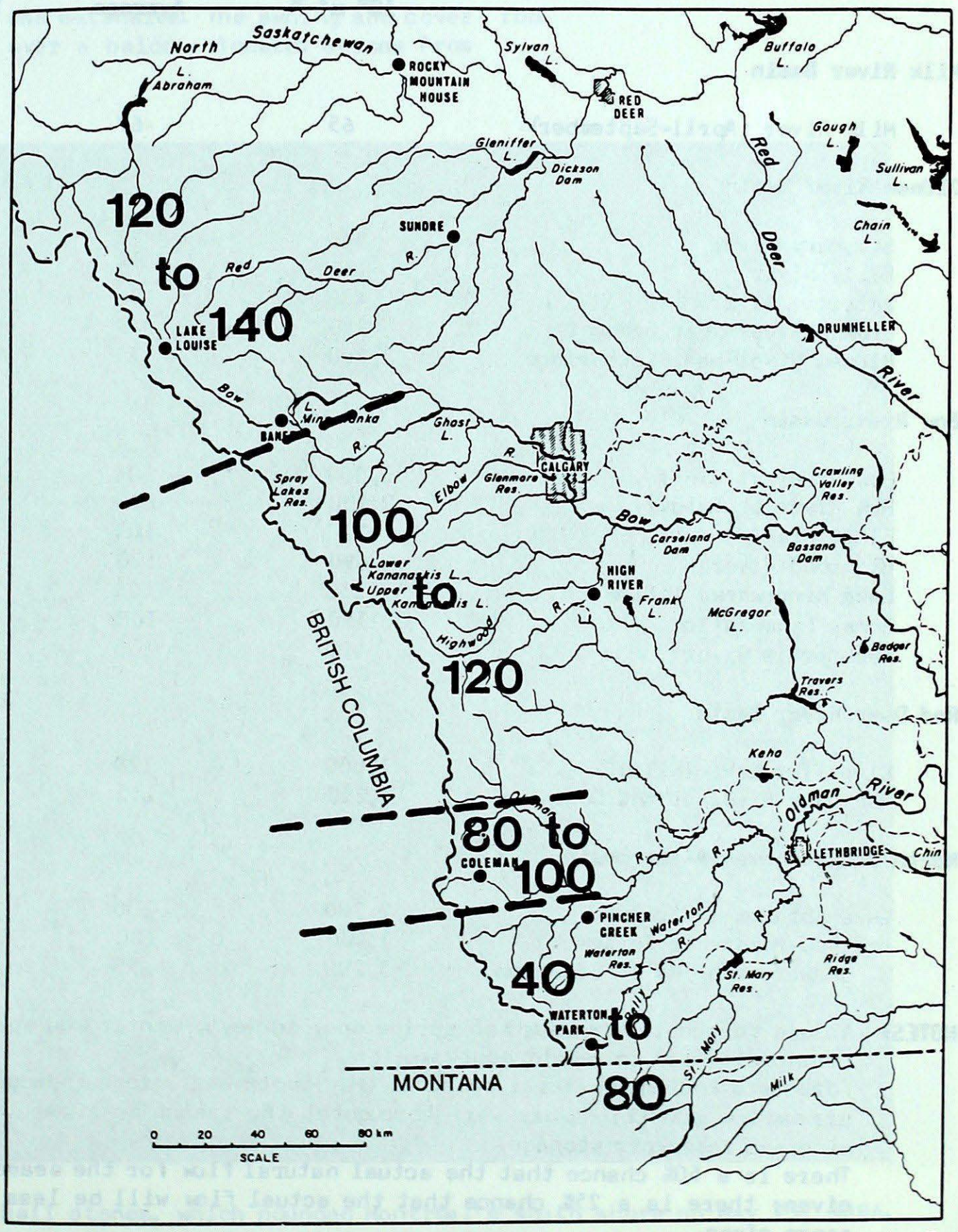


FIGURE 2
Mountain Snowpack Conditions - May 1, 1986
As a Percent of Average

FEATURE

weeks, below normal during the second week, and close to normal during the last week of April.

Spring runoff occurred during the last week of February, several weeks earlier than normal. Very little additional runoff was generated after this time. Spring runoff volumes were generally below average in 1986. No significant runoff was expected for the summer of 1986 unless rainfall during the summer reached much above average amounts.

Water Storage Situation

As of May 1, most of the major storage facilities were at or above normal levels for the time of year. The notable exceptions were Lake Minnewanka and Lake Newell which were below normal.

WATER SUPPLY OUTLOOK FOR SOUTHERN AND CENTRAL ALBERTA

TABLE 1

Water Supply Outlook as of May 1, 1986
(Natural Flow)

	Volume Forecast 10^6 m^3 *	Volume Forecast % of Average	Probable Range % of Average	1985 Actual % of Average
Milk River Basin				
Milk River (April-September)	65	67	35 - 110	21
Oldman River Basin				
St. Mary River	560	77	55 - 100	81
Belly River	180	73	55 - 95	82
Waterton River	480	76	55 - 95	79
Oldman River near Brocket	830	75	50 - 95	54
Oldman River near Lethbridge	2,200	73	50 - 95	63
Bow River Basin				
Bow River at Banff	1,000	108	95 - 120	76
Bow River at Calgary	2,400	106	90 - 125	71
Elbow River	220	107	85 - 130	66
Highwood River	690	110	80 - 140	49
Lake Minnewanka Inflow	230	106	95 - 120	55
Spray Lake Inflow	350	108	95 - 120	75
Kananaskis River	400	100	95 - 120	68
Red Deer River Basin				
Gleniffer Lake Inflow	1,000	120	80 - 140	50
Red Deer River at Red Deer	1,200	115	80 - 140	57
North Saskatchewan River Basin				
Lake Abraham Inflow	2,200	100	90 - 110	83
Brazeau Reservoir Inflow	1,400	100	80 - 120	78
N. Saskatchewan R. at Edmonton	5,200	95	80 - 110	72

NOTES: Volume forecasts are based on spring snow surveys, winter and spring precipitation data, and the trend of natural flow in recent months.
Forecasts indicate natural seasonal (May-September unless indicated otherwise) runoff expected; actual streamflow conditions may vary throughout the season as a result of the effects of streamflow diversion and reservoir storage.
There is a 50% chance that the actual natural flow for the season will fall within the probable range given; there is a 25% chance that the actual flow will be less than the lower bound of the probably range given.

* 10^6 m^3 = 1,000 dam^3 = 811 acre-feet = 409 cfs-days

FEATURE

A FIRST HAND ACCOUNT OF THE MONTRÉAL HAIL STORM OF THURSDAY MAY 29, 1986

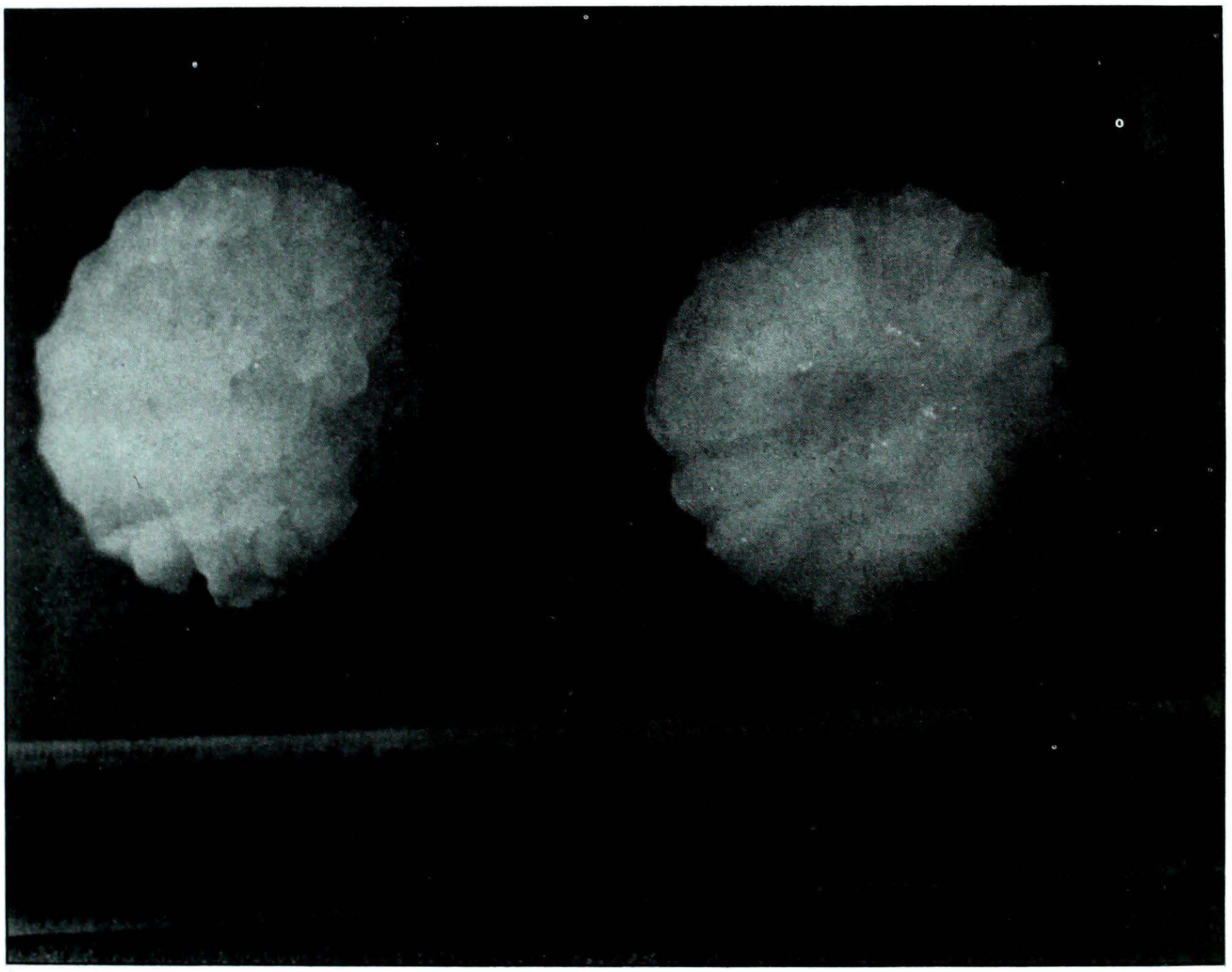
by
Marc A. Gélinas
St-Hubert Weather Office

Late Thursday afternoon, May 29, 1986, between 1730 and 1800 EDT, a severe thunderstorm hit the St-Hubert area situated on the south shore of the St. Lawrence River near Montréal. The storm produced heavy downpours of rain, hail and strong winds. Shortly before six in the evening (1758 EDT) hail began falling along with the rain. At first, the hailstones were only one centimetre in diameter, but two minutes later they were the size of golf balls. Actually, you could also see and hear bigger stones the size of tennis balls smashing the ground.

The hail lasted ten minutes, and then stopped along with the rain around 1810 EDT. The winds died down at the same time, and it became calm.

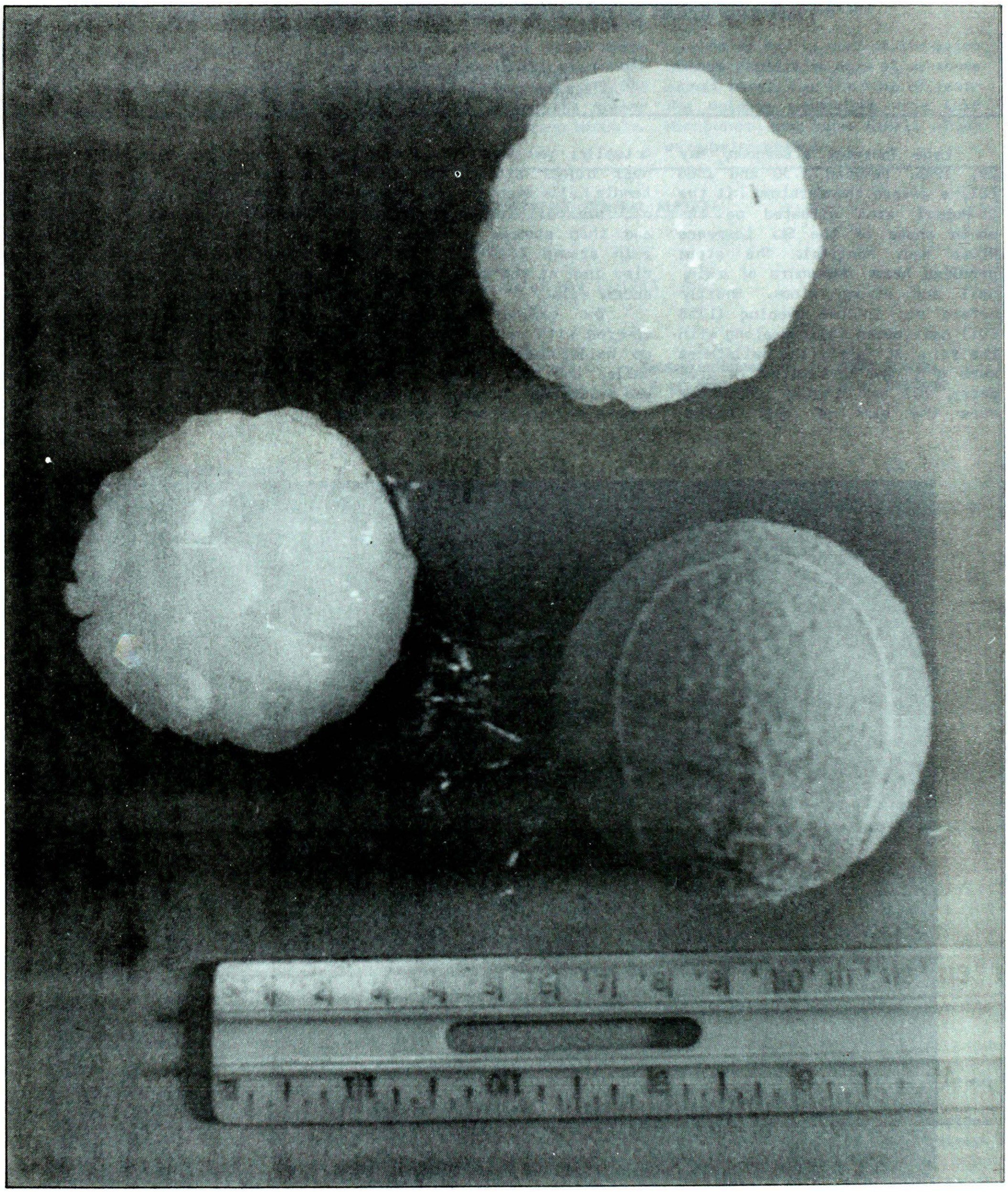
The ground was about half covered with hail. You could pick up hailstones as big as tennis balls, and hail damage around me was extensive. The awning and cover over a balcony located across from me had been torn off. A large window facing the east had shattered onto the street. The street itself was covered with leaves torn off the trees. Large leaves had holes in them, and most vegetable and flower beds were flattened. Cars were covered with dents caused by the impact of the stones.

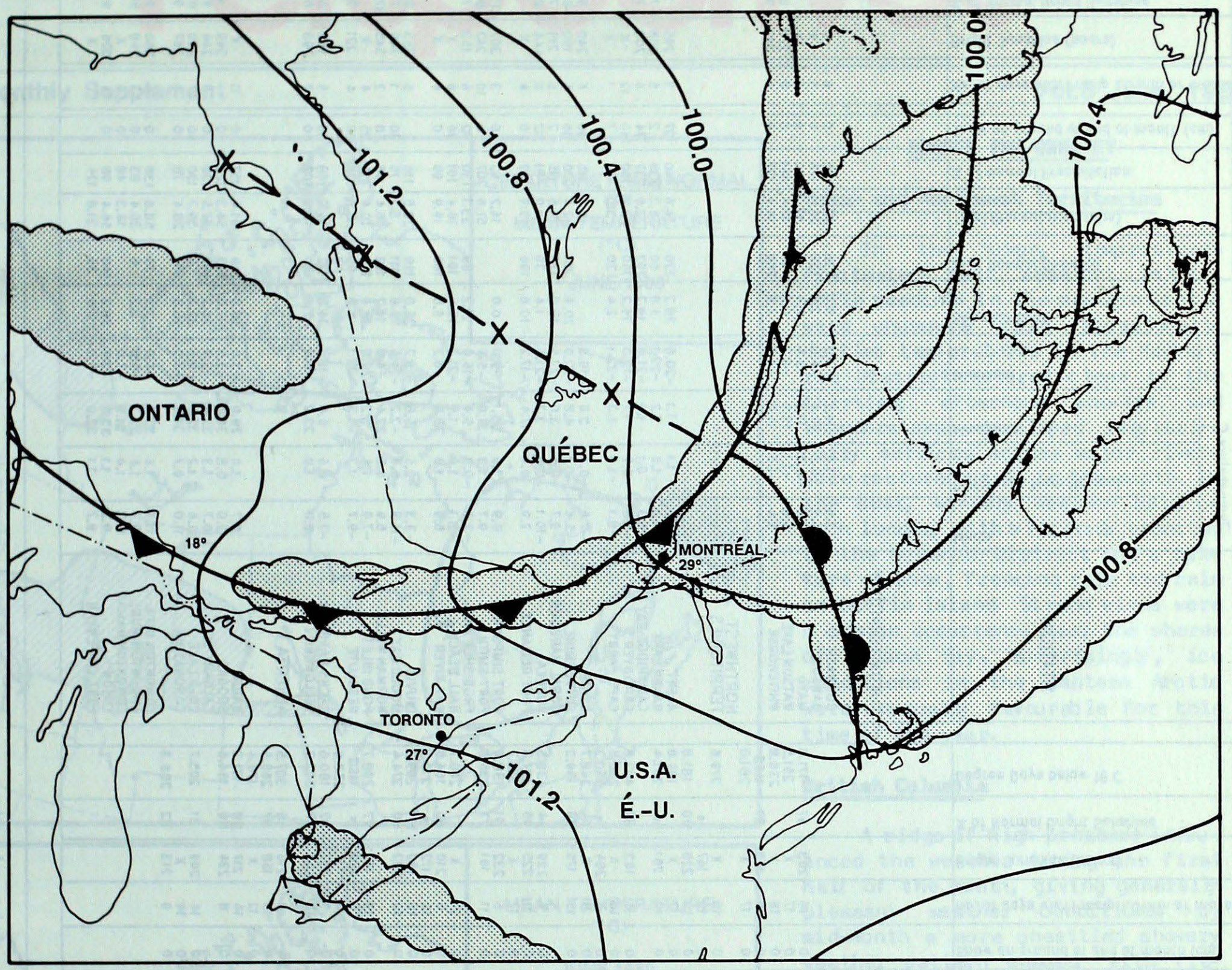
The storm was very interesting to watch, but when you think about it, it was a little frightening too.



Life sized photographs of the hail stones, which pounded Montréal's south shore on May 29, 1986. Another photo on the following page. Photos courtesy of Marc A. Gélinas.

FEATURE





The weather map for 2000 EST, May 29, 1986 showing the cold front and wave which swept southeastwards across the Montréal area, triggering the hailstorms. Temperatures in the area preceding the passage of the front rose to a record high 31°C. The weather radar at McGill University indicated that the storms themselves moved in an unusual direction from the northeast towards the southwest.

MAY 1986

STATION	Temperature C Mean	Difference from Normal	Maximum	Minimum	Snowfall (cm)	% of Normal Snowfall	Total Precipitation (mm)	% of Normal Precipitation	Snow on ground at end of month (cm)	No. of days with Precip 1.0 mm or more	Bright Sunshine (hours)	% of Normal Bright Sunshine	Degree Days below 18 C
BRITISH COLUMBIA													
ABBOTSFORD	12.6	0.6	29.3	1.2	0.0		144.1	184	0	16	203	97	171.8
ALERT BAY	9.9	-0.3	21.6	3.2	0.0		142.8	238	0	17	X		251.5
AMPHITRITE POINT	10.3	-0.1	18.5	3.4	0.0		368.9	283	0	18	X		238.8
BLUE RIVER	10.0	0.3	31.6	-3.0			108.7	220	0	19	173	87	MSG
BULL HARBOUR	8.9	-0.2	18.4	1.9	0.0		145.5	178	0	17	X		281.0
CAPE SCOTT	9.0	-0.4	13.9	2.8	0.0		*		0	18	X		279.6
CAPE ST.JAMES	8.3	-0.4	13.0	1.8	0.0		104.1	122	0	19	167	*	
CASTLEGAR	13.1	-0.1	34.2	-1.1	0.0		50.3	93	0	13	229	98	181.8
COMOX	11.6	-0.2	26.3	3.3	0.0		68.6	183	0	12	X		199.8
CRANBROOK	12.5	1.4	34.2	-0.5	0.0		45.3	130	0	10	261	*	201.4
DEASE LAKE	5.0	-1.1	18.7	-6.4	11.5	249	18.5	80	0	4	183	87	402.8
ETHELDA BAY	8.4	-0.4	16.1	-1.3	0.0		247.2	132	0	18	X		298.5
FORT NELSON	9.6	0.0	22.8	-2.8	33.8	572	44.7	107	0	6	264	*	260.2
FORT ST.JOHN	10.0	0.3	25.7	-4.2	12.1	144	31.9	82	0	8	X		268.7
HOPE	13.3	0.3	30.7	3.4	0.0		169.5	236	0	15	175	96	159.3
KAMLOOPS	14.5	0.4	35.5	0.5			19.2	106	0	5	239	94	138.5
KELOWNA	12.8	0.6	33.8	-1.6	0.0		30.0	107	0	9	225	95	181.3
LANGARA	7.8	-0.3	13.5	1.1	1.2		91.1	99	9	17	X		315.7
LYTTON	14.5	0.1	37.0	1.6			17.0	130	0	6	232	91	138.0
MACKENZIE	7.2	-1.0	25.0	-6.8	4.6	104	37.6	122	0	11	191	77	335.6
MCINNES ISLAND	9.6	-0.1	15.2	3.0			246.1	174	0	21	X		260.7
PENTICTON	13.5	0.1	33.9	-2.1			16.6	57	0	6	210	85	164.5
PORT ALBERNI	11.3	*	32.1	0.1	0.0	*	169.7	*	0	16	172	*	210.2
PORT HARDY	9.6	0.3	19.5	1.9			135.0	196	0	18	189	101	259.2
PRINCE GEORGE	9.2	-0.1	26.5	-4.8	5.6	254	38.8	82	0	10	202	80	274.4
PRINCE RUPERT	8.3	0.0	16.8	-0.3	0.0		163.6	117	0	19	147	77	298.7
PRINCETON	11.4	0.6	35.3	-3.6	0.2	50	15.2	73	0	5	220	*	MSG
QUESNEL	10.4	-0.1	29.5	-3.2	2.0	500	37.2	96	0	10	X		238.0
REVELSTOKE	13.0	0.5	35.3	0.7			54.9	104	0	9	197	92	180.6
SANDSPIT	8.2	-0.5	15.9	1.1	0.4	400	86.1	164	0	18	164	77	302.8
SMITHERS	8.0	-1.0	22.8	-3.9	0.2	16	39.1	130	0	9	216	96	307.5
TERRACE	9.3	-0.6	21.5	-0.8	1.6	400	83.2	192	0	15	158	87	268.5
VANCOUVER HARBOUR	12.5	0.0	23.2	6.1	0.0		131.7	192	0	12	X		170.4
VANCOUVER INT'L	12.5	0.3	23.2	4.2	0.0		100.6	194	0	14	217	88	171.3
VICTORIA GONZ. HTS	11.5	-0.4	26.9	4.1	0.0		44.5	230	0	8	224	80	194.6
VICTORIA INT'L	11.4	-0.2	25.6	2.7	0.0		63.4	222	0	14	209	81	205.7
VICTORIA MARINE	10.3	-0.1	24.4	1.8	0.0		81.7	208	0	14	X		
WILLIAMS LAKE	8.8	-0.2	29.6	-5.8	4.0	133	48.7	154	0	9	213	82	288.3

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YUKON TERRITORY													
BURWASH	3.9	-1.0	14.7	-7.3	5.0	26	30.3	135	0	6	X		440.7
DAWSON	6.9	-0.5	20.4	-4.0	2.9	138	26.4	176	0	5	X		346.1
MAYO	7.2	-0.3	17.2	-3.4	0.4	19	37.2	190	0	8	X		332.3
WATSON LAKE	5.8	-1.1	18.9	-6.2	0.8	14	47.4	161	0	8	228	89	379.6
WHITEHORSE	5.4	-1.3	15.8	-4.7	7.8	268	16.4	127	0	4	242	93	388.8
NORTHWEST TERRITORIES													
ALERT	-10.6	1.1	7.1	-20.6	28.2	220	14.6	140	27	3	295	71	868.2
BAKER LAKE	-4.8	1.6	7.2	-22.1	3.8	60	28.3	235	2	5	208	78	707.6
CAMBRIDGE BAY	-9.3	0.1	1.3	-21.8	19.2	202	22.6	237	34	6	203	78	847.3
CAPE DYER	-5.8	0.2	1.7	-19.0	75.2	140	73.9	150	140	12	X		736.7
CAPE PARRY	-8.1	-1.3	2.3	-22.1	2.4	20	3.0	32	7	1	X		807.9
CLYDE	-7.6	-0.3	2.6	-19.3			19.4	115	40	6	240	95	792.5
COPPERMINE	-5.4	-0.1	4.8	-22.9	20.4	251	32.4	270	16	4	190	84	725.6
CORAL HARBOUR	-5.7	0.6	3.0	-22.5	18.0	123	19.6	115	2	6	219	77	733.5
EUREKA	-10.1	0.6	3.7	-21.6	1.4	39	1.0	31	12	0	444	85	872.0
FORT RELIANCE	2.9	0.9	17.4	-17.2	10.6	196	13.9	102	0	4	X		468.6
FORT SIMPSON	8.9	1.0	25.1	-5.0	0.0		16.2	52	0	3	307	112	285.4
FORT SMITH	9.7	1.8	31.8	-5.4			57.6	207	0	10	242	84	265.7
FROBISHER BAY	-3.5	-0.3	5.4	-16.0	21.2	89	33.1	130	12	6	153	76	665.9
HALL BEACH	-8.1	1.0	1.9	-21.2	16.4	101	16.4	101	36	6	X		807.5
HAY RIVER	6.9	1.3	23.6	-6.2	6.6	169	19.9	99	0	4	X		350.3
INUVIK	-3.3	-2.5	15.8	-13.2	26.0	199	20.5	116		5	253	85	660.3
MOULD BAY	-11.8	-0.6	-2.2	-24.5	8.8	111	5.2	75	30	1	246	73	922.9
NORMAN WELLS	5.9	0.5	22.4	-4.6	16.2	192	16.4	96	0	2	345	122	414.5
POND INLET	-7.9	1.4	3.2	-20.8	18.4	153	10.4	114	25	4	X		804.1
RESOLUTE	-9.7	1.2	-1.3	-22.1	8.8	95	8.8	108	23	4	221	75	859.2
SACHS HARBOUR	-7.5	0.6	0.4	-18.1	14.8	172	14.8	168	15	5	198	69	789.8
YELLOWKNIFE	6.0	1.0	23.2	-8.8	2.6	70	18.8	109	0	7	293	87	373.8
ALBERTA													
BANFF	8.7	1.0	29.0	-3.0	30.0	209	81.4	157	0	11	X		
BROOKS	12.0	0.8	34.0	-3.5	17.0	629	54.3	128	0		249	*	
CALGARY INT'L	10.7	1.3	32.4	-2.9	34.2	407	67.5	138	0	8	246	97	244.4
COLD LAKE	11.6	1.2	32.5	-5.6	32.3		59.7	150	0	7	239	87	224.3
CORONATION	11.0	0.7	34.2	-7.0	18.6	641	28.4	78	0	6	267	91	237.5
EDMONTON INT'L	11.7	1.6	32.8	-4.8	2.3	79	58.6	138	0	6	260	91	220.7
EDMONTON MUNI.	12.7	1.4	32.3	-5.8	0.2	6	35.4	83	0	3	268	96	197.7
EDMONTON NAMAO	11.8	1.0	31.9	-7.0			18.3	48	0	4	X		216.6
EDSON	9.2	1.1	33.3	-3.7	20.2	140	56.4	98	0	5	226	92	272.5
FORT CHIPEWYAN	9.2	1.1	32.0	-7.0	2.4	36	31.8	124			X		

X = Not observed * = normal missing MSG = data missing