



Climatic Perspectives

Monthly Review

SEPTEMBER - 1988

Vol. 10

CLIMATIC HIGHLIGHTS

A. Gergye, Monitoring and Prediction Division

Prairie drought is not a new phenomenon. The extended dry spell over the Canadian Prairies and American mid-west this year, although severe, is one of numerous events this century. It suggests that drought is simply part of the natural variability of the Prairies's semi-arid climate.

How this year's prairie drought compares with previous droughts is shown in Table 1. The "drought intensity" as shown is the precipitation deficit as a percentage of the 1951-80 normal amount that would have been needed to bring the total up to normal over the period from September of the preceding year to the end of August of the year listed. The table shows that the intensity of drought varies greatly from one region to the next for a particular year. On the average, however, of the years listed, 1961 was the worst. The averages listed were calculated using only those locations with negative shortfalls for that year. For 1988, the most severe precipitation deficit occurred at Lethbridge, where the total was 45% short of normal. In other words, precipitation was 55% below normal.

The total production of prairie spring wheat, which constitutes 80% to 90% of all wheat production, was 438 million bushels compared to 749 million in 1987 while some crops such as canola were not affected by the drought. Surprisingly, ample rain this summer

yielded a bumper crop in northern and central Alberta. It is encouraging that September precipitation amounts were above normal for most of southern Alberta and Saskatchewan as well as extreme southern Manitoba in that the current soil moisture content,

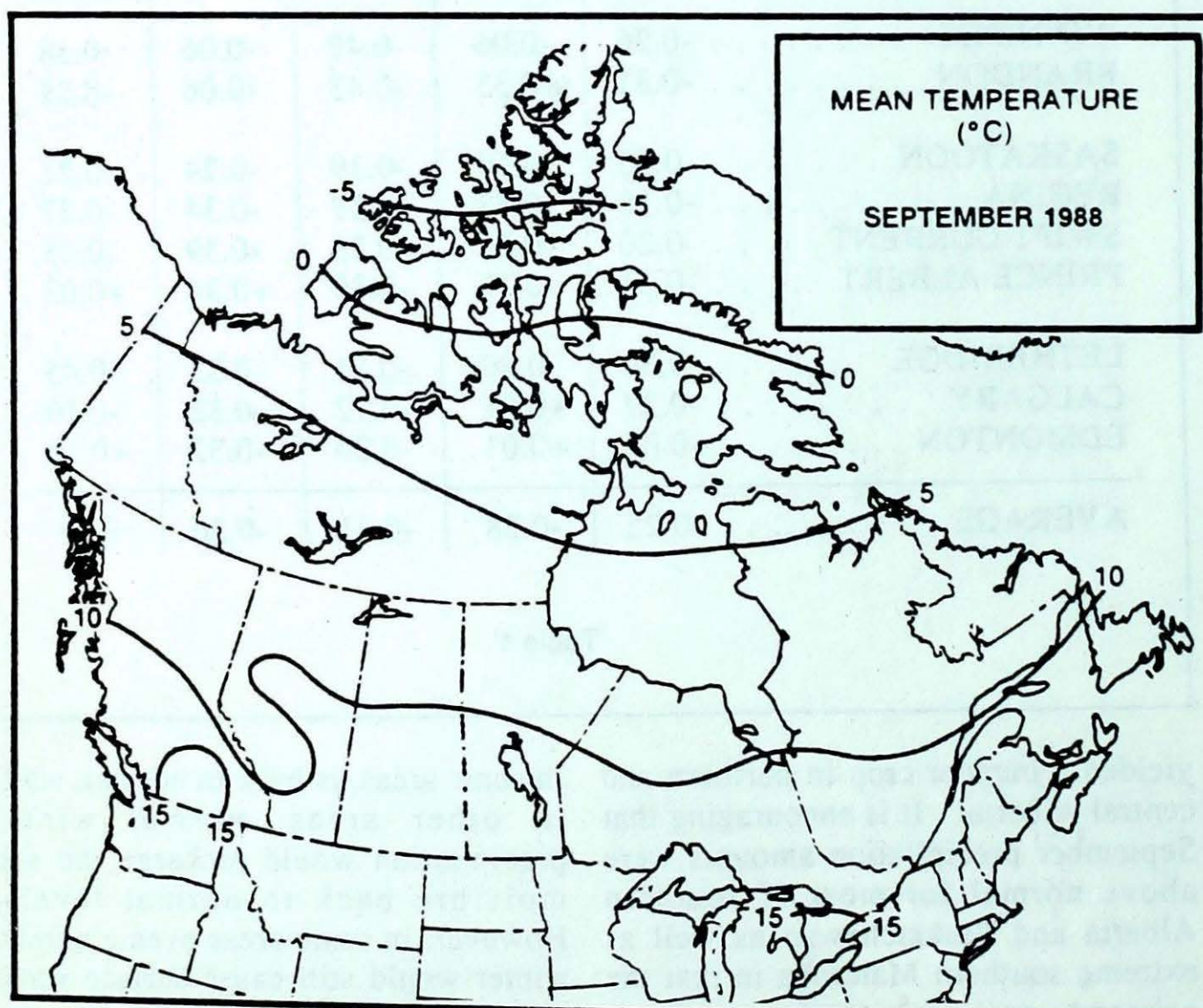
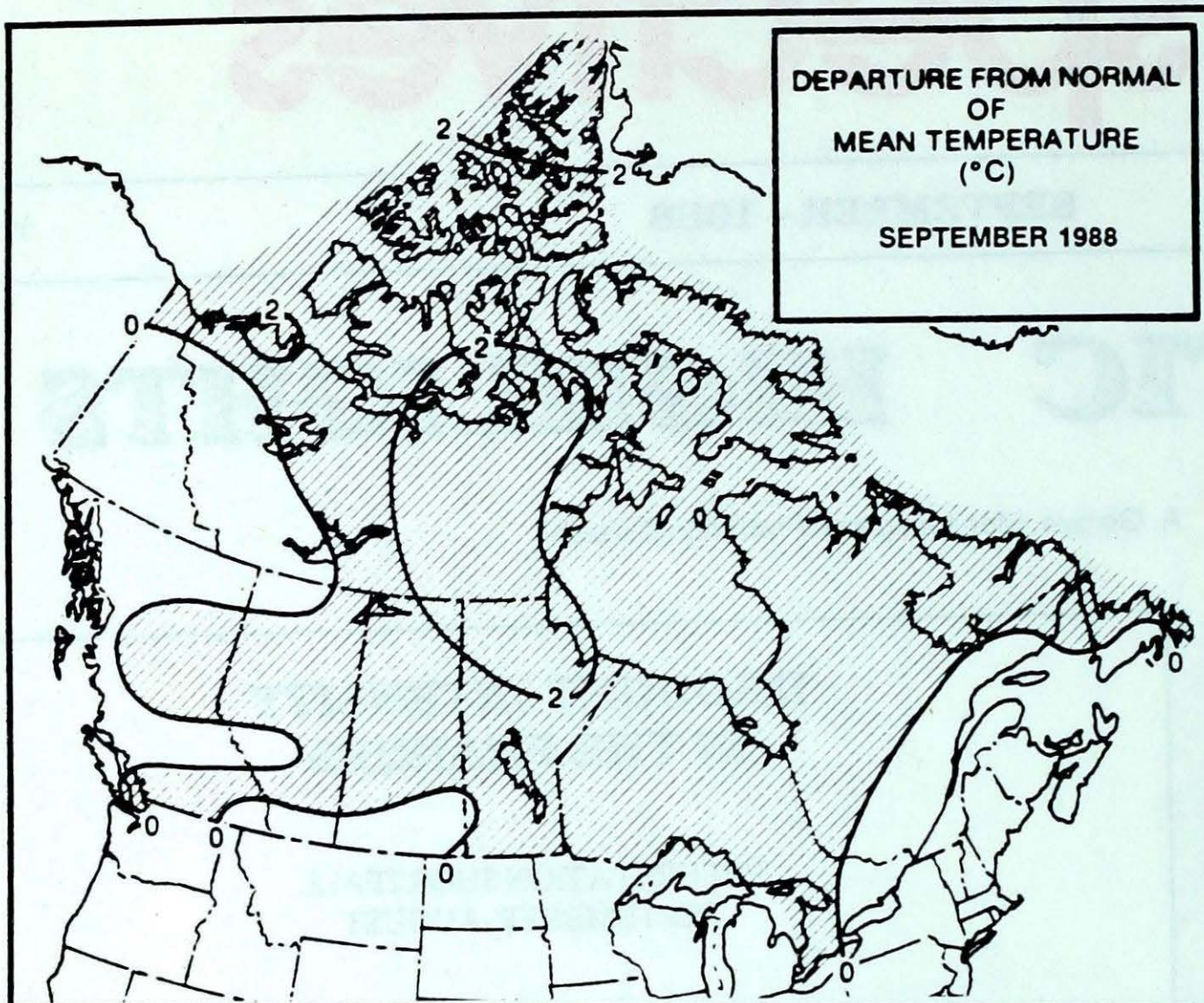
in some areas, is back to normal, while in other areas, normal winter precipitation would recharge the soil moisture back to normal levels. However, in some areas even a normal winter would still cause surface water supply shortages this spring.

DROUGHT INTENSITY IN THE PRAIRIES

PRECIPITATION SHORTFALL
SEPTEMBER- AUGUST

STATION	1936	1937	1961	1984	1988
WINNIPEG	-0.26	-0.06	-0.42	-0.06	-0.38
BRANDON	-0.31	+0.35	-0.43	-0.06	-0.22
SASKATOON	-0.05	-0.19	-0.19	-0.24	-0.21
REGINA	-0.16	-0.53	-0.57	-0.34	-0.27
SWIFT CURRENT	-0.20	-0.50	-0.35	-0.39	-0.25
PRINCE ALBERT	-0.33	-0.13	-0.23	+0.34	+0.03
LETHBRIDGE	-0.30	0.00	-0.31	-0.33	-0.45
CALGARY	-0.37	+0.01	-0.12	-0.32	-0.10
EDMONTON	+0.05	+0.01	-0.20	-0.32	+0.18
AVERAGE	-0.25	-0.28	-0.31	-0.26	-0.27

Table 1



Across the country

Yukon and N. W. T.

In the Yukon, the overall September pattern was cool, although a number of daily maximum temperature records were broken earlier in the month. The temperatures ranged from 25°C at Watson Lake on the 4th to as low as -12°C at Ross River and Beaver Creek the final week of the month. By mid-month, all areas had reported a killing frost, ending the growing season. By the end of the month leaves were off the trees.

With the arrival of autumn, Gulf of Alaska storms intensified, and spawned vigorous low pressure systems which moved across the northern half of the country. Heavy precipitation fell in the western mountains, and snow slowly accumulated lower down the mountain slopes. At times, strong winds hampered aircraft movements in the valleys. Typical fall weather affected the Arctic coast, with low stratus ceilings and fog.

Freeze-up began in the Arctic, and small lakes in the Territories were beginning to freeze over. Difficult ice conditions, due to winds, were becoming evident in the Beaufort near Alaska. Resupply operations to the northern outpost were completed without incident. By the end of the month, temperatures in the Arctic were remaining below freezing.

British Columbia

September produced typical autumn weather conditions, as slow moving troughs and ridges resulted in fluctuating temperatures and shifting precipitation patterns. Temperatures for the month averaged close to normal, but many maximum temperature records were broken across the southern half of the province during the first half of the month. In contrast, the latter part of the period was cool and wet. At Lytton, the mercury soared to near 39°C on the 3rd.

Many of the dry areas in the southern interior received substantial amounts of

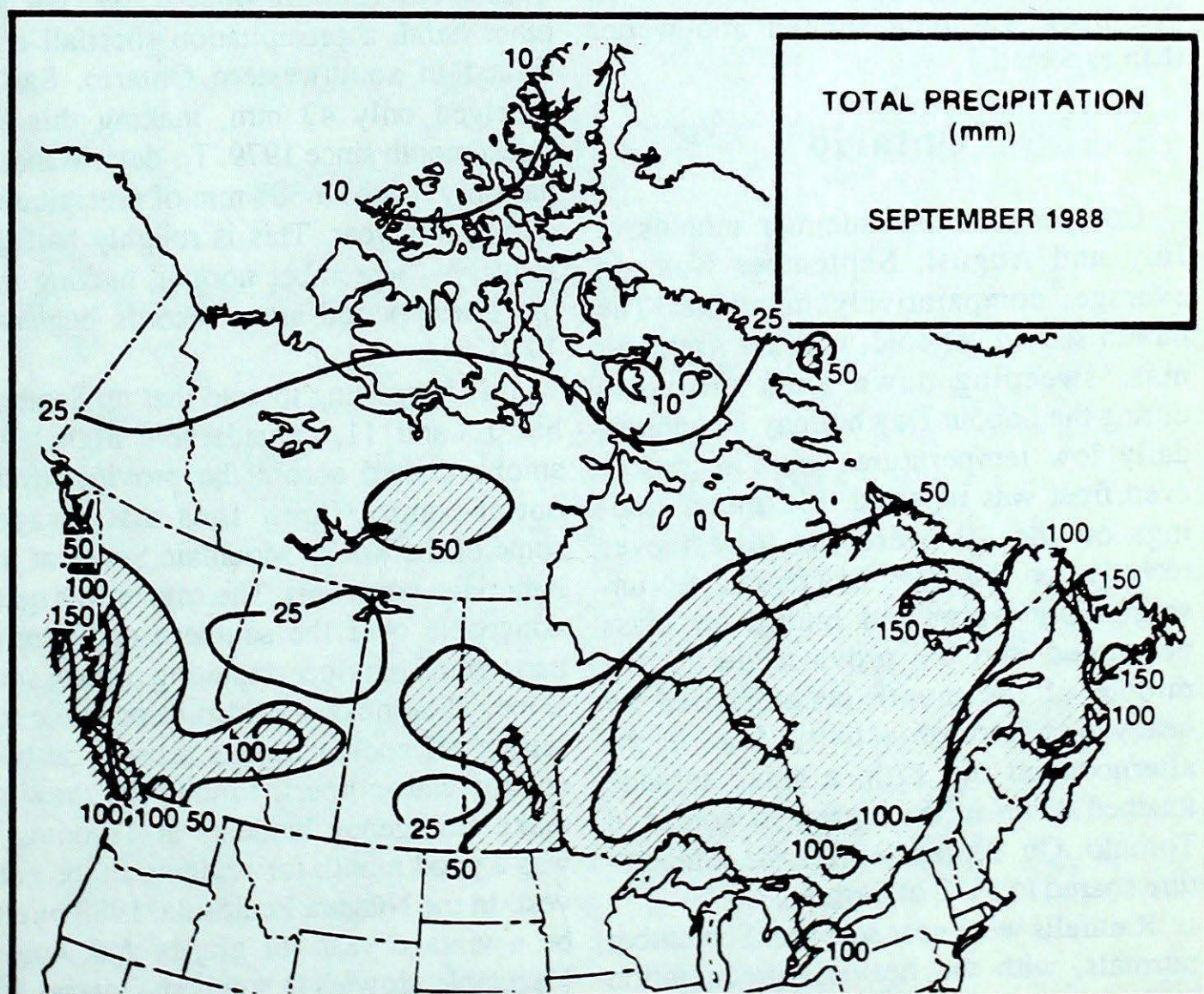
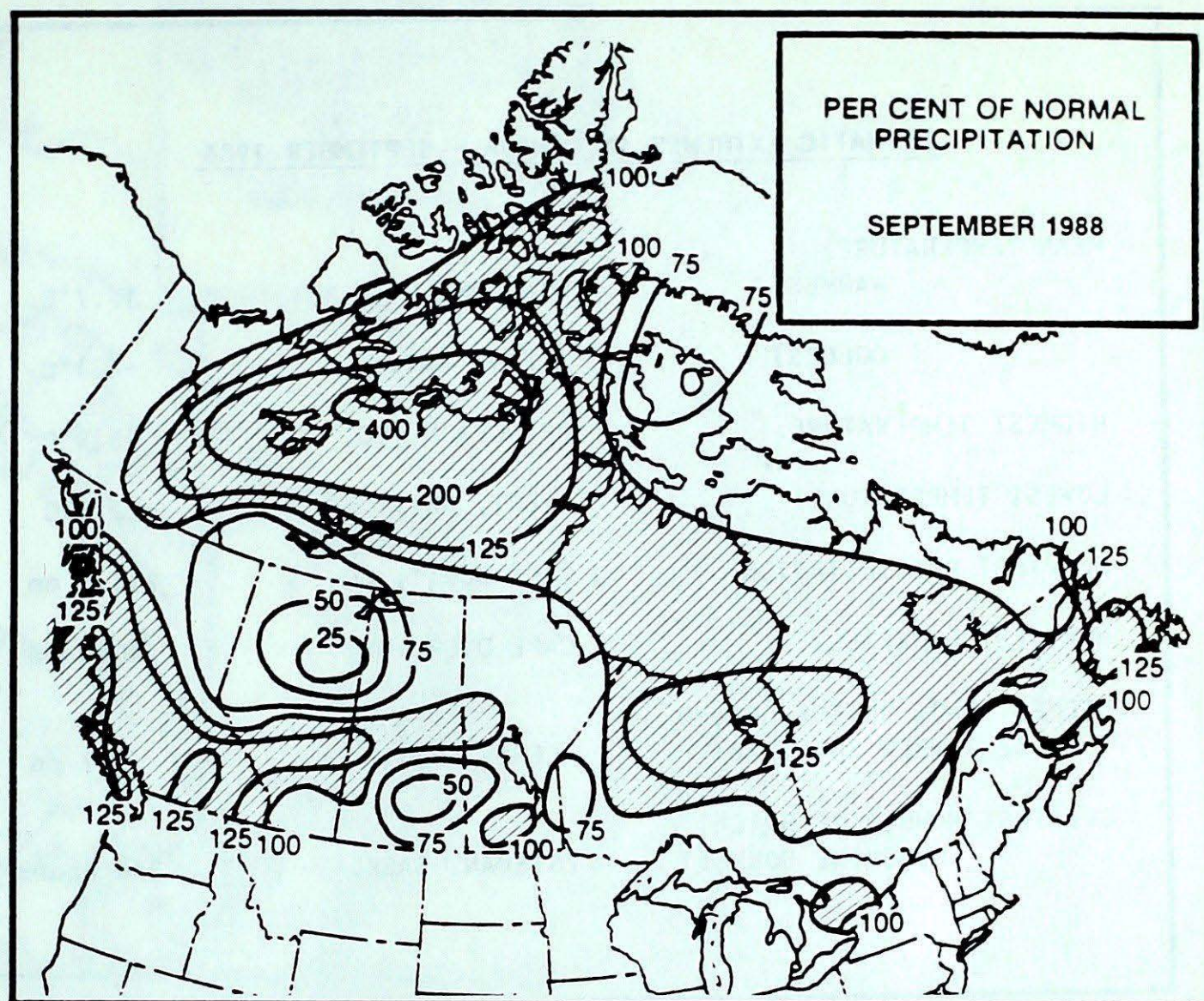
moisture, in some cases more than twice the normal. There was some local flooding in the interior valleys on September 9. Heavy thunderstorms, with hail, rolled across Vancouver on the evening of the 10th. While northern B.C. and the Peace River District received less than normal precipitation, a major storm on September 28, produced record setting 24-hour rain-falls on the north coast, which increased monthly totals to near or above average. Wet snow fell in the Peace River and Fort Nelson Districts the second week of the month.

A killing frost occurred in the central interior on the morning of the 10th, and a light frost was reported in the Okanagan on the 18th. During the early part of the month, extensive smoke drifted into southern B.C. from Washington, where forest fires raged out of control.

Prairie Provinces

Temperatures in Alberta during the first half of the month were generally pleasant, reaching well into the twenties during the day. Numerous new daily maximum temperatures were set during the first week of the month. A high of 34°C was registered at Medicine Hat on the 6th. It turned much cooler and unsettled during the latter half of the month, with all areas except the extreme south experiencing frost by month's end. The coldest temperature was -8°C at Fort McMurray on September 25. The season's first significant snowfalls occurred on September 25 and 26 in the Alberta foothills. Calgary, Banff, Edson and Whitecourt reported between 7 and 13 centimetres of snow. Precipitation totals, almost twice the normal, were recorded in south-central Alberta. In contrast, the northern regions were unusually dry.

Temperatures in Saskatchewan and Manitoba soared to the thirties during the first week of the month, but overall averaged out very close to normal. By mid-month frost, had occurred in most areas. The weather was typically changeable, but drier overall. Eastern Saskatchewan was the driest area, with Yorkton receiving only 13 mm of rain this month, slightly more than one quarter of their normal. It is



CLIMATIC EXTREMES IN CANADA - SEPTEMBER 1988

MEAN TEMPERATURE:		
WARMEST	WINDSOR, ONT.	17.7°C
COLDEST	ALERT, NWT.	-8.1°C
HIGHEST TEMPERATURE:	PRINCETON, BC.	38.8°C
LOWEST TEMPERATURE:	ALERT, NWT.	-22.6°C
HEAVIEST PRECIPITATION:	CAPE SCOTT, BC.	218.9 mm
HEAVIEST SNOWFALL:	CAPE DYER, NWT.	40.4 cm
DEEPEST SNOW ON THE GROUND ON SEPTEMBER 30, 1988:	ALERT, NWT.	27 cm
GREATEST NUMBER OF BRIGHT SUNSHINE HOURS:	ESTEVAN, SASK.	236 hours

interesting to note that this area had a very wet spring. Surprisingly, September in Winnipeg was both sunnier and wetter than expected.

Ontario

Compared to the summer months of July and August, September was, on average, comparatively mundane. The month started off cold, with an Arctic air mass sweeping down from the north during the Labour Day holiday. Numerous daily low temperatures were recorded; even frost was reported. Maximum readings on the 5th were the lowest ever recorded on this date. In contrast, an unseasonably warm and humid air mass penetrated into the province during the middle of the month accompanied by heavy thunderstorm activity. Late in the afternoon on the 17th, a small tornado touched down in the northwest corner of Toronto. On September 18, the temperature soared to 31°C at Sarnia.

Rainfalls were near seasonal September normals, with the heaviest precipitation falling across northern Ontario and in a small area of the south. Lansdowne House

recorded 144 mm of rain, their heaviest September rainfall since 1969. On the other hand, a precipitation shortfall continued in southwestern Ontario. Sarnia received only 42 mm, making this the driest month since 1979. To-date, Windsor has only received 387 mm of precipitation during this year. This is roughly half the January - September normal, making this the driest period since records began in 1940.

It is interesting to note that on September 10 and 11, considerable high level smoke drifted across the province from out-of-control forest fires that ravaged some of the Rocky Mountain States of the American northwest. The smoke was quite noticeable over the southern and central parts of the province, resulting in hazy sunshine. The smoke was also responsible for setting off cockpit smoke sensors on two commercial jetliners, forcing the crew to make emergency landings at Toronto. It was a good month for bringing in the harvest. In the Niagara Peninsula, 1988 might be a vintage year for grapes and wines. Vegetable growers in southern Ontario did not fair as well though, due to late spring frosts, thunderstorms which produced hail

and damaging winds, and the persistently hot, dry weather conditions of the summer.

Québec

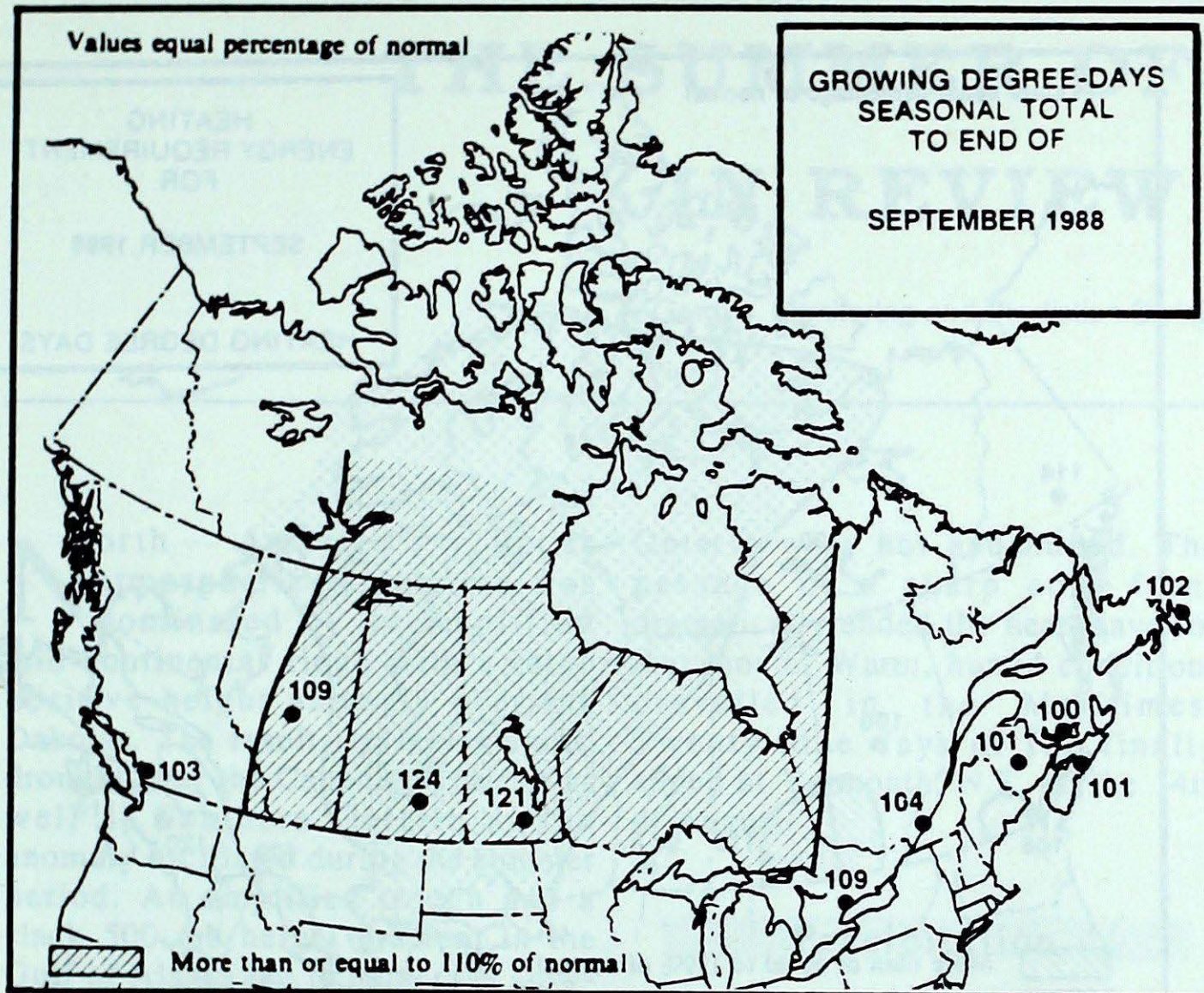
Seasonal temperatures were recorded across most of the province this month with temperatures ranging from 0.6°C below normal for Quebec City to 1.3°C above normal for Kuujjuarapik.

Precipitation totals were below normal from the Ottawa River eastward to Quebec City ranging from 47 percent of normal at Montreal-Dorval to 84 percent for Quebec City. The heaviest precipitation was recorded from James Bay to Sept-Iles and Schefferville. A new record for rainfall was recorded at Schefferville, with 154.8 mm beating the old record by 2.8 mm. Traces of snow were recorded as far south as Matagami and Chibougamau, while Schefferville recorded 14.4 cm.

Atlantic Provinces

September was cool and generally dry for all three provinces. Precipitation totals were below normal in New Brunswick and most of Nova Scotia, with the exception of Yarmouth, which recorded 89.4 mm, 3 mm above normal precipitation in the Annapolis Valley of Nova Scotia was well below normal, with several locations reporting less than half their monthly mean. Fredericton, recorded 40 % less precipitation than normal. Newfoundland experienced near normal temperatures, with above normal precipitation in the northern and southwestern parts. St. John's recorded a daily maximum of 24.8°C on the 10th, while Badger reported -3°C on several occasions. For precipitation, St. Anthony recorded 151.6 mm for the month - nearly twice the September mean. On September 29th, St. John's reported a new daily record with an accumulation of 47.8 mm.

Several storm centres brought strong winds to Newfoundland this month. On the 6th, Cape Race winds gusted to 93 km/h. Unsettled weather prevailed in Labrador, as a series of lows brought measurable precipitation on most days. Nain recorded 141.4 mm for the month - about double the monthly mean.



**SEASONAL TOTAL OF GROWING
DEGREE-DAYS TO END OF SEPTEMBER**

	1988	1987	NORMAL
BRITISH COLUMBIA			
Abbotsford	1703	1955	1604
Kamloops	*	2390	*
Penticton	*	2250	*
Prince George	*	1207	*
Vancouver	1717	2010	1663
Victoria	1502	1788	1538

ALBERTA			
Calgary	*	1512	*
Edmonton Mun.	*	1602	*
Grande Prairie	*	1396	*
Lethbridge	*	1743	*
Peace River	*	1403	*

SASKATCHEWAN			
Estevan	2005	2023	1643
Prince Albert	*	1582	*
Regina	*	1831	*
Saskatoon	*	1761	*
Swift Current	*	1706	*

MANITOBA			
Brandon	*	1741	*
Churchill	*	505	*
Dauphin	*	1747	*
Winnipeg	1796	2010	1479

ONTARIO			
London	2034	2225	1853
Mount Forest	*	1762	*
North Bay	*	1623	*
Ottawa	1979	2040	1846
Thunder Bay	*	1552	*
Toronto	2009	2174	1846
Trenton	1947	2117	1844
Windsor	2399	2512	2168

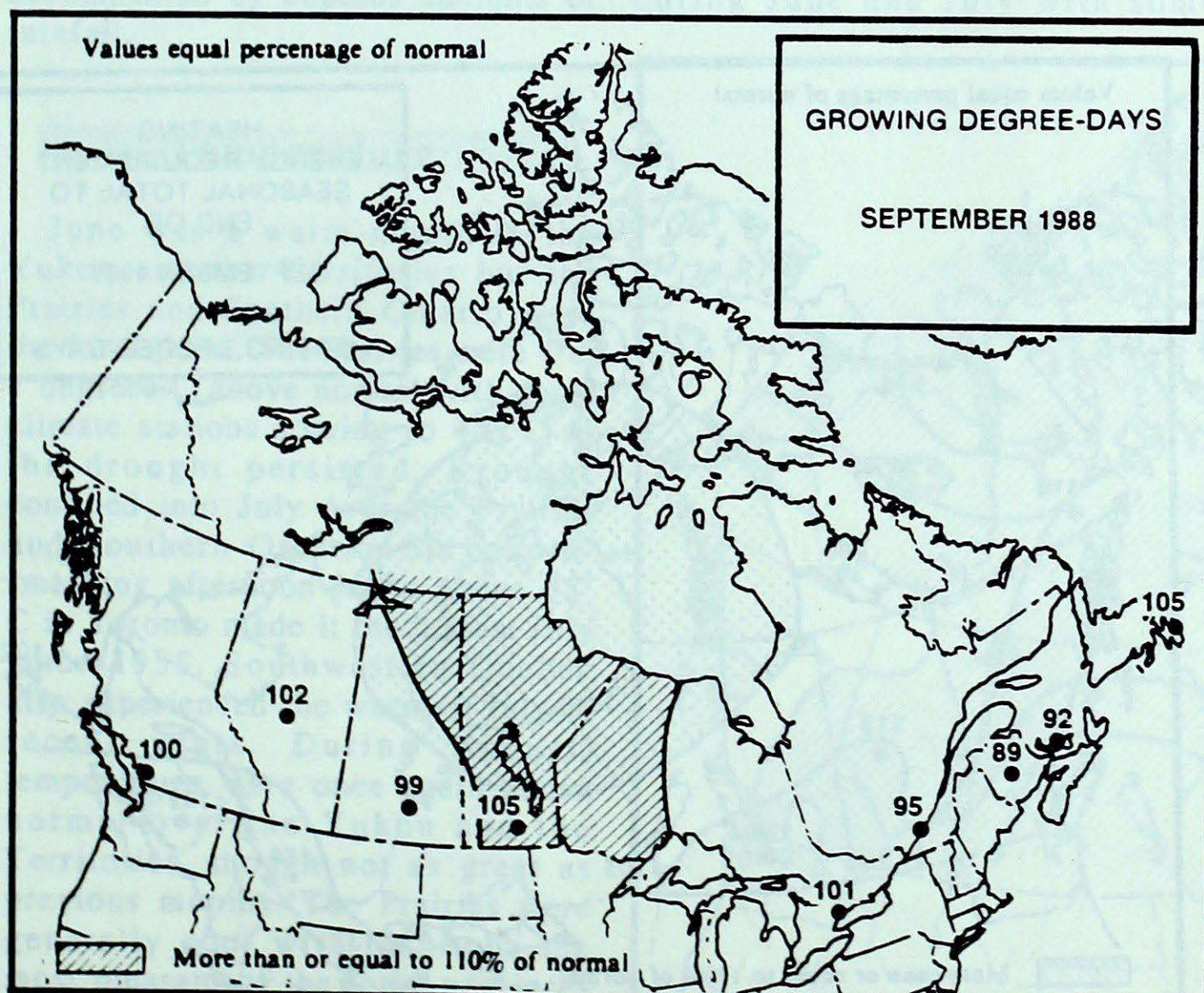
QUÉBEC			
Baie Comeau	*	1037	*
Maniwaki	1602	1545	1498
Montréal	1963	2042	1890
Quebec	*	1594	*
Sept-Îles	*	975	*
Sherbrooke	*	*	*

NEW BRUNSWICK			
Charlo	1343	1401	1307
Fredericton	1607	1544	1592
Moncton	1471	1506	1458

NOVA SCOTIA			
Sydney	1352	1334	1348
Truro	*	1387	*
Yarmouth	1343	1436	1298

PRINCE EDWARD ISLAND			
Charlottetown	1433	1480	1437

NEWFOUNDLAND			
Gander	*	1160	*
St. John's	*	1054	*
Stephenville	1166	1236	1150



SEASONAL TOTAL OF HEATING
DEGREE-DAYS TO END OF SEPTEMBER

	1988	1987	NORMAL
BRITISH COLUMBIA			
Kamloops	129	60	96
Penticton	141	80	104
Prince George	495	363	463
Vancouver	182	129	167
Victoria	283	214	238

YUKON TERRITORY			
Whitehorse	711	588	610

NORTHWEST TERRITORIES			
Iqaluit	979	1108	1121
Inuvik	766	755	813
Yellowknife	504	536	514

ALBERTA			
Calgary	397	380	361
Edmonton Mun	341	317	287
Grande Prairie	420	374	413

SASKATCHEWAN			
Estevan	210	206	175
Regina	263	260	210
Saskatoon	306	288	238

MANITOBA			
Brandon	252	277	221
Churchill	690	760	781
The Pas	309	376	322
Winnipeg	185	174	177

ONTARIO			
Kapuskasing	346	350	364
London	110	104	80
Ottawa	160	144	113
Sudbury	204	210	203
Thunder Bay	252	253	276
Toronto	109	104	80
Windsor	43	64	35

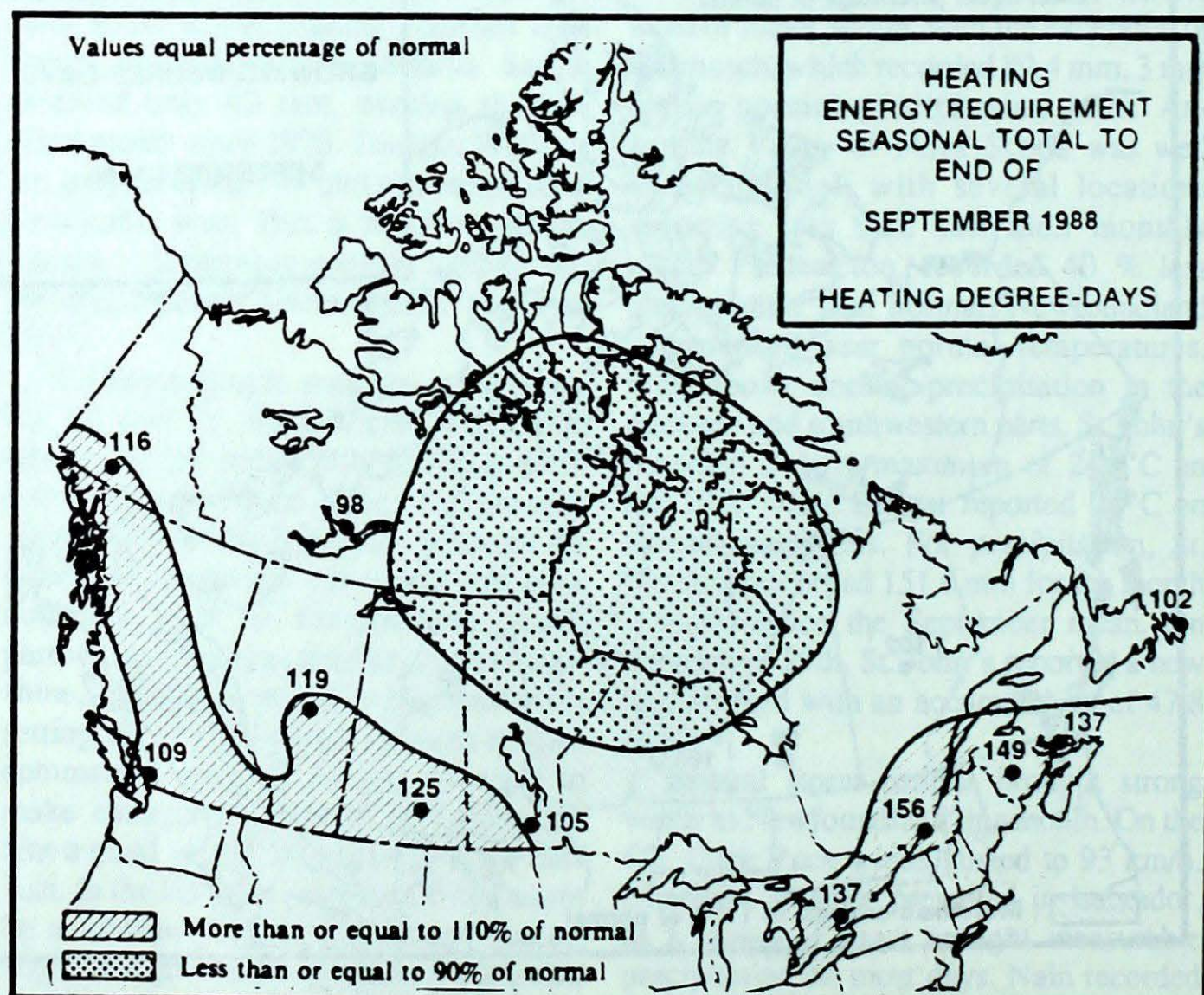
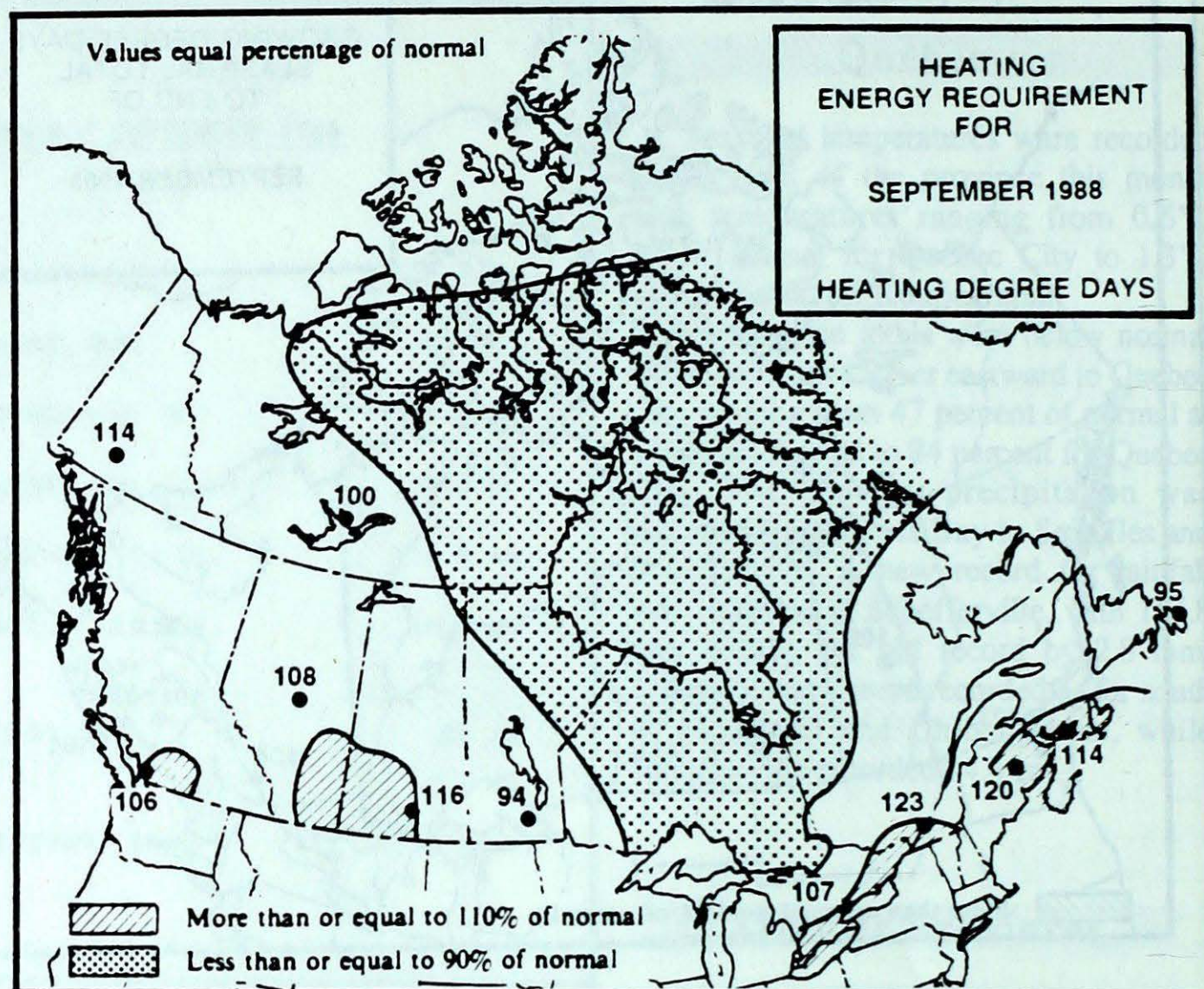
QUÉBEC			
Baie Comeau	453	485	424
Montréal	155	143	100
Quebec	245	245	188
Sept-Îles	464	481	471
Sherbrooke	271	300	253
Val-d'Or	337	382	335

NEW BRUNSWICK			
Charlo	307	297	274
Fredericton	234	234	157
Moncton	230	212	177

NOVA SCOTIA			
Halifax	145	160	145
Sydney	259	240	173
Yarmouth	237	238	237

PRINCE EDWARD ISLAND			
Charlottetown	220	194	161

NEWFOUNDLAND			
Gander	364	364	321
St. John's	362	409	357



THE SUMMER OF 1988

IN REVIEW

A. Gergye, Monitoring and Prediction Division

North America's upper atmospheric circulation was dominated by an amplified mid-continental ridge with a large positive height anomaly over the Dakotas. The result was an extended drought over the Canadian Prairies as well as Southern Ontario as the anomaly oscillated during the summer period. An amplified trough and a slack 500 mb height gradient in the Gulf of Alaska led to numerous slow-moving lows passing through the Yukon and Northwest Territories accompanied by copious amounts of rainfall.

Temperature

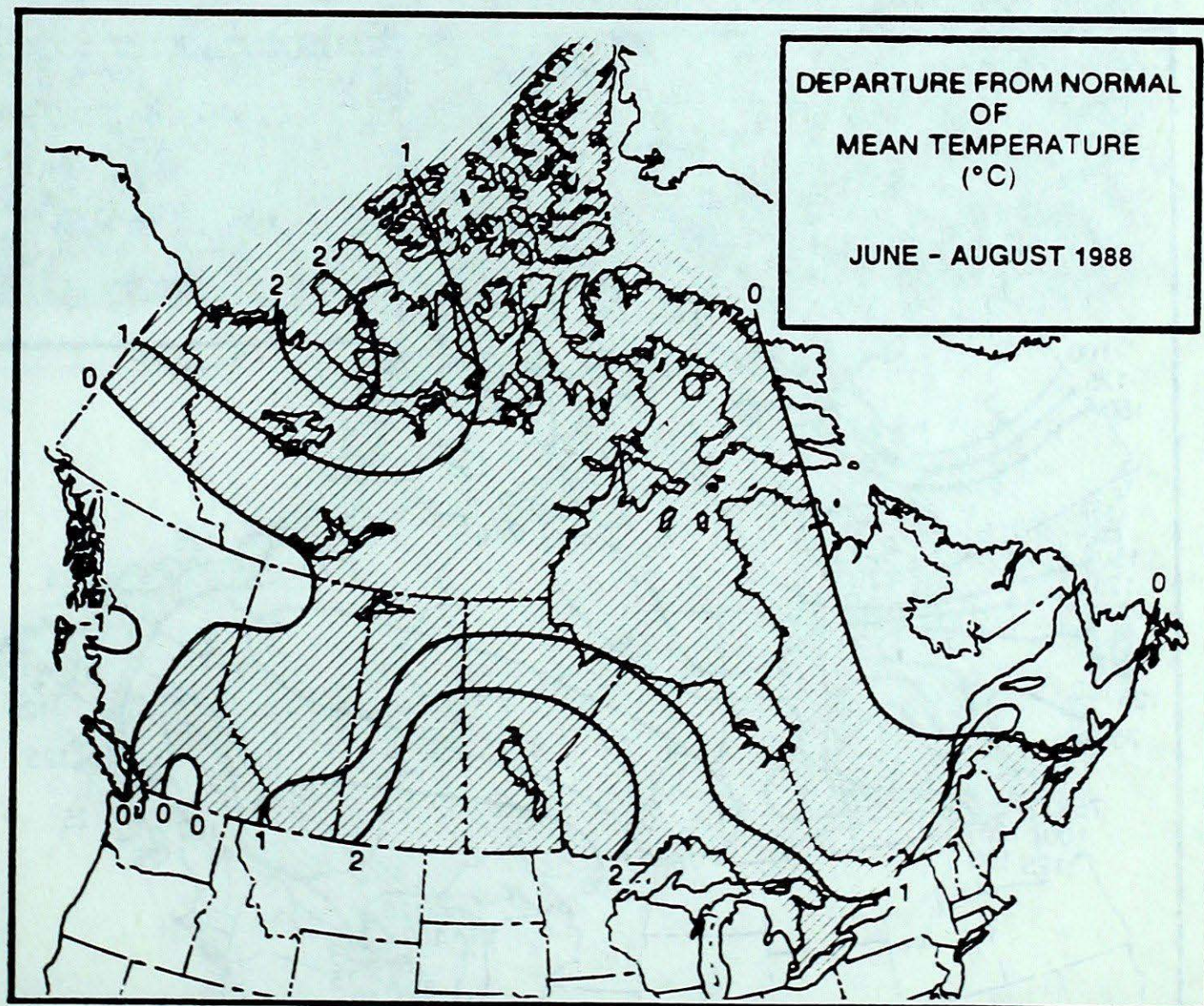
June was a warm month in the Yukon and the Territories but the Prairies and Southern Ontario were the focal point. The Prairies were 4 to 7 degrees C above normal with some climate stations soaring to 44° C as the drought persisted. Drought continued into July over the Prairies and Southern Ontario. Six record-smashing afternoon highs above 35° C in Toronto made it the hottest July since 1955. Southwestern Quebec also experienced the warmest July in recent years. During August, temperatures were once again above normal over the Yukon and the Territories, though not as great as previous months. The Prairies were generally cool with Manitoba the most pleasant of the three provinces with temperatures reaching 40° C by mid-month. The first two weeks in

Ontario were hot and humid. The passage of a sharp cold front dramatically ended the heat wave for that month. Warm, humid conditions prevailed in the Maritimes. Twenty-nine days of fog finally ended at Yarmouth, N.S. on the 14th of August.

Precipitation

Most of the heavy rain in the Northwest Territories occurred during June and July with some

stations recording 200 to 400% of the monthly normal in the month of July. British Columbia experienced wet weather during June with coastal areas recording over 200% above normal in August. As mentioned earlier, drought continued over the Prairies and southern Ontario during June and July. By mid July, enough precipitation had fallen over most parts of Ontario to effectively end the drought, while the Prairies were generally wet and dreary for most of August. The Maritimes experienced cloudy and humid conditions in July



with thunderstorms being the highlight of that month.

Impacts

Yukon and NWT:

- Heavy rain during the months of June and July causes numerous washouts and road closures.

British Columbia:

- Hay harvesting and cherry splitting problems due to wet weather in June.
- Thunderstorm gusts capsize boats in Lake Okanagan.

Prairies:

- Camrose, Alberta tornado on June 5th causes \$ 5 Million damage.
- Edmonton's worst rainstorm in 35 years dumps 96 mm of rain in 30 hours causing flooding.

- Flooding in Calgary on August 16th caused by thunderstorms.

- Drought reduces Prairie crops to two-thirds its normal size. Only half the usual amount of grains will be available for export. (Canada Grains council; Sept 12, 1988, Toronto Star).

- Canada Grains Council predicts Canada's grain handling and transportation sectors could see an average loss of 47% in revenue this year, railways up to 55% of grain revenue and a 45% drop for primary grain elevators (Toronto Star, Sept. 12, 1988).

- Duck population expected to be at its lowest level ever due to drought. (Ducks Unlimited of Canada; Winnipeg Sun, June 20, 1988).

- U.N. organization warns that grain reserves may sink to the lowest levels of the decade if drought in Canada and the U.S. continues for two more weeks (June 28, 1988).

- An estimated 24,000 farmers and farm workers have abandoned agriculture in the last 12 months due to drought (June 1988, Employment and Immigration Canada).
- Avian cholera devastates goose population in Saskatchewan due to drought conditions (Saskatoon Star Phoenix, May 11, 1988).

Ontario:

- Soaring temperatures during the week of July 4th cause 6 deaths. Great Lakes-St. Lawrence Seaway grain workers laid off on July 22nd in anticipation of a drop in grain handling requirements as a result of drought reduced yields.
- Great Lakes water levels the lowest in more than a decade. Further drop of 5 inches expected this year (Environment Canada, Centre for Inland Waters).
- 5 year-old boy killed in Luther Village by uprooted tree during thunderstorms on July 29th.
- Property and livestock losses on July 30th caused by tornado southeast of Woodstock.

Québec:

- Tornado causes \$3 Million damage June 21st in St. Bernard.
- Thunderstorms cause landslide and train derailment at Couteau Station on June 22nd.
- Basements flooded in Quebec City on July 8th.
- Automobiles damaged by hail in Capital Region first week of July.

Maritimes:

- Heavy rain on June 30th causes flooding and power outages in Halifax-Dartmouth area.
- Thunderstorms knock out 20 transformers in Yarmouth, N.S. on July 12th.

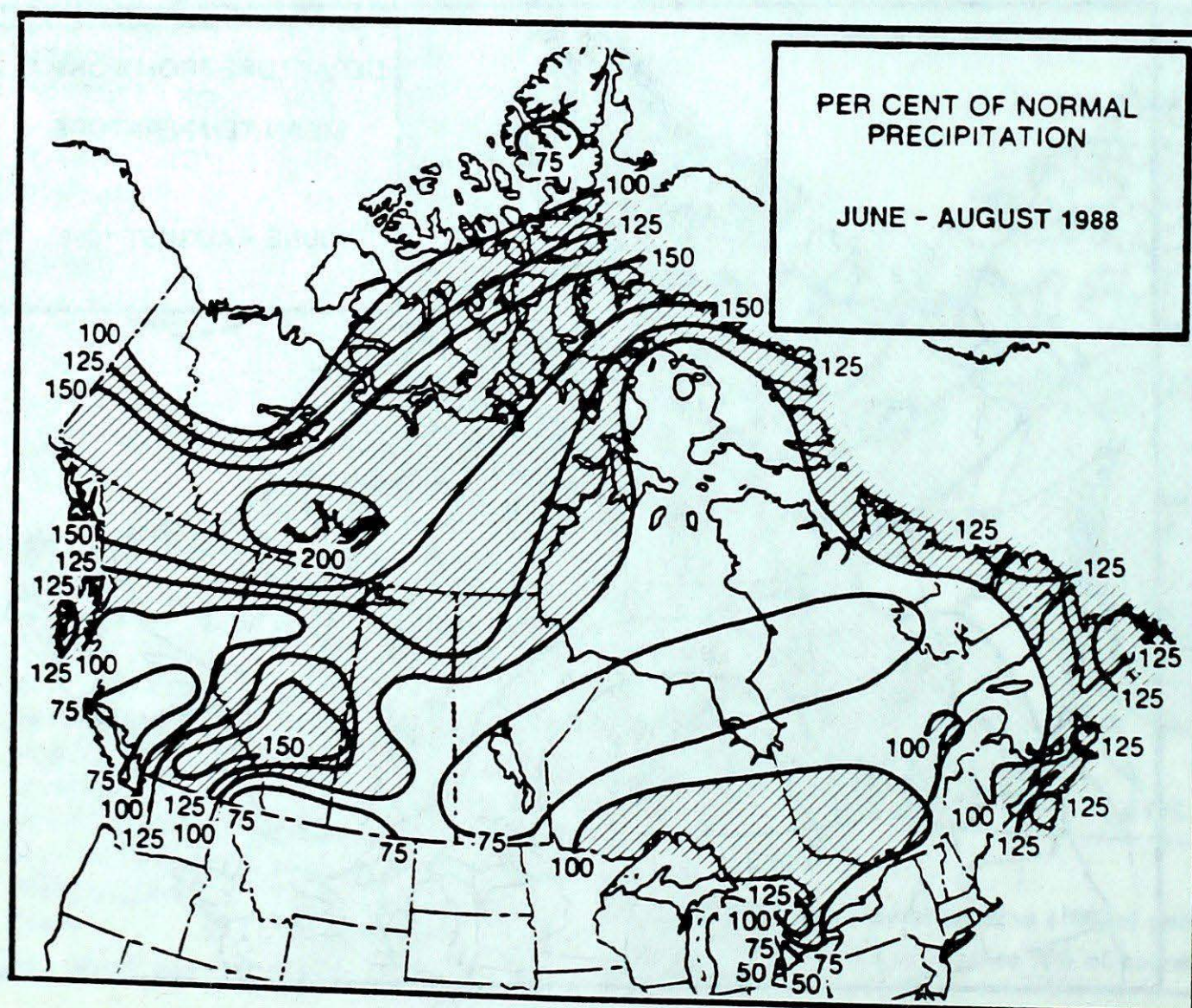


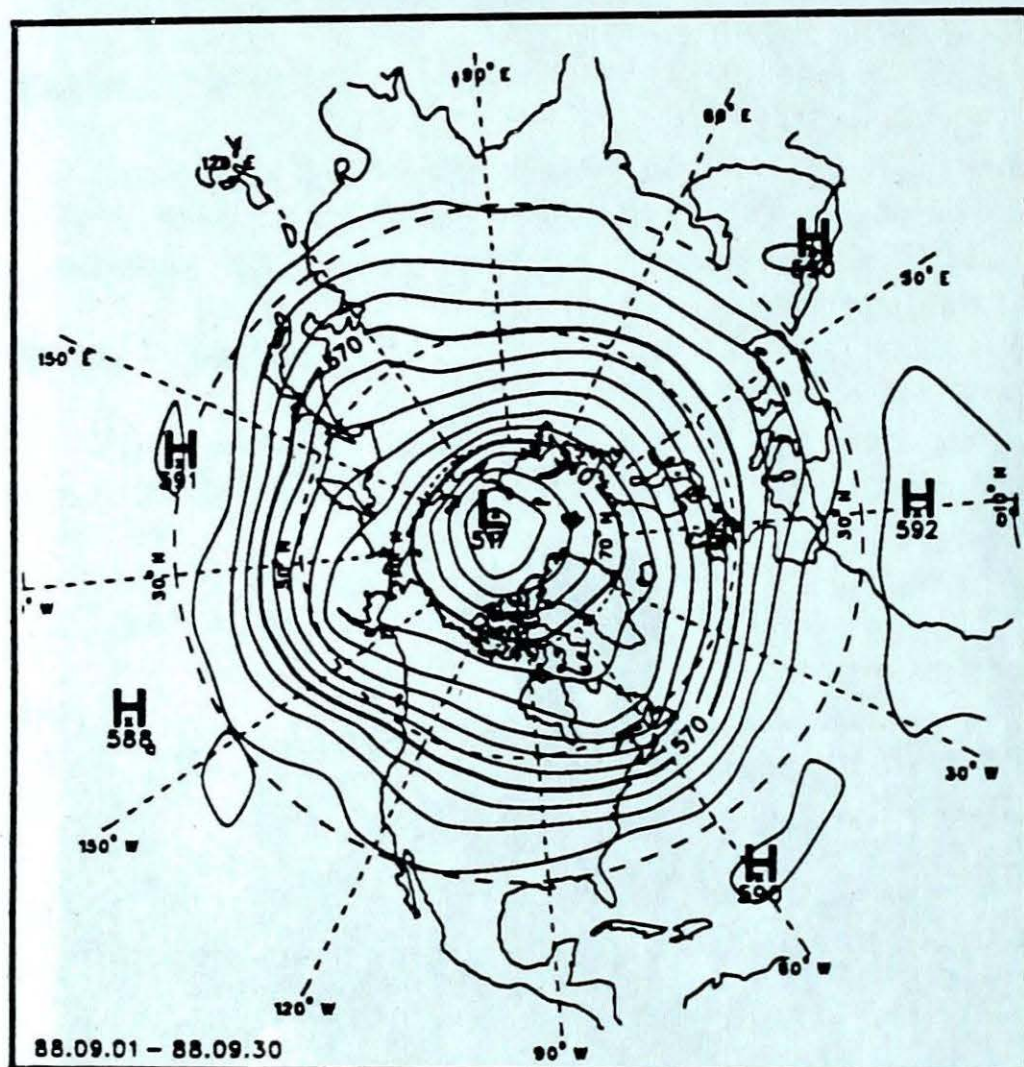


Photo financial post

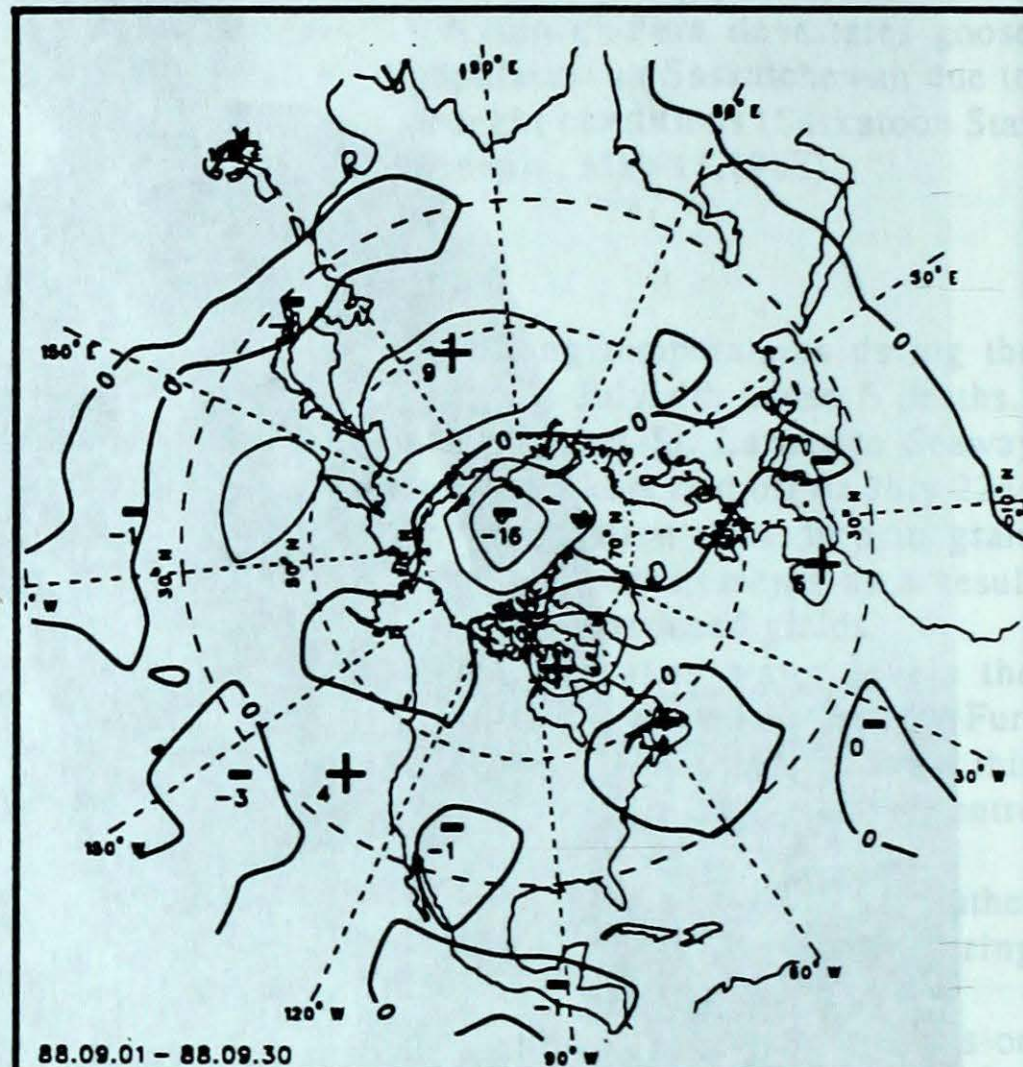


50 kPa ATMOSPHERIC CIRCULATION

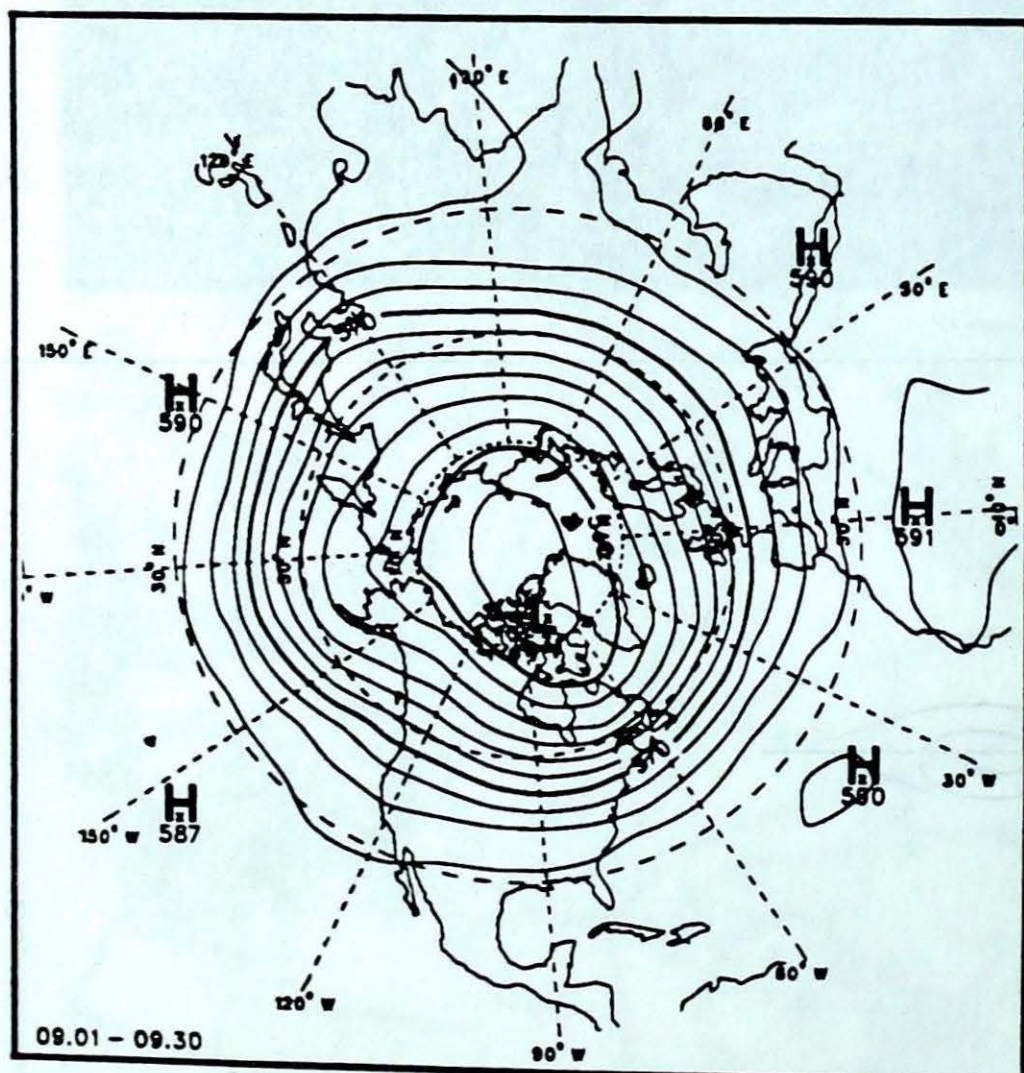
September 1988



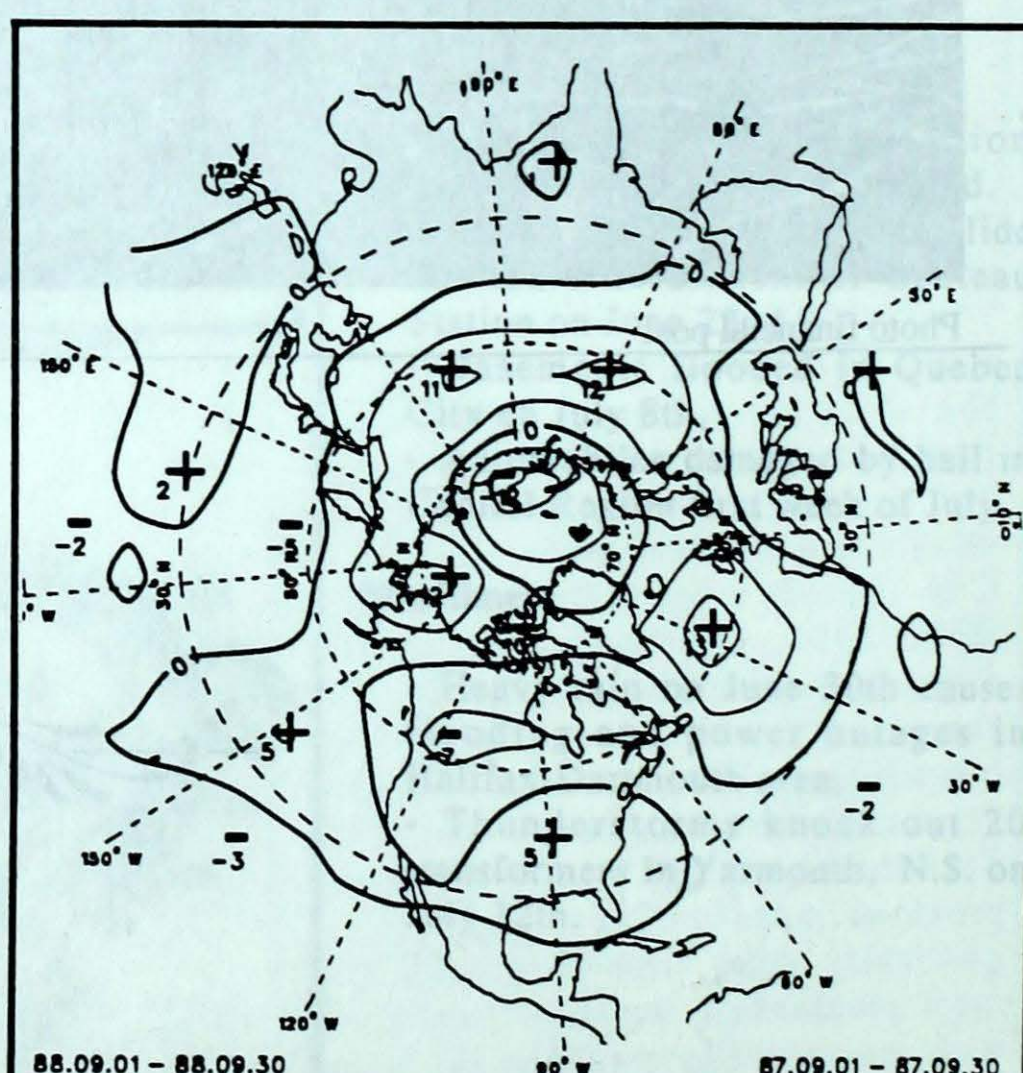
Mean geopotential heights
- 5 decametre interval -



Mean geopotential height anomaly
- 5 decametre interval -



Normal geopotential heights for the month
- 5 decametre interval -



Mean heights difference w/r to previous month
- 5 decametre interval -

Aaron Gergye, Monitoring and Prediction Division

The most striking feature of the 50 kPa height field for September is the deep polar vortex with a corresponding 15 dam negative height anomaly. Generally the appearance of such a large negative Arctic anomaly means early cold air outbreaks over the Prairies and the east as the vortex shifts southwards. This shift occurs about two weeks after the cyclical southward retreat of the Bermuda high.

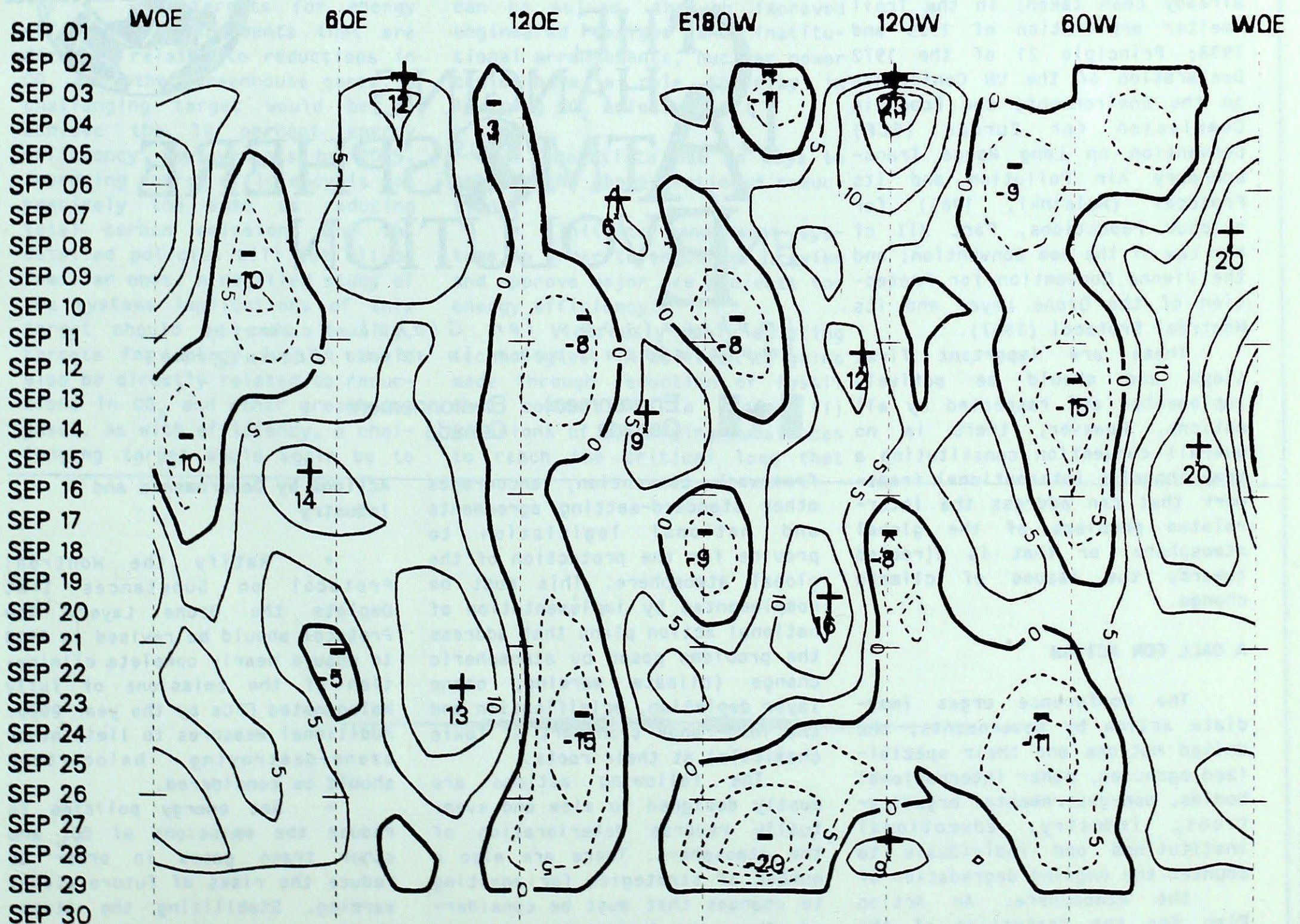
The resulting negative height anomalies over British Columbia and the western half of the Territories

gave below normal mean monthly temperatures in these regions. An amplified mid-latitude trough on the east coast of North America produced below normal temperatures over northern Quebec, Labrador and Newfoundland with above normal amounts of precipitation over the Maritimes. The Hovmöller* diagram for 45° N latitude shows that the position and motion of the anomaly trough was a persistent feature throughout September.

Two other persistent longwave anomalies appearing on the Hovmöller diagram for 45° N are the stationary negative deviation along 130° E longitude and the slow moving positive anomaly near 120° W longitude.

* Note: The Hovmöller diagram represents an hemispheric time-space analysis. It have been temporally smoothed and spacially normalized to enhance longwave components.

Hovmöller for latitude 45° N - all waves



THE CHANGING ATMOSPHERE : CONFERENCE STATEMENT

Toronto, June 23-30, 1988

Second part of a three part reproduction of the conference statement issued by the conference on The Changing Atmosphere, held in Toronto - June 27/30, 1988.

Legal Aspects

The first steps in developing international law and practices to address pollution of the air have already been taken: in the Trail Smelter arbitration of 1935 and 1938; Principle 21 of the 1972 Declaration of the UN Conference on the Environment; the Economic Commission for Europe (ECE) Convention on Long Range Transboundary Air Pollution and its Protocol (Helsinki, 1985) for sulphur reductions, Part XII of the Law of the Sea Convention; and the Vienna Convention for Protection of the Ozone Layer and its Montréal Protocol (1987).

These are important first steps and should be actively implemented and respected by all nations. However, there is no overall convention constituting a comprehensive international framework that can address the inter-related problems of the global atmosphere, or that is directed towards the issues of climate change.

A CALL FOR ACTION

The Conference urges immediate action by governments, the United Nations and their specialized agencies, other international bodies, non-governmental organizations, industry, educational institutions and individuals to counter the ongoing degradation of the atmosphere. An Action Plan for the Protection of the Atmosphere needs to be developed, which includes an international

THE CHANGING L'ATMOSPHÈRE EN ÉVOLUTION

*Implications for Global Security
Implications pour la sécurité du globe*



Environment
Canada

Environnement
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framework convention, encourages other standard-setting agreements and national legislation to provide for the protection of the global atmosphere. This must be complemented by implementation of national action plans that address the problems posed by atmospheric change (climate warming, ozone layer depletion, acidification and the long-range transport of toxic chemicals) at their roots.

The following actions are mostly designed to slow and eventually reverse deterioration of the atmosphere. There are also a number of strategies for adapting to changes that must be considered. These are dealt with primarily in the recommendations of the Working Groups.

Actions by Governments and Industry

- Ratify the Montréal Protocol on Substances that Deplete the Ozone Layer. The Protocol should be revised in 1990 to ensure nearly complete elimination of the emissions of fully halogenated CFCs by the year 2000. Additional measures to limit other ozone-destroying halocarbons should be considered.

- Set energy policies to reduce the emissions of CO₂ and other trace gases in order to reduce the risks of future global warming. Stabilizing the atmospheric concentrations of CO₂ is an imperative goal. It is currently estimated to require reductions of

more than 50% from present emission levels. Energy research and development budgets must be massively directed to energy options which would eliminate or greatly reduce CO₂ emissions and to studies undertaken to further refine the target reductions.

- Reduce CO₂ emissions by approximately 20 percent of 1988 levels by the year 2005 as an initial global goal. Clearly, the industrialized nations have a responsibility to lead the way, both through their national energy policies and their bilateral and multilateral assistance arrangements. About one-half of this reduction would be sought from energy efficiency and other conservation measures. The other half should be effected by modifications in supplies.

- Set targets for energy efficiency improvements that are directly related to reductions in CO₂ and other greenhouse gases. A challenging target would be to achieve the 10 percent energy efficiency improvements by 2005. Improving energy efficiency is not precisely the same as reducing total carbon emissions and the detailed policies will not all be familiar ones. A detailed study of the systems implications of this target should be made. Equally, targets for energy supply should also be directly related to reductions in CO₂ and other greenhouse gases. As with efficiency, a challenging target would again be to

achieve the 10 percent energy supply improvements by 2005. A detailed study of the systems implications of this target should also be made. The contributions to achieving this goal will vary from region to region; some countries have already demonstrated a capability for increasing efficiency by more than 2 percent a year for over a decade.

Apart from efficiency measures, the desired reduction will require (i) switching to lower CO₂ emitting fuels, (ii) reviewing strategies for the implementation of renewable energy especially advanced biomass conversion technologies; (iii) revisiting the nuclear power option, which lost credibility because of problems related to nuclear safety, radioactive wastes, and nuclear weapons proliferation. If these problems can be solved, through improved engineered designs and institutional arrangements, nuclear power could have a role to play in lowering CO₂ emissions.

- Negotiate now on ways to achieve the above-mentioned reductions.

- Initiate management systems in order to encourage, review and approve major new projects for energy efficiency.

- Vigorously apply existing technologies, in addition to gains made through reduction of fossil fuel combustion, to reduce (i) emissions of acidifying substances to reach the critical load that

the environment can bear; (ii) substances which are precursors of tropospheric ozone; and (iii) other non-CO₂ greenhouse gases.

- Label products to allow consumers to judge the extent and nature of the atmospheric contamination that arises from the manufacture and use of the product.



SEPTEMBER 1988

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	14.7	0.2	37.5	3.5	0.0		121.8	135	0	10	199	114	123.3
ALERT BAY	11.9	-0.7	17.3	3.7	0.0		60.5	90	0	7	X		184.2
AMPHITRITE POINT	12.6	-0.8	25.6	6.6	0.0		183.9	114	0	9	X		163.5
BLUE RIVER	10.2	-0.8	32.1	-4.5			73.4	86	0	13	148	111	*
BULL HARBOUR	11.3	-0.8	24.2	3.5	0.0		133.3	88	0	13	X		200.0
CAPE SCOTT	12.1	-0.6	24.1	7.3	0.0		218.9	114	0	13	X		181.9
CAPE ST. JAMES	12.8	-0.1	19.8	7.6	0.0		120.6	96	0	10	159	*	156.1
CASTLEGAR	14.4	0.0	33.3	1.4	0.0		96.2	264	0	9	168	89	128.4
COMOX	14.6	0.9	29.7	5.0	0.0		61.9	119	0	7	X		113.8
CRANBROOK	12.9	0.6	33.4	-1.0	0.0		29.4	99	0	7	203	*	173.5
DEASE LAKE	6.2	-0.9	24.0	-4.1	0.6	42	45.2	97	0	8	107	84	352.9
FORT NELSON	8.4	-0.3	25.7	-4.5	2.0	31	24.8	59	0	5	196	*	286.7
FORT ST. JOHN	9.9	0.4	27.7	-4.3	1.7	32	18.9	48	0	6	X		250.1
HOPE	15.6	0.1	38.3	4.8	0.0		121.4	117	0	12	180	104	107.7
KAMLOOPS	15.0	0.1	34.5	1.8	0.0		59.0	275	0	7	204	104	120.0
KELOWNA	13.5	0.4	33.0	-0.1	0.0		34.0	116	0	8	183	89	148.3
LANGARA	11.6	-0.5	18.8	5.3	0.0		184.8	109	0	20	X		190.7
LYTTON	16.7	0.2	38.7	4.6	0.0		44.0	170	0	7	190	102	90.5
MACKENZIE	8.9	-0.2	30.7	-7.6			33.6	67	0	6	184	137	278.6
MCINNES ISLAND	12.4	-0.5	24.0	6.8	0.0		165.8	81	0	7	X		169.2
PENTICTON	14.9	0.2	30.6	0.1	0.0		13.8	77	0	7	197	93	111.0
PORT ALBERNI	14.8	*	35.1	2.2	0.0	*	80.8	*	0	6	197	*	107.3
PORT HARDY	11.5	-0.3	24.8	2.0	0.0		174.6	128	0	10	164	118	194.5
PRINCE GEORGE	9.9	0.1	31.4	-5.5			57.8	98	0	10	205	127	249.0
PRINCE RUPERT	11.0	-0.4	23.8	1.4	0.0		212.2	90	0	19	129	110	209.3
PRINCETON	13.1	0.2	38.8	-1.2	0.0		21.5	118	0	6	215	*	*
QUESNEL	11.3	0.0	36.1	-3.8	0.0		19.3	42	0	8	X		213.2
REVELSTOKE	12.9	0.1	27.6	2.1	0.0		78.0	133	0	12	145	95	159.1
SANDSPIT	12.9	0.0	20.7	3.8	0.0		100.8	112	0	10	125	90	148.5
SMITHERS TERRACE	9.9	0.1	31.1	-5.5	0.0		82.5	164	0	7	169	129	245.7
	11.9	0.0	29.9	1.8	0.0		158.4	160	0	10	140	110	184.5
VANCOUVER INT'L	14.6	0.4	29.3	6.0	0.0		77.4	115	0	8	215	117	111.8
VICTORIA GONZ. HTS													
VICTORIA INT'L	12.8	-1.1	30.3	2.0	0.0		50.0	126	0	6	214	109	162.7
VICTORIA MARINE	12.3	-0.7	25.5	2.8	0.0		63.8	102	0	8	X		171.0
WILLIAMS LAKE	9.9	-0.4	35.8	4.1	1.1	91	44.7	148	0	7	205	110	246.5
YUKON TERRITORY													
DAWSON	5.6	0.2	23.1	-8.6	3.2	39	8.6	23			X		
MAYO	6.1	-0.4	23.8	-6.6	0.2	7	18.8	62	0	4	X		359.8
WATSON LAKE	7.4	-0.2	24.8	-3.3	0.0		45.4	103	0	7	160	126	317.9
WHITEHORSE	6.0	-1.5	20.9	-5.8			26.6	87	0	8	150	109	359.6
NORTHWEST TERRITORIES													
ALERT	-8.1	2.1	3.0	-22.6	38.4	116	23.8	85	27	10	65	78	784.6
BAKER LAKE	4.3	2.0	18.0	-4.3			51.0	137	0	8	3	2	413.7
CAMBRIDGE BAY	1.5	2.2	8.5	-3.8	2.4	28	42.8	247	0	9	45	54	496.2
CAPE DYER	-1.0	0.4	13.0	-13.5	40.4	71	57.8	78	17	5	X		570.8
CAPE PARRY	2.9	2.2	8.5	-1.6	1.8	12	17.9	76	0	6	X		452.1
CLYDE	0.9	1.1	14.6	-6.1	10.9	37	23.6	67	0	4	102	120	513.3
COPPERMINE	3.6	1.1	6.5	0.7	2.4	45	59.7	248	0	12	86	122	430.7
CORAL HARBOUR	2.0	1.1	13.0	-3.6	7.4	74	32.0	94		2	152	141	419.9
EUREKA	-6.3	2.0	1.7	-16.5	9.5	92	8.3	86		3	62	60	727.1
FORT RELIANCE	8.1	2.0	25.6	-1.2	3.2	128	56.7	187	0	11	X		296.7
FORT SIMPSON	7.2	-0.1	23.6	-5.1	0.6	10	19.9	63	0	7	184	137	324.9
FORT SMITH	8.1	0.6	26.4	-4.0			25.6	62	0	5	180	136	295.1
IQALUIT	3.4	1.0	14.1	-3.8	1.4	10	40.8	88	0	7	75	91	437.6
HALL BEACH	1.3	1.9	13.5	-3.4	2.8	23	8.2	29		2	X		502.3
HAY RIVER	7.9	-0.2	29.4	-3.2	1.2	42	36.6	86	0	6	X		305.6
INUVIK	3.7	0.6	17.3	-8.2	4.6	38	15.8	66	0	7	113	103	428.5
MOULD BAY	-5.7	0.8	1.0	-18.8	12.6	94	8.4	60	5	3	55	120	712.0
NORMAN WELLS	5.5	-0.6	22.3	-3.8	13.8	260	83.0	283	0	5	122	102	372.5
POND INLET	-0.3	1.8	9.4	-11.0	9.0	*	25.8	*	5	4	X		549.2
RESOLUTE	-4.2	0.9	0.3	-10.3	26.9	175	22.1	122	16	9	73	123	664.4
YELLOWKNIFE													
	7.0	0.3	21.7	-3.5	0.4	11	34.7	113	0	9	170	111	329.3
ALBERTA													
BANFF	9.7	0.4	31.0	-2.0	13.2	212	53.8	128	0	9	X		
CALGARY INT'L	10.7	0.1	29.6	-2.3	8.3	140	43.5	113	0	8	192	98	220.7
COLD LAKE	10.2	0.4	28.9	-3.0			27.3	60	0	6	181	103	234.1
CORONATION	9.9	-0.6	28.8	-2.4	0.0		48.6	148	0	8	163	78	248.2
EDMONTON INT'L	10.3	0.5	30.2	-3.4	0.0		67.6	147	0	8	191	104	239.2
EDMONTON MUNI.	11.4	0.4	30.3	-1.7	0.0		47.6	121	0	6	205	112	210.4
EDMONTON NAMAO	10.9	0.5	30.0	-3.5	1.0	50	36.4	87	0	6	X		223.4
EDSON	9.1	0.6	30.4	-6.8	10.2	127	47.7	107	0	9	182	111	271.1
FORT CHIPEWYAN	9.2	1.4	27.0	-6.0			18.4	43	0		X		

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	Mean	Difference from Normal	Maximum	Minimum									
FORT MCMURRAY	9.5	0.5	31.4	-8.0			12.4	21	0	3	194	135	260.0
GRANDE PRAIRIE	10.6	0.8	30.8	-4.9			35.4	94	0	4	203	*	232.2
HIGH LEVEL	7.5	-0.6	30.2	-5.5			28.1	82	0	4	193	129	316.4
JASPER	9.9	0.1	32.2	-4.4		254	27.2	71	0	6	177	*	247.7
LETHBRIDGE	12.6	-0.1	32.0	-1.2	0.0		30.6	82	0	6	211	98	177.7
MEDICINE HAT	13.5	0.3	34.4	2.4	0.0		27.3	84	0	5	211	105	160.1
PEACE RIVER	9.8	0.7	30.5	-4.4	2.8	107	23.3	60	0	8	X		254.6
RED DEER	9.7	-0.4	29.6	-3.0	1.0	24	82.1	187	0	11	X		248.0
ROCKY MTN HOUSE	8.7	-1.0	29.5	-4.9	6.9	109	105.4	212	0	9	X		279.6
SLAVE LAKE	10.3	1.3	29.6	-3.4			17.2	34	0	6	186	114	235.4
SUFFIELD	13.3	*	33.3	0.6	0.0		20.0	*	0	7	204		164.9
WHITECOURT	9.7	0.8	28.9	-3.6	6.0	176	51.3	148	0	9	X		250.5
SASKATCHEWAN													
BROADVIEW	10.6	0.0	30.0	-3.0			22.2	45	0	4	217	116	223.3
COLLINS BAY	7.5	1.4	26.9	-2.9	0.8	9	53.7	78	0	12	125	*	317.5
CREE LAKE	8.4	0.5	26.7	-6.5	0.2	2	42.4	73	0	7	163	121	289.6
ESTEVAN	12.4	0.0	30.1	0.5	0.0		41.0	94	0	2	236	111	168.8
KINDERSLEY	11.3	-0.2	33.7	-1.4	0.0		26.6	100	0	6	X		214.1
LA RONGE	9.6	0.5	25.8	-5.8			55.4	94	0	9	X		247.1
MEADOW LAKE	10.3	0.1	28.3	-3.4	0.0		20.8	48	0	5	209	*	231.2
MOOSE JAW	12.4	-0.1	33.8	-4.6	0.0		13.4	37	0	3	199	98	175.5
NIPAWIN	10.9	*	31.3	-2.1	0.0	*	55.9	*	0	6	183	*	213.2
NORTH BATTLEFORD	11.1	0.1	32.2	-2.4	0.0		35.1	136	0	5	X		199.4
PRINCE ALBERT	10.9	*	30.0	-5.0	4.8		57.8	*	0	7	195	*	213.8
REGINA	11.6	-0.1	31.8	-2.4	0.0		15.0	40	0	3	192	100	196.7
SASKATOON	11.4	0.2	34.2	-1.2	0.6	50	26.7	83	0	6	X		204.5
SWIFT CURRENT	11.3	-0.4	33.2	-1.3			39.2	114	0	5	199	102	209.4
WYNYARD	10.5	*	30.1	-5.1	0.2		18.8	*	0	5	199	*	266.8
YORKTON	10.2	-0.7	29.6	-4.9	0.0		13.0	27	0	3	193	104	202.7
MANITOBA													
BRANDON	11.4	0.0	27.3	-1.9	0.0		60.4	136	0	5	X		199.1
CHURCHILL	7.6	2.2	25.2	-1.0	0.0		39.6	77	0	9	126	113	312.3
DAUPHIN	11.5	0.2	27.6	-1.7	0.0		33.2	56	0	7	191	107	197.4
GILLAM	9.2	2.6	27.0	-2.0	0.0		44.2	86	0	9	X		264.2
GIMLI	11.9	0.2	26.4	2.0	0.0		61.2	98	0	6	177	105	182.2
ISLAND LAKE	10.0	0.8	25.8	0.5			60.8	101	0	10	X		242.9
LYNN LAKE	8.5	1.8	27.6	-5.5			39.0	53	0	6	118	100	287.0
NORWAY HOUSE	9.6	*	23.8	-1.4	0.0	*	47.2	*	0	9	X	*	252.0
PORTAGE LA PRAIRIE	12.7	0.3	29.0	0.0	0.0		60.5	121	0	4	X		162.9

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	Mean	Difference from Normal	Maximum	Minimum									
THE PAS	10.8	1.0	28.0	-2.3	0.0		72.2	126	0	9	169	107	217.3
THOMPSON	8.5	1.6	27.2	-4.0	0.0		58.3	90	0	10	133	104	382.9
WINNIPEG INT'L	12.6	0.2	27.7	0.1	0.0		61.3	115	0	4	200	108	165.2
ONTARIO													
ATIKOKAN	11.5	1.3	24.6	-0.5	0.0		75.6	94	0	10		*	197.2
BIG TROUT LAKE	9.4	1.3	24.1	0.2	0.0		104.6	142	0	15	85	*	261.0
EARLTON	11.5	0.4	26.7	-1.7	0.0		66.3	66	0	15	X		197.2
GERALDTON	10.1	0.8	24.0	-4.5	0.0		116.0	153	0	16	X		238.0
GOPE BAY	14.4	0.6	25.4	4.5	0.0		74.7	81	0	9	X		114.2
HAMILTON RBG	*	*	28.5	5.6	0.0		89.8	123	0	7	212	*	
HAMILTON	14.5	-1.2	25.5	8.5	0.0		80.0	107	0	8	X		94.5
KAPUSKASING	10.6	0.6	25.9	-2.0	0.0		85.5	90	0	19	X		223.3
KENORA	12.2	0.6	25.1	3.0	0.0		44.0	63	0	6	X		176.1
KINGSTON	15.7	0.3	25.6	3.4	0.0		51.2	63	0	7	200	118	83.1
LANSDOWNE HOUSE	9.6	0.6	23.0	0.3	0.0		144.0	178	0	14	X		250.7
LONDON	15.4	0.0	25.6	5.3	0.0		61.9	78	0	8	181	104	90.4
MOOSONEE	10.2	0.7	24.6	-1.8	0.0		107.0	132	0	16	95	78	236.2
MUSKOKA	12.9	-0.3	25.8	0.2	0.0		94.9	92	0	15	X		149.8
NORTH BAY	12.2	0.0	24.1	1.6	0.0		118.2	101	0	13	158	102	176.8
OTTAWA INT'L	14.1	-0.2	26.8	1.7	0.0		68.0	85	0	8	199	*	124.0
PETAWAWA	12.3	-0.3	26.9	-3.8	0.0		54.5	65	0	10	X		171.7
PETERBOROUGH	13.1	-0.9	26.8	0.4	0.0		76.4	104	0	9	X		147.2
PICKLE LAKE	9.8	0.5	25.3	-1.4	0.0		99.0	113	0	14	X		250.1
RED LAKE	10.6	-0.2	24.3	0.8	0.0		2.0	3	0	9	133	*	221.4
ST. CATHARINES	16.4	-0.6	27.5	5.0	0.0		64.4	79	0	8	X		74.4
SARNIA	16.6	0.1	30.9	4.7	0.0		42.3	67	0	8	182	93	67.6
SAULT STE. MARIE	13.1	0.3	26.8	1.5	0.0		76.8	80	0	9	152	97	151.5
SIMCOE													
SIOUX LOOKOUT	11.4	0.7	25.0	1.5	0.0		111.2	136	0	12	X		200.8
SUDBURY	12.5	0.3	26.8	1.9	0.0		91.5	85	0	12	170	112	169.7
THUNDER BAY	12.0	0.9	26.3	-2.1	0.0		83.8	94	0	9	152	90	184.1
TIMMINS	10.6	0.3	25.3	-1.0	0.0		99.6	108	0	15	X		222.4
TORONTO	16.6	-0.5	26.7	7.8	0.0		79.2	119	0	8			60.9
TORONTO INT'L	15.5	0.0	28.1	3.8	0.0		70.6	111	0	9	X		88.3
TORONTO ISLAND	16.0	-0.4	26.4	8.3	0.0		80.7	116	0	8			70.3
TRENTON	14.9	-0.4	24.6	2.1	0.0		44.6	61	0	10	X		101.5
WATERLOO--WELL	14.1	-0.7	25.6	3.9	0.0		107.2	154	0	9	X		124.0
WAWA	11.3	*	23.8	-0.3	0.0	*	72.2	*	0	12		*	
WIARTON	14.2	0.0	26.1	3.9	0.0		87.4	92	0	10	214	126	122.5
WINDSOR	17.7	0.3	29.5	7.2	0.0		66.6	99	0	9	X		42.8

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	Mean	Difference from Normal	Maximum	Minimum									
QUEBEC													
BAGOTVILLE	10.7	-0.4	23.1	-0.2	0.0		134.0	134	0	17	X		219.4
BAIE COMEAU	9.1	-0.7	19.8	-0.8	0.0		109.8	106	0	14	148	*	268.3
BLANC SABLON	8.9	0.3	17.0	-1.0	0.0		85.6	97	0	14	114	*	
CHIBOUGAMAU	8.0	0.0	22.4	-4.0	0.0		172.8	0	21	84	69		276.5
GASPE	11.1	-0.2	26.0	-0.8	0.0		57.9	81	0	9	182	*	196.4
INUKJUAQ	5.9	0.9	16.2	-0.6			68.2	115	0	12	106	120	362.5
KUUJUAQ	5.9	0.5	18.4	-1.9	4.4	51	49.0	84	0	12	56	56	387.8
KUUJUAQAPIK	8.4	1.3	22.7	0.2	0.0		103.2	118	0	16	73	68	381.7
LA GRANDE RIVIERE	7.9	*	22.8	-1.6	0.4	*	132.8	*	0	1	82	*	302.0
MANIWAKI	11.6	-0.5	25.7	-2.3	0.0		65.6	68	0	9	170	112	192.9
MATAGAMI	9.7	0.7	22.8	-3.8			101.8	106	0	16	100	79	250.9
MONT JOLI	11.0	-0.2	21.6	1.5	0.0		82.0	97	0	13	146	95	207.4
MONTREAL INT'L	14.3	-0.5	26.1	0.2	0.0		41.8	47	0	7	196	116	121.6
MONTREAL M INT'L	12.7	*	25.6	-0.1	0.0	*	50.4	*	0	7	212	*	161.5
NATASHQUAN	8.8	-0.4	17.4	0.4	0.0		97.6	103	0	11	181	115	277.4
QUEBEC	12.0	-0.6	25.6	0.0	0.0		100.6	84	0	11	171		200.4
ROBERVAL	11.1	-0.1	23.0	-0.2	1.4	350	98.6	108	0	16	129	*	207.0
SCHEFFERVILLE	5.1	-0.1	18.2	-1.0	14.4	73	169.2	202	0	16	69	*	387.7
SEPT-ILES	9.0	0.3	18.1	0.9	0.0		150.0	134	0	13	141		271.8
SHERBROOKE	11.6	-0.5	25.0	-2.9	0.0		63.8	62	0	11	167	*	192.9
STE AGATHE DES MONTS	11.5	0.6	24.5	-2.0	0.0		79.2	77	0	10	183	113	195.8
ST-HUBERT	13.9	-0.5	26.5	-1.0	0.0		56.5	62	0	8	*		128.6
VAL D'OR	10.6	0.2	26.3	-2.4	0.0		124.9	116	0	15	*		224.0
NEW BRUNSWICK													
CHARLO	10.8	-0.6	23.7	2.0	0.0		76.9	85	0	10	164	102	216.7
CHATHAM	12.1	-0.9	25.8	-0.8	0.0		51.4	60	0	10	178	99	178.5
FREDERICTON	12.2	-1.0	27.3	0.8	0.0		75.9	87	0	8	195	*	175.2
MONCTON	12.0	-1.0	25.0	1.4	0.0		43.2	56	0	8	184	110	181.2
SAINT JOHN	12.0	-0.7	22.7	1.4	0.0		85.7	76	0	9	193	116	180.3
NOVA SCOTIA													
GREENWOOD	12.4	-1.4	24.6	-0.4	0.0		41.2	49	0	7	X		167.8
HALIFAX INT'L	12.5	-1.3	24.6	3.2	0.0		73.2	78	0	7	*		165.9
SABLE ISLAND	14.1	-1.6	21.4	2.4	0.0		61.4	66	0	7	181	115	115.9
SHEARWATER	13.3	-1.2	24.0	4.8	0.0		73.1	84	0	8	180	99	141.6
SYDNEY	12.3	-1.2	22.6	2.1	0.0		69.6	79	0	15	164	97	170.8
YARMOUTH	13.0	-0.6	24.7	4.0	0.0		92.4	103	0	7	210	119	152.8
PRINCE EDWARD ISLAND													
CHARLOTTETOWN	12.5	-1.0	22.4	3.3	0.0		92.6	107	0	12	X		165.6
SUMMERSIDE	13.2	-0.9	24.1	4.0	0.0		61.9	78	0	8	185	109	144.3
NEWFOUNDLAND													
BATTLE HARBOUR	9.2	0.7	20.9	-1.1	0.0		102.6	135	0	11	X		262.9
BONAVISTA	12.8	1.1	23.3	4.2	0.0		64.8	75	0	12	X		157.2
BURGO	10.7	-0.9	19.8	0.9	0.0		160.5	134	0	15	*		220.5
CARTWRIGHT	8.5	0.2	19.8	-3.3			70.5	78	0	14	96	89	286.4
CHURCHILL FALLS	6.6	-0.1	19.0	-2.9	14.4	146	146.1	144	1	20	84	85	343.2
COMFORT COVE	11.3	0.0	23.6	0.5	0.2	100	119.3	138	0	13	X		202.5
DANIEL'S HARBOUR	10.2	-0.6	18.8	0.0	0.0		54.7	59	0	14	115	88	234.3
DEER LAKE	10.8	0.3	24.3	-1.4	0.0		121.1	136	0	15	X		216.2
GANDER INT'L	11.3	-0.1	23.1	0.4	0.0		87.1	107	0	12	173	118	202.9
GOOSE	9.4	0.3	22.5	-0.6			86.6	97	0	16	92	75	259.7
PORT-AUX-BASQUES	11.2	-0.1	19.3	3.6	0.0		128.7	111	0	14	134		205.2
ST ANTHONY	8.7	0.6	20.0	-1.0	0.0		151.6	113	0	14	*		275.1
ST JOHN'S	12.1	0.5	24.9	2.1			119.5	102	0	11	183	124	175.4
ST LAWRENCE	11.2	-0.1	21.7	1.0	0.0		110.5	87	0	14	*		
STEPHENVILLE	11.9	0.0	22.4	1.3	0.0		143.0	137	0	18	136		184.0
WABUSH LAKE	6.3	0.1	18.9	2.8	10.9		113.9	121		15	98		350.7

AGROCLIMATOLOGICAL STATIONS

SEPTEMBER 1988

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	15.3	0.2	35.5	5.0	0.0	128.7	121	0	9	193	305.8	1949.8
SIDNEY	13.7	*,*	30.5	4.5	0.0	50.4	*	0	6	200	352.3	1685.2
SUMMERLAND	15.3	0.1	30.0	2.5	0.0	13.4	71	0	6	213	310.1	2097.6
ALBERTA												
BEAVER LODGE	10.0	0.5	31.0	-6.0	0.0	34.4	82	0	7	198	*	1460.5
LACOMBE	10.0	-0.1	31.0	-3.0	0.0	86.4	211	0	12	174	153.0	1356.8
VEGREVILLE	10.4	-0.7	30.0	-3.0	0.0	42.8	102	0	8	**	169.9	1501.3
SASKATCHEWAN												
INDIAN HEAD	11.0	-0.5	30.5	-3.0	0.0	14.2	34	0	3	**	218.5	1473.0
MELFORT	10.8	0.5	31.5	-6.0	0.0	52.1	128	0	6	174	174.0	1738.5
REGINA	10.9	-0.3	35.5	-7.5	0.0	12.4	35	0	2	**	183.8	1877.8
SASKATOON	11.8	0.3	35.0	-2.5	0.	22	69	0	3	187	*	1906
SCOTT	10.6	0.2	32.0	-0.5	0.0	25.4	89	0	5	201	170.4	1617.6
SWITCH CURRENT	11.7	-0.1	34.0	-0.5	0.0	32.7	122	0	4	167	203.8	1933.8
MANITOBA												
BRANDON	12.2	0.4	28.4	-1.7	0.0	63.0	127	0	4	**	215.8	2024.9
MORDEN	13.2	0.4	27.5	2.0	0.0	37.2	72	0	6	193	252.0	2264.5
GLENLEA	12.5	0.3	27.0	0.0	0.0	34.9	70	0	4	179	218.5	2023.1
ONTARIO												
DELHI	15.5	-0.4	26.5	5.0	0.0	85.4	107	0	8	201	316.6	2172.2
ELORA	13.7	-0.5	26.5	2.5	0.0	97.5	137	0	13	**	262.1	1870.2
GUELPH	14.1	-0.9	26.0	2.5	0.0	108.4	170	0	12	206	274.0	1950.9
HARROW	17.1	-0.4	26.0	5.5	0.0	86.8	131	0	7	189	357.5	2434.6
KAPUSKASING	10.9	0.6	25.5	-4.0	0.0	81.2	90	0	17	94	179.3	1356.4
OTTAWA	14.3	-0.3	26.8	1.3	0.0	48.2	60	0	8	199	277.6	2054.2
SMITHFIELD	15.5	0.5	26.9	2.4	0.0	46.6	60	0	7	**	319.2	2209.4
VINELAND	16.3	-0.7	26.5	5.0	0.0	61.4	82	0	7	206	340.0	2177.7

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	12.5	-0.1	24.5	1.0	0.0	49.0	51	0	9	174	226.7	1590.1
L'ASSOMPTION	13.7	-0.2	27.0	-0.5	0.0	48.2	55	0	10	214	259.8	1945.1
NORMANDIN												
STE. CLOTHILDE	10.4	0.0	23.0	-2.0	0.0	110.8	116	0	15	133	165.1	1333.5
	14.0	-0.2	27.5	-1.0	0.0	61.4	71	0	11	195	*	1984.9
NEW BRUNSWICK												
FREDERICTON	12.9	-0.5	27.0	2.0	0.0	73.6	83	0	10	195	231.0	1733.6
NOVA SCOTIA												
KENTVILLE	12.7	-1.2	23.0	1.0	0.0	57.5	35	0	12	171	242.5	1631.3
NAPPAN	12.7	-0.7	23.0	1.0	0.0	57.5	71	0	12	172	235.3	1631.3
PRINCE EDWARD ISLAND												
CHARLOTTETOWN	13.5	-0.6	23.0	3.0	0.0	94.8	114	0	14	186	147.7	1579.9
NEWFOUNDLAND												
ST. JOHN'S WEST	12.2	0.6	23.0	2.5	0.0	99.9	94	0	10	169	216.0	1283.0

