

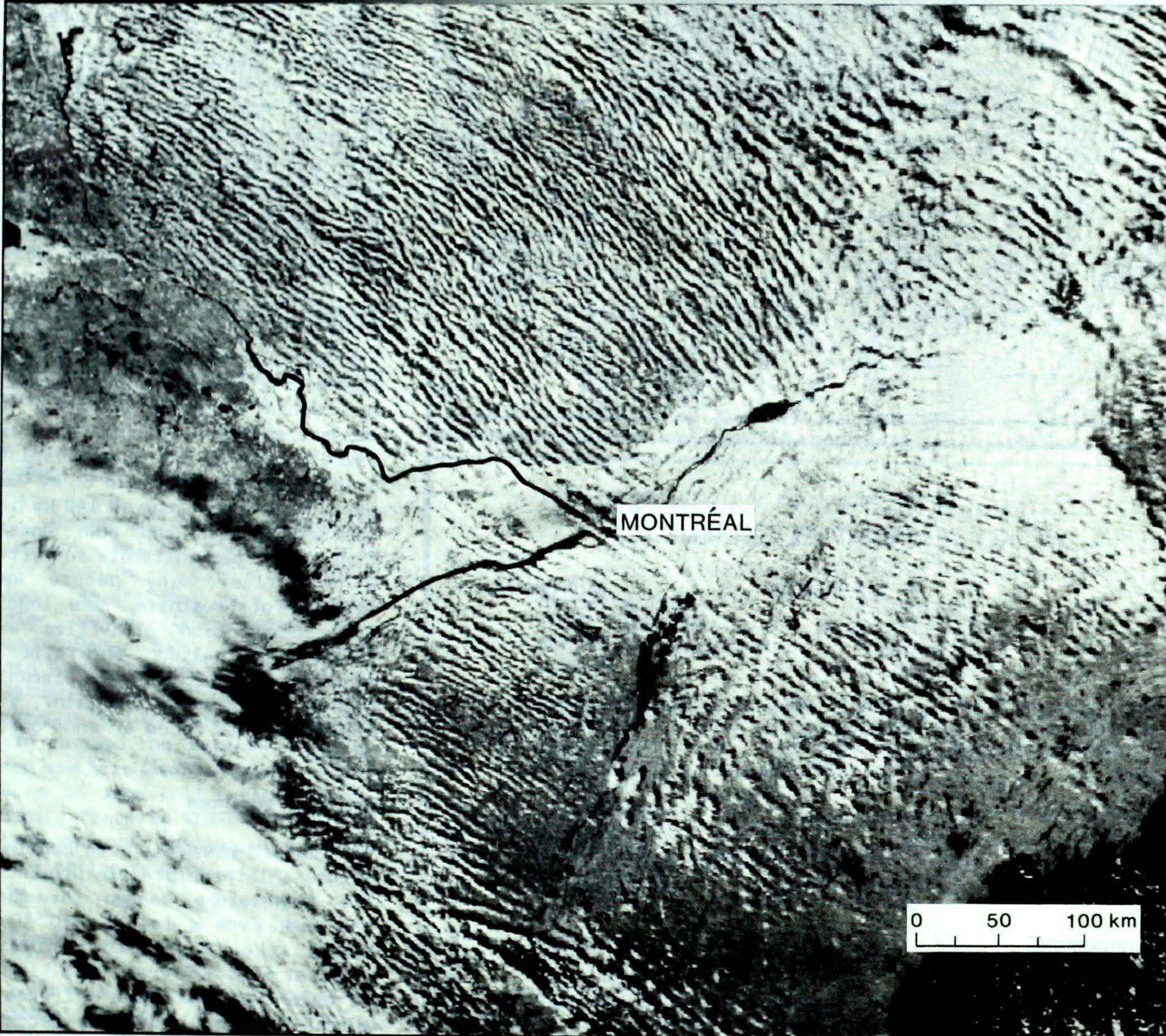
climatic Perspectives

A weekly review of Canadian climate

Nov 26 to Dec 2, 1985

Vol.7 No.47

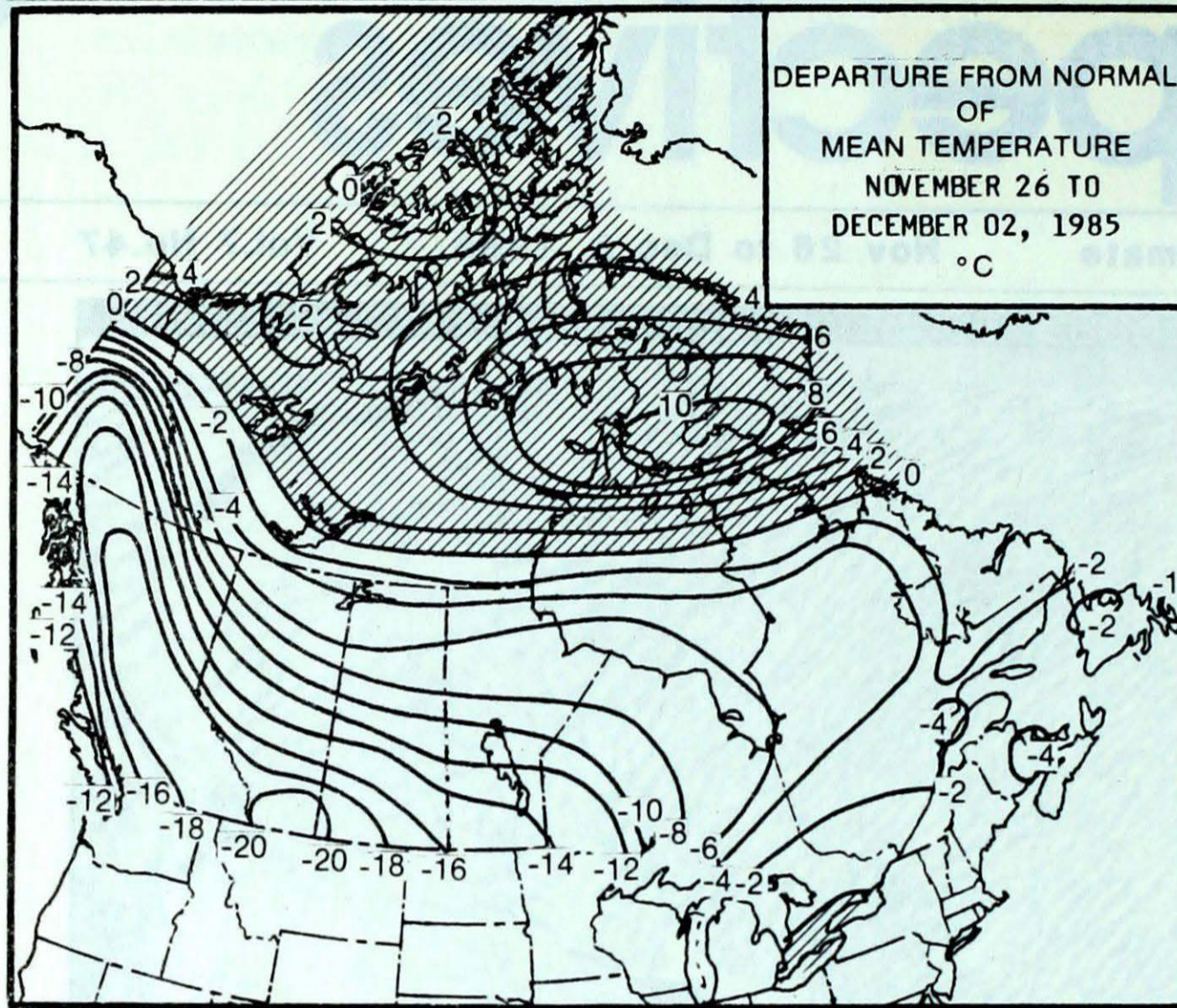
PAES N-9 4914 NIR 25N085 1905Z 45.0N 74.0W 1: 3.0W



This NOAA 9 satellite image of November 25, 1985 shows widespread organized wave motion in the lower atmosphere. For more detail see page 3.

- **Record breaking coldwave in Western Canada**
 - wind chill closes ski resorts
 - heavy snow on Vancouver Island
- **Lake Erie water level at all-time high**
 - flooding causes extensive lakeshore damage

TEMPERATURE



ACROSS THE COUNTRY...

Yukon and Northwest Territories

Bitter cold continued in the southern and central Yukon. Ross River reported the coldest reading of -49.5°C on the 27th, which was an all time low for the month of November. Seven other locations also recorded monthly record low temperatures. Whitehorse experienced its third coldest November on record with an average temperature of -18.1°C . A storm from the north Atlantic moved westwards across northern Hudson Bay early in the week and warmed temperatures everywhere throughout the NWT except in the Mackenzie Valley. The eastern Arctic experienced temperatures as much as 11°C above normal.

British Columbia

An unrelenting arctic outbreak has made this the coldest November on record at many locations. The coldest spot was Williams Lake with -41.6°C and even the Queen Charlotte Islands experienced -16°C at Langara. Winds as strong as 140 km/h in mountain passes and down coastal fiords produced whiteouts and bitter wind chills. Many people were treated for frostbite, some logging and construction activities were temporarily halted. Snowfalls of 18 cm in the Victoria area disrupted highway traffic. On the 27th., Victoria reported 38 cm of snow on the ground.

Prairie Provinces

Record breaking cold continued across all three prairie provinces. The temperature ranged throughout the week from a low of -41.5°C at Meadow Lake, Sask., to a high of -13°C at Fort McMurray, Alta. It was so cold that even some ski resorts were forced to close. By December 2nd., the cold wave was into its 15th day and at many locations with records dating back over 100 years, this November was the third coldest since the records began. In Alberta, only November of 1955 and 1896 was colder while in Saskatchewan and Manitoba, only November in 1875 and 1896 was colder.

WEEKLY TEMPERATURE EXTREME (C)

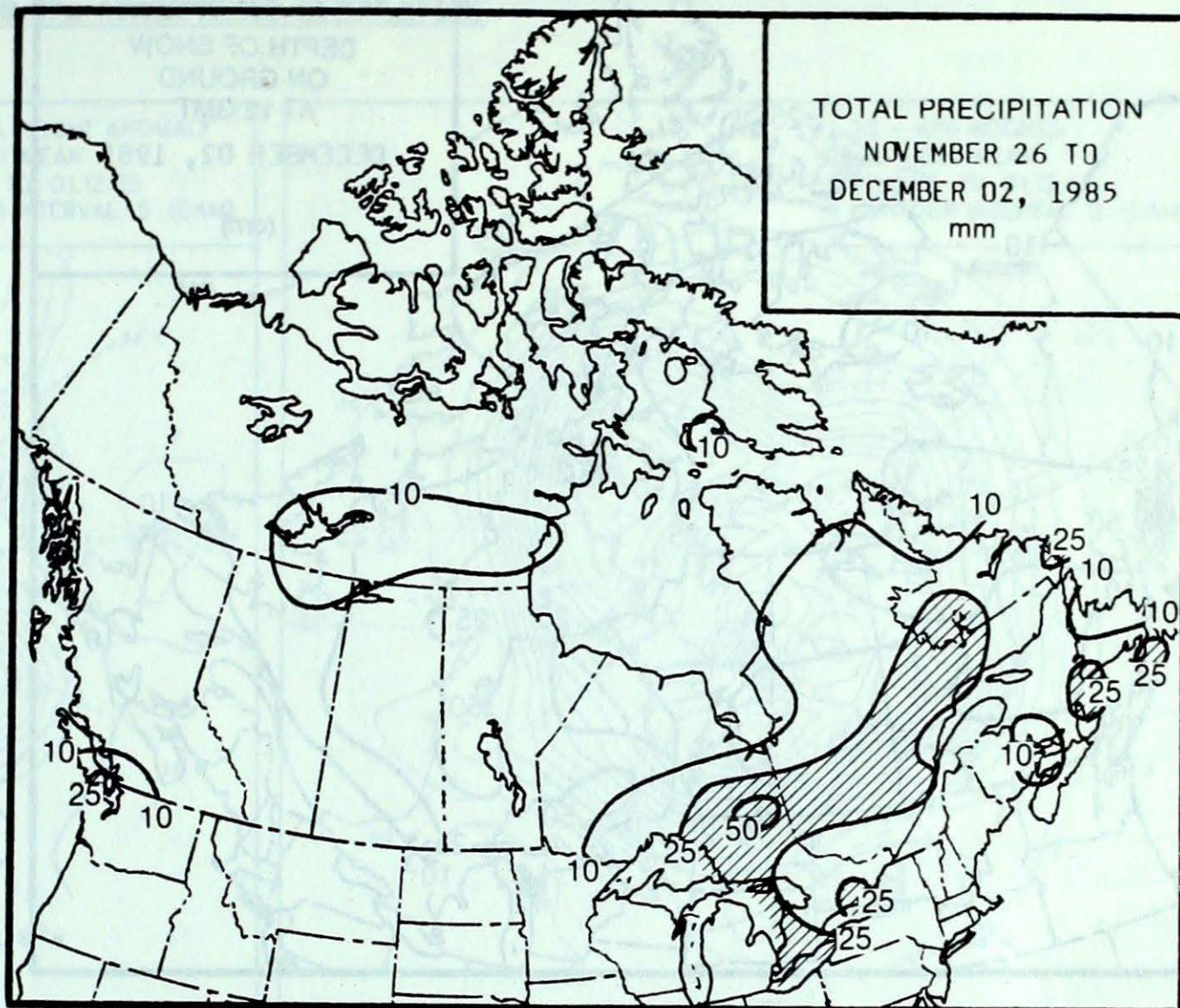
	MAXIMUM	MINIMUM
BRITISH COLUMBIA	CAPE ST JAMES 3	PUNTZI MOUNTAIN -48
YUKON TERRITORY	KOMAKUK BEACH A -1	ROSS RIVER -50
NORTHWEST TERRITORIES	FROBISHER BAY 4	COPPERMINE -38
ALBERTA	FORT CHIPEWYAN -12	GRANDE PRAIRIE -39
SASKATCHEWAN	URANIUM CITY -9	HUDSON BAY -38
MANITOBA	THE PAS -14	THOMPSON -41
ONTARIO	PORT WELLER 12	PICKLE LAKE -39
	WINDSOR	
QUEBEC	SUTTON JUNCTION 11	SCHEFFERVILLE -29
NEW BRUNSWICK	FREDERICTON 13	ST STEPHEN -16
NOVA SCOTIA	GREENWOOD 15	TRURO -13
PRINCE EDWARD ISLAND	SUMMERSIDE 11	CHARLOTTETOWN -10
NEWFOUNDLAND	STEPHENVILLE 11	WABUSH LAKE -23

ACROSS THE NATION

WARMEST MEAN TEMPERATURE	2	WINDSOR	ONT
COOLEST MEAN TEMPERATURE	-36	DAWSON	YT
		WATSON LAKE	YT

Ontario

Record breaking cold gripped northwestern Ontario. The coldest was -37.9°C at Red Lake on Friday, Nov., 29th. The same day a low of -29°C surpassed the record set in 1887 at Thunder Bay. On Sunday, Dec., 1st., central and northern Ontario received 20 cm of snow, while in southern Ontario temperatures rose to the teens with thunderstorms and heavy rains, all due to a vigorous storm heading northwards towards the Great Lakes. On Dec., 2nd., the departing storm caused gale force winds with wind speeds as high as 100 km/h. Lake Erie rose to an all time high water level at its eastern end due to the wind, and this combined with 4 m waves caused extensive flooding and property damage along the lakeshore. The cold gales off the Great Lakes produced a further 25 cm of snow in snow belt communities.

**Quebec**

Throughout the week relatively pleasant weather prevailed, with some sunshine and little precipitation. Temperatures were generally below normal. On election day, Monday Dec., 2nd., a storm swept into Quebec bringing a wave of bad weather. Rain fell along the St. Lawrence Valley, a band of freezing rain covered the Saguenay, Lac-St-Jean and Baie Comeau regions, while 10 cm of snow fell further north. Despite fears to the contrary, the storm was not bad enough to delay the election results.

Atlantic

The week was mainly sunny at inland locations and very cold. A number of record low maximum temperatures were observed. Onshore snowflurries were common. On December 2nd., an intense storm to the west brought rain, strong winds and above normal temperatures. An on-shore flow along Newfoundland's northeast coast resulted in very high tides and some damage to coastal communities.

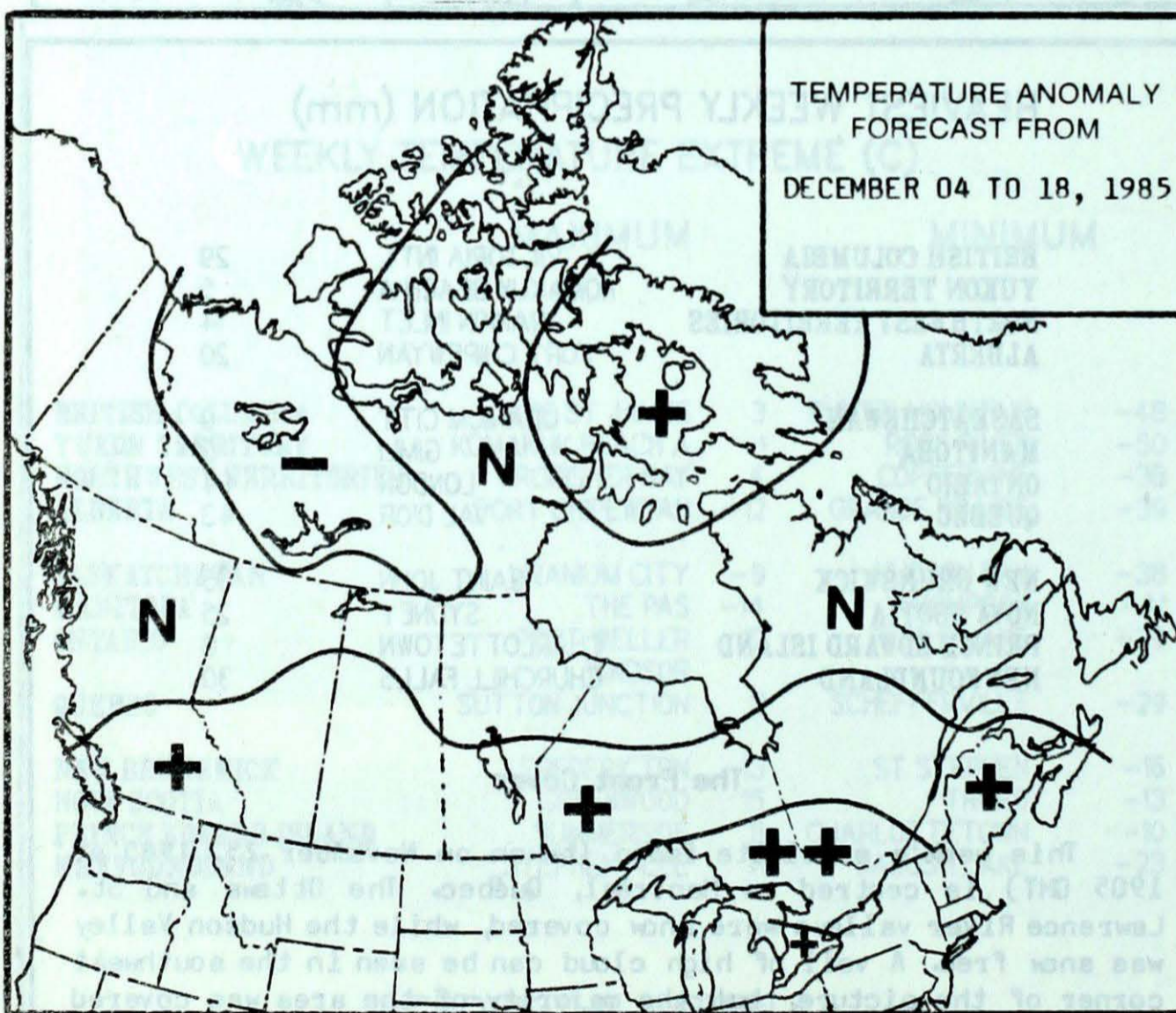
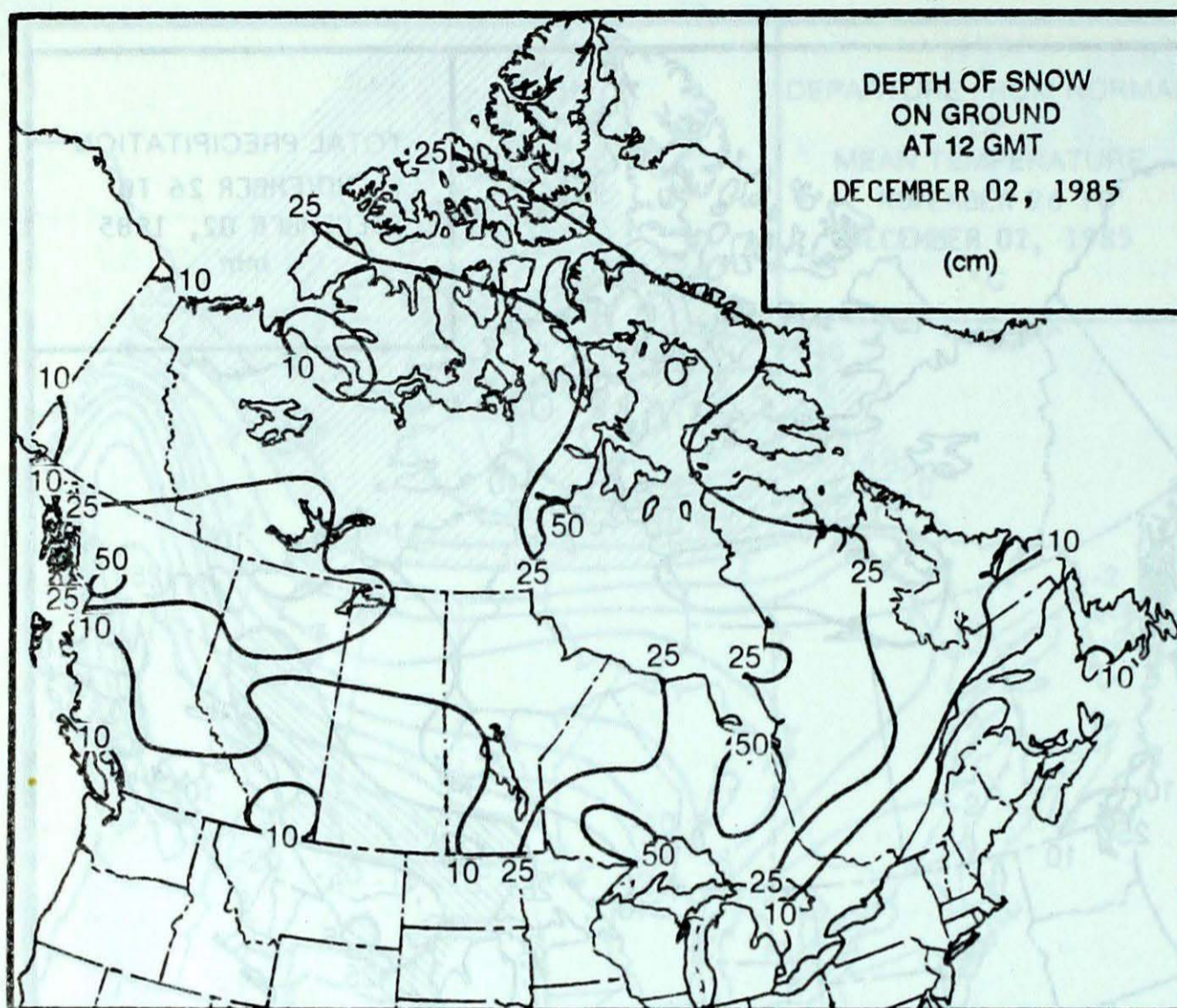
HEAVIEST WEEKLY PRECIPITATION (mm)

BRITISH COLUMBIA	VICTORIA INT'L	29
YUKON TERRITORY	KOMAKUK BEACH A	5
NORTHWEST TERRITORIES	RANKIN INLET	14
ALBERTA	FORT CHIPEWYAN	20
SASKATCHEWAN	URANIUM CITY	9
MANITOBA	GIMLI	5
ONTARIO	LONDON	44
QUEBEC	VAL D'OR	43
NEW BRUNSWICK	SAINT JOHN	35
NOVA SCOTIA	SYDNEY	25
PRINCE EDWARD ISLAND	CHARLOTTETOWN	8
NEWFOUNDLAND	CHURCHILL FALLS	30

The Front Cover

This week's satellite image (taken on November 25, 1985 at 1905 GMT) is centred on Montréal, Québec. The Ottawa and St. Lawrence River valleys were snow covered, while the Hudson Valley was snow free. A veil of high cloud can be seen in the southwest corner of the picture, but the majority of the area was covered by a remarkably regular pattern of low clouds aligned in "streets" about 5 or 6 km apart. The large geographical area covered by these clouds shows widespread organized wave motions in the lower atmosphere, probably caused by the effect of friction between the earth's surface and the wind.

FORECAST



Temperature Anomaly Forecast

- ++ much above normal
- + above normal
- N normal
- below normal
- much below normal

This forecast is prepared by searching historical weather maps to find cases similar to the present. The historical outcome during the 15 days subsequent to the chosen analogues is assumed to be a forecast for the next 15 days from now.

CLIMATIC PERSPECTIVES VOLUME 7

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The purpose of the publication is to make topical information available to the public concerning the Canadian Climate and its socio-economic impact.

Unsolicited articles are welcome but should be at maximum about 1500 words in length. They will be subject to editorial change without notice due to publishing time constraints. Black and white photographs can be used, but not colour. The contents may be reprinted freely with proper credit.

The data shown in this publication are based on unverified reports from approximately 225 Canadian synoptic weather stations. Information concerning climatic impacts is gathered from AES contacts with the public and from the media. Articles do not necessarily reflect the views of the Atmospheric Environment Service.

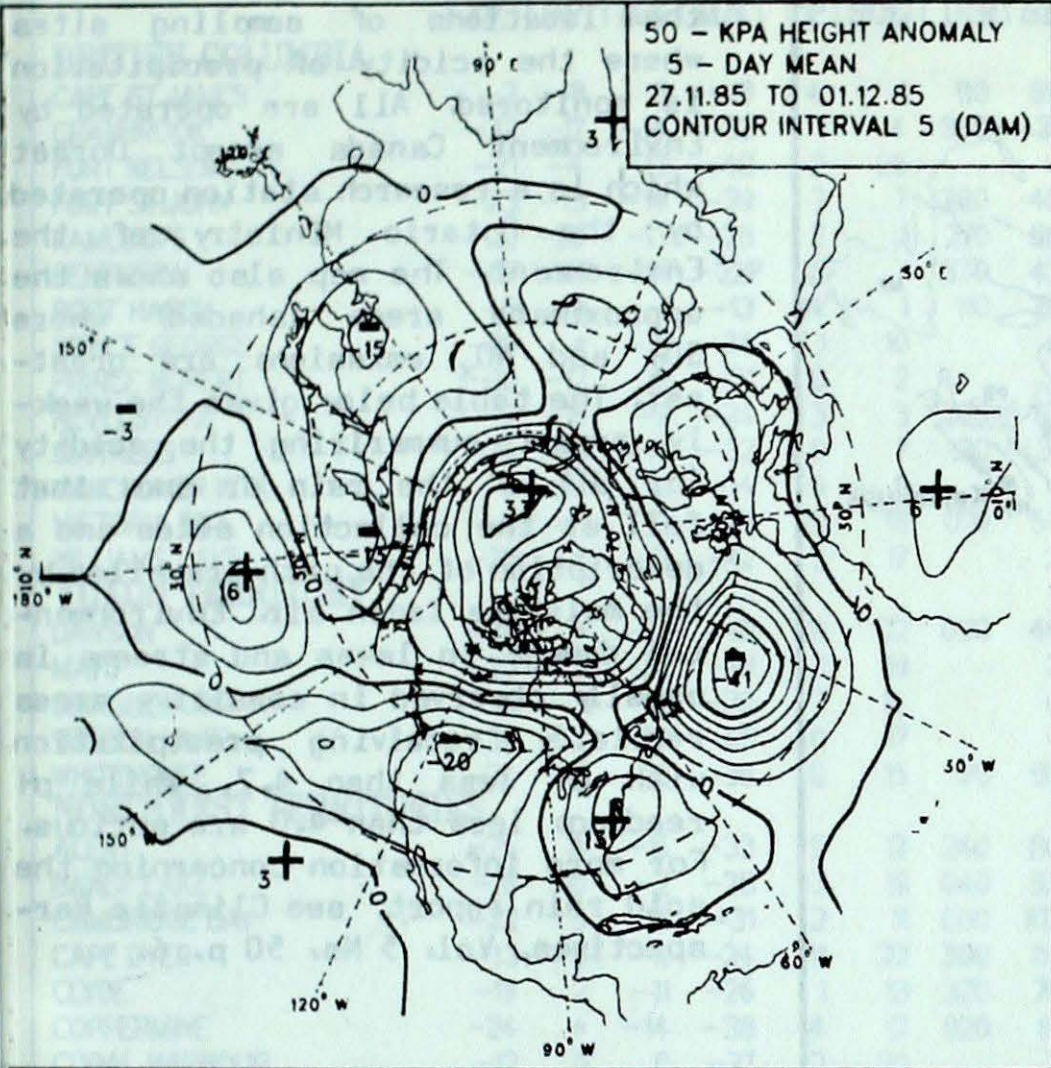
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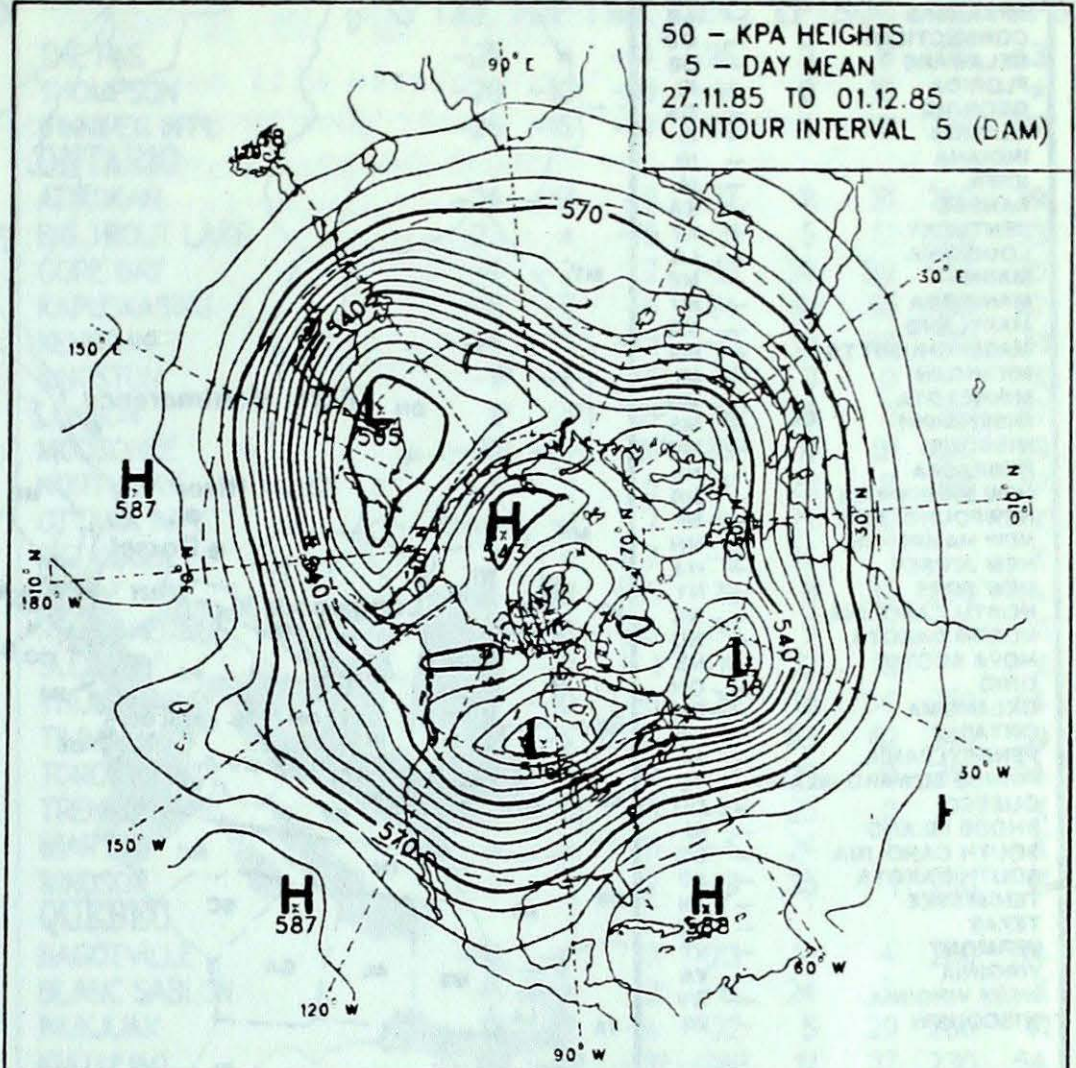
50 KPa ATMOSPHERIC CIRCULATION

50 - KPa HEIGHT ANOMALY
5 - DAY MEAN
27.11.85 TO 01.12.85
CONTOUR INTERVAL 5 (DAM)



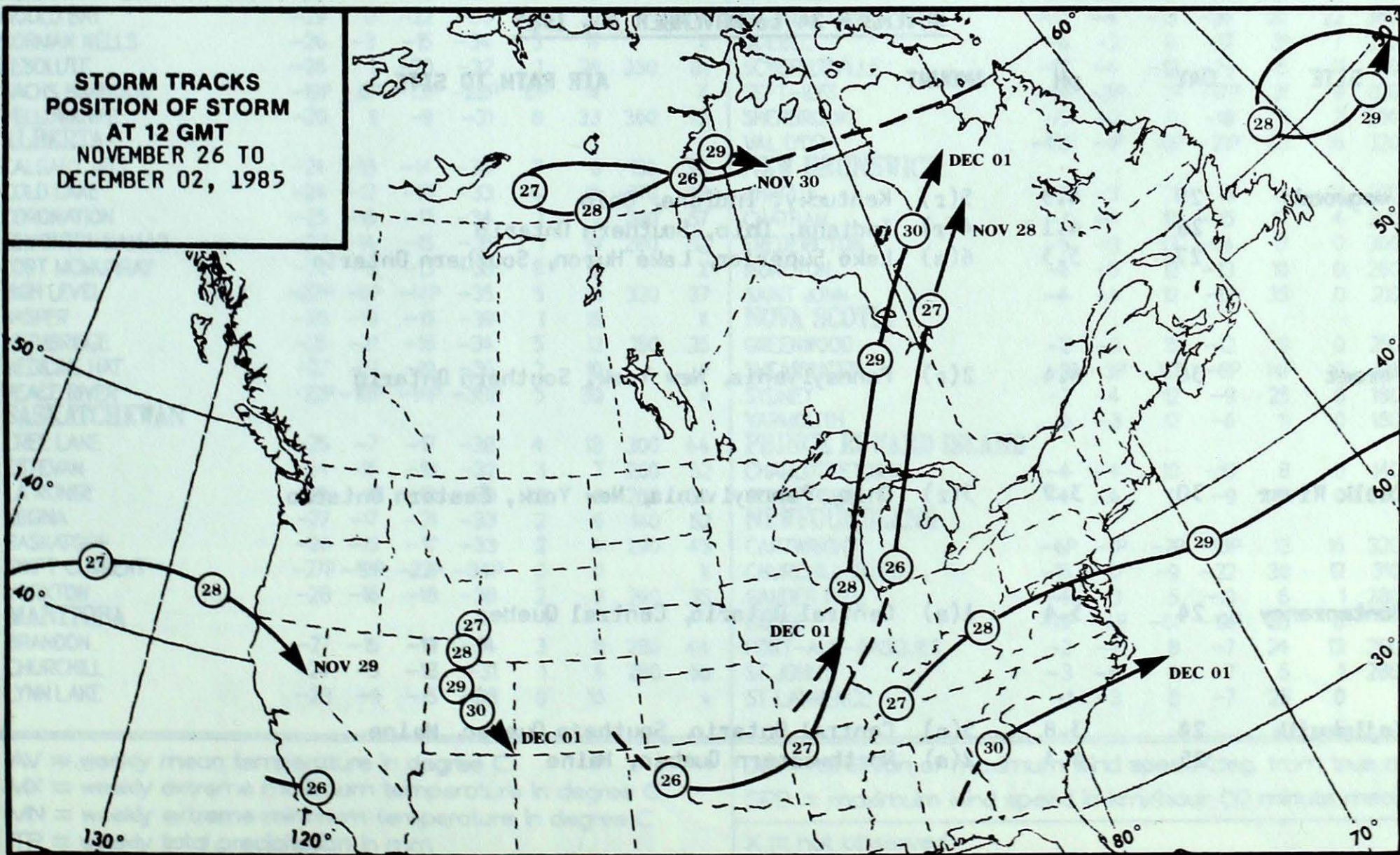
MEAN 50 KPa HEIGHT ANOMALY (dam)
November 27 to December 1, 1985

50 - KPa HEIGHTS
5 - DAY MEAN
27.11.85 TO 01.12.85
CONTOUR INTERVAL 5 (DAM)



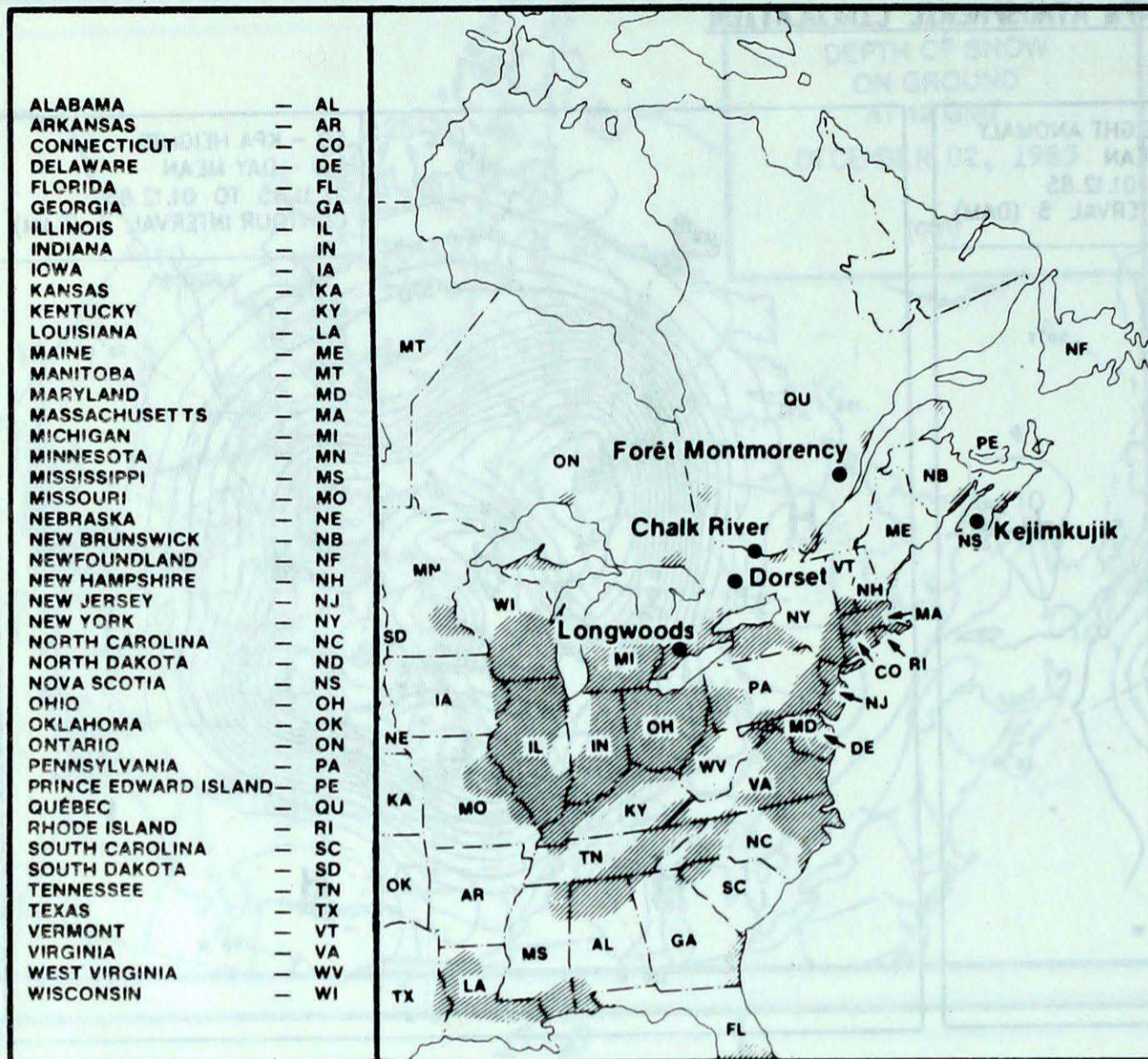
MEAN 50 KPa HEIGHTS (dam)
November 27 to December 1, 1985

STORM TRACKS
POSITION OF STORM
AT 12 GMT
NOVEMBER 26 TO
DECEMBER 02, 1985



ACID RAIN

ACID RAIN REPORT



The reference map (left) shows the locations of sampling sites where the acidity of precipitation is monitored. All are operated by Environment Canada except Dorset which is a research station operated by the Ontario Ministry of the Environment. The map also shows the approximate areas (shaded) where SO_2 and NO_x emissions are greatest. The table below gives the weekly report summarizing the acidity (or pH) of the rain or snow that fell at the collection sites and a description of the path travelled by the moisture laden air. Environmental damage to lakes and streams is usually observed in sensitive areas regularly receiving precipitation with pH less than 4.7, while pH readings less than 4.0 are serious. For more information concerning the acid rain report, see Climatic Perspectives, Vol. 5 No. 50 p. 6.

NOVEMBER 24 to NOVEMBER 30, 1985

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	25	4.3	5(r)	Kentucky, Indiana, Ohio
	26	4.1	4(r)	Indiana, Ohio, Southern Ontario
	27	5.3	6(s)	Lake Superior, Lake Huron, Southern Ontario
Dorset	30	4.4	2(r)	Pennsylvania, New York, Southern Ontario
Chalk River	30	3.9	3(r)	Ohio, Pennsylvania, New York, Eastern Ontario
Montmorency	24	5.4	1(s)	Central Ontario, Central Quebec
Kejimikujik	24	3.8	5(s)	Central Ontario, Southern Quebec, Maine
	25	4.3	2(s)	Northwestern Quebec, Maine

r = rain (mm), s = snow (cm), m = mixed rain and snow (mm).

TEMPERATURE, PRECIPITATION AND MAXIMUM WIND DATA FOR THE WEEK ENDING 0600 GMT DECEMBER 3, 1985

STATION	TEMPERATURE				PRECIP.		WIND MX		STATION	TEMPERATURE				PRECIP.		WIND MX	
	AV	DP	MX	MN	TP	SOG	DIR	SPD		AV	DP	MX	MN	TP	SOG	DIR	SPD
BRITISH COLUMBIA									THE PAS	-25	*	-14	-36	2	8	270	43
CAPE ST. JAMES	-2	-8	3	-13	4	1	110	89	THOMPSON	-28	-10	-15	-41	0	10		*
CRANBROOK	-22	-17	-14	-32	1	4	360	31	WINNIPEG INT'L	-26	-16	-17	-34	4	11	290	37
FORT NELSON	-21	-4	-13	-40	2	26		*	ONTARIO								
FORT ST. JOHN	-23	-13	-14	-39	3	7	280	46	ATIKOKAN	-24	-13	-8	-37	11	31	260	39
KAMLOOPS	-22	-20	-13	-28	2	1	270	56	BIG TROUT LAKE	-23	*	-16	-31	5	12	320	33
PENTICTON	-15P	-16P	-9P	-22P	6	7	330	43	GORE BAY	-4	-2	2	-13	36	30	050	78
PORT HARDY	-5	-10	1	-13	4	1	110	78	KAPUSKASING	-16	-7	-6	-24	41	52	350	67
PRINCE GEORGE	-29	*	-21	-36	1	10		*	KENORA	-24	-13	-13	-31	10	38	270	41
PRINCE RUPERT	-10	-12	2	-21	0	2		*	KINGSTON	-1P	-1P	8P	-6P	3	0		X
REVELSTOKE	-17	-15	-9	-24	3	3	320	67	LONDON	1P	2P	12P	-3P	38	1	220	87
SMITHERS	-24	-19	-14	-32	0	7	130	31	MOOSENEE	-18P	-8P	-8P	-26P	7P	51	010	69
VANCOUVER INT'L	-8	-12	0	-14	9	5		*	NORTH BAY	-5	1	6	-18	23	8	310	57
VICTORIA INT'L	-6	-11	0	-13	29	18	070	50	OTTAWA INT'L	-4	-1	7	-10	23	0		X
WILLIAMS LAKE	-29	*	-17	-42	3	17		X	PETAWAWA	*	*	7	-9	14	1		X
YUKON TERRITORY									PICKLE LAKE	-26	-12	-15	-39	8	32	280	44
DAWSON	-36	*	-20	-42	0	22	030	46	RED LAKE	-26	-13	-15	-39	9	31	300	31
MAYO	-35	-15	-25	-41	1	19		X	SUDBURY	-8	-2	-1	-19	22	18		X
SHINGLE POINT A	-19	3	-12	-28	2	14		*	THUNDER BAY	-17	-10	-5	-29	18	54	260	54
WATSON LAKE	-36	-17	-27	-48	0	17		*	TIMMINS	-13	-4	-6	-21	63	62	340	59
WHITEHORSE	-30	-17	-20	-38	0	15	170	50	TORONTO INT'L	1	1	12	-8	19	0	240	94
NORTHWEST TERRITORIES									TRENTON	0	0	10	-10	25	0		X
ALERT	-25	4	-15	-33	5	17	240	80	WIARTON	*	*	11	-4	24	4		X
BAKER LAKE	-16	10	-2	-28	3	19	040	83	WINDSOR	2	1	12	-9	35	1	230	91
CAMBRIDGE BAY	-22	5	-16	-31	2	11	030	102	QUEBEC								
CAPE DYER	-13	5	-2	-24	11	23	300	69	BAGOTVILLE	-10	-4	3	-23	16	4	260	74
CLYDE	-19	2	-11	-26	1	13	320	70	BLANC SABLON	-5	*	2	-15	24	5		X
COPPERMINE	-24	*	-14	-38	4	17	020	61	INUKJAK	-13	-2	-4	-22	5	29	280	41
CORAL HARBOUR	-12	11	0	-27	2	30		X	KUJUUJUAQ	-16P	-4P	-7P	-26P	17	37	230	54
EUREKA	-30	3	-14	-38	2	12	350	63	KUJUUJARAPEK	-15	-6	-6	-27	16	12	240	63
FORT SMITH	-20P	-3P	-11P	-31P	6	24		X	MANIWAKI	-5	1	7	-14	21	0	200	61
FROBISHER BAY	-7	11	4	-18	5	17	080	81	MONT JOLI	-7	-4	6	-14	6	0	240	70
HALL BEACH	-21	5	-5	-30	0	0	030	46	MONTREAL INT'L	-3	-1	7	-9	23	0	260	87
INUVIK	-24	1	-16	-37	2P	16		X	NATASHQUAN	-7P	-3P	4P	-14P	22P	1	120	81
MOULD BAY	-29	0	-22	-36	1	30		X	NITCHEQUON	-17	-4	-13	-24	20	22	360	54
NORMAN WELLS	-26	-3	-15	-34	3	17		X	QUEBEC	-6	-2	4	-17	31	7	250	80
RESOLUTE	-26	1	-20	-32	1	29	330	81	SCHEFFERVILLE	-17	-4	-12	-29	15	11	310	52
SACHS HARBOUR	-19P	6P	-13P	-28P	0P	*		X	SEPT-ILES	-9P	-3P	2P	-17P	31	9	070	76
YELLOWKNIFE	-20	1	-9	-31	8	33	360	72	SHERBROOKE	-5	-2	9	-18	11	2	280	76
ALBERTA									VAL D'OR	-10P	-1P	0P	-21P	43	16	320	67
CALGARY INT'L	-24	-18	-14	-34	2	6	150	33	NEW BRUNSWICK								
COLD LAKE	-24	-12	-16	-33	4	16	270	48	CHARLO	-8	-3	3	-15	16	0	270	44
CORONATION	-25	-16	-17	-34	1	2	290	57	CHATHAM	-7	-4	12	-15	17	4	260	63
EDMONTON NAMAO	-23	-14	-15	-35	1	10	280	52	FREDERICTON	-5	-3	13	-14	17	0	300	65
FORT MCMURRAY	-22	-8	-13	-35	8	17		X	MONCTON	-6	-5	12	-13	10	0	260	41
HIGH LEVEL	-23P	-5P	-14P	-35	5	31	320	37	SAINT JOHN	-4	-4	12	-12	35	0	210	78
JASPER	-26	-19	-15	-39	1	18		X	NOVA SCOTIA								
LETHBRIDGE	-25	-21	-16	-34	5	12	150	35	GREENWOOD	-2	-3	15	-12	9	0	250	104
MEDICINE HAT	-27	-21	-19	-35	2	10		*	SHEARWATER	-1P	-3P	12P	-8P	14P	0	170	72
PEACE RIVER	-22P	-10P	-14P	-38P	5	30		*	SYDNEY	-2	-4	12	-9	25	0	180	83
SASKATCHEWAN									YARMOUTH	0	-3	12	-6	11	0	180	81
CREE LAKE	-25	-7	-17	-38	4	18	300	44	PRINCE EDWARD ISLAND								
ESTEVAN	-24	-16	-19	-32	1	7	260	52	CHARLOTTETOWN	-4	-4	10	-10	8	0	140	65
LA RONGE	-26	-11	-13	-38	2	0	280	39	SUMMERSIDE	-4	-4	11	-9	7	0	280	109
REGINA	-27	-17	-21	-33	2	6	140	52	NEWFOUNDLAND								
SASKATOON	-26	-15	-17	-33	2	4	290	43	CARTWRIGHT	-6P	-1P	-2P	-13P	13	16	320	74
SWIFT CURRENT	-27P	-19P	-22P	-34P	0	0		X	CHURCHILL FALLS	-15	0	-9	-22	30	17	310	50
YORKTON	-28	-16	-18	-38	2	9	290	35	GANDER INT'L	-4	-3	5	-10	5	1	280	81
MANITOBA									GOOSE	-11P	-4P	-6P	-19P	20	8		*
BRANDON	-27	-15	-19	-34	3	11	280	44	PORT-AUX-BASQUES	-2	-4	8	-7	24	13	280	107
CHURCHILL	-24	-5	-18	-31	1	6	280	50	ST JOHN'S	-3	-4	4	-7	5	1	280	93
LYNN LAKE	-28	-9	-15	-38	0	10		*	ST LAWRENCE	-1	-3	8	-7	25	0		X

AV = weekly mean temperature in degree C
 MX = weekly extreme maximum temperature in degree C
 MN = weekly extreme minimum temperature in degree C
 TP = weekly total precipitation in mm
 DP = departure of mean temperature from normal in degree C
 SOG = snow depth on ground in cm, last day of the period

DIR = direction of maximum wind speed (deg. from true north)
 SPD = maximum wind speed in km/hour (10 minute mean)

X = not observed

P = value based on less than 7 days

* = missing

FEATURE

SOUTHERN ONTARIO'S RECORD WET NOVEMBER

by
R.B. Crowe

Residents of southern Ontario will not be surprised to learn that the month just ended will go down in history as the wettest November to date. Many stations reported their highest November total precipitation ever. The greatest amount recorded in November 1985 from a preliminary list of stations was

234.7 mm at Simcoe, just north of the Lake Erie shore. The 186.2 mm received at Toronto was the greatest November precipitation recorded since records began in 1840. In fact, at Toronto, it was the wettest month in 70 years, since the 206.8 mm which fell in August 1915.

Station	Total Precipitation November 1985 (mm)	Previous Record High November Precipitation (mm) and Year
Hamilton Royal Botanical Gardens	230.3	125.5 1951
Hamilton Airport	199.4	125.9 1982
Peterborough Airport	154.3*	111.6 1982
St. Catharines Airport	210.6	119.0 1982
Sarnia Airport	130.9	123.1 1982
Simcoe	234.7	155.6 1982
Toronto	186.2	147.1 1966
Toronto International Airport	161.8	142.7 1966
Toronto Island Airport	176.4	129.8 1966
Trenton Airport	169.3	146.1 1951
Waterloo-Wellington Airport	162.0*	122.2 1982
Warton Airport	171.4	156.0 1967
Windsor Airport	156.2	151.5 1982

*New record for any month of the year, previous records were as follows:

Peterborough Airport	135.5 July 1980
Waterloo-Wellington Airport	158.4 September 1977

