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Climatic Perspectives

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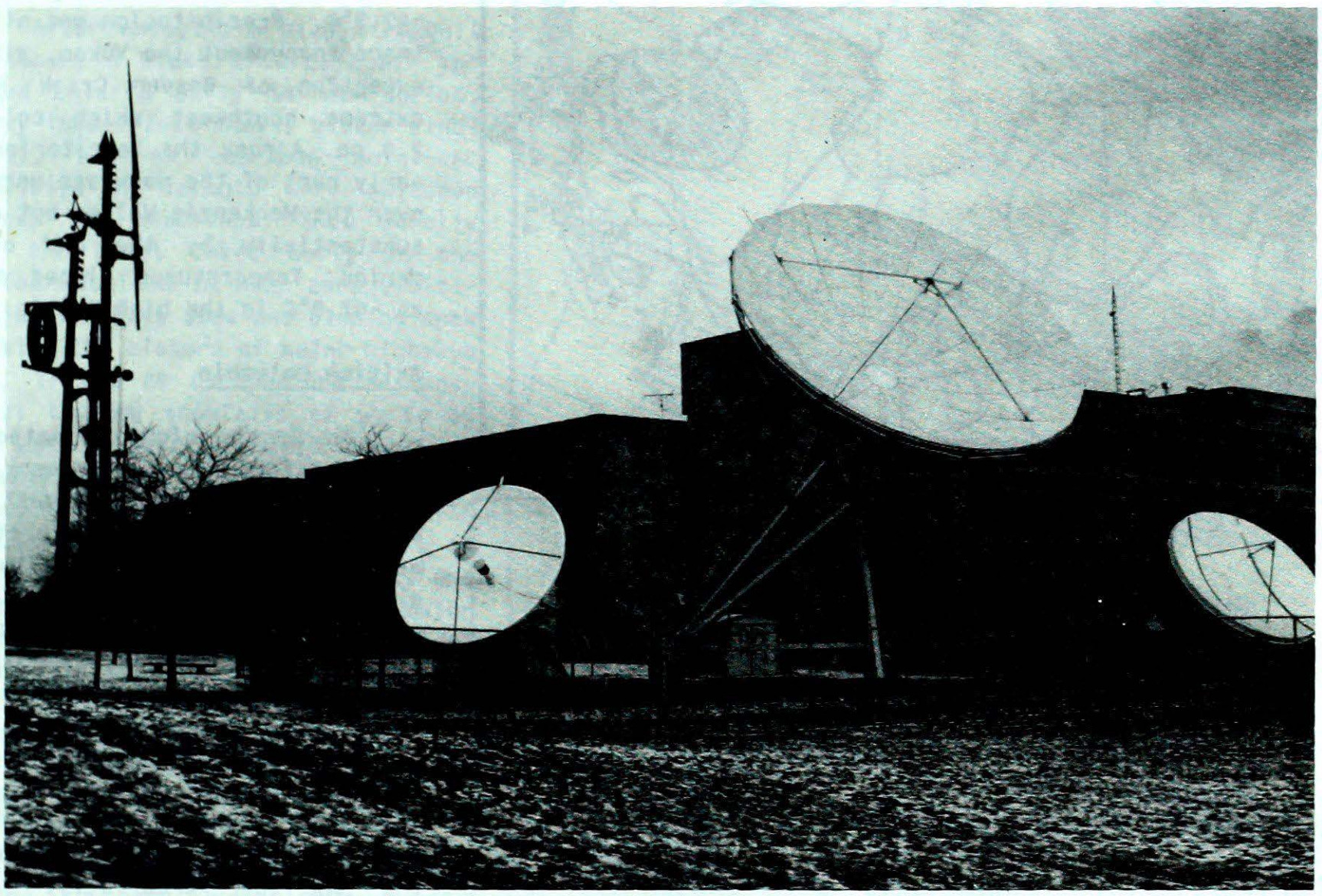
A weekly review of Canadian climate | January 5 to 11, 1988 | Vol.10 No.2

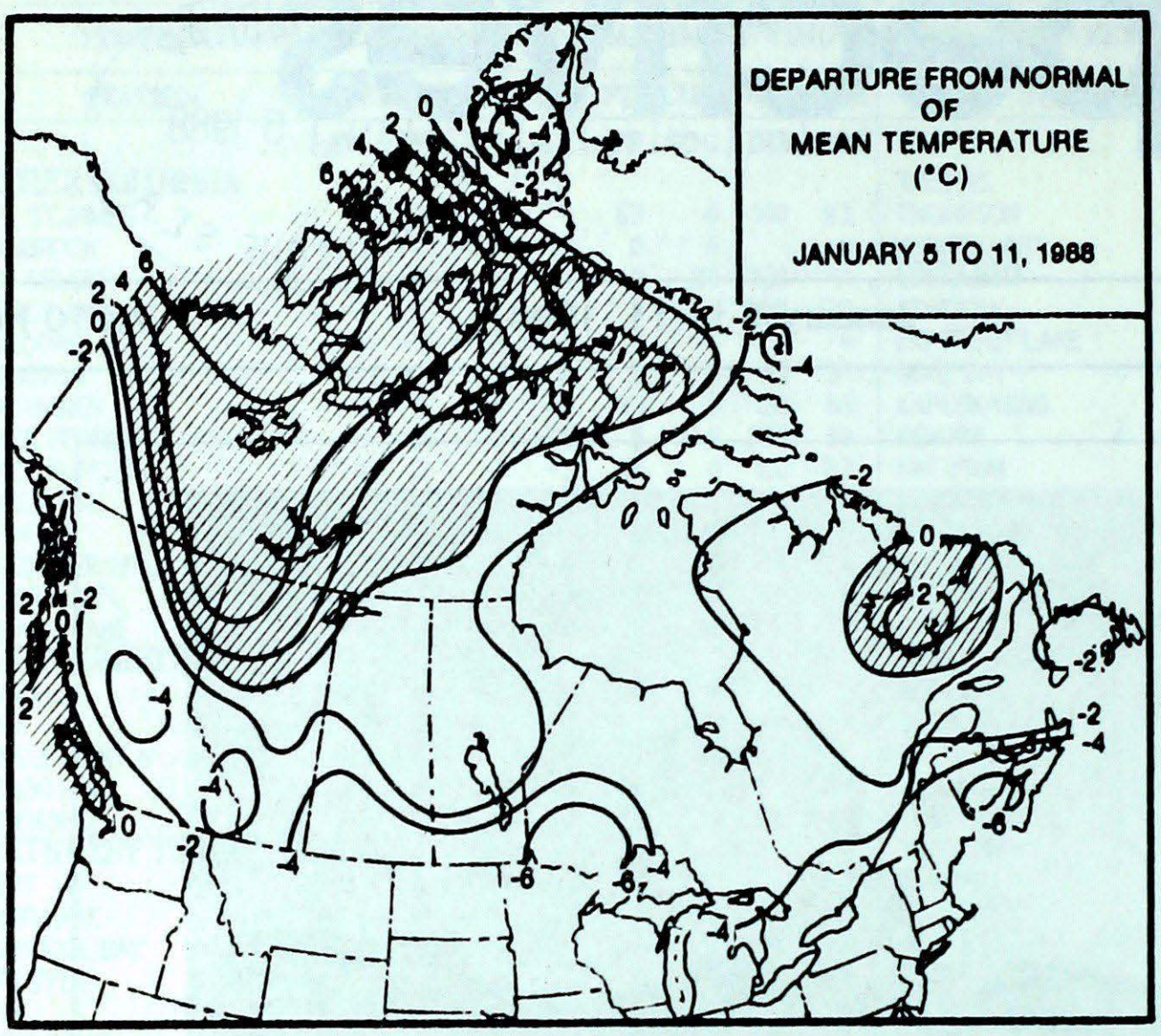


The dearth of snow in the Toronto area is shown by this photograph of the AES Downsview Headquarters facility on January 11, 1988. Up to this date only 20.0 cm of snow had been reported so far this 1987/88 winter season which is less than half the normal amount of 53.2 cm. Elsewhere in southern Ontario amounts have been near normal except in the snowbelt areas where some heavy snowfalls this past week pushed seasonal amounts above normal. Below-normal amounts have also been reported in northwestern Ontario while less than half the seasonal normal snowfalls have been reported across most of the western provinces and the north coast region of Quebec. Atlantic Canada on the other hand has received copious quantities of snow. (photo by P. Scholefield).

- ***Cold and dry in the West***
- ***Arctic blast, winds and snow squalls in the East***

Canada

TEMPERATURE



WEEKLY TEMPERATURE EXTREME (C)

		MAXIMUM		MINIMUM
BRITISH COLUMBIA	ESTEVAN POINT VICTORIA INT'L	9	PUNTZI MOUNTAIN	-35
YUKON TERRITORY	EAGLE PLAINS	-5	DAWSON CITY	-42
NORTHWEST TERRITORIES	CLINTON POINT	-5	EUREKA	-47
ALBERTA	LETHBRIDGE	3	FORT CHIPEWYAN	-39
SASKATCHEWAN	EASTEND CYPRESS	-5	CRLE LAKE	-44
MANITOBA	DAUPHIN	-10	LYNN LAKE	-39
ONTARIO	POINT PETRE	1	RED LAKE	-39
QUEBEC	BLANC SABLON	-1	SCHEFFERVILLE	-37
NEW BRUNSWICK	SAINT JOHN	-1	SAINT JOHN	-29
NOVA SCOTIA	SABLE ISLAND	6	GREENWOOD	-26
PRINCE EDWARD ISLAND	EAST POINT	1	SUMMERSIDE	-20
NEWFOUNDLAND	ST LAWRENCE	3	CHURCHILL FALLS	-33

ACROSS THE NATION

WARMEST MEAN TEMPERATURE	6	CAPE ST.JAMES	BC
COOLEST MEAN TEMPERATURE	-42	EUREKA	NWT

ACROSS THE COUNTRY

Yukon and Northwest Territories

A ridge of high pressure established over the Yukon produced a cold, dry week. In the north though, Pacific air infiltrated, causing well above-normal temperatures. Meanwhile, stations located in the interior valleys remained cold. Dawson City, on the morning of the 11th, recorded a weekly low of -42.2°C. Precipitation was nil to a trace throughout the Yukon, with the exception of Beaver Creek in the extreme southwest which collected 2.0 cm. Across the Territories, the early part of the week was very mild over the Mackenzie Valley but cooled substantially by the end of the period. Temperatures dipped as low as -47.0°C in the high Arctic.

British Columbia

An Arctic high dominated B.C. allowing for a cool, dry week. With the exception of the southwest coast and extreme northeast, all of B.C. was colder than normal. The high also acted as a block to Pacific storms, therefore the week was dry everywhere. In the interior though, low clouds prevented much sunshine. Below normal temperatures and minimal snow was welcomed by logging interests which are now in full operation. Skiing is essentially good everywhere although resorts in the Castlegar area still lack a substantial base. By the end of the period, a westerly zonal flow was moving northward permitting a return to typical wet coastal B.C. weather.

Prairie Provinces

Cold, dry weather continued across Alberta with only a few short modifications in central and southern areas. Very little precipitation occurred until January 11th in southern areas where 7 cm fell in Lethbridge, with lesser amounts elsewhere. The cold air has given the Olympic ski areas a golden opportunity to make plenty of artificial snow for the ski runs.

In Saskatchewan and Manitoba, the week began cold but temperatures moderated somewhat through the period. Record low minimums were

established on January 5th at Island Lake and Meadow Lake with -32.5°C and -41.9°C respectively. The outstanding feature though was a continuation of the lack of snow in the agricultural areas. The area bounded by Morden, Portage La Prairie, Dauphin, Broadview and Estevan had 2 cm of snow or less. Due to the dominance of an arctic high, the week though was generally sunny.

Ontario

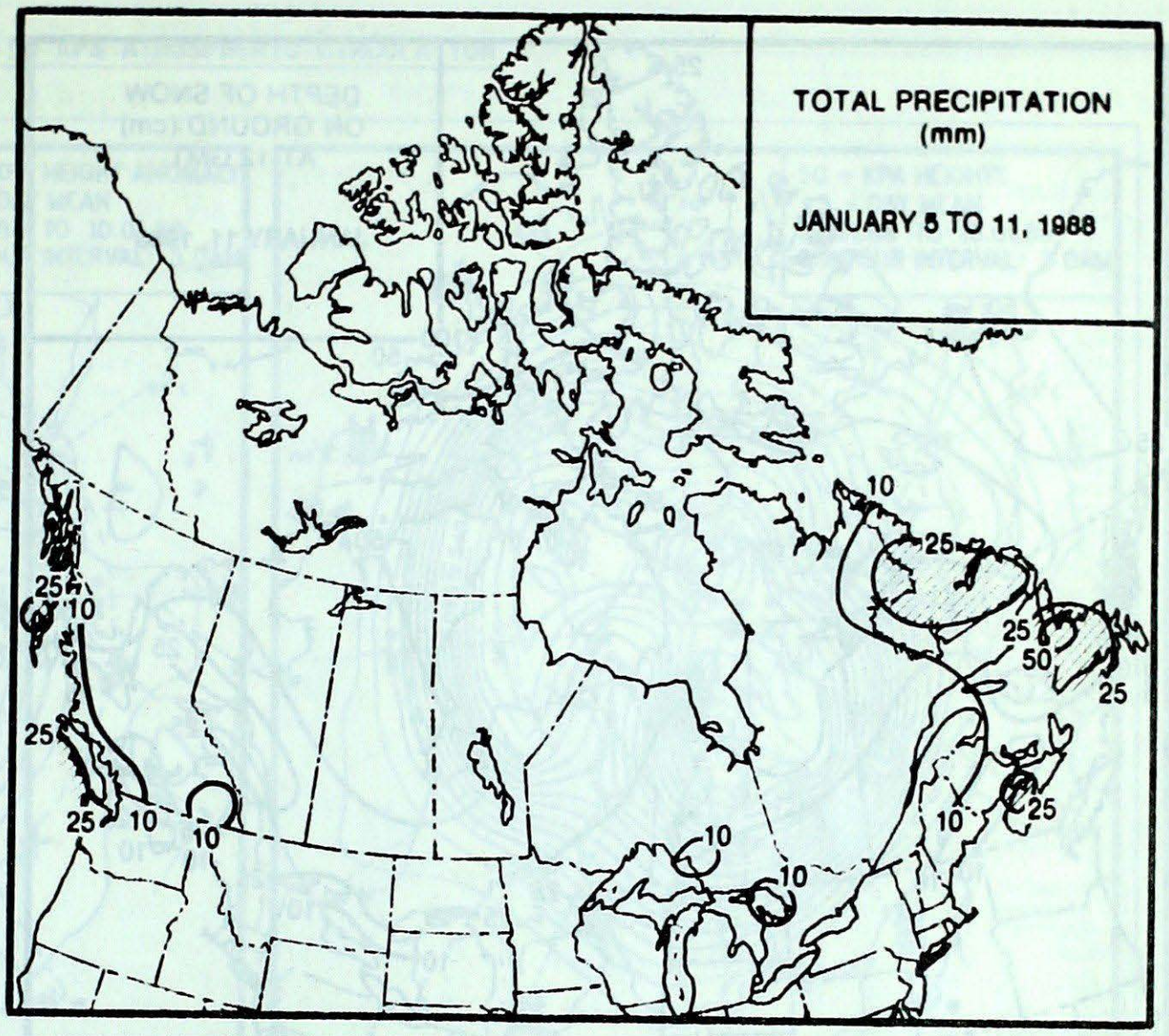
After enjoying a mild, tranquil December, a blast of Arctic air invaded Ontario early in the period. Heavy lake-effect snows, bitter windchill, and an enormous multi-car collision in Toronto were splashed across the headlines. Snow squalls off the Great Lakes early in the period resulted in near zero visibilities in heavy snow and blowing snow causing the closure of major highways #11, 17 and 69 for various periods. Total two-day snowfalls of up to 60 cm were reported with heaviest amounts in the Coldwater area. East winds off Lake Ontario on January 7th resulted in a localized snowfall in parts of Toronto. Poor visibility and slippery roads created two major pile-ups on Hwy 401 that involved about 130 cars. Along with numerous injuries was the death of an Olympic athlete.

Quebec

Another Arctic outbreak swept across southern Quebec between the 6th and 8th of January dropping minimum temperatures below -20°C which broke daily records at no less than 5 locations. Strong winds produced blizzard conditions in the Matapedia Valley during this period following a 10-20 cm snowfall on the 4th and 5th. Near zero visibilities in blowing snow caused the closure of schools and roads. At Cap-Chat, on the 6th, winds gusting from 95 to 115 km/h were reported along with temperatures between -15 and -17°C.

Maritimes

It was another week of cold and wind for the Maritimes. As a low tracked across Labrador early in the period, the Maritimes endured three three days of very cold temperatures and high wind. Moncton reported winds over 80 km/h on both Tuesday and



HEAVIEST WEEKLY PRECIPITATION (mm)

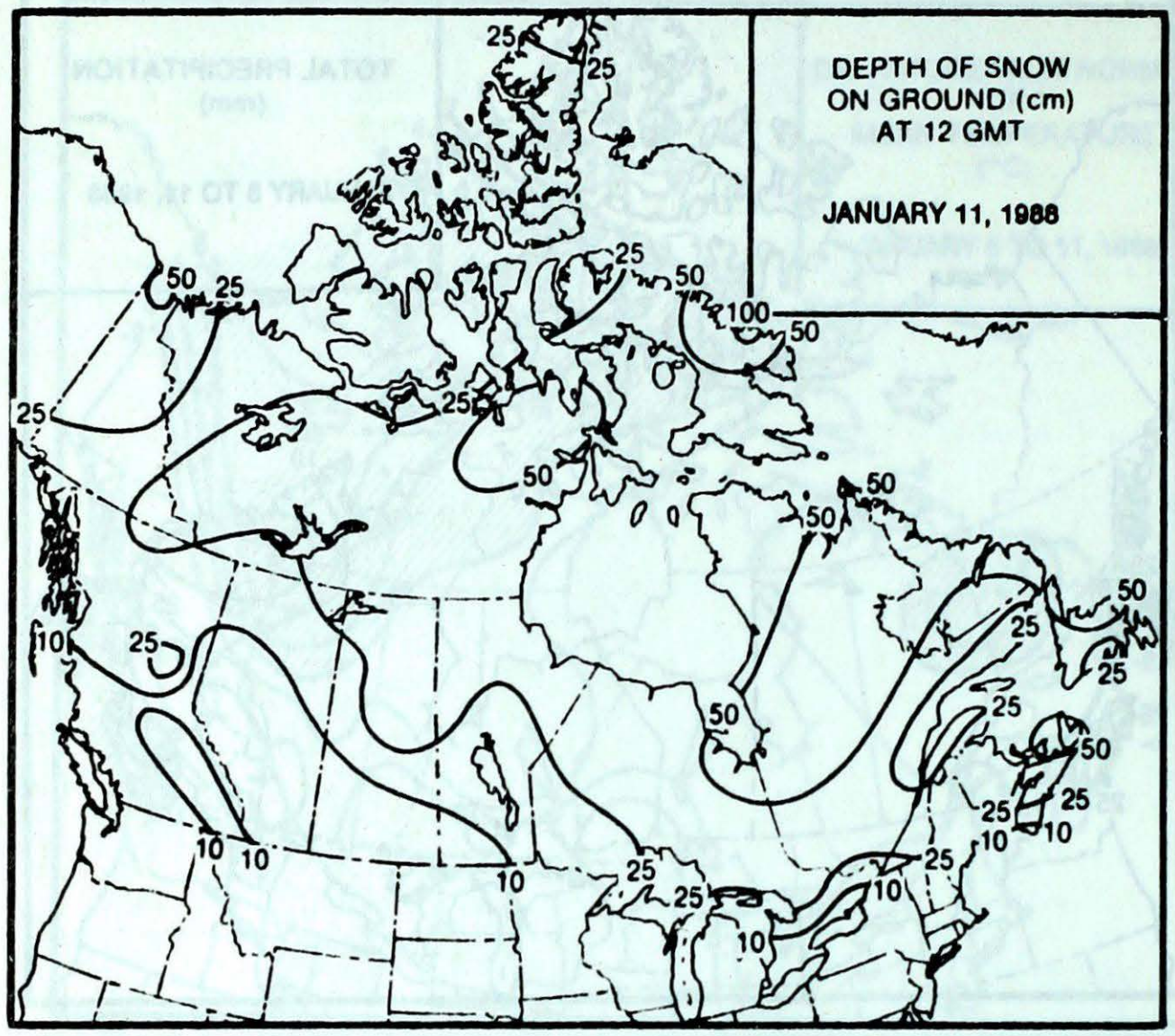
BRITISH COLUMBIA	ESTEVAN POINT	39
YUKON TERRITORY	BEAVER CREEK	2
NORTHWEST TERRITORIES	COPPERMINE	4
ALBERTA	LETHBRIDGE	7
SASKATCHEWAN	CREE LAKE	4
MANITOBA	GIMLI	4
ONTARIO	WIARTON	23
QUEBEC	BLANC SABLON	39
NEW BRUNSWICK	MONCTON	18
NOVA SCOTIA	SYDNEY	30
PRINCE EDWARD ISLAND	CHARLOTTETOWN	16
NEWFOUNDLAND	DANIEL'S HARBOUR	55

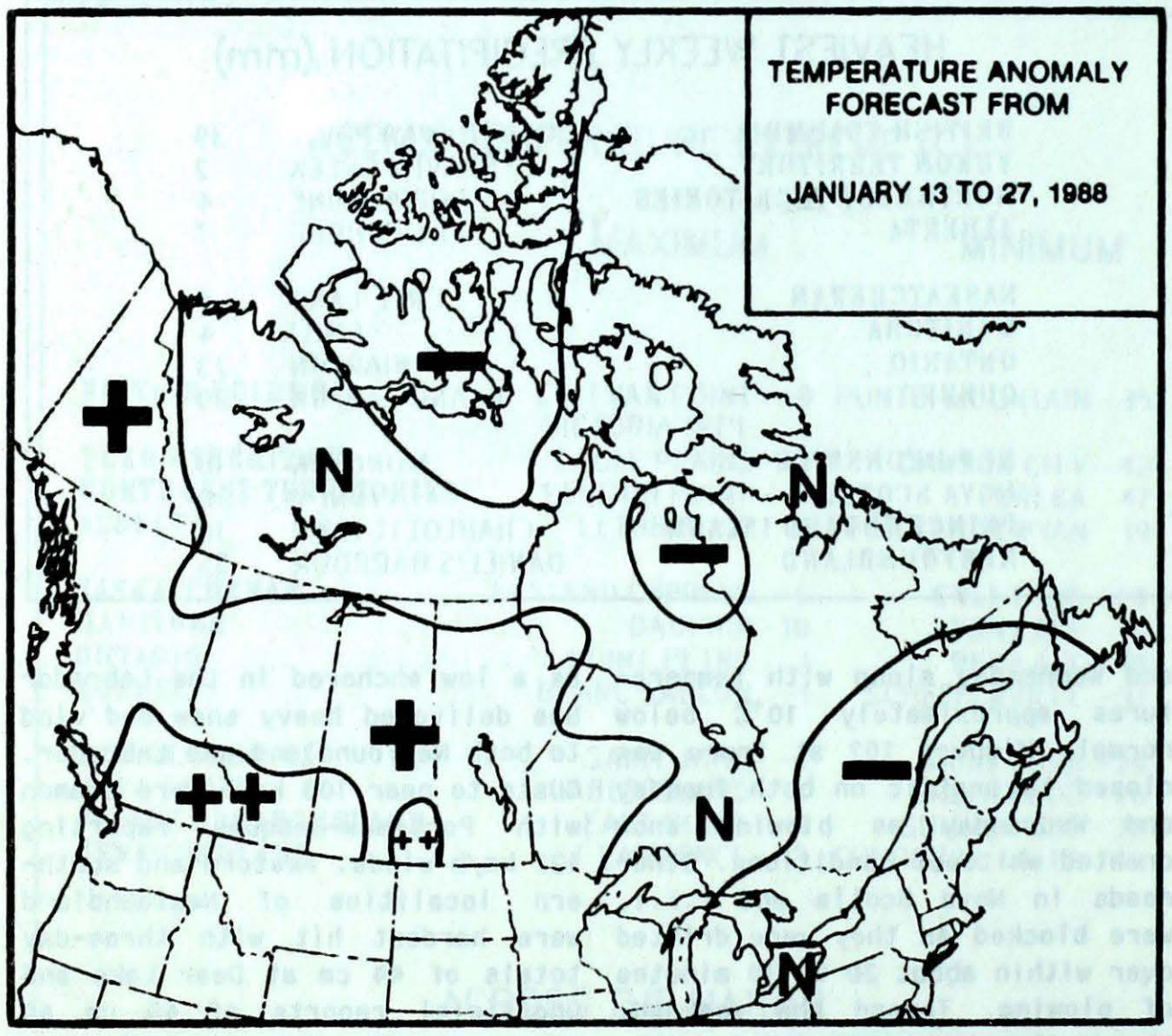
and Wednesday along with temperatures approximately 10°C below normal. Highway 102 at Truro was closed to traffic on both Tuesday and Wednesday as blowing snow created whiteout conditions. Other roads in Nova Scotia and P.E.I. were blocked as they were drifted over within about 20 to 30 minutes of plowing. Toward the weekend, the weather had settled but another system moved through on Saturday dumping another 10 to 20 cm of snow on southern New Brunswick, P.E.I. and Nova Scotia.

Newfoundland

Cold, stormy weather continued as a low anchored in the Labrador Sea delivered heavy snow and wind to both Newfoundland and Labrador. Gusts to near 100 km/h were common with Port-aux-Basques reporting 122 km/h winds. Western and southern localities of Newfoundland were hardest hit with three-day totals of 44 cm at Dear Lake and unofficial reports of 60 cm at Corner Brook. Schools and some businesses were forced to close as vehicular traffic became hazardous in snow and blowing snow. No records were broken except in Goose Bay where 27 cm of snow on January 5th set a new daily record.

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.

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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. The contents may be reprinted freely with proper credit.

The data 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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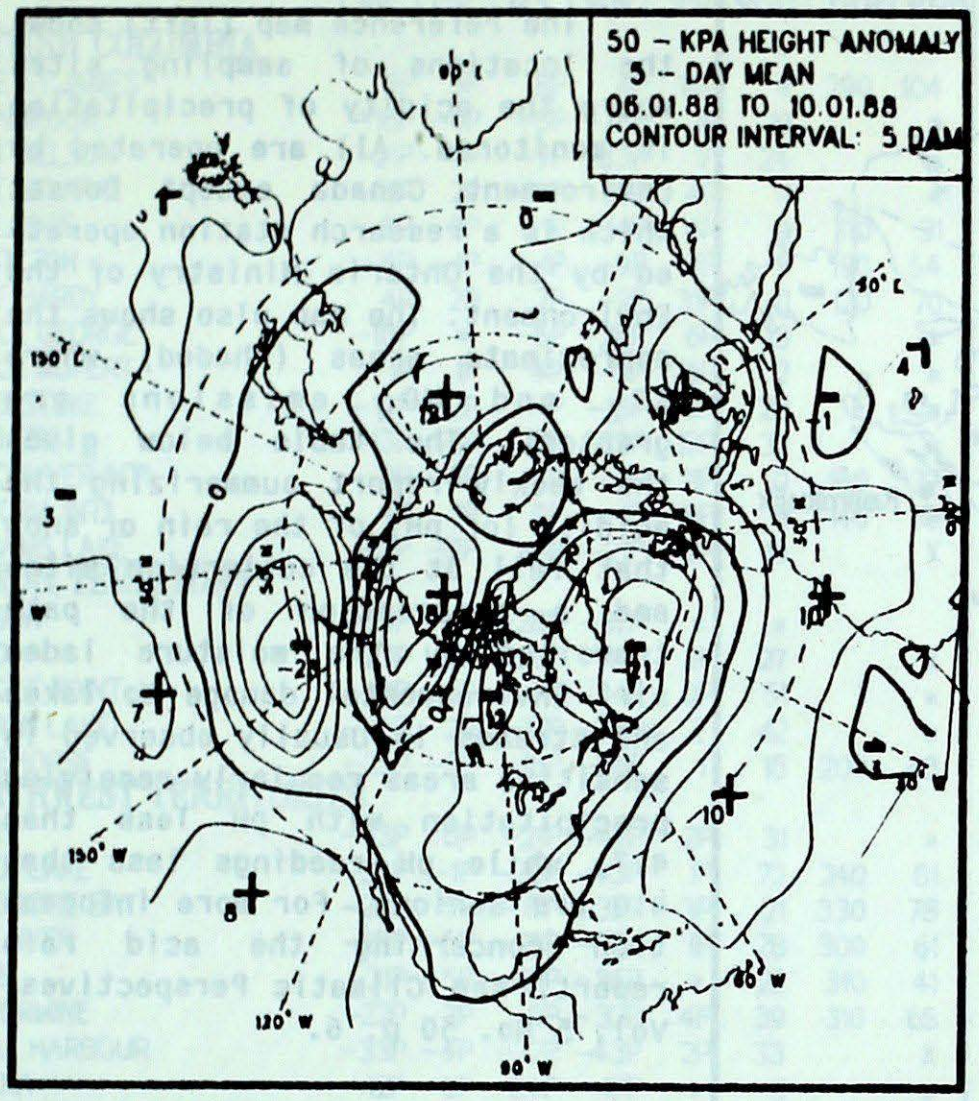
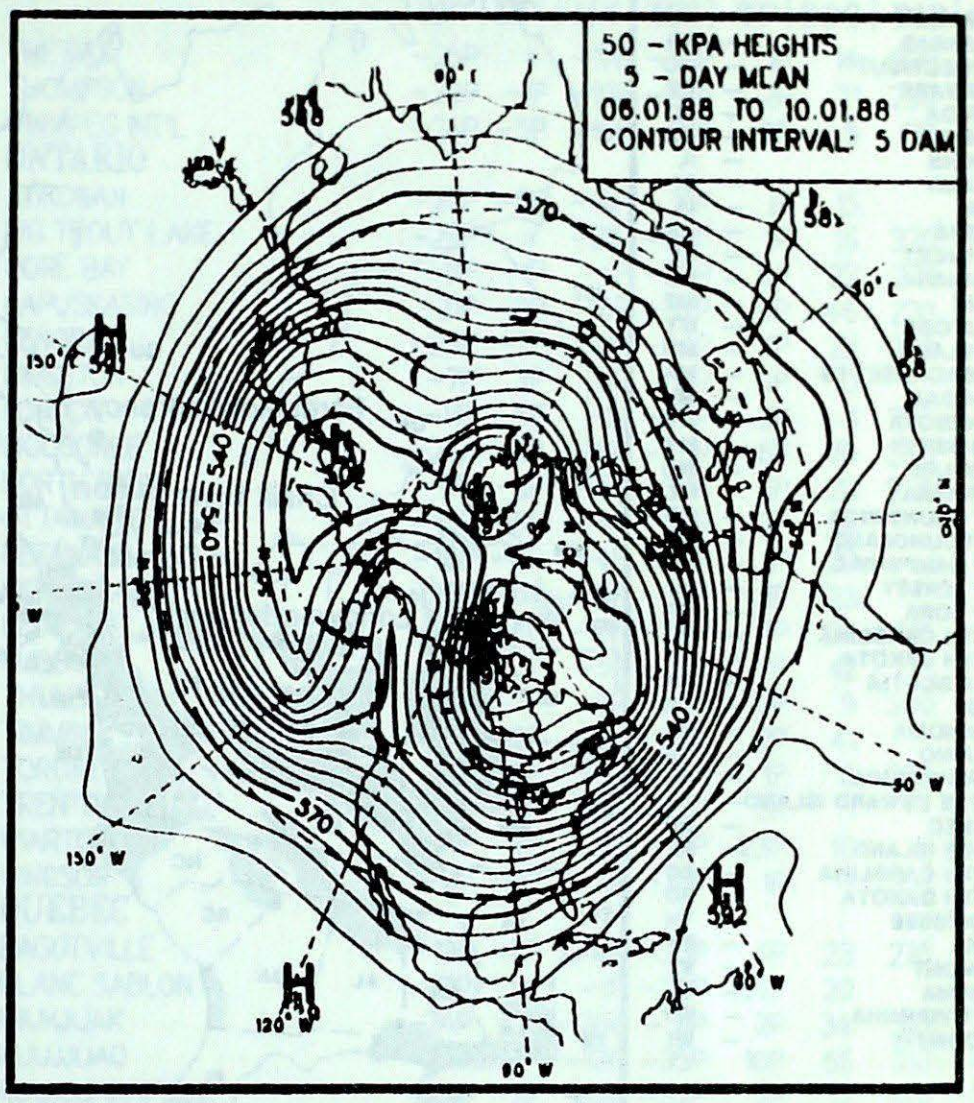
50 KPa ATMOSPHERIC CIRCULATION



MEAN 50 KPa HEIGHT ANOMALY (dam)



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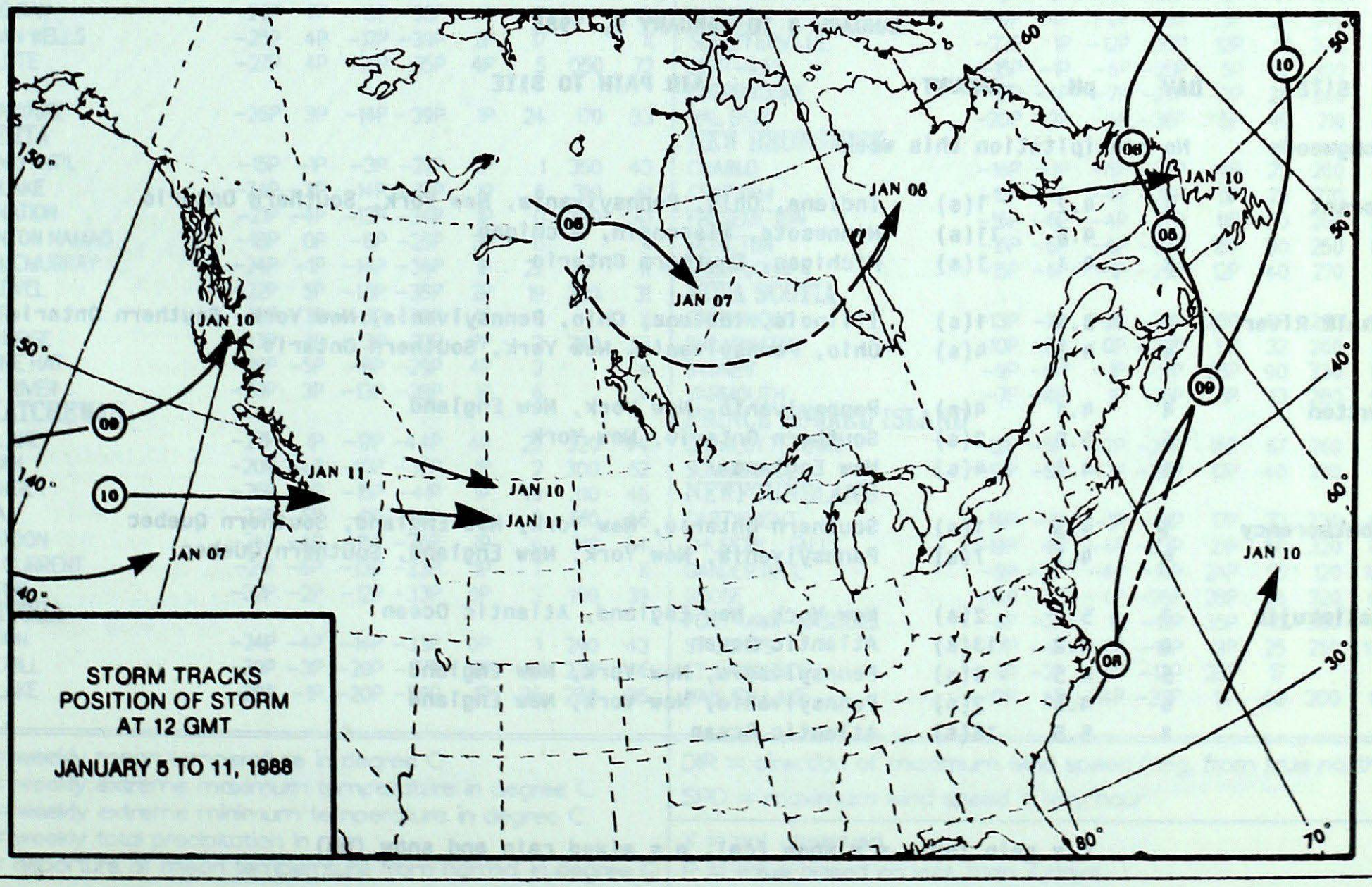
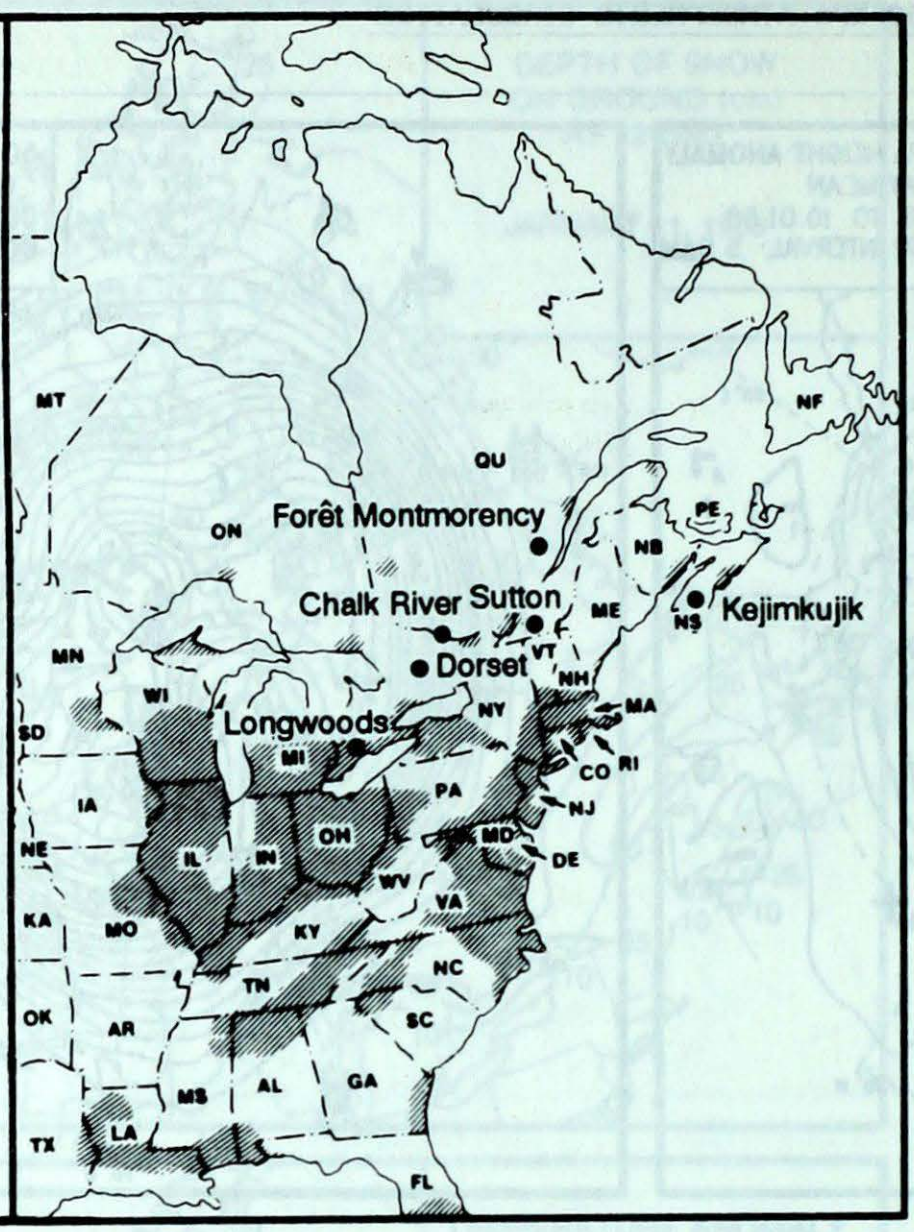


ACID RAIN

ALABAMA	—	AL
ARKANSAS	—	AR
CONNECTICUT	—	CO
DELAWARE	—	DE
FLORIDA	—	FL
GEORGIA	—	GA
ILLINOIS	—	IL
INDIANA	—	IN
IOWA	—	IA
KANSAS	—	KA
KENTUCKY	—	KY
LOUISIANA	—	LA
MAINE	—	ME
MANITOBA	—	MT
MARYLAND	—	MD
MASSACHUSETTS	—	MA
MICHIGAN	—	MI
MINNESOTA	—	MN
MISSISSIPPI	—	MS
MISSOURI	—	MO
NEBRASKA	—	NE
NEW BRUNSWICK	—	NB
NEWFOUNDLAND	—	NF
NEW HAMPSHIRE	—	NH
NEW JERSEY	—	NJ
NEW YORK	—	NY
NORTH CAROLINA	—	NC
NORTH DAKOTA	—	ND
NOVA SCOTIA	—	NS
OHIO	—	OH
OKLAHOMA	—	OK
ONTARIO	—	ON
PENNSYLVANIA	—	PA
PRINCE EDWARD ISLAND	—	PE
QUÉBEC	—	QU
RHODE ISLAND	—	RI
SOUTH CAROLINA	—	SC
SOUTH DAKOTA	—	SD
TENNESSEE	—	TN
TEXAS	—	TX
VERMONT	—	VT
VIRGINIA	—	VA
WEST VIRGINIA	—	WV
WISCONSIN	—	WI



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.

JANUARY 3 TO JANUARY 9, 1988

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	No precipitation this week			
Dorset	3	4.2	1(s)	Indiana, Ohio, Pennsylvania, New York, Southern Ontario
	4	4.8	11(s)	Minnesota, Wisconsin, Michigan
	8	4.1	1(s)	Michigan, Southern Ontario
Chalk River	3	3.9	1(s)	Illinois, Indiana, Ohio, Pennsylvania, New York, Southern Ontario
	4	4.3	4(s)	Ohio, Pennsylvania, New York, Southern Ontario
Sutton	4	4.1	4(s)	Pennsylvania, New York, New England
	6	5.5	2(s)	Southern Ontario, New York
	8	4.5	4(s)	New England
Montmorency	3	4.3	1(s)	Southern Ontario, New York, New England, Southern Quebec
	4	4.1	7(s)	Pennsylvania, New York, New England, Southern Quebec
Kejimkujik	3	5.7	2(s)	New York, New England, Atlantic Ocean
	4	4.2	13(s)	Atlantic Ocean
	5	4.5	3(s)	Pennsylvania, New York, New England
	6	4.6	2(s)	Pennsylvania, New York, New England
	8	5.5	18(s)	Atlantic Ocean

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

STATISTICS

TEMPERATURE, PRECIPITATION AND MAXIMUM WIND DATA FOR THE WEEK ENDING 0600 GMT JANUARY 12,1988

STATION	TEMPERATURE				PRECIP.		WIND MX	
	AV	DP	MX	MN	TP	SOG	DIR	SPD
BRITISH COLUMBIA								
CAPE ST.JAMES	6P	3P	8P	4P	14P	*	290	104
CRANBROOK	-18P	-4P	-5P	-28P	1P	19		*
FORT NELSON	-21P	4P	-9P	-33P	1P	24		*
FORT ST.JOHN	-18P	2P	-10P	-27P	4P	11		*
KAMLOOPS	-8P	-2P	-1P	-14P	4P	9	110	31
PENTICTON	-4P	-1P	1P	-9P	7P	9	190	54
PORT HARDY	4P	2P	7P	-2P	31P	0	120	70
PRINCE GEORGE	-18P	*	-6P	-28P	6P	13		*
PRINCE RUPERT	-1P	1P	4P	-9P	16P	2		*
REVELSTOKE	-10P	2P	-1P	-18P	9P	28		*
SMITHERS	-13P	-1P	-7P	-22P	12P	32		*
VANCOUVER INT'L	3P	0P	8P	-2P	11P	0	180	37
VICTORIA INT'L	4P	1P	9P	-1P	18P	0	140	39
WILLIAMS LAKE	-12P	-2P	-1P	-21P	2P	19		X
YUKON TERRITORY								
DAWSON	-33P	-4P	-28P	-37P	*	*		
MAYO	-33P	-2P	-28P	-41P	2P	27		X
SHINGLE POINT A	-19P	6P	-7P	-34P	0P	51		*
WATSON LAKE	-26P	2P	-17P	-38P	2	42		*
WHITEHORSE	-25P	-2P	-18P	-36P	1	18	200	43
NORTHWEST TERRITORIES								
ALERT	-33P	0P	-21P	-42P	2P	31		*
BAKER LAKE	-34P	-1P	-20P	-43P	1P	72	240	81
CAMBRIDGE BAY	-28P	5P	-17P	-35P	3P	21	330	78
CAPE DYER	-28P	-5P	-18P	-35P	1P	28	300	61
CLYDE	-31P	-5P	-21P	-36P	*	22	310	41
COPPERMINE	-22P	7P	-9P	-32P	4P	39	310	65
CORAL HARBOUR	-33P	-4P	-22P	-43P	2P	33		X
EUREKA	-42P	-6P	-34P	-47P	*	11		*
FORT SMITH	-24P	3P	-13P	-38P	3P	32		X
IQALUIT	-29P	-3P	-19P	-36P	0P	*	350	44
HALL BEACH	-29P	1P	-19P	-39P	2P	30	160	56
INUVIK	-23P	7P	-8P	-35P	1P	40		X
MOULD BAY	-26P	7P	-15P	-38P	4P	17		X
NORMAN WELLS	-25P	4P	-17P	-39P	2P	17		X
RESOLUTE	-27P	4P	-21P	-35P	4P	5	050	72
YELLOWKNIFE	-26P	3P	-14P	-39P	1P	24	170	33
ALBERTA								
CALGARY INT'L	-15P	-1P	-3P	-27P	2P	1	350	43
COLD LAKE	-24P	-3P	-14P	-37P	1P	6	310	41
CORONATION	-21P	-4P	-13P	-34P	1P	0	330	41
EDMONTON NAMAO	-18P	0P	-8P	-25P	3P	8		*
FORT MCMURRAY	-24P	-1P	-14P	-36P	1P	22		X
HIGH LEVEL	-22P	5P	-13P	-38P	2P	19	330	31
JASPER	-18P	-3P	-8P	-29P	1P	8		X
LETHBRIDGE	-13P	-1P	3P	-27P	7P	2	260	57
MEDICINE HAT	-19P	-5P	-8P	-29P	4P	2		*
PEACE RIVER	-20P	3P	-13P	-28P	1P	6		*
SASKATCHEWAN								
CREE LAKE	-27P	1P	-17P	-44P	4P	22	320	44
ESTEVAN	-20P	-4P	-10P	-32P	1P	2	300	52
LA RONGE	-26P	-1P	-15P	-41P	1P	49	310	46
REGINA	-23P	-5P	-11P	-36P	2P	5	310	46
SASKATOON	-24P	-4P	-15P	-36P	1P	6	310	44
SWIFT CURRENT	-21P	-6P	-13P	-33P	1P	7		X
YORKTON	-22P	-2P	-12P	-33P	0P	3	190	39
MANITOBA								
BRANDON	-24P	-4P	-14P	-33P	0P	1	290	43
CHURCHILL	-30P	-3P	-20P	-37P	2P	15	230	46
LYNN LAKE	-29P	-1P	-20P	-39P	1P	26	280	35

STATION	TEMPERATURE				PRECIP.		WIND MX	
	AV	DP	MX	MN	TP	SOG	DIR	SPD
THE PAS	-25P	*	-17P	-35P	1P	14	320	52
THOMPSON	-29P	-1P	-19P	-38P	2P	21	290	35
WINNIPEG INT'L	-24P	-5P	-16P	-31P	0P	5	170	46
ONTARIO								
ATIKOKAN	-26P	-5P	-14P	-38P	1P	15		*
BIG TROUT LAKE	-29P	*	-21P	-36P	1P	16	320	43
GORE BAY	-11P	-1P	-4P	-20P	5P	22	270	52
KAPUSKASING	-21P	-2P	-6P	-32P	5P	46	220	63
KENORA	-26P	-7P	-18P	-34P	1P	22	200	43
KINGSTON	-7P	3P	0P	-15P	0P	0		X
LONDON	-11P	-4P	-1P	-18P	2P	1	260	63
MOOSONEE	-24P	-3P	-11P	-33P	6P	70	280	41
NORTH BAY	-17P	-3P	-5P	-30P	6P	28	230	44
OTTAWA INT'L	-16P	-5P	-4P	-25P	3P	26		X
PETAWAWA	-18P	-4P	-4P	-32P	1P	23		X
PICKLE LAKE	-28P	-6P	-19P	-36P	1P	23		*
RED LAKE	-27P	-4P	-18P	-39P	1P	22	210	33
SUDBURY	-17P	-3P	-5P	-29P	7P	42		X
THUNDER BAY	-23P	-7P	-9P	-30P	0P	9	300	43
TIMMINS	-21P	-2P	-6P	-34P	3P	41		*
TORONTO INT'L	-10P	-3P	-1P	-18P	1P	0	260	74
TRENTON	-13P	-5P	0P	-25P	5P	1		X
WIARTON	-11P	-4P	-3P	-19P	23P	10		X
WINDSOR	-11P	-6P	1P	-20P	1P	1	200	46
QUEBEC								
BAGOTVILLE	-19P	-2P	-6P	-33P	4P	23	270	72
BLANC SABLON	-13P	*	-1P	-23P	39P	20		X
INUKJUAK	-24P	1P	-20P	-31P	2P	34	210	61
KUUJJUAQ	-25P	-2P	-10P	-35P	10P	55	010	67
KUUJJUARAPIK	-25P	-2P	-15P	-32P	7P	17	180	74
MANIWAKI	-19P	-5P	-5P	-32P	2P	24	280	37
MONT JOLI	-14P	-2P	-4P	-20P	5P	14	270	85
MONTREAL INT'L	-15P	-4P	-4P	-23P	3P	10	260	61
NATASHQUAN	-13P	0P	-5P	-22P	13P	21	270	93
QUEBEC	-17P	-4P	-6P	-28P	3P	34	260	69
SCHEFFERVILLE	-22P	1P	-12P	-37P	12P	51	340	78
SEPT-ILES	-15P	-1P	-6P	-25P	5P	12	300	74
SHERBROOKE	-17P	-4P	-7P	-27P	7P	26	260	59
VAL D'OR	-20P	-2P	-6P	-36P	5P	45	210	46
NEW BRUNSWICK								
CHARLO	-16P	-1P	-5P	-24P	4P	29	260	87
CHATHAM	-15P	-4P	-4P	-26P	5P	29	270	65
FREDERICTON	-16P	-6P	-4P	-27P	11P	30	280	83
MONCTON	-15P	-6P	-4P	-23P	18P	30	250	89
SAINT JOHN	-15P	-6P	-1P	-29P	12P	40	270	61
NOVA SCOTIA								
GREENWOOD	-13P	-7P	-2P	-26P	28P	63	290	96
SHEARWATER	-10P	-6P	0P	-20P	11P	32	260	78
SYDNEY	-9P	-5P	-1P	-17P	55P	90	330	87
YARMOUTH	-7P	-4P	1P	-16P	1P	13	280	93
PRINCE EDWARD ISLAND								
CHARLOTTETOWN	-13P	-5P	-2P	-20P	16P	67	260	70
SUMMERSIDE	-13P	-5P	-2P	-20P	12P	40	250	91
NEWFOUNDLAND								
CARTWRIGHT	-14P	-1P	-1P	-21P	17P	72	330	93
CHURCHILL FALLS	-19P	4P	-4P	-33P	21P	60	320	83
GANDER INT'L	-9P	-3P	-4P	-14P	24P	55	120	106
GOOSE	-16P	1P	-4P	-26P	28P	36	320	89
PORT-AUX-BASQUES	-6P	-2P	1P	-12P	35P	45	300	98
ST JOHN'S	-7P	-4P	-2P	-15P	19P	25	250	100
ST LAWRENCE	-6P	-2P	3P	-13P	25P	17		X
WABUSH LAKE	-18P	6P	-14P	-32P	9P	48	300	67

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

X = not observed
P = value based on less than 7 days
* = missing