

Climatic Perspectives

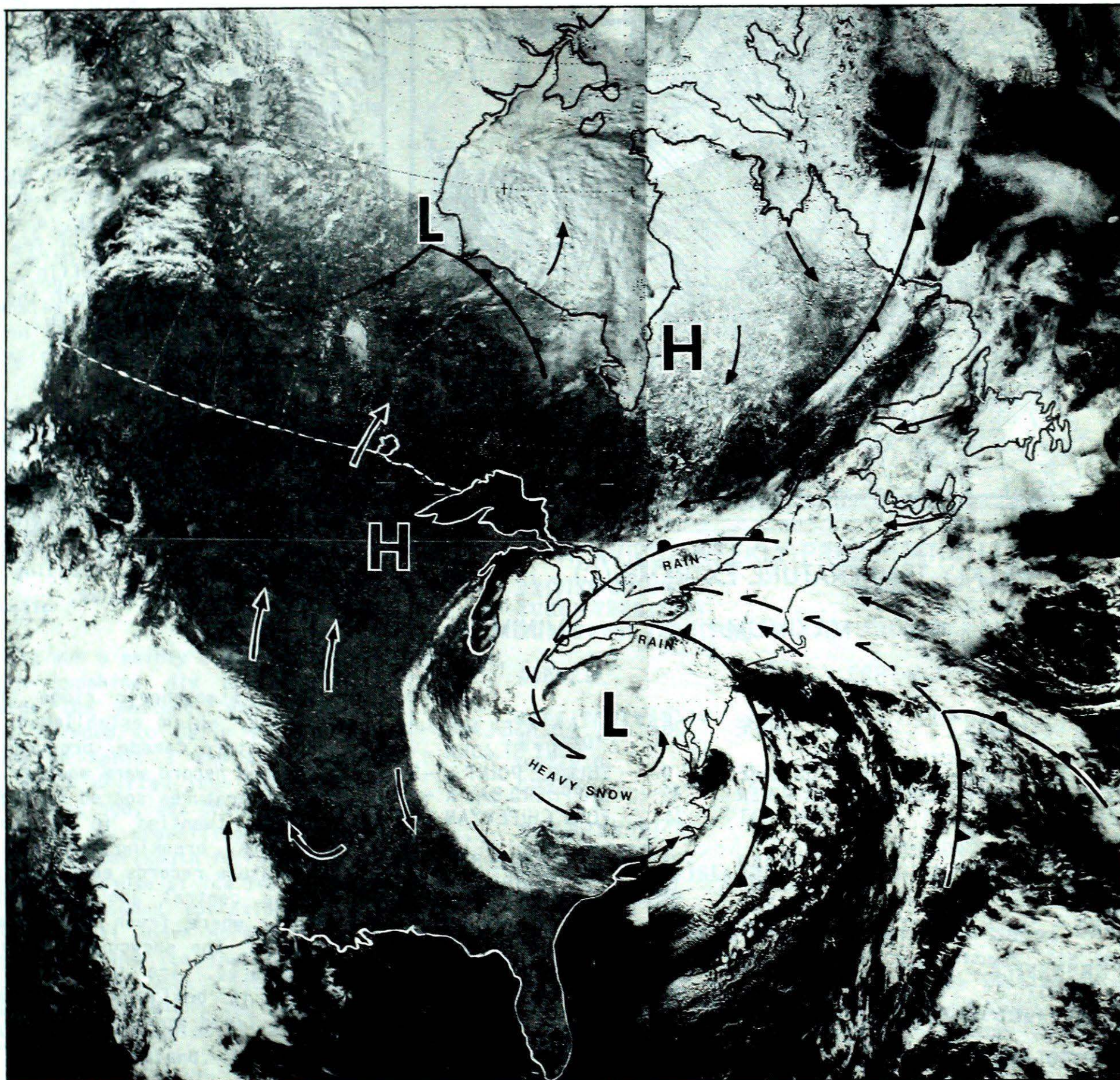
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A weekly review of Canadian climate

March 31 to April 6, 1987

Vol.9 No.14



The spiral, coma-shaped clouds, in this NOAA 9 satellite photo of April 5, 1987, depict the final stage in the evolution of the deep cyclonic low pressure system, which tracked northward from the Gulf States during the period. The warm airmass to the east of the low is being squeezed out by an influx of colder air from the west. This prompted the development of a closed (cold) vortex in the upper atmosphere above the system, significantly slowing down the eastward progression of this late winter storm.

● Rain and record warmth trigger excessive spring runoff

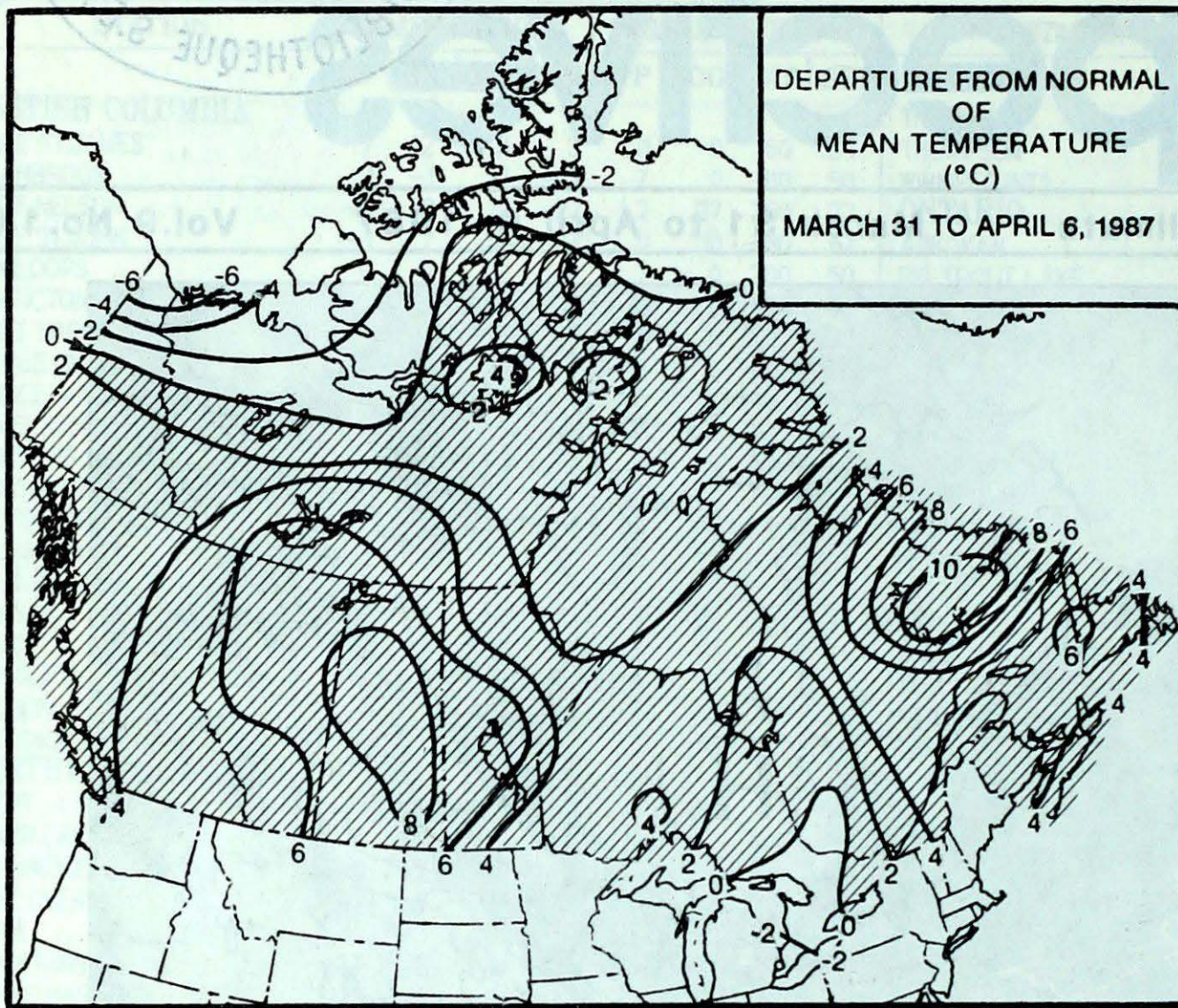
Severe flooding along the Saint John River, N.B.

Railway bridge washed out in the Beauce Region of Quebec

Canada

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TEMPERATURE



ACROSS THE COUNTRY...

Yukon and Northwest Territories

The southern Yukon and Mackenzie District remained mild for the most part, with highs reaching the double digits. Blizzard warnings were in effect north of the Ogilvie mountains, where minimums registered in the minus thirties. Snowfalls along the frontal boundary ranged from 10 to 30 centimetres. Bitterly cold temperatures, as low as the minus forties, and blowing snow were experienced in the Arctic archipelago. Early in the week, a vigorous disturbance left 15 cm of fresh snow covering southern Baffin Island, this being greater than the total snowfall all of last month.

British Columbia

It was another mostly sunny and mild week. Except for along the coast, precipitation was sparse. In the interior, temperatures climbed to record or near record values. The snowpack is going fast, but because of the cool nights, flooding at the moment is not a problem.

Prairies

An atmospheric ridge of high pressure, which established itself over western Canada, produced sunny skies and record warm weather. Maximum temperatures soared to the teens and low twenties in agricultural districts, breaking numerous daily temperature records each day. Except in the central and northern districts, where fresh snowfalls were reported, the snowcover has all but disappeared. Ice on many of the rivers is beginning to break up. Spring field work has begun in the south.

Ontario

Heavy snow continued falling over the southern half of the province until the evening of the 31st, as a major late winter storm moved slowly into Quebec. On April 1, southern Ontario residents dug out from under the 20 to 30 centimeters of the heavy wet stuff. The snow allowed all ski resorts to reopen for one more weekend of skiing. On

WEEKLY TEMPERATURE EXTREME (C)

	MAXIMUM	MINIMUM
BRITISH COLUMBIA	HOPE 26	DEASE LAKE -10
YUKON TERRITORY	WATSON LAKE 9	FORT ST. JOHN -39
NORTHWEST TERRITORIES	HAY RIVER 12	SHEPHERD BAY A -43
ALBERTA	MEDICINE HAT 24	FORT CHIPEWYAN -12
SASKATCHEWAN	MOOSE JAW 22	COLLINS BAY -17
MANITOBA	DAUPHIN 19	CHURCHILL -26
ONTARIO	THUNDER BAY 22	LANSDOWNE HOUSE -25
QUEBEC	MANIWAKI 17	INUKJUAK -28
NEW BRUNSWICK	ST STEPHEN 16	ST STEPHEN -4
NOVA SCOTIA	GREENWOOD 18	SYDNEY -3
PRINCE EDWARD ISLAND	CHARLOTTETOWN 12	CHARLOTTETOWN -1
NEWFOUNDLAND	GOOSE 14	SUMMERSIDE -8

ACROSS THE NATION

WARMEST MEAN TEMPERATURE	13	HOPE	BC
		LYTTON	BC
COOLEST MEAN TEMPERATURE	-37	EUREKA	NWT

April 2, another disturbance produced a few more centimetres of snow. Northern areas of the province missed the heavy snow; they encountered a return to colder weather. Temperatures slowly moderated during the week, but the weekend saw heavy rain and strong winds affect southeastern Ontario, as another complex weather system emerged out of the American south. The rain and melting snow swelled streams and rivers, causing flooding in the southeast.

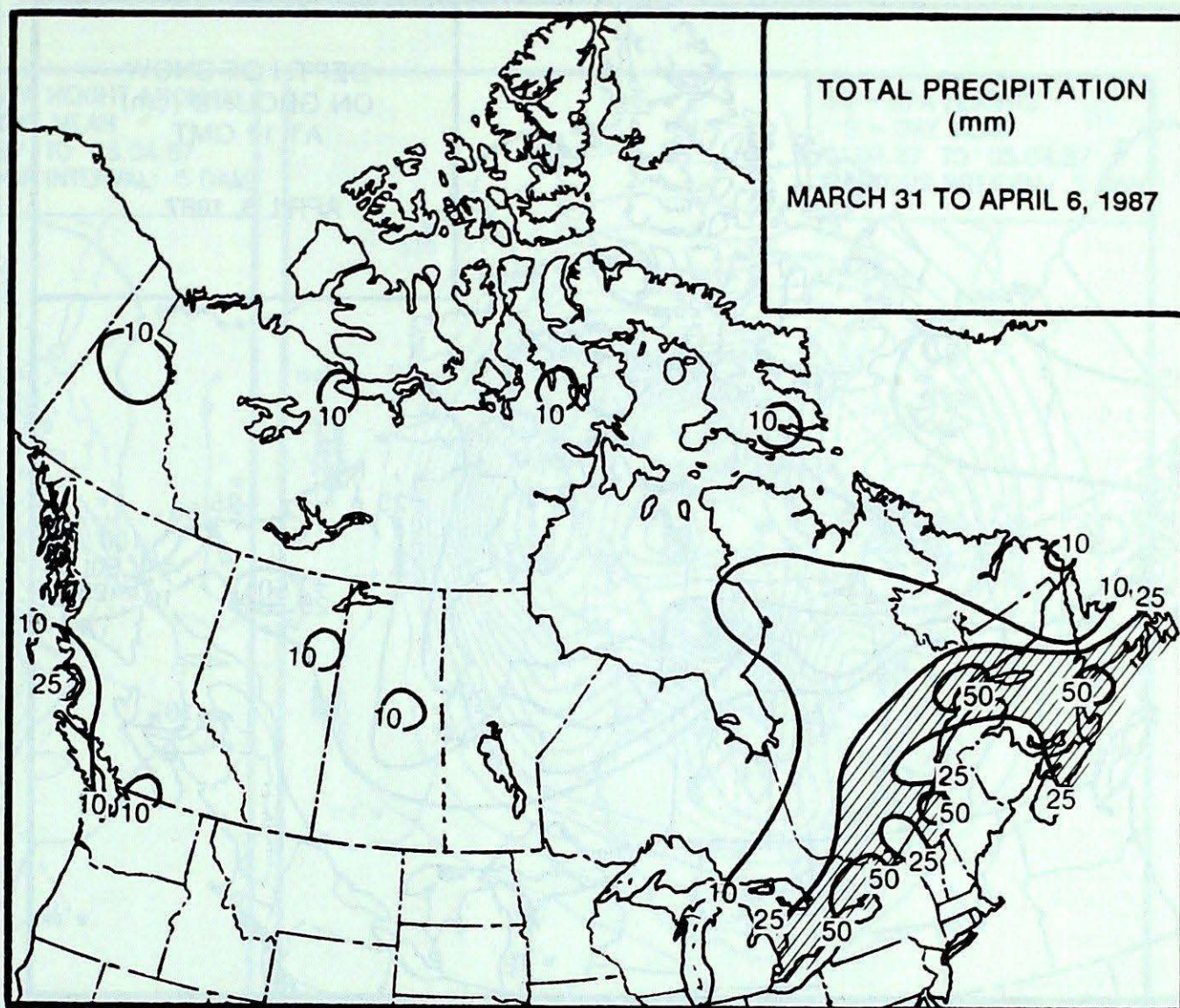
Quebec

It was a mild, but cloudy, wet week, with precipitation exceeding 50 mm along the lower St. Lawrence. Extensive flooding in the Beauce region was caused by the rapid rise of the Chaudiere River. River levels, the first week in April, rose 8 metres. At Ste.-Marie, in the Eastern Townships, more than 600 establishments were flooded, prompting the evacuation of 450 residents. Sections of highways and roads in the area were under water, and more than 2000 people were without electricity.

Atlantic

It was a mainly cloudy week, although sunshine did break through towards the weekend, when temperatures climbed to daily record high values on April 3 and 4. The pack ice, which drifted into Halifax harbour a week ago, was gradually pushed out to sea by prevailing westerlies. The Halifax-Dartmouth ferry services, shut down because of ice for a number of days, resumed operation on the April 6. Well above normal temperatures, rain and ice jams during the middle of the week contributed to severe flooding along the Saint John River in New Brunswick.

In Newfoundland, fair weather, which prevailed early in the week, gave way to cloud and rain on the 2nd. Mild, cloudy conditions ensued during the latter half of the period, steadily depleting the heavy snow cover still remaining on the ground. Fog was extensive over the eastern half of the Island, with occasional rain or drizzle reported in many locations. In Labrador, the period was also very mild, but with a mixture of snow and rain. An area of high pressure brought fair weather to Labrador over the weekend.



HEAVIEST WEEKLY PRECIPITATION (mm)

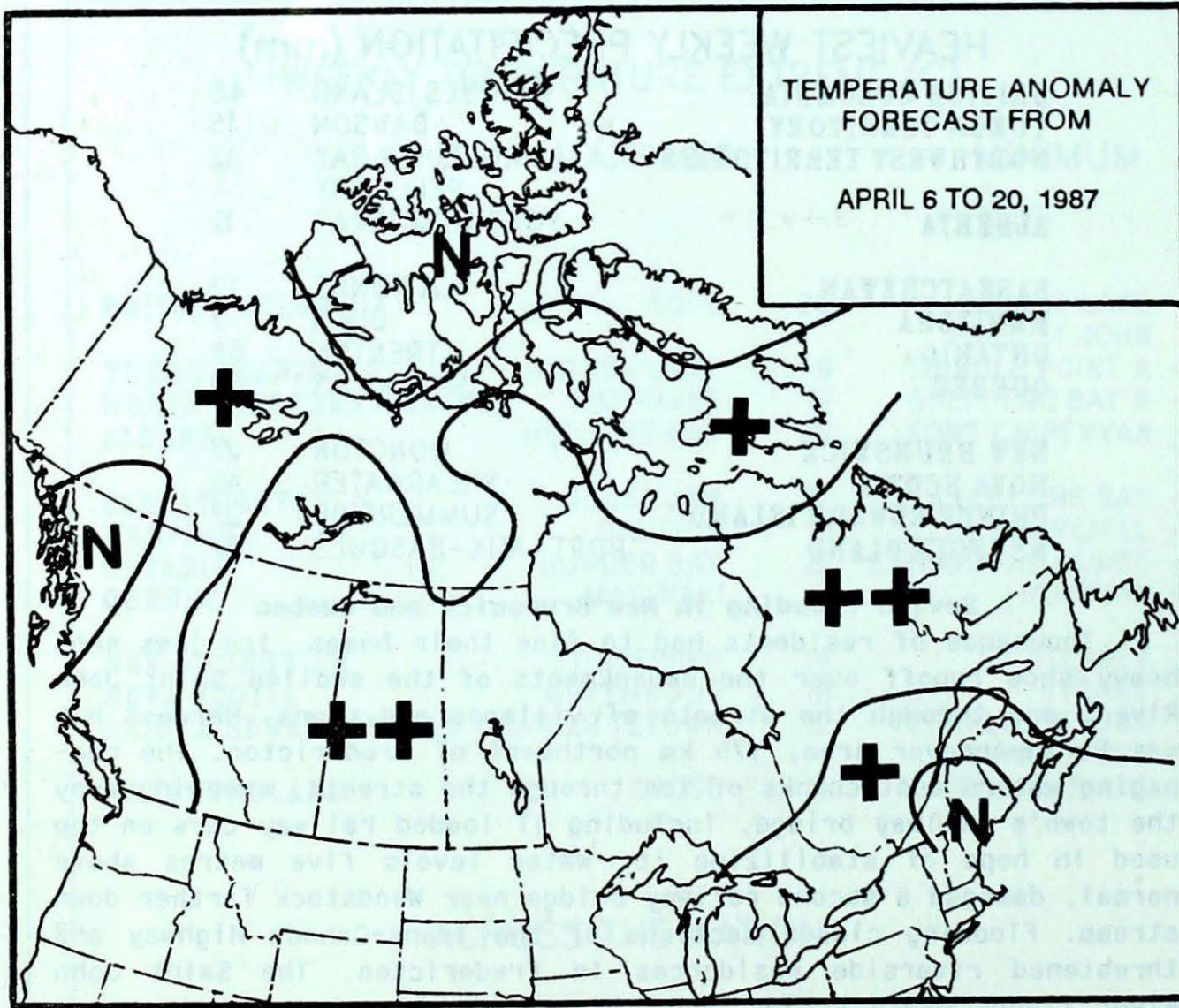
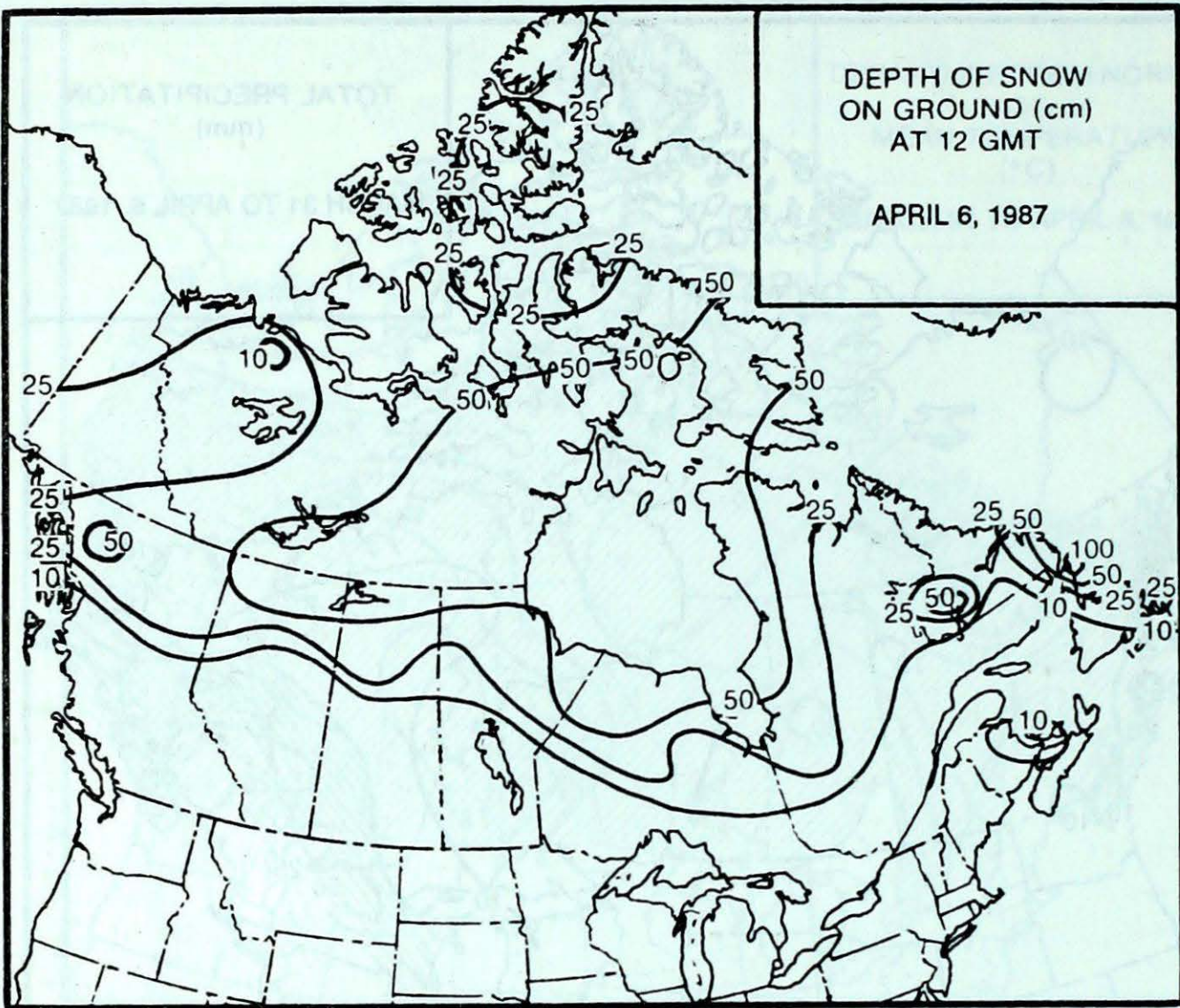
BRITISH COLUMBIA	MCINNES ISLAND	48
YUKON TERRITORY	DAWSON	15
NORTHWEST TERRITORIES	FROBISHER BAY	12
	PELLY BAY	
ALBERTA	FORT McMURRAY	12
SASKATCHEWAN	LA RONGE	13
MANITOBA	GIMLI	7
ONTARIO	TRENTON	66
QUEBEC	SEPT-ILES	58
NEW BRUNSWICK	MONCTON	27
NOVA SCOTIA	SHEARWATER	42
PRINCE EDWARD ISLAND	SUMMERSIDE	27
NEWFOUNDLAND	PORT-AUX-BASQUES	57

Severe flooding in New Brunswick and Quebec

Thousands of residents had to flee their homes. Ice jams sent heavy snow runoff over the embankments of the swollen Saint John River, and through the streets of villages and towns. Hardest hit was Perth-Andover area, 175 km northwest of Fredericton. The ram-paging waters sent chunks of ice through the streets, sweeping away the town's railway bridge, including 17 loaded railway cars on top used in hope of stabilizing it. Water levels five metres above normal, damaged a second railway bridge near Woodstock farther down stream. Flooding closed sections of the Trans-Canada Highway and threatened riverside residences in Fredericton. The Saint John River floods every spring, but this year's flooding was the worst since 1973.

Similar flooding, caused by heavy rains and melting snow occurred near Quebec City, where flood waters and ice destroyed three spans of a railway bridge over the Ste. Anne River. The Beauce area of Quebec was hardest hit, when the Chaudiere River overflowed its banks. Property damage from these floods is estimated to be in the millions of dollars.

FORECAST



Temperature Anomaly Forecast
 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.

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

CLIMATIC PERSPECTIVES VOLUME 9

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 ISSN 0225-5707 UDC 551.506.1(71)

Climatic Perspectives is a weekly bilingual publication of the Canadian Climate Centre, Atmospheric Environment Service, 4905 Dufferin St., Downsview, Ont. Canada M3H 5T4. Phone (416)667-4906/4711.

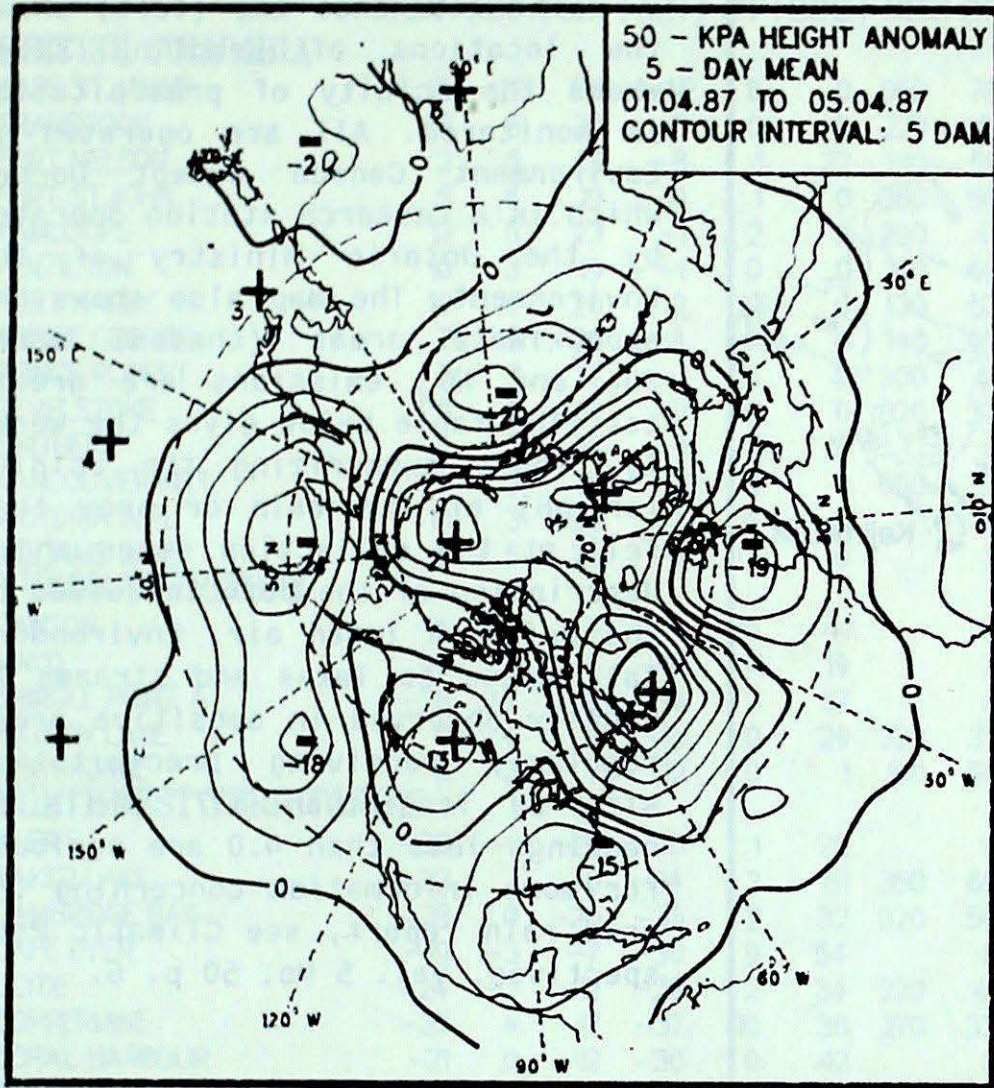
The purpose of the publication is to make topical information available to the public concerning the Canadian Climate and its socio-economic impact.

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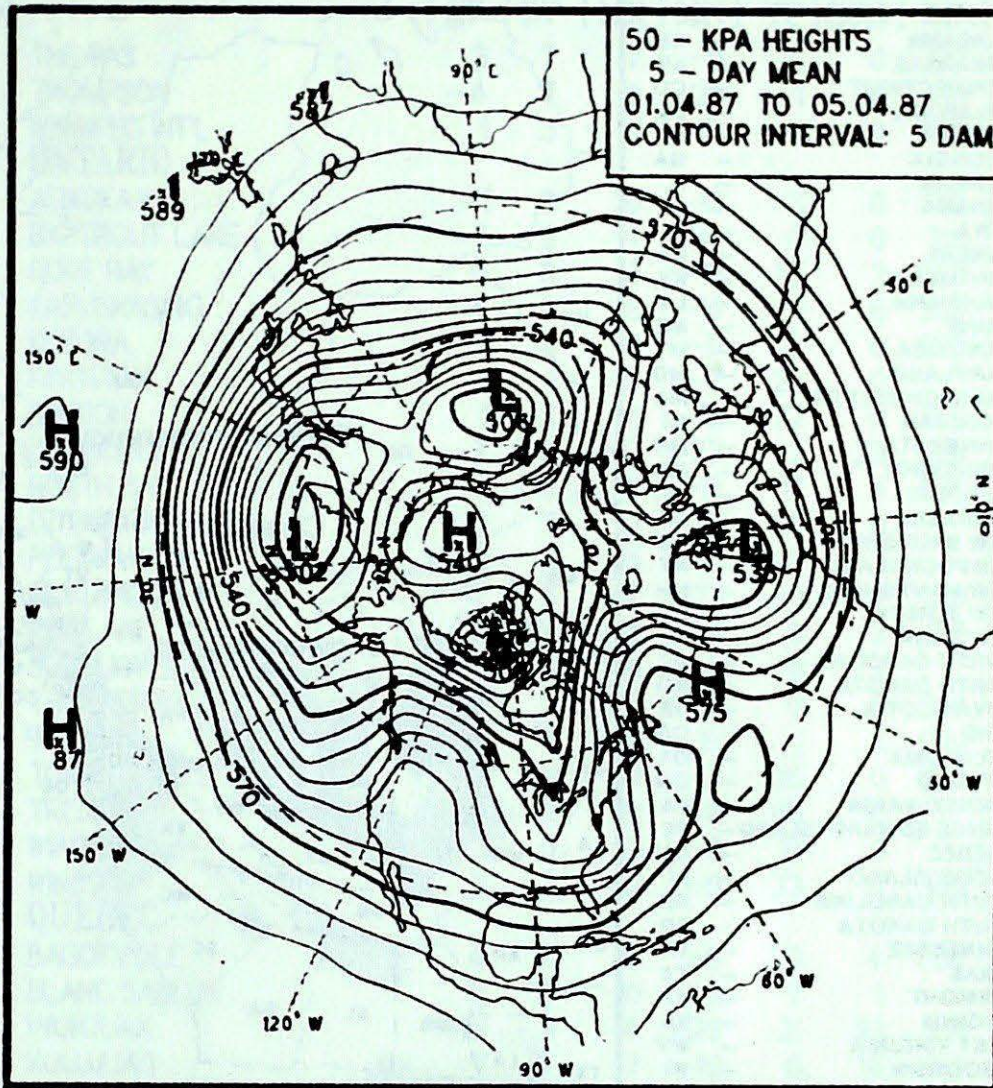
The data in this publication are based on unverified reports from approximately 225 Canadian synoptic weather stations. Information concerning climatic impacts is gathered from AES contacts with the public and from the media. Articles do not necessarily reflect the views of the Atmospheric Environment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

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 weekly & monthly supplement: \$35.00
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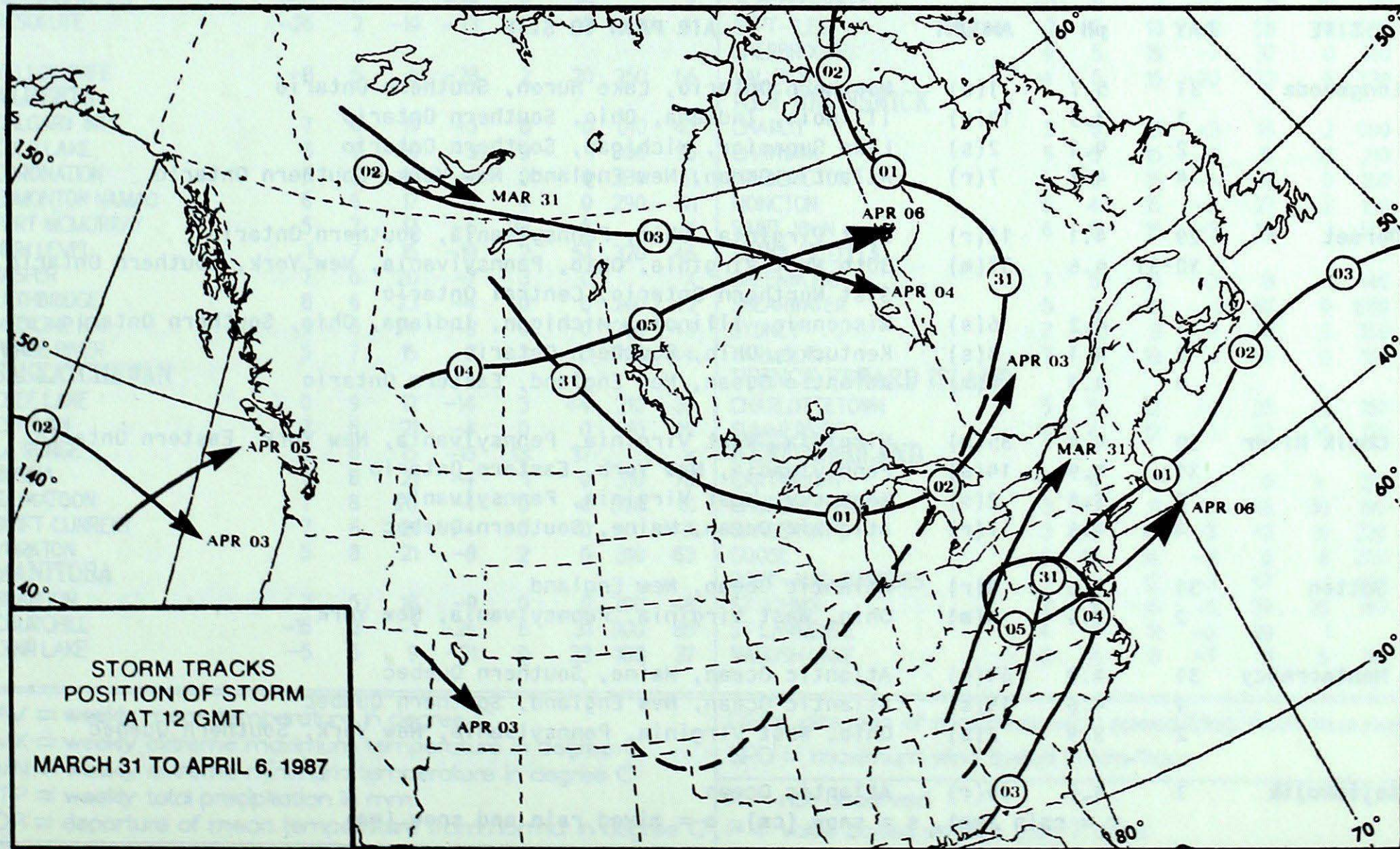
50 KPa ATMOSPHERIC CIRCULATION



MEAN 50 KPa HEIGHT ANOMALY (dam)
April 1 to 5, 1987



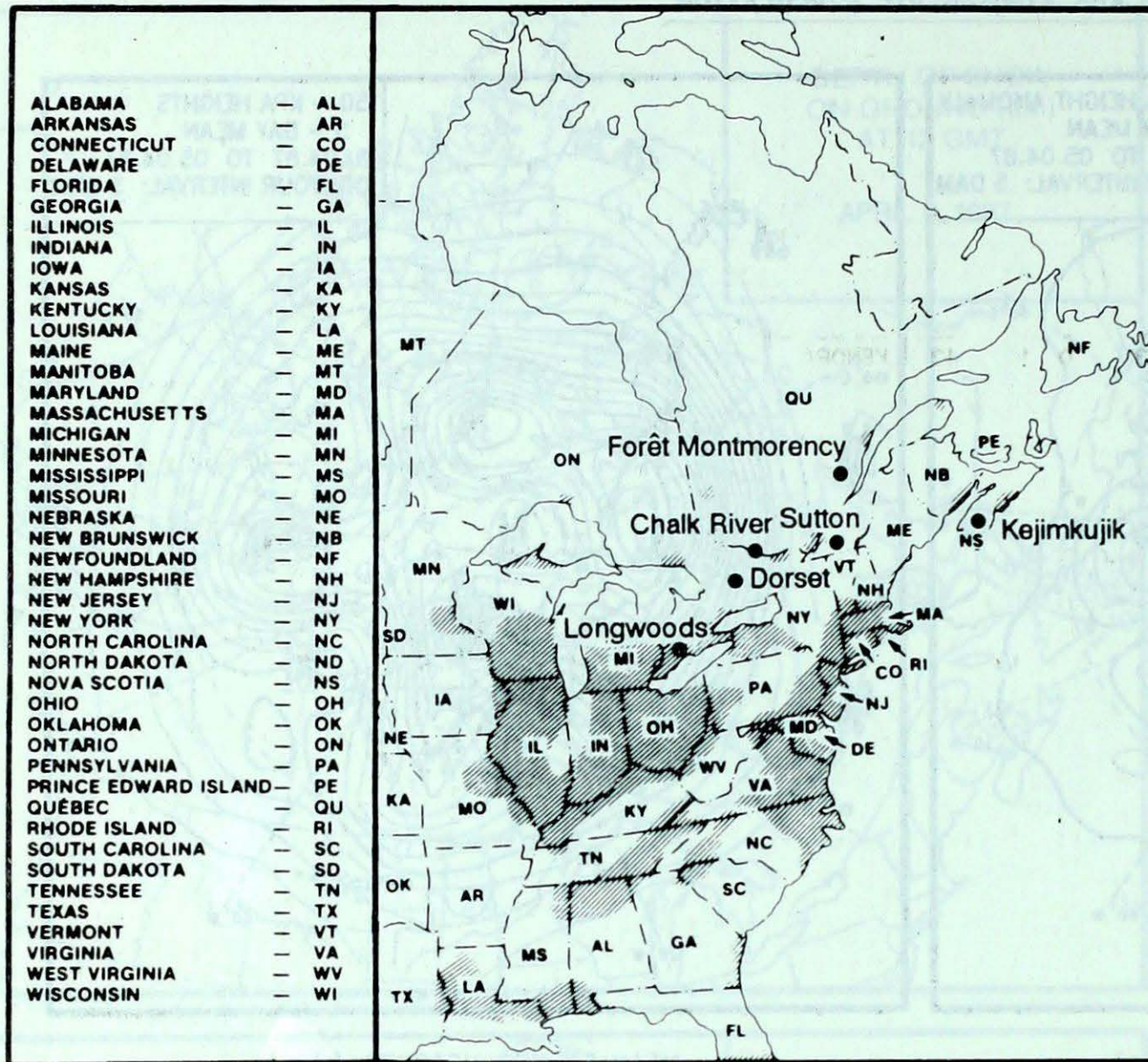
MEAN 50 KPa HEIGHTS (dam)
April 1 to 5, 1987



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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 SO₂ 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.

APRIL 1 TO APRIL 5 1987

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	31	5.7	1(s)	Northern Ontario, Lake Huron, Southern Ontario
	1	3.9	14(r)	Illinois, Indiana, Ohio, Southern Ontario
	2	4.1	2(s)	Lake Superior, Michigan, Southern Ontario
	4	4.7	7(r)	Atlantic Ocean, New England, New York, Southern Ontario
Dorset	29	4.1	11(r)	West Virginia, Ohio, Pennsylvania, Southern Ontario
	30-31	4.6	37(m)	30th West Virginia, Ohio, Pennsylvania, New York, Southern Ontario
				31st Northern Ontario, Central Ontario
	1	4.2	6(s)	Wisconsin, Illinois, Michigan, Indiana, Ohio, Southern Ontario
	2	4.1	3(s)	Kentucky, Ohio, Southern Ontario
Chalk River	4	4.9	4(r)	Atlantic Ocean, New England, Eastern Ontario
	30	4.4	35(m)	Virginia, West Virginia, Pennsylvania, New York, Eastern Ontario
	31	4.9	14(s)	Pennsylvania, New York, Eastern Ontario
	2	3.8	2(s)	Kentucky, West Virginia, Pennsylvania
Sutton	4	4.6	7(r)	Atlantic Ocean, Maine, Southern Quebec
	31	4.8	8(r)	Atlantic Ocean, New England
Sutton	2	3.6	4(m)	Ohio, West Virginia, Pennsylvania, New York
	31	4.9	64(m)	Atlantic Ocean, Maine, Southern Quebec
Montmorency	1	4.6	19(s)	Atlantic Ocean, New England, Southern Quebec
	2	3.9	2(s)	Ohio, West Virginia, Pennsylvania, New York, Southern Quebec
	31	4.7	10(r)	Atlantic Ocean

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

TEMPERATURE, PRECIPITATION AND MAXIMUM WIND DATA FOR THE WEEK ENDING 0600 GMT APRIL 7, 1987

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	3	7	17	-11	0	0	120	41
CAPE ST. JAMES	8P	2P	13P	4P	6	0	050	78	THOMPSON	-4	7	10	-20	1	26	310	52
CRANBROOK	9	5	20	-3	0	0	270	41	WINNIPEG INT'L	1	3	18	-13	4	0	180	48
FORT NELSON	2	5	13	-8	1	22	310	59	ONTARIO								
FORT ST. JOHN	5	6	19	-10	1	0	360	50	ATIKOKAN	-1	3	20	-18	3	0	340	33
KAMLOOPS	12	5	23	-1	2	0	290	41	BIG TROUT LAKE	-7	2	14	-24	0	0	210	65
PENTICTON	10	3	19	-1	0	0	180	48	GORE BAY	0	0	16	-12	25	3	030	56
PORT HARDY	10	4	20	2	10	0	130	52	KAPUSKASING	-4	0	18	-16	1	8	360	41
PRINCE GEORGE	7	5	20	-4	3	0	140	43	KENORA	1	3	19	-11	2	0	220	48
PRINCE RUPERT	7	3	22	-1	25	0	300	41	KINGSTON	3	1	10	-7	22	0		X
REVELSTOKE	9	5	20	-2	8	0	320	33	LONDON	1	-2	11	-10	32	0	360	65
SMITHERS	5	3	16	-3	2	0		*	MOOSONEE	-7	0	12	-23	2	23	220	44
VANCOUVER INT'L	11	3	21	3	9	0	090	39	NORTH BAY	-1	0	15	-12	17	5	020	59
VICTORIA INT'L	10	3	20	3	4	0		*	OTTAWA INT'L	3	1	12	-9	60	0		X
WILLIAMS LAKE	8	5	20	-3	1	0		X	PETAWAWA	0	1	15	-16	47	1		X
YUKON TERRITORY									PICKLE LAKE	-2	3	17	-23	0	40	210	54
DAWSON	-4	*	7	-13	15	41		*	RED LAKE	0	3	19	-19	0	3	210	50
MAYO	-2	2	6	-16	11	19		X	SUDBURY	-1	1	15	-11	11	2		X
SHINGLE POINT A	-28	-7	-18	-38	3	37		*	THUNDER BAY	0	2	22	-14	0	0	340	44
WATSON LAKE	0	4	9	-15	0	29	320	37	TIMMINS	-3	1	16	-15	1	1	020	37
WHITEHORSE	0	2	7	-12	0	1	190	56	TORONTO INT'L	2	-1	13	-7	35	0	050	87
NORTHWEST TERRITORIES									TRENTON	3	0	11	-8	66	0		X
ALERT	-35	-4	-28	-40	1	28		*	WIARTON	1	0	13	-5	19	0		X
BAKER LAKE	-23	1	-6	-34	2	81	350	69	WINDSOR	2	-3	10	-5	33	0	360	91
CAMBRIDGE BAY	-28	0	-20	-36	2	32	020	50	QUEBEC								
CAPE DYER	-19	-3	-7	-30	9	54		*	BAGOTVILLE	4	6	15	-6	20	4	080	57
CLYDE	-24	-2	-12	-36	2	34	220	41	BLANC SABLON	3	6	10	-2	7	1		X
COPPERMINE	-26	*	-17	-37	10	38	270	33	INUKJUAK	-13	3	-4	-28	21	53	180	83
CORAL HARBOUR	-21	0	-12	-30	0	42		X	KUUJUAQ	-8	4	7	-18	6	16	190	59
EUREKA	-37	-3	-28	-43	1	14		*	KUUJUJARAPIK	-11	1	1	-25	4	39	200	59
FORT SMITH	-1	7	11	-16	5	56		X	MANIWAKI	1	2	17	-12	42	0	310	35
IQUALUIT	-15	2	-6	-30	12	34	140	63	MONT JOLI	4	5	12	-3	3	0	160	102
HALL BEACH	-22	3	-14	-34	7	34	290	39	MONTREAL INT'L	5	3	16	-5	16	0	240	63
INUVIK	-27	-6	-17	-39	4	37		X	NATASHQUAN	3	6	11	-2	37	1	120	57
MOULD BAY	-33	-3	-27	-40	2	33		X	QUEBEC	3	3	14	-7	50	1	250	72
NORMAN WELLS	-13	0	-2	-24	7	19		X	SCHIEFFERVILLE	-1	9	7	-12	21	19	170	48
RESOLUTE	-26	2	-19	-33	2	18	100	61	SEPT-ILES	2	5	10	-3	58	0	080	78
YELLOWKNIFE	-8	5	5	-28	2	20	350	56	SHERBROOKE	4	5	15	-7	37	0	140	69
ALBERTA									VAL D'OR	-4	0	15	-20	32	6	330	37
CALGARY INT'L	7	6	19	-5	0	0	010	43	NEW BRUNSWICK								
COLD LAKE	5	7	19	-5	9	1	300	56	CHARLO	3	5	10	-3	14	2	090	54
CORONATION	5	5	18	-4	0	0	280	61	CHATHAM	5	5	15	-2	17	10	210	52
EDMONTON NAMAQ	6	6	17	-4	4	0	290	41	FREDERICTON	6	5	15	-4	14	0	160	44
FORT MCMURRAY	5	7	17	-6	12	5		X	MONCTON	5	4	15	-2	27	2	150	91
HIGH LEVEL	1	7	15	-10	2	57	320	46	SAINT JOHN	6	5	15	-3	14	1	140	56
JASPER	7	6	20	-7	3	0		X	NOVA SCOTIA								
LETHBRIDGE	8	6	23	-4	0	0	240	72	GREENWOOD	7	5	18	-3	8	1	140	91
MEDICINE HAT	9	6	24	-3	0	0	250	48	SHEARWATER	5	3	18	-1	42	0	080	69
PEACE RIVER	5	7	15	-7	3	0	290	44	SYDNEY	2	2	8	-3	31	5	350	54
SASKATCHEWAN									YARMOUTH	7	4	18	1	14	0	150	80
CREE LAKE	0	9	12	-14	3	44	210	39	PRINCE EDWARD ISLAND								
ESTEVAN	7	6	21	-4	0	0	310	89	CHARLOTTETOWN	5	5	12	-1	25	5	160	48
LA RONGE	2	8	15	-13	13	37		*	SUMMERSIDE	4	4	12	-1	27	14	170	65*
REGINA	7	8	21	-4	1	0	310	78	NEWFOUNDLAND								
SASKATOON	7	8	20	-4	0	0	300	61	CARTWRIGHT	4	8	13	-4	0	*	210	83
SWIFT CURRENT	7	6	21	-4	0	0		X	CHURCHILL FALLS	3	12	11	-8	16	59	190	56
YORKTON	5	8	21	-8	2	0	310	63	GANDER INT'L	3	4	10	-3	13	10	220	41
MANITOBA									GOOSE	6	10	14	-3	6	6	200	74
BRANDON	3	5	18	-9	0	0	290	48	PORT-AUX-BASQUES	3	4	12	-3	57	1	100	74
CHURCHILL	-15	0	-1	-26	6	31	300	85	ST JOHN'S	2	2	6	-6	29	25	140	50
LYNN LAKE	-5	5	9	-21	0	22	180	37	ST LAWRENCE	4	4	11	-5	39	1		X
									WABUSH LAKE	2	11	8	-7	11	5	170	52

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

TEMPERATURE, PRECIPITATION AND MAXIMUM WIND DATA FOR THE WEEK ENDING 0000 GMT APRIL 7, 1967

STATION	TEMPERATURE			PRECIP.	WIND MX	STATION	TEMPERATURE			PRECIP.	WIND MX
	AV	DP	MX				AV	DP	MX		
ALBANY	50	50	55	0.00	30	ALBANY	50	50	55	0.00	30
ALBANY	50	50	55	0.00	30	ALBANY	50	50	55	0.00	30
ALBANY	50	50	55	0.00	30	ALBANY	50	50	55	0.00	30
ALBANY	50	50	55	0.00	30	ALBANY	50	50	55	0.00	30
ALBANY	50	50	55	0.00	30	ALBANY	50	50	55	0.00	30
ALBANY	50	50	55	0.00	30	ALBANY	50	50	55	0.00	30
ALBANY	50	50	55	0.00	30	ALBANY	50	50	55	0.00	30
ALBANY	50	50	55	0.00	30	ALBANY	50	50	55	0.00	30
ALBANY	50	50	55	0.00	30	ALBANY	50	50	55	0.00	30

AV = average of maximum and minimum wind speed for the month
 DP = direction of maximum wind speed in km/hour
 MX = maximum wind speed in km/hour
 N = not observed
 P = value based on last 7 days
 S = snow depth on ground in cm, last day of the period
 TS = depth of total precipitation in mm
 W = wind direction in degrees
 W = wind speed in degrees
 W = wind speed in degrees