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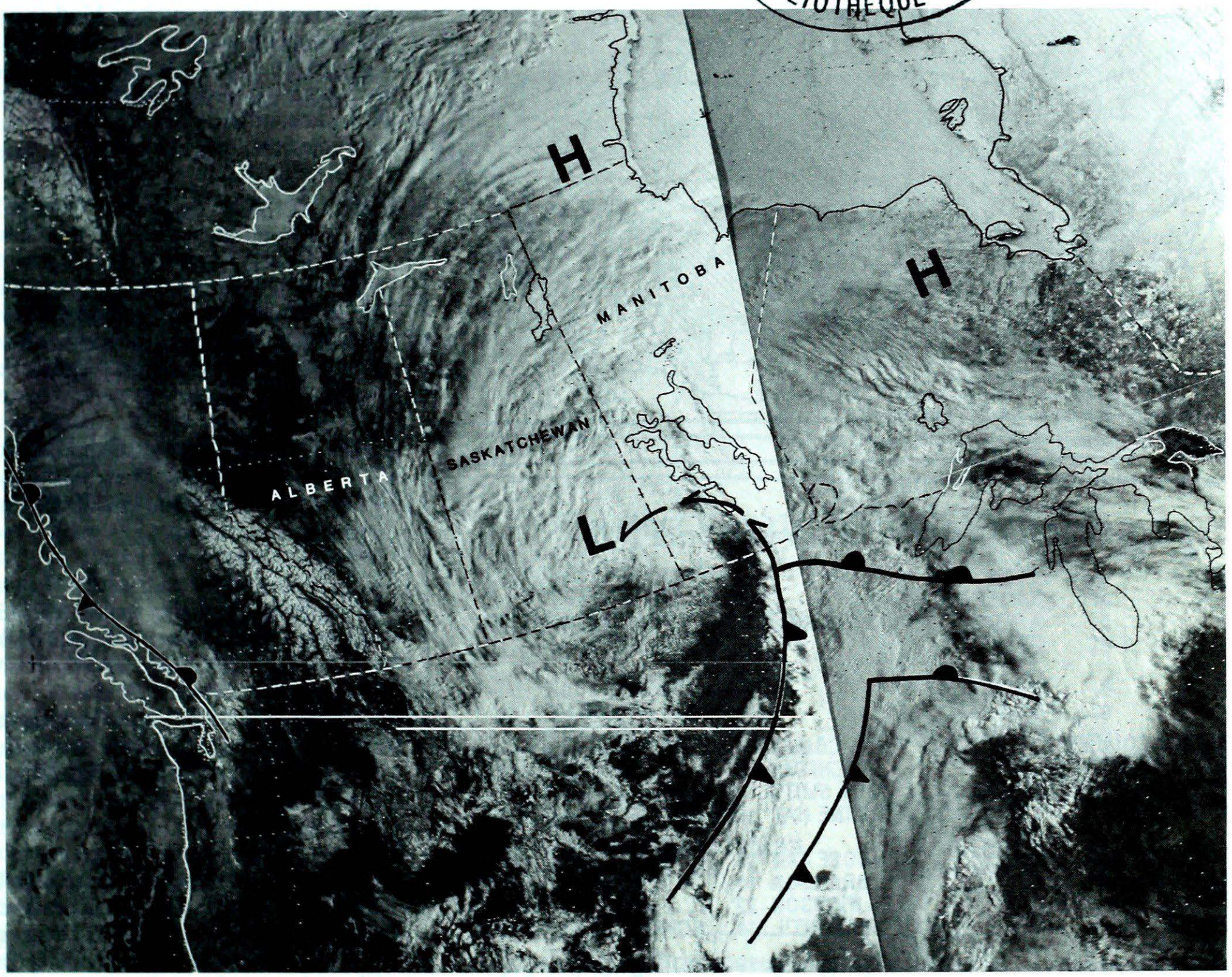
Climatic Perspectives

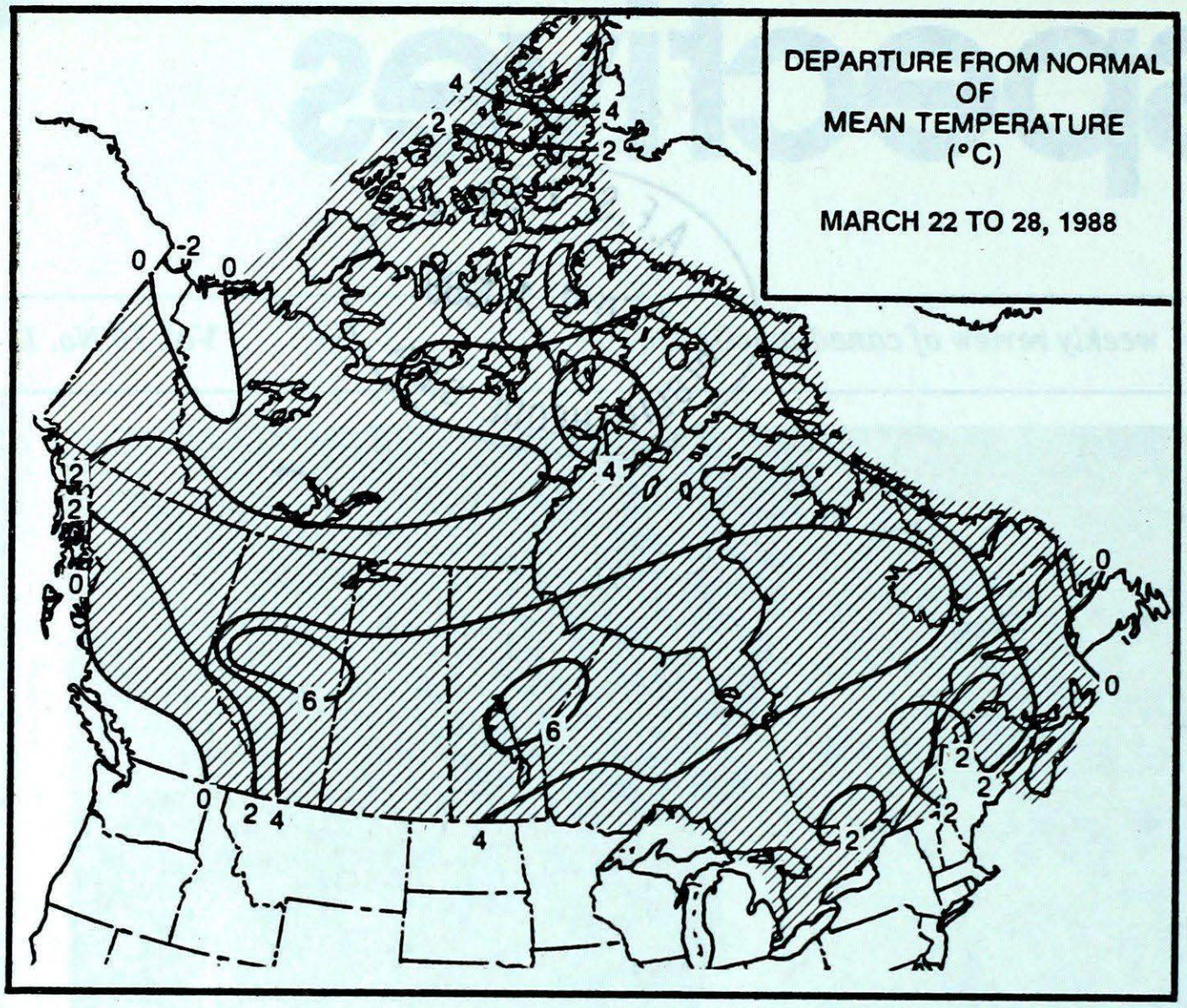
March 22 to 28, 1988 *A weekly review of canadian climate* *Vol. 10 No. 13*



This NOAA 10 satellite photo of March 28, 1988, shows the cloud shield associated with the low pressure system, which gave heavy snow to Alberta on Sunday. Note the well defined snowpack covering the higher elevations of the Rockies.

- **Major spring snowstorm buries the western Prairies**
- **Roller coaster temperatures in the East**

Canada



Weekly Temperature extreme (°C)

	MAXIMUM		MINIMUM	
BRITISH COLUMBIA	COMOX	13	FORT NELSON	-17
YUKON TERRITORY	TUCHITUA	7	OGILVIE	-43
NORTHWEST TERRITORIES	FORT SMITH	1	MOULD BAY	-42
ALBERTA	MEDICINE HAT	18	FORT CHIPEWYAN	-22
SASKATCHEWAN	MOOSE JAW	16	COLLINS BAY	-24
MANITOBA	BRANDON	14	CHURCHILL	-28
ONTARIO	WINDSOR	22	MOOSONEE	-33
QUEBEC	MONTREAL INT'L	14	SCHEFFERVILLE	-32
NEW BRUNSWICK	MONCTON	15	MONCTON	-15
NOVA SCOTIA	GREENWOOD	19	SYDNEY	-20
PRINCE EDWARD ISLAND	CHARLOTTETOWN	12	CHARLOTTETOWN	-14
NEWFOUNDLAND	ST JOHN'S	15	WABUSH LAKE	-27

ACROSS THE NATION

WARMEST MEAN TEMPERATURE	6	VANCOUVER INT'L	BC
COOLEST MEAN TEMPERATURE	-30	SHEPHERD BAY A	NWT

Across the country

Yukon and Northwest Territories

It was a typical spring week in the Yukon. Temperatures varied from 7°C in the south to -43°C in the north. Snowfalls generally ranged from 5 to 10 centimetres. Strong winds, produced high wind chills and blowing snow in the more northern communities. In the southern Mackenzie, it was generally fair, with some light snow. A ridge of high pressure, stretching northwards across Baffin Island, produced fair weather in the eastern Arctic. Temperatures were relatively mild.

British Columbia

Pacific weather systems moved inland, resulting in a cloudy and damp week. The bulk of precipitation fell along the south coast, giving Victoria its 4th wettest March on record. Although the southern valleys did not get much rain, there were significant snowfalls in the mountains extending the skiing season. There was a mud slide on the Squamish highway, north of Vancouver. Thunderstorms occurred in the Kootenays.

Prairie Provinces

In Alberta, a variably sunny and mild first week of spring came to an abrupt end on the evening of the 26th, as a major snow storm moved in from the American southwest. Highs in the teens on Saturday plunged to freezing on Sunday. On Sunday, heavy snow whipped by winds gusting to 100 km/h paralyzed south-central Alberta. Turn to page 3 for more information about the storm.

Northern Saskatchewan and Manitoba had snow during the early part of the week, while southern districts enjoyed sunny, record warm weather. Arctic air spread southwards, covering the southern prairies by the weekend. Spring storms, developing to the lee of the Rockies, made their way eastwards, bringing a mixture of much needed snow and rain to the agricultural districts. Strong winds caused blowing, drifting and bad driving conditions

Ontario

The first week of spring was one of contrasting temperatures. The week began with Arctic air settling over the province. On March 22, early morning temperatures

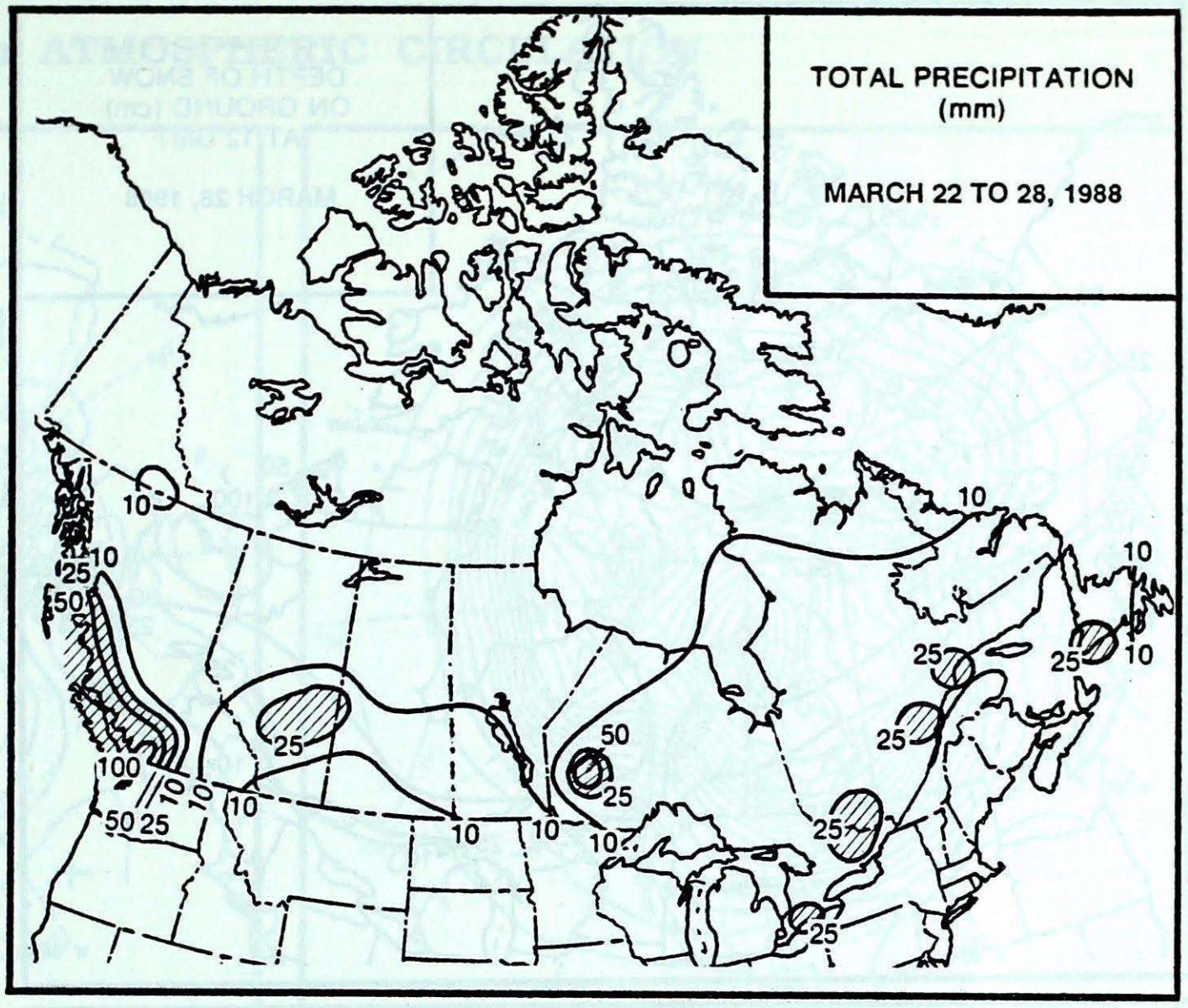
dropped to daily record low values across the eastern half of the province. In contrast, mild air, preceding an approaching disturbance from the prairies, pushed the mercury up to the record breaking twenties in the south on March 23, and triggered thunderstorm activity. Temperature records were also broken on March 27, but a sharp cold front produced wintry weather conditions on Sunday, with highs of only near freezing. In central Ontario, weather conditions have not been very favorable for maple syrup production this season, but producers in the south are faring better.

Quebec

The week started off sunny and cold. Record low temperatures moderated to record high values by the weekend, as the dome of Arctic air drifted eastwards. Temperatures in the Ottawa and St. Lawrence Valleys, climbed into the teens. It was unsettled during the latter part of the period as frontal disturbances approached from the west. The maple syrup season is well under way, but producers are not overly optimistic, as the latest cold snap has slowed the flow of sap again. The Ministry of Agriculture still expects a good season, basing their forecast more on quality than volume. Montreal received 174 cm of snow this winter; snow removal cost the city $42.5 million. The normal seasonal snowfall total to the end of March is 224 cm.

Atlantic Provinces

A cold Arctic air mass, which spread across eastern Canada, produced record low temperatures down to the minus twenties. By the weekend, rain and much milder weather caused minor flooding on the Kennebecasis and Nashwaaksis Rivers, as readings climbed to the low teens. In Newfoundland, it was a week of contrasting weather patterns. On March 22, 15 to 20 centimetres of snow fell on eastern and central portions of the Island. On the 24th, another weak system left an additional 5 cm of snow. Gander has received 170.6 cm of snow this month, a new March record. Milder, showery weather moved in for the weekend. By Sunday, daily record breaking temperatures in the low teens were reported. In Labrador, 10 to 15 centimetres of snow fell the first day of the week, followed by a mixture of sun and cloud. On Sunday, occasional rain and record temperatures of 10°C were set.

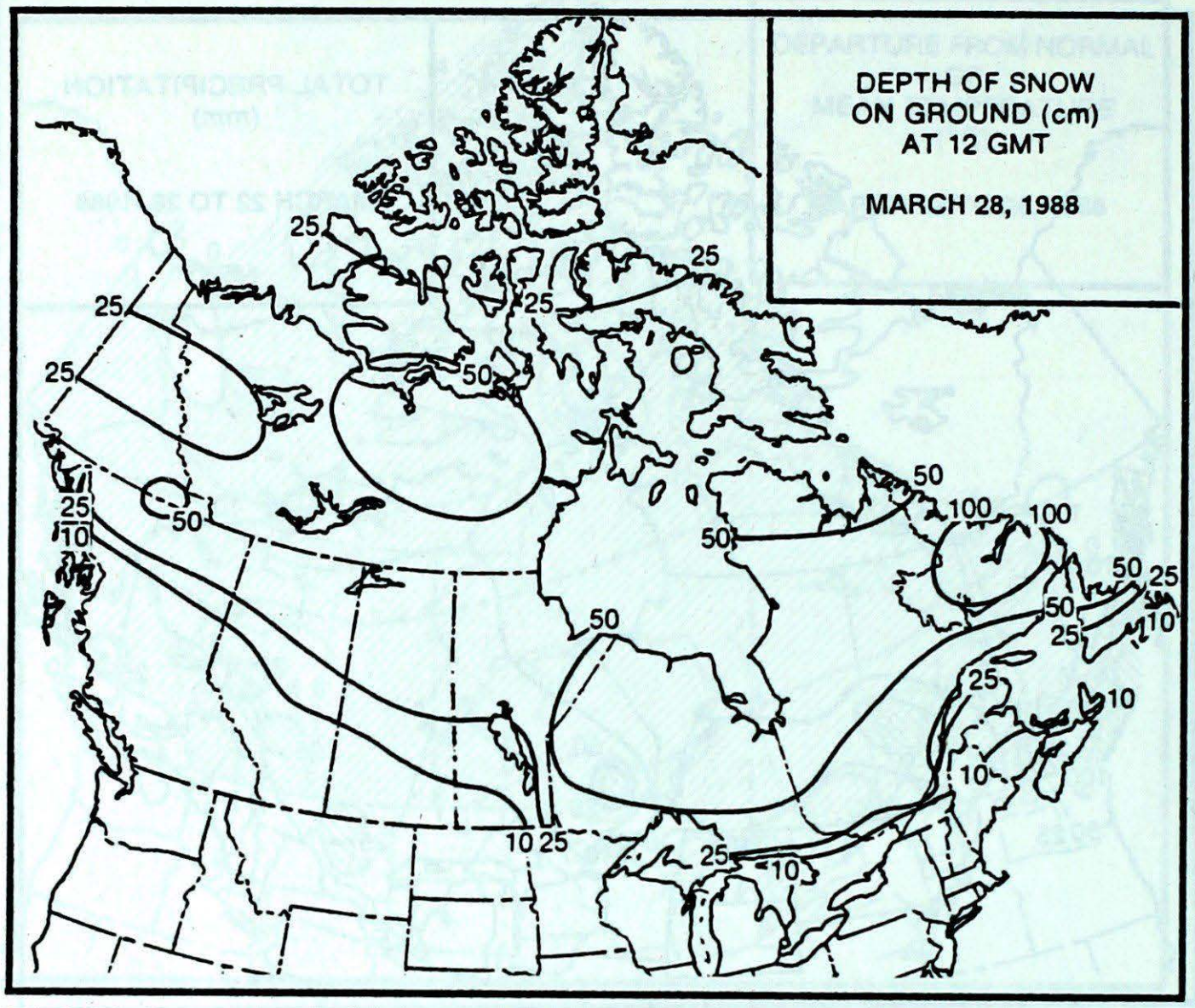


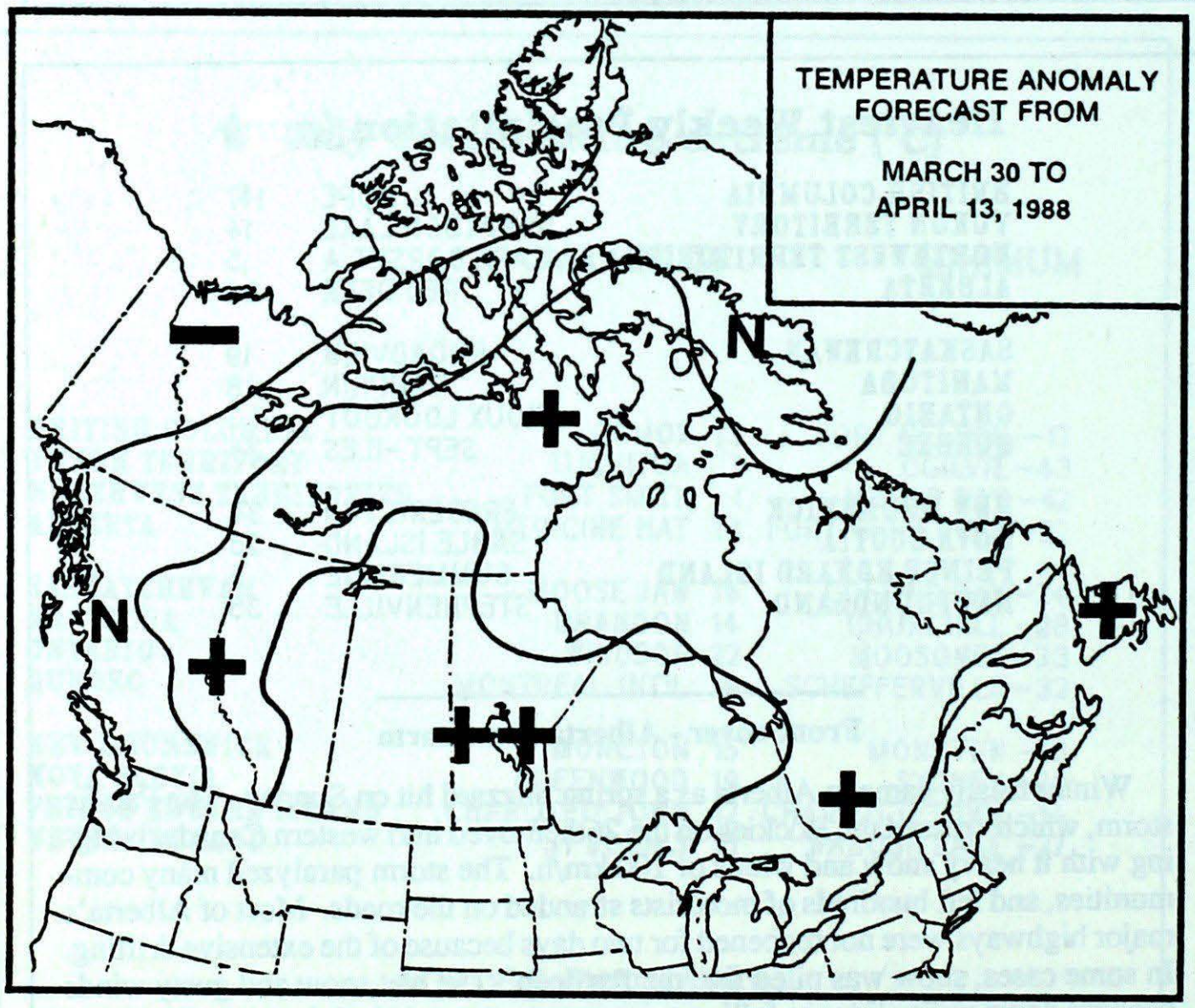
Heaviest Weekly Precipitation (mm)

BRITISH COLUMBIA	HOPE	147
YUKON TERRITORY	WATSON LAKE	14
NORTHWEST TERRITORIES	CAPE DORSET A	5
ALBERTA	RED DEER	28
SASKATCHEWAN	BROADVIEW	19
MANITOBA	DAUPHIN	18
ONTARIO	SIOUX LOOKOUT	53
QUEBEC	SEPT-ILES	34
NEW BRUNSWICK	FREDERICTON	34
NOVA SCOTIA	SABLE ISLAND	25
PRINCE EDWARD ISLAND	SUMMERSIDE	6
NEWFOUNDLAND	STEPHENVILLE	35

Front cover - Alberta snowstorm

Winter finally came to Alberta as a spring blizzard hit on Sunday. The Pacific storm, which crossed the Rockies on the 26th, moved into western Canada, bringing with it heavy snow and winds of 100 km/h. The storm paralyzed many communities, and left hundreds of motorists stranded on the roads. Most of Alberta's major highways were not reopened for two days because of the extensive drifting. In some cases, snow was piled five metres deep. The wet snow and gusty winds brought down utility lines as falling temperatures turned slush into ice. Red Deer was without power Sunday. In Calgary, the roof of an apartment building was blown off. Camrose, 70 km southeast of Edmonton got 52 cm. Communities east of Calgary reported 30 cm of fresh snow. Nakiska, located in the foothills west of Calgary and host of the Winter Olympics just a few weeks ago, was buried under 42 cm of the white stuff. Surprisingly, snowfalls south of Calgary were minimal. The storm moved into Saskatchewan on Monday.





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

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 choosen 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.

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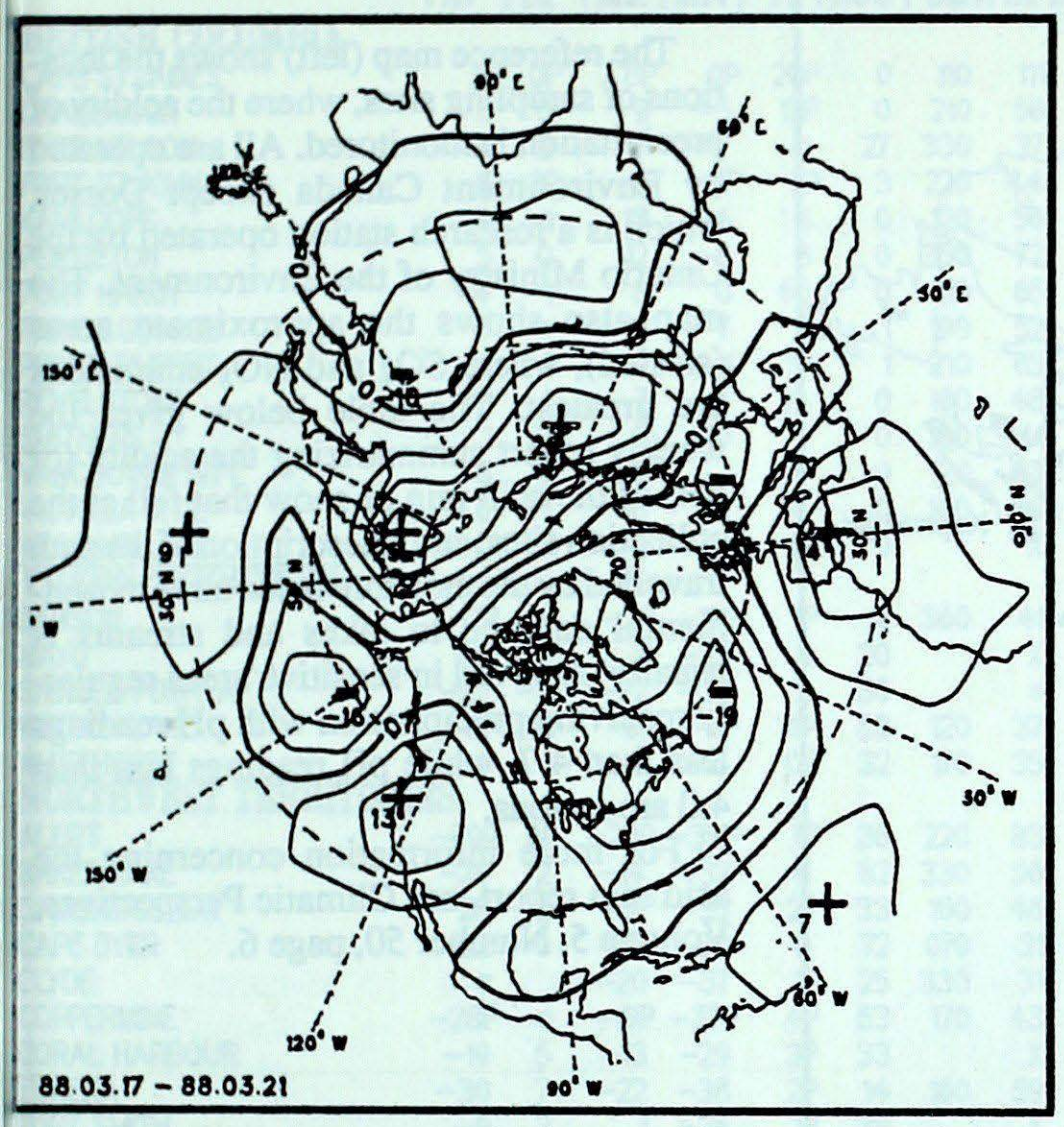
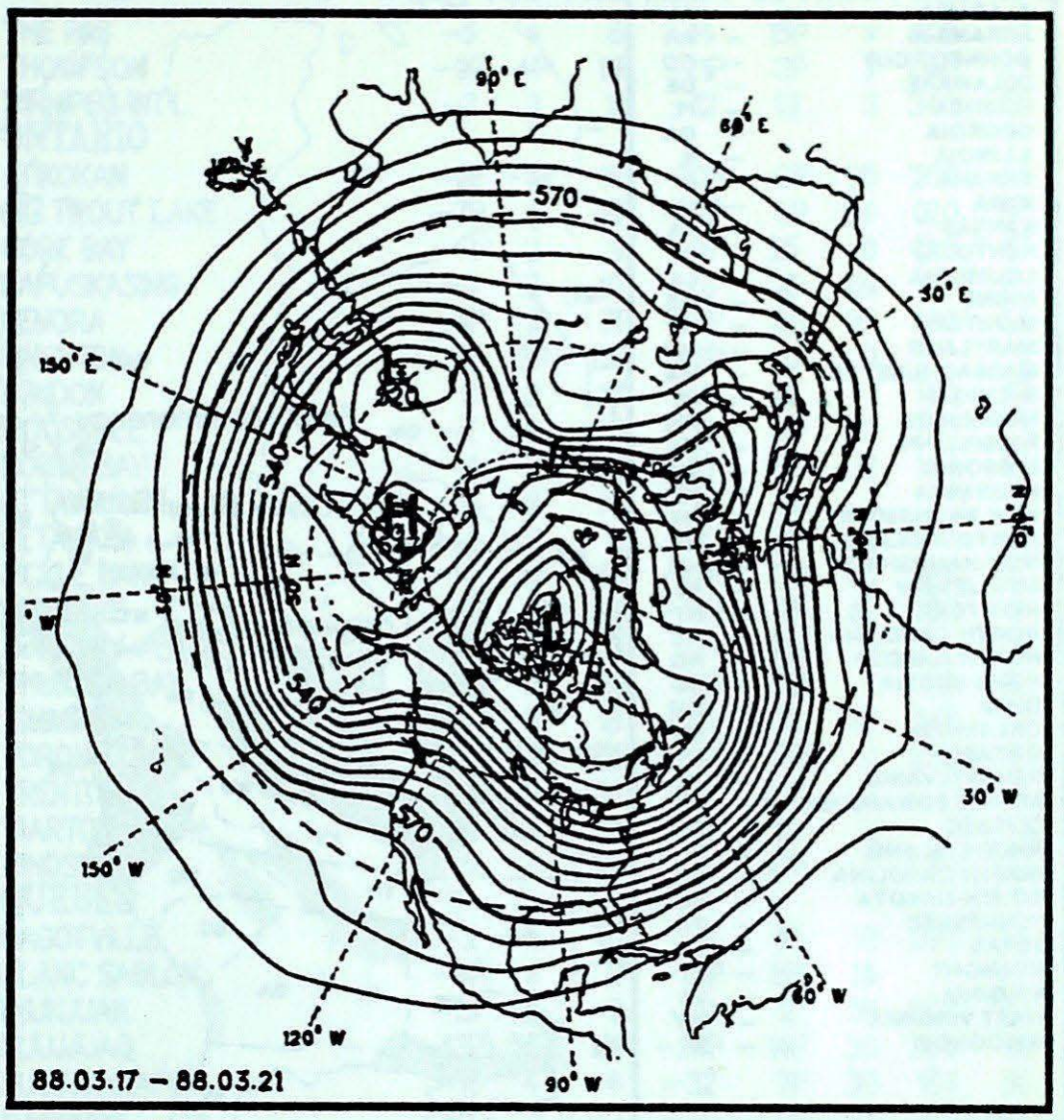
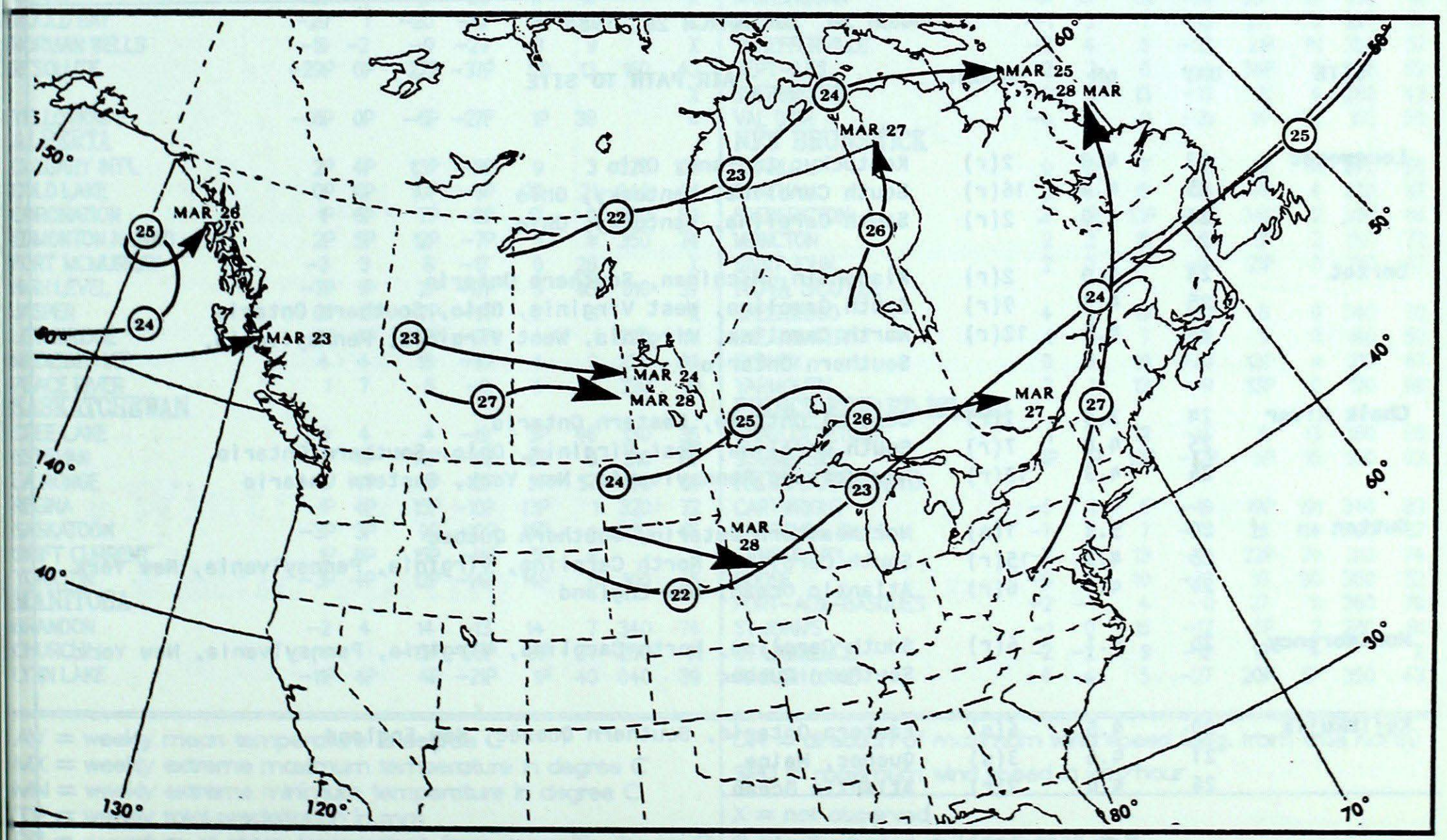
50 kPa ATMOSPHERIC CIRCULATION



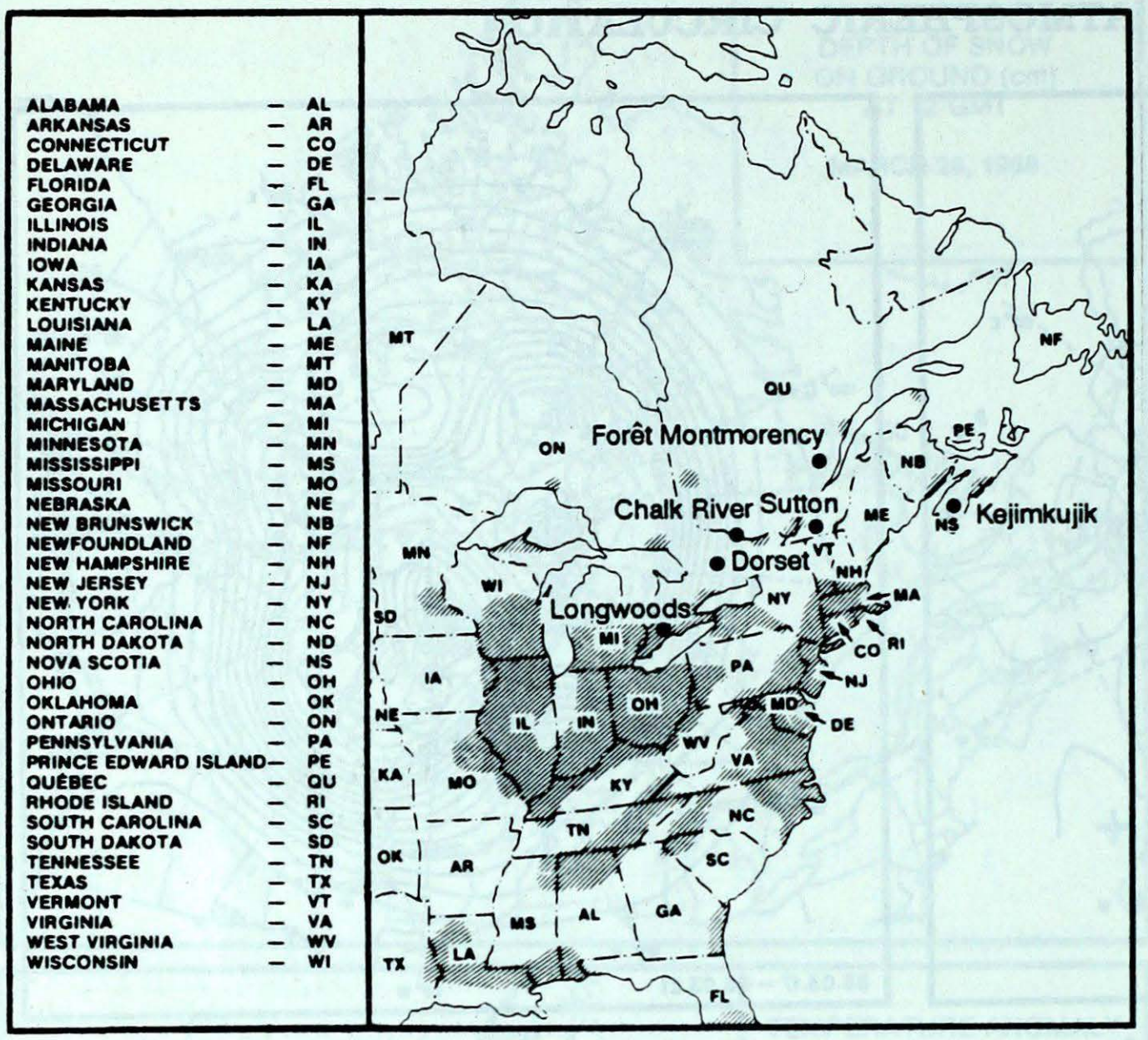
Mean geopotential heights anomaly
50 kPa level (in decameter)



Mean geopotential height
50 kPa level (in decameter)



Storm track - Position of storm at 12 GMT during the period: March 22 to 28, 1988



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 emmisions are greatest. The table below gives the weekly report summarizing the acidity (or pH) of the acid 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 readings less than 4.7, while pH readings less than 4.0 are serious.

For more information concerning the acid rain report, see Climatic Perspectives, Volume 5, Number 50, page 6.

MARCH 20 TO MARCH 26, 1988

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	23	4.0	2(r)	Kentucky, Indiana, Ohio
	25	4.4	16(r)	South Carolina, Kentucky, Ohio
	26	3.9	2(r)	South Carolina, Kentucky, Ohio
Dorset	24	4.0	2(r)	Wisconsin, Michigan, Southern Ontario
	25	4.3	9(r)	South Carolina, West Virginia, Ohio, Southern Ontario
	26	4.5	12(r)	North Carolina, Virginia, West Virginia, Pennsylvania, Southern Ontario
Chalk River	24	3.9	1(r)	Central Ontario, Eastern Ontario
	25	4.0	7(r)	South Carolina, West Virginia, Ohio, Southern Ontario
	26	4.3	13(r)	New Jersey, Pennsylvania, New York, Eastern Ontario
Sutton	20	5.1	1(s)	Northeastern Ontario, Southern Quebec
	25	4.5	15(r)	South Carolina, North Carolina, Virginia, Pennsylvania, New York
	26	4.5	6(r)	Atlantic Ocean, New England
Montmorency	25	4.1	6(r)	South Carolina, North Carolina, Virginia, Pennsylvania, New York Southern Quebec
Kejimkujik	20	4.5	6(s)	Eastern Ontario, Southern Quebec, New England
	21	4.6	3(s)	Quebec, Maine
	26	4.0	2(r)	Atlantic Ocean

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

TEMPERATURE, PRECIPTTATION AND MAXIMUM WIND DATA FOR THE WEEK ENDING 0600 GMT MARCH 29,1988

STATION	TEMPERATURE				PRECIP.		WIND MX	
	AV	DP	MX	MN	TP	SOG	DIR	SPD
BRITISH COLUMBIA								
CAPE ST.JAMES	5P	0P	8P	0P	20P	0	110	111
CRANBROOK	3	0	9	-5	12P	0	210	56
FORT NELSON	-4	2	7	-17	1	27	330	37
FORT ST.JOHN	-1P	3P	8	-11P	9P	3	220	44
KAMLOOPS	4	-1	13	-4	3	0	120	56
PENTICTON	5	0	12	-6	8	0	350	72
PORT HARDY	4	-1	8	0	66	0	110	65
PRINCE GEORGE	0	*	8	-7	7	1	190	52
PRINCE RUPERT	4	1	10	-1	51	1	210	65
REVELSTOKE	3	1	7	-4	24	0	160	48
SMITHERS	1	0	6	-10	4	0	180	41
VANCOUVER INT'L	6	0	10	1	64	0	120	63
VICTORIA INT'L	6	-1	10	-2	74	0	140	56
WILLIAMS LAKE	0	*	8	-10	4P	0		X
YUKON TERRITORY								
DAWSON	-7P	*	-3P	-12P	1P	*	360	41
MAYO	-6	1	3	-22	1	20		X
SHINGLE POINT A	-26	-2	-22	-32	2	36		*
WATSON LAKE	-3P	6P	6P	-11P	14P	58	120	37
WHITEHORSE	-4	1	4	-15	0P	32	170	35
NORTHWEST TERRITORIES								
ALERT	-29P	4P	-20P	-39P	1P	36	220	83
BAKER LAKE	-24	2	-14	-32	4	82	330	56
CAMBRIDGE BAY	-28	2	-16	-35	2P	33	160	46
CAPE DYER	-22	0	-13	-30	0	72	070	31
CLYDE	*		-20	-37	1P	25	330	31
COPPERMINE	-28P	*	-19P	-37P	4P	53	170	43
CORAL HARBOUR	-19	5	-13	-29	3P	33		X
EUREKA	-30	7	-22	-38	2P	14	160	59
FORT SMITH	-9	3	1	-26	1P	38		X
IQALUIT	-22P	0P	-10P	-31P	4P	38	330	48
HALL BEACH	-26	2	-15	-38	2P	34	340	37
INUVIK	-25	-1	-17	-35	4P	46		X
MOULD BAY	-29	1	-20	-42	2P	13		X
NORMAN WELLS	-19	-2	-9	-29	3	9		X
RESOLUTE	-29P	0P	-22P	-37P	5P	13	160	43
								X
YELLOWKNIFE	-16P	0P	-6P	-27P	1P	38		*
ALBERTA								
CALGARY INT'L	2P	4P	13P	-8P	9	3	320	107
COLD LAKE	0P	6P	10P	-9P	29	21	040	52
CORONATION	1P	6P	7P	-8P	17	0	350	80
EDMONTON NAMAO	2P	5P	12P	-7P	5	*	350	74
FORT MCMURRAY	-3	3	8	-17	0	28		X
HIGH LEVEL	-7P	1P	2P	-17P	5	43	010	37
JASPER	0P	1P	7P	-9P	2	1		X
LETHBRIDGE	3P	4P	12P	-7P	4	1	330	111
MEDICINE HAT	4	4	18	-10	4	3	230	89
PEACE RIVER	1	7	8	-8	4	0	270	41
SASKATCHEWAN								
CREE LAKE	-9	4	4	-19	3P	46	130	35
ESTEVAN	1P	4P	16P	-9P	6P	0	310	87
LA RONGE	-4P	4P	9P	-13P	5P	57	070	52
REGINA	-1P	4P	15P	-10P	13P	1	320	72
SASKATOON	-3P	3P	9P	-10P	15P	*	030	65
SWIFT CURRENT	1P	5P	15P	-11P	5P	*		X
YORKTON	-3P	4P	12P	-14P	14P	11	100	65
MANITOBA								
BRANDON	-2	4	14	-13	14	7	340	74
CHURCHILL	*		-13P	-28P	3P	24	280	41
LYNN LAKE	-11P	4P	4P	-21P	1P	40	040	39

STATION	TEMPERATURE				PRECIP.		WIND MX	
	AV	DP	MX	MN	TP	SOG	DIR	SPD
THE PAS	-5	*	8	-14	15P	*	100	67
THOMPSON	-9P	4P	11P	-21P	3P	7	040	63
WINNIPEG INT'L	-2	3	11	-12	13	3	340	65
ONTARIO								
ATIKOKAN	-6P	-1P	6P	-20P	8P	35	260	46
BIG TROUT LAKE	-7P	*	9P	-22P	6P	84	070	80
GORE BAY	-1	2	9	-16	25	10	210	67
KAPUSKASING	-6	2	10	-28	16	69	130	65
KENORA	-4P	1P	7P	-13P	10P	35	100	59
KINGSTON	3P	3P	13P	-7P	0	0		X
LONDON	3	2	18	-14	25	1	210	67
MOOSONEE	-7	4	10	-33	17P	80	360	33
NORTH BAY	-1	3	10	-18	9P	32	100	52
OTTAWA INT'L	1	2	14	-16	19	1		X
PETAWAWA	-1	2	11	-26	26	2		X
PICKLE LAKE	-5P	3P	10P	-20P	17P	65	360	52
RED LAKE	-6P	1P	10P	-19P	4P	62	350	61
SUDBURY	-2	3	8	-21	22	31		X
THUNDER BAY	-1P	4P	8P	-11P	13P	1	110	65
TIMMINS	-4	3	13	-30	12	72	140	46
TORONTO INT'L	3P	2P	19P	-14P	17P	0	230	81
TRENTON	3	2	16	-15	41P	0		X
WIARTON	1	3	15	-19	18	3		X
WINDSOR	5	3	22	-8	17P	0	230	67
QUEBEC								
BAGOTVILLE	-3	1	10	-19	18	13	290	56
BLANC SABLON	-4P	*	7P	-14P	15P	14		X
INUKJUAK	-15	4	-7	-31	17	59	050	67
KUUJJUAQ	-13P	3P	3P	-26P	14P	39	260	31
KUUJJUARAPIK	-11	4	4	-32	7P	30	150	56
MANIWAKI	-2	1	12	-24	25	15	170	44
MONT JOLI	0	3	9	-15	15	9	300	54
MONTREAL INT'L	2	3	14	-14	8	1	260	48
NATASHQUAN	-4P	0P	3P	-15P	25P	37	180	52
QUEBEC	-1	2	7	-15	23	75	220	57
SCHEFFERVILLE	-8	4	5	-32	21P	81	350	57
SEPT-ILES	-2	2	6	-14	34P	0	360	59
SHERBROOKE	0	2	13	-19	11	4	260	43
VAL D'OR	-4	2	9	-31	14	30	150	50
NEW BRUNSWICK								
CHARLO	0	3	7	-11	19	41	290	56
CHATHAM	3	4	15	-14	14	4	230	57
FREDERICTON	2P	2P	13P	-12P	34P	2	200	65
MONCTON	2	3	15	-15	3P	2	180	72
SAINT JOHN	2	3	14	-14	21P	0	190	67
NOVA SCOTIA								
GREENWOOD	4	3	19	-11	8	0	240	70
SHEARWATER	1	1	7	-12	9	0	190	50
SYDNEY	0	0	10	-20	13P	*	210	67
YARMOUTH	3	1	13	-9	13P	0	170	69
PRINCE EDWARD ISLAND								
CHARLOTTETOWN	1	2	12	-14	6	13	180	56
SUMMERSIDE	0P	1P	10P	-12P	6P	15	180	63
NEWFOUNDLAND								
CARTWRIGHT	-5	1	6	-19	19P	191	340	89
CHURCHILL FALLS	-7	3	7	-23	25	114	300	57
GANDER INT'L	-2	0	13	-13	22P	79	310	74
GOOSE	-5	1	10	-20	18	90	360	52
PORT-AUX-BASQUES	-2	-1	4	-11	27	11	360	70
ST JOHN'S	-1	0	15	-12	5P	2	280	81
ST LAWRENCE	-2	-2	9	-12	10	4		X
WABUSH LAKE	-6	4	5	-27	20P	57	350	43

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