



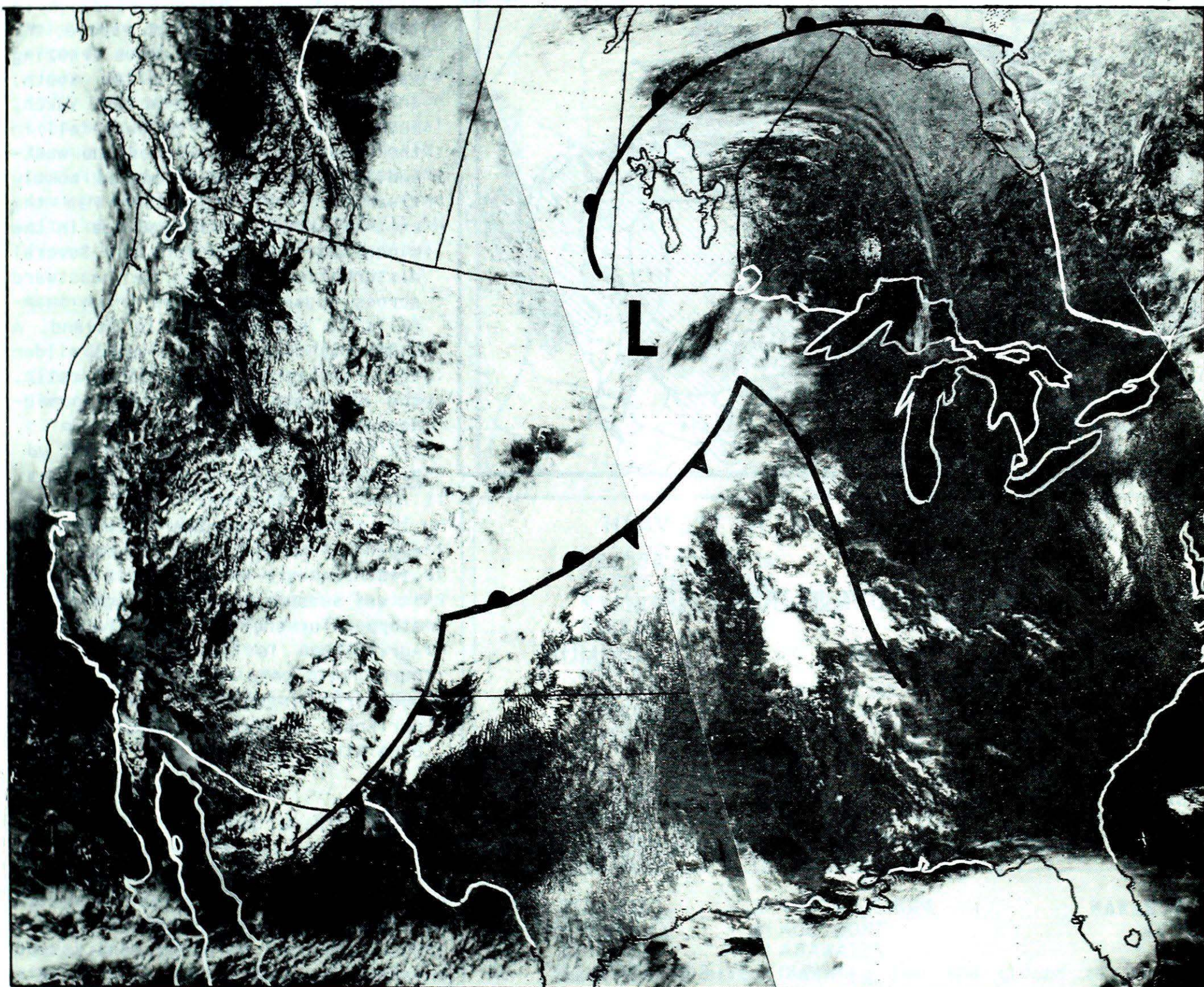
Climatic Perspectives

MAR 30 1987

A weekly review of the Canadian climate

March 17 to 23, 1987

Vol.9 No.12



A large cloud shield associated with a nearly stationary complex low pressure system in the American plains covered most of the Canadian prairies. A strong atmospheric ridge of high pressure has prevented the cloud from penetrating eastward across the Great Lakes all week. A heavy snowpack is visible in the Canadian Rockies. A NOAA 9 photo, March 22, 1987.

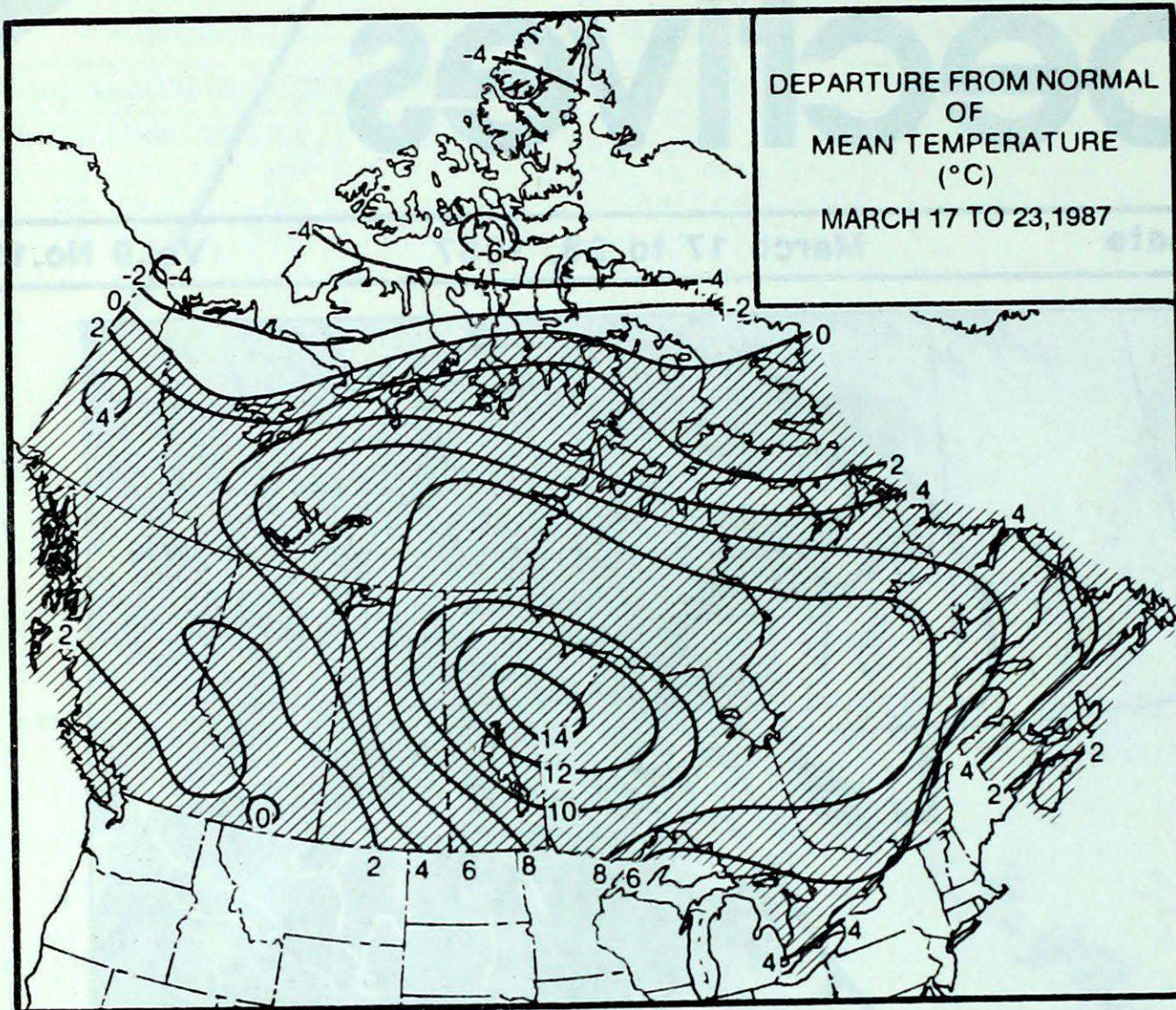
- ***Prairie farmers welcome late winter snowfall***
- ***Sun and record warmth ushers in spring in central Canada***

NON-CIRCULATING

Canada 

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TEMPERATURE



ACROSS THE COUNTRY...

Yukon and Northwest Territories

In the Yukon and Mackenzie District the days were mainly sunny and seasonally mild, the nights were clear and cold. Maximum readings in the north didn't climb above the minus twenties, while above freezing values were common in the south. Snowfalls were light in the Yukon, but as much as 15 cm of snow fell in the Mackenzie Valley over the weekend. High pressure produced mostly clear and cold conditions in the central Arctic, with readings in the minus thirties and forties. Several disturbances, tracking northeastward across Hudson Bay, gave fresh snowfalls to southern Baffin Island. A southerly circulation brought milder temperatures to the eastern Arctic, the warmest readings since mid-November.

British Columbia

Variable weather conditions gave way to an ideal weekend. Temperatures were on the mild side, and it was seasonably sunny. Logging has stopped for the annual spring break. Agriculture is two weeks ahead of normal in the Okanagan. In the southern interior, seven skiers perished in an avalanche, south of Blue River, on March 23.

Prairies

Wintry weather conditions were evident across the prairies, as a complex low pressure system organized over the American plains. Heavy snowfall warnings were issued early in the period, and falls between 15 and 30 centimetres were not uncommon in the agricultural districts. The higher elevations of the Alberta foothills received as much as 60 cm of snow during the middle of the week. Skies were mostly cloudy except in eastern districts, where sunshine and record warm temperatures moved in during the latter half of the period. Rain showers also accompanied the warmer weather. In Manitoba, a number of daily high temperature records were set during the period.

WEEKLY TEMPERATURE EXTREME (C)

	MAXIMUM	MINIMUM
BRITISH COLUMBIA	HOPE 17	DEASE LAKE -14
YUKON TERRITORY	CARMACKS 8	OGILVIE -41
NORTHWEST TERRITORIES	FORT SIMPSON 10	EUREKA -46
ALBERTA	MEDICINE HAT 11	HIGH LEVEL -20
SASKATCHEWAN	PRINCE ALBERT 5	CREE LAKE -21
MANITOBA	THOMPSON 16	CHURCHILL -25
ONTARIO	PETAWAWA 19	MOOSONEE -20
QUEBEC	MANIWAKI 17	SCHEFFERVILLE -24
NEW BRUNSWICK	ST STEPHEN 8	CHATHAM -7
NOVA SCOTIA	INVERNESS 8	AMHERST -6
PRINCE EDWARD ISLAND	SUMMERSIDE 3	CHARLOTTETOWN -7
NEWFOUNDLAND	PORT-AUX-BASQUES 9	WABUSH LAKE -18

ACROSS THE NATION

WARMEST MEAN TEMPERATURE	8	ABBOTSFORD	BC
		HOPE	BC
COOLEST MEAN TEMPERATURE	-42	EUREKA	NWT

Ontario

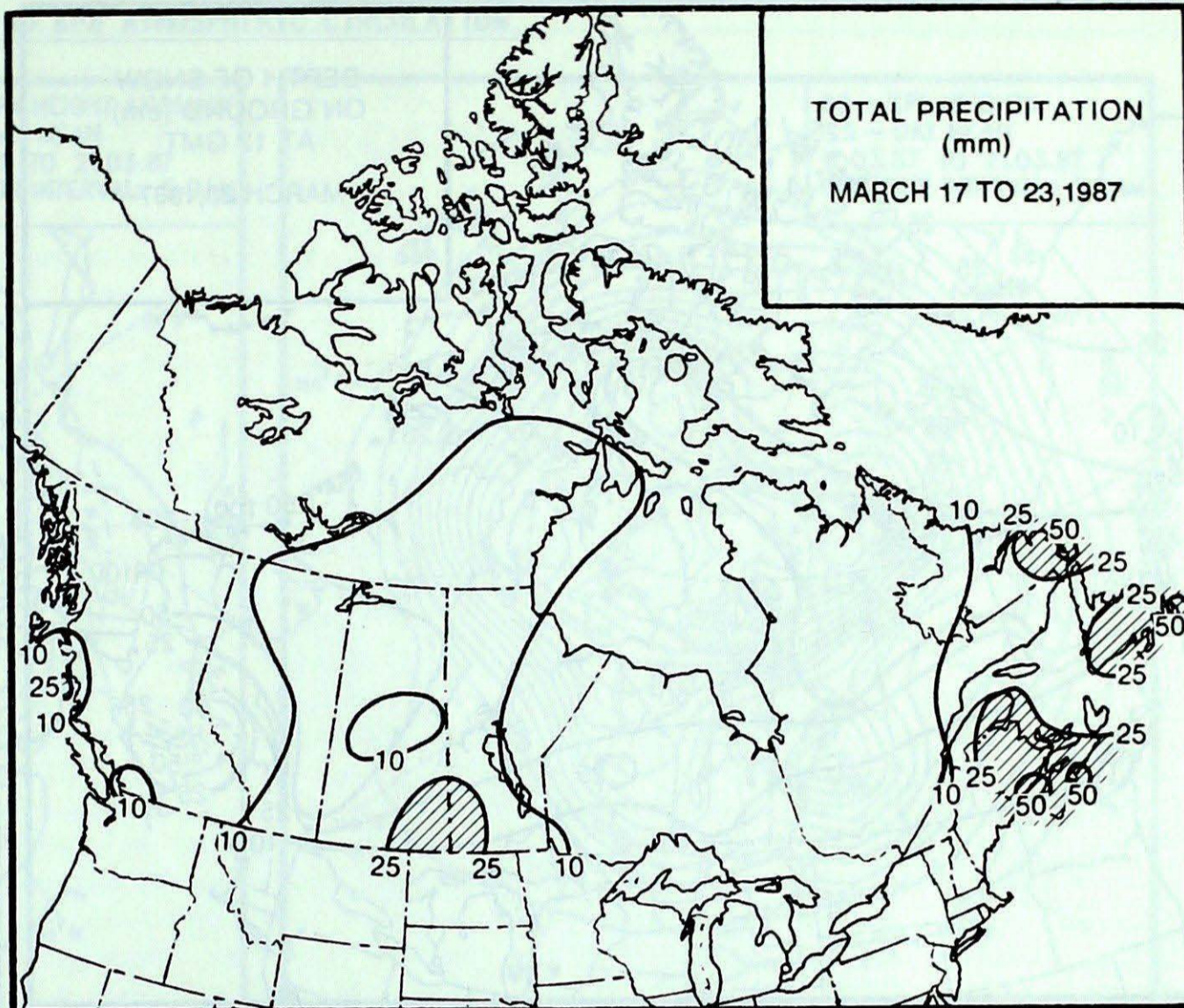
The weather was perfect for the school March break, and also gave skiers a final chance to enjoy the last winter snow cover. A strong atmospheric ridge of high pressure kept skies sunny, with daytime readings rising to the double digits. Many new daily high temperature records were established in the province, with the mercury rising to 19°C at Petawawa. With this winter seasons' snowfall well below normal throughout much of southern Ontario, municipal governments are reaping savings in snow removal costs. The city of Toronto has saved \$2 million from their snow removal budget alone.

Quebec

Sunny and mild weather conditions heralded the arrival of spring. Temperatures moderated each day, climbing into the teens in the south by the weekend. A number of new daily maximum temperature records were broken in the southwest on March 21 and 22. Heaviest precipitation, of up to 47 mm, fell along the north coast and on the Gaspé, mainly a mixture of rain and snow. Snow depths in these areas still exceed 60 cm. The weather conditions have been conducive to good sap flow, and maple syrup production is getting into full swing in the southern districts.

Maritimes

Snow from last week's fierce, late winter storm gradually tapered off by Wednesday, as the system weakened and drifted off the coast. New Brunswick was hardest hit, with some locations receiving more than 70 cm of new snow over the course of the period. Many roads were plugged for days, and schools and some businesses were closed at least until Tuesday. Many municipal snow removal budgets have either been used up or will be shortly if another major snowfall hits the region. Overall, the current period was mostly cloudy, with temperatures running above seasonal values. The first day of spring was accompanied by thawing temperatures and rain, the first significant break in the winter weather pattern for quite some time. Halifax recorded 42 mm of rain on March 21.

**HEAVIEST WEEKLY PRECIPITATION (mm)**

BRITISH COLUMBIA	MCINNES ISLAND	28
YUKON TERRITORY	OLD CROW	5
NORTHWEST TERRITORIES	BAKER LAKE	15
ALBERTA	LETHBRIDGE	20
SASKATCHEWAN	ESTEVAN	38
MANITOBA	BRANDON	38
ONTARIO	KENORA	10
QUEBEC	GASPE	47
NEW BRUNSWICK	SAINT JOHN	50
NOVA SCOTIA	SHEARWATER	56
PRINCE EDWARD ISLAND	SUMMERSIDE	24
NEWFOUNDLAND	BATTLE HARBOUR	61

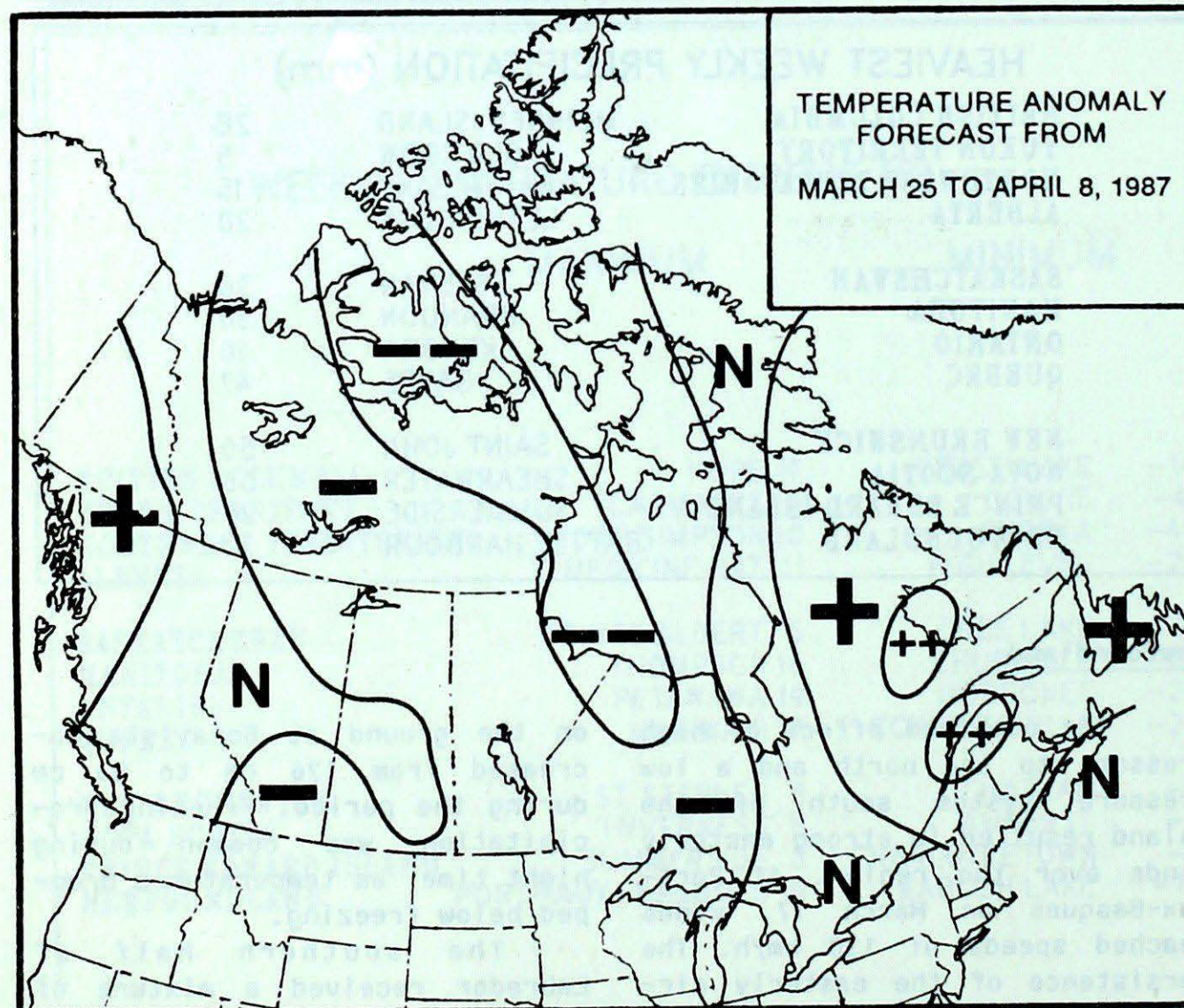
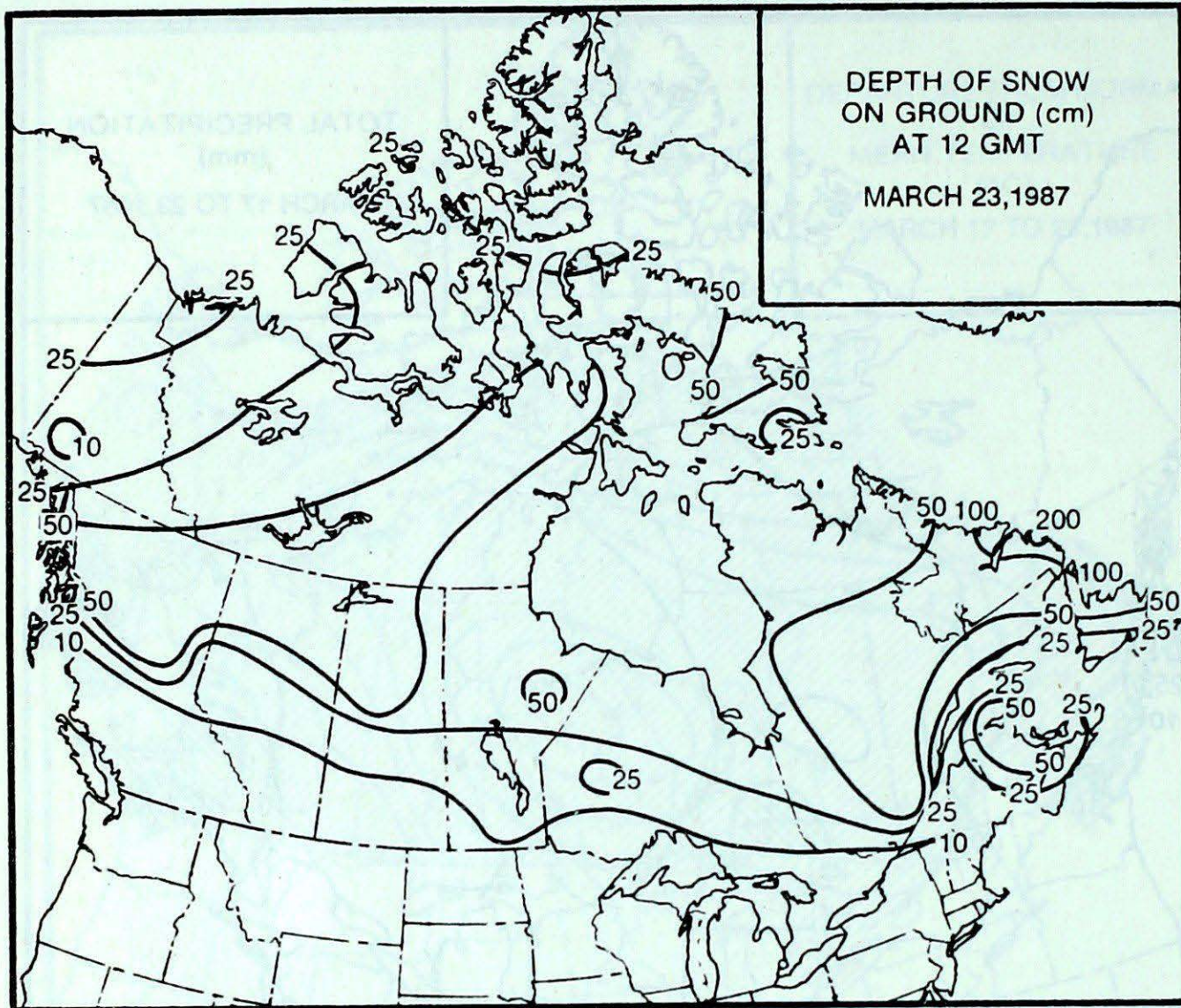
Newfoundland

The combined effect of high pressure to the north and a low pressure system south of the Island resulted in strong easterly winds over the region. At Port-aux-Basques on March 17, winds reached speeds of 130 km/h. The persistence of the easterly circulation caused heavy ice congestion along the east coast of the Island, stranding as many as 12 ships in the pack ice. The above normal temperatures were accompanied by rain, drizzle and fog, and the rapid snow melt caused some flooding. The depth of snow

on the ground at Bonavista decreased from 126 cm to 53 cm during the period. Freezing precipitation was common during night time, as temperatures dropped below freezing.

The southern half of Labrador received a mixture of snow, freezing rain and rain. Battle Harbour recorded 61 cm of precipitation this week. In contrast northern areas received virtually no precipitation. Strongest winds were on the 17th gusting as high as 126 km/h.

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 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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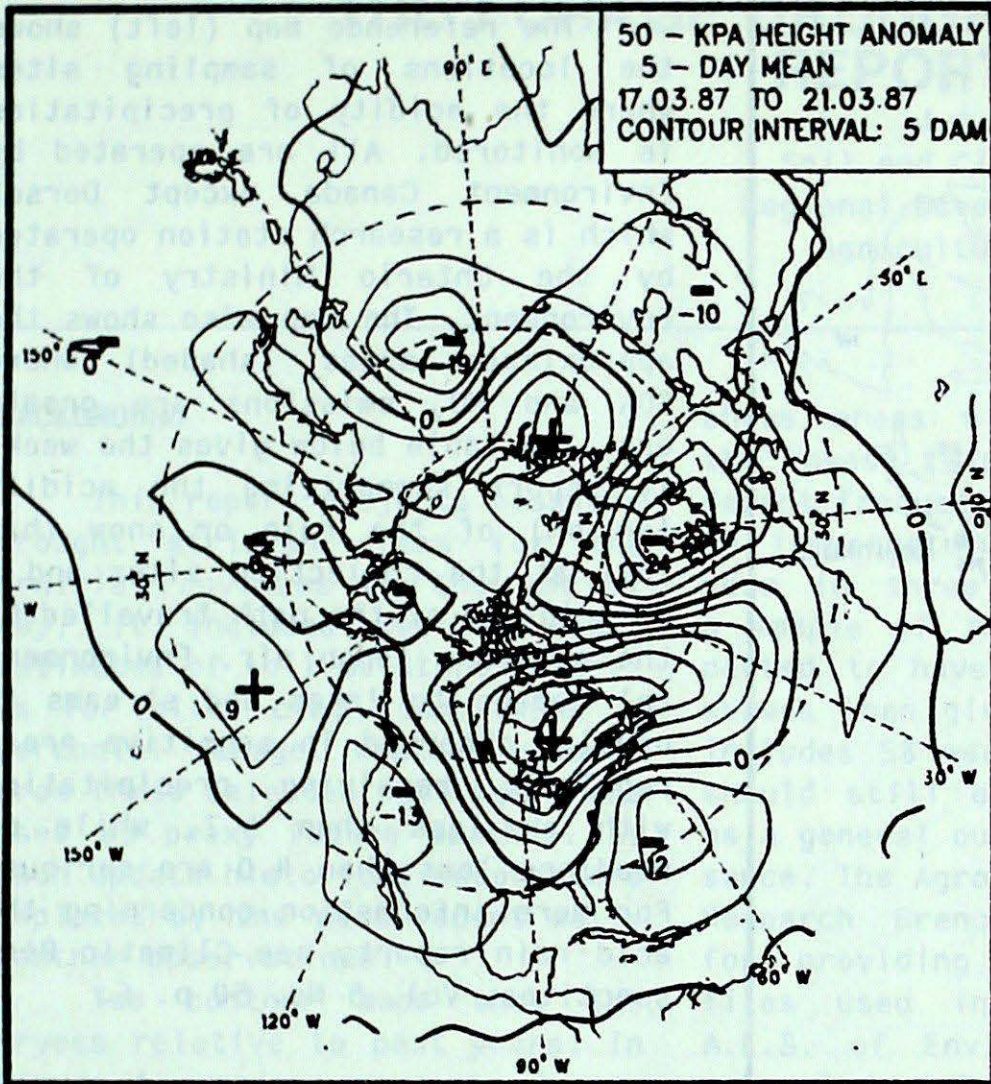
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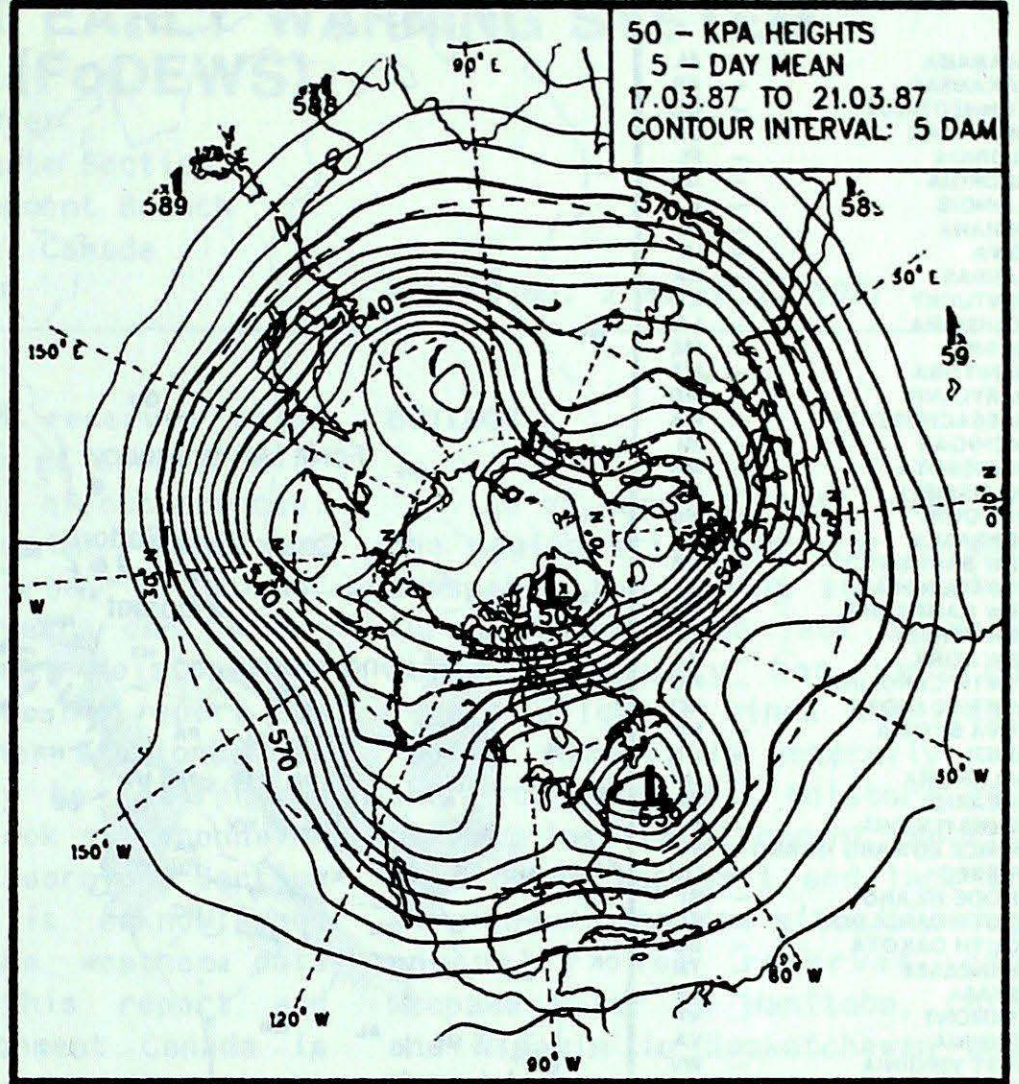
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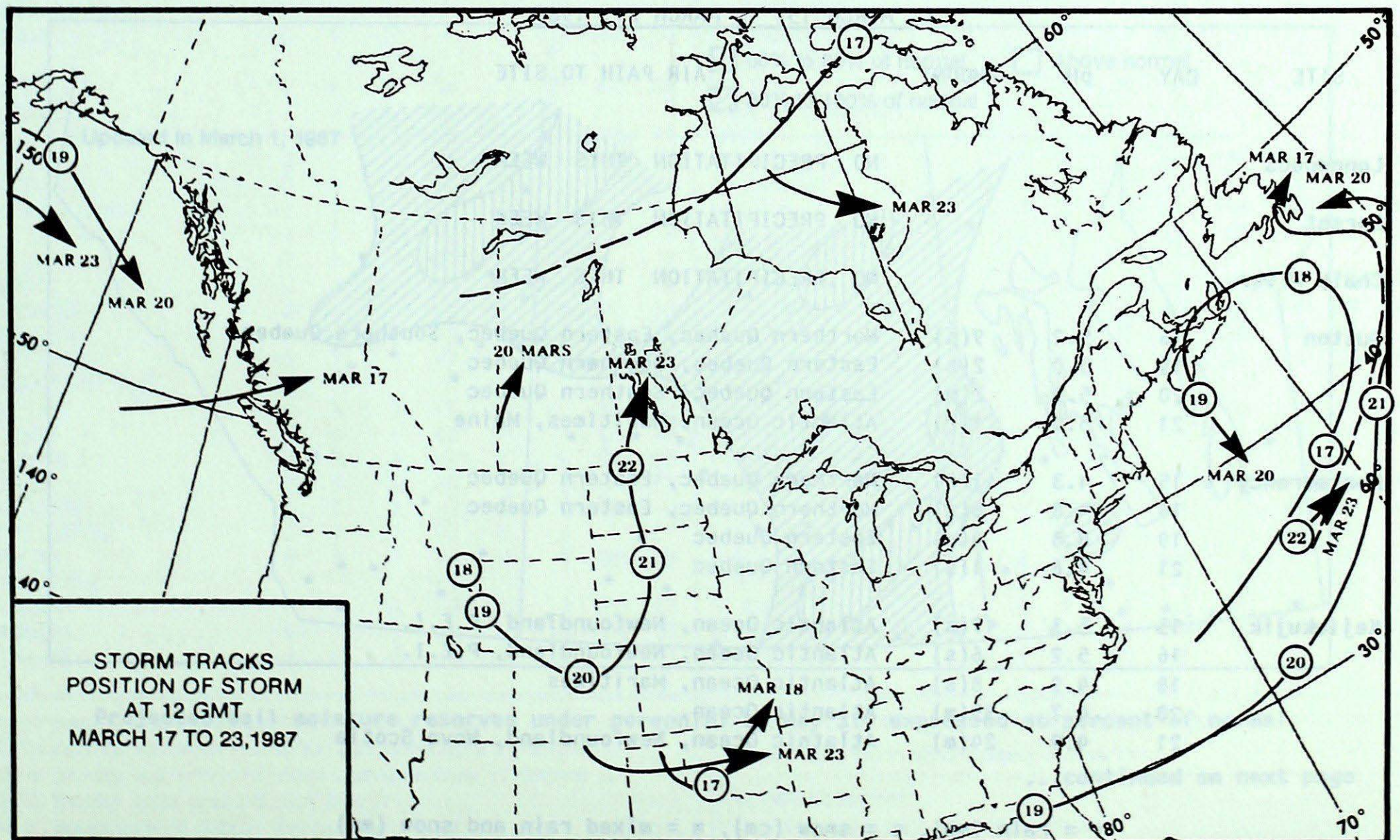
50 KPa ATMOSPHERIC CIRCULATION



MEAN 50 KPa HEIGHT ANOMALY (dam)
March 17 to 21, 1987

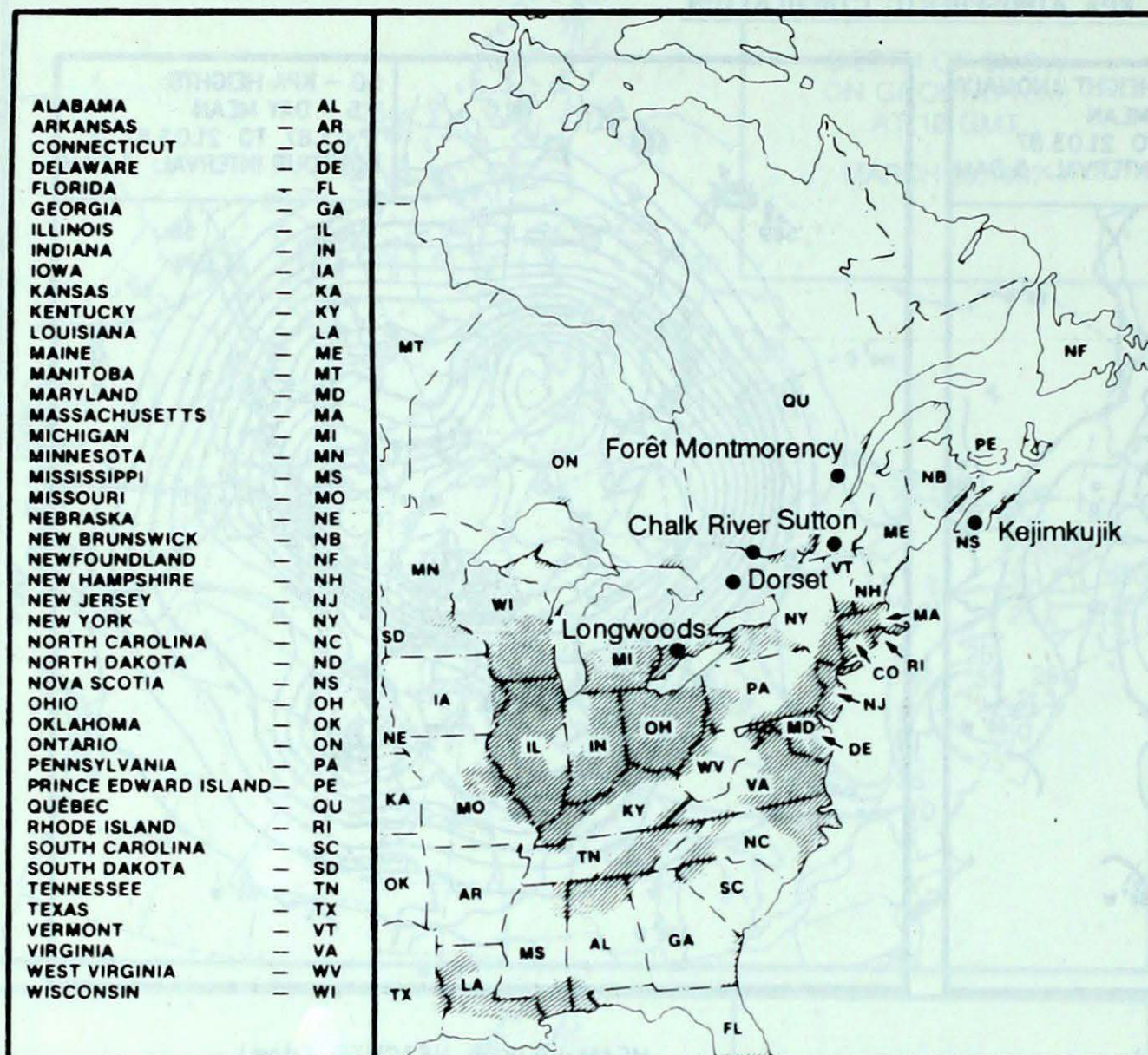


MEAN 50 KPa HEIGHTS (dam)
March 17 to 21, 1987



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.

MARCH 15, TO MARCH 21, 1987

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods				NO PRECIPITATION THIS WEEK
Dorset				NO PRECIPITATION THIS WEEK
Chalk River				NO PRECIPITATION THIS WEEK
Sutton	16	5.2	9(s)	Northern Quebec, Eastern Quebec, Southern Quebec
	19	5.0	2(s)	Eastern Quebec, Southern Quebec
	20	5.3	2(m)	Eastern Quebec, Southern Quebec
	21	5.0	1(r)	Atlantic Ocean, Maritimes, Maine
Montmorency	15	4.3	1(s)	Northern Quebec, Eastern Quebec
	16	4.8	6(s)	Northern Quebec, Eastern Quebec
	19	4.8	4(s)	Eastern Quebec
	21	4.6	1(s)	Eastern Quebec
Kejimikujik	15	5.3	7(s)	Atlantic Ocean, Newfoundland, P.E.I.
	16	5.2	6(s)	Atlantic Ocean, Newfoundland, P.E.I.
	18	4.9	8(s)	Atlantic Ocean, Maritimes
	20	4.7	35(m)	Atlantic Ocean,
	21	4.9	24(m)	Atlantic Ocean, Newfoundland, Nova Scotia

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

THE FORAGE DROUGHT EARLY WARNING SYSTEM REPORT (FoDEWS)

J.A. Dyer
Soil and Climate Section
Regional Development Branch
Agricultural Canada

Report No. 2 March 6, 1987

BACKGROUND

This report projects possible drought stricken areas for the Prairie Provinces by the end of May. It includes weather based estimates of soil moisture reserves for silty clay loam, under a perennial forage. Weather records from three selected past years are used as proxy future weather. At each update historical records are replaced by the most recent daily weather observations.

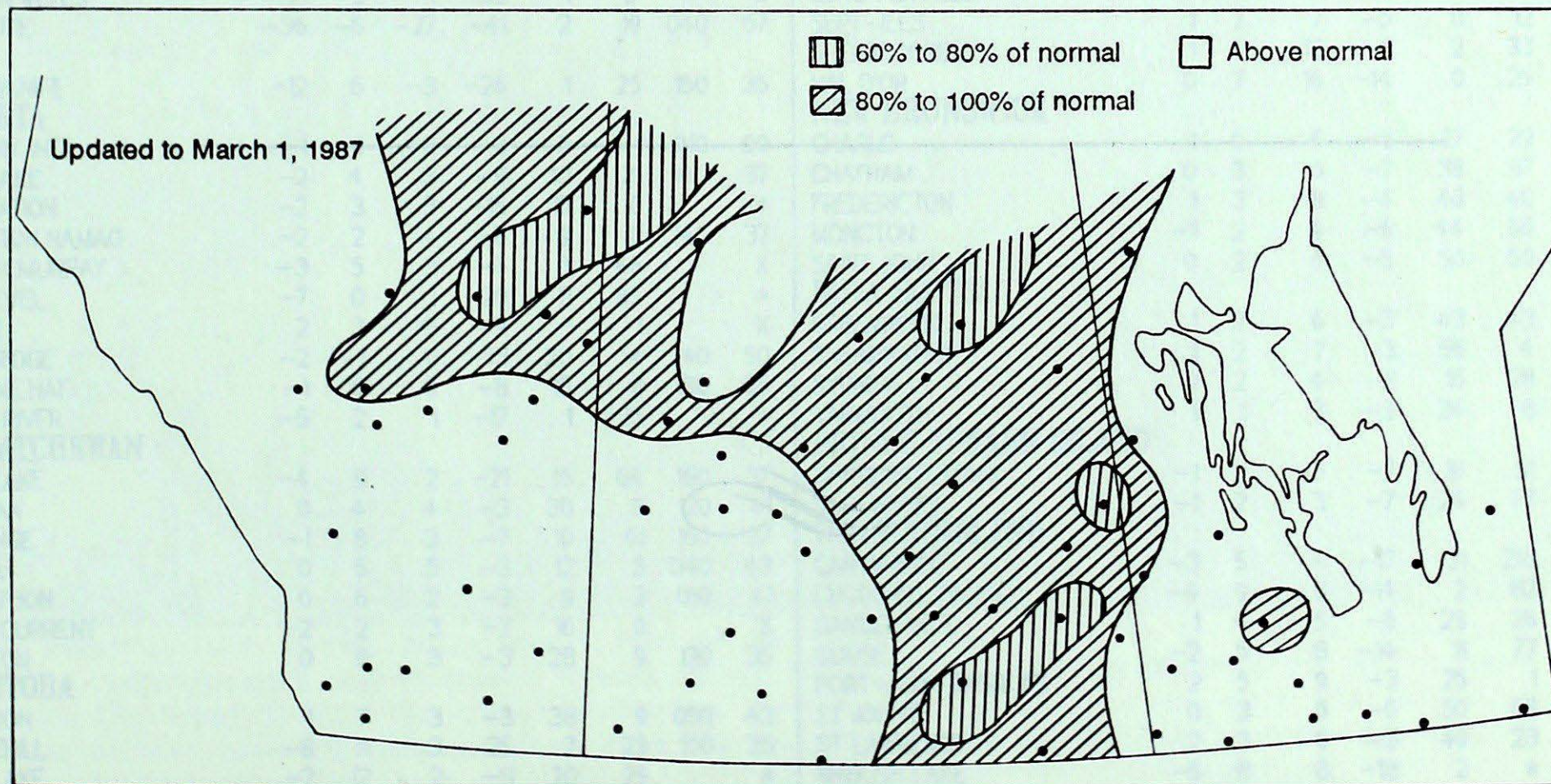
Two contour maps show the dryness relative to past years. In Figure 1, various percent of normal classes are shown. Figure 2

shows areas with reserves below the lowest levels at several different frequencies of occurrences. To illustrate; in the "below one year in three" area, 20 out of a sample of 30 years can be expected to have more moisture reserves than given. The report now includes 58 weather stations, but should still only be interpreted as a general outlook or reconnaissance. The Agrometeorology Section Research Branch is acknowledged for providing the weather data files used in this report and A.E.S. of Environment Canada is acknowledged for collection of the original weather records.

OUTLOOK

As of March 1, 1987, most of the region still has near normal prospects for spring soil moisture, although the lack of snow during February has reduced levels slightly since the last report. Alberta is generally not short of deep soil moisture reserves, inspite of recent reports of blowing top soil and lack of snow cover. The few sites showing unusually low reserves are Neepawa Water in Manitoba, Cote and Nipawin in Saskatchewan and Cold Lake in Alberta.

Figure 1



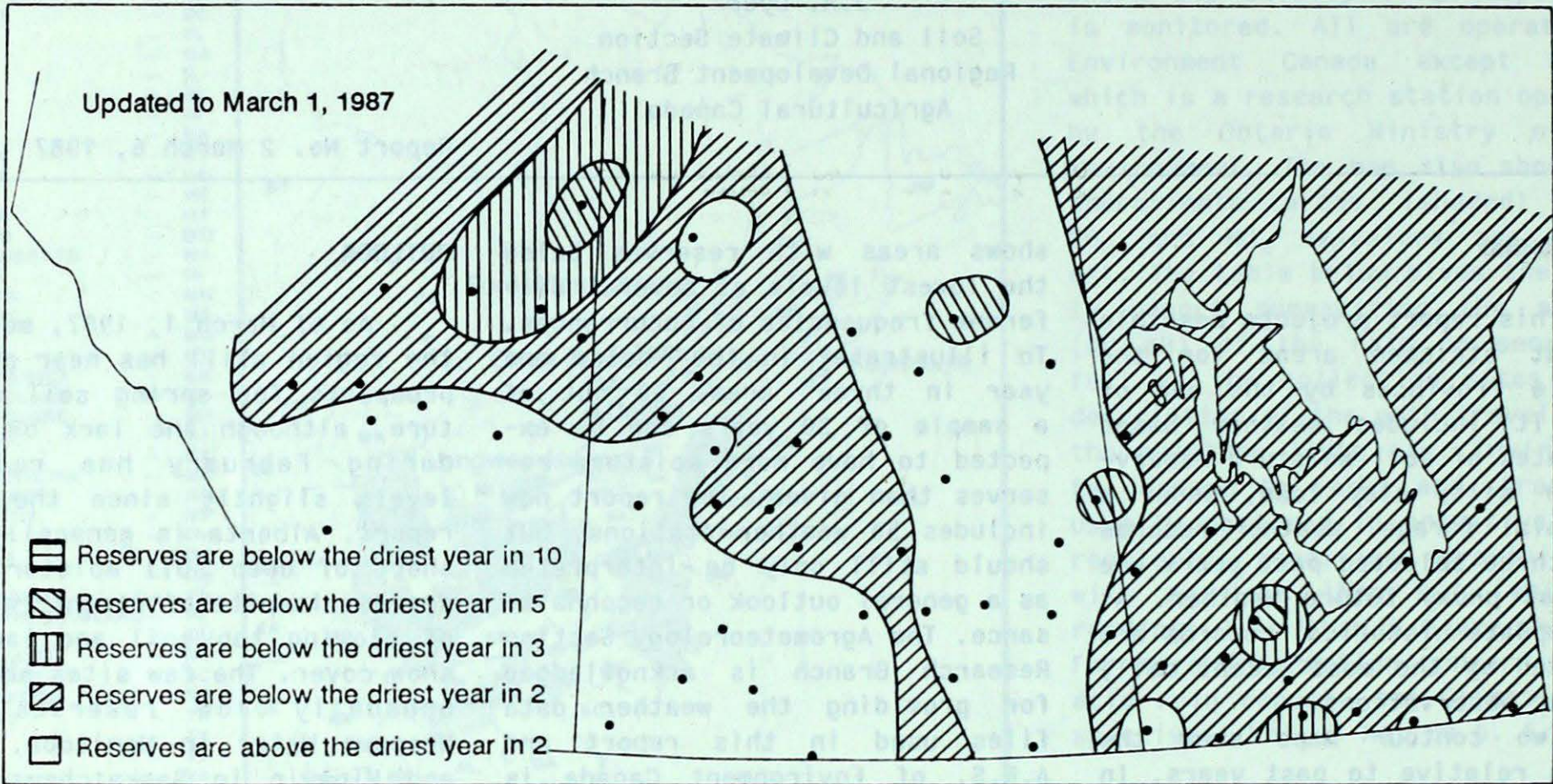
Projected soil moisture reserves under perennial by May 31, expressed as percent of normal

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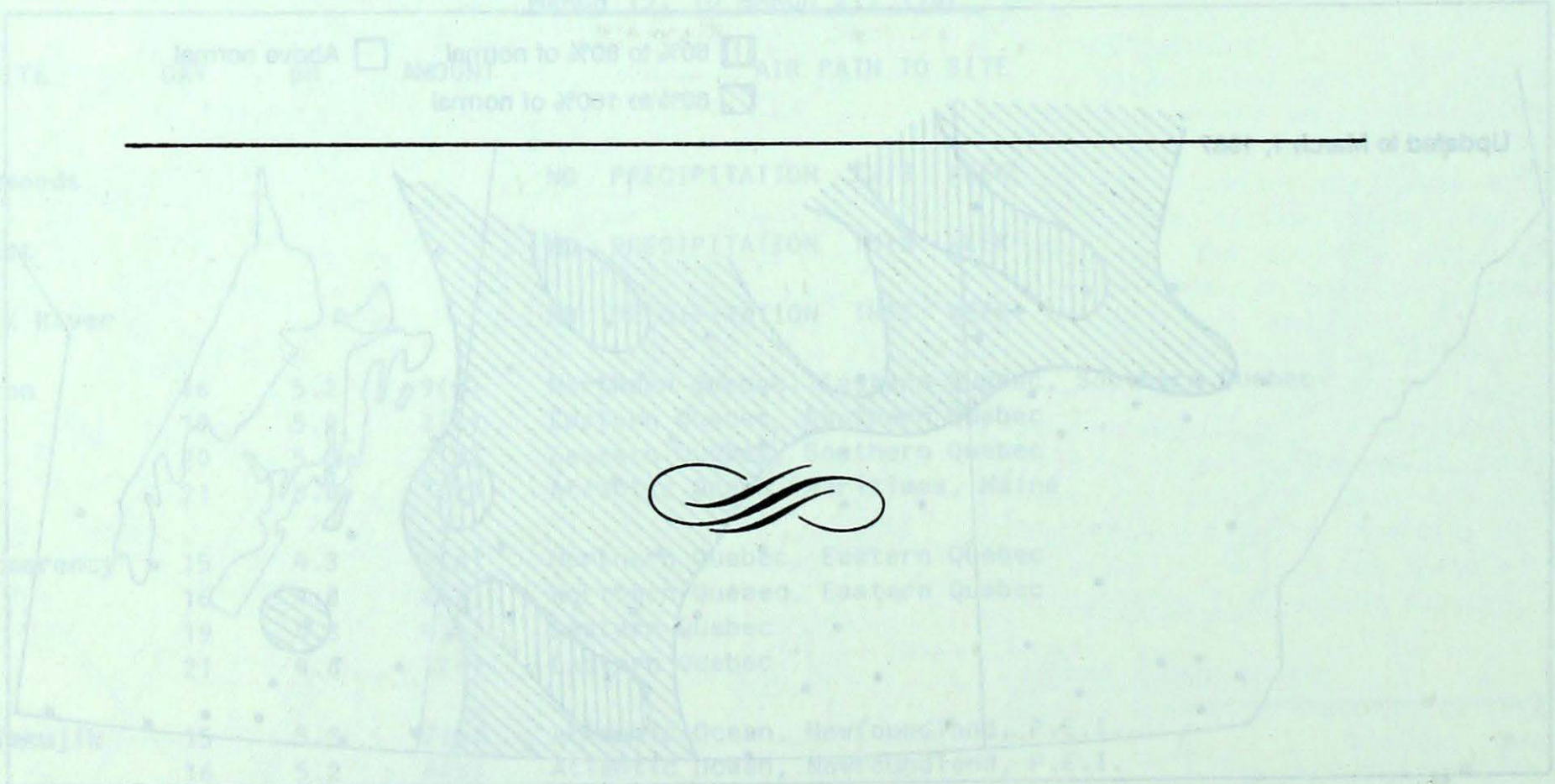
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Forage Drought Early Warning System, Report No. 2.... Continued

Figure 2



Zones showing the frequency at which the projected moisture conditions for May 31, can be expected to return in future years



Projected soil moisture reserves under parameterized by May 31, expressed as percent of normal
 also see, unpublished, report of the
 ...continued on next page

TEMPERATURE, PRECIPITATION AND MAXIMUM WIND DATA FOR THE WEEK ENDING 0600 GMT MARCH 24, 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	1	11	6	-2	16	12	100	33
CAPE ST. JAMES	6	1	11	3	15	0	300	76	THOMPSON	1	15	16	-10	10	35		*
CRANBROOK	3	1	11	-3	7	0	170	37	WINNIPEG INT'L	4	11	10	-1	4	4	160	50
FORT NELSON	-6	3	11	-14	7	51		*	ONTARIO								
FORT ST. JOHN	-4	2	4	-12	1	21	350	35	ATIKOKAN	3	9	14	-11	7	1	140	37
KAMLOOPS	7	2	16	-4	1	0	280	37	BIG TROUT LAKE	2	15	9	-5	6	13	140	41
PENTICTON	6	1	15	-4	2	0	180	67	GORE BAY	3	6	15	-10	0	2		*
PORT HARDY	6	1	13	0	7	0	110	43	KAPUSKASING	0	8	16	-17	0	8		*
PRINCE GEORGE	2	3	11	-6	6	0	250	41	KENORA	5	10	14	-3	10	2	150	50
PRINCE RUPERT	5	1	12	-2	21	0	160	37	KINGSTON	*		12P	-4	0	0		X
REVELSTOKE	5	3	13	-2	7	0	190	41	LONDON	4	5	16	-6	0	0	360	35
SMITHERS	3	3	11	-5	2	1		*	MOOSONEE	-4	7	15	-20	0	40		*
VANCOUVER INT'L	7	1	14	1	10	0	090	41	NORTH BAY	2	6	16	-8	0	6	360	44
VICTORIA INT'L	6	0	13	-1	4	0	210	41	OTTAWA INT'L	4	6	16	-4	1	16		X
WILLIAMS LAKE	2	2	10	-5	5	0		X	PETAWAWA	4	7	19	-8	0	9		X
YUKON TERRITORY									PICKLE LAKE	3	12	12	-8	4	53	160	43
DAWSON	-8	5	8	-27	0	38		*	RED LAKE	4	12	13	-1	9	19	130	48
MAYO	-6	6	7	-20	0	18		X	SUDBURY	2	7	15	-9	0	27		X
SHINGLE POINT A	*		-11	-39	1	33		*	THUNDER BAY	1	6	12	-10	0	0	100	33
WATSON LAKE	-8	2	6	-23	1	46		*	TIMMINS	1	7	16	-18	0	17		*
WHITEHORSE	-4	3	6	-20	0	19	170	44	TORONTO INT'L	4	4	15	-7	0	0	340	46
NORTHWEST TERRITORIES									TRENTON	5	5	15	-4	0	1		X
ALERT	-36	-3	-30	-41	2	28		*	WIARTON	3	5	15	-5	0	1		X
BAKER LAKE	-18	8	-9	-33	15	87	110	43	WINDSOR	4	3	15	-5	0	0	060	56
CAMBRIDGE BAY	-32	-3	-23	-40	2	30	030	54	QUEBEC								
CAPE DYER	-23	1	-9	-34	2	51		*	BAGOTVILLE	2	8	16	-5	3	10		*
CLYDE	-31	-5	-24	-40	2	34	310	43	BLANC SABLON	-1	4	3	-11	15	60		X
COPPERMINE	-26	-1	-15	-37	6	38		*	INUKJUAQ	-12	8	-3	-21	1	44	160	33
CORAL HARBOUR	-20	4	-8	-32	10	41		X	KUJUUJUAQ	-13	4	-3	-24	4	29	020	31
EUREKA	-42	-6	-35	-46	2	14		*	KUJUUJARAPIK	-6	10	3	-15	0	37	110	35
FORT SMITH	-8	7	6	-21	11	86		X	MANIWAKI	3	7	7	-7	1	20	330	33
IQALUIT	-20	2	-7	-33	6	20	340	61	MONT JOLI	0	4	8	-4	22	10	040	54
HALL BEACH	-30	-1	-19	-41	1	33	330	31	MONTREAL INT'L	2	4	12	-6	8	5	020	37
INUVIK	-28	-3	-5	-44	1	40		X	NATASHQUAN	1	7	5	-5	21	20	030	72
MOULD BAY	-37	-5	-26	-45	2	45		X	QUEBEC	2	5	12	-4	1	54	090	39
NORMAN WELLS	-21	-3	-1	-36	1	17		X	SCHEFFERVILLE	-7	7	4	-24	1	38	270	52
RESOLUTE	-36	-6	-27	-41	2	19	040	57	SEPT-ILES	1	7	7	-5	11	12	020	63
YELLOWKNIFE	-12	6	-3	-26	1	25	150	35	SHERBROOKE	1	4	13	-6	2	33	020	41
ALBERTA									VAL D'OR	0	7	16	-14	0	25	350	35
CALGARY INT'L	-1	1	11	-9	6	1	010	50	NEW BRUNSWICK								
COLD LAKE	-2	4	3	-9	10	21	140	37	CHARLO	1	6	6	-5	27	29	030	33
CORONATION	-2	3	3	-15	15	0		*	CHATHAM	0	3	6	-7	38	97	060	52
EDMONTON NAMAQ	-2	2	4	-6	9	11	140	37	FREDERICTON	1	3	8	-4	40	40	030	44
FORT MCMURRAY	-3	5	3	-6	3	46		X	MONCTON	-1	2	4	-6	44	66	360	70
HIGH LEVEL	-7	0	1	-20	11	95		*	SAINT JOHN	0	2	6	-5	50	50	010	52
JASPER	2	3	11	-9	1	1		X	NOVA SCOTIA								
LETHBRIDGE	-2	-1	11	-13	20	14	240	50	GREENWOOD	1	2	6	-3	43	43	020	57
MEDICINE HAT	-1	0	11	-8	15	8	180	56	SHEARWATER	1	2	7	-3	56	4	070	57
PEACE RIVER	-5	2	1	-17	1	25		*	SYDNEY	0	2	4	-2	16	28	010	37
SASKATCHEWAN									YARMOUTH	1	1	7	-3	24	8	320	48
CREE LAKE	-4	9	2	-21	16	64	160	37	PRINCE EDWARD ISLAND								
ESTEVAN	0	4	4	-3	38	9	120	41	CHARLOTTETOWN	-1	2	3	-7	18	51	010	44
LA RONGE	-1	8	3	-7	10	61	160	37	SUMMERSIDE	-1	2	3	-7	24	67	360	56
REGINA	0	6	5	-3	12	3	040	43	NEWFOUNDLAND								
SASKATOON	0	6	2	-3	9	2	010	41	CARTWRIGHT	-3	5	4	-17	31	218	030	65
SWIFT CURRENT	-2	2	3	-7	16	0		X	CHURCHILL FALLS	-4	9	8	-14	2	82	040	52
YORKTON	0	8	3	-3	28	9	120	35	GANDER INT'L	1	4	5	-6	29	26	360	44
MANITOBA									GOOSE	-2	5	8	-14	11	77	020	67
BRANDON	1	7	3	-3	38	9	050	43	PORT-AUX-BASQUES	2	5	9	-3	25	1	010	69
CHURCHILL	-8	11	3	-25	7	23	100	35	ST JOHN'S	0	3	5	-6	50	68	140	65
LYNN LAKE	-2	12	2	-11	20	25		*	ST LAWRENCE	2	3	6	-3	40	23		X
									WABUSH LAKE	-5	8	8	-18	2	*	020	56

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

