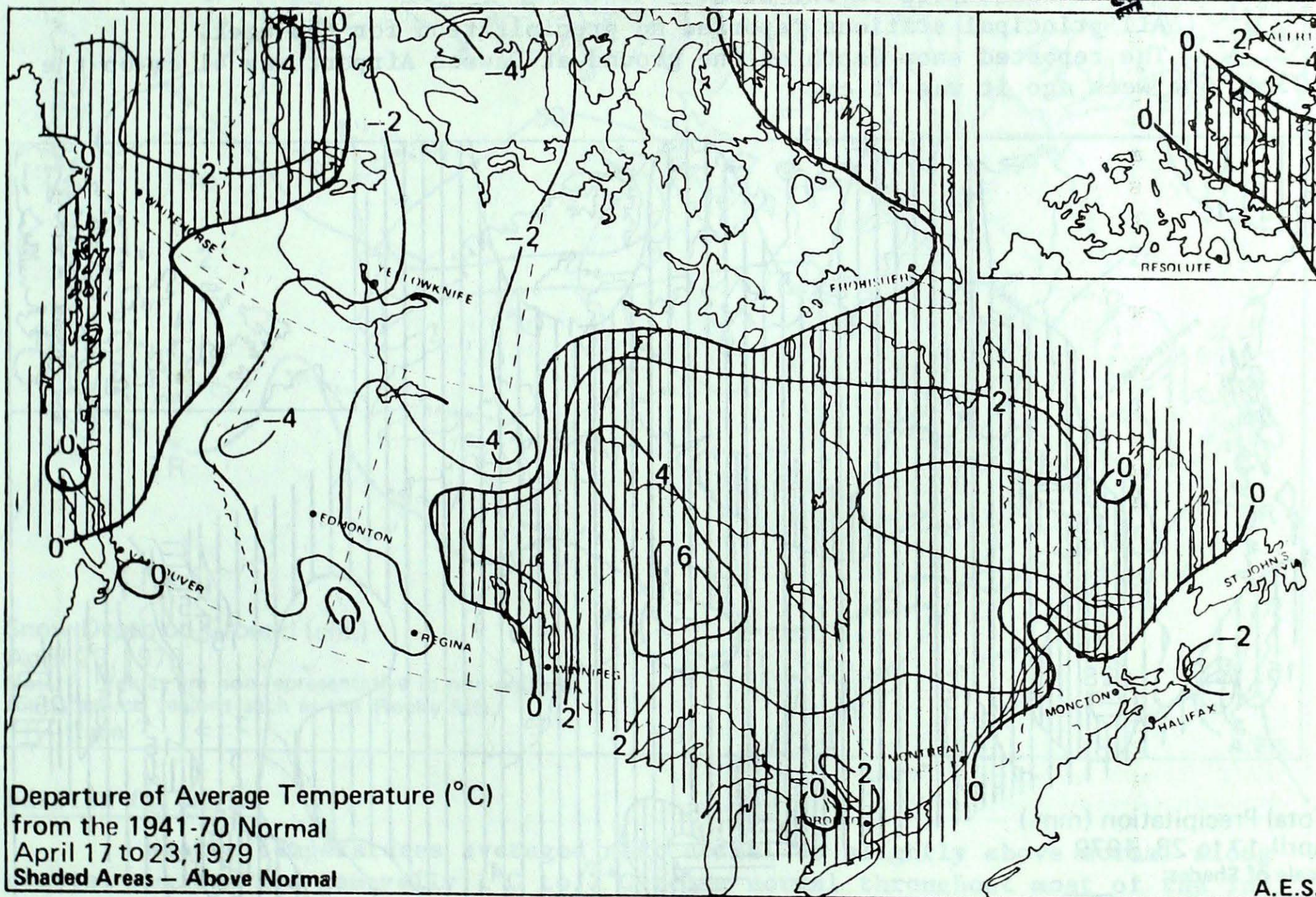


APRIL 27, 1979

VOL. 1 NO. 11



**WEATHER HIGHLIGHTS FOR THE WEEK - APRIL 17 - 23, 1979**

Spring Flooding Threatens to Surpass 1950 Levels in Southern Manitoba

Rapid depletion of the snowpack combined with significant amounts of rain have caused widespread flooding throughout southern Manitoba, North Dakota and southeastern Saskatchewan, predominantly to agricultural land, although the town of Carman, 80 km southwest of Winnipeg has suffered extensive flood damage. However, the threat of the Red River surpassing 1950 levels has resulted in the Manitoba government asking 10,000 residents of 6 towns south of Winnipeg to voluntarily evacuate.

Synoptically, at the beginning of the period a strong atmospheric ridge was positioned across the middle of the continent with two closed low pressure cells located on the west and east coasts. As the atmospheric ridge drifted eastward it weakened considerably; however, most of the eastern half of the country benefited from the surface southerly flow of milder air.

NOTE: The data shown in this publication are based on unverified reports from approximately 170 Surface Synoptic reporting stations of the Atmospheric Environment Service.

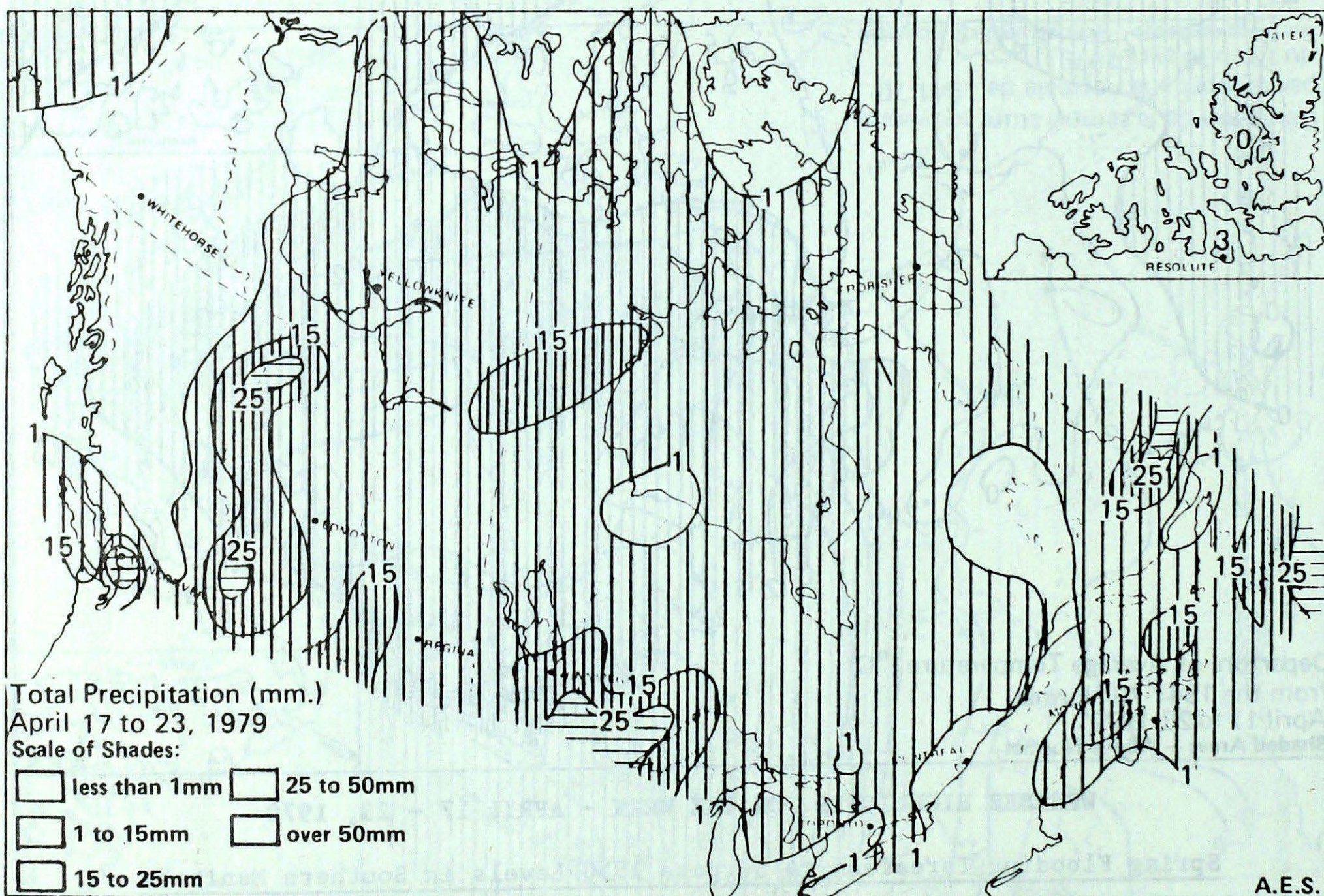
A significant surface low pressure system approached central Manitoba from the southwest on the 18th, strengthened, and moved northeastward to northern Hudson Bay on the 20th. Most of the precipitation recorded for the week in southern Manitoba and northwestern Ontario fell during that time period.

### YUKON TERRITORY

In contrast to the cold weather of the previous week, the Yukon experienced normal to slightly above normal weekly temperatures as a warming trend evolved during the second half of the week and the temperature rose to 13°C at Watson Lake and Whitehorse on the 22nd.

All principal stations reported no precipitation for the week.

The reported snow depth on the ground at Dawson Airport was 41 cm on the 23rd; one week ago it was 76 cm.

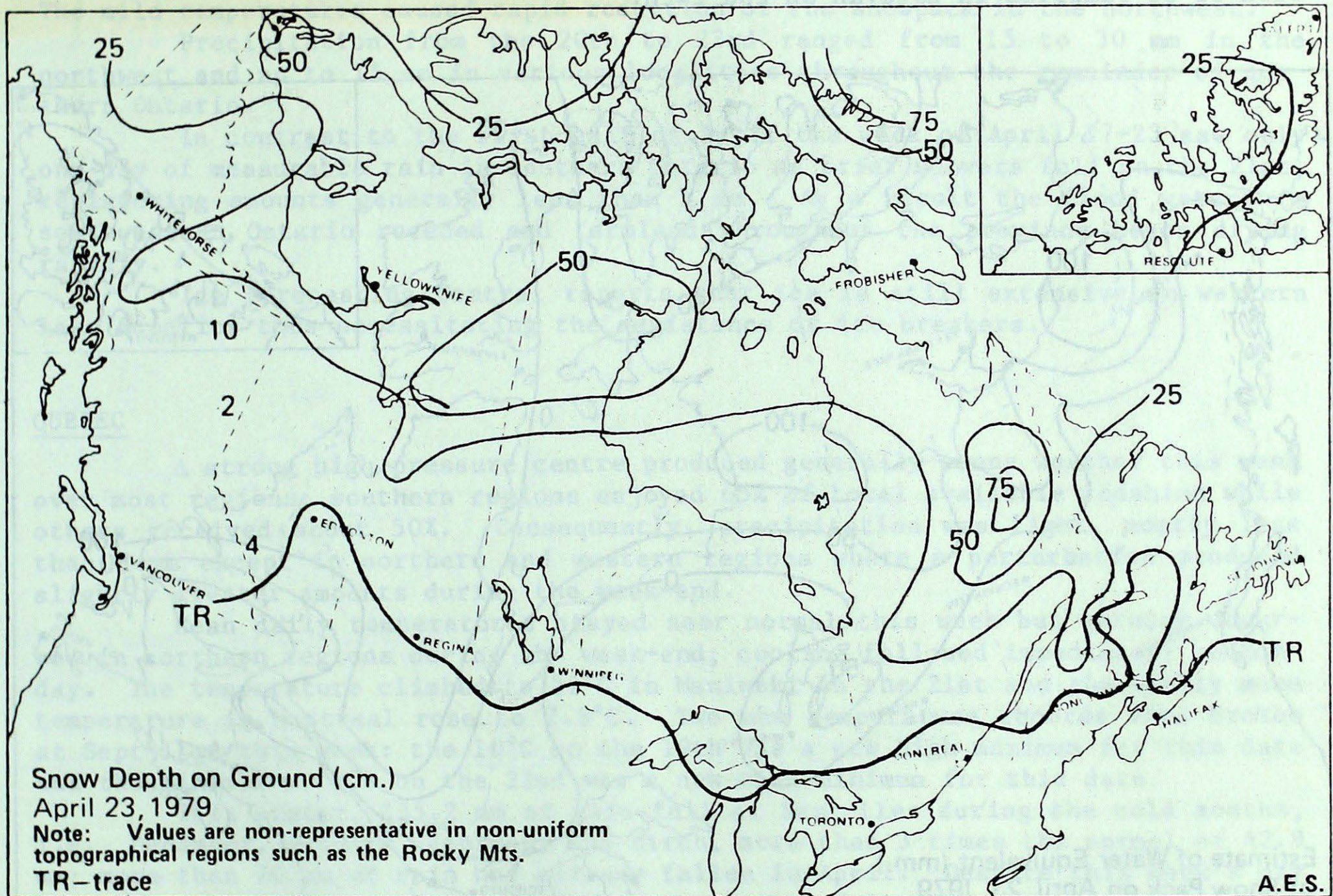


### NORTHWEST TERRITORIES

The weekly surface temperature pattern was considerably different from that of the previous week. Temperatures were 3°C to 4°C above normal in the northern Mackenzie Valley and near normal in the vicinity of Baffin Island in the eastern Canadian Arctic; elsewhere temperatures averaged 2°C to 5°C below the 1941-70 normal. The warmest temperature, 10°C, occurred at Norman Wells on the 20th and Fort Simpson on the 22nd. In contrast, the coldest temperature in Canada during the past week, -36°C, was recorded at Mould Bay on the 20th.

10-20 mm of precipitation fell in the vicinity of Great Slave Lake, regions adjacent to western Hudson Bay, and southeastern Baffin Island; elsewhere it was seasonably dry.

The 97 cm of snow measured on the ground at Cape Dyer, Baffin Island on the 23rd was the deepest snowpack reported at any principal Canadian reporting station.



#### BRITISH COLUMBIA

Weekly temperatures averaged near normal to slightly above normal along coastal regions and generally 1°C to 2°C below normal throughout most of the interior. Temperatures ranged from 22°C at Abbotsford on the 22nd and 23rd, and Lytton on the 23rd, to -8°C at Fort St. John on the 19th.

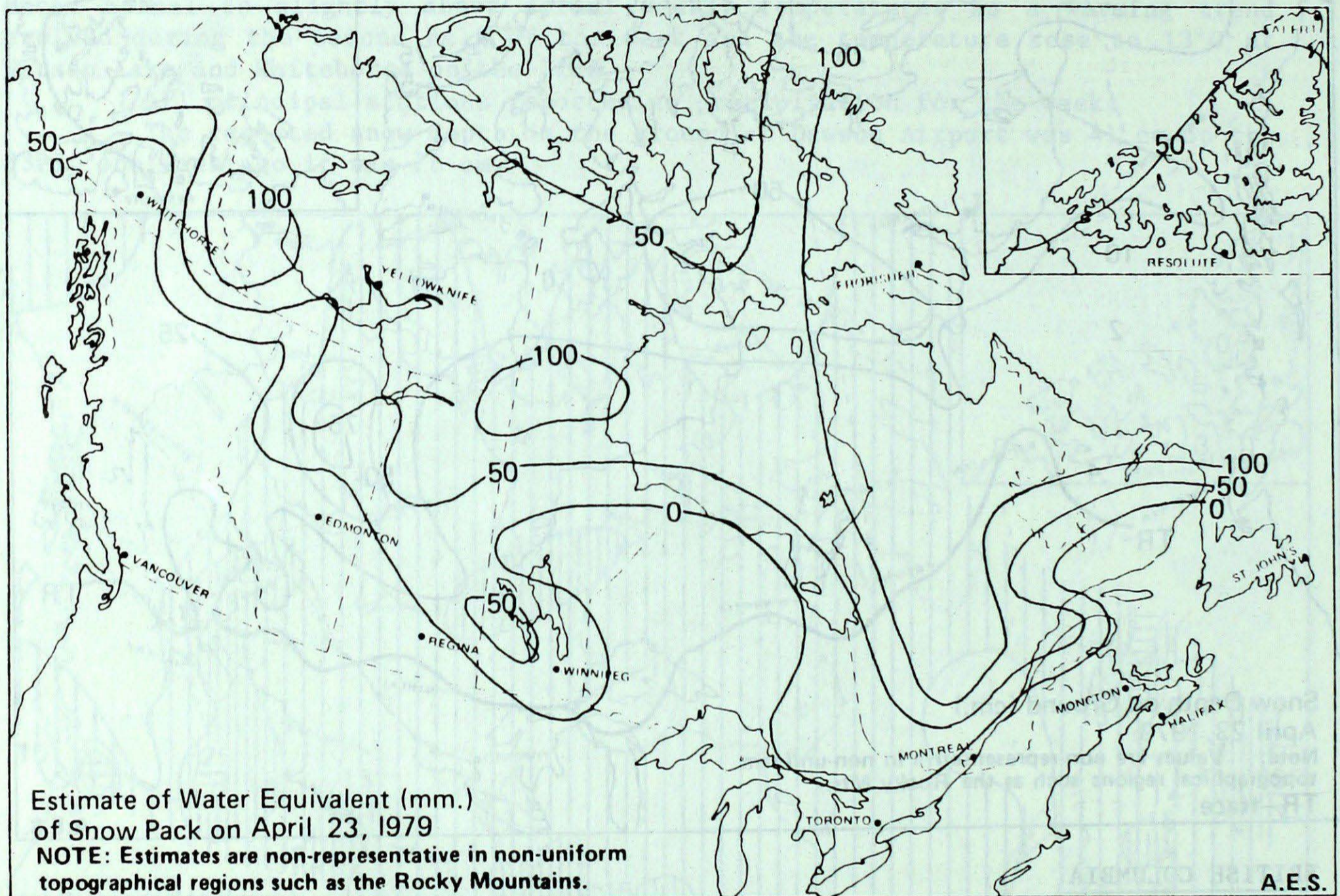
Precipitation was very light throughout the province, the exception being portions of the southern coastal, southeastern interior and Fort St. John area where amounts up to 30 mm fell.

#### ALBERTA AND SASKATCHEWAN

Weekly temperatures once again were below normal throughout most of the two provinces, particularly in the Peace River Region of Alberta where anomalies as large as -5°C occurred. However, temperatures did reach as high as 16°C at Medicine Hat, Alta. and 18°C at Kindersley, Sask. on the 17th. The cool weather in Alberta has delayed spring runoff on south central rivers. With warming temperatures ice is expected to break up on most south central rivers this week and on northern rivers within the next two weeks. Above normal snowcover in northern areas is expected to produce moderately high runoff in those areas.

Most of the western half of Alberta and southwestern Saskatchewan received 15 mm to 25 mm of precipitation early in the period; elsewhere precipitation was seasonably light. Snowfalls of 20 cm to 30 cm were reported in the west central Alberta foothills and over the Swan Hills earlier in the week.

In southeastern Saskatchewan flooding by the Souris River forced evacuation of 35 families in Estevan on the 24th.



### MANITOBA

Rapid depletion of the snowpack due to mild weather, e.g. maximum temperature of 15°C at Winnipeg on the 18th, and precipitation ranging from 10 mm to 40 mm has caused serious flooding in southern Manitoba. Most present flooding is in agricultural areas since many towns are protected by ring dikes and floodways; however, the town of Carman, about 80 km southwest of Winnipeg, has already had extensive flood damage due to the Boyne River.

The threat by floodwaters of the Red and Morris Rivers has necessitated the Manitoban government to ask for voluntary evacuation of 10,000 residents from 6 towns south of Winnipeg.

At Grand Forks, North Dakota, 200 homes have been flooded by the Red River which has already reached 1950 levels.

The Manitoba Government forecast on the 24th that the Red River would crest more than a ½ metre above the infamous 1950 levels in southern Manitoba.

ONTARIO

Sunny, dry and warm weather returned to Ontario during the week as most of the province was lying under a large high pressure system. Temperature anomalies ranged from near normal in the south to 7°C above normal in extreme northern portions of the province. The temperature rose to 21°C at several localities. The mild temperatures caused rapid reduction of the snowpack in the northwest.

Precipitation from the 20th to 23rd ranged from 15 to 30 mm in the northwest and up to 15 mm in various localities throughout the remainder of northern Ontario.

In contrast to the first half of April the week of April 17-23 saw only one day of measurable rain in southern Ontario as brief showers fell on the 21st, registering amounts generally less than 5 mm. As a result the flood waters in southwestern Ontario receded and farmland throughout the province began drying rapidly.

Ice Forecasting Central reports that ice is still extensive on western Lake Superior thus necessitating the assistance of ice breakers.

QUEBEC

A strong high pressure centre produced generally sunny weather this week over most regions; southern regions enjoyed 65% of total available sunshine while others received about 50%. Consequently, precipitation was light, mostly less than 2 mm except in northern and western regions where a perturbation produced slightly greater amounts during the week-end.

Mean daily temperatures stayed near normal this week but warming occurred in northern regions during the week-end; cooling followed immediately on Monday. The temperature climbed to 21°C in Maniwaki on the 21st and the weekly mean temperature in Montreal rose to 7.8°C. Two new temperature records were broken at Sept-Iles this week: the 10°C on the 19th was a new high maximum for this date and the minimum of 2°C on the 22nd was a new high minimum for this date.

This winter, 135.2 mm of rain fell at Sept-Iles during the cold months, i.e. December, January, February and March, more than 3 times the normal of 42.9 mm; more than 70 mm of rain has already fallen in April. Despite this week's dry weather, many basements were flooded as a result of heavy rains of the previous week and still frozen ground.

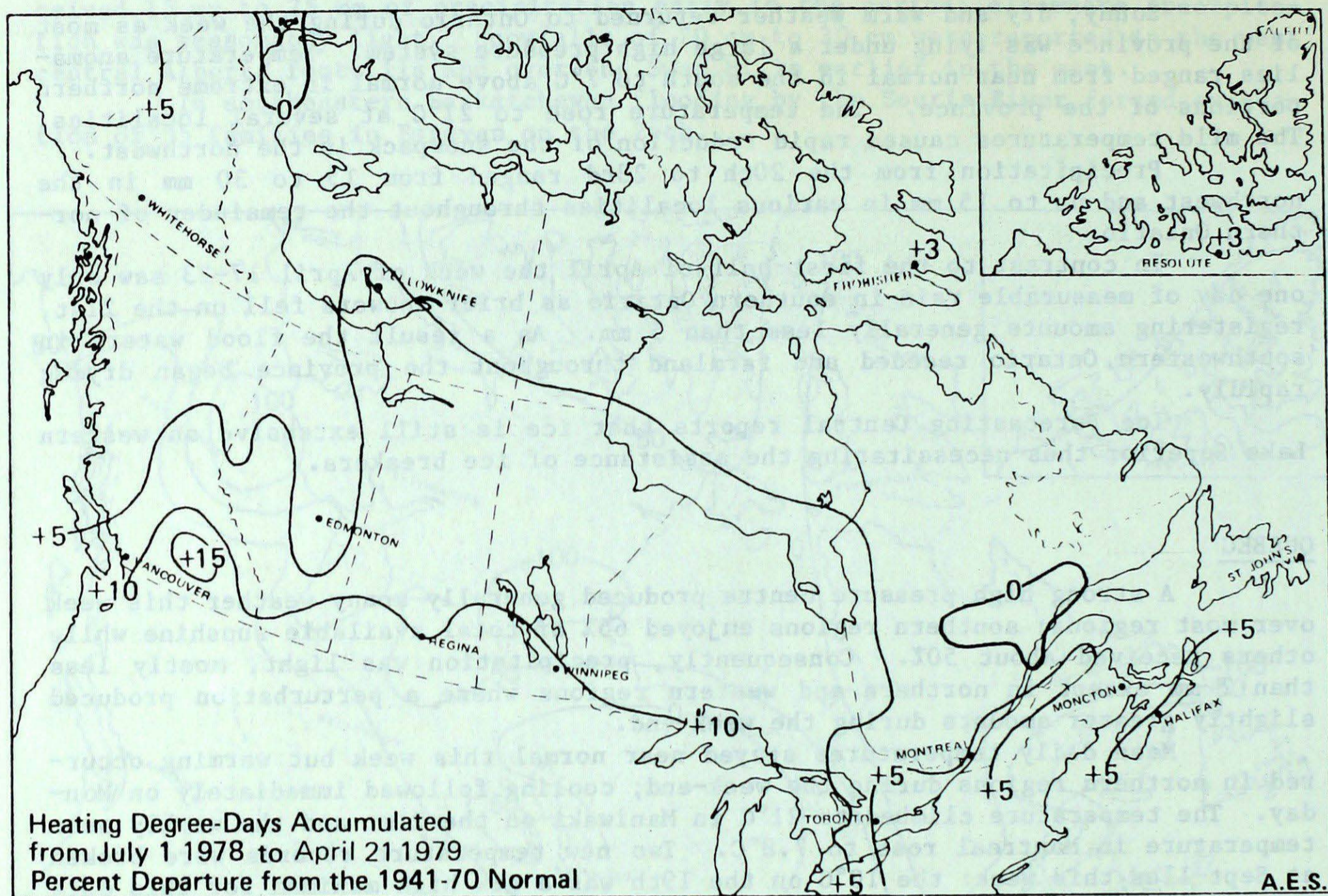
ATLANTIC PROVINCES

Temperatures were generally on the cool side during the first four days with a warming trend beginning in some areas on the 21st; weekly mean temperatures remained near normal with the largest anomaly being -2.2°C at Sydney. On the last two days, temperatures were generally above normal with daytime highs reaching the mid to high teens, particularly in some inland areas; Chatham enjoyed the warmest temperature of the Maritimes with 19°C on the 22nd.

Precipitation totals were generally light with many locations reporting less than 10 mm. Snow was reported from many locations on the 19th and 20th. CFB Shearwater (Halifax-Dartmouth) N.S., received a total of 6.9 cm on the 20th, 0.4 cm more than the total received for the month of March. Thunder showers were reported in parts of New Brunswick on the 23rd. A storm just south of Newfoundland was causing strong winds and freezing rain to some areas of the Avalon Peninsula late on the 23rd.

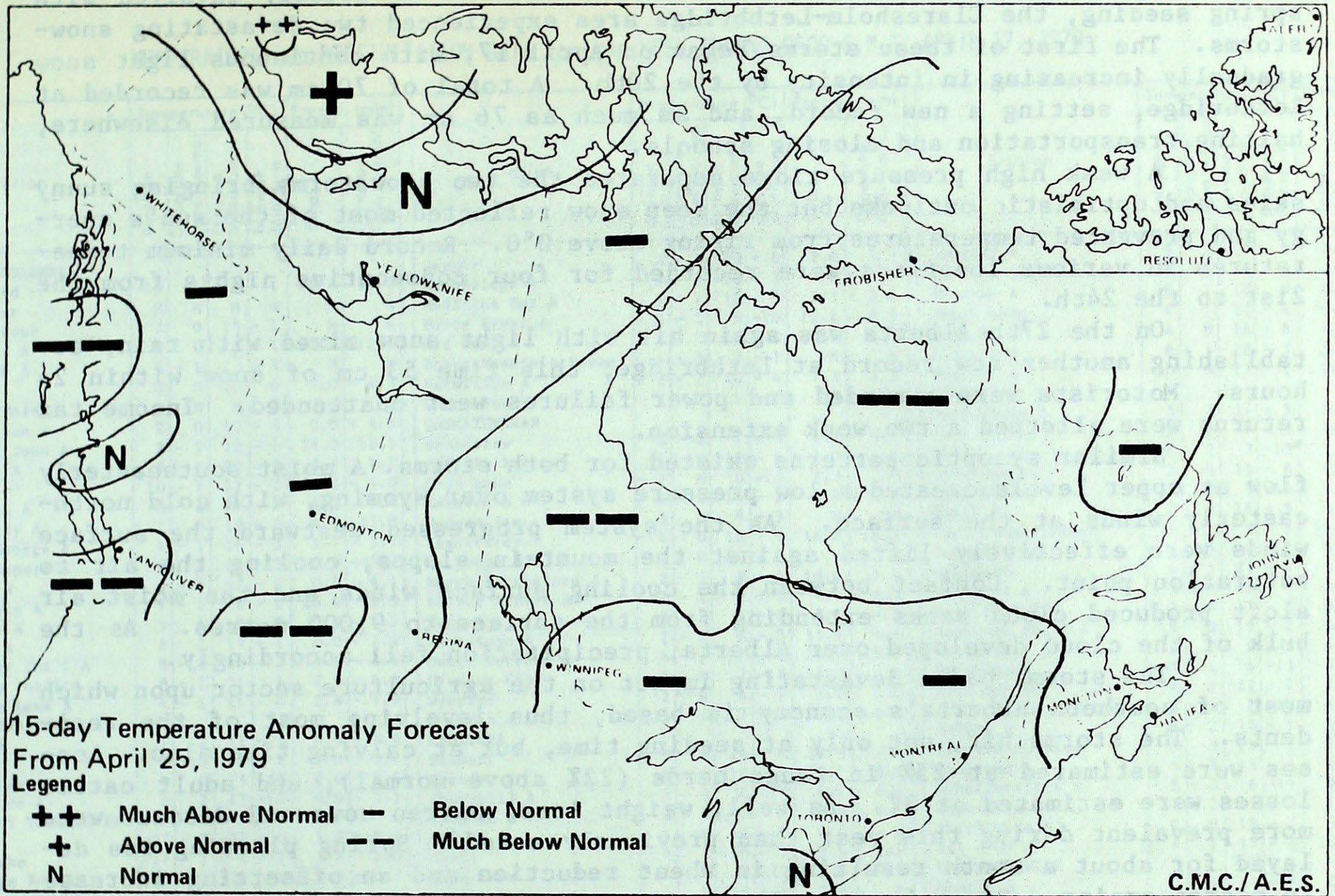
Fishing vessels are still encountering problems in Chaleur Bay, Notre Dame Bay and Bonavista Bay but east coast ice conditions are about normal.

## HEATING DEGREE-DAY SUMMARY TO APRIL 21, 1979



STATION	MONTHLY CUMULATIVE TOTAL	MONTHLY DIFF. FROM 1941-70 NORMAL	SEASONAL TOTAL	SEASONAL DIFF. FROM 1941-70 NORMAL	SEASONAL PERCENT OF NORMAL
Resolute	841.0	-56.0	11108.5	332.5	103
Inuvik	809.0	94.0	8935.5	-159.5	98
Whitehorse	415.0	9.0	6497.5	264.5	104
Vancouver Int'l A	219.0	19.0	2838.5	162.5	106
Edmonton Mun A	397.5	75.5	5323.5	164.5	103
Calgary Int'l A	392.0	64.0	5189.0	374.0	108
Regina	457.5	117.5	6060.0	572.0	110
Winnipeg Int'l A	430.0	88.0	6153.5	675.5	112
Thunder Bay	394.0	40.0	5722.0	523.0	110
Windsor	265.0	38.0	3537.5	185.5	106
Toronto Int'l A	306.5	40.5	3954.0	189.0	105
Ottawa Int'l A	293.5	10.5	4469.0	109.0	103
Montreal Int'l A	297.5	16.5	4435.0	258.0	106
Quebec	331.5	-3.5	4915.5	249.5	105
Saint John, N.B.	334.0	5.0	4318.0	86.0	102
Halifax	315.5	9.5	3812.5	213.5	106
Charlottetown	359.0	15.0	4223.0	144.0	104
St. John's, Nfld.	373.5	6.5	4223.5	175.5	104

15 DAY TEMPERATURE ANOMALY FORECAST



Forecast Method

Analogue technique based on point prediction at 70 Canadian stations.

Temperature Scale

Each temperature class is designed to contain 20% of the historically observed 15 day means pertinent to specific location and time of year:

<u>Station</u>	<u>Current Temperature Anomaly (<math>\Delta T</math>) Forecast</u>
Dawson	Below Normal ( $-1.8^{\circ}\text{C} < \Delta T < -0.5^{\circ}\text{C}$ )
Frobisher	Much Below Normal ( $\Delta T < -2.4^{\circ}\text{C}$ )
Trenton	Below Normal ( $-1.6^{\circ}\text{C} < \Delta T < -0.5^{\circ}\text{C}$ )
Vancouver	Much Below Normal ( $\Delta T < -1.1^{\circ}\text{C}$ )

Note: Anomaly denotes departure from the 1949-73 mean.

## ON THIS DATE...

.....During mid-April 1967, the time when Alberta is usually involved with spring seeding, the Claresholm-Lethbridge area experienced two devastating snowstorms. The first of these storms began on April 17, with continuous light snow gradually increasing in intensity by the 20th. A total of 70 cm was recorded at Lethbridge, setting a new record, and as much as 76 cm was measured elsewhere, halting transportation and closing schools.

A weak high pressure ridge separated the two snowstorms bringing sunny skies and optimistic outlooks but the deep snow reflected most of the sun's energy and prevented temperatures from rising above 0°C. Record daily minimum temperatures in various locations were recorded for four consecutive nights from the 21st to the 24th.

On the 27th Alberta was again hit with light snow mixed with rain, establishing another new record at Lethbridge; this time 53 cm of snow within 24 hours. Motorists were stranded and power failures went unattended. Income tax returns were allotted a two week extension.

Similar synoptic patterns existed for both storms. A moist southeasterly flow at upper levels created a low pressure system over Wyoming, with cold northeasterly winds at the surface. As the system progressed eastward the surface winds were effectively lifted against the mountain slopes, cooling the air to saturation point. Contact between the cooling surface winds and the moist air aloft produced cloud banks extending from the surface to 9,000 metres. As the bulk of the cloud developed over Alberta, precipitation fell accordingly.

The storms had a devastating impact on the agriculture sector upon which most of southern Alberta's economy is based, thus involving most of the residents. The storms hit, not only at seeding time, but at calving time also. Losses were estimated at 25% in range herds (22% above normal), and adult cattle losses were estimated at 3%. As well, weight loss, barren cows and disease were more prevalent during this year than previously noted. Spring planting was delayed for about a month resulting in wheat reduction and an offsetting increase in coarse grains. Sugar beets and specialty crops were most seriously affected. Only 85% of normal acreage was planted and that as much as 1.5 months late. The lateness of the season made schedules difficult to maintain and monetary losses could only be estimated in the millions of dollars.

#### Reference

Janz, B. April 1968. Weatherwise, Vol. 21, No. 2. "Southern Alberta's Paralyzing Snowstorms in April 1967".

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TEMPERATURE AND PRECIPITATION DATA FOR THE WEEK ENDING 0600 G.M.T. APRIL 17, 1979

Station	Temperature (°C)				Precip. (mm)		Station	Temperature (°C)				Precip. (mm)		Station	Temperature (°C)				Precip. (mm)	
	Average	Departure from Normal	Extreme Maximum	Extreme Minimum	Total	Departure from Normal		Average	Departure from Normal	Extreme Maximum	Extreme Minimum	Total	Departure from Normal		Average	Departure from Normal	Extreme Maximum	Extreme Minimum	Total	Departure from Normal
<b>BRITISH COLUMBIA</b>							Jasper	2	-2	13	-6	7.6	3.3	Timmins A	5	2	19	-6	2.3	-8.2
Abbotsford	10	1	22	1	30.6	10.2	Lethbridge A	4	-2	15	-3	6.8	-2.6	Toronto Int'l A	8	1	19	-1	0.3	-13.2
Blue River	M	M	M	M	M	M	Medicine Hat A	6	-1	16	-3	8.5	-0.1	Trenton A	9	1	18	0	1.6	-15.0
Bull Harbour	7	0	15	-1	M	M	Peace River A	-2	-5	9	-10	12.2	8.1	Trout Lake	4	7	12	-4	6.8	-1.2
Cantlegar A	8	0	18	-1	23.0	12.3	Red Deer A	2	-2	10	-4	15.2	8.6	Wawa A	4	M	16	-6	4.4	M
Cranbrook A	4	-1	13	-4	M	M	Rocky Mountain House	1	-3	9	-11	M	M	Warton A	6	-1	18	-3	3.3	-11.2
Comox A	8	0	20	0	7.0	-4.3	Vermilion A	2	-2	10	-4	7.1	2.5	Windsor A	10	0	21	1	0.8	-20.2
Estevan Point	M	M	M	3	M	M	Whitecourt	1	-2	11	-6	M	M	<b>QUEBEC</b>						
Fort Nelson A	2	0	13	-6	0.0	-4.6	<b>SASKATCHEWAN</b>						Bagotville A	5	2	17	-5	1.5	-12.0	
Fort St. John A	2	-2	12	-8	24.3	18.1	Broadview	2	-2	7	-3	1.2	-4.5	Baie Comeau	2	0	9	-5	1.1	-20.2
Kamloops A	8	-1	20	-2	3.7	1.7	Buffalo Narrows	1	M	11	-6	1.0	M	Border	-7	2	3	-19	3.9	-0.4
Lytton	10	-1	22	-2	0.2	-4.0	Cree Lake	-1	M	8	-13	7.3	M	Chibougamau	2	M	15	-8	4.4	M
Penticton A	8	-2	19	-4	4.2	0.4	Estevan A	4	-1	14	-3	6.7	-1.0	Fort Chimo A	-5	3	7	-16	1.5	-4.3
Port Hardy A	7	0	19	-1	4.5	-21.3	Hudson Bay	3	0	9	-3	M	M	Gaspé A	2	2	16	-5	6.3	-17.4
Prince George A	4	-1	14	-5	1.7	-3.7	Kindersley	4	0	18	-5	16.6	11.3	Grindstone Island	1	-1	6	-3	19.6	6.7
Prince Rupert A	6	1	19	-2	0.0	-43.7	La Ronge A	2	0	10	-7	M	M	Inoucdjouac	-6	3	2	-17	8.4	5.0
Quesnel A	4	-2	17	-5	0.8	-4.1	North Battleford A	2	-3	9	-4	18.4	11.4	Maniwaki	6	1	21	-4	5.6	-7.4
Revelstoke A	7	-1	18	-2	26.0	12.3	Prince Albert A	2	-1	9	-5	4.1	-2.3	Matagami A	3	M	13	-6	3.4	M
Smithers A	5	1	17	-3	0.0	-4.1	Regina A	3	-2	7	-4	2.7	-4.0	Mont Joli A	3	0	11	-5	0.2	-9.7
Terrace A	8	2	19	-1	0.0	-7.4	Saskatoon A	2	-2	8	-3	11.4	4.6	Montréal Int'l A	8	0	19	-2	0.4	-15.4
Vancouver Int'l A	8	-1	16	2	13.1	-1.6	Swift Current A	4	-1	17	-4	16.1	9.3	Natashquan A	2	2	9	-5	4.8	-13.7
Victoria Int'l A	8	-1	21	1	2.0	-8.3	Uranium City	-4	M	7	-15	14.0	M	Nitchequon	-3	1	6	-13	0.8	-7.8
Williams Lake A	4	-1	14	-4	2.8	-1.9	Wynyard	2	0	6	-3	3.7	-2.0	Port Menier	2	1	12	-7	2.0	-8.5
<b>YUKON TERRITORY</b>							Yorkton A	3	-1	7	-2	7.2	0.8	Poste de la Baleine	-3	2	7	-10	4.3	-3.6
Dawson A	1	2	11	-15	0.0	-1.6	<b>MANITOBA</b>						Québec A	6	2	18	-1	0.2	-17.1	
Mayo A	3	3	12	-9	0.0	-1.7	Bissett	5	M	14	-4	19.6	M	Riviere du Loup	5	3	13	-2	1.8	-1.3
Watson Lake A	0	0	13	-12	0.0	-4.6	Brandon A	4	-1	10	-2	12.7	4.5	Roberval A	5	2	18	-4	2.2	-12.0
Whitehorse A	2	2	13	-10	0.0	-2.1	Churchill A	-5	4	4	-16	6.1	-0.5	Schefferville A	-5	0	6	-14	0.6	-8.4
<b>NORTHWEST TERRITORIES</b>							Dauphin A	3	-1	9	-1	1.0	-8.4	Sept-Iles A	3	2	11	-3	1.0	-12.2
Alert	-27	-5	-22	-33	1.0	-0.1	Gillam A	1	M	10	-9	0.2	M	Sherbrooke A	4	0	18	-7	0.0	-19.9
Baker Lake	-17	-1	-6	-27	3.8	1.3	Gimli	4	1	10	-5	12.0	1.9	Val d'Or A	4	1	15	-5	10.4	0.5
Cambridge Bay A	-23	-3	-10	-32	0.8	-0.7	Lynn Lake	-1	-4	8	-11	2.8	-0.5	<b>NEW BRUNSWICK</b>						
Cape Dyer	-11	M	1	-19	12.0	M	Norway House	4	M	13	-4	3.2	M	Charlo A	3	1	14	-6	0.9	-17.7
Chesterfield Inlet	-14	0	-3	-27	13.5	10.1	Pilot Mound	3	0	11	-3	11.0	-1.4	Chatham A	4	-1	19	-6	6.9	-5.7
Clyde	-16	2	-6	-26	1.0	-0.8	Portage la Prairie	5	0	10	-3	M	M	Fredericton A	5	0	18	-4	19.5	4.7
Coppermine	-18	-2	-6	-30	7.1	4.6	The Pas A	3	2	10	-3	8.8	3.1	Moncton A	3	-2	18	-6	11.0	-2.8
Coral Harbour	-16	-2	-4	-27	3.0	-0.7	Thompson A	2	2	11	-8	4.2	-6.9	Saint John A	4	-1	16	-3	11.8	-7.0
Ennadai	-13	-2	-4	-30	21.8	19.5	Winnipeg Int'l A	6	1	15	0	15.3	4.6	<b>NOVA SCOTIA</b>						
Eureka	-24	1	-17	-31	0.0	-0.4	<b>ONTARIO</b>						Greenwood A	4	-1	15	-3	3.8	-9.0	
Fort Simpson	-3	-2	10	-19	2.1	-3.3	Armstrong A	4	3	11	-5	M	M	Shearwater A	3	-2	10	-3	12.6	-7.4
Fort Smith A	-5	-3	7	-18	12.4	8.7	Atikokan	6	2	19	-6	31.8	5.8	Sydney A	1	-2	10	-6	6.2	-15.7
Frobisher Bay A	-12	0	-1	-25	13.4	8.1	Earlton A	5	1	12	-4	5.2	-5.5	Truro	M	M	M	-3	M	M
Hall Beach A	-20	M	-7	-30	0.3	M	Geraldton	4	2	15	-7	7.8	-4.8	Yarmouth A	4	-1	11	-1	0.5	-17.7
Hay River A	-6	-3	5	-19	11.0	6.4	Gore Bay A	6	1	15	-2	3.8	-14.0	<b>PRINCE EDWARD ISLAND</b>						
Inuvik A	-9	4	7	-28	0.0	-4.7	Kapusking A	5	3	20	-6	12.8	0.5	Charlottetown	2	-1	14	-4	11.6	-1.2
Mould Bay	-28	-5	-18	-36	0.4	-0.4	Kenora A	7	3	20	-2	9.7	0.6	Summerside	3	-1	13	-3	1.2	-11.3
Norman Wells A	-2	3	10	-25	0.0	-3.0	Kingston A	7	0	16	0	M	M	<b>NEWFOUNDLAND</b>						
Resolute A	-23	-1	-10	-31	2.6	1.2	Lansdowne House	5	6	15	-5	M	M	Battle Harbour	0	2	6	-5	0.0	-18.1
Sachs Harbour	-22	-3	-12	-29	4.4	3.5	London A	8	0	21	-2	0.6	-15.9	Cartwright	0	2	10	-6	31.9	19.6
Yellowknife A	-7	-2	3	-18	1.0	-1.8	Moosonee	3	3	17	-8	12.6	1.0	Deer Lake	2	1	14	-8	1.6	-6.5
<b>ALBERTA</b>							Mount Forest	M	M	M	M	M	M	Gander Int'l A	2	0	14	-3	19.2	3.5
Banff	2	-1	8	-6	24.6	15.1	Muskoka A	8	2	19	-3	3.0	-12.4	Goose A	0	0	10	-12	18.4	5.9
Calgary Int'l A	1	-3	7	-6	19.2	12.4	North Bay A	7	2	15	-2	0.4	-16.7	Hopedale	-3	1	8	-13	4.3	-5.4
Cold Lake A	3	-1	10	-4	2.5	-4.1	Ottawa Int'l A	9	2	19	1	0.0	-15.1	St. Anthony	-1	M	6	-7	10.1	M
Coronation A	2	-2	9	-5	3.2	-3.0	Petawawa A	7	M	21	-3	6.0	M	St. John's A	1	-1	7	-5	28.2	4.9
Edmonton Mun. A	2	-3	11	-3	6.2	0.2	Pickle Lake	6	6	20	-4	7.6	-4.4	Stephenville A	2	-1	7	-4	4.6	-6.0
Edmonton Namao A	1	-3	10	-3	5.1	1.4	Red Lake A	6	3	19	-6	12.0	2.0	Wabush Lake	3	2	8	-10	0.3	-5.4
Edson A	1	-3	12	-9	16.4	10.9	Simcoe	9	2	20	0	M	M							
Fort Chipewyan	-2	-1	11	-10	10.2	7.6	Sioux Lookout A	6	4	20	-4	15.2	2.5							
Fort McMurray A	1	-2	11	-7	11.0	6.5	Sudbury A	7	2	15	-1	1.7	-12.4							
Grande Prairie A	-1	-5	10	-13	15.1	9.9	Thunder Bay A	5	1	15	-4	15.6	2.7							

M-Denotes missing data