

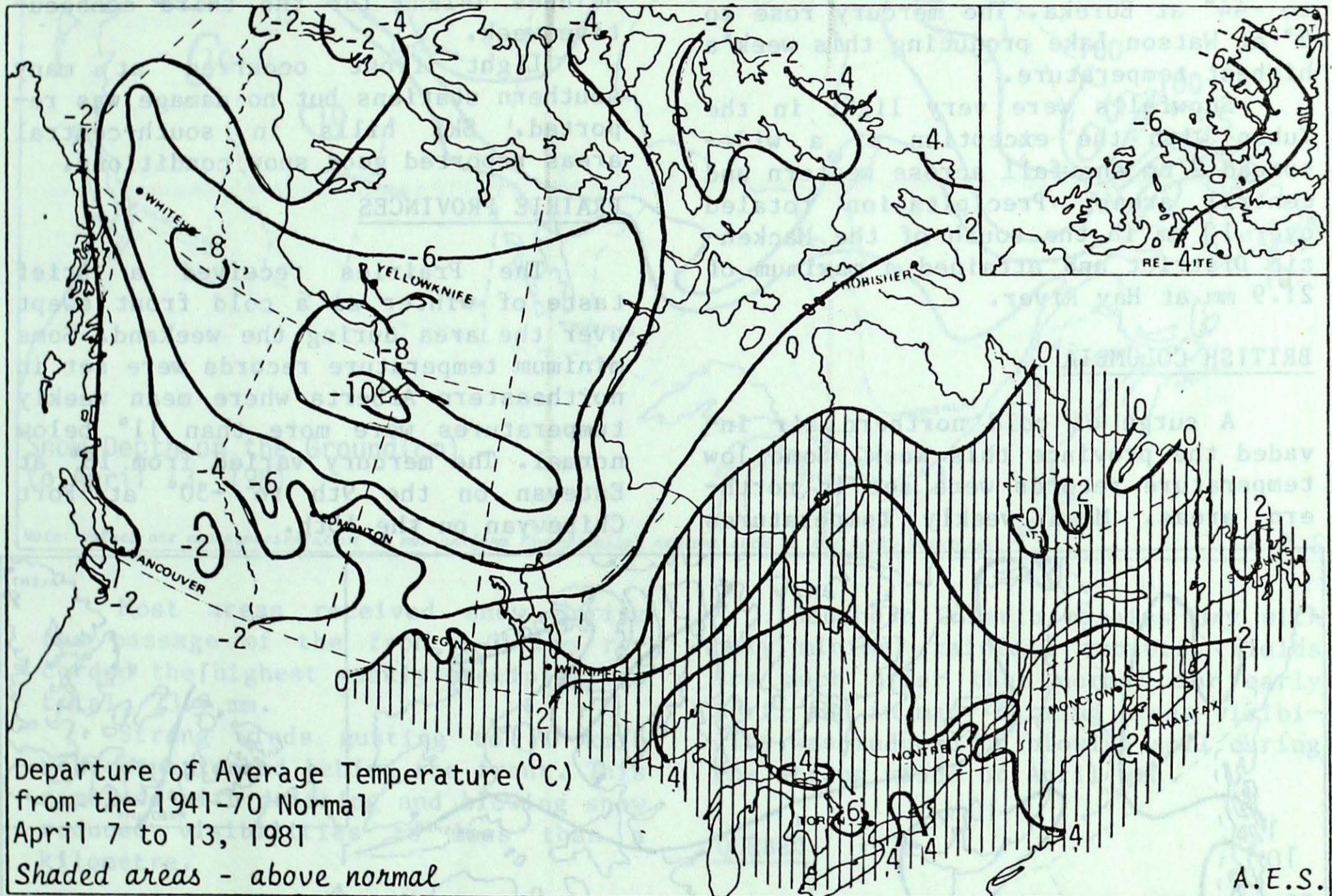
# CLIMATIC PERSPECTIVES

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## WEATHER HIGHLIGHTS FOR THE PERIOD - APRIL 7 TO 13 1981

### Vancouver receives an April snowstorm

It snowed in all the west this week. Vancouver received 5 cm of snow breaking the old snowfall record for April. Frost occurred in the interior of B.C. but no damage to the fruit trees was reported.

Fields are much drier than normal for early April in southern Ontario. High winds on April 9th reduced visibilities in blowing soil in many areas.

Very mild weather continued in the east. Many temperature records have been broken which were established at the beginning of the century.

The temperature fluctuated between a maximum of  $23^{\circ}$  at Windsor on the 8th to a minimum of  $-44^{\circ}$  for three days at Eureka. The highest weekly precipitation total, 85.2 mm, was recorded at McInnes Island (B.C.).

**NOTE:** The data shown in this publication are based on unverified reports from approximately 225 Canadian and 115 northern United States Synoptic stations.

YUKON AND NORTHWEST TERRITORIES

The cold weather spread to encompass the entire Arctic. Mean temperatures, which exceeded 6° above normal in the Yukon during the preceding week, were more than 8° below normal in some areas of the Yukon this week. This influx of cold air produced many low temperature records on April 11th and 12th in the Yukon. The temperature fell to -44° at Eureka. The mercury rose to 5° at Watson Lake producing this week's highest temperature.

Snowfalls were very light in the Yukon with the exception of a widespread 2 cm snowfall across western and central areas. Precipitation totaled over 10 mm in the south of the Mackenzie District and attained a maximum of 21.9 mm at Hay River.

BRITISH COLUMBIA

A surge of cold northern air invaded the province this week. Some low temperature records were set in northern areas. Mean weekly temperatures

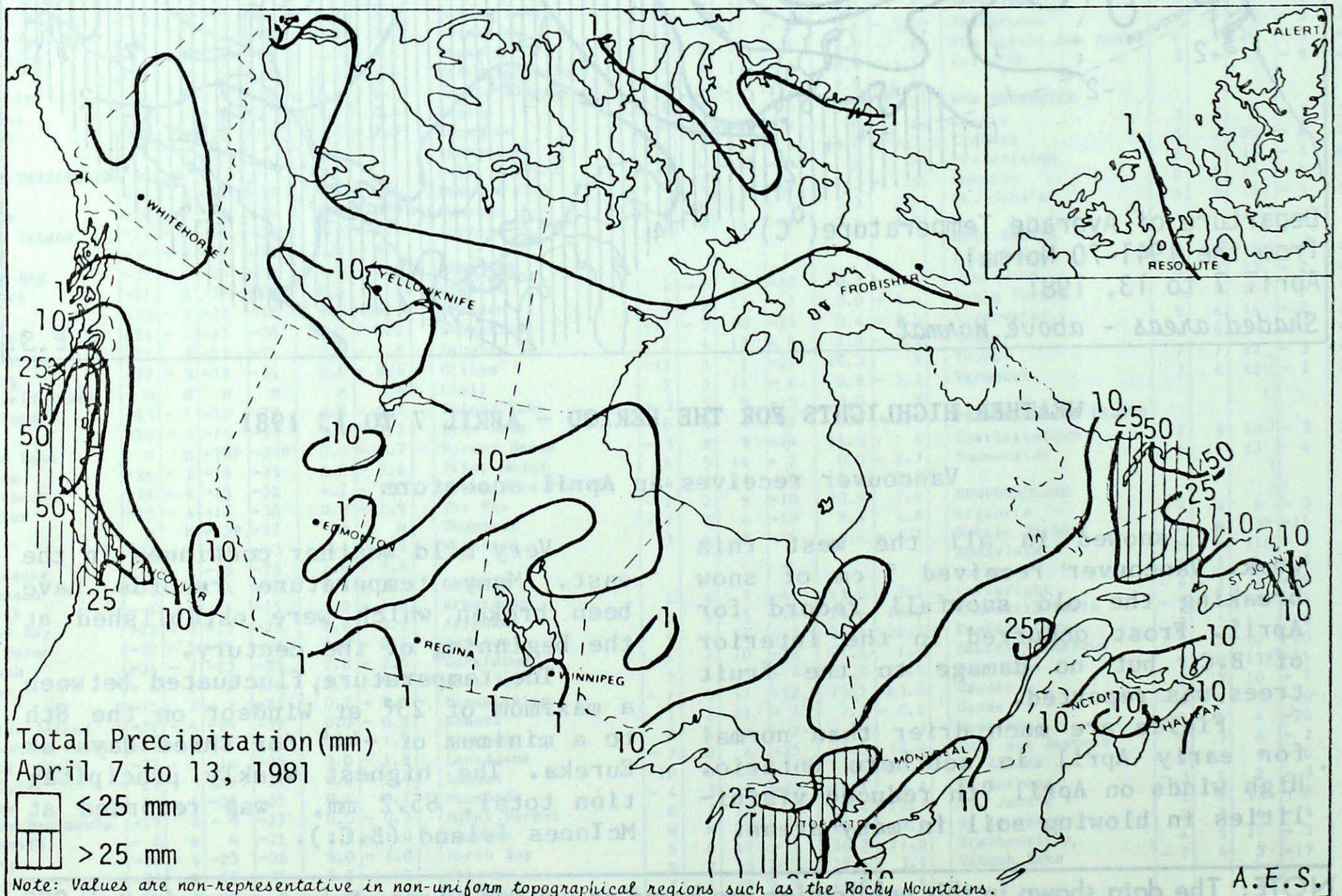
were below normal throughout the province falling to more than 7° below normal in some extreme northern regions. The mercury ranged from 13° at Abbotsford on April 13th to -24° at Dease Lake on April 11th.

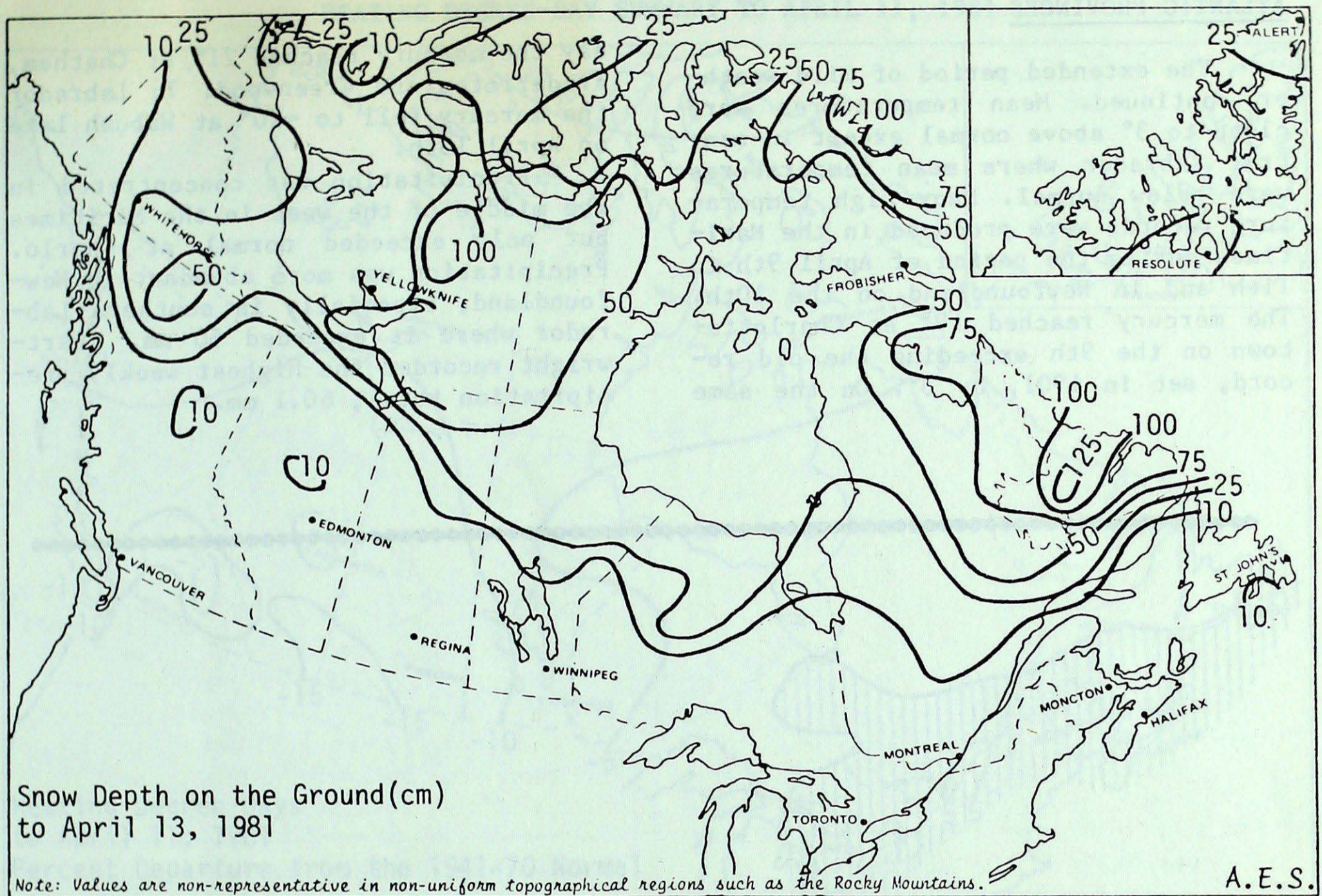
Vancouver received 4 cm to 5 cm of snow on the 12th. This broke the previous snowfall record for April of 1.4 cm. The highest weekly precipitation total (85.2 mm) was recorded at McInnes Island for the third consecutive week.

Light frost occurred at many southern stations but no damage was reported. Ski hills in south-central areas reported good snow conditions.

PRAIRIE PROVINCES

The Prairies received a brief taste of winter as a cold front swept over the area during the weekend. Some minimum temperature records were set in northeastern Alberta where mean weekly temperatures were more than 11° below normal. The mercury varied from 18° at Estevan on the 9th to -30° at Fort Chipewyan on the 13th.





Most areas received snow during the passage of the front. Gillam recorded the highest weekly precipitation total, 23.9 mm.

Strong winds gusting to 70 km/h were experienced behind the front. This combined with drifting and blowing snow reduced visibilities to less than a kilometre.

#### ONTARIO

Ontario's early spring continued for another week. Many high minimum temperature records were set along with some record maximums. Mean temperatures were between 3° to 5° above normal in most regions. The mercury reached 23° at Windsor on April 8th. In the north of the province the mercury fell to -21° at Trout Lake on April 11th.

Weekly precipitation in southern areas varied between 39.4 mm at Warton to 2.2 mm at Toronto. Precipitation was much lighter in the north. Lansdowne House still maintains an un-spring-like 43 cm of snow on the ground.

Southern Ontario remains dry with only minimal rainfall amounts. Fields are much drier than normal for early April and in many farming areas visibility was reduced by blowing soil during the strong winds of April 9th.

#### QUÉBEC

Temperatures rose above normal again this week. Mean temperatures were above normal throughout the province except in the Ungava region. The mild airmass set many high temperature records. The mercury reached 22° at Montréal on April 8th. At the end of the week the mercury fell to -25° at Schefferville.

Weekly precipitation totals exceeded normal in all regions with the exception of only a few stations (Montréal for example received 3.2 mm of precipitation). The highest total was the 28.6 mm recorded at Natashquan.

## ATLANTIC PROVINCES

The extended period of mild weather continued. Mean temperatures were close to 3° above normal except in central Labrador where mean temperatures were below normal. Many high temperature records were produced in the Maritimes during the period of April 9th to 11th and in Newfoundland on the 10th. The mercury reached 19° at Charlottetown on the 9th exceeding the old record, set in 1901, by 3°. On the same

day the mercury reached 21° at Chatham, Fredericton and Greenwood. In Labrador the mercury fell to -20° at Wabush Lake on April 13th.

Precipitation was concentrated in the middle of the week in the Maritimes but only exceeded normal at Charlo. Precipitation was more abundant in Newfoundland, especially in southern Labrador where it exceeded 50 mm. Cartwright recorded the highest weekly precipitation total, 60.1 mm.

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### CLIMATIC PERSPECTIVES

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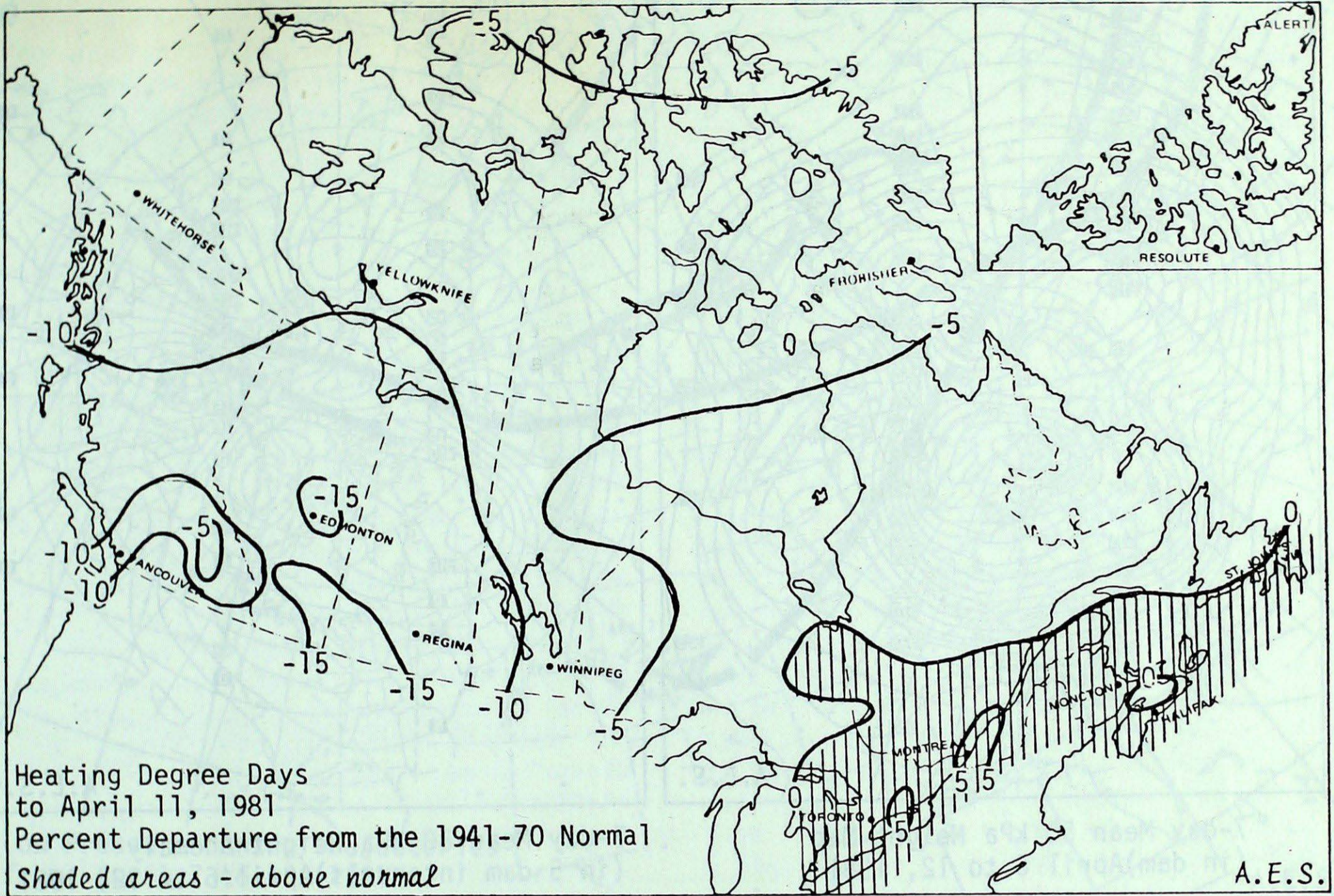
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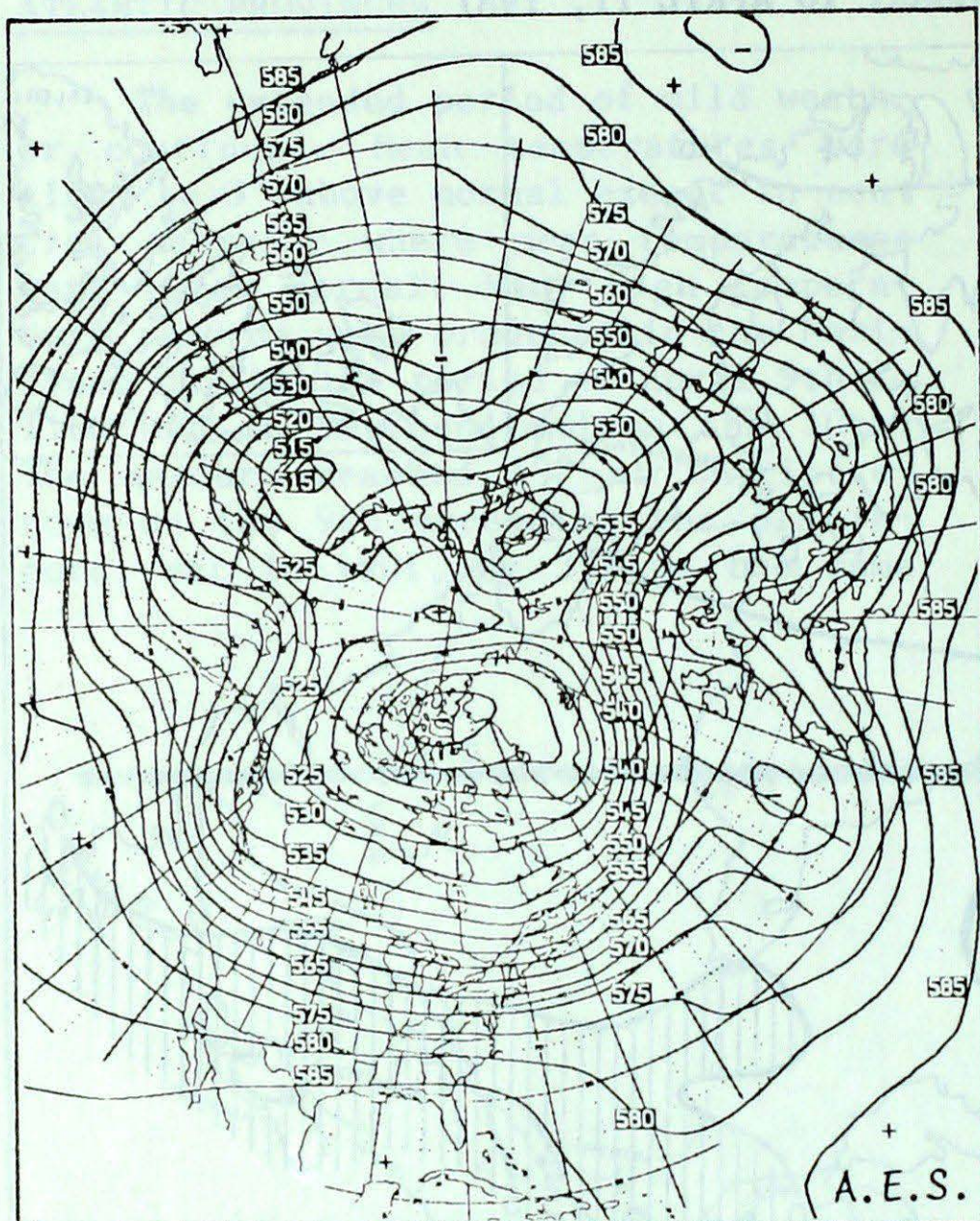
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HEATING DEGREE-DAY SUMMARY TO APRIL 11, 1981

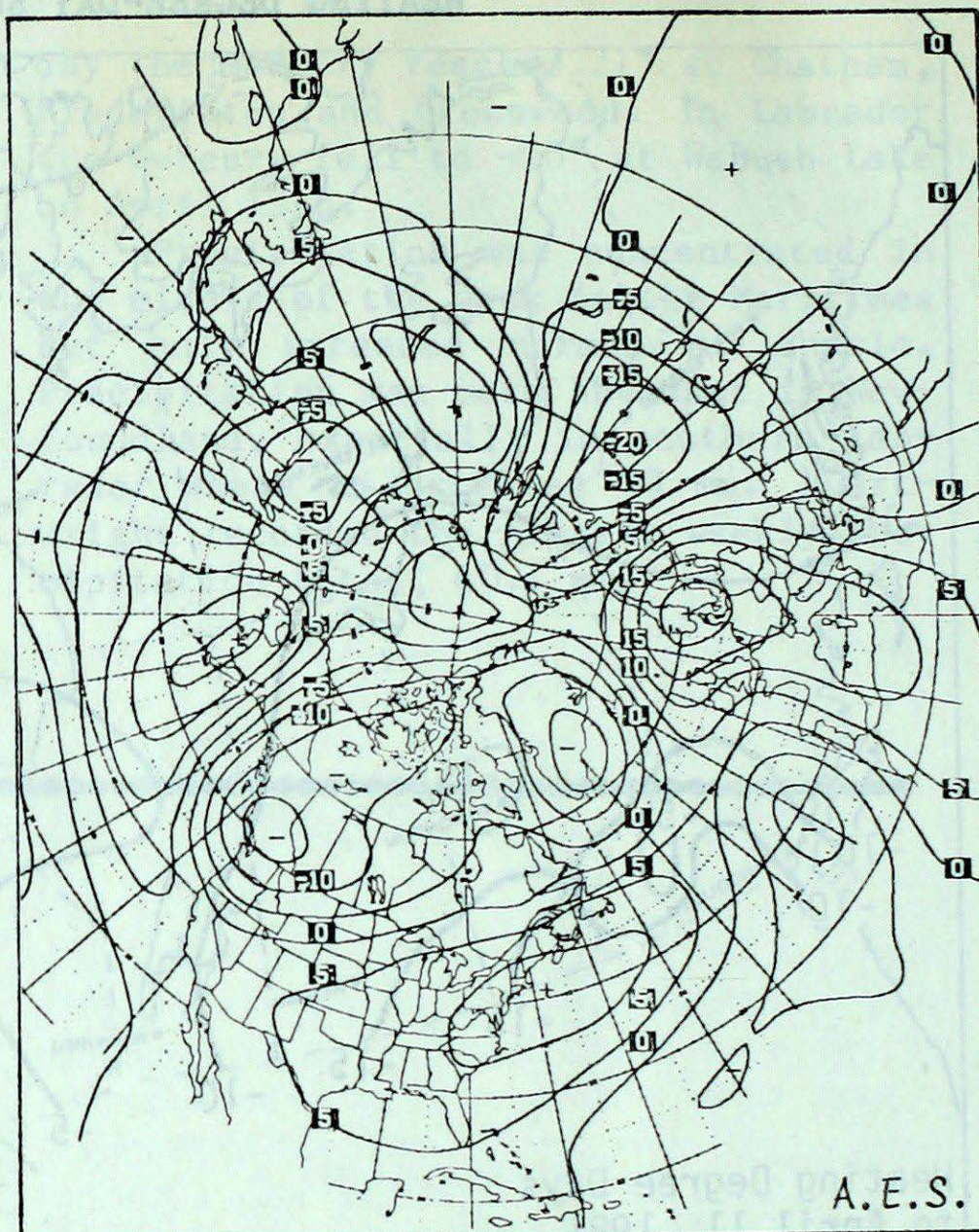


STATION	MONTHLY CUMULATIVE TOTAL	MONTHLY DIFF. FROM 1941-70 NORMAL	SEASONAL TOTAL	SEASONAL DIFF. FROM 1941-70 NORMAL	SEASONAL PERCENT OF NORMAL
Resolute	538.0	53.0	10023.5	-340.5	97
Inuvik	360.0	-37.0	8100.0	-677.0	92
Whitehorse	253.0	28.0	5574.5	-477.5	92
Vancouver	119.0	9.0	2376.5	-209.5	92
Edmonton Mun	168.0	-16.0	4240.5	-780.5	84
Calgary	170.0	-16.0	3937.0	-736.0	84
Regina	160.5	-37.5	4619.0	-727.0	86
Winnipeg	160.5	-36.5	4870.5	-462.5	91
Thunder Bay	155.5	-44.5	4871.0	-174.0	97
Windsor	66.5	-68.5	3325.5	65.5	102
Toronto	84.5	-69.5	3772.5	119.5	103
Ottawa	95.0	-68.0	4305.0	65.0	102
Montreal	101.0	-63.0	4287.5	227.5	106
Quebec	129.5	-61.5	4732.0	210.0	105
Saint John, N.B.	139.0	-43.0	4195.0	110.0	103
Halifax	123.0	-46.0	3622.5	160.5	105
Charlottetown	122.5	-67.5	3976.0	51.0	101
St. John's, Nfld.	154.5	-46.5	3936.5	54.5	101

## Atmospheric Circulation



7-day Mean 50 kPa Height Map  
(in dam) April 6 to 12, 1981



7-day Mean 50 kPa Height Anomaly  
(in 5 dam intervals) April 6 to 12, 1981

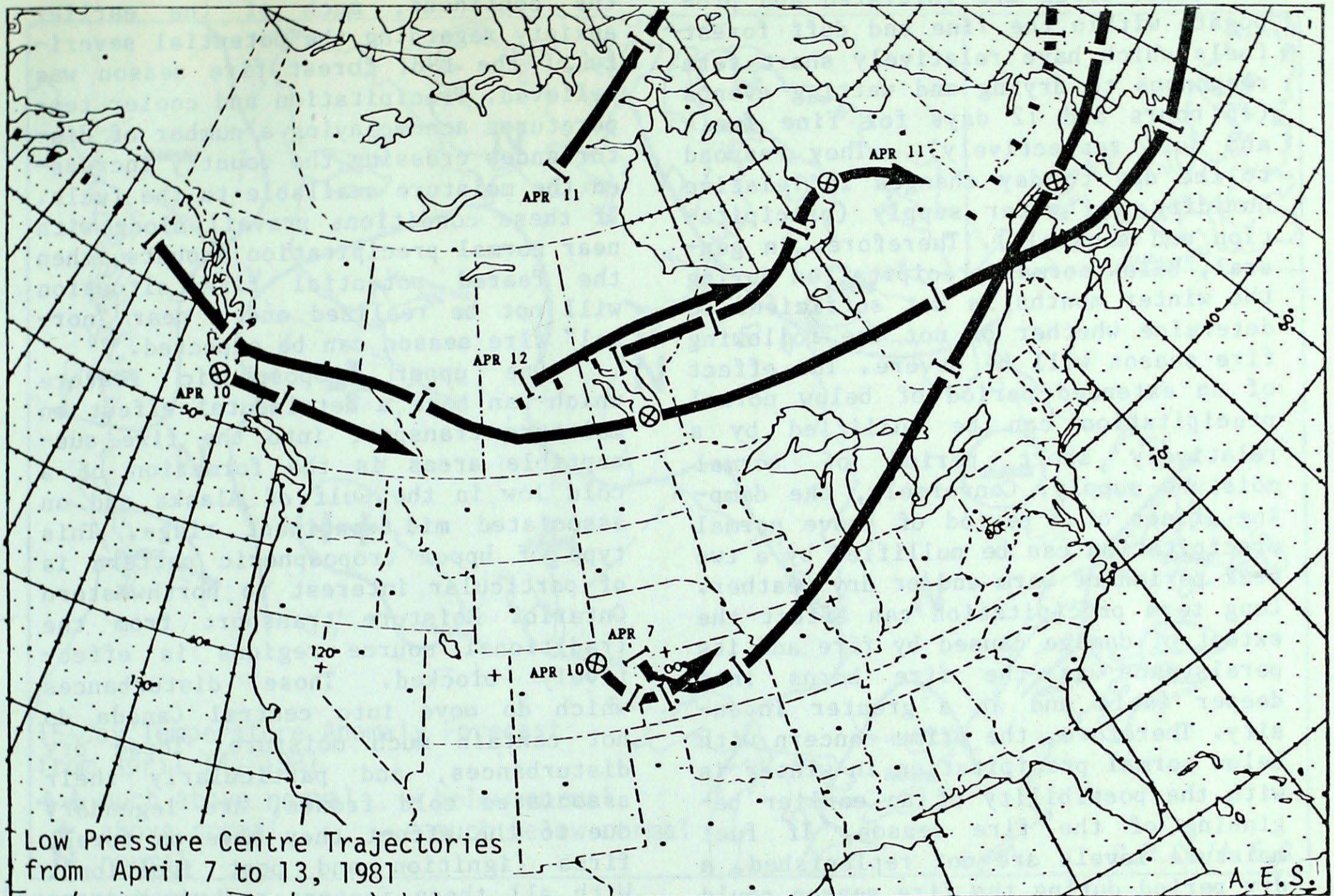
A relatively broad upper trough associated with an influx of cold air was the predominant feature over western Canada. Heights were considerably below normal over all of western Canada and the Canadian northland and exceeded 15 dam below normal over southern British Columbia. The mean temperature regime corresponded, as temperatures were below normal everywhere in the west.

Atmospheric perturbations continued to move eastward across the continental divide as did their associated low pressure systems. As a result, the weather pattern was mostly unsettled with scattered thundershowers in southern areas. The leading edge of the cold Arctic air sagged southwards encompassing most of the western prairies and stopped just short of the Okanagan

fruit belt Sunday. Weak surface waves moving along the frontal zone resulted in a significant snow fall in southwestern British Columbia. Vancouver had a record snowfall of more than 4 cm.

The eastern half of the country once again enjoyed above normal temperatures. A west-southwesterly upper circulation pattern permitted cyclonic storm systems to emerge from the United States and track northeastwards. Variable weather was the result, but an influx of very mild air set many new temperature records. A wide band of precipitation was evident on either side of the storm track stretching from the American southwest to Labrador, but amounts varied widely. Most of southern and eastern Ontario and the St. Lawrence valley remained dry.

## LOW PRESSURE CENTRE TRAJECTORIES



## PRELIMINARY REPORT FOR THE 1981 FOREST FIRE SEASON

Below normal precipitation during the 1980-81 winter months in north central British Columbia, northeastern Alberta, northwestern Saskatchewan (and the adjacent areas of the Northwest Territories) and northwestern Ontario caused a great deal of concern during the latter part of March as to the possibility of a severe 1981 forest fire season in these areas. Anxiety has been increased by the fact that these below normal winter precipitation amounts are coupled in most cases with 1980 total precipitation deficits of 15%-25%. North central British Columbia was the only area to receive near normal precipitation during 1980.

Mean temperatures, especially during the latter part of the winter, were above normal (averaging 1.0° to 2.0° above normal and approaching 4° above

normal in northern Alberta). These temperature anomalies resulted in an earlier and faster melt of an already reduced snowcover (30%-40% below normal as of the end of March). These conditions will reduce that portion of the snowmelt water which will be incorporated into the various forest fuels since wetting is a function of the length of time the fuel is in contact with liquid water. In addition, the fire season can be expected to begin earlier than normal as fuels dry prematurely and man has earlier access to the forests.

The impact these moisture and temperature conditions may have on the severity and timing of the 1981 forest fire season can be seen by considering the role these parameters play in setting the stage for fire. The majority

of forest fires are initiated and propagate within the fine and duff forest fuels which have relatively short term responses to drying and wetting events (16 hours and 12 days for fine fuels and duff respectively). They respond to the day to day changes in relative humidity and water supply (precipitation and snowmelt). Therefore, in general, below normal precipitation during the winter months is not sufficient to determine whether or not the following fire season will be severe. The effect of an extended period of below normal precipitation can be nullified by a relatively short period of normal moisture supply. Conversely, the dampening effect of a period of above normal precipitation can be nullified by a two week period of warm and/or dry weather. Long term precipitation can affect the extent of damage caused by fire and its persistence as the fire burns into deeper fuels and at a greater intensity. Therefore, the prime concern with below normal precipitation in winter is with the possibility of an earlier beginning of the fire season. If fuel moisture levels are not replenished, a dry period during the fire season could be hazardous.

With the disappearance of the upper tropospheric ridge over the Pacific coast during the latter part of March and the ensuing nearly zonal flow over

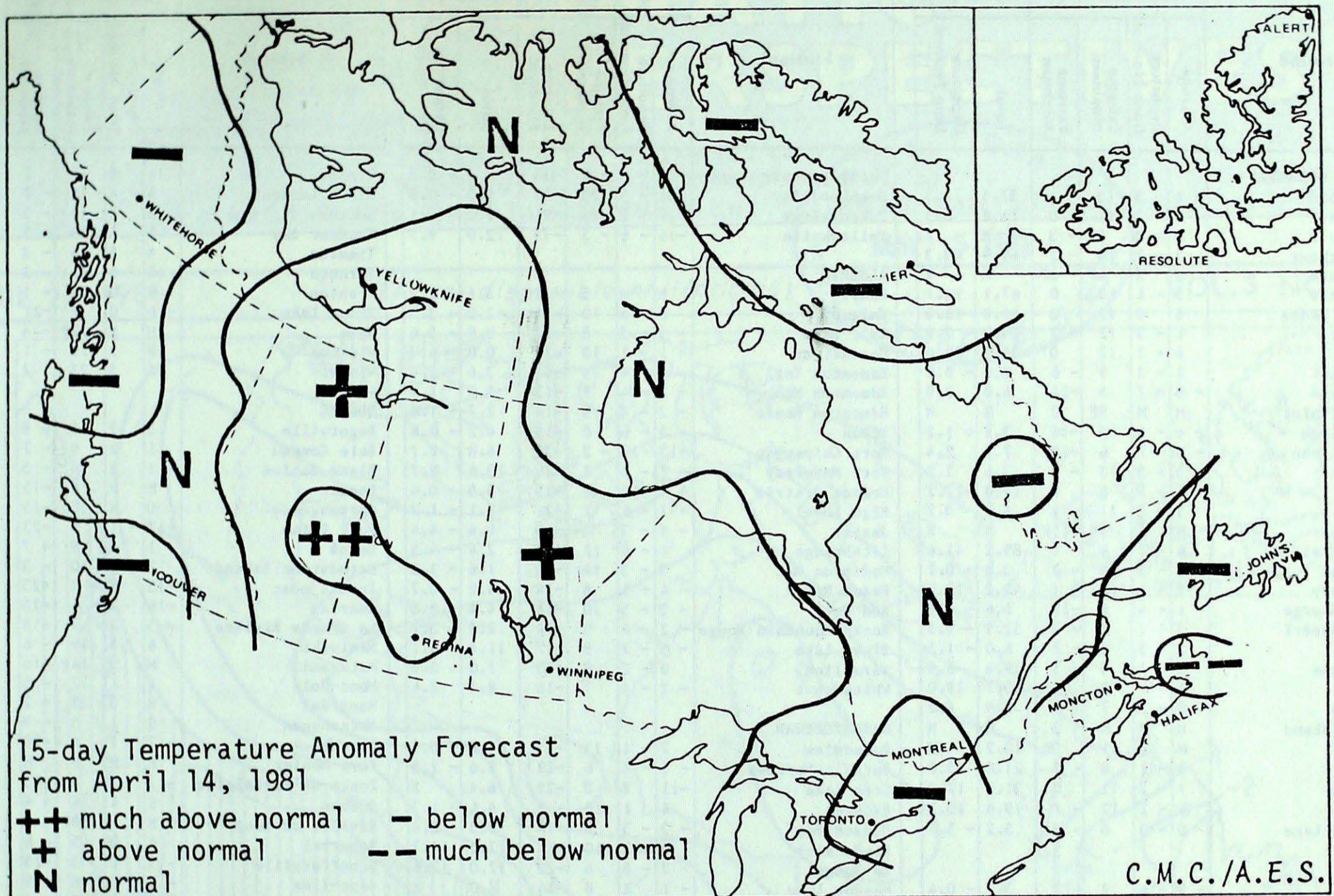
the continent, much of the earlier anxiety regarding the potential severity of the 1981 forest fire season was relieved. Precipitation and cooler temperatures accompanying a number of disturbances crossing the country increased the moisture available to the fuels. If these conditions prevail along with near normal precipitation amounts, then the feared potential fire situation will not be realized and a near "normal" fire season can be expected.

One upper tropospheric feature which can have a detrimental effect on moisture transport into the fire susceptible areas is the formation of a cold low in the Gulf of Alaska and an associated mid continent ridge. This type of upper tropospheric pattern is of particular interest to northwestern Ontario. Moisture transport from the traditional source regions is effectively blocked. Those disturbances which do move into central Canada do not contain much moisture. These dry disturbances, and particularly their associated cold fronts, are legendary due to the effect they have on forest fires (ignition and post ignition). With all these factors and the memory of the 1980 forest fire season still fresh in our minds, interested groups will definitely be keeping a close eye on the weather during this fire season.

Roger Street



## 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 Forecast</u>	
Whitehorse	Below Normal	From 0.6° to 2.0° below Normal
Victoria	Below Normal	From 0.3° to 0.9° below Normal
Vancouver	Below Normal	From 0.3° to 0.9° below Normal
Edmonton	Above Normal	From 0.7° to 2.5° above Normal
Regina	Much Above Normal	More than 2.7° above Normal
Winnipeg	Above Normal	From 0.8° to 2.7° above Normal
Thunder Bay	Above Normal	From 0.6° to 1.9° above Normal
Toronto	Below Normal	From 0.6° to 2.0° below Normal
Ottawa	Below Normal	From 0.6° to 2.0° below Normal
Montreal	Below Normal	From 0.5° to 1.8° below Normal
Quebec	Near Normal	Within 0.5° of Normal
Fredericton	Below Normal	From 0.5° to 1.5° below Normal
Halifax	Below Normal	From 0.4° to 1.3° below Normal
Charlottetown	Below Normal	From 0.5° to 1.7° below Normal
St. John's	Below Normal	From 0.4° to 1.4° below Normal
Goose Bay	Below Normal	From 0.7° to 2.2° below Normal
Frobisher Bay	Much Below Normal	More than 3.4° below Normal
Inuvik	Near Normal	Within 1.0° of Normal

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

TEMPERATURE AND PRECIPITATION DATA FOR THE WEEK ENDING 0600 G.M.T. APRIL 14, 1981

Table with columns: Station, Temperature (°C) [Average, Departure from Normal, Extreme Maximum, Extreme Minimum], Precip. (mm) [Total, Departure from Normal]. Rows include: BRITISH COLUMBIA, YUKON, NORTHWEST TERRITORIES.

Table with columns: Station, Temperature (°C) [Average, Departure from Normal, Extreme Maximum, Extreme Minimum], Precip. (mm) [Total, Departure from Normal]. Rows include: ALBERTA, SASKATCHEWAN, MANITOBA, ONTARIO.

Table with columns: Station, Temperature (°C) [Average, Departure from Normal, Extreme Maximum, Extreme Minimum], Precip. (mm) [Total, Departure from Normal]. Rows include: QUEBEC, NEW BRUNSWICK, NOVA SCOTIA, PRINCE EDWARD ISLAND, NEWFOUNDLAND.

P = extreme value based on less than 7 days X = no normal due to short period M = not available at press time