

CLIMATIC PERSPECTIVES

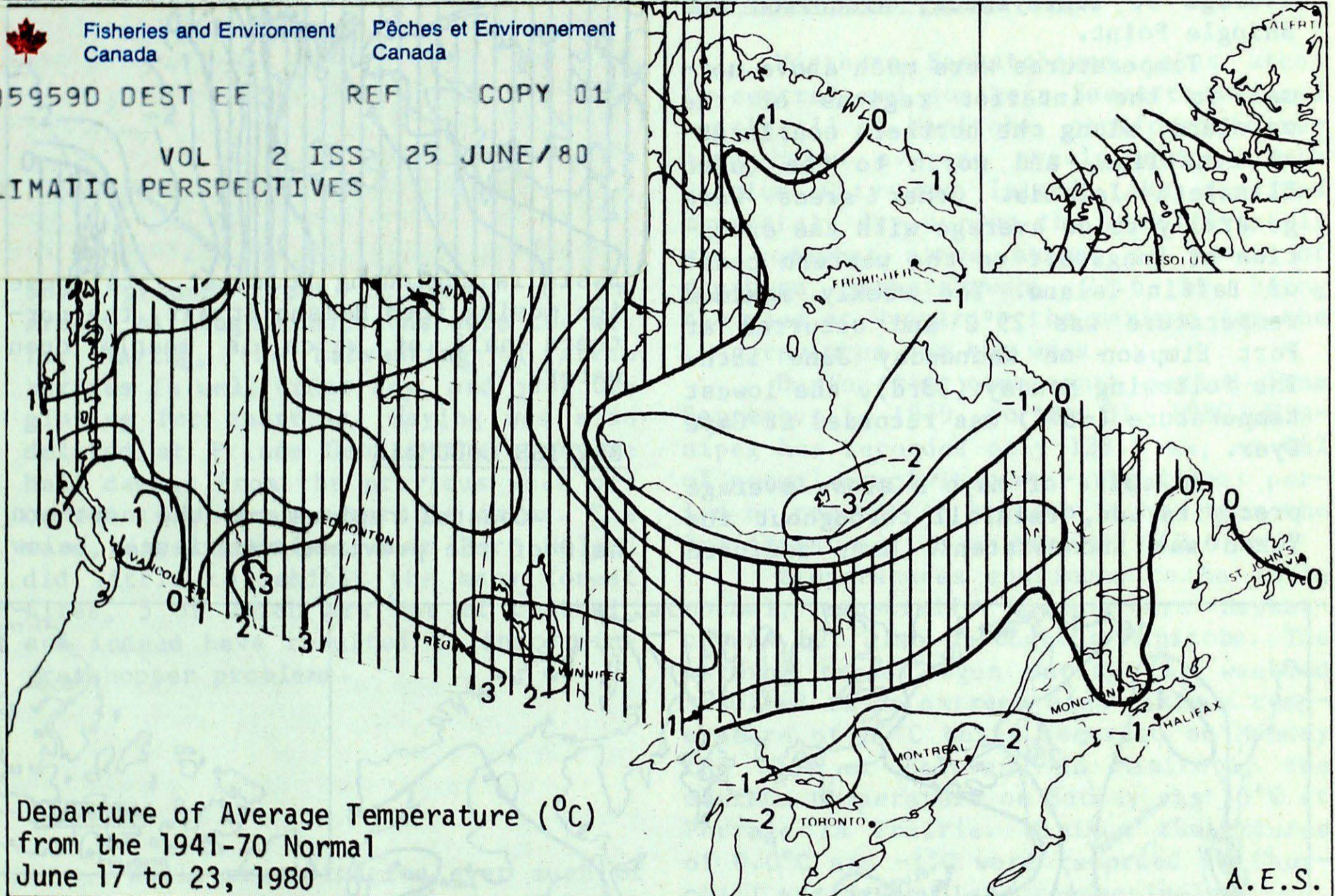
THE CANADIAN CLIMATE CENTRE,
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CLIMATIC PERSPECTIVES



Departure of Average Temperature ($^{\circ}\text{C}$)
from the 1941-70 Normal
June 17 to 23, 1980

A.E.S.

WEATHER HIGHLIGHTS FOR THE WEEK - JUNE 17 - 23, 1980

Western Drought Continues - Eastern Cold Spell Ends

While increased amounts of precipitation were recorded in parts of southern Saskatchewan, below normal conditions prevailed throughout Manitoba. As well, abnormally warm conditions continued in both provinces. Reports indicate that crop damage in the most stressed regions ranged from moderate to severe. Comparison with previous years indicates the present drought is one of the most severe on record, and indeed is establishing new records at Winnipeg and other locations.

In Ontario and Quebec, the low

temperatures of the previous week continued, resulting in the weekly averages being below normal. Frost was recorded at least once in both provinces. However, warm sunny conditions arrived over the weekend and maximum temperatures for the week peaked on Monday June 23.

The extreme highest and lowest temperatures for the week were 35°C at Portage la Prairie on June 22 and -6°C at Cape Dyer on June 23. The maximum quantity of precipitation was recorded at Whitecourt, Alberta, (79.8 mm).

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

Precipitation was below normal throughout much of the Arctic. Above normal rainfall was recorded at Mayo, Norman Wells and Fort Reliance. The maximum quantity of precipitation (28.4 mm) fell at Norman Wells, much of it occurring on the 19th (Thursday). Precipitation was also somewhat above average at Tuktoyaktuk, Nicholson and Shingle Point.

Temperatures were much above normal in the interior regions of the mainland, along the northern continental coastline, and north to the Queen Elizabeth Islands. Other areas were generally below average with the exception of Longstaff on the western coast of Baffin Island. The weekly maximum temperature was 29°C and occurred at Fort Simpson on Wednesday June 18th. The following Monday (23rd), the lowest temperature (-6°C) was recorded at Cape Dyer.

In spite of Mayo's above average precipitation, rainfall throughout the Yukon was inconsistent. Many southern

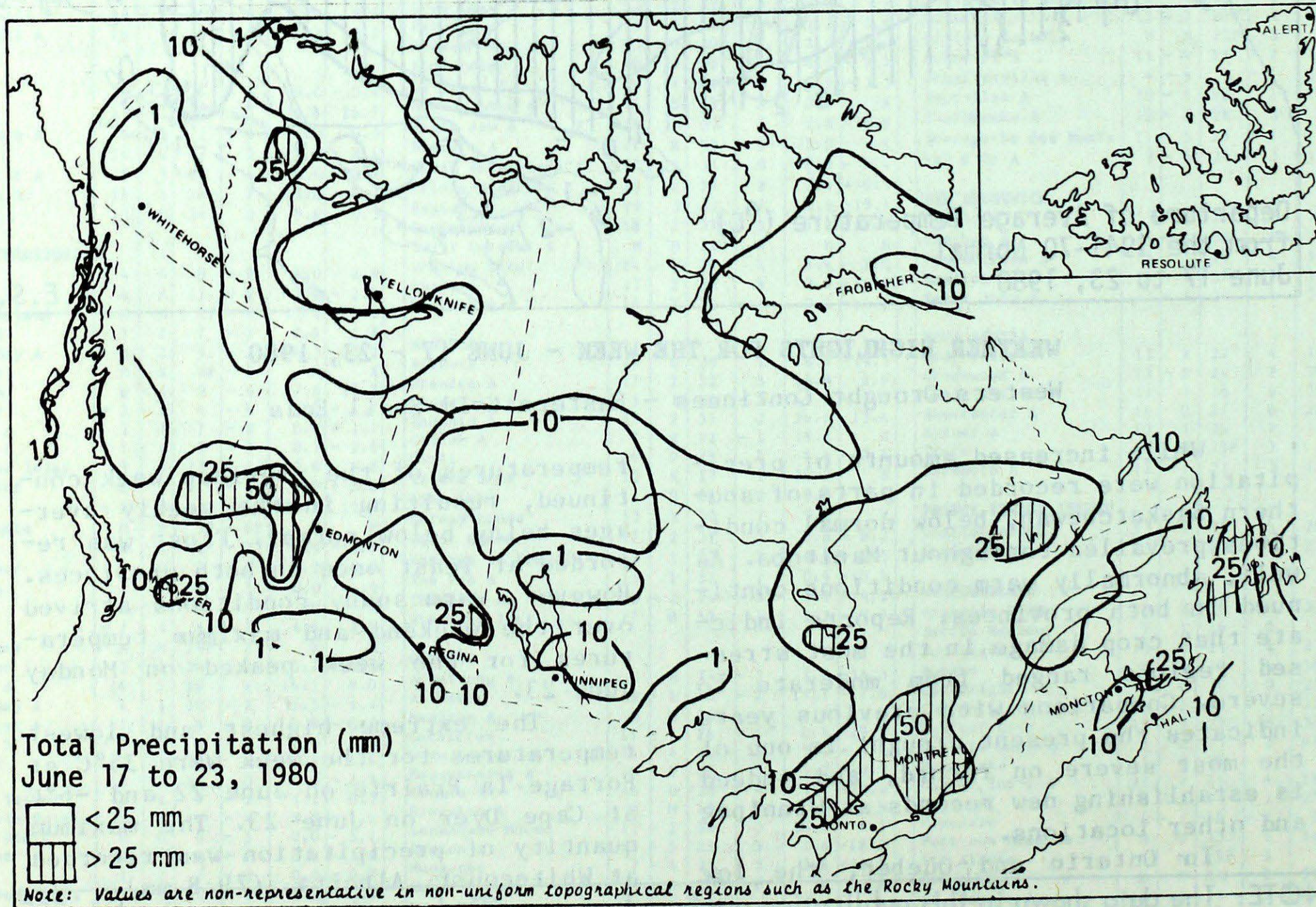
regions continue to be below normal for the season with the result that forest fires have increased in number.

Along the Tuktoyaktuk Peninsula, fast ice persists for up to 30 miles off shore. However, it is rapidly deteriorating. Northwest of Cape Bathurst, there is open water. The drill ship Explorer 3 is now on site and the ice breaker Kigoriak is fully operational breaking up ice for other drill ships. The much above normal temperatures have greatly facilitated ice break-up in the Beaufort and it is now 1 to 2 weeks ahead of normal.

In Hudson Bay mostly open waters exist in the southeast shallows and are expanding rapidly in the northwest. Fox Basin is beginning to clear, its loose ice moving into Hudson Strait, the northern half of which is mostly open water.

BRITISH COLUMBIA

Coastal regions and the northern half of the province experienced below



normal precipitation during the past week. Both Terrace and Smithers recorded no rainfall. Precipitation was above normal in much of the southeastern quadrant. At Quesnel, 39.6 mm of rain fell, the highest in the province.

Temperatures in southwestern B.C. including the coastal regions were somewhat below normal. Most of the remaining regions of the province experienced warmer conditions than normal. Although temperatures at Kamloops were generally below normal, Kamloops also recorded the provincial high for the week; 30°C on June 19th. The lowest temperature (0.0°C) occurred at Dease Lake on the 18th.

In the Kamloops-Castlegar region, some ground frost occurred in low areas. Although conditions were too wet for haying, the harvesting of strawberries is well under way, and just beginning for cherries. Haying was also delayed at Prince George where severe hail damage from the previous week occurred to several vegetable farms. The warm, dry conditions near Fort Nelson did little to inhibit the many forest fires, 5 of which are out of control, and indeed have resulted in increasing grasshopper problems.

ALBERTA

While precipitation over much of Alberta was below average, it was considerably above in the southwest, in the region bounded by Calgary, Edmonton, Whitecourt and Jasper. At Whitecourt, 79.8 mm of rainfall were recorded, 65.9 mm above average. Much of this precipitation occurred on the 17th (Tuesday).

Temperatures were higher than normal throughout the entire province. The extreme high maximum temperature occurred at Medicine Hat on the 17th (30°). The lowest recorded temperature was 4°C at both Cold Lake and Vermilion on the 18th.

Soil moisture conditions are currently adequate for normal crop growth throughout the province, except in certain parts of east-central and south-

eastern Alberta where less than sufficient quantities exist. Germination and therefore spraying operations have occurred unevenly due to the dry spell earlier in the season. Also, some limited hail damage has been reported in central Alberta.

SASKATCHEWAN AND MANITOBA

Northern Saskatchewan, plus areas in central and southern Saskatchewan and nearly all of Manitoba, continued to record below average precipitation. Both Uranium City and Island Lake remained completely dry during the week. Rainfall was somewhat above normal in parts of southern Saskatchewan, 21.6 mm being recorded at Wynyard - the maximum for the two provinces for the week.

During the nine-month period from September 1, 1979, to May 31, 1980, Winnipeg has recorded only 138.8 mm, or 46% of normal precipitation - the driest period on record. At Brandon it has been the 3rd driest period on record, 142.6 mm.

Temperatures continued to be above normal, especially in southern Saskatchewan but also throughout Manitoba. The warming trend begun during the weekend resulted in an extreme high maximum temperature of 34°C being recorded on Monday the 23rd at Estevan. In Manitoba, the maximum temperature on Sunday was 35°C at Portage la Prairie. Minimum temperatures of 0.0°C and -1°C were recorded at Churchill and Meadow Lake respectively.

Frost therefore did occur in a few locations early in the week. Thunderstorm activity occurred at Winnipeg on several occasions and on Friday hail was reported. Moderate to heavy crop damage persists in some areas of Saskatchewan, and many farmers have reseeded.

ONTARIO

Below normal precipitation quantities continued to fall throughout northern and southwestern Ontario. At Atikokan and Armstrong, only 0.4 mm of rain were recorded. In central and eastern Ontario, however, rainfall was considerably above normal. Total precipitation at North Bay for the week measured 61.8 mm, a departure of 46.5 mm

from the normal.

In addition to the dry conditions, northern Ontario also experienced above normal temperatures. Most of central and southern Ontario were cooler than normal although a weekend warming trend did occur. On Tuesday June 17 the minimum temperature at Muskoka was -1°C . The highest temperature was recorded at Thunder Bay on the following Monday (33°C).

The cool temperatures experienced earlier in the week resulted in 5 to 10% of the tobacco crop sown along the north shore of Lake Erie being killed by frost.

On Friday June 20th, a maximum wind speed of 98 km/h from the northwest was recorded at Toronto International Airport.

QUÉBEC

Precipitation was relatively below normal throughout much of Quebec with a very obvious exception at Maniwaki. In that region, 43.6 mm of precipitation were recorded, 24.3 mm above the normal.

The low temperatures prevailing the previous week were continued so that much of the province experienced colder than normal conditions. The lowest recorded temperature occurred on June 20 at both Inoucdjouac and Poste-de-la-Baleine. Not until the weekend did higher temperatures finally arrive. Temperatures peaked at 29°C on Monday June 23 at both Matagami and Roberval.

The low temperatures have hampered agricultural growth and the strawberry season, for example, has been delayed from one to two weeks. On a more positive note, the cool conditions are helping to control insect activity.

Recreational enthusiasts have also delayed their activities due to cool

conditions. Registration at camp grounds remains low and participation in swimming and other water-based activities has also been hindered.

ATLANTIC PROVINCES

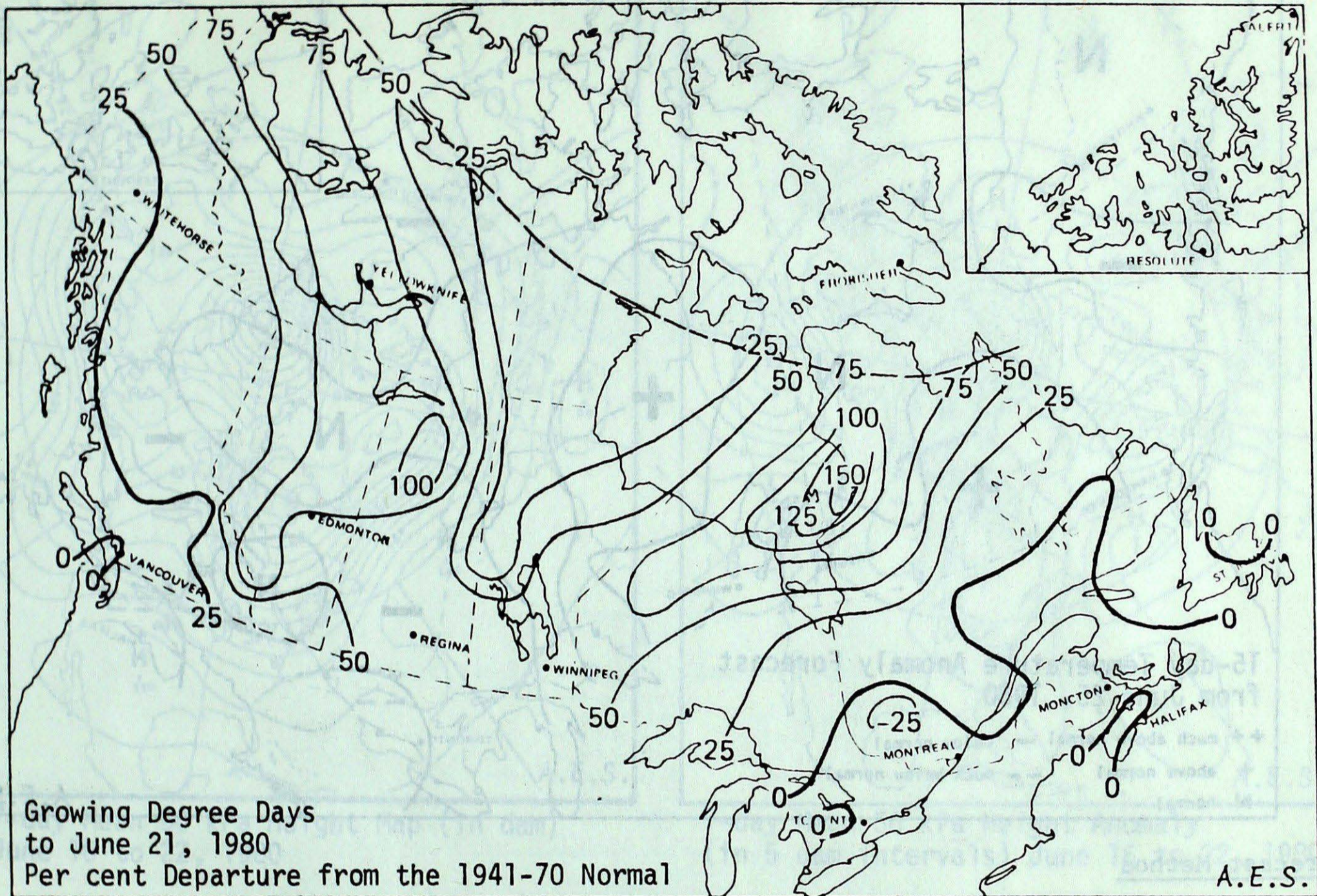
In Labrador and Newfoundland, precipitation patterns were mixed. Western, inland regions of Labrador and certain areas on the northwest, southeast and southern coast of the Island were relatively dry, while eastern Labrador and the remainder of the Island recorded above average rainfall. Precipitation was also above normal on Prince Edward Island but below in New Brunswick and most of Nova Scotia. The least amount of rainfall was recorded at Bonavista (1.6 mm) while the most (38.7 mm) fell at Burgeo, on the opposite side of Newfoundland.

Above average temperatures were recorded throughout Labrador, P.E.I., eastern New Brunswick and most of Newfoundland, (Bonavista and St. John's excepted). Cool conditions prevailed in the rest of New Brunswick and all of Nova Scotia. Deer Lake recorded the lowest temperature; -3°C on June 17th. The highest occurred at both Chatham and Fredericton on the 23rd (30°C).

Although the cool temperatures have not significantly damaged tobacco crops in Nova Scotia, strawberries have been severely affected. The threat of frosts has forced farmers to irrigate their strawberry crops for many nights in succession in order to minimize damage. Such cool conditions have resulted in strawberry growth being 2 weeks behind schedule. Delays in apple blossom development have also occurred, primarily due to the adverse effects of the cool weather on insects. Forage crops continue to do well.



GROWING DEGREE-DAY SUMMARY TO JUNE 21, 1980



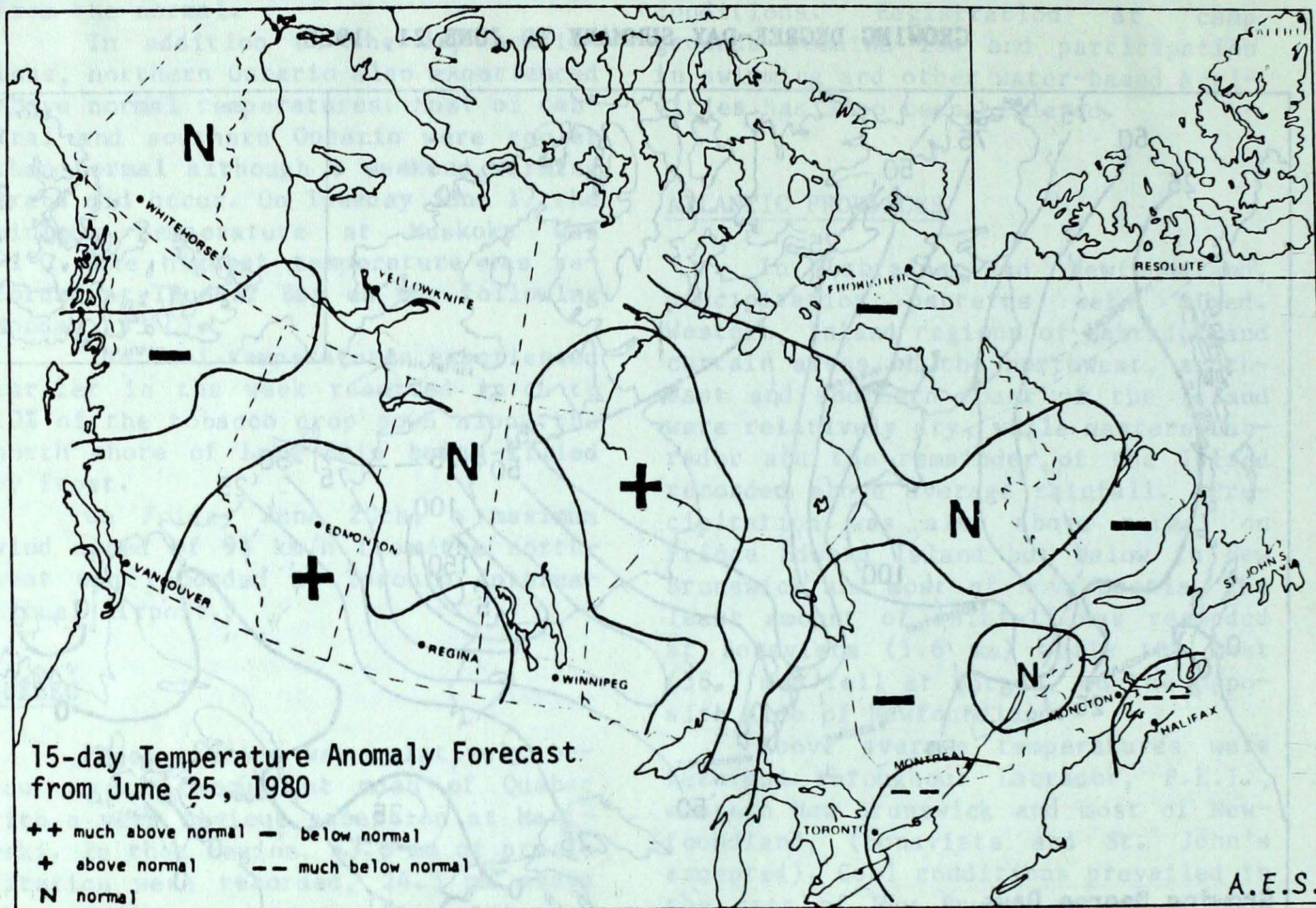
Growing Degree Days
to June 21, 1980
Per cent Departure from the 1941-70 Normal

A.E.S.

CITY	MONTHLY CUMULATIVE TOTAL	MONTHLY DIFF. FROM 1941-70 NORMAL	SEASONAL TOTAL	SEASONAL DIFF. FROM 1941-70 NORMAL	SEASONAL PERCENT OF NORMAL
Whitehorse	171.0	21.0	254.0	41.0	119
Penticton	246.5	-4.5	764.0	121.0	119
Vancouver	193.0	-12.0	589.0	-5.0	99
Edmonton	239.0	46.0	652.5	285.5	178
Calgary	183.5	14.5	508.5	185.5	157
Regina	243.5	33.5	697.0	290.0	171
Saskatoon	236.5	27.5	702.0	295.0	172
Winnipeg	228.0	-3.0	691.5	262.5	161
Thunder Bay	157.0	-20.0	413.5	116.5	139
Windsor	234.0	-55.0	630.5	-56.5	92
Toronto	175.5	-82.5	491.5	-58.5	89
Ottawa	195.0	-70.0	532.5	-6.5	99
Montréal	199.0	-69.0	531.5	-12.5	98
Québec	179.5	-36.5	411.0	7.0	102
Fredericton	184.0	-28.0	402.5	1.5	100
Halifax	142.5	-43.5	291.0	-26.0	92
Charlottetown	152.0	-25.0	239.5	-33.5	88
St John's	117.0	17.0	140.5	13.5	111

Note: Anomaly denotes departure from the 1941-70 mean.

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:

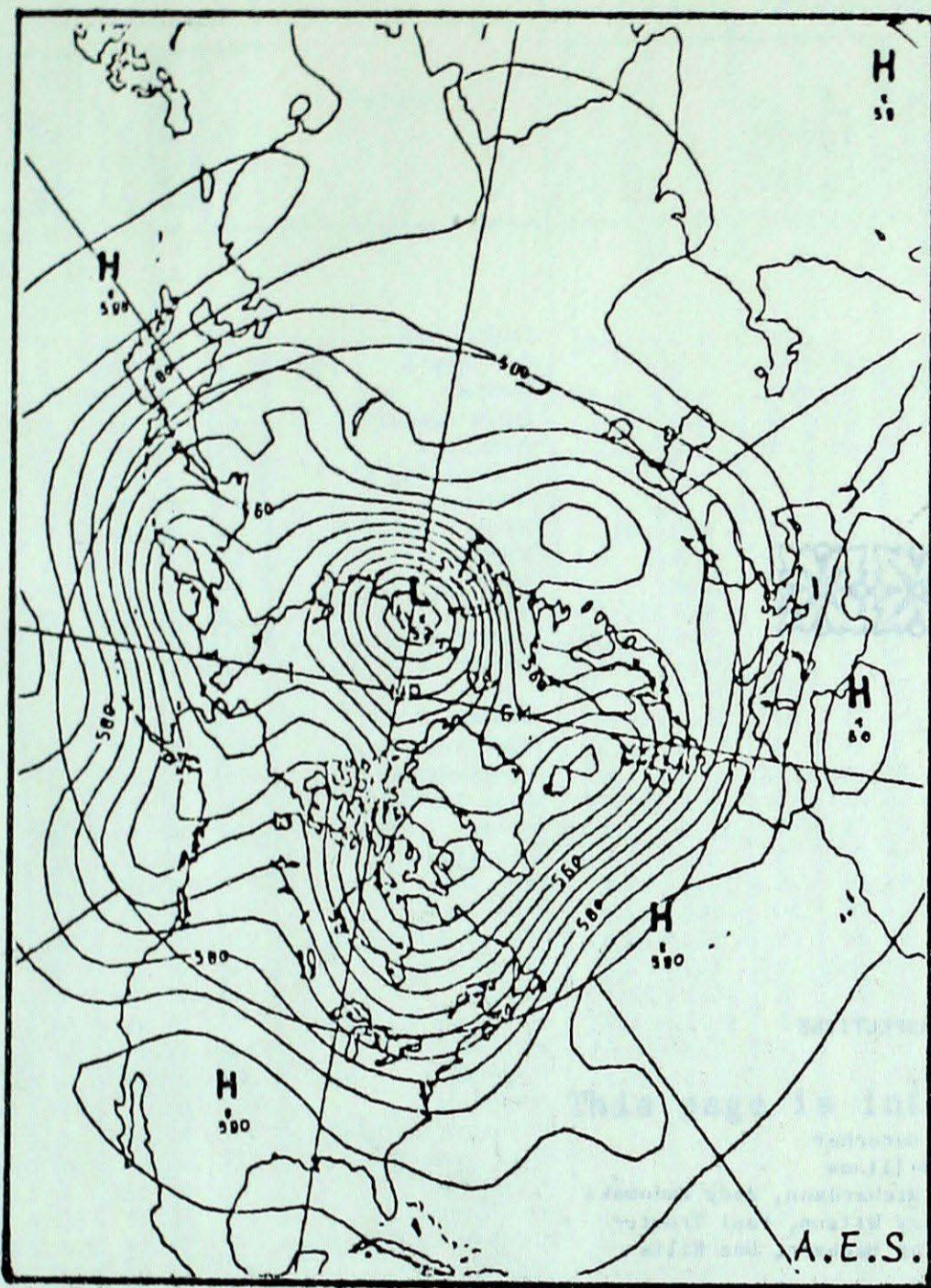
Station

Current Temperature Anomaly Forecast

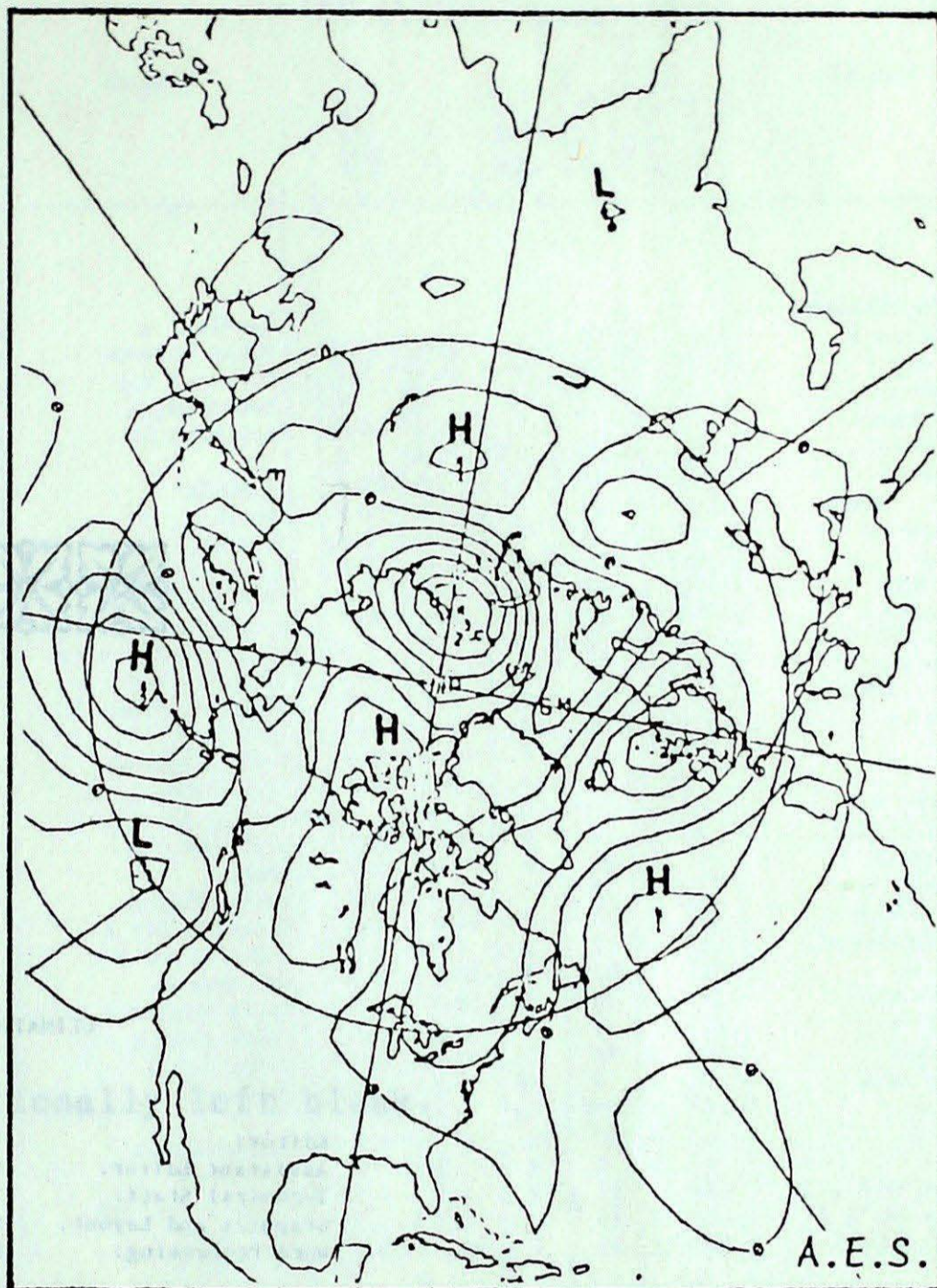
<u>Station</u>	<u>Current Temperature Anomaly Forecast</u>
Whitehorse	Near Normal Within 0.5° of Normal
Victoria	Near Normal Within 0.3° of Normal
Vancouver	Near Normal Within 0.3° of Normal
Edmonton	Above Normal From 0.4° to 1.5° above Normal
Regina	Above Normal From 0.4° to 1.5° above Normal
Winnipeg	Near Normal Within 0.5° of Normal
Thunder Bay	Above Normal From 0.4° to 1.2° above Normal
Toronto	Much Below Normal More than 1.5° below Normal
Ottawa	Much Below Normal More than 1.4° below Normal
Montreal	Below Normal From 0.4° to 1.3° below Normal
Quebec	Below Normal From 0.4° to 1.3° below Normal
Fredericton	Below Normal From 0.4° to 1.3° below Normal
Halifax	Much Below Normal More than 1.0° below Normal
Charlottetown	Much Below Normal More than 1.3° below Normal
St. John's	Below Normal From 0.5° to 1.7° below Normal
Goose Bay	Below Normal From 0.5° to 1.6° below Normal
Frobisher Bay	Below Normal From 0.4° to 1.3° below Normal
Inuvik	Near Normal Within 0.6° of Normal

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

Atmospheric Circulation



7-day Mean 50 kPa Height Map (in dam)
June 16 to 22, 1980



7-day Mean 50 kPa Height Anomaly
(in 5 dam intervals) June 16 to 22, 1980

The atmospheric flow through the first half of the period remained essentially unchanged. A major upper ridge and trough remained positioned over the western and eastern halves of the country respectively.

Cold Arctic air continued surging southeastwards across eastern Canada keeping temperatures below normal. Disturbances moving across the area resulted in unsettled weather with occasional shower activity. Ground frost was once again reported in many agricultural areas causing further crop damage.

A well established atmospheric trough previously located west of the Pacific coast began drifting slowly eastwards. This resulted in a shift of major wave positions over North America. By the end of the period a complete reversal had taken place in the upper flow pattern. A broad major trough has

now established itself across western North America, while an atmospheric ridge has positioned itself in the vicinity of the Great Lakes Basin.

At the surface, weak cyclonic disturbances were common across most of western Canada but precipitation amounts on the whole, continued to be relatively light. By the latter part of the period, increasingly unsettled weather was occurring due to the shift in the upper flow pattern. This resulted in more frequent shower and thunderstorm activity across the parched prairies.

On the other hand, higher surface pressures and a strong southwesterly air flow both at the surface and aloft let the very warm, long-awaited tropical air finally reach Ontario, Quebec and the Maritimes, resulting in daytime temperatures nudging the 30° mark by Monday.



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Table with multiple columns for Station, Temperature (°C), and Precipitation (mm). The table is organized into sections for different regions, including WESTERN CANADA, ALBERTA, SASKATCHEWAN, MANITOBA, and PRINCE EDWARD ISLAND. Each section lists various weather stations and their corresponding data for the week ending 08.01.1981.

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Table 1: Weather data for British Columbia, Yukon, Northwest Territories, and Ontario provinces.

Table 2: Weather data for Alberta, Saskatchewan, Manitoba, and Ontario provinces.

Table 3: Weather data for Quebec, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland provinces.

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



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