

CLIMATIC CIRCULATING PERSPECTIVES

Environment Canada / Environnement Canada

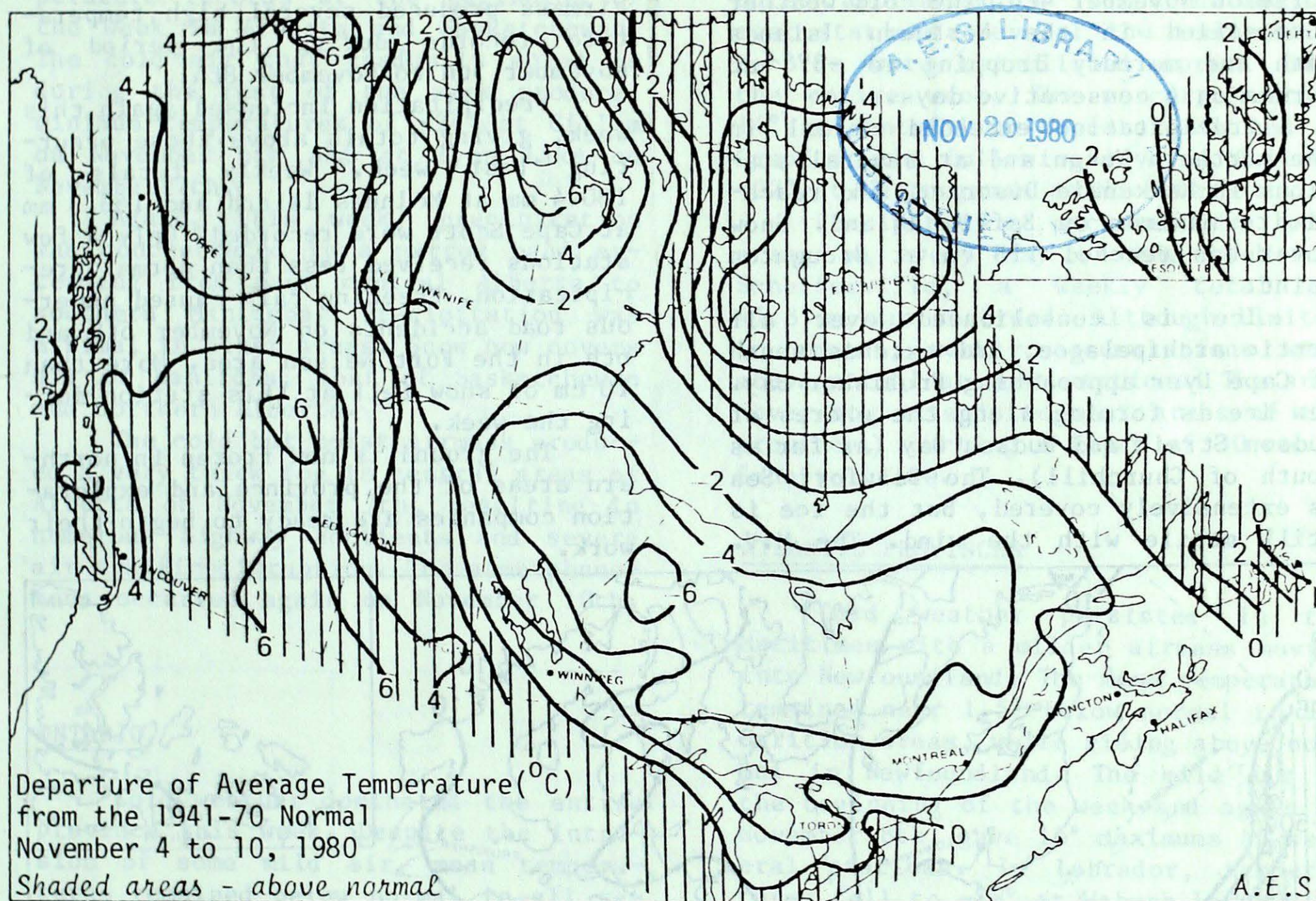
Atmospheric Environment / Environnement atmosphérique

THE CANADIAN CLIMATE CENTRE,
ATMOSPHERIC ENVIRONMENT SERVICE,
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NOVEMBER 14 1980

(Aussi disponible en français)

VOL. 2 NO. 45



Departure of Average Temperature ($^{\circ}\text{C}$)
from the 1941-70 Normal
November 4 to 10, 1980
Shaded areas - above normal

A.E.S.

WEATHER HIGHLIGHTS FOR THE WEEK - NOVEMBER 4 TO 10, 1980

Warmer in West, Colder in East

The East-West temperature contrast intensified this week as the mild air-mass in the West and the cold air-mass in the East were reinforced. A new mild air-mass infiltrated the province of Newfoundland and the eastern portion of the Franklin district.

This situation produced several low temperature records in Ontario and Québec and relatively high temperatures in the Western provinces. Temperatures fluctuated between 22° (Lethbridge) and -37° (Eureka). A total of 180.4 mm of rain fell at McInnes Island.

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

Milder temperatures were experienced in the Arctic this week. The mean temperature rose to more than 4° above normal in Baffin Island, the Yukon and the Mackenzie valley. In contrast, the mean temperature remained below normal in Keewatin district and surrounding areas. The mercury reached 6° at Whitehorse on November 4th. The cold weather intensified in the Northern Islands with the mercury dropping to -37° at Eureka on 4 consecutive days.

Precipitation exceeded normal in the northern Yukon and at several stations in Mackenzie District, and reached its maximum on Baffin Island. Snow cover has reached 118 cm at Broughton Point.

Ice is consolidated over all Arctic archipelago, and extends south of Cape Dyer approaching Frobisher Bay. New ice is forming along the shores of Hudson Strait and Hudson Bay (as far as south of Churchill). The Beaufort Sea is extensively covered, but the ice is still mobile with the wind. The M.V.

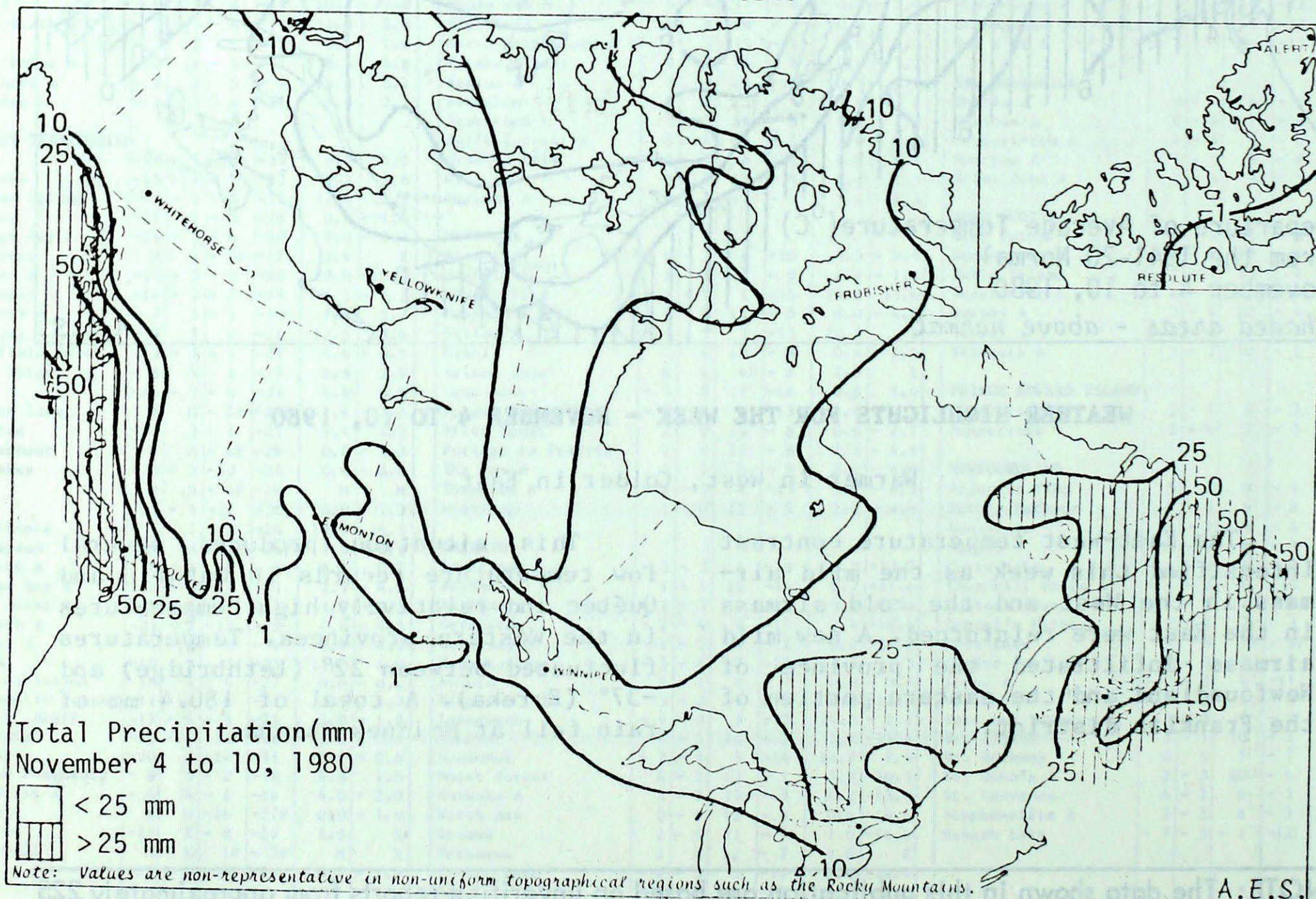
Arctic is being loaded with grain at Churchill.

BRITISH COLUMBIA

The mild weather persisted. Despite a generally progressive decrease of temperature during the week, mean temperatures remained well above normal at all stations. This relatively warm airmass produced several high temperature records during the period of November 5th to November 8th.

Precipitation increased again this week, giving totals above those occurring last week. Weekly totals of 180.4 mm at McInnes Island and 163.3 mm at Cape Scott were recorded. Only a few stations received less than normal precipitation. Freezing rain caused numerous road accidents on November 5th and 6th in the Fort Nelson area. More than 10 cm of snow fell at this station during the week.

The ground is now frozen in northern areas of the province and exploration companies are ready to begin their work.



PRAIRIE PROVINCES

The temperature contrast across the prairies increased this week. Mean temperatures rose to more than 6° above normal in several areas of Alberta, but fell to more than 5° below normal in northern Manitoba. The mercury reached 22° on November 5th at Lethbridge. This warm airmass produced several high temperature records at the beginning of the week in Alberta and Saskatchewan. The cold air that gradually moved in during the rest of the week produced minimum temperatures of -24° at Gillam on November 6th and at Lynn Lake on November 7th.

Again, this week, precipitation was concentrated in a narrow band extending from east central Alberta to southern Manitoba. Precipitation was minimal in other areas. Snow now covers all of Manitoba, most of Saskatchewan and northern Alberta.

The cold but moist airmass produced a very thick fog in central areas of Alberta on November 7th, resulting in numerous highway accidents and severe air traffic disruption. The same phenomena occurred again on November 10th.

ONTARIO

Cold weather dominated the entire province this week. Despite the intrusion of some mild air, mean temperatures remained below normal in all regions, dropping to more than 4° below normal at some stations. Temperatures fluctuated between 16° at Windsor on November 9th, and -24° at Armstrong and Atikokan on November 10th.

The weather was variable this week, with sunny days interspersed with days of rain and snow. The weeks precipitation totals exceeded normal at most stations with Wiarton recording total

of 45.2 mm. The snow cover extended south to lake Ontario at the end of the week with some northern stations reporting accumulations of more than 20 cm.

QUÉBEC

The cold airmass remained anchored over the entire province. Mean temperatures approached 4° below normal at most stations. Several low temperature records were established spread over the entire week. The mercury reached 14° at Montréal on November 4th and at Gaspé on the following day. It fell to -22° at Chibougamau on November 7th.

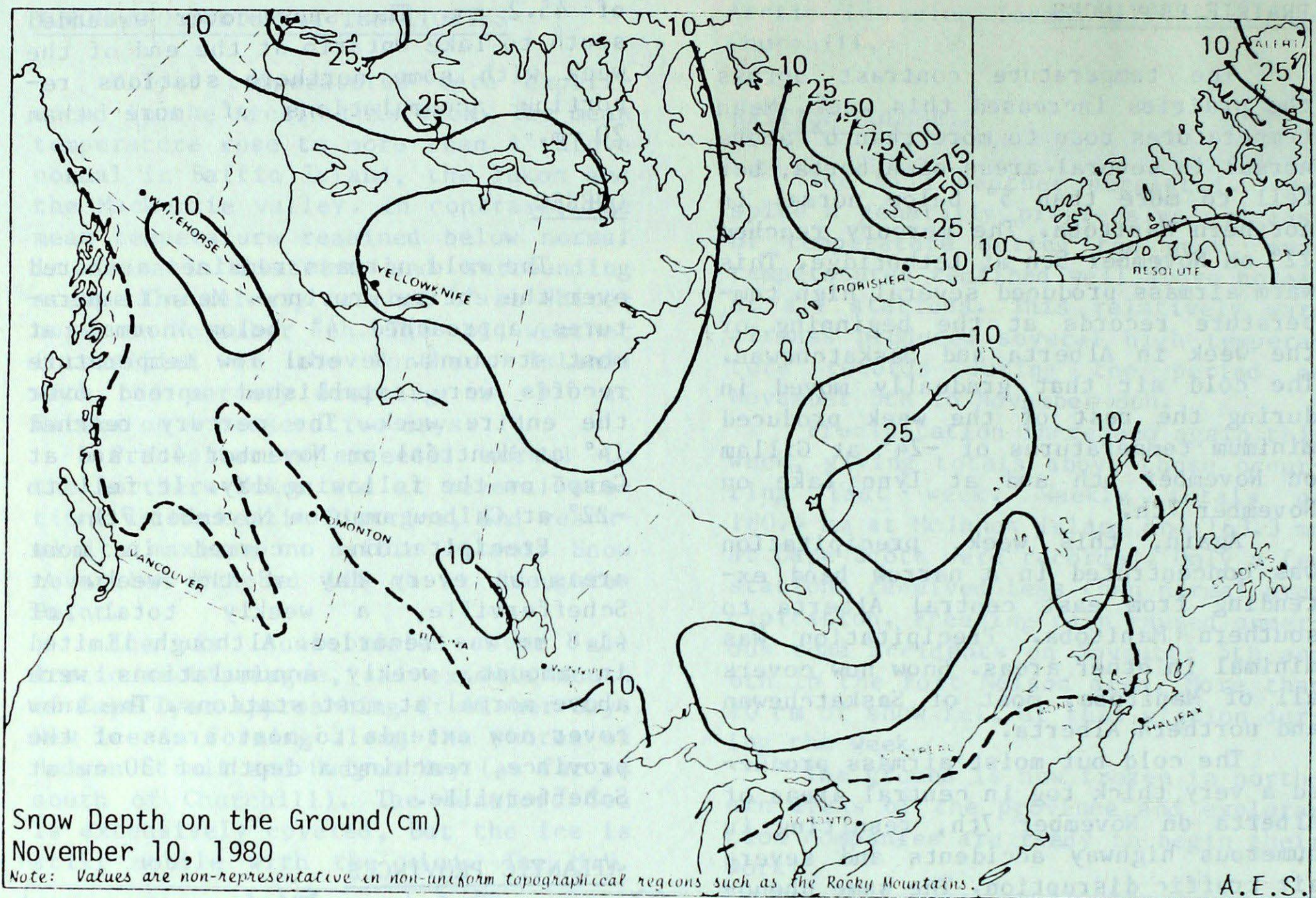
Precipitation occurred in most areas on every day of the week. At Schefferville, a weekly total of 41.8 mm was recorded. Although limited in amount, weekly accumulations were above normal at most stations. The snow cover now extends to most areas of the province, reaching a depth of 30 cm at Schefferville.

ATLANTIC PROVINCES

Cold weather persisted in the Maritimes with a milder airmass moving into Newfoundland. The mean temperature remained near 1.5° below normal in all Maritime areas, while rising above normal in Newfoundland. The mild air at the beginning of the week and again on November 8th, gave 15° maximums at several stations. In Labrador, temperatures fell to -18° at Wabush Lake, also on November 8th.

Interspersed by a few days of sunshine, large amounts of precipitation fell in all areas. Weekly totals exceeded normal at all but one station, reaching 73.2 mm and 73.4 mm at Burgeo and St. Lawrence respectively. The 24 hourly precipitation totals exceeded 50 mm at several stations on November 5th.





CLIMATIC PERSPECTIVES

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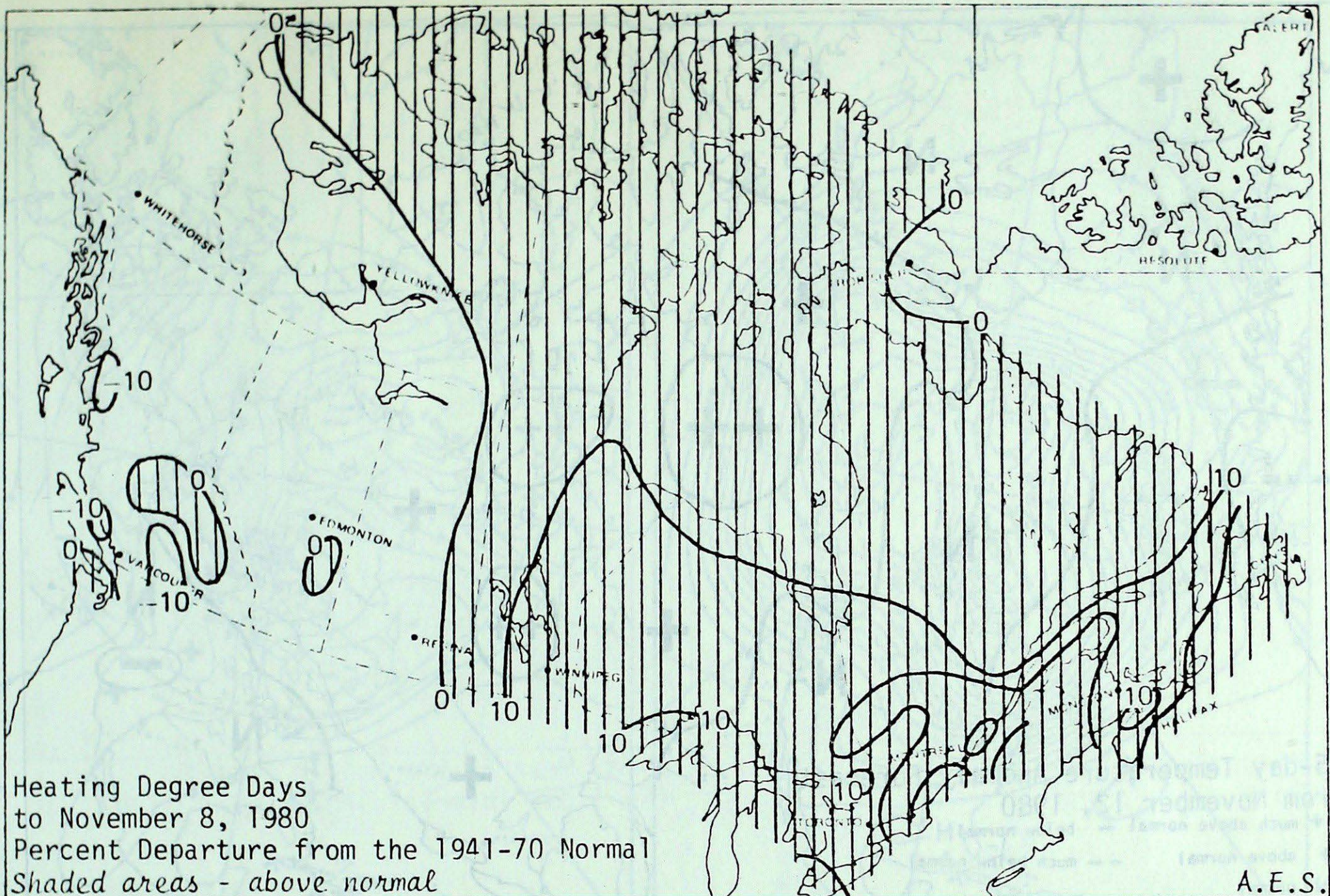
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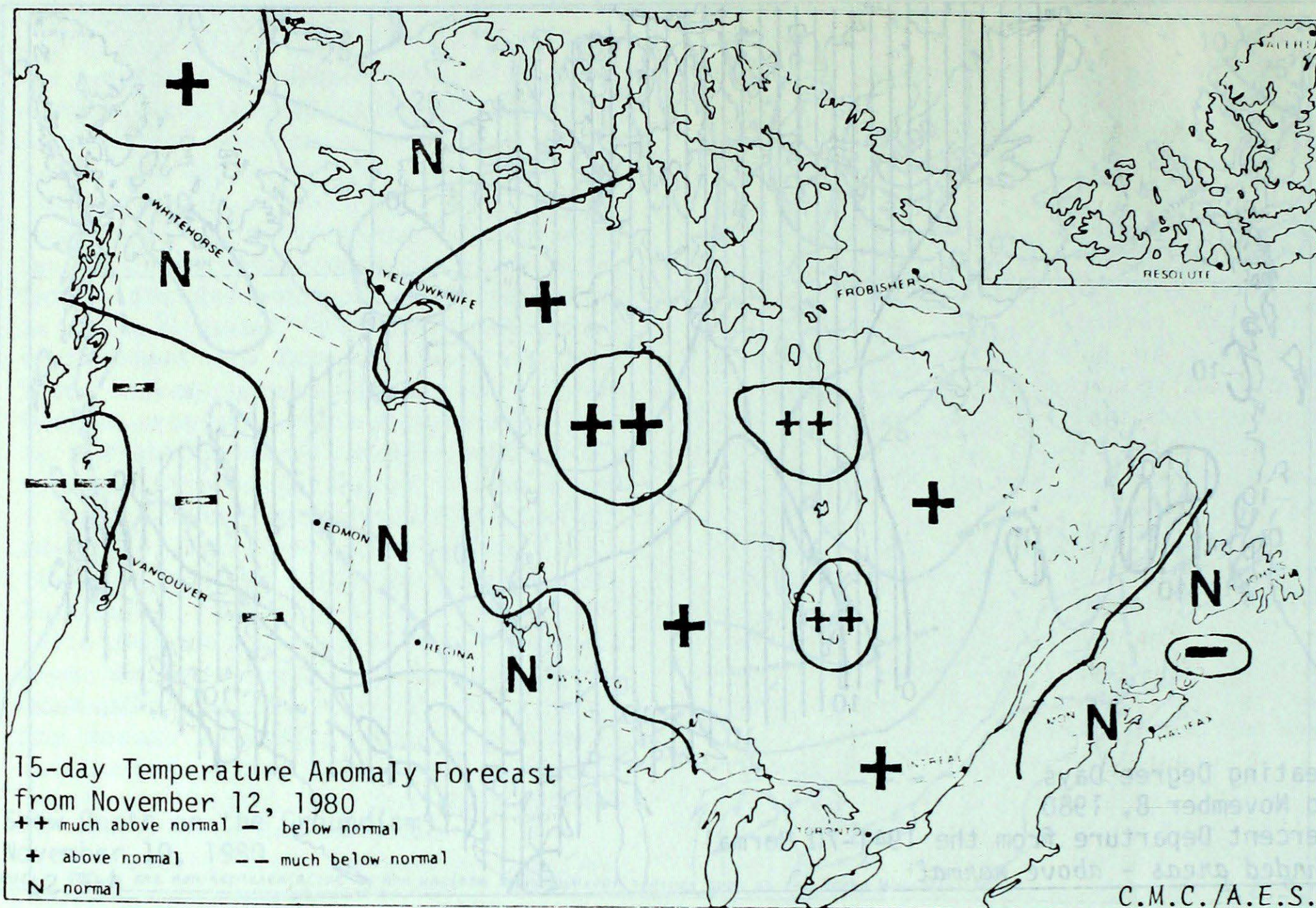
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HEATING DEGREE-DAY SUMMARY TO NOVEMBER 8, 1980



STATION	MONTHLY CUMULATIVE TOTAL	MONTHLY DIFF FROM 1941-70 NORMAL	SEASONAL TOTAL	SEASONAL DIFF. FROM 1941-70 NORMAL	SEASONAL PERCENT OF NORMAL
Resolute	297.0	-18.0	2946.0	29.0	101
Inuvik	242.0	-40.0	1924.5	5.5	100
Whitehorse	148.0	-40.0	1290.5	-42.5	97
Vancouver Int'l A	51.5	-32.5	500.0	-18.0	97
Edmonton Mun A	103.0	-42.0	829.0	-48.0	95
Calgary Int'l A	75.5	-63.5	837.0	-68.0	92
Regina	112.5	-35.5	797.0	-18.0	98
Winnipeg Int'l A	131.5	-14.5	832.5	96.5	113
Thunder Bay	140.0	8.0	899.5	74.5	109
Windsor	91.5	10.5	444.5	84.5	123
Toronto Int'l A	102.5	9.5	555.0	81.0	117
Ottawa Int'l A	130.5	27.6	666.5	112.5	120
Montreal Int'l A	125.5	25.5	668.5	166.5	133
Quebec	146.0	26.0	812.5	138.5	121
Saint John, N.B.	121.0	17.0	765.0	75.0	111
Halifax	107.0	23.0	614.0	107.0	121
Charlottetown	119.0	21.0	679.5	97.5	117
St. John's, Nfld.	117.0	14.0	1009.5	196.5	124

15 DAY TEMPERATURE ANOMALY FORECAST



Forecast Method

Analogue technique based on point prediction at 70 Canadian stations.

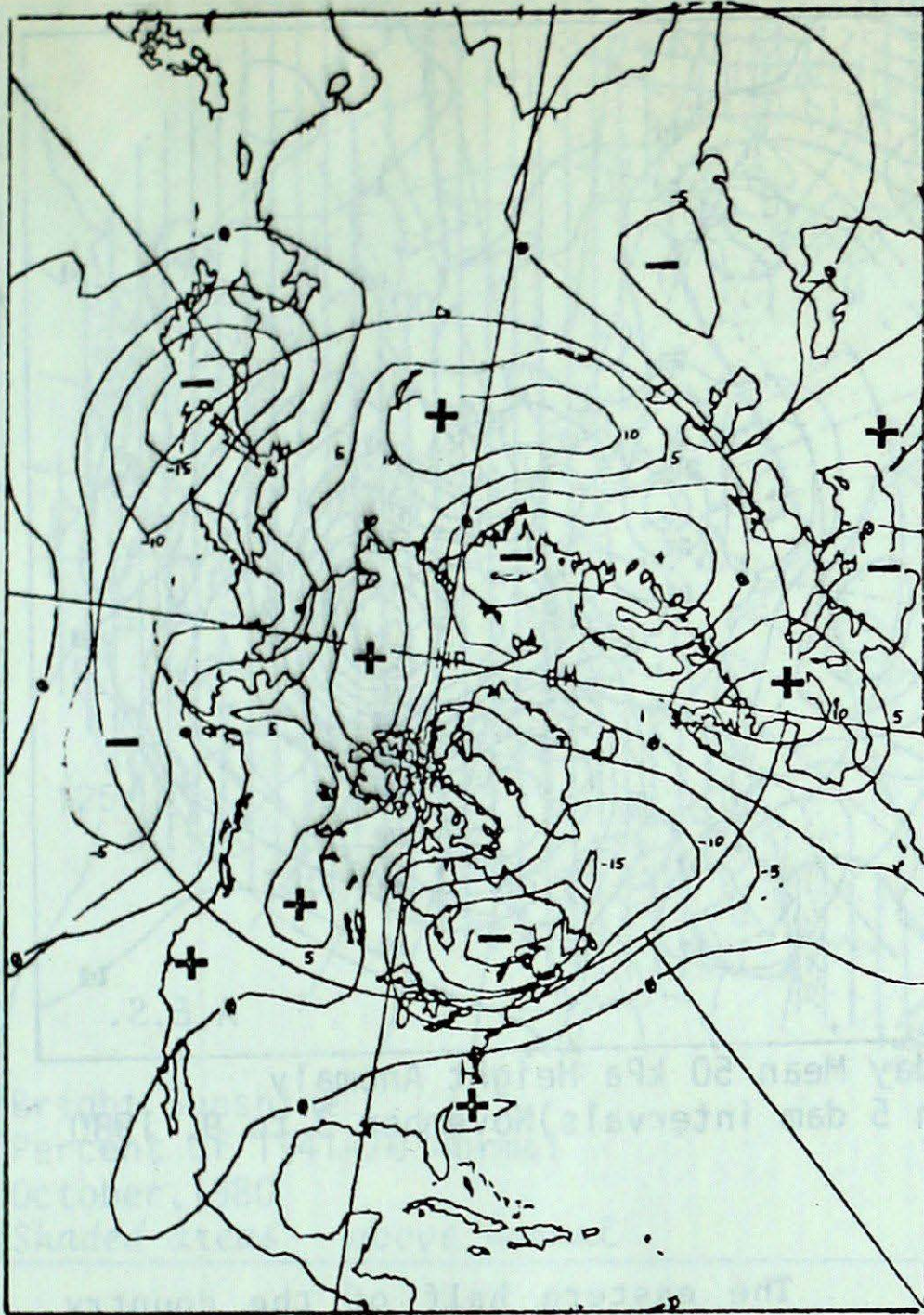
Temperature Scale

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

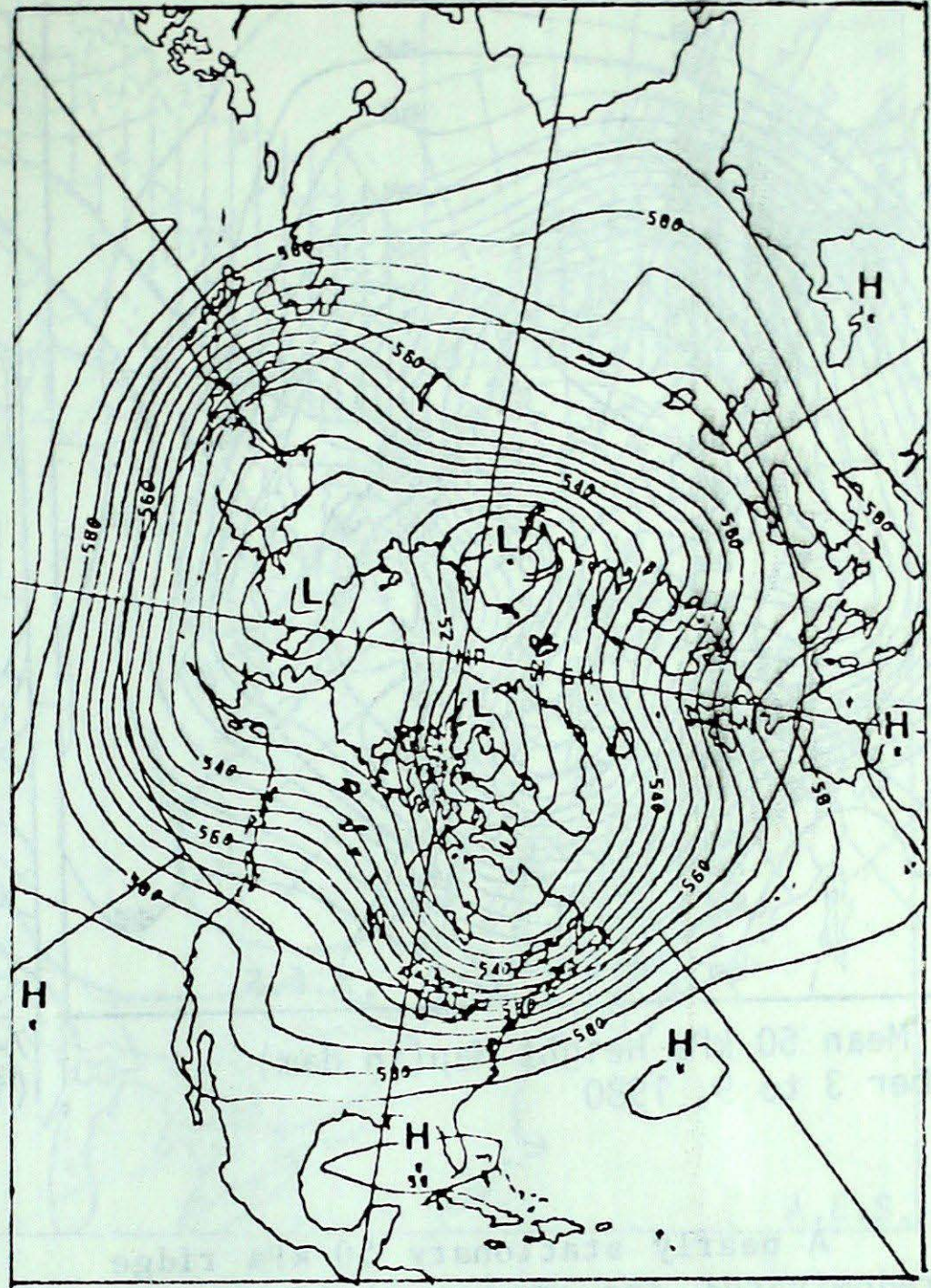
<u>Station</u>	<u>Current Temperature Anomaly Forecast</u>	
Whitehorse	Near Normal	Within 1.4° of Normal
Victoria	Below Normal	From 0.4° to 1.3° below Normal
Vancouver	Below Normal	From 0.4° to 1.4° below Normal
Edmonton	Near Normal	Within 1.2° of Normal
Regina	Near Normal	Within 1.0° of Normal
Winnipeg	Near Normal	Within 0.9° of Normal
Thunder Bay	Near Normal	Within 0.7° of Normal
Toronto	Above Normal	From 0.6° to 1.9° above Normal
Ottawa	Above Normal	From 0.7° to 2.2° above Normal
Montreal	Above Normal	From 0.6° to 2.2° above Normal
Quebec	Above Normal	From 0.6° to 2.1° above Normal
Fredericton	Near Normal	Within 0.6° of Normal
Halifax	Near Normal	Within 0.5° of Normal
Charlottetown	Near Normal	Within 0.5° of Normal
St. John's	Near Normal	Within 0.4° of Normal
Goose Bay	Above Normal	From 0.7° to 2.4° above Normal
Frobisher Bay	Above Normal	From 1.0° to 3.3° above Normal
Inuvik	Above Normal	From 1.1° to 3.6° above Normal

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

Atmospheric Circulation of the Previous Week



7-day Mean 50 kPa Height Anomaly
(in 5 dam intervals) October 27 to
November 2, 1980



7-day Mean 50 kPa Height Map (in dam)
October 27 to November 2, 1980

The atmospheric circulation maintained a north-south component of flow across North America.

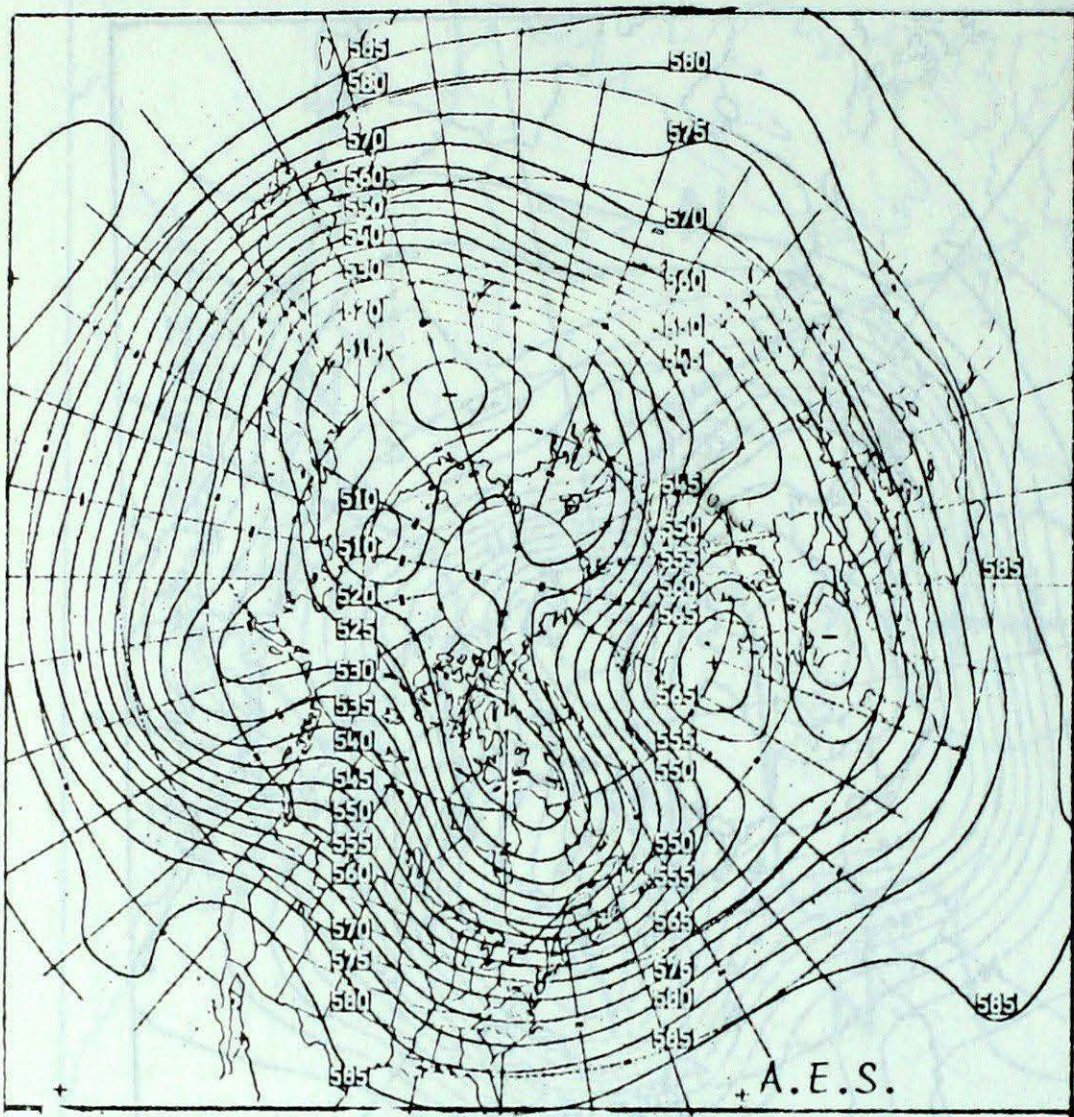
A 50-kPa ridge positioned over the Prairies and the Northwest Territories gave generally higher surface pressures and little significant precipitation. Surface weather systems arriving from the Pacific moved northward across the Yukon and Northwest Territories pushing mild Pacific air inland. As a result, somewhat higher precipitation occurred in a belt across northern areas of central and eastern Canada;

precipitation totals along the West Coast were considerably higher because of the strong onshore flow at the surface and higher levels.

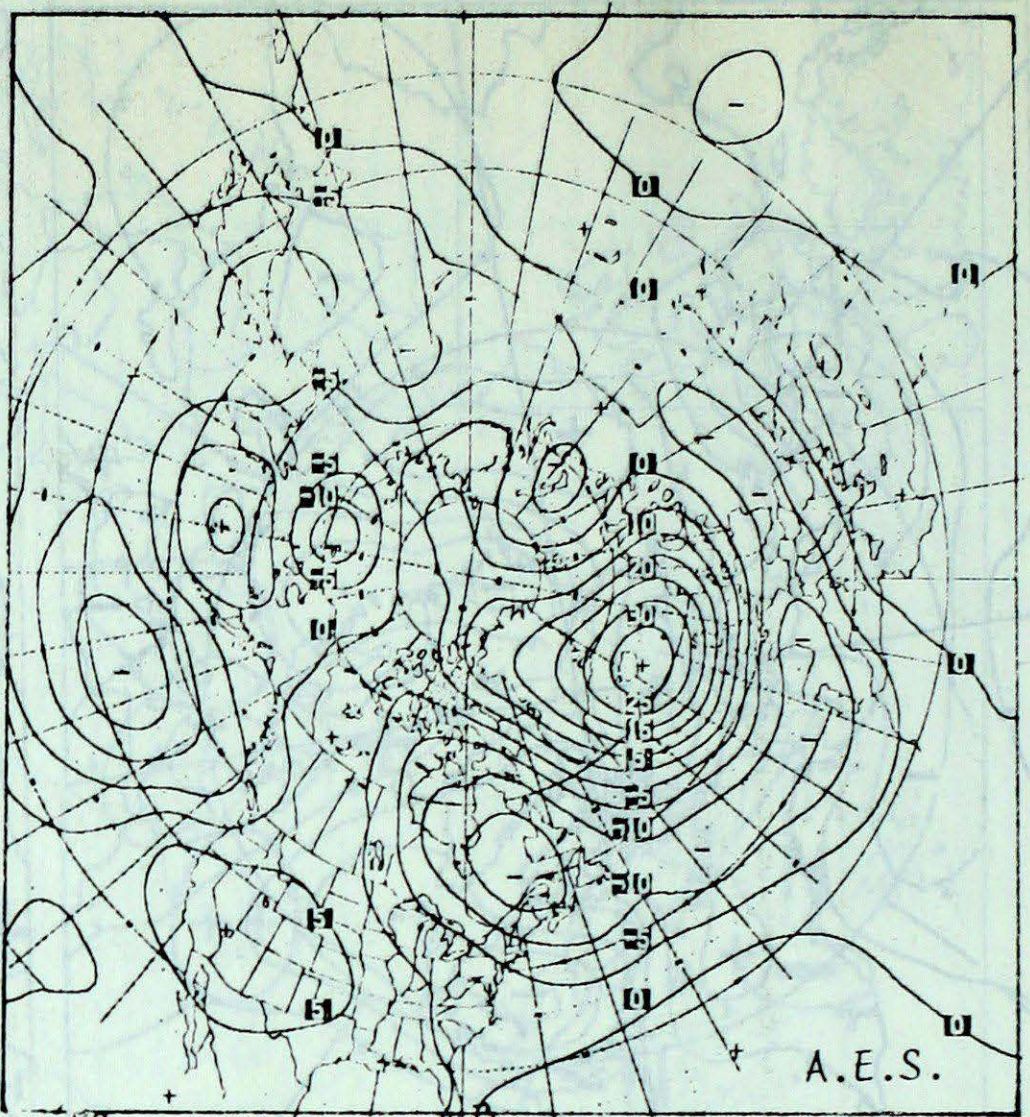
Weather in southeastern Canada was similar to the previous week's under the continuing influence of the 50-kPa trough. Cool changeable conditions were the rule, but precipitation amounts were much less because major weather disturbances took more northerly tracks across northern Quebec.

Andy Radomski

Atmospheric Circulation



7-day Mean 50 kPa Height Map (in dam)
November 3 to 9, 1980



7-day Mean 50 kPa Height Anomaly
(in 5 dam intervals) November 3 to 9, 1980

A nearly stationary 50 kPa ridge predominated the western half of the continent.

At the surface a large high pressure area over the western United States and a stationary deep low pressure system over the Gulf of Alaska, combined to produce a strong southwesterly on-shore flow of mild moist Pacific air. As a result, precipitation amounts along the British Columbia coast were in excess of 50 mm, while amounts in the southern interior were close to 25 mm. Mean temperatures across all of British Columbia, Alberta and the Yukon were as much as 6° above the 30 year normal, contrasting sharply with below normal temperatures in Manitoba.

The eastern half of the country once again did not fair nearly as well. Under the influence of a 50 kPa long wave trough, a strong northwesterly upper air flow pushed cold Arctic air southeastward. Mean temperatures from the Keewatin area of the Northwest Territories through to the Maritimes averaged well below normal, consistent with the negative 50 kPa height anomalies.

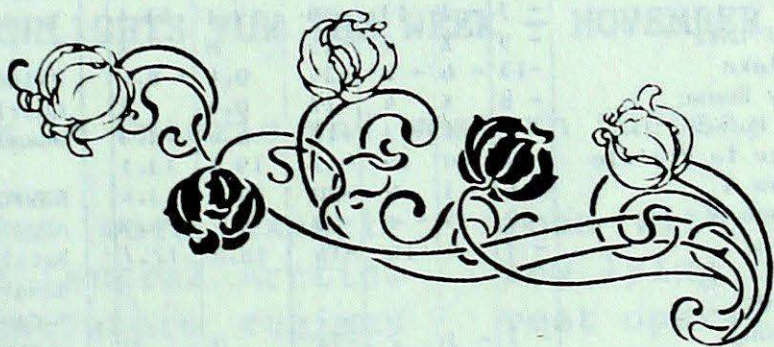
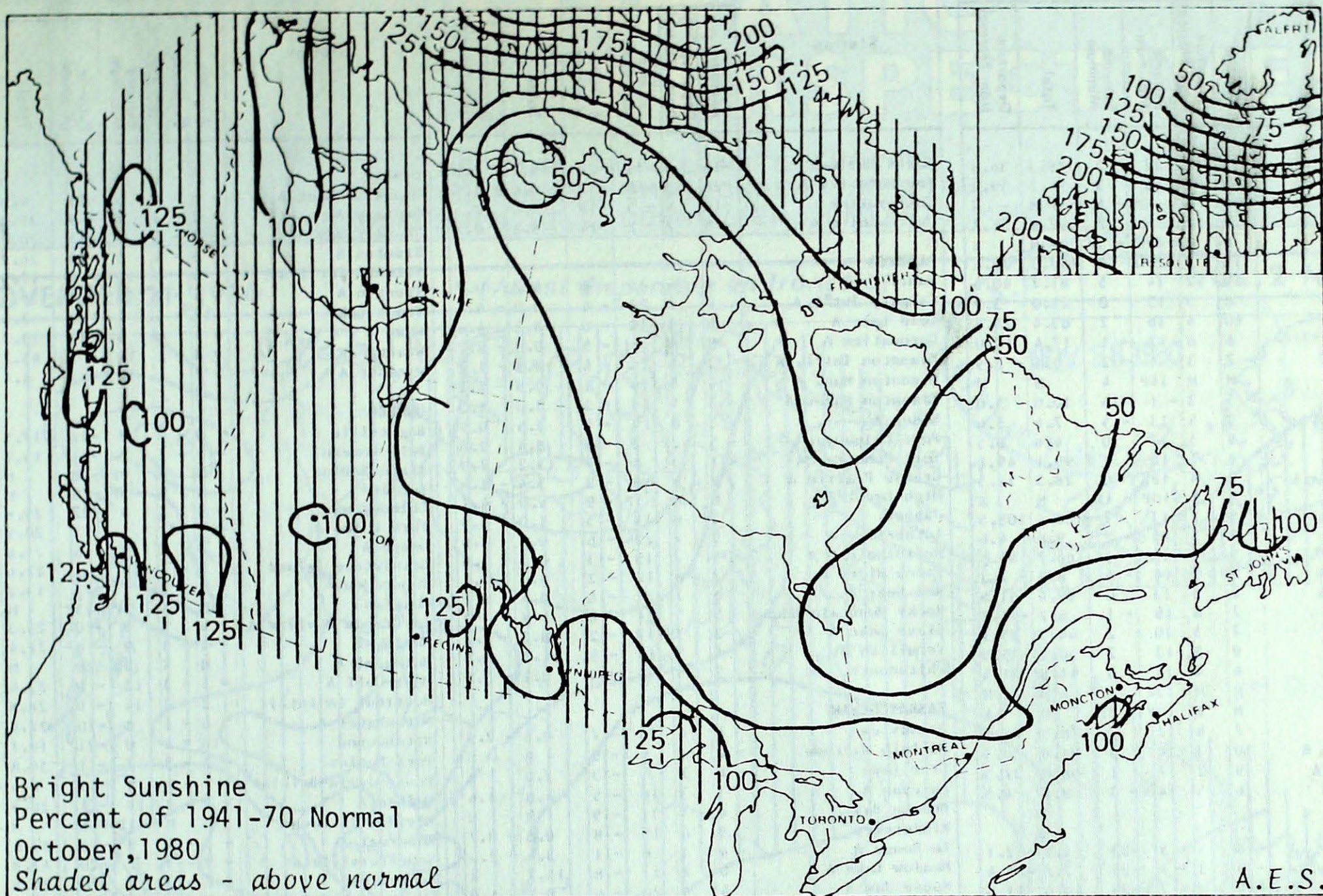
A low pressure disturbance moving eastward across the country brought unsettled weather with periods of rain or snow depending on temperature. The Atlantic provinces received the bulk of precipitation with amounts generally in excess of 50 mm.

Andy Radomski

Quebec	Above Normal	Within 0.5° of Normal
Fredericton	Near Normal	Within 0.5° of Normal
Halifax	Near Normal	Within 0.5° of Normal
Charlottetown	Near Normal	Within 0.5° of Normal
St. John's	Near Normal	Within 0.5° of Normal
Goose Bay	Above Normal	From 0.7° to 2.4° above Normal
Profisher Bay	Above Normal	From 1.0° to 3.1° above Normal
Inuvik	Above Normal	From 1.1° to 3.0° above Normal

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

SUNSHINE - OCTOBER 1980



NOTE: The data shown in this chart is based on the monthly mean sunshine hours for each day of the month.

TEMPERATURE AND PRECIPITATION DATA FOR THE WEEK ENDING 0600 G.M.T. NOVEMBER 11, 1980

Table containing temperature and precipitation data for British Columbia, Yukon, and Northwest Territories. Columns include Station, Average, Departure from Normal, Extreme Maximum, Extreme Minimum, Total, and Departure from Normal.

Table containing temperature and precipitation data for Alberta, Saskatchewan, Manitoba, Ontario, and Quebec. Columns include Station, Average, Departure from Normal, Extreme Maximum, Extreme Minimum, Total, and Departure from Normal.

Table containing temperature and precipitation data for New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland. Columns include Station, Average, Departure from Normal, Extreme Maximum, Extreme Minimum, Total, and Departure from Normal.

P - extreme value based on less than

X - no normal due to short period

M - not available at press time