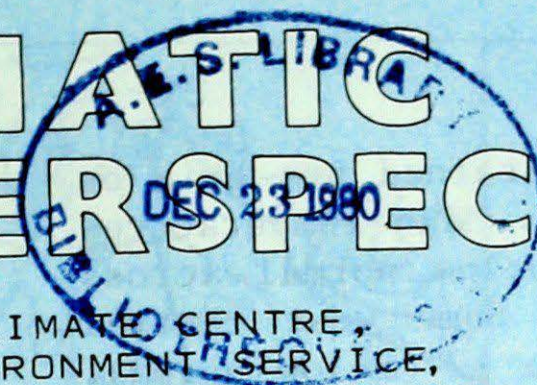


CLIMATIC PERSPECTIVES

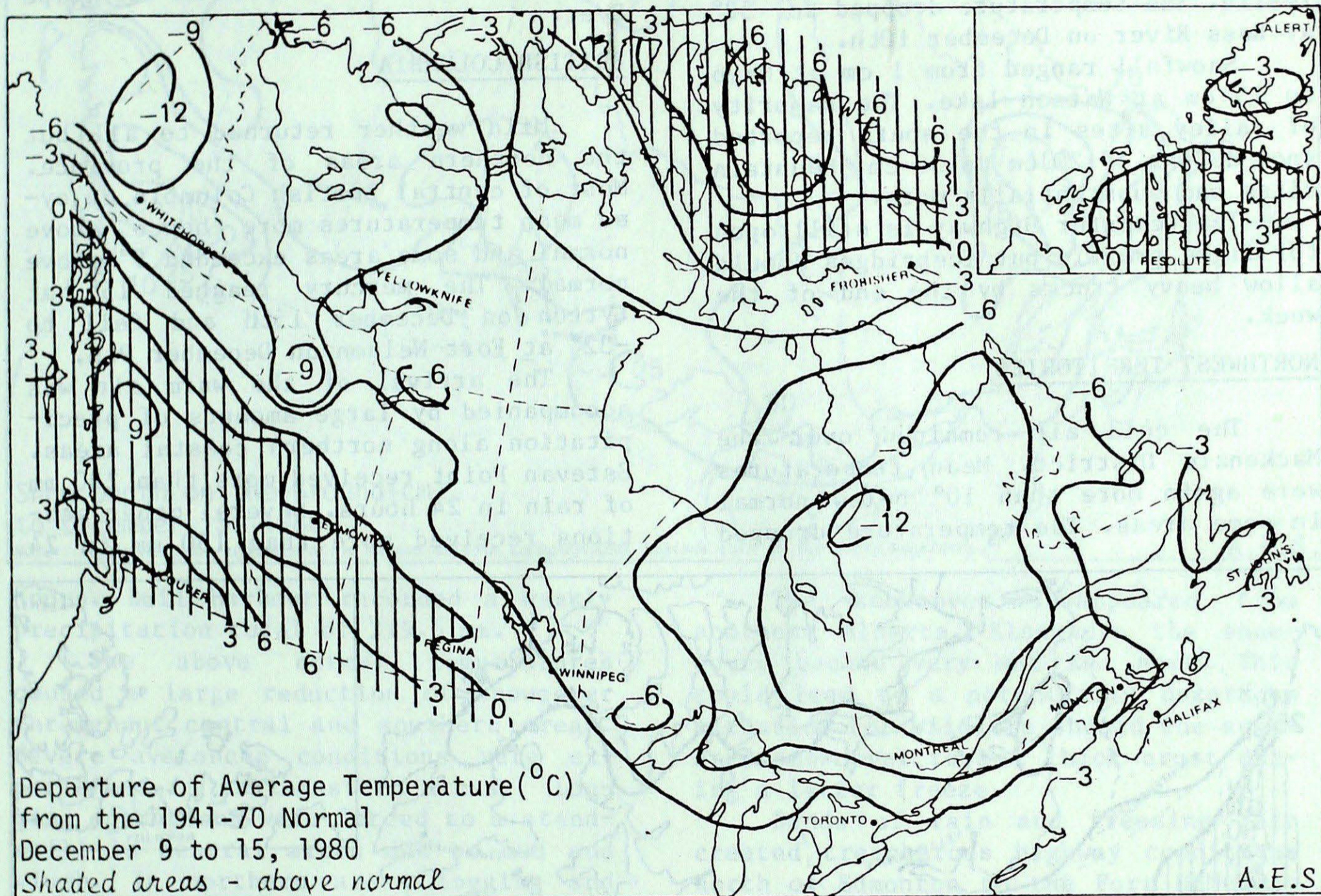


THE CANADIAN CLIMATE CENTRE,
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DECEMBER 19 1980

(Aussi disponible en français)

VOL. 2 NO. 50



WEATHER HIGHLIGHTS FOR THE WEEK - DECEMBER 9 TO 15, 1980

Cold air reaches Atlantic, warm air pushes into southwest

The cold airmass covering Ontario and Québec intensified and moved into the Atlantic Provinces. The mean temperature over most of Québec and northeastern Ontario was more than 10° below normal. The cold air established multitudinous low temperature records.

The Yukon remained under the influence of the cold airmass. Mean temperatures were more than 12° below normal in some areas.

Warm Pacific air pushed into southwestern regions. Mean temperatures in some areas of B.C. reached 10° above normal. Copious amounts of precipitation were recorded along the northern B.C. coast, much of which fell in 24 h.

The temperature ranged from a maximum of 17° (Medicine Hat) to a minimum of -52° (Ross River). Bull Harbour received a total of 319.5 mm of precipitation.

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

YUKON

The cold air retained its grip on the Yukon this week. Mean temperatures were more than 8° below normal across most of the Yukon. Some west central areas were more than 12° below normal. A brief intrusion of warm air into southern areas on December 14th allowed the mercury to reach 4° at Mayo and Teslin. The temperature dropped to -52° at Ross River on December 10th.

Snowfall ranged from 1 cm at Mayo to 15 cm at Watson Lake. The majority of valley sites in the south reported snow depths of 20 cm to 30 cm. Mountain sites had substantially more.

The Dempster Highway is still open for light traffic but icebridges should allow heavy trucks by the end of the week.

NORTHWEST TERRITORIES

The cold air remained over the Mackenzie District. Mean temperatures were again more than 10° below normal in some areas. The temperature dropped

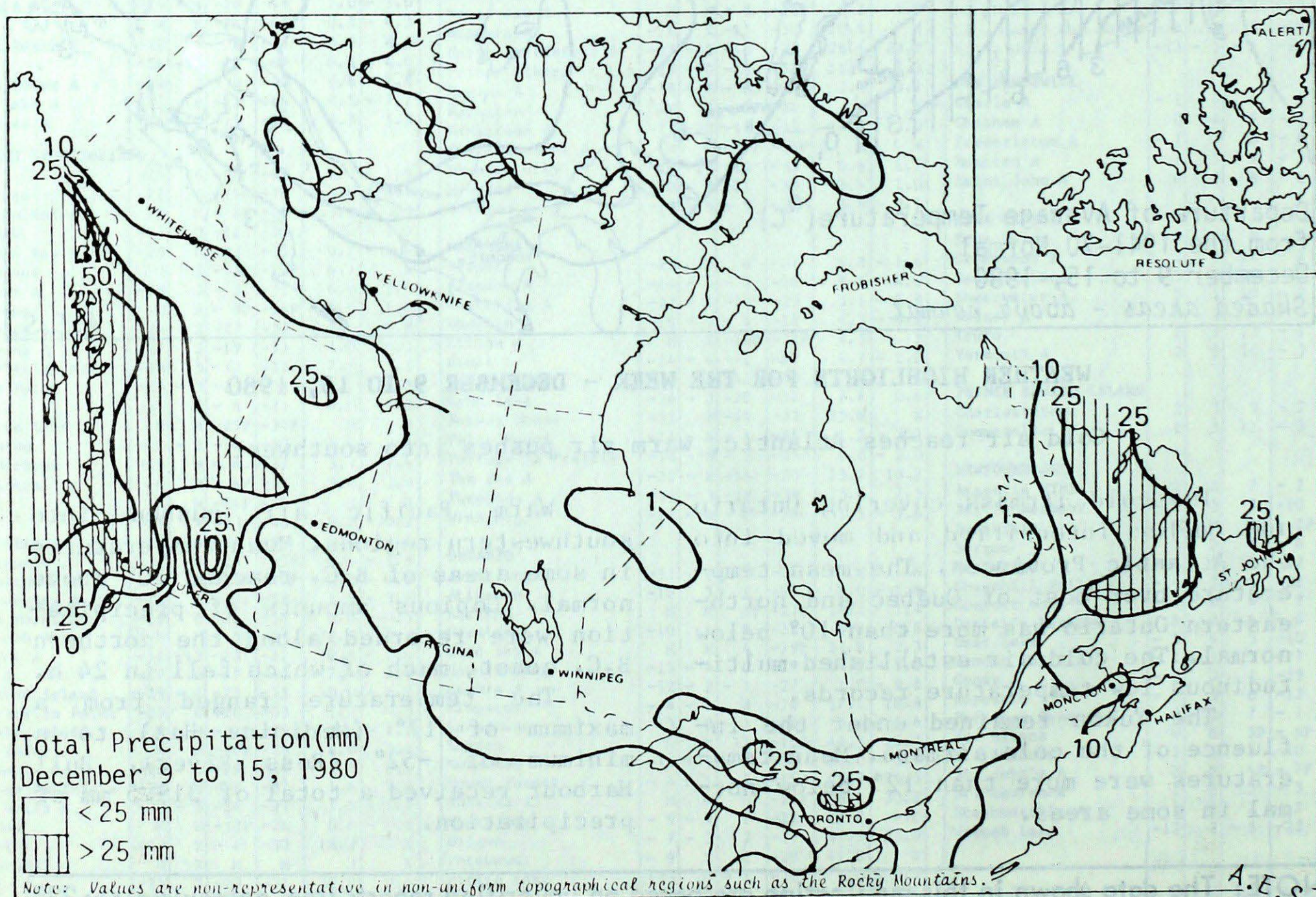
below -40° at several stations (-44° at Inuvik). The eastern portion of the Franklin District was milder. The mercury reached -5° at Cape Dyer, Longstaff Bluff and Pond Inlet on December 12th.

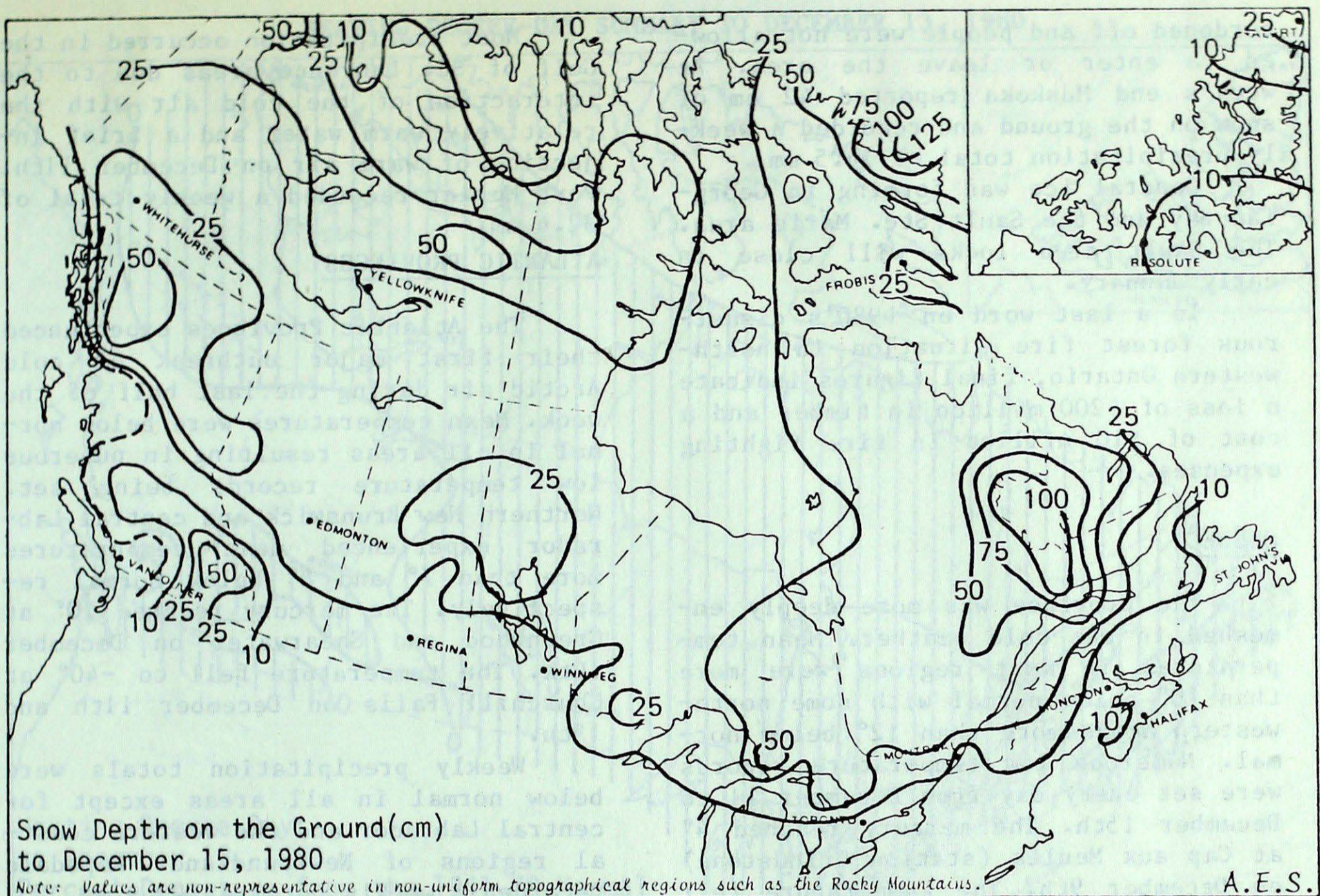
Snow was reported along the east coast of Baffin Island and along the Beaufort Sea coasts. The weekly precipitation total was 20.8 mm at Cape Dyer.

BRITISH COLUMBIA

Mild weather returned to all but the northern areas of the province. Most of central British Columbia enjoyed mean temperatures more than 6° above normal and some areas exceeded 9° above normal. The mercury reached 15° at Lytton on December 15th and fell to -32° at Fort Nelson on December 9th.

The arrival of the warm air was accompanied by large amounts of precipitation along northern coastal areas. Estevan Point received more than 230 mm of rain in 24 hours. Several other stations received more than 150 mm in 24





hours. Bull Harbour recorded a weekly precipitation total of 319.5 mm.

The above normal temperatures caused a large reduction of snowcover throughout central and southern areas. Severe avalanche conditions were experienced in southeastern areas. Logging operations were forced to a standstill in central areas due to mud and slush. In northern areas logging and drilling operations were in full swing as ice bridges have been built on the rivers.

PRAIRIE PROVINCES

Very mild Pacific air streaming across the mountains forced the cold airmass out of central Alberta and southern Saskatchewan by mid-week. Record breaking temperatures were recorded in southern Alberta. The mercury soared to 17° at Medicine Hat on December 15th. The temperature fell to -43° at High Level on December 9th.

Precipitation totals were above normal in central and northern Alberta. High Level recorded 25.9 mm of precipitation.

The snowcover disappeared from southern Alberta. Elsewhere the snowcover became very wet and soft. This could lead to a potentially hazardous situation for wildlife should the softened snowcover form a thick crust during a latter freeze.

Bands of rain and freezing rain created treacherous highway conditions north of Edmonton to the Fort McMurray area.

ONTARIO

The cold weather settled over all of Ontario this week as temperatures fell to record levels in many locations. Mean temperatures were below normal throughout the province with some northeastern areas more than 11° below normal. The mercury reached 6° at Windsor on December 12th. It fell to -39° at Moosonee on December 15th.

High winds on the weekend of December 13th and 14th resulted in heavy snow squalls and blizzard like conditions to the lee of Georgian Bay and Lake Huron. Many roads were closed. The entire town of Collingwood was

cordoned off and people were not allowed to enter or leave the area. At week's end Muskoka reported 42 cm of snow on the ground and recorded a weekly precipitation total of 36.5 mm.

Coastal ice was forming in Georgian Bay and the Sault Ste. Marie area. The Sault area locks will close in early January.

In a last word on 1980's disastrous forest fire situation in northwestern Ontario, final figures indicate a loss of \$200 million in timber and a cost of \$10 million in fire fighting expenses.

QUÉBEC

The province was more deeply enmeshed in the cold weather. Mean temperatures in most regions were more than 10° below normal with some northwestern areas more than 12° below normal. Numerous low temperature records were set every day from December 11 to December 15th. The mercury reached 4° at Cap aux Meules (station Grindstone) on December 9th. The temperature fell to -40° at Matagami on December 15th.

Most precipitation occurred in the Gulf of St. Laurence areas due to the interaction of the cold air with the relatively warm water and a brief injection of warm air on December 11th. Port Menier recorded a weekly total of 32.6 mm.

ATLANTIC PROVINCES

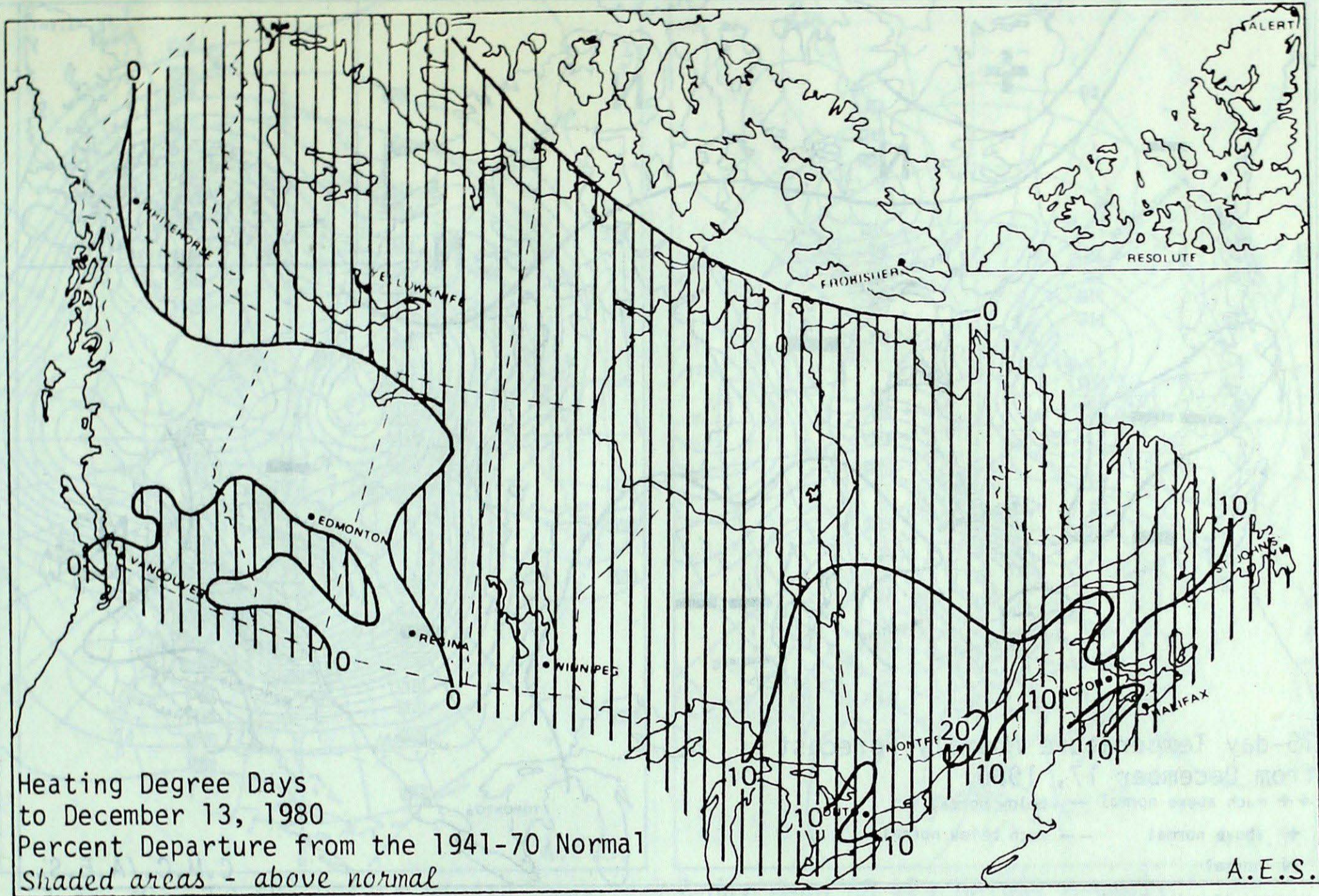
The Atlantic Provinces experienced their first major outbreak of cold Arctic air during the last half of the week. Mean temperatures were below normal in all areas resulting in numerous low temperature records being set. Northern New Brunswick and central Labrador experienced mean temperatures more than 7° and 8° below normal respectively. The mercury reached 10° at Greenwood and Shearwater on December 10th. The temperature fell to -40° at Churchill Falls on December 11th and 12th.

Weekly precipitation totals were below normal in all areas except for central Labrador and the western coastal regions of Newfoundland. Hopedale recorded a weekly total of 42.9 mm.

Ice formation along the Labrador coast is proceeding normally.

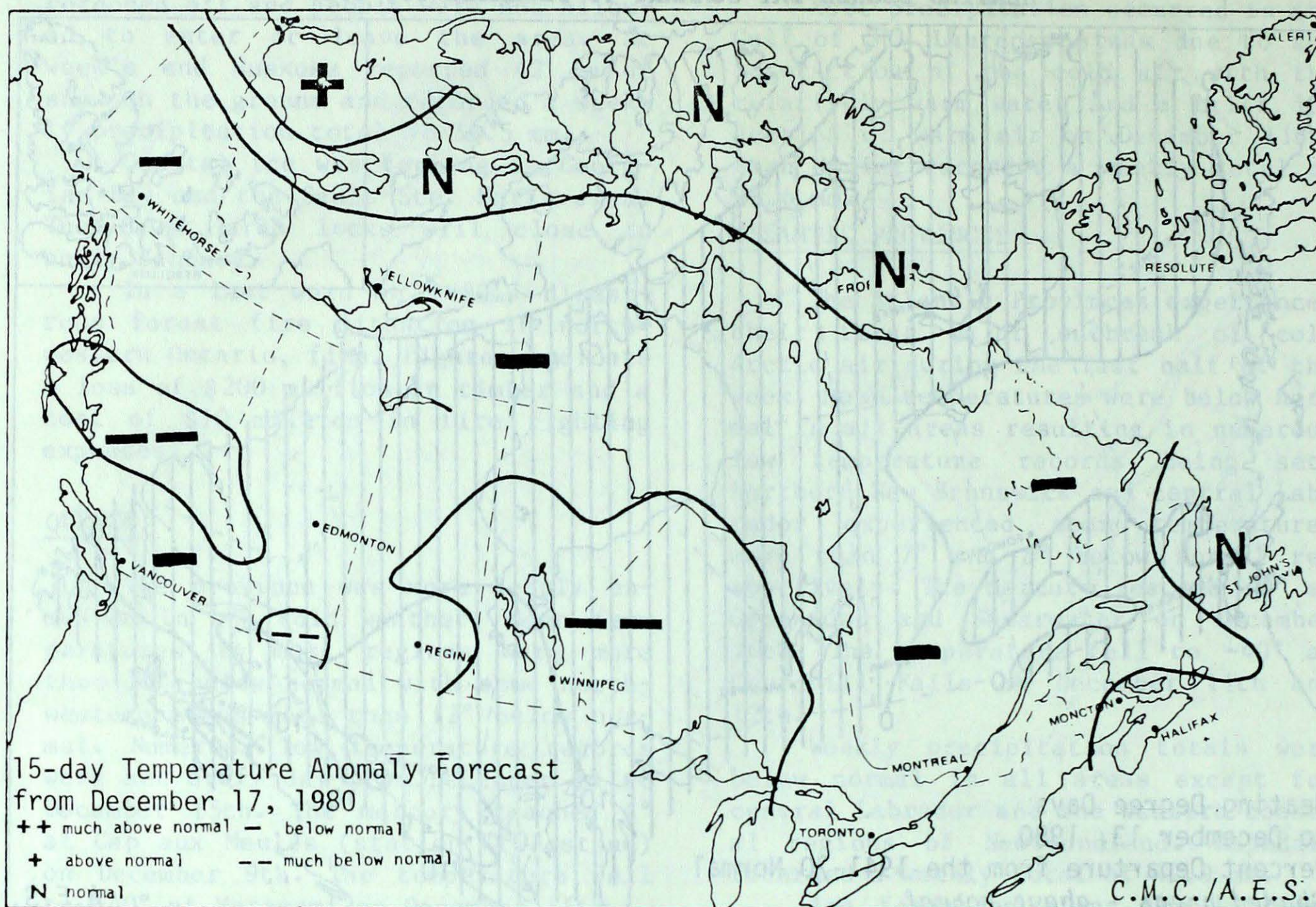
NOTE Climatic Perspectives will not be published for the next two weeks. The temperature and precipitation data tables for December 16 to 29, 1980 will be inserted in the first bulletin in 1981.

HEATING DEGREE-DAY SUMMARY TO DECEMBER 13, 1980



STATION	MONTHLY CUMULATIVE TOTAL	MONTHLY DIFF. FROM 1941-70 NORMAL	SEASONAL TOTAL	SEASONAL DIFF. FROM 1941-70 NORMAL	SEASONAL PERCENT OF NORMAL
Resolute	553.0	-43.0	4376.0	-97.0	98
Inuvik	619.5	56.5	3439.5	50.5	101
Whitehorse	591.5	166.5	2372.5	-9.5	100
Vancouver Int'l A	240.0	65.0	1016.5	49.5	105
Edmonton Mun A	447.0	98.0	1690.5	-56.5	97
Calgary Int'l A	416.5	97.5	1675.5	-28.5	98
Regina	455.5	74.5	1720.0	-25.0	99
Winnipeg Int'l A	440.5	57.5	1742.5	95.5	106
Thunder Bay	365.0	14.0	1746.5	86.5	105
Windsor	220.5	-21.5	1013.5	81.5	109
Toronto Int'l A	274.0	14.0	1203.5	124.5	112
Ottawa Int'l A	340.5	29.5	1440.0	179.0	114
Montreal Int'l A	330.0	36.0	1430.5	263.5	123
Quebec	345.5	20.5	1613.0	201.0	114
Saint John, N.B.	271.5	-3.5	1429.0	104.0	108
Halifax	239.5	9.5	1203.5	159.5	115
Charlottetown	263.5	3.5	1313.5	128.5	111
St. John's, Nfld.	251.0	23.0	1611.5	238.5	117

15 DAY TEMPERATURE ANOMALY FORECAST

Forecast Method

Analogue technique based on point prediction at 70 Canadian stations.

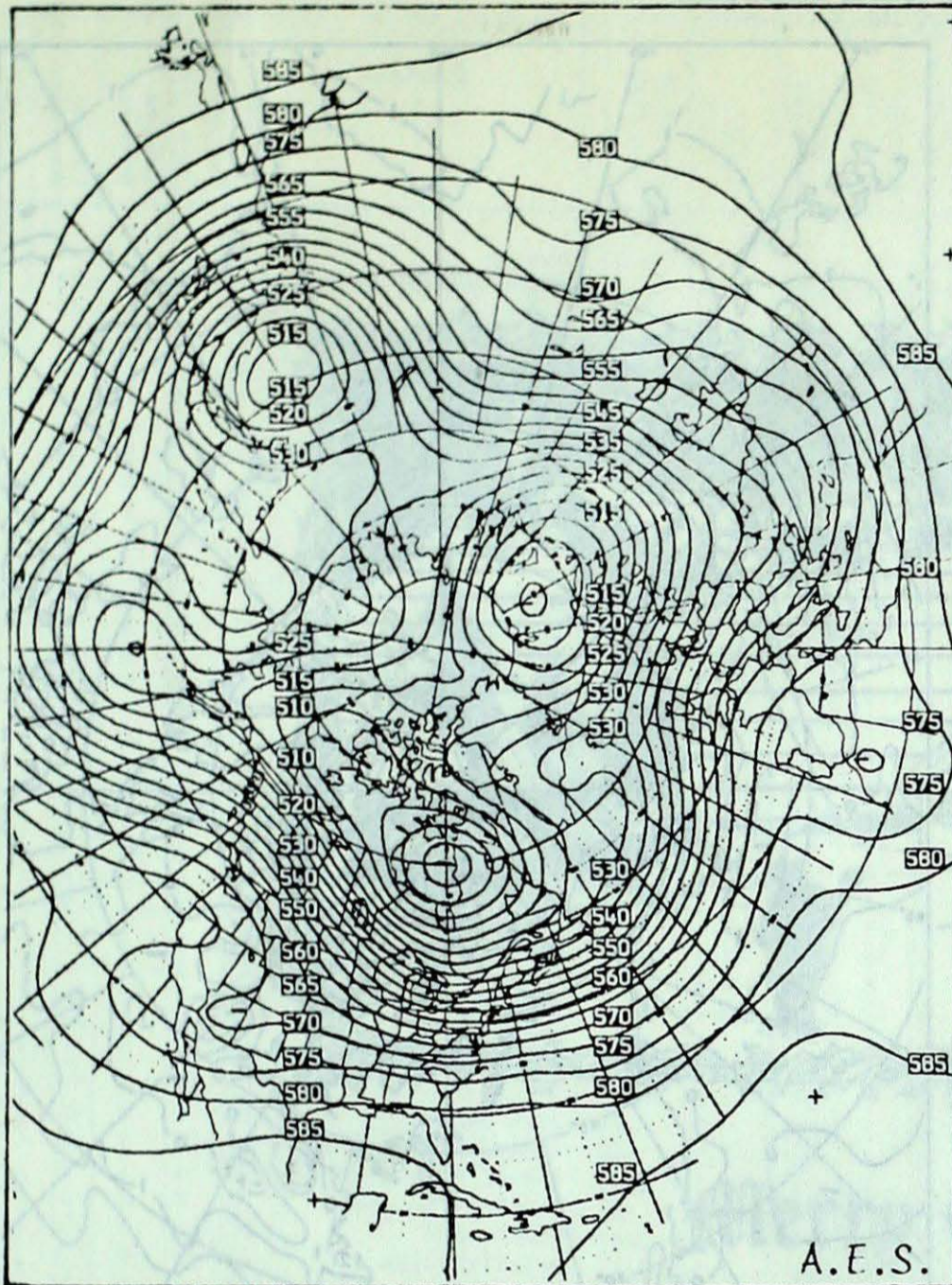
Temperature Scale

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

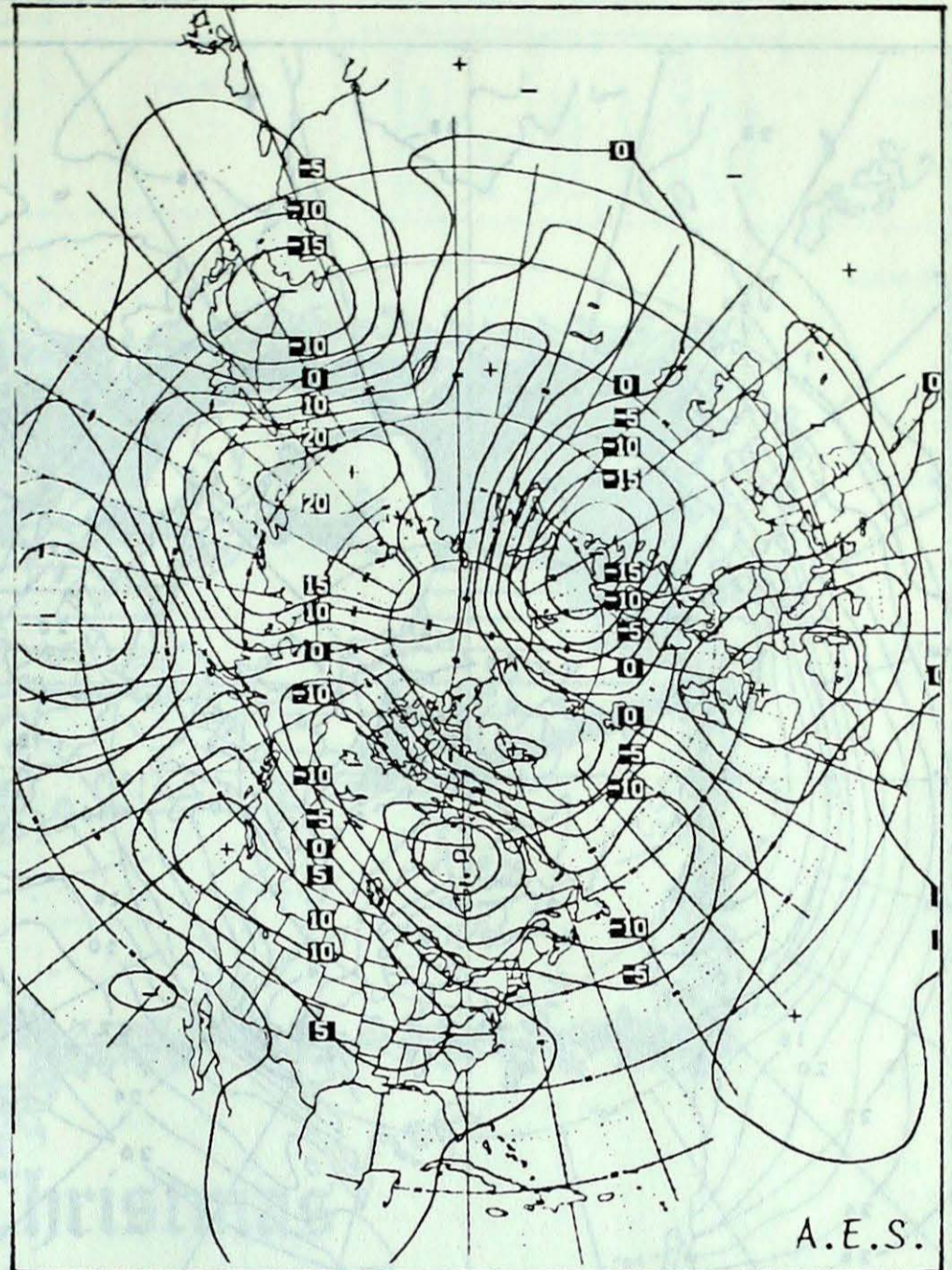
<u>Station</u>	<u>Current Temperature Anomaly Forecast</u>	
Whitehorse	Below Normal	From 1.8° to 6.2° below Normal
Victoria	Below Normal	From 0.5° to 1.8° below Normal
Vancouver	Below Normal	From 0.6° to 2.1° below Normal
Edmonton	Below Normal	From 1.5° to 5.1° below Normal
Regina	Below Normal	From 1.3° to 4.3° below Normal
Winnipeg	Much Below Normal	More than 3.5° below Normal
Thunder Bay	Much Below Normal	More than 2.9° below Normal
Toronto	Below Normal	From 0.7° to 2.4° below Normal
Ottawa	Below Normal	From 0.8° to 2.8° below Normal
Montreal	Below Normal	From 0.9° to 2.9° below Normal
Quebec	Below Normal	From 0.8° to 2.8° below Normal
Fredericton	Below Normal	From 0.8° to 2.7° below Normal
Halifax	Near Normal	Within 0.7° of Normal
Charlottetown	Near Normal	Within 0.8° of Normal
St. John's	Near Normal	Within 0.6° of Normal
Goose Bay	Below Normal	From 1.1° to 3.9° below Normal
Frobisher Bay	Near Normal	Within 1.4° of Normal
Inuvik	Above Normal	From 1.3° to 4.3° above Normal

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

Atmospheric Circulation



7-day Mean 50 kPa Height Map(in dam)
From December 8 to 14, 1980



7-day Mean 50 kPa Height Anomaly
(in 5 dam intervals) December 8 to 14, 1980

A deep 50 kPa closed low in the vicinity of Hudson Bay with heights more than 20 dam below normal, and a nearly stationary blocking ridge over British Columbia and Alberta controlled the circulation pattern over most of North America.

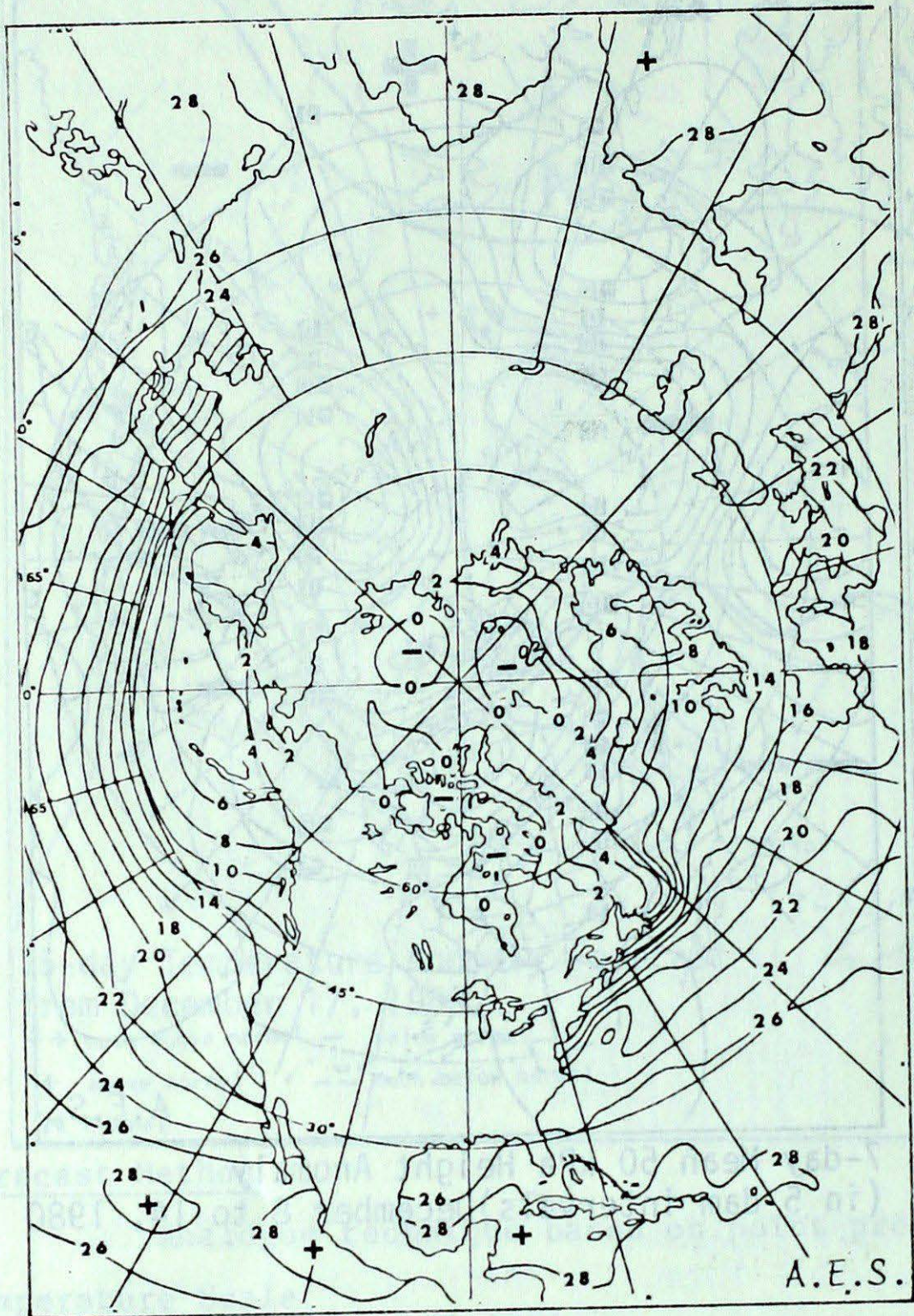
An associated surface high pressure area positioned in the western United States pumped mild Pacific air inland across the two western provinces. Daytime temperatures climbed to well above freezing, rapidly depleting the new snowcover, most of which fell the previous week. Castlegar is now reporting only half of the 49 cm they received the previous week.

The rest of central and eastern Canada through to the Atlantic provinces remained very cold. A northwesterly circulation pumped very cold Arctic air and associated high pressure cells southeastward. Temperatures in parts of northeastern Ontario and Québec were more than 10° below normal.

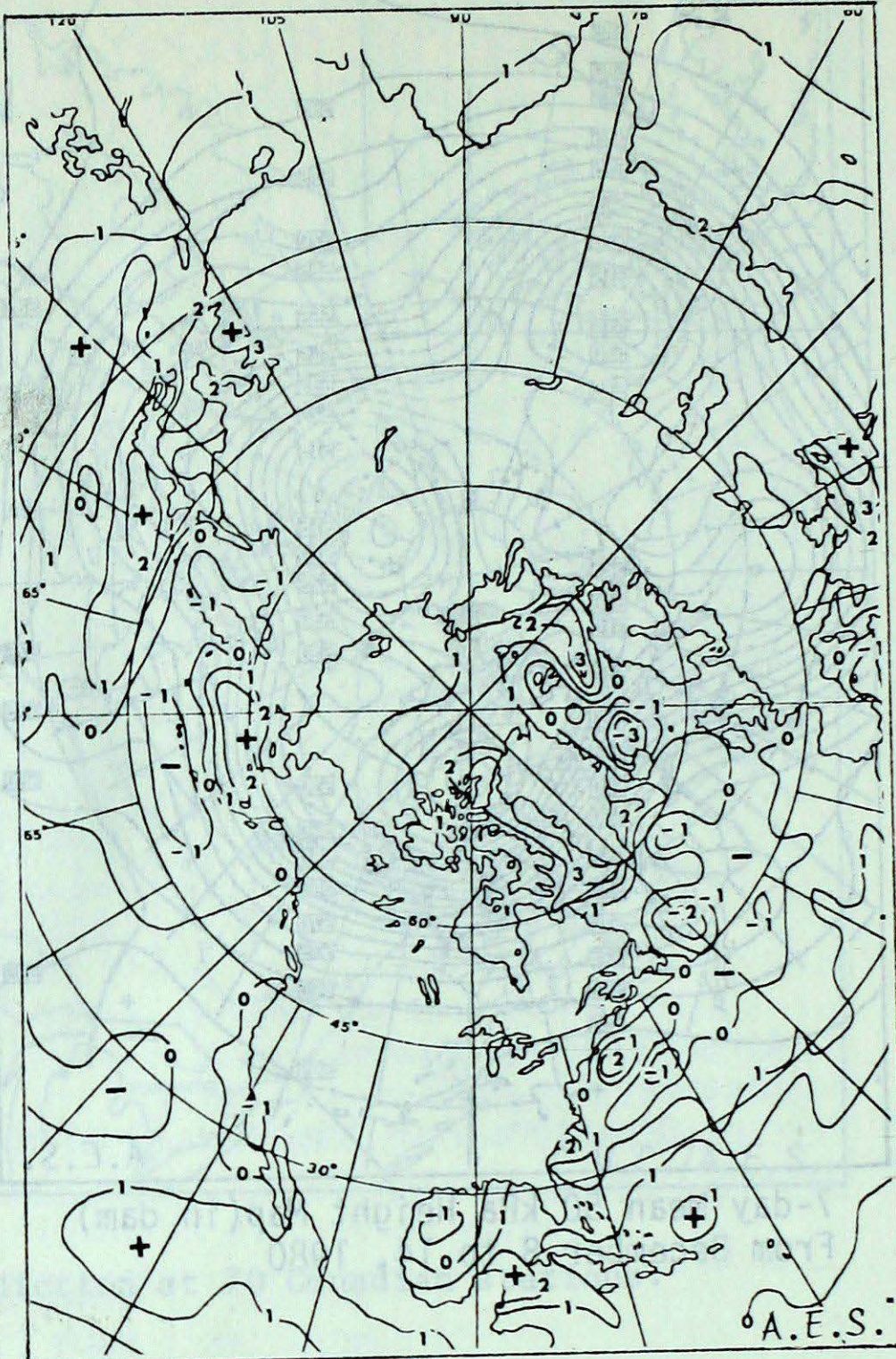
Strong northwesterly winds and the interaction of very cold air blowing across the relatively warm waters of the Great Lakes triggered heavy snow squall activity on the lee shores. White-outs and blizzard like conditions were the result in many communities of southern and central Ontario this past weekend.

Andy Radomski

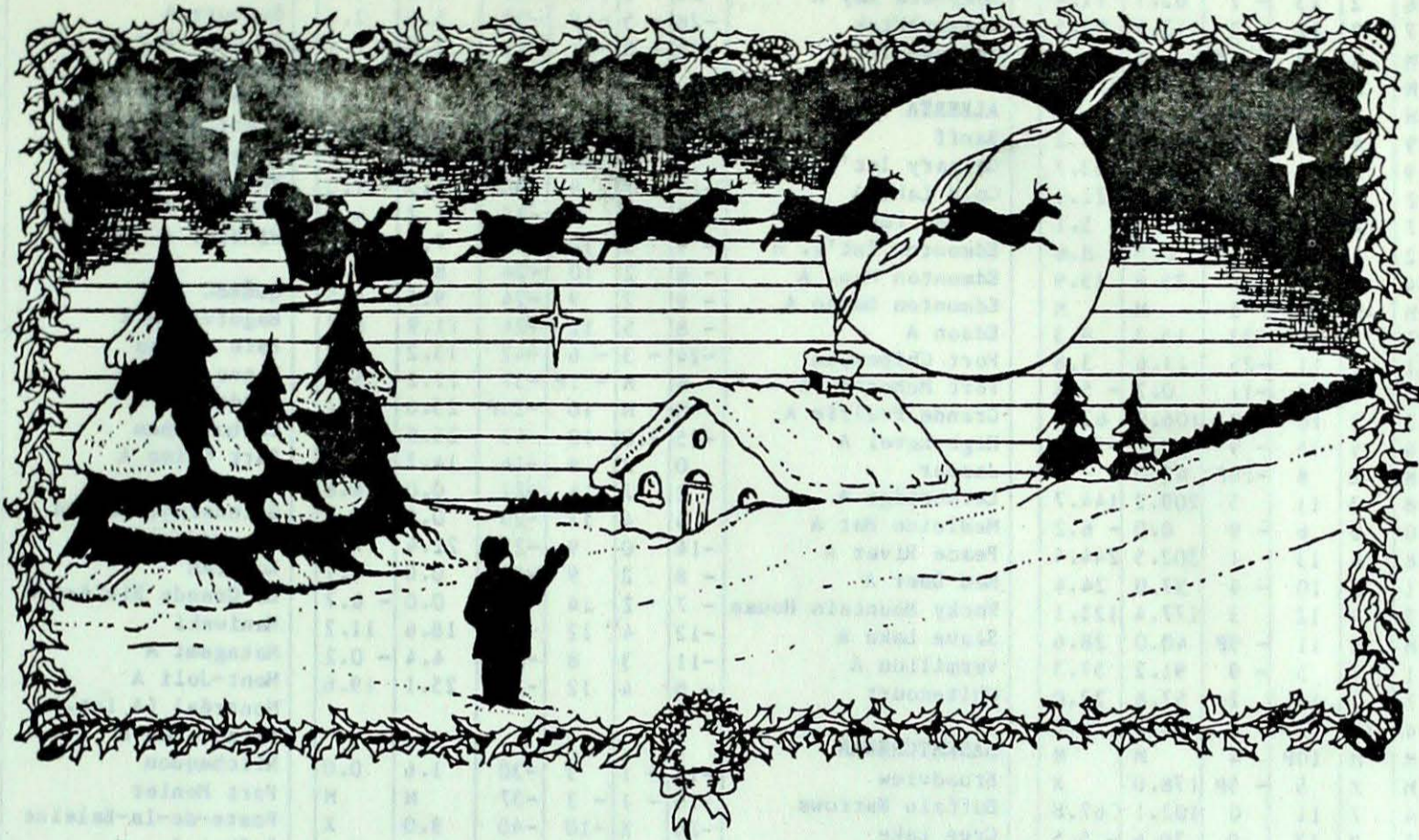
SEA SURFACE TEMPERATURE



Monthly Mean Sea Temperature
November 16 to December 15, 1980



Sea Surface Temperature Anomalies
November 16 to December 15, 1980



Merry Christmas and a Happy New Year

CLIMATIC PERSPECTIVES

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Station	Temperature (°C)	Temperature (°F)	Wind (km/h)	Wind (mph)	Precipitation (mm)	Precipitation (in)
WATSON LAKE	-12	10	10	6	0.0	0.0
CASTLEGAR	-10	14	15	9	0.0	0.0
PRINCE GEORGE	-8	18	20	12	0.0	0.0
... (many more rows) ...						



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