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A WEEKLY REVIEW OF CANADIAN CLIMATE

CLIMATIC PERSPECTIVES

THE CANADIAN CLIMATE CENTRE,
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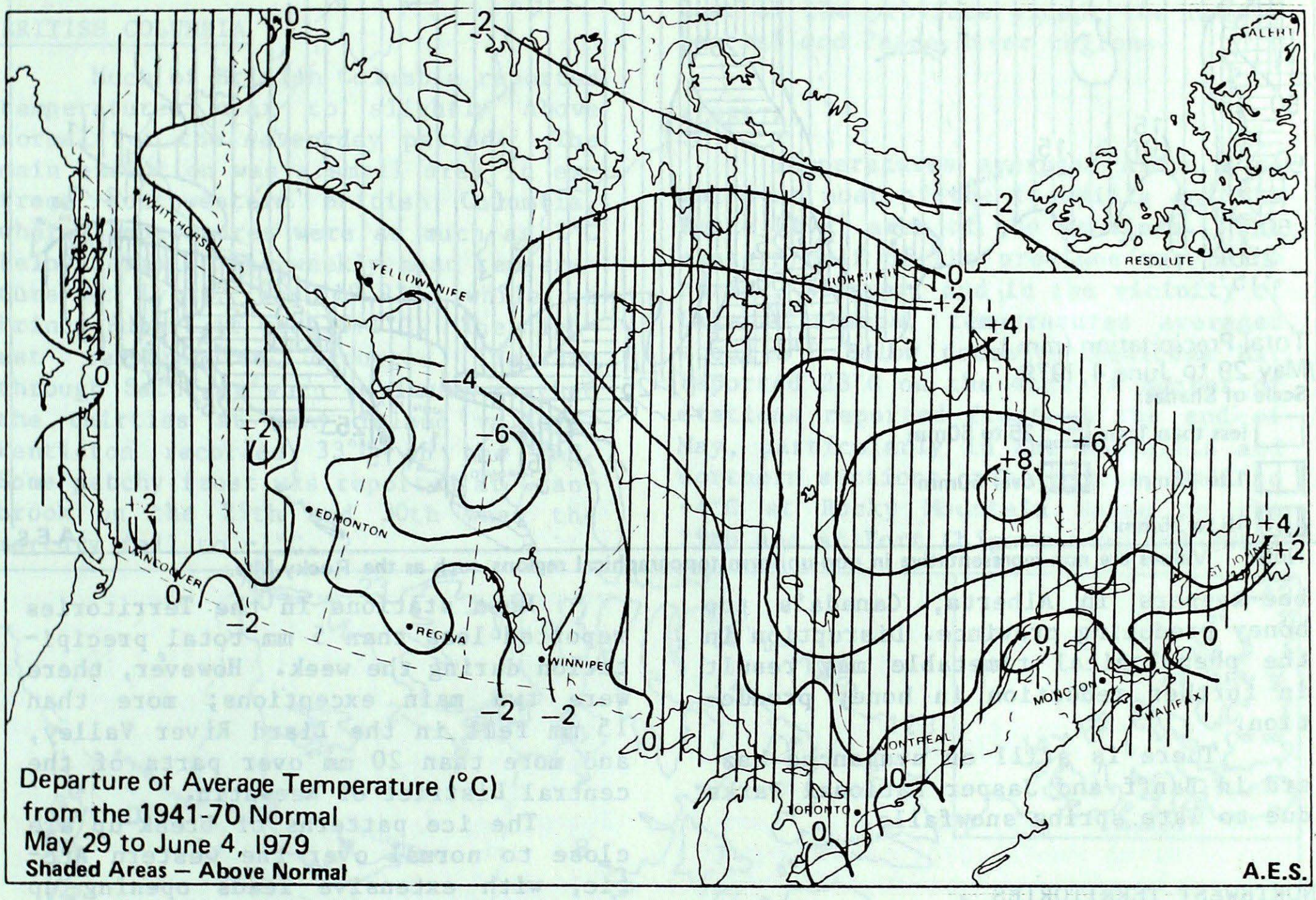
JUNE 8, 1979 VOL. 1 NO. 17



Departure of Average Temperature (°C)
from the 1941-70 Normal
May 29 to June 4, 1979
Shaded Areas — Above Normal

A.E.S.

WEATHER HIGHLIGHTS FOR THE WEEK - MAY 29 - JUNE 4, 1979

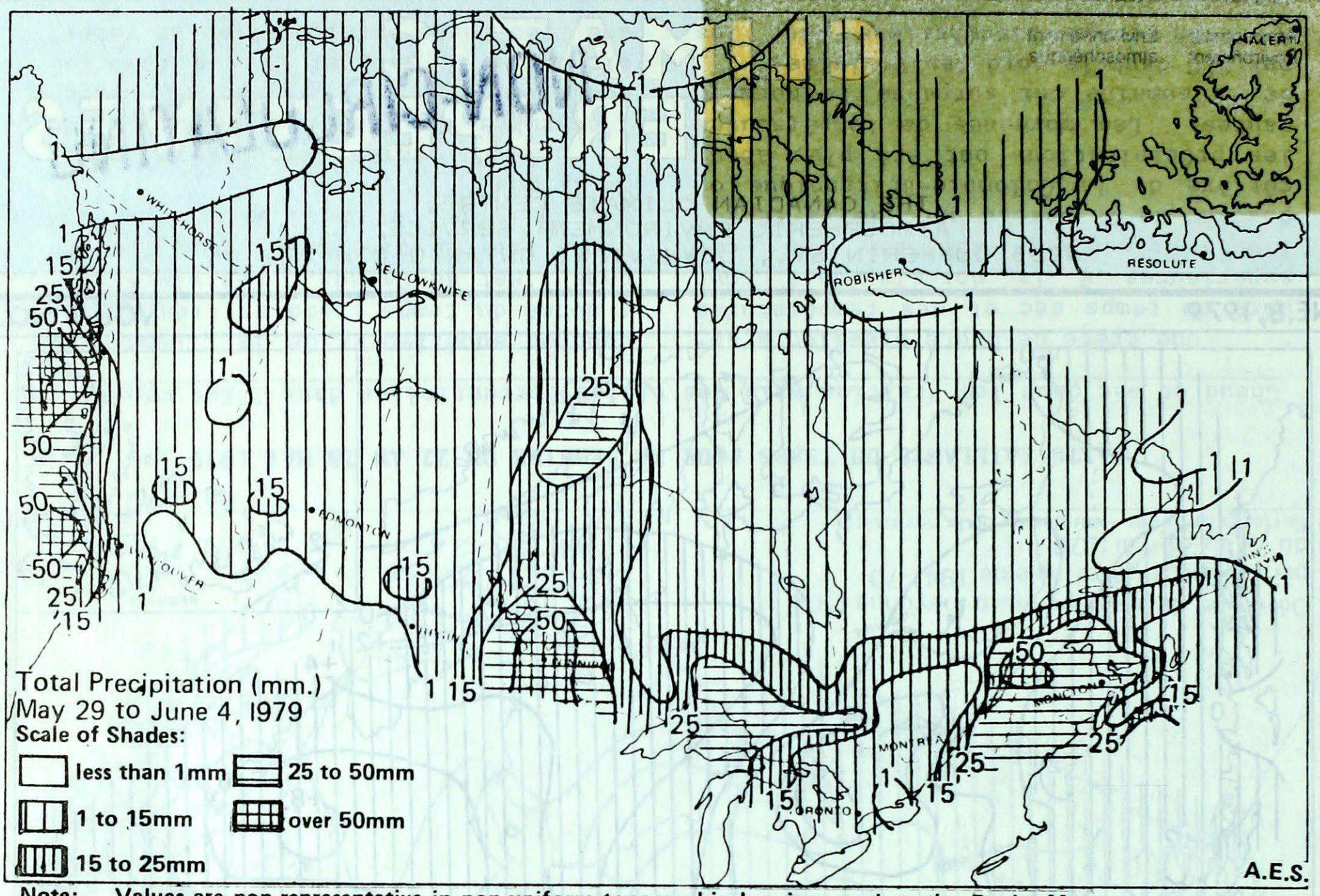
Continued wet weather over southern Manitoba and the Maritimes

Temperatures averaged well below normal over northern parts of Saskatchewan and Manitoba for the week. Further east, it was comparatively warm for the time of year over northwestern Ontario, northern Quebec, and Newfoundland and Labrador.

Generally dry conditions were reported over most of British Columbia, the western Prairies, southern Ontario, and Newfoundland and Labrador. In the agricultural areas of the regions, planting and market gardening are proceeding well. In contrast, wet weather continued to plague southern Manitoba and the Maritimes. As a result of earlier flooding in the Red River Valley and an extremely wet spring over most of the Maritimes, some fields in these areas are still too wet for planting.

Because of a 5-day cold spell at a critical egg-laying time by queen bees in May, severe problems exist for

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



Note: Values are non-representative in non-uniform topographical regions such as the Rocky Mts.

bee-keepers in Alberta, Canada's top honey producing province. Disruption in the phenological timetable may result in further reduction in honey production.

There is still an avalanche hazard in Banff and Jasper National Parks due to late spring snowfalls.

NORTHWEST TERRITORIES

Much of the Territories reported below normal temperatures. Departures were as great as 2°C or 3°C at some stations. However, a small area in the northern District of Keewatin recorded temperatures as much as 3°C above normal. Norman Wells reported a 7-day mean temperature of 9.9°C, while Resolute, in the Queen Elizabeth Islands, reported a mean of -7.7°C. The mercury climbed to the low twenties towards the end of May at some stations in the southern District of Mackenzie. Fort Simpson reached 26°C on the 30th. In contrast, -14°C was reported at several high Arctic stations early in the period.

Most stations in the Territories reported less than 5 mm total precipitation during the week. However, there were two main exceptions; more than 15 mm fell in the Liard River Valley, and more than 20 mm over parts of the central District of Keewatin.

The ice patterns of break-up are close to normal over the western Arctic, with extensive leads opening up west of the Amundsen Gulf and about 50% open water at drilling sites near Tuktoyaktuk. There is still consolidated ice in Summers Harbour near Cape Perry, where the John A Macdonald and drill ships are harboured. The ice breaker might try to break out in the next few weeks as there is a little less than 100 miles through consolidated ice to get to open water.

In the eastern Arctic, ice conditions are generally close to normal except in Hudson Strait and Davis Strait where they are better than normal. Hudson Bay is ice-covered, but leads are opening up along the east side.

YUKON

Temperatures remained near normal this week over the Yukon. The temperature averaged 12.9°C at Dawson for the seven-day period and 10.4°C at Whitehorse. Dawson reached 24°C on June 1st, but the same station reported patchy frost with a minimum of -1°C only the day before.

The Yukon was very dry during the week.

BRITISH COLUMBIA

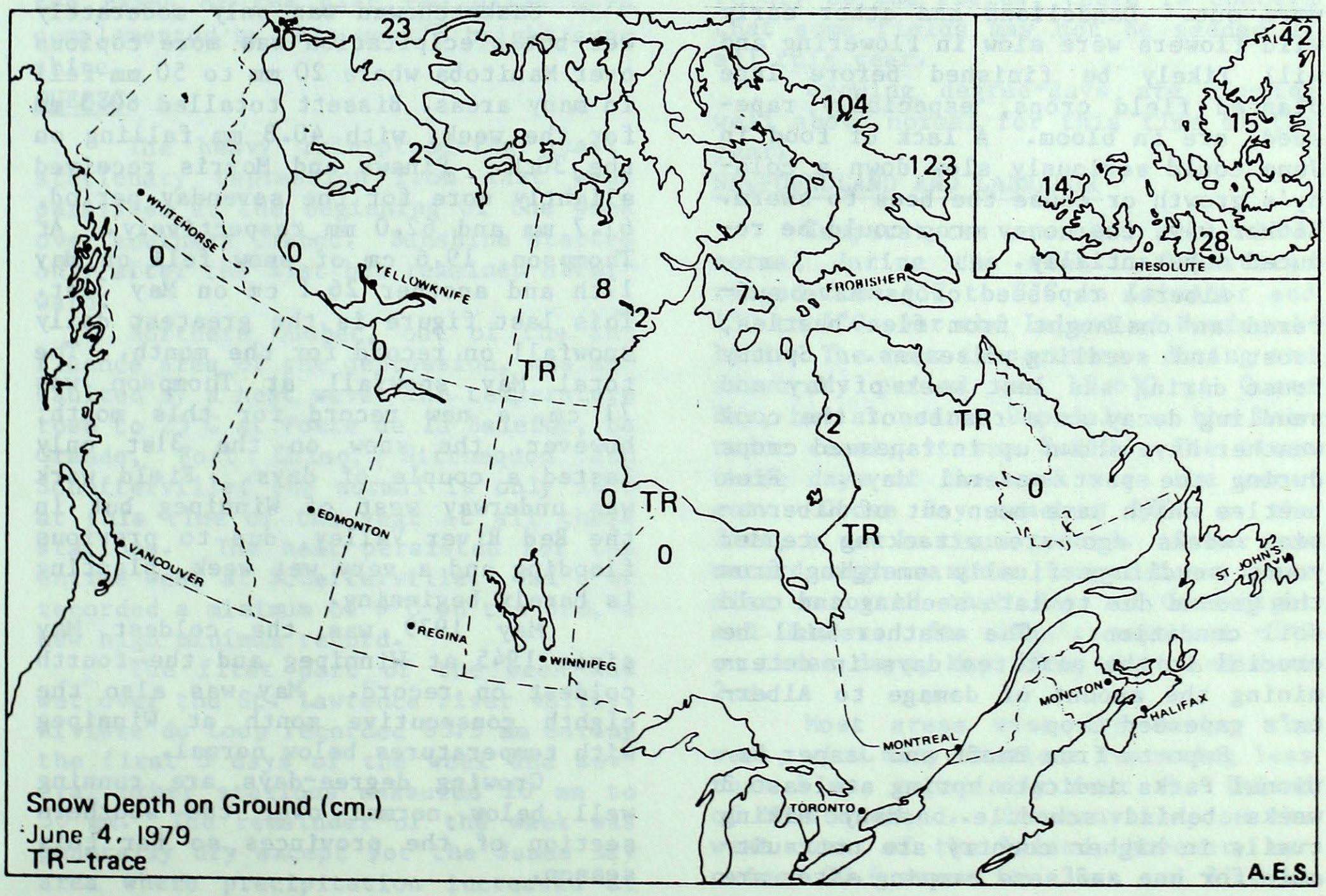
Much of British Columbia reported temperatures near to slightly above normal for the seven-day period. The main exception was a small area in extreme southwestern British Columbia, where temperatures were as much as 2°C below normal. The weekly mean temperature at Lytton was 19.9°C, while at Prince Rupert it was 10.1°C. The highest temperatures occurred Thursday through Saturday when maximums reached the thirties at many inland valleys. Penticton recorded 33°C on the 2nd. Some patchy frost was reported at Cranbrook on the 29th and 30th when the mercury fell to -1°C.

Occasional showers were reported in a few areas of British Columbia during the week, but the province was generally very dry. Only the northern part of the west coast of Vancouver Island had substantial rains on the last day of the period. Estevan Point reported 55.6 mm on the 4th and Prince Rupert had a weekly total of 64.5 mm.

Growing degree-days up to June 2 averaged slightly above normal over most of the province except the north-central and Peace River regions.

ALBERTA

Temperatures averaged above normal over most of the foothills and the Peace River area of the province. The eastern half of the province was below normal, however, and in the vicinity of Lake Athabasca, temperatures averaged about 4°C below normal. Medicine Hat reported 28°C on the 4th. A number of stations reported frost at the end of May, particularly in the foothills and northern sections. The mercury fell to -4°C at Rocky Mountain House on the 29th and at Fort Chipewyan on the 30th.



Precipitation totalled less than 5 mm at many stations in both southern and northern Alberta. However, more than 10 mm fell in a broad path across the central region of the province.

In Canada's top honey producing province, a severe cold spell last month caused problems for beekeepers. The cold weather caused about a 5-day stop in egg-laying by queen bees at a critical time. This will reduce the bee population in hives to considerably below normal. The several thousand additional bees per hive which would have been produced during this 5-day stoppage in egg-laying will not be around for peak honey flow which generally starts around July 10th and last for about 7 days. This will mean the peak bee population will be 10-15 days from normal honey flow. In turn, this could, but not necessarily will, cause a smaller 1979 Alberta honey crop. The unusually cool spring has disrupted the phenological timetable. This may result in an unsure supply of nectar and pollen. The cold spell last month hampered the activity of the bees when willow blossoms, first to bloom in spring, were out. Dandelions and other early wild flowers were slow in flowering and will likely be finished before late planted field crops, especially rapeseed, are in bloom. A lack of food in June could seriously slow down a colony's growth or cause the bees to swarm. Either way, the honey crop could be reduced substantially.

Alberta rapeseed crops have suffered an onslaught from flea beetles, frost and seedling diseases. Spotty frost during the last week of May and seedling decay as a result of the cool weather have shown up in rapeseed crops during the past several days. Flea beetles which have been out of hibernation weeks ago are attacking tender young seedlings finally emerging from the ground due to late seeding and cold soil conditions. The weather will be crucial in the next ten days in determining the amount of damage to Alberta's rapeseed crop.

Reports from Banff and Jasper National Parks indicate spring at least 3 weeks behind schedule. Many hiking trails in higher country are not suitable for use and some camping sites are still closed in order to protect tender young vegetation. Because of melting snow, the avalanche hazard is still high, particularly during daylight hours, in some of the higher elevations in Banff National Park.

Run-off from recent snowfalls and recent rains have resulted in flooding in the village of Assumption in northwestern Alberta. About 50 families were forced to move to higher ground. The situation had stabilized and a slight drop in flows has since been reported.

MANITOBA AND SASKATCHEWAN

Temperatures generally ranged well below normal during the week. Departures ranged from 2°C to 4°C at most stations, but in the northcentral area, temperatures were as great as 6°C below normal. In contrast, northeastern Manitoba was slightly above normal. Estevan and Brandon recorded a mean weekly temperature of 13.1°C while Churchill had a mean of 3.6°C. Several stations in southern Manitoba reported high temperatures of 24°C on the 3rd, while Estevan recorded 26°C on that day. Cree Lake recorded -5°C on the 31st.

Saskatchewan was only moderately wet but precipitation was more copious over Manitoba where 20 mm to 50 mm fell in many areas. Bissett totalled 60.3 mm for the week, with 40.8 mm falling on the 30th. Pinawa and Morris received slightly more for the sevenday period, 61.7 mm and 62.0 mm respectively. At Thompson, 19.6 cm of snow fell on May 17th and another 26.1 cm on May 31st. This last figure is the greatest daily snowfall on record for the month. The total May snowfall at Thompson was 71 cm, a new record for this month; however, the snow on the 31st only lasted a couple of days. Field work was underway west of Winnipeg but in the Red River Valley, due to previous flooding and a very wet week, planting is barely beginning.

May 1979 was the coldest May since 1945 at Winnipeg and the fourth coldest on record. May was also the eighth consecutive month at Winnipeg with temperatures below normal.

Growing degree-days are running well below normal over the southern section of the provinces so far this season.

ONTARIO

Temperatures in northwestern Ontario and southern Ontario were near normal, but in the northeast, temperatures averaged 2°C to 4°C above normal. The mean temperature at Windsor for the seven-day period was 17.4°C. In contrast, it was only 9.4°C at Trout Lake. The mercury climbed to 30°C on the 4th at Windsor, but many other stations in southern and eastern Ontario recorded temperatures in the upper twenties on the same date. The temperature fell to -1°C on the 1st at Red Lake; however, no frost was reported over southern agricultural areas.

Much of southern Ontario was very dry during the week, with many stations reporting less than 5 mm total precipitation. In northern areas 20 mm or more fell, with Earlton reporting 34.6 mm.

Growing conditions are excellent over southern Ontario with growing degree-day totals near normal for this time of the year. The Holland Marsh, a large market-gardening centre north of Lake Simcoe and a major supplier of vegetables for the Toronto area, reported excellent growing conditions as the rains of the past few weeks were complemented by this week's bright sunshine.

QUEBEC

The heavy rain-producing quasi-stationary depression from last week persisted at the beginning of the week over southern Quebec. Sunshine started only after the 31st but remained afterward.

Northern Quebec, out of the influence area of the depression, was assaulted by a heat wave. The temperature rose to 25°C at Poste de la Baleine, La Grande, Fort Chimo, Nitchequon and Schefferville; the normal is only 10°C at this time of the year at all these stations. The heat persisted for the entire week at Schefferville. Val d'Or recorded a minimum of 9°C on the 3rd, a new high minimum record.

The first part of the week was wet over the St. Lawrence river valley. Rivière du Loup recorded 63.3 mm during the first 3 days of the week and several other stations measured 20 mm to 30 mm. The remainder of the week was generally dry except for the James Bay area where precipitation increased at the end of the week.

The growing degree-days are running well above normal for most of the province.

MARITIME PROVINCES

Except over Cape Breton Island, temperatures averaged above normal in the Maritimes. At Fredericton, the seven-day mean temperature was 14.9°C. Temperatures rose into the twenties over the weekend at most localities. At Chatham, it was 27°C on the 4th. No frost was reported during the week.

Precipitation continued to be very heavy across the Maritimes during the last three days of May. The seven-day total amounts were 30 mm to 40 mm, although considerably less fell over central Nova Scotia and over Cape Breton Island.

Both Fredericton and Saint John reported their wettest May on record. The total at Saint John was 279.1 mm, the rainiest month for any month of the year since records began in 1871.

The persistently wet spring weather in the Maritimes is continuing to delay the planting of various crops and unless there is sufficient sunshine to dry up the fields, there is concern that some fields may not be seeded at all this year.

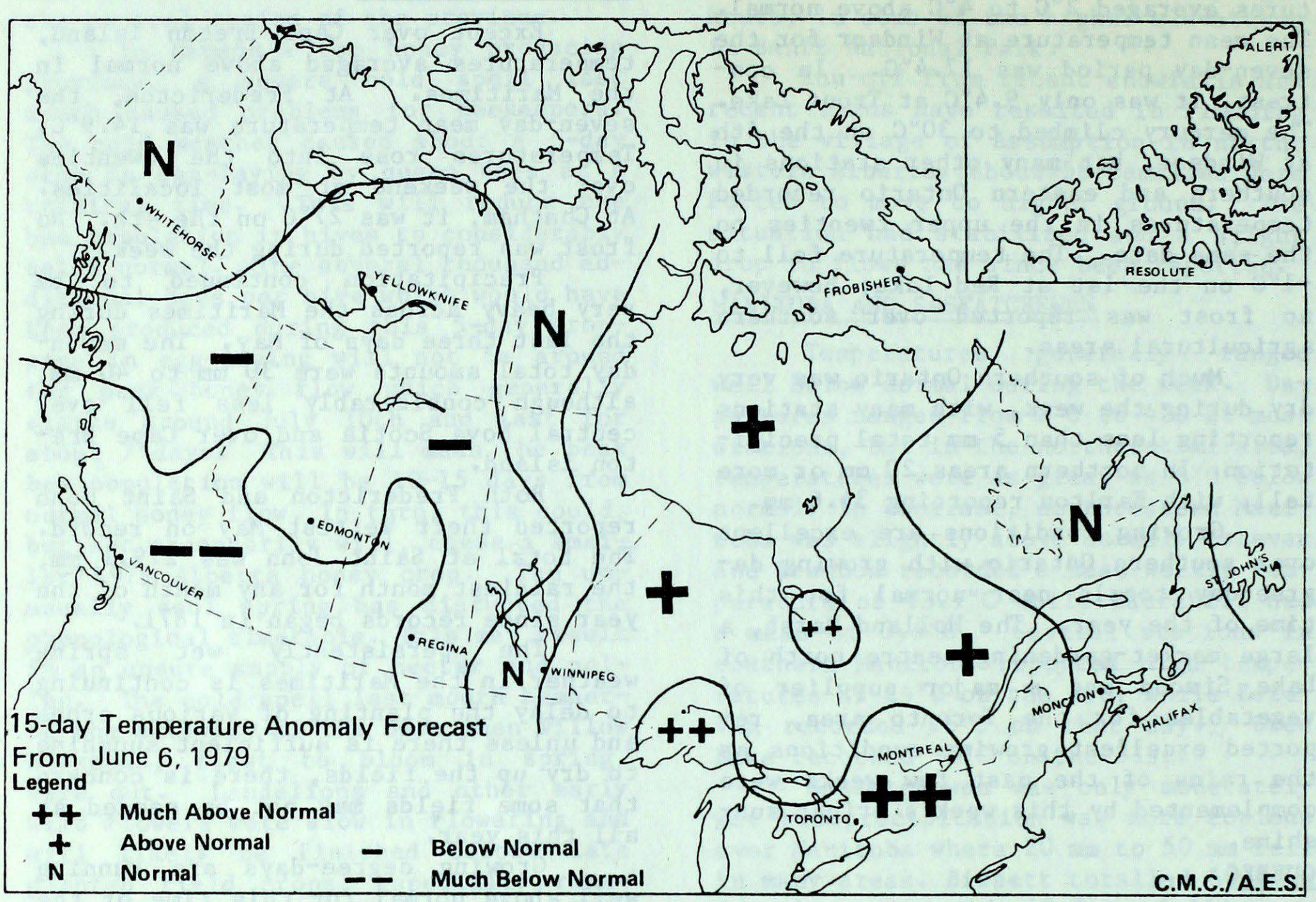
Growing degree-days are running well above normal for this time of the year.

NEWFOUNDLAND AND LABRADOR

Temperatures averaged well above normal during the week. Departures ranged from 4°C to 8°C in Labrador and 1°C to 5°C over the Island of Newfoundland. The mean temperature during the seven-day period was 15.6°C at Goose Bay, but at nearby Hopedale on the Labrador coast, it was 8.3°C. The first three days of the week were the warmest. Goose Bay reached 28°C on the 31st, a new maximum record. Other new record high maximum temperatures were also reported that day at Cartwright and Gander. St. John's reported -1°C on three days, May 30th, 31st and June 2nd.

Most areas were dry during the week, with many stations reporting less than 5 mm, especially over the Island of Newfoundland. Stephenville, on the west coast of the Island, however, received 20.6 mm on the 31st and 21.0 mm for the week.

15 DAY TEMPERATURE ANOMALY FORECAST



Forecast Method

Analogue technique based on point prediction at 70 Canadian stations.

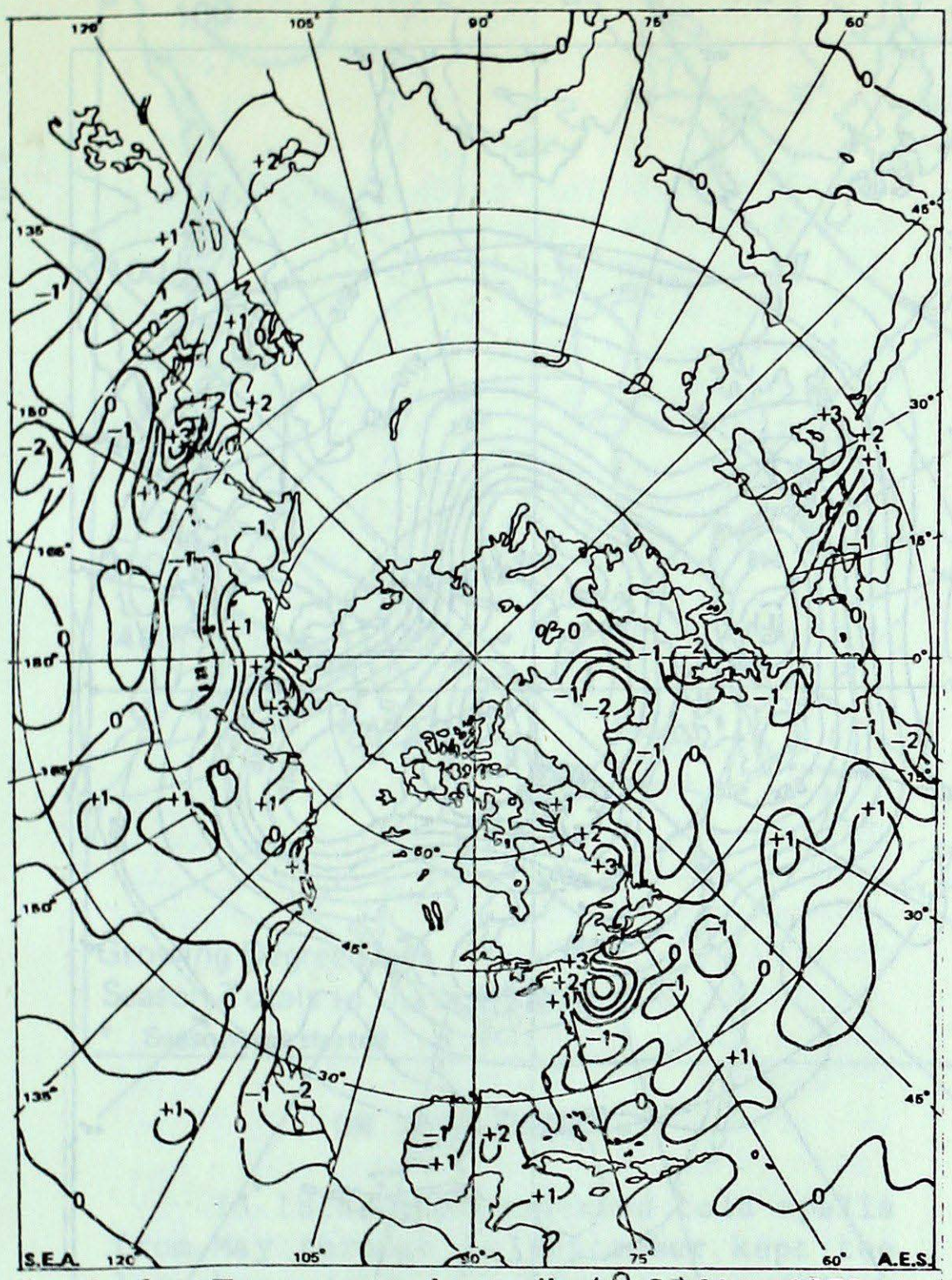
Temperature Scale

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

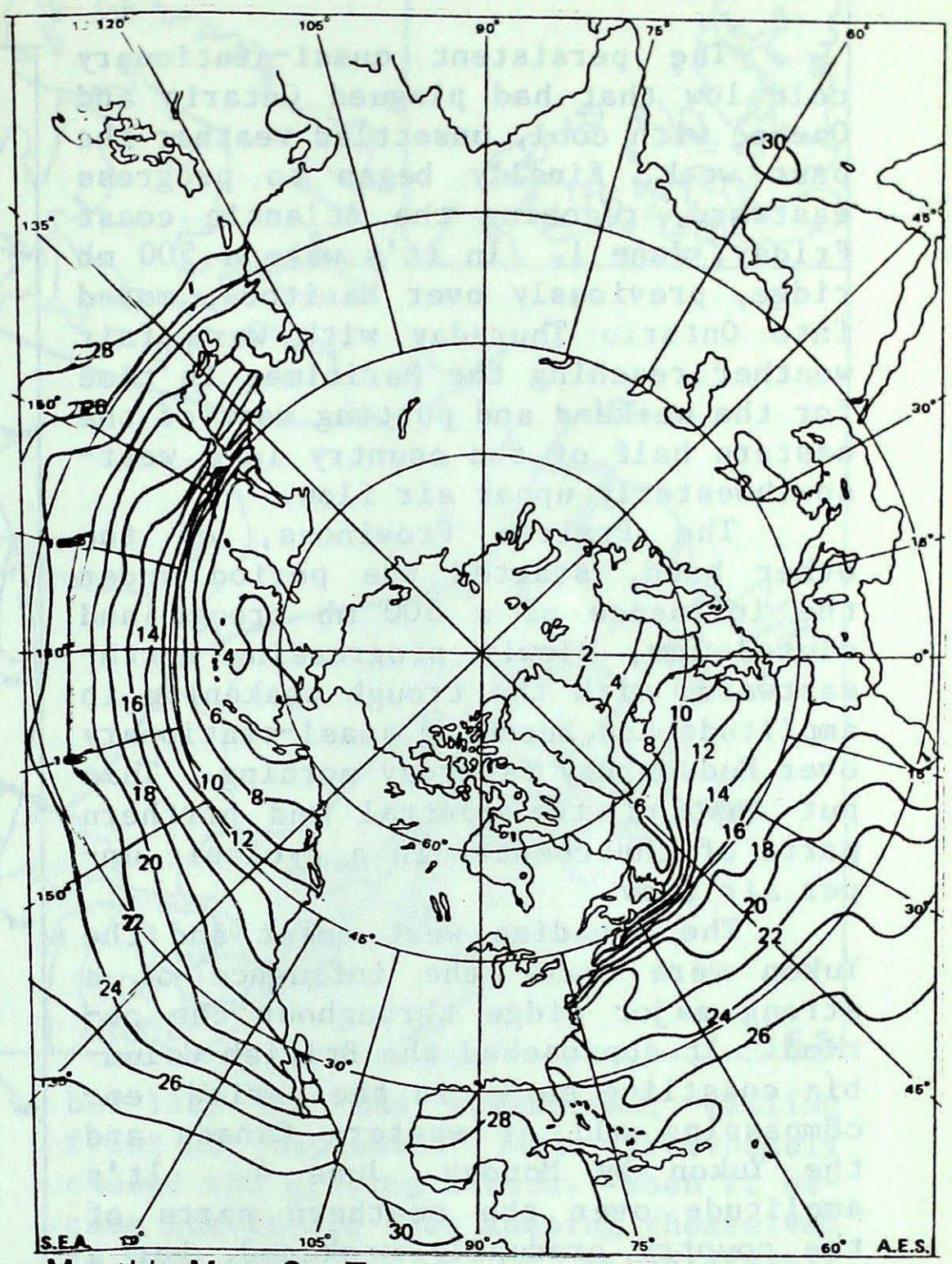
Station	Current Temperature Anomaly (ΔT) Forecast	
Dawson	Near Normal	($-0.4°C < \Delta T < +0.4°C$)
Frobisher	Above Normal	($0.4°C < \Delta T < 1.5°C$)
Trenton	Much Above Normal	($\Delta T > 1.4°C$)
Vancouver	Much Below Normal	($\Delta T < -1.2°C$)

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

MEAN SEA SURFACE TEMPERATURES AND ANOMALIES



Sea Surface Temperature Anomalies(^{o} C) May, 1979



Monthly Mean Sea Temperature For May, 1979

Sea surface temperatures are considered by some climatic experts to be an important factor in controlling short range climatic patterns.

Commencing in this issue, we have included a Sea Surface Mean Temperature Map in addition to the already published Sea Surface Temperature Anomaly. Coverage on both maps is now expanded to include all of the northern hemisphere.

At present the Mean Temperature Map will be issued twice a month as a 30 or 31 day mean. The Temperature Anomaly Map will be issued monthly depicting the anomalies for the previous calendar month. In the near future they will be supplemented with Seasonal Sea Surface Mean Temperature and Anomaly Maps.

An article explaining how sea surface temperature and anomalies are derived (from ship report to the finished product), will be included in an upcoming issue.

Andy Radomski

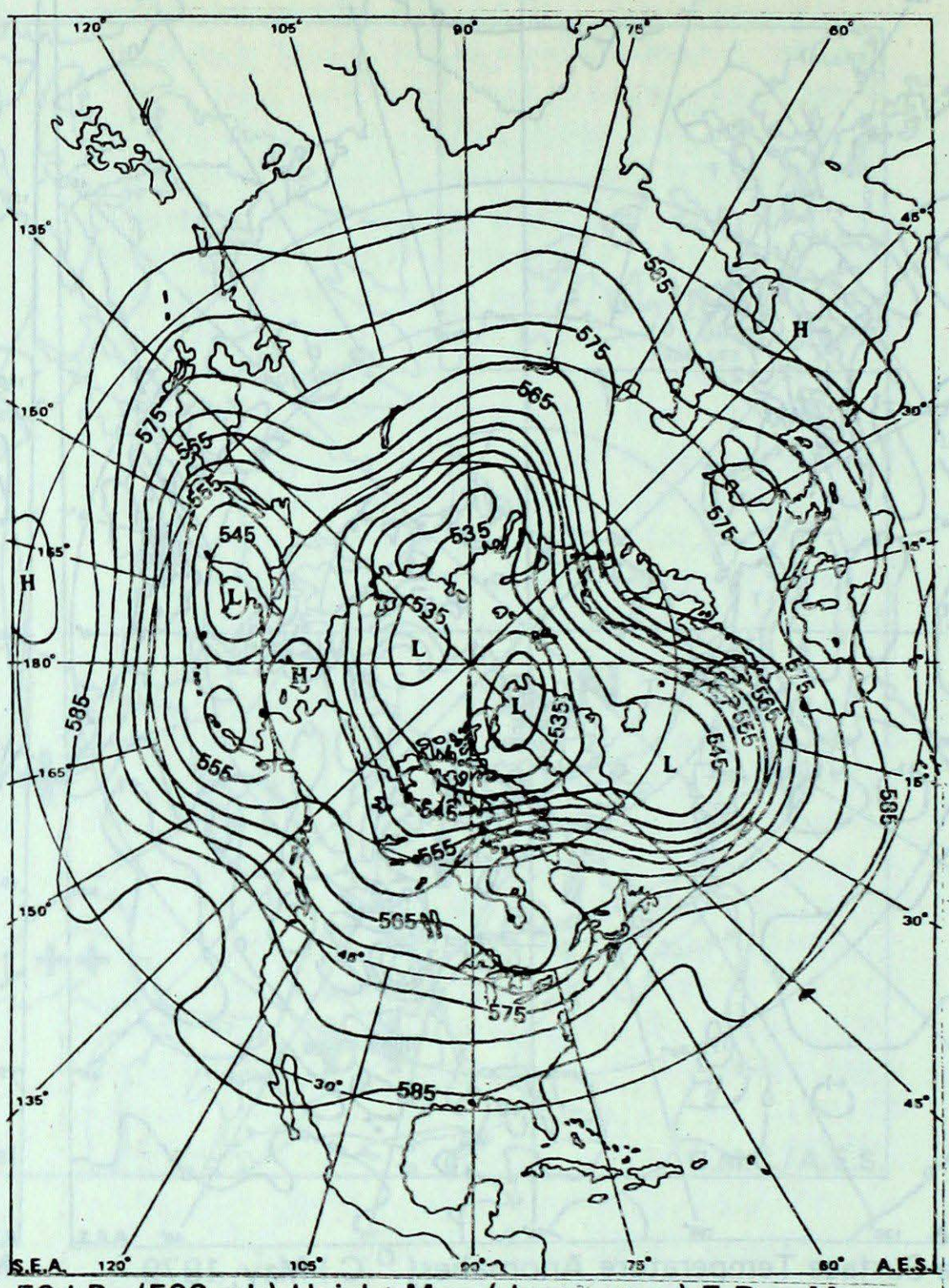
500 mb Synoptic History
May 29 - June 4, 1979

The persistent quasi-stationary cold low that had plagued Ontario and Quebec with cool, unsettled weather the past week, finally began to progress eastward, reaching the Atlantic coast Friday, June 1. In it's wake a 500 mb ridge, previously over Manitoba, moved into Ontario Thursday with warm fair weather reaching the Maritimes in time for the weekend and putting most of the eastern half of the country in a west-southwesterly upper air flow.

The Prairie Provinces, on the other hand, started the period under the influence of a 500 mb trough and closed low, slowly progressing northeastward, with the trough weakening in amplitude and becoming quasi-stationary over Hudson Bay Saturday morning. This put most of the central and northern parts of the country in a cyclonic upper air flow.

The Canadian west coast and the Yukon were under the influence of a strong major ridge throughout the period. It approached the British Columbia coastline early in the period, encompassing all of western Canada and the Yukon by Monday, June 4. It's amplitude over the southern parts of the country gradually weakened, but a strong closed centre (anti-cyclone) that had moved over Alaska late Saturday, June 2, remained nearly quasi-stationary through the remainder of the period.

Andy Radomski



50 kPa (500 mb) Height Map (decametres) 7 Day Mean
May 28 to June 3, 1979

CLIMATIC PERSPECTIVES

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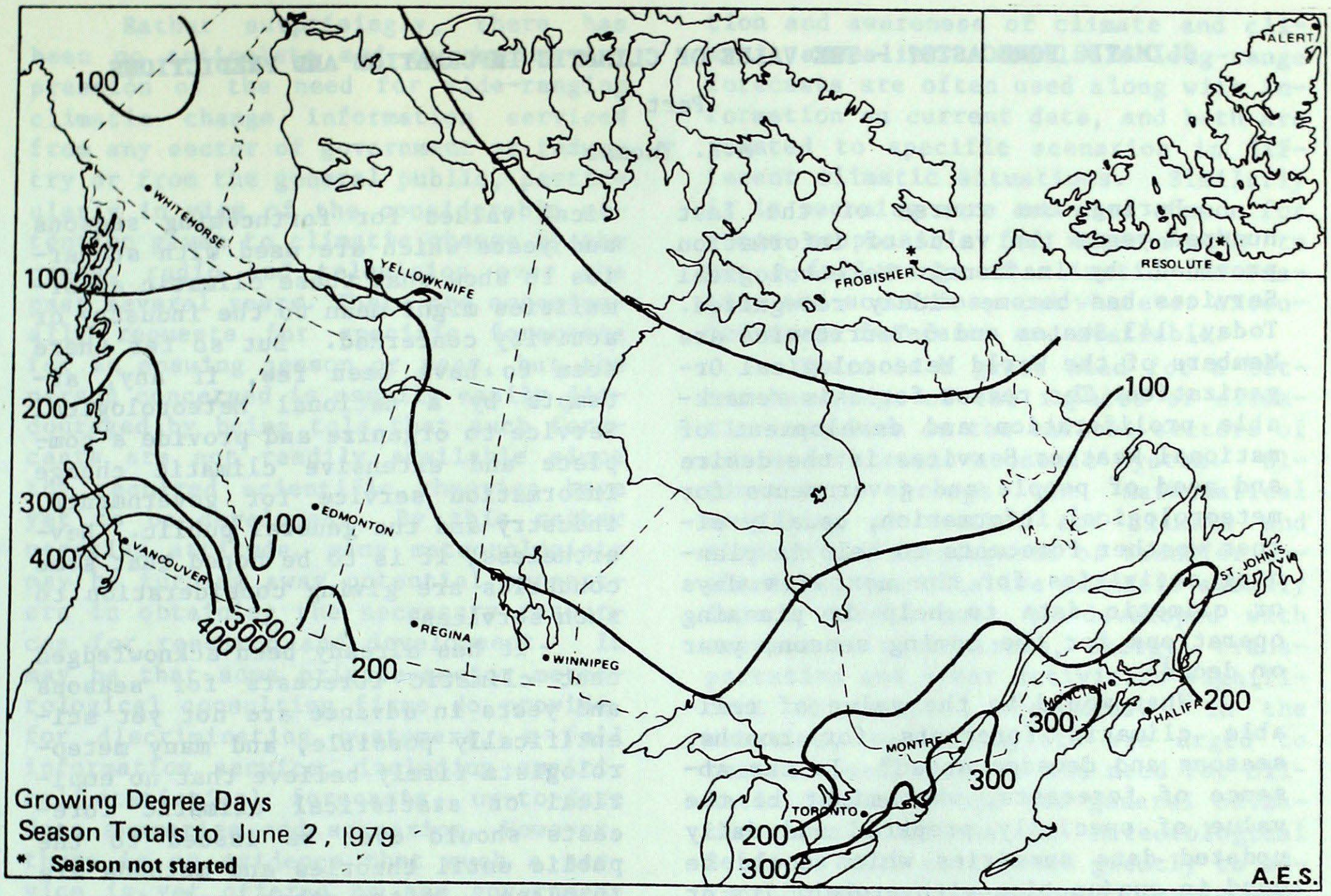
HEATING DEGREE-DAY SUMMARY TO JUNE 2, 1979



ON THIS DATE ...

In 1816, unprecedented cold spells from May through to September kept the lazy hazy days of summer to a minimum throughout the New England States and along the St. Lawrence to Halifax. Ice on Lake Erie did not clear until May 10th. Cold temperatures in April and May delayed planting until June when the warm weather made a deceptively pleasant appearance with temperatures as high as 28°C. Unfortunately a new air mass changed all that on June 6th, bringing 30.5 cm of snow to Quebec City. Temperatures dropped as low as -1°C in Williamstown.

As farmers tried to recoup their losses, a second cold snap heralded in July. Frost and cooler temperatures carried over to the 18th. On their feet once more, farmers planted barley and rye hoping hardier crops could survive. Frost hit again in New Hampshire on August 20th and severe frost in St. David, Quebec on August 27th and 28th. Some areas experienced frost on September 11th but the widespread, killing frost of September 27th irrevocably closed the growing season. When it became inevitable that keeping themselves in food was going to be difficult enough, farmers sold off most of their livestock at much reduced prices. Montreal declared "a state of famine" during the following winter and the spring of 1817 brought a great exodus of New Englanders to the west.

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Pierce, J. "Cultural Sensitivity to Environmental Change II: 1816, The Year Without a Summer." I.E.S. Report #15. Univ. of Wisconsin-Madison, 32 p. Feb. 1974.

--- Springtime in Quebec, The Quebec Gazette Reports the Season of 1816. Weatherwise 118-119, June 1966.

CLIMATIC FORECASTS? - THE VALUE OF CLIMATIC INFORMATION AND PREDICTIONS

Part I

M.K. Thomas

During the course of the last hundred years the value of information provided by national Meteorological Services has become widely recognized. Today, 143 States and 6 Territories are Members of the World Meteorological Organization. The reason for this remarkable proliferation and development of national Weather Services is the desire and need of people and governments for meteorological information, usually either weather forecasts to help in planning activities for the next few days or climatic data to help in planning operations for the coming season, year or decade.

What would be the value of reliable climatic forecasts for months, seasons and decades ahead? In the absence of forecasts, what might be the value of specially prepared and daily updated data summaries which could be used in conjunction with probability or contingency tables? Would scenarios or descriptions of possible extreme and abnormal meteorological situations be valuable if related to their impact on the economy? If climatic statistics illustrating the progress and extent of cold spells and droughts were prepared and published on a daily basis, would citizens be willing to pay for these services, either by private contracts or by way of tax increases? Or will people continue to be satisfied by basing decisions on guesses, intuition, hunches and other subjective climatic anomaly criteria until some scientific breakthrough occurs, perhaps decades from now?

Several national Meteorological Services already issue, with varying degrees of success, monthly and even seasonal forecast outlooks and prospects. In addition it is probable that many individual organizations and firms calculate (or hire private-sector meteorological consultants to prepare for them) probabilities and other statistical values for forthcoming seasons and years which are used with scenarios to show what these climatic abnormalities might mean to the industry or activity concerned. But so far there seem to have been few, if any, attempts by a national Meteorological Service to organize and provide a complete and extensive climatic change information service for governments, industry and the general public. Nevertheless, it is to be hoped that some countries are giving consideration to such services.

It has already been acknowledged that climatic forecasts for seasons and years in advance are not yet scientifically possible, and many meteorologists firmly believe that no empirical or statistical climatic forecasts should ever be issued to the public until theories and methods are in place. On the other hand, it must be remembered that for the first fifty years of weather forecasting there was no theory as we know it today, and yet in many countries meteorologists produced regular forecasts of sufficient value to ensure that the Meteorological Service continued to be publicly supported. Admittedly the problems associated with climate forecasting are much greater than with forecasting for a day ahead, and the public still retains a healthy degree of scepticism even about the daily forecasts. The lack of a sound scientific theory should not inhibit Services from attempting to use meteorology, climatology and statistics to prepare climatic outlooks on a regular basis. Decision-makers in government and industry (and even in families) make their own climate forecasts when they plan for the next season or the next year, so surely a national Meteorological Service could be of assistance by providing empirical forecasts and an "instant data service".

Rather surprisingly, there has been no articulate and convincing expression of the need for wide-ranging climatic change information services from any sector of government or industry or from the general public, particularly in view of the considerable attention given to climatic change by the press, radio and television over the past several years. There are occasionally requests for specific forecasts for an ensuing season or year, but the person concerned is usually easily discouraged by being told that such forecasts are not readily available since the required scientific theories have yet to be developed. By this rather negative attitude, many meteorologists may be turning away potential supporters in obtaining the necessary resources for research and development. It may be that some private-sector meteorological consulting firms do provide, for discriminating customers, a full information service, including empirical statistical forecasts, up-to-date data summaries and scenarios. However, there is no evidence that such a service is yet offered by any government to the general public.

The true situation is that, although day-to-day weather forecasts have been made and used for the past century in most countries, climate is still largely ignored in economic and business planning today. Probably this is because decision-makers feel that since climate apparently evolves in such a random manner, other important variables should be considered at the expense of climate. Even when it is taken into account, climate is usually relegated to a minor role influencing but a fraction of the total programme, or else it is considered only in an abstract manner with no attempt to formulate such specific relationships as design values.

There are, of course, a few notable exceptions to this general assessment of the use of climate information in long-range economic or commercial decision-making. In agriculture the production and marketing of cereals, vegetables and fibres are usually managed by those who have a keen appreciation and awareness of climate and climatic anomalies. Available long-range forecasts are often used along with information on current data, and both are related to specific scenarios in different climatic situations. Similarly it is becoming more and more common for those responsible for water-supply to use a full range of climatic information and scenarios, and whatever extended-range forecasts are available.

There is a great need for a better knowledge of the impacts of climatic anomalies on the various sectors of our modern socio-economic system. Ultimately, through the mathematical modelling of weather and climate and through the development of transfer mechanisms, quantitative climatic anomaly impact models must be developed with respect to agriculture, energy, transportation and other activities significant to national economies. In the meantime, meteorologists are urged to respond positively to the need for climatic forecasts and for general climatic anomaly information. Meteorological Services will contribute greatly to advancing the socio-economic development of their countries by devoting a larger share of their resources to this sector than has been done in the past.

(From WMO Bulletin April 1977.
Vol. XXVIII, No. 2.)

TEMPERATURE AND PRECIPITATION DATA FOR THE WEEK ENDING 0600 G.M.T. 5 JUNE, 1979

Station	Temperature (°C)				Precip. (mm)	
	Average	Departure from Normal	Extreme Maximum	Extreme Minimum	Total	Departure from Normal
BRITISH COLUMBIA						
Abbotsford	15	1	28	4	9.3	- 5.1
Blue River	M	M	M	M	M	M
Bull Harbour	M	M	14	M	26.7	12.8
Castlegar A	16	- 1	32	2	0.0	-15.0
Cranbrook A	13	- 2	28	- 1	0.0	-15.6
Comox A	16	2	26	8	1.2	- 7.5
Estevan Point	M	M	M	M	58.4	27.0
Fort Nelson A	14	1	25	0	17.2	6.7
Fort St. John A	14	1	22	2	0.0	- 6.8
Kamloops A	18	1	32	4	0.0	- 6.1
Lytton	20	2	32	9	0.0	- 5.2
Penticton A	18	2	33	3	0.2	- 5.5
Port Hardy A	12	0	18	3	21.7	5.2
Prince George A	M	M	21	M	11.6	2.0
Prince Rupert A	10	0	17	3	64.5	19.6
Quesnel A	14	1	23	4	15.6	7.4
Revelstoke A	16	0	28	4	2.2	-14.4
Smithers A	12	0	21	3	3.4	- 6.3
Terrace A	13	0	21	5	8.5	- 0.8
Vancouver Int'l A	15	1	25	7	5.4	- 5.6
Victoria Int'l A	15	1	25	6	2.8	- 5.1
Williams Lake A	13	0	23	2	6.2	2.4
YUKON TERRITORY						
Dawson A	13	1	24	- 1	1.6	- 5.4
Mayo A	12	1	23	0	1.3	- 6.5
Watson Lake A	12	0	19	3	6.8	- 0.1
Whitehorse A	10	0	20	0	0.4	- 2.7
NORTHWEST TERRITORIES						
Alert	M	M	M	-14	0.7	- 2.6
Baker Lake	2	3	9	- 3	22.4	19.4
Cambridge Bay A	M	M	M	-13	2.4	0.3
Cape Dyer	- 3	M	7	- 8	1.7	M
Chesterfield Inlet	M	M	9	M	8.2	3.9
Clyde	- 5	- 3	4	-13	5.6	3.3
Coppermine	M	M	M	- 7	1.6	- 0.1
Coral Harbour	M	M	5	M	12.4	5.8
Ennadai	2	0	14	- 4	2.0	- 0.6
Eureka	M	M	M	-14	0.0	- 0.6
Fort Simpson	10	- 3	26	- 4	15.3	3.4
Fort Smith A	9	- 3	22	- 3	4.3	- 0.9
Frobisher Bay A	1	0	9	- 3	0.0	- 7.0
Hall Beach A	- 3	M	2	-12	6.1	M
Hay River A	6	- 3	19	- 2	7.6	- 3.3
Inuvik A	6	0	18	- 2	2.7	- 3.8
Mould Bay	- 6	- 2	0	-14	1.2	- 0.6
Norman Wells A	10	- 1	19	2	0.9	- 8.2
Resolute A	- 8	- 3	- 2	-13	0.0	- 2.2
Sachs Harbour	- 3	- 1	0	- 7	3.8	2.6
Yellowknife A	6	- 3	12	- 1	6.8	2.4
ALBERTA						
Banff	11	1	21	- 1	5.2	- 9.0
Calgary Int'l A	13	1	26	1	0.8	-14.9
Cold Lake A	10	- 3	21	- 2	11.0	- 4.3
Coronation A	12	- 1	23	- 1	11.6	2.5
Edmonton Mun. A	M	M	M	2	7.2	- 2.7
Edmonton Namao A	13	- 1	23	0	5.5	- 3.2
Edson A	13	1	25	- 2	15.7	5.0
Fort Chipewyan	9	- 4	21	- 4	7.2	- 2.1
Fort McMurray A	11	- 1	23	0	1.8	-10.4
Grande Prairie A	14	1	24	1	2.4	- 8.4
Jasper	12	0	22	0	7.6	- 4.6
Lethbridge A	14	0	27	1	0.4	-21.7
Medicine Hat A	14	- 1	28	1	0.0	-13.7
Peace River A	13	1	24	0	1.6	- 4.6
Red Deer A	13	1	25	- 2	4.6	- 8.2
Rocky Mountain House	12	1	25	- 4	3.7	-10.8
Vermilion A	M	M	M	- 2	8.1	- 3.5
Whitecourt	14	2	24	- 1	2.8	- 8.1
SASKATCHEWAN						
Broadview	11	- 1	21	2	8.8	- 7.6
Buffalo Narrows	9	M	20	0	3.4	M
Cree Lake	M	M	M	- 5	2.3	M
Estevan A	13	- 1	26	3	2.1	-10.6
Hudson Bay	11	- 1	20	3	M	M
Kindersley	12	- 3	24	0	2.7	- 6.1
La Ronge A	9	- 5	21	- 1	2.4	- 8.4
North Battleford A	11	- 3	21	0	13.4	0.9
Prince Albert A	M	M	21	M	10.3	- 3.6
Regina A	12	- 2	24	2	12.8	- 1.8
Saskatoon A	11	- 2	22	2	18.3	6.9
Swift Current A	12	- 2	25	0	0.4	-13.6
Uranium City	7	M	21	- 2	10.8	M
Wynyard	11	- 3	21	0	6.4	- 7.1
Yorkton A	12	- 2	22	3	1.2	-14.4
MANITOBA						
Bissett	10	M	23	- 1	60.3	M
Brandon A	13	- 1	24	5	28.4	9.0
Churchill A	4	1	24	0	33.2	23.2
Dauphin A	12	- 1	24	3	15.4	- 2.7
Gillam A	5	M	22	0	22.8	M
Gimli	11	- 3	23	4	51.6	35.5
Lynn Lake	6	- 7	16	0	9.2	0.4
Norway House	8	M	18	0	16.8	M
Pilot Mound	12	- 2	24	3	26.2	10.1
Portage la Prairie	12	- 2	24	3	43.4	26.5
The Pas A	8	- 4	17	0	12.3	2.7
Thompson A	7	- 4	16	0	32.7	21.1
Winnipeg Int'l A	12	- 2	23	3	56.3	38.3
ONTARIO						
Armstrong A	11	1	23	0	17.5	0.5
Atikokan	12	- 1	25	2	16.4	- 9.6
Earlton A	16	4	26	6	34.6	16.2
Geraldton	12	1	22	2	29.8	3.9
Gore Bay A	13	0	23	5	18.9	6.1
Kapuskasing A	14	2	24	3	21.0	3.7
Kenora A	13	0	26	2	30.1	13.1
Kingston A	14	0	24	9	5.1	-11.0
Lansdowne House	12	2	24	4	11.2	0.1
London A	15	0	26	4	2.5	-13.3
Moosonee	14	5	24	3	13.0	- 4.9
Mount Forest	M	M	M	3	M	M
Muskoka A	15	1	28	3	2.0	-12.8
North Bay A	16	3	27	7	2.7	-16.9
Ottawa Int'l A	17	1	27	10	12.4	- 0.6
Petawawa A	15	M	29	4	7.0	M
Pickle Lake	12	1	25	3	4.4	-16.5
Red Lake A	11	- 2	26	- 1	22.1	9.8
Simcoe	16	1	26	5	M	M
Sioux Lookout A	13	1	25	4	7.3	-16.3
Sudbury A	15	2	26	7	5.8	-18.2
Thunder Bay A	12	1	23	3	15.0	- 4.7
Timmins A	14	2	24	4	15.9	0.6
Toronto Int'l A	16	1	28	7	2.2	-14.9
Trenton A	15	0	25	6	0.6	-14.1
Trout Lake	9	1	23	1	3.0	- 6.0
Wawa A	11	M	20	2	34.2	M
Wiarton A	14	1	28	3	1.8	-10.7
Windsor A	17	0	30	8	3.2	-19.1
QUEBEC						
Bagotville A	15	2	28	6	28.7	5.2
Baie Comeau	12	1	23	5	19.2	2.4
Border	M	M	M	M	13.4	7.3
Chibougamau	15	M	27	6	15.2	M
Fort Chimo A	9	4	25	0	4.3	- 3.5
Gaspé A	13	2	27	4	31.8	20.2
Grindstone Island	10	2	17	6	5.5	-11.0
Inoucdjouac	6	4	19	- 1	3.0	- 1.8
Maniwaki	15	1	27	5	9.4	- 8.5
Matagami A	15	M	27	5	24.4	M
Mont Joli A	11	0	24	4	15.6	- 5.3
Montréal Int'l A	17	1	27	11	20.9	6.9
Natashquan A	12	4	23	3	0.0	-17.8
Nitchequon	13	7	26	6	14.1	0.2
Port Menier	13	4	21	6	6.7	- 8.3
Poste de la Baleine	11	6	25	- 2	M	M
Québec A	15	1	26	9	29.4	4.8
Riviere du Loup	13	0	26	5	65.1	48.1
Roberval A	16	2	26	8	8.7	-15.3
Schefferville A	14	8	25	1	14.8	4.3
Sept-Iles A	12	3	21	5	2.8	-18.7
Sherbrooke A	16	2	26	8	31.8	21.0
Val d'Or A	16	4	27	7	3.8	-19.4
NEW BRUNSWICK						
Charlo A	14	1	25	6	M	M
Chatham A	14	1	27	5	36.0	17.2
Fredericton A	15	1	26	6	41.9	23.1
Moncton A	14	2	24	7	30.5	9.4
Saint John A	12	0	19	7	32.2	9.3
NOVA SCOTIA						
Greenwood A	15	1	23	8	10.6	- 7.4
Shearwater A	12	0	19	7	40.0	14.3
Sydney A	10	0	23	4	10.4	- 8.2
Truro	M	M	M	M	M	M
Yarmouth A	13	1	20	6	45.7	25.2
PRINCE EDWARD ISLAND						
Charlottetown	14	3	23	7	25.7	2.5
Summerside	14	2	22	8	32.8	12.8
NEWFOUNDLAND						
Battle Harbour	9	4	18	3	0.0	-13.5
Cartwright	11	5	25	2	13.0	- 2.1
Deer Lake	14	5	27	1	0.0	-20.1
Gander Int'l A	13	4	24	3	0.6	-21.5
Goose A	16	7	28	4	9.1	- 3.8
Hopedale	8	4	22	1	3.6	- 8.7
St. Anthony	M	M	21	M	2.2	M
St. John's A	9	1	21	- 1	0.4	-36.5
Stephenville A	14	5	25	5	21.0	1.2
Wabush Lake	15	9	27	5	7.0	- 3.9

M-Denotes missing data