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A WEEKLY REVIEW OF CANADIAN CLIMATE

CLIMATIC PERSPECTIVES

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ATMOSPHERIC ENVIRONMENT SERVICE,
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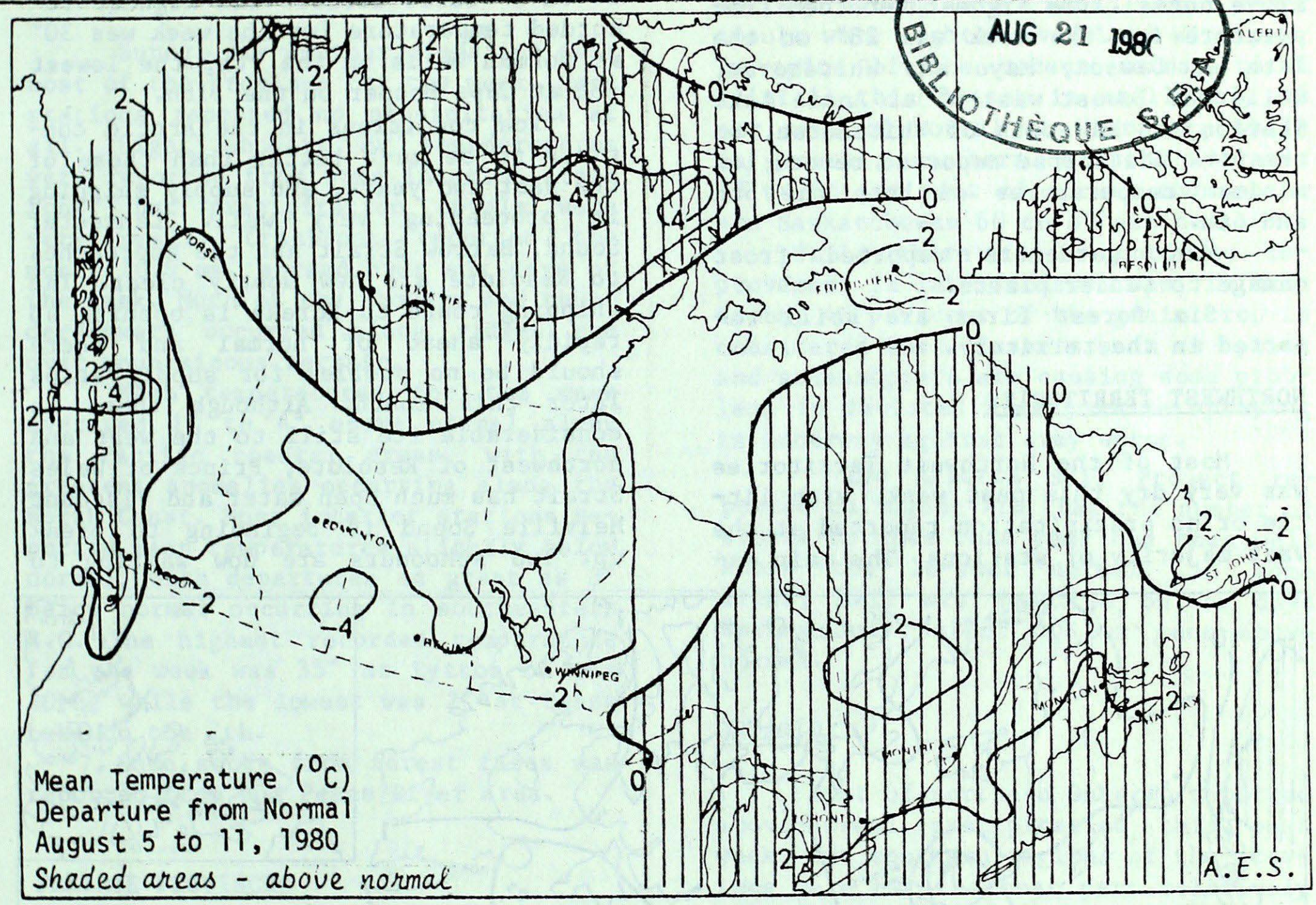
AUGUST 15 1980 (Aussi disponible en français) VOL. 2 NO. 32



WEATHER HIGHLIGHTS FOR THE WEEK - AUGUST 5-11, 1980

Continued wet weather in many areas of Canada

British Columbia, Nova Scotia, and most of the territories were relatively dry this past week, but many regions of Canada reported above-normal precipitation.

In the Prairies, many previously dry areas have had considerable rain, and a return to bright, sunny weather is needed for harvesting. In Ontario and over most of the Maritimes, fields are still very wet, and in many areas the quality of the crops is deteriorating.

Severe thunderstorms caused considerable damage over widely scattered areas of eastern Canada this past week. A tornado levelled a house near Maniwaki, Quebec, on the 8th, and three individual tornados touched ground over southwestern Ontario on the 11th.

The highest reported temperature was 35° at Lytton, B.C., on the 10th, while the lowest was -8° at Cape Hooper, N.W.T., on the 5th. The greatest weekly precipitation was 103.4 mm at Port Menier, Québec.

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

YUKON

It was dry this past week. Several stations reported no precipitation at all during the week. Only a few showers fell, and Mayo reported the most, 8.2 mm, all on one day, the 9th.

Mean temperatures for the week ranged from near normal to about 2° above normal. The highest recorded temperature for the week was 28° on the 11th at Dawson, Mayo and Whitehorse, while the lowest was -4° at Annie Lake Station, 40 km south of Whitehorse, on the 6th. Whitehorse reported record low minimum temperatures on both the 5th and 6th.

Many gardeners reported frost damage to tender plants.

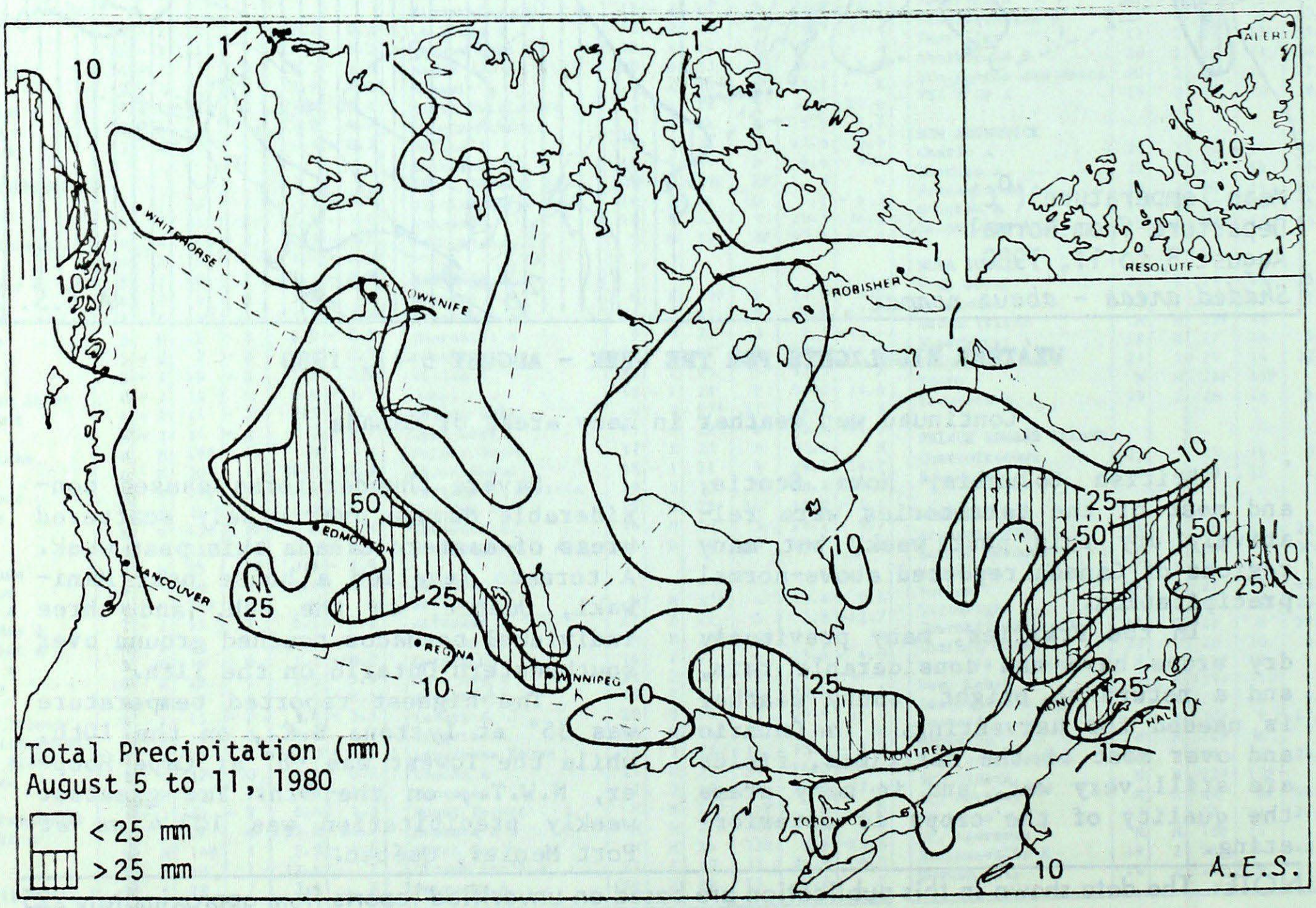
Six forest fires are still reported in the territory.

NORTHWEST TERRITORIES

Most of the Northwest Territories was very dry this past week, with little or no precipitation reported at the vast majority of stations. The main exception was the northern archipelago, where Alert collected 30.4 mm of precipitation and Eureka 15.0 mm over the week.

Most of the continental areas of the territories reported mean temperatures 2° to 4° above normal for the week, but over Baffin Island and the northern islands, departures were about 1° to 2° below normal. The highest recorded temperature for the week was 30° at Norman Wells on the 7th, the lowest -8° at Cape Hooper on the 11th.

Ice conditions in the Arctic continue to be much better than those of the past two years, and supply shipping is proceeding very well. Lancaster Sound, Barrow Strait and the approaches to Resolute are now mostly clear. The shipping route to Eureka is opening up rapidly ahead of normal and there should be no problem for supply ships later this month. Although there is considerable ice still to the west and northwest of Resolute, Prince of Wales Strait has much open water and Viscount Melville Sound is beginning to break up. Two schooners are now waiting to



attempt the Northwest Passage, a Japanese ship that failed last year and wintered in Resolute and another one presently situated near Greenland. Pack ice in the Beaufort Sea is still 30 to 80 km north of the drill sites and at the present does not pose a problem.

BRITISH COLUMBIA

Sunny, dry weather prevailed over most of the province for the week. Many stations reported no precipitation at all. Light showers or thunderstorms were reported from some interior stations, but precipitation totals were very small. Cranbrook reported the most, 16.9 mm, spread over six days of the week. Much of the showers and thundershowers occurred along ridges and over mountainous terrain.

Mean temperatures for the week averaged 1° to 4° above normal along the Pacific coastal areas, with the greatest anomalies occurring along the North Coast. Most interior stations reported mean temperatures slightly below normal, with departures as great as 3° below normal occurring in southeastern B.C. The highest recorded temperature for the week was 35° at Lytton on the 10th, while the lowest was 2° at Dease Lake on the 7th.

Some smoke from forest fires was reported from the Peace River area.

PRAIRIE PROVINCES

Many parts of the Prairies, including those areas that were still quite dry after the previous week's rain, reported above-normal rainfall this week. The wettest areas appeared to be northern Alberta, central Saskatchewan, and southern Manitoba. Among the heavier weekly rainfalls were 49.6 mm at Whitecourt, Alta., 64.8 mm at Buffalo Narrows, Sask., and 80.0 mm at Hodgson, in the Interlake region of Manitoba.

Mean temperatures for the week were mostly 2° to 4° below normal over most of the Prairies, although near normal values were reported over extreme northern Alberta. Some record low maximum temperatures were broken on the 5th and record low minimums on the 6th. The highest recorded temperature for the week was 27° at Medicine Hat, Alta., on the 10th and at Moose Jaw, Sask., on the 6th. The lowest was 3°, reported at both Banff and Slave Lake on the 8th.

Some heavy thunderstorms were reported during the week, and water spouts were sighted over Lake Winnipeg. In spite of the recent rains, total rainfall this season is still only 48 per cent of normal at Winnipeg, while in general, southern Manitoba averages 50 to 65 per cent of normal and southern Saskatchewan 60 to 80 per cent.

While there is a continued improvement in late seeded crops, in Manitoba, 48 per cent of the grain crop is considered lost. Insects such as aphids and grasshoppers are causing some problems in isolated areas, while spraying is underway against army worms.

The Alberta Hail Project reported on August 7th that the number of storms to date this year has been well above the 20-year normal. In some areas, hail was reported on 21 days during July, about 50 per cent above normal.

ONTARIO

Most of northern Ontario reported above-normal precipitation this past week, but southern regions of the province were for the most part relatively dry. Kapuskasing reported the most, 49.2 mm spread over three days of the week.

Mean temperatures for the week were mostly 1° to 2° above normal over the province, but over northwestern regions, they were 1° to 2° below normal. The highest recorded temperature for the week was 32° at Windsor on the 8th, while the lowest was 4° at Armstrong on the 9th.

There were three tornados on the evening of the 11th in southwestern Ontario. At North Woodslee, east of Windsor, a tornado funnel was seen by a number of people at 8.15 p.m. There was some slight damage. At around 10 p.m., considerable damage occurred to an

amusement park on the lakefront at Port Dover. Also, a tornado touched ground on the north side of London at about the same time.

The rainy weather of the past few weeks has caused problems to farmers in many regions of southern Ontario. Many fields are overly wet and harvesting is behind schedule. The quality of some crops has diminished because of excessive moisture.

QUÉBEC

Two areas of Québec received heavy precipitation this past week, the North Shore and Anticosti Island region in the east, and the Abitibi region in the west. The remainder of the province was relatively dry. The heaviest rain was reported at Port Menier on Anticosti Island, 103.4 mm for the week, of which 73.6 mm fell on one day, the 9th. Sept-Iles recorded 30.4 mm on the 6th and 41.4 mm on the 9th, for a weekly total of 83.8 mm. Of Baie-Comeau's weekly total of 59.4 mm, 58.0 mm fell on the 9th. In the west, Val-d'Or reported 46.8 mm over the week, of which 43.6 mm fell on the 8th.

Mean temperatures for the week were mostly 1° to 3° above normal. The highest recorded temperature for the week was 29°, reported at Montréal, Québec and Sherbrooke on the 5th, Maniwaki on the 6th, and Roberval on the 7th. A number of stations reported record high minimum and maximum temperatures on the 6th. The lowest was -2° at Koartak on the 11th.

On the evening of the 8th, a heavy thunderstorm dumped 41.4 mm of rain on Trois-Rivières in only one hour and a quarter. There was a preliminary report the same day of a tornado completely damaging a house at Blue Sea Lake, 13 km from Maniwaki.

The Saguenay-Lac-St-Jean area was buffeted by strong, squally winds on the 9th. At Bagotville, where wind gusts reached 87 km/h, a number of trees were uprooted, roofs of houses were damaged, and one person was wounded by lightning. At St-Gédéon, a wharf upon which a number of vessels were moored broke away.

MARITIME PROVINCES

While some areas of the Maritimes were relatively dry this past week, heavy showers and thundershowers were reported at a number of communities. The driest areas were parts of central New Brunswick, eastern Prince Edward Island, and most of mainland Nova Scotia. The heaviest weekly rainfalls were Charlo, N.B., 48.7 mm, Saint John, N.B., 38.2 mm, and Summerside, P.E.I., 57.8 mm.

Mean temperatures for the week averaged 1° to 3° above normal over all of the Maritimes. The highest recorded temperature for the week was 32° at Fredericton, N.B., on the 7th, while the lowest was 10°, recorded at both Greenwood, N.S., and Fredericton on the 11th.

Heavy thunderstorms were reported on both the 5th and 9th. On the 5th, strong winds and golf-ball size hail caused damage to camper trailers in the Bras d'Or Lake area of Cape Breton Island, and heavy rain caused traffic accidents at Sydney. On the morning of the 9th, 43.4 mm of rain fell in less than one hour at Summerside, P.E.I., causing flooding, and wind gusts to 90 km/h damaged trees, tents and camper trailers.

Haying is now 75 per cent complete in the Maritimes. The Nova Scotia apple crop is late, due to early summer poor weather for pollination, and the yield is down 230,000 bushels from last year.

NEWFOUNDLAND AND LABRADOR

Below-normal precipitation was reported this past week over most of Labrador and along the South Coast and on the Avalon Peninsula of the Island of Newfoundland. The heaviest rain occurred along the west coast of the Island. St. Anthony reported six days of rain in the week, for a total fall of 83.3 mm, while Daniel's Harbour received 51.2 mm over five days.

Mean temperatures for the week ranged from near normal to about 2° below normal in most areas, but averaged near 2° above normal over western Labrador. The highest recorded temperature for the week was 26° at Deer Lake on the 9th, while the lowest was 0° reported at the same station on the 10th.

Some cabbage has now been marketed, but most crops on the Island are running two or three weeks late.

PERSPECTIVES CLIMATIQUES

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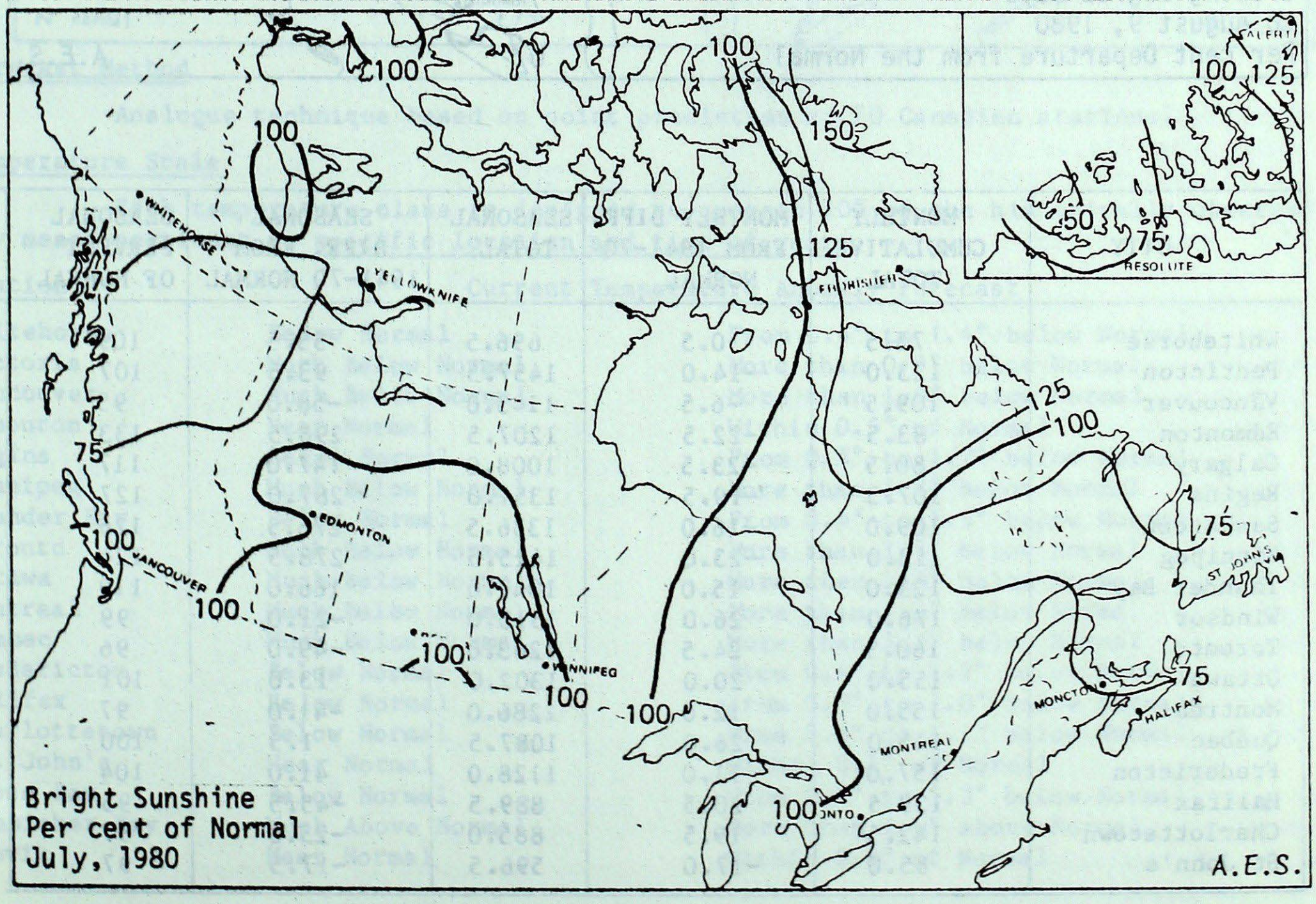
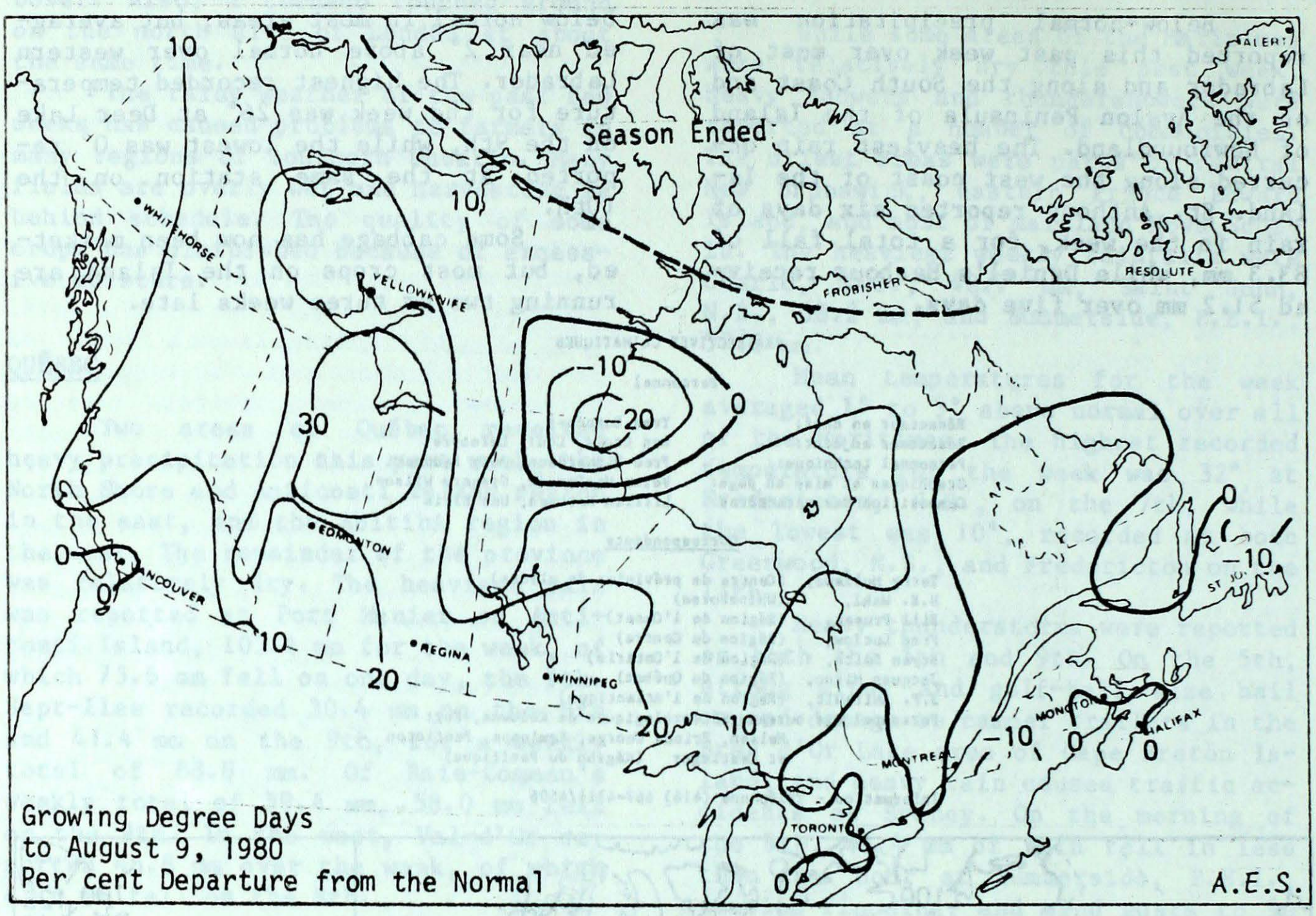
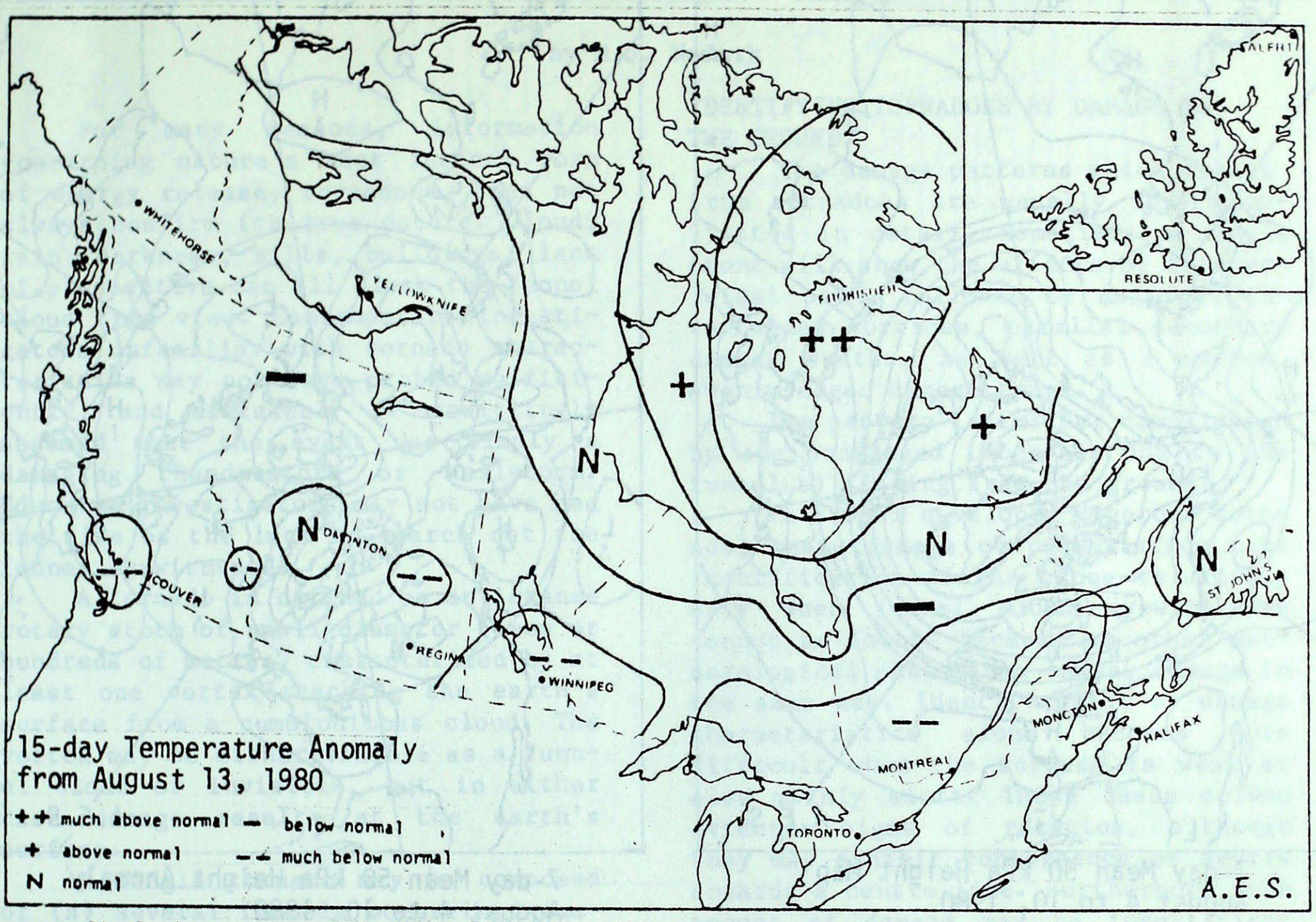


GROWING DEGREE-DAY SUMMARY TO AUGUST 9,1980



CITY	MONTHLY CUMULATIVE TOTAL	MONTHLY DIFF. FROM 1941-70 NORMAL	SEASONAL TOTAL	SEASONAL DIFF. FROM 1941-70 NORMAL	SEASONAL PERCENT OF NORMAL
Whitehorse	75.5	0.5	696.5	55.5	109
Penticton	123.0	-14.0	1457.5	93.5	107
Vâncouver	109.5	-6.5	1143.0	-56.0	95
Edmonton	83.5	-22.5	1207.5	298.5	133
Calgary	80.5	-23.5	1008.0	147.0	117
Regina	107.5	-19.5	1351.0	287.0	127
Saskatoon	109.0	-16.0	1336.5	276.5	126
Winnipeg	113.0	-23.0	1415.5	278.5	124
Thunder Bay	123.0	15.0	1047.0	166.0	119
Windsor	176.0	26.0	1510.0	-21.0	99
Toronto	160.5	24.5	1263.0	-49.0	96
Ottawa	155.0	20.0	1302.0	13.0	101
Montréal	155.0	12.0	1286.0	-41.0	97
Québec	145.0	26.0	1087.5	1.5	100
Fredericton	157.0	31.0	1128.0	41.0	104
Halifax	139.5	20.5	889.5	-45.5	95
Charlottetown	142.5	19.5	885.0	-25.0	97
St John's	85.0	-17.0	596.5	-17.5	97

15 DAY TEMPERATURE ANOMALY FORECAST



Forecast Method

Analogue technique based on point prediction at 70 Canadian stations.

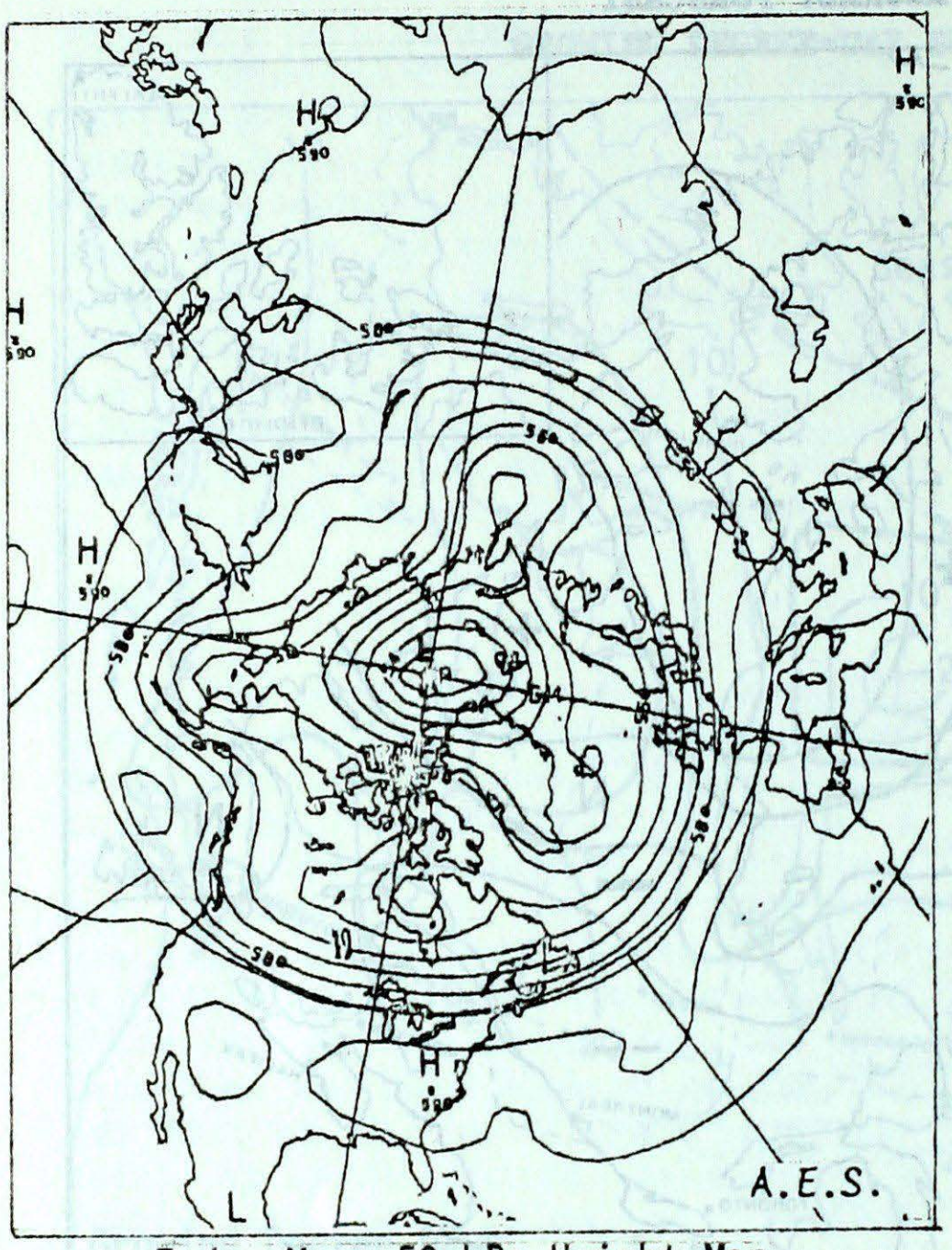
Temperature Scale

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

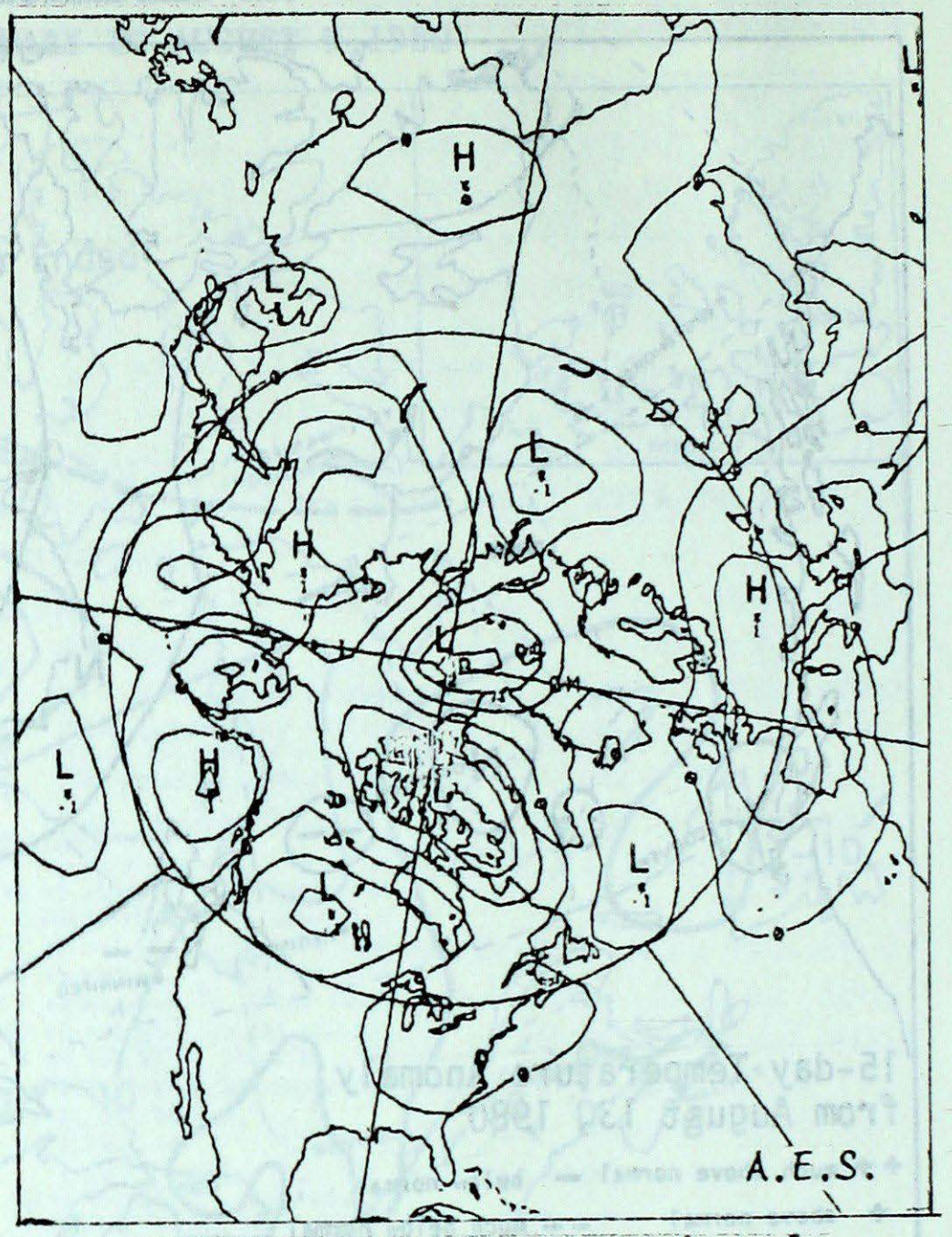
Station	Current Temperature Anomaly Forecast	
Whitehorse	Below Normal	From 0.4° to 1.4° below Normal
Victoria	Much Below Normal	More than 0.9° below Normal
Vancouver	Much Below Normal	More than 1.0° below Normal
Edmonton	Near Normal	Within 0.5° of Normal
Regina	Below Normal	From 0.5° to 1.7° below Normal
Winnipeg	Much Below Normal	More than 1.7° below Normal
Thunder Bay	Below Normal	From 0.4° to 1.5° below Normal
Toronto	Much Below Normal	More than 1.5° below Normal
Ottawa	Much Below Normal	More than 1.5° below Normal
Montreal	Much Below Normal	More than 1.3° below Normal
Quebec	Much Below Normal	More than 1.2° below Normal
Fredericton	Below Normal	From 0.4° to 1.2° below Normal
Halifax	Below Normal	From 0.3° to 1.0° below Normal
Charlottetown	Below Normal	From 0.3° to 1.1° below Normal
St. John's	Near Normal	Within 0.4° of Normal
Goose Bay	Below Normal	From 0.4° to 1.3° below Normal
Frobisher Bay	Much Above Normal	More than 1.0° above 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
August 4 to 10, 1980



7-day Mean 50 kPa Height Anomaly
August 4 to 10, 1980

A strong atmospheric ridge approached the Canadian west coast during the latter half of the period and established itself across British Columbia and the Yukon. Both respective areas including the Northwest Territories were favoured with warm, dry weather conditions. Temperatures along the Arctic and Pacific coasts were as much as 4° above normal, consistent with the strong positive 50 KPa height anomalies.

The Canadian Prairies continued to be cool and unsettled. Strong negative height anomalies are still evident due to persistent, slow moving atmospheric troughs and upper closed lows. Triggering pulses traversing around the major upper ridge from the west resulted in surface weather systems developing and moving eastwards through northwestern Ontario.

Substantial precipitation fell on parts of eastern British Columbia and the Prairies in the form of showers and thunderstorms. Mean temperatures were as much as 4° below normal in Saskatchewan and Alberta due to a northerly circulation from the Northwest Territories.

The eastern half of the country was considerably warmer, overall about 2° above normal. Only the Island of Newfoundland continued its cool, wet summer with below normal temperatures and generally above normal precipitation amounts.

A weak atmospheric ridge and a relatively more southwesterly air flow permitted the Maritime tropical air mass to the south to penetrate northward. Temperatures during the first part of the period reached the low thirties as far north as central Ontario, southern Quebec and parts of the Maritimes. Showers and thunderstorms were common near the oscillating frontal zone as low pressure troughs tracked eastward. During the latter part of the period, relatively cooler Hudson Bay air began to suppress the hot, humid air to south of the border. In the process, thunderstorms triggered three tornadoes in southwestern Ontario Monday evening.

Andy Radomski

IDENTIFYING TORNADOES - PART I

by M.J. Newark

For many reasons, information concerning nature's most intense form of energy release, tornadoes, does not always confirm its true nature. Cloud, rain, darkness, hills, buildings, lack of prespective can all cloak the funnel cloud from view. Contemporary investigators unfamiliar with tornado characteristics may not have probed sufficiently, and mistakenly or unwittingly assumed that the event was simply a damaging thunderstorm or hailstorm. Educated investigators may not have had the time or the luck to search out the funnel eyewitnesses.

A tornado is defined as an intense rotary storm of small diameter (tens or hundreds of metres) characterized by at least one vortex reaching the earth's surface from a cumulonimbus cloud. The vortex may be either visible as a funnel cloud or invisible, but in either case damage results at the earth's surface.

A single tornado may be composed of (a) several funnels occurring simultaneously, or (b) of one or more funnels reforming one after the other in a complex fashion. In case (a), two or three (rarely more) funnels are simultaneously observed moving along parallel tracks which are typically separated by only a few hundreds of metres. The main funnel is often more substantial, both in terms of its observed size and strength, and its lifetime. In case (b), sometimes narrow transitory vortices rotate about each other combining into a complex funnel. Sometimes a series of funnels go consecutively through a life cycle where each start as a protuberance on the base of the thunderstorm, elongate towards the ground and merge into one with an upwards moving annular tube, then finally degenerate and rise back towards the cloud base.

(PART II next issue)

IDENTIFYING TORNADOES BY DAMAGE ON THE GROUND.

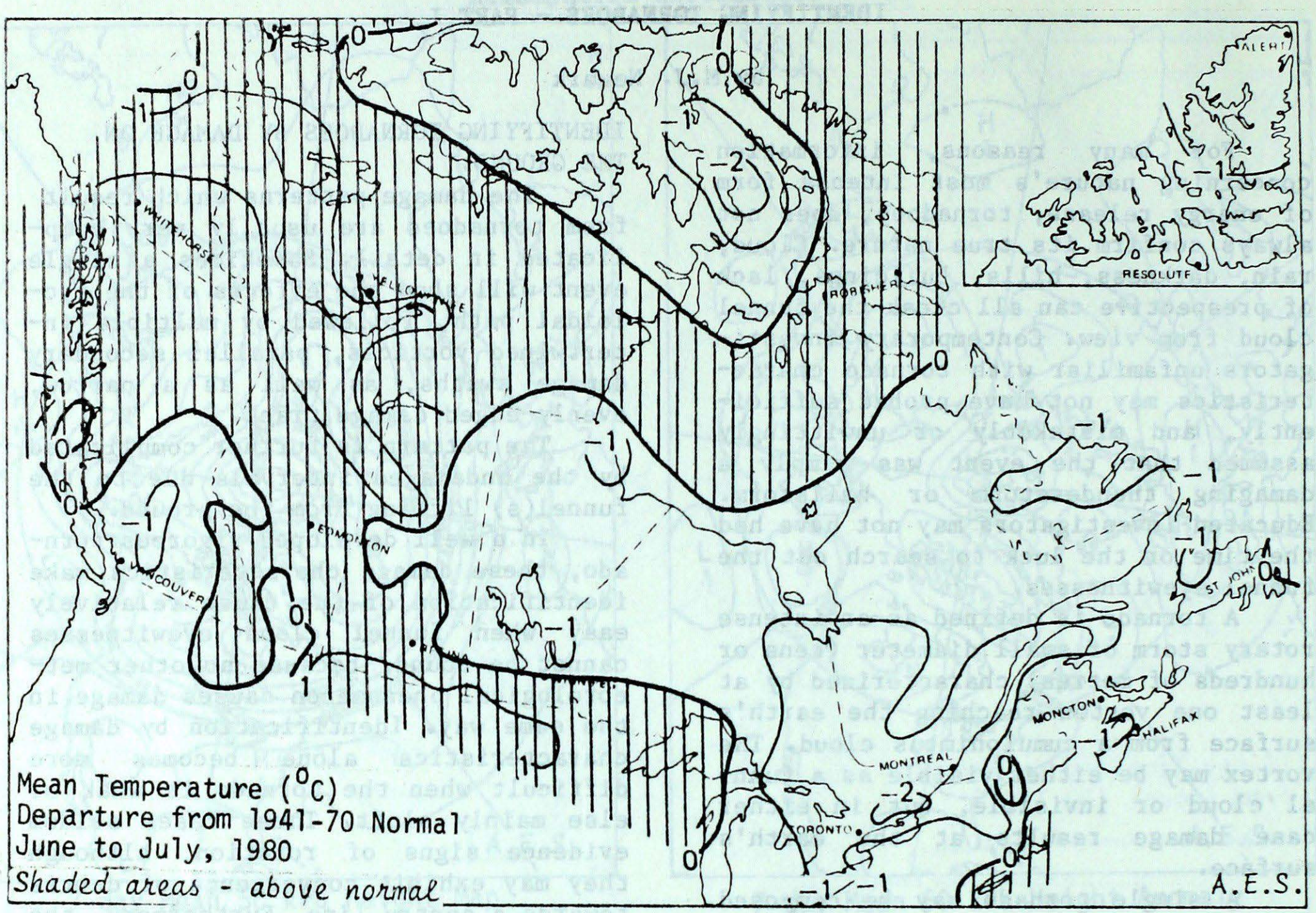
The damage patterns which result from tornadoes are usually very complicated in detail. Sometimes a single event will show the effects of the cycloidal path, followed by multiple intertwined vortices, parallel secondary damage swaths, as well as a narrow, evenly-edged damage track.

The pattern is further complicated by the undamaged intervals due to the funnel(s) lifting from the ground.

In a well developed vigorous tornado, these damage characteristics make identification of the cause relatively easy when funnel cloud eyewitnesses cannot be found, because no other meteorological phenomenon causes damage in the same way. Identification by damage characteristics alone becomes more difficult when the tornado is weak or else mainly aloft. These cases seldom evidence signs of rotation, although they may exhibit convergence of debris towards a centre line. Furthermore, the amount of damage may be insufficient for a satisfactory identification. In such cases there is a risk of identifying a particular storm as a tornado when perhaps it was a thunderstorm downburst which actually caused the damage.

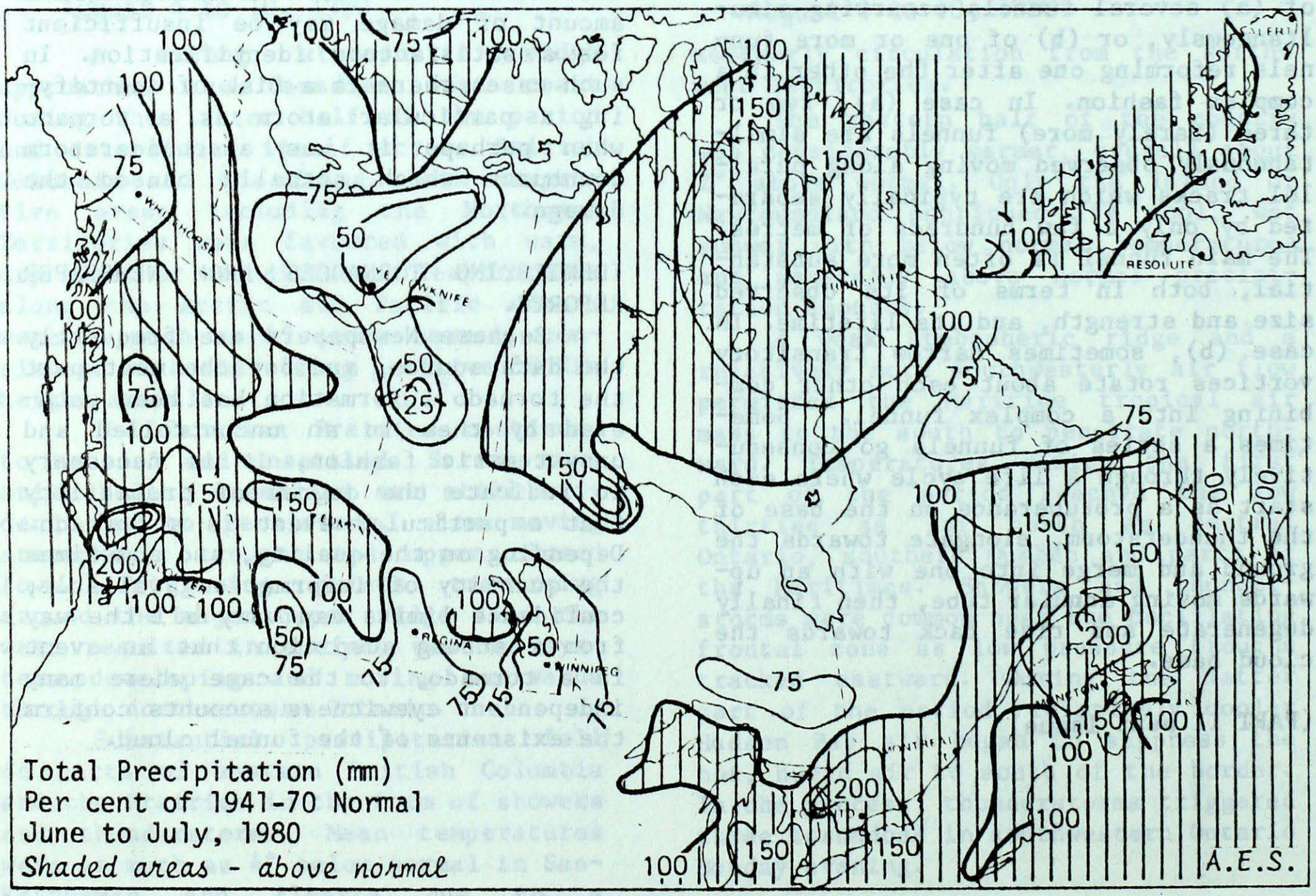
IDENTIFYING TORNADOES FROM NEWSPAPER REPORTS.

Because Newspapers are frequently the data source, and for the most part the tornado information has been gathered by them in an uncontrolled and unsystematic fashion, it is necessary to indicate the degree of probability that a particular event is a tornado. Depending on the quality, and sometimes the quantity of information available, confidence limits can vary all the way from a strong suspicion that an event is a tornado, to the case where many independent eyewitness accounts confirm the existence of the funnel cloud.



Mean Temperature (^{o}C)
Departure from 1941-70 Normal
June to July, 1980
Shaded areas - above normal

A.E.S.



Total Precipitation (mm)
Per cent of 1941-70 Normal
June to July, 1980
Shaded areas - above normal

A.E.S.

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

Station	Temperature (°C)				Precip. (mm)	
	Average	Departure from Normal	Extreme Maximum	Extreme Minimum	Total	Departure from Normal
BRITISH COLUMBIA						
Abbotsford A	18	1	32	9	0.0	- 6.5
Alert Bay	M	M	20P	10P	M	M
Blue River	M	X	M	5P	M	X
Bull Harbour	M	M	16P	11P	M	M
Burns Lake	M	X	26P	6P	M	X
Cape Scott	M	M	16P	11P	M	M
Cape St. James	14	1	21	10	0.0	-14.6
Castlegar A	19	- 2	31	9	3.8	0.5
Comox A	19	2	29	10	0.0	-11.7
Cranbrooke	15	- 4	26	5	16.9	11.1
Dease Lake	13	0	25	2	6.6	- 5.3
Estevan Point	M	M	M	10P	M	M
Fort Nelson A	16	0	25	7	5.0	- 3.8
Fort St. John A	14	- 1	24	8	9.7	- 3.9
Kamloops A	19	- 1	32	10	6.2	2.3
Langara	M	M	17P	11	0.0	-22.8
Lytton	21	- 3	35	10	2.4	- 0.8
Mackenzie A	M	X	25P	6P	M	X
McInnes Island	M	M	20P	11P	M	M
Penticton A	19	- 1	31	8	3.2	0.4
Port Hardy A	15	0	22	8	0.0	-12.8
Prince George A	15	0	25	5	2.7	-16.3
Prince Rupert A	15	1	29	6	0.0	-59.8
Quesnel A	17	0	27	7	2.2	-14.8
Revelstoke A	17	- 2	29	7	3.8	- 2.1
Sandspit	18	3	23	13	0.0	- 9.7
Smithers A	18	3	29	5	2.4	- 8.2
Spring Island	M	M	M	11	M	M
Stewart A	M	X	30P	7P	M	X
Terrace A	21	4	31	9	0.0	- 9.4
Vancouver Int'l A	19	1	26	12	0.0	- 4.2
Victoria Int'l A	18	1	29	9	0.0	- 2.6
Williams Lake A	15	- 1	25	6	2.0	- 9.6
YUKON						
Burwash A	12	1	27	0	0.0	-13.0
Dawson A	14	0	28	1	5.6	- 7.3
Komakuk Beach A	M	M	17P	0	1.9	- 6.2
Mayo A	16	2	28	0	8.1	- 2.1
Shingle Point A	11	2	23	2	0.5	- 9.3
Watson Lake A	14	0	25	4	1.9	- 6.5
Whitehorse A	14	1	28	0	0.0	- 8.1
NORTHWEST TERRITORIES						
Alert	2	- 1	12	- 2	30.4	22.5
Baker Lake	14	3	23	8	1.1	- 6.6
Broughton Island	5	0	12	0	0.0	- 9.6
Byron Bay	10	2	15	4	0.0	- 7.0
Cambridge Bay A	9	1	16	3	7.6	0.7
Cape Dorset	5	X	10	3	14.6	X
Cape Dyer A	6	0	15	0	0.0	-15.6
Cape Hooper	4	0	13	- 8	0.8	- 4.6
Cape Parry A	8	2	20	1	0.0	- 4.5
Cape Young A	8	2	19	2	0.0	- 9.4
Chesterfield Inlet	8	- 1	16	5	5.0	- 4.9
Clinton Point	10	3	20	2	0.0	- 8.9
Clyde	4	- 1	10	- 2	7.0	0.0
Contwoyto Lake	M	M	20P	9P	M	M
Coppermine	11	1	17	5	2.6	- 6.8
Coral Harbour	8	0	15	2	10.5	0.5
Dewar Lakes	7	2	13	2	0.0	- 6.3
Ennadai	M	M	M	9	M	M
Eureka	2	- 3	8	- 4	15.0	12.7
Fort Reliance	M	M	24P	10P	0.5	- 5.8
Fort Simpson	17	2	26	5	0.0	-13.0
Fort Smith A	M	M	25P	7	M	M
Frobisher Bay A	5	- 2	18	- 1	9.0	- 4.3
Gladman Point A	11	5	20	4	2.7	- 4.3
Hall Beach A	6	1	14	2	0.0	- 6.9
Hay River A	16	0	26	7	12.2	8.4
Inuvik A	15	3	25	- 1	0.0	- 9.1
Jenny Lind Island	7	1	15	2	1.9	-14.1
Lady Franklin Point	10	3	14	4	2.5	- 7.8
Longstaff Bluff	10	3	15	4	0.0	- 6.2
Mackar Inlet	10	5	18	5	1.0	- 6.6
Mould Bay	4	1	9	- 1	3.5	- 0.7
Nicholson Peninsula	10	2	23	4	0.8	- 5.0
Norman Wells A	M	M	30P	9P	M	M
Pelly Bay	9	3	17	1	1.1	- 9.2
Pond Inlet	6	X	11	2	0.0	X
Port Burwell	8	X	14	1	0.0	X
Resolute A	4	0	10	- 1	4.2	- 6.3

Station	Temperature (°C)				Precip. (mm)	
	Average	Departure from Normal	Extreme Maximum	Extreme Minimum	Total	Departure from Normal
Sachs Harbour	8	3	19	0	1.2	- 2.8
Shepherd Bay A	11	3	19	5	1.1	- 8.0
Tuktoyaktuk	12	2	22	6	0.0	- 4.7
Yellowknife A	M	M	24P	13P	10.6	1.3
ALBERTA						
Banff	11	- 3	23	3	29.2	21.9
Calgary Int'l A	13	- 3	22	6	10.8	- 1.1
Cold Lake A	15	- 2	23	7	28.6	9.6
Coronation A	14	- 3	22	6	18.2	4.8
Edmonton Int'l. A	13	- 3	23	4	4.2	-15.5
Edmonton Mun. A	14	- 3	25	7	10.6	- 6.8
Edmonton Namao A	14	- 3	24	7	23.3	6.9
Edson A	M	M	23P	5P	34.4	12.5
Fort Chipewyan	M	M	M	8P	M	M
Fort McMurray A	16	0	24	8	29.9	15.0
Grande Prairie A	14	- 2	23	6	32.2	19.6
High Level A	16	1	23	6	35.0	28.5
Jasper	14	- 1	23	6	9.6	- 2.8
Lethbridge A	15	- 3	26	6	20.0	11.0
Medicine Hat A	16	- 4	27	7	11.2	0.1
Peace River A	15	- 1	23	5	14.6	7.7
Red Deer A	13	- 3	24	4	7.5	- 5.2
Rocky Mountain House	12	- 3	22	4	23.2	8.1
Slave Lake A	14	- 2	23	3	37.8	21.2
Vermilion A	14	- 2	23	6	22.7	7.0
Whitecourt	13	- 2	24	4	49.6	23.6
SASKATCHEWAN						
Broadview	16	- 2	22	9	9.5	- 3.4
Buffalo Narrows	M	M	21P	9	64.8	49.0
Cree Lake	M	M	22	7P	7.4	X
Estevan A	17	- 3	23	10	10.0	- 0.4
Hudson Bay	M	M	23P	8	35.2	24.1
Kindersley	15	- 4	22	5	34.3	23.2
La Ronge A	15	- 2	23	6	30.6	11.0
Meadow Lake A	15	X	24	6	25.8	X
Moose Jaw A	17	- 3	27	9	7.8	- 0.2
Nipawin A	16	X	24	7	40.0	X
North Battleford A	15	- 3	22	8	40.3	27.2
Prince Albert	16	- 2	24	7	26.9	14.2
Regina A	17	- 2	25	7	7.6	- 1.8
Saskatoon A	16	- 3	24	8	25.3	13.8
Swift Current A	M	M	23P	5	M	M
Uranium City	17	1	24	10	0.0	- 9.1
Wynyard	16	- 2	22	8	17.2	-11.1
Yorkton A	16	- 2	23	9	11.8	1.6
MANITOBA						
Bissett	16	- 2	25	6	13.0	-18.9
Brandon A	16	- 3	23	8	21.7	12.3
Churchill A	9	- 4	20	5	22.0	7.9
Dauphin A	16	- 2	24	8	49.5	32.8
Gillam A	12	X	19	7	20.2	X
Gimli	16	- 3	23	9	8.9	-10.2
Island Lake	M	X	22P	10	1.9	X
Lynn Lake	14	- 1	23	7	0.0	-19.8
Norway House	15	X	24	6	6.8	X
Pilot Mound	16	- 3	24	9	17.5	5.3
Portage la Prairie	17	- 3	24	9	31.5	14.8
The Pas A	15	- 3	23	9	13.0	2.8
Thompson A	14	- 1	24	4	5.4	- 8.7
Winnipeg Int'l A	17	- 3	24	9	29.3	13.9
ONTARIO						
Armstrong A	M	M	25P	4	20.5	1.3
Atikokan	17	1	28	7	2.2	-17.7
Earlton A	M	M	29P	9	M	M
Geraldton	16	0	27	7	26.4	13.0
Gore Bay A	20	1	28	12	14.7	3.7
Kapuskasing	18	2	29	11	49.2	27.5
Kenora A	18	- 1	26	11	15.6	- 6.1
Kingston A	M	M	29P	13	M	M
Lansdowne House	16	- 1	21	11	4.2	-15.0
London A	22	2	30	14	9.8	- 7.9
Moosonee	16	1	27	7	11.2	- 5.5
Mount Forest	M	M	28P	12	M	M
Muskoka A	M	M	28P	10	M	M
North Bay A	19	1	27	11	30.6	12.8
Ottawa Int'l A	22	1	31	12	2.0	-16.8
Petawawa A	19	X	30	8	22.6	X
Pickle Lake	16	- 1	22	8	16.9	- 2.0
Red Lake A	16	- 2	23	7	9.2	- 1.9

Station	Temperature (°C)				Precip. (mm)	
	Average	Departure from Normal	Extreme Maximum	Extreme Minimum	Total	Departure from Normal
Simcoe	M	M	29P	15	M	M
Sioux Lookout A	17	- 1	25	9	23.4	5.8
Sudbury A	20	2	30	13	18.6	- 1.8
Thunder Bay A	19	1	27	10	5.0	-13.4
Timmins A	18	1	28	9	31.8	13.9
Toronto Int'l A	22	2	31	13	10.8	- 3.2
Trenton A	22	1	29	12	11.1	- 3.8
Trout Lake	14	- 2	22	8	28.2	13.6
Wawa A	16	X	27	9	16.6	X
Wiarton A	20	2	27	12	9.4	- 5.3
Windsor A	24	3	32	18	12.6	- 6.5
QUÉBEC						
Bagotville A	19	1	28	9	10.2	- 7.9
Baie Comeau	17	1	27	9	59.4	40.3
Blanc Sablon	M	M	17P	5	M	M
Border	M	M	M	6	M	M
Chibougamau	17	X	27	9	23.0	X
Fort Chimo A	13	2	23	0	12.1	- 2.2
Gaspé A	18	X	28	10	28.3	X
Grindstone Island	18	0	24	13	11.3	- 5.0
Inoucdjouac	11	2	20	6	3.4	- 9.3
Koartak	4	X	11	- 2	M	X
La Grande Rivière A	13	X	25	4	9.0	X
Maniwaki	19	1	29	8	32.9	11.4
Matagami A	17	X	28	8	17.0	X
Mont-Joli A	18	1	27	9	32.6	20.0
Montréal (A int.)	21	1	29	12	10.0	- 7.8
Natashquan A	15	0	23	10	50.9	35.8
Nitchequon	14	1	22	8	29.9	3.7
Port Menier	16	1	23	10	103.4	89.5
Poste-de-la-Baleine	11	1	26	4	15.6	- 1.6
Québec A	20	2	29	10	19.0	- 1.5
Rivière du Loup	M	M	M	14P	M	M
Roberval A	20	3	29	12	24.3	1.9
Schefferville A	13	1	20	8	36.6	10.4
Sept-Iles	17	1	24	12	83.8	62.3
Sherbrooke A	19	2	29	7	20.3	-17.4
Ste. Agathe des Monts	18	1	26	8	17.4	-13.2
Val d'Or A	18	2	28	10	46.8	25.8
NEW BRUNSWICK						
Charlo A	19	2	27	12	48.7	27.1
Chatham A	21	2	30	11	4.4	-12.3
Fredericton A	21	3	32	10	31.2	8.7
Moncton A	M	M	28P	13	25.9	9.4
Saint John A	20	3	28	11	38.2	12.5
NOVA SCOTIA						
Eddy Point	19	X	28	12	21.2	X
Greenwood A	21	2	30	10	17.6	0.8
Sable Island	M	M	21P	15	9.5	-22.7
Shearwater A	21	3	29	14	6.4	-16.1
Sydney A	18	0	26	13	18.6	- 3.6
Truro	M	M	29P	12	M	M
Yarmouth A	M	M	25P	12	0.2	-19.7
PRINCE EDWARD ISLAND						
Charlottetown	20	1	26	13	16.6	1.1
Summerside	21	2	27	14	58.2	44.8
NEWFOUNDLAND						
Argentia VTMS	15	X	19	10	29.2	X
Battle Harbour	10	0	19	7	19.4	- 1.2
Bonavista	13	- 3	23	9	32.2	13.6
Burgeo	15	0	19	11	24.2	- 4.5
Cartwright	M	M	19	6P	8.5	-10.8
Churchill Falls A	14	1	22	7	31.0	15.7
Comfort Cove	14	- 3	24	5	36.7	18.9
Daniel's Harbour	14	- 1	20	8	51.2	25.0
Deer Lake	15	- 2	26	0	M	M
Gander Int'l A	15	- 2	25	6	32.6	6.4
Goose A	14	- 1	24	7	10.1	- 6.1
Hopedale	10	- 1	17	5	6.8	-12.3
Port aux Basques	16	0	20	12	35.1	13.6
St. Albans	M	M	24P	11P	M	M
St. Anthony	11	X	17	5	83.3	X
St. John's A	M	M	24P	8P	9.5	-18.9
St. Lawrence	15	0	20	11	12.1	-23.3
Stephenville A	17	0	23	12	12.0	- 8.0
Wabush Lake	14	2	23	6	10.4	-13.8

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