Environnement

WEEKLY REVIEW OF CANADIAN CLIMATE

Atmospheric Environnement

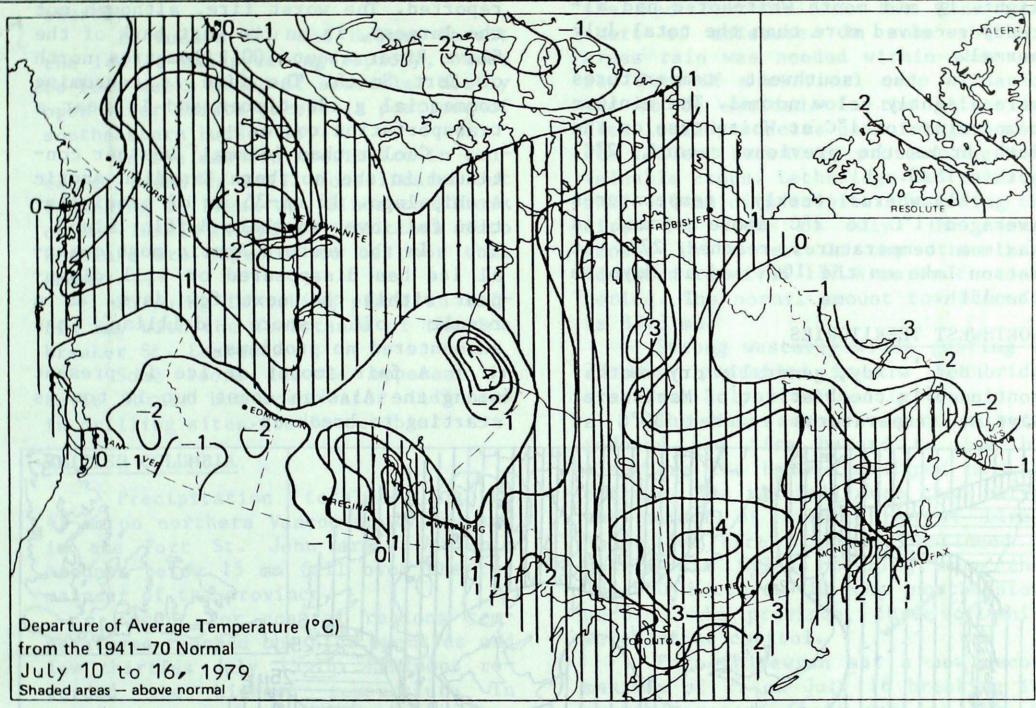
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rollspate mediation CANADIAN CLIMATE CENTRE, ATMOSPHERIC ENVIRONMENT SERVICE, 4905 DUFFERIN ST., DOWNSVIEW, ONTARIO M3H 5T4

JULY 20,1979

(Aussi disponible en français)

VOL.1 NO.23



WEATHER HIGHLIGHTS FOR THE WEEK - JULY 10 - 16, 1979

Large Forest Fires in Alberta, Northwest Territories, Manitoba and

Tornado Strikes The Pas, Manitoba

ing hot, dry weather has contributed to the outbreak of large forest fires covering more than 121,000 hectares. Three fires are out of control. Nearby, a large forest fire 100 kilometres north of Fort Smith, N.W.T. is consuming commercial grade timber and threatening the transportation route.

As of July 16, a large fire out of control fire north of Grand Rapids, Manitoba had burned approximately 9,000

In northeastern Alberta continu- hectares. Elsewhere, favourable weather helped fire fighters to bring large forest fires under control in northwestern Ontario and central Newfoundland.

> On July 11, a tornado caused several hundred thousand dollars damage to buildings, motor vehicles and light aircraft at The Pas and vicinity.

Overall, pleasant summer weather experienced in Southern Canada although persistent lack of precipita-

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

tion continues to cause some concern to agriculture in southern Alberta and portions of Saskatchewan.

#### YUKON

Above normal precipitation continued in central and extreme southwestern portions of the territory where amounts ranged from 20 mm to 40 mm. Elsewhere, precipitation was seasonably light. By mid month Whitehorse had already received more than the total July normal.

In the southwest temperatures were slightly below normal. The minimum temperature of 1°C at Whitehorse on the 16th broke the previous record, 2°C, set in 1973.

Elsewhere weekly temperatures averaged 1°C to 2°C above normal as maximum temperatures reached 27°C at Watson Lake on the 10th and at Mayo on the 11th.

#### NORTHWEST TERRITORIES

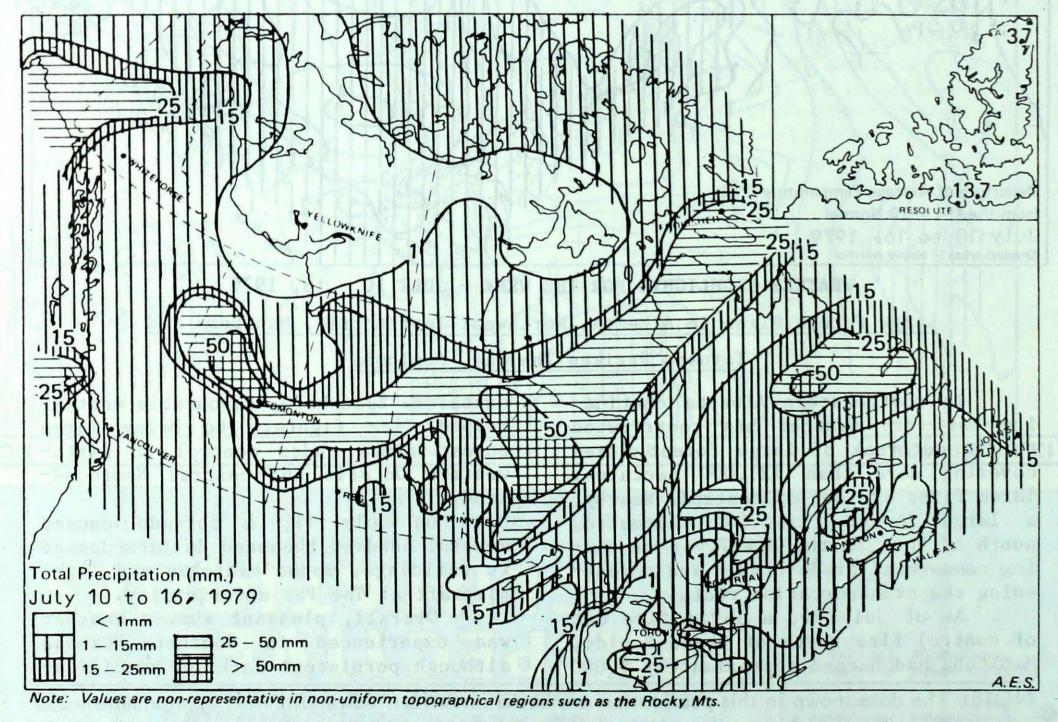
Hot, windy, generally dry weather continued in the District of Mackenzie. Daytime temperatures reached 30°C at several localities during the week. The warmest temperature, 31°C, was recorded at Norman Wells July 10.

This weather pattern and numerous lightning strikes have created one of the worst fire situation in the Northwest Territories in years. Over 150 fires have been discovered; however, no communities have been threatened and no deaths or injuries were reported. The worst fire, although not the largest, is on the west bank of the Slave River about 100 kilometres north of Fort Smith. The fire is consuming commercial grade timber and is near a transportation route.

Cooler than 'normal' weather continued in the northern Canadian Arctic Archipelago. 15 mm-35 mm of precipitation fell over southern Baffin Island.

In the western Arctic most coastal ice has disappeared or will disappear within the next few days. As a result off shore drilling has encountered no problems.

A fair amount of ice is present along the Alaskan coast but it too is starting to break up.



The ice pack continues 110 to 130 km northwest of Tuktoyoktuk Peninsula; however conditions are normal to slightly better than normal.

Since shipping in the western Arctic usually begins in August no problems are anticipated.

In the central and northern Arctic the ice is still consolidated; however, it should begin to loosen shortly.

In Hudson Bay and Hudson Strait the ice is disappearing rapidly, three to four weeks ahead of schedule. Mostly open water exists except in portions of southeastern Hudson Bay.

In the eastern Arctic ice in Lancaster Sound is still consolidated but beginning to break up. Since the break up is late, shipping conditions into Resolute are expected to be poor this summer.

Shipping is taking place in Baffin Bay with the assistance of the ice breaker St. Laurent.

Some loose ice is apparent in Davis Strait but open water conditions in drilling sites are favourable.

#### BRITISH COLUMBIA

Precipitation totalled up to 45 mm on northern Vancouver Island and in the Fort St. John area. Variable amounts below 15 mm fell over the remainder of the province.

Except for coastal regions temperatures reached the high twenties and low thirties July 15-16. Kamloops recorded the highest temperature in Canada during the week as the mercury soared to 36°C on the 16th.

For the week, temperatures averaged 1°C to 2°C below normal in the southern interior and 1°C above normal in the far north; elsewhere weekly averages were near normal.

#### ALBERTA

A cold low moved across the central part of Alberta during the period depositing a swath of heavy rain in the Edson-Edmonton-Slave Lake regions.

Edmonton received 48 mm of rain on July 11. One year ago to the day a similar weather pattern gave a torrential downpour to Edmonton dropping 88 mm of rain in 27 hours and causing

an estimated 4 million dollars damage.

In contrast, elsewhere in the province warm dry conditions prevailed. Calgary's dry sunny weather made life enjoyable for stampede visitors but played havoc with southern Alberta farmers. The Alberta wheat pool reported that the crop situation ran from one extreme to the other across the province. Almost all areas south of the Red Deer-Medicine Hat line were short of moisture. In some southern areas rain was needed within the next few days if a critical crop situation was to be avoided. In the Lethbridge area local producers used irrigation to its fullest extent to protect the more valuable crops. Lethbridge had received only 4.9 mm of precipitation during the first two weeks of July. The normal amount is 45 mm. On the other hand Edmonton received 137.8 mm in the same period. The normal amount for Edmonton is 83.3 mm.

Strong westerly winds gusting to 78 km/h prevailed in the Lethbridge area from July 11th to July 13.

The rain across central Alberta reduced the fire hazard to low but elsewhere the hazard remained high to extreme. The rainfall more than halved the number of Alberta forest fires. About 300 fire fighters continued to battle six fires covering more than 121,000 hectares in the northeastern part of the province, three of which were out of control.

Fort Chipewyan set a new record maximum of 27 on July 16 breaking its previous record of 26 set in 1966. On the same day Fort McMurray tied its record of 29 set in 1960.

#### SASKATCHEWAN

Temperatures averaged 1°C to 2°C below normal for the week in south-western Saskatchewan and near normal elsewhere. The warmest temperature in the province during the past week was 33°C recorded at Estevan on the 10th. The minimum temperature of 6°C at Yorkton on the 16th tied the previous low minimum record set in 1924. In contrast, on the same day Uranium City tied the previous high temperature record, 26°C, set in 1966.

Precipitation ranged from 15 mm to 40 mm throughout the province except in the Yorkton - Wynyard and Estevan areas where less than 5 mm fell. Precipitation in the Yorkton - Broadview area has been generally less than 50 % normal since April 1.

Crop conditions are quite variable throughout the province due to showery type precipitation.

#### MANITOBA

Weekly Temperatures averaged one to two degrees above the 1941-70 normal in the south, near normal in the north and well below normal along the Hudson Bay coast. Daytime temperatures reached 33°C at several localities in southern portions of the province.

Precipitation was generally less than 15 mm except in the Gillam and The Pas areas where 59.6 mm and 25.8 mm fell, respectively.

At The Pas and vicinity a tornado on July 11 caused damage estimated at several hundred thousand dollars to buildings, motor vehicles and light aircraft. RCMP reported two people were slightly injured.

Thirty four forest fires in the northern fire regions and 15 in the eastern fire regions were reported during the last week. The largest fire reported north of Grand Rapids and presently out of control, had burned near 9,000 hectares through July 16.

Although good soil moisture and adequate rainfall has been reported, crops are about two weeks late due to the late spring.

#### ONTARIO

Hot humid weather predominated over much of Ontario this past week as most localities recorded daytime temperatures of at least 30°C.

Precipitation was in the form of widely scattered showers that in many cases drenched communities while leaving others nearby desperately dry.

Largest precipitation amounts occurred in the Trout Lake, Pickle Lake, Lansdowne House portions of northern Ontario where amounts ranged from 65 mm to 85 mm.

On July 11, the City of Toronto experienced a torrential downpour that

flooded under-passes and forced police to use boats to rescue stranded drivers. During the storm 41 mm of rain fell in just over 30 minutes at Toronto Island.

On July 15 a similar downpour struck Toronto International Airport as 40.2 mm fell in 25 minutes. First reports indicate that the July 15 rainfall intensity is a new 30 minute record high total for the Airport.

The Ontario Ministry of Agriculture and Food reported that although many localities could still use more rain, the recent warm weather and showers have given a boost to crop growth that had been retarded by the cool weather of early July. Holland Marsh growers were pleased with their combination of sunshine, heat, and moisture and report all crops are doing well. Generally excellent hay yields were reported across the province although in the York - Peel Regions, quality was lowered by local rains.

The sunshine and heat was appreciated by resort operators in vacation areas such as Wasaga Beach on Georgian Bay, and Algonquin Park which were frequented by a large number of visitors.

In the Northwestern Ontario Fire Control Region 190 new fires burned more than 18,500 hectares to bring the total area burned this year to near 41,000 hectares. Lightning was by far the principal cause. High relative humidities and light winds allowed fire fighters to keep most fires relatively small. The largest fire, northwest of Kenora reached a size of 2,428 hectares. Restricted fire zones were declared in the Northwestern and Northcentral Regions and it appeared to pay off as man caused fires minimal.

Favourable weather has returned the fire situation to normal and demobilization is now in full swing.

#### QUEBEC

Warm but humid weather prevailed over southern, western and central Quebec and several people suffered from heat and humidity. Records were broken on the 12th at St. Hubert and Val d'Or where the maxima reached 32.6°C and 31.5°C respectively; previous records

were 31.7°C, set in 1972 and 31.2°C set in 1969 respectively.

In the north, temperature and cloudiness were more variable from Hudson Bay to Labrador and also on the north shore of the Gulf of St Lawrence. At Poste-de-la-Baleine, the two maximums of 29°C and 27°C on the 14 and 15 were immediately followed by a maximum of only 7°C on the 16. Nevertheless, weekly means surpassed normal.

Precipitation was heavy only in the northeastern regions. Schefferville received 51.4 mm of rain but elsewhere, convective type precipitation was not marked at any observation sites.

Soil dryness is slowing down pasture growth but warm weather speeded up corn growth.

Despite the warm weather and isolated thunderstorms, no serious forest fires are reported. The worst fire burnt 220 hectares from the 12th to 16th on the North shore.

#### MARITIME PROVINCES

Weekly temperatures averaged 1°C to 3°C above normal in western portions of the Maritimes and near normal elsewhere as several high maximum records were broken on the 10th and 13th.

	Max.	Previous							
July 10	Temp	Record							
Halifax Int'l A	30°C	28°C (1973)							
Summerside	30°C	29°C (1908)							
Charlo	33°C	31°C (1970)							
July 13		The second of the							
Saint John	30°C	28°C (1944)							

Precipitation was light, generally less than 5 mm, except in northern New Brunswick where up to 48.2 mm (Charlo) fell.

Well above normal accumulation of growing degree-days and above normal May-June precipitation appear to have produced a record hay crop which is now 70% - 80% harvested. Farmers are looking for an excellent second crop.

Early potato blight has been reported in Nova Scotia and Prince Edward Island; however, present dry conditions are helping to control it.

Strawberry yields are down as much as 40% in southern New Brunswick dur to winter kill.

Although numerous small forest fires have been reported in Nova Scotia and New Brunswick no major outbreak occurred in the past week.

#### NEWFOUNDLAND AND LABRADOR

With the exception of Wabush Lake, Labrador and nowthwestern Newfoundland where temperatures 1°C to 2°C above normal prevailed, temperatures averaged 1°C to 3°C below the 1941-70 normal. In eastern Labrador several low maximum and low minimum records were tied or broken from the 12th to the 15th.

July 12	Temp.	Previous Record							
Hopedale	Max. 7°C	tied (1976)							
Hopedale	Min. 0°C	broken 1°C (1976)							

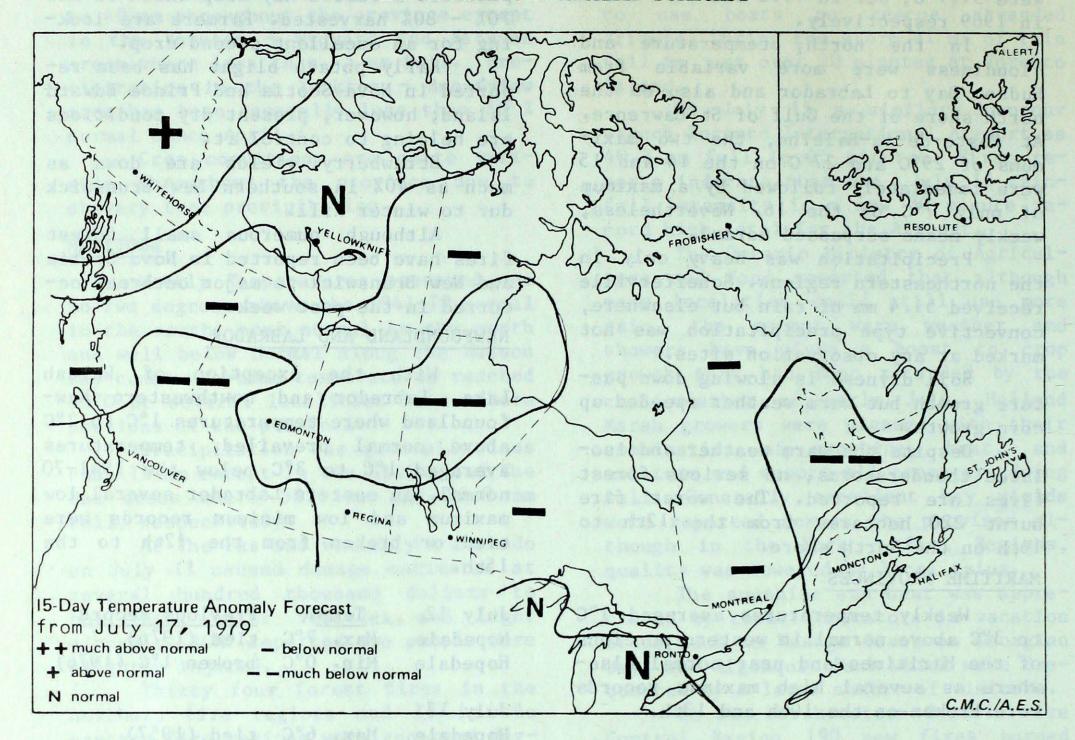
Precipitation was light on the west coast of Newfoundland; elsewhere 15 mm to 50 mm was measured.

Cool temperatures and weekend rain helped bring the worst forest fire in 20 years under control in central Newfoundland. At last report 24,000 hectares of prime woodland had been destroyed.

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Correction: Bright sunshine map for June, 1979, Vol. 1 No. 22 should read percent departure from normal not percent of normal.

#### 15 DAY TEMPERATURE ANOMALY FORECAST



#### Forecast Method

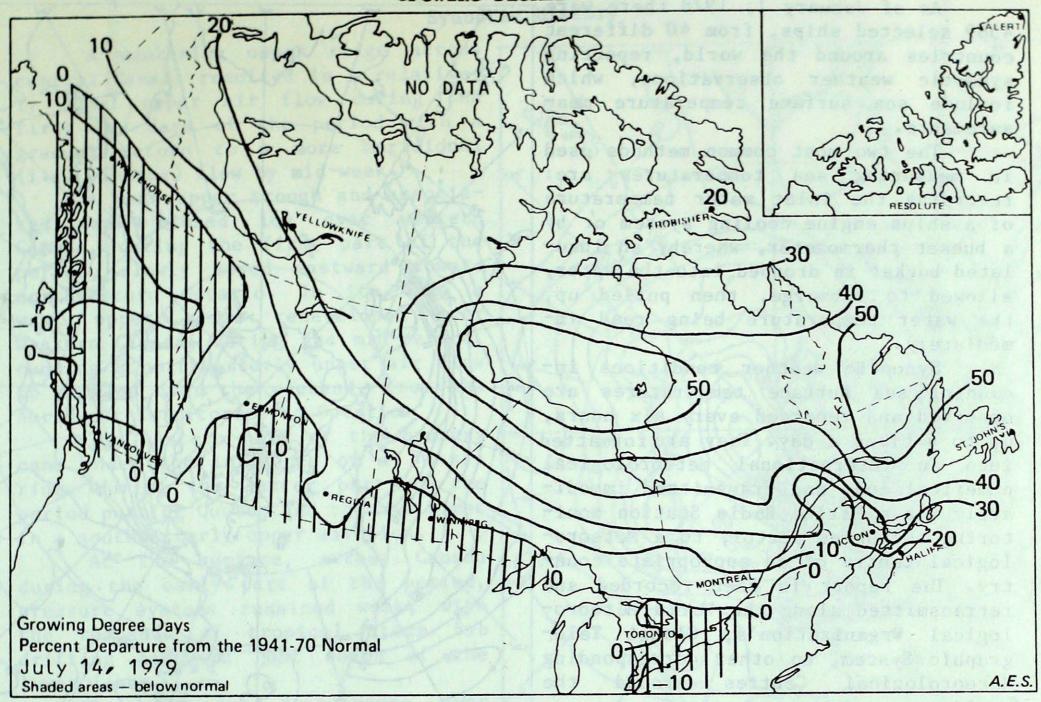
Analogue technique based on point prediction at 70 Canadian stations.

#### Temperature Scale

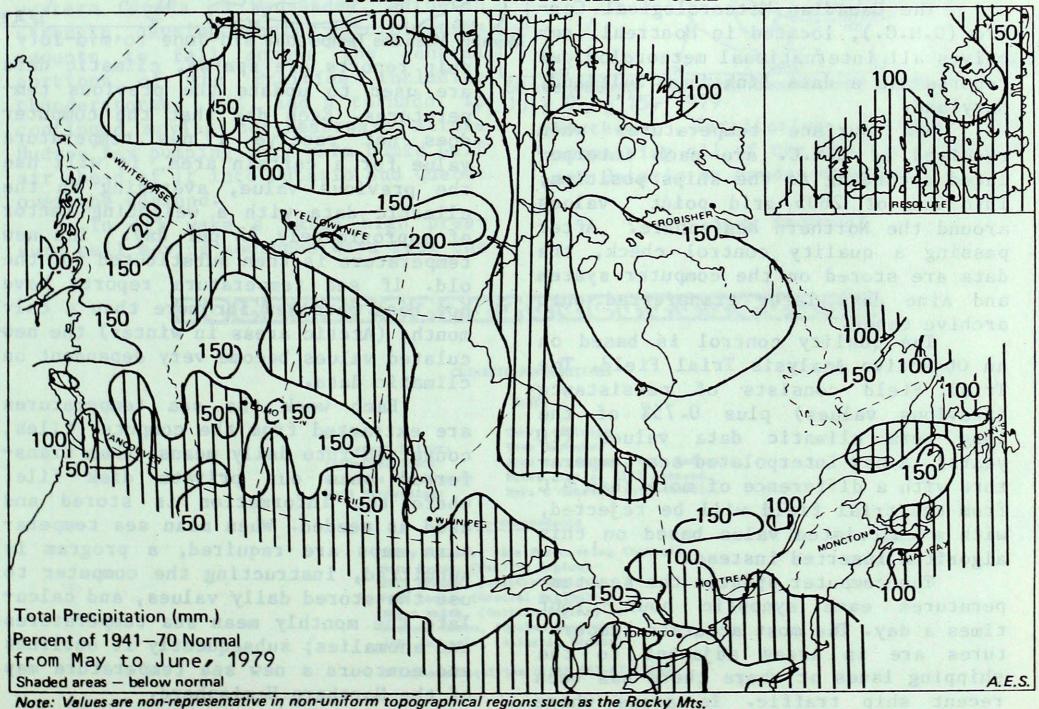
Each temperature class is designed to contain 20% of the historically observed 15 day means pertinent to specific location and time of year:

Station	Current Temperature Anomaly (AT) Forecast
Whitehorse	Above Normal (0.4°C < AT <1.4°C)
Victoria	Much Below Normal (AT <-1.0°C)
Edmonton	Below Normal (-1.4°C < AT <-0.4°C)
Regina	Below Normal (-1.5°C<Δ T <-0.4°C)
Winnipeg	Below Normal (-1.5°C<Δ T <-0.5°C)
Thunder Bay	Below Normal (-1.3°C<Δ T <-0.4°C)
Toronto	Below Normal (-1.4°C<Δ T <-0.4°C)
Quebec	Much Below Normal (AT <-1.3°C)
Fredericton	Much Below Normal (AT <-1.3°C)
Halifax	Much Below Normal (AT <-1.0°C)
Charlottetown	Much Below Normal (AT <-1.2°C)
St. John's	Much Below Normal (ΔT <-1.6°C)
Goose Bay	Below Normal (-1.4°C <ΔT <-0.4°C)
Frobisher Bay	Below Normal (-1.1°C <ΔT <-0.3°C)

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



TOTAL PRECIPITATION MAY TO JUNE



As of January 1, 1978 there were 4589 selected ships, from 40 different countries around the world, reporting synoptic weather observations, which include sea surface temperature measurements.

The two most common methods used in measuring sea temperatures are: recording the inlet water temperature of a ships engine cooling system or by a bucket thermometer, whereby an insulated bucket is dropped into the water, allowed to submerge, then pulled up, the water temperature being read immediately.

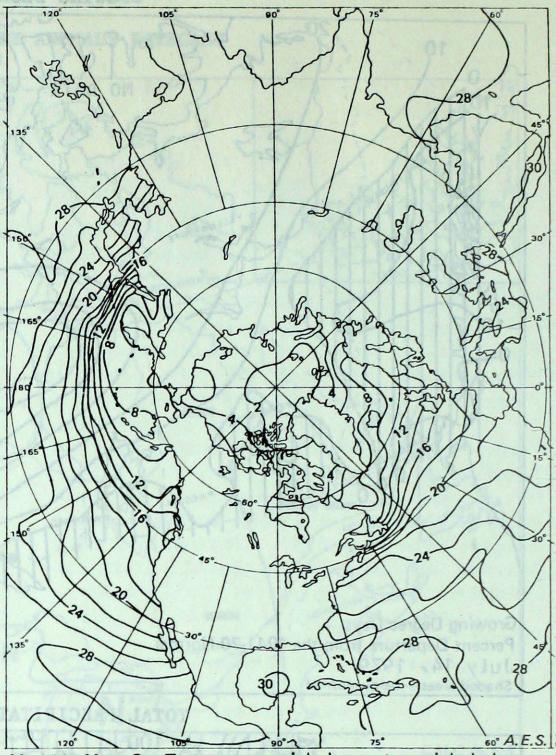
Synoptic weather conditions including sea surface temperatures are observed and recorded every six hours, up to 4 times a day. They are formatted into an international metéorological numerical code and transmitted immediately via a Marine Radio Station monitoring the ships sector, to a Meteorological Centre of an appropriate country. The report is then recorded and retransmitted along the World Meteorological Organization's, Global Telegraphic System, to other corresponding Meteorological Centres around the world.

The Canadian Meteorological Centre (C.M.C.), located in Montreal, receives all international meteorological reports via a data link from Suitland, Maryland.

Sea surface temperatures when received at C.M.C. are each interpolated according to the ships position, into one of 2805 grid point values around the Northern Hemisphere. After passing a quality control check, the data are stored on the computer system and nine days later transferred onto archive tapes.

The quality control is based on an Objective Analysis Trial Field. The Trial Field consists of persistance (previous values) plus 0.75% of the long term climatic data values (20 years). A new interpolated sea temperature with a difference of more than 4°C from the trial field will be rejected, with a calculated value based on this algorithm inserted instead.

The computer updates the sea temperatures each synoptic hour, four times a day. The most accurate temperatures are in areas adjacent to the shipping lanes or where there has been recent ship traffic. In areas where



Monthly Mean Sea Temperature mid-June to mid-July ship reports are sparse, climatic data are used to update the previous temperatures. Each day that the computer does not receive a new temperature value for a certain area, it will use the previous value, averaging in the climatic data with a weighting factor of approximately 3% per day. The new temperature is then substituted for the old. If sea temperature reports have not been received for more than a calmonth, (Arctic areas in winter) the new culated values become very dependent on climatic data.

Each week the sea temperatures are extracted from the computer files, converted into daily means, then transferred onto our private disk file, where the information is stored and used as needed. When mean sea temperature maps are required, a program is submitted, instructing the computer to use the stored daily values, and calculate the monthly mean sea temperatures and anomalies; subsequently it outlines and contours a new sea temperature map of the Northern Hemisphere.

### Synoptic History

A weakening upper ridge across central Canada resulted in a relatively zonal upper air flow during the first few days of the period with a gradual return to a more meridional (i.e. sinuous) flow by mid-week.

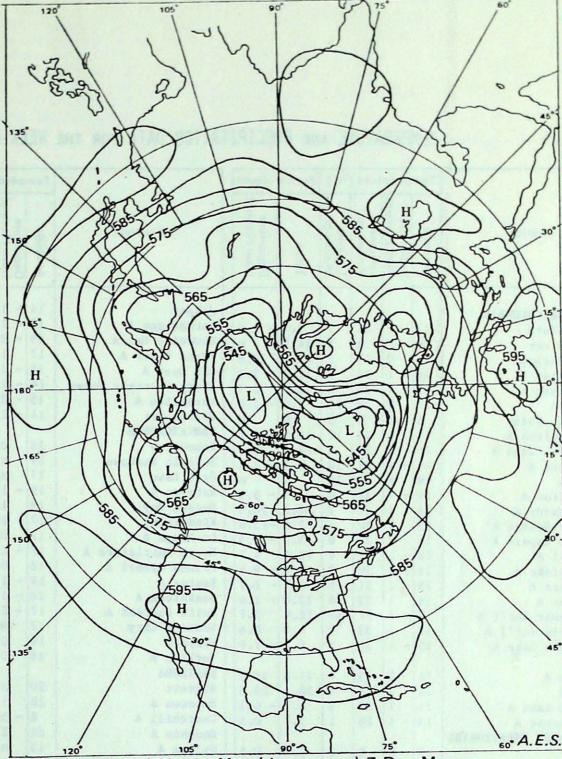
A mean upper trough and associated weak closed low over western Canada, during the first part of the period, slowly moved eastward toward northwestern Ontario. In its wake a weak upper ridge redeveloped over western Canada, during the mid-period, causing a northwesterly upper air flow to develop over the weekend, from the Northwest Territories to Ontario.

The eastern half of the country came under the influence of a 50 kPa ridge during the latter part of the period putting Quebec and the Maritimes in a southwesterly upper air flow.

At the surface, across Canada during the early part of the period, pressure systems remained weak, with the remnants of tropical storm Bob drifting eastward just south of the lower lakes.

A developing disturbance over western Canada on Wednesday, gathered strength, causing heavier precipitation amounts to fall across the central portions of the Prairies including thunderstorms, hail and a tornado. It continued moving northeastward across Hudson Bay pumping very warm humid Gulf air ahead of it into Ontario and Quebec over the weekend.

In its wake a large high pressure cell moving southeastward from the



50 kPa (500 mb) Height Map (decametres) 7 Day Mean July 9 to 15, 1979

Northwest Territories Thursday encompassing all of the Prairie Provinces and Ontario by Monday evening.

Andy Radomski

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## TEMPERATURE AND PRECIPITATION DATA FOR THE WEEK ENDING 0600 G.M.T. JULY 17, 1979

						Temperature (°C) Precip. (mn								-		<b>-</b>				
Temperature (°C) Precip. (mm)					Tem			(°C)	Precip	. (mm)		Tem		ure (	JC)	Precip. (mm)				
Station	Average	Departure from Normal	Extreme	Extreme Minimum	Total	Departure from Normal	Station	Average	Departure from Normal	Extreme	Extreme	Total	Departure from Normal	Station VI	Average	Departure from Normal	Katreme	Extreme	Total	Departure from Normal
BRITISH COLUMBIA Abbotsford Blue River	17 H 13	0 <b>M</b> 0	34 M 19	7 3 7	5.4 14.5 45.6	- 2.3 M 28.8	Jasper Lethbridge A Medicine Hat A Peace River A	14 17 19 17	- 1 - 2 - 2	29 28 30 28	6 8 10 9	8.0 3.9 1.5 52.6	- 3.1 - 5.8 - 7.0 38.7	Timmins A Toronto Int'l A Trenton A Trout Lake	20 23 23 M	3 2 2 M	32 31 32 M	6 14 15 M	M	1.5 25.1 -13.1 M
Bull Harbour Castlegar A Cranbrook A	19 17	- 1 - 1	33 30	7 5	11.0	3.3	Red Deer A Rocky Mountain House Vermilion A	15 14 15	- 2 - 2 - 2	27 27 26	6 5 10		- 5.1 -14.8 15.4	Wawa A Wiarton A Windsor A	18 20 24	M 1 2	28 31 30	5 13 16	23.4 12.6 17.0	- 3.4 1.1
Comox A Estevan Point Fort Nelson A	17 M 18	0 M 1	28 M 28	10 9	2.4 M 10.6	- 3.8 M - 8.1	Whitecourt SASKATCHEWAN	14	- 2	27	8	М	м 9.7	QUEBEC Bagotville A Baie Comeau	21 18	3	31	12	S - 3000 - 1	-11.6 -10.8
Fort St. John A Kamloops A Lytton Penticton A	16 20 M 19	0 - 1 M - 1	27 36 M 32	9 10 12 8	44.8 2.3 M 1.9	26.1 - 2.4 M - 3.5	Broadview Buffalo Narrows Cree Lake Estevan A	18 19 17 19	0 M M - 1	31 28 27 33	13 6 9	22.1 11.0 19.9 2.4	9.7 M M	Border Chibougamau Fort Chimo A	11 19 11	0 M - 1	23 29 25 30	3 7 0 5	48.1 26.0 8.8	28.5 M - 1.8 - 8.4
Port Hardy A Prince George A Prince Rupert A	14 15 14	î 0 1	21 30 22	7 4 6	35.6 2.8 5.9	20.9 -13.8 -17.9	Hudson Bay Kindersley La Ronge A	19 17 17	- 2 0	29 27 31	7 10 8	27.2 17.7	16.8 2.9	Gaspé A Grindstone Island Inoucdjouac Maniwaki	19 17 12 22	0 4 3	25 22 30	10 2 13	THE RESERVE OF THE PARTY OF THE	-14.3 17.6 9.6
Quesnel A Revelstoke A Smithers A	16 18 15	- 1 - 2 1	32 30 31	8 5	10.9 7.4 8.7	- 4.3 - 9.6 - 2.7	North Battleford A Prince Albert A Regina A	17 18 19 18	- 1 0 - 1	29 30 32 32	10 7 10 8	38.0 25.3 13.3 17.2	20.9 6.7 - 1.0 5.0	Matagami A Mont Joli A Montréal Int'l A	19 21 24	M 3 3	31 31 32	4 10 16	33.5 9.7 13.8	- 3.0 - 2.3
Terrace A Vancouver Int'l A Victoria Int'l A	16 17 17 15	- 1 - 1 - 1	29 27 32 31	8 10 9	11.0 12.9 4.9 6.2	- 1.6 5.7 0.6 - 7.9	Saskatoon A Swift Current A Uranium City Wynyard	17 17 17	- 2 M 0	30 26 31	10 7 11	14.5 22.6 4.5	2.3 M 0.9	Natashquan A Nitchequon Port Menier	15 15 17	1 1 1	21 25 25	6 10	18.6	-16.5 - 2.4 - 2.0
Williams Lake A YUKOM Dawson A	16	0	25	4	21.6	10.6	Yorkton A MANITOBA Bissett	19	0 M	32	5	4.6	-11.7 H	Poste de la Baleine Québec A Riviere du Loup	12 22 20	3	29 30 29	15	13.7	- 8.4 - 2.1 2.2
Mayo A Watson Lake A Whitehorse A	18 16 13	- 1	27 27 26	6	6.9	- 4.1 0.5	Brandon A Churchill A Dauphin A	20 8 21	- 5 2	33 16 32	6 3 8	5.6 7.0 7.6	- 9.7 - 2.0 -10.4	Roberval A Schefferville A Sept-Iles A	13 17	0 1	31 27 25	12 4 9	51.4	- 1.3 35.0 -16.2
MORTHWEST TERRITORIES Alert Baker Lake	3 12 8	0	8 24 17	- 1 2	3.7 8.4 5.0	0.1	Gillam A Gimli Lynn Lake	13 20 M	M 1 M	23 31 M	7 7 6	59.6 17.8 M	- 2.1 M	Sherbrooke A Val d'Or A NEW BRUNSWICK	22 22	4 4	32 32	9	0.0	-17.9 -21.4
Cambridge Bay A Cape Dyer Chesterfield Inlet	5 10 4	M 1 0	12 23 11	0 1 - 1	12.4 0.0 M	-10.1 M	Norway House Pilot Mound Portage la Prairie	19 M 22	M M 1	29 30 33	7 M 9	6.3 M 10.7	- 8.0	Charlo A Chatham A Fredericton A	19 21 23 20	2 1 3	33 33 34 30	7 12 10	14.5	- 5.7 -25.4 -20.0
Clyde Coppermine Coral Harbour Ennadai	10 10 13	1 2 0	22	2 2 4	0.2	- 7.0 -10.8 - 9.8	The Pas A Thompson A Winnipeg Int'l A	19 16 21	0	28 26 33	7 7 7	25.8 M 9.0	8.1 M -11.7	Moncton A Saint John A ROVA SCOTIA	19	2	30	11	1.6	-22.7
Eureka Fort Simpson Fort Smith A	5 20 18	0	15 30 30	10 5		- 2.4 - 6.6 - 9.1	ONTARIO Armstrong A Atikokan	M 20	M 0	M 31	5	M 36.3		Greenwood A Shearwater A Sydney A Truro	18 18 M	0 - 1 M	26 30 M	12 7 8	6.2	-17.4 -10.2 -18.7
Frobisher Bay A Hall Beach A Hay River A	9 7 17	M	18 15 26	0 1 5	32.8 6.0 0.0	20.9 M -11.7	Earlton A Geraldton Gore Bay A	21 20 20	1 1	30 30 28 33	5	3.2	- 4.8 -12.1 -12.3 -10.6	Yarmouth A PRINCE EDWARD ISLAND Charlottetown	18	2	26	13	3.6 0.0	-18.1
Inuvik A Mould Bay Norman Wells A	16 1 19	- 3	31	2 - 1 11	2.0 4.1 15.1	- 4.4 0.4 4.6	Kapuskasing A Kenora A Kingston A	21 21 M 18	2 M	32 M 28	11 17		-14.3 M	Summerside NEWFOUNDLAND Battle Harbour	19 M	0 M	30 20	12 M	0.0 M	-15.9
Resolute A Sachs Harbour Yellowknife A ALBERTA	2 4 19	- 2 - 2 3	9 12 29	- 2 - 1 10	13.7 0.8 0.0	8.0 - 3.9 - 5.4	Lansdowne House London A Moosonee Mount Forest	22 18 21	2 2 3	31 30 30	14 5 12	M 11.8 0.8	- 7.5 -23.0	Cartwright Deer Lake Gender Int'l A	17 15 15	M 1 - 2 - 2	24 29 28 28	M 2 5 5	7.4 15.2 29.7	- 0.8 0.8
Banff Calgary Int'l A Cold Lake A	14 16 18	- 1 0	Comment of Section 14	4 3 11	4.4 3.2 10.7	- 9.0 - 6.6	Muskoka A North Bay A Ottawa Int'l A Petawawa A	21 22 24 22	3 4 M	32 30 33 33	17	3.0		Goose A Hopedale St. Anthony St. John's A	8 12 14	- 3 M - 2	21 26 26	0 5 5	16.0 41.9 22.7	- 4.0 h
Coronation A Edmonton Mun. A Edmonton Namao A Edson A	15 16 15 14	- 3 - 2 - 2 - 2	27 27 27 28	7 10 10	21.4 84.6 55.3 69.0	0.1 66.7 40.6 43.2	Pickle Lake Red Lake A Simcoe	19 19 M	2 0 M	33 31 30 M	17	82.6 3.8 M	59.3 -17.8 M	Stephenville A Wabush Lake	16	0 2	22	6	3.8 17.8	-10.8 - 4.1
Fort Chipewyan Fort McMurray A Grande Prairie A	17 18 16	0	27 29 27	6 10 8	6.6 9.8 38.6	- 6.4 - 8.6	Sioux Lookout A Sudbury A Thunder Bay A	20 22 20	1 4 2	31 32 32	13	23.7 1.0 0.0								

M-Denotes minning data

DESCRIPTION OF A STANDARD MISSION