# cilm wore PENNON-GRCULATVGG <br> THE CANADIAN CLIMATE CENTRE, <br> ATMOSPHERIC ENVIRONMENT SERVICE, 4905 DUFFERIN ST., DOWNSVIEW, ONTARIO M3H 5T4 

## JULY 6,1979

VOL. 1 NO. 21


WEATHER HIGHLIGHTS FOR THE WEER - JUNE 26 - JULY 2, 1979
Very warm over northern Prairies, but cool over southern Ontario. Continuing drought over extreme southern Alberta, but wet Canada-Day

## weekend of much of Canada

Mean temperatures were well-above normal over most of the Prairies, the southern parts of the District of Mackenzie and Keewatin, and Labrador, but it was colder than normal over southern Ontario, southern Quebec, most of the Maritimes, and a large part of the Territories.

Precipitation was heavy over northern British Columbia, central Alberta, most of southern, central and
eastern Ontario, and much of Quebec. On the other hand, it was relatively dry over the southern interior of B.C., extreme southern Alberta, most of Saskatchewan, Manitoba and northwestern Ontario and much of the Atlantic Provinces.

Most of the week's rain occurred over the Canada-Day holiday weekend. Outdoor weekend festivities were curtailed over much of British Columbia, NOTE: The data shown in this publication are based on unverified reports from approximately 225 Canadian and 115 northern United States Synoptic stations.
central Alberta, southern, central and eastern Ontario, and the Laurentians of Quebec. Along the Alaska Highway, several washouts occurced between Whitehorse and Fort Nelson. In the Peace, Slave Lake and Whitecourt areas of Alberta, a high water adisory was issued on July 2, following a two-day rain which totalled as much as 85 min at some places. At Manotick, near Ottawa, Ont., 73 mm of rain fell in one hour on the afternoon of July 1st, and some underpasses were flooded to a depth of two metres.

The continuing lack of rainfall and depletion of soil moisture is causing concern to the farmers of extreme southern Alberta. Many hay fields in the Pincher Creek-Nanton area will not be harvested this year. Elsewhere across the nation agricultural conditions are excellent, and Nova Scotia is experiencing its best hay crop in memory.

Meanwhile, low water levels in many rivers on the Island of Newfoundland have resulted in a virtual cessation of salmon fishing.

## YUKON


Temperatures averaged $1^{\circ} \mathrm{C}$ to $2^{\circ} \mathrm{C}$ below normal over all the Territory. Seven-day means were $13.1^{\circ} \mathrm{C}$ at Dawson and $13.0^{\circ} \mathrm{C}$ at Mayo, but only $11.6^{\circ} \mathrm{C}$ at Whitehorse. Tuesday was the warmest day; Watson Lake reported $24^{\circ} \mathrm{C}$. Following a few cooler days, temperatures rose into the twenties over central Yukon again by the week-end. The high temperature for the week at Whitehorse, however, was only $18^{\circ} \mathrm{C}$. Due to the short hours of darkness, overnight temperatures remained relatively high, no station reporting temperatures less than $4^{\circ} \mathrm{C}$.

Precipitation was above normal for the week. Total seven-day amounts, however, were quite variable. Dawson received 21.6 mm , but nearby Mayo reported only 11.1 mm . Over southern Yukon, Whitehorse received only 10.3 mm , but Watson Lake reported 51.6 mm , of which 46.4 mm fell on Saturday.

Heavy rain in southern Yukon and northeastern British Columbia forced


[^0]the closure of several sections along the Alaska Highway between Fort Nelson and Whitehorse. Two bridges collapsed and swollen streams breached the highway in five places. Repairs to the highway are expected to take about a week.

Growing degree-days to June 30 are running near normal over central Yukon, but are well-below normal over the extreme southern part of the Territory.

## NORTHWEST TERRITORIES

Temperatures averaged well-above normal over the southern Districts of Mackenzie and Keewatin, with anomalies of $3^{\circ} \mathrm{C}$ to $5^{\circ} \mathrm{C}$ for the week. At the same time, mean temperatures averaged $1^{\circ} \mathrm{C}$ to $3^{\circ} \mathrm{C}$ over all the Archipelago except the far north. Mean seven-day temperatures at Fort Smith and Yellowknife were $20.9^{\circ} \mathrm{C}$, but the mean at Resloute remained below the freezing point, $-0.3^{\circ} \mathrm{C}$. Mean maximum temperatures averaged about $7^{\circ} \mathrm{C}$ above normal over the southern District of Mackenzie, with daily readings in the upper twenties almost every day of the week. The $30^{\circ} \mathrm{C}$ mark was reached at Fort Simpson, Hay River, Yellowknife and Fort Smith. At the latter station, the mercury rose to $31^{\circ} \mathrm{C}$ on Wednesday. In contrast, the reported high temperature for the week at both Resolute and Mould Bay was $4^{\circ} \mathrm{C}$. At this last station, the mercury fell to $-6^{\circ} \mathrm{C}$ on Tuesday.

Precipitation was generally light over the Northwest Territories, but a few showers fell over the central Mackenzie River Valley on Sunday, and more general rain over Baffin Island early in the period and during midweek. Cape Dyer reported 39.6 mm , most of which fell on Thursday and Friday.

By the beginning of July, most localities except inland sections of the Arctic Islands had lost their snow cover. Cape Dyer, in southeastern Baffin Island at an elevation of 375 metres above sea level, still reported 84 cm of snow on the ground on Monday morning.

Ice conditions are still favourable for this time of year over most of the Arctic.

In the western Arctic, the icebreaker John A. Macdonald and two drill
ships still have above 40 km of consolidated ice to reach open water. The ice is deteriorating, and this distance should be covered during the coming week. The eastern Beaufort Sea drill sites are still in open water, with the edge of the pack ice lying about 130 to 160 km northwest of Tuktoyaktuk. These ice conditions are slightly ahead of schedule.

In the eastern Arctic, breakup is ahead of schedule, especially in southern areas. The shipping season will be getting underway shortly in Hudson Bay, which is now about $65 \%$ ice covered. The northwestern and southeastern sections and James Bay are almost all open water. Some open water leads are appearing now in Baffin Bay.

## BRITISH COLUMBIA

Temperatures averaged near normal over much of the province, but some southern interior stations reported means for the week $1^{\circ} \mathrm{C}$ to $2^{\circ} \mathrm{C}$ above normal. Also, some stations along the coast were as much as $1^{\circ} \mathrm{C}$ below normal. The mean seven-day temperature at Kamloops was $19.7^{\circ} \mathrm{C}$, while Prince Rupert was only $10.9^{\circ} \mathrm{C}$. The first half of the week was very warm, and on Thursday the mercury was to $35^{\circ} \mathrm{C}$ at Castlegar, Kamloops and Penticton. By the week-end all of the province was in much cooler air. The minimum temperature on Canada Day, July lst, fell to the freezing point at Prince George. On the same day at Castlegar, the maximum temperature was only $12^{\circ} \mathrm{C}$, down $23^{\circ} \mathrm{C}$ from three days earlier.

Precipitation was relatively heavy during the week, although a few interior stations reported below-normal amounts. Heavy rain occurred with the change to colder air, and showery conditions were reported at all stations over the holiday weekend. Many stations reported 20 mm to 40 mm of rain over the seven-day period, but Fort St. John reported 74.3 mm , of which 37.0 mm fell on Sunday and 33.6 mm the following day. In contrast, Cranbrook received only 1.9 mm , falling on one day only, Sunday.

Growing degree-days to June 30 are still averaging slightly above normal over the extreme southern part of
the province, but mostly well-below over the northern half.

## ALBERTA

Temperatures averaged well-above normal over most of Alberta for the week. While anomalies were only $1^{\wedge} C$ to $2^{\circ} \mathrm{C}$ over western and southern regions, northeastern parts of the province were as much as $6^{\circ} \mathrm{C}$ above normal. Mean seven-day temperatures at Fort Chipewyan and Fort McMurray were $20.2^{\circ} \mathrm{C}$ and $20.4^{\circ} \mathrm{C}$, respectively, warmer than over southern Alberta. The mean at Banff was only $13.4^{\circ} \mathrm{C}$. Warm weather continued until the weekend, with maximum temperatures reaching the low thirties at many stations, both in southern and northern Alberta. Medicine Hat rose to $33^{\circ} \mathrm{C}$ on Friday, but both Fort Chipewyan and Fort McMurray reached $32^{\circ} \mathrm{C}$, the former station on Wednesday and Saturday, and the latter on Friday. In contrast, temperatures on Sunday and Monday afternoon only reached the teens over the Peace River area and the foothills. The minimum temperature on Tuesday morning at Banff was only $3^{\circ} \mathrm{C}$.

A large swath of Alberta from the Peace River area southeastward to Medicine Hat reported relatively heavy precipitation during the week. 20 mm to 40 mm fell at many of the stations, with most falling on the holiday wekend. Namao Airport, near Edmonton, reported a weekly total of 53.8 mm , almost all of which fell Sunday and Monday. In contrast, extreme southern and extreme northern regions of the province remained dry. Lethbridge, for example, reported only 1.0 mm of rain during the week, while Fort McMurray recorded no measurable precipitation at all during the seven days.

The Lethbridge area is one of the driest in the province. Total rainfall during June, which is normally that area's wettest month, was only 15.3 mm . Based on airport records it was the driest June since 1938. Earlier records, however, from the Agricultural Research Station dating back to 1908 indicate the driest June on record for the Lethbridge area was in 1935, with only 8.9 mm .

Many hay fields in the Pincher Creek-Nanton areas will not be harvested this year as continuing drought conditions start to take a toll of farm production. A general rain is needed across southern Alberta to stop further crop deterioration and promote plant growth. Most crops are one to two weeks later than normal due to shortage of rain and low night temperatures since April. Drying winds have aggravated the situation. According to one agriculturist, evaporation measurements indicate the soil is losing as much as 20 mm of stored soil moisture on hot, windy days. He estimates it would take 75 to 100 mm to replenish lost moisture reserves and stop crop deterioration. As the affected area is in mainly ranching country, many producers will be forced to cut grain crops as green feed. Other producers are hopeful that the hay harvest outside the severe drought area but still within the general region will be sufficient to meet their needs. A close supply will alleviate shipping costs. Even within southern Alberta, crop conditions are variable.

The Alberta Environment River Flow Forecast Centre was prompted to issue a high water advisory July 2nd following heavy rainfall during the weekend. $U p$ to 85 mm of rain fell during the 48 -hour period starting June 30 in the Peace-Slave Lake-Whitecourt Areas. Creek and rivers were rising rapidly Monday night.

Alberta's forest fire situation has become critical during the past several days. Fires were burning in all major parts of the province, a situation which occurs about once every five years. Of the 62 fires burning during the weekend, about one third of them were burning out of control. A good number of fires were in prime timber areas in the Whitecourt, Slave Lake and Edson forest districts. Rain had eased the situation in the north and allowed firefighters to be deployed to battle three major fires covering about 500 hectares in the Rocky Mountain House area. So far no settlements were reported in danger.

## SASKATCHEWAN

Temperatures averaged well-above normal over all of Saskatchewan. Departures of $5^{\circ} \mathrm{C}$ to $6^{\circ} \mathrm{C}$ were reported over the northern third of the province, but southern regions were $3^{\circ} \mathrm{C}$ to $4^{\circ} \mathrm{C}$ above normal. The mean seven-day temperature at Regina was $21.0^{\circ} \mathrm{C}$, but even Hudson Bay averaged $18.4^{\circ} \mathrm{C}$ and Uranium City $20.4^{\circ} \mathrm{C}$. Friday and Saturday were the warmest days, with temperatures climbing into the upper twenties and lower thirties over all of the province. Swift Current reached $33^{\circ} \mathrm{C}$ on Saturday. This same station reported a minimum of $6^{\circ} \mathrm{C}$ on Tuesday morning.

Precipitation was well-below normal over all Saskatchewan. Many stations reported less than 5 mm over the seven days. Both Saskatoon and Swift Current, however, received more than 10 mm over the long weekend.

Growing degree-days to June 30th are running slightly below normal for the time of year.

## MANITOBA

Temperatures averaged as much as $6^{\circ} \mathrm{C}$ above normal over northwestern Manitoba, but over eastern and southern regions, departures were generally about $2^{\circ} \mathrm{C}$ above normal. The mean temperature for the seven-day period was $20.6^{\circ} \mathrm{C}$ at Portage la Prairie and even $18.3^{\circ} \mathrm{C}$ at Lynn Lake, in northern Manitoba. Churchill, however, only averaged $10.6^{\circ} \mathrm{C}$. Thursday was the warmest day, and record high temperatures for the date were established at Thompson, Lynn Lake and The Pas. Many localities reported $30^{\circ} \mathrm{C}$ on that day. Gillam was one of them, but on the next day, Friday, the mercury failed to rise above $16^{\circ} \mathrm{C}$. Churchill reported a minimum temperature of $3^{\circ} \mathrm{C}$ both Thursday and Friday morning.

Precipitation was well-below normal over all of the province during the week, and only a few spotty showers were reported. Some of them gave 10 mm or so, but Dauphin reported 19.6 mm during the week, of which 17.4 mm fell on Wednesday. In contrast, Gimli, Churchill and Bissett each reported less than 1.0 mm of rain during the week.

Growing degree-days to June 30 are still averaging well-below normal over southern Manitoba, but well-above over the northern half of the province. ONTARIO

Temperatures averaged $1^{\circ} \mathrm{C}$ to $3^{\circ} \mathrm{C}$ below normal over most of the province, but northwestern Ontario was generally about $1^{\circ} \mathrm{C}$ above normal. The mean sevenday temperature at Windsor was $19.2^{\circ} \mathrm{C}$, but Kenora was $19.1^{\circ} \mathrm{C}$. In contrast, the mean at Wawa was only $12.8^{\circ} \mathrm{C}$. It was generaly warm until the weekend, with Wednesday the warmest day over southern Ontario and Friday over the north. On Wednesday, Windsor reached $29^{\circ} \mathrm{C}$. By the week-end, afternoon temperatures were generally $5^{\circ} \mathrm{C}$ to $10^{\circ} \mathrm{C}$ lower than earlier in the week, and at many stations, the mercury failed to rise into the twenties. On Monday morning, Armstrong fell to $1^{\circ} \mathrm{C}$.

Northwestern Ontario was relatively dry during the week, with many places receiving less than 10 mm of rain. Wawa received no measurable precipitation at all. Over southern, central and eastern regions of the province, however, precipitation was quite variable, and many stations reported large amounts. Most of this occurred on Canada Day weekend, and thousands of campers and cottagers left for home early on July lst. Gore Bay received 58.4 mm , Sudbury 55.6 and Ot tawa 54.7 mm , most of which fell on Saturday and Sunday. The heaviest downpour occurred at Manotick, near Ottawa, where 73 mm fell on one hour on Canada Day afternoon. Flooding occurred throughout Nepean Township, with water flooding some underpasses to a depth of two metres. Heavy downpours affected Timmins, London and Windsor on other days of the week.

The Ontario Ministry of Natural Resources report for Monday, July 2, is as follows:

## $\frac{\text { NUMBER OF FIRES AND AREA BURNED }}{\text { Week of June } 25-\text { July }}$ <br> Week of June 25 - July 2

REGION
North - west
North-central
NUMBER
57
19
PROVINCIAL TOTAL 89280

Total season to date

| REGION | NUMBER | HECTARES |
| :--- | :---: | ---: |
| Northwestern | 201 | 19670 |
| North-central | 130 | 11060 |
| Northern | 38 | 160 |
| Northeastern | 54 | 60 |
| Algonquin | 92 | 80 |
| Eastern | 41 | 120 |
| PROVINCIAL TOTAL | 563 | 31130 |

This past week saw a return to normal fire activity in Ontario. Most of the manpower, which was moved into northwestern and north-central Ontario to combat the major conflagrations in those areas the previous week, have been returned home. Equipment recycling is in full swing. Most of the new fire arrivals have been lightning caused. Increased precipitation, generally moister air mass systems and advanced green-up of vegetation have helped to prevent a re-occurrence of major fires.

Growing degree-days to June 30 th are running below normal over parts of southern and central Ontario and also over most of northwestern Ontario. However, over the northeast and east most stations are reporting abovenormal values for the time of year.

## QUEBEC

Following the cold, damp weather of the Saint-Jean Baptiste weekend, the Canada Day weekend fared little better. However, pleasant, sunny weather dominated the week between.

Temperatures averaged $1^{\circ} \mathrm{C}$ to $2^{\circ} \mathrm{C}$ above normal over northern and eastern Quebec, but western and extreme southern regions were slightly below normal. The mean seven-day temperature at Montreal was $19.6^{\circ} \mathrm{C}$, while Inoucdjouac, on the easten shore of Hudson Bay, was only $5.4^{\circ} \mathrm{C}$. Friday and Saturday were the warmest days. The temperature reached $28^{\circ} \mathrm{C}$ at Gaspé on the former day and at Bagotville on the latter.

Low temperatures were reported in many regions early Tuesday morning. StHubert reported a new minimum record for the date of $5.1^{\circ} \mathrm{C}$, replacing the old record of $6.7^{\circ} \mathrm{C}$ in 1970 , while Sherbrooke fell to $0.3^{\circ} \mathrm{C}$, breaking the old record of $2.2^{\circ} \mathrm{C}$, which occurred in the same year. Sept-Iles tied their
record for the date with $4^{\circ} \mathrm{C}$. Poste de la Baleine fell to $-1^{\circ} \mathrm{C}$ on both Thursday and Sunday mornings.

Rainfall during the week totalled near normal over much of the province, but there were some exceptions. Eastern and southern Quebec reported about 20 mm during the week, but less than 10 mm fell over most of the Ungava Peninsula. Most of the rain fell over Canada Day weekend, and caused numerous cancellations of outdoor celebrations. Heavy rains on Sunday affected the Laurentians and in particular SainteMarguerite, Saint-Hyppolite, SainteAdèle and Mont Rolland. At SainteAgathe, 38.4 mm of rain was reported on Sunday and 16.8 mm Monday, and some local flooding caused closing of the Laurentian Autoroute. On the QuebecLabrador border in the vicinity of Wabush more than 60 mm fell during the week. Sept-Iles reported 128.7 mm of precipitation during June, well above normal, but measurable rain occurred on 19 days, three days more than the previous record for the month.

June was an excellent month for agriculture across Quebec, as both growing degree-days and sunshine were well-above normal. The hay crop is one to two weeks earlier than normal, and the strawberry crop looks excellent.

## MARITIME PROVINCES

Temperatures over most of the Maritimes averaged near normal to about $1^{\circ} \mathrm{C}$ below normal for the week. Northern New Brunswick, however, averaged about $1^{\circ} \mathrm{C}$ above bormal. The mean seven-day temperature at Chatham, N.B., was $19.1^{\circ} \mathrm{C}$, but at Saint John it was only $14.2^{\circ} \mathrm{C}$. There were no really warm days, but Chatham reached $29^{\circ} \mathrm{C}$ on Friday. Overnight temperatures were very low early in the week. On Tuesday morning, Greenwood, Moncton and Fredericton each reported a minimum of $1^{\circ} \mathrm{C}$, Saint John $4^{\circ} \mathrm{C}$, and Yarmouth $5^{\circ} \mathrm{C}$, all record low values for the date. No damage was reported with the ground frost.

Precipitation was generally above normal for the seven-day period over Nova Scotia and southern New Brunswick, but below normal elsewhere. Weekly totals ranged from 20 mm to 30 mm over Nova Scotia, while Charlo, N.B., re-
ported 37.8 mm . In contrast, Charlottetown, P.E.I., only had 2.2 mm . Virtually all of the precipitation this week in the Maritimes occurred on the Canada Day weekend, the second bad weekend in a row.

Due to well-above normal growingdegree days, a wet May and dry June, the hay crop is excellent this year. In Nova Scotia, more hay was harvested in June than ever before.

A few small forest fires are reported burning in Nova Scotia and New Brunswick, but they are well under control.

## NEWFOUNDLAND AND LABRADOR

Temperatures over Labrador averaged $2^{\circ} \mathrm{C}$ to $3^{\circ} \mathrm{C}$ above normal for the week, while over the Island of Newfoundland, they were near normal to about $1^{\circ} \mathrm{C}$ above normal. The mean seven- day temperature at Goose Bay was $16.2^{\circ} \mathrm{C}$, while at Battle Harbour, it was $10.4^{\circ} \mathrm{C}$. Temperatures varied considerably from day to day, depending on the prevailing winds. The week both began and ended on the cool side, but there
were some warm days toward the weekend, particularly over the Island of Newfoundland. The mercury reached $29^{\circ} \mathrm{C}$ at Deer Lake on Sunday. The same station reported a minimum of $-1^{\circ} \mathrm{C}$ on Tuesday morning.

The Island of Newfoundland was relatively dry during the week. Gander received only 3.0 mm for the week and Deer Lake 4.0 mm . Most of the precipitation occurred on Monday, but St. John's reported 16.1 mm on Saturday. Over Labrador, precipitation was quite variable, but some stations reported locally heavy amounts. Wabush Lake, for example, reported 64.1 mm over the seven-day period, of which 44.5 mm fell on Monday.

Two small forest fires north and northwest of Gander have burned about 160 hectares. However, they are now both under control.

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

Low water levels in many rivers on the Island of Newfoundland have resulted in a virtual cessation of salmon fishing.

GROWING DEGREE-DAYS


PERCENTAGE DEPARTURE FROM NORMAL HEATING DEGREE-DAYS FOR THE 1978-1979 SEASON
The end of June is considered the end of the previous winter's heating season over Canada. Only parts of eastern Quebec, the Atlantic Provinces and the extreme northern Mackenzie River Valley had below-normal heating degree-days last winter. Most of southern interior British Columbia and the southern Prairies reported heating degree-days more than $10 \%$ above normal.


HEATING DEGREE-DAY SUMMARY TO JUNE 30, 1979

| STATION | MONTHLY <br> CUMULATIVE <br> TOTAL | MONTHLY DIFF. <br> FROM 1941-70 <br> NORMAL | SEASONAL <br> TOTAL | SEASONAL <br> DIFF. FROM <br> 1941-70 NORMAL | SEASONAL <br> PER CENT <br> OF NORMAL |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Resolute | 637 | 88 | 12990 | 441 | 104 |
| Inuvik | 244 | -1 | 9844 | -331 | 97 |
| Whitehorse | 207 | 36 | 7147 | 268 | 104 |
| Vancouver Int'1 A | 89 | 4 | 3142 | 135 | 104 |
| Edmonton Mun A | 87 | -22 | 5778 | 189 | 103 |
| Calgary Int'1 A | 135 | -16 | 5756 | 411 | 108 |
| Regina | 61 | -37 | 6556 | 637 | 111 |
| Winnipeg Int'1 A | 76 | 0 | 6683 | 794 | 113 |
| Thunder Bay | 125 | -6 | 6305 | 559 | 110 |
| Windsor | 25 | -4 | 3782 | 192 | 105 |
| Toronto Int'1 A | 62 | 14 | 4301 | 219 | 105 |
| Ottawa Int'1 A | 45 | 1 | 4743 | 70 | 101 |
| Montreal Int'1 A | 44 | 6 | 4683 | 212 | 105 |
| Quebec | 57 | -20 | 5228 | 148 | 103 |
| Saint John N.B | 122 | -14 | 4734 | -37 | 99 |
| Halifax | 100 | -33 | 4253 | 130 | 103 |
| Charlottetown | 78 | -49 | 4593 | -30 | 99 |
| St. John's, Nf1d. | 168 | -61 | 4874 | 70 | 101 |

## 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
Dawson
Frobisher
Trenton
Vancouver
Below Normal
$\left(-1.0^{\circ} \mathrm{C}<\Delta \mathrm{T}<-0.3^{\circ} \mathrm{C}\right)$
Anomaly denotes departure from the 1949-73 mean.
Current Temperature Anomaly ( T) Forecast
Above Normal $\quad\left(+0.4^{\circ} \mathrm{C} \quad \mathrm{T}+1.3^{\circ} \mathrm{C}\right)$
Below Normal $\quad\left(-1.2^{\circ} \mathrm{C}<\Delta \mathrm{T}<-0.4^{\circ} \mathrm{C}\right)$
Much Below Normal ( $\quad \Delta \mathrm{T}<-1.3^{\circ} \mathrm{C}$ )

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## Synoptic History

The relatively more zonal，west to east，50－kilopascal upper air flow of last week（at approximately 5000 metres）continued，but with a marked change taking place by mid－period．The formation of a relatively strong merid－ ional（north to south）upper air flow caused a blocking situation to develop over North America by the weekend， thereby slowing down considerably the movement of surface pressure systems．

On Friday June 29 two major 50 kPa troughs and their associated closed lows began to influence weather conditions in parts of Canada．One of these，digging slowly southeastward from Alaska，positioned itself across central British Columbia，while the other developed and deepened over Ontario．Both of them remained quasi－ stationary throughout the latter part of the period．

Associated with these two upper features quasi－stationary low pressure disturbances formed at the surface，and together with contrasting air masses， caused a complex pattern of unsettled weather conditions to prevail in the respective areas．Heavy rainfalls were reported in parts of the Yukon，British Columbia，Alberta，with southern and central Ontario and Quebec not fairing much better，receiving cool，wet weath－ er throughout the long weekend．

Major upper ridging and overall higher surface pressures were the pre－ dominant feature over the Pairies and

$50 \mathrm{kPa}(500 \mathrm{mb})$ Height Map（decametres） 7 Day Mean June 25 to July 1， 1979.
Maritimes，giving them generally fair and warmer weather conditions through most of the period．

Andy Radomski

July is notable for its hot temperatures．From coast to coast，all－time max－ imums for each province（except the Maritimes）as well as the National High have been recorded in July：

British Columbia

| Alberta |  |
| :--- | :--- |
| ＊Saskatchewan | $42.2^{\circ} \mathrm{C}$ |
| Manitoba | $45^{\circ} \mathrm{C}$ |
| Ontario | $44.4^{\circ} \mathrm{C}$ |
|  | $42.2^{\circ} \mathrm{C}$ |
| Quebec | $40^{\circ} \mathrm{C}$ |
| Newfoundland | $37.8^{\circ} \mathrm{C}$ |
| Northwest Territories | $39.4^{\circ} \mathrm{C}$ |


| Lytton <br> Chinook Cove | July 16，1941 |
| :--- | :---: |
| Lillooet |  |
| Medicine Hat | July 12， 1886 |
| Midale，Yellow | Grass July 5， 1937 |
| St．Albans | July 11，1936 |
| Emerson | July 12，1936 |
| Atikokan | July 11 \＆12 1936 |
| Fort Frances | July 13，1936 |
| Ville Marie | July 6，1921 |
| Goose Bay | July 4，1944 |
| Fort Smith | July 18，1941 |

Lytton
Chinook Cove Lillooet
Medicine Hat July 12， 1886
Midale，Yellow Grass July 5， 1937
Emerson July 12， 1936
At ikokan
Fort Frances
有e Marie
Fort Smith

July 11 \＆ 121936
July 13， 1936
July 6， 1921
July 18， 1941
＊Also represents the national high

TEMPERATURE and PRECIPITATION DATA for the WEEK ENDING 0600 G.M.T. JULY 3, 1979

|  | Temperature ( ${ }^{\circ} \mathrm{C}$ ) |  |  |  | Precip. (mm) |  |  | Temperature ( ${ }^{\circ} \mathrm{C}$ ) |  |  |  | Precip. (mm) |  |  | Temperature ( ${ }^{\circ} \mathrm{C}$ ) |  |  |  | Precip. (mm) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Station | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 2 \\ & 2 \end{aligned}$ | $\left\lvert\, \begin{array}{ll}  & \overline{0} \\ 0 & E \\ 2 & 0 \\ \vdots & Z_{1} \\ 0 & E \\ 0 & E \\ 0 & 0 \\ \hline \end{array}\right.$ |  |  | $\stackrel{\square}{\square}$ |  | Station |  |  |  |  | $\stackrel{\square}{\square}$ | $\begin{aligned} & \bar{O} \\ & 0 \\ & 0 \\ & \vdots \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \end{aligned}$ | Station | ¢ <br> O <br> 0 <br> 0 <br> 8 <br> 8 |  $\overline{0}$ <br> 0 $E$ <br> 3 0 <br> $\vdots$  <br> 0  <br> 0 $E$ <br> 0 0 <br> 0 0 |  |  | - |  |
| BRITISH COLU |  |  |  |  |  |  | Jasper | 15 | 2 | 29 | 3 | 2.4 | - 7.8 | Timmin A | 15 | - 2 | 25 | 6 | 36.1 | 14.9 |
| BRITISH COL Abhotaford | 15 | - 1 | 27 | 7 | 15.7 | 3.3 | Lethbridge A | 18 | 3 | 32 | 7 | 1.0 | $-20.0$ | Toronti Int '1 A | 18 | - 3 | 26 | 6 | 18.6 | 4.3 |
| Blue River | M | - | M | M | M | M | Medicine Hat $A$ | 19 | 2 | 33 | 7 | 28.5 | 13.9 | Trentor A | 18 | - 2 | 26 | 5 | M | M |
| Bull Harbour | 12 | 0 | 15 | 8 | 22.3 | 8.9 | Peace River A | 16 | 1 | 28 | 6 | 49.9 | 31.3 | Trout lake | 15 | 1 | 28 | 5 | 8.7 | 9.1 |
| Castlegar A | 19 | 1 | 35 | 9 | 30.3 | 11.7 | Red Deer A | 17 | 3 | 32 | 5 | 22.6 | - 2.1 | Wawa A | 13 | M | 25 | 2 | 0.0 | M |
| Cranbrook 1 | 18 | 4 | 33 | 7 | 1.9 | -18.4 | Rocky Mountain House | 15 | 2 | 30 | 5 | 18.7 | - 4.3 | Wiartot A | 16 | - 3 | 23 | 6 | 12. | 5.5 |
| Comox 1 | 16 | 0 | 26 | 9 | 14.0 | 7.3 | Vermilion A | 18 | 3 | 29 | 8 | 34.4 | 18.3 | Windsoi A | 19 | -3 | 29 | 10 | 34.3 | 18.3 |
| Fistevan Point | M | M | M | 8 | M | M | Whitecourt | 16 | 2 | 31 | 6 | 45.9 | 25.1 | QUEBEC |  |  |  |  |  |  |
| Fort Nelbon A | 17 | 1 | 28 | 7 | 44.2 | 26.3 | SASKATCHEWAN |  |  |  |  |  |  | Bagotvile A | 18 | 1 | 8 |  | M | M |
| Fort St. John A | 15 | 0 | 26 | 6 | 74.3 | 57.9 | Broadview | 20 | 4 | 30 | 8 | 2.8 | $-18.9$ | Bate Cmeau | $5$ |  | 2 |  | 24.9 | 4.1 |
| Kamloops A | 20 | 2 | 35 | 8 | 3.0 | -10.3 | Buffalo Narrows | 19 | M | 29 | 9 | 3.8 | M | order | 17 | M | 26 |  | 40.4 |  |
| Lytton | M | M | M | M | M | M | Cree Lake | $\begin{array}{r}\text { M } \\ \hline 1\end{array}$ | M | 29 | M 9 | 2.0 | $M$ 9 | Chibougamau | 17 9 | M | 26 | $\begin{aligned} & 8 \\ & 0 \end{aligned}$ | M | $M$ $M$ |
| Penticton A | 20 | 2 | 35 | 6 | 16.2 | 8.0 | Estevan A | 21 | 3 | 30 | 9 | 5.7 $M$ | -7.9 $M$ | Gaspe A | 17 | 2 | 28 | $3$ | 19.0 | 4.3 |
| Port Hardy A | 12 | - 1 | 17 | 5 | 28.1 | 13.0 | Hudson Bay | 18 | 3 | 29 31 | 8 | 9.0 | M -12.6 | Grindstine Island | 16 | 1 | 22 | 7 | 8.6 | - 5.8 |
| Prince George A | 14 | 0 | 27 | 0 | 23.7 | 6.6 | Kindersley La Ronge A | 19 | 5 | 31 28 | 8 | 9.0 | -12.6 -42.0 | Inoucdjeuac | 5 | -2 | 13 | 0 | 5.8 | - 5.2 |
| Prince Rupert A | 111 | - 1 | 16 | 3 | 44.5 35.0 | 28.1 18.8 | La Ronge A | 19 | 3 | 28 | 8 | 4.4 | -14.8 | ManiwakI | 18 | 0 | 25 | 5 | M | M |
| Quesnel A Revelstoke A | 14 | 0 | 28 32 | 8 | 35.0 8.0 | 18.8 $-\quad 6.5$ | Prince Albert A | 19 | 3 | 29 | 7 | 4.0 | -13.5 | Matagaml A | 16 | M | 26 | 5 | 32.6 | M |
| Smithers A | 13 | -1 | 26 | 4 | 24.2 | 17.0 | Regina A | 21 | 4 | 31 | 8 | 3.2 | -15.5 | Mont Joll A | 18 | 1 | 26 | 7 | 12.5 | 1.7 |
| Terrace 1 | 14 | - 1 | 27 | 6 | 26.0 | 16.8 | Saskatoon A | 20 | 3 | 30 | 9 | 10.8 | -8.1 | Montréal Int'l A | 20 | - 2 | 27 | 11 | 24.3 | 6.3 |
| Vancouver Int'1 A | 15 | - 1 | 25 | 8 | 11.0 | 2.2 | Swift Current A | 19 | 3 | 33 | 6 | 10.8 | $-10.0$ | Natashquan A | 14 | 2 | 22 | 4 | 24.7 | 6.4 |
| Victoria Int'1 A | 14 | - 1 | 23 | 4 | 7.8 | 2.6 | Uranium City | 20 | M | 30 | 7 | 0.6 | M | Nitcheqion | 13 | 1 | 22 | 7 | 30.0 | 4.9 |
| Willlams Lake A | 14 | 1 | 27 | 1 | 15.8 | 2.0 | Wynyard | 20 | 3 | 28 | 10 | 8.8 | $-18.6$ | Port Menier | 16 | 2 | 25 | 3 | 21.6 | 6.2 |
| YUKON |  |  |  |  |  |  | Yorkton A | 20 | 3 | 28 | 9 | 5.5 | $-11.5$ | Poste de la Baleine | 6 | - 3 | 21 | - 1 | 5. | -11.9 |
| Dawson 1 | 13 | - 2 | 23 | 4 | 21.6 | 10.5 | MANITOBA |  |  |  |  |  |  | Québec A | 18 | - 1 | 25 | 5 | 21.6 | 2.1 |
| Mayo A | 13 | -1 | 21 | 4 | 11.1 | 2.0 | Bissett | 19 | M | 29 | 7 | 0.5 | M | Riviere du Loup | 17 | 0 | 24 | 7 | 24.0 | 4.6 |
| Watson Lake A | 13 | - 2 | 24 | 4 | 51.6 | 36.5 | Brandon A | 19 | 2 | 30 | 7 | M | M | Roberval A | 19 | 2 | 27 | 9 | 7 | 8. 4 |
| Whitehorse A | 12 | - 1 | 18 | 5 | 10.3 | 1.4 | Church1l1 A | 11 | 2 | 21 | 3 | 0.6 | -10.0 | Schefferville A | 12 | 1 | 23 | 5 | 9.0 | -12.9 |
| NORTHWEST TERRITORIES |  |  |  |  |  |  | Dauphin A | 20 | 2 | 30 | 10 | 19.6 | - 1.0 | Sept-Iles A | 15 | 1 | 22 | 4 | 24.8 | 6.4 |
| Alert | 3 | 0 | 8 | - 3 | 2.4 | - 1.6 | Gillam A | 16 | M | 30 | 5 | 13.4 | M | Sherbrooke A | 17 | 0 | 26 | 0 | 12.8 | -15.6 |
| Baker lake | 8 | 1 | 21 | - 1 | 2.0 | - 2.9 | Gimli | 19 | 2 | 26 | 10 | 0.9 | -23.3 | Val d'or A | 16 | - 1 | 25 | 6 | M | M |
| Cambridge Bay A | 5 | - 1 | 15 | -1 | M | M | Lynn Lake | 18 | 6 | 30 | 6 | 1.2 | -21.5 | NEW BRUNSWICR |  |  |  |  |  |  |
| Cape Dyer | 2 | M | 6 | -2 | 39.6 | M | Norway House | M | M | M | 9 | 6.2 | M | Charlo A | 18 | 2 | 26 | 3 | 37.8 | 16.7 |
| Chesterfield Inlet | 8 | 1 | 19 | 0 | 0.1 | $-5.3$ | Pilot Mound | 19 | 2 | 29 | 9 | M | M | Chatham A | 19 | 1 | 29 | 3 | 24.3 | 7.1 |
| Clyde | 2 | - 1 | 12 | - 4 | 5.8 | 3.3 | Portage la Prairie | 21 | 2 | 30 | 11 | 13.8 | -15.2 | Fredericton A | 18 | $-1$ | 26 | 1 | 20.1 | - 2.6 |
| Coppermine | 5 | -2 | 16 | - 1 | M | M | The Pas A | 20 | 4 | 30 | 8 | 1.8 | -19.9 | Moncton A | 17 | - 1 | 25 | 1 | 4 | - 6.3 |
| Coral Harbour | 6 | 0 | 12 | 1 | 8.4 | 1.9 | Thompson A | 18 | 5 | 30 | 5 | 2.8 | -17.6 | Saint John A | 14 | - 2 | 21 | 4 | 27.0 | 7.6 |
| Ennadal | 13 | 3 | 26 | 1 | 0.3 | $-7.1$ | Winnipeg Int'l A | 20 | 2 | 29 | 10 | 12.1 | -15.6 | NOVA SCOTIA |  |  |  |  |  |  |
| Eureka | 3 | $-3$ | 9 | - 2 | 0.0 | - 0.7 | ONTARIO |  |  |  |  |  |  | Greenwood A | 16 | - 2 | 25 | 1 | 11.0 | 6.9 |
| Fort Simpson | 20 | 5 | 30 | 10 | 10.2 | 4.0 | Armstrong A | 15 | - 1 | 27 | 1 | 7.6 | -12.9 | Shearwater A | 15 | - 1 | 21 | 5 | 14.0 | 1.5 |
| Fort Smith A | 21 | 6 | 31 | 5 | 1.6 | -10.7 | Atikokan | 16 | 0 | 26 | 5 | 8.6 | -23.3 | Sydney A | 16 | 0 | 25 | 5 | 12.0 |  |
| Frobisher Bay A | 5 | -1 | 10 | 1 | 22.2 | 13.7 | Earlton A | 16 | -2 | 25 | 8 | 47.3 | 23.2 | Truro | 16 | 0 | 24 | 5 | 27.5 | 14.3 |
| Hall Beach A | 4 | M | 11 | - 1 | 11.0 | M | Geraldton | 15 | 1 | 27 | 3 | 3.0 | -25.6 | Yarmouth A | 15 | 0 | 22 | 5 | 30.9 | 16.0 |
| Hay River A | 19 | 6 | 30 | 11 | 0.0 | -9.1 | Gore Bay A | 16 | -2 | 22 | 9 | 58.4 | 42.6 | PRINCB EDWARD ISLARD |  |  |  |  |  |  |
| Inuvik A | 13 | - 1 | 23 | 1 | 6.8 | 2.0 | Kapuskasing A | 15 | -2 | 25 | 4 | 10.8 | -10.0 | Charlottetown | 17 | 0 | 25 | 6 | 2.2 | -15.4 |
| Mould Bay | 0 | - 3 | 4 | - 6 | 0.0 | - 2.1 | Kenora A | 19 | 2 | 26 | 12 | 14.3 | -16.0 | Summerside | 17 | 0 | 24 | 5 | 10.2 | - 5.6 |
| Norman Wells A | 16 | 1 | 29 | 9 | 14.2 | 4.8 | Kingsiton A | 18 | - 2 | 24 | 12 | M | M | NEWFOUNDLAED |  |  |  |  |  |  |
| Resolute A | 0 | - 3 | 4 | - 5 | 0.2 | - 4.5 | Lansdowne House | 16 | 0 | 27 | 8 | 8.6 | -16.1 | Battle Harbour | 10 | 3 | 23 | 3 | M | M |
| Sache Harbour | 2 | - 4 | 12 | - 4 | 0.0 | - 2.2 | London A | 17 | - 4 | 27 | 6 | 40.8 | 15.5 | Cartwright | 12 | 1 | 22 | 3 | 30.6 | 10.8 |
| Yellowknife A | 21 | 6 | 30 | 8 | 0.0 | - 6.1 | Moosonee | 14 | 0 | 28 | 3 | 14.2 | -6.0 | Deer Lake | 16 | 2 | 29 | -1 | 4.0 | -12.0 |
| ALBERTA |  |  |  |  |  |  | Mount Forest | 17 | - 2 | 24 | 9 | 25.8 | 13.0 | Gander Int '1 A | 16 | 1 | 25 | 4 | 3.0 | -14.5 |
| Banff | 13 | 2 | 27 | 3 | 5.2 | -10.7 | Muskoka A | 17 | - 1 | 24 | 5 | M | M | Goose A | 16 | 3 | 25 | 6 | 14.5 | -10.7 |
| Calgary Int '1 A | 16 | 2 | 30 | 4 | 2.4 | -23.6 | North Bay A | 17 | - 1 | 24 | 9 | 39.0 | 15.2 | Hopedale | 11 | 2 | 22 | 2 | 7.0 | -17.0 |
| Cold Lake A | 18 | 3 | 29 | 8 | 9.0 | -13.7 | Ottawa Int'l A | 19 | - 2 | 25 | 10 | 54.7 | 36.9 | St. Anthony | 12 | M | 23 | 2 | 7.6 | M |
| Coronation A | 17 | 3 | 32 | 6 | 42.1 | 23.5 | Petawawa A | 18 | M | 26 | 5 | M | M | St. John's A | 13 | 0 | 22 | 1 | 18.9 | 0.6 |
| Edmonton Mun. A | 19 | 3 | 31 | 9 | 47.8 | 30.3 | Fickle Lake | M | M | M | M | M | M | Stephenville A | 14 | 0 | 22 | 2 | 8.6 | $-11.3$ |
| Edmonton Namao A | 18 | 3 | 31 | 9 | 53.8 | 28.4 | Red Lake A | 17 | 0 | 27 | 4 | 0.4 | -26.8 | Wabush Lake | 14 | 3 | 25 | 6 | 64.1 | 37.2 |
| Edson A | 15 | 2 | 30 | 4 | 3.6 | -21.9 | Simeoe | 18 | - 3 | 26 | 11 | 25.4 | 12.4 |  |  |  |  |  |  |  |
| Fort Chipewyan | 20 | 5 | 32 | 6 | 3.8 | -6.7 | Sloux Lookout A | 18 | 1 | 26 | 7 | 3.6 | -30.4 |  |  |  |  |  |  |  |
| Fort McMurray A | 20 | 6 | 32 | 8 | 0.0 | -14.8 | Sudbury A | 17 | - 1 | 25 | 10 | 55.6 | 32.2 |  |  |  |  |  |  |  |
| Grande Prairie A | 15 | 1 | 28 | 7 | 15.3 | - 3.6 | Thunder Bay A | 17 | 1 | 28 | 6 | 1.6 | $-17.0$ |  |  |  |  |  |  |  |

M-Denotes missing data


[^0]:    Note: Values are non-representative in non-uniform topographical regions such as the Rocky Mts.

