

Cool over the Prairies, but warm and wet over Quebec and the Atlantic Provinces

Temperatures continued to average

Wet fields were still hampering

below normal over most of the Prairies and over a large part of the Northwest Territories. At the same time, very warm weather continued over Quebec and the Atlantic Provinces.

Generally dry conditions were reported over southern B.C., the southern Prairies and northern N.B. Wet weather occurred over the north B.C. coast, an east-west band across the central Prairies, and over a large part of Eastern Canada. seeding over the eastern Prairies and New Brunswick, but agricultural conditions were reported as excellent over southern Ontario. A serious infestation of flea-beetles was injuring rapeseed crops in central Alberta.

Tornadoes were reported at London and Brampton, Ont. At the latter locality, very extensive damage occurred to an industrial area, but no loss of life was reported. Severe thunderstorms with strong winds and hail were

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



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

also reported at Edmonton and Medicine Hat, Alta., and Val d'Or and Dorval, Que.

YUKON

Temperatures averaged 1°C to 2°C below normal over the extreme southern Yukon, but they were near normal over the north. The mean seven-day temperatures averaged 13.4°C at Dawson and 13.2°C at Mayo, but were only 10.5°C at Whitehorse. The mercury climbed to 25°C on the 9th at Dawson and the 10th at Mayo. Frost was reported at Whitehorse on both the 7th and 8th, when the near the mouth of the Mackenzie River was significantly above normal, however. The seven-day means exceeded 10°C along most of the Mackenzie River Valley. Most stations along the Mackenzie River Valley reported temperatures in the twenties by the weekend. At Inuvik the mercury climbed to 25°C on the 10th, while the same value was reached at Norman Wells the following day. The temperature fell to -12°C on the 6th at Sachs Harbour and the 8th at Mould Bay.

A slow-moving storm dumped more than 25 mm of precipitation at Baker

temperature fell to -1°C.

Precipitaton averaged below normal over the Territory. Whitehorse reported 6.5 mm over the seven-day period.

NORTHWEST TERRITORIES

Much of the Northwest Territories reported below normal temperatures. The greatest departures were in the high Arctic and in the southern District of Mackenzie, where the weekly means were 2°C to 5°C below normal. A small area Lake on the 6th and 7th and almost as much to Chesterfield and Coral Harbour. Most of the remainder of the Territories was relatively dry, but Cape Dyer, on eastern Baffin Island, recorded a weekly total of 62.8 mm, of which 48.6 mm fell on Monday.

As of June 11th, the depth of snow on the ground was as great as 125 cm at Cape Dyer and 101 at Clyde, both on Baffin Island.

In the eastern Arctic, ice breakup is ahead of schedule, and drilling operations are expected to start early in July. The edge of the ice pack is currently situated in the vicinity of the drill sites. Ice break-up over Hudson and Davis Straits is ahead of schedule. The same is true for Hudson Bay, although it is still 75% icecovered.

In the western Arctic, ice conditions are generally about normal. Some of the easterly drill sites are ice free. However, pack-ice conditions can vary greatly with wind speed and direction, and during the next few days, unfavourable conditions due to on-shore winds are expected.

The ice-breaker, John A. Macdonald, left Summers Harbour on the 7th of June, breaking through consolidated ice averaging 185 cm in thickness, but with much higher ridges. The ship is now 8 km off-shore, attempting to break a path to open water for three drill ships still left in the harbour.

BRITISH COLUMBIA

Temperatures averaged 1°C to 3°C below normal for the week, but extreme southern British Columbia, particularly the interior valleys, averaged near normal to slightly above. The mean seven-day temperature at Penticton was 18.1°C. In contrast, Prince Rupert, on the north coast, was only 9.0°C. The highest temperatures occurred on the last two days of the period. Castlegar reached 33°C on the 11th. Some patchy frost was reported in the central interior near the beginning of the week. Williams Lake fell to -1°C on the 6th.

The province was generally very dry during the week except for Tuesday, when rain or showers were reported in many regions. Some light rain was reported on Saturday along the north coast. Prince Rupert recorded 43.9 mm of rain during the week, of which 23.3 mm fell on the 5th. edly cold during the week. The weekly mean was 14.8°C at Medicine Hat. In contrast, it was only 8.2°C at Fort Chipewyan. By the weekend temperatures rose well into the twenties across most of the province. Both Lethbridge and Medicine Hat reported 30°C on the 11th. Frost was reported at some foothill and northern stations during the week. Fort Chipewyan recorded -3°C on the 10th.

Northern Alberta was wetter than normal during the week, but southern regions were dry. Tuesday and Wednesday were especially wet over the north. Cold Lake reported 29.5 mm during the week.

An evening thunderstorm with hail, driven by winds gusting up to 100 km/h caused extensive damage in the Medicine Hat area on June 5. One green house operator alone estimates losses of near 100,000 dollars as the storm smashed greenhouses and flattened the crops they held. The city's southwest area was hardest hit with reports of broken windows, uprooted trees, flattened gardens and a number of power outages throughout the city.

High winds at Edmonton gusting from 80 to 100 km/h during the late afternoon of June 5 and into the early morning of June 6 resulted in some damage in that city. Some areas were without power for up to $4\frac{1}{2}$ hours.

Despite having been hampered by less than ideal spring conditions, seeding in Alberta is essentially complete. Northern areas due to excessive soil moisture report some seeding of early maturing crops still to be done. Crops are emerging but have been slowed down somewhat by lower temperatures of Subsoil moisturte rethe past week. serves are generally good, however. In many districts the surface of seeded fields is becoming dry and a widespread rain would ensure good germination of late seeded crops. Although some frost damage had been reported as a result of widespread frosts in late May and subsequent spotty light frosts in early June, the overall effect is difficult to assess. In some instances a light frost may be beneficial to some crops as it results in more foliage upon recovery and later stages of development.

Growing degree-days to June 9 are running below normal along the north coast and the Peace River area, but above normal along the east coast of Vancouver Island and over the lower Fraser River Valley.

ALBERTA

Except over extreme southern Alberta, where temperatures were near normal, most of the province was decidThe worst fleabeetle infestation in Alberta's history is attacking thousands of hectares of emerging rapeseed crops. Fleabeetles have been reported throughout the province, but the most severe infestation is in central Alberta, the province's major rapeseed growing area, where damage has been reported as severe and some fields may have to be reseeded. Reseeding at this time, however, runs the risk of not leaving sufficient time for reseeded crops to mature and be harvested before early fall frosts.

The feeding activity of fleabeetles is highly weather related. With temperatures of 20 to 25 degrees the beetles will begin to fly and spread the infestation. With temperatures below 18 degrees, beetles will not fly but will continue active feeding, while the beetles will do little feeding if temperatures drop below 10 to 12 degrees. Heavy rains will either drown the small beetles or give the rapeseed plant a chance to grow quickly. Emerging seedlings are most susceptible to attack. Plants reaching a height of 15 cm to 20 cm can generally withstand an attack by these voracious feeders.

Alberta forestry reported that so far in 1979 a wet cold spring has kept damage down to approximately 160 hectares burned over by 78 fires. Last year in the same periods 156 fires destroyed about 1500 hectares.

SASKATCHEWAN

Much of the province reported weekly mean temperatures within 1°C of normal. However, the North Battleford area was more than 2°C below normal. Regina reported a seven-day mean temperature of 14.2°C, while Uranium City was only 6.4°C. Temperatures climed into the twenties by the weekend at all except the northern stations. Regina reported 30°C on the 11th. No frost was reported in agricultural areas, but Uranium City fell to -2°C on the 9th. Much of the province was relatively dry during the week. A notable exception was the north-central area, where Melford reported a weekly total of 62 mm and Nipawin 46.9 mm. Most of this fell on the 6th.

Seeding is 75 to 100 per cent complete throughout the province. Progress is most advanced in the central and western areas and seeding has been completed in some districts. Southeastern areas will require at least seven to ten days of good weather to finish seeding and some setbacks due to hail and some flooded fields have been reported. Summerfallow operations have Moisture conditions throughout begun. the province are generally good, although northeastern areas are becoming dry. Emergence of spring-seeded crops has been good. Weed growth is heavy and herbicides are being applied.

Growing degree-days to June 9 are running well-below normal over all of Saskatchewan.

MANITOBA

Temperatures over southern Manitoba averaged 1°C to 2°C below normal for the seven-day period, but northern regions were close to normal. The mean weekly temperature was 14.7°C at Portage la Prairie. In contrast, it was 3.2°C at Churchill. Brandon reported 26°C on the 5th and 11th and the same temperature was also reported at Pilot Mound on the 11th. Frost occurred over northern Manitoba on many days. Churchill reported -2°C on the Over southern region, there was 8th. an unconfirmed report of heavy frost at St. Lazare on the 8th, but no damage was reported.

Much of the province reported below-normal precipitation during the week. However, Norway House reported 21.2 mm, of which 15.2 mm fell on the 6th.

The seeding of oilseed crops is well advanced. Fall rye is progressing well and forage growth is good. Earlyseeded crops have emerged. Vigorous weed growth is reported. An increased acreage of summerfallow is now anticipated.

Growing degree-days to June 9 are running well-below normal over all of southern Manitoba, but are above normal in northern regions. ONTARIO

Mean temperatures averaged 1°C to 2°C below normal over northwestern Ontario during the week. However, over eastern and some parts of southern Ontario, the weekly means averaged close to 1°C above normal. Windsor reported a 7-day mean of 20.5°C, while Trout Lake was only 10.2°C. The weekend was especially warm over southern Ontario. Temperatures hit the 30° mark at a number of stations on Saturday and Sunday, with London reporting 31°C on the 10th. Scattered frost was reported at both the beginning and the end of the week over parts of northern Ontario. Moosonee recorded -2°C on the 11th.

Precipitation was quite variable across the province. More than 30 mm fell over a large area stretching from Wiarton to Earlton to Kapuskasing. Of the 58.2 mm reported at Wiarton, most fell in a four-day period from Thursday to Sunday. In contrast, parts of southern Ontario were dry.

A line of severe thunderstorms crossed southern and central Ontario on Sunday. Stretching from northern Georgian Bay to Windsor, the thunderstorms, accompanied by strong winds and heavy rain, caused extensive damage. Tornadoes touched down at both London and Brampton, causing extensive property damage. Although 16 businesses in a 300-metre stretch of Brampton reported heavy damage, no personal injuries were reported. However, a man was killed by lightning in a boat five miles north of Honey Harbour, on Georgian Bay.

Growing degree-days to June 9 are running well-below normal over northwestern Ontario, but well-above over northeastern regions. Southern Ontario is close to normal.

The Ontario Ministry of Agriculture and Food reported that apples, cherries and strawberries have set in harvest, with success very dependent upon the summer weather, particularly that of August.

QUEBEC

A very moist and warm air mass invaded the province this week. Its arrival on the 5th was marked by heavy showers and thunderstorms and by hail. Precipitation was light during the middle part of the week, but a new mass of moist air moved over the province at the end of the week, bringing copious rainfall. Matagami recorded 53.0 mm of rain on the 10th and Roberval and Sherbrooke measured 41.5 mm and 43.8 mm respectively the next day. However, because of the convective nature of the precipitation, these values cannot be considered representative of those regions.

Temperatures remained above normal throughout the province except in the extreme western part. Daily maxima reached 29°C at several stations this week and Mont Joli recorded 30°C on the 5th. High minimum records were broken at several stations: 19°C, 20°C and 20°C at Montreal on the 16th, 17th and 18th, 18°C at Sherbrooke on the 9th and 16°C at Quebec City on the 9th and 10th.

The Montreal region was hard hit by a violent thunderstorm producing abundant rainfalls with hail and strong gusts. Several vegetable growers lost their entire crop and suffered broken greenhouses. The "Union des Producteurs Agricoles" estimated the total losses by 45 vegetable growers and 5 apple growers in the Laval area on the 5th to exceed \$2.5 million. Montreal's Botanical Garden suffered flower and vegetable losses. Many basements were flooded as sewer systems overflowed and several power outages were reported as wires were cut by falling branches. A gust of 93 km/h was recorded at Dorval. A gust of 119 km/h was measured at Val d'Or, where the wind blew away a few roofs.

well and that the wet weather has done little damage to fruit crops. Most vegetable crops are growing on schedule, as they are grown on lighter soils than crops such as corn or spring grains. These latter crops are off to a late start this year. Ideally, spring grain is seeded by April and corn by mid-May in Peel, Dufferin and York Counties. This year, all seeding was delayed approximately to the end of May due to wet and cold spring weather. As a result, there will be a late fall

MARITIME PROVINCES

Mean temperatures averaged 2°C to 4°C above normal for the week across all of the Maritimes. The weekly mean was 17.4°C at Chatham and Fredericton, N.B., but only 14.1°C at Saint John, N.B., and Yarmouth, N.S. The warmest weather occurred on Friday and Monday. Chatham, N.B. reported 29°C on the 8th. On the same day, the minimum temperature at Sydney, N.S., was 4°C.

Precipitation was generally below normal over New Brunswick and Prince Edward Island, but above normal over Nova Scotia. Most of the rain occurred on Tuesday, with lesser amounts falling at the week-end. Thursday and Friday were dry. Shearwater Airport, near Halifax, N.S., reported 44.0 mm of rain during the week, of which 40.4 mm fell on the 5th.

Enough dry weather occurred during the week that planting has resumed in New Brunswick. It is still wellbehind, however, and some crops such as annual transplants will not be planted this year as they need a full season. The wet weather has resulted in soil problems such as nitrogen leaching and poor drainage, thereby causing poor growth. The wet weather has also caused a fungus outbreak, and a full spraying program is substantially raising costs. Due to low temperatures and lack of snow last winter, substantial winterkill is reported south of Fredericton. In this area, 75% of the strawberry crop is injured, 25% to 35% of the apple trees, and half of the legumes and alfalfa.

In Prince Edward Island, wet weather has set-back planting, but 80% of the crops are in and early planting is growing exceptionally well.

In Nova Scotia, most of the corn has been planted, but planting has been delayed in some areas, where the fields are still too wet for the operation of machinery. The strawberry crop is in good shape, and hay will be cut soon in some areas.

NEWFOUNDLAND AND LABRADOR

Weekly mean temperatures averaged 3°C to 5°C above normal. Deer Lake reported a mean of 14.9°C, while Battle Harbour was only 8°C. Goose Bay reported 28°C on the 5th. However, record high minimum temperatures were reported on Friday at Goose Bay, Hopedale and Cartwright and on Saturday at the latter two stations. St. John's rose to 22°C on Saturday, a record high temperature for the date. A number of Labrador stations reported minimum temperatures as low as 2°C during the week.

The Island of Newfoundland was drier than normal for the week. St. John's reported opnly 8.5 mm. Over Labrador, in contrast, many stations reported 30 mm to 50 mm.

Forest Fires have been reported from central and east-central regions of the Island of Newfoundland.

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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 (T) Forecast

Dawson	Below Normal	(-1.3°C <∧T <-0.4°C)
Frobisher	Near Normal	(-0.4°C <∆T <-0.4°C)
Trenton	Much Below Normal	(ΔT <-1.4°C)
Vancouver	Below Normal	(-1.2°C <∆T <-0.4°C)

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

Mean temperatures for the period, March to May, averaged 1°C to 3°C below normal over an extensive area running from the northern District of Mackenzie southeastward across the central and eastern Prairies. At the same time, temperatures averaged 1°C to 3°C above normal over eastern Ontario, most of Quebec, and all of the Atlantic Provinces.

Much of Canada reported abovenormal precipitation for the threemonth period. The wettest areas were southern Manitoba, northeastern Ontario, and much of Quebec and the Maritimes. On the other hand, the principle dry areas were extreme southern B.C., parts of Alberta, most of northern B.C., and the southern Yukon.

Serious spring floods were reported along the Clearwater, Athabasca and Peace Rivers in Alberta, the Souris River in southeastern Saskatchewan, the Boyne and Red Rivers in Manitoba, the Thames, Grand, Mississagi and Sturgeon Rivers in Ontario, and the Saint John River in New Brunswick. Southern Manitoba was the most seriously hit by the floods, as the Red River rose to levels higher than during the 1950 flood, inundating more than 1500 sq.km of valuable farmland and forcing the evacuation of 6000 to 7000 residents.

The wet and cool weather in the Prairies delayed seeding, particularly over southern Manitoba, hard hit by floods. Seeding delays were also reported over southern Ontario, but conditions were improving rapidly by the end of May. New Brunswick, already suffering from winter kill of several crops in the southern half of the province, also reported delays in crop planting due to wet weather.







500 mb Synoptic History

The upper level steering flow (500 mb, approximately 5000 m) continued to be meridional throughout the period, with numerous short and major waves moving across the continent, affecting and complicating the weather pattern.

The weak amplitude ridge, previously over the western half of the country, began progressing eastward early in the period, moving away from it's associated quasi-stationary closed high over Alaska, reaching Ontario-Quebec Thursday and merging with a building major ridge over the eastern half of the continent by mid-period.

In it's wake a vigorous short wave trough crossing British Columbia Tuesday, June 5, began digging southeastwards into the central United States. The arctic vortex (closed low), previously over the Arctic Islands began moving southwards into the Northwest Territories Thursday. These combined, forming a major north-south trough through the mid-continent, putting all of western and central Canada in a northwest, cyclonic upper air flow respectively and causing below normal temperatures and some unsettled weather conditions.

The eastern half of the country throughout most of the period was under the influence of a southwesterly upper air flow due to the quasi-stationary major ridge. This kept the storm track and frontal zone further north through the upper Great Lakes and central Quebec, allowing very warm, moist, unstable Gulf air to penetrate southern Ontario and Quebec.

On Sunday, June 10, thunderstorms with heavy downpours and high winds, including tornadoes, were triggered across southern Ontario with the



50 kPa (500 mb) Height Map (decametres) 7 Day Mean June 4 to 11, 1979

approach of an upper trough, vigorous short wave and a sharp cold front from the west, which continued to move slowly eastward.

Over the western half of the country, in the wake of this major trough, an upper ridge drifted slowly eastward accross British Columbia Friday, June 8, building and encompassing all of western Canada by the end of the period.

Andy Radomski

ON THIS DATE ...



....June 11, 1972, a widespread recordbreaking late killing frost struck the rich agricultural lands of Ontario's southwestern counties. Official screen temperatures dropped to $-3^{\circ}C$ and grass minimum temperatures to -8°C. Farmers and growers suffered substantial economic losses as hundreds of hectares of tobacco, tomato, potato, and cash crop vegetables were killed overnight.

....June 14, 1969. Highest temperatures on record in Yukon Territory occurred this date: 36°C at Mayo and 35.6°C at Whitehorse Riverdale.

Season Totals to June 9, 1979

TEMPERATURE AND PRECIPITATION DATA FOR THE WEEK ENDING D600 G.M.T. 12 JUNE, 1979

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M-Denotes missing data