environment Canada

Environnement Canada A WEEKLY REVIEW OF CANADIAN CLIMATE

Atmospheric En

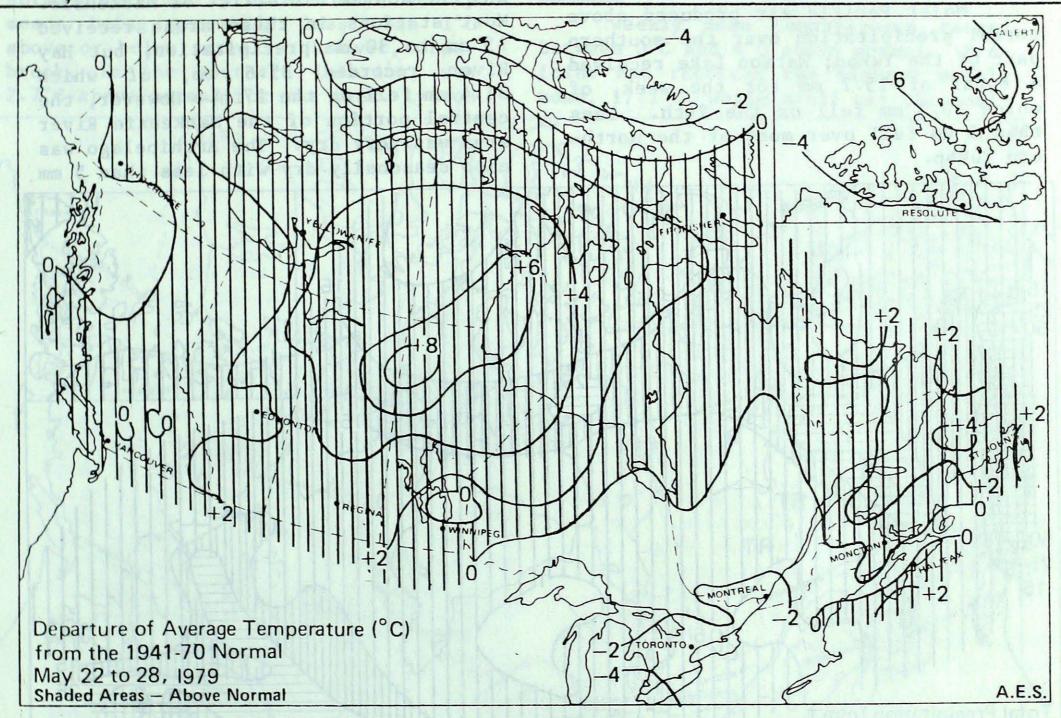
Environnement atmosphérique

PERSPECTATION

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

JUNE 1, 1979

VOL. 1 NO. 16



WEATHER HIGHLIGHTS FOR THE WEEK - MAY 22 - 28, 1979

Warm and dry over the Prairies, but torrential rains over Eastern Canada

A mean upper ridge of high pressure lay over western Canada during the week, while a mean upper trough extended from the high Arctic across Hudson Bay to southern Ontario. Because of the generally high pressure, most of western Canada except the northern British Columbia coast reported below normal precipitation and above normal temperatures. Mean temperatures ranged up to 8°C above normal over the northern Prairies.

The generally low pressure over Eastern Canada resulted in temperatures mostly a few degrees below normal along with copious amounts of precipitation, particularly over southern Ontario, southern Quebec and the Maritimes.

Practically all of Canada reported sunny skies on election day, May 22. As a result, turnout at the polls was exceptionally high.

NOTE:

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

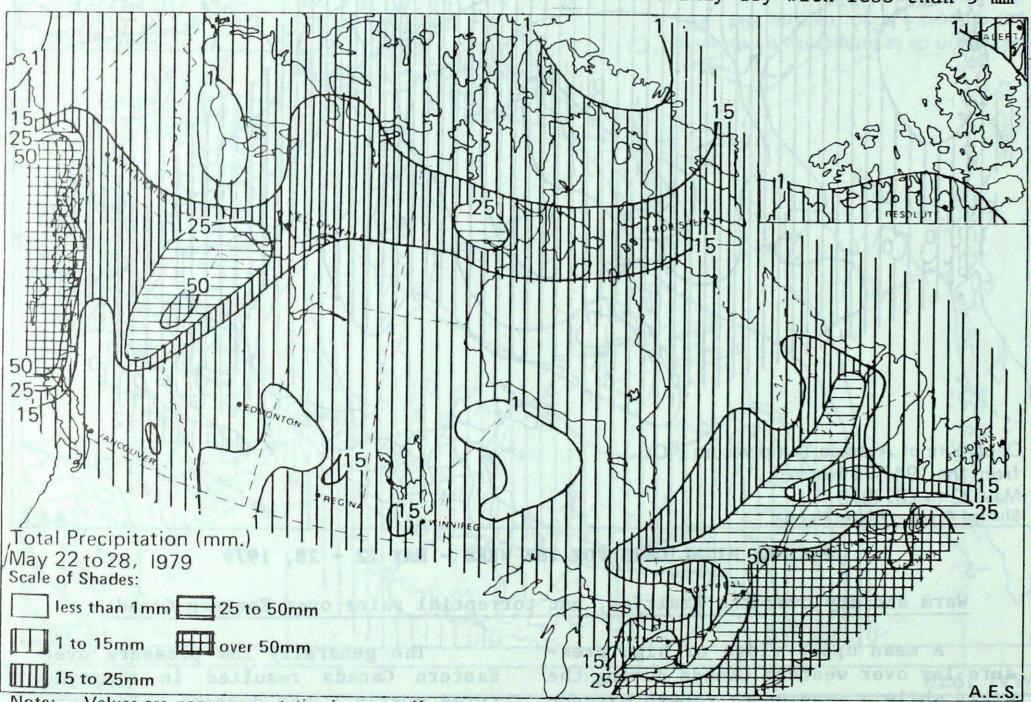
YUKON TERRITORY

Near normal temperatures were recorded with all stations reporting anomalies of less than 1°C. Weekly mean temperatures ranged from 8.7°C at Watson Lake to 10.6°C at Dawson and Mayo. Dawson reported a maximum of 25°C on the 27th; in contrast, the minimum temperature was only -1°C the day before. Watson Lake also recorded -1°C on the 22nd and 25th.

Moist Pacific air produced above normal precipitation over the southern part of the Yukon; Watson Lake received a total of 15.7 mm for the week, of which 10.3 mm fell on the 26th. Less than 5 mm fell over most of the northern Yukon.

13.1°C which also recorded the highest temperature, 24°C on the 24th. The Arctic Archipelago, however, reported well-below normal temperatures. Eureka, on Ellesmere Island, recorded the greatest negative anomaly in Canada, -7.5°C, the lowest weekly mean temperature, -12.8°C and the lowest minimum temperature, -17°C on the 23rd.

Precipitation was generally above normal over the District of Keewatin and the southern District of Mackenzie. Most stations in these areas received 15 mm to 30 mm precipitation, but Hay River recorded 35.6 mm, of which 31.4 mm fell on the 27th. However, the central portion of the Mackenzie River area was very dry. The Archipelago was also seasonally dry with less than 5 mm



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

NORTHWEST TERRITORIES

Most of the continental Northwest Territories reported above normal temperatures. Weekly mean anomalies ranged from 1°C to 3°C in the District of Mackenzie to 3°C to 6°C in the District of Keewatin. The warmest reporting station was Fort Smith with a weekly mean of

of precipitation reported at most stations. On May 28, 148 cm of snow still remained on the ground at Cape Dyer and 94 cm at Clyde. Both stations are located on the east coast of Baffin Island.

Ice conditions over the winter were thicker than normal in the Arctic. However, open water areas in the Beau-

fort Sea are a little more extensive than normal. Ice has opened up along the east side of Hudson Bay and breakup is about on time. Ice conditions are favourable over Hudson Strait and Davis Strait and break-up is somewhat ahead of schedule.

BRITISH COLUMBIA

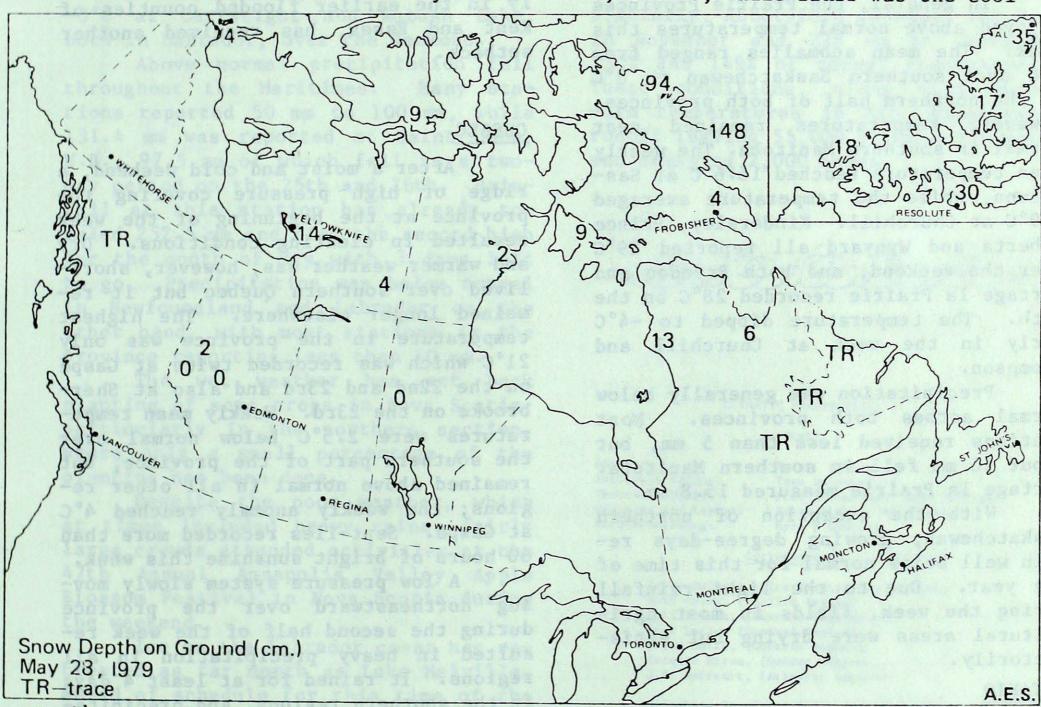
Temperatures averaged close to normal over the province with weekly means being generally less than 1°C above or below normal. However, Cranbrook, in the southern interior, was 2.7°C above normal for the week. Lytton

of 120 mm, of which 56.8 mm was reported on the 25th. Southern British Columbia was generally dry with most stations receiving less than 10 mm.

Growing degree-days are running well above normal throughout British Columbia. In the Lower Fraser River Valley they are almost four times the normal for this time of the year.

ALBERTA

Weekly mean temperatures ranged between 0°C and 4°C above normal. Medicine Hat reported the highest weekly mean, 17.2°C, while Banff was the cool-



was the warmest reporting station with a mean weekly temperature of 16.6°C and also recorded the highest temperature in the province, 31°C on the 22nd. The 22°C reported at Fort Nelson on the 25th was a new record high for the date. The lowest temperature was -1°C which occurred at Williams Lake on the 28th.

Northern British Columbia was generally wet, with the north coast receiving over 100 mm of precipitation and the Peace River area more than 50 mm. Prince Rupert received in excess est with 11.0°C. The temperature reached 30°C at both Lethbridge and Medicine Hat on the 26th. On the 23rd, the temperature at Rocky Mountain House rose to 27°C, a new record high for the date.

Precipitation was below normal across most of southern Alberta with most stations receiving less than 5 mm. Northern Alberta received generally close to 10 mm. Some forestry stations reported 15 cm to 31 cm of snow on the 28th.

Patchy frost was reported at Banff, Edson and Red Deer, where temperatures fell to -2°C during the week, but some other foothill stations dropped to as low as -4°C. The possibility of frost damage has not yet been assessed.

Farming was progressing well except in the Peace River area, where the generally wet weather was hampering field work. Growing degree-days are continuing well below normal over most of the province.

SASKATCHEWAN - MANITOBA

In general, the Prairie Provinces enjoyed above normal temperatures this week. The mean anomalies ranged from 2°C over southern Saskatchewan to 8°C in the northern half of both provinces; however, temperatures remained near normal in southern Manitoba. The weekly mean temperature reached 16.6°C at Saskatoon, while the temperature averaged 6.9°C at Churchill. Kindersley, Prince Alberta and Wynyard all reported 29°C over the weekend, and both Brandon and Portage la Prairie recorded 28°C on the 28th. The temperature dipped to -4°C early in the week at Churchill and Thompson.

Precipitation was generally below normal across both provinces. Most stations received less than 5 mm, but about 10 mm fell in southern Manitoba. Portage la Prairie measured 15.8 mm.

With the exception of northern Saskatchewan, growing degree-days remain well below normal for this time of the year. Due to the light rainfall during the week, fields in most agricultural areas were drying out satisfactorily.

ONTARIO

Temperatures over northern Ontario ranged from near normal to 3°C above normal. In contrast, in the south, they ranged from 2°C to 5°C below normal. Kenora was the warmest reporting station with a weekly mean of 13.7°C, while Moosonee was the coolest with 6.7°C. Both Kenora and Red Lake reported 26°C on the 28th, the highest for the week, while the lowest recorded temperature was -5°C at both Armstrong and Moosonee on the 24th and 25th respectively.

Southern Ontario was very wet during this week. Many stations reported 25 mm to 50 mm precipitation with Windsor reporting the most, 61.4 mm, of which 33.3 mm fell on the 25th. However, it was very dry over northwestern Ontario where many stations reported less than 3 mm.

Growing degree-days are near normal for this time of the year over much of the province, although they are below normal over northwestern Ontario. An unfortunate result of this week's abundant rainfall over southwestern Ontario is that spring seeding, especially in the earlier flooded counties of Kent and Essex, has received another setback.

QUEBEC

After a moist and cold weekend, a ridge of high pressure covering the province at the beginning of the week resulted in clearing conditions. and warmer weather was, however, shortlived over southern Quebec but it remained longer elsewhere. The highest temperature in the province was only 21°C which was recorded twice at Gaspé on the 22nd and 23rd and also at Sherbrooke on the 23rd. Weekly mean temperatures were 2.5°C below normal over the southern part of the province, but remained above normal in all other regions; the weekly anomaly reached 4°C at Gaspé. Sept-Iles recorded more than 60 hours of bright sunshine this week.

A low pressure system slowly moving northeastward over the province during the second half of the week resulted in heavy precipitation in all regions. It rained for at least 4 days in the southern regions, and precipitation totaled 63.7 mm in Sherbooke, of which 42 mm fell on the 25th; other stations measured more than 40 mm of rain.

The storm produced strong, sustained winds over southern Quebec on the 25th. Power outages were reported in Montreal and Quebec. Winds averaged 39 km/h for the day at Quebec city with gusts up to 78 km/h. The mean wind speed was 40.6 km/h at Montreal with gusts to 59 km/h.

ATLANTIC PROVINCES

Weekly mean temperatures ranged from near or slightly above normal over most of the Maritimes, to as high as 4°C above normal in parts of Newfoundland. Yarmouth, N.S., was the warmest station with a weekly mean of 13.1°C. Many stations reported maximum temperatures in the low twenties early in the week. Sydney, N.S., reached 24°C on the 22nd and Gander, Newfoundland, reached 22.3°C on the same day, a fraction of a degree above the old record high for the date. Overnight minima fell to -3°C at Cartwright and Wabush Lake, both in Labrador, over the weekend.

Above normal precipitation fell throughout the Maritimes. Many stations reported 50 mm to 100 mm, while 131.4 mm was reported at Saint John, N.B., 97.5 mm of which fell in a two-day period on the 25th and 26th. Rainfall at this station has already totaled 252.5 mm and tied the record high for the month of May with 3 days left to go. Precipitation was below normal in Newfoundland and Labrador on the other hand, with most stations in the province reporting less than 10 mm.

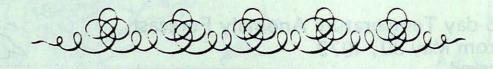
The wet weather has set back planting of some crops in Nova Scotia, particularly in the northern section, where only a small percentage of the planting has been done.

Despite the poor weather, which at times included heavy rains, fairly large crowds attended activities at the 47th Annual Annapolis Valley Apple Blossom Festival in Nova Scotia during the weekend.

Ice on the Labrador coast has retreated as far north as Lake Melville, ahead of schedule for this time of the year.

ON THIS DATE ...

From the end of May to mid-June in 1948, British Columbia was flooded along the lower Fraser River. there had not been exceptional precipitation in the early spring months, from November to February precipitation was much above normal so that the ground was well saturated upon freezing and the snowpack was higher than usual. Quesnel recorded 67.3 mm of precipitation in November, 155% of normal and 81.0 mm in February, 239% of normal. Similarly, Abbotsford recorded 241.8 mm in November and 228 mm in February, 130% and 149% of normal respectively. These conditions, along with sudden warm temperatures in May, exaggerated runoff leaving 55,000 acres under water and damaging 2,000 homes.



CLIMATIC PERSPECTIVES

Staff

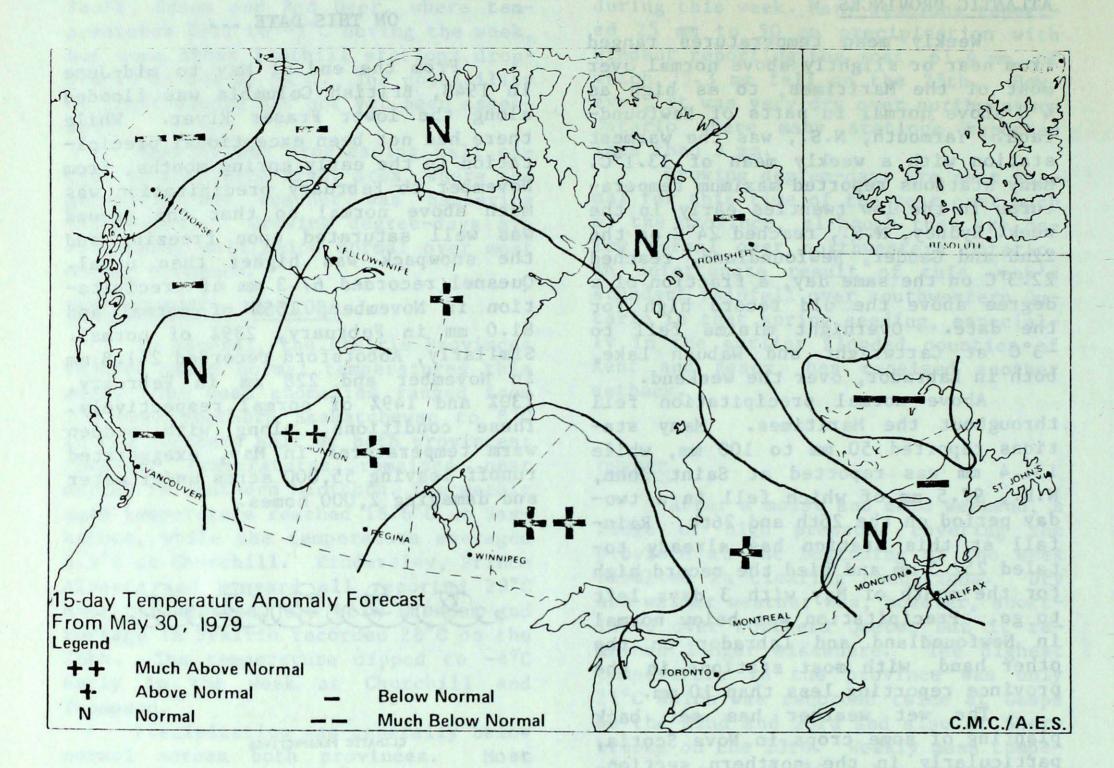
Editor:
Assistant Editor:
Technical Staff:
Graphics and Layout:
Word Processing:

Terry Allsopp
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Fred Richardson, Andy Radomski
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Myra D'Gabriel

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Telephone Inquiries (416) 667-4711/4956

15 DAY TEMPERATURE ANOMALY FORECAST



Forecast Method

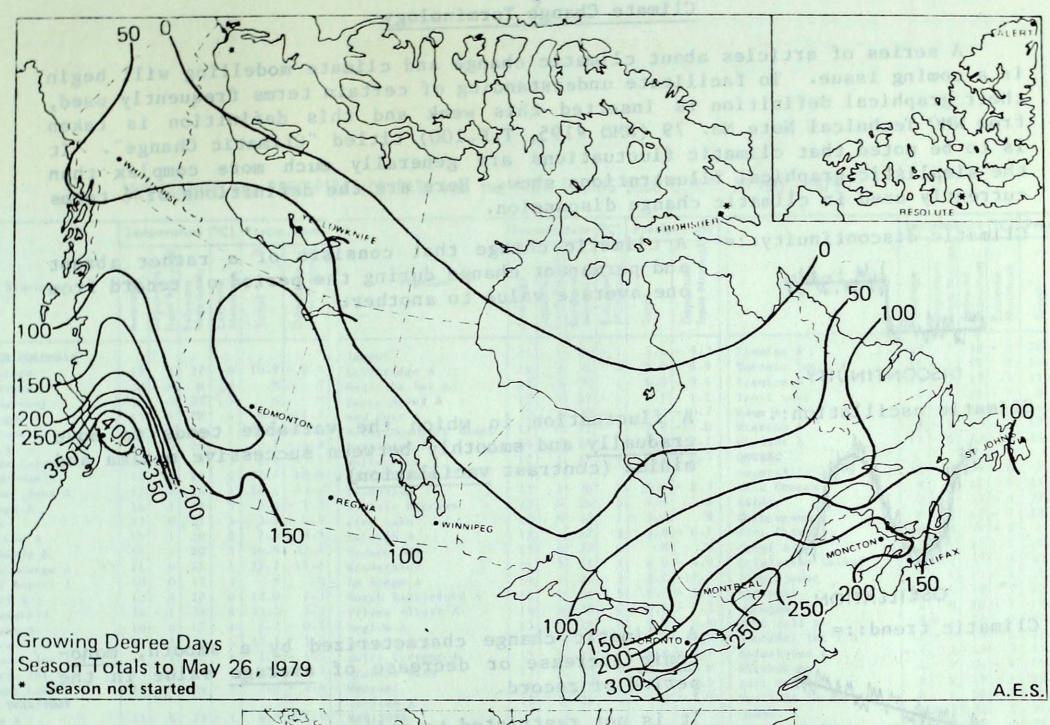
Analogue technique based on point prediction at 70 Canadian stations.

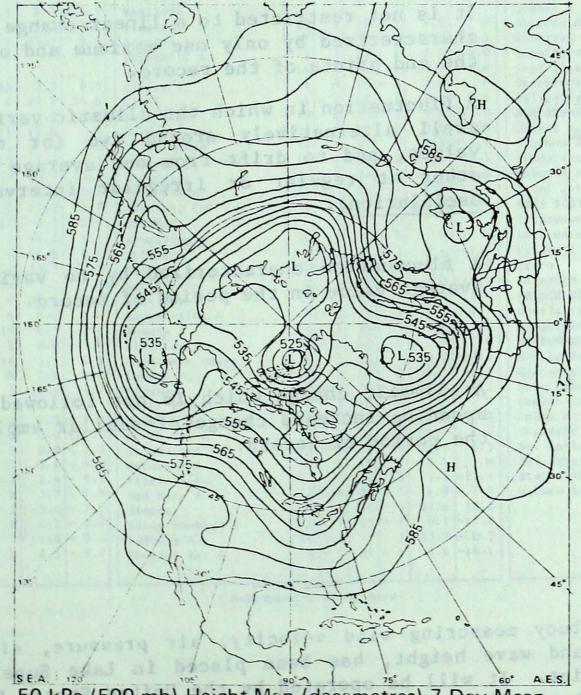
Temperature Scale

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

Current Temperature Anomaly (AT) Forecast
Much Below Normal ($\Delta T < -1.4^{\circ}C$)
Below Normal $(-1.6^{\circ}\text{C} < \Delta\text{T} < -0.5^{\circ}\text{C})$
Above Normal $(0.4^{\circ}C < \Delta T < 1.5^{\circ}C)$
Below Normal $(-1.2^{\circ}C < \Delta T < -0.4^{\circ}C)$

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





50 kPa (500 mb) Height Map (decametres) 7 Day Mean May 21 to 27, 1979

Climate Change Terminology

A series of articles about climatic change and climate modelling will begin in a coming issue. To facilitate understanding of certain terms frequently used, their graphical definition is inserted this week and this definition is taken from WMO Technical Note No. 79 (WMO #195, T.P.100) titled "Climatic Change". It is to be noted that climatic fluctuations are generally much more complex than the simplistic graphical illustrations show. Here are the definitions of 6 terms currently used in climatic change discussion.

Climatic discontinuity::=

AM MANAMA

A climatic change that consists of a rather abrupt and permanent change during the period of record from one average value to another.

DISCONTINUITY

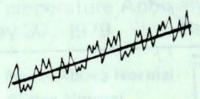
Climatic oscillation::=



A fluctuation in which the variable tends to move gradually and smoothly between successive maxima and minima (contrast vacillation).

OSCILLATION

Climatic trend::=



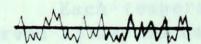
TREND

Climatic vacillation::=



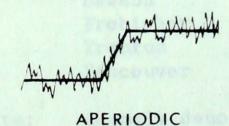
VACILLATION

Persistence::=



PERSISTENCE

Aperiodic::=



A climatic change characterized by a smooth, monotonic increase or decrease of average value in the period of record.

It is not restricted to a linear change with time but characterized by only one maximum and one minimum at the end prints of the record.

A fluctuation in which the climatic variable tends to dwell alternatively around two (or more) average values, and to drift from one average value to the other at regular or irregular intervals (contrast oscillation).

A fluctuation characterized by no variation in the average value in the period of record.

A climatic change which is not followed by a corresponding increase change of similar amplitude during the period of record.

NOTICE

A new weather buoy measuring wind velocity, air pressure, air and water surface temperature and wave height, has been placed in Lake Superior, 70 km north of Keeweenaw Point. It will be operated by the United States NOAA but information will be sent to the Toronto Weather Office.

TEMPERATURE AND PRECIPITATION DATA FOR THE WEEK ENDING 0600 G.M.T. 29 MAY, 1979

BRITISH COLUMBIA Abbotstord blue River Bull Harbour Castlegar A Cranbrook A Comax A Estevan Point Fort Nelson A Fort St. John A Kanloops A Lytton	960 13 M 11 15 13 M 12 12 16 17	Departure from Normal	27 M 21 28 26 20 M 23	6 M 5 4 1 5	10.9 M 9.0 10.9	М	Station Jasper Lethbridge A	Average	Departure from Normal	Extre	Extreme Minimum	Total	Departure from Normal	Station	Average	Departure from Normal		Extreme Minimum	20.4	Departure from Normal
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Camax A Estevan Point Fort Nelson A Fort St. John A Kantoops A Lytton	13 M 12 12 16	3 0 M 1	20 M	1000	10.6	-11.3	Red Deer A	13	2	28	- 2		-10.7	Wawa A	8	м	19	- 4	4.0	12.
Fort Nelson A Fort St. John A Kamboops A Lytton	M 12 12 16	0 M 1 1	М	1000	A STATE OF THE PARTY OF THE PAR	-18.4	Rocky Mountain House	11	0	27	- 3	1.8	-12.0	Wiarton A	9	- 3	15	- 1	17.2	6.
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	17	1	29	5	3.6	- 1.3	Buffalo Narrows	13	M	24	3	4.8	м	Border	2	3	15	- 4	17.4	11.
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Pentleton A	15	1	28	2	7.0	- 0.8	Estevan A	15	2	27	3	3.8	- 6.7	Fort Chimo A	M	М	М	- 2	М	
Port Hardy A	11	1	20 25	5	56.9	15.8	Hudson Bay	15	4	27	1	. M	M	Gaspé A	11	3	21	3	18.4	8.
	11	0	15	3	27.7 M	15.8 M	Kindersley La Ronge A	16	3	29	2	0.0	- 4.9 -17.4	Grindstone Island	9	1	17	- 4	33.2	- 3.
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ferrace A	11	- 1	16	6	13.5	5.0	Saskatoon A	17	4	28	5	0.3	- 8.4	Montréal Int'l A	12	- 3	19	5	32.9	20.
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	11	0	25	- 1	6.2	- 1.4	MANITOBA	g á	Ĭ		اآلا	111	-1515	Québec A	11	- 2	20	3	51.4	35.
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	-12	- 5	- 8	-15	3.2	0.8	Dauphin A Cillam A	14	3	26 25	- 3	10.8	- 5.8	Sept-Iles A Sherbrooke A	9	0	21	2	63.7	54.
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Cambridge Bay A -	- 4	2	-	-15	9.2	6.6	Lynn Lake	13	8		- 2	200000000000000000000000000000000000000	-21.6	NEW BRUNSWICK				-1	7274	100
Cipe Dyer -	- 4	M	3	-11	16.0	91	Norway House	12	М	25	0	2.0	М	Charlo A	11	3	22	4	33.1	20.
Chesterfield Inlet	2	0	9	- 4	M	, 1	Pilot Mound	14	2	27	4		-11.9	Chatham A	12	0	23	4	M	70.
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	11	2	22	1	14.6	1.6	Armstrong A	10	2 PA 5-04-10	22	- 5	М	M	Shearwater A	12	1	19	7	49.7	19.
Fort Smith A	13	4	24	0	11.8	4.0	Attkokan	9	2		- 3		-17.6	Sydney A	9	- 1	24 22	4	65.4 M	41.
Frobisher Bay A Hall Beach A	6	M	0	- 4 -16	15.7	11.5	Earlton A Geraldton	10		18	100	27.8	9.9	Truro Yarmouth A	M 13	M 2	19	5	81.3	
ILIY River A	8	1		- 2	35.6	30.2	Gore Bay A	10	3.0	17	i	9.4	1.0	PRINCE EDWARD ISLAND	13					
Inuvik A	4	1	16	- 4	8.0	1.4	Kapuskasing A	9		19	- 3		-12.7	Charlottetown	12	1	22	5	М	#12
	12,	- 5	The same of the sa	-16	50HGC1H922	- 1.4	Kenora A	14	2	26	5	2.0	-13.0	Summerside	13	1	23	6	53.2	29.
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Yellowkoffe A	9	2		- 3	18.4	6.1	London A Moosonee	7	- 4	20	- 5	TEADER A MISSISSIAN CONTRACTOR OF THE PARTY	26.7	Cartwright Deer Lake	11	4	20	2	7.6	M. Company
ALBERTA							Mount Forest	M	11	18	M	M.	M	Gander Int'l A	11	3	22	3	4.0	
	11	2	100	- 2		- 5.2	Muskoka A	11	- 2		- 2	14.2	- 1.3	Coose A	8	1	10000	- 1	27.3	
	14	21	27	0		-10.6	North Bay A	10	- 2	17	1	14.4	- 1.1	Hopedale	4	1	D. Maria	- 1	5.0	- 4.
	13	11	27	2		- 7.0 - 4.8	Ottawa Int'l A	12	5 177	17	5	21.6	6.5	St. Anthony	8	M	100 700	- 1 - 2	6.8	-10
	10	3	27	3		- 9.1	Petawawa A Pickle Lake	12	M 3	18 24	0	3.2	-13.4	St. John's A Stephenville A	11	2	17	4	M	10.
	15	21	27	2		- 7.8	Red Lake A	11	0	26		The state of the s	- 7.9	Wabush Lake	4	1	15	- 3	4.4	-17.
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	14	4	25	1		- 3.7	Sioux Lookout A	12	11	25	- 1	0.2	-17.0					de la	10 1 AS 1 3	1 (40
	15	4	28	3		- 5.0	Sudbury A	10	le airi	17	2		- 0.5							
arange realitie A	12	U	24	1	2.3	- 9.7	Thunder Bay A	9	- 1	21	- 1	2.4	-14.1							

M-Denotes missing data