

Climatic Perspectives



A weekly review of Canadian climate

October 7 to 13, 1986

Vol.8 No.41

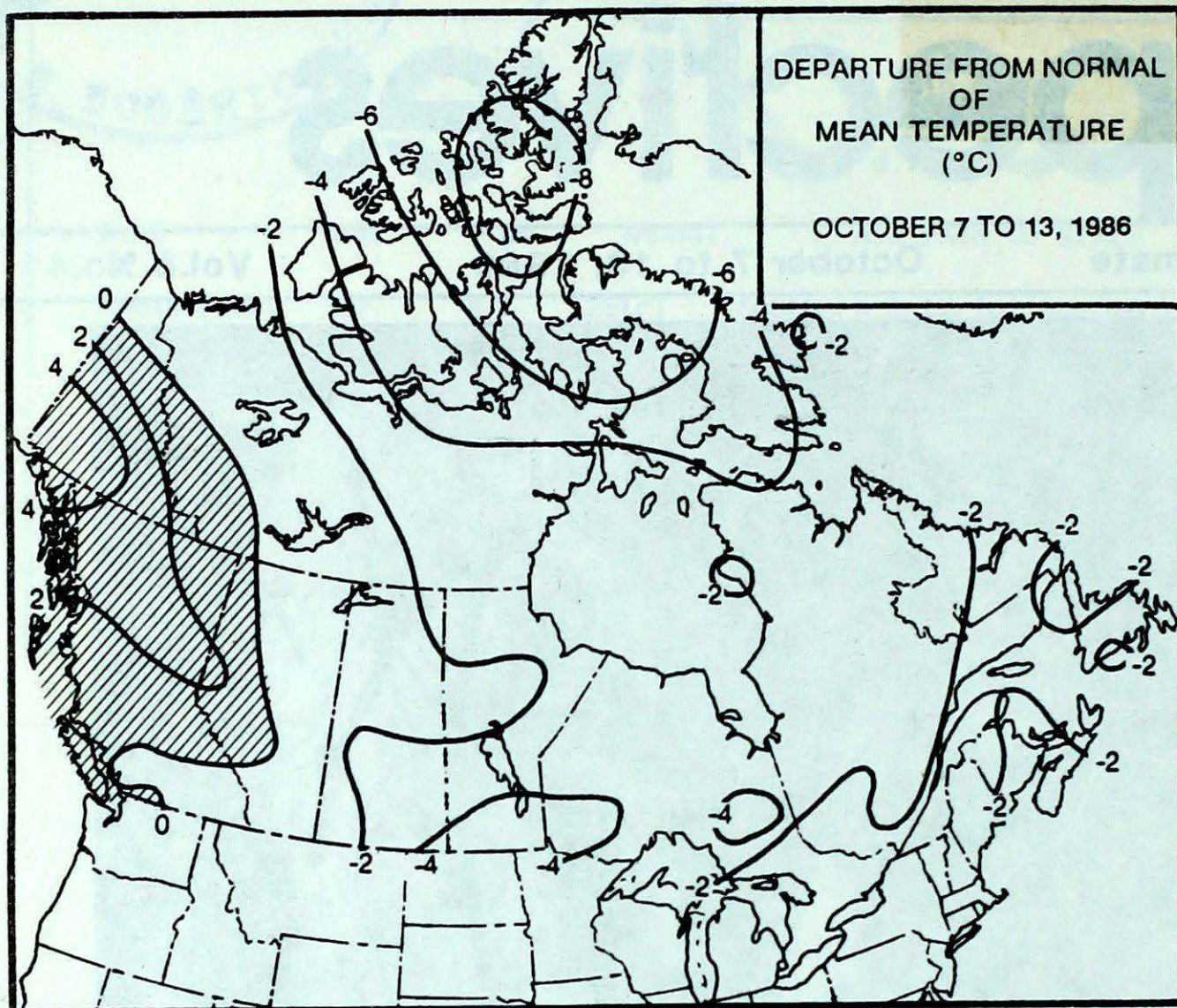


The weather picture as seen by the NOAA 10 meteorological satellite on the morning of October 11, 1986. Note: the vigorous low pressure system approaching Baffin Island; snow capping the Rocky and Coastal mountain ranges; sea fog off the Oregon coast.

- ***Hurricane force winds lash Baffin Island***
- ***Severe thunderstorms with hail strike Nova Scotia***
- ***Expo 86 closes on a sunny note***

See feature story on page 7

TEMPERATURE



ACROSS THE COUNTRY...

Yukon and Northwest Territories

It was cold and snowy in the northern Yukon, but south of the Ogilvie mountains gusty southerly winds pumped in a record-warm air-mass. Daytime temperatures in the southern Yukon and upper Mackenzie Valley climbed into the mid-teens over the weekend. Across the Northwest Territories, temperatures remained below freezing, and several new daily low temperature records were set. On October 12, the eastern Arctic was hit by a major blizzard, caused by a vigorous low pressure system crossing northern Hudson Bay. Sustained winds at Frobisher Bay were recorded blowing at 110 km/h, with gusts at 137 km/h. In addition to heavy blowing snow, the winds caused thousands of dollars in structural damage to the town of Frobisher. A 55 year old woman died of exposure trying to reach her home. Blizzards such as these, in the Arctic, are extremely dangerous; wind chills can easily drop down to an equivalent temperature of -60°C .

WEEKLY TEMPERATURE EXTREME (C)

	MAXIMUM	MINIMUM
BRITISH COLUMBIA	ABBOTSFORD 21	PUNTZI MOUNTAIN -8
YUKON TERRITORY	HAINES JUNCTION 17	OLD CROW -23
NORTHWEST TERRITORIES	FORT SIMPSON 17	EUREKA -34
ALBERTA	GRANDE PRAIRIE 21	FORT CHIPEWYAN -12
SASKATCHEWAN	BUFFALO NARROWS A 19	COLLINS BAY -13
MANITOBA	DAUPHIN 17	LYNN LAKE -13
ONTARIO	WINDSOR 22	TIMMINS -8
QUEBEC	SHERBROOKE 18	BAIE COMEAU -9
NEW BRUNSWICK	MONCTON 17	FREDERICTON -7
NOVA SCOTIA	GREENWOOD 20	SHELBURNE -4
PRINCE EDWARD ISLAND	CHARLOTTETOWN 16	SUMMERSIDE 0
NEWFOUNDLAND	BADGER 16	WABUSH LAKE -6

British Columbia

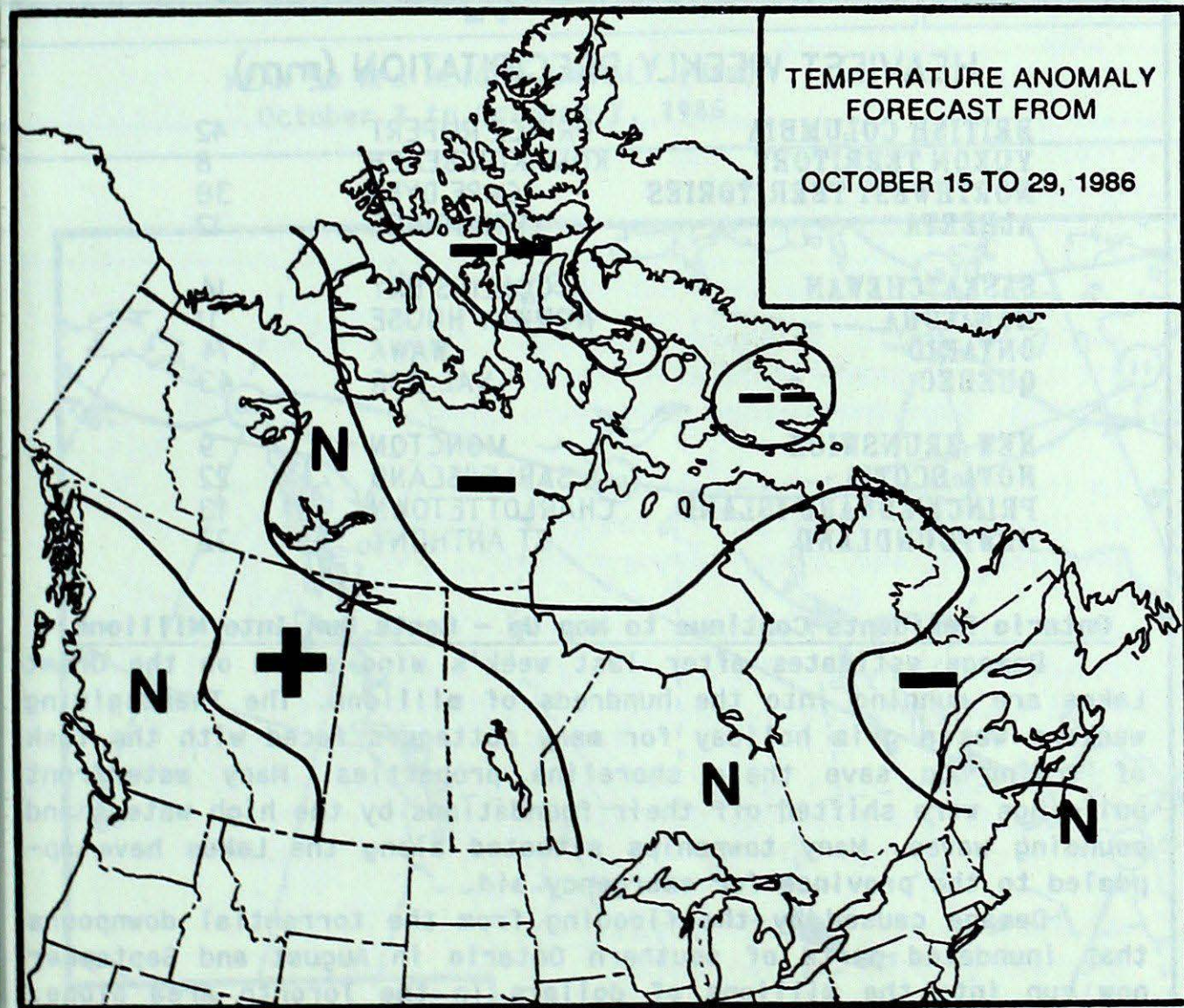
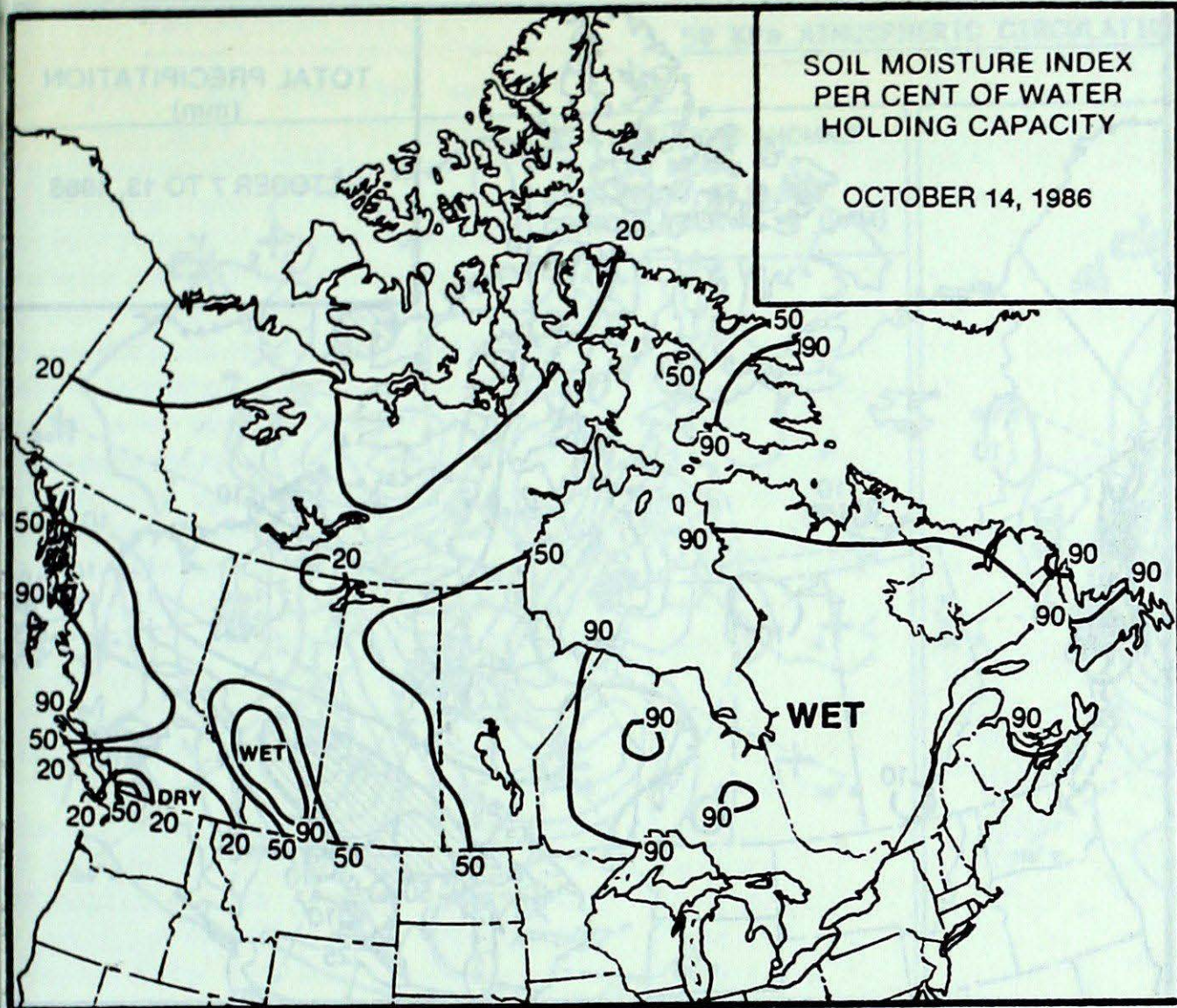
Pacific weather systems were deflected northward, and a ridge of high pressure brought pleasant autumn weather to the province. With the exception of fog and low stratus clouds in the mornings, sunshine was plentiful. Harvesting has resumed in the Peace River District. Some southern valleys reported their first frost of the season. Slash burning continues in the interior.

Prairies

An Arctic airmass was prevalent during the early part of the period, giving cool and variably cloudy conditions. Light snowfalls were reported in more northern locations, while scattered rainshowers fell in the south. New daily low temperature records were set in the northeast. Under clearing skies, temperatures moderated for the weekend, reaching the mid to upper teens in Alberta, where several daily high temperature records were broken. Harvesting has resumed in some areas.

ACROSS THE NATION

WARMEST MEAN TEMPERATURE	13	HOPE	BC
COOLEST MEAN TEMPERATURE	-28	EUREKA	NWT



Temperature Anomaly Forecast

- ++ much above normal
- + above normal
- N normal
- below normal
- much below normal

This forecast is prepared by searching historical weather maps to find cases similar to the present. The historical outcome during the 15 days subsequent to the chosen analogues is assumed to be a forecast for the next 15 days from now.

CLIMATIC PERSPECTIVES VOLUME 8

Managing Editor P.R. Scholefield
Editors-in-charge

weekly A.K. Radomski
monthly A.A. Caillet

Data Manager M. Skarpathiotakis

Art Layout M. Baptiste

Word Processing N. Khaja

Translation D. Pokorn

Cartography G. Young/T. Chivers

C. Czaja

Regional Correspondents

Atlantic: F.Amirault; Que.: J.Miron
Ont.: B.Smith; Central: B.Tortorelli;
Western: W.Prusak; Pac.: E.Coatta;
Yukon Weather Centre; Frobisher Bay
& Yellowknife Weather Offices;
Newfoundland Weather Centre:
G.MacMillan; AES Satellite Data Lab;
Ice Central Ottawa

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The purpose of the publication is to make topical information available to the public concerning the Canadian Climate and its socio-economic impact.

Unsolicited articles are welcome but should be at maximum about 1500 words in length. They will be subject to editorial change without notice due to publishing time constraints. The contents may be reprinted freely with proper credit.

The data shown in this publication are based on unverified reports from approximately 225 Canadian synoptic weather stations. Information concerning climatic impacts is gathered from AES contacts with the public and from the media. Articles do not necessarily reflect the views of the Atmospheric Environment Service.

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Ontario

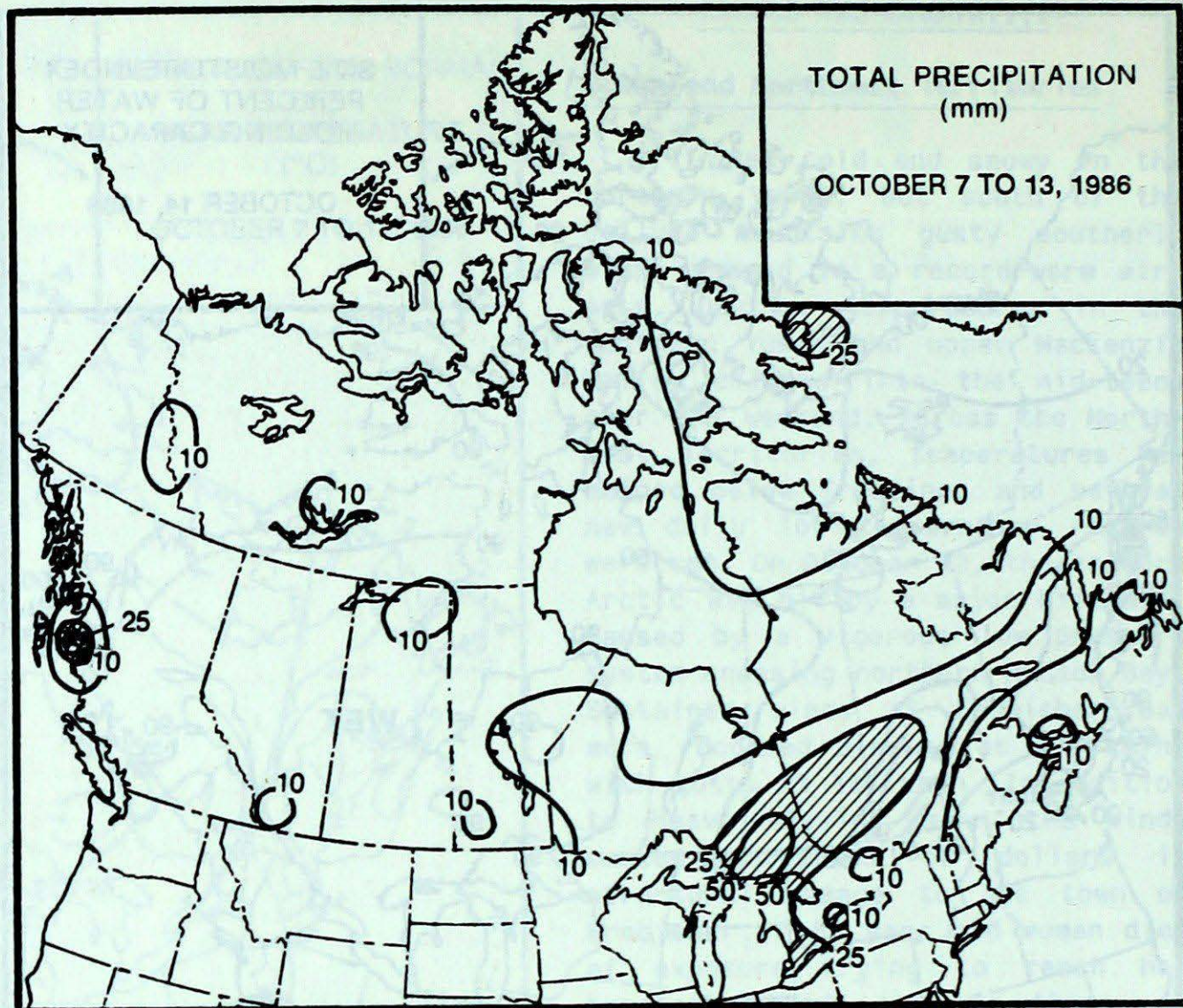
There was a marked improvement in the weather across southern Ontario as a cooler, drier airmass covered the region, producing varying amounts of sunshine. Conditions in northern Ontario were not as favourable; some communities received more than 50 mm of rain, and even some snow. The first killing frost of the season hit many parts of the south on October 10 and 11, only southwestern Ontario escaping the freezing temperatures. Damage estimates from last week's wind storm on the Great Lakes continue to climb. See the article on this page.

Québec

Relatively pleasant weather dominated the southern half of the province until the latter part of the long weekend, when an area of cloud and rain moved in from the southwest. Periods of snow and rain were reported in northern and central portions of the province. During the middle of the week, an Arctic high pressure area produced mostly sunny, but cold weather conditions everywhere. Temperatures in all areas dropped well below freezing during the nights. Northern communities reported several centimetres of snow on the ground.

Atlantic

In the Maritimes, cloudy skies gave way to a sunny Thanksgiving weekend. Showers were generally light. Snow flurries were reported on October 10. On October 11 new daily minimum temperature records were set at several locations. On October 6, a line of heavy thunderstorms moved across the region, producing strong winds, heavy rain and hail. A possible tornado or waterspout briefly struck the community of Dublin Shore in Lunenburg County, Nova Scotia, uprooting trees and blowing in windows. Small boats were damaged; one was lifted 30 metres in the air, and sent flying into the nearby harbour. In Newfoundland, temperatures were mild until a cold frontal passage on October 9. Sunshine became more frequent over the long weekend. A mixture of rain and snow fell in Labrador. Strong northwesterly winds were common both on the Island and on the mainland.



HEAVIEST WEEKLY PRECIPITATION (mm)

BRITISH COLUMBIA	PRINCE RUPERT	42
YUKON TERRITORY	KOMAKUK BEACH	8
NORTHWEST TERRITORIES	CAPE DYER	38
ALBERTA	LETHBRIDGE	12
SASKATCHEWAN	COLLINS BAY	14
MANITOBA	NORWAY HOUSE	11
ONTARIO	WAWA	74
QUEBEC	VAL DOR	43
NEW BRUNSWICK	MONCTON	9
NOVA SCOTIA	SABLE ISLAND	22
PRINCE EDWARD ISLAND	CHARLOTTETOWN	13
NEWFOUNDLAND	ST ANTHONY	22

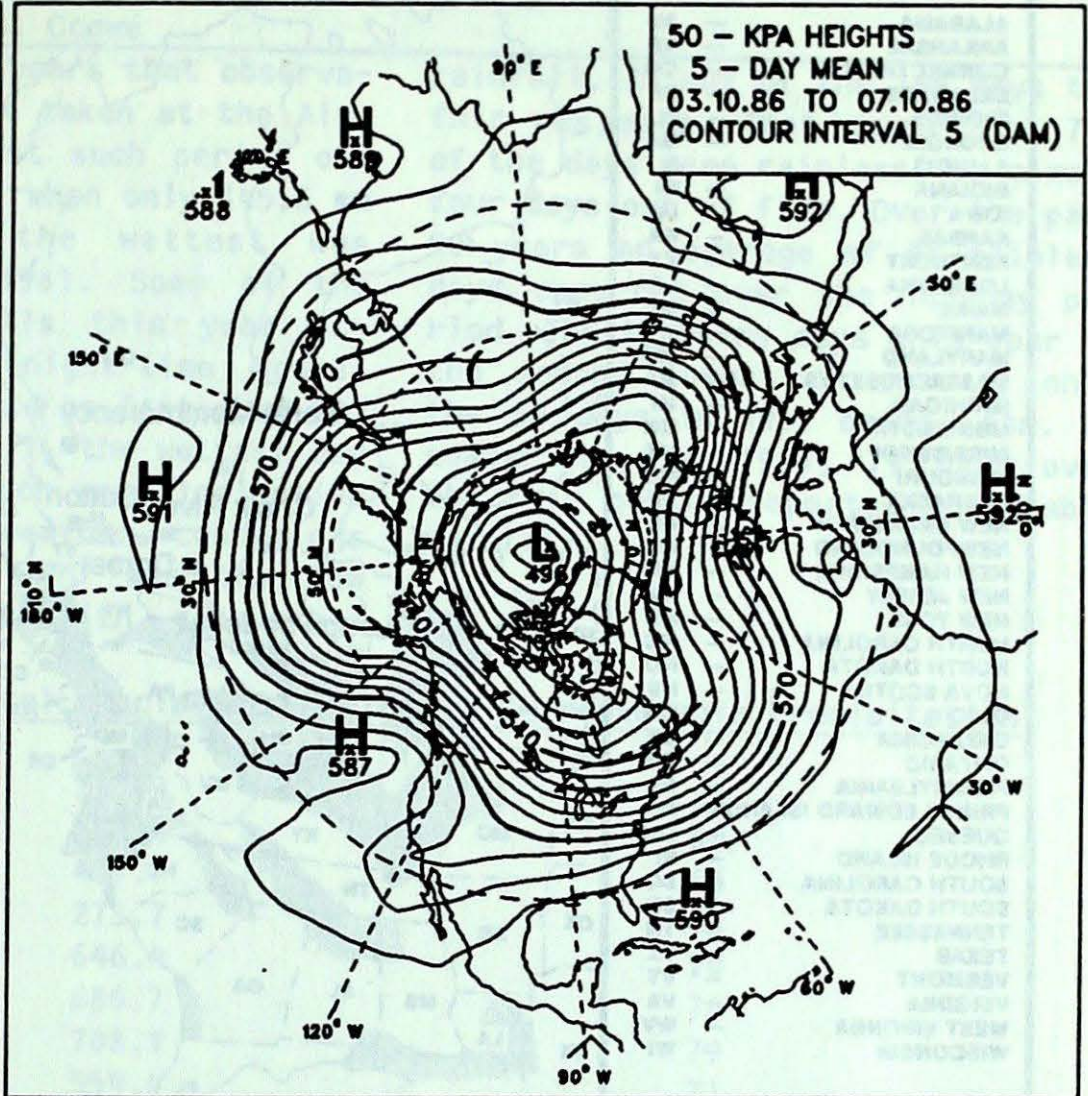
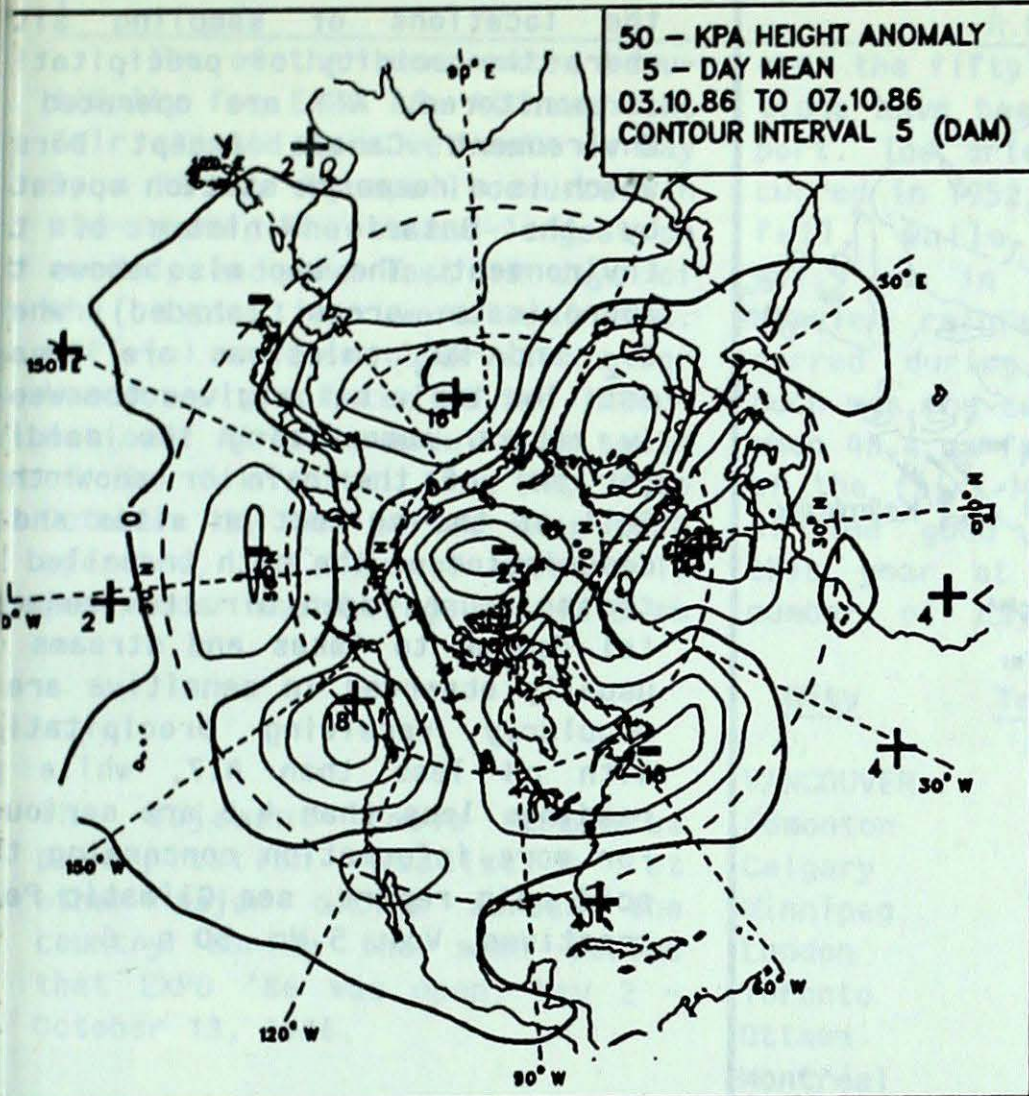
Ontario Residents Continue to Mop Up - Costs Run Into Millions

Damage estimates after last week's wind storm on the Great Lakes are running into the hundreds of millions. The Thanksgiving weekend was a grim holiday for many cottagers faced with the task of trying to save their shoreline properties. Many waterfront buildings were shifted off their foundations by the high waters and pounding waves. Many townships situated along the Lakes have appealed to the province for emergency aid.

Damage caused by the flooding from the torrential downpours that inundated parts of southern Ontario in August and September now run into the millions of dollars in the Toronto area alone. Flood damage to Toronto's parks is set at about \$1.2 million, and it will take until spring to complete all storm-related repairs.

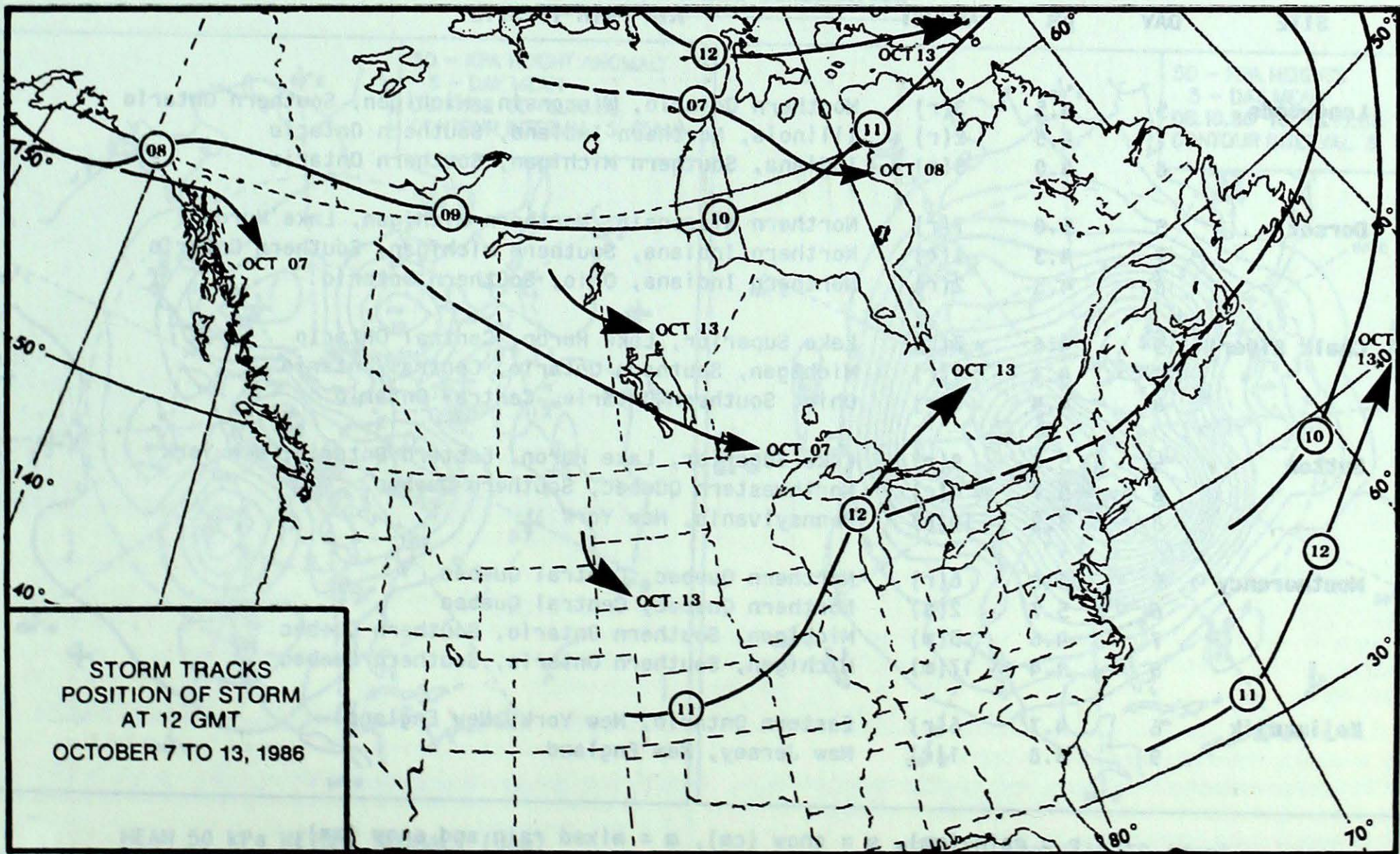
Ontario's farmers have been hardest hit by the recent record rainfalls. Most of this year's bumper crops still remain in the soggy fields. Losses because of mold and rot to the soybean, corn and white bean crop now exceed \$100 million. Costs could go up even more, if Ontario vegetables are not harvested soon.

50 KPa ATMOSPHERIC CIRCULATION



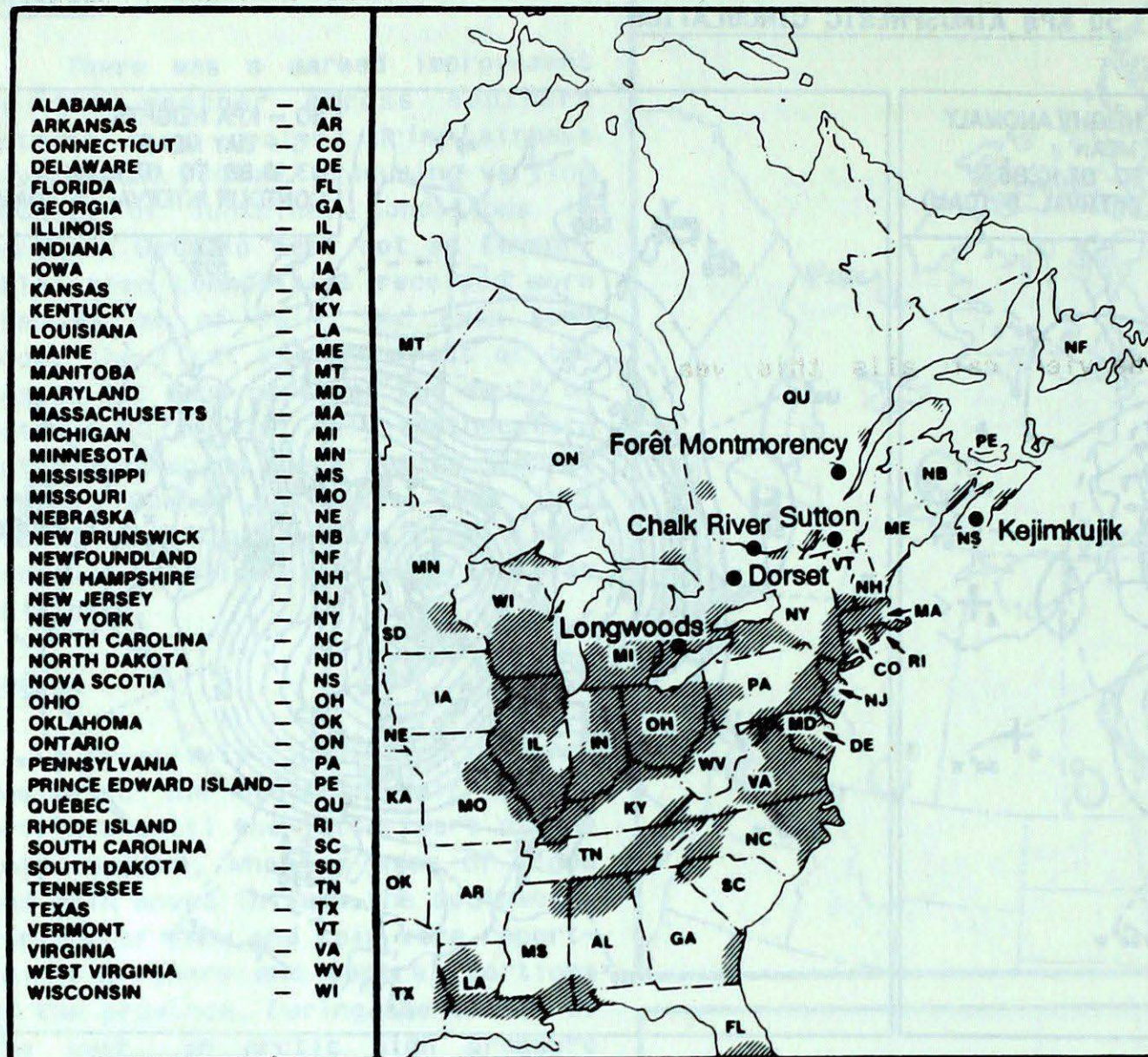
MEAN 50 KPa HEIGHT ANOMALY (dam)
October 3 to October 7, 1986

MEAN 50 KPa HEIGHTS (dam)
October 3 to October 7, 1986



ACID RAIN

ACID RAIN REPORT



The reference map (left) shows the locations of sampling sites where the acidity of precipitation is monitored. All are operated by Environment Canada except Dorset which is a research station operated by the Ontario Ministry of the Environment. The map also shows the approximate areas (shaded) where SO_2 and NO_x emissions are greatest. The table below gives the weekly report summarizing the acidity (or pH) of the rain or snow that fell at the collection sites and a description of the path travelled by the moisture laden air. Environmental damage to lakes and streams is usually observed in sensitive areas regularly receiving precipitation with pH less than 4.7, while pH readings less than 4.0 are serious. For more information concerning the acid rain report, see Climatic Perspectives, Vol. 5 No. 50 p. 6.

OCTOBER 5 TO OCTOBER 11, 1986

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	5	4.5	3(r)	Northern Ontario, Wisconsin, Michigan, Southern Ontario
	7	4.3	2(r)	Illinois, Northern Indiana, Southern Ontario
	8	4.0	3(r)	Indiana, Southern Michigan, Southern Ontario
Dorset	5	5.0	7(r)	Northern Wisconsin, Northern Michigan, Lake Huron
	7	4.3	1(r)	Northern Indiana, Southern Michigan, Southern Ontario
	8	4.3	2(r)	Northern Indiana, Ohio, Southern Ontario
Chalk River	5	4.6	7(r)	Lake Superior, Lake Huron, Central Ontario
	7	4.3	1(r)	Michigan, Southern Ontario, Central Ontario
	8	4.4	6(r)	Ohio, Southern Ontario, Central Ontario
Sutton	5	5.0	9(r)	Lake Superior, Lake Huron, Eastern Ontario, New York
	6	5.7	4(r)	Northwestern Quebec, Southern Quebec
	8	3.9	10(r)	Pennsylvania, New York
Montmorency	5	5.8	6(r)	Northern Quebec, Central Quebec
	6	5.7	2(s)	Northern Quebec, Central Quebec
	7	4.6	5(m)	Michigan, Southern Ontario, Southern Quebec
	8	4.4	17(m)	Michigan, Southern Ontario, Southern Quebec
Kejimikujik	6	4.7	6(r)	Eastern Ontario, New York, New England
	9	3.8	1(r)	New Jersey, New England

r = rain (mm), s = snow (cm), m = mixed rain and snow (mm).

VANCOUVER'S DRY SUMMER AND EXPO '86

by
R.B. Crowe

The weather cooperated beautifully for EXPO 86. Although the fair started on a wet note on May 2, a 53-day dry spell occurred in mid-summer, the second-longest on record, and the last 13 days of the exposition were rainless. Official weather observations for Vancouver are taken at the International Airport, about 8 km south of the fair site. From May 2 to October 13, the period when EXPO operated, 253.0 mm of rain fell, just under the average of 268.5 mm

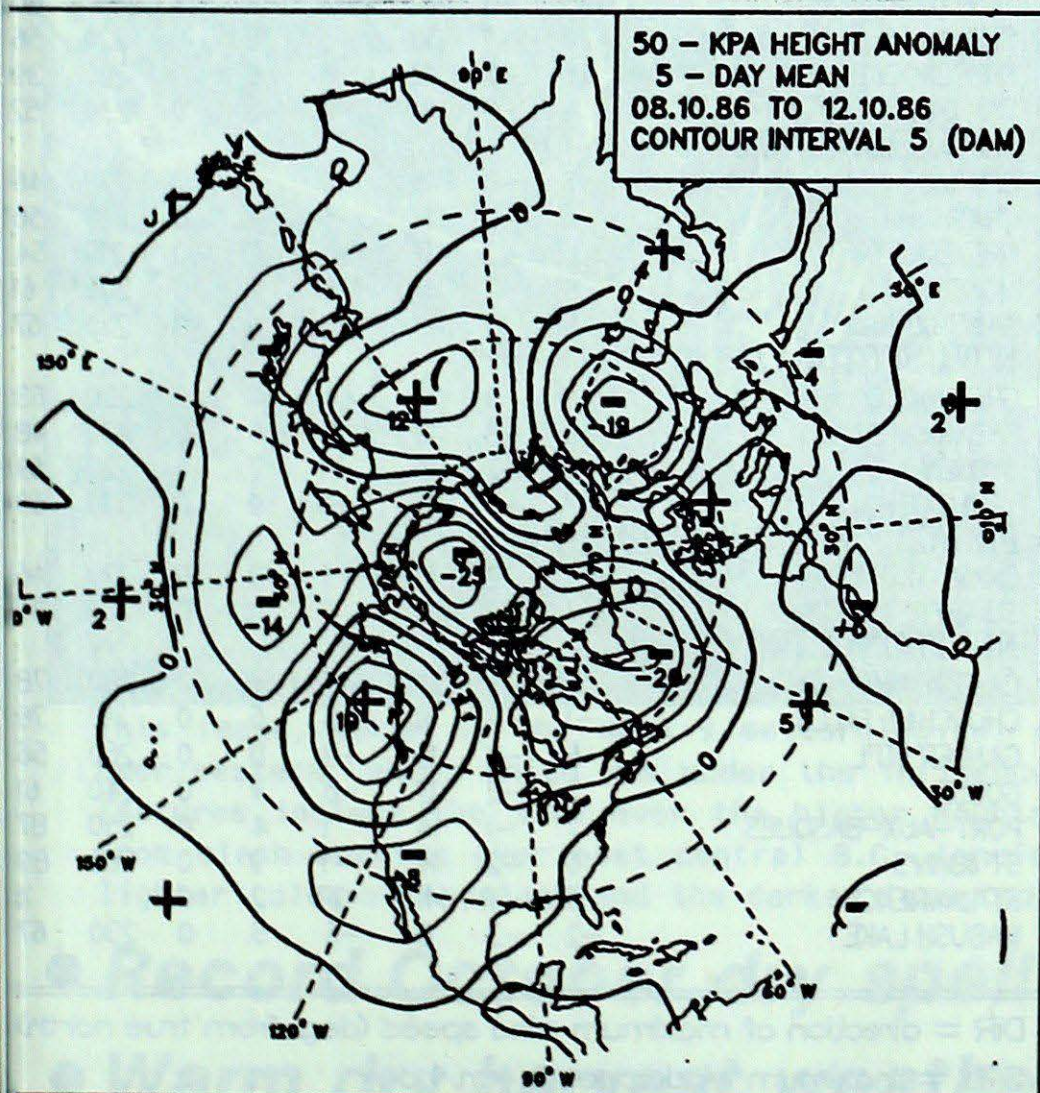
over the fifty years that observations have been taken at the Airport. The driest such period occurred in 1952, when only 145.6 mm fell, while the wettest was 467.9 mm in 1981. Some of the heavier rainfalls this year occurred during night-time hours. Such was the case on September 23, when 48.4 mm fell, the wettest day of the fair. Much more indicative of the good weather conditions this year at EXPO was the low number of days with measurable

rainfall, 35 out of the 165 days the fair was open. That means that 79% of the days were rainless, or almost four days out of five. Over the past 50 years an average of 48 rainless days occurred over the 165-day period. The 35 rainy days this year is the second lowest on record, only the 34 days in 1952 being less. By comparison, in 1981, 79 days over the fair period reported measurable rainfall.

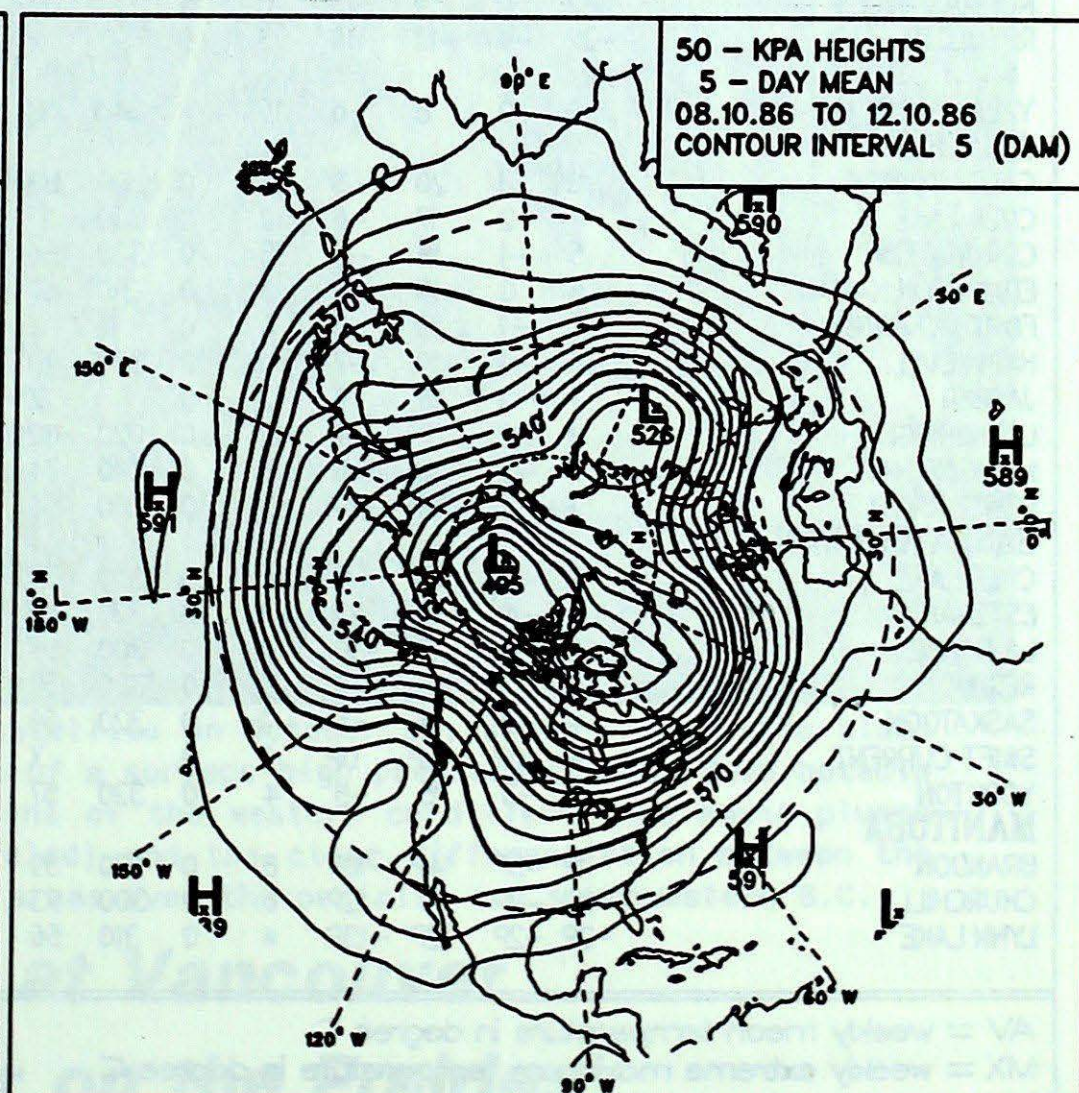
The adjacent table compares precipitation statistics at other major cities across the country during the same period that EXPO '86 was open, May 2 - October 13, 1986.

City	Total Precipitation	Days With Measurable Precipitation
VANCOUVER	253.0	35
Edmonton	364.4	60
Calgary	417.7	65
Winnipeg	273.7	63
London	646.4	70
Toronto	686.7	70
Ottawa	708.1	79
Montréal	559.4	71
Québec City	841.6	81
Halifax	702.8	93

50 kPa ATMOSPHERIC CIRCULATION



MEAN 50 kPa HEIGHT ANOMALY (dam)
October 8 to October 12, 1986



MEAN 50 kPa HEIGHTS (dam)
October 8 to October 12, 1986

STATISTICS

TEMPERATURE, PRECIPITATION AND MAXIMUM WIND DATA FOR THE WEEK ENDING 0600 GMT OCTOBER 14, 1986																	
STATION	TEMPERATURE				PRECIP.		WIND MX		STATION	TEMPERATURE				PRECIP.		WIND MX	
	AV	DP	MX	MN	TP	SOG	DIR	SPD		AV	DP	MX	MN	TP	SOG	DIR	SPD
BRITISH COLUMBIA																	
CAPE ST. JAMES	12	1	15	9	8	0	030	59	THE PAS	2	*	13	-4	2	0	340	67
CRANBROOK	6	0	17	-4	0	0	020	52	THOMPSON	-1	-2	10	-12	2	0	350	56
FORT NELSON	5	2	20	-4	2	0		*	WINNIPEG INT'L	3	-4	15	-6	1	0	170	52
FORT ST. JOHN	9	3	20	-2	1	0	250	52	ONTARIO								
KAMLOOPS	9	-1	19	-2	*	0		*	ATIKOKAN	3	-2	14	-6	18	0	190	35
PENTICTON	8	-2	17	-2	0	0		*	BIG TROUT LAKE	0	*	10	-5	15	0	300	70
PORT HARDY	10P	1P	16P	2P	1	0	330	37	GORE BAY	9	-1	16	-1	43	0	170	44
PRINCE GEORGE	7	*	16	-5	5	0	190	41	KAPUSKASING	1	-4	9	-7	39	0	190	52
PRINCE RUPERT	9	1	15	1	42	0	130	52	KENORA	3	-4	12	-3	6	0	180	59
REVELSTOKE	8	1	17	-1	0	0	360	41	KINGSTON	9P	0P	14P	-3P	19	0		X
SMITHERS	7	1	16	-3	3	0		*	LONDON	10	0	18	-1	32	0	120	44
VANCOUVER INT'L	11	-1	17	3	0	0	310	33	MOOSONEE	2	-3	9	-5	4	0	290	41
VICTORIA INT'L	11	0	20	3	0	0		*	NORTH BAY	5	-2	14	-6	29	0	240	54
WILLIAMS LAKE	6	*	16	-4	0	0		X	OTTAWA INT'L	7	-2	17	-3	13	0		X
YUKON TERRITORY									PETAWAWA	6	-1	16	-8	5	0		X
DAWSON	3	*	13	-10	4	0	080	35	PICKLE LAKE								
MAYO	3	3	13	-6	4	0		X	RED LAKE	1	-4	8	-7	10	0	350	43
SHINGLE POINT A	-6	0	9	-13	1	12		*	SUDBURY	6	-2	14	-5	37	0		X
WATSON LAKE	5	3	15	-3	4	0	240	56	THUNDER BAY	3	-3	16	-7	14	0	030	50
WHITEHORSE	7	5	15	-4	0	0	150	78	TIMMINS	2P	-4P	12P	-8P	63	0	350	37
NORTHWEST TERRITORIES									TORONTO INT'L	9	-2	19	-2	6	0	350	50
ALERT	-22	-5	-15	-28	3	5	350	56	TRENTON	9	-2	16	-3	10	0		X
BAKER LAKE	-9	-4	3	-19	8	*	340	61	WIARTON	9	-1	18	-2	13	0		X
CAMBRIDGE BAY	-15	-6	0	-24	2	13	310	69	WINDSOR	12	-1	22	2	27	0	200	41
CAPE DYER	-8P	-2P	-7P	-9P	38	14	020	67	QUEBEC								
CLYDE	-11	-6	-4	-19	21	29	320	63	BAGOTVILLE	4	-2	12	-5	26	0	260	41
COPPERMINE	-7	*	5	-16	3	6	220	59	BLANC SABLON	2P	*	8P	-5P	*	0		X
CORAL HARBOUR	-10	-3	1	-20	7	6		X	INUKJUAQ	-1	-2	4	-8	17	0	330	81
EUREKA	-28	-10	-22	-34	0	9	010	39	KULUJUAQ	-3	-3	2	-7	16	2	280	100
FORT SMITH	1	-1	15	-11	3	*		X	KULUJUAPIK	1	-2	7	-2	9	0	240	76
FROBISHER BAY	-9P	-6P	-2P	-15P	*	7	310	70	MANIWAKI	5	-3	14	-7	25	0	180	35
HALL BEACH	-14	-6	-3	-23	*	7	330	72	MONT JOLI	5	-1	11	-4	19	0	200	59
INUVIK	-5	0	9	-15	3	4		X	MONTREAL INT'L	8	-2	16	-4	9	0	230	52
MOULD BAY	-20P	-5P	-10P	-28P	5	17		X	NATASHQUAN	4P	-2P	9	-3P	10	0	250	57
NORMAN WELLS	-2	0	9	-13	6	5		X	QUEBEC	5	-2	14	-4	22	0	250	41
RESOLUTE	-22	-9	-12	-30	3	9		*	SCHIEFFERVILLE	-3	-3	4	-8	4	7	310	80
YELLOWKNIFE	0	0	8	-6	13	*	340	61	SEPT-ILES	3	-1	10	-5	18	0	320	56
ALBERTA									SHERBROOKE	5	-2	18	-6	6	0	220	39
CALGARY INT'L	8	1	20	-3	5	0	320	83	VAL D'OR	4	-2	14	-8	43	0	230	52
COLD LAKE	4	-2	17	-6	2	0	330	57	NEW BRUNSWICK								
CORONATION	5	-1	18	-6	5	0	330	56	CHARLO	5	-1	15	-5	1	0	290	46
EDMONTON NAMAQ	6	0	19	-3	3	0	310	57	CHATHAM	6	-2	17	-6	*	0	220	56
FORT MCMURRAY	4	-1	19	-8	4	0		X	FREDERICTON	6	-3	17	-7	4	0	210	54
HIGH LEVEL	3	-1	19	-7	1	0	330	61	MONCTON	6	-3	17	-6	9	0	200	61
JASPER	7	1	16	-5	2	0		X	SAINT JOHN	5	-3	13	-3	6	0	220	67
LETHBRIDGE	8	0	20	-4	12	0	020	89	NOVA SCOTIA								
MEDICINE HAT	7	-2	18	-6	6	0	010	74	GREENWOOD	6	-3	20	-4	4	0	230	63
PEACE RIVER	5P	1P	16P	-6P	3	0	310	54	SHEARWATER	8	-3	18	-2	4	0	230	48
SASKATCHEWAN									SYDNEY	8	-2	19	1	7	0	220	59
CREE LAKE	2	0	17	-5	4	0	340	72	YARMOUTH	7	-3	15	-1	9	0	330	59
ESTEVAN	3	-4	14	-7	1	0	320	67	PRINCE EDWARD ISLAND								
LA RONGE	2	-1	17	-10	1	0	300	54	CHARLOTTETOWN	7	-2	16	1	13	0	220	46
REGINA	3	-3	15	-9	1	0	330	59	SUMMERSIDE	7	-2	15	0	11	0	200	89
SASKATOON	4	-2	18	-6	1	0	320	59	NEWFOUNDLAND								
SWIFT CURRENT	8P	0P	15P	0P	9	0		X	CARTWRIGHT	2P	-1P	12P	-4P	*	0	280	78
YORKTON	3	-3	15	-8	4	0	320	57	CHURCHILL FALLS	-1	-2	8	-5	6	0	310	76
MANITOBA									GANDER INT'L	5	-2	15	-2	11	0	260	56
BRANDON	1P	-5P	14P	-10P	8	0	270	59	GOOSE	2	-2	12	-6	*	0	240	61
CHURCHILL	-2P	-2P	10	-12P	6	0	300	93	PORT-AUX-BASQUES	7	-1	14	1	4	0	250	87
LYNN LAKE	-2P	-2P	12P	-13P	*	0	310	56	ST JOHN'S	6	-2	14	-1	9	0	260	89
									ST LAWRENCE	7P	-2P	14P	-2P	2	0		X
									WABUSH LAKE	-2	-3	8	-6	5	0	230	67

AV = weekly mean temperature in degree C
 MX = weekly extreme maximum temperature in degree C
 MN = weekly extreme minimum temperature in degree C
 TP = weekly total precipitation in mm
 DP = departure of mean temperature from normal in degree C
 SOG = snow depth on ground in cm, last day of the period

DIR = direction of maximum wind speed (deg. from true north)
 SPD = maximum wind speed in km/hour

X = not observed
 P = value based on less than 7 days
 * = missing