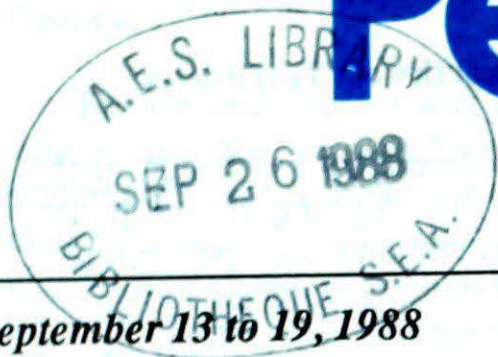


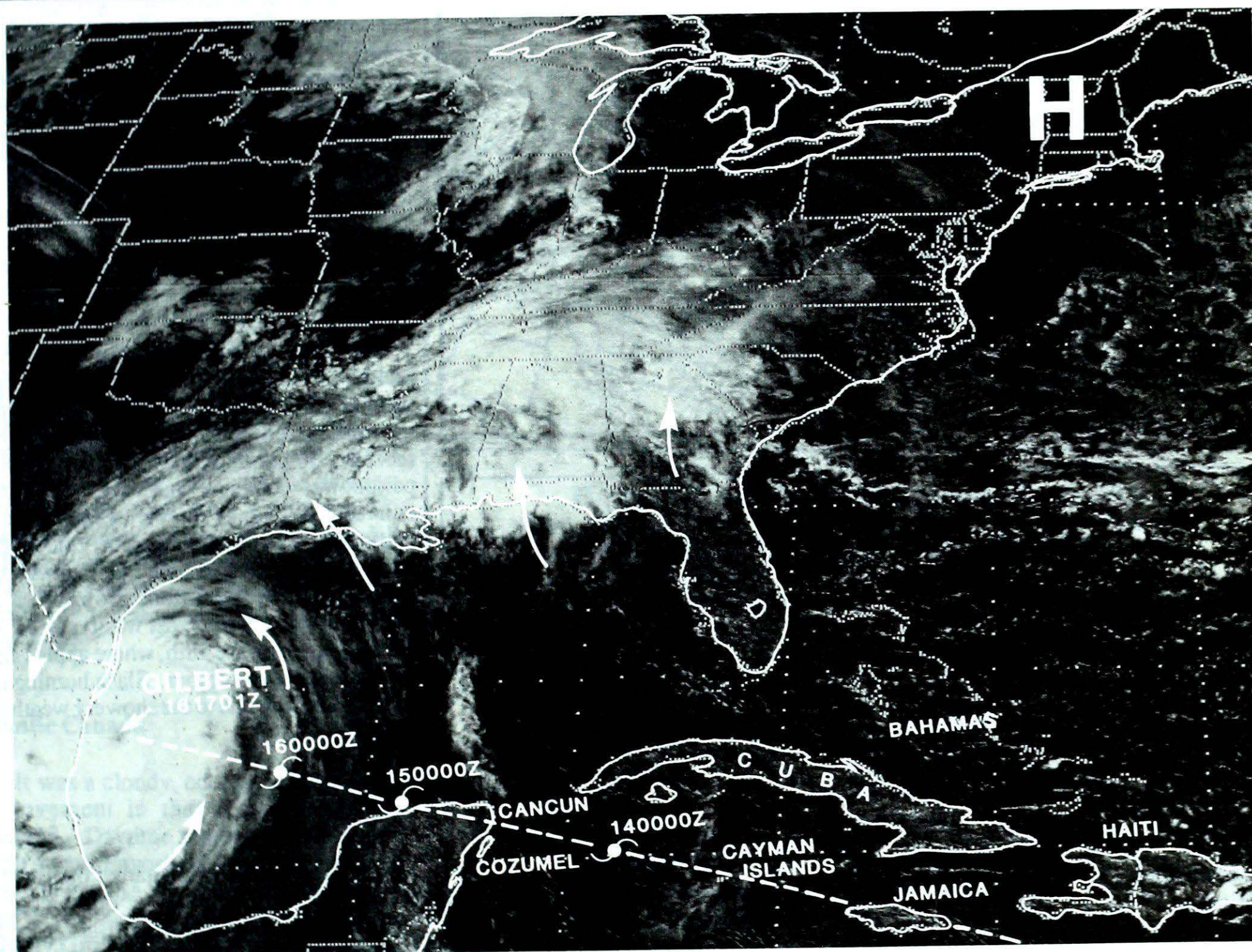
Climatic Perspectives



September 13 to 19, 1988

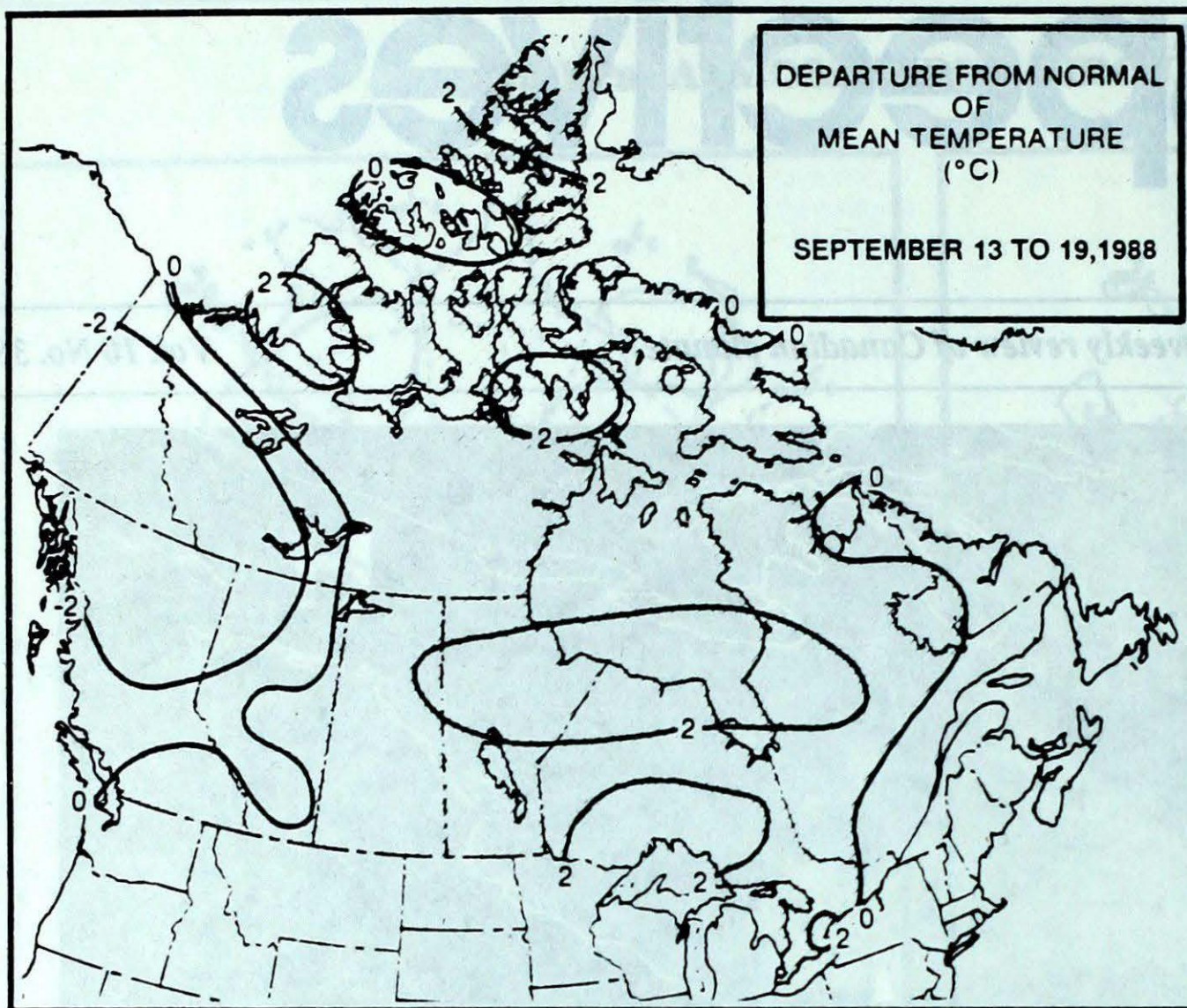
A weekly review of Canadian climate

Vol. 10 No. 38



This GOES satellite photograph of September 16, 1988 shows Gilbert approaching the Mexican coast for a second time after already taking a swipe at the Yucatan Peninsula, where it lost some of its fury. Note the spiral bands of cloud and squalls rotating around the storm. Moisture laden air is also beginning to push up the Mississippi Valley, eventually reaching the lower Great Lakes over the weekend. More information on page 3. Additional satellite photo on page 8.

- **Bumper harvest in the Maritimes**
- **Small tornado touches down in Toronto**



ACROSS THE COUNTRY ...

Yukon and Northwest Territories

Although freeze-up has begun in the high Arctic, the shipping routes in the southern areas remain wide open, but new ice has started forming along the shorelines. Canadian icebreakers are still plying the southern Arctic waters, where gales are becoming more frequent, assisting last minute resupply operations. The more northern outposts such as Eureka have all been resupplied several weeks earlier without incident. In the Yukon and the Northwest Territories, the week has been seasonable, with a mixture of sun, cloud and rain. Temperatures in the high Arctic failed to climb above the freezing mark.

British Columbia

A ridge of high pressure produced pleasant sunny weather until Friday. In the southern interior, daytime readings rose to the thirties, setting a few daily temperature records. In contrast, the latter part of the period was cool and unsettled. In Vancouver the change in the weather was marked by heavy thunderstorms Friday evening, which produced hail. At Victoria on the 17th, the temperature dropped to a record low of 3.5°C. Frost was reported in the Okanagan on the 18th, where apples are beginning to show colour. Slash burning is behind schedule due to the showery weather of late.

Prairie Provinces

In Alberta, the week started off sunny and warm, with a number of daily record high temperatures. Medicine Hat reached 30°C on the 15th. The next day, a cold Arctic outbreak covered the whole province. Clearing skies late Saturday, resulted in widespread frost early Sunday morning.

It was another soggy week in Saskatchewan and Manitoba, with ample rain-falls. The north received the heaviest amounts during the early part of the week, while the south got a soaking over the weekend. Temperatures were generally warmer in the west, with daily record highs set in Saskatchewan. By the end of the week this pattern had reversed, and minimums over much of the province dropped to near or below the freezing mark.

Weekly Temperature Extreme (°C)

Location	Maximum	Minimum
British Columbia Lytton	33	Prince George -5
Yukon Territory Old Crow	17	Beaver Creek -10
Northwest Territories Fort Smith	17	Alert -18
Alberta Medicine Hat	30	Edson -7
Saskatchewan Kindersley	29	Wynyard -5
Manitoba The Pas	26	Thompson -1
Ontario Windsor	30	Moosonee -1
Quebec Montreal Int'l	23	Sherbrooke -2
New Brunswick Fredericton	20	Chatham 2
Nova Scotia Shearwater	19	Truro 2
Prince Edward Island Charlottetown	17	Summerside 7
Newfoundland Deer Lake	19	Churchill Falls -2

Across The Country...

Warmest Mean Temperature	Windsor (ONT)	19
Coollest Mean Temperature	Alert (NWT)	-8

88/09/13 -88/09/19

Ontario

For the most part it was pleasant and sunny until the weekend, when an unseasonably warm and humid air mass moved into the province. Heavy thunderstorms accompanied the unstable air mass during the morning hours of the 17th. Late in the afternoon of the same day, a tornado touched down briefly in the northwest corner of Metro Toronto, near Pearson International Airport, damaging some industrial units and overturning a truck. A number of new daily high temperature records were set on September 18. Sarnia lead the way with a high of 31°C.

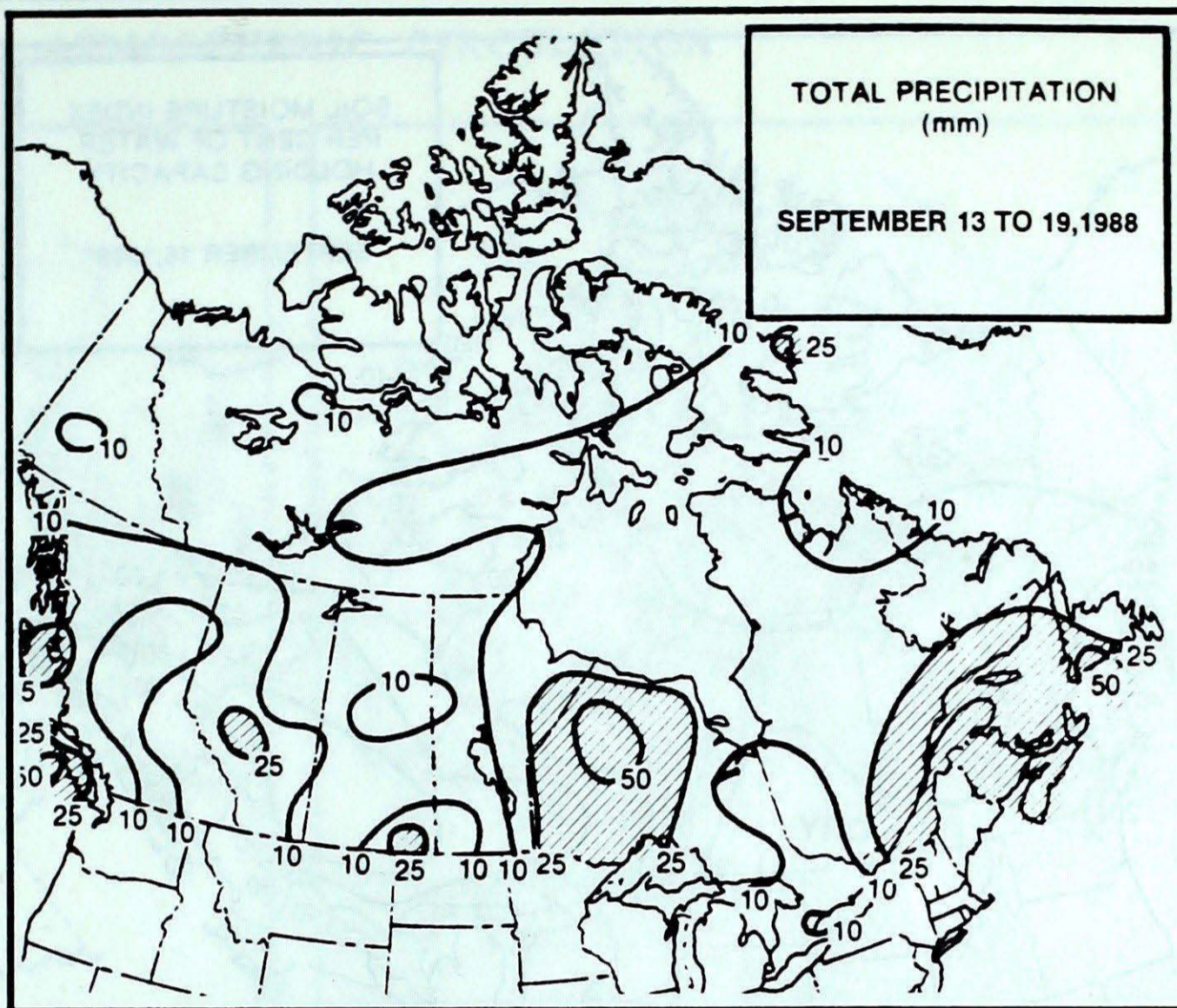
Quebec

It was a typically changeable early autumn week, with widespread frost occurring in the southern areas on September 16 and 17. Temperatures fluctuated widely, with milder temperatures towards the weekend. The early and latter parts of the period were the wettest, with the heaviest precipitation occurring along the St. Lawrence Valley. As much as 45 mm fell at Bagotville. Thunderstorms with hail rolled across the Eastern Townships on September 14. It was unusually mild in northern Quebec.

Atlantic Canada

It was a cloudy, cool week with some improvement in the weather over the weekend. Daytime temperatures hovered in the teens. Favorable weather conditions are attributed to a bumper apple harvest this year - the best and biggest in recent memory. Growers are expecting to harvest 3.6 million bushels this fall compared with 2.9 million bushels in 1987. Corn has also done very well this year, and the potato crop is the largest in more than a decade; in fact, all vegetable crops are showing better than average yields.

All of Newfoundland started off on a rainy note, as a deep low pressure system crossed the region. In Labrador, 5 cm of snow fell at Churchill Falls. A ridge of high pressure gave generally fair but cool weather after the middle of the week. Daytime readings in Labrador dropped to the single digits, with maximums on the Island of near 10°C.

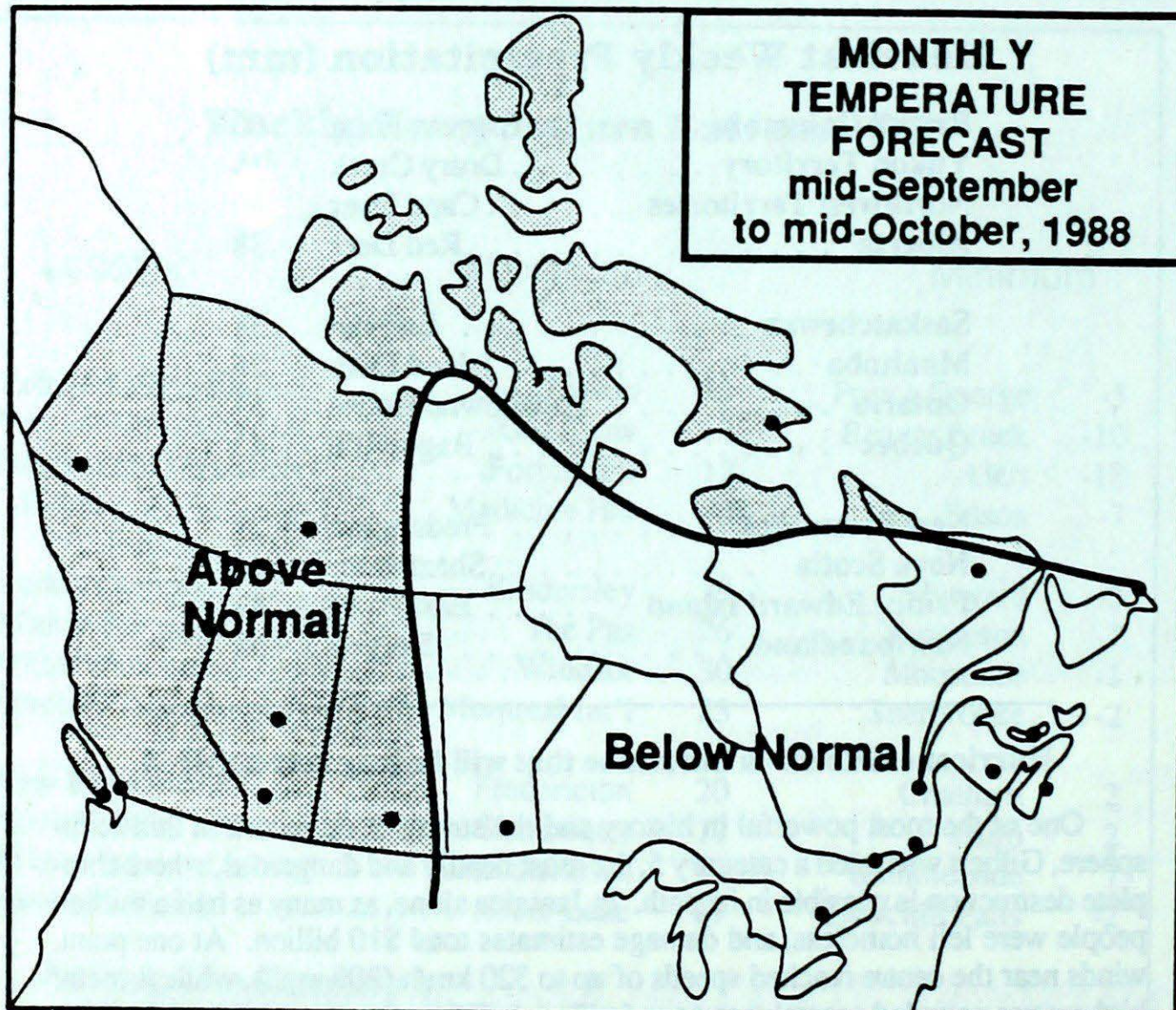
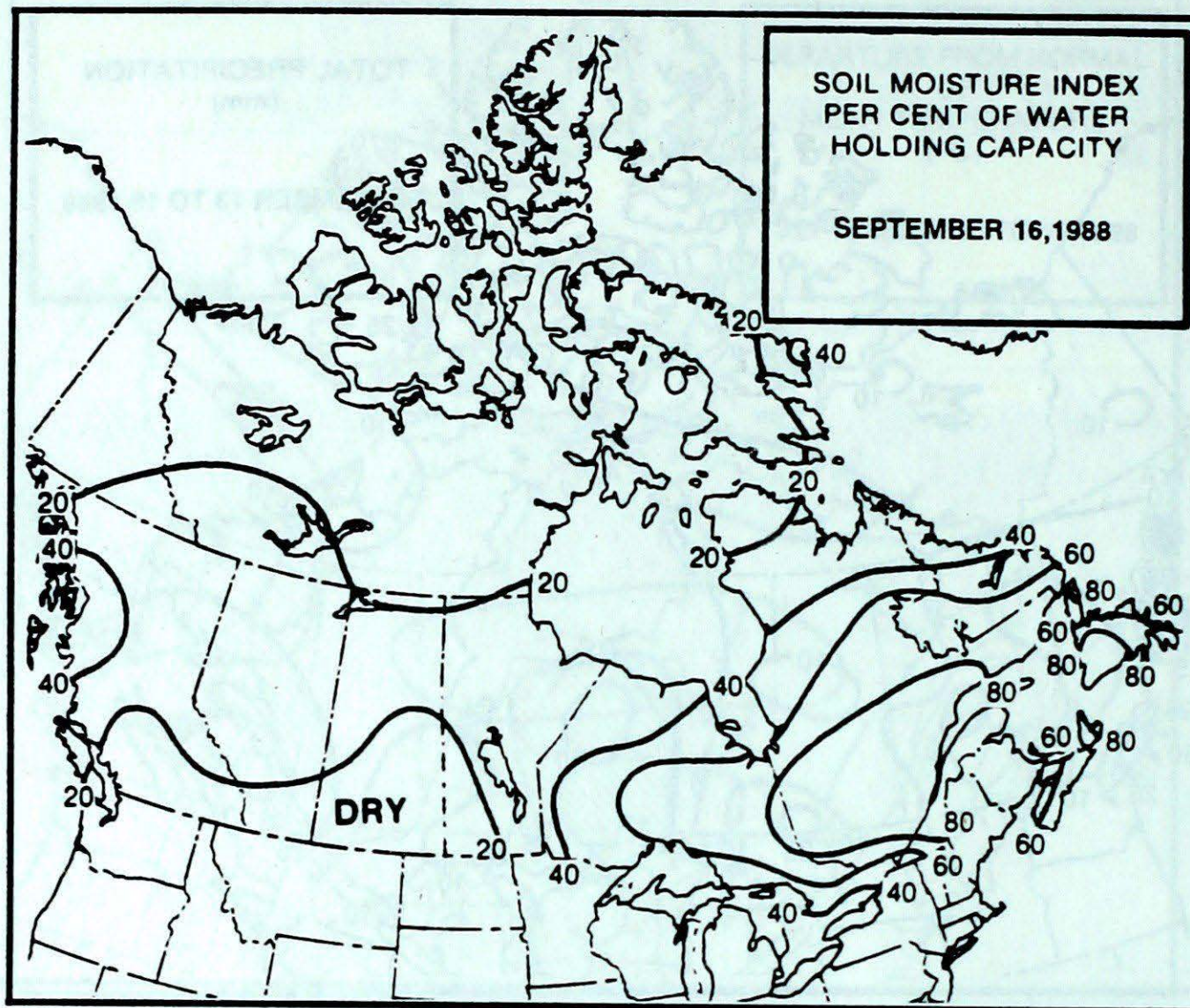


Heaviest Weekly Precipitation (mm)

British Columbia	Estevan Point	60
Yukon Territory	Drury Creek	14
Northwest Territories	Cape Dyer	40
Alberta	Red Deer	38
Saskatchewan	Estevan	38
Manitoba	Island Lake	26
Ontario	Lansdowne House	57
Quebec	Bagotville	45
New Brunswick	Fredericton	29
Nova Scotia	Shearwater	44
Prince Edward Island	East Point	42
Newfoundland	Burgeo	58

Hurricane Gilbert - a hurricane that will be long remembered

One of the most powerful in history and the strongest on record in this hemisphere, Gilbert was rated a category 5, the most deadly and dangerous, where complete destruction is possible in its path. In Jamaica alone, as many as half a million people were left homeless, and damage estimates total \$10 billion. At one point, winds near the centre reached speeds of up to 320 km/h (200 mph), while 8-metre high waves pounded coastal resorts and villages. When the storm hit the Mexican-Texas coastline Friday evening, torrential thunderstorms triggered flash floods and spawned dozens of tornadoes, adding to the destruction. In one week, Gilbert has caused the death of at least 225 people. The power of these storms is awesome. An average hurricane can drop 200 trillion tons of water a day, requiring the energy equivalent of 500,000 atomic bombs such as dropped on Nagasaki.



Normal temperatures from mid-September to mid-October, °C

Whitehorse	4	Edmonton	8	Quebec	10
Yellowknife	3	Regina	8	Fredericton	10
Iqaluit	-1	Winnipeg	9	Halifax	12
Vancouver	12	Toronto	12	Charlottetown	11
Victoria	12	Ottawa	11	Goose Bay	6
Calgary	8	Montreal	12	St. John's	9

CLIMATIC PERSPECTIVES VOLUME 10

Managing Editor P.R. Scholefield
 Editors-in-charge
 English A.K. Radomski
 French A.A. Caillet
 Data Manager M. Skarpathiotakis
 Art Layout K. Czaja
 Word Processing P. Burke/U. Ellis
 Translation D. Pokorn
 Cartography B. Taylor/G. Young
 T. Chivers

Regional Correspondents

Atlantic: F.Amirault; Quebec: J.Miron;
 Ontario: B.Smith; Central: J.F.Bendell;
 Western: W.Prusak; Pacific: E.Coatta;
 Yukon Weather Centre: J.Steele; Frobisher
 Bay and Yellowknife Weather Offices;
 Newfoundland Weather Centre:
 G.MacMillan; Ice Central Ottawa

ISBN 0225-5707 UDC 551.506.1(71)

Climatic Perspectives is a weekly bilingual publication of the Canadian Climate Centre, Atmospheric Environment Service, 4905 Dufferin St., Downsview, Ontario, Canada M3H 5T4
 ☎ (416) 739-4438/4436

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.

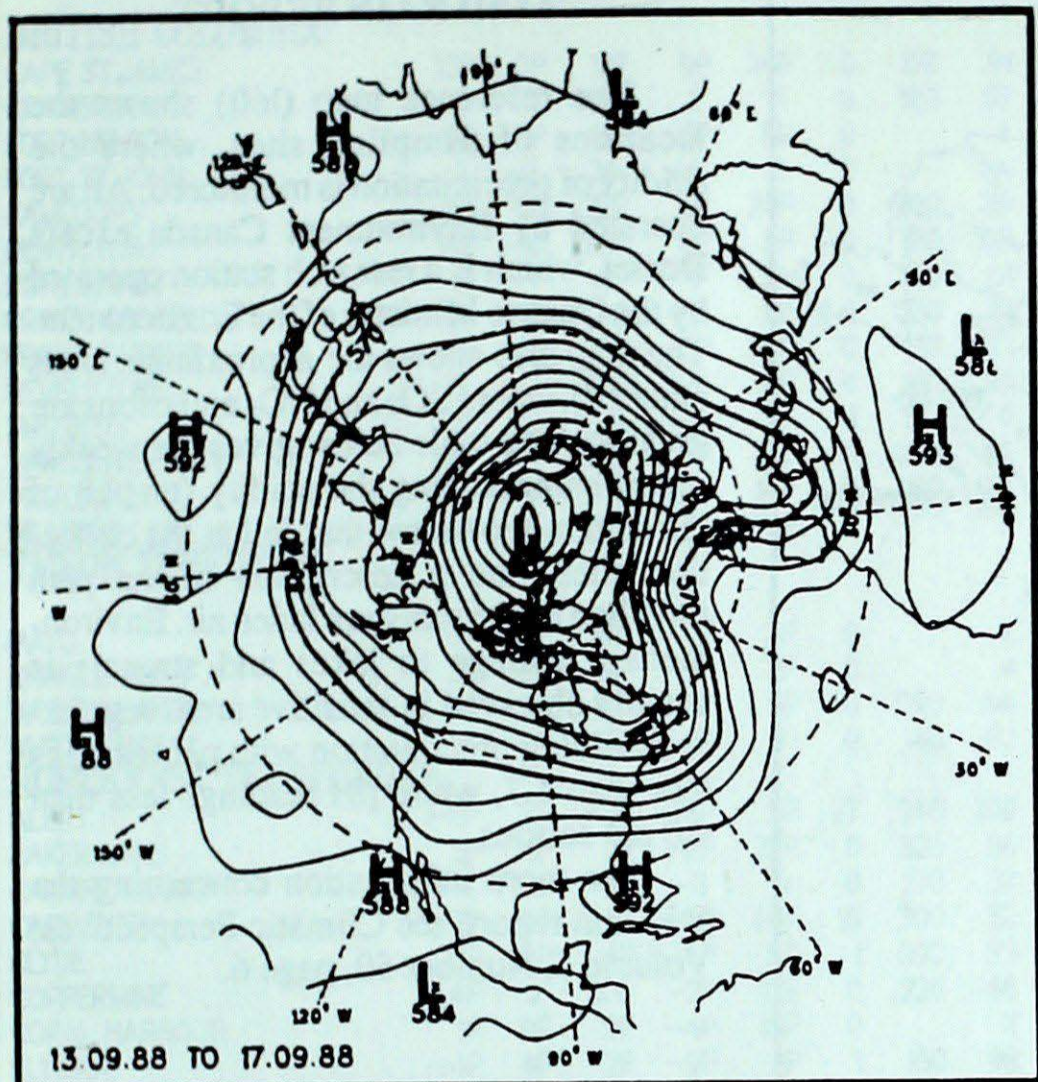
The data in this publication are based on unverified reports from approximately 225 Canadian synoptic weather stations. Information concerning climatic impacts is gathered from AES contacts with the public and from the media. Articles do not necessarily reflect the views of the Atmospheric Environment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

Annual Subscriptions

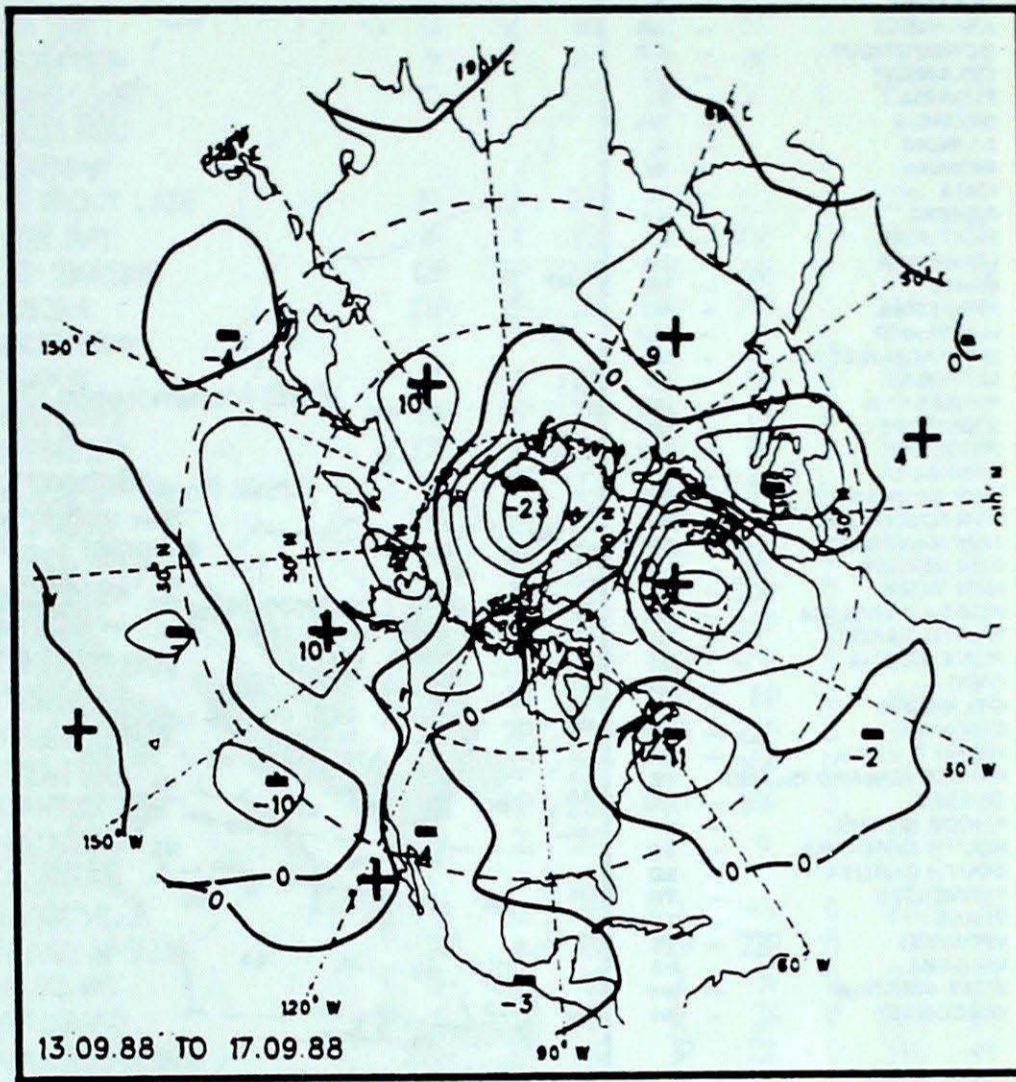
weekly and monthly supplement: \$35.00
 foreign: \$42.00
 monthly issue: \$10.00
 foreign: \$12.00

Orders must be prepaid by money order or cheque payable to Receiver General for Canada. Canadian Government Publishing Centre, Ottawa, Ontario, Canada K1A 0S9 (819) 997-2560

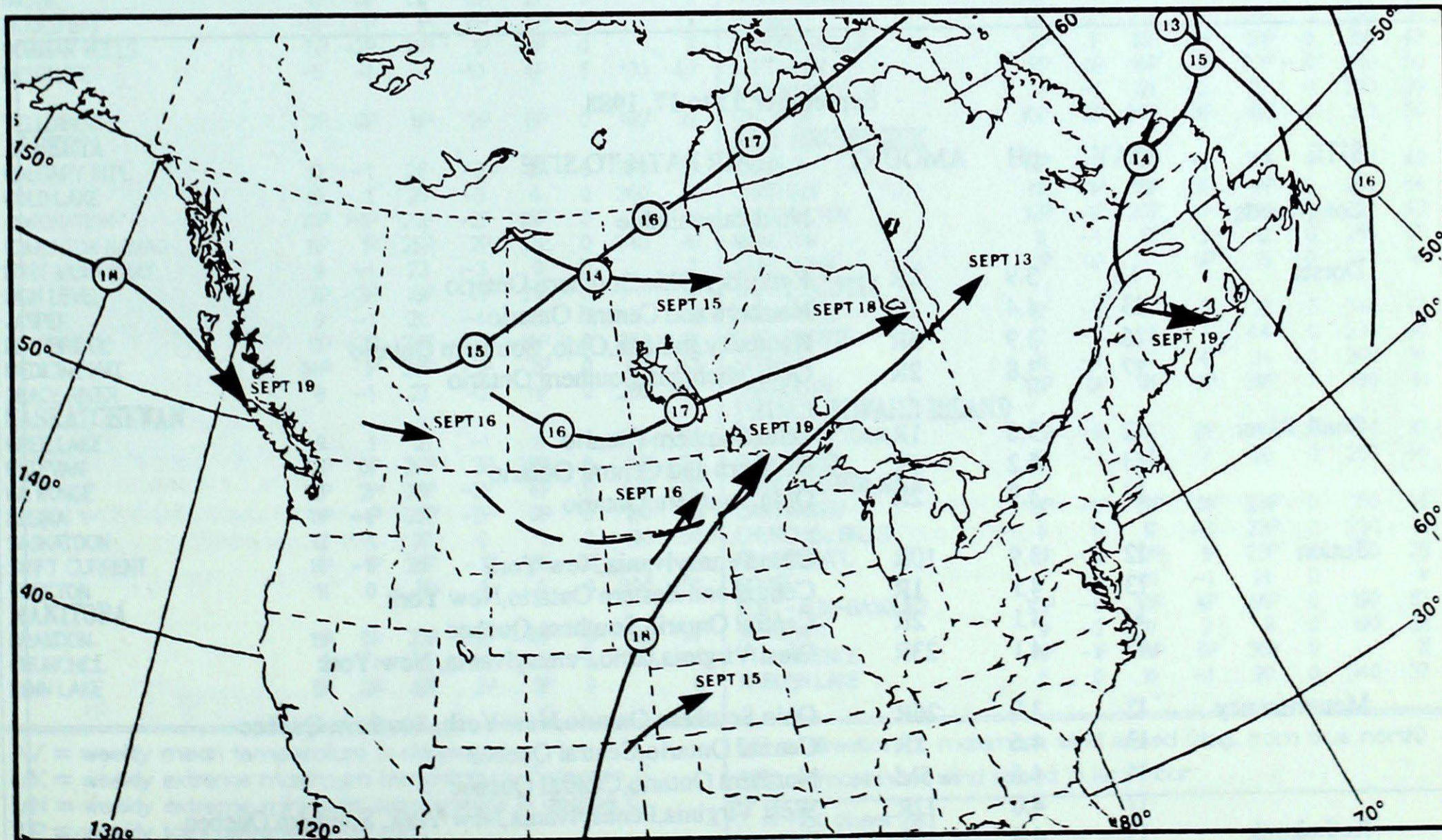
50 kPa ATMOSPHERIC CIRCULATION



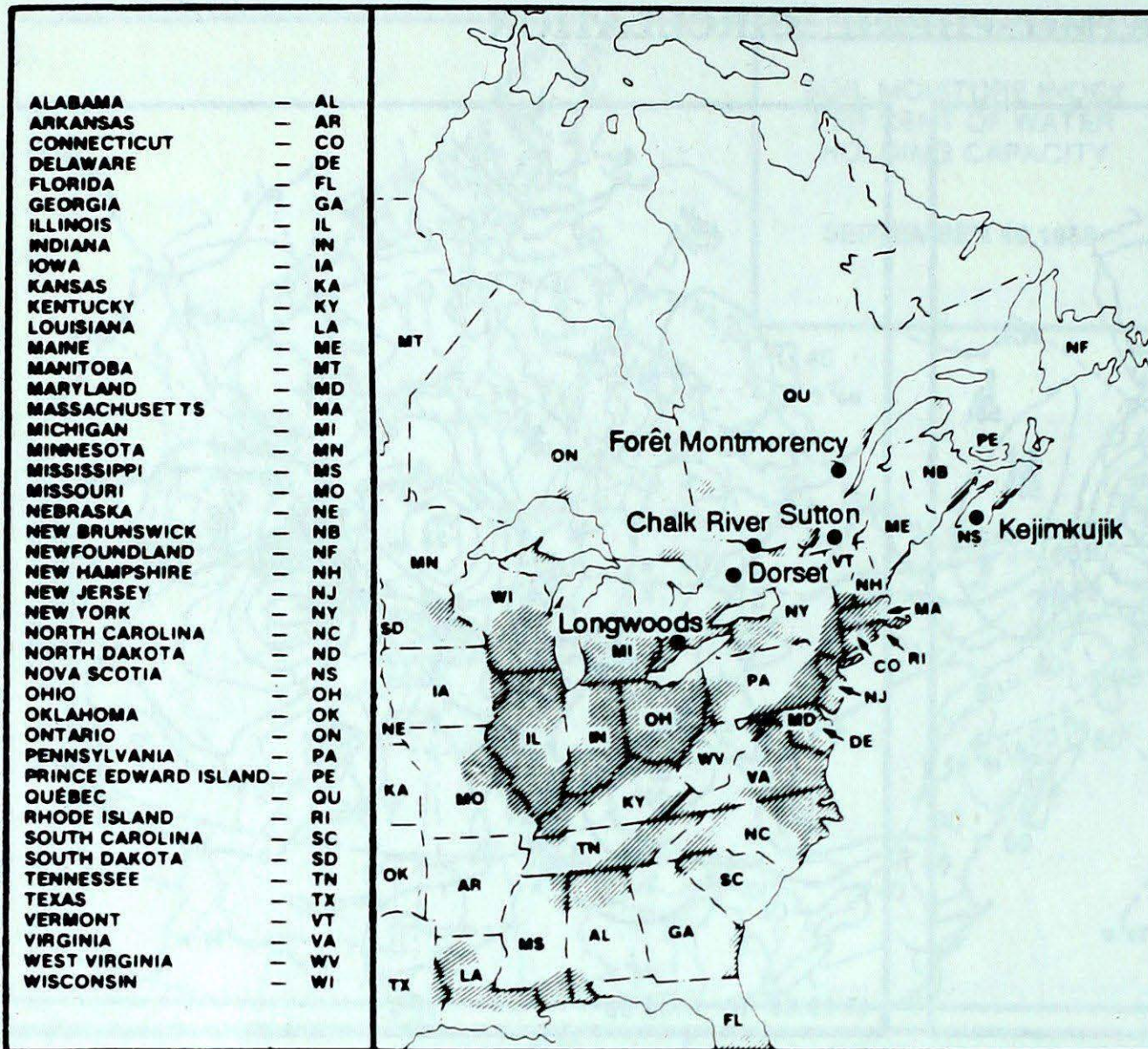
Mean geopotential height
50 kPa level (10 decameter intervals)



Mean geopotential height anomaly
50 kPa level (10 decameter intervals)



Storm track - Position of storm at 12 GMT during the period: September 13 TO 19, 1988



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 SO₂ and NO_x emissions are greatest. The table below gives the weekly report summarizing the acidity (or pH) of the acid 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 readings less than 4.7, while pH readings less than 4.0 are serious.

For more information concerning the acid rain report, see Climatic Perspectives, Volume 5, Number 50, page 6.

September 11 to 17, 1988

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods				No data available
Dorset	12	3.9	2R	Kentucky, Ohio, Southern Ontario
	13	4.4	1R	Northern and Central Ontario
	16	3.9	6R	Kentucky, Indiana, Ohio, Southern Ontario
	17	3.8	2R	Ohio, Michigan, Southern Ontario
Chalk River	12	3.8	1R	Ohio, Southern Ontario
	13	4.2	1R	Northern and Central Ontario
	17	3.9	2R	Ohio, Southern Ontario
Sutton	12	3.9	10R	Ohio, Pennsylvania, New York
	13	4.1	1R	Central and Eastern Ontario, New York
	14	4.1	2R	Central Ontario, Southern Quebec
	17	4.1	23R	West Virginia, Ohio, Pennsylvania, New York
Montmorency	12	3.8	26R	Ohio, Southern Ontario, New York, Southern Quebec
	13	4.6	1R	Central Ontario, Central Quebec
	14	4.6	5M	Northern Ontario, Central Quebec
	17	4.0	12R	West Virginia, Pennsylvania, New York, Southern Quebec
Kejimikujik	13	4.4	16R	Pennsylvania, New Jersey, Atlantic Ocean

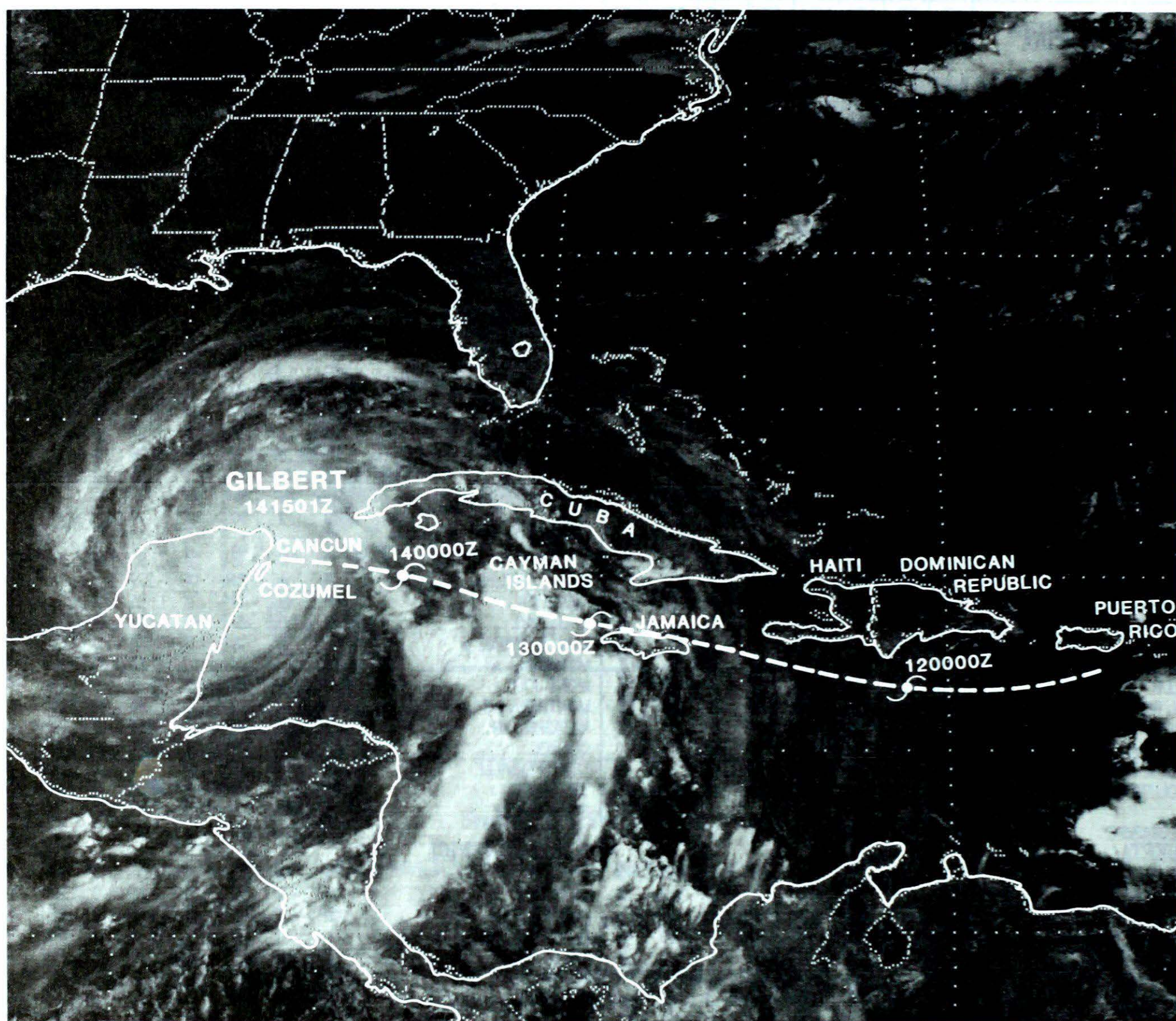
r = rain (mm), s = snow (cm), m = mixed rain and snow (mm)

STATISTICS FOR THE WEEK ENDING 0600 GMT September 20, 1988

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	SPT
BRITISH COLUMBIA									THE PAS	12	2	26	2	19P	0	360	50
CAPE ST. JAMES	13P	0P	17P	9P	34P	0	150	91	THOMPSON	9	2	25	-1	9P	0	030	39
CRANBROOK	12	1	28	2	11	0	180	57	WINNIPEG INT'L	13	1	23	4	16	0	350	61
FORT NELSON	6P	-3P	17P	-5P	11P	0		*	ONTARIO								
FORT ST. JOHN	7	-3	24	-4	2	0		*	ATIKOKAN								0
KAMLOOPS	15P	0P	27P	2P	20P	0	290	35	BIG TROUT LAKE	10	2	24	3	53	0	070	63
PENTICTON	14P	-1P	29P	0P	6P	0	190	63	GORE BAY	15	1	23	6	10P	0	300	56
PORT HARDY	11	-1	17	4	21	0	320	61	KAPUSKASING	12P	3P	23P	3P	11P	0	170	39
PRINCE GEORGE	8	-2	24	-5	10	0	050	41	KENORA	13P	2P	21P	4P	25P	0	340	44
PRINCE RUPERT	10P	-1P	15P	3P	28P	0	170	37	KINGSTON								0
REVELSTOKE	13	1	24	5	11P	*	160	37	LONDON	17	1	25	6	5P	0	180	48
SMITHERS	8	-2	21	-4	9	0		*	MOOSONEE	11P	2P	21P	-1P	11P	0		*
VANCOUVER INT'L	14	-1	25	6	31	0	080	46	NORTH BAY	12P	1P	24P	2P	5P	0	340	39
VICTORIA INT'L	12P	-2P	24P	2P	14P	0	250	35	OTTAWA INT'L	13	0	23	4	34P	0		X
WILLIAMS LAKE	9P	-2	26P	-2P	14P	0		X	PETAWAWA	12P	1P	22P	0P	6P	0		X
YUKON TERRITORY									PICKLE LAKE	11P	1P	21P	4P	29P	0	020	46
MAYO	6P	-2P	14P	-6P	3P	0		X	RED LAKE	12	1	21	3	25P	0	030	50
SHINGLE POINT A	3P	0P	15P	-5P	1P	0		*	SUDBURY	13	1	23	3	20P	0		X
WATSON LAKE	6P	-2P	15P	-3P	5P	0	090	44	THUNDER BAY	13P	2P	22P	3P	40P	0	100	37
WHITEHORSE	5	-3	13	-5	7	0	140	63	TIMMINS	11P	1P	23P	0P	6P	0	140	33
NORTHWEST TERRITORIES									TORONTO INT'L	17P	2P	27P	5P	22P	0	310	46
ALERT	-8P	3P	-2P	-18P	5P	27	240	109	TRENTON	15P	0P	25P	3P	10P	0		X
BAKER LAKE	3P	1P	7P	-2P	22P	0	320	56	WIARTON	14P	0P	23P	4P	10P	0		X
CAMBRIDGE BAY	1	1	6	-3	3	0	270	37	WINDSOR	19	2	30	9	5	0	250	76
CAPE DYER	-2P	0P	2P	-3P	40P	16	300	52	QUEBEC								
CLYDE	0P	0P	4P	-4P	2P	1	090	33	BAGOTVILLE	11	0	18	2	45	0	270	35
COPPERMINE	4P	2	10P	-2P	17P	0	220	46	BLANC SABLON	7P	*	15P	0P	22P	0		X
CORAL HARBOUR	1P	0P	9P	-4P	18P	0		X	INUKJUAK	6	2	10	2	11	0	310	41
EUREKA	-4P	4P	2P	-9P	1P	1	160	98	KUUJUAQ	5	0	17	-2	3P	0	280	39
FORT SMITH	8P	0P	17P	-2P	9P	0		X	KUUJUARAPIK	10P	3P	19	1P	22	0	340	46
IQUALUIT	2P	0P	7P	-2P	17P	0	140	44	MANIWAKI	11	-1	22	1	13	0	310	44
HALL BEACH	1P	1P	5P	-3P	2P	0	350	52	MONT JOLI	10P	-1P	15P	6P	28P	0	240	61
INUVIK	4P	0P	15P	-3P	2P	0		X	MONTREAL INT'L	13	-1	23	3	24P	0	240	43
MOULD BAY	-6P	0P	1P	-15P	2P	4		X	NATASHQUAN	8P	-1P	14P	1P	36P	0	270	52
NORMAN WELLS	5P	-2P	14P	1P	1P	0		X	QUEBEC	12P	0P	22P	2P	26P	0	320	39
RESOLUTE	-6	-1	-1	-10	4P	6	190	43	SCHIEFFERVILLE	6P	1P	16P	0P	18P	0	350	48
YELLOWKNIFE	7P	0P	11P	2P	8P	0	180	37	SEPT-ILES	8P	-1P	14P	1P	33P	0	080	50
ALBERTA									SHERBROOKE	11	-1	21	-2	37	0	290	39
CALGARY INT'L	10	-1	26	-2	15	0	350	59	VAL D'OR	10P	0P	20P	3P	19P	0	310	50
COLD LAKE	10	1	25	-3	4	0	360	31	NEW BRUNSWICK								
CORONATION	10P	-1P	26P	-2P	16P	0		*	CHARLO	10P	-1P	17P	4P	25P	0	270	43
EDMONTON NAMAO	11P	1P	25P	2P	17P	0	340	41	CHATHAM	11P	-1P	18P	2P	19P	0	290	54
FORT MCMURRAY	9	-1	23	-3	0	0		X	FREDERICTON	12P	-1P	20P	4P	29P	0	320	43
HIGH LEVEL	7P	-3P	18P	0P	21P	0		*	MONCTON	11	-1	17	2	12	0	260	50
JASPER	9	-1	26	-4	15	0		X	SAINT JOHN	12P	0P	20	6P	19	0	340	41
LETHBRIDGE	11P	-2P	29P	2P	14P	0	250	33	NOVA SCOTIA								
MEDICINE HAT	14P	1P	30P	5P	2P	0	190	43	GREENWOOD	12	-1	18	5	22	0	340	48
PEACE RIVER	8	-1	27	-2	11P	0	280	37	SHEARWATER	12	-2	19	7	44	0	330	39
SASKATCHEWAN									SYDNEY	11	-2	17	4	34	0	200	56
CREE LAKE	9	1	21	-1	6	0	350	37	YARMOUTH	13P	0P	17P	9P	39P	0	180	41
ESTEVAN	12P	0P	29P	3P	38P	0	150	39	PRINCE EDWARD ISLAND								
LA RONGE	12P	2P	26P	-2P	6P	0	010	37	CHARLOTTETOWN	12P	-1P	17P	8P	36P	0	150	37
REGINA	11P	-1P	25P	-2P	0P	0	150	48	SUMMERSIDE	12	-1	16	7	20	0	250	46
SASKATOON	12	1	27	0	1	0	190	56	NEWFOUNDLAND								
SWIFT CURRENT	11P	-1P	25P	-1P	3P	0		X	CARTWRIGHT	8P	-1P	17P	0P	23P	0	150	46
YORKTON	11	0	25	0	0	0	300	65	CHURCHILL FALLS	6	0	17	-2	23P	0	330	41
MANITOBA									GANDER INT'L	9P	-2P	17P	1P	23P	0	170	78
BRANDON	11P	0P	22P	2P	16P	0	020	57	GOOSE	7	-2	19	-1	24	0		*
CHURCHILL	6	1	15	1	11P	0	320	44	PORT-AUX-BASQUES	10P	-1P	14P	4P	46P	0	190	52
LYNN LAKE	8P	2P	18P	2P	5P	0		*	ST JOHN'S	9	-2	17	2	8	0	190	81
									ST LAWRENCE	11P	-1P	16P	5P	36P	0		X
									WABUSH LAKE	6	0	16	-1	20	0	340	37

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



Hurricane Gilbert as seen from the GOES satellite 35,800 km above the equator, September 14, 1988. After leaving a trail of damage and destruction because of winds and 200 mm rainfalls in St. Lucia, the Virgin Islands, Puerto Rico, it caused more devastation in the Dominican Republic. The full force of this intensifying storm hit Jamaica, the Cayman Islands, Cancun and Cozumel. At the time this photo was taken, winds were reaching 300 km/h around the eye of the storm and the central pressure had dropped to 88.5 kPa or 885 millibars. The previous record was 89.2 kPa in a hurricane that struck the Florida Keys in 1935.