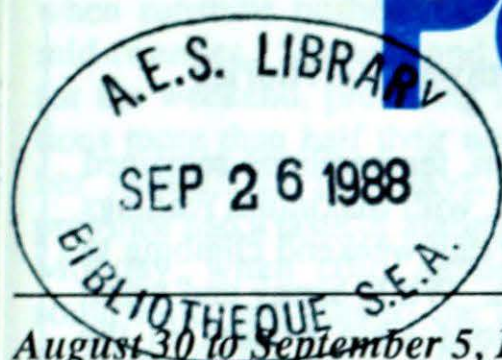


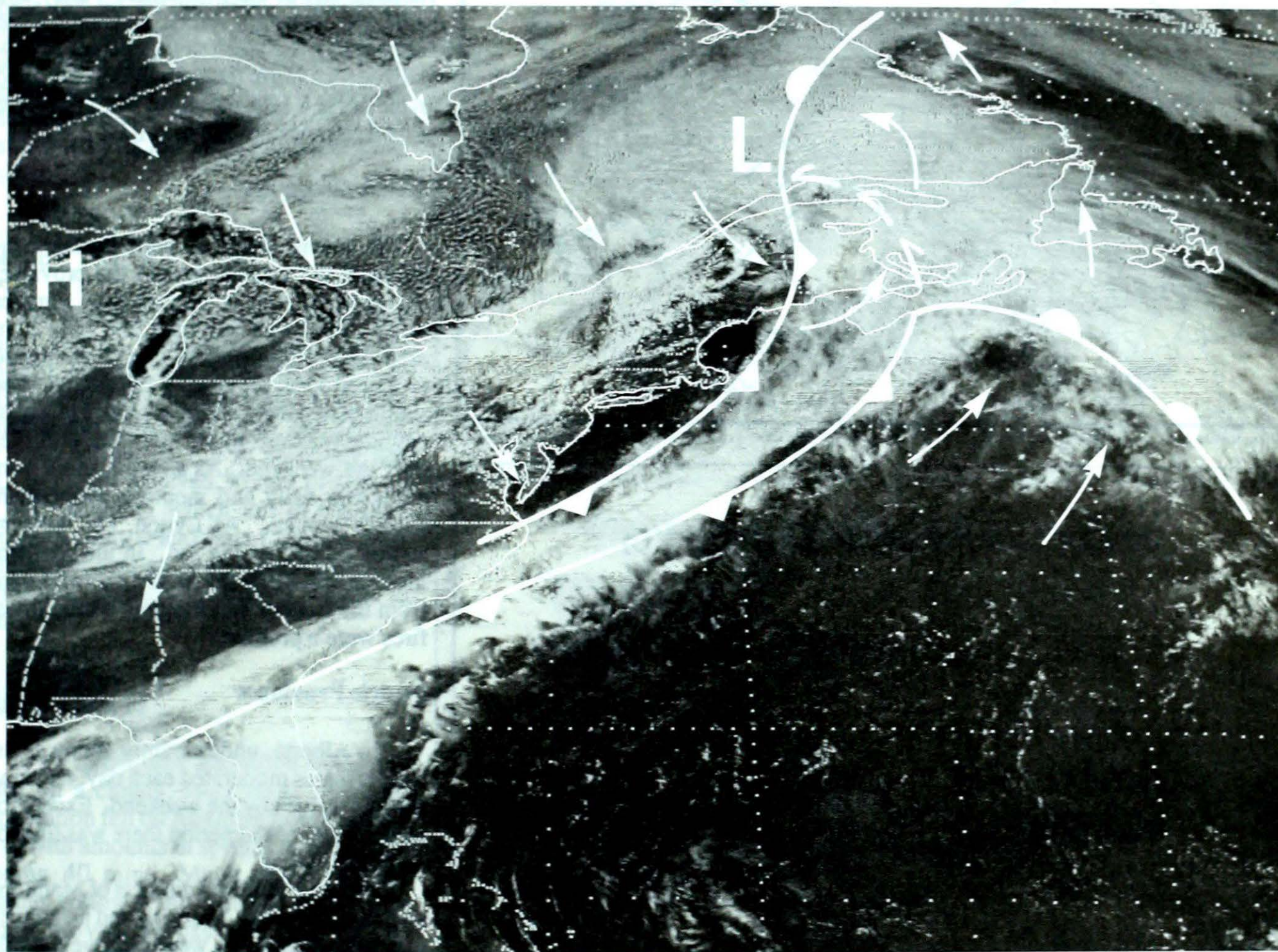
Climatic Perspectives



August 30 to September 5, 1988

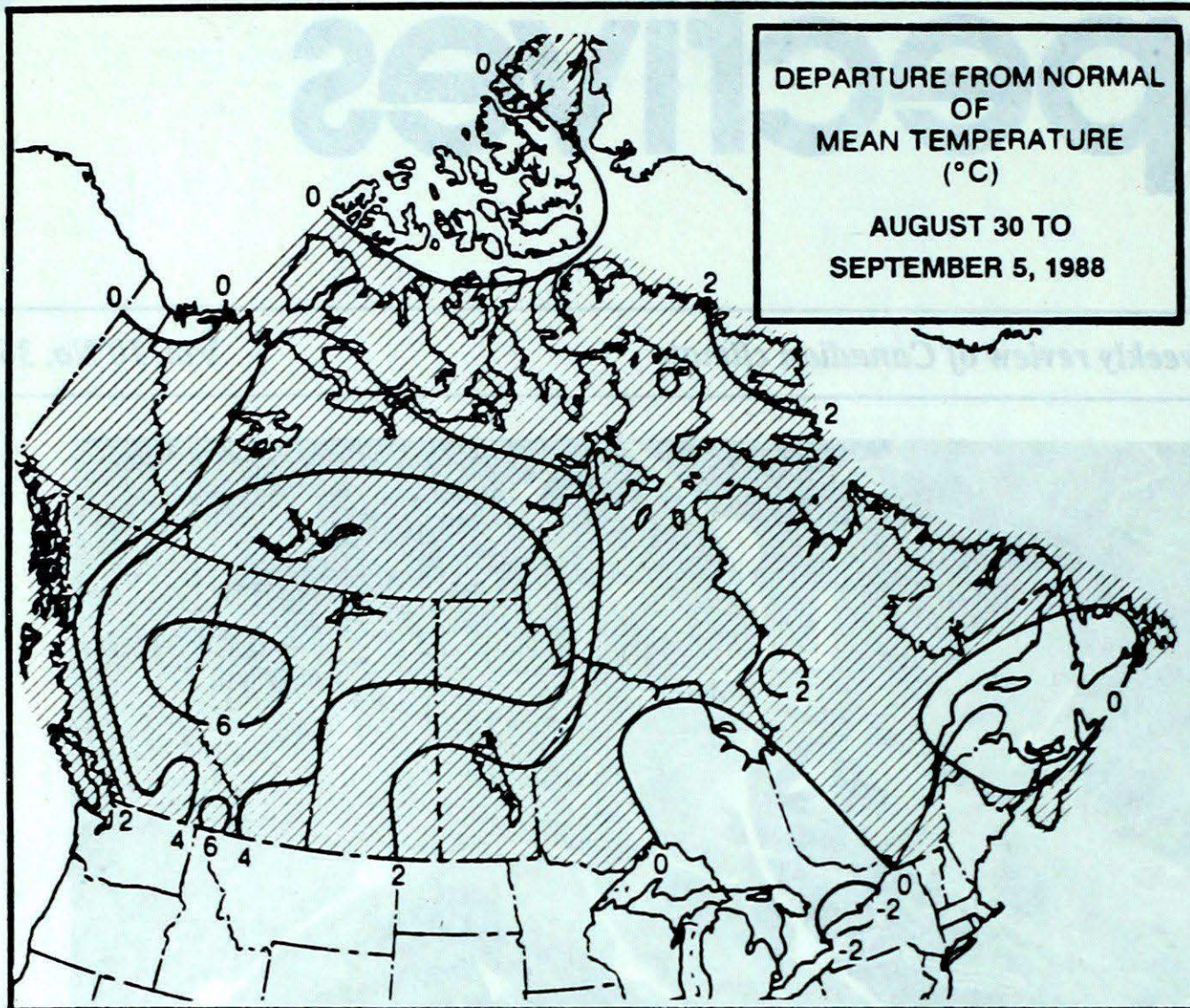
A weekly review of Canadian climate

Vol. 10 No. 36



This GOES satellite photo of September 5, 1988, shows an Arctic air mass sweeping southwards across the Great Lakes Basin in the wake of an vicious storm, which moved across the Gulf of St. Lawrence, causing death and destruction to the Maritime fishing fleet off New Brunswick. The cold air plunged deep in to the American south, breaking many low temperature records. Note the cloud cover near the Great Lakes due to their moisture input and destabilizing effect. More information on page 3.

- **Gales swamp Maritime fishing fleet**
- **Record high temperatures in B.C -
windy and cold in the east**



ACROSS THE COUNTRY ...

Yukon and Northwest Territories

In the Yukon, temperatures remained on the mild side, with maximum readings over the Labour day weekend climbing to the low twenties. While sunny and warm weather conditions were evident in the Great Slave Lake region, unusually heavy rainfalls fell in the Mackenzie Valley and along the southern Arctic coastline. The latter half of the week saw a number of new daily record warm temperatures established in the north. Gale and storm warnings were issued for northern Hudson Bay.

British Columbia

A strong ridge of high pressure influenced the weather across the province, resulting in a near perfect late summer week. Plenty of sunshine and only light rainfalls during the early part of the period produced ideal harvesting conditions. The southern two thirds of the province recorded daytime readings in the low to mid-thirties over the weekend. As a result, there were numerous daily and monthly temperature records broken. At Lytton, the mercury soared to 39C on the 3rd. In the southern interior, extensive smoke drifted northward from the state of Washington, where forest fires were a problem.

Prairie Provinces

In Alberta, under mainly sunny skies, temperatures moderated each day, reaching the low thirties by the weekend. Except for the first day of the period there was little or no precipitation.

In the agricultural districts of Manitoba and Saskatchewan, sunshine and near thirty degree temperatures were observed, while cloud and rain showers moved into the northern regions. By mid-week temperature contrasts became quite significant between north and south in that daytime highs in the north only registered in the teens. Frost was reported in some parts of central Saskatchewan. Cooler Arctic air swept across the eastern sections during the latter half of the weekend.

Ontario

An unsettled weather regime continued to plague the province. Temperatures were cool except during the middle of the week,

Weekly Temperature Extreme (°C)

	MAXIMUM	MINIMUM
BRITISH COLUMBIA	LYTTON 39	DEASE LAKE 0
YUKON TERRITORY	WATSON LAKE 25	KOMAKUK BEACH A -6
NORTHWEST TERRITORIES	HAY RIVER 29	ALERT -10
ALBERTA	PINCHER CREEK A 33	HIGH LEVEL 2
SASKATCHEWAN	MOOSE JAW 30	HUDSON BAY 1
MANITOBA	GRETNA 28	THOMPSON 1
ONTARIO	WINDSOR 29	WINISK 1
QUEBEC	VAL D'OR 26	LA GRANDE RIVIERE 0
NEW BRUNSWICK	FREDERICTON 27	MONCTON 2
NOVA SCOTIA	YARMOUTH 25	GREENWOOD 2
PRINCE EDWARD ISLAND	SUMMERSIDE 24	CHARLOTTETOWN 7
NEWFOUNDLAND	DANIEL'S HARBOUR 24	WABUSH LAKE 1

ACROSS THE NATION

WARMEST MEAN TEMPERATURE	24	LYTTON	BC
COOLEST MEAN TEMPERATURE	-4	ALERT	NWT

when sunshine pushed readings up to the mid-twenties. Showers and rain moved in for the weekend, providing to many locations more than half their normal September rainfall in two days. The whole province had a taste of autumn Labour Day Monday, when cold Arctic air pushed southwards and blasted the province with strong, cold northwesterly winds. Numerous long-standing low temperature records fell by the wayside. Maximum readings on September 5 stayed lower than ever recorded before on this date in more than a half century. The mercury failed to climb above mid-teens, and patchy ground frost formed in a few wind-sheltered areas at night.

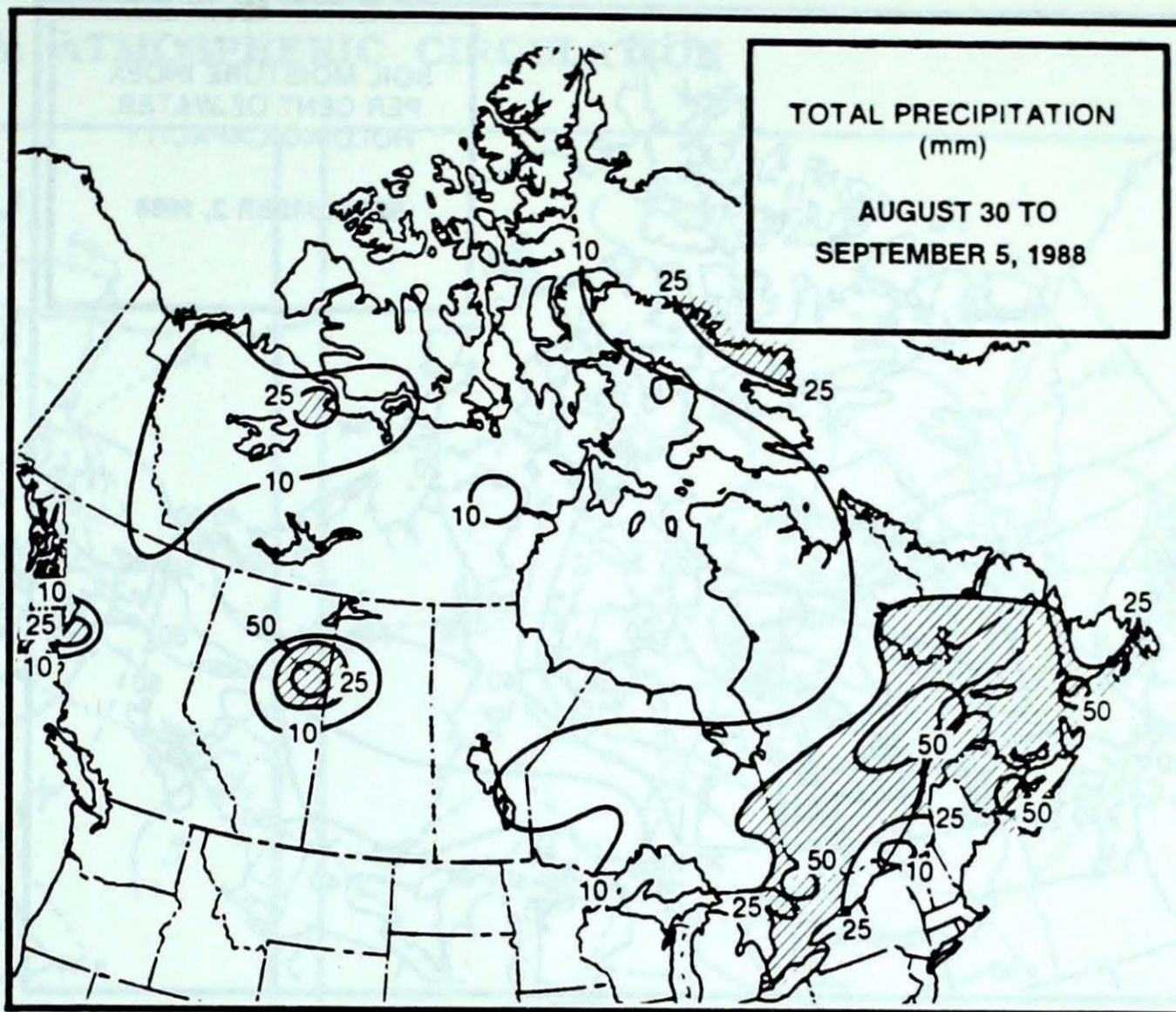
Quebec

The week started off fairly pleasant and sunny, but an intense weather system brought significant rainfalls and unseasonably cool temperatures to the southern part of the province. The Labour day weekend turned out to be windy and wet. Sept-Iles received 56 mm of rain on the 5th, 38mm of which fell in a 6-hour period. At Gaspé and Baie Comeau overnight minimums on September 4, dropped to freezing, an early preview of what is to come.

Atlantic Canada

In the Maritimes, the period began and ended on a cloudy, rainy note. Heaviest precipitation fell on August 30 and September 4, with amounts in several locations exceeding 40 mm. Much cooler, windy weather followed an intense disturbance which moved across the Gulf of St. Lawrence on September 4, taking the lives of three fishermen. See the story on this page for more information.

On the island of Newfoundland periods of rain gave way to generally fair weather conditions through until Labour day, when a low pressure system approached from the west, giving rainfalls of nearly 30 mm in the Burgeo - Port-aux-Basque areas. Winds along the south coast gusted in excess of 90 km/h. In Labrador, weak disturbances early in the period produced a mixture of sun and cloud and occasional showers. Fair weather conditions over the weekend gave way to a soggy and windy Labour Day.

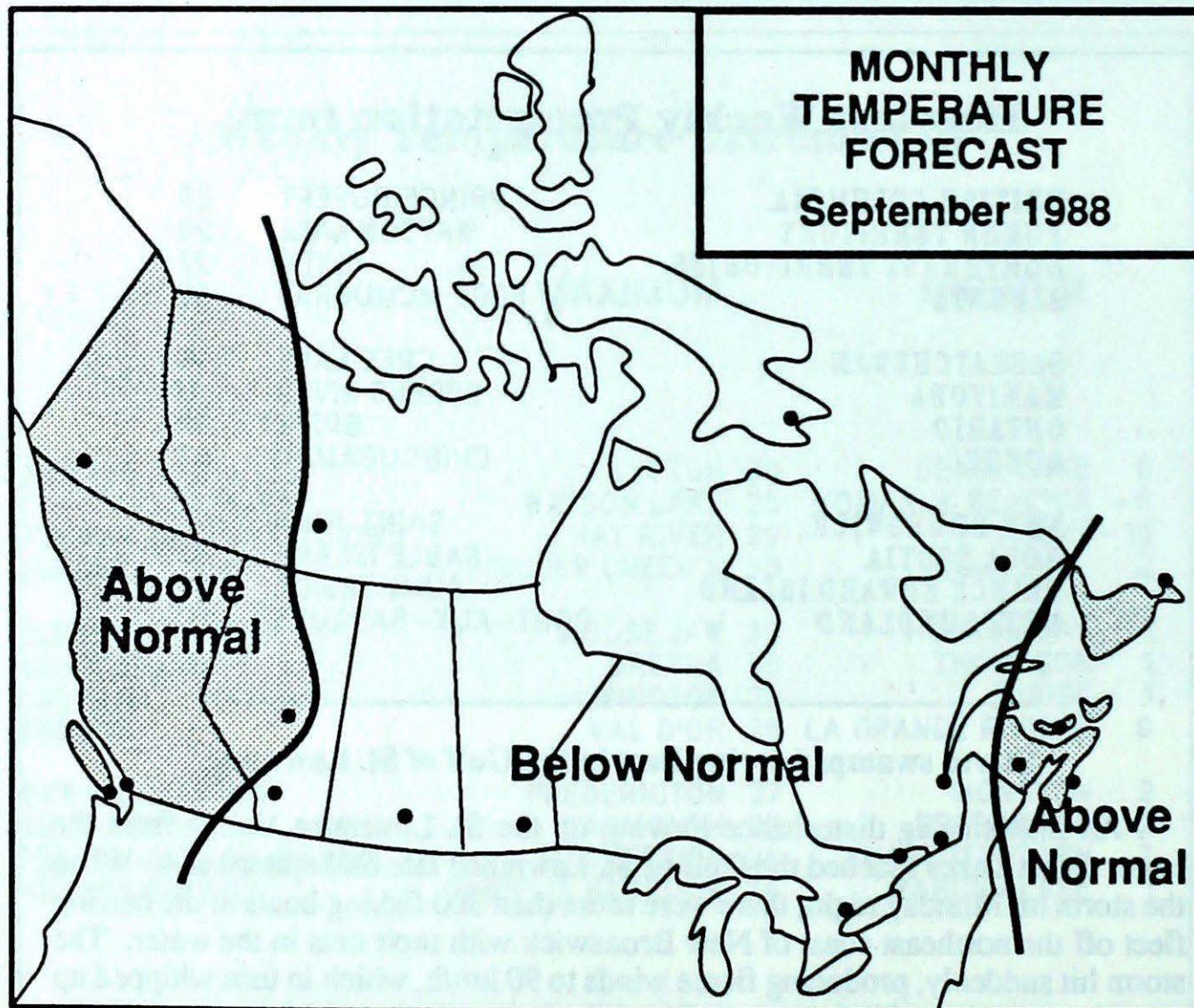
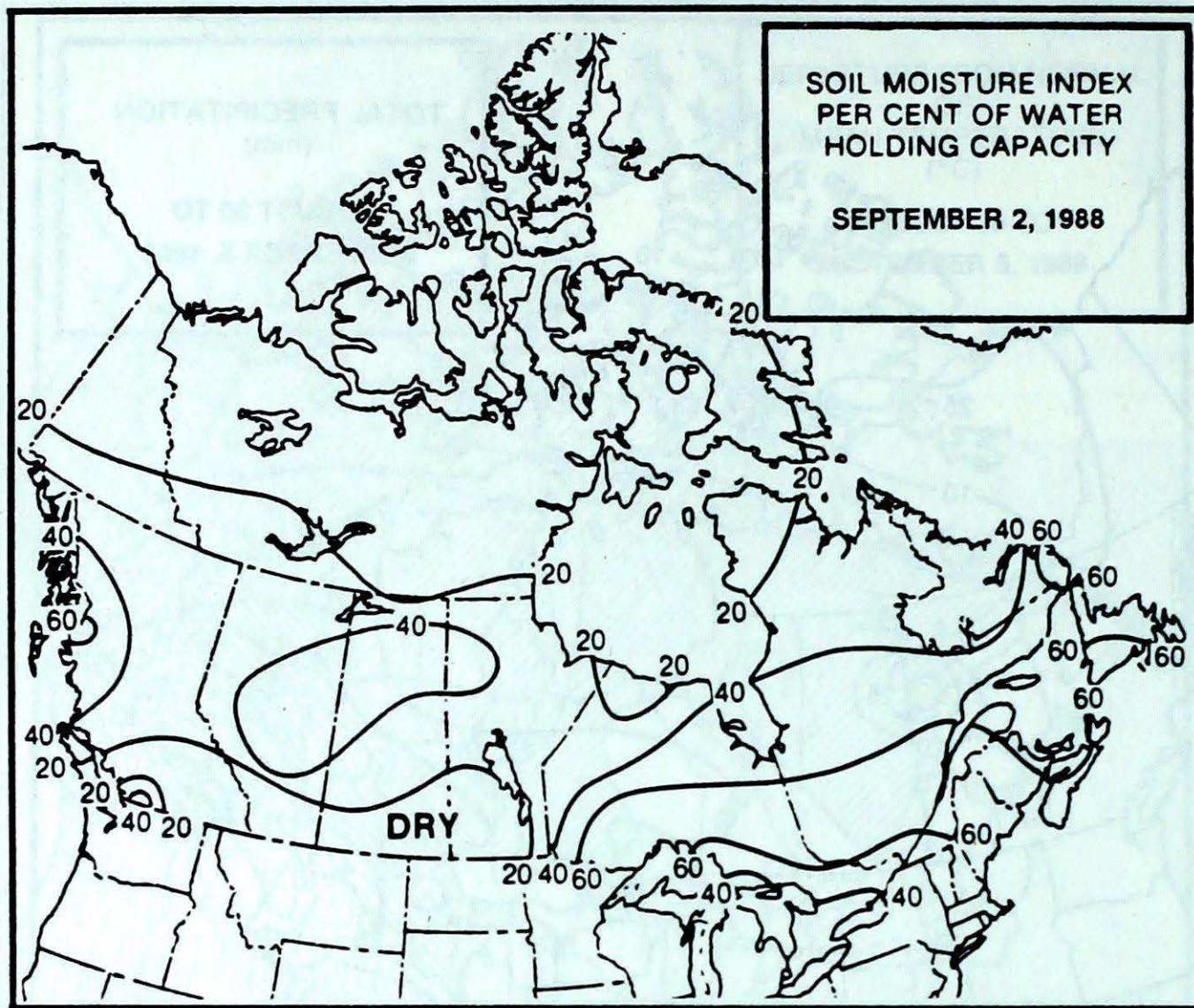


Heaviest Weekly Precipitation (mm)

BRITISH COLUMBIA	PRINCE RUPERT	29
YUKON TERRITORY	WATSON LAKE	20
NORTHWEST TERRITORIES	CLYDE	27
ALBERTA	FORT MCMURRAY	59
SASKATCHEWAN	CREE LAKE	14
MANITOBA	BERENS RIVER	11
ONTARIO	BRITT	50
QUEBEC	CHIBOUGAMAU	63
NEW BRUNSWICK	SAINT JOHN	57
NOVA SCOTIA	SABLE ISLAND	47
PRINCE EDWARD ISLAND	SUMMERSIDE	34
NEWFOUNDLAND	PORT-AUX-BASQUES	50

Storm swamps herring fleet in the Gulf of St. Lawrence

An intensifying disturbance moving up the St. Lawrence Valley from the lower Great Lakes reached the Gulf of St. Lawrence late on September 4. When the storm hit Monday night, there were more than 300 fishing boats in the herring fleet off the northeast coast of New Brunswick with their nets in the water. The storm hit suddenly, producing fierce winds to 90 km/h, which in turn whipped up towering, two-story-high waves. The gale-force winds and high seas took the fishermen by surprise, although gale warnings were issued earlier. At least twenty vessels were in distress, broadcasting panic-stricken calls for help during the night. One boat sank, another overturned and five others ran aground on Miscou Island. At least three fishermen paid with their lives. Early the next morning, search and rescue aircraft from Canadian Forces Base Summerside dropped portable pumps to several boats and searched in vain for the missing.



Normal temperatures for the month of September, °C

Whitehorse	8	Edmonton	10	Quebec	13
Yellowknife	7	Regina	12	Fredericton	13
Iqaluit	2	Winnipeg	12	Halifax	15
Vancouver	14	Toronto	16	Charlottetown	14
Victoria	14	Ottawa	14	Goose Bay	9
Calgary	11	Montreal	15	St. John's	12

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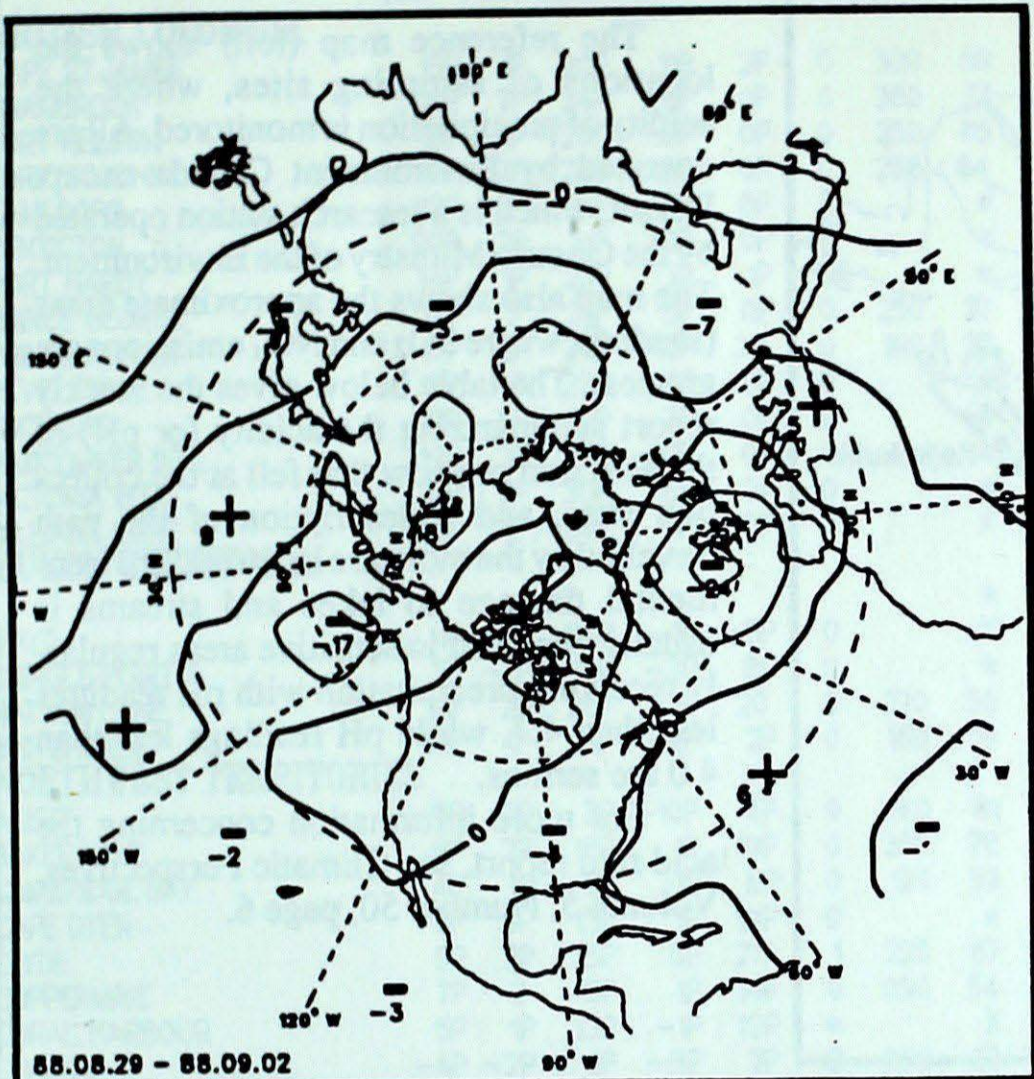
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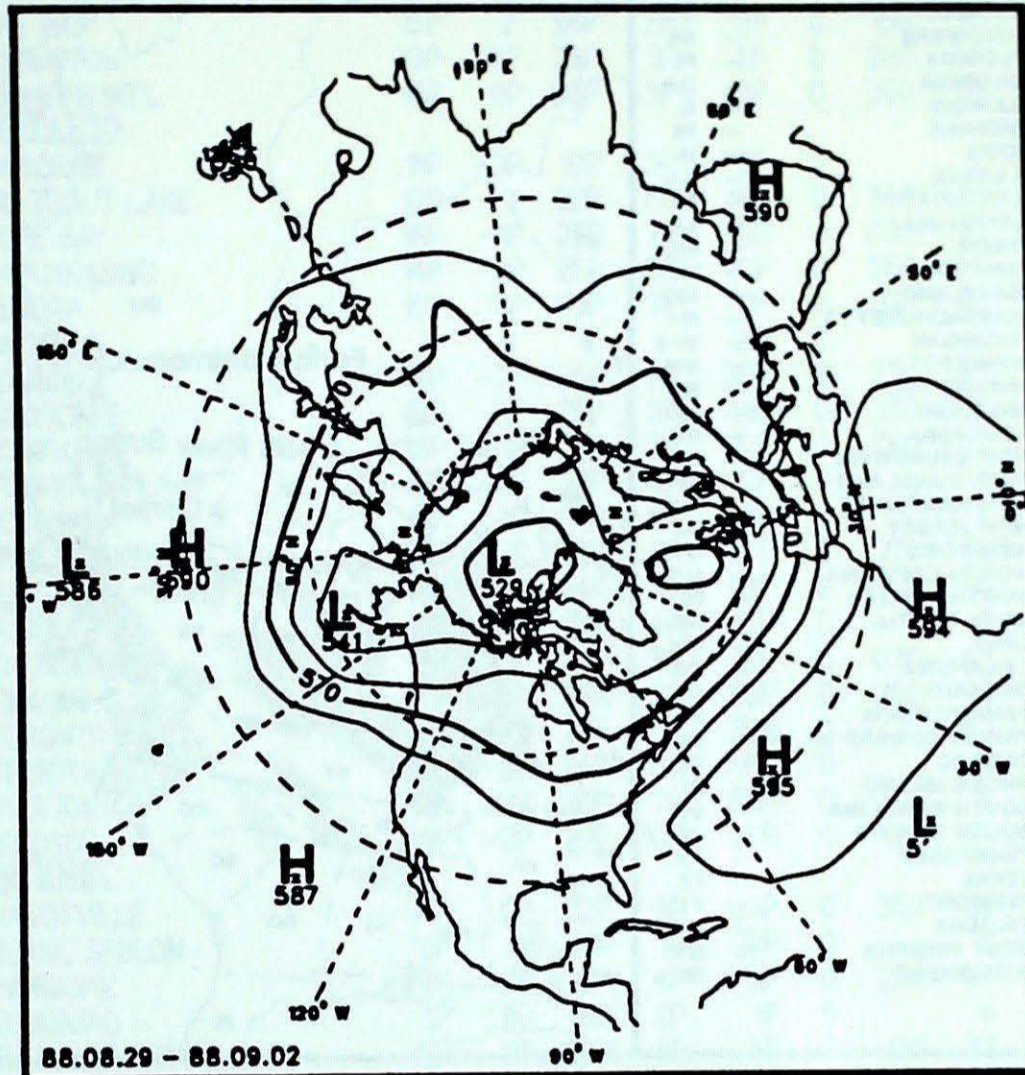
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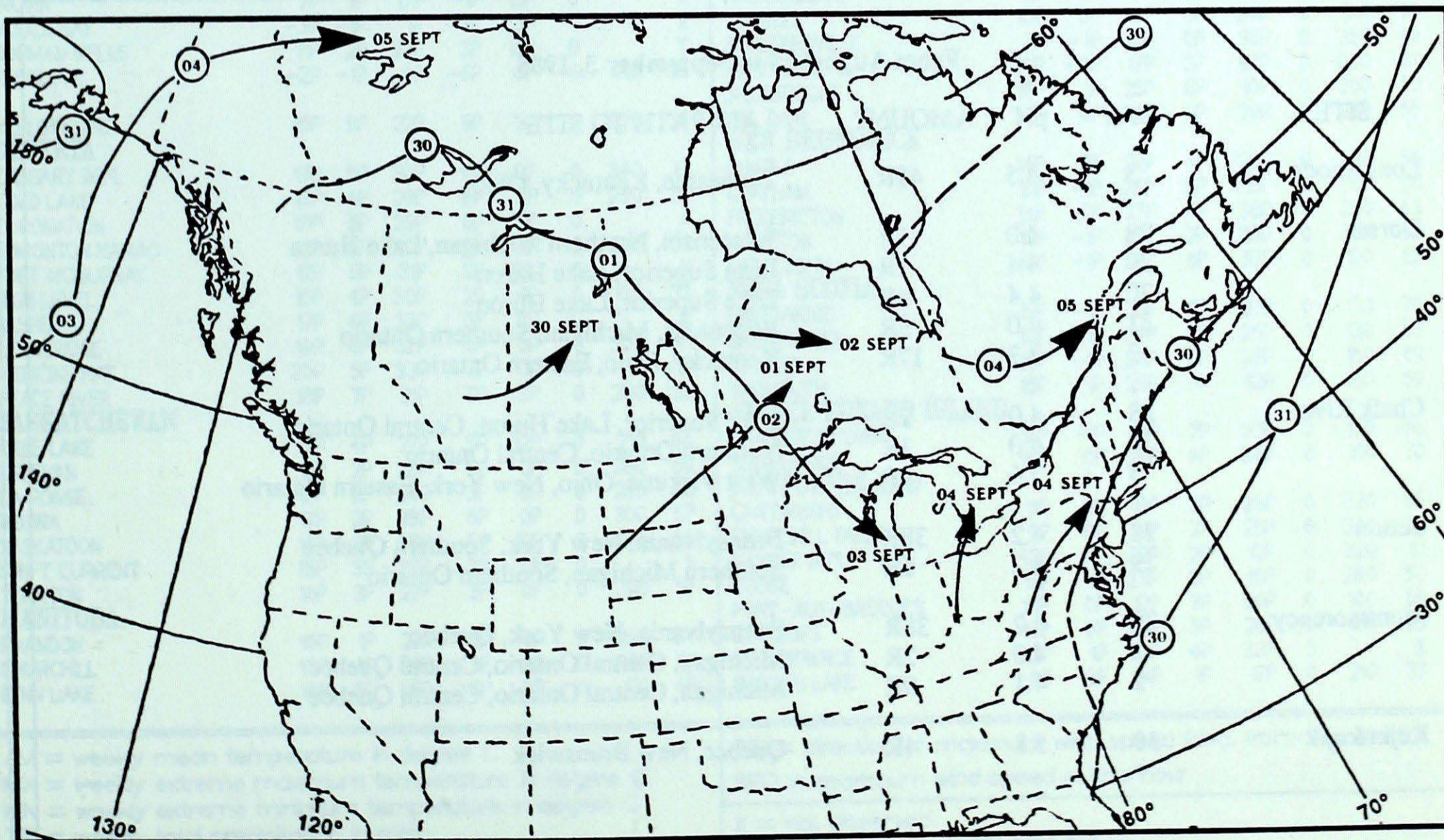
50 kPa ATMOSPHERIC CIRCULATION



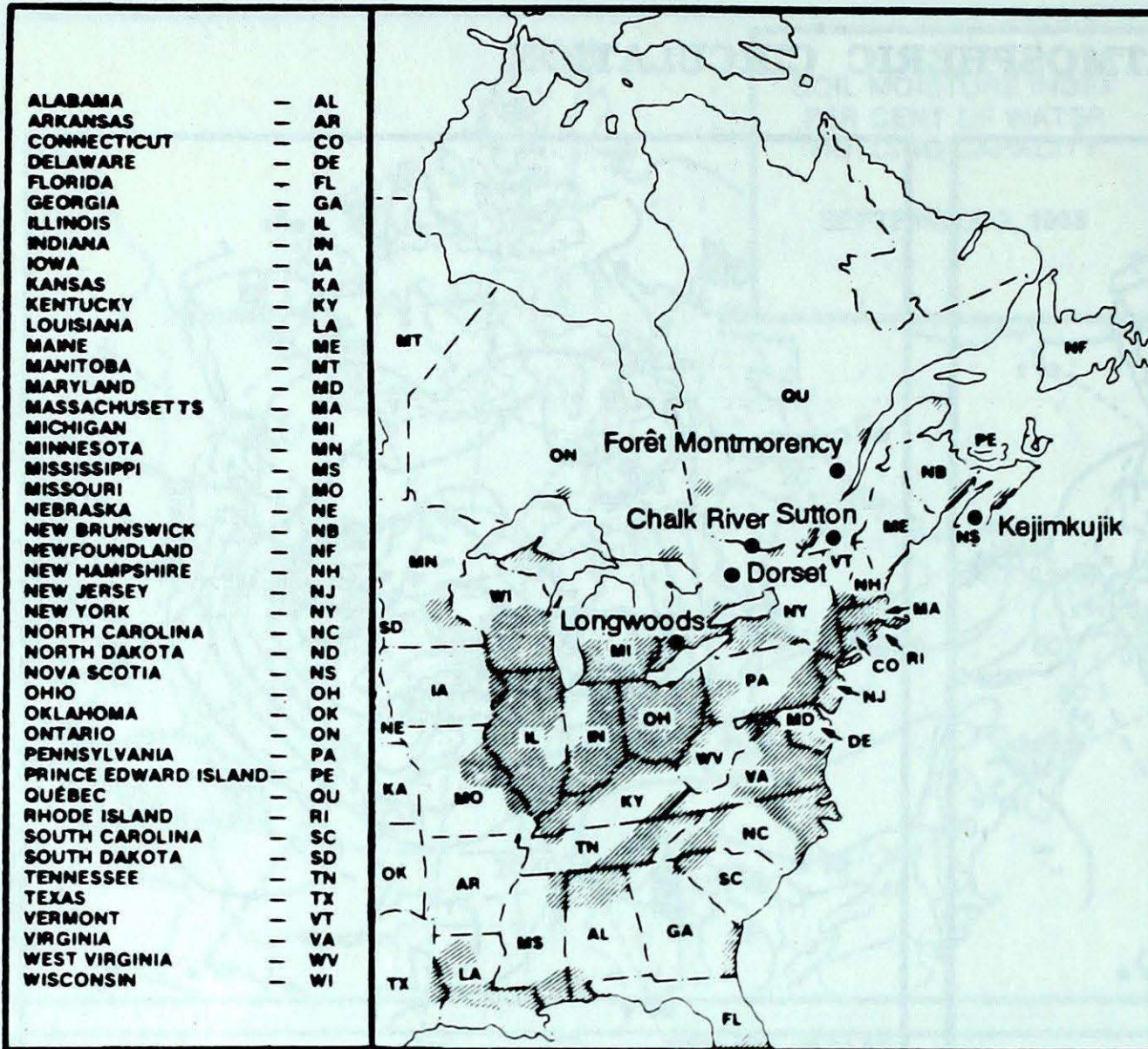
Mean geopotential height anomaly
50 kPa level (10 decameter intervals)



Mean geopotential height
50 kPa level (10 decameter intervals)



Storm track - Position of storm at 12 GMT during the period: August 30 to September 5, 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.

From August 28 to September 3, 1988

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	3	4.5	49R	Tennessee, Kentucky, Ohio
Dorset	28	4.0	1R	Wisconsin, Northern Michigan, Lake Huron
	29	4.4	1R	Lake Superior, Lake Huron
	30	4.4	4R	Lake Superior, Lake Huron
	31	4.0	3R	Wisconsin, Michigan, Southern Ontario
	3	3.7	17R	Kentucky, Ohio, Eastern Ontario
Chalk River	28	4.0	2R	Lake Superior, Lake Huron, Central Ontario
	30	4.0	1R	Northern Ontario, Central Ontario
	3	3.6	2R	West Virginia, Ohio, New York, Eastern Ontario
Sutton	28	4.2	38R	Pennsylvania, New York, Southern Quebec
	29	4.2	5R	Southern Michigan, Southern Ontario
Montmorency	28	4.2	38R	Pennsylvania, New York, Quebec
	1	4.0	2R	Michigan, Central Ontario, Central Quebec
	2	4.1	9R	Michigan, Central Ontario, Central Quebec
Kejimikujik	30	5.8	4R	Quebec, New Brunswick

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

STATISTICS FOR THE WEEK ENDING 0600 GMT September 6, 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	SPD
BRITISH COLUMBIA																	
CAPE ST. JAMES	15P	1P	20P	11P	2P	0	300	59	THE PAS	15P	2	24P	2P	3P	0	150	61
CRANBROOK	21P	7P	34P	6P	0P	0	360	37	THOMPSON	13P	3P	25P	1P	5P	0	200	50
FORT NELSON	16P	5P	26P	6P	0P	0	250	65	WINNIPEG INT'L	16P	0P	28P	3P	0P	0	360	59
FORT ST. JOHN	19P	7P	28P	9P	0P	0	260	54	ONTARIO								
KAMLOOPS	22P	5P	35P	10P	0P	0		*	ATIKOKAN	11P	-3P	19P	3P	0P	0		*
PENTICTON	20P	3P	31P	10P	0P	0		*	BIG TROUT LAKE	12P	1	22P	5P	18P	0	340	56
PORT HARDY	14P	1P	25P	7P	1P	0		*	GORE BAY	16P	-1P	25P	7P	12P	0	030	65
PRINCE GEORGE	17P	5	31P	5P	0P	0	250	37	KAPUSKASING	14P	0P	26P	3P	10P	0	360	44
PRINCE RUPERT	15P	2P	24P	10P	29	0	190	37	KENORA	15P	0P	25P	7P	1P	0	020	46
REVELSTOKE	18P	4P	28P	8P	0P	0		*	KINGSTON	*	*	*	*	21P	0		X
SMITHERS	17P	5P	31P	7P	0P	0		*	LONDON	17P	-2P	26P	8P	38P	0	330	46
VANCOUVER INT'L	19P	3P	29P	12P	0P	0		*	MOOSONEE	12P	0P	25P	2P	14P	0	350	35
VICTORIA INT'L	17P	2P	30P	8P	0P	0		*	NORTH BAY	15P	-1P	24P	3P	27P	0	010	61
WILLIAMS LAKE	19P	6P	36P	3P	0P	0		X	OTTAWA INT'L	17P	-1P	27P	6P	12P	0		X
YUKON TERRITORY									PETAWAWA	16P	0P	27P	6P	36P	0		X
MAYO	11P	2P	24P	-1P	5P	0		X	PICKLE LAKE	13P	1P	23P	3P	14P	0	270	50
SHINGLE POINT A	3P	-2P	13P	-3P	8P	0		*	RED LAKE	14P	0P	24P	5P	18P	0	350	46
WATSON LAKE	12P	2P	25P	2P	20	0	270	56	SUDBURY	15P	-1P	27P	4P	12P	0		X
WHITEHORSE	10P	1P	21P	-2P	2P	0	160	59	THUNDER BAY	15P	1P	26P	5P	19P	0	030	43
NORTHWEST TERRITORIES									TIMMINS	14P	0P	25P	3P	32P	0	360	48
ALERT	-4P	0P	3P	-10P	4P	9	240	81	TORONTO INT'L	17P	-2P	28P	5P	38P	0	320	63
BAKER LAKE	8P	2P	18P	1P	19P	0	350	78	TRENTON	17P	-2P	24P	6P	8P	0		X
CAMBRIDGE BAY	4P	1P	9P	1P	8P	0	120	59	WIARTON	16P	-1P	26P	7P	38P	0		X
CAPE DYER	5P	3P	13P	1P	21P	0		*	WINDSOR	19P	-2P	29P	10P	22P	0	190	44
CLYDE	5P	2P	15P	0P	27P	1	220	67	QUEBEC								
COPPERMINE	7P	2	15P	1P	14P	0	090	54	BAGOTVILLE	14P	0P	22P	6P	24P	0	300	37
CORAL HARBOUR	5P	1P	13P	-1P	13P	*		X	BLANC SABLON	11P	*	17P	1P	19P	0		X
EUREKA	-4P	-2P	2P	-8P	7P	2	250	67	INUKJUAK	8P	1P	16P	4P	8P	0	280	54
FORT SMITH	16P	6P	26P	5P	6P	0		X	KUUUJUAQ	9P	0P	18P	2P	1P	0		*
IQUALUIT	7P	1P	14P	2P	8P	0	340	39	KUUUJARAPIK	12P	2P	23P	5P	6P	0	120	48
HALL BEACH	6P	3P	14P	-1P	5P	0	340	74	MANIWAKI	15P	0P	26P	6P	33P	0	330	46
INUVIK	7P	1P	17P	-1P	12P	0		X	MONT JOLI	13P	-1P	21P	5P	30P	0	240	72
MOULD BAY	-3P	-1P	1P	-7P	5P	1		X	MONTREAL INT'L	18P	-1P	26P	7P	8P	0	220	56
NORMAN WELLS	11P	2P	22P	3P	16P	0		X	NATASHQUAN	11P	-1P	15P	4P	25P	0	140	69
RESOLUTE	-2P	-1P	0P	-6P	6P	6	010	50	QUEBEC	16P	0P	26P	6P	34P	0	210	70
YELLOWKNIFE	15P	5P	22P	5P	3P	0	270	56	SCHIEFFERVILLE	7P	-1P	18P	0P	36P	0	350	48
ALBERTA									SEPT-ILES	10P	-2P	17P	3P	62P	0	080	67
CALGARY INT'L	17P	5P	30P	6P	0P	0	340	61	SHERBROOKE	16P	1P	25P	6P	10P	0	260	50
COLD LAKE	17P	4P	29P	6P	3P	0	280	52	VAL D'OR	14P	0P	26P	4P	39P	0	240	56
CORONATION	18P	5P	29P	6P	2P	0		*	NEW BRUNSWICK								
EDMONTON NAMAO	19P	6P	30P	9P	1P	0	290	63	CHARLO	14P	0P	22P	6P	29P	0	280	56
FORT MCMURRAY	17P	5P	31P	5P	59	0		X	CHATHAM	15P	-1P	24P	5P	15P	0	280	56
HIGH LEVEL	15P	4P	30P	2P	4P	0	130	37	FREDERICTON	14P	-2P	27P	4P	38P	0	250	43
JASPER	17P	6P	32P	5P	0P	0		X	MONCTON	15P	-1P	25P	2P	38P	0	360	59
LETHBRIDGE	19P	4P	32P	6P	0P	0	300	61	SAINT JOHN	14P	-1P	23P	5P	57P	0	120	52
MEDICINE HAT	20P	5P	33P	7P	0P	0		*	NOVA SCOTIA								
PEACE RIVER	18P	7P	31P	7P	3P	0	280	52	GREENWOOD	15P	-1P	25P	2P	37P	0	130	70
SASKATCHEWAN									SHEARWATER	16P	0P	24P	7P	25P	0	130	63
CREE LAKE	15P	4P	27P	3P	12P	0	210	54	SYDNEY	15P	-1P	23P	5P	38P	0	150	69
ESTEVAN	17P	2P	28P	5P	0P	0	280	59	YARMOUTH	16P	1P	25P	9P	42P	0	180	59
LA RONGE	15P	2P	24P	3P	0P	0	250	56	PRINCE EDWARD ISLAND								
REGINA	17P	2P	28P	6P	0P	0	300	57	CHARLOTTETOWN	15P	-1P	22P	7P	30P	0	150	56
SASKATOON	16P	2P	26P	6P	0P	0	300	56	SUMMERSIDE	16P	0P	24P	9P	34P	0	150	70
SWIFT CURRENT	18P	3P	30P	7P	0P	0		X	NEWFOUNDLAND								
YORKTON	16P	2P	27P	3P	0P	0	290	57	CARTWRIGHT	11P	0P	18P	3P	20P	0	330	85
MANITOBA									CHURCHILL FALLS	9P	0P	19P	2P	25P	0	340	52
BRANDON	16P	1P	27P	5P	0P	0	250	54	GANDER INT'L	13P	-1P	22P	2P	12P	0	320	81
CHURCHILL	13P	4P	24P	3P	0P	0	340	57	GOOSE	12P	1P	23P	3P	18P	0	280	50
LYNN LAKE	14P	5P	25P	6P	5P	0	170	48	PORT-AUX-BASQUES	13P	0P	17P	7P	50P	0	100	65
									ST JOHN'S	13P	0P	23P	5P	26P	0	160	85
									ST LAWRENCE	13P	1P	22P	4P	33P	0		X
									WABUSH LAKE	9P	0P	19P	1P	17P	0	210	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

