



Environment
Canada

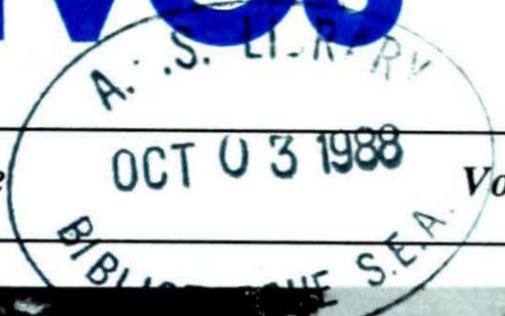
Environnement
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Climatic Perspectives

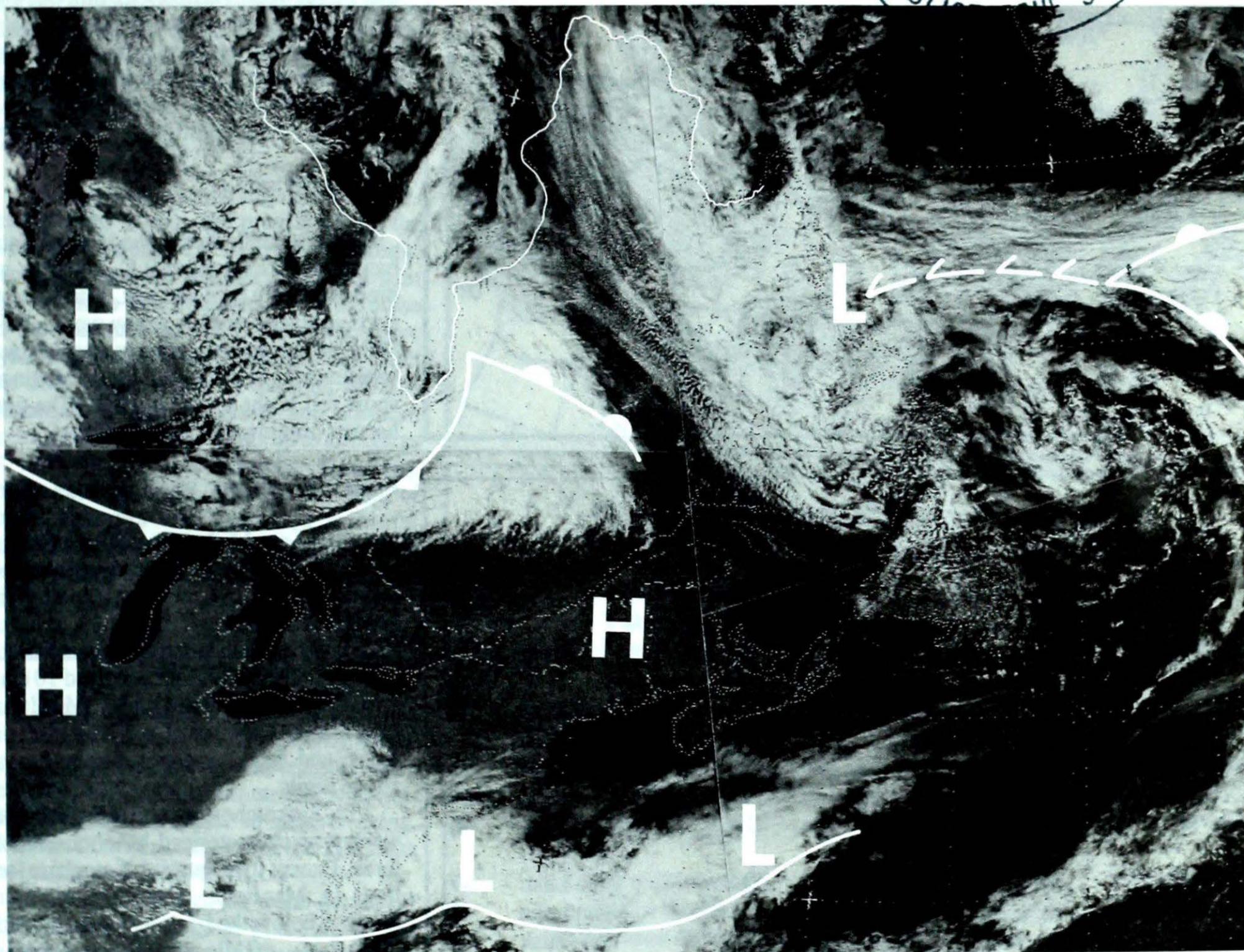
MONTHLY
SUPPLEMENT
INCLUDED

September 20 to 26, 1988

A weekly review of the Canadian climate



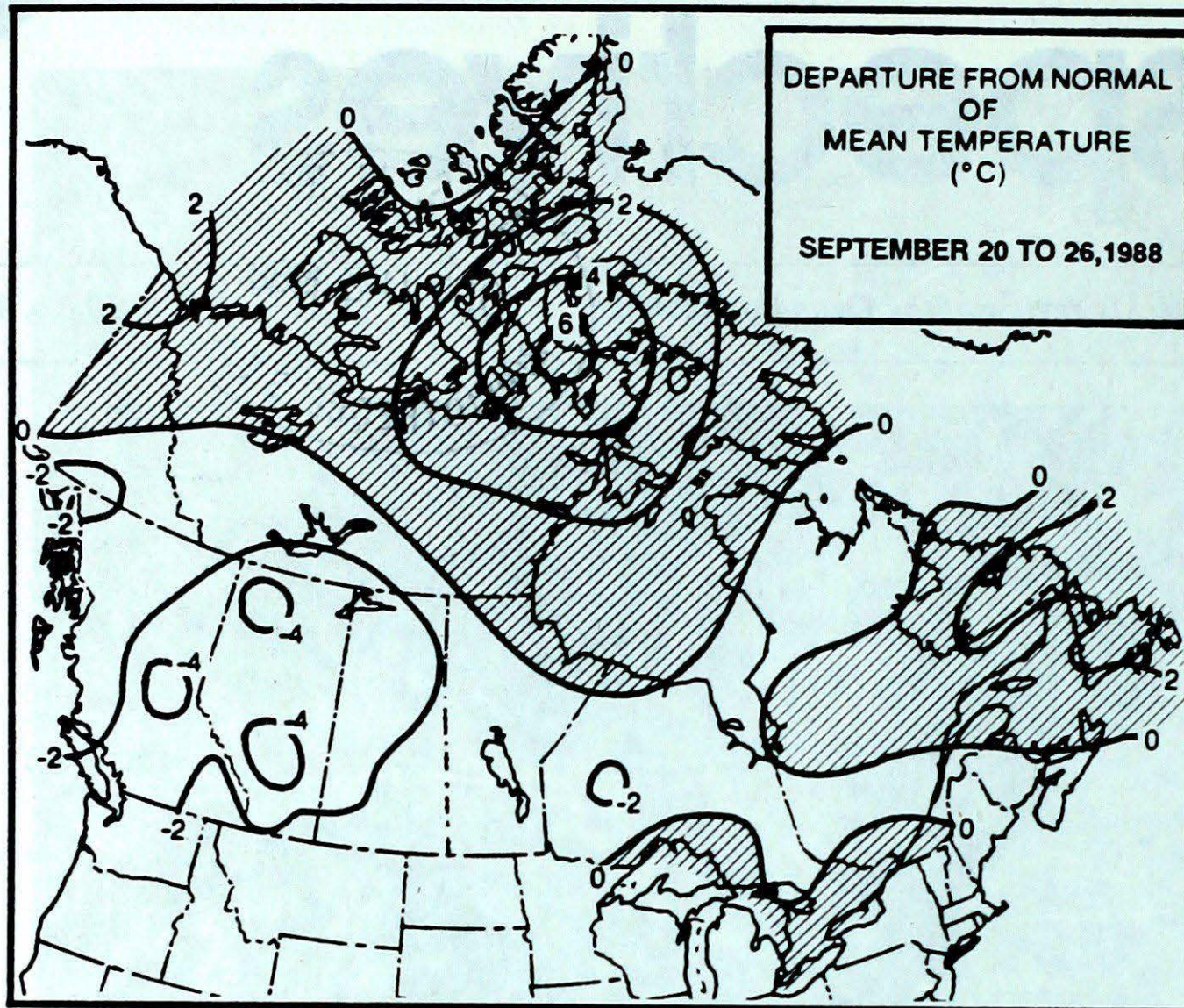
Vol. 10 No. 39



These are the first satellite photos received by AES from the new weather satellite NOAA-11. This composite photograph of September 25, 1988, was transmitted during the 18th and 19th orbits, and shows the large expanse of cloud associated with an active storm track crossing the country. For more information about NOAA-11 see page 3.

● Typically changeable autumn weather

- Many northern communities greeted by first snowfall



**ACROSS THE COUNTRY ...
Yukon and Northwest Territories**

In the Yukon, snow is evident above the 1500 metre level and this will probably remain there until next summer. An Arctic air mass spilled southwards across the Mackenzie Valley, bringing with it cold, blustery weather and snow by mid-week. In the Northwest Territories, thin ice was beginning to form on the smaller Lakes. In the high Arctic, temperatures remained well below freezing. In contrast, a few daily maximum temperature records were broken along the Arctic coastline.

British Columbia

Strong westerlies pushed frontal disturbances across southern B.C., where it was predominantly cool and wet. Further to the north it was a variably sunny week. A few daily minimum temperature records were broken in the interior. A mixture of rain and snow fell in the extreme north. The grape harvest continues in the Okanagan.

Prairie Provinces

It was a cold, damp week in Alberta, as winter tried to make an early appearance. Disturbances crossing the mountains produced significant snowfalls over the higher elevations, and in fact communities near the Alberta foothills received 10 cm of snow over the weekend. Maximum temperatures struggled to reach the mid-teens, and in many cases remained in the single digits.

In Saskatchewan and Manitoba, the week was characterized by cool temperatures. Except for a handful of southern locations in Manitoba, overnight minimums dropped below the freezing mark regularly. During the middle of the week daytime readings just barely reached the twenty degree mark. Although the week was generally cloudy and unsettled, with the exception of the eastern sections of Manitoba, rainfalls were light.

Ontario

Unsettled weather conditions prevailed early in the week, as rain showers occurred province-wide. Heavy rainfalls were reported in northern Ontario, where maximum temperatures only managed to climb to near 10°C. A clearing trend in southern and central Ontario produced perfect early

Weekly Temperature Extreme (°C)

Location	Maximum	Minimum
British Columbia Lytton	20	Prince George -6
Yukon Territory Watson Lake	14	Smithers -6
Northwest Territories Fort Simpson	18	Mayo -6
Alberta Medicine Hat	19	Alert -24
Saskatchewan Estevan	20	Fort McMurray -8
Manitoba Gretna	23	Cree Lake -7
Ontario Ottawa Int'l	26	Lynn Lake -3
Quebec Montreal Int'l	25	Winisk -2
New Brunswick Fredericton	21	Schefferville -2
Nova Scotia Greenwood	21	St Stephen 0
Prince Edward Island Summerside	18	Greenwood 0
Newfoundland Deer Lake	24	Western Head
		Charlottetown 5
		Wabush Lake -3

Across The Country...

Warmest Mean Temperature	Windsor (ONT)	16
Coollest Mean Temperature	Alert (NWT)	-14

autumn weather during the weekend. The pleasant weather conditions were a boon to the many fall fairs and festivities taking place at this time of the year. Agriculture officials report that despite the early summer drought, the grape crop is in excellent condition, with this possibly being a vintage year. Unfortunately, the vegetable growers in the Holland Marsh, north of Toronto, did not fair as well because of late spring frosts, damaging winds, extreme heat and drought during the summer and to top it all off, hailstorms.

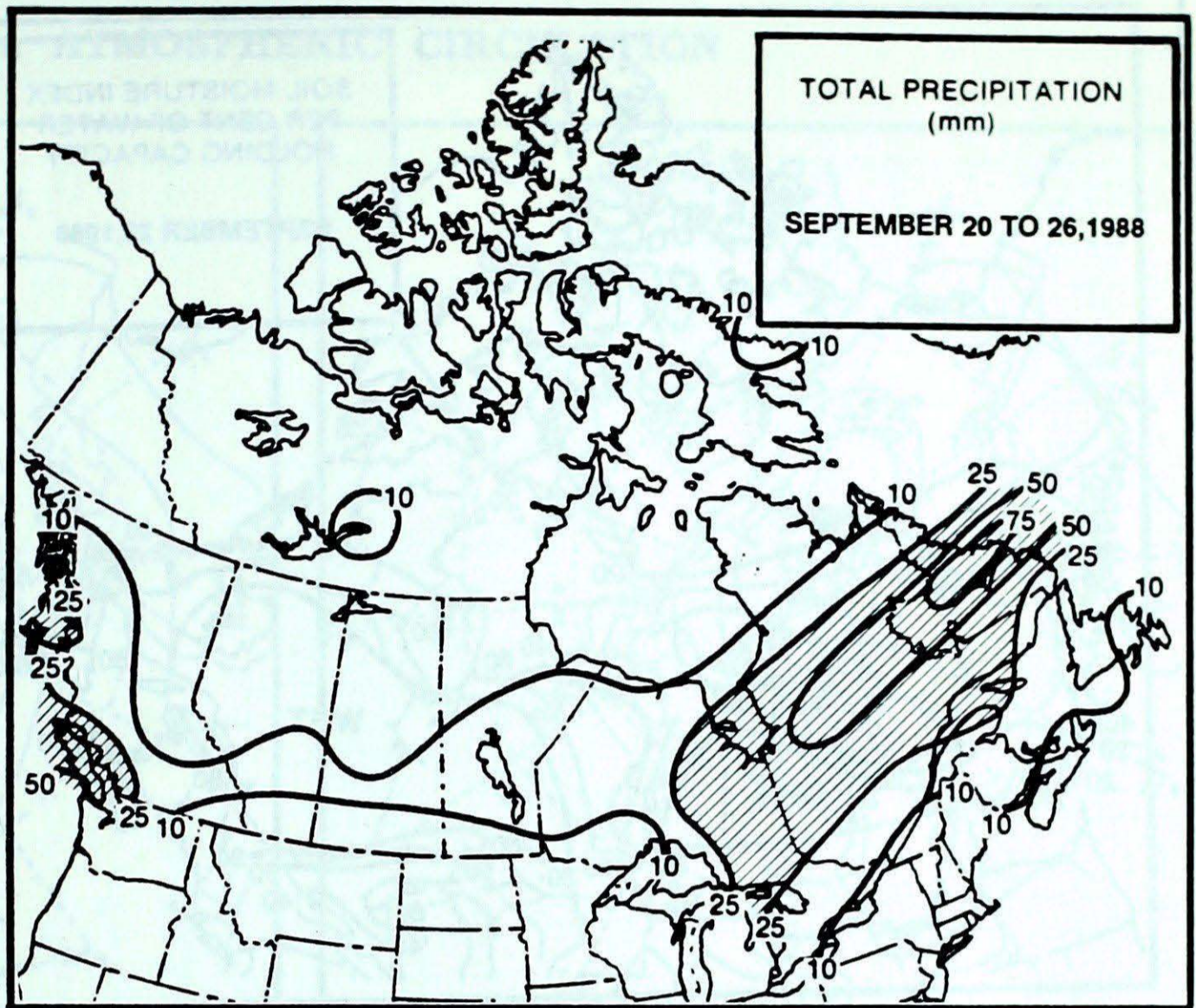
Quebec

A series of low and high pressure systems moved across the province from the west and southwest during the week, producing variable weather conditions with temperatures that averaged out to be close to the seasonal normal. The most active system passed through the province from the 20th to the 22nd. It dumped copious quantities of rain in central and northern areas, pushing weekly totals up to as high as 30 to 80 mm at most locations. Kuujuaq, in the extreme north, escaped the brunt of these systems and recorded minimal amounts of precipitation. A trace of snow was reported at Schefferville on the morning of the 26th.

Atlantic Provinces

In the Maritimes, the first part of the week was cloudy, while sunny skies prevailed thereafter. Temperatures were seasonal, although minimums at some inland locations dropped to near freezing. Heaviest rainfalls occurred on the 21st, with the passage of a cold front.

In Newfoundland, the week started off mild, with temperatures climbing to the record low twenties. A weather system brought cloud and rain to the province on Thursday. The weekend saw a much cooler, unstable air mass cover the district. Winds were very strong, gusting to in excess of 75 km/h on Sunday. At Bonavista, gusts were clocked at 87 km/h. In Labrador, it was an unsettled week as a series of disturbances passed through the region, giving periods of rain or snow. During the middle of the week, a deep low pressure system gave 30 to 40 millimetres of precipitation, with much colder air flooding the region over the weekend. Churchill Falls got 7 cm of snow on Sunday, and registered a maximum temperature of only 3°C.

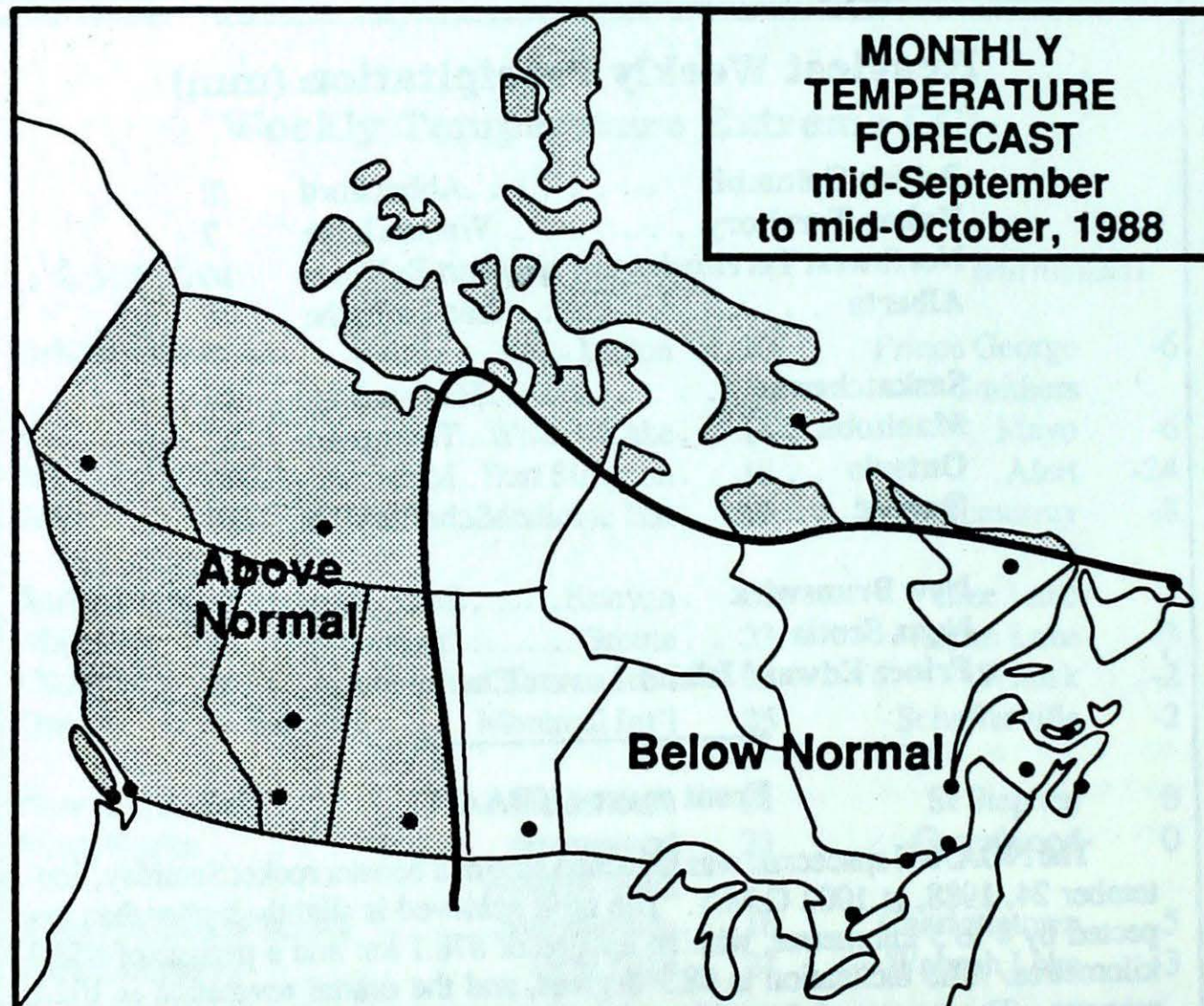
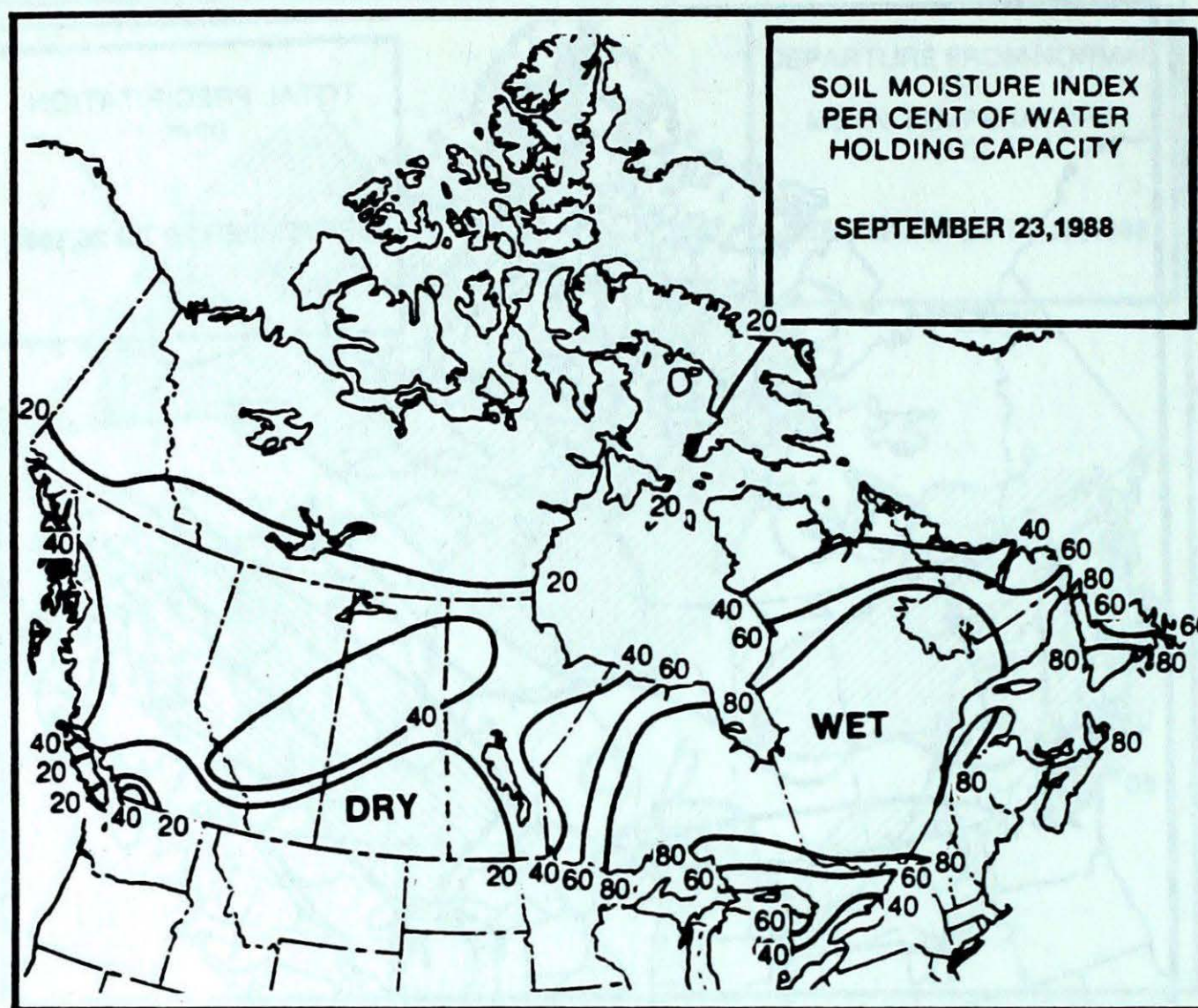


Heaviest Weekly Precipitation (mm)

British Columbia	Abbotsford	78
Yukon Territory	Watson Lake	7
Northwest Territories	Fort Reliance	16
Alberta	Lac La Biche	36
Saskatchewan	Hudson Bay	15
Manitoba	Thompson	22
Ontario	Moosonee	45
Quebec	Schefferville	80
New Brunswick	St Stephen	25
Nova Scotia	Yarmouth	16
Prince Edward Island	Charlottetown	6

Front cover - NOAA-11

The NOAA-H spacecraft was launched atop of a booster rocket Saturday, September 24, 1988, at 1002 G.M.T. The orbit achieved is slightly higher than expected by 4 to 5 kilometres, with an apogee of 878.1 km and a perigee of 858.9 kilometres. The inclination is 98.9 degrees, and the orbital revolution is 102.1 minutes. The spacecraft is stable and checkout is proceeding. At the moment NOAA-11 is sending high resolution picture transmission data on 1698 MHZ, except during conflict periods with NOAA-10. This will be changed to 1707 MHZ permanently in a few weeks, when the infrared channels will be turned on. Automatic picture transmission data are sent on 137.62 MHZ. For more information about the GOES and NOAA spacecraft see Volume 8 Number 10 and Volume 9 Number 38.



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

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Managing Editor P.R. Scholefield
 Editors-in-charge
 English A.K. Radomski
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 Ontario: B.Smith; Central: J.F.Bendell;
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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.

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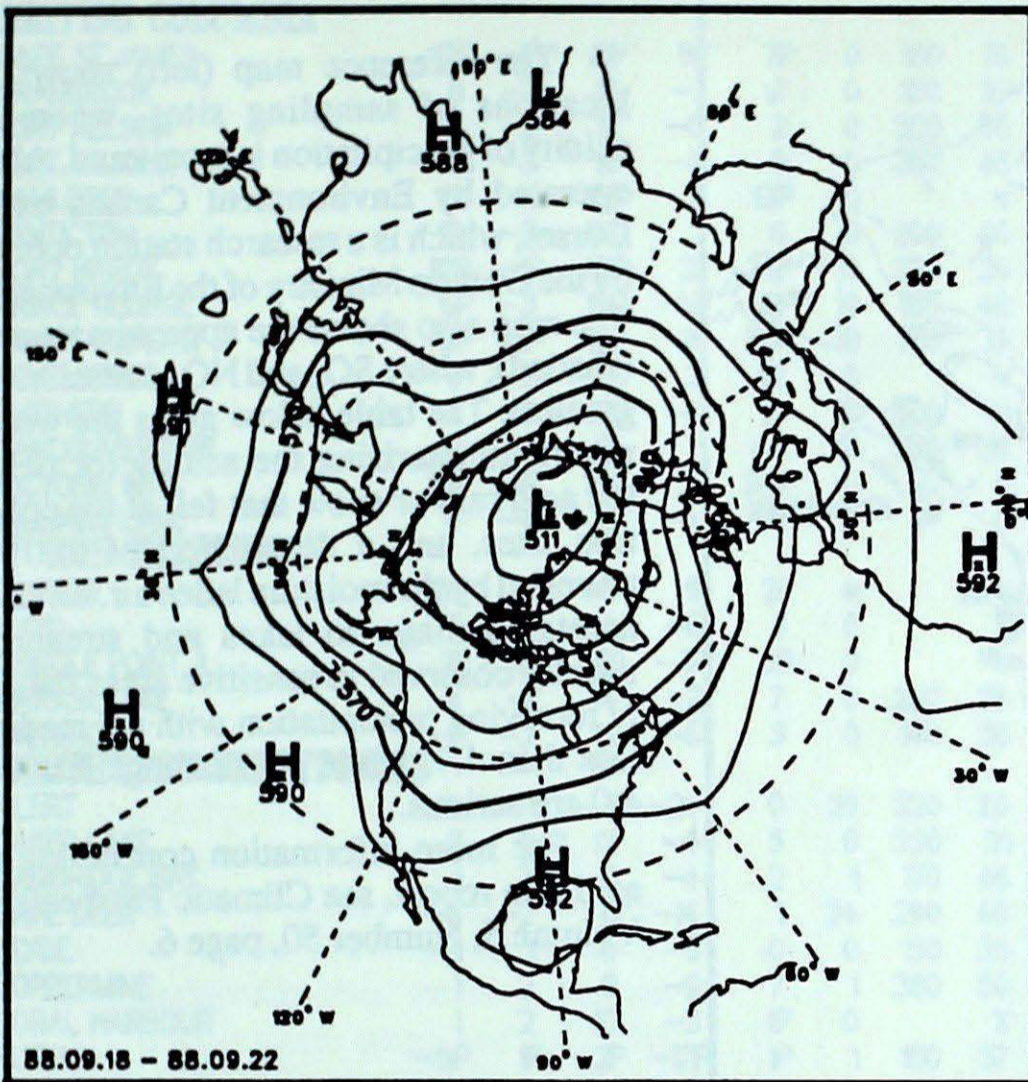
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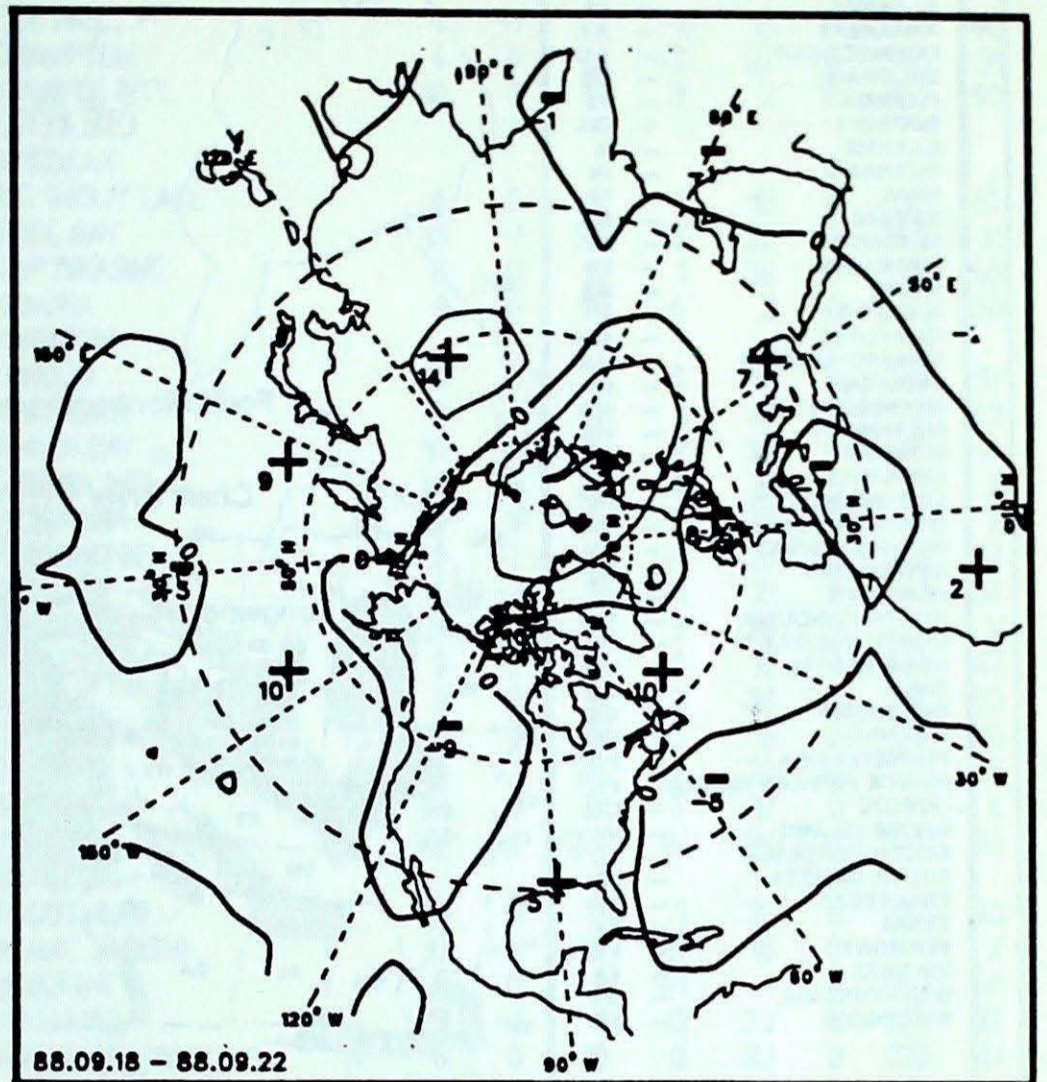
weekly and monthly supplement: \$35.00
 foreign: \$42.00
 monthly issue: \$10.00
 foreign: \$12.00

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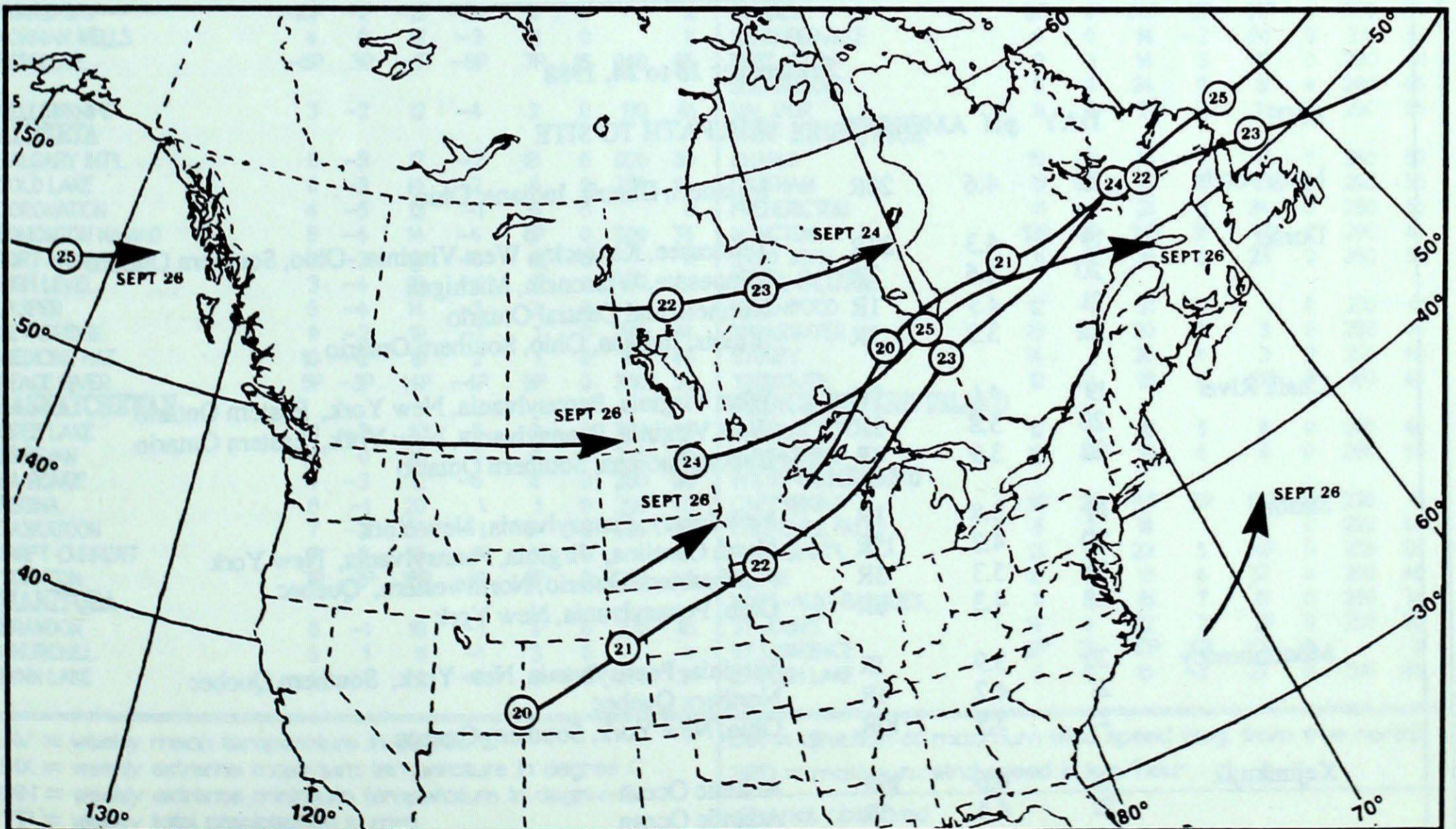
50 kPa ATMOSPHERIC CIRCULATION



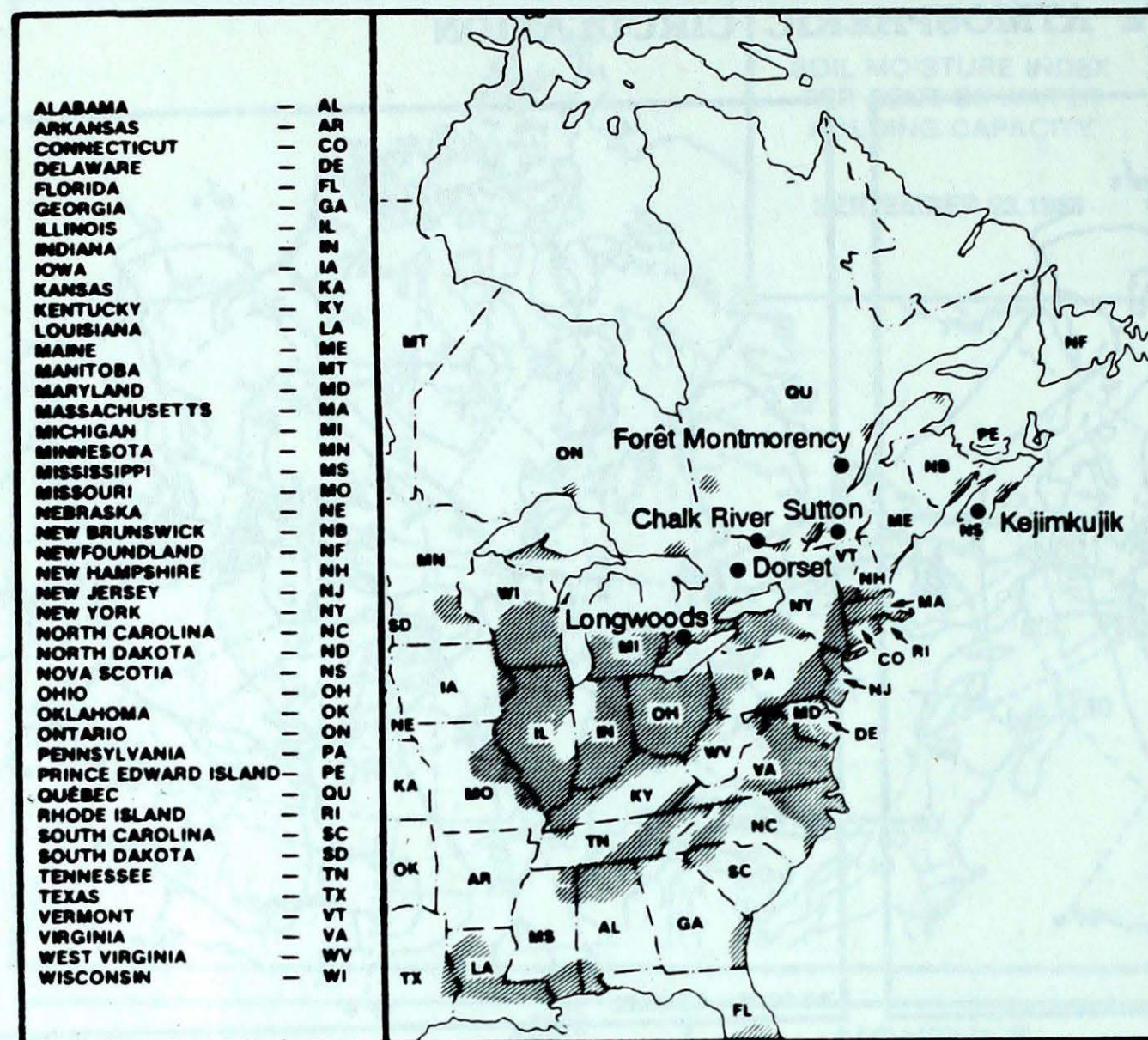
Mean geopotential height
50 kPa level (10 decameter intervals)



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



Storm track - Position of storm at 12 GMT during the period: September 20 to 26, 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 18 to 24, 1988

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	22	4.6	20R	Missouri, Illinois, Indiana, Ohio
Dorset	19	4.3	23R	Tennessee, Kentucky, West Virginia, Ohio, Southern Ontario
	20	4.6	7R	Minnesota, Wisconsin, Michigan
	21	4.9	1R	Northern and Central Ontario
	22	3.9	7R	Illinois, Indiana, Ohio, Southern Ontario
Chalk River	19	4.1	9R	West Virginia, Pennsylvania, New York, Eastern Ontario
	20	3.8	2R	West Virginia, Pennsylvania, New York, Eastern Ontario
	22	3.9	4R	Illinois, Indiana, Southern Ontario
Sutton	18	3.8	1R	New Jersey, Pennsylvania, New York
	20	4.2	15R	North Carolina, Virginia, Pennsylvania, New York
	21	5.3	3R	Northeastern Ontario, Northwestern, Quebec
	23	4.3	6R	Ohio, Pennsylvania, New York
Montmorency	20	3.9	1R	Virginia, Pennsylvania, New York, Southern Quebec
	21	4.2	4R	Northern Quebec
	23	3.9	10R	Ohio, New York, Southern Quebec
Kejimikujik	18	4.6	16R	Atlantic Ocean
	21	4.4	5R	Atlantic Ocean

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

STATISTICS FOR THE WEEK ENDING 0600 GMT September 27, 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									THE PAS								
CAPE ST. JAMES	12P	-1P	15P	8P	7P	0	160	70	THOMPSON	4	0	11	-3	22	0	300	31
CRANBROOK	8	-2	17	-1	12	0	180	37	WINNIPEG INTL	10	0	19	3	2	0	290	50
FORT NELSON	5	-2	19	-4	2	0	300	56	ONTARIO								
FORT ST. JOHN	5	-3	16	-4	6	0	250	46	ATIKOKAN								0
KAMLOOPS	12	-1	19	3	13P	0		*	BIG TROUT LAKE	6	0	12	1	18	0	030	67
PENTICTON	10	-3	20	1	6	0	200	46	GORE BAY	13	1	20	5	32	0	280	61
PORT HARDY	10P	-1P	16P	2P	24P	0	330	39	KAPUSKASING	8	0	19	1	39	0	260	48
PRINCE GEORGE	6P	-3	15P	-6P	6P	0	180	48	KENORA	9	0	18	4	2	0	360	39
PRINCE RUPERT	9P	-2P	14P	2P	36P	0	160	37	KINGSTON								0
REVELSTOKE	9	-2	17	2	42	0		*	LONDON	14	0	22	5	16	0	240	57
SMITHERS	6	-3	16	-6	10	0	300	41	MOOSONEE	8	-1	19	1	45	0	310	43
VANCOUVER INTL	12	-1	18	7	46	0	320	33	NORTH BAY	10	0	19	2	38	0	250	54
VICTORIA INTL	10P	-3P	18P	5P	34P	0		*	OTTAWA INTL	14	.1	26	4	17	0		X
WILLIAMS LAKE	4	-4	13	-4	13	0		X	PETAWAWA	18P	1P	25P	1P	10P	0		X
YUKON TERRITORY									PICKLE LAKE	5	-2	12	-1	20	0	290	57
DAWSON	7P	*	14P	1P	2P	*		*	RED LAKE	6	-1	13	1	21	0	300	56
MAYO	5	1	14	-6	1	0		X	SUDBURY	11	0	20	3	28	0		X
SHINGLE POINT A	2P	2P	5P	-3P	5P	0		*	THUNDER BAY	9	0	18	0	17	0	300	67
WATSON LAKE	6	-1	14	-2	7	0	250	56	TIMMINS	9	0	19	2	30	0	280	59
WHITEHORSE	4	-2	12	-6	3	0	140	50	TORONTO INTL	15	1	22	5	6	0	310	61
NORTHWEST TERRITORIES									TRENTON	15	1	24	4	20	0		X
ALERT	-14	-1	-3	-24	0	29	220	65	WIARTON	13	0	21	5	17	0		X
BAKER LAKE	3	3	13	-4	5	0	330	31	WINDSOR	16P	0P	23P	9P	34P	0	240	63
CAMBRIDGE BAY	1	3	9	-4	2	1	170	46	QUEBEC								
CAPE DYER	-6	-2	0	-14	1	24	290	48	BAGOTVILLE	9	0	17	1	20	0	280	50
CLYDE	-1	1	6	-5	0	0	150	35	BLANC SABLON	10	*	15	5	16	0		X
COPPERMINE	1	2	8	-9	7	1	350	50	INUKJUAK	4	0	8	-1	1	0	050	46
CORAL HARBOUR	1	2	10	-3	1P	0		X	KUJUUJUAQ	3	-1	8	0	33	0	020	37
EUREKA	-1P	1P	-2P	-17P	1P	1	150	57	KUJUUJARAPIK	6	0	10	0	33	0	020	61
FORT SMITH	4	-2	14	-4	2P	0		X	MANIWAKI	11	1	24	1	13	0	240	52
IQALUIT	1	1	6	-4	1	0	320	39	MONT JOLI	10P	0P	20P	3	9	0	150	57
HALL BEACH	0	3	4	-3	1	1	300	35	MONTREAL INTL	14	1	25	4	6	0	200	63
INUVIK	2	1	9	-6	1	0		X	NATASHQUAN	9	1	16	3	23	0	270	74
MOULD BAY	-10P	-1P	-2P	-19P	1P	6		X	QUEBEC	12P	1P	20P	2P	14P	*	300	54
NORMAN WELLS	4	0	12	-3	1	0		X	SCHIEFFERVILLE	4	0	14	-2	80	0	310	57
RESOLUTE	-5P	3P	-1P	-8P	7P	16	040	65	SEPT-ILES	9	1	14	3	42	0	280	61
									SHERBROOKE	11	0	24	0	12	*	280	44
									VAL D'OR	9	0	21	2	31	0	290	65
YELLOWKNIFE									NEW BRUNSWICK								
ALBERTA									CHARLO	10	0	17	2	17	0	280	59
CALGARY INTL	6	-3	17	-2	18	0	020	59	CHATHAM	11	0	21	2	13	0	290	56
COLD LAKE	6	-3	14	-2	6	0	290	65	FREDERICTON	11	-1	21	1	24	0	280	56
CORONATION	4	-5	13	-1	8	0		*	MONCTON	12P	-1P	19P	3P	4P	0	290	46
EDMONTON NAMAO	5	-4	14	-4	6P	0	300	74	SAINT JOHN	11	0	19	3	23	0	280	57
FORT MCMURRAY	4	-3	14	-8	4	0		X	NOVA SCOTIA								
HIGH LEVEL	3	-4	13	-6	8	0	170	37	GREENWOOD	12	-1	21	0	1	0	270	61
JASPER	5	-4	14	-3	3	0		X	SHEARWATER	13	-1	20	5	3	0	280	46
LETHBRIDGE	9	-2	19	-1	1	0	240	74	SYDNEY	14	1	20	6	3	0	250	48
MEDICINE HAT	10	-2	19	2	1	0	170	46	YARMOUTH	12	-1	18	4	16P	0	180	43
PEACE RIVER	5P	-3P	14P	-4P	9P	0	360	56	PRINCE EDWARD ISLAND								
SASKATCHEWAN									CHARLOTTETOWN	12	0	18	5	6	0	260	46
CREE LAKE	3	-3	10	-7	3	0	300	43	SUMMERSIDE	13	0	18	6	4	0	280	56
ESTEVAN	10	0	20	3	0	0	290	70	NEWFOUNDLAND								
LA RONGE	4	-3	12	-6	6	0	280	39	CARTWRIGHT	9P	2P	18P	5P	13P	0	230	41
REGINA	8	-1	20	1	1	0	290	65	CHURCHILL FALLS	6	3	14	1	58	0	290	63
SASKATOON	7	-2	18	-1	15	0	260	61	GANDER INTL	13	3	23	5	6P	0	250	85
SWIFT CURRENT	7	-3	16	0	3	0		X	GOOSE	10	2	18	4	37	*	300	46
YORKTON	7P	-2P	18P	-5P	2P	0	290	56	PORT-AUX-BASQUES	11	1	15	7	18	0	280	74
MANITOBA									ST JOHN'S	14	4	22	7	2P	0	250	78
BRANDON	8	-1	18	-1	1P	0	270	61	ST LAWRENCE	12P	2P	17P	6P	10P	0		X
CHURCHILL	5	1	11	-1	3	0		*	WABUSH LAKE	6	0	15	-3	27	0	310	46
LYNN LAKE	4	-1	9	-3	3	0	270	31									

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

STATISTICS FOR THE WEEK ENDING 26th September 27, 1958

STATION	TEMPERATURE		WIND DIR	WIND SPD	PRECIP	TP	TROOPERS NEAR DEWPS		REL HUM	WIND DIR	WIND SPD	TEMPERATURE	STATION	TEMPERATURE	WIND DIR	WIND SPD	PRECIP	TP	REL HUM
	MX	MIN					MX	MIN											
BRITISH COLUMBIA																			
ALBERTA																			
ONTARIO																			
QUEBEC																			
NEW BRUNSWICK																			
NEW YORK																			
MASSACHUSETTS																			
VIRGINIA																			
NORTH CAROLINA																			
SOUTH CAROLINA																			
MISSISSIPPI																			
LOUISIANA																			
ARKANSAS																			
KENTUCKY																			
TENNESSEE																			
MICHIGAN																			
INDIANA																			
OHIO																			
PENNSYLVANIA																			
DELAWARE																			
MARYLAND																			
WEST VIRGINIA																			
PACIFIC NORTHWEST																			
PLAINS STATES																			
SOUTHWEST STATES																			
TEXAS																			
FLORIDA																			
ALABAMA																			
MISSISSIPPI																			
LOUISIANA																			
ARKANSAS																			
KENTUCKY																			
TENNESSEE																			
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INDIANA																			
OHIO																			
PENNSYLVANIA																			
DELAWARE																			
MARYLAND																			
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PACIFIC NORTHWEST																			
PLAINS STATES																			
SOUTHWEST STATES																			
TEXAS																			
FLORIDA																			
ALABAMA																			

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