

Environnement  
Canada

Environment  
Canada

# Climatic Perspectives

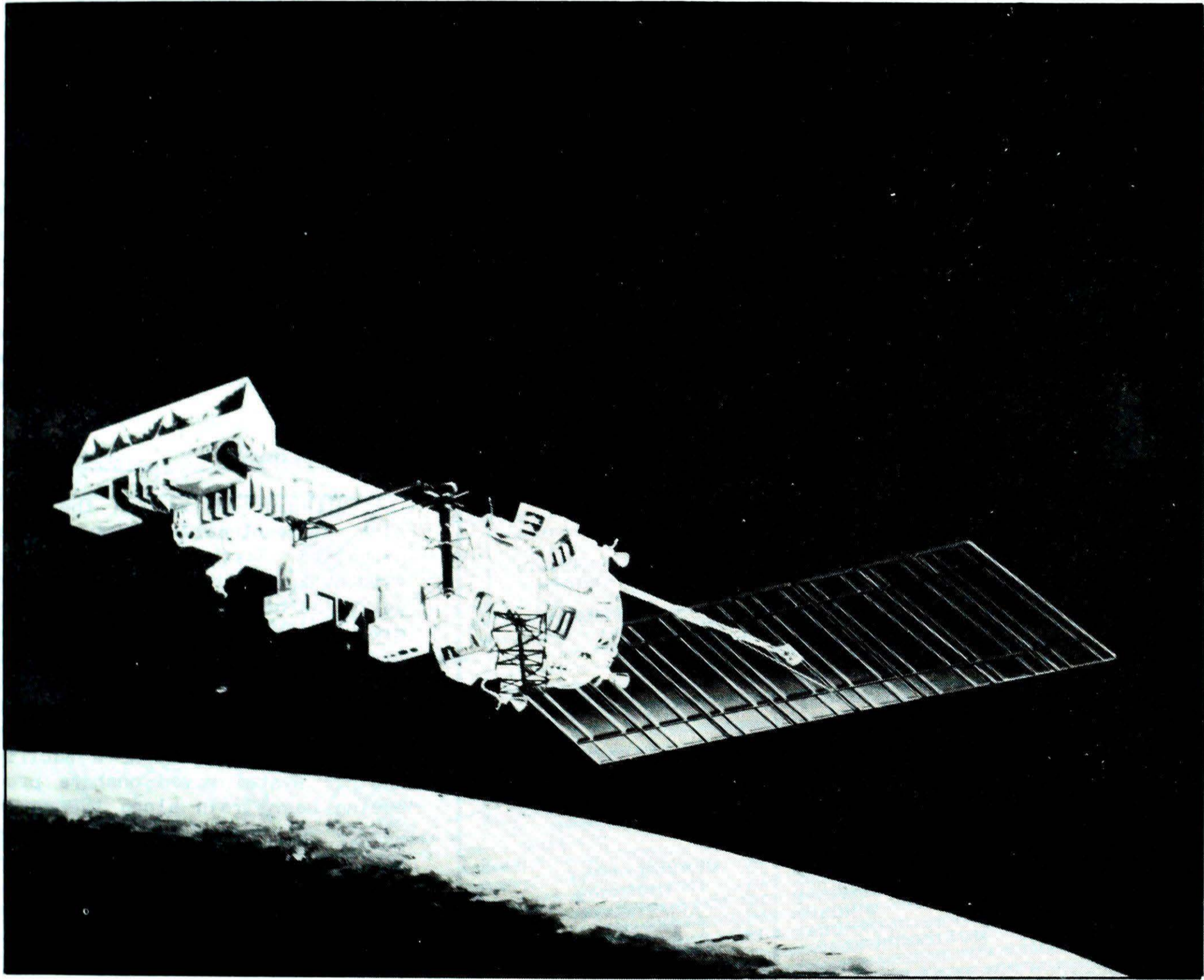
MONTHLY  
SUPPLEMENT  
INCLUDED



A weekly review of Canadian climate

September 16 to 22, 1986

Vol.8 No.38



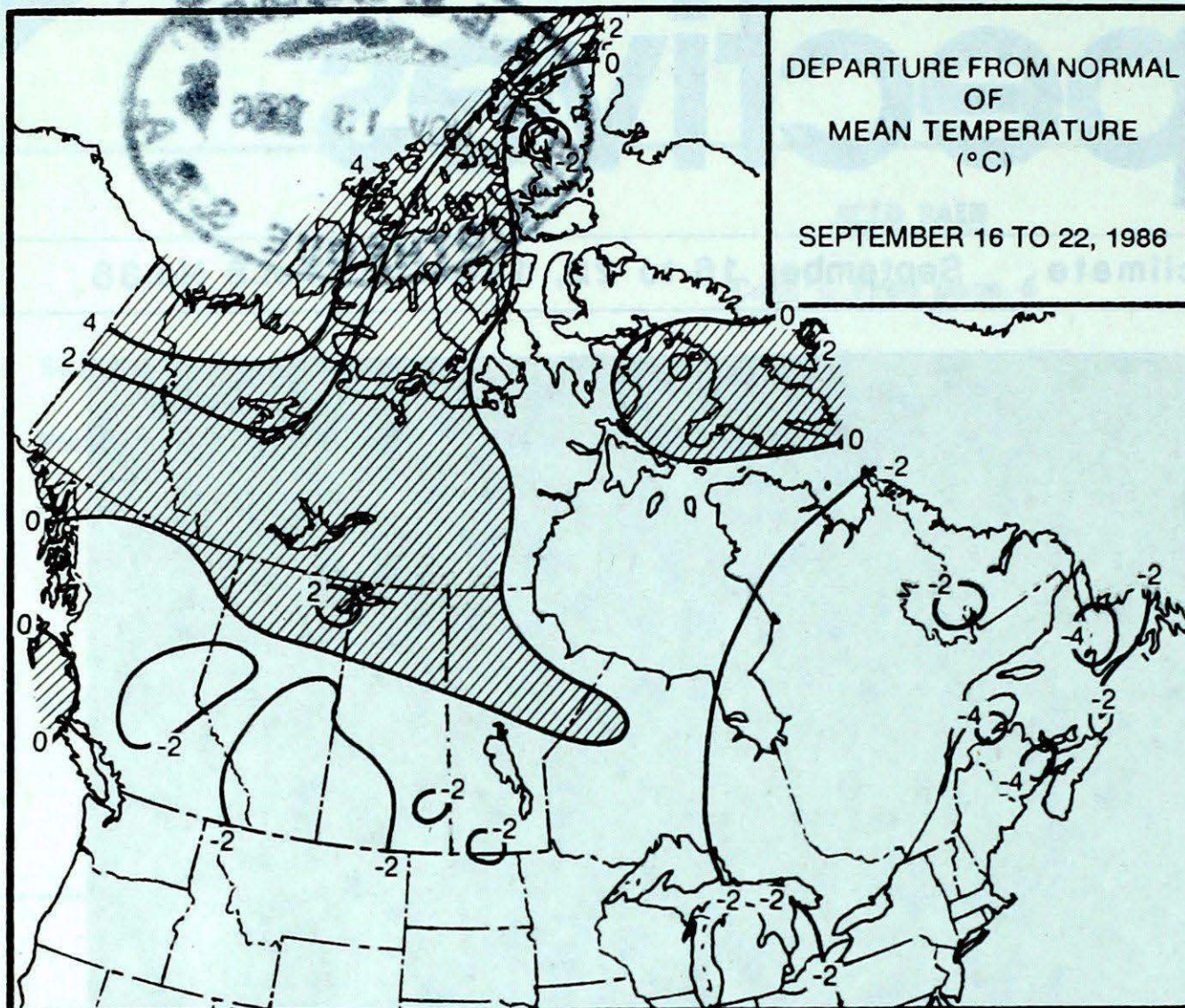
Launched by an Atlas E booster rocket, NOAA-G(10) successfully lifted off the launch pad from Vandenberg Air Force Base, California, Wednesday, September 17, 1986, at 1552 G.M.T. A few minutes later the meteorological satellite, riding in the nose core, achieved a successful orbit of 853 km above the earth's surface. First signal contact at Gilmore Alaska was on time. For more information see page 3. Courtesy of the National Environmental Satellite, Data and Information Service.

- ***Wet weather hampers the harvest from the  
Prairies Eastward***
- ***Hurricane Earl crosses the Grand Banks***

Canada 



# TEMPERATURE



## WEEKLY TEMPERATURE EXTREME (C)

	MAXIMUM	MINIMUM
BRITISH COLUMBIA	PORT ALBERNI 23	DEASE LAKE -6
YUKON TERRITORY	BEAVER CREEK 20	KLONDIKE -9
NORTHWEST TERRITORIES	FORT SIMPSON 20	EURIKA -22
ALBERTA	GRANDE PRAIRIE 21	EDSON -4
SASKATCHEWAN	ESTEVAN 20	MEADOW LAKE -5
MANITOBA	WINNIPEG 20	THOMSON -2
ONTARIO	WINDSOR 28	ARMSTRONG -5
QUEBEC	MONTREAL/DORVAL 19	MATAGAMI -5
NEW BRUNSWICK	ST STEPHEN 20	FREDERICTON -2
NOVA SCOTIA	GREENWOOD 20	TRURO 0
PRINCE EDWARD ISLAND	SUMMERSIDE 18	SUMMERSIDE 3
NEWFOUNDLAND	BADGER 17	DEER LAKE -4

## ACROSS THE NATION

WARMEST MEAN TEMPERATURE	17	WINDSOR	ONT
COOLEST MEAN TEMPERATURE	-11	EURIKA	NWT

## ACROSS THE COUNTRY...

### Yukon and Northwest Territories

It was a pleasant sunny week in the Yukon, with daytime highs climbing into the teens and overnight lows near freezing. Near seasonal temperatures in the Arctic were accompanied by snow and freezing precipitation. In the high Arctic the mercury failed to climb above 0°C. Two Canadian ice breakers remain in the Arctic archipelago. The M.V. Arctic is scheduled for two more trips before freeze-up: the Panarctic oil field at Little Cornwallis Island and the ore mines at Nanisivik. Conditions in the Beaufort Sea are still very favourable; a broad open water lead exists next to the Tuktoyaktuk Peninsula. The Canadian ice breaker Martha Black will have an open water route for its homeward-bound trip around Alaska.

### British Columbia

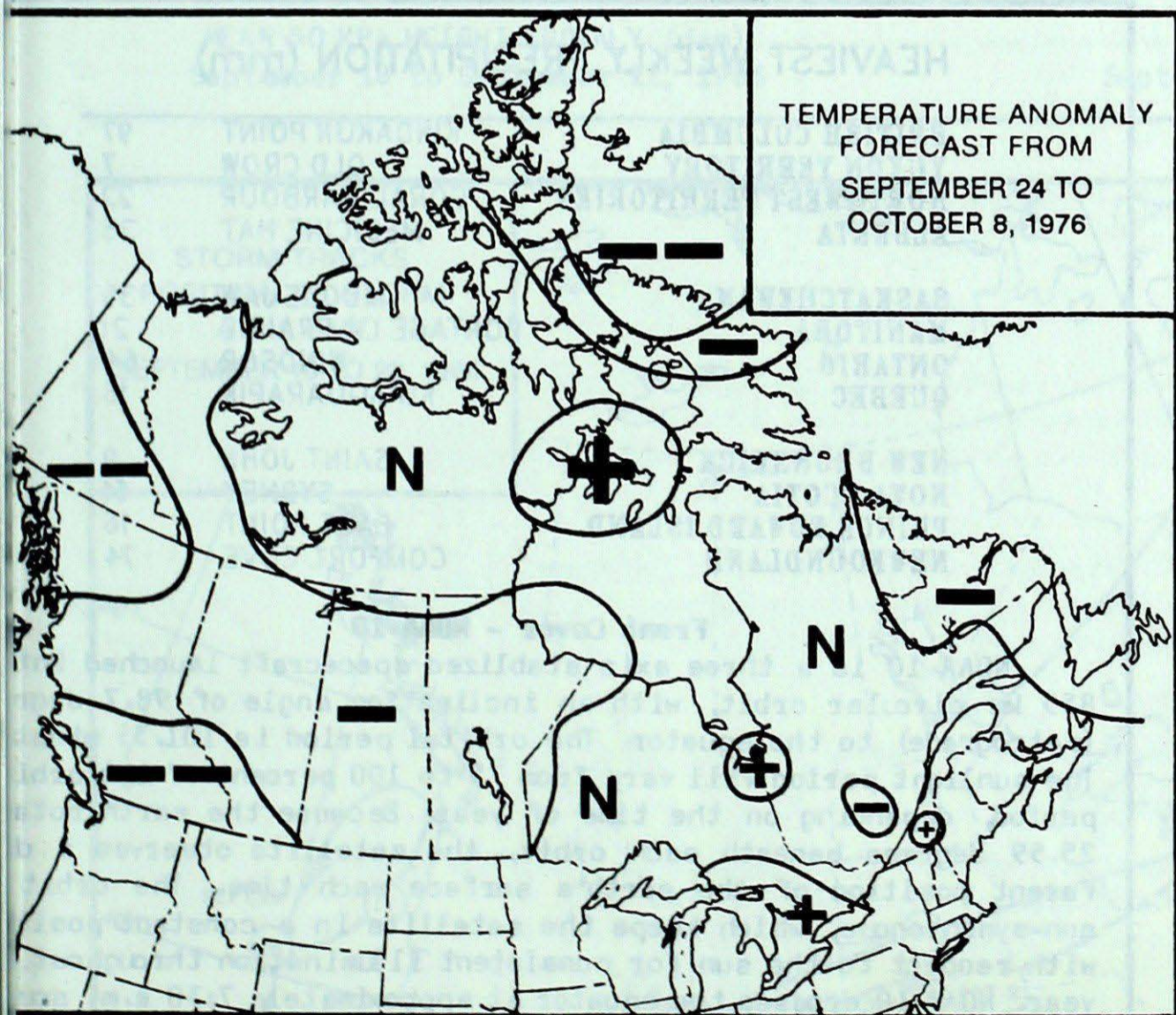
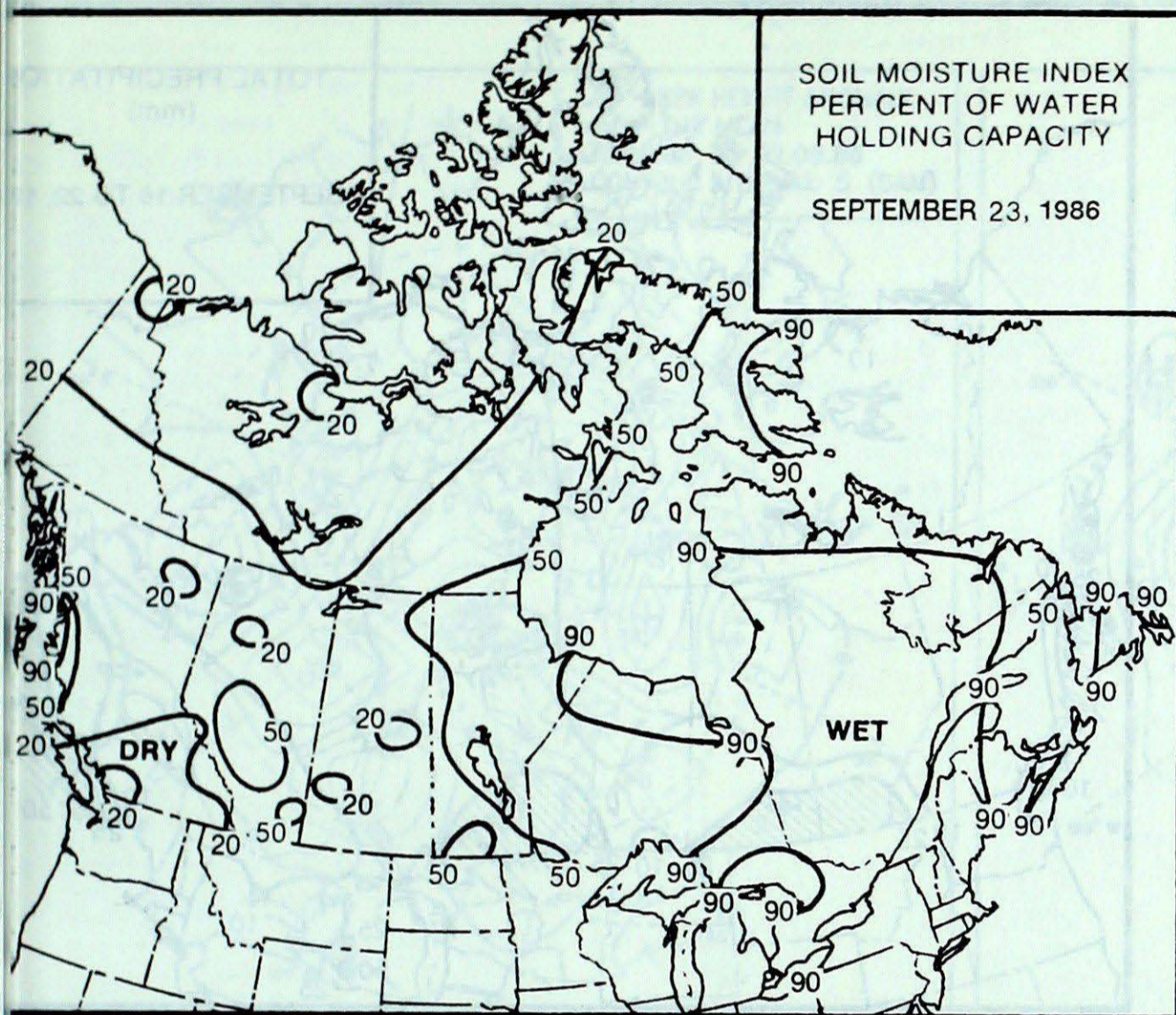
Although it was on the cool side, pleasant early autumn weather prevailed. Scattered showers were evident during the early part of the week. The north coast was unusually dry. Weather conditions in the interior have been favourable for slash burning. Harvesting continues in the Peace River District, but it is not anywhere near complete. The last day of the period, a Pacific weather system moved onshore producing heavy rain along the north coast. At some locations one-day totals were as high as 100 mm.

### Prairies

Unsettled, cool weather conditions persisted most of the week, with precipitation amounts of 15 to 35 millimetres commonplace in southern agricultural district. Harvesting operations were at a near standstill. More than half the acreage has been swathed, but because of the wet weather cereal crops are showing signs of sprouting. The Peace River District was spared the inclement conditions. In northern areas, where several daily minimum temperature records were broken, frost was prevalent. Central and northern regions had a pleasantly dry weekend.



## 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

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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**

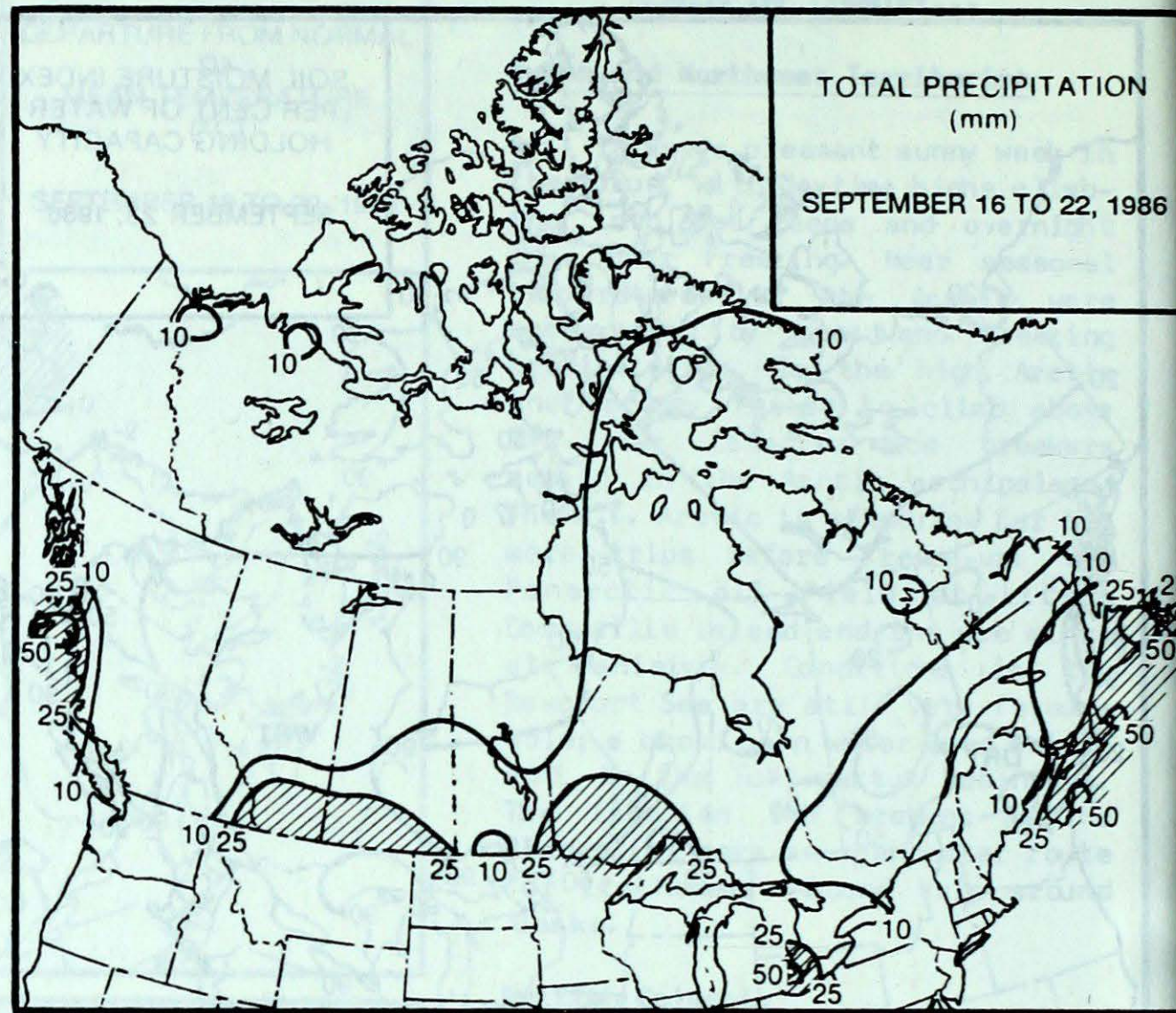
In southern Ontario it was another dull and changeable week, as one frontal system after another approached from the west. Across the north, a cool area of high pressure kept skies predominantly sunny through to the weekend; overnight readings early in the week dropped below 0°C effectively ending the summer growing season. The final two days of the period, a large weather system affected the whole province, depositing significant amounts of rain, especially in northwestern and southwestern Ontario. With rainy weather plaguing the south, harvesting is at a standstill. There is concern that some vegetables and crops might rot in the wet fields. The apple harvest has begun.

**Québec**

The weather was unseasonably cold, especially in the south. New daily minimum temperature records were set at several locations, with readings dropping below freezing. While sky conditions were relatively sunny in the southern portions of the province, it rained nearly everyday in the north. Maximum temperatures in northern Quebec failed to reach the double digits; some locations reported several centimetres of snow this week.

**Atlantic Provinces**

Heavy rainfalls occurred in Nova Scotia early in the week. Thunderstorms with strong winds caused sporadic power outages on the 16th. It was mostly sunny and cool in New Brunswick and P.E.I. with overnight frost on the 18th and 22nd. It was a stormy week in Newfoundland. On September 17, a vigorous storm dumped 50 to 60 millimetres of rain over the northern portions of the Island. At Port-aux-Basques winds exceeded 102 km/h. Clearing skies brought widespread frost during the middle of the week. Offshore, hurricane Earl brought squalls and storm-force winds to the Grand Banks, east of Newfoundland, during the middle of the week. Weather conditions in Labrador were cool and changeable, but overall precipitation amounts were light.

**HEAVIEST WEEKLY PRECIPITATION (mm)**

BRITISH COLUMBIA	KINDAKUN POINT	97
YUKON TERRITORY	OLD CROW	7
NORTHWEST TERRITORIES	CORAL HARBOUR	22
ALBERTA	MEDICINE HAT	35
SASKATCHEWAN	MOOSE JAW	35
MANITOBA	PORTAGE LA PRAIRIE	21
ONTARIO	WINDSOR	64
QUEBEC	KUUJJUAPIK	15
NEW BRUNSWICK	SAINT JOHN	9
NOVA SCOTIA	SYDNEY	61
PRINCE EDWARD ISLAND	EAST POINT	16
NEWFOUNDLAND	COMFORT COVE	74

**Front Cover - NOAA 10**

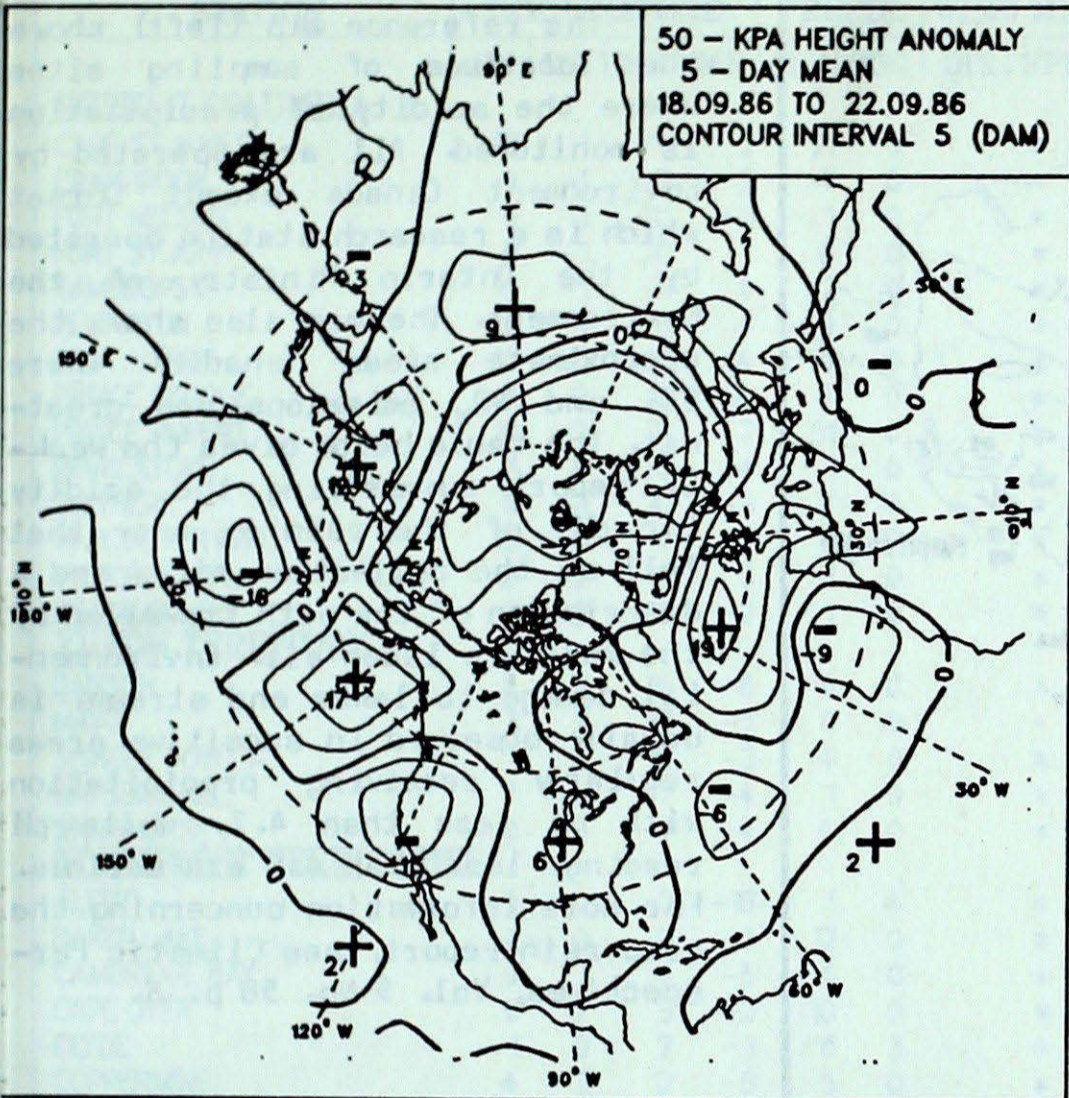
NOAA 10 is a three axis stabilized spacecraft launched into a 853 km circular orbit, with an inclination angle of 98.7 degrees (retrograde) to the equator. The orbital period is 101.35 minutes. The sunlight period will vary from 75 to 100 percent of the orbital period, depending on the time of year. Because the earth rotates 25.59 degrees beneath each orbit, the satellite observes a different position of the earth's surface each time. The orbit is sun-synchronous, which keeps the satellite in a constant position with respect to the sun for consistent illumination throughout the year. NOAA 10 crosses the equator at approximately 7:30 a.m. southbound and 7:30 p.m. northbound local solar time.

The main body of the spacecraft is 4.18 metres long and 1.88 metres in diameter. Liftoff weight was 1712 kg. The solar array is 11.6 square metres (2.37 by 4.91 metres). Average power consumption ranges from 515 to 551 watts. The transmitted satellite pictures have a resolution of 1.1 km. Photograph and more information on page 8.



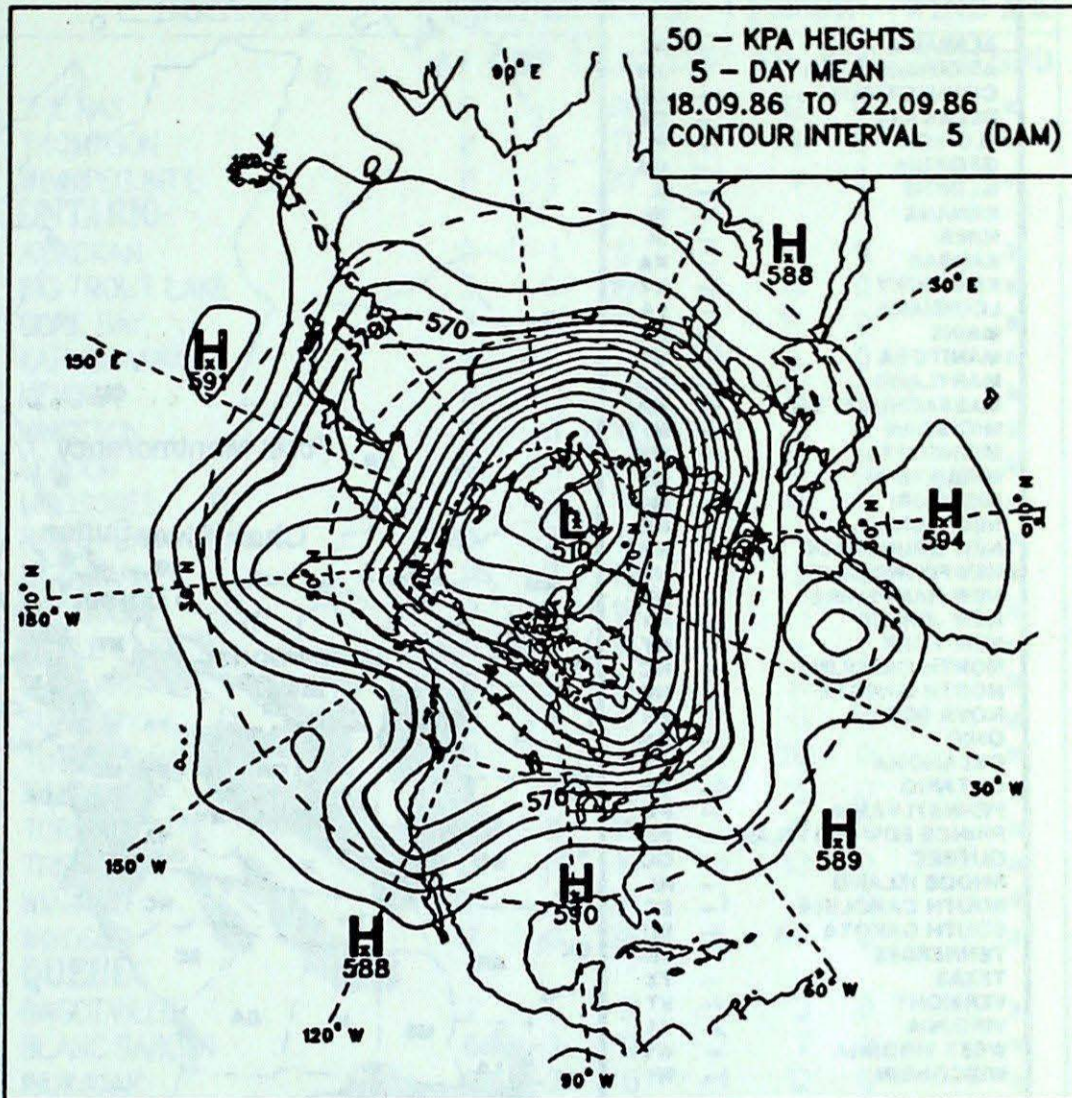
**50 KPa ATMOSPHERIC CIRCULATION**

50 - KPa HEIGHT ANOMALY  
5 - DAY MEAN  
18.09.86 TO 22.09.86  
CONTOUR INTERVAL 5 (DAM)



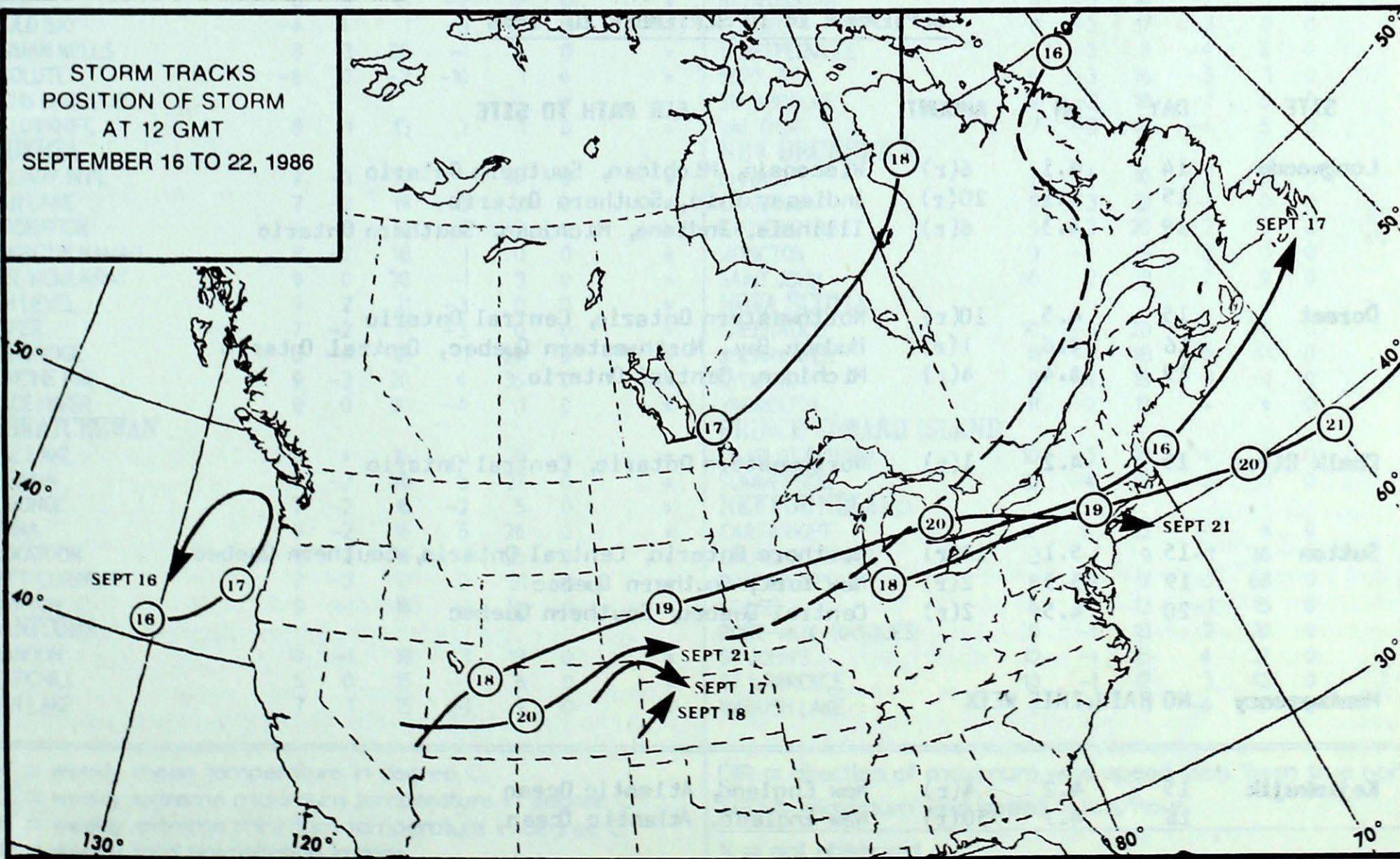
MEAN 50 KPa HEIGHT ANOMALY (dam)  
September 18 to September 22, 1986

50 - KPa HEIGHTS  
5 - DAY MEAN  
18.09.86 TO 22.09.86  
CONTOUR INTERVAL 5 (DAM)



MEAN 50 KPa HEIGHTS (dam)  
September 18 to September 22, 1986

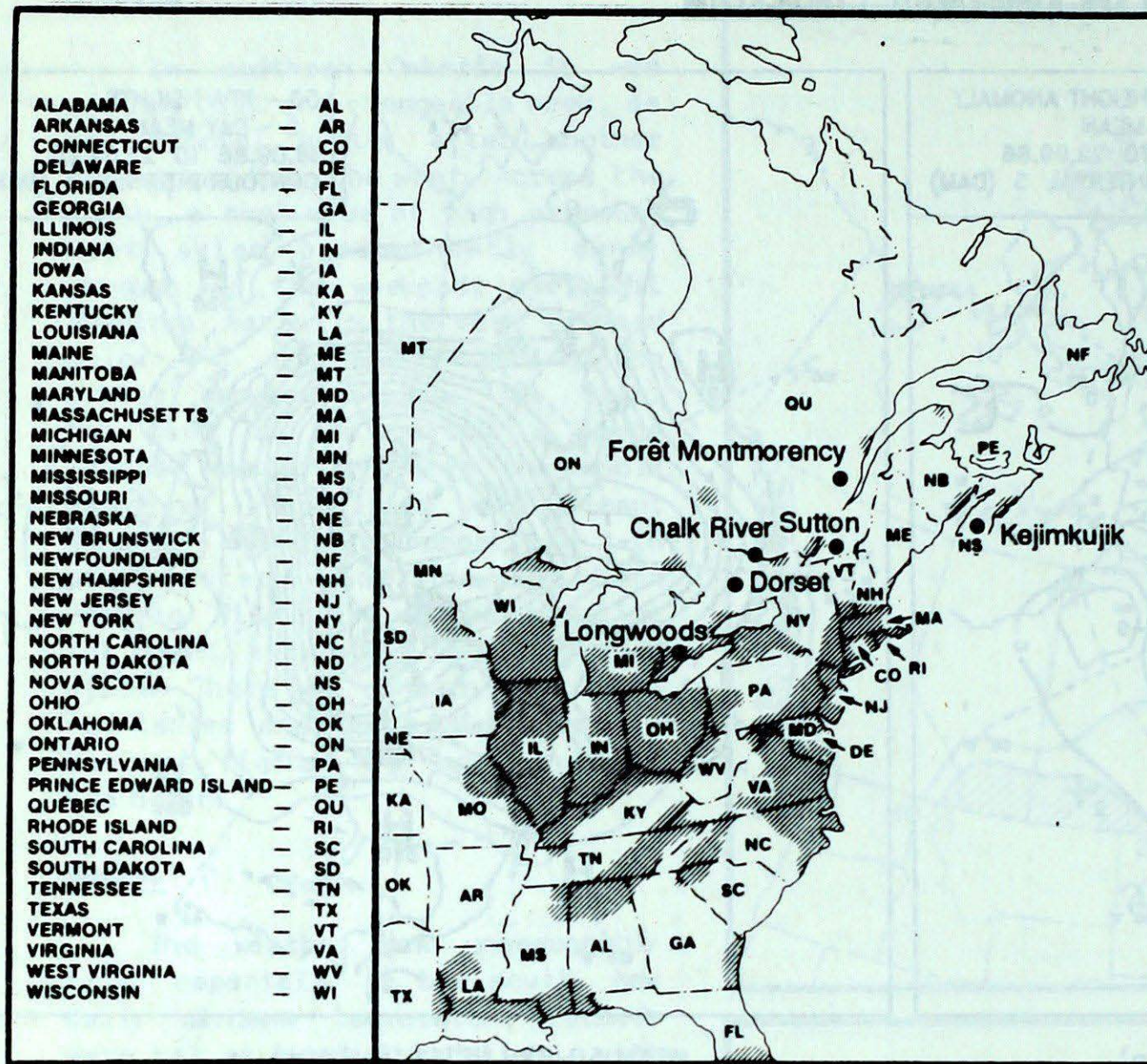
STORM TRACKS  
POSITION OF STORM  
AT 12 GMT  
SEPTEMBER 16 TO 22, 1986





# 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  $\text{SO}_2$  and  $\text{NO}_x$  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.

### SEPTEMBER 14 TO SEPTEMBER 20, 1986

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	14	4.1	6(r)	Wisconsin, Michigan, Southern Ontario
	15	4.1	20(r)	Indiana, Ohio, Southern Ontario
	19	4.3	6(r)	Illinois, Indiana, Michigan, Southern Ontario
Dorset	15	4.5	10(r)	Northwestern Ontario, Central Ontario
	16	4.6	1(r)	Hudson Bay, Northwestern Quebec, Central Ontario
	19	4.4	4(r)	Michigan, Central Ontario
Chalk River	15	4.2	1(r)	Northwestern Ontario, Central Ontario
Sutton	15	5.1	14(r)	Northern Ontario, Central Ontario, Southern Quebec
	19	3.5	2(r)	New York, Southern Quebec
	20	4.5	2(r)	Central Quebec, Southern Quebec
Montmorency	NO RAIN THIS WEEK			
Kejimikujik	15	4.2	4(r)	New England, Atlantic Ocean
	16	4.7	30(r)	New England, Atlantic Ocean

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



## TEMPERATURE, PRECIPITATION AND MAXIMUM WIND DATA FOR THE WEEK ENDING 0600 GMT SEPTEMBER 23, 1986

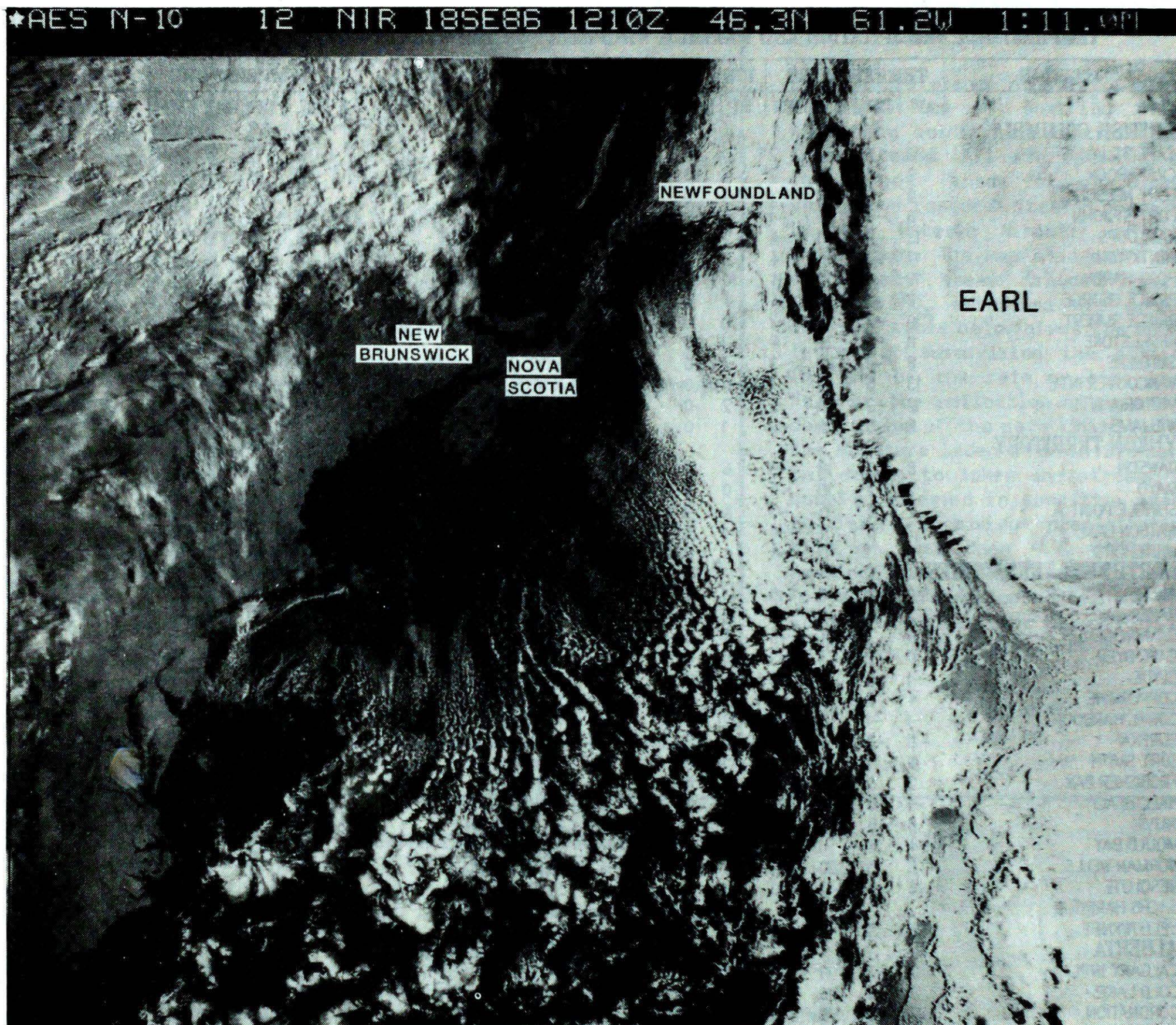
STATION	TEMPERATURE				PRECIP.		WIND MX		STATION	TEMPERATURE				PRECIP.		WIND MX	
	AV	DP	MX	MN	TP	SOG	DIR	SPD		AV	DP	MX	MN	TP	SOG	DIR	SPD
<b>BRITISH COLUMBIA</b>									THE PAS	8	-1	16	-1	12	0		*
CAPE ST. JAMES	13	1	19	2	21	0	*		THOMPSON	8	1	17	-2	4	0		*
CRANBROOK	9	-1	17	2	4	0	*		WINNIPEG INT'L	11	-1	20	1	*	0		*
FORT NELSON	9	1	20	-3	1	0	*		<b>ONTARIO</b>								
FORT ST. JOHN	8	-1	20	-1	6	0	*		ATKOKAN	9	-1	19	-4	46	0		*
KAMLOOPS	13	-1	21	4	2	0	*		BIG TROUT LAKE	8	0	16	2	19	0		*
PENTICTON	12	-1	20	4	9	0	*		GORE BAY	11	-2	18	2	14	0		*
PORT HARDY	10	-1	18	4	10	0	*		KAPUSKASING	8	-2	19	0	14	0		*
PRINCE GEORGE	7	-2	19	-4	4	0	*		KENORA	11	-1	17	3	39	0		*
PRINCE RUPERT	10	-2	18	2	51	0	*		KINGSTON	11	-3	18	2	9	0		*
REVELSTOKE	11	0	20	4	1	0	*		LONDON	14	-2	24	2	18	0		*
SMITHERS	8	-1	20	-3	7	0	*		MOOSONEE	7	-3	17	-1	15	0		*
VANCOUVER INT'L	13	0	19	7	0	0	*		NORTH BAY	10	-3	17	2	4	0		*
VICTORIA INT'L	12	-2	19	5	2	0	*		OTTAWA INT'L	11	-3	19	3	2	0		*
WILLIAMS LAKE	8	-3	19	-2	1	0	*		PETAWAWA	9	*	18	-3	1	0		*
<b>YUKON TERRITORY</b>									PICKLE LAKE	9	-1	16	-1	*	0		*
DAWSON	8	2	18	-8	6	0	*		RED LAKE	9	-2	16	-2	31	0		*
MAYO	7	2	18	-5	0	0	*		SUDBURY	10	-3	17	2	8	0		*
SHINGLE POINT A	7	6	15	-3	4	0	*		THUNDER BAY	10	-1	22	-1	28	0		*
WATSON LAKE	7	0	17	-4	1	0	*		TIMMINS	8	-3	19	-3	15	0		*
WHITEHORSE	8	1	17	-4	4	0	*		TORONTO INT'L	12	-3	19	2	19	0		*
<b>NORTHWEST TERRITORIES</b>									TRENTON	12	-3	19	1	13	0		*
ALERT	-9	2	0	-18	1	4	*		WIARTON	13	-1	20	1	*	0		*
BAKER LAKE	2	0	11	-3	12	0	*		WINDSOR	17	0	28	5	64	0		*
CAMBRIDGE BAY	0	1	4	-5	4	0	*		<b>QUEBEC</b>								
CAPE DYER	0	2	3	-3	10	0	*		BAGOTVILLE	7	-4	17	-2	3	0		*
CLYDE	-1	0	2	-3	6	3	*		BLANC SABLON	6	-2	12	-2	7	0		*
COPPERMINE	4	2	12	-5	5	0	*		INUKJUAQ	3	-2	6	-1	12	0		*
CORAL HARBOUR	-1	-1	5	-4	22	0	*		KUJJUAQ	3	-2	10	-2	10	0		*
EUREKA	-11	-2	-4	-22	1	8	*		KUJJUARAPIK	4	-3	12	0	15	0		*
FORT SMITH	9	1	19	0	1	0	*		MANIWAKI	8	-3	18	-3	0	0		*
FROBISHER BAY	2	0	5	-1	*	0	*		MONT JOLI	8	-4	16	0	1	0		*
HALL BEACH	-1	0	2	-5	*	3	*		MONTREAL INT'L	11	-4	19	1	2	0		*
INUVIK	8	6	15	-2	12	0	*		NATASHQUAN	6	-3	14	-2	1	0		*
MOULD BAY	-4	4	1	-8	7	4	*		QUEBEC	9	-3	17	2	0	0		*
NORMAN WELLS	8	3	20	-1	4	0	*		SCHEFFERVILLE	2	-3	8	-4	6	0		*
RESOLUTE	-6	0	-3	-10	1	4	*		SEPT-ILES	6	-3	16	-3	1	0		*
SACHS HARBOUR							*		SHERBROOKE	9	-3	18	-1	5	0		*
YELLOWKNIFE	8	1	13	2	1	0	*		VAL D'OR	7	-3	16	-4	5	0		*
<b>ALBERTA</b>									<b>NEW BRUNSWICK</b>								
CALGARY INT'L	7	-3	19	-1	34	0	*		CHARLO	7	-4	16	-2	0	0		*
COLD LAKE	7	-2	19	-3	2	0	*		CHATHAM	9	-3	19	-1	0	0		*
CORONATION	7	-3	19	-2	2	0	*		FREDERICTON	9	-3	20	-2	0	0		*
EDMONTON NAMAQ	8	-2	18	1	0	0	*		MONCTON	9	-4	19	0	0	0		*
FORT MCMURRAY	9	0	20	-1	3	0	*		SAINT JOHN	10	-2	19	2	9	0		*
HIGH LEVEL	9	2	21	-3	0	0	*		<b>NOVA SCOTIA</b>								
JASPER	7	-2	17	-3	0	0	*		GREENWOOD	10	-3	20	0	34	0		*
LETHBRIDGE	8	-4	18	1	26	0	*		SHEARWATER	11	-3	18	5	41	0		*
MEDICINE HAT	9	-3	20	4	35	0	*		SYDNEY	9	-4	18	1	61	0		*
PEACE RIVER	8	0	20	-4	1	0	*		YARMOUTH	11	-2	17	4	*	0		*
<b>SASKATCHEWAN</b>									<b>PRINCE EDWARD ISLAND</b>								
CREE LAKE	8	*	16	1	9	0	*		CHARLOTTETOWN	10	-3	18	4	0	0		*
ESTEVAN	10	-2	20	5	27	0	*		SUMMERSIDE	10	-4	18	3	0	0		*
LA RONGE	7	-2	16	-2	5	0	*		<b>NEWFOUNDLAND</b>								
REGINA	9	-2	16	5	26	0	*		CARTWRIGHT	*	*	12	-1	*	0		*
SASKATOON	9	-2	16	1	35	0	*		CHURCHILL FALLS	3	-1	9	-1	16	0		*
SWIFT CURRENT	7	-3	17	3	31	0	*		GANDER INT'L	8	-3	17	0	68	0		*
YORKTON	9	-1	16	-1	14	0	*		GOOSE	6	-4	13	-1	15	0		*
<b>MANITOBA</b>									PORT-AUX-BASQUES	9	-1	15	2	20	0		*
BRANDON	10	-1	18	3	18	0	*		ST JOHN'S	10	-1	15	4	37	0		*
CHURCHILL	5	0	15	-1	6	0	*		ST LAWRENCE	10	-1	17	3	42	0		*
LYNN LAKE	7	1	15	-1	2	0	*		WABUSH LAKE	3	-4	9	-4	14	0		*

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





This is the first photograph received from NOAA 10 by the AES Satellite Data Lab. The photo was taken during the spacecraft's twelfth 101.35 minute orbit around the earth, and shows the outline of Atlantic Canada and the eastern seaboard. The cloud shield from hurricane Earl is seen brushing past Newfoundland.

#### TIROS Satellite Program

The first in a series of TIROS-N weather satellites was launched October 13, 1978, and was primarily used as a research and development spacecraft. NOAA-A(6) launched June 27, 1979, is still performing satisfactorily. Including NOAA-G(10), there have been six additional missions, some unsuccessful. The advanced TIROS-N program is a cooperative effort of the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA), the United Kingdom and France for providing

global environmental data on a regular daily basis. Elements of the Search and Rescue (SAR) system are provided by Canada and France. The Astro Electronics Division of RCA is the prime contractor for the spacecraft. The U.S. Air Force provided launch support, and General Dynamics Convair provided the Atlas launch vehicle.

Advanced on-board instruments measure parameters of the earth's atmosphere, its surface and cloud cover, the solar protons, the positive ions, the electron-flux density and the energy spectrum at

satellite altitude. As part of its mission, the spacecraft receiver, processes and retransmits data from free-floating balloons, buoys and remote automatic observation stations distributed around the globe. Beginning with NOAA 8, NOAA 10 also carries sophisticated search and rescue instruments, which can pinpoint emergency transponder signals, with an accuracy of 2 to 5 kilometres. NOAA 10 transmits the data directly to users around the world for local weather analysis. Its life span should be at least 2 years.