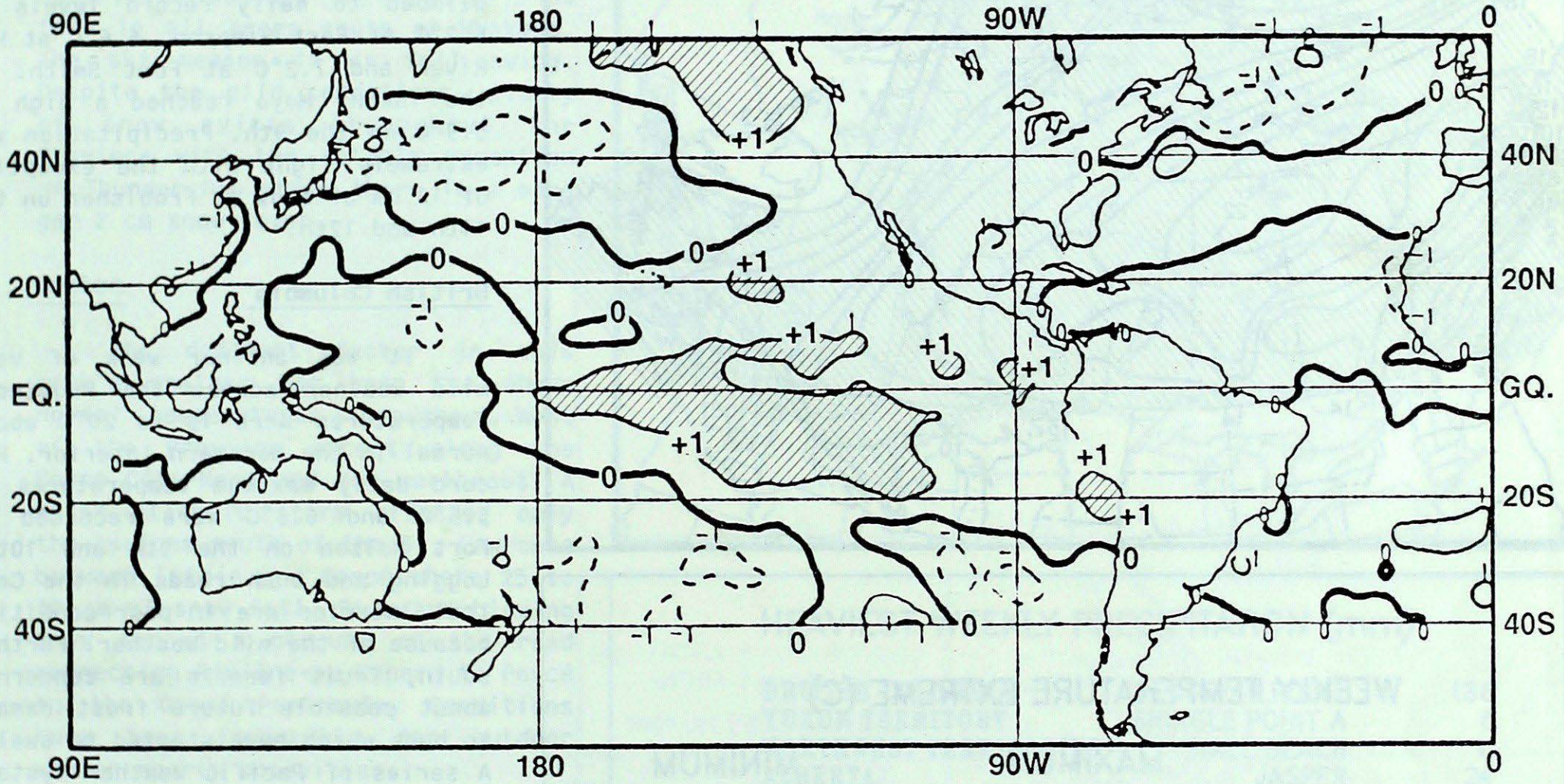
Environment Canada Environnement Canada

Climatic Perspectives

weekly review of Canadian climate | January 6 to 12, 1987 | Vol.9 No.2

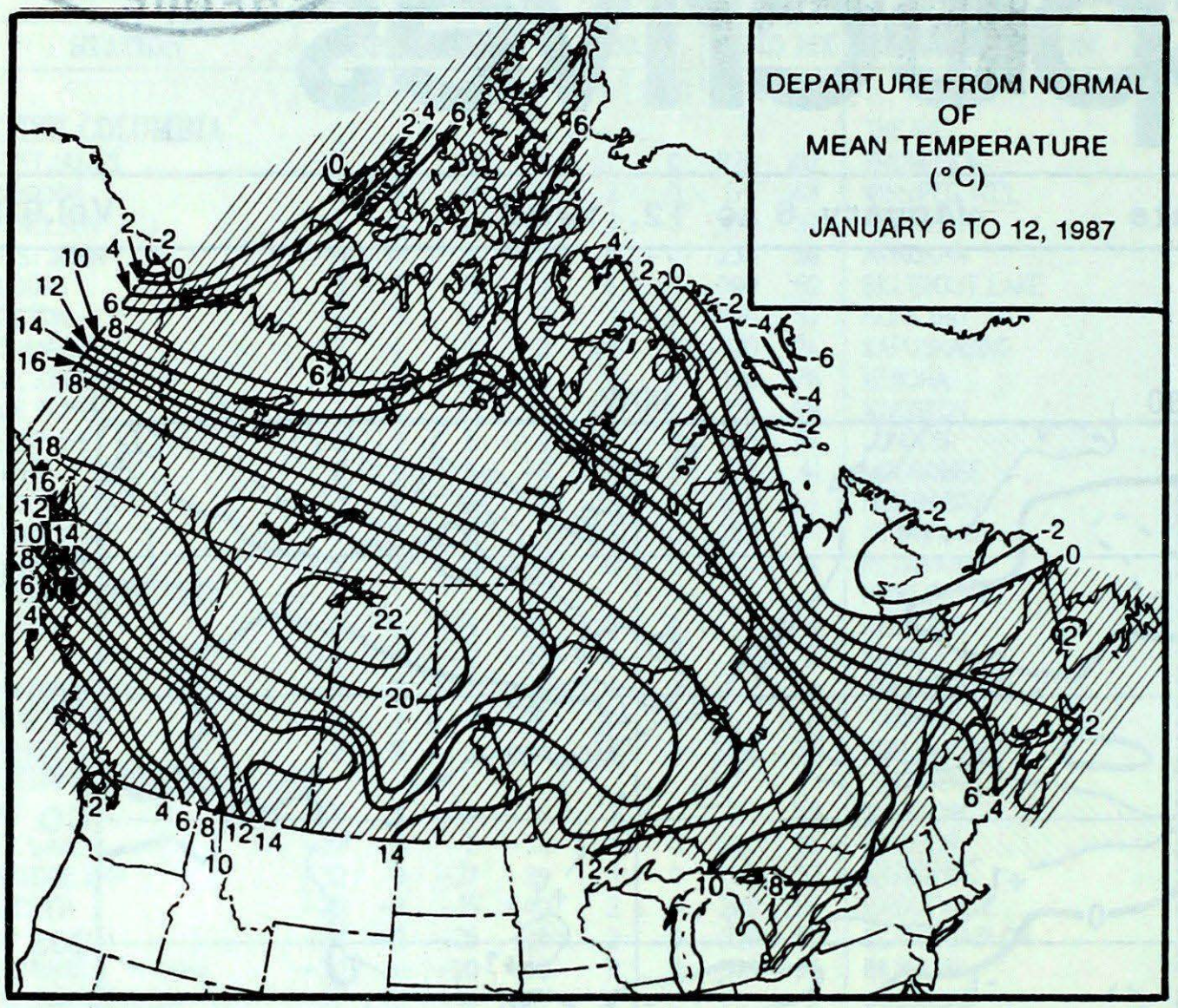


The return of El Nino. This sea surface temperature chart (compliments of the Climate Analysis Centre, NOAA, in Washington) shows the developing warm temperature anomaly in the tropical Pacific Ocean. This ocean warming is being designated as a moderate El Nino event, but is not as strong as the 1982/83 event when the sea surface temperature anomaly reached as high as 7°C. Other indices such as a negative Southern Oscillation Index (mean sea level pressure diffference Tahiti minus Darwin) give further support to the existence of El Nino. For further information on the possible relationship between El Nino, and the unusually mild weather across the country see page 3.

- ***Record high temperatures in the West and Northwest***
  - Mercury climbs to 17° at Calgary
- ***Eastern Canada battered by atlantic storm***
  - Heavy Snowfalls
  - Destructive Gales

Canada

TEMPERATURE



WEEKLY TEMPERATURE EXTREME (C)

		MAXIMUM		MINIMUM	
BRITISH COLUMBIA	ABBOTSFORD	16	FORT NELSON	-20
YUKON TERRITORY	MAYO	6	DAWSON	-43
NORTHWEST TERRITORIES	FORT SMITH	7	EUREKA	-46
ALBERTA	CALGARY INT'L	17	HIGH LEVEL	-23
SASKATCHEWAN	MOOSE JAW	12	MEADOW LAKE	-21
MANITOBA	DAUPHIN	8	THOMPSON	-25
ONTARIO	WINDSOR	6	BIG TROUT LAKE	-25
QUEBEC	SUTTON JUNCTION	1	SCHEFFERVILLE	-38
NEW BRUNSWICK	SAINT JOHN	4	CHARLO	-23
NOVA SCOTIA	SABLE ISLAND	9	GREENWOOD	-18
PRINCE EDWARD ISLAND	EAST POINT	3	CHARLOTTETOWN	-13
NEWFOUNDLAND	ST JOHN'S	6	CHURCHILL FALLS	-37

ACROSS THE NATION

WARMEST MEAN TEMPERATURE	7	CAPE ST.JAMES BC
COOLEST MEAN TEMPERATURE	-34	MOULD BAY NWT

ACROSS THE COUNTRY...

Yukon and Northwest Territories

Mild Pacific air penetrated northward well into the Yukon, Mackenzie, and Keewatin where the weekly mean temperatures climbed 18 - 20°C above normal. In the Mackenzie Valley the daily maximum temperatures climbed to daily record levels of 6.2°C at Fort Simpson, 6.6°C at Hay River and 7.2°C at Fort Smith. In the Yukon, Mayo reached a high of 5.9°C on the 9th. Precipitation was extremely light with the exception of 10 cm of snow at Frobisher on the 11th and 12th.

British Columbia

It was another week of very mild weather across the Province. Temperatures were 15 to 20°C above normal in the Northern Interior. Record daily maximum temperatures of 5.5°C and 6.3°C were recorded at Fort Nelson on the 9th and 10th. Logging and bush roads in the Central Interior are in poor condition because of the mild weather. Further south, fruit farmers are concerned about possible future frost damage to buds which have started to swell. A series of Pacific weather systems dumped two to three times the normal precipitation along the central and north coasts. Little or no snow cover remains in the Peace River area and in southern interior valleys.

Prairies

The extended period of mild weather intensified during the week with numerous record high temperatures being recorded in all three Provinces. For example, Calgary reached 16.5°C on the 10th. Moose Jaw 11.5°C on the 11th and Gimli 6.3°C on the 11th. Mean weekly temperatures were in excess of 20°C warmer than normal over the northern portion of the three provinces. It was also extremely dry with little or no precipitation falling. Snow cover has disappeared at many locations across the south allowing cattle ranchers to have their animals on range land resulting in a significant saving in feed costs.

PRECIPITATION

Ontario

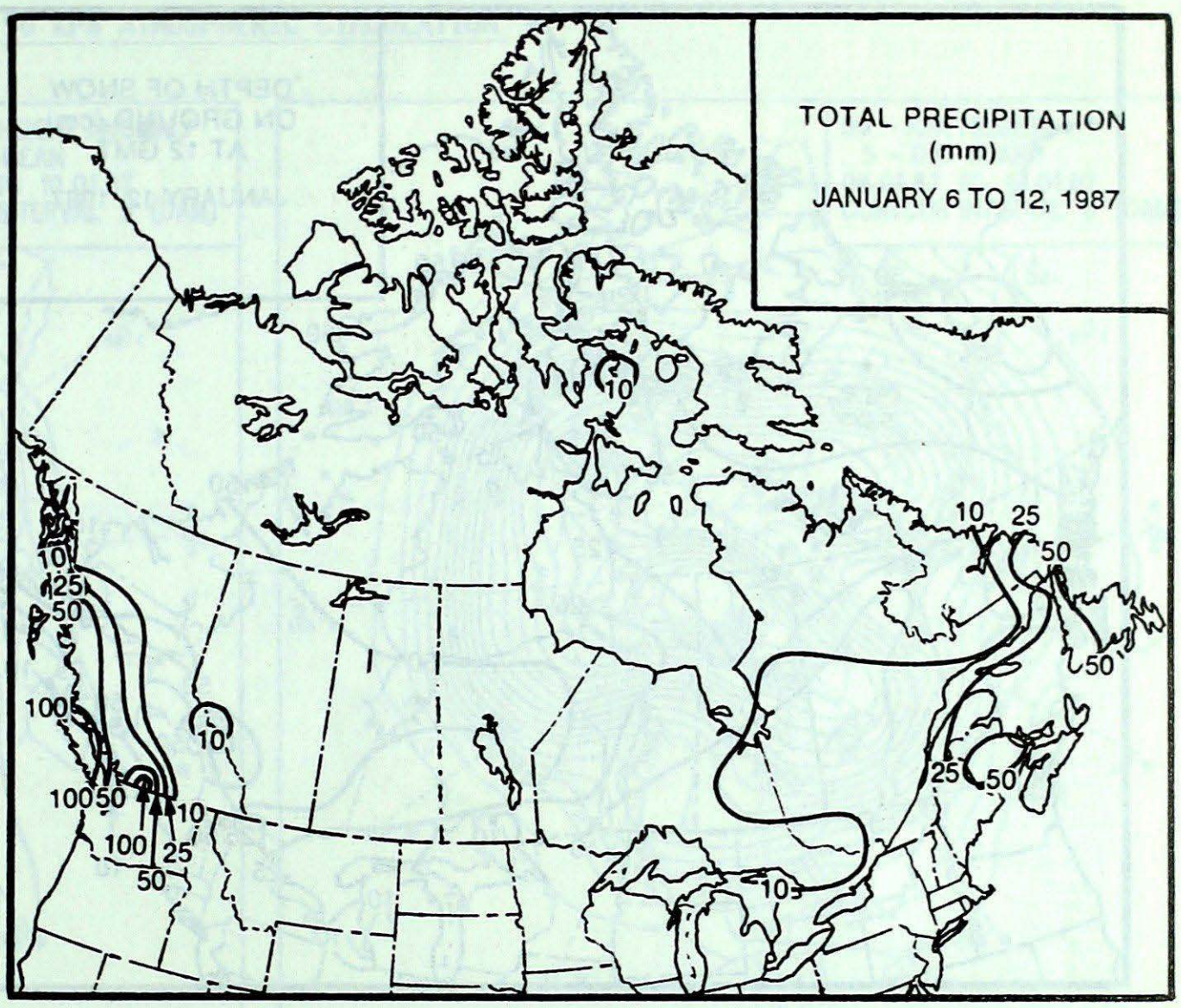
The mild winter continued across Ontario. Temperatures remained well above normal especially in the Northwest where maximum readings on January 11th resulted in a record high at Red Lake of 0.6°C erasing the former mark -1.1°C set in 1932. A significant snowfall occurred in Southern Ontario on January 10/11 as 8-15 cm fell in all areas south of Muskoka. The ski season is in full swing. Despite the mild conditions, plenty of snow exists throughout the Province with the notable exception of Thunder Bay where there is a meager 2 cm snow cover.

Quebec

The dominant factor in this week's weather has been the above normal temperatures throughout most of the Province except along the Basse Côte-Nord and the northeast. A major Atlantic storm affected only the regions south of the St. Lawrence between Estrie and Gaspé where 25 to 30 cm of snow fell. Snow and blowing snow forced a closure of the road connecting Rivière-au-Renard to Percé on the Gaspé Peninsula. Conditions have been favourable for outdoor winter sports activities.

Atlantic

It was a snowy week throughout the region. St. Anthony, Newfoundland, received 37 cm of snow on the 8th along with winds gusting to 110 km/h. A major storm moved through the region on the 11th and the 12th causing high winds, heavy snow, rain, ice pellets and a bit of freezing rain. New Brunswick and Prince Edward Island received the bulk of the snow with Moncton Airport reporting a total of 50 cm as of 1:00 a.m. on the 12th. Newfoundland received 15 to 25 cm. Strong easterly winds shifted to northwesterly late on the 11th and early on the 12th. St. Paul Island reported an easterly wind of 119 km/h gusting to 148 km/h late on the 11th. On Newfoundland, gusts reached 112 km/h at Stephenville and Port-Aux Basques, and gusts to 120 km/h at Twillingate. Reports were received of three tractor trailers being blown over by wind near Port-aux-Basques.



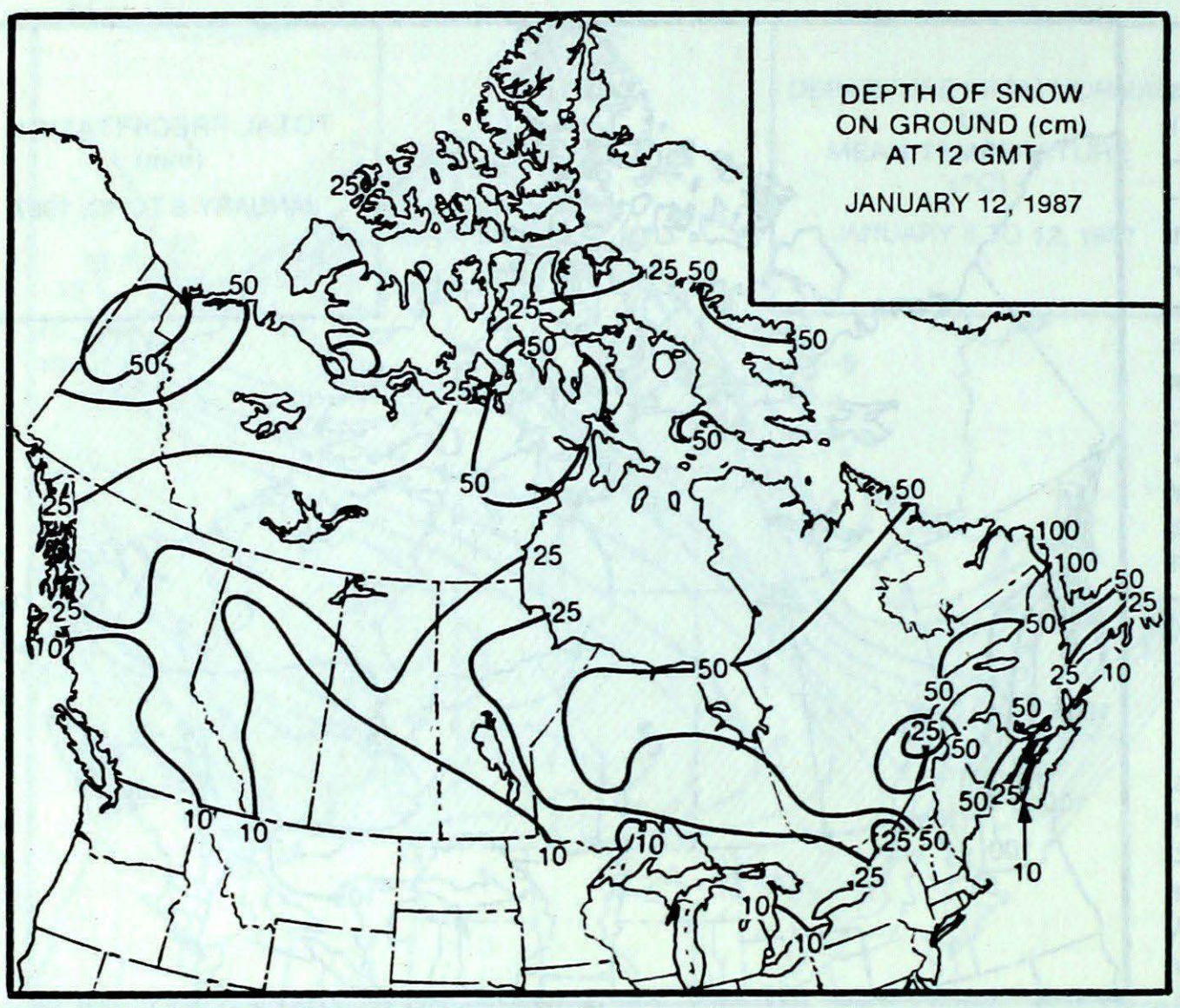
HEAVIEST WEEKLY PRECIPITATION (mm)

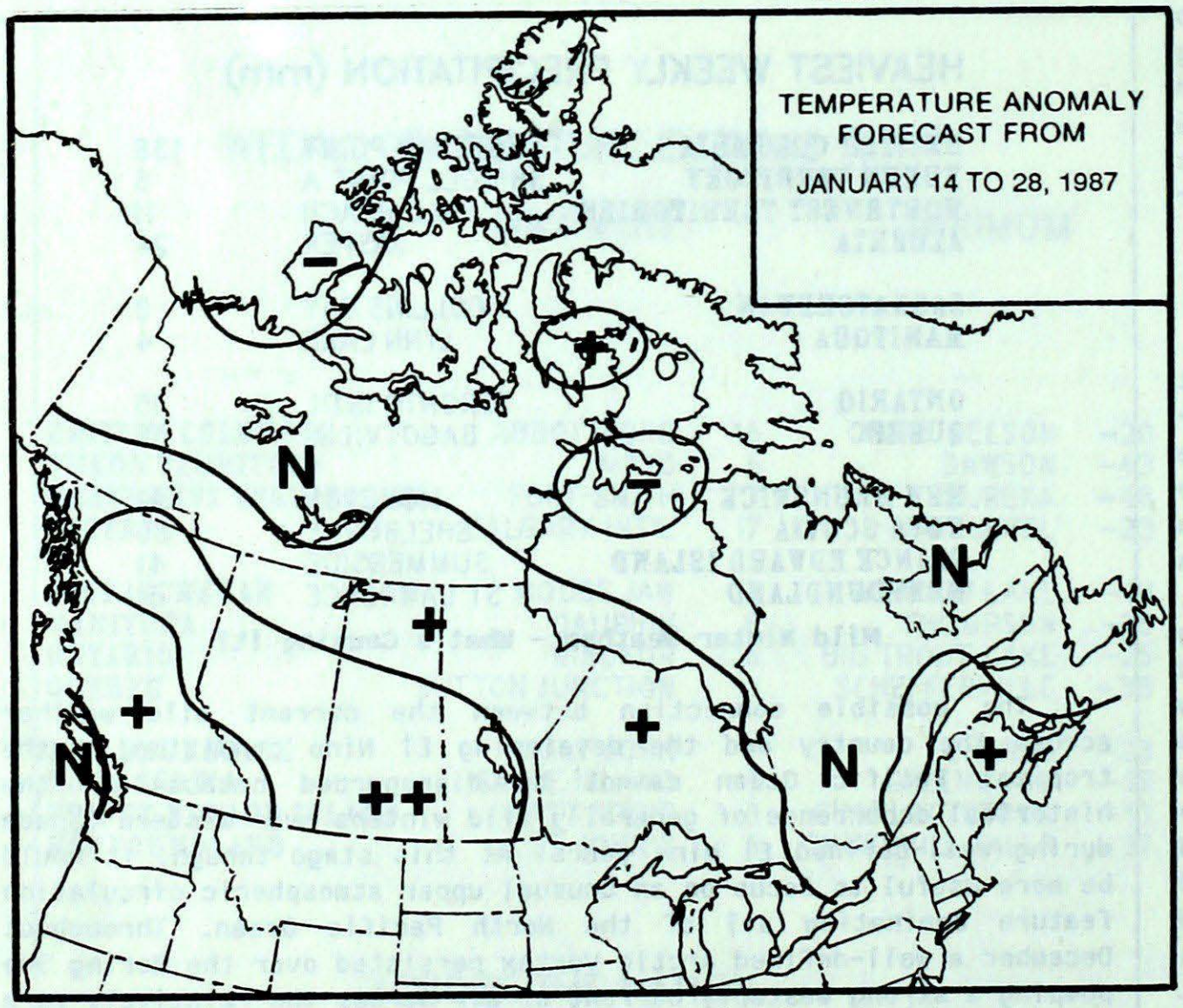
BRITISH COLUMBIA	ESTEVAN POINT	138
YUKON TERRITORY	SHINGLE POINT A	6
NORTHWEST TERRITORIES	HALL BEACH	11
ALBERTA	JASPER	24
SASKATCHEWAN	COLLINS BAY	8
MANITOBA	LYNN LAKE	4
ONTARIO	TORONTO INT'L	15
QUEBEC	BAGOTVILLE	16
NEW BRUNSWICK	MONCTON	59
NOVA SCOTIA	SHELBURNE	35
PRINCE EDWARD ISLAND	SUMMERSIDE	41
NEWFOUNDLAND	ST LAWRENCE	51

Mild Winter Weather - What's Causing it?

The possible connection between the current mild weather across the country and the developing El Nino condition in the tropical Pacific Ocean cannot be disregarded because of the historical occurrence of generally mild winters over western Canada during well-defined El Nino years. At this stage though, it would be more useful to focus on an unusual upper atmospheric circulation feature dominating all of the North Pacific Ocean. Throughout December a well-defined Arctic Vortex persisted over the Bering Sea pumping a strong westerly current of air across the relatively warm Pacific Ocean onto western North America. The strength of this flow over Canada has been such that mild Pacific air has penetrated as far east as Ontario and Quebec. This strong Pacific flow has essentially trapped cold arctic air in its northern source region preventing the southward invasions which normally occur at this time of the year.

FORECAST





Temperature Anomaly Forecast

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.

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

CLIMATIC PERSPECTIVES VOLUME 9

Managing Editor	P.R. Scholefield
Editors-in-charge	
weekly	P.R. Scholefield
monthly	A. Shabbar
french	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
ISSN 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, Ont. Canada M3H 5T4. **Phone (416)667-4906/4711.**

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.

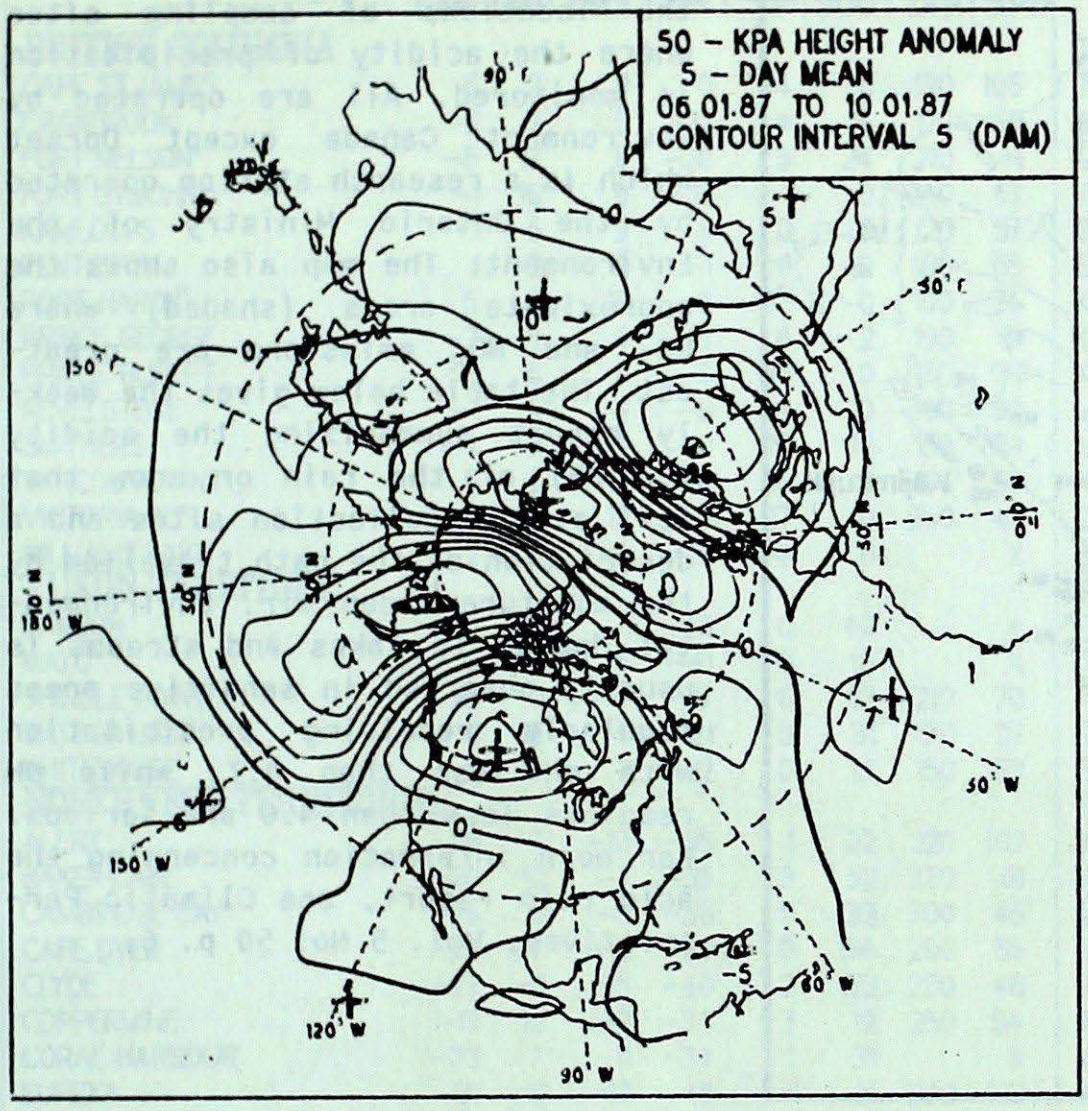
Annual Subscriptions

weekly & monthly supplement:	$35.00
foreign:	$42.00
Monthly issue:	$10.00
foreign:	$12.00

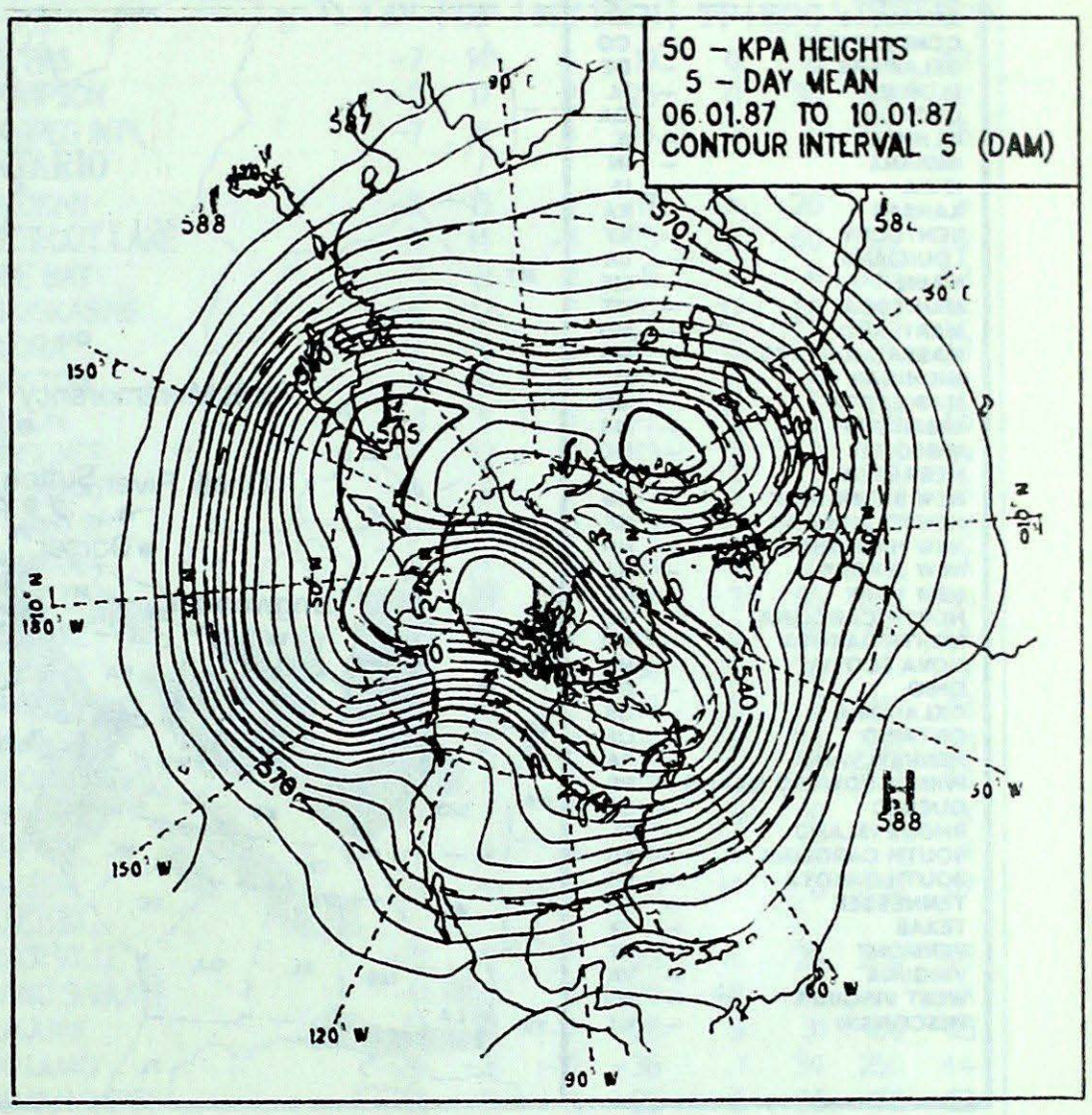
Orders must be prepaid by money order or cheque payable to Receiver General for Canada. **Canadian Government Publishing Centre, Ottawa, Ontario K1A 0S9** (613)994-1495

CIRCULATION

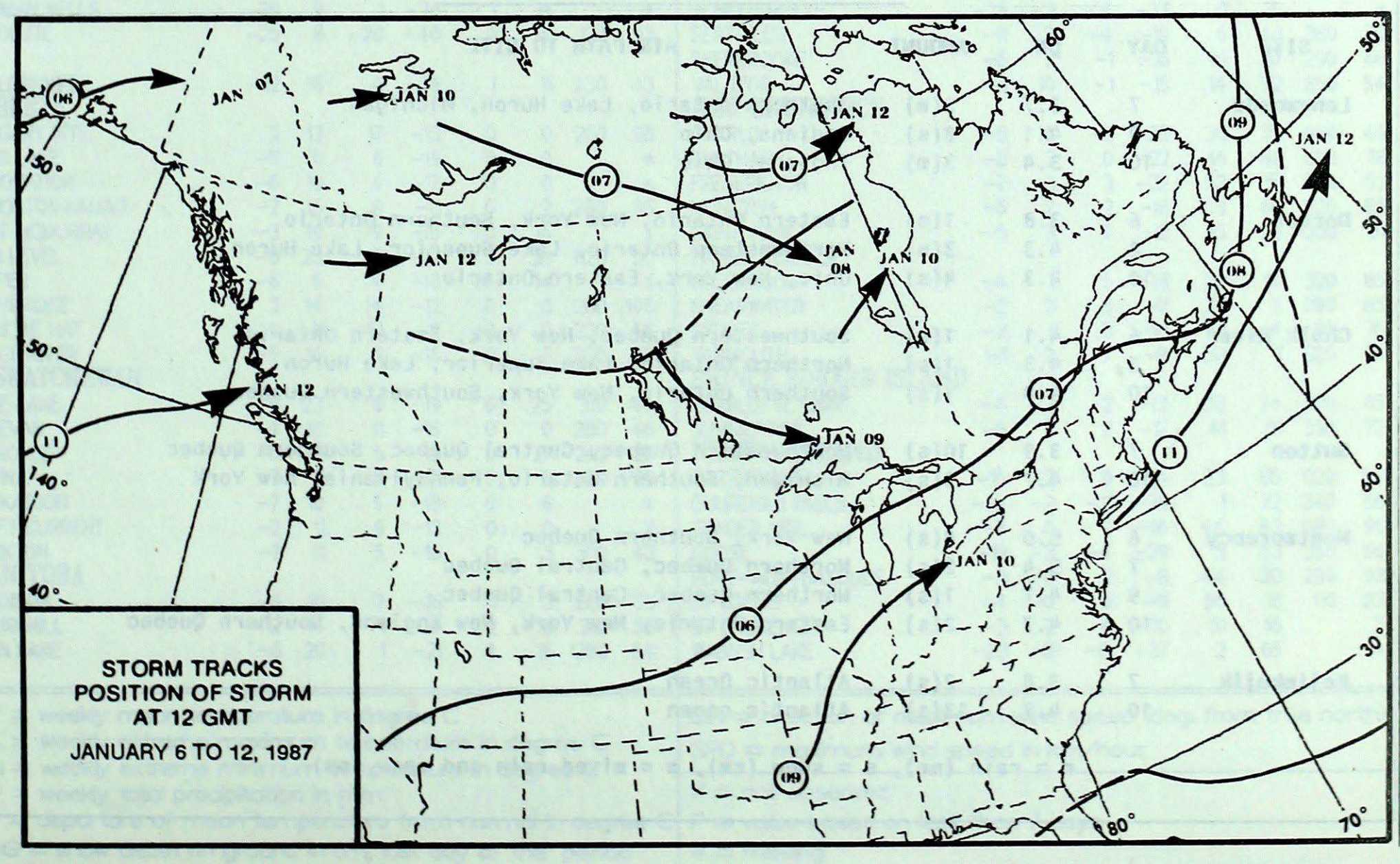
50 KPa ATMOSPHERIC CIRCULATION



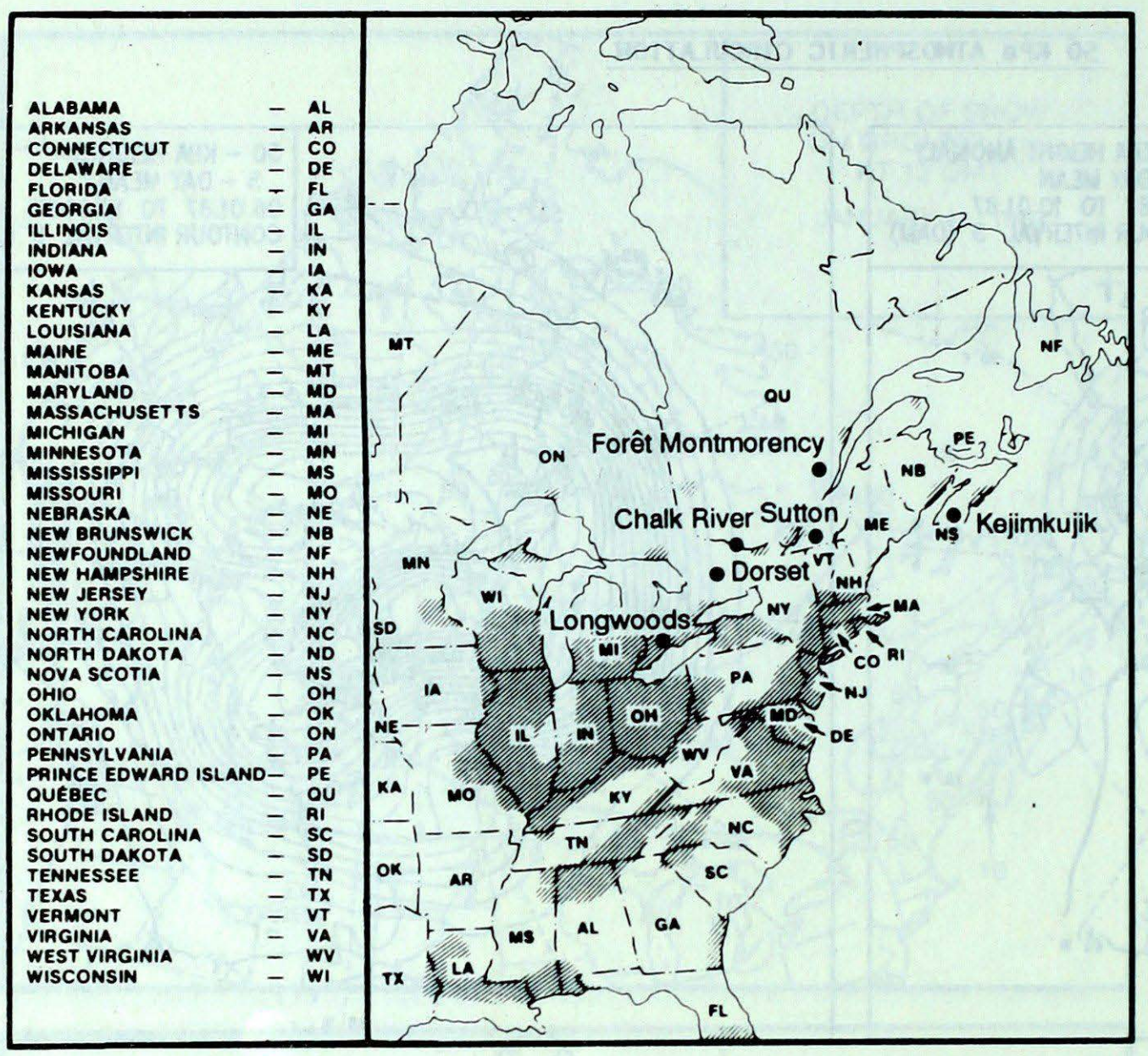
MEAN 50 KPa HEIGHT ANOMALY (dam)
January 6 to January 10, 1987



MEAN 50 KPa HEIGHTS (dam)
January 6 to January 10, 1987



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.

JANUARY 4, 1987 TO JANUARY 10, 1987

SITE	DAY	pH	AMOUNT	AIR PATH TO SITE
Longwoods	7	3.7	2(m)	Southern Ontario, Lake Huron, Michigan
	9	4.1	8(s)	Indiana, Ohio
	10	3.4	3(m)	Indiana, Ohio
Dorset	6	3.8	1(s)	Eastern Ontario, New York, Southern Ontario
	8	4.3	3(s)	Northwestern Ontario, Lake Superior, Lake Huron
	10	4.3	4(s)	Ohio, New York, Eastern Ontario
Chalk River	6	4.1	1(s)	Southwestern Quebec, New York, Eastern Ontario
	8	4.3	1(s)	Northern Ontario, Lake Superior, Lake Huron
	10	4.0	1(s)	Southern Ontario, New York, Southwestern Quebec
Sutton	7	3.9	10(s)	Northwestern Quebec, Central Quebec, Southern Quebec
	10	4.7	3(s)	Michigan, Southern Ontario, Pennsylvania, New York
Montmorency	6	5.0	4(s)	New York, Southern Quebec
	7	5.4	2(s)	Northern Quebec, Central Quebec
	9	4.7	1(s)	Northern Quebec, Central Quebec
	10	4.7	2(s)	Eastern Ontario, New York, New England, Southern Quebec
Kejimkujik	7	3.8	2(s)	Atlantic Ocean
	10	4.7	13(s)	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 JANUARY 13,1987

STATION	TEMPERATURE				PRECIP.		WIND MX	
	AV	DP	MX	MN	TP	SOG	DIR	SPD
BRITISH COLUMBIA								
CAPE ST.JAMES	6	3	9	0	64	0	130	106
CRANBROOK	-5	7	5	-12	*	14	170	50
FORT NELSON	-8	17	6	-20	5	24	210	41
FORT ST.JOHN	-1	16	6	-12	1	0	240	67
KAMLOOPS	1	5	9	-8	0	0	120	57
PENTICTON	1	2	4	-1	0	0	180	65
PORT HARDY	5	2	10	-2	113	0	100	74
PRINCE GEORGE	-2	9	6	-15	6	2	190	61
PRINCE RUPERT	6	8	11	0	93	0	150	98
REVELSTOKE	-1	9	4	-8	4	10	190	80
SMITHERS	-4	6	4	-11	20	13	150	39
VANCOUVER INT'L	5	2	12	-4	45	0	150	56
VICTORIA INT'L	5	2	13	-4	27	0	260	43
WILLIAMS LAKE	-2	8	6	-10	4	11		X
YUKON TERRITORY								
DAWSON	-19	10	1	-43	0	62		*
MAYO	-10	16	6	-41	0	16		X
SHINGLE POINT A	-25	1	-4	-37	6	62	210	70
WATSON LAKE	-10	16	4	-21	0	31	120	37
WHITEHORSE	-5	18	3	-22	0	16	150	63
NORTHWEST TERRITORIES								
ALERT	-26	7	-13	-35	1	22	220	102
BAKER LAKE	-20	12	-7	-35	3	52	330	61
CAMBRIDGE BAY	-25	8	-5	-38	5	32	300	46
CAPE DYER	-28	-7	-13	-39	0	54	290	56
CLYDE	-27	-1	-15	-40	2	33	230	48
COPPERMINE	-19	10	-2	-34	3	19	250	54
CORAL HARBOUR	-23	7	-11	-34	1	31		X
EUREKA	-31	6	-17	-45	*	21	290	102
FORT SMITH	-7	20	7	-17	9	30		X
FROBISHER BAY	-26	-1	-11	-40	8	28	340	59
HALL BEACH	-27	4	-13	-42	11	48	180	63
INUVIK	-25	7	-3	-38	8	41		X
MOULD BAY	-34	0	-25	-45	3	36		X
NORMAN WELLS	-20	9	1	-36	1	18		X
RESOLUTE	-25	8	-20	-40	0	14	120	93
YELLOWKNIFE	-12	16	0	-26	1	11	330	43
ALBERTA								
CALGARY INT'L	2	13	17	-13	0	0	260	98
COLD LAKE	-8	11	6	-19	0	0		*
CORONATION	-6	10	6	-17	0	0		*
EDMONTON NAMAO	-2	15	8	-11	5	2	280	35
FORT MCMURRAY	-3	19	9	-18	0	16		X
HIGH LEVEL	-8	23	7	-22	5	38	020	50
JASPER	-6	6	4	-18	24	14		X
LETHBRIDGE	2	14	14	-12	0	0	260	106
MEDICINE HAT	0	11	13	-11	0	0	230	56
PEACE RIVER	-5	16	5	-15	0	3	230	52
SASKATCHEWAN								
CREE LAKE	-6	23	6	-19	0	25	310	46
ESTEVAN	-4	10	11	-16	0	0	280	46
LA RONGE	-6	19	5	-15	0	27	240	35
REGINA	-7	9	8	-17	0	5	330	33
SASKATOON	-7	10	5	-18	0	6		*
SWIFT CURRENT	-2	11	9	-13	0	0		X
YORKTON	-7	11	5	-16	0	3	300	43
MANITOBA								
BRANDON	-8	10	2	-16	1	3	280	33
CHURCHILL	-12	14	-1	-24	2	19	310	56
LYNN LAKE	-8	20	1	-21	4	16	290	54

STATION	TEMPERATURE				PRECIP.		WIND MX	
	AV	DP	MX	MN	TP	SOG	DIR	SPD
THE PAS	-7	14	4	-19	0	18	260	43
THOMPSON	-11	17	2	-25	0	35	310	37
WINNIPEG INT'L	-7	10	6	-14	0	0	190	46
ONTARIO								
ATIKOKAN	-6	15	4	-17	*	20		*
BIG TROUT LAKE	-9	14	-1	-25	4	60	300	52
GORE BAY	-1	8	3	-8	4	8	030	43
KAPUSKASING	-6	12	1	-12	12	26	310	56
KENORA	-7	9	2	-14	0	27	210	43
KINGSTON	-1	9	4	-10	0	0		X
LONDON	-1	5	5	-7	12	9	310	46
MOOSONEE	-7	12	2	-13	3	40	310	39
NORTH BAY	-5	9	4	-16	3	24	010	46
OTTAWA INT'L	-4	8	0	-12	10	26		X
PETAWAWA	-4	*	1	-15	9	21		X
PICKLE LAKE	-7	13	-1	-14	3	55	250	41
RED LAKE	-7	13	2	-14	0	36	220	44
SUDBURY	-6	9	0	-16	2	20		X
THUNDER BAY	-4	10	3	-13	3	2	010	43
TIMMINS	-7	12	2	-19	*	34	330	41
TORONTO INT'L	-1	7	4	-5	15	12	300	50
TRENTON	-1	7	4	-10	9	10		X
WIARTON	-2	5	4	-6	10	10		X
WINDSOR	0	4	6	-5	14	8	240	67
QUEBEC								
BAGOTVILLE	-10	6	-1	-23	16	25	260	46
BLANC SABLON	-11	1	0	-20	48	60		X
INUKJUAK	-16	7	-7	-25	9	31	180	63
KUUJJUAQ	-24	-3	-12	-36	1	34	250	44
KUUJJUARAPIK	-13	8	-2	-22	9	26	170	52
MANIWAKI	-5	9	1	-12	5	30	320	37
MONT JOLI	-8	3	-2	-19	17	20	040	63
MONTREAL INT'L	-4	7	1	-10	7	19	020	44
NATASHQUAN	-12	0	-3	-24	10	28	040	76
QUEBEC	-6	6	-1	-16	11	47	080	57
SCHEFFERVILLE	-26	-3	-16	-37	0	75		*
SEPT-ILES	-11	3	-4	-19	6	43	360	70
SHERBROOKE	-6	7	-1	-16	18	57	290	46
VAL D'OR	-8	10	-1	-15	14	52	350	54
NEW BRUNSWICK								
CHARLO	-8	6	-2	-23	30	73	060	46
CHATHAM	-8	2	0	-22	45	68	050	78
FREDERICTON	-7	3	3	-22	53	51	060	63
MONCTON	-6	2	2	-18	59	60	020	85
SAINT JOHN	-5	3	4	-15	35	26	080	81
NOVA SCOTIA								
GREENWOOD	-4	1	5	-18	22	14	320	85
SHEARWATER	-2	2	5	-11	28	2	090	85
SYDNEY	-3	1	3	-10	37	4	110	76
YARMOUTH	-1	2	7	-8	30	1	320	76
PRINCE EDWARD ISLAND								
CHARLOTTETOWN	-4	2	2	-13	38	24	070	65
SUMMERSIDE	-5	2	2	-12	41	51	350	72
NEWFOUNDLAND								
CARTWRIGHT	-15	-2	0	-24	23	85	020	83
CHURCHILL FALLS	-24	-2	-11	-35	1	72	340	56
GANDER INT'L	-6	0	2	-14	44	83	080	96
GOOSE	-19	-3	-4	-29	3	63	350	56
PORT-AUX-BASQUES	-3	0	2	-8	44	20	290	93
ST JOHN'S	-4	0	6	-11	50	18	110	83
ST LAWRENCE	-3	2	4	-10	51	16		X
WABUSH LAKE	-23	-1P	-10	-37	2	65		*

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