Environment Canada Imaging Cover Page

Report N

SKP Box Number 672572424

Environment Canada | Environnement Canada

Atmospheric Environment Service | Service de l'environnement atmosphérique

ATMOSPHERIC ENVIRONMENT SERVICE

PROGRAM DIGEST

1982 - 1983

AES MANAGEMENT SERIES

THE BUSINESS OF AES

The business of AES is to report past and present conditions and predict future conditions of the atmosphere and closely-related phenomena such as sea ice and sea state for safety and to benefit Canada's economic and social life. Primary among such predictions are weather forecasts and warnings. In addition to physical conditions, the AES must report and predict the chemical composition of the atmosphere and its precipitation. Predictions are of an operational, "real-time" nature, of a statistical or climatological variety, or are the product of research

These services are provided to general and specialized publics for safety and to benefit Canada's economic and social life

As AES cannot itself undertake to satisfy all demands for information on such conditions it has the added responsibility of promoting and coordinating similar activities among universities, private Canadian meteorological agencies and other such expert bodies, as well as internationally where there is clearly a national benefit.

J P Bruce

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

1.1 PURPOSE

The Program Digest provides the reader with a concise, but comprehensive, picture of the Atmospheric Environment Service programs and budgets. Two main volumes are published

A Main Volume "The Program Digest" describes the objectives, mandate and responsibilities of AES, the AES budget by program sub-activity (SA 1) and program sub-sub-activity (SA 2), the AES Budget by organizational unit, and the major services and programs provided within each program activity Resource allocations are deduced from the input of each Directorate in May.

"An Addendum to the Program Digest" describes sub-sub-sub-activity (SA 3) and sub-sub-sub-sub-activity (SA 4) level definitions of the program activities, the relationship between responsibility centres and SA 3 program activity elements and the AES budget and PY allocation at the SA 3 level by organizational unit.

1 2 HOW TO REFERENCE ITEMS IN THE PROGRAM DIGEST

This volume of the Program Digest is structured such that the Table of Contents may be used as an index, permitting the reader to reference any item simply by consulting the Table of Contents. The reader will find information relating to AES Program Activities and AES Organizational Units in Chapter 4 and Chapter 5, respectively, with each chapter having the general overview information near the beginning

Any comments or suggestions for amendments to this document should be forwarded to the Policy, Planning and Assessment Directorate

CHAPTER 2

Atmospheric Environment Service

RESPONSIBILITIES and LEGAL MANDATE

2. ATMOSPHERIC ENVIRONMENT SERVICE RESPONSIBILITIES AND LEGAL MANDATE

The federal responsibility for atmospheric science and meteorology is discharged by the Atmospheric Environment Service of Environment Canada The Meteorological Service of Canada was organized in May, 1871 when it became part of the Department of Marine and Fisheries. In 1936, it became the Meteorological Division (later the Meteorological Branch) of the new Department of Transport where the responsibility for meteorological services remained until the Department of the Environment was formed as a result of the Government Organization Act 1970 and PCO 1970-2047. At this time the Meteorological Branch was transferred from Transport to Environment and became the Atmospheric Environment Service.

Legal Mandate The Government Organization Act of 1979 states that

"The duties, powers and functions of the Minister of the Environment extend to and include

a) all matters over which the Parliament of Canada has jurisdiction, not by law assigned to any other department, board or agency of the Government of Canada relating to

(i) the preservation and enhancement of the quality of the natural environment, including water, air, and soil quality,
(ii) renewable resources, .
(iii) water,
(iv) meteorology,
(v) . ,
(vi) the coordination of the policies and programs of the Government of Canada respecting the preservation and enhancement of the quality of the natural environment, and

b) such other matters over which the Parliament of Canada has jurisdiction relating to the environment as are by law assigned to the Minister "

In addition, the Act directs that

"The Minister of the Environment, in exercising his powers and carrying out his duties and functions (under the above quoted paragraphs) shall

a) initiate, recommend and undertake programs and coordinate programs of the Government of Canada, that are designed

(i) to promote the establishment or adoption of objectives or standards relating to environmental quality, or control to pollution
(ii) ,
(iii) to provide to Canadians environmental information in the public interest."

Although meteorological services are recognized as being the Federal Government's responsibility, in some specific areas AES shares this responsibility with the provinces. In addition, AES is involved in co-operative international programs. AES is also the lead scientific agency responsible for the Long Range Transport of Airborne Pollutants Program, and is jointly responsible with other Services of the Department for such programs as Baseline Studies, Great Lakes Water Quality, Toxic Chemicals Management, Federal Environmental Assessment and Review Process, and the Beaufort Sea Program.

CHAPTER 3

Atmospheric Environment Service

OBJECTIVES

3 1 OBJECTIVES OF ENVIRONMENT CANADA

Governed by its legal mandate, the purpose of Environment Canada is to foster harmony between society and the environment for the benefit of present and future generations of Canadians. To achieve this, the Department pursues four principal objectives

1. Conserve and enhance Canada's renewable resources for sustained economic and social benefit,
2. Protect the environment from the adverse impact of human activities,
3. Facilitate the adaptation of human activities to the environment,
4. Safeguard, and foster public understanding and enjoyment of, Canada's natural and historic heritage.

3.2 OBJECTIVES OF THE ATMOSPHERIC ENVIRONMENT SERVICE

AES objectives reflect both long standing and newly-assigned responsibilities compatible with Environment Canada's objectives.

1. To contribute through the full application of meteorological and other environmental services, to

   i) the safety and security of life and property,

   ii) the improvement of the national economy,

   iii) the enhancement of the environment, and

   iv) the raising of the quality of life of Canadians.

2. To advance knowledge and understanding of the nature and behaviour of the atmosphere, atmospheric constituents, and atmosphere/water and atmosphere/land interface relationships, in areas which will contribute to the long-term improvement of national social, environmental and economic conditions.

3. To promote Canada's meteorological and other environmental interests in their international dimensions and the science and practice of meteorology within Canada.

In addition, while working towards these objectives, the AES must respond to the general objectives of the federal government and the Department, and must promote public awareness of meteorology, other environmental disciplines and the AES.

3.3 ATMOSPHERIC ENVIRONMENT SERVICE PRIORITIES 1982-1987

The AES priorities for 1982-1987 are listed in four different categories. Category A contains AES' highest priorities which are followed by Category B. Category C contains joint ventures with other agencies Category D requires policy redirection.

Category A

1. AES must improve its Day 1 weather warning and forecast services. Emphasis will be placed on their dissemination, credibility, accuracy, verification and utility.

2. AES must improve air quality services with special emphasis on an extended program on the Long Range Transport of Airborne Pollutants (acid rain).

3. AES must develop and implement the Canadian Climate Program which incorporates improved climate services, research on, and provision of, climate predictions, and an enhanced understanding of the impact of climate variations and increasing atmospheric CO_2 concentrations and other contaminants, including volcanic emissions.

4 AES must improve its services in the French language

Category B

1 AES will ensure the continued presence of an atmospheric science capability, particularly research, in Canadian universities, the private sector and all levels of government to adequately address national atmospheric priorities and future environmental issues. It must also give special attention to international science priorities and participate in international programs where there is a clear cost effective national benefit.

2. AES will establish a program to deal with toxic chemicals giving special attention to research and the development of regional monitoring

3 AES will increase its support for the development and conservation of non-renewable and renewable energy forms by

   a) improving environmental design, prediction, advisory and assessment services through expanded weather, climate, and ice services programs, particularly for the Arctic and offshore regions.

   b) increasing participation in programs which support the use of renewable energy forms including hydroelectric, biomass, solar and wind

4 AES will improve its capability to respond to environmental emergencies for both natural and man-made incidents

5 AES will actively participate in initiatives involving the north

Category C

1. AES will maximize the advantageous use of its forthcoming vector computer to predict atmospheric-driven environmental parameters (examples sea state, ice).

2. AES will improve its weather services in support of air transportation.

3. AES will improve its weather services in support of national defence.

4 AES will participate actively in the development of the Departmental water strategy policy.

5. AES will improve its contribution to Departmental programs in forestry.

6. AES will improve its services to sectors of the economy involved in food production, such as agriculture and fisheries.

Category D

1. AES will develop the Departmental policy pertaining to the impact of the natural environment on man's activities ("living with the environment").

2 AES will improve its management practices and controls (IMPAC), in particular human resource management, project management, and planning and financial management

3. AES will emphasize the exploitation of technological change to improve the efficiency and effectiveness of its operations and services, particularly in relation to computing and communications systems (which could involve substantial internal reallocation).

4. AES will develop and keep under continual review policies on levels of service, core services, cost recovery, and support to private meteorology

5 AES will promote the recruitment and advancement of under-represented groups.

CHAPTER 4

Atmospheric Environment Service

BUDGET

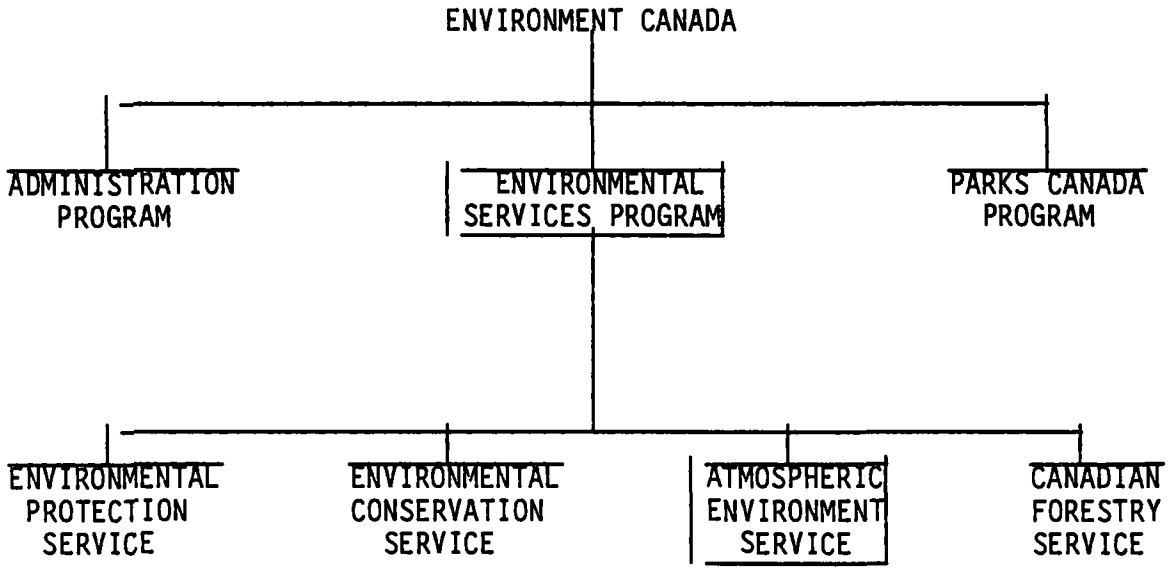
BY PROGRAM SUB-ACTIVITY

BY PROGRAM SUB-SUB-ACTIVITY

4 1 AES BUDGET BY PROGRAM SUB-ACTIVITY

4 1.1 AES PROGRAM ACTIVITY STRUCTURE

Environment Canada has three Main Estimates Programs Administration, Environmental Services and Parks Canada. The Environmental Services Program is divided into four activities as shown below. A description of the AES as one Activity of the Environmental Services program is indicated below.

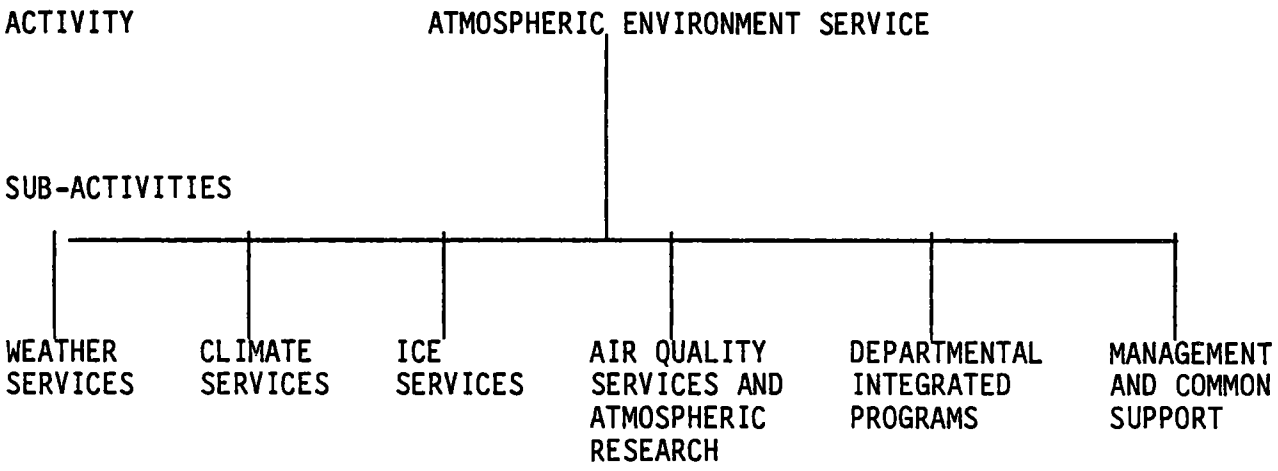


AES ACTIVITY DESCRIPTION

The Atmospheric Environment Service provides weather, climate, ice and air quality services to promote and contribute to the safety of Canadians, the security of their property, to the improvement of the national economy, the enhancement of the environment and the raising of the quality of life of Canadians. The services include historical, current and future weather and climate, sea state and ice information for all areas of Canada, and contiguous waters, advice and consultation on the impact of these elements on human activities and on the applications of meteorological knowledge to weather sensitive operations, provides assessments of the impacts of human activities on the atmospheric environment, conducts research in the behaviour of the atmosphere and its inter-environmental reactions, in wind-wave mechanisms and on ice in navigable waters, formulates national ambient air quality objectives, conducts research and provides information, advice and consultation on the atmospheric aspects of acid rain and toxic chemicals, participates in international air quality negotiations, scientific and operational programs, co-ordinates national atmospheric research on the Long Range Transport of Airborne Pollutants and promotes research in the atmospheric sciences

AES SUB-ACTIVITIES

The Atmospheric Environment Service is, in turn, divided into the six sub-activities (SA 1).



While there is a close relationship between the organizational structure and the sub-activities of the AES, they do not correspond exactly

AES SUB-SUB-ACTIVITIES (SA 2) AND SUB-SUB-SUB-ACTIVITIES (SA 3)

The AES sub-activities are further divided into the sub-sub-activities (SA 2) shown in the table below.

Sub-Activity (SA 1)	Sub-Sub-Activity (SA 2)
1000 Weather Services	1100 Public Weather Services
	1200 Marine Weather Services
	1300 Aviation Weather Services
	1400 Economic Weather Services
	1500 Canadian Forces Weather Service
	2000 Data
	3000 Weather Services Support Systems
4000 Climate Services	4100 Services and Applications
	4500 Climate Research
	4600 Climate Services Support Systems
5000 Ice Services	5100 Ice Reconnaissance
	5200 Ice Forecasting
	5300 Ice Climate Services
	5400 Ice Services Support Systems
6000 Air Quality Services and Atmospheric Research	6100 Air Quality Services
	6300 Air Quality Research
	6600 Atmospheric Research
	6700 Air Quality and Research Support Systems
7000 Departmental Integrated Programs	7100 Environmental Assessment and Review
	7200 LRTAP
	7300 Toxic Chemicals
	7400 Great Lakes Water Quality
	7500 Baseline Studies
0800 Management and Common Support Services	0810 Management
	0830 Common Support Services

The last digit of all the program activity numbers will be omitted, except the 0800 series where the first digit will be omitted, for convenience on all tables in this main volume of the Program Digest. Four-digit program activity structure codes are used on all tables in the Addendum when referencing SA 3 and SA 4 level information.

A further breakdown of each sub-sub-activity into sub-sub-sub-activity is also possible to provide SA 3 level information. These sub-sub-sub-activities are described in the Addendum of the Program Digest.

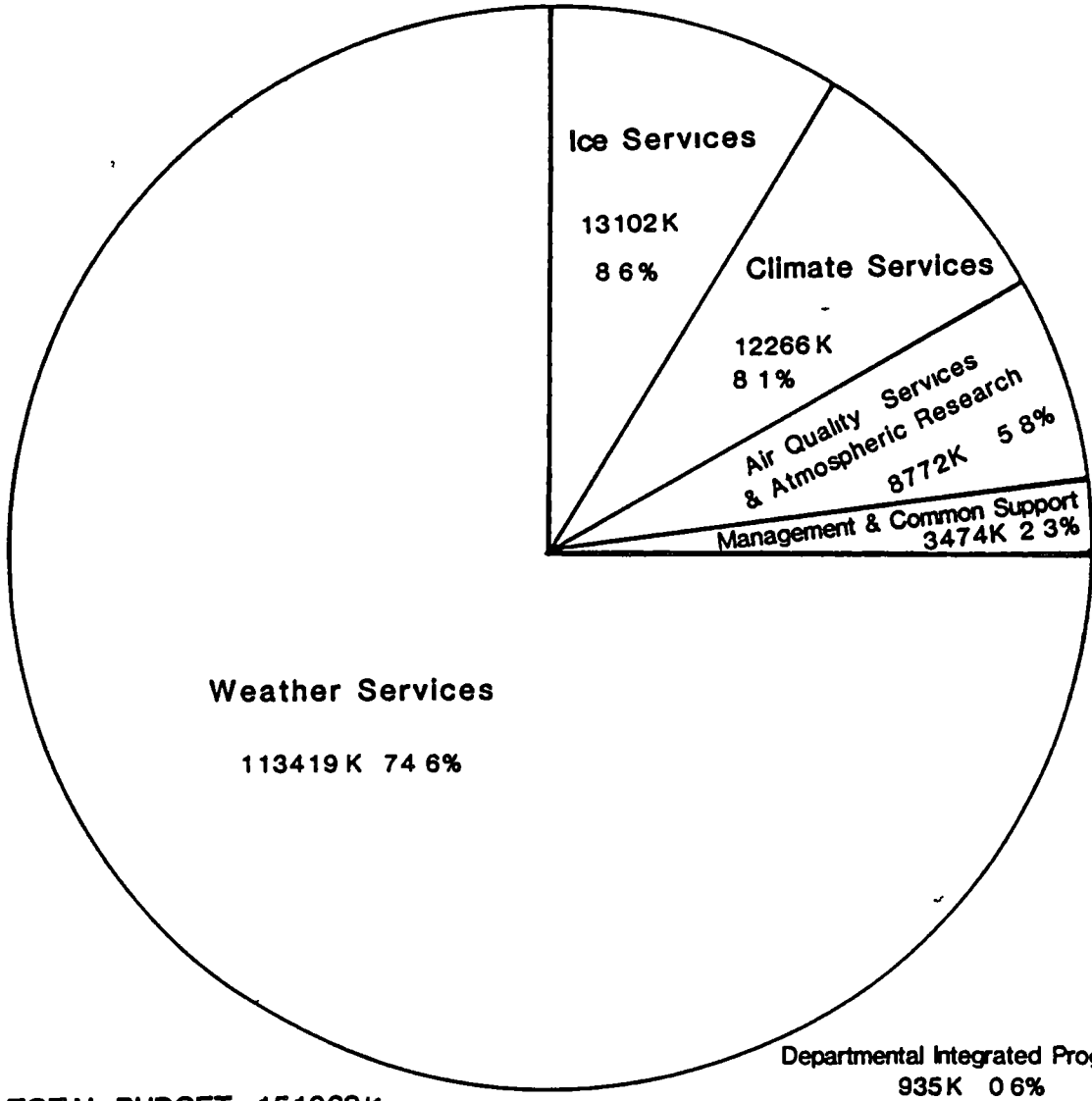
The 1982/83 AES budget by sub-activity and sub-sub-activity is presented on the next page

1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
($000)

4.1.2 ATMOSPHERIC ENVIRONMENT SERVICE

SUB-ACTIVITY Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services	440	14343.6	1054.2	33.7	15431.5
120 Marine Weather Services	18	582.6	4 1		586 7
130 Aviation Weather Services	122	4113.2	692.2		4805.4
140 Economic Weather Services	20	701.8	55.1		756.9
150 Canadian Forces Wx Service	103	3865.0	1540 0		5405.0
200 Data	337	10751.4	9179 2	2710.0	22640.6
300 Wx Services Support Systems	826	30820.9	24100.5	8871.8	63793.2
100 WEATHER SERVICES	1866	65178.5	36625.3	11615.5	113419 3
410 Services and Applications	151	4835.6	1755.3	391.0	6981.9
450 Climate Research	13	549.6	36.8	10.0	596.4
460 Climate Services Sup. Sys.	69	2273 2	2145.2	269.5	4687.9
400 CLIMATE SERVICES	233	7658.4	3937.3	670.5	12266.2
510 Ice Reconnaissance	27	1133.5	9418.0		10551.5
520 Ice Forecasting	15	606.3	223.0		829.3
530 Ice Climate Services	4	162 1	20 0		182.1
540 Ice Services Support System	5	378.6	1031.0	130.0	1539.6
500 ICE SERVICES	51	2280.5	10692 0	130.0	13102.5
610 Air Quality Services	4	164.8	140 0	276 0	580.8
630 Air Quality Research	54	1762 1	647.1	566 0	2975 2
660 Atmospheric Research	29	1222.6	1289.0	626 0	3137.6
670 Air Qua. & Res. Sup. Sys.	16	1296 1	727.4	55 0	2078 5
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH	103	4445 6	2803.5	1523.0	8772 1
710 Environmental Assess.&Rev.			3.5		3.5
720 LRTAP	7	259.3	579.6	93.0	931.9
730 Toxic Chemicals					
740 Great Lakes Water Quality					
750 Baseline Studies					
700 DEPARTMENTAL INTEGRATED PROGRAMS	7	259.3	583.1	93 0	935.4
810 Management	18	658.0	285.0	5.0	948.0
830 Common Support Services	64	2165.1	241 0	120 0	2526.1
800 MANAGEMENT AND COMMON SUPPORT	82	2823.1	526.0	125 0	3474.1
GRAND TOTAL	2342	82645 4	55167 2	14157.0	151969.6

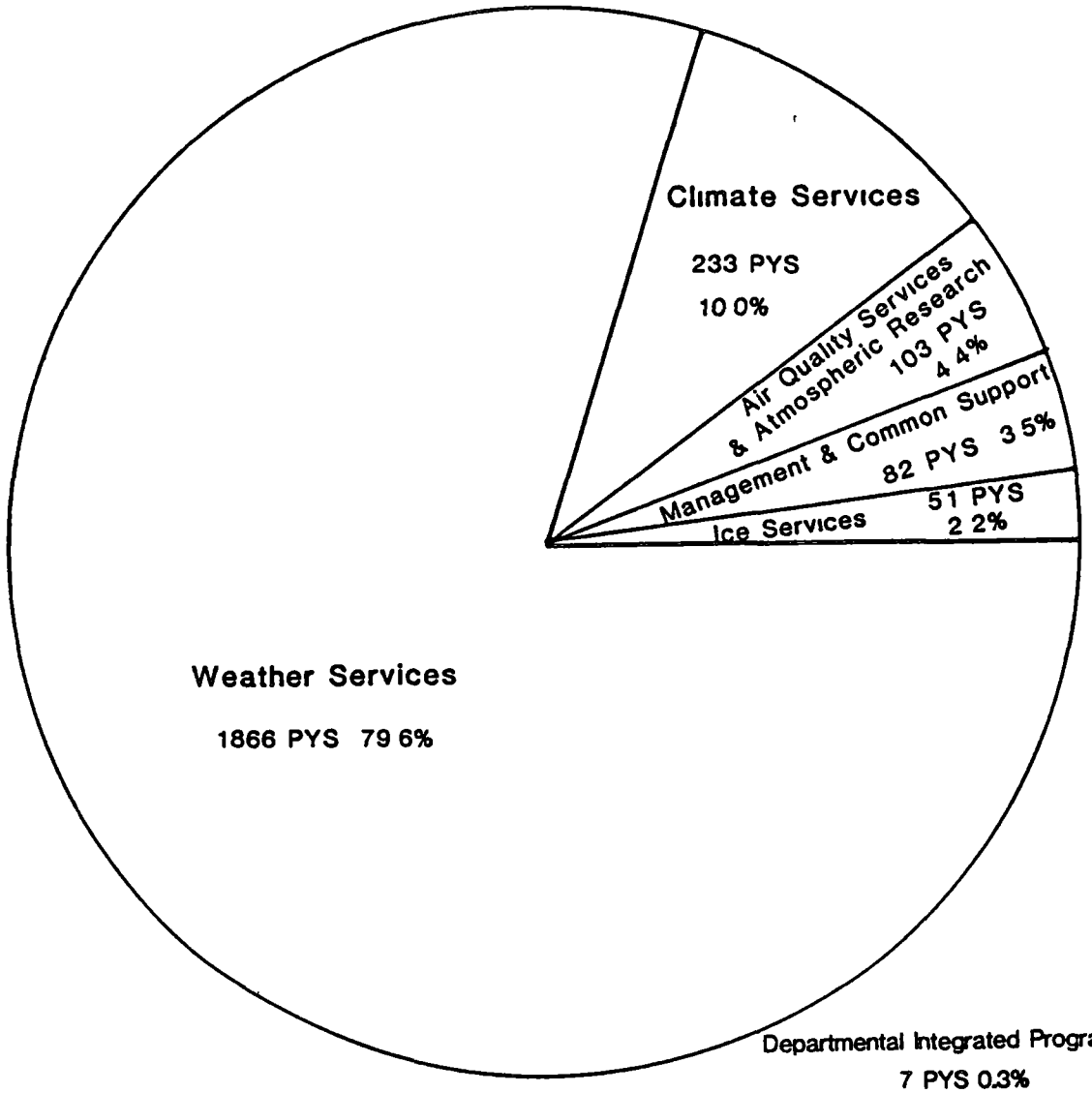
4.1.3 AES TOTAL BUDGET BY PROGRAM SUB-ACTIVITY 1982-83



TOTAL BUDGET 151969K

	Weather Services	Climate Services	Ice Services	Air Quality Services & Atm Research	Management & Common Support	Departmental Integrated Programs	Total
Person Years	1866	233	51	103	82	7	2342
$ Budget (000)	113419	12266	13102	8772	3474	935	151 9

4.1.4 AES PERSON YEARS BY PROGRAM SUB-ACTIVITY 1982-83

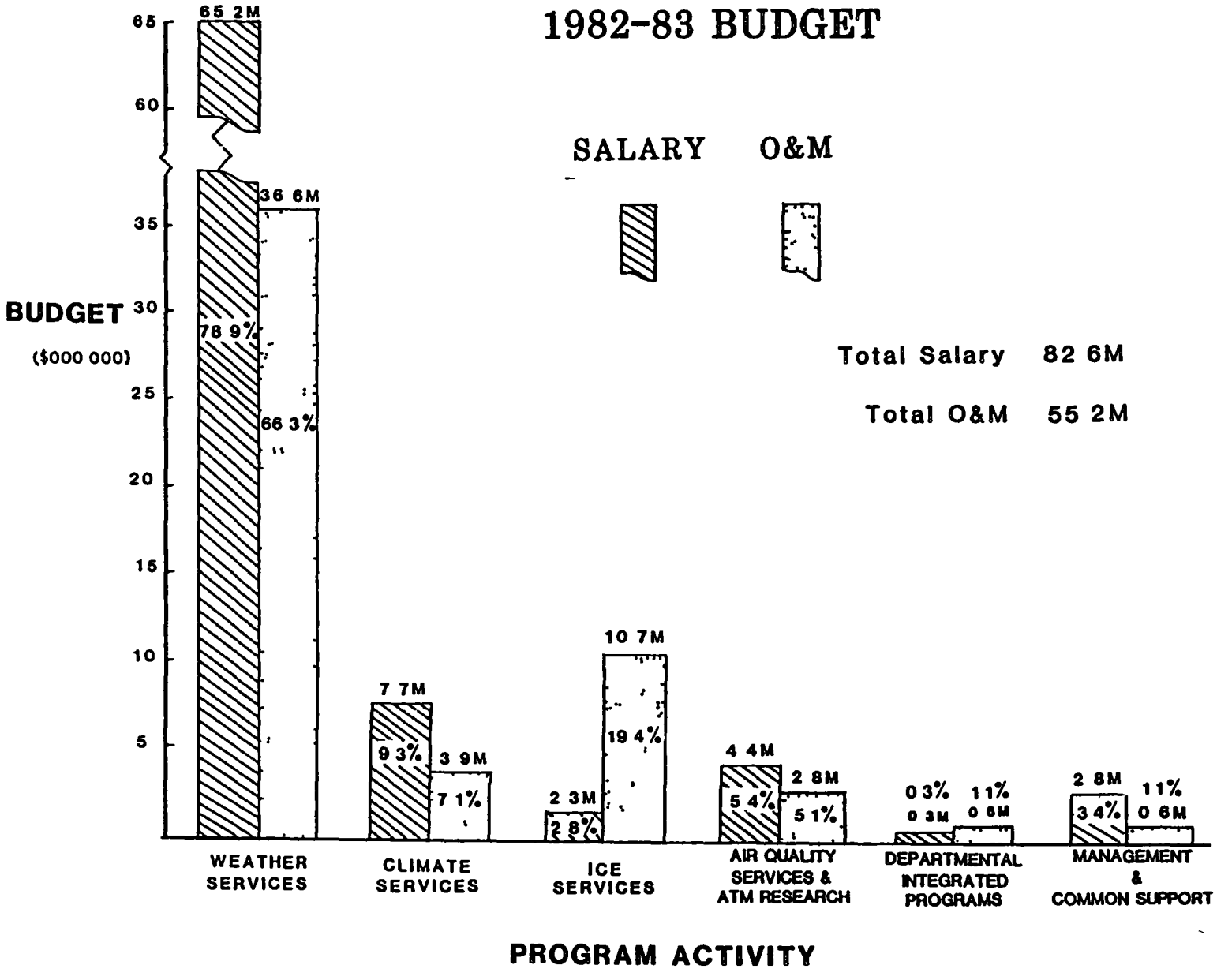


TOTAL PERSON YEARS 2342

	Weather Services	Climate Services	Ice Services	Air Quality Services & Atm Research	Management & Common Support	Departmental Integrated Programs	Total
Person Years	1866	233	51	103	82	7	2342
$ Budget (000)	113419	12266	13102	8772	3474	935	151969

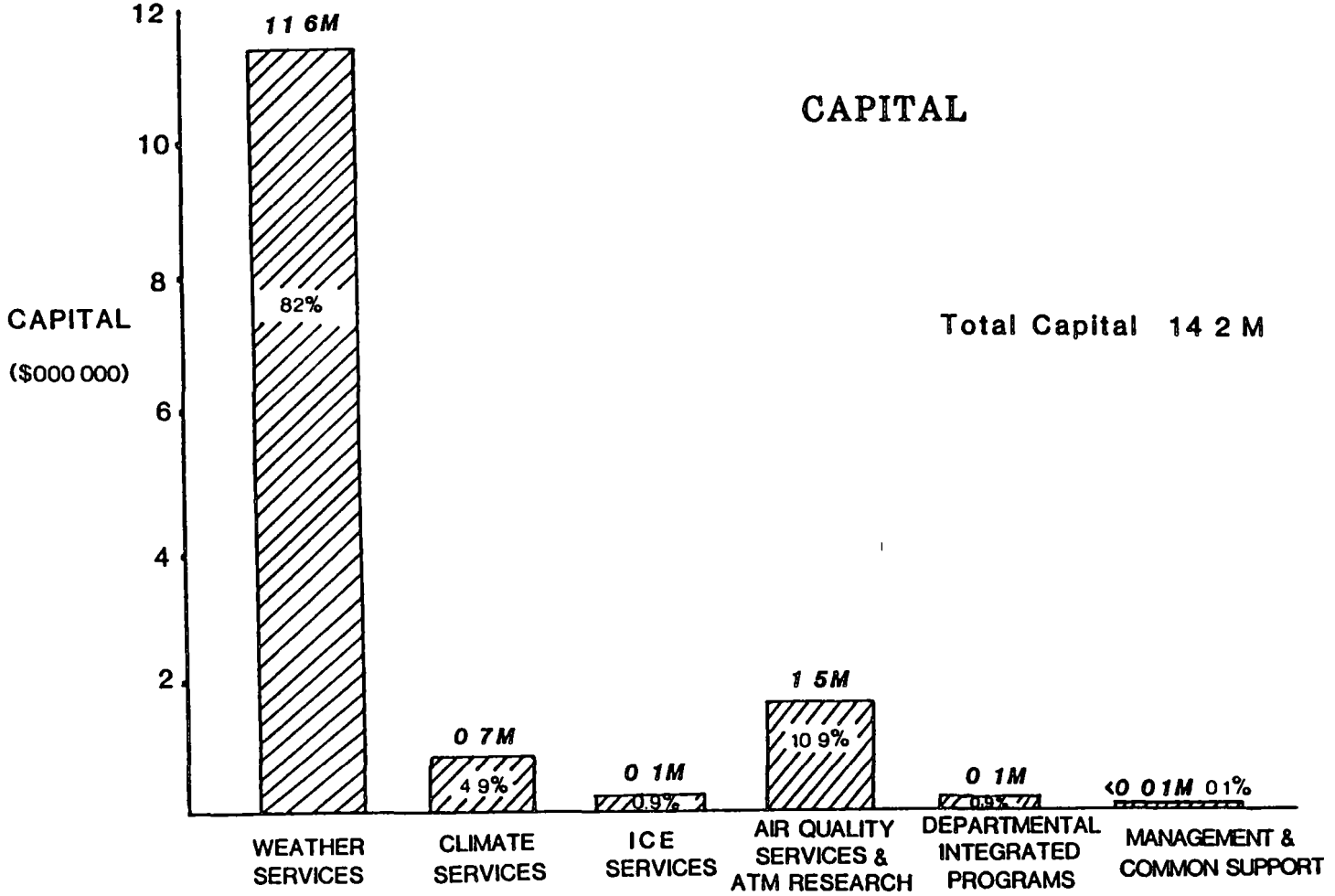
4.1.5 AES SALARY and O&M BY SUB-ACTIVITY
1982-83

AES
1982-83 BUDGET

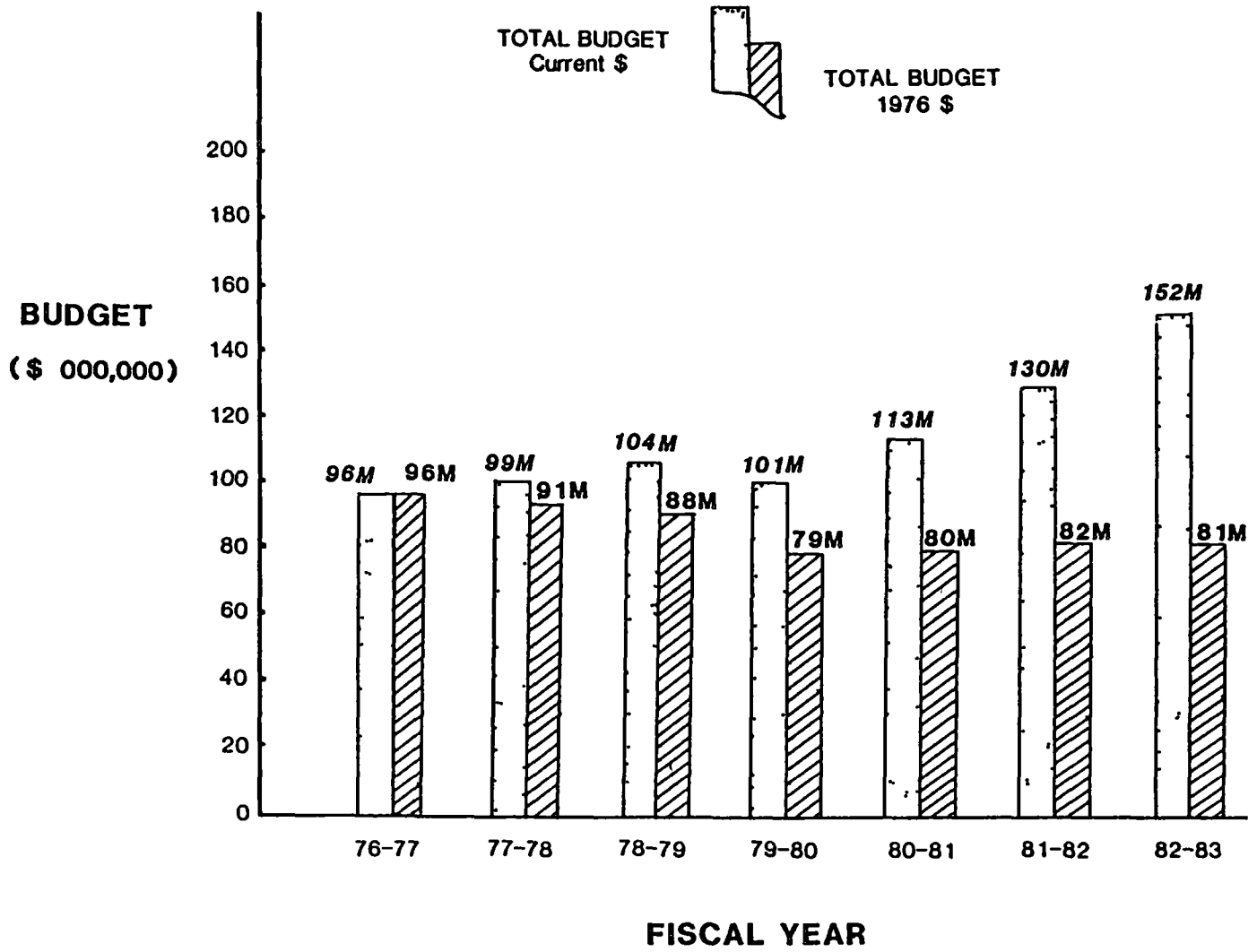


AES
1982-83 BUDGET

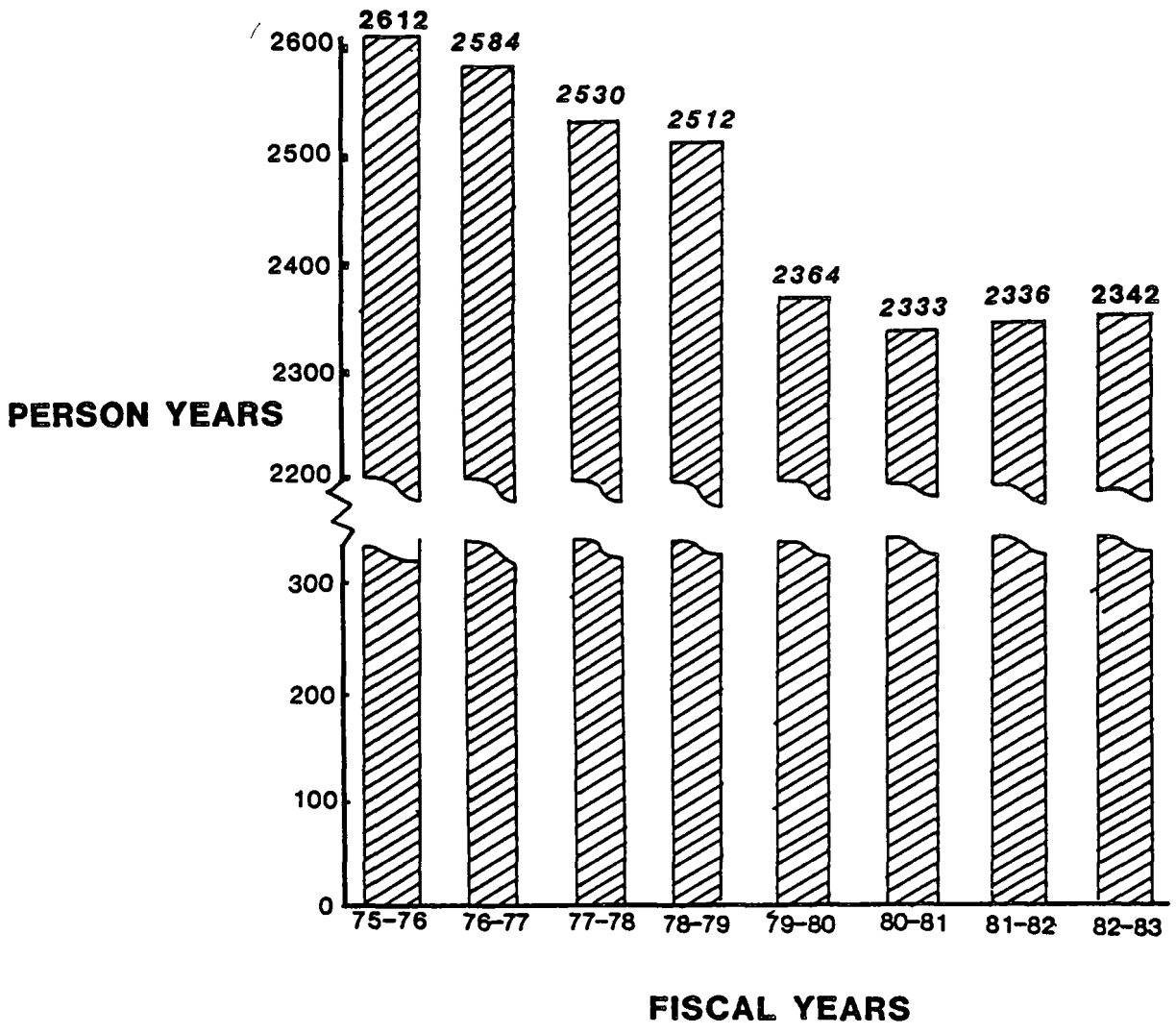
CAPITAL



AES BUDGETS


TOTAL BUDGET
Current $
TOTAL BUDGET
1976 $
BUDGET
($ 000,000)
200
180
160
140
120
100
80
60
40
20
0
96M
96M
99M
91M
104M
88M
101M
79M
113M
80M
130M
82M
152M
81M
76-77
77-78
78-79
79-80
80-81
81-82
82-83
FISCAL YEAR

4.1.8 AES PERSON YEARS 1975 TO 1982



4.2 WEATHER SERVICES Program Sub-Activity (1866 PY, $113,419K)

4.2.1 Objectives WEATHER SERVICES

To provide present and predicted weather and marine data and advice for the safety of Canadians, the security of their property, the support of economic activities and the protection of the environmental quality in Canada, and to acquire the basic understanding of atmospheric properties and behaviour needed to maintain and enhance such services.

4.2.2 Budget WEATHER SERVICES 1982-83 Budget by Sub-Sub-Activity (SA 2)

($000)

Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services	440	14343.6	1054.2	33.7	15431.5
120 Marine Weather Services	18	582.6	4.1		586.7
130 Aviation Weather Services	122	4113.2	692.2		4805.4
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200 Data	337	10751.4	9179.2	2710.0	22640.6
300 Wx Services Support Systems	826	30820 9	24100.5	8871.8	63793.2
100 WEATHER SERVICES	1866	65178.5	36625.3	11615 5	113419.3

4.2.3 Description WEATHER SERVICES

4.2 3.1 Public, Marine, Aviation, Economic and Canadian Forces Weather Services Program Sub-Sub-Activities (703 PY, $26,985.5K)

The activities of these sub-sub-activities include the commitment to provide information on current and predicted weather for all land areas of Canada and the adjacent oceans 24 hours per day every day The information provided includes weather warnings and forecasts and the sea state conditions of the Atlantic and Pacific Oceans particularly within the 200 mile economic zone

Weather services are provided to the general public, the aviation industry, marine transportation, commercial fisheries, pleasure boating and such economic activities as forestry and agriculture which are weather sensitive.

The AES provides support to the Department of National Defence according to a Memorandum of Understanding to assist that Department to meet the meteorological and oceanographic services requirements of the Canadian Armed Forces. Canadian Forces Weather Offices are located across Canada, on ships at sea and at Lahr and Baden-Soelingen, Germany.

Nine weather forecast offices located at Vancouver, Whitehorse, Edmonton (Arctic and Alberta Weather Centres), Winnipeg, Toronto, Montreal, Halifax and Gander and supported by the Canadian Meteorological Centre in Montreal conduct the analyses and prepare the warnings, forecasts and other bulletins for their respective geographical areas of responsibility for distribution to users of the information. The staff of the centres provide guidance and assistance to the smaller weather offices to serve their local public. The centres also provide directly, as required, weather information to the public and other clients.

There are 59 smaller weather offices distributed across Canada. The staff of these offices are available to provide additional or more detailed weather information than is available through the media from the nine centres. This is achieved through personal contact by telephone, automatic telephone answering devices, Weatheradio Canada studios in 9 locations (see pages 24 and 25), broadcasts on local radio and television and cable television in some locations.

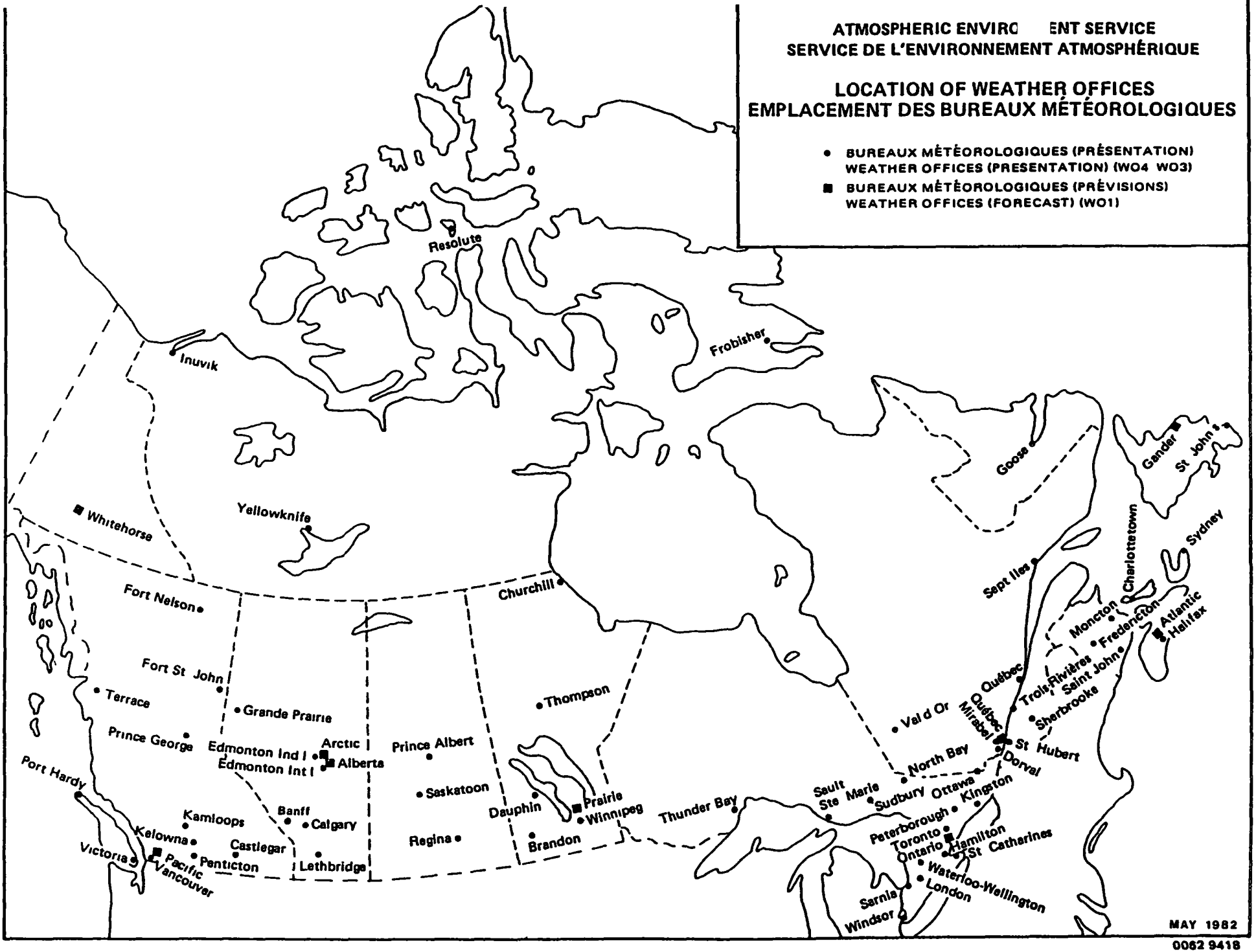
The number of contacts by users to the AES are displayed on pages 26 and 27. The 1981 figures are preliminary at the time of publication.

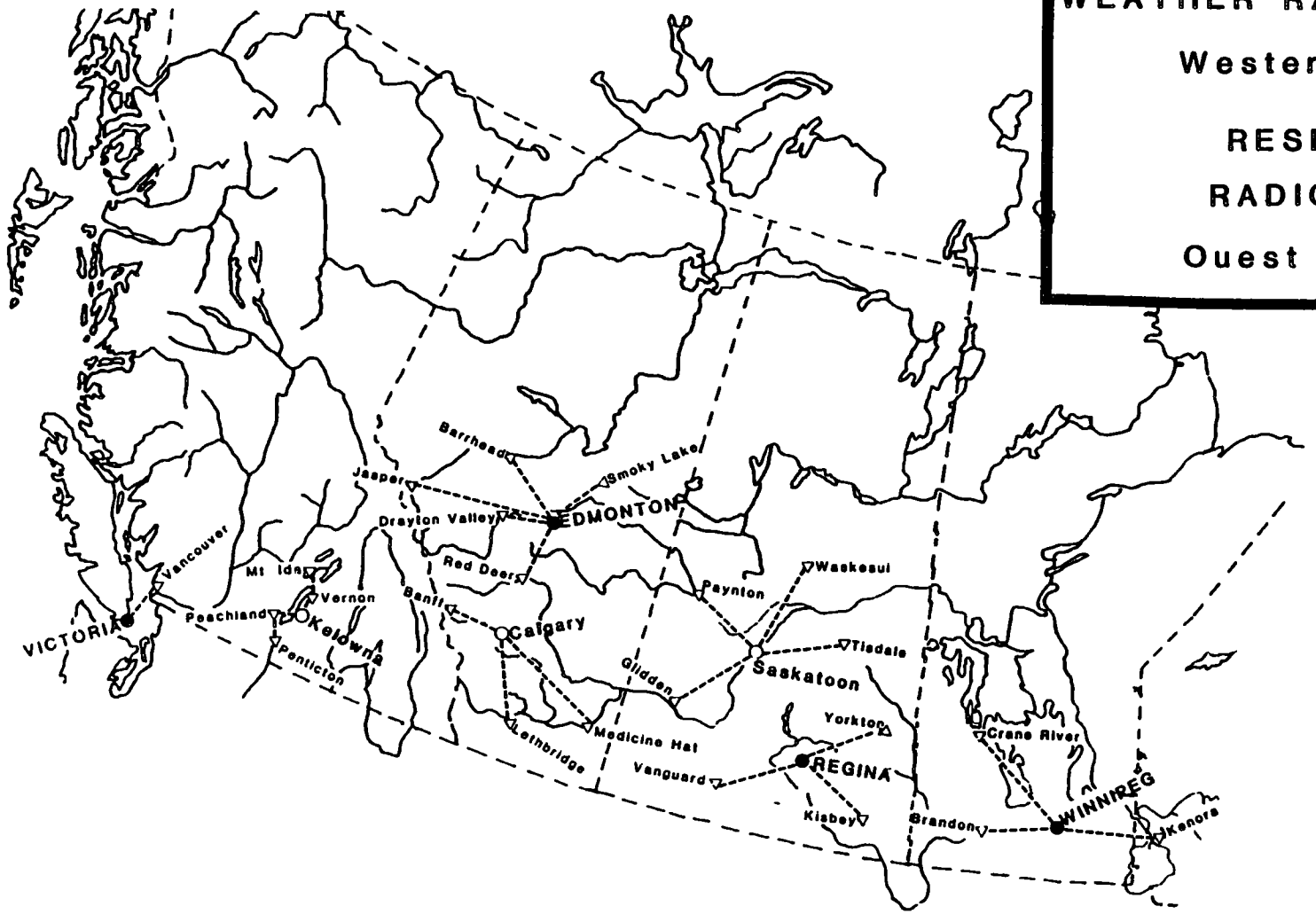
The chart "Weather Centres/Weather Offices" on pages 28 and 29 and the map "Location of Weather Offices" on page 23 identifies each office and the type of service available.

The services provided vary according to the needs of the user. For example, precipitation and maximum and minimum temperature are emphasized in forecasts for the general public and warnings are issued for extreme conditions of wind, snow, rain, thunderstorms and temperature, etc , while marine forecasts and warnings are concerned with wind, visibility and freezing spray. Services to aviation include weather conditions at airports, and significant en route winds and temperatures at flight levels. Marine and aviation forecasts are exchanged internationally Services to the agriculture and forestry industries are directed towards such activities as prevention or reduction of frost damage, crop spraying and forest fire control. Weather offices and Scientific Services Units support air quality services and environmental assessment programs as well

Geographic coverage of different types of forecasts for Canada and its adjacent waters are presented in map form following page 29. Pubic forecast regions are on pages 30 and 31, marine forecast regions are shown on pages 32 and 33 and Aerodrome forecast locations are presented on pages 34. Aviation weather forecast regions are presented on pages 35-38.

The AES is in the process of developing a policy on the services that will be provided with resources from parliamentary vote and known as AES Core Services. It is intended that the costs of any additional services provided by the AES would be recovered from the users.


ATMOSPHERIC ENVIRO ENT SERVICE
SERVICE DE L'ENVIRONNEMENT ATMOSPHÉRIQUE
LOCATION OF WEATHER OFFICES
EMPLACEMENT DES BUREAUX MÉTÉOROLOGIQUES
BUREAUX MÉTÉOROLOGIQUES (PRÉSENTATION)
WEATHER OFFICES (PRESENTATION) (WO4 WO3)
BUREAUX MÉTÉOROLOGIQUES (PRÉVISIONS)
WEATHER OFFICES (FORECAST) (WO1)
Resolute
Frobisher
Inuvik
Whitehorse
Yellowknife
Fort Nelson
Churchill
Fort St John
Terrace
Grande Prairie
Thompson
Prince George
Edmonton Ind
Edmonton Int
Arctic
Alberta
Prince Albert
Port Hardy
Saskatoon
Kamloops
Banff
Calgary
Dauphin
Prairie
Winnipeg
Thunder Bay
Kelowna
Castlegar
Regina
Brandon
Victoria
Pacific
Penticton
Lethbridge
Vancouver
Goose
Gander
St John's
Sept Iles
Charlottetown
Sydney
Moncton
Fredericton
Atlantic
Halifax
Val d Or
Québec
Québec
Mirabel
Trois-Rivières
Saint John
Sherbrooke
St Hubert
Dorval
North Bay
Sault
Ste Marie
Sudbury
Ottawa
Kingston
Peterborough
Toronto
Ontario
Hamilton
St Catharines
Waterloo-Wellington
London
Sarnia
Windsor
MAY 1982
0062 9418



REGIONAL NETWORK
WESTERN CANADA
LEGEND : PRIMARY REPEATERS
EXISTING
○ PROPOSED
▲ EXISTING
△ PROPOSED

OPERATIONAL 1982

RESEAU REGIONAL
OUEST CANADIEN
LEGENDE : DE DIFFUSION RELAIS
ACTUEL
○ PROPOSÉE
▲ ACTUEL
△ PROPOSÉE

Service de l'environnement atmosphérique

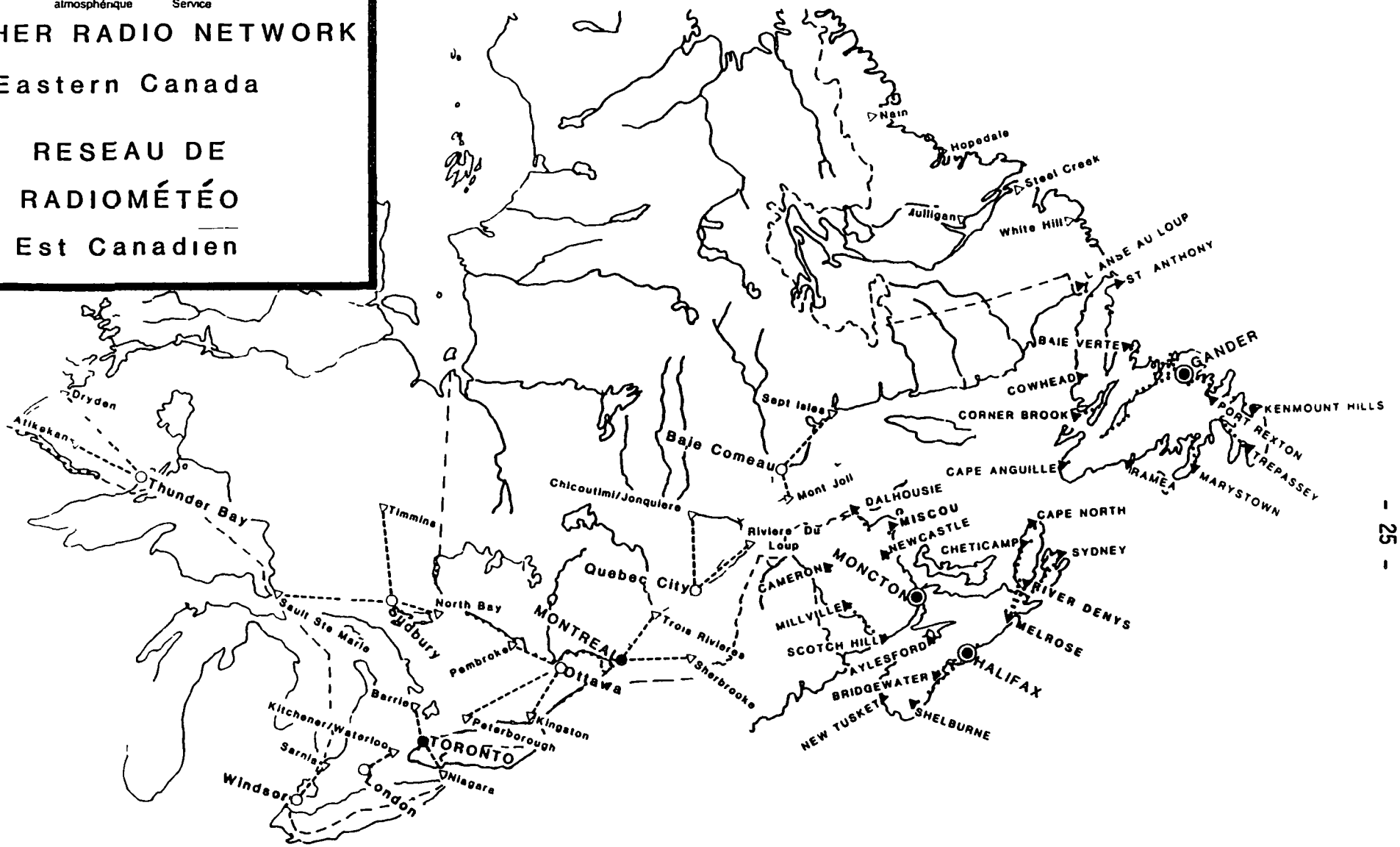
Atmospheric Environment Service

WEATHER RADIO NETWORK

Eastern Canada

RESEAU DE RADIOMÉTÉO

Est Canadien



REGIONAL NETWORK
EASTERN CANADA
LEGEND PRIMARY ● EXISTING
○ PROPOSED
REPEATERS ▲ EXISTING
△ PROPOSED

MAY 1982

RESEAU REGIONAL
OUEST CANADIEN
LEGENDE : DE DIFFUSION ● ACTUEL
○ PROPOSÉE
RELAIS ▲ ACTUEL
△ PROPOSÉE

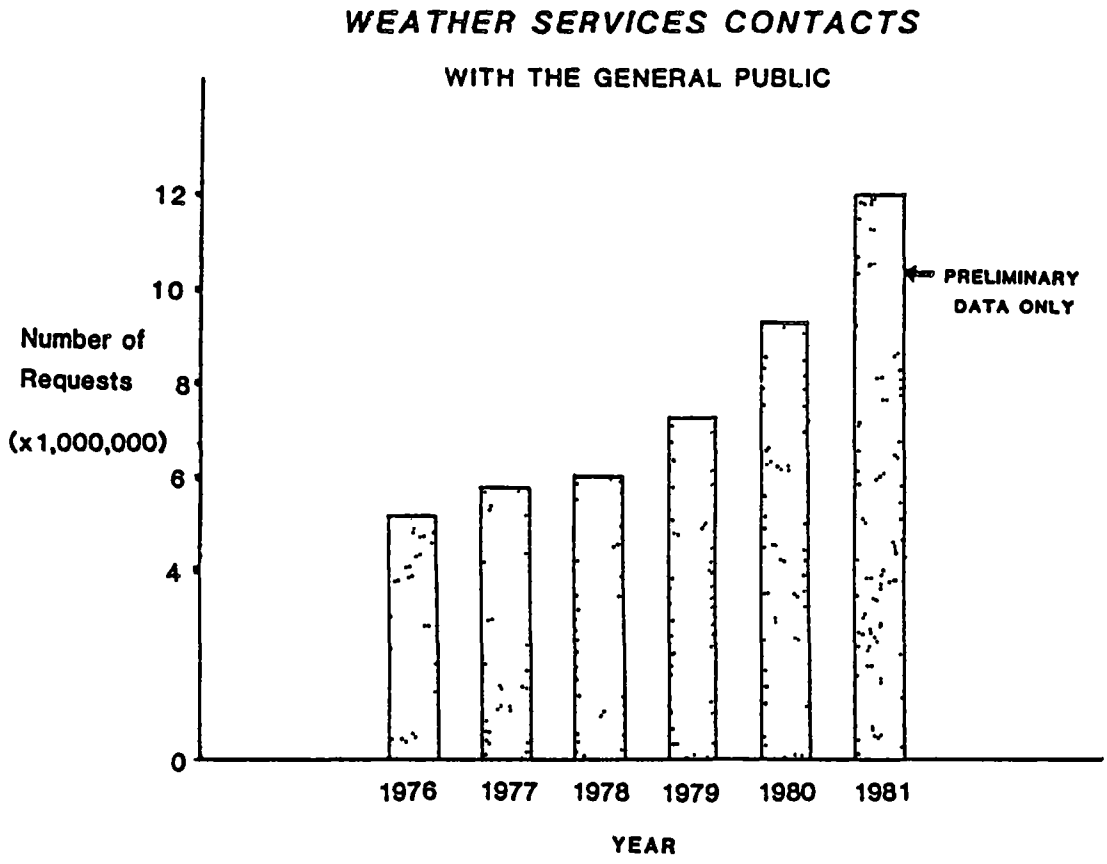
ATMOSPHERIC ENVIRONMENT SERVICE

WEATHER SERVICE CONTACTS

(NEAREST 000)

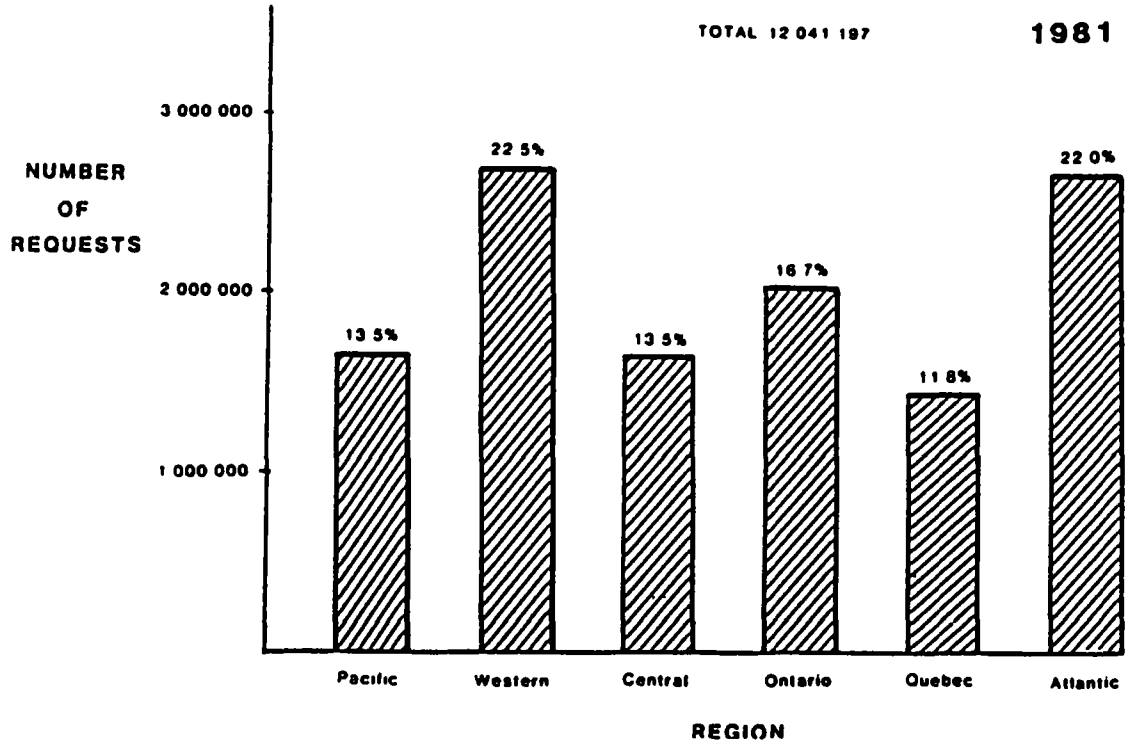
	1976	1977	1978	1979	1980	1981
GENERAL PUBLIC	5,284,000	5,767,000	5,963,000	7,411,000	9,399,000	12,041,000*
ECONOMIC DEVELOPMENT	227,000	244,000	289,000	272,000	387,000	---
TRANSPORTATION	1,483,000	1,516,000	1,539,000	1,660,000	1,631,000	---
RADIO-TV BROADCASTS	92,000	95,000	128,000	137,000	161,000	---
VISITORS	46,000	38,000	37,000	36,000	35,000	---
TOTAL	7,131,000	7,660,000	7,956,000	9,516,000	11,613,000	---

*Preliminary data only



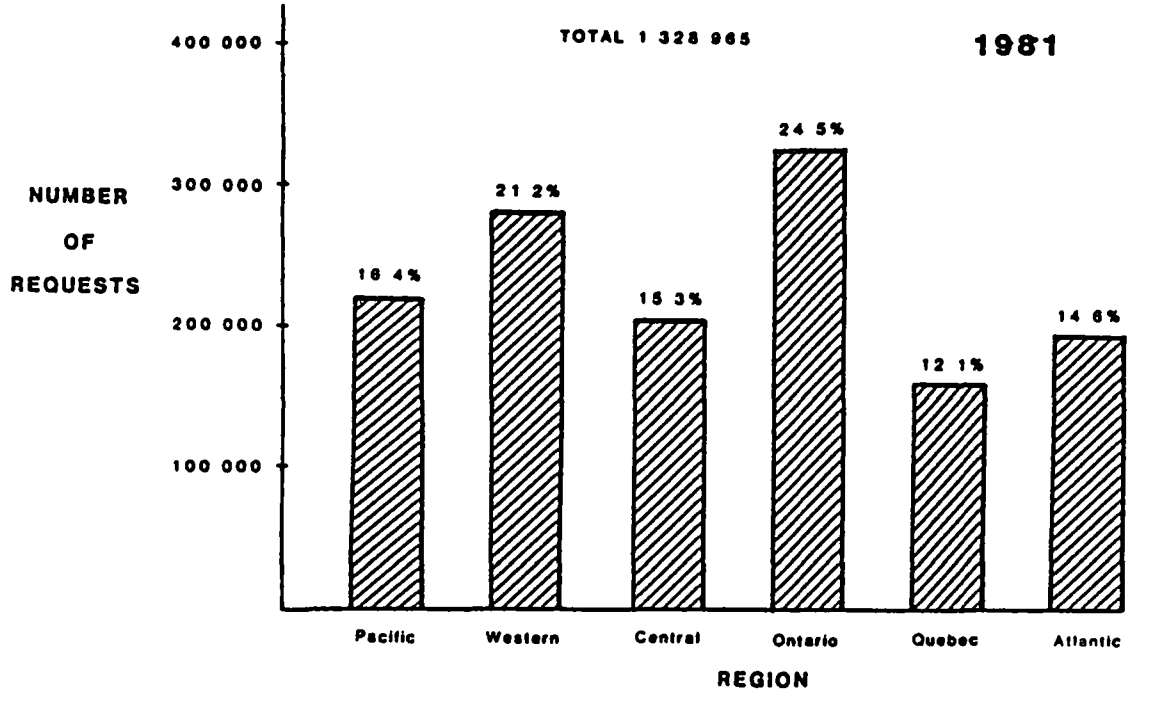
WEATHER SERVICES TO THE GENERAL PUBLIC BY REGION

Preliminary Data Only



WEATHER SERVICES TO THE AVIATION INDUSTRY BY REGION

Preliminary Data Only



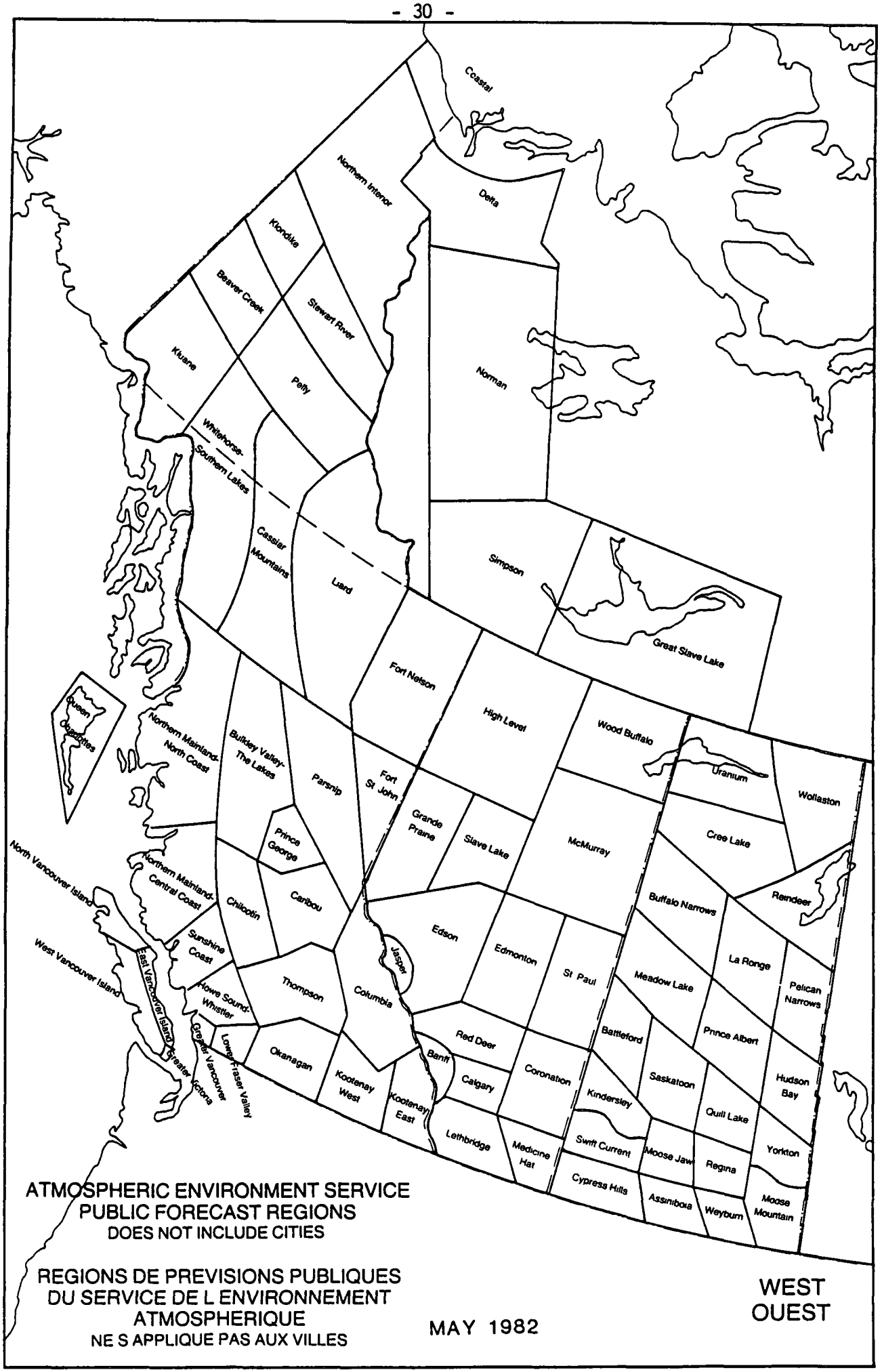
WEATHER OFFICES/WEATHER CENTRES
1982/83

REGION / TYPE	PACIFIC	WESTERN	CENTRAL	ONTARIO	QUEBEC	ATLANTIC
W O. 1 Forecast Office (9)	Pacific Weather Centre	Alberta Weather Centre Arctic Weather Centre Yukon Weather Office	Prairie Weather Centre	Ontario Weather Centre	Quebec Weather Centre	Atlantic Weather Centre Gander Weather Office
W O 3 Weather Service Office with Professional Consultation Available (4)	Victoria	Yellowknife	Regina Saskatoon			
W O 4 Weather Service Office (55)	Castlegar Kamloops Kelowna Penticton Port Hardy Prince George Terrace Vancouver Fort St John Fort Nelson	Calgary Edmonton International Edmonton Municipal Grande Prairie Inuvik Lethbridge Banff	Brandon Churchill Dauphin Prince Albert Resolute Thompson Winnipeg Int'l	Hamilton Kingston London Niagara Dist St. Catherines North Bay Ottawa Peterborough Sarnia Sault Ste Marie Sudbury Thunder Bay Toronto W.O. Waterloo-Wellington Windsor	Frobisher Montreal/Mirabel Montreal/Dorval Québec Sept Iles Sherbrooke St. Hubert Trois Rivieres Val D'Or	Charlottetown Fredericton Goose Bay Halifax International Moncton Saint John St. John's Sydney

Continued

WEATHER OFFICES/WEATHER CENTRES
1982/83

REGION / TYPE	PACIFIC	WESTERN	CENTRAL	ONTARIO	QUEBEC	ATLANTIC
Canadian Forces Weather Offices 18	Comox Esquimalt	Cold Lake Edmonton	Moose Jaw Portage la Prairie Winnipeg	North Bay Ottawa Trenton	Bagotville St. Hubert	Chatham Gagetown Greenwood Halifax (METOC) Shearwater Summerside
TOTAL 86	13	16	14	17	12	18

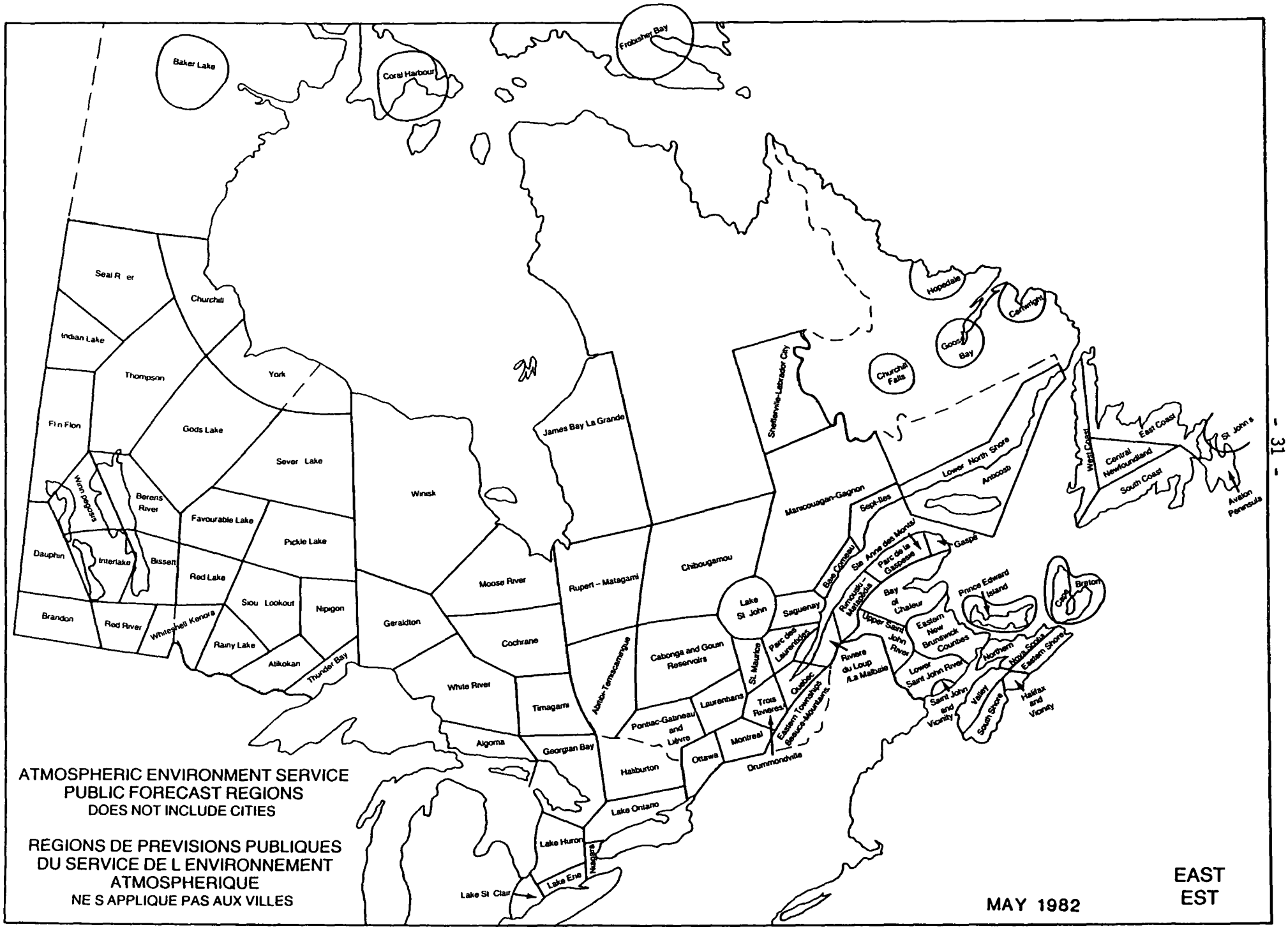


ATMOSPHERIC ENVIRONMENT SERVICE
PUBLIC FORECAST REGIONS
DOES NOT INCLUDE CITIES

REGIONS DE PREVISIONS PUBLIQUES
DU SERVICE DE L ENVIRONNEMENT
ATMOSPHERIQUE
NE S APPLIQUE PAS AUX VILLES

MAY 1982

WEST
OUEST

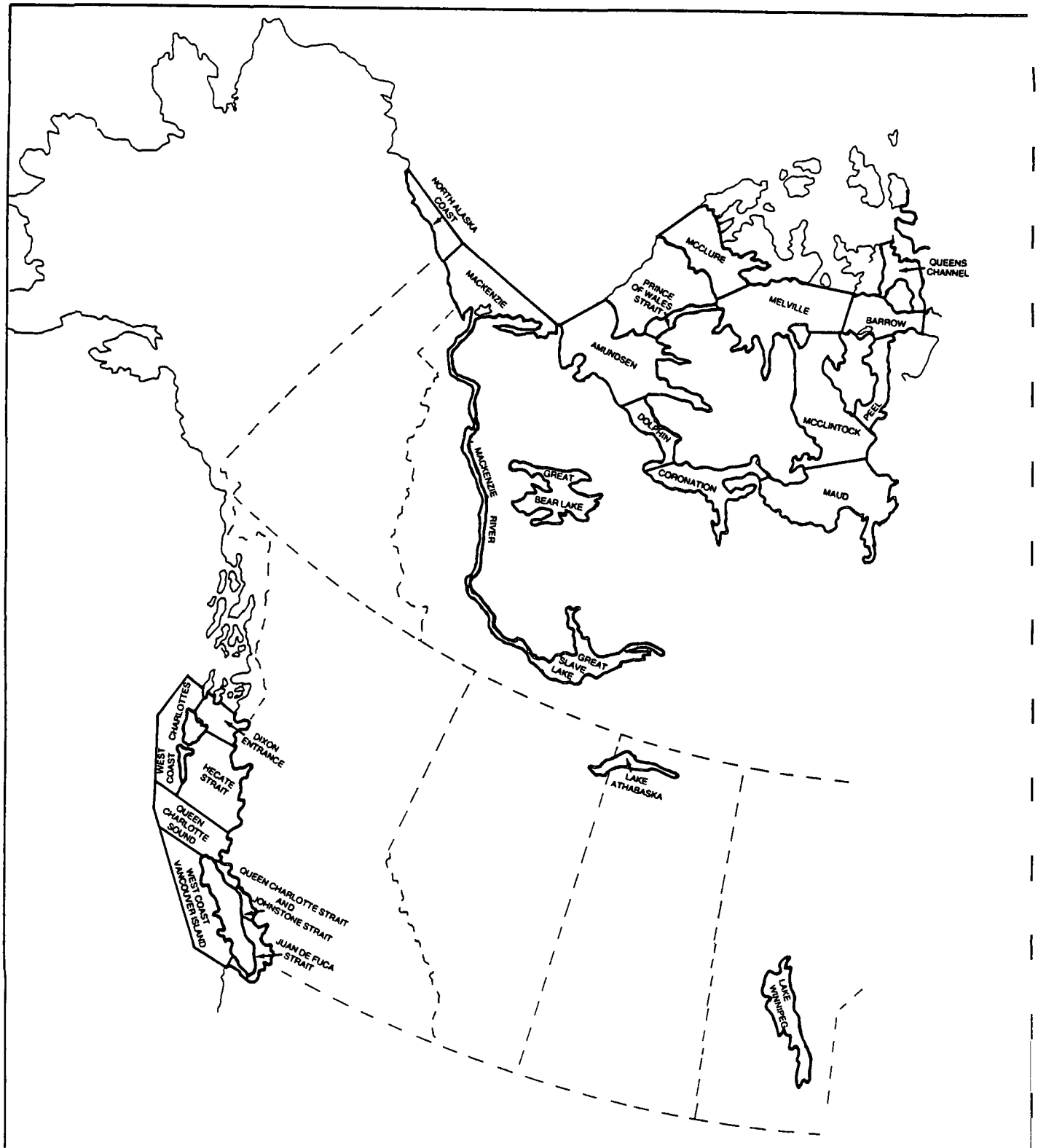


ATMOSPHERIC ENVIRONMENT SERVICE
PUBLIC FORECAST REGIONS
DOES NOT INCLUDE CITIES

REGIONS DE PREVISIONS PUBLIQUES
DU SERVICE DE L ENVIRONNEMENT
ATMOSPHERIQUE
NE S APPLIQUE PAS AUX VILLES

MAY 1982

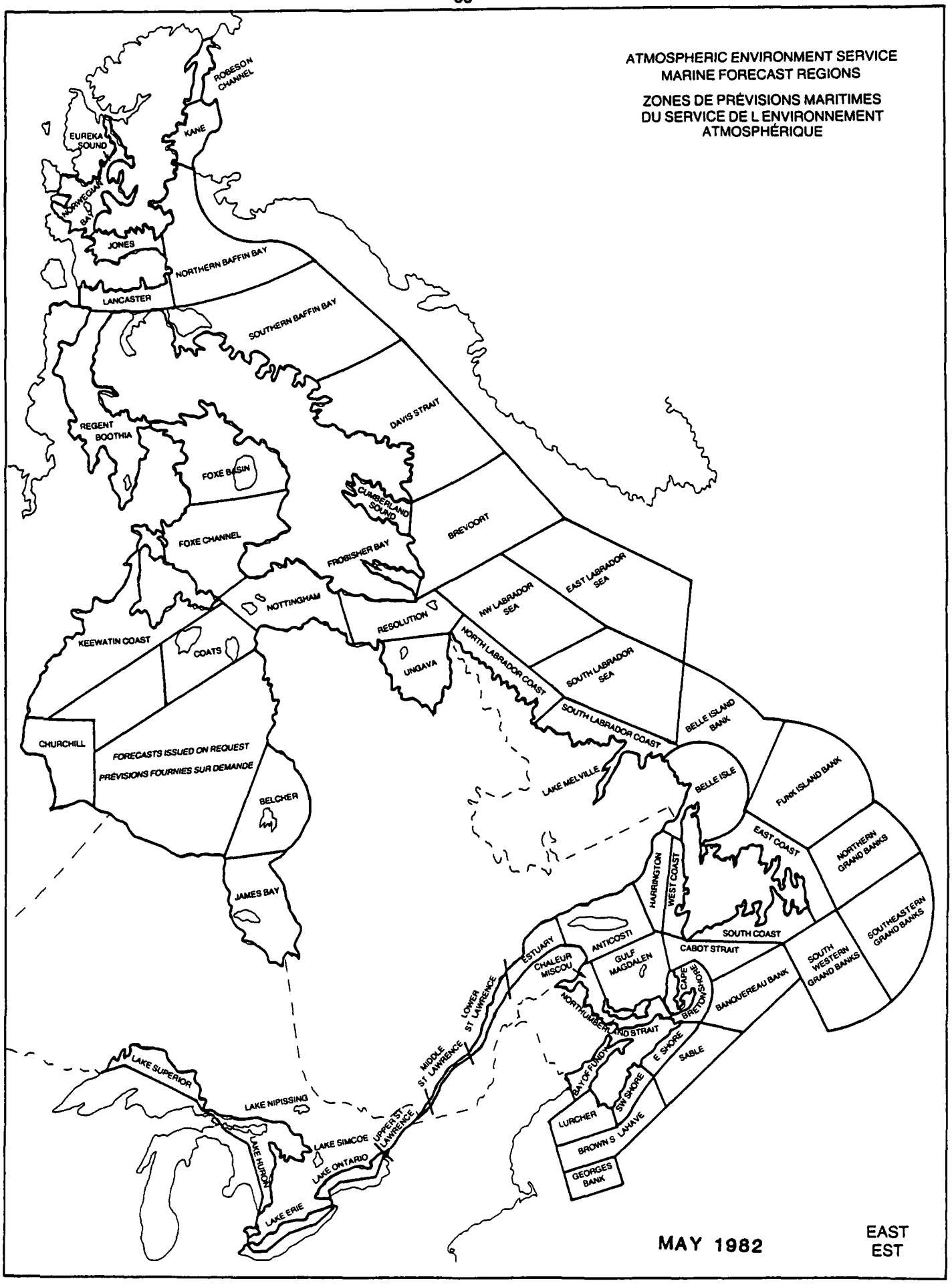
EAST
EST

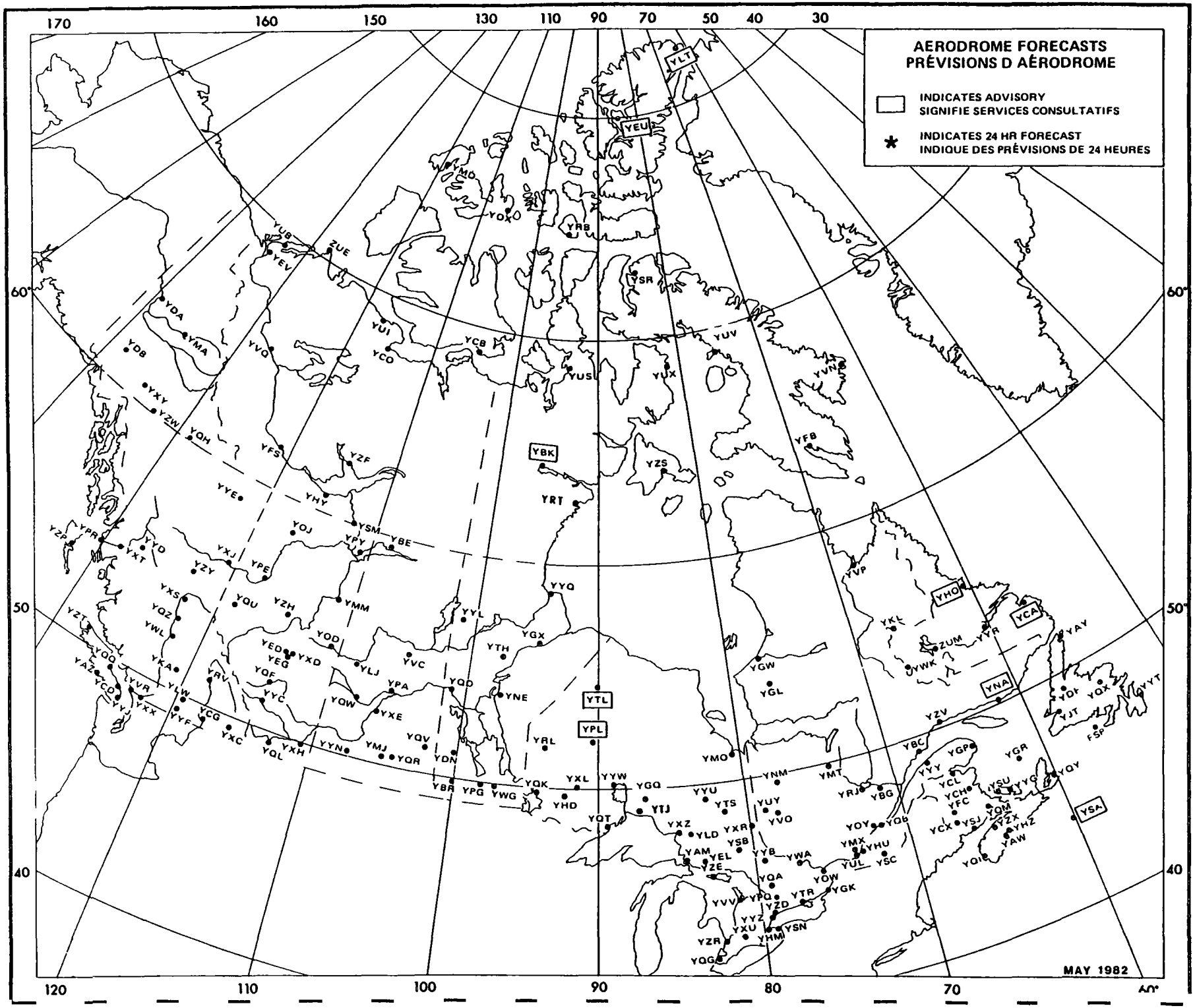


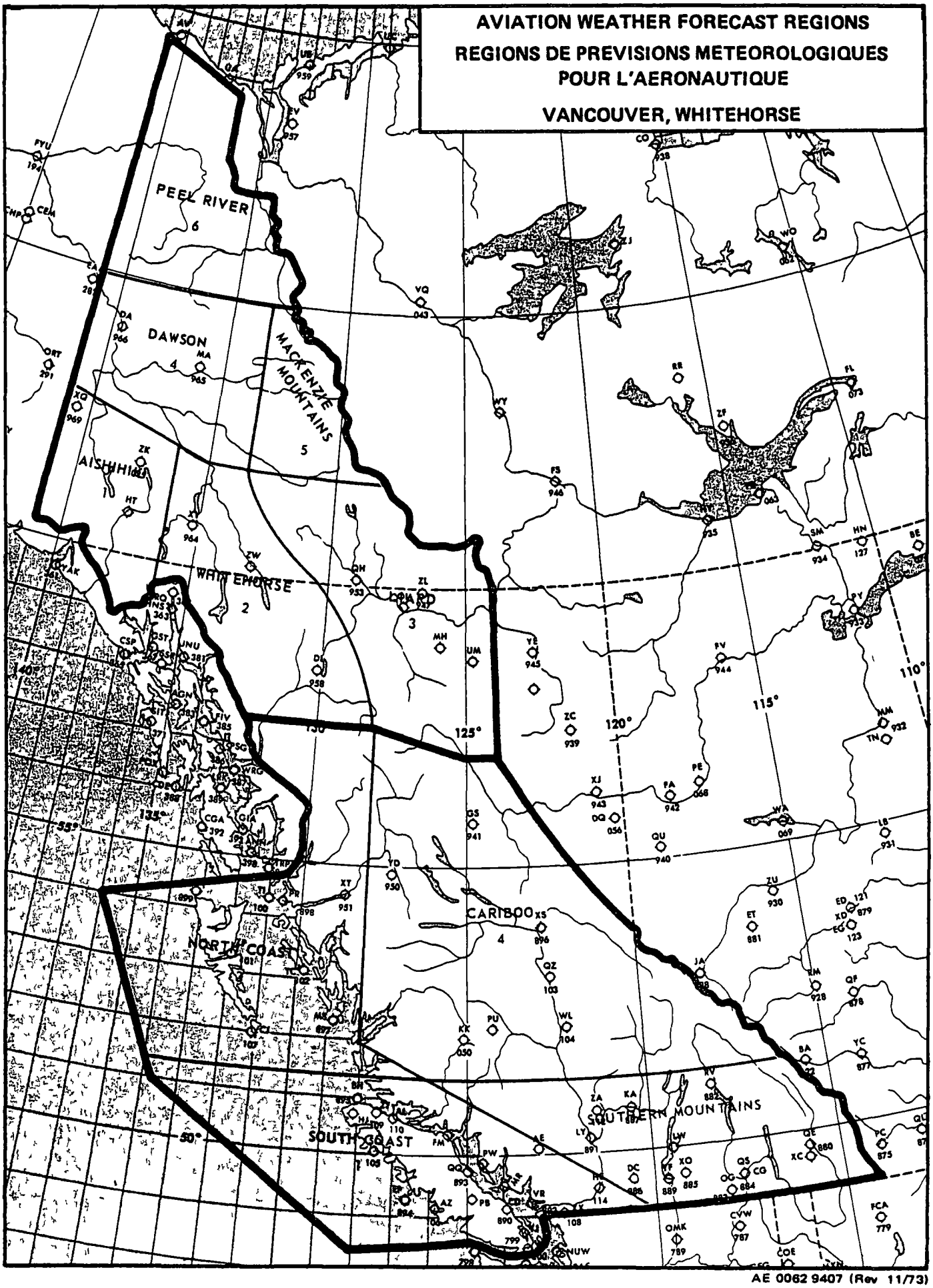
ATMOSPHERIC ENVIRONMENT SERVICE
MARINE FORECAST REGIONS

ZONES DE PREVISIONS MARITIMES
DU SERVICE DE L ENVIRONNEMENT
ATMOSPHERIQUE

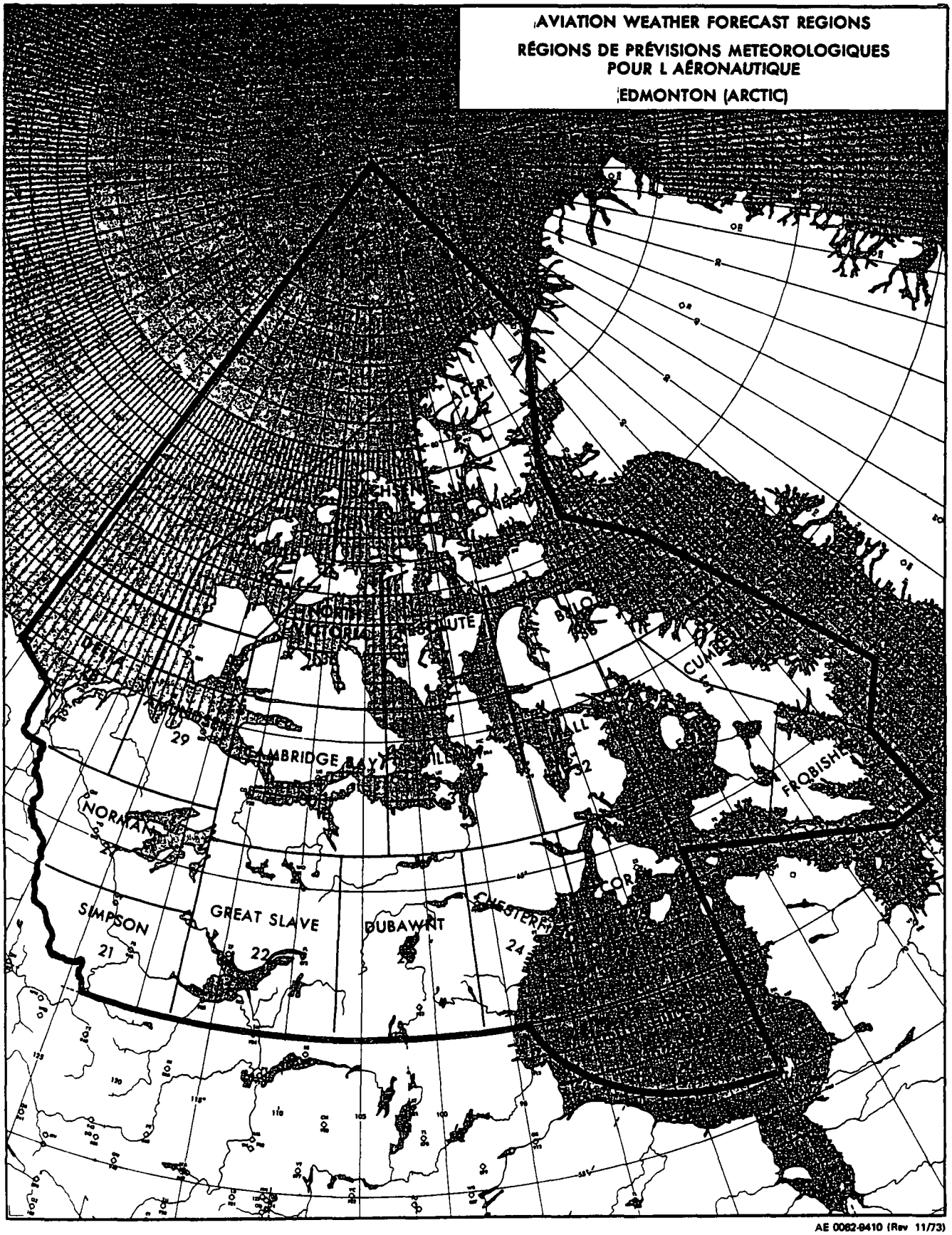
WEST
OUEST


ATMOSPHERIC ENVIRONMENT SERVICE
MARINE FORECAST REGIONS
ZONES DE PRÉVISIONS MARITIMES
DU SERVICE DE L ENVIRONNEMENT
ATMOSPHÉRIQUE
ROBESON CHANNEL
EUREKA SOUND
KANE
NORWEGIAN BAY
JONES
NORTHERN BAFFIN BAY
LANCASTER
SOUTHERN BAFFIN BAY
DAVIS STRAIT
REGENT
BOOTHIA
FOXE BASIN
CUMBERLAND SOUND
FOXE CHANNEL
FROBISHER BAY
BREVOORT
NOTTINGHAM
RESOLUTION
NW LABRADOR SEA
EAST LABRADOR SEA
KEEWATIN COAST
COATS
UNGAVA
NORTH LABRADOR COAST
SOUTH LABRADOR SEA
SOUTH LABRADOR COAST
BELLE ISLAND BANK
CHURCHILL
FORECASTS ISSUED ON REQUEST
PRÉVISIONS FOURNIES SUR DEMANDE
LAKE MELVILLE
BELLE ISLE
FUNK ISLAND BANK
BELCHER
EAST COAST
NORTHERN GRAND BANKS
HARRINGTON
WEST COAST
JAMES BAY
SOUTH COAST
SOUTHEASTERN GRAND BANKS
ANTICOSTI
ESTUARY
CABOT STRAIT
CHALEUR MISCOU
GULF MAGDALEN
SOUTH WESTERN GRAND BANKS
CAPE BRETON SHORE
BANQUEREAU BANK
LOWER ST LAWRENCE
NORTHUMBERLAND STRAIT
MIDDLE ST LAWRENCE
E SHORE
SABLE
LAKE SUPERIOR
BAY OF FUNDY
SW SHORE
LAKE NIPISSING
LURCHER
LAHAVE
UPPER ST LAWRENCE
LAKE SIMCOE
BROWN'S
LAKE HURON
LAKE ONTARIO
GEORGES BANK
LAKE ERIE
MAY 1982
EAST
EST

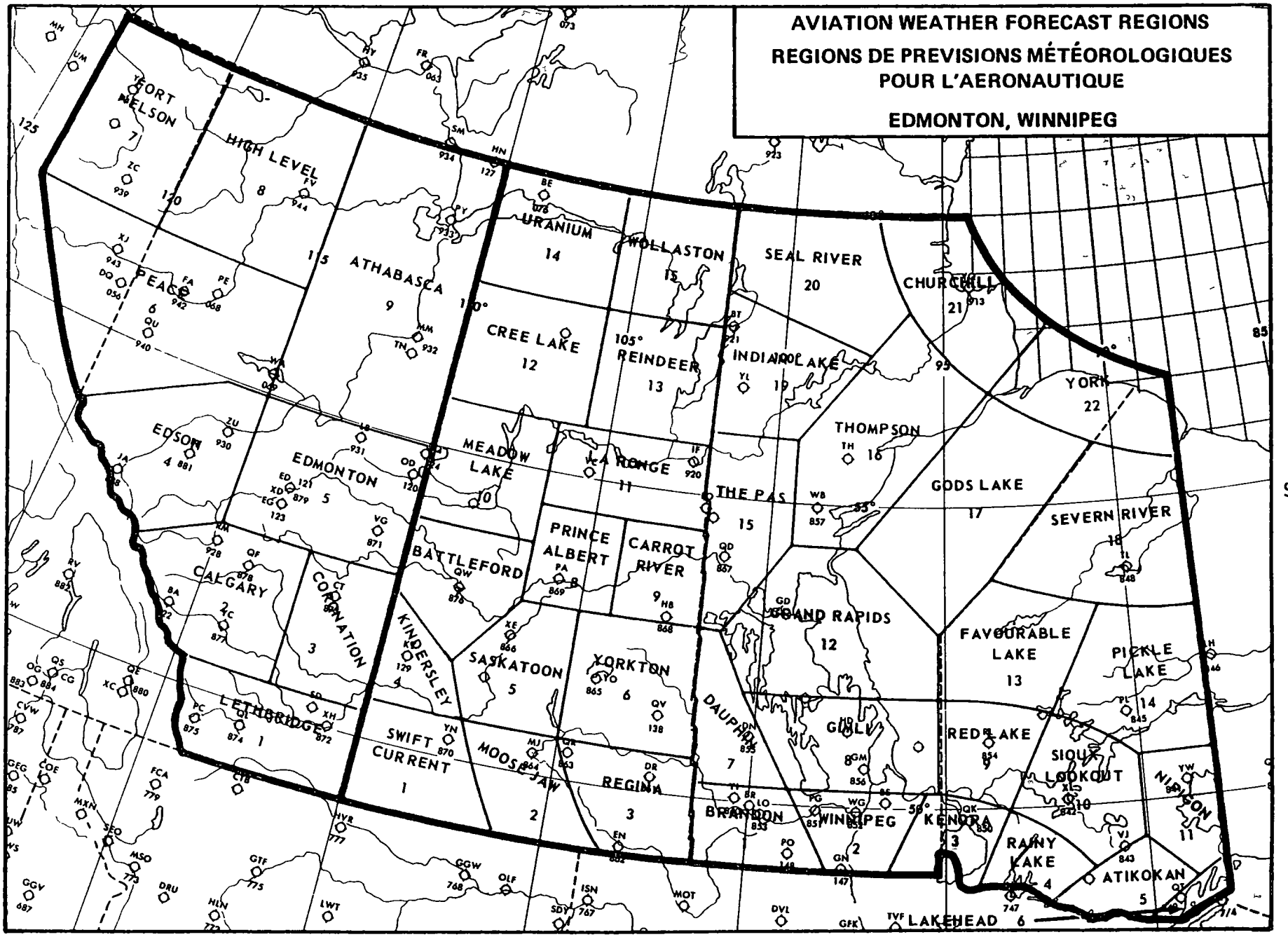

AERODROME FORECASTS
PRÉVISIONS D AÉRODROME
INDICATES ADVISORY
SIGNIFIE SERVICES CONSULTATIFS
INDICATES 24 HR FORECAST
INDIQUE DES PRÉVISIONS DE 24 HEURES
MAY 1982

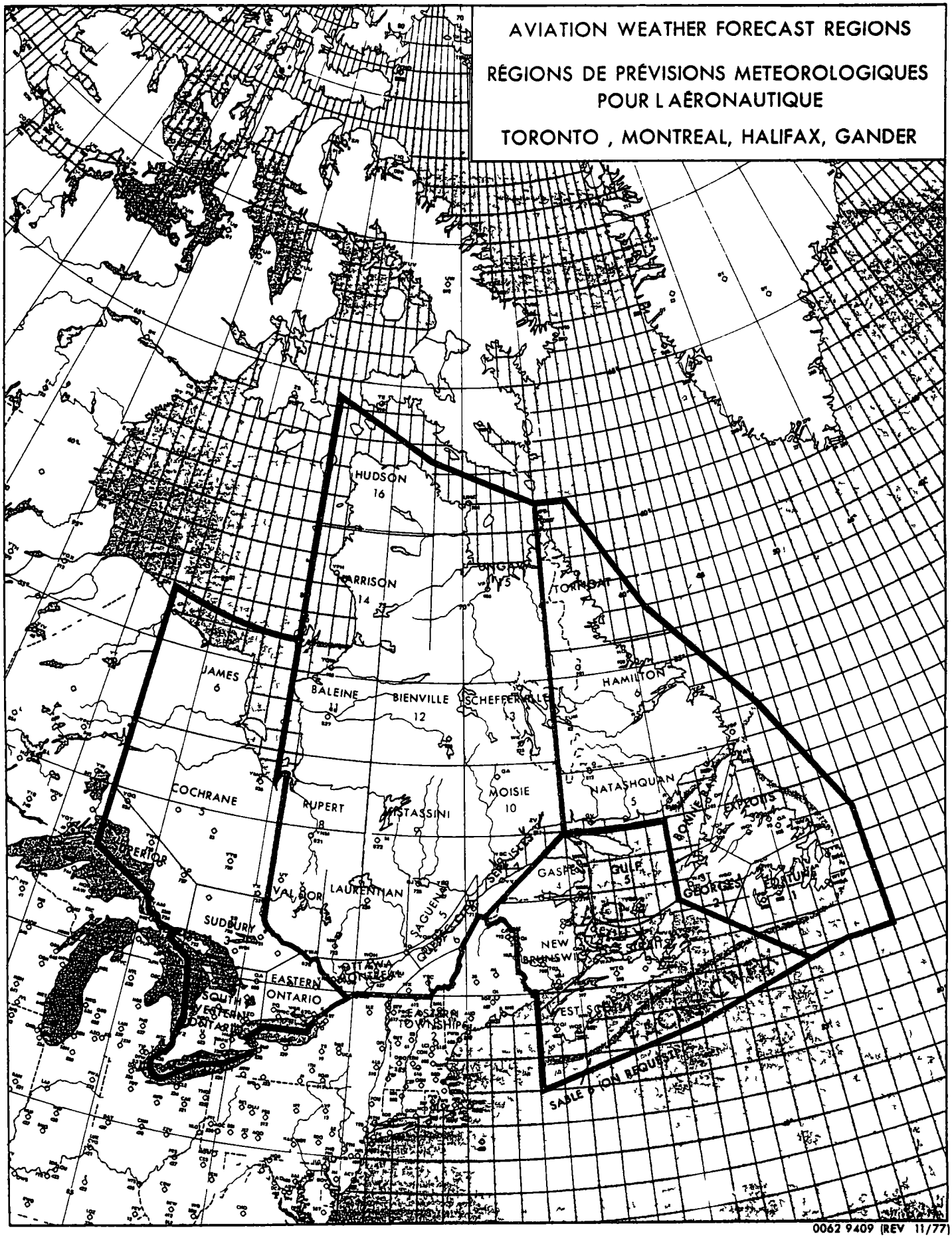


AE 0062 9407 (Rev 11/73)



AE 0082-8410 (Rev 11/73)


AVIATION WEATHER FORECAST REGIONS
REGIONS DE PREVISIONS MÉTÉOROLOGIQUES POUR L'AERONAUTIQUE
EDMONTON, WINNIPEG
FORT NELSON
7
HIGH LEVEL
8
ATHABASCA
9
PEACE
6
URANIUM
14
WOLLASTON
15
SEAL RIVER
20
CHURCHILL
21
CREE LAKE
12
REINDEER
13
INDIAN LAKE
19
YORK
22
THOMPSON
16
EDSON
4
EDMONTON
5
MEADOW LAKE
10
LA RONGE
11
THE PAS
15
GODS LAKE
17
SEVERN RIVER
18
CALGARY
2
CORONATION
3
BATTLEFORD
PRINCE ALBERT
8
CARROT RIVER
9
KINDERSLEY
4
SASKATOON
5
YORKTON
6
GRAND RAPIDS
12
FAVOURABLE LAKE
13
PICKLE LAKE
14
LETHBRIDGE
1
SWIFT CURRENT
1
MOOSE JAW
2
REGINA
3
DAUPHIN
7
GIMLI
8
RED LAKE
9
SIOUX LOOKOUT
10
NIPIGON
11
BRANDON
WINNIPEG
KENORA
3
RAINY LAKE
4
ATIKOKAN
5
LAKEHEAD
6
0062 9408 (5/80)



0062 9409 (REV 11/77)

4 2 3 2 Data Program Sub-Sub-Activity (337 PY, $22,641K)

This sub-sub-activity involves a commitment to acquire environmental data in Canada and adjacent air-space and waters as needed for the provision of weather services

Surface weather observations are provided by a network of about 320 weather observation stations supplemented by voluntary observing programs undertaken by over 300 ships operating on the Great Lakes and in the Atlantic, Pacific and Arctic Oceans Weather reports are also obtained from 58 automatic reporting stations (see map "Synoptics and Hourlies Observing Stations" on pages 41 and 42)

An upper air network of 33 stations, provides temperatures, pressures, relative humidities and wind velocities in the free atmosphere to heights of 35,000 metres (see map "Aerological Stations" on page 43)

Both surface and upper air observations are taken at regular intervals and made available in real-time for weather analysis and advisory purposes They are also fed into an international communications network for use by the weather services of other countries In return, AES receives worldwide surface and upper air data

A network of 230 synoptic weather stations and 2382 climatological stations provides climatological information Some of the climatological stations are jointly operated through agreements with the provinces

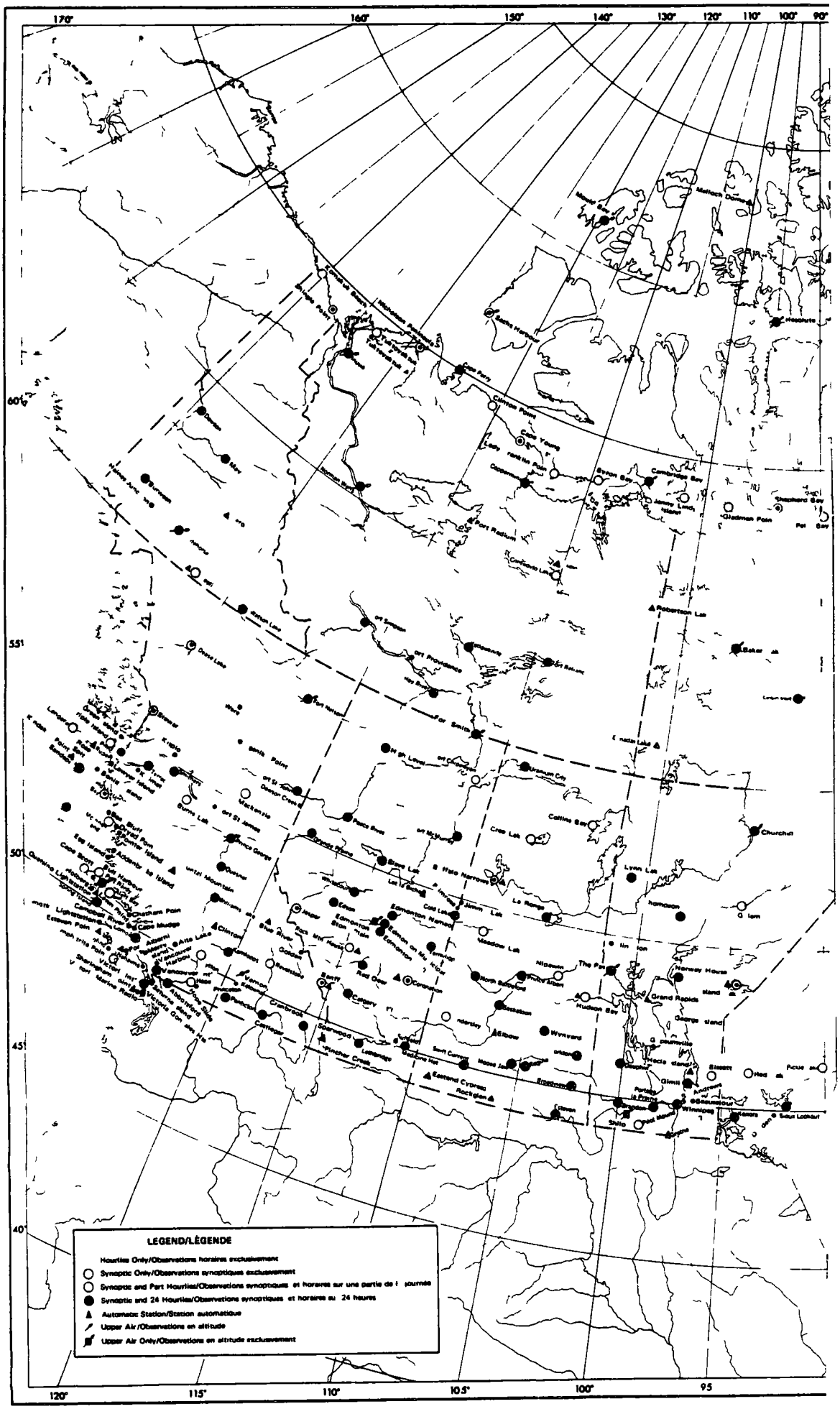
A network of weather radars strategically located at 11 sites across Canada, (see map "AES Radar Network" on page 44) provides information on the presence and movement of severe storms and precipitation areas

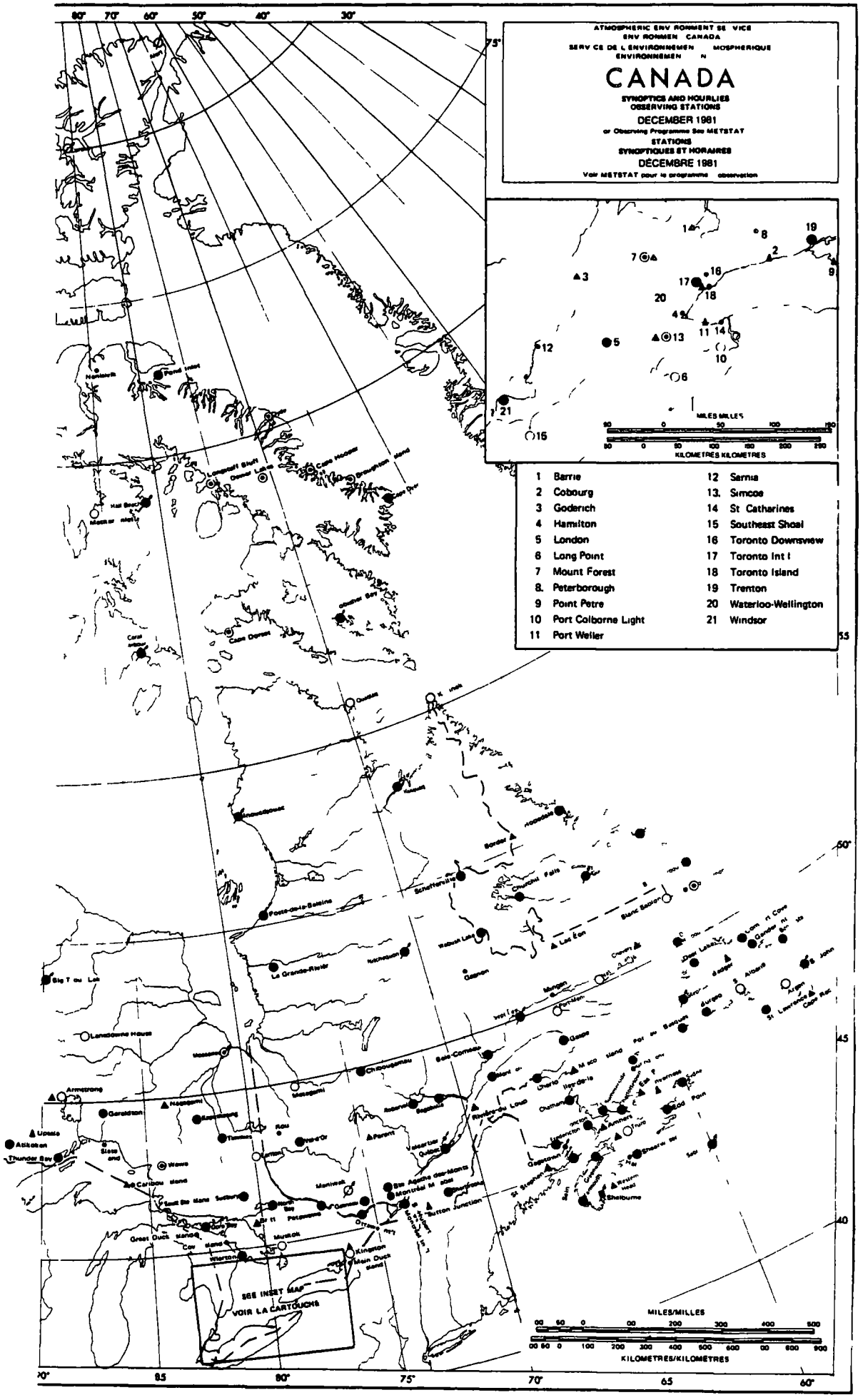
Satellite readout stations at Vancouver, Whitehorse, Edmonton, Toronto, Halifax and a joint Canadian-Danish station at Sondre Stromfjord provide satellite imagery of North American weather systems to operational weather offices The type of satellite stations in place are shown on the map on page 45

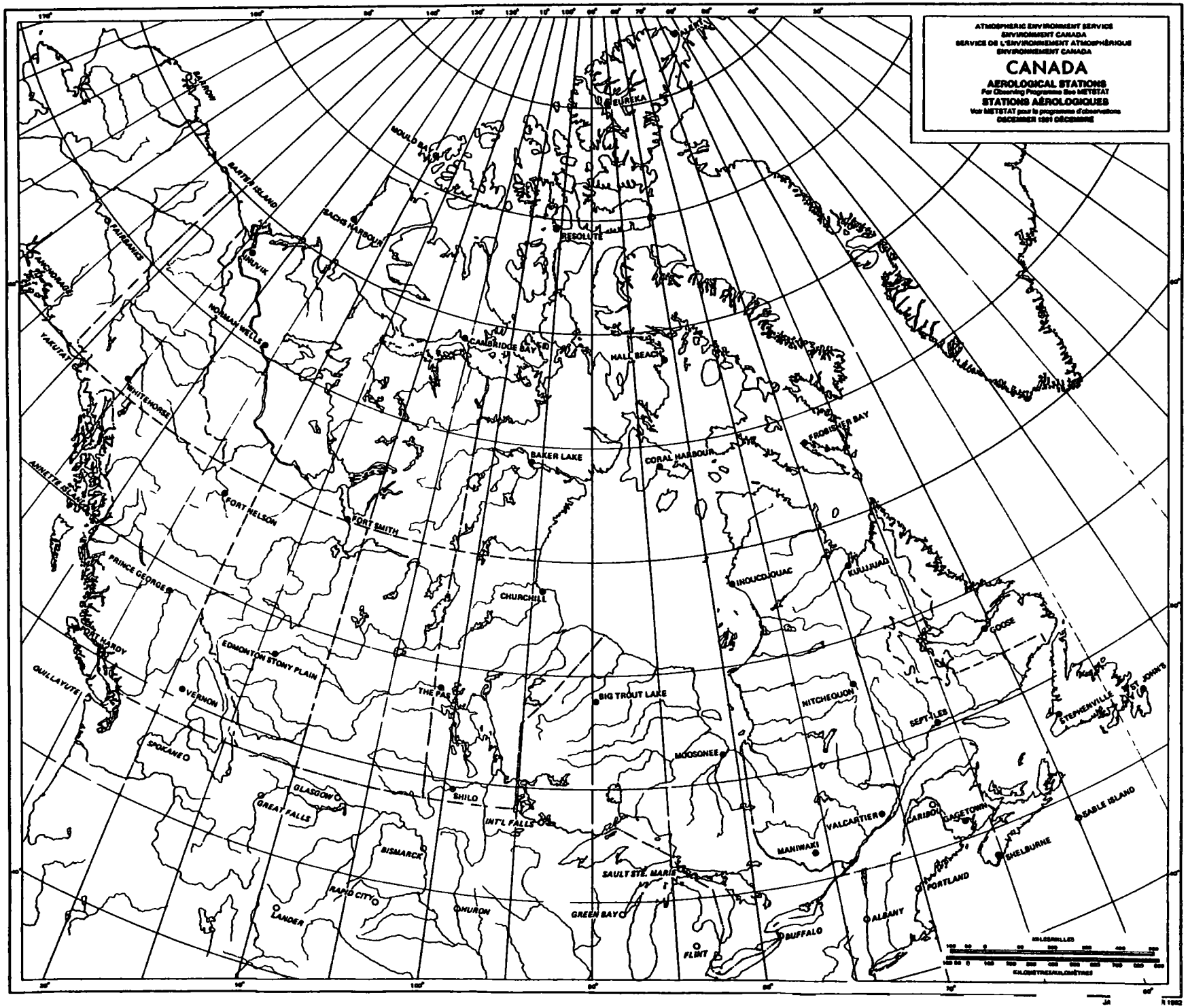
Special observational programs such as seasonal freeze-up and break-up of water bodies, evaporation, sunshine, and total ozone are carried out by many weather stations Five weather stations take Seismic observations for the Department of Energy, Mines and Resources Air quality measurements are carried out at 56 locations, and monitoring for atmospheric radioactivity is done at 25 stations for the Department of National Health and Welfare The map "Air Quality Network" on page 46 shows the location of these stations and type of measurements taken at each location

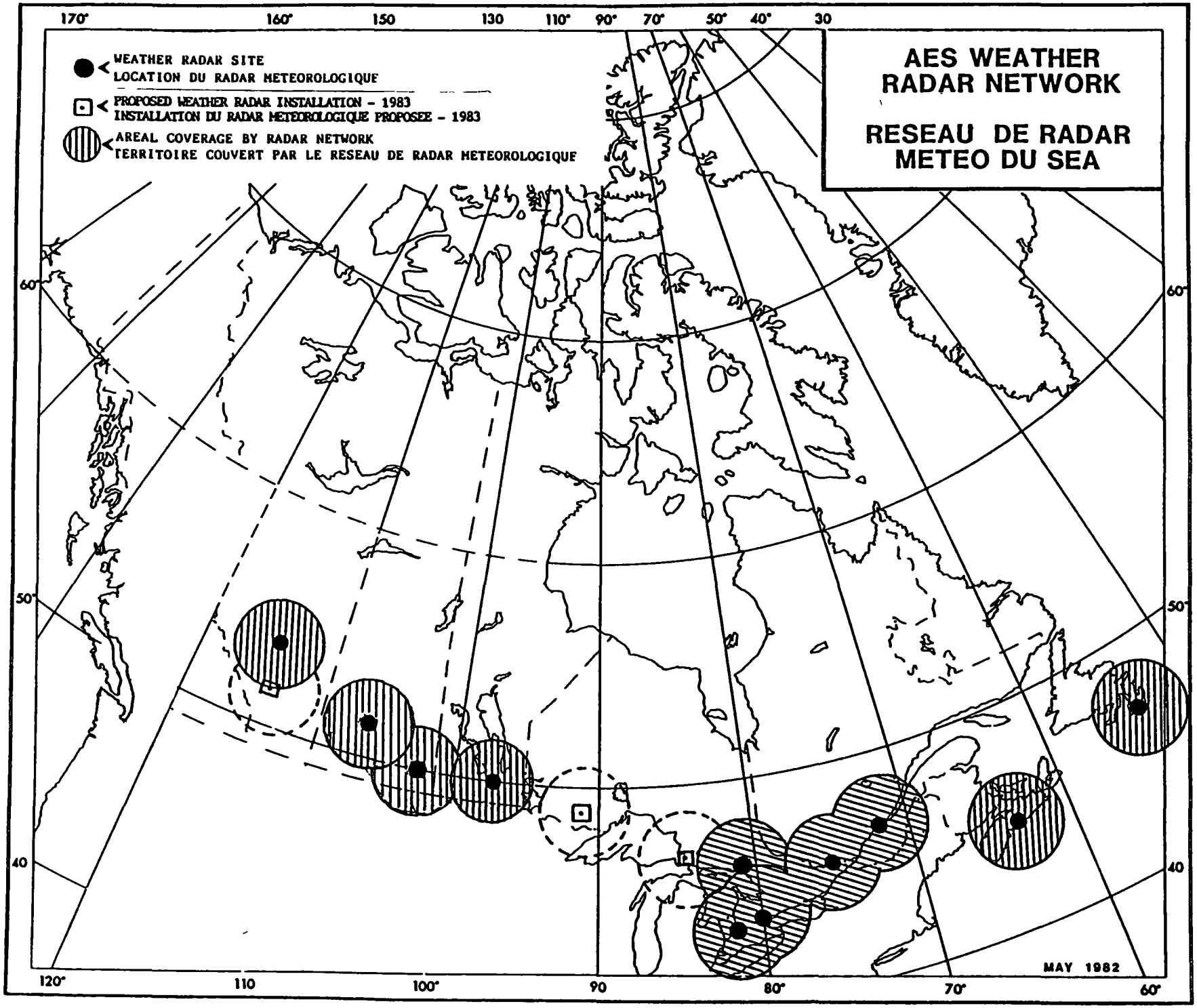
AES DATA ACQUISITION STATIONS BY REGION BY TYPE
1982-83

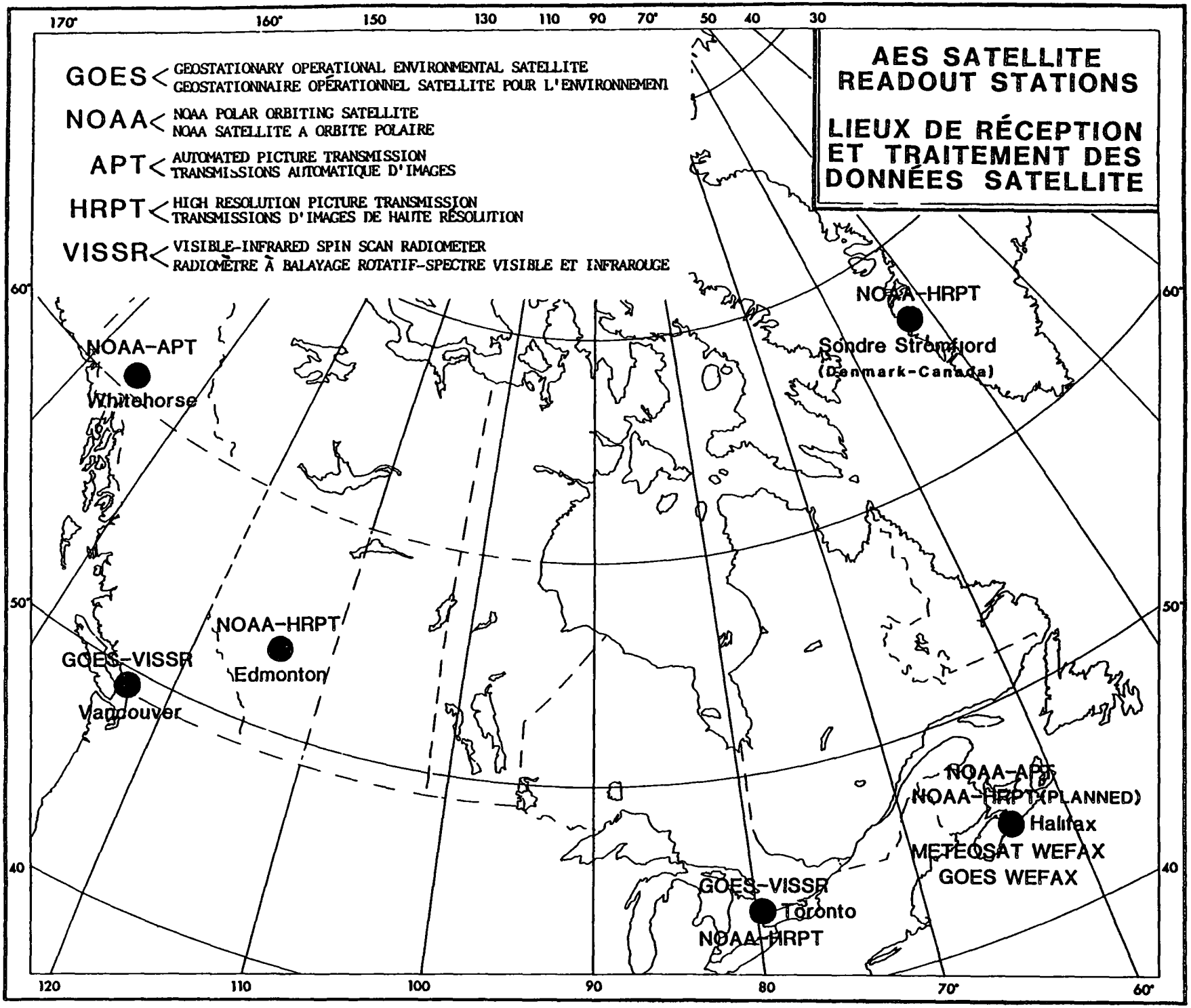
TYPE	REGION						
	PACIFIC	WESTERN	CENTRAL	ONTARIO	QUEBEC	ATLANTIC	TOTAL
Automatic Station	9	8	13	12	7	9	58
Upper Air Station	4	7	9	2	6	5	33
Synoptic Station	34	50	45	33	33	35	230
Climate Station	457	446	445	378	472	227	2382
Weather Radar Station	0	1	3	4	1	2	11
Satellite Station	1	2	0	1	0	1	5
Seismic Station	1	2	1	0	1	0	5
Air Quality Measurement	8	12	8	11	7	10	56
Radiation Measurement	1	8	4	6	2	4	25

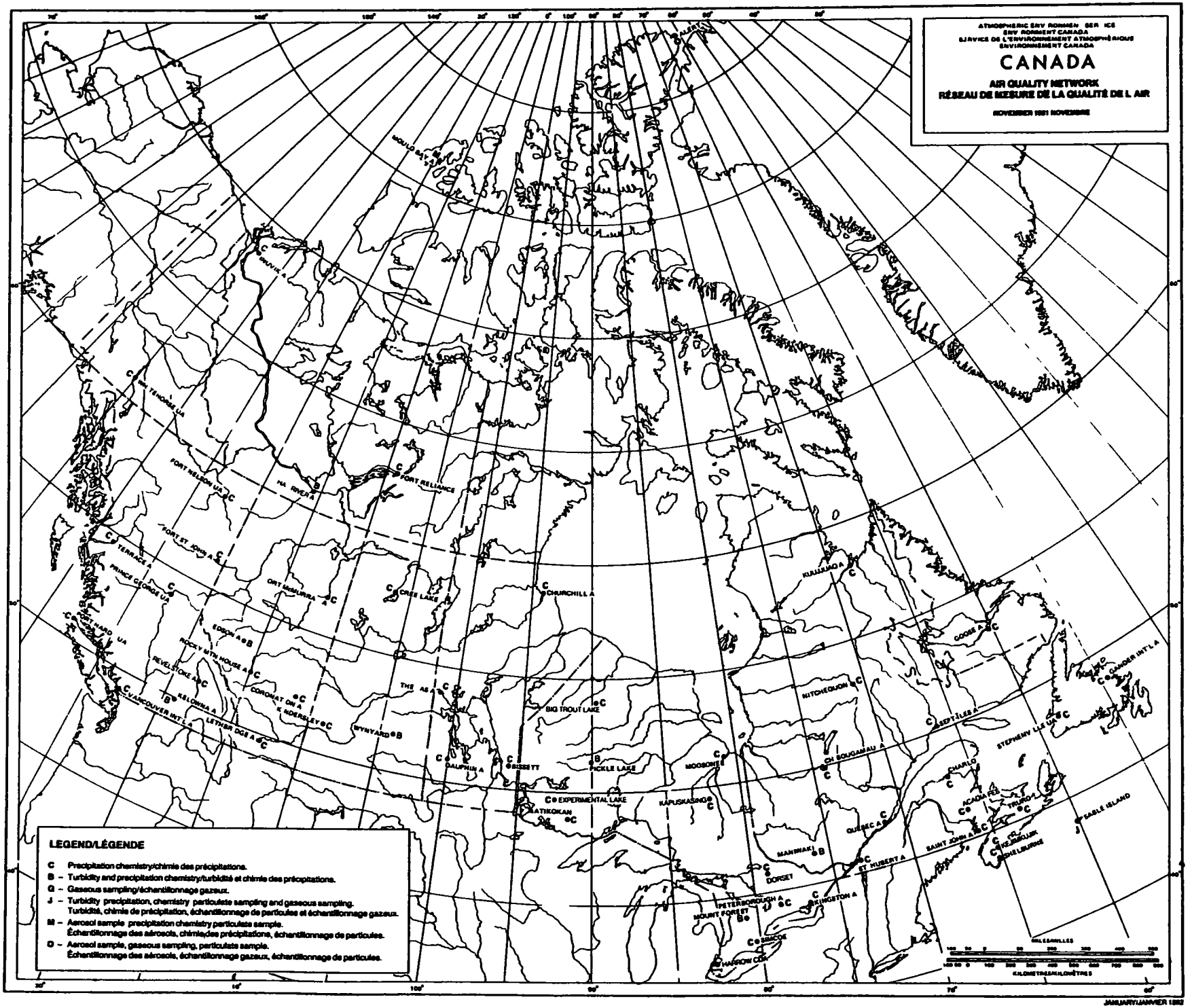

LEGEND/LÉGENDE
Hourlies Only/Observations horaires exclusivement
Synoptic Only/Observations synoptiques exclusivement
Synoptic and Part Hourlies/Observations synoptiques et horaires sur une partie de l journée
Synoptic and 24 Hourlies/Observations synoptiques et horaires au 24 heures
Automatic Station/Station automatique
Upper Air/Observations en altitude
Upper Air Only/Observations en altitude exclusivement


ATMOSPHERIC ENVIRONMENT SERVICE
ENVIRONNEMENT CANADA
SERVICE DE L'ENVIRONNEMENT ATMOSPHERIQUE
ENVIRONNEMENT CANADA
CANADA
SYNOPTICS AND HOURLIES OBSERVING STATIONS
DECEMBER 1981
For Observing Programme See METSTAT
STATIONS SYNOPTIQUES ET HORAIRES
DECEMBRE 1981
Voir METSTAT pour le programme d'observation
1 Barrie
2 Cobourg
3 Goderich
4 Hamilton
5 London
6 Long Point
7 Mount Forest
8. Peterborough
9 Point Petre
10 Port Colborne Light
11 Port Weller
12 Sarnia
13. Simcoe
14 St Catharines
15 Southeast Shoal
16 Toronto Downsview
17 Toronto Int l
18 Toronto Island
19 Trenton
20 Waterloo-Wellington
21 Windsor
MILES MILLES
KILOMETRES KILOMETRES
SEE INSET MAP
VOIR LA CARTOUCHE
MILES/MILLES
KILOMETRES/KILOMETRES


ATMOSPHERIC ENVIRONMENT SERVICE
ENVIRONMENT CANADA
SERVICE DE L'ENVIRONNEMENT ATMOSPHÉRIQUE
ENVIRONNEMENT CANADA
CANADA
AEROLOGICAL STATIONS
For Observing Programme See METSTAT
STATIONS AÉROLOGIQUES
Voir METSTAT pour le programme d'observations
DECEMBER 1981 DÉCEMBRE
ALERT
EUREKA
MOULD BAY
BARTER ISLAND
BAKER HARBOUR
RESOLUTE
ANCHORAGE
FAIRBANKS
INUVIK
NORMAN WELLS
CAMBRIDGE BAY
HALL BEACH
YAKUTAT
WHITEHORSE
FROBISHER BAY
BAKER LAKE
CORAL HARBOUR
ANNETTE ISLAND
FORT NELSON
FORT SMITH
PRINCE GEORGE
INOUCDJOUAC
KUUJJUAQ
CHURCHILL
GOOSE
QUILLAYUTE
EDMONTON STONY PLAIN
VERNON
THE PAS
BIG TROUT LAKE
NITCHEQUON
SEPT-ILES
ST JOHN'S
STEPHENVILLE
SPOKANE
MOOSONEE
GLASGOW
SHILO
GREAT FALLS
INT'L FALLS
VALCARTIER
CARIBOU
GAGETOWN
SABLE ISLAND
BISMARCK
MANIWAKI
SHELBURNE
SAULT STE. MARIE
PORTLAND
RAPID CITY
HURON
GREEN BAY
ALBANY
LANDER
BUFFALO
FLINT


AES WEATHER RADAR NETWORK
RESEAU DE RADAR METEO DU SEA
WEATHER RADAR SITE
LOCATION DU RADAR METEOROLOGIQUE
PROPOSED WEATHER RADAR INSTALLATION - 1983
INSTALLATION DU RADAR METEOROLOGIQUE PROPOSEE - 1983
AREAL COVERAGE BY RADAR NETWORK
TERRITOIRE COUVERT PAR LE RESEAU DE RADAR METEOROLOGIQUE
170° 160° 150 130 110° 90° 70° 50° 40° 30
60° 50° 40°
120° 110 100° 90 80° 70° 60°
MAY 1982


AES SATELLITE READOUT STATIONS
LIEUX DE RÉCEPTION ET TRAITEMENT DES DONNÉES SATELLITE
GOES < GEOSTATIONARY OPERATIONAL ENVIRONMENTAL SATELLITE
GEOSTATIONNAIRE OPÉRATIONNEL SATELLITE POUR L'ENVIRONNEMENT
NOAA < NOAA POLAR ORBITING SATELLITE
NOAA SATELLITE A ORBITE POLAIRE
APT < AUTOMATED PICTURE TRANSMISSION
TRANSMISSIONS AUTOMATIQUE D'IMAGES
HRPT < HIGH RESOLUTION PICTURE TRANSMISSION
TRANSMISSIONS D'IMAGES DE HAUTE RÉSOLUTION
VISSR < VISIBLE-INFRARED SPIN SCAN RADIOMETER
RADIOMÈTRE À BALAYAGE ROTATIF-SPECTRE VISIBLE ET INFRAROUGE
170° 160° 150 130 110 90 70° 50 40 30
60° 50° 40°
120 110 100 90 80 70° 60°
NOAA-APT
Whitehorse
NOAA-HRPT
Sondre Stromfjord
(Denmark-Canada)
NOAA-HRPT
Edmonton
GOES-VISSR
Vancouver
NOAA-APT
NOAA-HRPT(PLANNED)
Halifax
METEOSAT WEFAX
GOES WEFAX
GOES-VISSR
Toronto
NOAA-HRPT


ATMOSPHERIC ENVIRONMENT SERVICE
ENVIRONMENT CANADA
SERVICE DE L'ENVIRONNEMENT ATMOSPHÉRIQUE
ENVIRONNEMENT CANADA
CANADA
AIR QUALITY NETWORK
RÉSEAU DE MESURE DE LA QUALITÉ DE L'AIR
NOVEMBER 1981 NOVEMBRE
LEGEND/LÉGENDE
C Precipitation chemistry/chimie des précipitations.
B – Turbidity and precipitation chemistry/turbidité et chimie des précipitations.
G – Gaseous sampling/échantillonnage gazeux.
J – Turbidity precipitation, chemistry particulate sampling and gaseous sampling.
Turbidité, chimie de précipitation, échantillonnage de particules et échantillonnage gazeux.
M – Aerosol sample precipitation chemistry particulate sample.
Échantillonnage des aérosols, chimie des précipitations, échantillonnage de particules.
O – Aerosol sample, gaseous sampling, particulate sample.
Échantillonnage des aérosols, échantillonnage gazeux, échantillonnage de particules.
MILES/MILLES
KILOMETRES/KILOMÈTRES
JANUARY/JANVIER 1982

4.2.3.3 Weather Services Support Systems Program Sub-Sub-Activity (826 PY, $63,793K)

This sub-sub-activity provides many of the support services necessary for the efficient functioning of a modern weather service.

The Canadian Meteorological Centre (CMC) in Montreal employs advanced computer techniques and sophisticated mathematical models of the atmosphere to generate forecasts of meteorological conditions on a large scale for periods of up to 5 days using a Control Data Corporation large scale computer system complex in Montreal. The weather forecasts generated by these computer models are used as major guidance by all other forecast weather offices in the AES. This computer system complex is one of two complexes operated by the Computing and Communications Branch. The other one, National Advanced System AS 6 computer, is located at AES Headquarters in Downsview.

Research in Downsview and in Montreal is carried out to improve the forecast service and related data acquisition and processing activities described previously. This work includes computer oriented research which concentrates on the development of computer models to predict large scale physical-dynamical parameters of the atmosphere. Forecasting methods are also developed and implemented to support regional and local forecasting. In the Arctic and offshore areas, emphasis is being given to atmosphere related environmental predictions (ice, wind-wave, oil slick motion, etc.). Meteorological satellite research and weather radar development are being carried out, the radar work both in relation to its integrated use with satellite data and its direct application to short-range severe storm forecasting.

Another support system is the AES Communications System. This is required for the rapid collection and dissemination of national and international data and information The principal part of the system includes a national teletype network, a national paper facsimile network and a national photo facsimile network. The Communications System was reviewed in 1980-81 and a plan for its upgrading has been finalized. A number of implementation projects are in progress.

Training Branch develops and conducts advanced and refresher training courses for professional meteorologists at AES Downsview and at the major weather offices across the country. Technical training courses are provided in both official languages by AES staff at the Transport Canada Training Institute in Cornwall. Similar courses are also given at the USAF Dewline Training establishment in Colorado Springs, Colo , U.S A. Training Branch also holds discussions and negotiations with Canadian Universities regarding the development of programs in meteorology For example, the University of Quebec at Montreal is contracted by AES to provide 5 meteorological courses to AES employees

The Data Acquisition Services Branch of Central Services Directorate develops, designs and evaluates meteorological instruments to determine the optimum instrumentation required for the Weather Services sub-activity It is also responsible for the procurement, testing, installation and maintenance of field instruments

4.3 CLIMATE SERVICES Program Sub-Activity (233 PY, $12,266K)

4 3.1 Objectives CLIMATE SERVICES

To provide a comprehensive climate program that serves the needs of Canadians for climate data and information services, climate forecasts, understanding of the effects on climate of increasing atmospheric pollutants such as carbon dioxide, understanding of the social and economic consequences of such effects as well as of those of climate hazards and variations, and for planning and decision information needed in support of Canada's energy, food, economic, offshore, Arctic, industrial and other objectives in which climate is a factor

4.3.2 BUDGET CLIMATE SERVICES 1982-83 AES Budget by Sub-Sub-Activity (SA 2)

Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
410 Services and Applications	151	4835.6	1755 3	391.0	6981 9
450 Climate Research	13	549.6	36.8	10.0	596.4
460 Climate Services Sup Sys.	69	2273.2	2145 2	269.5	4687 9
400 CLIMATE SERVICES	233	7658 4	3937 3	670.5	12266 2

4 3 3 Description CLIMATE SERVICES

Climate Services in the form of climate data, information, consultations and interpretations are provided to the general public, private industry, provincial agencies and other federal departments through consultation (by telephone, personal visits or correspondence), data archives and publications. The following table displays the number of AES climate services contacts per year with all users of climate services since 1976 The majority of these enquiries are received and processed at local weather offices and regional offices across Canada

AES CLIMATE SERVICE CONTACTS
(Nearest 000)

	1976	1977	1978	1979	1980	1981
FIELD SERVICES DIRECTORATE	142,000	147,000	117,000*	178,000	173,000	**
CANADIAN CLIMATE CENTRE	15,000	14,000	14,000	15,000	15,000	14,500
TOTAL	157,000	161,000	131,000*	193,000	188,000	**

* Weather Office contacts only.
** Data are not available at the time of publication

The Canadian Climate Centre located in Downsview processes about 15,000 enquiries per year, dealing with requests which are national in scope and assisting the regional offices in answering the enquiries as required.

Climate Services include

The provision of climate data, information, consultations and interpretations to clients, including the general public. For example, climate information is frequently requested by energy companies (heating degree days and maximum temperatures) to estimate consumptions, the agricultural industry (growing degree days, frost dates, etc.), the forestry industry (Fire Weather Indexes), conservation authorities (rainfall, hydrometeorological data), architects for building codes/design purposes (wind, temperature, etc.), transportation, offshore drilling interests (wind/wave climatology), recreation and tourism industry, legal profession and law enforcement agencies for forensic studies and court cases, municipal and provincial governments

The preparation and publication of climate summaries (including climate normals for about 2,800 stations and long-term abstracts for about 10,000 stations), periodicals, scientific papers and major publications For example, last year 30,000 pages of climate data and information were prepared in periodicals and summaries for distribution to regional offices, libraries and other information specialists, and 200 publications were printed and distributed.

The collection, quality control and archiving of national, historical and statistical climate data in the National Climate Archive to provide a data base for climate services and for research and applications programs in both the government and the private sector. Approximately four hundred thousand weather records are archived in paper format and in excess of one million records are microfilmed each year

The provision of applications services such as design and planning information for river, lake, and marine applications, and a wide range of clients in agriculture and forest meteorology, energy research and development, arctic meteorology, industrial applications, biometerorology and environmental assessment.

Research and the provision of strategic planning information on issues such as the effects of ozone depletion and carbon dioxide additions upon the climate

The development and provision of climate predictions to improve the operational management of energy supplies, food and forest production and water supplies

Research to increase our understanding of the climate as a physical system to provide a sound basis for assessing and determining the responses of the climate to natural changes and to those resulting from human activities

4.4 ICE SERVICES Program Sub-Activity (51 PY, $13,103K)

4.4.1 Objectives ICE SERVICES

To provide ice data and advice for the safety of Canadians, the security of their property, the support of economic activities and the protection of the environmental quality in Canada.

4.4 2 Budget ICE SERVICES 1982-83 Budget by Sub-Sub-Activity (SA 2)
($000)

Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
510 Ice Reconnaissance	27	1133.5	9418.0	---	10551 5
520 Ice Forecasting	15	606.3	223.0	---	829.3
530 Ice Climate Services	4	162.1	20.0	---	182.1
540 Ice Services Support System	5	378.6	1031 0	130.0	1539.6
500 ICE SERVICES	51	2280 5	10692.0	130.0	13102.5

4.4.3 Description ICE SERVICES

This sub-activity includes developing and maintaining acquisition systems for ice data, provision of predictions on the formation, growth, movement and nature of ice in Canadian and adjacent waters for periods of up to one year in advance, and consultation and advice on ice data to the Canadian public and specialized users such as energy, marine and fisheries interests over the 200-mile economic zone

Ice Observations

Ice observation programs are conducted from aircraft, ship and shore stations in support of shipping in the ice congested waters of Canada during the appropriate seasons. Aerial ice reconnaissance is carried out every month of the year in one or more areas of the Eastern Canadian Seaboard, Canadian Inland Waterways, Hudson Bay, Hudson Strait and Canadian Arctic Waters. Satellite observations are being integrated into the data acquisition system.

Ice Forecasts

From the Ice Centre Environment Canada in Ottawa, forecasts of the extent and characteristics of ice in the form of short-range tactical forecasts and longer-range strategic forecasts are provided for the lower St. Lawrence River, Gulf of St. Lawrence, coastal waters of Newfoundland and Labrador, Hudson Bay and its approaches, and the waters of the Canadian Arctic, including the Beaufort Sea.

Ice Climatology

The need for ice climatology and its application to winter time Arctic development and industrial development along Canada's east coast is growing. Ice climatological services are being provided and the supporting data base is being expanded

4.5 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH Program Sub-Activity (103 PY, $8,772K)

4.5.1 Objectives AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH

To advance knowledge and understanding of the nature and behaviour of the atmosphere and its constituents and their interactions with man, his activities and other components of the natural environment.

To provide information and predictions of air quality conditions for areas of Canada and adjacent waters.

To develop, operate and maintain systems for acquiring data on the quality of the atmospheric environment and on the deposition from the atmosphere of contaminants, in Canada and adjacent waters.

4.5.2 Budget AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH

1982-83 AES Budget by Sub-Sub-Activity (SA 2)
($000)

Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
610 Air Quality Services	4	164.8	140.0	276.0	580.8
630 Air Quality Research	54	1762.1	647 1	566.0	2975 2
660 Atmospheric Research	29	1222.6	1289.0	626.0	3137.6
670 Air Qua. & Res Sup Sys.	16	1296.1	727 4	55.0	2078.5
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH	103	4445.6	2803.5	1523 0	8772 1

4 5.3 Description AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH

As a result of rapid advances in science and technology, AES needs a research and development capability to ensure that the quality of its services can be improved. This capability includes

Theoretical and applied research to improve our understanding of meteorological processes and atmospheric physics and chemistry,

Research on the long-range transport of air pollutants (acid rain) including the cause-effect relationship between pollutants and receptors, on the impact of man's activities on the atmosphere, the air/land and air/water interface, on uptake by land, sea (water) and air of man-made and natural environmental pollutants,

Research on air quality, development of air quality criteria and national ambient air quality standards,

Research, development, and implementation of meteorological instrumentation not only to improve the quality and quantity of meteorological and related data, but also as a means to improve our understanding of the basic processes of meteorological physics.

4 6 DEPARTMENTAL INTEGRATED PROGRAMS Program Sub-Activity (7 PY, $935K)

4.6.1 Objective

To contribute to the Departmental programs which cover the objectives of various Services of the Department and involve a wide range of professional and scientific input from various operational units in the Department.

4.6.2 Budget DEPARTMENTAL INTEGRATED PROGRAMS 1982-83 Budget by Sub-Sub-Activity (SA 2)

($000)

Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
710 Environmental Assess.&Rev.			3.5		3.5
720 LRTAP	7	259.3	579.6	93.0	931 9
730 Toxic Chemicals					
740 Great Lakes Water Quality					
750 Baseline Studies					
700 DEPARTMENTAL INTEGRATED PROGRAMS	7	259 3	583.1	93.0	935.4

4 6 3 Description DEPARTMENTAL INTEGRATED PROGRAMS

Baseline Studies

The Baseline Studies Integrated Program has been designed primarily to ensure that adequate environmental information is available to permit Environment Canada to fulfil its responsibilities under the Federal Environmental Assessment Review Process The output of this program is environmental data that will provide a basis for Environment Canada experts to predict or evaluate predicted environmental impacts of developments for which there is a federal responsibility Environmental Conservation Service has overall responsibility for this program with Regional Directors General managing the program in each region. All operational Services including AES are involved and much of the required information is derived from ongoing programs.

LONG RANGE TRANSPORT OF AIR POLLUTANTS

The LRTAP program was established in order to give Environment Canada a focus for all activities relating to the long range transport of pollutants and particularly the problem of acid rain. AES as the lead agency for the scientific program is responsible for the scientific coordination of the LRTAP program and for the provision of information to elected officials, the media and the general public. AES is currently maintaining and upgrading two sampling networks to monitor the concentration and deposition for sulphur, nitrogen and other compounds with special emphasis upon acid precipitation AES is also responsible for conducting research to improve the knowledge of physical and chemical processes involved in LRTAP and to develop predictive models of long range transport, transformation and depositions of air pollutants

Great Lakes Water Quality

The Canadian program is managed under the lead of Environment Canada which chairs an interdepartmental committee. The Ontario RDG is the program manager. The AES component of the Great Lakes Water Quality Study is comprised of two research projects. The first project, involving the development of appropriate methodology for monitoring particulate dry deposition over snow, water and ice surfaces, has been completed. The second project is concerned with estimating the atmospheric input of certain nutrients, heavy metals and organic contaminants to the Great Lakes and with examining the relative importance of various sources through a comprehensive modelling effort.

Toxic Chemicals

The Toxic Chemicals Management Program (TCMP) was designed to provide a Environment Canada liaison with federal, provincial, international and non-governmental organizations on matters concerning toxic chemicals. Environment Canada is involved through research, environmental monitoring and regulatory activities. The Environment Canada program is given general direction by a steering committee chaired by ADM Environmental Protection Service and consists of the other Service ADM's and RDG Ontario Region. The main emphasis is on control of the chemicals or groups of chemicals that are assessed as dangerous to human or environmental health. AES scientific efforts will focus on atmospheric measurements of toxic chemicals with a view towards defining their major atmospheric pathways, including transport, transformation and deposition mechanisms.

Federal Environmental Assessment and Review Process (EARP)

The purpose of EARP is to ensure that the environmental effects of federal projects, programs and activities are considered early in their planning before irrevocable decisions are made Federal projects are considered to be those initiated by federal agencies, those for which federal funds are solicited and those involving federal property. Environment Canada as a participant in EARP may assume one or more of the following roles at various stages in the Process initiator, regulator, advisor, reviewer, or intervenor. These roles are dependent upon the involvement with a proposed development. AES participates in matters related to the AES mandate.

Beaufort Sea

A multi-Service Program Plan which sets out DOE's responsibilities in carrying out its mandate to preserve and enhance the environmental quality of the Beaufort Sea area has been approved. The Plan focusses on hydrocarbon development issues and several of these impact upon AES. Interaction of this development with atmospheric/sea state/ice regimes will involve a major upgrading of core climatic, weather, ice and sea state information for forecasting services in the Beaufort Sea production zone. Other AES involvement includes provision of special information and forecasting services as well as research applied to improve prediction and communications systems

4.7 MANAGEMENT AND COMMON SUPPORT SERVICES Program Sub-Activity (82 PY, $3,474K)

4.7 1 Objectives MANAGEMENT AND COMMON SUPPORT SERVICES

1 To provide effective and efficient management and administrative support to the Atmospheric Environment Service in the area of financial management, human resources management, material management, policy and planning, general administration, library services and official languages.

2 To provide continuous policy guidance and leadership for the service including the establishment of objectives, goals and priorities to be attained in an effective and efficient manner.

3 To co-ordinate participation in international programs in accordance with Canada's commitment to the World Meteorological Organization and as a contribution to the development of the scientific and technological base required to support the AES mandate.

4 To promote and foster the science and public awareness of meteorology and other environmental disciplines in Canada in

supporting organizations concerned with the advancement of meteorology and other environmental disciplines,

supporting meteorological and other environmental research in Canadian universities,

encouraging the development of meteorological and other environmental services in the private sector within Canada.

4 7 2 Budget MANAGEMENT AND COMMON SUPPORT SERVICES 1982-83 Budget by Sub-Sub-Activity (SA 2)

($000)

Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
810 Management	18	658.0	285 0	5.0	948 0
830 Common Support Services	64	2165 1	241 0	120 0	2526 1
800 MANAGEMENT AND COMMON SUPPORT	82	2823 1	526 0	125 0	3474 1

4 7 3 Description MANAGEMENT AND COMMON SUPPORT SERVICES

This sub-activity includes those common services which support AES in the areas of administration, personnel, facilities, library, material and financial management Also included is the management function related to the development and maintenance of overall goals and objectives for the AES, policies, and program development and evaluation, information services, and participation in international meteorological affairs

CHAPTER 5

Atmospheric Environment Service

ORGANIZATIONAL BUDGETS

BY PROGRAM SUB-ACTIVITY

BY PROGRAM SUB-SUB-ACTIVITY

5 1 ATMOSPHERIC ENVIRONMENT SERVICE BUDGET

5.1 1 AES Organizational Structure

The Atmospheric Environment Service is organized functionally into five directorates and one Branch.

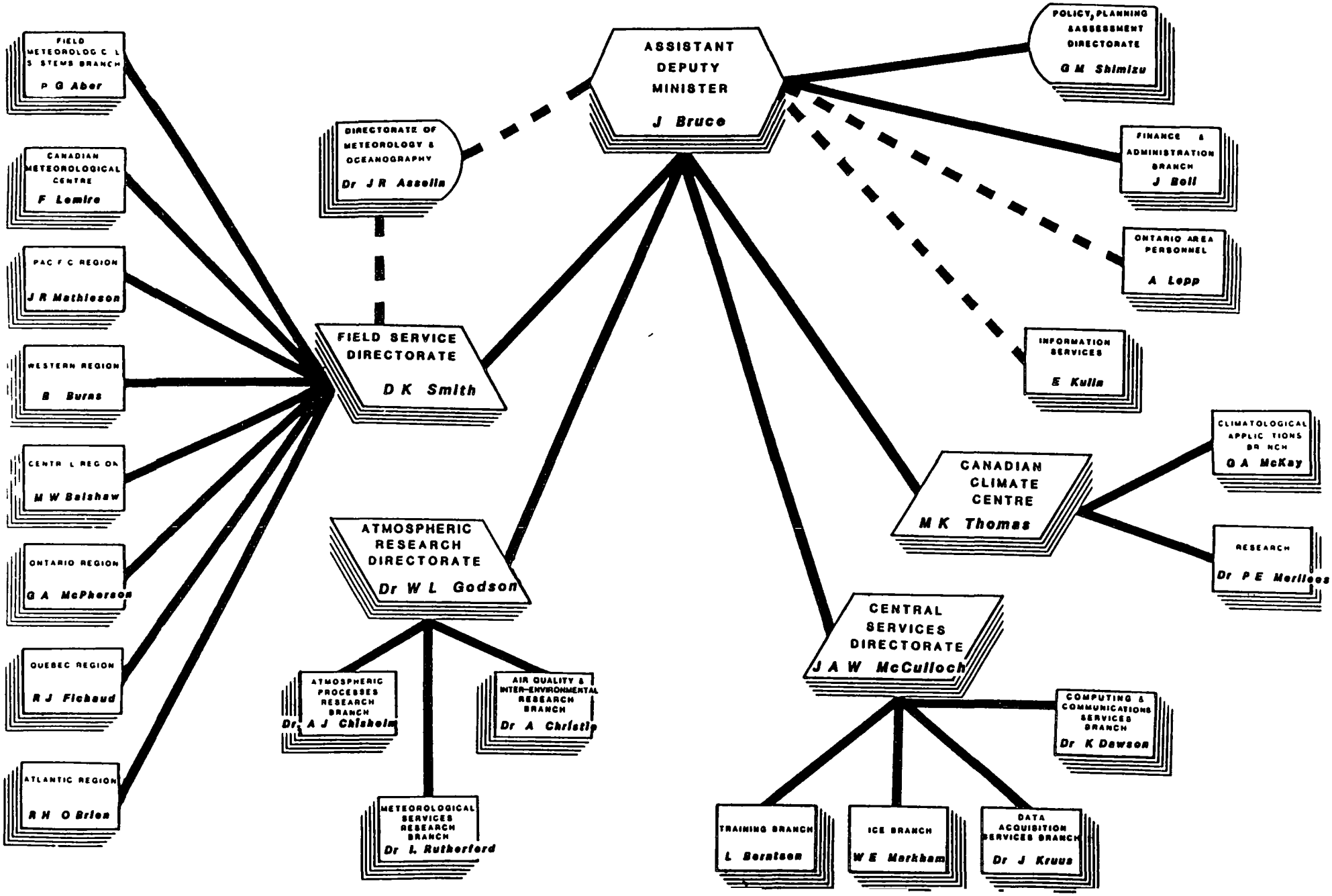
Field Services Directorate	FSD
Research Directorate	ARD
Canadian Climate Centre	CCC
Central Services Directorate	CSD
Policy, Planning and Assessment Directorate	APDG
Finance and Administration Branch	AABD

Four of the five directorates and the Finance and Administration Branch have their headquarters at Downsview, Ontario while the Assistant Deputy Minister and the Policy, Planning and Assessment Directorate have their offices in Hull, but also maintain support staff in Downsview.

The Atmospheric Environment Service provides weather and sea-state services to the Department of National Defence as provided for in a Memorandum of Understanding between the two parties DND maintains a Canadian Forces Weather Service headed by the Director of Meteorology and Oceanography (DMetOc) in Ottawa. DMetOc formally reports to a higher level DND authority while functionally, and on technical matters, he reports to the ADM of the Atmospheric Environment Service or to the Director General, Field Services Directorate, as appropriate.

The Ontario Area Personnel Office of Environment Canada and the AES Information Directorate are located at Downsview to provide support to the ADM and services to AES managers.

ATMOSPHERIC ENVIRONMENT SERVICE



1982-83 Budget
($000)

5.1 ATMOSPHERIC ENVIRONMENT SERVICE

5.1.2 TOTAL BUDGET BY PROGRAM ACTIVITY STRUCTURE AND ORGANIZATION

SUB-ACTIVITY Sub-Sub-Activity	ADMA	AABD	ARD	CCC	CSD	FSD	TOTAL
110 Public Weather Services						15432	15432
120 Marine Weather Services						587	587
130 Aviation Weather Services						4805	4805
140 Economic Weather Services						757	757
150 Canadian Forces Wx Service						5405**	5405
200 Data						22641	22641
300 Wx Services Support System		5204	5836		19232	33521	63793
100 WEATHER SERVICES		5204	5836		19232	83148**	113420
410 Climate Services and Appl.				4418	41	2523	6982
450 Climate Research				596			596
460 Climate Services Sup. Sys.		792		722	2806	369	4689
400 CLIMATE SERVICES		792		5736	2847	2892	12267
510 Ice Reconnaissance					10552		10552
520 Ice Forecasting					829		829
530 Ice Climate Services					182		182
540 Ice Services Support System		825			714		1539
500 ICE SERVICES		825			12277		13102
610 Air Quality Services			581				581
630 Air Quality Research			2975				2975
660 Atmospheric Research			3138				3138
670 Air Qua & Res Sup Sys.		554	1525				2079
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH		554	8219				8773
710 Environmental Assess &Rev						3	3
720 LRTAP	188		698			46	932
730 Toxic Chemicals							
740 Great Lakes Water Quality							
750 Baseline Studies							
700 DEPARTMENTAL INTEGRATED PROGRAM	188		698			49	935
810 Management	765	183					948
830 Common Support Services		2526					2526
800 MANAGEMENT AND COMMON SUPPORT	765	2709					3474
GRAND TOTAL	953	10084	14753	5736	34356	86089**	151971

** Includes Canadian Forces Weather Service

1982-83 Budget

5.1 ATMOSPHERIC ENVIRONMENT SERVICE

5 1 3 PERSON YEARS BY PROGRAM ACTIVITY AND ORGANIZATION

SUB-ACTIVITY Sub-Sub-Activity	ADMA	AABD	ARD	CCC	CSD	FSD	TOTAL
110 Public Weather Services						440	440
120 Marine Weather Services						18	18
130 Aviation Weather Services						122	122
140 Economic Weather Services						20	20
150 Canadian Forces Wx Service						103*	103
200 Data						337	337
300 Wx Services Support Systems		28	69		239	490	826
100 WEATHER SERVICES		28	69		239	1530*	1866
410 Climate Services and Appl.				97	1	53	151
450 Climate Research				13			13
460 Climate Services Sup. Sys.				10	49	10	69
400 CLIMATE SERVICES				120	50	63	233
510 Ice Reconnaissance					27		27
520 Ice Forecasting					15		15
530 Ice Climate Services					4		4
540 Ice Services Support System					5		5
500 ICE SERVICES					51		51
610 Air Quality Services			4				4
630 Air Quality Research			54				54
660 Atmospheric Research			29				29
670 Air Qua. & Res Sup Sys.			16				16
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH			103				103
710 Environmental Assess.&Rev							
720 LRTAP	3		3			1	7
730 Toxic Chemicals							
740 Great Lakes Water Quality							
750 Baseline Studies							
700 DEPARTMENTAL INTEGRATED PROGRAMS	3		3			1	7
810 Management	15	3					18
830 Common Support Services		64					64
800 MANAGEMENT AND COMMON SUPPORT	15	67					82
GRAND TOTAL	18	95	175	120	340	1594*	2342

* Includes Canadian Forces Weather Service

1982-83 Budget
($000)

5.1 ATMOSPHERIC ENVIRONMENT SERVICE

5.1.4 SALARY BY PROGRAM ACTIVITY AND ORGANIZATION

SUB-ACTIVITY Sub-Sub-Activity	ADMA	AABD	ARD	CCC	CSD	FSD	TOTAL
110 Public Weather Services						14344	14344
120 Marine Weather Services						583	583
130 Aviation Weather Services						4113	4113
140 Economic Weather Services						702*	702
150 Canadian Forces Wx Service						3865	3865*
200 Data						10751	10751
300 Wx Services Support Systems		1823	2450		8265	18283	30821
100 WEATHER SERVICES		1823	2450		8265	52641*	65179*
410 Climate Services and Appl.				3144	34	1658	4836
450 Climate Research				550			550
460 Climate Services Sup. Sys.		164		330	1493	286	2273
400 CLIMATE SERVICES		164		4024	1527	1944	7659
510 Ice Reconnaissance					1134		1134
520 Ice Forecasting					606		606
530 Ice Climate Services					162		162
540 Ice Services Support System		171			208		379
500 ICE SERVICES		171			2110		2281
610 Air Quality Services			165				165
630 Air Quality Research			1762				1762
660 Atmospheric Research			1222				1222
670 Air Qua. & Res Sup. Sys		115	1182				1297
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH		115	4331				4446
710 Environmental Assess &Rev							
720 LRTAP	140		77			42	259
730 Toxic Chemicals							
740 Great Lakes Water Quality							
750 Baseline Studies							
700 DEPARTMENTAL INTEGRATED PROGRAMS	140		77			42	259
810 Management	533	125					658
830 Common Support Services		2165					2165
800 MANAGEMENT AND COMMON SUPPORT	533	2290					2823
GRAND TOTAL	673	4563	6858	4024	11902	54627	82647

* Includes Canadian Forces Weather Service

1982-83 Budget
($000)

5.1 ATMOSPHERIC ENVIRONMENT SERVICE

5.1.5 O&M BY PROGRAM ACTIVITY STRUCTURE AND ORGANIZATION

SUB-ACTIVITY Sub-Sub-Activity	ADMA	AABD	ARD	CCC	CSD	FSD	TOTAL
110 Public Weather Services						1054	1054
120 Marine Weather Services						4	4
130 Aviation Weather Services						692	692
140 Economic Weather Services						55	55
150 Canadian Forces Wx Service						1540**	1540
200 Data						9179	9179
300 Wx Services Support System		3381*	1891		9405	9423	24100
100 WEATHER SERVICES		3381*	1891		9405	21947**	36624
410 Climate Services and Appl.				904	7	844	1755
450 Climate Research				37			37
460 Climate Services Sup. Sys.		627		372	1101	45	2145
400 CLIMATE SERVICES		627		1313	1108	889	3937
510 Ice Reconnaissance					9418		9418
520 Ice Forecasting					223		223
530 Ice Climate Services					20		20
540 Ice Services Support System		654			377		1031
500 ICE SERVICES		654			10038		10692
610 Air Quality Services			140				140
630 Air Quality Research			647				647
660 Atmospheric Research			1289				1289
670 Air Qua. & Res. Sup. Sys.		439	288				727
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH		439	2364				2803
710 Environmental Assess.&Rev						3	3
720 LRTAP	48		528 0			4	580
730 Toxic Chemicals							
740 Great Lakes Water Quality							
750 Baseline Studies							
700 DEPARTMENTAL INTEGRATED PROGRAM	48		528.0			7	583
810 Management	232	53					285
830 Common Support Services		241					241
800 MANAGEMENT AND COMMON SUPPORT	232	294					526
GRAND TOTAL	280	5395*	4783	1313	20551	22843**	55165

* Includes 975 OK in Grants and Contributions
** Includes Canadian Forces Weather Service

1982-83 Budget
($000)

5.1 ATMOSPHERIC ENVIRONMENT SERVICE

5.1.6 CAPITAL BY PROGRAM ACTIVITY AND ORGANIZATION

SUB-ACTIVITY / Sub-Sub-Activity	ADMA	AABD	ARD	CCC	CSD	FSD	TOTAL
110 Public Weather Services						34	34
120 Marine Weather Services							
130 Aviation Weather Services							
140 Economic Weather Services							
150 Canadian Forces Wx Service							
200 Data						2710	2710
300 Wx Services Support Systems			1495		1562	5815	8872
100 WEATHER SERVICES			1495		1562	8559	11616
410 Climate Services and Appl				370		21	391
450 Climate Research				10			10
460 Climate Services Sup. Sys.				20	212	38	270
400 CLIMATE SERVICES				400	212	59	671
510 Ice Reconnaissance							
520 Ice Forecasting							
530 Ice Climate Services							
540 Ice Services Support System					130		130
500 ICE SERVICES					130		130
610 Air Quality Services			276				276
630 Air Quality Research			566				566
660 Atmospheric Research			626				626
670 Air Qua. & Res Sup Sys			55				55
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH			1523				1523
710 Environmental Assess &Rev.							
720 LRTAP			93				93
730 Toxic Chemicals							
740 Great Lakes Water Quality							
750 Baseline Studies							
700 DEPARTMENTAL INTEGRATED PROGRAMS			93				93
810 Management		5					5
830 Common Support Services		120					120
800 MANAGEMENT AND COMMON SUPPORT		125					125
GRAND TOTAL		125	3111	400	1904	8618	14158

1982-83 Budget
($000)

5.1 ATMOSPHERIC ENVIRONMENT SERVICE

5.1.7 BY ORGANIZATION

	PY	SALARY	O&M	CAPITAL	GRANTS & CONTRIBUTIONS	TOTAL
OFFICE OF ASSISTANT DEPUTY MINISTER	18	673	280			953
FINANCE AND ADMINISTRATION BRANCH	95	4563	4420	125	975	10083
ATMOSPHERIC RESEARCH DIRECTORATE	175	6858	4783	3111		14752
CANADIAN CLIMATE CENTRE	120	4023	1313	400		5736
CENTRAL SERVICES DIRECTORATE	340	11902	20551	1904		34357
FIELD SERVICES DIRECTORATE	1491	50762	21303	8618		80683
CANADIAN FORCES WEATHER SERVICE	103	3865	1540			5405
AES TOTAL	2342	82646	54190	14158	975	151969

5 1 8

ATMOSPHERIC ENVIRONMENT SERVICE

1982-83 Budget

RECONCILIATION TO MAIN ESTIMATES

AND REFERENCE LEVEL

($000)

1) Allocated within AES	$151,969	
Plus		
- Capital Construction Funds allocated to Facilities Management	5,014	
- Baseline Studies Assessment Allocated to ECS	75	
2) Main Estimates (Blue Book)		$157,058
Plus		
- Employee Benefit Plans allocated at Program Level		10,346
Less		
- Vote Netted Revenue		(21,183)
3) 1982-83 Reference Level		$146,221

ATMOSPHERIC ENVIRONMENT SERVICE

5.1.9 PERSON-YEARS BY ORGANIZATION AND BY LOCATION

(TOTAL 2342)

	Location	Region or Branch	Directorate
ADMA			18
Downsview, Ont.	7		
Hull, P.Q.	11		
FINANCE AND ADMINISTRATION		95	95
Downsview, Ont.	95		
ATMOSPHERIC RESEARCH DIRECTORATE			175
Directors General's Office		7	
Downsview, Ont	7		
Air Quality and Inter-Environmental Research Branch		68	
Downsview, Ont.	67		
Victoria, B.C.	1		
Atmospheric Processes Research Branch		31	
Downsview, Ont	31		
Meteorological Services Research Branch		69	
Dorval, P.Q.	23		
Downsview, Ont.	46		
CANADIAN CLIMATE CENTRE			120
Directors General's Office		28	
Downsview, Ont.	28		
Climatological Applications Branch		92	
Downsview, Ont.	92		
CENTRAL SERVICES DIRECTORATE			340
Directors General's Office		5	
Downsview, Ont	5		
Computing and Communications Services Branch		107	
Dorval, P.Q.	31		
Downsview, Ont.	76		
Data Acquisition Services Branch		106	
Downsview, Ont	106		
Ice Branch		50	
Downsview, Ont	30		
Ottawa, Ont	20		
Training Branch		72	
Colorado Springs, Colo , U S.A	2		
Cornwall, Ont	34		
Downsview, Ont	30		
Montreal, P Q	6		

	Location	Region or Branch	Directorate
FIELD SERVICES DIRECTORATE			1594
Directors General's Office		17	
Downsview, Ont.	17		
Canadian Meteorological Centre		78	
Dorval, P.Q.	78		
Field Meteorological Systems Branch		36	
Downsview, Ont.	36		
Atlantic Region		237	
Bedford, N S - Regional Office	36		
Bedford, N S - Maritime Weather Centre	56		
Charlo, N.B	5		
Charlottetown, P.E.I.	2		
Churchill Falls, Labrador	4		
Fredericton, N B	7		
Gander, Nfld	48		
Goose Bay, Labrador	12		
Halifax Airport, N S	11		
Moncton, N B	11		
Sable Island, N S.	6		
Saint John, N B	5		
Shelburne, N S	5		
St John's, Nfld.	15		
Stephenville, Nfld.	4		
St Leonard, N.B.	2		
Sydney, N.S	6		
Truro, N S	2		
Quebec Region		206	
Baie Comeau, P Q	5		
Cape Dyer, N.W T	3		
Chibougamau, P Q	5		
Clyde River, N W.T.	5		
Dorval, P Q	22		
Frobisher Bay, N W.T	6		
Inoucdjouac, P Q	8		
Kuujjuak, P Q	5		
Maniwaki, P Q	5		
Mirabel, P Q	10		
Montreal (Ville St Laurent)-Regional HQ	39		
- Weather Centre	63		
Nitchequon, P Q	2		
Quebec, P Q	6		
Sept-Iles, P Q	4		
Sherbrooke, P Q	2		
St Hubert, P Q	5		
Ste Agathe des Monts, P Q	5		
Trois Rivières, P Q	1		
Val d'Or, P Q	5		

	Location	Region or Branch	Directorate
Ontario Region		197	
Atikokan, Ont.	4		
Dryden, Ont.	1		
Hamilton, Ont.	4		
Kingston, Ont.	3		
London, Ont.	5		
Moosonee, Ont.	4		
Mt. Forest, Ont	2		
Ottawa, Ont.	11		
Niagara Falls, Ont.	2		
North Bay, Ont.	6		
Peterborough, Ont.	2		
Pickle Lake, Ont	1		
Sarnia, Ont.	2		
Sault Ste Marie, Ont.	7		
Simcoe, Ont.	1		
St. Catherines, Ont	1		
Sudbury, Ont.	3		
Thunder Bay, Ont.	9		
Toronto - Regional Headquarters	31		
- Ontario Weather Centre	44		
- Toronto Weather Office	29		
- Ontario Climate Centre	6		
Toronto Island	3		
Trout Lake	7		
Waterloo/Wellington, Ont	2		
Windsor	7		
Central Region		250	
Alert, N W T	3		
Baker Lake, N.W T.	2		
Bissett, Man	1		
Brandon, Man.	1		
Broadview, Sask	5		
Churchill, Man	8		
Coral Harbour, N W.T	2		
Cree Lake, Sask	4		
Dauphin, Man.	1		
Estevan, Sask.	4		
Elbow, Sask	2		
Eureka, N.W T	8		
Gillam, Man.	1		
Gimli, Man.	2		
Hall Beach, N.W T.	5		
Hudson Bay, Sask	2		
Island Lake, Man	2		
Kindersley, Sask	1		
Mould Bay, N.W T	8		
Prince Albert, Sask	3		
Regina, Sask	11		
Resolute, N W T	7		

	Location	Region or Branch	Directorate
Saskatoon, Sask	8		
The Pas, man.	7		
Thompson, Man	1		
Winnipeg, Man. - International Airport (Sfc)	5		
- International Airport (Presentation)	8		
- Prairie Weather Centre	63		
- Regional Headquarters	72		
Wynyard, Sask	2		
Yorkton, Sask	1		
Western Region		270	
Banff, Alta	3		
Calgary, Alta	16		
Cambridge Bay, N.W T	6		
Cape Parry, N W T.	3		
Coronation, Alta	3		
Edson, Alta.	4		
Edmonton, Alta - Regional Director	15		
- Data Acquisition	29		
- Forecast Operations	85		
- Scientific Services	10		
- Weather Services	17		
Fort McMurray, Alta	3		
Fort Reliance, N.W.T	3		
Fort Smith, N W.T.	3		
Grande Prairie, Alta	4		
Hay River, N W T	1		
Inuvik, N W T	8		
Jasper, Alta.	3		
Lethbridge, Alta	5		
Norman Wells, N W T	3		
Pincher Creek, Alta	2		
Rocky Mountain House, Alta.	3		
Sachs Harbour, N.W T	6		
Slave Lake, Alta	4		
Stony Plain, Alta	4		
Whitehorse, Yukon	21		
Yellowknife, N.W T	6		
Pacific Region		200	
Cape St James, B C	3		
Castlegar, B C	3		
Dease Lake, B C	2		
Fort St John	4		
Fort Nelson	6		
Hope, B C	3		
Kamloops, B C	4		
Kelowna, B C	6		
Lytton, B C	3		
Penticton, B C	2		

	Location	Region or Branch	Directorate
Port Alberni, B.C.	2		
Port Hardy, B.C.	6		
Prince George, B.C.	10		
Revelstoke, B.C.	3		
Terrace, B.C.	2		
Vancouver, B.C. - Regional Headquarters	54		
- Pacific Weather Centre	52		
- Airport	6		
- Harbour	3		
- Weather Office	13		
Vernon, B.C.	3		
Victoria, B.C.	10		
CANADIAN FORCES WEATHER SERVICES		103	
AES TOTAL	2,342	2,342	2,342

5 2 OFFICE OF THE ASSISTANT DEPUTY MINISTER*

5.2.1 FUNCTIONS OF THE OFFICE OF THE ADM (18 PY, $953K)

The Assistant Deputy Minister (ADM) provides executive direction to, and management of, the Atmospheric Environment Service, participates in the corporate executive management of Environment Canada, and is the permanent representative for Canada on the Executive governing body of the World Meteorological Organization of the United Nations.

The Director General of the Policy, Planning and Assessment Directorate reporting to the ADM is located in Hull along with some of his staff, the remainder being in Downsview. This Directorate has a variety of responsibilities covering long-term issues in policy, planning, liaison, coordination, program development, program integration with other elements of the Department and program evaluation. Because of its overview of AES activities, it also coordinates the preparation of a variety of documents for senior management consideration, including the Minister and Deputy Minister of the Department, Central Agencies, etc. Principal staff reporting to the Director General include Chief of Program Development and Evaluation, Senior Policy Advisor, Senior Economist, Liaison Meteorologist and Scientific Programs Coordinator

The International Affairs Coordinator reports to the ADM He assists the ADM and other managers with official business with other countries and organizations The Head, LRTAP Liaison Office also reports directly to the ADM

5.2.2 OTHER FUNCTIONAL UNITS SERVING THE ADM

Two units, Information Directorate in Downsview and Ontario Regional Personnel Office, are not part of AES The former, in cooperation with AES managers, develops and implements AES' public information and media relations programs and the latter serves as the ADM's special advisor on personnel matters across the Service.

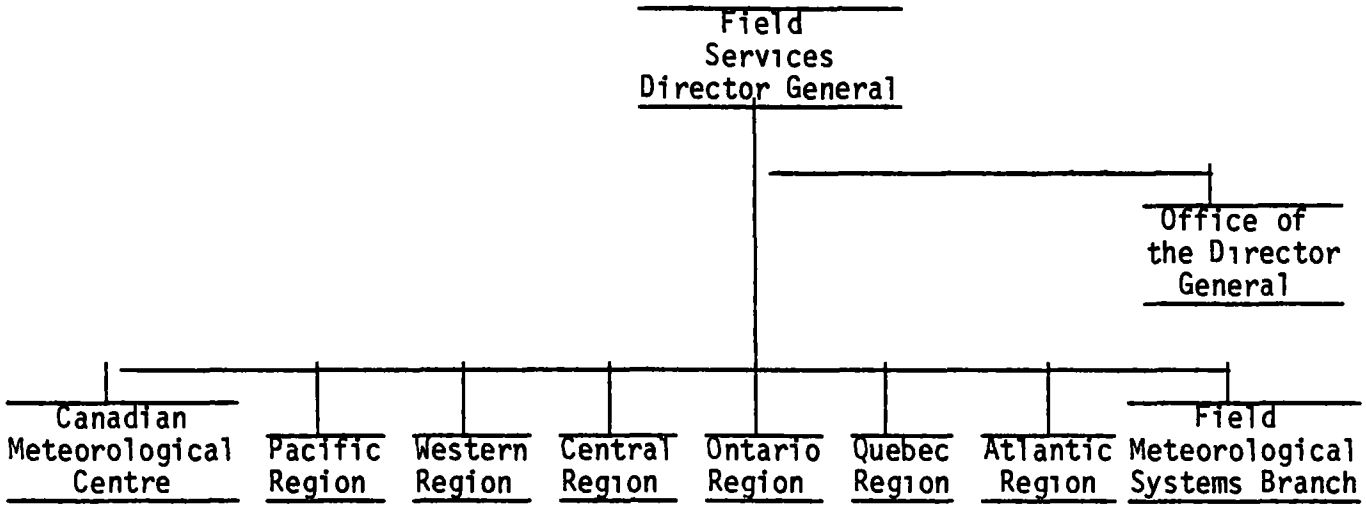
* This title is unofficial and is meant to include all personnel, resources, facilities, activities, etc not included in one of the four line Directorates or the Finance and Administration Branch

5.2.3 1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
($000)

OFFICE OF THE ASSISTANT DEPUTY MINISTER

SUB-ACTIVITY Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
100 WEATHER SERVICES					
400 CLIMATE SERVICES					
500 ICE SERVICES					
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH					
710 Environmental Assess & Rev. 720 LRTAP 730 Toxic Chemicals 740 Great Lakes Water Quality 750 Baseline Studies	3	140.0	48.0		188 0
700 DEPARTMENTAL INTEGRATED PROGRAMS	3	140 0	48.0		188 0
810 Management 830 Common Support Services	15	533.0	232.0		765.0
800 MANAGEMENT AND COMMON SUPPORT	15	533 0	232.0		765 0
GRAND TOTAL	18	673.0	280.0		953.0

5 3 FIELD SERVICES DIRECTORATE



5.3 1 FUNCTIONS FIELD SERVICES DIRECTORATE (1491 PY, $80,683K)

This Directorate is the largest of the Service It employs 66% of the total staff. The Director General is supported in Downsview by the Office of the Director General and the Field Meteorological Systems Branch. Others reporting to the Director General are the Directors of the Canadian Meteorological Centre in Montreal and six regions across Canada, i.e the Pacific, Western, Central, Ontario, Quebec and Atlantic Regions

Office of the Director General (17 PY, $5,109K)

This unit is accountable for the development, co-ordination and evaluation of Directorate policies, plans and programs The office is also accountable to the Director General for the control of financial and human resource expenditures on Directorate programs.

Field Meteorological Systems Branch (36 PY, $5,897K)

This Branch is made up of three Divisions

Forecasting, Computers and Communications Systems Division co-ordinates the functional activities, determines requirements and recommends policy and plans for FSD in forecasting, computers and communications for the CMC and each of the six Regions

Observational Services Division interfaces with Central Services Directorate and Administration Branch at Downsview on the policy, plans and management of the operational observational network It also manages major capital funds associated with observational systems and associated installation, etc

Weather Services Division develops national plans and policies for services which AES provides to the public, marine, aviation, agriculture and wide variety of special users The Division is the national focal point for services provided to the media and has the internal responsibility in the fields of marine and aviation meteorology It also sets standards for weather offices in the regions and nationally coordinates FSD portions of the climate and air quality services programs.

Canadian Meteorological Centre (78 PY, $3,038K)

The Canadian Meteorological Centre (CMC) in Montreal employs advanced computer techniques and sophisticated mathematical models of the atmosphere to generate analyses, prognoses and weather element forecasts on a synoptic scale for periods of up to 5 days The Operations Division is responsible for data assimilation into operational runs, for the preparation of subjective products, for the implementation and maintenance of the computerized production system and for the monitoring and evaluation of (automated and manual) output. The Development Division is responsible for improving the quality and range of forecast products and for providing efficient production systems.

Pacific, Western, Central, Ontario, Quebec and Atlantic Regions (1,360 PY, $66,639K)

Six Regions representing AES provide services to all Canadians. The organizational structure and specific responsibilities of the Regions are similar except for geographical coverage (see page 74) and different regional needs.

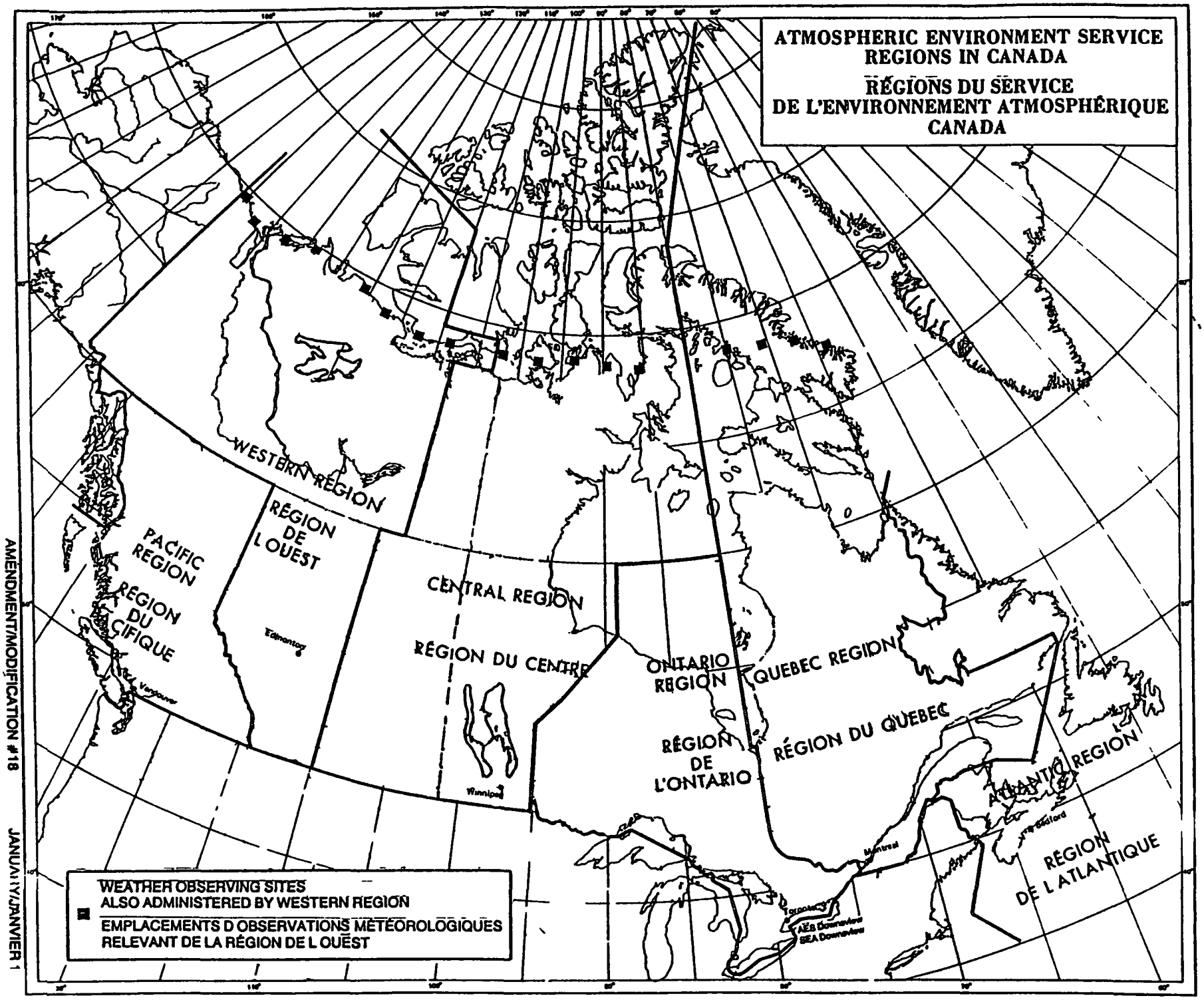
Each Region has four Divisions

Data Acquisition Division is responsible for taking observations in real-time of all standard weather elements and of special weather conditions as inputs to the AES forecast operations system Other data such as air quality measurement, radiation measurement, seismic measurement are also taken by some stations Data are taken at surface observation stations, upper-air observation stations, automatic stations, radar/SCEPTRE sites, volunteer climate stations and ships This Division is responsible for administering contract stations It is also responsible for ensuring that the meteorological instruments are properly maintained and calibrated, and that the volunteer observers and observers working at contract stations are adequately trained

Regional Weather Centres and Weather Forecast Operations Division are responsible for producing regional weather forecasts and weather warnings based on all incoming weather information including the weather maps produced by CMC and the National Meteorological Centre of the United States, Radar and Satellite Imagery, Synoptic Weather reports, etc. The forecasts include public weather forecasts, aviation weather forecasts, marine weather forecasts and various specialized forecasts to adapt to regional needs, for example, in the fields of agrometeorology, hydrometeorology, forest meteorology. Development work to produce suitable products for the media is also carried out

Weather Services Division is responsible for ensuring that the regional needs for weather services are met. Weather offices of this Division are responsible for disseminating weather information mainly to the general public and aviation community. Many other specialized users obtain weather and climate information from these offices The majority of weather offices are also involved in taking weather observations. This Division is also responsible for operating Weatheradio.

Scientific Services Division is responsible for the quality control of climatological data in the region and provision of climatological information service to users including the provincial government, private sector, and federal and provincial agencies. This Division is involved in different types of studies for regional interests such as agrometeorology, forestry, air quality related activities, energy applications, hydrometeorology, variations and climate impacts. The Division is the focal point for AES regional participation in EARP and the federal/provincial environment assessment.


ATMOSPHERIC ENVIRONMENT SERVICE
REGIONS IN CANADA
RÉGIONS DU SERVICE
DE L'ENVIRONNEMENT ATMOSPHÉRIQUE
CANADA
WESTERN REGION
RÉGION DE L'OUEST
PACIFIC REGION
RÉGION DU PACIFIQUE
CENTRAL REGION
RÉGION DU CENTRE
ONTARIO REGION
RÉGION DE L'ONTARIO
QUEBEC REGION
RÉGION DU QUÉBEC
ATLANTIC REGION
RÉGION DE L'ATLANTIQUE
Edmonton
Winnipeg
Montreal
Toronto
WEATHER OBSERVING SITES
ALSO ADMINISTERED BY WESTERN REGION
EMPLACEMENTS D'OBSERVATIONS MÉTÉOROLOGIQUES
RELEVANT DE LA RÉGION DE L'OUEST

1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
(Nearest $000)

5.3.2 FIELD SERVICES DIRECTORATE *

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services	440	14343.6	1054.2	33.7	15431.5
120 Marine Weather Services	18	582.6	4.1		586.7
130 Aviation Weather Services	122	4113.2	692 2		4805.4
140 Economic Weather Services	20	701.8	55.1		756.9
150 Canadian Forces Wx Services					
200 Data	337	10751.4	9179.2	2710.0	22640.6
300 Wx Services Support Systems	490	18283.2	9423.1	5814.8	33521.1
100 WEATHER SERVICES	1427	48775 8	20407.9	8558 5	77742.2
410 Services and Applications	53	1657 8	844.3	21.0	2523.1
450 Climate Research					
460 Climate Services Sup. Sys.	10	286 4	44 7	37 5	368.7
400 CLIMATE SERVICES	63	1944.2	899.0	58.5	2891.8
500 ICE SERVICES					
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH					
710 Environmental Assess.&Rev.			3.5		3.5
720 LRTAP	1	42 0	3 6		45.6
730 Toxic Chemicals					
740 Great Lakes Water Quality					
750 Baseline Studies					
700 DEPARTMENTAL INTEGRATED PROGRAMS	1	42.0	7.1		49.1
GRAND TOTAL	1491	50762.1	21304 0	8617 0	80683.0

* Does not include Canadian Forces Weather Service

1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
(Nearest $000)

5.3.3 OFFICE OF DIRECTOR GENERAL

SUB-ACTIVITY Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services					
120 Marine Weather Services					
130 Aviation Weather Services					
140 Economic Weather Services					
150 Canadian Forces Wx Service					
200 Data			620.0	2628.0	3248.0
300 Wx Services Support Systems	17	806.2	1044.5	9 9	1860.6
100 WEATHER SERVICES	17	806 2	1664 5	2637 9	5108.6
GRAND TOTAL	17	806 2	1664.5	2637.9	5108 6

5.3 4 FIELD METEOROLOGICAL SYSTEMS BRANCH

SUB-ACTIVITY Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services					
120 Marine Weather Services					
130 Aviation Weather Services					
140 Economic Weather Services					
150 Canadian Forces Wx Service					
200 Data					
300 Wx Services Support Systems	36	1285 2	368 2	4243 9	5897 3
100 WEATHER SERVICES	36	1285 2	368.2	4243 9	5897 3
GRAND TOTAL	36	1285 2	368 2	4243 9	5897 3

5.3.5 CANADIAN METEOROLOGICAL CENTRE

SUB-ACTIVITY Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services					
120 Marine Weather Services					
130 Aviation Weather Services					
140 Economic Weather Services					
150 Canadian Forces Wx Service					
200 Data					
300 Wx Services Support Systems	78	2842 6	187 0	8 8	3038 4
100 WEATHER SERVICES	78	2842 6	187 0	8 8	3038 4
GRAND TOTAL	78	2842 6	187 0	8 8	3038 4

1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
(Nearest $000)

5.3 6 PACIFIC REGION

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services	67	1969 9	64 3		2034 2
120 Marine Weather Services					
130 Aviation Weather Services	20	632 4	562 8		1195 2
140 Economic Weather Services	3	86 0	23 0		109 0
150 Canadian Forces Wx Service					
200 Data	48	1377.7	822 9	19 0	2219 6
300 Wx Services Support Systems	51	1801 9	1054 8	171 1	3027 8
100 WEATHER SERVICES	189	5867.9	2527 8	190 1	8585 8
410 Services and Applications	9	274 7	83 0	5 0	362 7
450 Climate Research					
460 Climate Services Sup Sys.	2	37 3	5 4		42 7
400 CLIMATE SERVICES	11	312.0	88 4	5 0	405 4
GRAND TOTAL	200	6179 9	2616 2	195 1	8991.2

1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
(Nearest $000)

5.3.7 WESTERN REGION

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services	63	2312.5	107 9		2420.4
120 Marine Weather Services	8	252 4	3.7		256.1
130 Aviation Weather Services	35	1220.3	55.2		1275.5
140 Economic Weather Services	4	203.7	29 6		233.3
150 Canadian Forces Wx Service					
200 Data	82	2706.3	1311.6		4017 9
300 Wx Services Support Systems	68	2545.5	1965.9	293.6	4805.0
100 WEATHER SERVICES	260	9240.7	3473.9	293 6	13008.2
410 Services and Applications	7	198.5	39.3		237.8
450 Climate Research					
460 Climate Services Sup. Sys.	2	60.0	7 5		67 5
400 CLIMATE SERVICES	9	258.5	46.8		305 3
710 Environmental Assess.&Rev			3 5		3.5
720 LRTAP	1	42.0	3.6		45.6
730 Toxic Chemicals					
740 Great Lakes Water Quality					
750 Baseline Studies					
700 DEPARTMENTAL INTEGRATED PROGRAMS	1	42 0	7 1		49.1
GRAND TOTAL	270	9541 2	3527.8	293 6	13362.6

1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
(Nearest $000)

5.3.8 CENTRAL REGION

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services	69	2436.4	362.6		2799.0
120 Marine Weather Services					
130 Aviation Weather Services	10	404.0	3.0		407.0
140 Economic Weather Services					
150 Canadian Forces Wx Service					
200 Data	87	3090.6	3188.2		6278.8
300 Wx Services Support Systems	72	2501.8	1887.4	488 5	4877.7
100 WEATHER SERVICES	238	8432.8	5441.2	488.5	14362.5
410 Services and Applications	10	310.4	83.5		393.9
450 Climate Research					
460 Climate Services Sup. Sys.	2	62.4	5 3		67.7
400 CLIMATE SERVICES	12	372.8	88.8		461 6
GRAND TOTAL	250	8805.6	5530 0	488.5	14824.1

5.3.9 ONTARIO REGION

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services	81	2366.6	173 9	29.0	2569.5
120 Marine Weather Services	5	170.0	0.4		170.4
130 Aviation Weather Services	15	497 5	24 5		522.0
140 Economic Weather Services	5	165.8			165 8
150 Canadian Forces Wx Service					
200 Data	28	742.2	659.8	24 0	1426.0
300 Wx Services Support Systems	51	2049.2	693.6	147.5	2890 3
100 WEATHER SERVICES	185	5991.1	1552.2	200.5	7743.8
410 Services and Applications	10	269 5	64 7	16.0	350.2
450 Climate Research					
460 Climate Services Sup. Sys.	2	65.5	24.1		89.6
400 CLIMATE SERVICES	12	335 0	88.8	16.0	439 8
810 Management					
830 Common Support Services					
800 MANAGEMENT AND COMMON SUPPORT					
GRAND TOTAL	197	6326 1	1641.0	216.5	8183 6

1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
(Nearest $000)

5 3 10 QUEBEC REGION

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services	60	2187 6	197.5		2385.1
120 Marine Weather Services					
130 Aviation Weather Services	26	799 9	46 7		846.6
140 Economic Weather Services	8	246.3	2 5		248 8
150 Canadian Forces Wx Service					
200 Data	53	1703.6	1495.6		3199.2
300 Wx Services Support Systems	53	2176 4	1239 3	260 2	3675 9
100 WEATHER SERVICES	200	7113.8	2981 6	260.2	10355.6
410 Services and Applications	6	223 2	499 7		722.9
450 Climate Research					
460 Climate Services Sup Sys					
400 CLIMATE SERVICES	6	223.2	499 7		722.9
GRAND TOTAL	206	7337.0	3481.3	260 2	11078.5

5 3.11 ATLANTIC REGION

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services	100	3070 6	148 0	4 7	3223 3
120 Marine Weather Services	5	160 2			160 2
130 Aviation Weather Services	16	599 1			599 1
140 Economic Weather Services					
150 Canadian Forces Wx Service					
200 Data	39	1131.0	1081.1	39 0	2251 1
300 Wx Services Support Systems	64	2274 6	982.4	191 3	3448 3
100 WEATHER SERVICES	224	7195 5	2211 5	235 0	9642 0
410 Services and Applications	11	381 5	74 1		455 6
450 Climate Research					
460 Climate Services Sup Sys	2	61 2	2 4	37 5	101 1
400 CLIMATE SERVICES	13	442 7	76 5	37 5	556 7
810 Management					
830 Common Support Services					
800 MANAGEMENT AND COMMON SUPPORT					
GRAND TOTAL	237	7638 2	2288 0	272 5	10198 7

1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
(Nearest $000)

5 3.12 CANADIAN FORCES WEATHER SERVICE

SUB-ACTIVITY Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services					
120 Marine Weather Services					
130 Aviation Weather Services					
140 Economic Weather Services					
150 Canadian Forces Wx Service	103	3865.0	1540.0		5405 0
200 Data					
300 Wx Services Support Systems					
100 WEATHER SERVICES	103	3865.0	1540 0		5405.0
400 CLIMATE SERVICES					
500 ICE SERVICES					
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH					
700 DEPARTMENTAL INTEGRATED PROGRAMS					
800 MANAGEMENT AND COMMON SUPPORT					
GRAND TOTAL	103	3865 0	1540.0		5405 0

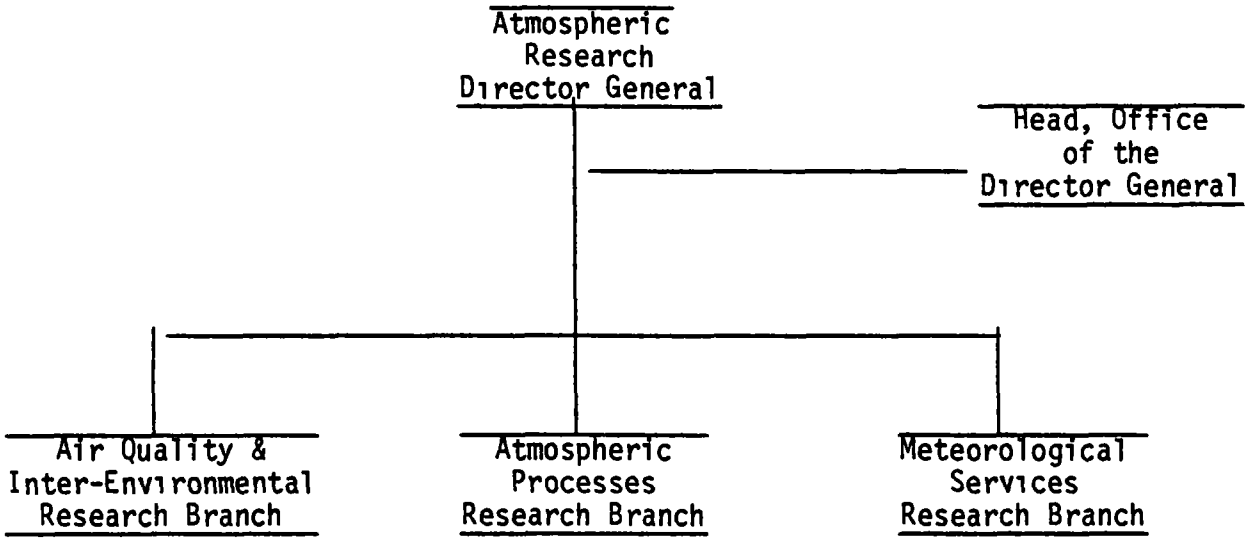
1982-83 Budget
($000)

FIELD SERVICES DIRECTORATE

5.3.13 BY ORGANIZATIONAL UNIT

	PY	SALARY	O&M	CAPITAL	TOTAL
OFFICE OF DG	17	806	1665	2638	5109
FIELD METEOROLOGICAL SYSTEMS BRANCH	36	1285	368	4244	5897
CANADIAN METEOROLOGICAL CENTRE	78	2843	187	9	3039
PACIFIC REGION	200	6180	2616	195	8991
WESTERN REGION	270	9541	3528	294	13363
CENTRAL REGION	250	8806	5530	489	14825
ONTARIO REGION	197	6326	1641	217	8184
QUEBEC REGION	206	7337	3481	260	11078
ATLANTIC REGION	237	7638	2288	272	10198
FSD TOTAL	1491	50762	21304	8618	80684
CANADIAN FORCES WEATHER SERVICE	103	3865	1540		5405

5.4 ATMOSPHERIC RESEARCH DIRECTORATE



5.4.1 FUNCTIONS ATMOSPHERIC RESEARCH DIRECTORATE (175 PY, $14,753K)

Director General and Head, Office of the Director General (7 PY, $1,524K)

Provides executive and scientific direction and management of the Atmospheric Research Directorate, provides scientific leadership and long-term direction to Service scientific programs, and ensures representation of the science and the Service nationally and internationally on scientific research matters.

Air Quality and Inter-Environmental Research Branch (68 PY, $4,532K)

The activities of the Branch are reflected by the names of the Divisions Atmospheric Chemistry, Boundary Layer, Atmospheric Dispersion, and Monitoring and Assessment Of the three Branches, this one interacts with other elements of the Department most closely since its areas of concern are directly related to environmental quality in that part of the atmosphere where humans and all other life exist, the research encompasses the physics, chemistry and dynamics in the lower atmosphere, the occurrence and influence of pollutants on the biosphere, and, in turn, the impacts of atmospheric pollution affecting man and life.

Atmospheric Processes Research Branch (31 PY, $3,568K)

The two Divisions that constitute this Branch, Cloud Physics and Experimental Studies, have emphasized field programs and measurements which are designed to help better understand atmospheric processes in the troposphere and stratosphere.

The Cloud Physics Division remains current in all aspects of cloud and precipitation physics, weather radar (includes severe weather detection) and weather modification (includes precipitation enhancement or suppression, modification of hailstorms, etc) Two major new initiatives involve using instrumental aircraft to study cloud and precipitation scavenging in relation to the acid rain problem and study of weather radar and satellite data for development of improved short-term (less than 12 hours) forecasts

The Experimental Studies Division is concerned with the gathering and interpretation of data on radiation and composition of the stratosphere (especially ozone) Such information is paramount for discussions of important questions such as the effects of fluorocarbons on the ozone layer (and hence the amount of energy in the ultraviolet portion of the solar spectrum reaching the earth which has serious effects on plant and animal life). Even small changes in stratospheric composition can also have very significant effects, in the long-term, related to changing the Climate

Meteorological Services Research Branch (69 PY, $5,130K)

This Branch carries out research and development in support of the prediction services of the AES for weather, sea-state, ice and other environment related elements.

The Aerospace Meteorology Division develops systems to receive and exploit data from satellites It includes an operational group, the Satellite Data Lab which provides satellite data on a real-time basis to all components of the AES

Division de la Recherche en Prévision Numérique located in Dorval develops numerical weather forecasting models in support of the forecasting operations at the Canadian Meteorological Centre

Forecast Research Division develops statistical/dynamical models and procedures for forecasting various weather elements and environmental parameters such as sea-state, ice and ice-related variables Models are also developed to enable AES response to marine environmental emergencies

System Design Division supports the activities of the Forecast Research Division (FRD) by creating and maintaining current and historical data bases, and implementing and making FRD's products operational

1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
($000)

5.4.2 ATMOSPHERIC RESEARCH DIRECTORATE

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services					
120 Marine Weather Services					
130 Aviation Weather Services					
140 Economic Weather Services					
150 Canadian Forces Wx Service					
200 Data					
300 Wx Services Support System	69	2450 4	1890.6	1495 0	5836.0
100 WEATHER SERVICES	69	2450 4	1890.6	1495 0	5836.0
400 CLIMATE SERVICES					
500 ICE SERVICES					
610 Air Quality Services	4	164 8	140 0	276.0	580.8
630 Air Quality Research	54	1762 1	647 1	566 0	2975 2
660 Atmospheric Research	29	1222 6	1289 0	626 0	3137 6
670 Air Qua & Res Sup. Sys.	16	1181.8	288.3	55 0	1525 1
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH	103	4331 3	2364 4	1523 0	8218.7
710 Environmental Assess.&Rev					
720 LRTAP	3	77.3	528 0	93.0	698.3
730 Toxic Chemicals					
740 Great Lakes Water Quality					
750 Baseline Studies					
700 DEPARTMENTAL INTEGRATED PROGRAMS	3	77 3	528 0	93 0	698 3
800 MANAGEMENT AND COMMON SUPPORT					
GRAND TOTAL	175	6859.0	4783.0	3111 0	14753.0

1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
($000)

5.4.3 OFFICE OF THE DIRECTOR GENERAL (ARD)

SUB-ACTIVITY Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
610 Air Quality Services					
630 Air Quality Research					
660 Atmospheric Research					
670 Air Qua. & Res. Sup Sys	7	799 3	698 3	26 0	1523 6
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH	7	799.3	698.3	26 0	1523 6
GRAND TOTAL	7	799.3	698.3	26 0	1523.6

1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
(Nearest $000)

5 4 4 AIR QUALITY AND INTER-ENVIRONMENTAL RESEARCH BRANCH

SUB-ACTIVITY Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
610 Air Quality Services	4	164 8	140 0	276.0	580.8
630 Air Quality Research	54	1762.1	528.7	566 0	2856 8
660 Atmospheric Research					
670 Air Qua. & Res. Sup. Sys.	7	302.5	68 4	25.0	395 9
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH	65	2229 4	737 1	867 0	3833 5
710 Environmental Assessment & Rev					
720 LRTAP	3	77.3	528 0	93 0	698 3
730 Toxic Chemicals					
740 Great Lakes Water Quality					
750 Baseline Studies					
700 DEPARTMENTAL INTEGRATED PROGRAMS	3	77 3	528 0	93 0	698 3
GRAND TOTAL	68	2306 7	1265 1	960 0	4531 8

1982-83 Budget by Sub-Activity (SA 1) and Sub-Sub-Activity (SA 2)
($000)

5 4.5 ATMOSPHERIC PROCESSES RESEARCH BRANCH

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services					
120 Marine Weather Services					
130 Aviation Weather Services					
140 Economic Weather Services					
150 Canadian Forces Wx Service					
200 Data					
300 Wx Services Support Systems	3	148 0	195 2	359 0	702 2
100 WEATHER SERVICES	3	148.0	195.2	359 0	702.2
610 Air Quality Services					
630 Air Quality Research					
660 Atmospheric Research	26	1122 6	1004 0	615 0	2741 6
670 Air Qua. & Res. Sup. Sys.	2	80 0	40.0	4 0	124.0
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH	28	1202 6	1044.0	619 0	2865 6
GRAND TOTAL	31	1350 6	1239.2	978 0	3567 8

5 4 6 METEOROLOGICAL SERVICES RESEARCH BRANCH

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services					
120 Marine Weather Services					
130 Aviation Weather Services					
140 Economic Weather Services					
150 Canadian Forces Wx Service					
200 Data					
300 Wx Services Support Systems	66	2302 4	1495 4	1136 0	4933 8
100 WEATHER SERVICES	66	2302 4	1495 4	1136 0	4933 8
610 Air Quality Services					
630 Air Quality Research					
660 Atmospheric Research	3	100 0	85 0	11 0	196 0
670 Air Qua & Res Sup Sys					
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH	3	100 0	85 0	11 0	196 0
GRAND TOTAL	69	2402 4	1580 4	1147 0	5129 8

1982-83 Budget
($000)

ATMOSPHERIC RESEARCH DIRECTORATE

5.4.7 BY ORGANIZATIONAL UNIT

	PY	SALARY	O&M	CAPITAL	TOTAL
OFFICE OF DG	7	799.3	698.3	26.0	1523.6
AIR QUALITY & INTER-ENVIRONMENTAL RESEARCH BRANCH	68	2306.7	1265.1	960.0	4531.8
ATMOSPHERIC PROCESSES RESEARCH BRANCH	31	1350.6	1239 2	978.0	3567.8
METEOROLOGICAL RESEARCH BRANCH	69	2402 4	1580.4	1147.0	5129.8
ARD TOTAL	175	6859.0	4783.0	3111.0	14753.0

5.5 CANADIAN CLIMATE CENTRE

5.5 1 FUNCTIONS OF THE CANADIAN CLIMATE CENTRE (120 PY, $5,736K)

The Canadian Climate Centre was organized in 1978 to provide a focus for climate activity in Canada. It brought together components dealing with climate data, climate applications and climate research formerly in the Central Services and Atmospheric Research Directorates The Centre consists of a Climatological Applications Branch with four Divisions, a Research Component with a chief scientist and two Divisions and the Canadian Climate Program Office

Climatological Applications Branch (92 PY, $4,216K)

This Branch consists of a Director's Office and four Divisions. The Data Management Division is responsible for the collection and final quality control of all surface, upper air and supplemental data entering the national climate archives. The archives are managed to serve the needs for climate data in applications and research. Plans are being developed to enhance archiving and retrieval The Climatological Services Division has referral and marketing sections which assist Regional offices in handling enquiries, and which process directly those enquiries that are complex and/or national in scope. A publications section is responsible for issuing national historical and statistical climate publications, while a developmental section is responsible for the maintenance of files of abstracts, microfilm, microfiche and hard copy as well as the original climate report forms. The Hydrometeorology Division consists of sections dealing with services for river, lake and marine applications, special projects and research and development. The remaining Division, the Applications and Impact Division, has extensive applications expertise dealing with agriculture and forestry meteorology, biometeorology, arctic meteorology, energy, industrial applications and physical climatology.

Research Component

The research component of the Centre consists of two divisions working under the functional supervision of the Chief Scientist of the Centre The Numerical Modelling Division undertakes research to gain improved knowledge of climate as a physical system and to simulate climate through numerical modelling The Monitoring and Prediction Division develops improved systems for monitoring the current climate situation across Canada for a weekly publication. In addition to this, the Division analyzes and assesses statistical and other methods of climate prediction.

Climate Program Office

The Climate Program Office is a focal point for Canadian Climate Program activities and provides secretariat support for the Climate Planning Board of Canada and other committees associated with the Canadian Climate Program.

1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
(Nearest $000)

5.5.2 CANADIAN CLIMATE CENTRE

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
100 WEATHER SERVICES					
410 Services and Applications	97	3143.6	903 9	370.0	4417.5
450 Climate Research	13	549.6	36 8	10.0	596.4
460 Climate Services Sup. Sys.	10	329 8	372.3	20 0	722.1
400 CLIMATE SERVICES	120	4023.0	1313.0	400.0	5736.0
500 ICE SERVICES					
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH					
700 DEPARTMENTAL INTEGRATED PROGRAMS					
800 MANAGEMENT AND COMMON SUPPORT					
GRAND TOTAL	120	4023.0	1313.0	400.0	5736.0

5.5.3 OFFICE OF THE DIRECTOR GENERAL INCLUDING RESEARCH

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
410 Services and Applications	7	267 0	8.2	15 0	290 2
450 Climate Research	13	549 6	36.8	10 0	596.4
460 Climate Services Sup. Sys.	8	253 0	360 3	20 0	633 3
400 CLIMATE SERVICES	28	1069.6	405.3	45 0	1519.9
GRAND TOTAL	28	1069 6	405 3	45 0	1519 9

5.5.4 CLIMATOLOGICAL APPLICATIONS BRANCH

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
410 Services and Applications	90	2876.6	895.7	355 0	4127 3
450 Climate Research					
460 Climate Services Sup Sys.	2	76.8	12 0		88 8
400 CLIMATE SERVICES	92	2953 4	907 7	355 0	4216.1
GRAND TOTAL	92	2953.4	907 7	355 0	4216 1

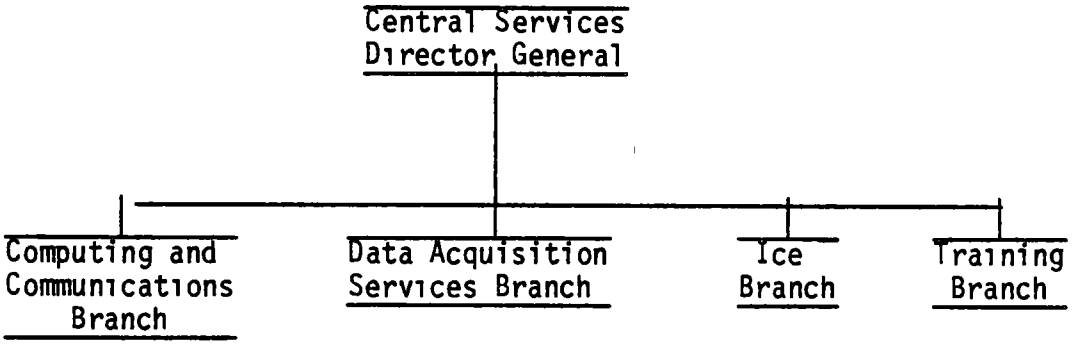
1982-83 Budget
($000)

CANADIAN CLIMATE CENTRE

5.5.5 BY ORGANIZATIONAL UNIT

	PY	SALARY	O&M	CAPITAL	TOTAL
OFFICE OF THE DIRECTOR GENERAL AND RESEARCH	28	1070	405	45	1520
CLIMATOLOGICAL APPLICATIONS BRANCH	92	2953	908	355	4216
CCC TOTAL	120	4023	1313	400	5736

5.6 CENTRAL SERVICES DIRECTORATE



5.6.1 FUNCTIONS CENTRAL SERVICES DIRECTORATE (340 PY, $34,356K)

This Directorate is responsible for information and advisory services on sea ice distribution, computing and communications services, technical and professional training, and the centralized design, implementation and sustenance of data acquisition systems. The Directorate has four Branches, each of which is responsible for one of the services listed above

Computing and Communications Services Branch (107 PY, $14,581K)

This Branch is responsible for the design, planning and operation of AES' national EDP and the communications facilities, and for ensuring that AES has the EDP and the information-processing and telecommunication services and facilities to meet current and future requirements. The Branch has four Divisions, three in Downsview and one in Montreal. The Communications Management Division is responsible for the management, operation and maintenance of AES national communication systems including the Canadian Weatherfax System, the Meteorological Teletype Collection and Distribution Systems, and the communications portion of the Radar data distribution system. The Centre d'Informatique Dorval, co-located with the Canadian Meteorological Centre, operates a CDC Cyber 176 computer system, the most powerful computer in the Federal Government, along with two CDC Cyber 170-720 computers as front ends. It provides centralized computing services to the AES and other government departments. The Downsview Computing Centre in Downsview operates a National Advanced Systems AS-6 computer system. It provides computing and user services primarily to support the Canadian Climate Centre and other users at AES Headquarters. Planning Division develops plans and coordinates activities to ensure that AES' needs for EDP and communications are satisfied.

DATA ACQUISITION SERVICES BRANCH (106 PY, $4,360K)

The Branch is responsible for the design, specification, acquisition, implementation and standards of instrumentation for the measurement of meteorological and related environmental conditions to be used in AES' national data collection networks. There are four Divisions in the Branch all located in Downsview. Most activities within the Branch are project oriented and as a result many activities cross Divisional boundaries and become cooperative ventures.

Development Division and Network Planning and Standards Division together are responsible for the design, procurement and testing of new and replacement instruments and systems, the development and evaluation of prototype meteorological instrumentation for AES operational networks and research programs, and the establishment of specifications, measurement standards and procedures to meet data requirements. They also carry out investigation of new techniques and technologies applicable to the AES data acquisition systems, and are responsible for the planning and coordination of the development and implementation of data acquisition systems, publication of technical manuals, logs and forms, and the provision of general and project inspection services.

Maintainance Division supports the installation of new systems, provides maintenance services for field instrument systems and checks instrumentation against their appropriate standards.

Technical Services Division provides technical services in support of the development and acquisition of data acquisition systems, the installation of new instrumentation and the maintenance of stores inventory. It also operates a repair and exchange service for instruments.

Ice Branch (50 PY, $12,218K)

Ice Branch is responsible for the Canadian information and advisory service for sea ice distribution and type. It maintains an ice data archive, prepares ice climatology reports and supplies climatological ice information to users upon request. It also provides a daily and seasonal ice forecast service to shipping interests in ice infested waters and conducts research into new and improved techniques for ice data collection and analysis.

The Ice Centre Environment Canada has 3 Divisions in Ottawa Ice Forecasting, Ice Climatology and Ice Research.

The Director's office and the Ice Reconnaissance Division are located in Downsview Reconnaissance involves the provision of observations of the distribution and type of sea ice from aerial ice reconnaissance (approximately 2300 hours per year), ship reports (including about 1800 person days per year logged on ice breakers), shore reports and satellite pictures in support of marine users in ice-congested waters during appropriate seasons.

The Training Branch (72 PY, $3,003K)

Training Branch is responsible for the recruitment and training of professional meteorologists and meteorological technicians to meet AES human resource needs, and for establishing and maintaining contact with Canadian universities and other educational institutions to encourage the training of atmospheric scientists and the development of studies in the atmospheric sciences.

Professional Training and Development Division conducts professional training courses at Downsview (English) and in Montreal (French) for newly recruited meteorologists to qualify them for positions in operational weather offices. In addition, the Division develops and conducts advanced and specialized training courses, including correspondence courses, in applied and operational meteorology to meteorologists in civilian and military weather offices and sponsors workshops and seminars relating to environmental issues such as environmental emergencies, air quality, acid rain, etc

Technical Training and Development Division conducts technical training courses in both official languages at the Transport Canada Training Institute in Cornwall for employees of AES and Transport Canada and at the DEW Line establishment in Colorado Springs, U.S.A. for DEW Line personnel under contract to the U S.A.F. The courses presented include the following Basic, Advanced, Presentation and Aerological Technician courses, and Radar, Ice, Weatheradio and Maintenance courses

Training Coordination, Evaluation and Services Division is responsible for the recruitment of new meteorologists, liaison with universities and colleges concerning meteorological training, counselling of student applicants, educational enquiries and evaluation of educational and training requirements, and provides a French and an English Technical Editing/Publishing services and graphic art, audio visual and computer services to Training Branch and AES clients

1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
(Nearest $000)

5.6.2 CENTRAL SERVICES DIRECTORATE

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services					
120 Marine Weather Services					
130 Aviation Weather Services					
140 Economic Weather Services					
150 Canadian Forces Wx Service					
200 Data					
300 Wx Service Support Systems	237	8264.7	9405.4	1562.0	19232.1
100 WEATHER SERVICES	237	8264.7	9405.4	1562.0	19232.1
410 Services and Applications	1	34.2	7 1		41 3
450 Climate Research					
460 Climate Services Sup. Sys.	48	1492 7	1100.9	212 0	2805.6
400 CLIMATE SERVICES	49	1526.9	1108 0	212.0	2846.9
510 Ice Reconnaissance	27	1133.5	9418.0		10551.5
520 Ice Forecasting	15	606.3	223.0		829.3
530 Ice Climate Services	4	162.1	20 0		182.1
540 Ice Services Support System	4	207 4	376.8	130 0	714.2
500 ICE SERVICES	50	2109.3	10037.8	130.0	12277.1
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH					
700 DEPARTMENTAL INTEGRATED PROGRAMS					
800 MANAGEMENT AND COMMON SUPPORT					
GRAND TOTAL	340	11900.9	20551.2	1904.0	34356.1

1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
(Nearest $000)

5.6.3 OFFICE OF THE DIRECTOR GENERAL

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services					
120 Marine Weather Services					
130 Aviation Weather Services					
140 Economic Weather Services					
150 Canadian Forces Wx Service					
200 Data					
300 Wx Services Support Systems	3	88.6	29.2	3.0	120.8
100 WEATHER SERVICES	3	88.6	29.2	3.0	120.8
410 Services and Applications					
450 Climate Research					
460 Climate Services Sup. Sys.	1	9.1	4.0	2 0	15.1
400 CLIMATE SERVICES	1	9 1	4.0	2.0	15.1
510 Ice Reconnaissance					
520 Ice Forecasting					
530 Ice Climate Services					
540 Ice Services Support System	1	40.8	18.8		59 6
500 ICE SERVICES	1	40.8	18.8		59.6
GRAND TOTAL	5	138.5	52.0	5.0	195.5

5.6 4 COMPUTING AND COMMUNICATIONS SERVICES BRANCH

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services					
120 Marine Weather Services					
130 Aviation Weather Services					
140 Economic Weather Services					
150 Canadian Forces Wx Service					
200 Data					
300 Wx Services Support System	59	1987 4	8408.6	1394 0	11790 0
100 WEATHER SERVICES	59	1987 4	8408.6	1394 0	11790.0
410 Services and Applications					
450 Climate Research					
460 Climate Services Sup. Sys.	48	1483.6	1096 9	210 0	2790.5
400 CLIMATE SERVICES	48	1483 6	1096.9	210 0	2790.5
GRAND TOTAL	107	3471 0	9505 5	1604 0	14580 5

1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
(Nearest $000)

5.6.5 DATA ACQUISITION SERVICES BRANCH

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services					
120 Marine Weather Services					
130 Aviation Weather Services					
140 Economic Weather Services					
150 Canadian Forces Wx Service					
200 Data					
300 Wx Services Support Systems	105	3511.9	666 9	140 0	4318.8
100 WEATHER SERVICES	105	3511.9	666 9	140 0	4318.8
410 Services and Applications	1	34 2	7.1		41 3
450 Climate Research					
460 Climate Services Sup Sys					
400 CLIMATE SERVICES	1	34.2	7 1		41 3
GRAND TOTAL	106	3546 1	674.0	140 0	4360 1

5 6.6 ICE BRANCH

SUB-ACTIVITY / Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
510 Ice Reconnaissance	27	1133 5	9418 0		10551.5
520 Ice Forecasting	15	606 3	223 0		829 3
530 Ice Climate Services	4	162.1	20 0		182 1
540 Ice Services Support System	4	166 6	358 0	130 0	654 6
500 ICE SERVICES	50	2068 5	10019 0	130.0	12217 5
GRAND TOTAL	50	2068 5	10019.0	130 0	12217 5

1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
(Nearest $000)

5.6.7 TRAINING BRANCH

SUB-ACTIVITY Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services					
120 Marine Weather Services					
130 Aviation Weather Services					
140 Economic Weather Services					
150 Canadian Forces Wx Service					
200 Data					
300 Wx Services Support Systems	72	2676.8	300 7	25 0	3002.5
100 WEATHER SERVICES	72	2676.8	300.7	25.0	3002.5
GRAND TOTAL	72	2676.8	300.7	25 0	3002 5

1982-83 Budget

CENTRAL SERVICES DIRECTORATE

5.6.8 BY ORGANIZATIONAL UNIT

	PY	SALARY	O&M	CAPITAL	TOTAL
OFFICE OF DG	5	138.5	52 0	5.0	195 5
COMPUTING AND COMMUNICATIONS SERVICES BRANCH	107	3471.0	9505.5	1604 0	14580 5
DATA ACQUISITION BRANCH	106	3546.1	674.0	140.0	4360 1
ICE BRANCH	50	2068.5	10019.0	130 0	12217 5
TRAINING BRANCH	72	2676.8	300 7	25.0	3002 5
CSD TOTAL	340	11900.9	20551.2	1904.0	34356.1

5 7 Organization FINANCE AND ADMINISTRATION BRANCH

5.7 1 FUNCTIONS FINANCE AND ADMINISTRATION BRANCH (95 PY, $10,084K)

This Branch provides services to AES headquarter's elements, Regions, and those organizations whose central elements interface with AES headquarters. There are four Divisions

Finance Division is responsible for the processing and payment of all invoices and bills, preparation of budget data and allocations, provision of guidance and advice on financial matters to senior management, preparation of financial forecasts and interpretation of the financial status of the AES

Materiel Management Division is responsible for the requisition, storage and distribution of special meteorological instruments, equipment and supplies and providing procedural recommendations and advice on materiel matters. This Division also has responsibility for the equipment-in-use system, facilities inventory system, and fleet management.

Library Services Division is responsible for acquiring and making available for reference and loan a collection of books, journals and other resource material, arranging for interlibrary loans and translations from foreign languages, providing policies, procedural recommendations and advice on library matters.

General Administration Division provides services including the support services to AES in accommodation, property management, communication, records management, mail and distribution, health, safety and security, coordination of printing and drafting, and providing policy, and procedural recommendations and advice on general administrative matters

This Branch also maintains the Incentive Award Program in AES, coordinates the planning, implementation (as appropriate) and monitoring activities for AES Affirmative Action Programs and for the Official Languages Program, maintains administrative systems for the Career Development Plan for Meteorologists and the Development Leave Program.

5.7.2 1982-83 Budget by Sub-Activity (SA-1) and Sub-Sub Activity (SA-2)
($000)

FINANCE AND ADMINISTRATION BRANCH

SUB-ACTIVITY Sub-Sub-Activity	PY	SALARY	O&M	CAPITAL	TOTAL
110 Public Weather Services					
120 Marine Weather Services					
130 Aviation Weather Services					
140 Economic Weather Services					
150 Canadian Forces Wx Service					
200 Data					
300 Wx Services Support Systems	28	1822.6	3381 4*		5204.0*
100 WEATHER SERVICES	28	1822.6	3381.4*		5204.0*
410 Services and Applications					
450 Climate Research					
460 Climate Services Sup Sys.		164 2**	627.3		791 5
400 CLIMATE SERVICES		164 2	627.3		791.5
510 Ice Reconnaissance					
520 Ice Forecasting					
530 Ice Climate Services					
540 Ice Services Support System		171 2**	654 2		825.4
500 ICE SERVICES		171.2	654 2		825.4
610 Air Quality Services					
630 Air Quality Research					
660 Atmospheric Research					
670 Air Qua & Research Sup. Sys.		115.0**	439 1		554.1
600 AIR QUALITY SERVICES AND ATMOSPHERIC RESEARCH		115 0	439.1		554.1
700 DEPARTMENTAL INTEGRATED PROGRAMS					
810 Management	3	125 0	53 0	5 0	183.0
830 Common Support Services	64	2165 1	241 0	120 0	2526 1
800 MANAGEMENT AND COMMON SUPPORT	67	2290 1	294.0	125 0	2709.1
GRAND TOTAL	95	4563 1	5396 0*	125 0	10084 1*

* Includes 975 0 Grants and Contributions
** Salaries have been prorated into these sub-sub-activities from Common Support, but the corresponding PYs have not in order to show whole PYs