



Canadian Meteorological  
and Oceanographic  
Society

La Société Canadienne  
de Météorologie et  
d'Océanographie

# C.M.O.S. NEWSLETTER / NOUVELLES S.C.M.O.

ISSN 0827-0384

JUNE/JUIN

1987

VOL. 15 NO. 3

## News from CMOS Headquarters

### Delay in transmission of membership/subscription receipts

Owing to a switch to a new computer system, the C.A.P. office which looks after CMOS memberships and subscriptions is a little late in sending out receipts for renewals and new orders. Reminders to those who have not yet renewed their membership/subscriptions are also late; members who have not yet renewed and have not yet received their second renewal notice in the mail by the time this Newsletter appears are urged to renew their membership/subscriptions by filling out the membership form provided elsewhere in this Newsletter, writing on top in large letters RENEWAL or RENOUVELLEMENT.

### Accreditation of consultants

The first batch of applicants is presently being processed, and successful candidates should receive their certificates soon after the CMOS Congress. Those candidates whose applications were received too late or who required further correspondence will be included in the autumn review of applications, and their certificates will be valid until the end of 1988. Candidates who have not yet applied should send their forms to reach CMOS not later than September 1, 1987 and should make sure that all required information, copies of degrees and of papers, letters from degree supervisors, accreditation fees, etc., are provided. Details of required information are contained in the Accreditation Guidelines which can be obtained together with application forms by phoning (613/237-3392) or writing to CMOS, 151 Slater Street, Suite 903, Ottawa, Ontario, K1P 5H3.

The CMOS Professionalism Committee which developed the Accreditation Scheme for Consultants is now working on a similar scheme for Media Weather Broadcasters. Anyone who has views on this subject can send them to the Chairman of the Committee, Mr. R. Jones c/o CMOS (address as above).

### Executive Director's visit to the Royal Meteorological Society

I used the opportunity of a brief stay in England during April to visit the Royal Meteorological Society. As many members will remember, CMOS once formed part of the RMS, and it was, therefore, interesting to review developments since we separated. The RMS now has a modern headquarters building not far from the Headquarters of the British Meteorological Office in Bracknell, about an hour's train journey from London. During discussions with the Executive Secretary of the RMS it was agreed that we would exchange information on meetings with a view to publishing those meetings that are likely to be of interest to members. (See elsewhere in this Newsletter for a list of RMS field courses). Information on RMS membership, publications, fees, etc. can be obtained from me at the CMOS address.

Uri Schwarz  
Executive Director  
CMOS

## OTTAWA REGIONAL SCIENCE FAIR

The 26th Ottawa Regional Science Fair was held at the National Museum of Science and Technology April 10 - 12 April 1987. This year's fair was judged by Oleh Mycyk and Don Coleman of the Ottawa Chapter. First Prize was won by Michael Carnegie and Mike Penny of St. Patrick's for a project on the Ozone Layer. Second Prize was won by Matthew Streter for a project entitled "Weather", and third prize was won by Raymond Tse and Omar Ames for a project on Acid Rain and Plants. As usual, the quality of exhibits was very high and all of the participants are to be congratulated for the excellence of their projects. It is encouraging to note that there were a few more projects this year that had explicitly oceanographic or meteorological themes. All winners received a cash prize as well as a CMOS Certificate of Merit.

Langley R. Muir, Ph.D.  
Chairman  
Ottawa Chapter

Mr. W. Appleby  
President, CMOS

Canada and the United States are preparing plans for an evaluation study of Eulerian Models designed to simulate the Long Range Transport of Airborne Pollutants (LRTAP). Two of the models to be evaluated include: the Acid Deposition and Oxidant Model (ADOM) being supported by the Ontario Ministry of Environment (OME), the atmospheric Environment Service (AES) and Umweltbundesamt (West Germany) and the Regional Acid Deposition Model (RADM) being supported by EPA in the United States. An important element of the modelling effort would be to establish model performance and credibility through comparison with observed conditions. The United States has outlined their proposals in a document entitled "Regional Eulerian Model Field Study and evaluations" by Durham et al. (August 1986). However, nor firm Canadian plans yet exist.

At its meeting in June 1985, the Scientific Committee of CMOS (SCICO) first expressed the opinion that it was important that the atmospheric science community as a whole have an opportunity to have input into the evaluation studies. A letter was written to the Atmospheric Environment Service and a reply was received (see December/85 and August/86 CMOS Newsletters). The subject was discussed at subsequent SCICO meetings, and at its most recent meeting last November, a small sub-committee consisting of G. Isaac, D. Steyn and H. Leighton (chairman) was formed and given the responsibility of suggesting to the AES how the resources of the broader scientific community might best be utilized. This approach has the support of AES management.

Although the U.S. program might cost as much as \$50 million, the funds currently set aside by OME and AES are modest and will be committed to mainly running networks, preparing data bases and running the model. However, other sources of money, NSERC, AES Science Subventions, etc. might be used if some good ideas are developed. The purpose of this letter is to be used if some good ideas are developed. The purpose of this letter is to solicit suggestions, comments, and hopefully expressions of interest to be involved in some particular aspect of the evaluation procedure. The sub-committee will attempt to organize the replies and use them as a basis for recommendations to be submitted to the AES.

There are a number of ways that scientists at the universities, provincial government agencies, and other institutions could participate in the model evaluation process. The following list is by no means exhaustive but contains some of the possible areas in which contributions to the model evaluation may be welcomed.

1. Planning of the evaluation program and field studies

Do you have comments or a particular interest in the overall evaluation design or in the organization of the field programs?

2. Field studies

Instrumentation to augment the "standard" surface and aircraft mounted instruments.

3. Data Bases

Verification of emissions data base.  
Analysis of lab and field data bases.

4. Submodel evaluation

Meteorological fields  
Gas phase sub-module  
Dry deposition module  
Wet deposition module  
Comparisons with other models

5. Sensitivity Studies

Tests of the model sensitivity to initial and boundary conditions.

6. Case Studies

Henry Leighton  
Associate Professor  
Department of Meteorology  
McGill University

NEW CMOS MEMBERS

The following new members were approved at the Council meeting of 8 May 1987.

NAME	CENTRE
Mr. Douglas Johnson (student member)	Toronto
Mr. Robert M. Stoutjesdyk ((regular member)	Montreal
Mr. Peter G. Berrang (regular member)	Vanvouver Island
Mr. James W. Butler (student member)	Newfoundland
Dr. Robert J. Conover (regular member)	Halifax
Mr. John S. Matus (student member)	Toronto
Mr. Richard L. Penner (regular member)	Toronto
Dr. R.W. Trites (regular member)	Halifax
Mr. James Freemantle (student member)	Toronto
Mr. Andrew Giles (student Member)	BC Mainland
Mr. Tom Cochrane (student member)	Montreal
Miss Sylvie Gravel (student member)	Montreal
Mr. Balbir Saini (regular member)	Toronto
Mr. Harvey W. Raynor (regular member)	BC Mainland
Dr. G.L. Austin (regular member)	Montreal



# OMNI



## OPERATIONAL METEOROLOGY NEWS AND INFORMATION

**EXECUTIVE:** Jim Abraham, Chairman  
Ken Macdonald, Vice-Chairman  
Peter Bowyer, Secretary-Treasurer

**ACTIVITIES:**

CMOS has asked the Atmospheric Environment Service to allow an OPMET SIG representative to participate (as a member or observer) on the AES Operational Meteorology Advisory Committee (OMAC). The OPMET SIG feels that decisions made by the AES have an impact on all operational meteorologists in Canada. The AES denied the request, stating that the objectives of OMAC were internal to AES.

The OPMET SIG executive has been occupied with preparation for the Second AES/CMOS Workshop on Operational Meteorology. Bill Richards, publicity director for the workshop, has prepared an information package. This issue of OMNI is devoted to that.

### AES/CMOS

**2nd Workshop on Operational Meteorology**  
Halifax, Nova Scotia  
October 14 - 16, 1987

**PROGRAM**

The Atmospheric Environment Service (AES) has an extensive on-going requirement for training of operational personnel who provide weather services in Canada. The Canadian Meteorological and Oceanographic Society (CMOS) has therefore been contracted by AES to hold the Second Workshop on Operational Meteorology to meet a number of training requirements:

- the workshop should contribute to improvements in the Weather Service System by providing a forum for transferring and sharing of knowledge and experiences dealing with operational meteorology;
- it should identify needs and priorities and promote research and development in the field of operational meteorology and the provision of weather services;
- it will provide for an opportunity for interaction among operational meteorologists, technicians, researchers, educators and managers concerned with various aspects of the Weather Service System.

The program Committee is pleased with the quality of Abstracts and laboratory proposals received. Enthusiastic participation by registrants will contribute to the learning experience and ensure that the goals of the workshop are met.

**VENUE**

The workshop will be held at the Chateau Halifax Hotel in downtown Halifax. Halifax is a historic maritime city full of attractions for visitors. Delicious east coast lobster, fish chowder and maritime hospitality are unforgettable.

**TRANSPORTATION**

Halifax is served by air, rail and highway links to most North American cities. The airport is located approximately 30 km from downtown Halifax. A bus service, available just outside the arrivals area door, will take you to the Chateau

Halifax and other downtown hotels. The bus fare is \$7.50 per person. Alternatively, taxis are available for a flat rate of about \$25 and car rentals are available at the airport.

Air Canada is the official airline for the workshop. By making your reservations through the Air Canada Convention Central (1-800-361-7585), you will be eligible for at least 20% off regular fares. The discount can be obtained only if you or your travel agent make the reservation through Convention Central. See reprint of pamphlet for additional details.

**ACCOMMODATION**

All sessions will take place in the Chateau Halifax. A block of rooms has been arranged for workshop participants at the special rate of \$55 (single). Hotel reservations are the responsibility of the participant. To obtain the preferred rate be sure to mention the workshop when making your reservations, or mail the reservation form below directly to the hotel.

**SOCIAL PROGRAM**

Her Honour, Mrs. Alan Abraham, wife of the Lieutenant-Governor of Nova Scotia, will host a spousal coffee at Government House on Wednesday morning, October 14. Transportation will be provided if necessary.

On Wednesday afternoon, October 14, a tour of the Bedford Institute of Oceanography is planned. This facility is the centre for oceanographic research on the East Coast of Canada. Transportation will leave the Chateau Halifax at approximately 1500 and the tour will last about 2 hours. Tours of the Maritimes Weather Centre in Bedford and the METOC centre (Canadian Forces meteorological-oceanographic centre) are also tentatively being planned. Please inform the LAC of your interest or preferences.

An icebreaker will be held in the Bluenose Room atop Chateau Halifax from 7:00 to 10:00 pm on Wednesday, October 14. A Poster/Demonstration Session will be held concurrently which will include A/V demonstrations by several participants. A cash bar will be available.

On Thursday evening, October 15, the Banquet will be held in the Bluenose Room where the view of Halifax harbour is both expansive and breathtaking. Many distinguished guests are expected to attend. Famed speaker and comedian General John Cabot Trail will be guest speaker. Price of the banquet will be between \$15 and \$20 and tickets will be available by mail and at the registration desk. Cocktails will be served at 6:30 pm and the banquet begins at 7:30.



The Chateau Halifax is located within easy walking distance of many Halifax tourist sites, including Citadel Hill and Historic Properties. Tours available include a Halifax Water Tour which leaves Historic Properties for a 2 hour harbour tour at \$9.75 per person. Suggestions and guidance will be available at the registration desk for those wishing to visit historic, cultural or natural attractions in the city or province.

#### REGISTRATION

The registration fee is \$75 (Can) for CMOS members and \$100 (Can) for non-members. Approved delegates from AES and Canadian Forces Weather Service (CFWS) will have their fee prepaid by their employer. All participants must complete and return the registration form below. Registration may be limited so interested persons are encouraged to register as soon as possible.

The cost of the banquet ticket (\$15 - \$20) is not included in the registration fee. Banquet tickets will be offered with confirmation of registration and at the registration desk.

Your registration kit, including pre-print volume, may be picked up at the registration desk on arrival in Halifax. Hours and location of the registration desk are indicated in the Synopsis of Sessions.

Please send completed registration form and payment (if applicable) to:

CMOS OPMET Workshop  
c/o Maritimes Weather Centre  
1496 Bedford Hwy  
BEDFORD, Nova Scotia  
Canada, B4A 1E5

Make cheques payable to CMOS OPMET Workshop.

#### ACKNOWLEDGEMENTS

The organizing committee is grateful for the support of;

Air Canada  
Province of Nova Scotia  
Atmospheric Environment Service.

#### LOCAL ARRANGEMENTS COMMITTEE

Chairman  
Ken Macdonald  
OPMET WORKSHOP  
c/o Maritimes Weather Centre  
1496 Bedford Hwy  
BEDFORD, Nova Scotia B4A 1E5  
(902) 426-9182

Secretary  
Martha Danks  
(902) 426-9181

Treasurer  
Peter Bowyer  
(902) 426-9181

Publicity/Publications  
William Richards  
(902) 426-9135

Social/Facilities Convener  
Gary Lines  
(902) 426-4474

Registration Convener  
Steve Miller  
(902) 426-9181

#### PROGRAM COMMITTEE

Chairman  
Jim Abraham  
Maritimes Weather Centre  
1496 Bedford Hwy  
BEDFORD, Nova Scotia B4A 1E5  
(902) 426-9181

Jim Alexander  
Toronto (416) 667-4645

Steve Hickey  
Saint John (506) 696-3310

Mert Horita  
Vancouver (604) 666-0079

Lou Legal  
Winnipeg (204) 949-4513

Laurie Wilson  
Toronto (416) 667-4811

#### SYNOPSIS OF SESSIONS

##### Tuesday, October 13, 1987

1900 Registration in Lobby, Chateau Halifax

##### Wednesday, October 14, 1987

0730 Registration in Baronet Lobby  
0830 THEME SPEAKER SESSION - I  
1100 SESSION 1 - CYCLOGENESIS  
1330 SESSION 2A - MARINE METEOROLOGY  
1330 SESSION 2B - ANALYSIS AND FORECASTING  
TECHNIQUES - I  
1500 TRIP TO BIO/MWC/METOC (TENTATIVE)  
1520 LABORATORY SESSION - 1  
1900 POSTER/DEMONSTRATION SESSION AND ICEBREAKER  
IN BLUENOSE ROOM

##### Thursday, October 15, 1987

0830 LABORATORY SESSION - 2  
1100 SESSION 3A - ANALYSIS AND FORECASTING  
TECHNIQUES - II  
1100 SESSION 3B - DATA ACQUISITION  
1100 SESSION 3B - DISPLAY SYSTEMS  
1330 LABORATORY SESSION - 3  
1600 SESSION 4A - STATISTICAL PRODUCTS  
1600 SESSION 4B - MODEL PERFORMANCE  
1600 SESSION 4C - ANALYSIS AND FORECASTING  
TECHNIQUES - III  
1830 BANQUET IN BLUENOSE ROOM

##### Friday, October 16, 1987

0830 THEME SPEAKER SESSION - II  
1030 SESSION 5 - MARINE DATA ACQUISITION  
1300 SPECIAL SESSION - USERS AND PROVIDERS OF  
MARINE WEATHER SERVICES  
1430 SPECIAL SESSION - USERS AND PROVIDERS OF  
MARINE WEATHER SERVICES  
1530 CONCLUDING REMARKS

## SECOND WORKSHOP ON OPERATIONAL METEOROLOGY

### ADVANCE PROGRAM

Tuesday, October 13

1900-2200 Registration

Wednesday, October 14

0730-1700 Registration

0830-0900 INTRODUCTION/WELCOMING REMARKS

0900-1030 THEME SPEAKER SESSION - I

Mesoscale structures in Synoptic Systems

R. Stewart, Cloud Physics Research Division,  
Atmospheric Environment Service, Downsview,  
Ontario

Analysis and Forecasting of Explosive Cyclogenesis

F. Sanders, Professor Emeritus, Massachusetts  
Institute of Technology, Cambridge,  
Massachusetts

1030-1100 Coffee

1100-1220 SESSION 1 - CYCLOGENESIS

The Oregon Coast Storm of July 4, 1986

G. Miller, National Weather Service Forecast  
Office, Portland, Oregon

Meteorological Precursors to Explosive Cyclogenesis

J.R. Gyakum, University of Illinois, Urbana,  
Illinois

An Operational Checklist for the Forecasting of

Explosive Cyclogenesis in the North Atlantic Ocean

E.P. Auciello, National Weather Service Forecast  
Office, Boston, Massachusetts and F. Sanders,  
Massachusetts Institute of Technology,  
Cambridge, Massachusetts

East Coast Cyclogenesis, January 10-12, 1987

J. Pearce, Maritimes Weather Centre, Atmospheric  
Environment Service, Bedford, N.S.

1220-1330 Lunch

1330-1450 SESSION 2A - MARINE METEOROLOGY

Storm Surges on Lake Erie and the Use of the Ontario  
Weather Centre's Storm Surge Model

T. Sutherland, Ontario Weather Centre,  
Atmospheric Environment Service, Toronto,  
Ontario

The Mapping of Ice Growth Rates on Ships in the  
Labrador Sea-Grand Banks Area

W.P. Zakrzewski, R. Blackmore and E.P. Lozowski,  
University of Alberta, Edmonton, Alberta

Engineering, Monstrous, and Freak Waves

J.W. Nickerson, Purcellville, Virginia

An Algorithm for the Compilation, Synthesis and  
Processing of the Physical Parameters in a Marine  
Environment

T.N. Maisel, National Meteorological Center,  
National Weather Service, Washington, D.C.

1330-1450 SESSION 2B - ANALYSIS AND FORECASTING  
TECHNIQUES - I

An Expert (Colleague) System for Weather Forecasting

G. Babin and R. Moffet, Division de la formation  
professionnelle, Service de l'environnement  
atmosphérique, Robert Lefebvre, Centre  
Météorologique du Québec, Service de  
l'environnement atmosphérique, P. Zwack and S.  
Curry, Université du Québec à Montréal, and H.  
Vandeputte, Ecole Nationale de la Météorologie,  
Toulouse, France

Comparison of RAINSAT Probability-of-Rain Maps with  
Surface Observations

P. King and T.C. Yip, Aerospace Meteorology  
Division, Atmospheric Environment Service,  
Downsview, Ontario

The Kinematic Flow of a Synoptic Storm

S.R. Blackwell, G.M. Pearson and A.M. O'Toole,  
Professional Training and Development Division,  
Atmospheric Environment Service, Downsview,  
Ontario

Severe Thunderstorms and Hail Forecasting Using

Derived Parameters from Standard RAOBS Data

V. Turcotte and D. Vigneux, Centre  
Météorologique du Québec, Service de  
l'environnement atmosphérique, Montréal, Québec

1450-1520 Coffee

1520-1720 LABORATORY SESSION - 1

A Predicting Explosive Cyclogenesis Over the  
Eastern Pacific Ocean

N. McLennan and L. Neil, Pacific Weather  
Centre, Atmospheric Environment Service,  
Vancouver, B.C.

B Analysis of Frontal Structures Using CASP Data

S.R. Blackwell, Professional Training and  
Development Division, Atmospheric  
Environment Service, Downsview, Ontario

1900-2200 POSTER/DEMONSTRATION SESSION & ICEBREAKER

P1 The Edmonton 10V5 Processing System

J.M. Bullas and R. Goodson, Special  
Projects Office, Atmospheric Environment  
Service, Edmonton, Alberta

P2 Observations of and Forecasts for Road, Bridge  
and Runway Surfaces

J.R. Kelley, D.C. Trask and O.M. Hunt,  
Surface Systems Inc., St. Louis, Missouri

D1 Computer Assisted Forecast Composition System

J.C. McLeod, B.Q. deLorenzis and E.  
Goldberg, Forecast Research Division,  
Atmospheric Environment Service, Downsview,  
Ontario

D2 Automatic Voice Recognition Equipment as a Tool  
for Data Acquisition of Ice and Iceberg  
Information

Z. Miller, Ice Forecast Centre, Atmospheric  
Environment Service, Ottawa, Ontario

P3 Categorical Verification of Marine Forecasts

J.C. Curtis, National Weather Service  
Forecast Office, Seattle, Washington

P4 The Terminal Forecast Verification System at the  
Canadian Forces Forecast Centre at Trenton,  
Ontario

J. Yip, Canadian Forces Forecast Centre,  
Trenton, Ontario

P5 The Effects of Heavy Thunderstorm Activity on Water Levels on Lake Erie: A Case Study - May 18, 1986

T. Sutherland, Ontario Weather Centre, Atmospheric Environment Service, Toronto, Ontario

D3 Diagnosing Explosive Cyclogenesis in the West-central North Atlantic Ocean using Animated Satellite Imagery

Ralph Anderson, Satellite Applications Laboratory, NOAA, Washington, D.C.

P6 A Miniature Meteorological Package for Light Manned and Unmanned Aircraft

J.L. Cogan, Atmospheric Sciences Laboratory, White Sands Missile Range, New Mexico, and M. Izquierdo and C. McDonald, University of Texas at El Paso, El Paso, Texas

D4 Radar Data Processing System: On the use of Full-scan Radar Data in Operational Forecasting

H.P. Biron, Centre Météorologique du Québec, Service de l'environnement atmosphérique, Montréal, Québec

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Thursday, October 15

0830-1030 LABORATORY SESSION - 2

A Verification of Weather Forecasts

L. Wilson, Forecast Research Division, Atmospheric Environment Service, Downsview, Ontario

B Marine Wind Analysis, Diagnosis and Forecasting

P. Bowyer and G. Roussel, Maritimes Weather Centre, Atmospheric Environment Service, Bedford, N.S.

C Summer Severe Weather Forecasting on the Prairies

L. Legal, G. Machnee and D. Patrick, Prairie Weather Centre, Atmospheric Environment Service, Winnipeg, Manitoba

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1030-1100 Coffee

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1100-1220 SESSION 3A - ANALYSIS AND FORECASTING TECHNIQUES - II

Satellite Data and Weather Office Local Forecasting

R. Rowson, Prince George Weather Office, Atmospheric Environment Service, Prince George, B.C.

Performance Statistics on Techniques Used to Determine Ocean Surface Winds

W.H. Gemmill, T.W. Yu and D.M. Feit, National Meteorological Center, National Weather Service, Camp Springs, Maryland

A Short-range Forecasting Experiment Conducted During the Canadian Atlantic Storms Program (CASP)

K.A. Macdonald, M. Danks and J.D. Abraham, Maritimes Weather Centre, Atmospheric Environment Service, Bedford, N.S.

Concepts of Nephanalysis

S.C. Ricketts, Yukon Weather Centre, Atmospheric Environment Service, Whitehorse, Yukon

1100-1220 SESSION 3B - DATA ACQUISITION

Temperature and Humidity Retrievals from TOVS in Cloudy Conditions

J.D. Steenbergen, B.T. Greaves and T.C. Yip, Aerospace Meteorology Division, Atmospheric Environment Service, Downsview, Ontario

Lightning Detection Systems: Research and Applications

H. Newhouse, National Weather Service, Silver Spring, Maryland

A Temperature Profile Model Bases on Surface Temperatures for Operational Use in Data Sparse Regions

Y.P. Yee, E.M. Measure and T.L. Barber, U.S. Army Atmospheric Sciences Laboratory, White Sands Missile Range, New Mexico

Multi-angle Approach to Microwave Radiometric Temperature Profiling

T.L. Barber, E.M. Measure and Y.P. Yee, U.S. Army Atmospheric Sciences Laboratory, White Sands Missile Range, White Sands, New Mexico

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1100-1220 SESSION 3C - DISPLAY SYSTEMS

The Use of McIDAS as a Mesoscale Forecasting Tool During the Canadian Atlantic Storms Program (CASP)

J.D. Abraham, Maritimes Weather Centre, Atmospheric Environment Service, Bedford, N.S.

"METWORKS" - A Meteorologist's Workstation

K. Spring, Pacific Weather Centre, Atmospheric Environment Service, Vancouver, B.C.

Techniques Suitable for Forecasting Precipitation Types Using NWP Model Output

P. Koclas, Canadian Meteorological Centre, Atmospheric Environment Service, Montréal, Québec

The Central Weather Processor Engineering Development Model

J.D. Milutinovic, F.W. Law and M. Printy, Data Transformation Corporation, FAA Technical Center, Atlantic City, New Jersey

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1220-1330 Lunch

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1330-1530 LABORATORY SESSION - 3

A Interpretation of Statistical Guidance Forecasts

H. Stanski, Forecast Research Division, Atmospheric Environment Service, Downsview, Ontario

N. Yacowar, Canadian Meteorological Centre, Atmospheric Environment Service, Montréal, Québec

B Development and Vertical Motion in Mid-latitude System

G. Babin, R. Moffet, A. Patoine, R. Servranckx, Division de la formation professionnelle, Service de l'environnement atmosphérique, and P. Zwack, Université du Québec à Montréal, Montréal, Québec

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1530-1600 Coffee



1600-1720 SESSION 4A - STATISTICAL PRODUCTS

Comparison of Automated Weather Element Forecasts with Forecasts Issued by the Weather Centres and with Direct Model Output

N. Brunet, R. Verret and N. Yacowar, Centre Météorologique Canadien, Service de l'environnement atmosphérique, Montréal, Québec

Production of Automated Worded Forecasts for Days 3-4-5.

D. Soucy and N. Yacowar, Canadian Meteorological Centre, Atmospheric Environment Service, Montréal, Québec

Progress in Statistical Weather Forecasting in Meteorological Services Research Branch

L.J. Wilson, Forecast Research Division, Atmospheric Environment Service, Downsview, Ontario

Operational Temperature Forecasting

S.C. Ricketts, Yukon Weather Centre, Atmospheric Environment Service, Whitehorse, Yukon

1600-1700 SESSION 4B - MODEL PERFORMANCE

A Preliminary Study of the Use of Boundary-Layer Models of Flow in Complex Terrain for High Resolution Diagnostic Surface Wind Forecasting

J.L. Walmsley and P.A. Taylor, Boundary-Layer Research Division, Atmospheric Environment Service, Downsview, Ontario

Erreurs Moyennes Dans le Modèle aux Eléments Finis Canadien

R. D'Amours, Centre Météorologique Canadien, Service de l'environnement atmosphérique, Montréal, Québec

Behaviour of the Fleet Numerical Oceanography Center's Numerical Forecasts with Respect to Maritime Synoptic Scale Cyclones

P.A. Harr and W.M. Clune, Fleet Numerical Oceanography Center, Monterey, California

1600-1700 SESSION 4C - ANALYSIS AND FORECASTING TECHNIQUES - III

Calculation of Vertical Velocity from Surface Data Only: Results from CASP IOP 14 and Recent Improvements

P.P. Zwack and C. Nobert, Université du Québec à Montréal, Montréal, Québec

Satellite Detection of Precursor Condition Leading to Polar Low Development

R.W. Fett, Naval Environmental Prediction Research Facility, Monterey, California

Isentropic Analysis and the Comma Cloud

G.M. Pearson, S.R. Blackwell and A.M. O'Toole, Professional Training and Development Division, Atmospheric Environment Service, Downsview, Ontario

1900-2200 Banquet

Friday, October 16

0830-1000 THEME SPEAKER SESSION - II

Marine Meteorology

Cmdr. K. Lilly, Western Region, National Weather Service, Salt Lake City, Utah

Role of Observational Studies in Weather Forecasting

M. Shapiro, NOAA/ERL Wave Propagation Laboratory, Boulder, Colorado

1000-1030 Coffee

1030-1130 SESSION 5 - MARINE DATA ACQUISITION

Developments in Marine Observations

R.W. Anderson, National Weather Service Forecast Office, Seattle, Washington

West Coast Marine Program: User Contact Through Marine Radio

E.J. Oja, Pacific Weather Centre, Atmospheric Environment Service, Vancouver, B.C.

The Future of Marine Weather Observation Services

J.W. Nickerson, Purcellville, Virginia

1130-1300 Lunch

1300-1400 SPECIAL SESSION - USERS AND PROVIDERS OF MARINE WEATHER SERVICES

Part 1 - Users

Representatives from Coast Guard, Department of Fisheries and Oceans, fishermen, fisheries union

1400-1430 Coffee

1430-1530 SPECIAL SESSION - USERS AND PROVIDERS OF MARINE WEATHER SERVICES

Part 2 - Providers

Representatives from the Atmospheric Environment Service and the National Weather Service

1530-1600 Concluding Remarks

**Association of Canadian Private Sector  
Organizations Providing Meteorological Services**

Is your organization involved directly or indirectly in the business of providing meteorologically related services in Canada? If so, this letter is important to your business!

Do you realize how small and fragmented the Canadian industry is in these areas? Do you want this industry to have a strong voice which can lobby government, develop markets and promote professionalism which, in turn, will help strengthen and build the industry? Do you want to be informed about and be in a position to potentially benefit from government's privatization initiatives? You likely responded yes to these questions as did a number of industry representatives who have decided to take action.

**BACKGROUND**

At the December, 1986 Atmospheric Environment Service (AES) Workshop on Privatization of Meteorological Services, held at the Constellation Hotel in Toronto, a meeting was held of more than 20 representatives of the private sector to discuss the need for an industry association. At this meeting an Organizing Committee was formed and given a mandate to get the formation of the Association underway and to mail information on the proposed Association to potential members by early February.

**ASSOCIATION OBJECTIVES**

It is proposed that the membership of the Association be comprised of Canadian Private sector organizations in the business of selling meteorologically related services.

The objectives of the Association which were proposed at the December 2, 1986 meeting and provide a preliminary conceptual framework for the Association are:

1. To lobby all three levels of government on behalf of private sector interests.
2. To promote a professional image.
3. To develop markets.
4. To educate.
5. To exchange information.
6. To liaise with governments.
7. To provide an unbiased registration/referral service.

**WE WANT YOUR OPINIONS!**

The Organizing Committee needs to hear your views about the proposed Association. If you were not on the AES workshop list but are interested in the organization, please forward your name and statement of interest to:

Dr. Boris Weisman  
Secretary, Organizing Committee  
c/o The MEP Company  
7050 Woodbine Avenue, Suite 100  
Markham, Ontario  
L3R 4G8

**IT'S UP TO YOU!**

Please bear in mind that an association can be established only if there is sufficient interest and support. As our industry is small and fragmented, a large degree of participation will be essential if the Association is to have a chance of succeeding. To establish direction and spearhead this Association, the Organizing Committee needs your cooperation.

R.V. PORTELLI  
Chairman  
Organizing Committee

**NEW CMOS MEMBERS**

The following new members were approved at the Council meeting of 3 April 1987.

NAME	CENTRE
Ms. Evelyn Wilson (regular member)	Toronto
Ms. Christine Best (student member)	Toronto
Mr. Stephen J. Hickey (regular member)	New Brunswick
Mr. Chi Dinh Nguyen (regular member)	Alberta
Mr. Gilles Fournier (regular member)	Alberta
Mr. James B. Milne (regular member)	Halifax
Mr. Peter S. Galbraith (student member)	Halifax
Mr. Gunter Schupke (regular member)	Winnipeg
Dr. James W. S. Young (regular member)	Toronto



CANADIAN METEOROLOGICAL AND OCEANOGRAPHIC SOCIETY

REGISTRATION

SECOND WORKSHOP  
on  
OPERATIONAL METEOROLOGY

14 - 16 October 1987

Please complete the following (print):

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Affiliation: \_\_\_\_\_

Please circle:        CMOS Member                                Non-member

Registration fee:    CMOS Members \$75(Can)    Non-members \$100(Can)  
Enclosed?        Yes\_\_ No\_\_

Make cheque payable to OPERATIONAL WORKSHOP.

Forms for hotel reservations will be sent with acknowledgement of pre-registraton.

Accompanied by spouse:                                Yes\_\_ No\_\_

Interested in:    Harbour Boat Tour                                Yes\_\_ No\_\_

Bedford Institute of Oceanography Tour                                Yes\_\_ No\_\_

Canadian Forces METOC Centre Tour                                Yes\_\_ No\_\_

Please send completed registration to:

CMOS OPMET Workshop,  
c/o Maritimes Weather Centre,  
1496 Bedford Highway,  
Bedford, N.S.  
B4A 1E5

LA SOCIÉTÉ CANADIENNE DE MÉTÉOROLOGIE ET D'OCÉANOGRAPHIE

INSCRIPTION

DEUXIÈME ATELIER DE TRAVAIL SUR

LA MÉTÉOROLOGIE OPÉRATIONELLE

14 - 16 Octobre 1987

S.V.P. compléter (en majuscules):

Nom: \_\_\_\_\_

Adresse: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Association: \_\_\_\_\_

Indiquez:                      membre de la SCMO                      non-membre

Frais d'inscription: membres de la SCMO 75\$                      non-membres 100\$  
Inclus?            Oui\_\_ Non\_\_

S.V.P. faire votre chèque à l'ordre de "OPERATIONAL WORKSHOP".

Le formulaire pour réservation d'hôtel sera inclus avec votre accusé de réception du formulaire d'inscription.

Serez-vous accompagné?                      Oui\_\_    Non\_\_

Seriez-vous intéressé?  
--à une excursion dans le port d'Halifax                      Oui\_\_    Non\_\_

--à visiter l'Institut d'Océanographie de Bedford                      Oui\_\_    Non\_\_

--à visiter le centre militaire "METOC" à Halifax                      Oui\_\_    Non\_\_

Veuillez faire parvenir votre formulaire à:

CMOS OPMET Workshop,  
Maritimes Weather Centre,  
1496 Bedford Highway,  
Bedford, N.S.  
B4A 1E5



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**CANADIAN METEOROLOGICAL & OCEANOGRAPHIC SOCIETY**  
**October 13 - 16, 1987**

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PROVINCE \_\_\_\_\_

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Day Month Year

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Du 14 au 16 octobre, 1987  
Halifax

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Appelez "La ligne aérienne en tête pour les congrès"... les jours ouvrables, entre 9h et 20h, HAE/HNE.

\*Certaines conditions d'achat à l'avance sont applicables

**CENTRALE DE CONGRÈS  
AIR CANADA**



## 2nd WORKSHOP ON OPERATIONAL METEOROLOGY

October 14 to 16, 1987  
Halifax

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\*Certain advance purchase conditions apply

**AIR CANADA  
CONVENTION CENTRAL**



1923 - 1987

Ken Gunn, Registrar at Queen's University and an early member of the Stormy Weather Group at McGill University, died in Kingston on February 14, 1987, at the age of 63.

Born in London, Ontario, he attended the University of Western Ontario, graduating with a bachelor's degree in physics in 1944. He then served for two years as a Radar Officer on loan to the Royal Navy. With naval duty behind him, including a year at sea on a destroyer, he entered McGill in the fall of 1946 for graduate study in physics. He and the late Walter Hitschfeld were among the first graduate students of Professor J. Stewart Marshall when he moved his Stormy Weather Group to McGill from the Defense Research Board in Ottawa. Gunn and Hitschfeld, who were to become lifelong friends, undertook a joint thesis project on the collision and coalescence of water drops, Hitschfeld having main responsibility for the theory, Gunn the laboratory experiments. They were awarded their doctorates in 1950.

After his Ph. D., Ken Gunn continued first as a research associate, then as an Assistant Professor of Physics at McGill. In 1952 he married Hilda Joan Dunbar, also from Ontario. His research during the 1950s consisted chiefly of the study of precipitation processes and the improvement of radar for quantitative precipitation measurement. Several of his papers from that period were classics, still frequently cited. Dr. Gunn experimented with new teaching procedures and pioneered the use of closed circuit television in the early 1960s. In addition to teaching and research he served as editor of the journal *Physics in Canada* from 1952 to 1960, and shared some of the burden of administration of the Stormy Weather Group with the director, Stewart Marshall. In 1961 he was promoted to full Professor.

Though he was content to work behind the scenes, his competence as an administrator had not gone unnoticed, and in 1967 Dr. Gunn was invited to organize a new McGill office for planning and development, responsible for projections of budgets, enrollments, space requirements, and related matters. He accepted the invitation and served with distinction until leaving in 1971 for Queen's University, to take the newly created position of Senior Executive Assistant to the Academic Vice-Principal. In 1975 he was appointed Registrar at Queen's, the position he held at the time of his death. His colleagues at Queen's have praised Ken as a "bright, cheerful and creative presence" with an "extraordinary capacity for effective and efficient administration."

Ken Gunn never lost his interest in atmospheric physics and maintained his membership in the Canadian Meteorological and Oceanographic Society and the American Meteorological Society. He made his mark on our science, and will be remembered by his many colleagues and former students as the splendid person he was. He is survived by his wife Hilda and daughter Martha Bala of Kingston, and sons Stephen and David of Toronto.

Dr. John Patrick Tully, known as "The Father of West Coast Oceanography" in Canada, passed away in Nanaimo, British Columbia, Canada on Tuesday, 19 May 1987.

"Jack" Tully was born in Brandon, Manitoba, on 29 November 1906. He completed public school in Winnipeg and in 1931 graduated from the University of Manitoba with a BSc in Biology and Chemistry.

He commenced his career as a chemist with the Fisheries Research Board of Canada in Nanaimo. Where from 1933 until 1938 he conducted oceanographic studies in B.C. waters.

In 1939 he entered the graduate school of the University of Washington but his studies there were interrupted by the Second World War. In 1942 he was seconded to the Royal Canadian Navy for Anti-submarine Research; he became the leader in this work on the Pacific coast, conducting several major studies on the behaviour of sound in the sea. For these studies he was honored by King George VI, being made a Member of the British Empire (MBE) in 1946.

After the war, he returned to the University of Washington and was awarded a PhD. in Physical Chemistry in 1948. His thesis was entitled "Oceanography and Prediction of Pulp Mill Pollution in Alberni Inlet". This classic work is considered by many to be the first in which oceanography was applied to solve a major marine pollution problem.

Upon his return to Nanaimo he was appointed as Oceanographer-in-Charge of the Pacific Oceanographic Group (POG) under the Canadian Joint Committee on Oceanography. In addition to carrying out important research, he distinguished himself as a leader of the fledgling group of young scientists.

He wrote more than 80 scientific papers and reports on oceanography dealing mainly with the relationship between oceanography and fisheries resources, pollution and defence.

Dr. Tully worked on many international projects with such countries as the U.S.A., Japan, and the USSR. He served on the Intergovernmental Oceanographic Commission and the World Meteorological Organization in the development of joint ocean and meteorological services. He was the first Chairman of the Integrated Global Ocean Station System (IGOSS).

During the formative years of the Institute of Oceanography of the University of British Columbia he contributed significantly to oceanographic education in Canada, through his lectures and training of students.

In 1966, he became the Secretary of the Canadian Committee on Oceanography and acted as the senior oceanographic consultant to the Fisheries Research Board of Canada. He retired in 1969 but remained as an active consultant until 1975.

During his career Dr. Tully earned many awards, including the Coronation Medal in 1953, the Albert 1<sup>er</sup> de Monaco et la Mer in 1967, the Manley Bental Prize in 1967, and the Queen's Silver Jubilee Medal. In 1976 he was honored as one of the Pioneers of Canadian Oceanography.

A J. P. Tully Medal of the Canadian Meteorological and Oceanographic Society has been struck, and in 1984, he became its first recipient, for his significant contributions to Canadian oceanography. In his honour a new Department of Fisheries and Oceans oceanographic-hydrographic research ship was named John P. Tully in 1984.

Dr. Tully was a Fellow of the Royal Society of Canada, a member of the American Geophysical Union, the Canadian Institute of Chemistry, the American Society of Limnology and Oceanography, Sigma Xi, and the American Association for the Advancement of Science, in which he served as President of the Western Division in 1963. He was also a Fellow of the Chemical Institute of Canada and of the American Chemical Society.

Dr Tully helped many young oceanographers, guiding them in almost a paternalistic manner, helping them when personal problems arose, and most significantly encouraging them to conduct good research. Although permanently disabled during his university years, Dr. Tully's physical activities were the envy of many a non-handicapped person and an inspiration to all who knew him.

We thank John P. Tully for his inspiration, and will always retain fond memories of him, as scientist, leader and a fine human being.

He is survived by his wife, Lorraine, and two daughters, Jean (Prout) and Anne (Gill), and one son, Jim.

#### THEODORE JOHANNES SIMONS 1939-1987

Dr. T.J. Simons was born in The Netherlands in 1939. He graduated from the Technological University of Delft where he majored in theoretical fluid dynamics. He was subsequently associated with the North Sea Storm Surge Research of the Royal Netherlands Meteorological Institute and serves as a meteorological officer in the Royal Netherlands Air Force. In 1966 Dr. Simons went to the USA as a research student at the Department of Atmospheric Science, Colorado State University, where he studied atmospheric instability and numerical modelling of atmospheric development. Dr. Simons received his Ph.D. in 1970 for his study of the nonlinear dynamics of cyclone waves.

In 1970 Dr. T.J. Simons joined the Canada Centre for Inland Waters in Burlington, Ontario, where he worked on the development of three-dimensional hydrodynamical models of large lakes. He successfully verified the model against field measurements during the 1972 International Field Year for the Great Lakes. In 1975/76 he was a visiting scientist at the Oceanographic Institute of the University of Kiel, Federal Republic of Germany, where he applied his models to similar measurements taken during the 1975 Baltic Sea Experiment. His modelling efforts culminated in the Monograph "Circulation Models of Lakes and Inland Seas" published by the Canadian Government Publishing Centre. His recognition of the multi-disciplinary nature of environmental research led to the formation of an ecosystem modelling group for the Great Lakes.

Recognition for his pioneering work led to numerous requests for consultations and advice by major research agencies around the world. Dr. Simons' work attained public recognition when he was awarded the Chandler-Misener Award of the International Association for Great Lakes Research in 1972, 1973, and 1976. He also received an Award of Merit from the Canadian Public Service in 1980.

In 1979, Dr. T.J. Simons assumed the position of Professor and Head of the Institute of Meteorology and Oceanography at the University of Utrecht, Netherlands. He returned to Canada and the National Water Research Institute where he was offered an opportunity to design a large-scale field program on Lake Ontario which would enable him to study some missing links in the modelling of closed basin circulations. This led to his comprehensive numerical and empirical models of wind-driven coastal currents which were subsequently used with success to predict alongshore movements of toxic contaminants. Using this data base, he was also able to resolve the question of long-term mean circulation of unstratified basins by demonstrating that this circulation was governed by nonlinear processes, by employing the same techniques used in his Ph.D. thesis on nonlinear atmospheric dynamics.

While producing an impressive body of scientific work himself, Dr. Simons provided a stimulus to his colleagues, both by example and by constructive criticism and encouragement of others. He was a reserved man, but when asked for advice or help, he gave of his time and efforts generously and promptly.

In both his professional and private life, Dr. Simons was a rare and caring individual. His colleagues consider it an honour to have worked beside him and a privilege to be numbered among his friends.

Dr. T.J. (Joe) Simons is survived by his wife, Marleen, daughter, Irene, and son, Erik.

#### NEWSLETTER SUBMISSIONS

The following summarizes the publishing schedule for future issues of the Newsletter. If possible the editor would appreciate receiving material in ELITE type print, 12 characters/inch, and set in columns 50 characters wide. For example set the margin at column 10 and at column 60.

DEADLINE FOR SUBMISSIONS	VOLUME AND ISSUE	
AUG. 21, 1987	AUGUST	VOL 15 NO.4
OCT. 16, 1987	OCTOBER	VOL 15 NO.5
DEC. 18, 1987	DECEMBER	VOL 15 NO.6
FEB. 19, 1988	FEBRUARY	VOL 16 NO.1
APR. 15, 1988	APRIL	VOL 16 NO.1
FEB. 01, 1988	MAY	VOL 16 NO.2*
JUN. 17, 1988	JUNE	VOL 16 NO.3

\* VOL 16 No.2 is the ANNUAL REVIEW and takes longer to prepare and print therefore the deadline is much earlier than for a regular issue.

Submissions should be sent to:

Mr C.F. Mac Neil  
Editor, CMOS Newsletter  
Atmospheric Environment Service  
1496 Bedford Highway  
Bedford, Nova Scotia  
B4A 1E5

phone: (902) 835-9534



**ROYAL METEOROLOGICAL SOCIETY  
COURSES IN 1987**

**Weather Under Sail 16-23 May 1987 Fee £200**

*Directed by Mr Richard Ebling, Cardiff Weather Centre*

*Run in conjunction with the Island Cruising Club*

Sailing from Salcombe in Devon the course takes place aboard the Club's 86ft classic Edwardian schooner which has berths for 8 plus Course Leader, Skipper and Mate, not forgetting a full-time cook. The destination will be the waters of the English Channel and you will learn not only about meteorology afloat but also about sailing a gaff rigged schooner, from measuring weather elements to influencing the ship's course on the basis of your forecast.

**Mountain Weather 1-7 August 1987 Fee £131**

*Drapers' Field Centre, Betws-y-Coed, Gwynedd*

*Directed by Mr Terry Spalding and Mr Rodney Blackall, Meteorological Office*

This is a course for all who like to roam in the hills. It consists of some lectures, do-it-yourself forecasting and field work amidst the beautiful scenery of Snowdonia.

**Understanding Weather 7-14 August 1987 Fee £140**

*Malham Tarn Field Centre, Yorkshire*

*Directed by Dr Keith Weston, University of Edinburgh*

*and Dr David Warren, British Antarctic Survey*

A course in which you are immersed in the weather and all things meteorological in the beautiful surroundings 1300ft up in the Yorkshire Dales. A full week's programme of talks, outdoor work and films includes learning about weather satellites, a forecasting competition and the launching and tracking of hydrogen-filled balloons.

**Weather Science and  
Weather Forecasting**

**19-26 August 1987 Fee £138**

*The Leonard Wills Field Centre, Nettlecombe Court, Somerset*

*Directed by Dr Bob Riddaway, European Centre for Medium Range Weather Forecasts  
and Dr Geoff Jenkins, Department of the Environment*

Would you enjoy learning how to understand weather charts and make your own local forecast? — to track weather balloons, to measure high altitude winds? — and to be involved in lots of other weather activities, all in the informal atmosphere of a beautiful old country house in the Exmoor National Park? Then this is the course for you.

**Weather and Bird Migration 6-11 September 1987 Fee £74.50**

*Gibraltar Point Field Station, Skegness, Lincolnshire*

*Directed by Mr Malcolm Walker, University of Wales Institute of Science and Technology  
and Dr Al Venables, University College, Cardiff*

A course for bird watchers who wish to study the ways in which bird migration, populations, flight patterns and breeding habits depend upon weather and climate. Talks will be informal and illustrated liberally with diagrams and slides. Part of each day will be spent in the field on the Gibraltar Point Nature Reserve.

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**Weekend Courses**

**Understanding Mountain Weather 6-7 June and 27-28 June 1987**

*Directed by Mr D. J. George, Meteorological Office, in conjunction with the  
Sports Council (No previous knowledge needed)*

Weekend courses for those who go into the mountains for work or leisure, including leaders of parties and those working towards Mountain Leadership qualifications, Duke of Edinburgh awards, and 'O' Level Meteorology. Includes one field trip and informal lectures.

Bookings (including deposit of £25, deducted from course fee of £65) to: National Centre for Mountain Activities, Plas-y-Brenin, Capel Curig, Gwynedd.

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For further details of the above courses please write, stating your specific interest, to:  
The Executive Secretary, Royal Meteorological Society, James Glaisher House,  
Grenville Place, Bracknell, Berkshire RG12 1BX



MEMORIAL UNIVERSITY OF NEWFOUNDLAND  
St. John's, Newfoundland, Canada A1B 3X7

Department of Physics

Telex: 016-4101  
Telephone: (709) 737-

29 April 1987

Applications are invited for a tenure-track faculty appointment in

PHYSICAL OCEANOGRAPHY

to be made in the Physics Department, Memorial University of Newfoundland, subject to final budgetary approval. Rank and salary are negotiable and commensurate with the qualifications of the appointee. Experience beyond a Ph.D. degree is preferred. The position offers a challenging academic career with stimulating research opportunities focussing on the Northwest Atlantic and the Labrador Current. The Department's Physical Oceanography Group is engaged in theoretical and experimental studies of coastal and continental shelf oceanography, deep ocean circulation, Lagrangian formulations of dynamical and dispersion problems, numerical modelling and acoustic remote sensing.

Candidates are sought whose primary interests are in continental shelf oceanography. However, qualified individuals with expertise in other areas of physical oceanography are encouraged to apply. An interest in interdisciplinary research and co-operation would be an asset. The appointment will include teaching duties at the graduate and undergraduate levels. Those interested should send curriculum vitae including the names of three referees, or requests for information, to Dr. D. H. Rendell, Head, or to Dr. Alex E. Hay, Department of Physics, Memorial University of Newfoundland, St. John's, Newfoundland, A1B 3X7.

In accordance with Canadian Immigration policy, this advertisement is directed, in the first instance, to Canadian citizens and permanent residents of Canada.

## Canada: First nation to ratify Vienna Convention

On June 4, 1986 Canada became the first nation to ratify the Vienna Convention for the Protection of the Ozone Layer. The Canadian Instrument of Ratification was deposited at the United Nations in New York and announced by Secretary of State for External Affairs Joe Clark and the Minister of the Environment, Tom McMillan.

Under the terms of the Convention, participating nations commit themselves to protect human health and the environment from the adverse effects resulting from modifications to the ozone layer. The Convention provides for international co-operation in research, monitoring, scientific assessment and the exchange of information on matters pertaining to the status of the ozone layer.

Even small changes in the ozone layer are important: a 1% depletion of ozone leads to a 2% increase in ultraviolet radiation and a 4% increase in skin cancer. Recent calculations suggest ozone depletions of more than 10% in the next 70 years if chlorofluorocarbon (CFC) emissions continue to grow. Recently an as yet unexplained 30% reduction in the Antarctic ozone layer was detected.

Because man is entirely responsible for the introduction of CFCs into the environment, it is possible to control their manufacture and emission. However their extremely long life (approximately 100 years) means that action must be taken decades in advance. It is clear that the combined impact of CFCs both on the ozone layer and on global climate is reason enough to raise their importance on the global environmental agenda.

In announcing the Ratification, Mr. McMillan said, "Consistent with our general concern about toxic burden in the atmosphere, Canada has been one of the leading nations in research, monitoring and regulatory measures to protect the ozone layer. Canada operates the World Zone Data Centre for the World Meteorological Organization. A Canadian remote-sensing instrument, the Brewer spectrophotometer, is being sold internationally to modernize the global network of ground-based ozone layer measurements. Since 1980, regulations under the Environmental Contaminants Act have banned the use of CFCs in hairsprays, anti-perspirants and deodorants. The use of these chemicals in Canada has been reduced by 45%.

International efforts to protect the ozone layer have already begun. A series of socio-economic workshops and conferences are expected to result in a draft protocol to the Convention in 1987. ■

Information:  
Dr. A.J. Chisolm  
Environment Canada  
(416) 667-4816

## Les premiers à ratifier la Convention de Vienne

Le 4 juin 1986, le Canada est devenu le premier pays à ratifier la Convention de Vienne pour la protection de la couche d'ozone. Le document de ratification a été déposé aux Nations unies à New York et annoncé par le secrétaire d'État aux Affaires extérieures, Joe Clark, et le ministre de l'Environnement, Tom McMillan.

Les nations ayant adhéré à la convention s'engagent à protéger la santé humaine et l'environnement contre les effets nocifs qui résultent des modifications de la couche d'ozone. Cette convention prévoit aussi la collaboration internationale en matière de recherche, de surveillance, d'évaluation scientifique et d'échange de renseignements sur des questions touchant la situation de la couche d'ozone.

Une diminution de 1 pour cent de la couche d'ozone entraînerait une augmentation de 2 pour cent des ultraviolets et de 4 pour cent des cancers de la peau. D'après de récents calculs scientifiques, la couche d'ozone pourrait diminuer de 10 pour cent ou davantage en 70 ans, si l'on n'enrayait pas les émissions de chlorofluorocarbones (CFC). En outre, on n'arrive pas à expliquer l'amenuisement inattendu de 30 pour cent de la couche d'ozone de l'Antarctique, observe récemment.

L'être humain étant responsable de la présence des CFC dans l'environnement, il est donc possible de contrôler la fabrication et les émissions de ces substances. En raison, toutefois, de leur persistance dans l'environnement (une centaine d'années), il faut prévoir des mesures de limitation des décennies à l'avance. Comme les CFC agissent sur la couche d'ozone et le climat, il faut donc leur accorder une attention particulière.

En annonçant la ratification, M. McMillan a déclaré : « Préoccupé par la charge de produits toxiques dans l'atmosphère, le Canada a joué un rôle de premier plan dans la recherche, la surveillance et la réglementation destinées à protéger la couche d'ozone. Le Canada exploite le Centre des données mondiales sur l'ozone pour l'Organisation météorologique mondiale. Un instrument canadien de télédétection, le spectrophotomètre Brewer, est vendu à l'échelle internationale pour moderniser le réseau mondial des mesures de la couche d'ozone effectuées à partir du sol. Depuis 1980, un règlement de la Loi sur les contaminants de l'environnement interdit l'usage des CFC dans les laques en aérosol, les antisudorifiques et les déodorants. L'utilisation de ces produits chimiques au Canada a baissé de 45 pour cent. »

À l'échelon international, on a déjà pris des initiatives en vue de protéger la couche d'ozone. On s'attend qu'une série d'ateliers et de congrès socio-économiques aboutisse à l'établissement d'un projet de protocole rattaché à la Convention de Vienne en 1987. ■

Renseignements :  
A.J. Chisolm  
Environnement Canada  
(416) 667-4816

### UP-COMING CONFERENCES

**TENTH CONF. ON PROBABILITY AND STATISTICS IN ATMOSPHERIC SCIENCES**  
OCT. 5 - 9, 1987  
EDMONTON, ALBERTA  
CANADA

**CONFERENCE AND EXPOSITION THE OCEAN - AN INTERNATIONAL WORKPLACE**  
SEP. 28 - OCT. 1, 1987  
HALIFAX, NOVA SCOTIA  
CANADA

**XIX GENERAL ASSEMBLY OF THE INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS**  
AUG. 9 - 22, 1987  
VANCOUVER, BRITISH COLUMBIA  
CANADA

**INTERNATIONAL SYMPOSIUM ON RECRUITMENT AND STOCK ASSESSMENT**  
OCT 27 -29, 1987  
VANCOUVER, BRITISH COLUMBIA

**CONTACT:**  
ORGANIZING COMMITTEE  
IRIS-INPFC INTERNATIONAL SYMPOSIUM  
PACIFIC BIOLOGICAL STATION  
NANAIMO, B.C.  
CANADA V9R 5K6  
TEL: (604) 756-7041



McGILL UNIVERSITY

DEPARTMENT  
OF  
METEOROLOGY

Applications are invited for a tenure-track Assistant Professor position in the Department of Meteorology. Applicants are required to have a Ph.D. with experience in large-scale dynamics and research interests in climate studies involving data analysis and modelling.

The incumbent will be expected to teach at the graduate and undergraduate levels, and to participate in the research activities of the newly formed Climate Research Group. Examples of research topics of interest to the group include the analysis and modelling of atmospheric blocking, middle-atmosphere circulation and variability, tropical-midlatitude teleconnections, ocean circulation modelling and large-scale air/sea interactions.

In accordance with Canadian immigration regulations, this advertisement is directed to Canadian citizens and permanent residents of Canada. The closing date for applications is November 1, 1987 and the appointment could take place as early as January 1, 1988. Send curriculum vitae and the names and addresses of three references to:

The Chairman  
Department of Meteorology  
McGill University  
805 Sherbrooke St. West  
Montreal, Quebec  
H3A 2K6

UNIVERSITY OF BRITISH COLUMBIA

DEPARTMENT OF OCEANOGRAPHY

RESEARCH POSITION

Recent Ph.D with experience in numerical modelling of ocean circulation is sought to participate in the development of existing numerical models of British Columbia fjords. Field programs to provide additional verification data for the models will be conducted by the co-investigators. The position is available beginning 1 September, 1987 but starting may be delayed up to 1 January, 1988. It is for one year initially but may be renewed for a second year. It will be filled at postdoctoral (ca \$21,700) or research associate (up to ca \$32,000) level according to the candidate's experience.

In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. Resumes and three letters of reference should be sent by 1 August 1987 to:

Dr. S. Pond,  
Department of Oceanography,  
6270 University Blvd.,  
Vancouver, B. C.,  
V6T 1W5

ATMOSPHERIC  
SCIENCE

DALHOUSIE  
UNIVERSITY

The Atmospheric Environment Service and Dalhousie University are submitting to the Natural Sciences and Engineering Research Council a proposal for the establishment of a centre of excellence and graduate program in atmospheric science. It is envisaged that there will be four tenure-track positions, one senior and one junior in each of the two general areas of climate research and marine meteorology.

Further information on the positions and on existing teaching and research programs at Dalhousie, Bedford Institute of Oceanography, and AES, Bedford may be obtained from:

Dr. C. Garrett  
Department of Oceanography  
Dalhousie University  
Halifax, Nova Scotia  
B3H 4J1  
Canada

Applications for both senior and junior positions should be sent to Dr. C. Garrett at the above address.

In accordance with Canadian Immigration requirements, this advertisement is directed to Canadian citizens and permanent residents of Canada. With respect to the employment of women faculty, Dalhousie University is an affirmative action employer.

UNIVERSITY OF BRITISH COLUMBIA

DEPARTMENT OF OCEANOGRAPHY

NSERC UNIVERSITY RESEARCH FELLOWSHIPS

Applications are invited from suitably qualified candidates for NSERC University Research Fellowships to be held in the department of Oceanography. Applicants must have post-doctoral experience and be Canadian citizens or have landed immigrant status. Applications from all disciplines in ocean science will be considered.

Please write for further particulars and send application, with a curriculum vitae and the names and addresses of three referees, to:

Dr. S.E. Calvert, Head,  
Department of Oceanography,  
University of British Columbia,  
Vancouver, B. C.  
V6T 1W5

INTERNATIONAL CONFERENCE  
ON TROPICAL  
MICRO-METEOROLOGY  
AND  
AIR POLLUTION

The International Conference on Tropical Micro-meteorology and Air Pollution is being organized by the Indian Institute of Technology, New Delhi. The Conference will be held at the Indian Institute of Technology, New Delhi, India from February 15 to February 19, 1988. It is co-sponsored by the Indian National Science Academy; American Meteorological Society; International Centre for Theoretical Physics (ICTP), Italy; Third World Academy of Sciences (TWAS), Italy; Indian Meteorological Society; Department of Science and Technology, Govt. of India; Department of Environment, Govt. of India. A number of other Indian and International societies are also expected to co-sponsor the Conference.

FINAL CALL FOR PAPERS

Original papers or well documented case studies, including suggested remedial measures and their impact, will be accepted on the following topics:

Procedures for dealing with accidental releases of substantial quantities of toxic material in densely populated areas.

Modelling and monitoring pollution from combinations of dispersed and large industrial sources in urban and rural areas, including effects of smoke and dust from bio-mass burning and wind blown soil and sand.

The impact of possible future growth in the use of alternative energy sources and improved efficiency of combustion on air pollution in the tropics.

Characteristics of the tropical boundary layer over land and ocean:

- a) Boundary layer dynamics
- b) Observational studies

This is the final invitation for contributions on any of the above or related topics. Five copies of an abstract (about one page) of each paper proposed for the Conference, together with the names, addresses and affiliations of authors and co-authors should reach the following address before August 15, 1987.

Professor M.P. Singh  
Centre for Atmospheric Science,  
Indian Institute of Technology,  
Hauz Khas, New Delhi 110 016, India

POSTER SESSIONS

The Conference will include poster sessions. Themes for poster sessions will be chosen on the basis of the abstracts received by August 15, 1987. To assist in this choice, authors are requested to indicate whether they would like to present their papers in the poster sessions.

PUBLICATION OF THE CONFERENCE PROCEEDINGS

It is proposed to publish the proceedings as a special issue of "Atmospheric Environment", subject to the Journal's normal peer review process. To expedite the review for publication, authors are

requested to submit the full paper with the final extended abstract, or failing that, to bring the manuscript to the Conference.

SUMMARY OF DEADLINE DATES

Submission of abstracts.....Aug. 15, 1987  
Acceptance of papers.....Oct. 15, 1987  
Submission of extended abstracts....Dec. 15, 1987

INTERNATIONAL PROGRAMME COMMITTEE

For further information, please contact:

Dr. Y.S. Chung  
ARQD  
Atmospheric Environment Service  
4905 Dufferin Street  
Downsview, Ontario  
M3H 5T4  
Tel: 1-416-667-4980

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An experienced (35 years) retired professor with specialization in Applied Mathematics (e.g. Geo-physical fluid dynamics/ and others) is available part or whole time for paid services: Consultant/Advisor/Contract/Sub-contract/ or else.

Phone: Dr. Ray (613) 824-7168

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