



Canadian Meteorological
and Oceanographic
Society

C.M.O.S. NEWSLETTER/NOUVELLES

S.C.M.O.

La Société Canadienne
de Météorologie et
d'Océanographie

APRIL/AVRIL 1989

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GREENLAND SEA PROJECT

In the Greenland Sea north of Iceland, scientists from the federal Department of Fisheries & Oceans (DFO) will be looking for an "overtun" (or sinking) of large volumes of ocean water. This is a rare event but when it occurs it affects the circulation of the global ocean and, subsequently, has an effect on the earth's climate.

This project is an international undertaking of scientists from Canada, the Federal Republic of Germany, France, Norway, Denmark, Iceland and the United States. The program, which commenced in June 1988 and will terminate in July 1989, aims to document an entire winter cooling cycle in the Greenland Sea, which has a maximum depth of 3500m.

Moorings and mid-depth floats will measure the inflows, outflows and circulation of the Greenland Sea throughout the year. These data combined with meteorological data will provide a basis for the development of models to predict how this Sea - and hence the rest of the world ocean - will respond to different winter conditions.

The water in the global ocean circulates vertically but very slowly - in the order of hundred of years. Near the poles, cold dense water sinks and is replaced by warmer, lighter surface water from the tropics. In the oceans, this gradual circulation is driven by relatively rapid overturns of deep, bottom water occurring in just two places: the Greenland Sea and the Weddell Sea (Antarctica).

These rapid overturns take place only during stormy weather in the winter and spring, when it is thought that large volumes of water can sink 3000m in a matter of a few hours. Crucial measurements will be of the stability of the water column. If the density of the water column is relatively uniform, a small disturbance at the surface due to changes in wind or temperature can trigger the overturn.

These overturns play an important role in the earth's climate by driving the transfer of heat from the tropical regions to the northern regions. The "greenhouse effect" is predicted to raise the temperature of the earth over the coming decades, and scientists must advance their understanding of the role of the oceans. A doubling of carbon dioxide (CO_2) in the atmosphere may increase the average global temperature by 3°C , according to present models. These same models predict for the higher latitudes an increase as much as 10°C .

To improve the models, a better understanding is required of the ocean heat transfer related to overturning. If global warming suppresses overturning then less heat will be transferred to the higher latitudes and, consequently, may decrease the predicted temperature change at these higher latitudes.

The oceans also play a significant role in determining the CO_2 concentration in the atmosphere. It is thought that the deep ocean may store as much as one half of the carbon from increased CO_2 . Deep water masses can stay in place for hundreds or thousands of years and provide long-term storage for the carbon.

It is hoped that this project will provide information on how the global ocean creates its deep water masses, and on how it responds to long-time scale climate changes.

Source: DFO Backgrounder (January 16, 1989)

EDITOR'S COLUMN

If you wish to submit items for the CMOS Newsletter, please send to Malcolm Still, Atmospheric Environment Service, 4905 Dufferin Street, Downsview, Ontario. M3H 5T4. The deadline for the June issue is June 1, 1989, and for the August issue is August 1, 1989.

The Limestone Mountain Experiments

G.S. Strong
Atmospheric Environment Service
National Hydrology Research Centre
Saskatoon, Saskatchewan

Until recently, efforts to improve our understanding of mesoscale processes have been restricted by the lack of special mesoscale data sets to provide basic upper air thermodynamic and wind data for research. During 1980-85, a series of mesoscale upper air experiments, the Limestone Mountain Experiments (LIMEX), were carried out by the Alberta Research Council Hail Project (AHP) over the foothills regions of southwestern Alberta (see map).

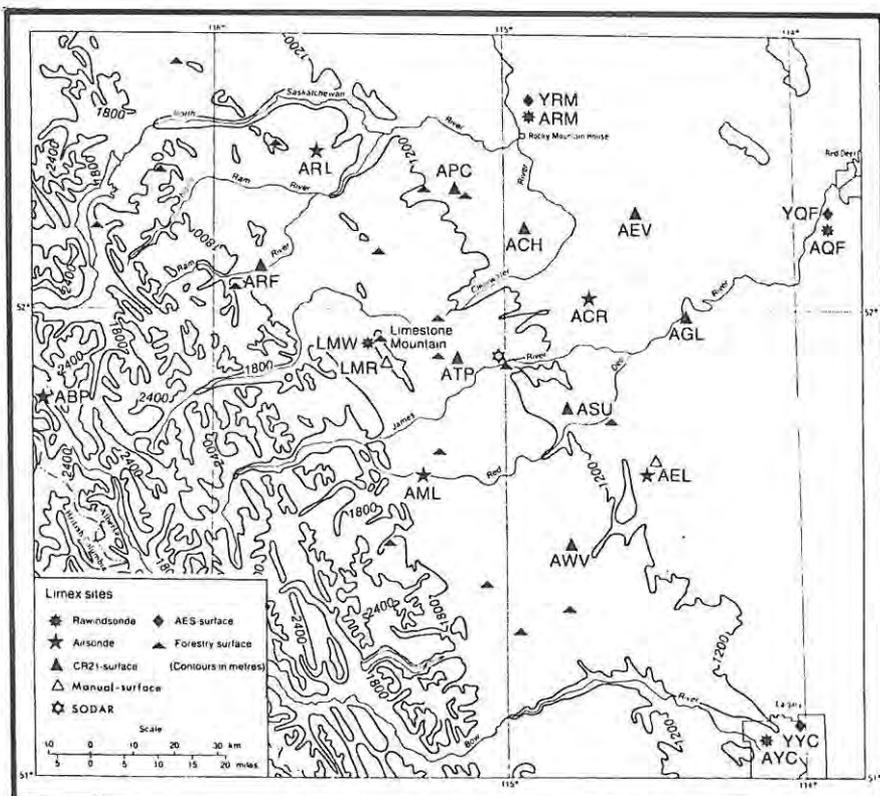
Field work was centred around Limestone Mountain (LMR) as storms frequently form over or near this foothills peak, and as it was within radar range for detecting first echoes. The LIMEX studies included LIMEX-80 (July 15-17, 1980), CIS-82 (the Capping Inversion Study, July 1-25, 1982), and culminated with LIMEX-85 (July 8-23, 1985). The latter involved nine special sounding units deployed at spacings of about 60km. Scientific objectives for LIMEX were directed at mesoscale convective processes, orographic effects, and interactions with synoptic processes, with particular emphasis on the role of the 'capping lid', a common thermodynamic signature preceding severe convective storms. Perceived benefits were to provide improvements in our understanding of mesoscale processes, and to develop better storm forecasting techniques.

The two main technical goals for the LIMEX field studies were: (1) to map the spatial and temporal sequence of processes leading to the creation and breakdown of the capping lid in convective storm situations, particularly in the boundary layer; and (2) to obtain high resolution data useful for testing convective forecast techniques.

The following is an abbreviated list of archived fully-processed data collected during LIMEX-85:

- nine (9) radiosonde or airsonde units at 60-km average spacing, collecting temperature, humidity, and wind data at 2-hour intervals between 1200 and 0200 UTC (on full operational days);
- a full hourly surface observation program at each upper air site, and at Limestone Mountain ridge;
- eight (8) surface data processing units (CR-21s) collecting 5-minute averaged temperature, humidity, wind, and precipitation data;
- surface data obtained from Alberta Forestry observations;
- all hourly surface synoptic data for northwest North America;
- radar (PPI) data from the AHP site at Red Deer, Alberta; and
- hail data from AHP hail surveys, generally 3-6 km resolution.

The processed data indicated above have one merged format for upper air data and one for surface data. The following are data that still require some processing:



- all other upper air data from synoptic sites over northwest North America during LIMEX-85 operations;
- morning flights by a research aircraft porpoising at 20-km intervals on pre-determined transects to obtain soundings (850-600 mb); and
- one acoustic sounding unit to provide a continuous record of the boundary layer and capping lid.

Also an extensive cloud photography program was carried out at most of the upper air sites, with time lapse movies from Limestone Mountain itself. It is intended to include archived GOES satellite data in the LIMEX archive. LIMEX-85 was the most intensive mesoscale upper air experiment ever conducted in Canada to that time, and as such, is a valuable data set. Plans are underway to have the data processing completed and to continue scientific analyses.

For further information concerning the scientific objectives, field logistics, or data processing for LIMEX, interested individuals should contact:

G.S. Strong
Hydrometeorological Research Division
Atmospheric Environment Service
11 Innovation Boulevard
Saskatoon, Saskatchewan, S7N 3H5
Tel: (306) 975-5809

For data requests, please contact:

Marianne English
Head, Resource Technologies Department
Alberta Research Council
P.O. Box 8330, Postal Station F
Edmonton, Alberta, T6H 5X2
Tel: (403) 450-5250

ROYAL METEOROLOGICAL SOCIETY

For those that may be in London, England, in the next few months, here are a few meetings being held by the Royal Meteorological Society. Unless otherwise stated, meetings are held in Lecture Theatre 1, Blackett Laboratory, Imperial College, Prince Consort Road, London S.W.7.

Wednesday, 17 May

Professor D.K. Lilly (College of Geosciences, University of Oklahoma, U.S.A.) will give the Symons Memorial Lecture on "Numerical prediction of small scale weather - has its time come?" The meeting will commence at 4:30pm (tea at 4:00pm).

Wednesday, 21 June

The Annual General Meeting of the Royal Meteorological Society will commence at 3:00pm (tea at 4:00pm). After the awards ceremony, Dr. Browning will give the Presidential Address on "The mesoscale database and its use in mesoscale forecasting."

Friday, 16 June

There will be a visit to the British Antarctic Survey (BAS) from 2:30 to 5:30pm. There will be presentations on BAS, and the Ice and Climate Division. Group visits will be arranged to see the remote sensing system, the ice core analysis laboratory and the ozone laboratory.

Thursday, 14 September

The theme on the 14th September at the Mason Conference will be "Climate change and its economic and political impact." The Mason Conference is the joint annual meeting of the Royal Meteorological Society, the Association of British Climatologists and the Royal Geographical Society. The meeting will be held at the University of Sheffield.

JOIN A SOCIETY

I am, of course, speaking to the converted since most of you who read this Newsletter already belong to CMOS. But do you belong to any other professional societies in the meteorological and oceanographic fields? Periodically, when examining the Quarterly Journal of the Royal Meteorological Society (RMS) or the Bulletin of the American Meteorological Society (AMS), I scan the lists of new members but seldom do I see a Canadian name or address. If you have not already joined another Society such as RMS or AMS, I suggest you consider doing so right now.

If you were to look into the origins of our Society you will find that both the Royal Meteorological Society and the American Meteorological Society played a large part. Fifty years ago, the meteorological world was much smaller and most Canadian meteorologists belonged to both Societies. In fact two former heads of the Canadian Meteorological Service (read the Atmospheric Environment Service in 1989) served as presidents of the AMS, Sir Frederic Stupart in 1922-23 and John Patterson in 1930-31, but distance precluded active participation in the RMS.

In 1939, Canadian meteorologists and the Service hosted a joint meeting in Toronto of the Royal Meteorological Society and the American Meteorological Society, and at the meetings it was announced that the RMS had granted a charter for the establishment of a Canadian Branch.

Many of my generation joined the American Meteorological Society soon after entering the Canadian Meteorological Service in World War II because that Society was relative to the North American synoptic meteorology we were dealing with every day. Later in more normal times, and probably because the Canadian Branch was active, we joined the Royal Meteorological Society. As well as having a sense of participation in the activities of both Societies, we read the publications and submitted papers ourselves from time to time. When we established our own Society in 1967 most of us retained our RMS memberships and continued with the AMS as an indication of our support of the profession.

Of course, membership in Societies is more expensive now than it was a few decades ago. But salaries have also gone up in proportion. Since the environment receives so much media attention these days, the professional Societies need all the support they can obtain to help keep the record straight. The CMOS should come first in your priority list but it seems to me that Canadian oceanographers and meteorologists should support more than one professional Society if they are at all serious about being a professional. I will keep looking for Canadian names and contributed papers in future RMS and AMS publications with the hope of seeing a significant increase.

Morley Thomas

NEW CMOS MEMBERS

The following new members were approved
10 March, 1989:

<u>NAME</u>	<u>CENTRE</u>
M. Pierre Gauthier (Regular)	Montreal
Mr. James K. Robinson (Student)	Vancouver
Mr. Edward Hare (Regular)	Toronto
Mr. Kevin Everett (Student)	Halifax
Dr. Jeffrey A. Runge (Regular)	Rimouski
Dr. Ioannis K. Tsanis (Regular)	Toronto
Mr. Richard L. Berry (Regular)	Toronto
Dr. Anton Davies (Regular)	Toronto



METEOROLOGICAL INSTRUMENTS

SINCE 1964



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- Wind Speed, Peak Gusts
- Wind Direction, Variability
- Temperature, Delta T
- Dew Point, Relative Humidity
- Precipitation

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CONFERENCES / CONFÉRENCES

CMOS XXIII ANNUAL CONGRESS

ATMOSPHERIC AND OCEANIC HAZARDS:
MODELING AND OBSERVATION

Université du Québec à Rimouski
June 6-9, 1989

January 1st, 1990 will see the beginning of the Hazard Reduction Decade. The United Nations General Assembly has designated the 1990's a decade in which the international community will pay special attention to natural disaster reduction. The Scientific Program Committee is organizing the details of the program according to two main objectives: attract participants from fields other than atmospheric and oceanic physics, and promote multidisciplinary studies, especially Canadian participation in international programs. Besides the usual sessions in meteorology and oceanography, there will be special sessions on atmospheric and oceanic chemistry, biological oceanography, marine geology, the Hazard Reduction decade, JGOFS, and WOCE.

For additional information: Contact Dr. Vladimir G. Koutitonsky (tel.: (418) 724-1763) or Dr. Yves Gratton (tel.: (418) 724-1761).

SCMO XXIII CONGRES ANNUEL

LES CATASTROPHES ATMOSPHERIQUES ET OCEANIQUES:
MODELISATION ET OBSERVATIONS

Université du Québec à Rimouski
juin 6-9, 1989

La décennie débutant le 1^{er} janvier 1990 sera celle de la réduction des catastrophes. L'Assemblée Générale des Nations Unies a désigné les années 90 comme la décennie où la communauté internationale devra se pencher en priorité sur la prévention des catastrophes naturelles. Les deux objectifs du comité scientifique sont d'attirer des participants de spécialités autres que la physique atmosphérique ou océanique, ainsi que de promouvoir les études multidisciplinaires, en particulier la participation canadienne dans les programmes internationaux. Nous aurons donc des sessions en chimie atmosphérique et océanique, en océanographie biologique, en géologie marine, sur la Décennie de Réduction des Catastrophes et les programmes JGOFS et WOCE.

Pour de plus amples informations: Contactez M. Vladimir G. Koutitonsky (tel.: (418) 724-1763) ou M. Yves Gratton (tel.: (418) 724-1761).

CONFERENCES/CONFÉRENCES

The Commission of the European Communities

Risø International Conference

Environmental Models: Emissions and Consequences

Risø National Laboratory, Denmark

May 22-25, 1989

The development of a comprehensive computer model able to predict in detail the full consequences of emissions from energy production and other industrial activities is not yet possible. Nevertheless it is important to link the calculations of emissions and emission reduction measures with the environmental consequences. The conference will focus on advanced models for the calculation of: emissions from energy production and conversion, and other industrial activities; environmental consequences, physical, biological and economic; implications of emission reduction measures. For further information please contact the Conference Organizing Committee at:

Systems Analysis Department

Risø National Laboratory, Postbox 49

DK-4000 Roskilde, Denmark

Tel: 45 2 37 12 12 (from late May 45 42 37 12 12)

Fax: 45 2 75 71 01 (from late May 45 46 75 71 01)

Health and Welfare Canada

University of Montreal, Montreal, Quebec

Symposium on Aerobiology and Health

Ottawa, Ontario

June 7-9, 1989

The joint Canadian and PanAmerican Symposium on Aerobiology and Health will be held in the Delta Ottawa hotel. The objectives of the symposium are:

- to elaborate on various aspects of aerobiology such as mold and pollen allergies, allergens and their standardization, effect of mold toxins on the immune system, and occupational allergies;
- to stress recent developments and achievements in aerobiology
- to discuss biotechnical aspects such as the use of monoclonal antibodies and cloning of allergens in allergen standardization; and
- to speculate on future trends and directions in the field of aerobiology and to better understand its true position in the human ecosystem.

For more information, please contact Dr. H.M. Vijay, Health and Welfare Canada, at (613) 957-0962.

Norwegian Academy of Science and Letters

International Society of Soil Science

Nordic Trace Element Society

Norwegian Ministry of Environment

Excess and Deficiency of Trace Elements

in relation to

Human and Animal Health in Arctic and Subarctic Regions

Tromsø, Norway

May 25-26, 1989

The symposium will focus on recent research on trace element pollution and deficiencies in Arctic and Subarctic regions, and the impact of such ecological imbalances on human health. Manuscripts of the invited speakers and extended abstracts of the posters will be published in the Proceedings edited by the Norwegian University Press. Proceedings can be ordered at the Symposium. For more information, please contact:

Prof. Jan Aaseth

Chairman, Dept. of Occupational Medicine

N-9012 University Hospital

Tromsø, Norway

Tel: 47.83.42 839

European Association for the Science of Air
Pollution (EURASAP) and the Aerosol Society

Aerosol and Background Pollution

University College, Galway, Ireland

June 13-15, 1989

An international conference organized by the European Association for the Science of Air Pollution (EURASAP) and the Aerosol Society will deal with the properties of particulate matter in the atmosphere remote from major pollution sources.

Papers and posters will be on the following topics: Background air pollution; Natural sources of airborne particles; Chemical composition of particles; Volatility/hygroscopicity of airborne particles; Gas/particle conversion; Sampling techniques for airborne particulate matter; Long range transport and removal of particles; Optical effects and properties of aerosols.

Further information may be obtained from Dr. T.C. O'Connor or Dr. S.G. Jennings, Department of Physics, University College, Galway, Ireland (Tel: (353)-91-24411, Fax: (353)-91-25700).

CONFERENCES/CONFÉRENCES

International Association for Impact Assessment

Impact Assessment in an Age of Transformation:
New Imperatives, New Approaches

Montreal, Quebec
June 24-28, 1989

The central issue in impact assessment is the management of change in the ecological, social, political, technological and economic conditions that determine quality of life. The purpose of this meeting is to focus on new imperatives and new approaches in impact assessment. Topics will include: Substantive Issues; Methods, Techniques and Applications; Institutional Arrangements; and Teaching and Training.

For additional information, contact:

Dr. Victor C. Goldbloom
Program Chair, IAIA '89
Bureau d'audiences publiques sur l'environnement
Gouvernement du Québec
5199, rue Sherbrooke est, bureau 3860
Montréal, Québec. H1T 3X9
Tel: (514) 873-7790

Technology Development
and Technical Services
Branch
Environment Canada

La direction du
développement technologique
et des services techniques
Environnement Canada

Emergency Response '89
Halifax Sheraton
May 16-18, 1989
Halifax, Nova Scotia
* * * * *

Intervention d'urgence '89
Halifax Sheraton
du 16 au 18 mai 1989
Halifax (Nouvelle Écosse)
* * * * *

6th Technical Seminar on
Chemical Spills

6e Colloque technique sur
les déversements de
produits chimiques

Marlborough Inn
June 5-6, 1989
Calgary, Alberta
* * * * *

Marlborough Inn
du 5 au 6 juin 1989
Calgary (Alberta)
* * * * *

12th Arctic and Marine
Oilspill Program Technical
Seminar (AMOP)

12e Colloque technique du
Programme de lutte contre
les déversements
d'hydrocarbure dans
l'arctique (AMOP)

Marlborough Inn
June 7-9, 1989
Calgary, Alberta

Marlborough Inn
du 7 au 9 juin 1989
Calgary (Alberta)

L'International Association for Impact Assessment

Évaluations d'impact à une époque de transition:
nouveaux impératifs, nouvelles optiques

Montréal (Québec)
24 au 28 juin, 1989

Le problème principal, en matière d'évaluations d'impact, est le traitement des changements des conditions écologiques, sociales, politiques, technologiques et économiques qui déterminent la qualité de la vie. Le but d'ensemble de ce congrès est de mettre l'accent sur les nouvelles obligations et les nouvelles optiques des évaluations environnementales. Dans le cadre du thème, nous organiserons des séances concernant: Questions de base; Méthodes, techniques et applications; Aspects institutionnels; et Enseignement et formation.

Pour de plus amples informations, contactez Dr. Victor C. Goldbloom (Président du comité du programme IAIA 89):

Bureau d'audiences publiques sur l'environnement,
Gouvernement du Québec,
5199, rue Sherbrooke est, bureau 3860,
Montréal, Québec. H1T 3X9
Tel: (514) 873-7790

Air & Waste Management Association

The Future is Now
82nd Annual Meeting & Exhibition

Anaheim, California
June 25-30, 1989

The Air & Waste Management Association (AWMA formerly APCA) will hold its Annual Meeting & Exhibition at the Anaheim Convention Center. There will be 5 days of concurrent technical sessions and a 3-day exhibition.

Recognizing each other's needs, we all must work together to develop solutions to environmental problems and at the same time to ensure that economic growth and societal convenience exist in harmony with the environment. This environmental balance can only be obtained through an integrated approach that reconciles objectives and blends technology to achieve a common goal. The AWMA provides a neutral, objective forum to facilitate this approach. This conference builds upon past conferences, meetings, publications and seminars.

For more information, please contact AWMA, P.O. Box 2861, Pittsburgh, PA 15230 or telephone (412) 232-3444.

SEMINARS/SÉMINAIRES

The 16th Stanstead Seminar is being hosted by the Department of Meteorology, McGill University at Bishops University, Lennoxville, Québec, from July 10-14, 1989. The theme of the seminar is: High-latitude climate processes, with special emphasis on large-scale air/ice/sea interactions. The daily program will consist of two comprehensive papers in the morning and two in the afternoon, thus providing ample time for discussion and interaction. Invited speakers include Dr. F. Bryan, Dr. H. Cattle, Dr. E. LeDrew, Dr. P. Lemke and Dr. J. Walsh. For more information, please contact Dr. Lawrence A. Mysak, Climate Research Group, Department of Meteorology, McGill University, 805 Sherbrooke St. W, Montreal, Québec. H3A 2K6 Tel: (514) 398-3759.

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Entries on the following pages are restricted to CMOS Accredited Consultants. The accreditation process commenced in December, 1986, and to date there are 24 Accreditees. As set out in the document "CMOS Guidelines for Accreditation," the criteria are:

- (1) The applicant must possess an appropriate undergraduate degree from a recognized university.
- (2) The applicant must possess at least one of the following types of specialized training:
 - (i) post-graduate degree from a recognized university in meteorology or oceanography;
 - (ii) post-graduate degree from a recognized university in the natural or applied sciences or mathematics, specializing in one or more branches of meteorology or oceanography; or

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 - physique de l'atmosphère
 - météorologie dynamique
 - climatologie physique ou domaines connexes

Date d'entrée en fonction : Le 1^{er} juillet 1989

Traitement : Selon la convention collective SPUQ-UQAM

Cette offre s'adresse également aux femmes et aux hommes et, conformément aux exigences relatives à l'immigration au Canada, ce poste est offert aux citoyens canadiens et aux résidents permanents.

Les candidats sont priés de faire parvenir un curriculum vitae en français, daté et signé, avant 17 h le 30 mai 1989 à :

M. Iszter Zawadzki, directeur
Département de physique
Université du Québec à Montréal
C.P. 8888, succursale A
Montréal (Québec) H3C 3P8



 **Université du Québec à Montréal**

(iii) three years of on-the-job meteorological or oceanographic experience.

- (3) Upon completion of the above educational and training requirements, the applicant must have spent at least two years of satisfactory performance, at the working level, in the field of specialization included in this document. This should include at least some consulting experience.

Individuals interested in applying for accreditation may contact the CMOS Executive Director at the Society's Ottawa address for a copy of the Guidelines and an application form. Consultants who wish to obtain accreditation should note that applications received before April 1, 1989, are expected to be processed by July 1, 1989, if all the necessary information has been included with the applications. A complete list of CMOS accredited consultants can be obtained from the Executive Director.

ACCREDITED CONSULTANTS

Noel Boston, P.Eng., Ph.D.
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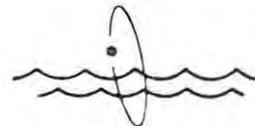
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La Société Canadienne de Météorologie et d'Océanographie The Canadian Meteorological and Oceanographic Society

La Société Canadienne de Météorologie et d'Océanographie (SCMO) a pour but de stimuler tous les aspects de la météorologie et de l'océanographie au Canada. Sa constitution date de juin 1977, alors que la Société Canadienne de Météorologie, établie en janvier 1967, a reconnu la croissance et les contributions dues à l'activité de sa section d'océanographie et a changé son nom. Toute personne ou organisation intéressée à la météorologie et/ou à l'océanographie peut en devenir membre.

Les treize centres locaux et sections de la Société fournissent aux membres autant de lieux pour discuter et recevoir des conférenciers invités. Les membres qui ont des intérêts particuliers à l'hydrologie, à la pollution de l'air, à l'agriculture, à la météorologie d'exploitation ou à la glace dérivante sont encouragés à joindre des groupes d'intérêts spéciaux au sein de la Société.

La Société organise un Congrès annuel au printemps d'une durée de trois jours où l'on présente et discute des exposés, où l'on distribue des récompenses et où l'on tient la réunion générale annuelle. L'emplacement choisit pour le congrès varie selon le centre qui en est l'hôte.

La Société publie quatre périodiques, comprenant le Bulletin de nouvelles de la SCMO. Le Bulletin publie des lettres, des avis, des revues de livres et d'autres communications d'intérêt pour les membres. ATMOSPHERE-OCEAN est le journal scientifique trimestriel qui renferme des articles sur tous les aspects de la météorologie et de l'océanographie, de même que des notes, lettres et revues de livres appropriées. Le Bulletin climatologique est un journal qui renferme des articles et des notes d'intérêt sur la climatologie. Il est publié trois fois par année. Chinook est un périodique trimestriel qui publie des articles plus généraux sur les thèmes météorologiques et océanographiques. Le Bulletin de nouvelles de la SCMO est distribué sans frais additionnels à tous les membres. Les membres peuvent souscrire aux autres périodiques par abonnement à taux favorables.

Les demandes d'adhésion sont approuvées par le bureau d'administration à ses réunions mensuelles. Les demandes d'adhésion et d'abonnement reçues après le 1^{er} octobre sont pour l'année suivante à moins qu'elle soit requise pour l'année en cours.

The Canadian Meteorological and Oceanographic Society (CMOS) exists to advance all aspects of meteorology and oceanography in Canada. It assumed its present constitution in June 1977. This development recognized the growth and contributions of an active Oceanographic section within the parent Canadian Meteorological Society established in 1967. Membership in the Society is open to individuals and organizations with interests in the fields of meteorology and/or oceanography.

Through its thirteen local Centres and Chapters, the Society provides a forum for members to participate in discussions and hear guest speakers. Members with special interests in the fields of hydrology, air pollution, agriculture, operational meteorology or floating ice are encouraged to join Special Interest Groups within the Society.

The Society sponsors an annual Congress each spring, usually lasting three days, where papers are presented and discussed, various awards are given, and the yearly business meeting is held. The location of the Congress varies, with the local Centres serving as hosts.

The Society publishes four periodicals, including the CMOS Newsletter. The Newsletter carries correspondence, notices, book reviews and other items of general interest to members. ATMOSPHERE-OCEAN is a quarterly scientific journal containing articles on all aspects of meteorology and oceanography as well as relevant notes, correspondence, and book reviews. The Climatological Bulletin contains articles and notes of particular interest to the field of climatology. The Bulletin is published three times a year. Chinook is a quarterly magazine giving a more general treatment to meteorological and oceanographic themes. The Newsletter is distributed to all members free of charge while the other publications are available at favourable subscription rates.

New members are accepted into the Society by the National Executive at their monthly meetings. Applications and subscriptions received after October 1 are for the following year unless requested for current year.

1989 MEMBERSHIP APPLICATION FORM - DEMANDE D'ADHÉSION 1989

(Please print in block letters - Lettres moulées s.v.p.)

Title/Titre Dr ___ Mr ___ Mrs ___ Miss ___ Ms ___
 M ___ Mme ___ Mlle ___

MEMBERSHIP CATEGORY - CATÉGORIE DE MEMBRE
 ANNUAL FEES - COTISATION ANNUELLES
 (Please check one - Cochez un s.v.p.)

Name/Nom _____

Address/Adresse _____

Telephone/Téléphone res./maison _____ bus./travail _____

Occupation/Emploi _____

(for records only: if student, indicate institution and year studies will be completed)

(pour dossiers seulement: l'étudiant doit inscrire le nom de son institution et l'année où il finira ses études)

- Regular \$30.00
Régulier
- Student \$20.00
Étudiant
- Corporate \$150.00 (minimum)
Corporation
- Sustaining \$125.00 (minimum)
Soutien

PUBLICATION SUBSCRIPTIONS - ABONNEMENT AUX PÉRIODIQUES ANNUAL RATES - ABONNEMENTS ANNUELS

<u>Members</u>	<u>Non-Members</u>	<u>Institutions</u>		<input type="checkbox"/>		<u>Membres</u>	<u>Non-Membres</u>	<u>Institutions</u>
\$20.00	\$30.00	\$55.00	ATMOSPHERE-OCEAN	<input type="checkbox"/>	ATMOSPHERE-OCEAN	\$20.00	\$30.00	\$55.00
\$12.00	\$15.00	\$20.00	Climatological Bulletin	<input type="checkbox"/>	Bulletin climatologique	\$12.00	\$15.00	\$20.00
\$10.00	\$12.00	\$15.00	Chinook	<input type="checkbox"/>	Chinook	\$10.00	\$12.00	\$15.00
\$ 0.00	\$15.00	\$15.00	Annual Congress Program & Abstracts	<input type="checkbox"/>	Congrès Annual Programme et Résumés	\$ 0.00	\$15.00	\$15.00

Note: Students receive one Society publication in their Annual Fee and must indicate free publication desired. All regular Society publications are sent to Corporate and Sustaining Members.

Note: Les membres étudiants reçoivent une des publications SCMO et doivent indiquer la publication gratuite désirée. Tous les périodiques sont envoyés aux membres corporatifs et soutiens.

PRIMARY FIELD OF INTEREST - SPHERE D'INTÉRÊT PRINCIPAL

Meteorology
Météorologie

Oceanography
Océanographie

SPECIAL INTEREST GROUP - GROUPE D'INTÉRÊT SPÉCIAL

(Indicate group if interested - Indiquez si vous avez des intérêts dans une groupe)

Hydrology
Hydrologie

Air Pollution
Pollution de l'air

Agriculture & Forest
Agricole et Forêt

Operational Meteorology
Météorologie d'exploitation

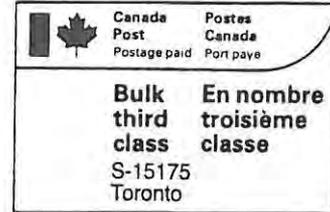
Floating Ice
Glace dérivante

Other (specify) _____
Autre (stipulez) _____

APRIL/AVRIL	Vol 17 No.2
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See over/au verso

CMOS-SCMO
P.O. Box/C.P. 334
Newmarket, Ontario.
L3Y 4X7
Canada



W1028 1
Mr. M.K. Thomas
15 Lewes Cres.
TORONTO ON
M4N 3J1

Please enroll me as a member of the Society. I attach a cheque for \$ _____ payable to the Canadian Meteorological and Oceanographic Society for the membership fee and/or publication subscriptions. I also include a tax-deductible donation of \$ _____ for (check one):

The Society's Development Fund

Other (specify) _____

Date

Mail completed form to CMOS at the address above.

Je désire devenir membre de la Société. J'inclus un chèque au montant de \$ _____ payable à la Société Canadienne de Météorologie et d'Océanographie pour la cotisation de membre et/ou des abonnements aux périodiques. J'inclus aussi un don déductible d'impôts de \$ _____ pour (indiquez):

Le fonds de développement de la Société

Autre (stipulez) _____

Signature

Faire parvenir au SCMO la demande d'adhésion complétée à l'adresse au dessus.