



C.M.O.S.

# NEWSLETTER

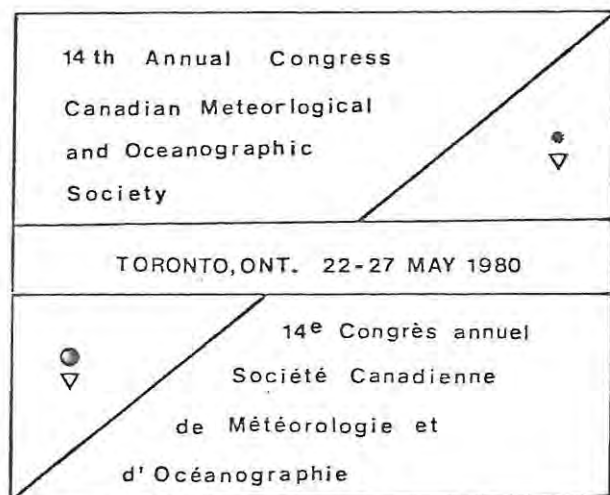
S.C.M.O.



JULY 1980

Vol. 8 No. 3

CONTENTS	PAGE
Welcome to the New President	1
From the President's Desk	2
From the Desk of the Outgoing President	3
Sustaining Members	6
Highlights	6
News from the Centres	7
Canada Wide Science Fair	16
Answer to Skill Testing Question	16
Patterson Medal	17
Code of Ethics	18
Directory of Consultants	20
Education Opportunities	21
Books	24
Employment and Opportunities	26
Conferences	28
CHINOOK Subscription Form	29



CMOS NEWSLETTER is a bimonthly publication of the Canadian Meteorological and Oceanographic Society.

Editor:

Avard S. Mann  
Atmospheric Environment Service  
Argyll Centre, 6325-103 Street  
Edmonton, Alberta T5H 5H6

## WELCOME TO THE CMOS PRESIDENT - Dr. John Maybank

John was born in Winnipeg and spent his early years fluctuating between that city and Ottawa, where his father had part-time employment as a Member of Parliament. He attended the University of Manitoba from 1947-52, receiving a B.Sc. (hons) in Mathematics and Physics. This was followed by a stint at U.B.C. from 1952-54, culminating in an M.Sc. in semi-low temperature physics.

In March of 1954 John joined the Defence Research Board staff at Suffield Experimental Station near Medicine Hat as a research scientist in the Physics and Meteorology Section. His work there, in the field of aerosol physics, led naturally to an interest in meteorology as such and in 1956 he obtained a leave of absence at half pay to pursue further studies in this field.

John enrolled at Imperial College of Science and Technology, London, England, and received a University of London Ph.D. in 1959 under the supervision of Sir John Mason. His thesis topic was entitled "Mechanisms of Ice Crystal Production in the Atmosphere". On return to Suffield Experimental Station, he continued his work in ice crystal nucleation, and became involved in the early stages of the Alberta Hail Studies program.

In 1961, he accepted a post in the Physics Division at the Saskatchewan Research Council, Saskatoon, where he has remained, becoming head of the Division in 1972. His research work has included ice nucleation and cloud

electrification studies, droplet and particle behaviour in the atmosphere, pesticide drift and deposition problems, and pollutant emission control. Much of this research has been closely related to the provincial agricultural scene, so that today he considers himself basically an agrometeorologist. As such, he has also been involved in operating a pilot project on the provision of farm weather forecasts, and in designing improved weather services for agriculture based on the findings of this project.

John joined the Canadian Meteorological and Oceanographic Society at its creation, transferring from the Royal Meteorological Society at that time. He remains a member of the latter society as well as of the Canadian Association of Physicists. Within the CMOS he has served on a number of committees, most recently as chairman of the Scientific Committee for 1977-79. He was the AES lecture tour speaker in 1976, at which time he visited all the CMOS Centres then in existence.

He is presently chairman of the Saskatchewan Committee on Agrometeorology, and of the Air Subcommittee of NRC's Associate Committee on Scientific Criteria for Environmental Quality. He is also a member of the Associate Committee on Agricultural and Forestry Aviation.

#### FROM THE PRESIDENT'S DESK

As your new President, I would like to thank all outgoing officers for their efforts on behalf of the Society in the past year. A special note of appreciation is due Dr. Tim Oke for his contribution over the past three years as editor of Atmosphere-Ocean. He has been instrumental in continuing the development of our publication as a first class scientific journal. I am sure his successor, Dr. Henry Leighton at McGill will maintain this standard; he will be ably assisted, I'm sure, by the Deputy-Editor and all the members of the Editorial Committee who have agreed to continue on. However, both Tim and Henry point out that unless CMOS members actively support the journal by submitting research manuscripts in greater numbers than at present, there is a danger that the amount of publishable material will be too small to maintain their standards.

The 14th Congress, just completed in Toronto, was a novel experience, meeting as we did with the American Geophysical Union. While the oceanographers appear to have been well-served, with some 22 sessions spread over five days, the meteorological offerings were quite sparse. Indeed there appeared to be relatively little to interest forecasters and other "mainline" meteorologists in the program. However, for those among us whose interests lie in fringe areas of the discipline there was some recompense. Sessions on the solar eclipse of 1979 in Manitoba and southern Saskatchewan, on the atmosphere of Venus, or on the satellites of Jupiter were available to divert and broaden, while for those who might have been really keen, Sunday morning sessions on vulcanology and crystallography could have been attended. (They weren't, by me at least!)

On the whole, however, while it might have offered a wider view of earth sciences to our members, such a large conference is not wholly satisfactory, I feel. There is simply too much going on, schedules conflict, and the ability to engage in small discussion groups tends to be lost. More attractive to me might be occasional joint meetings in the future with smaller societies, or where the subject material is more narrowly set. In any case, I would like to thank the Local Arrangements Committee in Toronto, and especially its chairman, Nancy Cutler, for a job that was undoubtedly difficult and frustrating at times, but one that ensured that CMOS was not totally submerged by the AGU.

Next year's Congress will be in Saskatoon and we will revert to our more normal format (and size). It is due to be held in the Physics Building of the University of Saskatchewan, on May 27-29. Jeff Whiting, SRC, Saskatoon is chairman of the Local Arrangements Committee, while Barry Goodison, AES, Downsview, will be the Program Committee Chairman. While the theme of the Congress is Hydrometeorology, special session topics not related to this will, of course, be accepted and even encouraged. If you have specific topic suggestions please let the Chairman know as soon as possible. For 1982, present plans call for Ottawa to be the Congress site.

A number of items arose from the various committee meetings that preceded this year's Congress. Most of these will be referred to elsewhere in the Newsletter. One activity I would like to mention here concerns our desire to have some sort of permanent mailing address. The CMOS is presently too small an organization (and its financial resources too limited) to permit us to acquire an office and salaried staff. However, several larger societies do have such facilities, usually in Ottawa, and one of these, the Canadian Association of Physicists has been approached to see if some sort of contractual arrangement to provide services might be possible. It appears that they are agreed in principle, and it remains to establish exactly which services could be provided at costs that CMOS could afford. I shall keep the membership informed of these negotiations as they proceed.

#### FROM THE DESK OF THE OUTGOING PRESIDENT

The 14th Congress of the Society was a successful occasion. This was the first time the Society has met with the American Geophysical Union (AGU) and the other Canadian societies or groups covering the total discipline range of the AGU. In all, 2100 registered for the meeting but it will be awhile until we know how many CMOS members attended. The meteorology sessions were well attended while the oceanographers had a host of concurrent sessions to select from.

The Council Meeting on May 21 and Annual General Meeting on May 22 were well attended and resulted in some profitable dialogue and decisions. The financial position of the Society was shown to be healthier than a year ago and there will be no change in the



individual membership and student membership dues for 1981. We have received a publication grant from NSERC towards the cost of ATMOSPHERE-OCEAN this year and we will be receiving a grant again from the Atmospheric Environment Service. Following the Newsletter questionnaire survey to investigate the interest of members in receiving the magazine CHINOOK, Council agreed to offer a three-year bulk subscription to this publication at a special rate of \$9.00, providing at least 100 members send the Society the necessary funds. (Look elsewhere in this Newsletter for the application form).

Council also agreed to provide a structure and guidelines for the establishment of Special Interest Groups within the Society. This will be on a trial two-year basis thus the guidelines and names of such groups are to be considered only on an interim basis. If after two years there is a demonstrated need for such groups, the operational guidelines could become more formalized. There is already an application to form an Air Pollution Meteorology Group to come before the next Council meeting in October. If others have an interest in initiating a group they should discuss it with their discipline area colleagues and then contact Council concerning formation for such a group. The guidelines can be supplied on request from any of the Executive members.

A document on the "Code of Ethics for Professional Members", prepared by the Committee on Professionalism, was approved for distribution to the members (copy elsewhere in the Newsletter). Please read this, discuss it with your colleagues, and send comments to the Executive so that any concerns can be discussed at the next Council meeting. If comments are favorable Council will consider seeking formal approval for such a document at the AGM next year.

Four of the Standing Committees of the Society met and had profitable discussions on the day prior to the Congress. Watch for request items for membership input coming from these Committees.

Henry Leighton has now taken over as Editor of ATMOSPHERE-OCEAN and Chairman of the Editorial Committee. Art Reinelt, University of Alberta, is the new Book-Review Editor so see he is made aware of new books you would like to see reviewed. George Boer, AES, Downsview is the new Chairman of the Scientific Committee, and we are seeking a new Chairman of the Financial Development Committee.

Six CMOS members have been asked to sit on the new Canadian National Committee/World Climate Research Program - Jacques Derome, Chris Garratt, Warren Godson, John Maybank, Phil Merilees and Tim Oke. While George Needler, with alternate Paul LeBland, will represent the Society as Observer member on the Canadian Committee on Oceanography.

In the next few weeks we will actively be seeking one or two speakers for the 1980/81 AES/CMOS Speakers Tour.

Next year's Congress will be held in Saskatoon May 27-29 at the University of Saskatchewan hosted by our Saskatchewan Centre. Dr. Jeff Whiting is the Local Arrangements Chairman and Dr. Barry

Goodison is the Scientific Program Chairman for the theme "Hydrometeorology". In 1982 we will be meeting at the University of Ottawa with the Learned Societies, hosted by our Ottawa Centre. Council received two invitations for 1983-Alberta and Halifax Centres - and will be considering these further at future meetings. Council will also be considering where the national Executive should be located in 1982/83 as by then the three year term in Edmonton will be completed.

Congratulations to Aileen and Tom Hayden of Saskatoon, our 1980 CMOS award winners at the recent Canada Wide Science Fair held at Thompson, Manitoba. Their winning project was entitled "Clouds" and their exhibit consisted of an operational homemade cloud chamber. (See report elsewhere).

The CMOS Awards Banquet at the Congress was ably chaired by Gordon McKay. Joint winners of the Dr. Andrew Thomson Prize in Applied Meteorology were Drs. Yves Delage and Claude Girard. Winner of the Rube Hornstein Prize in Operational Meteorology was Dave Fraser, and Graduate Student Prizes were awarded to Eduardo Freire, University of Toronto and William Large, University of British Columbia. There was no President's Prize award this year. Dr. W.E.K. Middleton was the recipient of the 1979 Patterson Medal given by the A.E.S. for his outstanding contributions to meteorology over a period spanning 50 years. Dr. F.K. Hare was guest speaker at the banquet luncheon and spoke on "Awareness of Climate".

I have enjoyed the year as your President, but this was only made possible by the hard work of the other Executive and committee members. I thank all these individuals for their assistance in running the affairs of the Society. At this time I would especially like to single out those that have retired from their positions. These include Ron Burling the past President; Dave Fraser as Corresponding Secretary; the three Councillors-at-Large, Alex Chisholm, Gaston Paulin, and Brian Petrie; and four members of the Scientific Committee, Alistair Fraser, Paul Hamblin, George Needler and Tim Oke. Tim also deserves a special thanks for the outstanding job he has done the last three years as Editor of ATMOSPHERE-OCEAN. He is also to be congratulated for being invited to give the Symons Memorial Lecture on "Urban Meteorology" to the Royal Meteorological Society on May 21, a considerable honour. Catherine Gautier is thanked for her year as Chairperson of the Scientific Committee, and Gordon McBean for chairing the now disbanded GARP Scientific Committee. Han-Ru Cho, Nelson Freeman, Mark Donelan, George Boer, Julio Iribarne, and Dave Lam are thanked for their work on the 14th Congress Scientific Program Committee, and a special thanks is due Nancy Cutler who suddenly was asked to take over from Jack Donegani as the Congress Local Arrangements Committee. To all these, whose role is completed, and to those continuing to serve the Society on the national Executive, on Council, on Committees, Centres or Chapters, I thank you.

John Powell

## SUSTAINING MEMBERS

The following are Sustaining Members of the Canadian Meteorological and Oceanographic Society:

Airflow Developments Ltd. Richmond Hill, Ont.	Hermes Electronics Ltd. Dartmouth, N.S.
Air Canada Montreal, P.Q.	MacDonald Dettweiler and Associates Ltd. Richmond, B.C.
Alberta Weather Modification Board Three Hills, Alberta	MacLaren, Marex Inc. Dartmouth, N.S.
Beak Consultants Ltd. Vancouver, B.C.	Neil Sargent Downsview, Ont.
Bendix-Aviation Electric Montreal, P.Q.	Younge Atmospheric Consulting Services Ltd. Calgary, Alberta
Bristol Aerospace Winnipeg, Man.	Alberta E. Boyer Oakville, Ont.
Dobrocky Seatech Ltd. Victoria, B.C.	Meyer Systems Inc. Vancouver, B.C.

## HIGHLIGHTS

- The concept of special interest groups within CMOS was supported by Congress as an interim basis. An application for the formation of an Air Pollution Meteorology Group will be considered by Council in October.
- A special rate of \$9.00 for a 3-year subscription to CHINOOK was negotiated with the Editor, Mike Newark, provided 100 members subscribe. To take advantage of this offer, fill out the last page of the Newsletter and send it to Pete Kociuba, Corresponding Secretary.
- Membership fees for regular members will remain constant at \$30 although sustaining and institutional membership will rise from \$60 to \$75 and \$30 to \$40 respectively.
- Concern was expressed at the Membership Committee meeting at the high level of non-renewals. Some committee members felt this was not a new situation and it was suggested that getting local membership lists in the hands of the Centre executives early in the year would go a long way toward an overall increase in membership.
- CMOS Congress 1981 will be held at the University of Saskatoon, 27-29 May.

- Congratulations to Dr. W.E.K. Middleton on being awarded the 1979 Patterson Medal.
- Congratulations also to Dr. Yves Delage and Dr. Claude Girard, joint winners of the Dr. Andrew Thomson Prize in Applied Meteorology, and to Dave Fraser who was awarded the Rube Hornstein Prize in Operational Meteorology.
- The 1980 CMOS Award at the Canada Wide Science Fair at Thompson, Manitoba was won by Aileen and Tom Hayden of Saskatoon.
- New Chairman of the Science Committee is Dr. George Boer, AES Downsview; Dr. Stephen Pond is also a member of this committee although his name was missed on the list in the last Newsletter.

#### NEWS FROM THE CENTRES

St. John's Chapter: On Friday, February 29th, John Newell gave a talk to a gathering of CMOS members entitled "Long Range Forecasting of Sea Ice Clearing in Baffin Bay". This talk was related to his Masters Thesis while attending the University of Windsor last winter.

A business meeting was held on Tuesday, March 11th.

On Tuesday, March 25th, touring CMOS speaker Dr. Michael Glantz addressed the Society on "The Science, Economics and Management of the Peruvian Fisheries under Conditions of Environmental Uncertainties". The talk was followed by a lively question and answer period.

The next night the Society met for its first dinner (and it is hoped that this will become an annual occasion) with Dr. Glantz as guest of honour. The following members and spouses were present: J. Bobbitt, W. Denner, C. Noll, N. Riggs, L. Davidson, D. Tatar, C. Banfield, B. Fowler, L. Bursey and J. Bursey.

At the April 16th meeting Dr. Ian Borthwick of Memorial University presented a paper entitled "Measurement of Ocean Diffusion and its Applicability to Oil Spill Movement".

Our last meeting until fall will be held sometime in June. At that time we will elect a new executive and complete all unfinished business. Following that meeting I will prepare a report for our parent body.



Halifax Centre: As the terms of the Center's executives draw to a close, it is a good time to look back and evaluate what we have accomplished.

We started out of the gates at a trot, but by the spring we were at a full gallop. Over the summer of 1979, our chairman had moved away, and his position was replaced in the fall. Since all of us were new in these positions, it took a short period of adjustment before we began to roll.

At our first meeting in the fall, Professor Bob Dickison from the University of New Brunswick, presented an extremely interesting address on the spruce bud worm problems in New Brunswick. He discussed ways in which they tracked the flight of the bud spruce worm, and as an aside, some of the mesoscale meteorological phenomena in the area.

Peter Scholefield, from Climate Canada, provided food for thought at our next meeting. He discussed the Canadian Climate program and its relationship to the World Climate program.

In December, Dr. Stuart Smith from the Bedford Institute of Oceanography (BIO) discussed wind effects on ocean waves in very strong winds.

Even though most of our meetings were reasonably attended, the executive felt that maybe a change of menu would attract better attendance.

On our first gathering of the 80's, Dr. John Smith from BIO was our guest speaker. His talk focussed on two subjects; both interesting. He outlined some of the environmental aspects of the Point Leprow Nuclear Project in New Brunswick. As an aside, he discussed a lead dating technique which sounded very promising.

On Valentine's Day, about 50 people gathered at the Dalhousie's Faculty Club for a roast beef dinner and for some good company. Dr. Rod Shaw from the Air Quality Group (DOE) addressed the group on the acid rain problem in Atlantic Canada. The whole evening was a great success.

We spent a day in March with Dr. Michael Glantz. He had spoken previously to a group at Fredericton, which was also attended by several of our own local members. His original style and interesting viewpoint lured many to our afternoon seminar.

Due to unforeseen circumstances, our proposed meeting in April was cancelled. However, we made up for it in May. We planned an evening of wine and cheese to give a farewell to members leaving for this year's congress and some compensation to others who remained behind. Mr. Fraser MacNeil from the Atlantic Weather Centre was our guest speaker. He had



recently returned from a two-year hydrometeorology project in Colombia, and enlightened the group with the highlights. He had several colorful slides and some interesting stories about the area which provided some stimulus for conversation while we nibbled and sipped.

We have planned a final meeting in June where Simon Skey from the MacLaren-Marex organization has consented to outline a historical overview and associated problems of the offshore oil drilling activities along the east coast.

Overall, most of our meetings were reasonably attended by both oceanographers and meteorologists. We found, by selecting topics of general interest to both factions of our Society, they were better attended than ones of a more technical origin.

Apart from our occasional gatherings, the center participated in two school science fairs: the Halifax-Dartmouth Regional Science Fair, and the Cape Breton Science Fair. We presented cash and book prizes, participating directly in the Halifax Fair. Dr. Des O'Neill and Dr. David Huntley judged the meteorological and oceanographic exhibits and presented our awards.

A new executive will be elected in Halifax this month; we wish them all the luck and support for the coming year.

- R.D. Grimes

Fredericton Chapter: Two events highlighted the Fredericton activities this spring.

The first was the very successful Second Conference on Meteorology of Northern New England and the Maritimes, 21-22 March jointly sponsored by the AMS.

The second was the scheduled meeting of the Chapter 21 May to hear Mr. Vern Ireton of the UNB Energy Secretariat speak on "Data for Solar Heating Applications - Availability and Utilization.

- Bob Dickison

Ottawa Centre: Dr. R.W. Durie of Environment Canada's Corporate Planning Group spoke to the Ottawa Centre members on 1 April 1980. His topic, "The Ark-One Experiment in Alternative Energy Futures", covered the development of a demonstration residence in PEI complete with greenhouse, solar heating, and recycleable water, wastes, etc. Dr. Durie's presentation accompanied by a colour video recording provided our members with an excellent insight into the lessons learned from the Ark project.

Our last meeting of the season took place on 29 April 1980. The following were elected to serve on the Centre's

executive for the 1980/81 season:

Mr. L. D. O'Quinn - Chairman  
Mr. G. M. Shimizu - Vice-Chairman  
Mr. R. L. Jones - Secretary-Treasurer

Following the election and a short business session, Mr. J. Ploeg, Head of NCR's Hydraulics Laboratory spoke to us on "The Oceans - A Renewable Energy Resource". He noted that, for Canada, tidal and wave energy were the only exploitable ocean energy sources, and his talk mainly concerned these areas.

The 1980 Ottawa Regional Science Fair was held on 18-19 April 1980. Three members of our Centre judged the exhibits for best meteorological and/or oceanographic content. The Ottawa Centre trophies and prize money for this year were awarded to two senior high school students from Immaculata H.S. for their project on acid rain titled "Rain Drops are Falling on My Head".

Finally, we would like to take this opportunity to extend best wishes to long-time CMOS member and supporter, Al Parry who retires in June.

- Robert Jones

Centre de Rimouski: The "Centre de Rimouski" took body at the first meeting of members (actual and potential) on November 2, 1979. At this meeting we elected the executives:

Dr. Georges Drapeau, president  
Mr. Donald Tremblay, treasurer  
Dr. Michel Khalil, secretary

We diffused the information and encouraged our colleagues (Université du Québec, INRS-Océanologie and Institut Maritime du Québec) to adhere to the centre by sending their fees directly to the CMOS-Toronto.

The executive met two times and decided what to be done for the ongoing year.

1. Visiting lecturer: Dr. Michael Glantz gave two lectures in our Center. The first one titled "Fisheries management and environmental uncertainties" was given to our graduate students in the morning. In the afternoon of March 7, Dr. Glantz gave plenary lecture titled "The Carbon dioxide issue". This lecture was open to the public. We took the necessary arrangements to diffuse the information in the media: 2 local journals, radio and television in addition to internal diffusion inside the university, CEGEP (high school) and secondary school.

We are taking advantage of Dr. Glantz's visit to encourage more people to adhere to the centre. We invited the actual members and the potential ones to a get-together on Friday after the conference. Beer and cheese was served.

2. Expo-Sciences-Est du Québec: The regional scientific exposition is taking place this year at the "Ecole Polyvalente d'Amqui" at Amqui in the Matapédia Valley (100 km from Rimouski), on April 24-27, 1980. The "Centre de Rimouski" is actively involved in this exposition, the main theme of which is "Energy" this year. One of our members, Dr. M. Khalil, is invited as honorary president for the exposition. The executive of the Center decided, in addition to our involvement in this exposition, to allow \$50.00 from our funds as a prize for one of the winners. The \$50.00 cheque will be issued to the EXPO-SCIENCES EST DU QUEBEC. We are helping some young students in Amqui participating in the posters and photos dealing with oceanography.

Finally, as of the relatively short time of existence of the Rimouski Center, we believe our Center will be viable and look forward to the future with great optimism.

- Michel Khalil

Centre de Montréal: Exécutive pour la saison 1979-80

Président:	J.-G. Cantin Division de la Formation Service de l'Environnement Atmosphérique
Secrétaire:	P. Ducharme Unité des Services Scientifiques Service de l'Environnement Atmosphérique
Trésorier:	G. Perrier CEGEP de Sorel
Président sortant:	H. Allard Centre des prévisions du Québec Service de l'Environnement Atmosphérique
Comite d'information permanente:	S. J. Froeschl Service de l'Environnement Atmosphérique

Dans le cadre des activités de la saison 1979-80, six (6) réunions avec conférenciers invités eurent lieu, dont 3 présentées en anglais et 3 en français. Voir l'annexe 1.

Les conférences ont été présentées au Centre de l'Environnement Atmosphérique à Ville St-Laurent, sauf que la conférence présentée conjointement avec l'Association pour l'Assainissement de l'Air a eu lieu à l'Hôtel Reine Elizabeth au centre ville de Montréal.



Les objectifs que nous nous étions fixés étaient les suivants:

- 1) Augmenter le nombre des membres
- 2) Diversifier les sujets des conférences
- 3) Tenir des réunions conjointes avec d'autres organismes
- 4) Organiser une exposition avec des organismes représentant la météorologie et l'océanographie.

Le Centre de Montréal est satisfait dans une grande mesure dans la réalisation de ses objectifs.

Entre autres, l'exposition au Complexe Desjardins a été un grand succès. La météorologie était représentée par Environnement Canada, Environnement Québec, le département de physique de l'Université du Québec à Montréal, le département de météorologie de l'Université McGill et la Société de Météorologie de Québec; tandis que l'océanographie a compté sur la participation du département d'océanographie de l'Université du Québec à Rimouski et du département des Sciences marine de l'Université McGill.

Plus de 10,000 personnes ont visité l'exposition qui s'est tenue du 15 au 17 avril 1980. Nous avons ainsi atteint le but de la SCMO, à savoir stimuler l'intérêt de la météorologie et de l'océanographie.

Dans le cadre du comité d'information permanente de la SCMO, notre membre de ce comité a commencé à préparer un projet afin de faire connaître la météorologie et l'océanographie dans les écoles, collèges et universités par des conférences gratuites données par des volontaires. Nous espérons que le prochain comité exécutif du Centre de Montréal en fera un de ses objectifs.

Du point de vue finance, vous trouverez en annexe 2, un état financier se terminant à la fin de mai. Nous avons fait tout notre possible pour que chaque dollar dépensé soit réellement profitable à la société.

Enfin, dès l'automne 1979, le comité exécutif a accepté un règlement sur la formation du comité de mise en candidature pour le choix des nouveaux membres de l'exécutif que l'on retrouve en annexe 3.

Je remercie tous les membres de l'exécutif du centre, de Montréal pour l'année 1979-80 et je souhaite bonne chance à celui de l'année 1980-81:

Président: Dr. G. L. Austin  
Université McGill

Secrétaire: P. Ducharme  
Unité des Services Scientifiques  
Service de l'Environnement Atmosphérique

Trésorier: Peggy Leech  
Université McGill

Président sortant: J.-G. Cantin  
Division de la Formation  
Service de l'Environnement Atmosphérique

Comité d'information  
permanente: S. J. Froeschl  
Centre des Prévisions du Québec  
Service de l'Environnement Atmosphérique

Annexe 1 - Conférences tenues durant la session 1979-80:

Première réunion - 2 octobre 1979 - Ville St-Laurent

Prof. R.R. Rogers, directeur du département de météorologie  
à l'Université McGill.

Titre: Research in Meteorology at McGill University.

Deuxième réunion - 29 novembre 1979 - Ville St-Laurent

Prof. J. Lebel, directeur du programme de maîtrise en  
océanographie à l'Université du Québec à Rimouski.

Titre: Océanographie à l'UQAR et Bilan du CO<sub>2</sub> dissous  
dans l'estuaire du St-Laurent.

Troisième réunion - 30 janvier 1980 - Ville St-Laurent

Prof. S.M. Kevan, département de géographie du CEGEP John  
Abbott College.

Titre: Medical Meteorology: Past, present and future.

Quatrième réunion - 12 mars 1980 - Montréal

Prof. M. Glantz, du Centre de Recherche atmosphérique à  
Boulder, Colorado (NCAR).

Titre: A Political view of CO<sub>2</sub>

Cinquième réunion - 22 avril 1980 - St-Laurent

P. Lavallée, chercheur à l'Institut National de Recherche  
Scientifique dans le domaine de l'eau.

Titre: Impact sur les eaux réceptrices des débordements  
de réseau unitaire.

Sixième réunion - 15 mai 1980 - Ville St-Laurent

Y. Vigneault, Direction des eaux intérieures, Environnement  
Canada.

Titre: Les pluies acides au Québec.

Winnipeg Centre: On February 7th the CMOS tour speaker, Dr. Michael Glantz, spoke to the group on "The Social and Economic Impacts of Weather Related Forecasts". This was a dinner meeting held at the Viscount Gort Hotel.

On March 27th Dr. Dave Schindler from the Freshwater Institute spoke to the group on "Acid Rain". This was a dinner meeting held at the Assiniboine Golf Club.

The Winnipeg Centre representative on the Membership Committee, Mr. Normand Bussiere, was transferred to the Montreal Weather Office. We appreciated his interest and assistance.

Mr. Amir Shabbar has volunteered to replace Mr. Bussiere.

The Manitoba Schools Science Symposium was held May 1, 2, & 3 at the University of Winnipeg. The CMOS/Oceanography Special Interest Award was once again offered. The CMOS judging panel consisted of:

Mr. P. Dilliston - Chairman  
Mr. M. Hacksley  
Mr. R. Howell

Unfortunately no projects dealing with Oceanography were included in the 1980 Symposium.

First prize was won by a project "The Effect of CO<sub>2</sub> on World Climate". The project was exhibited by two grande XII students from Windsor Park Collegiate, Doug Jones and Aashif Esmail. Two plaques and a cash prize of \$25.00 were awarded. Second prize was won by a project exhibited by two Bruce Junior High Grade VIII students, Danya Tustin and Coralee Swischuk. This project, "Meteorology" included the results of several meteorological experiments conducted by the students themselves. Two plaques and a cash prize of \$5.00 were awarded.

Mr. Glen Bond, Officer-in-Charge of the Thompson Weather Office, had agreed to be the judge to award the Canada Wide Science Fair prize on behalf of CMOS in mid-May in Thompson.

- George Moody

Saskatchewan Centre: On January 15, 1980 a workshop was held to discuss what material was available in our files to provide educational programs to schools, libraries, etc. The material presented was a slide/tape on Spray Drift, a film presentation with discussion on Weather Satellites, and two verbal presentations on Cloud or Precipitation Modification and Weather Forecasting. A video tape was also brought in from the B.C. Centre. It was decided to try to proceed with video presentations using the University of Saskatchewan Audio-Visual Services provided that funding can be found.

On February 6, Dr. Michael Glantz, the CMOS Tour Speaker presented his seminar on "The Value of Stream Flow Forecasting



in Times of Drought". A tape was made of his talk and will be shared with the Alberta Centres and Winnipeg Centre who did the same.

John Maybank has been spearheading the arrangements to provide tour speakers to the Saskatchewan Intercouncil Committee on Agrometeorology (SICAM). SICAM tour is aimed at interested groups of farmers on the subject of agricultural weather forecasts. Two talks have been presented to date.

A book prize was offered to the Regina Science Fair and Saskatoon Science Fair.

On the subject of membership - we lost two and gained four.

Chairman - J. Whiting, Saskatchewan Research Council, Saskatoon  
Vice Chairman (elect) - E. Ripley, University of Saskatchewan, Saskatoon  
Secretary Treasurer - D. Bauer, A.E.S., Saskatoon  
Public Information Committee - J. Duldin, A.E.S., Regina  
Membership Committee - E. Wheaton, University of Saskatchewan, Saskatoon.  
- Jeff Whiting

Alberta Centre: Members were treated to a film night on Tuesday, March 25. The feature was a new film, "CHINOOK", produced at the University of Calgary. Two shorter films were also shown; an AES production entitled "IN ALL SEASONS" and a U.S. Department of Commerce production entitled "TORNADO".

On Wednesday, May 7 members gathered at the "700 Wing" in Edmonton for a presentation by Dr. Marianne English of the Alberta Research Council. Dr. English spoke on the Patterns of Hailstone Embryo Types in Alberta.

The Alberta Centre awarded a prize at this year's Edmonton Regional Science Fair. The winning display dealt with the meaning and calculation of relative humidity.

Our Centre's chairman, Mr. J. Carr McLeod, travelled to Toronto in May to attend the 14th Annual Congress.

- Tom Medlicott

CANADA WIDE SCIENCE FAIR - THOMPSON, MANITOBA

The project chosen at the Canada Wide Science Fair for the CMOS award was won by a sister/brother contribution of Aileen and Tom Hayden from Saskatoon. Aileen attends Grade 10 at Nutana Collegiate and Tom is in Grade 8 at Queen Elizabeth Junior High School.

Their project was entitled "Clouds" and their exhibit consisted of an operational homemade cloud chamber. Their oral description and knowledge of the processes involved in producing the cloud was excellent. Their interest in further years is to study weather modification projects.

Other interesting exhibits were "Pollutants and Ozone" by Richard Tozer of Bruce Conty; "Acid Rain and an Electrostatic Solution" by Wayne Conrad of Durham, and "Effects of Brine Shrimp Density Upon the Survival Rate of Larval Lobsters" by Danny Jackson of Halifax/Dartmouth.

ANSWER TO SKILL TESTING QUESTION

Results of Wind "guesstimation" contest held at the 14th Annual Congress: A challenge was issued to participants of the recent 1980 Congress, inviting them to estimate the wind speeds at five specified points over idealized topography. For those who saw the notice about the contest and are waiting breathlessly for the solutions, they are:

A=11.6, B=13.2, C=11.1, D=12.2, E=13.6 ms<sup>-1</sup>.

The contest notice was posted on Thursday. Unfortunately the entry box disappeared by Friday morning and the remainder of the "exhibit" by Monday morning. Due to these unhappy circumstances we only managed to capture one entry from this collection system. We apologize to others whose entries we may not have received. The one entry, however, was a real winner as it beat 15 other "guesstimates" made during an earlier contest run at A.E.S. So congratulations to Alex Dessler of Rice University whose answers were 11.1, 14.2, 11.1, 12.2, 13.3 ms<sup>-1</sup>, respectively for a r.m.s. deviation of only 0.52 and a Spearman Rank Correlation Coefficient (indicative of skill in ranking the five points from highest to lowest speeds) of 0.85.

We hope to run another contest in a forthcoming issue of Boundary Layer Meteorology.

J.L. Walmsley

P.A. Taylor

### METEOROLOGICAL HISTORIAN WINS PATTERSON MEDAL

William Edgar Knowles Middleton, F.R.S.C., a meteorologist and historian, was awarded the 1979 Patterson Medal during today's 14th Annual Congress of the Canadian Meteorological and Oceanographic Society (CMOS) being held in Toronto. Dr. Middleton received the award for his outstanding contributions to meteorology over a period spanning nearly fifty years. The award was announced by Dr. Warren L. Godson recently named Acting Assistant Deputy Minister of the Atmospheric Environment Service.

Dr. Middleton joined the Canadian Meteorological Service in 1930, after graduating in physics from the University of Sask. While with the national weather service, he made contributions to the development of the early Canadian radiosonde, a device sent aloft by balloon to measure upper atmospheric conditions. He worked on the development of weather radar which is used to detect precipitation and severe storms. He also formulated a theory of atmospheric visibility and lectured in meteorology at the University of Toronto during this period. His textbooks on atmospheric instruments and atmospheric visibility have long been classics in their fields.

From 1946 to his retirement in 1963 he continued instruments research with the National Research Council. Since his retirement he has pursued studies of the history of science and meteorology, and has published several books on these subjects. Dr. Middleton now lives in Vancouver.

### OTHER AWARDS

\*\* This year the Dr. Andrew Thomson Prize in Applied Meteorology was awarded to Dr. Y. Delage and Dr. C. Girard of the Numerical Weather Prediction Division of the Atmospheric Environment Service in Montreal for their contribution to research in computerized numerical weather forecasting.

\*\* The Rube Hornstein Prize in Operational Meteorology was awarded to David B. Fraser of Edmonton for his many important contributions to synoptic and operational meteorology in Western Canada and the Arctic and for his role in integrating computer processing and satellite imagery with operational forecasting for the Arctic.

\*\* The Graduate Student Prize was awarded to two university researchers. One went to Eduardo Freire of the University of Toronto for his paper "Collision Enhancement for Droplet Pairs with Electrically Reduced Approach Speeds", published in the Journal of Atmospheric Science. The other went to Dr. William G. Large for his Ph.D research at the University of British Columbia on the behaviour of the drag coefficient for open sea conditions over a wide range of wind speeds.



## CITATIONS

Each year the Canadian Meteorological and Oceanographic Society awards citations to individuals or groups who have made some outstanding contribution in helping alleviate pollution problems, in promoting environmental improvements, or in developing environmental ethics. Two citations were awarded this year.

A citation was awarded to La Société Linnéenne de Québec for their outstanding contribution in developing environmental ethics over the last 50 years. This non-profit Society has for the past 10 years devoted their efforts specifically to the improvement of the environment and the researching of solutions to a wide range of pollution problems. They have had special camps for children, briefs for the Legislators and general information programs for the populace. Their continuing efforts in this area have helped create, throughout Quebec, an active awareness of the full scope of environmental concerns.

A citation was awarded to Kenneth C. Curren, Regional Director Maritime Region of the Canadian Coast Guard for his outstanding contribution in helping alleviate a specific environmental pollution problem - the "Kurdistan" oil spill which occurred in March of 1979. Mr. Curren was On Scene Commander for salvage and clean-up activities associated with the oil spill. He and his inter-agency team worked tirelessly over a period of many weeks to ensure that damage to the offshore and coastal environments of Nova Scotia and Newfoundland was minimized. Throughout the Kurdistan crises, Mr. Curren exhibited the highest standards of public service and of concern for the environment.

## CODE OF ETHICS FOR PROFESSIONAL MEMBERS

The Committee on Professionalism under the Chairmanship of Dr. R. B. Charlton has prepared a draft Code of Ethics for consideration by general membership. It is reproduced here in full and Dr. Charlton would appreciate it if you would review it carefully and pass your comments to the CMOS Executive via the Corresponding Secretary, Pete Kociuba at the same address as the Newsletter editor.

### Preamble to the Code of Ethics

Most members of The Canadian Meteorological and Oceanographic Society (CMOS) are professionally engaged in several aspects of the Meteorological and Oceanographic sciences. Although CMOS is a Learned Society, its members and executive are convinced that the professionals among them can practice within the following Code of Ethics.

## The Spirit of a Code of Ethics

CMOS recognizes that professional ethics are founded on integrity and a devotion to serve the advancement of both knowledge and human welfare. This concept should guide a professional at all times.

## Duties of the Professional to the Public

A professional member of CMOS:

1. shall attempt to convey to the public an understanding of the meteorological and oceanographic sciences whenever his professional knowledge may be of benefit;
2. shall attempt to keep abreast of advances in knowledge so that he may support public discussion and write articles for the public explaining these advances;
3. shall base his practice on sound scientific principles applied in a scientific manner and shall use the best available methods, techniques and data;
4. shall undertake only such work as he is competent to perform;
5. shall refer requests for service which are beyond his professional capabilities or scope of service to those properly qualified;
6. shall accept credit only for such work as he himself has carried out or has had prepared under his direct professional supervision;
7. shall not be associated with enterprises contrary to the public interest or sponsored by persons of questionable integrity;
8. shall not issue statements on matters connected with public policy which are inspired or paid for by private or government interests, unless he indicates on whose behalf he is making the statement.

## Duties of the Professional to CMOS

A professional member of CMOS:

9. shall endeavour at all times to improve the competence, dignity and prestige of the professional practice of Meteorology and Oceanography;
10. shall recognize that his profession is required by both the public and private sector and that the code of ethics applies equally to both sectors;

11. shall conduct himself towards fellow professionals with fairness and good faith;
12. shall participate in scientific meetings and the like whenever possible and endeavour to publish the results of research and investigations in CMOS publications or other suitable media;
13. shall not attempt to supplant a professional member of CMOS after definite steps have been taken towards the other's employment;
14. shall not knowingly solicit the clients of a professional member of CMOS;
15. shall not use the advantages of a salaried position to compete unfairly with a professional member of CMOS;
16. shall advise the Committee on Professionalism of CMOS of any practice of another member which he believes to be contrary to this code of ethics.

#### Duties of the Professional to his Client or Employer

A professional member of CMOS:

17. shall act for his client or employer as a faithful agent or trustee;
18. shall accept remuneration only for advice or services for which he is qualified to offer;
19. shall not disclose confidential information obtained while employed in a salaried position or acting as a consultant unless authorized to do so by the employer or client;
20. shall not undertake any assignment which may create a conflict of interest with his client or employer without the full knowledge of the client or employer;
21. shall refrain from making exaggerated and unwarranted claims and statements;
22. shall present clearly to his clients and employees the consequences to be expected if his professional judgement is overruled by other authorities in matters pertaining to work which he is professionally responsible.

#### DIRECTORY OF CONSULTANTS

The Committee on Professionalism is in the process of compiling a Directory of Canadian Meteorological and Oceanographic



Consultants. The objectives of the Directory are: (1) to encourage the utilization of qualified professionals in projects related to meteorological or oceanographic disciplines; (2) to enhance the opportunity for employment of professionals in the fields of meteorology and oceanography within the private sector.

The Directory will be distributed to users of meteorological and oceanographic services and other interested parties. The first edition will be a collection of one-page descriptions of each consulting firm as provided by the firm on company letterhead. This description will be dated and contain such items as: (1) history, (2) staff, (3) services, (4) facilities, and (5) associated companies.

In order that the Directory shall contain a broad representation of available expertise in Canada, we are appealing to each Centre/Chapter for names and addresses of local consultants. We are especially in need of lists of oceanographic consultants. As we obtain this information, each consultant will be invited to participate in the Directory.

Please send your suggestions to:

R. B. Charlton, Chairman  
CMOS Committee on Professionalism  
Meteorology Division, Dept. of Geography  
University of Alberta  
Edmonton, Alberta  
T6G 2H4

#### EDUCATIONAL OPPORTUNITIES - University of Saskatchewan

Meteorology Training Programs at the  
University of Saskatchewan  
by

Professor E. A. Ripley

Courses in Meteorology and related subjects are offered by a number of Departments at both the undergraduate and graduate levels. While there is no undergraduate program specifically devoted to Meteorology, there are 20 undergraduate courses dealing with various aspects of the science.

In the graduate area, there are strong research and training programs in hydrometeorology and aeronomy. There are also programs in climatology and agricultural meteorology.

Current research topics include: Studies of winds and wave motions in the mesosphere and lower thermosphere; photochemistry of the stratosphere and mesosphere; studies of the effects of solar

variations on the earth's weather; energy and mass exchange of a snow-pack and the infiltration of snow melt into frozen soils; variation in the thermal and hydraulic properties of soils and snow-packs through the winter; evapotranspiration studies from various prairie covers; agroclimatic mapping; crop growth/weather modelling; regional scale transport of air pollutants; dispersion of pollutants, such as SO<sub>2</sub> and potash dust, from local sources and their effects on biospheric sinks.

Undergraduate Courses

Geography	233(P)A	Introduction to Weather and Climate
	234(P)B	Regional Climatology
	337(P)A	Applied Climatology I
	338(P)B	Applied Climatology II
	477(P)	Climates of the Earth
Geology	209B	Oceanic and Atmospheric Systems
Physics	322B	Meteorology
	431B	Fluid Mechanics
Agriculture Mechanics	316B	Elementary Conservation (Hydrology)
	420A	Elementary Irrigation
Agriculture Engineering	335B	Hydrology and Soil Conservation
	339B	Animal and Plant Physiology
	435A	Soil and Water Engineering
	440A	Instrumentation
Chemical Engineering	372B	Heat Transfer
Mechanical Engineering	310A	Fluid Dynamics
	311B	Heat Transfer
Plant Ecology	261B	Agricultural Meteorology
	462B	Environmental Biophysics
Soil Science	322A	Physical Properties of Soils

Graduate Courses

Geography	837	Advanced Climatology
	838	Dynamic Meteorology
	870	Geography of Water
Animal Science	820B	Animal Energetics
Plant Ecology	862B	Environmental Biophysics
Soil Science	821B	Soil Physics
Agric. Engineering	807B	Advanced Measurements
	820A	Flow through Porous Media
	821B	Flow in Unsaturated Porous Media
	825A	Agricultural Ground Water Hydrology
	830B	Design of Farm Irrigation Systems
Civil Engineering	830A	Open Channel Flow
	831A	Wave Mechanics (Free Liquid Surfaces)
	840A	Surface Hydrology
	841B	Engineering Hydrology
	843B	Stochastic and Deterministic Hydrology
Mechanical Engineering	873A	Fundamentals of Fluid Dynamics
	874A	Heat Transfer
	878B	Thermodynamics
Physics	821A	Introduction to Aeronomy
	822B	Radio Physics of the Upper Atmosphere
	823A or B	Advanced Aeronomy
	824A or B	Ionosphere and Magnetospheric Physics
	826A or B	Atmospheric Dynamics
	841A	Introduction to Atomic and Molecular Spectra
	842A or B	Advanced Atomic and Molecular Spectra



## BOOKS

Help your students discover their world...

Saunders College/HRW

### ATMOSPHERE, WEATHER AND CLIMATE

An Introduction to Meteorology

- John Gabriel Navarra. Jersey City State College

Yours students can become knowledgeable observers and interpreters of the sky and the sequencing of weather with this non-mathematical introduction to the principles of meteorology. The material is skillfully and logically structured, so as students complete each chapter, their ability to interpret weather and climate patterns progresses too. The many weather maps, cloud charts, tables, figures, even satellite photos, encourage your students to immediately apply meteorologic concepts to the interpretation of weather. An informative 8-page color map section-also containing weather station print-outs, photos, and drawings-makes understanding weather and its related events even easier. An Instructor's Manual and overhead project-uals are available.

1979. cloth. 520 pages ISBN: 0-7216-6661-2

SAUNDERS	For complimentary copy send course title,
COLLEGE	approximate enrollment and ISBN # to:
H R W	James G. Ryder, Saunders College Holt.
	Rinehart and Winston. 383 Madison Avenue,
	New York, N.Y. 10017.

### EFFECTS OF ACID PRECIPITATION ON TERRESTRIAL ECOSYSTEMS

(T.C. Hutchinson and M. Havas, Eds., 1979, Series I-Ecology, Vol.4, 630pp., \$49.50 from Plenum) contains the proceedings of a NATO conference held in Toronto, Canada in May 1978. The volume "represents the views and consensus of a group of experts" on the effects of increasingly acidic rains and snow. "The effects on vegetation, soils and lakes (are) discussed," and "the major monitoring programs and experimental programs in Europe and North America are described."



MARINE FORECASTING: PREDICTABILITY AND MODELLING IN OCEAN HYDRODYNAMICS. Edited by Jacques C.J. Nihoul. 1979. 494 pages. \$63.50. Hardbound. Elsevier.

This collection of research articles comprises the Proceedings of the Tenth International Leige Colloquium on Ocean Hydrodynamics, held in 1978. Organized annually, these colloquia focus each year on a specific problem area in physical oceanography. By bringing together an international group of scientists they provide a means of surveying recent advances in the field, identifying important unanswered questions, and suggesting valuable directions for future research. The topic of the present volume-marine forecasting-is of considerable not only a natural offshoot of forecasting and predictability studies in meteorology, but also an area of great economic and social importance. The papers included in this volume summarize research activities encompassing oceanographic phenomena on a broad range of temporal (1 hour to 1 year) and spatial (1 m to 1000 km) scales and describe a wide variety of predictive techniques (including stochastic and deterministic, and empirical and dynamical models). They are, however, unified in their prognostic approach to problems in physical oceanography and in their simultaneous use of both theory and observation.

ENVIRONMENTAL INSTRUMENTATION (L.J. Fritschen and L.W. Gay, 1979, 270 pp. \$23.10, from Springer-Verlag).

Presents information for students and specialists in forestry, ecology, agronomy and biological science of the instrumentation needed for environmental measurements. Chapter titles include: Measurement Fundamentals; Review of Physical Fundamentals; Temperature; Soil Heat Flux; Radiation; Humidity and Moisture; Wind Speed and Direction; Pressure; and Data Acquisition and Concepts.

EMPLOYMENT



ENVIRONMENTAL CONSULTANTS LTD.

406, 7015 MacLEOD TRAIL S.W., CALGARY, ALBERTA, CANADA  
Mailing Address: P.O. BOX 5487, STATION "A", CALGARY T2H 1X9

PHONE (403) 253-8895  
TELEX 038 24537

POSITION: Research Assistant/Computer Programmer

JOB

DESCRIPTION: 1. Participation on research project teams involving digital data analysis and numerical modelling applications.  
2. Responsible for digital data analysis involving Fortran programming.  
3. Coordination of computer terminal operations, including scheduling and management of tape files.

DESIRABLE

EXPERIENCE: 1. B.Sc. in Physical Sciences, Engineering, or Equivalent. Highest academic standing required.  
2. Experience in numerical modelling an asset.  
3. Experience in digital data analysis an asset.

SALARY

RANGE: \$16,000 - \$18,000 or commensurate with qualifications

POSITION STARTING DATE: 1 June 1980

CLOSURE DATE FOR APPLICATIONS: 15 May 1980

\* \* \* \* \*

POSITION: Research Meteorologist/Oceanographer

JOB

DESCRIPTION: 1. Active involvement with an environmental consulting firm.  
2. Member of project teams in such diverse areas as Arctic Ice Mechanics, air quality studies, and Cloud physics studies.

DESIRABLE

EXPERIENCE: 1. Experienced M.Sc. or Ph.D. in meteorology, climatology, or oceanography. Highest academic standing required.  
2. Experience in numerical modelling.

SALARY

RANGE: \$23,000 - \$26,000 or commensurate with qualifications

POSITION STARTING DATE: 1 June 1980 or negotiable

CLOSURE DATE FOR APPLICATIONS: 1 June 1980

Interested applicants send inquiries and resumes to:

INTERA ENVIRONMENTAL CONSULTANTS LTD.  
P.O. Box 5487, Station "A"  
CALGARY, Alberta  
T2H 1X9

Attention: D. S. Davison

Proceedings - Nearshore Instrumentation Workshop

The National Research Council of Canada's Associate Committee for Research on Shoreline Erosion and Sedimentation (ACROSES) have recently published the proceedings of their nearshore instrumentation workshop.

Thirty researchers from across Canada attended the workshop, which was held in Ottawa on October 24 and 25, 1979. They discussed their common problems in measuring sediments and currents in the nearshore zone, and recommended the following:

1. A comparative study of fast-response flow meters in steady and unsteady flow.
2. The use and development of fast-response sediment monitors.
3. Collaboration between government research institutes and universities, and between disciplines.
4. Research on cohesive sediments.
5. Development of instrumentation for ice effects on soft shores.
6. Monitoring the effects of structures on beaches.
7. More undergraduate education in coastal processes.
8. More people and money for nearshore research.

The "Proceedings of the Workshop on Instrumentation for Currents and Sediments in the Nearshore Zone" are available at a cost of \$15.00 from:

Publications  
National Research Council of Canada  
Ottawa, Ontario  
K1A 0R6

Three more ACROSES publications are being prepared and will be published shortly: a French-English glossary of shoreline erosion and sedimentation terms; lecture notes for a Short Course on Basic Nearshore Processes; and the Proceedings of the Canadian Coastal Conference - 1980.

CONFERENCES

Kelowna, B.C.	4-6 June 1980 Sponsor: CWRA	33rd Annual Canada Water Resources Association Conference
Niagara Falls, N.Y.	25-26 Sept. 1980 Sponsor: APCA	Toxic Air Contaminants
Edmonton, Alta.	20-21 Oct. 1980 Sponsor: Canadian Societies for Chem. Engineering and Mech. Engineering	National Heat Transfer Symposium
Albany, N.Y.	27 April - 1 May 1981 Sponsor: AMS-CMOS	Conference on Long-Range Transport of Airborne Pollutants
Guelph, Ont.	28-30 April 1981	Symposium on Multi- Disciplinary Studies on Hudson-James Bay
Montreal, P.Q.	5-8 May 1981 Sponsor: CMOS-AMS	International Conference on the Aviation Weather System
Saskatoon, Sask.	27-29 May 1981	15th Annual CMOS Congress
Toronto, Ont.	16-18 June 1981 Sponsor: CMOS-AMS	4th Conference on Atmospheric Radiation

\* \* \* \* \*



3-YEAR SUBSCRIPTION TO "CHINOOK"

Enclosed herewith is a cheque for \$9.00 (Can.) for a  
3-year subscription to "CHINOOK" magazine.

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

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

Postal Code: \_\_\_\_\_

Send to: Peter Kociuba  
Corresponding Secretary, CMOS  
Atmospheric Environment Service  
Argyll Centre  
6325 - 103 Street  
Edmonton, Alberta  
T6H 5H6

Note: Your subscription will start with the issue immediately following receipt of the 100th subscription. DO NOT HESITATE. If less than 100 are received all cheques will be returned. If more than 300 are received a lower rate will be applied and the Executive will absorb the difference.