



# C.M.O.S. NEWSLETTER

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EDITOR: MERT HORITA, 4160 COWLEY CRESCENT, RICHMOND, B.C. V7B 1B8  
TELEPHONE 273-2543

## PRESIDENT'S COMMENTS

It was gratifying to find an early response from a well known CMOS member in A.E.S. to the President's and Editor's comments in the December Newsletter. The response from Jim McCulloch appears in the Letters to Editor section. Many of the following comments stem directly from statements in Jim's letter; however several more recent developments strongly affect the nature of this response.

The first was that AES has set up a Task Force to Define and Implement the Alternative Meteorological Observing System to OWS Operations with Bob Vockeroth as Director. The task force has started its work by interviewing as many persons and groups as possible who are known to be knowledgeable about OWS operations. It is particularly gratifying to CMOS that two members of its Ad Hoc Committee on OWS PAPA and its president were invited to meet with Bob Vockeroth and Don Faulkner, and on 9 January we had a full morning of valuable discussion.

Following that meeting it seemed that there were divergences in the Society and AES opinions about some aspects. For example, definite dates have been set for the removal of OWS vessels from service; one on 1 July 1980 and the second on 1 July 1981. This conflicts with the Society's position and the earlier AES-OAS-DOT recommendation that the vessels' operations be maintained until alternative systems are proven and put into place. Also the Society seemed to be alone in believing that a full examination was essential of the overall cost-effectiveness of both present and alternative systems for all OWS PAPA operations including its oceanographic and search-and-rescue functions, as well as those for meteorology. Moreover, many questions concerning cutbacks throughout AES, which had been raised in the December Newsletter, still remain unanswered.

At its meeting on 10 January the Society's Executive addressed these matters and in view of its responsibility to inform all members about developments in all matters of interest it decided to act immediately to become fully informed about recent cutback decisions, the rationale behind them and about planning in AES. The first step was to arrange a meeting (scheduled for 19 January) between the Assistant Deputy Minister, Art Collin, and the Society's President and the chairman of its Ad Hoc Committee on OWS PAPA, John Knox, who is knowledgeable about many, including operational, aspects of meteorology. Foremost on the agenda for discussion, besides those touched on above, will be the matter of enhanced communication between Council of CMOS and AES. As a comment, I believe that some lines of communication have relaxed because of several facts: first, the recent change in the Society to encompass a broader field; secondly, the change during 1972 to 1974 of the scientific committee of the meteorological profession from

an NRC-supported subcommittee (SOMAS) of ACGG which had permanent honorary membership of two AES administrators, to the present Scientific Committee of CMOS; and also because the Society's Council is presently located away from the AES administration. I have no doubt that AES and CMOS will find ways to restore effective communication and that in the long term advantages inherent in the recent evolution of CMOS will outweigh other factors. An important objective of Council is to establish parallel links with OAS.

A further step (among others) taken to become informed was that I had a lengthy telephone conversation with Jim McCulloch. One outcome is that John Knox and I will visit and meet with many at AES headquarters 16 to 18 January, including attendance at an Inter-departmental Meeting on Alternative Systems for Weather Station PAPA. The fact that this meeting is to be held may indicate that a review of overall cost-effectiveness of alternative systems is in process. Moreover, the tenor of our conversation suggests to me that what seemed (because of loose lines of communication) to be differences in what the Society and AES would like to see done regarding forced cutbacks are indeed more apparent than real.

It appears then, that the root causes leading to our description of AES decisions as 'hasty' and to the other factors brought up in Jim's letter may have been identified. Nevertheless CMOS Council intends to protest strongly recent cutbacks in operations; at the present date it appears that it should do so to the Federal Cabinet.

#### EDITOR'S COMMENTS

Major items of interest in this issue are the continuing discussions on the proposed meteorological consulting standards in Canada, the Federal Government "cutbacks" and their effect on the members of this society and the general public, and of course another installment of Simon Kevan's CMOS unabashed dictionary. Although all of these are of great importance, the society cannot function without government support and included in this issue is the CMOS submission for the 1979 grant. This particular submission should be of general interest to us all, not only because its approval means our society maintains its present level of operation but because this submission summarizes the origins, activities and future direction of this society. It is interesting to note that the seeds of this society were sown approximately 39 years ago, about 1939 or 1940, with the formation of the Canadian branch of the Royal Meteorological Society. This means most of our founding fathers are now in happy retirement and difficult to contact for those of us too young to have been part of those early years. It has been suggested that the CMOS search for a member to act as the official CMOS Historian. Perhaps a first step to this would be if some of our distinguished elder members would volunteer to share their memories, particularly of those years from 1939 up to 1967 when the Canadian Meteorological Society was formed. If you wish to assist in this project please contact the editor of the CMOS Newsletter.

#### LETTERS TO THE EDITOR

Deadline for letters to the editor for the April issue is March 9, 1979.

Dear Editor;

I feel compelled to respond to portions of both "President's Comments" and "Editor's Comments" in the December CMOS Newsletter.

There will be a few who fail to applaud the Cabinet decision to delay the OWS PAPA termination until alternate systems are in place and assessed. I emphasize the word alternate because, as was so clearly identified by AES staff at several locations, to replace all of the data now being gathered by the ships will not likely happen, at least in the near future. Our goal must be to reduce the impact of the loss of those data through alternate technology, because the cost of operating the ships has reached the point where alternatives must be found. The only sour aspect of the PAPA situation is that the money that was to have been saved must be saved elsewhere in the Department, at least half in AES.

Some other decisions were also made at the Cabinet level but many were made at the Service or Department level. Ron referred to "hasty decisions", and then addressed some specific cuts, and you use similar language. What you both overlook are: (a) the AES had to reduce its budget for next year by some 10%; (b) the Department recently completed an exhaustive "Zero-A-Base Budget Review" which called attention to certain programs which could be reduced or cut in the event of a financial crisis.

A financial crisis arrived, and naturally, our first attention had to be directed toward those programs identified earlier. Because of the consideration given earlier, decisions were not "hasty". I shall not dispute that there were political considerations, but these were added by the politicians, not the officials of AES. Moreover, I must plead guilty to "practical reasoning" in that we did not wish to make decisions that would irrevocably close too many doors for the future. Almost everything that was proposed offended someone in the country; those affected inevitably complained without even discussing with us alternate sources for the savings. Both you and Ron were guilty of this in your editorials. Furthermore, with full knowledge that an integral part of our political system is that Ministers respond to certain pressures, I feel that your comment regarding "...hasty 'cut-backs' then partial reprieve or reinstatement...", relating these to the credence of management, is grossly unfair.

It is not my purpose to defend our political system and anomalies that arise because of it; the former is a choice of the Canadian people and the latter are not unexpected results of it. On the other hand, as individuals with an important forum in which to present your views, I feel that you should be extra careful to act responsibly. In this case, it is my view that you both would have been more responsible had you not just criticized the cuts that were made (and in some cases reversed through the political process), but had as well: (a) approached "management" with suggestions as to where alternative cuts could be made; (b) listened carefully and assessed the reasons for which management may have discarded those possibilities after earlier consideration.

There will always be differences in opinion on what should be done in any situation. There is no question that you, Ron and everybody concerned have a right to an opinion. However, the more informed those views are, and the more objectively they are presented to the members of CMOS the greater is the service that is rendered to all concerned. Constructive criticism is always welcome; I don't feel that some of the criticisms implicit in your editorials was overly constructive.

Yours sincerely,

J.A. W. McCulloch  
Director General  
Field Services Directorate  
A.E.S.

Dear Editor;

My immediate reason for writing is to add to your comments on the sessions to be held at the 17th General Assembly IUGG at Canberra 3-8 December 1979. Your readers might be interested to add to the items on page 18 of the December 1978 Newsletter, a session entitled "Remote sensing of cloud parameters" and highlighted by an opening address by Professor Verner Suomi. This item was not included in the preliminary program.

Beyond this, let me congratulate you on the very informative and interesting collection of materials which you are making available to CMOS members in the current series of Newsletters. I am sure that such a Newsletter is an important way of keeping the far-flung members of our Society in touch with one another.

Yours sincerely,

Walter Hitschfeld  
President, International Commission  
on Cloud Physics

Dear Editor;

Delighted (again) to read the CMOS Newsletter. While reading your daffy definitions I remembered one which might interest you. - Early this summer I had an alloy anemometer casing with a locking screw jammed in its thread. I went to a downtown tool store to buy one of those fancy screw extractors, and was showing the assistant the offending bit when he asked me what it was. On hearing "anemometer", he looked blank and then replied "What's that for, measuring animosity"!

Nuff said.

Cheers,

Douw Steyn

NEWS FROM YOUR NATIONAL EXECUTIVE (as of January 12, 1979)

President	Ron Burling
Vice President	John Powell
Treasurer	Peter Sagert
Recording Secretary	Tad Murty
Corresponding Secretary	Brian Sagar
	Dept. of Geography
	Simon Fraser University
	Burnaby, B. C. V5A 1S6
	(604) 291-3327

- I. Executive Meeting Number 3 of the CMOS was held November 15, 1978 in Vancouver.
1. C. East has agreed to serve on the Awards Committee replacing A. Robert. Nancy Cutler nee Waller on the Citations Committee.
2. U. of T. Press advised that the cost of new cover design for Atmosphere-Ocean is; design \$300.00, art work \$276.00, printing 7750 copies \$642.00 for a total of \$1,218.00.

3. Suggested that promotion of corporate members done by listing in Atmosphere-Ocean.
  4. J. M. Powell addressed the matter of specialist groups within the society. Requests for association from groups such as Forest Meteorology are now under consideration. The AMS and RMS have specialist groups and may serve as models. This matter to be updated at next business meeting.
  5. Suggested establishment of Oceanographer's Prize to be considered next council meeting.
- II Executive Meeting November 4 of the CMOS was held January 10, 1979 in Vancouver.
1. Submission for AES grant drafted. (copy of submission in news and notes section).
  2. Additional support being sought from National Science and Engineering Research Council through a scientific publications grant and from OAS.
  3. CMOS to take some action in advising government about detrimental factors resulting from recent government financial cutbacks. In order to offer constructive criticism, Ron Burling and John Knox to go to Toronto and Ottawa during week of January 14, to meet with AES managers and Art Collins, the Assistant Deputy Minister of AES.

NEWS FROM YOUR CENTRES (as of January 10, 1979)

Vancouver	President	John Knox
	Vice President	Pat Crean
	Secretary Treasurer	Vello Puss
	Program Director	Noel Boston
	Project Director	Pat Morin
	Past President	Paul LeBlond

The speaker at the November 29, 1978 meeting held at the Institute of Oceanography, U.B.C. was Bill Large. The title of the presentation was The Jasin Experiment.

The January 24, 1979 meeting will be held at the Pacific Weather Centre. The speaker will be Garry Schaefer, AES and the talk will be entitled Global Climatic Change: Review of some Recent Findings.

The CMOS-AES tour speaker, Dr. Alistair Fraser will present his talk, A Halo is an Ice Thing, on February 7, 1979 at the Department of Geography, U.B.C.

Recent retirements of B.C. Centre, CMOS members are Gordon Muttitt, Officer in Charge, Pacific Weather Centre and John Henderson, Superintendent, Observational Weather Services, Pacific Region.

Alberta	President	Lub Wojtiw
	Vice President	Randy Angle
	Secretary Treasurer	Av. Mann
	Past President	Bob Humphries



There was a good turnout for a meeting on the 16th of November which featured a panel discussion on "Meteorological Consulting Standards in Canada". Speakers included Dr. D.S. Davison, Intera Environmental Consultants Ltd., S. M. Checkwitch and D. B. Fraser of the Alberta Weather Office and Arctic Weather Central respectively. The panel moderator was R. P. Angle, Alberta Environment. Although the recommendations in the report received considerable criticism the discussion provided valuable insight into current problems related to professional status in the field of meteorology.

Meetings are scheduled for 11 January at which Bill Kuhnke of Alberta Environment will speak on "Applications of Meteorology to Flow and Flood Forecasting" and for 6 February at which Dr. Alistair Fraser will be the guest speaker.

We would like to extend best wishes to Alberta Centre members Tommy Thompson and Fred Burbidge on their recent retirement from AES and hope that we will continue to see them at CMOS meetings.

Regina	President	Don Bernachi
	Secretary Treasurer	Clarence Spelchak

A dinner meeting is planned for the CMOS-AES tour speaker Alistair Fraser on February 1.

The centre was approached by Qu'appelle Composite School for information on meteorology. The book 'Climate of Canada' by Thomas an Hare was purchased from subvention funds and forwarded to the school.

Winnipeg	President	Jay Anderson
	Vice President	George Moody
	Secretary Treasurer	Pat Murray
	Past President	Doris Siemieniuk

The first meeting of the year for the Winnipeg Centre was held October 12 at the Portage-la-Prairie Officer's Mess. A very large crowd turned out for a splendid dinner, and to hear Mr. Ernie Richardson of the Canadian Biomass Energy Institute. Mr. Richardson, who had spoken to the Centre some six years previously, used the latest meeting to bring the membership up to date on the state of biomass energy use in Canada and government involvement in various projects. He passed around a number of publications and conveyed an impression of a very healthy biomass energy organization in Canada.

The Winnipeg Centre held its pre-Christmas meeting late in November at the St. Regis Hotel, next door to the new Weather Office location. A large crowd turned out to hear Dr. John Benci, Director of the Canadian Wheat Board's Weather and Crop Surveillance Section. Dr. Benci outlined the significance of world-wide weather and climatological reports to the Wheat Board, and discussed some weather related problems of the grain industry in Canada.

The next meeting will be January 30 and the speaker will be our CMOS-AES tour speaker Dr. Alistair Fraser.

Toronto	President	Mike Hewson
	Treasurer	Dave Phillips
	Secretary	Fred Conway
	Pro. Director	Oscar Koren
	Past President	Nancy Waller

At the November 15 meeting Dave Devawl (CFTO-TV Weatherman) gave a talk entitled 'The TV Weatherman - a Link'. It was an excellent talk on how our product is distributed to the customer. The media have an obligation to entertain, as well as to communicate, and Dave told us how these two responsibilities merge into one function.

A regular meeting is scheduled for January 15.

The next speaker will be Alistair Fraser, CMOS-AES tour speaker on January 29.

Excellent response received from Private Meteorological concerns re Consulting Standards.

The president of the Toronto Centre, Mike Hewson will be transferring to Newfoundland at the end of January.

Ottawa	President	Neil Campbell
	Vice President	E.J.A. Hamilton
	Secretary Treasurer	R.B. Saunders
	Past President	Don Boyd

Report not receive by publication deadline.

Montreal	President	Hubert Allard
	Secretary	Gilles Desantels
	Treasurer	Jean-Guy Cantin
	Past President	Conrad East

In view of the low attendance at our meetings, the executive developed a questionnaire in order to ascertain the reasons why. Some of the results indicated the need to advise members individually by letters about a week prior to the meetings. It was then suggested that 6 meetings a year be held and the days of the meetings should be Tuesday, Wednesday or Thursday.

The first meeting titled 'Le Reserche Agrometeorologie au College MdDonald a propos connexes' was held on October 24th and presented by Dr. Peter Schuepp.

The second meeting was L'ozone a Montreal, sources locales au Loinpaines? by Dr. Conrad East from the Universite Quebec a Montreal.

The Montreal executive also took action in order to send all French speaking members a French version of the executive summary of the Ad Hoc Committee on Meteorological Consulting Standards. The original English copy was sent to English members and it was asked that comments be returned by January 31st.

A member of the Montreal Centre CMOS, John Miller, announced his retirement as meteorologist Quebec Forecast Office effective the end of December.

Quebec	President	Ghislain Jacques
	Vice President	Jean Pierre Fortin
	Secretary	Guy Bergeron
	Treasurer	Gaetan Soucy
	Past President	Gaston Paulin

The December 13, 1978 meeting was held at the Universite Laval, Quebec. The speaker was Dr. Yves Delage and his talk was entitled 'Le Futur Modele De

Previsions Meteorologiques Canadien'. Nouveautes a Venir Dans Le Modele Spectral Qui Sera Bientot Operationnel.

The next meeting is January 24 at the Universite Laval, Quebec. The speaker is Alistair Fraser, CMOS-AES tour speaker.

Halifax	President	Stu Smith
	Secretary	Jean Thiebaux
	Treasurer	Ed Guimond
	Past President	Rod Shaw

The December 13, 1978 meeting was held at the Killam Library, Dalhousie University. The speaker was Malcolm Lodge from the Institute of Man and Resources, Charlottetown, P.E.I.

The January 22, 1979 meeting is to be held at the Bedford Institute of Oceanography, Dartmouth, N.S. The speaker is Alistair Fraser, CMOS-AES tour speaker.

Rube Hornstein will present a talk entitled 'The Winds of Change'. This talk will be given at the Dalhousie University Faculty Club on February 14, 1979. Members, spouses and friends are invited. Please contact Ed Guimond at 835-3778 or Home 883-9063 and arrange tickets (\$7.00) by February 9, so that meal arrangements can be made.

The Nova Scotia Science Fair will be held March 29-31, 1979 at St. Patrick's High School, Halifax. The Halifax Centre will be awarding prizes of \$25.00 value each for the best student projects in Meteorology and in Oceanography. We also plan to staff a booth displaying one of our school information kits. Will members interested in staffing our booth or judging for prizes please contact Stu Smith at 426-4492.

#### NEWS AND NOTES

##### About our CMOS-AES Tour Speaker, Alistair Fraser

A native of Rossland, British Columbia, Alistair Fraser obtained a B.Sc. in mathematics and physics from the University of British Columbia in 1962 and then, after the government training course, became a forecaster at Vancouver. He resigned in 1964 to go back to graduate school completing a Ph.D. in meteorology at Imperial College, London, England in 1968. Since that time, he has taught meteorology at both the University of Washington and, at present, the Pennsylvania State University. His research interests are in the fields of cloud physics and atmospheric optics.

Two talks are offered. Both are highly illustrated with many slides of the phenomena discussed. Although both lectures are basically concerned with physics, the discussions will dwell not only on science but will draw also from folklore, literature and religion. An earlier version of the mirage talk was presented to the "then" CMS in Vancouver and Toronto; to the NRC Ottawa and McGill in Montreal. It is with this in mind that a choice of two talks is offered. The mirage talk will be very similar to the one given before with the addition of some new material related to Arctic exploration. The halo talk is new. In addition to covering some of the classical explanations, it will present recent work that shatters one of the canons of meteorological optics. It will be shown that the circular haloes ( $22^{\circ}$  to  $46^{\circ}$ ) are not caused by randomly oriented crystals.



Highlights of Panel Discussion on Meteorological Consulting Standards -  
Alberta Centre, November 16, 1978

By Randy Angle, Chairman, Review and Evaluation Committee

1. The premises of some of the arguments in favor of a Certification Program are not well founded, e.g. the existence of a U.S. CCM does not make Canadian consultants unqualified. It may be disadvantageous for competition in the U.S. market, but it has no effect on the Canadian market unless there is an extreme amount of "Branch Plant" thinking.
2. The results of the questionnaire could be very misleading as only 12.5% of the membership responded. Also there appeared to be some numerical discrepancies. Was the questionnaire designed and evaluated by a professional in the field of opinion polls?
3. The definitions are not clear enough. Is forecasting considered consulting? What constitutes government consulting?
4. The proposed program is too bureaucratic and unwieldy. Perhaps Canadian consultants who regard certification as an asset in the marketplace should simply apply for the status of CCM under the AMS Program.
5. An accreditation program should first look to assuring that all practising "professionals" have achieved a prescribed level of competence. No other profession singles out a select few and accords them an exalted rank.

Professional engineers in Alberta require a B.Sc., two years engineering experience and references from three professional engineers. Equivalencies are assessed by the Universities Coordinating Council. (There are 12,000 engineers in Alberta and 300 consulting firms. CMOS, Alberta Centre has 80 members. Teachers have an Accreditation Board drawn from the Department of Education, University, School Trustees, and the Alberta Teachers Association.

6. Standards are already set by clients and by regulatory agencies. During the initiation of environmental controls, there was a period of weak or non-existent standards, but now, with regulations firmly in place, standards have been established.
7. A more appropriate program for CMOS would be one of educating the public and potential clients about the benefits of applied meteorology. CMOS could provide lists of consulting firms and information about how to evaluate firms for any particular project.
8. The existence of a certification program would not stop an unethical consultant. Market forces will ultimately remove the incompetent but in the meantime some clients will suffer.
9. CMOS is a learned society and any moves toward professionalism would have to be through a separate organization. Also, professional legislation is the responsibility of the provinces.
10. We should not rush into something we may later regret. We can afford to wait and move slowly.

11. Professional standards are desirable in some form. Options include:  
(1) affiliation with professional engineers; (2) separate legislation as Alberta Biologists are attempting. (There are about 250 professional biologists in Alberta.)

Proposal for Renewal of the Contribution to the Canadian Meteorological and Oceanographic Society by the Atmospheric Environment Service (DRAFT)

1. INTRODUCTION

The evolution of the Society started in 1940 with the formation of the Canadian Branch of the Royal Meteorological Society; an increasingly growing activity and interest in Canadian meteorology led to the establishment of the Canadian Meteorological Society in 1967. In 1977 the Society expanded to its present form and now exists for the advancement of Meteorology and Oceanography (including Limnology) in Canada.

Since 1973 the Society has benefited from the generosity of the Atmospheric Environment Service through an annual operating grant which this year amounted to \$16,000. This invaluable assistance is again being sought for 1979.

11. THE SOCIETY'S PROGRAM

1. The Annual Congress

Each year, near the end of May, the Society holds a national meeting called the Annual Congress. The major component of this meeting is the presentation of scientific papers during three days. The Society's Annual General Meeting is held on one evening, also an Awards Banquet is held for the presentation of the Society's prizes and AES is invited to award its Paterson Medal at this event. Increasingly, Society committees have been meeting on the day prior to the start of the scientific meeting and council holds its best attended meeting on the evening of that day. The Congress may be held anywhere in Canada and is organized and hosted by a local group of members. In recent years each Annual Congress has been self-supporting, although the Society underwrites the cost.

2. Atmosphere-Ocean

The Society's first venture into publication of scientific papers presented at its meetings, started in 1950. During the next 13 years 50 papers were published on an individual basis, then in 1963, the periodical "Atmosphere" began. The vitality of this publication grew continually and important changes in its format and editorial philosophy were made in 1969 and 1971. To reflect the evident quality of papers submitted, and to reflect the new nature of the Society the journal now appears commencing this year with the first issue of Volume 16, under a new title - "Atmosphere-Ocean", and in a new format which is consistent with that of many international journals.

In 1977 the average number of pages in the four issues was 54. The first issue this year was 144 pages; it consisted of an experimental departure in that it was devoted to the refereed proceedings of the First International Workshop on Hailfall Measurement held in Banff, Alberta in October 1977. The next two issues were each of 92 and 84 pages; the December issue will contain 74 pages and the Congress issue was 80 pages. About one half the cost of the First issue was underwritten by the organizers of the Hail Workshop. Despite the increased size and, Council believes upgraded average content, the projected

cost to the Society for publication of Atmosphere-Ocean is up only slightly from \$23,234 in 1977 to about \$ — in the present year.

Through its evolution as 'Atmosphere', which in its early years carried Society news and business items as well as scientific papers, the journal has in recent years emerged as the scientific journal of the Society. Ample material of high quality is being submitted; every indication points to continuation and possible improvement in the present standard of the journal.

### 3. Newsletter

In response to the changing nature of 'Atmosphere', in 1973 a Society 'Newsletter' was started to take over the role of dissemination of Society news, official announcements and general-interest material. In the first year, there were seven issues while more recently four or five were distributed annually. This year six issues will appear; regular items include President's and Editor's comments, letters, news from the national executive and centres, news and notes (of various items of general interest), new members and announcements (for example about meetings and calls for nominations for prizes). Items on employment opportunities and commercial advertisements will be included if relevant information is forthcoming.

The success of 'Newsletter' is regarded by Council as critical to the Society's welfare. Besides being the medium for Society news, it would preferably be also the vehicle for the active debate about Society affairs, government policy and individual member's opinions and criticisms of all kinds. Also, publication of popular scientific articles could well be a function of 'Newsletter'. Although seven letters to the Editor have appeared this year it is disappointing that active debate has not ensued - also that no popular articles are forthcoming; nevertheless the emergence of 'Newsletter' in its present form, which is expanded somewhat in size and substantially in content, is encouraging.

### 4. CMOS Booklet

## III THE SOCIETY'S COMMITTEES

### 1. The Management Committee

The Executive consists of the President, the Vice-President, the Treasurer, the Corresponding Secretary and the Recording Secretary. Council consists of the executive plus the immediate Past President, three Councillors-at-Large and the Chairmen of Centres. Business meetings are held seven times per year with generally full attendance of the executive; on occasion they are joined by the editors and chairmen of local committees of the Society. Council meetings are held three times per year; two are held in the general locale of the executive and are similarly attended with the addition of the Past-President, the chairman of the local Centre and a representative from a local Chapter. Only at the Council meeting held at the time of Congress has attendance been more complete; even so fewer than one half (or much less) of the Centres have been represented in recent years.

### 2. The Scientific Committee

A Standing Committee of the Society on Scientific and Professional Matters was struck in late 1970. In March 1972 this committee amalgamated with the

National Research Council's Subcommittee on Meteorology and Atmospheric Science (SOMAS) which had existed since 19\_\_ as a Subcommittee of NRC on Meteorology in Canada until 1967 when it became SOMAS; this sub-committee was also an Associate Committee on Geodesy and Geophysics (ACGG) of the International Union (IUGG). On 1 April 1974, the joint responsibility to NRC. and the Society ceased, and the Committee became solely responsible to the Society (then CMS) and the acronym SOMAS was kept to stand for Standing Committee on Matters pertaining to Atmospheric Science. The International functions in relation to IUGG were taken over by the Canadian National Committee (CNC/IUGG) on which our Society now has four representatives, two meteorologists and two oceanographers. At the AGM in May 1975 the Scientific Committee was established in its present form, 'to act on scientific matters of concern to the Society'; it consists of 11 members (each standing for no more than three years) who are appointed by Council with advice from the Scientific Committee.

The committee has been meeting twice in each year with part of the cost being met by the Society. In recent years matters of both national and international importance have been discussed, such as several GARP projects, fluorocarbon research, long-range transport of pollutants, acidic rain, weather modification, Weather Station 'Papa', WMO's Precipitation Enhancement Project (PEP), meteorological consulting and granting support by NSERC for the Society's sciences. A brief on weather modification was sent in July to the AES committee on this matter. The widespread involvement in many affairs augurs well for the future of this committee. Perhaps its greatest problem is in achieving a fuller attendance at its meetings; to do this the Society must be prepared to provide all possible encouragement and assistance.

### 3. The Standing Committee on Public Information

This committee was started in 1970/71 to advise Council on matters of concern to the Society which require communication with the public in general or with specific groups. Late last year this committee coordinated with the Science Committee to advise Council in the 'Michrowski Episode', and it formulated a resolution on Freedom of Information which was passed at the Annual General Meeting; in August the committee in concert with the Ad Hoc Committee on Weather Station 'Papa' drafted a strong response to the Cabinet decision to terminate Station 'Papap'. Each of these three actions culminated in a letter from the President to the Prime Minister. Since August the committee has been active in promoting public information about the closure and also on other matters since arising.

The activities of this committee continue, as in most of its past, to be of value to the Society. As with the Science Committee, communication between its members is a problem. Most of its business is by telephone, however, this year a meeting which was attended by \_\_ of the 11 members was held during Congress.

### 4. Ad Hoc Committee on Weather-Station Papa

This committee was struck in May as a sub-committee of the Scientific Committee at its meeting during Congress. Following advice from the Chairman of the Scientific Committee its format was changed in July to that of an Ad Hoc Committee reporting directly to Council. The initial intent was to prepare a brief on the desirable future of 'Papa'; however events in early August forced quick action by the committee in cooperation with the Public Information Committee

as described in 3. above. It was entirely through its preparatory work, and the clear perception that earlier recommendations from AES to Cabinet formulated the only logical and safe path to follow, that the Society was able to respond rapidly to Cabinet on the threatened closure of the Ocean Weather Station.

5. Ad Hoc Committee for Review and Evaluation of the  
Report on Meteorological Consulting Standards in Canada

In 1976 an Ad Hoc Committee on Meteorological Consulting Standards in Canada was established to review the requirements for, and the standard of, meteorological consulting in Canada and to review and recommend procedures for maintaining or improving the standard. This committee presented a comprehensive report to Council and to all members at the Annual General Meeting during Congress this year. The committee was dissolved in July and a second Ad Hoc Committee of four members was struck to review the report, to collate and evaluate the opinions of members on the many recommendations to present to the membership at the Annual General Meeting in May 1979.

The committee has prepared a questionnaire which Council has distributed to Centre Chairmen (some have already arranged meetings) and which will appear in the December 'Newsletter'.

IV CENTRES AND CHAPTERS

The Society has nine Centres and two Chapters. During recent months we have received enquiries concerning the possible formation of three new Chapters (in Calgary, Rimouski and St. John's) and the change of the Victoria Chapter to Centre. All of the present local bodies hold several meetings each year and some are very active in promoting community and educational projects of benefit to our Society's interests. The Society subsidizes Centre and Chapter activities on a formula which depends on the local membership; this year \$2,647 was distributed - a slight increase over the previous year.

V RATIONALE FOR CMOS FUNDING FOR 1979

The backbone of our Society lies in the involvement of its membership in all of its affairs. The Society's publications, committees and above all its local Centres and Chapters provide the bases on which its future health depends.

"Atmosphere-Ocean" is the vehicle on which to enhance the sound scientific reputation of Canadian Meteorology and Oceanography both in Canada and abroad; success in this objective would prove of great benefit to the Society.

INTERIM FINANCIAL STATEMENT OF CMOS

Income to November 12, 1978

Dues and Subscriptions	\$22,426.86
Sustaining Members	135.00
A.E.S. Grant	16,000.00
Congress Revenue	505.77
Interest Earned	1,072.25
Dividends Cashed	50.04
Advertising Revenue	125.00
Other (incl. page charges)	<u>7,186.95</u>
	47,501.87



Expenditures to November 12, 1978

Atmosphere-Ocean (to Vol. 16, No. 1)	18,048.19
Newsletter (to Vol. 6, No. 4)	1,950.31
Newsletter (other)	88.00
Labels	119.62
U. of T. Press Commissions	4,495.78
U. of T. Press (other incl. Congress Issue)	4,260.72
Congress	500.00
Centre	2,649.00
Travel	3,856.90
Prizes, Gifts	315.00
Bank Service	25.95
Office	539.84
Communications	583.87
Auditor	100.00
CMOS Booklet	38.27
	<hr/>
	37,571.45

Income over Expenditures \$9,930.42

Assets on November 12, 1978

Cash	\$ 2,309.38
Short term deposits	13,000.00
Development Fund	4,150.00
Development Fund Interest	1,058.98
Hornstein Fund	1,000.00
Hornstein Fund Interest	169.39
Canada Savings Bonds	950.00
Canada Savings Bonds Coupons	672.13
Bell Canada Shares	643.50
Accounts receivable	2,125.00
	<hr/>
	26,078.38

Liabilities 

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 763.81

ASSETS AND LIABILITIES \$25,314.57

SUBSCRIBER LIST EXCHANGES

It is a regular practice of the University of Toronto Press (UTP) to exchange lists of journal subscribers with the publishers of related scholarly journals. In practice each publisher provides the other with a set of mailing labels with the explicit understanding that they may be used once to circulate information relating to their scholarly publications only.

To date our Society has not authorized UTP to engage in such exchanges with other meteorological/oceanographic journals. As part of a drive to expand the readership of ATMOSPHERE-OCEAN and to attract new members the Executive (at the request of the Editor) has agreed to participate in such exchanges on a limited basis. They are however mindful of the fact that some members may not wish their names to be included on exchange lists. If you do not wish to be involved would you please fill in the slip below and return it to:



R. G. Sagar, Corresponding Secretary, Department of Geography, Simon Fraser University, Burnaby, B. C. V5A 1S6. Return of this slip will ensure that your mailing label will be removed from the list before exchange.

Please remove my name from future lists of subscribers which may be exchanged with the publishers of other scholarly journals.

Name \_\_\_\_\_

Address \_\_\_\_\_

Signature \_\_\_\_\_

#### Echanges de listes d'abonnés

Les Presses de l'Université de Toronto effectuent couramment des échanges de listes d'abonnés avec d'autres maisons de publication de revues scientifiques. Chaque maison de publication envoie à l'autre un rouleau d'étiquettes adressées; cet échange d'étiquettes adressées se fait sous la condition expresse qu'elle ne serviront qu'une seule fois, et cela uniquement pour disseminer quelque notice ayant rapport avec la revue scientifique elle-même.

Jusqu'à maintenant notre Société n'a pas permis aux Presses de l'Université de Toronto d'échanger la liste d'abonnés d'ATMOSPHERE-OCEAN avec quelque autre revue d'intérêt météorologique ou océanographique. Dans le cadre d'un effort renouvelé d'augmenter le nombre d'abonnés d'ATMOSPHERE-OCEAN et d'entraîner de nouveaux membres dans notre Société, le bureau d'administration, à la demande de l'éditeur, a consenti à participer à un échange limité de listes d'abonnés. Il se peut toutefois que certains membres de la SCMO préfèrent ne pas participer à un tel échange. Si vous desirez que votre nom ne soit pas inclus sur la liste d'abonnés échangée, veuillez compléter la note ci-dessous et la retourner à R. B. Sagar, Secrétaire-Correspondant, Département de Géographie, Université Simon Fraser, Burnaby, B. C. V5A 1S6. Le retour de cette note garantit que l'étiquette portant votre nom sera retirée de la liste avant l'échange.

Veuillez s.v.p. retirer mon nom de toutes listes d'abonnés échangées avec les maisons de publication d'autres revues scientifiques.

Nom \_\_\_\_\_

Adresse \_\_\_\_\_

Signature \_\_\_\_\_

CMOS CONGRESS MAY-JUNE 1978

STATEMENT OF REVENUE

1. Registration: 162 delegates at \$40 each	\$6,480.00
2. Advance from CMOS	500.00
3. Extra Banquet ticket sale: 13 at \$8 each	104.00
4. Proceeds from Stratford Excursion tickets	2,037.00
5. Inland Waters Dept. AES (Travel for Dr. N. F. Busch)	<u>250.00</u>
TOTAL REVENUE	<u>\$9,371.00</u>

STATEMENT OF EXPENDITURE

1. Learned Societies Fee: 162 at \$25 each	\$4,050.00
2a Travel expenses for Dr. N.E. Busch (from Inland Waters)	250.00
2b Honorarium for invited speakers (Dr. N.E. Busch, Dr. R.W. Stewart and Dr. A.L. Hamilton) from CMOS (Includes registration, accommodation, travel and Stratford excursion).	964.50
3. Banquet (Awards Luncheon)	1,206.63
4. Printing charges	31.37
5. Xerox charges	37.30
6. Long distance phone calls	83.56
7. Honorarium to Banquet speaker (Dr. J. R. Gwynne-Timothy)	75.00
8. Stratford Excursion (Transport, theatre and dinner)	2,029.87
9. Refund of Advance to CMOS	500.00
10. Bank charges	2.00
11. Local arrangements committee expenses (secretarial help; projectionists and clerical help; luncheon and refreshments)	<u>135.00</u>
TOTAL EXPENSES	<u>\$9,365.23</u>
BALANCE	<u><u>\$=====5.77</u></u>

DESCRIPTION OF HALIFAX CENTRE EDUCATION KITS

The project began in March, 1977 when it was decided at a meeting of the Centre that we should explore using the surplus that we had in our bank account towards an educational project. After discussions with the Nova Scotia Museum, they suggested that the money could be well spent in assembling approximately 15 educational kits on meteorology, aimed at the junior high school level. These kits could then possibly be distributed through the resource centers of the Museum scattered throughout the province.

The intervening time has been spent in selecting the material for the kits, ordering it and writing a teacher's guide. Each kit consists of the following:

1. A teacher's guide containing a brief description of various aspects

of weather, weather observing and weather forecasting, learning activities such as construction of home-made weather instruments, learning how to read weather maps, etc., and instruction on how to best use the materials in the kit.

2. Transparencies for overhead projectors (showing the water cycle, fronts, etc.).
3. Master stencils that can be used on a copy machine to duplicate worksheets, information for students.
4. Large (30 x 50 cm) colour prints of weather instruments, cloud formation, etc., with narratives printed on the backs.
5. Satellite photographs (visual and infrared) with matching surface weather maps.
6. A cut-away radiosonde.
7. Minimum-maximum thermometer (°C).
8. Aneroid barometer (in kilo Pascals).
9. A sling psychrometer.
10. Cloud chart.
11. A copy of the AES booklet "Basic Weather Facts".

Each kit cost approximately \$120.00, not including packaging. The teacher's guide has just been completed and we intend to meet within the next two or three weeks with the Department of Education and/or the Nova Scotia Museum to discuss their distribution.

#### THE PATTERSON DISTINGUISHED SERVICE MEDAL

The Patterson Medal is awarded to residents of Canada for distinguished service to Meteorology. This award was established in honour of John Patterson, O.B.C., M.A., LL.D., F.R.S.C., eminent meteorologist and Controller of the Meteorological Service of Canada from 1929 to 1946.

<u>Year</u>	<u>Recipient</u>	<u>Year</u>	<u>Recipient</u>
1954	John Patterson, O.B.E.	1968	Warren L. Godson
1961	Arthur J. Childs	1969	G. Oxcarr Villeneuve
1961	J. Stewart Marshall	1970	Donald C. Archibald
1962	Reuben A. Hornstein, M.B.E.	1970	Jay Scott Dickson
1963	Desmond B. Kennedy, M.B.E.	1971	Alan W. Brewer
1964	Andrew Thomson, O.B.C.	1972	R. Edward Munn
1964	P.D. McTaggart-Cowan, M.B.E.	1973	F. Keeneth Hare
1965	Donald G. Black	1974	Robert W. Steward
1965	James M. Leaver	1975	Wolfgang Baier
1966	Clarence C. Boughner	1976	J. Reginald H. Noble
1867	Balfour W. Currie	1977	Walter F. Hitschfeld

The award for 1977 was presented at the annual banquet of the Canadian Meteorological and Oceanographic Society held at the University of Western Ontario, Thursday, June 1, 1978.

#### SUMMARY OF A WORKSHOP ON FOREST METEOROLOGY

A workshop entitled Forest Meteorology, Research Needs for an Energy and

Resource Limited Future, was convened August 28 through 30, 1978 at the University of Ottawa in Ottawa, Ontario. This workshop was held in conjunction with the World Meteorological Organization's International Symposium on Forest Meteorology and was sponsored by the Division of Biomedical and Environmental Research, U. S. Department of Energy. Forty-two scientists representing Canada and the United States as well as Spain, Sweden, and the United Kingdom participated in the workshop. Current research efforts were discussed and research needs critical to the development of unifying theories in forest meteorology were identified.

The lack of knowledge most seriously limiting the development of unifying theories at this time involves the mechanics of turbulent exchanges. Studies are needed of the mechanisms by which turbulence is created, transported, and destroyed in forest canopies, of the structural characteristics and aerodynamic properties of forests which control the generation and dissipation of turbulence, and of the turbulence structure of the boundary layer above forests.

Less critical but of considerable importance in view of societal problems of energy and resource limitations is the problem of radiation exchanges in and above forests and of how they relate to forest productivity. Simple techniques must be developed for the determination of the structural features of forests that control radiation exchanges and these structural data must then be used to validate existing radiation exchange models which have largely been developed and tested in agricultural crop canopies. With a better understanding of how forest structure controls radiation penetration and consequently, photosynthetic production, possibilities for genetically engineering highly productive forests for energy, fiber, or saw logs could be better assessed.

It was further noted that the historical absence of responsibility for forest meteorology in either the forestry or weather service bureaucracies of Canada and the U.S. has seriously hampered advancement of scientific knowledge in this field. Most forest meteorology research conducted in the past was made in support of other research efforts; as a result, there has been little continuity in our research efforts. The workshop recommended that serious consideration be given to the establishment of federal agency responsibility for forest meteorology and suggested that an organization along the lines of the Pinchot Institute or the Eisenhower Consortium of the U.S. Forest Service may serve to administer such responsibility.

Finally, the workshop created a task force on forest meteorology that was charged to continue efforts on behalf of this field of science in terms of specific workshop recommendations. Task force members include Dr. Lloyd W. Gay, University of Arizona, Tucson; Dr. James Harrington, Forest Fire Research Institute, Ottawa, Ontario; Dr. Willy Z. Sadeh, Colorado State University, Fort Collins; Dr. Roger H. Shaw, Purdue University, West Lafayette, Indiana; Dr. Stan Tajchman, West Virginia University, Morgantown; and chairman, Dr. Boyd A. Hutchison, Atmospheric Turbulence and Diffusion Laboratory, National Oceanic and Atmospheric Administration, Oak Ridge, Tennessee.

A proceedings of this workshop will be published early in 1979. Copies will be available from B.A. Hutchison, ATDL, NOAA, P.O. Box E, Oak Ridge, TN 37830 U. S. A.

#### SCOR AND ITS 14th GENERAL MEETING

The Scientific Committee on Oceanic Research (SCOR) is an international, non-

governmental organization that was established in 1957 by ICSU to bring together oceanographers from various specialist associations. For physical oceanographers and meteorologists these associations are IAPSO and IAMAP, both of which come under the ICSU umbrella through their membership in IUGG.

The main role of SCOR is to establish, in cooperation with one or more of the specialist associations and other bodies, working groups on topics that can benefit from international collaboration. Good examples are WG10 on Oceanographic Tables and Standards and WG43 on Oceanography Related to GATE. At present about 20 WG's still exist of more than 60 that have been formed. WG's may be set up either directly by SCOR or in response to a request from one or more individual scientists. Members of WG's are selected primarily on scientific grounds, although a considerable effort is made to ensure reasonable geographic distribution. At present 8 WG's have at least one Canadian member.

Another important role of SCOR is to provide scientific advice, through non-governmental channels, to intergovernmental organizations such as IOC, UNESCO and WMO. SCOR also sponsors, and helps to support, international conferences. Of SCOR's present annual income of \$70,000 or so, roughly half comes from IOC and UNESCO and the other half from member countries.

The SCOR Executive Committee is made up of 7 elected officers and, ex officio, the presidents of IAPSO (R. W. Stewart of Canada), IAMAP, IABO (T.R. Parsons of Canada) and CMG. Each of the 33 member countries of SCOR may nominate 3 scientists as members of SCOR. They may attend meetings, vote and be eligible for election to the Executive. Most countries have a national committee to nominate SCOR members and act as a channel of communication between SCOR and national organizations. In Canada the CNC/SCOR is comprised of a mix of university and government scientists, many of whom are on SCOR WG's. It is supported by NRC, which also provides Canada's financial contributions to SCOR.

Bob Stewart (Pat. Bay), Chris Garrett (Dalhousie) and Derek Ellis (U. Victoria) attended the 14th General Meeting of SCOR in Brest from 13-17 November 1978 as Canadian members. Much of the meeting involved administrative matters, review of existing and proposed WG's and discussion of responses to requests from other organizations. However, two items of possible interest to CMOS members were discussions of the relation of oceans to climate, and a two day symposium on oceanic fronts.

Bob Stewart, as president of IAPSO and a member of JOC, reviewed the present interest in the role of oceans in climate on the time scale of several weeks to several decades. He claimed that meteorologists are becoming impatient with the oceanographic community, and pointed out the need for SCOR to form a committee to review the role of oceans in climate, identify research problems and provide oceanographic answers to questions from WMO and other agencies. Such a committee is now being established in collaboration with IOC.

The 2-day interdisciplinary symposium on fronts was opened by Prof. Uda and included review talks on the physical and biological aspects of oceanic fronts by John Woods (Kiel) and John Steele (Woods Hole) respectively. Robin Pingree (Plymouth) and John Simpson (Menai Bridge) both discussed the tidal mixing fronts on the continental shelf around the U.K. and Ola Johannesen (Bergen) reported observations of an ice-edge upwelling front in the Arctic. R. Laurs

(La Jolla) discussed the relationship of tuna and oceanic fronts.

The symposium was small, but SCOR's published version of the papers will be a useful addition to the literature coming from the Chapman Conference at New Orleans in October 1977 (see EOS 59, 5, 484-491 for a review and a recent Journal of Geophysical Research for many of the papers).

Any reader interested in further details of SCOR's activities or Canadian involvement should contact one of the Canadian members.

#### ABBREVIATIONS

CMG Commission on Marine Geology (of IUGS)  
CNC/SCOR Canadian National Committee for SCOR  
GARP Global Atmospheric Research Programme (of WMO/ICSU)  
GATE GARP Atlantic Tropical Experiment  
IABO International Association of Biological Oceanography (of IUBS)  
IAMP International Association of Meteorology and Atmospheric Physics (of IUGG)  
IAPSO International Association of the Physical Sciences of the Ocean (of IUGG)  
ICSU International Council of Scientific Unions  
IOC Intergovernmental Oceanographic Commission  
IUGG International Union of Geodesy and Geophysics (of ICSU)  
JOC Joint Organizing Committee for GARP  
NRC National Research Council  
SCOR Scientific Committee on Oceanic Research  
UNESCO United Nations Educational, Scientific and Cultural Organization  
WMO World Meteorological Organization

#### ASSOCIATE COMMITTEE ON SPACE RESEARCH

##### SCOSTEP Sub-Committee

SCOSTEP, now a Scientific Committee of ICSU is responsible for the following operational programs: (Convenors names are appended).

- a. International Magnetospheric Study (Dr. J.G. Roederer)
- b. Middle Atmosphere Program (Dr. S.A. Bowhill)
- c. Solar Maximum Year Studies, (Flare Build-up Study, (Dr. Z. Svestka):  
Study of Energy Release from Flares; study of Travelling Inter-planetary Phenomena, (Dr. M. Dryer)
- d. Solar Terrestrial Physics and Meteorology (Dr. J.W. King)
- e. Monitoring of the Sun-Earth Environment (Dr. A.H. Shapley)

Items a. and e. above are established programs. Items b., c. and d. are in various stages of progress or preparation.

The Middle Atmosphere Program (MAP) is expected to be the next major international program of cooperative projects. MAP is intended to facilitate the investigation of the region between  $\approx 15$  and  $\approx 100$  km, and specifically to bring together the disciplines of aeronomy and dynamics, with contributions from magnetospheric physics. The MAP interval has been designated as 1982-85, to match expected availability of space vehicles, but preparatory projects (ground, balloon, rocket and satellite) are already in progress. MAP is described in a 98 page Planning Document, (available from undersigned) Mr. J.H. Craven, Secretary, SCOSTEP Sub-Committee, National Research Council Canada, Montreal Road, Ottawa. K1A 0R6



CMOS UNABASHED DICTIONARY OF METEOROLOGICAL AND OCEANOGRAPHIC TERMS

It is time for our fellow oceanographers to groan. Here are some oceanographic definitions as given by L.L. Levinson (1967) in Webster's Unafraid Dictionary, Collier Books, New York.

Anchovy - a seasoned sardine

Bass - a beverage made from a fish of that name. Anon., Jr. (British Division)

Fish - an animal that inhabits the water. Dr. Sam'l. Johnson

Fisherman - a fellow who thinks nothing of spending \$10 a pound for fish.  
Vesta M. Kelly

Fishing - a sport that consists of lying about and lying about it.  
- the art of dunking worms.

Lighthouse - a tall building on the seashore in which the government maintains a lamp and the friend of a politician. Ambrose Bierce, 1881, Hudson Newsletter

Seasickness - crossing the ocean by rail.

Seaweeds - what you don't want the people next door to do when they look at your garden. Anon., Jr.

Skin diving - a spectacular means of demonstrating that a man is fully as intelligent as a fish. Gordon E. Thatcher

Suntan - a poor substitute for the authentic glow of fever or alcoholic flush. Bill Manville

Swimming Instructor - a hold up man. Arnold H. Glasgow

Tides - there are two, Eb and Flo, Anon., Jr.

Water - a medicine for the cure of thirst. Ambrose Bierce  
- just whiskey with all the beneficial ingredients removed. Joe E. Lewis  
- 100 proof humidity. Joe E. Lewis  
- a longer abbreviation for the word H<sub>2</sub>O. Anon., Jr.

Waves - young salts with cute shakers. W.D. Huntington

P.S. Would any members who know of definitions or of sources of information which would add to the CMOS Unabashed Dictionary of Meteorological and Oceanographic terms please send correspondence to:

Simon M. Kevan, Department of Sociology, Anthropology and Geography,  
John Abbott College, Box 2000, Ste. Anne de Bellevue, Quebec H9X 3L9

I would also appreciate references to or copies of any cartoons which pertain to meteorologists or oceanographers.

OUR NEW MEMBERS

Alexi N. Kosarev  
David H. Gladstone  
Richard L. Raddatz  
Gail S. Gabel

Moscow, USSR  
Ottawa  
Winnipeg  
Victoria

Mark Vuono  
Richard Duquette  
Paul E. Vandall (Jr.)  
Ben Friesen  
Paul Kowal  
Fred Eddy  
Peter Haering  
John Spagnol  
Peter Mountford  
Randell C. Rudolph  
Heather E. Auld  
Collin S. diCenzo  
William A. Murray  
Arthur G. Earle

Pullman, Washington, U.S.A.  
Noranda, Quebec  
Ottawa  
Winnipeg  
Winnipeg  
N. Vancouver  
Delta, B.C.  
Surrey, B.C.  
Prince George, B.C.  
Edmonton  
Edmonton  
Edmonton  
Calgary  
St. Johns, Nfld.

#### ANNOUNCEMENTS

##### Stanstead Seminar on Large-Scale Atmospheric Flows

The 13th Stanstead Seminar will be held this summer 9-13 July 1979, at Bishop's University, Lennoxville, Quebec, Canada. The theme of the seminar will be "Large-scale atmospheric flows; modeling and observations".

Among the speakers will be Dr. L. Bengtsson, European Centre for Medium Range Weather Forecasts, Reading; Dr. J. A. Brown, National Meteorological Center, Washington; Dr. R. Daley, National Center for Atmospheric Research, Boulder; Dr. C. Girard, Atmospheric Environment Service of Canada, Dorval; Dr. J. D. Mahlman, Geophysical Fluid Dynamics Laboratory, Princeton.

For further information and registration contact Prof. Jacques Derome, Department of Meteorology, McGill University, 805 Sherbrooke Street W., Montreal, Quebec, Canada H3A 2K6 (Telephone (514) 392-4462).

##### UNITED NATIONS CONFERENCE ON SCIENCE & TECHNOLOGY FOR DEVELOPMENT (UNCSTD), VIENNA, AUGUST 1979

This UN conference has been devised as a mechanism to focus world attention on the special problems of the application of science and technology to the benefit of the developing countries. The conference will not be a scientific conference in the sense of an earlier UN conference held in 1963 entitled a "Conference on the Application of Science & Technology for the Benefit of the Less Developed Areas" which focussed on an interchange of scientific and technical information. UNCSTD will focus on the application of science and technology to social, economic, institutional or political development and will particularly concern itself with the identification and means for removal of the difficulties that impede the application of science and technology in contributing to the development goals and priorities of the developing nations. The conference will be structured around five subject areas, viz: Food and Agriculture; Natural Resources including Energy; Health, Human Settlement and Environment; Transport, Communications and Industrialization.

It is important that the preparations for UNCSTD receive some attention from the Canadian scientific, technical and social science community and that suggestions and ideas from individuals, groups and institutions from this community be sought and made available for consideration by the Government of Canada's delegation. It would be most desirable if a series of practical and pragmatic suggestions

could be assembled which could comment on possible new initiatives that could stimulate more effective involvement of our Research and Development community. The Royal Society of Canada and SCITEC have been charged with calling for such an input and it is requested that comments and suggestions be sent to SCITEC (UNCSTD), Suite 202, 151 Slater Street, Ottawa, Ontario K1P 5H3.

Further information can also be obtained if required from the above address.

INTERNATIONAL ASSOCIATION OF METEOROLOGY AND ATMOSPHERIC PHYSICS OF THE  
INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS

Preliminary announcement for 17th General Assembly IUGG, Canberra, Australia, December 3 - 8, 1979.

Relevant sessions to CMOS members are:

- Medium and Extended Range Numerical Weather Prediction
- Role of Atmospheric Electricity in Solar-Weather Relationships
- Progress in Antarctic Meteorology
- Climate Commission
- Atmospheric Composition and Climate
- Stratosphere and Mesosphere Topics
- Radiation Processes

EMPLOYMENT OPPORTUNITIES      COMMERCIAL ADVERTISEMENTS

The CMOS Newsletter makes available space for two types of advertisements, these are employment opportunity advertisements and commercial advertisements. For details about rates and advertisement preparation contact the Editor of CMOS Newsletter.

# RESEARCH COUNCIL OF ALBERTA

## EMPLOYMENT OPPORTUNITY

November 7th, 1978

### PROGRAMMER

The Atmospheric Sciences Division requires a computer programmer to work with the Cloud Modelling and Cloud Physics Group.

**DUTIES:** To assist in the design of a numerical cloud model that will simulate the growth of hail and rain in Alberta clouds.

**QUALIFICATIONS:** Master's degree in Meteorology, Computing Science or Mathematics with experience and expertise in FORTRAN programming.

Familiarity with cloud modelling techniques and/or cloud physics is desirable.

**LOCATION:** Alberta Research Council Laboratories in Edmonton.

**SALARY:** Approximately \$15,000 per Annum.

**STARTING DATE:** February 1, 1979.

**APPLICATIONS:** Resumes should be sent to:

Mr. D. K. Irwin  
Personnel Officer  
Alberta Research Council  
11315 - 87 Avenue  
Edmonton, Alberta  
T6G 2C2

As there are a number of commercial tours and other attractions in the Victoria area no tours are being arranged by the Congress.

Arrangements were made for on-campus accommodation but it can be guaranteed only to those who pre-registered before the April 15 deadline. All those who are intending on coming and have not reserved on-campus rooms through pre-registration are encouraged to make accommodation and travel reservations as soon as possible. The other conferences and normal tourist traffic will undoubtedly severely tax transportation facilities to and from Vancouver Island. The City of Victoria is serviced by two major airlines which provide connections with Vancouver, B.C., and Seattle, Washington. In addition there are car ferry services to Victoria from Vancouver, B.C., Port Angeles and Seattle, Washington.

If you have questions about registration or accommodation or require further information, contact Dr. R.G. Wilson (chairman, local arrangements) at 604-387-6387.



CANADIAN  
METEOROLOGICAL AND OCEANOGRAPHIC  
SOCIETY

XIII CONGRESS

LA SOCIÉTÉ CANADIENNE  
DE  
MÉTÉOROLOGIE ET D'Océanographie

CONGRÈS XIII

University of Victoria

Victoria, B.C.

May 30 to June 1, 1979

SUMMARY OF SESSIONS

TUESDAY, MAY 29

0930-1200  
1300-1415  
1415-1700  
1930-2300

Editorial Committee Meeting  
GARP Scientific Committee Meeting  
Scientific Committee Meeting  
CMOS Council Meeting

LOCATION\*

Conference Room  
Conference Room  
Conference Room  
Conference Room

WEDNESDAY, MAY 30

0830-0845  
0845-0945

Opening Welcome  
Theme Session I - Dynamic Similarities  
of Oceans and Atmospheres

Sub Theatre

Sub Theatre

1030-1200

1A  
1B  
1C

Ocean - Atmosphere Interaction  
Air Pollution Meteorology I  
Buoy Networks

Conference Room  
C-108  
C-112

1330-1500

2A  
2B  
2C

Urban Meteorology  
Circulation I  
Atmospheric Dynamics

Conference Room  
C-108  
C-112

1530-1700

3A  
3B  
3C

Air Pollution Meteorology II  
Circulation II  
Hail and Ice Accretion

Conference Room  
C-108  
C-112

1900-2030

Wine and Cheese

Auditorium Lobby  
University Centre

2030-2300

Annual General Meeting of CMOS

Conference Room

THURSDAY, MAY 31

0830-0930

Special Session - Climatic Change

Sub Theatre

1015-1200

4A  
4B  
4C

Dynamic Meteorology - Modelling  
Mixing Processes  
Forest and Agricultural Meteorology

Conference Room  
C-108  
C-112

1330-1630

Poster Session

C-108 and C-112

1330-1500

5

Arctic Oceanography I

Conference Room

1530-1700

6

Arctic Oceanography II

Conference Room

1730

No Host Bar

1830

Awards Banquet

Commons Building -  
University Residence

FRIDAY, JUNE 1

0830-0930

Theme Session II - Dynamic Similarities  
of Oceans and Atmospheres

Sub Theatre

1015-1200

7A  
7B  
7C

Satellite Meteorology  
Boundary Layer  
Tides

Conference Room  
C-108  
C-112

1330-1500

8A  
8B  
8C

Air-Sea Interaction I  
Cloud Physics  
Waves I

Conference Room  
C-108  
C-112

1530-1700

9A  
9B  
9C

Air-Sea Interaction II  
Precipitation  
Waves II

Conference Room  
C-108  
C-112

\*Locations

Student Union Building - Sub Theatre  
University Centre - Conference Room  
Clearihue Building - C-108 and C-112



# PROGRAM

WEDNESDAY, MAY 30, 1979

Opening Welcome: Dr. Ian McTaggart-Cowan  
Chancellor, University of  
Victoria

Wed. 0830-0845  
Sub Theatre

Dr. R. W. Burling, President  
Canadian Meteorological and  
Oceanographic Society

THEME SESSION I DYNAMIC SIMILARITIES OF OCEANS  
AND ATMOSPHERES

Wed. 0845-0945  
Sub Theatre

Chairman: R. List

Mixing  
F. Bretherton, National Centre for Atmospheric Research  
Boulder, Colorado, 80307

1A OCEAN-ATMOSPHERE INTERACTION

Wed. 1030-1200  
Conference Room

Chairman: G. T. Needler

A Long Time Scale, Non-Linear, Wind Driven Ocean Circulation Model  
A. J. Willmott, Institute of Oceanography, University of  
British Columbia, Vancouver, B.C. V6T 1W5

Coupling of the Warm Sea Current and the Cold Air Outbreaks in the  
Maintenance of the Northern Hemispheric Winter Circulation  
E. C. Kung, Department of Atmospheric Science, University of  
Missouri-Columbia, Columbia, Missouri 65211

Inertial Oscillations in Flow Motion Over the Beaufort Sea -  
Observations and Analysis

M. L. Khandekar, Atmospheric Environment Service, Downsview, Ontario

Atmospheric Forcing of Oceanic Eddies

C. Frankignoul Dept. of Meteorology, MIT, Cambridge, MA 02139, P. Muller  
Center for Earth and Planetary Physics, Harvard, Cambridge, MA 02138

1B AIR POLLUTION METEOROLOGY I

Wed. 1030-1200  
Room C-108

Chairman: T. R. Oke

Ground-Based Inversion Frequencies Determined From Surface  
Climatological Data

J. H. Emslie, Scientific Services Unit, Atmospheric Environment  
Service, Pacific Region, Vancouver, B.C. V6C 1A1

Analysis of SO<sub>2</sub> Data on a Ridge

S. F. Benjamin and R. D. Rowe, Dept. of Chemical Engineering,  
The University of Calgary, Calgary, Alberta T2N 1N4

The Air Pollution Potential of Kananaskis Valley

D. C. Reynolds, Control Data Corporation, Monterey, Calif. 93940

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WEDNESDAY, MAY 30, 1979 (CONTD.)

The Effects of Chinooks on the Atmospheric Aerosol Size Spectra and  
Light Scattering Coefficient in Downtown Calgary During the Winter  
of 1978-79

C.V. Mathai, A.W. Harrison and T. Mathews, Department of Physics,  
University of Calgary, Calgary, Alberta T2N 1N4

1C BUOY NETWORKS

Wed. 1030-1200  
Room C-112

Chairman: P.W. Nasmyth

A Prototype Global Scale Air-Sea Observing System

J. Garrett, Institute of Ocean Sciences, Sidney, B.C., V8L 4B2

The Global Experiment Drifting Buoy System - Performance During the  
First Special Observing Period

N. Boston, Ocean Sciences, Beak Consultants Limited, Vancouver, B.C.

Preliminary Direct Results from the FGGE Drifting Buoy System

J. Garrett, Institute of Ocean Sciences, Sidney, B.C. and J.R. Wilson,  
Marine Environmental Data Service, Ottawa, Ontario

The Hudson Bay Meteorological Drifting Buoy Experiment

R.G. Stark and A.H. Campbell, Atmospheric Environment Service,  
Downsview, Ontario, M3H 5T4

Economic Benefits Derived from the Deployment of Meteorological Buoys

J. Donegani, Surface Standards Unit, Atmospheric Environment  
Service, Downsview, Ontario M3H 5T4

2A URBAN METEOROLOGY

Wed. 1330-1500  
Conference Room

Chairman: G.A. McBean

Simulation of Nocturnal Urban Heat Island Development in Cold  
Chamber Experiments: The Role of Radiation Geometry

T.R. Oke, University of British Columbia, Vancouver, B.C. V6T 1W5

The Lake Breeze at Toronto

R.C. Bennett, Ministry of Environment, Resource Analysis Branch,  
Victoria, B.C. V8V 1X4

Characteristics of Vertical Velocity Fluctuations in a Convective  
Urban Boundary Layer

H. Melling, Institute of Ocean Sciences, Sidney, B.C. V8L 4B2

Observations of Sea Breeze Frontal Slopes and Vertical Velocities  
Over an Urban Area

S. Anderson and R.D. Bornstein, Department of Meteorology,  
San Jose State University, San Jose, California 95192 U.S.A.

## WEDNESDAY, MAY 30, 1979 (CONTD.)

Urban Greenspace as 'Oases'  
T.R. Oke, University of British Columbia, Vancouver, B.C. V6T 1W5

Suburban Energy Balance Estimates in Vancouver, B.C.  
B. Kalanda and T.R. Oke, University of British Columbia,  
Vancouver, B.C. V6T 1W5

2B CIRCULATION I Wed. 1330-1500  
Room C-108

Chairman: D.P. Krauel

The Stratosphere of the Atlantic Ocean by Georg Wüst: A Review  
W.J. Emery, Institute of Oceanography, University of  
British Columbia, Vancouver, B.C. V6T 1W5

Geostrophic Calculation for the Labrador Current  
B. Keeley, Marine Environmental Data Services Branch,  
Fisheries and Marine Service, Ottawa, Ontario

Circulation in an Open Bay  
K. Drinkwater, B. Petrie, Ocean and Aquatic Sciences,  
Bedford Institute of Oceanography, Dartmouth, Nova Scotia B2Y 4A2

The Structure of the Gaspé Current  
J. Benoit, M.I. El-Sabbh and C. Tang, Department d'Océanographie,  
Université du Québec à Rimouski, Rimouski, Quebec

2C ATMOSPHERIC DYNAMICS Wed. 1330-1500  
Room C-112

Chairman: G.J. Boer

Latent Heat Release as a Possible Forcing Mechanism for Atmospheric  
Tides  
K. Hamilton, Geophysical Fluid Dynamics Program, Princeton  
University, Princeton, N.J. 08540

The Transport of Momentum by Cumulus Convection  
H.-R. Cho, Department of Physics, University of Toronto,  
Toronto, Ontario, M5S 1A7

Atmospheric Blocking Patterns  
J. Knox, Department of Geography, University of British Columbia,  
Vancouver, B.C. V6T 1W5

The Amplification of Forced Rossby Waves in the Presence of a  
Nonlinear Critical Layer

H. Ritchie and T. Warn, Department of Meteorology, McGill  
University, Montreal, Quebec H3A 2K6

## WEDNESDAY, MAY 30, 1979 (CONTD.)

3A AIR POLLUTION METEOROLOGY II Wed. 1530-1700  
Conference Room

Chairman: H. Melling

Optimum Plume Sigma Specification Procedures for an Industrial Source  
D.S. Davison and E.D. Leavitt, Intera Environmental Consultants Ltd.  
Calgary, Alberta T2H 1X9

An Experimental Study of the Micrometeorology at Nanticoke  
P.Y. Lui, Ontario Hydro, Environmental and Inorganic Research  
Section, Toronto, Ontario M8Z 5S4

Meteorological Conditions Accompanying Poor Air Quality at Nanticoke,  
Ontario  
R.G. Lawford, Ontario Region, Atmospheric Environment Service,  
Toronto, Ontario M4T 1M2

On the Long-Range Transport of Tall Stack Plume  
Y.S. Chung, Atmospheric Environment Service, Downsview, Ontario  
M3H 5T4

3B CIRCULATION II Wed. 1530-1700

Chairman: S. Tabata

Circulation at the Head of the Laurentian Channel  
R.G. Ingram, Marine Sciences Centre, McGill University,  
Montreal, Quebec H3A 2T8

Environmental Forcing of the Miramichi Estuary  
D.P. Krauel, Royal Roads Military College, F.M.O. Victoria, B.C.  
VOS 1B0

Flow Between the Central and Eastern Basins of Lake Erie  
F.M. Boyce, F. Chiocchio, F. Penicka, and B. Eid, National Water  
Research Institute, CCIW, Burlington, Ontario L7R 4A6

Deep Water Replacement in Indian Arm  
L.W. Davidson, Fenco (Nfld.) Ltd. St. Johns, Newfoundland A1B 3N4

3C HAIL AND ACCRETION Wed. 1530-1700  
Room C-112

Chairman: G.A. Isaac

"Birds Eye View" of a Large Funnel Cloud in Alberta  
C.M. Sackiw, F.E. Robitaille, Atmospheric Sciences Div., Alberta  
Research Council, Edmonton, Alta. T6G 1K8, E.P. Lozowski, Dept. of  
Geography, University of Alberta, Edmonton, Alta. T6G 2H4

Investigation of the Ice Accretion Process  
R. List, P.I. Joe and G.B. Lesins, Department of Physics,  
University of Toronto, Toronto, Ontario M5S 1A7

## WEDNESDAY, MAY 30, 1979 (CONTD.)

The Saskatchewan Hail Research Project - Some Preliminary Results  
A.H. Paul, Department of Geography, University of Regina,  
Regina, Saskatchewan S4S 0A2

Computer Simulation of Helicopter Rotor Blade Icing - A Problem in  
Aerodynamic Meteorology  
M.M. Oleskiw and E.P. Lozowski, University of Alberta,  
Department of Geography, Edmonton, Alberta T6G 2H4

## THURSDAY, MAY 31, 1979

## SPECIAL SESSION I CLIMATIC CHANGE

Thurs. 0830-0930  
Sub Theatre

Chairman: J.A.W. McCulloch

An Experimental Climate Forecasting Model  
R.A. Bryson, Center for Climatic Research, University of  
Wisconsin, Madison 53706

Co-authored by: E.W. Wahl and T.B. Starr

4A DYNAMIC METEOROLOGY - MODELLING Thurs. 1015-1200  
Conference Room

Chairman: A. Robert

Experiments with a Three-Dimensional Atmospheric Boundary-Layer Model  
for Mesoscale Flow  
J.L. Walmsley, Atmospheric Environment Service, Downsview,  
Ontario M3H 5T4

Diagnostic Study of Observations from Real and Model Atmospheres  
G.J. Boer, Numerical Modelling Division and J.D. Henderson,  
Canadian Climate Centre, Atmospheric Environment Service,  
Downsview, Ontario M3H 5T4

A New Numerical Method for Handling Quasi-discontinuous Flow Problems  
H. Warn and A. Staniforth, Atmospheric Environment Service,  
Dorval, Quebec H9P 1J3

The Application of Normal Mode Analysis to Four-Dimensional Data  
Assimilation

R. Daley and K. Puri, National Center for Atmospheric Research,  
Boulder, Colorado 80307

Importance of the Inclusion of Mountains in Short-Range NWP  
C. Girard, Recherche en Prevision Numerique, Atmospheric Environment  
Service, Dorval, Quebec H9P 1J3

A Procedure to Predict the Mesoscale Wind Distribution for Siting  
Wind-Powered Generators  
M. Danard, University of Waterloo, Waterloo, Ontario, N2L 3G1

## THURSDAY, MAY 31, 1979 (CONTD.)

## 4B MIXING PROCESSES

Thurs. 1015-1200  
Room C-108

Chairman: S. D. Smith

Separation of Stratified Flow Over an Obstacle  
D. Farmer, Institute of Ocean Sciences, Sidney, B.C.

Oceanic Dissipation and Diffusion  
T. R. Osborn, Institute of Oceanography, The University of British  
Columbia, Vancouver, B.C. V6T 1W5

Temperature-Salinity-Density Structure Near the Scotian Shelf-Break  
Observed With a Batfish  
A. S. Bennett, Bedford Institute of Oceanography, Dartmouth, N.S.

On Modelling the Physical and Chemical Properties of the Bering Sea  
G. T. Needler and J. Shepard, Bedford Institute of Oceanography,  
Dartmouth, Nova Scotia

Bedford Institute's Physical Oceanographic Program in the Labrador  
Current  
J. R. N. Lazier, Bedford Institute of Oceanography, Dartmouth, N.S.

4C FOREST AND AGRICULTURAL METEOROLOGY Thurs. 1015-1200  
Room C-112

Chairman: W. G. Bailey

Evaluation of the Bowen Ratio/Energy Balance Method for Determining  
Evapotranspiration in Forest Water Balance Studies  
D. L. Spittlehouse and T. A. Black, Department of Soil Science  
University of British Columbia, Vancouver, B.C.

Radiation Balances of Coniferous Forest and Logged Sites at Montmorency  
P.Q.  
H. J. McCaughey, Queen's University, Kingston, Ontario K7L 3N6

Estimation of the Surface Energy Budget by Distribution of Residuals  
D. G. Steyn, Department of Geography, University of British  
Columbia, Vancouver, B.C.

Actual and Potential Evapotranspiration From Irrigated Alfalfa  
R. J. Williams, Resource Analysis Branch, B.C. Ministry of Environment  
Kamloops, B.C. V2B 8A9

Estimating Pasture Productivity from Climatological Models  
R. L. Davis, Resource Analysis Branch, B.C. Ministry of Environment,  
Kelowna, B.C. V1Y 4R2 and J. A. Davies, Dept. of Geography,  
McMaster University, Hamilton, Ontario

Use of the  $\beta$ -Gauzing Technique to Study Plant-Water Relations  
N. Barthakur, Dept. of Agricultural Chemistry and Physics,  
Macdonald College of McGill University, Ste-Anne-de-Bellevue,  
Quebec H9X 1C0

THURSDAY, MAY 31, 1979 (CONTD.)

## POSTER SESSION

Thurs. 1330-1630  
C-108 & C-112

## Poster 1

The Atmospheric Environment Service Energy Programme  
T. K. Won, Energy and Industrial Applications Section, Canadian  
Climate Centre, Atmospheric Environment Service, Downsview, Ontario  
M3H 5T4

## Poster 2

Climatological Analyses for Planning Wind and Solar Energy Systems  
in Ontario

R. G. Lawford, T. Eschle and M. Helferty, Scientific Services,  
Atmospheric Environment Service, Toronto, Ontario M4T 1M2

## Poster 3

Modelling Solar Radiation Components in Aerosol Atmospheres  
F. Barlow, Alberta Research Council, Edmonton, Alberta T6G 1K8

## Poster 4

A Computer Program Used to Map the Spatial Distribution of 'Clear Sky'  
Solar Radiation in the Okanagan Valley of British Columbia  
R. L. Davis, Resource Analysis Branch, Ministry of Environment,  
Kelowna, B.C.

## Poster 5

A Technique for Mapping the Distribution of Diffuse Solar Radiation  
Over the Sky Hemisphere  
L. J. Bruce McArthur, McMaster University, Dept. of Geography,  
Hamilton, Ontario L8S 4K1

## Poster 6

An Analysis of Errors in the Calculation of Evapotranspiration by  
the Bowen Ratio and Combination Model Methods  
W. G. Bailey, Agriculture Canada Research Station, Beaverlodge,  
Alberta T0H 0C0

## Poster 7

An Analysis of Freeze-Free Periods in British Columbia  
G. E. Cheesman, Resource Analysis Branch, Ministry of Environment  
Prince George, B.C.

## Poster 8

Upslope Enhanced Extreme Rainfall Events Over the Canadian Western  
Plains - A Mesoscale Numerical Simulation  
R. L. Raddatz, Prairie Weather Centre, Atmospheric Environment Service  
Winnipeg, Manitoba, and M. L. Khandekar Caribbean Meteorological  
Institute, Barbadoes, West Indies

THURSDAY, MAY 31, 1979 (CONTD.)

## Poster 9

A Grid Point Wave Climatology From Digitized Wave Analyses  
V. R. Swail, Lakes and Marine Applications Unit, Canadian Climate  
Centre, Atmospheric Environment Service, Downsview, Ontario M3H 5T4

## Poster 10

Long-Range Transport Modelling - Model Description and Application  
M. P. Olson, E. C. Voldner, K. K. Oikawa, Atmospheric Dispersion  
Division, Atmospheric Environment Service, Downsview, Ontario  
M3H 5T4

## Poster 11

Temperature Spectra in the Unstable Atmospheric Surface Layer  
J. Rollefson, Physics Department, Laval University, Quebec,  
G1K 7P4

## Poster 12

A New AES Aircraft Instrumentation Package for Measuring Size,  
Concentration and Phase of Particles in Cloud  
J. W. Strapp, R. S. Schemanauer, G. A. Isaac, and C. L. Crozier,  
Atmospheric Environment Service, Downsview, Ontario M3H 5T4

## Poster 13

Linear Interpolation Schemes and Their Application to Hail Energy Data  
R. A. Stuart and G. M. Cheung, Atmospheric Environment Service,  
Downsview, Ontario M3H 5T4

## Poster 14

A Topographical Model to Predict Springtime Clear Night Temperatures  
on the Saanich Peninsula  
R. Chilton, Resource Analysis Branch, Ministry of Environment,  
Victoria, B.C. V8V 1X4

## Poster 15

Freezings of the Lower Fraser and Columbia Rivers  
E. Karanka, Resource Analysis Branch, Ministry of Environment,  
Victoria, B.C. V8V 1X4



THURSDAY, MAY 31, 1979 (CONTD.)

5 ARCTIC OCEANOGRAPHY I Thurs. 1330-1500  
Conference Room

Chairman: F. M. Boyce

Physical Oceanography of James Bay During Winter  
G. S. Peck and S. J. Prinsenberg, Research & Development Division,  
Ocean and Aquatic Sciences, Environment Canada, Burlington, Ontario  
L7R 4A6

Current Observations in Crozier Strait, Central Arctic  
P. Greisman and R. A. Lake, Institute of Ocean Sciences, Sidney, B.C.

Helium and Tritium in the Canadian Eastern Arctic  
W. B. Clarke, W. C. Eismont, E. P. Jones and Z. Top, McMaster  
University, Hamilton, Ontario

On the Use of Composite Histograms in Determining the Surface  
Temperature Distribution of the Beaufort Sea  
R. Cross and E. R. Reinelt, University of Alberta, Edmonton,  
Alberta T6G 2H4

6 ARCTIC OCEANOGRAPHY II Thurs. 1530-1700  
Conference Room

Chairman: P. Greisman

The Circulation of Northwestern Baffin Bay - Summer 1978  
D. B. Fissel and D. D. Lemon, Arctic Sciences Ltd., Sidney, B.C.  
V8L 3S1

Statistical Criteria for the Estimation of Cloud Height in the  
Canadian Arctic  
E. R. Reinelt and R. Cross, University of Alberta, Edmonton,  
Alberta T6G 2H4

Drift and Deformation of Pack Ice in the Boundary Shear Zone of  
the South-Eastern Beaufort Sea  
H. Melling, Institute of Ocean Sciences, Sidney, B.C. V8W 1Y4

Incorporation of Realistic Internal Ice Stress Formulation in the  
Study of Dynamics of Sea Ice Motion  
V. R. Neralla and W. S. Liu, Atmospheric Environment Service,  
Downsview, Ontario M3H 5T4

An Arctic Atlas: Background Information for Developing Marine  
Oilspill Countermeasures  
L. W. Davidson, Fenco (Nfld) Ltd., St. John's, Newfoundland A1B 3N4

NO HOST BAR Thurs. 1730  
Commons Bldg.  
Univ. Res.  
AWARDS BANQUET Thurs. 1830

FRIDAY, JUNE 1, 1979

THEME SESSION II DYNAMIC SIMILARITIES OF OCEANS AND ATMOSPHERES Fri. 0830-0930  
Sub Theatre

Chairman: R.E. Thomson

Dynamical Aspects of Oceanic Fronts  
C. Garrett, Department of Oceanography, Dalhousie University, Halifax  
Nova Scotia, B3H 4J1

7A SATELLITE METEOROLOGY Fri. 1015-1200  
Conference Room

Chairman: J.R. Mathieson

High Resolution Satellite Detection of Low Level Moisture in the  
Atmosphere Above the Ocean in Visible and Infrared Imagery  
R.W. Fett, Naval Environmental Prediction Research Facility,  
Monterey, California 93940

Pacific Weather Centre Experimental Satellite Program  
M.M. Horita, P. Haering, J. Spagnol, Pacific Weather Centre, Atmospheric  
Environment Service, Vancouver Int. Airport, Richmond, B.C. V7B 1B8

Calculations of N.E. Pacific Data-Assimilation Errors With and Without  
Ship PAPA  
H.J. Thiebaut, Dalhousie University, Halifax, Nova Scotia, B3H 4J1

Sea Surface Temperature Estimate From Seasat-A Microwave Measurements  
C. Gautier, INRS-Océanologie, Rimouski, Quebec G5A 3A1

Observations on Coastal Phenomena From Remote Sensing System  
S. Aranuvachapun, Institute of Oceanography, University of British  
Columbia, Vancouver, B.C. V6T 1W5

A Potential Utilisation of Satellite Data For Climatic Studies  
C. Gautier, INRS-Océanologie, Rimouski, Quebec G5L 3A1

7B BOUNDARY LAYER Fri. 1015-1200  
Room C-108

Chairman: D. Davison

On Wakes and Drag in the Neutrally Stratified Atmospheric Boundary-Layer  
P.A. Taylor, Boundary Layer Research Division, Atmospheric Environment  
Service, Downsview, Ontario M3H 5T4

Comparison of Wind Measurements From a Tower and a Balloon-Borne Sonde  
J. Dionne, Université du Québec à Rimouski, Rimouski, Quebec G5L 3A1

On the Determination of Boundary Layer Parameters Using Velocity  
Profile as the Sole Information  
A.K. Lo, Boundary Layer Research Division, Atmospheric Environment  
Service, Downsview, Ontario M3H 5T4

Refractive-Index Fluctuations in the Surface Boundary Layer  
G.A. McBean, Boundary Layer Research Division, Atmospheric Environment  
Service, Downsview, Ontario M3H 5T4  
J.A. Elliott, Atlantic Oceanographic Laboratory, Dartmouth, Nova Scotia

A. Diode Psychrometer System for Boundary Layer Work  
D.S. Munro, Erindale College, University of Toronto, Toronto, Ontario

FRIDAY, JUNE 1, 1979 (CONTD.)

- 7C TIDES Fri. 1015-1200  
Room C-112
- Chairman: W. Rapatz
- Forced Fortnightly Tides in Shallow Rivers  
P.H. LeBlond, Institute of Oceanography, University of British Columbia, Vancouver, B.C. V6T 1W5
- An Examination of the Temporal Variations of the Baroclinic Tide in Douglas Channel, B.C.  
I. Webster, Dobrocky Seatech Limited, Kingston St., Victoria, B.C.
- M<sub>2</sub> Baroclinic Tides in a Deep/Narrow Channel  
R.E. Thomson, S. Huggett, Institute of Ocean Sciences, Sidney, B.C.
- The Structure of Three-Dimensional Tidal Currents  
K.T. Tee, Bedford Institute of Oceanography, Dartmouth, N.S. B2Y 4A2
- Interaction Between Astronomical Tide and Storm Surge  
T.S. Murty, Institute of Ocean Sciences, Victoria, B.C.  
M.I. El-Sabbh and J.M. Briand, Section d'Océanographie, Université du Québec, Rimouski, Québec  
P. Bolduc, Marine Environmental Data Service, Department of Fisheries and the Environment, Ottawa, Ontario

8A AIR-SEA INTERACTION I Fri. 1330-1500  
Conference Room

Chairman: C. Frankignoul

- The Turbulent Fluxes of Momentum and Sensible Heat Over the Open Sea as Determined by the Dissipation Method  
W.G. Large, S. Pond, Institute of Oceanography, University of British Columbia, Vancouver, B.C. V6T 1W5
- Surface Wind Stress and Heat Flux Measured Over the Atlantic Ocean in Gale Force Winds  
S.D. Smith, Bedford Institute of Oceanography, Department of Fisheries and Environment, Dartmouth, Nova Scotia B2Y 4A2
- Drag Coefficients Over Lakes  
P.F. Hamblin, National Water Research Institute, Canada Centre for Inland Waters, Burlington, Ontario L7R 4A6
- The Lower Limit of the Logarithmic Layer in the Atmosphere and Ocean  
A.R.M. Nowell, Department of Oceanography, University of Washington, Seattle, Washington 98195

8B CLOUD PHYSICS Fri. 1330-1500  
Room C-108

Chairman: R.G. Humphries

- Low-Level Flow Near Thunderstorm Formation Areas- an Observational Study in Alberta  
F.E. Robitaille, Alberta Research Council, Atmospheric Sciences Division, Edmonton, Alberta, T6G 1K8
- Collision Enhancement for Droplet Pairs With Electrically Reduced Approach Speed  
E. Freire and Roland List, Department of Physics, University of Toronto, Toronto, Ontario M5S 1A7

FRIDAY, JUNE 1, 1979 (CONTD.)

The Warm Rain Process in Canadian Summer Cumulus Clouds  
G.A. Isaac, R.S. Schemenauer, J.W. Strapp, and C.L. Crozier, Atmospheric Environment Service, Downsview, Ontario, M3H 5T4

The Occurrence of Ice Particles in Summer Cumuli in Canada  
R.S. Schemenauer, G.A. Isaac, C.L. Crozier and J.W. Strapp, Atmospheric Environment Service, Downsview, Ontario, M3H 5T4

8C WAVES I Fri. 1330-1500  
Room C-112

Chairman: H.L. Grant

- Low-frequency Variability of Currents in the Strait of Georgia  
J. Helbig, Institute of Oceanography, University of British Columbia, Vancouver, B.C.
- Baroclinic and Barotropic Instabilities in Coastal Currents  
E.R. Johnson and L.A. Mysak, Department of Mathematics, University of British Columbia, Vancouver, B.C. V6T 1W5
- On the Propagation of Shelf Waves in a Laterally Sheared Mean Flow  
J. Helbig, Institute of Oceanography, University of British Columbia, Vancouver, B.C.
- Bottom Currents Near the Shelf Edge  
B. Petrie and A.J. Bowen, Department of Oceanography, Dalhousie University Halifax, N.S. B3H 4J1

9A AIR-SEA INTERACTION II Fri. 1530-1700  
Conference Room

Chairman: K.L. Denman

- Airflow Over Water Waves and Water Flow Over Sand Waves  
P.A. Taylor, Boundary Layer Research Division, Atmospheric Environment Service, Downsview, Ontario M3H 5T4  
K.J. Richards, Dept. of Applied Mathematics, University of Cambridge, Cambridge, England
- MABLES WC - Experimental Design, Data Availability and Preliminary Analysis  
P.F. Lester, Dept. of Meteorology, San Jose State University, San Jose California 95192

A Well Observed Marine Fog Off Southern California and a Forecasting Trial  
D.F. Leipper, D.A. Backes and L.J.B. White, Naval Postgraduate School Monterey, California

9B PRECIPITATION 1530-1700  
Room C-108

Chairman: G. McPherson

- Weather Radar Developments at the Alberta Research Council  
R.G. Humphries, B.L. Barge, Alberta Research Council, Atmospheric Sciences Division, Edmonton, Alberta T6G 1K8
- Temporal Variations in the Time of Maximum Precipitation in Southern British Columbia  
D.A. Faulkner, Atmospheric Environment Service, Pacific Region, Vancouver, B.C. V6C 1A1



FRIDAY, JUNE 1, 1979 (CONTD.)

Statistical Techniques for Forecasting Probability of Precipitation Amount

T. Agnew, Atmospheric Environment Service, Forecast Research Division  
Downsview, Ontario M3H 5T4

Relationships Between Convective Energy and Rainfall Rates

L. Prevost and I. I. Zawadzki, Université du Québec à Montréal,  
Département de Physique, Montréal, P.Q. H3C 3P8

9C

WAVES II

Fri. 1530-1700  
Room C-112

Chairman: P.H. LeBlond

On the Non-Linear Wave-Wave Interactions in the Equatorial  $\pi$ -Plane

P. Ripa, U.S. Department of Commerce, Environmental Research  
Laboratories, Seattle, WA 98105

Trench Waves

L.A. Mysak, P.H. LeBlond and W.H. Emery, Institute of Oceanography,  
University of British Columbia, Vancouver, B.C. V6T 1W5

Trench Waves II Verification in Coastal Sea-Level Records

W.J. Emery, Institute of Oceanography, University of British Columbia,  
Vancouver, B.C. V6T 1W5