



Canadian Meteorological
and Oceanographic
Society

La Société Canadienne
de Météorologie et
d'Océanographie

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A FEW WORDS ABOUT OUR NEW PRESIDENT

Mr. William (Bill) S. Appleby was born in Brampton, Ontario and grew up in Caledon East, Ontario, just north of Toronto. In 1969, he received his BSc from the University of Guelph in Honors Physics. He immediately accepted employment with the Atmospheric Environment Service in the direct entry Masters Program and was on Meteorology Course 26. In 1972 he received his MSc in Meteorology from the University of Toronto.

He was posted to the Atlantic Weather Central in Halifax in 1971 as a Prog-analyst. In 1974, when the Maritimes Weather Office and the Atlantic Weather Central amalgamated in Bedford, N.S., he became a Shift Supervisor Meteorologist. Bill was appointed Chief Meteorologist at the Atlantic Weather Centre in 1978. While Chief Meteorologist he participated in the Seasat scatterometer evaluation exercise.

After 9 years in Nova Scotia Bill returned to Toronto in 1980 on the AES Management Orientation Program (MOP). However, his stay in Toronto was only 3 months after he accepted a position as Scientific Officer in the Assistant Deputy Minister's Office of AES in Ottawa. Then in 1981, Bill left AES and joined the Canada Oil and Gas Lands Administration (COGLA) as their Marine Meteorologist. With COGLA, Bill had the opportunity to pursue his interest in marine meteorology while dealing with offshore oil and gas exploration.

In 1983 Bill returned to the Maritimes and AES as Chief of Forecast Operations for Atlantic Region.

Bill and his wife Christine have three children Wendy, Fiona, and Eric. They live in Beaverbank, N.S., a small community north of Halifax. Bill is active in the church and the community and enjoys outdoor activities and carpentry.

Bill is looking forward to an active and challenging year as CMOS president.

20ieth Annual General Meeting (Regina, Saskatchewan)

June 4, 1986

The following motions were passed at the 20ieth Annual General Meeting:

Motion

"The 20ieth Annual General Meeting repeals the current CMOS Constitution and By-Laws and adopts in its place the new version of the Constitution and BY-Laws proposed by the CMOS Council and published in the CMOS Newsletter of February, 1986 (and Available in French as of April 15, 1986), with the corrections (English version) as shown below, on the understanding that the repeal of the current and the enactment of the new version will become effective only after the approval of the new version by the Minister of Consumer and Corporate Affairs.

1. BY-Law 10 a): In the third line amend "council at Large" to read: "Councillor-at-Large".
2. BY-Law 10 e) Amend "signing the nomination" to read "signing the nomination form".
3. By-Law 18 a) Delete the "a)".

Motion

"The 20ieth Annual General Meeting approves the "Guidelines for Accreditation of Consultants" published in English in the CMOS Newsletter of February, 1986 and made available in French as of April 15, 1986 with the corrections as shown below, and empowers the CMOS Council to:

a) modify as necessary from time to time the Application Form (and the fees) to ensure its proper alignment with the Guidelines and the successful application of the scheme, and

b) appoint an "Accreditation Committee" to administer the scheme."

Motion

"The following four CMOS members are awarded Life Memberships in recognition of their significant contributions to the Society:

Dr. R.A. Hornstein

Dr. P.D. McTaggart-Cowan

Mr. D.M. Robertson

Mr. E.J. Truhlar

Motion

"The 20ieth Annual General Meeting approves the addition of a maple leaf in the top left corner of the CMOS Logo."

Motion

"The Toronto Centre is approved as the host for the 1988 Annual Congress."

Motion

"The Rimouski Centre is approved as the host for the 1989 Annual Congress."

Motion

"The theme of "Predictability in the Atmosphere and the Ocean" is approved as the theme for the 1987 Congress to be held in St. John's, Newfoundland."

SCIENTIFIC PROGRAM COMMITTEE REPORT FOR THE 20TH ANNUAL CMOS CONGRESS

The theme of the 20th Annual CMOS Congress in Regina was "Drought, The Impending Crisis?" and the Congress was held jointly with the Canadian Hydrology Symposium. G.A. McKay gave the opening keynote presentation on "Drought, A Global Perspective" which was well illustrated and very informative. As the invited speaker in oceanography, Dr. K.L. Denman of IOS reviewed the role of phytoplankton as passive, non-conservative tracers for studies of ocean circulation. With the increasing recognition that studies of the physical, biological and chemical aspects of oceanography (and meteorology) need to be done in concert, this presentation was not only excellent but very timely. Prof. M. Schlesinger of Oregon State University, the other CMOS invited speaker, reviewed the capabilities of climate circulation models to predict the changes in atmospheric conditions for CO₂ induced climate changes. The importance of the role of the oceans in moderating and delaying these changes was stressed. These three presentations made a fine introduction to the 16 sessions and 79 papers that followed. Approximately one-third of the papers were on oceanographic topics. Although the number of papers was lower than recent congresses, the quality of the presentations remained high and provided for many interesting and informative sessions.

Two sessions deserve special mention as examples for future congresses. One session dealt with the first reports on the just successfully completed Canadian Atlantic Storms Program (CASP). The preliminary results and overviews presented imply several years of interesting sessions in the future and demonstrate the benefits of coordinated, interdisciplinary research programs. CMOS, through its Scientific Committee, played a major role in bringing this program to fruition. The other session was organized by Prof. L. Mysak around the program MOIST (Meteorological and Oceanographic Influences on Sockeye Tracks). This type of focussed session is to be encouraged at future congresses.

Having our Congress jointly with the CHS gave CMOS attendees an opportunity to attend hydrology sessions and vice-versa. Actually several papers on the CHS program were by CMOS members. This type of interaction will hopefully continue.

As with last year's Congress in Montreal, we asked for, and generally received, "camera-ready" abstracts from authors and this, plus the hard work of Ed Truhlar, resulted in the Abstracts Volume being produced in a very short time. We also received a grant from NSERC to help pay for the travel costs of invited speakers.

REPORT ON DROUGHT THE IMPENDING CRISIS? BY THE LOCAL ARRANGEMENTS COMMITTEE

The 20th Annual CMOS Congress was held in Regina June 3 to 6, 1986 at the University of Regina together with the Canadian Hydrology Symposium : 86. Although CMOS attendance was reduced from the previous two years, the total conference attendance exceeded expectations:

Exhibitors.....	17
Students	26
CMOS	109
CHS:86	121
LAC + Program Committees	19
One Day	8

TOTAL301

The conference was preceded by numerous CMOS committee meetings and the Annual General Meeting of the Associate Committee on Hydrology.

A reception hosted by Control Data Canada Ltd. was held in conjunction with registration on the evening of June 3. Many registrants took advantage of the unique on-campus residences at College West. Five concurrent sessions plus a poster session ran through most of the conference June 4 to 6. A luncheon on June 4th partially sponsored by the City of Regina, featured the presentation of the Patterson Medal to Dr. Andre Robert by Dr. Ian Rutherford.

The CMOS Annual General Meeting on the evening of June 4 was relatively well attended with over 50 CMOS members present to witness the passage of a motion on consultant accreditation.

The joint banquet on June 5 at the Sheraton Centre Hotel was the social highlight of the conference. A hospitality grant from the Province of Saskatchewan for this event was much appreciated. The guest speaker was well known Canadian novelist, playwright, and raconteur, W.O. Mitchell. Mr. Mitchell grew up in Weyburn, Saskatchewan during the drought of the 1930's. Appropriate to the conference theme, he read passages from "Who has Seen the Wind", "Jake and the Kid", and "How I Spent my Summer Holidays", closing to a standing ovation. Also featured on the program was the presentation of several CMOS awards and citations.

Overall, the conference was a scientific, social and financial success. Many thanks are due the hard working members of the program committees and the Local Arrangements Committee.

Ron Hopkinson
Co-Chairman (CMOS)
Local Arrangements Committee

AES/DFO Science/CMOS Lecture Tour, 1986-87

At its 3 June 1986 meeting, the CMOS National Council approved Dr. David Farmer as the annual tour speaker for 1986-87. Dr. Farmer is a research scientist with the Department of Fisheries and Oceans at the Institute of Ocean Sciences, Sidney, B.C., and he will be speaking on a topic related to acoustic techniques in oceanography and meteorology. It is anticipated that Dr. Farmer will be visiting the thirteen CMOS Centres and Chapters between September 1986 and March 1987. This year the annual lecture tour is being funded by the Atmospheric Environment Service of the Department of the Environment and by the Science sector of the Department of Fisheries and Oceans, and is being organized by the CMOS.

CMOS CONGRESS RESOLUTION

The following resolution was passed by the membership at the 20ieth Congress held in Regina. The resolution concerns the Recommendations on Targeted Research Programs, Section: Atmospheric Environment Service, Environment Canada, to the Task Force on Program Review, by the Study Team on Education and Research.

The 20th Congress of the Canadian Meteorological and Oceanographic Society,

APPRECIATING the consistent effort by the AES in building up a strong meteorological community at Canadian Universities,

RECOGNIZING the cost-effective, efficient Canada-wide university programs for the professional training and education of meteorologists in research and applications at all levels and for the benefits of AES and other government and private sector employers,

NOTING the intimate relationship between research and the training and education of university students and the breakdown of professional training programs by reduction of research support and scholarship programs,

DEPLORES the substantial cut backs by the Department of the Environment of the Science Subvention Program for 1986/87 and the potential termination of all university science support by AES for 1987/88, as recommended to the Task Force on Program Review by the Study Team on Research and Education.

URGES the Minister of the Environment to support Canadian University meteorology at a level sufficient

- to continue as the nearly exclusive supplier of the new professional meteorological staff to AES at all levels,

- to carry out important, mission-oriented long-term research,

- to help build up the private sector capacity in Meteorology,

to maintain its important role in the interdependent activities of AES and its partners, and

- to deal with the many new atmospheric/environmental problems of substantial economic and societal impact, and

REQUESTS the Minister of the Environment to receive a delegation of the CMOS to discuss these interrelated problems in search for acceptable solutions.

CMOS PRIZES AND AWARDS 1986

Following the recommendation of the Prizes and Awards Committee the Executive presented prizes and awards as shown below at the 20ieth CMOS Congress.

THE PRESIDENT'S PRIZE

is awarded to

DR. HAN-RU CHO

For his masterful insight into the physics of the dynamical interaction of ensembles of cumulus clouds with the large-scale flow as demonstrated in the paper "Rates of Entrainment and Detrainment of Momentum of Cumulus Clouds" presented at the Annual Congress and subsequently published in Monthly Weather Review.

THE TULLY MEDAL

is awarded to

DR. W. CAMERON

In recognition of his contributions to the development of oceanography in Canada. Dr. Cameron was a leader in the establishment of federal research institutes in Bedford Nova Scotia, Burlington Ontario and Sidney B.C.

ANDREW THOMPSON PRIZE IN APPLIED METEOROLOGY

is awarded to

DR. JOHN E. HAY

In recognition of his outstanding contribution, over many years, to the study of radiation climatology, and in particular to the application of this work in the field of solar engineering.

THE APPLIED OCEANOGRAPHY PRIZE

is awarded to

DR. PAT CREAN

For his work on tidal flow in the Straits of Georgia and Juan de Fuca. Mr Crean's development work resulted in the production of a useful numerical model and as Atlas, both of which are used by mariners and researchers alike.

THE RUBE HORNSTEIN PRIZE IN OPERATIONAL METEOROLOGY

is awarded to

MR. MICHAEL J. LEDUC

For his outstanding achievements in the provision of timely and accurate weather warnings on three separate occasions of outbreaks of severe tornadoes in Southern Ontario during the summer of 1985.

GRADUATE STUDENT PRIZE

is awarded to

MR. B. BILODEAU

For excellence in the study of the physical processes underlying the formation and evolution of THERMOHALINE STAIRCASES. The understanding of such Staircases and the ability to accurately predict heat fluxes as a result of the development of a theoretical description of thermal convection have contributed significantly to the Science of Oceanography.

AN ENVIRONMENTAL CITATION

is awarded to

MRS. PAMELA GRAHAM

In recognition of her outstanding work and tireless efforts in developing community awareness of air quality issues in the Greater Vancouver area.

NEWSLETTER SUBMISSIONS

The following summarizes the publishing schedule for future issues of the Newsletter. The editor would appreciate receiving material in ELITE type print and set in columns of 13 cm width where possible.

REVISED DEADLINE FOR SUBMISSIONS

VOLUME AND ISSUE

AUG. 15, 1986	AUGUST VOL 14 NO.4*
SEP. 19, 1986	SEPTEMBER VOL 14 NO.5
DEC. 12, 1986	DECEMBER VOL 14 NO.6

* VOL 14 No.4 may be replaced with a membership list provided, agreement is given by members at the 1986 Annual General Meeting.

Submissions should be sent to:

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

phone: (902) 835-9534

CMOS MEMBERSHIP STATISTICS

Member Category	May 84	May 85	May 86
Regular	713	762	751
Student	82	91	96
Corporate/Sustaining	29	67	63
Life	1	1	1
Total	825	921	911

CMOS SUBSCRIPTION STATISTICS

	Members	Non-Members	Institutions	Total
A/O	489	4	220	713
C-B	220	10	130	369
CHINOOK	366	77	149	582
NEWSLETTER	911			911

* Membership numbers usually vary during the year with a peak occurring following the Annual Congress, this year the projected peak is 950 members.

ADVERTISING RATES - CMOS NEWSLETTER

The following rates are based on 8.5 X 11.5 inch (21.6 X 27.9 cm) black and white camera ready copy. Additional charges apply where typesetting, artwork, or photographic plates are required. Distribution per issue is approximately 1100.

RATES PER ISSUE:

Type of advertisement	Full Page	Half Page	1/4 Page
Commercial	\$150.00	\$80.00	\$50.00
Position Vacancy *	\$100.00	\$60.00	\$40.00
Employment Wanted (members only)	----- FREE -----		

* Discounts: Corporate and Sustaining members advertisements at the Position Vacancy rate.

Forward advertisements To:

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

GUIDELINES FOR CMOS SIGs 860529

1. SIGs are established and regulated under By-Law 6 of the CMOS constitution.
2. Each SIG will establish Terms of Reference to be approved by Council.
3. If the SIG has significant membership in a Centre, the Centre is encouraged to have SIG representatives on the executive of the Centre.
4. The SIG executive will be elected for a term of up to 3 years (By-Law 6(b)). This may coincide with a major activity of organizing a workshop or conference. Changes in the SIG executive will be reported to the Executive and published in the Newsletter.
5. The report submitted to the Corresponding Secretary by February 1 each year (by-law 6(d)) will include a report on activities for the previous calendar year, the current executive, plans for the current year, and any requests for a subvention or levy (by-law 6(e) & 6(f)).
6. SIGs are encouraged to sponsor workshops and conferences. Profits from such ventures will be split with the Society similar to the annual CMOS Congress. (The SIG will retain 10% of the profits, or more as agreed by Council.)
7. SIGs are encouraged to submit short articles to the Newsletter and to communicate with their members by the Newsletter. In addition, SIGs can establish their own newsletters for their particular specialization.
8. A listing of all SIG members will be provided to the chairman each May.
9. The SIGs will hold annual general meetings either during the annual CMOS Congress or during a SIG sponsored workshop.
10. The SIGs are encouraged to request the Scientific Program Committee to convene a special session for their area of interest at the annual Congress.

SPECIAL INTEREST GROUP IN OPERATIONAL METEOROLOGY TERMS OF REFERENCE

1. The Operational Meteorology SIG is subject to all of the Society's by-laws and SIG Guidelines.
2. The SIG Executive will normally be elected for a two year term to coincide with the major activity of organizing the Operational Meteorology Workshop.
3. Goals
 1. To promote and advance the operational aspects of the science of meteorology.
 2. To facilitate greater communication between groups involved in operational meteorology.
 3. To ensure wide participation in research and technological developments related to operational meteorology.
 4. To provide an organization for expressing concerns relating to operational meteorology.
 5. To encourage greater participation in CMOS activities.

4. Activities

1. Organize a Workshop on Operational Meteorology about every two years.
2. Assist in organizing special CMOS Congress sessions on Operational Meteorology.
3. Publish a newsletter at least once a year.
4. Draft and distribute position papers on current technical issues.
5. Maintain liaison with operational meteorology groups in Canada and other countries.
6. Prepare an annual report.

The OpMet SIG met recently at the Annual Congress in Regina. The meeting report will be distributed to OpMet SIG members in the near future. Congratulations are in order to Lou Legal and the Executives of the OpMet SIG and Winnipeg Centre, who worked long and hard in preparation for the very successful Operational Meteorology Workshop held last February.

CMOS Council approved transfer of the new OpMet SIG Executive to Halifax for the next two years. Halifax is now starting the process of organizing the Second Operational Meteorology Workshop, to be held early in October 1987. The theme of the workshop will be 'Marine and Maritime Meteorology'. A formal call for papers will be distributed this fall. Meteorologists may wish to start thinking now of possible papers or laboratory sessions that they would like to present.

The OpMet SIG Executive would like to distribute a newsletter to members at least every six months. We think it important for members to exchange ideas of both a technical and professional nature. Members are thus encouraged to submit now any articles, correspondence, announcements or notes of interest.

Jim Abraham
Chairman
Maritimes Weather Centre
1496 Bedford Highway
Bedford, N. S.
B4A 1E5

SCALING, FRACTALS
and
NONLINEAR VARIABILITY IN GEOPHYSICS
(FUNDAMENTALS AND APPLICATIONS)
25-29 AUGUST 1986
McGill University, Montreal

For further information contact:

D. Schertzer / S. Lovejoy
(NVAG Workshop)
Physics Department
McGill University
3600 University St.
Montreal, Que
H3A 2T8
Tel: (514) 392-5135, 4405

AES/CMOS OPERATIONAL METEOROLOGICAL WORKSHOP

Owen S. Lange
Pacific Weather Centre
Atmospheric Environment Service

The First AES/CMOS Operational Meteorology Workshop was held in Winnipeg on February 4-6, 1986 at the Fort Garry Hotel.

The program consisted of four invited theme speakers, a panel representing users of weather information, an AES panel on training and R&D priorities, two sessions of three concurrent laboratories, a poster session with 16 participants, and regular sessions consisting of 43 twenty minute presentations.

The Workshop was well attended. The Program and Local Arrangements Committees had originally planned for approximately 80 attendees, but registrations kept arriving. Since the facilities could only accommodate 130 participants, a few registrants had to be turned down.

Based on the attendance and the positive feedback from participants, the Workshop was very successful. The Operational Meteorology Special Interest Group is confident that AES will support similar workshops in the future. The Program Committee has recommended that the next Workshop be held in the autumn of 1987 in Halifax. It is proposed that the Workshop concentrate on the results from CASP.

In anticipation of the Second Operational Meteorology Workshop in Halifax, CMOS meteorologists in Halifax have volunteered to lead OpMet SIG for the next two years.

The program and Local Arrangements Committees are grateful to CMOS and AES for the support and encouragement provided in organizing the Workshop. The cooperation and assistance of the CMOS Executive; the CMOS Executive Director; AES, Weather Services Directorate; AES, Training Branch; the Canadian Forces Weather Service; and the many volunteers is especially acknowledged. However, the success enjoyed by the Workshop was mostly due to the energy and enthusiasm of its participants. Thanks to all!

Program Committees:

Louis Legal (Chairman)
John Bullas
Fraser Hunter
Carr McLeod
Mark Trueman
Charlie Wendell

Local Arrangements Committee:

Gerald Machnee (Chairman)
Jay Anderson
Susan Dunlop
Art Lamont
Bevan Lawson

INTRODUCTION

On the night of October 11, 1984 a seemingly disorganized and non-threatening weather system changed rapidly into a severe storm which battered the northern B.C. coastal waters causing considerable damage and loss of life. As a result of this storm Professor Paul LeBlond of the University of British Columbia was commissioned to investigate the adequacy of the west coast marine weather services for that particular storm. Following his study, Professor LeBlond suggested that fishermen and indeed all mariners needed improved marine weather information, including wave forecasts and earlier warnings of severe storms. One of Professor LeBlond's recommendations was that an international workshop should be held to explore the understanding and detection of explosive deepening lows.

It was in response to this last recommendation that the A.E.S. joined with the U.S. National Weather Service to hold the "Workshop on Oceanic Storms" on September 9-13, 1985, at the University of Washington in Seattle. This workshop brought together marine meteorologists from the coastal regions of the United States, including Alaska and Hawaii, and from both coasts of Canada.

The main objectives of this workshop were to review the current state of knowledge about rapidly deepening storms over the ocean, and to establish requirements for research and development into these phenomena.

Dr. Fred Sanders (Professor Emeritus, MIT), Dr. R. Reed (Univ. of Washington), Dr. Lance Bosart (State Univ. of New York, Albany), Mr. Harlan Saylor (Deputy Director, NMC) were the main lecturers. Cdr. K. Lilly Jr. (Marine Meteorologist, Marine Services Division, NWS Western Region), Dr. R. Fett (Naval Environmental Prediction Research Facility) and Mr. Peter Haering (Chief Meteorologist, PWC, AES) gave shorter presentations.

In order to study "Maritime bombs", the related mathematical and physical theories were reviewed, case studies were examined, and the results of the numerical models were considered. All the information gained from the above approach was then applied in a "hands-on" re-analysis of the "bomb" of October 11-12, 1984.

CONCLUSIONS FROM THE CASE STUDIES

Dr. Sanders began the workshop with a statement; "within the class of explosively deepening cyclones there is a small number which are very intense". The term "bomb" has been coined for such intense storms and is defined as a low at 60 degrees north latitude, which deepens 24 millibars in 24 hours. For lower latitudes a smaller rate ($24 \times \sin(\text{latitude}/\sin 60)$) was used. Thus at 50 degrees north latitude 21 millibars of deepening in 24 hours was the threshold value for a bomb. In order to be able to compare the intensity of various bombs, the term "Bergeron" was defined. A Bergeron is the ratio of the observed deepening divided by the threshold value of 24 mb/24 hours.

Dr. Sanders classified bombs into three categories depending on their rate of pressure fall - or Bergeron value: as weak bombs, 1.0-1.2 Bergerons: moderate bombs, 1.3-1.8 Bergerons: and strong bombs, greater than 1.8 Bergerons.

Numerous cases of explosive deepening were reviewed and discussed. Some common features of these bombs were given but unfortunately no definitive and final answers were available for the question "what separates the spectacular from the routine deepeners". The following features, however, were identified as common to most bombs:

- a) strong baroclinicity
- b) an associated jet stream with winds in excess of 140 kts
 - explosive deepening occurred when the disturbance passed northward beneath the jet stream axis and advanced to the forward side of the long-wave trough
- c) moisture laden air
 - in some cases they included remains of former tropical storms
- d) low static and symmetric stability
 - lifted index generally near zero
 - this allows for vigorous frontal uplift with rapid generation of cyclonic vorticity near the surface
 - resultant convective activity produces latent heat release
- e) sea surface temperature (S.S.T.)
 - over the Atlantic, development usually occurred as the low crossed to the cold side of a strong S.S.T. gradient
 - temperatures in these cases were about 15 degrees C
 - over the eastern Pacific, where there is not such a strong S.S.T. gradient this may not be as important a factor
- f) tropopause folding
 - associated subsidence of dry ozone rich stratospheric air which extended, in some cases, down to the 700-800 mb level
- g) high vorticity values associated
 - vorticity maximum moved quite rapidly, generally faster than 35 knots
 - vorticity is most effective for "spin up" when it occurs at fairly low levels of the atmosphere
- h) a moderate deepener which moves through an area preconditions the atmosphere so that the next low, the bomb, which moves through the same area can deepen further and more rapidly
- i) a tight warm inner core in the mature stage of the storm.

Satellite imagery was felt to be one tool which may prove essential in the detection of bombs, especially for those over the data sparse Pacific. At this workshop, however, no satellite expert was available, so only a few basic indications were given. An extensive cloud mass (a "head cloud") was often visible prior to rapid development and that the amount of convective activity increased in the vicinity of the warm front as the development took place. One complication was noted, however, that in some cases (such as the October 11-12, 1984 storm) where there is a small warm core, low level development can proceed without any change visible from above. It may therefore, go undetected by satellite imagery.

As might be expected the majority of bombs were found to occur during the Autumn and Winter months of the year. October was mentioned from one study over the northeastern Pacific as having the highest incidence of bombs while another study which looked at both the Atlantic and the eastern Pacific pointed to January as the most favoured month.

An old U.S. National Meteorological Centre rule of thumb was quoted for tropical storms which weaken and move northward and then go through explosive deepening: the extratropical storm, if it deepens, will fall to a value equal to the lowest depth of the original tropical cyclone.

THEORY

A number of physical and mathematical theories of the dynamics of explosively deepening lows were considered. Quasi-geostrophic assumptions were reviewed along with some of the basic vorticity and thermodynamic equations. The terms Q-vector and symmetric instability were introduced. The Q-vector is an alternative expression for representing the forcing of the vertical motion and as such links the vorticity and thermal terms of the Omega equation. Symmetric instability (sometimes referred to as slantwise convection) is a term which combines the effects of convective instability and inertial instability - thus is a combination of gravity and centrifugal forces which results in a "slantwise" motion.

NUMERICAL MODELS

In general, the numerical models will not likely, in the near future, be able to forecast a rapidly developing mesoscale feature. The longer range numerical prognoses (more than 36 hours) are more likely to forecast the bombs than are the shorter range prognoses. However, the models can forecast the situation in which the potential for a bomb can be recognized. Extremely rapid surface pressure falls which occur in explosively deepening lows will be rejected by the model because its upper air field will not be able to support this change in pressure. The initialization of the model will therefore miss the beginning of the deepening phase of the low. Harlan Saylor, however, suggested that due to the complexity of the models it is still very difficult to assess the relative merits of the numerical output by the initial data alone.

LABORATORY

The latter half of each afternoon was spent re-analyzing the storm of October 11-12, 1984. It was an eye opening exercise to realize that with over 35 participants that even the correct analysis of this situation was a debate never mind the almost imponderable decision of saying when this known "bomb" was going to begin its rapidly deepening phase.

FUTURE DIRECTIONS

This workshop was valuable not only for outlining what is known about bombs but also for making it apparent how much more needs to be learned before we can reliably forecast the bomb.

Considerable research and development is required. The research must: investigate the mechanisms of the bombs; learn to separate the features which occur in ordinary deepening lows from those which deepen explosively; and arrive at various signatures, (e.g. satellites), which can be used to recognize the bomb.

Subsequent to the workshop, a checklist for evaluating the potential for a bomb has been developed for the western Atlantic. This needs to be evaluated and modified if necessary. An equivalent checklist, or some similar technique, must be developed for the eastern Pacific.

The need was mentioned for a second workshop on "bombs" in order to enhance and extend the understanding of the phenomena that was introduced in this first workshop.

The WMO/ICSU World Climate Research Programme is moving ahead with the Tropical Oceans and Global Atmosphere (TOGA) Programme into its second year and the International Satellite Cloud Climatology Programme continuing. Recently the first informal Intergovernmental Planning Meeting was held in Geneva (May 12-16, 1986). About 25 nations were represented and considerable progress was made towards establishing the other components of the WCRP. P.J. Pender, Canadian Climate Centre, Downsview and Dr. C.R. Mann, Institute of Ocean Sciences, Sidney, were the Canadian representatives.

Many Canadian scientists have played a role in developing the plans for the SCRP. Dr. G.A. McBean, AES, Sidney, has been a member of the Joint Scientific Committee (JSC) for the WCRP since April 1984 and was recently elected Vice-Chairman of the Working Group on Numerical Experimentation and Dr. J.F.R. Gower, IOS, Sidney, is a member of the Working Group on Satellite Observing Systems for Climate Research. Dr. McBean is also a member of the JSC's Scientific Steering Groups on Sea and Climate and Land Surface Processes and Climate. AES, Downsview is the GOES-E sector processing centre for the ISCCP.

The oceanographic components of the WCRP are primarily the responsibility of the IOS/SCOR Committee on Climate Changes and the Oceans (CCCO). Dr. R.W. Stewart of the Alberta Research Council is the Chairman of CCCO. Dr. G.T. Needler of BIO has been appointed the Director of the WOCE International Project Office, now established at IOS, Wormley, United Kingdom. Dr. A. Longhurst of BIO is the CCCO Biological Aspects rapporteur. Numerous other scientists have been active at expert meetings, in committees or as consultants.

The following article is published for the interest of NEWSLETTER members and does not imply an endorsement by the CMOS Executive of the cause expressed therein.

Needed: Help for Oppressed Scientists

In some places, scientists who are in disfavour are subjected to a sort of scientific strangulation. They may be blocked from contact with colleagues at home and abroad; they may be barred from libraries and laboratories; scientific articles mailed to them may be intercepted.

Professor Julien Heicklen of the Department of Chemistry, Pennsylvania State University, University Park, PA 16802, on behalf of the American Physical Society (and with the cooperation of the New York Academy of Science and the Committee of Concerned Scientists, Inc.) has organized a tremendous effort to help such scientists.

He calls for volunteers to correspond with them. Such correspondence may help to save a colleague from demoralization and despair.

If you are willing to help, write to Professor Heicklen or to me and say what your scientific interests are. You will be given the name and address of an oppressed colleague of similar interests and you will receive guidance on how to conduct correspondence.

Israel Halperin
Department of Mathematics
University of Toronto
Toronto, Ontario
M5S 1A1
Canada

At the beginning of February Prime Minister Brian Mulroney announced the appointment of Dr. Arthur W. May to the post of President of the Natural Sciences and Engineering Research Council of Canada (NSERC).

Dr. May was born in St. John's, Newfoundland on June 29, 1937. He studied at Memorial University of Newfoundland and at McGill University, where he obtained a Ph.D in Marine Sciences.

In 1958, Dr. May joined the scientific staff of the Fisheries Research Board in St. John's. During his subsequent career in the Public Service he held various positions in Environment Canada and in the Department of Fisheries and Oceans in St. John's and Ottawa. He served as the Director of the Biological Station in St. John's, Newfoundland (1973-75), Director General, Research and Development (1975) and Director General, Resources Services (1974-78).

In 1978, Dr. May was appointed Assistant Deputy Minister in the Department of Fisheries and Oceans. He subsequently served on the Task Force on Atlantic Fisheries, and in October of 1982, he was appointed Deputy Minister of the Department. On January 2, 1982 he was appointed Senior Advisor to the Privy Council Office.

During his Public Service career Dr. May has served as a Vice-President of the International Council for the Exploration of the Sea, and as the first President of the Northwest Atlantic Fisheries Organization. He has published a number of scientific papers on marine resources. In 1983, he was named Alumnus of the Year by Memorial University.

FOREST CLIMATE '86

SYMPOSIUM/WORKSHOP ON CLIMATE APPLICATIONS IN FOREST RENEWAL AND PRODUCTION

This fourth SYMPOSIUM/WORKSHOP on FOREST CLIMATOLOGY AND FOREST METEOROLOGY sponsored by the Canadian Forestry Service, Atmospheric Environment Service, and the Ontario Ministry of Natural Resources will be held at the Geneva Park Conference Centre, Orillia, Ontario, November 17-20, 1986. The format will emphasise the importance of climatic impacts and applications on operational forest management problems. The first and second days are organized around invited speakers addressing the role of climate in forest renewal, forest production and forestry economics. The third day will consist of concurrent one-hour workshops designed to demonstrate the climatic techniques and products available to the forestry community.

Persons wishing to contribute to poster sessions should contact the symposium coordinator for specifics by September 15.

For further information on the symposium, registration and poster contributions contact:

Dr. Allan Auclair
Climate Symposium Coordinator
Federal LRTAP Liaison Office
Environment Canada
4905 Dufferin Street
Downsview, Ontario
M3H 5T4
Tele: (416) 667-4803
Telex 06-964582

NEW CMOS MEMBERS APPROVED
AT
EXECUTIVE MEETING 25th MARCH, 1986

Dr. E. Goldberg (Regular Member)	Willowdale, Ont.	Toronto
M. Denis Dube (Regular Member)	Richmond, B.C.	B.C. Mainland
Geo-Met Instruments, Inc. Attn: Mr. Cyril E. Mosher (Corporate Member)	Kentville, N.S.	Halifax
Mr. Les Magura (Regular Member)	Winnipeg, Man.	Winnipeg
Mr. Douglas G. Mercer (Student Member)	St. John's, Nfld.	Newfoundland
Mr. Bruce Thomson (Regular Member)	Leduc, Alberta	Alberta
Mr. Ray Roche (Student Member)	Mt. Pearl, Nfld.	Newfoundland
Godek Developments Inc. Attn: Mr. Keith Godden (Corporate Member)	Sidney, B. C.	Vancouver Island
Mr. Christopher Ewing (Regular Member)	Edmonton, Alberta	Alberta
Dr. Andrew Gillam (Regular Member)	Sidney, B.C.	Vancouver Island
Dr. Willard J. Jr. Pierson (Regular Member)	West Hempstead New York, U.S.A.	
M. Nelson Belzile (Student Member)	Rimouski, Que.	Rimouski
Dr. Jean-Claude Br thes (Regular Member)	Rimouski, Que.	Rimouski
Mr. John Criswick (Student Member)	Vancouver, B.C.	B.C. Mainland
Martec Ltd. Attn: Dr. James L. Warner (Corporate Member)	Halifax, N.S.	Halifax
Mr. Pietro de Bastiani (Regular Member)	Ottawa, Ont.	Ottawa
M. Guy Fenech (Regular Member)	Bramalea, Ont.	Toronto
Mr. Denis Gilbert (Student Member)	Halifax, N.S.	Halifax
Mr. Norman U. McLellan (Student Member)	Regina, Sask.	Saskatchewan
Mrs. Irene Rubinstein (Regular Member)	North York, Ont.	Toronto
Dr. Joseph T. Schaefer (Regular Member)	Kansas City, Mo. U.S.A.	

Mrs. Evelyn E. Wilson (Regular Member)	Toronto, Ont.	Toronto
Mr. Keith Barr (Member)	Fredericton, N.B.	New (Regular Brunswick
Mr. Michael Leduc (Regular Member)	Brampton, Ont.	Toronto

NEW CMOS MEMBERS APPROVED
AT
EXECUTIVE MEETING 5th MAY, 1986

NAME	ADDRESS	CENTRE
Mr. G. Toth (Regular Member)	Montreal, Que.	Montreal
Ms. Helen Cleugh (Student Member)	Vancouver, B.C.	B.C. Mainland
Mr. F.E. Roy (Regular Member)	Burlington, Ont.	Toronto
Dr. Ron Hadlock (Regular Member)	Richland, Wa. (U.S.A.)	
Dr. Louis A. Hobson (Regular Member)	Victoria, B.C.	Vancouver Island
Dr. Lianne M. Dwyer (Regular Member)	Ottawa, Ont.	Ottawa
MET-TECH Services Reg'd Attn: Mr. M.J. Laws (Corporate Member)	Montreal, Que.	Montreal
Mr. Colin Old (Student Member)	Ottawa, Ont.	Ottawa
Mr. Larry T. Winstone (Regular Member)	Edmonton, Alberta	Alberta

NEW CMOS MEMBERS APPROVED
AT
EXECUTIVE MEETING 2nd JUNE, 1986

MacLaren Plansearch Ltd. Attn: Mr. Simon G.P. Skey (Corporate Member)	Halifax, N.S.	Halifax
Mr. Gerard Croteau (Regular Member)	Gander, Nfld.	Newfoundland
Mr. Mark Mac Neil (Student Member)	Halifax, N.S.	Halifax
Dr. P.B. Crean (Regular Member)	Vancouver, B.C.	B.C. Mainland

STUDENTS WIN CMOS AWARDS

The following photos depict the winners of the CMOS prizes in meteorology and oceanography at this year's Silver Anniversary Canada-Wide Science Fair in Calgary. Mr. Jason Edworthy, employee of ARTEC CANADA and CMOS member from Calgary, presented the awards on behalf of CMOS.



Shown above is Mr. Darren Mink of Pelican Rapids, MB receiving the award for "Best in Meteorology" for his project "Manipulating Snow Drifting".



Shown above is Sarah Ahmad of Deep River, ON who received the award for "Best in Oceanography" for her project entitled "The Feather Solution".



Shown above is Mr. Ted Sheridan of Sarnia, ON who received "Honorable Mention in Meteorology" for his project entitled "EMISIM: Dispersion of Airborne Effluent".

OTTAWA REGIONAL SCIENCE FAIR

The 25th Ottawa Regional Science Fair was held at the National Museum of Science and Technology the 11-13th of April, 1986. This year's fair was judged by Ross Armstrong, Harold Austin, Langley Muir and Leo O'Quinn of the Ottawa Chapter. The first place trophy, along with a cheque for \$75.00, was awarded to Kimberly Garritty of St. Patrick's Junior School for her project on "RAIN AND A TROPICAL FOREST". A honorable mention, and a subscription to Chinook was awarded to Benjamin Schonfeld and Alan Becke for their project entitled, "WIND CURRENTS AROUND BUILDINGS". As usual, the quality of the exhibits was very high, giving the judges some difficulty in deciding which were most worthy. There were only a few projects which contained an explicit oceanographic or meteorological component and this suggests that the CMOS members should be giving more encouragement to these young people. After all, it is today's science fair exhibitors who will be tomorrow professionals.

THE CERTIFICATE PROGRAM IN DIGITAL REMOTE SENSING AT THE UNIVERSITY OF WATERLOO

The Certificate Program in Digital Remote Sensing at the University of Waterloo is held in cooperation with the Ontario Centre for Remote Sensing. Two Certificate courses are offered. Each is equivalent to a senior undergraduate semester course and upon successful completion of the academic requirements a Certificate authorized by the Dean of the Faculty of Environment Studies is given.

The first Certificate course is scheduled for the five day period from November 3 through 7 of 1986. The prerequisite is demonstrated knowledge of air photo interpretation. The focus is on an introduction to the principles of digital image analysis of Landsat imagery through "hands-on" work with a Thematic Mapper subscene on a DIPIX image analysis workstation. The class is limited to groups of five per workstation so that there is opportunity for each attendee to gain experience with the implementation of procedures. These procedures include enhancements, unsupervised and supervised classification, geometric correction, postclassification clustering and map generation.

This will be the fourth year that this course has been offered. Last fall, five attendees took part at the University of Waterloo under the direction of Dr. Ellsworth LeDrew and five attendees worked with Dr. Paul Howarth at OCRS in Toronto. They came from such diverse backgrounds as the Ice Branch of the Atmospheric Environment Service, Aviation and Fire Management of the Ministry of Natural Resources, and Trent University.

The second course is offered every other year and the prerequisite is the first course. The emphasis is upon experimental design and ground confirmation in a Remote Sensing project. For two of the five structures developed in the first course the concepts of the effective sampling design and the difficulties of confirmation of image information are introduced. For the rest of the courses, the information is used to update the classification on the DIPIX workstation at the University of Waterloo and estimate the accuracy of the analysis. This course is scheduled for the last week in June of 1988.

For further information on the program, please contact:

Dr. Ellsworth LeDrew, Program Director
Department of Geography
University of Waterloo
Waterloo, Ontario N2L 3G1
(519) 885-1211, ext 2783

***** POSITION WANTED *****

OTTAWA GRADUATE: MASTERS IN POLITICAL GEOGRAPHY
B.SC. IN BIOLOGY

BILINGUAL: (RECENTLY RETURNED FROM 1 YEAR WORKING IN FRANCE)

WORK EXPERIENCE WITH: THE NATIONAL HISTORIC ATLAS
AND THE FEDERAL GOVERNMENT

INTERESTS INCLUDE: WEATHER SYSTEMS AND PLATE TECTONICS

PLEASE CONTACT: MR. COLIN OLD
294 FIRST AVE.
OTTAWA
TEL. (613) 234-1374

NOTICE AND CALL FOR PAPERS

INTERNATIONAL WORKSHOP ON WAVE HINDCASTING AND FORECASTING
HALIFAX, NOVA SCOTIA SEPTEMBER 23-26, 1986

An international workshop on wave hindcasting and forecasting sponsored by the Environmental Studies Revolving Fund (ESRF) will be held at the Bedford Institute of Oceanography from September 23 to 26, 1986. (ESRF is a program jointly administered by the Departments of Energy, Mines and Resources, and Indian Affairs and Northern Development).

The objectives of the workshop are to:

- review relevant ESRF funded work
- exchange information on wave hindcasting/forecasting research
- discuss priorities for future ESRF funding

Papers are solicited on both the research and operational aspects of wave hindcasting and forecasting. It is expected that there will be sessions on the following topics:

- a) operational forecasting
- b) hindcasting procedures/ storm selection
- c) non-spectral properties
- d) Canadian Atlantic Storms Project (CASP)
- e) data collection and instrumentation
- f) physical modelling
- g) user requirements (in design and operations)
- h) extreme wave determination

The program will consist of invited as well as contributed papers. As well, space will be available for a limited number of displays and posters.

Those wishing to present a paper should submit a title and abstract (100-300 words). Each abstract should contain the author's name, mailing address and telephone number. Those wishing to participate in the poster session should provide a description of their display including space requirements.

Address correspondence to:

LEM Ltd.
P.O.Box 5540
St.John's NF
A1C 5W4
Attention: B.R. LeDrew
Telephone (709) 754-2922

Persons interested in attending and receiving a program brochure should write to the above address. The deadline for receipt of abstracts and display requests is 18 April 1986. Acceptance will be confirmed by 19 May 1986. Final manuscripts must be received by 22 August 1986.

IAHS at IUGG, Vancouver 1987

XIX General Assembly of the International Union of Geodesy and Geophysics.

9-22 August 1987, Vancouver, British Columbia, Canada.

ANNOUNCEMENT

The International Union of Geodesy and Geophysics (IUGG) will hold the XIX General Assembly on campus of the University of British Columbia, Canada, from 9-22 August 1987.

The principal aim of the International Association of Hydrological Sciences (IAHS) General Assembly is to promote the advancement of the hydrological sciences, to review the newest developments in a few selected fields and also to outline new directions for future research.

IAHS SYMPOSIA:

- S1: Large Scale Effects of Seasonal Snow Cover.
- S2: Forest Hydrology and Watershed Management.
- S3: The Influence of Climatic Changes and Climatic Variability on Hydrological Regimes and Water Resources.
- S4: Irrigation and Water Allocation.
- S5: The Physical Basis of Ice Sheet Modelling.

IAHS WORKSHOPS:

- W1: Methods of Runoff and Streamflow Simulation Applied to Various Physiographic and Climate Conditions.
- W2: Spatial Variability and Representativeness of Hydrogeological Parameters.
- W3: Estimation of Areal Evapotranspiration.
- W4: Remote Data Transmission.
- W5: River Ice.
- W6: Erosion and Sediments Transport.
 - a) Debris Torrents.
 - b) Erosion and Sediment Transport Resulting from Volcanic Eruptions.
 - c) Morphological Measurements of Sediment-Transport.
 - d) Fluvial Transport of Sediment-Associated Nutrients and Contaminants.
- W7: Hydrological Sciences in Developing Countries.
- WB: Estimation of Natural Baseline Conditions as a Basis for Detecting Changes in Water Quality.

Any enquiries relating to IAHS at the General Assembly or requests for a copy of the Second Circular should be addressed to:

Dr. G.J. Young
National Organizing Committee Chairman
CNC/IAHS, Inland Waters Directorate
Environment Canada
Ottawa, Ontario
Canada, K1A 0E7

Tel: (819) 997-1487
Telex: 053-3188 Env HQ Hull

IAHS SYMPOSIUM ON
FOREST HYDROLOGY AND WATERSHED MANAGEMENT
Vancouver, August 9-22, 1987

A four and one-half day symposium on "Forest Hydrology and Watershed Management" will be held as part of the International Association of Hydrological Sciences program at the International Union of Geodesy and Geophysics XIX General Assembly in Vancouver, British Columbia, Canada, during the period 9-22 August 1987. The format for the symposium will be nine one-half day sessions, each with six oral and six poster presentations. Most of the presentations will be contributed papers. It is anticipated that sessions will be scheduled during both weeks of the Congress.

Our principal objective for this symposium is to determine who has tried to apply existing knowledge to the solution of land use problems. We are not so much interested in the success of that trial as in the reasons for its success or failure. We anticipate that this symposium's proceedings will serve as a guide to research or developments that need to take place in order to develop a practice of watershed management.

Both oral and poster papers will be presented during the symposium. Each poster paper author will be given five minutes before the general symposium audience to develop interest in his presentation. Both kinds of papers will be prepublished in the proceedings; oral papers will be allowed 8 pages, posters 4 pages.

The principal theme topics are:

- 1) Case studies of applied watershed management in areas where woody vegetation and trees, whether commercial or not, are a major factor in the hydrology of the watershed.
- 2) Studies relating use of, or attempts to use, hydrological models to extrapolate research results.
- 3) Reports of the effects of forests on the chemistry and quality of runoff from catchments receiving acid precipitation.
- 4) Studies of the hydrological processes either influenced by or that have an influence on woody vegetation.

The conveners for this symposium are: R.H. Swanson, Canadian Forestry Service, Canada; H.M. Keller, Swiss Federal Institute of Forest Research, Switzerland; and A.J. Pearce, Forest Research Institute, New Zealand.

If you are interested in presenting either an oral or poster paper at this symposium, please send an extended abstract in English or French to:

Dr. R.H. Swanson, Principal Convener
IAHS Symposium on Watershed Management
Northern Forestry Centre
5320 - 122 Street
Edmonton, Alberta, CANADA T6H 3B5

with a copy to:

Dr. Gordon Young
CNC/IAHS, Inland Waters Directorate
Environment Canada
Ottawa, Ontario, CANADA K1A 0E7

before 15 May 1986. Please indicate whether for oral or poster presentation. Authors will be notified of acceptance by 15 August 1986, and full papers must be received by 30 November 1986.

IAHS Workshop on "Spatial Variability and Representativeness of Hydrogeological Parameters"

IUGG General Assembly, Vancouver, Canada

August 1987

A one-day workshop on "Spatial Variability and Representativeness of Hydrogeological Parameters" will be held as part of the IAHS program at the IUGG General Assembly in Vancouver, Canada during the period August 9-25, 1987. The exact date of the workshop will be announced at a later time.

The objective of the workshop is to examine the effects of spatial variability of hydrogeological parameters on groundwater flow, mass transport, and rainfall-runoff processes; in particular, to look at geostatistical or stochastic approaches in real-world applications.

The conveners of the workshop are: R. Allen Freeze of the University of British Columbia, Vancouver, Canada; G. de Marsily of the Ecole des Mines, Fontainebleau, France; and S. Gorelick of the U.S. Geological Survey, Menlo, U.S.A.

The format for the workshop will include presentations by invited theme speakers, contributed presentations, poster papers, and discussion periods. These will be four 1 1/2 - hour sessions, each treating a separate theme within the overall topic of Hydrogeological Variability. The themes are:

- (1) Relationships between geostatistical theory and hydrogeological reality.
- (2) Influence of hydrogeological variability on mass transport in fractured rock.
- (3) Influence of spatial variability of surface hydrogeological properties on the predictions of rainfall-runoff processes.
- (4) Applications to aquifer analysis and the inverse problem.

A set of abstracts will be made available to participants at the workshop, but there will be no formal proceedings publication. Authors will be encouraged to publish their papers in the IAHS Hydrological Sciences Journal.

Abstracts are solicited on any aspect of the workshop topic. The conveners are especially interested in the results of field measurement programs and in real-world applications of theoretical results or computer simulations. If you are interested in presenting an oral or poster paper at the workshop, please send a typed, single-spaced abstract of not more than one page before November 30, 1986 to the principal convener:

Dr. R. Allen Freeze
Department of Geological Sciences
University of British Columbia
Vancouver, B.C.,
Canada, V6T 2B4

For general information on IUGG matters, including registration, housing, and fees, contact:

Dr. G.J. Young
CNC/IAHS, Inland Waters Directorate
Environment Canada
Ottawa, Ontario
Canada, K1A 0E7

First Announcement and Call for Papers

INTERNATIONAL SYMPOSIUM ON COLD REGIONS HEAT TRANSFER

June 4-6, 1987

University of Alberta, Edmonton, Alberta, Canada

Objectives and Topics:

During the past twenty-five years, considerable progress has been made in cold regions (Arctic) engineering due mainly to natural resources development in the Arctic regions. The subject of heat and mass transfer is of basic importance to cold regions engineering and is characterized by multiple-disciplinary approach.

The purpose of this conference is to provide a forum for the review and dissemination of recent scientific and technical information related to all aspects of heat transfer in cold climates. A general review of progress during the past quarter century should be of considerable value as furnishing a point of departure from which progress during the coming decades may be measured.

The conference is co-sponsored by the American Society of Mechanical Engineers and the Division of Building Research, National Research Council Canada. Invited lectures on historical review and state of the art reviews in cold regions heat transfer will precede each technical session. The conference will be organized in conjunction with the Canadian Congress of Applied Mechanics, May 31-June 4, 1987.

The topics include:

1. Numerical and analytical methods for freezing and thawing.
2. Heat transfer problems relating to permafrost and soils.
3. Thermal engineering of structures in cold regions.
4. Natural and artificial heat transfer phenomena for ice in water, air, earth and life.
5. Heat transfer problems in engineering construction.
6. Human response to extreme conditions.
7. Energy utilization and conservation in cold regions.
8. Other heat transfer phenomena in cold regions.

Time Schedule and Publication

Three copies of a 500-word abstract	Oct. 15, 1986
Notification of abstract acceptance	Oct. 25, 1986
Five copies of complete manuscript	Dec. 5, 1986
Reviews returned to author(s)	Jan. 10, 1987
Final manuscript, typed on mats, due	Feb. 10, 1987

The papers will be reviewed in accordance with ASME policies and published in a bound volume by ASME. Inquiries, abstracts, and manuscripts should be sent to either:

Dr. V.J. Lunardini
U.S. Army Cold Regions Research
and Engineering Laboratory
72 Lyne Road
Hanover, NH
03755-1290 U.S.A.
(603) 646-4326

Prof. K.C. Cheng
Dept. of Mechanical Engineering
University of Alberta
Edmonton, Alberta
Canada T6G 2G8
(403) 432-3638

Symposium Advisory Committee:

K.C. Cheng, Edmonton
L.E. Goodrich, Ottawa
V.J. Lunardini, Hanover
N. Seki, Sapporo
J.P. Zarling, Fairbanks

4th International Congress on the History of Oceanography

Hamburg, September 23-29, 1987

Marine science has reached a stage where studies of its origins and development promise to be informative, useful and rewarding. The interest of scientists in such topics has been focused in a series of international congresses on the history of oceanography. These Congresses started 1966 in Monaco and offered contributions by oceanographers and historians as well.

The aim of the 4th Congress is to consider the historical development of marine sciences not only in all of its scientific facets but also in its relation to certain general issues, such as education, culture, economics, politics, law of the sea and other human affairs. Therefore, it will be mainly concerned with the following topics:

- National Contributions
- International Cooperation
- Examples of and Experiences in Interdisciplinary Research
- Economic Aspects and their Influence on Marine Science

The organizer of the Congress is the German Society of Marine Research together with the marine research institutions of the Federal Republic of Germany.

The Congress is internationally supported by UNESCO, ICES, SCOR, IAPSO, IABO and by the International Union of the History and Philosophy of Science.

The deadline for submission of contributions (abstract) is September 30, 1986. They should be mailed to the address below.

For further information please contact:

Deutsche Gesellschaft für Meeresforschung
- ICHO IV -
Bundesstr. 55
D-2000 Hamburg 13
Fed. Rep. Germany

Tel. (040) 41234523

MacLaren Plansearch

MARINE METEOROLOGISTS

POSITIONS ARE OPEN FOR OPERATIONAL METEOROLOGISTS/FORECASTERS IN MacLAREN PLANSEARCH'S WEATHER CENTRE IN HALIFAX, NOVA SCOTIA.

CANDIDATES SHOULD BE AT AES MT-3 OR ABOVE

ADDITIONAL POSITION FOR RESEARCH METEOROLOGIST WITH SOME OPERATIONAL CAPABILITIES IS ALSO REQUIRED. CANDIDATES SHOULD BE AT AES MT-5 OR ABOVE.

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REPLY BY JULY 21, 1986 TO:

SIMON G. P. SKEY
GENERAL MANAGER
MacLAREN PLANSEARCH LIMITED
SUITE 701, PURDY'S WHARF TOWER
1959 UPPER WATER STREET
HALIFAX, NOVA SCOTIA
B3J 3N2

POSITION VACANT

The University of British Columbia Department of Oceanography NSERC University Research Fellowships. Applications are invited from suitably qualified candidates for NSERC University Research Fellowships to be held in the Department of Oceanography. Applications from all disciplines in marine science will be considered. We are especially interested in candidates having training and experience in:

1. The molecular aspects of marine microbiology.
2. Marine meteorology and/or climatology.

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

Dr. S. Pond, Acting Head,
Department of Oceanography,
The University of British Columbia,
Vancouver, B.C.
Canada,
V6T 1W5

COMING EVENTS

DARTMOUTH NOVA SCOTIA	Sep 23 1986 - Sep 26 1986	INTERNATIONAL WORKSHOP ON WAVE HINDCASTING AND FORECASTING
U. OF WATERLOO WATERLOO, ONTARIO	Nov 3 1986 - Nov 7 1986	CERTIFICATE PROGRAM IN DIGITAL REMOTE SENSING
VANCOUVER, B.C.	Aug 9 1987 - Aug 25 1987	IAHS WORKSHOP ON "SPATIAL VARIABILITY AND REPRESENTATIVENESS OF HYDROGEOLOGICAL PARAMETERS" (IUGG GENERAL ASSEMBLY)
ORILLIA, ONTARIO	Nov 17 1986 - Nov 20 1986	FOREST CLIMATE '86: SYMPOSIUM/WORKSHOP ON CLIMATE APPLICATIONS IN FOREST RENEWAL AND PRODUCTION
MCGILL UNIVERSITY, MONTREAL, QUEBEC	Aug 25 1986 - Aug 29 1986	SCALING, FRACTALS AND NONLINEAR VARIABILITY IN GEOPHYSICS (FUNDAMENTALS AND APPLICATIONS)
LINDAU, (FEDERAL REPUBLIC OF GERMANY)	Apr 6 1987 - Apr 10 1987	SIXTEENTH NATO/CCMS INTERNATIONAL TECHNICAL MEETING ON AIR POLLUTION MODELLING AND ITS APPLICATION
CALGARY, ALBERTA CANADA	Oct 28 1986 - Oct 31 1986	THIRD ANNUAL ARTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION
U. OF ALBERTA EDMONTON, CANADA	Jun 4 1987 - Jun 6 1987	INTERNATIONAL SYMPOSIUM ON COLD REGIONS HEAT TRANSFER
VANCOUVER, B.C.	Aug 9 1987 - Aug 22 1987	XIX GENERAL ASSEMBLY OF THE INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS
VANCOUVER, CANADA	Aug 9 1987 - Aug 22 1987	IAHS SYMPOSIUM ON "FOREST HYDROLOGY AND WATERSHED MANAGEMENT IUGG GENERAL ASSEMBLY

Walter F. Hitschfeld

1922 - 1986

Walter Hitschfeld, Professor of Meteorology at McGill University and past President of the Canadian Meteorological Society, died on May 28, 1986.

Born in 1922 in Vienna, Hitschfeld moved to England before World War II in hope of completing his schooling there. Though classified as a "refugee from Nazi oppression," he was interned and, with other youngsters, was shipped to Canada in May 1940. At an internment camp in Farnham, Quebec, he was accepted into an improvised school organized by faculty members of McGill University. He was among the group who did so well in the courses that sponsors were found for their early release. He was thus able to attend the University of Toronto, where he was awarded a bachelor's degree in Engineering Physics in 1946, the same year he became a Canadian citizen.

After working briefly as a physicist at the Defence Research Board on Ottawa, Hitschfeld entered the graduate physics program at McGill and decided early to specialize in atmospheric physics. As one of the first student members of the Stormy Weather Group, directed by Dr. J.S. Marshall, Hitschfeld made many contributions to laboratory cloud physics and the development of radar meteorology as a discipline. His Ph.D. thesis of 1950 was on the collision and coalescence of water droplets, a subject that is still at the center of cloud physics.

Dr. Hitschfeld was appointed Lecturer in physics at McGill in 1951, continued as a core member of the Stormy Weather Group, and subsequently advanced through the academic ranks. A charter member of the Department of Meteorology when it was formed in 1959, he was honored with the Canada Steamship Lines Chair in 1962, and served as Chairman of Meteorology from 1963 to 1967.

Hitschfeld made his mark in several different areas of research during this time. The work on drop coalescence was published in 1951 as a joint paper with his close friend and fellow student Kenrick Gunn. With Marshall and P.R. Wallace, he contributed to the definitive pair of papers on radar signal fluctuations in the Canadian Journal of Physics of 1953. Other landmark contributions were the studies of Alberta hailstorms with R.H. Douglas and the calculations of infrared radiative transfer with J.T. Houghton, following an extended visit at Oxford University. Three of his papers up to 1964 earned First Dorton Prizes of the Royal Meteorological Society.

With his reputation established as a leading atmospheric scientist, Hitschfeld became increasingly recognized for his wisdom, diplomacy, and administrative ability. There were more and more calls for his advice and assistance, from within McGill and beyond. In 1967 he accepted the position of Vice - Dean for Physical Sciences. Universally admired for his judgement and fairness, he was chosen in 1971 to fill the newly created position of Dean of Graduate Studies and Vice - Principal (Research). In this position he was an effective advocate at the national level for science education and the need for adequate research funding.

Dr. Hitschfeld served on many national and international committees, including those of the Canadian Meteorological and Oceanographic Society, the National Research Council of Canada, the World Meteorological Organization, and the American Meteorological Society. He was Member and Chairman of the NRC Committee on Meteorology and Atmospheric Science from 1966 to 1969; President of the International Commission on Cloud Physics of the International Association of Meteorology and Atmospheric Physics from 1975 to 1984; President of the Canadian Meteorological Society in 1973-74. He was active on many editorial boards. He will be remembered for organizing the International Conference on Cloud Physics in Tallinn, Estonia, in August 1984. Fluent in German, English, and French, he was one of Canada's most effective science ambassadors.

Among many honours and awards, Dr. Hitschfeld was elected Fellow of the American Meteorological Society in 1968 and Fellow of the Royal Society of Canada in 1978. He was awarded the Patterson Medal of the Atmospheric Environment Service in 1978.

In 1980 Dr. Hitschfeld resigned from his administrative position at McGill and took a sabbatical leave to bring himself up-to-date in cloud physics and weather modification. The time was divided between the Convective Storms Division of the National Center for Atmospheric Research in Boulder and the Laboratoire Associe de la Meteorologie Physique, in Clermont-Ferrand. With a characteristic sense of responsibility, he had remained committed to the challenge of weather modification during the time of its vicissitudes. While helping the world to understand the severe limitations of cloud seeding, he continued to advocate the scientific pursuit of its possibilities.

Returning to McGill in 1981, and in addition to his duties in the Department of Meteorology, Dr. Hitschfeld accepted the directorship of McGill International, the campus office devoted to improving relations between the McGill community and appropriate institutions and individuals in the Third World. His efforts led to many exchanges of students and staff members and to McGill-directed research and engineering projects abroad. He probably regarded these accomplishments as just as important for the ultimate benefit of mankind as earlier contributions in atmospheric science. He resigned from this position in June 1985 and was honoured afterwards for his four years of unflagging leadership at a reception in McGill's Redpath Hall attended by more than two hundred friends and admirers.

Although Dr. Hitschfeld was battling cancer for the last year, he continued to serve McGill and the scientific community. He taught the large course in introductory meteorology in the winter term. He was active as a Trustee of the University Corporation for Atmospheric Research and a Councilor of the American Meteorological Society. His main project was to lay the groundwork for a Montreal-based, collaborative institute for mesoscale meteorology that would bring together meteorologists from the Atmospheric Environment Service, the University of Quebec, and McGill. Although the future of this project is now uncertain, the concept of the institute is a tribute to his vision and scientific leadership.

Friends of Walter Hitschfeld will remember him for his wit, wisdom, and civilized urbanity. Whether in the midst of a conversation on science, literature, or politics, or riding his little tractor at the Eastern Townships farm that he and his wife, Irma, enjoyed so much, his zest for life was compelling. Even in his final weeks he maintained a buoyant attitude and continued to thrive on intellectual excitement. A grievous loss to Canada and the world is the passing of so great a spirit. He is survived by his wife of thirty-nine years, Irma Morissette Hitschfeld, and by sons Paul and Charles, sister Annie Pucher of Vienna, and four grandchildren.

CMOS - SCMO

Suite 805

151 Slater St.

Ottawa, Ontario, Canada

K1P 5H3