



Canadian Meteorological
and Oceanographic
Society

La Société Canadienne
de Météorologie et
d'Océanographie

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

ISSN 0827-0384

JUNE/JUIN

1988

VOL.16 NO.3



ABOUT OUR NEW PRESIDENT

James W.S. Young received a B.Sc. and a M.Sc. in Mechanical Engineering from Queen's University, and a Ph.D. in Fluid Mechanics from the University of Waterloo. He has held positions as a research scientist in air pollution meteorology at Environment Canada; Chief, Air Quality Section, Pollution Control Branch, Environment New Brunswick; and Director, Air Quality Engineering, Beak Consultants Ltd. (Eastern Operations). Since 1978, on his return to the Atmospheric Environment Service, he has been Technical Coordinator for the Modelling Workgroup under the Canada/USA Memorandum of Intent on Acid Rain; Atmospheric Sector Coordinator for the Canadian Acid Rain Program; Chief, Air Quality Monitoring & Assessment Division; and, in 1983, assumed his current position of Director, Air Quality and Inter-Environmental Research Branch. He also serves as Canadian chairman for the International Joint Commission Air Quality Advisory Board.

At the 22nd Annual CMOS Congress, he outlined his goals for the coming year:

1. To establish Executive operations in the Toronto area; to solve our recent operational problems; to stabilize funding over the longer term so that the Executive can focus on the real job of CMOS which is to advance meteorology and oceanography in Canada;
2. To maintain CMOS traditional strengths in meteorology and oceanography;
3. By recognizing that air and water make up the very fabric of life, to broaden the influence of CMOS by including atmospheric chemistry, chemical climatology and chemical oceanography to strengthen our basic sciences;
4. To strengthen the health of CMOS by seeking new members, by calling on each Centre to help turn around the falling membership, and by broadening the market and readership of our publications;
5. To promote CMOS vigorously through the preparation of materials on our history, our aims, our accomplishments and our current work; and
6. To continue the role of CMOS to stand for quality - the quality of science, the quality of our advice, the quality of our presentations, and the quality of our air and water.

NOTRE NOUVEAU PRESIDENT

M. James W.S. Young a un B.Sc. et une M.Sc. ès génie mécanique de Queen's University, et un doctorat ès philosophie en mécanique des fluides de Waterloo University. Il a été un scientifique en météorologie de la pollution de l'air à Environnement Canada; chef de la section de la

qualité de l'air à la Direction du contrôle de la pollution, à Environnement Nouveau Brunswick; et le directeur de l'ingénierie de la qualité de l'air chez Beak Consultants (gestion de l'Est). Depuis son retour au Service de l'environnement atmosphérique en 1978, il a été le coordonnateur technique du groupe de modélisation (memorandum d'intention Canada/E-U concernant les pluies acides); le coordonnateur du secteur atmosphérique (le programme canadien concernant les pluies acides); puis, le chef de la division de la surveillance et de l'évaluation de la qualité de l'air. En 1983, il est devenu le directeur de la Direction de la recherche sur la qualité de l'air et sur l'interaction des milieux. De plus, il est le président canadien du Conseil consultatif de la qualité de l'air à la Commission mixte internationale.

Au 22e congrès annuel de la SCMO, il a exposé ses objectifs pour l'année à venir:

1. Etablir les opérations administratives de la région de Toronto; résoudre les récents problèmes d'exploitation; stabiliser les fonds à long terme pour que la comité puisse se concentrer sur le travail réel de la SCMO, qui consiste à faire avancer la météorologie et l'océanographie au Canada;
2. Soutenir l'effectif traditionnel de la SCMO en météorologie et en océanographie;
3. Compte tenu du fait que l'air et l'eau composent la structure véritable de la vie, étendre l'influence de la SCMO à la chimie atmosphérique, la climatologie chimique et l'océanographie chimique afin de consolider nos bases scientifiques;
4. Améliorer l'état de la SCMO en cherchant de nouveaux membres; en demandant à chaque centre d'aider au redressement de la société en difficulté; et en élargissant le marché de nos publications;
5. Encourager fortement la SCMO par la préparation de documents concernant notre histoire, nos objectifs, nos réalisations et notre présent travail;
6. Maintenir le rôle de la SCMO qui est de présenter la qualité - la qualité de la science, la qualité de nos conseils, la qualité de nos présentations, ainsi que la qualité de notre air et de notre eau.

NEW EDITOR

Our former editor, Fraser MacNeil, has stepped down after several years of service in preparing this newsletter. The Executive, past and present, thank him for his unfailing efforts. Items for publication in our newsletter should be addressed to the new editor, Malcolm E. Still. He can be reached at:

Atmospheric Environment Service
4905 Dufferin Street
Downsview, Ontario. M3H 5T4
(416) 739-4138

NOTE: The deadline for the August issue is August 31st and the deadline for the October issue is October 14th.

NEW CMOS MEMBERS

The following new members were approved at the Executive Meeting of 6 May, 1988:

<u>NAME</u>	<u>CENTRE</u>
Dr. R.F. Marsden (Regular)	Vancouver Island
Dr. James Helbig (Regular)	B.C. Mainland
Mr. John G. Stewart (Regular)	Winnipeg
Mr. Max Dunbar (Regular)	Montreal
Mr. Normand Guerin (Regular)	Montreal
Mr. Warren Cree (Student)	Alberta
Mr. Jean Gauvin (Student)	Rimouski
L/CDR J.W. Powell (Regular)	Halifax

The following new members were approved at the Council Meeting of 6 June, 1988:

<u>NAME</u>	<u>CENTRE</u>
Mr Badal K. Pal (Student)	Newfoundland
Mr. A.F. Wallace (Regular)	Alberta
Ms. Ria Alsen (Student)	Toronto
Dr. Diane Masson (Regular)	Halifax
Mr. Dave McGerrigle (Regular)	Toronto
Mr. Richard Menard (Regular)	Toronto
Mr. Robert Michaud (Student)	Toronto
President Hesham Mabih (Regular)	B.C. Mainland
Mr Robert Nissen (Student)	Toronto
Mr. Christian Nohert (Student)	Montreal
Mr. Malcolm E. Still (Regular)	Toronto

CANADA-WIDE SCIENCE FAIR

This year, CMOS recognized six students for excellence in the fields of meteorology and oceanography at the Canada-Wide Science Fair held May 15-22, 1988, in Winnipeg. The projects were judged by Mr. G.D. Machnee of AES (Winnipeg) and Dr. M. McMullen of DFO (Winnipeg). Mr. Machnee and Mr. R. Bodner (co-chairman of the Fair) presented the awards.

Christopher Pollett and Lieven Leroy (East Bay, Nova Scotia) received \$100 for the best project in meteorology. Their project entitled "Acidic Influence on Cloud Formation" looked at the effect of acids on cloud formation and density by observing condensation in a flask. After 1000 tests they found that an increase in the ease with which clouds form corresponded with increases in concentration of nitric or sulphuric acid. By using a powerful magnet to dissociate the ions, it was shown that the ionic nature of acids was a significant factor in cloud formation. Honourable mention went to Matti and Marko Kivisto (Fenelon Falls, Ontario). Their studies of the acidic content of snow showed that acidity levels increased as they travelled south in Ontario. In NW Ontario the highest values were found in Sudbury and Sault Ste. Marie.

In oceanography, Krishnan Nair (Brandon, Manitoba) received the \$100 award. His experiment was to test in denser fluids than air whether streamlined bodies benefit from their shape, and whether a roughened sphere, such as a golf ball, travels further than a smooth sphere. To answer these questions Krishnan timed spheres and streamlined objects in water and glycerin. After 300 trials it was concluded that streamlined objects experience less drag in water but not in glycerin. Roughened spheres were found to travel slower than smooth spheres in water but the differences were not significant. Daniel Boulet (Winnipeg, Manitoba) received honourable mention for his experiment on the salt-water oscillator.

In this system salt water is layered above fresh water which has the lower density. This density difference will cause a current of fresh water up into the salt water. This will continue until the salt concentration is equal at the interface. Daniel determined that the oscillator period was inversely proportional to the concentration of the salt water.

CMOS ACCREDITED CONSULTANTS

Congratulations to those consultants who obtained CMOS accreditation this summer. The names are listed below:

Mr. John E. Letkeman
Mr. Richard J. Kolomeychuk
Dr. Gloria Ellenton
Mr. Robert B.B. Dickison
Mr. Michael F. Lepage
Dr. S.R. Shewchuk

THE CHANGING ATMOSPHERE

The World Conference on the Changing Atmosphere was held in Toronto, June 27-30, 1988. The aim of the conference was to set policy goals, based on scientific findings, that will adapt to or control changes in the atmosphere. The conference chairman was Stephen Lewis, Ambassador and Permanent Representative of Canada to the United Nations.

The opening address was given by the Prime Minister of Canada, Brian Mulroney. He indicated that the participants at the previous week's Economic Summit endorsed the Brundtland Report (under the leadership of Mrs. Gro Brundtland, Prime Minister of Norway). This report stressed that sustainable development was achievable by maintaining our resource base and protecting our shared environment. The Prime Minister announced that Canada had offered to host the 1992 International Conference on the Environment on the 20th anniversary of the 1972 Stockholm Conference on the Human Environment.

In her presentation, Mrs. Gro Brundtland stated that humanity must decide between short-term benefits and long-term enhancement of life on the planet Earth. As present policies and trends cannot continue, she proposed the following action:

1. Discuss internationally regional strategies for conserving energy
2. Analyze costs of environmental control and of alternative energy sources
3. Establish research programs on renewable energy sources
4. Establish technology transfer programs to developing nations so that the energy source can be selected
5. Increase scientific research between countries

The second session concentrated on the "Scientific Basis of Concern." Dr. Kenneth Hare stated that if climatic change can be predicted in credible terms then governments and individuals can respond. The ozone hole in the Antarctic happened quickly, reported Dr. Robert Watson, and may not be reversible in the next 50 years. Dr. Goran Persson reiterated that the effects of acidification are encompassing larger areas and affecting more ecosystems. Professor Michael McElroy stated that carbon dioxide and methane levels have increased since the Industrial Revolution due to increased use of fossil fuels, changes in agriculture practices and expansion of chemical industry.

In the third session on "Responses to Concerns," Dr. Irving Minter stated that to limit global warming there is a need to reduce deforestation, to increase energy efficiency and to shift fuel mix. Professor Godwin Obasi outlined the work of the WMO in atmospheric science. It was stressed by Professor Emil Salim that all countries must share costs and responsibilities for the protection of our environment.

After the fourth session on "Socio-Economic Implications," the participants assembled in 12 working groups to discuss policy implications. From these discussions a conference statement was written that concluded:

1. The Earth's atmosphere is being changed at an unprecedented rate by pollutants resulting from human activities, from inefficient use of fossil fuel, and from the effects of population growth that could represent a major threat to international security.
2. The impacts caused by global warming and the corresponding sea level rise could be even more serious to international security due to severe economic and social dislocation.

22ND ANNUAL CMOS CONGRESS A PRELIMINARY REPORT

The 22nd Annual CMOS Congress was held at the Royal Connaught Hotel in Hamilton, Ontario, June 7-10, 1988. "Severe Weather and Its Impact" was the theme of the Congress. About 250 people including students and exhibitors attended. During 30 scientific sessions, 160 papers, almost evenly divided between oceanography and meteorology, were presented either orally or in poster form.

To maintain a high scientific level, the number of concurrent sessions was limited to 3 and poster sessions did not overlap oral presentations.

To cover many of the critical aspects of severe weather, two invited speakers addressed the Congress each day. On Tuesday, A. Wallace graphically illustrated the nature of the Edmonton tornado and W. Cotton showed that many convective complexes have been greatly affected by orography. On Wednesday, L. Uccellini used numerical model results to illustrate the complex nature of severe winter storms and T. Murty emphasized the destructive nature of and the processes responsible for storm surges. On Thursday, C. Crozier summarized the state of Doppler radar in Canada and illustrated the progress in forecasting already achieved with the King City facility. L. Lemon emphasized the progress made in deducing the nature of storm flow fields through Doppler radar analysis. On Friday, M. Newark showed that severe summer weather strikes all regions of the country, and A. Davenport emphasized the need for and the benefits of the upcoming International Decade of Natural Hazard Reduction.

Acknowledging the benefits to be derived from coordinated research programs, several sessions were held at the Congress to summarize interdisciplinary projects such as CASP, JGOFs, LEWEX, LIMEX and WOCE.

Twenty two exhibitors, one of the highest numbers in CMOS history, exhibited some of the most recent equipment and technology related to meteorology and oceanography. The very high quality and capabilities of present day technology was clearly evident from these exhibits.

As part of the social component of the Congress, an evening in Niagara including a play at the Shaw Festival Theatre in Niagara-on-the-Lake was arranged. The evening was very much enjoyed by all those attending. Emily Cain, the guest speaker at the Congress banquet, gave an interesting presentation on the Hamilton-Scourge project.

The grants and sponsorships provided by a number of organizations were an integral part of the success of the Congress. Our thanks to all of them. Also our sincere thanks to all the members of the Programme Committee (Chairman: R.E. Stewart) and the Local Arrangements Committee (Co-chairmen: J.C. McLeod and S. Venkatesh) who worked very hard to ensure smooth running of the Congress.

CONFERENCES

The University of Calgary

Scientists and Journalists: Bridging the Gap

In the context of scientific advances past, present and future, the facts and issues of science are important for everyone to know. Scientists and journalists recognize the importance of communicating this science information to a public having an increasing awareness of science.

The Graduate Program in Communication Studies is holding a conference for scientists and journalists that will feature experts from both professions, including Jay Ingram, host of CBC's Quirks and Quarks, and Jim Murray, executive producer of "The Nature of Things." Researchers who will discuss science literacy include Professor Jon Miller, author of Citizen in an Age of Science, and Professor Sharon Dunwoody, author of Scientists and Journalists. The conference will be held September 23/24, 1988, at the University of Calgary. Sponsors will include the scientific research society Sigma Xi (Calgary chapter) and the Canadian Science Writers Association.

Sessions will include workshops to help scientists give better television/radio interviews, and aid journalists to identify and disseminate important science stories. The conference will showcase the research efforts of scientists in Western Canada and Alberta in particular. Information is available from Dr. Einsiedel or conference coordinator Marian Davis (403-220-6357).

ADVERTISING RATES

Rates are based on black and white camera-ready copy. Sizes (in inches) are full page (7.5x9.5), half page (3.5x9.5) and quarter page (3.5x4.5). Additional charges apply where typesetting, artwork or photographic plates are required. Distribution per issue is approximately 1000.

Advertisement Type	Full Page	1/2 Page	1/4 Page
Commercial **	\$150.00	\$80.00	\$50.00
Position Vacancy	\$100.00	\$60.00	\$40.00
Employment Wanted	---(Free to Members only)---		

** Corporate and Sustaining members advertisements are charged at the Position Vacancy rate.

The Mexican Organization of Meteorologists

Third Interamerican Congress on Meteorology Third Mexican Congress on Meteorology

Meteorology and its Applications
to Regional Development

Mexico City, Mexico, 14-18 November, 1988

The organizing committee invites all professionals of the region to participate in this third Interamerican Congress on Meteorology that is to take place in Mexico City, 14-18 November 1988. Sessions will be held at the Hotel Holiday Inn Crowne Plaza, Av. Paseo de la Reforma No. 80, Mexico City.

The objective of this Congress is to promote development and dissemination of the science of meteorology between the nations of the American continent by sponsoring the establishment of joint programs of study and application of this science to help the progress of nations in the region.

The specific goals are:

1. To establish the exchange of work and studies between the representatives of the participating nations;
2. To promote the integration of all American meteorology by means of the Latin American Federation of Meteorological Societies;
3. To promote to the respective governments the required support toward meteorological science; and
4. To contribute to the personal development of the participants at the Congress, as well as that of their association.

Information on this Congress can be obtained from:

La Organización Mexicana de Meteorólogos, A.C.
(OMMAC)
Apartado Postal 90-112
Del. Gustavo A. Madero, CP 07500
México, D.F. México

CONFERENCES

Intergovernmental Oceanographic Commission (IOC)
International Council of Scientific Unions (ICSU)
Scientific Committee on Oceanic Research (SCOR)
World Meteorological Organization (WMO)

International WOCE Scientific Conference

Unesco Headquarters, Paris
28 November - 2 December, 1988

Stream Three of the World Climate Research Programme (WCRP) is concerned with the prediction of decadal climate change. Since the major scientific problem which needs to be resolved is that of describing and modelling the circulation of the World Ocean, the organizers of the WCRP have defined the World Ocean Circulation Experiment (WOCE) as the principal activity within Stream Three; they established, jointly under the SCOR-IOC Committee of Climatic Changes and the Ocean (CCCCO) and the ICSU-WMO Joint Scientific Committee (JSC) for the WCRP, the WOCE Scientific Steering Group (SSG) to plan the Experiment.

The WOCE SSG has formulated the Goals and Objectives of WOCE and these have been published in the WOCE Scientific Plan (WCRP Publications Series, No. 6, 1986).

To help with the planning of WOCE, an international WOCE Scientific Conference will be held. It will be hosted by IOC and organized by a committee chaired by Professor C. Wunsch. The objectives of the conference will be to:

1. Review and explain the scientific purpose of WOCE;
2. Outline the implementation plan of WOCE;
3. Identify means by which countries can contribute;
4. Identify major resource commitments as well as gaps and how the latter can be overcome;
5. Review additional requirements for WOCE, including data submission and distribution, access to ports and scientific data from Exclusive Economic Zones; and
6. Examine institutional arrangements for WOCE.

For further information write to:

Secretary CCCO, IOC,
Unesco,
7 Place de Fontenoy, 75700 Paris, France
(telex 204461 Paris, telemail CCCO.PARIS).

Canadian Institute of Forestry
Canadian Meteorological and Oceanographic Society

Fire and Forest Meteorology in a Changing Environment: New Technologies and Concerns

The Tenth Conference on Fire and Forest Meteorology, jointly sponsored by the Canadian Institute of Forestry and the Canadian Meteorological and Oceanographic Society, will be held April 17-21, 1989 in Ottawa, Ontario, Canada. This meeting is being held in cooperation with the Society of American Foresters and the American Meteorological Society and with the support of the Atmospheric Environment Service, the Canadian Forestry Service and the Ontario Ministry of Natural Resources.

Presentations will cover the areas of relevant new technologies, smoke management and air quality, forest health and productivity, effects of climate change, and the effects of new technology on human resources in forestry. Contributions will also include traditional subjects such as fire meteorology, fire behaviour and danger, prescribed burning, lightning detection systems, fire ecology, fire management and fire climatology.

Based on the abstracts that have been submitted to the Editorial Sub-committee, papers may be selected for either poster or oral presentations. Abstracts and papers from authors will be included in the preprint abstract and proceedings. Authors will be contacted after September 15, 1988, at which time instructions and material for camera-ready papers will be issued. Page charges may be assessed to defray publishing costs.

Displays by relevant fire or meteorological equipment manufacturers and distributors as well as computer manufacturers will be available during the conference. Space and time during the program will be provided to these companies. Interested parties should contact the Corporate Exhibitor Subcommittee Chairperson, Mr. Paul Ward (705-942-1800), before January 15, 1989.

Further information may be obtained from the Program Co-chairpersons, Roger B. Street (Atmospheric Environment Service 416-739-4786) or Dr. Paul Woodard (University of Alberta, 403-432-4413).

CONFERENCES

2ND INTERNATIONAL WORKSHOP ON WAVE HINDCASTING AND FORECASTING

VANCOUVER, BRITISH COLUMBIA

APRIL 25-28, 1989

An international workshop on wave hindcasting and forecasting, sponsored by the Federal Panel on Energy Research and Development (PERD) and the Canadian Meteorological and Oceanographic Society (CMOS), will be held in Vancouver, British Columbia from April 25-28, 1989. This workshop will follow on the success of the first workshop, held in Halifax, Nova Scotia in September 1986.

The objectives of the workshop are:

- to provide a forum for the exchange of ideas and information related to practical applications of wave hindcasting and forecasting
- to discuss priorities for future research and development

Papers are solicited on both the research and operational aspects of wave hindcasting and forecasting. Papers dealing with the particular problems of the northeast Pacific Ocean are especially welcomed. It is expected that there will be sessions on the following topics:

- operational forecasting
- user requirements (in design and operations)
- hindcasting procedures
- data collection/instrumentation
- incorporation of satellite wind/wave data
- wave/current interaction
- wave/ice interaction
- wind fields for wave hindcasting/forecasting
- shallow water and nearshore effects

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. The deadline for receipt of abstracts is October 15, 1988. Full papers will be required by March 15, 1989.

Address correspondence to:

V.R. Swail
Atmospheric Environment Service
4905 Dufferin Street
Downsview, Ontario M3H 5T4
CANADA
(416) 739-4347

THE ADVANCED STUDIES INSTITUTE SHORT COURSE

ON THE METEOROLOGICAL ASPECTS OF EMERGENCY RESPONSE

Thursday and Friday September 29-30, 1988
Charleston, South Carolina
At the Sheraton-Charleston Hotel

EXPERT SPEAKERS ON

- PREDICTIVE METEOROLOGY
- MEASUREMENTS
- MODELS
- MODEL EVALUATION

Poster Session by Participants

Course follows the American Nuclear Society meeting on Emergency Response: Planning, Technologies and Implementation September 26-28, 1988

Registration Fee of \$240.00
Includes Notes and Thursday Lunch

For additional information write to the
Advanced Studies Institute c/o the AMS
45 Beacon St., Boston, MA. 02108
Or call the AMS at (617) 227-2425.

AMERICAN METEOROLOGICAL SOCIETY

APCA Ontario Section



Air Pollution Control Association

Ontario's Environment A Global Perspective

Fall Meeting
Sunday September 18th
to
Tuesday, Sept. 20th, 1988
to be held at

The Prince of Wales Hotel
Niagara-on-the-Lake, Ontario

Air is a global common.
Air over Ontario today can influence every corner of the globe within a few weeks.

The meeting will cover major environmental issues facing our globe today, focus on them in a North American context and finally discuss the state of Ontario's environment.

Where does Ontario fit in the global puzzle of the total environment?

This meeting is aimed at those who want to learn more about the different compartments of the environment and how they interact. We are just now beginning to understand how the world really works!

Think globally but act locally!

Sessions will deal with:

- The Global Environment
- Environmental Issues in North America
- Ontario's Environment Today
- Panel: "Thinking Globally and Acting Locally in Ontario"

This year's meeting will again be held at Niagara-on-the-Lake, which will offer the opportunity to combine the technical presentations with interesting social events and a spouses program in one of the most beautiful and historic areas in the province.

A final program brochure, including technical and social program details will be distributed by early summer. For additional details please contact members of the program committee listed in this brochure.

A block of tickets has been reserved at the Shaw Festival for the following performance.

Once in a Lifetime
(a Kaufman & Hart Comedy)
Sunday, September 18, 1988
at 2:00 p.m. — Festival Theatre

Please indicate interest on Registration Form

DETACH AND FORWARD REGISTRATION FORM																																																																																																			
PLEASE PRINT																																																																																																			
Name	_____																																																																																																		
Accompanied by	_____																																																																																																		
Company	_____																																																																																																		
Address	_____																																																																																																		
Tel. No.	_____																																																																																																		
Total \$ enclosed	_____																																																																																																		
Personal Registration	_____																																																																																																		
1-800-755-1422	_____																																																																																																		
<table border="0"> <tr> <td>REGISTRATION</td> <td>Pre-Registration (before 21st August 1988)</td> <td>APCA members</td> <td>\$130</td> <td><input type="checkbox"/></td> <td>Tuesday</td> <td><input type="checkbox"/></td> </tr> <tr> <td></td> <td></td> <td>Non-members</td> <td>\$140</td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Registration at Conference</td> <td>\$145</td> <td><input type="checkbox"/></td> <td>Monday</td> <td><input type="checkbox"/></td> </tr> <tr> <td></td> <td></td> <td>APCA members</td> <td>\$155</td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Spouse's Own Registration</td> <td>\$90</td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Non-members</td> <td>\$100</td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Banquet Tickets</td> <td>number</td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>(Mon. 19th Sept. Only) at \$25.00 ea.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Spouse's Program</td> <td>number</td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Theatre Tickets</td> <td>number</td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>(Sun. 18th Sept. Only) at \$24.00 ea.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Make cheque payable to: APCA Ontario Section</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>23E 27th Street</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Hamilton, Ontario L9B 3E8</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		REGISTRATION	Pre-Registration (before 21st August 1988)	APCA members	\$130	<input type="checkbox"/>	Tuesday	<input type="checkbox"/>			Non-members	\$140	<input type="checkbox"/>					Registration at Conference	\$145	<input type="checkbox"/>	Monday	<input type="checkbox"/>			APCA members	\$155	<input type="checkbox"/>					Spouse's Own Registration	\$90	<input type="checkbox"/>					Non-members	\$100	<input type="checkbox"/>					Banquet Tickets	number	<input type="checkbox"/>					(Mon. 19th Sept. Only) at \$25.00 ea.							Spouse's Program	number	<input type="checkbox"/>					Theatre Tickets	number	<input type="checkbox"/>					(Sun. 18th Sept. Only) at \$24.00 ea.							Make cheque payable to: APCA Ontario Section							23E 27th Street							Hamilton, Ontario L9B 3E8				
REGISTRATION	Pre-Registration (before 21st August 1988)	APCA members	\$130	<input type="checkbox"/>	Tuesday	<input type="checkbox"/>																																																																																													
		Non-members	\$140	<input type="checkbox"/>																																																																																															
		Registration at Conference	\$145	<input type="checkbox"/>	Monday	<input type="checkbox"/>																																																																																													
		APCA members	\$155	<input type="checkbox"/>																																																																																															
		Spouse's Own Registration	\$90	<input type="checkbox"/>																																																																																															
		Non-members	\$100	<input type="checkbox"/>																																																																																															
		Banquet Tickets	number	<input type="checkbox"/>																																																																																															
		(Mon. 19th Sept. Only) at \$25.00 ea.																																																																																																	
		Spouse's Program	number	<input type="checkbox"/>																																																																																															
		Theatre Tickets	number	<input type="checkbox"/>																																																																																															
		(Sun. 18th Sept. Only) at \$24.00 ea.																																																																																																	
		Make cheque payable to: APCA Ontario Section																																																																																																	
		23E 27th Street																																																																																																	
		Hamilton, Ontario L9B 3E8																																																																																																	

POSITIONS VACANT



CSIRO
AUSTRALIA

RESEARCH FELLOW (CLOUD PHYSICIST)

SA28,629 - SA41,861

DIVISION OF ATMOSPHERIC
RESEARCH
ASPENDALE, VICTORIA

THE DIVISION: The Division of Atmospheric Research has a staff of 120 including 70 professional scientists and undertakes research into the physical and chemical aspects of atmospheric phenomena and related areas. A cloud physicist is required as a member of a team providing scientific direction for a precipitation enhancement experiment near Melbourne, Australia.

THE JOB: The appointee will undertake research into the physical properties of clouds with the overall aim of assessing natural precipitation processes and the suitability of the clouds for precipitation enhancement. The appointee will engage in field studies of clouds with the instrumented CSIRO F-27 aircraft available to the Division and will carry out the analysis and interpretation of the data collected. He or she will work closely with other scientists to increase the overall understanding of the cloud systems on the mesoscale, using information from ground-based remote sensing systems. Although this position will have application to precipitation enhancement, it primarily calls for basic research into cloud and precipitation processes on the microscale and the mesoscale.

THE PERSON: Applicants should have a Ph.D. degree or equivalent qualification in atmospheric sciences or related field. Demonstrated ability to undertake airborne cloud physics research and evidence of a high level of verbal and written communication skills are required. Familiarity with precipitation enhancement, mesoscale meteorology and ground-based remote sensing systems would be an advantage. Consideration will be given to the appointment of an outstanding applicant at a higher level.

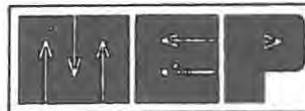
CONDITIONS: The appointment will be for a term of four years with the possibility of a further term. Australian Government Superannuation benefits are available. Round trip transportation for the successful applicant and family will be provided as well as assistance with removal expenses and accommodation.

MORE INFORMATION: Prospective applicants are invited to telephone Dr. Alex Long (03) 586 7668 (collect) for further information. Dr. Long can also provide a copy of the detailed job description and selection criteria.

APPLICATIONS: Applications should be submitted by 13 May 1988 and quote reference number M7845. They should be framed against the selection criteria, and should state relevant personal particulars including details of qualifications and experience. Applicants should nominate at least two professional referees, and address their applications to:

The Chief,
CSIRO Division of Atmospheric Research,
Private Bag 1,
MORDIALLOC, VIC. 3195, AUSTRALIA.
CSIRO IS AN EQUAL OPPORTUNITY EMPLOYER.

AT88/05



The MEP Company provides consulting services in the areas of atmospheric physics, meteorology, climatology, air pollution, physical oceanography, coastal engineering, mathematical modelling, software design, and systems development to private industry, utilities, and government agencies.

Applications are invited for the following positions:

- **Senior Atmospheric Scientist:** Applicants should have 3 - 5 years experience in the areas of air quality research, dispersion meteorology or forensic meteorology and a M.Sc. from a recognized university. Computer experience and excellent communication skills are also required. Operational forecasting experience is an asset.
- **Scientific Programmer:** Applicants should have a B.Sc. or B.A.Sc. from a recognized university and significant experience and flexibility in computer programming and numerical modelling techniques. Expertise in meteorology and/or oceanography is an asset.

Full company benefits are offered; salaries are commensurate with qualifications.

Please send resume to:

The MEP Company
7050 Woodbine Avenue
Suite 100
Markham, Ontario
L3R 4G8

Attention: Personnel Manager

METEOROLOGISTS



WORLD WEATHERWATCH is a progressive, privately owned consulting company, specializing in the application of meteorology for industrial, commercial and media use.

The FORECAST OPERATIONS DIVISION of WORLD WEATHERWATCH has a position available for a forecast meteorologist interested in specialized forecasting for various activities, air pollution, media, aviation and agriculture. The successful candidate must have comprehensive knowledge of synoptic meteorology and operational procedures as would normally be obtained from a government sponsored forecasting course or from university synoptic meteorology training. Operational work forecast experience following this training is preferred, and an understanding of computer techniques would also be an asset. Additional in-house training in specialized areas will be available to the successful candidate.

WORLD WEATHERWATCH offers excellent compensation and a comprehensive benefit package, as well as the opportunity to become personally involved with a rapidly growing meteorological consulting company.

ALL APPLICATIONS WILL BE HELD IN STRICT CONFIDENCE.

If interested, you are invited to submit a letter of application and resume to:

FORECAST OPERATIONS DIVISION
WORLD WEATHERWATCH
7050 Woodbine Ave., Suite 100
Markham, Ontario L3R 4G8
Canada

or phone (416) 477-4120 for further information.

NOTE: In accordance with Canadian immigration requirements, the advertisements on the opposite page are directed to Canadian citizens and permanent residents of Canada.

POSITIONS VACANT

CHEMICAL OCEANOGRAPHER

Applications are invited for a tenure-track position at the Assistant Professor level at the University of British Columbia (jointly appointed in the Departments of Oceanography and Chemistry) from candidates with a doctorate in marine inorganic, analytical and/or physical chemistry and relevant postdoctoral experience and strong research track record. The candidate will be expected to participate in undergraduate and graduate teaching and carry on original research related to chemical processes and reaction mechanisms in the ocean with particular emphasis on global chemical balances and fluxes of constituents between the oceans and other components of the Earth System.

Applications, together with a curriculum vitae, three referees (names, addresses and phone numbers), a statement of research interests and sample research publications should be sent to: Dr. P.H. LeBlond, Head, Department of Oceanography, University of British Columbia, Vancouver, British Columbia, V6T 1W5. The appointment will commence as soon as possible after July 1, 1988.

PHYSICAL OCEANOGRAPHY

Applications are invited for a tenure-track faculty appointment in Physical Oceanography at the Memorial University of Newfoundland (Physics Department). Rank and salary are negotiable and commensurate with qualifications. Experience beyond the Ph.D. degree is preferred. The position offers a challenging academic career with stimulating research opportunities focussing on the Northwest Atlantic and the Labrador Current. The Physical Oceanography Group is engaged in theoretical and experimental studies of coastal and continental shelf oceanography, deep sea circulation, Lagrangian dynamics, numerical modelling and acoustic remote sensing.

Qualified individuals with expertise in any area of physical oceanography are encouraged to apply. An interest in interdisciplinary problems would be an asset. Applications from both experimentalists and theoreticians are encouraged. The appointment will include teaching duties at the graduate and undergraduate levels. Curriculum vitae, including the names of three referees, should be sent to: Dr. D.H. Rendell, Head, Department of Physics, Memorial University of Newfoundland, St. John's, Newfoundland, A1B 3X7.

SOLID EARTH OR OCEAN PHYSICS NSERC UNIVERSITY RESEARCH FELLOWSHIP

The Centre for Earth and Ocean Research (CEOR) at the University of Victoria invites applications from qualified Canadian citizens or permanent residents for an NSERC University Research Fellowship. Candidates should possess a Ph.D. degree, one or two years of postdoctoral research experience in an area of solid earth or ocean physics, and a willingness to participate in field research. Preference will be given to applicants with research experience in seismology, marine and continental margin geophysics, underwater acoustics or coastal physical oceanography. A successful applicant would be appointed to the Department of Physics & Astronomy and would be expected to contribute to the graduate program of CEOR, which encourages research collaboration with scientists at the Institute of Ocean Sciences, the Pacific Geoscience Centre, the Royal Roads Military College, and the Defence Research Establishment Pacific.

Applicants should have a strong background in general physics and be capable of teaching the standard courses in an undergraduate physics degree program, in addition to graduate courses for CEOR. The candidate selected will be nominated by the university for an initial 5-year term as an NSERC University Research Fellow: the final decision on such awards rests with NSERC. University Research Fellows are expected to maintain an active research program, supervise graduate students and undertake a limited amount of teaching. On the recommendation of the university they are eligible for appointment to a second five-year term on a tenure-track leading to a permanent university position.

The University of Victoria offers equal employment opportunities to qualified male and female applicants. NSERC regulations require that nominees for University Research Fellowships be Canadian citizens or permanent residents at the time of nomination.

Letters of application including a curriculum vitae, publication list, and names and addresses of three referees should be sent as soon as possible, but certainly no later than September 1, 1988 to: Dr. R.W. Stewart, Centre for Earth and Ocean Research, Elliott Building, University of Victoria, Victoria, British Columbia, V8W 2Y2.

CONSULTANTS' PAGES

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

- (1) The applicant must possess an appropriate undergraduate degree from a recognized university.
- (2) The applicant must possess at least one of the following types of specialized training:
 - (i) post-graduate degree from a recognized university in meteorology or oceanography;
 - (ii) post-graduate degree from a recognized university in the natural or applied sciences or mathematics, specializing in one or more branches of meteorology or oceanography; or
 - (iii) three years of on-the-job meteorological or oceanographic experience.
- (3) Upon completion of the above educational and training requirements, the applicant must have spent at least two years of satisfactory performance, at the working level, in the field of specialization included in this document. This should include at least some consulting experience.

Individuals interested in applying for accreditation may contact the CMOS Executive Director at the Society's Ottawa address for a copy of the Guidelines and an application form.

Consultants who wish to obtain CMOS accreditation should note that applications received before September 1, 1988, are expected to be processed by approximately November 1, 1988, if all the necessary information has been included with the applications. A complete list of CMOS accredited consultants can be obtained from the CMOS Executive Director.

ACCREDITED CONSULTANTS

Noel Boston, P.Eng., Ph.D.
CMOS Accredited Consultant

*Physical Oceanography, Boundary Layer Meteorology,
Training*

The Environment Centre Tel: (604) 681-8828
Suite 200 - 1130 West Pender Street Tlx: 04-51586 ENVIROCTR VCB
Vancouver, British Columbia Facsimile: (604) 681-6826
Canada V6E 4A4

David R. Hudak, Ph.D.

CMOS Accredited Consultant

Cloud Physics...Synoptic Meteorology...Weather Modification

Senior Scientist

KelResearch Corporation

850-A Alness St., Suite 9

Downsview, Ontario M3J 2H5

(416) 736-0521

Susan K. Lally
Meteorologist, CMOS Accredited Consultant

General Meteorology
Marine Meteorology

**OCEAN
ROUTES**

Oceanroutes Canada Inc.
Suite 200, 1496 Bedford Hwy.
Bedford, Nova Scotia B4A 1E5
(902) 835-1617
Telex: 019-22888
Fax: (902) 835-6589

Tom B. Low, Ph.D. P.Eng.

CMOS Accredited Consultant

Research and Development Meteorology

President

KelResearch Corporation

850-A Alness St., Suite 9

Downsview, Ontario M3J 2H5

(416) 736-0521

ACCREDITED CONSULTANTS

MacLaren Plansearch

MACLAREN PLANSEARCH LIMITED
SUITE 701, PURDY'S WHARF TOWER
1959 UPPER WATER STREET, HALIFAX, NOVA SCOTIA, CANADA B3J 3N2
TELEPHONE: (902) 421-3200 • TELEX: 019-22718
CABLE: LAVALIN HFX

IAN J. MILLER, M.Sc.
MANAGER METEOROLOGICAL SERVICES

Lavalin

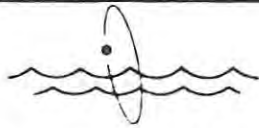
3650 Carnarvon Street,
Vancouver, B.C. Canada
V6L 3L4

Telephone:

(604) 733-1255 (H)
(604) 228-6407 (O)

Douw G. Steyn, Ph.D.

*CMOS accredited consultant in
Air-Pollution Meteorology
Boundary-Layer Meteorology
Meso-Scale Meteorology*



Sea Scan

Oceanographic & Remote Sensing Consultants

BRIAN WANNAMAKER

R.R. 3, Caledon East,
Ontario, Canada L0N 1E0 Tel. (416) 880-0528

MacLaren Plansearch

MACLAREN PLANSEARCH LIMITED
SUITE 701, PURDY'S WHARF TOWER
1959 UPPER WATER STREET, HALIFAX, NOVA SCOTIA, CANADA B3J 3N2
TELEPHONE: (902) 421-3200 • TELEX: 019-22718
CABLE: LAVALIN HFX • TELECOPIER: (902) 425-4464

BASSEM M. EID, P.Eng., Ph.D.
SENIOR OCEANOGRAPHER

Lavalin

Terry J. Gillespie, Ph.D.
CMOS Accredited Consultant

Agricultural Meteorology and
Land Planning
Agrometeorological Training

(519) 824-4210 ext 2645 or
(519) 824-9504

51 Applewood Crescent
Guelph, Ontario N1H 6B3

WORLD EATHERWATCH

MORY HIRT (CMOS Accredited Consultant)
President

7050 Woodbine Avenue, Suite 100, Markham, Ontario, Canada L3R 4G8
Phone: (416) 477-4120 • Telex: 06-966599 (MEP MKHM)

T. W. (Terry) Krauss, Ph.D.
CMOS Accredited Consultant

*Cloud Physics • Radar • Weather Modification •
Storms • Research and Development*

INTERA Technologies Ltd.
2500, 101 - 6th Avenue S.W.
Calgary, Alberta
Canada T2P 3P4

(403) 266-0900

Richard J. Kolomeychuk, M.Sc.

CMOS Accredited Consultant

Applied Meteorology and Climatology
Hydrometeorology



Vice-President
The Environmental Applications Group Ltd.
6126 Yonge St., 2nd Floor
Willowdale, Ontario, M2M 3W7
Telephone: (416) 224-0701
Fax: (416) 224-5587

CMOS-SCMO
Suite 903
151 Slater Street
Ottawa, Ontario. K1P 5H3
Canada

Second Class Authorization Pending