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NEWSLETTER

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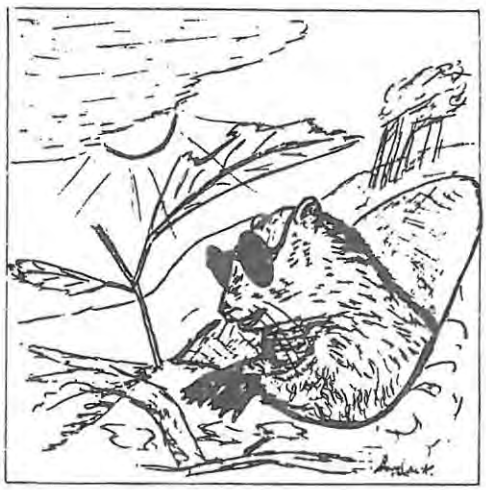

Groundhog Day-1980

CMOS NEWSLETTER is a bi-monthly publication of the Canadian Meteorological and Oceanographic Society.

Editor: Avard S. Mann
Atmospheric Environment Svc.
Argyll Centre, 6325-103 St.
Edmonton, Alta. T6H 5H6

FROM THE PRESIDENT'S DESK

Our 1979 budget had originally been planned on the assumption that the Society would receive a $10,000 publication grant from the Natural Sciences and Engineering Research Council (NSERC), however, this grant did not materialize. Neither were our attempts successful to obtain special funding to help publish the special GATE issue of ATMOSPHERE-OCEAN (Volume 17, No.1). The non-receipt of the grant created a serious operating problem for the Society and an Ad Hoc Financial Committee was established last April to review the immediate financial status of the Society. This ad hoc committee reported to Council in May and a proposal was brought in at the AGM that the Society endeavor to reduce the proposed spending in a number of areas in 1979 and operate with a small deficit ($2,500). The Executive and Council have strived to carry out the intent of the recommendations approved at the AGM. The size of the last two issues of ATMOSPHERE-OCEAN was decreased from the earlier projected 96 pages per issue. Subventions to local Centres were reduced by $1,100 (not the hoped for $2,000 saving), by holding back annual subventions to four Centres (B.C. Mainland, Alberta, Winnipeg and Ottawa). However, the $700 returned to the national executive by the dissolved Regina Centre was retained, but "seed money" was approved by Council for new Centres or Chapters to help them become established. Hoped for savings of travel costs of committees has only partially materialized as considerable expense to the Society

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resulted from the successful meeting of the Scientific Committee in October. Also unbudgeted expenses, such as support for the Andrew Thomson Memorial Lecture, also arose so little saving occurred in other areas. It appears, as we approach the end of 1979, that the Society will have an operating deficit of close to $5,500, which has necessitated the liquidation of Society assets. Nineteen hundred and seventy nine has, therefore, been a rough year financially.

In 1980 we are proposing a balanced budget hoping that we can turn around the deficit trend encountered the last three years. We have again applied for grants from AES and NSERC, but this year we hope we will be successful in obtaining both grants; if not, we shall have to take early action to curtail the activities of the Society in a number of areas. To assist the Society in investigating all possible avenues to help make the Society more self-supporting, a Financial Development Committee was recently established. This had also been a recommendation of the ad hoc Financial Committee acted on by Council. This Committee had its first meeting in Toronto on December 3, and Council looks forward to receiving future advice from this Committee.

Another measure taken at the AGM to help make 1980 a smoother year financially was to increase membership dues and subscription rates for the journal for 1980 and I trust that all of you have honoured your renewal notices from the University of Toronto Press. (We apologize to francophone members that we were again unsuccessful in convincing the Press to have all the notice bilingual!) We are also undertaking a number of measures to make the journal more self-supporting - we have introduced voluntary page charges; hope to introduce advertizing; will reduce our complimentary list which currently amounts to 9% of the curculation and; with cooperation from the Press mount a promotion campaign to increase our world-wide institutional subscriptions which are currently running at about 220.

Council at its October meeting agreed with the suggestion that in order to get the Committee on Professionalism launched and to minimize the cost of its operation in 1980, this Committee should initially have five Alberta members drawn from the federal government, provincial government, universities, industry, and consulting firms. Other interested individuals from across the country would be added later to act as corresponding members. The initial "core" group - Neil Meadows (AES), Bob Humphries (Alberta Research Council), Ed Lozowski (University of Alberta), Sven Djurfors (Syncrude) and Doug Leahey (Western Research and Development Corp.) - are meeting with Randy Angle (Chairman of the Review and Evaluation Committee which reviewed the Report of the ad hoc Committee on Meteorological Consulting Standards in Canada) early in February.

As a result of action taken at the Scientific Committee in October, a letter was sent November 5, 1979 to Dr. D.R.

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Ingraham at NSERC in response to his July 13 letter (see Newsletter for October 1979, p.4). This new letter called for further discussions between NSERC, the Society and the academic community concerning support for atmospheric research including the need to give it increased visibility in the NSERC granting structure. On a related issue, the Society was much encouraged by the November 15 statement of the Minister of State for Science and Technology that there will be a 32% hike ($39 million) in 1980-81 federal funding for NSERC and that this increase will enable NSERC "to increase training of highly qualified manpower; improve links between university and industrial research; improve support for fundamental research; increase the support for 'targeted' research in areas of national concern; and replace scientific equipment which has become obsolete over the past decade". We trust that the atmospheric and oceanographic sciences will receive an adequate share of this increased funding source.

We welcome Morley Thomas as the Society Archivist. If any of you have old files of the Society or other information which may be of interest, I hope you will contact him.

As you read this, Dr. Michael Glantz, National Center for Atmospheric Research, Boulder, Colorado, the 1979/80 AES/CMOS tour speaker, will have probably completed his western tour of Centres. I hope those of you in the east will make every effort to attend his upcoming presentations at local Centres and Chapters in the east.

Over the last eight months the Executive have continued discussions with CMOS member Mike Newark, the Editor and Publisher of the new popular magazine CHINOOK, concerning possible ways we can jointly help promote meteorology in Canada. At the end of this Newsletter you will find a questionnaire by which we hope to establish members' possible interest in taking a subscription to CHINOOK. If the response is favourable we will negotiate a reduced rate for members. Mike has supplied a complimentary copy of the latest issue (the sixth) for you to view and possibly pass on to others. We would appreciate an early response to the questionnaire so that your interest in possible support for this magazine is known.

I hope the new decade, which is the fifth for the Society or its predecessor in Canada, will be a profitable one for you and the Society.

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News Item

Named as an Officer of the Order of Canada by Gov. Gen. Ed Schreyer, Robert W. Stewart for his role as President of the

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International Association for the Physical Sciences of the Ocean (IAPSO). Bob has recently (August 1979) taken an Interchange Canada Assignment as Assistant Deputy Minister, Ministry of Education, Sciences and Technology, with the Government of British Columbia. Filling Bob's old position as Director General, Ocean and Aquatic Sciences, Pacific Region is Cedric R. Mann, who moves there from the Atlantic coast.

SUSTAINING MEMBERS

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

Airflow Developments Ltd.
Richmond Hill, Ont.

Air Canada
Montreal, P.Q.

Alberta Weather
Modification Board
Three Hills, Alberta

Beak Consultants Ltd.
Vancouver, B.C.

Bendix-Aviation Electric
Montreal, P.Q.

Bristol Aerospace
Winnipeg, Man.

Dobrocky Seatech Ltd.
Victoria, B.C.

Greenpark
Canadian Forestry
Equipment Ltd.
Edmonton, Alberta

Hermes Electronics Ltd.
Dartmouth, N.S.

MacDonald Dettweiler and
Assoc. Ltd.
Richmond, B.C.

MacLaren, Marex Inc.
Dartmouth, N.S.

Philip E. Merilees
Montreal, P.Q.

Neil Sargent
Downsview, Ont.

Meyer Systems Inc.
Vancouver, B.C.

Younge Atmospheric
Consulting Services Ltd.
Calgary, Alberta

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NEW MEMBERS

Jean-Rock Brindle
Rimouski, P.Q.

Marie France Gueraud
Montreal, P.Q.

Lung-Fa Ku
Ottawa, Ont.

Andre Laferriere
Ville St-Laurent, P.Q.

James A. Lawrence
Baltimore, MD

Ken Macdonald
Lower Sackville, N.S.

Bernard P. Marois
Pointe Claire, P.Q.

Richard Leigh Penner
Winnipeg, Man.

George Piatt
Paradise, Nfld.

Fabiola Renaud
Verdun, P.Q.

Douglas John Russell
Halifax, N.S.

Andrew Nigel Staniforth
Pincourt, P.Q.

Richard B. L. Stoddart
Nepean, Ont.

Billie Taylor
Downsview, Ont.

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METEOROLOGICAL SOCIETY OF NEW ZEALAND

by G. H. Cousins, Secretary

The Meteorological Society of New Zealand (Inc.) was inaugurated at a meeting held in Wellington on 11 October 1979. The objects of the society are to encourage an interest in the atmosphere, the weather and the climate, particularly as related to the New Zealand region. Membership is open to all those with an interest in the objects of the Society. It is expected that membership will include both professionals and amateurs including meteorologists, climatologists, hydrologists, yachting and tramping enthusiasts, glider pilots, people involved in the aviation industry, agriculturalists, professional weather forecasters, ecologists, economists, farmers, geographers, engineers and weather observers. In addition, the many amateur weather watchers in the community are encouraged to join the Society.

The Society intends to publish a journal Weather and Climate, and a Newsletter. The journal is expected to be initially published every six months and will contain papers of interest to both professional and general readers as well as giving added recognition of the value of meteorological and climatological work being done in New Zealand. The journal will also include letters to the editor, book reviews, observations and explanations of unusual phenomenon (members will be invited to send in descriptions or photographs), reports on meteorological and climatological activities in the universities, the government, and the private sector. In addition, some space will be given to global meteorological activities and New Zealand's part in them.

A Newsletter will also be distributed to members probably every six months.

The subscription has been set at $5 though initially members have been invited to make a donation of a further $5. Subscriptions in subsequent years will be determined once an assessment of costs has been prepared.

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The officers of the Society elected at the inaugural meeting are:

President:	Dr. J. T. Steiner N.S. Meteorological Service Wellington.
Vice President:	Dr. N. Cherry, Lincoln College, Canterbury
	Mr. R. E. Copp N.S. Meteorological Service Auckland
	Dr. B. B. Fitzharris University of Otago Dunedin
Secretary:	Mr. H. Cousins, N.S. Meteorological Service Wellington
Treasurer:	Mr. J. D. Coulter 7 Findlay Street Tawa
Editor:	Dr. W. J. Maunder N.Z. Meteorological Service Wellington
Executive:	Mr. C. Thompson, N.Z. Meteorological Service Wellington
Committee:	Mr. M. J. Salinger Victoria University of Wellington Wellington.

Further information on the Society may be obtained by contacting any of the officers of the Society.

Prospective members are invited to complete the attached form and forward it to:

The Secretary
Meteorological Society of N.Z.
P.O. Box 3263
WELLINGTON

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A JOURNAL FOR CANADIAN HYDROLOGY by Michael Church

(Department of Geography, U.B.C.)

At the summer 1979 meeting of the Associate Committee on Hydrology, the status of the Proceedings of the Canadian Hydrology Symposia was discussed. It was decided that, henceforth, the proceedings would unequivocally represent a conference report. Papers will be printed after presentation without formal review. This decision was taken in order to encourage contributions from a wide range of participants, to simplify the preparation of preprint copies in advance of the Symposium, and to speed up printing of the conference record afterward. The decision will not affect the procedure by which abstracts of proposed papers will be reviewed by the Technical Programme Committee of CHS to ensure their topical suitability.

This clarification of the status of symposium proceedings raises a new issue: what is a suitable "archive" for final publication of Canadian hydrological research? At present, the main vehicles for publication are the CHS Proceedings and the Proceedings of the National Hydrotechnical Conferences of the Canadian Society of Civil Engineers, neither of which constitutes a fully peer-reviewed archive.

Papers from CSCE conferences are solicited for consideration by the Canadian Journal of Civil Engineering. Many papers of hydrological interest will be published in that way, but the (reasonable) subject bias of CJCE prevents it from catering for the entire range of hydrological science. Work under the broad heading of 'water resources' finds publication in CJCE and in the Journal of the Canadian Water Resources Association, but the mandate of the latter organization does not (again, reasonably) extend to hydrology per se. Hydrometeorological work may be presented at the Congresses of the Canadian Meteorological and Oceanographical Society, and subsequently, published in their journal, ATMOSPHERE/OCEAN.

Several ACH Members recognized several issues quite beyond that of peer review, before "final" publication. Does the biennial appearance of CHS and CSCE conference proceedings still constitute a sufficiently frequent pace for summary of Canadian hydrological research? A related issue that concerns ACH enters here: the committee has for some years, been concerned with the establishment and periodic revision of a list of suggested research priorities for Canadian hydrology. It has proven difficult both to define a list of precise topics and to publicize it adequately for hydrologists' consideration. It is probably that a regularly appearing serial publication would largely obviate this problem inasmuch as the sequence of articles would define and discuss evolving issues.

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At present, Canadians are heavy contributors to international journals, particularly to Water Resources Research, IASH Bulletin, and Journal of Hydrology. It is desirable that Canadians contribute some of their most general results to such international forums, but a wide range of results of more particular application to Canadian conditions should be serially publishable within Canada. The transfer of results from researchers to operational hydrologists would particularly benefit by such an arrangement. Finally, the quality, extent and scope of Canadian hydrological studies might then become clearly evident so that research funding levels and priorities could be more expeditiously arrived at.

The foregoing review of Canadian hydrological publication (excluding government reports) has been couched in terms of the desirability of establishing an "archive" (peer-reviewed) serial for hydrology in Canada. On the other side of this issue are the appearance that, on a global scale, there are already too many journals appearing; establishment of a journal is costly and there is no visible organization in Canada to underwrite it (save possibly the NRCC); and the volume of material may not be sufficient for a full journal, given international alternatives.

One way to avoid these problems might be to establish a regular section of hydrology papers in an extant journal, with a responsible associate editor. This is exactly what is done for 'hydrotechnical' papers within CJCE. Two Canadian journals come to mind as possibly suitable vehicles for such a venture: Canadian Journal of Earth Science (an NRCC journal), which occasionally published hydrological results, and ATMOSPHERE/OCEAN (a society journal). In fact, CJES mainly publishes groundwater hydrology - which is particularly appropriate - and has not generally attracted the attention of surface water hydrologists. Adoption of hydrology by ATMOSPHERE/OCEAN would nearly close the hydrological cycle in one journal and would present a range of topics of particular relevance for operational hydrologists, but may have additional implications for the Canadian Meteorological and Oceanographical Society.

At present, it seems premature to make any specific proposal. What is needed now is the views of Canadian hydrologists on the desirability or undesirability of attempting to establish some serial, peer-reviewed channel in Canada for the publication of results in hydrological science. Let us have your opinions.

Editor's note: Please direct your comments to Michael Church, John Powell or the Editor of the CMOS Newsletter.

NEW BRUNSWICK METEOROLOGICAL COMMITTEE - Donald A. Murray

History

In 1970, Professor R.B.B. Dickison, now employed at the University of New Brunswick (Faculty of Forestry), who in 1970 had been the Officer in Charge, Fredericton Weather Office, prepared a report reviewing what various provincial agencies located in New Brunswick were doing in collecting weather information and how these data were being put to use.

He found that no coordination existed between these different agencies, and that a considerable overlap and even duplication occurred. (Example - Different agencies were running seasonal climate stations at nearly the same location).

He recommended that the whole provincial network and its range of activities be reviewed with a view to saving money and effort while improving the output. To do this he felt a full time coordinator should be appointed and that a standing meteorological committee be established. He also recommended that the province assume responsibility for overall administration and certain functions of the basic weather data following necessary negotiations with the then federal Meteorological Branch and now known as the Atmospheric Environment Service, a Branch of Environment Canada.

In 1973 the Water Resources Branch of the New Brunswick Department of the Environment proposed the establishment of a position for a meteorological technologist to assist the Flood Forecast Centre and act as Provincial Coordinator of Meteorological Services. The position was approved.

During the first two years an extensive review of the network was accompanied by several practical measures towards nationalizing the network of stations. These measures were carried to the point where everything had been done that could be accomplished at a relatively junior, unofficial level of inter-agency cooperation.

It then became necessary to have a more senior and formal mechanism to enable further improvements, and accordingly a meeting of more senior officials was called May 1976 to discuss where to go.

At this meeting several tasks were allocated to the coordinator in conjunction with the assistance of various

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agency's staff. The coordinator was to:

a) specifically define each agency's programmes, networks, instruments, and parameters recorded as well as "data bank" and climatological requirements;

b) draft maps of provincial meteorological stations and;

c) complete an evaluation of the existing climatological networks in New Brunswick.

The first two assignments have been completed and the initial draft of the networks evaluation will be distributed to all concerned by mid January of this year.

Through the ad hoc arrangement an area of operational cooperation developed between provincial agencies and provincial/federal agencies that has exceeded expectations.

In November 1978, this ad hoc group of provincial agencies requested to Mr. Franklyn Cardy (Director, Water Resources Branch, New Brunswick Department of the Environment) that a meteorological committee be formalized consisting of:

a) Coordinator (permanent position);

b) Chairman;

c) Secretary;

d) Members, including alternates; and

e) Consultants (The consultants would be staff members of agencies whose expertise could be of value to the committee).

In response to the request, Mr. Cardy wrote a letter to each provincial agency director/manager. Unanimous approval was received and the Committee was formed in January 1979.

Committee Executive

		Position
Keith Barr	N.B. Dept. of National Resources	Secretary
Don Murray	N.B. Dept. of the Environment	Coordinator
Paul Galbraith	Atmospheric Environment Service	President

Terms of Reference

1. To promote and assist in the development of quality meteorological programs and services in the province of New Brunswick by improving communications, co-orddnation, consultation and co-operation among government agencies and other organizations.

2. To achieve the specific objectives as outlined below:

   2.1 To set acceptable standards for the establishment and operation of meteorological station networks;

   2.2 To minimize the unnecessary duplication of meteorological activities among government agencies;

   2.3 To actively support the formation and continuous operation of a meteorological data bank, and its use be government agencies;

   2.4 To encourage the communications and co-operation among government agencies and other organizations concerning meteorological activities;

   2.5 To promote the consideration and application of meteorological information in the activities of government agencies and other organizations;

   2.6 To appoint ad hoc committees as required to evaluate specific weather-sensitive problems and to make recommendations for action;

   2.7 To assess the need and make recommendations regarding the preparation and publication of meteorological information of common interest;

   2.8 To monitor and evaluate meteorological services in the province of New Brunswick.

3. To provide these indicated services to all government agencies, organizations and individuals as required.

4. Membership to consist of appointed representatives of provincial government agencies. Additional attendees include consultants as required by the committee, and interested observers upon request.

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Letters

14 December 1979

The Editor
CMOS NEWSLETTER
Atmospheric Environment Service
Argyll Centre
6325 - 103 Street
Edmonton, Alberta T6H 5H6

Dear Sir:

An interesting item appeared in the December 1979 issue of the News Letter of the Ontario Institute of Agrologists (OIA). Earlier this year, Professor Elmer Menzie, director of OAC's School of Agricultural Economics and Extension Education spoke to the Guelph Branch of OIA. He assessed the impact and results of the re-organization of the Agricultural Institute of Canada (AIC).

One point of interest was the implications regarding Environment Canada and the AES. Apparently AIC has a position paper on land use in which it is noted that "Five major departments are concerned: agriculture, industry, trades and commerce, environment, health and welfare, and consumer and corporate affairs. The AIC recommends that some of the units concerning themselves with agriculture within the last four departments be added to Agriculture Canada. We believe this would facilitate internal government communication and decision making, and make it easier for the industry to relate to government on agriculture and food".

This implies that, ultimately, we may see AES located within Agriculture Canada. After all, food production variability is more dependent on weather variability than on any other single factor. Such a move would afford a wonderful opportunity for agrometeorologists in both AES and CDA to combine forces and really provide a single integrated farm-weather service for Canadian agriculture.

Think about it. Maybe the time has come for the executives of CMOS and AIC to have dialogues concerning this and related environmental matters.

Yours sincerely,

George W. Robertson, P.Ag.
Consulting Agrometeorologist

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NEWS FROM THE CENTRES

Ottawa: December activities were highlighted by an informal social gathering hosted by Ted Hamilton. A fitting way to celebrate the season.

A dinner meeting is planned for 30 January at which Dr. J.B. Harrington will speak on the topic: Forests - a Renewable Resource.

Halifax: At the December meeting Dr. Stu Smith spoke on: Wind Stress and Heat Flux in Gale Force Winds.

It is planned that the 30 January meeting will have a speaker to address environmental concerns of the proposed Pointe Lepreaux nuclear power station.

At the dinner meeting scheduled for 13 February, Dr. Rod Shaw will speak on Acid Rain.

The November membership drive resulted in the recruitment of 12 new members.

Fredericton: The main upcoming event will be Leo Burns' presentation on Spruce Budworm Meteorology at the 5 February meeting.

St. John's: Allison Stennings, a graduate student at Memorial University spoke on the topic: Aspects of Glacial Climatology at the 18 December meeting.

Alberta: The second meeting of the year was held on the evening of November 29, 1979. The guest speaker was Dr. John England, Association Professor, Department of Geography at the University of Alberta. Dr. England's talk was titled "Volcanic Dust, Glaciation and Climatic Change: New Evidence from the High Arctic".

The next meeting is scheduled for February 5, 1980 when Dr. Michael Glantz, this year's tour speaker, will be visiting the Centre.

We would like to take this opportunity to extend our best wishes to Alf Ingal and Dave Fraser, both long time supporters of CMOS, who are retiring from the Arctic Weather Centre in Edmonton. Their contributions, both to the Centre and to the National activities of the Society, are recognized by all of us.

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EDUCATIONAL OPPORTUNITIES

Atmospheric Sciences at the University of Toronto

The Department of Physics of the University of Toronto offers graudate training in atmospheric sciences to students with the degree of B.Sc. in Physics. The courses offered allow the choice of a training program for professional meteorologists, as well as other specializations.

Research Interests:

Atmospheric dynamics, mesoscale waves and boundary layer, post-glacial sea levels, diagnostic study of convective weather systems observed in GATE, cumulus parameterization, physics of precipitation (formation of rain, snow and hail), weather modification, thunderstorm electrification, atmospheric ions, gas-to-particle reactions, air pollution, climatology, climate modelling, carbon cycle, climate impact on society.

Cooperative Programs:

Cooperative activities involve the National Center for Atmospheric Research in Boulder, Colorado; the World Meteorological Organization (Precipitation Enhancement Project, Global Atmospheric Research Program); the Atmospheric Environment Service of Canada; the U.S. National Severe Storms Laboratory; etc.

The University of Toronto is one of the two international members of the University Corporation of Atmospheric Research in Boulder, Colorado, which operates the National Centre for Atmospheric Research (NCAR) as funded by the U.S. National Science Foundation.

Facilities:

Minicomputer (Nova 3) with 10 M bite disk, magnetic tape drive, printer-plotter, two terminals, respresenting also the communications computer to connect with the CRAY 1 of NCAR in Boulder, Colorado; Measuring equipment for stratospheric gases flown on a satellite and balloon; Low turbulence wind tunnel and free fall tower (equipped with high speed camera) to study aerodynamics and/or heat transfer of atmospheric ice particles; Linear drop accelerator systems to study raindrops collision and breakup; Icing tunnel to study ice particle and hailstone growth (with computerized laser system); Cold rooms for electrification experiments and ice investigations; Mass spectrometer for ion research.

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Courses:	Atmospheric Physics	Dynamic Meteorology
	Descriptive Meteorology	Dynamics of Planetary
	Radiation in the Atmosphere	Boundary Layers
	Lab. in Synoptic Meteorology	Cloud Physics
	Hydrometeorology	Micrometeorology
	Physical Basis of Climate	Atmospheric Thermodynamics
	Atmospheric Electricity	Topics in Advanced Dynamic Meteorology
	Atmospheric Waves	Cloud Dynamics
	Numerical Modelling	Atmospheric Chemistry

Correction to Meteorological Traning Programs at the University of Waterloo:

An unfortunate error went undetected in our transcribing the list of courses offered by the University of Waterloo.

The list should read as follows:

Undergraduate

Mechanical Engineering	469	Introduction to the Environmental Sciences
Mechanical Engineering	571	Air Pollution
Geography	301	Climatology
Geography	303	Physical Basis and the Geography of Water
Geography	408	Special Topics in Climatology and Natural Hazards
Geography	409	Energy Balance Climatology

Graduate

Mechanical Engineering	664	Turbulent Flow
Mechanical Engineering	669	Numerical Studies in Atmospheric Dynamics
Mechanical Engineering	670	Atmospheric Dynamics
Mechanical Engineering	763	Micrometeorology
Mechanical Engineering	764	Dynamical and Physical Meteorology
Mechanical Engineering	776	Wave Phenomena in Fluid Flow
Geography	608	Climatology
Geography	609	Boundary Layer Climatology

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1979 BEAUFORT SEA ENVIRONMENTAL FORECAST OPERATIONS

- Bill Hart and staff of the Arctic Weather Centre, Edmonton

For the fourth consecutive season, the Atmospheric Environment Service (AES) provided an environmental forecast and ice observing service in the Beaufort Sea area by contract to Canadian Marine Drilling (CANMAR) and ESSO Resources. This service supported their offshore drilling and platform island construction programs in the Beaufort Sea. Some of the major services provided were:

1. site specific wave, ice and weather forecasts and/or updates issued at least four times daily;

2. warnings and advisories of hazardous weather, wave and ice conditions as necessary;

3. ice reconnaissance flights and consultations.

The focus of this forecast operation was the Beaufort Weather Office (BWO) based at the CANMAR operation centre at Tuktoyaktuk. It was staffed by two meteorologists and a technician/ice observer and provided a continuous (24 hr) service throughout the drilling season from 5 June to 5 December 1979. Actually, several meteorologists from the Arctic Weather Centre (ARWC) in Edmonton rotated through the BWO positions and by the same arrangement, technicians from the ARWC and AES Ice Branch filled the technician position.

Forecast support for the BWO was drawn from the Canadian Meteorological Centre (CMC) for long range and large scale prognoses, from the ARWC first for a regional overview by the prog-analyst and second for "another opinion" on weather systems expected to affect the Beaufort produced by the forecaster on the "offshore support Desk". IFC provided the BWO with all routine output plus site-specific freeze-up forecasts.

Coordination between the BWO, the ARWC offshore support facilities and the drilling companies was handled by a project manager in the ARWC.

The observational network for the 1979 season was better than any previous year and besides some 95 land based reporting stations the four CANMAR drillships reported regularly as did the ESSO Resources Arctic Breaker. The most significant additions, however, were the Polex buoys deployed as part of the Global Atmospheric Research Program. Seven to nine were routinely plotted and analyzed across the southeastern Arctic Ocean. These reported mean sea level pressure and position four times a day filling a large void in the surface data to the northwest of the Beaufort Sea. A CANMAR buoy was also deployed reporting wind speed and direction and pressure. Due

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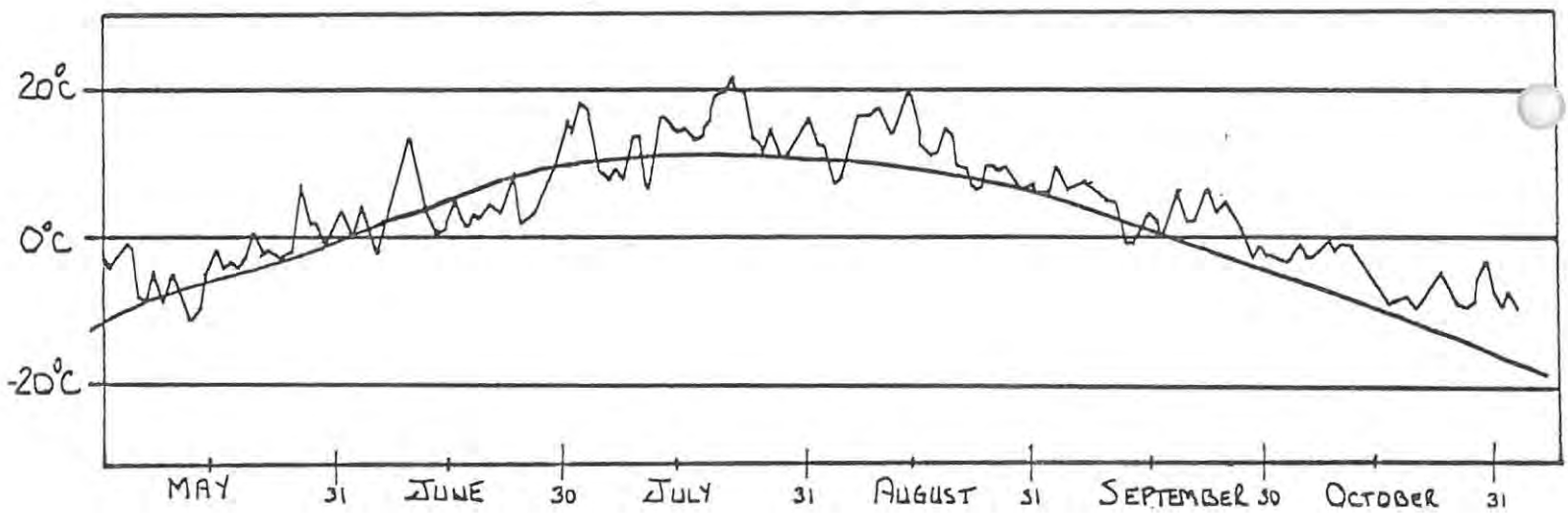
to an instrumental fault, however, its position had to be inferred by reference to two Polex buoys.

Ice reconnaissance flights were flown generally twice daily during break-up and once daily during freeze-up. Satellite imagery from TIROS-N and NOAA-6 supplemented these flights. Ice charts were drawn up and dispatched to all operating vessels as soon as the aircraft returned to base.

Communication facilities available to the BWO were a dedicated conditioned line to the Arctic Weather Communication Centre for facsimile charts and K560 satellite photo reception. This year a data link to the Arctic Weather Centre computing facility was added allowing access to extensive weather data and software programs in a variety of forms.

Weather conditions for the 1979 season were marked by above normal temperatures for almost all of the operational period from June through to December.



Tuktoyaktuk NWT Mean Daily Air Temperature-1979

This anomally, together with persistent east winds, allowed all vessels to break out of harbour by early July. During the summer, the permanent pack edge remained over 100 km north of the most northerly drilling site.

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The forecasting of significant winds is one of the main functions of the BWO. Of a total of 113 cases of winds in excess of 20 kts, 92 were forecast ahead of occurrence (81%) and of 22 cases of winds in excess of 30 kts, 19 were forecast (86%) ahead of occurrence.

During the freeze-up period, temperatures held well above normal. The November mean at Tuktoyaktuk was -11°C, some 7.5°C above normal and more typical of an October regime. Ice growth in Mackenzie Bay at the end of November was a month behind that of 1978. This pattern continued

into the first few days of December, but by the 5th, with the BWO closed and with the drilling fleet safely harboured in McKinley Bay, the last of what seemed an endless series of lows moved eastward across Mackenzie Bay. In its wake strong to gale force northwest winds brought snow and blowing snow and the first drop to below normal temperatures since mid September.

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Books

BOUNDARY LAYER CLIMATES

- T. R. Oke

This is a modern climatology textbook which explains the climates formed near the ground in terms of the cycling of energy and mass through systems.

Professor Oke begins with a discussion of atmospheric processes, and how they interact with physical properties of surfaces to produce distinctive climates. This provides a conceptual framework for the subsequent analysis of the climates of a wide range of natural and man-modified environments, extending from the mirco-scale of insects and leaves, up the local scale of cities and regional air pollution. These include the climates of desert, snow, ice, water vegetation, animal, building and urban systems, and horizontal interaction between contrasting terrain climates, and the effects of intentional climate manipulation.

The treatment is suitable for non-meteorological specialists in geography, agricultural and forest science, ecology, engineering and related fields in environmental science and planning.

Published in August 1978 - 368 pages.

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International Conference on Climate and History 8-14 July, 1979.

Edited by: G. Farmer, M.J. Ingram, H.H. Lamb, D.J. Underhill and T.M.L. Wigley

CLIMATIC RESEARCH UNIT

Review Papers

This amall book of 150 pages presents the seven review papers presented at International Conference on Climate and History held at the University of East Anglia, 8-14 July 1979.

These papers deal with the variety of techniques used to infer past climates such as pollen analysis, tree ring analysis, glaciological examination and evidence from archeology and documentary sources. The amount of information assembled on historical climates and climate trends through these exhaustive investigations is striking.

This book and its companion "Abstracts" which contains abstracts of all papers presented at the Conference will be of interest to anyone investigating global climate trends.

Hydrodynamics of Estuaries and Fjords

Proceedings of the 9th International Liege Colloquium on Ocean Hydrodynamics

Jacques C. J. NIHOUL (ed.)

Elsevier Oceanography Series, 23

1978 xiv + 546 pages $58.00

ISBN0-444-41682-X

Estuaries and fjords - man's impact on the environment - modelling of estuaries and coastal seas - river engineering. These are among the vital issues discussed at the 1977 meeting of the famour Liege Colloquia by eminent scientists from a variety of disciplines. Experimentalists and modellers, hydrodynamicists, chemists and biologists contributed specially commissioned articles and well-documented case studies, providing a survey of major new discoveries and valuable suggestions for future research in estuarine hydrodynamics.

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Great Lakes '80

International Association for Great Lakes Research

Queen's University, Kingston, Ontario · 19-22 May 80

In addition to scientific sessions, the Conference Theme, "Towards an Ecosystem Management Strategy" will be addressed by a number of internationally known scientists and environmental managers. We welcome contributed papers, both on the conference theme and on any aspect of science relevant to the Great Lakes. Further information can be obtained from:

Dr. E. D. Ongley
Great Lakes - '80
Queen's University
Kingston, Ontario
K7L 3N6

CONFERENCES

Edmonton, Alberta	February, 1980 Sponsor:	Hydrometeorology Sectorial Workshop Canadian Climate Centre Alberta Climatological Association
Fredericton, N.B.	22-22 March 1980 Sponsor: AMS-CMOS	Second Conference on Meteorology of Northern New England and the Maritimes
Laraimie, Wyoming	15-17 April 1980	Western Snow Conference
Kingston, Ontario	19-22 May 1980 Sponsor:	Great Lakes - '80 International Association for Great Lakes Research (IAGLR)
Toronto, Ontario	22-27 May 1980	AGU Spring Meeting; 14th CMOS Congress
Toronto, Ontario	May 1980 Sponsor: AGU -	Symposium on Urban Hydrometeorology Canadian Associate Committee on Hydrology
Kelowna, B.C.	4-6 June 1980 Sponsor: CWRA	33rd Annual Canadian Water Resources Association Conference
Hartford, Conn.	April 1981 Sponsor: AMS-CMOS	Long Range Transport of Air Pollutants
Toronto, Ontario	16-18 June 1981 Sponsor: AMS-CMOS	4th Conference Atmospheric Radiation

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CHINOOK Questionaire

Questionaire on CHINOOK Magazine

The enclosed copy of the magazine "CHINOOK" is being sent to you, compliments of the editor, Mike Newark. In order to determine the degree of interest in this publication that there may be among CMOS members, would you please complete the questionaire below and return it to me. Depending upon the amount of favourable response, your executive would then be in a position to pursue the matter further. Thank you very much.

A. S. Mann, CMOS Newsletter Editor
Atmospheric Environment Service
6325 - 103 Street
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T6H 5H6

Questionaire

1. Would you be interested in receiving CHINOOK magazine as part of the CMOS membership package?

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2. If you are interested please indicate your preference (1st choice, 2nd, etc.) for the following options:

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