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INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

OVERVIEW ON ACTIVITIES OF THE INTERNATIONAL ARCTIC SCIENCE COMMITTEE (IASC)

1992 IASC DIGEST
International Arctic Science Committee

IASC-Digest is an annual summary of IASC activities during the previous year, and is intended for wide distribution.

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Members

Structure of IASC

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is published by
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GENERAL

THE ACTIVITIES OF IASC IN 1992

In 1992 IASC was in its second year of operation and therefore was in need of further development of specific scientific goals, its mission and scope, and a strategy to meet the goals.

However, the main function of IASC is to initiate and plan circumarctic, international research activity. The *Science Initiatives* section summarizes such activities for 1992.

Since this represents a beginning for IASC, we encourage member organizations and research groups to propose initiatives that should be considered by the Council in 1993.

WHAT IS UNIQUE ABOUT IASC?

IASC is a non-governmental scientific organization that links scientific academies, institutes and industrial scientists in each of the countries engaged in arctic research, and thus

- embraces all fields of arctic science;
- covers all the Arctic and promotes a circumarctic approach;
- is well-suited to initiate interdisciplinary science;
- is nevertheless supportive of disciplinary activity in need of circumarctic coordination and cooperation.

The scientific communities in arctic member countries are connected with the Council and Regional Board through a single national scientific organization. This provides a sound organizational framework to promote a robust science agenda in a regional and global context.

THE MAIN FUNCTIONS OF IASC:

To initiate, co-ordinate, and promote basic and applied research in the Arctic; and

To provide scientific advice on arctic issues, particularly issues of concern to arctic residents, including environmental and technological matters.

ARCTIC SCIENCE PLANNING

IASC can:

- **initiate** new, long-range international programs of regional or global significance which will require several years of planning;
- **co-ordinate** projects that are already planned but would benefit from technical and operational contacts available through IASC, from international consensus, or from linkages with other organizations; and
- **promote** arctic research through publications, workshops, and the Arctic Science Conference.

SCIENTIFIC ADVICE ON ARCTIC ISSUES

IASC is the only international arctic organization covering all scientific disciplines that connects national academies and institutes through an international network with the potential to provide scientific consensus on a wide range of arctic issues bearing on science. The structure and membership of IASC thus establishes a mechanism to provide scientific advice on issues associated with resource utilization, environmental protection, and community infrastructure, among others.

COOPERATIVE SCIENTIFIC NETWORK FOR ARCTIC RESEARCH

As one of IASC's main activities is to develop interdisciplinary circumarctic science initiatives, a first step was to clarify relationships with other organizations which are active in arctic research.

Our basic philosophy has been to create a cooperative scientific network for arctic research, and to do so by building on existing science organizations.

During 1992 we reached consensus on the principles for this cooperation, and we are now ready to respond to requests for affiliation.

One example of this networking is our relationship to the International Union for Circumpolar Health, IUCH. As circum-arctic medical and health sciences are well covered by IUCH, IASC agreed in 1992 to liaise with IUCH, and to invite the IUCH Council to constitute a standing advisory body on medical and health research in the Arctic. IASC will also draw on IUCH advice in the development of multi-disciplinary programs that embrace the medical or health sciences.

SCIENTIFIC INITIATIVES

GLOBAL CHANGE RESEARCH IN THE ARCTIC

The Arctic is a region where many of the anticipated changes will have the greatest impact, and where many changes can first be detected.

Global Change Research in the Arctic was one of the first scientific initiatives by IASC. The IASC Council agreed in 1991 to establish an IASC Working Group on Global Change Studies, chaired by Dr. Gunter Weller, University of Alaska, Fairbanks. The International Geosphere-Biosphere Programme later tasked IASC to work out a regional research program on global change for the Arctic.

In 1992 IASC organized a *Planning Workshop on a Regional Research Programme in the Arctic on Global Change* in Reykjavik, Iceland on 22 - 25 April. The workshop was attended by 44 participants from 13 IASC member countries as well as from other international organizations.

The workshop participants have subsequently been developing a report identifying research objectives and giving the background and justification for core programs in the Arctic. Major current and planned international projects were considered and additional needs were identified to fill missing gaps and thereby meet core programme objectives.

The report was in the process of being reviewed inside IASC in 1992, and will be sent out for review by others in 1993. A final report or plan will be published towards the end of 1993. The final plan will also include a section on implementation.

HUMAN AND SOCIAL SCIENCES

Human and social sciences are key research areas in the Arctic. An attempt is being made to integrate the human aspects into all IASC scientific endeavors. For example, the *Human Dimensions of Global Change* were considered in the global change workshop and report noted above.

In addition, at the 1992 Council meeting an ad-hoc group chaired by the Council member from The Netherlands, Dr. Louwrens Hacquebord, was asked to develop a proposal on how IASC could contribute to circumarctic scientific cooperation in human and social sciences. This proposal was received later in 1992 suggesting that a standing advisory body on arctic human and social sciences should be established. Council members have been asked to nominate potential members for an advisory group, and the group is expected to be formally established at the 1993 Council meeting.

GEOPHYSICAL COMPILATION AND MAPPING

At the 1992 Council meeting it was agreed that a working group should be established in this field. An ad-hoc group led by Dr. Ron Macnab of Canada worked out a draft implementation plan which was discussed by the IASC Executive Committee in November. The Executive Committee agreed to the proposed aims, objectives and structure. Council members have been asked to nominate members to this group.

ARCTIC MARINE GEOLOGY

A proposal was discussed at the 1992 Council meeting. The Council decided that an ad-hoc group should be asked to propose a specific science program. Dr. Leonard Johnson, USA, has been appointed Chairman of this ad-hoc group and other members have been nominated. A planning meeting has been scheduled for early April, 1993.

ARCTIC GLACIERS

A proposal concerned with the role of arctic glaciers on global change was discussed by Council at its 1992 meeting. The Council agreed that this was an interesting initiative that could become a useful cooperative forum for arctic glaciologists.

The Council decided that an ad-hoc group of glaciologists should develop a scientific program and terms of reference. Members of the ad-hoc group have since been nominated and the group started its work by correspondence. A report is expected for the 1993 Council meeting, and a meeting of the group later in 1993 is being considered.

ARCTIC OZONE DEPLETION - CAUSES AND EFFECTS

Recent evidence continues to show that the stratospheric ozone layer over the Arctic is being reduced, especially during the late winter period. In winter 1991-92 there could have been a dramatic ozone 'hole' in the Arctic if the winter had been longer and colder.

Monitoring of the stratospheric ozone and studies of causes and processes of depletion are well in progress, although a main reason for concern with respect to stratospheric ozone depletion is the consequent increase in UV-B radiation.

There is as yet no satisfactory monitoring on a regional basis of UV-B as received at the surface. The UV-B instruments presently used are not ideal, and the reliability of data currently available is uncertain. Both improved instrumentation and measurements of UV-B, and basic research on the environmental and biological effects of UV-B are needed.

However, arctic ozone depletion should also be of concern to sciences outside the natural sciences. The social sciences could contribute vital information about effects on arctic settlements and industries, communication and risk analysis, etc. For the medical sciences, studies of physiological and psychological effects on northern residents would be important.

It was proposed that IASC develop a multidisciplinary approach to this problem.

The Council tasked a small group to initiate further progress. This proposal is in its initial stage.

THE GREAT SIBERIAN - FROM THE BARENTS TO THE BERING SEA

The Russian Federation is the largest arctic country, with several million people living in the Russian Arctic. The Arctic is important for the Russian economy due to its resources (minerals, oil, fisheries etc.). About 60% of the Russian hard currency comes from their arctic region.

Economic turmoil leads to problems for Russian arctic scientists and research institutions, a community that could contribute significantly to solving some of the problems encountered in the Russian Arctic.

Opportunities for foreign assistance are welcomed by Russian scientists working in the Arctic.

At present a number of bilateral efforts are ongoing or planned. The effect could be considerably enhanced by broader cooperation with a contribution from foreign arctic science institutes in addition to those already engaged.

A paper outlining a possible approach was discussed by the IASC Executive Committee, as well as sounded out with some potential contributors. The preliminary response has been very positive. The Executive Committee decided to initiate a process to identify an expert group and gave the Executive Secretary a mandate to take the necessary steps.

WORKSHOP ON ARCTIC OCEAN STUDIES

As several scientific programs are planned in the Arctic Ocean, IASC believes that it would be advantageous to coordinate these initiatives and address both the central scientific questions and the logistical and administrative problems related to cooperative studies of the Central Arctic Ocean and its shelf seas.

The European Committee on Ocean and Polar Sciences (ECOPS) made the Arctic Ocean one of its four 'Great Challenges'. As a result a workshop planned by ECOPS is expected to become a tripartite undertaking with IASC and the Arctic Ocean Sciences Board.

ARCTIC SCIENCE CONFERENCE

In the Founding Articles for IASC an Arctic Science Conference was mentioned and was expected to "be convened periodically by IASC to identify key scientific questions and issues"

Proposals for scope and a theme for a conference have been discussed without a final conclusion. *Arctic pollution*, which has come to the forefront of international attention could be a possible theme for a conference.

ARCTIC DATA REFERENCE DIRECTORY

IASC has earlier discussed whether an initiative should be taken as to a catalogue of arctic scientific data. It was felt premature to initiate any major activity in this field before science needs had been discussed.

However, a reference directory on major on-going research programs and data collections could be useful in a science planning context. AMAP, the Arctic Monitoring and Assessment Programme, had initiated a directory with similar objectives. Administrative contacts between AMAP and IASC (and also GRID-Arendal) revealed that a cooperative effort could be of mutual benefit. A joint group of experts is being established.

ARCTIC GEOGRAPHICAL INFORMATION SYSTEM (AGIS)

The objective of this project is to establish a digital database for a circumarctic map that could be developed into an Arctic Geographical Information System (AGIS).

AGIS could be used by national as well as international groups both inside and outside IASC, as there is or will be an increasing need for organizing scientific data and reports into a satisfactory information retrieval system. At present the current status of digitized basic mapping is being investigated.

MEMBERS OF IASC

Members of the Executive Committee of the Council appear in bold text

Country:	*Member/Representative as of December, 1992:*
CANADA	Canadian Polar Commission **Dr. E. Fred Roots, President of Council** Dr. Gerald Lock, Regional Board
DENMARK	The Commission for Scientific Research in Greenland Dr. Martin Ghisler, Council Dr. J. P. Hart Hansen, Regional Board
FINLAND	The Academy of Finland Dr. Pentti Mälkki, Council Dr. Elisabeth Helander, Regional Board
FRANCE	Centre National de la Recherche Scientifique Dr. Claude Lorius, Council
GERMANY	Deutsche Forschungsgemeinschaft **Dr. Gotthilf Hempel, Council** until November, 1992 Dr. Dieter Fütterer, Council after November, 1992
ICELAND	The Icelandic Council of Science Dr. Magnus Magnusson, Council and Regional Board
JAPAN	Science Council of Japan, National Committee on Antarctic Research, Dr. Takao Hoshiai, Council
THE NETHERLANDS	The Netherlands Marine Research Foundation Dr. Louwrens Hacquebord
NORWAY	The Norwegian Academy of Sciences and Letters **Dr. Anders Omholt, Council** Dr. Nils Are Öritsland, Regional Board
POLAND	Polish Academy of Sciences, Committee on Polar Research, Dr. Krzysztof Birkenmajer, Council
RUSSIA	The Russian Academy of Sciences, the Arctic Research Commission, **Academician Igor S. Gramberg, Council** Dr. Boris Melnikov, Regional Board (appointed January, 1993)
SWEDEN	The Royal Swedish Academy of Sciences Dr. Bert Bolin, Council Dr. Anders Karlqvist, Chairman of the Regional Board
UNITED KINGDOM	The National Arctic Research Forum Dr. Eileen Buttle, Council
USA	The National Academy of Sciences, **Dr. Norbert Untersteiner, Council** Dr. Robert W. Corell, Regional Board

THE STRUCTURE OF IASC

THE COUNCIL

The Council is the policy and decision-making body for IASC activities. One representative is selected by each national adhering body to represent the national scientific community. An Executive Committee of the Council is selected to be responsible for IASC matters between Council meetings.

THE REGIONAL BOARD

The Regional Board will consider general regional problems and other questions which affect the common interests of the arctic countries. Its membership includes one representative from each of the eight arctic countries. The purpose of the Regional Board is to ensure that the activities of IASC are consistent with those interests.

WORKING GROUPS

Working groups provide the main forums for developing IASC scientific programs and activities. The goal is to establish interdisciplinary working groups to perform specific tasks, rather than disciplinary groups to serve as standing committees.

THE IASC SECRETARIAT

The Secretariat shall serve the organizational needs of IASC as defined in its terms of reference. The Secretariat is accountable to the Executive Committee, which provides necessary guidance and decides on its semi-annual workplans.

Staff: Executive Secretary: Odd Rogne
Administrative Secretary: Maryanne Rygg

Secretarial support to IASC activities is also provided on an ad-hoc basis by others.

For information or a list of publications available, please contact:

The IASC Secretariat
Rolfstangveien 12
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Norway

Please make note of our new phone and fax numbers!

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Telex: 74745 Polar N

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PROGRESS

IASC International Arctic Science Committee

IASC MEETINGS - Preparations are underway for the following meetings:

THE COUNCIL MEETING

The annual Council meeting will be held 26-30 April in Abisko, northern Sweden. This year's Council meeting is an important one and will address a number of issues and proposals ranging from science planning to implementation. Polishing the IASC strategy and appointment of officers will also be on the agenda.

THE REGIONAL BOARD MEETING

This meeting will be held concurrently with the Council meeting. The Regional Board is particularly concerned with projects of a regional nature.

THE AD-HOC WORKING GROUP ON ARCTIC MARINE GEOLOGY

This group will hold its first meeting 19-21 April in Copenhagen. Its main purpose is to discuss a science proposal and work out some terms of reference. Their report will be on the Council meeting agenda in Abisko.

THE AD-HOC WORKING GROUP ON ARCTIC GLACIERS

The group has conducted their initial discussions by mail, but expects to meet during another glaciological meeting in September, 1993.

ACRONYMS AND ABBREVIATIONS FOR THE POLAR SCIENCE COMMUNITY

The first edition of this 42-page publication was printed in January and distributed to IASC representatives and contacts. Copies are available as long as our stock lasts. We also encourage internal copying to share with staff members. We intend to up-date this publication at the end of this year, as we may not have come across all *A & A* that should be included. We appreciate comments and additions which can be included in the next issue.

NEW RUSSIAN MEMBER OF THE IASC REGIONAL BOARD

Dr. Boris Melnikov has been appointed to succeed Dr. Kazmin as the Russian member of the IASC Regional Board. Dr. Melnikov is Chief Expert of the Interagency Commission for Arctic and Antarctic Affairs. His address is: Okhotny Rjad 1, 103 009 Moscow, Russia. Fax: 7-095-930-2787.

THE FINNISH POLAR PROGRAMME 1993-1997

The Polar Commission of Finland has drawn up their polar programme for 1993-97 analyzing activities and trends in the polar regions as seen from an international and Finnish perspective. Some guidelines on Finnish polar research activities are given, as well as discussion of financial and organizational issues. A copy is available from Ms. Riitta Mansukoski, Science Officer, Ministry of Trade and Industry, P. O. Box 230, SF-00171 Helsinki, Finland, FAX: +358-0-1603705.

ZACKENBERG - A RESEARCH STATION IN NORTHEAST GREENLAND

The Danish Polar Center has presented a plan to establish a modern and different type of small arctic research station. It will be used for long-term interdisciplinary ecological research programmes. Danish Polar Center invites interested institutes and sponsors to participate in this new venture. Further information can be obtained from: Danish Polar Center, Strandgade 100H, DK-1401 Copenhagen K, Denmark. Fax: +45-32-880101.

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1993 INTERNATIONAL MARINE EXPEDITION TO FRANZ JOSEF LAND, RUSSIAN ARCTIC

Sevmorgeologia in St. Petersburg announced recently a long-term multidisciplinary scientific programme in the Franz Josef Land Archipelago and adjacent shelf, starting in June this year. The programme is being developed with AARI, the Arctic and Antarctic Research Institute in St. Peterburg. The principal goals are:

- to understand the geological history of the Arctic margin and reconstruct the evolution of the continent/ocean transition zone in terms of mineral resource evaluation, and
- to study modern geological processes and behaviour of the Arctic ecosystem in environmental and global change context.

Foreign partners are invited to participate. Deadline for application for participation is 15 March, 1993. The IASC Secretariat has received a 3-page description of the project and can provide a copy of this, or send inquiries directly to: Dr. Garrik E. Grikurov at the All-Russia Research Institute for Geology and Mineral Resources. Fax: + 7-812-232-6690 E-mail: OCEAN@sovamsu.sovusa.com, Telex: 121430 ONICS.

INTERNATIONAL ARCTIC EXPEDITION 1995/96

A multi-disciplinary and multi-ship expedition is being planned emphasizing Global Change, with science programs consisting of physical, chemical and tracer oceanography, geology/geophysics, sea ice studies, and biology. Focus will be on the deep basins of the central Arctic including the Eurasian and Canadian basins and their link to the continental margins and shelf seas. Potential platforms are six icebreakers and ice breaking research vessels from Europe and North America. Text of the full announcement with contact persons is available from the IASC Secretariat. For further details contact: Dr. Peter Schlosser, Lamont-Doherty Earth Observatory of Columbia University, Route 9W, Palisades, NY 10964, USA. Fax: +1-914-365-3183.

FUTURE CONFERENCES - CALL FOR PAPERS

POLAR TECH '94

International Conference on Development and Commercial Utilisation of Technologies in Polar Regions to be held March 22 - 25, 1994 in Luleå, Sweden. Theme: INFRASTRUCTURES AND ENVIRONMENTAL PROBLEMS IN POLAR REGIONS
Topics: • Applications of Polar Technology • Hydropower and Mining
• Polar Environment and Technology • Cold Climate Technology Research
• Offshore and Onshore Technology • Small Business and Technology Research

For further information contact Ms. Lena Allheim Karbin, CENTEK, Luleå University of Technology, S-951 87 Luleå, Sweden. Fax: +46-920-990-20

ISCORD 1994

INTERNATIONAL SYMPOSIUM ON COLD REGION DEVELOPMENT
to be held June 13 - 16, 1994 in Espoo, Finland. Topics: • Building, housing and construction • Infrastructure, traffic and transportation • Rural development
• Environment.

For further information contact *ISCORD '94 Secretariat*, c/o Assoc. of Finnish Civil Engineers RIL, Meritullinkatu 16 A 5, SF-00170 Helsinki, Finland. Fax: +358-0-1357670

THE ARCTIC: CANADA AND THE NORDIC COUNTRIES

A limited number of copies of proceedings from the 3rd International Conference of the Nordic Association for Canadian Studies, theme as above, are available free of charge on request to the IASC Secretariat. 25 essays on 318 pages. edited by Per Seyersted.