

**Meeting of the Scientific Coordinating Group for
the International Arctic Polynya Programme
April 6, 1992
St. John's, Newfoundland**

Members

Louis Legendre (Chairman)
John Harwood
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Observers

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Publication of the "Mission Statement and Core Programme of the IAPP"

As a result of last year's meeting, the "Mission Statement and Core Programme of the International Arctic Polynya Programme" was published under the auspices of the SCG. It will be distributed to potential participants through the leaders of the three polynya projects.

Also during last year's meeting of the AOSB, it was decided that a "glossy" document on the IAPP would be produced by the Board, for distribution to the general scientific community. This document has not been produced as of yet. Members of the SCG hope that this document will be available soon, for the IAPP to receive as much visibility as possible.

Arctic Climate System Study (ACSYS)

In June 1991, the World Climate Research Programme (WCRP) convened a meeting in Bremerhaven to consider a proposal for a new programme called the Arctic Climate System Study (ACSYS). This programme is aimed at understanding the behavior of sea-ice, the role of the Arctic Ocean in climate, and deep-water formation in the global ocean. The SCG was represented at this meeting by Prof. Atsumu Ohmura. According to Prof. Ohmura, participants in the Bremerhaven meeting were very interested in polynya research. This is because without an understanding of polynyas and shelf waters it will be very difficult to model the Arctic Ocean.

Dr. Hans-Jurgen Hirche will discuss with Prof. E. Augstein possible interactions between ACSYS and the Northeast Water (NEW) Project--for example, measurements taken during NEW cruises could be of interest to ACSYS research. The same will be done with respect to ACSYS and the North Water (NOW) Project at a later date.

The North Water Polynya Project (NOW)

The overall plan, presented both last year and the year before, had to be abandoned due to lack of funding for the logistics. However, it was possible to sample during 48 hours in the Northeast Water in May of 1991, from a ship of opportunity (*M/V Arctic*). Results of this preliminary sampling program were extremely interesting, both for the physics and the biology. Temperature-salinity profiles suggested that the North Water Polynya is driven by sensible heat, and not by latent heat as previously thought. Data on phytoplankton and dissolved inorganic nutrients showed the existence of a huge phytoplankton bloom along the Greenland shore, and suggested that this bloom moves from East to West as the season progresses. Plans for the immediate future (i.e., the spring of 1993) are to replicate these observations using the *M/V Arctic* if funds are available. The main problem concerning the logistics for the NOW Polynya project is that the only way to sample these waters during the late winter and early spring period is to enter the polynya before it freezes up in the autumn. This was already explained in the former plan, and it requires a ship with major ice-breaking capacity, together with a fuel barge and living quarters. In the long term, there is presently no obvious source of funding for the overall NOW Polynya Project.

Saint Lawrence Island Polynya Project (SLIP)

A major proposal for this project was recently turned down by NSF. In spite of this fact, research activities continue in the Saint Lawrence Island Polynya. These activities include cruises from the Japanese National Institute of Polar Research, with participation from American scientists. There are also projects funded by NSF and NOAA. All these cruises are limited to the summer time and they include both short-term sampling and long-term mooring of such instruments as fluorometers and sediment traps. In addition, the Alaska Synthetic Aperture Radar (SAR) facility looks at the seasonal development of polynyas, including SLIP. Due to lack of access to ice-breaking ships, winter work is presently at a minimum. The SCG would like to see more involvement in the IAPP of scientists presently working in the Saint Lawrence Island Polynya, especially Japanese colleagues who are not, at the moment, represented on the SCG. Better integration of studies currently conducted in the Saint Lawrence Island Polynya, with the other IAPP projects, would favor useful intercomparisons and be beneficial to all parties.

Northeast Water Polynya Project (NEW)

A preliminary cruise in the Northeast Water Polynya was conducted in June 1991. This short cruise was mainly for mooring instruments, but it also included a small hydrobiological component. It was found that, at that time of the year, the phytoplankton bloom was well advanced and zooplankton had already reproduced. As a consequence, the 1993 cruise of *Polarstern* was moved to an earlier date than originally planned.

The first major cruise of the NEW Polynya Project will take place from mid-July through mid-August 1992 on the American vessel *Polar Star*. This cruise will involve about 30 scientists, and most of the variables listed in the "Mission Statement and Core Programme of the IAPP" will be sampled (with the exception of mammals and birds). In addition, moorings of current meters, sediment traps, and fluorometers will be deployed, to be recovered the next year by the *Polarstern*.

The second major cruise of this project will be from 15 May through 4 August 1993 on board the *Polarstern*. There were three organizational meetings for this cruise during this last year--two in Bremerhaven and one in Knoxville, Tennessee. Presently, the cruise is oversubscribed, with more than 140 applicants. Selection by the Steering Committee will be made by reference to the Mission Statement for the IAPP. For both the *Polar Star* and the

Polarstern cruises, common methods will be used so that there will be continuity between measurements. In addition to this marine component, the NEW Polynya Project will have land activities (Greenland) that will complement ship sampling. This land programme will involve 25-30 scientists from Scandinavian countries.

Finally in 1993, there will be several other activities in the Greenland Sea dealing with circulation and carbon fluxes. These include the Winter Greenland Sea Project and others. Given the fact that a number of participants in these projects are also involved in the NEW Polynya Project, coordination will be achieved.

Recommendation to the AOSB

The SCG realizes that there are many activities going on in the three polynyas under the mandate of the IAPP. American and Japanese scientists are continuing their collaboration in the Saint Lawrence Island Polynya. New data from the NOW Polynya are available from the 1991 preliminary cruise. Furthermore, the 1991 preliminary cruise in the NEW Polynya and the major U.S. effort planned for 1992 will produce a large set of original information. In order 1) to use the available information for planning the 1993 cruise in the NEW Polynya; 2) to provide new impetus to the SLIP and the NOW Polynya Projects; and 3) to generate a sense of commonality between researchers in the three polynyas, the Scientific Coordinating Group recommends that

The AOSB convene a special international workshop on research conducted in the Northeast Water Polynya, the North Water Polynya, and the Saint Lawrence Island Polynya. This workshop would be held in the three days preceding the 1993 AOSB meeting, next January.