



Forum of Arctic Research Operators

20 years of the Forum of Arctic Research Operators (FARO)

By Piotr Glowacki & Jim Drummond

Introduction

The Forum of Arctic Research Operators (FARO) is an international forum for information exchange, cooperation, and development of new ideas among national operators of ships, stations and aircrafts in countries with Arctic research activities.

Any country engaged in Arctic research may request membership in FARO. In 2018 FARO has about 20 member countries, with national points of contact representing around 40 different operators, funding agencies and institutes.

FARO also maintains a strong working relationship with other international science organizations including the International Arctic Science Committee (IASC) and its working groups; the Council of Managers of Antarctic Programs (COMNAP); the European Polar Board (EPB); the Pacific Arctic Group (PAG); and the Arctic Council and its working groups.

FARO acts as a forum for information exchange, establishment of cooperation and development of new ideas among the national logistics operators in countries with Arctic research activities.

Our Mission

FARO encourages international collaboration for the benefit of all those involved in Arctic research. This mission is achieved by:

- Networking of national operators
- Exchange of best practices in operations, including environmental and safety concerns
- Encouraging science-led international programmes by facilitating access to facilities
- Supporting coordination of logistics and sharing of operational resources
- Encouraging exchange and dissemination of scientific data and information on the marine, atmosphere, terrestrial and human environment of the Arctic
- Encouraging long-term Arctic observational programmes
- Promoting interaction between the Arctic science community and those concerned with Arctic policy
- Providing expert advice regarding operations and logistics in the Arctic

The Beginning

The original proposal to establish a forum for Arctic logistics and research planning was initiated by Bonni Hrycyk from Canada (Director Polar, Continental Shelf Project) during the International Symposium "Polar Aspects on Global Change" 24-28 August 1998 in Tromsø (Norway). On the last day of this conference, 24 operators from 11 countries attended an informal meeting which aimed to create a system of information about planned expeditions, scientific programs, polar stations and other polar research platforms. They agreed to initiate the forum, appointed a small group to draft terms of reference, and had an initial discussion about tasks.

The second meeting, held during the Arctic Science Summit Week (ASSW) in April 1999 in Tromsø (Norway), was also well attended by operators. They started discussions on the terms of reference, membership and tasks - and some useful clarifications were made. At this meeting the first FARO Chair and Executive Committee (Bonni Hrycyk from Canada – Chair, Anders Karlqvist from Sweden, Olav Orheim from Norway, and Tom Pyle from USA) were elected. Since then, it has been decided that the annual meetings will take place during ASSW. The FARO website was also established in July 1999 as a part of the IASC website and the FARO secretariat was established and connected with IASC in Oslo (Norway).

During ASSW 2000 in Cambridge (UK) it was decided that the present Executive Committee (ExCom) should serve for one year more and it was suggested that FARO remain an informal forum based on the following guideline – "FARO consists of a representative from each member country. A member country should have active research programmes in the Arctic. Members will be responsible for communicating with their own national communities as required; members will serve as information links between the FARO and operators within their own countries". Each country interested nominates a national representative (focal point), preferably a major Arctic operator with a national network to other operators. If needed, each national representative can attend meetings with a maximum of 2-3 observers, but the total number of participants in the Forum meeting should not exceed 30.

The First Decade

ASSW 2001 in Iqaluit, Canada

19 people representing 8 countries attended the FARO meeting. They accepted the Terms of Reference. The most significant of them being:

Mission

- The FARO aims to encourage and facilitate logistics and operational support for scientific research in the Arctic, through international collaboration for those involved in Arctic research.

The objectives of FARO

- To provide a forum for discussion and review, exchange of operational information and experience, and to seek solutions to common operational issues.
- To review proposed programmes requiring international collaboration on operations/logistics.
- To advise the Arctic science community on operational matters, and to respond to requests for information and advice.
- To serve as contact with COMNAP on behalf of Arctic research operators, and to encourage and facilitate exchanges of Arctic and Antarctic operational knowledge and experience.

Terms of Office

- The FARO Executive Committee is elected for a period of 3 years.
- Members can be re-elected for a second term.
- The main task for the FARO ExCom is to discuss, develop and prepare FARO issues between main meetings.

Membership

- FARO consists of a representative from each member country.
- A member country should have active research programmes in the Arctic.
- Members will be responsible for communicating with their own national communities as required.
- Members will serve as information links between the FARO and operators within their own countries.

FARO representatives agreed that the ExCom should be re-elected for another year, and then introduced a staggered system.

ASSW 2002 in Groningen, Netherlands

On the agenda of this meeting was an important presentation of the common networks of the Arctic region and a joint FARO-COMNAP Technical Seminar. For better visibility of FARO all the participants of the meeting accepted the idea of a separate website for FARO and accepted the logos which were prepared and presented by Erkki Heino and Paula Kankaanpaa from Finland. The logo symbolizes a lighthouse - inspired by the Spanish word for lighthouse "faro". The participants also extended the mandate for the FARO ExCom for the next year.

ASSW 2003 in Kiruna, Sweden

48 people from 18 countries attended and presented an effort to develop and expand FARO. In this meeting, new FARO Executive Committee members were elected: Simon Stephenson from USA - Chair, John Dudeney from UK, Anders Karlqvist from Sweden, and Zhanhai Zhang from China. Discussion in this meeting concerned supporting the International Polar Year (IPY) 2007/2008 initiative and focusing on real ice-breaking research vessels capable of operating all over the Arctic Ocean.

ASSW 2004 in Reykjavik, Iceland

58 people from 18 countries gathered for the FARO meeting. The majority of the discussion centered on a Joint Statement from several organizations at ASSW regarding IPY and terms of reference for ICARP II. Odd Rogne who had served as the Executive Secretary since FARO was initiated and established, informed us that he planned to retire by the next year and also that the needs for secretariat assistance for FARO may increase in the near future due to IPY and other events.

ASSW 2005 in Kunming, China

FARO was represented by 47 people from 17 countries who accepted the establishment of a new separated secretariat in the Danish Polar Center which had offered to host the FARO Secretariat for an initial period on the condition that some additional funding could be provided for staff. NSF agreed to fund the secretariat on a three-year basis. Morten Rasch would partially oversee the FARO Secretariat. FARO was restructured with new tasks as proposed by Anders Karlqvist:

- Exchanging information between operators
- Coordination of logistics in IPY
- Responding to requests from the science community
- Sharing information and experience with Antarctic colleagues (technology)
- Advice to policy makers (Arctic Council)
- A proposal was also made to transform FARO into something more similar to COMNAP. For this, two working groups have been set up:
 - The first one for the preparation of questionnaires for the FARO database.

- The second one for selecting areas which FARO would have to offer to consortium members preparing the IPY program.

Because John Dudeney, member of FARO ExCom, will retire, national representatives elected his successor. Sergey Priamikov from Russia was elected as the new member of the FARO ExCom.

ASSW 2006 in Potsdam, Germany

This meeting saw changes in the FARO ExCom. Anders Karlqvist of Sweden, expressed a wish to step aside and suggested Norway's representative to FARO. National Representatives accepted Jan-Gunnar Winther as a new member of the executive committee. Most of the meeting was devoted to better organization and logistics in transport on the Arctic seas. It also presented further perspectives of the CEON project (Circum Arctic Observatory Network) and the newly created FARO Secretariat in Copenhagen.

ASSW 2007 in Hanover, New Hampshire

During this meeting, the state of progress of projects coordinated or initiated by FARO was presented, such as: Circum Arctic Environmental Observatories Network (CEON) and Sustained Arctic Ocean Observing Network (SAON). Also proposals of logistics activities related to the use of Canadian and Russian icebreakers as well as the European Union (icebreaker Aurora Borealis) were presented. For a better understanding of the Siberian Arctic, a program of research projects in the field of pollutant flow between the ocean and the atmosphere was presented where it is planned to freeze for the entire winter of the icebreaker on the Arctic Ocean. For this purpose, the permanent station Tiksi, measuring a lot of parameters in the Northern Urals, was also modernized.

Morten Rasch gave a presentation concerning the FARO secretariat in Copenhagen. Finally, in the discussion, Piotr Glowacki raised the concern of putting aside the main idea of creating FARO in 1998. The idea was to take action in the areas of fuller use of existing potential and places at polar stations and on research vessels. To achieve this action, there is a need for better and faster contact concerning access and barter sharing of free spaces for young researchers and polar explorers. Unfortunately, we're not doing it yet.

ASSW 2008 in Syktyvkar, Russia

The meeting was attended by operators from Denmark, Japan, Canada, Korea, Germany, Poland, Russia, Sweden and the USA. The meeting was dominated by the discussion on the further affiliation of FARO to the IASC and the prospect of changes in the financing and functioning of the Secretariat. It was decided the absent FARO members and IASC needed to be consulted. In the final phase of the meeting, regarding the election of new members to the FARO Board, the election was postponed to the next year.

The Second Decade

ASSW 2009 in Bergen, Norway

2008 saw many changes. By the end of 2008 the Danish Polar Center was closed and the logistics department was moved to the National Environmental Research Institute (NERI) at University of Aarhus. NERI was interested in continuing to host the secretariat of FARO. In addition, Marty Bergmann from Canada was elected as the new chair of FARO, replacing Simon Stephenson. Simon Stephenson introduced a draft for new Terms of Reference for FARO, suggested that FARO should be transferred into a member organization for logistics operators. The members should represent relevant organizations in relevant countries – but not the countries themselves. Most of the meeting participants were positive about this and would be willing to pay a share of the necessary financing of FARO as a member organization.

Paul Egerton suggested that the Terms of Reference should allow for organizations like European Polar Board to join the table. Harald Loeng asked why EU should participate by itself, when the relevant member countries had the opportunity of being represented.

Simon Stephenson concluded that there is a need for clarification of some issues before FARO can convert into a member organization. He therefore asked the secretariat to initiate a survey among the members concerning their expectations for FARO as a member organization. To allow for this process to complete, US National Science Foundation continued to finance the FARO secretariat until ASSW 2010. After a short discussion it was concluded that FARO sees its future role as a forum of organizations supporting science, i.e. not as a science organization. As such FARO finds it most natural to stay outside of IASC.

ASSW 2010 in Nuuk, Greenland

Fewer countries participated due to the Icelandic volcano eruption. There were no representatives from Austria, Belgium, Finland, France, Iceland, Italy, Portugal, the Netherlands, UK and Spain.

The future role of FARO was discussed. Should FARO take a more active role or should it remain an informal forum for logistics and research managers to meet once every year for exchange of information and experiences? No final decisions were made. An ad hoc FARO group was put together: Marty Bergmann (Canada), Simon Stephenson (USA), Morten Rasch (Denmark), Magnus Tannerfeldt (Sweden), Piotr Glowacki (Poland), Uwe Nixdorf (Germany), and Huigen Yang (China). Generally, the members of FARO were satisfied with that form - an annual meeting with presentation of future projects, exchange of information and informal discussions is very fruitful for planning purposes.

The FARO Secretariat was fully staffed - ran by Morten Rasch (Executive Secretary) and Lillian Magelund Jensen (Academic Secretary).

ASSW 2011 in Coex, Seoul, Korea

At this meeting the main discussion centered around how FARO can contribute to the work of IASC. FARO can provide important advice to IASC and to arctic research scientists on issues relating to logistics planning. FARO has a legacy role in relation to IPY, because the international logistics cooperation that was established during IPY can continue to be maintained and strengthened within FARO. A future role of FARO could be to pool resources and provide multi-national assets. By keeping a high level of mutual information about the different nationally supported logistics platforms we might make use of each other's excess capacity, for example in relation to ice-breaker cruises. The biggest discussion was centered around the future of FARO as an organization where two concepts were presented:

- An independent organization financed from membership fees (from 2-4 thousand USD per member per year depending on the number of Member States),
- An association associated with the IASC, e.g. in the working group's formula and organizational support by this organization.

ASSW 2012 Montreal, Canada

This meeting was overshadowed by the tragic death of Martin Bergman in an aviation accident. Magnus Tannerfeldt was elected as the new Chair of FARO for a term of three years. It was agreed

that the existing ExCom is too large (8 members). However, since three of the members were not present at the meeting, it was decided to let the present ExCom continue for another year and then elect a new smaller ExCom in 2013.

The current ExCom is: Huigen Yang (China), Dongmin Jin (Korea), Simon Stephenson (USA), Uwe Nixdorf (Germany), Sergey Priamikov (Russia), Magnus Tannerfeldt (Sweden), Piotr Glowacki (Poland) and FARO secretariat (Denmark).

Magnus Tannerfeldt presented ideas for a possible future FARO – IASC cooperation.

- FARO could in the future be helpful to IASC by providing information concerning:
 - Ships/vessels and research stations
 - Rules for permit application in different countries
 - Cruise plans and other relevant information
 - Contact persons for different organizations/projects

IASC can be helpful to FARO by approaching the Arctic Council and its member states concerning freedom for science in the Arctic, and by harmonizing procedures to get permissions for marine scientific research in the Arctic, and by providing FARO with information about scientists and research projects, and, in general, by guiding FARO on needs from the research community.

FARO could respond to requests from research groups and/or IASC working groups, by providing advice on logistics and act as the starting point for bi- and multilateral collaborations. Connecting these proposals, three Interim FARO Groups were established:

- Group A – Give recommendation on the future role/structure of FARO, including its relation to IASC.
- Group B – How can FARO help to make it easier to achieve an overview of application procedures in the different arctic countries?
- Group C – Future regulation of research in the Polar Sea related to UNCLOS.

ASSW 2013 Krakow, Poland

Fourteen countries presented their news on items of relevant infrastructure used in the Arctic. At the meeting a Memorandum of Understanding between IASC and FARO was approved and signed by David Hik (President of IASC) and Magnus Tannerfeldt (Chair of FARO).

All accepted election of a new Executive Committee: Magnus Tannerfeldt (Sweden) – Chair, Huigen Yang (China), Hyoung Chul Shin (Korea), Simon Stephenson (USA), Uwe Nixdorf (Germany), Sergey Priamikov (Russia), Cynan Ellis-Evans (UK), James Drummond (Canada), FARO secretariat (Denmark).

ASSW 2014 Helsinki, Finland

FARO is growing with new members. UArctic requested to be included in FARO's ToR, and that we sign a Letter of Agreement. We have replied that FARO is very positive towards continued informal relations with UArctic, that we invite them to our meetings and are ready to discuss any issues that they wish to bring up for our consideration.

Morten Rasch is stepping down as executive secretary. Lillian Magelund Jensen will keep running the FARO secretariat. The cost of running the FARO secretariat since the start of FARO has been covered by the National Science Foundation and Simon Stephenson (USA) announced that a new solution had to be found starting in 2015 and going forward, e.g. member fees. The chair presented

a slimmed down budget compared to earlier year's budgets and explained that FARO, in the future, will be run by the chair and the academic secretary. Given that all 20 members share the cost, the fee for each member country would be on the order of 1000 EUR/1500 USD. The fees will cover: Salary for the academic secretary, maintenance of the website, travel costs and information material. Member fees will become effective from 1 January 2015. Kazuyuki Shiraishi from Japan was elected a new member to ExCom in place of members from China and USA.

ASSW 2015 Toyama, Japan

FARO members met in 2015 in Toyama (Japan). Representatives from 18 countries gave short presentations on items of relevance to other members.

Members elected a new FARO Chair because Magnus Tannerfeldt had to leave due to starting a new position on 1 October 2014. At this time, James Drummond from Canada was elected interim Chair at a phone conference of the Executive Committee during September 2014. Also Nick Cox will be representing UK after Cynan Ellis-Evans has retired.

James Drummond gave a presentation of ideas for 'How to bring FARO to the next level':

What FARO should

- Be a clearing house for issues affecting Arctic operations across national boundaries (e.g. making everyone aware of changes in international regulations).
- Be a point of contact for trans-national planning (e.g. who do we talk to in country X about a possible joint Arctic initiative in the continuous permafrost zone?).
- Be a promoter of "best practices" in Arctic research.
- Be aware of current and future large national and trans-national initiatives (i.e. be aware of the big things coming up and try to make sure that they don't collide with each other).
- Help nations and large groups negotiate the many overlapping Arctic organizations, operations, projects and initiatives.

What FARO could

- Take a role in coordination of trans-national projects and programs.
- Identify and promote areas where nations could benefit from more collaboration.
- Initiate studies of relevance to Arctic operations e.g. identify gaps in monitoring, determine optimal sampling regimes.
- Promote Arctic technology – building on the "best practices" for the Arctic (e.g. drone/UAV technology for Arctic observations, e.g. green energy initiatives adapted for polar regions)
- Take an active role in advising the IASC working groups on the practicalities of Arctic observations and the opportunities that exist.

ASSW 2016 Fairbanks, Alaska

The tragic loss of Lillian Magelund Jensen (FARO Executive Secretary) after a period of illness greatly affected FARO. Lillian was a powerhouse for FARO and through her long, dedicated participation possessed invaluable knowledge of the organization and its activities.

The function of the FARO Secretary was entrusted to Elmer Topp-Jørgensen also from Denmark. The FARO Chair reminded the group that the FARO Secretariat could be located in any FARO country. Some member countries stressed the importance of securing stability in the support function and minimize loss of knowledge built up over the years. It was agreed to maintain the FARO secretariat at Aarhus University, but that the issue will be discussed again during upcoming FARO meetings.

The International Network for Terrestrial Research and Monitoring in the Arctic (INTERACT) ratified and signed an MoU with FARO.

The general conclusion after the country presentations showed an impressive amount of research including many long-term infrastructure initiatives. A general positive trend in the use of terrestrial infrastructures was noted and plans for new ships for Arctic research were presented by several countries. Presentations also showed a great deal of collaboration across countries and sharing of infrastructures, which is one of the key aims of FARO. However, liability was raised as an issue that potentially could limit the open sharing of infrastructure.

[ASSW 2017 Prague, Czech Republic](#)

New members of the ExCom were confirmed: James Drummond (Canada) – Chair, Hyung Chul Shin (Korea), Alexandr Makarov (Russia) replacement of Sergey Priamikov, Jennifer Mercer (US), Piotr Glowacki (Poland), FARO secretariat Elmer Topp-Jørgensen/Kirstine Skov (Denmark).

During the discussion on the current status of Member States and Observer States associated with FARO, a proposal for an observer status of a maximum of three years was accepted unanimously. After this period the state must decide either to become a full member and pay the membership fee or it will be deleted from the lists of FARO.

Looking Forward

In 2018 as we look forward to our third decade of operations, FARO has become a central point for the interchange of information among research operators. Over the last decade, perhaps with some encouragement from the FARO model, other groups of operators at a national and transnational level have been initiated to promote closer collaboration between different organisations. These include: the European-led International Network for Terrestrial Research and Monitoring in the Arctic (INTERACT); the Arctic Research Icebreaker Consortium (ARICE); and the Canadian Network of Northern Research Operators (CNNRO). These organisations promise an even higher level of collaboration in the future.

Arctic research has always necessarily been a highly collaborative effort and FARO is looking forward to playing its part in the future.