



Towards greater collaboration in polar research

Arctic Science Summit Week 2019 panel session convened by the European Polar Board

Sunday 26th May 2019

Panellists:

- Nicole Biebow (Alfred Wegener Institute)
- Antonio Quesada (Spanish Polar Committee)
- Gonçalo Viera (FCT – Portugal and IGOT, University of Lisbon)
- Renuka Badhe (European Polar Board)

Chair: Henry Burgess, NERC Arctic Office

Report compiled by Joseph Nolan

European research in the Arctic and Antarctic is notable for its excellence, diversity and societal relevance, achieved through extensive collaboration between disciplines, institutes and countries. Noting this, the European Polar Board (EPB) and its Members endeavour to develop collaborative initiatives within Europe and around the world, for the benefit of polar research.

This panel discussion session will showcase successful collaborative initiatives and explored positive solutions for greater collaboration within Europe and beyond.

Introduction to the European Polar Board – Renuka Badhe

The European Polar Board (EPB) is an independent organisation that focuses on major strategic priorities in both the Arctic and Antarctic regions. Since 2015, the EPB has been based in The Hague, hosted by the Netherlands Organisation for Scientific Research (NWO). The EPB has Dutch public benefit status.

R Badhe highlighted the diversity of its 27 Members from 19 countries, which includes research institutes, funding agencies, scientific academies, and polar operators from across Europe. Also noted were partner organisations for science across disciplines at international and European levels, such as the International Arctic Science Committee (IASC), the Scientific Committee on Antarctic Research (SCAR) and the European Space Agency (ESA). The EPB also has regional counterparts around the world, such as the Asian Forum for Polar Sciences (AFoPS) and the Union of Administrators of Latin American Antarctic Programs (RAPAL).

The EPB's Strategy 2017-2013 sets out its Vision of a Europe with a strong and cohesive polar research community, wherein decisions affecting or affected by the polar regions are informed by independent, accurate, and timely advice from the EPB. In order to realise its Vision, the EPB has the Mission to coordinate, promote and advance European polar research. Implementation of the EPB's Strategy is via action groups, set up to focus on specific tasks or issues. These include the Action Group on International Cooperation, which organised this panel session, and the Action Group on Infrastructure.

More information on the EPB is available at www.europeanpolarboard.org.

Arctic Science Cooperation, European Perspective – Nicole Biebow

N Biebow presented on international cooperation for Arctic research within Europe. In 2016, the European Commission published the Integrated European Union Policy for the Arctic. All EU Arctic research funding is directed towards realising this policy, which has three priority areas: Climate change and safeguarding the Arctic Environment; Sustainable Development in and around the Arctic; and International Cooperation on Arctic Issues. With this in mind, it is clear that Arctic research at a European level is closely linked to international cooperation.

EU-PolarNet is a project funded under the EU's Horizon 2020 research programme which aims to improve coordination of the European polar research community. Its main tasks include ongoing dialogue with the European Commission, developing an integrated European polar research programme, developing an infrastructure access and usage plan, and working on international cooperation via the Transatlantic Research Alliance. EU-PolarNet has 22 consortium members from 17 European countries, and 24 international cooperation partners.

Cooperation for polar research within Europe is further enhanced by the EU Arctic Cluster. The Cluster gathers together all EU-funded projects with an Arctic focus to work on joint initiatives and synergistically pool expertise. The Cluster works on over-arching tasks that add greater value than could be possible with each working independently. The Cluster currently includes 11 projects and the European Polar Board. It has four task groups, focused on communication, stakeholder management, data management, and training.

EPB Members collaborating beyond Europe – Antonio Quesada

A Quesada emphasised that EPB Members are not only active in collaboration and cooperation activities within Europe. Members are also engaged in initiatives with partners around the world to support collaborative polar research. A good example of this is the initiative to improve the efficiency of infrastructure use around the Antarctic Peninsula. The Peninsula area is home to 30 research stations, from over 15 countries, often each with their own logistics support. It has been identified that logistics could be more efficiently used, minimising the need for repeated visits to the same areas by multiple vessels, for example. With the high cost of Antarctic logistics, it is intended that greater efficiency will make available more funding for science.

A pilot initiative between Spain, Poland, Korea, Chile and Turkey has been organised through the Council of Managers of National Antarctic Programmes (COMNAP). This task force is working to evaluate the possibility of improved logistical coordination in the Antarctic Peninsula area. They have developed a points-based bartering system, whereby an agreed table of points for different logistical tasks is used between partner countries. For example, a seat on a flight from might cost 5 points, or a berth on a vessel might costs 4 points. Using this system, countries are able to logistically support scientists from other countries in exchange for receiving support for their own, all without any financial transactions required. The system allows excess logistical to be used by scientists from different countries and not wasted. The system is based on trust between partners, with the intention that points will balance out. It was noted that if a system is expanded to all polar regions, the balancing of points could be met with logistical support in completely different regions, including in the Arctic. With a larger group of countries participating in the bartering system, more opportunities will emerge for its use.

The results of this pilot initiative are to be presented to COMNAP in at their 2019 AGM in July 2019. The task force is simulating benefits to quantify the financial savings generated by the bartering

system and increased efficiency. It is estimated that the pilot system will save each country involved several thousand dollars each Antarctic season, which can be reinvested into science.

The opportunity to expand this system further, including more countries and more regions, including the Arctic, can be promoted and explored through the EPB. It was noted that a similar system could work well in Svalbard or Greenland, for example. The system is noted as a practical example of how international coordination and collaboration can lead to better science as more resources are freed from logistics to support research.

The European Polar Board – An existing structure for a way forward in international collaboration – Gonçalo Vieira

G Vieira presented the EPB as an existing structure that can be utilised to develop international collaboration in polar science. By providing a single contact point to all of its Members, international collaboration efforts can be streamlined. Furthermore, Members are able to internally coordinate to proactively reach other to external partners together.

An example of the EPB working as a single contact point to all of its Members is CHOICEe. CHOICEe is joint project between the EPB, ESA and the University of Munich investigating the epidemiology of potential newly developed allergic reactions in Antarctic over-wintering station staff, as an analogue for space flights. Through the EPB, ESA was able to develop the project, engaging with all EPB Members interested in involving their stations in CHOICEe.

An example of EPB Members coordinating together to proactively reach out it the European Polar Infrastructure Database and Catalogue. All EPB Members provided detailed information on their Arctic and Antarctic research facilities (stations, camps, laboratories, shelters, vessels, and aircraft) to be compiled together. The resulting database and catalogue (available at www.europeanpolarboard.org/polar-infrastructure/) are tools that help facilitate international collaboration in science, as researchers are able to plan projects based on available facilities. The EPB's work on infrastructure moving forward will focus on improving access to facilities, and harmonising access requirements, further facilitating international collaboration.

Summarising, the EPB acting as a single contact point through which all of its Members can be reached was highlighted. Within the EPB Members share information and best practices, coordinating to collectively reach out with tools and initiatives that support international collaboration in polar research. It was emphasised that the EPB and its Members are enthusiastic in developing international collaborations in both the Arctic and Antarctic.

Discussion

The Chair thanked the panel for their presentations, and opened a discussion.

Discussing the application of a points-based logistics bartering system in the Arctic, it was noted that consideration of the people living in the Arctic is important. Different stakeholders are involved in Arctic research as opposed to the Antarctic, and operations have to be sensitive to this.

Practical challenges to collaboration were noted, such as different standards and regulations between countries. In the Antarctic standards are largely aligned, meaning logistical cooperation is relatively straightforward. There can however be political issues, as providing logistics to scientists can be a case of national pride. However, it was noted that the financial savings possible through collaboration significant to ease these issues.

The panel discussed the benefits of bottom-up and top-down initiatives for promoting collaboration in polar research. It was noted that a combination of both is necessary. However, for the best internationally collaborative science, bottom-up approaches are most effective, whereby scientists work with collaborators on research questions that naturally emerge. Top-down initiatives, such as bi-lateral or multi-lateral agreements between countries can help to create opportunities for research in a positive collaborative setting, but scientists will work together best when science is the lead, and collaborations emerge naturally. Top-down initiatives, such as for logistical cooperation, can help make scientific collaborations possible that otherwise may not have been.

It was further noted that activities that may appear to be top-down in their approach, either due to their large scale or major planning, in fact began as very bottom-up initiatives based on science-lead ideas from active researchers. For example, MOSAiC began as a community-led initiative, gradually gaining support from the international community at the top level. This can be a slow process however, with MOSAiC taking more than ten years to implement from its initial idea. MOSAiC is a good example but, due to its huge funding requirements and the scale of the initiative, it is unique. Successful international cooperation initiatives in polar research are successful at all scales.

Question – is there any specific to polar research cooperation as opposed to more general scientific cooperation?

The polar regions often provide fantastic examples of how far cooperation in science can go. Scientists often come together because they want to do something, not so much pressure from the above. In the polar regions this is even more true. Due to the risks, cost and difficulty of carrying out work in the Arctic and Antarctic, collaboration is necessary. Furthermore, the polar research community is relative small, with good connections and relationships between scientists and operators worldwide. This also allows for good knowledge transfer among scientists and operators, including between the two poles.

It was noted that, relative to other areas of science and research, polar research is slow and expensive due to the challenges of fieldwork in remote areas and harsh environments. This can only be improved through greater cooperation and collaboration internationally and at all scales.

The importance of collaboration and knowledge sharing for polar research extends beyond the research community itself. In the Arctic, proper engagement, collaboration and knowledge transfer between researchers and indigenous and local communities is necessary. International cooperation in polar research should be about reaching between communities as well as between states. Cooperation with local and indigenous communities works very differently in different areas, and efforts to better integrate knowledge systems are at different stages in different regions of the Arctic. It was noted that cooperation with indigenous communities is now a requirement for EU-funded Arctic research projects. EU-PolarNet's work is rooted in societal relevance, with indigenous communities as key stakeholders. Through EU-PolarNet's work it has become clear that very different tools are need to most effectively engage with indigenous communities that with other stakeholders. This must also be considered when developing cooperation initiatives in future.

Greenlandic research institutions are home to indigenous academics with fluency in both indigenous and scientific knowledge systems. This aids cooperation between researchers from around the world and local communities. It is suggested that such a model could also be used to improve collaborative activities in other regions of the Arctic.

The panel noted that while the message on better engagement and collaboration between researchers and local communities in the Arctic has taken time, it is now heard loud and clear by the international research community at all levels.

The panel discussed T-MOSAIc as a good example of an international bottom-up collaborative initiative, born out of and reliant upon international cooperation. T-MOSAIc complements MOSAIc, but has been independently designed. It intends to provide a terrestrial element and context to the marine MOSAIc project. The coordination of T-MOSAIc is led by Portugal – a good example of a compact national polar research community taking a lead in large international programmes. Through international cooperation and collaboration efforts, smaller research communities can gain profile while making valuable contributions to global efforts.

Discussion was held on practical tools for facilitating international cooperation in polar research, such as the Svalbard Science Forum's database of ongoing projects in Svalbard. It was noted that while these are useful tools to avoid duplication and to help coordinate efforts, the task of keeping such databases up to date is significant. On a pan-Arctic or polar scale, it is considered too great an effort to be worth the benefit. ISSAFIK was also discussed as an example of an online tool that helps to practically coordinate polar research, both with scientific projects and logistics. It was noted that the role the EPB can play is to highlight and direct users towards existing online tools and portals, rather than attempting to develop new systems that are too large to be manageable. It was also noted that while it is important to avoid duplication of efforts, from a scientific point of view, replication is not always a bad thing.

Concluding the discussion, panellists gave practical tips for active researchers on how to grow international collaboration:

- Engage with international organisations and structured communities of scientists, such as IASC, SCAR and APECS
- Contact your national polar operators with ideas for research and collaborations that they could maybe support
- Contact your national research council – they want to hear your ideas for international work
- Participate in surveys from national and international science organisations and managers – your answers will be read

The Chair thanked the panel and the audience for the engaging discussions throughout the session.