



HORIZON 2020

Coordination and Support Action

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CONNECTING SCIENCE WITH SOCIETY

D1.9

**Minutes of workshop with international partners &
stakeholders at SCAR Open Science Conference,
Kuala Lumpur, Malaysia, 24 August 2016**

Submission of Deliverable

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1. Introduction

Due to the remoteness of the polar areas and the high costs associated with research there, polar scientists and infrastructure providers already have a long tradition of cooperating with each other on an international level. Nevertheless, to significantly improve the output and outcomes of polar research and the access to national infrastructures or territories this international cooperation still needs to be improved and new partners on the EU and international level have to be involved. It is the reason why the WP 1 of EU-PolarNet has initially identified a specific Task related to the strengthening of international cooperation (Task 1.3). The general aim of this task is therefore to establish and secure a reliable cooperation between EU-PolarNet and third-countries carrying out research activities in the Polar Regions, and foster active collaboration with these partners. This task will support the WP's 2, 3 and 4 in establishing and maintaining relations with international partners and organisations.

In this landscape, the Scientific Committee on Antarctic Research (SCAR) plays a special role, gathering in one international organisation all the scientific communities involved in Antarctic research. It includes not only the European countries which are already partners of the EU-PolarNet project, but all the other countries in the world which have scientists working in Antarctica.

EU-PolarNet has a strong connection to SCAR. This organisation has agreed to support the goals of EU-PolarNet and gives the project access to the whole international research community (39 nations and 5 ICSU unions). Recently, SCAR organized its first Antarctic and Southern Ocean Science Horizon Scan which assembled the world's leading Antarctic scientists, policy makers, leaders, and visionaries to identify the most important scientific questions that will or should be addressed by research in and from the southern Polar Regions over the next two decades. The output of this exercise is obviously an essential tool for the EU-PolarNet WP2, as well as the outputs of ICARP III for the Arctic.

Every two years, SCAR organises the SCAR Open Science Conferences (OSC). It is an important meeting for the Antarctic science community: it offers not only an opportunity to present recent scientific results but also to share information between the scientists from different disciplines and to exchange with several stakeholders. As an example, 943 participants, who presented more than 400 oral presentations and 574 posters, attended the previous OSC held in Auckland (New Zealand) in 2014. Sixty half day satellite meetings were also held during this OSC. The numbers demonstrate that the SCAR OSC is obviously a good forum in order to disseminate the information from EU-PolarNet to the scientists involved in Antarctica, but also to exchange ideas with this community and associated stakeholders on their expectation in terms of future scientific research in Polar Regions.

It is the reason why EU-PolarNet organised a Townhall event at the 2016 SCAR Open Science Conference in Kuala Lumpur (Malaysia) on 24 August 2016.



2. What is the Scientific Committee on Antarctic Research

The study of Antarctica and the Southern Ocean and their role in the global Earth system has never been more important as the region is experiencing dramatic changes that have global implications. The Antarctic region is a matchless 'natural laboratory' for vital scientific research that is important in its own right and impossible to achieve elsewhere on the planet.

The Scientific Committee on Antarctic Research (SCAR) is an inter-disciplinary committee of the International Council for Science (ICSU). SCAR is charged with initiating, developing and coordinating high quality international scientific research in the Antarctic region (including the Southern Ocean), and on the role of the Antarctic region in the Earth system. Much of SCAR's work is carried out through its subsidiary groups – the [Standing Scientific Groups \(SSGs\)](#), namely Geosciences, Life sciences and Physical sciences; Scientific Research Programmes (SRPs) (currently 6 programmes); Expert Groups; Action Groups; Advisory Groups and groups co-sponsored with other organisations.

The six current Scientific Research Programmes of SCAR

- [Astronomy and Astrophysics from Antarctica \(AAA\)](#)
- [State of the Antarctic Ecosystem \(AntEco\)](#)
- [Antarctic Thresholds - Ecosystem Resilience and Adaptation \(AnT-ERA\)](#)
- [Antarctic Climate Change in the 21st Century \(AntClim²¹\)](#)
- [Past Antarctic Ice Sheet Dynamics \(PAIS\)](#)
- [Solid Earth Responses and influences on Cryospheric Evolution \(SERCE\)](#)

SCAR encourages excellence in all aspects of Antarctic research by developing transformational scientific programmes that address compelling topics and emerging frontiers in Antarctic science of regional and global importance.

In addition to carrying out its primary scientific role, SCAR also provides objective and independent scientific advice to the [Antarctic Treaty Consultative Meetings](#) and other organizations such as the UNFCCC and IPCC on issues of science and conservation affecting the management of Antarctica and the Southern Ocean and on the role of the Antarctic region in the Earth system. SCAR has made numerous recommendations on a variety of matters, many of which have been incorporated into Antarctic Treaty instruments. Foremost amongst these have been the advice provided for the many international agreements which provide protection for the ecology and environment of the Antarctic.

SCAR meets every two years to conduct its administrative business at the SCAR Delegates' Meeting. At these meetings the members of SCAR, through their appointed Delegates, are responsible for formulating SCAR policy and strategy. They also elect an Executive Committee from among themselves which is responsible for the day-to-day administration of SCAR through its Secretariat at the Scott Polar Research Institute in Cambridge, England. The [Executive Committee](#) comprises the President, Past-President, four Vice-Presidents and the SCAR Executive Director. The [SCAR Secretariat](#) is staffed by the Executive Director, Executive Officer and a part-time Administrative Assistant.

SCAR has currently 31 country Members, 8 country associate Members and 5 Union Members (See Annex I)

3. Participants to the EU-PolarNet Townhall event in Kuala Lumpur

The table below was built from the list of attendees which circulated among the participants.

Country	Number of participants
Argentina*	1
Australia*	6
Belgium	2
Brazil*	1
Canada*	3
Finland	2
France	2
Germany	10
Iceland*	2
Italy	9
Malaysia*	2
Netherlands	5
New Zealand*	2
Norway	2
Portugal	4
Romania*	1
Turkey*	2
Spain	2
United Kingdom	7
United States*	3

A total of **68 people from 20 countries** (9 not involved in the EU-PolarNet project, indicated by an asterisk) attended the meeting.

Most of them (55) are scientists involved in research in Antarctica, but it is interesting to note that 12 participants are representatives of international organizations, Non-Governmental Associations or private sector:

International Organisations, Non Governmental Associations, Private organisations

APECS	Association of Polar Early Career Scientists	http://www.apecs.is/
ASOC	Antarctic Southern Ocean Coalition	http://www.asoc.org/

ATS	Antarctic Treaty Secretariat	http://www.ats.aq/
COMNAP	Council of Managers of National Antarctic programmes	https://comnap.aq/
EPB	European Polar Board	http://www.europeanpolarboard.org/
IAATO	International Association of Antarctic Tour Operators	http://iaato.org/
IASC	International Arctic Science Committee	http://iasc.info/
IPECS	International Penguin Early Career Scientists	http://www.ipecs.org/
Ocean Expeditions	Ocean Expeditions	http://ocean-expeditions.com/
POLAR	Polar Knowledge Canada	https://www.canada.ca/en/polar-knowledge.html
Polar Data Catalogue	Polar Data Catalogue	https://www.polardata.ca/
SOOS	Southern Ocean Observing System	http://www.soos.aq/

4. Key presentations

1. Introduction by Karine Lochte, coordinator of EU-PolarNet

K. Lochte made a short presentation on the aims of the EU-PolarNet project and the objectives of the meeting: to take the opportunity of the SCAR OSC to meet the scientific community involved in Antarctic Science as well as other stakeholders present in Kuala Lumpur and who are more or less related to Antarctic Research in order to make them aware of the project and to receive feedback from them.

This short introduction was then followed by three brief talks presenting the work already realized by EU-PolarNet.

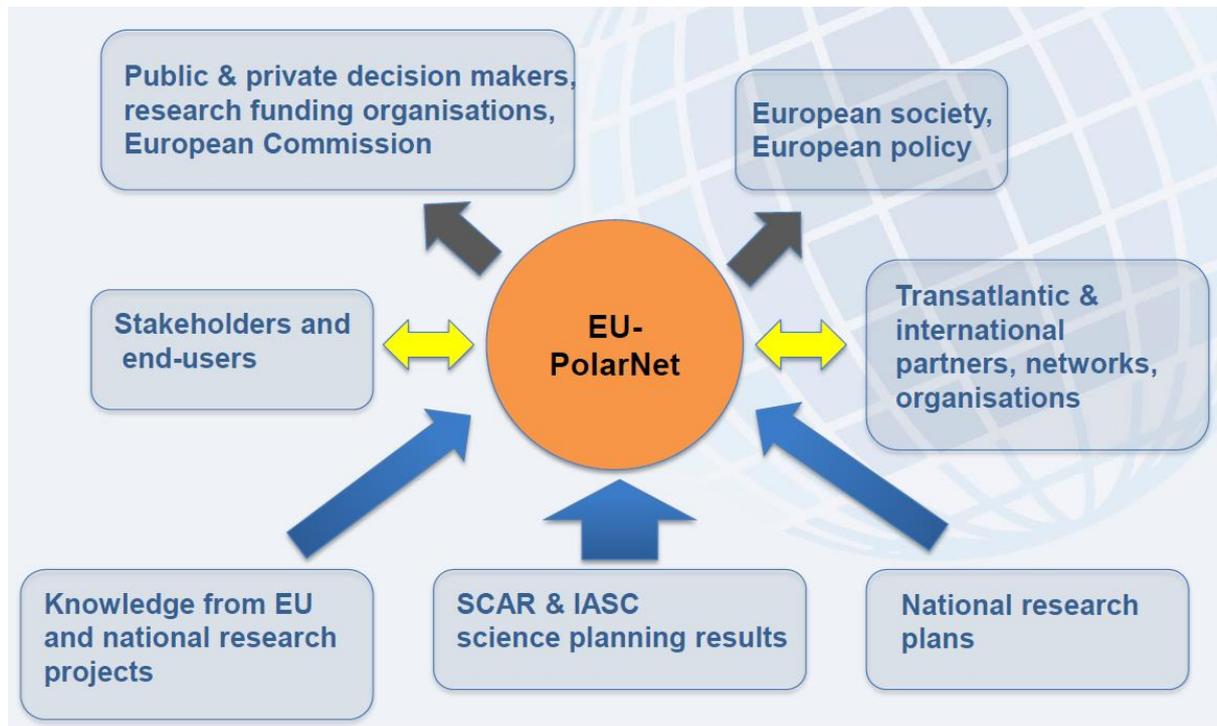
2. Overview of EU-PolarNet by Nicole Biebow

Built on the initiative of the European Polar Board and gathering 17 countries represented by 22 of Europe's internationally-respected multi-disciplinary research institutions, EU-PolarNet is currently the world's largest consortium of expertise and infrastructure for polar research. Its ambition is to:

- Initiate, conduct and sustain on-going dialogue and cooperation with all relevant units of the European Commission on Polar topics
- Improve the co-ordination of European research in the Arctic and Antarctic to develop an integrated European polar research programme co-designed with all relevant stakeholders

- Design a resource-oriented European infrastructure access and usage plan to support an integrated research programme
- Improve and strengthen international cooperation in polar research and to implement the Transatlantic Research Alliance

In order to reach these objectives, EU-PolarNet wishes to establish a dialogue between the scientists, the decision makers and the stakeholders involved in the Polar Regions. This approach can be summarized by the following diagram:



As indicated by the subtitle of EU-PolarNet, "connecting science with society", the link between the scientific activities in the Polar Regions and the society, at a local or global level, is of primary importance for the project and for Europe and policy makers.

EU-PolarNet was launched in March 2015. During the first year of its existence, several outputs have already been produced:

- a report on prioritized objectives in polar research, based on international analyses (SCAR Horizon Scan, ICARP III) and national strategic plans for polar research in Europe. This report is a first step for the identification of the key research questions and related societal relevance which could be proposed to the European Commission for support (see next presentation by Renuka Badhe).
- European polar research infrastructure catalogue (see next presentation by Yves Frenot)
- survey of the existing polar research data systems and infrastructures
- inventory of existing monitoring and modelling programmes
- survey of existing use of space assets by European polar operators

In addition, during the same period, EU-PolarNet has contributed to the finalisation of the following calls for the H2020 work programme 2016/17:

- BG-9-2016: An integrated Arctic observing system (2016)
- BG-10-2016: Impact of Arctic changes on the weather and climate of the Northern Hemisphere (2016)

- BG-11-2017: The effect of climate change on Arctic permafrost and its socio-economic impact, with a focus on coastal areas (2017)
- SC5-5-2016: A 1.5 million year look into the past for improving climate predictions –CSA for the preparation on Antarctic Ice Core Drilling (2016)

3. Scientific priorities by Renuka Badhe (from the Deliverable 2.1)

The project consortium has been tasked to compile a set of European research priorities for the Polar Regions, which shall serve as a basis for the upcoming research planning process in EU-PolarNet. These priorities have been identified by a desk study based on publications of national Polar strategies, international consortia and major scientific clusters. Among the documents used for this exercise, the SCAR Horizon Scan as well as the outputs of ICARP III were of major importance.

Through a complex step-by-step process, all polar research strategic documents have been analysed.

A huge amount of relevant information has been extracted, processed, harmonized and synthesized into **ten overarching topics**. Each topic includes several key-questions, which summarize the hundreds of key questions and priorities of the background documents (Table on right). A paragraph describing the relevant Societal Challenges connected to each scientific topic has been added in order to match research priorities and societal needs.

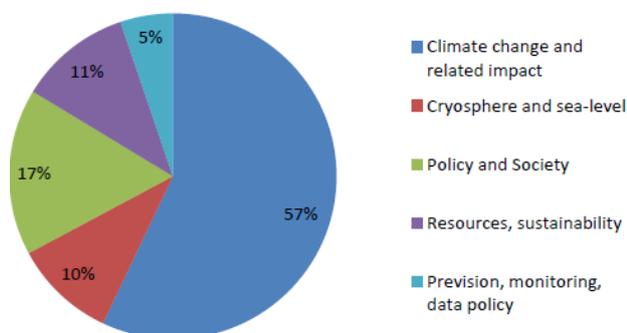
Topics	Sub-topics	Questions
1. Polar Climate System	4	63
2. Cryosphere and Sea Level	4	42
3. Geodynamics and Mineral Resources	4	43
4. Paleoclimate and Paleo-environment	2	43
5. Pollution and Greenhouse Gases	5	45
6. Understanding Ecosystem Changes and Preserving Biodiversity	5	115
7. Astronomy, Astrophysics and Space	3	13
8. Sustainable social and economic development, Healthy People and Resilient Communities	3	65
9. New Technologies and Methodologies	3	61
10. Strategy, Policy and Cooperation	3	35
total	36	525

Matrix used as working document after analysis of all publications of national Polar strategies, international consortia and major scientific clusters

The original overarching Topics have been then redrafted to better represent the major scientific priorities of crucial importance for societal needs for the coming years. This process has resulted in a new array consisting of two levels (Topics and Questions) instead of the former three levels (Topics, Sub-topics and Questions). In this new array, the Questions have replaced the previous Sub-topics by extending their content and wording in order to represent in a most comprehensive way all the original questions. As an additional crucial step for improving the Matrix's representativeness and significance, the importance and priority of Human and Social Sciences has been addressed.

An online questionnaire was also launched to check the feeling of the scientific communities about such a result. 236 people provided an answer to this survey (75 % scientists involved in Arctic, 47 % in Antarctic, 27 % both).

The contributors have also been asked to highlight the most important societal challenges associated with research in polar regions (Figure on right).



Distribution in percentage of societal challenges areas suggested by contributors

As a transitory conclusion, 10 overarching topics have been identified with the following objectives:

Overarching topics	Main objectives
1 - Polar Climate Systems	<ul style="list-style-type: none"> Natural processes in the Polar Regions that influence or control conditions across the globe Changes in Polar Regions that have global importance for people, policy and businesses well beyond the Polar Regions.
2 - Cryosphere	<ul style="list-style-type: none"> Factors associated with or contributing to the instability of ice sheets and global sea-level rise. Risks to coastal communities, coastal ecosystems and assets. Impact of terrestrial and sub-sea thawing permafrost on infrastructure and landscape Release of greenhouse gases, especially carbon and methane, from thawing permafrost. Risk assessment methodology to estimate/map sea ice and icebergs impacts on shipping and marines structures.
3 – Palaeo-climate and Palaeo-environment	<ul style="list-style-type: none"> The use of paleo-reconstructions, including volcanic events, for projecting future climate scenarios How paleo-records can provide key insight into changes under natural and anthropogenic forcing Understanding the transition from 40ka cycles to 100ka cycles as crucial topic to understand current climate
4 - Polar Biology, Ecology and Biodiversity	<ul style="list-style-type: none"> Threats to highly specialised and adapted polar species from climate-related changes in ecosystems. Methods to identify and track the occurrence of invasive species and their impacts on ecosystems. Methods to identify novel active compounds and processes for biotechnological and biomedical applications (bioprospection). The occurrence, severity, and impacts of ocean acidification. The potential for changes in marine food webs that may directly affect living resources and commercially important species Limnic ecosystems in polar areas Conservation management issues
5 - Human impacts	<ul style="list-style-type: none"> Effects of long-range transport of pollutants and their bioaccumulation in polar food chains. Influence of aerosols on the Earth's climate Stratospheric ozone depletion and its effects on ecosystems and people in the Arctic and Antarctic Increased economic activity and related hazards.
6 - Solid earth and its interactions	<ul style="list-style-type: none"> Strategic and commercial interest in Polar resources (mainly Arctic) Scientific support the definition of the exclusive economic zone in the Arctic
7 - Sustainable management of resources	<ul style="list-style-type: none"> The feasibility, challenges and impact of exploitation of Arctic petroleum resources (20 to 30 percent of the untapped global petroleum). Sustainable use of fisheries, forests and mineral resources in the Arctic Impact of reduced sea-ice in relation to exploitation of Arctic oil and gas reserves. Impact of increased human/industrial activity on traditional lifestyles such as reindeer herding. Pollution risks and risks to safe food and water supply. Impact of increased maritime operations on fisheries. Recognition of the value and significance of traditional and local knowledge in relation to scientific research and monitoring activities
8 - People, Societies and Cultures	<ul style="list-style-type: none"> Changes in lifestyle of indigenous communities. Alterations in family structure, values and cultural forms of expression. Increasing role of women in society Barriers to intergenerational knowledge transmission or loss of indigenous languages. Cultural heritage management.
9 - Human health and Wellbeing	<ul style="list-style-type: none"> Changes in lifestyle impacting the health and wellbeing of indigenous communities Impact of climate change and socio-economic changes on food, water and energy security Changes in the rates of cancer and other lifestyle-related diseases, sexually transmitted diseases, suicides and alcoholism
10 - Astronomy, Astrophysics and Space	<ul style="list-style-type: none"> Development of an ideal platform to study outer space. Development of prototypes and testing of equipment destined for space use. Forecast space weather. Identification of useful sites for observing Sun-Earth interactions

In addition, two major crosscutting themes have been identified: 1) International relations and legal dimension and 2) New technologies

4. Infrastructure catalogue by Yves Frenot (from the Deliverable 3.2)

Among the four work packages of EU-PolarNet, WP 3 is dedicated to "Infrastructures, Facilities and Data". One of the tasks (T3.1) of this WP is to establish an European Polar Infrastructure Catalogue incl. all types of polar infrastructures and facilities based on the model of the INTERACT Arctic station catalogue. It will provide all necessary information on the capacities of European Arctic and Antarctic infrastructures to support science and their availability to international scientists. Beyond this, task 3.1 has the following duties and objectives:

What is expected?

- A catalogue of all existing European polar infrastructures (stations, research vessels, aircrafts)
- An understanding of the current rules of trans-national access
- Identification of polar commercial infrastructures that could be made available to implement

Final objectives

- Publish a white paper on European polar infrastructure access and interoperability
- Publish an infrastructure implementation plan for the European Polar Research Programme

A close collaboration was established with three other bodies which have already a part of the information requested and through which we have had contact with the managers of the polar research infrastructures: INTERACT for the Arctic stations, COMNAP for the Antarctic facilities, and EUROFLEET 2 for the polar research vessels. The aircraft fleets of British Antarctic Survey and Alfred Wegener Institute were also included in the catalogue. Regarding the stations, a database was set up and will be associated with a web GIS. This database will be available by the end of 2016 at the EU-PolarNet website.

We have identified a total of 63 European polar facilities, 31 in the Antarctic and 32 in the Arctic (Deliverable 3.2):

13 facilities in the Antarctic Peninsula	18 facilities in Continental Antarctica	32 facilities in the Arctic
<ul style="list-style-type: none"> • 4 permanent stations, • 6 summer stations, • 1 summer laboratory, • 2 summer camps. 	<ul style="list-style-type: none"> • 5 permanent stations, • 6 summer stations, • 4 summer camps, • 3 summer shelters. 	<ul style="list-style-type: none"> • 24 permanent stations, • 8 summer stations.

The stations are operated by 17 European countries: Belgium, Bulgaria, Czech Republic, Faroe Islands, Finland, France, Germany, Greenland, Iceland, Italy, Netherlands, Norway, Poland, Spain, Sweden, Ukraine, and United Kingdom. Most of these facilities are governmental or operated by Universities (only one is operated by a non-profit organization).

It was emphasized that this approach was extended by COMNAP to all the Antarctic facilities, including the facilities operated by non-European countries. These infrastructures catalogues and databases, built with the collaboration of EU-PolarNet, INTERACT, EUROFLEETS 2 and COMNAP, will provide the first and the only comprehensive and exhaustive data collection on the polar research infrastructures on both the Arctic and Antarctic Regions. It will be an invaluable tool for COMNAP, SCAR, FARO, IASC, the National Antarctic Programmes and support agencies, the Antarctic Treaty System, as well as for the scientists themselves.

5. Discussion

Following these introductory presentations, a general discussion with the audience was launched, followed by a discussion along questions, which have been distributed to the participants in advance (see Annex).

A) General discussion

1) Laura de Santis (Chair of the SCAR Scientific Research Programme "Past Antarctic Ice Sheet Dynamics" - PAIS) made a comment regarding the relevance of PAIS to the pan EU actions, and for important scientific issues covered by PAIS. One of the key current scientific issues is related to the estimation of the contribution of the Antarctic Ice sheet to sea-level rise. This research requests additional bathymetric data from key areas in the Antarctic. Such bathymetric data are essential for the success of the four ocean drilling projects, which have been approved by IODP for the Antarctic (and for which 4 co-chiefs are European). Coordinated logistic efforts are needed to get the necessary data for a successful implementation of the IODP drillings.

Nicole Biebow answered that we are at the stage of defining the next EU Programme. Therefore, we really need input from scientists. In the present case, a one page of ideas sent to EU-PolarNet would be very useful. It could initiate, in a second step, a white paper on this topic, involving the relevant scientific research community.

Laura de Santis will submit further information on this topic to EU-PolarNet very soon. She also invited EU-PolarNet representatives to the [Past Antarctic Ice Sheet Dynamics \(PAIS\) Conference 2017](#) in Trieste, Italy.

2) Volker Rachold (Executive Secretary of the International Arctic Science Committee - IASC) commented that the EU-PolarNet infrastructure catalogue is very valuable to the scientists as well as the policy makers. It could be extremely useful for Europe in the context of its application to become a permanent observer in the Arctic Council. It clearly demonstrates the huge investments of European countries are making in the Arctic.

On another aspect, many countries or national / international organizations are currently defining scientific priorities for the Polar Regions. This might be confusing for the stakeholders or policy makers. Jointly defined scientific priorities would be more convincing. This is the reason why an agreement on joint European / International Science Priorities for Polar Research should be anticipated and be based on the SCAR, IASC and EU-PolarNet work.

Karin Lochte agreed, emphasizing the need to establish a real link between this joint list of priorities and stakeholders expectations. She added that pooling national and EU funding would also allow to have a stronger impact and to reach a critical mass for the benefit of the scientific projects.

3) Volker Strass (AWI) stressed that he is concerned that basic science will be forgotten when only societal relevance is considered important and not scientific excellence.

Karin Lochte answered that we are all well aware of this point, and EU-PolarNet is only one European project. Several other EU-projects are more oriented toward basic science topics. However, it is a fact that EU needs societal relevance in the projects funded. The example of studies on sea level rise requesting research in the Southern Ocean is given. Such studies will be funded by Europe only if it is clearly demonstrated that the outputs will have societal consequences in Europe and in the rest of the world.

4) Adelino Canario (Portugal) asked what are the instruments, which can be used to implement this research program? Would an ERA-Net kind of structure be useful for implementing?

Nicole Biebow answered that EU-PolarNet is currently working on themes for projects with funding for research and development in H2020. They usually get a funding of 10-15 Million Euros. These projects need stakeholder involvement. This is one of the reasons why we really need to identify the stakeholders and involve them in our research.

Within FP6, the EC has already funded an ERA-Net for Polar Research, called EUROPOLAR (coordinator European Polar Board). It successfully implemented the PolarClimate Call. I am unsure, if a call for another ERA-Net would have a chance.

Next to EU-funding, possibilities exist to use in the joint programming initiatives (JPIs) or the Belmont Forum, for Arctic and Antarctic research topics, which are jointly identified, though the funding is not that high as in the H2020 calls.

Karin Lochte stated that we need to find mechanisms to bring all different people and national interests together.

5) A participant asked how many projects will be funded by the EU.

Nicole Biebow answered that in the last work programme, the EC provided 42 Million Euro for Polar Research. Up to six or seven projects might get funding (since the last call is still open, we do not know the final amount). The EC has indicated that it is intending to invest about the same amount in the next work programme, which means a similar amount of projects might get financial support.

6) Nicoletta Canone from Italy stated that climate changes will drastically impact ecosystems in a near future. They have obvious societal relevance and should be addressed in one of the white papers.

Karin Lochte said that it is not possible to integrate everything at the same time. We should not only work step-by-step but more importantly, work with new approaches, integrating several scientific fields and concerns.

7) An APECS representative stated that young researchers have grown up with including societal relevance on proposals, so please start using more young researchers in the proposals, they can help.

B) Question based discussion

Question 1: Could you imagine performing scientific research in the Antarctic which is driven by societal relevance?

Heike Link (Uni Kiel) answered on behalf of APECS that yes, we (the young generation) are interested to perform societal relevant research and we are already used to it.

Carlotta Escutia (CSIC) stated that there are many research topics for Antarctic Research, which are relevant to society. She asks if all this research needs to be political relevant as well.

Karin Lochte answered not necessarily. We should divide between political driven and societal driven research

Question 2: What kinds of stakeholders are relevant for Antarctic Research? Would you be interested to work with them to define societal relevant research themes?

Participants provided a list of possible stakeholders:

- CCAMLR is an important stakeholder
- Politics are stakeholders: keywords emission pathways, CO₂ uptake by the Southern Ocean
- IPCC is a direct user of the science implemented in the Southern Ocean and in Antarctica
- Fisheries, tourism are also mentioned
- Space agencies as a stakeholder for new technologies to be tested in the Antarctic for missions to Mars (a participant gave the example of hypersaline lakes found in the Dry Valleys which can be used to test outer space ecosystems).
- Companies who work on technologies for extreme environments
- Southern Hemisphere Countries due to the direct impact of El Nino/La Nina cycles
- At the global level, sea level rise due to melting of Antarctic Ice Sheets can affect all the coastal areas of the planet
- All the observers involved in the Antarctic Treaty System, e.g. IUCN, ASOC, IAATO etc..

The next questions on the list were shown on the screen but were not considered due to limited time:

Question 3: Do you think such a European Polar Research Strategy would be beneficial for Antarctic Research?

Question 4: Would you/your organisation be interested to participate in the creation of this strategy

Question 5: What needs to be changed to improve the capacities of Antarctic Science?

However, the participants were invited to send their comments, ideas, suggestions etc.. to info@eu-polarnet.eu A more detailed questionnaire (see Annex II) was also distributed to participants.

The meeting was followed by a cocktail party and the discussions continued in small groups.

5. Conclusion

From a general point of view, the attendees were extremely happy to receive such information on EU-PolarNet. It seems that this European project begins to be widely known but with few details on its real objectives and activities. This meeting gave the opportunity to share this information not only with European scientists who are not directly involved in EU-PolarNet, but also with non-European scientists. Additionally, we were extremely lucky to attract in the room so many people from diverse origin, including several non-scientists stakeholders involved in Antarctica.

ANNEX I

SCAR Members

SCAR Members
(31 countries)
and Associate Members
(8 countries indicated with *)

Country	Address	Website
Argentina	Instituto Antártico Argentino, Balcarce 290 (esq. Moreno), Piso 2°, Ciudad Autónoma de Buenos Aires (C1064AAF)	dna.gob.ar/
Australia	National Committee for Antarctic Research, Australian Academy of Science, PO Box 783, Canberra ACT 2601	www.science.org.au
Belgium	Belgian National Committee on Antarctic Research, IRScNB, Rue Vautier 29, B-1000 Brussels	dev.ulb.ac.be/glaciol/BNCAR/
Brazil	Comitê Nacional de Pesquisas Antárticas-CoNaPA, Secretaria de Políticas e Programas de Pesquisa e Desenvolvimento, Ministério da Ciência e Tecnologia, Esplanada dos Ministérios, Bloco E, Sala 231, 70067-900, Brasília DF	www.mct.gov.br
Bulgaria	Bulgarian Antarctic Institute, Tzar Osvoboditel Bd, 15, 1504 Sofia	www.bai-bg.net
Canada	Canadian Committee on Antarctic Research, Polar Knowledge Canada, Suite 1710, 360 Albert Street, Ottawa, Ontario K1R 7X7	www.canada.ca/en/polar-knowledge/
Chile	Comité Nacional de Investigaciones Antárticas de Chile, Instituto Antártico Chileno, Plaza Muñoz Gamero 1055, Punta Arenas	www.inach.cl
China, People's Republic of	National Committee for Antarctic Research, No. 1 Fuxingmenwai Street, 100860 Beijing	www.chinare.gov.cn

Czech Republic *	National Committee on Antarctic Research, c/o Prof Pavel Prosek, Masaryk University, Department of Geography, Kotlarska 261137 Brno Czech Republic	www.geogr.muni.cz
Denmark *	The Royal Danish Academy of Sciences and Letters, H.C. Andersens Boulevard 35, DK-1553 Copenhagen V	www.royalacademy.dk
Ecuador	Ecuadorian Antarctic Program, Instituto Antártico Ecuatoriano, 9 de Octubre 416 y Chile, Edificio Citibank, 4o Piso, P.O.Box 09-01-7658, Guayaquil	www.inae.gob.ec
Finland	National Committee on Arctic and Antarctic Research, Delegation of the Finnish Academies of Science and Letters, Mariankatu 5 A, FIN-00170 Helsinki	www.academies.fi
France	Secrétariat du Comité National des Recherches Antarctiques (CNFRA), c/o TAAF-IPEV, 34, boulevard de Sebastopol, 75004 Paris	www.cnfra.org
Germany	German National Committee for SCAR/IASC University of Erlangen-Nuremberg Institute of Geography c/o Matthias Braun Wetterkreuz 15D-91058 Erlangen	www.scar-iasc.de
India	National Committee for Antarctic Research, Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi - 110 002	www.insaindia.org
Iran, Islamic Republic of *	National Centre for Antarctic Research (NCAR) #3 Etemad Zadeh Street Fatemi Avenue Tehran, 1411813389	www.inio.ac.ir/INIO-POLAR
Italy	Commissione Scientifica Nazionale per l'Antartide, c/o Consorzio PNRA (ENEA Casaccia), Via Anguillarese 301, 00060 S. Maria di Galeria, Roma	www.csna.it
Japan	National Antarctic Committee, Science Council of Japan, 22-34 Roppongi 7, Minato-ku, Tokyo 106-8555	www.scj.go.jp
Korea, Republic of	Korean National Committee for Polar Research, Korea Polar Research Institute, 26, Songdomirae-ro, Yeosu-gu, Incheon 406-840	www.kopri.re.kr
Malaysia	Malaysian Committee for Antarctic Research, Mr Nasaruddin, Sultan Mizan Antarctic Research Foundation, 902-4 Jalan Tun Ismail, Kuala Lumpur 50480	www.ypasm.my
Monaco *	National Monegasque Committee, Centre Scientifique de Monaco (CSM), Laboratoire International Associé 'BioSensib' (LIA 647 / CNRS-CSM), 8, Quai Antoine 1er, MC 98000 MONACO	www.centrescientifique.mc

Netherlands	The Netherlands SCAR Committee, Netherlands Organisation for Scientific Research, Division Earth and Life Sciences, Ms. Liesbeth H.W. Noor, P.O. Box 93510, 2509 AM Den Haag	www.nwo.nl
New Zealand	National Committee on Antarctic Sciences, International Contracts Coordinator, Royal Society of New Zealand, 11 Turnbull Street, Thorndon, PO Box 598, Wellington 6140	www.royalsociety.org.nz
Norway	Norwegian National Committee on Polar Research, Research Council of Norway, PO Box 2700 St. Hanshaugen, N-0131 Oslo	www.forskningsradet.no
Pakistan *	National Institute of Oceanography, S.T. 47, Block-1, Clifton, Karachi - 75600	www.niopk.gov.pk
Peru	Instituto Antártico Peruano, Dirección de Asuntos Antárticos, Ministerio de Relaciones Exteriores, Jirón Lampa 545, Lima, 1	
Poland	Polskiej Akademii Nauk, Plac Defilad 1, 00-901 Warszawa	www.igf.edu.pl
Portugal *	Centre of Marine Sciences, Universidade do Algarve, Campus de Gambelas, 8005-139 Faro	www.ccmr.ualg.pt
Romania *	National Commission for Antarctic Research (NCAR), Romanian Academy, Calea Victoriei, 125, 010071 Bucharest	www.acad.ro
Russia	Russian Committee on Antarctic Research, Staromonetny pereulok, 29, 119017 Moscow	igras.ru
South Africa	South African National Committee for SCAR, South African ICSU Secretariat, Foundation for Research Development, PO Box 2600, Pretoria 0001	www.nrf.ac.za
Spain	Comité Nacional del SCAR, Universidad Autonoma de Madrid, Department Geología y Geoquímica, Facultad de Ciencias, Madrid 28049	www.uam.es/otros/cn-scar/
Sweden	Swedish Research Council, Box 1035, SE-101 38 Stockholm	www.vr.se
Switzerland	Swiss Committee on Polar and High Altitude Research, Hubertus Fischer, Klima- und Umweltphysik Physikalisches Institut, Universität Bern, Sidlerstrasse 5, CH-3012 Bern	www.polar-research.ch
Ukraine	National Antarctic Scientific Centre Ministry of Education and Science of Ukraine Blvd Tarasa Shevchenka 16, Room 10101601 Kyiv	www.uac.gov.ua

United Kingdom	UK National Committee for Antarctic Research, British Antarctic Survey, High Cross, Madingley Road, Cambridge CB3 0ET	www.antarctica.ac.uk/UKNCAR
United States of America	Polar Research Board, National Academy of Sciences, 500 5th Street, NW, Keck W-633, Washington DC 20001	usscar.org/dels.nas.edu/prb/
Uruguay	Instituto Antártico Uruguayo, Avenida 8 de Octubre 2958, PO Box 6051, CP 11600 Montevideo	www.iau.gub.uy
Venezuela *	Centro de Oceanología y Estudios Antárticos, Instituto Venezolano de Investigaciones Científicas (IVIC), Carretera Panamericana, Km. 11, Altos de Pipe, Apartado Postal 20632, Código Postal 1020-A, Caracas	www.ivic.gob.ve

Union Members (5)

Union Members are those ICSU scientific unions that have an interest in Antarctic research.

Union	Address	Website
International Astronomical Union - IAU	98-bis Blvd Arago F-75014 Paris France	www.iau.org
International Geographical Union - IGU	Environmental & Geographical Science Building South Lane, Upper Campus University of Cape Town Private Bag X3 Rondebosch 7701 South Africa	www.igu-online.org
International Union for Quaternary Research - INQUA	Department of Biology Faculty of Science Mbarara University of Science & Technology P.O. Box 1410 Mbarara Uganda	www.inqua.org
International Union of Biological Sciences - IUBS	Bât 442, Université Paris Sud 11 91405 Orsay cedex France	www.iubs.org
International Union of Geodesy and Geophysics - IUGG	University of Karlsruhe Geophysical Institute Hertzstr. 16, Geb. 06.36 Karlsruhe 76187 Germany	www.iugg.org/
International Union of Geological Sciences - IUGS	Chinese Academy of Geological Sciences No. 26, Baiwanzhuang Road Xicheng District Beijing 100037 China	www.iugs.org

International Union of Pure and Applied Chemistry - IUPAC	104 T W Alexander Drive PO Box 13757 Research Triangle Park North Carolina 2709-3757 United States	www.iupac.org
International Union of Physiological Sciences - IUPS	Physiology and Biophysics, School of Medicine Case Western Reserve University 10900 Euclid Avenue Cleveland, OH 44106-4970 USA	www.iups.org
Union Radio Scientifique International - URSI	c/o INTEC, Ghent University Sint-Pietersnieuwstraat 41 B-9000 Ghent Belgium	www.ursi.org

ANNEX II – Questionnaire for the attendees

EU-PolarNet: Opportunities for Antarctic Research

Polar issues have been rising up the political agenda across Europe over the past decade since the rapid changes occurring in the Polar Regions are significantly influencing global climate with consequences for global society. As a result, the European Union and its executive body, the European Commission (EC), attribute an increasing importance to science and innovation in the high latitudes for a variety of reasons. As a first step in this direction, EC has launched a five-year coordination and support action "EU-PolarNet - Connecting Science with Society" which will work in close cooperation with the EC in the upcoming five years in shaping Europe's polar research and policy agenda. EU-PolarNet benefits from its close cooperation with the European Polar Board (EPB), as outcomes from EU-PolarNet will add long-term value in providing strategic science policy advice to the European Commission and other international bodies.

EU-PolarNet will establish an ongoing dialogue between policymakers, business and industry leaders, local communities and scientists to increase mutual understanding and identify new ways of working that will deliver economic and societal benefits. The results of this dialogue will be brought together in a plan for an Integrated European Research Programme for the Antarctic and the Arctic that will be co-designed with all relevant stakeholders and coordinated with the activities of many other polar research nations beyond Europe, including Canada and the United States, with which consortium partners already have productive links. The European Polar Research Programme will be accompanied by a realistic and feasible implementation plan to provide Europe with the capability to define the nature of environmental risks so that governments can design policy measures to mitigate them and businesses and other stakeholders benefit from the opportunities that are opening up in the Polar Regions. EU-PolarNet is closely cooperating with the European Commission by providing support and advice on all issues related to the Polar Regions. It helps the EC to identify high priority research topics to be funded in the current Horizon2020 framework programme. A major benefit of the involvement and support of the EPB is that the legacy of EU-PolarNet products like the European Polar Research Programme can be reliably sustained by the Board into the future.

The project is coordinated by the Alfred Wegener Institute for Polar and Marine Research in Germany and has 22 partners from 17 European countries. The consortium brings together well-established, world-class, multi-disciplinary research institutions whose science programmes are internationally recognised for excellence. Alongside these scientific capabilities, the national programmes represented in this proposal possess a unique array of infrastructure and operational expertise to support science at both Polar Regions. The consortium is uniquely positioned to significantly enhance Europe's capabilities to undertake state of the art science and cost-efficiently operate infrastructure in challenging polar environments.

EU-PolarNet: Opportunities for Antarctic Research**Questions to pose to Antarctic Stakeholders:****EU-PolarNet - EPB Town Hall, 24 Aug, 1900, Rm 401 and 402**

- As you know, one of the missions of EU-PolarNet (see overleaf) is to co-create a Polar European Research Strategy. How would this be of interest to your organization? Do you think that a European Polar Research Strategy would improve the scientific activity in Polar Regions? Do you think that such a strategy is needed?
- Would you (or your organization) be interested in participating in the creation process? If so, at which level? Activities you could participate in: Attending meetings, answering questionnaires, participating in the writing process, all of them, others - Although EU-PolarNet is a European initiative, scientific progress at both poles depends completely on international collaboration. How do you think an extra-European global collaboration could represent an advantage for you (or your organization) to do polar research?
- Would you be interested in participating with other stakeholders from different disciplines or even different sectors in meetings about scientific research in Polar Regions?
- Do you think that scientific research in the Polar Regions needs to be oriented to 'main-stream' topics, or societal challenges? Or, exceptionally, do polar sciences need to be creative and completely unrestricted?
- From your (or your organization's) point of view, how do we need to improve polar sciences? If so, what should be changed to improve it? (areas of potential change include, investment, collaboration, relationships with society, international perspective)