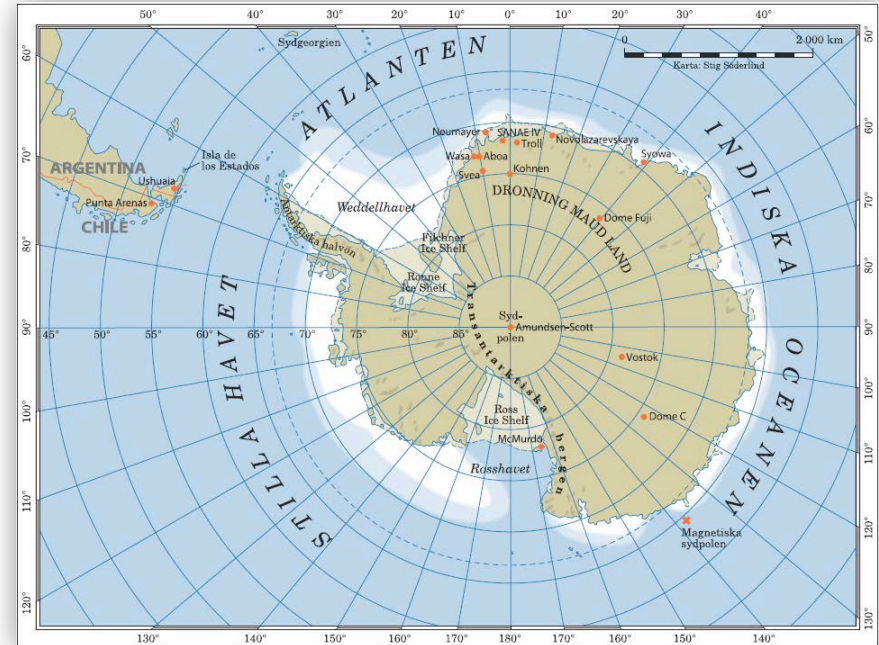
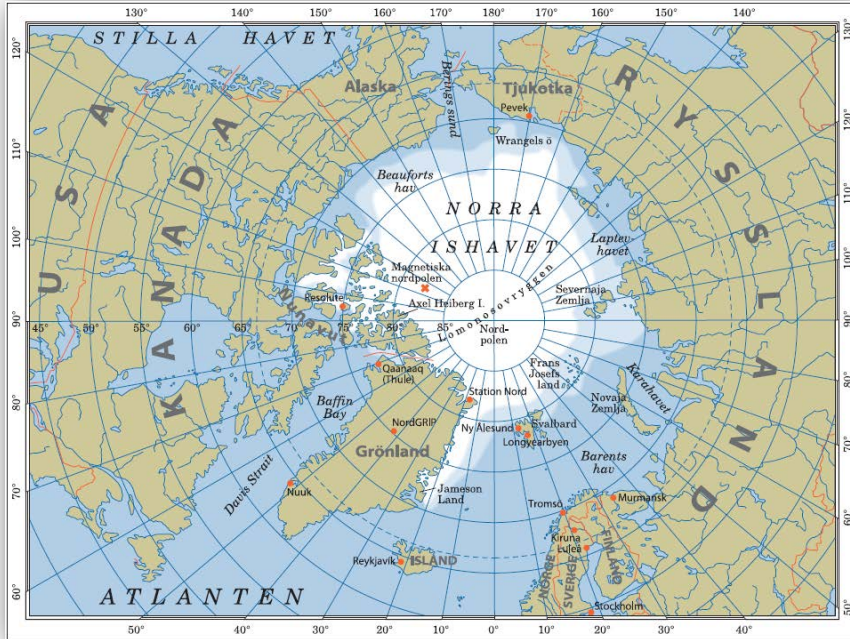

Science in Diplomacy - the History of International Scientific Cooperation in the Polar Regions

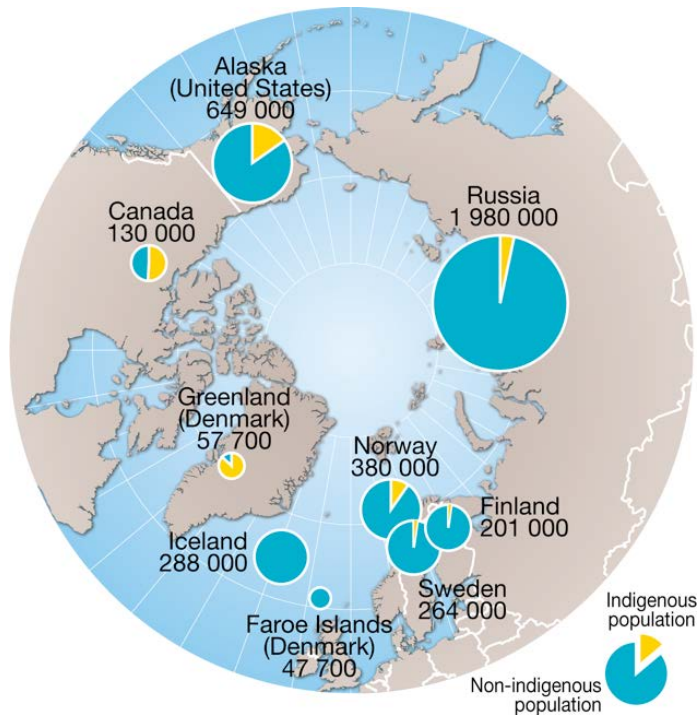
Volker Rachold
German Arctic Office
Alfred Wegener Institute
Helmholtz Center for Polar and Marine Research

Polar Educators International Workshop, Rovereto, 11 April 2017

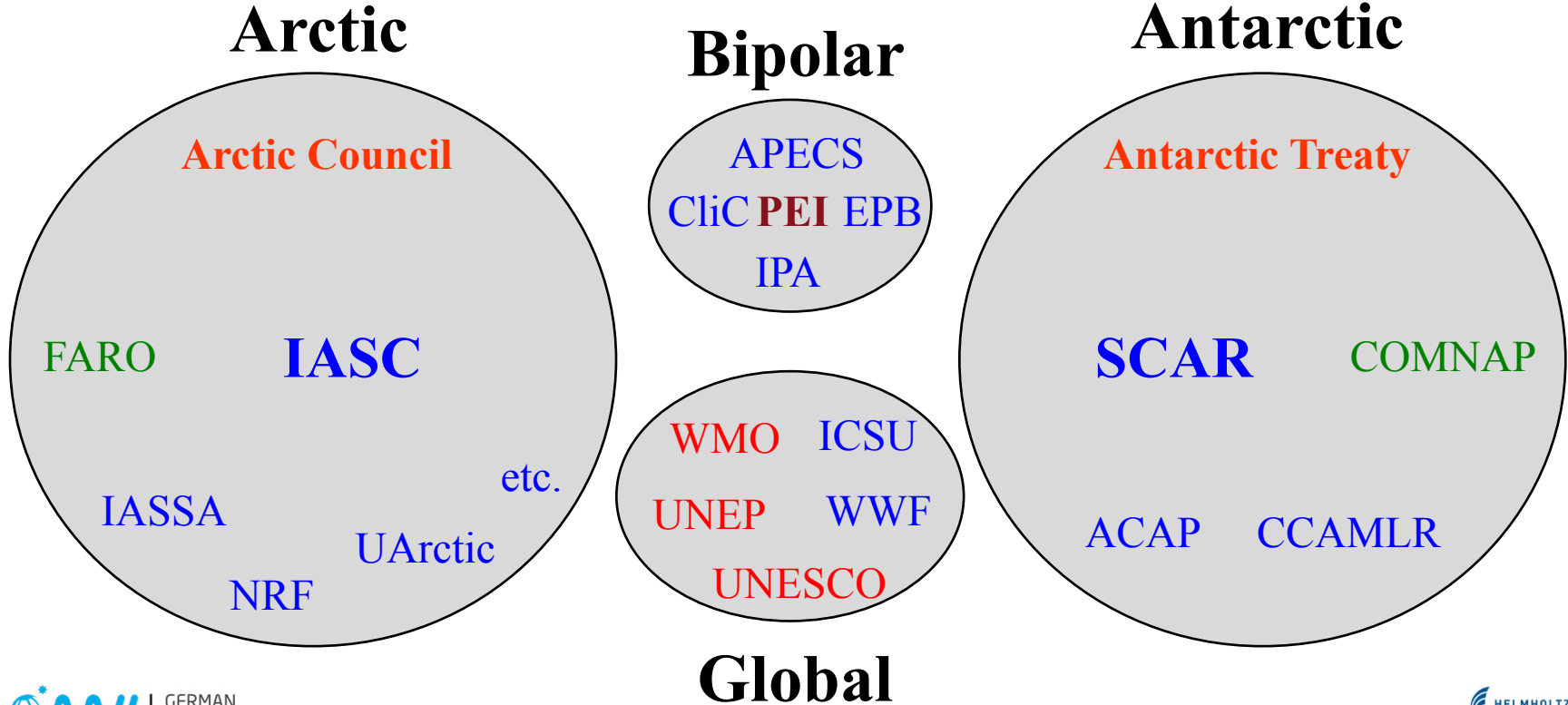
The Polar Regions – Physio-Geography



Arctic is home to 4 Million people and it is not no man's land

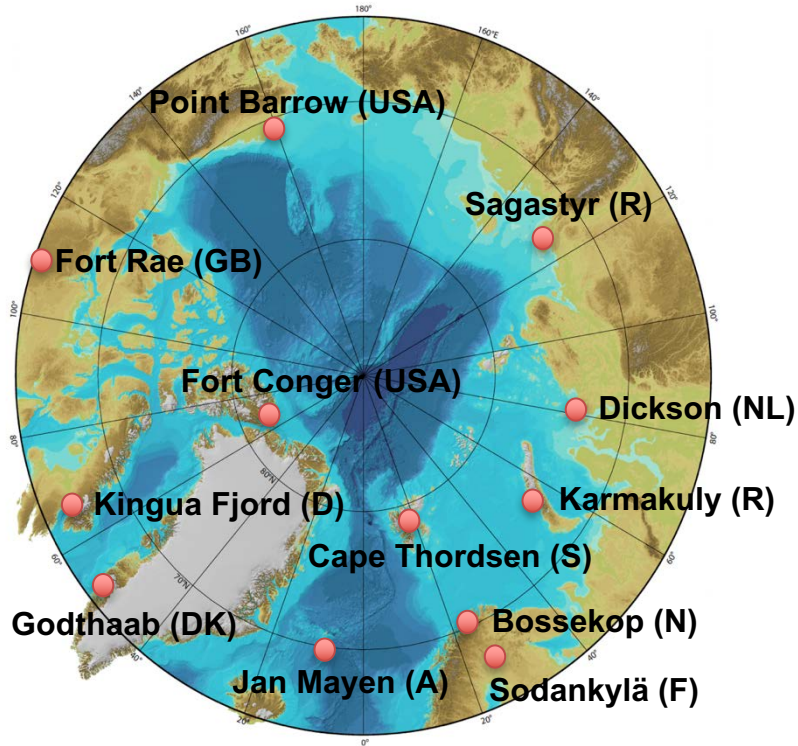


The Polar Acronym Soup



The First International Polar Year 1882-1883

First International Polar Year 1882-1883



World Meteorological Organization (WMO)



- intergovernmental organization
- 191 Member States and Territories
- established in 1950
- originated from the International Meteorological Organization (IMO), which was founded in 1873

WMO Executive Council Panel of Experts on Polar and High Mountain Observations, Research and Services (EC-PHORS)

International Council for Science (ICSU)



- non-governmental organization
 - 120 multi-disciplinary National Scientific Members, Associates and Observers representing 140 countries
 - 31 international, disciplinary Scientific Unions
 - established in 1950
-
- originated from the International Association of Academies (IAA; 1899-1914) and the International Research Council (IRC; 1919-1931)

The Second International Polar Year 1932-1933

Second International Polar Year (1932-1933)

- Proposed by the International Meteorological Organization (IMO)
- Focused on the electrical geophysics of the Earth and observations in the polar regions to improve the accuracy of weather forecasts and the safety of air and sea transport
- 44 countries participated
- 27 observation stations were established in the Arctic
- global financial crisis - network of stations in Antarctica was not implemented
- world data center was created under IMO (later WMO)



The Geophysical Year 1958-1959

Third International Polar Year (1958-1958) = International Geophysical Year

- Stalin's death in 1953 opened the way;
- Focus on earth sciences: aurora and airglow, cosmic rays, geomagnetism, gravity, ionospheric physics, precision mapping, meteorology, oceanography, seismology and solar activity;
- 67 countries participated;
- First satellite missions (Sputnik 1+2, Explorer 1 and Vanguard 1)
- 18 months of Antarctic Research



Third International Polar Year - Legacy



Amundsen-Scott Station



ICSU World Data Centers



Scientific Committee on
Antarctic Research

SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH



- An Interdisciplinary Scientific Body of the International Council for Science (ICSU)
- An observer to the Antarctic Treaty and the United Nations Framework Convention on Climate Change
- 43 countries members + 9 ICSU Scientific Unions

Third International Polar Year - Legacy



Amundsen-Scott Station



ICSU World Data Centers



Scientific Committee on
Antarctic Research



Secretariat of the Antarctic Treaty
Secrétariat du Traité sur l'Antarctique
Секретариат Договора об Антарктике
Secretaría del Tratado Antártico

Antarctic Treaty

The Antarctic Treaty

signed in Washington on 1 December 1959, to ensure

"in the interest of all mankind that Antarctica shall continue for ever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord."



Secretariat of the Antarctic Treaty
Secrétariat du Traité sur l'Antarctique
Секретариат Договора об Антарктике
Secretaria del Tratado Antártico



Glasnost and Perestroika



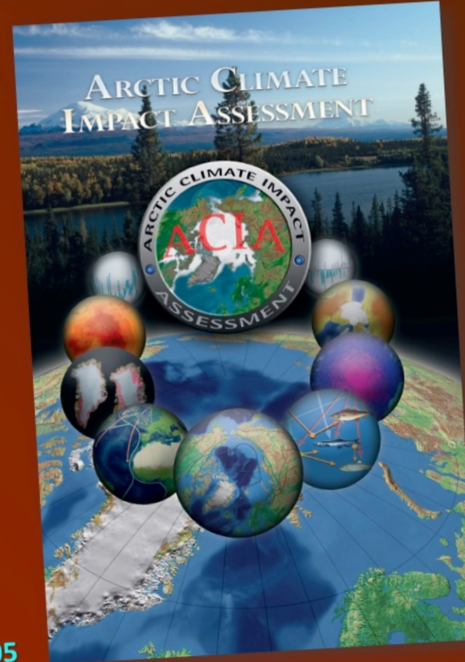
Arctic Climate Impact Assessment (ACIA)

An international project of the **Arctic Council** and **IASC** to evaluate and synthesize knowledge on Arctic climate variability, climate change, and their impacts.

ACIA Reports

- Scientific Report (1000 pages)
- Synthesis Report (140 pages)
- Policy Report

Published 2005



www.iasc.info

International Arctic Science Committee

2000

2005

2010

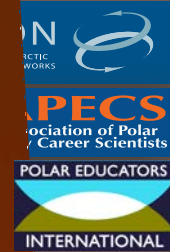


operation

Arctic
Environment
Protection

Finnish

In a



Working
groups



International Arctic Science Committee



Austria



Canada



China



Czech Republic



Denmark



Finland



France



Germany



Iceland



India



Italy



Japan



The Netherlands



Norway



Poland



Portugal



Republic of Korea



Russia



Spain



Sweden



Switzerland



United Kingdom



United States of America

IASC's membership today includes national science organizations from 23 countries involved in Arctic research.

IASC is an International Scientific Associate of the **International Council for Science (ICSU)** and observer on the **Arctic Council.**



Arctic Council



Arctic Council



Working Groups

- Arctic Contaminants Action Program (**ACAP**)
- The Arctic Monitoring and Assessment Programme (**AMAP**)
- Conservation of Arctic Flora and Fauna (**CAFF**)
- Emergency, Prevention, Preparedness and Response (**EPPR**)
- Protection of the Arctic Marine Environment (**PAME**)
- The Sustainable Development Working Group (**SDWG**)

Permanent Participants

- Aleut International Association (**AIA**)
 - Arctic Athabaskan Council (**AAC**)
- Gwich'in Council International (**GCI**)
- Inuit Circumpolar Conference (**ICC**)
 - Saami Council
- Russian Association of Indigenous Peoples of the North (**RAIPON**)
- Indigenous Peoples Secretariat (**IPS**)

Arctic Council



Observer States

- China
- France
- Germany
- India
- Italy
- Japan
- Korea
- Poland
- Singapore
- Spain
- The Netherlands
- United Kingdom
- *European Union*

Observer Organizations

- IFRC - International Federation of Red Cross and Red Crescent Societies
- WWF - Worldwide Fund for Nature
- Arctic Circumpolar Route
- AWRH – Association of World Reindeer Herders
- CCU - Circumpolar Conservation Union
- **IASC - International Arctic Science Committee**
- **IASSA – International Arctic Social Sciences Association**
- IUCH - International Union for Circumpolar Health
- IUCN – The World Conservation Union
- IWGIA – International Work Group for Indigenous Affairs
- NAMMCO - North Atlantic Marine Mammal Commission
- NCM - Nordic Council of Ministers
- NEFCO – Nordic Environment Finance Corporation
- Northern Forum
- SCPAR – Standing Committee of Parliamentarians of the Arctic Region
- **UArctic – University of the Arctic**
- UNDP – United Nations Development Programme
- UNEP-GRID/Arendal

The Fourth International Polar Year 2007-2008

Fourth International Polar Year 2007/2008



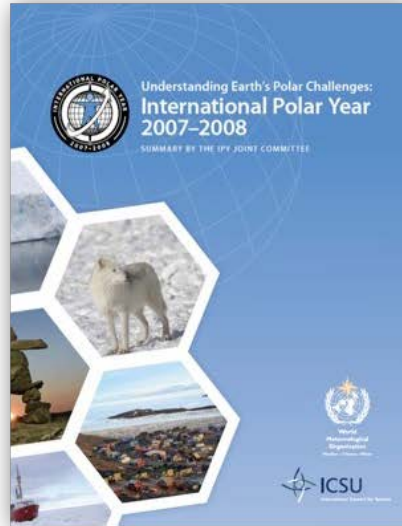
*IPY Joint Committee
(Oslo 2010)*



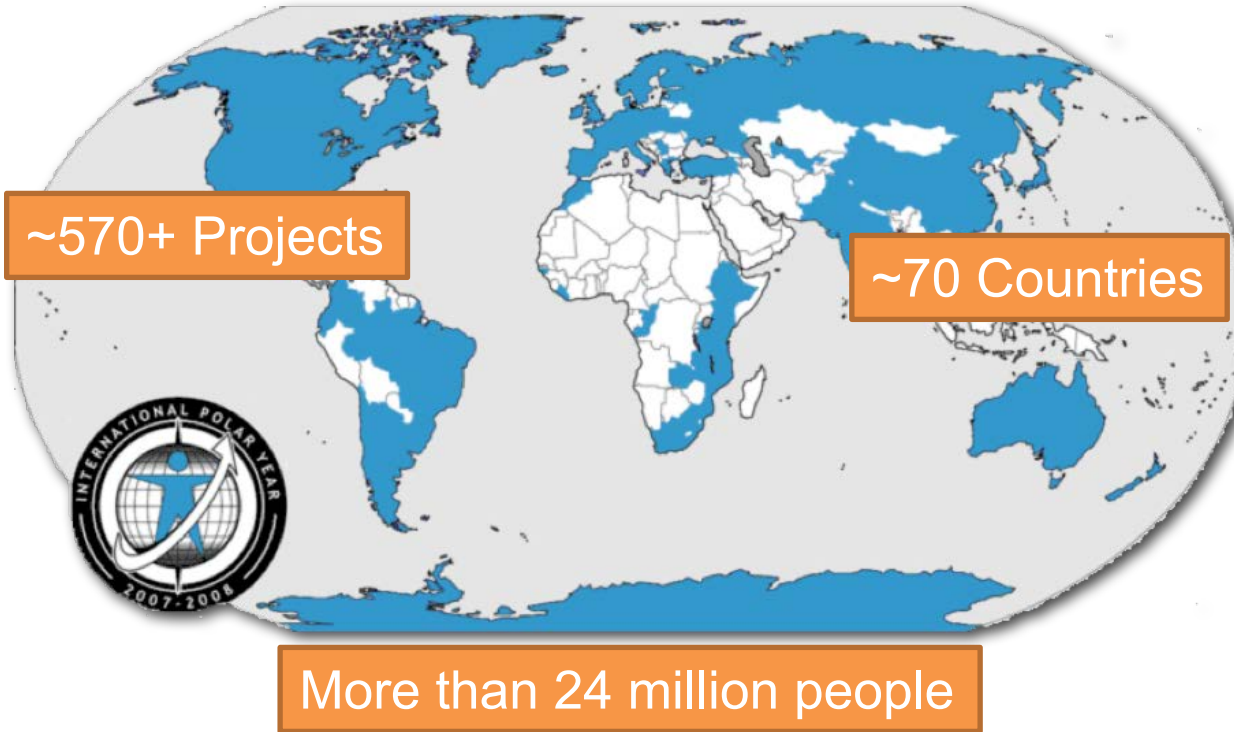
Fourth International Polar Year 2007/2008

....uniquely positioned the polar science community to address the important societal issues.

- ➡ 220 projects
- ➡ 50,000 participants
- ➡ 60 nations



Outreach and Education



Outreach and Education

A promotional poster for the Polar Educators International (PEI) 2017 event in Italy. The top section has a dark blue background with a stylized logo of a blue and yellow shape. Below this, the text 'PEI 2017 ITALY' is displayed in white and light blue. The main title 'EDUCATION MEETS SCIENCE' is in large, bold, dark blue letters. Underneath, it says 'BRINGING POLAR RESEARCH INTO THE CLASSROOMS' in smaller white text. A list of activities follows: '+ Workshops + Master Classes + Science Labs + Conferences + Snap Talks + Poster Exhibition'. The location 'Liceo Fabio Filzi ROVERETO - ITALY' is specified. The dates 'APRIL 11 - 14 2017' are prominently displayed in large white numbers. The website 'www.polareducator.org' is at the bottom. The background of the lower half of the poster shows a snowy mountain landscape with a person in a yellow jacket on the right.

PEI 2017 ITALY

EDUCATION MEETS SCIENCE

BRINGING POLAR RESEARCH INTO THE CLASSROOMS

+ Workshops + Master Classes + Science Labs + Conferences + Snap Talks + Poster Exhibition


Liceo Fabio Filzi
ROVERETO - ITALY

APRIL **11 - 14**
2017

www.polareducator.org

Polar Educators International

Connecting Arctic and Antarctic



NORTH

WHERE

The International Arctic Science Committee
IASC


The International Arctic Science Committee (IASC) is a non-governmental, international scientific organization. The IASC mission is to encourage and facilitate co-operation in all aspects of Arctic research, in all countries engaged in Arctic research and in all areas of the Arctic region. IASC is an international associate of the International Council for Science (ICSU) and an observer in the Arctic Council.

To fulfill its mission, IASC promotes and supports leading-edge multi-disciplinary research in order to foster a greater scientific understanding of the Arctic region and its role in the Earth system. IASC was established in 1990, began operations in 1991 and today comprises 19 member countries.

The core elements of IASC are its five Working Groups: Terrestrial, Atmosphere, Marine, Social & Human and Cryosphere. These international groups assist IASC in the implementation of its science mission by:

- Identifying and formulating science plans
- Acting as scientific advisory boards to the Council
- Encouraging and supporting science-led programs
- Initiating conferences, workshops and events
- Promoting future generations of arctic scientists

www.iasc.info <<<



SOUTH

WHERE

The Scientific Committee on Antarctic Research
SCAR


The Scientific Committee on Antarctic Research (SCAR)'s mission is to be the leading non-governmental, international facilitator and advocate of research in and from the Antarctic region, to provide objective and authoritative scientific advice to the Antarctic Treaty and other bodies such as the Intergovernmental Panel on Climate Change, and to bring emerging issues to the attention of policy makers. SCAR is an interdisciplinary body of the International Council for Science (ICSU).

Founded in 1958, SCAR currently has 36 member countries and nine ICSU union members. Its scientific activities cover a diverse range of disciplines such as Antarctica and the global climate system, understanding past climate, Antarctic and Southern Ocean ecosystems and biodiversity, ice sheet dynamics and sub-ice environments, and Astronomy and Astrophysics from Antarctica.

SCAR has groups concerned with the Social Sciences, History, data management, and geographic information as well as an active capacity building, education and training programme.

SCAR recently finalized production of its next Strategic Plan 2011–2014, entitled "Antarctic Science and Policy Advice in a Changing World" (<http://www.scar.org/strategicplan2011/>), which stresses the dual missions of SCAR.


>>> www.scar.org



POLAR SCIENCE

MEETS



BiPolar

SCAR and IASC promote cooperation in research that is of interest to both the Antarctic and Arctic scientific communities. Areas of current and future collaboration include studies related to the cryosphere and to the roles of the polar regions in the climate system. SCAR and IASC are also jointly considering how best to preserve and build-on their stewardship responsibilities for the legacies of the International Polar Year in observing systems, data and information management, and mentoring of students and early career scientists.

Connecting Arctic and Antarctic



2008
St. Petersburg



2012
Montreal

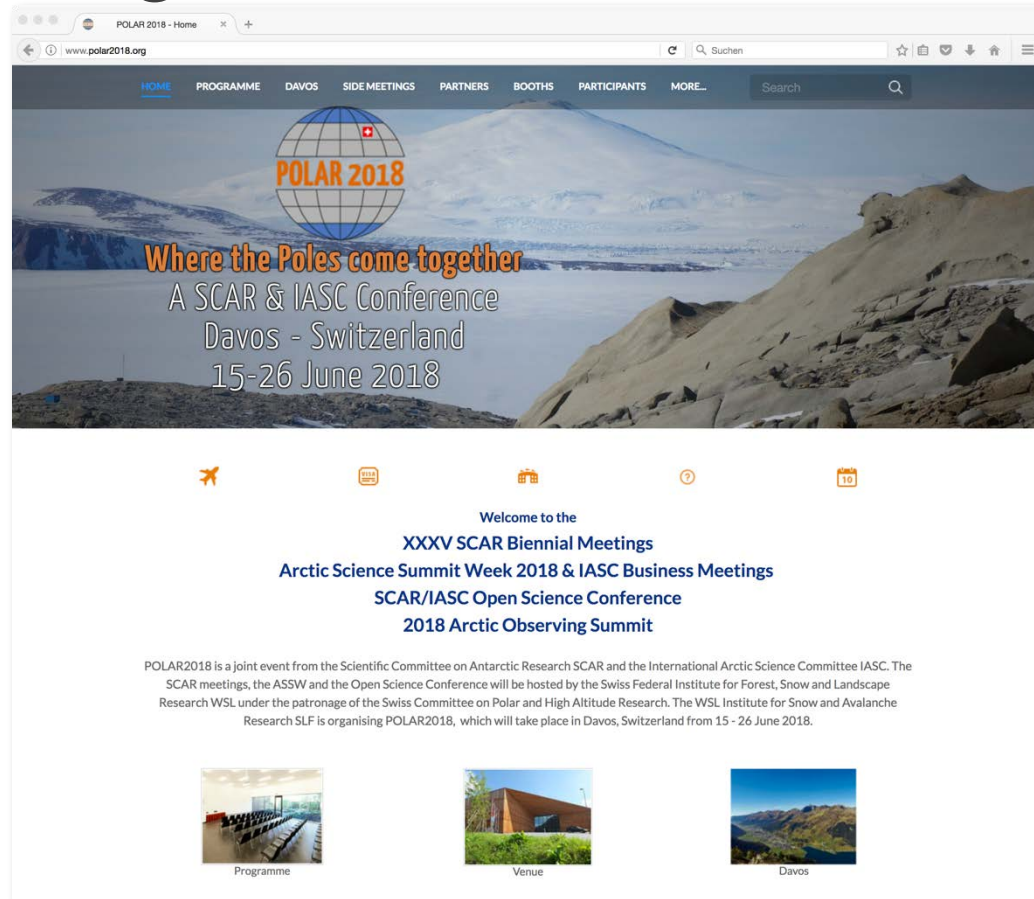


2010
Oslo

Connecting Arctic and Antarctic

2018
Davos

www.polar2018.org



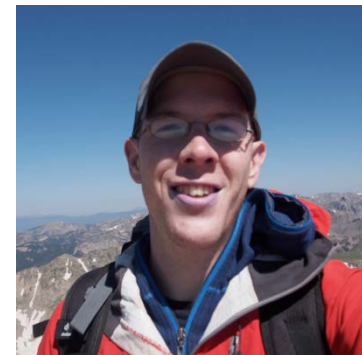
Association of Polar Early Career Scientists



Shaping the Future of Polar Research



**Jenny
Baeseman**

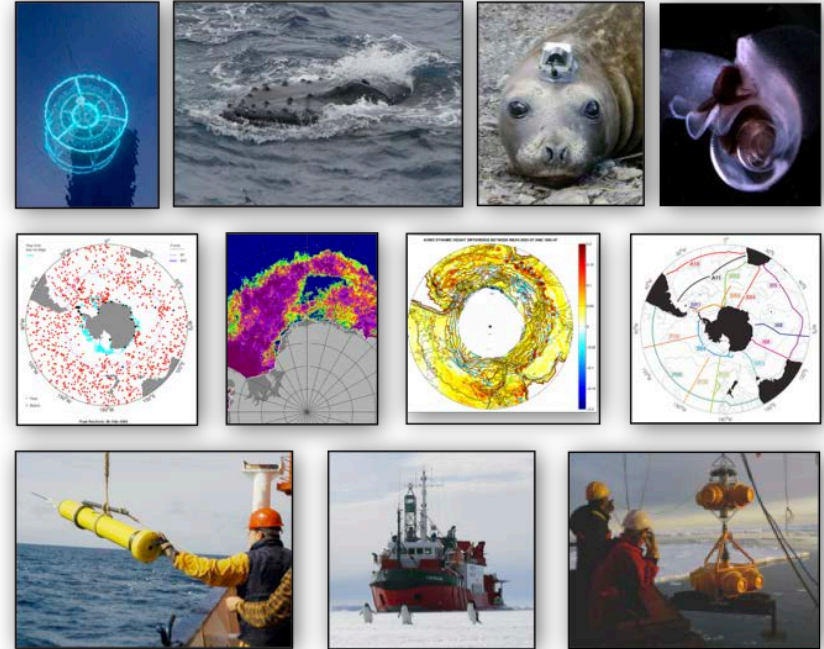


**Allen
Pope**

Observing Systems



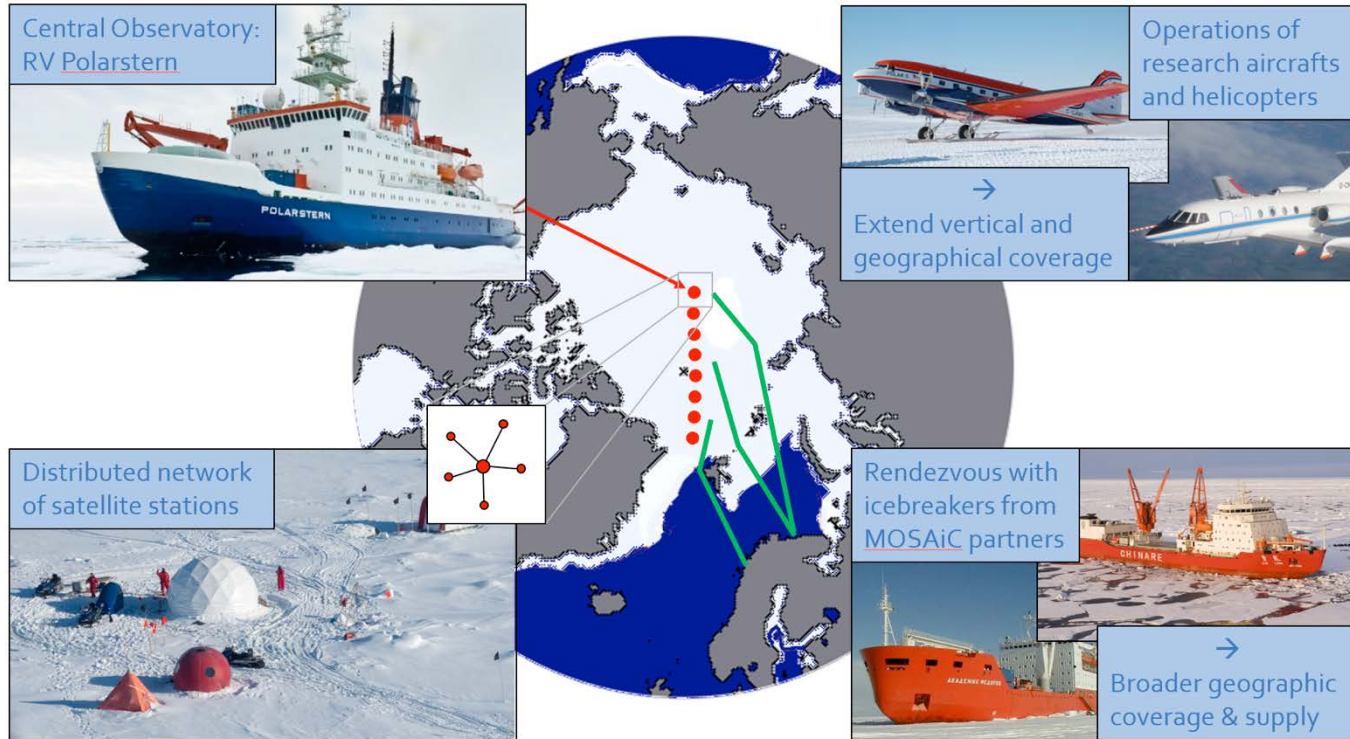
Sustaining Arctic Observing Systems



Southern Ocean Observing System

Modern Polar Research is International

Example: MOSAiC



Multidisciplinary drifting Observatory for the Study of Arctic Climate

Council of Managers of National Antarctic Programs



COMNAP is an international association of the 30 national Antarctic programs from the following countries:



CONTACT:

COMNAP
c/o University of Canterbury
Private Bag 4800
Christchurch, 8140
New Zealand

Email: info@comnap.aq

www.comnap.aq



Forum of Arctic Research Operators



- Aims to facilitate and optimize logistics and operational support for scientific research in the Arctic. The forum encourages international collaboration for all those involved in Arctic research.
- Is acting 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.



Forum of Arctic Research Operators

The Future of International Polar Research

The Future of Science in the Antarctic Region

The proven method of "Horizon Scanning" is applied to develop a community view of the 100 most important scientific questions in Antarctic and Southern Ocean science over the next two decades

- Community input has provided about 1000 questions
- SCAR assembled 70 of the world's leading Antarctic scientists, policy makers, leaders, and visionaries in NZ in April 2014

<http://www.scar.org/horizonscanning/>



Six Priorities for Antarctic Science

nature 6 August 2014

- Define the global reach of the Antarctic atmosphere and Southern Ocean.
- Understand how, where and why ice sheets lose mass.
- Reveal Antarctica's history.
- Learn how Antarctic life evolved and survived.
- Observe space and the Universe.
- Recognize and mitigate human influences.





Integrating Arctic Research - a Roadmap for the Future

3rd International
Conference
on Arctic Research
Planning
ICARP III



Arctic Research Priorities for the Next Decade

- The Role of the Arctic in the Global System
- Observing and Predicting Future Climate Dynamics and Ecosystem Responses
- Understanding the Vulnerability and Resilience of Arctic Environments and Societies and Supporting Sustainable Development



Overarching Messages

- **Communication:** Facilitate science-policy knowledge transfer between research community and end-users
- **Traditional and Local Knowledge:** Greater effort to incorporate traditional and local knowledge and to engage northern and indigenous communities in setting priorities, co-designing and co-producing research
- **Capacity Building:** Build long-term human capacity among researchers, decision-makers and Arctic indigenous and nonindigenous residents



First Arctic Science Ministerial Meeting



EU Arctic Policy and Research Priorities



EUROPEAN
COMMISSION

HIGH REPRESENTATIVE
OF THE UNION FOR
FOREIGN AFFAIRS AND
SECURITY POLICY

Brussels, 27.4.2016
JOIN(2016) 21 final

**JOINT COMMUNICATION TO THE EUROPEAN PARLIAMENT AND THE
COUNCIL**

An integrated European Union policy for the Arctic



ICARP III	US-led Arctic Science Ministerial	EU Arctic Policy
The Role of the Arctic in the Global System	Arctic Science Challenges and their Regional and Global Implications	International Cooperation on Arctic Issues
Observing and Predicting Future Climate Dynamics and Ecosystem Responses	Strengthening and Integrating Arctic Observations and Data Sharing	Climate Change and Safeguarding the Arctic Environment
Understanding the Vulnerability and Resilience of Arctic Environments and Societies and Supporting Sustainable Development	Applying Expanded Scientific Understanding of the Arctic to Build Regional Resilience and Shape Global Responses	Sustainable Development in and around the Arctic
	<i>Arctic Science as a Vehicle for STEM Education and Citizen Empowerment</i>	



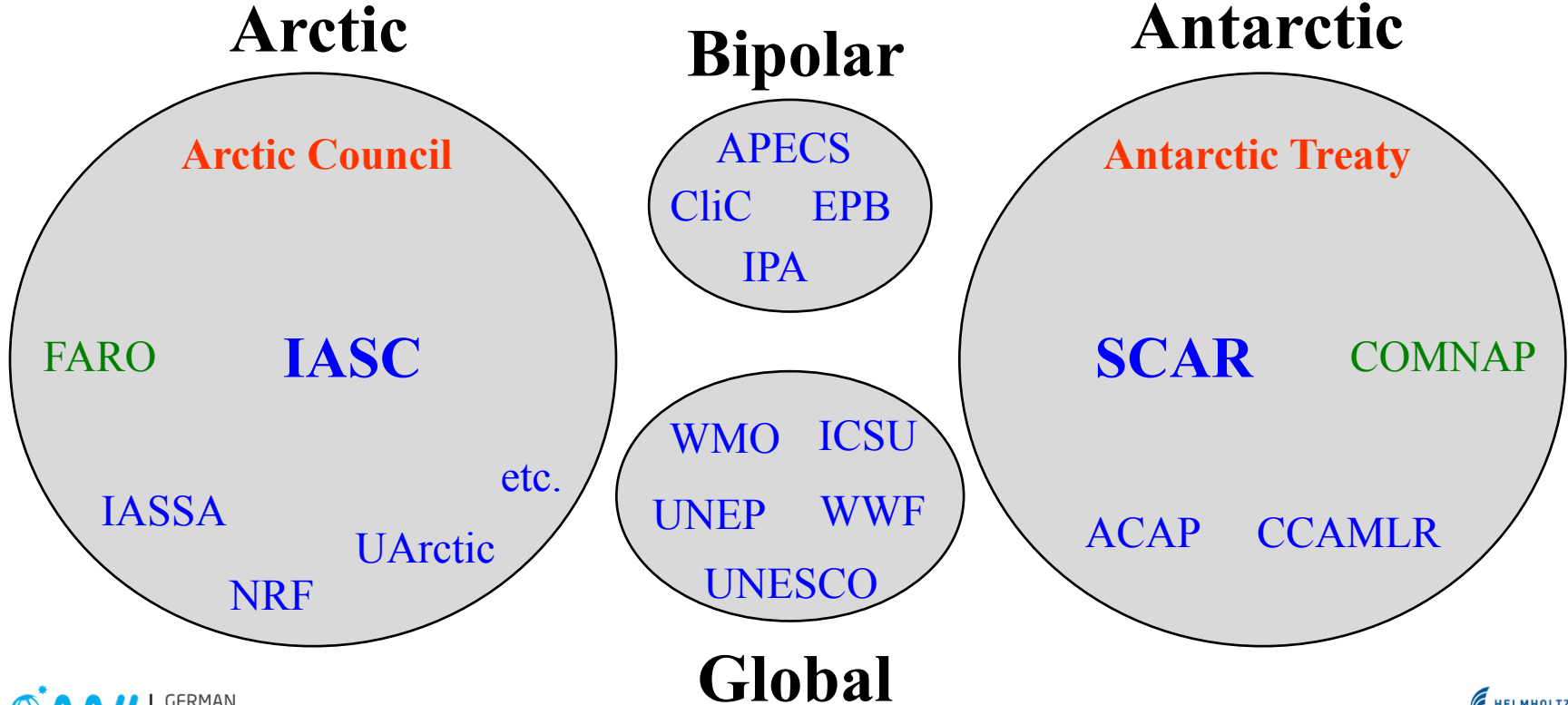
Arctic Council Task Force on Science Cooperation



- **Legally binding agreement of the Arctic States to enhance scientific cooperation**
- **Open for participation of Observer States**



The Polar Acronym Soup



Questions?

