

EUROPEAN POLAR BOARD

Editorial

Dear colleagues,

Antarctica and the Arctic are the two regions in the world which continue to offer many opportunities for research and exploration and still remain, in places, untouched by human presence. These regions are also the most sensitive to climate change and its important impact upon life on Earth. It is for these reasons that both the scientific community and the policy-makers around the world have turned their attention to the Polar Regions. Europe as a whole is particularly concerned about the future of the Arctic and the Antarctic as these two are the drivers of the climate system. The Polar Regions still hold many unknowns for science and their exploration is of importance to mankind.

The European Polar Board coordinates the European polar research and offers opportunities to its smaller country-members and those with modest financial resources to participate with their own scientific potential in many joint research projects. Most countries from Central and South-East Europe began polar research programs as late as the end of

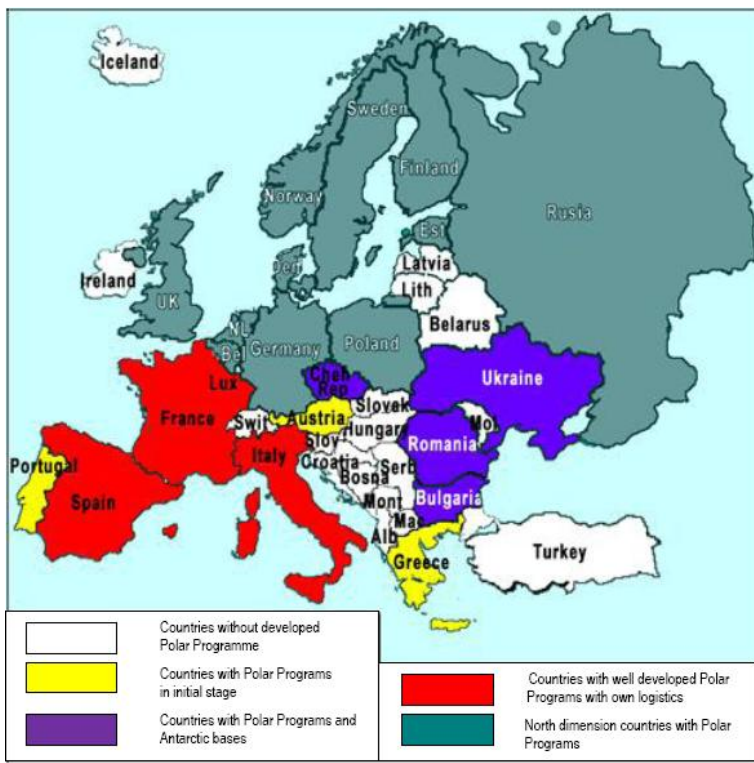
the past century. Bulgaria, Romania and the Czech Republic already maintain their own Antarctic bases while Portugal, Austria and Greece participate in joint research projects with their own scientists while utilizing the infrastructure of countries with well developed polar programmes. Slovakia, Slovenia, Croatia, Serbia, Bosnia, Montenegro, Macedonia, Albania and Turkey are countries without developed polar programmes and in the future have to be incorporated with their scientists in the polar research.

The cooperation in Antarctica between Spain, Portugal and Bulgaria has been especially fruitful. For six consecutive years, these three countries have developed the joint research project "Permafrost and climate change in Maritime Antarctic" in the areas of Livingston and Deception Islands. Romania is starting a joint project called "Interhemisphere" in the Arctic and Antarctic with Austria, Estonia, Bulgaria, the Czech Republic and Ukraine on climate change research funded mainly from the Romanian Scientific Fund.

The coordinated research efforts of the European scientists from countries with traditionally strong, well-developed polar programmes such as France, the UK, Germany, Spain, Italy and the Scandinavian countries with their colleagues from Bulgaria, Romania, Greece, Czech Republic, Portugal and Austria is an example of the successful scientific collaboration within the European Union aimed at unlocking the secrets of the last remaining pristine areas on our planet.

The European Polar Board, as part of the ESF, coordinates and encourages European polar scientific research in polar regions which at the same time meets the requirements of excellence and relevance. EPB fosters co-operation amongst the well developed programmes in their initial stage and facilitates assistance for those with limited resources and experience.

Best wishes,
Professor Christo Pimpirev
Director of Bulgarian Antarctic Institute



Developing Polar Programmes in Europe



Estonian Polar Research Activities

Professor Rein Vaikmae

Vice Rector of Tallin University of Technology,
EPB representative of the Estonian Academy of Sciences



Fieldwork on Svalbard

Source: Estonian Academy of Sciences

Estonia does not have a specific Polar Research Program and the commitment of Estonian researchers to polar science is fostered mainly through research projects financed by national research funding bodies on competitive bases according to the results of international evaluation of research proposals. The main fields of Estonian polar research for many years have been ice-core sciences and biology of polar lakes.

During the 70's and 80's Arctic ice cores from Svalbard, Severnaya Zemlya and Antarctic ice cores (Dome B and Shackleton shelf ice) were studied through collaboration with Russian colleagues. In recent years, the present and past variation of climatic and environmental parameters over the Svalbard sector of the Arctic Ocean has been studied by Estonian researchers. They have used high-resolution chemistry and isotope records from new medium-deep ice core records collected on Svalbard ice fields through the close cooperation with the Norwegian Polar Institute.

Starting from January 2010 Estonia has been participating in the international PolarCLIMATE project "Sensitivity of Svalbard glaciers to climate change (SvalGlac)".

As an associated partner in the consortium INTER-HEMISPHERE: "The structure and dynamics of polar ecosystems" Estonian researchers conducted preliminary field research in January-February 2009 in

the Larsemann Hills, with logistical support from the 28th Indian Scientific Expedition to Antarctica (InSEA), and in summer 2009 at Kilpisjärvi, NW Finnish Lapland. In the frame of InSEA in March 2009 sampling was carried out also in the Schirmacher Oasis to follow nearly half century development of human impact on some lakes.

At an organisational level, the Estonian Science Foundation have actively participated from 2005 to 2009 in the EUROPOLAR ERA-NET consortium of 25 ministries, Funding Agencies and National Polar RTD Authorities from 19 European countries and of the ESF/European Polar Board. It was the most significant initiative ever attempted to coordinate European Polar RTD Programmes. EUROPOLAR ERA-NET has also encouraged and supported the closer relationship of National Polar RTD Programme managers in Europe fostering cooperation and leading to joint Programme activities.

As a partner in EuroPICS (European Partnerships in Ice Core Sciences) Estonian researchers are also participating in discussions of planning the future priorities and activities in this important field research.



Romanian Polar Research Activities

"The Structure and dynamics of polar ecosystems: Interhemispheric comparisons of micro, macroflora and biogeochemical processes in relation to climate change".

Coordinator: Professor Teodor Gh. Negoitã

Director of Romanian Polar Research Institute



Romanian station Law Racovita, established by the support of Australian Governmental Antarctic Division

Source: Romanian Polar Institute

INTER-HEMISPHERE is a new activity coordinated by the Romanian Polar Research Institute, a bi polar project aiming to generate local/zonal

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inter-hemispheric comparative studies and models to relate JRP results to the polar climate system based on the geographic variation in climate and disturbance regimes.

INTER-HEMISPHERE involves a broad international cooperation-12 partners in 12 countries in Europe, Asia and Australia between specialists in various fields to understand the structure and dynamics of polar ecosystems by correlating JRP data and research on micro, macroflora and biogeochemical processes in various polar areas with the climate change, based on a highly interdisciplinary and integrated approach. Field work will be performed in Arctica (Spitsbergen, Greenland, Lapland, Arctic Russia) and East&West Antarctica.

INTER-HEMISPHERE focuses on climate change consequences bio/ecosystems in both polar area to ascertain the rates/magnitude of impact and the system adaptation/modification, by generating knowledge on polar microclimate, pedobiology, limnology and adaptation mechanisms in extreme environments. Analysis of ecosystem structure/responses to climate changes will be performed to preserve the genetic and ecosystem structure information and reveal the modification trends. JRP purpose is to accomplish this complex research in the field and laboratories by establishing the adequate scientific, logistic and cooperation frameworks to enable the integration of partner research, benefiting from the state-of-the-art approach, equipment, methodologies and access to more polar research areas and facilities. INTER-HEMISPHERE (2010-2012) along with partner IPY projects will generate a legacy a joint database for future research.

Link to INTER-HEMISPHERE project:
www.interhemisphere.eu

Link on EPB website: <http://www.esf.org/research-areas/polar-sciences/developing-polar-programmes-in-europe/inter-hemisphere-aims-and-objectives.html>



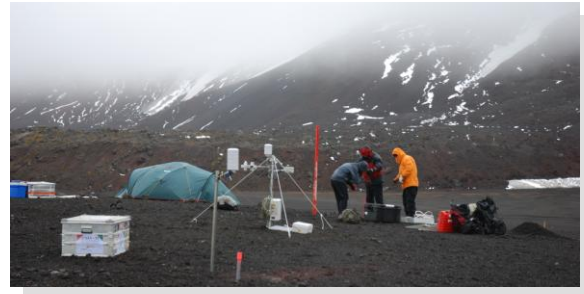
PORTUGUESE POLAR SCIENCE: A synthesis after the IPY

Professor Gonalo Vieira

University of Lisbon, EPB representative of Foundation for Science and Technology, Portugal

Portuguese researchers have been regularly involved in polar science, mainly in the Antarctic, since the 1990's, through international collaborations. During the last decade the number of researchers and

disciplines has increased significantly, especially within the framework of the International Polar Year.



Permafrost and active layer monitoring site in Deception Island (Antarctic). A collaboration between Portugal, Spain, Russia and Argentina.

Source: Foundation for Science and Technology, Portugal

The increasing national interest on polar science has led to the implementation in 2007 of the Portuguese Polar Program (Propolar) by the Portuguese Science and technology Foundation (FCT/MCTES). This program funds five projects in the Antarctic on atmosphere physics, biological sciences and cryosphere sciences, involving six national research centers. The activity takes place in close collaboration with international partners from over 10 countries, with logistics during the IPY provided by countries such as Argentina, Bulgaria, Italy, Russia, Spain and the United Kingdom. Besides direct Propolar funding, other polar projects are currently going on in both the Arctic and Antarctic, mainly on biology, chemistry and geology, some of them also supported by the FCT.

The IPY national committee contributed significantly to the implementation of a framework for the organization of polar science in Portugal and, in collaboration with the FCT, promoted the representation of the country in key organizations such as the EPB and SCAR. In 2009 the signature of the Antarctic Treaty has been approved at the national level and the formalization of the process is expected soon.

Critical mass on polar science in Portugal has grown significantly in the last years and the scientific community has been able to deliver both solid scientific results and a strong outreach program, leading to a strengthening of the country's commitment to polar research. 2010 will be another important year for polar science in Portugal, involving the evaluation of the impact of IPY activities and the planning of the post-IPY period. These will include the development and implementation of a polar strategy, with the guidelines for the national involvement on polar science, as well as the definition of the needs for international collaborations and logistics.

Activities

AURORA BOREALIS

A focus on the ERICON Financial Advisory Panel and the first estimates of running cost for the Aurora Borealis.



The ERICON Financial Advisory Panel is a unique body created in the course of the work package 4 and is the backbone of all the work performed on the financial structures.

Composed of maritime experts nominated by the members of the ERICON consortium the panel gathers: research vessel operators, ship designers and naval architects in a forum of exchange of experience and best practices. Further collaboration with other experts outside of the consortium with a key expertise has also been implemented to make sure that the project would benefit from the widest range of expertise.

All together the members of the panel are managing around 31 research vessels worldwide among which the research icebreaker Polarstern and the two research drilling vessels operated in the frame of the Integrated Ocean Drilling Program (IODP), the JOIDES Resolution and CHIKYU.

Thanks to the variety and the quality of the expertise available, the panel acts as a pole of excellence, referent to the work of the work package 4.

Working primarily on the establishment of running cost and future escalation of cost for the research icebreaker Aurora Borealis, the panel achieved the difficult task of comparing several European and international models to come up with some first estimates.

One of the key parts of this task was the assessment of the future fuel consumption of the vessel which has been the subject of a dedicated study. The need for this study arise from the fact that the cost of fuel can represent up to 40% of the annual budget of the ship and therefore need to be assessed carefully.

To this end, potential scientific scenarios for future usage of the ship were developed together with the scientific coordinators of the project taking in consideration the future scientific perspective developed in the work package 2. Those scenarios have then been analysed by AKER ARCTIC which unique corporate knowledge of ice monitoring in the arctic allowed them to time and calculate the corresponding fuel consumption.

The result of this study has been incorporated in a report which will be soon available and presents the first estimates of the running cost of the ship and their future evolution.



Hélène Haslé and Julien Weber: Senior and Junior Legal and Financial Project Manager, ERICON AB project

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Following the last EPB Plenary Meeting in Brussels on 15 October 2009,

the next European Polar Board's plenary meeting will take place during the Arctic Science Summit Week in Nuuk, Greenland, on 16 April 2010. This year, the ASSW, hosted by the government of Greenland, will be a series of business meetings, between various influential organisations engaged in Arctic and polar research.

During this EPB Plenary meeting, the members will discuss a future call for proposals (PolarLIFE) in the context of the Memorandum of Understanding, which would follow the same approach as PolarCLIMATE.

Other aspects to be covered are Forward Looks on Polar Oceans, Research Infrastructures and policy activities.

Activities

PolarCLIMATE Projects

The 6th PolarCLIMATE project “**Sensitivity of Svalbard glaciers to climate change**” (SvalGLAC), which was subject to reevaluation has now been approved for funding.

SvalGLAC:

Title: Sensitivity of Svalbard glaciers to climate change



Project Coordinator:
Professor Jacek Jania,
University of Silesia



Co-coordinator:
Professor Francisco Navarro
(Technical University of Madrid)

Abstract: About 50 % of the glaciated area outside the large ice sheets is located in the Arctic, and they contribute about 30 % to the runoff. IPCC predicts that the largest contribution to global sea level rise will stem from glaciers and ice caps. However, the uncertainties are large, up to 50%. Present estimates of mass balance of Svalbard glaciers are scarce and vary from close to balance to significantly negative. The dynamic response of the glaciers varies on the different glacier types: 1) Ice caps 2) tidewater glaciers and 3) glaciers ending on land. We will estimate how changes in climate can affect the future mass balance of Svalbard glaciers and, consequently, the contribution to sea-level rise. This will be accomplished through modelling of ice flow, including calving fluxes, supported by field data. The proposed modelling work also includes Regional Climate modelling providing surface mass balance estimates for the whole of Svalbard, surface mass balance modelling for targeted glaciers and sensitivity analysis by different approaches using degree-day and energy balance models as well as couplings to atmosphere, hydrology and dynamics.

A warmer climate may change both surface processes (snow accumulation, internal refreezing, superimposed ice and ablation) and dynamics.

Predictions of future mass balance and dynamic response require boundary information about the thermal structure of the ice, the present and past surface mass balance, meteorological data/atmospheric field studies (AWS), surface and bed topography and current flow. These points will be the main focus for the field and remote sensing investigations. Remote sensing data is the only way to get enough spatial data, but must be validated by field data. The above questions are addressed in a set of complementary field, remote sensing and modelling programs.

The main objectives of the project are:

- 1) To obtain a reliable estimate of the total ice volume stored in Svalbard
- 2) To estimate the recent past climate changes and mass balance rates of Svalbard.
- 3) To improve the process understanding related to mass balance and glacier dynamics.
- 4) To obtain an updated estimate of the present mass balance of Svalbard glaciers.
- 5) To model the expected response in surface mass balance and calving flux rate under different scenarios of climate change.

Principal Investigators/Associated Partners: PIs:

Prof. Jacek Jania, (University of Silesia), Prof. Francisco Navarro (Technical University of Madrid), Prof. Veijo Pohjola, (University of Uppsala), Prof. Dieter Scherer, (Technische Universität, Berlin), Dr. Friedrich Obleitner, (University of Innsbruck), Prof. Rein Vaikmäe, (Tallinn University of Technology), Prof. John Moore, (Arctic Center, Rovaniemi), Dr. Daniela Mansutti, (National Council for Research); **APs:** Prof. Jon Ove Hagen, (University of Oslo), Dr. Carleen Reijmer, (Utrecht University), Prof. Regine Hock, (University of Alaska), Dr. Andrey Glazovskiy, (Russian Academy of Sciences), Dr. Xiao Cheng, (Beijing Normal University)



Source: P. Thiriet, IPEV

News from our Members



First open meeting for
EC-funded sea-level rise
project

Ice2sea logo copyright
British Antarctic Survey

The open first meeting of the EC Framework 7-funded research programme ice2sea takes place in Krakow, Poland on the 17th & 18th March. A five-year project, involving scientists from 24 institutions across Europe, ice2sea features studies of key glacial processes in Greenland and Antarctica, improved interpretation of satellite information about current changes to ice mass, the development of more reliable techniques for predicting ice sheet response to environmental change. A key goal is the production of comprehensive projections of the contribution of continental ice to sea-level rise over the next 200 years. This ambitious programme is coordinated by Professor David Vaughan of the British Antarctic Survey. He said,

“The Ice2sea project gives us a fantastic opportunity to pool the knowledge, skills and expertise of scientists from 12 European countries. Between us we will deliver the most comprehensive assessment of the sources of uncertainty regarding future sea-level rise – essential for scientists, policy makers and society.”

For more information see: www.ice2sea.eu



Antarctic sea ice
copyright: British Antarctic Survey

Polar View in the Antarctic



British Antarctic Survey's research ship RRS James Clark Ross makes regular use of Polar View.

Copyright: British Antarctic Survey

As the Antarctic field season continues with the usual mix of exciting research programmes new enhancements to the online satellite image system that improves ship safety and efficiency are launched. The Polar View sea ice service, coordinated by the British Antarctic Survey, has greatly improved the service for the 2009/2010 Antarctic season. A combination of easier access through the new website and a significant increase in the number of images available means more real time sea ice information. The range of users of this service continues to expand, encompassing everything from science vessels to tour ships to those coordinating rescue efforts.

The new website (www.polarview.aq) now provides an interactive map displaying the latest imagery and sea ice information. Simple tools allow users to zoom into their area of interest and see recent cloud free satellite imagery from the European Space Agency. In combination with other information provided by partners in Denmark and Germany, anyone can access an up to date picture of current sea ice conditions, even on ships with limited internet access. Thanks to the frequent satellite images being acquired for the European MyOcean project, users of the Polar View service benefit from refreshed sea ice information at least every three days. Keep an eye on the website for updates about new services in the pipeline. As well as easier access to sea ice drift information and iceberg locations, the Norwegian Meteorological Institute will shortly begin delivery of interpreted ice charts. All of which make for a more comprehensive sea ice service.

Focus on: Christo Pimpirev



Professor Christo Pimpirev is the Bulgarian delegate to the EPB as well as the Executive Committee member responsible for the Eastern and new EU member states Polar Programmes Capacity Building. After

graduating from Sofia University with a degree in geology in 1978 and getting his PhD in 1986, he became the founding father of the Bulgarian Antarctic Institute and has been its director since 1993. He then became a full time professor in 2005. His role at BAI includes selecting the best minds and bodies of Bulgaria to be part of polar expeditions.

It was in 1984, when Bulgaria reached the top of Mount Everest that his dream to bring Bulgarians to Antarctica was born. His first trip to the Antarctic clearly marked his path in Polar Sciences because of the professional and personal challenges that he encountered there.

The discovery of the Upper Tithonian ammonite in 2003, in the vicinity of the Bulgarian Antarctic base, revealed itself to be one of Pimpirev's most satisfying scientific career achievement. Indeed, the breakthrough that occurred there changed the established knowledge of the evolution of the Gondwana continent.

For many years during communist rule he used to consider the beauty of the unknown land as a taboo, but today, his personal and professional commitment is to proliferate the knowledge of the importance of and the role of the Antarctic for the global economy and the preservation of the virgin nature, from which he finds inspiration.

As the EPB representative of the Eastern and New EU member states Polar Programme Capacity Building, Pimpirev's goal is to encourage and enhance the involvement of the East European countries in polar research. "I am committed to share the BAI experience with my colleagues and to offer them the facilities of the Bulgarian Antarctic station for their research and field work. BAI could also organise seminars/trainings for the members of the East European polar expeditions", he comments.

Although Pimpirev considers hobbies as "the gift of lazy people", being an idealistic man, his dream would be to sit on a rocking chair at the top of the biggest Antarctic iceberg melting in the Black Sea in order to save his country from lack of water.

We wish Professor Pimpirev an excellent term on the Executive Committee.

The European Polar Board Executive Committee: 2009-2012



Professor Carlo Alberto Ricci
*Professor at the University of Siena
President of the Italian Scientific
Commission for the Antarctic
Chairman of the EPB*
riccica@unisi.it



Professor Dr. Karin Lochte
*Director of the Alfred Wegener
Institute*
German Delegate to the EPB
Polar Research Infrastructures
Karin.Lochte@awi.de



Professor Nicholas Owens
Director of the British Antarctic Survey
British Delegate to the EPB
Global Science Programmes and
Antarctica
njpo@bas.ac.uk



Dr. Harald Loeng
Institute for Marine Research
Norwegian Delegate to the EPB
Bi-Polar Marine Issues
harald.loeng@imr.no



Professor Christo Pimpirev
*Director of the Bulgarian Antarctic
Institute*
Bulgarian Delegate to the EPB
Eastern and new EU member states-
Polar Programme Capacity Building
polar@gea.uni-sofia.bg



Professor Kari Laine
Director of the Thule Institute
Finnish Delegate to the EPB
Terrestrial Arctic
Research/Scandinavian countries
issues
kari.laine@oulu.fi

Upcoming Meetings, Conferences and Event

- **21-25 March 2010:** CAML Workshop on Southern Ocean benthic biodiversity and distribution patterns • Wilhelmshaven, Germany •
- **1 April 2010:** ERICON Legal Advisory Panel • Strasbourg, France •
This meeting is open to ERICON Legal Advisory Panel members only.
- **15-19 April 2010:** Arctic Science Summit Week 2010 • Nuuk, Greenland • <http://www.assw2010.org/> •
- **16 April 2010:** European Polar Board Meeting • Nuuk, Greenland •
This meeting is open to EPB Delegates only.
- **2-7 May 2010:** European Geosciences Union General Assembly 2010 • Vienna, Austria • <http://meetings.copernicus.org/egu2010/> •
- **3-14 May 2010:** Antarctic Treaty Consultative Meeting (ATCM) XXXIII - Committee on Environmental Protection (CEP) XIII • Punta del Este, Uruguay • http://www.ats.ag/index_e.htm •
- **10 May 2010:** ERICON Financial Advisory Panel • Brussels, Belgium •
This meeting is open to ERICON Financial Advisory Panel members only.
- **31 May 2010:** ERICON Stakeholder Council • Berlin, Germany
This meeting is open to ERICON Stakeholder Council members only.
- **31 May- 4 June 2010:** International Symposium on Sea Ice • Tromsø, Norway • <http://www.igs2010.org/>
- **8-12 June 2010:** IPY Oslo Science Conference 2010 • Oslo, Norway • <http://www.ipy-osc.no/> •
- **13-17 June 2010:** 3rd European Conference on Permafrost • Longyearbyen, Svalbard, Norway • <http://www.eucop2010.no/> •
- **12-16 July 2010:** Quadrennial SCOSTEP Symposium • Berlin, Germany • <http://www.iap-kborn.de/SCOSTEP2010/> •
- **30 July-11 August 2010:** XXXI SCAR and Open Science Conference • Buenos Aires, Argentina • <http://www.scar.org/events/> •
- **8-13 August 2010:** COMNAP XXII AGM • Buenos Aires, Argentina
- **8-13 August 2010:** AGU Meeting of the Americas • Foz do Iguaçu, Brazil • <http://www.agu.org/meetings/ja10/>
- **12-14 August 2010 :** International Joint Conference by the CliC and IACS-Cryospheric Issues in Regional Sustainable Development • Lijiang, China
- **4-8 October 2010:** Census of Marine Life 2010: A Decade of Discovery • London, UK • http://www.scar.org/events/CoML2010-Events_schedule.pdf

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The European Science Foundation (ESF) provides a platform for its Member Organisations to advance European research and explore new directions for research at the European level. Established in 1974 as an independent non-governmental organisation, the ESF currently serves 79 Member Organisations across 30 countries.



1 quai Lezay-Marnésia • BP 90015
67080 Strasbourg cedex • France
Tel: +33 (0)3 88 76 71 00 • Fax: +33 (0)3 88 37 05 32 • www.esf.org