

4. International Polar Year – Poland

Brief National Status Report

Program coordinator Polish IPY Program

Prof. Aleksander Guterch
Polish National Committee
for
International Polar Year 2007-2009

Ks. Janusza 64
01-452 Warsaw
Poland
Phone: (48)(22) 6915 653
Fax: (48)(22) 6915 915
e-mail: aguterch@igf.edu.pl

26 January 2009

for
IPY International Project Office

1. Organisation

Polish National IPY Committee coordinates the participation on a national level. The organization in Poland consists of:

Polish National Committee for IPY 2007 – 2008

Committee on Polar Research, Polish Academy of Sciences

Committee for Preparation of the IPY, Conference of Rectors of the Polish Universities

Core Group

Prof. Aleksander Guterch	- chair, Institute of Geophysics, Polish Academy of Sciences, Warsaw
Prof. Jacek Jania	- co-chair, University of Silesia in Sosnowiec
Prof. Andrzej Gaździcki	- Institute of Paleobiology, Polish Academy of Sciences, Warsaw
Dr Piotr Głowacki	- Institute of Geophysics, Polish Academy of Sciences, Warsaw
Prof. Marek Grad	- Institute of Geophysics, University of Warsaw
Prof. Andrzej Kostrzewski	- Adam Mickiewicz University in Poznań
Dr Krzysztof Migala	- University of Wrocław
Prof. Maria Olech	- Jagiellonian University, Cracow
Prof. Kazimierz Pękala	- Maria Curie Skłodowska University in Lublin
Prof. Jan Piechura	- Institute of Oceanology, Polish Academy of Sciences, Sopot
Prof. Rajmund Przybylak	- Nicolaus Copernicus University in Toruń
Dr Andrzej Tatur	- Department of Antarctic Biology, Polish Academy of Sciences, Warsaw
Prof. Jacek Siciński	- University of Łódź
Prof. Marcin Węsławski	- Institute of Oceanology, Polish Academy of Sciences, Sopot

The initiatives of the Polish IPY Committee are supported by the Ministry of Science and Higher Education and the Polish Academy of Sciences, in framework of the Arctic and Antarctic Research Programme of Poland 2002-2010.

2. Polar Research Platforms

- Polish Polar Station Hornsund in Spitsbergen (Institute of Geophysics, Polish Academy of Sciences). The Polar Station *Hornsund* was established in 1957 as

a base for Polish Arctic investigations in the framework of the International Geophysical Year 1957-1959. Polar Station **Hornsund** is international Interdisciplinary Platform. Station **Hornsund** is a flagship site for biodiversity of European geoecosystems.

- Henryk Arctowski Station at King George Island, West Antarctica (Department of Antarctic Biology, Polish Academy of Sciences).
The scientific programme is complementary to the international projects EASIZ (Ecology of Antarctic Sea-Ice Zone) and JGOFS (Joint Global Ocean Flux Studies). An important part of the National Polar Research Programme, entitled *Changes and the variability of polar ecosystems* is realized at the Arctowski Station.
- Research ship **Oceania** (Institute of Oceanology, Polish Academy of Sciences, Sopot)
- Research ship **Horyzont II** (Gdynia Maritime University)

3. Examples of activities

International interdisciplinary project:

- ***Change and variability of the Arctic Systems – Nordaustlandet, Svalbard***
4 IPY Project Database - I D – 58 KINNVKA

Cooperation : scientific teams from Canada, Finland, Germany, Great Britain, Luxemburg, Norway, Poland and Sweden.
Poland is represented by Institute of Geophysics PAS, Institute of Geological Sciences PAS, University of Silesia and Maritime Academy of Gdynia.

Title of Polish part: ***The variability of chosen elements of the polar environment in the Atlantic section of Arctic definite on the ground research managed in three base stations and an chosen areas at Svalbard in the period 3 JGY 1957-1958 and 4 IPY 2007-2009***

The project was realized in 2008 during two fieldwork campaigns – spring (April-June) and summer (July-September). Summary of results obtained in 2008 was presented during Special Session of the Nordic Branch Meeting of the Glaciological Society in Helsinki (7-9 November). Project will be continued after the 4 IPY 2007-2009.

- The **IPY GLACIODYN** project is a large international project on evaluation of glacier ice mass transfer from land to the sea by calving of tidewater glaciers. Special attention is given to the fast flowing Greenland outlet glaciers, Alaskan and Svalbard tidewater glaciers. Glaciers and ice caps in the Canadian and Russian Arctic are studied either. The Polish contribution to the project consists of comprehensive studies of Hansbreen in Southern Svalbard - one of

the *GLACIODYN* target glaciers. Modern methods of monitoring of glacial processes are applied for better understanding of factors influencing calving intensity and modelling. Polish part of the *GLACIODYN* project is accomplished by 5 scientific institutions and lead by the University of Silesia.
Coordinator - Prof. Jacek Jania

- ***The Dynamic Continental Margin Between the Mid-Atlantic-Ridge (Mohns Ridge, Knipovich Ridge) and the Bear Island Region.***

The main objective of this study is to improve our understanding of the structural architecture, the stress and the dynamics of the continental margin near Bear Island.

The project is a part of the IPY Consortium –

THE PLATE TECTONICS AND POLAR GATEWAYS IN EARTH HISTORY (PLATES & GATES), IPY Cluster 77

Cooperation : NOR SAR (coordinator); Alfred Wegener Institute of Polar and Marine Research Bremerhaven, Germany; Bergen University, Norway; Oslo University, Norway; Polish Academy of Sciences (Institute of Geophysics), Poland; Potsdam University, Germany; Warsaw University, Poland.

During the summer seasons 2007 and 2008 the Polish team and the Polish vessel *Horyzont II*, in cooperation with German and Norway teams, and Norwegian R/V *Håkon Mosby*, realized great active and passive seismic experiments between the continental margin of the Barents Sea near Bear Island and Mid-Atlantic Ridge system. The collection of deep seismic reflection data, deep seismic refraction data (using OBS's) and a detailed monitoring of the seismicity between the continental margin and Mid-Atlantic Ridge system (using OBS's), are the base to study of the Earth's structure from sedimentary cover to the upper mantle. The big collection of seismic data is the base for processing and analysis in 2009-2010. First scientific workshop is planned in May 2009 in Poland.

- ***3D seismic model of the uppermost crust of the Admiralty Bay area, King George Island, West Antarctica.***

One of the most interesting areas of the West Antarctica is the transition from the oceanic crust of the Antarctic Peninsula through the South Shetland Trench and the volcanic area of the South Shetland Islands toward the Bransfield Strait rift. In 2007, a 3D seismic survey was performed in the Admiralty Bay (King George Island, South Shetland Islands). First results have been published in December 2008 by Institute of Geophysics Polish Academy of Sciences. The project is a part of the IPY Consortium -

THE PLATE TECTONICS AND POLAR GATEWAYS IN EARTH HISTORY (PLATES & GATES) Cluster 77

- ***Fundamental Causes Of Local Climates As The Basis Of Ecosystems Differentiation And Dynamics On The Area Of West Spitsbergen, Svalbard (TOPOCLIM)***

as a part of

IPY4 - ID 253 in the Cluster No. 357 *CLIMATE SYSTEM OF SPITSBERGEN*

The main objective of the project is to investigate fundamental causes of climate which form the local conditions in various geoecosystems in the area of Spitsbergen. The system of local air circulation generated by complex relief and modified by the various types of surfaces is an important factor creating the local climatological conditions. The local biodiversity, differentiation of seasonal snow cover and the dynamics of the active layer of permafrost and geomorphologic processes regulated by water outflow reflect the influence of local climates. The global changes are the background of the observed sensitive interactions.

Polish expeditions (both round-year and seasonal) have operated in six different areas of Spitsbergen. These far-flung (~200 km) locations and the archived data from them constitute “reference points” for future detailed studies. We carried out a two-year measurement program, with special attention on the polar night. We deployed data loggers at the six reference sites and in their broader vicinity taking account of the gradient of elevation. The range of measurements were extended during the polar day and Doppler sodar was used to measure the vertical structure of the boundary layer, which form important gradients of weather and glaciological processes.

Participants: University of Wrocław, Institute of Geophysics PAS, University of Silesia, Nicolaus Copernicus University, Department of Antarctic Biology PAS,

- Institute of Oceanology of the Polish Academy of Sciences is involved in 4 IPY Program in three main topics:
 1. ***Biodiversity in Arctic*** - international projects coordinated by ***CENZUS OF MARINE LIFE – ARCTIC OCEAN DIVERSITY PROGRAM*** and related projects in cooperation with Norwegian Institutes – eg. MARICLIM, ALKEKONGE and others.
 2. ***Physical oceanography of Arctic Basin and Atlantic water inflow.*** Institute of Oceanology PAS is actively involved in ***DAMOCLES*** - EU supported program within 4 IPY, expeditions are being performed on Russian icebreakers, EU research vessels, including Polish R/V *OCEANIA*. Besides cooperation in atmospheric projects - marine aerosols measurements are under way as Norwegian- German - Polish cooperation.

3. ***Paleoceanography – sedimentology and micropaleontology of Holocene sediments in Greenland Sea.*** Cooperation with Norwegian institutions.

- ***Structural and ecofunctional aspects of the bottom communities, with special reference to Admiralty Bay (South Shetland Islands)***

The main topic of this project is to recognize different aspects of Admiralty Bay benthos diversity with special reference to diatoms, polychaetes, crustaceans, bryozoans and echinoderms. ***Coordinator*** - Dr. Jacek Siciński, Laboratory of Polar Biology and Oceanobiology, University of Lodz

This project is connected with two large Antarctic biological programs: ***CENSUS OF ANTARCTIC MARINE LIFE (CAML)*** coordinated by Dr. Michael Stoddart and ***SCAR MARINE BIODIVERSITY INFORMATION NETWORK (SCAR – MarBIN)***, coordinated by Dr. Claude De Broyer.

- Department of Antarctic Biology of the Polish Academy of Sciences (DAB PAS) is involved in international projects of 4 IPY (as a participant).
 1. ***CLICOPEN - IPY 34*** (Change and Impact of CLimate induced glacial melting on marine coastal Communities off the Western Antarctic Peninsula). 17 countries, 50 scientists from Poland (among them 9 from DAB PAS). Polish coordinator - Dr. Andrzej Tatur and Polish sub-coordinator of microbiological part - Dr. Marek Zdanowski.
 2. ***AMES - IPY 131*** (Antarctic Marine Ecosystem Studies). 14 countries, 30 scientists from Poland, among them 5 from DAB PAS including Polish coordinator – Dr. Andrzej Tatur
 3. ***ALIENS - IPY 170*** (Aliens In Antarctica). 9 countries. 7 scientists from Poland, among them 3 from DAB PAS including Polish coordinator – Dr. Katarzyna Chwedorzewska.
 4. ***ACE - IPY 54*** (Antarctic Climate Evolution). 15 countries, 2 scientists from DAB PAS including Polish coordinator - Dr. Andrzej Tatur.
 5. ***ATMOPOL (POLARCAT) - IPY 12*** (Atmospheric Monitoring Network for Anthropogenic Pollution In Polar Regions). Polish coordinator – Dr. Piotr Głowacki Institute of Geophysics PAS, coordinator of Antarctic part - Dr. Andrzej Tatur and 2 scientists from DAB PAS.
 6. ***GEOTRACES - IPY 58***. One scientist from DAB PAS (Dr. Elżbieta Kopczyńska).
 7. ***EBA - IPY 137*** (Evolution and Biodiversity). One scientist from DAB PAS (Dr. Anna Kidawa).