Idea466

A Belgian proposal for the International Polar Year 2007/8:

SCAR-MarBIN : The information dimension of Antarctic Marine Biodiversity

The International Polar Year (IPY) represents an exceptional opportunity for nations to take a significant step forward in many fields of polar research. Among these fields, the knowledge of biodiversity and of its roles in ecosystem functionning are considered key issues in the understanding of the changing world and priorities in sustainable development policies.

Being highly specialized, Antarctic marine organisms are probably among the most sensitive on Earth : environmental variations may deeply affect the perennity of many species living in this extreme region.

In order to allow efficiently assessing the present state of knowledge of the Southern Ocean biodiversity and its variations related to global climate change, Belgium proposes to develop an Antarctic marine biodiversity information network (SCAR-MarBIN), through which past, present and future biodiversity data will be openly accessible to scientists, environmental managers and policy makers.

Background and Rationale

Antarctic marine biodiversity has a unique value, being in an almost pristine state and presumably highly sensitive to environmental changes. Although the Southern Ocean biodiversity is still partly but reasonably known, most of the biodiversity information is widely scattered, not easily accessible and sometimes even vanishing. This highly-needed information requires fast and easy access through integrated information networks.

Through appropriate tools biodiversity data can be related to other data (geospatial, environmental, climatic, oceanographic, ecotoxicological or genetic) allowing to address prevailing scientific questions as well as practical environmental management and conservation issues.

The SCAR-MarBIN project aims at establishing and supporting a distributed system of interoperable databases, including software and networking tools that will form a coordinated Marine Biodiversity Information Network, placed under the aegis of SCAR. This network will constitute an extremely valuable information tool for future generations, providing a reference for

comparison with the future and past.

Objectives

The terms of references of the SCAR-MarBIN project are the following:

(1) To compile, link, integrate and disseminate Antarctic marine biodiversity information for scientific, management, monitoring and conservation purposes;

(2) To help SCAR contributing in a coordinated fashion to global biodiversity information initiatives;

(3) To give feedback to marine biodiversity information requirements from the Antarctic Treaty System and SCAR;

(4) To contribute to assess the present state of knowledge and to promote further marine biodiversity research in Antarctica.

Within the timeframe of the IPY, the SCAR-MarBIN will reach two main objectives: (i) develop a fully-functional network of marine biodiversity databases, accessible through a single web portal in an open and timely manner and (2) complete this network by integrating discovery data obtained during the coordinated CircumAntarctic Census of Marine Life project proposed by Australia.

Implementation

(1) The MarBIN Portal:

The SCAR-MarBIN project will develop a web portal specifically devoted to Antarctic marine biodiversity. The portal will compile the existing species-level taxonomic and distribution information for all marine groups and link to existing online resources. It will specifically contribute to the information requirements from two major global biodiversity information facilities: GBIF (Global Biodiversity Information Facility; www.gbif.org) and OBIS (Ocean Biogeographic Information System; www.iobis.org). Preliminaruy contacts have been taken with OBIS to propose SCAR-MarBIN as the OBIS Antarctic Node.

Provided information will include: (i) taxonomy and identification tools, (ii) distribution and biogeography, (iii) ecological data, (iv) reference collections, collecting cruises station data, (v) bibliographical references, (vi) GIS, marine gazetteer and distribution maps

The Portal will be implemented to be able to interrogate the different biodiversity databases linked, to retrieve and integrate data for analytical, mapping or other purposes.

(2) Interaction with the CircAntCoML initiative:

In the spirit of the IPY, several nations will contribute to the Circum Antarctic Census of Marine Life (CircAntCoML), during which an intensive sampling burst will be conducted in a

collaborative way. This project will give birth to an unprecedented wealth of marine biodiversity data, which the SCAR-MarBIN is willing to integrate in order to ensure their optimal use and perennity. Data harvesting and dissemination will be accomplished according to the latest international operating and data handling standards.

Relevance to IPY themes

The SCAR-MarBIN project may contribute directly or indirectly to the following IPY themes:

Theme 1 : « To determine the present environmental status of the polar regions by quantifying their spatial and temporal variability » => How does Antarctic marine biodiversity behave through space and time, and what part of this variation is due to anthropogenic factors ?

Theme 2 : « To quantify and understand past and present environmental and human change in the polar regions in order to improve predictions » => What is the answer of Antarctic marine biodiversity to past, present and future environmental changes ?

Theme 3 : « To advance our understanding of polar and global teleconnections on all scales and of the processes controlling these interactions » => What are the relationships between biodiversity changes occuring at the Antarctic scale and those happening at a global level ?

Theme 4 : « To investigate the unknowns at the frontiers of science in the polar regions » => What will be the results of Antarctic marine biodiversity investigations, once access to an unprecedented set of data has become reality ?

The SCAR-MarBIN project has been endorsed by the SCAR Life Sciences Scientific Standing Committee at SCAR28 in Bremen. A detailed feasibility study of the project is available on the SCAR LSSSG website: http://www.nioo.knaw.nl/projects/scarlsssg/scar28.cfm

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