



GROUP ON
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The GEO Biodiversity Observation Network
(GEO BON)

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for information

The GEO Biodiversity Observation Network (GEO BON)

Task BI-07-01a

A Progress Report for the GEO-VI Plenary meeting

1 INTRODUCTION

The Group on Earth Observations Biodiversity Observation Network (GEO BON) has made great progress since the November 2008 GEO-V Plenary meeting in Bucharest. In January 2009, GEO BON established a permanent Steering Committee. It also developed a consultative process for elaborating a detailed implementation plan. Central to this process was the formation of eight Working Groups that will develop the various substantive components of the detailed plan. The US National Aeronautics and Space Administration (NASA) has provided funding to support a major coordination meeting for the Working Groups and other GEO BON stakeholders in early 2010.

GEO BON's collaboration with the Convention on Biological Diversity (CBD) has made important advances. GEO BON is developing documentation for the May 2010 meeting of the Convention's Subsidiary Body for Scientific, Technical and Technological Advice (SBSTTA-14). DIVERSITAS (a GEO BON co-lead) is helping to organize a pre-conference in advance of the CBD's October 2010 Tenth Meeting of the Conference of the Parties in Nagoya, Japan; this pre-conference will feature GEO BON as one of its three major themes, and it will provide input to COP-10. In addition, the GEO and CBD Secretariats have signed a memorandum of understanding to facilitate such collaborative efforts.

GEO BON has also started to implement "early products" and facilitate regional networks. The most advanced early product, the GEO Protected Areas Assessment and Monitoring Pilot project, is developing an easy-to-use system to help monitor protected areas, initially focusing on Africa. Meanwhile, in the European region the EC-funded EBONE will be delivering a variety of products in 2009. GEO BON participated in a meeting sponsored by the Japan Ministry of Environment on developing a regional network for the Asia-Pacific region (AP-BON). GEO BON will continue to work with these and other regional and thematic partners.

2 BACKGROUND

2.1 What is GEO BON?

The Group on Earth Observations Biodiversity Observation Network (GEO BON) will monitor and assess the world's ecosystems, species, and genetic resources to help prevent their further loss. It will also promote synergies, collaboration and data-sharing amongst researchers and the users of biodiversity information. GEO BON will thus strengthen the capacity of scientists to monitor and analyze biodiversity and how it is changing over time and will enhance the ability of decision makers to manage biological resources. GEO BON will serve as the biodiversity arm of the Global Earth Observation System of Systems (GEOSS) that is being developed by the intergovernmental Group on Earth Observations (GEO) partnership.

2.2 Why is GEO BON important?

Protecting and managing biodiversity over the coming decades will require better access to timely and comprehensive data and analyses. The Earth's biosphere is such a complex system that a universal

monitoring network for simultaneously tracking individual species and populations, monitoring trends in forests and other ecosystems, and integrating this mass of information with data on climate change, land and water use, pollution and other threats to biodiversity has never been built. GEO BON promises to fill this gap.

2.3 How does GEO BON work?

By interlinking the diverse, stand-alone observation instruments and systems now tracking trends in the world's ecosystems, species, and genetic resources, GEO BON is working to:

- Create a global platform for integrating various types of biodiversity information, including time series data and data on climate and other key variables affecting biodiversity;
- Fill gaps in taxonomic and biological information;
- Speed up the pace at which information is collected and disseminated;
- Ascertain the data requirements of decision makers, researchers and other user groups;
- Disseminate data sets, decision-support tools and forecasting models through a user-friendly GEO Portal that will provide a single gateway to all the resources of GEOSS;
- Stimulate researchers, agencies, NGOs and other data providers to join GEO BON and work with GEOSS principles;
- Identify and help to tackle obstacles for the application of GEO principles in biodiversity monitoring.

2.4 What is GEO BON's mission?

- To provide a global, scientifically robust framework for observations on the detection of biodiversity change;
- To coordinate data gathering and the delivery of information on biodiversity change;
- To ensure long term continuity of observations;
- To provide, and be known for, a set of innovative and relevant products based on the integration of key data sets (e.g. global maps of ecosystem service delivery, predicted areas of rapid degradation, key biodiversity sites facing rapid climate change)

3 PROGRESS SINCE GEO-V

3.1 Launch of GEO BON Steering Committee and Topical Working Groups

The GEO BON Interim Steering Committee met on 21-23 January 2009 in Washington, D.C. It discussed governance issues and an implementation strategy, formed a permanent Steering Committee, and made plans for the Topical Working Groups that will develop the components of the detailed GEO BON implementation plan. These Working Groups are now formed and have started their work (additional Working Groups may be established as needed). The Working Groups are: Genetics; Terrestrial species monitoring; Terrestrial ecosystem change; Freshwater ecosystem change; Marine ecosystem change; Ecosystem services; In-situ / remote-sensing integration: integration and modelling across scales; and Data integration and inter-operability: informatics and portals.

The Steering Committee then met on 22-24 June in Geneva to discuss a variety of topics including: the relationship of GEO BON to the Convention on Biological Diversity (CBD) and the 10th meeting of the Conference of the Parties of the CBD being held in Nagoya, Japan in October 2010; data sharing principles; enhancing interaction with other GEO and GEOSS components; and funding. Twenty-two Action Items were agreed and are to be implemented by the time of the GEO-VI Plenary.

One key action was to locate the funding needed to support a broad GEO BON meeting, in particular, to allow the eight Topical Working Groups to meet face-to-face and develop a draft of the Detailed Implementation Plan. This action is now complete thanks to the provision of funds by the US National Aeronautics and Space Administration (NASA); a meeting is being planned for early 2010.

3.2 Work with the Convention on Biological Diversity (CBD)

The CBD is a primary stakeholder in GEO BON, and the CBD and GEO BON have together implemented or planned a variety of activities. These include:

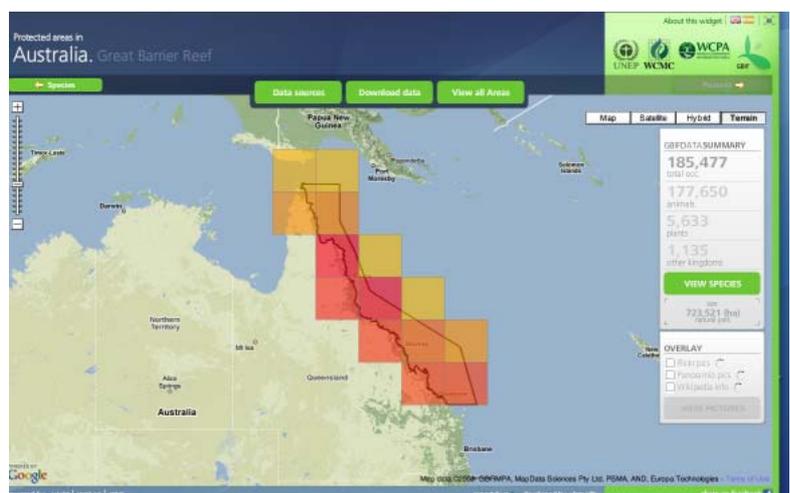
- At its 9th meeting, the CBD’s Conference of the Parties (COP-9, Bonn, May 2008) took Decision IX/15 which, inter alia: “Requests the Executive Secretary to continue collaborating with the Biodiversity Observation Network with a view to promoting coherence in biodiversity observations with regard to data architecture, scales and standards, observatory network planning and strategic planning for its implementation.”;
- In response, the GEO and CBD Secretariats signed a Memorandum of Understanding with the objective to collaborate in: supporting science-based decision-making; promoting the gathering, analysis and dissemination of biodiversity data and information; improving the scientific understanding of the status and trends of, and threats to, biodiversity, including the drivers of change; and encouraging interaction amongst scientists and decision makers;
- The upcoming 14th meeting of the CBD’s scientific advisory body (SBSTTA-14, May 2010) provides an opportunity to take stock of progress made in setting up GEO BON and developing pilot products. We are preparing documentation for SBSTTA-14 that focuses on providing further clarity on the nature of GEO BON, the benefits to be derived from its operation, and an operational work plan for its implementation;
- In preparation of, and as a contribution to, COP-10, a scientific pre-conference is being jointly organized by the Ministry of Environment of Japan, Nagoya University, and DIVERSITAS, (22-23 March 2010, Nagoya, Japan). This pre-conference will feature GEO BON as one of its three thematic priority items, and the conclusions will then be offered as an input into COP-10.

Note that GEO BON’s biodiversity monitoring work is not limited to the CBD but serves all biodiversity- related conventions and agreements at the global and regional levels; GEO BON is also starting to support countries in their planning and resource management strategies.

3.3 “Early Products”

“Early products” are intended to show how GEO BON is unique in the value that it adds by providing exemplars of the types of products that will be produced. One of these products is the GEO Protected Areas Assessment and Monitoring Pilot (GPAAMP) project, which is developing an easy-to-use system to help monitor protected areas, initially focusing on Africa. Funding for GPAAMP has been provided by the Government of Switzerland through GEO, as well as by the EuroGEOSS project (<http://www.eurogeoss.eu/>), which funds GPAAMP partners. GPAAMP is on target for delivery by April 2010.

The Swiss funding is being directed towards the development of an extended GIS Internet client that will utilize a

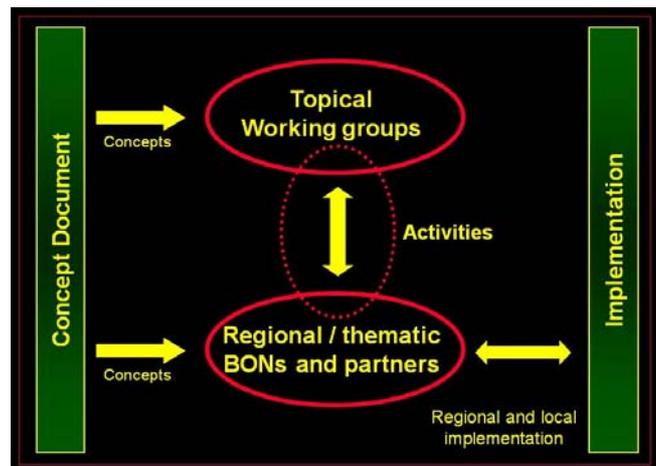


variety of partner data services. This client will build on a prototype application collaboratively developed by the Global Biodiversity Information Facility (GBIF) and the United Nations Environment Programme’s World Conservation Monitoring Centre (UNEP-WCMC) (see figure, above; demonstration available at <http://widgets.gbif.org/test/PACountry.html#/country/AU>).

EuroGEOSS held its kick-off meeting on May 6 in Stresa, Italy. This was followed by a meeting of the biodiversity work package partners (the European Commission Joint Research Centre, UNEP-WCMC, Birdlife International, the UK’s Royal Society for the Protection of Birds, and GBIF) on July 1-3 at the Joint Research Centre, Ispra, where a work plan for deliverables was agreed. Work is now underway on the first deliverable of the biodiversity work package.

3.4 Detailed Implementation Planning

GEO BON is beginning to work with partners to implement the concepts outlined in the GEO BON Concept Document. These partners typically are “umbrella” organizations that represent regional or thematic Communities of Practice consisting of a variety of organizations sharing some common goals. The basic GEO BON implementation approach is for the Topical Working Groups, working with regional and thematic BONs and other partners, to map the concepts in the GEO BON Concept Document to specific implementation activities. These activities can then be carried out by the partners. Key to this, of course, is engagement with appropriate partners that have both an interest in the activities as well as the resources to execute them; GEO BON and GEO will help with the latter through its partnership organizations. It is also important that the benefits of a partnership with GEO BON are greater than the costs.



3.1 EBONE

EBONE is the “European Biodiversity Observation Network”, a regional BON for Europe funded by the European Commission from 2008-2012. The main outcome will be an integrated monitoring system based on key biodiversity indicators, and implementation within an institutional framework operating at the European level. This framework provides continued access to indicator data for the European Habitats and Birds Directive as well as CBD reporting against the 2010 target, and it forms the basis for the continued development of a European Biodiversity Observation system. In 2009 EBONE is delivering:

- A handbook on habitat monitoring with coding to enable global comparisons;
- A field key for Annex 1 habitats (European Habitats and Species Directive);
- Software for field computers for habitat and species monitoring;
- Intercalibration results of Earth observation (CORINE land cover and national Land cover) and field data;

In 2010 EBONE will deliver:

- A global stratification (highest level of the ecosystem classification of Task EC06-02);
- A procedure to develop a stratified random sampling scheme in an environmental stratification system, linking Task EC-06-02 with Task BI-07-01;
- A database to share field data from different regions into a common system

3.6 Asia Pacific Regional BON

Japan has proposed the development of a BON for the Asia-Pacific region. To begin the process they held a meeting in Nagoya, Japan, on 21-22 June. The meeting, sponsored by the Ministry of the Environment's Biodiversity Centre of Japan and hosted by Nagoya University, was attended by representatives of many countries, plus the CBD, GEO BON, the ASEAN Centre for Biodiversity, and other organizations. Key outcomes included: engagement of the appropriate parties needed to develop an AP BON; opening of communication channels among participants; and development of Next Steps. These Next Steps included creating a preliminary list of indicators and other data products; providing an assessment of the existing major systems and databases that would comprise an initial AP BON; and working with GEO BON, particularly the Topical Working Groups.

3.7 Other Regional or Thematic BONs

A variety of groups have expressed interest in GEOSS and in learning more about becoming a regional or thematic BON within GEO BON. Such discussions are at various stages, and for the most part are still internal to the organizations initiating them; these include groups working in Japan, UK, southern Africa, the US, and the Arctic. GEO BON is pleased at the interest expressed by these groups, particularly since we have not yet begun to broadly solicit such regional BONs as we continue to first gain experience with EBONE and AP BON. This widespread interest is indicative of the need for GEO BON and its value to regional and thematic groups.

3.8 Other activities

- The GEO BON website was updated (see www.earthobservations.org/geobon.shtml);
- Funding for several topical Working Groups was obtained by their leads;
- Proposals in support of Early Products were submitted;
- DIVERSITAS continued to inform and mobilize the scientific community around the concept of GEO BON. A symposium and several sessions were dedicated to biodiversity monitoring and GEO BON at the second DIVERSITAS open science conference: "Biodiversity and Society: Understanding connections, adapting to change, Cape Town, October 2009".

3.9 Additional plans for the year leading up to GEO-VII and the 2010 Ministerial Summit

- Develop the Detailed Implementation Plan and the partnerships (largely regional and thematic BONs) needed to implement it. These activities are necessarily iterative. An initial Plan, with components contributed by each of the eight Topical Working Groups, is now underway;
- Large (100 participants) GEO BON meeting in early 2010. A major purpose of this meeting is to allow the members of the eight Working Groups to meet face-to-face and develop a draft of the initial plan. Support for this meeting has been secured from NASA;
- Deliver one or more Early Products;
- Contribute to the preparations of the 2010 Ministerial Summit.