



Outcomes of the EGIDA Workshop on the National initiatives for implementing GEO/GEOSS

1st Joint Workshop of the EGIDA Stakeholder Network and Advisory Board Connecting GEOSS and its Stakeholders in Science and Technology - Bonn, Germany, May 9-11, 2011.

Workshop aim and targets

The workshop has being organized to identify commonalities within GEOSS for possible replication, as well as gaps to be filled at national and/or regional level.

Since part of the EGIDA project focus on sustainable contribution to GEOSS from national/regional S&T communities (**Bottom-up approach**), existing national initiatives have been analysed in terms of infrastructures, resources and processes which could constitute the baseline for a sustainable contribution from S&T communities.

Workshop organisation

- 1) Review of the set of examples already collected by ST-09-02.
- 2) Identification of further national contribution to GEOSS and international activities impacting at national/regional level.

Round table

- 3) Identification of steps and criteria for the improvement of the sustainable contribution to GEOSS (Contribution on the design of EGIDA Methodology)
 - SBA topics,
 - catalyzing resources,
 - building awareness of relevant CoPs,
 - enhancing data sets registrations.
- 4) It has been promoted the submission of the presented works as **proposals** to be evaluated by S&T Committee to implement the GEOSS portfolio of Compelling examples.

Geo-wiki.org: Crowdsourcing to improve Landcover Validation (Steffen Fritz/Ian McCallum). The Geo-Wiki Project is a global network of volunteers who wish to help improve the quality of global land cover maps via available web mapping tools. Inputs are recorded in a database, along with uploaded photos, to be used in the future for the creation of a new and improved global land cover map.

2. An Italian S&T infrastructure for contributing to the GEOSS (Paolo Mazzetti & Nico Bonora). The proposed example builds on the results of a (re-)engineering process applied to some existing Italian national-level infrastructures, in order to build a system of systems (SoS) conceived for a coordinated and sustainable contribution to the GEOSS.

3) OneGeology

a) Harmonization of geological data across Europe (Marco Pantaloni). The OneGeology-Europe project delivered a web accessible, semantically and technically interoperable geological dataset, with “progress towards harmonisation”, for the whole of Europe at 1:1 million scale. This project has been based on the individual geological datasets, held by each of the European geological surveys, which considerably differ with respect to their contents, description and geometry.

b) An interoperable and harmonized architecture to deliver the geological dataset (Carlo Cipolloni). To obtain a web-accessible, interoperable geological spatial dataset for the whole of Europe at 1:1 million scale based on existing data held by the pan-European Geological Surveys, was necessary to insure interoperability among geological data providers across Europe.

c) Harmonizing data policies: experiences from the OneGeology-Europe project (Katleen Janssen). One of the elements of the eContentPlus project OneGeology-Europe was the development of a Code of Practice on access and licensing for the participating geological surveys. This Code of Practice provided guidelines for implementing an access policy that is adaptable to the circumstances and national requirements of the geological surveys, and at the same time user-friendly for interested data users. The access policy contained practical and organizational measures and model licences.

4 Interoperability of water and soil data quality. Ideas by the Italian approach (Gianni Tartari).

Interoperability between data quality of the soil and waters represents a level of complexity much higher than other sectors of the environment because increasing in complexity when considering environmental components together with social and economic aspects. In this contribute will be presented some ideas and suggestions developed in the GIIDA's case study with the aim to evidential the interoperative approach to build an appropriate and integrated database in these issues.

5 Lessons learned in the IDE-UNIVERS project (Joan Masò Pau). IDE-UNIVERS was a research project aiming at creating a thematic Spatial Data Infrastructure (SDI) to encourage access, exchange and interoperability of the huge quantity of information with a geographic reference produced by Universities and Research Centers within their projects and activities. The Project, coordinated by the Secretaria de Telecomunicacions i Societat de la Informació (STSI) of the Catalan Regional Government (Generalitat de Catalunya) in Spain was funded with the contribution of the European Commission - Interreg III B MEDOCC Program. IDE-Univers started from September 2006 and ended in 2008.

6 Italy and the GEO carbon tasks (Antonio Bombelli). Italy (particularly University of Tuscia and the Euro-Mediterranean Centre for Climate Change) is actively contributing to the carbon tasks of the GEO Work Plan, mainly through the participation as coordinator or partner, in European projects. Some highlights will be presented.

7 The Earthquake Environmental Effects catalogue: "in situ" validation of seismic hazard assessment (Luca Guerrieri). The Geological Survey of Italy - ISPRA is coordinating a global initiative in the frame of INQUA (International Union for Quaternary Research) aimed at building a global catalogue of Earthquake Environmental Effects, integrating the observations from recent events with descriptions from historical earthquakes and from paleoseismic investigations.

8 EGIDA Methodology (Paolo Mazzetti). The EGIDA Methodology is a general methodological approach, structured as a set of good practices, which can be adopted by national/regional S&T communities, for a sustainable contribution to the GEOSS through the mobilization of resources made available from the participation in national, European and international initiatives and projects. It combines the top-down approach from the GEO (in particular the STC Roadmap), with the bottom-up approach from on-going project and initiatives at national/regional and international level that contribute, or might contribute to the GEOSS. The EGIDA Methodology consolidates the achievements of the EGIDA project activities for exploitation beyond the duration of the project. It will be transferred to four use cases characterized by different geographical extent and thematic scope, for evaluation and assessment.

9 UK-EOF: a collaborative UK partnership for coordinating sustained efforts on measuring the environment. What, why, achievements so far and what's next (Beth Greenaway). The UK-Environmental Observation Framework (UK-EOF) strives to change the way the UK perceives, values, archives and uses information from observation activities by working across public departments and agencies, the voluntary sector, industry and academia. The UK-EOF will be a self contained 5 year programme of Living With Environmental Change (LWEC), funded by the major sponsors of environmental observations in the UK and delivered via a series of workstreams.

10 UKGEO (Beth Greenaway). A collaborative partnership for assessing UK GEO activities, strengths, weaknesses and priorities; using this to develop a UK GEO strategy; coordinating existing and new UK GEO inputs; building a UK GEO community; and pursuing opportunities for this community to contribute to and benefit from GEO in the future.

11 GEO Italy (Maria Dalla Costa). The GEO Italy is coordinated by the Italian Ministry of Environment to improve the national coordination between various types of GEO stakeholders (EO providers, users) and R&D institutions (ASI, CNR, DigitPA, ISPRA, ENEA). GEO Italy also acts to improve communication among different scale stakeholders (Central and Regional Administrations) and to links national experiences accrued in European initiatives with GEOSS. GEO Italy contributes to GEOSS GCI by sharing its own EO achievements and federating its environmental information systems developed by national institutions (CNR-GIDA, ISPRA-SINAnet) in line with SEIS Principles and INSPIRE implementation.

12 The Global Mercury Observation System (GMOS) contribute to the Health SBA of GEOSS (Sergio Cinnirella). GMOS is aimed to establish a Global Observation System for Mercury able to provide ambient concentrations and deposition fluxes of mercury species around the world, by combining observations from permanent ground-based stations, and from oceanographic and tropospheric measurement campaigns. The developed interoperable tools will allow to share datasets and models output data produced by GMOS, for the purposes of research and policy development and implementation as well as at enabling societal benefits of Earth observations, including advances in scientific understanding in the nine Societal Benefit Areas (SBA) established in GEOSS.

13 Role of Eionet in the global processes of Earth Observation (Inese Podgaiska). Eionet plays a crucial role in providing its expertise, technical know-how and support to the European Environment Agency in its coordination role of the in-situ component and new coordination role of the GIO Land service in the framework of the GMES programme. Together with EIONET, EEA involves stakeholders, users and service providers in the process of assessment of policy demands to build up operational framework for in-situ data access needed for the GMES services. By providing an input into the progress of the GMES programme, Eionet and EEA also contribute to the main priorities of the GEOSS.

14 GIIDA (Paolo Mazzetti). GIIDA is a interdepartmental project of the National Research Council of Italy which targets the definition and development of a shared multidisciplinary infrastructure for the management, processing and analysis of environmental data. It is composed of work groups related to air quality, seas and marine resources, natural and anthropic risk, climate change, water and soil quality, biodiversity and combined infrastructures between Research Institutes and Public Administrations.

15 Sinanet (Nico Bonora). Sinanet is the Environmental Information and Monitoring System and represents the EIONet National Focal Point (NFP) the EEA in Italy. NFP is in charge of cooperation with the EEA and the NRCs (National Reference Centers) and organises national coordination of activities related to the EEA strategy. Data and information of European relevance are managed to support the business processes of the European Environmental Information System and building on a shared information infrastructure to create national repositories (REPORTNET). Through SINAnet, ISPRA act as Coordination Structure for INSPIRE implementation to support the National Contact Point (Ministry for Environment, Land and Sea).

OUTCOMES

Collected practices, commonalities and needs

Organising & catalysing resources

- 1) Centralise indexing of metadata at national level as intermediate step toward GEOSS could lead to the harmonised national contribution (soil and water – GIIDA&SINAnet, UKGEO and UKEOF, national INSPIRE Directive implementation). The INSPIRE national implementation can boost the issue.
- 2) National GEOSS Stakeholders stress the coordination of on-going project and programmes (e.g. GMES, SEIS, INSPIRE) to be aligned with GEOSS.
- 3) Best cases provide combined top-down and bottom-up approaches – *Production of standardised procedures for data and information collection* (EIONET, SINAnet, GIIDA, UK-EOF ONeGeology). Top-down activity can be led by a voluntary contribution as well as the bottom-up (IDE-Univers).
- 4) Cataloguing of conducted activity at national level can lead at the statement of needs and gap analysis (the case of UK-EOF) to optimise both resources and researchers contributions. Long-term sustainability: mainstreaming existing environmental observation/monitoring systems avoids overlapping and allows better use of financial and human resources.
- 6) Partnerships strengthen the national (and sub-national) participation in GEOSS (GIIDA, Italian SoS, IDE-Univers, FP7, GMES, INSPIRE & SEIS implementation) ***Drag effect – collection of data-Core.***

Reuse and replication

1) During the workshop several planned project have been identified to be replicated in small countries willing to contribute to GEOSS (EGIDA Slovenian showcases) –BalkanGEOnet (Balkan in Global Earth Observation) – Twinning Project between Italy and Montenegro to align developing infrastructures with EIONET and other related projects– (Integration of cross-boundary data, based on morphologic units as catchment basin). Filling technological gaps.

Promote data sharing

1) Many presented works showed the needs to define as simple as possible guidelines for data and information sharing at different national scale (SINAnet, GIIDA, Italian SoS, OneGeology, IDE-Univers, GEO national implementation). It can lead to the improvement of **Data-Core** collection.

2) Preparing a user friendly guidelines on data sharing is a good starting point to define data/information national policy (SINAnet, GIIDA, Italian SoS, OneGeology, IDE-Univers, GEO national implementation).

Raise awareness for changing culture

Changing in culture can be achieved by:

1) a one-by-one approach (IDE-Univers). In some countries, University are the most difficult Bodies to be approached. (strong contribution by the top-down approach to be achieved).

2) The creation of national portal (asked also by National GEOSS stakeholders) to collect and share data & information to raise awareness and to promote the use of GEOSS data before further engagement and for encouraging the GEO data-CORE implementation.

ICT supporting activities & knowledge transfer.

1) National GEO implementation helps to overcome possible ICT knowledge gaps of single partners. In some cases, lack of technology or ICT knowledge bars the possibility to feed the GCI by national actors willing to contribute. ICT activity supported for data/metadata integration from sub-national to national level.

National GEO implementation (also governance)

- 1) catalyse resources from EU/international project, (e.g. GMES in situ Coordination – GISC FP7 project) to improve existing datasets (GEO-WIKI) .
- 2) Create a national GEO portal/web page as hub to collect activities results contributing to GEOSS and engage communities.
- 3) Develop and coordinate the national GEO community including a communication strategy and stakeholder mapping (The coordination of national GEO activities is strongly required by stakeholders).
- 4) Ensure that GEOSS community is linked with relevant initiatives (UK-EOF, GIIDA, SINAnet, Italian SoS).
- 5) Provide evidence to policymakers on potential benefits to underpin National GEO positions.
- 6) Establishment of Focal Points at different Governmental level.
- 8) Periodic questionnaires at National level can contribute to the best national SBAs contribution.

Quick wins

1) Most of the presented works, both programmes and project, present the development of resources catalogues. Indexing, at national level, information collected within catalogues (maybe by SBAs topic) should be a quick win. Could INSPIRE contribute to this?

...looking at the scientific engagement in GEOSS

1) Motivating individual researchers to participate first as users in GEOSS and latter to provide some content to the infrastructure: maybe, they will need support on generating metadata, publish some data in view and download services and some centralized metadata catalogue.

2) Motivate researchers to organize themselves in *coordinated* CoPs. At national and international level, to promote the adoption of common vocabularies to generate comparable datasets. This suggests the possibility of push subnational/regional environmental agencies (that collect regional data) also to participate in CoPs.

3) Coordinate national participation in GEO in a single National Body (like GEO-D, UKGEO, GEO Italy etc...) that has a good balance between scientist and administrative agencies.

Possible improvement of GEOSS at EU level:

Different national contributions to GEOSS can provide different and complementary expertises (Italian SoS and UK-EOF). More national analysis are needed to catalyse these expertises across Europe and to address a replication process to those countries willing to set-up a national GEO implementation.

Efforts exist, although at different levels of bottom-up / top-down approaches, of improving interoperability between existing national environment observation/data/information initiatives (UK-EOF; GIIDA-Sinanet Italian partnership; REPORTNET, EIONET, GISC at EEA...). Considering these activities are on-going, a coordination activity is needed to harmonise the efforts.

Key issues

Sub-national level component plays a primary role on providing data and information: efforts are needed to exploit the results made at different scale level. Many hidden activities exist.

Need to implement a data policy from national to sub-national level , in order to improve the contribution to GEOSS.

At European scale, INSPIRE helps to contribute to GEOSS on information sharing , but INSPIRE is addressed to the Public Administration: more effort are needed to involve the scientific contribution, especially the academic one.

National GEO implementation: needs of further analysis for replication of existing good practices. Need of a central coordination (EU), especially for those countries willing to contribute but presenting ICT gaps.

Volunteers contribution by a bottom-up approach works better if coordinated by a top-down component to harmonise the different existing efforts and to support procedures oriented to the standardisation of (data and) information.

EGIDA Project

