GEO 2012-2015 WORK PLAN

Version 0

Submitted for Technical Review

(please send comments to secretariat@geosec.org by 26 May 2011)

7 March 2011

Introduction

This document presents Version 0 of the new 2012-2015 Work Plan. Version 0 is a preliminary version of the 2012-2015 Work Plan reflecting the conclusions of the GEO-VII Plenary and GEOSS Mid-Term Evaluation. Version 0 also incorporates the proposals and comments received from the GEO community from December 2010 to February 2011 (proposals and comments are available for reference at ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/).

As of 7 March, Version 0 is submitted for technical review until 26 May 2011. This review will involve broad consultation and rely on the 2011 Work Plan Symposium (Geneva, 4-6 May) to harmonize contributions. Based on this technical review, Version 1 of the 2012-2015 Work Plan will be prepared and submitted for official review to all GEO Principals in late June.

THE NEW WORK PLAN

The 2012-2015 Work Plan differs from its 2009-2011 predecessor in four main ways: (i) it derives directly from the Strategic Targets; (ii) it groups Tasks into three thematic parts; (iii) it features a reduced number of Tasks; and (iv) it proposes an improved Task management structure.

(i) From Targets to Tasks: a Top-Down Approach

When GEO developed the 2009-2011 Work Plan three years ago, it adopted a bottom-up approach to structuring its work. This involved identifying existing activities and organizing them into Overarching Tasks. As the conclusion of the 10-Year Implementation Plan comes into view, the focus needs to shift to ensuring that the 2015 Strategic Targets are fully addressed. This can best be achieved through a top-down approach that looks forward to what an operational GEOSS should look like. Version 0 of the 2012-2015 Work Plan has therefore been designed to meet the objectives described in the "demonstrated by" (and sometimes "achieved through") bullet points of the Strategic Targets document.

As a result, the titles of the 24 Tasks presented in Version 0 correspond to high-level outcomes identified as necessary to meet the Targets. The Task definitions also derive directly from the Target bullet points (as indicated in each "Definition" paragraph). A set of one or more practical "Deliverables" has also been defined for completing each Task and thus addressing the Strategic Targets. Like the Tasks, the Deliverables derive from the Targets document. Consistent with the top-down approach and the focus on establishing an operational GEOSS, they also constitute an ideal set. Thus they do not consider, at this stage, possible real-world limitations such as the lack of resources for implementation or the need to rely on voluntary contributions.

The foregoing explanation is intended to assist the GEO community in tracking the transition of Tasks from the previous Work Plan to the new one. Once the new Work Plan is in place, it will offer a simpler and more easy-to-understand structure than exists at present. This should facilitate the completion of the GEOSS 10-Year Implementation Plan and the engagement of additional contributors to, and users of, GEOSS.

(ii) A Three-part Structure

The Work Plan has been organized into three major parts to match the key objectives outlined by the GEO-VII Plenary and to provide a clear overview of GEO activities. Part 1 on "Infrastructure" features the physical cross-cutting components of an operational and sustainable GEOSS, including interoperable observing, modelling and dissemination systems. Part 2 on "Institutions and Development" describes "GEO at work" and the community's efforts to ensure that GEOSS is sustainable, relevant and widely used; it focuses on reinforcing data sharing, resource mobilization, capacity development, user engagement and science and technology integration. Part 3 on "Information Services" focuses on the services and end-to-end systems that should be available through GEOSS to support decision-making across the nine Societal Benefit Areas (SBAs).

(iii) A Reduced Number of Tasks

Consistent with the top-down approach described above, as well as comments received from the GEO community, the present version of the Work Plan proposes a reduced number of Tasks. Each of the 24 Tasks (as compared with 44 in the current Plan) is to be implemented through a limited number of Deliverables, each supported by Co-Leads (GEO Members and Organizations), a Point of Contact (representing one of the Co-Leads) and contributors (further Members and Organizations).

With the new Work Plan, Points of Contact could regularly report on progress to the GEO community through interactive web pages. These web pages (maintained through the Work Plan Information Management System) would represent improved versions of the present Task Sheets and reflect the new structure of the Work Plan as follows: Infrastructure, Institutions, Development (encompassing capacity building, user engagement, and science & technology), and Tools and Information.

Within each of these four categories, reporting could follow the logic model used by the Monitoring and Evaluation Working Group (outputs-activities-resources). This, in turn, would make it easy to see the linkages between Deliverables within and across Tasks. It would also ensure a consolidated database that would not require duplication of information (information entered under one Task/Deliverable would not have to be repeated by another Task/Deliverable: it would simply be pointed to).

(iv) Improved Task Management

As emphasized by the GEO community, there is a clear need to ensure more effective coordination of the various activities carried out to implement the Work Plan. Building upon suggestions from the European Commission, the Architecture and Data Committee, and the Capacity Building Committee, two main options might be considered – both implying that GEO Committees would be disbanded to create management boards more aligned with the needs of the new Work Plan.

The leadership role of the four existing Committees would be transferred to the new management boards and thus tied more directly to Work Plan implementation. In other words, the Committee members concerned would directly engage in the overall execution of the work required to achieve the Strategic Targets, rather than via the rather indirect link that exists at present between the Committees and current 2009-2011 Work Plan Tasks.

Communities of Practice would continue to make an essential contribution to the implementation of the Work Plan at the Task level: by providing a forum for contributor interactions; by engaging users, and fostering partnerships; and by promoting a dialogue between the users and providers of GEOSS data and information.

Option 1 – Three Management Boards

A management board could be established for each of the three Work Plan parts, namely "Infrastructure", "Institutions and Development", and "Information Services". Each board would be

given the mandate to actively coordinate activities and manage the implementation of the Tasks listed under its respective part.

The membership of each management board would include: (i) one to three overall coordinator(s), who would also have responsibility for (co-)chairing the board; (ii) the Points of Contact of all Deliverables listed under a specific Work Plan part; (iii) members of the GEO Secretariat; and (iv) members of the other two management boards, as appropriate. All members of a management board would be active in the implementation of the Work Plan.

In the context of Version 0, the "Infrastructure" and "Institutions and Development" management boards would be composed of about 15 members each; the "Information Services" board would have about 45 members.

Option 2 – Eleven Strategic Target Management Boards

A Strategic Target management board could be established for each of the nine Societal Benefit Areas (SBAs). With regard to the transverse areas, one Strategic Target management board could be established for Architecture and Data Management, and a second one for Capacity Building, Science and Technology, and User Engagement. Placing the three latter transverse areas under a single board would help to reinforce the links that so clearly exist among them.

Each of these 11 Strategic Target management boards would be given the mandate to actively coordinate activities and manage the implementation of the Tasks required to achieve each Target by 2015. Because most Tasks support more than one Target, Strategic Target boards would also ensure cross-Task coordination (note that intra-Task coordination would be de facto assured).

The membership of each Strategic Target management board would include: (i) an overall coordinator, who would also have responsibility for chairing the board; (ii) the Points of Contact of all Deliverables addressing the Target (which Tasks/Deliverables address which Targets is made clear through each Task definition); (iii) a member of the GEO Secretariat; (iv) a member of the Architecture & Data management board; (v) a member of the Capacity Building/User Engagement/Science & Technology management board; and (vi) a member of any SBA management board, as appropriate. All members of the board would be active in the implementation of the Tasks required to meet the Target considered.

In the context of Version 0, the transverse Target management boards would be composed of about 15 members each, and the SBA Target management boards of 5 to 10 members. An oversight forum would have to be set up in which the various coordinators of the 11 management boards could meet, exchange information and coordinate their work. Such a forum could also act as a focal point for engagement with the Monitoring & Evaluation (M&E) Working Group.

Under this option, a dynamic liaison between SBA boards and transverse boards would also be assured. This would enable the Architecture and Data team, for example, to ensure that actions undertaken within each SBA are consistent with the overall GEOSS Architecture and Data Management strategy and the Data Sharing Action Plan.

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TEMPLATE

APPLIED TO EACH TASK

XX-XX [Task title encompassing the high-level outcomes of one (or more) Strategic Target]

Definition

[This section sets out the Task objectives; it is directly derived from the Strategic Target document, mainly the "demonstrated by" bullet points, as well as from the GEOSS Mid-Term Evaluation and the GEOSS 10-year Implementation Plan, as appropriate.]

Deliverables

[This section describes the building blocks or components required to comprehensively meet the Task objectives (and hence the Strategic Targets); Deliverables may be further broken into actions to facilitate implementation (see examples between brackets).]

Related 2009-2011 Work Plan Tasks

[This section provides a non-exhaustive list of ongoing 2009-2011 sub-tasks that relate directly to the new Task. These sub-tasks contain fundamental resources for the new Task implementation. Task Leads will be invited over the next few months to collectively re-organize their sub-tasks in support of one or more of the Task Deliverables. This process will be initiated by the GEO Secretariat shortly and be continued over the 2011 Work Plan Symposium (4-6 May, Geneva).]

For details of ongoing 2009-2011 sub-tasks,
see http://www.grouponearthobservations.org/cdb/geoss_imp.php

New Proposals from the GEO Community

[This section gives an indication of which new proposals (among the ones submitted by the GEO community during Dec 2010 – Feb 2011) could contribute to the new Task. These new proposals will be integrated into the new Work Plan and directly support one or more Task deliverables. The countries and organizations involved will be invited by the GEO Secretariat to take the necessary steps. Note that only proposals for new activities are listed in this category; other comments such as confirmation of support for ongoing Tasks are not listed, although they will be taken into account in the re-organization process.]

For details of new proposals,
see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

GEO 2012-2015 WORK PLAN

1 INFRASTRUCTURE

IN-01 GEOSS Common Infrastructure

Definition

Deploy, populate, and enable the sustained operations and maintenance of a user-friendly and user-accessible GEOSS Common Infrastructure (GCI), including the core components and functions that link the various resources of GEOSS. The GCI will (i) consist of web-based portals, clearinghouses for searching data, information and services, registries and other capabilities supporting access to GEOSS components, standards, and best practices; and (ii) maintain a process for interoperability that supports effective access to, exchange of and use of data, metadata and products across all GEOSS components, as identified in the appropriate GCI registries (Architecture Strategic Target). Ensure open, reliable, timely, consistent, and free access to a core set of essential environmental observations and information products, supported by adequate metadata, by users across all GEOSS Societal Benefit Areas in accordance with GEOSS Data Sharing Principles (Data Management Strategic Target).

Deliverables

1. Operations and enhancements of the GEOSS Common Infrastructure components, including the GEO Portal, Clearinghouse and registries (e.g. manage routine operations through proper monitoring, maintenance and administration of GCI software and hardware platforms; coordinate the collection of suggestions for enhancements (user needs) coming from multiple sources)
2. Development of interoperability (e.g. provide sensor-web infrastructure; integrate complex resources; register resources accurately; develop semantic interoperability for users to access and fully understand GEOSS resources)
3. Registration and integration of the GEOSS Data Collection of Open Resources for Everyone (GEOSS Data-CORE – a distributed pool of documented datasets contributed by the GEO community on the basis of full and open access)

Related 2009-2011 Work Plan Tasks (non exhaustive)

AR-09-01a) Enabling Deployment of a GEOSS Architecture
AR-09-01b) GEOSS Architecture Implementation Pilot
AR-09-01c) GEOSS Best Practices Registry
AR-09-01d) Ontology and Taxonomy Development
AR-09-02b) WMO Information System
AR-09-02c) Sensor Web Enablement for In-Situ Observing Network Facilitation
AR-09-02d) Model Web Development

New Proposals from the GEO Community

- Operations, Maintenance and Enhancement of the GEOSS Common Infrastructure Components (ESA)

For details, see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

IN-02 Earth Observing Systems

Definition

Increase the efficiency of observational system operations through convergence among global, regional and national facilities. Continually improve observations and information available to users through the transition of research outcomes and systems into operational use, and through an optimal mix of space-based, airborne and *in-situ* observing platforms. Ensure the coordinated planning and sustained operation of national, regional and global observing and information systems within an interoperability framework (Architecture Target). Improve and develop new instrumentation and observation system design for *in-situ*, airborne, and space-based observation, benefiting from advances in science and technology (Science and Technology Strategic Target). Address critical gaps in observational networks that reflect, in particular, the needs of developing countries, the need for continuity in space-based and *in-situ* observations, and the potential benefits of an interactive observing system to support user needs (Weather Strategic Target). Develop an operational and sustained global network of *in-situ* observation sites (Water Strategic Target).

Deliverables

1. Development, maintenance and coordination of ground-based observing networks (in-situ and airborne) to eventually provide long-term, continuous observations of all components of the Earth System (atmosphere, ocean, land, ice, solid earth)
2. Development and coordination of space-based observing systems to eventually provide long-term, continuous observations of all components of the Earth System (atmosphere, ocean, land, ice, solid earth)
3. Advocacy and coordination across ground and space-based observing systems (e.g. advocacy for the protection of all parts of the radio frequency spectrum needed by Earth observing systems to measure, collect and disseminate data)
4. Incorporation of new technology in observing systems (e.g. inclusion of research advances in operational observing system planning)

Related 2009-2011 Work Plan Tasks (non exhaustive)

AR-06-11: Radio Frequency Protection
AR-09-02a) Virtual Constellations
AR-09-03a) Global Terrestrial Observations
AR-09-03b) Legacy of the International Polar Year 2007-08
AR-09-03c) Global Ocean Observation System
AR-09-03d) Global Observing System (GOS)
AR-09-03e) Global Geodetic Observing System (GGOS)
DA-09-02c) Global Geodetic Reference Frames
CB-09-05b) CBERS
CL-09-02a) Key Observations for Climate
CL-09-02b) Key Climate Data from Satellite Systems
WA-06-07b) Africa
WA-08-01a) Soil Moisture
WA-08-01b) Runoff
WA-08-01c) Groundwater
WA-08-01d) Precipitation

New Proposals from the GEO Community

- Africa-GeoSat1 (Egypt, Netherlands, Nigeria, South Africa, AARSE, RCMRD, UNECA)
- Sustaining Arctic Observing Networks (USA, USGEO)
- Global High Frequency Radar Network (USA, USGEO)
- Blue Planet: Ocean and Society (POGO)
- Global Ocean Information System (Germany, Bremen University)

For details, see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

IN-03 Earth Data Sets

Definition

Increase the use of observations through advances in all aspects of life-cycle data management, integration, and data recovery and conversion. Ensure the removal of important data management deficiencies. Enhance information extraction from historical, current and future source data (Data Management Strategic Target). Increase the accessibility of global sets of scientific data necessary for improved Earth System modelling in the different GEOSS Societal Benefit Areas (Science and Technology Strategic Target).

Deliverables

1. Advances in life-cycle data management (including processing, inter-calibration and validation, quality assurance, data and metadata harmonization, archiving, integration, assimilation, modelling, long-term preservation, digitization, and visualization)
2. Development of regional/global information and cross-cutting datasets, including socio-economic information, geographic information, and Earth-system reanalysis (e.g. promote research and development for models, data assimilation modules, and new or improved algorithms for global and regional services and products)

Related 2009-2011 Work Plan Tasks (non exhaustive)

DA-06-01: GEOSS Data Sharing Principles
DA-09-01a) GEOSS Quality Assurance Strategy
DA-09-01b) Data, Metadata and Products Harmonisation
DA-09-01c) Long Term Preservation of Earth Observation Data
DA-09-02a) Data Integration and Analysis Systems
DA-09-03c) Digital Geological Map Data
DA-09-03d) Global DEM
DA-09-03e) Global Soil Data
DA-09-03f) Global Road and Human Settlements Mapping on GEO Grid
CB-09-05e) Data Democracy
US-09-01a) Identifying Synergies between Societal Benefit Areas
US-09-02b) Socio-economic and Demographic Global Data
US-09-03a) Development of Global Map for GEOSS Societal Benefit Areas
US-09-03d) Global Phenology Data
CL-06-01a) Sustained Reprocessing and Reanalysis of Climate Data
WA-08-01e) Water Cycle Data Integration
EC-09-02a) Impact of Tourism on Environmental and Socio-Economic Activities

New Proposals from the GEO Community

None at this stage

IN-04 GEOSS Communication Networks

Definition

Enable all users globally to receive relevant data in a timely fashion. This involves the collection of data, particularly from in-situ networks, the transfer of data and products between agencies responsible for observations and products, and the dissemination of data and products to users. The technology includes the Internet, satellite communication networks (fixed and mobile), and broadband land connections. Address access issues in developing countries, particularly in the rural areas (GEOSS 10-Year Implementation Reference Document, p.24). Ensure reliable and timely access to environmental observations and information products, supported by adequate metadata, by users across all GEOSS Societal Benefit Areas in accordance with GEOSS Data Sharing Principles (Data Management Strategic Target). Increase the use of Earth observation in policy and decision making. Enhance participation of developing countries in GEO and GEOSS (Capacity Building Strategic Target).

Deliverables

1. Advances in data collection and access (e.g. through mobile phone networks and dedicated applications)
2. Advances in data dissemination (e.g. to provide data shared by a wide user community through broadcasting) and data exchange/transfer (e.g. to repatriate data from other world-regions or feed data into regional processing facilities)

Related 2009-2011 Work Plan Tasks (non exhaustive)

AR-09-02b) WMO Information System
AR-09-04a) GEONETCast
AR-09-04b) GEONET
CB-09-05e) Data Democracy
US-09-02a) Socio-Economic Benefits of GEO and GEOSS (Geo-Wiki)

New Proposals from the GEO Community

- Global Network of Satellite Direct-Broadcast Stations for Real-Time Products (South Africa)

For details, see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

IN-05 Gap Analysis

Definition

Undertake a comprehensive gap analysis and gap filling, integrated across all Societal Benefit Areas, including issues pertaining to operational redundancy and succession planning (especially with respect to space missions) for systems and products (Architecture Strategic Target). Identify and address critical gaps in observational networks that reflect, in particular, the needs of developing countries, the need for continuity in space-based and *in-situ* observations, and the potential benefits of an interactive observing system to support user needs (Weather Target) [*also supported by GEOSS Mid-Term Evaluation, Recommendation 7*].

Deliverables

1. Comprehensive gap analysis integrated across all Societal Benefit Areas (e.g. identify opportunities and measures to minimize gaps in data, metadata, and products)
2. Identification of critical gaps in observational networks (to address in particular the needs of developing countries and the need for observation continuity)

Related 2009-2011 Work Plan Tasks (non exhaustive)

AR-09-03a) Global Terrestrial Observations
AR-09-03c) Global Ocean Observation System
AR-09-03d) Global Observing System (GOS)
ST-09-01: Catalyzing Research and Development (R&D) Resources for GEOSS
US-09-01a) Identifying Synergies between Societal Benefit Areas
CB-09-04a) Identifying Best Practices, Gaps and Needs
CL-09-02a) Key Observations for Climate
CL-09-02b) Key Climate Data from Satellite Systems
EC-09-02c) Vulnerability of Sea Basins
BI-07-01a) Biodiversity Observation Network (GEO BON)

New Proposals from the GEO Community

- Development of a GEOSS Gap Analysis Strategy (Science & Technology Committee and Monitoring & Evaluation Working Group)

For details, see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

2 INSTITUTIONS AND DEVELOPMENT

ID-01 Data Sharing

Definition

Ensure open, reliable, timely, consistent, and free access to a core set of essential environmental observations and information products, supported by adequate metadata, by users across all GEOSS Societal Benefit Areas in accordance with GEOSS Data Sharing Principles. Make data available in accordance with GEOSS Data Sharing Principles, which includes: (i) full and open exchange of data, metadata and products shared within GEOSS, recognizing relevant international instruments and national policies and legislation; (ii) all shared data, metadata and products being made available with minimum time delay and at minimum cost; (iii) all shared data, metadata and products being provided free of charge or no more than the cost of reproduction will be encouraged for research and education (Data Management Strategic Target).

Deliverables

1. Development of the GEOSS Data Collection of Open Resources for Everyone (GEOSS Data-CORE) – a distributed pool of documented datasets contributed by the GEO community on the basis of full and open access. Technical aspects would be covered by IN-01 (GCI) and IN-04 (GEOSS Communication Networks)
2. Implementation of the Data Sharing Action Plan for GEOSS Non-Commercial data
3. Implementation of the Data Sharing Action Plan for GEOSS Other data

Related 2009-2011 Work Plan Tasks

DA-06-01: GEOSS Data Sharing Principles
CB-09-05e) Data Democracy

New Proposals from the GEO Community

None at this stage

ID-02 Catalyzing Resources for GEOSS Implementation

Definition

Leverage resources for Earth observation capacity building efforts. Ensure the engagement and committed involvement of resource providers in the GEO capacity building process (Capacity Building Strategic Target). Advocate funding of multinational projects to leverage the end-to-end value of observations including the establishment of necessary infrastructure (GEOSS 10-Year Implementation Plan, p.13).

Deliverables

1. Resource mobilization for capacity building – individual, institutional and infrastructure (e.g. through the implementation of the Seville Roadmap, Call for Proposals)
2. Resource mobilization for Research and Development (e.g. encourage national governments and international organizations to address GEOSS science and technology needs in their Research and Development programmes)

Related 2009-2011 Work Plan Tasks (non exhaustive)

CB-09-01: Resource (or Seville Roadmap) Mobilization
ST-09-01: Catalyzing Research and Development (R&D) Resources for GEOSS
CB-09-04a) Identifying Best Practices, Gaps and Needs

New Proposals from the GEO Community

- Earth Observations for Decision Support Projects, based on the User Interface and Capacity Building Committees Call for Proposals Process (USA, USGEO)

For details, see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

ID-03 Developing Institutions and Individual Capacity

Definition

Develop networking activities that specifically build individual, institutional and infrastructure capacity. Increase the use of Earth observation in policy and decision making. Enhance the participation of developing countries in GEO and GEOSS (Capacity Building Strategic Target).

Deliverables

1. Institutional development (e.g. coordinate, strengthen and sustain existing regional capacity building networks within Earth observation communities)
2. Individual development (e.g. develop cross-border education and training across GEOSS societal benefit areas; develop synergies, encourage cross-fertilization and address common challenges)

Related 2009-2011 Work Plan Tasks (non exhaustive)

CB-09-02a) Recognition of Cross Border Education and Training in Earth Observation
CB-09-02b) Summer Institute on Climate Information for Public Health
CB-09-02c) UN-SPIDER/GEO Summer Schools on Space-based Solutions for Disaster Management
CB-09-02f) GLOBE/GEO Climate Education Project
CB-09-02g) GEONETCast Training
CB-09-03a) Building National and Regional Capacity
CB-09-03b) Establishing Regional Capacity Building Networks
CB-09-03d) Building Capacity for Operational Oceanography
CB-09-05c) SERVIR Expansion
CB-09-05e) Data Democracy
WA-06-07a) Latin America
WA-06-07b) Africa
WA-06-07c) Asia

New Proposals from the GEO Community

- Actions under Deliverables could reflect concepts such as “organize summer schools or training workshops” (Capacity Building Committee)

For details, see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

ID-04 Building Communities and Increasing Awareness

Definition

Establish an agreed core set of essential environmental, geophysical, geological, and socio-economic variables needed to provide data, metadata and products in support of all GEOSS Societal Benefit Areas. Involve users in: reviewing and assessing requirements for Earth observation data, products and services; creating appropriate mechanisms for coordinating user requirements; utilizing data/ information delivery systems; and capturing user feedback on an ongoing basis across Societal Benefit Areas. Increase the use of geo-spatial data in all Societal Benefit Areas and in particular in developing countries (User Engagement Strategic Target) [*also supported by GEOSS Mid-Term Evaluation, Recommendation 6*].

Deliverables

1. Identification and utilization of user requirements (e.g. agree on a core set of variables)
2. Awareness raising and community building within and across Societal Benefit Areas (e.g. support Communities of Practice and foster partnerships between operational and research communities; show the benefits of GEO and GEOSS to policy makers, scientific and technological communities, and the public)
3. Indicators development (e.g. for capacity building performance, data continuity, a GEO label, citation standards)

Related 2009-2011 Work Plan Tasks (non exhaustive)

CB-09-04a) Identifying Best Practices, Gaps and Needs
CB-09-04b) Capacity Building Performance Indicators
CB-10-01b) Building Capacity for Non-technical Decision-makers in the Use and Impact of EO
CB-10-01c) User Oriented Workshops for GEOSS Outreach and Feedback
CB-10-01d) Atlases of our Changing Environment
ST-09-02: Promoting Awareness and Benefits of GEO in the Science and Technology Community
US-09-01a) Identifying Synergies between Societal Benefit Areas
US-09-01b) Communities of Practice and Partnership Development

New Proposals from the GEO Community

None at this stage

ID-05 Ensuring GEOSS Sustainability

Definition

Develop a long-term strategy to ensure the sustainability of GEOSS beyond 2015 (GEOSS Mid-Term Evaluation, Recommendation 1). Develop a framework that enables the continued development and long-term operation of GEOSS. Investigate alternative models for sustained resource commitments from Members and Participating Organizations which are necessary for current and future operations (GEOSS Mid-Term Evaluation, Recommendation 2).

Deliverables

1. TBD

Related 2009-2011 Work Plan Tasks (non exhaustive)

None

New Proposals from the GEO Community – to be consolidated in the next version of the 2012-2015 Work Plan:

None at this stage

3 INFORMATION SERVICES

DS-01 Disaster Risk Reduction and Early Warning

Definition

Improve the use of observations and related information to inform policies, decisions and actions associated with disaster preparedness and mitigation. Ensure effective access to observations and related information to facilitate warning, response and recovery to disasters. Increase communication and coordination between national, regional and global communities in support of disaster risk reduction, including clarification of roles and responsibilities and improved resources management. Improve national responses to natural and man-made disasters through the delivery of space-based data, resulting from a strengthened International Charter on Space and Major Disasters (Disasters Strategic Target). Develop local, regional and global hydrological risk (e.g. floods, droughts) assessment, prediction and management systems and expand applications of integrated water resource management for sustained development (Water Strategic Target). Significantly increase the use of Earth observations by all sectors for improved prediction of potential hazards to the energy infrastructure (Energy Strategic Target).

Deliverables

1. Disaster management systems (e.g. deliver space data to those affected by natural or man-made disasters; integrate baseline geographic information, and reference maps with real-time data from satellite or in-situ platforms into online Graphical User Interface and Decision Support System tools; develop collaborative, distribute management systems to collect, store, analyze, visualize and disseminate crucial data and information for vulnerability and risk assessment)
2. Sustainable and integrated geohazards risk assessment (e.g. promote retrieval and systematic access to remote sensing & in-situ data in selected regional areas exposed to geological threats ("Supersites"); improve the global coordination of seismographic networks; support global vulnerability modelling and mapping)
3. A global flood monitoring and early warning system (e.g. integrate regional flood information in a comprehensive framework (visualization in near real time); couple hydrological and Numerical Weather Prediction models)
4. A global drought information system (e.g. integrate regional drought information (indices and impact indicators) in a comprehensive framework (composite index and maps))
5. A global wildland fire warning system (e.g. develop improved fire-weather and fire-behavior prediction capabilities, analysis tools and response-support through satellite and in-situ sensors, vegetation models and risk-assessment models)
6. A global tsunami early warning system (e.g. develop mechanisms for real-time data sharing including seismic and sea-level (deep ocean and tide-gauge data) broadcasting systems and emergency plans). To be implemented in connection with DS-04 (Ocean Monitoring)

Related 2009-2011 Work Plan Tasks (non exhaustive)

CB-09-05c) SERVIR Expansion
DI-06-09 Use of Satellites for Risk Management
DI-09-01a) Vulnerability Mapping and Risk Assessment
DI-09-01b) Seismographic Networks Improvement and Coordination
DI-09-01c) Supersites and Natural Laboratories

DI-09-02a) Implementation of a Multi-Risk Management Approach
DI-09-02b) Regional End-to-End Disaster Management Applications
DI-09-03a) Tsunami Early Warning System of Systems
DI-09-03b) Implementation of a Wildland Fire Warning System at Global Level
WA-06-02a) Forecasting for Droughts and Floods
WA-06-02b) Impacts from Drought
WA-06-02d) Prototype Regional Drought Early Warning Test Beds
WA-06-07b) Africa
WA-06-07c) Asia
EC-09-02c) Vulnerability of Sea Basins
EC-09-02e) Risk and Vulnerability Atlas

New Proposals from the GEO Community

- Development of a South African Geological Hazard Observation System (South Africa)
- Global Flash Flood Guidance System (USA, USGEO)
- Earthquake Damage Assessment from Radar Data (Italy, EUCENTRE)
- Eco-Hydrologic Sensitivity and Dry-Weather Hazards in a Changing Climate (Italy, Genova University)

For details, see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

DS-02 High-Impact Weather Forecasting

Definition

Improve the range and quality of services for high impact weather forecasting due to the design, future development, and operation of global observing, data assimilation, numerical modelling, and user application techniques. Deliver more accurate, reliable and relevant weather analyses, forecasts, advisories and warnings of severe and other high-impact hydrometeorological events enabled by enhanced observational capabilities (Weather Strategic Target). Improve operational weather/climate forecast systems for early warning and food security (Agriculture Strategic Target). Significantly increase the use of Earth observations by all sectors for improved prediction of potential hazards to the energy infrastructure (Energy Strategic Target).

Deliverables

1. A global high-impact weather multi-model prediction system (e.g. develop a user-friendly database of ensemble weather forecasts; produce user-driven probabilistic products such as tropical cyclone tracks, heavy rainfall and strong wind distributions; contribute directly to high priority issues such as disaster early warning, food security, and energy infrastructure safeguard). To be implemented in connection with IN-01 (GCI), DS-01 (Disaster Risk Reduction), and DS-09 (Agricultural Monitoring)
2. A high-impact weather information system (e.g. for Africa: provide a common platform to collect, store and exchange data – not only observations and model outputs but also event documentation, particularly impacts on society, the economy and the environment).

Related 2009-2011 Work Plan Tasks (non exhaustive)

WE-06-03: TIGGE and the Development of a Global Interactive Forecast System for Weather
WE-09-01a) Infrastructure for Numerical Weather Prediction
WE-09-01b) Socio-economic Benefits in Africa from Improved Predictions of High-Impact Weather

New Proposals from the GEO Community

None at this stage

DS-03 Climate Information

Definition

Improve scientific understanding, modelling and prediction of climate. Improve accessibility of all the observational data needed for climate monitoring and services in support of adaptation to climate variability and change. Ensure the availability of all Essential Climate Variables needed by the WCRP, the IPCC and the UNFCCC (Climate Strategic Target). Improve operational weather/climate forecast systems for early warning and food security (Agriculture Strategic Target).

Deliverables

1. Extension and improvement of the climate record (e.g. support regional and international reanalysis efforts; facilitate the recovery of historical terrestrial and marine global observations; develop high-resolution, well-dated reconstructions of past climate parameters)
2. An Earth-system prediction system (e.g. foster advances on seamless prediction, sub-seasonal to seasonal prediction, and polar prediction; improve the representation of organized tropical convection in models and of its interaction with the global circulation)
3. A global climate information service (e.g. ensure the delivery of climate information needed for adaptation through the GEO Portal; build on existing climate services such as the US climate portal (climate.gov). To be implemented in connection with IN-01 (GCI))
4. Availability of Essential Climate Variables (e.g. accelerate the implementation of the Global Climate Observing System; strengthen the climate-related functions and activities of global atmospheric, oceanic and terrestrial observing systems)

Related 2009-2011 Work Plan Tasks (non exhaustive)

AR-09-03a) Global Terrestrial Observations
AR-09-03b) Legacy of the International Polar Year
AR-09-03c) Global Ocean Observation System
AR-09-03d) Global Observing System (GOS)
CL-06-01a) Sustained Reprocessing and Reanalysis of Climate Data
CL-06-01b) Extending the Record of Climate Variability at Global Scale
CL-09-01a) Towards Enhanced Climate, Weather, Water and Environmental Prediction
CL-09-01b) Climate Information for Decision-making, Risk Management and Adaptation
CL-09-02a) Key Observations for Climate (GCOS)
CL-09-02b) Key Climate Data from Satellite Systems
CL-09-03a) Integrated Global Carbon Observation (IGCO)

New Proposals from the GEO Community

None at this stage

DS-04 Ocean Monitoring, Forecasting and Resources Management

Definition

Increase the operational monitoring of major marine and coastal ecosystems on an annual basis including properties such as extent, water temperature, salinity, pH and pCO2, phytoplankton species composition and productivity and marine resource stocks, based on remote sensing and sampled in-situ observations using internationally agreed standards (Ecosystems Strategic Target). Improve collaboration and coordination on the use and applications of Earth observations for fisheries, and aquaculture (Agriculture Strategic Target). Improve scientific understanding, modelling and prediction of climate. Ensure the availability of all Essential Climate Variables needed by the WCRP, the IPCC and the UNFCCC (Climate Strategic Target).

Deliverables

1. Operational monitoring of marine and coastal ecosystems (e.g. improve the global coverage and data accuracy of coastal/open ocean observing systems; promote in-situ measurement of chlorophyll in combination with satellite-derived estimates; make ocean data and observations generated on a routine basis available through the GEO portal). To be implemented with in connection with IN-01 (GCI), and IN-02 (Earth Observing Systems)
2. A global operational ocean forecasting network (e.g. connect operational and quasi-operational ocean forecasting centers throughout the world; extend ensemble forecasting techniques to operational ocean forecasting)
3. Applications of Earth observations to fishery and aquaculture management (e.g. facilitate the application of rapidly-evolving satellite technology to fish harvesting and fish health assessment; build capacity at research-level and operational-level)

Related 2009-2011 Work Plan Tasks (non exhaustive)

AR-09-03c) Global Ocean Observation System
DA-09-02b) Ensemble-Technique Forecasting Demonstrations
CB-09-03d) Building Capacity for Operational Oceanography
WA-08-01g) Global Water Quality Monitoring
EC-09-01c) Regional Networks for Ecosystems
AG-06-02: Data Utilization in Fisheries and Aquaculture

New Proposals from the GEO Community

- Blue Planet: Ocean and Society (POGO)
- Global Ocean Information System (Germany, Bremen University)
- Extension of Ensemble Forecasting Techniques to Operational Ocean Forecasting Systems (UK)
- Vulnerability and Integrated Management of Coastal Zone (South Africa)
- Global High Frequency Radar Network (USA, USGEO)

For details, see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

DS-05 Integrated Water-Cycle Information

Definition

Develop an operational and sustained global network of in-situ observation sites. Increase the availability of information products and services for monitoring changes in the water cycle, including clouds and precipitation, appropriate for both research and integrated water resource management. Increase the availability of data and information, including quantity and quality of both surface and groundwater, to support a water cycle decision making system. Develop routine, reliable production of "watershed" and human health indicators from satellite data, surface and subsurface data, and data assimilation capabilities (Water Strategic Target). Increase knowledge of environmental flow requirements of river baseflow and peak flow, as well as human requirements for irrigation and power plant cooling water and domestic usage (Ecosystems Strategic Target).

Deliverables

1. Integrated water-cycle information service – supported by in-situ networks and water-cycle virtual constellation (e.g. develop applications for irrigation, hydro-electric/power plant cooling, and other domestic usages; develop a Freshwater Geospatial Tracker (patterned after the GEO Carbon tracking) or a "One Water" initiative (patterned after the geohazards supersites initiative))
2. Global water quality information system (e.g. integrate regional water quality information in a comprehensive framework (visualization in near-real-time)).
3. Cryosphere information service (e.g. build upon ongoing initiative to integrate regional cryosphere information in a comprehensive framework; develop global visualization and analysis tools; consider the permafrost state; sea-ice extent and thickness; continental snow water equivalence; changes in continental ice-shelf and glacier-mass)

Related 2009-2011 Work Plan Tasks (non exhaustive)

AR-09-03b) Legacy of the International Polar Year 2007-08
WA-06-07a) Latin America
WA-06-07b) Africa
WA-06-07c) Asia
WA-06-07d) Pilot Projects for Improved Water Discovery and Quality Assessments
WA-08-01a) Soil Moisture
WA-08-01b) Runoff
WA-08-01c) Groundwater
WA-08-01d) Precipitation
WA-08-01e) Water Cycle Data Integration
WA-08-01g) Global Water Quality Monitoring

New Proposals from the GEO Community

- Sustaining Arctic Observing Networks (USA, USGEO)
- WaterML - to improve interoperability and exchange of water data (USA, USGEO)
- Sediment and Biogeochemical Sources, Fluxes and Sinks (Germany, Bonn University)

For details, see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

DS-06 Disease Early Warning

Definition

Ensure access to improved environmental information and tools to support the global community of human health and environment experts. Increase the use of environmental information and tools to support decision making in epidemics and/or disease management and planning for well-being. Apply outcomes from other Societal Benefit Areas to improve health and well-being (Health Strategic Target).

Deliverables

1. Early warning system for vector-borne diseases (including malaria, dengue fever, Rift Valley fever)
2. Early warning system for water-borne diseases and risk (including cholera and leptospirosis, and algae bloom risk)
3. Early warning system for airborne diseases (including meningitis and impacts of air quality and sand & dust storms)
4. Early warning system for influenza
5. Tracking systems for pollutants (including Earth monitoring systems for mercury and persistent organic pollutants)
6. Disease transmission dynamics – linkages with other Societal Benefit Areas (e.g. disasters and vulnerable areas for vector and waterborne diseases; biodiversity, ecosystems and vector-borne diseases)

Related 2009-2011 Work Plan Tasks (non exhaustive)

AR-09-02c) Sensor Web Enablement for In-Situ Observing Network Facilitation
DA-09-02d) Atmospheric Model Evaluation Network
HE-09-01: Information Systems for Health
HE-09-02a) Aerosol Impacts on Health and Environment: Research, Monitoring and Prediction
HE-09-02b) Air Quality Observations, Forecasting and Public Information
HE-09-02c) Global Monitoring Plan for Persistent Organic Pollutants (POPs)
HE-09-02d) Global Observation System for Atmospheric Mercury
HE-09-02e) Surveillance and Prediction of Seasonal Influenza
HE-09-03a) Implementation of a Meningitis Decision-Support Tool
HE-09-03b) Predicting and Reducing Incidence of Vector-Borne and Zoonotic Diseases
HE-09-03c) Ecosystems, Biodiversity and Health: Decision-Support Tools and Research
HE-09-03d) Reducing Health Risk from Water-borne Diseases
WA-08-01g) Global Water Quality Monitoring

New Proposals from the GEO Community

- Items 1-4 and 6 above (Health Community of Practice)
- Real Time Dissemination of Coastal Air Quality and Beach Water Quality Information through a Global Geospatial System (USA, USGEO)
- Nanoparticles Observing System (Germany, Bund)
- Monitoring of Disease-Vector Plants and Animals (Germany, Bund)

For details, see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

DS-07 Energy and Geo-Resources Management

Definition

Significantly increase the use of Earth observations by all sectors (biomass, fossils, geothermal, hydropower, nuclear, ocean, solar and wind) for improved prediction of the production of intermittent sources of energy and mapping of renewable energy potential. Improve energy management, including balance between energy demand and supply as well as development of alternative energy scenarios. Ensure the safe, efficient and affordable development and operation of existing and new energy resources, with emphasis on minimizing environmental and societal impact while moving towards a low-carbon footprint (Energy Strategic Target).

Deliverables

1. A global renewable energy service for the resource assessment, monitoring and forecasting of intermittent sources of energy, including solar, wind, ocean, hydropower and biomass (e.g. map user needs for renewable energy datasets; develop products required to assess countries' potential for energy production; foster the use of Earth observations in energy-policy planning)
2. Management services for geological resources including mineral and fossil resources, raw material and groundwater (e.g. design an infrastructure of interoperable data and user-oriented services to strengthen the sustainable use of geo-resources; develop capacity building in the domain of Earth observation in developing countries)

Related 2009-2011 Work Plan Tasks (non exhaustive)

CB-09-05d) Geo-resources Services for Africa (AEGOS)
EN-07-01: Management of Energy Sources
EN-07-02c) Locating High-Temperature Geothermal Resources
EN-07-03: Energy Policy Planning

New Proposals from the GEO Community

- Bio-Energy Atlas for Africa (South Africa, Brazil, RCMRD)

For details, see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

DS-08 Human Impact Monitoring and Forecasting

Definition

Significantly increase the use of Earth observations by all sectors (biomass, fossils, geothermal, hydropower, nuclear, ocean, solar and wind) for improved environmental, economic and societal impact assessments of energy exploration, extraction, conversion, transportation and consumption (Energy Strategic Target).

Deliverables

1. Impact assessment service for energy policy planning (e.g. develop a modelling platform that will enable planners and governments to forecast and monitor the environmental impact of changes in the energy mix; integrate Earth observation data with state-of-the-art modelling tools to calculate socio-economic impacts and environmental costs)
2. Impact monitoring system for geo-resource exploration and exploitation (e.g. develop new tools for impact monitoring of mining operations using Earth observations; integrate information from *in situ*, airborne and satellite observation through data assimilation and models to provide impact diagnostics)
3. Operational Carbon Capture and Sequestration (CCS) monitoring system (e.g. foster and develop the use of Earth observation products and services for the monitoring of CO2 storage sites; explore several methods for monitoring CCS sites, including surface deformation, hyperspectral and gravimetry methods)

Related 2009-2011 Work Plan Tasks (non exhaustive)

EN-07-02a) Environmental Impact of Energy Production (EnerGEO)
EN-07-02b) Towards an Operational Carbon Capture and Sequestration (CCS) Monitoring System
EN-07-03: Energy Policy Planning
EC-09-02b) Impact of Transport Infrastructure Development

New Proposals from the GEO Community

- Two European FP7 projects (UK, EC, EuroGeoSurveys):
  - (i) ImpactMIN – a toolset for the environmental impact monitoring of mining operations using Earth Observations
  - (ii) EO-MINERS – to monitor mineral resources exploration and mining from concept to closure

For details, see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

DS-09 Global Agricultural Monitoring and Early Warning

Definition

Increase the use of Earth observing capabilities and supporting applications systems to produce timely, objective, reliable, and transparent agricultural statistics and information at the national and regional level. Improve agricultural risk assessment and operational weather/climate forecast systems for early warning and food security. Support effective early warning of famine leading to more timely mobilization of an international response in food aid. Expand the monitoring of agricultural land use change, through periodic regional and global assessments. Increase capacity building through targeted workshops and joint multi-institution research teams (Agriculture Strategic Target).

Deliverable

1. A global operational agricultural monitoring system for famine early-warning and food security (e.g. develop early-warning systems enabling timely mobilization of international response in food aid; produce national agricultural statistics, seasonal forecasts of shortfalls in crop production, and risk assessments at a range of scales; develop training modules and expand the use of Earth observations for agricultural purposes in Africa, Asia, Latin America, Central and Eastern Europe, and Small Island States)

Related 2009-2011 Work Plan Tasks (non exhaustive)

AG-07-03a) Global Agricultural Monitoring System
AG-07-03b) Agricultural Risk Management
AG-07-03c) Expanding Earth Observation Applications in Agriculture and Promoting Capacity Building in Developing Countries

New Proposals from the GEO Community

None at this stage

DS-10 Global Land Cover

Definition

Prepare and improve access to, among Member and Participating Organization communities, global and regional information encompassing cross-cutting data sets such as land cover and land use information (Data Management Strategic Target). Increase operational monitoring of major ecosystems on land on an annual basis, including properties such as land cover type (Ecosystems Target). Improve collaboration and coordination on the use and applications of Earth observations for land cover mapping (Agriculture Strategic Target). Ensure the availability of all Essential Climate Variables needed by the WCRP, the IPCC and the UNFCCC (Climate Strategic Target).

Deliverables

1. A global moderate-resolution land-cover monitoring system (e.g. produce global 30m land-cover continuous fields, types, and changes, together with annual and bi-decadal maps and statistics; improve the use of time-series products and validate moderate resolution and land-cover datasets such as GLOBCOVER and MODIS)
2. Access to historical land-cover imagery and global high-resolution coverage obtained through international acquisitions coordination. To be implemented in connection with IN-01 (GCI) and ID-01 (Data Sharing)

Related 2009-2011 Work Plan Tasks (non exhaustive)

DA-09-03a) Global Land Cover
US-09-02a) Socio-Economic Benefits of GEO and GEOSS (Geo-Wiki)

New Proposals from the GEO Community

- Global Land Cover (USA)

For details, see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

DS-11 Global Forest Observation

Definition

Increase the use of Earth observing capabilities and supporting applications systems to produce timely, objective, reliable, and transparent forest statistics and information at the national and regional level. Improve collaboration and coordination on the use and applications of Earth observations for forestry (Agriculture Strategic Target). Ensure the availability of all Essential Climate Variables needed by the WCRP, the IPCC and the UNFCCC (Climate Strategic Target).

Deliverables

1. Sustained availability of satellite and ground observations in support of national forest information systems (e.g. coordinate and provide regular and routine observations that are essential for effective reporting; develop methods and protocols for data collection, processing and integration; promote coordinated research and development needed for continuous improvement; develop forest carbon tracking methods)
2. Support for countries in the use of observations in national forest information systems – respecting national choices of data and tools (e.g. develop consistent and comparable methods for individually developed and comparable national systems; help governments develop national forest information systems).

Related 2009-2011 Work Plan Tasks (non exhaustive)

CL-09-03a) Integrated Global Carbon Observation (IGCO)
CL-09-03b) Forest Carbon Tracking
CL-09-03c) Global Monitoring of Greenhouse Gases from Space
EC-09-01e) Forest Mapping and Change Monitoring

New Proposals from the GEO Community

- Global Forest Observation Initiative (GFOI) (Australia, Brazil, China, Norway, Tanzania, USA, ESA/CEOS, GOFC-GOLD, FAO, World Bank)

For details, see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

DS-12 Global Carbon Observation and Analysis

Definition

Develop a comprehensive (atmosphere, ocean, land) global carbon observation and analysis system in support of monitoring based decision-making and related environmental treaty obligations (Climate Strategic Target). Increase the operational monitoring of major ecosystems on land on an annual basis, including properties such as carbon estimates of vegetation and soils based on remote sensing and sampled *in-situ* observations using internationally agreed standards (Ecosystems Strategic Target).

Deliverable

1. An integrated global carbon observation and analysis system (e.g. establish carbon budgets at different scales; improve global observation networks of CO2, CH4, isotope ratios and exchange fluxes; develop geo-information tools, databases and models integrating carbon reservoir and flux data; foster the use of space-based greenhouse gas observations and consolidate data requirements for the next-generation GHG monitoring missions)

Related 2009-2011 Work Plan Tasks (non exhaustive)

CL-09-03a) Integrated Global Carbon Observation (IGCO)
CL-09-03b) Forest Carbon Tracking
CL-09-03c) Global Monitoring of Greenhouse Gases from Space

New Proposals from the GEO Community

None at this stage

DS-13 Global Ecosystem Monitoring

Definition

Implement a global standardized ecosystem classification system and map as a basis for worldwide inventory, assessment and monitoring. Implement a global, standardized inventory of major ecosystems and the protected areas within them. Increase the operational monitoring of major ecosystems on land on an annual basis, including properties such as land cover type; species composition; vegetation structure, height and age; net ecosystem productivity; and biomass and carbon estimates of vegetation and soils based on remote sensing and sampled *in-situ* observations using internationally agreed standards (Ecosystems Strategic Target). Develop quantitative measurements of global and regional desertification (Agriculture Strategic Target).

Deliverables

1. Global standardized ecosystem classification, map and inventory including protected areas (e.g. integrate global ecosystems products with existing ecosystem maps and databases). To be implemented in connection with DS-14 (Global Biodiversity Observation)
2. Operational monitoring of land ecosystems including drylands and wetlands. To be implemented in connection with DS-10 (Global Land-Cover), DS-11 (Global Forest Observation), DS-12 (Global Carbon Observation and Analysis)
3. Monitoring of ecosystem services – see DS-14 (Global Biodiversity Observation)

Related 2009-2011 Work Plan Tasks (non exhaustive)

AR-09-03b) Legacy of the International Polar Year 2007-08
EC-09-01a) Ecosystem Classification and Mapping
EC-09-01b) Ecosystem Functions and Services
EC-09-01c) Regional Networks for Ecosystems
EC-09-01d) Protected Areas Assessment and Monitoring
EC-09-01e) Forest Mapping and Change Monitoring
EC-09-02d) Vulnerability of Mountain Regions
BI-07-01a) Biodiversity Observation Network (GEO BON)

New Proposals from the GEO Community

- Coordination of Urban Observations, Monitoring, Assessment, and Modelling Initiatives Worldwide, in support of a Global Urban Observation System (USA, Indiana State University)

For details, see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

DS-14 Global Biodiversity Observation (GEO BON)

Definition

Increase the routine collection of long term in-situ and remotely sensed biodiversity observations. Ensure access through GEOSS to a large panel of biodiversity observations, including satellite, aerial and in-situ. Increase information-sharing on biodiversity conservation and sustainable use of biodiversity resources. Implement a mechanism that enables users to interact with the development of biodiversity observations systems and request services. Increase the availability of biodiversity information necessary to respond to and support related topics (ecosystems, health, climate, etc). Increase the availability of information to reduce the cost and support the management of biodiversity issues (Biodiversity Target).

Deliverables

1. Standards for data collection and management of terrestrial species and ecosystems observations (e.g. promote monitoring standards for population counts of birds, mammals, and plants; harmonize ecosystem mapping and monitoring so that data are exchangeable)
2. A worldwide network of biodiversity observations, starting with terrestrial and freshwater ecosystems (e.g. develop a global network of biodiversity observation sites; fill gaps in data monitoring in regions where major ecosystem changes are happening; establish an International Freshwater Consortium, covering global freshwater biodiversity observation and analysis)
3. Reporting mechanisms for a variety of biodiversity-relevant topics, starting with terrestrial ecosystems and services, and genes (e.g. promote observations on genetic diversity on crop plants and wild genetic diversity; implement a new measure of global change in compositional biodiversity of terrestrial ecosystems through model-based integration of *in situ* and remote-sensing data)

Related 2009-2011 Work Plan Tasks (non exhaustive)

EC-09-01b) Ecosystem Functions and Services
EC-09-01d) Protected Areas Assessment and Monitoring
BI-07-01a) Biodiversity Observation Network (GEO BON)
BI-07-01b) Invasive Species Monitoring System
BI-07-01c) Capturing Historical and New Biodiversity Data

New Proposals from the GEO Community

- Items 1.-3. above (GEO BON Community)
- Monitoring of Disease-Vector Plants and Animals (Germany, Bund)

For details, see ftp://ftp.earthobservations.org/TEMP/2012-2015_WorkPlan_V0/

APPENDIX: ACRONYMS

ACQWA	Assessing Climatic change and impacts on the Quantity and quality of Water
AEGIS	Asian-monsoon systEm with Ground satellite Image data and numerical Simulations
AEGOS	African-European Georesources Observation System
AEMET	Spanish Meteorological Agency
AeroCOM	Aerosol Comparisons between Observations and Models
AG	Agriculture
AIP	Architecture Implementation Pilot
AIRNow	A cross-agency Web site on Air Quality News
AIST	National Institute of Advanced Industrial Science and Technology
AMDAR	Aircraft Meteorological Data Relay
ANTARES	A Network for the Enhancement of the Education and Scientific Research
APEC	Asia-Pacific Economic Cooperation
APFM	Associated Programme on Flood Management
AR	Architecture
ASEAN	Association of Southeast Asian Nations
ASI	Italian Space Agency
AVHRR	Advanced Very High Resolution Radiometer
AWCI	Asian Water Cycle Initiative
BGR	German Geological Survey
BGS	British Geological Survey
BI	Biodiversity
BIO	Biotechnology Industry Organization
BioNET-Itnl	Global Network for Taxonomy
BirdLife-Itnl	Global Partnership of conservation organizations
BNSC	British National Space Centre
BOM	Australian Bureau of Meteorology
BRGM	French Geological and Mining Research Bureau
CARSA	China Association for Remote Sensing Application
CAS	Chinese Academy of Sciences
CAWCR	Centre for Australian Weather and Climate Research
CB	Capacity Building
CBD	Convention on Biological Diversity
CBERS	China-Brazil Earth Resources Satellite
CDC	Centers for Disease Control and Prevention
CENC	China-Europe GNSS Technology Training and Cooperation Center
CEOP	Coordinated Energy and Water Cycle Observations Project
CEOS	Committee on Earth Observation Satellites
CFS	Canadian Forest Service

CGIAR	Consultative Group on International Agricultural Research
CGMS	Coordination Group for Meteorological Satellites
ChloroGIN	Chlorophyll Ocean Globally Integrated Network
CIESIN	Center for International Earth Science Information Network
CL	Climate
ClimDev Africa	Climate for Development in Africa
CMA	Chinese Meteorological Administration
CMACast	CMA contribution to GEONETCast; utilises the AsiaSat 4 satellite beam to broadcast data and products to a user community in the Asia Pacific region
CNES	French Space Agency
CNR-IIA	Italy National Research Council - Institute for Atmospheric Pollution
COCOS	Coordination of Carbon Observing Systems
CODATA	ICSU Interdisciplinary Scientific Committee on Data for Science and Technology
CONAE	Argentinean National Commission of Space Activities
Conservation Intl	Organization applying solutions to protect Air, Water and Resources
CoP	Community of Practice
CRESDA	Center for Resource Satellite Data and Applications, China
CSA	Canadian Standards Association
CSIR	Council for Scientific and Industrial Research, South Africa
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSIS	Center for Strategic & International Studies
DA	Data Management
DANTE	Delivery of Advanced Network Technology to Europe
DEADP	Department of Environmental Affairs and Development Planning, South Africa
DEM	Digital Elevation Model
DevCoCast	Provides processed land and ocean satellite data and value-added products in Developing Countries
DG-RTD	EC Directorate-General for Research and Technological Development
DI	Disasters
DIVERSITAS	An international programme of biodiversity science
DLR	German Aerospace Center
DMI	Danish Meteorological Institute
DMN	Morocco Direction de la Météorologie Nationale
DPRTRP	Disaster Preparedness and Refugees Transition and Recovery Programme for North and Eastern Uganda
DST	Department of Science and Technology, South Africa
EBONE	European Biodiversity Observation Network
EC	Ecosystems
EC	European Commission
ECMWF	European Centre for Medium-range Weather Forecasts
EcoNet	Ecosystem Observation and Monitoring Network
EEA	European Environmental Agency
EFAS	European Flood Alert System

EFFIS	European Forest Fire Information System
EMEP	European Monitoring and Evaluation Program
EMSO	European Multidisciplinary Seas Observation
EN	Energy
EnerGEO	EO for monitoring and assessment of the environmental impact of energy use
ENSMP	Mines National College of Paris
EnviroGRIDS	Gridded management system for environmental sustainability and vulnerability
EO	Earth Observations
EPA	United States Environmental Protection Agency
ESA	European Space Agency
ESONET	European Seas Observatory Network
e-SOTER	Web-based Regional Pilot Platform with data, methodology, and applications, using remote sensing to validate, augment and extend existing data
ESRI	Environmental Systems Research Institute
EUMETCast	EUMETSAT Broadcast System for Environmental Data
EUMETSAT	European Organisation for the Exploitation of Meteorological Satellites
EuroSITES	European Ocean Observatory Network
Ev-K2-CNR	High Altitude Scientific and Technological Research
FAO	Food and Agriculture Organization of the United Nations
FAPAR	Fraction of Absorbed Photosynthetically Active Radiation
FDSN	International Federation of Digital Seismograph Networks
FGDC	Federal Geographic Data Committee
FP7	European Union 7th Framework Programme
FPAR	Fraction Photosynthetically Available Radiation
FRA	FAO Global Forest Resources Assessments
GAW	Global Atmosphere Watch
GBIF	Global Biodiversity Information Facility
GBRDS	Global Biodiversity Resources Discovery System
GCI	GEOSS Common Infrastructure
GCOS	Global Climate Observing System
GDEWS	Global Drought Early Warming Systems
GEO BON	Group on Earth Observations Biodiversity Observation Network
GEO PAAM	Group on Earth Observations Protected Areas Assessment and Monitoring
GEO	Group on Earth Observations
GEOBENE	Global Earth Observation Benefit Estimation: Now, Next and Emerging
GEONETCast	Near real time, global network of satellite-based data dissemination systems designed to distribute space-based, air-borne and in situ data, metadata and products to low-cost receiving stations maintained by users
GEOSS	Global Earth Observation System of Systems
GEOTOPS	GEO Training Opportunity Networks
GEWEX	Global Energy and Water Cycle Experiment
GFMC	Global Fire Monitoring Center
GGMN	Global Groundwater Monitoring Network

GHG	Greenhouse Gas
GIFS	Global Interactive Forecast System
GIS	Geographical Information System
GISIN	Global Invasive Species Information Network
GISS	Geo Information Systems Section, UNECA
GLOBE	Global Learning and Observations to Benefit the Environment
GLOSIS	Global Soil Information System
GMES	Global Monitoring for Environment and Security
GNSS	Global Navigation Satellite System
GOFC-GOLD	Global Observation of Forest and Land Cover Dynamics
GOOS	Global Ocean Observing System
GOS	Global Observing System
GOSAT	Greenhouse gases Observing SATellite
GPM	Global Precipitation Measurement
GPS	Global Positioning System
GSI	Geological Survey Institute
GSN	Global Seismographic Network
GTOS	Global Terrestrial Observing System
GTS	Global Telecommunications System
Guyra Paraguay	Non governmental organization that promote and coordinate progress towards the conservation and sustainable use of biodiversity
HARON	Hydrological Applications and Run-Off Network
HCF	Health and Climate Foundation
HE	Health
HTAP	Hemispheric Transport of Air Pollutants
IAG	International Association of Geodesy
IAS	Invasive Alien Species
ICSU	International Council for Science
ICT	Information and Communication Technology Section, UNECA
IEEE	Institute of Electrical and Electronics Engineers
IEO	Spanish Institute of Oceanography
IES	International Education of Students
IFRC	International Federation of Red Cross and Red Crescent Societies
IGACO	International Global Atmospheric Chemistry Observations
IGAC-SPARC	International Global Atmospheric Chemistry - Stratospheric Processes And their Role in Climate
IGBP	International Geosphere-Biosphere Programme
IGCO	Integrated Global Carbon Observation
IGOS	Integrated Global Observing Strategy
IGOS-P	Integrated Global Observing Strategy Partnership
IGRAC	International Groundwater Resources Assessment Centre
IGWCO	Integrated Global Water Cycle Observations (former IGOS Water Theme)
IIASA	International Institute for Applied Systems Analysis

ILTER	International Long Term Ecological Research network
IMTSSA	Institut de Médecine Tropicale du Service de Santé des Armées, France
INM	Spanish National Meteorological Institute
INOV	Portuguese Innovative Company on Electronics and Telecommunications
INPE	Brazilian National Institute for Space Research
InSAR	Interferometric Synthetic Aperture Radar
INTA	Instituto Nacional de Técnica Aeroespacial, Spain
IOC	Intergovernmental Oceanographic Commission
IOCCG	International Ocean Colour Coordinating Group
IP3	GEOSS Interoperability Process Pilot Projects
IPWG	International Precipitation Working Group
IPY	International Polar Year
IRI	International Research Institute for Climate and Society
IRSA	Institute of Remote Sensing Applications
ISC	International Seismological Centre
ISCGM	International Steering Committee for Global Mapping
ISDR	International Strategy for Disaster Reduction
ISLSCP	International Satellite Land-Surface Climatology Project
ISPRA	Italy Institute for Environmental Protection and Research
ISPRS	International Society for Photogrammetry and Remote Sensing
ISRIC	International Soil Reference and Information Centre
ISRO	Indian Space Research Organisation
ISS-CAS	Institute of Soil Science, Chinese Academy of Sciences
ISSG	IUCN/SSC Invasive Species Specialist Group
ISTD	ICT Science and Technology Division, UNECA
ITC	International Institute for Geo-Information Science and Earth Observation
ITC	International Training Centre
ITU	International Telecommunication Union
IUCAF	Scientific Committee on Frequency Allocations for Radio Astronomy and Space Science
IUCN	International Union for the Conservation of Nature and Natural Resources (World Conservation Union)
IUGG	International Union of Geodesy and Geophysics
JAXA	Japan AerospaceExploration Agency
JRC	Joint Research Center of the European Commission
KMA	Korea Meteorological Administration
LAI	Leaf Area Index
LAM	Limited Area Model
LIFEWATCH	e-Science and Technology Infrastructure for Biodiversity Data and Observatories
LIS	Land Information System
LSCE	Laboratoire des Sciences du Climat et de l'Environnement, France
MercNet	Web access information straight from Mercury's system
MERIS	Medium Resolution Imaging Spectrometer

MERIT	Meningitis Environmental Risk Information Technologies
MKFES	Mariolopoulos-Kanaginis Foundation of Environmental Sciences
MODIS	Moderate Resolution Imaging Spectroradiometer
NADM	North American Drought Monitor
NARSS	National Authority for Remote Sensing and Space Sciences, Egypt
NASA	National Aeronautics and Space Administration
NRC	National Resource Council Canada
NBII	National Biological Information Infrastructure
NEPTUNE	The North-east Pacific Time-series Undersea Network Experiments
NIDIS	USA National Integrated Drought Information System
NIES	Japan National Institute for Environmental Studies
NMHS	National Meteorological and Hydrological Service
NOOA	National Oceanic and Atmospheric Administration
NPCA	National Parks Conservation Association
NPN	US National Phenology Network
NPP	Net Primary Productivity
NSC	Norwegian Space Centre
NSMC	China National Satellite Meteorological Center
NWP	Numerical Weather Prediction
OCO	Orbiting Carbon Observatory
OGC	Open Geospatial Consortium
OS	Open Source
OSS	Open Source Software
PAAM	Protected Areas Assessment and Monitoring
PAGES	Past Global Changes
PAMS	Poverty Analysis and Monitoring Section, UNECA
POGO	Partnership for Observation of the Global Ocean
POPs	Persistent Organic Pollutants
PREV'AIR	Air Quality Forecasts and Observations in France and Europe
R&D	Research and Development
RAMSAR	Convention on Wetlands
RIHN	Research Institute for Humanity and Nature, Japan
SAC	Space Applications Centre, India
SAFARI	Societal Applications in Fisheries & Aquaculture using Remotely-Sensed Imagery
SAR	Synthetic Aperture Radar
SBA	Societal Benefit Area
SCRC	Student Climate Research Campaign
SDI	Spatial Data Infrastructure
SDS	Sand and Dust Storm
SERVIR	Regional Visualization and Monitoring System
SIF	Standards and Interoperability Forum
SMB	Shanghai Meteorological Bureau, China

SMPHB	Shanghai Municipal Public Health Bureau, China
SPOT	Système Probatoire d'Observation Terrestre
SPOT-VGT	SPOT Vegetation
SPRING	Freeware and Open-Source Geo-Processing Software
SSC	Species Survival Commission
SST	Sea Surface Temperature
TerraLib	Open source GIS software library
TerraView	GIS application built on the TerraLib GIS library
TF	Task Force
THORPEX	The Observing-system Research and Predictability Experiment
TIGER	ESA-launched initiative focusing on the use of space technology for water resource management in Africa
TIGGE	THORPEX Interactive Global Grand Ensemble
TNO	Netherlands Organization for Applied Scientific Research
UCAR	University Corporation for Atmospheric Research
UCL	UK University College London
UK	United Kingdom
UN	United Nations
UNAM	Universidad Nacional Autónoma de México
UNCCD	United Nations Convention to Combat Desertification
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNOOSA	United Nations Office for Outer Space Affairs
UNOSAT	United Nations Operational Satellite Applications Programme
US	User Engagement
USA	United States of America
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USGS	United States Geological Survey
VENUS	Victoria Experimental Network Under the Sea
VI	Vegetation Index
WA	Water
WAS	Warning, Advisory and Alert System
WCMC	UNEP World Conservation Monitoring Centre
WCRP	World Climate Research Programme
WGCV	Working Group on Calibration & Validation, CEOS
WHO	World Health Organization
WIS	WMO Information System
WMO	World Meteorological Organization
WWRP	World Weather Research Programme
ZAMG	Austria Central Institute for Meteorology and Geodynamics