

Sub-task Number: AR-09-01a

Sub-task Title: Enabling Deployment of a GEOSS Architecture

Overarching Task: GEOSS Common Infrastructure

Area: ARCHITECTURE

Relevant Committee: ADC

Related Targets: (to be included in 2009)

Sub-task Definition (as given in the 2009-2011 Work Plan):

Facilitate and support the deployment and operation of the GCI, including the incorporation of contributed components and services consistent with the GEOSS architecture; the GCI consists of GEO web portal(s) providing user access to information and services related to the nine societal benefit areas, clearinghouse(s) for searching data, information and services, and registries containing information about offered GEOSS resources, associated standards, and best practices. Define and solicit support for a contributed-systems (e.g. components, services) facilitator function. Expand the existing GEO process for the registration and processing of interoperability arrangements including the Standards and Interoperability Forum (SIF) and regional teams, and encourage registration of standards-based GEOSS resources from both Earth Observation and Spatial Data Infrastructure (SDI) initiatives. With support from the User Interface Committee, develop user-driven system-of-systems engineering activities to ensure that the GEOSS reference and functional architecture is appropriately designed for technical and non-technical users.

Define and deploy core GEOSS registry infrastructure for GEO Members and Participating Organizations to: (i) commit component systems, (ii) register related resources with GEOSS, and (iii) provide consultation to the contributed-systems facilitator. The registries in the GCI include components and services registries, standards and special arrangement registries, best practices registry, requirements registry, and others as needed to support the core operations requirements of GEOSS. Address integration and user issues emerging from the initial operating capability of the GCI. Update and maintain the Strategic and Tactical Guidance Documents to reflect current practices and implementation of the GEOSS Architecture.

Leads (GEO Member or PO, Entity carrying out the work, Contact: e-mail):

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Motivation/Background

This Task defines the minimum, common technical capabilities that define the scope of GEOSS and its contributions. Registration of a contributed resource with GEOSS formalizes its participation in GEOSS. Adherence to registered standards by contributed resources promotes interoperability and broad re-use. GCI core components include registries for offered components, services, interoperability arrangements (standards), best practices, and user requirements, a Clearinghouse (common search facility), and GEO Web Portal solutions. These components must be coordinated and maintained to provide basic GEOSS functionality. Simple and advanced integrative end-user applications are developed and registered to find and use contributed services and data within GEOSS to address issues across a range of societal benefit areas. Finally, portals provide a customized end-user view of available GEOSS resources that adhere to this common infrastructure.

Outputs (e.g. products and services that result from the activities of the Task/sub-task; outlined in the form of deliverables with timelines)

Planned:

Updates to Strategic and Tactical Guidance Documents and management of GCI documentation. Initial Operating Capability Phase Documentation: Common GEOSS Infrastructure (GCI) resources will complete

a one-year phase to demonstrate, refine, and document core operations of GEOSS. The recommendations of the IOC Task Force will be interpreted relative to the common architecture and relevant updates will be made to GEOSS guidance documents. (July-September 2009)

GCI services beyond the IOC will be operated and monitored in the common interest of GEO.

- GCI service operators will document their critical operations strategy to assure a high quality of service to GEOSS.
- GCI operations shall incorporate architectural and operational recommendations as presented by the IOC Task Force and provide quarterly operational reports to the ADC.

Produced (current status):

GEOSS Common Infrastructure was established in June 2008 and includes the deployment of a 'yellow pages' facility known as the Component and Service Registry, a common search facility known as the GEOSS Clearinghouse, GEO Web Portal candidates, a Best Practices Wiki, and the Standards and Interoperability Registry into which external standards are collated and promoted for use within GEOSS. All GCI Components are currently being operated through voluntary contributions by Member and Participating Organizations.

Activities (operations or work processes through which resources are mobilized to produce specific outputs; outlined in the form of milestones including timelines)

Planned:

The Standards and Interoperability Forum (SIF) will expand and refine the registration process and document their workflow for standards and arrangements processing.

Registry operators and users will liaise on a regular basis to accommodate new requirements and applications of the GCI.

Define and solicit support for a contributed-systems (e.g. components, services) facilitator function.

Progress (current status): ...

Resources (indication of annual resources – e.g. financial, human – contributed by GEO Members or Participating Organizations to produce outputs associated with this Sub-Task)

European Commission

European Space Agency

IEEE

OGC (Compusult, ESRI)

U.S. (U.S. Geological Survey, George Mason University) 0.25 FTE plus \$90K annual contractual support

Architecture and Data Component

1) Please briefly describe any task-related Earth observation resources (data set, system, website/portal) and any related Web Service interfaces that are contributed to GEOSS. State whether these items are or will be registered with the GEOSS Component and Service Registry for access via the GEO Web Portals, and whether any associated standards or other interoperability arrangements will be registered in the Standards and Interoperability Registry.

This Task is responsible for coordinating the deployment and operation of GEOSS core components including registries in which all GEOSS contributed resources will be found. By definition, all registered GEOSS resources are affiliated with this task.

Capacity Building Component

(capacity building is defined to include the development of capacity related to: (i) Infrastructure and technology transfer (Hardware, Software and other technology required to develop, access and use EO); (ii) Individuals (education and training of individuals to be aware of, access, use and develop EO) and (iii) Institutions – building policies, programs & organizational structures to enhance the value of EO data and products).

1) In accordance with the above definition does this Task have a capacity-building component? If so, please provide a short description of this component including a description of end users.

The creation and update of the Strategic and Tactical Guidance documents for GEOSS represent tutorial materials that address the concerns and requirements of both managers and technicians, respectively, in the offering and configuration of technical contributions to GEOSS. These are envisioned as living documents, which, along with documents from the GEOSS Common Infrastructure (Concept of Operations, Consolidated Requirements, and Recommendations) help define and advise the core operations of GEOSS. The Standards and Interoperability Forum (SIF) also engages in outreach and is available for consultation regarding the application of EO standards and special arrangements. The Best Practices Wiki is designed to be an educational resource for the GEOSS community as well.

2) Have any additional CB needs for this Task been identified? Please provide a short description.

User Engagement Component

(please briefly describe to what extent end users are engaged in this Task and influence the nature of the outputs produced)

End-user feedback from publishers and users is collected through the Web interfaces exposed on the GEOSS Common Infrastructure (GCI) offerings, Feedback is used to identify bugs, issues, and suggestions for the interfaces and such recommendations are incorporated into periodic releases of the GCI software.

Science and Technology (S&T) Component

1) Please briefly describe the elements of scientific research or technological development contained in this Task.

Not applicable.

2) In relation to the S&T component(s) of this task, please describe gaps, priorities, continuity needs, barriers, scientific expertise and additional resource needs (this information will be used for developing a gaps and needs assessment in Task ST-09-01)

Members and POs' Contributions to Outputs and Activities above:

(Input is optional. This section gives the chance for Members and POs to provide more details (3-5 lines) on their individual activities, making a clear connection with the Outputs and Activities outlined above).

Japan

AIST: Construction of GEO Grid architecture following OGC and OGF standard for satellite and field sensor data utilization.

GSI: To participate in the discussion about international observations related to the survey and contributes to the deliberation.

JAXA: To participate in the discussion of GEOSS standard and interoperability and the outcomes To be incorporated into the updated version of GEOSS Strategic and Tactical Guidance Documents which the first version were released in the last year.

United States

The *U.S. Government* has provided primary technical support to this Task to document and refine the core technical architecture of GEOSS. US Geological Survey has provided design requirements, review, and financial support to George Mason University for operation and enhancements to the GEOSS Component

and Services Registry (October 2007-present) on behalf of the GEO Community as a key GCI resource. It also contributes personnel resources towards the development of the Initial Operating Capability for GEOSS. NOAA facilitates and supports the deployment and operation of the GEOSS Common Infrastructure (GCI), including the incorporation of contributed components and services consistent with the GEOSS architecture.

CEOS

USGS: Complete Version 1 of the LSI Constellation Portal for Mid-Resolution Optical LSI Satellite System Information and Enhanced Data Access.

European Commission

EuroGEOSS will contribute to the GCI, and SIF components related to forestry, drought, and biodiversity.

IEEE contributes, operates and maintains the Standards and Interoperability Registry and coordinates the activities of the SIF.

ESA

ESA main contribution to the GEOSS Common Infrastructure consists of the GEOPortal developed in collaboration with FAO. The contribution covers:

- Support for the GEOSS Common Infrastructure (GCI) Initial Operational Capability (IOC) phase through maintaining the current capabilities and functionalities of the GEOPortal (both operationally and in terms of content management).
- Test and consolidation of its interfaces with the other GCI available components (in particular the GEOSS Clearinghouses) made available for such a purpose by the different providers following the cooperation principles of GEOSS.
- The gathering of GEO user requirements from the SBAs and user community (e.g. through interaction with the UIC), their evaluation and assessment for possible implementation to extend the number and scope of information resources and services visible through the GEOPortal.
- The identification of information resources, components and services to be made visible through the GEOPortal, the management of the content of the GEOPortal and introduction of links to new available or discovered information resources, components and services.
- Evolution of the GEOPortal to follow user's requirements (following assessment with positive conclusions) and design, implementation and test in alignment with GEO interoperability standards and test beds.
- Availability for installation at other interested GEO nodes, full documentation of the system, incl. user manuals. Support to outreach activities and participation to major GEO events.

System and interface solutions will be aligned with participants to task AR-09-01a and AR-09-01b. The main milestones of the GEOPortal contribution are the following:

- Development started in 2006 and on-line availability since July 2007.
- Demonstration at GEO IV Ministerial Summit in Cape Town (RSA) in November 2007.
- Part of the Initial Operational Capability phase of the GEOSS Common Infrastructure started in June 2008 and participation to AIP Phase 2 CFP kicked-off in September 2008.
- Demonstration at GEO V Plenary in Bucharest (November 2008).
- Participation to IOC phase throughout 2009 and GEOPortal outreach and updates for GEO Plenary VI. Intermediate releases of the GEOPortal could be available for upgrades or to respond to new requirements.

Participation (Table to be filled in 2009):

Type	Member or PO	Representing	Contact Name	EmailAddress
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