



GEOSS Architecture Implementation Pilot, Phase 3

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Didier Giacobbo, Spot Image 1st Workshop of the Geohazards Community of Practice of GEO January 2010



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GEO Task AR-09-01b

Develop and pilot new process and infrastructure components for the GCI and the broader GEOSS architecture





Context of AIP







AIP Development Approach



evolutionary spiral





AIP-2 Transverse Use Cases



GROUP ON EARTH OBSERVATIONS AIP-2 Augmenting GCI







AIP-3 Call for Participation (CFP)

- CFP Main Document
 - Purpose, Overview, Master Schedule
 - Instructions on how to respond to CFP
- · AIP Development Process (CFP Annex A)
 - Evolutionary Development Process
 - Roles in AIP
 - Communications Plan
 - Principles of Conduct
- AIP Architecture (CFP Annex B)
 - Organized using RM-ODP Viewpoints



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AIP-3 Summary in CFP Main Document

- Build on service architecture of GCI and AIP-2
 - Build on both content and process
 - Increase emphasis on data provider point of view
 - Promote mash-ups in a "link-rich" environment
- Engage Communities of Practice (CoP)/SBA
 - Continue AIP-2 CoPs
 - Identify new CoPs working with UIC and SBA Tasks
 - Focus on data; Promote content
 - Coordination with ADC Data Tasks
 - Vocabulary registries and ontologies as resources for scenarios
 - Data Sharing Guidelines implementation

Schedule to support Ministerial Summit, November 2010





AIP-3 Master Schedule – Draft

Post AIP-3 CFP	January 2010
Responses to AIP-3 CFP	Early March 2010
Kickoff Workshop (Europe)	Mid March 2010
Demo Capture Workshop (US)	2nd Half of 2010
(ExCom/GEOSec prior to Summit)	(July 2010?)
Ministerial Summit & GEO VII (China)	Nov 2010
Finalize AIP-3 deliverables	2nd Half of 2010
AIP-3 results transition to operations	2nd Half of 2010





AIP Development Process (CFP – Annex A)

- **Evolutionary Development Process**
 - Revise AIP-2 Annex A using AIP-2 Summary
 - Include modeling approach
- Roles in AIP
 - GEO Secretariat role description needed
- Communications Plan
 - Google Sites plan
 - Asian-Pacific work hours monthly Telecon
- Principles of Conduct
 - No change



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AIP Architecture (CFP Annex B)

- ENTERPRISE VIEWPOINT
 - VALUE OF EARTH OBSERVATIONS
- INFORMATION VIEWPOINT
 - EARTH OBSERVATIONS
- · COMPUTATIONAL VIEWPOINT
 - SYSTEMS OF SYSTEMS
 - ENGINEERING VIEWPOINT
 - COMPONENTS TYPES
- TECHNOLOGY VIEWPOINT
 - COMPONENT INSTANCES



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Data Provider Perspective

- AIP to increase data access services and to ensure services are correctly registered in the GEOSS CSR
- Assumptions of Data Provider services
 - Components are deployed as a network accessible services, i.e., have internet address reachable by users
 - 2. Metadata in catalogue includes internet address in "on-line linkage"
 - 3. Interoperability Arrangement for "on-line linkages" is supported by Services and Community Clients





Enterprise Viewpoint Scenarios

Scenario	GEO Task/ CoP	Status/comment	AIP-3 Lead Editor
Emergency Management	DI-06-09:	AIP-2, GIGAS	
Air Quality	HE-09-02b	AIP-2, ESIP Cluster	
Biodiversity and Ecosystems	(BI-07-01a)	AIP-2, EuroGEOSS, GIGAS	
Energy	EN-07-03	AIP-2	
Drought management	WA-06-07c Water CoP	EuroGEOSS, SDSC, FCU, ESIP	
Malaria	HE-09-03b		
Env. Monitoring Water Quality	?	EEA, EC/FP7	



Actors









AIP-3 CFP Information Viewpoint - Draft

- · Spatial Referencing
- · Observations, Sensor Information
- · Geophysical Parameters
- Maps, features, coverages, and observations
- Product Types: Global and framework datasets
- Product Encoding Formats
- Predictive Models
- Registry Information Models and Metadata
- Alerts and Feeds
- Policy, Rights Management, Licenses



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Global and Framework datasets for AIP-3

- GEOSS 10 Year Plan envisions "access to data and information through service interfaces"
 - Move from "Order and delivery of files" to "Access Services"
- GEO Global Datasets Task DA-09-03:
 - Land Cover; Meteorological and Environmental; Geological; and DEM
- Promote known global datasets with service access, e.g.,
 - JPL Landsat dataset OnEarth (300K Maps/day)
 - CEOS WCS DEM Data Server (ICEDS)
 - CIESIN socio economic data
 - (Send link to other global datasets with access services)
- Link to GEO 2010 Baseline Initiative (Plenary doc 10)



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Implementation of Data Sharing Principles

- Handling of Data restrictions
 - Use small set of controlled terms for data restrictions (drawn from typical licenses)
 - Define approach for listing data restrictions in metadata (ISO 19115)
 - Scenario: handling of data restrictions from multiple WMS in Portal.
 - Scenario (low priority): Rights on web maps created from EO data; WPS
 - Identify relevant Interoperability arrangements
 - User registration in a system of systems
 - Several GEO members provide data freely and openly after user registration
 - Will all GEO users be required to register individually with each GEO member offering data?
 - Evaluation of alternatives for single-sign in GEOSS context





Computational Viewpoint

AIP-2 OUTLINE

4.1 SERVICE ORIENTED ARCHITECTURE (SOA)4.2 GEOSS FUNCTIONS VIA SOA4.3 GEOSS FUNCTIONS VIA BROADCAST4.4 GEOSS FUNCTIONS VIA MEDIA

CHANGE FOR AIP-3 CHANGE SERVICE TAXONOMY TO MATCH GCI





Service Taxonomy Comparison







Engineering Viewpoints

5.1 ENGINEERING COMPONENTS AND TIERS
5.2 GEOSS COMMON INFRASTRUCTURE
5.3 USER INTERFACE COMPONENTS
5.4 BUSINESS PROCESS COMPONENTS
5.5 ACCESS COMPONENTS
5.6 TEST FACILITY FOR SERVICE REGISTRATION
5.7 ENGINEERING USE CASES

Changes for AIP-3

Update component types and interoperability arrangements Update Engineering Use Cases using AIP-2 results





Engineering Components and







Technology Viewpoint

- · 6.1 COMPONENT REGISTRY
- · 6.20PERATIONAL PERSISTENCE



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Persistent Exemplar Services

- Criteria to be a persistent exemplar
 - Registered in Component and Service Registry (CSR) as "Continuously Operational"
 - 2. Accessible through a GEOSS Interoperability Arrangement that is an international standard.
 - Level of Service: Available >99% of the time (~7 hours downtime/month); Adequate network bandwidth and hardware for performance
- 192 services met criteria 1 & 2 as of 13 July 2009,
 - Methods to assess criterion #3 to be developed