Progress in GEOSS Implementation

Giovanni Rum,
GEO Secretariat

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GEO today

The Group on Earth Observations, was established in 2005, with a major objective: to establish a coordinated and sustained Global Earth Observation System of Systems – GEOSS.

It is an Intergovernmental Organization and today has 76 Members (75 Countries and the European Commission) & 56 Participating Organizations, including:

- UN Organizations and Programs, such as FAO, IOC, ISDR, UNEP, UNESCO, UNFCCC, UNITAR/UNOSAT, UNOOSA, WMO

- other leading international Organizations in different domains, such as CEOS, ESA, EUMETSAT, FDSN, IAG, ICSU, OGC

Four new Members (the Bahamas, Estonia, Peru, Turkey) were acknowledged and five Participating Organizations (DANTE, GLOBE, ICIMOD, IIASA and UNECA) were recognized at GEO Plenary V, November 2008 in Bucharest.
GEO Governance

Executive Committee 12 Members

Regional representation

- Africa(2) : South Africa, Uganda
- Americas(3) : Argentina, Belize, USA
- CIS(1) : Russia
- Asia(3) : Australia, China, South Korea
- Europe(3) : EC, France, Norway

4 co-Chairs : EC, China, South Africa and USA
Environment and Climate Change

To respond to the growing demand for Earth observation data, **we will accelerate efforts within the Global Earth Observation System of Systems (GEOSS)**, which builds on the work of UN specialized agencies and programs, in priority areas, inter alia, climate change and water resources management, by strengthening observation, prediction and data sharing. We also support capacity building for developing countries in earth observations and promote interoperability and linkage with other partners.
GEO focus 2009

- Connect Observing Systems and Ensure Access to Data

- Integrate Observations to Develop Information Systems (Water, Carbon, Biodiversity)

- GEOSS for AFRICA
THE GLOBAL EARTH OBSERVATION SYSTEM OF SYSTEMS

INFORMATION FOR THE BENEFIT OF SOCIETY
Sample pages
Three prototype Portals

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USGS announced mid 2008 the progressive implementation of free and open access to LANDSAT archives, according to the following schedule:

- Landsat 7 – all new global acquisitions: July 2008
- Landsat 7 – all data: September 2008
- Landsat 5 – all TM data: December 2008
- Landsat 4 – all TM data: January 2009
- Landsat 1-5 – all MSS data: January 2009

The USGS Landsat archive is a 35-year record of the Earth's surface that is valuable for a broad range of uses, ranging from climate change science to forest management to emergency response.
U.S. Landsat Archive Overview
(Scenes through December 31, 2008)

• **ETM+: Landsat 7**
  – 892,051 scenes
  – 828 TB RCC and L0Ra Data
  – Archive grows by 260 GB Daily

• **TM: Landsat 4 & Landsat 5**
  – 780,191 scenes
  – 391 TB of RCC and L0Ra Data
  – Archive Grows by 40 GB Daily

• **MSS: Landsat 1 through 5**
  – 652,173 scenes
  – 20 TB of Data
Total Landsat Data Distribution

Landsat Data Distribution

Scenes

Nov-07  Dec-07  Jan-08  Feb-08  Mar-08  Apr-08  May-08  Jun-08  Jul-08  Aug-08  Sep-08  Oct-08  Nov-08

Landsat Free Downloads  Other Landsat Web-enabled Downloads  Landsat Products Sold
Free and Open Access to the LANDSAT Archive (USGS - USA)

Current status of ASTER G-DEM (30 m. resolution)
ASTER G-DEM

- Generation of seamless DEM globally using about 1.5 million ASTER data
- Available for high-latitude zone and steep mountainous areas
- Enhanced accuracy due to the use of multiple ASTER data

ASTER coverage (1.5 million scenes in autumn, 2008)
Deeper red indicates more data accumulated.

GEOSS
Both US and Japan committed to contribute to GEOSS at Cape Town Summit 2007.
# ASTER G-DEM Development schedule

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<th>2008</th>
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- **Website Open**
- **Preparation**
- **G-DEM production**
- **β version**
- **Validation**
- **Distribution System Development**
- **Release**

**ASTER G-DEM website** [http://www.ersdac.or.jp/GDEM/E/]
Land Surface Imaging Constellation LSI

- A prototype LSI Constellation Portal for Mid-Resolution Optical LSI Satellite System Information and Enhanced Data Access was developed and demonstrated at GEO V in Bucharest.

- The Working Group on Radar (WGR), has been established to lead LSI Constellation radar activities.

- The Working Group on Regional Data Set Compilation (WGRDSC) currently is working to assemble initial data sets.
  - Regional areas in South America, Africa, and SE Asia have been defined.
Land Surface Imaging Constellation LSI

![Image of Earth with satellites indicating TERRA, LANDSAT, RESOURCESAT, ALOS, SPOT, CBERS, LSI, CEOS, GEO Group on Earth Observations logos]

CEOS Land Surface Imaging Constellation Portal for Mid-Resolution Optical LSI Satellite System Information and Enhanced Data Access

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Contact

Start | G. Bryan Baltic - Inbox | Date Availability & Access | Characteristics of LSI Satellite System Information | LSI Portal - Windows Internet Explorer | 5:00 AM
Regional Data Set Compilation Areas
GEO is developing a collaborative forest monitoring system which will

- consolidate observation requirements and reference products;
- coordinate the provision of remote sensing data and integrate data from different sources in order to ensure operational observations and relevant products;
- define and activate a limited number of test sites for pilot projects focused on in situ observation, validation of methodologies and tools, and capacity building.
Forest Mapping and Carbon Tracking
Coordinated SAR observations for Forest Carbon Tracking
Complementary multi-band information
CBERS-2B satellite data and products for Africa - Brazil and China
GEONETCast
USA, China, Russia and EUMETSAT

Low cost, easy to operate user terminals

Global Dissemination System to disseminate and provide easy access to space-based, air-borne and in situ data, metadata and products to Users from all Societal Benefit Areas.
GEONETCast concept implementation

VGT4SAMERIC

YEOSCast

ChloroCast

AFRICast

DevCoCast project-FP7

Data Providers

Land Data
ACMA, AGRHYMET, CSIR, INTA, SADC, VITO

Ocean Data
DMI, PML, UCT

INPE

Hubs

Land Hub
VITO

Ocean Hub
PML

GeoNetCast Network Center (GNC)
EUMETSAT

Data Receivers

Africa
Existing: PMA & EUMETCast stations

S-America
Existing: 19 stations (Met Offices)
New: CREAN, UGR, INTA, INPE, CONAB, UNICAMP

Asia
New: NCSB, KORDI

Policy Makers
Extending Charter on Space and Major Disasters Access

In response to GEO request for access for all GEO Members to Charter, the Charter Board unanimously endorsed the principle of « universal access » for all states.

GEO is working to define the mechanisms for providing Charter access to all GEO Members (47 GEO Members do not have an Authorized User to activate the Charter).
Disaster Risk Management Clearinghouse

Observations and maps produced and made available

Request sent automatically

On-line Retrieval of coordinated products and maps

Providers

Disaster Management Clearinghouse

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Users

GEO Portal other portals (i.e. UN Spider)

On-line request

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Develop GEOSS for AFRICA through the Coordination of International Initiatives
• GEO Web Portal and GEOSS Clearinghouse
• GEONETCast: a Global Environmental Information Delivery System
• CBERS for Africa
• SERVIR – Africa, in cooperation with RCMRD
• Sand and Dust Storm Warning System
• Global Wildland Fire Early Warning System – African Component
• Puma, AMESD and GMES Africa
• GEOBON – GEO Biodiversity Observation Network

• TIGER - Towards an African Water Observation System
• SoDa - Solar Data for Developing Countries
• MERIT- Meningitis Environmental Risk Information Technologies
• Evaluating African Protected Areas
• ClimDev Africa - Climate for Development in Africa Programme
• ChlorOGIN Building a Chlorophyll Ocean Global Integrated Network
• GeoAFRICA
Geo Africa, a new Space Observatory concept

- Permanent geostationary optical mission for operational delivery of ~20m resolution images
- Africa total coverage every 4 days, land and coastal areas with an imaging capability from 5 to 8 million km²/day, by scenes of 300*300 km
- Flexible programming
- Fast access and permanent monitoring of crisis zone
- A complete Ground segment located in and operated by Africa, capacity to have several Regional Exploitation Centres for sending demands, receive Image data, deliver products
- An operational delivery of the complete system possible 2014
- A lifetime in orbit of 7-10 years
Thank you!

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