



Progress in GEOSS Implementation

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COPUOS

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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)	:
Americas(3)	:
CIS(1)	:
Asia(3)	:
Europe(3)	:

4 co-Chairs :

- South Africa, Uganda Argentina, Belize, USA Russia Australia, China, South Korea
- EC, France, Norway

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

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Sample pages





Three prototype Portals

Compusult	http://www.geowebport al.org/web/guest/home
ESA - FAO	http://www.geoportal.or g/
ESRI	http://keel.esri.com/Port al/





Free and Open Access to the LANDSAT Archive (USGS - USA)



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

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.

Data	Available over the Internet
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





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









Landsat Data Distribution



□ Landsat Free Downloads ■ Other Landsat Web-enabled Downloads □ Landsat Products Sold





Free and Open Access to the LANDSAT Archive (USGS - USA)

Landsat scenes can be previewed and downloaded using the USGS Global Visualization Viewer at <u>http://glovis.usgs.gov</u> [under "Select Collection" choose Landsat archive: L7 SLC-off (2003-present)]. Scenes can also be selected using the USGS Earth Explorer tool at <u>http://earthexplorer.usgs.gov</u>



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





n Comunetion with ERSUACE and USCS



Generation of seamless DEM globally using about 1.5 million ASTER data

- Available for high-latitude zone and steep mountainous areas
- \succ Enhanced accuracy due to the use of multiple ASTER data



Automated processing Generation of a seamless Tile of DEM using all ASTER data ever acquired over the Tile



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

Contribution to **GEOSS**



Both US and Japan committed to contribute to GEOSS at Cape town Summit 2007.

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ASTER G-DEM Development schedule













- 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





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CEOS Mid-Reso	S Land S	Surface Ima	aging Cons for stem Information	n and Enhanced Dat	rtal a Access
Home CEOS LSI About	LSIC About Po	rtal			Contact
Overview	CEOS Agency Cu	urrent and Former Mid-I	Resolution Optical Sate	ellites & Sensors	
Mid-Resolution Optical	Satellite	Sensors	Agencies		
Satellite Systems	ADEOS-1	AVNIR-1	JAXA		
Satellites	ALOS	AVNIR-2	JAXA		
	CBERS-1	HRCC, IRMSS	CAST, INPE		
 Satellites & Sensors 	CBERS-2	HRCC, IRMSS	CAST, INPE		
Status & Launches	CBERS-2B	HRCC	CAST, INPE		
• Orbit Information	EO-1	ALI, Hyperion	NASA, USGS		
- Orbit Information	IMS-1	MX-T	ISRO		
Sensors	IRS-1A	LISS-I, LISS-II	ISRO		
Pand Information	IRS-1B	LISS-I, LISS-II	ISRO		
 Band Information 	IRS-1C	LISS-IIIA	ISRO		
Visible & NIR Bands	IRS-1D	LISS-IIIA	ISRO		
SWIR Bands	IRS-P2	LISS-IIIA	ISRO		
OWIN DUIUS	IRS-P6	LISS-IIIB, AWIFS	ISRO		
Thermal Bands	JERS-1	OPS	JAXA		
Panchromatic Bands	Landsat 1	MSS	NASA, USGS		
	Landsat 2	MSS	NASA, USGS		
 Hyperspectral Bands 	Landsat 3	MSS-B	NASA, USGS		
Radiometric &	Landsat 4	MSS, TM	NASA, USGS		
Geometric Characteristics	Landsat 5	MSS, TM	NASA, USGS		
Geographic	Landsat 7	ETM+	NASA, USGS		
Characteristics	SAC-C	HRTC	CONAE		
Data	SPOT-1	HRV	CNES		
Data	SPOT-2	HRV	CNES		
Data Access	SPOT-3	HRV	CNES		
Documentation	SPOT-4	HRVIR	CNES		
- Documentation	SPOT-5	HRG	CNES		
	Terra	ASTER	METI, NASA		
	THEOS	MS	GISTDA		
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Regional Data Set Compilation Areas







Forest Mapping and Carbon Tracking (Australia, Japan, Norway, CEOS, FAO, GOFC-GOLD,)

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

> TerraSAR-X X-HH X-VV

© JAXA/METI

ALOS PALSAR L-HH L-HV

Envisat ASAR C-VV C-VH

© FS

© Infoterra/DLR





CBERS-2B satellite data and products for Africa -Brazil and China







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.















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

GROUP ON EARTH OBSERVATIONS



Management Clearinghouse







Develop GEOSS for AFRICA through the Coordination of International Initiatives

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- 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
 GEO Secretari GeoAFRICA

- 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





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



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Thank you!

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