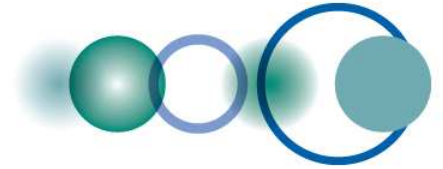


CB OAT Implementation

CB-09-05

**Infrastructure Development and Technology
Transfer for Information Access**

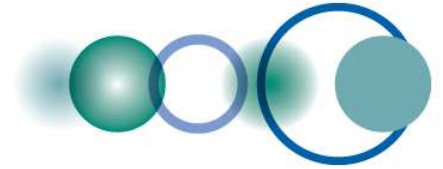


Overarching Task Definition

CB-09-05

Infrastructure Development and Technology Transfer for Information Access

Identify hardware, software and other technology required to access, use and develop Earth observation data, information and products for decision making. Promote technology transfer (in its very broadest sense), and advance infrastructure and information sharing.



Participants

POC: Brazil(INPE) - Hilcea Ferreira (hilcea@dpi.inpe.br)

Co-Lead: Brazil - (INPE) - Karine Ferreira (karine@dpi.inpe.br)

Co-Lead: Brazil – (INPE) - Julio Cesar L. d’Alge (julio@dpi.inpe.br)

Co-Lead: USA-USAID - Carrie Stokes (cstokes@usaid.gov)

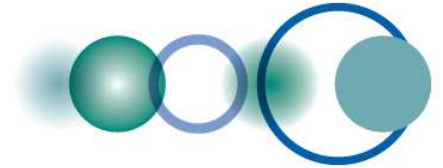
Co-Lead: France (BRGM) - Marc Urvois (m.urvois@brgm.fr)

*Co-Lead: CEOS Chair (INPE – Brazil) – Gilberto Camara
(gilberto.camara@inpe.br)*

Contributor: Germany - BGR - Michael Mente (Michael.mente@bgr.de)

Contributor: France: IRD - Laurent Drapeau (Laurent.drapeau@ird.fr)

Contributor: China: NSMC/CMA Xiaoxiang (Zhuzhuxx@cma.gov.cn)



Sub-tasks

Open Source Software (CB-09-05a)

Encourage the development of open-source solutions across and along the Earth observation value chain – by building upon existing efforts and drawing upon networks of Open Source Software (OSS) developers.

CBERS (CB-09-05b)

Establish and upgrade the capacity of ground stations with a footprint in Africa to receive, process, store and distribute CBERS (China-Brazil Earth Resources Satellite) imagery. Data will be distributed free of charge to all interested African countries within the footprint of the respective ground stations.

SERVIR Expansion (CB-09-05c)

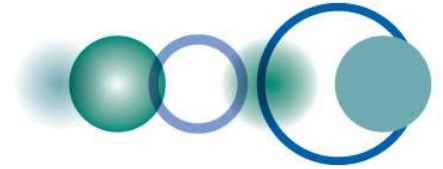
Establish SERVIR regional hubs around the world. SERVIR is a web-based [Earth](#) observation, monitoring and visualization system that makes available previously inaccessible satellite imagery, geospatial data, decision-support tools for policy-making, scientists, and the public.

AEGOS - Georesources Services for Africa (CB-09-05d)

Design a pan-African infrastructure of interoperable data and user-oriented services to strengthen the sustainable use of georesources in Africa. Safeguard, share, and add value to the knowledge and data archived in African and European geological surveys.

Data Democracy (CB-09-05e)

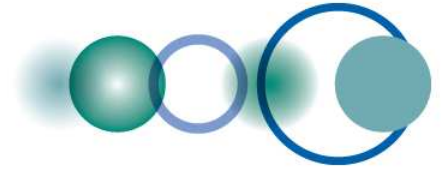
Strengthen the Earth observation data utilization cycle by broadening in-situ data/information access, increasing data dissemination capabilities, sharing software tools, and transferring the technologies to end users. CEOS shall encourage its members to share their above mentioned capabilities to the users, especially in developing countries. Several CEOS agencies may serve efficiently the user community thanks to mature infrastructure and technological capabilities in Earth observation related areas while users in several parts of the world still require support not only for data but also for tools so that they can make best uses of the Earth observation information and its services.



Synergies

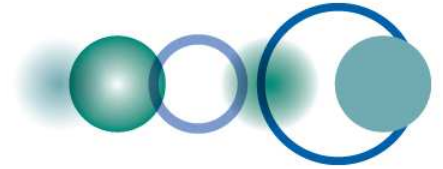
All sub-tasks are aimed at implementing standards, interoperability and data management.

CBERS, SERVIR, AEGOS and Data Democracy also promote data acquisition and dissemination.



Updates – Open Source Software (CB-09-05a)

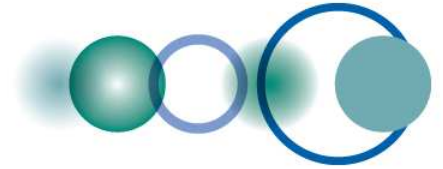
- SPRING – Image Processing Software (Freeware) → end users
 - Release 5.1.2
 - More than 120.000 downloads; about 18000 new users per year
 - On the web, French Version: Système de Traitement d'informations géoréférencées
 - <http://www.dpi.inpe.br/spring/francais/index.html>
 - Documentation in French
 - <http://www.dpi.inpe.br/spring/francais/manuals.html>
- TerraLib – Open source GIS library - to develop geographical applications (programmers)
 - TerraLib 3.3.1 is available
- TerraView – GIS that allows the construction, visualization and analysis of TerraLib databases (Built on TerraLib)
 - English homepage, manuals and documentation



Updates - CBERS (CB-09-05b)

Report by Julio Cesar Lima d'Alge - INPE

- Hartebeeshoek – receiving raw data, not processing yet. INPE will receive a tape of raw data for processing and testing in Brasil. If it works, processed data will be disseminate through INPE's catalog.
- Aswan – Software is ready to be shipped.
- Maspalomas – Image Catalog Working, but not public yet.
- June, 2009: Brazilian delegation visits Libreville (Gabon) – besides the antenna, Gabon also demonstrates interest in creating a center for research and capacity building in remote sensing.
- January 2010:
 - Exploratory mission to Libreville – where the antenna will be installed
 - Visit to Congo – OSFAC (Observatoire Satellital des Forêts d'Afrique Centrale)- Flux of Carbon Seminar
 - Tripartite agreement: Brazil/France/Gabon



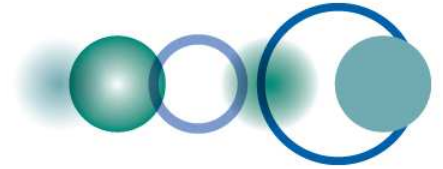
Updates - CBERS (CB-09-05b)

Information on recent CBERS-2B satellite imaging disturbance

On May 11th, 2009 the CBERS-2B satellite Attitude and Orbit Control System had problems with its gyros and one solar sensor. The cameras were turned off so that the situation could be analyzed. On June 18th, 2009, when the redundant attitude control systems were activated, the CBERS-2B was in an orbit 10 km below the nominal one, and the three cameras were turned on again. Users will observe in the imagery available in the Data Catalog from that date on that the scenes do not follow the WRS system of the mission, which defines the path and row grid over the surface. Systematic ground coverage was also affected, as the revisiting capability of the satellite is now different from 26 days.

The problem in the attitude control impaired the capability of CBERS-2B to perform accurate cross track swing movements. This has introduced unwanted relative displacements of the three strips of 9 km swath that compose each HRC scene. Users may notice an eventual gap between the second and the third strips. Additionally, a minor degradation in the spatial resolution of the HRC camera can also be noticed.

On July 2nd, 2009, a new problem was detected: the CCD camera overheated due to a failure in the automatic camera turn off function. The CCD camera has been kept turned off since then, in order to allow the technical evaluation. The WFI camera is operating normally and the HRC also operates with the above mentioned restrictions. All the CBERS-2B data processed at the Data Center will be distributed to the users through this data catalog in spite of the problems above.



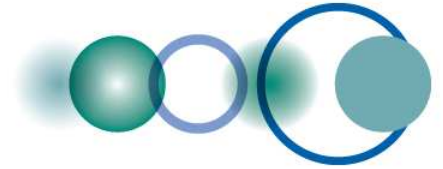
Updates - CBERS (CB-09-05b)

CBERS Catalog – translated to French!!

<http://www.dgi.inpe.br/CDSR/>



The screenshot shows the 'Catalogue d'Images' website from INPE. The interface is in French and includes a search sidebar on the left with sections for 'Paramètres Basiques', 'Mosaïque du Passage', 'Pays', 'Obite', 'Point', 'Par région', and 'Interface Graphique'. The main content area features logos for 'CHINA-BRASIL EARTH RESOURCES SATELLITE CBERS' and 'FINEP'. Below the logos, there is a greeting 'Cher Utilisateur,' followed by a link to 'Read information on CBERS-2B satellite imagery disturbances.' and a paragraph of text in French: 'Regardez dans le lien "Fichiers et Documents", ci-dessous, donnant des informations sur la caméra HRC de haute résolution (2,5 m) à bord du satellite CBERS-2, déjà en fonctionnement. See below (item 6) how to proceed for downloading MARLIN - a tool oriented for displaying and handling digital images. Bienvenue sur la page de la Banque d'Images de la Division de Génération d'Images de l'Institut National de Recherche Spatial brésilien (DGI/INPE). Dans cette base de données, vous avez accès à des images des satellites Landsat-1, Landsat-2, Landsat-3, Landsat-5, Landsat-7, CBERS-2 et CBERS-2B (Satellites Sino-brésiliens de Ressources Terrestres). Les images de ces satellites sont distribuées gratuitement. Le mode d'envoi normal de ces images passe par un transfert de fichiers effectués par FTP au travers d'Internet. Si l'utilisateur le souhaite, il peut demander l'envoi par la Poste des scènes choisies qui seront alors gravées sur des CD-ROM. L'envoi d'images sur CD-ROM nécessite auparavant que l'utilisateur soit cadastré comme acheteur étant donné que cette modalité comporte des frais additionnels (Envoi et prix de gravure sur CD-ROM) qui seront facturés à l'utilisateur. Les demandes d'images sur CD-ROM seront accompagnées de la mise à disposition en parallèle des scènes sur un site FTP. Tout utilisateur cadastré comme acheteur pourra demander tout produit du catalogue. Les utilisateurs non cadastrés comme acheteurs pourront solliciter uniquement les produits gratuits. Le symbole \$ apparaîtra dans barre supérieure à tout produit facturé du catalogue. L'INPE espère que vous pourrez bénéficier au mieux des produits offerts à partir de ce catalogue. Nous vous prions de bien vouloir nous envoyer, dans la mesure du possible, les résultats de vos travaux obtenus avec des images CBERS.'



Updates – SERVIR Expansion (CB-09-05c)

Report by Carry Stokes

- Invitation from the International Center for Integrated Mountain Development (ICIMOD) which serves 8 countries (Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, Pakistan) and is based in Kathmandu, Nepal
- Carrie Stokes (USAID) with Dan Irwin (NASA) just completed an assessment of their capabilities and needs for establishing a third SERVIR node
- Agreed to work together to establish SERVIR-Himalaya in 2010:

Upon invitation from the International Center for Integrated Mountain Development (ICIMOD) which serves 8 countries (Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, Pakistan) and is based in Kathmandu, Nepal, Carrie Stokes (USAID) just completed an assessment with Dan Irwin (NASA) of their capabilities and needs for establishing a third SERVIR node in Nepal at ICIMOD. The trip was successful as all agreed to work together to establish SERVIR-Himalaya in 2010.

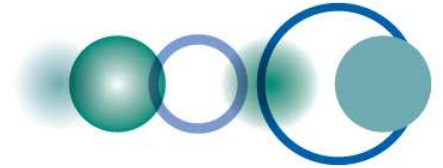
Areas of focus will be on development of decision support tools for monitoring snow and glacier melt, georeferencing of biodiversity information, improved search and download capability for geospatial data sets covering the Himalayan region, validation of national scale land-cover products, and more.



Updates - AEGOS - Georesources Services for Africa (CB-09-05d)

Report by Marc Urvois - AEGOS Project Coordinator

- AEGOS workshop (Nov., Hannover-Germany): "Capacity building and training programmes related to AEGOS SDI: definition of infrastructure and organisation".
Gap analysis; first inventory of training centres in Africa and Europe to meet AEGOS requirements.
- AEGOS rep. at 3rd GEO European Projects Workshop (Oct., Istanbul-Turkey)
- AEGOS rep. at GEO-VI Plenary (Nov., Washington-USA)
- Planned:
 - March: AEGOS workshop (Lusaka-Zambia): "Capacity building and training programmes related to AEGOS SDI: detailed technical contents – knowledge baseline for operating AEGOS infrastructure".
 - July: AEGOS workshop (London, U.K.): "Geoscience observations and observing systems" – Interactions between GEOSS and AEGOS – Developing a solid Earth Observing system - Dissemination of geosciences data using GEONetCast
 - Nov.: GEO Ministerial (Beijing, China): Proposed contribution to a Capacity Building Showcase using GEONetCast



Data Democracy (CB-09-05e)

Background

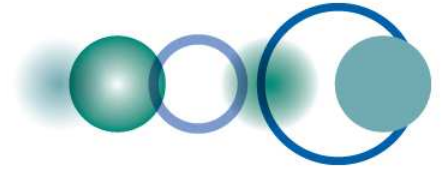
The Committee on Earth Observation Satellites (CEOS) is a global umbrella body for civilian space agencies (both from the developed and developing countries) with a specific emphasis on remote sensing.

→ CEOS is the **space arm** of the Global Earth Observation System of Systems (GEOSS)

October 2008: “Data democracy for developing countries” was adopted by the CEOS Chair (CSIR) as the special project.

2009: Continuous support from GISDTA (CEOS Chair 2009); approved as the new GEO task (Nov, 2009)

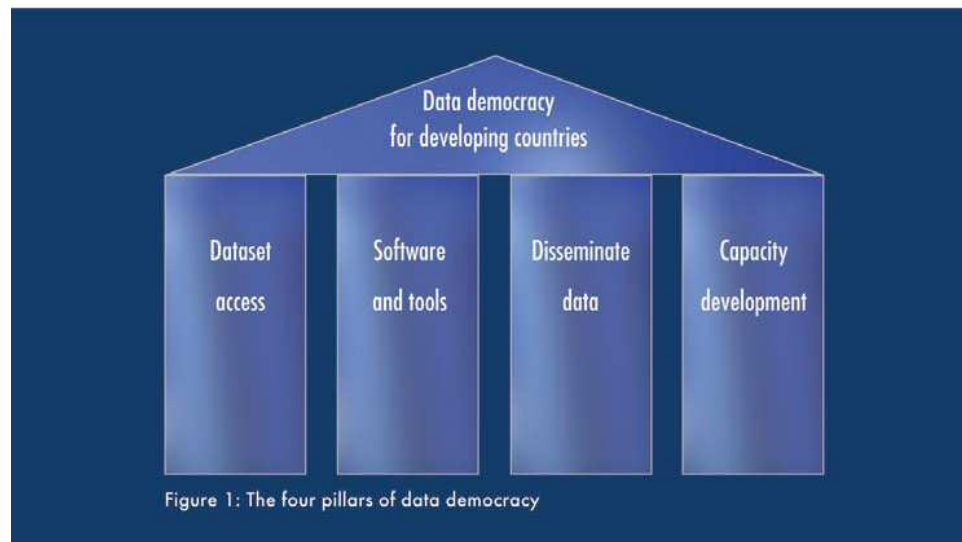
2010: Continuous support from INPE (CEOS Chair 2010)

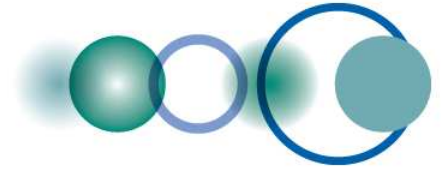


Data Democracy (CB-09-05e)

The data democracy theme relies on focused efforts along several fronts:

- Unhindered access to EO information;
- Open Source Software and open systems
- Adequate dissemination models that reflect the realities of bandwidth in developing countries;
- Locally initiated cross-border collaborative projects and intensive capacity building and training programmes.





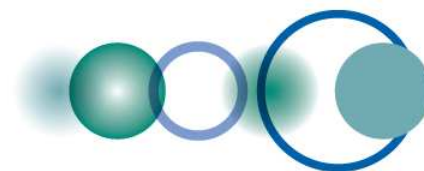
Data Democracy (CB-09-05e)

Completed actions

1. Data Democracy seminar: to introduce the Program to CEOS members in Asia

Bangkok, Thailand, June 25-26, 2009

2. Responded to GEO CFP for EO for Decision Support Projects – Concept proposal submitted.
3. Surveying form to users in SE Asia: to seek what they need
Received responses from Lao, Malaysia, Philippines, Singapore, and Thailand

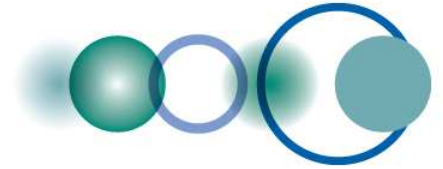


Data Democracy (CB-09-05e)

User's requirements

1. Data Requirement
2. Models/Tools for Disaster Management
 - Flood
 - Landslide
 - Forest Fire/Deforestation
 - Drought
3. Value added product generation
 - DEM Generation
 - Ortho-rectified images
4. Training requirements

Disaster Type	Optical Image							Radar Image
	Resolution			Level		Format		
	High	Med	Low	Raw	Geo-Corrected	Tiff	JPEG	
1. Flood	X	-	-		X	X	-	X
2. Drought	-	X	-	-	X	X	-	-
3. Forest Fire/Deforestations	X	X	X	-	X	X	X	X
4. Landslide	X	-	-	X	X	X	-	X
5. Earthquake	X	-	-	X	X	X	-	X
6. Volcano	X	-	-	X	X	X	-	X



Data Democracy (CB-09-05e)

Planned activities

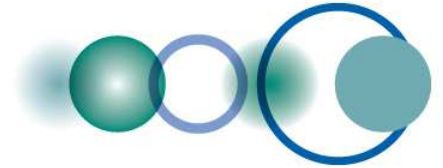
1. Data Democracy training Workshop:

To transfer technologies about application of EO information for climate change to user community in working level in South East ASIA

[June 7-11, 2010: Data Democracy Training Workshop](#)

2. Data Democracy Portal Development:

To integrate all relevance data and information from worldwide into the Portal which will include available images, Open Source Software, Training Course Online, etc.



Data Democracy (CB-09-05e)

Planned activities (continued)

3. Activity involving the GEOSS Common Infrastructure and registry of components → focusing on real deliverables for the GEO Ministerial next November.

Rationale:

- So far: GEOSS Registry included 203 Components and 104 Services
- The limited size of the registry accounts for the lack of results on many of the topics searched by potential GEOSS users.
- Few contributions result in few users, which in turn results in fewer new contributions.
- A critical mass of registry content is needed → collective action is needed to bring GEOSS in line with the requirements for addressing a range of issues of concern to society.

This activity would include volunteer trainers for triggering the cascading process.

Training with support from CEOS agencies

Working on implementation details...