

**Sub-task Number:** CB-09-05b

**Sub-task Title:** CBERS

**Overarching Task:** Infrastructure Development and Technology Transfer for Information Access

**Area:** CAPACITY BUILDING

**Relevant Committee:** CBC

**Related Targets:** (to be included in 2009)

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

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. Two ground stations have initially been selected: Maspalomas, operated by INTA (Spain), and Hartebeeshoek, operated by CSIR (South Africa). Other possibilities, still requiring negotiation, include: Matera in Italy and Malindi in Kenya, both operated by ASI (Italy), and Aswan, operated by NARSS (Egypt).

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

Brazil (INPE), Point of Contact: Julio Cesar Lima d'Alge, julio@dpi.inpe.br

CEOS (CSIR), Daniel Matsapola, dmatsapola@csir.co.za

China (CRESDA), Jin Yu, yujin@cresda.com

### **Motivation/Background**

The purpose of this task is to set up a proper infrastructure for receiving CBERS images in the African continent. This is the first concrete initiative of wide spreading availability of remotely sensed data to African countries, in real time and free of charge, promoting the use of geoinformation for sustainable development of Africa.

### **Outputs**

#### Planned:

- The currently existing ground stations that cover most of Africa: Maspalomas, in the Canary Islands, Spain, and Hartebeeshoek, in South Africa, will be upgraded to receive CBERS data.
- Hartebeeshoek ground station should be fully operational in 2009.
- Aswan ground station should be fully operational by the end of 2009.
- Maspalomas ground station should be fully operational by the end 2009.
- Deliverables should include number of images distributed to Africa countries, number of users and number of projects using these images.

#### Produced (current status):

- June, 2009: Tripartite agreements with Egypt, Spain and South Africa have been signed.
- January, 2009: Hartebeeshoek ground station has been receiving and recording CBERS 2B raw data.

### **Activities**

Setting up ground stations for receiving CBERS images include the following tasks:

- Tripartite agreements or memorandum of understanding between Brazil, China and the country or institution where the ground station will be set up;

- Brazil and China should provide all necessary computer infrastructure to receive and disseminate CBERS images from the ground stations;
- The institute in charge of the station should provide the support for operations;
- There should be no charges involved. Images should be received at no cost and then distributed to all African institutions under an open access data license.

Planned:

- Submit a memorandum of understanding (Brazil/China/Egypt) for effectively using the station in Aswan. Perform more tests; solve the problems for receiving in all CBERS channels.
- Investigate the possibility of installing an antenna in Ghana.
- Investigate the possibility of using an antenna in Gabon (controlled by IRD – France).

Progress:

- 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.
- April, 2009: During the Brazilian Remote Sensing Symposium (SBSR) in Natal, Brazil, there was a meeting between Brazilian representatives and a delegation from Gabon, where the interest to have an antenna installed in Gabon was demonstrated.
- During 2008, many tests have been performed in Hartebeeshoek ground station. It should be fully operational for receiving CBERS images in the beginning of 2009.
- Some tests have been performed in Aswan (Egypt). Some channel receiving problems have been identified and should be targeted.
- INTA – *Instituto Nacional de Técnica Aeroespacial*, Spain, is in charge of Maspalomas ground station. A memorandum of understanding between INPE, INTA and CRESDA has been signed by Brazil and Spain, and is currently in China to be signed by CRESDA. Many tests have been performed in 2008 and, Brazilian engineers have found a problem in the antenna automatic. This should be solved by INTA and INPE has no timeline control for fixing the problem.
- Brazil and China wish to use the Malindi ground station to deliver CBERS images and distribute them free of charge to all Africa. INPE got in contact with the president of ASI (Agenzia Spaziale Italiana) and is waiting for a feedback.

**Resources** (indication of resources – e.g. financial, human – contributed by GEO Members or Participating Organizations to produce outputs)

This task involves the participation of many countries and GEO Members.  
Financial resources will be necessary for setting up new ground stations.

**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.

2) Please also describe what data and information your activity/system needs that you would request to be accessible through the GEOSS Common Infrastructure.

**Capacity Building Component**

Within this task, the main capacity building component involves infrastructure for receiving CBERS images in Africa.

**User Engagement Component**

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

**Science and Technology (S&T) Component**

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

*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 to 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).*

**China**

*China Center for Resource Satellite Data and Applications(CRSDA):* In South African project, CRESDA has provided CSIR SAC with CBERS-02B data pre-processing system and continuously offered the updating and technology support to CSIR SAC and other countries.

**Participation** (Table to be filled in 2009):

Type	Member or PO	Representing	Contact Name	EmailAddress
Lead(PoC)	Brazil	INPE	Julio Cesar Lima d'Alge	julio@dpi.inpe.br
Lead	CEOS	CSIR	Daniel Matsapola	dmatsapola@csir.co.za
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