



*2nd GEO Forest Monitoring Symposium
July 1-3, 2009
Chiang Rai, Thailand*



CEOS in support of GEO Forest Carbon Tracking

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The 2nd Forest Monitoring Symposium
1 July 2009**

Outline

- Background on CEOS
- How CEOS relates to FCT
- FCT Requirements
- CEOS Response to FCT Requirements



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Background on CEOS

Background on CEOS

- Established in 1984
- Recommendation from a Panel of Experts on Remote Sensing from Space, under the aegis of the G7 Economic Summit of Industrialized Nations Working Group on Growth, Technology and Employment
- Participated by 28 space agencies and 20 other national and international bodies

Background on CEOS

CEOS has three primary objectives :

- Coordination and cooperation in mission planning and development of compatible data products, formats, services, applications and policies for Space-borne Earth Observations;
- A focal point for international coordination of Space-related Earth Observation activities;
- Exchange of policy and technical information to encourage complementarities and compatibility of observation and data exchange systems.



How CEOS relates to FCT

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CEOS Role for GEOSS

- In February 2005, GEO adopted a 10-Year IP to build up a Global Earth Observation System of Systems (GEOSS)



How CEOS relates to FCT

CEOS Role for GEOSS

- CEOS has actively provided support to GEO, and considered as a space arm of GEOSS
- CEOS Implementation Plan reflects exclusive engagement for GEOSS and has become the primary activity of CEOS

How CEOS relates to FCT

CEOS Role for GEOSS

- Four main implementation mechanisms (and resource pools) available to CEOS to undertake the work required on individual actions in support of GEOSS space segment :
 - *The CEOS Working Groups*
 - *The CEOS Virtual Constellations for GEO*
 - *The CEOS SBA Coordinators*
 - *CEOS IP actions: CEOS is supporting a large number of GEO Work Plan tasks, overseen by the Chair of the Strategic Implementation Team (SIT) and the CEOS Executive Officer (CEO)* ⁹

How CEOS relates to FCT

2009 Priorities of CEOS Chair

- Continuity of excellent progress towards GEOSS space segment implementation
- Start-up support for new key tasks
 - Forest Carbon Monitoring (REDD)
 - Green House Gases (GHG)
- Improve outreach and promotion of results
- Strengthen coordination among CEOS, CGMS and WMO to optimise available resources
- Further development of Data Democracy effort

How CEOS relates to FCT

- CEOS is co-Lead on the “Forest Carbon Tracking” GEO task
 - One top priority activity announced at GEO-V Plenary (Nov. 2008)
- CEOS Agencies involved either as FCT co-Leads or as EO data providers
 - **Co-Leads:** currently CSIRO, ESA, JAXA, NSC
 - **SAR:** ASI, CSA, DLR, ESA, JAXA
 - **Optical:** CNES, INPE, ISRO, KARI, & USGS



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GEO FCT Requirements

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- FCT internal request for CEOS support arrived 29 May 2009 from outside (GEO SEC)
 - CEOS Agencies have been aware on up-coming GEO request since March 2009 (SIT-23)
- Requests for data:
 - Observation starting in Summer 2009: all sensors over all geographical zones (7 national demonstrators)
 - Provision of archived data / products for past years
 - Covers only satellites operated by CEOS Agencies

Issues related to FCT Requirements (1/2)

- Too short notice for observation requests to non-operational agencies
 - While discussions with SAR providers started several months ago, the requests for optical and SAR data arrived officially to CEOS only on May 29.
 - In addition, some geographical zones (*National Demonstrators and Verification Sites*) to be observed are not yet defined in detail
 - e.g. in Brazil, Mexico, ..
- Observation requests and delivery of archived data not refined:
 - Some requests cannot be satisfied e.g. wall-to-wall coverage by Kompsat-2 due to geometry of instrument.
 - No FCT request for sensors like ALOS AVNIR (used in FRA 2010)
- No specification of the years for the archived data

Issues related to FCT Requirements (2/2)

- No requirements on CEOS regarding sensor inter-calibration
- No specific requirements on processing to L1 regarding for instance:
 - optical bands, provision of auxiliary or cal / val data, harmonization of DEM or product format, etc ..
- Distribution of EO satellite products not specified
 - Where to send the products ?



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CEOS Response to FCT Requirements

CEOS Response to FCT Requirements

CEOS Organisation

- CEOS POC is Frank Martin Seifert (ESA)
- SAR and Optical data provider Agencies
 - LSI support for optical data
 - SAR co-ordination between ASI, CSA, DLR, ESA, JAXA
- Involvement of both CEOS Chair and SIT Chair
 - Telecons with CEOS Principals (Providers Agencies)
- Additional support in various CEOS Agencies
 - e.g. 3 other persons at ESA to support CEOS POC

CEOS Response to FCT Req.: *Schedule*

- **June 22:** coordination meeting of SAR providers (ESRIN)
 - CSA, JAXA, ASI, DLR, ESA
- **June 23:** telecons between CEOS SIT Chair and CEOS Principals of Optical Agencies (CNES, USGS)
- **June 25-26:** meeting other CEOS optical providers (INPE, ISRO)
- **Begin July:** issue of “CEOS Response to FCT Requirements” document
 - *Focus on short term activities in 2009*
- **September:** issue of “Long-term CEOS Acquisition Strategy” document
 - *Focus on longer term activities for 2010 onwards*

CEOS Response to FCT Req.: *Status* (1/4)

Provision of SAR data/ products

- **C-band** (ESA and CSA) and **L-band** (JAXA) are rather **well covered**.
- **X-band still to be assessed** (DLR and ASI) after AO requests are filled by CEOS

Provision of Optical data/ products

- Response from **CNES** expected end of June – beginning of July
- **USGS**: <USGS – SIT Chair telecon on Tuesday June 23>
- **INPE**: assessment has started. CBERS-2b data also over Tanzania & Cameroon. Need to cope with CBERS-2B recent problems.
- **ISRO**: <has been discussed in June, not yet confirm>

CEOS Response to FCT Req.: *Status* (2/4)

Generation of “CEOS Response to FCT Requirements” document

Others: e.g. generation of shape files of NDs

- *The shape files of the NDs have been generated (but a few sites are being consolidated)*
- *The “National Demonstrators & Verification Sites” document has been issued on June 22.*

CEOS Response to FCT Req.: *Status* (3/4)

SAR:

- Cost of ALOS PALSAR Fine Dual Beam data for 2009 and following years ?
- Access to Radarsat-2 (private MDA is owner)
- COSMO-SkyMed data still to be requested via AO
- TerraSar-X data still to be requested via AO

CEOS Response to FCT Req.: *Status* (4/4)

Optical:

- In general, late with respect to SAR → **might need to treat SAR and Optical in the same manner**
 - e.g. joint coordination meetings (e.g. at next SAR Coordination meeting in Tsukuba, end of August)
 - LSI to be more active.
- Assessment from CNES expected. Access / Cost of SPOT-5 data ?
- Kompsat-2 not in LSI constellation



Conclusion

CEOS will continue our good support in term of data/ product provision to FCT community.



***== Thank you for your
attention ==***