

# Specific CEOS Actions in Support of GEO Work Plan Tasks/Sub-Tasks 2009-2011

**SIT Chair**

**CEO/DCEO**

**Working Group Chairs**

**Constellation Leads**

**SIT Agency Representatives**

**CEOS SBA Coordinators**



# Selection Rules for CEOS Actions



## Objective (Feb 2011): Fewer but more useful CEOS Actions

### Five criteria are met by each CEOS Action:

1. Should address one of the GEO Tasks identified during CEOS-GEO meeting. Actions addressing one of the top CEOS priorities will be favored
2. Execution requires the cooperation of at least two CEOS Agencies<sup>1</sup>
3. Execution requires a “significant” level of efforts and good coordination (*e.g.*, publication of an article does not need to be followed as an action. The article might be published on [www.ceos.org](http://www.ceos.org))
4. Significant and citable benefits towards meeting societal needs
5. Needs to be “Actionable” (properly described, feasible with Lead Agencies (or WG, VC), at least one Contributor, clear Milestones and Deliverables, potential support might be indicated)

| Category 1 | Category 2 | Total |
|------------|------------|-------|
| 22         | 24         | 46    |

➔

Open CEOS Actions in Support of 19 GEO Tasks (as of 8 September 2011)

# Sequence of Events

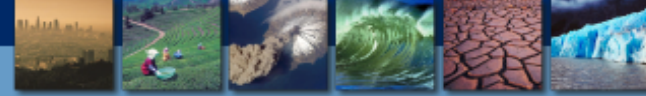


- ❖ **Architecture**
- ❖ **Data Management**
- ❖ **Capacity Building**
- ❖ **Agriculture**
- ❖ **Climate**
- ❖ **Disasters**
- ❖ **Energy**
- ❖ **Health**
- ❖ **Water**

## Notes:

- ❖ Anything in **red** (text, text box, etc.) requires attention
- ❖ All updates provided in this presentation will be transferred to the online actions tracker

# Architecture



# ***Interoperable Systems for GEOSS***

## **GEO Task AR-09-02**

- ***Virtual Constellations\****

GEO Sub-Task AR-09-02a

# Altimetry Time Series



Maintain continuity with one high accuracy, lower inclination Jason-type and at least two lower accuracy, higher inclination altimeters

CEOS Action: AR-09-02a\_15

CEOS Action Category: 1

CEOS SBA Allocation: Transverse

Lead Agency: EUMETSAT and NOAA  
(NASA)

Participating Agencies: CNES, EC, ESA, ISRO,  
SOA/CNSA, EUMETSAT

Constellation: OST

Working Group: N/A

Due Date: 31 March 2011

Last Reported Update: 9 September 2011

## Updates:

- Jason-1 and 2, OK, on interleaved orbit
- Jason-3 under development, launch in April 2014
- Jason-CS Phase B on going, decision needed in 2012/2013
- Cryosat 2 Ocean data becomes available
- HY2A launched in August 2011, apparently everything OK but no data yet available
- ERS decommissioned
- Envisat on drifting orbit
- SARAL launch planned in April 2012
- Sentinel 3 development on going, launch in 2013
- SWOT planned for end of 2019
- Continuity is ensured if all above missions under development get adequate and timely funding
- Access to HY2A data remains open

**Need to update Lead Agency and POC**

**Issue**

Stan Wilson (Eric Lindstrom)  
François Parisot

# Development of Swath Altimetry



Extend the capability of altimetry to denser observational coverage through the development of swath altimetry

CEOS Action: AR-09-02a\_19

CEOS Action Category: 1

CEOS SBA Allocation: Transverse

Lead Agency: NASA and CNES

Participating Agencies: N/A

Constellation: OST

Working Group: N/A

Due Date: 31 December 2010

Last Reported Update: 22 August 2011

## Updates:

- CNES/NASA letter of April 4, 2011
  - Confirmed CNES receipt of "investment program" funding for SWOT and proposed signing MOU in September 2011 visit to NASA HQ
- NASA-CNES Program Meeting of April 26, 2011
  - Confirmed details of "investment program" funding to CNES
  - Reviewed program/project status and plans
  - Reviewed consolidated joint schedule
  - Discussed personnel exchange and joint field campaigns including AirSWOT
- NASA/CNES Technical Interaction July 6-8, 2011
  - Discussed routine project/technical status
  - CNES presented risk assessment of observatory AIT
  - CNES discussed approaches to address budget reserve increase

Eric Lindstrom  
Eric Thouvenot

# Future Mid-Resolution Definition of Standards



Complete the definition of standards (guidelines) for future mid resolution LSI satellite systems to produce information products that benefit several SBA areas

CEOS Action: AR-09-02a\_26

CEOS Action Category: 1

CEOS SBA Allocation: Transverse

Lead Agency: USGS, ISRO, and INPE

Participating Agencies: NASA and JAXA

Constellation: LSI

Working Group: N/A

Due Date: 7 November 2011

Last Reported Update: 5 September 2011

## Updates:

- **01-Mar-2011:** Complete 2nd draft report for review by the LSI Constellation Team.
- **01-Jun-2011:** Complete 3rd draft report for review by the LSI Constellation Team.
- **30-Sep-2011:** Final report completed and presented at the CEOS SIT Workshop.
- **October 2011** - submit a plan for use by the land imaging community at the CEOS Plenary

Tom Holm  
V.S. Hegde (Need to ID New POC)  
Julio D'Alge



# Common Data Processing Parameters



Implement common data processing parameters, data formats, and map projections

CEOS Action: AR-09-02a\_29

CEOS Action Category: 2

**CLOSED-  
Superseded**

CEOS SBA Allocation: Transverse

Lead Agency: USGS, ISRO, and INPE

Participating Agencies:

Constellation: LSI

Working Group: WGCV, WGISS

Due Date: 30 April 2011

Last Reported Update: 5 September 2011

## Updates:

- Superseded?

Tom Holm  
V.S. Hegde (Need to ID New POC)  
Julio D'Alge

# Gap Assessment for Atmospheric Composition



Gap assessment and coordination of GEO Geostationary atmospheric composition measurement

CEOS Action: AR-09-02a\_32

CEOS Action Category: 2

CEOS SBA Allocation: Transverse

Lead Agency: NASA

Participating Agencies: ESA, DLR, CSA, CNES, JAXA, NOAA

Constellation: ACC

Working Group: N/A

Due Date: 31 December 2011

Last Reported Update: 15 August 2011

## Updates:

- 5/2011 – Paper recommendations endorsed without comment by Principals during SIT-26.
- 6/2011 – During ACC-7 meeting, agreed this Action is complete and agreed to propose a new 3-year Action to implement the three recommendations endorsed during SIT-26

Jay Al-Saadi

# IOCCG Report for Level-1 OCR Requirements



Publish an International Ocean Colour Coordinating Group (IOCCG) report with new Level-1 Ocean Colour Radiometry requirements. This report will consider radiometric observations, spectral bands, data quality (cal/val), data formats, reprocessing, new products and applications, societal needs and the CEOS constellation concept.

CEOS Action: AR-09-02a\_33

CEOS Action Category: 2

CEOS SBA Allocation: Transverse

Lead Agency: IOCCG

Participating Agencies:

Constellation: OCR

Working Group: N/A

Due Date: 30 September 2011

Last Reported Update: 10 September 2010

## Updates:

Paula Bontempi

# Conical Scanning Microwave Imagers and GPM



Conduct study of the availability of conical scanning microwave imagers (MI) in the late-GPM Phase and the Post-GPM Phase of the Precipitation Constellation

CEOS Action: AR-09-02a\_36

CEOS Action Category: 2

CEOS SBA Allocation: Transverse

Lead Agency: NASA and JAXA

Participating Agencies: NOAA, EUMETSAT

Constellation: PC

Working Group: N/A

**Due Date: 15 May 2011**

**Last Reported Update: 30 August 2011**

## Updates:

- Report to be made available to PC Agencies in September 2011 with final report provided to SIT by October 2011.
- The final report shall include planned MI assets and their compatibilities as well as missing key MI assets (including required capabilities).

Steve Neeck  
Riko Oki

# LSI Support to JECAM



Provision of optical satellite data through LSI in support of Joint Experiment for Crop Assessment and Monitoring (JECAM)

CEOS Action: AR-09-02a\_37

CEOS Action Category: 1

CEOS SBA Allocation: Transverse

Lead Agency: USGS, ISRO, INPE

Participating Agencies: CSA, CNES, JAXA, NASA, ESA, C

Constellation: LSI

Working Group: N/A

Due Date: 30 November 2011

Last Reported Update: 5 September 2011

## Updates:

- LSI is committed to on-going support of JECAM

Tom Holm  
V.S. Hegde (Need to ID New POC)  
Julio D'Alge

# Realizing GPM Phase of PC



Continue progress in instrument and spacecraft manufacturing and testing for GPM implementation, advancing GPM science algorithms through ground validation experiments, and partnership building with space agencies to contribute additional microwave sensors and satellites to the GPM constellation. Action is necessary to realize GPM Phase of Precipitation Constellation.

CEOS Action: AR-09-02a\_38

CEOS Action Category: 1

CEOS SBA Allocation: Transverse

Lead Agency: NASA and JAXA

Participating Agencies: NOAA, EUMETSAT, INPE, CNES, SRO

Constellation: PC

Working Group: N/A

Due Date: 1 December 2011

Last Reported Update: 29 August 2011

## Updates:

- Completed six week MC3E field campaign in Oklahoma, USA on June 22 .
- Completed GMI instrument Pre-Environmental Review on July 19-20.
- NASA completed negotiations on the NASA-CNES-ISRO agreements on Megha Tropiques-GPM cooperation. The agreements are being finalized for signing in October.
- Revised milestone date on NASA-INPE agreement on GPM cooperation reflecting continuing review by the US and Brazil of the draft Implementing Arrangement.
- Rescheduled the GPM International Planning Workshop to 2012 and location and 4th CEOS Precipitation Constellation Workshop to November 10 in Denver, Colorado, USA due to impact of March Great Tohoku Earthquake in Japan.

Steve Neeck  
Riko Oki

# Continuation of TRMM Operations



Continue TRMM operations through 2011. Action is necessary to support GPM Preparatory Phase of the Precipitation Constellation.

CEOS Action: AR-09-02a\_39

CEOS Action Category: 1

CEOS SBA Allocation: Transverse

Lead Agency: NASA and JAXA

Participating Agencies:

Constellation: PC

Working Group: N/A

Due Date: 31 October 2011

Last Reported Update: 18 May 2011

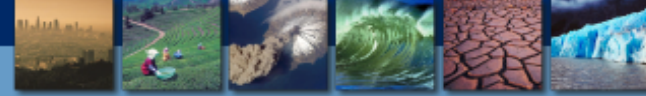
## Updates:

- September 30, 2011: NASA ESD Senior Review guidance on mission extension, allowing for the completion of 14 years of TRMM 3-hr, multi-satellite standard products (TMPA, 3B42), through December 31, 2011.

Steve Neeck  
Riko Oki

# Data Management





# ***GEOSS Data Sharing Principles***

## **GEO Task DA-06-01**



## Data CORE

CEOS Action: DA-06-01\_2

CEOS Action Category: 1

CEOS SBA Allocation: Transverse

Lead Agency:

Participating Agencies:

Constellation:

Working Group:

Due Date:

Last Reported Update:

## Updates:



Issue

**This action needs more information**

# Licensing and Attribution



## Licensing and Attribution

CEOS Action: DA-06-01\_3

CEOS Action Category: 1

CEOS SBA Allocation: Transverse

Lead Agency:

Participating Agencies:

Constellation:

Working Group:

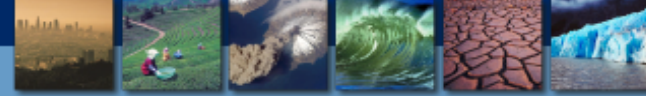
Due Date:

Last Reported Update:

## Updates:

**Issue**

**This action needs more information**



# ***Data Management***

## **GEO Task DA-09-01**

- ***GEOSS Quality Assurance Strategy\****  
GEO Sub-Task DA-09-01a
- ***Data, Metadata and Products Harmonisation\****  
GEO Sub-Task DA-09-01b



# DOME-C Multi-Sensor Experiment

Use Dome-C as prototype and developing continued and on-going methodology to tie into the Cal/Val portal enhancement as a reference for Landnet sites.

CEOS Action: DA-09-01a\_12

CEOS Action Category: 2

CEOS SBA Allocation: Transverse

Lead Agency: NOAA

Participating Agencies: UKSA, CSA, and other CEOS Agencies

Constellation: LSI

Working Group: WGCV

Due Date: 31 March 2012

Last Reported Update: 8 June 2011

## Updates:

- **March 2011:** Use Dome-C as prototype and developing continued and on-going methodology to tie into the cal val portal enhancement as a reference for Landnet sites.
- **March 2011:** Evaluate prospect of BRDF at the Italian base in Antarctica as a test.
- An intercomparison campaign is planned over Dome C from December 2011 to January 2012

Nigel Fox  
Changyong Cao  
Satish Srivastava



The Quality Assurance Framework for Earth Observation (QA4EO) will be implemented for GEOSS and broadened to ensure QA4EO's application to all EO disciplines within all SBA communities. A wider focusing task team with new leadership and representation from all SBA communities is to be identified. This team will work towards an appropriate implementation and action plan to achieve a solid QA4EO approach for all members of GEOSS. The dedication of necessary resources (secretariat and facilitation support, website maintenance, etc.) is also part of this process.

CEOS Action: DA-09-01a\_13

CEOS Action Category: 1

CEOS SBA Allocation: Transverse

Lead Agency: USGS

Participating Agencies: CEOS Agencies

Constellation: All

Working Group: All

Due Date: 31 December 2011

Last Reported Update: 8 June 2011

## Updates:

- The QA4EO team is seeking to establish a high-level coordination body within CEOS. The team will continue to promote QA4EO within CEOS and to assist in the development of domain-specific procedures within the WGCV subgroup communities. Work on the establishment of a GEO QA4EO board, responsible for QA4EO implementation across GEOSS, is also underway. It is envisaged that this board will comprise members from all the GEO Societal Benefit Areas (SBAs), with support from CEOS and others.
- Secretariat support to QA4EO (provided during the last 4 years by ESA and USGS) has now ended with further support to the activity being sought.
- A QA4EO workshop is being planned in the UK from 18 - 20 October 2011.

Greg Stensaas  
Marie-Claire Greening



# Cal/Val Test Site Dossier

Develop a Cal/Val test site dossier over the WGCV subgroup domains to assist implementation of QA4EO for GEOSS.

CEOS Action: DA-09-01a\_14

CEOS Action Category: 2

CEOS SBA Allocation: Transverse

Lead Agency: USGS and ESA

Participating Agencies: CEOS Agencies

Constellation: N/A

Working Group: WGCV

Due Date: 31 March 2012

Last Reported Update: 8 June 2011

## Updates:

- **Dec 2011:** A list of CEOS-endorsed reference sites to be published by each WGCV subgroup domain
- **Mar 2012:** Create an automated intercalibration process for the test sites on the Cal/Val Portal
- The WGCV and its subgroups are working on the definition of a list of CEOS endorsed reference sites.

Greg Stensaas  
Philippe Goryl



# QA4EO Pilot Project for Cal/Val

Undertake a pilot project to exemplify QA4EO implementation in Cal/Val activities

CEOS Action: DA-09-01a\_15

CEOS Action Category: 2

CEOS SBA Allocation: Transverse

Lead Agency: ESA

Participating Agencies:

Constellation: N/A

Working Group: WGCV

Due Date: 31 December 2011

Last Reported Update: 8 June 2011

## Updates:

- ESA has started a survey for assessing QA4EO consistency that will review the Cal/Val facilities (e.g., Boussole) and will review the Cal/Val protocols, guidelines, best practice, and current documentation for the Sentinels. QA4EO within the Long Term Data Preservation (LTDP) programme is also being considered.
- There are no summary of accomplishments or issues

**Single Agency**

Philippe Goryl





# QA4EO Cal/Val Portal

Develop Cal/Val Portal and post-launch test sites to assist implementation of QA4EO for GEOSS

CEOS Action: DA-09-01a\_16

CEOS Action Category: 2

CEOS SBA Allocation: Transverse

Lead Agency: USGS and ESA

Participating Agencies: CEOS Agencies

Constellation: N/A

Working Group: WGCV

Due Date: 31 December 2011

Last Reported Update: 8 June 2011

## Updates:

- Enhance the cal val portal to support campaigns and WGCV test sites by:
  - Building a prototype database for Landnet use (an equivalent of Mermaid for Land)
  - Initiating an activity to automate a process for intercalibration of medium resolution sensor.
- Work is now in progress to expand the catalogue to sites for other applications and other sensor domains and also to allow storage of associated satellite imagery by USGS. Agencies are requested to regularly observe these sites and to provide data to the database.
- CNES are working towards making available easy access to the SADE database of pseudo-invariant sites for cal/val purposes for CEOS members

Gyanesh Chander  
Philippe Goryl



# QA4EO Support Services and Tools

Investigate options for QA4EO support services and tools, including support for the development of peer-reviewed lower-level guidelines through templates, structures and/or tools.

CEOS Action: DA-09-01a\_17

CEOS Action Category: 2

CEOS SBA Allocation: Transverse

Lead Agency: USGS

Participating Agencies:

Constellation: N/A

Working Group: WGCV

Due Date: 30 March 2012

Last Reported Update: 8 June 2011

## Updates:

- The need for support services and tools will be discussed at the upcoming QA4EO implementation working to be held from 18-20 October 2011 at RAL, UK
- The CEOS WGCV and its subgroups will also consider requirements and options within its meetings
- The deliverables will be the minuted discussions and actions resulting from these two meetings

**Single  
Agency**

Greg Stensaas

# Data, Metadata, and Products Harmonization



Establish a WGISS project to focus its contributions to the subject task and to generate those contributions. The focus in 2010 will be the development of a community catalog for satellite data, the CEOS WGISS Integrated Catalog (CWIC). The associated CWIC information model will serve as input from CEOS as the GEO community refines the GEOSS information model.

CEOS Action: DA-09-01b\_2

CEOS Action Category: 1

CEOS SBA Allocation: Transverse

Lead Agency: NOAA

Participating Agencies: NASA, UKSA, JAXA, USGS

Constellation: N/A

Working Group: WGISS, WGCV

Due Date: 31 December 2011

Last Reported Update: 6 September 2011

## Updates:

- CWIC Prototype 1.0 using test client demonstrated at June WGISS meeting
- First draft of information model paper completed which highlights the complexity of satellite data and the access to satellite data.

Yonsook Enloe  
Martin Yapur



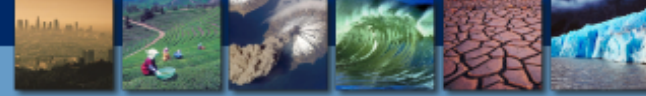
# ***Global Data Sets***

## **GEO Task DA-09-03**

- ***Global Land Cover\****  
GEO Sub-Task DA-09-03a
- ***Global DEM\****  
GEO Sub-Task DA-09-03d

**No CEOS  
Actions  
Identified but  
CEOS is GEO  
Sub-Task Lead**

# Capacity Building



# ***Building Individual Capacity in Earth Observations***

## **GEO Task CB-09-02**

- ***GEONETCast Training***  
GEO Sub-Task CB-09-02g

# Develop GEONETCast Training Channel



Develop the GEONETCast Training Channel that will focus on (i) training end-users to use products for specific purposes and to disseminate data via GEONETCast; (ii) linking GEONETCast products and product navigator (inside portal) with specific training material; (iii) transmitting training materials via GEONETCast to local trainers; and (iv) disseminating training materials on GEOSS-related environmental data.

CEOS Action: CB-09-02g\_1

CEOS Action Category: 2

CEOS SBA Allocation: Transverse

Lead Agency: NOAA

Participating Agencies: EUMETSAT, CMA,  
Roshydromet, WMO

Constellation: N/A

Working Group: WGEdu

Due Date: 2 November 2010

Last Reported Update: 8 September 2011

## Updates:

- Training channel is advertised and available for use; proof of concept has been completed; sent COMET modules and confirmed receipt by user
- Need more user involvement – NOAA and EUMETSAT are actively outreaching and highlighting the capability

Need to update POC

Issue

Eric Madsen  
George Jungbluth (Delete)



# *Infrastructure Development and Technology Transfer for Information Access*

## **GEO Task CB-09-05**

- ***CBERS\****

GEO Sub-Task CB-09-05b

- ***Data Democracy\****

GEO Sub-Task CB-09-05e



No CEOS  
Actions  
Identified for  
CBERS but  
CEOS is GEO  
Sub-Task Lead



# EO Data Utilization and Software Tools in Developing Countries



Strengthen the Earth observation data utilization cycle by sharing Software Tools in developing countries.

CEOS Action: CB-09-05e\_2

CEOS Action Category: 1

CEOS SBA Allocation: Transverse

Lead Agency: CNES

Participating Agencies: INPE, SANSa

Constellation: N/A

Working Group: WGEdu

Due Date: 31 December 2011

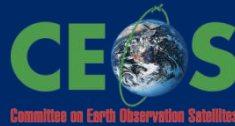
Last Reported Update: 17 February 2011

## Updates:

- There is a recommendation to close this action as there were no outputs in 2011

Aurelie Sand

# EO Data Utilization and Data Dissemination in Developing Countries



Strengthen the Earth observation data utilization cycle by increasing Data Dissemination Capabilities in developing countries.

CEOS Action: CB-09-05e\_3

CEOS Action Category: 1

CEOS SBA Allocation: Transverse

Lead Agency: GISTDA

Participating Agencies: INPE, SANSA

Constellation: LSI

Working Group: WGEdu, WGISS

Due Date: 1 October 2010

Last Reported Update: 25 October 2010

## Updates:

- There is a recommendation to close this action as there were no outputs in 2011

Pakorn Apaphant

**Web site: since Jan 2011, more than 14.000 visits !!!**



Online CEOS Mission, Instruments & Measurements (MIM) Database (DB):  
Update the CEOS MIM DB with newest information, including those of CGMS  
Members not involved in CEOS.  
Optimisation of on-line access tools.

CEOS Action: CB-09-05e\_4

CEOS Action Category: 1

CEOS SBA Allocation: Transverse

Lead Agency: ESA

Participating Agencies: All CEOS Agencies

Constellation: N/A

Working Group: N/A

Due Date: 31 October 2011

Last Reported Update: 8 September 2011

## Updates:

### • Database Enhancements

- Added fields for data access (missions) and data format (instruments)
- Incorporated information from SEO on VCs, ECV, and SBA links for measurements
- Addition of atmospheric layer information to atmospheric measurements
- Addition of specific wavebands for radar instruments
- subset of the MIM's instrument-measurement information being review by VCs

### • Online Enhancements

- With support from the SEO, adding links from the MIM online to the COVE tool
- Adding filtering by instrument resolution to the Instruments Table
- General enhancements to website performance, streamlining
- Online launch ahead of CEOS Plenary

Ivan Petiteville



GCI Training - GEO Members and Participating Organizations are invited to register EO resources that they wish to share as a formal contribution to GEOSS. This is done through a registration process using the GEOSS Component and Service Registry, as part of the GEOSS Common Infrastructure(GCI). Registration is the first step in making data and services available to users through the GEO Web Portal. This training will provide background information on GCI, and will present in detail the steps to be taken for Components and Services Registration.

CEOS Action: CB-09-05e\_5

CEOS Action Category: 1

CEOS SBA Allocation: Transverse

Lead Agency: INPE

Participating Agencies: USGS, ASI

Constellation: LSI

Working Group: WGEdu, WGISS

Due Date: 31 October 2011

Last Reported Update: 29 August 2011

**CLOSED-  
Superseded**

## Updates:

- The GCI is still “under construction and therefore it is not useful to have GCI training courses until the GCI is final
- Can reactivate this action for 2012, depending on GEO 2012-2015 Work Plan

Hilcea Ferreira

# Halfway Point

Only 36 more slides to go



South Pacific

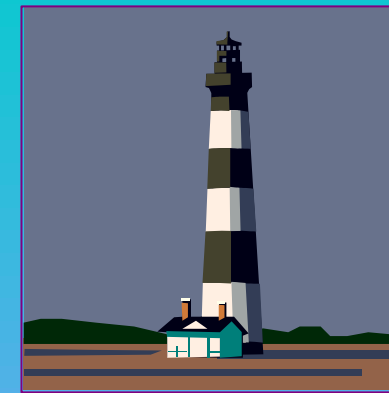


Paris

Places we'd rather  
be than here right  
now



Zen state



Sandy beach



...yes, even being stalked by a tiger

# Agriculture



# ***Global Agricultural Monitoring***

## **GEO Task CL-07-03**

- ***Global Agricultural Monitoring System***  
GEO Sub-Task CL-07-03a

# CEOS Visualization Environment (COVE) for JECAM



Modify the Google-Earth CEOS Visualization Environment (COVE) tool to accommodate the Joint Experiments on Crop Assessments and Monitoring (JECAM) initiative. Relevant mission and instrument combinations can be used to forecast sensor groundtracks and coincidences for acquisition planning and calibration/validation efforts.

CEOS Action: AG-07-03\_2

CEOS Action Category: 2

CEOS SBA Allocation: Agriculture

Lead Agency: NASA

Participating Agencies: USGS, INPE, ESA, JAXA, ISRO, NOAA

Constellation: LSI

Working Group: N/A

Due Date: 9 November 2011

Last Reported Update: 15 August 2011

**CLOSED**

## Updates:

Action is **CLOSED** as of July 31, 2011. COVE now includes 33 optical and radar missions relevant to JECAM. In addition, the SEO worked with CSA to complete a "Data Acquisition Planning Template" to optimize data acquisition requests from space-based data providers. This template is currently being used for the late-2011 growing seasons in Paraguay and Argentina. Lessons learned from this process will be used for the other JECAM sites in 2012.

Brian Killough



# Global Croplands Modeling



Global Croplands and their water use assessments using multi-sensor remote sensing data fusion. Co-operation in: (a) multi-sensor data exchange and fusion , and (b) modeling capabilities from different CEOS agencies to ensure global croplands and water use at multiple resolutions

CEOS Action: AG-07-03\_5

CEOS Action Category: 2

CEOS SBA Allocation: Agriculture

Lead Agency: USGS

Participating Agencies: NASA, NOAA, ISRO

Constellation: N/A

Working Group: N/A

Due Date: 31 December 2013

Last Reported Update: 8 September 2011

## Updates:

- **July 1, 2011** - JECAM site finalization, JECAM meeting of data providers (completed)
- **August 31, 2012** - PE&RS special issue on Global Croplands
- **December 31, 2013** - Product Release through USGS Powell Center web portal
- September 26-30, 2011: USGS Powell Center meeting on Global croplands (first meeting)

Prasad Thenkabail

# Global Initiative for Water for Food Security



Global Initiative on Water for the World for Food Security through Spaceborne Data Facilitating multi sensor data availability for the water for the world projects to ensure global food security

CEOS Action: AG-07-03\_6

CEOS Action Category: 2

CEOS SBA Allocation: Agriculture

Lead Agency: USGS

Participating Agencies: NASA, NOAA, ISRO

Constellation: N/A

Working Group: N/A

Due Date: 31 December 2013

Last Reported Update: 8 September 2011

## Updates:

- **Jan 1, 2012:** water harvesting project in India progress. Release of the Vision document (delivered).
- **Dec. 31, 2013:** final products on at least 3 projects (India water harvesting, Ghana water access, and Nicaragua water quality)
- Currently, the CEOS Agriculture SBA Coordinator is co-leading an IEEE Water for the World project. This project has received start-up funding from NASA, mostly for coordinating and initiating projects.

Prasad Thenkabail

# Climate



# ***A Climate Record for Assessing Variability and Change***

## **GEO Task CL-06-01**

- ***Sustained Reprocessing and Reanalysis of Climate Data\****

**GEO Sub-Task CL-06-01a**

**No CEOS  
Actions  
Identified but  
CEOS is GEO  
Sub-Task Lead**



# ***Accelerating the Implementation of the Global Climate Observing System***

## **GEO Task CL-09-02**

- ***Key Climate Data from Satellite Systems\****  
GEO Sub-Task CL-09-02b

# CEOS Response to GCOS IP



CEOS Response to new GCOS Implementation Plan: Once the updated GCOS IP is released, CEOS is expected to update its response to the original IP from 2006 ? which served as the basis for the 59 CEOS Climate actions. The Climate SBA Coordinator will take responsibility for ensuring a plan is put in place for development of a CEOS Response which has broad consultation across the community and provides the basis for future planning and priority setting by space agencies in response to climate information needs

CEOS Action: CL-09-02b\_2

CEOS Action Category: 1

CEOS SBA Allocation: Climate

Lead Agency: NOAA

Participating Agencies: All CEOS Agencies

Constellation: All

Working Group: All

Due Date: 30 September 2012

Last Reported Update: 8 September 2011

## Updates:

- Received 7 draft templates of 15 for Atmosphere
  - A11, A19, A21, A26, A29, A32, A34
- Received 3 draft templates of 9 from Ocean
  - O7, O10, O15
- Received 3 of 21 from Terrestrial
  - T16, T29, T39
- SEO did an analysis of the current input and provided feedback which resulted in a new template with clear instructions to avoid duplication of the GCOS Satellite Supplement.
- T39 has been converted to the new template, and is being distributed as the example for others to follow.

Mitch Goldberg

# TRMM Algorithm



Evaluate and implement improved TRMM algorithm

CEOS Action: CL-09-02b\_3

CEOS Action Category: 2

**CLOSED**

CEOS SBA Allocation: Climate

Lead Agency: NASA and JAXA

Participating Agencies: N/A

Constellation: PC

Working Group: N/A

Due Date: 31 December 2011

Last Reported Update: 29 August 2011

## Updates:

- June 30, 2011 Implement Version 7 of the TRMM standard algorithms
- July 31, 2011 Reprocessing and public release of the Version 7 standard products
- Completed reprocessing of all TRMM data using Version 7 algorithm on August 15. Data are available at [http://trmm.gsfc.nasa.gov/data\\_dir/data.html](http://trmm.gsfc.nasa.gov/data_dir/data.html).
- Action status is **CLOSED**

Steve Neeck  
Riko Oki

# Climate ECV Meta-analysis



Complete a climate ECV meta-analysis in cooperation with the Working Group on Climate. The analysis will be used to support CEOS strategic planning, assess gaps in application support and missions plans, and to support a conceptual climate architecture framework.

CEOS Action: CL-09-02b\_4

CEOS Action Category: 2

CEOS SBA Allocation: Climate

Lead Agency: EC-JRC

Participating Agencies: NASA, NOAA, ESA,  
EUMETSAT

Constellation: N/A

Working Group: WGClimate

Due Date: 31 December 2011

Last Reported Update: 17 February 2011

## Updates:

Mark Dowell





# ***Global Carbon Observation and Analysis System***

## **GEO Task CL-09-03**

- ***Forest Carbon Tracking\****  
GEO Sub-Task CL-09-03b
- ***Global Monitoring of Greenhouse Gases from Space\****  
GEO Sub-Task CL-09-03c

# Forest Carbon Tracking Optical and SAR Data



FCT: Acquisition, provision and documentation of optical and SAR satellite data products for GEO FCT

CEOS Action: CL-09-03b\_5

CEOS Action Category: 1

CEOS SBA Allocation: Climate

Lead Agency: ESA

Participating Agencies: USGS, ISRO, INPE,  
CNES, KARI, JAXA, CSA,  
ASI, DLR

Constellation: LSI

Working Group: N/A

Due Date: 31 December 2011

Last Reported Update: 31 March 2011

## Updates:

- 31 Dec 2011: Acquire and provide in a systematic and timely manner the optical and SAR satellite data products requested in the "FCT 2011 Data Requirements" document
- Status updated every 6 months in relation to SIT meeting and CEOS Plenary
- Requirements for next year will be presented at Plenary

Frank Martin Seifert

# Forest Carbon Tracking Interoperability Methods Document



FCT: Support the generation of the document that will contain Interoperability Methods for Satellite Data for Forest Carbon Tracking

CEOS Action: CL-09-03b\_6

CEOS Action Category: 1

CEOS SBA Allocation: Climate

Lead Agency: ESA

Participating Agencies: USGS, ISRO, INPE,  
CNES, KARI, JAXA, CSA,  
ASI, DLR

Constellation: LSI

Working Group: WGCV, WGISS

Due Date: 30 April 2011

Last Reported Update: 31 March 2011

## Updates:

- Work on the interoperability document is still in progress
- Status updated every 6 months in relation to SIT meeting and CEOS Plenary

Frank Martin Seifert

# International GHG Monitoring from Space



Foster the use of GHG observations and consolidate data requirements for the next-generation GHG monitoring missions from space; create a synergistic strategy for easy access to GHG satellite observations, including GOSAT and current observations, and harmonize the next generation of GHG satellite observations; establish an international coordination Task Force (CEOS Carbon Task Force) within the CEOS structure.

CEOS Action: CL-09-03c\_1

CEOS Action Category: 1

CEOS SBA Allocation: Climate

Lead Agency: JAXA

Participating Agencies: NASA, NOAA, ESA,  
CSIRO, EUMETSAT,  
WMO, GCOS, ECMWF

Constellation: ACC

Working Group: WGClimate

Due Date: 31 December 2011

Last Reported Update: 12 September 2011

## Updates:

- CTF will move forward with Atmospheric domain chapter and aims to have a draft ready by early 2012
- The Land and Oceanic domain chapter drafts will lag by a few months, to then be followed by the Integration chapter. The final report will be completed by the end of 2012.
- More information to be provided during Carbon Strategy Report status agenda item.

Takashi Moriyama  
Diane Wickland

# CO2 Gap Assessment



Expand the strategic gap assessment for atmospheric Carbon Dioxide (CO<sub>2</sub>) to include detailed requirements matched to science and societal applications. Conduct a preliminary strategic gap assessment for Methane (CH<sub>4</sub>). The output of these reports will be used by the SIT, ACC, and CTF.

CEOS Action: CL-09-03c\_2

CEOS Action Category: 2

CEOS SBA Allocation: Climate

Lead Agency: NASA

Participating Agencies: JAXA, CTF

Constellation: ACC

Working Group: N/A

Due Date: 30 September 2011

Last Reported Update: 18 August 2011

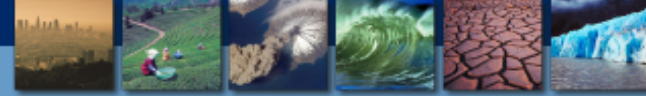
## Updates:

The SEO plans to complete this action by **December 31, 2011**. This delay was caused by increased work for other SEO tasks as well as new CTF plans for developing the future "CEOS Response to the GEO Carbon Strategy" report.

The output of this task will support the Atmospheric section of the CTF report. Gap Analysis updates for CO<sub>2</sub> and CH<sub>4</sub> will be included as well as content for requirements linked to societal applications.

Brian Killough

# Disasters



# ***Use of Satellites for Risk Management\****

**GEO Task DI-06-09**

# Use of Satellites for Risk Management



Development of system architecture for risk management, including validation with users. Based on user requirements developed under DI-06-09\_1 (with an initial focus on floods), the action will identify measurement requirements, document existing and planned systems that perform these measurements, determine gaps, make system architecture recommendations and propose an end-to-end plan for satellite data use to support risk management

CEOS Action: DI-06-09\_8

CEOS Action Category: 1

CEOS SBA Allocation: Disasters

Lead Agency: CSA

Participating Agencies: ESA, CNES, CONAE, ASI,  
NOAA, JAXA, USGS, GISTDA,  
DLR, UNOOSA, NASA

Constellation: All

Working Group: N/A

Due Date: 15 November 2011

Last Reported Update: 26 August 2011

## Updates:

- **12 Sept 2011:** review preliminary flood gap analysis based on key parameters required for flood managers as determined at June Disaster SBA Team mtg
- **30 Oct 2011:** complete Gap analysis for flood types
- **15 Nov 2011:** conduct preliminary review of other disaster types, products and services
- **30 Dec 2011:** Complete plan to transition activity to new workplan, including development of satellite data gaps for other disasters types

Guy Seguin





# ***Systematic Monitoring for Geohazards Risk Assessment***

## **GEO Task DI-09-01**

- ***Supersites and Natural Laboratories***  
GEO Sub-Task DI-09-01c

# SAR and InSAR over Geohazard Supersites



Provision of SAR and InSAR Data over the Geohazard Supersites

CEOS Action: DI-09-01c\_1

CEOS Action Category: 1

CEOS SBA Allocation: Disasters

Lead Agency: ESA (NASA)

Participating Agencies: CSA, JAXA, DLR, ASI

Constellation: LSI

Working Group: N/A

Due Date:

Last Reported Update:

## Updates:

- September 12, 2011 - Meeting between space agencies
- Week of September 18 - Meeting with users
- November 8, 2011 - Recommendations to CEOS
- Proposed as a showcase for the GEO Ministerial
  - ESA will lead the activity, and may place a contract to create an Supersite office in Europe.
  - White paper prepared
  - Communication material, demonstrating the success of the global collaboration (data provision, Infrastructure)

**Need to update Lead Agency - NASA**

**Issue**

Craig Dobson

# COVE for Geohazard Supersites Initiative



Modify the Google-Earth CEOS Visualization Environment (COVE) tool to accommodate the geohazard Supersites initiative. Relevant mission and instrument combinations can be used to forecast sensor groundtracks and coincidences for acquisition planning and calibration/validation efforts.

CEOS Action: DI-09-01c\_2

CEOS Action Category: 2

CEOS SBA Allocation: Disasters

Lead Agency: NASA

Participating Agencies: ESA, CSA, JAXA, DLR,  
ASI

Constellation: LSI

Working Group: N/A

Due Date: 9 November 2011

Last Reported Update: 15 August 2011

## Updates:

COVE now includes 13 radar missions (10 current + 3 future) relevant to the GEO Supersites initiative. Future meetings in Washington, DC (Sept 12) and Frascati, Italy (Sept 19-23) will be used to further define data acquisition plans. The SEO plans to complete a "Data Acquisition Planning Template", similar to the one developed for JECAM, to support Supersites.

Brian Killough



# ***Multi-Risk Management and Regional Applications***

## **GEO Task DI-09-02**

- ***Implementation of a Multi-Risk Management Approach***

GEO Sub-Task DI-09-02a

- ***Regional End-to-End Disaster Management Applications\****

GEO Sub-Task DI-09-02b

# Operational Volcanic Ash Alert System



Demonstrate a global operational volcanic ash alert system for aviation hazard avoidance. Improved algorithms, improved data latency, and the addition of EUMETSAT/SEVIRI data is planned.

CEOS Action: DI-09-02a\_2

CEOS Action Category: 2

CEOS SBA Allocation: Disasters

Lead Agency: ESA

Participating Agencies: NASA, NOAA, EUMETSAT, DLR, WMO, BIRA/IASB, NILU, Univ. Bremen

Constellation: ACC

Working Group: N/A

Due Date: 31 December 2012

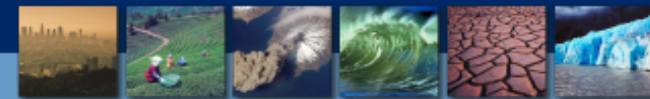
Last Reported Update: 8 September 2011

## Updates:

- Project phase 3 will be finalized early 2012. Based on the outcome of the Workshop organized by ESA & EUMETSAT about the Iceland's Eyjafjöll volcanic eruption at ESRIN-ESA (Frascati, Italy) on 26-27 May, an ESA call for new activities is being prepared on volcanic ash monitoring from space. This new activity/project will start early 2012 with a duration of 3 years with a budget of 2M euro.
- A global web-based ash alert demonstration service is available since early 2011 at <http://sacs.aeronomie.be/>. This demonstration service combines European services based on EUMETSAT (IASI, GOME-2), and ESA (SCIAMACHY) with existing US services based on NASA/NOAA (OMI) and NASA-JPL (AIRS). All data are being incorporated in a single web-page (including information on SO<sub>2</sub> and ash derived from UV/VIS and IR instruments). Ash movement prediction and height derivation capabilities have been enhanced especially via the SAVAA project ( <http://savaa.nilu.no/>) by using the FLEXPART dispersion model.

Claus Zehner

# ESA/EUMETSAT Workshop on Volcanic Ash Monitoring



Plans for 2011 onwards: Based on the economic impact (2-3 Billion Euro) of the Eyjafjoll eruption in Europe and the results of the ESA/EUMETSAT workshop more activities on volcanic ash monitoring/forecasting will be initiated during 2011 in order to prepare for such events especially in Europe and to further strengthen international cooperation. Plan to initiate specific international cooperation work on atmospheric ECVs.

CEOS Action: DI-09-02a\_3

CEOS Action Category: 2

CEOS SBA Allocation: Disasters

Lead Agency: ESA

Participating Agencies:

Constellation: ACC

Working Group: N/A

Due Date: 31 December 2011

Last Reported Update: 8 September 2011

**CLOSED-  
Superseded**

## Updates:

- This action appears to be subsumed by previous DI-09-02a\_2 and should be closed.

**Single  
Agency**

Claus Zehner

# Caribbean Satellite Disaster Pilot



Provision of satellite data and other support for Caribbean Satellite Disaster Pilot  
(formerly the Caribbean Flood Pilot)

CEOS Action: DI-09-02b\_2

CEOS Action Category: 2

CEOS SBA Allocation: Disasters

Lead Agency: NASA

Participating Agencies: ESA, CSA, ASI, USGS, DLR,  
NOAA, JAXA, UNOOSA, CCRS,  
CDEMA, UWI, CIMH

Constellation: LSI, OCR

Working Group: WGISS

Due Date: 30 June 2011

Last Reported Update: 26 August 2011

## Updates:

- June-November 2011: implementation of 2011-2012 workplan
- Fall 2011: input of CSDP to CDEMA multi-year planning activities and discussions with donor agencies
- November 2011: Draft plan/status on transition to becoming operational
- December 2011: Year Two review meeting at Comprehensive Disaster Management Conference and discussion with stakeholders on transition to sustainable operations
- The team is looking at the full cycle of disaster management across the Caribbean region, with focus on five national partners in close cooperation with regional agencies. Projects include activities related to hurricanes, flooding, earthquakes, landslides and general disaster preparedness.

# South African Flood and Health Pilot



Provision of satellite data and other support for the Southern African Flood and Health Pilot (formerly Namibia Flood Pilot)

CEOS Action: DI-09-02b\_3

CEOS Action Category: 1

CEOS SBA Allocation: Disasters

Lead Agency: NASA

Participating Agencies: CSA, ESA, DLR, EC-JRC, UNOOSA, USRI

Constellation: LSI

Working Group: WGISS

Due Date: 30 December 2011

Last Reported Update: 7 September 2011

## Updates:

- Revise hydrological key stations (end September 2011)
- Update waterlevels for past 5 years (end October 2011), Namibia Hydrology to pass on data, NASA to incorporate on Flood Dashboard
- Incorporate Radarsat-2, EO-1, and other high resolution satellite data as additional layers on the daily MODIS flood map (end October 2011)
- Daily update waterlevels (end November 2011)
- Update daily TRMM rainfall actuals and predictions (end November 2011), NASA
- Implement automated tasking interface for Radarsat-2 (end December 2011), CSA and NASA cooperative Predicted waterlevels for next 7 days (end January 2012)
- Data acquisition agreements required with some partner agencies; new imaging requirements for regional program need to be determined.
- Flooding conditions in radar imagery not identified because grass/reeds in flooded areas confusing detection algorithms. This issue needs to be worked with radar experts.



# Energy

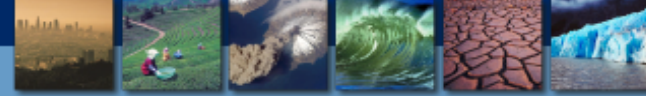


# ***Management of Energy Sources\****

**GEO Task EN-07-01**

**No CEOS  
Actions  
Identified but  
CEOS is GEO  
Task Lead**

# Health



# ***Information Systems for Health***

## **GEO Task HE-09-01**

# Space-based Imagery for Health Issues



Develop a long-term plan to support critical space-based imagery to support modeling, forecasting and monitoring of health issues.

CEOS Action: HE-09-01\_1

CEOS Action Category: 2

CEOS SBA Allocation: Health

Lead Agency: CNES

Participating Agencies: NOAA, NASA, INPE,  
UNOOSA

Constellation: N/A

Working Group: N/A

Due Date: 31 December 2011

Last Reported Update: 8 August 2011

## Updates:

- No recent progress
- Reorganization of GEO Health Tasks resulting in proposal of a new CEOS Health action (GEO Work Plan 2012-2015 v1 June 2011)

Murielle Lafaye



# ***End to End Projects for Health***

## **GEO Task HE-09-03**

- ***Towards a Globally Coordinated Malaria Warning System\****

GEO Sub-Task HE-09-03b

# Malaria Early Warning Systems



Malaria Early Warning systems - Ecological method and product integration into surveillance and decision making systems - taking an integrated approach to using satellite observations in supporting decision making in preventing Malaria outbreaks.

CEOS Action: HE-09-03b\_1

CEOS Action Category: 2

CEOS SBA Allocation: Health

Lead Agency: CNES

Participating Agencies: NOAA, CONAE, GISTDA,  
NASA

Constellation: N/A

Working Group: N/A

Due Date: 31 December 2011

Last Reported Update: 8 August 2011

## Updates:

- No recent progress
- Reorganization of GEO Health Tasks resulting in proposal of a new CEOS Health action (GEO Work Plan 2012-2015 v1 June 2011)

Murielle Lafaye

# Vegetation Health Index Products



Develop a plan to integrate in-situ vegetation health data to improve global Vegetation Health Index (VHI) products in affected countries.

CEOS Action: HE-09-03b\_4

CEOS Action Category: 2

CEOS SBA Allocation: Health

Lead Agency: NOAA

Participating Agencies: NASA, CNES, IRI, CDC,  
Malaria Institute,  
Namibia

Constellation: N/A

Working Group: N/A

Due Date: 30 December 2010

Last Reported Update: 17 February 2011

## Updates:

Felix Kogan



# Water



# ***Capacity Building for Water Resource Management***

## **GEO Task WA-06-07**

- ***Africa\****  
GEO Sub-Task WA-06-07b

# African Water Observation System



Follow-on of WA-06-07b\_1

Support the development of a sustainable African Water Observation Systems making the best use of EO technology to improve the collection of water information, to enhance knowledge of water cycle and to improve monitoring of water resources for effective adaptation and mitigation measures against impacts of climate change.

CEOS Action: WA-06-07b\_2

CEOS Action Category: 2

CEOS SBA Allocation: Water

Lead Agency: ESA

Participating Agencies: CSA

Constellation: N/A

Working Group: N/A

Due Date: 31 December 2012

Last Reported Update: 8 September 2011

## Updates:

- TIGER Capacity Building Facility:
  - 20 African projects on-going;
  - 4 training sessions organized in Africa;
  - 50 Research stages of African scientist supported by European expert centers;
- TIGER NET: new activity to be launched in 2011 to support the development of Water Observation Systems in collaboration with major basins and national water authorities.
- 16 ESA Data Dissemination Systems (DDS) installed in Africa
- SOAR-Africa: CSA initiative launched in 2011 supporting TIGER African projects to access Radarsat-2 data free of charge for scientific purposes and applications in Africa;
- TIGER workshop 2011, 12-13 December, Pretoria

Diego Fernandez Prieto  
Benjamin Koetz (as of Jan 2012)



# ***Integrated Products for Water Resource Management and Research***

## **GEO Task WA-08-01**

- ***Water Cycle Data Integration***  
GEO Sub-Task WA-08-01e



To establish the CEOS Water Portal which provides assistance to the water relevant scientists and general users (or non-researchers) in the development of data services associated with data integration and distribution.

CEOS Action: WA-08-01e\_1

CEOS Action Category: 1

CEOS SBA Allocation: Water

Lead Agency: JAXA

Participating Agencies: NASA, NOAA

Constellation: N/A

Working Group: WGISS

Due Date: 31 March 2012

Last Reported Update: 9 August 2011

## Updates:

### a. Release Schedule

- ✓ The alpha version : Under operation.
- ✓ The beta version (or Version 1) : March 2012.

### b. Future Plan

- ✓ Collaboration with additional data partners/data centers (within CEOS and/or outside of CEOS).
- ✓ Usability improvements based on users' feed back.

Satoko Miura

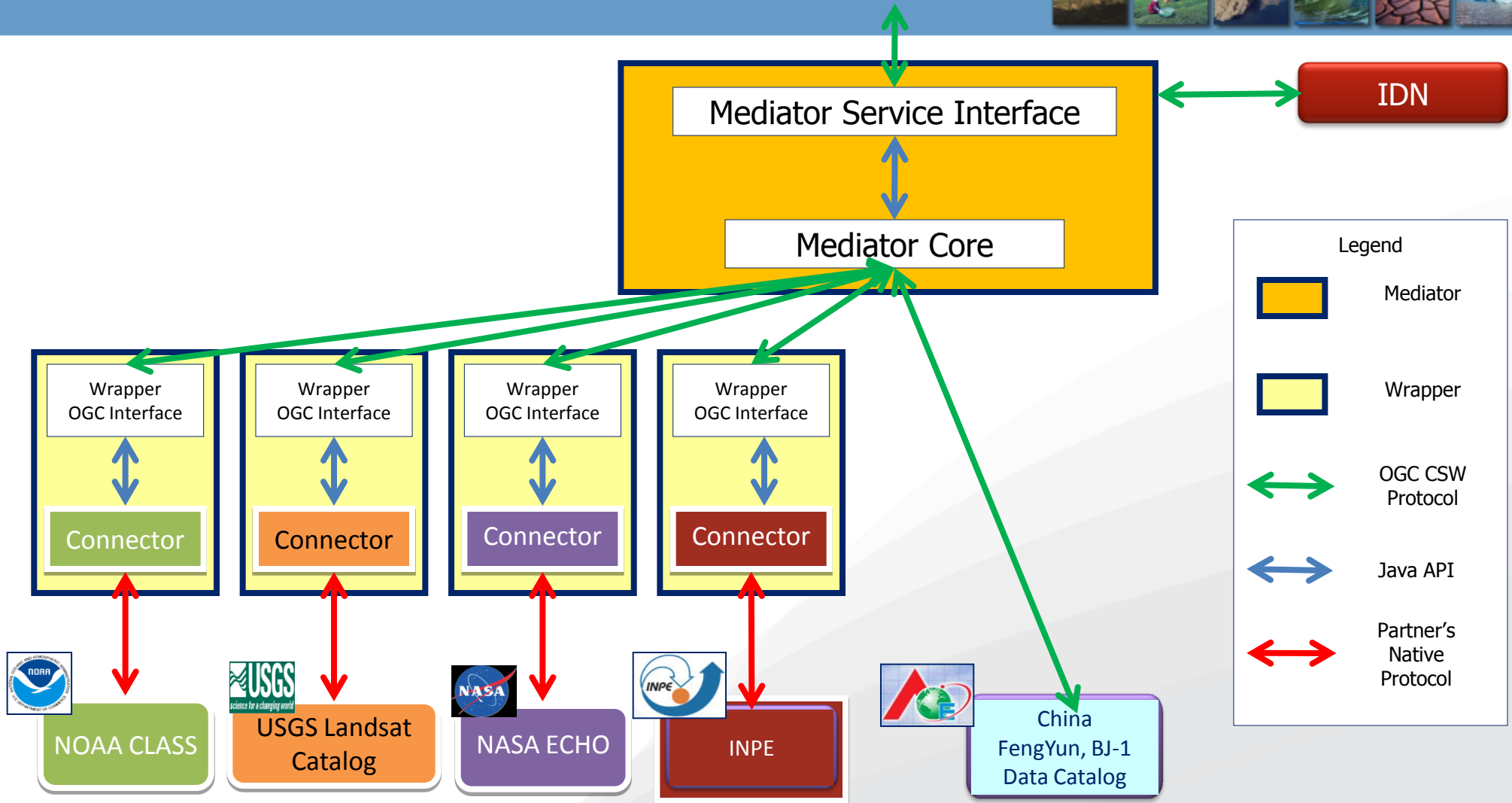


# BACK-UP SLIDES



- ❖ **CWIC Data Provider partners: NOAA, NASA, USGS, INPE, AOE (China: Beijing-1, NSMC)**
- ❖ **Work will start with new CWIC data provider partner, ESA (HMA), in October**
- ❖ **NASA CWIC Portal (initiated in late July) is a proof of concept prototype that will show how to use the IDN for directory capability and integrate it with access to CWIC for inventory capability.**
  - **Directory search using IDN controlled keywords**
  - **Inventory search (space & time, dataset name)**

# CWIC 1.0 Design





# CWIC Status (cont)



- ❖ **CWIC activity is providing a forum for CWIC partners to agree on consistent use of the GEO supported catalog standard and any needed extensions.**
- ❖ **Leverage WGISS experience with satellite data and with the types of access needed by WGISS agencies' user communities**
- ❖ **Additional CWIC partners showing interest (GISTDA, CCRS,..)**
- ❖ **"Operational" plans for CWIC Prototype needed**
- ❖ **Plans to register CWIC in the GCI in 2012**