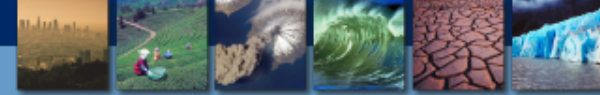


**Joint WGCV 35 /WGISS 34
Plenary Meetings
September 2012**

WGCV Work Plan & Cross CEOS Interaction

Greg Stensaas (USGS) WGCV Chair

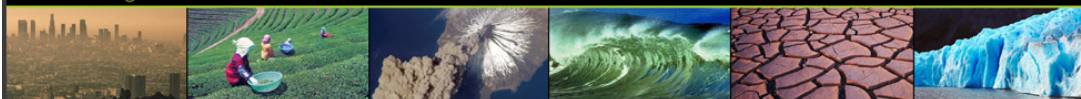




- **Communication!!**
- **Priorities!!**
- **Plans**
 - This year, 2012, is the year in which input is being gathered, options are being developed, and decisions are being made to define the way in which CEOS will do business and accomplish its goals. The year 2013 will be the year in which the three CEOS Strategic Documents are written. These documents, called for at the 2011 Plenary, include the *CEOS Strategic Guidance* (10 year lifespan); *Principles of Operation* (5-7 year lifespan); and the *Three-Year Work Plan* (3 year lifespan, with annual updates). The decisions and reports developed this year (2012) will form the context for – and contribute substantially toward the content of – the Strategic Documents.
- **SIT workshop results**



CEOS Committee on Earth Observation Satellites



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[CEOS Home](#)
[Background](#)
[Organization](#)
[Members & Associates](#)
[Meetings](#)
[Actions](#)
[Documentation](#)
[Publications/Governing Docs](#)
[Contacts](#)
[Self Study](#)

Strategic Groups

[SIT - Strategic Implem. Team](#)
[SEO - Sys. Engineering Office](#)

Working Groups

[WGCV - Calibration/Validation](#)
[WGISS - Information Systems](#)
[WGCapD - Data Democracy](#)
[WGClimat - Climate](#)

Constellations

[ACC-Atmos Composition](#)
[LSI-Land Surface Imaging](#)
[OST-Ocean Surf Topography](#)
[PC-Precipitation](#)
[OCR-Ocean Color Radiometry](#)
[OSW-Ocean Surf Vect Wind](#)
[SST - Sea Surface Temp](#)

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Meetings

The CEOS SIT Technical Workshop and Related CEOS Self-Study Implementation Workshop

This annual meeting will take place the week of September 10, 2012. Visit www.ceossit.com for more information and to register. It is requested that all CEOS Agency representatives with direct responsibility for implementation of CEOS-wide initiatives and actions attend these meetings. Please take note of your requested role on the draft agenda and plan accordingly.

[Invitation Letter](#) - [Agenda Sep 7 Update](#) - [Meeting Documents & Presentations](#)



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[Land Surface Imaging \(LSI\)](#)
[Atmospheric Composition \(AC\)](#)
[Climate Diagnostics](#)
[Calibration / Validation](#)
[Forest Carbon Tracking](#)
[CEOS Water Portal](#)

CEOS SIT Meetings

[SIT-27](#), March 26-30, 2012. La Jolla, CA, USA
[SIT-26](#), May 24-25, 2011. Frascati, Italy.
[SIT-25](#), April 13-14, 2010. Tokyo, Japan.
[SIT-24](#), September 10-11, 2009. Darmstadt, Germany.
[SIT-23](#), March 3-5, 2009. Cocoa Beach, FL, USA.
[SIT-22](#), September 17-18, 2008. Tokyo, Japan.
[SIT-21](#), April 22-24, 2008. Woods Hole, Massachusetts, USA.

CEOS Plenary

[2011 25th Plenary - Italy](#)
[2010 24th Plenary - Brazil](#)
[2009 23rd Plenary - Thailand](#)
[2008 22nd Plenary - South Africa](#)
[2007 21st Plenary - Hawaii](#)

Click [here](#) to Download Highlights from Previous Plenary Meetings.

Other Meetings

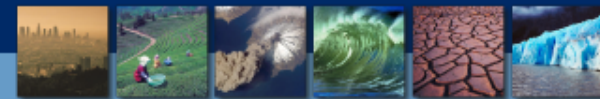
[CEOS Actions Workshop Arlington, VA February 14-15, 2012](#) & [Water Side Meetings](#)
(See Presentations from Water Portal Side Meetings as well).

[SIT Technical Workshop Arlington, VA September 13-14, 2011](#)

[CEOS Actions Workshop Arlington, VA February 14-15, 2012](#)



- **WGCV and WGCV SG CEOS Membership needs**
 - Active participation from all members and/or support to key technical organizations within their sphere of influence
 - Prioritization and commitment to cooperative/shared international cal/val efforts.
- **VC and WG interaction requirements or expectations**
 - Clear requirements/needs & terminology from WGs, & VCs e.g.
 - definition of “stability” – self-consistency, accuracy, repeatability...
 - Uncertainty/performance requirements
 - Utilization of SGs for Cal/Val or reporting of it through the SG
- **Ideas for CEOS SIT/SEC level planning consideration**
 - Establishment of “simple to operate” framework to facilitate multi-agency (combined) resource to develop & maintain CEOS coordinated, mission and geography independent, Cal/Val infrastructure (test-sites, comparisons, access to results/data)
 - Relative priority to agencies of sensor interoperability and long term data sets for climate and consequential commitment to a robust “CEOS (inter-agency) Cal/Val infrastructure
 - How does CEOS engage with private sector missions particularly in terms of Cal/Val



- **WGCV POC List for WGs and VCs**
 - **Would like to have a WGCV POC attend or call into VC and WG meetings as needed.**

Acronym	Leads	WG Contact to WGCV	WGCV POCs	WGCV subgroup responsibility	other WGCV VC/WG POCs	Near term Requirement
WGISS	JAXA, TBD		Chair & Vice Chair			Strong coordination need for defining cal/val and quality assurance/control implementation components and models in support of electronic implementation in the databases, metadata, and viewers. Need for cal/val data archive and viewer.
WGC	JRC, NOAA		Chair & Vice Chair and Lecomte		LPV/IVOS	ECV cal/val support, validation of model products, quality definitions and processes
WGCBDD	NOAA, INPE		Chair & Vice Chair			Strong need for training and outreach relative to cal/val, QA4EO, accuracy, error, uncertainty and traceability.
WGCV	USGS, CSA		N/A			Cal/val DD statement
SST			UK, David Llewellyn-Jones	IVOS		improve cal/val data support of monitoring, assessment and predictive capabilities for SST
OCR			NIST, Carol Johnson	IVOS		improve cal/val data support of monitoring, assessment and predictive capabilities for QC
OSVW			Xialong Dong (Action)	MW		cal/val data support
OST			Xialong Dong (Action)	MW		cal/val data support
P			Xialong Dong (Action)	MW	LPV	cal/val data support
LSI			Greg Stensaas	IVOS	SAR, TM	ensure cal/val processes and data for LSI tasks, FCT, GFOI interoperability, SAR cal/val, cal of climate and EVC instruments and validation of products
AC			Bojan R. Bojkov	AC		improve cal/val data is support of monitoring, assessment and predictive capabilities for changes in the ozone layer, air quality and climate forcing
			Jean-Christopher Lambert	AC		
			Albrecht von-Bargen	AC		



- **Wish List:**
 - **WGCV Plenary specific participation support needed from:**
 - **CDTI (Spain), CONAE (Argentina), GISTDA (Thailand), KARI (Korea), NRSCC (P.R. China), ROSHYDROMET (Russia), NSMC/CMA (China), NSO (Netherlands), SANSA (South Africa), Tubitak-Uzay (Turkey), GCOS, WMO GSICIS,**
 - **WGCV subgroup support from all members and specifically from:**
 - **IVOS: CSA, CAST, CRESDA, ROSCOSMOS**
 - **SAR: awaiting input**
 - **LPV: awaiting input**
 - **TMSG: awaiting input**
 - **ACSG: awaiting input**
 - **MSSG: awaiting input**



- Interaction email to each WG, VC, and CEOS Task Lead asking for detailed cal/val support needs; Define support at WGCV level or establish SIT/SEC action

WGs		WGCV Subgroup	Detailed need from VC/WG/CEOS task	priority number	Point of contact	
	Estimated Task/effort	Name	statement/requirement	1, 2, 3, 4, ...	Name	email
WGC	Support ECVs; FaPAR, NDVI, LST, Albedo, Surface Reflectance, ...	IVOS, LPV				
	Support quality definition process	IVOS, AC, LPV				
	Support update of cal/val site and instrumentation requirements					
	Dataset Calibration quality to feed ECVs	IVOS, AC,				
	Understand uncertainty accuracy and uncertainty between instruments					
	Support continuity and consistency in the validation of datasets					
	Support long-term homogeneity of datasets and products					
	Support indices of quality, maturity and uncertainty					
WGCapD	Outreach and support of integration of QA into GEO	all WGCV/subgroups				
	Training and support of QA4EO Implementation in CEOS					
	Defining the DD statement for all cal/val data					
	Support a cal/val data interface in CEOS					
	Need help with presentation of showcases and pilots					
WGISS	Integration of cal/val specific information into CEOS data architecture	all WGCV/subgroups				
	Incorporation and identification of all defined cal/val site data into architecture					
	Define quality and maturity fields in database and metadata					
	Support for archive of cal/val, SDAPs, ancillary data, ...					
	Support a cal/val data archive and interface in CEOS					
	Support a set of quality indicators					
SEO	requirements, system engineering, program management, tools, and other support	all WGCV				

Participation update



- Interaction email to each WG, VC, and CEOS Task Lead asking for detailed cal/val support needs; Define support at WGCV level or establish SIT/SEC action

Tasks	Task/effort	WGCV Subgroup
		Name
Climate ECV	cal/validation support	all Subgroups
GFOI/FCT	cal/validation support	IVOS/LPV/SAR,
	Product uncertainty evaluation support	IVOS/LPV/SAR,
	Develop a Cal/Val/QA showcase	IVOS/LPV/SAR,
JCAM/GLAM/G		
EOBON	cal/validation support	IVOS, LPV
GEOhazards	cal/validation support	TMSG, IVOS, SAR
QA4EO		WGCV and Subgroups
	Support GEO/CEOS showcases; FCT Ozone, Elevation	IVOS/LPV/SAR, ACSG, TMSG
	Develop new QA4EO Implementation Pilots	
	Lead the CEOS and support the GEO Tasks	
	Develop QA definitions and quality indicators	
	Support indices of quality, maturity and uncertainty for datasets and information	
	Support the development quality indicators and "fit for purpose process for GEO	
	Development for quality indicators and "fit for purpose process for CEOS	
	Continue to develop and support the uncertainty analysis on higher level products, ECVs, and modeling	
	Support long-term homogeneity of datasets	
	QA4EO Sec and Web Support	
	Quality infrastructure	
	Support definitions for WGISS architecture implementation	
Cal/Val Sites and Processes	Define and prioritize for all WGCV subgroup related instruments and ECV products	WGCV & subgroups
	Define associated Cal and val processes for use over test sites	WGCV & subgroups
	Establish instrumentation list and support requirements for test sites	WGCV & subgroups
	cal/val processes	WGCV & subgroups
CTF	quality and validation support	WGCV
DD; GCI/GEOS		
DataCORE;	need support from others	

VCs	Task/effort	WGCV Subgroup
		Name
SST	Support calibration activities via IVOS	IVOS
	Support CEOS recommended test sites	IVOS
	Support SST ECV validation	IVOS
	Understand uncertainty accuracy and uncertainty between instruments	IVOS
	Support independent expert-group assessment of datasets	IVOS
OSVW		
	Support independent expert-group assessment of datasets	MW
	Support indices of maturity and uncertainty	MW
	Understand uncertainty accuracy and uncertainty between instruments	MW
OSCR	Support calibration activities via IVOS	IVOS
	Support CEOS recommended test sites	IVOS, LPV
	Support OC ECV validation	IVOS, LPV
	Understand uncertainty accuracy and uncertainty between instruments	IVOS
	Support independent expert-group assessment of datasets	IVOS, LPV
	Support calibration campaigns	IVOS
LSI		
	Support GFOI/FCT calibration and validation for IVOS and SAR instruments	IVOS, LPV, SAR
	Support JCAM validation	LPV
	Continue to support the uncertainty analysis on higher level products, ECVs, and modeling	IVOS, LPV, SAR, TMSG
	Support independent expert-group assessment of datasets	IVOS, LPV, SAR
	Understand accuracy and uncertainty between instruments and products	IVOS, LPV, SAR
AC		
	Support atmospheric adjustment for satellite retrievals	ACSG
	Support continuity and consistency in the validation of datasets	ACSG
	Support long-term homogeneity of datasets.	ACSG
	Support indices of maturity and uncertainty of ECVs	ACSG
	Support independent expert-group assessment of datasets	ACSG
	Understand uncertainty accuracy and uncertainty between instruments	ACSG
OST		
	Support CEOS recommended test sites	MW, LPV
	Support independent expert-group assessment of datasets	MW, LPV
	Support indices of maturity and uncertainty	MW, LPV
	Understand uncertainty accuracy and uncertainty between instruments	MW, LPV
Precip		
	Support the Soil Moisture ECV	MW, LPV
	Support independent expert-group assessment of datasets	MW, LPV
	Support indices of maturity and uncertainty	MW, LPV



Discussion



Updating the Work Plan



- WGCV
- CEOS Home
- WGCV Home
- Current Activities
- Events
- Meetings
- Structure
- Terms of Reference
- Members
- Contacts

- CEOS Main
- CEOS Home
- Background
- Organization
- Members & Associates
- Meetings
- Actions

Self Study

- WGCV Subgroups
- ACSG
- IVOS
- LPV
- MSSG
- SAR
- TMSG

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WGCV - Calibration/Validation

Calibration: The process of quantitatively defining the system responses to known, controlled signal inputs.

Validation: The process of assessing, by independent means, the quality of the data products derived from the system outputs.

Upcoming WGCV Events

WGCV-35 Plenary and WGISS-34 Joint Meeting	Hosted by ISRO, Hyderabad, India	September 23-28, 2012
--	----------------------------------	-----------------------

The WGCV has a five-year work plan covering the period of 2011-2016. To download the latest copy, click here: [WGCV Work Plan Version 5.4](#)

The 34th WGCV Plenary was hosted by CSIRO in Brisbane, Australia from 6-10 February 2012. Please visit the [WGCV-34 meeting](#) page for presentations and meeting information.

If you would like to be added to the WGCV mailing list then please contact the [WGCV Secretariat](#).



A QA4EO Workshop on Providing Harmonised Quality Information in Earth Observation Data by 2015 was held from 18th - 20th October 2011 in Harwell, UK. Visit the [QA4EO website](#) for meeting documentation and presentations.

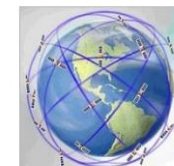
The [Draft QA4EO Implementation Plan](#) is a result of the GEO QA4EO Workshop (Oct. 2011), the WGCV-34 Plenary (Feb 2012), and QA4EO side meetings at [GEO CEOS Work Planning Meeting \(Feb 2012\)](#) and [SIT-27 Meeting \(Mar 2012\)](#). [SIT-27 QA4EO Side meeting presentation slides](#).

The 33rd WGCV plenary was hosted by the Russian Federal Space Agency (ROSCOSMOS) from 17 - 20 May 2011 in Moscow, Russia. Please visit the [WGCV-33 page](#) for more details on the meeting and a list of presentations.



To find out more details on the current focus for the work of the WGCV visit the [Current Activities page](#)

Visit the subgroup pages for details on specific topic or sensor related activities:



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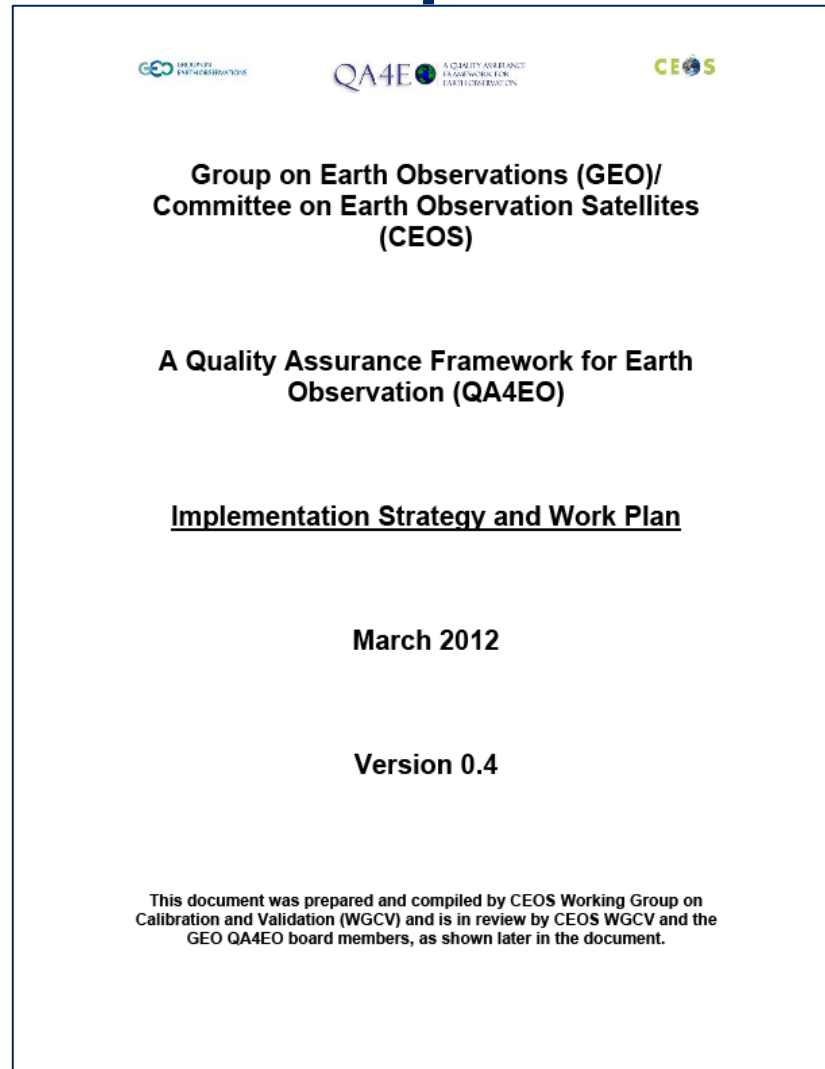
[Forest Carbon Tracking](#)

[CEOS Water Portal](#)

QA4EO Implementation Plan



- **Based on, previous workshop outcomes and actions**





• **Management of CEOS QA4EO Implementation:**

- Evolve QA4EO, scope and guidelines
- Develop and refine of Implementation Strategy
- Focal point for guidance on key guidelines and implementation
- Team/Effort requirements and tasks needed in CEOS for QA4EO
- Develop and define implementation prioritization of QA4EO needs in CEOS
- Create the implementation requests to obtain resource in CEOS and present to CEOS management
- Support management and integration across CEOS
- Create Ad hoc Working Groups for Implementation of new tasks or efforts in accordance with on-going CEOS efforts

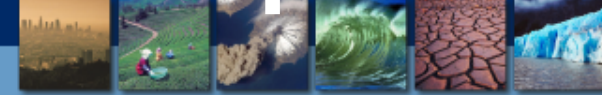
Members:

- WGCV Chair/Vice Chair
- WGCV Subgroup Chairs and delegates
- WMO
- Metrological Standards bodies (2 minimum)
- QA4EO Secretariat
- WGClimat, WGCapD, WGISS delegates
- Virtual Constellation and CEOS effort leads and/or delegates
- All members of the CEOS QA4EO Management Team will be invited and considered as support and maybe called upon as needed by the taskforce.



- **UKSA with Centre of Carbon Management (CCM) at the National Physical Laboratory (NPL)**
 - **2 year effort to support QA4EO implementation support – secretariat, web, leadership**
 - **<http://www.npl.co.uk/carbon-measurements>**

WGCV engage in common efforts w/ other CEOS components



- **WGCV engaged in these efforts and gather GEO/CEOS /support efforts to move QA4EO forward**
 - QA definitions/standards
 - Quality in metadata, “fit for purpose” information, accuracy, error, uncertainty, traceability
 - Fields in GEO and CEOS data structure
 - System specs and standards?
 - ECV cal/val and QA
 - Carbon and climate requirements validation
 - In situ and modeling quality, uncertainty, traceability
 - Other related programs and tasks
 - ISO

QA4EO actions required of SIT and CEOS members



- **CEOS members to provide examples of activities current or past which are consistent with QA4EO principles which can be used as case studies on new web-site.**
- **Agencies to present/summarize their efforts to meet QA4EO principles to QA4EO implementation team/SIT.**
- **Encourage appropriate “badging” use of CEOS Quality/QA4EO logo to build awareness and visibility**
- **Provide key representatives to support any evolution/additions of the guidelines**
 - **Climate data “maturity index”**
 - **Long Term Data Preservation (LTDP)**
 - **High level product QIs**

QA4EO actions required of SIT and CEOS members (continued)



- **CEOS (GEO SBA) contacts to promote principles and implementation in GEO.**
- **Agencies to encourage reporting of QI (uncertainties with data they supply) and providing ready access to necessary metadata providing evidence to support it.**
- **Agencies to request appropriate QA information from providers (utilizing QA4EO as shorthand specification) to stimulate and progress QA4EO principles.**
- **Agencies to provide resource to facilitate QA4EO implementation team in delivering actions.**

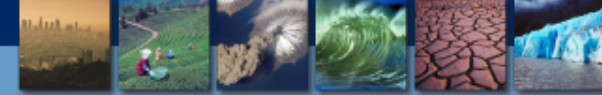
Why so much attention to Data Quality now?



- In the past, it was difficult to access satellite data.
- Now, within minutes, a user can find and access multiple datasets from various remotely located archives via web services and perform a quick analysis.
- This is the so-called Data Intensive Science.
- The new challenge is to quickly figure out which of those multiple and easily accessible data are more appropriate for a particular use.
- However, our remote sensing data are not ready for this challenge – there is no consistent approach for characterizing quality of our data.
- This is why data quality is hot now.

Leptoukh, Pecora'11

Moving from Data to Information



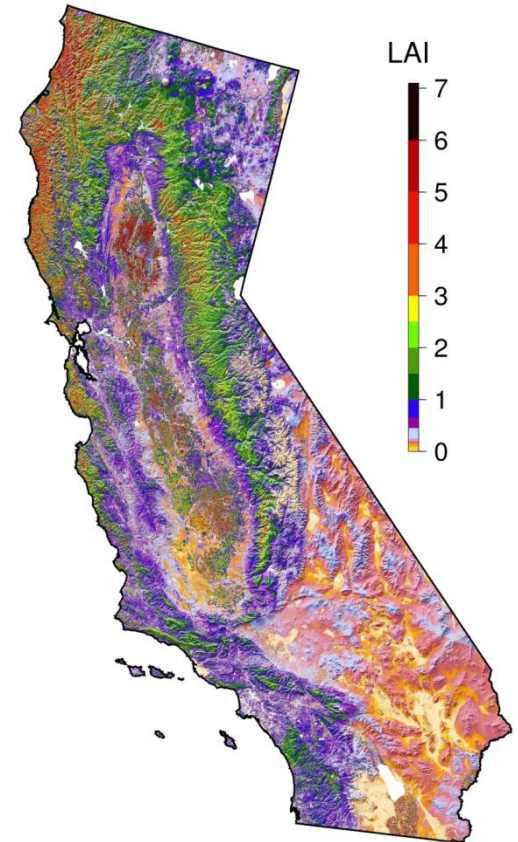
**L1T At-sensor Radiance
(FCDR)**



**Surface Reflectance
(TCDR)**



**Leaf Area Index
(ECV)**



Why so difficult?



- **Quality is perceived differently by data providers and data recipients.**
- **Many different qualitative and quantitative aspects of quality.**
- **No comprehensive framework for remote sensing Level 2 and higher data quality**
- **No preferred methodologies for solving many data quality issues**
- **Data quality aspect had lower priority than building an instrument, launching a rocket, collecting/processing data, and publishing a paper using these data.**
- **Each science team handled quality differently.**



- 1) WGCV teams should also suggest ideas of quality data metadata fields for the key sensors and products.

WGISS to look at quality metadata for WGISS 35

- 2) Metadata requirements for quality, need to tap each WGCV working group for sensor information. Have WGISS find out what is available. Get NASA ESIP feed back on this and others.

ISO?? 19115, 19113, 19157, 19159,

IEEE ...

ASPRS/ISPRS

others



3) Data access of CEOS Test Site information starting with:

- 1) CEOS IVOS sites (also test first one prior to meeting for Libya 4 site), 2) LPV sites, 3) SAR, 4) DEM and others. Recommend starting with some key examples. SG support needed.

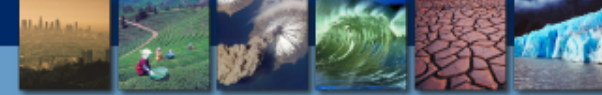
4) Quality indicators: get WGCV SG support and ideas and ideas from WGISS.

Search on high level and then get more detail

5) It would be good to have input from an ECV quality perspective (Working Group on Climate).

How does quality assurance information on ECV products get populated and stored and what are the documentation components needed

Ties into LTDP tasks



6) Identifying key partners and how they benefit the working group and they benefit from WG

- working sharing experiences and lessons learned in engaging additional partners
- Based on WGISS suggest, I believe data access is very good;
- data quality requirements from VC would great suggestion

WGISS use Wish list from VCs


What about ESA, IEEE, ISO, APSRS/ISPRS

7) Updated and develop new showcases

Good comment on DEM; how do decide on showcase if there a format for presentation is there a media or place to put them

WGISS – new DEMqis





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You are here: Home » Satellite » Test Sites Catalog

Test Site Catalog

In an era when the number of Earth-observing satellites is rapidly growing and measurements from these sensors are used to answer increasingly urgent global issues, it is imperative that scientists and decision makers rely on the accuracy of Earth-observing data products. The characterization and calibration of these sensors are vital to achieve an integrated Global Earth Observation System of Systems (GEOSS) for coordinated and sustained observations of Earth. The U.S. Geological Survey (USGS), as a supporting member of the Committee on Earth Observation Satellites (CEOS) and GEOSS, worked with partners around the world to establish an [online Catalog](#) of prime candidate worldwide test sites ([Poster](#)) for the post launch characterization and calibration of space-based optical imaging sensors. The online Catalog provides easy public Web site access to this vital information for the global community. Through greater access to and understanding of these vital test sites and their use, the validity and utility of information gained from Earth remote sensing will continue to improve.

Contact Information: Gyanesh Chander gchander@usgs.gov or Gregory L. Stensaas stensaas@usgs.gov



Click on a Continent to View Radiometric Test Sites

Test Site Home

RADIOMETRIC SITES

Select Site

- CEOS Reference Sites
- Radiometry Test Site Gallery
- Download Google Earth KMZ

GEOMETRIC SITES

Select Site

ADDITIONAL INFORMATION

- Acronyms
- References






http://calvalportal.ceos.org/cvp/web/guest

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Sites ▸

Documentation ▸

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QA4EO ▸

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CalVal Home

The Committee on Earth Observation Satellites (CEOS) is providing information and data for Calibration (Cal) and Validation (Val) of Earth Observation (EO) data through this portal.

This portal shall support worldwide activities on calibration and validation, and specifically ensure that sensor intercalibration is favoured in a standardised way. The overall goal is to increase measurement accuracy of all the sensors which will be supported by this system, so that the GMES (Global Monitoring for Environment and Security) programme can be served with the best information products available.

Currently the portal is dedicated to calibration of Infrared and Visible Optical Sensors (IVOS)

Cal/Val Events!

CEOS WGCV 35 MEETING - 23-28 September 2012 - <READ MORE>

Past events:

- SENTINEL 2 PREPARATORY SYMPOSIUM - <AGENDA + PRESENTATIONS>
- SENTINEL 3 CAL/VAL PLANNING MEETING - <PRESENTATIONS> - READ MORE
- IEEE TGARS SPECIAL EVENT ON "SATELLITE INTER-CALIBRATION" - READ MORE!!!
- CEOS WGCV IVOS WORKSHOP 2010, October 18-20 -- <AGENDA+Presentations> -- <Summary and Actions> PRIORITY ACTION [A1] [A2] [A3]
- Special Session on Land Product Validation -- <READ MORE>
- NEWSLETTER No 4 Now Online!!

- CEOS Land Cal/Val Event - Tuz Golu - 14-25 August 2010 <READ MORE> <DAYLY BLOG>
- SMOS Validation and Retrieval Team workshop, Frascati (Italy), 29-30 November 2010 <READ MORE>
- CALCON Technical Conference - 23-26 August 2010, Logan, UT, U.S.A - More Info
- COVE (CEOS Visualization Environment) IS ONLINE and available HERE!!!!
- WGCV-31 Meeting: Presentations available HERE
- CEOS LAND CALIBRATION EVENT 2010 - More Info
- CEOS SENSOR CALIBRATION EVENT 2010 - More Info
- 11-14 May 2010 : CEOS WGCV Infrared and Visible Optical Sensors Subgroup meeting, DST, South Africa

"When you can measure what you are speaking about and express it in numbers you know something about it; but when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind" (Lord Kelvin, 1883)

A Memory from the first lesson of Physics

Cal/Val News

[S[SMOS]: August
Activ2012 Activity Report

[S[SMOS]: July 2012
ActivActivity Report

[S[SMOS]: June2012
ActivActivity Report

[S[SMOS]: May 2012
ActivActivity Report

The new Cal/Val Portal

BIPe Working Group



- 8) Portal Quality and Commonality\ new portals
- 9) Linking of CEOS tools and accessibility of tools
- 10) Data Accessibility and availability – list per mission ?
Data Policy – CAL/VAL – free and open
- 11) CEOS related calendar
For subgroups – and other CEOS related efforts