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## SIT-25 Meeting Results and the Way Forward

*Makoto Kajii, JAXA (Japan), SIT Chair*

The 25<sup>th</sup> Meeting of the CEOS Strategic Implementation Team (SIT-25) was held on April 14<sup>th</sup> and 15<sup>th</sup>, 2010 in Tokyo, Japan. Sixty CEOS colleagues from 18 agencies participated in the meeting and had a lively and productive discussion. On behalf of CEOS SIT, I would like to express my sincere appreciation to all the participants and relevant people for the efforts put into the meeting, from preparation to follow-up of the meeting results.

One of the most important subjects discussed at the SIT-25 was the coordination of the CEOS plans for the GEO Ministerial Summit, scheduled for November 2010 in Beijing. The Summit will be a crucial milestone for GEO, since we enter the second half of the GEOSS 10-Year Implementation Plan. It is not only important to demonstrate to the GEO-related Ministers the progress of these grand-scale activities, but it will also be a good occasion for CEOS to show our contributions to the GEO.

CEOS carries out a wide variety of activities. Through the Working Groups and the Virtual Constellation teams, the experts of the CEOS member agencies conduct important cooperative projects and create valuable outcomes. The Earth Science Mission, Instruments and Measurement (MIM) database developed and maintained by ESA is an important system for CEOS. The CEOS cooperative activities are supported by NASA System Engineering Office (SEO), CEOS Executive Officer (CEO), SBA coordinators and the CEOS Secretariat.

For the Ministerial Summit we need to focus on the CEOS efforts closely related to the issue of global climate change. Today the global climate change poses a serious threat to humankind and must be tackled

by the international community as a whole. The major activities of CEOS are the Green House Gasses (GHG) observation from space, Forest Carbon Tracking (FCT), Data Democracy, and a formal response to the Global Climate Observation System (GCOS) requirements.

GHG observation and FCT satellite observation in combining in-situ observation have great possibility as the tools to address global warming, and they are advantageous in terms of cost and efficiency as compared to the other tools of similar purpose. We CEOS have the responsibility to inform these important features and technical status of satellite observations to the global community.

The Data Democracy initiative led by the past and current CEOS chair agencies is also important for the global climate issue. In order to address the issue at the global level, it is essential to raise awareness and build capacity of the developing countries that have lesser satellite observation and data utilization capacity

CEOS has been responding to the Global Climate Observing System (GCOS) through reporting CEOS efforts on climate observation. To coordinate details on Essential Climate Variables (ECV) base observation, however, we need further coordination of observation efforts among the CEOS agencies.

It was agreed at SIT-25 to create a high-level publication, and introduce four climate change related activities of CEOS.

Regarding the Virtual Constellations it was also discussed how CEOS

should manage the activities. Although no conclusion was derived, such a discussion should be continued in order for CEOS to understand and support the activities.

The next SIT meeting is tentatively planned for early year 2011, a year after SIT-25. In the meantime, there will be a SIT Technical Workshop, a working level meeting, and the CEOS Plenary in Rio de Janeiro in October 2010.

Even though CEOS was established nearly 3 decades ago in 1984 in response to the G7 Summit, visibility of CEOS among the global community is not very high. While gaining recognition should not be the aim itself, outreach of CEOS efforts, especially of those related to the climate change issue, is very crucial for both global community and CEOS. The forthcoming CEOS Plenary is an important opportunity for such an outreach. I expect the CEOS message to be delivered to external stakeholders under the leadership of CEOS Chair.

Finally, I would like to thank my CEOS colleagues who made presentations at the symposium, Expectation to the Climate Change Monitoring using Earth Observation Satellites, held on the day after SIT-25 at the same venue in Tokyo. It is my pleasure to report that the symposium was a great success, attended by many Japanese stakeholders who have shown great interests in our activities. ■



Participants of the CEOS SIT-25 in Tokyo



## CEOS and GEO Cooperation

**Robert Koopman**, *GEO Secretariat (Switzerland)*  
**Ivan Petiteville**, *CEOS Executive Officer, ESA (Italy)*

**F**rom the early days of GEO, the Space Agencies members of CEOS have dedicated significant human, financial and technical resources to support the implementation of the GEO System of Systems (GEOSS). Some figures to illustrate that effort:

- every year, at least four staff from CEOS Member Agencies are permanently seconded to the GEO Secretariat
- in addition to the contribution of several Space Agencies directly through their GEO Member country, CEOS coordinates the activities of seventeen GEO Task Teams and contributes to roughly 20% of all the GEO Tasks
- CEOS has created six virtual constellations so far to support the activities of the GEO community in a cross-cutting manner.
- More than hundred persons actively contribute to GEO through the CEOS Working Groups and the CEOS Virtual Constellation teams
- Beginning of 2010, one third of the GEOSS resources had been registered by CEOS.
- 6 CEOS Representatives have participated to the recent GEO Work Plan Symposium to present the status and achievements of 17 GEO Tasks (out of 80 presented)

The adequacy of the cooperation activities undertaken both within CEOS and with its partners in GEO requires a continuous dialog between CEOS and the GEO Secretariat as well as a close interaction with other GEO Members and Participating Organizations. The optimized management of the resources allocated by the CEOS Members to support those cooperation activities is made possible thanks to the CEOS organization and structure and also requires a permanent attention from the CEOS Executive Officer (CEO) as tasked by CEOS. While the GEO Secretariat Director regularly meets the CEOS Chair and the CEOS Members representatives, the day-to-day working relationship between CEOS and the GEO Secretariat is also one of the tasks of CEOS Executive Officer. Since the beginning of GEO, the motivation and professionalism of the GEO Secretariat staff has largely contributed to the fruitful relationship with CEOS. The constructive dialog with the GEO Secretariat is important for CEOS to establish its strategic priorities.

As for overall GEOSS progress, a recent highlight has been the First GEO Work Plan Symposium, held in Pretoria, South Africa from 17 to 19 May 2010. This event united for the first time a large



Photo from the GEO Work Plan Symposium in Pretoria, South Africa

part (approximately 70%) of the Work Plan Task leaders, and focussed on exploring dependencies and synergies between Tasks in order to strengthen the System of Systems and contribute to achieving added value. This new event supports the particular phase into which GEOSS has entered, where it transitions from a Collection of Systems to an integrated System of Systems. Participants unanimously considered this opportunity to learn about the great variety of GEOSS activities an eye opener and look forward to bring the newly gained knowledge of each others activities into collaborative practice in the months after the work shop.

As for the Work Plan itself, major developments have been the rapid response to the Haiti and Chile earthquakes, with dedicated supersites hosting collections of bespoke observations (many from CEOS agencies) over these areas, and PAGER and ShakeMap sites providing estimates of the social impacts of these disasters. Apart from earthquakes also information systems on wild fires, droughts, floods and ocean waves became operational. Numerous reanalyses of Climate datasets are underway, often involving CEOS agencies, and one these efforts (NOAA 20<sup>th</sup> Century Re-analysis) covered the period 1891 to 2008. A dedicated coordination team has defined detailed procedures to come to selection of the components for the GEOSS Common Infrastructure, and in particular for its Clearinghouse and Web Portal. INPE and EC/JRC have executed the functional tests of the candidate facilities.

Selected major highlights will take centre stage at the Beijing Ministerial Summit, namely the Carbon, GEOBON, Asia Regional, Capacity Building, Health and Disaster showcases. The showcase on Carbon Observation, Modelling and Assessment includes the activity on Satellite Observations, and the Forest Carbon Tracking project for which CEOS agencies are contributing significant coordination, data and processing resources.

These showcases are among the elements that help to shape the GEO highlight of the year; the 5 November Ministerial Summit. Gradually the plans for many exhibitions in the huge hall of the summit venue are taking shape, and the same is true for the many forms of supporting media, in particular the showcase and exhibition videos, and a number of dedicated publications, following on to those produced for the 2007 Cape Town Summit. ■

## Working Group on Calibration and Validation (WGCV)

*Pascal Lecomte, ESA/ESRIN (Italy), WGCV Chair*

The 31<sup>st</sup> Working Group on Calibration and Validation (WGCV) plenary meeting was hosted by the National Institute of Standards and Technology (NIST) at the Bolger Center in Potomac, Maryland, USA from 2–5 March 2010. Dr Gerald Fraser, the division chief in the Optical Technology Division at NIST, welcomed the participants to the meeting and provided some history and background to the many activities at NIST. NIST staff also made presentations on hyperspectral image projection for medical imaging applications, optical metrology in support of solar energy generation, and optical metrology for greenhouse gas measurements and climate science.



Participants to WGCV-31, hosted by NIST in Washington DC, USA, 2-5 March 2010

Main foci for the meeting were discussions on the GEO tasks that the WGCV are leading and are involved in. The WGCV is co-lead on task DA-09-01a - GEOSS Quality Assurance Strategy - and is focusing a great deal of effort in this area, including WGCV work efforts to support GEO and Global Climate Observing System (GCOS) Societal Benefit Area (SBA) actions. CEOS, as the space arm of GEO, understands the need for quality assurance processes and the strong negative impact on science conclusions by not using data and derived products that are documented and have a fully traceable quality indicator.

The Quality Assurance Framework for Earth Observation (QA4EO) has now been reviewed by the World Meteorological Organization (WMO) and the Global Space-based Inter-Calibration System (GSICS). New versions of the guidance documentation can be found on the QA4EO website at <http://qa4eo.org/>. The QA4EO team is currently reaching out to the wider GEOSS community to ensure QA4EO's applicability across the SBA areas and to embrace wider EO community needs. A

QA4EO workshop is being planned for June 2011 in the United Kingdom at which experts from all EO communities are welcome to participate and present on QA4EO.

The 2009 pilot Calibration/Validation (Cal/Val) intercomparison campaign in Tuz Gölü, Turkey had been very successful both in terms of bringing the community together and in the science undertaken. A full CEOS comparison of land surface reflectance campaign is being planned for August 2010. A CEOS comparison of top of the atmosphere (TOA) spectral radiance/reflectance is also planned. For more details on these campaigns and on how to participate please visit the Cal/Val portal at <http://calvalportal.ceos.org/>.

The WGCV is actively working towards a consolidated worldwide Cal/Val test site database, based on community agreed criteria. A catalogue of world wide test sites is currently under development with the latest terrestrial sites to be found at [http://calval.cr.usgs.gov/sites\\_catalog\\_map.php](http://calval.cr.usgs.gov/sites_catalog_map.php). A special issue of the Canadian Journal of Remote Sensing (CJRS) on "Terrestrial Reference Standard Test Sites for Post-Launch Calibration" is planned for publication in 2011.

Work towards establishing reference test site data collaboration & comparison also continues. Core test sites have already been identified within most of the subject / instrument domains covered by the WGCV subgroups. The next step would be for the Constellation teams and agencies to adopt the principle of core sites and then to demonstrate their value through cooperation and results. One site that covers the requirements from many subject / instrument domains is the Antarctic - Dome C. Using MODIS and SeaWiFS observations this site has been shown to be relatively stable with good spatial uniformity. This site has thus already been established as a community calibration reference standard site for the Visible and Near Infrared (VNIR) bands of polar-orbiting radiometers.

The 32<sup>nd</sup> WGCV plenary meeting will be a joint meeting with WGISS at the Canadian Space Agency headquarters, Montreal, Canada from 13-17 September 2010. More details on the WGCV and its activities can be found on the WGCV website at <http://www.ceos.org/wgcv/>. ■



## Working Group on Information Systems and Services (WGISS)



A message from WGISS Chair, **Dr. Pakorn Apaphant**, GISTDA (Thailand)

**I**n May WGISS just had its 29<sup>th</sup> Plenary and subgroup meeting at the UN Campus, Bonn, Germany, hosted by UN-SPIDER/UNOOSA. Forty five representatives of CEOS members and WGISS Liaisons participated. The meeting included one day for a special session on Supporting Disaster Management from Space.

During the plenary, we discussed the direction of WGISS in 2010, and we agreed that our activities should continue supporting the WGISS objectives, the CEOS Work Plan, and the CEOS Key Deliverables. Our current activities contributing to the GEO Work Plan include supporting the development of the Atmospheric Composition Portal (AR-09-02a), the WGISS Architecture and Data Contributions (WADC) project (DI-09-01b), providing recommendations for the Data Democracy Portal implementation team (CB-09-05e), and supporting the implementation of the Caribbean Flood Pilot project (DI-09-02b) and Namibian Flood Pilot project (DI-09-02b). We also look forward to cooperating with the Working Group on Calibration and Validation (WGCV) to support prototyping the Digital Elevation Model (DEM) Quality Information System (DA-09-03d) and continuing work on Sensor Web (AR-09-02c). WGISS always considers the importance of outreach activities, and has exchanged updated information with our liaisons regularly. For example, the Director of the Open Geospatial Consortium (OGC) European Services attended this meeting and in June Ken McDonald (NOAA) represented WGISS to give a presentation at the OGC Technical and Planning Committee meeting in Silver Spring, USA.

A number of speakers from the UN participated in the special session on Supporting Disaster Management from Space, and user requirements

from a UN perspective were then extracted and summarized. Topics covered were drought, desertification, refugees, water-related information, and disaster management and mitigation.

We found that the Applications Subgroup had accomplished much during the past months. The alpha and beta versions of the Atmospheric Composition Portal are expected to be released soon, and we also plan a demonstration at the GEO-VII Plenary. WGISS is seeking partnerships with other CEOS agencies for providing additional datasets and analytical tools. The Land Surface Imaging (LSI) Interest Group, in cooperation with the Constellation team, plans to enable granule-level search across multiple agency systems through the single LSI Portal. They also plan to develop a prototype CEOS WGISS Integrated Catalogue (CWIC) tool, and with WGCV, to develop a plan for including data quality information for LSI-related data and information products (QA4EO). The International Directory Network (IDN) Interest Group has also shown progress in the development of the Global Change Master Directory IDN Catalog Service; it is expected to be operational soon.

The Technology Subgroup has also shown promising results. WGISS inputs to the WADC project include WGISS Search Criteria v1.0 and the WGISS Domain Information Model. GCI testing identified the need for middleware providing a single point of search and access for satellite data, and a need to promote the number and visibility of community portals that tailor access to data and services needed by specific user communities. CWIC will distribute directory searches to the IDN, and inventory searches to the CWIC partner agency systems using native protocols. The Web Services Interest Group is also supporting CWIC development and implementation with the goals to establish CWIC as a web service. The Grid Interest Group and the Sensor Web Interest Group reported their technology contributions to GEO tasks. Proof of concept is provided for using Sensor Web for tasking and acquiring data from satellites, and Grids for workflow management and data processing.

I wish to express our appreciation to CEOS members and associates for continuing to support WGISS. Especially the members in Europe namely CNES, DLR, and ESA which continue to put momentum by sending new representatives to replace their retired members in this CEOS Working Group. ■



Group photo from WGISS-29 Plenary and Subgroup Meeting in Bonn

## Working Group on Education, Training and Capacity Building (WGEdu)

George Jungbluth, NOAA (USA)

Tania Maria Sausen, INPE (Brazil), a new group of Co-Chairs

The CEOS Working Group on Education, Training and Capacity Building just closed its yearly meeting where participants reported on their efforts in training and education, and the group planned an ambitious next year of activities.

This year's meeting, graciously hosted by CONAE in Puerto Iguazu Argentina, brought together CEOS representatives from CONAE, EUMETSAT, INPE, NASA, NOAA and USGS to review joint activities and agency contributions to education and capacity building over the past year, and map out cooperative efforts for 2011 and beyond.

The group noted that each participating agency conducts a large number of focused training events each year, which require greater coordination between CEOS members and a higher level of recognition as contributions from CEOS overall.

INPE and USGS also reported on the 2010 CEOS WGEdu training activity, which was held in Brazil March 29-31, devoted to geo-technologies for the monitoring of natural disasters. Next year's CEOS WGEdu Training will also be supported by USGS and INPE, and likely will focus on Central America.

NASA also reported on the progress of the inaugural EduFlow training module. EduFlow is a new project led by the CEOS Systems Engineering Office (SEO) whereby CEOS WGEdu members choose an application in remote sensing and a focus region and develop a training curriculum as a deliverable to CEOS. This year's deliverable is devoted to uses of remote sensing in coastal monitoring and management, focused on Argentina and using data from CONAE and other CEOS members. This training will be delivered to CEOS



CEOS WGEdu Argentina

at the Plenary in October. Next year's module is tentatively devoted to ash and dust monitoring and the consequences to the environment. Supporting the Data Democracy theme, this EduFlow module will incorporate access to free data sets, open-source visualization software, and capacity building programming to help build user communities for this data.

Data Democracy is another ongoing CEOS priority, and will become a key element of the work for the WGEdu. The WGEdu resolved to implement a new work strategy devoted to supporting Data Democracy. First steps, in addition to focusing the yearly EduFlow activity on Data Democracy, will include improving the WGEdu web page to make it easier for users of all levels to access free software and data. The WGEdu will work together with Data Democracy task leads within CNES and GISTDA to align ongoing efforts in training and open-source software.

The WGEdu took some time during the week of meetings to tour the nearby Iguazu Falls National Park, which is situated on the border of Argentina and Brazil.

Next year's meeting will be held in Hampton, Virginia USA, hosted by the CEOS SEO/NASA. ■



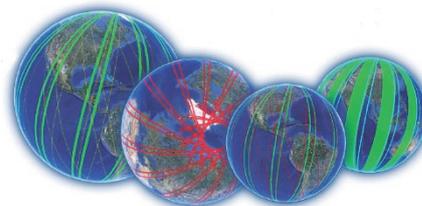
## Tools from the CEOS Systems Engineering Office (SEO)

**Dr. Brian Killough**, NASA (USA), SEO Director

The CEOS Systems Engineering Office (SEO) has released the first version of the CEOS Visualization Environment (COVE) tool. COVE is a browser-based tool that leverages Google-Earth to display satellite sensor coverage areas and identify satellite coincident scene locations. The primary features include coverage maps for 13 missions, multiple viewports, and collaborative session capabilities. Future enhancements will add new mission-instrument combinations, improve orbit accuracy, add selectable points or regions for coincident overpass calculations, model instrument pointing range, and include solar data.

We look forward to the future of COVE and expect its applications will continue to grow. This first version of COVE will undergo validation testing in the coming months to verify functionality and accuracy of groundtracks and coincidence predictions. During this period, we welcome feedback on its operation and potential applications. COVE can be found at: [www.ceos-cove.org](http://www.ceos-cove.org)

The SEO Systems Database is another new tool designed to support CEOS strategic planning and gap



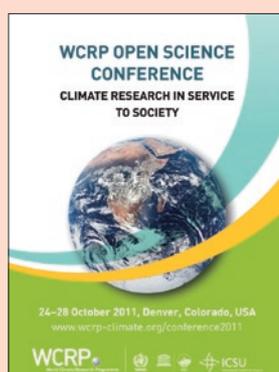
assessments. The content includes current and planned space-based missions (ESA MIM data) along with additional links to CEOS Constellations, GEO Societal Benefit Areas (SBA) and GCOS Essential Climate Variables (ECV). The database also contains measurement requirements from a variety of sources to support gap assessments. Resulting measurement and data continuity gaps will help identify potential collaborative opportunities for CEOS long-term strategic planning. Future enhancements include the addition of more requirements data, a statistics feature for data mining, and gap analysis products. The SEO envisions this tool will support the GEO Communities of Practice, CEOS Constellations, CEOS SIT leadership, and CEOS agencies. The Systems Database can be found at: [www.ceos-sysdb.org](http://www.ceos-sysdb.org)

The World Climate Research Programme (<http://wcrp.wmo.int>) will host a major international Open Science Conference (OSC) on 24-28 October 2011 in Denver, Colorado, USA.

WCRP is sponsored by the World Meteorological Organization (WMO), the International Council for Science (ICSU) and the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization (UNESCO).

A better understanding of the behaviour of the climate system and its interactions with other Earth system components is critical to predict its future evolution, reduce vulnerability to high impact weather and climate events, and sustain life. To prepare for

meeting these challenges, the WCRP Open Science Conference provides a unique opportunity to bring together major disciplines and leaders of the Earth system research community to help identify opportunities to advance further understanding and prediction of variability and change in the Earth's climate system from seasons to centuries, and from regions to the entire globe.



Through active dialogue among the international environmental change research experts, the OSC will:

- Appraise the current state of climate science, thereby making a measurable scientific contribution to the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC);
- Identify key opportunities and challenges in observations, modelling and analysis towards understanding and predicting the Earth's climate system;
- Facilitate discussion on interdisciplinary research required to understand and predict responses of the Earth as a system to climate variability and change, thus helping chart the path forward over the ensuing decades
- Highlight priority research in support of the Global Framework for Climate Services initiated at the World Climate Conference -3.

The conference aims to attract the world's experts to provide a unique synthesis of current research findings on climate variability and change, to identify the most urgent scientific issues and research challenges, and to ascertain how the WCRP can best facilitate research and develop partnerships critical for progress in the future.

For More information, please visit the conference webpage: [www.wcrp-climate.org/conference2011](http://www.wcrp-climate.org/conference2011)

## A Word from the CEOS Chair



**Dr. Gilberto Camara**, Director General, INPE (Brazil), 2010 CEOS Chair

Dear CEOS friends,

The next CEOS Plenary lies only two months ahead. It seems like just few months since INPE assumed the CEOS Chairmanship in November 2009. I must confess that we faced many challenges, but these only gave more strength to our team to work effortlessly to ensure the coordination and implementation of the Space Component of the Global Earth Observation System of Systems (GEOSS). We have experienced, throughout this year, the engagement of all CEOS agencies in support of the various CEOS priorities set for 2010. *Data Democracy* and *GEO Forest Carbon Tracking* were two of these initiatives. The meetings that have been held to discuss these issues have stimulated us to brainstorm on many issues, including the feasibility to monitor the state of the global tropical forests.

During this year, INPE and JAXA, the respective Chairs of CEOS and SIT, have been working together to establish a strong partnership that will be long lasting, ensuring continuity and self confidence to the next CEOS Chair.

I would like to present some of the achievements reached so far. Many meetings were held, each one resulting in important outputs and setting up of priorities. Before elaborating on these, it is relevant to mention the importance of the last CEOS Plenary in November, in Thailand, which set the framework for this year's activities and priorities. These priorities were organized in actions, mainly covering: Forest Carbon Tracking from Space, Global Monitoring of Greenhouse Gases (GHG) from Space, Data Democracy, High Profile CEOS Publication, CEOS response to Global Climate Observing System (GCOS) Implementation Plan.

Already in January, a very fruitful meeting organized by JAXA and CEOS CEO Ivan Petiteville, in Washington D.C., discussed the CEOS Actions in Support to GEO and also the CEOS support to the GCOS IP for 2010. The leadership role of Mr. Petiteville during the last few years was determinant to ensure the success of the meeting, stressing the importance of the effective participation of the CEO in this process.

In April, a SIT meeting in Tokyo provided an adequate forum for the Space Agencies to introduce their planned contributions and deliverables for key events in 2010. These included the GEO Plenary and Ministerial; the 16<sup>th</sup> Conference of the Parties (COP-16) to the United Nations Framework Convention on Climate Change; the 10<sup>th</sup> Conference of the Parties (COP-10) to the Convention on Biological Diversity; and G8/G20 meetings.

In June, GISTDA organized the Data Democracy Workshop on Climate Change in Bangkok, Thailand, with the participation of 45 participants from 10 countries. Many CEOS agencies, including INPE, CMA, JAXA, USGS, and ISRO, contributed to the event, guaranteeing the participation of a number of speakers in different sessions of the event.

Also, during COP-15, CEOS ran a side event on *Satellite Observations Contributing to Global Earth System Monitoring* with a keynote speech by the Nobel Laureate, Professor Paul Crutzen. In 2010, the CEOS Chair will work vigorously to ensure an equally high level of representation at a COP-16 side event, recognizing that the support of all CEOS members to this end is vital.

Of special relevance this year, is the GEO Ministerial Summit, to be held in November, in Beijing, China, given the political importance for the entire community of demonstrating good progress towards the GEOSS.

Time is running fast and we should start planning for the 24<sup>th</sup> CEOS Plenary, to be held in the beautiful city of Rio de Janeiro, Brazil. It will be an opportunity for us to jointly evaluate the progress made this year and to guide and facilitate the next CEOS Chair on its activities in 2011.

Hope to see you all there! ■

Contributions for future issues of the CEOS Newsletter from the CEOS Members and Associates, and subscriptions to the CEOS Newsletter, please contact : ceos-jpn@restec.or.jp

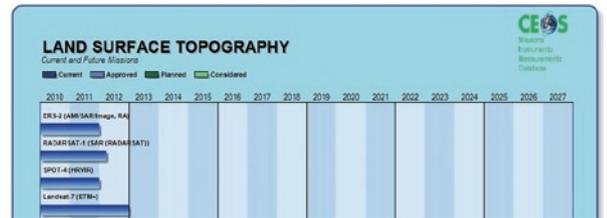
<http://www.ceos.org/> (→Publications & Services)

# CEOS Missions, Instruments and Measurements Database

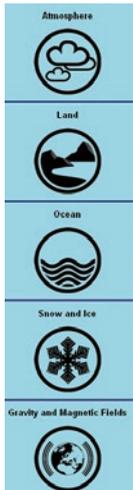
## – 2010 Updates and Refinements

Dr. Eva Oriol-Pibernat, ESA(Italy), CEOS Point of Contact

The 2010 update of the ESA-maintained CEOS Missions, Instruments and Measurements (MIM) database is currently underway, with inputs being gathered from more than 35 CEOS agencies. The database contains extensive information on satellite and instrument capabilities, and was established to support planning and optimization of future observing systems, with the primary aim of proving the extent to which space system capabilities meet user requirements for observations.



Improved measurement timelines



Browse instruments by measurement

The mission and instrument details provided by CEOS agencies is invaluable in providing the most up to date information for the MIM user community. This includes hundreds of website users, capability and gap analysis teams, eg in WMO and CEOS SEO - who use information for a number of activities, including support to CEOS Virtual Constellation teams. The database is also used in the production of the print and online versions of The Earth Observation Handbook (last printed version released in 2008).

In addition to the data update, a number of other enhancements are being planned for 2010 release

before CEOS Plenary in October, including:

- New features in the measurement timeline tool;
- The addition of instrument browsing by measurement;
- Improved integration with existing resources such as the EO Portal and the WMO GOS Dossier.

Since the enhanced MIM online was launched in October 2009, traffic to the site has increased by an order of magnitude, with more than 8500 unique visitors and more than 77,000 page views. The MIM online can be accessed at [database.eohandbook.com](http://database.eohandbook.com).

## Meeting Calendar

As of August 2010

Activities	2010												2011												
	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March			
<b>CEOS Plenary</b>					▲13-15 24th Plenary INPE/Rio de Janeiro, Brazil																				
<b>CEOS SIT</b> (Strategic Implementation Team)					▲20-22 Technical Workshop CSA/Montreal, Canada																				
<b>CEOS VCs Interface</b> (Virtual Constellations)				▲9-10 ACC Oxford, UK ▲17 LSI CSA/Montreal, Canada		▲19-21 OST-ST Lisbon, Portugal																			
<b>CEOS WGISS</b> (Working Group on Information Systems & Services)					▲13-17 Joint WGISS-30 & WGCV-32 Plenary meetings CSA/Montreal, Canada																				
<b>CEOS WGCV</b> (Working Group on Calibration and Validation)					▲26-27 SAR Cal/Val Workshop, Zurich																				
<b>CEOS WGEdu</b> (Working Group on Education, Training, and Capacity Building)																								△ TBD(May) → WGEdu-12 Virginia, USA	
<b>GEO related Activities</b> (Group on Earth Observations)			▲13-14 FCT Global Forest Monitoring Network Architecture FAO/Rome, Italy	31 ▲ ADC Co-Chairs	▲3 ADC Co-Chairs ▲1-2 AD Full Com. Ankara, Turkey ▲6-8 Carbon from Space WS Oxford, UK			▲3-4 GEO-VII Plenary Beijing, China ▲5 GEO Ministerial Summit Beijing, China																	
<b>Others</b>	▲9-18 53rd COPOUS Vienna, Austria ▲7-11 Data Democracy Workshop GISTDA/Bangkok, Thailand ▲28-7/2 ESA Living Planet Symposium Bergen, Norway	▲18-25 98th COSPAR 2010 Bremen, Germany ▲25-30 IEEE IGARSS Hawaii, USA	▲23-27 2nd Pan-GEWEX Washington DC, USA	▲27-30 IAF Congress Prague, Czech Republic	▲18-29 CBD/COP-10 Nagoya, Japan		▲11/29-12/10 UNFCCC COP-16 Cancun, Mexico																		

▲: determined    △: to be determined (Date, Host organization/Location)    CEOS-related meetings are open only to designated participants.

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