



Committee on Earth Observation Satellites
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The 25th CEOS Plenary

CEOS Newsletter Secretariat, JAXA (Japan)

The 25th CEOS Plenary was held on 8th and 9th of November 2011 at the Real Collegio in Lucca, Italy. We had 92 delegates representing 26 CEOS Agencies in attendance. This annual meeting is an important event for the CEOS community where we review CEOS activities and progress over the past year and discuss new objectives for the coming year. During this Plenary, CEOS welcomed the addition of two new CEOS Agencies:

—The Netherlands Space Office (NSO) for Member status

—The Global Geodetic Observing System (GGOS) of the International Association of Geodesy (IAG) for Associate status

With the addition of NSO and GGOS, CEOS Members now total 30 organizations and CEOS Associates now total 22 organizations.

New Virtual Constellation establishment

The Sea Surface Temperature (SST) Virtual Constellation was formally accepted as the seventh CEOS Virtual Constellation for GEO. The SST Virtual Constellation was proposed and discussed previously at the 24th Plenary and the 26th Meeting of the Strategic Implementation Team (SIT-26). During a special SIT session at the 25th Plenary, Mr. Makoto Kajii, SIT Chair for 2009–2011, formally accepted the SST Virtual Constellation Full Proposal, with concurrence from the 25th Plenary.

Reporting on 2011 activities

In 2011, CEOS focused on four identified priority activities, Forest Carbon Tracking (FCT), Carbon Task Force (CTF), Climate and Data Democracy;

2011 accomplishments for each activity were reported.

FCT - “The CEOS Strategy for Space Data Coverage and Continuity in Support of the GEO Global Forest Observations Initiative (GFOI) and FCT Task” has been developed, introduced and was endorsed at the 25th Plenary. Additionally, the establishment of the GFOI Space Data Coordination Group (SDCG) was agreed.

CTF - The status of “the CEOS Strategy for Carbon Observations from Space” was reported. This strategy, or implementation plan, will consist of three sections: Atmosphere; Land; and Ocean and is being developed as a CEOS response to the GEO Carbon Strategy Report. The CTF requested that CEOS agencies ensure suitable space agency representation at the March 29–30 meeting for review and consultation on the Draft CEOS response to the GEO Carbon Strategy Report (this meeting will be held in conjunction with SIT-27)

Climate - The new WGClimate was established at the 24th Plenary in 2010, and 2011 was the first year to demonstrate leadership in CEOS Climate activities. One major activity for WGClimate has been the preparation of the “Architecture for Climate Monitoring from Space.” This multi-agency report is being drafted as a

‘badge-less’ effort and CEOS WGClimate has led the writing team in its preparation.

Data Democracy - The new Working Group on Capacity Building and Data Democracy (WGCapD), formerly the Working Group on Education, Training, and Capacity Building, was approved at the 25th Plenary. The WGCapD is now poised to lead CEOS in the Data Democracy and Capacity building activities. More detailed activities of the WGCapD are introduced in the WGCapD article in page 6.

A number of new and important activities and initiatives were also proposed and discussed at the Plenary. Many of those activities are described further in the CEOS Lucca Statement, which can be accessed on the CEOS website (www.ceos.org). CEOS plays a vital role in ensuring coordination of Earth observations to enable decisions for securing a prosperous and sustainable future for mankind and we will continue to propose initiatives and activities that fulfil that role.

The 26th CEOS Plenary will be held in Bangalore, India, hosted by the Indian Space Research Organisation (ISRO), 2012 CEOS chair, in October 2012. ■



With group photo of the 25th Plenary in Lucca



Letter from the CEOS SIT Chair

Michael H. Freilich, *the New SIT Chair*



It is an honor and a challenge to represent NASA and CEOS as Chair of the CEOS Strategic Implementation Team (SIT). Thank you for this opportunity to work with all of you in this capacity.

CEOS celebrated its 25th anniversary in 2011, and our importance as a forum for international dialogue and satellite collaboration has never been greater. By working together with purpose, focus, and strategic direction at this pivotal time, CEOS member agencies are advancing our understanding of the planet as an integrated system and positively impacting life on Earth. Continuing to make substantive progress on our focused initiatives is our paramount goal over the term of NASA's SIT chairmanship.

In preparation for assuming the SIT Chair, we began a CEOS Self-Study in May 2011. The Self-Study took stock of the many CEOS successes of the past quarter century, and

identified areas where the CEOS organization, processes, and approaches could be refined. Thanks to the insights and advice of past and present CEOS leaders and inputs from more than 80 CEOS participants, the Self-Study clarified why CEOS is such an important organization and highlighted potential improvements that should be made. I would like to thank all of those individuals for their significant contributions to the Self-Study, and those who are now working to implement its valuable recommendations.

We summarized the Self-Study findings at the CEOS Plenary in Lucca and now, with your help, the process of implementing the recommendations has begun. This will be a focus of the upcoming SIT-27 meeting in March 2012 and throughout our term. Strengthening CEOS as an efficient organization is the second overarching goal of the NASA leadership of the SIT.

Because the SIT is a key component for implementing the strategies of CEOS member agencies, serving as SIT Chair is a major commitment. We are grateful for the strong leadership of Mr. Makoto Kajii and the JAXA team over the last two years. Thank you for your service to CEOS, Kajii-san. In the coming years, we will rely on JAXA's continued advice and significant participation in CEOS activities.

CEOS's founding principles—the coordination of spaceborne Earth observations from civil satellites, enhancement of international coordination, expansion of fair and open data exchanges, and optimization of benefits to society—are objectives that all member agencies have in common. NASA looks forward to serving as your SIT Chair to build effectively upon past and current achievements of CEOS and to help project our purpose, direction, and goals into the future. ■

Pathways to Data & Services Through the IDN

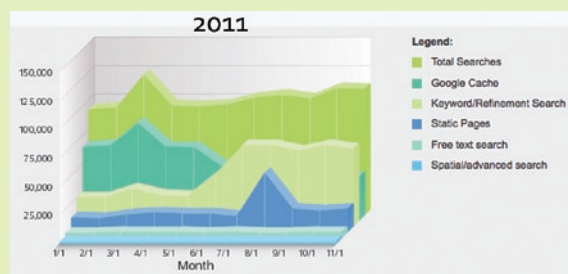
The CEOS IDN now offers 23,856 data set descriptions, 2,412 data-related service descriptions, and 470 "climate visualizations". Usage has increased, with record levels of usage around the world.

The IDN plans are to extend the content within the Directory Interchange Format (DIF), where appropriate, to synchronize more completely with the ISO-19115 standard core fields. This work will be done, while maintaining the IDN's valuable human-readable data set discovery optimized fields to capitalize on the use of a normalized search for data.

Of value to many users is the Digital Object Identifier (the DOI) used to denote unique data sets worldwide. Currently, metadata authors have no specified location to insert a DOI for their data set. Although the IDN has held unique identifiers for data set descriptions since its inception, those identifiers apply to the metadata. The DOI applies to the associated

data set. The addition of DOIs highlights a significant concern recently identified, in which DIFs have been found to describe multiple data sets. One DIF (data set description) is preferred to describe one data set only. However, it is possible that there may be more than one DOI found within a DIF, such as in the instance where a data provider writes one DIF to describe closely related data sets. This scenario is being further investigated – relating to separating DIFs that have more than one data set described. SERFs (service description) take users to services related to properly reading the data format. Access to SERFs is expected to increase with the upgrades, especially if the plan holds more of a one-on-one relationship.

The feedback that we receive from our broad user base has proven very valuable through the years. We anticipate and value the feedback from our collaborators and users. All changes



suggested will be posed through the CEOS IDN Interoperability Forum for comment and potential additions for changes.

Contributions to GEOSS are ongoing, as the entire CEOS IDN content is shared with the overarching GEOSS system. The CEOS contribution to GEOSS is monitored; therefore, the CEOS contribution can be easily determined. The global collaboration appears to be working quite effectively, as noted by the statistics.

A near-future software release, created to upgrade the handling of the keywords, facilitates the support of these keywords in other languages. At this time, the entries themselves would remain in English; however,

(to be continued on page 3)

Message from the former SIT Chair

Makoto Kajii, JAXA (Japan), the former SIT Chair



When going back to the start point of my tenure two years ago, the way to the GEO-Ministerial in Beijing, held in November, 2010, in where CEOS had to appeal its contribution to the GEOSS-10-year-plan, was already well-paved and activities of CEOS had enough momentum thanks to the former CEOS and SIT chairs.

GISTDA, the former CEOS chair agency, had promoted a plan to establish “high profile document” in order to inform our activities to CEOS stakeholders.

I took over this plan and further promoted it to make a “CEOS Report”, which should be used for GEO in Beijing as well as in other occasions to provide better visibility of our activities to our stakeholders. As you’re aware, this report later took shape as “**Satellite, Science and Society**”. I appreciate GISTDA for their idea of establishing the report, authors of the report for contributing articles, and especially, for Poonthip of GISTDA, Satomi, Tim and Kerry for their great efforts on editing this document.

In the course of the editing, 4 key deliverables, “Greenhouse Gases Observation from Space”, “CEOS Contribution to GEO Forest Carbon Tracking Task”, “CEOS Working Group on Climate and Agency Activities on Climate”, “Data Democracy for the Developing Countries”, were highlighted as CEOS priority activities. As I stated at the Plenary in Rio in 2010, those have remained CEOS priorities in 2011.

In terms of the Greenhouse Gases

Observation from Space, the Carbon Task-Force created at the SIT-24 is now elaborating a CEOS document in response to the Carbon Strategy pursued through the GEO Carbon Community of Practice. The document will not only coordinate CEOS observation plan but also strongly back up the future related programs, which aim at the greenhouse gases observation from space.

CEOS activities for Forest Carbon Tracking have contributed to the launch of the “Global Forest Observation Initiative (GFOI)” at GEO-VIII in Istanbul. The initiative’s activities rely on their outstanding capability of satellite observation on the global forest, which is under the demonstration through the harmonized cooperation of CEOS agencies.

Establishment of the “Working Group on Climate”, whose purpose is to respond to the comprehensive requirements of the ECV observation set by GCOS, was one of the most important achievements CEOS during my tenure. The event evokes a new model of CEOS cooperation activity for not only the climate-change issues are so crucial for the present humankind, but also it is crucial for the task of the Working Group striving for coordinating an integrated observation plan of CEOS in response to a comprehensive global observation requirement. At the last major meeting, it was discussed that the Working Group on Climate needs close involvement of the Virtual Constellations. Such trend is quite reasonable, because, in CEOS, the Virtual Constellations exists for the creation of data-set while the Working Group Climate works for the coordination on data-supply to the science community.

Soon we will find a similar relationship of the Virtual Constellations with the CEOS Carbon Strategy and, probably, with Water Cycle Integrator Initiative, which is a global water-cycle study, which JAXA and other agencies are planning to promote.

Although I do believe that other CEOS cooperation activities are very important, it should be emphasized that only CEOS can support such comprehensive global observation requirements. In other words, CEOS can

maximize its presence and fulfill its role for the global community through such efforts.

In this regards, we have to coordinate an actual data flow from the observation front, at where the Virtual Constellations are functioning as the arm of CEOS, for the user community, for which CEOS project group such as the Working Group on Climate is aiming to support. From the GEO view-point, this framework is coordinated and developed as GEOSS Common Infrastructure, GCI, and CEOS and CEOS agencies are responsible for the actual data systems being developed as a part of their satellite programs.

It was important that Data Democracy, which was initiated by SANSA/CSIR, and succeeded and enhanced by GISTDA, became the standing function of CEOS in the newly established “Working Group on Capacity Building and Data Democracy” through the merger with the Working Group Education owing to the effort of INPE, a CEOS chair agency for 2011.

With GEO, CEOS is no longer an arena open only for the advanced countries. Therefore, CEOS is required to attend to the needs of developing countries, since not only the global observation covers the entire globe but also its results are beneficial for the developing countries as well.

The GEOSS 10-years-plan is still in the middle of its development, and CEOS needs to keep our commitments to contribute to GEO. However, on the other hand, the circumstances of CEOS has been kept changing and CEOS needs to review its role in the global community as well as its achievements in order to improve and enhance our activities. In that sense, I appreciate NASA for the Self Study which was advocated at an appropriate timing.

I am convinced that the new CEOS chair, Dr. Kumar, and the new SIT chair, Dr. Freilich, will lead us to the new future of CEOS in accordance with the results of the Self Study. Our agency, JAXA, will stay as one of the active CEOS agencies even after the completion of my SIT chairmanship, and strive to contribute CEOS and GEO through participating in CEOS cooperation projects. ■

(continued from page 2)

we anticipate that students could initially make these translations of each record to minimally allow users to determine if the use of the data set would be useful and/or warranted.

With great expectations, we are anticipating the release of MD9.8.3.1 before the end of the year (2011). We anticipate that the keywords eventually will be translated into the languages of our CEOS partners and that the descriptions will also be translated. ■



GEO transitions to new 2012-2015 Work Plan

Humbulani Mudau, GEO Secretariat (Switzerland)



The GEO-VIII Plenary was hosted in Istanbul by the Scientific and Technological Research Council of Turkey (TÜBYTAK) on 16 and 17 November 2011. The Plenary reviewed recent progress on implementing the GEOSS 10-Year Implementation Plan, accepted the new 2012-2015 Work Plan, welcomed the Global Forest Observation Initiative (GFOI) and the GEO Global Agriculture Monitoring initiative (GEO GLAM), established a Working Group to consider how GEO and GEOSS should develop beyond the year 2015, and agreed on how to further advance the evolution of the GEOSS Common Infrastructure (GCI) and the GEOSS Data-CORE (Collection of Resources for Everyone). CEOS was well represented at the Plenary, which welcomed space agencies' deep commitment to GEO.

Looking back

The final progress report on GEO's 2009-2011 Work Plan highlighted three main trends: (i) many new products and services are now available via GEOSS, (ii) data sharing and the capacity for accessing and using data continue to grow, and (iii) there is increased support for user engagement.

CEOS members contributed to 41 of the 42 Tasks of the 2009-2011 GEO Work Plan, with leads and co-leads in 16 of the Tasks. Many of these contributions were made through the CEOS standing Working Groups on Calibration and Validation; Climate;

Education, Training, and Capacity Building; and Information Systems and Services.

CEOS also contributed significantly to the recent improvements in the GEOSS Common Infrastructure (GCI) through its active participation in both the Architecture and Data Committee (ADC) and the Sprint to Plenary team. The ADC led a "Sprint to Plenary" in the run-up to GEO-VIII in an effort to accelerate improvements to the GCI and to realize the Architecture and Data Management strategic targets. Key actions included adopting new technologies for search and discovery, proactively approaching data holders, executing technical enhancements to improve functionality and outcomes, simplifying the registration process for data providers, and proactively identifying potential Data-CORE resources.

Parallel to the Sprint to Plenary, over the past year the Data Sharing Task Force has worked on promoting contributions to the Data-CORE, identified existing licensing options consistent with CORE requirements, and addressed other issues such as user registration and legal liability. The GEOSS Data-CORE now provides full and open access to over 120 datasets with thousands of resources.

Looking forward

The 2012-2015 Work Plan adopted by GEO-VIII streamlines the number of Tasks from 42 to 26. They have been organized into the three parts of Infrastructure, Institutions and Development, and Information for Societal Benefits.

Under the new Work Plan management structure, the three parts will each be supported by an Implementation Board, while each Task will be implemented by a Task team consisting of all the co-leads and contributors supported by a Task coordinator. Task teams will have direct responsibility for the best-efforts management, execution and coordination of the

underlying

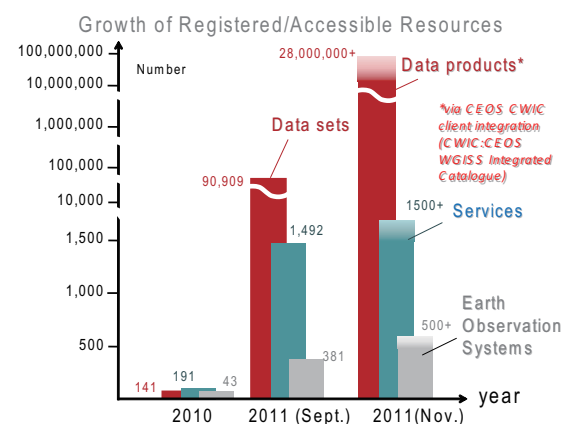
Coordination across Tasks will be supported by the Implementation Boards and the GEO Secretariat, and coordination within Tasks will be supported by the Task teams, Communities of Practice and Secretariat. The existing Committees will be disbanded and their roles transferred to the Task teams and the Implementation Boards.

The Plenary meeting accepted (with some amendments) the Implementation Plan for the Global Forest Observation Initiative. The GFOI has its roots in the Forest Carbon Tracking Task, which focuses on scientific and demonstration activities. CEOS will set up a GFOI Space Data Coordination Group to ensure proper coordination of sustained data provision and has recently endorsed the GFOI Implementation Plan at the Lucca Plenary.

The Plenary welcomed the new GEO Global Agriculture Monitoring (GEO GLAM) initiative. GEO GLAM responds to the concerns of the Group of 20 about food price volatility and the need for large investments in agriculture over the next 20 years. It will help to build national capacities for agricultural monitoring; strengthen, harmonize and connect global and regional agricultural systems; and develop an operational global Earth observation system of systems for agricultural monitoring. Long-term commitments and open-data policies will be vital to its success, and CEOS has been invited to contribute to this effort.

The Plenary also endorsed the establishment of a Post-2015 Working Group. This Working Group will consider how both GEO and GEOSS should evolve after the conclusion of the 10-Year GEOSS implementation Plan in 2015. The Group has been tasked with preparing a proposal for the Ministerial Summit and GEO-X Plenary meeting that will be held in late 2013. CEOS has pledged to participate actively in this Group.

The GEO-IX Plenary will be hosted by Brazil in the city of Foz do Iguaçu on 22-23 November 2012. ■



Rapid increase of resources registered in the GCI over two month period

Highlights of CEOS from GEO-VIII Plenary

Timothy Stryker,
USGS (USA), Executive Officer
tstryker@usgs.gov



Kerry Ann Sawyer,
NOAA (USA), Deputy Executive Officer
kerry.sawyer@noaa.gov



In November 2011, representatives of CEOS attended the Eighth Plenary Session of the Group on Earth Observations, hosted by TÜBITAK, in Istanbul, Turkey. The Plenary was well-attended by many of the 89 GEO Member States and 64 Participating Organizations.

CEOS is deeply committed to GEO, reflected in the large amount of CEOS Agency resources allocated in 2011 to GEO activities, including leadership of more than one-third of the Tasks in the 2009-2011 GEO Work Plan. Through these efforts, CEOS has made substantial progress in coordinated support to climate science, carbon assessments, data sharing, capacity building, and Virtual Constellations.

The following is just a small sample of CEOS activities that were reported to GEO-VIII. These activities reflect CEOS priorities for 2011 and illustrate some of the numerous CEOS accomplishments in support of GEO:

- CEOS made major strides to better coordinate Agencies' space-based climate research activities. The new CEOS Working Group on Climate expanded activities in the quantity and quality of the production of Essential Climate Variables (ECVs). These activities will better enable CEOS to respond to the stated requirements of the Global Climate Observing System (GCOS), and to provide appropriate reporting the UN Framework Convention on Climate Change (UNFCCC). CEOS Agencies are also working closely with the World Meteorological Organization (WMO) and the Coordination Group for Meteorological Satellites (CGMS) to define and develop an operational Architecture for Climate Monitoring from Space, to adequately meet society's needs for long-term, accurate climate information.
- In support of the monitoring and assessment of carbon sequestration capacity

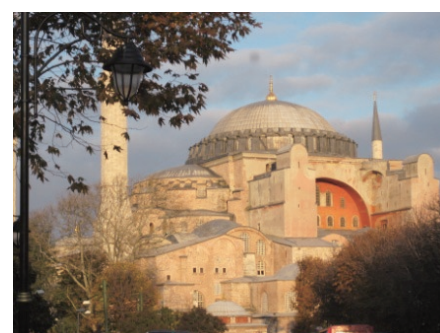
of the world's forested regions, CEOS coordinated the acquisition and provision of essential satellite data for the GEO Forest Carbon Tracking initiative. CEOS Agencies supplied more than 139,000 radar and optical satellite scenes on a continuous basis, during two campaigns organized in 2011, for wall-to-wall detection of forest changes - initially in selected National Demonstrators from the major tropical forest regions - spanning more than 10 million km², about 30% of the world's tropical forest, and expanding to establish global coverage annually in support of the UNFCCC by 2013.

- Supporting the recommendation of the GEOSS Data Sharing Task Force to provide full and open exchange of Earth observation data as much as possible, CEOS Agencies identified roughly 8,000 satellite products datasets that can be categorized as GEOSS Data-CORE datasets. CEOS Agencies will also continue to provide, free-of-charge, data access from various satellite missions, such as Landsat 5 and 7, CBERS, ERS and ENVISAT. Future Brazilian, Canadian, European, and U.S. missions are expected to offer free-of-charge access to an even wider range of optical and radar data.
- In order to address the need for quality information for all Earth observation data, as recommended in the Data Sharing Action Plan, and building on recent efforts, the CEOS Working Group on Calibration and Validation is advancing the Quality Assurance Framework for Earth Observation (QA4EO). This Framework will enable the exchange, interoperability and merging of EO data from multiple space-based and in situ sources, and improve the accuracy and quality of information delivered to the user community.
- CEOS Agencies continue to support the GEO Data Democracy Initiative through a newly-reconstituted CEOS Working

Group on Capacity Building and Data Democracy (WGCBDD). The Working Group will facilitate timely and open access to key Earth Observation (EO) datasets and build capacity for their use worldwide, with a particular focus on developing country needs.

- In support of GEO objectives, CEOS has successfully completed a number of key activities in connection with the Virtual Constellations concept, whereby the planning, operation and exploitation of a number of satellite missions are coordinated with the intent of improving the adequacy of space-based measurements to meet user needs, address key observational gaps and bridge multiple SBAs. Good progress has been achieved in the six Constellations focused on Atmospheric Composition, Land Surface Imaging, Ocean Surface Topography, Precipitation, Ocean Surface Vector Wind, and Ocean Colour Radiometry. CEOS also approved the formation of a seventh Virtual Constellation, on Sea Surface Temperature as recommended by the participants of the OceanObs'09 conference (Venice, Italy, 2009). The Virtual Constellations' potential contributions to the needs of the GCOS community are being analyzed.

CEOS Agencies are fully engaged in implementing the space-based component of GEOSS and will continue such support as GEO transitions to the 2012-2015 Work Plan and beyond. ■





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Working Group on Information Systems and Services (WGISS)

Satoko Horiyama Miura, JAXA (Japan), WGISS Chair



“bridge” between them and CEOS principals.

The 32nd WGISS plenary and subgroup meetings were held in Budapest Hungary, during September 26–30, 2011, hosted by HUNAGI (Hungarian Association for Geo-information). Thanks to continuous contributions of our previous chair, Pakorn Apaphant of GISTDA, the meeting was great success.

One of the main topics at the 32nd WGISS meeting was CWIC (CEOS WGISS Integrated Catalogue), which can be considered as a CEOS community catalogue for satellite data products and is an interface between portals and catalogue systems. The CWIC currently offers access to operational inventory systems

at NOAA CLASS, NASA ECHO, USGS, INPE, and AOE (China – NSMC, Beijing-1) using GEO supported CSW 2.0.2 (ISO). As directed at the last CEOS Plenary, WGISS will develop CWIC guidelines for future data partners to understand requirements by the 27th SIT meeting. WGISS will also engage related agencies and lead an investigation into the opportunities and obstacles for the interoperability of ESA HMA (Heterogeneous Missions Accessibility) and CWIC, and provide a report and recommendations to the 26th CEOS Plenary meeting.

Other hot topics include “Sensor Web”, “Data Stewardship”, “Web Services”, “Grid Computing”, “IDN”, AC (Atmospheric Composition) Portal”, “CEOS Water Portal” and “GA.4. Disasters (GEOSS Architecture for Disasters and Risk Assessments)”.

The “GA. 4. Disasters” project was established at the 31st WGISS meeting in order to address the use of satellites, sensors, models, and associated data products to support

disaster response and risk assessment and to provide an enterprise perspective for managing distributed systems and web services for disaster management. “GA. 4. Disasters” will have a side meeting with CEOS Disaster SBA team on February 12th, 2012.

WGISS members will be busy the next two months making progress on these activities, and will meet again in Tokyo during the week of April 23. Our WGISS 5-Year Plan will be updated reflecting the GEO Workplan 2012–2015 and also the feedbacks from “CEOS Self Study”.

WGISS is always open to any CEOS members or associates and welcomes new participants, but, unfortunately, the number of participants is slightly decreasing these years. WGISS would like to continue to work hard to support CEOS objectives and goals; therefore WGISS would like to request CEOS principals continuous and stronger support in order to respond to actions from CEOS SIT/Plenary more timely and properly. ■



Working Group on Capacity Building and Data Democracy (WGCapD)

At the recent 25th Plenary in Lucca, CEOS approved the formation of the Working Group on Capacity Building and Data Democracy (WGCapD). The Plenary also approved of INPE and NOAA proposals to have Hilceia Ferreira (INPE), serve as the Chair of the WG and Jacob Sutherlun (NOAA) serve as the Vice-Chair of the WG.

The effective use of Earth Observation data is essential for the understanding and stewardship of our planet. Furthermore, the advancement and sustainability of satellite Earth Observations will be determined by end users, who must be empowered through free access to these resources. Effectively reaching those end users, especially in developing countries, has been an impediment to the maximum use of Earth Observation data. It is with these thoughts in mind that the concept of Data Democracy was born and on which the basis of this Working Group has been reestablished.

Hilceia Ferreira,
INPE (Brazil),
WGCapD Chair



The WGCapD plans to build upon the CEOS Data Democracy Initiative in an effort to increase the capacity of institutions in less developed countries for effective use of Earth Observation data for the benefit of society and to achieve sustainable development. The WGCapD will focus and unify CEOS efforts toward providing wider and easier access to Earth Observation data, increasing the sharing of software tools such as the use of open source software and open systems interface, increasing data dissemination capabilities, transferring relevant technologies to end users, and providing intensive capacity building, education, and training.

We are excited to begin our work together as



Jacob Sutherlun,
NOAA (USA),
WGCapD Vice-Chair

part of a coalition of agencies and organizations looking to build capacity in the use of Earth observations for the benefit of humanity. We would like to ask CEOS Agencies to share capacity building programs that they are already doing with the idea that we would incorporate these projects into a larger WG wide project.

Our kick-off meeting will be held in Ilhabela, Brazil, from 29 February to 2 March, 2012. We plan to make important decisions at the meeting, including the coordination of collaborative activities of the WG and development of a 5 year plan for the WG.

We sincerely hope that you will be able to join us in Brazil for the kickoff meeting of the WG! ■

Working Group on Calibration and Validation (WGCV)

Gregory L. Stensaas, US Geological Survey, WGCV Chair

The WGCV is the co-lead on GEO task DA-09-01a, which includes the Quality Assurance Framework for Earth Observation (QA4EO). A QA4EO workshop on *Providing Harmonised Quality Information in Earth Observation Data by 2015* was held in Harwell, UK, from 18-20 October 2011. It was chaired by the Group on Earth Observations (GEO) and hosted by the RAL-Space, Centre for Calibration of Satellite Instrumentation (CCSI).

The workshop was attended by representatives from a wide variety of EO communities, including the European Environment Agency (EEA), US Environmental Protection Agency, the Global Biodiversity Information Facility, and various space agencies (including the European Space Agency (ESA), the National Aeronautics and Space Administration (NASA), the German Aerospace Centre (DLR), the Brazilian Space Agency (INPE) and the UK Space Agency (UKSA)). All those present recognised the need for better quality assurance practices and user support. It became clear from the discussions that QA4EO is already part of the vocabulary and the question is not the need for QA4EO, rather how to implement it.

QA4EO implementation varies in ease or complexity between different communities. The EEA are actively promoting the concept of citizen scientists within its operations. The idea is that anyone who has access to the internet can be a data collector / provider, uploading their results via their PC or hand-held device. At the other end of the spectrum, in the inherently complex case of space, ESA is already starting to promote the implementation of QA4EO into each stage of its quality management process. As ESA and others continue with this often lengthy and complex process, they will require support to ensure success, particularly for retrospective missions.

At the workshop, it was agreed that a GEO-level working group, dedicated to QA4EO and its implementation, would be set up and led by the GEO Secretariat. The new working group would be responsible for drafting a QA4EO Implementation Plan to explain QA4EO (through worked exemplars) and to seek formal endorsement from GEO. Promotion, training, education and tools to assist QA4EO implementation will also be needed throughout all EO communities as QA4EO becomes more widely adopted.



Participants to the QA4EO workshop in Harwell in October 2011

More details on the workshop can be found via the QA4EO website at <http://www.qa4eo.org/>

As well as the very successful QA4EO workshop, the WGCV recently supported two well-attended and productive subgroup meetings. The Microwave Sensor Calibration and Validation workshop was held in Beijing, China, from 26-28 October and the SAR Calibration and Validation workshop was held in Alaska, USA, from 7-9 November.

The 34th WGCV plenary meeting was in Brisbane, Australia February 6-10, 2012. It was hosted by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in collaboration with the Department of Innovation, Industry, Science and Research (DIISR) Space Policy Unit, the Terrestrial Ecosystem Research Network (TERN), Geoscience Australia (GA), and the Bureau of Meteorology (BoM). More details on the WGCV and its activities can be found on the WGCV website at <http://www.ceos.org/wgcv/>. ■

CEOS Missions, Instruments and Measurements Database Planned 2012 Update Cycles

There are two 2012 updates planned for the ESA-maintained CEOS Missions, Instruments and Measurements (MIM) database. The first update (January-February 2012) will be conducted in support of the publication of a print edition of the CEOS EO Handbook for release at Rio+20 in June 2012. This mini-update cycle will focus on adding new missions and instruments, and updating the launch and EOL dates and status for existing missions.

The regular update cycle will follow, starting in about April 2012, and will call on agencies to update the full suite of MIM parameters, including updates to measurements and more detailed mission and instrument parameters.

Following from CEOS Plenary in Lucca, the MIM team is pleased

to note the release of the 2011 updates, including a number of enhancements to the online offerings. There has been a 26% growth in visitors on the previous year, and the MIM continues to develop as an important community resource. Recent applications have included support to SEO-lead gap analyses, and exploring support to the WGClimate looking at sustained ECV generation.

Our continuing thanks to the CEOS agency contacts, and to the CEOS Virtual Constellations teams for their inputs in 2011. Based on the 2011 update cycle, 34% of existing of Mission and Instrument records were updated, and the number of overall Mission and Instrument records grew by 17%, ensuring that the MIM remains a current and vibrant community resource.

The MIM online can be accessed at database.eohandbook.com. ■

A Message from the CEOS Chair

A. S. Kiran Kumar, ISRO (India), 2012 CEOS Chair



Dear Friends,
Greetings to You! ISRO is honoured to serve as CEOS Chair for 2012 and looking forward for the fruitful year.

CEOS space agencies have committed themselves to a leadership role in the development and operation of the space segment to serve the global community and have remained relevant and responsive to the demands of global earth observation since 1984. Completion of 25 successful CEOS plenaries and nearly three decades of existence brings with it a rich past and also beckons us to look back and see how we have performed and address ways and means of improving the overall output as an organization.

In order to help facilitate the work of the CEOS as it tackles the challenges and opportunities ahead in providing coordination of civilian space-borne observations of Earth, a self-study was undertaken to identify past successes, strengths, opportunities, and areas of challenge. This process of revisiting the past and addressing

the need for change and bringing about such changes through consensus will occupy a good part of our current and future activities.

CEOS is deeply committed to the Group on Earth Observations (GEO), including leadership of more than one-third of the Tasks in the 2009-2011 GEO Work Plan. A large part of these contributions were made through four Working Group of CEOS. I feel CEOS can take pride in the success of GEO as well.

One important global issue of last decade was the climate change. Improved coordination of space agency activities related to climate would be one of the areas of focus for the coming year too. Newly established Working Group on Capacity Building and Data Democracy needs to address the issues of enabling more people across the globe to effectively utilize the Earth observation data. Tremendous changes taking place in the information and communication technologies needs to be harnessed effectively, keeping in view the large space infrastructure the CEOS agencies

have put up. WGISS is addressing these complex issues. The calibration and validation has always remained an important focus areas of CEOS. Earth observation needs and changing economic situation calls for greater co-ordination amongst CEOS agencies to ensure efficient use of already created space infrastructure and put greater emphasis on virtual constellations.

The coming year promises an exciting opportunity to adaptively address the issues of "remaining relevant and responsive to the requirements of global community" from space based observations as perceived by CEOS. In this endeavor, I look forward to your active cooperation and support in all the diversified activities of CEOS. It is indeed a great opportunity for me to work with SIT Chair, NASA and Troika Members ASI and CSA - as well as with CEOS subsidiary bodies in the Working Groups and Virtual Constellations. I look forward to working with you and your colleagues in the coming year to make it a fruitful year for CEOS. ■

Meeting Calendar

As of March 2012

Activities	January	February	March	April	May	June	July	August	September	October	November	December
CEOS Plenary										▲24-26 26th Plenary Bangalore, India		
CEOS SIT (Strategic Implementation Team)		▲14-15 CEOS-GEO Actions Workshop Virginia, USA	▲26-28 SIT-27 & Side Meetings San Diego, USA						△11-13 SIT Workshop Washington DC, USA			
CEOS VCs and CEOS TFs (Virtual Constellations and Task Forces)		6-8▲ FCT/GFOI SDCG meeting-1 Québec, Canada	▲29-30 Carbon Task Force Meeting San Diego, USA	▲18-19 ACC-8 Washington DC, USA	▲6-7 SST-1 Tokyo, Japan							
CEOS WGISS (Working Group on Information Systems & Services)		▲8-9 CEOS Disasters Issue Review Mtg #1 Frascati, Italy	▲29 LSI Constellation Meeting San Diego, USA	▲23-24 CEOS Disasters Issue Review Mtg #2 Tokyo, Japan					△24-28 WGCV-35 / WGISS-34 Joint Plenary India			
CEOS WGCV (Working Group on Calibration and Validation)		▲6-9 WGCV-34 Brisbane, Australia		▲23-27 WGISS-33 Tokyo, Japan					△24-28 WGCV-35 / WGISS-34 Joint Plenary India			
CEOS WGCAPD (Working Group on Capacity Building and Data Democracy)		▲29-3/2 WGCAPD-1 Isla Bella, Brazil										
CEOS WGClimat (Working Group on Climate)				▲17-18 WGClimat-2 Asheville, USA								
GEO related Activities (Group on Earth Observations)	▲12-16 AIWCCI Nairobi, Kenya	▲6-10 GEO FCT Science Data Summit Arusha, Tanzania	▲21-22 GEO Post-2015 WG meeting Geneva, Switzerland	▲2-4 GEOS AP Symposium Tokyo, Japan	▲20-22 Rio+20 Rio de Janeiro, Brazil						▲22-23 GEO-IX Plenary Iguazu Falls, Brazil	
Others	▲18-20 GEO GLAM Meeting Geneva, Switzerland	▲27-29 AIWCCI-3 Libreville, Gabon	▲30-31 GFOI meeting Geneva, Switzerland	▲26-29 Planet Under Pressure London, UK	11-20▲ WMO Executive Council Geneva, Switzerland	▲6-15 COPUOS Vienna, Austria	▲14-22 COSPAR 2012 Mysore, India	▲16-20 WCRP Joint Scientific Committee Meeting Beijing, China	▲1-5 IAC 2012 Naples, Italy	▲5-9 CGMS-40 Lugano, Switzerland	▲26-12/7 UNFCCC COP-18 Doha, Qatar	
						▲22-27 IGARSS 2012 Munich, Germany						

▲: determined

△: to be determined (Date, Host organization/Location)

CEOS-related meetings are open only to designated participants.

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Japan Aerospace Exploration Agency (JAXA)
Satellite Applications and Promotion Center (SAPC)
Tsukuba Space Center,
2-1-1 Sengen, Tsukuba City,
Ibaraki Prefecture, 305-8505, JAPAN
For inquiry:
Mr. O. Ochiai, JAXA
ochiai.osamu@jaxa.jp

For further information contact in each area allocated:

[Asia, Pacific]
Mr. T. Akutsu
JAXA
TEL:+81-50-3362-4192
FAX:+81-29-868-5987
akutsu.takao@jaxa.jp

[North & South America]
Ms. C. Bogнар
NASA
TEL:+1-202-358 2066
FAX:+1-202-358 2919
christine.mcmahonbognar@nasa.gov

Dr. B. Smith
NOAA
TEL:+1-301 713 2024
FAX:+1-301 713 2032
brent.smith@noaa.gov

[Europe, Africa]
Dr. I. Petiteville
ESA/ESRIN
TEL:+39 06 94 180 567
FAX:+39 06 94 180 353
Ivan.Petiteville@esa.int

Dr. P. Counet
EUMETSAT
TEL:+49-6151 807 603
FAX:+49-6151 807 866
Paul.Counet@eumetsat.int