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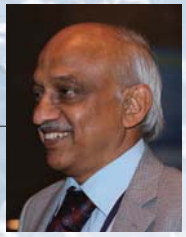

Report from the 26th CEOS Plenary 2012

A S Kiran Kumar, SAC (ISRO) CEOS Chair 2012

After 14 years, the CEOS Plenary convened again in Bangalore, this time for its 26th Plenary. The responsibilities of the position are though heavy and complex, but ISRO being one of the early Members enabled us to develop the required familiarity with the organization's operating ways and procedures, as well as with the collective concerns and priorities that have a life of their own behind the wording of the Terms of Reference. Also, as I recorded about a year ago in my Incoming Chair message, there is a mighty good team of people supporting with dedicated efforts in the CEOS background, and this team, especially the CEOS Secretariat, SIT, CEO/DCEO/SEO made everything easier for the Chair. The 26th CEOS Plenary witnessed 86 participants from 28 space agencies. This annual meeting allowed us to review progress made over the year and set new directions and objectives for the coming year. Overall, it was eventful and satisfying year for me.

The meeting was opened by Dr K Radhakrishnan, Chairman of ISRO, who addressed participants and highlighted the importance of the Earth observation in support of global studies and also gave a brief overview of the Indian space programme.

This Plenary, CEOS welcomed the Earth Science System Organization (ESSO)/ Ministry of Earth Science (MoES) of India as the newest CEOS Associate.

While the Bangalore Plenary of 1998 formally endorsed the Integrated Global Observing Strategy (IGOS) Partnership and prepared its own strategy for the development of the space component strategy in support of IGOS, the Bangalore Plenary of 2012 discussed in length the future of the Post-2015 Group on Earth Observations (GEO) and reviewed our own working arrangement through the CEOS Self Study (CSS) conducted by the CEOS Strategic Implementation Team (SIT).

The major discussions at the Plenary focused on the use of space-based Earth observations to support socio-economic development and environmental protection. During ISRO's Chairmanship, support to global events like the United Nations Conference on Sustainable Development (Rio+20) and United Nations Framework Convention on Climate Change Conference of Parties (COP-18), support to the Global Forest Observation Initiative (GFOI), Global Agricultural Monitoring (GEOGLAM), climate change studies and geohazard supersites and natural laboratories received special attention.

The SIT reported the developments in each of the seven CEOS Virtual Constellations since last Plenary. The SIT Chair also updated the progress made under and future plans for the CSS Implementation Initiative. Plenary endorsed the CSS Membership and Participation study outcomes. GEO Post 2015 discussion was another prime area where CEOS recommended for the "status quo plus" governance option which suggests GEO to continue with a few improvements. CEOS recognized that there is need for a strong GEO as the customer for the space segment of the GEOSS.

Improved coordination of space agency activities related to climate also received special focus this year with the delivery of the update of the CEOS Response to the Global Climate Observing System (GCOS) 2010 Implementation Plan (IP); development of Fundamental Climate Data Records (FCDRs) and release of the Essential Climate Variable (ECV) inventory survey - a CEOS, CGMS, and WMO-led survey; and further alignment of Virtual Constellation objectives of a space-based climate information strategy. There was good progress towards established CEOS-GEO priorities as well like Global Forest Observation Initiative (GFOI), CEOS Carbon Task Force (CTF), Geohazards Supersites and Natural Laboratories, the Joint Experiment for Crop Assessment and Monitoring (JECAM)/GEOGLAM and the Quality Assurance for Earth Observations (QA4EO). The strong presence of EO community at Rio+20, with high quality publication of CEOS Handbook, was another noteworthy contribution where the importance of space- based data for development of global environmental observing systems has been recognized.

The progress of recently created ad hoc Space Data Coordination Group (SDCG) for GFOI and ad hoc Disaster Risk Management (DRM) Working Group are noteworthy and the Plenary approved the continuation of these groups. There is a need to define and implement Global Satellite Observation Strategy for DRM and set up a virtual repository for DRM-relevant data and information from both space agencies and DRM-users. Another important development is of Polar Space Task Group (PSTG) which is going to get the more importance in the coming year. Plenary also approved the proposed supersite selection process and CEOS support to Hawaii as a Permanent Supersite.

The four CEOS Working Groups (WGISS, WGCV, WGClimate and WGCapD) presented their reports and recommendations to the Plenary and were all commended for their work quality after intense deliberations that confirmed the importance of their charters in CEOS. All four are contributing articles in this Newsletter, so I will not pre-empt their communications. Remote presentation of WCRP by Ghaseem Asrar proved that the physical attendance is no more the constraint in the era of many enabling technologies which help in mitigating constraints imposed by financial austerity measures of Governments.

Special thanks to Tim Stryker and USGS for his remarkable contribution and outstanding leadership as CEOS Executive Officer (CEO) of CEOS, for the past 2 years. And, welcome Kerry Sawyer as new CEO while acknowledging her excellent inning as Deputy CEO of CEOS.

The 'Bangalore Statement' was accepted at the end of the Plenary, which highlighted the important role played by Earth observation satellite missions to support effective societal decision-making in the areas of climate monitoring, sustainable development, food and water security and disaster risk reduction.

It was with great pride that ISRO handed over the CEOS Chairmanship to Dr. Luc Brûlé, Director General, Canadian Space Agency (CSA). For the year 2014, EUMETSAT will be Chair CEOS. I am sure that all the participants left Bangalore with great and pleasant memories and look forward to meeting everyone again at the 27th Plenary in Montreal.

GEO-IX Plenary

Barbara Ryan,
GEO Secretariat Director

Espen Volden,
GEO Secretariat

The GEO-IX Plenary took place in Foz do Iguaçu, Brazil, 22-23 November 2012, and was attended by approximately 250 representatives from both GEO Member Countries and Participating Organizations. A new member, the Republic of Côte d'Ivoire, and three new Participating Organizations (POs) – the United Nations Convention to Combat Desertification (UNCCD), the International Cartographic Association (ICA) and the World Data System (WDS) of the International Council for Science (ICSU) – were welcomed, bringing the total number to 89 and 67 respectively. A new Observer, the Secure World Foundation, was also recognized.

The GEO Implementation Boards which started working at the beginning of 2012, reported for the first time to the Plenary. Their assessment of the progress towards achieving the GEO Strategic Targets showed that we are on a good path for a number of Targets, but there are others that will only be met if certain gaps are filled and particular issues are solved. A general need for increased commitment and resources was expressed. The lack of progress in the coordination of in-situ networks was pointed out as a particular concern, and CEOS is well-placed to help this process as Coordinator for the Earth Observation Systems Task where in-situ coordination is one of the Task Components, e.g. by providing best practices from space coordination, by leveraging in-situ activities that CEOS is involved in, and by supporting partners to take a leading role for their respective communities.

The Boards assessment of the Targets, the GEO Secretariat's assessment of progress of the Tasks, the report from the 3rd external Evaluation of GEOSS and the Monitoring and Evaluation Working Group's Outlook, were all accepted by the Plenary. The new version of the GEO 2012-15 Work Plan, based on the technical and official review over the summer, was also accepted.

Two recently launched initiatives were highlighted: AfriGEOSS aims at enhancing Africa's participation in, and contribution to, GEOSS, in order to help bridge the digital divide and build a knowledge-based economy using GEO networks and the emerging GEOSS infrastructure. A number of Member Countries and Participating Organizations expressed their full support to the initiative and highlighted additional ongoing activities in collaboration with African partners. The Blue Planet presentation was also met with positive reactions, including from CEOS. This GEO Task supports the integration into GEOSS of the outputs from the various marine and observation efforts. It supports information coordination and access, monitoring marine and coastal ecosystems, the ocean forecast network, and applications to sustainable fishery and aquaculture management. Both initiatives (AfriGEOSS and Blue Planet) will benefit strongly from CEOS support.

Presentations of GFOI and GEOGLAM generated a lot of supporting reactions, and with high expectations for substantial results from these initiatives, including from the G20 Agricultural Ministers for GEOGLAM, albeit combined with very challenging data requirements. In this regard, CEOS has a huge opportunity to demonstrate widely its international capabilities in fulfilling these requirements.

A document proposing a framework for engagement of the private sector was welcomed by the Plenary. Current involvement of the private sector, e.g. via the Open Geospatial Consortium (OGC) which contributes actively to the Work Plan implementation, is already fruitful, and wider participation of the private sector would further strengthen innovation in GEOSS Infrastructure and SBA information products and services. Similarly, the private sector could also benefit as users of such products and services. A stronger private sector engagement in data sharing would obviously be very valuable, not the least for the sector itself, which could play a key role in ensuring sustainability of GEOSS.

The Plenary responded to the Post-2015 Working Group's interim report by agreeing to the recommendations of continuing GEO after 2015, and to the proposed core functions with some remarks. It expressed support for a GEO which will implement and sustain a more robust and expanded GEOSS information system, and incubate specific applications and services based on Earth Observations (EO), while at the same time acknowledging the difficulty in securing the necessary funding. The Plenary suggested maintaining the current basic SBA structure while allowing for some modifications, and exploring linkages to sustainable development framework themes. It prefers the current voluntary nature of the organization and flexible governance structure, with improved linkages with other EO organizations including the private sector. CEOS has been playing an important role in the Post-2015 Working Group represented by Brent Smith and Tim Stryker. GEO will continue to rely on CEOS' strong support of this effort.

The CEOS delegation at the GEO Plenary was led by the incoming CEO, Kerry Sawyer, who intervened following presentations of particular interest to CEOS, and highlighted the many substantial CEOS contributions to GEO, putting forward the work of the CEOS Working Groups and the Virtual Constellations. CEOS's key role in GEO was further highlighted at its dedicated booth.

Switzerland's offer to host the next GEO Plenary (GEO-X) and the Ministerial Summit was acclaimed by the Plenary, who also accepted the proposed Terms of Reference of a Ministerial Working Group which will be responsible for the preparation of the Summit which will take place in Geneva on 17 January 2014 directly preceded by the GEO-X Plenary.

A number of side events as well as meetings of the GEO Executive Committee and the Implementation Boards were organized the days before, during and after the Plenary. The entire event was very well organized by our Brazilian friends, who had chosen a location that enabled a number of participants to discover the breath-taking beauty of the Iguassu Falls. Our appreciation is extended to INPE for their key role in ensuring a successful Plenary.

The Plenary presentations, all documents, statements by Member Countries and POs (including CEOS), as well as presentations and videos from side events can be found on http://www.earthobservations.org/geo9.shtml

CEOS New Chair message

***Luc Brule**, CSA*

Dear CEOS colleagues, Dear friends,

It is with great respect and humility that I accepted to serve as CEOS Chair for 2013. A newcomer to the CEOS community, I continue to be deeply in awe today of the determination and commitment shown by each one of the remarkable CEOS members.

Building upon a long tradition – Canada has been in space for 50 of the 55 years humans have been there – we at the Canadian Space Agency can appreciate how indispensable space has become but also how we need to build on everyone's strengths to meet the increasing needs for space assets and applications. Moreover, because CEOS Agencies interact, stimulate discussion and exchange ideas, this committee is a lot more than the sum of its members. It is capable of reaching and engaging the greatest minds in space-borne Earth observation worldwide. This is why we should settle for no less than stepping up to the many challenges ahead of us.

The very successful 2012 Plenary in Bangalore has set clear priorities for the year ahead. With CEOS Agencies involvement already stretched to capacity, business as usual is no longer sustainable. During this transitional phase, it is important to focus on initiatives aligned with the overall objectives of CEOS, i.e. developing requirements and providing multi-lateral coordination of satellite systems among CEOS members. CEOS self-study under the great leadership of Dr. Michael Freilich, the Strategic Implementation Team Chair, will bring forward the necessary strategic alignment and structural changes to help CEOS remain as pertinent and influential a global leader as it can be. With the 2012-2015 Group on Earth Observations (GEO) Work Plan well underway and the GEO post-2015 mandate and priorities in development, a profound impact on future CEOS activities can be expected. As CSA representative, I aim to provide leadership during the transition phase, through ongoing work with the CEOS community.

Canada was one of the founding members of CEOS. Involved since the first Multilateral Meeting on Remote Sensing held in Ottawa in 1980, the leadership role shifted from Canada's Center for Remote Sensing (CCRS) to the Canadian Space Agency created in 1989. The 2013 will be the third plenary held in Canada and the 27th of CEOS. Together with the Working Groups and Virtual Constellation activities of paramount importance, this Plenary will showcase the results of the sustained emphasis we are putting on the impact of Climate Change on Polar Regions and on the improvement of Disaster Risk Management through closely coordinated actions.

Incoming CEO Message

***Kerry Ann Sawyer**, CEOS Executive Officer*

In 2007, I attended my very first CEOS Plenary, hosted by USGS in Kona, Hawaii. I was hired 3 months prior to the 21st Plenary to support NOAA as Mary Kicza was to become the 2007-2009 CEOS Strategic Implementation Team Chair. I remember fondly meeting the CEOS Agency representatives, Working Group Chairs, and the Virtual Constellation Co-leads for the very first time and was awed by the expertise, professionalism, and commitment exhibited by all during the Plenary. Most importantly, I felt welcomed immediately and knew that I was very fortunate to be supporting NOAA and CEOS. Now, in 2013, I feel that same sense of awe and appreciation as I assume the duties of the fourth CEOS Executive Officer, following in the great footsteps of Jean-Louis Fellous, Ivan Petiteville, and Timothy Stryker.

2013 is shaping up to be a very important year for CEOS and CEOS Agencies. CEOS continues to provide space-based Earth observations in support of the implementation of the Global Earth Observation System of Systems (GEOSS). CEOS ensures a sustained approach to the coordination of its Members' satellite missions, derived data products, and comprehensive user interactions for societal benefit.

In 2013, we will begin implementing the CEOS Self-Study initiative which will undoubtedly result in some positive changes to the organization. We will continue our successes in the areas of climate monitoring and research, carbon observations, including observations to support the effective monitoring and management of the world's forested regions, food security, disaster risk management, capacity building, and data availability and access. CEOS will also support further key stakeholder initiatives such as global agricultural monitoring, biodiversity activities, improved research and monitoring of the Earth's Polar Regions, and increased engagement in ocean-related activities, particularly in support of the GEO Blue Planet Task. These priorities are all described in more detail in the 2013 CEOS Work Plan (if anyone wishes to receive a copy of the Work Plan, please contact me directly at the e-mail below).

I am truly honored to be serving as the CEO and I look forward to serving CEOS for the next two years in the further coordination of space-based Earth observations for societal benefit. In closing, I would like to thank CSA, NASA, and especially NOAA, for allowing me the opportunity to be CEO. Please contact me if I can be of any assistance – after all, I am your CEO.

Kerry Ann Sawyer, Executive Officer
kerry.sawyer@noaa.gov

From left ; Timothy Stryker (USGS), Jean-Louis Fellus (GCOS), Kerry Ann Sawyer (NOAA), and Ivan Petiteville (ESA)

Newly launched satellites information

SARAL

ISRO launched the joint Indo-French Satellite, SARAL (Satellite with Argos and Altika), on February 25, 2013 from India. SARAL is an oceanographic satellite for which the satellite is built by ISRO, whereas CNES contributed the ARGOS and ALTIKA payloads. Data from SARAL will be useful for researchers besides having many practical applications like marine meteorology and sea state forecasting, climate monitoring, continental ice studies, environmental monitoring, protection of biodiversity and improvement in maritime security. For more information, please visit http://www.isro.gov.in/satellites/saral.aspx

MSG

At 23:36:07 CEST on 5 July 2012, MSG-3 was successfully launched to replace the ageing Meteosat-8 and secure continuity of EUMETSAT operational services from the geostationary orbit. The Meteosat service covers the European and African continents and parts of the Atlantic and Indian oceans where tropical cyclones develop. It also provides input to Numerical Weather Prediction models, complementing those delivered by the polar-orbiting Metop satellites. Meteosat-10 is scheduled to become the prime operational satellite on 21 January after moving to 0º.

SHIZUKU(GCOM-W1)

On May 18, 2012 (Japan Standard Time, JST), the Global Changing Observation Mission 1st - Water "SHIZUKU" (GCOM-W1) was launched successfully by the H-IIA Launch Vehicle No. 21 (H-IIA F21) from the Tanegashima Space Center. "SHIZUKU" (GCOM-W1) is the first satellite of the GCOM-W series. The Advanced Microwave Scanning Radiometer 2 (AMSR2) on-board SHIZUKU is a remote sensing instrument for measuring weak microwave emission from the surface and the atmosphere of the Earth. The AMSR2 will ensure the continuity in monitoring El Nino, La Nina, and sea ice in Polar Regions. It also contributes to practical applications, such as numerical weather prediction and sea state reports for fishermen.

Landsat 8

The Landsat Data Continuity Mission (LDCM) launched on February 11, 2013 at 1:02 pm EST from Vandenberg Air Force Base, California. LDCM is the future of Landsat satellites and will obtain imagery to be used in agriculture, education, business, science, and government. The spacecraft successfully separated from the Launch vehicle (http://www.nasa.gov/multimedia/videogallery/index.html?media_id=159677941) and will go through an approximate one-hundred day test period before being renamed "Landsat 8" and handed over to USGS for operation and data acquisition. For additional information, please go to http://landsat.usgs.gov/.

Launch video can be seen at http://www.youtube.com/watch?v=GQH9VHCz0xE.

Metop-B

On 17 September 2012 at 18:28 CEST, Metop-B was successfully launched. Metop-B's role is to ensure continuity of observations from polar orbit which are vital to Numerical Weather Prediction, as well as climate and environmental monitoring. Metop-B is performing well and is on its way to replacing the ageing Metop-A as EUMETSAT's prime operational satellite in polar orbit at the end of April 2013. Once Metop-B is operational, it will be the second European satellite in the Initial Joint Polar System (IJPS) shared by Europe and the USA.

RISAT-1

On April 26, 2012, India's first Radar Imaging Satellite, RISAT-1, was launched into a Polar Circular Orbit using the Polar Satellite Launch Vehicle (PSLV-C19). RISAT-1 is a state of the art Microwave Remote Sensing Satellite carrying a Synthetic Aperture Radar (SAR) Payload operating in C-band (5.35 GHz), which enables imaging of the surface features during both day and night under all weather conditions. For more information, please visit www.isro.org/satellites/risat-1.aspx.

New membership information
ESSO - Associate member

Earth system science organization (ESSO) of India has become the newest Associate Member of CEOS in its 26th Plenary held in Bangalore. ESSO is a government body under Ministry of Earth sciences which is mandated to provide the nation with best possible services in forecasting the monsoons and other weather/climate parameters, potential fishing zone advisories, ocean state, earthquakes, tsunamis and other phenomena related to earth systems through well integrated programmes. ESSO is also mandated with ocean and atmosphere observing system by deploying many in-situ systems (land and Ocean), which will be useful for calibration and validation of different satellite derived geophysical parameters.

Working Group on Capacity Building and Data Democracy (WGCapD)

***Hilcéa Ferreira**, INPE and **Jacob Sutherlun**, NOAA*

For WGCapD, 2012 was an important and productive year for accomplishing progress in enhanced data sharing and capacity building. We have worked together as part of a partnership of agencies and organizations looking to build capacity in the use of Earth observations for the benefit of society. We greatly appreciate the strong contributions and active participation of all CEOS Agencies and other partner organizations such as Secure World Foundation, UNOOSA, the Regional Centre for Mapping of Resources for Development, and others.

The side meeting held during 26th CEOS Plenary, in Bangalore, had a very good attendance from CEOS Agencies and the main goal was to give an overview of WGCapD overall objectives and discuss in depth the two main projects being carried out: Digital Elevation Models (DEMs) Development Project and Remote Sensing E-Learning Course. It was also a good opportunity to raise the interest of other participants to get engaged with these projects.

WGCapD main projects have been focusing on building capacity for the effective use of EO data as well as providing wider and easier access to those data.

The DEM project was delayed form the originally planned timeframe of November 2012 to May of 2013. This delay will allow for further SRTM 30m data to possibly be released and thus more countries could be included in the workshop. Known countries that are likely to participate in the May 6 workshop are Somalia and South Sudan. We are hopeful that we will be able to include many other countries in East Africa. Training will focus on flood modeling, but it will also cover some urban planning aspects as well.

The first pilot course on Introduction to Remote Sensing Technology will be offered from February to June 2013. The course is intended to reach university lecturers on the field of Earth Sciences - Geography, Geology, Forest Engineering, Agriculture, Ecology, Cartography, Biology, Architecture, Meteorology, Hydrology and related subjects - who would like to learn about the principles and applications of remote sensing. The main goal of this course is to disseminate the remote sensing technology among university lecturers, encouraging them to use remote sensing in Earth sciences applications. This first course will focus on participants from Nigeria, Kenya and South Africa. The course will have English as the official Language, but future events may consider the offering of the course in other languages too. This course is free of charge and applications to participate must be submitted online at http://www.dpi.inpe.br/ceos/e_learning/.

The next CEOS WGCapD meeting will be held in Frascati, Italy at ESA/ESRIN on March 4-6, 2013. We are planning to highlight and discuss the updates on the main projects, as well as, propose a new project which is an inventory of capacity building activities focusing on space-derived data. The primary objective of this project is to compile all current capacity-building efforts on the use of space-derived Earth observation (EO) data for societal benefits into an easily updateable format. We expect to get feedback and engagement of WGCapD members to this new important task. We look forward to working with CEOS community to make this event a success!

Hilcea and Jacob

Hilcéa Ferreira (WGCapD Chair) and Jacob Sutherlun (WGCapD Vice-Chair), side meeting held during 26th CEOS Plenary, in Bangalore, India (October 2012)

Working Group on Calibration and Validation (WGCV)

***Satish K. Srivastava**, CSA*

The 35th Working Group for Calibration and Validation (WGCV) plenary meeting was hosted by the Indian Space Research Organization (ISRO) in Hyderabad, India from September 24 to 28, 2012. This was a joint meeting with the 34th Plenary of the Working Group on Information Systems and Services (WGISS); the two working groups meet together once every few years to focus on joint activities of interest to both groups. At this joint meeting, the discussion led to a number of joint efforts that both groups would pursue. Some of these efforts include evaluation of data quality metadata fields for sensors and products, WGCV test sites information access in CWIC/IDN, defining ECV quality information and implementation process for metadata and development of CEOS Showcases. Importance of developing and maintaining recommended instrumentation at the recommended CEOS Cal/Val test sites by CEOS agencies, acquiring data routinely over these sites and providing free access to data for calibration purposes was stressed at the meeting.

One of the main activities of the WGCV over the past few years has been the establishment and development of the Quality Assurance Framework for Earth Observation (QA4EO). QA4EO is a consequence from a known need for interoperability of data and information in quality and consistency. It is a GEO task and it is included in CEOS-GEO Work plan 2012-15. After the exceptional ESA funded QA4EO Secretariat support ended after five years, the UK Space Agency, together with the Centre for Carbon Measurement of National Physical Laboratory (NPL) has kindly agreed to provide the funding for the secretariat activities for two years. As a result, a new QA4EO Secretariat has been recently formed at NPL in UK (sec@qa4eo.org). A request for participation in QA4EO was also sent to CEOS and GEO members. A CEOS QA4EO Implementation Task Force has been created and virtual meetings are held. The implementation strategy in short term is to increase uptake through provision of example case studies. Support is being sought from other working groups (e.g., WGC), virtual constellations (e.g., SST) and other agencies for providing examples of existing QA best practice consistent with the QA4EO principles. More details can be found on the QA4EO website at http://www.qa4eo.org/.

At the 26th CEOS plenary in October 2012, Mr. Greg Stensaas (USGS) ended his tenure as WGCV chair. CEOS and WGCV members expressed their thanks to Mr. Stensaas for his leadership and significant contribution made to the WGCV. The new WGCV chair is Dr. Satish K. Srivastava (CSA) and the new vice–chair is Dr. Albrecht von Bargen (DLR). The 36th WGCV plenary meeting will be hosted by the Academy of Opto-Electronics (AOE), Chinese Academy of Sciences (CAS) in Shanghai, China, May 13-17, 2013. More details on the WGCV and its activities can be found on the WGCV website at http://www.ceos.org/wgcv/.

The Land Product Validation (LPV) subgroup of the WGCV held a successful session at AGU 2012 in San Francisco, on 'Quality Assessment of Satellite-Derived Land Surface Variables' with a significant amount of contributions made by the subgroup members (http://lpvs.gsfc.nasa.gov/PDF/AGU12_LPV_special_sessions.pdf). The presentations covered a wide variety of topics, from new tools and methods for the validation of Earth observation products, to updates on the data quality of specific land surface products. The Synthetic Aperture Radar (SAR) subgroup of the WGCV will held its 20th CEOS SAR Calibration and Validation Workshop jointly with the 9th Advanced SAR (ASAR) Workshop organized by the Canadian Space Agency (CSA) from October 15–18, 2013 in St. Hubert, Canada (http://sarcv.ceos.org/workshop2013).

Working Group on Climate (WGClimate)

***John Bates**, NOAA, **Jörg Schulz**, EUMETSAT, **and Pascal Lecomte**, ESA*

The wide availability of satellite observations of the Earth's atmosphere, oceans, and land surface combined with increasing computer processing and storage has led to an abundance of products that can be used to study climate variability and change. This revolution in availability of climate products, however, has led to confusion amongst decision makers as to which product may be best for their use. In 2010, the World Climate Research Program (WCRP) and Global Climate Observing System (GCOS), recognizing this challenge wrote to Space Agencies noting that, '…there is currently no systematic international approach to ensure transparency, traceability and sound scientific judgment in the generation of climate data records across all fields of climate science and related Earth observations…'. The Climate Working Group (WGClimate) has responded to this urgent call for action by conducting an inventory of Essential Climate Variables (ECVs) across CEOS agencies. The inventory questionnaire was modeled on GCOS dataset guidelines and digital information preservations best practices. We thank the Agencies for their responses and the WGClimate is beginning to assess the content provided. The content will help in a gap analysis and, more importantly, in an effort to apply additional metrics to ECVs using a maturity matrix.

The proposed maturity matrix combines best practices from the scientific community, preservation description information from the archive community, and software best practices from the engineering community into six levels of completeness (Bates and Privette, 2012) as part of NOAA's Climate Data Records Program. EUMETSAT has started to employ the Maturity Matrix approach to monitor the progress in Climate Data Record (CDR) generation including data records generated by the Satellite Application Facilities (SAFs). Within a new European Union coordination project called Coordinating Earth Observation Data Validation for Re-analysis for Climate Services EUMETSAT supports an assessment of the European capability generating CDRs by employing the Maturity Matrix approach and adapting it to be used with traditional in situ data and model-based reanalysis records. The ESA Climate Change Initiative (CCI) scientific community has provided feedback about how well the existing maturity index describes the CCI product strengths and weaknesses. Discussions are in progress about possible ways forward to evolve the index, based on the GCOS requirements and climate monitoring principles, to reflect the CCI research and development approach and places emphasis on communication of the intrinsic properties of the datasets and their scientific utility.

Reference

Bates, J. J. and J. L. Privette, 2012: A maturity model for assessing the completeness of climate data records, EOS, Transactions American Geophysical Union, Vol. 93, No. 44, Page 441, doi:10.1029/2012EO440006.

John Bates, NOAA; Jörg Schulz, EUMETSAT, and Pascal Lecomte, ESA

Working Group on Information Systems and Services (WGISS)

***Satoko Horiyama MIURA**,*
JAXA

The Working Group on Information Systems and Services (WGISS) had its 34th meeting September 24-28 in Hyderabad, kindly hosted by ISRO. As the chair, I am very happy to report that the meeting, jointly held with WGCV, was successful and very fruitful. WGISS attendance was near 40 including those who attended virtually, thanks to great job of the WGISS Infrastructure Service Project. We welcomed new participants from ISRO, who are very positive to WGISS activities and we strongly hope for ISRO's continuous participation. There are many highlights, which include joint efforts with WGCV, active and fruitful discussion on CWIC (CEOS WGISS Integrated Catalogue), GA.4.Disasters (GEOSS Architecture for Disasters and Risk Assessments), Data Stewardship, new technology (under Technology Exploration Interest Group), the IDN (International Directory Network), the CEOS Water Portal, and an update to the WGISS 5-Year Plan.

Also I would like to stress that after the last plenary meeting, WGISS is very actively engaged in preparing proposals to improve data discovery and access to CEOS agencies' assets, especially via the GEOSS Common Infrastructure (GCI). This topic will be reported and discussed during the SIT-28 meeting in March.

WGISS is always open to any CEOS members or associates and would like to request continuous and stronger support from CEOS principals in order to accomplish CEOS core business assigned to WGISS.

CEOS Virtual Constellations and Working Groups Supporting of GEOSS 2015

***Michael H. Freilich**, NASA, CEOS Strategic Implementation Team Chair*

Last year, on the day before SIT-27 in La Jolla, California, the CEOS Strategic Implementation Team Chair convened a benchmark workshop among the CEOS Virtual Constellations and Working Group (VCs and WGs). This workshop provided an opportunity for the leads of the VCs and WGs to discuss common issues, raise topics of concern with the SIT Chair team, and most importantly, continue the process of aligning their activities in support of CEOS priorities and the realization of GEOSS by 2015.

A similar workshop was held on March 11, 2013, the day before the CEOS SIT-28 meeting at NASA Langley Research Center. It built upon both last year's La Jolla meeting, and the progress made in the year since CEOS SIT-27. The Langley workshop helped to ensure continuity of the conversation with the VCs and WGs and to develop a clearer understanding of their combined outputs, both in the near-term and by 2015. The SIT Chair team recognizes the superb work being done by the VCs and WGs; simply put, the VCs and WGs are the expert teams within CEOS that are critical for the delivery of tangible outcomes and global societal benefits from the space segment.

The magnitude of the task facing the CEOS VCs and WGs, and the corresponding necessary effort, should not be underestimated. The realization of GEOSS in 2015 will be the culmination of 10 years of effort by a broad community, underpinned by focused efforts to fulfill commitments to stakeholders while also finding mutual benefit for all participants. Groups like the CEOS VCs and WGs are essential collaborative mechanisms for GEOSS, as evidenced by their concrete objectives and accomplishments.

Among the topics discussed at SIT-28 was the participation in, and composition of, our VCs and WGs. We invite all CEOS agencies with an interest in any of the relevant domains to get in touch with the relevant VC and WG leadership (see the table below). SIT-28 offered multiple opportunities for side meetings and spontaneous dialogue. We encourage all of our VCs and WGs to actively pursue both avenues for collaboration at CEOS meetings.

As we move closer to the end of the 10-year implementation for GEOSS, our CEOS emphasis, and the focus of our stakeholders, will turn increasingly to providing clear, tangible accomplishments – evidence of the return on the investments of time, effort, and resources on GEO that countries and Participating Organizations are realizing. A substantial fraction of the GEO accomplishments derive from CEOS contributions. We should thus be prepared to communicate our CEOS role and our CEOS deliverables. The process of defining them, and assessing their adequacy against external expectations can be a useful lens by which to focus the plans for the coming years of our VCs and WGs.

Thanks to everyone who participated in the SIT-28 meeting in person and with web-conferencing. In particular, we hope our CEOS colleagues found that theSIT-28 program of activities and side meetings both advanced the work and highlighted the remarkable accomplishments of the VCs and WGs. We take this opportunity to thank the members of the VCs and WGs, and the agencies who are supporting them, for the outstanding work they continue to do for CEOS.

Virtual Constellation Co-Leads			
ACC	RichardEckman/NASA Claus Zehner/ESA	OSVW	Paul Chang/NOAA Hans Bonekamp/EUMETSAT B.S. Gohil/ISRO
LSI	John Faundeen/USGS P.G. Diwakar/ISRO Julio Dalge/INPE		
OCR	Peter Regner/ESA Prakash Chauhan/ISRO Paula Bontempi/NASA	PC	Steven Neeck/NASA Riko Oki/JAXA
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WGClimate	Mark Dowell/EC-JRC John Bates/NOAA	WGISS	Satoko Miura/JAXA Richard Moreno/CNES

Asian rice crop monitoring for GEOGLAM

Shin-ichi Sobue,
JAXA

GEOGLAM aims to enhance agricultural production estimates through the use of Earth observations. It was developed in response to the G20 Agricultural Ministers' concern about reducing market volatility for the world's major crops [Meeting of G20 Agriculture Ministers, 2011]. The initiative builds on recent advances in Earth observation technologies, which have great potential to contribute to timely forecasts of crop production and early warnings of potentially significant harvest shortfalls.

In support of the GEOGLAM initiative, JAXA has agreed to work on an Asian rice crop monitoring component (GEO AG-01 task lead in Japan) due to the importance of rice crops in Asia. Asian countries are responsible for approximately 90% of the world's rice production and consumption. Given the regional importance of rice, Asian participants of GEOGLAM, led by JAXA, have formed an ad-hoc team (Asia-Rice Crop Estimation & Monitoring : Asia-RiCE) to develop a plan for the inclusion of rice crop monitoring as an integral part of the GEOGLAM initiative. This team includes Asian space agencies as well as ministries of agriculture.

The Asia-RiCE team has prepared a Work Plan that aims to provide a framework for the effective participation of Asian countries in GEOGLAM; ensure that the benefits of GEOGLAM flow to the region; ensure representation of rice crop issues within GEOGLAM; provide a new focus for the underlying R&D and technical progress related to rice crop monitoring; and similarly, provide a new focus for regional data providers to engage and better coordinate data supply.

The first version of the Asian rice-crop monitoring component was agreed upon during the Asia Pacific Regional Space Agency Forum (APRSAF-19) in Kuala Lumpur, Malaysia in December, 2012. The Work Plan has since been revised with the addition of selected technical demonstration sites, sampling concepts and ground observation methodologies. The new version of the Work Plan will be presented at the GEOSS Asia Pacific symposium in Ahmedabad, India in February 2013. Based on this new Work Plan, participating Asian countries will begin working to collect SAR and other observation data for rice crop monitoring, following the GEOGLAM framework. Other frameworks such as ASEAN and international donor projects such as the Asian Development Bank will also be used for guidance.

Meeting Calendar

As of March 2013

Activities	April	May	June	July	August	September	October	November	December
	2013								
CEOS Plenary								▲5–6 **CEOS 27th Plenary,** Montreal, Canada	
CEOS SIT (Strategic Implementation Team)						△9–13 **CEOS SIT Technical Workshop and Side Meetings** Pasadena, California, USA			
CEOS VCs and CEOS TFs (Virtual Constellations and Task Forces)			△17–21 **Sea Surface Temperature Constellation meeting #2** Woods Hole, Massachusetts, USA			△4–6 **SDCG-4** Pasadena, California, USA			
CEOS WGs		▲6–8 **SRTM DEM Project Workshop** Nairobi, Kenya ▲6–10 **WGISS-35,** Sao Jose dos Campos, Brazil ▲13–16 **CEOS Disaster SBA and DRM Meeting** Greenbelt, Maryland, USA				▲16–20 **WGISS-36** Frascati, Italy			
GEO related Activities (Group on Earth Observations)		▲13–17 **WGCV-36** Shanghai, China	▲4–6 **2013 GEO Work Plan Symposium** Geneva, Switzerland				▲1–4 **GEOCARBON Conference and CL-02 Meeting** Geneva, Switzerland		▲13 **CEOS-GEO Planning Meeting** Geneva, Switzerland
Others	▲7–12 **European Geosciences Union General Assembly 2013** Vienna, Austria ▲15–19 **GOFC-GOLD Global Land Cover Symposium** Wageningen, Netherlands ▲17–19 **Atmospheric Composition Constellation (ACC-9) Meeting** Darmstadt, Germany ▲22–26 **ISRSE-35,** Beijing, China	▲6–8 **International Ocean Vector Wind Science Team Meeting (IOVWST)** Kailua-Kona, Hawaii, USA ▲6–8 **International Ocean Colour science Meeting (IOCS)** Darmstadt, Germany ▲14–24 **65th WMO Executive Council Meeting** Geneva, Switzerland ▲19–23 **UNSIDR 4th Session of the Global Platform for Disaster Risk Reduction** Geneva, Switzerland ▲27–31 **34th WCRP Joint Scientific Committee (JSC-34)** Brasilia, Brazil	▲3–14 **UNFCCC SBSTA 38** Bonn, Germany ▲12–21 **56th Committee on the Peaceful uses of Outer Space (UN COPUOS) Meeting** Vienna, Austria △25–26 **EUMETSAT Council Meeting** Darmstadt, Germany	▲8–12 **CGMS-41,** Tsukuba, Japan ▲21–26 **IEEE Geoscience and Remote Sensing Society (IGARSS)-2013** Melbourne, Australia ▲24–26 **Third Session of UN Committee of Experts on Global Geospatial Info Mgmt** Cambridge, UK ▲30–1 **WMO Consultative Meeting** Geneva, Switzerland		△9–13 **ESA Living Planet Symposium** Edinburgh, UK ▲23–27 **64th International Astronautical Congress (IAC) 2013** Beijing, China	△9–11 **4th Oceania Meteorological Satellite Users Conference (AOMSUC)** Melbourne, Australia	▲11–22 **UNFCCC COP-19** Warsaw, Poland	△26–27 **EUMETSAT Council Meeting (TBC)** Darmstadt, Germany

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

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