

CEOS Outgoing Chair Report

As the Canadian Space Agency's CEOS Chairmanship odyssey comes to an end, as we have reached our Ithaca at the Montreal plenary, I can testify that the journey was well under the auspices of my Hermes, the entire CEOS community. No Cyclops were fought, nor enchanting voices of sirens avoided (well maybe some). Some days felt more like being between Scylla and Charybdis but in the end I am happy like Ulysses who has returned successful from his travels.

In 2013, we, as a community, have accomplished a lot. Indeed, it has been a very fruitful year.

We did what we set out to do in Bangalore

The subtext of the CEOS Self-Study guided our actions throughout the year, be it in the support to the GEO post-2015, in the development of our guiding documents or in the other duties we conducted.

At the 26th Plenary in October 2012 in India, we established together key priorities for the coming year. To improve the coordination of space agency activities related to climate, we produced a "Strategy Towards an Architecture for Climate Monitoring from Space" and well advanced the first Essential Climate Variables inventory.

In support of our commitments to GEO, we developed a strategy for observing and assessing the global carbon cycle, we approved the Global Baseline Strategy and Implementation Plan for the Global Forest Observation Initiative and provided data over 15 countries. We also developed the GEOGLAM Phase 1 acquisition data strategy engaging CEOS Agencies until 2015, conducted the first remote sensing e-learning course and improved developing country access to global DEM through a workshop.

We also acted on our commitment to put sustained emphasis on the impact of climate change on the Polar Regions. Through the regrouping of Polar Space Task Group to include many space agencies, a multi-year strategy for the observation of ice sheets was developed and acquisition plans are already in place.

Key outcomes of the 27th plenary

At his opening speech, the President of the Canadian Space Agency, General (retired) Walter

Natynczyk, invited us to take great pride that CEOS is a modern, streamlined organization poised to address the challenges of tomorrow. Because of what we do, leaders have better information to make the world safer, more secure, healthier, better fed and better informed. He also noted that the success of any international dialogue is all about relationships built upon trust and confidence. He advised us to take the time to get away from the formal agenda and get to know our colleagues. Thanking and recognizing the great work and dedication of outgoing Chairs was also an endeavour of importance for us. We wanted the 27th CEOS Plenary to be an outstanding success. And we achieved together, as a community.

We welcomed the Vietnam Academy of Science and Technology as a Member and Geosciences Australia as an Associate. We crowned the CEOS Self-Study with the approval of the "Strategic Guidance" and the "Governance and Processes" documents, thus bringing forward the necessary strategic alignment and structural changes for CEOS to remain as pertinent and influential a global leader as it can be.

We also streamlined our coordination of disaster activities with the creation of a permanent Working Group. We approved the global observation strategy for disaster risk management. The CEOS disaster management community certainly has a full plate for the months to come.

We joined our efforts with the Coordination Group for Meteorological Satellites (CGMS) by creating a joint working group for the development and provision of climate data records, in support of climate monitoring, research, and services. We committed to apply space-based Earth observations to support research in biodiversity, the world's oceans, and an improved understanding of the global water cycle.

2013 – A landmark year for a stronger CEOS ready to face the challenges and opportunities ahead of us

2013 is indeed a landmark year for CEOS with the conclusion of the self study and

Luc Brûlé, CEOS Chair



Handover of the CEOS Chairmanship between Canadian Space Agency Luc Brûlé (right) and Eumetsat Alain Ratier (left).

the adoption of our governing documents. We are inspired because we know better what makes us unique. We are smarter because we know better how our activities serve the needs of our stakeholders. We are more effective because our structure better leverages our resources. We are stronger because we know where we are going. Indeed, we are ready to meet the challenges and opportunities head of us.

We will have the capacity to deliver on our goals and objectives if we stay focused and aligned on our essential business. We will remain relevant by being agile, responsive and committed to support the needs of our stakeholders. However, CEOS needs the commitment and dedication of its members to ensure leadership continuity. Some positions cannot remain unfilled without provoking disturbing consequences to the entire community.

It is with pride that I wish the best success to the new CEOS leadership, Eumetsat and CNES and assure them of my unconditional support as they take over the reins of this fine and valuable organization.



Group photo of the 27th CEOS Plenary, Montreal, Canada, November 5-6, 2013

GEO to Keep Unleashing the Power of Open Data Mandate Unanimously Endorsed for Another 10 Years

Bob Samors,

GEO Senior External Relations Manager



In Geneva January, the Group on Earth Observations (GEO) received unanimous endorsement to continue to unleash the power of open data for a second decade. At the conclusion of the GEO-X Plenary and Geneva Ministerial Summit, GEO's 90 Member governments and 77 Participating Organizations (POs) agreed to continue building on the organization's first 10 years of pioneering environmental advances. Those efforts, which are designed to improve the quality of life of people everywhere, are now evident in most regions of the world.

GEO's mandate is to drive the interoperability of hundreds of space-based, airborne and *in situ* Earth observation systems available across the globe. In the absence of concerted efforts to coordinate these diverse observations, these separate systems often yield limited assessments, leading to gaps in scientific understanding and hampering the data fusion that supports better decision making for society. GEO aims to fill such gaps by providing a comprehensive, more integrated picture of our changing Earth by establishing a Global Earth Observation System of Systems, known as GEOSS, and a Portal through which data and other information can be easily accessed at minimal or, most often, no cost.

The events of the week of January 13-17 in Geneva, Switzerland focused on a review of GEO's activities and accomplishments over the past year and since the Beijing Ministerial Summit in 2010, as well as a look forward toward GEO's next decade. The GEO-X Plenary provided a forum for Members and Participating Organizations, including CEOs, to contribute their perspectives on the value of the organization, and to help frame guidance for the way forward.

In general, statements from Members and POs reflected overwhelming support for GEO, its accomplishments to date and its renewal for a second decade. As GEO begins to develop

the next Ten Year Implementation Plan, several themes were consistently reinforced. Among these are the need for GEO to identify ways to further integrate its work with complementary organizations and to engage more strategically with the private sector and other non-governmental entities. In addition, there was a high premium placed on GEO moving from making data discoverable and accessible to converting that data into actionable information for decision makers.

Following the conclusion of the GEO-X Plenary on Thursday, 16 January, GEO and the Swiss Confederation hosted a High-Level Panel Discussion on "Perspectives on the Value of Earth Observations." The event was designed to gain the perspective of global leaders on the value and role of Earth observation data and information in decision-making. The panel was comprised of distinguished representatives of many of GEO's current and future stakeholder communities, including Achim Steiner, Executive Director of the United Nations Environment Programme (UNEP); Margareta Wahlström, Special Representative of the UN Secretary-General (SRSG) for Disaster Risk Reduction (UNISDR); Professor Philippe Gillet, Acting President of École Polytechnique Fédérale de Lausanne (EPFL); Serge Tröber, Chief Underwriting Officer Corporate Solutions, Swiss Re; and was moderated by Karine Siegwart, Vice Director of the Federal Office for the Environment (FOEN), and GEO Principal, Switzerland.

The primary message from the panel discussion was that the value of Earth observation data ultimately comes from translating it into information that provides options for policy makers. A key element of this transformation is the development of better models of how Earth systems function, as well as the need to educate the public on the meaning and value of Earth observation data and information. A challenge posed by the panel to the GEO community was to help decision makers identify the appropriate questions to ask

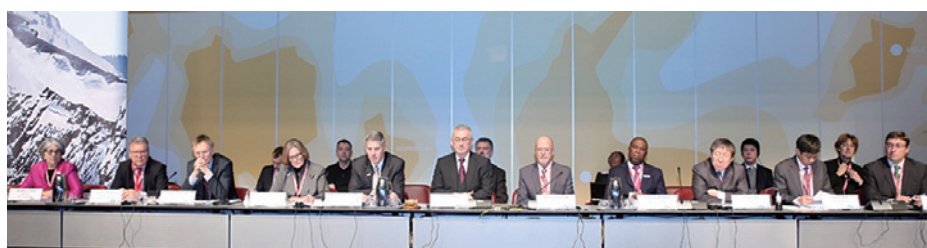
about risk and consequences so the most useful data and information could be compiled and acted upon.

The Geneva Ministerial Summit convened on Friday, January 17 and, following numerous statements of support and endorsement, the Ministers unanimously approved the Geneva Ministerial Declaration calling for the renewal of GEO's mandate through 2025. Ensuing discussion on GEO's future focused on the need to expand its capacity-building efforts, particularly in developing countries; closely link its overall objectives to the emerging Sustainable Development Goals; continue to advocate open data sharing policies, and increase their adoption among Member nations; and develop a comprehensive, interdisciplinary Earth observation knowledge base. This knowledge base would provide new information on essential observation requirements for key domains and integrate with existing observation requirements databases; allow for requirements gap analysis; and document best practices, including harmonization and comparison of processing tools and methodologies.

The 700-plus attendees at GEO Week also participated in more than 30 side meetings which covered topics including, monitoring global forests, mitigating disaster risks, observing greenhouse gases from space, and our planet's cold regions, and food security. There were also forums on a cholera early warning system, water strategies, biodiversity and ecosystems, the links between air quality and health, citizen observatories, the recent accomplishments of China's Earth observation technology and ocean acidification ("osteoporosis of the sea,"). The International Astronautical Federation (IAF), one of GEO's newest POs, hosted a meeting on the benefits of global space applications to society. Complete information about the forums and accompanying materials are available online at the GEO website (www.earthobservations.org)



European Commission and GEOSS Portal Exhibits



Opening of GEO Geneva Ministerial Summit 17 January

Highlights of CEOS from GEO-X Plenary and Ministerial Summit

Kerry Ann Sawyer,
CEOS Executive Officer



Kerry and Pascale at the GEO-X Plenary

In January 2014, the CEOS delegation, led by Alain Ratier, CEOS Chair, and Pascale Ultré-Guéard, SIT Chair, participated in the Tenth Plenary Session of the Group on Earth Observations and Ministerial Summit. The events were hosted by the Swiss Confederation and held in Geneva, Switzerland. The GEO Plenary and Ministerial renewed the mandate for GEO through 2025, and the Ministerial adopted the Geneva Declaration, containing high-level recommendations to guide the development of a detailed 2015-2025 Implementation Plan for GEOSS. This Plenary and Ministerial Summit had the highest number of participants and Ministers in attendance than any past GEO event, with over 700 participants representing 50+ Member Countries and 45 Participating Organizations.

CEOS, through the major investments made by its 55 Member and Associate Agencies, continues to develop the space segment of the Global Earth Observation System of Systems (GEOSS) and to provide space-based Earth observations to GEO.

As of November 2013, there were 107 CEOS Earth Observation satellites operating 286 instruments in orbit, and CEOS Agencies work together to ensure sustained international coordination of these assets, derived data products and access, and comprehensive interactions with users to achieve maximum societal benefit. CEOS Agencies also launch further missions, including multi-agency collaborative missions, for the benefits of users all around the world.

In 2013, CEOS led and contributed to almost half of the 2012-2015 GEO Work Plan's Tasks and Components. Through these efforts, CEOS has made substantial contributions to major global GEO initiatives in disaster management, forest observations, agricultural monitoring and research, as well as climate monitoring and research, and carbon assessments.

In the area of disaster management, CEOS has been deeply involved in the GEO Disaster Task and we decided at our 27th Plenary in 2013 to give new

impulse to our contributions through the creation of a standing Working Group on Disasters, the fifth CEOS Working Group, which will coordinate the many CEOS activities and initiatives in the area of disasters. The new Working Group will prepare CEOS inputs to the Post-2015 Framework for Disaster Risk Reduction which will be discussed at the World Conference in Sendai (Japan) in March 2015.

The coordination of satellite data acquisition and supply by CEOS is fundamental to the Global Forest Observation Initiative (GFOI) objectives and supports all countries' participation. In particular, satellite data provide valuable information on forest extent and characterization; support countries in greenhouse gas emission reporting; and assist in independent verification. In the area of forest observations, CEOS is continuing the development of the "Global Baseline Acquisition Strategy" and contributing to the "GFOI Space Data Services Strategy and Implementation Plan.

In the area of agricultural monitoring and research, CEOS endorsed the "CEOS Acquisition Strategy for Phase One of the GEO Global Agricultural Monitoring Initiative (GEOGLAM)," which addresses the initial space data provision necessary for GEOGLAM Phase One and anticipates CEOS support to future GEOGLAM Phases.

In the area of climate observations and research, CEOS published a "Strategy Towards an Architecture for Climate Monitoring from Space," jointly with the Coordination Group for Meteorological Satellites (CGMS) and World Meteorological Organization (WMO). This activity proved so fruitful that CEOS and CGMS have now agreed to put their collaboration on a more formal footing with the establishment of the joint CEOS-CGMS Climate Working Group – taking heritage from the forerunner CEOS Working Group on Climate.

In support of GEO carbon-related Tasks, the CEOS Carbon Task Force is working to release the final draft

version of the "CEOS Strategy for Carbon Observations from Space" in response to the GEO Carbon Strategy. This addresses the planning and provision of space-based observations of the carbon cycle and its components in support of the various scientific and societal needs anticipated for carbon-related information.

In the area of data sharing and access, CEOS Agencies will continue to provide, free of charge, data access from various satellite missions in support of key GEO global monitoring initiatives. Of the 107 CEOS Space Agency missions operating 286 instruments currently on-orbit: 73% of mission-instrument combinations have OPEN data policies. Additionally, millions of products from over 1800 data collections derived from these missions are searchable and accessible as GEOSS DataCORE.

CEOS Agencies have also enhanced their cooperation in the area of capacity building and data democracy by sharing of remote sensing data for education, training, and capacity building, particularly for traditionally-underserved countries.

CEOS Agencies are fully engaged in implementing the space segment of GEOSS and will continue to support GEO in the future, as evidenced by the initiatives and projects listed above.

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



CEOS Exhibit at the GEO-X Plenary

Outgoing SIT Chair Report



Dr. Michael H. Freilich,

CEOS Strategic Implementation Team Chair (Nov 2011-Nov 2013)

The CEOS SIT Technical Workshop held on September 10-12, 2013 in Pasadena, California, U.S.A., was attended by nearly 70 CEOS Agency representatives and achieved five main objectives.

First, as 2013 was coming to a close, the SIT Technical Workshop reviewed and evaluated the status of deliverables in the CEOS 2013 Work Plan. The Virtual Constellations and Working Groups made excellent use of this meeting as the last major technical and implementation forum before the CEOS Plenary to summarize their accomplishments. They also requested CEOS community guidance and Agency support to advance, and in some instances, to modify, approaches to presenting issues and proposals for review, decision, or disposition at the 2013 CEOS Plenary in Montreal, Canada.

Second, the SIT Technical Workshop was a forum for discussion and coordination on CEOS contributions for societal benefit to be reported and/or demonstrated to key stakeholders, including the GEO-X Plenary and Ministerial Summit in January 2014. Discussions on partnerships and collaboration with the Coordination Group for Meteorological Satellites (CGMS), the Global Climate Observing System (GCOS), and the Global Geodetic Observing System (GGOS) exemplified the importance CEOS continues to place on building capacity and complementarity, internally and externally, to optimize its operations and Earth observation contributions for societal benefit.

Third, CEOS Agencies participated in a thorough review of mature drafts of the CEOS Strategic Guidance documents (representing a body of work begun by CEOS in 2011) that were presented for endorsement at the CEOS 2013 Plenary. Workshop participants revised the Virtual Constellations Process Paper and the harmonized Terms of Reference for the Virtual Constellations, the latter being based on common elements and further informed by unique and cross-cutting characteristics.

Fourth, the Technical Workshop participants discussed steps toward endorsement of the Carbon Task Force draft report *CEOS Strategy for Carbon Observations from Space*, and advanced discussion on implementation of its recommendations.

Fifth, the SIT Technical Workshop accomplished the overarching goal of providing clear guidance on next steps on matters slated for the 2013 CEOS Plenary and the line-up of potential decisions and outcomes for its agenda.

We wish to thank the Virtual Constellations, Working Groups, and CEOS ad hoc teams for their sustained efforts in formulating their issues and proposals for decision and/or disposition in Montreal. CEOS has made great strides in dealing effectively with our business and ensuring that matters brought for consideration by Principals at the Plenary are developed progressively during and between our other major meetings.

The SIT Technical Workshop efforts advanced the final development of issues and proposals that resulted in Plenary decisions and guidance, including:

- Plenary endorsement of the *CEOS Strategic Guidance Documents* (available at www.ceos.org under "Governing Documents")
- Plenary endorsement of the *CEOS Acquisition Strategy for GEOGLAM Phase 1*
- Plenary approval to establish a CEOS Working Group on Disasters, endorsement of the proposed Terms of Reference developed by the Disasters Study Group between the March 2013 SIT-28 meeting and the November 2013 CEOS Plenary, and approval of Iceland as a Permanent

Supersite.

- Plenary endorsement of the updated *CEOS Virtual Constellations Process Paper*
- At the Plenary, the Carbon Task Force received valuable CEOS community input that was incorporated into the draft report *CEOS Strategy for Carbon Observations from Space*, before its release at the GEO Carbon Conference on October 1-4, 2013.

The Plenary provided inputs and direction to other key activities for follow up at the 29th CEOS Strategic Implementation Team Meeting (SIT-29) in April 2014. These included the future framework of CEOS land coverage activities, with options being examined in the coming months by the *ad hoc* Land Surface Imaging Study Group; the CEOS Strategy for Global Data Acquisition for the Global Forest Observation Initiative (GFOI), being advanced by the *ad hoc* CEOS Space Data Coordination Group; and potential next steps for CEOS following the expected release in 2014 of the GEO Water Strategy report.

I thank the CEOS community for the opportunity to serve as CEOS Strategic Implementation Team Chair in 2012 and 2013. It has been an honor and a privilege to work closely with all of you as, together, we build and actively engage a sustainable CEOS that delivers on its commitments, effectively leverages the many resources of our agencies, and improves the lives of all.



New SIT Chair Message

Dear CEOS colleagues

CNES has the pleasure of taking on the reins of the CEOS Strategic Implementation Team at what is a pivotal point in the organisation's history due to two major milestones: the completion of the CEOS Self Study and its implementation phase; and the end of GEOSS's initial ten year plan.

Over these past two years through the CSS we, in the CEOS community, have worked together under the expert guidance of the SIT Chair in examining what we do well, what can be improved and how we should progress to face the enormous challenges in developing Earth Observation over the coming decades. Thanks to the leadership of NASA, CSA, ISRO and the efforts of all the groups involved in this major undertaking, we now find ourselves in a better place: we have clear documents that describe the role of the diverse components of our organisation,

their interactions and the processes that will allow us to function, and evolve, in the future.

Much has been achieved in the implementation of a Global Earth Observation System of Systems since the Third Earth Observation Summit held in Brussels in 2005 which endorsed the creation of the Group on Earth Observations. In the past ten years we have come to appreciate the complexity, both technical and political, that lies behind the seemingly simple objective of better connecting earth observation systems to their user communities. There is no doubt that much work remains to be done and CEOS must continue to be a key contributor if space-based Earth Observations are to realise their full potential in addressing the issues facing society. CNES will endeavour to maintain the leadership that is required

Pascale Ultré-Guéraud,
CNES



to guide CEOS forward in coordinating GEO's space segment.

April's meeting of the Strategic Implementation Team, which will be held on the 9th-10th at CNES's Toulouse Space Centre, will provide a timely opportunity to take stock of the outcomes of January's GEO Ministerial. As well as continuity in the activities of the CEOS Working Groups and Virtual Constellations the meeting will focus on key issues such as the structure of the Disasters Working Group, the detailed analysis of Carbon Task Force Recommendations, and the ramp-up of the GEOGLAM initiative.

We look forward to two productive years and welcome you to Toulouse in April!

WGDisasters: a strong signal to the Disaster Management Community

Ivan Petiteville, ESA, and Stéphane Chalifoux, CSA, Chu Ishida, JAXA

Some history ...

CEOS' interest for disaster activities is long-standing. Between 1997 and 2001, the CEOS Disaster Management Support Group made recommendations "to support natural and technological disaster management on a worldwide basis, by fostering improved utilization of existing and planned Earth observation satellite data". Twelve years later, with the continuous increase of the economic damage and human fatalities due to growing urbanization and an increase in the number and severity of weather-extreme events and following the growing international efforts in disaster risk reduction in anticipation to potential crisis, CEOS Agencies concluded that more than ever before, a dedicated CEOS Working Group would be the best solution to improve the coordination and augment the space agencies' contribution to the disaster community.

International cooperation on disaster reduction ...

Some on-going initiatives undertaken by space agencies outside the CEOS framework such as the Disaster Charter or Sentinel Asia have successfully demonstrated what can be achieved in support to the response phase thanks to a proper international cooperation. Independent studies for organisations including the World Bank have indicated that the return on investments in disaster prevention is between

400% and 700%, recommending more efforts in the pre-crisis phases. This change of strategy shall be confirmed at the 2015 UN World Conference in Disaster Risk Reduction (Sendai, Japan, March 2015) and opens an opportunity for space agencies when the post-2015 Hyogo Framework for Action (HFA2) is assembled.

The CEOS 2015 WCDRR Task Team (WTT) led by JAXA promotes the major initiatives undertaken by space agencies not only in the CEOS framework such as DRM Pilots and the Recovery Observatory but also outside (e.g. Sentinel Asia, SERVIR, ...). Lobbying will be an essential element of the strategic plan to be developed by the WTT to prepare the CEOS' participation in the 2015 WCDRR. It is of the utmost importance for space agencies to have a recognized role defined in the HFA2 that will define the main fields of action for the 2015-2025 period. Another important aspect is the close and continuous interaction with the user community; their positive feedback is key to better suit their needs and advertising the added value of remote sensing to disaster management.

Building WGDisasters ...

A draft proposal for the most appropriate organisation for WGDisasters has been prepared. The final endorsement of WGDisasters organisation will come only at the SIT meeting (April 2014) while in parallel, on-going CEOS disaster-related activities continue as planned.

Disaster risk reduction is generating more and more attention from decision-makers and from major international stakeholders. It is a fantastic societal benefit opportunity for space agencies for the coming decade.

Join WGDisasters now



Civil protection team helping local population after devastating floods in Manila, Philippines (Aug. 2012).. Photo : afp.com/TedAljibe

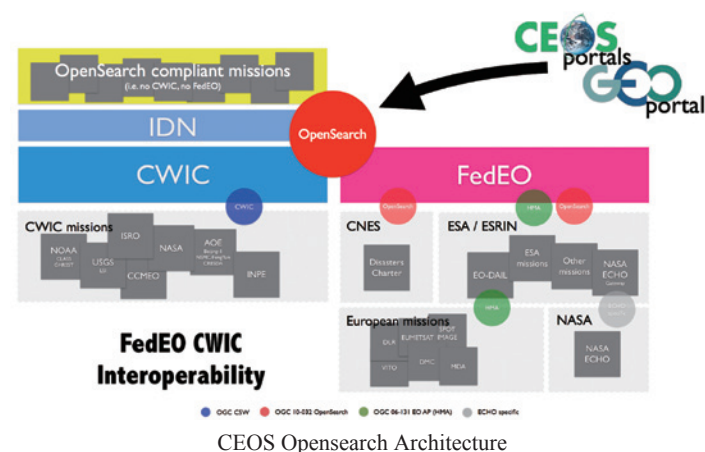
Working Group on Information Systems and Services (WGISS)

The 36th WGISS meeting was hosted by the European Space Agency (ESA/ESRIN) in Frascati Italy on Sept 16-19 2013. There were 55 participants, including those who attended remotely, from 20 agencies or institutions.

One of the major subjects for discussion during this meeting was the CEOS Opensearch project which aims to establish a common interoperability standard to allow access to metadata and data of all CEOS agencies. The technical discussions on this subject are ongoing having been brought up during previous meetings and during series of specific teleconferences. We had a WGISS / OGC

joint meeting on Sept 23rd where we agreed on the methodology and on the planning. The next steps will be for WGISS to issue a "CEOS Opensearch Best Practice" document (3rd quarter of 2014) and for CWIC and FedEO to implement the CEOS Opensearch for data access. Moving to the implementation of this CEOS-wide standard will allow direct access to all data currently available through CWIC and FedEO. The volume of accessible data is estimated at around 60 million data granules from more than 2000 collections.

The CEOS IDN is the directory of Earth science data and services. It will contain the Opensearch



links of the datasets and it is also where GEOSS GCI is getting information about CEOS data and services. This service is more than ever at the core of the seamless discovery and access to CEOS agencies' EO data. Thus, it is very important that each CEOS agency updates its datasets registries in IDN.

Richard Moreno,

CNES



Looking toward innovative future technologies that might be applied to the domain of EO data, during our most recent meeting we had very interesting technical exchanges within the WGISS Technology Exploration group. WGISS agencies presented their latest experiences about:

- Cloud computing
- Big data
- Authentication Service (Single Sign On)

The activities of the Long Term Data Preservation group were presented in detail through a dedicated workshop.

We were very happy to welcome ROSCOSMOS as a new WGISS member. ROSCOSMOS presented an impressive program of EO satellites showing how active and advanced they are in EO and the themes of WGISS. I would like to take this opportunity to reiterate that WGISS is open to all CEOS members and agencies. It is the occasion for them to actively participate in the elaboration of standards and also to exchange with other agencies on the technologies. The 37th WGISS meeting will be hosted by NASA, in Cocoa Beach, Florida (near Kennedy Space Center), April 14-18 2014.

Working Group on Calibration and Validation (WGCV)

At the CEOS 27th Plenary held in Montreal on Nov. 5 and 6, 2013 WGCV presented its activities report, providing an update on Plenary and GEO actions. The Infrared and Visible Optical Sensors (IVOS) subgroup of WGCV is actively working with VC-SST on a campaign proposal. Two projects make up this proposal; the first is a cal/val sensor comparison campaign in support of SST and LST measurements from space. The second is an operational validation project involving a network of high performance drifting ocean buoys for continuous monitoring of ocean temperatures in addition to ship borne radiometers analogous to test sites such as Aeronet and the new LandNET. Initial phases of the first project relating to comparisons of radiometers including blackbodies are already funded by ESA and hence it was endorsed by CEOS at the Plenary. For the remaining unfunded phases of the first and second projects, CEOS approved the WGCV request to

proceed with detailed planning to be presented at SIT-29

WGCV is moving forward in the implementation of LandNET, a calibration sites network for land surface imagers. A pilot project has been initiated based on some already existing sites and an implementation working group has been set. The final goal is to establish a coordinated network of 5 to 10 operational calibration sites distributed over the world in order to provide users with consistent harmonised and trusted calibration data. Also, EC-JRC is inviting CEOS agencies to indicate their interest in an inter-comparison exercise of ECV retrieval algorithms over land (following QA4EO principles).

The WGCV SAR Subgroup Workshop 2013 was held jointly with the Advanced SAR (ASAR) Workshop at CSA premises in St. Hubert,

Canada from October 15 to 18. More than 150 participants presented about 120 papers on the first three days, while the last day was dedicated to discussions on WGCV topics like common test sites and targets, QA4EO and product formats and structures. The next workshop will be combined with the European SAR conference (EUSAR 2014) in Berlin, Germany from June 2 – 6, 2014 (<http://conference.vde.com/eusar/2014/>).

The QA4EO website (<http://www.qa4eo.org>) has been re-designed and now includes a selection of new case studies that illustrate the QA4EO principles with regards to associating quality indicators and traceability to data and derived products. WGCV 37th plenary will be hosted by ESA/ESRIN in Frascati, Italy from February 17-21, 2014 (<http://www.ceos.org/wgcv>).

Dr. Satish K. Srivastava,

Canadian Space Agency, CSA WGCV Chair



WORKING GROUP ON CAPACITY BUILDING AND DATA DEMOCRACY (WGCapD)

The WGCapD is glad to report that 2013 was a busy year full of achievement and progress toward enhanced data sharing and capacity building. During the second semester of 2013, we successfully completed two activities focused on educational opportunities for high school students, teachers, and university professors around the world. These activities are described below.

During the ESA Living Planet Symposium from 9-12 September, 2013 in Edinburgh, UK, WGCapD participants, including ESA, UKSA and DLR, successfully organized an EO Education Stand called a "School Lab". Over 200 students and teachers participated in our hands-on activities that demonstrated the benefits of Earth Observation



Students and teachers participating in our School Lab

technologies.

In addition, the WGCapD developed an International e-learning course on Remote Sensing Technologies for university educators in Africa. There were 30 students selected from South Africa, Nigeria, Kenya, and Tanzania to participate in the 4 month program, and 16 completed all of the requirements for the certificate of completion. There were 19 instructors from 9 CEOS Agencies: CNES/IRD, CONAE, INPE, ISRO, NASA (SEO), NOAA, SANSa, UNOOSA and USGS. Course materials included well-organized tutorials, selected datasets, and internet links. There were two weekly live classroom sessions and sessions were available for download online. All course materials can be found through the course wiki: <http://wiki.obt.inpe.br/doku.php?id=e-learning>.

We received positive feedback from many of the students as they were satisfied with the course and very grateful for the opportunity to participate. One student reported the following:

"Well, I have good news. I was listed on a project that requires my expertise as a remote sensing specialist, wherein my experience and certificate counted a large

Jacob Sutherlun,

NOAA



degree."

The outcomes of this online course have encouraged us to pursue other courses in the future. We assembled the following group picture of our virtual students.

We are looking forward to our third year of existence, under the new chairmanship of Jacob Sutherlun (NOAA) and Jane Olwoch (SANSa), and we invite you to attend our 3rd WGCapD meeting to be hosted by ISRO from April 23-25, 2014 in Dehradun, India. WGCapD is open to new CEOS members. Join us and let's keep up the good work!



Assembled "Group Picture"

CEOS Working Group on Climate - Collaboration with CGMS and Transition in Leadership

At the 27th Plenary meeting, CEOS approved a motion to join with the Coordination Group for Meteorological Satellites (CGMS - <http://www.cgms-info.org/>) in sponsoring the Working Group on Climate. The Working Group on Climate welcomes this action that expands participation to additional meteorological space agencies. CGMS provides an international forum for the exchange of technical information on geostationary and polar orbiting meteorological satellite systems. We look forward to working with new members from the meteorological space agencies.

The 27th Plenary also marked a transition on leadership of the WGClimate. Our first Chair, Mark Dowell of the European Commission – JRC, completed his term and John Bates

of NOAA and Pascal Lecomte of ESA are the new Chair and Vice Chair. We wish to thank Mark for his outstanding leadership in standing up the WGClimate and starting it out on such a productive path. Major accomplishments achieved under Mark's leadership include: CEOS response to GCOS IP presented to Committee of the Parties-18/Subsidiary Body for Scientific and Technological Advice-37 (Bodies under the United Nations Framework Convention on Climate Change), publication of 'Strategy Towards an architecture for Climate Monitoring from Space' jointly with CGMS, and completion of the first Essential Climate Variable Inventory questionnaire. We thank Mark for his generous contributions of time and energy and look forward to his continued contribution as a member of WGClimate.

John Bates,

NOAA



Pascal Lecomte,

ESA



The first meeting of the WGClimate in its joint configuration is scheduled for March 5-7, 2014. The main topics will include the next steps to be taken in implementing the Climate Strategy, the gap analysis that can be initiated from the ECV Inventory, the impact of the strategy report issued by the Carbon Task force.

New CEOS Chair Message

It is an honour for me and EUMETSAT to take over the Chairmanship of CEOS from Luc Brûlé and the Canadian Space Agency, fifteen years after EUMETSAT last assumed this role, in 1999.

I am also pleased to take the Chair after the Montreal Plenary, where a simple, well-documented CEOS governance has been agreed and established, based on the outstanding work performed within the CEOS Self Study Initiative, under the leadership of Mike Freilich and the Strategy Implementation Team.

It is my firm intention to build on this solid legacy to guide our activities and decision making and I will in particular strive to ensure that the activities and decisions of CEOS comply with the documented criteria that we agreed to ensure that the limited resources of CEOS target priority areas.

The SIT leadership can also count on my full support in its task to develop the first CEOS 3-year Work Plan which will put the finishing touch to the new CEOS governance. This plan will define the main CEOS activities and the associated deliverables over the next 3 years and will thus serve as a reference for assessing our progress and achievements. The finalisation of this novel document will require contributions from and iterations with Working Groups, Virtual Constellations and ad hoc teams before being

presented to the SIT for endorsement in April.

In the area of climate monitoring, emphasis will be placed on the further development and implementation of the Global architecture for climate monitoring from space under the leadership of the newly established joint CEOS/CGMS Climate Working Group. The CEOS Chair team will facilitate interactions with CGMS, support the Working Group leadership in the planning of activities addressing its three main objectives, with an initial focus on the delivery and analysis of the first version of the inventory of Climate Data Records.

In synergy with, and complementary to, the activities of the joint CEOS/CGMS Climate Working Group, the World Research Climate Programme and EUMETSAT will co-host a Symposium on "Climate Research and EO from space: Climate Information for Decision-Making" in Darmstadt on 13-17 October 2014 which will bring together the international experts in climate observations, research, analysis and modelling to present and discuss the role of space-based Earth observations in improving our knowledge of the current climate in light of the latest scientific results and the findings of the 5th IPCC Assessment Report. The Symposium will offer a unique opportunity to showcase our contributions to climate monitoring and deliver relevant inputs that the joint CEOS/CGMS Climate Working Group may consider in planning its future activities in



Alain Ratier,
EUMETSAT

response to GCOS requirements.

The CEOS Chair team will also support the ramp up and activities of the new Working Group on Disasters, with a view to preparing CEOS inputs to the Post-2015 Framework for Disaster Risk Reduction which will be discussed in Sendai (Japan) in March 2015. The team will also follow the finalisation of the CEOS Strategy for Carbon Observations from Space and the definition of implementation activities, GFOI implementation arrangements and the formulation of the GEOGLAM acquisition strategy.

Concerning Key Stakeholders, I will represent CEOS at the forthcoming GEO Plenary and Ministerial in January, together with the SIT Chair, and the CEOS Chair team will support the analysis of the implications of these meetings and the preparation of related discussion at SIT in April.

Finally, I have pleasure in extending a cordial invitation to the CEOS community to our 2014 Plenary, which EUMETSAT will organise in Tromsø, Norway on 28 - 30 October 2014, in cooperation with the Norwegian Space Centre.

Meeting Calendar

As of March 2014

Activities	2014											
	January	February	March	April	May	June	July	August	September	October	November	December
CEOS Plenary and CEOS SIT (Strategic Implementation Team)				▲ 8-10 SIT-29 and Side Meetings Toulouse, France					△ TBD SIT Technical Workshop & Side Meetings France	▲ 28-30 28th Plenary & Side Meetings Tromsø, Norway		
CEOS VCs (Virtual Constellations) CEOS WGs and Ad Hoc Teams		▲ 24-26 SDCG-5 Rome/Frascati, Italy	▲ 5-7 CEOS-CGMS WGClimate-4 Darmstadt, Germany ▲ 5-7 WGCAPD-4 Dehradun, India ▲ 17-19 WGD-1 Québec, Canada	▲ 14-18 WGISS-37 Cocoa Beach, USA		▲ 2-6 SST-VC-3 & GHRSS-15 Meeting Cape Town, South Africa ▲ 4-6 ACC-10 Meeting College Park, Maryland, USA			△ TBD WGCV-38 TBD	△ 29-3 WGISS-38 TBD		
GEO related Activities (Group on Earth Observations) Others	▲ 13-17 GEO-X Plenary Session & Ministerial Summit Geneva, Switzerland		▲ 27-28 GEOGLAM Meeting Frascati, Italy	▲ 26-2 2014 GEO Work Plan Symposium & Implementation Board Meetings Geneva, Switzerland	▲ 19-23 CGMS-42 Guangzhou, China		▲ 13-18 IGARSS-2014 Quebec City, Canada	▲ 2-10 40th COSPAR Scientific Assembly Moscow, Russia	▲ 29-3 65th International Astronautical Congress (IAC2014) Toronto, Canada	▲ 13-17 The Climate Symposium 2014 Darmstadt, Germany	▲ 1-12 UNFCCC COP-20 Lima, Peru	

▲: determined

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

CEOS-related meetings are open only to designated participants.

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