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CONTENTS

CEOS SIT– 23 Report and Way Forward

Ms. Mary Kicza, NOAA/NESDIS (USA), SIT Chair

It is my pleasure to report to you on the outcomes of the 23rd meeting of the Strategic Implementation Team (SIT–23) and to provide an update on our continued SIT way forward for the remainder of 2009.

SIT–23

Over 75 representatives from 25 CEOS agencies and other international organizations traveled to Cocoa Beach, Florida this past March to attend SIT–23.

SIT–23 participants laid the groundwork for identifying a set of key CEOS Deliverables for 2009–2010 and discussed space agency commitments that could be achieved in connection with the upcoming 2009 CEOS and GEO Plenaries, the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP)–15, and the 2010 GEO Ministerial.

We spent a significant amount of time, in SIT and at very well–attended side meetings before SIT, discussing the Forest Carbon Tracking and Global Monitoring of Greenhouse Gases from Space initiatives. We were fortunate to have Jim Baker of The William J. Clinton Foundation and Gary Richards of the Australia Department of Climate Change speak to us on the importance of monitoring global forest cover. SIT–23 participants accepted the CEOS Communiqué on Forest and Carbon Monitoring.

We also investigated the utility of identifying potential observational gaps in our space systems and discussed four candidate Threads: Climate, Carbon, Water, and Cryosphere/Sea Level Rise. SIT–23 participants agreed such analysis was useful but should best be addressed by GEO with its broader charge. I have passed this on to GEO.

SIT Way Forward

Our current efforts are focused on further developing the CEOS Deliverables for 2009–2010. The Deliverables, or demonstrable outcomes, for space segment implementation are consistent with charges and priorities identified by GEO, its Plenary and Ministerial; by the Group of Eight Industrialized Nations (G8); and by the UNFCCC. Such Deliverables would include, for example: enabling access to key products and datasets; providing information systems and services to exploit data; important new climate data records; and firm commitments to address key observing system gaps or continuity issues.

CEOS has identified Deliverables to support the following charges/priorities: Forest Carbon Tracking; Global Monitoring of Greenhouse Gases from Space; Climate Change; Data Sharing; GEOSS Quality Assurance Strategy; Capacity Building for Water Resource Management: Africa; CEOS Virtual Constellations for GEO; Global Sea Level Rise; CEOS Handbook 2008 and the CEOS Mission, Instruments and Measurements Database 2009; Education, Training, and Capacity Building; Management of Energy Sources; and Global Digital Elevation Model. We have passed these Deliverables on to the CEOS Chair and continue to assist her in further refining them.

In June 2009, the 30th Meeting of the UNFCCC SBSTA agreed to a set of Conclusions and a draft Decision for consideration/adoption by Parties at the December 2009 15th UNFCCC Conference of the Parties (COP–15). Both the Conclusions and draft Decision have elements addressing CEOS. This is the first time that CEOS will be mentioned in a UNFCCC Decision.

- The SBSTA Conclusions:
  - Welcomed the commitment by CEOS agencies to work towards improved availability of current and future data for forest carbon monitoring;
  - Encouraged CEOS and Parties supporting space agencies to continue, and if possible accelerate, development of methodologies, as well as validation and inter–comparison of satellite–based applications, for the terrestrial domain.
- With regard to CEOS, the draft Decision:
  - Expresses its appreciation for requested reports from the Global

(to be continued on page 2)

SIT– 23 Participants, Cocoa Beach, Florida

GEOSS 2009 Priorities and Trends

Michael D. Tanner, *Group on Earth Observations (GEO) Secretariat (Switzerland)*

The year 2009 marks the beginning of a new phase in GEOSS implementation. Strategic objectives have been introduced along with new proposals and contributions from over 30 GEO Members and Participating Organizations. User engagement and the role of Committees and Communities of Practice have been re-enforced. Moreover the focus of the Work Plan has shifted towards actually building GEOSS-connecting observing, modeling and information systems to make environmental data, products and services available to society. The achievements and advances made in 2009 will prove critical to the future success of GEOSS and CEOS will continue to play a major role.

The one-year Initial Operating Capability (IOC) demonstration of the GEOSS Common Infrastructure (GCI) is close to completion. The IOC has focused on providing the core capabilities that will enable users and decision makers to discover, understand and access GEOSS systems, products and services. During the recent International Symposium for Remote Sensing of the Environment (ISRSE-33) a usability test site was set up and over 120 users provided valuable feedback to the GCI IOC Task Force. Meanwhile, new components such as a solar-energy portal have been contributed to the GCI through the GEOSS Architecture Implementation Pilot Phase 2 (AIP-2).

The Global LandSat archive data are now publicly available and the Land Surface Imaging (LSI) Data Portal is now fully operational. Now there is access to the world's largest collection of Land-Surface Images taken from space. The LSI portal will become an invaluable tool for predicting and managing natural disasters, monitoring climate change, and studying ecosystems and biodiversity.

The Board of the International Charter on Space and Major Disasters Charter unanimously endorsed the principle of "universal access" to the Charter for GEO Members. This will help provide a unified system for acquiring remotely sensed data and delivering them to countries affected by natural or man-made disasters.

Additional data from Europe, Japan and the US are becoming available for reanalysis to improve assessments of climate variability. More satellite data for global carbon analyses are becoming available with the successful launch of the Japanese Greenhouse Gases Observing Satellite "IBUKI" (GOSAT). CEOS has pledged full support to GEO carbon-tracking activities in terms of data provision, implementation of datasets interoperability and validation of the products. The Carbon Community of Practice is making strong efforts to coordinate activities and ensuring the participation of all the necessary observation and modeling components of a global carbon analysis system.

The SERVIR monitoring and visualization portal is being extended from Central America to East Africa; the SERVIR system will integrate multi-national satellite resources into a web-based Earth information system for Africa. The TIGER initiative is also being extended, with a second phase focusing on the use of space technology for water-resource management and capacity-building components. A project to develop a malaria early-warning system has been given high priority by CEOS space agencies.

The African European Georesources Observation System (AEGOS) was launched, and its infrastructure is being developed. Implementation is progressing well with the China-Brazil Earth Resources Satellite (CBERS) downlink station in South Africa, which is becoming operational and starting to receive data.

These are just a few examples of the tremendous work that is on-going within the GEO community to achieve GEOSS. There is still lots of work to be done and with the help of GEO Members and Participating Organizations like CEOS, we will move closer to delivering clear and unambiguous information to the pressing challenges facing our planet.

(continued from page 1)

Climate Observing System (GCOS), Global Terrestrial Observing System (GTOS), and CEOS.

- Encourages CEOS to continue coordinating and supporting the implementation of the satellite component of GCOS.
- Urges Parties that support space agencies to enable those agencies to continue to implement, in a coordinated manner through CEOS, the actions identified in the CEOS report, in particular by ensuring long-term continuity of observations and data availability.

I would like to take the opportunity to thank Bryan Bailey for his service to CEOS as Co-Lead of the Land Surface Imaging (LSI) Constellation. The LSI Constellation enjoyed many successes under Bryan's outstanding leadership. Bryan retired from U.S. federal government in July and I hope you will join me in sending heartfelt wishes his way as he embarks on the next exciting chapter in his life. I would like to welcome Tom Holm of USGS who has agreed to co-lead the LSI Constellation along with VS Hegde of ISRO.

I would also like to thank Nicolas Hoepffner of EC-JRC for his co-leadership of the new Ocean Colour Radiometry (OCR) Constellation. Welcome to Mark Dowell of EC-JRC who will take over Nick's OCR co-lead role.

Enjoy your summer holidays and I look forward to seeing many of you in Darmstadt, Germany, September 10-11, for SIT-24. As agreed at the 22nd CEOS Plenary, SIT-24 will be a working-level meeting and a very important follow-on to SIT-23 and finalizing deliverables for the November CEOS and GEO Plenaries and UNFCCC COP-15. Please join me in extending a sincere thanks to EUMETSAT for hosting this event.

CEOS Carbon Task Force Activity

Dr. Takashi Moriyama, *EORC, JAXA, CTF Lead*

The role of greenhouse gases in global warming processes and as an important element of the global carbon cycle is widely recognized by GEO member countries. With the advent of the technical means to provide new monitoring and measurement of greenhouse gas (GHG) from space in 2009, CEOS has identified the coordination of these measurements and their application as a top priority for the coming years. NASA, NOAA and ESA have agreed to work with JAXA to establish the necessary international framework to facilitate this coordination, aimed at access to the data, its application, and security of future supply.

To foster the use of space-based GHG observations and consolidate data requirements for the next-generation GHG monitoring missions from space, a synergistic strategy for easy access to GHG satellite observations, including GOSAT and current observations should be developed. Coordinated planning efforts towards the next generation of GHG satellite observations are also required.

GHG from Space is one of sub-tasks under the GEO task (Global Carbon Observation and Analysis System), and will pursue the technical and organizational progress required for the application and integration of results with those of the other sub-tasks, to which it is closely linked: Integrated Global Carbon Observations (IGCO) and Forest Carbon Tracking. To ensure the necessary coordination and integration of outcomes of these tasks, it was proposed and accepted at SIT-23 that the GHG from Space task will also serve as a vehicle for the purposes of coordinated reporting to CEOS and GEO. To facilitate this function, and to raise the profile and priority of all three Carbon tasks within GEO, the task will establish an international coordination Task Force (CEOS Carbon Task Force) within the CEOS structure, reporting to SIT with the other GEO tasks which CEOS leads. This Task Force will work with, and seek to ensure maximum synergies from, the various initiatives within CEOS contributing to the GEO Carbon tasks – including within the CEOS Virtual Constellations and Working Groups.

As co-lead of all three GEO Carbon tasks, JAXA is willing to step up to provide the necessary coordination effort and lead the proposed Task Force. The Task Force seeks to raise the profile of the tasks within CEOS, GEO, and within supporting agencies such as JAXA, necessary to secure high-level support and funding. The outcomes of the Task Force are envisaged as follows.

1. Facilitate calibrated and validated GOSAT standard products in line with its data policy through the CEOS portal as a part of GEOSS outcomes which contribute to climate change studies.
2. Compare and explore integration of GOSAT products with mid tropospheric AIRS, IASI and SCIAMACHY GHG products.
3. Develop a CEOS strategy to harmonize and secure future GHG data supply from space – reflecting updated science status and user requirements as defined by the update of the IGOS Carbon Theme Report via Integrated Global Carbon Observations (IGCO) task (the document will be called the GEO Carbon Report).
4. As required, support to the CEOS periodic reports to UNFCCC SBSTA informing of progress by space agencies towards the requirements of the GCOS Implementation Plan.
5. As required, compelling demonstrations and communications in support of key GEO meetings in 2009 and 2010 – including the Ministerial – noting the science and policy implications of the new technical capabilities supplied by space systems.

The GEO Carbon Tasks Workshop was hosted by CSIRO on 20 & 21 May at their Black Mountain campus in Canberra, Australia. The Workshop successfully organized the kick-off the 'GEO Carbon report' and 'GHG from space' tasks and initiated planning to ensure that they meet their 2009 objectives. The Workshop also established the dependencies among the three GEO Carbon tasks; it was agreed that inputs to COP-15 are one of the key areas for collaboration between the relevant tasks. Integrated forest and atmospheric carbon observation products for a specific area (eg Borneo) will be explored. It was also agreed that a team will be formed to update the IGCO report (as the GEO Carbon Report), with a draft planned for completion ahead of COP-15 in November 2009. A GEO Carbon Community of Practice (CoP) will also be established, building on the former IGOS Carbon Theme, and initially focused on development of the GEO Carbon Report, and providing further coordination among the three tasks. The GEO Carbon CoP will be run in an open manner, with a steering committee to ensure good coordination. GEO Carbon CoP arrangements will be formalized at GEO-VI, and it is hoped that CoP can present the draft of the GEO Carbon Report at the IGOS Symposium, the day after GEO-VI. Finally, an inter-agency meeting to discuss coordination of future GHG observations from space is planned. This should include an update on the requirements from the science community undertaken as part of the GEO Carbon Report.

The Ocean Colour Radiometry Virtual Constellation (OCR–VC)

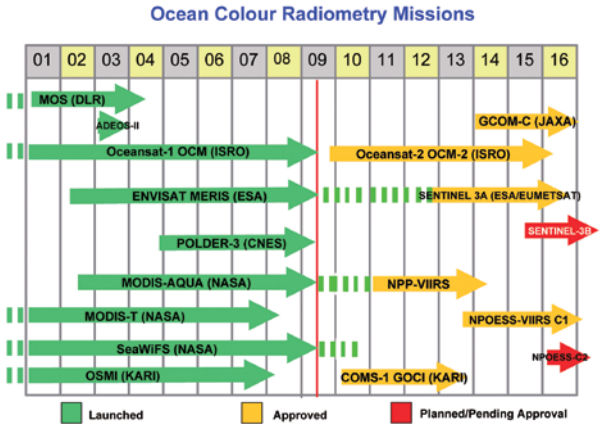
Dr. James A. Yoder, Chair, and *Dr. Venetia Stuart,* Project Scientist International Ocean Colour Coordinating Group (IOCCG)

The purpose of the OCR-VC is to ensure a long-term, sustained record of calibrated satellite ocean colour radiances (OCR) at key wavelength bands to determine the impact of ocean climate signals and climate change on ocean ecosystem and biogeochemical parameters, and for other societal benefits. OCR data products derived from ocean colour radiances include phytoplankton chlorophyll-a (a measure of phytoplankton biomass), coloured dissolved organic matter, particulate carbon, suspended sediment, and the diffuse attenuation coefficient (an indicator of water transparency).

The key space segment capabilities are the current and future polar-orbiting global OCR satellite missions (see Fig. 1). Of specific interest are SeaWiFS, MERIS on Envisat, MODIS-Aqua, OCM on Oceansat-2, planned OCR instrument on Sentinel 3A and 3B, SGLI on GCOM-C, VIIRS on NPOESS-C1, possibly VIIRS on NPP, and future NASA and CNES instruments under consideration. The OCR-VC can provide benchmarks (e.g., calibration, validation, and comparable algorithms) for other instruments such as China's COCTS on HY-1B and Korea's GOCI on COMS-1.

In addition to its important contributions to assessing impacts of ocean climate phenomena and change, products derived from satellite OCR also serve GEO Societal Benefit Areas (SBA) health, climate, ecosystems and agriculture as specified in the GEO 2009-2011 Work Plan (November 2008). The most recent GEO plan points out the OCR-VC provides for "scientific data products related to marine ecosystems and ocean biogeochemistry for near-surface global ocean and coastal waters." Supporting the OCR-VC space segment are projects such as **SAFARI** (Societal Applications in Fisheries & Aquaculture using Remotely-Sensed Imagery) which is primarily sponsored by the Canadian Space Agency to address GEO Task AG-06-02; **ChloroGIN** (Chlorophyll Global Integrated Network) which is a POGO-GEO-GOOS initiative for GEO Task EC-09-01C; and **GlobColour** which is an ESA funded program to develop a satellite-based, ocean-colour merged data set to support global carbon-cycle research, and for other requirements.

The Strategic Implementation Team (SIT) of the CEOS approved the proposal for an OCR-VC in fall, 2008. Implementing organizations, primarily space agencies, affiliated with the IOCCG are currently developing an implementation plan to present to SIT at the September, 2009 meeting. Participating agencies include CNES, CSA, ESA, EUMETSAT, INPE, ISRO, JAXA, JRC, KORDI, NASA, and NOAA.



Ocean Colour Radiometry Missions: past, present and future. Figure produced by IOCCG (www.ioccg.org).

The Ocean Surface Vector Wind Virtual Constellation (OSVW-VC)

Drs. Stan Wilson, NOAA, *B.S. Gohil,* ISRO, and *Hans Bonekamp,* EUMETSAT – Constellation Co – Chairs

With 90% of international trade carried by more than 30,000 ships and having an estimated annual revenue of $9 billion, the safe and efficient transport of these goods is vital to the global economy. And with more than a million mechanized commercial fishing vessels worldwide – 40,000 of which exceed 100 tons – their safe and efficient operations contribute a vital source of protein to the global population. As part of the International Convention for the Safety of Life at Sea, the International Maritime Organization and the World Meteorological Organization (WMO) have developed a coordinated system of marine forecast and warning services covering both the high seas and coastal areas. More recently, the Joint Technical Commission for Oceanography and Marine Meteorology of the WMO and Intergovernmental Oceanographic Commission is working to ensure that the latest scientific and technical developments contribute to the provision of those services – including operational weather and sea-state forecasts, as well as warnings of tropical cyclones and winter storms – via the Global Maritime Distress and Safety System (GMDSS).

Especially critical for such marine forecasts and warnings are spaceborne observations of ocean surface vector winds (OSVW) and significant wave heights (SWH). Microwave scatterometry is used to estimate the vector winds, and routine observations of OSVW were initiated by ESA's ERS-1 satellite in 1991. Broad-swath coverage began with NASA's QuikSCAT in 1999 and more recently, ASCAT on EUMETSAT's Metop series, operational since early 2007. ISRO's Oceansat-2 to launch later this year, CNSA/SOA's HY-2A in 2010, and the joint CNSA/SOA/CNES CFOSat in 2013/14 will each include a scatterometer. Additionally, NOAA proposes a scatterometer for JAXA's GCOM-W2 in 2016.

Formally established by the CEOS Plenary in November 2008, the OSVW *Virtual Constellation* (VC) is working closely with the international science community to promote

(to be continued on page 5)

Working Group on Calibration and Validation (WGCV)

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

The 30th WGCV plenary meeting (WGCV-30) was held from 26 – 29 May 2009 in Ilhalbela, Brazil, hosted by INPE. The meeting was the first chaired by Pascal Lecomte (ESA) and vice-chaired by Gregory Stensaas (USGS) since they took over at CEOS plenary last year.

Participants to the WGCV's 30th plenary meeting in Ilhabela, Brazil

WGCV-30 saw reports from all six of its subgroups as well as from each member agency / organisation present. The WGCV was pleased to have attendance at the meeting from representatives of WGISS, the SEO and GSICS. Close collaboration between all three of these communities is strengthening with positive results. The WGCV has always had a close relationship with WGISS and continues to works together on those GEO / CEOS tasks that relate to data access, formatting and harmonisation. The SEO have been working with the WGCV to include the primary calibration / validation (Cal/Val) reference test sites within their new CEOS Spacecraft Coverage Analysis Visualisation Tool (COVE), a tool very much welcomed by the WGCV community. The SEO has also been assisting the WGCV in installing a new website for the group and this is now available via the main CEOS site at http://www.ceos.org/wgcv. Collaboration between the WGCV and GSICS is a relatively new effort, with closer links now being established. It has been agreed by both groups that each should be represented at the other's meetings to strengthen links and to ensure no duplication of effort. The WGCV also sees the need to improve relationships with the GEO / CEOS Constellation teams in the more topically-specific areas, and efforts were identified at WGCV-30 to seek out better collaboration.

Much of the WGCV's work currently focuses on the GEO / CEOS tasks, and a day of the meeting was dedicated to discussion and review on the tasks the group is involved in. The WGCV is involved in many activities ranging from sensor intercomparison exercises over land (e.g., at DOME C and in Turkey) and sea (e.g., off the coast of Miami), to the definition of a global set of Cal/Val test reference sites, to benchmark mission coordination efforts, to the establishment of a global DEM. A major focus of effort through the tasks has been on the Quality Assurance Framework for Earth Observation (QA4EO) and its implementation. QA4EO was adopted by CEOS plenary last year and, since then, has undergone a further thorough review by GSICS. Issue 3.0 of the QA4EO framework and its ten guidelines have now been released and are available from the QA4EO website at http://qa4eo.org/. A short user guide has also been produced to assist the user in implementing QA4EO (this can also be accessed via the QA4EO website). From 29 September – 1 October 2009, TUBITAK UZAY will host a QA4EO Workshop on Facilitating Implementation in Antalya, Turkey. Prospective participants can find out more information and register for the workshop via the QA4EO website. There are also plans for QA4EO to interact with the GEOSS Common Infrastructure (GCI) team to set up a voluntary questionnaire to the GEO community to provide some practical feedback on QA4EO and its implementation.

The WGCV continues to stress that Cal/Val activities should play a key role in all satellite Earth Observation missions to ensure the clear and quantitative understanding of the data they generate. The group aims to provide support and encouragement to the community to achieve this as the EO community strives for a Global Earth Observation System of Systems (GEOSS), the main driver to better data quality and traceability being implementation of QA4EO in all EO data processes and procedures.

(continued from page 4)

a number of activities to harmonize among the different scatterometer systems – agreement on timely, unrestricted and easy access to data products with consensus standards and formats; joint participation in calibration and validation efforts; and collaboration in the use of those products for both research and operational forecasting.

The OSVW VC is partnering with the *Ocean Surface Topography* VC to include SWH products as well – products available from satellite altimeters since 1991 and at present from the joint CNES/NASA Jason-1 and Jason-2, as well as ESA's ENVISAT. Communication with centers in several developing countries with operational forecast responsibility for GMDSS areas has shown that some are unable to access and/or use OSVW and SWH products – a capability that the developed world has had for more than a decade and a half. Consequently, a priority objective for the OSVW and OST VCs is to address this deficiency through training and capacity building.

In the not-too-distant future, there will most likely be a sufficient number of scatterometers in orbit to provide global coverage of the OSVW field *every six hours!* If the resulting observations can be shared in a timely manner, this would enable standard six-hourly surface meteorological analyses over the oceans with comparable accuracy and coverage as currently exists over land in most developed countries. This in turn could have a substantial impact on the improvement of marine forecasts and warnings for the high seas and coastal areas, not only to the benefit of maritime commerce, but also the fishing industry.

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

Mr. Gordon Bridge, *EUMETSAT (Germany), WGEdu Chair*

The annual meeting of WGEdu took place, at the kind invitation of the Norwegian Space Centre, in Oslo, Norway from 18 to 20 May 2009. All presentations can be found at the CEOS website (www.ceos.org) under the WGEdu-Meetings link.

Participants were CONAE, ESA, EUMETSAT, GISTDA, INPE, NOAA, NSC, CEOS-SEO, UNESCO and USGS.

Participants provided summary reports on current and future capacity building activities, and there were several side discussions on potential future collaboration. There followed a report on African Monitoring of the Environment for Sustainable Development, which is a cooperative programme of the Commissions of the African Union and the European Union, and making significant use of EUMETSAT's EUMETCast-Africa broadcast service.

WGEdu reviewed the status of its actions responding to the GEO Action Plan 2009 - 2011, and contributions being made to various GEO over-arching and sub-tasks were confirmed and updated.

WGEdu expressed its appreciation to the CEOS-SEO team for the excellent work carried out updating the WGEdu web pages and Portal over recent months, and agreed that after a further short trial period, the test site should become "operational".

NOAA Presented a draft white paper describing a concept for the GEONETCast Training Channel, now in review by the GEONETCast Global Implementation Group. WGEdu acknowledged the high importance of this initiative to CB and noted that the use of the channel should now be encouraged through an implementation phase and the raising of awareness.

WGEdu reviewed the status of each CEOS Virtual Constellation and the potential role of WGEdu in the more advanced Constellations' activities was considered, in particular, with regard to outreach.

Concerning WGEdu's test implementation of the Data Access Principles, presentations from ESA, INPE, GISTDA and USGS showed that over the last year the situation regarding availability of high resolution EO imagery for disaster mitigation and capacity building activities was greatly improved when compared with even a year or so ago. However, WGEdu stressed that despite the improved availability of such data, key tasks now were to widely promote this availability, to encourage the upgrade of reception capabilities and to provide training in data use. A progress report on data democratization issues prepared by GISTDA was also presented to the Group. WGEdu strongly endorsed the principles since, as noted above, they are paramount to successful capacity building, especially for the developing countries.

USGS and GISTDA reported on the very successful 3rd WGEdu Remote Sensing Workshop, hosted by GISTDA in Bangkok, 4-6 February 2009, and which was attended by 30 tertiary-level remote sensing educators and practitioners from 8 Southeast Asian countries. Entitled "Remote Sensing for Disaster Management in SE Asia", a key objective of the Workshop was to inform participants about new techniques for applying remotely sensed data in preparation for, and in response to natural disasters in SE Asia. Workshop presenters provided expertise in the fields of wild fire detection, landslides, flood management and land surface satellite data applications. WGEdu then addressed planning for its next Workshop, to be held in 2010. Issues such as title, target audience, venue, dates, objectives, scope, program content and funding (the generous USGS grant is currently available for the next two Workshops) were addressed. Following a kind offer from INPE, the next Workshop will take place in Brazil in the March 2010 timeframe. The title will be "Disaster Management in Latin America" and English/Spanish language translation will be provided.

WGEdu agreed to the establishment of Co-Chairs who would share the increasing workload and focus on key areas to be addressed in the next 3-year Work Plan. Birgit Stromsholm (NSC), George Jungbluth (NOAA), Francesco Sarti (ESA) and Tania Maria Sausen (INPE) kindly offered to become Co-Chairs with effect from December 2009.

Potential new activities for the next 3 years (2010 to 2012) included the Portal upgrade, wider exploitation of the GEONETCast Training Channel, outreach support to Virtual Constellations, and closer coordination with GEO CBC to ensure better synergy between the activities of each Group. Remote Sensing Workshops should continue to be supported by the Group even though new funding will have to be found beyond 2011. WGEdu was also aware of the need to support secondary level education in the application of EO information, since there was a real need to ensure an adequate supply of next generation scientists and practitioners to address future climate change problems worldwide.

Finally, WGEdu agreed that its next annual meeting will be held in Argentina, at the kind invitation of CONAE, in the May 2010 timeframe.

The group of WGEdu

Working Group on Information Systems and Services (WGISS)

Ms. Martha Maiden, *NASA (USA), WGISS Chair*

The group of WGISS

CEOS WGISS delegates and attendees have recognized that, with the availability of long-time attendees and the accumulated "best practices", WGISS is a treasure house of experience, expertise and capability. Many years of projects vested in international interoperability, interuse and demonstration of standards provide a storehouse of knowledge and tools that can be quickly brought to bear for today's GEOSS needs. In the short time that I have been WGISS Chair, I can attest to the ability of the majority of CEOS agency WGISS delegations to respond to the information technology needs and challenges of CEOS's role as the satellite arm of GEO. Since the times are so exciting, agencies, such as INPE, are returning to WGISS after an absence to try and assess the potential INPE contribution to WGISS,

Since the last newsletter report, the LSI Constellation Portal, currently a clearinghouse style portal, has been released with some considerable fanfare to the public. A second Portal associated with a CEOS Constellation, the Atmospheric Composition Constellation, a value-added style portal, has begun development. The Portal for the ACC will be based on the ICSU/WMO World Data Centre for Remote Sensing of the Atmosphere (WDC-RSAT) platform provided by DLR, and has been designed to be capable of flexibly hosting distributed data, tools, and services. WGISS has formed a liaison arrangement with the GPM Data Working Group, the Global Precipitation Constellation's data system, known as the GDaWG, to ensure communication to provide interoperability and data flow for needed societal benefit area data flows.

WGISS-27 took place May 11-15 in Toulouse, hosted by CNES, and attendance was high. One of the big outcomes was a plan to implement a WGISS disaster response capability prototype using a web services, GRID powered model. WGISS is motivated to work on disaster response, spurred on in response to the Chinese earthquake in 2008. WGISS worked closely with China's NRSCC delegation, led by Liu Dingsheng, to provide data that might be helpful. The NRSCC quickly mounted an effective capability to support recovery and response. WGISS will pull together all applicable tools from across the subgroup's project outcomes for this prototype.

Also notable at the meeting, WGISS learned that INPE will be providing tools for the LSI Constellation, which will be downloadable through the LSI Portal as well as from INPE. An update to the CEOS WGISS 5-Year Plan is planned for delivery to and approval by the next CEOS Plenary. WGCV Chair Pascal Lacomte attended WGISS-27, continuing to increase cooperation between WGISS and WGCV, and specifically developing the dialogue on data quality (QA4EO) and the GEO data harmonization task, which WGISS leads. Health SBA Coordinator Murielle Lafaye of CNES presented an introduction to the Health SBA. Working with Murielle, WGISS has found contributions to the health SBA area. Last but not least, CNES, with Paul Kopp as our most gracious host, provided a comprehensive and informative workshop on their thematic centres.

It's hard to believe that I will be chairing the last WGISS meeting under my tenure in September. WGISS is going to South Africa for WGISS 28, scheduled for September 28-October 2 2009 in Pretoria, hosted by CSIR.

A Message from the CEOS Chair

Dr. Darasri Dowreang,
Deputy Director, Geo-Informatics and Space Technology Development Agency of Thailand, CEOS Chair 2009

GISTDA is now more than halfway through our term of CEOS Chair in 2009. Those who have served in the past will know how intensive a year this has proven to be. But it is a worthwhile undertaking-and I sense a renewed energy for the ambitions of CEOS, and a broader recognition that-in support of the space segment of the GEOSS-there is more need than ever for CEOS to deliver results.

Troika and ASIA-CEOS meeting Participants

CEOS Chair, working closely with the SIT Chair team at NOAA and with CEOS SEC, has sought to bring a strong focus to CEOS efforts in 2009-and to emphasise the production of tangible outcomes to be able to demonstrate in the various high profile meetings which populate the end of the year-including COP-15 of the UNFCCC (Copenhagen) and the GEO Plenary (Washington DC). These include outcomes from the Forest Carbon Tracking (FCT) and Greenhouse Gas activities that we identified as our top priorities for the foreseeable future. Mary Kicza and I will be in touch with all potential data donor

(to be continued on page 8)

(continued from page 7)

agencies in the near future to discuss the prospects for your contribution to the FCT 2009 demonstrator efforts. These are a key test of the practical realities of space agency coordination in support of a pressing and common need with high political profile. The path will not be without obstacles but we trust that this effort will demonstrate the potential of CEOS to contribute in this domain.

To emphasize the contribution from Troika and Asian members, GISTDA held the CEOS Troika strategy and ASIA-CEOS member meeting in Bangkok during 25-26 June 2009. Representatives from Asia and Troika with a total of 7 agencies were presented at the meeting, in addition of CEOS Chair team, SIT and CEO made a total of 28 attendees. CEOS Chair conducted a productive meeting for one and a half day. Each agency updated on its activities and CEOS involvement. Fruitful discussions were made in order to urge an involvement from Asian members.

Participants of the 2nd GEO Forest Monitoring Symposium

Part of CEOS contribution to the FCT effort was to host The 2nd GEO Forest Monitoring Symposium in Chiang Rai on 1-3 July 2009. There were 80 participants from 22 countries in attendance. A side meeting on the 2009 National Demonstrators (NDs) was held one day before the Symposium, led by Alex Held, of CSIRO. ND representatives from Borneo, Brazil, Cameroon, Mexico, Tanzania, and Tasmania updated their status and discussed further cooperation with GEOSS and data providers. The major theme of the Symposium proper was "from research to operations". CEOS Chair and Frank Martin Seifert of ESA (as the CEOS POC) had the opportunity to update the meeting about CEOS plans to support the GEO FCT task.

You should by now have received information on the 2009 CEOS Plenary, which we will host on 3-5 November at the Sheraton Grande Laguna hotel on the beautiful island of Phuket in the south of Thailand. We hope that the meeting will include extended discussion on strategic issues. I look forward to welcoming you all there. Agenda and registration info will follow shortly.

Contributions for future issues of the CEOS Newsletter from the CEOS Members and Associates, and subscriptions to the CEOS Newsletter, please contact CEOS Japan Secretariat : misawa@restec.or.jp **http://www.ceos.org/ (→Publications & Services)**

Meeting Calendar

As of August 2009

Activities	2009 July	August	September	October	November	December	2010 January	February	March	April	May
CEOS Plenary					▲3–5 **23rd CEOS Plenary** GISTDA/Phuket,Thailand						
CEOS SIT (Strategic Implementation Team)		8th pm & 9th am▲ **FCT Co-leads meeting** EUMETSAT/Darmstadt, Germany	▲10–11 **SIT–24 Working Meeting** NOAA/EUMETSAT/Darmstadt, Germany							△ **SIT–25** JAXA/Japan	
CEOS WGISS (Working Group on Information Systems & Services)				▲28–10/2 **WGISS–28** CSIR/Pretoria, South Africa							
CEOS WGCV (Working Group on Calibrationand Validation)		▲11–13 **IVOS Subgroup Meeting** University of Lethbridge,Canada	▲14–18 **Workshop,** TBD	▲29–10/1 **QA4EO Workshop** TUBITAK UZAY /Antalya,Turkey							
CEOS WGEdu (Working Group on Education, Training, and Capacity Building)									△ **Disaster Management Workshop** INPE/Brazil		△ **Annual Meeting** CONAE/Argentina
GEO related Activities (Group on Earth Observations)	▲1–3 **2nd GEO Forest Monitoring Symposium** Chiang Rai, Thailand	▲27–28 **FCT Space Data Coordination Meeting** JAXA/Tsukuba,Japan ▲24–26 **FCT Regional Hubs&Data Processing Mtg** JAXA/Tokyo	▲15–18 **ADC & Co–Chairs Mtg Capacity Building Committee** Melbourne,Australia	19–20▲▲21–22 **FCT Co-Leads Review & Planning Mtg** Clarence House Google London Office UK	▲15,19 **ADC Co–Chairs** 16▲ ▲17–18 **Exe. Com GEO–VI Plenary** ▲19 **IGOS Symposium,** Washington D. C.			▲23–26 **ADC Full Com** JRC/Ispra,Italy △ **GEOSS AP Symposium** Indonesia			
Others	▲13–17 **IGARSS–2009** Cape Town, South Africa		▲14 **Carbon CoP Mtg** Jena, Germany ▲13–19 **ICDC–8** Jena, Germany	▲26–30 **CGMS–37** Jeju Island, Korea ▲12–16 **IAC'09 Plenary** Daejeon, Korea ▲18–25 **13th World Forestry Congress** Buenos Aires, Argentina	▲7–18 **UNFCCC COP–15** Copenhagen,Denmark						

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

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