



**CONTENTS**

Report from the 21st CEOS Plenary .....	1
Outgoing SIT Chair's Message .....	2
In Appreciation .....	2
CEOS SIT Way Forward .....	2
CEOS is taking climate seriously .....	2
GEO Cape Town Summit highlights role of satellites .....	2
"Sunset" for the IGOS Partnership .....	2
CEOS New Member in Spain .....	2
Working Group on Calibration / Validation (WGCV) .....	2
Working Group on Education, Training and Capacity Building (WGEdu) .....	2
Working Group on Information Systems and Services (WGISS) .....	2
Message from the CEOS Chair .....	2
Meeting Calendar .....	2

## Report from the 21<sup>st</sup> CEOS Plenary

*Ms. Barbara Ryan, U.S. Geological Survey, 2007 CEOS Chair*

On November 13 and 14, 2007, the 21<sup>st</sup> CEOS Plenary was hosted by the U.S. Geological Survey on the Big Island of Hawai'i. The lovely tropical setting contributed to a sense of "relaxed focus" on recent CEOS accomplishments – but more importantly, the setting allowed us to focus on our upcoming work in 2008. Hawai'i also provided a unique opportunity for CEOS members to learn more about USGS's role in volcano science and related land surface monitoring, and the use of satellite remote sensing in accomplishing the USGS mission.

The Big Island is part of a geographically remote chain of islands which many equate to "Paradise on Earth". Yet even this beautiful, remote territory is experiencing rapid land surface, ecosystem, and climate change. It was therefore fitting for the Plenary to meet in Hawai'i, since the data from CEOS members' systems are essential to life and prosperity on this island – and indeed everywhere on our fragile planet.

The Plenary was attended by representatives from 29 national and international organizations. Among the

many highlights of the meeting were the following:

- ◆ Welcoming two new CEOS Members: Spain's Center for the Development of Industrial Technology, and the China Center for Resources Satellite Data and Application;
- ◆ Committing to a series of detailed and comprehensive actions to support development of the Global Earth Observation System of Systems (GEOSS) space segment;
- ◆ Continuing a dialogue with the GEO Secretariat on next steps in GEO Work Plan implementation and its support by CEOS Members, Associates, and Working Groups;
- ◆ Reviewing reports from the pilot phases of the four CEOS Virtual Constellations (Atmospheric Composition, Land Surface Imaging, Ocean Surface Topography, and Precipitation) and deciding upon next steps in their development;
- ◆ Previewing a new CEOS Virtual

Constellations video (courtesy of the NASA Langley Research Center production staff) which describes the societal benefits which may be realized through better coordination of remote sensing satellite systems;

- ◆ Deciding upon final steps in IGOS-P coordination and this highly successful initiative's transition into GEO;
- ◆ Thanking outgoing Working Group Chairs – Ms Yolanda Berenguer of the Working Group on Education, Training and Capacity Building and Mr.Ivan Petiteville of the Working Group on Information Systems and Services, and endorsing these Groups' incoming Chairs – Mr.Gordon Bridge and Ms Martha Maiden, respectively;
- ◆ Taking steps in expanded consultation and coordination with the World Meteorological Organization Space Program and with the Coordination Group for Meteorological Satellites;
- ◆ Reviewing the many accomplishments of outgoing CEOS Executive Officer, Jean-Louis Fellous, and welcoming incoming Executive Officer Ivan Petiteville; and,
- ◆ Welcoming South Africa's Council for Scientific and Industrial Research (CSIR) as new CEOS Chair and the U.S. National Oceanic and Atmospheric Administration as the new CEOS Strategic Implementation Team (SIT) Chair. We look forward to supporting their leadership in 2008.

I was particularly pleased that Deputy Secretary of the Interior, the Honorable P. Lynn Scarlett, and USGS Director Mark  
 (to be continued on page 2)



21st CEOS Plenary 12–15 November 2007 Kohala Coast, Hawaii USA



## Outgoing SIT Chair's Message

**Dr. Volker Liebig**, ESA/ESRIN (Italy), Former SIT Chair



Dear CEOS Colleagues

The CEOS Plenary in Hawaii marked the end of ESA's two years as Chair of the Strategic Implementation Team (SIT) and I felt it appropriate in this edition of our Newsletter to record our progress over that period. ESA picked up the SIT Chair role at a particularly crucial stage in the history of CEOS - with the advent of GEO and the GEOSS, bringing a new focus and a new sense of purpose to our collaborative efforts, and the hope of more continuous political support for our work. It was the challenge of SIT to help the CEOS Chair to direct CEOS on a path which responded to the needs for development of the space segment of the GEOSS and to initiate new and practical mechanisms for us to achieve progress. I hope that the community feels we have achieved this - with the agreement

to develop and execute the CEOS Implementation Plan for Space-based observations for the GEOSS. Version 1 of the IP has been published and it provides a comprehensive, systematic, and logical (target-driven) approach to managing and monitoring our various efforts in support of the GEOSS space segment.

However, other than the Working Groups, CEOS has been lacking mechanisms by which to make the progress needed to implement the GEOSS. Over the last two years, we have proposed and endorsed the idea of CEOS Virtual Constellations and this has been embraced by the community, including by GEO.

We also have coordinators for each of the SBAs and teams in place for the priority Climate SBA actions - with similar arrangements in planning for all SBAs. So we are successfully aligning our structures

and resources to the task in hand.

Satellite Earth observations have much to offer in terms of societal benefits. Their full potential can only be realised through improved coordination of our programmes and our budgets to provide the coverage and continuity that is needed for most practical purposes. As I write, our funding governments and agencies are meeting in Bali at the UNFCCC to discuss the enormous challenges which lie ahead in mitigating and responding to climate change. I am sure that NOAA, the new chair of SIT, fully realises that this is our chance to step up to the world stage and realise our full potential. But it falls to each and every agency within CEOS to commit resources and energy to the tasks identified in the CEOS IP. We have the vision, we have the tools, we must now deliver. ■

(continued from page 1)

Myers were able to address the Plenary and meet many of our foreign partners. Ms. Scarlett's and Dr. Myers' remarks emphasized the value of international collaboration in connecting environmental observing systems and services for the public benefit. As with other countries, Earth observation data are essential to the United States' conservation, resource management, and environmental monitoring objectives.

In closing, I would like to recognize our ESA colleagues for their peerless leadership this year, and the many dedicated CEOS members who supported GEOSS implementation and Virtual Constellations development. I would also like to commend the many achievements of the three CEOS Working Groups (Calibration and Validation, Information Systems and Services, and Education, Training, and Capacity Building). The GEO Secretariat aptly referred to the Working Groups as the "workhorses of GEO", for their highly-regarded work connecting systems and services, ensuring

the accuracy of measurements, and enabling better data utilization worldwide.

The role of CEOS Chair requires much time and attention. It is, however, the numerous staff of Members and Associates

who are moving CEOS into exciting and important new directions.

Congratulations to all on a highly successful 2007 and best wishes for the coming year! ■

### In Appreciation

CEOS would like to express its appreciation for the long-term leadership and vision provided by Dr. Jean-Louis Fellous, on the occasion of his retirement from the French civil service. Dr. Fellous, a highly-regarded expert in oceanography, served as the first Executive Officer for CEOS during 2007, and played an indispensable role in the coordination of CEOS activities with the Global Climate Observing System, the Group on Earth Observations, and the World Meteorological Organization. Dr. Fellous' Executive Officer responsibilities were an important chapter in a career of leadership at the European Space Agency and the Centre National d'Études Spatiales, where he served as the CNES representative to CEOS and, eventually, as CEOS Chair. Dr. Fellous' keen intellect, strategic orientation, practical nature, and wonderful sense of humor were tremendous assets to CEOS. We thank him for his years of dedicated service and wish him well in his new position as Executive Director of the Committee on Space Research, COSPAR. ■



Dr. J-L Fellous & Ryan CEOS '07 Chair

Barbara Ryan, 2007 CEOS Chair  
Volker Liebig, 2006-2007 CEOS SIT Chair

## CEOS SIT Way Forward

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



**I**t is my pleasure to report to you as the SIT Chair. I am excited about the opportunity to work with such an esteemed group of space experts and I look forward to building upon the solid foundation laid by Drs Volker Liebig and Stephen Briggs.

The SIT goals for 2007-2008 are focused on achieving demonstrated results in connection with the GEOSS 10-Year Implementation Plan and 2007-2009 Work Plan and in strengthening communication lines back to GEO. The first step is to strengthen the CEOS linkages to GEO and GEOSS. We have begun this process with a remapping exercise of the CEOS Implementation Plan. CEOS SIT and GEO Secretariat representatives have met to establish direct traceability between CEOS Actions and identified GEO/SBA Tasks, and more specifically, the CEOS Actions needed to achieve those Tasks. The remapping is our opportunity to cull, clarify, and take forward recommendations on how CEOS can best support GEO. As a result of the meeting,

we are developing a CEOS-GEO Worktable as a management tool which will be shared with all CEOS Agencies in early March. The Worktable will include Actions that are detailed enough to clearly articulate the work that must be done to demonstrate CEOS contributions to achieving the GEO Tasks and Targets. As a result of discussions between SIT and GEO Secretariat, we will develop a joint CEOS/GEO Secretariat list of priority Actions. We will then ask CEOS Agencies to affirm their commitments in volunteering to address those Actions during a tour de table at our SIT-21 meeting.

At the same time, we are working to advance the Virtual Constellations. The concept of Virtual Constellations was created as a potential means to better address space-based Earth observation needs on a global basis while maintaining the independence of individual space agencies. The Constellations cut across multiple GEO Societal Benefit Areas and embody CEOS' role as the space arm of GEOSS. In October 2007, we

conducted interviews with each of the four Virtual Constellation Leads and identified SIT actions to better support Constellation activities. I provided a summary of the actions to the CEOS Principals after Plenary. We are in the midst of updating the CEOS Constellation Process Paper that will provide guidelines for Constellations including the introduction of additional Constellations. We will review proposals in the near future for new Constellations.

The SIT calendar is full in the first part of 2008. We are planning a CEOS-GEO Task Workshop with the Working Group Chairs, Constellation Leads, and CEOS SBA Coordinators for February 20-22 in Silver Spring, Maryland where we will coordinate SIT inputs to the CEOS-GEO Worktable. SIT-21 is scheduled for April 23rd and 24th in Woods Hole (Falmouth), Massachusetts. It is not too early to make your travel arrangements. We can't promise beautiful, spring-time weather on Cape Cod, but we can promise a refocusing of our collective efforts to move SIT forward. ■

## CEOS is taking climate seriously

*Dr. Jean-Louis Fellous, COSPAR (France), Outgoing Executive Officer*

**P**ursuant to the work accomplished in 2006, as part of the GEO Work Plan Task CL-06-02 and in response to the request from the UNFCCC Conference of the Parties to the space agencies "to provide a coordinated response to the GCOS Implementation Plan" Satellite Supplement, which had resulted in the release of the "CEOS Response to GCOS-IP" (see <http://www.ceos.org/>), activities have developed in 2007 along the lines of the 59 actions included in this plan.

Working with the GCOS Program Office, the CEOS Executive Officer selected a subset of 21 "Priority 1" actions, for which substantial progress seemed achievable in the short term. Priority 2 and 3 actions were also sorted out, with expected results in the medium and long term. Simultaneously CEOS Chair addressed CEOS Principals, seeking their support to carry out climate actions, with a request to designate a Climate Focal Point, "empowered with the time, resources, and decision-making authority to coordinate actions with" the CEOS Executive

Officer. Most CEOS members and some Associates have designated their Climate Focal Point. Dialogue between the CEOS Executive Officer and Climate Focal Points further resulted in the identification of a potential role for each agency in Priority 1 climate actions, and the assignment of a lead expert to each action. Multi-agency teams have been assembled and action plans defined.

Early achievements can already be noted: among others, the investigations of cloud properties and trends from combined satellite imager plus sounder measurements with contributions by NASA, NOAA, EUMETSAT, CNES, DLR and CSA; developing plans toward a Global Precipitation Mission (NASA, NOAA, JAXA, CNES and ISRO); operational production of consistent sea ice data sets (EUMETSAT, NOAA, ESA and NSC); progress in agreements enhancing cooperation among international space agencies that currently operate mid-resolution land-surface imaging systems; etc. The GCOS Steering Committee,

in its 15<sup>th</sup> session held in Paris in October 2007, expressed appreciation of the CEOS community effort.

Focus in 2008 will be on getting all Priority 1 actions up to speed, and involving all CEOS agencies in their fulfilment; particular efforts will be devoted to reaching out to space agencies not currently contributing to space-based climate observations and getting their active participation, in terms of data sharing, adherence to climate monitoring principles, and contribution to relevant CEOS Constellations. Focus will also be on initiation of Priority 2 and 3 actions and enhancement of collaborative effort of all space agencies into cross-cutting actions, notably as regards data dissemination and institutional arrangements needed to ensure continuity and sustainability of space-based climate data.

After the end of Dr Fellous's term as CEOS Executive Officer, Dr Mitch Goldberg (NOAA) is taking over as Climate Coordinator. He will play a crucial role in maintaining momentum gained in climate-related actions, progress of which CEOS is committed to report on at regular intervals to UNFCCC. ■



## GEO Cape Town Summit highlights role of satellites

**Mr. Michael Williams**, Group on Earth Observations (GEO) Secretariat (Switzerland)

The Group on Earth Observations concluded the start-up phase of its work last November by holding its first Ministerial Summit since its creation in early 2005. The GEO-IV plenary and the Cape Town Ministerial Summit were attended by some 500 delegates from Member governments and Participating Organizations as well as by 14 Ministers. It was held from 28 to 30 November and hosted by the Government of South Africa.

While the conference addressed all aspects of the Global Earth Observation System of Systems, the unique and essential role of satellites was recognized throughout. Many of the 100 “early achievements” presented to the participants, for example, incorporated contributions from the CEOS membership. They included the Global Wildland Fire Early Warning System project, GEONETCast, the North American Drought Monitor, Sentinel Asia, the CEOS Virtual Constellations, and many others.

A particular highlight of the conference was the public launch of CBERS for Africa. Supported by a network of ground stations provided by South Africa, Spain and Italy, the China Brazil Earth Resources Satellite Programme will provide state-of-the-art images of the planet to end-users throughout Africa free of charge. The conference also welcomed the launch of the South African Environmental Observation Network (SAEON) and the South African Earth Observation Strategy, which was marked by high-level speeches and a major reception hosted by CEOS. Yet another important announcement was made by Japan and

the USA, which have joined together to contribute a Digital Elevation Model with a 30 m resolution to the GEO community. The Model is based on data from the Japanese ASTER imager, which is carried by the USA’s TERRA satellite.

Ministers and government officials attending the Summit adopted a Declaration stressing the importance of interconnecting the world’s diverse environmental monitoring systems over the coming decade. The Declaration recognized “that sound policymaking for addressing the environment and sustainable development must be based on understanding, describing, and predicting a complex and interdependent world, and therefore requires terrestrial, oceanic, air-borne, and space-based Earth observations, data assimilation techniques and Earth system modelling.”

The Declaration also welcomed “the resolution of the World Radio Conference-07 on radio communications use for Earth observations applications...” The GEO Secretariat followed up on this issue in December by signing a Memorandum of Understanding with the International Telecommunication Union. The MOU seeks to identify ways to strengthen cooperation on remote sensing of the Earth, particularly in the field of disaster preparedness and response. Together, the resolution and the MOU will advance the satellite community’s efforts to strengthen protection for the dedicated radio frequencies that remote-sensing satellites use for gathering high-quality data on the global environment.

The Cape Town conference also provided many other formal and informal opportunities for the rest of the Earth observation community to learn about the advances and plans of the space sector. For example, during the plenary interventions the Russian Federation highlighted its commitment to rebuilding its system of meteorological satellites, Germany described its contribution of the TerraSAR satellite, ESA informed participants about its plans to launch two new Earth observation satellites in 2008, India outlined its broader strategy for space-based observations, and China highlighted its recent satellite launches.

Finally, Ministers, delegates and the general public also benefited from the presence of an ambitious GEO Exhibition on Earth observations. The Exhibition featured some 60 exhibits on all aspects of Earth observing systems, information products and decision-support tools. Exhibitors included CEOS, several CEOS members, and many other organizations and countries that demonstrated space-related activities. In addition, a giant plasma “video wall” displayed dozens of videos provided by CEOS members and other participants.

A formal opening ceremony was held for the Exhibition during the Summit. To help Ministers better understand and visualize the interoperability and benefits of GEOSS, GEO Director José Achache used the exhibition layout to illustrate how information gathered by one exhibiting organization could be transmitted to another for processing, and then another for dissemination, and finally onward for final use. ■

## “Sunset” for the IGOS Partnership

**Ms. Barbara Ryan**, U.S. Geological Survey, 2007 Co-Chair IGOS-P

**Dr. Walter Erdelen**, UNESCO (France), Co-chair IGOS-P

International organisations are not noted for voting their own demise, but this is precisely the process the IGOS Partners\* set in motion at their meeting in May, 2007. The motive was not by any means the sentiment that its work had been completed, but rather that the work they had successfully undertaken over the past ten or so years could more effectively be conducted under the aegis of GEO.

The Partners were anxious to avoid the Themes falling between two stools, and so put in place a mechanism to ensure a satisfactory transition of each of their Themes into the GEO framework. This involved a close cooperation between the Theme Team Leaders and the GEO Secretariat, and the success of this process was a condition Partners had specified before formally addressing the future of the Partnership.

The IGOS-P meeting in November, 2007, confirmed that the detailed arrangements negotiated with the GEO Secretariat satisfactorily integrate the work of the themes into the GEO structure, and will allow the theme team members to continue to contribute to the creation of GEOSS. On this basis they agreed to hold one final meeting of the Partnership, to be hosted by UNESCO in Paris in May, 2008, at which theme contributors will be formally thanked. Thereafter, IGOS-P will cease to exist. It is important to stress, however, that this does not mean that the former Partners no longer support the work of the Themes they have created. The formal Resolution agreed by Partners clearly states that they will continue to support the themes in their new context. Consideration also is being given to arranging a symposium at which important achievements of the Themes will be highlighted.

(to be continued on page 5)

## CEOS New Member in Spain

**Mrs. Mónica López**, *Centre for the Development of Industrial Technology*

Created in 1977, the Centre for the Development of Industrial Technology (CDTI) is a Spanish public organisation, under the Ministry of Industry, Tourism and Trade, entitled with the management of public programmes aimed at promoting R&D among Spanish industries, including Space activities.

CDTI employs more than 300 persons, three quarters of which are engineers and graduates. Although the bulk of the infrastructure of CDTI is located in Madrid, the Centre has established a strategic network of offices and representatives abroad available to Spanish companies (Japan -Spain Business and Technology Office [SBTO], Belgium -Spain Office of Science and Technology [SOST], and a Permanent Eureka Secretariat, Brazil -Financiadora de Estudos e Projetos [FINEP], Colombia -Colciencias, Korea, Chile and Morocco) to give them support in their international technological activities.

CDTI is the focal point for the Spanish Space Industry and manages a variety of programmes which comprises Spain's endeavor in space activities:

- Spanish participation in ESA: as the Spanish Delegation to ESA, CDTI manages the core of the national budget for Space and provides coordination for other Space initiatives where Spain is involved. Spain's increasingly ambitious contribution to ESA allows it to become an emerging space partner in the European landscape.

Spain currently participates in all ESA's sets of activities, being EO the second largest in terms of Spanish industrial participation.

- Spanish National Space Program (PNE): is aimed mainly to develop technologies for platforms, payloads and subsystems, and Telecommunications and Remote Sensing applications.

- Bilateral Programmes: starting in 2006, CDTI is managing a budget line devoted to perform space projects in cooperation with other space agencies. In particular, CDTI has already signed Cooperation Agreements to carry out bilateral programs with the following world powers in the space industry: American space agency (NASA), Russian space agency (Roskosmos), French space agency (CNES), and Canadian space agency (CSA).

- Collaboration Agreements with other Departments of Administration and national entities through which the CDTI negotiates the industrial and technological aspects of space programmes with Spanish participation; with the National Meteorological Institute for the industrial participation of Spain in the European organisation, Eumetsat; with the Ministry of Defense, for the project on military communications by satellite, Spainsat/Xtar; and with Hispasat, for the Spanish industrial participation in communication satellites.

In addition, during 2006 the CDTI, on behalf of the Ministry of Industry, Tourism and Trade, elaborated the Spanish Space Strategic Plan for



A satellite Image of Canary Islands (Spain)

the period 2007-2011. The main goal of this Strategic Plan is to contribute to the European Space Program according to the weight of Spain's economy. Among the priorities of this Plan the biggest challenge facing Spain today is to completely develop and exploit a fully operational satellite of its own. For this aim Spain has set up a national programme fully funded by the Spanish government based on an Earth Observation Satellite devoted to providing high resolution multi-spectral land optical images in first instance to different Spanish civil, institutional and governmental users, and potentially to other European users in the frame of the Global Monitoring for Environment and Security initiative (GMES), and the Global Earth Observation System of Systems (GEOSS).

Afterwards, with the aim of increasing Spanish investments in Earth Observation and cover most of the user needs, the Ministry of Industry, Tourism and Trade and the Minister of Defense signed an agreement for the development of a Spanish Earth Observation Satellite System based, in first instance, on two satellites, the optical satellite mentioned previously and a radar satellite based on SAR technology. ■

(continued from page 4)

The Partnership was started by an exchange of letters among Partners in the second half of 1998. It has sought to provide a comprehensive framework to harmonize the common interests of major space-based and in situ systems for global observation of the Earth. It quickly became apparent that IGOS-P could not hope to cover simultaneously all the areas of user interest. The Partners therefore decided at an early stage to adopt an incremental "Themes" approach, based on identified needs and priorities and taking due account of what observations were available or could be made available in the near term. Theme Teams were created for Oceans, Land, Cryosphere, Geohazards, Carbon Cycle, Atmospheric Chemistry, Water, and Coastal Environment using specialists provided by the Partners. The Theme Teams produced reports on an unusually short time scale, and their recommendations were a significant contribution to the definition of the GEO requirements.

It should be clearly understood that agreeing to "sunsetting" the

IGOS Partnership is not at all an admission of the failure of this unusual experiment. Quite the contrary, considering the lack of direct political support, the Partnership can claim to have been very successful, and the final meeting in Paris this May will give an opportunity to ensure that this work will be continued satisfactorily in GEO. Partners (and CEOS not least among them) agreed to the transition of their Themes because they believed that the work could be continued more effectively in the GEO framework, where it is hoped that the necessary political support will be forthcoming. Those who have contributed to the success of the Themes can be assured that former Partners will indeed continue to provide support for the continuation of their work within the GEO framework. ■

\* The IGOS Partners are: CEOS, FAO, GCOS, GOOS, GOS/GAW, GTOS, ICSU, IGBP, IGFA, IOC-UNESCO, UNEP, UNESCO, WCRP, and WMO.

Further information can be obtained on [www.igospartners.org](http://www.igospartners.org)



## Working Group on Calibration/Validation (WGCV)

**Dr. Changyong Cao**, NOAA/NESDIS (USA), WGCV Chair, **Mr. Pascal Lecomte**, ESA/ESRIN (Italy), and **Dr. Petya Campbell**, GSFC (USA), WGCV Secretariat

Our first GEO-CEOS workshop on cal/val was held October 2-4, 2007 in Geneva, to address the GEO task of developing the data quality assurance strategy for GEOSS. Nearly 50 experts from CEOS member agencies and associates participated in the workshop. WGCV thanks GEO and ESA for sponsoring the workshop, and highly commends our host Dr. Michael Rast, GEO secretariat for providing this excellent venue and Dr. Marie-Claire Greening for her help in organizing the workshop.

Prof. Jose Achache, Director of GEO Secretariat, delivered the opening remarks. He stressed that in order for GEOSS to be fully successful, there must be calibration, validation and inter-calibration between all instruments. The four main sessions of the workshop included cal/val site characterization & classification; satellite and in situ cal/val data access; cal/val methodology and guidelines, and harmonization of quality information.

Participants reached consensus that cal/val and quality assurance processes should be incorporated into satellite program, and a roadmap was developed. CEOS endorsed guidelines, under the auspices of GEO, will be issued and implemented by the

member agencies. The guidelines will cover all aspects of the data quality from prelaunch/postlaunch calibration to geophysical product validation. In a joint effort among ESA, USGS, and NASA, the CEOS cal/val portal has been established and made available at <http://calvalportal.ceos.org>, where detailed information about the workshop can also be found.

Calibration consistency across missions and instruments, as well as establishing reference and metadata standards were recognized as critical issues at the GEOSS workshop on interoperability at IGARSS 2007 (co-sponsored with IEEE and WGISS). To address these issues WGCV is collaborating with member organizations adopting appropriate international standards, and developing specific on-orbit radiometric reference standards.

WGCV has also made significant progress in addressing several CEOS/IP tasks. For example, to improve the fundamental climate data records, the measurement consistency among AVHRR, MODIS, and ATSR is quantified, in a collaboration including NOAA, NASA, ESA, RAL, and USGS. WGCV is providing strong support to the benchmark measurement mission studies for establishing on-orbit



Participants of the GEO-CEOS Workshop

radiometric traceability to SI (International System of Units). More details can be found in the WGCV report and presentation at the CEOS Plenary <http://www.ceosplenary2007.com>.

These accomplishments were made possible with the tremendous support from the participating CEOS member agencies and associates. With the increased support and further alignment with the CEOS Implementation Plan, WGCV and its six subgroups will make more progress on specific tasks that both contribute to GEOSS and benefit the space agencies in 2008 and beyond. ■

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

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

As follow-up to the 1st WGEdu workshop on remote sensing for secondary school educators in Latin America (16-17 November 2006, Buenos Aires, Argentina), a second

workshop was organized by CONAE and UNESCO, under the banner of WGEdu, on 3-5 October 2007 in Cordoba, Argentina, focusing on the application of remote sensing technology to climate change. The 50 participants from Argentina, Bolivia, Colombia, Ecuador and Peru were introduced to the image processing software that CONAE is developing for educators.

Another recent major event sponsored and organised by Members of WGEdu was the 2<sup>nd</sup> Annual Remote Sensing Workshop, which is dedicated to the memory of Dr. Jay Feuquay, former USGS Land Remote Sensing Programme Coordinator. This Workshop was designed to meet

the needs of tertiary level remote sensing educators and practitioners from Government agencies and NGOs in African countries.

The Workshop was held 26-28 November 2007, in Cape Town, South Africa, in the margins of the Group on Earth Observations (GEO) Plenary Meeting and the Ministerial Summit, which were held in Cape Town the same week. The Workshop was very ably co-organized by the Satellite Application Centre of South Africa's Council for Scientific and Industrial Research (CSIR SAC), in cooperation with the Marine Research Institute of the University of Cape Town. This very successful workshop was generously supported by CEOS Member Organizations represented in the WGEdu, particularly the USGS, CSIR SAC, ESA, and CNES.



Participants at the Training Workshop in Cordoba, Argentina.

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

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

WGISS held its 24<sup>th</sup> meeting October 15-19, 2007 in Oberpfaffenhofen, Germany, ably hosted by the DLR Applied Remote Sensing cluster of institutes. Our hosts were most gracious, and our comfortable meeting facility provided every capability conducive to hard-working sessions. This was the last meeting chaired by Mr. Ivan Petiteville, and ended with a salute to his leadership. As incoming Chair, I'm pleased to introduce Mr. Terence van Zyl, to share with you a promising new WGISS activity that demonstrates the growing collaboration between CEOS and GEO.

### WGISS Forms New Task Team As Response to GEO

Mr. Terence van Zyl, CSIR (South Africa), WGISS Sensor Web Task Team Lead/ GEO Sensor Web Task (DA-07-04) Lead



The new Sensor Web Task Team was born out of a response by CEOS' Working Group on Information Systems and Services (WGISS) to the Sensor Web activities within GEO. Then WGISS Chair Ivan Petiteville invited me, as lead for the

GEO Sensor Web Task, to present the Sensor Web concept at WGISS-23, and subsequently extended an invitation to the various member organisations to present Sensor Web activities at WGISS-24. The response was overwhelming, with contributions from NASA, British National Space Centre (BNSC), Council for Scientific and Industrial Research (CSIR), and European Space Agency (ESA). WGISS showed great initiative in embracing the Sensor Web concept and established the Sensor Web Task Team at WGISS-24 to explore the technology landscape in the emerging area of sensor science. The inception of the task team shows recognition by one of the technology exploration and advancing groups within CEOS, i.e. WGISS, of the value that may be gained by the use of this technology.

The NASA Earth science Sensor Web vision describes on-demand sensing of a broad array of environmental and ecological phenomena across a wide range of spatial and temporal scales from a heterogeneous suite of sensors that are in-situ, airborne and in orbit. The Sensor Web will be dynamically organized to collect data, extract information from it, accept input from other sensor / forecast / tasking systems, interact with the environment based on what they detect or are tasked to perform, and communicate observations

and results in near real time. The Internet presents a possible communications substrate for the acquisition and dissemination of this sensor data. The set of standard services and data encodings presented by the Open Geospatial Consortium (OGC) under the Sensor Web Enablement (SWE) initiative provide one possible means for achieving the above goals.

The Sensor Web concept promotes an open architecture, underpinned by the requirement to successfully present all available sensor resources, including data to the general public, in a standard and interoperable way. This vision is in line with the desire to promote a data democracy, as highlighted by the incoming CEOS Chair, South Africa. WGISS offers a unique opportunity for the exploration of the Sensor Web, as issues such as interoperability, scalability and applicability can be tested across organisational and geographic boundaries ranging from the first world into the developing world. I invite all interested CEOS member organisations to join us. The outcomes of the Task Team will highlight both pros and cons of the Sensor Web approach. Expected highlights include simple technical demos to more advanced shared tools, standards, and handbooks that will inform GEO from a CEOS perspective. ■

(continued from page 6)

More than 35 Delegates from 22 African nations participated in the Remote Sensing Workshop which carried the title "Advances in Earth Remote Sensing Applications in Africa". The Workshop included laboratory modules that presented participants with the opportunity to work with different types of remotely sensed data and derived products, in addressing problems and issues relevant to the African continent. Lecture and laboratory topics included data availability and access, accessing and applying TerraLook products, radar principals and applications, land cover mapping, and accessing and applying digital terrain data in Africa.

Turning attention now to 2008, several important issues will be addressed by WGEdu:

- The need for increased WGEdu membership given the growing tasks to be performed by the Working Group in the light of its role to support space-based Capacity Building (CB) elements of the GEOSS 10-year Implementation Plan.
- In particular focus here are the contributions

that can be made by WGEdu to the activities and objectives of the GEO Capacity Building Committee (CBC), and the regular review and monitoring of progress of the WGEdu contributions to the task sheets of the 2007-2009 GEO Work Plan related to CB;

- The execution of the three-year Strategic Plan (2007-2009) which focuses on three main issues; 1) the WGEdu Educational Portal which will, in due course, form part of to the GEO Capacity Building Portal; 2) the continued organisation of annual Remote Sensing Workshops targeting diverse audiences; 3) Testing access to Category 4 data (archived or near real-time) based on the CEOS Data Access Principles through implementation of two pilot projects which are currently in their planning stages;
- As a result of discussions at the recent CEOS Plenary, emphasis will now be placed on how WGEdu can provide effective cross-cutting CB support to the CEOS Constellations.
- Continuing to build synergies with the other CEOS Working Groups, through a closer

awareness and coordination of each Group's activities, in particular, those related to CB.

Finally, the next (9<sup>th</sup>) WGEdu Annual Meeting will be held 28-30 April 2008, in Brazil, and will be hosted by INPE.

And in conclusion, on behalf of all members of the WGEdu, I would like to express our warm appreciation to Ms Yolanda Berenguer, our former Chairperson, for steering the activities of the Group so admirably over the recent years. ■



Participants at the 2<sup>nd</sup> Annual Remote Sensing Workshop, Cape Town

## A Note from the New Chair

**Ms. Pontsho Maruping,**  
CSIR (South Africa), 2008 CEOS Chair



There is no doubt that CEOS efforts have found relevance and make impact in global Earth observation initiatives. In continuing to build on this momentum, CEOS must ensure continuous alignment with increasing stakeholder needs by adhering to the following key guidelines:

- Review and assess means of improving or refining the relationship with GEO
- Evolving the concept of the Virtual Constellations into a tangible



CEOS CSIR Team

implementation program,

- Steadfastly manage the transitioning process from IGOS-P into GEO
- Encourage agencies to continue availing resources in order to realise CEOS objectives

All of the above requires that the harmonic relations between the various CEOS structures such as Chair, GEO, Secretariat, SIT, Working Groups and Task Forces be maintained and streamlined where appropriate. It also requires that CEOS ensures its visibility in new international initiatives that may arise.

During my tenure as chair, I will specifically drive the Data Democracy theme since I believe that accessibility of data by end users, which is analogous

to the last-mile access principle in telecommunications, is paramount importance for developing countries as well as a key component for building the Global Earth Observation System of Systems (GEOSS).

I would like to thank the previous chair, Ms Barbara Ryan and USGS for the outstanding contributions and particular leadership she bestowed on CEOS. Allow me also to welcome the Center for the Development of Industrial Technology (CDTI) of Spain and China Center for Resources Satellite Data and Application (CRESDA)\* as the new members to CEOS. ■

\* CRESDA will be introduced in the next issue of the CEOS Newsletter.

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](mailto:misawa@restec.or.jp) <http://www.ceos.org/pages/pub.html#newsletter>

## Meeting Calendar

As of February 2008

Activities	2008												2009			
	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	
<b>CEOS Plenary</b>																▲10-13 22nd CEOS Plenary CSIR/George, SA
<b>CEOS SIT</b> (Strategic Implementation Team)		▲20-22 CEOS-GEO Task Workshop NOAA/Silver Spring, USA		▲23-24 SIT-21 NOAA/Mass., USA						▲16-18 SIT-22 JAXA/Tokyo, Japan						
<b>CEOS WGISS</b> (Working Group on Information Systems & Services)		▲25-29 WGISS-25 and WGCV-28 Joint Meeting Hainan, China								▲22-26 WGISS-26 NOAA/Boulder, USA						
<b>CEOS WGCV</b> (Working Group on Calibration and Validation)										△ WGCV-29 France						
<b>CEOS WGEdu</b> (Working Group on Education, Training, and Capacity Building)					▲28-30 WGEdu-9 INPE/Brazil											
<b>IGOS Partners</b> (Integrated Global Observing Systems)			▲10-12 IGWCO Workshop WMO/Geneva			▲28-30 IGOS-P15 UNESCO-HQ/Paris, France				△15- CEOP/AWCI Geneva, Switzerland						
<b>GEO</b> (Group on Earth Observations)				▲14-16 GEOSS-AP2 Symposium GEO/Tokyo, Japan						△ GEO ADC IEEE/						△ GEOSS-AP3 Symposium GEO/Bangkok, Thailand
<b>Others</b>																

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

Published by  
Japan Aerospace Exploration Agency (JAXA)  
Satellite Applications and Promotion Center (SAPC)  
Shin-Ohtemachi bldg. 7F  
2-2-1 Ohtemachi, Chiyoda-ku, Tokyo  
100-0004, JAPAN  
For inquiry:  
Ms. K. Misawa, RESTEC  
[misawa@restec.or.jp](mailto:misawa@restec.or.jp)

For further information contact in each area allocated:

[Asia, Pacific]  
Mr. C. Ishida  
JAXA  
TEL:+81-3516 9107  
FAX:+81-3516 9160  
[ishida.chu@jaxa.jp](mailto:ishida.chu@jaxa.jp)

[North & South America]  
Mr. Kent Bress  
NASA  
TEL:+1-202-358-0269  
FAX:+1-202-358-2798  
[kent.g.bress@nasa.gov](mailto:kent.g.bress@nasa.gov)

Dr. B. Smith  
NOAA  
TEL:+1-01 713 2024  
FAX:+1-01 713 2032  
[brent.smith@noaa.gov](mailto:brent.smith@noaa.gov)

[Europe, Africa]  
Dr. E. Oriol-Pibernat  
ESA/ESRIN  
TEL:+39 06 94180 408  
FAX:+39 06 94188 702  
[eoriol@esa.int](mailto:eoriol@esa.int)

Dr. P. Counet  
EUMETSAT  
TEL:+49-151 807 603  
FAX:+49-151 807 866  
[Paul.Counet@eumetsat.int](mailto:Paul.Counet@eumetsat.int)