

MINUTES OF THE 18th CEOS PLENARY MEETING

16th-17th November 2004
China World Hotel, Beijing

1. Welcome and introduction

The Chairman, Minister Xu Guanhua, Mengxue Li, opened the meeting and welcomed participants to the 18th CEOS Plenary. He noted that 2004 represented a milestone for China's participation in the international Earth observation community – with the CEOS Chairmanship representing the first step in a new phase for their co-operation efforts.

2. Review of agenda

The proposed agenda for the meeting was adopted.

3. Membership issues

NASRDA (Nigeria)

Mengxue Li (NRSCC) referred participants to the letter received by the CEOS Chair from the National Space Research and Development Agency of Nigeria (NASRDA) – applying to become a CEOS member. Mengxue recalled that the CEOS Terms of Reference specified criteria for agencies eligible for CEOS Membership:

Governmental organizations that are international or national in nature and are responsible for a civil spaceborne Earth observation program currently operating, or at least in Phase B or equivalent of system development, will be eligible for membership in CEOS. Members must have a continuing activity in spaceborne Earth observation, intended to operate and provide nondiscriminatory and full access to data that will be made available to the international community. The addition of Members will be with the consensus of current Members of CEOS. Request for membership should be addressed to the Chairperson of the next scheduled CEOS Plenary session. The Members at that meeting will consider such requests.

Prof Robert Boroffice (NASRDA) gave a short presentation summarising the status of Nigeriasat-1 (launched October 2003 as part of the Disaster Monitoring Constellation) and the sharing of its capacity for disaster management applications. Nigeriasat-2 is planned for 2007. He hoped that, by joining CEOS, Nigeria could better share the experience and expertise of the international EO community.

Mengxue Li suggested that - based on the information presented by NASRDA - the agency fulfils the requirements for membership as defined in the CEOS Terms of Reference and should be accepted as a CEOS Member. Paula Freedman of BNSC seconded this proposal – noting that NASRDA intended to be more active in the community, including through participation in the UK-led Disaster Monitoring Constellation project.

Xu Guanhua (Chair) noted the endorsement of the meeting for NASRDA's application and welcomed Prof Boriffice and his colleagues to participate in the remainder of the 18th Plenary meeting as the newest member of CEOS.

GISTDA (Thailand)

Mengxue Li invited a presentation from the Geo-informatics and Space Technology Development Agency (GISTDA) of Thailand – noting that the CEOS Secretariat had been in discussion with GISTDA during 2004 regarding their membership status. GISTDA is currently an Associate of CEOS – but has in planning its own national Earth observing satellite programme (THEOS); implementation of THEOS would make GISTDA qualified to apply for CEOS Membership.

Dr. Suvit Vibulsresth (GISTDA) noted that - since joining CEOS in 2002 - GISTDA has been an active participant in the CEOS Working Groups – including hosting a WGISS meeting in September 2003. He explained the status of the THEOS project, and the main technical characteristics of the spacecraft (which will include 2m PAN and 15m multi-spectral sensors) and the plan for launch in mid-2007. Dr Suvit suggested that, should THEOS proceed to plan, then GISTDA would be pleased to apply to become a Member of CEOS in 2005. Yoji Furuhamu (JAXA) and Paula Freedman (BNSC) expressed support for GISTDA's proposed application and, as regional SEC agency and incoming CEOS Chair respectively, offered to assist them with the process during the coming year.

4. Record of 17th Plenary

Stephen Ward (NRSCC) noted that the final version of the 17th Plenary minutes had been distributed by NOAA, incorporating all comments received. He summarised the status of the 17th Plenary actions, most of which had either been completed or were specifically being addressed in connection with 18th Plenary agenda items.

No.	Brief Description	Status
17-01	CEOS Chair and Secretariat to apply, as appropriate, for accreditation of CEOS to the CSD process as a 'science and technology organisation' and to report to CSD actions undertaken by CEOS. (CEOS WSSD Team Leader)	Complete NOAA handled the interface to CSD and secured accreditation for CEOS. WSSD Follow-Up Team was also confirmed as a Type 2 Partnership.
17-02	NOAA to work with JAXA/NASA to migrate the DMSG WWW site to the CEOS WWW site. NOAA to work with Don Hinsman to integrate DMSG hazards requirements into the CEOS/WMO requirements database.	Complete NOAA contacting JAXA and WMO to conclude the processes.
17-03	Incoming Chair and Secretariat to review and make recommendations for updates to the CEOS Five Year Plan and discuss at the 18 th CEOS Plenary.	Complete An interim update has been produced for information only. A full update on the agreed 3-year cycle will be undertaken in 2005 – including to reflect GEOSS developments.

17-04	CEOS Chair to continue to focus on satellite data utilization, arranging workshops as appropriate, and carrying forward CEOS Utilization Recommendations, in particular, Recommendation No. 9 on space agency cooperation. CEOS Agencies and CEOS Working Groups are asked to report to the 18 th Plenary on how they have implemented specific CEOS Utilization Recommendations.	Open NRSCC held a workshop in Wuhan in May 2004 on utilisation, and has arranged a workshop and exhibition in parallel with the 18 th Plenary. WGs and agencies invited to report to Plenary. Lack of proper follow-up mechanisms on Plenary decisions such as this has been noted by CEOS SEC as a key issue for CEOS in offering to support GEO.
17-05	CEOS to bring Utilization Report and Recommendations to the attention of OECD, recognizing their complementary initiative. (BNSC)	Complete
17-06	CEOS Members are urged, consistent with Plenary agreement, to maintain a continued responsibility to aid potential satellite data users to understand how space-derived data products and services can benefit them.	Ongoing
17-07	CEOS Agencies, WGEdu, and WSSD Follow-up Programme Modules are encouraged to involve the CEOS African Advisory Group in the implementation activities.	Complete The AAG participated in the WGEdu and WSSD team meetings (May). WGEdu was represented at African Association of Remote Sensing of the Environment Conference (October).
17-08	CEOS Agencies invited to support joint CEOS WSSD Follow-up Programme Module 1&2 (Capacity Building and Water Resource Management) activities in 2004, and outreach efforts of both Modules to the donor community.	Complete Many CEOS agencies cooperated with ESA on planning and implementation of the TIGER Workshop in South Africa – which primarily involves WSSD Module 2 (and Modules 1 & 3) WSSD Follow-up team planning a significant CEOS presence at CSD meetings in New York in 2005.
17-09	CEOS Chair to request CEOS Agencies to nominate leadership and members to the WSSD Follow-up Programme Module 4 (Climate Change).	Complete Confirming status of offers from GEWEX and CMA
17-10	All CEOS Agencies are urged to nominate representatives to the Working Group on Education and Training and Capacity Building who are prepared to assist with the development and implementation of the WGEdu portal website, WGEdu Data Principles, WSSD Module 1 collaboration, and help maintain WGEdu linkages to the broader education, training and capacity building community.	Complete Sergio Camacho notes that the core group in WGEdu remains rather small and encourages all agencies to provide a participant.
17-11	CEOS Agencies are urged to offer continued support to CEOP development.	Ongoing CEOP reported to be progressing well, with strong participation from JAXA, NASA, NOAA, ESA, EUMETSAT
17-12	CEOS Chair, in support of WGCV Chair, to contact CEOS Agencies to secure their active involvement in and follow-up to the 6 Recommendations from the WGCV accepted by the 17 th Plenary.	Complete
17-13	WGEdu as a permanent Working Group will review its Terms of Reference (specifically noting any new emphases for the Working	Complete

	Group) and propose necessary revisions to them at the 18th CEOS Plenary.	
17-14	CEOS Chair to urgently put forward the “CEOS Statement on the GEO Initiative” to IGOS-P and to GEO by November 21, 2003, with copies also provided to CEOS Agencies. CEOS Chair to also nominate the existing CEOS representatives to the GEO User Requirements Subgroup and GEO Capacity Building Subgroup to become Co-Chairs for these Subgroups.	Complete CEOS and IGOS-P have been actively involved in the GEO process throughout 2004. GEO Co-Chairs represented at the Beijing meetings.
17-15	CEOS Chair, CEOS Secretariat, and CEOS Co-Chairs and representatives in GEO Subgroups and GEO Secretariat to track progress of CEOS inputs to the GEO process and provide interim reports during the course of the year to CEOS Members and Associates.	Complete Periodic updates have been distributed throughout 2004.
17-16	CEOS Agencies and Working Groups to continue focusing on appropriate linkages to implementation of IGOS Themes, with JAXA and WMO to prepare a document that summarizes the observation requirements of IGOS Themes. WCRP and GCOS will also be approached in this process. This document should be provided in draft by mid-January to CEOS Agencies in preparation for the CEOS SIT Meeting on February 3, 2004.	Complete SIT Chairman has been very pro-actively addressing implementation issues and obstacles for all IGOS Themes. The SIT-14 meeting tasked WMO to work with WCRP and GCOS to ensure consistency in their climate data requirements. WCRP and GCOS report that this work is ongoing.
17-17	CEOS Members and Associates, as appropriate, to work with their national delegations to the UNFCCC in order to support a favourable decision for Earth observation at COP-9.	Complete NOAA and ESA represented CEOS and IGOS-P.
17-18	CEOS Agencies to take note of the Space Frequency Recommendations made to the 17 th Plenary, and CEOS Chairman to arrange for SFCG to be provided with a document indicating the perceived priorities in the mid-and long-term for frequency bands to be used for passive and active sensing by August 19, 2004, to be used at SFCG-24 in mid-September 2004.	Complete NOAA coordinated inputs to the SFCG-24. No significant issues were identified.
17-19	CEOS Agencies are requested to provide IOCGG a detailed list of the extraterrestrial solar flux spectrum values employed, and more importantly, the results of the convolution of the adopted spectrum with the spectral shape of the actual channels, as implemented by their respective sensors.	Complete Information was supplied on SeaWiFS, GLI, MODIS, & MERIS
17-20	CEOS Agencies, which have not yet provided their input to the 2003 Update of the CEOS Handbook, to provide their input by 5 December 2003.	Complete Latest version of the on-line Handbook was published in Jan 2004. New hardcopy, CD-ROM, and WWW editions are in development and will be premiered at EOS-III.

5. Chair's report

Xu Guanhua (Chair) gave a presentation reviewing the key initiatives and milestones which comprised the 2004 CEOS calendar – including several GEO meetings. He noted that there were

a number of challenges which CEOS and its Members would need to address in the coming years, including:

- the need to accelerate the transition from science to services;
- improving optimisation of the overall observation strategy;
- increasing the uptake and utilisation of Earth observation data for maximum overall benefit;
- ensuring continuity of future observations;
- and strengthening partnerships between observation planners and global environmental governance frameworks - including the secretariats of international treaties and conventions.

The mechanisms for addressing these challenges were also proposed in the presentation:

- new technology and science will provide some solutions, but organisational and human dimensions are the real keys – including through effective international co-operation;
- GEO represents a real opportunity for effective co-operation;
- the reality of political and economic issues must be recognised as an integral part of the process - Chinese government proposes to promote progress from a scientific viewpoint of development which is people-focused, comprehensive, concerted and sustainable.

6. SIT Chair's report

Yoji Furuhama (JAXA/SIT Chair) gave a presentation summarising the activities and achievements of the Strategic Implementation Team (SIT) since the last CEOS Plenary:

- since taking on SIT Chairmanship, JAXA has attempted to undertake a very pro-active, 'hands-on' role in management of the interface between CEOS and the IGOS Partnership and its Themes, based on strong inter-sessional support to IGOS Theme leaders, and an emphasis on practical steps to remove obstacles to implementation and to achieve real progress by individual Themes;
- SIT meetings had been held in February (Tokyo – in association with the first IGOS International Workshop sponsored by JAXA), May (Rome), and November (Beijing); a SIT special session on GEO governance was also held in Beijing;
- the status of the IGOS Themes was summarised as follows:

Theme	Status
Ocean	There has been a change of Theme Leaders, now: Keith Alverson (GOOS) & Paul DiGiacomo (NASA). There has been a significant (1 year +) delay in initiation of the rolling review of the Theme

Carbon	A draft implementation plan has been submitted. The November meeting in Frascati brought together IGCO team of approx 25 agency representatives and scientific experts. A first full draft of the implementation plan, in line with IGOS Process Paper guidelines, will be presented at IGOS-P-11bis.
Water	Implementation framework and membership clarified. Some Theme content remains in flux, and funding remains a major obstacle to many of the programmes. Draft 10 year implementation plan being developed through a series of workshops, moving simultaneously with GEOSS 10 year implementation plan. To be concluded at IGWCO/CEOP Joint Workshop, 28 Feb – 4 Mar, Tokyo
Geo-hazards	Geohazard Theme Steering Committee held in Paris in July. Implementation progress continues at a good pace and in a well structured fashion. ESA and French Geological Agency opened the Theme Bureau early November.
Atmospheric Chemistry	The Theme was approved to move to implementation in May. WMO will lead the implementation team. Good implementation progress confirmed by WMO.
Coastal	The Coastal Theme report was reviewed at the SIT-15 meeting. SIT recommends that CEOS endorse the Coastal Theme Report in IGOS-P-11bis. Conditional on clarifications in document: membership/leadership; space observation priorities; resourcing
Land	FAO and GTOS proposed this new Theme at IGOS-P-11. The first workshop was held in September hosted by FAO. The scope and development schedule of the Theme report were discussed and clarified. SIT has noted that their schedule is not in synch with that of Partner meetings
Cryosphere	This new Theme was proposed by WCRP (CliC Project) and ICSU (SCAR) at IGOS-P-11. The Chair is Dr. Jeffrey Key of NOAA. The team is targeting October 2005 for a complete Theme report. A Theme workshop is planned in March 2005, hosted by CSA.

The SIT Chair concluded the presentation by noting that 2004 had been a period of very rapid expansion of IGOS Themes, and that CEOS had made a very positive contribution - both directly in resourcing the Themes and through SIT. He cautioned that, as with all growing organisations, there is a need to maintain integrity of the process (as defined in the IGOS Process Paper) and to attend to 'core business' – which means looking after existing (eg Ocean) as well as new Themes.

7. CEOS position regarding GEO

Stephen Ward (NRSCC) noted that 3 of the 4 GEO Co-Chairs were represented in the CEOS Plenary meeting (Greg Withee, USA; Yoji Furuhashi, Japan; and Adi Paterson, South Africa) and explained the proposed format for the discussion on GEO:

- first, a very brief background to the GEO developments in 2004 – volunteered by Greg Withee;
- second, a report from the SIT Chair, on the conclusions of the special session which he convened, at the request of the CEOS Chairman, to prepare a draft position paper for CEOS to debate;

- third, an opportunity for open discussion on the CEOS position paper – with the aim of producing an agreed and final version which can be conveyed to the GEO Secretariat ahead of their deadline for submissions to the GEO-5 meeting (Friday 19th November).

Background to GEO

Greg Withee (NOAA) gave a short presentation summarising the background to GEO:

- the ad-hoc Group on Earth Observations (GEO) was launched at the first Earth Observation Summit in Washington in July 2003, and is tasked with developing a ten-year implementation plan for a comprehensive, coordinated and sustainable Global Earth Observation System of Systems (GEOSS);
- this plan entails the coordination of a wide range of space-based, air-based, land-based, and ocean-based environmental monitoring platforms, resources and networks – presently often operating independently;
- membership of GEO currently includes 51 countries plus the European Commission, and 29 participating international organisations;
- the implementation plan is focused on 9 societal benefit areas:
 - reducing loss of life and property from natural and human-made disasters;
 - understanding environmental factors affecting human health and well-being;
 - improving management of energy resources;
 - understanding, assessing, predicting, mitigating and adapting to climate variability and change;
 - improving water resource management through better understanding of the water cycle;
 - improving weather information, forecasting and warning;
 - improving the management and protection of terrestrial, coastal and marine ecosystems;
 - supporting sustainable agriculture and combating desertification;
 - understanding, monitoring and conserving biodiversity;
- the meetings planned to conclude the GEO process are:
 - GEO-5, Ottawa (29-30 Nov 2004);
 - GEO-6, Brussels (14-15 Feb 2005);
 - EOS-III, Brussels (16 Feb 2005);
- a long-term intergovernmental mechanism is expected to be established at EOS-III to take forward responsibility for the GEOSS implementation plan, but the precise nature of this mechanism is yet to be agreed; WMO has volunteered to host the organisation within its HQ in Geneva.

Conclusions of the SIT Special Session on GEO governance

Yoji Furuhashi (JAXA / SIT Chair) summarised the recommendations to Plenary from the SIT special session which had been held the day before:

- 1) *CEOS, as a “participant” in the current ad hoc GEO, should continue similarly as a “participant” in the follow-on GEO body, which will be decided at EOS-III.*
- 2) *CEOS should offer its services to GEO for co-ordination of the space component of GEOSS.*
- 3) *CEOS should reaffirm this offer to GEO in time for the forthcoming Ottawa GEO-5, couching its offer in terms of a comment on specific aspects of the proposed text for the Ten-Year Implementation Plan.*
- 4) *CEOS Plenary should set up a Task Force to investigate and to make recommendations on the mechanisms, which would allow CEOS to undertake such a co-ordinating role effectively. It should consider the suitability of the current organizational structure and membership of CEOS including the SIT, subordinate groups and the participation of CEOS in IGOS-P, with respect to their relevance to the role of co-ordinating space-based observations for GEO.*
- 5) *The mechanisms proposed by the Task Force should be sufficiently robust to ensure the confidence of Governments and outside agencies of the ability of CEOS to function effectively in the co-ordination role.*
- 6) *The Task Force should review the CEOS Five Year plan in relation to the potential GEO role and propose amendments as appropriate, including identifying relevant actions to be placed on the Working Groups.*
- 7) *After consulting with CEOS Members and Associates, the Task Force should review the present membership arrangements and terms of reference for the various CEOS bodies, in order inter alia to give outsiders a clear view of the distinction between CEOS and IGOS-P and to avoid duplication of meetings, and make recommendations to CEOS Principals.*
- 8) *The Task Force membership and terms of reference should be agreed by the 18th Plenary and its work should commence forthwith. It should be chaired by the Chair of SIT, and should report to a special meeting of CEOS Principals in mid-2005, with a view to the new arrangements being formally approved at 19th Plenary.*
- 9) *CEOS will not offer resources to GEO as part of the future GEO Secretariat: these should be offered through member states as appropriate.*
- 10) *Chairmen of CEOS and SIT should convey this information to IGOS-P 11bis and urge IGOS-P to make a parallel submission to GEO-5 on its future relation to GEO.*

Discussion

The main points of the discussion regarding the CEOS position on GEO were as follows:

- a number of Members suggested that CEOS must consider how to strengthen inter-sessional progress if it is to serve as an effective partner in GEO and lead co-ordination of the space segment implementation of GEOSS;
- it was suggested that, in considering possible models for reorganisation to allow CEOS to focus on ‘core business’, we must be careful to ensure that the good work invested in existing structures and processes (in particular in the IGOS Partnership) is not adversely affected;

- Plenary adopted the recommendations put forward by the SIT Chairman, including for the establishment of a CEOS Task Force to investigate and recommend mechanisms for the necessary changes in CEOS.

The SIT Chairman also presented a draft input from CEOS to GEO-5, in the form of comments on the 10-year implementation plan (see **Appendix 1** for full details). This statement was agreed and the incoming CEOS Chair actioned to convey the message to the GEO Secretariat.

Action	18-1	CEOS Chair to convey the CEOS input for GEO-5 to the GEO Secretariat	19th November 2004
---------------	-------------	---	--------------------------------------

It was further agreed that terms of reference would be required for the proposed Task Force in order to guide its efforts. The SIT Chairman agreed to assemble a small writing team overnight and to report to Plenary the next day with a proposed draft. The resulting terms of reference (including refinements agreed in the course of the Plenary discussion) are in **Appendix 1**.

The main points of the discussion (on the second day of Plenary) of the Task Force terms of reference were as follows:

- Adi Paterson (CSIR) suggested that CEOS might need to increase the capacity of its Secretariat in order to effectively serve GEO – noting that, whilst the precise model for GEO cannot yet be predicted, it would be safer for CEOS to presume a ‘strong’ GEO model; he added that CEOS must also consider how the many countries which are not currently represented in CEOS, but are in GEO, can be engaged in the implementation of, and benefits from, the space component of a GEOSS; he added that CEOS must also consider a strategy for management of its communications with GEO (in particular given the often poor understanding at a ministerial level of the potential contribution from space-based observations);
- it was agreed that an ad-hoc meeting of CEOS Principals in mid-2005 will be necessary to review the progress being made by the CEOS Task Force and to consider preliminary recommendations for the 19th CEOS Plenary;
- there was considerable discussion on the timing of the Task Force meetings which will be required in 2005 – in particular those planned to coincide with the P-11bis meeting in the week of 23rd May; the incoming CEOS Chair and the SIT Chair agreed to work offline to develop a proposed timetable of events for 2005; it was agreed that the Task Force should expect to undertake a considerable amount of work before the EOS-III meeting in February.

The following actions were agreed:

Action	18-2	SIT Chairman to report to IGOS-P-11bis on the CEOS submission to GEO-5 and to encourage a submission from IGOS Partners to GEO-5	18th November 2004
---------------	-------------	---	--------------------------------------

Action	18-3	CEOS Chair to represent CEOS at GEO-5 and at the 3 rd EO Summit and to confirm CEOS is willing to be a founding participant of GEOSS	February 2005
Action	18-4	SIT Chair to lead the work of the Task Force agreed at the 18 th Plenary on relations with GEO and possible CEOS reforms. SIT Chair to liaise with the CEOS Chair, and to ensure presentation of the task force report and recommendations to a mid-year meeting of Principals and subsequently to the 19th Plenary	19 th CEOS Plenary
Action	18-5	CEOS Chair to convene a special mid-year meeting of CEOS Principals in 2005 – with the purpose of reviewing progress and way forward with regards to the findings and recommendations of the CEOS Task Force	Q2 2005
Action	18-6	CEOS Members and Associates to ensure attendance of their Principals in the mid-year meeting planned for 2005	Q2 2005
Action	18-7	All CEOS Members and Associates and Subsidiary Groups encouraged to be pro-active in the consultation process required in connection with the CEOS Task Force	19 th CEOS Plenary

8. Utilisation report

Prof Li Deren (NRSCC) gave an update on the utilisation efforts undertaken by NRSCC since the last Plenary. He sent apologies from Prof John Townshend who was unable to attend but had prepared the presentation on this topic. The main points were as follows:

- at the 16th CEOS Plenary, the CEOS Chair gave priority to encouraging and facilitating the increased use of space data, products and services, and appointed a small ad-hoc team charged with developing recommendations for consideration at the 17th Plenary in November 2003; at the 17th Plenary the report was presented and its recommendations were accepted by CEOS; the 'Utilisation Team' has not formally had a role since 17th Plenary;
- in response to the 17th Plenary recommendations, NRSCC held a workshop on Rapid Response Systems – in Wuhan, China in May 2004; the workshop formulated a number of recommendations – some to CEOS and some to China's EO supply community; those directed at CEOS were as follows:
 - *CEOS space agency members consider (a) making data streams available in real time whenever possible, and (b) provide any necessary preprocessing software, a benchmark data set and a focal point for questions;*
 - *it is recommended that CEOS space agency members provide continuity in the support of developing countries for efficient EO data utilization;*

- *CEOS should consider other well focused Rapid Response Workshops with the support of particular space agencies - especially in connection to Disaster Management in other regions involving, if possible, its Education, Training and Capacity Building Working Group;*
- *CEOS Members should make improved information available on the algorithms used in deriving their products;*
- *The CEOS/WGCV should consider validation in relation to the needs of specific rapid response systems.*
- feedback on the Utilisation Team recommendations had been provided by WGISS, WGCV, JAXA, CSA/CCRS, and NOAA in their reports to Plenary; it is hoped that CEOS will continue to emphasise this important topic and ensure maximum benefit from the work of the Utilisation Team.

It was agreed that the type of challenges presented in the Utilisation Team recommendations, and the inter-sessional progress which they demanded, were examples of the demands which effective participation in GEO would require of CEOS in future – and that effective solutions for following-up, and delivering on such initiatives were essential for the future credibility of CEOS as an organisation.

Colin Hicks (BNSC / incoming Chair) assured that BNSC was willing to continue pursuit of progress by CEOS agencies on the utilisation recommendations – including by inviting periodic updates during 2005, updates to the CEOS 5 Year Plan (scheduled for 2005), and through the work of the planned CEOS Task Force. It was agreed that the existing Utilisation Team actions from 17th Plenary would remain open, and that a further action would be pursued as follows:

Action	18-8	CEOS Chair to continue to focus on satellite utilisation – seeking updates on relevant progress by Members, Associates, and Subsidiary Groups during 2005 (including encouraging action on Wuhan Workshop recommendations)	19th CEOS Plenary
---------------	-------------	---	-------------------------------------

9. WSSD follow-up report

Michael Hales (NOAA) updated participants on the background and status of each of the 5 modules which comprise the CEOS WSSD follow-up activities:

Module 1 (Education, Training and Capacity Building):

- helping to pursue implementation of the WGEdu data principles adopted at the 17th Plenary;
- developing linkages to the Water Cycle Theme, and their efforts to arrange capacity building workshops; this included co-operation in the recent TIGER workshop arrangements;
- arranging an EO presence at CSD-13 in New York (April 2005) – which has a focus on water and sanitation.

Module 2 (Water Resource Management): focused on contributions to the TIGER initiative;

Module 3 (Disaster Management and Conflicts): efforts are focused on development of practical projects to evaluate and develop applications in support of disaster management applications – initially utilising research and data-sets of NASA and other partners; Module 3 participated in the recent TIGER workshop and selected 3 projects for further development from the proposals submitted by participants;

Module 4 (Climate Change): leadership for this module has only recently been established (GEWEX and CMA);

Module 5 (Global Mapping, Land-use Monitoring and Geographic Information Systems):

- USGS engaged three African Regional Remote Sensing Centres in a “needs assessment” study; USGS EROS Data Center hosted a representative from each of these Centres for training in remote sensing applications using Landsat, MODIS, and ASTER data, as well as metadata development and clearinghouse implementation;
- each Centre subsequently prepared a capacity building “needs assessment”; these reports focused on infrastructure requirements such as broader bandwidth, as well as imagery and data processing hardware/software needs, and training and capacity building for staff from regional and national centers;
- USGS provided funds for representatives from each Centre to attend a satellite imagery workshop in South Africa in 2004;
- USGS and the Centres are currently reviewing this plan, and providing cost and time estimates; next steps include exploring international initiatives that might provide synergy opportunity; possibilities include GEO, the evolving Integrated Global Observations of the Land (IGOL) initiative, and the Geographic Information for Sustainable Development (GISD).

Michael Hales recalled that the CEOS African Advisory Group (AAG) had been formed in 2003 at the Stellenbosch Workshop. The AAG has new leadership: Wilber Ottichilo of Regional Centre for Mapping of Resources for Development (Kenya) is Chairman, and Souleye Wade Université Cheikh Anta Diop (Senegal) is Vice-Chairman. The Secretariat is being provided by EIS Africa, under the leadership of their new Exec. Director, Sives Govender.

Michael noted that he was stepping down from the leadership of the WSSD follow-up Team and indicated that EUMETSAT had agreed to lead the team and would be announcing a replacement in the near future. The Team hopes to formalise its status within CEOS by applying to become an ad-hoc Working Group at the 19th Plenary. The following action was agreed by Plenary (an extension of the same action from last Plenary):

Action	18-9	CEOS Agencies, WGEdu, and WSSD Follow-up Programme Modules are encouraged to involve the CEOS African Advisory Group in their implementation activities	19th CEOS Plenary
---------------	-------------	--	-------------------------------------

Josef Aschbacher (ESA) reported on the status and activities of the TIGER initiative, as follows:

- TIGER is a concrete action to implement the recommendations of the Johannesburg World Summit on Sustainable Development, focusing on development of sustainable water resource management services in Africa through a combination of Earth observation demonstrator projects and political engagement;
- there are 3 kinds of TIGER projects:
 - the initial ESA projects (initiated in 2003): including GLOBWETLAND, GMFS, EPIDEMIO, and AQUIFER;
 - projects of TIGER Partners: which have included Radarsat, UNESCO, UNOOSA, NOAA, NASA;
 - the responses to the recent ESA TIGER AO for free ERS/ENVISAT data (95 proposals were received and are being assessed);
- TIGER management has been strengthened with the appointment of a coordinator in May 2004, and the establishment of a Secretariat and Steering Committee;
- the main challenges ahead for TIGER include:
 - developing the portfolio of demonstrator services;
 - enlargement of the partnership;
 - the need for a capacity-building plan;
 - being sustainable: getting the political framework right and developing a credible funding scheme for long-term operations;
- 2005 will see the end of TIGER Phase 1 and a decision on Phase 2; a 'Space for Water' conference is planned to attract funding from donor and development agencies.

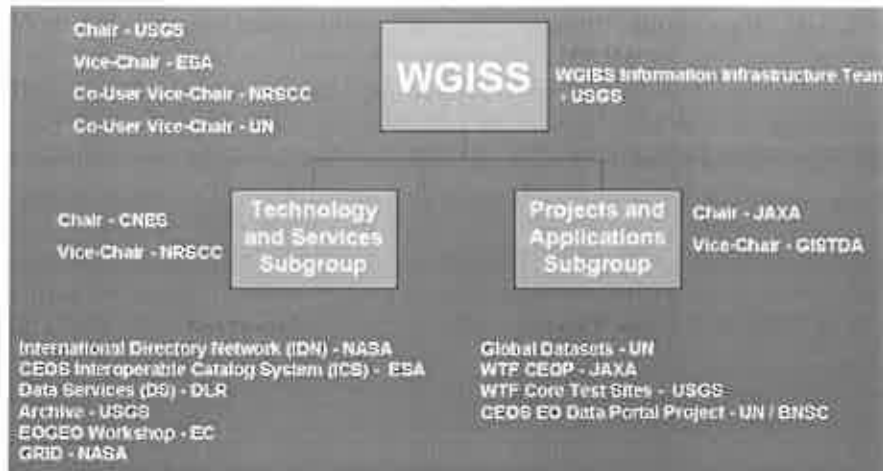
A number of CEOS members and associates have provided significant contributions during 2004 to the TIGER initiative. These include, in particular, CSA, EUMETSAT, NOAA, NASA, JAXA, UNESCO, UNOOSA in addition to ESA's own efforts. In total, several million Euro worth of effort has been expended within the framework of TIGER. Josef Aschbacher thanked these organisations and expressed his hope, and invitation, to continue and further enhance this support. In particular, the provision of free EO data and services to water management institutions in Africa as well as capacity building support are expected from CEOS members and associates.

The recently adopted 10 Year Strategic Plan for TIGER has been a major step forward in making TIGER more sustainable and attractive to donor agencies.

10. WGISS report

John Faundeen (USGS/ WGISS Chair) presented the WGISS Report to the Plenary, including the following highlights:

- the current WGISS structure is shown below; WGISS is pleased to note that the User Vice-Chair post has been filled (by both NRSCC and the UN) after being vacant for some time;



- CEOS IDN Task Team remains active and continue to promote the International Directory Network (<http://idn.ceos.org/>) as a major achievement of CEOS;
- the Data Services Task Team has been developing a ‘CEOS Satellite Coverage Portrayal Service’ which gives a graphical overview of EO holdings – helping to discover data gaps and go beyond statistics and tables;
- the focus of the Archive Task Team has been on: updating their survey of archive formats; completion of the developing countries data rescue initiative; and examination of a scientific dataset appraisal tool designed to assist CEOS Members and Associates in deciding which datasets to preserve and what areas to spend resources on;
- the EOGEO Workshop Task Team continues to host the annual workshop: the latest was in June 2004 (at UCL, London); the next is planned for June 2005 (Minneapolis);
- the GRID Task Team efforts have focused on: addition of 3 new projects (by China, Dutch Space, CNES); working with open source developers to add CEOS requirements; prototyping a proof of concept CEOS certificate authority; a CEOS GRID monitoring tool; updating a WGISS GRID toolkit of baselined GRID software; future work anticipates a multi-agency GRID demonstrator;
- the WGISS Test Facility for the Coordinated Enhanced Observing Period (CEOP) Task Team continues to make progress; a JAXA Prototype Demo is available at the CEOS Plenary Exhibition; JAXA, NASA, ESA, and EUMETSAT are providing satellite data for integration;
- in response to the recommendation from the ad-hoc Utilisation Team for “CEOS space agency members to develop information systems with more integrated catalogue, search, ordering and retrieval mechanisms” WGISS established a volunteer team to study and implement possible solutions; as a first step the CEOS EO Data Portal has been developed and made available since July 2004 (built around the CEOS IDN, but filtered to provide only results for datasets provided by CEOS Members and Associates: <http://idn.ceos.org/ceos-idn/>); further work is planned in 2005;

The following recommendations from the WGISS report were all approved by Plenary:

WGISS Recommendations to 18th Plenary

Approve:

- the updated WGISS 5-Year Plan;
- WGISS Leadership Changes: two new User Vice-Chairs; Technology & Services Sub-Group Chair; Technology & Services Sub-Group Vice-Chair; Projects & Applications Sub-Group Chair; Projects & Applications Sub-Group Vice-Chair;
- the WGISS strategy to address 17th Plenary Utilisation actions;

Note:

- closure of the following WGISS Task Teams: Global Mapping Book; Oil Spill Drift Prediction Model.

And the following actions were agreed:

Action	18-10	CEOS Members and Associates encouraged to support, as much as possible, open source software throughout their organization to foster the exchange and understanding of projects of value to all CEOS parties	19th CEOS Plenary
Action	18-11	CEOS Members and Associates invited to send nominations for WGISS Vice-Chair (to the current WGISS Chair – John Faundeen, USGS)	15th January 2005

Roy Gibson (EUMETSAT) suggested that the CEOS Working Groups are likely to play a crucial role in the implementation of the GEOSS and that they should be closely involved in the consultation process envisaged for the CEOS Task Force.

11. WGCV report

Steve Ungar (NASA/ WGCV Chair) presented the WGISS Report to the Plenary, including the following highlights:

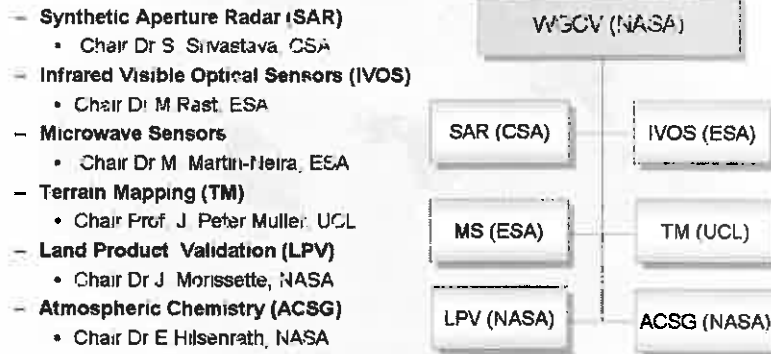
- the WGCV structure planned for 2005 (new SAR SG Chair volunteered by CSA) is shown below:



Working Group on Calibration & Validation

CEOS WGCV Subgroups update

PROPOSED FOR 2005



- the priority actions for WGCV are expressed in their 5-Year plan:
 - support for calibration and validation activities relating to the IGOS Themes;
 - active co-operation with ISPRS in the definition of radiometric and geometric standards;
 - encouraging traceability to international standards;
 - proposing joint calibration and validation campaigns to CEOS Members and seeking CEOS support for these campaigns;
 - cooperating with other CEOS Working Groups to focus efforts and to ensure the best use of resources;
- achievements of the last year include:
 - finalising plans for the joint WGISS/WGCV meeting in Cordoba (March 2005) – including preparations for the planned international field campaign;
 - augmentation of the Cal/Val Test Facility phase 1 (with WGISS) and evaluation of the joint Workshop on Geometric and Radiometric Standards (with ISPRS – held Dec 2003);
 - re-hosting of the CEOS WGCV Website <http://wgcv.ceos.org> ;

The following recommendations from the WGCV report were all approved by Plenary:

WGCV Recommendations to 18th Plenary

1. CEOS Chairman should poll members to seek a leader and points of contact in interested agencies for the sensor inter-comparison activity and ensure appropriate linkages and harmonization with the CEOS/WMO database activities and points of contact
2. An action should be adopted encouraging CEOS agencies to continue and extend their support for the WGCV LPV subgroup activities.

3. In co-operation with the WGCV Chair, CEOS Chairman should circulate a short note explaining the benefits of using the CEOS Land Validation Core Sites and of adopting the FAO/UNEP Land Cover Classification System (LCCS).
4. In co-operation with the WGCV Chair, CEOS Chairman should identify CEOS agencies producing/supplying space-borne DEM data, and explore with them the possibilities for increased user feedback – building on the experience of the MODIS QA activity.
5. WGCV Chair should contact CEOS agencies planning atmospheric measurement missions to encourage due consideration to validation measurements, particularly the ground systems, to ensure that satellite long-term trends and inter-annual variability of atmospheric composition are adequately validated.

And the following action agreed to ensure follow-up in 2005:

Action	18-12	WGCV Chair and CEOS Chair to co-operate in pursuing follow-up to WGCV recommendations to 18th CEOS Plenary	February 2005
---------------	--------------	--	----------------------

12. WGEdu report

Sergio Camacho (UNOOSA / WGEdu Chair) presented the WGEdu Report to the Plenary, including the following highlights:

- the main accomplishments of the WG in 2004 were:
 - CEOS Education Portal: the Portal (http://ceos.pku.edu.cn/wgedu/home1_e.html) is now operational – and has the goal of making EO educational and training resources more visible and easier to find; CEOS Members and Associates are invited to populate the Portal;
 - draft implementation of the “Principles of Satellite Data Provision in Support of EO Education and Training: these Principles were adopted by the 17th CEOS Plenary in order to provide educators with EO data for capacity building purposes; an Implementation Plan will be presented to 19th Plenary, following a pilot project planned for 2005 (involving 3 user groups: the CEOS African Advisory Group, a group of universities (coordinated by Peking University) and the Regional Centres for Space Science and Technology Education, affiliated to the United Nations); comments are invited on the draft implementation plan;
 - linkages and support to WSSD follow-up team modules 1 & 2, including via: the UN/IAF “Use of Space Technology for Disaster Management” Workshop (Vancouver, October); the UN /Austria/ESA Symposium “Water for the World: Space Solutions for Water Management” (Graz, September); and the Joint Workshop of WSSD Modules, 1, 2 and 3 (Pretoria, November);
 - development of the CEOS Strategy for Earth Observation Education and Training and WGEdu Plan of Action for 2005: in response to the 17th Plenary request for WGEdu to review its Terms of Reference in view of its new status as a permanent Working Group;

- and the focus for 2005 will be to:
 - increase the content of the CEOS Education Portal;
 - revise (on the basis of comments from Plenary) the draft Plan of Implementation of the CEOS Data Principles;
 - carry out a pilot project to test the draft Plan;
 - continue to coordinate and cooperate with WSSD follow up Team modules;
 - maintain WGEdu linkages, and contribute to the broader EO education, training and capacity building community;
 - pursue the following objectives through a series of workshops: promotion of capacity building within specific projects; aid potential users to understand satellite data benefits; promote capacity building in areas related to the IGOS Themes.
 - coordinate with the CEOS African Advisory Group;
 - contribute, as appropriate, to the capacity building efforts of the GEOSS.

The following recommendations from the WGEdu report were all approved by Plenary:

WGEdu Recommendations to 18th Plenary

Approve:

- the WGEdu Revised Strategy for Earth Observation Education and Training and Capacity Building;
- the WGEdu Plan of Action for 2005;
- the progress report on a plan to implement the “Principles of Satellite Data Provision in Support of Earth Observation Training and Education”;
- WGEdu Leadership Changes: Yolanda Berenguer (UNESCO) to replace Christine Hutton (CCRS) as Co-chair;

Note and support:

- the recommendations contained in the Plenary Report of the WGEdu.

And the following actions were agreed:

Action	18-13	CEOS Members and Associates invited to send nominations for WGEdu participants (to Sergio Camacho)	January 2005
Action	18-14	CEOS Members and Associates are encouraged to help populate the WGEdu Portal by transmitting relevant capacity building and links to on-line data holdings to the WGEdu Chair	19th CEOS Plenary

13. CEOS-related radio-frequency issues

Stephen Ward (NRSCC) summarised the reports submitted by Dr Maeda of JAXA on the issue of protection of remote sensing frequency bands, including the following the key points:

- the 24th annual meeting of the SFCG (Space Frequency Coordination Group) was held in Perros-Guirec, France on 15th-23rd September; SFCG note that there are several radio-frequency issues which impact on the plans of many CEOS agency missions and instruments, including: active sensors (5.3GHz); P-band SAR (9.5-9.8GHz); cloud radars (94-94.1GHz); passive sensors: (10.6-10.68GHz, 36-37GHz, 1400-1427MHz including AMSR-E, HYDROS and Aquarius, 6-7GHz (includes soil moisture and sea surface temperature missions)); interference of data transmission of NPOESS & METOP; and ultra-wide band interference;
- a CEOS resolution for WRC-2000 was approved at 13th Plenary (1999); a further resolution for WRC-2003 was proposed at 14th Plenary (2000) and approved at 15th Plenary; although helpful, these efforts were not sufficiently early to support preparations for the relevant WRC meetings; it is proposed that CEOS, either at, or as soon as possible after the 18th Plenary meeting adopt a resolution for WRC-2007;
- Plenary is invited to note the utility of microwave passive sensors and the necessity to promote protection of their sensing bands - especially the 6-7 GHz band which is not allocated to 'Earth Exploration Satellite Service (passive)' in the Radio Regulations;

Korehiro Maeda (JAXA) added a few points of clarification – including the severity of the interference threat from Ultra-Wideband (UWB) devices – noting that a density of just one device per square kilometre would impact passive microwave radiometry.

Don Hinsman (WMO) voiced WMO's support for the efforts of the SFCG in protecting frequency bands for remote sensing applications. He noted the importance of the topic to GEO and recommended that it be considered in the remit of the CEOS Task Force. The following actions were agreed:

Action	18-15	Korehiro Maeda (JAXA), in co-operation with the CEOS Chair, and with the support of CEOS Secretariat and other CEOS members, to develop the draft CEOS resolution on frequency protection, and distribute the draft for review and comment to CEOS agencies (final approval rests with CEOS Chair)	January 2005
Action	18-16	CEOS Chair, in co-operation with SFCG representatives, to invite all CEOS agencies to: be represented at the spring 2005 workshop on frequency and performance requirements for passive remote sensing; and to provide sensor performance and interference requirements (including new frequencies) to CEOS Secretariat	January 2005

14. SBSTA/UNFCCC update

Chu Ishida (JAXA) gave a short presentation, prepared by Linda Moodie (NOAA), summarising the status of the CEOS interface to the UN Framework Convention on Climate Change (UNFCCC):

- at the 16th CEOS Plenary, Members and Associates agreed to "...strengthen their ties to ...their national delegations to the UNFCCC in order to demonstrate better the value of satellite observations in meeting the needs of the research community and the Convention";
- the 9th Conference of the Parties (COP) of the UNFCCC (December 2003) adopted a Ministerial Decision on Global Observing Systems for Climate, including: a request Parties to review the GCOS Second Adequacy Report and consider what actions they can take to address the findings; a request to GCOS to develop a phased 5-10 year implementation plan; an invitation to GCOS and GEO to collaborate closely in developing their respective implementation plans;
- delegations at the UNFCCC Subsidiary Body on Scientific and Technological Advice (SBSTA) in June 2004 negotiated Conclusions on Research and Systematic Observations, including: recognition of the progress in development of the GCOS implementation plan; and urging GCOS to identify clearly priorities for actions in the plan;
- UNFCCC Secretariat requested GEO to hold side events at SBSTA (June) and COP-10 (December); the June event was very well received; the December event planning is in progress.

Chu Ishida asked that CEOS Members and Associates, as appropriate, work with their national delegations to the UNFCCC in order to gain support for a favourable outcome on systematic observations at COP-10 (December 2004). The following action was agreed:

Action	18-17	Chu Ishida (JAXA) to poll CEOS agencies on planned participation in COP-10 with a view to arranging co-operative efforts on behalf of CEOS	25 November 2004
---------------	--------------	---	-------------------------

In response to a query from CNES, Brent Smith (NOAA) noted that such actions were undertaken in order to ensure proper representation of space observations in the definition of requirements and implementation plans for climate observations. A good example is the support provided by CEOS Members to GCOS in ensuring the necessary Earth observation expertise was available for development of the GCOS Implementation Plan.

Paul Mason presented a short update on the status of the GCOS Implementation Plan, noting that the final version of the document was available from the GCOS WWW site (www.wmo.ch/web/gcos/gcoshome.html), and that it would be presented to COP-10. The plan cites 131 different actions required for implementation – at an estimated cost of around \$630Mn per annum. Space systems and CEOS are cited many times – spanning multiple actions. It was agreed that it was important for all CEOS Members and Associates to bring the GCOS Plan to the attention of their national delegations to the UNFCCC. As incoming Chair, BNSC offered to convey any comments received from CEOS agencies to GCOS.

Action	18-18 CEOS agencies to review the final version of the GCOS Implementation Plan and to send CEOS Chair comments appropriate to be made on behalf of CEOS	January 2005
--------	--	--------------

15. CEOS 5-Year Plan Update

Stephen Ward (NRSCC) referred participants to the interim update to the CEOS 5-Year Plan, which the Chair had produced for information only. The document includes minor revisions, including updated explanations of the CEOS Working Groups and of the new SIT Terms of Reference (which were agreed at Plenary in 2002). Stephen noted that BNSC, as incoming Chair, had agreed to undertake a full update of the Plan in 2005 (which is on the agreed 3-year cycle) – including to reflect GEOSS developments as far as possible. The following action was agreed:

Action	18-19 CEOS Chair to undertake a full update of the CEOS Five Year Plan – for presentation to the 19 th CEOS Plenary	19 th CEOS Plenary
--------	--	-------------------------------

16. CEOS publications and WWW

Stephen Ward (NRSCC) referred participants to the presentation (which had been prepared by MEXT/JAXA and NASA) summarising CEOS publications and WWW site status. The key points were:

- CEOS agencies have a range of valuable publications at their disposal, for the purposes of promoting CEOS and its activities; these include:
 - the CEOS Annual Report (2003 is the latest, NASA): summarising the highlights and accomplishments of CEOS during the previous year;
 - the CEOS Newsletter: produced and distributed biannually by MEXT/JAXA;
 - the CEOS Brochure: recently updated by MEXT/JAXA – as a glossy to explain CEOS, its structure, and its activities;
 - the CEOS Home Page (<http://www.ceos.org>): a co-operation between MEXT/JAXA and NASA.
- CEOS Members and Associates are encouraged to provide feedback and suggestions for the publications and WWW facilities to NASA (devon.carroll@nasa.gov) and to MEXT/JAXA (ceos-jpn@jaxa.jp).

Josef Aschbacher (ESA) thanked Members and Associates for providing their latest mission and instrument plans to the ESA team currently updating the CEOS Earth Observation Handbook. He noted that the Handbook was widely regarded as the definitive reference for Earth observation programmes of civil space agencies and that the WWW site (www.eohandbook.com) experienced heavy traffic on a daily basis. The 2005 edition of the Handbook will be premiered at the 3rd EO

Summit in Brussels and will be available in print, CD-ROM, and WWW versions (as in 2002). ESA hopes that CEOS SEC agencies will again serve as regional distributors for the copies reserved for CEOS Members and Associates, and noted that extra copies would be available (at cost) if ordered before printing. An offer will be sent directly to CEOS contacts.

17. Updates on significant events

ISPRS: Ian Dowman (ISPRS) referred participants to the report distributed by ISPRS on the work of the ISPRS / CEOS WGCV Joint Task Force on Radiometric and Geometric Calibration and on the ISPRS / CNES SPOT Assessment Programme (SAP). The main activity of the Task Force was a workshop in Gulf Port Mississippi, December 2-5, 2003. This Workshop was designed to attract world-wide experts in the fields of radiometric and geometric calibration of aerial digital cameras and post-launch space borne sensors operating in the optical spectrum. The goal of the meeting was to inaugurate activities that lead toward identifying, defining, and evaluating best practices for measuring radiometric and geometric calibration parameters.

The ISPRS /CNES SPOT Assessment Programme was carried out during 2003 – and had the aim of assessing the Digital Terrain Models (DTMs) which could be generated from the HRS sensor (High Resolution Stereoscopic instrument) on SPOT5. The results were reported to the XXth ISPRS Congress held in Istanbul, July 2004.

INPE: Joao Viane Soares (INPE) announced that INPE and CAST had recently agreed to continue and expand their cooperation in the China-Brazil Earth Remote Sensing (CBERS) satellite series, and that CBERS-2B would be launched in October 2006.

JAXA: Chu Ishida (JAXA) announced that Japan's Cabinet Office of Science and Technology Policy was compiling a national Earth observation plan, and that the Space Activities Commission of Japan was involved in definition of the space-based component of that plan – which will reflect the priorities agreed in the definition of the GEOSS.

Stephen Ward (NRSCC) referred participants to the written update reports submitted to Plenary by DLR, JAXA, NASA, NOAA, and CSA.

18. Upcoming plenaries

Paula Freedman (BNSC) presented a short video on the attractions of London, confirming this as the venue city for the 19th CEOS Plenary – which BNSC plans to host in the week of 14th November 2005.

Laura Frulla (CONAE) gave a short update on Argentina's Earth observation programme, and confirmed that CONAE was delighted to serve as CEOS Chair after BNSC and to host the 20th CEOS Plenary in Argentina (venue TBC) in November 2006.

19. Review of action items

It was agreed that, given the lack of time available to review action items, the outgoing Chair (NRSCC) would circulate the draft action items list for review by all participants.

20. Chair handover

Xu Guanhua (Chair) made a closing statement, noting that NRSCC and the Ministry of Science and Technology of China were delighted to have served the CEOS and IGOS communities during 2004, and thanked CEOS colleagues for the kindness and support they had shown to the Chinese CEOS SEC staff throughout the year. Xu Guanhua asked Colin Hicks of BNSC to step forward to accept the Chair of CEOS, and presented him with the CEOS plaque holding the Chair's gavel and the names of all previous CEOS Chairs.

Colin Hicks then made a brief presentation, outlining the priorities of BNSC as Chair for the upcoming year, including:

- **updating the CEOS 5-Year Plan:** taking into consideration the outcomes from GEO over the coming year;
- **GEO:** positioning CEOS within the GEO framework by actively representing CEOS and establishing it as an important organisation to deliver within the GEOSS Implementation Plan;
- **disaster management:** encouraging co-ordination of CEOS efforts, including through close association with the international Disaster Management Constellation (DMC) consortium and promotion of the use of small agile satellites to provide such services;
- **humanitarian aid:** supporting the activities of CEOS in helping the provision of data and information in a timely fashion for aid organisations; BNSC will highlight and support activities within developing countries with a focus on Africa consolidating the efforts of the CEOS Working Groups.
- **utilisation:** continue to pursue the recommendations of the CEOS Utilisation Team;
- **climate change:** supporting CEOS to coordinate the role of space agencies in providing the data and information for long-term climate studies, including as part of: GEO; and the UK's forthcoming presidency of EU and G8.

21. Adjourn

Colin Hicks (Chair) confirmed the 18th CEOS Plenary adjourned.

Comments to GEO-5 of CEOS on the Ten-Year Implementation Plan

With respect to the draft GEO 10-Year Implementation Plan, specifically lines 184 (“...GEOSS will be based on existing ...systems..”) and lines 337/8 (“...specialist scientific bodies and institutes....”), CEOS wishes to stress its willingness to co-operate with GEO and contribute.

In particular CEOS proposes that:

- *CEOS, which has twenty years experience as the primary body responsible for international co-ordination of Earth observation satellite programmes, offers a proven mechanism for active coordination of the space component of GEOSS. CEOS can hence provide an efficient mechanism for consultation with space agencies collectively, and offers to undertake this function for whichever governing body is decided for the implementation of GEOSS.*
- *CEOS and in particular its subordinate working groups can also provide expert advice and assistance to address specific technical problems. CEOS offers to adapt existing and create any necessary additional working groups required by the implementation of GEOSS. CEOS will also provide relevant specialists to serve on groups established by GEOSS.*

The Chairman of CEOS will act as a single point of contact to facilitate access to its capabilities and expertise.

***Terms of Reference for the CEOS Task Force on future relations
with GEO and implications for CEOS***

Membership

The Task Force will be chaired by the Chair of SIT, and members will be the current, immediate past and future CEOS Chairs, plus the permanent members of the CEOS Secretariat (i.e. ESA, EUMETSAT, MEXT/JAXA, NASA, NOAA).

Timetable

The Task Force will start its work as soon as practicable and will present its report to a special meeting of CEOS Principals (both Members and Associates) in mid-2005, at which meeting the CEOS Chair will decide whether or not further work is required to fulfil the Task Force mission. The final report will be presented for approval and implementation to the 19th Plenary.

The Task Force will:

- *investigate and make recommendations on mechanisms and organisational structures which would allow CEOS to undertake an effective and active co-ordinating role in the space component of GEOSS;*
- *consider the suitability of current structures of CEOS, including SIT and CEOS subordinate groups and the participation of CEOS in the IGOS Partnership, with respect to their relevance to its potential role of co-ordinating space-based observations for GEO, and make appropriate recommendations;*
- *propose mechanisms which are sufficiently robust to ensure the confidence of governments and outside agencies in the ability of CEOS to function effectively in its co-ordinating role;*
- *review the CEOS Five Year Plan in relation to the future role of CEOS with respect to GEO and propose appropriate amendments, including identifying relevant actions to be placed on CEOS subordinate bodies;*
- *after full consultation with CEOS Members and Associates, review the present membership arrangements and terms of reference for the various CEOS bodies, and make appropriate recommendations;*
- *develop an appropriate strategy for communication with GEO;*
- *consider and make recommendations on such aspects of the situation arising from the creation of the successor to the ad hoc GEO as the Chairman of CEOS and the Chairman of SIT may from time to time consider would be helpful to the 19th Plenary in coming to a positive decision on the recommendations of the Task Force.*

List of Participants

Agency	Name	E-mail
ASI	Mr. Giovanni Rum	giovanni.rum@asi.it
BNSC	Dr. Colin Hicks	colin.hicks@bns.csi.gov.uk
BNSC	Mr. Mark Churchyard	mark.churchyard@bns.csi.gov.uk
BNSC	Ms. Paula Freedman	paula.freedman@bns.csi.gov.uk
CAST	Mr. Chen Shiping	chenshiping@cast.cn
CCRS	Mr. Irwin Itzkovitch	irwini@nrcan.gc.ca
CCRS	Mr. Andrij Hluchowecy	ahluchow@nrcan.gc.ca
CNES	Mr. Daniel Vidal-Madjar	Daniel.Vidal-Madjar@cnes.fr
CONAE	Dr. Laura Frulla	frulla@conae.gov.ar
CONAE	Mrs. Ana Medico	amedico@conae.gov.ar
CSA	Dr. Virendra Jha	Virendra.jha@space.gc.ca
CSA	Mr. Daniel De Lisle	daniel.delisle@space.gc.ca
CSIRO/COSSA	Dr. Andre Held	alex.held@csiro.au
DLR	Mr. Klaus Schmidt	kp.schmidt@dlr.de
ESA	Dr. Josef Aschbacher	josef.aschbacher@esa.int
ESA	Dr. Stephen Briggs	stephen.briggs@esa.int
ESCAP	Mr. Wu Guoxiang	wugu@un.org
EUMETSAT	Dr. David Williams	dwilliams@eumetsat.de
EUMETSAT	Dr. Lars Prahm	prahm@eumetsat.de
EUMETSAT	Mr. Roy Gibson	roy.gibson@wanadoo.fr
FAO & GTOS	Mr. Jeffrey Tschirley	jeff.tschirley@fao.org
GCOS	Dr. Paul Mason	p.j.mason@reading.ac.uk
GISTDA	Dr. Pakorn Apaphant	pakorn@gistda.or.th
GISTDA	Dr. Suvit Vibulsresth	suvit@gistda.or.th
INPE	Dr. Joao Viane Soares	viane@ltd.inpe.br
ISPRS	Dr. Ian Dowman	idowman@ge.ucl.ac.uk
JAXA	Dr. Yoji Furuhashi	furuhashi.yoji@jaxa.jp
JAXA	Mr. Chu Ishida	ishida.chu@jaxa.jp
JAXA	Mr. Yukio Haruyama	haruyama.yukio@jaxa.jp
JAXA	Ms. Satoko Miura	s-miura@eorc.jaxa.jp
JAXA	Ms. Mariko Kato	kato.mariko@jaxa.jp
JAXA	Dr. Korehiro Maeda	maeda.korehiro@jaxa.jp
JAXA/Chiba univ	Prof. Fumihiko Nishio	fnishio@ceres.cr.chiba-u.ac.jp
JAXA/RESTEC	Ms. Kazuko Misawa	misawa@restec.or.jp
JMA	Mr. Yoshishige Shirakawa	yshirakawa@met.kishou.go.jp
KARI	Dr. Eun-Sup Sim	

KARI	Dr. Jin-Hee Kim	kimjh@kari.re.kr
KARI	Dr. Yongseung Kim	yskim@kari.re.kr
NASA	Mr. Ronald Birk	ronald.j.birk@nasa.gov
NASA	Dr. Stephen G. Ungar	stephen.ungar@nasa.gov
NASA	Ms. Devon Carroll	devon.carroll@nasa.gov
NRSDA	Mr. Okon Ikpaya	nrsda_nig@yahoo.co.uk
NRSDA	Mr. Francis Dubem Chizea	nrsda_nig@yahoo.co.uk
NRSDA	Dr. Aobert Ajayi Boroffice	odimayomi@yahoo.com
NOAA	Mr. Gregory W. Withee	Greg.Withee@noaa.gov
NOAA	Mr. Paul Menzel	paul.menzel@ssec.wisc.edu
NOAA/NESDIS	Mr. Brent Smith	brent.smith@noaa.gov
NOAA/NESDIS	Mr. Michael Hales	michael.hales@noaa.gov
NOAA	Ms. Renee Leduc Clarke	renee.leduc.clarke@noaa.gov
NRSCC	Prof. Xu Guanhua	mengxueli@nrsc.gov.cn
NRSCC	Dr. Shao Liqin	shaolq@mail.most.gov.cn
NRSCC	Dr. Li Deren	dli@whu.edu.cn
NRSCC	Prof. Liu Dingsheng	dsliu@mail.rsgs.ac.cn
NRSCC	Prof. Li Mengxue	mengxueli@nrsc.gov.cn
NRSCC	Dr. Zhu Zhongli	zhongli@ceos-china.com
NRSCC	Ms. Gaopeiyang	lily@nrsc.gov.cn
NRSCC	Mr. Stephen Ward	mail@stephenward.net
NSC	Mr. Per Erik Skrovseth	per.erik.skrovseth@spacecentre.no
NSC	Mr. Rolf Skaar	rolf.skaar@spacecentre.no
RSMAS MAF	Dr. Liana Talaue McManus	lmcmanus@rsmas.miami.edu
SAC/CSIR	Mr. Adi Paterson	adi.paterson@dst.gov.za
U. Tokyo	Dr. Toshio Koike	tkoike@hydra.t.u-tokyo.ac.jp
UNEP	Dr. Ramon Roberto Fernandez	Norberto.fernandez@unep.org
UNEP	Ms. Silvia Giada	silvia.giada@unep.org
UNESCO	Mr. Robert Missotten	r.missotten@unesco.org
UNOOSA	Mr. Sergio Camacho	Sergio.Camacho@unvienna.org
USGS	Dr. Bryan Bailey	gbbailey@usgs.gov
USGS	Mr. Jay Feuquay	feuquay@usgs.gov
USGS	Mr. John Faundeen	faundeen@usgs.gov
USGS	Mr. Lawrence Pettinger	lpetting@usgs.gov
USGS	Ms. Barbara Ryan	bjryan@usgs.gov
WCRP	Dr Gilles Sommeria	gsommeria@wmo.int
WMO	Dr. Donald Hinsman	dhinsman@wmo.int
WMO	Dr. Yan Hong	hyan@wmo.int