

14th CEOS Plenary Minutes

Rio de Janeiro, November 8-10, 2000

Final

(After two rounds of inputs from the CEOS Secretariat and two from meeting Participants)

The CEOS Agencies (Members and Associates) met for the 14th time in Rio de Janeiro, between the afternoon of November 8 (Wednesday) and the morning of November 10 (Friday), 2000.

1. WELCOME ADDRESS AND LOGISTICS INFORMATION

Chairman Marcio Barbosa/INPE welcomed the participants and Mr. José Luiz Aguirre/INPE presented logistics information about the meeting, complementing what had been included in the participants' folio.

2. REVIEW AND ADOPTION OF THE AGENDA

The Preliminary Agenda (14/AGP/05) was adopted with the following changes:

- by request of NASDA, to have topics 10.3.2 (STA/NASDA views for 2001) and 10.4 (Next Plenaries) addressed along with Item 14 (Chair handover to STA/NASDA).
- by request of NASA, to have a Secretariat proposal concerning the CEOS Consolidated Report addressed within Item 12 (Other Business).

3. RECORD OF THE 13TH PLENARY

Mr. Aguirre conducted a review of the last Plenary Action Items (14/REF/01). All actions were reported closed except the ones below, which are to be carried forward *[deadlines and wording revised by the CEOS Secretariat at its post-Plenary meeting in the afternoon of Nov. 10; action 13/17 (nominations for the TCO Theme Team), initially reported open, was acknowledged as obsolete by the Team leader on post-meeting consultation and therefore removed.]*:

Action 13/13: CEOS participants to identify individuals leading their atmospheric chemistry validation programs and to notify these to Chairman WGCV by March 15, 2001.

Action 13/15: Chairmen of still non-compliant Working Groups to ensure that a standard procedure is implemented whereby recommendations that have significant implications for Members are submitted to Members before submission to CEOS Plenary.

4. REPORT OF THE CHAIRMAN

Mr. Barbosa presented the Chair report of activities since the 13th Plenary, summarizing the 2000 term as a busy one, thanks to the increased number of meetings carried with the addition of two ad-hoc Working Groups, to the growing involvement with IGOS and to the outreach efforts towards the private sector. This generated a significant workload for all involved, in particular to the CEOS Secretariat, which was commended for its strong support during the period.

5. MEMBERSHIP ISSUES

Following a letter of application sent to the Chair on Sept. 27, Mr. R.J. Thompson/USGS, on behalf of his Director Dr. C.G. Groat who could not attend, presented the application of his

organization to CEOS membership, based on the recent transfer to USGS, by U.S. presidential decision, of the responsibility for the operation of the LANDSAT system. The Chairman prompted the Plenary for a consensus approval, which was obtained. USGS becomes therefore the 22nd CEOS Member.

Mr. Chu Ishida/NASDA reported that two countries from his region, Thailand and the Republic of Korea, should present their applications at the next Plenary.

6. IGOS-P AND SIT

6.1 IGOS-P Chairman Report

Mr. Barbosa, outgoing IGOS-P Chair, summarized for the Plenary the outcome of the two IGOS Partners meetings held in 2000, respectively the 5th, in June, in Geneva, and the 6th, just adjourned.

6.2 SIT Reports

6.2.1 - Dr. Jean-Louis Fellous/CNES, SIT Chairman, reported (14/DOC/21) on the four meetings held in 2000, namely an informal meeting in January in Geneva, the 6th SIT in March in Cape Town, the 7th SIT in June in Geneva, and the 8th SIT on November 7 in Rio. He reviewed the conclusions and recommendations that came out of this series of meetings but refrained from submitting the recommendations to the Plenary at this moment, leaving them to be treated under Agenda Topic 10.

6.2.2 - Dr. John Marra/NASA made a presentation of the Ocean Theme Team Report. Mr. Per Erik Skrovseth/NSC commented on the issue of data accessibility, which remains an obstacle to the development of applications and may affect the theme's implementation phase. Dr. Fellous declared the intent of SIT to continue its efforts in relation with CEOS agencies to complement the response of space agencies to the Ocean Theme requirements. Dr. Ghassem Asrar/NASA recalled that the implementation is the collective responsibility of the Partners and that IGOS Themes should be always considered end-to-end. Mr. Peter Churchill/E.C., Chairman of WGISS, offered the WG's help in achieving the goals of the Ocean Theme.

6.2.3 - Dr. Josef Cihlar/CCRS briefed the Plenary on the Terrestrial Carbon Cycle Theme, recalling that the Theme was proposed a year ago, with a request to extension to an integrated Carbon Cycle Theme. He summarized very briefly the course of action and main achievements of the Theme Team, and described the proposal presented by Dr. Will Steffen/IGBP at the IGOS-P meeting for the development of an Integrated Global Carbon Observations Theme.

6.2.4 - Dr. Toshio Koike (University of Tokyo) presented the plans for a Coordinated Enhanced Observation Period (CEOP, a possible precursor for an IGOS Water Cycle Theme, undertaken through WCRP/GEWEX), and its requirements (14/DOC/08) for support by the CEOS agencies. Dr. Fellous repeated the recommendations by SIT to encourage CEOS agencies to support CEOP in terms of the establishment of a CEOP Satellite Data Integration Center, a CEOP Satellite Working Group, and via the provision of satellite observations in support to field campaigns at reference sites. In addition, he pointed out that that detailed, specific requirements need to be prepared by CEOP and provided to the cooperating space agencies for their consideration. Dr. Rick Lawford/NOAA informed the meeting that a Workshop on Global Water Cycle will be held in the U.S. in January, from which inputs to draft an IGOS Water Cycle Theme proposal will be collected.

Action 14/1: Agencies with an interest in CEOP are invited to nominate a member to the CEOP Satellite Working group to Prof. Koike by January 10, 2001.

Action 14/2: Agencies are invited to nominate by December 1, 2000, to Dr. Rick Lawford/NOAA, participants to the Water Cycle Workshop to be held in Irvine, California, January 2001.

7. REPORTS ON CEOS INTERACTION WITH THE PRIVATE SECTOR

7.1 Tokyo Symposium

Ms. Kazuko Misawa/RESTEC, on behalf of Yukio Haruyama, reported (14/DOC/10) on the panel discussion, involving both the public and private sectors, held in Tokyo in July 2000 by occasion of the RESTEC 25th Anniversary Symposium.

7.2 ISPRS Congress Panel

Dr. John Trinder/ISPRS presented (14/DOC/15) the results of the ISPRS Congress Panel. Their main outcome was the concept of an International Industry Forum (IIF), which is still subject to ongoing discussions. John Neer (founder of Space Imaging) is leading this initiative on behalf of industry. The IIF primary objectives would be to represent the commercial remote sensing industry's interest in their interaction with CEOS and IGOS.

7.3 CEOS/Industry Roundtable at IAF

Dr. Brent Smith/NOAA reported on the CEOS/Industry Roundtable discussion which took place a month ago as a side meeting during the 51st IAF Congress in Rio last October. He drew a few conclusions for future CEOS/Industry interaction. So far industry does not have its own coherent identity, and efforts to encourage formation of a global industry forum appear premature. However, in view of the key role to play by industry in Earth observation, such a dialogue should be continued at IAF or other venues. Dr. Dave Williams/EUMETSAT, who participated at the Tokyo Symposium, mentioned that industry representatives seem not to have identified yet an issue to discuss with CEOS. It is important to have a clear agenda in the pursuit of this initiative.

7.4 Discussion

Mr. Greg Withee/NASA considered this as a very important topic, because of the intersection of the commercial sector activity with those of the public agencies involved in CEOS. When this intersection has grown to a certain point it might be too late to start the dialogue. Dr. Alan Belward/E.C., Chairman of WGCV, also argued in favor of continuing the dialogue, in the interest of the possibility for access to commercial EO satellites' calibration and validation data, which are not being made available and are essential for scientific uses of the imagery.

As result of the discussions, the three actions below were approved by the meeting.

Action 14/3: WG Chairs to encourage cooperative involvement of EO Industry representatives in their activities.

Action 14/4: CEOS Agencies are encouraged to involve their national EO industry, as appropriate, in their activities.

Action 14/5: ISPRS to keep CEOS Agencies informed on efforts to foster the development of an International Industry Forum.

8. OTHER REPORTS

8.1 CEOS Database

Dr. Don Hinsman/WMO reported (14/DOC/05) on the CEOS/WMO Database and informed the Plenary that a CD-ROM created with the 1999 contents is now in the mail. The next update will accept inputs up to August 2001 aiming at another CD-ROM being published before the next Plenary. The Chairman stressed the need for a strong commitment from all CEOS agencies to keep the Database current and reliable by providing timely and accurate information.

Action 14/6: CEOS members urged to keep their data at the CEOS/WMO database up-to-date, as well as their respective contact information, observing the deadline of August 31, 2001 for the next content update.

8.2 WRC 2000

Mr. Ishida, on behalf of Dr. Korehiro Maeda, presented information (14/DOC/03) on the results of WRC-2000 with regards to the recommendations adopted at the 13th CEOS Plenary, namely concerning frequency allocation for passive sensors in 18.6-18.8 GHz, above 71 GHz and above 200 GHz. Agenda items for WRC-2002 according to CEOS proposals have been agreed. He indicated the schedule for WRC-2003. He concluded on the good progress made at WRC-2000, and urged the CEOS Plenary to adopt a resolution (Attachment 5 of 14/DOC/03) for the forthcoming CPM-2002 and WRC-2003.

Dr. Hinsman pondered that the Plenary was not an adequate body to endorse the proposed resolution. He also expressed surprise that the presentation refers to a CEOS ad-hoc spectrum management group, while the successful approach so far was rather to receive information through Dr. Maeda from the Space Frequency Coordination Group (SFCG), which has the capability and expertise to examine the details of this type of resolution. Dr. Tillmann Mohr/EUMETSAT supported Dr. Hinsman's statement, suggesting that continuing to have Dr. Maeda as rapporteur for the coordination between CEOS and SFCG is more appropriate than establishing a new ad-hoc working group. Dr. Smith recalled that CEOS had received reports on space frequency matters on many occasions from Dr. Maeda of NASDA, and that CEOS Agencies had for a period of time contributed participants to a task team on frequency matters headed by Dr. Maeda. This group now, apparently, consists of Dr. Maeda alone. Decision, in view of the importance of the topic, was to defer the adoption to the next Plenary, once all agencies have looked at the details of the proposed resolution. *[This topic was later revisited when the meeting reviewed the Action Items and the decision was changed to have agencies provide feedback through Mr. Ishida to Dr. Maeda in time for his action in the study groups that will meet next May, already in preparation for WRC-2003 and CPM-02. Action 14/7 below reflects the final situation.]* The Chair noted that the work of the SFCG needed more exposure in CEOS publications and an action was taken to improve this aspect.

Action 14/7: CEOS agencies to consider the recommendations of Dr. Maeda's report on the WRC (CEOS/14/DOC/03) and send feedback to Chu Ishida/NASDA by May 2nd, 2001.

Action 14/8: Secretariat to enhance the visibility of the Space Frequency Coordination Group as appropriate in all CEOS publications.

8.3 UNISPACE III Follow-Up

Dr. Sergio Camacho/UNOOSA reported (14/DOC/20) on UNOOSA activities following UNISPACE III. He explained the role of the Science and Technology Sub-Committee (STS) of the Committee on Peaceful Uses of Outer Space (COPUOS), which is implementing a number of

actions in line with the recommendations of UNISPACE III, and also that of the Legal Subcommittee. He described specific actions of UNOOSA related to training and education for capacity building, and in priority thematic areas, such as disaster management. Ms. Wood mentioned that by appointment of the CEOS Chair she would speak as CEOS representative at the coming 38th STS session in February, when the focus will be on natural disasters and the perspectives for application of space-based services towards their mitigation. The meeting expressed interest in having an update on the Action Plan at the next Plenary.

Action 14/9: UNOOSA to report on UNISPACE III Action Plan at next Plenary.

Dr. Mohr suggested to establish a closer link between CEOS and OOSA in matters of common interest, particularly with respect to disaster management and to education and training, and proposed to adopt a resolution in this respect. Ms. Helen Wood/NOAA, Chair of the ad-hoc Disaster Management Support Group, observed that this link already exists in DMSG. Dr. Mukund Rao/ISRO, WGEdu Chair, informed that his group also has a resolution in that direction.

By suggestion of the SIT Chair concerning the topic being discussed, the CEOS Chair agreed that the meeting addressed Agenda Item 10.3.1 (CEOS Participation in the ESA/CNES Disaster Charter) at this point.

Dr. Fellous, speaking on behalf of the signatories of the Charter, ESA, CNES and CSA, presented a short outline of the initiative. Ms. Wood advanced the presentation of a resolution her WG had prepared to support the Charter. The resolution commends ESA and CNES for the initiative, endorses the objective of the Charter to coordinate space agencies' efforts, encourages CEOS agencies to favorably consider joining the Charter, and directs DMSG to support the promotion and implementation of the Charter through its work plan.

Mr. Withee expressed the support of NOAA and informed the Plenary that he had addressed the U.S. commercial high resolution imagery companies to consider providing the support of their systems in the case of disaster at very little cost if not at no cost. Mr. Stephen Briggs/ESA, absent at the beginning of the discussion, thanked Ms. Wood for the proposed resolution. Mr. Barbosa mentioned that INPE is also considering the possibility to join the Charter. Dr. Mohr emphasized the importance of the Charter and supported the resolution. Mr. He ChangChui of FAO stated he saw the Charter as a strong encouragement, but pointed out that the need for disaster management support is not restricted to an emergency period, as readiness for and recovery afterwards also deserves special effort and availability of data. Mr. Briggs responded to the comment of FAO clarifying that the Charter is only aimed at facilitating access to relevant information in periods of emergency. Ms. Wood then reminded the Plenary that the resolution is essentially addressed at the support to the Charter, while DMSG has a broader scope.

Dr. Camacho mentioned that in recent floods in Mozambique, radar information from Canada had been made available to the local government, but could not be used in the absence of institutional capacity. Such limitations have to be kept in mind. The resolution is very useful in helping draw attention on these operational aspects. Dr. Anver Ghazi/E.C. also expressed support to the resolution. The meeting considered the resolution adopted, along with the related actions below.

Action 14/10: CNES/ESA to make the Disaster Charter available to members by year's end, 2000.

Action 14/11: CEOS Agencies encouraged to favorably consider joining the Charter.

Action 14/12: DMSG to support the promotion and implementation of the Charter through its work plan.

9. WORKING GROUP REPORTS AND RECOMENDATIONS

9.1 WGISS

Mr. Churchill presented the report on WGISS activities (14/DOC/04). Over the past 5 years, WGISS has developed a whole range of tools, products and techniques to help the users. Current foci are on user driven development, technology take-up, spatial information, commercial development, and standards. In 2000 WGISS has consulted with the GOF C (Global Observation of Forest Cover) project, the TCO IGOS Theme, and has investigated different new avenues (e.g., global urban planning) through a number of workshops. In connection with these initiatives, WGISS has developed a new Test Environment concept, whereby WGISS products, tools and services could be tested on user application projects in partnership with the users. The feasibility has been established with GOF C and TCO, and the GOF C Test Facility could be demonstrated at the next Plenary. The Plenary was invited to endorse the concept and encourage its full development and use, suggest new test initiatives and allocate resources for further development of the Test Environment.

A second issue has been in relation with GOIN (Global Observation Information Network). WGISS had been tasked to produce a report (14/REF/02) on GOIN's evolution for the 14th Plenary. It was recommended that CEOS Working Groups support existing GOIN scientific projects, and use the GOIN concept as a catalyst and blueprint for future activities. Mr. Churchill concluded in drawing attention to the need to identify a new Vice Chair by next Plenary.

Dr. Mohr congratulated WGISS for their work but noted that it was important that WGISS follow on from this report with a detailed request for input and resources to support the Test Environment. He added that CEOS agencies should become fully aware of what WGISS has done, and sees the WGISS Menu as an important element in achieving this; he asked that WGISS publicize the existence of the Menu to all CEOS Members and Associates.

Dr. Hinsman warmly welcomed the Test Environment concept and noted that it could be extremely helpful in moving IGOS Themes towards implementation. Ms. Paula Freedman/BNSC also praised the work of WGISS, and noted that the Test Environment was in line with the UK's requirement for technology to work closely with users. In addition, she offered resources to support the development and maintenance of the WGISS Menu.

Dr. Patricio Bernal/IOC, on behalf of GOOS, declared high interest in an interaction with WGISS for the implementation of the IGOS Ocean Theme. They would be keen to work with WGISS on developing a Test Facility to support the Theme. Mr. Withee expressed satisfaction with the evolution proposed for the various GOIN elements and NOAA's readiness to commit resources in association with the demonstration of real-time services of the Test Environment, mainly in connection with Disaster Management, and rapid access to data and information in disaster situations.

Mr. Ishida was pleased to see the GOIN conclusions and also that the GOIN "Nakodo" principle had been accepted and adopted by WGISS. He confirmed that NASDA would support a Test Environment demonstration in Kyoto at the 15th Plenary. Dr. Williams/EUMETSAT noted that for tools and techniques to really achieve maturity requires that they obtain operational support.

In relation with this, he suggested that the Test Facility be demonstrated also in connection with the commercial sector.

Chairman Mr. Barbosa commended Mr. Churchill for the excellent work and submitted his report and recommendations to approval, which was granted by the Plenary and, taking account also of the discussion, resulted in the actions below.

Action 14/13: CEOS Agencies to send nominations for WGISS vice-chair to the WGISS Chair by March 31, 2001.

Action 14/14: WGISS to publicize the on-line menu of its products to CEOS Members and Associates.

Action 14/15: WGISS to investigate the possibility of transferring WGISS tools to operational entities, including the private sector.

9.2 WGCV

Dr. Belward, outgoing WGCV Chair, reported for the last time on activities (14/DOC/16) since the last Plenary. WGCV met twice in 2000, in India and the USA. The issue of traceability to SI for Earth Observation measurements was dealt with, leading to the need for improved assessments of accuracy (14/DOC/17). Pre-launch calibration is aimed at verifying that the instrument meets specification, post-launch activities help guarantee the quality and accuracy of the product delivered to the users. There is a wide distance between the ideal case of an unbroken chain of traceability from pre-launch to post-launch and the ordinary practice, even at its best. Recommendations were put forward to space agencies to give traceability of their Earth Observation sensors the highest priority.

Other activities in 2000 were mostly in refining a three-year work plan (14/DOC/18), along five main lines: WGCV Plenary held once a year; WGCV sub-groups (SAR, microwave sensors, terrain mapping, land product validation, infrared and visible optical sensors); communication with the community, mostly through the Web, in need of a professional scientific journalist; on-line CAL/VAL dossier; and, CAL/VAL pilot projects, including a new IVOS project (14/REF/04, regarding support to a second international infrared radiometer calibration and inter-comparison mission), in need of financial support of US\$41,400, mostly for ship time. In total there are ten recommendations submitted by WGCV to the Plenary, including the nomination of Mr. Yves-Louis Desnos as the new Chair.

The Chairman put the recommendations to approval by the Plenary. Recommendation 4, related to CEOS contacting commercial operators to ask them to agree to free availability of their Cal/Val data, raised some objections and was reworded as by suggestion of Dr. Smith; Recommendation 6, proposing to open historical SAR data archive to the scientific community at cost of reproduction, was amended to specify "for scientific purposes". Mr. Withee indicated that NOAA could help solving the funding problem associated with Recommendation 8 (the IVOS project), but would like to see additional agencies and satellites involved in it. Dr. Mohr for EUMETSAT is also willing to contribute, with the shared wish that as many radiometers as possible are involved in this mission. Recommendation 9, involving the suggested journalist, was not taken as an action, but the incoming CEOS Chair (NASDA) will inform WGCV later on the possibilities for such support. The nomination of Mr. Desnos as new WGCV Chairman was approved by the Plenary.

In relation with sensor calibration and validation and disaster management, the issue of fire detection was brought into the discussion. Some current fire detection systems appear to yield

too many false alerts. Dr. Belward said he believed this to be mostly due to immature detection algorithms rather than to sensor inadequacy. Dr. Cihlar shared this opinion and added that the algorithms developed for one type of land cover are being found not suitable for another (e.g. savanna vs. rain forest), which seems to indicate the need for regional algorithms. Dr. Belward informed the meeting that the fire detection issue was already being tackled by the Land Product Validation Subgroup of WGCV.

The discussion finally translated into the resulting actions below.

- Action 14/16: ISPRS to identify the profile of participants required for a joint ISPRS/WGCV Task Force on radiometric and geometric standards and to provide this to the WGCV Secretariat (ydesnos@esa.int) by end of January 2001.**
- Action 14/17: WGCV Secretariat to communicate this profile through the CEOS Secretariat to all CEOS agencies, who should each nominate one person and support their participation in the task force. This nomination should be made to the WGCV secretariat (ydesnos@esa.int) by end of May 2001.**
- Action 14/18: CEOS Chair to send a letter to commercial operators of EO satellites emphasizing the importance of sensor calibration and validation data for scientific uses and recommending that they should consider making available calibration and validation data concerning their sensors as necessary to support scientific applications.**
- Action 14/19: CEOS Members to review the detailed proposal for an international infrared radiometer calibration and inter-comparison exercise as distributed at the 14th CEOS Plenary. Offers of financial assistance should be made to the WGCV secretariat by the end of January 2001. Requests for participation by any CEOS Member not currently listed in the proposal are welcome and should be made to the WGCV secretariat (ydesnos@esa.int) by the end of January 2001.**
- Action 14/20: CEOS Members to register their man-made targets used for SAR calibration with the Cal/Val dossier by end of March 2001 (<http://spso.gsfc.nasa.gov/calval/>).**
- Action 14/21: CEOS Members and Associates to ensure that their Websites provide links to the CEOS Web pages.**
- Action 14/22: CEOS Members and Associates to review the new WGCV three-year work plan (version 2.4) as distributed at the 14th CEOS Plenary and submit comments to the WGCV secretariat (ydesnos@esa.int) by the end of January 2001. Those not responding will be presumed as concurring.**

9.3 DMSG

Ms. Wood reported (14/DOC/09) on the activity of the ad-hoc Disaster Management Support Group since last Plenary and presented the overarching recommendations (14/DOC/09a) that were put together as a result of it. Additional recommendations included the continuation of the group for another year, and a resolution requesting CEOS agencies to communicate interest in pursuing a geological-geophysical IGOS Theme.

Mr. Barbosa put the recommendations to approval by the Plenary. A considerable discussion opened on the idea to "advance common data policies", expressed in a proposed overarching recommendation, which some agencies are not prepared to endorse, even in relation to emergency situations. Disappointment with that restraint was expressed by Ms. Wood and strongly shared by the CEOS Chair. The meeting finally agreed to a reworded statement, which does not refer to "data policies" and just affirms CEOS agencies' commitment to work together with the objective of facilitating data access for emergency use. The Plenary agreed also on continuation of DMSG for another year under NOAA Chairmanship and on the proposed

amendment to their Terms of Reference, which basically implements Action 13/15 into the DMSG procedures. DMSG work plan for 2001 will focus on developing scenarios for response by space agencies to specific disasters: what data are needed, who does what, etc., and work together with the Charter signatories. DMSG will meet in Brussels in June 2001, and report on its achievements at the next Plenary.

The actions resulting from this agenda item follow.

Action 14/23: CEOS Agencies to communicate to the DMSG Chair, by December 15, 2000, their interest in exploring the creation of an IGOS Theme in the area of geological-geophysical hazards.

Action 14/24: CEOS Agencies to consider and respond, by March 15, 2001, to the specific recommendations contained in the Group's annual report, with comments (even preliminary) to the DMSG Chair.

Action 14/25: DMSG, in support of the UN International Strategy for Disaster Reduction and in cooperation with agencies supporting the ESA/CNES Disaster Charter, to organize and demonstrate the coordination of space agency response, and report at the next Plenary.

9.4 WGEdu

Mr. Mukund Rao/ISRO reported (14/DOC/11, final version distributed at the meeting) on the findings of the ad-hoc Working Group on EO Education and Training (WGEdu) created a year ago, and drew attention to the necessity to identify resources that allow to fulfill the needs. The report was approved by the meeting, as well as the recommendations put forth, translated into the actions below. The Plenary commended Mr. Rao for the excellent work of his group and agreed on its continuation for another year under his chairmanship, welcoming UNOOSA as vice-chair.

Action 14/26: WGEdu to prepare a firm Strategy and Action Plan on EO Training and Education based on the recommendations endorsed by the 14th CEOS Plenary and on comments by agencies about the WGEdu Report distributed at the meeting.

Action 14/27: CEOS Agencies to send the WGEdu Chair comments on the WG Report by March, 2001, so that these can be considered in the preparation of a Strategy and Action Plan for EO Education and Training.

Action 14/28: CEOS Chair to send CEOS agencies a letter reminding those who still have not appointed a representative to WGEdu to make their nominations as soon as possible.

10. CEOS PLANNING

10.1 ToR Changes

Mr. Aguirre presented (14/DOC/07) the rationale for a small change in the CEOS Terms of Reference, aimed at facilitating the work of the Secretariat in tracking the status of Plenary actions tasked onto Working Groups, by attributing reporting responsibilities to their Chairs at Secretariat meetings. The proposed change was approved.

10.2 Future of SIT

Dr. Fellous presented the SIT views (14/DOC/21, last part) on its own future. There was a recommendation to conduct a review of the progress made in the IGOS Partnership process over the past several years, and of its implications in terms of CEOS structure and activities. The review group should make recommendations to the 15th Plenary on any changes that may appear

advisable, in order to cater for the longer term, in particular the mechanism for contributing to, and implementing IGOS-P Themes and relations with other related coordinating bodies. The review should address the SIT, its future status, mandate and membership. It should also evaluate the implication of its recommendations onto the overall CEOS structure and activities. Continuation of SIT is recommended for another year at least. He confirmed his readiness to continue as Chair for the coming year, and indicated that Dr. Mohr agreed on serving as Vice Chair. He presented also the SIT plan for 2001. SIT-9 should be held on May 31st in Paris, and SIT-10 in Japan, in connection with the next Plenary in November. The Plenary adopted the recommendations and plan as proposed, which prompted for the action below.

Action 14/29: CEOS Chair to appoint a group to conduct a review of CEOS structure and activities, especially of its participation in the IGOS Partnership over the past years, analyzing the success and shortcomings of said structure and activities and aiming at improving their effectiveness, and make suitable recommendations to the 15th CEOS Plenary.

10.3 Course of Action

10.3.1 CEOS Participation in the ESA/CNES Disaster Charter was treated under item 8.3 above.

10.3.2 STA/NASDA views for 2001 was treated under section 14. below.

10.4 Next Plenaries

This topic was treated under section 14. below.

11. UPDATES ON SIGNIFICANT EVENTS AND DEMONSTRATIONS BY MEMBERS AND ASSOCIATES

NOAA, USGS, DLR (14/DOC/12), EC, NRSCC, CSA, FAO, CSIR, and UNEP presented oral reports on major events since last Plenary. Some presentations had corresponding handouts distributed in hardcopy. CNES did not make a presentation but did submit a report (14/DOC/13). Ms. Freedman informed the Plenary that BNSC plans to make a presentation at the next meeting.

12. OTHER BUSINESS

On behalf of NASA, whose representatives had left the preceding day, Dr. Smith presented a Secretariat proposal (14/DOC/19) to phase out the annual Consolidated Report brochure in favor of a Web-based publication, with the support of WGISS/CII. NASA would still publish in hardcopy an annual update with a few pages summarizing key activities and accomplishments, and would maintain editorial responsibility for the Web contents. The Plenary approved the proposal, whose procedures will be detailed by the CEOS Secretariat in interaction with WGISS/CII.

13. REVIEW OF ACTION ITEMS

Mr. Aguirre distributed a preliminary list and conducted a first review of the Action Items generated by the 14th CEOS Plenary. Actions related to the last two report topics (WGEdu and SIT) were still to be included. *[The amended list, with the inclusion of WGEdu and SIT actions, was reviewed as Preliminary Release 2 by the Secretariat and circulated to the Agencies as Release 3 to enable response to early deadlines while this Meeting Report was still under preparation.]*

14. CHAIR HANDOVER

As requested in the beginning, the topic of coming Plenaries was addressed here. Plenary 15 is confirmed in Kyoto, in November of 2001. Plenary 16 will be hosted by ESA in 2002 but no firm place and date are defined yet. Plenary 17 will be hosted by NOAA in the Washington, DC area, in the first week of November, 2003. China/NRSCC offered to host the 2004 Plenary, and the meeting accepted the offer.

Mr. Barbosa spoke briefly, making a positive evaluation of the meeting and thanking all who contributed to its organization and content. He then invited Dr. Alan Belward to the front, and presented him a miniature of the INPE-built SCD-2 satellite in recognition of his four years of sterling service to CEOS as WGCV Chair. Responding to the Chair speech, Dr. Bernal thanked INPE for the wonderful organization and spirit of the Plenary.

Mr. Barbosa invited Dr. Yoji Furuhamo/NASDA, incoming Chair, and Dr. Tillmann Mohr, past Chair, to the front and offered them also an identical INPE souvenir. Then he officially handed CEOS chairmanship over to Dr. Furuhamo.

Dr. Furuhamo addressed the Plenary thanking INPE for the accomplishments in 2000 under Mr. Barbosa's chairmanship. He spoke of STA/NASDA views and plans for 2001, mentioning the CEOS responsibilities in maximizing the benefits derived from the several satellites that will be launched that year and in gathering relevant inputs for a strong CEOS participation at COP-7 in 2001 and at the Rio+10 UN Earth Summit in 2002. He reaffirmed STA/NASDA's commitment to promote and support IGOS activities and increase IGOS-P visibility, and to reinforce the structure and technical progress of current and new IGOS Themes. Special attention will be given to the integration of Working Group efforts into Plenary initiatives, taking particular advantage of the WGISS tools in support of IGOS Themes. He mentioned also his intention to enhance Asian participation in CEOS during his term, requested the support of all agencies for the Chair efforts during 2001 and concluded with a warm invitation to all to meet in Kyoto next November.

15. ADJOURN

The 14th CEOS Plenary was then adjourned.

ACTION ITEMS

I - Sorted by Deadline, then by Responsible

(Actions with no explicit deadline considered due at the next Plenary
for sorting purposes; this is not necessarily true in practice!)

No.	Due	Responsible	Description
14/02	2000/12/01	CEOS Agencies	Agencies are invited to nominate by December 1, 2000, to Dr. Rick Lawford/NOAA, participants to the Water Cycle Workshop to be held in Irvine, California, January 2001.
14/23	2000/12/15	CEOS Agencies	Action 14/23: CEOS Agencies to communicate to the DMSG Chair, by December 15, 2000, their interest in exploring the creation of an IGOS Theme in the area of geological-geophysical hazards.
14/10	2000/12/31	CNES/ESA	CNES/ESA to make the Disaster Charter available to members by year's end, 2000.
14/01	2001/01/10	CEOS Agencies	Agencies with an interest in CEOP are invited to nominate a member to the CEOP Satellite Working group to Prof. Koike by January 10, 2001.
14/19	2001/01/31	CEOS Agencies	CEOS Members to review the detailed proposal for an international infrared radiometer calibration and inter-comparison exercise as distributed at the 14th CEOS Plenary. Offers of financial assistance should be made to the WGCV secretariat by the end of January 2001. Requests for participation by any CEOS Member not currently listed in the proposal are welcome and should be made to the WGCV secretariat (ydesnos@esa.int) by the end of January 2001.
14/22	2001/01/31	CEOS Agencies	CEOS Members and Associates to review the new WGCV three-year work plan (version 2.4) as distributed at the 14th CEOS Plenary and submit comments to the WGCV secretariat (ydesnos@esa.int) by the end of January 2001. Those not responding will be presumed as concurring.
14/16	2001/01/31	ISPRS	ISPRS to identify the profile of participants required for a joint ISPRS/WGCV Task Force on radiometric and geometric standards and to provide this to the WGCV Secretariat (ydesnos@esa.int) by end of January 2001.
13/13	2001/03/15	CEOS Agencies	CEOS participants to identify individuals leading their atmospheric chemistry validation programs and to notify these to Chairman WGCV by March 15, 2001.
14/24	2001/03/15	CEOS Agencies	CEOS Agencies to consider and respond, by March 15, 2001, to the specific recommendations contained in the Group's annual report, with comments (even preliminary) to the DMSG Chair.
14/13	2001/03/31	CEOS Agencies	CEOS Agencies to send nominations for WGISS vice-chair to the WGISS Chair by March 31, 2001.
14/20	2001/03/31	CEOS Agencies	CEOS Members to register their man-made targets used for SAR calibration with the Cal/Val dossier by end of March 2001 (http://spso.gsfc.nasa.gov/calval/).
14/27	2001/03/31	CEOS Agencies	CEOS Agencies to send the WGEdu Chair comments on the WG Report by March, 2001, so that these can be considered in the preparation of a Strategy and Action Plan for EO Education and Training.
14/07	2001/05/02	CEOS Agencies	CEOS agencies to consider the recommendations of Dr. Maeda's report on the WRC (CEOS/14/DOC/03) and send feedback to Chu Ishida/NASDA by May 2nd, 2001.
14/17	2001/05/31	CEOS Agencies	WGCV Secretariat to communicate this profile (see Action 14/16) through the CEOS Secretariat to all CEOS agencies, who should each nominate one person and support their participation in the task force. This nomination should be made

			to the WGCV secretariat (ydesnos@esa.int) by end of May 2001.
14/06	2001/08/31	CEOS Agencies	CEOS members urged to keep their data at the CEOS/WMO database up-to-date, as well as their respective contact information, observing the deadline of August 31, 2001 for the next content update.
14/04	2001/11	CEOS Agencies	CEOS Agencies are encouraged to involve their national EO industry, as appropriate, in their activities.
14/11	2001/11	CEOS Agencies	CEOS Agencies encouraged to favorably consider joining the Charter.
14/21	2001/11	CEOS Agencies	CEOS Members and Associates to ensure that their Websites provide links to the CEOS Web pages.
14/18	2001/11	CEOS Chair	CEOS Chair to send a letter to commercial operators of EO satellites emphasizing the importance of sensor calibration and validation data for scientific uses and recommending that they should consider making available calibration and validation data concerning their sensors as necessary to support scientific applications.
14/28	2001/11	CEOS Chair	CEOS Chair to send CEOS agencies a letter reminding those who still have not appointed a representative to WGEdu to make their nominations as soon as possible.
14/29	2001/11	CEOS Chair	CEOS Chair to appoint a group to conduct a review of CEOS structure and activities, especially of its participation in the IGOS Partnership over the past years, analyzing the success and shortcomings of said structure and activities and aiming at improving their effectiveness, and make suitable recommendations to the 15th CEOS Plenary.
14/12	2001/11	DMSG	DMSG to support the promotion and implementation of the Charter through its work plan.
14/25	2001/11	DMSG	DMSG, in support of the UN International Strategy for Disaster Reduction and in cooperation with agencies supporting the ESA/CNES Disaster Charter, to organize and demonstrate the coordination of space agency response, and report at the next Plenary.
14/05	2001/11	ISPRS	ISPRS to keep CEOS Agencies informed on efforts to foster the development of an International Industry Forum
14/08	2001/11	Secretariat	Secretariat to enhance the visibility of the Space Frequency Coordination Group as appropriate in all CEOS publications.
14/09	2001/11	UNOOSA	UNOOSA to report on UNISPACE III Action Plan at next Plenary.
13/15	2001/11	WG Chairs	Chairmen of still non-compliant Working Groups to ensure that a standard procedure is implemented whereby recommendations that have significant implications for Members are submitted to Members before submission to CEOS Plenary.
14/03	2001/11	WG Chairs	WG Chairs to encourage cooperative involvement of EO Industry representatives in their activities.
14/26	2001/11	WGEdu	WGEdu to prepare a firm Strategy and Action Plan on EO Training and Education based on the recommendations endorsed by the 14th CEOS Plenary and on comments by agencies about the WGEdu Report distributed at the meeting.
14/14	2001/11	WGISS	WGISS to publicize the on-line menu of its products to CEOS Members and Associates.
14/15	2001/11	WGISS	WGISS to investigate the possibility of transferring WGISS tools to operational entities, including the private sector.

ACTION ITEMS

II - Sorted by Responsible, then by Deadline

(Actions with no explicit deadline considered due at the next Plenary
for sorting purposes; this is not necessarily true in practice!)

No.	Due	Responsible	Description
14/02	2000/12/01	CEOS Agencies	Agencies are invited to nominate by December 1, 2000, to Dr. Rick Lawford/NOAA, participants to the Water Cycle Workshop to be held in Irvine, California, January 2001.
14/23	2000/12/15	CEOS Agencies	Action 14/23: CEOS Agencies to communicate to the DMSG Chair, by December 15, 2000, their interest in exploring the creation of an IGOS Theme in the area of geological-geophysical hazards.
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Results of the 14th CEOS Plenary, CEOS SIT, and 6th IGOS Partners Meetings: NOAA was represented at the 14th Committee on Earth Observation Satellites (CEOS) Plenary, November 8-10, in Rio de Janeiro, Brazil, by NESDIS Assistant Administrator Gregory W. Withee (CEOS Principal), Office of Satellite Data Processing and Distribution Director Helen Wood (Chair of the CEOS Disaster Management Support Group), and by NESDIS International and Interagency Affairs Chief Brent Smith (CEOS Point-of-Contact and CEOS Secretariat member). Withee, Wood and Smith also participated in a November 7 meeting of the CEOS Strategic Implementation Team (SIT) and as observers at the 6th meeting of the Integrated Global Observing System (IGOS) Partnership on November 7-8. Smith is a member, representing CEOS, on the newly-constituted IGOS Secretariat. The CEOS Plenary and IGOS Partners meetings were chaired by Marcio Barbosa, Director General of the Brazilian Instituto de Pesquisas Espaciais (INPE). The IGOS Partnership consists of CEOS (representing the space agencies); WMO, UNEP, FAO, IOC, UNESCO, ICSU, IGBP, WCRP, IGFA, and the three global observing systems, GCOS, GOOS and GTOS. Highlights from the three meetings of relevance to NOAA are as follows:

- A glossy final report of the NASA/GOOS-led Ocean Theme Team was presented to and accepted by the IGOS Partnership. This theme is now to be implemented under the direction of GOOS with contributions from space agencies and *in situ* organizations. NOAA had earlier in the year indicated its readiness to contribute to operationalization of follow-on Jason altimetry missions. Lee Dantzler, Chief of the NESDIS Oceanic Research and Applications Division, served on the Ocean Theme Team.
- Status reports were offered on the GTOS/CCRS-led Terrestrial Carbon Theme, well underway, and on plans for development of an IGBP/GTOS/GCOS/GOOS-led Integrated Global Carbon Theme, a WCRP-proposed Water Cycle Theme (involving NOAA/OGP scientist, Rick Lawford, in a prominent leadership role), a WMO-proposed Atmospheric Chemistry Theme (focusing initially on ozone), and on a UNEP-proposed Coastal Theme with an initial focus on coral reefs (with Alan Strong involved). Helen Wood also reported on recent discussions relating to development of a potential Geological-Geophysical Hazards Theme to be led by ICSU and UNESCO in collaboration with space agencies and the UN ISDR (International Strategy for Disaster Reduction). In the next few weeks, NESDIS should clarify whether it is interested in participation in the development of themes in which it is not yet involved.
- The CEOS Plenary, prompted by SIT, agreed to inaugurate a study on improving the effectiveness of both SIT and CEOS. A group will be appointed to conduct a review of the development of CEOS activities, especially with respect to CEOS participation in the IGOS Partnership over the past few years, analyzing the successes and shortcomings of that participation, aiming at improving its effectiveness. Brent Smith, and potentially Greg Withee, expect to participate in the study.
- The IGOS Partnership, focused on increasing the visibility of IGOS in relation to the Framework Climate Convention, the Commission on Sustainable Development, the United Nations Administrative Committee on Coordination, the upcoming 2002 Rio

plus-10 Earth Summit, and other environmental Conventions, agreed upon the suggestion of NASDA to create a small drafting group to develop materials and an IGOS exhibit for promoting IGOS visibility. IGFA representative Tom Spence agreed to seek funding within IGFA's funding agencies to contribute toward IGOS exhibits. Brent Smith and Linda Moodie expect to be involved in the work of the drafting group.

- The CEOS Plenary readily agreed to continuation for another year of the ad-hoc Disaster Management Support Group (DMSG) that Helen Wood chairs. DMSG work in the coming year is to focus on developing scenarios for response by space agencies to specific disasters with the intent to stage a demonstration of space agency capabilities. The Plenary also strongly supported a resolution developed by Helen Wood on behalf of DMSG, together with ESA and CNES, to endorse the CNES/ESA/CSA Disaster Charter, encouraging CEOS members to favorably consider joining the Charter, and instructing the DMSG to support promotion and implementation of the Charter through the DMSG work plan. Greg Withee expressed NOAA's support for both the Charter and DMSG activities, and noted that NOAA is involved in discussion with U.S. commercial high resolution imagery companies on their potential cooperative involvement in providing support with respect to disasters at little or no cost.
- Together with other CEOS Principals, Greg Withee endorsed the proposal of the CEOS Working Group on Information Systems and Services (WGISS) for development of a "Test Environment" approach as a means to allow scientific programs and projects to use the full suit of WGISS (and CEOS agency) developed expertise, tools, and techniques, while at the same time allowing WGISS to demonstrate and improve these capabilities. Withee suggested that NOAA resources might be able to be made available in support of rapid access to data and information in disaster situations in connection with the WGISS Test Environment approach, and in relationship to DMSG activities.
- Greg Withee, expressing NOAA interest in the CEOS Calibration-Validation Working Group's plans to conduct a second international infrared radiometer calibration and inter-comparison mission together with the University of Miami, agreed to contribute some NOAA funding if other CEOS members would also make similar contributions. Mr. Yves-Louis Desnos of ESA was approved by the Plenary as the new Calibration-Validation Working Group Chair.
- Brent Smith reported to the Plenary on NOAA efforts together with the INPE Chair of CEOS to organize a CEOS/Industry Roundtable in connection with the October 2000 International Astronautical Federation Congress in Rio de Janeiro. A fair representation of CEOS senior officials and industry senior officials came together to discuss common areas of interest between government space agencies and remote sensing satellite executives. But the experience demonstrated that industry does not yet have a coherent identity. ISPRS reported on its efforts to encourage formation of an International Industry Forum which have not come to fruition. The Plenary encouraged continued efforts to involve industry cooperatively in CEOS working group efforts and encouraged CEOS Agencies to involve their national Earth observation industry in their activities.

- The IGOS Partners Meeting approved the formation of a standing IGOS Secretariat to support the IGOS Chair in the organization of meetings, in tracking actions and in ensuring that the work of IGOS theme teams is appropriately reviewed by IGOS Partners. Participating on the Secretariat are representatives from IOC (Chair), UNEP, IOC, GTOS, WMO, IGFA, CEOS/NOAA, CEOS/EUMETSAT, and CEOS/INPE, with IGPB indicating that it would also participate by mid-year 2001.
- Patricio Bernal, IOC Executive Director, succeeded Marcio Barbosa as the incoming Chairman of the IGOS Partners, with Dr. Yoji Furuhamma, NASDA Executive Director to succeed Bernal after the next IGOS Partners Meeting, which the IOC will host on June 1, 2001 in Paris. A SIT meeting will precede the IGOS Partners Meeting on May 31, hosted by SIT Chairman, Jean-Louis Fellous, at CNES in Paris. Dr. Tillmann Mohr, EUMETSAT Director, was selected by the CEOS Plenary to succeed Furuhamma who vacated the position of SIT Vice Chair in becoming the incoming CEOS Chairman.
- NASDA (Dr. Furuhamma) took over the chairmanship of CEOS. The next Plenary will be in Kyoto the week of November 5, 2001. ESA confirmed its assumption of the CEOS Chair in 2002, with NOAA following in 2003, and the National Remote Sensing Center of China confirmed in its offer to chair CEOS in 2004.