CEOS
Committee on Earth Observation Satellites

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CONTENTS

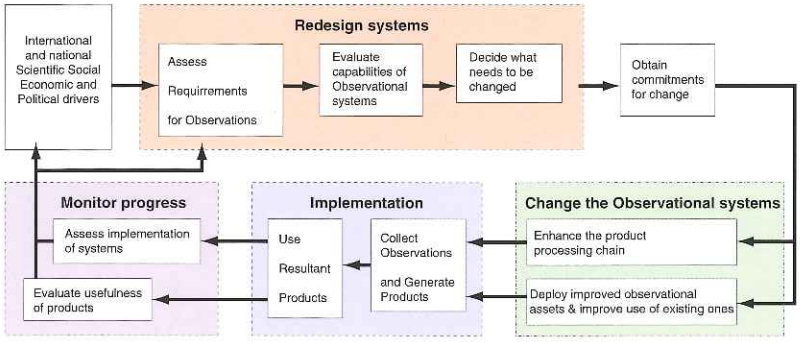
PROGRESS WITH IGOS

Dr. Brian J J Embleton
SIT Chair, CSIRO

The third meeting of the Strategic Implementation Team (SIT) was hosted by the Centre Nationale d'Etudes Spatiales (CNES) at its headquarters in Paris, France on March 25. The meetings objectives were to:
- **finalise a set of Guiding Principles for an IGOS,**
- **develop the Strategic Plan for the space component of an IGOS,**
- **prepare for a meeting with the Sponsors of the G3OS, and**
- **assess progress of IGOS Projects.**

A paper outlining the Guiding Principles of IGOS, co-authored by Professor John Townshend and Dr David Williams, was accepted as a preliminary template against which individual organisations, and national and international programs, could assess their mutual roles and responsibilities. Their diagram, reproduced here, indicates how external, scientific, social, economic and political priorities at international and national levels must drive the strategy. An assessment of requirements for observations and an evaluation of the capabilities suggest pathways for making changes and improvements. Representatives from operational and research communities, as well as agencies whose primary responsibility it is to provide raw observational data, recognised the value of being able to assess their requirements and capabilities based on a common objective process.

Concept of an IGOS



Whilst acknowledging that a comprehensive long-term plan is fundamental for implementing an IGOS, CEOS has adopted a phased, modular approach through a series of illustrative projects. The long-term plan will primarily cover the space component of an IGOS and will be broadened to incorporate the views of the non-space communities. Near-term objectives are being planned as cumulative steps towards realising the longer-term goals. It will also be important to identify how to transition research-based activities to operational services.

Delegates emphasised that access to a wide range of observational data bases, and the analytical tools to extract requirements for the benefit of organisations who plan data acquisition campaigns, are critical for implementing an IGOS. The data base under development by the WMO and ESA is nearing completion and will be a valuable source of material to assist space agencies conduct their planning with a knowledge of the up-to-date requirements of major international programs.

The role of the Global Observing Systems Space Panel (GOSSP) as a coordinating body for user requirements was strongly endorsed by CEOS SIT. Further, a strengthening of its role and authority was encouraged to facilitate:
i) dialogue between key communities who commit to the implementation of an IGOS, and
ii) to meet CEOS' requirement for an integrated and prioritised set of user requirements

SIT is also developing an understanding of how to define Project objectives, as they relate to an IGOS, so that space agencies can better respond to user requirements; the agencies must be specific on the feedback they require from Projects. However, this is a two-way street, Projects also have to be encouraged to identify actionable recommendations to which space agencies can respond.

The six IGOS Projects currently being conducted are illustrative of IGOS characteristics: they are prototypical and were designed to provide lessons to space agencies for enhancing their understanding of observational requirements.

SIT recognised that new Projects will emerge from the G3OS' panels, national and international scientific and observational programs, and that they might also arise from concerns of CEOS agencies for advice on CEOS issues. Once SIT identifies topics, issues or deficiencies on which it requires information, coordination with these groups will further facilitate the planning process.

Important steps in this regard are being taken by CEOS. At a meeting on June 6, CEOS met with the Global Observing Systems, their Sponsors, the WCRP and IGBP, IGFA to work jointly towards establishing a common IGOS agenda.

There is little doubt that the concept of an integrated global observing strategy is attracting support from a broadening base with the involvement of partner organisations in their own right. A comprehensive strategy will only be achieved with their active participation and commitment. IGOS is founded on a spirit of co-operation and is now attracting key players to address issues of global significance.

Establishing an IGOS Partnership

Dr. Harald Arend, ESA
Dr. Brent Smith, NOAA

At its 11th meeting in Toulouse in November 1997 the CEOS Plenary adopted a Resolution on the Integrated Global Observing Strategy (IGOS), which 'reaffirmed that an IGOS has multiple ownership' and 'endorsed the development of a partnership framework in which CEOS and other entities can participate.' Further, the Plenary Resolution invited the Strategic Implementation Team 'to undertake immediate working level contacts with G3OS (GCOS, GTOS, GOOS) Directors and other interested partners, e.g. WCRP and IGBP, towards continuing development of a partnership for an IGOS.'

In light of this mandate and in fruitful cooperation with the G3OS Sponsors, represented by ICSU, an IGOS working meeting was convened in Paris on 26 March 1998. This meeting, hosted by ESA, aimed at the preparation of the first formal IGOS Partners Meeting in June 1998. The March meeting brought together representatives of CEOS, GCOS, GOOS, GTOS, ICSU, IGBP, IGFA, UNEP and WCRP and was held in a very constructive spirit. Participants agreed to the initiation of a two-phased approach for a joint IGOS strategy document, the development of guidelines for the Partnership and corresponding mechanisms, an enhanced role of the Global Observing Systems Space Panel (GOSSP) within the IGOS Partnership, and a process for the identification and conduct of IGOS projects.

Based on these fruitful results the first "IGOS Partners Meeting" was hosted by ICSU in Paris on 6 June 1998. In addition to CEOS, IGFA and the G3OS Sponsors (FAO, ICSU, UNEP, UNESCO-IOC, WMO), the meeting was attended by GCOS, GOOS, GTOS, IGBP and WCRP. The meeting achieved the formalization of the IGOS partnership concept and its major results can be summarized as follows:

1. Participants agreed that IGOS is a process that can help ensure that resources are addressing the highest priority observational needs, taking into account the missions and plans of space agencies and the up-to-date requirements of major international user programs.
2. The attendees endorsed the IGOS initiative and agreed to work in partnership towards establishing a common agenda for the implementation of an IGOS. An Executive Summary has been produced for a consolidated portfolio of the Partners' IGOS documents. A comprehensive IGOS strategy document will be prepared that will pull together elements of the CEOS space component strategy document currently in production as well as elements of the strategy document developed by the G3OS Sponsors.
3. Given the heterogeneity of global observations, participants agreed that the IGOS Partnership should be based on the principles of best efforts, maximized synergy, and minimal additional financial obligation.
4. Attendees agreed to work towards an 'exchange of letters' to initiate the IGOS Partnership. An accompanying common Annex will include the corresponding overall principles, objectives and activities.
5. The meeting unanimously supported GOSSP in an expanded role within the IGOS Partnership. The revised GOSSP will meet as soon as practicable.
6. The participants agreed to develop a document outlining the mechanisms for the identification and conduct of IGOS projects.
7. Attendees agreed on a positive joint response by CEOS and FAO to the invitation to organize an IGOS workshop at the UNISPACE III Conference in Vienna in July 1999.

In order to further progress the establishment of the IGOS Partnership, the major next steps within CEOS will include:

- The submission of the finalized Annex to the IGOS Partnership exchange of letters to CEOS Members for endorsement, with letters attaching the Annex subsequently to be sent to IGOS partners by the CEOS Chairman. This is planned to be undertaken prior to the 1998 CEOS Plenary.
- The hosting of the next IGOS Partnership meeting in conjunction with the 1998 CEOS Plenary at Bangalore, India. The tentative date for this event is the evening of November 11, 1998.

IGOS Panel at Tromso Symposium

Dr. Brent Smith, NOAA

A plenary-level session addressed the topic "Toward an Integrated Global Observing Strategy" at the 27th International Symposium on Remote Sensing of Environment, June 9, 1998, in Tromso, Norway. Co-chaired by CEOS Chair, K. Kasturirangan of ISRO and by Arthur Dahl of UNEP, the session addressed IGOS from a number of perspectives.

Dr. Kasturirangan opened the session with a presentation on "CEOS and the Integrated Global Observing Strategy," identifying efforts underway since the 1995 CEOS Plenary in Montreal to develop an integrated approach to satellite and in-situ observations. He recounted creation of the IGOS Strategic Implementation Team (SIT), and development and implementation of a set of six IGOS prototype projects by CEOS member space agencies in partnership with intergovernmental and international scientific user organizations.

Dr. Dahl, discussing "IGOS from the Perspective of the Global Observing Systems and their Sponsors," presented a complementary view to that of the space agencies, identifying the efforts of the Global Climate, Ocean, and Terrestrial Observing Systems to develop and implement operational systems intended to provide routine long-term data sets for a variety of uses. He placed special emphasis on the need to respond to the particular information requirements of the Intergovernmental Panel on Climate Change and of multilateral environmental conventions such as those on climate change, biological diversity, and desertification.

Dr. David Williams, EUMETSAT, addressed "The Concept of an Integrated Global Observing System." In outlining principles, struc-

Global Observation of Forest Cover (GOFC)

Dr. Frank J. Ahern, CCRS

GOFC has already had an impact. In response to concerns raised by GOFC that a serious gap in L-band data is likely to occur between the end of the JERS-1 mission (likely 1998-2000) and the beginning of the ALOS mission (planned for 2003), STA/NASDA has promised to operate JERS-1 for as long as possible, hopefully until 2002 or 2003, and to launch ADEOS-II and ALOS in 2000 and 2003 respectively, to increase the availability of optical and L-band SAR data for GOFC objectives.

In addition, NASA has indicated its intention to target research and analysis funds for analysis of EOS and Landsat data to support GOFC objectives and participate in the constitution of a coordinated global forest cover data set. NASA plans include several sensors providing observations of forest cover as called for by GOFC, including Landsat-7, EO-1, Lightsar, and the Vegetation Canopy Lidar mission. EUMETSAT has set up a working group with the Joint Research Centre to determine what land products could beneficially be developed for routine processing from Meteosat Second Generation, the next generation of geosynchronous weather satellites.

1998 is the design year for GOFC, and we are currently in the midst of the design phase. We began 1998 with a meeting in Washington, D.C. to plan the design phase. At that meeting we created five design teams, each with specific tasks to accomplish. Each design team is co-chaired by two or more persons who have been very active in continental to global scale projects dealing with forests. Most of the co-chairs have also been active in the development of GOFC to date. The design teams, their co-chairs, and tasks are shown in following Table.

Name	Task	Co-chairs
Data Acquisition, Preprocessing, and Access (DAPA)	confirm user requirements, design data acquisition strategy; detailed level 1 product definition; strategy to produce products and metadata; define system to catalog, store, and distribute all products	J. P. Malingreau (EC), Chris Justice (UVa), Martha Maiden (NASA), Peter Churchill (JRC)
Fine resolution products	confirm user requirements, detailed design of all fine resolution products; strategy to produce products and metadata	David Skole (MSU), Victor Taylor (NASDA/JPL)
Coarse resolution products	confirm user requirements, detailed design of all coarse resolution products; strategy to produce products and metadata	Tom Loveland (EDC), Yoshifumi Yasuoka (National Institute for Environmental Studies of Japan)
Product validation	develop validation strategy for all products	Alan Belward (JRC), Zhiliang Zhu (EDC)
Communication and Coordination	Collect and document user requirements; define approaches to project communication; define organizational structure; strategy for ongoing operational production	Frank Ahern (CCRS) Robert Davis (FAO)

Since the December meeting the design teams have been formed and most have met to address their tasks. In September the Design Team co-chairs will meet for an End-to-End Design Review to integrate their plans. The objective will be to draft a GOFC Design document, which can be refined for wide circulation, which clearly states GOFC objectives (with emphasis on deliverable products), and identifies priority activity areas to achieve these objectives.

Forest fires have been a serious problem in many parts of the world from late 1997 until now (August, 1998). Earth-observation data have played an essential role in monitoring these fires and the resulting smoke plumes. The public has been provided unprecedented access to E-O data on many websites dealing with various aspects of the forest fire problem. Several organizations have proposed projects to improve the information content and timely availability of E-O data of forest fires. In cooperation with the IGOS Disaster Management Project, GOFC will address the problems of the production and distribution of polar-orbiting meteorological satellite data for forest fire detection and monitoring. GOFC expects to identify the mapping of burned areas as a high priority area where additional international cooperation can make a major contribution toward providing essential information in a timely, consistent manner around the globe.

During 1998, we have made contact with organizations which need various kinds of information about forests, to let them know about GOFC, establish linkages, and obtain a better understanding of their information requirements. Among these are the Biological Diversity Convention Secretariat, the Canadian Interagency Forest Fire Commission, the International Institute for Sustainable Development, the World Resources Institute, and the North American Forest Commission. Invited presentations about GOFC and its relationship to IGOS and CEOS have been made at the First International Conference on Geospatial Information in Agriculture and Forestry in Lake Buena Vista, Florida, and the 27th International Symposium on Remote Sensing of Environment in Tromso, Norway. (See article on page 2.)

ture (see Figure on page 1), and processes within an IGOS, he concluded that "an IGOS must provide the framework that will enable suppliers to be able to respond to (user) requirements. It must involve processes that will determine deficiencies, enable resources to be garnered to remedy such and be capable of improving not only the observational assets but also the various stages by which observations are turned into useful products. Finally, there must be a process by which the products and observations are monitored and analysed to ensure they are fulfilling their goals."

Dr. Brent Smith, NOAA, discussed "The Emerging IGOS Partnership," detailing ongoing efforts to broaden IGOS through convergence of the complementary efforts of CEOS and the Global Observing Systems and their Sponsors. He reported on the first such IGOS Partners Meeting convened the previous Saturday (June 6) in Paris at which participants had endorsed the IGOS initiative and agreed on a common Annex outlining overall principles, objectives and activities, with cooperation to follow on the basis of synergy among existing efforts.

Two of the six IGOS prototype projects were addressed by their leaders. The Disaster Management Support Project was presented by Helen Wood in a separate session. Dr. Frank Ahern, CCRS, discussed the Global Observation of Forest Cover (GOFC) Project; Dr. Philippe Courtier, CNES, addressed the Global Ocean Data Assimilation Experiment (GODAE) Project. Dr. Ahern outlined the need for a coordinated approach to providing global forest cover data sets to address global concerns, particularly about biodiversity, land cover degradation, and greenhouse gas buildup in the Earth's atmosphere. As an illustration of GODAE, Dr. Courtier focused in particular on Mercator, a project initiated by the French oceanographic community to develop an eddy resolving data assimilation system for the ocean.

Global surface products required for GODAE

Dr. Neville Smith
Chair of GODAE
BMRC

The Global Ocean Data Assimilation Experiment (GODAE) has passed through its conceptual phase and is now facing the very real challenges that such an experiment requires (see CEOS Newsletter 10 (P.5) for a brief introduction to GODAE).

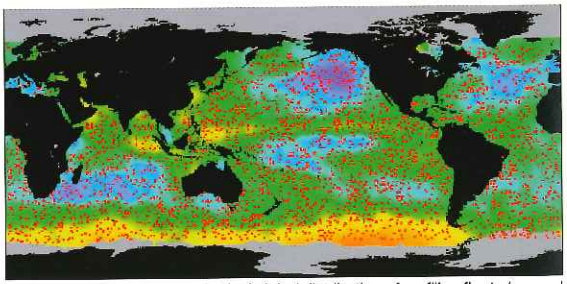
The actual experiment is targeted at 2003-2005 when we believe the key elements will be available and ready. Before then, a great deal of developmental work, including products, must be undertaken. Naturally, satellite data form one of the key inputs but consistent with the Integrated Global Observing Strategy, GODAE has strongly emphasized integrated input and the need to create and exploit complementarity, with other data types (remote and direct), and with models. Here we wish to concentrate on recent decisions with respect to several surface fields.

Sea surface temperature. GODAE has a requirement for high-resolution global real-time products. A representative resolution would be 5-10 km, ideally with resolution of the diurnal cycle (say 6 hr), and the desired accuracy is 0.1-0.2°C. No such product exists at this time. Further progress requires consideration of products based on information merged from different platforms and/or instruments. A further issue is the need to keep the data set consistent with the broad-scale in situ network. Discussions are underway to realize such a product in time for GODAE

Surface short wave radiation. If sea surface temperature is used as a strong constraint on the models (that is, it is assumed to be near-perfectly known), then knowledge of the net downward short-wave radiation completes the determination of the thermal boundary conditions (strictly speaking, it is treated as an internal heating source). No requirements for a global, real-time product were given to the database but scales of around 2-300 km, daily are desirable. Such a product makes demands outside the immediate community of GODAE (satellite clouds, aerosols, etc.) and will require careful direct measurements for validation. It may be satisfactory, for quick-look products, to compromise the quality. For delayed-mode GODAE would be seeking accuracy of around 10-15 W/m^2.

Surface/dynamic topography. Altimetry has had an immense impact on oceanography and is a key strategy for GODAE. However, in order to exploit its true potential, vastly improved monitoring of the subsurface ocean is required. GODAE, in collaboration with the Climate Variability and Predictability Programme (CLIVAR) has embarked on a several-fold enhancement of present capabilities in a project known as Argo, using a profiling float. The targetted sampling is around 3000 floats globally measuring temperature and salinity over the upper 2000 m once every 10 days. With altimetric missions such as Jason, Argo will be able to provide a key part of the data input requirements for GODAE. Figure 1 juxtaposes a hypothetical distribution of floats against a typical sampling realised by today's altimetric instruments. The US has already committed significant resources to this proposal.

There are of course many other important remote and direct measurements required for GODAE. Special efforts may be mounted to develop high quality, accurate merged global wind stress products. The International GODAE Steering Team has also noted ocean color may be required in order to parameterize ocean transparency.



Schematic showing a hypothetical global distribution of profiling floats (around 3000, randomly distributed, shown as red dots) superimposed on the Topex/Poseidon sea level anomaly for Cycle 212, 16-22 June, 1998 (from JPL).

Ocean Biology / IOCCG Reports

Mr. Tasuku Tanaka, *NASDA / EORC*
Dr. Trevor Platt, *Bedford Institute of Oceanography (Canada)*

One of the goals of the International Ocean-Colour Coordinating Group (IOCCG) is to advise space agencies on technical matters relating to present and future missions in which ocean-colour data would be collected.

To this end, a series of reports is being prepared by the IOCCG addressing key issues in the development of ocean-colour technology and its applications. The reports are the fruits of technical workshops, convened and sponsored by the IOCCG, attended by leading experts in the field and chaired by specialists of high authority.

The first of these reports ("Minimum Requirements for an Operational Ocean-Colour Sensor for the Open Ocean" - IOCCG Report Number 1) deals with the minimum spectral requirements for ocean-colour remote sensing in optical Case 1 waters, with the intention of specifying a common waveband set that would be carried on all future missions. Such a commonality in wavebands would allow for easy intercomparisons between sensors, a full compatibility of operational algorithms, a meaningful data merging, a long term continuity of ocean-colour observations, and therefore, the building up of a coherent database.

A minimum requirement of 5 spectral bands was defined: 2 in the NIR devoted to atmospheric correction and aerosol monitoring, and 3 in the visible part of the spectrum (around 443, 490 and 560 nm) to allow for determination of chlorophyll-a in Case 1 waters as well as detection and delineation of sediment loaded waters in coastal environments.

Disaster Management Support

Ms. Helen Wood, NOAA

The Disaster Management Support Project has evoked the interest and participation of over 185 individuals, representing over 90 organizations, in five meetings over the last year and a half. The intent of the project is to support natural and technological disaster management on a worldwide basis by fostering improved utilization of existing and planned Earth Observation (EO) satellite data.

Project participants recognize that the project needs to leverage off work already underway around the world, including numerous national and regional research programs, demonstration projects, and fully operational systems where they exist. Therefore, the first few project meetings focused on an extensive review of related activities. During 1997, project meetings were held in Europe (Belgium and England) and Asia (Japan and India).

In March 1998, the United States hosted a workshop that provided an opportunity for experts to assess the extent to which satellite data can be expected to satisfy the needs of organizations responsible for the management of various types of disaster. Hazard teams, including both satellite agencies and user organizations, had been formed in seven areas: drought, earthquakes, flooding, fires, oil spills, tropical cyclones, and volcanic ash. The teams were charged to accomplish the following tasks for their hazard:

review existing documentation and current practices in different geographical regions;

compile a concise set of user information requirements for management of the hazard at different phases (mitigation, preparedness/warning, relief/response/recovery);

identify the user level (international, regional, national, state, local, other) and type of use (e.g., research, demonstration, operations);

identify existing practices in using satellite data in the management of the hazard;

assess the potential of existing or planned satellite data to satisfy the user information requirements;

analyze shortcomings and gaps; and

make recommendations for improvement.

These recommendations should not only address the space segment (e.g., satellites and sensors), but also address deficiencies in information delivery and utilization.

In preparation for the CEOS Plenary, each team has developed an interim report of preliminary findings. These are being combined with reports of the project's meetings and recommendations into a Consolidated Progress Report. The project will meet three more times in 1998. The first, hosted by the European Space Agency in Frascati, Italy, on September 14-15, will be a working session to review progress, plan next steps, and develop recommendations. The second, hosted by the Canadian Space Agency in Saint-Hubert, Quebec, on October 16, will focus on regional outreach. Similarly, a third meeting on October 29-30 in Tsukuba, Japan, hosted by the National Space Development Agency of Japan, will also focus on regional outreach.

The project has also focused on tools to support project objectives. The U.S. National Oceanic and Atmospheric Administration is sponsoring a prototype information server, intended to demonstrate timely access to satellite-derived data and information for various facets of disaster management. A number of agencies are participating in the development of this service, providing links to their data and information services. Others are most welcome. Discussions have also taken place with the CEOS working groups to explore opportunities for collaboration.

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The second report in the series deals with the technical requirements for global-scale, operational remote sensing of ocean colour in both Case 1 and Case 2 waters. It also addresses the issues of complementarity that arise whenever more than one sensor with similar capabilities is in orbit at the same time. The objective was to provide space agencies with the information necessary for them to make an internationally-coordinated plan for the uninterrupted delivery of ocean-colour data into the indefinite future.

A further motivation for the report was the emerging context of an Integrated Global Observing Strategy (IGOS). The aims of IGOS parallel those that the IOCCG has already established for ocean colour. One of the goals is to define a combination of missions, through international collaboration, that will meet the requirements of continuous global and temporal coverage in the most cost-effective manner possible.

Since coverage from a single ocean-colour satellite is only around 15% of the ocean per day (because of the obscuring effects of clouds and sun glint) the group recommended that three sensors in orbit at one time should be the minimum target for ocean-colour capability: additional sensors would allow room for the probability of failure or in-flight problems (cf. ADEOS). This 3-satellite requirement could be met with the core of MODIS-AM, MERIS and GLI for the year 2000 timeframe, with SeaWiFS and MODIS-PM providing backup in the early and late parts of this period. Other missions such as OCM (India), OCI (Taiwan) and OSMI (Korea) may be able to provide further opportunities for complementary spatial and temporal coverage, but their policies on global data acquisition, access and distribution were not available at the time of the meeting.

In summary, there is no redundancy in qualified ocean-colour sensors up to the year 2005. Beyond this time frame, the ensemble of agencies had, as yet, not developed a coordinated plan and it was considered that the IOCCG should make strong recommendations for an integrated ocean-colour capability for the post-2005 era.

News From the Working Group on Information Systems and Services

Mr. Takashi Moriyama
WGISS Chair, NASDA

Hosted by German Aerospace Center (DLR), the three WGISS Subgroups - Access, Data, and Networks - held their meetings in Bernried, Germany on April 20-24, 1998. Each subgroup held a plenary session, a joint SGs session as well as various task teams meetings. The meeting results were reported to the 6th meeting of the Working Group on Information Systems and Services (WGISS-6).

In conjunction with WGISS-6, on May 12, the European Space Agency (ESA) / European Space Research Institute (ESRIN) hosted an EO Application Support Infrastructures Workshop. The workshop focused on presenting and discussing samples of on-going and planned activities by CEOS members to support EO operational applications. The main objective of the workshop was to provide feedback to the WGISS Strategy Task Team on related issues for future effort. The overall concluding theme was that CEOS should apply more effort to encourage the practical utilization of EO data.

WGISS-6 was held at ESA/ESRIN in Frascati, Italy on May 13-15. The meeting included a range of reports from the WGISS Chair, Vice Chairs, Subgroup Chairs and WGISS level task team leaders. There were also three key discussion sessions, which are summarized below:

1. WGISS pilot projects plan

This session was focused on three key questions:

(1) What is the rationale and strategy for WGISS involvement in pilot projects? (why?) It was suggested that WGISS needs to address Information Systems and Services topics of strategic importance to the next generation programs of its funding space agencies and that it needs to demonstrate the clear benefits of success in the adoption and application of its results in these areas.

(2) Which pilot projects should WGISS pursue? (what?)

Through WGISS discussion, the following pilot projects were identified as primary candidates:

- The IGOS pilot projects : The Global Forestry (GOFC), Ocean Biology, and Disaster Management projects.
- The IGBP Data Integration Project

(3) What approach and mechanism for supporting the pilot projects should WGISS adopt? (how?)

Recognizing the importance of this task, WGISS agreed that an individual project support task leader should be assigned to address this role for the project. The candidates for the new role of pilot project support task leaders should contact the pilot projects leaders and CEOS project liaison officers to gather information on their requirements. The pilot project support task leaders should report this information to the WGISS Sub-Groups in September 1998, in Boulder, where the mechanism by which the various task teams might assist should be determined. The pilot project liaison managers will report on this first round of information exchange at WGISS-7.

Participants of the WGISS-6 meeting in Frascati

2. Collaborative links

The aims of this session were to consider how to promote WGISS achievements, and how to encourage a better understanding of WGISS achievements amongst peer groups, which include user communities as well as commercial and international standardization entities. This session reviewed a number of relevant entities and their work - including:

- The International Society for Photogrammetry and Remote Sensing (ISPRS)
- International Standards Organization (ISO)
- Consultative Committee for Space Data Systems (CCSDS)

3. Promotions plan

This session identified the context and targets of the WGISS promotions plan. It concluded that both 'inreach' (promoting WGISS achievements for adoption within the funding space agency programmes) and 'outreach' (beyond CEOS) were important for WGISS. It was agreed to proceed with the proposal put forward by Mr. Churchill and Mr. Moriyama – supported by BNSC – to produce promotional materials for WGISS. These would include a small brochure promoting key WGISS achievements, a corresponding OHP set, a WWW version, and a mailing list to assist distribution of these materials.

The meeting was concluded by Mr. Moriyama and Mr. Churchill, who reviewed the discussions and agreements of WGISS-6. The key issues were that WGISS had taken steps towards a new way of working through pilot projects. At WGISS-7, we can expect to understand the impact of supporting the initial requirements of the pilot projects, on task team activities.

Next meeting

The next WGISS meeting (WGISS-7) will be hosted by NASDA and held at the Kyoto Royal Hotel, Kyoto, Japan on October 20-23, 1998. WGISS-8 will be hosted by BNSC and will be held in the UK during the week of May 10 (tentative schedule). For more information on WGISS, please contact Takashi Moriyama, WGISS Chair, at moriyama.takashi@nasda.go.jp or Fax +81-3-5401-8702, or Hiroshi Ishiguro, WGISS Secretariat, at ishiguro@restec.or.jp or fax +81-3-5561-9541.

14th WGCV Plenary Meeting

Dr. Alan Belward, *WGCV Chair, EC/JRC*
Ms. Mary James, *WGCV Secretariat*

The 14th plenary meeting of the CEOS Working Group on Calibration and Validation (WGCV) was held from 21-23 July in Tokyo. The meeting was attended by more than 30 participants representing 10 countries and several agencies. Representatives of all four WGCV subgroups were present. In addition to group business, the meeting featured discussions on IGOS, strategies for calibration, and a special half-day technical session on Japanese activities including recent calibration and validation activities related to ADEOS and TRMM.

Among the activities of the WGCV subgroups which were reported were:
The SAR subgroup hosted a workshop February 1998. The workshop was attended by more than 120 participants viewing 55 presentations arranged in the form of serial plenary sessions. Each workshop session was followed by a short round table in order to discuss specific issues. The session topics included; SAR Ocean and Terrestrial applications, Radarsat, ENVISAT ASAR, Calibration, Processing and Future Systems.

The Terrain Mapping (TM) subgroup continued making assessments of DEM generation methods and data sources. Tandem data have been received from ESA, ASF and DLR, and optical data from ISRO and other sources. Multiple data sets have been collected and distributed to several groups for evaluation.

At the Microwave Sensors Subgroup (MSSG) meeting at Marshall Space Flight Center (april 1998) calibration and validation issues for several sensors were discussed. Sensors discussed included MSU, AMSR, CMIS, AMSU, PR and TMI. After many years of dedicated service, Jim Shuie (NASA/GSFC) has stepped down as chairman of the group. Elena Lobl (NASA/MSFC) has been appointed new working group chair.

Infrared Visible and Optical Sensors (IVOS) subgroup members supported the very successful CEOS Radiometer intercomparison held in Miami, and work on the intercomparison of space-borne visible radiometers has been continuing through collaborations between RAL and the NOAA and POLDER Teams. In addition, the ATSR Team will put the complete ATSR-2 data set for the Libyan Desert Test site on-line before the next IVOS meeting to facilitate additional intercomparisons.

Participants of the WGCV-14 meeting in Tokyo

The ongoing effort for WGCV to respond to requests from IGOS pilot projects was discussed. Several specific actions were taken and there was a general recommendation to handle detailed individual requests (e.g., for input on the validation of thematic products) by forming ad hoc experts groups or hosting WGCV-sponsored workshops to develop methods, share information, or undertake studies. These workshops or expert groups could then consider the need for or feasibility of creating a subgroup.

During a special session on Japanese developments WGCV members were informed of the plans for the Japanese EO programme and specific details of calibration and validation of ADEOS OCTS and TRMM PR. Additional information related to JERS-1 SAR Science Program and TRMM TMI validation was also provided.

The group was also heard from Phillipe Teillet, CCRS, who provided input for discussion through presenting the recent developments in the Quality Assurance and Stability Reference Monitoring activities and associated recommendations for instrumented test sites, and Nagaraja Rao, NOAA, who presented a future calibration strategy which incorporated an element of instrumented test sites.

Special Meeting on Working Groups Contribution to the Development of IGOS (23-24 March 1998).

Following a recommendation from the 13th meeting of the WGCV, the chairman of WGCV organised a two-day meeting to discuss the potential for the CEOS working groups to contribute to the cal/val and information systems and services needs of the IGOS Pilot Projects. The meeting was co-chaired by Alan Belward (WGCV Chairman) and Peter Churchill (WGISS Deputy Chair).

Following informative presentations by working group and pilot project representatives, Peter Churchill led the workshop attendees in a real-time requirements definition forum. This resulted in each IGOS project identifying requirements and recommendations related to calibration and validation, project methodology, organisation issues, data availability, data access, and data use.
This information, which is available on-line at http://www.eos.co.uk/ceos-calval/docs/docs_index.htm provided a focus for WGCV and WGISS discussions. Additional recommendations were drafted for presentation to the SIT.

12th CEOS Plenary - Planning by ISRO

Mr. Mukund Rao, ISRO

The 12th CEOS Plenary meeting will be held in Bangalore, India from Tuesday, November 10 to Thursday, November 12, 1998. The Indian Space Research Organization (ISRO) is hosting the Plenary meeting as the current Chair of CEOS.

ISRO has sent the first announcement for the Plenary to all CEOS Principals and Contacts on May 2, 1998, and the second one on July 27, 1998. ISRO has made exhaustive plans for the Plenary meeting and extends a warm invitation to the CEOS Members, Observers and Affiliates to attend the meeting.

The 12th Plenary will be chaired by Dr. K. Kasturirangan and as Chair of CEOS, he will also lead CEOS (with past, future Chairs and SIT Chair) at the IGOS Partners meeting. At the Plenary, detailed discussions on various topics, such as IGOS, SIT UNISPACE linkages, WG activities and other topics is planned. An exhibition of products/services from CEOS agencies will also be held during the Plenary meeting.

The details of the Plenary agenda, registration forms, exhibition details, etc. are all packed in the Second Announcement.

In conjunction with the Plenary, the 2nd IGOS Partnership Meeting is also being held on November 11, 1998. The details of the IGOS Partners meeting is to be included in the third Announcement to be issued in September. Final Announcement (with agenda/papers) will be available in October 1998.

All the meetings will be held at Banquet Hall, Hotel Ashok, Bangalore, India. The exhibition will be held at Chanakya Hall, Hotel Ashok. Participants can visit Hotel Ashok on website: http://www.indiatourism.com

ISRO has negotiated special prices for accommodation at Hotel Ashok (Phone: +91-80-2269462; Fax: +91-80-2250033). Please book your accommodation directly with the Hotel using the Accommodation Request Form attached to the second announcement.

ISRO also urges all its colleagues in the CEOS Community to take time away and visit places around Bangalore - specially Mysore (a kingly state earlier and now a cultural hot-spot), Halebid-Belur (famous for its archeological sites), Ooty (a famous hill-station) and other spots. Also plan to visit the Taj (during entry/exit thru Delhi) and around Delhi or Ajanta Ellora (on entry/exit thru Mumbai) and around Mumbai. India is also a shopper's paradise - look out for silks, garments, traditional Indian jewellery, handicrafts, sandalwood items and many other things.

For more information contact:

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News Highlights

The CEOS brochure, entitled "Committee on Earth Observation Satellites," was published in May 1998 by STA/NASDA on behalf of CEOS. The brochure presents the CEOS overview, purpose, membership, accomplishments, etc. Copies are distributed to all CEOS Members, Observers and Affiliates. Other interested readers can obtain copies through their regional CEOS Secretariat contacts(see underneath).

Contributions for future issues of the CEOS Newsletter from the CEOS Members, Observers and Affiliates, and subscriptions to the CEOS Newsletter, please contact CEOS Japan Secretariat : ceosj@ipx.tksc.nasda.go.jp

http://www.eoc.nasda.go.jp/guide/guide/eoc/committee/ceos/ceosnews_menu_e.html

Meeting Calendar

As of Sept. 1998

Activities	1998 May	June	July	August	September	October	November	December	1999 January	February	March	April	May
CEOS Plenary							▲ 10-12 12th Plenary ISRO / Bangalore						
CEOS WGISS (Working Group on Information Systems & Services) Subgroups Task Team	▲11-15 WGISS-6 ESA / Frascati	▲15-18 Global Map.Forum'98 South Dakota			20-25▲ SGs Meeting NOAA / Boulder	19-23▲ WGISS-7 NASDA / Kyoto					△ 8- SG-6 NASDA / Japan		△10-14 WGISS-8 BNSC / UK
CEOS WGCV (Working Group on Calibration and Validation) Subgroups			21-23▲ WGCV 14 NASDA / Tokyo		30-2▲ IVOS ESA / ESTEC	▲12 TM SG CSA / Montreal					△ MG SG NASA / GSFC		
IGOS / SIT (Strategic Implementation Team)	G30S / CEOS Paris	6▲ ▲8 IRSSE Tromso	▲23-24 GOFC ESA / ESRIN ▲6-10 GODAE JAMSTEC / Tokyo		▲14-15 Disaster ESA / ESRIN	16▲ ▲29 Disasters CSA Tsukuba	▲11 Partners ISRO / Bangalore						
Others	▲18-20 ESCAP Sebu / Philip.		▲12-19 COSPAR Nagoya, Japan		26-29▲ IAF #49 Melbourne	28-29▲ IGFA EU / Ispra					-15-△(TBD) G3OS Sponsors FAO / Rome		

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

CEOS-related meetings are open only to designated participants.

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