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Report of 1993 CEOS Plenary

Akihiro Fujita

*Director, International Space Affairs Division,
Research and Development Bureau,
Science and Technology Agency of Japan*



The seventh Plenary meeting of the Committee on Earth Observation Satellites (CEOS) was held November 16-18, 1993 at Tsukuba Space Center, Japan. A total of 71 representatives from 25 agencies attended the meeting. I was designated as chairperson of the 1993 Plenary, and the meeting was hosted by the Science and Technology Agency (STA) and the National Space Development Agency of Japan (NASDA). Opening remarks and a welcome speech were presented by Mr. M. Miyabayashi, Deputy Director-General, Research and Development Bureau, STA and Mr. S. Tateno, Executive Director, NASDA. The meeting focused on reporting 1993 activities on the first day, the CEOS activity plan for 1994 and beyond on the second day, and wrap-up on the last day. The following are the highlights of the meeting.

Data Policy

An amendment to "The CEOS Resolution of Satellite Data Exchange Principles in Support of Global Change Research" was approved and procedures to implement the data exchange principles were endorsed at the sixth Plenary in London in 1992. The data exchange principles call for the maximum use of satellite data as the fundamental objective and an exchange and sharing mechanism among CEOS members as an essential

first step.

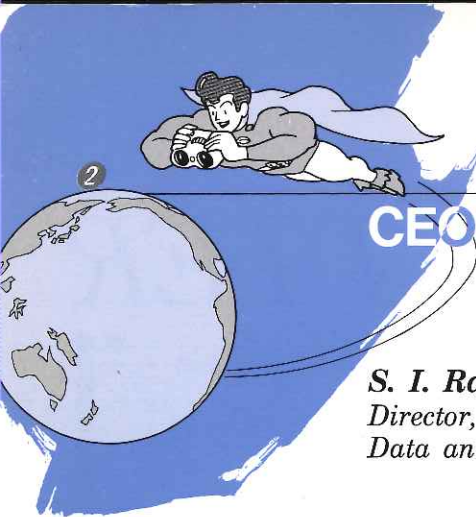
The outcome of the CEOS Ad Hoc Data Policy Meeting held May 25-26, 1993 in Tokyo was presented by Mr. Y. Haruyama, NASDA. At the meeting, an agreement was reached on how to proceed with the Data Exchange Pilot Project, and NOAA's proposal to co-host with NASA an Ad Hoc Data Policy Meeting on Exchange of Data for Operational and Environmental (Public Utility) Use was proposed.

The accomplishments of the Data Exchange Pilot Project (see next article, page 2) were reported by Dr. I. Rasool, IGBP. The Plenary recognized the progress made by IGBP and the contributing space agencies and data providers.

A plan for the proposed Ad Hoc Data Policy Meeting to discuss data exchange principles in support of operational and environmental (public utility) use was described by Dr. B. Smith, NOAA. The goal of the meeting would be to identify the framework for new CEOS data exchange principles. The Plenary accepted the proposed initiative, and an Ad Hoc Data Policy Meeting will take place in April 1994.

CEOS affiliates' integrated data requirements

CEOS is a unique forum for space agencies and data users to communicate and interact. Efforts



CEOS/IGBP-DIS Pilot Project on Data Exchange

S. I. Rasool

*Director, International Geosphere-Biosphere Program-
Data and Information System (IGBP-DIS)*

The CEOS/IGBP-DIS Pilot Project was initiated at the sixth CEOS Plenary in London in December 1992 (see article by Lisa Shaffer, CEOS Newsletter #1). The objective of this joint project is to assess the applicability of Data Exchange Principles in support of Global Change Research.

One of the seven principles adopted at the sixth Plenary clearly enunciates that:

"Non discriminatory access to satellite data by all users for global change/climate and environmental research and monitoring is essential. This should be achieved within the framework of the exchange and sharing mechanisms set up by CEOS members."

CEOS invited IGBP-DIS to propose a project for data use by IGBP core projects in which the applicability of this principle will be tested for Exchange of High Resolution data that also involves commercial considerations. This particularly concerns data for Landsat, SPOT, MOS, ERS and JERS. (The project has now been extended to include data from Indian Remote Sensing Satellite as well.)

Rapid progress in the development of this Pilot Project has been achieved during this last year. Both the space agencies concerned and the IGBP scientists seem most eager for this project to succeed.

At the request of CEOS, IGBP-DIS consolidated the data requirement of IGBP researchers into a document distributed in June 1993 (Scientific Rationale and Requirements for High Spatial Resolution Satellite Data in Support of the IGBP-S.I.Rasool-IGBP-DIS Office, Paris, France).

The specific objectives of the Pilot Project as envisaged by the IGBP researchers are:

- 1) to ascertain what data are available from existing high spatial resolution satellite systems for global change research projects within the IGBP.
- 2) to assemble datasets from existing archives for selected IGBP Core Projects.
- 3) to develop and implement a data acquisition model for acquiring new high resolution data sets to support selected IGBP Core Projects.
- 4) to provide to the Global Change research community ready access to these data at the marginal cost of reproduction.

Consolidated Data Requirements

The scientific issues to be addressed by the availability of High Resolution Data include:

- Climate and hydrological systems
 - land/atmosphere: water and energy fluxes
 - atmosphere/cryosphere interactions
- Biogeochemical dynamics
 - biosphere/atmosphere fluxes of trace gases
 - terrestrial biosphere nutrient and carbon cycling
- Ecological systems and dynamics:
 - long term measurements of structure/function

-response to climate and other stresses
-interactions between physical and biological processes

Satellite observations provide precise, quantitative data for measurement of deforestation and other forms of land cover conversion, and of monitoring land cover change generally. With the increased spatial resolution available from Landsat, SPOT, MOS, ERS, JERS and IRS, it is possible to precisely map and measure land cover conversion or provide local test site data for calibration and validation of coarse resolution data. For example, in the studies of the global carbon cycle, although we know that most of the increase in atmospheric carbon dioxide over the past thirty five years has been due to fossil fuel combustion, yet as much as one third is derived from land cover conversion. In fact over the last 200 years the total release of carbon dioxide from land cover conversion has been approximately equal to that from fossil fuels. However the precise amount is uncertain. Estimates of the net flux of carbon from land cover change range from $0.4-2.5 \times 10^{15} \text{ gC yr}^{-1}$. Three factors contribute to this uncertainty: (1) the rate of deforestation, particularly in the tropics, (2) the fate of deforested land (i.e. the amount of secondary forest regrowth and re-clearing) and (3) the stock of biomass and soil organic matter and the response of these pools to disturbance. The first two uncertainties are of critical importance and could best be resolved with high resolution satellite data.

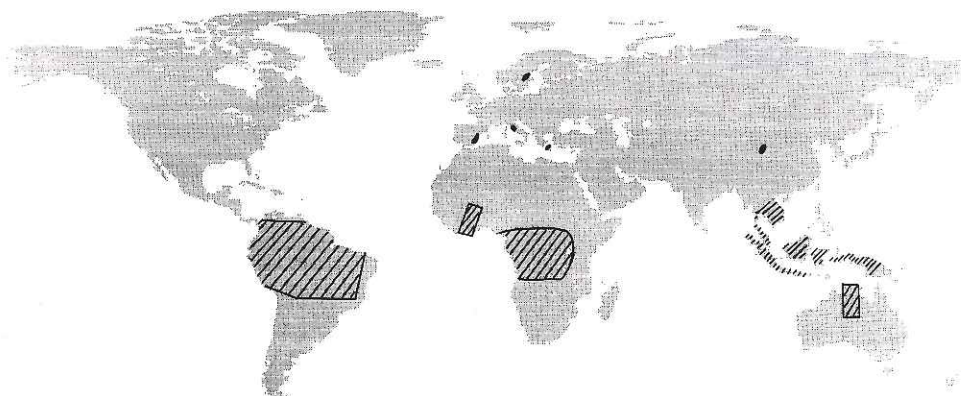
These same measurements on land cover conversion affects the fluxes of trace gases such as N_2O , CH_4 , CO and O_3 and help in improving estimates of the sources and sinks of the gases.

A second kind of study carried out by IGBP which requires High Resolution Data is the one which is performed along a transect of thousand kilometers or more of varying climate and/or ecosystem. For example, the North Australian Tropical Transect (NATT) is a research program whose objectives are to determine the effects of soil and climatic variability, land management and global climate change on the savannas of Northern Australia. It extends from Darwin to Alice Springs.

NATT makes use of the pattern of decreasing mean annual rainfall with increasing distance from the north coast of the Northern Territory. By conducting studies at varying levels of rainfall, a better understanding can be gained of ecological processes on a continental scale. A similar transect study is being conducted in west Africa and by comparing results from the two studies, the effects of vastly different human pressures will be seen.

The highest priority of data requirement for this project will be to obtain recent data sequences (over the last 2 years) across the transect using TM or

High Resolution Data Coverage for CEOS/IGBP-DIS Pilot Project



Investigations chosen for the Pilot Project are 1) Tropical Deforestation and Regrowth (Brazil, Central Africa and South East Asia), David Skole (University of New Hampshire, USA) 2) Transect studies (Australia and West Africa), Will Steffen (Canberra-Australia) 3) European and Chinese Field Studies, Hans-Jurgen Bolle (Berlin-Germany) and Adriaan Van de Griend (Holland)

SPOT imagery. Also it will be important to have a long term data base (about 20 years) over several sites to assist in time sequence analyses of the ecosystem change. A combination of Landsat, SPOT and Radar measurements over the same site will allow for analysing the functional characteristics of the vegetation cover.

Another program of IGBP (Biological Aspects of the Hydrological Cycle) is studying vegetation-water interaction on regional scale. It involves modelling of water and energy balance; scaling algorithms; measurements of vegetation-water interactions, surface fluxes. Over several sites in Europe, North Africa, US, Russia and China, simultaneous satellite measurements are carried out over areas where dense surface observation networks have been established. The areas investigated are of the size of SPOT scene (60 × 60 km) and duration of study is usually five months in a year during the green-up phase to the dry-down conditions of vegetation. Frequent coverage of the area by High Resolution images are the highest priority requirements for this project.

Figure which is above shows the areas where IGBP studies are on going and for which High Resolution Data will be critical. For the CEOS/IGBP-DIS pilot project, data request concerned two transects (Australia and West Africa), the tropical forests and several smaller sites in Europe and are in China. The total estimate of data required is of the order of 100 scenes/year of SPOT XS, 50scenes/year of SPOT/Pan, 300 scenes/year of MOS and about 200 scenes/year of Landsat/TM. The period of investigation was proposed to be 3 years starting 1993.

CEOS Response

The response from the concerned space agencies was very positive and most encouraging.

NASA proposed availability to selected Global Change researchers of up to 400 TM scenes/year at the "copying" price of \$240/scene.

NASDA reported on the availability of approximately 300 scenes/year of MOS/MESSR data over East and South East Asia which could be purchased at the cost of \$90/scene.

CNES proposed a twofold arrangement to provide SPOT data to IGBP. First, some SPOT scenes could

be made available at a special price (\$1200/multispectral; \$1500/panchromatic scene) through SPOT Image and its partner data receiving stations. Second, partner contributions from the United Kingdom, Sweden, Belgium, Australia and CEC would enable purchase of a limited number of scenes at a special price of \$200/scene.

Late in 1993, discussions with ESA and ISRO were also initiated. A request for SAR data from ERS-1 over tropical forests and North Australia has been very favorably received by ESA. The Indian Space Research Organisation (ISRO) has offered access to IGBP researchers, at modest cost, to more than 10,000 scenes of Landsat/TM and IRS 1 A and B archived in digital form at ISRO Center in Hyderabad, India.

Pilot Project Schedule

With the agreements all in place we visualize the following steps to successfully complete the project.

- Phase 1- Definition (1993-1994): definition of common data format, identification of available data, precise definition of data required (location and number of scenes), framework for data access and distribution.
- Phase 2- Execution (1993-1995): assemble existing (pre 1993) archived data, acquire new data (post 1994), distribute data to core project teams/data analysis.
- Phase 3- Evaluation (1994-1996): analysis of data, scientific results, evaluation of project.

During these three phases, the IGBP-DIS will provide coordination from the IGBP side of the Pilot Project, while CEOS provides coordination for all of the participating space agencies and data providers. IGBP-DIS is appointing a Working Group to monitor and track the development of the project. The Working Group will be comprised of each of the principle investigators and a few representatives at-large. IGBP-DIS will ensure that the approach taken, and the ensuing activities of the Project continue to enhance the goals of Global Change research within IGBP and help provide added-value to the high quality data acquired by the space agencies. An update on the activities and progress of the Pilot Project will be made at each of the CEOS Plenary culminating in a final assessment of the project in 1996.



CEOS Working Group on Data (WGD)

Levin Lauritson

*Chief, Satellite Data Services Division,
National Climatic Data Center, NOAA/NESDIS, USA*

Jean Schiro-Zavela

International Relations, NOAA/NESDIS, USA

The Committee on Earth Observation Satellites (CEOS) Working Group on Data (WGD) was established at the initial meeting of CEOS in 1984 as an ad hoc working group to facilitate the use of data from Earth observation missions by coordinating and standardizing aspects of data management.

WGD became a permanent working group in 1989. Levin Lauritson is WGD Chair and Jean Schiro-Zavela is WGD Secretariat. WGD has four subgroups: Catalog Subgroup, chaired by NOAA; Network Subgroup, co-chaired by the European Space Agency (ESA) and the National Space Development Agency of Japan (NASDA); Format Subgroup, chaired by the British National Space Centre (BNSC); and Auxiliary Data Subgroup, chaired by the Deutsche Forschungsanstalt fuer Luft-und Raumfahrt (DLR, Germany).

Catalog Subgroup The Catalog Subgroup (CS) promotes international catalog system interoperability through a number of projects. CS coordinated the development of the CEOS International Directory Network (IDN), an on-line system that permits rapid and efficient identification, location, and overview of information on data sets worldwide of interest to the Earth and space science research community. The CEOS IDN currently has three coordinating nodes and ten cooperating nodes and over 2000 Directory Interchange Format (DIF) entries. A CEOS IDN brochure has been published and will be the topic of a separate article in an upcoming issue of this CEOS newsletter. The CEOS Plenary recently endorsed a WGD recommendation to expand the CEOS IDN into developing countries.

Another CS activity is the CEOS Inventory Interoperability Experiment (CINTEX), a multi-agency international inventory interoperability experiment to determine if disparate catalog systems could be made to interoperate effectively. CS has also written "Guidelines for an International Interoperable Catalogue System." CS has formed a browse task team with Network Subgroup representation.

Network Subgroup The Network Subgroup (NS) is addressing issues of user communication using networking to deliver a variety of data, including catalog information and browse and quick-look imagery, as well as raw and derived data sets. The Network Subgroup has formed task teams to help meet the networking requirements of the CEOS IDN, CINTEX, browse, and AVHRR 1-km projects.

NS is also working on connectivity improvements, identification of existing and planned networks infrastructure, and definition of CEOS global network architecture.

Format Subgroup The Format Subgroup (FS) develops and supports standard data formats for digital user products from Earth observation sen-

sors. CEOS-compliant formats have been developed and WGD member agencies have agreed to incorporate them into ongoing data management planning. FS is setting up a feedback mechanism for users to provide comments regarding data formats, particularly the CEOS format, in order to help evaluate lessons learned from the CEOS format and develop requirements for future formats. The Subgroup is also preparing a Format Guideline Document and a Formatting System Requirements Document, and is undertaking prototyping efforts, including: translators among different end user formats, NASA Earth Observing System Data and Information System (EOSDIS) development, and Format Definition Environment tools.

Auxiliary Data Subgroup The Auxiliary Data Subgroup (ADS) collects information about auxiliary data sets and develops recommendations regarding the use of auxiliary data to enhance processing and utilization of remote sensing instrument data. The ADS is developing a Reference Document that would recommend standard auxiliary data sets to be used in generating products, so that CEOS agencies can compare products. The document will include information on requirements for atmospheric, topographic, surface characteristics, oceanic, and socio-economic data sets as well as current and planned availability of this data.

Other Activities WGD also monitors the Global Land One-kilometer Base Elevation (GLOBE) project, which has the goal of generating a 1-km resolution raster global Digital Elevation Model with quality measurements, and the Global Land 1-kilometer AVHRR Data Set project, an international effort to collect and archive daily 1-km AVHRR data from NOAA's afternoon polar satellite.

WGD is testing a prototype purge alert procedure to notify other agencies of data sets planned for deletion (and therefore possible transfer of responsibility for the data sets to another interested agency). WGD is working to identify Earth observation data centers and data sets that should be included in the CEOS IDN and in data management plans. WGD is exploring an on-line CEOS Information System to provide electronic access to CEOS documents and other relevant material.

WGD is writing a five-year plan for presentation at the 1994 CEOS Plenary meeting. The plan will include WGD objectives, data management requirements, user needs, and a strategy and action plan, focusing on the activities of the WGD subgroups as well as projects of general interest to WGD.

CEOS Working Group on Calibration and Validation (WGCV)

Susan M. Till
Director, Data Acquisition Division,
Canada Centre for Remote Sensing

The CEOS Working Group on Calibration and Validation* was established in 1984, and has developed into a permanent Working Group of the CEOS under the chairmanship of the Canada Centre for Remote Sensing (S.M.Till). Its membership has steadily grown to include new members, observers and affiliates of CEOS.

The objectives of the Working Group are to enhance coordination and complementarity, to promote international cooperation and to focus activities in the calibration and validation of earth observations for the benefit of CEOS members and the international user community. Work to meet these objectives includes the promotion of exchange of technical information and documentation, investigation of possibilities for technical coordination and cooperation for space and ground segments, coordination of calibration and validation campaigns and programs, and optimising and sharing of available facilities, expertise and resources as appropriate.

There were major activities in 1993 related to information exchange, development of common terminology, production of a pilot calibration/validation dossier, and specification of ground test sites. Some of the highlights are as follows:

The Seventh Meeting of the Working Group was held in June, 1993, hosted by the Joint Research Centre, Ispra, Commission of the European Communities. At the meeting, there were specialist presentations from NASDA on the JERS-1 mission and its calibration and validation, and from CNES on Topex/Poseidon. The second issue of the CEOS WGCV Cal/Val Newsletter was issued (with results of current campaigns and reports from members), and work continued on standardizing the definitions of terms used in calibration and validation. Substantial progress was also made in the definition of a CEOS Dossier on Calibration and Validation (a pilot version has since been produced), and in the survey and definition of ground test sites for multi-agency use.

In addition, the Working Group has established subgroups to perform detailed technical work in specific areas. There are currently four subgroups, which meet regularly.

The SAR Calibration Sub-group, chaired by JPL/NASA, USA, addresses synthetic aperture radar issues through technical working groups, workshops and special journal issues. A four day workshop was held in September, 1993, and combined technical presentations with working sessions on methods, definitions and parameters related to SAR radiometry, geometry and interferometry.

The Subgroup on Infrared and Visible Optical Sensors was set up in 1992, and is chaired by I. Barton, CSIRO, Australia. It has held working meetings, and has two major activities underway, one

related to test sites for infrared and visible sensors, and one related to on-board calibration and diffuser intercalibration. The subgroup is undertaking a number of surveys, to document long-term sites for calibration and validation, to document on-board calibration systems and to document ground calibration facilities and laboratories.

The Subgroup on Terrain Mapping is chaired by I.Dowman on behalf of BNSC, UK. It has met several times, with technical presentations and discussion groups, and is considering user requirements and available technologies. It is cataloguing information on test sites, by means of a site survey form, and is assembling data sets of the test sites which would be used to validate Digital Elevation Models.

The fourth subgroup on Passive Microwave has been established recently as a WGCV activity, and is chaired by NASA, USA. It has held a preliminary meeting with presentations on calibration and validation results of current microwave sensors.

The Working Group on Calibration and Validation is holding its next meeting in the USA, hosted by NOAA, and is continuing its program of information exchange and technical workshops, and surveys of test site and facilities. It has been active in its recommendations to the members of the CEOS Plenary, such as use of common calibration standards and maintenance of test sites and data bases.

For more information on the Working Group and its subgroups, please contact its chair: Dr.Susan M. Till, Canada Centre for Remote Sensing, 588 Booth Street, Ottawa, Ontario, K1A 0Y7 Canada; fax: 1 613 993 5022, email: till@ccrs.emr.ca. (internet)

- * Calibration is the process of quantitatively defining the system response to known, controlled signal inputs
- Validation is the process of assessing by independent means the quality of the data products derived from the system outputs



Introduction of CEOS Community Locator System (CCLS)

Shin-ichi Sobue

Earth Observation Center

National Space Development Agency of Japan

The CEOS Community Locator System (CCLS) is a CEOS mailing database system to promote easy and reliable contact information access for earth observation data users to exchange the various information related CEOS activity such as CEOS newsletter, minutes, agenda, etc. in the CEOS community.

CCLS collects, archives, manages and distributes the contact information of CEOS members of each space agency and other earth observation personels in the world. The contact information contains name, organization, country, address, phone number, fax number, electrical mail address and participating working group name.

This CCLS is interactive system without training, allows users to retrieve the contact information by using name, organization, country and working group name and also allows to access with username "CEOSCL" and password "PERSON" by using internet, dial-up and packet switching digital network. To maintain contact information, CEOS secretariat send the correct information to NASDA by using internet and NASDA updates it routinely. The CCLS is installed into VAX computer at Earth Observation Center. Access methods are shown below.

- a. Internet
TCP/IP: %telnet nsaec.eoc.nasda.go.jp (133.56.72.1)
DECnet: \$ set host nsaec (41950)
- b. Packet switching digital network
DTE number: 44014437216
- c. Dial up
Dial: 81-492-96-6400
Set modem to: 8bits, No parity check,
1 stop bit, Xon/off, 1200-9600bps

After log-in successfully, the CCLS will be run automatically and prompt for entering search condition such as working group name, organization, country, and name will be displayed. After entering search condition, the system will retrieve database and result will be displayed when the retrieval is completed. The result display format is shown in Fig-1. The CCLS has a capability to extract the search result to a file with displayed format on users terminal, e-mail distribution format, or post-mail distribution format and also allows to users get extraction file by e-mail or FTP.

This first version of CCLS was developed and already contains the contact information of the representative for CEOS WGD/Network Subgroup by STA/NASDA. Now CCLS stands on the first evaluation phase by CEOS WGD/NS participants to study the functionality, performance etc. since last January. CCLS will be upgraded and be full in operation starting from the middle of this year. NASDA prepares the user's manual of CCLS. If you would like to know CCLS in detail, please contact with the following NASDA's staff.

Information System office
Earth Observation Center
National Space Development Agency of Japan
1401 Numanoue, Hatoyama-machi, Hiki-gun,
Saitama 350-03, Japan
Fax: 81-492-98-1001
E-mail: nasdaprod@nsaec.eoc.nasda.go.jp



Fig.-1 Detailed Display Format

< Members List (Detailed information) > Mon dd, yyyy Page nnn/nnn

Search CEOS_WG: Catalogue Sub-group, Organization: NASDA
Condition Name: All, Country: Japan

Person_ID : 1, Mr. Shin-ichi Sobue
Work_group1 : Catalogue Sub-group
Work_group2 : Network Sub-group
Work_group3 : Format Sub-group
Organization : National Space Development Agency of Japan / NASDA
Section : Earth Observation Center Information system group
Address : Aza Numanoue 1401
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: Hiki-gun, Hatoyama-machi,
: Saitama Japan 350-03

IP-mail address1 : sobue@nsaec.eoc.nasda.go.jp
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DEC-mail address: 41950:sobue
Phone : 81-492-98-1225 / FAX: 81-492-98-1001

Report of 1993 CEOS Plenary (continued from page 1)

have been made to define user requirements for Earth observation by the Affiliates, international global change research organizations.

A report of the CEOS User Requirements Workshop held May 27, 1993 in Tokyo was presented. Dr. D. E. Hinsman, WMO, reported that Affiliates have developed a combined list of requirements to determine what instruments the Affiliates collectively require. Since the May 1993 User Requirements Workshop, Affiliates' data requirements and integrated requirements were incorporated into the CEOS Dossier as the Affiliates' Dossier.

CEOS Members agreed that the Affiliates' requirements statement will be very helpful to space agency planning activities. The Plenary discussed how to proceed with the requirements dialogue and how to refine documentation of the Affiliates' requirements. The Plenary endorsed a workshop to be convened in 1994 to continue interaction among Members, Observers, and Affiliates.

CEOS Dossier

The status of the CEOS Dossier was reported by Dr. H. Hopkins, ESA. The Plenary reaffirmed their strong support for the Dossier and noted the Dossier is critical to ongoing CEOS activities. CEOS has relied on the Dossier to communicate its missions and program to the Earth Observation communities and has depended on the Dossier as a key tool in coordinating and implementing its programs. The Plenary agreed to updating the Dossier in 1994, to include revision of the Affiliates' requirements and inclusion of a section on calibration and validation. The Dossier should be updated biennially after 1994 in coordination with the Affiliates' requirements process.

A Canadian proposal to produce a special report on use of Earth observation data for resource management and a Japanese proposal to produce a Satellite Data Applications special report were also presented. They were considered relevant as CEOS reports and the plans were endorsed.

Future CEOS Strategy

A discussion paper on Future CEOS Strategy was presented by Dr. D. Williams, BNSC. The paper outlined seven CEOS activity areas (Dossier, Interaction with Affiliates, Data Policy, Activities by the working groups, Proposed Working Group on Networks, Pilot Projects and External Awareness) and recommendations for Earth areas for the Plenary's considerations. The paper also recommended that the Plenary accept general criteria to be used to assess proposals for future

CEOS activities.

The Plenary endorsed the following recommendations:

Members should assess proposals to CEOS against the following criteria:

- Is the activity focused on improving cooperation of space missions and ensuring they meet user needs?
- Is the activity a role uniquely suited to CEOS? Would it be possible outside the CEOS framework? Would it be beneficial to Members generally?
- Activities should "assist" not "direct" Member agencies.
- Are Members willing to support an activity? It cannot be left to the Secretariat to pursue all initiatives because it is not an executive body.

Prof. H. Stoewer indicated that DARA, as the 1994 CEOS Chair, would coordinate with Dr. Williams and follow up on the Future CEOS Strategy paper for the 1994 Plenary.

Global Network Initiatives

A Japanese proposal for the CEOS Working Group on Networks (WGN) and the Global Satellite Observation and Information Networks (GSOIN) concept was presented by Mr. H. Kikuchi, NASDA. The global network will establish satellite data information networks linking CEOS participating organizations and data users, thereby facilitating access to satellite data.

The proposal discussed the need for a WGN and the scope, structure, approach and draft terms of reference for the proposed WGN. It was the consensus of the Members that the proposal to create an ad hoc WGN is appropriate and that CEOS needs to address networks. The Members agreed that the critical activities for the ad hoc WGN in the near term would be defining user requirements and existing and planned capabilities, and developing a methodology for addressing and refining user requirements. The Plenary adopted the CEOS Resolution on Networks and endorsed the establishment of the ad hoc WGN.

Others

The Plenary endorsed a proposed INPE-hosted workshop in Brazil in September 1994, to address the CEOS role with regard to non-CEOS countries, particularly developing countries.

At the 1993 Plenary, CAST and NRSC in China, NSAU in the Ukraine, BSPO in Belgium and FAO of the UN were approved as CEOS Members, Observers and Affiliates.

Prof. Stoewer announced that DARA, the 1994 Chair, proposed to hold the Eighth CEOS Plenary September 26-28, 1994 in Berlin, Germany.

Requirements for Participation in CEOS

CEOS Newsletter readers may wonder what the requirements are for participation in CEOS. As specified in the Terms of Reference, there are three classifications of participation in CEOS—member, observer, and affiliate.

Members are those governmental organizations responsible for a civil, space-based, Earth observation program currently operating or at least in Phase B (or equivalent) of system development. Members must have a continuing activity in spaceborne Earth observations, as well as provide to the international community non-discriminatory and full access to data.

Observers are governmental organizations that currently have a civil space-segment activity in Phase A/pre-Phase A (or equivalent) of system development or that have a significant ground-segment activity that supports CEOS objectives. Observers may participate in CEOS Plenary and Working Group discussions, as well as have their views included in reports. Approval by observers is not required to establish CEOS consensus.

Affiliates can be other satellite coordination groups,

international scientific bodies or intergovernmental bodies that currently have a significant programmatic activity supporting CEOS objectives. Affiliates may participate, as appropriate, in the CEOS Plenary and Working Group meetings, as well as have their views included in reports. Approval by affiliates is not required to establish CEOS consensus.

Consensus of current members is required to add new members, observers, or affiliates. Requests for membership from agencies that qualify should be addressed to the Chairperson of the next scheduled CEOS Plenary session. Observers and affiliates are invited by consensus of members.

Change of Status: It is the responsibility of each member, observer, and affiliate to inform the CEOS Chairperson of a change in its status or eligibility to participate. If an organization's status changes, CEOS members will review the matter and determine by consensus whether the organization continues to be eligible to participate.

News Highlights

<Correction in CEOS Newsletter No.1>

- Page 7, Resolution of Satellite Data Exchange Principles in Support of Global Change Research (Draft)
- Delete "Draft", the resolution has been approved as final version

<Information>

- Dr. Volker Liebig/DARA is the contact point of the Eighth CEOS Plenary to be held September 26-28, 1994, in Berlin, Germany. (Phone: 49-228-447-633).

-Dr. Jan-Baldem Mennicken was designated as Director General, DARA on Oct.1, 1993.

-Mr. Robert S. Winokur was designated as the Assistant Administrator for Satellite and Information Services, NOAA on Nov.1, 1993.

-As of January 6, 1994, Dr. Charles F. Kennel, of UCLA, assumed responsibility as the Associate Administrator for NASA's Mission to Planet Earth succeeding Dr. Shelby G. Tilford.

1994 CEOS Meeting Calendar

DATE	HOST,	LOCATION	MEETING
Feb.2-4	CCRS,	Ottawa, Canada	WGD CS-12
Jan.31-Feb.2	CCRS,	Ottawa, Canada	WGD NS-6
Feb.7	ESA HQ,	Paris, France	Data Policy Pre-Meeting
Feb.9	ESA HQ,	Paris, France	Secretariat Meeting
Feb.10-11	ESA HQ,	Paris, France	Ad Hoc WGN
Feb.22-23	NOAA,	Seattle, USA	WGCV IVOS/TM
Feb.23-25	NOAA,	Seattle, USA	WGCV-8
Feb.24	NOAA,	Seattle, USA	WGD GLOBE project
Feb.28-Mar.2	NASA,	Wash.DC, USA	WGD ADS-7
March 2-4	NASA,	Wash.DC, USA	WGD FS-8
April 14-15	NASA/NOAA,	Wash.DC, USA	Ad Hoc WGN
April 18-19	NOAA/NASA,	Wash.DC, USA	Ad Hoc Data Policy

DATE	HOST,	LOCATION	MEETING
April 20	NASA/NOAA,	Wash.DC, USA	Secretariat Meeting
May 10-13	INPE,	São José dos Campos, Brazil	WGD-16
May 16-18	INPE,	São José dos Campos, Brazil	Developing Country Workshop
May 30-31	DARA,	Bonn, Germany	User Requirement Workshop
June 27-28	STA/NASDA,	Japan	Ad Hoc WGN
Sept.	DLR,	Oberpfaffenhofen, Germany	WGD CS-13/NS-7
Sept.26-28	DARA,	Berlin, Germany	8th Plenary
Fall	NRSCC,	China	WGD-17



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