

**REPORT OF CEOS AD-HOC  
WORKING GROUP ON  
EDUCATION AND TRAINING (WGEdu)**

**(INCLUDING THE PROPOSED  
CEOS STRATEGY ON EO EDUCATION AND TRAINING)**

**SUBMITTED BY WGEDU CHAIR TO:  
15<sup>th</sup> CEOS PLENARY MEETING**

**CEOS WORKING GROUP ON EO EDUCATION AND  
TRAINING  
INDIAN SPACE RESEARCH ORGANISATION  
BANGALORE – 560 094  
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Committee of Earth Observation Satellites  
15th CEOS Plenary Meeting  
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**Item 7.4**

## **PROPOSED CEOS STRATEGY IN EARTH OBSERVATION EDUCATION AND TRAINING**

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### **SUMMARY AND PURPOSE**

In 1999, the 13<sup>th</sup> CEOS Plenary established an ad hoc working group led by ISRO “to prepare a strategy for CEOS future activities in education and training in developing countries.” The 14<sup>th</sup> CEOS Plenary in 2000 extended the ad hoc Working Group on Earth Observation Training and Education (WGEdu) and tasked it to prepare the strategy and an action plan for the 15<sup>th</sup> Plenary. The WGEdu met several times in meetings and teleconferences and have developed the attached strategy and action plan, as per Plenary direction.

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### **ACTION PROPOSED**

PLENARY IS INVITED TO REVIEW THE STRATEGY AND ACTION PLAN AND TO ENDORSE THE PROPOSED RESOLUTION.

Attachments:

- 1. CEOS Strategy for Earth Observation Training and Education**
- 2. Resolution on Earth Observation Education and Training**

## 1. INTRODUCTION

1. CEOS, in its 13th Plenary meeting held at Stockholm, established an ad-hoc Working Group on EO Education and Training (WGEdU) to address the issue of EO Education and Training and to arrive at a CEOS Strategy on EO Education and Training. With ISRO chairing the WGEdU, the WG has nominees from ASI, BNSC, CCRS, CNES, CRI, CSA, CSIRO, DLR, ESA, EUMETSAT, ISPRS, INPE, NASA, NASDA, NOAA, NRSCC, NSC, UN-ESCAP, UN-OOSA and WMO. Other CEOS Members/Associates have provided support and encouragement through their Contacts. Various EO Education and Training institutions have been specially invited to participate in the WGEdU activities. Full list of members and experts nominated so far from CEOS and other institutions are placed at **ANNEXURE-I**.
  
2. The WGEdU, in 2000, adopted a multi-pronged strategy in conduct of its business and arriving at its report to Plenary:
  - A detailed survey of EO educational institutions of the world – mainly from contacts and web sites during 2000.
  - Conducted an international workshop to focus on EO Education and Training in India during 2000.
  - Administered a questionnaire to CEOS space agencies for assessing their existing and future programmes of EO Education/Training/Professional Development during 2000.
  - Interaction with UN agencies (specifically the UN Regional Centres) to understand their role in capacity building
  - Two formal meetings of the WG to assess and take-stock of the strategy and its report (in India during 2000 and in Italy during 2001). The WG Members were in regular e-mail interactions and telecons during the year to conduct the affairs.

A report on the survey and possible directions for CEOS Strategy on Eo Education and Training was placed before the CEOS Plenary at Rio. The report addressed the interests of CEOS Members/Associates to participate in a coordinated effort for EO Education and Training and also showed the requirements of some major international EO Educational and training institutions.

3. After considering and endorsing the WGEdU report and the direction recommended by WGEdU, CEOS Plenary in its 14<sup>th</sup> Meeting at Rio, extended the WGEdU's term was extended for one more year. CEOS also endorsed ISRO's lead for this activity and confirmed UN-OOSA as Vice-Chair of WGEdU. CEOS Members/Associates were encouraged to support the activities of the WGEdU.

## 2. MAJOR ACTIVITIES OF WGEDU DURING 2001

4. CEOS WGEdu conducted its business through 2 teleconference meetings and a firm WG meeting held at Frascati during September 5-6, 2001. The WGEdu carried over some of the activities of the past year and also concentrated on working out the CEOS Strategy on EO Education and Training.
5. In 2001, CEOS WGEdu has followed on the activities:
  - 5.1. WGEdu team consisting of NASA, ISRO, CCRS, NASDA, UN-OOSA and ISPRS with contributions and inputs from all WGEdu Members discussed and drafted the CEOS Strategy on EO Education and Training. This was the subject of detailed discussions at Frascati and the WGEdu has finalised its recommendations and the Strategy document.
  - 5.2. CEOS WGEdu, in collaboration with ISPRS TC VI and sponsorship from ISRO, is developing a proto-type of a Internet based EO and GIS training programme with the main focus "learn while you can" and adopting distance learning concepts. This proposal was discussed at Frascati and support of CEOS Members/Associates is forthcoming.
  - 5.3. CCRS/NASDA/ISRO are coordinating for preparing an inventory of available EO materials with CEOS agencies for distribution. NASDA is hosting website of WGEdu activities and will post inventories and pointers to EO Education materials on the web. The design of a web-page and pointers to available materials is being worked out by CCRS. It is planned to link this with the CEOS home-page ultimately.
  - 5.4. DLR has finished the EO Image Gallery project – which was discussed during the 1st WGEdu meeting and is vital input for EO education and training. DLR, through support of CEOS WGEdu, has published the Image Gallery as a publication – highlighting scintillating images of the Earth from EO satellites.
  - 5.5. Established a close working relationship with the UN Regional Centres for Space Science and Technology Education – established by the UN in Asia and Pacific (India), Africa (Morocco for French language countries; Nigeria for English language countries), Latin America and Caribbean (Brazil/Mexico), Middle East (Jordan) and a Network of Space Science and Technology Education and Research Institutions for Central Eastern and South-Eastern Europe. The emphasis of these Centres is capacity building in space-related sciences and technology in developing countries. WGEdu feels that the Centres would be an opportunity for CEOS Members/Associates to further the EO Education and Training Strategy and support the outreach mechanism of the Centre appropriately. CEOS WGEdu participated in the UN Centre's Curriculum Review Meeting at Frascati.

### 3. BRIEF ABOUT 2000-QUESTIONNAIRE SURVEY

6. The WGEdu Questionnaire Survey of 2000 and the report of WGEdu is the base for developing the CEOS Strategy on EO Education and Training. A brief summary of the report is re-produced here.
7. Realising that many space agencies have made considerable efforts in EO education, training and technology transfer – both at national and international level and also that large amount of training materials and teaching aids have been developed by various space agencies, CEOS WGEdu conducted a comprehensive survey of what space agencies have already done/would like to do for EO Education and Training. The survey was useful to recommend a collective effort of CEOS and draft the future strategy for CEOS education and training group.
8. CEOS Strategy for EO Education and Training must not be ab-initio but must build or provide an over-arching framework on the already on-going efforts of CEOS agencies and other international agencies. CEOS could provide an effective coordination mechanism of the EO education and training efforts – where space agencies, institutions offering programmes, other experts could meet annually and exchange experiences and issues related to EO education and training. In particular, CEOS could address the following issues:
  - 8.1. CEOS could consider working closely with education institutions, especially the recently established UN regional Centres for Space Science and Technology Education, so as to enable the outreach of EO data/services/tools/experts to the developing countries in the world.
  - 8.2. CEOS agencies develop/promote a wide variety of materials and teaching aids and there is need to strengthen educational institutions with these resources.
  - 8.3. Educational institutions need access to the variety of EO data available from the EO satellites for building applications and enabling scholars to utilize and get familiar with them. CEOS could bring together E/T institutions and space agencies to ensure diffusion of this resource to the most needy E/T institutions.
  - 8.4. CEOS could contribute to a curricula “standardization” activity and participate in the UN efforts for the regional Centres for Space Science and Technology Education.
  - 8.5. CEOS could enable initiation of education/training programmes in newer areas - Disaster Management Support, Interferometry, Global Change, Photogrammetry, Tropical region applications, Natural Resources Management, Education/Training Technologies, High Resolution Image Analysis techniques, Hyper-spectral Imaging techniques and applications, GIS Ingest and Integrated

Modelling, Web-enabled EO techniques and Information Extraction techniques. CEOS agencies and E/T institutions need to work together to address these areas for future programmes.

- 8.6. CEOS agencies have professional experts in the field of EO and some of them could be forwarded to the educational institutions to serve as expert faculty. The best approach seems to be for E/T institutions to directly approach CEOS agencies and work out modalities – considering the positive response of the CEOS agencies.
- 8.7. CEOS WGCALVAL, WGISS and WG-DMS also address issues related to education and training and there is a need to establish a formal mechanism of coordination – either as back-to-back meetings or special dialogue sessions. This is felt essential to be able to bring about a harmony amongst the WGs on this issue.
- 8.8. EO E/T activities offer considerable scope for private sector participation and CEOS could consider promoting this as part of its Industry interface (through ISPRS).

#### **4. CEOS STRATEGY FOR EO EDUCATION AND TRAINING**

9. WGEdu was tasked to prepare a CEOS Strategy for EO Education and Training. The Strategy paper has now been finalized and is submitted for consideration and adoption by CEOS Plenary at Kyoto.
10. A Strategy needs to be backed by an implementable set of actions – basically translating the Strategy into an Action Plan. WGEdu recognized that an Action Plan must also be worked out as a proactive step towards implementation of the Strategy. WGEdu also debated on the modalities of implementing the CEOS Strategy, if adopted and approved by Plenary. It was noted that while the Strategy is a statement of intent, it is only the Action Plan that will bring out the next steps and also the scope of work to be taken up. Further, the Action Plan also helps in focusing efforts of CEOS towards defined targets and achievable milestones. After a detailed discussion, it was agreed by WGEdu that a meaningful set of actions would require the “best efforts” approach of CEOS over a 3 year period for visible achievements and success of the Strategy.
11. A set of actions that will have to be implemented has also been outlined and is included as part of the Strategy document.
12. The CEOS Strategy on EO Education and Training with special emphasis on Developing Countries (including the Action Plan) is placed at **ANNEXURE-II**.

## 5. REPORT ON E&T MATERIALS DISCOVERY INITIATIVE

13. Education and Training are recognised by most CEOS agencies and EO related educational institutions, as imperative to derive sustainable benefits from EO data and products. Many CEOS agencies have a wealth of E&T materials. A first logical step is to develop the means to make existing materials available to a broader international audience particularly in Developing Nations.
14. Should the CEOS WGEdu recommendations be ratified by Plenary at Kyoto and the CEOS Strategy and Action Plan on EO Education and Training adopted, one of the working group's initial tasks would be to coordinate an effort aimed toward easier, web enabled discovery of E&T materials. CEOS would not store or distribute these materials, but could provide access to information through the main CEOS web site, where a brief, consistent description of the materials could be provided (eventually to include, courses, workshops, experts, books, bibliographies, videos, CDs, etc) and links provided. These links may take the form of URL's, FTP sites or contact information. Availability, accuracy, currency and distribution would remain the purview of each "parent" organization.
15. As some countries holdings are vast, the suggested approach would be iterative. The initial focus would be directed at the professional development audience in Developing Nations, with a focus on materials that are available free, and Internet accessible, operable or downloadable. It is recognized that in some regions of the world the communications infrastructure and the availability of computer equipment may limit the ease of direct access.
16. A close relationship would be maintained and others developed with educational facilities such as the UN Regional Centres for Space Education and Technology. We would seek their expert advice on the continued development of the E&T Materials discovery site. As this initiative advances, International or Regional Educational institutes, offering more formal, regular seminars, workshops and diplomas, could be asked to contribute. The Asian Institute of Technology (AIT), International Institute of Aerospace Research and Earth Sciences (ITC), the International Space University, (ISU) are just a few examples.
17. In 2000, the CEOS WGEdu prepared and distributed a survey that requested a cursory inventory of education and training materials. It is proposed to build upon this inventory. While the breath of the materials will be large in content, intended audience and focus, this proposal includes a mechanism to allow a systematic, iterative cataloguing of materials. Criteria used could include, intended audience, format, type, cost, distribution mechanism, language, etc.
18. The following Action Plan has been proposed for the Education and Training Materials Discovery Initiative:

- 18.1. Extract pertinent information from the 2000 Survey.
  - 18.2. Develop a simple excel database: headings could include: Agency, Audience (professional, college and university, high schools, general public, adult education), format, language, URL, etc.
  - 18.3. The database of materials would be formatted to allow a searchable web based discovery tool. A prototype web page is under development by NASDA.
  - 18.4. Once the preliminary database has been created the information provided in the 2000 Survey would be imported.
  - 18.5. Circulate the database to all CEOS agencies requesting limited additions be added.
  - 18.6. As an iterative process a first request would be for web based, free materials, including brief descriptions and URL's.
  - 18.7. Update the database as responses are received.
  - 18.8. At regular intervals, of 6 – 9 months, secondary and tertiary target material updates would be requested. The iterative approach should reduce the burden on those agencies with a large educational capacity.
  - 18.9. Descriptions and locations of newly available materials would be accepted at any time, and periodic calls for updates would be conducted.
  - 18.10. A “what’s new” and “search” capability should be incorporated as part of the web page to facilitate the location of pertinent information.
  - 18.11. Repeat steps E-I.
19. A caveat or disclaimer is recommended, as it is beyond the scope of this initiative for the CEOS WGEdu, to ensure the quality, accuracy or otherwise vet these materials. Such responsibilities would remain with the parent organizations.

## **6. REPORT ON DLRs EO IMAGE GALLERY PROJECT**

20. DLRs German Remote Sensing Data Center in Oberpfaffenhofen, together with its partners GEO-Magazine and the publisher Frederking & Thaler has compiled a unique and stunning collection of satellite images of our planet. The proposal was brought into WGEdu by DLR in 2000 and WGEdu supported the initiative of DLR and encouraged its Members to contribute to the DLR initiative.
21. This book is a collection graphically and scientifically interesting images of most of the international organisations and companies dealing with remote sensing. Over 150 data sets from 17 international contributors were put together in a high-class book printed in the best quality currently possible. Introductory text gives a basic understanding of the principles of remote sensing and the content of each image is described individually. The book is aimed at the broad public, but will also allow for the access to the high level executives of national and international companies. The graphical approach chosen to present the images will hopefully make potential remote

sensing users to look twice and get new ideas, where remote-sensing technologies could contribute to their work.

22. WGEdu has previewed the book at Frascati and urges DLR to use the WGEdu mechanism to outreach the book to national and international educational institutions, including the UN Regional Centres. WGEdu is ready to work with DLR in maximizing the outreach of this awareness material.

## **7. RESOLUTION FOR 15<sup>th</sup> CEOS PLENARY**

23. WGEdu urges CEOS Plenary to consider and adopt the resolution placed at **ANNEXURE – III** – so as to initiate the next step of activities towards EO Education and Training.

**ANNEXURE -I**

**CEOS WGEDU MEMBERS AND CONTACTS**

**MEMBERS:**

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**SPECIAL INVITEES**

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## **CEOS STRATEGY FOR EARTH OBSERVATION TRAINING AND EDUCATION: With Specific Emphasis on the Developing World**

### **RATIONALE FOR THE STRATEGY**

Space-based, Earth observations of the atmosphere-ocean-land system have evolved substantially since the early 1960's when the first operational weather satellite systems were launched. Over the last decade, satellites have proven their observational capabilities to accurately monitor the total Earth system on a global basis. These observations are extensively used in real-time decision-making and the strategic planning and management of industrial, economic and natural resources.

Many space agencies are presently managing or planning advanced Earth observation satellites. These come at a time when an increasing number of local, national, regional, and global environmental issues are emerging as international concerns.

Concurrent with this evolution of Earth observational capability is a growing geospatial industry. While it is important to orient global Earth observational programmes toward answering key scientific questions, it is equally important to deliver the requisite data, analysis, information products and applications to operational managers, policy- and decision-makers and other non-traditional users of these products. However, these benefits are not realized in a large number of countries due to the lack of trained research and applications personnel.

Education holds the key to future Earth observation technology development and its applications. Earth observation education and training is an essential element in today's competitive world. Several countries have recognized the lack of specialists, scientists, technologists and engineers as a major impediment in the successful implementation of applications programmes. Education and human resource development is imperative to building capacities with far reaching impacts on the utilisation of space assets and data. Moreover, Earth observation data and applications are an important tool for promoting general sciences and for attracting students to scientific fields of study.

“Education” is a tool for wider outreach to the world community, capacity building and the effective management of natural resources for sustainable development. The primary target audience consists of students at all levels, teachers, professionals, policy- and decision-makers, the media, the public at large and non-traditional users of Earth observation data and information. “Training” focuses primarily on the professional and scientific community. The target audience consists of the potential professional users of Earth observation and GIS technologies.

Efforts are already being made in many arenas to address Earth observation education and training issues:

- CEOS Members currently enhance their national and international capabilities in Earth observation education through the development of educational materials and the organisation of various workshops, conferences and short-term training programmes.

- CEOS Associates and inter-governmental agencies have also initiated active programmes in education and training in Earth observation and applications.
- Specific education and training programmes are available through various international organisations such as the International Institute of Aerospace Research and Earth Sciences (ITC), European Association for the International Space Year (EURISY), the International Space University (ISU), the Asian Institute of Technology and a number of regional institutions in different countries.
- The United Nations (UN) has led the effort to establish Regional Centres for Space Science and Technology Education affiliated to the United Nations in Asia and Pacific (India), Africa (Morocco for French language countries; Nigeria for English language countries), Latin America and Caribbean (Brazil/Mexico), Middle East (Jordan) and a Network of Space Science and Technology Education and Research Institutions for Central Eastern and South-Eastern Europe. The emphasis of these Centres is capacity building in space-related sciences and technology in developing countries. These Centres provide opportunities for developing country scholars to undertake postgraduate courses in remote sensing and GIS, apart from courses in satellite communications, satellite meteorology and space sciences. The Centres also conduct short duration training programmes for professionals.
- CEOS Associates, such as the World Meteorology Organisation (WMO) and others, have training programmes in satellite meteorology. Satellite data on global processes, climate change and severe weather systems are now of prime importance – not only for meteorological applications but also toward supporting sustainable development activities. Therefore, CEOS agencies could enhance educational efforts of satmet, particularly with regards to the space component.

With Earth observation technology rapidly developing in various fields, it is in the best interest of CEOS to have an effective outreach mechanism to facilitate the integration of user defined products and services into the larger international community. One way of achieving this is through effective coordination with these education and training institutions. Such coordination would also benefit the education and training institutions by providing them with much-needed assistance. Thus, education and training programmes can be improved through CEOS involvement, and, in return, these programmes will assist CEOS and other Earth observation data providers and users by turning out the next generation of Earth observation engineers, scientists and applications specialists and increasing the usage of Earth observation data.

Therefore, education-related activities are important for CEOS to coordinate within the community at large. Doing so will prove fundamental in the realisation of one of CEOS's ultimate goals: maximizing the use of, and benefit from, Earth observation data and the various practical applications of this information. With regard to improvements in Earth observation education and training, it is recognised that particular emphasis should be placed on developing countries.

## **CEOS STRATEGY**

***The CEOS strategy for Earth observation education and training is to establish an effective coordination and partnership mechanism among CEOS agencies and institutions offering education and training around***

***the world. The key objective of the strategy is to facilitate activities that substantially enhance international education and training in Earth observation techniques, data analysis, interpretation, use and application.***

The strategy will:

- Allow space agencies, education and training providers, UN agencies and other entities to coordinate activities for specific education and training programmes and to exchange experiences and information;
- Provide opportunities for CEOS agencies, as they find appropriate, to network with educational and training institutions;
- Provide for the timely integration and refresh of Earth observation data, information and techniques into education and training programmes;
- Provide an opportunity to CEOS agencies to disseminate materials, data, information, experts and guidance, as appropriate, for improving Earth observation training and education around the world;
- Promote a growing cadre of specialists in Earth observation who will address the growing environmental questions facing the world and who will develop expanded practical applications of Earth observation data and information world wide;
- Enable better and more far-reaching outreach to the larger international community and general public;
- Underscore the relevance of Earth observation for formulating policy and for addressing environmental and development issues at local, national, regional and global levels as well as for addressing scientific questions of relevance.

## **ACTION PLAN FOR IMPLEMENTING THE STRATEGY**

The following set of actions will enable the successful implementation of the CEOS strategy. In implementing the action plan, the ad hoc Working Group on Earth Observation Education and Training (WGEdu) should consult and coordinate with the Working Group on Calibration and Validation (WGCV) and the Working Group on Information Systems and Services (WGISS) and the ad hoc WG on Disaster Management Support (DMSG). Because of the range and scope of activities outlined in the action plan, it is envisioned that it would take approximately three years to implement all the recommendations.

CEOS and its agencies should work on two fronts to implement the following action plan. Nationally, CEOS agencies should work with education, training and development agencies by providing guidance, materials and experts. CEOS agencies, where possible, should enable a linkage of these

domestic agencies with international agencies in this field. Similarly, internationally, CEOS should encourage its agencies to support the UN Regional Centres for Space Science and Technology Education and other international institutions providing Earth observation education and training.

- CEOS agencies are encouraged to work to leverage their existing training assets and programs by providing Earth observation data content and materials, such as books, lecture materials, multi-media materials, CD-ROMs, computer assisted learning modules, databases, software, exercise books, maps, image atlases, etc. Many CEOS agencies already develop and promote a wide variety of these materials and teaching aids, and there is a need to strengthen educational institutions with these resources. CEOS agencies are encouraged to make these materials available to education and training institutions and also to advertise these on the CEOS website. CEOS could contribute to efforts to standardise curricula and to expand education and training in existing and emerging areas.
- Another way CEOS agencies can work to leverage their existing training assets and programs is by providing Earth observation expertise and loaning professional experts in the field of Earth observation to international or underserved educational institutions as expert faculty.
- While recognising that CEOS agencies have their own data policies and data distribution principles, CEOS plans to draft and adopt a set of general data principles for education and training use. This set of principles will be a local addition to the current two sets of data exchange principles which CEOS agencies have adopted—the one for global change research and the one for operational use for the public benefit. The new set of data principles will enable timely and affordable access to data for Earth observation education and training efforts; improve access to the variety of Earth observation data available from Earth observation satellites and other sources for developing applications; enable teachers, trainers, students and scholars to utilise and become familiar with these data; and encourage CEOS agencies to incorporate the general CEOS principles into their own policies as far as possible and practical.
- CEOS plans to play a key role in establishing a resource library of information regarding Earth observation training and education together with an interactive, user-driven, web-based access mechanism. The CEOS Secretariat will designate a space on the CEOS web site for Earth observation education and training information together with links to related material. UN Regional Centres and other international providers of education and training are encouraged to identify and document their training resources and make this information available to the resource library. CEOS agencies are encouraged to upload information regarding their training materials, domestic programs and contact information for obtaining education and training materials to the resource library. The survey of CEOS agencies conducted in 2000 will provide the solid basis for such an addition to the CEOS web site.
- Because GIS and other applications tools have considerable scope for industry participation in education and training activities, CEOS agencies are encouraged to promote industry involvement through their interface with the International Society for Photogrammetry and Remote Sensing (ISPRS) and the private sector.
- To facilitate the continuation of international coordination in this area, CEOS intends to host an annual workshop where space agencies, institutions offering education and training

programmes and other experts could exchange experiences and address issues. This meeting will be held, if possible, in conjunction with relevant UN meetings and other symposia.

- CEOS agencies are encouraged to undertake efforts to increase awareness of Earth observation technology and applications worldwide with emphasis on developing countries. Focus should be on case studies of relevance to developing countries and on technologies that are affordable to most developing countries.
- CEOS agencies are encouraged to work with educational institutions to experiment with and demonstrate new tools and techniques for imparting education and training in the field of Earth observation.

(Recommended by WGEdu for adoption by CEOS at 15<sup>th</sup> CEOS Plenary, Kyoto)

## **DRAFT RESOLUTION FOR CONSIDERATION BY 15h CEOS PLENARY**

The Fifteenth Plenary of the Committee on Earth Observation Satellites:

**Noting** the rapidly changing trends of Earth observation technology and the increasingly varied applications of Earth observation;

**Recognising** that these changing trends create the imperative for capability-building and capacity enhancement amongst all users of Earth observation technology, especially in developing countries;

**Recognising** the efforts of many space agencies in support of Earth observation education and training, both at the national and international levels, and also their efforts in developing a substantial amount of training materials and teaching aids;

**Recognising** that there are various domestic, regional and international institutions already undertaking Earth observation education and training and that these institutions have enabled the wider outreach of Earth observation technology and applications around the world;

**Noting** the UN efforts to establish the UN Regional Centres for Space Science and Technology Education, the initiation of operational education and research programmes by these Centres, and the UNISPACE-III recommendations regarding Earth observations and education;

**Realising** that Earth observation applications have considerable societal outreach and that education and training efforts can be greatly assisted by government support and resources;

**Emphasizing** that the success of the CEOS strategy for Earth observation education and training will depend directly on the active and sustained participation of CEOS Members and Associates;

### **THEREFORE:**

**ADOPTS** the CEOS Strategy for Earth Observation Education and Training as proposed by the ad hoc Working Group on Earth Observation Education and Training (WGEdu) in its document entitled "CEOS Strategy for Earth Observation Training and Education with special emphasis on the Developing World;"

**ADOPTS** the three-year action plan for implementing the strategy as detailed in the document entitled "CEOS Strategy for Earth Observation Training and Education;"

**TASKS** the ad hoc WGEdu to initiate the implementation of the three-year action plan;

**EXTENDS** the term of the WGEdu for three years to carry out this mandate;

**INVITES** CEOS Members and Associates to nominate active representatives to the ad hoc WGEdu;

**TASKS** the ad hoc WGEdu to report to the 16th Plenary detailing the milestones achieved on the action plan to date.