

ISPRS Society



Meeting of ISPRS Council AIT, Bangkok, Thailand, from 22 - 24 May 2001

By Ian Dowman, Secretary General ISPRS

Attendees

President	John Trinder (JT)
Secretary General	Ian Dowman (ID)
First Vice President	Lawrence Fritz (LF)
Second Vice President	Gerard Begni (GB)
Congress Director	Orhan Altan (OA)
Treasurer	Ammatzia Peled (AP)

MINUTES

1. Introduction

JT welcomed members of Council and thanked everybody for coming. He also thanked Shunji Murai and the Japanese Society for organising and sponsoring the meeting. He then reviewed the main items to be covered.

2. The Agenda was revised to add minor items. The revised agenda is that given above.

3. Minutes of Previous Meetings

The minutes and actions from the Albuquerque meeting were reviewed.

4. Exchange of Views

Each member of Council described their history of involvement with ISPRS and outlined the issues which they thought were important and needed attention of Council. These issues were then discussed. The main items and conclusions on them were as follows:

Communications with TCPs and Ordinary members

It was the general view that Council communications with TCPs could be improved. Some suggestions as to how this could be done were as follows:

- Hold an extended JM with TCPs after congress
- TCPs bring proposed WG ToRs to Congress
- TCPs elected by postal vote before the Congress
- Allocate more time More time should be allocated at the Congress for Council and TCPs to meet
- Council hold briefing session for bidders before Congress
- TCPs should communicate more with Commission Correspondents (CCs) and with Ordinary Members (OdMs); CCs could contribute to annual report

Council Communications

It was not thought desirable for Council to meet more

often, however use should be made of teleconferencing if appropriate.

Structure of Commissions

Council recognised that there was a view amongst some individuals in ISPRS that the commission structure should be overhauled. Council were of the view that a major change was not necessary. The present structure allows flexibility and there was no harm in having overlaps between commissions. Comments from ISAC had been generally favourable to the current structure and ToRs. However, TCPs should be consulted on this.

Headquarters

Council reaffirmed its view that a permanent office was not appropriate at present but that SG should appoint an assistant who is able to carry out routine business independently of the SG. It was confirmed that funds were available in the budget for this and that SG should employ a suitable person as soon as possible.

Publicity

ISPRS should have a mechanism to publicise its activities. A mailing list of journals should be set up and maintained to distribute press releases.

It was also suggested that ISPRS could raise its profile by appropriate publicity mechanisms. One example, is to produce a season's greeting card including a photo of Council taken during the Council Meeting in London.

Economic and environmental issues relating to photogrammetry, remote sensing and spatial information sciences

ISPRS could play a role in addressing such issues as the cost effectiveness of RS and in supporting the role of RS in developing environmental agreements. There is a problem of finding someone who was suitable and willing to undertake this task. A joint activity with other organisations was possible, for example, EARSeL. IPAC should be asked to advise on this. Council also noted the report from the workshop in Seville (see 5.4)

Other issues mentioned but not discussed in detail: Publications - book series/special publications; importance of strategic plan; appointment of marketing manager, co-operation with international societies; more involvement of industry; strengthening of ISPRS in areas of GIS and RS; improve public recognition of ISPRS; strengthen financial position; involve more individuals in ISPRS affairs through

more committees (awards, secretariat, reporting); transfer of office; role of ISAC.

5. Policy Matters

5.1 Registration of ISPRS

JT reported on his discussions with various organisations and individuals concerning registration and that he had concluded that the best place for registration was in Switzerland. He will organise the registration with the assistance of through the Swiss Topographic Service in Wabern bei Bern, which will be the permanent address of ISPRS for the purposes on registration. Council agreed that changes in the Bylaws be put to the members of the GA for approval. This would be done by normal mail and electronic mail.

Council approved President and Secretary General as signatories for the registration.

5.2 Strategic Plan

LF reported on achievements so far.

ISPRS Foundation LF introduced draft bylaws. Discussion centred on composition of the Board of Trustees. It was agreed that the composition should be 6 Council, 6 appointed by Council, (ratified by GA), from 'members' or individuals associated with ISPRS, to reflect region, gender, sector (public, private, academic). It was also necessary to revise bylaws to distinguish between payment of trustees and operating costs. It was agreed that the Financial Commission can provide the annual audit.

It was noted that donations of \$100,000 plus were expected, but a critical mass had to be reached before money could be distributed. Council need to decide how to ramp up activity and when a marketing manager should be appointed.

The next step requires Council to approve Bylaws (GA had approved the Strategic plan), but the registration of ISPRS must be completed before any further progress can be made. ISPRS will require a marketing manager - but there is the need to find funds to support him/her.

The proposed launch date is the March 2002 CM and then promoted at the ICORSE and ISPRS Symposia in 2002.

5.3 IPAC and ISAC

ToRs were reviewed and approved.

It was noted that the procedures for consulting ISAC need to be reviewed so that comments and suggestions can be received in future at an appropriate time, particularly in relation to resolutions at GA and ToRs of Working Groups.

5.4 Task forces

JT had been unsuccessful in finding a person to lead

the task force on International Policies and Treaties. GB is setting up a group for EARSeL on this topic and he agreed to act as point of contact for ISPRS.

It was suggested that session(s) on this topic be held at appropriate Symposia in 2002.

LF tabled a report on 'The contribution of space systems to the development and implementation of multilateral environmental agreement' from a Workshop on International Space Co-operation in Seville. It was agreed that this contained valuable information and that LF would condense the report for Highlights.

5.5 ICORSE.

The ICORSE 2002 conference will be held in Buenos Aires in March/April. At the request of ICORSE, Council agreed that it would plan several ISPRS joint sessions. It was suggested that one of these sessions could cover international treaties, GB to be point of contact for this topic.

6. Review of Technical Commissions

6.1 Symposium Dates

The dates given in CMBang6.1 were reviewed and approved. It was noted that the dates in the contract for Commission I Symposium are in error, and hence the contract should be amended. The final dates are as follows:

July 9-12	Ottawa	Comm IV Symposium
Aug 20-23	Xian	Comm II Symposium
Sept 3-6	Corfu	Comm V Symposium
Sept 9-13	Graz	Comm III Symposium
Sept 16-20	Sao Jose dos Campos	Comm VI Symposium
Nov 11-15	Denver	Comm I Symposium
Dec 2-7	Hyderabad	Comm VII Symposium

6.2 Proceedings/abstracts/papers on line

Council considered a proposal from EB to put all abstracts and papers from Symposia on the ISPRS website, (Paper CMBang6.3). This proposal was considered together with TCP plans for producing Archives for the symposia and their comments on EB proposals.

Council agreed that a central archive on the web was a good idea, subject to further discussion with the Webmaster and TCPs on the practical issues of providing material in the right format and with suitable browse and search tools being available. The central archive would be restricted to final presented papers. TCPs are encouraged to put abstracts on their Commission/Symposium web site prior to the symposium.

6.3 Comments from ISAC

The comments from ISAC members were reviewed and some ToRs were changed. Those TCPs which had

not already commented would be asked to do so on certain points.

Council expressed their appreciation of the work of the ISAC members.

7. Congress

The opening session will centre on cultural aspects rather than technical. JT noted that Council expects a technical keynote speaker as part of the opening. OA noted that a special plenary session for keynote speakers could be arranged. GITC will co-operate in some aspects such as daily newsletter.

Promotional items are being considered (stamps, T shirts etc).

It was necessary to ensure maximum discussion between TCPs and conference organisers, both in planning the programme (at the JM in December 2002) and in planning the sessions after abstracts had been received. OA should prepare a discussion paper for TCPs in advance of the JM in London.

8. Reports from Council

Written reports were received from JT, LF, ID.

AP had produced maps of membership for the website OA had attended a meeting of Bulgarian Society in Sofia and the retirement event of Prof Albertz in Berlin.

9. Membership

9.1 ID reported that there was no change in the number of Ordinary, Associate or Regional Members. An application for Associate membership (Cat 1) had been received from LAPAN in Indonesia. This was approved by Council

NASA had been admitted as a Sustaining Member (Cat A), and Council approved the application of Aerosysteme of Germany (Cat C).

9.2 It was decided that Associate Members should be informed of the new Bylaws relating to Categories of Associate Memberships and advised of the Category to which they belong. They should be asked to confirm this Category or nominate what they believe is the correct Category. Arrears in subscriptions should be paid at the new rate.

9.3 Promotion of Regional Activities by Members
After discussion on this issue it was decided to write to Regional Members and encourage them to work with ISPRS in the following ways:

- Organise a session at locally organised meetings
- Send representatives to regional conferences
- Consider collaboration with relevant ISPRS WGs

10. Publications

10.1 Silver Book

The new Silver Book has been printed and distrib-

uted. There is a problem with printing the logo on coloured backgrounds. Tuan-chih Chen to be asked produce more suitable versions for different applications, particularly for printing in black and white, which shows star, distinctly displays motto and displays well in colour on various backgrounds.

ID should use standard cover for Silver, Blue and Orange Books. Alternative formats for Silver Book, such as a CD-ROM should be considered. Amendments to Silver Book, such as inclusion of ISAC and IPAC should be put on the web and a new version should be distributed on a CD.

10.2 Blue Book/database

Council reviewed proposals for the data base and authorised ID to continue with a number of changes which were proposed.

10.3 ISPRS Highlights

The long term plan for Highlights was reviewed and the following suggestions were made:

- A greater variety of images for the front cover is needed
- LF would prepare a report on the meeting in Spain on 'The Development and Implementation of Multilateral Environmental Agreements'
- JT would prepare a statement on the ICSU grant application
- GB would prepare an article on studies on Land Cover in the Mediterranean region
- TCPs should be reminded to submit announcements and reports of meetings

10.4 Brochure

This should be distributed with the Blue Book

10.5 Home Page

Generally being looked after very well, but should be kept under review.

10.6 Archives

Council agreed that RICS should continue to distribute the Archives which they hold from a reduced stock with no return to ISPRS. The surplus stock should be donated to organisations in developing countries which could make good use of them. Council approved a sum of SwF2000 to cover distribution costs. LF to provide ID with address list of African libraries holding relevant Society publications.

10.7 Orange Book

The need for revisions to the Orange Book were identified.

11. Finance

AP explained in detail the Financial Report, which

had been previously circulated. The Lugano account had now been closed.

Council approved the report.

AP asked if we should include funds for sponsorship of scientific initiatives. It was noted that no applications had been received this year from TCPs. There was however an application from ISU to support a student project. Council was sympathetic to this but need more information.

12. Relations with International and Other Organisations

12.1 CEOS

WGCV ID to attend next meeting. He should discuss with the chair of WGCV whether appropriate WG Chairs should be invited.

ISPRS was included on the WGISS mailing list WG Ed is progressing with JT on a sub-committee to determine further actions

IGOS: it was questioned whether it is appropriate for ISPRS to be involved in IGOS.

Disaster Group. Vern Singhroy attended a meeting of this group in Paris on behalf of ISPRS

12.2 COPUOS

ISPRS should be involved in the workshop at the COPUOS Meeting in Feb 2002

JT to attend UN Economic Commission for Africa meeting in Addis Ababa in September.

12.3 ICSU

An application was submitted for a grant on sustainability indices, a response was due soon..

12.4 UATI

JT reported that HR had been awarded a grant from UNESCO for the Lalibela project. This should be publicised in Highlights and other Journals.

Council noted that Heinz R ther had agreed to act as ISPRS representative on the World Heritage Center Virtual World Conference in October 2002.

12.6 ISO

The issue of standard of qualifications in GIS/Geomatics should be pursued at the Joint Board.

12.7 OGC

The SIG in Earth Observation to be pursued with WGII/4

13. Review of Actions on Council

Council reviewed the action list and updated it as necessary.

14. Date of Next Meeting

The next meeting of Council would be a Joint Meeting with TCPs in London from 8th -13th September

There being no other business, JT thanked everybody for their contributions and closed the meeting.



Anatolia – The Cradle of Civilisations

By M. Orhan Altan, ISPRS 2004 Congress Director

As you may recall, the XXth ISPRS Congress will take place in 2004 in Istanbul, the old capital of the Ottoman Empire. In the coming issues we intend to give you an overview of the past civilisations which have left their indelible mark on Anatolia, which today is modern Turkey.

From the very start of recorded history, we have archaeological evidence of people of the stone, iron and bronze age, followed by Assyrian, Hitite, Frigians, Lycians, Urartu, Ionians, Persians, Hellens, Romans, Byzantines, Selcuk and Ottoman peoples, culminating in the present modern Turkish people, truly a melting pot of civilisations and a treasure trove for historians and archaeologists.

Let us remind you of just a few highlights of this vast historical mozaic. Around the perimeter of Sarı Mountain,



there are remains dating back to the Paleolithic, Neolithic and Mezolitik ages in a cave known as the Karain Cave. One of the two most important settlements of the Neolithic age are at Catalhoyuk (Central Anatolia) and at Hacilar (near Burdur, near our Southern Coast).



The so-called Gate of Lions: lion figures are typical of the Hittite period and date to the 14th-13th century B.C

Excavations carried out at the tumulus known as Cayonu, near Diyarbakir in S.E. Turkey have yielded artifacts, which when dated by the carbon C-14 method have proved to date between 7250 and 6750 B.C. Of great historical importance is the fact that these people were the first to domesticate dogs, sheep and goats. Furthermore the same people were the forerunners of the later civilisations who worshipped the mother goddess and their figurine statues predate those uncovered in Catalhoyuk. For another first example of in archaeology, let us turn to the necropolis for noblemen at Islahiye in Southern Turkey. This is the earliest example of cremation, where the deceased were partly cremated after which it was wrapped in cloth before being buried together with suitable funerary offerings.

Troy, in Western Anatolia, with its 9 levels of civilisation is unique in its beaten gold jewellery. This industry relied on gold being brought by Assyrian merchants, who also brought with them a primitive form of writing which was used to record commercial transactions.

Around 1380 B.C., the great Hitite empire was a thriving political entity, when Ramses II of Egypt invaded Syria, much to the displeasure of the Hitites, who fought them at Kades, which was followed by the Treaty of Kades, this being the first written treaty, part of which can now be seen at the Anatolian Museum in Ankara. The Hitites were dedicated scribes, writing on clay tablets, episodes from their daily lives as well as their commercial transactions, a very large number of which has survived, thus giving us a very detailed account of their social and political structure.

In 1200 B.C. Anatolia was invaded by the seafaring peoples from across the Aegean, while from the West there came the hordes of Assyrians, who pillaged all they encountered. However around 900 B.C., the small tribes living

around Lake Van in Eastern Turkey joined together to form what was to be known as the Urartu civilisation and which was to last all of 300 years. Believing in numerous gods, many of their clay tablets have survived giving us a very detailed account of their lives and beliefs. Their primary contribution to civilisation has been the advances in the field of architecture which was also to influence Persian architecture.

Meanwhile central Anatolia was coming under the influence of the Grigians, who originally came from Europe. From around 300 B.C., the state capital was at Gordion where their most famous ruler Kong Midas, about whose wealth and prowess stories abound, held sway.

Further to the west, we see the appearance of the Lydian civilisation with its capital at Sardes. However, this state, which appeared to be extremely wealthy and powerful for a time, only lasted for about 140 years.

A further interesting point in history is the peace treaty between the Kimmar and the Meds, two lesser kingdoms who had been fighting each other for five years. On the 28th of May 585 B.C. a total eclipse of the sun took place which was taken by the warring sides as a call from the gods for a peace settlement. However the eclipse had been foretold by Thales from Miletus, which confirms the advance level of the scientific knowledge alongside heathen practises.

Another important figure of these times was King Croseus, widely known for his great wealth and generosity. He is also noted for his sizeable contribution to the raising of the Temple of Artemis at Ephesus in Western Anatolia, a temple which was one of the seven wonders of the ancient world.

Anatolian civilisations were the forerunners of many things, among them the invention and regulation of coins to replace the current medium of barter. The Lydians from the Southern shores of Anatolia bordering on the Mediterranean were the first to blend gold and silver when casting their coins, calling them "electrons" which were later to find favour with the Grecian civilisations, and through them, to spread throughout the known world.

In this short overview of civilisations which lived and left their mark on Anatolia, we hope we have been able to give you an insight, all be it somewhat superficially, of the vast treasures to be found in Turkey. We have a large number of regional museums where you can see prime examples of these civilisations and we also have two outstanding museums, the Archaeological Museum in Istanbul and the Anatolian Civilisations Museum in Ankara, both of which are well worth a visit.



Symposium Announcement of ISPRS Commission I

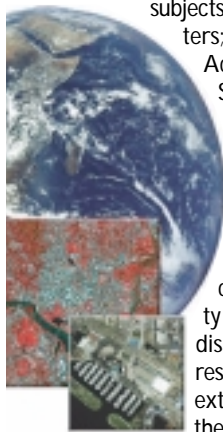
'Integrating Remote Sensing at the Global, Regional and Local Scale', Denver, CO, USA,

8-15 November 2002

By Stan Morain, TC I President

The ISPRS Commission I Mid-Term Symposium and the 15th William T. Pecora Memorial Remote Sensing Symposium/Land Satellite Information IV Conference will be held jointly in Denver, Colorado, USA.

The Commission I technical programme will consist of sessions, workshops and tutorials focusing on Working Group subjects including: Defining Sensor parameters; Sensor Calibration and Validation; Active Sensor Systems; Advanced Sensor Systems; Platform and Sensor Integration; and Airborne Optical Sensor Systems. In addition, the ISPRS programme will have integrated sessions with the Pecora/Land Satellite tracks, including natural resources, forestry, agriculture, environment, national security and policy issues, transportation, and disasters, hazards, and emergency response. These integrated sessions will extend the topics of Commission I into the Pecora Symposium by providing technical background on sensors and platforms.



The conference will also feature posters, exhibits, technical tours, social events, and an award programme including the ISPRS best poster award and young authors award, and the William T. Pecora Award.

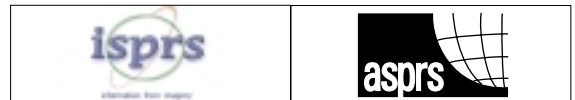
An official call for presentations is forthcoming. The deadline for abstracts will be May 2002.

Attention Exhibitors

Exhibit space is limited. Interested exhibitors should contact Truby Chiaviello, Exhibit and Advertising, by email at potompub@aol.com or by phone at 1-202-333-1421.

Information on the Commission I Mid-Term Symposium can be found at <http://www.commission1.isprs.org>. Information on the Pecora/Land Satellite Symposium can be found at <http://www.asprs.org>.

Conference Organisers



Conference Co-Organiser: Transportation Research Board (TRB)

Sponsors: U.S. Geological Survey, U.S. Department of Agriculture, National Imagery and Mapping Agency, the National Aeronautics and Space Administration, the Environmental Protection Agency, the Department of Transportation, the Federal Geographic Data Committee and the National Oceanic and Atmospheric Administration. Co-operating Organisations: ERIM International and the National States Geographic Information Council.



Symposium Announcement of ISPRS Commission II

'Integrated System for Spatial Data Production, Custodian and Decision Support',

Xi'an, China, 20-23 August 2002

By Jun Chen, TC II President

Organiser

- ISPRS Technical Commission II (Systems for Spatial Data Processing, Analysis and Representation)
- Chinese Society of Geodesy, Cartography and Photogrammetry
- State Bureau of Surveying and Mapping of China

Sponsors

- The Ministry of Science and Technology of China
- National Natural Science Foundation of China

- China Association of GIS
- National Geomatics Center of China
- Shaanxi Bureau of Surveying and Mapping

Invitation

You are cordially invited to participate in the International Symposium and Exhibition of Technical Commission II, International Society for Photogrammetry and Remote Sensing (ISPRS)

During the past few years, systems for spatial data production from digital imageries are becoming more operational and easier to use. There have been increasing demands in the development of systems for spatial data custodian and delivery. More and more attention is now paid to value-added products and services. With this background, the Integrated Systems for Spatial Data Production, Custodian and Decision Support is chosen as the theme of the mid-term symposium of ISPRS Com. II during the period 2000-2004. It covers such topics as systems for automated geo-spatial data production and updating from imagery, real-time mapping technologies, systems for SAR and LIDAR processing, integrated systems for information services, image data standards, design and operation of spatial decision support systems, spatial analysis and visualization systems.

This symposium will serve as an interdisciplinary forum for leading researchers in the related areas to present the latest development and applications, to discuss the cutting-edge technology, to exchange research ideas, and to promote international collaboration in this field. You can contribute to this important international exchange by delivering a paper and by participating the midterm symposium.

You are welcome to Xi'an.

Topics Of The Symposium

Technical Commission II is structured by seven working groups, one of them is inter-commission working group with Technical Commission IV. The topics of the midterm symposium will deal with the Terms of Reference (ToR) of these several working groups.

WG II/1: Real-time mapping technologies

Chair: Rongxing (Ron) Li (The Ohio State University, U.S.A)
Co-Chair: Norbert Haala (Universität Stuttgart, Germany)
ToR: Design and development of integrated real time mobile data collection systems and autonomous vehicle navigation systems; Real / near real time processing of mobile mapping data; Systems aspects related to sensor calibration, data reduction and optimization and sensor information processing; Automation of information extraction from mobile mapping sensor data; Integration of navigation and mapping sensors

WG II/2: Systems for SAR and Lidar processing

Chair: Bryan Mercer (Intermap Technologies Corporation, Canada)
Co-Chair: Charles Toth (The Ohio State University, U.S.A)
ToR: Evaluation and assessment of systems for processing SAR and LIDAR data; Systems for generation and editing of DEMs from InSAR and LIDAR; Multi-frequency SAR, multi polarised SAR, reflectance data from LIDAR, multi-pulse and array sensor systems for applications; Systems for integration of SAR, LIDAR and optical systems; Data quality, calibration and standards of SAR and LIDAR; Liaison with other groups such as CEOS and OEEPE.

WG II/3: Integrated systems for information services

Chair: Poul Frederiksen (Technical University of Denmark, Denmark)
Co-Chair: Chongjun Yang (National Engineering Center for Remote Sensing, China)
ToR: Systems for integrating existing geo-spatial data and new acquired spatial information as well as administrative data for spatial data custodians; Assessment and development of database archiving and maintenance strategies; Integrated services involving economic, technical and political aspects; Geo-spatial information distribution and accessibility systems using internet (including cost and pay models); Liaison with CEOS WGISS and other relevant organizations; Development and validation of end-to end spatial data access systems.

WG II/4: Image data standards

Chair: Wolfgang Kresse (Fachhochschule Neubrandenburg University of Applied Sciences, Germany)
Co-Chair: Liping Di (NASA/Raytheon ITSS, U.S.A)
ToR: Analysis of the requirements for standardized image data exchange formats; Characterization of a universal sensor mode; Development of a metadata standards which includes all necessary sensor parameters within their technical and their application environment; Collaborate with ISO/Technical Committee 211 (TC211) and OGC on imagery related standards.

WG II/5: Design and operation of spatial decision support systems

Chair: Wolfgang Kainz (ITC, The Netherlands)
Co-Chair: Qiming Zhou (Hong Kong Baptist University, Hong Kong, China)
ToR: Development of concepts, implementation techniques and tools of image-based spatial decision support system (SDSS)s; Integration of different types of data (field and object) and systems in SDSSs; Integration of knowledge-based system and artificial intelligence with SDSSs for problem solving and decision-making support; Cooperation between users, producers and system designers for integrated SDSSs.

WG II/6: Spatial analysis and visualization systems

Chair: Zhilin Li (The Hong Kong Polytechnic University, Hong Kong, China)
ToR: Web-based systems for value-added data analysis and visualization; Mobile-based systems for visualisation and value-added data analysis; Systems for on-demand visualisation and value-added data analysis; Image-based systems for visualization and spatial analysis; Integration of 3D, temporal and dynamic aspects into spatial analysis and visualisation systems.

IC WG II/IV: Systems for automated geo-spatial data production and updating from imagery

Chair: Christian Heipke (University of Hanover, Germany)
Co-Chair: Ammatzia Peled (University of Haifa, Israel)

ToR: Advancement of digital photogrammetric workstations; Development of new functionality for digital airborne cameras and GPS/INS integration; Evaluation and implementation of semi-automated systems for object capture and update; Facilitate the integration and interfacing of photogrammetric, CAD, and GIS systems; Transition of experimental systems for data acquisition and revision into operational and commercial solutions (co-operation between academia/ research and industry); GIS-driven change detection, spatial data capture and revision; Consistency estimation and quality control of spatial data.

Call For Papers

You are kindly invited to submit a paper for the technical sessions of the symposium. Please submit first an extended abstract with at least 800 words in English (The official language of the symposium) to the Symposium Secretariat not later than January 31, 2002. Authors will be notified of the acceptance by March 31, 2002. The authors of accepted papers are requested to submit their full paper not later than May 31, 2002.

Deadline for extended abstracts	January 31, 2002
Notification of acceptance	March 31, 2002
Deadline for final manuscripts	May 31, 2002

Young Author's Award

There will be four "Young Author's Awards" to be dedicated to young authors not older than 35 years who submitted excellent papers. The applicants for the award are requested to be the first authors and should present the papers at the symposium. Please mark the extended abstract as application for the Young Author Award and submit the full paper for consideration to the Symposium Secretariat not later than May 31, 2002

Symposium Website

For up-to-date information on the Symposium and ISPRS Commission II, please visit: <http://isprs2.nsd.gov.cn/> or <http://www.commission2.isprs.org/>

Symposium Secretariat

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Local Attractions And Tours

Xi'an (or Chang'an as it was known in Chinese history) is a very famous city situated in the northwest part of China. It served as the capital of eleven dynasties for about 1160 years altogether, including the Western Zhou (1122 B.C.-770 B.C.), Qin (221-207 B.C.), Western Han (206 B.C.-A.D.24), Sui (581-618) and Tang (618-907). As early as in the Tang dynasty, Xi'an was already a metropolis with a population over one million. It was the starting point of the Silk Road, a famous ancient route from China to the Western.

There are numerous ancient cultural remains and renowned tourist attractions in/around Xi'an, such as the Museum of Qin Terra-Cotta Soldiers and Houses, remains of the primitive settlement at Banpo village, Mount Lishan, tomb of the Yellow Emperor, Tomb of Qin Shi Huang, Zhaoqing (tomb of Tang Emperor Tai Zong), Qianling (tomb of Tang Emperor Gao Zong with Empress Wu Zetian) and Maoling, the Big Wild Goose Pagoda, Small Wild Goose Pagoda, Bell Tower, the Forest of Steles and Crouching Dragon Temple. The magnificent Mt. Huashan stands thirty-five KM to the east of Xi'an, and the excavation site of the fossils of Lantian Man lies 15 KM to the northeast of the city.

Many modern tourist facilities have been built in Xi'an for accomodating visitors from home and abroad. There are flights from Xi'an to other major Chinese cities everyday.

Visiting tours are available during and post the Symposium. You'll find Xi'an and its nearby sites very interesting.

Abstract Form

To be completed and returned by mail, fax or e-mail to:
ISPRS Com.II Symposium Secretariat
National Geomatics Center of China
No.1 Baishengcun, Zizhuyuan, Beijing, 100044, P.R.China
Fax: +86 10 68424101 Tel: +86 10 68483218
E-mail: isprs2@nsdi.gov.cn



Symposium Announcement of ISPRS Commission III

'Photogrammetric Computer Vision', Graz, Austria, 9-13 September 2002

By Franz Leberl, TC III President

We invite you to attend the ISPRS-Commission III Symposium 2002, to present scientific work or to offer a tutorial. The Symposium will be organised by the 8 Working Groups of Commission III and one Inter-Commission-WG:

Working Groups

- III/1: Sensor Pose Estimation
- III/2: Surface Reconstruction from Images
- III/3: 3-D from Airborne Laser Scanner and InSAR
- III/4: Automated Object Extraction
- III/5: Algorithms for Industrial Vision
- III/6: Multi-Source Vision
- III/7: Modelling Large Scale Urban Environments
- III/8: Reliability and Performance of Algorithms
- IC V/III: Image Sequence Analysis

Topics To Be Addressed

We request submissions on the topics of the 9 Working Groups and on additional subjects relating to the Terms of Reference of Commission III, thus the Theory and Algorithms for Photogrammetry and Remote Sensing.

Programme

Tutorials:

9th of September, 2002. At Graz Technical University, Inffeldgasse 16.

Scientific Programme:

10th to 12th September 2002. At Graz Congress, in the historic center.

Post-Symposium Tour:

13th September 2002. To be defined.

Call for Papers – Important Dates

For oral presentation, a full paper is to be submitted for a double blind peer-review.

For poster presentation, an extended abstract of about 1000 words suffices for a simplified review.

Submission deadline: **15 March 2002**

Acceptance notification: **31 May 2002**

Final manuscript due: **31 July 2002**

All accepted papers will be printed in the proceedings and will be available at the Symposium.

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Symposium Announcement of ISPRS Commission IV

'GeoSpatial Theory, Processing and Applications', Ottawa, Canada, 9-12 July 2002

By Costas Armenakis, TC IV President

Joint International Symposium on GeoSpatial Theory, Processing and Applications

First Announcement and Call for Papers

Ottawa Congress Centre / Westin Hotel Complex, Ottawa, Canada from 9-12 July 2002

You are cordially invited to participate in the 2002 Joint International Symposium and Exhibition on 'GeoSpatial Theory, Processing and Applications'. This collaborative symposium has been planned to foster closer relations and provide opportunities for greater interaction among the geomatics communities especially among those involved in research, development, applications, or management of geo-spatial data and information. Jointly the ISPRS Commission IV 2002 Symposium, the Spatial Data Handling 2002 Symposium and the 95th Annual Geomatics Conference of the Canadian Institute of Geomatics (CIG) will be held together in Ottawa, Canada between 9-12 July 2002. Tutorials and workshops are scheduled for the 8th of July 2002.

Symposium Organisers

This International Joint Symposium is co-organised by:

- ISPRS Commission IV: Spatial Information Systems and Digital Mapping, (www.commission4.isprs.org)
- IGU Commission on Geographic Information Science, (www.hku.hk/cupem/igugisc)
- Canadian Institute of Geomatics, (www.cig-acsg.ca) with the support of Natural Resources Canada, Geomatics Canada (www.geocan.nrcan.gc.ca).

Symposium Location

The venue of the Symposium is the Ottawa Congress Centre / Westin Hotel complex located beside the Rideau Canal in the centre of Ottawa, Canada's national capital. It is within walking distance of hotels, restaurants, shopping centres, the Parliament Buildings, the National Arts Centre, the National Gallery of Canada, museums and numerous cultural attractions. There are various seasonal festivals and also natural destinations such as the Gatineau Park and the Ottawa River.

ISPRS Commission IV 2002 Symposium

The International Society for Photogrammetry and Remote Sensing (ISPRS) is a non-governmental international organisation, devoted to the development of international co-operation for the advancement of knowledge, research, development, education and training in photogrammetry, remote sensing and spatial information sciences, their integration and applications, to contribute to the well-being of humanity and the sustainability of the environment.

ISPRS Commission IV addresses science, technology and applications and promotes excellence in the fields of spatial information science and systems, digital mapping from air- and space-borne sensors, and integration of remotely sensed imagery with spatial information systems. The major emphasis of the Commission IV Symposium is in the transition from data, through information, to knowledge for better understanding of our spatial environment.

Spatial Data Handling 2002 Symposium

The International Symposium on Spatial Data Handling (SDH) is the premier research forum for Geographic Information Science (GISc) of the International Geographic Union (IGU). The SDH first started in 1984, and following the first symposium have been held every two years since that time.

The SDH symposia have become the bi-annual focal point for advances in GIS research. SDH has been established to bring together in an intimate setting an international group of interdisciplinary researchers who are working at the cutting edge of new approaches of handling geographic data. It offers a unique opportunity to exchange ideas, and present research progress and results. The presentations at SDH are generally considered to represent the state of the art in this field.

95th CIG Annual Geomatics Conference

The Canadian Institute of Geomatics (CIG) is the national, societal home for geomatics professionals, technologists and technicians and is devoted to advancing the development of geomatics in Canada. Founded in 1882, CIG has 17 branches nationwide which include land surveyors, hydrographers, photogrammetrists, engineering and geodetic surveyors, remote sensing specialists, GIS/LIS specialists, cartographers, equipment manufacturers and suppliers, and persons in related fields of engineering, planning, natural resources and environmental science.

CIG represents the Canadian geomatics community through membership in three international organisations: Fédération internationale des géomètres, the International Society for Photogrammetry and Remote Sensing, and the International Cartographic Association.

Important Dates

For ISPRS Commission IV 2002 Symposium

Deadline for extended abstracts
(750-1000 words)

15 November 2001

Notification of acceptance of papers
and posters 15 January 2002
Deadline for Young Author's paper Award
(full paper) 1 March 2002
Deadline for submission of full papers 15 March 2002

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Information and Inquiries

For information on registration, sponsorship, exhibition,
workshops, accommodations and general inquiries, please
visit: www.geomatics2002.org or contact:



Symposium Announcement of ISPRS Commission VI

'New Approaches for Education and Communication', São Paulo, Brazil, 16-18 September 2002

By Tania Maria Sausen, TC VI President



First Announcement and Call for Papers

New Approaches for Education and Communication
16 – 18 September 2002
PROMENADE – Enterprise Hotel Convention Center
São José dos Campos, São Paulo, Brazil
www.commission6.isprs.org

Working Groups Involved:

WG VI/1 Education and Training
WG VI/2 Computer Assisted Teaching
WG VI/3 International Co-operation and Technology
Transfer
WG VI/4 Internet Resources and Distance Learning

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Deadline for extended abstracts
(750 – 1000 words) 15 January 2002
Notification of acceptance 15 March 2002
Deadline for submission of final papers 15 May 2002

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ISPRS Symposium Dates 2002



July 9-12	Ottawa	Comm IV Symposium
Aug 20-23	Xian	Comm II Symposium
Sept 3-6	Corfu	Comm V Symposium
Sept 9-13	Graz	Comm III Symposium
Sept 16-20	Sao Jose dos Campos	Comm VI Symposium
Nov 11-15	Denver	Comm I Symposium
Dec 2-7	Hyderabad	Comm VII Symposium

CHANGE OF OFFICER

Ms. Tamara Bellone has accepted to be the new co-chair in TC VI WG 3

The WG 3 Chair is Dr. Ulrike Rivvet and the Co-chair is Ms. Tamara Bellone



Report to ISPRS General Assembly on Inter-organisational Relations – July 2000

By John C. Trinder, Secretary General ISPRS 1996-2000

The Society's role in promoting international co-operation in the photogrammetry, remote sensing and spatial information sciences has continued to expand over the period 1996-2000. This report summarises the major developments in those activities with international organisations which ISPRS has relations.

There are three categories of organisations with which ISPRS is associated, organisations of the United Nations, other related UN organisations and other Societies in

related sciences and technologies. The most significant activities of these organisations will be summarised.

United Nations

UN-Office for Outer Space Affairs (OOSA)

OOSA is responsible for the Committee on the Peaceful Uses of Outer Space (COPUOS). ISPRS is a Permanent Observer Member of COPUOS. Since 1989, ISPRS has attended and presented technical reports and statements

at the annual Science and Technology meetings of COPUOS in February and the COPUOS Full Annual meetings in June.

On 25 April 1997 a Memorandum of Understanding (MoU) between the OOSA and ISPRS was signed by Dr. Jasentuliyana, Deputy to the Director-General UN and OOSA Director, and President Fritz of ISPRS. In summary, the terms of the MoU commit both parties to:

- Promote and conduct activities of mutual interest to the UN Space Applications Programme (UNSAF) of OOSA
- Jointly aim to sponsor an event annually
- Jointly co-ordinate schedules, events, topics and/or specialist needs in pre-planning related activities
- Jointly seek financial support and identify specialists and lecturers for UN led events which require photogrammetric, remote sensing and Geographic Information Systems expertise
- Have ISPRS incorporate formal opportunities within the framework of UNSAF to be included in the quadrennial ISPRS Congress and the relevant Quadrennial ISPRS Commission Symposia and Working Group activities
- Request ISPRS to provide scientific and technological expertise through reviews, evaluations and recommendations on space-related matters of remote sensing

A major event in the activities of OOSA was the UNISPACE III Conference held in Vienna in July 1999. It was the first such event since 1982 and was intended to develop plans for the member states of OOSA for the next 5 years. As well as Plenary and Committee meetings, many technical workshops were staged by international organisations such as ISPRS, and a major Space Exhibition was also held. ISPRS was provided with exhibition space free of charge and held a display of its remote sensing activities and the Amsterdam Congress. At UNISPACE III, ISPRS presented a policy statement on remote sensing to the General Assembly plenary. It also held three events as follows:

- Workshop on "Resource Mapping from Space"
- Workshop on "Remote Sensing for Detection, Monitoring and Mitigation of Natural Disasters" together with EARSeL
- Seminar on "Environment and Remote Sensing for Sustainable Development" together with NASA

A Special Session 'UNISPACE III Revisited' was organised at the Amsterdam Congress, to review the findings at the UNISPACE III conference.

ISPRS has also jointly held two conferences in conjunction with OOSA, "The 2nd UN International Conference on Spin-off Benefits of Space Technology: Challenges and Opportunities" in Florida, USA April 1998 and a meeting "Promoting Space Technology Transfer and Geomatics Education in Africa" in Benin, jointly organised by ISPRS Working Group VI/3, "International Co-operation and Technology Transfer", the Regional ISPRS member, AARSE (African Association for Remote Sensing of the

Environment), CENATEL, and the Benin Centre National de Teledetection et de Surveillance du Couvert Forestier.

UN - Statistics Division

The Regional Cartographic Conferences, which have traditionally been held under the auspices of the UN Economic and Social Council (ECOSOC) have now been transferred to the UN Statistics Division. ISPRS participated in a Special Working Group Meeting of Experts and Delegates of the UN Regional Cartographic Conferences held during March 1998 in Aguascalientes, Mexico in a review of the future of Regional Cartographic Conferences. Given the current lack of adequate mapping in many parts of the world and the recognised future role of GIS, both ISPRS and the International Cartographic Association (ICA) have urged the maintenance of these conferences, since they play an important role in the future provision of essential spatial data for planning and maintenance of the environment.

UN Economic and Social Council (ECOSOC)

ISPRS is an accredited NGO in consultative status with both New York and Vienna offices. ISPRS receives many reports and announcements from the Council.

UNESCO

ISPRS has non-governmental organisation (NGO) Category B relationship for Information and Consultative Relations which means that it is eligible for receiving subventions for worthy projects. In 1997, ISPRS submitted a number of proposals for support of ISPRS activities in areas that were believed to be within the interests of UNESCO. While two of the submitted projects, on mapping of the Lalibela heritage site in Africa, and on CIPA Outreach Workshops, were cited to be of funding interest to UNESCO, none has been supported at this stage. UNESCO is now, once again, reviewing the Lalibela proposal and ISPRS will continue to monitor this opportunity for UNESCO support. ISPRS receives documentation from UNESCO and requests for participation in UNESCO sponsored projects.

UN Department of Public Information (DPI)

ISPRS has credentials for two ISPRS Council members and access to the UN photo library services. ISPRS has been co-operating with the UN Cartographer in a new UN Geographic Database Project initiative.

Related International Organisations

International Union of Surveys and Mapping and the Sister Societies

ISPRS joined the International Union of Surveys and Mapping (IUSM) at its inauguration in 1989 and participated in its activities until 1997, when it made the decision to withdraw from the organisation because it was not satisfying the needs of the Members of ISPRS.

In August 1999, IUSM was disbanded. However, ISPRS intends to continue to co-operate with the major organisations that were IUSM members, specifically IAG, FIG,

IHO and ICA, in annual meetings of a newly formed 'Joint Board of Spatial Information Societies'. Several informal meetings have been held between ISPRS and these individual organisations, while a meeting of the Joint Board, including IGU, was held on Monday 17 July 2000 at this Congress, sponsored by ISPRS. The members of the Joint Board have agreed to hold similar meetings at their future international conferences.

International Committee for Documentation and Architectural Photogrammetry (CIPA)

CIPA was established in collaboration with ISPRS and the International Council of Monuments and Sites (ICOMOS). Professor Waldhäusl was elected as President in 1998. A report on CIPA activities has been provided in each ISPRS Annual Report in ISPRS Highlights.

International Center of Remote Sensing Of the Environment

Recently ISPRS signed a Memorandum of Understanding to work closely with the International Center of Remote Sensing Of the Environment. The document brings ICORSE into ISPRS as a Permanent Committee. As a result the biannual International Symposium on Remote Sensing of the Environment becomes an ISPRS event. This agreement thus ensures de-conflicting of future conferences held by ISPRS and ICORSE and brings more remote sensing specialists into closer co-operation with ISPRS in scientific activities.

International Council of Science (ICSU)

ISPRS is an Associate Member of The International Council of Science (ICSU). An application was submitted in 1997 for ISPRS to become a Full Member of ICSU, but the approval of the application has been delayed. It is anticipated that this application will be successful at the next ICSU General Assembly in Brazil in 2002. There is significant potential for ISPRS to play a major role in the work being undertaken by ICSU related groups in inter-disciplinary aspects of the environmental monitoring and assessment.

Committee of Earth Observation Satellites (CEOS)

In 1997, ISPRS was appointed as an Affiliate (now named 'Associate') of CEOS, the first international scientific organisation to achieve such status. ISPRS is therefore invited to fully participate in the Annual Plenary Meetings of CEOS and in CEOS Working Groups. An initiative taken by ISPRS with CEOS is to encourage the establishment of an international industry forum, incorporating the private sector suppliers of satellite data. This body is still under development.

International Union of Technical Associations and Organisations (UATI)

UATI is a co-ordinating and facilitating organisation for

engineering with UNESCO, UNIDO and ECOSOC and conducts collaborative projects in the developing world. ISPRS was represented at the March 2000 UATI General Assembly by Ms. Isabelle Veillet from France. ISPRS involvement with UATI is currently being reviewed.

International Society for Optical Engineering (SPIE) and International Society of Biomechanics (ISB).

ISPRS has been a co-operating sponsor for many conferences over the past four years. These include co-operation between ISPRS Commission V and the International Society for Optical Engineering (SPIE) Videometrics Conferences, and the Technical Group on 3-D Analysis of Human Movement of the International Society of Biomechanics (ISB).

International Standards Organisation (ISO)

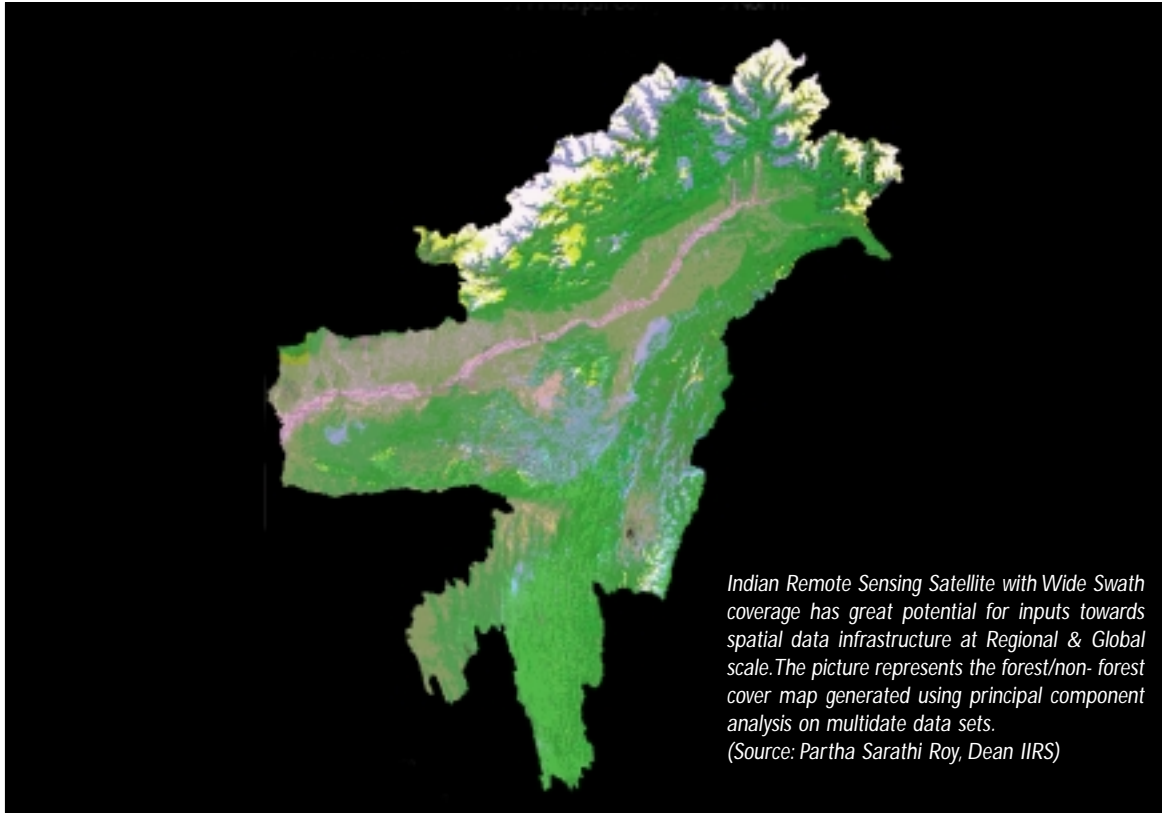
ISPRS Liaison and Representatives

ISPRS has liaison status on a number of ISO committees, with varying degrees of activity. Unfortunately, ISPRS has had considerable difficulty in attracting appropriate representatives for these Committees. The names of the ISO Committees with which ISPRS has liaison status, and those Committees for which ISPRS has representatives are:

1. ISO/TC 20 'Aircraft and Space Vehicles'
2. ISO/TC 42 'Photography'
3. ISO TC/172 'Optics and Optical Instruments'
SC9 Electro-optical systems
Category B Liaison
Current representative: Dr Manfred Schroeder (Germany)
4. ISO TC/211 'Geographic Information/Geomatics'
Category A liaison
Current ISPRS representatives Mr Hans Knoop (Germany) and Mr Norman Andersen (USA)

Conclusions

Inter-Organisational activities address some of the core objectives of ISPRS and hence must be encouraged. Most of these activities have involved the direct participation of ISPRS Council. Given the considerable load on Council members, the impact of ISPRS in some of these organisations has necessarily been limited. The application of the sciences and technologies of ISPRS are needed for capacity building, particularly in developing countries and for greater public recognition. This recognition will be enhanced as ISPRS works in inter-disciplinary applications with other international organisations, such as those described in this report. It is therefore important that these inter-disciplinary activities are expanded in the future.

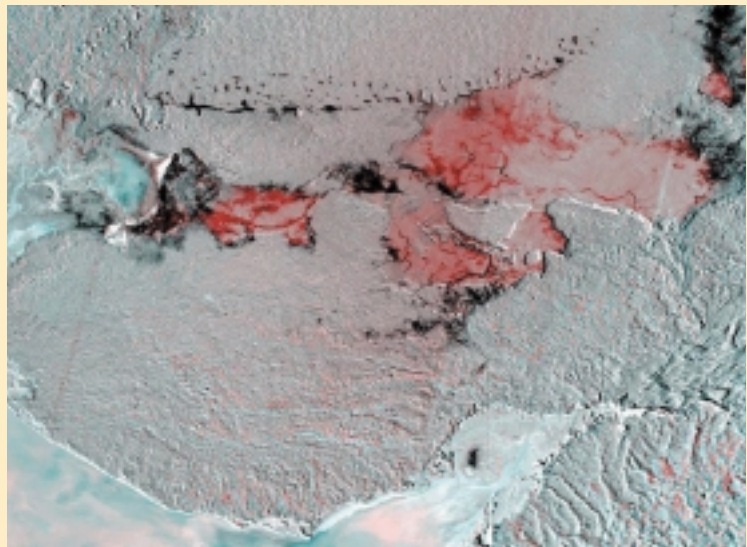


Indian Remote Sensing Satellite with Wide Swath coverage has great potential for inputs towards spatial data infrastructure at Regional & Global scale. The picture represents the forest/non-forest cover map generated using principal component analysis on multitemporal data sets.
(Source: Partha Sarathi Roy, Dean IIRS)

Mapping Liquefaction Using Remote Sensing

On 26th January 2001 western Gujarat, India was rocked by a major earthquake of magnitude 7.5 Mw. The earthquake was associated with large-scale liquefaction observed through discharge of subsurface water at many places, particularly in and around the Rann of Kachchh. Liquefaction occurs in soil saturated with water due to the impact of seismic waves. The water-saturated soil due to rapid shaking during the earthquake loses its strength and the water stored in it gets released.

IRS WIFs with its five days revisit capability at 188 m nominal ground resolution is particularly suitable for mapping surface dynamics. IRS-1C and 1D WIFs sensors jointly offer a revisit capability of 2-3 days. IRS WIFs has two spectral bands in red (0.62-0.68 μm) and near Infrared (0.77-0.86 μm) regions. The figure in cover page shows a difference false colour composite of IRS WIFs images of 29th January and 23rd January 2001 with red spectral band difference assigned to the Red plane and near Infrared spectral band difference being assigned to both Green and Blue planes. The dark patches in the FCC represent released water while the red tone corresponds to moist conditions.
(Source: Shailesh Nayak and K.K. Mohanty, SAC, Space Application Centre, India)





'From Imagery to Geodata'

ISPRS Special Sessions at the ASPRS Annual Conference, St. Louis, MO, USA, 26 April 2001

By Amnon Krupnik, Technion, Israel Institute of Technology

Four special ISPRS sessions were held at the ASPRS annual meeting in St. Louis, MO on April 26, 2001. These sessions were collaboration between ISPRS Commission I (Sensors Platform and Imagery) and Inter-commission Working Group II/IV (Systems for Automated Geo-Spatial Data production and Updating from Imagery). The order of the sessions followed the general process of obtaining geoinformation from imagery: data acquisition, solutions of mathematical models and production of surface and geospatial data.

The first session was chaired by Stanley Morain, president of ISPRS Commission I, from the University of New Mexico, and entitled Digital Image acquisition. Gottfried Konecny from the University of Hannover presented an extensive status review of high-resolution remote sensing satellites. His talk was followed by two presentations from the industry. The first was given by Brian Robertson from MacDonald Dettwiler (co-authored with David Hargreaves). It described systems for preprocessing the raw data obtained from two commercial high-resolution satellites (OrbView and QuickBird) in order to prepare them for the potential data user. The second was given by John Thurgood from EarthWatch, and provided a general overview of the company. The session concluded with a talk by Charles Toth from The Ohio State University, which reviewed the past and current trends in airborne digital imaging.

The second session, entitled Sensor Calibration and Orientation, was chaired by Chris Aldridge from Spencer B. Gross Inc. The session contained two scientific-oriented and two industry-oriented presentations. The first presentation was given by Karsten Jacobsen from the University of Hannover. It discussed the problem of the calibration of modern systems, which contain imaging, positional and orientation components. A few other aspects of the calibration issue were enlightened in the second talk that was given by Qassim Abdullah from Earth Data Intl. Stewart Walker from LH Systems (with Bruce Chaplin and Robert Uebbing) described calibration and triangulation tasks required for using LH Systems new ADS40 camera system. The last paper was presented by Helmut Heier from Z/I Imaging (co-authored with Christoph Dörstel and Alexander Hinz). The paper provided an overview of the new modular camera system

DMC2001, and discussed the issue of embedding it into the well-established workflow.

The first two talks in the third session, entitled DTM Generation from Images and Alternative Sources and chaired by Karsten Jacobsen from the University of Hannover, dealt with laser scanning. The first paper was presented by Sagi Filin from The Ohio State University (co-authored with Bea Csatho and Toni Schenk), and described an analytical model for in-flight calibration of laser altimeter systems, by using natural surfaces. It was followed with a talk by Trevor Greening from Analytical Surveys Inc. (co-authored with Wolfgang Schickler). This talk discussed operation considerations, such as flight planning, calibration features and filtering, for DTM generation from LIDAR. The third talk described NIMA's efforts for building an accurate test field for the SRTM mission. It was presented by Michael O'Brian from NIMA (co-authored with Sherman Wu from the University of Nevada). The last paper provided a theoretical analysis of error models for stereo SAR DEM production, and was presented by Carolyn Johnston from Vexcel Corporation.

The last session was entitled Development in Geospatial Data Production. It was chaired by Christian Heipke from the University of Hannover, and contained three presentations. The first talk was given by Felicitas Lang from the University of Hannover. The talk described a procedure for automatic building extraction from multiple overlapping images by integrating knowledge of building models. In the second talk, Raad Saleh from the University of Wisconsin presented the state-of-the-art in softcopy photogrammetric systems. The last talk, given by Wenbo Song from the University of Missouri (co-authored with Timothy Heithcoat), described methods for automated extraction of features from high-resolution satellite imagery.

The sessions were successfully organized by Raad Saleh from the University of Wisconsin and Christian Heipke from the University of Hannover. This structure of sessions in which academic and industry papers are presented together, establishes an interesting balance that enables fruitful professional discussions. There is no doubt that extending this dialog to further workshops may encourage industrial developments as well as scientific research.



The Contribution of Earth Observation Systems to the Development and Implementation of Multilateral Environmental Agreements

By Lawrence W. Fritz, 1st Vice President, ISPRS & Senior Staff Scientist, Lockheed Martin

The American Institute of Aeronautics and Astronautics (AIAA), with the support and cosponsorship of the U.N. Office for Outer Space Affairs (UN/OOSA), the Confederation of European Aerospace Societies (CEAS), and the International Academy of Astronautics (IAA), convened its sixth Workshop on International Space Cooperation during 11-15 March 2001 in Seville, Spain. Recognizing that space activities have become both more global and more competitive, 78 world-renowned experts, invited from seventeen nations and three multinational organizations, were gathered to address the following five topics considered to be timely and to merit consideration on an international basis.

- Future Needs for Management of Space Traffic
- An International Approach to Detecting Earth-threatening Asteroids and Comets and Responding to the Threat They Pose
- Global Navigation Satellite Systems
- Space and the Public: A Critical Link
- The Contribution of Space Systems to the Development and Implementation of Multilateral Environmental Agreements (MEAs)

A dedicated Working Group was formed to discuss each topic and to prepare a report outlining its findings and recommendations. These reports have been consolidated into a document "International Space Cooperation: Addressing Challenges of the New Millennium" which, upon broader circulation, is expected to play a significant role in the development and implementation of policies governing activities in the space sectors concerned.

Of particular interest to the remote sensing community is the chapter prepared by the WG addressing MEAs co-chaired by Margaret Finarelli (USA) and Andre Lebeau (France), in which I participated. The WG mandate was to "Examine the role of civil, governmental, and commercial space systems in the development and implementation of multilateral environmental agreements and the impact these systems could have on negotiation of future agreements." With permission of the AIAA, the following are verbatim excerpts selected from some of the findings, recommendations and discussion contained in the final report. Readers are encouraged to read the entire report which is now posted on the website www2.aiaa.org/international/information/PDF/ISCWV-6_report.pdf or to contact the AIAA directly to request a copy.

Background

Multilateral environmental agreements are developed among governments to collectively address environmental

concerns. As with other treaties and international agreements, they are tools for accomplishing policy objectives commonly held among the parties, and they generally include formal, binding commitments. Some of these agreements deal with the global commons, addressing, for example, such problems as ocean pollution, ozone depletion, or global climate change. Others focus on environmental problems of a regional or local nature that impact the territories of sovereign states but that raise international concerns, such as deforestation, desertification, various types of pollution, and scarcity of water resources.

Examples of major agreements include the Antarctic Treaty (signed in 1959) with its subsequent Protocol on Environmental Protection (1991, but not yet entered into force); the Ramsar Convention on Wetlands (1971); the International Convention for the Prevention of Pollution from Ships (1973); the Vienna Convention on the Protection of the Ozone Layer (1985) and its subsequent Montreal Protocol on Substances that Deplete the Ozone Layer (1987); the Convention on Biological Diversity (1992); the U.N. Framework Convention on Climate Change (1992) and its subsequent Kyoto Protocol (1997, but not yet entered into force); and the Convention to Combat Desertification (1994). These conventions and protocols lay down objectives in terms of results to be achieved concerning the environment and in terms of actions to be taken to achieve these results. And many create an international organization to administer the agreements, often called a secretariat.

Space-based Earth observation (EO) systems include Earth-observing sensors and satellites, along with associated ground-based receiving and processing systems necessary to transform observation data into information products. These EO systems are a tool, developed in recent decades, that has become essential for effectively conducting many types of environmental management and research applications. They provide reliable, factual, consistent, recurrent, and timely information on a global scale that may be used to map areas of interest, provide measurements of certain key parameters, and monitor the evolution of studied phenomena.

Information from other types of space systems, such as communication satellites, data relay systems and GPS, and other related sources of data and information collected by aerial, ground, and subsurface systems are also contributing to the understanding of the environment. However, the objective of this Working Group was to assess the potential value of EO data and information to

policy makers and negotiators involved in the development and implementation of MEAs.

Findings and Recommendations

Since the dawn of the space age, governments have adopted several treaties and U.N. resolutions that define and expand the legal use of space. The first, and most important, of these is the 1967 Outer Space Treaty. Among other things, this treaty establishes that there is freedom of scientific investigation in space; all nations have the nonexclusive right to use space; no nation may appropriate space or exclude another from its use; and intergovernmental organizations and nongovernmental entities also have the right to use space.

The activities of EO systems have been accepted as a legal use of space since the early 1970s. The rights and obligations of nations that conduct Earth observations and nations that are sensed by satellites and space-based platforms were specifically addressed in the 1986 U.N. Principles on Remote Sensing, which were unanimously adopted as a resolution by the U.N. General Assembly. Although not yet formally adopted as a treaty, these principles have achieved the status of customary international law and have been formally incorporated into the domestic laws of some Earth-observing nations, such as the United States and Japan, as well as in many bilateral and multilateral cooperative agreements regarding EO missions and programs. They define remote sensing as the sensing of the Earth from space for the purpose of improving natural resource management, land use, and the protection of the environment, and they stipulate that data concerning the territory of a sensed state must be available to it on a nondiscriminatory basis and on reasonable cost terms.

The space treaties and remote sensing principles are based on, and are a part of, the larger body of international law that includes all of the treaties, resolutions, customary law, and equitable principles of which it is comprised. The Outer Space Treaty itself incorporates by specific reference all of international law and the U.N. Charter. Moreover, principles of cooperation and the common interests of all nations are of particular relevance in this area and would support the application of the rights and obligations of states in accordance with the principles of equity and justice. It is this body of law, along with the domestic laws of individual nations, that is available to apply EO activities to the development and implementation of MEAs.

EO systems now routinely provide observations of Earth's environment at global, regional, national and local scales and are extremely useful in identifying trends in the environment. Remotely sensed data from space are critical to monitoring and understanding the Earth environment and the effect of humans on it. Although EO systems are by no means the only sources of information about the environment that can be used to support the development and implementation of MEAs, they do provide unique obser-

vatational capabilities that make them especially valuable for this purpose.

Obviously, an MEA includes provisions focused on securing its intended purpose and effects. The application of EO systems to MEAs can range from the identification of an environmental problem, to the monitoring and assessment of that problem, to the verification of compliance and subsequent enforcement.

Pre-negotiation Phase: At the most basic level, data and information from EO systems can identify and characterize environmental problems that may not otherwise be recognized or understood. The information from these systems is now beginning to be used to create public awareness and to increase the public's scientific understanding of these problems. For governments to decide to develop an MEA, there needs to be some political recognition that there is strong scientific evidence of an environmental problem, as well as a potential solution. EO data and information can be instrumental in generating the scientific understanding of new environmental problems and the political will to address them.

Negotiation Phase: Once an environmental problem has been identified, data and information from EO systems can contribute substantially to the MEA negotiation process by assisting negotiators and policy makers to define the scope and specific terms of the agreement, and by making these provisions more acceptable among the parties. For example, the Central American Commission on Environmental Development, with assistance from NASA EO experts, negotiated the MesoAmerican Biological Corridor Agreement in 1998. Landsat imagery showing extensive deforestation on the Mexican side of the Mexican-Guatemalan border, but good forest cover on the Guatemalan side, provided a catalyst for this international memorandum of understanding. The agreement provides for land-cover and land-use assessments, through the production of a satellite-derived base map for the entire isthmus, with a goal of protecting the integrity of ground cover along wildlife migration corridors from Panama to the Mexican border.

Implementation Phase: Upon the formal adoption of an MEA by the parties, EO systems can be used to observe, monitor, and assess the effectiveness of implementing provisions of MEAs. Currently, however, the implementing provisions of most MEAs do not specifically reference or depend on specific scientific data, let alone EO data. The Vienna Convention on the Protection of the Ozone Layer was a recent exception to this general omission, reflecting a high level of scientific evidence and consensus about the cause of stratospheric ozone depletion, as well as the existence of EO and other monitoring capabilities.

Recommendation 1a—The EO community needs to learn more about the evolving needs of the MEA communi-

ty, whereas those who work in the MEA arena need to learn more about EO space capabilities and to better understand what MEA objectives can and cannot be supported using data and information from existing and planned EO systems. Communication between the MEA and EO communities would be strengthened by engaging in a number of activities, including the following: 1) Developing a detailed cross-correlation, matching specific MEA provisions with relevant space-based EO capabilities to better inform discussions between the two sectors. 2) Carrying out joint pilot projects. 3) Commissioning a series of national and international studies and colloquia that engage experts, negotiators and practitioners in the MEA and EO communities: to examine the use of EO data and information in legislation and regulation, in environmental policy, and in programs at national and local levels; to identify and analyze important lessons learned from previous MEA regimes; and to undertake case studies that simulate the development of MEAs.

Recommendation 1b—The MEA and EO communities should be encouraged to take advantage of each other's expertise in their respective activities.

In this regard, EO specialists should seek to become more involved with their delegations engaged in negotiating new MEAs and in implementing existing ones, for example, by creating or using existing scientific and technical expert groups to work with MEA negotiators and secretariats to advise on the availability, characteristics, and limitations of information sources; to communicate about information systems requirements; to define specific products that meet specific MEA requirements, as well as the methodologies to produce those products; and to monitor the performance of existing information systems, as well as the potential of new information systems, technologies, and methodologies that contribute to MEA implementation. Additionally, MEA negotiating teams should seek the involvement of EO specialists in the MEA process and secretariats of existing MEA regimes should seek the assistance of the EO community in thoroughly reviewing all aspects of the MEAs (including, in particular, the monitoring, assessment, and compliance provisions) in the context of EO and related data collection and information management technologies.

Recommendation 1c—To optimize the utilization of EO systems, parties to MEAs should identify their information requirements in support of the objectives of their MEAs.

The implementation arrangements of an MEA should establish ways and means to define the specific EO data and information products required, as well as to adapt to developments concerning the observation and information systems (such as creating or using existing scientific and technical expert groups to work with MEA negotiators as mentioned in Recommendation 1b.) The derivation of requirements from an MEA should address the issues of validity, character, and availability of the data and information products, as well as the reliability and transparency of the EO data and information, and the processes used to provide them.

Recommendation 2—EO data providers, working in concert with the MEA parties, need to take steps to ensure confidence in the data and information derived from EO systems. Toward this end, distributed information systems, which require common technical and management standards, should be strongly considered. Network structures similar to those used in the international meteorological system should be considered for use in the production of information as well as for research on processing and modeling in support of MEAs. These multilateral partnerships can strengthen the widespread acceptance of EO systems and their information products.

EO systems frequently can meet the needs of multiple types of users, beyond the primary application areas and user groups. For instance, research information on sea-surface winds is used in operational forecasts, and high-resolution land remote sensing images are used in many kinds of research and commercial activities.

By the same token, practically all space-based Earth observing and associated information systems have the capability of supporting some MEA requirements, and the parties to MEAs may wish to make use of relevant information from a variety of such sources. However, the distribution and use of data and information products from some of these systems may be limited because of their classification on national security grounds, or because of commercial proprietary restrictions.

Recommendation 3—The MEA community should consider data and information from all sources. However, recognizing that access to and use of different sources of EO data and derived information must be consistent with the legal rights and obligations that apply to these different systems, the potential value in MEA use of certain data sources may need to be balanced against potential increases in complexity and potential decreases in transparency.

An operational space system is one that has been designed to provide continuity of service that is guaranteed by an institutional commitment. The meteorological satellite system, operated on a cooperative and coordinated basis by multiple countries and organizations, is the most mature example of an operational system. On the other hand, an experimental or research space system is of limited duration, typically designed to demonstrate new technology and the utility of specific observational measurements in support of scientific investigations. An example of a research system is TRMM (the Tropical Rainfall Measurement Mission), designed as a three-year cooperative NASA/National Space Development Agency of Japan (NASDA) mission to study the global water cycle and its variability resulting from natural and human-induced change. Although it is lasting longer, the concept behind the mission was never intended to produce a continuous observational record for the indefinite future. A follow-on Global Precipitation Mission (GPM) is contemplated, but not guaranteed.

Observational parameters such as ocean topography, stratospheric ozone concentrations, and land-surface vegetation cover currently are acquired from research satellite missions. These missions have demonstrated the value and uniqueness of space-based observations in providing an accurate and global means to monitor phenomena such as ocean circulation and changes in sea level, the evolution of Earth's protective ozone layer, and the rate and extent of global deforestation. No firm plans exist, however, to ensure continuity in the acquisition of these and many other research datasets, which are of considerable relevance for many MEAs. Moreover, the institutional arrangements for bringing such important data acquisition capabilities to operational status are not yet well defined at either the national or international levels.

Where the implementation of MEAs depends on certain relevant data being collected continuously over many years, MEA negotiators will be obligated to take into consideration both the current and future availability of EO systems and information sources to meet their requirements.

Recommendation 4—The EO community and the MEA community should act together to ensure the institutional continuity of EO space-based information required for the development and implementation of MEAs.

To this end, the allocation of operational responsibilities for meeting the objectives and continuing requirements of MEAs needs to be defined and arrangements should also be considered to improve the continuity of relevant information initially obtained from experimental/research missions.

Because the monitoring, assessment, and verification of MEAs frequently require that current data be compared with data collected continuously over many years, the reliable preservation and archiving of datasets is an essential function. A number of very large, reliable, and continuously updated data archives in fact already do exist for some types of environmental data that could be very useful to the MEA community. There are well established government archives of space-based EO data of the land, oceans, and atmosphere that are archived on a coordinated basis in the World Data Center (WDC) system established by the International Council for Science (ICSU), and implemented by participating national data centers such as the National Data Centers operated by the National Oceanic and Atmospheric Administration in the United States. The international WDC system is complemented by a range of other national, regional, and mission-specific data centers and archives, such as the European CORINE Landcover data base on environmental characteristics of land-cover based on Landsat and SPOT data, and the Africover data base to be used by the U.N. Food and Agricultural Organization to assist in the fight against desertification. The U.S. National Satellite Land Remote Sensing Data Archive at the EROS Data Center in Sioux Falls, North Dakota, which houses decades of land satellite data is another excellent resource for the MEA community inter-

ested in detecting changes in land cover/land use. In addition, there are many university data collections and private-sector archives of commercial satellite observations. Despite many significant official and unofficial EO data holdings around the world, there frequently is a lack of commitment on the part of organizations that fund such activities. More specifically, the needs of the MEA community for access to and use of such data holdings have not yet been well articulated to the funders and archivists of EO data and information. It would be especially useful for parties to MEA regimes to define their information and archival needs early in the MEA development process and to communicate those requirements to the EO system operators and the data centers and archives.

Recommendation 5—The operators of EO systems must take actions necessary to ensure the permanent preservation and archiving of data and, in many cases, derived information products to support MEAs, as well as supporting the important objectives of other user groups. At the same time, the MEA community needs to work with the EO community to ensure that relevant archived EO data and information are compatible with and supportive of the special requirements for MEA negotiation and implementation functions.

In the design and operation of an experimental/research EO system, the main objective is to demonstrate feasibility and utility of a new type of measurement giving access to a new kind of information; for example, measurement of sea-surface salinity from space could reach an experimental status in the near future. The cost of an experimental project is certainly not irrelevant to the decision making process as the project must be affordable, but it is not the main driver of the design. In the transition to operational status, since the feasibility and utility elements are already obtained, the pivotal concern becomes achieving maximum cost-effectiveness in the continuous production of reliable information. As an example, in the process deriving the pre-operational Jason spacecraft from the experimental TOPEX-Poseidon mission, the mass of the spacecraft has been reduced by a factor of five, resulting in a substantial reduction in cost while preserving the measurement accuracy.

Recommendation 6—Consideration should be given to the most cost-effective means of providing EO data and information products in support of MEAs. Data and information from commercial providers should be considered in addition to utilizing systems operated by governments and multilateral organizations. The opportunities offered by small, dedicated satellites for cost-effective support of specific MEA requirements also should be considered.

Public understanding and support for the use of EO data and information in MEAs is unlikely without public trust and confidence in EO applications that are directly relevant to particular MEAs. But the public in both developed and developing countries needs to gain much greater familiarity

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with a broad range of EO information products, similar to the familiarity with weather satellite information, before a sufficient level of understanding and trust with these sources will be attained. One way to begin this process is for government agencies providing public benefits related to the environment and natural resource management to enhance understanding through the greater use of EO data and information products. Opportunities for such public uses of EO information are more widely available in the developed world through the public's pervasive access to various information systems such as the Internet, television and other media. However, developing countries are increasingly gaining such access to these information systems and thus to EO data and information. In India, for example, images derived from land observing satellites have been presented at township meetings to explain the rationale for planning local infrastructure.

Finally, it should be noted that various nongovernmental organizations (NGOs) have gained an increasing role in bringing environmental issues to the attention of decision-makers, and especially the public. NGOs now frequently use EO data and information to analyze environmental problems and to publicize them. NGOs also increasingly play the role of unofficial watchdog or enforcer of MEA regimes and in some ways can help promote the interaction between the EO and MEA communities.

Recommendation 8—In cooperation with governments, NGOs and the private sector, the EO and MEA communities should seek to increase public awareness of the practical benefits of EO data and information products for environmental decision making.

Conclusions

Over 200 MEAs addressing a broad range of environmental issues and concerns have come into existence during the past few decades, but few explicitly incorporate or depend on data and information from space-based EO systems. In particular, EO systems can observe and monitor activities and changes in land, ocean, and atmosphere phenomena such as deforestation, changes in sea level, and the depletion of stratospheric ozone. In many cases, EO data and derived information products can be used to assess the effectiveness of MEAs in achieving their environmental goals and to verify compliance.

The Working Group concluded that EO systems provide relevant data and information that could be used beneficially to a much greater extent in the development and implementation of MEAs. To this end, the Working Group highlighted the desirability of greatly strengthening communications between the EO and MEA communities. The EO community should learn more about the needs of the MEA community, whereas the latter should learn more about EO capabilities to better understand and appreciate what can—and, just as important, what cannot—be done with EO data and information.



2nd International Symposium Remote Sensing of Urban Areas 2001, ISPRS WG VII-4

By Carsten Jürgens

From 22-23 June 2001, the 2nd International Symposium 'Remote Sensing of Urban Areas 2001' was held in the city of Regensburg (Germany). More than 130 participants came from over 20 countries to listen to 40 oral presentations and enjoy about 15 posters.

According to the thematic focus and to new technological developments the symposium consisted of the following session topics:

- Monitoring Urban Growth
- Thermal Data Analysis
- Towards a Global Urban Monitoring Facility
- Road extraction Techniques
- IKONOS-Applications
- Special Applications
- Monitoring Urban Landcover Dynamics
- Extraction of Height and Density
- HRSC-A Applications
- RADAR-Applications
- Monitoring of Informal Settlements
- Ecological Aspects of Urban Landscapes



That the participants came from so many different countries enhances the global importance of remote sensing of urban areas. On the one hand there is an increasing migration to urban centres and consequently the need of timely data, on the other hand new sensors help to acquire more detailed data that can be exploited by application of sophisticated data analysis techniques to extract the necessary spatial information to answer specific questions.



The proceedings of the symposium consist of two parts. The printed part covers the abstracts of all oral presentations. The annexed CD-ROM contains the full papers (approx. 350 pages) together with coloured illustrations that can be viewed on a computer. It is believed that this combination of printed and digital information serves most needs. The proceedings (incl. CD-ROM) are available at a price of DM 30.- from Dr. Jürgens, Geography Department of University of Regensburg, D-93040 Regensburg, Germany, Fax: +49-941-943-4933, carsten.juergens@geographie.uni-regensburg.de.