

# Annual Report 2002

## Report from Council

### I. Society Activities

Council has had a busy year, not only because of the inter-Congress symposia, but also because there have been important issues to discuss and take decisions on. Council has had two formal meetings, in Buenos Aires, Argentina at the ICRSE meeting and in Hyderabad, India, after the Commission VII symposium. There have also been many informal meetings between members of Council at the symposia. The minutes of the Council meetings have been published in Highlights and posted on the web page. The main issues addressed have been as follows:

- Registration of ISPRS. Council has been investigating the best way and the best place to register ISPRS as a legal entity for several years. After exhaustive attempts to register in Sweden, France, Switzerland and Austria, ISPRS was finally registered in the USA as a 'not for profit' corporation.
- Council has reviewed and pursued actions required under the Strategic Plan approved by the General Assembly (GA) at the Amsterdam Congress in July 2000.
- Review of Technical Commission Structure. Council has carried out a wide ranging consultation in open discussion sessions at all Technical Commission Symposia, and also with Members, to decide whether the Commission structure and terms of reference should be changed. Draft proposals were agreed in Hyderabad and will be circulated for further discussion during 2003.
- Membership. Members with overdue subscriptions have been contacted and asked to bring their payments up to date. Following the resolution of the last General Assembly, the GA will be asked in 2004 to exclude Members with subscriptions significantly overdue.
- Council has appointed Cary and Associates as the ISPRS Marketing Manager for such activities as advising Council on marketing of ISPRS, distribution of press releases on new developments in ISPRS, attracting new members, design of brochures and other marketing material, and generating donations.

Council has discussed the 2004 Congress, finance, relationships with other bodies, and reviewed the awards offered by the Society. All of these topics are described in more detail elsewhere in this report. Council has also kept under continual review the publications and other activities of the Society and has considered such topics as putting papers from Congress and Symposia on the web, publishing a book series with refereed papers from meetings and working with the Geospatial Workforce Development,

located at the University of Mississippi, USA on distance learning courses. Surplus copies of the International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences have been distributed to African organisations. Council has also approved grants under the Science Initiatives scheme.

Council members have attended many meetings of other organisations including the Congress of FIG and ASPRS in Washington DC (during which the President and Secretary General took part in a meeting of the Joint Board of Spatial Information Societies); COPUOS meetings at the UN headquarters in Vienna; the EARSeL Symposium in Prague, a workshop of UNGIWG, the United Nations GI Working Group in Washington DC, the ADCOM (Administrative Committee) of IEEE-GRSS in Toronto, Canada to present details of ISPRS and encourage cooperation, the opening and part of the first day of the IGARSS conference, the Asian Association of Remote Sensing Conference in Kathmandu, Nepal and the 16th Plenary of CEOS in Frascati, Italy. A highlight of the year was the General Assembly ICSU, the International Council for Science in Rio de Janeiro, Brazil at which ISPRS was admitted to full membership. Members of Council also met staff from NASA to discuss sustainable development indicators.

The President and Secretary General visited a number of Members including Sweden (for the retirement of former president of ISPRS, Kennert Torlegard), Poland, Croatia, Japan (40th anniversary celebrations of Japan Society), Chile, China Taipei, EuroSDR (formerly OEEPE), and attended a meeting of Sustaining members with the Congress Director and Treasurer at Intergeo in Frankfurt.



Ian Dowman

### 2. Congress

This report consists of the items carried out and to be carried out by the ISPRS 2004 Congress Directorate headed by Prof. Dr. M. Orhan Altan:

- Arrangement of the Congress Venue. The chosen site Istanbul Convention and Exhibition Center has been visited many times and the set up of the Congress has been planned in detail. The various meeting rooms were inspected with respect to the Scientific Program and the offices for the Council Members and TCP's were chosen.

- The Program. The draft program of the Congress has been prepared.
- Congress Second Announcement. The Second Announcement and Call for Papers has been prepared for printing. It contains various information about the Congress as well as the social programs. It is going to be printed in 15.000 copies and distributed worldwide.
- Manual Update. Manual for preparation and presentation of technical papers at ISPRS Congresses and Symposia has been updated and published in the Orange Book. With the new updates presenters are encouraged to make digital presentations, whereas conventional systems are meant mostly for backups.
- Guideline Update. Guidelines for Preparation of member Reports were revised and updated.
- International Meetings. In order to promote ISPRS 2004 Istanbul Congress, Prof. Dr. M. Orhan Altan participated in many international meetings in 2002 including all of the ISPRS mid-term symposia. There he gave short presentations at the closing ceremonies and with congress panels.
- New links. Efforts at establishing new links with cognate societies and at organizing joint meetings with them, are still going on.
- Congress Organizing Committee. The structure of the Congress Organizing Committee has been finalized and the members have been appointed. The procedures for job descriptions and committee correspondence have been discussed and accepted.
- Sustaining Members. Sustaining members were invited to a meeting during Intergeo 2002 in Frankfurt on 17th October 2002. Eight Sustaining Members attended the meeting. At the INTERGEO fair an ISPRS booth was hired to promote the society and the congress.
- Exhibition. A detailed Exhibition File as well as a Sponsorship Prospectus has been prepared and printed. Both documents were taken to the Intergeo 2002 in Frankfurt and presented to the interested parties. We are getting responses from many sources.
- Highlights. 2 pages have been reserved in each edition of Highlights for the Congress Directorate to advertise the 2004 Congress. These pages are used to give information about the Congress as well as the culture and history of the region.

Orhan Altan



### 3. Membership

There are no changes in Ordinary Membership or Associate Membership.

The Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP) has been admitted as a Regional Member.

#### New Sustaining Members:

- e-HD, Korea
- SeaGate Computers Inc, Nepal
- Supresoft, China
- National Hydraulic Research Institute of Malaysia, Malaysia
- Hansa Luftbild AG, Germany
- Research Systems International UK, Ltd, UK
- ImageSat International NV, Israel
- Istanbul Technical University, Turkey (from 1st January 2003)

#### Retired Sustaining Members:

- Matra Systems and Information,
- Remote Sensing Centre of Gen. Dept. of Land Adm. Viet Nam (GDLA)
- ERIM international Conferences,
- Kimoto & Co Ltd.



Ian Dowman

### 4. Awards

Pursuant to its aims of developing and advancing international cooperation in The Photogrammetry, Remote Sensing and Spatial Information Sciences, the ISPRS recognizes individual accomplishments through the sponsorship of awards which are granted at each quadrennial ISPRS Congress. Nominations for individuals to receive ISPRS awards may be submitted by ISPRS Member organizations and/or by individuals/peers. As noted below nominations for some awards may be self-nominated. Each nomination must be in written form (e-mail is acceptable) and submitted to an ISPRS Council member. (See addresses on page 3 of this Highlights issue.) The following is a brief summary of all awards granted by ISPRS. (Year of initial presentation of each award is denoted in parentheses.) The terms of reference for the awards listed with a \* are provided on the ISPRS home page [www.isprs.org/documents/awards.html](http://www.isprs.org/documents/awards.html) and published in the ISPRS Silver Book "ISPRS Organization and Programs." Members are encouraged to submit nominations!

#### Open Call for Nominations of Deserving Candidates to Receive Awards

From now until the deadlines listed below is the time for ISPRS Members and peers to submit a brief citation for nominating their candidate to receive international recognition for their contributions to the ISPRS disciplines and for their outstanding activities supporting the objectives of the ISPRS. The following five Awards have been established and are open for nominations.

- The **Brock Gold Medal Award (1956)**, sponsored by the American Society for Photogrammetry and Remote Sensing, is presented for an outstanding landmark contribution to the evolution of photogram-

metric theory, instrumentation, or practice. The award consists of a gold medallion. Ordinary Members of ISPRS are encouraged to nominate candidates for the Award. Nominations must be signed by two individuals of different nationality and also different from the candidate. Nominations should be sent to President Trinder by 30th September 2003. Awarded in 2000 to Jack Dangermond (USA).

- The **Gino Cassinis Award (2000)**, sponsored by the Italian Society for Surveying and Photogrammetry (SIFET) is presented to a person who has significantly enhanced the mathematical and statistical foundations of the photogrammetry, remote sensing or spatial information sciences in the four years preceding the Congress. The award consists of SFr 2,500 and a certificate. Nominations should be submitted to President Trinder by 31st December 2003. Awarded in 2000 to W. Foerstner (Germany).
- The **Schwidefsky Medal (1988)**, sponsored by the German Society for Photogrammetry and Remote Sensing, is presented to persons who have made significant contributions to photogrammetry and remote sensing, either through the medium of publication as author or editor, or in another form. The award consists of a medal manufactured in porcelain and a certificate. Nominations for the Medal should be sent to President Trinder by 31st December 2003. Awarded in 2000 to Guy Ducher (France) and to L.R.A. Narayan (India).
- The **Willem Schermerhorn Award (1988)**, sponsored by The Netherlands Society for Earth Observation and Geo-Informatics, is presented to a person who has most significantly contributed to the activities of a Working Group of the ISPRS during the four year Congress period. The award consists of a certificate. Nominations for the Award should be sent to President Trinder by 29th February 2004. Awarded in 2000 to Tsehai Woldai (Netherlands).
- The **Samuel Gamble Award (1988)**, sponsored by the Canadian Institute of Geomatics, is presented to up to three individuals who have contributed significantly to the development, organisation or professional activities of photogrammetry and/or remote sensing, at the national or international level. The award consists of a certificate. Nominations should be sent to Secretary General Dowman by 31st December 2003. Awarded in 2000 to A. Abiodun (UN & Nigeria) and to B. Forster (Australia).

- The **Otto von Gruber Award (1964)**, sponsored by the ITC Foundation, is presented to a young (less than 40 years) sole author of a paper of outstanding merit on photogrammetry, photointerpretation or remote sensing and written in the four year period preceding the Congress. The Award consists of a medal and a monetary grant. Applications may be self nominated and must include three copies of the paper sent to President Trinder by 31st December 2003. Awarded in 2000 to H. Mayer (Germany) and to G. Vosselman (Netherlands).
- The **Eduard Dolezal Award (1996)**, sponsored by the Austrian Society of Surveying and Photogrammetry, is a limited travel and expense grant to assist individuals or representatives of institutions, from developing or reform countries, to participate in the ISPRS Congress. Candidates are those who have permanently implemented a practical application of photogrammetry, remote sensing or GIS in an efficient manner or which documents their outstanding success in support of these fields. Applications may be self nominated and should be submitted to Secretary General Dowman by 30th November 2003. Awarded in 2000 to P. Tarikhi (Iran), U. R. Rao (India), and I. Katzarsky (Bulgaria).

The **ISPRS Prizes for Best Papers by Young Authors** are sponsored by donor organizations and by ISPRS to authors who are less than 35 years old and are the sole author of a high quality paper presented to the Congress. Each prize consists of a certificate and a SFr. 2,500 grant to make it possible for the winner to participate in the Congress. To be eligible, young authors must submit an abstract of their paper by 20 September 2003 to Congress Director Altan and submit their full paper by 31st January 2004 to President Trinder with a copy to the Congress Director Altan.

#### **Additional Award Opportunities Offered at the 2004 ISPRS Congress**

At the Congress, a total of 14 **Best Poster Papers Awards (1988)** are sponsored by ISPRS. A jury for each of the seven ISPRS Commissions observes the poster presentations and selects the two best Poster Papers presented on topics relevant to the Commission. Abstract of paper due to Congress Director Altan by 20 September 2003. The award consists of a gift and certificate from the Congress Director.

Also at the Congress, The **CATCON Prizes (1996)**, a software Computer Assisted Teaching Contest, is organised by ISPRS Technical Commission VI and sponsored by donor companies. The main objective of the contest is to promote the development and dissemination of good/user-friendly software packages, www contents and data sets for computer assisted teaching, which preferably are non-commercial and free. Candidates offering their

#### **Open Call for Applicants to Self-Nominate for Awards**

From now until the deadlines listed below is the time for individuals to use the opportunity to nominate themselves for the following three ISPRS Awards.

free software should inform Congress Director Altan by 15 June 2004 to reserve free presentation space. At the Congress an ISPRS jury will select the three winning entries. Typically the prizes consist of a Gold Award (SFr. 3,000), Silver Award (SFr. 2,500), and Bronze Award (SFr. 1,500) and a certificate.

#### Other ISPRS Awards to be presented at the Istanbul 2004 Congress

- The **U. V. Helava Award (2000)**, sponsored by Elsevier Science bv and LH Systems, LLC, consists of a grand prize of SFr. 10,000 and a silver plaque presented to the author(s) of the most outstanding paper published exclusively in the ISPRS Journal of Photogrammetry and Remote Sensing during the four years preceding the Congress and three runner up prizes of a Journal subscription and certificate presented to the author(s) of the best paper published in each of the other three years. The Grand prize was awarded in 2000 to M. Sinning-Meister, A. Gruen & H. Dan (Switzerland).
- The **President's Honorary Citation (1988)**, is a certificate of recognition presented by the President of ISPRS to a chairperson, co-chairperson or member of a working group of each of the seven ISPRS Technical Commission. The citation recognises the special, personal and meritorious contributions of the individual to the operation of the relevant Technical Commission's activities and advancement of its interests, during the quadrennial term of the Society. The Technical Commission Presidents should make nominations to President Trinder by 29th February 2004.



Larry Fritz

## 5. Intersociety activities

### International Council for Science (ICSU)

ISPRS has sought to become a full member of ICSU for many years. It has been reported that ISP (as it was known prior to 1980) first expressed its wish to become a member of ICSU in the 1930s. The first step in gaining membership was achieved in 1994 when ISPRS was admitted as a Scientific Associate. Associate membership provided ISPRS Council with an insight into the operations of ICSU, but it did not include the right to participate in voting at the General Assembly, nor did it facilitate adequate recognition of the fields covered by ISPRS in the international scientific arena. Therefore, ISPRS submitted an application for full membership in 1997. After considerable delay, and as result of strong support from National Scientific Members of ICSU as well as Union Members, ISPRS was admitted as a full Union Member of ICSU in September 2002 during the General Assembly in Rio de Janeiro, Brazil.

ICSU is a non-governmental organization founded in 1931 to bring together natural scientists in international scientific endeavour. It comprises 98 multi-disciplinary National Scientific Members, Associates and Observers (scientific research councils or science academies) and 27 international, single-discipline Scientific Unions to provide a wide spectrum of scientific expertise, enabling members to address major international, interdisciplinary issues which none could handle alone. Further details about ICSU were provided in the December 2002 edition of ISPRS Highlights.

ISPRS has attended the General Assemblies of ICSU since 1996. They cover a broad range of topics, which report on the activities of ICSU over the previous 3 years. They commence with a series of science fora and separate meetings of Unions and National Scientific Members. The General Assembly in 2002, included half day fora on: Science for Sustainable Development; Energy and Sustainable Societies; Ensuring Global Access to Scientific Data and Information; and Capacity Building for Science. A Symposium was also given on Science in Brazil.

Matters covered in the agenda of the General Assembly included reports on planning and review of the operations ICSU, details of the significant contributions of ICSU to the World Summit on Sustainable Development (WSSD) in Johannesburg in August/September 2002, reports from interdisciplinary bodies such as IGBP and DIVERSITAS, policy and advisory body reports, reports from ICSU grant recipients, elections of officers for the next 3 years, and preparation of resolutions that identify significant actions required by ICSU in the forthcoming 3 years.

Membership of ICSU should enable ISPRS to play a role in a number of areas of ICSU, but Council is currently pursuing the area of environmental monitoring and assessment. Membership will facilitate communication with the ICSU Advisory Committee on the Environment as well as interaction with IGBP, DIVERSITAS, and Unions which can contribute to multi-disciplinary research projects on the environment. This interaction should lead to the future submission of a grant application to determine sustainability indicators using remote sensing, which are intended to provide early warning indicators of unsustainable development practices. This is an important issue that can only be addressed with the assistance of experts in such areas as soil science, plant biology, ecology and geomorphology and remote sensing.

### Committee of Earth Observation Satellites (CEOS)

CEOS membership comprises the national space agencies of the major space exploration countries. A number of organizations including ISPRS are Associates of CEOS.

CEOS meets in Plenary every November in the location of the CEOS Chair, which changes each year. Major topics considered by the Plenary were a review of operations of CEOS, the international global observing strategy (IGOS), and follow-up actions to the WSSD. CEOS has targeted two modules for immediate action:

- Module 1: Education, training and capacity building (to led by NOAA from USA);
- Module 2: Water resources management (led by ESA and NASDA from Japan).

The programs for these modules will be developed in early 2003.

In addition, CEOS has the following working groups which meet on a regular basis, usually twice per year:

- WGISS - Working Group on Information Systems and Services. This Working Group plays a significant role in establishing information systems and services for the CEOS members. The current representative of ISPRS in this WG is the ISPRS WG III/3 Chair Poul Frederiksen from Denmark.
- WGCAL/VAL - Working Group on Calibration and Validation. The WG comprises six sub-groups and has recently established a joint ISPRS/CEOS Task Force on radiometric and geometric standards to be led by Bruce Davis (USA), Secretary ISPRS WG I/2. The ISPRS representative on WGCAL/VAL is ISPRS Secretary General Ian Dowman (UK).
- DMSG - Ad-Hoc Disaster Management Support Group. This WG has terminated its task, but the work will continue. The WG has made a very significant contribution to the development of recommendations in relation to 'responsiveness' and 'data integration' for disaster management. The ISPRS representative on the WG is ISPRS WG VII/5 Chair Vern Singhroy (Canada).
- WGEdu - Ad-hoc Working Group on Education and Training. The WG aims to facilitate education and training in remote sensing in developing countries. ISPRS representatives on the WG are President John Trinder (Australia) and TC VI President Tania Maria Sausen (Brazil).

John Trinder



### **CEOS Working Group on Calibration and Validation (WGCV)**

WGCV met in Ottawa on 1-3 May 2002 and Ian Dowman represented ISPRS. A full description of WGCV activities, including the 2003-2005 Workplan can be found on [www.wgcvceos.org](http://www.wgcvceos.org). The main point of interest was the setting up of the joint ISPRS / WGCV Taskforce on Radiometric and Geometric Standards. This was established to clarify the definition of Earth observing sensor parameters which are often specified and quoted in disparate ways. The terms of reference of the group are:

- Collect and collate lists of parameters used to describe Earth observing sensors.
- Make an analysis of these and recommend a standard list of parameters for presenting descriptions of EO satellites,
- Identify ambiguity and confusion within these terms and recommend methods of clarifying these issues,
- Prepare a document which sets out standard methods of describing EO sensors
- Communicate and consult widely with the user community.

A full report of this activity is given in the Commission I report.

A WGCV/WGISS test facility is being set up. The idea is to set up test sites and make the data relating to these available over the web, making use of the expertise in WGCV for the calibration data and the expertise of WGISS on the data dissemination. Over the next year the proposal would be expanded and a mode of operation developed.

The Terrain Mapping sub group continues its work on validation of DEMs and will be involved in the Assessment of SPOT HR data which is also described in the Commission I report.

Other WGCV meetings which have taken place are a Land Product Validation subgroup workshop on Albedo at Boston University, Massachusetts, USA; a SAR subgroup workshop, in London, UK, and a micro-cal02 and the WGCV workshop on calibration of microwave radiometers in Barcelona, Spain.

Ian Dowman



### **COPUOS**

#### **UN Committee on the Peaceful Uses of Outer Space (COPUOS)**

COPUOS is organised by the Office of Outer Space Affairs (OOSA) in the UN Office in Vienna. 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, since 1989. ISPRS has established good relations with the staff of OOSA.

The COPUOS Science and technology Sub Committee met from 25th – 8th March 2002. Action teams are being set up to implement the recommendations of UNISPACEIII and ISPRS is tabled as being interested in the teams to 'Develop a comprehensive worldwide environmental monitoring strategy' and 'Increase awareness among decision makers and the general public of the importance of space activities', as well as the those relating to youth activities.

ISPRS has frequently expressed a willingness to co-operate with OOSA in organising workshops but this has not yet proved to be possible. ISPRS has now agreed that it will prepare a list of experts which OOSA could use and provide funding for speakers. Gerard Begni has been on the programme committee for a Workshops on Disaster Management and the follow up to the workshop, involving African institutions in implementation is as important as the workshop itself. Discussions are currently going for collaboration on meetings in Syria and Saudi Arabia.



*John Trinder and Ian Dowman*

## 6. Treasurer's report

It is both my honour and pleasure to report on financial issues related to the contribution of technical meetings to the financial status of our society and on the implementation of our scientific initiatives for FY2002 (FY=fiscal year). Our strengthening financial standing will enable us to further our endorsement of such initiatives for the common good of our society, profession members and the scientific community.

As mentioned in my last report, it is the task of the Treasurer and Council to keep ISPRS in continuing good financial standing. This is implemented by seeking new Members, of course, but also by encouraging all members for prompt payment of their subscription. At this moment we still have some members who have outstanding dues. During 2002, most Council members were engaged also with the task of contacting these members. Again, we have succeeded to re-establish the standing of some "lost" members. This should be an opportunity to thank those members who submit their contributions to ISPRS most promptly. We tend to overlook the obvious but in our troubled times, the continued support and dedications of Member Societies and individuals, is to be commended.

The effort to attract new members and to resolve the issue of outstanding dues, will continue. With Council support I've started already with a new campaign of recruit-

ing Sustaining Members. The new Marketing Manager, appointed by Council last month will focus on this task also. I would like to use this opportunity and to ask all our members to help us with this important task either by directly approaching potential supporters or by supplying Council with the "coordinates" of such potential members. At the same time I encourage those member societies who may have outstanding dues to please contact president Trinder or myself and make arrangements to pay their contributions prior to April 2003. ISPRS FY2003, commencing on April 1st, 2003, will be the threshold year for the participation in the General Assembly and any other ISPRS activities at the XX Congress in Istanbul, July 2004.

Going through ISPRS financial records, as is done every December, I may conclude that the Society is in good financial health with sound and secure investments. Also, I'm happy to report that the contributions made between 1-4-2002 to 25-11-2002, reached already the 97.5% level of the total contributions made during last fiscal year (1-4-2001 to 31-3-2002) which in itself was a "good" year in financial terms. As I've predicted in my last report, the amount of contributions in the FY2001 DID surpass the contributions made in FY2000, which was a "Congress year". This may be a pleasant token of a better payment régime, adopted by our members, but most definitely has to do with the success of attracting new members. Saying that, it is my pleasure to report of Hansa Luftbild AG (Germany), Research Systems International UK Ltd. (United Kingdom), ImageSat International NV (Cyprus) and National Hydraulic Research Institute (Malaysia), were accepted as new Category D Sustaining Members.

To conclude, 2002 proved again, the strength and international recognition of our Society and gave us much hope for the future. I'm most confident that, with members help, we will continue to keep ISPRS Financial health in the same excellent manner.

A copy of the ISPRS Annual Report is available to Members from the Treasurer.



*Ammatzia Peled*

## Technical Commission Reports



### TECHNICAL COMMISSION I SENSORS, PLATFORMS, AND IMAGERY

**President:** Stanley Morain (USA)  
**Scientific Secretary:** Amy Budge (USA)

#### State of Science and Technology of Commission Topics

Progress has been made on digital camera technology, airborne laser scanning technology, InSAR and Passive Microwave sensors. Progress has also been made in calibration, validation, and standardizing parameters for both optical and digital cameras and optical LiDAR systems. Techniques for direct georeferencing of sensors is progressing. DigitalGlobe launched QuickBird in late 2001 and this satellite system began delivering sub-meter spatial resolution imagery in 2002.

#### Accomplishments of the Commission

In 2002, the Commission undertook the following major activities:

- Participated in the 3rd International Workshop on Multi-Angular Missions and Models (IWMMM) held in Steamboat Springs, Colorado in June. From this initiative, a Theme Session to be held in conjunction with Commission-VII has been approved by Council for the Istanbul Congress in 2004.
- Collaborated with the Future Intelligent Earth Observing Satellite (FIEOS) interest group within the U.S. National Aeronautics and Space Administration (NASA), Old Dominion University, and George Mason University, both in Virginia, USA. (See report for Commission-I/4).
- Approached NASA Headquarters and Stennis Space Center, Mississippi for authorization to organize and host an international workshop on geometric and radiometric calibration of sensors and imagery sometime in 2003. Initial planning is still in process.
- The Commission President and WG I/2 Chair, Manfred Schroeder, set up a joint ISPRS/CEOS-WGCV Task Force on radiometric and geometric calibration. A meeting was held during the Mid-Term Symposium in Denver to discuss the parameters, terms-of-reference, and scope of the Task Force. (See report for Commission-I/2).
- Organized and conducted intercommission activities between Commission-I/II and I/VII for Symposia in Xi'an, PRC and Hyderabad, India (August and December, respectively). These activities focused on systems and applications for remote sensing in transportation. The session in Xi'an experimented with a format referred to as a Technology Buffet. In this session format, contributors are assigned space

in a large room for conducting demonstrations of technology related to their system or application. Attendees are allowed ample time to meet and discuss the presenter's technology in an informal setting augmented by Internet and related info-tech capabilities (e.g., visualizations). The format seemed to be received well, especially among participants whose first language was not English, and therefore required more time to grasp fully the presenter's technology. Translators were available for some of the demonstrations, and these seemed to be the most popular.

#### Working Group Activities during the Current Year

##### WG I/1: DEFINE STANDARDS FOR SENSOR PARAMETERS

*Chair:* Charles Mondello (USA)  
*Co-Chair:* John C. Baker (USA)

##### Accomplishments of the Working Group

The WG organized a very popular technical session on Direct Geo-referencing at the Mid-Term Symposium in Denver. This session drew standing-room only participation and generated many interesting discussions.

The WG leadership also held a tutorial on the 10-year Industry Forecast that was well attended and which led to subsequent discussions throughout the Symposium.

##### Working Group News and Future Plans

A Workshop titled Direct Georeferencing in Practice is being organized for the Istanbul Congress by Mohamed Mostafa.

##### WG I/2: SENSOR CALIBRATION AND TESTING

*Chair:* Manfred Schroeder (Germany)  
*Co-Chair:* Veljko M. Jovanovic (USA)

##### Accomplishments of the Working Group

The WG I/2 Chair, Manfred Schroeder, organized a meeting in Denver that would lead toward creating a joint ISPRS/CEOS-WGCV Task Force on Radiometric and Geometric Calibration. The main purpose of the meeting was to identify leaders for the ISPRS half of the Task Force, and following this, to develop an initial scope and

content for its activities. Dr. Bruce Davis, NASA Stennis Space Center and WGI/2 Technical Secretary, has agreed to serve as the 2002-2004 chair. The Terms-of-Reference for the task force are:

- Collect and collate lists of parameters used to describe Earth observing sensors
- Make an analysis of these and recommend a standard list of parameters for presenting descriptions of EO satellites
- Identify ambiguity and confusion with these terms and recommend methods and means of clarifying these issues
- Prepare a document which sets out standard methods of describing EO sensors
- Prepare a document which sets out standard methods for measuring EO sensor parameters
- Communicate and consult widely with the user community

A report will be prepared for the Istanbul Congress in 2004, summarizing activities and progress. As part of the task force activities Commission-I President is trying to arrange a radiometric and geometric calibration workshop at Stennis Space Center during 2003. If this moves forward, it could be an opportunity for the task force to bridge the international and US communities.

The WG organized four technical sessions at the Mid-Term symposium in Denver: These were:

1. In-Flight Calibration of Space-Borne Imaging Sensors: Radiometric Calibration
2. In-Flight Calibration of Space-Borne Imaging Sensors: Geometric Calibration
3. Calibration and Characterization: Proposed Standard Processes, Part-I
4. Calibration and Characterization: Proposed Standard Processes: Part-II

#### **Working Group News and Future Plans**

A joint workshop with WGI/5 and WGII/V will be held on 6-8 Oct 2003 in Hanover, Germany on High Resolution Mapping from Space 2003. More info at <http://www.ipi.uni-hannover.de/ISPRSworkshop.htm>.

**SPOT5 /HRS assessment program:** WGI/2 is coordinating the SPOT5/HRS assessment jointly with CNES. The two organizations will coordinate a program of scientific assessment for the SPOT5/HRS stereo camera. Study teams will be developed to assess DEM production from this system and sensor. The first HRS assessment was made by CNES, SPOT Image, and IGN. The objective of the ISPRS assessment is to broaden access to the HRS data that would not otherwise be available to the ISPRS community for assessing DEM generation and to help CNES to prepare its future programs. An HRS study team will be established with 6-10 Pls (and their test sites). An announcement of the program was made in Highlights in Dec 2002. PI membership solicitation is due by December

02. Test areas will be identified by Feb 03 and reference data will be provided by June 03. Exploitation of HRS data and DEM production and assessment of results and methods will be reported during 2003 and early 2004. Reports will be prepared and presented at Congress 2004.

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#### **WG I/3: ACTIVE SENSOR SYSTEMS**

*Chair: Mike Renslow (USA)*

*Co-Chair: Anthony Lewis*

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#### **State of Science and Technology of Working Group Topics**

WGI/3 is working closely with the ASPRS LiDAR Committee (Chaired by Martin Flood) to develop a common format for LiDAR data. The WG and the LiDAR Committee are addressing two major issues:

- Creating and adopting a common format standard for LiDAR data. A V.I LAS standard is ready. It has been published twice in Photogrammetric Engineering and Remote Sensing for public review. Comments are being compiled and shared with the LiDAR community. The standard will also be posted on the ASPRS web-site. A joint WGI/3-LiDAR Committee decision has been made to publish the standard also in ISPRS Highlights. The "standard" is basically a binary exchange format for managing, processing, and storing data. ASPRS will maintain the standard.
- Publishing a series of guidelines and best practices for LiDAR mapping. These may eventually result in standards. Draft guidelines have been prepared and content is being generated. The target is to release the first guideline in late 2003.

#### **Accomplishments of the Working Group**

The WG Chair, Mike Renslow, presented a paper on LiDAR at the International Society for Remote Sensing of Environment (ISRSE) in Argentina. At the Mid-Term Symposium in Denver, there were two workshops and one Technical Session. By way of international outreach, the WG participated in seven LiDAR workshops around the world.

#### **Working Group News and Future Plans**

A LiDAR specialty workshop co-organized by WGs I/3 and II/2 will be held in June 2003. This is scheduled as a 2.5 day workshop to be held at a Lodge 35 miles east of Portland, Oregon on the Columbia River Gorge. The program will include keynote speakers for each day, then launch into technical presentations. On the second day papers will look at future directions. Sensor design, sensor performance, and calibration are the foci for the program.

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#### **WG I/4: ADVANCED SENSOR SYSTEMS**

*Chair: Masanobu Shimada (Japan)*

*Co-Chair: Janio Kono (Brazil)*

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### Accomplishments of the Working Group

At the mid-term symposium in Denver Co, USA, the WG conducted a technical session Mission designs for SAR, VNIR and MIR systems, and a tutorial Image acquisition technologies for earth surface observation and generation: reliability, accuracy, and comparative costs. During the constructive discussions a cost was estimated as between 15 50 28 M\$ for building each optical sensor presented in the session. Interferometric smallsatSAR with ALOS PALSAR is of interested because of providing a worldwide DEM, disasters, and biomass estimation by polarimetry.

### Working Group News and Future Plans

Collaborative activities with the interest group on Future Intelligent Earth Observing Systems (FIEOS), will be developed and special sessions will be held at the Istanbul Congress in 2004.

In addition to the two FIEOS sessions, the WG will organize two Tutorials (TUs) titled Performance of High Resolution, Multispectral and Hyperspectral Imaging Systems for Earth Surface Observation, and Image Acquisition Technologies for Earth Surface Observation and Generation: Reliability, Accuracy, and Comparative Costs.

A International Conference on Advanced Remote Sensing for Earth will be held on December 6-9, 2003 in Riyadh, Kingdom of Saudi Arabia.

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### WG I/5: PLATFORM AND SENSOR INTEGRATION

*Chair:* Karsten Jacobsen (Germany)  
*Co-Chair:* Ismael Colomina (Spain)

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#### State of Science and Technology of Working Group Topics

The direct sensor orientation based on the integration of relative kinematic GPS-positioning with inertial data has reached a high accuracy level which can be reached only with a strict handling of all steps. It needs some experience to reach this level, which is sometimes difficult for start-up companies new to the technology. There is a limitation with the model set-up based on image orientations determined by combined GPS/IMU – often the y-parallaxes are exceeding the limit acceptable for human operators. This can only be solved by integrated sensor orientation using GPS/IMU together with tie points.

The very high-resolution Earth observation systems today are also using precise sensor orientation without control points. This has reached an accuracy of a few meters worldwide. Together with control points, it is possible to get ground coordinates with a standard deviation of a pixel or better.

### Accomplishments of the Working Group

The activities of the Working Group I/5 were concentrated on the Commission-I Mid-term Symposium in Denver. During the symposium two Technical Sessions were presented. These were titled Sensor Integration and Geometric Capability of High Resolution Earth Observation Systems.

### Working Group News and Future Plans

On September 22-23, 2003 A workshop organized by the WG Co-Chair Ismael Colomina will be held in Barcelona, Spain. It is titled Theory, Technologies, and Realities of Inertial/GPS Sensor Orientation. Another workshop organized by the WG Chair, Karsten Jacobsen in cooperation with WGI/2 will be held in Hanover, Germany October 6-8, 2003. It is titled High Resolution Mapping from Space 2003 This workshop is also a collaboration with Intercommission Working Group II/IV and the EARSeL Special Interest on Group 3D Remote Sensing.

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### WG I/6: AIRBORNE OPTICAL SENSOR SYSTEMS

*Chair:* Brian Huberty (USA)  
*Co-Chair:* Brian Gorin (USA)

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#### State of Science and Technology of Working Group Topics

Airborne digital mapping cameras continue to grow in number, array sizes, and sophistication. 9000 x 9000 pixel array cameras are available from BAE as well as near real-time, multi-spectral, terrain corrected images from Airborne Data Systems cameras. The working group is developing guidelines for acquiring film and digital airborne images.

### Accomplishments of the Working Group

The WG organized and conducted two workshops for the Mid-Term Symposium in Denver. The first was a half-day event titled Digital Aerial Imaging System in a Briefcase. The second was a full-day event titled Professional Airborne Digital Mapping System-An Overview. Two technical sessions and a Panel were also organized. Titles for the Technical sessions were:

- Large Format Digital Camera Technology
- Digital Airborne Cameras

The Panel was on the topic of Identifying Barriers for Airborne Remote Sensing Systems.

### Working Group News and Future Plans

The WG will organize a workshop at the Istanbul Congress titled Professional Airborne Digital Mapping Systems-An Overview.

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## TECHNICAL COMMISSION II INTEGRATED SYSTEM FOR SPATIAL DATA PRODUCTION, CUSTODIAN AND DECISION SUPPORT

**President:** Jun Chen (China)

**Scientific Secretary:** Jie Jiang (China)

### State of Science and Technology of Commission Topics

The recent trends in real-time mapping technologies, direct georeferencing and image sensor technology along with state-of-the-art computing power and easy access to relatively inexpensive telecommunication services have totally changed and redefined the early paradigm of mobile mapping. Real-time mapping technologies are being applied to broader applications. The automation of real-time mapping is being improved by the development and incorporation of new technologies, especially image analysis and computer vision techniques. The focus SAR and Lidar has been on interferometric SAR (InSAR) and on scanning, small-footprint Lidar. In current state, The Lidar and InSAR fields continue to exhibit aggressive growth in terms of interest, development and use. Digital cameras are increasingly being integrated on to the common platform. A vigorous effort is being championed by the lidar sub-committee of ASPRS to create a set of lidar standards. Bare-earth extraction continues to be problematic under certain conditions. While software has been successfully developed for extracting bare-earth DEMs in many types of coverage (low density urban areas, patchy forests), the major challenge is to obtain ground elevations in heavily forested areas.

Internet and Mobile Network technologies are large players in the evolution of Integrated Systems for Information Services. Various National Mapping Agencies have already implemented database update report systems based on Internet technology. Spatial decision-making based on a combination of image-based and vector data is an important activity in many application domains. We observe an increased interest in combining standard GIS functionality with novel approaches taken from fuzzy logic and artificial neural network technology. The cooperation of producers of spatial decision support systems and users of these systems is increasingly recognized as an approach to provide better spatial decision support to real world problems. A noticeable trend in spatial analysis and visualization systems this field is different types of integration. One type is the integration of visualization and analysis in web environment. Another is the integration 3D and temporal data into visualization and spatial analysis systems.

There are many scientific groups doing research in automatic cartographic feature acquisition. One focus is on capturing of 3D objects. The new digital sensors start to be interesting for automatic image interpretation and object extraction research. Automatic aerial triangulation

reached a point where it became a standard component of a photogrammetric system. Concerning updating of GIS, besides the data capture itself, the management of the updating information in the database is a relevant topic. Automatic update including topological changes is still unsolved. In fact the cooperation and exchange between GIS and Photogrammetry is still rather low, especially from the commercial point of view. There still is a lack in standardized exchange between the respective systems but the companies seem to have recognized the lack in integrated solutions for the end-user.

### Accomplishments of the Commission

#### Mid-term Symposium

The ISPRS Comm. II Symposium "Integrated Systems for Spatial Data Production, Custodian and Decision Support" was held in Xi'an, China, on August 20-23, 2002. The symposium was co-organized by ISPRS TCII, Chinese Society of Geodesy, Cartography and Photogrammetry and State Bureau of Surveying and Mapping of China. It was sponsored by the Ministry of Science and Technology of China, National Natural Science Foundation of China, China Association of GIS, National Geomatics Centre of China and Shanxi Bureau of Surveying and Mapping.

The topics of the mid-term symposium dealt with the Terms of Reference (ToR) of its seven working groups. There were 150 full registered participants, among them 80 came from overseas and 70 from China. There were 119 full paper accepted by the symposium (52 of them are from overseas), including 2 keynote papers, 67 of these papers are accepted as oral presentation and 16 as poster presentation. Technical exhibition, technical visits, social events and city tours are also arranged. 12 companies or institutes joined the technical exhibition. More than 100 people took part in the technical visits. 220 people attended the social events and 50 persons took the city tours.

In the plenary sessions, Chair or co-chairs of each WG delivered a report on the topic and the state of art of the research field of each WG. There were 2 Workshops held during the Symposium. One was organized by Prof. Stan Morain on "Geospatial Systems for Transportation-Related Applications: Technology Showcase", supported by the U.S. Department of Transportation/Research & Special Programs Administration and ISPRS Commission I. Five companies and institutes showed their results and products. The other was organized by Prof. Wolfgang Kresse on "Standardization and ISPRS".

The mid-term symposium was very successful. The participants of the symposium fully exchanged the experiences and results of their cutting edge research in the field of photogrammetry, remote sensing and GIS. The foreign scholars know more about the development of the surveying and mapping technologies in China, and also the results of the rapid economic development in China. Some of the participants sincerely expressed their wishes for the 2008 ISPRS Congress to be held in China.

### Other Activities

Members of the Commission have participated in various relevant workshops or conferences with presentations and/or papers as well as committee support in some instances. Events included a presentation about the standardization activities in ISPRS at the FIG-congress in Washington D.C. in April 2002, an ISPRS-sponsored Lidar/InSAR session at the 29th Symposium of the International Society for Remote Sensing of the Environment, which was held in Buenos Aires in April, the ILMF (International Lidar Mapping Forum) meeting (Denver, February), an ASPRS regional workshop, (Portland – October: a one-day teaching event presented jointly with M. Renslow WGI/3) and the NASA/USGS Digital Camera and LIDAR Characterization Workshop (Stennis – June).

### Plans for the Future

The Commission is particularly active in editing special issues of journals and besides being involved in the editing of a special issue for ISPRS Journal of Photogrammetry and a special issue for ISPRS Journal of Photogrammetry and Remote Sensing on "Advance techniques for analysis of geo-spatial data". ISPRS TCII is working on a special issue on "Advances in Systems for Spatial Data Processing, Analysis and Representation" for Photogrammetric Engineering and Remote Sensing (PE&RS). The guest editors are Prof. Jun Chen (National Geomatics Centre of China, China) and Dr. Zhilin Li The Hong Kong Polytechnic University, China).

After a lot of very successful work over the last 2 years, Felicitas Willrich (née Lang) has decided to step down as working group secretary. Since May 2002 Kian Pakzad from the Institute for Photogrammetry and GeoInformation, University of Hannover, has continued the work as secretary of this Working Group. The Commission will continue to make more contact with other WGs or organisations. It is intended to have a joint meetings with ICA. Through WG II/6, this linkage has become very natural because Prof. Dr. Menno-Jan Kraak of ITC is also the co-chair of the ICA Commission on Visualisation, and through ICWG II/IV.

### Working Group Activities during the Current Year

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#### WG II/I: REAL-TIME MAPPING TECHNOLOGIES

Chair: Rongxing (Ron) Li (USA)

Co-Chair: Norbert Haala (Germany)

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### State of Science and Technology of Working Group Topics

The following summarizes recent trends in topic areas of the WG:

- Advancement of direct georeferencing and image sensor technology along with state-of-the-art computing power and easy access to relatively inexpensive telecommunication services have totally changed and redefined the early paradigm of mobile mapping. Building a cost-effective mobile mapping system by integrating off-the-shelf hardware and software components is becoming much easier.
- More mobile mapping systems have been developed or are under development by universities and commercial mapping units.
- Real-time mapping technologies are being applied to broader applications such as topographic mapping, highway and facility mapping, thematic mapping, automatic collection of 3D city models, mobile GIS services, telegeoinformatic application, location-based services (LBS), etc.
- The automation of real-time mapping is being improved by the development and incorporation of new technologies, especially image analysis and computer vision techniques.

### Accomplishments of the Working Group

The WG organized sessions at the ISPRS Comm. II Symposium in Xi'an, China, August 20-23, 2002, which were very successful, and co-sponsored the event "Celebrating 50 Years of Geodetic Science at The Ohio State University" held October 1-5, 2002. The WG also co-sponsored the International Workshop on Mobile and Internet GIS held in Wuhan, China, on August 15-16, 2002.

### Working Group News and Future Plans

The 4th Mobile Mapping Conference will be held in Kunming, China, on May 25-27, 2003 (co-sponsor). The 5th Mobile Mapping Conference will be held in France, 2005 (co-sponsor).

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#### WG II/2: SYSTEMS FOR SAR AND LIDAR PROCESSING

Chair: Bryan Mercer (Canada)

Co-Chair: Charles Toth (USA)

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### State of Science and Technology on Working Group Topics

The Lidar and InSAR fields continue to exhibit aggressive growth in terms of interest, development and use. In the lidar area, the major vendors are improving or incorporating system performance parameters such as pulse repetition rates, laser power, reflectance measurement, and multiple-return measurements. Digital cameras are increasingly being integrated onto the common platform. New systems with 25-50 KHz pulse rates support higher ground point densities and/or wider swath widths. Reflectance measurements while not approaching image

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fidelity can be used for a number of activities, including enhanced editing performance. At this time 60-70 lidar systems are believed to exist worldwide and the number is increasing. Validation studies by different entities are documenting lidar performance under a variety of conditions. A vigorous effort is being championed by the lidar sub-committee of ASPRS to create a set of operational guidelines for lidar. On the InSAR side, the airborne systems are also improving, particularly with respect to vertical accuracy, where sub-meter (RMSE) vertical results have been demonstrated over large areas. Bare-earth extraction continues to be problematic under certain conditions. While software has been successfully developed for extracting bare-earth DEMs in many types of coverage (low density urban areas, patchy forests), the major challenge is to obtain ground elevations in heavily forested areas. A great deal of development effort is currently focused on the potential of longer-wavelength, multi-polarization InSAR because of its greater forest penetration properties. Both L- and P-Band projects have been conducted (by R&D and commercial entities) over the past year but at this stage they are being treated as developmental in nature.

#### Accomplishments of the Working Group

The WGII/2 Chair and Co-Chair participated in the Commission II symposium in Xian, China in August, presenting an overview in the plenary session as well as chairing two technical sessions somewhat miss-leadingly titled 'SAR and Lidar Processing', and 'Lidar Data Processing'. Ten papers were presented in these sessions over quite a wide range of topics and are mostly available in the proceedings.

Members of WGII/2 helped organize an ISPRS-sponsored Lidar/InSAR session at the 29th Symposium of the International Society for Remote Sensing of the Environment, which was held in Buenos Aires in April. This was an inaugural event in terms of a recently created cooperative agreement between ISPRS and the ISRSE.

#### Working Group News and Future Plans

Members participated in various relevant workshops or conferences with presentations and/or papers as well as committee support in some instances. Events included:

- ILMF (International Lidar Mapping Forum) meeting (Denver, February),
- ASPRS 2002 (held jointly with FIG XXII and ACSM - Washington, DC - April),
- IGARSS2002 (Toronto - June),
- ASPRS Pecora Conference and MAPPs (Denver - November),
- ASPRS regional workshop, (Portland - October: a one-day teaching event presented jointly with M. Renslow WG1/3).
- NASA/USGS Digital Camera and LIDAR Characterization Workshop (Stennis - June)
- Co-organized the 3rd International Workshop on Mapping Geo-Surficial Processes Using Laser Altimetry (Columbus, Ohio)

Forthcoming (2003):

- Together with WG1/3, WGII/2 will co-organize and participate in an ISPRS-sponsored workshop to be held in June. It will be a 3-day event held at a beautiful location along the Columbia River near Portland, Oregon. Topics will include, in particular, comparative and synergistic elements of these two active technologies (in both senses of the word).
- Program support for the 4th International Symposium on Mobile Mapping Technology, Kunming, China:

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#### WG II/3: INTEGRATED SYSTEMS FOR INFORMATION SERVICES

Chair: Poul Frederiksen (Denmark)

Co-Chair: Chongjun Yang (China)

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#### State of Science and Technology of Working Group Topics

Internet and Mobile Network technologies are large players in the evolution of Integrated Systems for Information Services. In order to meet the increased demands on up-to-date geo-spatial databases methods for maintenance of geo-databases are under development and here the Internet plays a major role. Various National Mapping Agencies have already implemented database update report systems based on Internet technology.

Accessibility of geo-information is an important issue and Internet based distribution systems for fast and reliable distribution have already been implemented by many National Mapping Agencies as well as by commercial photogrammetric/mapping companies. Distribution systems based on Cellular Network technologies have been developed and implemented in order to provide up to date map information in e.g. mountainous areas for route planning, tourist information purposes etc.

In order to make these systems operational focus is on the necessary standards for data exchange and interoperability between public and private databases.

#### Accomplishments of the Working Group

The WG contributed to the organization of the mid-term Commission II symposium in Xi'an in China, 20-23 of August 2002 and hosted three WG II/3 oral sessions and one poster session. 25 abstracts were received, of these, 15 were chosen for oral presentation and 10 for poster presentation.

In cooperation with local and international organizations WG II/3 organized the 'National Chinese Technical Tour'. The tour took place in the period from August 6th 2002 to August 21st 2002 and had spatial information service and geo-information related systems as its main focus points. More than 1500 persons attended the workshops.

Contact has been taken to the CEOS Working Group on Information Systems and Services (WGISS) in order to

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coordinate the efforts taken from the two working groups  
<http://wgiss.ceos.org/>

### Working Group News and Future Plans

During the last 12 months WGII/3 has followed and participated in the discussions on GRID. As a new concept GRID becomes more and more important for integrated systems for spatial data management. As representative of CEOS the chairman of the WGISS Data Sub-Group attended the Commission II symposium in Xi'an and gave an introduction to the working group and its activities.

A joint workshop between WG IV/2, WG IV/4, WG II/3 and CEOS WGISS named "Advances in Spatial Data Infrastructure and Database Interoperability" is scheduled for July 9 – 11, 2003 at Ordnance Survey, Southampton in England.

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### WG II/4: IMAGE DATA STANDARDS

Chair: *Wolfgang Kresse (Germany)*

Co-Chair: *Liping Di (USA)*

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### State of Science and Technology of Working Group Topics

During the past 12 months the WG II/4, whose topic is image data standards, primarily functioned as a link between the ISPRS and various standardization committees throughout the remote sensing and photogrammetry community. The most important committee among them is the ISO/TC211 "Geographic information – geomatics". Its working group 6 "Imagery" covers the aspects related to ISPRS. The WG II/4 has also established or keeps regular contacts to ISPRS commission I, to CEOS (Committee on Earth Observation Satellites), to EuroSDR (formerly OEEPE), and to the OpenGIS Consortium. The WG II/4 has been invited to join the ISPRS and CEOS Joint Task Force Group on Radiometric and Geometric Calibration/Standards. For reasons of overlapping appointments a representative of the WG II/4 could not be present at the first meeting in Denver in the beginning of November 2002. The WG II/4 has also been invited to join a task force dealing with image deformation parameters. EuroSDR (formerly OEEPE) has been informed about all details of the present status of the standardization process. Further developments have to be waited for. The cooperation between the WG II/4 and OGC remained on the same level as before. Basically it is a bidirectional exchange of all relevant documents. Although the international standards for imagery are still under discussion and development, the WG II/4 has become an expert group of ISPRS on standardization. Questions on standardization have risen with increasing intensity. The WG II/4 is ready to keep on serving these needs in the future.

### Accomplishments of the Working Group

The second official meeting of the WG II/4 took place August 22nd 2002, at the Xi'an Hotel, in Xi'an, China, during the ISPRS commission II symposium. The meeting was attended by 15 people from 5 countries. The attendance was limited due to three parallel sessions in the symposium.

On behalf of ISPRS the co-chairman of the WG II/4 gave a presentation about the standardization activities in ISPRS at the FIG-congress in Washington D.C. in April 2002.

During the week of May 20th – 24th 2002 the ISO/TC211 plenary met in Bangkok, Thailand. At May 21st the project teams of ISO 19129 and ISO 19130 met. The second meeting of the ISO/TC211 plenary took place in the week November 11th – 15th in Gyeong Ju, South Korea. During this week the project teams of ISO 19129 and ISO 19130 met at November 11th.

The international standards for imagery are still under discussion and development.

The WG II/4 has been invited to join the ISPRS and CEOS Joint Task Force Group on Radiometric and Geometric Calibration/Standards. The WG II/4 has been invited to join a task force dealing with image deformation parameters. EuroSDR has been informed about all details of the present status of the standardization process. Further developments have to be waited for.

The cooperation between the WG II/4 and OGC remained on the same level as before. Basically it is a bidirectional exchange of all relevant documents.

### Working Group News and Future Plans

The WG II/4 has become an expert group of ISPRS on standardization. Questions on standardization have risen with increasing intensity. The WG II/4 is ready to keep on serving these needs in the future.

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### WG II/5: DESIGN AND OPERATION OF SPATIAL DECISION SUPPORT SYSTEMS

Chair: *Wolfgang Kainz (The Netherlands)*

Co-Chair: *Qiming Zhou (Hong Kong)*

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### State of Science and Technology of Working Group Topics

Spatial decision-making based on a combination of image-based and vector data is an important activity in many application domains. The underlying paradigm of field versus object-based models has become an extensively researched area in many disciplines ranging from theoretical to application oriented. The support of decision making with knowledge-based techniques (rule-based systems) and artificial neural networks has found many useful applications reported in the literature. We observe an increased interest in combining standard GIS functionality with novel approaches taken from fuzzy logic and artificial neural network technology. The cooperation of producers of spatial decision support systems and users of these systems is increasingly recognized as an approach to provide better spatial decision support to real world problems. Moreover, the modularization of services leads to the design and development of component based systems. This means that in the future functional components of systems will be available on the

Web for use. This poses new challenges for standards and interfaces not only on the data side but also for the functionality of the components.

### Accomplishments of the Working Group

The WG participated in the Workshop on Mobile and Internet GIS, Wuhan, China, August 15 – 16, 2002 and participated in the preparation of the scientific program of the Commission II Symposium in Xi'an.

### Working Group News and Future Plans

The WG has planned the following activities for the coming year:

- Co-organization of the International Workshop on Dynamic and Multidimensional GIS at ITC, The Netherlands
- Co-organization of the joint WG II/5 and WG II/6 workshop on Spatial Analysis and Decision Making, Hong Kong, December 3 -5, 2003

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### WG II/6: SPATIAL ANALYSIS AND VISUALISATION SYSTEMS

*Chair: Zhilin Li (Hong Kong)*

*Co-Chair: Menno-Jan Kraak (The Netherlands)*

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### State of Science and Technology of Working Group Topics

A noticeable trend is different types of integration. One type is the integration of visualization and analysis in a web environment. Another is the integration 3D and temporal data into visualization and spatial analysis systems.

### Accomplishments of the Working Group

The WG II/6 and WG IV/2 (Federated databases and interoperability), WG II/1 (Real-time Mapping Technologies), WG II/5 (Design and operation of spatial decision support systems), together the LIESMARS of Wuhan University have organized an International Workshop on Mobile and Internet GIS, as the pre-symposium workshop of the Commission II's Xi'an Symposium. The workshop was held during August 15-16, 2002 at Wuhan, China. A total of 65 scholars from 9 countries/regions participated in the workshop. Among them, 37 were local participants (i.e. from China Mainland) and 28 are from other countries/regions such as Austria, Canada, Denmark, France, Korea, Hong Kong, the Netherlands and USA.

The WG II/6 also organized 3 technical sessions at the Xi'an Symposium.

The Chair of the WG is also involved in the editing of a special issue for ISPRS Journal of Photogrammetry, together with Commission IV.

### Working Group News and Future Plans

Organization of the 4th Dynamic and Multi-dimensional GIS at ITC, the Netherlands.

Organization of an International Workshop on Spatial Analysis and decision Making during 3-5 December 2002, at Hong Kong. This is a joint event with WG II/5.

The WG II/6 will try to make more contact with other WGs or organizations. It is intended to have a joint meeting with ICA. This linkage has become very natural because Prof. Dr. Menno-Jan Kraak of ITC is also the co-chair of the ICA Commission on Visualization.

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### INTERCOMMISSION WG II/IV: AUTOMATED GEO-SPATIAL DATA PRODUCTION AND UPDATING FROM IMAGERY

*Chair: Christian Heipke (Germany)*

*Co-Chair: Ammatzia Peled (Israel)*

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### State of Science and Technology of ICWG II/IV Topics

There are many scientific groups doing research in automatic cartographic feature acquisition. One focus is on capturing of 3D objects. The use of sensors like laser scanners increasingly gains in importance, especially in combination with imaging sensors. The new digital sensors start to be interesting for automatic image interpretation and object extraction research.

Automatic aerial triangulation has reached a point where it is a standard component of photogrammetric systems. New developments are characterized by comfortable handling of large blocks and tools for simplified error analysis during the processing chain. Concerning the automation of cartographic feature extraction, the transition of experimental systems into practical solutions is very low. Presently the appropriate way to incorporate automatic image analysis into operational systems is by semi-automation, which is reflected by recent developments. Examples are developments by Inpho, Stuttgart and CC-Modeler, Zürich. Efforts have been undertaken to integrate new camera models into digital workstations in order to be able to use new digital data material for photogrammetric analysis.

Concerning updating of GIS, besides the data capture itself the management of the updating information in the database is a relevant topic itself. Automatic update including topological changes still is nearly unsolved. In many cases from the operational point of view the acquisition of the complete data set is easier than to incorporate acquired changes into an existing data set. Automatic DTM generation has been accepted by the practice some time ago, but interactive verification and editing is there to stay, especially in difficult terrain, and in large scales.

Digital photogrammetric workstations more and more approach a GIS leading to integrated solutions which cover the complete process from data capture to data management, analysis, visualization and dissemination. At present they are incorporating database and visualization functionalities, partly even in 3D.

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In fact the cooperation and exchange between GIS and Photogrammetry still is rather low, especially from the commercial point of view. There still is a lack in standardized exchange between the respective systems but the companies seem to have recognized the lack in integrated solutions for the end-user.

**Accomplishments of the IC Working Group**

The WG organized technical sessions at the ISPRS Commission II Symposium in Xi'an, and technical sessions at ISPRS Commission IV Symposium in Ottawa.

The WG also organized the third ICA / ISPRS / EuroGeographics Joint Workshop on "Incremental Updating and Versioning of Spatial Data Bases" in Frankfurt am Main, Germany, October 14-15, 2002 which was attended by 20 participants from 12 countries.

The WG has cooperated with ISPRS, Comm. I WG's, Comm. III WG's, EuroSDR (formerly OEEPE), ASPRS, Digital Photogrammetry Committee and the ICA WG on Incremental Updating and Versioning of Spatial Data Bases.

**Working Group News and Future Plans**

The WG will participate in the conference: "Photogrammetric Image Analysis (PIA'03)" to be held from September 17-19, 2003 in Munich, Germany, with ISPRS Confer-

ence of Working Groups IC II/IV, III/4, III/5, III/6 and the Workshop: "High Resolution Mapping from Space 2002" to be held from October 6-8, 2003 in Hanover, Germany, Joint Workshop with ISPRS Working Groups I/2, I/5, IC WG II/IV and the EARSeL Special Interest Group 3D Remote Sensing.

A joint ICA/ISPRS Workshop with Eurogeographics is under discussion for 2003 in Durban, South Africa and will organize technical sessions during the ISPRS congress in 2004, Istanbul, Turkey.

Guest editors from the WG (C. Heipke, K. Pakzad, F. Willrich (University of Hannover, Germany), A. Peled (University of Haifa, Israel)) will edit a theme issue: "Integration of geodata and imagery for automated refinement and update of spatial databases", of the ISPRS Journal for Photogrammetry and Remote Sensing with planned publication date in Winter 2003/04.

**Other Relevant Information**

After a lot of very successful work over the last 2 years, Felicitas Willrich (born Lang) has decided to step down as working group secretary. Since May 2002 Kian Pakzad from the Institute for Photogrammetry and Geoinformation, University of Hannover, continues the work as secretary of this Working group.



**TECHNICAL COMMISSION III  
THEORY AND ALGORITHMS**

**President:** Franz Leberl (Austria)  
**Scientific Secretary:** Rainer Kalliany (Austria)

**State of Science and Technology of Commission Topics**

The year 2002 confirmed that the theories and algorithms for photogrammetry and remote sensing are being studied under various discipline headings, most prominently in computer vision. However, the year also did show that the ISPRS activities in this area are vibrant and active. As a result, proposed changes in the structure of the ISPRS do reflect a strong commitment to continue with the work of Commission III, however with a somewhat changed set of references.

The December issue of ISPRS Highlights contains a full report of the Commission's activities surrounding the Symposium, and its discussions about the Commission and the ISPRS structure. This very much reflects ideas about the Science and Technology as they relate to Commission III.

**Accomplishments of Commission during the Current Year**

Not surprisingly, the year was dominated by the Symposium of the Commission with its preparations and publi-

cations efforts. Given some innovative elements in the way in which the program for the Symposium was developed, some work had to be done by the leadership of all working groups. The Symposium papers were requested to be submitted as full papers, yet the concern that there would be no full papers led to a track for the submission of abstracts only. Very much to our relief, and very much as a testimonial for the dynamics of Commission III, we received a large number of full papers (90), plus another equal number of abstracts.

We must consider it an accomplishment of the Commission that these full papers were all reviewed, even though some glitches did occur and some of the reviews remained incomplete.

Besides the Symposium, there was activity in the Working Groups. The effects will be most visible in 2003 when a series of 4 workshops will be held. Details follow below. In summary, the Commission sees the following accomplishments:

- Meeting of the Programme Committee for the Symposium at ECCV in May 2002;
- Organising the Symposium and ensuring broad participation;
- Printing two volumes of proceedings, separately for peer-reviewed full papers and for abstract-based papers;
- Organising an East-West Vision conference, focussing on Eastern European academic participation, and with a separate set of proceedings;
- Sponsoring the Annual Conference of the Austrian Association for Pattern Recognition;
- Arranging for a set of three very successful Tutorials in conjunction with the Symposium, and persuading the authors to repeat the Tutorials at the Istanbul congress (see below);
- Presence at various international non-photogrammetric conferences for remote sensing and for computer vision;
- Persuading various working groups to organise joint workshops in 2003, so that WG III/2 through III/8 will hold a total of 4 workshops, with as many as 4 WGs co-operating in each one.
- Establishment of a continuing working relationship with EuroSDR (formerly OEEPE) with multiple co-operative projects;
- Strengthening of co-operative events with IGARSS in the areas of Urban Mapping and in Data Fusion.
- Promoting the idea of "Photogrammetric Computer Vision" both inside and outside the ISPRS-domains.
- Contributing to ISPRS Highlights, including the discussion about a reformed ISPRS structure.

The above list is not entirely complete, but aims at presenting the visible elements in the work of the Commission. Some details follow in the report from the Working Groups.

### Other Relevant Information

Commission III is subject to a redefinition of its Terms of Reference, most importantly morphing it into the "Computer Vision and Graphics" commission of ISPRS. This would acknowledge the fact that "Theory and Algorithms" exists in all Commissions and better will reflect the role of Commission III within ISPRS. This is likely to be a topic of discussion elsewhere, and will come to a conclusion at the coming Istanbul-Congress.

### Commission Officer Address Updates

The Co-Chair of WG III/2 (Surface Reconstruction from Images as Information Source) Amnon Krupnik terminated his temporary stay at York University (Toronto, Canada) and now is back at his home in Israel at the following contact address:

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Haifa 32000, ISRAEL

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E-mail: [krupnik@tx.technion.ac.il](mailto:krupnik@tx.technion.ac.il)

WWW: <http://www.technion.ac.il/people/krupnik>

The Chair of WG III/6 (Multi-Source Vision) Olaf Hellwich has taken up his new affiliation as professor at Berlin Photogrammetry and Cartography, Technical University Berlin

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Eberhard Gülch has taken over the so far vacant position of a Co-Chair of WG 8 (Reliability and Performance of Algorithms). His address is:

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Smaragdweg 1, D-70174 Stuttgart.

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E-mail: [eberhard.guelch@inpho.de](mailto:eberhard.guelch@inpho.de)

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The new affiliation and address of the IC-WG III/V (Image Sequences) Chairman Marc Pollefeys is:

Department of Computer Science, University of North Carolina

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Tel: (919) 962 1845, Fax: (919) 962 1699

Email: [marc@cs.unc.edu](mailto:marc@cs.unc.edu)

Web: <http://www.cs.unc.edu/~marc/>

### Working Group Activities during the Current Year

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#### WG III/1: SENSOR POSE ESTIMATION

Chair: *H. Haggren*

Co-chair: *A. Habib*

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So far no special workshop is planned but there are ideas of organising a tutorial for the congress in 2004. The WG organised two oral sessions at the Symposium with 9 papers. Focus topics are direct geo-referencing based on new sensor technology and sensor orientation based on estimates. The registration of existing data from different sensors should be the focus of more research.

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#### WG III/2: SURFACE RECONSTRUCTION FROM IMAGES AS INFORMATION SOURCE

Chair: *M. Roux*

Co-chair: *A. Krupnik*

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From 16th to the 18th of July 2003 a joint WG III/2 – WG III/8 Workshop will be held in Paris on "From surface reconstruction to 3D scene analysis in digital imagery: theory, applications and evaluation". Preparations have begun during the current reporting period.

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#### WG III/3: 3-D RECONSTRUCTION FROM AIRBORNE LASERSCANNER & INSAR DATA

Chair: *G. Vosselmann*

Co-chair: *H.-G. Maas*

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At the Graz-symposium a tutorial on airborne laser scanning was held and 12 papers and 22 posters were presented. A test on extraction of elevation models from point clouds has been initiated. So far, 9 participants from academia and industry processed the data sets. Their results are currently being analysed and will be presented in 2003 or 2004. Also in 2003, on October 8-10 at Dresden a workshop will be organised together with OEEPE. A full paper peer review is planned. For Istanbul another tutorial will be offered.

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#### **WG III/4: AUTOMATED OBJECT EXTRACTION**

*Chair:* H. Mayer

*Co-chair:* J. Bethel

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#### **State of Science and Technology of WG Topics**

The WG feels that the state of its science and technology can be best characterized as follows:

- Features can be extracted robustly with high sub-pixel precision. Yet, new approaches allow for an even more detailed modelling of the image function and therefore even better results can be achieved.
- Grouping is essential because feature extraction alone cannot be expected to result directly into parts of objects. Besides using more and more attributes such as gradient or color values of the features and their neighborhood, grouping and matching processes are interleaved. A new trend is grouping in three-dimensional object space using photogrammetric camera models and constraints on two or more images based on projective geometry including error propagation from probability theory.
- Direct measurement of distances via laser-scanning becomes more and more important. This is true for the detection and coarse approximation of buildings from aerial data as well as for applications in close range such as 3D video communication.
- In the high level the need for global models making use of the relations of all (important) objects in an image is important, yet there is few work going into this direction. By means of sound statistical methods such as Bayesian modeling the stochastic component can be included.

#### **Accomplishments of the WG**

The accomplishments of the WG in 2002 focus on the Symposium. Besides the two oral and one poster session at the Symposium of Commission III, the WG was and still is involved in an EuroSDR (formerly known as OEEPE) test on "Automated Extraction, Refinement, and Update of Road Databases from Imagery and Other Data".

#### **Future Activities**

Concerning work in preparation for future activities, mention must be made of a conference:

September, 17-19, 2003, Conference on "Photogrammetric Image Analysis (PIA)", Munich, Germany in cooperation with WG II/IV, III/5 and III/6.

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#### **WG III/5: ALGORITHMS FOR INDUSTRIAL VISION**

*Chair:* C. Steger

*Co-chair:* S. Scherer

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The industrial base of this WG is both an asset and a liability. The WG chairmen can spend a very limited time on their WG. Yet, when they attend, they offer a very important contribution. With respect to the 2002-Symposium the quality of the submitted papers and the process of peer-review were seen as positive. However, more end users (customers) should be involved in the WG activities. Often it turns out that they have hardly any idea about the role and activities of ISPRS; to some of them also the "remote sensing" topic appears to be too prominent within the scope of ISPRS.

The 2003-meeting PIA in Munich was mentioned in the previous entry and is being co-sponsored by WG III/5.

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#### **WG III/6: MULTI-SOURCE VISION**

*Co-chair:* O. Hellwich

B. Csatho

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A workshop on laser scanning was organized in Annapolis, MD (in collaboration with WG III/3) and on "Urban Areas " in Rome (together with P. Gamba). The proceedings of the laser mapping workshop is published in the ISPRS Archives (part III/4). Since the WG leadership also is chairing a data fusion WG within IEEE/GRS, they also participated in IGARSS 2002 in Toronto. For 2003, the WG is planning an IEEE/ISPRS workshop 'Urban 2003' (May 22-23 at Berlin) and the participation in the already mentioned multi-WG-PIA'03 workshop in Munich (September 17-19, 2003). Another activity is participation in a SAR/optical data fusion test of OEEPE/EuroSDR.

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#### **WG III/7: MODELING LARGE SCALE URBAN ENVIRONMENTS**

*Chair:* D. McKeown

*Co-chair:* S. Teller

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The WG is contributing to the overall Commission effort, but abstains from special WG-meetings. At the Commission-Symposium, the WG-topic was addressed in the keynote address by Luc van Gool, in oral and poster sessions, and in a tutorial by K. Karner and his collaborators in Graz.

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#### **WG III/8: RELIABILITY AND PERFORMANCE OF ALGORITHMS**

*Chair:* N. Paparoditis

*Co-chair:* E. Guelch

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The two main objectives of this WG are first a better comparison of algorithms on the same set of data and second the evaluation of accuracy. For that purpose a test data set has been compiled, consisting of imagery at vari-

ous resolutions, laser scanner data and also reference data like maps etc. (See [http:// http://isprs.ign.fr/](http://http://isprs.ign.fr/)). Of course, this data set may be used by other WGs as well. The WG is co-sponsor of a work shop in Paris (July 16-18, 2003).



## TECHNICAL COMMISSION IV SPATIAL INFORMATION SYSTEMS AND DIGITAL MAPPING

**President:** Costas Armenakis (Canada)  
**Scientific Secretary:** Yuk-Cheung Lee (Canada)

### State of Science and Technology of Commission Topics

The state of science and technology on Commission topics and future directions was presented during the closing ceremony and published in the Symposium's report in the September 2002 issue of the ISPRS Highlights. It should be noted that the participation of national mapping organizations was weak. It has to be determined if this is due to the current changes taking place in the various mapping organizations or due to the nature of the topics of the Commission.

### Accomplishments of the Commission

The main activity of the Commission was the organization of the mid-term Symposium. The Symposium and Technical Exhibition were held in Ottawa Canada 8-12 July 2002, jointly with the 10th Spatial Data Handling Symposium and the 95th Annual Conference of the Canadian Institute of Geomatics. The theme of the Symposium was "Geospatial Theory, Processing and Applications" and was chosen to reflect the fact that Commission IV has grown and encompasses presently the studies of the geo-spatial theory and algorithms in addition to strictly geo-applications.

Throughout the papers submitted to the Symposium of Commission IV we saw the integration of photogrammetry, remote sensing and spatial information sciences, thus implementing the tag line of ISPRS "Information from Imagery". The papers covered an extensive list of topics such as: fundamentals of spatio-temporal spaces and databases, 3D GIS, urban and population management information systems, uncertainty, hazard and environmental mapping, transportation and location-based services, tourism, data warehouses, interoperability, web-based and mobile mapping applications, realization of federated databases, cartographic / image / urban structures generalization, architecture and types of spatial infrastructures, on-line data distribution and web-based catalogue services, image-based geospatial databases including queries and video systems, landscape modeling, terrain visualization, DEM and DSM, mapping advances using IKONOS, QuickBird, EROS, SRM, LIDAR and InSAR, integration of data and methods, image fusion techniques, image segmentation and feature extraction, change detection and updating of databases, and the mapping of Mars and other celestial bodies. The

book entitled 'Global Environmental Databases, Volume 2' was published at the time of the Symposium.

Commission IV Symposium had 113 oral presentations and 41 poster presentations, a total of 154 papers out of 260 papers received for the joint event. In the Technical Exhibition there were 26 companies occupying 39 booths. The joint Symposium attracted 502 delegates from 35 countries. 214 delegates (43%) came from across the globe and 288 (57%) came from Canada.

Printed and CD ROM proceedings and the Book of Abstracts were available during the Symposium. A photo gallery from the Symposium events is accessible via the web site of the Symposium ([http://www.geomatics2002.org/photo\\_gallery.html](http://www.geomatics2002.org/photo_gallery.html)).

The Commission Board meeting and a meeting on the redefinition of the ISPRS Commissions were also held during the Symposium.

The Working Groups of the Commission were active in maintaining intra- and inter-organization cooperation. Joint workshops and technical sessions were organized with Commissions II and VII, while joint events, including the joint ISPRS-SDH Symposium, were organized with: the IGU Commission on Geographic Information Science, the ICA Commission on Map Generalization, the OEEPE Working Group on Spatial Data Quality Management, the CEOS WGISS Global Dataset Task Team, and the Global Mapping WG 4 Global raster data development.

### Working Group Activities during the Current Year

#### WG IV/1: SPATIAL AND TEMPORAL DATA MODELLING AND ANALYSIS

*Chair:* Yvan Bédard (Canada)

*Co-Chair:* Wenzhong (John) Shi (Hong Kong)

### State of Science and Technology of Working Group Topics

The R&D activities taking place in the fields of WG IV/1 continue to focus mainly on two areas: modeling data and

operations using formal languages and formalisms (ex. UML) and modeling complex spatial processes using algorithmic approaches and formal rules. Among the issues still under investigation are (1) the fundamental concepts used to describe space and time, especially in the context of multiple representations, parallel and cyclic timelines as used in multidimensional databases for example, (2) the development of spatial and temporal extensions to formal language or formalisms to facilitate the design and development of spatio-temporal databases, either in transactional or in multidimensional systems, (3) the development of more efficient techniques and operators to perform spatio-temporal querying and analysis, mostly to drastically improve their performance but also their ease of use and intuitiveness, (4) the development of methods to better describe 3D models as well as the operations performed on these models and their implication on spatio-temporal analysis, (5) the shifting from a traditionally transaction-based paradigm to an analysis-based paradigm better geared for spatio-temporal exploration and decision-support, or in other words from the traditional mono-scale normalized spatio-temporal data models to the more recent multi-scale denormalized multi-dimensional data models, where parallel space and time dimensions may coexist as well as several levels of information granularity (in order to support all levels of decision-making), and (6) the development of innovative methods and techniques to deal with the spatial, temporal and thematic quality of data, especially methods that are better suited for the end-user or that are more powerful to express the quality of the data. All these issues pose important challenges both to fundamental researchers as well as to applied researchers. Relationships with and limitations of today's solutions and recent international standards are also considered. In fact, it is still surprising to find that today's methods and technologies are still very limited with regards to all of these issues. The underlying inherent complexity pose major challenges in term of fundamental concepts and of practical feasibility, creating the need for such R&D activities.

#### **Accomplishments of the Working Group**

During the year the WG has contributed to discussion about the revision of the terms of reference of the new Commission IV and Commission II and planning of activities for years 2002, 2003 and 2004. The WG web site has been tested and completed.

The WG contributed to the joint OEEPE/ISPRS Workshop on Spatial Data Quality Management, organized by the Istanbul Technical University, Division of Photogrammetry, and the General Command of Mapping, National Mapping Agency of Turkey and organised sessions at the mid term symposium. The WG offered a half-day tutorial which was cancelled because the minimum number of participants was not reached. Members also participated to the Joint Workshop on Multi-Scale Representations of Spatial Data between ISPRS WG IV/3 and ICA Commission on Map Generalization.

#### **Working Group News and Future Plans**

The WG will present papers at the second International Symposium on Spatial Data Quality in Hong Kong in 2003 and will organize a workshop in Quebec City entitled "Spatial and Temporal Data Modelling: specifications, standards, formalisms and other system design issues" on October 2-3, 2003. A half-day tutorial will be offered at the Congress in 2004 on Database Design for GIS Applications: Using UML, Geomatics Standards and Visual Modelling Tools.

A Special Issue of the ISPRS Journal is to be published in September 2003 on "Advanced techniques for analysis of geo-spatial data". More than 30 papers have been submitted.

The WG has co-operated with a number of other ISPRS WGs and with, EuroSDR (formerly OEEPE), SDH (Spatial Data Handling), CIG (Canadian Institute of Geomatics), International Geographical Union (IGU) Geographical Information Science Commissions, Hong Kong Geographical Information Systems Association and the Chinese Academy of Sciences, LREIS, Beijing China.

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#### **WG IV/2: FEDERATED DATABASES AND INTEROPERABILITY**

*Chair: Jianya Gong (China)*

*Co-Chair: Rolf A. de By (The Netherlands)*

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#### **Accomplishments of the Working Group**

The WG took part in the mid term symposium and also organized an International Workshop on Mobile and Internet GIS in Wuhan, China, during 15-16 August 2002 with WGs IV/2, II/1, II/5 and II/6. It was jointly organized by the National Key Lab for Information Engineering in Surveying, Mapping and Remote sensing (LIESMARS) of Wuhan University. A total of 65 scholars from 9 countries/regions participated in the workshop. Among them, 37 are locals (i.e. from China Mainland) and 28 are non-locals from other countries/regions such Austria, Canada, Denmark, France, Korea, Hong Kong, the Netherlands and USA. Officials from the Ministry of Science and Technology, Canadian Embassy in Beijing, the Foreign Affairs Office and various institutes of the Wuhan University (e.g., Institutes of Surveying and Mapping, Remote sensing, resources and environment and urban studies) attended the meeting. In addition, a number of staff members and research students at the LIESMARS also attended the workshop.

The Co-Chair of the Image Workgroup of ISO/TC211, Professor Di Liping of George Mason University, USA, visited to Wuhan University to give lectures on technologies and standardization of spatial data sharing and interoperability.

#### **Working Group News and Future Plans**

The WG will participate in a joint workshop on spatial data infrastructure and database interoperability in association with the ISPRS WG II/3 and WG IV/4 from July 9th-11th, 2003, in UK and will organize the 4th International Workshop on Mobile Mapping with Commission I, Com-

mission II of ISPRS and other organizations, which will be held from August 23rd to 25th, 2003, in Kunming, China. The WG will also contribute to the Asian GIS Conference in corporation with Wuhan University, which will be held from November 15th to 18th, 2003, in Wuhan, China.

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### **WG IV/3: DATA GENERALIZATION AND DATA MINING**

*Chair: Monika Sester (Germany)*

*Co-Chair: Dianne Richardson (Canada)*

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#### **Accomplishments of the Working Group**

The main activities of the Working Group have concentrated on the Symposium in Ottawa. Besides holding presentations during the Symposium, a pre-conference workshop was organized jointly by the ICA Commission on Generalization and our Working Group. This workshop was extremely successful: 40 scientists came together and had intensive discussions about topics related to generalization and multi-scale aspects of spatial data. The interesting fact was the integration of specialists from image understanding and surface modeling/visualization together with people from (vector) generalization: this blend helped to understand concepts from the different disciplines and form the basis for exchanging ideas and methods. Besides presentations, there were break-out discussion groups on various topics, e.g., the relevance of 3D, Multiple Resolution / Representation Data Bases (MRDB), the role of cognition and perception, as well as the option of developing common software tools and thus a toolbox for generalization algorithms. The presentations of the workshop are collected on the homepage of the Working Group ([http://www.ikg.uni-hannover.de/isprs/list\\_of\\_presentations.html](http://www.ikg.uni-hannover.de/isprs/list_of_presentations.html)).

#### **Working Group News and Future Plans**

Contacts have been established to a group at the GMD, Bonn, dealing with spatial data mining. First ideas are being elaborated of having a common workshop in 2003.

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### **WG IV/4: SPATIAL DATA INFRASTRUCTURES**

*Chair: Parth Sarathi Roy (India)*

*Co-Chair: David Holland (UK)*

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#### **Accomplishments of the Working Group**

A half day session was held at the ISPRS TC VII Symposium at Hyderabad, India from 3rd to 6th December 2002 entitled "Spatial Data Infrastructure Sustainable Management of Natural Resources". The main themes for discussion during the workshop were Developing SDI for Key environmental indicators; Earth Observation System (EOS) and environmental indicators; Critical issues on the storage and exchange format for multi temporal (hours to years) and multi resolution (cm to km) environmental data.

#### **Working Group News and Future Plans**

A workshop on "Advances in Spatial Data Infrastructures and Database Interoperability" will be organized at Ordnance Survey Business Centre, Southampton, U.K. next

year, 9-11 July 2003. This is a joint event involving three ISPRS Working Groups (II/3, IV/2 and IV/4).

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### **WG IV/5: IMAGE-BASED GEOSPATIAL DATABASES**

*Chair: Peggy Agouris (USA)*

*Co-Chair: Dimitris Papadias (Hong Kong)*

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#### **State of Science and Technology of Working Group Topics**

The activities of this WG extend beyond photogrammetry into the intersection of digital image analysis, GIS, and databases. Considering the current state-of-the-art, we can identify the following trends as dominant:

- Spatiotemporal modeling advances are bridging the gap between image analysis and geospatial modeling. The automated analysis of multi-temporal imagery to detect changes in geospatial objects, and update GIS databases is progressing well.
- Novel sensors and deployment methods (e.g. video sensors on-board unmanned aerial vehicles) are introducing novel challenges, related to the management of streams of distributed imagery. This is expected to be a major research area for the next few years.
- Digital libraries and Web-based GIS environments remain an interesting application, and the efforts of major mapping organizations to integrate and update their databases (as for example USGS is planning to do over the next couple of years) will bring forward the need for innovative approaches.
- Content-based queries of geospatial datasets remain an established research direction.

#### **Accomplishments of the Working Group**

This year, as custom dictates, WG IV/5 participated in the Symposium of Commission IV in Ottawa. We had two sessions with oral presentations, and the quality of the presented papers was very satisfactory.

#### **Working Group News and Future Plans**

For 2003 the main focus of our activities will be the organization of another workshop. We are in the process of finalizing the organizational details and will proceed with request for approval by the Council very soon. The workshop will be held in Boston, most likely in June 2003. We are in the process of contacting a publishing house to investigate the potential publication of a book as a post-workshop proceedings volume.

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### **WG IV/6: LANDSCAPE MODELLING AND VISUALIZATION**

*Chair: Marguerite Madden (USA)*

*Co-Chair: Jochen Schiewe (Germany)*

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#### **Accomplishments of the Working Group**

The efforts and activities of Commission IV Working Group IV/6, "Landscape Modeling and Visualization" in 2002 primarily involved: 1) contributions to the Commis-

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sion IV Symposium held in Ottawa, Canada on July 8-12, 2002; and 2) coordinating the review and editing process for publication of a theme issue of the ISPRS Journal of Photogrammetry and Remote Sensing.

During 2002, Marguerite Madden and Jochen Schiewe acted as guest editors of a theme issue of the ISPRS Journal of Photogrammetry and Remote Sensing focused on "Challenges in Geospatial Analysis and Visualization". Based on the results of reviewers, 7 articles were selected that best focused on the use of innovative techniques for geospatial data analysis and visualization. It is expected that this theme issue will be published in late 2002 or early 2003.

### Working Group News and Future Plans

Planned activities include a joint workshop entitled, "Challenges in Geospatial Analysis, Integration and Visualization II" to be held September 8-10, 2003 in Stuttgart, Germany. This workshop will be the joint effort of the following three Commission IV Working Groups:

- WG IV/3 Data Generalization and Data Mining (Monika Sester and Dianne Richardson)
- WG IV/6 Landscape Modeling and Visualization (Marguerite Madden and Jochen Schiewe)
- WG IV/7 Data Integration and Digital Mapping (Michael Hahn and Ryosuke Shibasaki)

The workshop is being organized by Michael Hahn, Stuttgart University of Applied Sciences, Germany and Jochen Schiewe, University of Vechta, Germany.

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### WG IV/7: DATA INTEGRATION AND DIGITAL MAPPING

Chair: *Michael Hahn (Germany)*  
Co-Chair: *Ryosuke Shibasaki (Japan)*

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#### State of Science and Technology of Working Group Topics

During the mid-term Symposium of Commission IV the following topics were identified as being of most interest for our working group:

- A significant number of specific issues, e.g., the circumstances of emergency mapping are investigated in its impact for image fusion. This indicates acceptance of image fusion algorithms in a broad variety of applications.
- Still most intensively studied are issues of (image) data integration related to building extraction. In particular ongoing work focuses on the detection of 3D objects by merging information extracted from stereo images, Lidar, InSar, multibeam Radar data and existing Digital Elevation and Surface Models.
- The availability of high and medium resolution space borne imagery (Ikonos, Quickbird, EROS, SPOT 5, Landsat 7) have renewed the interest in quality issues of data fusion, in particular related to topics like spectral unmixing of pixels and segmentation based data integration.

- Mapping applications benefit from a conceptually simple but very effective solution which uses the transparency scheme for weighted superimposition of any type of geocoded data.
- Feasibility studies for true orthophoto generation focus on simplification of 3D city and landscape modeling and its usability for map update. Related to these issues is the acquisition of terrain features in multi-source DEM generation processes.
- Mapping based on integration is mostly addressed in the area of sensor integration. Mobile mapping e.g., with cameras, GIS using PDAs, GPS and compass sensors or helicopter mapping based on integrated sensor systems aim at quick and flexible solutions for mapping or map update. The topics of interactive communication, virtual reality modeling and streaming of data will lead to new challenges of data integration, in particular, for mobile applications.

### Accomplishments of the Working Group

The working group contributed with 29 papers to the very successful mid-term symposium of Commission IV in Ottawa. In two sessions topics of data integration and data fusion have been addressed, another two sessions have been devoted to mapping from imagery and DEM quality. Further presentations have been given during the poster sessions.

The activities and news of the WG are made available to the public through the WG home page. You may visit our web-site at <http://www.commission4.isprs.org/wg7/>.

### Working Group News and Future Plans

Together with WG IV/3 and WG IV/6 our working group will co-organize an International Workshop on "Challenges in Geospatial Analysis, Integration and Visualization II", which will be held in Stuttgart, Germany in September 8 - 10, 2003. The workshop will directly follow the Photogrammetric Week '03 and will be hosted by our working group at the University of Applied Sciences in Stuttgart.

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### WG IV/8: GLOBAL ENVIRONMENTAL DATABASES

Chair: *Ryutaro Tateishi (Japan)*  
Co-Chair: *David Hastings (USA)*

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### Accomplishments of the Working Group

The book entitled "Global Environmental Databases, Volume 2" was published at the time of Commission IV Symposium in July 2002. The Volume 2 includes chapters on climatic data, livestock data, land use data, biophysical data, for the specific data and chapters on remote sensing data, spatial information infrastructure, administrative and cultural challenges, bridging the gap between environmental databases and policy for the common subjects. This book publication is a continuing activity from the previous WG IV/6 (Global Databases for Environmental Monitoring)

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during 1996-2000, which published Volume 1 of "Global Environmental Databases." These books are available from Geocarto International Centre <http://www.geocarto.com/features.html> and <http://www.geocarto.com/B001.html> or GITC (E-mail [mailbox@gitc.nl](mailto:mailbox@gitc.nl)). The background of this book publication activity is based on the recognition of the awareness for the present situation of the development of global environmental databases, that is the lack of harmonization/standardization among various efforts of the database development.

In addition to the above activities, the cooperation with the Committee on Earth Observation Satellites (CEOS) Working Group on Information Systems and Services (WGISS) Global Datasets Task Team continues from the last year to develop "the Portal to Global Environmental Datasets." The new cooperation with "Global Mapping" project (<http://www1.gsi.go.jp/iscgm-sec/index.html>) Working Group 4 (Global raster data development) has started since September 2002 for the subject of the global land cover data development.

#### **Working Group News and Future Plans**

Plans are on-going for a workshop entitled "Global Environmental Databases". This meeting will be held at United Nations Conference Centre, Bangkok, Thailand ([www.unescap.org/uncc](http://www.unescap.org/uncc)), 3-6 June 2003 jointly with CEOS Global Datasets Task Team workshop, Global Mapping Working Group 4 workshop, and UN ESCAP meeting.

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#### **WG IV/9: EXTRATERRESTRIAL MAPPING**

*Chair: Randy L. Kirk (USA)*

*Co-Chair: Jan-Peter Muller (UK)*

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#### **State of Science and Technology of Working Group Topics**

NASA's Mars 2001 Odyssey spacecraft began its investigation in February of 2002. Noteworthy from a mapping perspective is the Thermal Emission Imaging System (THEMIS), which includes a 5-band, 18-m/pixel visible imaging system and a 10-band, 100-m/pixel thermal infrared imager. The infrared imager, the first of its kind to map Mars, is capable of operating at night as well as during the day and is providing new kinds of information about surface composition, texture, and thermal properties. The first release of archived image data was made in October, with subsequent releases to follow at 3-month intervals. At present, THEMIS observations are primarily directed to examining potential landing sites and other targets of high scientific interest, but the instrument has the potential to provide global or near-global coverage of Mars that could be used for systematic mapping at 100 and 18-m resolutions (compared to ~200 m for the best current image maps of the planet). Stereo imaging is also a possibility; mission operation rules currently preclude turning the spacecraft off-nadir, but these rules may be relaxed in the future, and combination of THEMIS data with existing off-nadir images is also possible.

Preparation of the ESA Mars Express orbiter and the two NASA Mars Exploration Rovers (MER) for launch in the second quarter of 2003 continues successfully and on schedule. Mars Express will carry (in addition to other instruments and the Beagle 2 lander) the High-Resolution Stereo Camera, a 9-line pushbroom system that will obtain high resolution stereo and color coverage over an unprecedentedly large fraction of the red planet. The MER rovers will carry multiple stereo imaging systems as well as a microscopic imager and several spectroscopic instruments, and will be capable of traveling hundreds of meters during a 90-day nominal mission. Selection of safe and scientifically interesting landing sites for the rovers has been a major focus of NASA activity in 2002, with a final decision expected early in 2003. High-resolution topographic mapping of potential landing sites by Working Group Chair Randy Kirk and others, using stereo and shape-from-shading analysis of Mars Global Surveyor Mars Orbiter Camera images has played an important role in assessing the risks for landing and rover operations. Collection and analysis of stereo and other images of the sites finally selected will continue in 2003, with the emphasis turning to planning of rover operations. A key participant in this planning will be Working Group member Ron Li, who was selected as a MER Participating Scientist in May 2002.

#### **Accomplishments of the Working Group**

The Working Group sponsored a session on Extraterrestrial Mapping at the ISPRS Commission IV Symposium held in Ottawa in July. Five oral presentations on aspects of Mars photogrammetry and cartography were offered, one of which, on high-resolution topographic mapping, was included in the Plenary Session of the Symposium. In addition, a poster contribution described stereomapping of the nucleus of Comet Borrelly by teams in the US and Germany.

Though not an ISPRS function, a session at the fall meeting of the American Geophysical Union in December deserves mention here because it commemorated the career of former Working Group member Merton E. Davies, who died in 2001. In a 50-year career at RAND, Davies was one of the pioneers of both satellite surveillance of the Earth and spacecraft imaging of the planets. He participated in missions to every planet except Pluto and was responsible for constructing geodetic control networks of bodies from Mercury to Neptune's satellite Triton. Merton was also a man of exceptional warmth, gentleness, and joy for life, a mentor, and a friend. He is profoundly missed by all who had the pleasure of knowing him.

Work on the Extraterrestrial Mapping web-site hosted by the USGS, Flagstaff, at [astrogeology.usgs.gov/Projects/ISPRS/](http://astrogeology.usgs.gov/Projects/ISPRS/) continues slowly but steadily as dictated by available funding. In 2002 the site was redesigned to meet U.S. Government requirements for accessibility, and a variety of new datasets were added.

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### Working Group News and Future Plans

Plans for a Workshop on "Advances in Planetary Mapping 2003" sponsored by the Working Group have been underway for some time and were recently announced. The Workshop will be held at the Lunar and Planetary Institute in Houston on 22 March 2003, immediately after the conclusion of the XXXIVth Lunar and Planetary Science Con-

ference. The due date for submission of abstracts for the Workshop is 21 January. Additional information about the Workshop can be found at [www.flag.wr.usgs.gov/USGS-Flag/Space/Isprs/MEETINGS/Houston2003/index2003.html](http://www.flag.wr.usgs.gov/USGS-Flag/Space/Isprs/MEETINGS/Houston2003/index2003.html).

For more information on Lunar and Planetary Science Conference, see [www.lpi.usra.edu/meetings/lpsc2003/](http://www.lpi.usra.edu/meetings/lpsc2003/).



### TECHNICAL COMMISSION V CLOSE-RANGE VISION TECHNIQUES

**President:** Petros Patias (Greece)  
**Scientific Secretary:** Alexandra Koussoulakou (Greece)

#### State of Science and Technology of Commission Topics

The wide spectrum of Commission's thematic interests, as summarized in the Terms of Reference and also stated in last year's Annual Report were covered, to a broad extent, in the work presented during the various sessions at the Commission's Symposium in 2002. More detailed views are provided by the activities of the Working Groups, which follow.

#### Accomplishments of the Commission

The main event for Commission V within the year 2002 has been its Symposium, under the title "Close-Range Imaging - Long Range Vision". The Symposium was held in Corfu, Greece, from 2 to 6 September. As more details on it appear in other ISPRS publications, we give here only a brief overview and some statistics.

In total, two hundred and forty three participants attended the Conference, arriving from various countries of Europe, America, Asia and Australia. In total 116 papers, from 22 countries were presented during the various sessions. Germany, Greece, Italy and Japan, provided in total more than half of the papers of the Symposium.

Apart from the main event of the Symposium, other parallel events took place, such as:

- The Annual Meeting and elections of the International Commission of Architectural Photogrammetry (CIPA-ICOMOS). Commission's V current President, Prof. Petros Patias is the newly elected president of CIPA for the 2003-2007 term.
- A One-day Tutorial: "Current advances in 3D reconstruction and documentation of cultural Heritage".
- A Two-day Workshop: "Scanning for Cultural Heritage Recording: Completing or replacing Photogrammetry?"
- A Meeting of the WGs of Commission V for discussing various administrative, scientific and business matters.

#### Working Group Activities during the Current Year

#### WG V/1: AUTOMATION FOR VISION METROLOGY SYSTEMS AND INDUSTRIAL APPLICATIONS

*Chair:* Stuart Robson (UK)  
*Co-Chair:* Thomas Luhmann (Germany)

#### Accomplishments of the Working Group

The WG organized sessions at the mid term symposium. With 23 papers working group V/1 covered the wide range of industrial vision systems and applications, from sensor technology to algorithmic aspects and practical solutions. Although all sessions had gained a significant interest by the audience, there was only a small number of participants from industry and/or system suppliers. This indicates that the conference lost part of its attraction to users and commercial companies in this special field of interest.

#### WG V/2: SCENE MODELLING AND VIRTUAL REALITY

*Chair:* Sabry El-Hakim (Canada)  
*Co-Chair:* George Karras (Greece)

#### State of Science and Technology of Working Group Topics

The employment of photogrammetric and image based-techniques in 3D modeling is still gaining ground, as also witnessed in several symposia organized by non-photogrammetrists. It seems that, by far, the most active area of application concerns the documentation of cultural heritage and architecture. Over the past year numerous examples have become available using both photogrammetry and range sensors, with the combination of laser scanning and photogrammetry being a focusing point of research. As regards visualization, interactive desktop PC-based systems are now applied to a growing extent. In this context, increasing the level of automation of the whole process from data collection to the modeling and representation phases is indeed a key issue of research activities, with considerable advances made particularly in the computer vision

community. In certain favorable cases, models can be generated fully automatically with projective geometry approaches exploiting uncalibrated cameras. In order to achieve desired accuracy levels and effectiveness under more demanding routine practical circumstances, however, further efforts are still needed. Thus, today there is still room for a variety of approaches for modeling and virtual reality applications as regards degree of automation, flexibility, effectiveness and cost.

#### **Accomplishments of the Working Group**

The WG Co-Organized, or co-operated in the Commission V mid term Symposium, and 20 presentations were made on topics of WG/2 (12 oral in three sessions, 8 poster) with very good attendance. The WG also participated in an international workshop on Visualization and Animation of Landscape in connection with the International Year of the Mountains 2002, 26 February - 1 March 2002, Kunming, China, Asian Institute of Technology (AIT), Yunnan University, U. Tokyo, and ISPRS.

The working group has 48 active members from 20 countries. It maintains a web site with a large collection of applicable links (academic, societies, software, sensors, applications), links to relevant events, to all the members web pages, and also test data.

#### **Working Group News and Future Plans**

The WG will participate in Videometrics VIII, Part of SPIE Symposium on Electronic Imaging, January 2003, San Jose, California (20-24 January 2003, Santa Clara, California, USA) and in the Workshop on Visualization and Animation of Reality-based 3D Models, Tarasp-Vulpera, Engadin, Switzerland, 24-28 February, 2003.

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#### **WG V/3: MEDICAL IMAGE ANALYSIS AND HUMAN MOTION**

*Chair: Frank van den Heuvel (The Netherlands)*  
*Co-Chair: Hans-Peter Meinzer (Germany)*

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#### **Accomplishments of the Working Group**

The WG prepared a special issue of the ISPRS Journal of Photogrammetry and Remote Sensing on the theme of "Medical Imaging and Photogrammetry". The issue was published in August 2002 as planned. The tutorial titled "Medical Imaging meets Photogrammetry" that was organized for the ISPRS symposium commission V. September 2, 2002 in Corfu, Greece was cancelled due to a lack of participants. The tutorial was expected to bring together experts from the medical and the photogrammetric field. Three out of four tutors originated from the medical imaging field. The high number of participants of the sessions of the WG at the symposium in Corfu was reason for submitting a proposal for a similar tutorial to the organizing committee of the 2004 congress in Istanbul. The WG organized two oral sessions with four papers each at the mid-term symposium.

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#### **WG V/4: IMAGE ANALYSIS AND SPATIAL INFORMATION SYSTEMS FOR APPLICATIONS IN CULTURAL HERITAGE**

*Chair: Hirofumi Chikatsu (Japan)*  
*Co-Chair: Gabriele Fangi (Italy)*

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#### **State of Science and Technology of Working Group Topics**

Recent innovations have spanned a broad area of applications in WG V/4, and WG V/4 covers a number of rapidly emerging research areas within cultural heritage. In particular, digital archives for cultural heritage have recently received more attention.

In order to accomplish the terms of reference of WG V/4 including digital archives, WG V/4 have to become interdisciplinary WG cooperated with related disciplines such as computer vision, Internet and VR technology also will contribute to spatial information systems. Furthermore, high resolution consumer digital cameras, and integrated surveying techniques with GPS or laser scanner are expected.

On the contrary, in order to correspond the growing demand of applications of close-range vision techniques and spatial information systems for the recording, mapping, 3D modeling and visualization of structures of architectural significance and objects of importance to the cultural heritage, WG V/4 have to wider close cooperation with national and international groups.

#### **Accomplishments of the Working Group**

The main activity in 2002 was the Inter-Congress Symposium Commission V, 40 papers were presented in WG V/4, and the WG Chair, Dr. Hirofumi Chikatsu and WG Co-chair Dr. Gabriele Fangi also served as a tutor in tutorials. The second main activity for WG V/4 in 2002 related to participation in the international workshop on "Visualization and Animation of Landscape" held in Kunming, China from 26-28 February. The WG V/4 was a co-organizer of this successful conference. There were six technical sessions specifically dedicated to visualization and 3D modeling, and WG's topics were presented in three sessions.

#### **Working Group News and Future Plans**

Regarding plans for 2003, the most important activity is organizing the international workshop on "Vision Techniques for Digital Architectural and Archaeological Archives" with IC WG V/III, in Ancona, Italy from 1 to 3 July 2003 (<http://www.ing.unian.it/strutture/fimet/fangi/workshopisprs2003/workshopisprs2003.htm>).

Another important WG's activity is co-organizing the international workshop on "Visualization and Animation of Reality-based 3D Models", to be held in Engadin, Switzerland from 24 to 28 February 2003.

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## **WG V/5: IMAGE- QUICK RESPONSE AND DISTRIBUTED COMPUTING FOR CLOSE RANGE APPLICATIONS**

Chair: *Anthony Stefanidis (USA)*

Co-Chair: *Vincent Tao (Canada)*

### **State of Science and Technology of Working Group Topics**

WG V-5 is addressing emerging technologies and their effects on traditional photogrammetric processes, with a particular emphasis on distributed computing for close range applications. We can identify the following few issues as significant within the content of this workshop:

- The emerging popularity of hand-held devices and similar deployment techniques for geospatial applications.
- Further advances in VR modeling and the slow emergence of their potential use as 3-D geospatial databases.
- Advances in camera technologies and wireless communications; most notably the availability of high resolution (5 megapixels) digital still cameras at a cost of approx. \$1,000, the steady advances in video camera technology, and the availability of extremely low-cost surveillance camera networks (at a cost of \$200-\$500).
- The novel deployment of digital cameras on-board fleets of unmanned aerial vehicles.
- Further advances in distributed geospatial libraries (e.g. the planned update of the US Geological Survey databases and their thematic integration).
- Continuous advances in video analysis and spatiotemporal modeling.

### **Accomplishments of the Working Group**

WG V-5 participated in the Symposium of Commission V in Corfu. We had a total of 8 papers, which should be considered an adequate number for a working group that addresses an innovative and still emerging area.

The WG Web page, [www.spatial.maine.edu/~tony/ISPR-SWGV5.html](http://www.spatial.maine.edu/~tony/ISPR-SWGV5.html), remains active.

### **Working Group News and Future Plans**

For 2003 the main focus of our activities will be the co-organization of two workshops. The first will be held in Bar Harbor, Maine (USA) and will be on Geosensors for Distributed Computing. We expect to finalize the workshop dates within December 2003 and will submit this information for Council approval then. We are in contact with Taylor & Francis to investigate the potential to publish a book as post-workshop proceedings from this event. The second workshop is at an earlier planning stage, and will be co-organized with WG IV-5. We expect to finalize dates and relevant information by January 2003. Both workshops will be sponsored by the US National Science Foundation (NSF).

## **WG VI/6: VISUALIZATION AND ANIMATION**

Chair: *Armin Gruen (Switzerland)*

Co-Chair: *Shunji Murai (Japan)*

### **State of Science and Technology of Working Group Topics**

In summary, the fields of Visualization, Simulation and Animation show a very dynamic development. These technologies have significant impact in all areas of applications of photogrammetry and remote sensing. It is observed that, while from an application point of view much activity can be registered in ISPRS, the scientific and technical issues are not well represented there. This is a point of concern and should be addressed in future strategy discussion within ISPRS.

### **Accomplishments of the Working Group**

The main activity of WGVI/6 in 2002 was the organization of the Workshop "Visualization and Animation of Landscape" in Kunming, China, 26-28.2. 2002 (venue: Harbor Plaza Hotel). The meeting featured 25 papers and was attended by 45 participants, among them were 26 foreigners. In honor of the International Year of the Mountains 2002 and in accordance with the Workshop topic the Opening Session featured a demonstration of a high resolution 3D model of Mount Everest and the "Geo-Simulator", a combination of a hardcopy relief model and projected texture. It is observed that this hybrid technology is currently gaining much interest and many similar installations are emerging worldwide.

The WG Chairmen served as Guest editors for an ISPRS Journal of Photogrammetry and Remote Sensing Special Issue on "Geomatics in Mountainous Areas- The International Year of the Mountains 2002". This November/December 2002 volume includes 12 articles on various subjects and visualization/animation aspects play key roles in most of them. Of course, the topography of mountains lends itself nicely to staggering 3D visualization effects.

Further input to significant conferences was given by the WG Chairmen to the Asian Conference on Remote Sensing, Kathmandu, 25-29.11.2002. Also there the International Year of the Mountains served as a focus for various interesting presentations on 3D modeling and visualization.

Both WG Chairmen organized a Seminar on "Imaging, Modeling and Animation of Geospatial Information", 15 October, University of Tokyo. This Seminar was given in tutorial style by 7 lecturers and attracted over 70 participants from government, private business and academia.

### **Working Group News and Future Plans**

Much work also went into the preparation of two conferences for the year 2003:

- ISPRS Workshop "Visualization and Animation of Reality-based 3D Models", 24-28 February, Tarasp-Vulpera, Switzerland
- "Optical 3D Measurement Techniques", 22-25 September, Zurich.

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## ICWG V/III: IMAGE SEQUENCES

Chair: M. Pollefeys

Co-chair: G. Zhou

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### State of Science and Technology of WG Topics

The WG feels that its science and technology can best be characterised as follows:

- Image sequence analysis has been playing an important role in many applications in computer vision, machine vision and robot vision and is also gaining interest in several fields of digital photogrammetry, especially in digital close-range photogrammetry. Examples of the application of image sequence analysis in digital close range photogrammetry are 3-D object tracking, the analysis of dynamic processes, deformation measurements, monocular or stereoscopic mapping of the environment of an autonomous robot, mobile mapping systems, biomedical motion analysis, 3-D data gathering for computer animation, and many others.
- Digital video technology is evolving rapidly. There are many options for digital video cameras, ranging from very cheap webcams, over high-end consumer cameras, to high-definition or high-speed professional equipment. Following Moore's law, processing and storing digital video is becoming very cheap. This all

leads to an ideal environment for interesting developments in the field of image sequence analysis.

### Accomplishments of the WG

Concerning accomplishments of the WG the following can be mentioned:

- Co-organizing a Workshop on Vision and Modelling of Dynamic Scenes (in conjunction with European Conference on Computer Vision), June 2, 2002.
- One session at Photogrammetric Computer Vision (ISPRS Commission III symposium), 9-13 September 2002.
- Session at ISPRS Commission V symposium, 2-6 September 2002.
- Tutorial at SigGraph 2002.

### Future Plans of the WG

- Co-organizing Workshop on Vision Techniques for Digital Architecture and Archaeology, Ancona (together with WG V/4).
- Contributing to the CIPA 2003 symposium and to PIA'03 (Photogrammetric Image Analysis), CVPR'03, ICCV'03, 3DIM'03, etc.
- Tutorials at CVPR 2003, SigGraph 2003 and at the ISPRS congress 2004.



## TECHNICAL COMMISSION VI EDUCATION AND COMMUNICATION

**President:** Tania Maria Sausen (Brazil)

**Scientific Secretary:** João Ávila (Brazil)

### State of Science and Technology of Commission Topics

The status of the topics of the Commission are summarized in the following papers:

Sausen, T.M.; Rivett, U. Geomatics Education in Africa and South America; International Journal in the Geomatics Industry, GIM International, published in January 2002.

Nielsens, C.S.; Sausen T.M.; Transforming environmental monitoring into action plans: Lessons learned from a decade of RADARSAT-I initiatives in Latin America; Canadian Journal of Remote Sensing, April 2002, Volume 28 n° 2, pp.291-301.

Sausen, T.M., Silva, J.F.S.da; Carmo, M.L.M.; Training New Talents in Space Science and Technology: INPE at School; Commission VI Mid Term Symposium, INPE, São José dos Campos, SP, Brazil, September 16-18, 2002.

### Accomplishments of the Commission

The Commission organized a technical session on Future

Educated Users Training at the 29th International Symposium on Remote Sensing of Environment (ISRSE) on April 8-12, 2002 in Buenos Aires, Argentina. The session was chaired by Dr. Tania Maria Sausen (TCVI President) and co-chaired by Prof John Trinder (ISPRS President) and Eng. Carlos Patillo (TCVI/WG4 Co-Chair) and had five presented papers.

The main activity was the organization of the ISPRS Commission VI Mid Term Symposium "New Approaches for Education and Communication" on October 16-18, 2002, in São José dos Campos, São Paulo State, Brazil. This symposium was organized by the ISPRS Commission VI, the Brazilian Society of Cartography, Geodesy, Photogrammetry and Remote Sensing (SBC), the National Institute for Space Research (INPE) and the São José dos Campos Municipality. It was attended by 68 participants from 14 countries and four continents. The 70 authors of the 45 published papers represented 18 countries from 5 continents and the content of these papers focused on Satellite Programs in Latin America, Geomatics Curricula and Education, Computer Assisted Transformation of Learning, International Cooperation and Transfer of Technology, Internet Resources and

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Distance Learning, Geomatics Education Programs, Training Programs Developed by International Institutions, Practical Examples of Computer Assisted Learning and Teaching, Web Based on Computer Assisted Learning and Teaching and Education for Young Students and School Teachers. More details can be found in the full papers, which are available in the proceedings and on the web at <http://www.commission6.isprs.org>. The papers were published as hardcopy proceedings and were also distributed on a CD.

### **The Commission Proposed Activity for 2003**

The Commission will organize a One Day Seminar in the GIS Brazil 2003 – 9th Geotechnologies Tradeshow, with Brazil Campus/CRECTEALC. This meeting will be held on May 12-16, 2003 in São Paulo, Brazil, and its main goal is the dissemination of Geotechnologies in Latin America through seminars, round tables, technical exposition, keynote speakers.

GIS BRASIL is Latin America's largest event designed to the geotechnology market. Every year, since 1994, the companies of this industry and potential users get together to participate in the many activities that take place simultaneously: Conference, courses, the Geotechnology Fair, and the Scientific Talent Show. The concept of information technology with a focus on the geographic component has impacted the most varied application areas, which will be given special attention during the event, through modules included in the Conference's program. The activities developed for the Conference are designed mainly to meet users' needs, with a special focus on cases, with the purpose of fostering information exchange.

The Commission will also update the directory of "Education, Training And Research Institutions In Remote Sensing, Gis And Its Applications" and prepare for the ISPRS Congress 2004 in Istanbul.

### **Working Group Activities during the Current Year**

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#### **WG VI/1: EDUCATION AND TRAINING**

*Chair: Emmanuel Baltsavias (Switzerland)*

*Co-Chair: Theodoros Bouloucos (Netherlands)*

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#### **Accomplishments of the Working Group**

The WG continued its activities according to plan. The highlights were a workshop and the ISPRS Commission VI Symposium. The WG, with cooperation of WG VI/3 and UCLAS, Univ. of Dar es Salaam, organized a workshop "Developments and Technology Transfer in Geomatics for Environmental and Resource Management" in Dar es Salaam, 25-27 March 2002. Details including the proceedings and material for two tutorials can be found at [www.commission6.isprs.org/daressalaam/](http://www.commission6.isprs.org/daressalaam/). Participation fees were kept very low and we managed to get financial support from the ISPRS Council, ESA, the UN Office for Outer Space Affairs and the ITC, supporting thus to one or the other degree about 2/3

of the participants. The workshop was very successful and a detailed report can be found in ISPRS Highlights, Vol. 7, No. 3 ([http://www.isprs.org/publications/highlights/highlights/0703/07\\_HL\\_09\\_02\\_Society.pdf](http://www.isprs.org/publications/highlights/highlights/0703/07_HL_09_02_Society.pdf)), which was also published in the German Journal GIS - Geo – Informations systeme, 6/2002, pp. 43-45.

The WG has contributed to the preparations of the Com. VI Mid-Term Symposium and has distributed promotional material to its WG members. It solicited 2 invited papers and the relative majority of the papers presented in the Symposium. Secretary Jana Niederöst actively participated in the deliberations of the Symposium and the business meeting. The WG contributed to the preparation of the Istanbul Congress 2004, which have already started.

The web page was expanded with new resources and links, including some tutorials at ISPRS events, and now includes a search facility. However, it has not been accessed to a satisfying degree. The WG members have increased to 38 and were regularly informed via e-mail on the WG activities. Furthermore, we have made use of the Educator's Network and have sent relevant information to it.

#### **Working Group News and Future Plans**

The activities for 2003 will focus on topics of our activity list (see our web page) not treated yet and on the expansion and update of our information database on our web site. Furthermore, we will prepare a special session on Education and Training in our fields with invited speakers during the 6th International Conference "Optical 3D Measurement Techniques", 22-25 September 2003, ETH Zurich, Switzerland (see <http://www.photogrammetry.ethz.ch/optical3d/>).

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#### **WG VI/2: COMPUTER ASSISTED TEACHING**

*Chair: Mark Shortis (Australia)*

*Co-Chair: Pierre Grussenmeyer (France)*

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#### **Accomplishments of the Working Group**

The web site for ISPRS Working Group VI/2 at <http://geolier.eng.unimelb.edu.au/isprs6wg2/> has been further enhanced with additional content and changes to the structure. WG VI/2 assisted with the technical program and participated in ISPRS Commission VI Mid Term Symposium.

#### **Working Group News and Future Plans**

ISPRS WG VI/2, in conjunction with FIG WG 2.2, will organize and participate in Special Sessions on Multimedia in Education at the Spatial Sciences Conference 2003 in Canberra, Australia to be held during September 23-25. These sessions will be held in conjunction with the combined annual meetings of the Remote Sensing and Photogrammetry Association of Australasia, the Institution of Surveyors Australia, the Mapping Sciences Institute of Australia, the Australian Urban and Regional Information Systems Association and Institution of Engineering and Min-

ing Surveyors Australia. This will be the first time that the five organizations have held their national meetings as one conference, so there is an ideal opportunity to take advantage of interest in tertiary education across a broad range of disciplines within the spatial sciences. More information is available on the Spatial Sciences Coalition web-site at <http://www.spatialscience.org/Conference/>.

The current web site will be expanded with additional links to resources available on the Internet. The list of active members of ISPRS WG VI/2 will be established and also published on the web site. Liaison with FIG WG 2.2 will continue wherever possible.

The working group will organize and implement CATCON 2004 during the ISPRS 2004 Congress. In a similar fashion to previous CATCON events at ISPRS Congresses, CATCON 2004 will be an open competition for the most innovative and effective computer aided teaching and learning material. The material may be any type of computer based teaching and learning modules, software or resources. The contestants will be required to participate in a session comprising short presentations and then "hands-on" use. The winners will be judged by peer review. ISPRS WG VI/2 will be seeking sponsors for CATCON 2004 during 2003.

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### **WG VI/3: INTERNATIONAL COOPERATION AND TECHNOLOGY TRANSFER**

*Chair: Ulrike Rivett (South Africa)*

*Co-Chair: Tamara Bellone (Italy)*

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#### **Accomplishments of the Working Group**

The working group continues to advertise its activities at different fora in Southern Africa. The Chair, Co-Chair and Secretary attended a number of seminars, workshops and conferences and they took the opportunity to advertise the working group. The seminars and workshops of prime importance included the workshop on: Education in Geo-spatial Data management for the Southern African Region (20th October to 2nd November, Durban, South Africa).

The working group revised its working page. The server on which the web page is hosted has been down for a while. The WG co-organized the workshop held in Dar es Saalam, Tanzania, in 2002 in collaboration with working group VI/3.

#### **Working Group News and Future Plans**

The WG will participate in organizing a workshop in Zagreb, Croatia, in 2003.

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### **WG VI/4: INTERNET RESOURCES AND DISTANCE LEARNING**

*Chair: Sanjay Kumar (India)*

*Co-chair: Carlos G. Pattillo (Chile)*

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#### **Accomplishments of the Working Group**

An Education Portal was prepared and launched with some input from the WG. The portal covers the online Geo-informatics education resources from all over the globe. With over 250 pages of information and over 10000 page views per month, the Education Portal at [www.GISdevelopment.net/education](http://www.GISdevelopment.net/education) is emerging as the favorite destination for students and educationists. The education section not only has indigenous but worldwide information related to GIS, GPS and Remote Sensing fields.

It has four sections: Institutions - which includes information and links to the various Geographic Institutions and Departments of the universities in the world; Online Education - links to distance learning course; Training - comprising a list of all the past, present and upcoming training courses in the field of GIS, GPS, Remote Sensing and related technologies; Papers and Articles - a complete list of Papers and Articles published related to Education on GIS, GPS, Remote Sensing and related fields.

An online course has been developed which contains 10 chapters from the basics to applications of Remote Sensing [www.gisdevelopment.net/isprs/ecampus](http://www.gisdevelopment.net/isprs/ecampus).

In the first version after going through all chapters the student will be evaluated through online test and the grades will be given on the basis of his performance in the test. The second version is being modified by changing the evaluation procedure. In this, after completing each chapter there will be evaluation test to grade the student and the final grade will be given on the basis of over all performance.

In collaboration with ITC Netherlands, online education program is being developed on 'Principles of GIS' on Blackboard platform - an electronic learning system that is used to support the education. This program is set to be launched by Feb 2003 by the ITC for testing purposes.

The WG organized a Geo-informatics training program for teachers of Delhi University, in which they were given theoretical and practical aspects in various mapping technologies. This was a program in which around 20 teachers from the university participated for two weeks. A 3 days training program for the officers of Survey of India was conducted at GIS Institute from 3rd - 5th September 2002. 15 participants, attended the training program, from different circles of Survey of India, spread over the country. In the training program, besides teaching them the basics of GIS, GPS and Mobile Mapping, hands-on training was given to the participants on the process of updating of maps through the use of PDAs (Personal Digital Assistants), card GPS and ArcPAD GIS so.



## TECHNICAL COMMISSION VII RESOURCE AND ENVIRONMENTAL MONITORING

**President:** Rangnath Navalgund (India)  
**Scientific Secretary:** Shailesh Nayak (India)

### State of Science and Technology of Commission Topics

In the domain of Technical Commission VII, science and applications of remote sensing and GIS are symbiotic. Remote sensing and GIS have become important tools for resource assessment and environmental monitoring at local, regional as well as at global level. Availability of data from ENVISAT, Terra and Aqua, and ADEOS-II are providing a major thrust in this direction. Imaging spectroscopy and hyper-spectral remote sensing have gained importance. New air-borne and space-borne hyper-spectral sensors likely to be launched in near future shall further enhance these investigations. In view of availability of data of increasing spatial and spectral resolution, fuzzy, neural network and knowledge-based classification systems are increasingly being used. Use of texture information from SAR data is improving classification accuracy. Fusion of data from different sensors is a new tool used in resource discrimination.

Substantial progress is seen in the area of incubating technologies and pilot applications such as sustainable agriculture, precision farming, monitoring cultural heritage sites, spatial data infrastructure, transportation etc. Novel methods have been used to provide timely spatial information to help in framing food security policies. Use of multi-spectral data and multi-temporal NDVI images have been used to identify individual crops as well as cropping pattern. In India, national level forecasts for wheat and rice have been generated using multirate IRSWiFs and RADARSAT data, respectively. Variation in vegetation parameters within single field has been used to derive soil heterogeneities for precision farming. Development of monitoring systems for managing resources such as land and water, forest, coastal zone, snow and ice, etc. using remote sensing, collateral data and their integration through GIS have been very useful towards achieving sustainability. Increasing efforts are required for identifying sustainability indicators. In India, forecast for potential fishery zones based on sea surface temperature and chlorophyll information is being given routinely.

High-resolution data are being increasingly used for urban management studies. Techniques for automatic change detection have been developed. Use of airborne laser terrain mapping for providing finer contour information, tree heights and urban features is gaining importance. Advances in information and telecommunication technology along with near real time availability of a large variety of remote sensing data, and commitment of space agencies to international cooperation through the International Charter on Space and Disaster Management have helped in mitigation and monitoring of hazards. Development of a Locust Minimization Information System for Kazakhstan has proved to be very useful. The need to build reliable long-term regional

and global databases using satellite data for predictive modeling is very crucial.

Sustainable increase in agricultural production to meet the needs of food and nutrient security of the ever increasing population, maintaining environmental integrity through conservation and preservation, setting up integrated space systems to facilitate disaster monitoring, damage assessment and mitigation, providing inputs to infrastructure development and new observational capability to understand global change processes, are getting embodied in the earth observations programs of different countries including India.

### Accomplishments of the Commission

Major activity of the Commission was to organize the Mid-term Symposium at Hyderabad, India. The Symposium was organized under the auspices of Indian Society of Remote Sensing and was hosted by the National Remote Sensing Agency, Hyderabad during December 3-6, 2002.

Dr. K. Kasturirangan, Chairman, Indian Space Research Organisation and Secretary, Dept. of Space inaugurated the symposium. A plenary session on Sustainable Development was organized on December 3, 2002 and was chaired by Dr. K. Kasturirangan. Dr. Lawrence Fritz Chaired the second plenary focusing on the Earth Observation Systems (EOS). In all twenty seven sessions were organized including inter-commission sessions with TC I, IV and VI and a special session on ocean color along with the International Ocean Colour Co-ordinating Group (IOCCG). The total number of participants was about 534 including 92 from outside India. 143 papers were presented orally and 150 papers were poster presentations. A special session for industries was organized on December 5, 2002. Five presentations by SGI, Antrix, RSI/Lieca, ERDAS and NDC/NRSA were made.

Two pre-symposium tutorials on Sustainable Agriculture and Integrated Coastal Zone Management were organized on December 2, 2002. While forty four participants from eleven countries attended the tutorial on Sustainable Agriculture, the tutorial on Integrated Coastal Zone Management attracted thirty two participants from eight countries. Faculty was drawn from Denmark, Srilanka, the Netherlands and India.

A workshop on Land use Land cover Change was organized in collaboration with Working Group on LUCC FOCUS 2 Office, Japan on December 2, 2002. A total of forty delegates including thirteen from Japan attended.

All details about technical program, accommodation and

other aspects were placed on the Commission web-site [www.commission7.isprs.org](http://www.commission7.isprs.org).

During 2002 the President of TC VII made following invited technical presentations:

The Technical Commission VII hosted the Joint meeting of the ISPRS Council and TCPs during December 7-11, 2002 at Hyderabad, India following its symposium.

#### **Change in Working Group Officers of ISPRSTC VII**

The ISPRS Technical Commission VII in its Board Meeting held on December 4, 2002 discussed the progress of various WGs. In view of the continuous ill health of Prof. Andrew K. Skidmore, Chair WG VII/2, Dr. K. de Bie, ITC, The Netherlands has been requested to take over as Chair WG VII/2. Ms. Iris van Duren, ITC, The Netherlands would be the Secretary for WG VII/2. Further, Dr. Shailesh Nayak, Space Applications Centre, India, agreed to take over as Chair WG VII/3 in place of Dr. Sandra Maria Fonseca da Costa. Dr. R. Nagaraja, National Remote Sensing Agency, India would be the Secretary for WG VII/3. These recommendations were ratified at the Joint meeting of the ISPRS Council and TCPs held during December 7-9, 2002.

#### **Working Group Activities during the Current Year**

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##### **WG VII/1: FUNDAMENTAL PHYSICS AND MODELLING**

*Chair: Karl Staenz (Canada)*

*Co-Chair: Marc Leroy (France)*

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##### **State of Science and Technology of Working Group Topics**

Much of the research and development related to WG topics has been addressed in recent workshops and conferences. Advances in the development of hyperspectral remote sensing and microwave remote sensing was presented at numerous conferences, most notably at the International Symposium on Resource and Environmental Monitoring (ISPRS mid-term symposium: Hyderabad, December 2002), NASA's 11th Annual AVIRIS Earth Sciences and Applications Workshop (Pasadena, March 2002), the International Geoscience and Remote Sensing Symposium (IGARSS'02) (Toronto, June 2002), SPIE's International Symposium on Optical Science and Technology (Seattle, August 2002), and EUSAR (Hamburg, June 2002). In addition, the WG was actively involved in providing recommendations for the calibration and validation of remotely sensed data via the CEOS WG on Cal/Val.

##### **Accomplishments of the Working Group**

The major activity of WG VII/1 was the organization of three sessions at the ISPRS VII mid-term symposium "International Symposium on Resource and Environmental Monitoring" held in Hyderabad, India, December 2002. The topics of the sessions were hyperspectral remote sensing, data fusion techniques and advanced classifiers.

16 papers were presented during these sessions. Highlights of the first session included the impact of lossy data compression on mineral mapping products using hyperspectral AVIRIS data, leaf area index retrieval from spectrally high resolution data, relationship between land cover parameters and BRDF coefficients. The "Data Fusion" session focused on wavelet-based integration of ASTER data for soil information extraction, fusion of multi-sensor data for various applications and content-based image retrieval. The overview of classification techniques for remotely sensed data was the highlight of the third session "Advanced Classifiers". Additional topics covered the application of fuzzy methods for land cover classification, the meaning of color in photogrammetric remote sensing, and generalized clustering techniques for image data.

##### **Working Group News and Future Plans**

The main event in 2003 for the WG VII/1 will be the involvement in the organization of the International Symposium on Spectral Sensing Research (ISSSR) to be held in Santa Barbara (California, U.S.A.) in June. This will be the eighth symposium in a series of outstanding events covering both military and civilian research in the field of spectroscopy. In addition, participation in the EARSeL Workshop on Imaging Spectrometry organized by the German Aerospace Centre (DLR) in Munich, Germany is planned for May 2003. The 9th International Symposium on Physical Measurements and Signatures in Remote Sensing is to be held in France early 2004.

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##### **WG VII/2: SUSTAINABLE AGRICULTURE AND ECO-SYSTEM APPROACH**

*Chair: Andrew K. Skidmore (The Netherlands)*

*Co-Chair: Lief F. Tian (USA)*

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##### **State of Science and Technology of Working Group Topics**

Novel approaches for mapping agricultural land use systems, modeling land use and predicting change, use of SAR for crop identification are being developed. Deriving biophysical parameters such as LAI, IPAR etc, crop indices from spaceborne multispectral data using inversion techniques is gaining momentum. Methods for providing timely and accurate crop forecasts, new sampling techniques, role of passive microwave data for agricultural land monitoring, and crop simulation models for improved crop growth monitoring are being developed.

##### **Accomplishments of the Working Group**

Tutorials on "Sustainable Agriculture" was organized on December 2, 2002 at Hyderabad, India prior to the mid term symposium. Three sessions on sustainable agriculture, precision farming and crop production forecasting were organized during the Mid-term Symposium. Two lead talks, fourteen oral and fifteen poster presentations were made.

##### **Working Group News and Future Plans**

International symposium/workshop in the first quarter of 2003 addressing environmental indicators (as applied to

agricultural systems, natural resource management, and multi scale approach from precision farming to global impacts) will be organized at ITC, the Netherlands. Special ISPRS journal issue on environmental indicators in 2003, organizing theme sessions in Istanbul Congress, and commission state of art reviews of working group topics are some of the activities planned.

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### **WG VII/3: INTEGRATED MONITORING SYSTEMS FOR RESOURCE MANAGEMENT**

*Chair: Sandra Maria Fonseca da Costa (Brazil)*

*Co-Chair: Li Yingcheng (China)*

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#### **State of Science and Technology of Working Group Topics**

Relationship between geometric elements and objects, structure and development of geo-spatial data, SDSS software for land and water resources action plans and land use planning, ecological zonations of coral and mangroves, biodiversity information system, integrated approach to mineral exploration for base metals including radioactive minerals, are some of the recent developments. Use of middle infrared, thermal band data, and aero-magnetic data is increasing. DEMs generated from both optical and microwave sensors for crustal movement studies, position and height accuracies obtained from GPS are crucial for studies in geological hazards. Use of hyper-spectral and microwave data for limnological studies, soil moisture estimation, and rice estimation is gaining ground. Use of thermal data for estimation of irrigation requirement is being tried. Use of hyper-spectral and LIDAR data for assessing forest resources needs to be investigated.

#### **Accomplishments of the Working Group**

Tutorials on Integrated Coastal Zone Management was organized on December 2, 2002, prior to the mid-term Symposium. Nine technical sessions on Integrated Coastal Zone Management and Marine Sciences (2), Water Resources (2), Geo-sciences (1), Land Use Planning (1), Terrain Evaluation (1), Soil Resources (1) and Forest Ecosystem (1) were organized during the Mid-term Symposium. Six lead talks, fifty-one oral and hundred posters were presented.

#### **Working Group News and Future Plans**

A workshop has been planned on 'Land Use Dynamics' during October 2003 along with WG II/6 in China. A Workshop on 'Integrated Monitoring Systems' has been planned during December 9-12, 2003 at Thiruvananthapuram, India along with the Indian Society of Remote Sensing.

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### **WG VII/4: HUMAN SETTLEMENT AND IMPACT ANALYSIS**

*Chair: Gábor Remetey-Fülöpp (Hungary)*

*Co-Chair: Carsten Juergens (Germany)*

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#### **State of Science and Technology of Working Group Topics**

High resolution optical and ALTM data has been used for

urban studies and knowledge-based fuzzy approaches have been applied. Requirement for thematic data and techniques for generating ortho-photos are being identified for cultural heritage studies. Image intelligence is being used for infrastructure protection, evacuation planning, airfield security, road connectivity and ARCIMS/ARCSDE and GGI.GRASS approaches are being developed for transportation information and management systems.

#### **Accomplishments of the Working Group**

C. Jürgens participated in the EARSeL Conference in Prague between 4-6 June 2002 as a convenor of the session "Observing Urban Spatial Dynamics". G. Remetey has established links with representatives of Eurocities, a Brussels based organizations dealing with urban related research and applications as an invited observer at the Expert Group meetings of the INSPIRE Initiative of the European Commission held in Vienna, Madrid and Dublin.

Co-Chair C. Jürgens was co-director of the 3rd International Symposium "Remote Sensing of Urban Areas" held in Istanbul, 11-13 June 2002. The event had over 200 participants from more than 30 countries. Selected papers will be published in a special volume of the International Journal of Remote Sensing. The LUCAS land use/ land cover area-frame sampling based EUROSTAT survey methodology using location-based ortho imagery processing was introduced, countrywide adopted and implemented for regional and national purpose managed by P.Winkler Secretary of the WG VII/4 in co-operation with the National Statistical Office.

A two-day special session devoted to ENVISAT and Earth Observation programs and applications was organized and hosted by WG Chair G. Remetey and the Ministry of Agriculture and Rural Development in close co-operation with the European Space Agency and the Hungarian Space Research Office on the Partnership with ESA candidate countries in Earth Observation involving R&D institutions as well as small and medium size enterprises between 5-6 September 2002. Experts from ESA ESTEC PECS, Noordwijk and ESA ESRIN, Frascati participated. Co-chair C. Jürgens participated in the EU-workshop to evaluate the project on Benefits of Urban Green Spaces (BUGS) in Brussels in September, 2002.

The 6th Global Spatial Data Infrastructure Conference was organized in close co-operation with EUROGI (Apeldoorn, The Netherlands) and GSDI Secretariat (Reston, USA) in Budapest between 16-20 September. The conference paid special attention to sustainable development (WSSD) and the INSPIRE Initiative. The GSDI was incorporated in 2002. Having seat in the ExCom at the meeting the potential synergy which could be achieved by the ISPRS involvement as representative of the "Information by imagery" R&D community was raised by the WG Chair. The 7th GSDI Conference will be held in Bangalore in January 2004.

At the ISPRS Commission VII Symposium hosted by NRSA in Hyderabad, 11 oral and 17 poster papers have been presented by the WG members.

### Working Group News and Future Plans

Participation on the 2nd Joint Workshop on Remote Sensing and Data Fusion over urban Areas (URBAN 2003) Berlin, May 22-23, 2003.

Symposium on „Urban Remote Sensing in Regensburg, 27-29 June 2003. C. Jürgens plans to have the papers published in the ISPRS Annals. (reference number has already assigned by" ISPRS). web-site: www-urs2003.uni-r.de

In Land use Land cover: WG core members as G. Buttner are directly involved in regional and national level programs such as Corine2000, CLC50 and LUCAS programs.

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### WG VII/5: DISASTER MONITORING, MITIGATION AND DAMAGE ASSESSMENT

Chair: Vern H. Singhroy (Canada)

Co-Chair: Michael Abrams (USA)

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### ISPRS Commission VII I: Symposium

Twenty papers on Disaster Monitoring, Mitigation and Damage Assessment were presented at Commission 7 Symposium in Hyderabad, India, Dec.3-6th, 2002. The presentations focused on:

- Flood Monitoring and damage assessment using SAR, high resolution optical and GIS tools. Of special interest is the uses high resolution (5.8m) IRS-1C panchromatic data for producing 1:50000 river morphology maps, and mobile GIS for field assessment.
- Disaster image maps using data fusion and image compression techniques.
- Landslide hazard maps using high resolution images and 3D GIS techniques
- Drought monitoring and assessment using NDVI thematic information combined with high-resolution image data.

It is clear that high resolution optical and SAR data integrated within a GIS will continue to play an important role for disaster management. Another important trend is the capability of InSAR for geohazard assessment. InSAR is used as part of an integrated motion-monitoring tool, and to provide supplementary topographic image maps, and coherence damage assessment maps in disaster prone areas.

### Accomplishments of the Working Group

The Working Group organized technical sessions on Disaster Management the following Symposia and International Meetings in 2002:

- IGOS Geohazard theme meeting in Frascati, Italy (May 02)
- IEEE-IGARS Symposium, Toronto Canada. (July 02)
- COSPAR Disaster Management Symposium at the World Space Congress. Houston, USA (Oct 02)

- ISPRS Commission 7 Symposium, Hyderabad, India (Dec 02)

### Working Group News and Future Plans

Planned activities for 2003 and 2004 include organizing and participating in technical sessions at the following international meetings:

- EGS/AGU Session on Remote Sensing for Landslide Assessment: Nice (April 2003)
- IGOS Geohazard Theme Meeting Nice (April 2003)
- IUGS Session on Remote Sensing for Mapping and Monitoring Geohazards. (Aug 2004).

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### WG VII/6: MONITORING AND MODELLING OF GLOBAL ENVIRONMENTAL CHANGE

Chair: Yoshifumi Yasuoka (Japan)

Co-Chair: Vinaykumar Dadhwal (India)

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### State of Science and Technology on Working Group Topics

Recent satellites such as Terra, Aqua and Envisat, TRMM have strengthened the integrated global monitoring capabilities of atmosphere, land and oceans. Large number of geophysical products including LAI/FPAR, albedo, BRDF, snow characteristics, active fires, and burnt areas, ocean chlorophyll, SST, aerosol loadings, cloud characteristics, integrated ozone NO<sub>2</sub> fields, etc., are being produced by the science teams at the global scale. At the international scale a large efforts towards validation of these geophysical products, development of new retrieval algorithms and reprocessing past data with improved algorithms is being carried out. This is in addition to the vegetation index time-series, which is now produced by a number of sensors like NOAA AVHRR, VEGETATION and MODIS. The RS data-derived parameters have been put in a number of models to understand, document and predict components of global environmental change as well as functioning of carbon cycle.

### Accomplishments of the Working Group

One session on Global change and another on Global databases along with WG IV/8 were organized during the Mid-term Symposium. Two lead talks, nine oral and ten poster presentations were made. A Workshop on Land Use Land Cover Change along with IGBP/IHDP LUCC Focus 2 was organized in Hyderabad on December 2, 2002.

### Working Group News and Future Plans

A WG VII/6 workshop on Monitoring and Modelling of Global Environmental Change is planned for June 2003. It will be held at the Tokyo Big Sight (Tokyo, Japan) and jointly organized by ISPRS WG VII/6, ISPRS Commission IV, Japan Society of Photogrammetry and Remote Sensing, Japan Association of Surveyors, other International Research Programs including IGBP/IHDP LUCC (Land Use/Cover Change), GTOS/GOFC (Global Terrestrial Observing System/ Global Observation of Forest Cover). This workshop will be held together with "Geo-informatics Forum 2003" organized by Japan Association of Surveyors.

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## Committee and Standing Activities

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### ICORSE

The International Committee on Remote Sensing of Environment (ICORSE) provides institutional oversight for the International Symposium on Remote Sensing of Environment (ISRSE) – the oldest continuously held remote sensing symposium in the world. Members of ICORSE are drawn from many national remote-sensing agencies.

In 2000, ICORSE became a standing committee that reports to the Council of the International Society for Remote Sensing and Photogrammetry (ISPRS). The 29th ISRSE was held in April, 2002, in Buenos Aires, Argentina. This provided the first opportunity for representatives of the ISPRS Council to participate in the annual meeting of ICORSE. Discussion focused primarily on ways by which to better integrate ISCRSE and ISPRS.

The following is a brief summary of the major points raised in the meeting that was held on April 9, 2002.

### ICORSE Membership

Dr. F. Raul Colomb, Manager of Institutional Relations, CONAE was nominated and unanimously accepted as a member of ICORSE. Dr. Colomb was thanked for CONAE serving as a gracious host for the 29th ISRSE.

It was noted that ICORSE had moved to include members from Africa and South America and had held symposia there to increase participation from these regions. It was further noted that Asia was not represented on ICORSE and that many countries in the region had very prominent programs in satellite remote sensing, with Australia, China, India, and Japan being perhaps most prominent. It was recommended that members be sought from this region from countries who have a national space or remote sensing agency.

### Future Symposium Venues

Over its 40-year history, most symposium participants have been drawn from North America and Europe. The last two symposia have been held outside this sphere in South Africa and Argentina. The purpose for holding the symposium in these locations has been to increase the ability of scientists and practitioners from these regions to share their work with larger world. However, while broadening potential participation, holding the symposium in areas that are distant from North America and Europe makes it difficult for some of its "core" constituency to participate. Thus, it was recommended that in the future, the symposium be held in North America or Europe at least on alternate years.

The next symposium will be held at the Pacific Disaster Center of the East-West Center (EWC) in Hawaii, with NASA serving as the sponsoring agency. This is more-or-less consistent with the recommendation of a venue in North America or Europe (NASA sponsorship). This should prove to be an ideal venue in seeking to engage Asian colleagues. Equally important, the mission of the EWC is to foster this type of communication, and they command an infrastructure to support it.

A European venue be sought for the 31st ISRSE (2005) and an Asian venue will be considered for the 32nd ISRSE (2007).

### Integrating ICORSE Activities within ISPRS

Since ICORSE is now part of ISPRS it is important that activities are fully integrated and in particular papers from ICRSE will be published in the ISPRS Journal and in the Archives and reports will appear in Highlights. An ICORSE Session will be held at the Istanbul Congress and ISPRS Commission VII will participate in the 30th ISRSE.

*Chuck Hutchinson*

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### CIPA - THE ICOMOS & ISPRS COMMITTEE ON DOCUMENTATION OF CULTURAL HERITAGE (1969 - 2000: International Committee of Architectural Photogrammetry)

#### CIPA and UNESCO

CIPA is indirectly working for the aims and tasks of UNESCO, specially with the World Heritage Centre (WHC) and for the Cultural Heritage Division. CIPA's activities are channelled via ICOMOS and ISPRS. UNESCO WHC is planning for a Virtual Congress on World Heritage in the Digital Age in October 2002 and asked ISPRS for co-sponsorship. ISPRS nominated at first the CIPA Member Heinz R ther, South Africa, who wished to be replaced for personal reasons. CIPA/ISPRS nominated the CIPA Secre-

tary General Cliff Ogleby, Australia, as liaison. Cliff Ogleby became Vice-Chairman of the Scientific Board besides Francesco Bandarin of the WHC. Further information on this event can be read from [www.virtualworldheritage.org](http://www.virtualworldheritage.org)

At the Annual Meeting of CIPA's Executive Board CIPA agreed unanimously to assist ICOMOS and UNESCO in the definition of technical preconditions for permanent monitoring of the World Heritage Sites, one of the most important CIPA tasks to be followed in the next year. CIPA contacted at first the State Parties of Austria, Slovenia and Greece to cooperate. For future as well as for the existing WH contracts adequate solutions have to be sought. Details are to be discussed within ICOMOS which is the official Advisor of UNESCO for the evaluation of

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WH Sites and Cultural Landscapes, and with IUCN which is the corresponding partner of UNESCO for Natural Landscapes. CIPA has to nominate the best technical consultants for this purpose. Contacts have been established with the Getty Conservation Institute, Los Angeles, for the realisation of the Guidelines.

### Events

CIPA's Working Group on Integrated Surveying Methods for Heritage Recorders (Chair: Prof. Dr. Wolfgang Boehler, Germany) organised a Workshop 1-2 September 2002, on Laser Scanning for Cultural Heritage Recording, which was attended by more than 80 participants. Working Groups 3 & 4 on Simple Methods for Heritage Recording and on Digital Image Processing and Vision Sciences in Conservation (Chairpersons Klaus Hanke, Austria, and Pierre Grussenmeyer, France) gave a Tutorial on "Current advances in 3D reconstruction and Documentation of Cultural Heritage" in Corfu, Greece, on Sept 2nd, 2002, visited by 15 persons from 8 countries. They presented different strategies for documentation and visualisation of cultural heritage. The Symposium of ISPRS Commission V (2-6 September 2002 in Corfu, Greece) on "Close Range Imaging, Long Range Vision" had very close connections with CIPA, specially in the area of ISPRS Working Group V/4 on Image Analysis and Spatial Information Systems for Applications in Cultural Heritage. One third of all the 115 contributions concerned CIPA.

CIPA's Working Group I on Recording, Documentation and Information Management Principles and Practices, which initiated with the Getty Conservation Institute the RecorDIM Initiative during the CIPA 2002 Potsdam Symposium, had its first RecorDIM Task Group Meeting in Corfu in early September 2002. As reported in the ICOMOS News this spring, ICOMOS, CIPA and the Getty Conservation Institute (GCI) entered into a 5-year partnership called the RecorDIM Initiative. This initiative consists of working towards 'Bridging-the-Gaps' that currently exist between the Information Users (researchers, conservation specialists of all trades, project managers, heritage program planners, etc) and the Information Providers (photographers, heritage recorders, photogrammetrists, etc). The RecorDIM Initiative will be introduced and discussed during the ICOMOS General Assembly in Madrid in December 2002, (see details at: <http://www.international.icomos.org/madrid2002/recordim.htm>)

### Annual Meeting of the CIPA Executive Board

Prior to the ISPRS Commission V Symposium the Annual Meeting of CIPA was held in Corfu from August 31 until Sept 2, 2002. 11 Executive Board Members were present ( 6 ISPRS, 5 ICOMOS Ordinary Members and Associate Members). One ISPRS and two ICOMOS Members were excused, two were not present. Two ISPRS Ordinary Member positions were still vacant as also one of ICOMOS.

The Executive Board decided again about a better Logo of CIPA, which will be found on the future letter paper. This Logo was designed by Cliff Ogleby, Australia, and shows the integration of geometry with art in a very special and pleasing way. Also the "on" and "of" in the name of CIPA has been re-discussed and the following decided:

CIPA

The ICOMOS and ISPRS Committee on Documentation of Cultural Heritage

(1969 - 2000: International Committee of Architectural Photogrammetry)

### Future Events

The XIXth International CIPA Symposium 30 Sept - 4 Oct 2003 in Antalya, Turkey on "New Perspectives to Save Cultural Heritage" will be held again under the auspices of UNESCO. Symposium Director is Prof. Dr. Orhan Altan, Council Member of ISPRS and its Society Delegate in CIPA. This symposium will include for the first time Aerial and Geophysical Prospection of Archaeological Sites. The main topics are Recording, Documentation and Information Management Tools applied to:

- Archaeological Heritage,
- Architectural Heritage,
- Engineering and Industrial Heritage
- Urban, Natural and Cultural Landscapes,
- Moveable Heritage,
- Heritage Management.

Detailed Information can be received from <http://www.cipa2003-antalya.org> and by email [oaltan@itu.edu.tr](mailto:oaltan@itu.edu.tr) or [gulersoy@itu.edu.tr](mailto:gulersoy@itu.edu.tr)

### Members of the Executive Board

#### Ordinary Members

From ISPRS (*International Society of Photogrammetry and Remote Sensing*)

1.1.2002 - 31.12.2002:

Orhan Altan (Turkey) Society Delegate and Symposium Director

Pierre Grussenmeyer (France) Treasurer

Jozef Jachimski (Poland)

Petros Patias (Greece)

Peter Waldhäusl (Austria), President

NN

1.1.2003 -

Orhan Altan (Turkey) Society Delegate and Symposium Director

Pierre Grussenmeyer (France) Treasurer

Klaus Hanke (Austria) Secretary General

Petros Patias (Greece) President

Peter Waldhäusl (Austria),

NN

From ICOMOS (*International Council on Monuments and Sites*)

1.1.2002 - 31.12.2002

Giora Solar (Israel), Society Delegate

Robin Letellier (Canada) Vice-President  
 Steve Nickerson (Canada)  
 Cliff Ogleby (Australia) Secretary General  
 Gaetano Palumbo (UK)  
 NN

*1.1.2003 -*

Giora Solar (Israel), Society Delegate  
 Robin Letellier (Canada) Vice-President  
 Steve Nickerson (Canada)  
 Cliff Ogleby (Australia) Vice-President  
 Gaetano Palumbo (France)  
 NN

*Associate Members:*

*1.1.2002 - 31.12.2002:*

*Communication and Web:*

Klaus Hanke (Austria) Webmaster

*Former Symposium Directors:*

Joerg Albertz (Germany) (-2003)

Joerg Haspel (Germany) (-2003)

*Next Symposium Directors:*

Nuran Zeren Gulersoy (Turkey) Co-Director(-2005)

*Others:*

Antonio Almagro (Spain)

Michael Doneus (Austria) Financial Commission

Andre Streilein (Switzerland) Financial Commission

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*1.1.2003 -*

*Communication and Web:*

Michael Doneus (Austria) Webmaster

*Former Symposium Directors:*

Joerg Albertz (Germany) (-2003)

Joerg Haspel (Germany) (-2003)

*Next Symposium Directors:*

Nuran Zeren Gulersoy (Turkey) Co-Director(-2005)

Sergio Dequal (Italy) (-2007)

*Others:*

Deren Li (China)

4 NN (Elections will follow by email)

*Honorary Members*

Maurice Carbonnell (France)(Hon.-Pres.)

John Badekas (Greece)

Carl-Wilhelm Clasen (Germany)

Mario Fondelli (Italy)

Elzbieta Wanot (Poland)

The CIPA Board of delegates increased to 59 officially nominated and approved members. (Status 22.10.2002). (See below in bold new names and new countries) CIPA has today 54 National and 5 Committee Delegates. From the 54 are 29 from National ICOMOS Committees and only 25 from National ISPRS Member Societies. Together they represent 39 countries. Only 14 countries have nominated delegates from both, ICOMOS and ISPRS. Further nominations, extensions and updates are due until end of the year.

*Peter Waldhäusl*

**SPIE**

ISPRS has agreed co-operation with SPIE in advertising and collaboration on meetings in the area of remote sensing. An MoU is being prepared to cover all areas of common ISPRS/SPIE activity. The SPIE conference Video-

metrics VII, Part of SPIE Electronic Imaging Symposium, will be held on January 20-24, 2003, Santa Clara, California, this is co-sponsored by ISPRS.

*Sabry el Hakim and Ian Dowman*

**ISO**

ISPRS is a liaison member of several ISO Technical Committees and has a commitment to supporting efforts to establish standards for data format and transfer. ISPRS also supports efforts for interoperability and data transfer through the Open GIS Consortium (OGC). In order to implement this support, explicit reference to ISO and OGC is made within the terms of reference of 5 ISPRS Working Groups.

The most important of these is WG II/4, which has the specific remit to develop image standards. The chair and co-chair of WG II/4 are leading the ISO project 19130 "Sensor and data models for imagery and gridded data". The WG has established links with many other groups working in this

area. The work on the standardization of the frame camera and of the line-type sensors comes to completion. More work is necessary for the SAR/InSAR- and LIDAR-systems. Wolfgang Kresse and Liping Di (Chair and co-chair of WG II/4) are both heavily involved in this activity.

ISPRS currently has liaison status on the following ISO Technical Committees:

- ISO/TC 20 'Aircraft and Space Vehicles' - 'Space Systems and Operations' and 'Space Systems and Information Transfer Systems'
- ISO/TC 42 'Photography'
- ISO/TC 172 'Optics and Optical Instruments' - 'Electro optical systems'
- ISO/TC 211 'Geographic Information/Geomatics'

Ryosuke Shibasaki, co-chair of WG IV/7, has been working for the Work Item 14 "Quality Evaluation Procedures" (QEP) as a project team leader (project No. 19114). QEP have reached the stage of Draft International Standard, which means the work is coming to an end. Ryosuke is also a team member of the 'Data Product Specifications Project.

ISPRS is also making input to ISO Project 19122 'Geographic Information/Geomatics - Qualifications and Certification of personnel'.

ISPRS took part in several sessions organised by FIG at their congress in Washington DC, these included a session on The response by Professional Organizations in the FIG Task Force on Standards and Space Information Societies which included a paper by Liping Di and Wolfgang Kresse. At a session of the Task Force on Stan-

dards, and ISO/TC 211 a paper was given by Hans Knoop. Another event was the Forum and Discussions on the Draft Technical Report on ISO/TC 211 Project 19122, on Mutual Recognition.

At the last TC211 meeting a new Advisory group on outreach was established. Hans Knoop and Henry Tom are co-chairs of this group and ISPRS is expected to contribute.

ISPRS representatives to ISO/TC 211 are Hans Knoop and Norman Andersen. Hans Knoop attended the ISO/TC211 meetings in Gyeongju and Bangkok. In 2003 the meeting of ISO/TC211 will be held in Switzerland and Germany.

*Ian Dowman, Wolfgang Kresse and Hans Knoop*

## ISPRS JOURNAL

### Administration

The Editor has informed Council and discussed journal matters during the ISPRS II and V Symposia. Most persons at Elsevier related to PRS, including the responsible Publishing Editor, have changed and a major reorganisation at Elsevier took place. There was a change in one member of the Editorial Advisory Board.

After some difficulties and delays, the jury of the U.V. Helava Award for the period 2000-2003 has commenced its work.

### Papers, Reviews and Publication Time

The publication delay of about one year for the issues has been significantly reduced, although publication has not yet reached full normality. Thus, all material for Vol. 57 (2002) were sent to Elsevier within 2002, although it will be partly published in 2003. The paper queue is still long and the processing slow, with still insufficient quality of papers and reviews. The paper queue has increased due to the Special/Theme issues, many of which came together after a 1-2 year low in activities after the Amsterdam Congress. Copy-editing and language editing are mostly done by the editor with minimum input from Elsevier.

### Electronic Subscriptions, On-line Electronic Journal

Electronic subscriptions in 2002 increased to 1349 institutions, including large consortia. Out of them, 246 are active (i.e. at least one full text access (FTA) per month). FTA has slightly increased from 2001 with 1200-1600 accesses per month, and so did the number of active subscribers. The papers now have more links at the references to abstracts or even full papers.

### Hardcopy Subscriptions

Following the trend of recent years, common for most peer-reviewed journals, subscriptions declined from July

2001 to July 2002 by a percentage that for the institutional subscriptions (the main subscription category) was higher than the usual 3%-5%. However, this reduction was more than compensated by the much higher electronic subscriptions, that many institutions or consortia tend to prefer. In spite of cheap subscriptions for members (persons) of ISPRS members (40\$) and institutions from developing countries (50\$), these subscriptions, especially the latter, did not show any great increase (although reliable numbers for these subscription categories could still not be provided by Elsevier), making clear that they have to be made more widely known.

### Special/Theme Issues

All special/theme issues until the 2004 Congress have been decided, and all except one of Commission III have been finalised and announced. The following special/theme issues have been published in 2002 in the Volumes 56 and 57:

- Medical Imaging and Photogrammetry: F. Van den Heuvel.
- Geomatics in Mountainous Areas - The International Year of the Mountains, 2002: A. Gruen, S. Murai.
- Image spectroscopy and hyperspectral imaging: A. Skidmore, F. Van der Meer. Due to some difficulties, including the small number of related papers, this material was published as a special section of the journal.
- The issue "Challenges in Geo-Spatial Analysis and Visualization: M. Madden, J. Schiewe" is in its final preparation and will be concluded within 2002.
- Three "Best Papers" from the ICORSE Conference in Buenos Aires, 2002 were finalised and will be published in the Vol. 57.

The following issues are under preparation:

- Algorithms and Techniques for Multi-Source Data Fusion in Urban Areas: P. Gamba, O. Hellwich, P. Lombardo. Planned for Spring 2003.
- Advanced techniques for analysis of geo-spatial data:

Wenzhong Shi, Yvan Bédard, Zhilin Li. Planned for September 2003.

- Integration of geodata and imagery for automated refinement and update of spatial databases: Christian Heipke, K. Pakzad, Felicitas Willrich and Ammatzia Peled. Planned for winter 2003/2004.

**Miscellaneous**

- Gratis ads were published in the journal for Commission Symposia and Call for Papers for special/theme issues.
- ISI's impact factor was 0.963 in 2001 compared to 0.692 in 2000, 0.492 in 1999 and 0.132 in 1998. The journal's impact factor ranking in the 4 scientific disciplines listed (Geography; Geosciences, interdisciplinary; Imaging Science & Photographic Technology; Remote Sensing) changed respectively from 1998 to

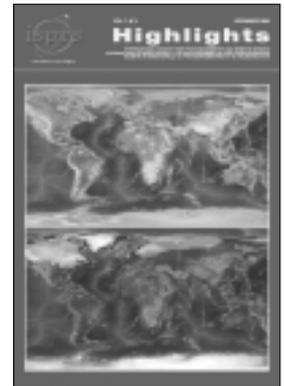
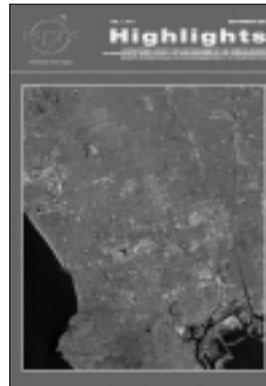
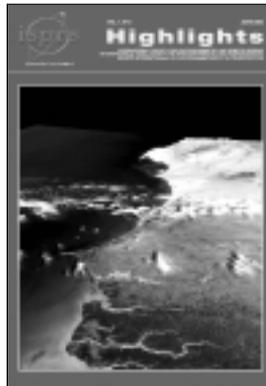
- 2001 (ranking / number of journals in discipline): 1998 18/19 to 2001 10 / 24; 1998 105/111 to 2001 52/117; 1998 11/13 to 2001 3/14; 1998 7/8 to 2001 4/9.
- The number of ContentsDirect registrants (a free electronic alerting service including paper abstracts) has increased to 1257 covering all continents.
- To promote the journal and the cheap subscription categories, a PR leaflet for 2002 was prepared and distributed to all ISPRS Commission Symposia, while information on the journal was also presented in the ASPRS Spring Meeting and 10 other major non-ISPRS Conferences and Exhibitions.
- The journal's WEB page at Elsevier includes now the top 25 of the most downloaded papers for the last 6-month period.

*Manos Baltasavias*

**ISPRS HIGHLIGHTS**

In 2002 Volume 7 of ISPRS Highlights was produced and involved good teamwork between the ISPRS Secretary General (Ian Dowman), the Publisher's Production Manager (Sandra Visscher) and the Editor-in-Chief (Lucas Janssen). Production is planned in such way that the

issues arrive before the last Thursday of the issue's month. The current situation with distribution is that Highlights is sent to 595 persons or companies directly, rather than bulk mail to members (1,200 copies). We aim to increase the 'direct mail', among others to attract advertisers.



| Issue                 | No. pages | Print run | Remarks             |
|-----------------------|-----------|-----------|---------------------|
| March<br>Vol. 7.1     | 72        | 2,000     | Annual Report 2001  |
| June<br>Vol. 7.2      | 48        | 2,000     | -                   |
| September<br>Vol. 7.3 | 48        | 2,100     | TC Symposia reports |
| December<br>Vol. 7.4  | 48        | 2,000     | TC Symposia reports |

Table: Statistics regarding ISPRS Highlights in 2002.

Shortly after publication, Highlights is published on the Society's internet site in PDF format.

At different moments the Editor invites Council and TCPs to send in material. Although some of us contribute regularly, the relative low input from Society members remains a fact-of-life. Also, few sustaining members make efforts to submit material for business news. In the latest two volumes, reports on most of the intercongress symposia were published.

*Lucas Janssen*

**HOME PAGE**

**General Remarks**

Since September 2000, the ISPRS server is hosted in ETH-Zurich and is accessible under the Internet address 'www.isprs.org'. The homepage of ISPRS has turned out to be one of the most important components of ISPRS communications, providing online and up-to-date information about the society and linking the various activities of ISPRS.

are not taken into account. Moreover, the statistics refer only to the requests made from outside the ETH domain, which excludes all the accesses during maintenance of the documents. In Figure 1 (left) is shown the monthly report of the number of requests to ISPRS server, in the period January 1995-November 2002. An increasing interest of the community for the ISPRS homepage is evident: the steady increase of the use of the HTML documents over the years and especially after the registration of ISPRS domain (1999)

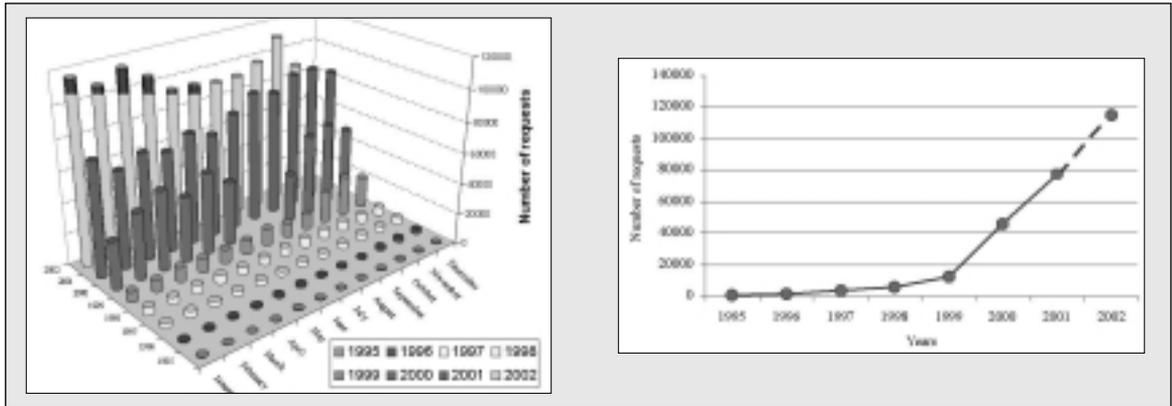


Figure 1: Monthly request to ISPRS server from January 1995 to November 2002 (left). Average request per year to ISPRS server (right).

**Information on the Homepage**

As at November 2002 there are about 600 HTML pages with approximately 20 000 lines of information available on the ISPRS web site, i.e. ca 800 Megabytes of data. A search engine (provided by Google) is available inside ISPRS 'Table of Contents', with the possibility to search for pages inside ISPRS server or inside the WWW. Recently all the proceedings of the 2002 mid-term symposia have been put online and they are available in PDF format. Moreover a mailing list has been activated since one month and already more than 70 people have been subscribed: once per week the latest news inside the website are communicated as well as new events and new links. At present all Technical Commissions have a personal homepage. 60% of the Working Groups and 40% of the Member Organizations provide information on their own webpages.

is obvious. The data missing from the figure in the period July-August 2000 is due to the movement of the server from Delft to Zurich.

The pick of January 2002 states 117164 requests to ISPRS server. In 1995 the average of monthly requests was 424, in 1998 the average was 5780 while at present ISPRS server has more than 90000 requests per month (see Figure 1, right). This is a mean of ca 3000 successful requests per day, ca. 130 per hour or 2 requests every minute. The different domain (~country) served at least one by the server were 155 (ca. 65% of the registered country code domains), while the distinct organisations served were more than 11000.

**Statistics of ISPRS Server**

The statistics give a reasonable estimate of the use of the ISPRS web server, as it counts only requests for single HTML documents and the requests for images, graphics, icons etc.

Another interesting statistic concerns the words and queries used in the search engines to find ISPRS and its related pages: between ca 14000 search terms, the most used are remote, sensing, photogrammetry and isprs. Considering all the queries, the most requested are 'photogrammetry', 'isprs', 'remote sensing', 'International Archive of Photogrammetry and Remote Sensing' and 'orange book'. The browser

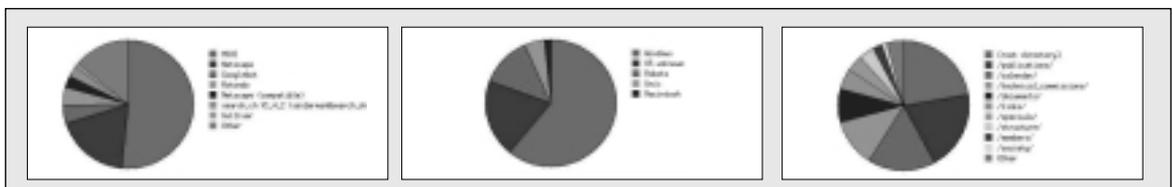


Figure 2: Most used browser (left) and operating systems (center) to access to ISPRS web pages. Most request directories (right) between ISPRS web pages.

most used to find information related to ISPRS is Microsoft Internet Explorer (52%), followed by Netscape (18%) (Figure 2, left). The majority of the users (68%) has Windows as operating systems; then Unix (9%) and Macintosh (2%) (Figure 2, center). The information (directories) more requested contain the publications, the events calendar and Technical Commission (Figure 2, right).

### Educational Resources on ISPRS Web Site

ISPRS educational page (<http://www.isprs.org/links/tutori->

al.html) tries to collect the wide gamma of educational material, software and online publications related to Photogrammetry, Remote Sensing and GIS. Recently many online proceedings of ISPRS and OEEPE have been added to these pages but they are not a complete list of all the useful documents available on the Internet. Therefore if anyone wanted to contribute in these lists, please send links or information to [fabio@geod.baug.ethz.ch](mailto:fabio@geod.baug.ethz.ch).

*Fabio Remondino*

## ISPRS Events Calendar

### Terms of Reference

The ISPRS Events Calendar is published in the quarterly ISPRS bulletin, ISPRS Highlights, and frequently updated on the ISPRS Web Page (<http://www.isprs.org/calendar.html>). The Calendar contains a list of all ISPRS sponsored and co-sponsored congresses, conferences, symposia, workshops, tutorials and other meetings. It also contains details of all international and national events on topics related to the activities of ISPRS, including those in photogrammetry, remote sensing, spatial information systems, geomatics, surveying, mapping, machine vision, image processing and similar areas.

The Editor of ISPRS Events Calendar is responsible for updating the entries in the Calendar on a regular basis. The tasks are:

- Provision to the ISPRS Highlights publishers in an agreed format, of an updated Calendar for each quarterly edition of ISPRS Highlights, approximately five weeks before the publication dates of 1 March, 1 June, 1 September and 1 December. The commencing date of the entries in the Calendar will be one month after the publication dates.
- Provision to the ISPRS Web Master on an up-to-date basis in an agreed format, updated versions of the Calendar for the ISPRS Web Page.
- Collection of details from ISPRS officers of all ISPRS sponsored and co-sponsored events, including theme of the event, dates, location, web site, contact persons and addresses for publication in the Calendar.
- Collection, from appropriate sources, of details of events on topics related to the areas of activity of ISPRS, including theme of the event, dates, location, web site, contact persons and addresses for publication in the Calendar.
- Maintaining contact with the ISPRS Secretary General on the status of the events calendar on a monthly basis.

### Versions

#### Web Site Version

The WWW page of ISPRS Events Calendar (<http://www.isprs.org/calendar.html>) is updated as quickly

as possible to keep it always up-to-date. This version will be modified as soon as the new information or amendment has been known, and therefore should be used as the main reference.

#### Council Version

The ISPRS Events Calendar will be sent to all members of ISPRS Council monthly as a general reference. The Council could check the details, and then send their comments or corrections to the Events Calendar Editor, e.g. the confirmation of ISPRS Events and the co-sponsorship of other events.

#### Highlights Version

The ISPRS Events Calendar will be sent to ISPRS Highlights quarterly for publishing on this bulletin. The disadvantage of this version is that the deadline is 40 days before the issue date, therefore this version is not up-to-date and should be used for rough reference only.

#### List of ISPRS Meetings (New!)

This is a calendar extracted from the ISPRS Events Calendar, and contains only a list of all ISPRS sponsored events organised by ISPRS WGs and Commissions, and approved by the ISPRS Council. It will be sent to the ISPRS Secretary General quarterly. This would be useful for sending to other groups for inclusion in their lists of events, too.

#### Accomplishments and Activities during the Current Year

The ISPRS Events Calendar Editor, Tuan-chih CHEN, is the co-author with the ISPRS Webmaster, Fabio Remondino, of the paper "ISPRS and Internet: History, Presence and Future" presented on the ISPRS Commission VI Mid Term Symposium on "New approaches for Education and Communication" held in São José dos Campos, Brazil, 16-18 September 2002 at Technical Session 4 "Internet Resources and Distance Learning".

The ISPRS Events Calendar Editor, Tuan-chih CHEN, had a business meeting with the ISPRS Secretary General, Ian Dowman, on 30 May 2002 in Taipei.

*Tuan-chih Chen*

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## Regional Members

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### SOPAC

*South Pacific Applied Geoscience Commission*

#### Background

Pacific Island Countries spread over an area 140 degrees east and 25 degrees north (Northern Marianas) to 120 degrees west and 25 degrees south (Pitcairn Islands). There are several regional organisations, which are mainly financed by Pacific Island Countries and provide service for them. The countries of all regional organisations are: American Samoa, Australia, Baker & Howland, Cocos, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Hawaii, Jarvis Island, Johnson Atoll, Kiribati, Marcus Island, Marshall Islands, Mathew Hunter Island, Nauru, New Caledonia, New Zealand, Niue, Norfolk Island, Northern Mariana, Palau, Palmyra Atoll, Papua New Guinea, Pitcairn, Samoa, Solomon Islands, Stewart Island, Tokelau, Tonga, Tuvalu, Vanuatu, Wake Island and Wallis and Futuna.

The regional organisations are: FFA, Forum Fisheries Agency, PIDP, Pacific Islands Development Program, Pacific Islands Forum Secretariat, SPC, Secretariat of the Pacific Community, SPREP, South Pacific Regional Environment Program, USP, University of the South Pacific, FSM, Fiji School of Medicine, SPBEA, South Pacific Board for Education Assessment and SOPAC, South Pacific Applied Geoscience Commission.

The indication 'south' in the names is misleading, as these organisations assist also Island Countries in the northern part of the Pacific. Yearly meetings of the member countries design the work programs. Each organisation has its working area to avoid overlapping of responsibilities between the organisations.

SOPAC is based in Suva, Fiji and has a current staff number of sixty-five. Its mandate contributes to sustainable development, reduce poverty and enhance resilience for people of the Pacific. The service is split into three program areas 1) Ocean and Islands, 2) Community Risk and 3) Community Lifelines. The Community Lifelines program has three sections a) water, b) energy and c) information and communication technology (ICT). GIS and remote sensing are part of ICT where SOPAC has the mandate between the different regional organisations to assist Pacific Island Countries in these fields of work. SOPAC does this by strengthening the national GIS and remote sensing capacities and by carrying out activities, which currently cannot be handled in an efficient way by the Pacific Island Countries. This is typically the case for image data purchase and some steps of image enhancement.

In 2002, a 7 Million Euro project was signed between SOPAC and the European Commission, which will enhance GIS and remote sensing linked activities to reduce the vul-

nerability of Pacific Island Countries through integrated planning and management (Islands Systems Management).

#### Demand of Remote Sensing in Pacific Island Countries

With about 100 Million square km the Pacific Region is extremely large and with 8 Million people very sparsely populated taken into account that 5 Million people out of this 8 Million are living in one country which is Papua New Guinea, which has a land mass of 450,000 square km. All other islands have a total landmass of only 100,000 square km. This is one of the reasons that the Pacific is out of the footprint of any remote sensing satellite ground antenna. Image data has to be stored on onboard tape facilities. In addition, most islands are small and the image data recorded before and after the satellite passes an island only contain water and cannot be marketed.

Similar problems exist for every coverage by aerial photographs. Planes to record aerial photographs have to be brought in from New Zealand or Australia and wait in the country until the weather is appropriate for image recording. For many islands the cloud cover is unpredictable, which results in high stand-by costs.

Pacific Island Countries facing additional problems. When survey networks were established and linked together over large areas on the continents, there was still no way to link the local systems to a world wide grid system in the Pacific. Now, having GPS technology most Pacific Island Countries cannot translate their local grid to a world wide grid such as WGS84 on which the American GPS is based. Furthermore, the maps on which satellite data recording is based are slightly incorrect and geo-referenced data have to be re-rectified to GPS survey.

Due to the geographic features Pacific Island Nations can be extremely small e.g. Niue with less than 2,000 people or Tokelau with 1,500 people. This is one reason that specialised staff able to carry out remote sensing analysis is sparsely distributed in the Pacific.

Recognising the described situation, it is understandable that many Pacific Island Countries have a map coverage, which derives from colonial times. Even Fiji, with a relatively big population and good functioning government administration has only the main island Viti Levu covered with new maps, the next biggest island Vanua Levu is mainly covered with topographical maps created in the mid of last century.

Topographic maps are normally the basis of all thematic maps and here Pacific Island Countries have a high demand. Monitoring of land use and land use planning are important issues. New demand of monitoring derives from the need of

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fresh water, where the water catchments have to be controlled employing remote sensing information. In the last decade, fresh water became a most important resource due to increasing population and more frequent droughts.

Another shortage in many atoll countries is building material. Aggregates for roads and buildings can only be collected from the near shore area or directly from the beach where subsequent coastal erosion can be expected.

Destruction of mangrove forests can also create coastal erosion and it would be important to not only monitor the mangrove cover in the future, but also analyse current coastal erosion to identify the reason for example the extent of mangrove forest before erosion started. This results can be used to convince decision makers to change the mangrove utilisation or to protect and re-establish mangroves.

During SOPAC's last annual session member countries addressed another important need for remote sensing information, the guidance of the local fishery fleets. The Pacific is divided into different Exclusive Economic Zones (EEZs) in which the countries have the right to manage and to protect their marine resources. The fishery fleets of other countries such as USA, Japan, Taiwan, etc. are equipped with modern technology allowing to locate fish feeding grounds. Pacific Island Countries do not have the technology and loosing the battle to manage the last tuna. Sea surface temperature together with ocean colour and sea surface height can be recorded by satellites and combined to usable information, which could be delivered to Pacific Island Countries.

### Remote Sensing Activities

During the last year, several projects employed remote sensing techniques to identify new methods to respond to the demand described in the last chapter. These include: Multi Temporal Images to Identify Squatter Settlement Migration; Fast Mapping of Landownership Boundaries; Vegetation Mapping and Monitoring using IKONOS data and aerial photographs and Shallow Water Bathymetry.

Besides the mentioned projects carried out in the Pacific Island Countries. SOPAC provides a permanent service to member countries. SOPAC informs about available image data through the e-mail subscribing list GIS-PacNet, the GIS and Remote Sensing Newsletter and through the SOPAC web site.

SOPAC helps Pacific Island Countries to purchase their satellite image data. Parts of Tonga, Marshall Islands, Federated States of Micronesia, Cook Islands, and Fiji are mapped with high-resolution satellite image data purchased through SOPAC, all Pacific ACP states will follow this year. All major cities in the pacific are covered with ortho photos created through a SOPAC based project.

In many Pacific Island Countries image analysis software and expensive hardware such as an A0 size scanner are missing. SOPAC carries out work for the countries if they do not have the necessary hardware or software. This especially applies for the multi-beam swath mapping sounder; under water DTM were created using this instrument for Majuro in Marshall Islands, Rarotonga in Cook Islands, Yaap in the Federated States of Micronesia and in Samoa.

The above mentioned European Union funded project will support GIS and remote sensing activities in the ACP states Fiji, Kiribati, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. High resolution image data will be purchased and different application initiated, where small GIS and remote sensing units will be established. Talks are ongoing to include the ACP states of the Cotonou Agreement, later this year. This will extent the project to states such as Cook Islands, Marshall Islands, Federated States of Micronesia, etc.

It is expected that the demand for remote sensing applications will grow as more techniques and methods are known by decision makers helping manage Pacific Island Countries through Islands Systems Management approach.

### Further Information

The SOPAC web site provides an overview a of the SOPAC structure and all SOPAC activities: under <http://www.sopac.org.fj/> the site also provides a comprehensive overview of SOPAC's GIS and remote sensing activities throughout the Pacific Island Countries. Selected GIS and remote sensing projects are explained under: <http://www.sopac.org.fj/Projects/GISRS/index.html> and most editions of the regional GIS and remote sensing newsletter can be downloaded from: <http://www.sopac.org.fj/Data/virlib/reportsindex.html?ss=type&vv=GS>.

*Wolf Forstreuter*

## ASIAN ASSOCIATION ON REMOTE SENSING (AARS)

### Introduction

The main activities of AARS include the organization of Annual Asian Conference on Remote Sensing, the publication of Asian Journal of Geoinformation and the support of regional meetings in Asia.

### The 23rd Asian Conference on Remote Sensing

The 23rd ACRS was held in Kathmandu, Nepal, 25-29 November 2002. The total participants were 423 including 214 overseas participants from 22 countries or regions. The presented papers were 160 including 20 poster papers. The number of exhibitors were 23. The conference was inaugurated by His Royal Highness Crown Prince Paras Bir Bikram Shah Dev. Opening

speeches were delivered by Prof. J.C.Trinder, President of ISPRS, Prof. Shunji Murai, General Secretary, AARS, Mr. Ananta Raj Pandey, Secretary Ministry of Land Reform and Management, Rt. Hon. Mr. Lokendra Bahadur Chand and Mr. Babu Ram Acharya, Director General, Survey Department.

Two general Conferences with National Delegates were held during the ACRS, to confirm, decide, or suggest future conference organisers.

The 24th ACRS has been confirmed to be held in Pusan, Korea, 3-7 November 2003 and the 25th ACRS has been decided to be held in Chiang Mai, Thailand in 2004. Besides those technical presentation, the following two special sessions were particularly exposed strong interest to those participants.

1. Student Session: Activities of more than ten universities were reported by student or faculty.
2. Digital Asia Network: Concept and prototype of DAN were presented.

On behalf of AARS, I appreciate the ISPRS Council for their positive participation. Three Keynote Speakers: Prof. Gottfried Konecny, Prof. Ian Dowman and Prof. Martein Molenaar were or are strongly related to ISPRS. I also appreciate Prof. John Trinder, President and Mr. Lawrence Fritz, First Vice President for their participation.

In conclusion, the 23rd ACRS was successfully closed. Those who are interested to obtain the proceedings in CD Rom are kindly suggested to contact Mr. Rabin K. Sharma, e-mail: info@acrs2002kathmandu.gov.np

**Asian Journal of Geoinformatics**

The journal was initiated since 2000 with the support of Dr. Nitin Kumar Tripathi, STAR programme, Asian Institute of Technology (AIT) as well as International editorial committee members. The quarterly journal has been published with peer reviewed papers. Those who wish to be a subscriber or submit a journal paper are recommended to contact: Dr. Nitin Kumar Tripathi, Editor in Chief, e-mail: nitinkt@ait.ac.th

**Asian Center for Research on Remote Sensing (ACRoRS)**

ACRoRS was founded as a co-joint organization of AIT, AARS, GISTDA and NASDA in 1997, Which is located in the campus of AIT. ACRoRS has newly established MODIS receiving station in 2002. In addition to NOAA AVHRS receiving station, ACRoRS has a link with Institute of Industrial Science, University of Tokyo to form a network to cover the East Asia. Those data of NOAA AVHRR and MODIS will be obtained from ACRoRS, AIT. The contact person is Prof. Ryuzo Yokoyama, e-mail: yokoyama@ait.ac.th

*Shunji Murai*

**EUROPEAN ASSOCIATION OF REMOTE SENSING LABORATORIES (EARSeL)**

**General Information**

The EARSeL Bureau and Council held their regular meetings in January 2002 in Paris. This is when the national representatives, who form the EARSeL Council, each present a report on remote sensing activities and projects within their country. The Council then makes an overview of the recent and future activities of the EARSeL Special Interest Groups, some of which may be disbanded or restructured and others created. On this occasion the new SIG on Remote Sensing and Multilateral Environmental Agreements and its terms of reference were endorsed. This is to be led by Dr. Gérard Begni and is in fact a joint initiative with an ISPRS Task Force.

At the second regular annual meeting of the Council, held in Prague on the occasion of the annual General Assembly and Symposium, a slightly modified Bureau was elected, following the resignation of Prof. Paul Mather for health reasons. The Bureau is now constituted as follows:

- |                   |   |
|-------------------|---|
| Chairman          | Prof. Dr. Eberhard Parlow, University of Basel, Switzerland |
| Vice-Chairman     | Prof. Dr. Rudi Goossens, University of Ghent, Belgium       |
| Secretary General | Dr. Rainer Reuter, University of Oldenburg, Germany         |

|           |  |
|-----------|--|
| Treasurer | Prof. Dr. José-Luis Casanova, University of Valladolid |
|-----------|--|

Dr. Tomas Benes of the UHUL Forest Management Institute in the Czech Republic continues to be the EARSeL contact for East/West relations.

At this Council meeting it was also decided to launch a SIG on the Applications of High Resolution Data and 3-D Remote Sensing to be led by Dr. Karsten Jacobsen of the University of Hannover, and to explore the possibility of setting up a SIG on Urban Remote Sensing, to be led by Dr. Carsten Juergens of the University of Regensburg. This might be launched as a joint EARSeL/ISPRS activity.

The EARSeL community, represented by its Chairman, continues to participate in the discussions of the ESA Earth Science Advisory Committee, which makes recommendations to the Programme Board for Remote Sensing.

**Activities During the Reporting Period**

The first EARSeL event of 2002 was a specialist Workshop organised by its SIG on Remote Sensing of Land Ice and Snow. This was held at the University of Bern in Switzerland and brought together some 50 researchers. The technical emphasis was on microwave remote sensing and applications mainly on snow cover, which reflects the impact this has on our environment and as a climate indi-

cator. Most of the studies presented applied ERS1/2 data but others applied active sensors such as Radarsat, or passive ones such as SSM/I. A trend was observed in enhancing information retrieval by combining remote sensing results with GIS modelling. The quality of papers was high and these are being reviewed for publication in the EARSeL e-Proceedings series.

The highlight of the year was the annual General Assembly and Symposium held in Prague, Czech Republic, in June, organised by Dr. Tomas Benes. The theme this year was "Geoinformation for European-wide Integration" and attracted some 160 participants from eastern, central and western Europe, as well as North Africa, Canada, Turkey and the USA. More than 80 papers are soon to be published in a hardback volume and on CD. An official reception was held in the beautiful Lichtenstein Palace in the rooms directly overlooking the Vltava (Moldau) river, which were completely flooded during the disastrous floods later in the summer. A cruise and dinner on a historic paddle steamer made the 2002 symposium an occasion to remember.

The next event was the 2nd Workshop organised by the SIG devoted to Remote Sensing for Developing Countries, which was held from 18-20 September 2002 at the University of Bonn in Germany. This was attended by approximately 60 participants from 17 countries. Many more wished to attend from the developing countries, but had trouble in obtaining the necessary visas. Since many of the fast environmental changes such as urbanisation, deforestation, agricultural expansion, industrialisation and demographic growth are taking place in developing countries, remote sensing has become the major source of land use and environmental information. For many countries, Earth observation from space is the only way to update maps and resources inventories. The technical sessions addressed the following topics:

- Very high resolution sensors, which in developing countries constitute quite often a good substitute for aerial photography and data are easier to obtain,
- Data pre-processing, with an emphasis on radiometric and atmospheric corrections, a must for change detection in a reliable fashion,
- Remote sensing education, which has been identified as a key component to sustainable technology transfer and capacity building in developing countries,
- Methodological concepts and model integration, which covered three full sessions, focussed on data quality, affordability and availability for a cost effective integration of Remote Sensing data into models that can help to predict change but also to be used as economic development and management tools,
- Monitoring of environmental processes has shown that novel approaches can be used in an innovative way to evaluate environmental changes which are of great importance throughout the different scales used for and in developing countries,

- Adapted mapping methods which showed innovative ways to look at Geology and soil salinity and to map their extent and changes.

The proceedings, together with conclusions and recommendations, are to be published on CD-ROM.

These technical workshops enable in-depth discussions among experts and are much appreciated by the participants.

### **Participation in Events Organised by Other Associations**

EARSeL has sponsored and members have participated in several meetings organised by various ISPRS Commissions, including the 3rd symposium on "Remote Sensing of Urban Areas" in Istanbul, and the IEEE/IGARSS meeting in Toronto. EARSeL maintains links with several international organisations such as OEEPE and EuroGeographics and of course the national European Remote Sensing Societies.

### **Plans for Forthcoming Activities**

10-11 March 2003 – Workshop on Remote Sensing for Land Use and Forestry, Seč by Chrudim, Czech Republic

13-6 May, 2003 – 3rd EARSeL Workshop on Imaging Spectroscopy, DLR German Remote Sensing Data Center, Oberpfaffenhofen near Munich, Germany.

2-5 June 2003 – 23rd EARSeL Symposium: Remote Sensing in Transition, University of Ghent, Belgium

5-7 June 2003 – 4th International workshop: Remote Sensing and GIS Applications to Forest Fire Management: Innovative concepts and methods – University of Ghent, Belgium.

Organised jointly with the GOF-C-GOLD Fire Implementation Team

6-7 June 2003 – International Workshop: Remote Sensing of the Coastal Zone, University of Ghent, Belgium.

25-27 May 2004 – 24th EARSeL Symposium, Dubrovnik, Croatia.

Apart from organising the above meetings and arranging for the publication of the relevant Proceedings and the quarterly Newsletter, EARSeL acts as a focal source of information on remote sensing activities throughout the European region.

The EARSeL Directory of members, links to Special Interest Groups, Newsletters, calendar of events, job opportunities, etc., are available on the EARSeL website: [www.earsel.org](http://www.earsel.org).

In view of the very many meetings organised by various institutions, EARSeL welcomes opportunities to collabo-

rate with the various Commissions and Working Groups of ISPRS that deal with the theory and applications of remote sensing techniques. We exchange Newsletters whenever possible with other Regional Members of ISPRS

and welcome cooperation through our various Special Interest Groups.

Rainer Reuter



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