The XIX ISPRS Congress 'Geoinformation for All'

Welcome Word of the Organisation

By Klaas Jan Beek, ISPRS Congress Director

Dear Congress Participants,

Welcome in Amsterdam,

Four years went by very quickly since the Netherlands Society for Earth Observation and Geoinformatics (NSEOG) in Vienna was given the privilege to organise the XIXth ISPRS Congress. After being appointed Congress Director, I immediately realised that this was going to give me a lot work. Little did I realise how much satisfaction I was going to derive during these four years from the interaction with so many colleagues world-wide who are part of the ISPRS network and strongly committed to its mandate. We were able to meet in many different places of the world during seminars, symposia and workshops, all the time witnessing a Society of which the representatives of very diverse disciplines are getting closer and closer, both personally and professionally, thanks to the rapidly improving information and communication technologies. I am really looking forward very much to seeing them this week again in Amsterdam.

The question arises with all this networking if we are going to need these big congresses at all in the future? Should we start thinking of electronic meetings? So far most people seem to agree that we need to meet in person, at least the interest for our Congress is not less than the previous one. However we have made some changes in the organisation of the Congress, the most important one being the shortening of the length of the Congress from two weeks to one week. A compact Congress has the advantage that everyone will be there at the same time, which is in particular of interest to the exhibitors who usually have only one week to show their new products and services.

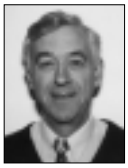
Maybe it was because we are witnessing the start of the new millennium, inducing great expectations and renewed ideals, maybe it was because the Congress is in Amsterdam, a city with a rather non-conforming and liberal identity, we felt that this Congress should have a strong sense of social purpose, that is why we choose the Congress Theme 'Geoinformation for All'. What we wanted to discuss is really: in the near future, do we want to live in one world, or in several, where the benefits of the new information age and of our technologies can not be equally shared for all kinds of reasons which have led to the presently existing inequalities. Can our new information technologies contribute to quick solutions for less developed countries by 'leapfrogging' some of the constraints which the richer countries were already able to eliminate at a considerable cost? Supposing that spatial/geo information has a crucial role to play in all kinds of development processes?

I am very glad that we have found a keynote speaker for our Opening Ceremony who is very qualified to comment on these issues from the user requirements point of view: Ismael Serageldin, until very recently Vice President of the World Bank for Special Programmes, in which capacity he chaired the CGIAR the Consultative Group of International Agricultural research, a consortium of 16 international research institutes with a budget of around 360 million US dollars per year to contribute to global food security, in particular the security of the World's poor. Serageldin also chairs the Global Water Partnership and the World Commission on Water for the 21st Century and therefore very much involved with the looming global water crisis.

In addition, we have during the Opening Plenary Session three very qualified speakers from our own environment to comment on the Congress theme, K. Kasturirangan, the Director of the Indian Space Research Organization (ISRO), Jack Dangermond, the President of ESRI

and He Changchui, head of the remote sensing unit at FAO. They will look from their professional angles at issues of availability, accessibility, benefit, understandability, usefulness and affordability of geoinformation in the years to come.
By having these presentations during the Plenary Opening Session of our Congress, I am sure that this will encourage a good discussion on the ultimate purpose and application of our sciences in problem solving under different socio-economic conditions, during the following days when we split up in smaller groups of a more specialised nature. To encourage a broader look at the challenges of our professions we have also organised, in co-operation with the Technical Commission Presidents, about 30 Inter-commission Technical Sessions.
I acknowledge in particular the support of Commission V, which of course is not in the first place focussed on geo information but on spatial information for other than geographical applications. Their field is attracting a growing number of professionals from application areas, which are rather new for ISPRS. These involve animation and virtual reality, in addition to the many close range applications of photogrammetry that are emerging, from medicine to archeology.

Finally, I want to express my gratitude for the generous support of our sponsors, public and private, which enabled us to keep the Congress fee at a reasonable level and to support the travel of about eighty people from the developing countries, Central and Eastern Europe. Almost a hundred countries are represented in this XIXth Congress of ISPRS.
I look forward to meeting many of you during the coming week. With also the social programme and the technical tours, it will be a busy week. If after all one week proves to be too short , the next Congress Director is welcome to change it: China, Spain or Turkey?



Summary of the Activities of ISPRS Technical Commissions at the Congress

Presented by John Trinder, ISPRS Secretary General

This summary was based on contributions provided by the ISPRS Technical Commission Presidents

Technical Commission I – Sensors and Platforms
Technical Commission President: George Joseph
Since the Vienna Congress, sensors and platforms technology has made substantial progress in various areas. The authorisation to own and operate satellites giving 1 metre data has stimulated a number of companies to develop high-resolution earth observation systems. The first of these, IKONOS II, successfully operating since last year is the beginning of a new era of satellite imagery wherein spatial resolution is likely to approach resolutions of aerial data. The interest of the remote sensing community in high–resolution imagery is well evident from the overwhelming response (more than 275 people) for the session at the Congress on high-resolution data.

Sensors dedicated for elevation extraction using fixed and aft camera and interferometric SAR open up new possibilities for global determination of digital elevation models.

The Congress had a number of papers on various uses of SAR, including new algorithms for reducing noise and sharpening feature edges. Another area of interest is moving target identification. Multi-frequency/multi-polarisation SAR is likely to open up new vistas of application.

Hyperspectral data availability and multi-angle sensing has opened up new areas of applications, which would enhance the use of remote sensing data.

Platform technology has been improving, enabling the development of spacecraft with lower weight and less power. The combined use of GPS, star sensor etc enables good positional accuracy even without using ground control points. The direct sensor orientation based on GPS and IMU is coming into practical application also for airborne survey.

With the increasing possibility of having data fusion from different sensors, the need for accurate geometric and radiometric calibration has become increasingly important.

To sum up, there are a number of innovations in the field of sensors and platforms which could make remotely sensed imagery useful for several tasks. This also poses new challenges. With the large number of sensors available, to use the data from them as supplementary and complementary information calls for standardisation in specifying sensor parameters and their evaluation methodology, thereby enabling spatial, spectral and radiometric inter comparison more meaningful. This could be one of the major tasks of the new Commission.

Technical Commission II - Systems for data processing, analysis and representation
Technical Commission President: Ian Dowman
The main themes of the Commission II programme were related to the fusion of data to produce useful information by processing within photogrammetric digital systems and integration into GIS. This involved several focal points which included algorithms for features extraction which could be incorporated in systems for automatic registration

and data fusion. It was reported that semi automatic systems are now found in commercial systems. There was great interest in the photogrammetric software for the new digital cameras and it appears that the community is receptive to using this new technology.

Integration in another sense was highlighted in the sessions on real time mapping and use of sensors on airborne and other platforms. Mobile mapping system components, including GPS, INS and mapping sensors are integrated and modularised for commercialisation. The results indicated that the utilisation of such modules was successful.

The successful development of image transfer standards in collaboration with ISO and OGC was demonstrated in a session with papers from ISO, NASA and commercial users. ISPRS is playing an important role in this work.

The goal of the commission to promote SAR data was achieved by conducting a tutorial before the congress, and there were several technical sessions devoted to SAR throughout the congress.

The session on 'Systems for new data products' was led by a panel discussion on the challenges facing remote sensing systems. These were seen to be the variability of formats and the consequent difficulties of accessing remote sensing data; the price of remote sensing data, particularly from operational programming and the lack of calibration and orientation data provided by operators.

The issues facing systems on a global scale were discussed with speakers presenting papers on IGOS and CEOS. Sustainable Earth observation requires a greater co-ordination of both user information requirements and supplier offering and both IGOS and CEOS are significantly assisting this process.

Technical Commission III - Theory and algorithms
Technical Commission President: Toni Schenk

The scientific agenda of Commission III addressed a wide range of activities from data acquisition, surface reconstruction, object recognition to image understanding. The results achieved in these diverse topics can be judged from papers presented at the mid-term symposium and at 10 workshops that have been held under the auspices of Commission III during the past four years. The results have been published in 7 archive proceedings. Although TCIII deals with theories and algorithms, most workshops dealt with topics that are of great practical importance, such as direct vs. indirect orientation, deriving DTMs from laser altimetry, and merging data and information obtained from different sensors.

The most important trends that emerged during the 4 year period can be summarised as follows:

Multisensor data acquisition systems, such as camera and laser scanning are increasingly being used and require modification/extension of existing algorithms and procedures to effectively merge (fuse) multisensor data.

At the same time, multispectral and even hyperspectral data have become available for other applications than traditional remote sensing, for example mapping urban areas. This greatly facilitates the automatic recognition and extraction of objects, such as buildings and roads.

New applications, such as city modelling require an ever increasing degree of automation. What used to take months or years to complete a mapping project has to be accomplished in a few weeks. This is only possible by streamlining and automating the processes - a typical subject of TC III.

Recognising these developments make it clear that the role of TC III is more important than ever. An interdisciplinary approach is necessary to make further progress. TC III is best situated to establish contacts to other communities, e.g. computer vision, pattern recognition, and information science. Moreover, TC III is in a unique position to translate research results to applications and procedures, such that they become available to practitioners without long delays.

The most important trends have been captured by 7 resolutions that will define the mandate of TC III for the coming 4 year period.

Technical Commission IV - Mapping and Geographic Information Systems
Technical Commission President: Dieter Fritsch

The period 1996-2000 changed the contents of Technical Commission IV completely. It was decided during the Vienna Congress that in future this commission should be a "homebase" for Geographical Information Systems, in particular dealing with fundamental theoretical developments, operational aspects and GIS applications. Although this was in conflict with the existing structure of ISPRS commissions, especially with commission III, this problem could be solved for the benefit of ISPRS as a whole.

The review today clearly confirms that this move was very successful - ISPRS commission IV seems to be very attractive today, organised well-attended technical and poster sessions here at the Amsterdam Congress. We started a co-operation with the International Cartographers Association (ICA) and with the Spatial Data Handling Expert's Group of IGU - the incoming meeting of SDH in 2001 will be a Joint Meeting together with ISPRS Commission IV. It should be one focus of the future TC IV President to integrate SDH and TC IV.

It was also realised that the integration of image analysis and GIS is an important issue for data collection processes, in particular for GIS data revision. Up to now most of the image analysis strategies are data driven in a bottom up mode. Using existing GIS data this will strengthen the knowledge-driven approach, in top-down mode. It seems to be clear, that

especially for GIS data revision processes the combination of top-down and bottom-up is the result for the future.

Technical Commission IV started to integrate indoor mapping capabilities offered by CAD and Facility Management Systems with 3D GIS. Therefore there is a need to interface Computer Aided Facility Management Systems with 3D city models to make our real world also virtually accessible. ISPRS can play an active part here. Many papers during the midterm symposium in Stuttgart were delivered on DTMs and orthoimages - these are standard products. The last period started optimistic to use high resolution satellite imagery producing these products, but unfortunately trough the lack of data not that much experience could gained. This hopefully will change in near future.

TC IV started also with models for spatial-temporal data management and analysis to consider time as an additional coordinate. It became clear that the work should be continued to study the behaviour of spatial objects according to its geometry, topology and semantics. TC IV brought out a book for the documentation of existing global databases, this book is a valuable source for all those scientists and practitioners who are concerned with environmental monitoring.

Technical Commission V - Close Range Techniques and Machine Vision
Technical Commission President: Hirofumi Chikatsu
The last four years (1996-2000) have witnessed rapid progress of Commission V as close-range digital photogrammetry, inclusive of real-time imaging applications, has become a more widely adopted measurement tool in fields such as industrial metrology, machine and robot vision, medical and sports science, archaeology, architecture and construction management. Over this period, Commission V has pursued the goal of becoming a focal point, within both the ISPRS and associated organisations, for the communication of ideas and research progress in interdisciplinary areas where close-range imaging is used for 3D scene reconstruction and visualisation.

As a result of such as interdisciplinary activities of commission V, there were many interesting new developments and applications in on-line and off-line multi-image and multi-sensor system configurations, laser scanning, virtual reality and computer animation. In particular, it was remarkable that many applications for 3D modelling and visualisation were presented.

Furthermore, recently developed laser scanning technology will contribute greatly to issues such as real-time data acquisition, visualisation, 3D modelling and scene reconstruction. This example is but one that can be used to indicate that developments in close-range photogrammetry and machine vision will continue to be both profound and rapid. In spite of the impact of new technologies, there are many research goals related to existing theories and technologies that need to be realised and work on these areas can be expected to continue. Such current topics include real-time image sequence analysis, automated sensor orientation and calibration, feature extraction and image matching.

Technical Commission VI - Education and Communication
Technical Commission President: Lukman Aziz
The main event of the Commission VI is the ISPRS midterm Symposium TC-VI which held in Bandung, Indonesia, from April 15-17, 1999. The theme of the symposium is Sharing and Cooperation in Geo-Information Technology. It covered topics on education in survey, photogrammetry, remote sensing and GIS; CAT/CAL, Internet, knowledge sharing and technology transfer.

Major results of working groups were:

- Updated the UN Directory on Education, Training, Research and Fellowship Opportunities in Space Science and Technology and its Applications.
- WG VI/2 collected/developed non-commercial software for CAT which is currently available via the internet (LDIP, ORTO, WinASEAN, GIWIN, CD-ROM Remote Sensing Navigator)
- WG VI/3 kept in close contact with regional member organisations in Asia, Africa, and East Europe to help them in preparing workshops, tutorial sessions as well as to encourage them in ISPRS activities.
- Prepared webpage guidelines for ISPRS

Technical Commission VII - Resources and Environment Monitoring
Technical Commission President: Gabor Remetey-Fülöpp
In 1996-2000 Commission VII has emphasised and verified the efficiency of remote sensing as a tool, especially in monitoring various aspects of our environment, by which it made significant developments towards the better understanding of our living planet, the Earth as a system. The better spatial/spectral/temporal resolution of Earth observing systems offers many new revelations. Since observation from space is the objective, adequate techniques for obtaining critical information is needed for improvement of the Earth System model.

Commission VII scientists were successful in monitoring interactions of Geosphere, Atmosphere, Biosphere, Hydrosphere, and Cryosphere, especially by:

- investigating hyperspectral sensing capabilities;
- conducting large area cross-country radar campaigns;
- demonstrating the operational applicability of RS and GIS in Agenda 21-related actions such as sustainable agriculture, forest management and regional/rural development, deforestation and its effect on the Carbon Cycle;
- setting up proposals and measures in control of relevant international treaties and policies,
- implementing novel non-renewable resources and geotechnical applications.

In the case of Africa, knowledge transfer was strengthen

also by the ISPRS Commission VII. Supported also by ISPRS Council, Commission VII worked in close co-operation with R+D and knowledge dissemination centres and supporters such as NASA, CCRS, NRSA, ESA, NRSA, ERIM, GSDI, ISSSR, AARSE, JRC SAI, CNES, ITC, as well as with different UN agencies and public and academic institutions. Advancements have been achieved in the application-oriented interpretation methodology. As major outcome, the release of the workshop report on Remote Sensing and the Kyoto Protocol organised by ISPRS and the University of Michigan has to be mentioned and the excellent teamwork is appreciated.

By the successful launch of IKONOS, we are experiencing now the increasing availability of very high resolution satellite data. However, it should be remembered, the highest spatial resolution satellite imagery commercially available (0.8 metres) is approximately equivalent to a 1:100,000 scale aerial photograph. It means potential users will need to weigh up the benefits based on considerations of other factors such as costs, radiometric resolution, availability, ease of digital processing, etc.

Apart the pre-Congress tutorials, activities of the Commission VII at the Congress were reflected also by the numerous Inter-Commission Sessions devoted to:
- Hyperspectral sensing applications,
- Sustainable resource management and
- Disaster monitoring.

The session on the Global RS/GIS and the Kyoto Protocol highlighted the successful Inter-Working Group co-operation, where a review of available and future technology for monitoring treaty compliance was given. Commission VII took also part in the discussion forum on the topic " Natural Heritages and Cultural Landscapes" arranged by UNESCO/ICOMOS/CIPA.

Resolutions of the XIX Congress of ISPRS in Amsterdam 2000

The Resolutions Committee consisted of the following members:
Shunji Murai, Japan, First Vice President, Chairman
Bruce Forster, Australia
Isabelle Veillet, France
Hans-Peter Baehr, Germany

The Resolutions Committee received 58 draft resolutions from Council, Technical Commissions and Delegates. Some of the proposed resolutions have been modified or edited.

Resolution G.1 Appreciation
The Congress commends:
the Netherlands Society for Earth Observation and Geoinformatics, its president Professor Martien Molenaar, and Congress Director Klaas Jan Beek and the Congress Committee for excellent work which has resulted in a very successful Congress.

Resolution G.2 Commission correspondents
The Congress recommends:
that a set of guidelines governing this communication, through the medium of Commission Correspondents, be prepared and promulgated through the ISPRS Orange Book and web site.

Resolution G.3 Liaison with International Standard Organisation (ISO)
The Congress recommends:
that ISPRS consider active liaison with ISO in appropriate technical committees.

Resolution G.4 Intercommission activities
The Congress recommends:
that all new Technical Commission Presidents note carefully all recommendations and move to establish dialogue and joint activities where appropriate.

Resolution G.5 Digital Earth concept
The Congress recommends:
the encouragement of strategies to further develop a Digital Earth concept.

Resolution G.6 International Industry Forum
The Congress recommends:
- that ISPRS strive to establish an International Industry Forum (IIF) with all segments of the private sector
- that the IIF work within the ISPRS structure to conduct its activities and for closer collaboration with CEOS and the Integrated Global Observing Strategy (IGOS).

Resolutions of Technical Commission I

Resolution I.1 Collaboration with CEOS
The Congress Recommends that:
- ISPRS actively work with CEOS to achieve co-operation and co-ordination in EO R&D activities
- ISPRS work with CEOS to foster public/private collaboration in EO R&D activities
- ISPRS support and contribute to the EO education and training efforts worldwide and specifically focus on newer technology elements.

Resolution I.2 Standardisation of sensor parameters

The Congress recommends:
the generation of a common set of parameters to be specified for each camera / sensor in conjunction with manufacturers.

Resolution I.3 Radiometric and geometric calibration

The Congress recommends:
- investigations of calibration and intercalibration of all digital imaging space sensors
- that all existing and planned test fields be identified and their spatial, spectral and physical characteristics be inventoried
- that collaboration be established with other bodies studying ground test fields with known spectral reflectance characteristics, which can be used for calibration.

Resolution I.4 Wide swath sensors

The Congress recommends:
studies to understand the effect of viewing geometry on the radiometric accuracy of the products.

Resolution I.5 Sensors for DTM data generation

The Congress recommends:
- to intensify detailed study on the accuracy and cost effectiveness of various techniques
- identification of standard sites for inter-comparison and evaluation of different methods.

Resolution I.6 Platform and orientation integration

The Congress recommends:
- integration of attitude and position information with data processing software algorithms
- standardisation of data format, referencing systems and data archival and retrieval systems.

Resolution I.7 Electronic database of sensor and platform information

The Congress recommends:
that an electronic, searchable database of sensor and platform information, both retrospective, current and planned that provides equitable and accessible information from an updateable source be promoted to the ISPRS community.

Resolutions of Technical Commission II

Resolution II.1 Real-time systems

The Congress recommends:
that work continue on real-time mapping technologies with closer links being developed between commissions, especially where GPS/INS is involved.

Resolution II.2 Use of Synthetic Aperture Radar (SAR) data

The Congress recommends:
that increased efforts be made to use SAR data for production of geoinformation and to promote the use of SAR within the spatial information sciences.

Resolution II.3 Digital photogrammetric workstations

The Congress recommends:
the continued monitoring of developments in digital photogrammetric workstations and the creation of a wide range of tools for feature extraction

Resolution II.4 Procedures and tools for data integration

The Congress recommends:
that the development of procedures and tools for integration of data from a variety of sensors and databases be addressed, including the use of new data sources such as SAR and Laser Scanning and the increasing use of vector databases as well as expert systems.

Resolution II.5 Data transfer standards

The Congress recommends:
continued effort to develop standards for data transfer and collaboration with other organisations that are promoting standards such as ISO, Institute of Electrical and Electronics Engineers (IEEE) and OGC.

Resolution II.6 Integration of information into GIS

The Congress recommends:
that the integration of photogrammetric and remote sensing imagery and techniques into GIS for efficient acquisition and revision of geospatial information be strengthened.

Resolution II.7 End-to- end systems
The Congress recommends:
the development and validation of end-to-end processing systems for specific applications, making use of a range of imaging systems, a range of components from the spatial information sciences and paying particular attention to techniques for the delivery and presentation of information.

Resolutions of Technical Commission III

Resolution III.1 Surface reconstruction
The Congress recommends:
that research be continued on Earth surface reconstruction techniques with emphasis on multiple sensor input.

Resolution III.2 Fusion
The Congress recommends:
that fusion, at the data, feature and information levels, be promoted.

Resolution III.3 Object modelling
The Congress recommends:
that efforts be strengthened on developing generic models of objects, including their geometric, semantic and temporal properties, and interrelationships.

Resolution III.4 Combining classification methods and computer vision
The Congress recommends:
that efforts be strengthened in combining classification methodologies and computer vision approaches into a common object recognition framework.

Resolution III.5 Performance and reliability of algorithms
The Congress recommends:
that procedures for evaluating algorithms and for developing suitable test data sets be intensified and formulated.

Resolution III.6 Image understanding / object recognition
The Congress recommends:
- that investigations in object recognition and image understanding be intensified, particularly in the areas of modelling and knowledge engineering
- that co-operation with researchers in computer vision and cognitive science be also intensified.

Resolution III.7 Features as entities in orientation processes
The Congress recommends:
that current mathematical models be extended to include features as entities in the image orientation processes.

Resolutions of Technical Commission IV

Resolution IV.1 Design of large and distributed spatial databases
The Congress recommends:
- that the collaboration with SDH organisers be continued and strengthened
- that research, developments and applications in the design of large and distributed spatial databases be continued.

Resolution IV.2 Spatial database revision and consistency
The Congress recommends:
that the work on spatial database revision and consistency checking be continued and strengthened.

Resolution IV.3 Multiscale, aggregation and generalisation of spatial databases
The Congress recommends:
that ISPRS continue and strengthen the efforts in developing aggregation and generalisation methods and co-operate with other international societies, particular ICA, to deliver adequate algorithms to create multiple representations of spatial data.

Resolution IV.4 Generation of core spatial databases
The Congress recommends:
- that the work on the generation of core spatial data bases using multi-source data be continued and strengthened
- to combine outdoor and indoor locations of built features and facilities in one data stream.

Resolution IV.5 3D modelling, visualisation and animation
The Congress recommends:
that further contributions be encouraged to research, developments and applications in this field, especially to link 3D city models with Computer Facility Management Systems.

Resolution IV.6 Dynamic modelling
The Congress recommends:
that ISPRS strengthen research in this field to make more profit of the timely sensed image data.

Resolution IV.7 Data fusion for spatial information systems (Laser scanning, InSAR, stereo, high resolution satellite imagery, GIS data)
The Congress recommends:
that research, development and application in data fusion be further stimulated.

Resolution IV.8 Spatial data quality
The Congress recommends:
the further stimulation of research describing data quality measures, and their implementation and integration into spatial databases and GIS analysis.

Resolution IV.9 Inter-operability
The Congress recommends:
co-operation with institutions involved in spatial data standardisation.

Resolution IV.10 Metadata and clearing houses
The Congress recommends:
that ISPRS contribute to the awareness, promotion and use of spatial data clearing houses.

Resolutions of Technical Commission V

Resolution V.1 Automation for vision metrology
The Congress recommends:
- that stand-alone measurement systems integrating one or more imaging sensors and CAD/CAM, along with innovations in laser scanning and projected light systems for off-line and on-line vision metrology, be further studied
- that target and feature extraction with special consideration of the multi-image correspondence problem be developed.

Resolution V.2 Scene modelling for visualisation and virtual reality (VR)
The Congress recommends:
- that automatic image analysis techniques to extract models of objects and scenes for applications in visualisation and virtual reality be further developed
- that mechanisms be implemented for co-operation between ISPRS Commission V, computer graphics and computer vision groups.

Resolution V.3 Human motion and medical image analysis
The Congress recommends:
- that research and development in techniques and systems for medical imaging, human motion studies, expression analysis and sports analysis be continued and strengthened
- that Commission V intensify co-operation and collaboration with the communities of medical/biomedical engineering, sports science and human/apparel engineering.

Resolution V.4 Integration of image analysis and spatial information systems for applications in cultural heritage
The Congress recommends:
- further development of integrating of close-range vision techniques and spatial information systems for 3D reconstruction and documentation of monuments and buildings for cultural heritage
- the increased use of advanced, low cost and rapid techniques in documentation and monitoring of the cultural heritage
- development of standard procedures and products in co-operation with related disciplines (e.g. urban planning or facility management)
- close co-operation with CIPA.

Resolution V. 5 Image sequence analysis
The Congress recommends:
- that investigations of these topics be promoted, in close co-operation with Commission III and researchers, for example in engineering and computer vision
- that investigations on algorithmic aspects and the development of computational systems for applications with special emphasis on time constrained solutions be conducted.

Resolution V.6 Vision and animation
The Congress recommends:
- the development of image-based techniques for use in live figure and environment generation tasks
- the study of methods and technologies to support the interaction of real and virtual objects and actors
- that collaboration with the computer vision and animation communities be intensified.

Resolution V.7 Integration of ground-based vision techniques with aerial/space images
The Congress recommends:
that new models and techniques for close-range and aerial/space image integration be developed in co-operation with Commission III and IV, with a focus on aspects such as the combination of data from various sources, object extraction techniques, 3D modelling and texture mapping.

Resolutions of Technical Commission VI

Resolution VI.1 The Internet for ISPRS
The Congress recommends:
the investigation of the optimal use of the Internet for the benefit of the ISPRS community.

Resolution VI.2 Education for the developing world
The Congress recommends:
that Commission VI in co-operation with regional members of ISPRS and all sister societies endeavour to organise workshops for education in the developing world.

Resolution VI.3 Updating the ISPRS education data base
The Congress recommends:
that the ISPRS data base of education and training courses and institutions be maintained and updated at least annually.

Resolution VI.4 Computer Assisted Teaching and Learning (CAT/L)
The Congress recommends:

- that the evaluation of existing and the development of new concepts of CAT/L and distance learning be addressed
- that public domain educational software and web pages be designed and developed
- that available software and web pages be publicly disseminated at marginal cost
- that the CAT Contest (CATCON) be continued.

Resolution VI.5 Technology transfer to and within the developing world

The Congress recommends:
- that opportunities for technology transfer to and within the developing world be further investigated and expanded
- that such technology transfer be initiated, encouraged and/or supported in co-operation with sister societies and international/regional organisations

Resolution of Technical Commission VII

Resolution VII.1 Spectral signature research

The Congress recommends:
- that research on spectral signature especially in the areas of hyper-spectral and microwave sensing be continued
- co-operation with institutions maintaining databases on spectral signatures
- co-operation with International Symposium on Spectral Sensing Research (ISSSR) and other international conferences on Physical Measurements and Spectral Signatures in Remote Sensing.

Resolutions VII.2 Standardisation for methodology of computer-aided interpretation

The Congress recommends:
- establishing quality measures for evaluation and validation of the output of remote sensing procedures
- collaboration with CEOS Calibration and Validation Working Group (CVWG).

Resolution VII.3 Crop monitoring, yield estimation and policy issues

The Congress recommends:
to refine current modelling methodologies for improvement of the operational use in crop monitoring, yield estimation and facilitating agricultural policy implementation using remote sensing and GIS technologies.

Resolution VII.4 Integrated monitoring systems

The Congress recommends:
that integrating remote sensing data, in-situ measurements and other data in a GIS be encouraged for monitoring, modelling and management of the environment and resources.

Resolution VII.5 Disaster management

The Congress recommends:
- the development and applications of appropriate tools and methodologies for disaster management using remote sensing and GIS technologies
- co-operation with various partners IGOS/CEOS etc.

Resolution VII.6 Generation and use of global databases

The Congress recommends:
- the development of methodologies for generation and quality evaluation of global databases for global studies in co-operation with Commission IV
- compilation of existing and planned location and quality of global databases
- development of algorithms for monitoring of global change
- evolving strategies for assimilating remotely sensed data into global models.

Resolution VII.7 Supporting implementing of international policies and treaties

The Congress recommends:
- investigations and development of vegetation (especially forest), soil and other thematic mapping and using remote sensing data at national and international levels, with focus on carbon fixing and desertification
- co-ordination with International Global change Atmospheric Chemistry (IGAC) Programme
- the establishment of a Task Force to co-ordinate ISPRS's contribution to studies of the application of remote sensing for international policies and treaties.

Resolution VII.8 Urban management

The Congress recommends:
- provision of scientific and technological support
- for actions as recommended by the HABITAT II Conference
- for documentation, conservation, management and permanent control of Natural Heritage and Cultural Landscapes in co-operation with UNESCO/ICOMOS/CIPA
- for actions to monitoring land use and land cover transformation, with special emphasis on urban growth.

Resolution VII.9 Imaging segment of information infrastructure

The Congress recommends:
that ISPRS represent the imaging sector using the synergy with its integration with GIS, satellite positioning and space communication in the national, regional and global spatial data infrastructure especially in applications of remote sensing and GIS for environmental studies and resource management.

Approved by the ISPRS General Assembly, 22 July 2000, Amsterdam, The Netherlands

Address of Outgoing President

By Lawrence W. Fritz

Distinguished Participants in the XIX ISPRS Congress, Ladies and Gentlemen:

Four years ago when I accepted the responsibility to serve as President and this gold chain of office was place on my shoulders, I pledged to conscientiously perform the duties to the best of my ability. Wearing this heavy chain of office reminds me of the heavy responsibilities that come with the office. As ISPRS's 18th President, I have found that the human interactions and public relations of the office are the true essence of the position. The Society has a great tradition and heritage with ambitious goals, which have been epitomized by the great personalities such as Dolezal, Schermerhorn and Doyle, and more recently by my mentors, Konecny, Torlegard and Murai. This history makes one humble to follow in their footsteps and proud to help continue the advancement of the goals of the Society.

Today, just as four years ago, I am truly honored to have had the opportunity to serve our Society. Having served previously on Council as Congress Director and as Secretary General I have recognized that the position of President is more than a position of honor. It comes with responsibilities to represent the Society before national and international organizations, to communicate and interact with its Members, and to manage the Society together with the Council and Commission Presidents. To serve ISPRS honorably requires major dedication to perform the duties of the position and an ability to appreciate the needs and diversity of the Society's Membership and its officials. As your President, I have done my utmost to fulfill these responsibilities.

As the first ISPRS President to be elected from the private sector, one of my perspectives has been to organize the administration and operation of the Society on a more solid footing. This is in recognition of the scientific, technologic, economic and social dynamics that are changing the environment of and the bodies with which ISPRS interacts and operates. Our Society has grown ever larger and to stay viable and relevant, we must have the ability to change with the times. ISPRS now represents 174 Member bodies, of which 124 are societies and organizations representing nations and regions. We are the international organization and voice of the Photogrammetric, Remote Sensing and Spatial Information Sciences. It is imperative that we strive to achieve our mission and goals within a collegial and democratic environment, yet with firmness of purpose and with ability to meet them. The General Assembly's adoption here of the Society's Strategic Plan for the 21st Century has set the framework and initiated many of the changes needed to accomplish this. This term, ISPRS has forged significant relationships with all sectors as shown by our increased involvement with ICSU, CEOS, UN/OOSA, and industry. This is very rewarding to me and my fellow officers, and for all of our Members.

Our truly international Council has strongly influenced the direction of the Society with expectations of bringing greater value to the disciplines and professions in which we are all engaged. For me, it has been a wonderful experience to work with a Council team which has been bold, eager and not fearful of challenge, yet sufficiently tempered with values of meaningful tradition. We have accomplished a lot because we all truly believe in the value of ISPRS. Our hope is that our successors will maintain the momentum and continue to strive and enhance the many benefits our Society offers to its Members. An international Society brings unity and synergy to support the greater good for all humankind. ISPRS is an excellent international society.

As we near the end of this Congress, let me express my sincere thanks to my Council colleagues for their diligence and cooperation. The ISPRS Bylaws require that a minimum of three Council members step down from office in order to keep Society leadership vibrant and yet ensure continuity with experience. This term, four of my dear colleagues will leave Council, three after serving for only four years. Departing is our 1st Vice President and very deserving new ISPRS Honorary Member, Shunji Murai. Everyone will attest that Shunji during his sixteen years on Council has served our Society with hard work, efficiency, honor and dignity. His Asian perspective has strongly influenced the Society to address the needs of the developing world. We will clearly miss his honest opinions, his wisdom, and wit. Shunji, I thank you for sharing your friendship and appreciate the many hardships that you and your caring wife, Taeko, have endured for serving the Society so well.

Klaas Jan Beek has served the Society well as Congress Director. We will miss his ever positive and forward-looking perspectives for keeping the Society relevant. This has been a very successful Congress and we thank you Klaas Jan for your excellent hospitality. Our outgoing Treasurer, Heinz Ruether, has worked very hard in keeping the Society's finances in order and in keeping our African colleagues involved. Heinz, we are pleased and fortunate that you will continue to work with Council as the new Chair of the Financial Commission. I am certain that you will continue to keep us on the positive side of the ledger. And it has been a privilege to have Marcio Barbosa, our very capable 2nd Vice President, bring his ideas and Latin American perspectives to support our team. Marcio, I thank you for your continued support to the Society.

Secretary General John Trinder has worked hard and conscientiously in communicating with our Members and in maintaining the Headquarters of the Society. He has traveled extensively to represent the Society very capably with other organizations and in the South Asian Pacific region. The Society will greatly benefit from his twelve years of experience on Council. John, I am most happy that the General Assembly has elected you to be our next President. I look forward to a continuation of our very positive and cordial relationship.

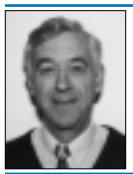
To recognize the excellent service that you all have provided the Society during these past four years, I will present you each with an ISPRS plaque of appreciation and some small gifts. It has been a great four years, to work with what are now lifelong friends. They all know that I have been a constant driver, pushing Council to achieve and address goals, some of which have been extremely challenging, and they have responded willingly. Fortunately, all Council is motivated and has strong altruistic feelings for the Society, and for the needs of the developing world. We truly believe in the value of ISPRS and have forged a path down which we hope others will venture often to further enhance the benefits for the Members we serve.

I applaud our Commission Presidents and all of the 45 Working Groups for their cooperation and the excellent scientific activities they have conducted during the past four years. The quality of the Congress technical program here is a testimony to their great work. Similarly, I thank our three Editors, Manos, Andre and Lucas for the outstanding communications they have produced on our behalf.

For all of us who have participated in this Congress, I extend our heartfelt thanks to the Congress Organizing Committee, the Netherlands Society and all those who have made us all feel welcome here and who have contributed to making this 19th ISPRS Congress a success. Thank you Klaas Jan, Technical Program Chair, Martien Molenaar, and all Committee Members, and we extend special appreciation to all your spouses, companions and employers who have shared your time for us.

My travels have been to all continents and, along with Council, we have met with a majority of the Society's Members. I have had many invitations to visit Members, but it was not possible to meet with all. I thank them for their invitations, and I express my appreciation for the wonderful hospitality provided me by those I have been fortunate to visit.

Now as this chapter in our Society's activities becomes history, I reflect upon more than the tasks that we worked on diligently together. The new and lasting friendships, the opportunity to see and interact with so many cultures, side travels to exotic places, and exciting social events and ventures. I am so lucky and grateful to have experienced these friendships and opportunities while working very hard. I am also most thankful for the support of my employer, Lockheed Martin Corporation, to help me pursue these activities. But above all, I extend my love and utmost appreciation to my wife, Evelyn, who has endured my reverence to the Society, including my many months away from home. Thank you to all my colleagues and friends that made this voyage for me possible.



Address of Incoming President

By John Trinder

It is with a great sense of honour and responsibility that I accept the position of President of ISPRS for the next four years. I thank the General Assembly for their confidence in voting me into this position.

I have joined the names of former Presidents that I have always had a deep respect for, including Fred Doyle, the indefatigable Gottfried Konecny, Kennert Torlegard, Shunji Murai and Larry Fritz. The General Assembly has bestowed a heavy task on me, but I will aim to pursue this task with all of my energy and enthusiasm. However, I will not be able to do this task on my own, and hence I rely very much on my Secretary General, Ian Dowman, and other Council Members, Larry Fritz, Ammatzia Peled, Orhan Altan, and Gerard Bégni.

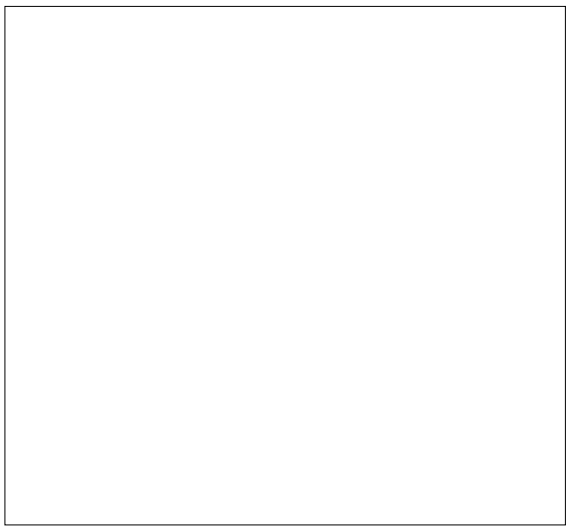
It is an excellent team, representing a broad cross-section of experts in the photogrammetry, remote sensing and spatial information sciences around the world. I know I can rely on their expertise to continue the task of developing

the Society, and I look forward to working with them over the next 4 years. I thank these people for their commitment to ISPRS and sympathise with their partners for the time they will be spending on ISPRS business.

I want to thank the members of the Council with whom I have worked over the last 4 years. All members have contributed a great deal to the work of the Council and I would like to acknowledge their contributions.

Shunji Murai as First Vice President has made an outstanding contribution to the Society for 16 years, and fully deserves the award of Honorary Member of the Society, an honour that is only ever bestowed on seven people at any one time.

Marcio Barbosa as Second Vice President has exceptionally heavy responsibilities in INPE in Brazil, yet has fulfilled his responsibilities in the Council in an excellent manner. His contributions in presenting new approaches to the management of ISPRS have been a breath of fresh air, and we certainly appreciate his contributions.



Heinz Ruther has made an excellent contribution to the Society as Treasurer and in so doing has ensured that the finances and investments are on a very sound footing. He has also made major contributions to the management of ISPRS affairs.

Larry Fritz has been a tireless worker for ISPRS for at least 12 years, and has made an outstanding contribution as President. He continued while he has been President, the complete dedication to ISPRS that he demonstrated as Secretary General from 1992-1996. He demonstrated his leadership in his term as President by proposing the Strategy Planning meeting, which has become the basis of the future directions of the Society, as approved by the General Assembly on 20 July. One could almost conclude that he has also been a tough master, if one looks at the approximately 340 action items that have originated from the Council over the last 4 years. However, I believe we undertook all of these actions willingly with the leadership from Larry, knowing that we were moving the Society in the right direction for the future. I thank Larry very sincerely for his contribution to the future of ISPRS, that provides the right directions for the next millennium and its next century of existence.

Klaas Jan Beek was the sixth member of the Council. I believe that Klaas Jan, together with the Congress organising team deserve a special word of thanks. The organisation of the Congress is the biggest undertaking by any group in the Society. It requires dedication, hard work, a vast amount of tolerance, adaptability and patience. I believe that Klaas Jan has displayed all of these characteristics. I have enjoyed the Dutch sayings that Klaas Jan used to present to us when things became difficult. They provided us with a measure of rationality and brought us back to earth. The Netherlands has done an outstanding job at organising this Congress. They have been innovative in bringing their own approach to the Technical Program as well as the overall organisation and the social program. It has been a pleasure to work with you and your team, as well as Martien Molenaar, Saskia Templeman, Jan Timmerman. There were many others involved in the organisation of the Congress that I am unable to name.

Klaas Jan, I congratulate you and your team on an outstanding contribution to the work of ISPRS through the organisation of this Congress. It has been a pleasure for all of us to visit your country and experience its many delights. We will particularly remember the social functions, the bike rides and canal trips and the outstanding banquet, a truly wonderful evening. I am sure I am expressing the deepest gratitude of all participants at this Congress for the work that you and you team has done in organising this Congress. Thank you very much. Hartelijk bedankt.

Now looking ahead, the ISPRS will be led by a new team for the next four years. A Council of six, four of whom are new members, so we will see new, but I am sure constructive views being presented by these people. The General Assembly has elected seven new Technical Commission Presidents from:

TC I	-	USA, Stanley A. Morain
TC II	-	China, Chen Jun
TC III	-	Austria, Franz Leberl
TC IV	-	Canada, Costas Armenakis
TC V	-	Greece, Petros Patias
TC VI	-	Brazil, Tania Maria Sausen
TC VII	-	India, Rangnath R. Navalgund

The Resolutions approved by the General Assembly define the future directions of the Technical Commissions, the bodies that are responsible for the scientific and technical

activities of ISPRS. These resolutions have been defined by the Technical Commissions as one of their last duties at the Congress. I look forward to framing new terms of reference for the Commissions and then working with them in the Commission activities until 2004 based on these resolutions.

The Strategic Plan developed by the Council and approved by the General Assembly will define the overall directions of the management, scientific and international cooperation in ISPRS. It will be a challenging task to continue to implement the recommendations of the Strategic Plan. Our achievements in this regard will define the success of the Council over the next 4 years.

When it was first formed 90 years ago by Eduard Dolezal, the ISP, as is was then named, was a small Society with limited aims. It dealt with the development of the photogrammetry and its applications. The Society achieved these task slowly, but very thoroughly. It gained an outstanding reputation as the leading society in the field. As we know, photogrammetry has developed through the analogue to the analytical and now the digital ages. Now that we have entered the digital age, the areas of interest of ISPRS, the photogrammetry, remote sensing and spatial information sciences are not only converging, but they are also based on the integration of data and facilities into data processing and analysis systems. Therefore, the new trends in technology in ISPRS will place an emphasis on the integration of these activities.

ISPRS has been very successful in developing its reputation in photogrammetry and this will continue, especially in the areas of digital and close range photogrammetry. However, ISPRS is not the only player in the fields of remote sensing and spatial information sciences and therefore it cannot expect to be the leader in all aspects of these fields. ISPRS therefore has established collaborative agreements with other organisations working in these fields. It will need to continue and expand this collaboration in the future to ensure that it fulfils its mission.

The new ISPRS mission identifies the purpose of its activities as 'contributing to the well-being of humanity and the sustainability of the environment'. These are very ambitious aims, but ISPRS certainly has a role to play in the preservation of the environment and the future of the planet. Sustainable Development is becoming an important topic for ISPRS, as well as UN declarations on the environment, such as the Kyoto protocol. ISPRS can and should play a major role in achieving public recognition of its technology as leading edge science for such important matters. This will be done by collaborating with other organisations that have knowledge of the physical, chemical, biological and environmental aspects of the planet. ISPRS should therefore become more diverse and adaptable to these new demands. These aims must be pursued with vigor over the next 4 years.

As we depart from Amsterdam for our homes, I trust that all attendees at this Congress have been able to gain new knowledge of the developments of the activities in ISPRS. This Congress in many ways, I believe, will be recognised as the beginning of a new era in ISPRS activities. We have really entered the digital age in photogrammetry, remote sensing has now entered the high spatial and spectral resolution eras, and spatial information systems, which is now well embedded into ISPRS activities, is making significant progress in inter-operability and hence can be applied in a broad range of undertakings. As well, the integration of these activities is well established.

I trust that you will be able to take the knowledge you have gained about many of the new developments that you have seen here, back to your workplaces and introduce them where applicable. This will confirm the benefits gained from attending this Congress, from your participating in ISPRS, and from ISPRS Membership. More importantly it will assist you in contributing to the preservation of our threatened planet.

I wish you success in your future work in the photogrammetry, remote sensing and spatial information sciences.

Tot ziens, bon voyage and have a safe trip home. I look forward to seeing you all in Istanbul in 2004.

Thank you

Congress Director's Report at Closing Session

By Klaas Jan Beek

This XIX Congress had a duration of 7 days with an additional 3 days for Tutorials and Workshops preceding the Congress. It was shorter than previous ISPRS Congresses. Another difference compared to earlier Congresses was that the Technical Sessions were based on themes, with much emphasis on broad inter-commission sessions.

The Technical programme was established after Cie IV Symposium in Wildbad, Germany (Sept. 1998). At the end

of 1999 the 1400 abstracts as received were evaluated and matched with the proposed thematic sessions in consultation with the TCP's and convenors of these sessions. About 10% of sessions was re-adjusted after receipt of full papers after 1 May 2000, with some communication difficulty between Local Organising Committee (LOC) and TCP's. The LOC appreciates the many positive reactions on the Congress Theme "Geoinformation for All" and its introduction during the Opening Plenary Sessions and exposure during the technical/special sessions.
We hope that as a result the 'message' from the user community will have a lasting impact on the activities of the ISPRS, in concurrence with the Strategic Plan presented by President L.W. Fritz.
The Exhibition was a great success! The exhibitors appreciated the compact, one-week programme. The exhibitors emphasize high level quality of visitors and excellent interaction. Many new products, giving better insight in technological possibilities in the digital era were introduced. The exhibition also showed a clear tendancy towards integration in the production chain from imaging to information. The Exhibitor Showcases were also well appriated, both by the exhibitors as by the public.

The statistics of the XIX Congress are quite comparable to the XVIII Congress (Vienna). Some statistics of the Amsterdam Congress are given here:

Full Fee Registration	1290
Reduced Fee Registration	260
Accompaning. Persons	170
Day Tickets	400
Archives - Vol. A	150
Archives - Vol. B (hardcopy)	140
Exhibition	1300
Technical Tours	410
Tutorials	130
Workshops	25

In Table 1 you find information about the number of sessions and their attendance per Commission. A grand total of 109 sessions were realised. Not only the Technial and Intercommission sessions, but also the poster sessions were well attended and appreciated. An average of 58 persons were present during the sessions which is very motivating.

Cie	Number of Sessions	Total Number of Persons	Average Persons per Session
I	8	589	74
II	14	1207	86
III	17	1494	88
IV	20	1235	62
V	18	731	41
VI	6	305	51
VII	26	762	29
Total	**109**	**6323**	**58**

Table 1: Attendance per Commission and per Session (Technical, InterCommission and Poster Sessions). Statistics as of 22 July 2000.

We have provided the Abstract Book provided for free to all participants. New was the Congress CD-ROM: it was given to all full participants (1570 distributed). A supplementary CD-ROM will be distributed after the Congress to all full participants. This CD-ROM will include corrected papers, late papers and a final list of participants The Congress Web Site (www.itc.nl/~isprs) will include all pictures

The LOC has taken the 'Geoinformation for All' slogan up to the practise. Thanks to the generous support of our sponsors, the Congress financially supported the participation of 83 persons from 35 countries (developing countries, Central and Eastern Europe).

Ladies and gentlemen, we are looking back to a different, compact, and focussed Congress. Thanks for your active and enthousiastic participation.

From the Congress Daily

Turkey Won!

In the General Assembly yesterday the ordinary members voted for the location of the next congress in 2004. The first ballot was as follows: China 64, Spain 54, Turkey 73. For the second ballot, it was between China and Turkey. The members gave 69 votes to China and 113 to Turkey. The Turkish delegation now has the privilege of organising ISPRS 2004 in Istanbul. We wish them success with the challenging task of preparing for this major international event and look forward to meeting all of you in Istanbul. For the Sunday issue of the Daily, we will interview the new congress director Prof. Dr. M. Orhan Altan.

The next ISPRS will be in 2004 in Istanbul. Professor M. Orhan Altan - a specialist in digital photogrammetry, spatial information systems and deformation measurement - is to be the Congress Director. A fluent English and German speaker, Professor Altan spoke to ISPRS Daily before he headed back to Istanbul to plan for 2004.

You have chosen as your theme for the next Congress: 'Geo-Imagery, Bridging Continents'. Can you explain briefly your plans for achieving this?
"The emphasis will be on the role of Istanbul in bridging two continents, Europe and Asia. This is a physical reality of course, but we shall also be emphasising that photogrammetry and remote sensing is a technique for human beings - it can help them understand their past, the present and the future."

Can you tell us something about the current application of GIS and geoinformation systems in Turkey?
"We have had maps at a variety of scales for many years

Prof. Dr. M. Orhan Altan

but today we have begun creating information systems for cities using orthophotos at 1:5,000 scale. We also have Turkish firms specialising in GIS, indeed one of our companies has the largest number of digital workstations in the world."

What education and research projects for geoinformation are there in Turkey?
"We have six universities where a surveying curriculum is taught and a further 20 where geoinformation sciences can be studied as well as research work."

What sort of technical tours do you expect to be able to offer delegates?
"We are planning visits to the municipality of Istanbul; to Ankara, where the national cadastre and mapping activities are located and we shall also organise visits to private firms."

What other attractions will there be in Istanbul for delegates and their partners?
"Two or three weeks will not be enough! Anatolia is a mixture of three empires - Roman, Byzantine 0and Ottoman. You can see this everywhere in Istanbul, indeed in the bazaars, mosques, churches and synagogues you can even smell it! But along with our history we have many modern facilities too. I expect Istanbul in 2004 to be the most well attended and exciting ISPRS Congress in history."

Impressions of the Exhibition

By Marc Cheves, Land Surveyor

Because I am a surveyor, this show is a bit removed from my normal area of expertise. Since the opening session, I have been pondering not only on the words of the keynote speakers, but the theme of the show too. As the speakers so graphically demonstrated, the theme Geo-information For All carries with it a great deal of importance, not only from a business standpoint, but also from a world survival view. As so eloquently stated by Jack Dangermond and the other

speakers, the geo-information industry can have a very real impact on the very real problems facing our planet.

When I first arrived at the show on Monday, I ran into some of the folks from Leica Geosystems. Their presence took me by surprise because in my preconceived notion about this show, I had not really included surveying in the geo-information business. But in talking to the Leica folks, I discovered that their approach makes perfect sense because it echoes something that I am increasingly hearing in the United States: surveyors are a vital and integral part of geo-information. It has been said that the U.S. surveyors have turned their back on GIS. Various reasons have been given for this, the most common being that surveyors want to work at centimetre-level accuracy, not meter-level accuracy. Dangermond thinks that the real reason is because GIS didn't really offer the surveyor anything. A surveyor relies on measurements, and traditional GIS has always thrown the measurements away. Once a coordinate is developed from surveyors' measurements, the measurement metadata behind the coordinate disappears. A new ESRI product, ArcSurvey, is being developed by Leica Geosystems. It contains a database in which a surveyor can store his or her measurements. I believe it offers the surveyors a real opportunity to claim their rightful place in the geo-information data chain. It will provide not only a place to store measurements (as opposed to the traditional small field books), but also the ability to re-adjust and refine their data as more accurate control values and measurements become available. This has the potential to have a profound effect not only on the way surveyors work, but also in how they interact with the rest of the geo-information community.

GPS Accuracy Is Addictive

In the United States, many GIS and asset managers are now experiencing a profound shock: much of their data is worthless, simply because it is plotted on inaccurate basemaps. We have seen that the accuracy provided by GPS is addictive: once a consumer of positional data discovers that GPS will provide incredible accuracy, he or she wants that accuracy. The best story about this is the wastewater manager whose maps were based on inaccurate TIGER files. Imagine his surprise when he learned that one of his manholes not only was not in the street, it was in the next block! GPS solves that, and locational improvements are currently underway for many GIS databases.

Which brings me back to the Leica booth. Developed in cooperation with Müller & Friends, a German agency for events and communication, the Leica booth illustrates the point I am trying to make: geo-information is really about the data circle. One could say that remotely sensed information does not have a direct connection to surveying per se, but as pointed out above, GIS certainly does, and the ultimate destination of most remote sensing information is a GIS database. In their booth, Leica demonstrates their belief in this: it's really all about positioning. A surveyor can play a very useful role in this by ensuring that not only the cadastral layer is correct, but that all the other layers contain the level of accuracy required to make for a truly useful product.

As for impressions in the exhibit hall, as expected, the largest crowds have been clustered around the LH Systems and Z/I Imaging booths to have a look at the new airborne digital sensors. As a consumer of photogrammetric products, the single most exciting thing about the new airborne digital photography is the improved radiometric performance. To me, the ability to 'see' into the shadows transforms aerial photography from a product that has always been useable—though not completely—into a new and improved product wherein much more information is available.

Interview with John Trinder, ISPRS President Elect

By Lucas Janssen

John, congratulations on being elected as President of our Society. What is the specific role of a President in the Council, and, what will be your focus?
The first task of the President is to communicate and liaison with our members. Most important is the implementation of the Strategic Plan (by L.W. Fritz) that was approved by the General Assembly. I have an important responsibility in enlarging the public recognition of our Society. Our name is established in Photogrammetry. We have been contributing significantly in the field of Remote Sensing, but improvements can be made. The field of Spatial Information Science (SIS) is relatively new for our Society—our role in this field needs to be articulated and action needs to be taken.

What are the ambitions of the Society in the field of SIS?
Of course, there are already a large number of organisations operating is this field. ISPRS is a relatively newcomer. The field of SIS is wide and diverse. To my opinion ISPRS should concentrate on certain aspects related to our tag line: Information From Imagery. ISPRS has one Commission (IV, C. Armenakis) that deals with this subject. In the past year, a memorandum of understanding has been signed with Spatial Data Handling (SDH) in which we seek good coordination and co-operation. Apart from being active in the SIS-field it also works the other way around. We want to create more awareness about the significance and technology of SIS to our members. For this reason we asked our sustaining members for material illustrating GIS applications.

What is your impression of the Congress?
This is a difficult question because I have had very limited time to visit sessions. But I think the Exhibition is very successful because it covers a broad range of technology. I support the idea that we need to clearly identify leading contributions that are verbally presented. And we also need to limit the number of sessions. After the Congress we should see how it worked out in practise. With respect to the poster sessions it has been a good idea to give 2-minute presentations at the start at such session. Still, we can gain if the way in which poster presentations are made is improved.

Of course, you have been much involved in the democratic process of the Society, which is organised by the General Assembly (GA). From my impression, there are very few members active during such meetings.
I agree this is a serious point of concern. Also in the past years I have found the input of members quite discouraging. Sometimes, they even do not react when I have sent out a ballot. We have expanded the Statutes and Bylaws regarding the manner in which members are requested to report, and have stressed that members have a role in promoting our discipline. I do not know if it will work out. The Society can only function on the basis of good communication and contact with the members.

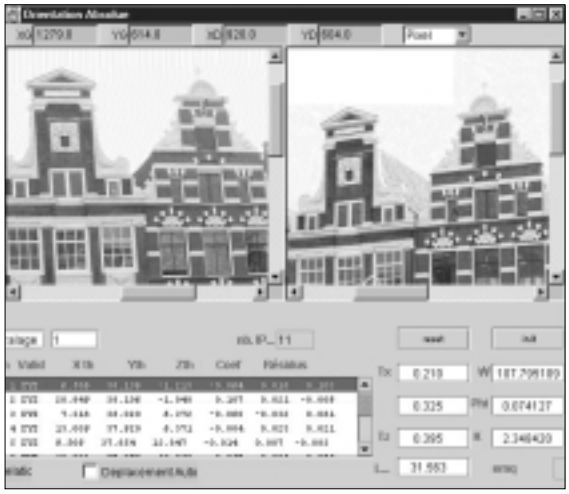
One of the elements of the Strategic Plan is the ISPRS Foundation. Will this be a separate body of the Society?
Probably, yes. I expect an independent Board to be nominated for this Foundation. The Society needs independent bodies that can work independently. We will start to investigate the precise definition and content of the Foundation after this Congress. The main idea is that we generate additional funds to initiate new activities, including outreach to colleagues in developing countries. Also, we need to consider products that are of interest to the Society as a whole (e.g. education material). We need to find sponsors that want to participate in this idea. If you are a sponsor, please consider this an invitation!

ARPENTEUR Winner of CATCON

At Friday 21 July, nine candidates presented their software and material to an audience during the Computer Assisted Training CONtest (CATCON). The meeting was chaired by S. Murai and K. Cho. The previous contest was held in Vienna, so this is CATCON2. This year, the award is sponsored by Central Computer Services (CCS) Co. (Japan). The jury, based on the feedback by the audience, decided to have two Silver awards. The result is as follows:

- Gold Award (2,000$) to ARPENTEUR represented by P. Grussenmeyer and P. Drap.
- Silver Award, ex equo (1,100$ each) to Web-based Virtual Lab represented by Q. Zhou and LDIPInter represented by J. Hohle.

The winners were awarded and given their certificate during the Closing Session on Sunday 23 July.

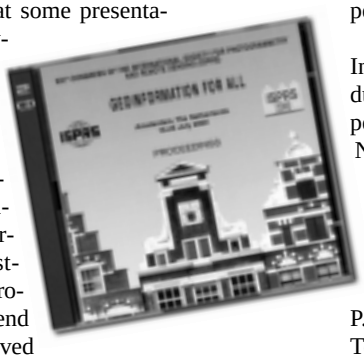


ARPENTEUR (Architectural PhotogrammEtry Network Tool for EdUcation and Research) is dedicated to digital photogrammetry on the Internet. The software package is a Web based tool since photogrammetric concepts are embedded in Web technology and JavaTM programming language. Different solutions are available for the orientation of the digital images. Images from different kinds of cameras (with fiducial marks, réseau cameras, non metric and digital cameras) can be used. The measurements on the images are semiautomatic by area based correlation. The data resulting from the modeling process can be visualized either on the internet-oriented VRML plug-ins, or inside the Microstation™ software package. Various examples from different projects mainly based on small and medium format images are accessible via the world wide web on our servers located in Marseilles and Strasbourg (France). The user can upload its own data on the servers to handle his own projects.

Only a simple browser like NestcapeTM Communicator is required to use ARPENTEUR.

XIXth ISPRS Congress CD-ROMs

Participants of the XIXth ISPRS Congress have received two CDs, including the presentations of the technical sessions. Due to the fact that some presentations were either not delivered in time or were received in an incorrect format, some papers are missing or incomplete. In order to provide participants with all presentations delivered in the correct format, a Post-Congress CD will be produced. This CD will be send to everyone who has received the first two CDs.



For those who would like to order a complete set of CDs, these will be available through GITC bv, for NLG 150,00 per set.

In addition to the CDs a set of hardcopies has been produced (archives). 14 Book, each with a glossy cover and perfect paper quality inside. These books will be sold for NLG 635,00.

Above mentioned cost are without shipping and handling fee and excluding VAT (if applicable).

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XIXth ISPRS Congress Web Site

The web site of the XIX Congress will be maintained for the next few months. Many contributions, photos and a PDF version of the Congress are available at this site: http://www.itc.nl/~isprs

From Our Members

CAPE TOWN 2000 'INFORMATION FOR SUSTAINABLE DEVELOPMENT'

Third Symposium of the African Association of Remote Sensing of the Environment (AARSE) and 28th International Symposium on Remote Sensing of Environment, 27 - 31 March 2000, LORD CHARLES HOTEL, CAPE TOWN, SOUTH AFRICA

By Dr. Tsehaie Woldai, Secretary General of AARSE

A symposium with the theme CAPE TOWN 2000: 'Information for Sustainable Development' was held from the 27 - 31 March 2000 in Cape Town, South Africa. The five day event, marking the 3rd Symposium of the African Association of Remote Sensing of the Environment (AARSE) and the 28th International Symposium on Remote Sensing of Environment (ISRSE), was organised by the South African CSIR Satellite Application Centre and supported by: Carl Duisberg Gesellschaft e.V. (CDG) - Germany, EUMETSAT, European Space Agency (ESA), GVM, Joint Research Centre - European Consortium, International Society of Photogrammetry & Remote Sensing (ISPRS), NASA - National Aeronautics and Space Administration, NOAA, Norsk Romsenter - Norwegian Space Centre, South African Airways, SPACE IMAGING, University of Cape Town, South Africa, UNEP, USGS, and the United Nations Office for Outer Space Affairs

In his opening introductory message, Dr. Willem Botha, Organising Chairman of the Symposium emphasised the importance that South Africa gives to this Symposium and in particular to the impact that space information can have on to sustainable development in South Africa and the continent in general. He thanked to the international members of the Technical Committee for their invaluable contribution to the 'onerous task'. He emphasised the high quality and diversity of the contributions. Dr. Willem Botha also emphasised the role of CSIR Satellite Application Centre in organising the Symposium and thanked AARSE and ISRSE, including the supporting organisations, for their effort and co-operation.

The next speaker, Dr. Geoff Garrett, the President of CSIR, South Africa, welcomed the participants to the Symposium. He also gave an elaborate view on the activities of CSIR in promoting space technology in Africa and outlined his government's commitment to the Symposium and thanked the wider international participation in the conference.

His Excellency Dr. Ben Ngubane, Minister of Arts, Culture, Science and Technology of South Africa performed the official opening of the Symposium. In his address to the conference delegates, Dr. Ngubane acknowledged the role of the South African Satellite Application Centre (CSIR) and its role in organising such important Symposium. He also reiterated the relevance of the symposium 'Information for Sustainable Develop-ment' for South Africa and all Africans and praised the boost it has received by the joint the 3rd African Association of Remote Sensing of the Environment (AARSE) and the 28th International Symposium on Remote Sensing of the Environment effort to support this important event as well as the support given by other sponsoring organisations to the Symposium and workshops. Dr. Ngubane continued that South Africa is 'grappling' with many environmental impact issues.

Dr. Ngubane reminded the participants of local issues and typical disaster patterns in South Africa that need to be addressed through the evolving technologies of satellite remote sensing. He briefly mentioned the impact of urbanisation (urban population doubling every 14 years in South Africa), erosion, soil degradation and siltation (involving one medium-sized dam per year), atmospheric pollution, rapid depletion of the marine resources, drought, flash floods, locust plagues, etc. as the major environmental problem facing his country. Further, he emphasised the importance of remote sensing and GIS in

the pursuance of goals in natural resources mapping and environmental assessment in Africa. With these remarks, Dr. Ngubane declared the Symposium open.

The opening speech was quickly followed by the keynote addresses of:

1. Dr. Tillmann Mohr, Director General, EUMETSAT
2. Dr. Ghassem Asrar, Associate Administrator, NASA
3. Dr. Claudio Mastracci, Director of Applications Programmes, ESA, and
4. Dr. Gregory W. Withee, assistant Administrator for Satellite and Information Services, NOAA.

Dr. Geoff Garrett, the President of CSIR, SOUTH AFRICA, chaired the opening ceremony. The opening session was reported by the country mass media.

The conference, which was held in LORD CHARLES HOTEL, Cape Town, attracted more than 370 delegates, representing 44 countries in Africa, Asia, Australia, Europe, Middle East, North and South America. More than 134 oral and 150 poster presentations covering various topics accompanied by workshops and more than 20 exhibitions were presented during the conference.

During the Symposium week, a special session of the African Association of Remote Sensing of the Environment (AARSE) and the International Society of Photogrammetry and Remote Sening (ISPRS) was held. In this session, the Secretary General of AARSE, Dr. T. Woldai discussed issues regarding AARSE since its second conference in Abidjan. A brief history of the Association, development so far, progress and constraints in its organisational function was discussed and suggestions towards the improvement of the Association in future highlighted by participants was noted. Similar African participation in the ISPRS activities was also discussed by Prof. Dr. H. Rüther, Treasurer of ISPRS.

The panel discussion on: 'Remote sensing from space provide information for sustainable development' on the last day of the Symposium offered invigorating discussions among the participants to the conference and the panelists (7 in total). This was the most sensational part of the conference and an immediate evaluation taken after the Symposium served to highlight the importance of such panel sessions in future similar activities.

The Symposium in general was well organised. Most of the participants asked gave high ratings to the type of papers and posters delivered including the social events and the secretarial assistance they have received during the event. The Chairman of the Symposium Dr. Willem Botha, in his closing address thanked the Organising and Scientific committee and a special word of appreciation was given to the various organisations supporting the Symposium, including the secretariat all of which have done an excellent job.

First Announcement and Call for Papers

5th Conference on Optical 3-D Measurements Techniques

Vienna, 1-3 October 2001

Applications in manufacturing, quality control, robotics, navigation, mobile mapping, medical imaging and animation

Recent advancements in geodetic and photogrammetric measurement systems and the rapid progress in the areas of machine, computer and robot vision have opened the way to new applications for optical static and kinematic 3- D measurement techniques. Step- motor- driven and servo- controlled electronic theodolites and total stations, high resolution, low cost and smart digital cameras, capabilities for very fast or even real- time processing, visualization, animation and VR techniques are some developments leading to new procedures in photogrammetry and surveying. The increased use of integrated sensor technology and common problems in processing and analyzing digital vision data requires a strong alliance of photogrammetry and surveying and the establishment of closer contacts to neighbouring sciences. Therefore the conference intends to bring together experts and users from the fields of photogrammetry, geodesy, surveying, machine, computer and robot vision; either from universities, industry, governmental organizations and engineering companies; in order to discuss recent scientific and technical advancements and to study new applications.

TU Vienna

Conference Directors
Prof. Heribert Kahmen
Department of Applied and Engineering Geodesy Institute of Geodesy and Geophysics Vienna University of Technology

ETH Zürich

Prof. Armin Grün
Institute of Geodesy and Photogrammetry
Federal Institute of Technology (ETH)
Zürich

Call for Papers
If you would like to present a paper at the conference, please send an extended abstract (250 – 300 words), including name(s), address, affiliation, fax and phone of authors, preferable by e-mail or also by fax.
E-mail: o3d2001@pop.tuwien.ac.at
Fax: +43 – 1 – 58801 – 12894
Abstract due date: January 15, 2001
Acceptance notification will be mailed by end of March.
Camera ready papers will be published as Proceedings that are made available at the conference.
Paper due date: May 31, 2001
For up- to-date information about the Conference visit our website: http://info.tuwien.ac.at/ingeo/optical3d/o3d.htm

Dr. Moshe Erez - Obituary

Dr. Moshe Erez, for many years photogrammetrist number one in Israel died in spring 1999, whilst still active professionally.
He studied at the Technion, Israel Institute of Technology, but became a photogrammetrist during his service with a survey company of the Royal Engineers, in the Second World War.
He was put in charge of the newly formed Photogrammetric Division at the Survey of Israel, building up photogrammetric mapping potential from the scratch. During various periods he studied with the I.T.C. and his diploma bears the signatures of Prof. Schermerhorn and Prof. Ackermann.

Later on Moshe Erez studied under the guidance of Prof. Shmutter for his M.Sc. degree and Prof. Arthur Branderberger for his doctorate.
He became Deputy Director of the Survey of Israel before he switched to a consulting career in the private sector, always up to date professionally, always able to do what he expected from others, always willing to help and advise.
He will be missed by all who had the privilege to work with him.
Left behind his wife Ilana, children and grandchildren.