ISPRS Society

Report on the ISPRS Commission IV – SDH – CIG Joint International Symposium and Exhibition on Geospatial Theory, Processing and Applications

Ottawa, Canada, 8-12 July 2002

By Monika Sester, Hanover, Germany

The Joint International Symposium and Exhibition on Geospatial Theory Processing and Applications was held in Ottawa, Canada from 8 to 12 July 2002.

This joint event consisted of the ISPRS Commission's IV mid-term Symposium, the 10th Spatial Data Handling (SDH) and the 95th Annual Conference of the Canadian Institute of Geomatics. After 24 years the Symposium of ISPRS Commission IV was held again in Canada. Thanks to the initiatives of Prof Martien Molenaar, it was held jointly with the SDH Symposium.

This joint international symposium in geomatics brought together international and interdisciplinary researchers who are working at the cutting edge of new approaches of handling geographic data, and offered a unique opportunity to exchange ideas, and present research progress and results. Over 260 papers from 36 countries have been submitted. The integration was implemented around common themes by having a blend of ISPRS-SDH-CIG papers presented in the technical sessions.

During the opening session, Dr. Marc Garneau, President of the Canadian Space Agency, and a veteran of space flights, delivered the keynote address entitled 'A new era for Canada in space', putting emphasis on the challenges the Canadian Space Agency and the scientific community at large are facing, not only for the advancement of science but also for improving the quality of life on our planet and for diffusing the information to the general public.

The joint Symposium was organised in four parallel sessions, in lecture halls conveniently located next to each other. The event attracted over 500 participants from 35 countries, including 82 exhibitors. Major manufactures, service companies, universities and governments participated in the Technical Exhibition. In total there were 39 booths, representing 26 companies.

The Symposium of ISPRS Commission IV received in total 154 papers (of which 41 as poster papers). These papers are included in the CD-ROM and printed proceedings. The following is a summary of the progress reported in the areas of the WGs of Commission's IV Symposium.

In the spatial and temporal modelling we have seen that the work on 3D spatio temporal structures, models and analysis continues. Progress is reported in the areas of building modelling and visualisation. Future work should expand to cover true 3D GIS geometry and 3D topology, geostatistical and spatial exploratory models, quality assessment and handling of spatial, temporal and semantic variation through multi-dimensional structures.

View from the exhibition area.

We have seen significant progress in the generalisation of urban structures especially of buildings with applications in 3D city visualisation and navigation. Automatic derivation of location maps and derivation of variable scale maps for small cartographic displays is under development, which eventually may lead to real-time generalisation. We are seeing generalisation/aggregation operations to expand to the image space in hierarchical scale-space image segmentation, especially for the high resolution

Dr Marc Garneau, President of the Canadian Space Agency and former astronaut delivers the keynote address.

imagery. Image–based databases are studied not only from the points of image segmentation but for the query functionality, the use of image sequences and intelligent video query systems.

Landscape modelling and visualisation continues to gain popularity for applications such as vegetation studies, communications, navigation, and tourism. The various aspects of DEM are studied using image processing techniques and filtering algorithms, while DEM from SRTM have been analysed.

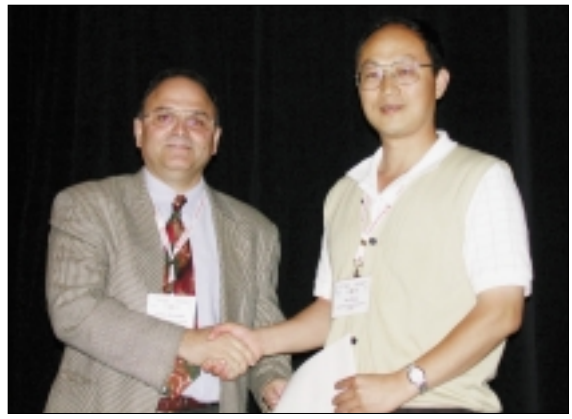
In federated databases and interoperability we see that the on-line distribution of data is adopted by national mapping organisations, the use of handheld computers (PDAs) for mobile mapping is gaining ground, while research is extended in the study of semantic heterogeneity of geodata and to the geo-semantic proximity. Spatial infrastructures are in their implementation phase and expanding beyond the traditional mapping areas. We see work to expand to infomobility services for location-based applications, web-cat-

A general view of the audience during the opening session.

alogue services and in the modelling of multiple representation in spatial data warehouses.

Geometric modelling and results of high resolution images from Quickbird, IKONOS and EROS-A were presented. Availability of orbital parameters, high definition control points and of high positional accuracy are requirements to take advantage of the high resolution pixel size. Although the debate between parametric and non-parametric models has not settled yet, it seems that the rational polynomial models are becoming popular. Regarding the data fusion we saw more studies in the fusion of data from various sensors with emphasis on LIDAR data, while there was no significant contribution in the area of image fusion. We saw a number of contributions where various image processing techniques and GIS set operations are applied for change detection and feature extraction. The methods used are data-type and theme dependent, however they enhance the current operations.

In the areas of global environmental databases we saw a combination of various DEM towards a global elevation



Yun Zhang (right) recipient of the Best Poster Award with Costas Armenakis (left), President of ISPRS TC IV.

product as well as approaches to handle problems related to raster databases projection and transformation. Several papers dealt with the environmental issues such as flooding risk analysis, selection of habitable sites and defining environmental sensitivity indices. The Volume 2 of the book on the status of Global Environmental Databases was produced.

Finally, in the area of extraterrestrial mapping we saw the definition of a new coordinate system for Mars, the creation of orthoimages using data from various sensors, the determination of landing sites and rover positioning, the mapping of Comet Borrelly and high resolution topographic mapping of Mars. Further developments are anticipated using shape from shading and higher resolution sensors.

During the Closing Session, in total six awards were presented. The Best Young Authors Paper Award was given to Martin Kada for his paper 'Automatic Generalisation of 3D Building Models'. Geoffrey Hay (paper on 'Modelling Multi-Scale landscape Structure' within a Hierarchical Scale-Space Framework' by G.J. Hay, D.J. Marceau, A. Bouchard) and Renliang Zhao (paper on 'K-Order Spatial Neighbours based on Voronoi Diagram: Description, Computation and Applications' by R. Zhao, J. Chen, Z. Li) were the recipients of the Honourable Mentions of the Young Authors Paper Award. The Best Poster Paper Award went to paper 'Natural Colour 3D Modelling-A Stereoscopic Approach with IKONOS Multispectral and Panchromatic Data' by Yun Zhang. The papers 'Formalising the Geographic Database Generalisation Process by Means of a Conflicts/Operations Graph' by D.Han-Sze-Chuen, S. Mustière, B. Moulin and 'An Adaptive lattice Model and its Applications to Map Simplification' by T. Doihara, P. Wang, W. Lu received the Honourable Mentions for the Poster Paper Awards.

Four events were held prior to the Symposium. A two-day International Workshop on Multi-Scale Representations of Spatial Data was jointly organised by the ISPRS WG IV/3 Data Generalisation and Data Mining and the ICA Com-

mission on Map Generalisation. About 40 researchers from data generalisation, image understanding and surface visualisation came together to discuss common issues. The documents of the workshop (working papers, PowerPoint-presentations, was well as the reports of the discussion groups can be found on the following web site: http://www.ikg.uni-hannover.de/isprs. There were also three one-day tutorials. The first one was on Semi-structured Data and XML in Geographic Data Modelling and Handling (by Dr. E. Stefanakis); the second was on Digital Elevation Models from LIDAR and IFSAR Data (by Messrs Scott Paterson and Paul Mrstik, and Ms Lorraine Tighe); and the third was on Web Mapping, On-Line Geo-Processing and Location Based Services (by Dr. Vincent Tao).

During the Symposium, the ISPRS Commission IV Board meeting was held where the activities and business of the Commission were discussed, while an Open Forum meeting on the future structure of the ISPRS Commissions took place.

Besides the technical meetings, there was plenty of opportunity to meet during social events, but also during technical and touristic tours.

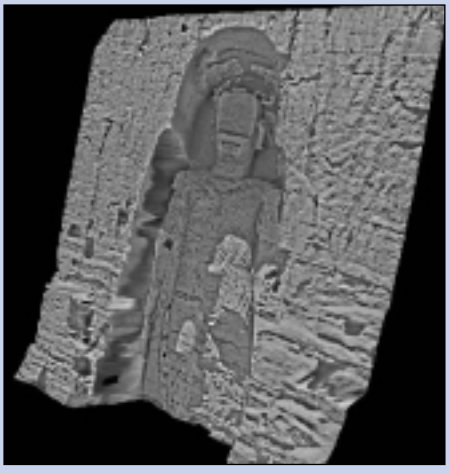
This joint event was a new experience. I can only confirm the organisers, that that a positive interaction between ISPRS TC IV and IGU SDH has been initiated and support their hope that the future reflections about this event will lead to the continuation of these joint meetings. It is clear from the themes of the technical sessions and the blend of the papers that there are definitely common research interests between the two geo-spatial communities. In many ways, both communities can profit from each other.

Closing panel with Peter van Oosterom (SDH), Ian Dowman (ISPRS), Costas Armenakis (ISPRS), Dianne Richardson (SDH), Orhan Altan (ISPRS) and John Holmlund (President of CIG).

The organisers – Costas Armenakis, Dianne Richardson and Tom Hebert – deserve a big 'Thank You' for setting up a very attractive programme resulting in a very inspiring conference.

Work in Progress

ETH-Schweiz



Close range photogrammetry supports the reconstruction of the Buddha in Bamiyan, Afghanistan.

Obituary Prof. Dr. Wang Zhizhuo

Prof. Dr. Wang Zhizhuo died on May 18, 2002, at the age of 93. Born on December 16, 1909 and educated in China, Britain and Germany in the 1930s, Wang later became founder of the discipline of photogrammetry and remote sensing and one of the few forerunners of education and research in geomatics in China. Consecutively holding professorship at several prestigious national universities in China, the honorary presidency of Wuhan Technical University of Surveying and Mapping and senior membership of the Chinese Academy of Sciences, Wang enjoyed high and wide respect in the academic community in China as a true scientist as well as a devoted educator. His international recognition is reflected in his award of the honorary membership of ISPRS in 1988 and the wide use of his masterpiece 'Principle of Photogrammetry with Remote Sensing' as a classical reading for postgraduates in many countries since 1990.

International Society for Photogrammetry and Remote Sensing
Internationale Gesellschaft für Photogrammetrie und Fernerkundung
Société Internationale de Photogrammétrie et de Télédétection

Department of Geomatic Engineering
University College London
Gower Street, London WC1E 6BT
United Kingdom

Headquarters 2000 - 2004

Phone: +44 20 7679 7226
FAX: +44 20 7380 0453
Email: idowman@ge.ucl.ac.uk
http://www.isprs.org

Pr-03-893

July 2002

To: All ISPRS Ordinary, Associate and Regional Members
From: John Trinder, President ISPRS
Topic: Registration of ISPRS as a not for profit non stock corporation in the State of Maryland, USA

Dear Member,

ISPRS Council has been concerned for some time that the Society has not been formally registered as an international association under recognised governmental legislation in any country. Our investigations have shown that ISP, as it was originally known, was registered in Austria when it was established in 1910, but the registration lapsed. This has meant that ISPRS has not been recognised in a court of law as an entity entitled to sign binding contracts. Therefore, contracts signed by ISPRS Council with companies and organisations have not had formal recognition. In addition, ISPRS has not had the right to sue for infringements on its assets, while ISPRS Council have been unable to be indemnified themselves against legal claims as a consequence of their actions.

ISPRS Council has entered into contractual agreements with the following organisations:
- Elsevier Science for the publication of the ISPRS Journal
- GITC for the publication of ISPRS Highlights
- The Turkish National Society of Photogrammetry and Remote Sensing and Magister Tours Inc for the organisation of the 2004 Congress
- The seven Technical Commission Presidents for the organisation of the Symposia

In addition, it has binding agreements with:
- The Web manager for the maintenance of the Home Page
- The Journal editor
- ISPRS Highlights editor
- The Financial adviser

Registration of the Society legitimises the contracts with the organisers of the Congress in Turkey in 2004 and the 2002 Symposia. Further contracts will require negotiation and signature prior to the Congress in 2004, eg the publisher of the Journal. In addition, the Strategic Plan, which was approved by the General Assembly, recommended the formation of an ISPRS Foundation to receive and allocate funds for worthwhile causes. Registration will be required for the formation of the Foundation. For a number of reasons therefore, it is necessary to achieve registration prior to 2004.

Council has investigated a number of countries that would provide suitable solutions for registration, including Sweden, Switzerland, Austria, France and USA, all of which presented certain difficulties. Following advice from other international Societies and members of the Swiss Society, our initial attempt at registration was with the Handelsregisteramt in Bern Switzerland. Therefore according to the requirements for registration in Switzerland, ISPRS last year sought and received the Membership's approval by mail vote, to change the Bylaws to include a statement that ISPRS was registered in Bern Switzerland. This change was required before Council could proceed with the formal registration in Switzer-

land. Unfortunately, despite careful preparation of the application before submission and advice from our colleagues in Switzerland, the Swiss authorities rejected the application. Council will therefore request the General Assembly to rescind the amendment to the Bylaws that was passed by mail vote.

Our next attempts were in Vienna, Austria (the birth place of ISPRS) and the State of Maryland USA. Both were possible, but ultimately Council decided to proceed with incorporation in Maryland because it is considerably simpler. The advantages of proceeding with the registration in the State of Maryland USA are:

- No changes are required to the Statutes and Bylaws
- English remains the authorative language in all documentation, and especially the Statutes and Bylaws
- There is no requirement to call a special General Assembly to reconstitute the Society in order to initiate the registration
- ISPRS can have a physical headquarters anywhere in the world without affecting the incorporation
- ISPRS will be recognised in a court of law as an entity entitled to sign binding contracts
- ISPRS will have the right to sue for infringements on its assets, be they real or copyright, etc
- Registration enables ISPRS to purchase liability insurance for its officers and indemnity insurance for its actions

On 21 April 2002 the Society was registered as a non-stock international association in the State of Maryland, USA. The postal address was chosen as that of the American Society for Photogrammetry and Remote Sensing, Maryland USA. This is a convenient postal address, but it involves no other conditions. The registration of ISPRS with this mailing address does not commit ISPRS to ASPRS in any way.

As a consequence of the incorporation, Council will be able to sign further binding contracts that will be required before the next Congress, for example with the publisher of the Journal, and other potential contracts for publishing and printing. Council will also be able to proceed with the establishment of the ISPRS Foundation that will bring donations into ISPRS for the support of such activities as scholarships, travel grants, and workshops.

Council will recommend ratification by the General Assembly of the registration in Maryland USA at the 2004 Congress. In the meantime, ISPRS Council is now supported by a legally binding incorporation that ensures the security of its actions and assets.

Yours sincerely,

John C. Trinder
President

President:
JOHN C. TRINDER
School of Surveying & SIS
University of NSW
Sydney NSW 2052
AUSTRALIA
FAX: +61 2 9 313 7493
Email J.Trinder@unsw.edu.au

Secretary General:
IAN DOWMAN
Department of Geomatic Engineering
University College London
Gower Street, London WC1E 6BT
UNITED KINGDOM
FAX: +44 20 7380 0453
Email: idowman@ge.ucl.ac.uk

First Vice President:
LAWRENCE W. FRITZ
Lockheed Martin Corporation
14833 Lake Terrace
Rockville MD 20853-3632
USA
FAX: +1 301 460 0021
Email: LWFritz@erols.com

Second Vice President:
GERARD BEGNI
Medias - France
CNES-Bpi 2102
18 Avenue Edouard Belin
31401 Toulouse Cedex 4
FRANCE
FAX: +33 5 61 28 29 05
begni@medias.cnes.fr

Treasurer:
AMMATZIA PELED
University of Haifa
Department of Geography
Haifa 31905
ISRAEL

FAX: +972 4 8 246 814
peled@geo.haifa.ac.il

Congress Director:
ORHAN ALTAN
Istanbul Technical University
Faculty of Civil Engineering
Department of Geodesy and Photogrammetry
80626 Ayazaga-Istanbul
TURKEY
FAX: +90 212 285 6587
oaltan@srv.ins.itu.edu.tr

XX Congress - An Overview to Modern Turkey. The Winds of Change

By M. Orhan Altan, ISPRS 2004 Congress Director

On this land, efforts to modernize the state as well as the society started during the 19th century. Initial reforms targeted limited organisations mainly the Armed Forces. One of the first thing to go was Mehter Takımı (the traditional marching band of the Ottoman Army–the first of its kind in Europe) to be replaced by a western one. Western forms of art and literature began to penetrate the culture and continued to flourish alongside classical and folk art, music and literature.

Meanwhile, the parliamentary system was introduced more than a century ago. Following the Turkish Revolution (1923) at the end of First World War, reforms to achieve fundamental and broad based social and intuitional change were initiated by Mustafa Kemal Ataturk, the revolutionary leader and the founder and the first president of the young Republic of Turkey. Secularism, and protection of the democratic rights and responsibilities of all citizens by law, are the most important of these reforms. One of the proudest achievements of this young Republic was the establishment of women's rights in the new social order. The Turkish women have been exalted symbolically through the history as the mother figure and the pillar of the family. Since as we called Atatürk Reforms, women's role in social, political and economic life has expanded. Well-educated women, particularly at big cities, have taken on active roles in professions, government and business.

Every social and intuitional change eventually leaves its mark on this land. These reforms put Turkey on the course of accelerated modernisation. Although the previous changes were well orchestrated and significant (please pay attention to acceptance of Latin alphabet), they were not of the magnitude of the changes that are occurring today. Highway programs of '50 ies, culminating free market reforms of '80 ies are the samples of those unbridled reforms. This young Republic is electrified with the vitality of a very young generation, ready to participate in the booming global economy with lots of opportunities in the new world order. The generation of farmers and soldiers has been replaced by a 'can-do' generation of entrepreneurs, almost all of them seeking for possibilities to become an EU member in a very near future.

The boat station on the Princess Island near Istanbul on the sea of Marmara.

The clear waters of Ölüdeniz on the Mediterranean coast invites millions of people.

Some words for the Turkish people: They are known for their ingenuity, quick wit and ability to adapt. In the current climate of democracy, globalisation and local involvement, its more then likely that Turkey will continue to reflect a harmonious and sustainable relationship with its people.

Participating with Turkish People

As in all human relations, the basic rule to participate with Turkish people is equal partnership, given the roles of host

Turkish sculptors stamp their mark in international fields.

and guest. This rule defines mutual respect and a shared sense of responsibility where, by definition, different understandings and way of lives are involved. At the very beginning, when the Turks interested in area of tourism, they were armed with the traditions of hospitability rather than sophisticated facilities and service facilities. Although Turkey now has an excellent tourism infrastructure, the motivation of most Turks remains one of sincerity and courtesy.

The desire of Turks are to be understood and liked, to communicate and learn about people from other parts of the world, and be on equal terms with them as citizens of the same world is a much more important motivation. Interpret their enthusiasm to interact with you with this perspective in mind. They would rather make long term acquaintances, hang-out together, exchange cards, letters and gift than receive 'fair payment' or large tips for help rendered. However, as tourism industry develops this attitude may change but for now the sweetness of Turkish people is still unspoiled.

Here are some tips and about social graces and conduct, which might be useful in interpreting the going ons around you and help you to enjoy your participation in this country even more.

Ballet is another aspect of arts in Turkey.

The first parliament convened in 1920 in this building which is now a museum.

Starting at the beginning: greetings involving welcomes, hand shakes, hugging and kissing both cheeks, followed by "How are you? How is your family? How is your health? How is business?..." are important rituals. It is expected that everyone will inquire about the health and well being of everyone else present before anything else.

A dinner invitation to someone's home is a special honor. At the dinner table it is customary for the hostess to offer additional servings many times with great insistence. The guest expected to oblige after several such offers. Dinners are leisurely affairs, to be savored slowly along with delicious home cooked food.

In business relationships the whole affair is conducted as a social occasion, complete with greetings, sharing coffee, tea, or food or drinks, depending upon the extend of the transaction. Even in ordinary shopping a lot of personal information is exchanged with the vendor and the customer, setting the stage for everyone to fulfill their responsibilities in the transaction. Bargaining is not a simple game of negotiation between the parties but a part of socialization and friendly chit-chat.

There are few subjects which need to be treated with care. These include the flag, the army, the country and the religion. Even though people take great pleasure in explaining and questions about these subjects, criticism and disrespect, even in jest, is not taken lightly. On the

The whole world applauded our football team who won the bronze medal in the world championship.

The internationally known virtuosos giving a concert.

other hand politics and sports is a fair game. There are few people who love talking politics and sports as much as the Turks do. If you mention that you are familiar with how good Turks at wrestling, weight lifting, Galatasaray soccer teams UEFA championship and winning of Super Cup, Turkish basketball teams second place at European Championship and the recent third place at World Cup Soccer Championship, you surely will be the most loved one!

To sum up, a guest might commit social faux-pas, but what matters is the underlying intention. If there is a sense of equality and respect, which the Turkish people will be quick to detect, all will be well.

Enjoy your stay here in Turkey, the cradle of civilisations, while geo-imagery bridging continents!

Important Notice!
We kindly recommend you to read carefully this serial about Turkey, and to keep it for your further reference. By the end of 2003, there will be a quiz and winners will be awarded with promotional gifts of the ISPRS 2004 Istanbul Congress.

Report on the ISPRS Commission VI Workshop 'Development and Technology Transfer in Geomatics for Environmental and Resource Management', 25-28 March 2002, Dar es Salaam

By A.S. Oroda, Regional Centre for Mapping of Resources for Development, Nairobi, Kenya, E. Baltsavias, Institute of Geodesy and Photogrammetry, ETH-Hoenggerberg, Zurich, Switzerland and U. Rivett, Department of Civil Engineering, University of Cape Town, Rondebosch, S. Africa

Organisation, Sponsors, Workshop Topics and Format

The workshop 'Development and Technology Transfer in Geomatics for Environmental and Resource Management' held at the Hotel White Sands, Dar es Salaam, Tanzania, 25-28 March 2002 was co-organised by the ISPRS WG VI/1 'Education and Training' (http://www.commission6.isprs.org/wg1/), WG VI/3 'International Cooperation and Technology Transfer' (http://www.commission6.isprs.org/wg3) and the University College of Lands and Architectural Studies (UCLAS), University of Dar es Salaam, Tanzania. This is a continuation of a cooperation of these two WGs with activities last year in L. America, this year in Africa and next year in Asia.

The workshop was attended by 69 participants from 17 countries and three continents with 55 participants from African countries, 13 participants from Europe and one from Asia. Sponsors included the African Association of Remote Sensing of the Environment (AARSE), ISPRS Council, ITC, ESA and the UN Office of Outer Space Affairs (OOSA). Organisations that contributed financially, besides the last four, included among others UCLAS, a SADC Project on Capacity Building in Environmental Information Systems, ETH Zurich and the National Research Foundation of South Africa. Of the participants who attended the workshop, about 70% were, to one or another extent, supported financially, even if at a late stage of the workshop organisation, indicating the need, particularly for Africa, for appropriate and timely financial support to enable participation of scientists in such events.

Both workshop topics and format were selected with valuable suggestions from many Programme Committee members. The workshop focussed on the use of Geomatics technologies (Remote Sensing, GIS, Environmental Information Systems, Photogrammetry and GPS) as tools to generate geo-spatial information for environmental and resources management. Sub-themes of the workshop included collaborative capacity building, education and training, international co-operation and technology transfer. The main topics, as reflected in the titles of the technical sessions, included: (a) Education and training, technology transfer and international co-operation; (b) EIS, crises and natural disasters, land degradation and desertification; (c) Mapping and spatial data infrastructure; (d) Ecosystems protection and resource management; (e) GIS, Remote Sensing and Internet applications. The programme format included: opening session and keynote address, an invited talk, two tutorials, presentations in five

technical sessions, two panel discussions on the sub-themes and four technical visits. In spite of the quite long daily duration of the workshop up to 7 p.m., the attendance was very high and constant to the workshop end, and discussions were lively. The technical programme was accompanied by social events (Welcome Party, Gala Dinner with traditional music and dances, ITC alumni party), which allowed a better social interaction and fruitful discussions, as well as an impressive glimpse of the African culture. The hotel facilities and services were very good, enabling work in a relaxed atmosphere.

Opening Session

The workshop was officially opened by the Honourable Minister of Lands and Human Settlements Development, Mr. Gideon Cheyo, (M.P.). This indeed underscored the importance of the meeting and the significance being attached to Geomatics technologies by the African governments. The Minister stressed the importance of Geomatics technologies for providing basic infrastructure information for a variety of applications such as mapping, cadastre, land use planning and resource management in Tanzania and the region. He emphasised the fact that

The official opening of the workshop. From left to right: T. Woldai, Principal of UCLAS, E. Baltsavias, Minister of Lands and Human Settlements Development, M. Molenaar, G. Begni.

about 90% or more of all maps in Tanzania are out of date and have unnecessarily long updating cycles, e.g. 10 years for 1:50,000 and 5 years for 1:2,500 scale maps. The Minister concluded by pointing out that scientists and professionals working in the fields of Geomatics should develop methods and operational procedures for mapping, aiming at reducing the currently prohibitive mapping costs of US $160/km^2 and US$40 per km^2 for 1:5,000 and 1:10,000 scales respectively, but still delivering acceptable quality.

Gerard Begni, Second ISPRS Vice-President, explained the international role of ISPRS and pointed out that environment and resource management raised major concerns at global, regional, national and local levels and that physical and social-economic factors were highly embedded in their management. He therefore emphasised that a multi-disciplinary and interdisciplinary approach in the environmental and resource monitoring and management was mandatory and concluded that Geomatics could give invaluable information to scientists studying the evolution of the environment and resources, as well as to policy makers who have to ensure sustainable utilisation and management of the environment and the natural resources.

Other short introductory remarks were made by Dr. G. Mtalo (Local Host), Prof. Idris Kikula (UCLAS Principal), Dr. E. Baltsavias (Organising Committee) and Dr. T. Woldai (AARSE).

Keynote Address

It was titled 'Capacity Building for Geo-Informatics in Africa: An ITC Perspective' and presented by Prof. Martien Molenaar, Rector of ITC.

Prof. Molenaar indicated that 30 years after the introduction of civilian remote sensing and 20 years after the breakthrough in GIS, the related techniques have matured and are fully accepted as tools for spatial management and form structural components of information infrastructure in both public and private sectors. He said that a Geo-information community has developed, consisting increasingly of highly educated professionals who can be categorised into three major groups: (a) Experts in the field of spatial information handling, (b) Users of Geo-information, and (c) Professionals and policy makers, who are aware of the importance of Geo-information for civil society. He emphasised that the education of the above professionals requires programmes that are carefully designed based on the mature paradigms of Geo-information Science and its related disciplines. The design of the educational programmes should be also based on a proper understanding of the contexts in which geo-information is produced and used and of the role that the three different types of professionals play in this field. Prof. Molenaar observed that a similar trend of processes is evident in Africa but that technological and institutional conditions in many regions of Africa are far from optimal for the creation of an information infrastructure. Therefore, great investments should be complemented by institutional and organisational development to ensure adequacy and effectiveness of the investments.

Regarding education and training, Prof. Molenaar underscored the importance of geo-information data infrastructure (GDI) for good governance, which has implications for national (public) organisations responsible for establishing and operating the GDIs. Therefore, the education of individuals should be accompanied by institutional capacity building. Due to changes in technological developments as well as developments in demand for information, Prof. Molenaar reported that ITC has had to change its modus operandi hence coming up with a new mission and the new name 'International Institute for Geo-information Science and Earth Observation' but retaining the ITC trademark. He further gave details on the new research and educational programme of ITC. Molenaar concluded by saying that most institutional

capacity building in Africa in the past was project-based and that upon completion of such projects the support stopped. In the new ITC approach, emphasis will be on international co-operation, whereby joint educational programmes, in a decentralisation venture, will be accredited by both ITC and the collaborating partner. The partners are expected to be committed to continuing the collaboration, using their own core funding sources, and scholarships/fellowships be funded from external sources. The arrangement will involve development of regional networks composed of limited number of pre-identified partners from among organisations with which experience has been gained during institutional development projects over the last 25 years.

Invited Talk

It was given by Prof. Tsehaie Woldai (ITC), representing AARSE, and focussed on the status of EIS and the key factors that have influenced EIS development in sub-Saharan Africa. Such key factors included: Cultural profile; Lack of development in space technology in Africa; Poor tradition in surveying and mapping; Few institutions providing geodetic education; Limited support for geodetic networking; Limited education and training in earth observation systems in Africa; The role of donors and NGOs in EIS development in Africa with varying interests and emphasis at different times.

Tutorials

A. 'New Developments in Information Extraction from Remote Sensing Data', Prof. Peter Zeil and Stefan Lang , Centre for Geographical Information Processing (ZGIS), University of Salzburg, Austria. After mentioning developments with new sensors and new possibilities opened, the lecturers stressed that classification of single pixels in a multi-dimensional feature space without using spatial concepts is still very common. But extraction of meaningful objects requires use of context-information from the images based e.g. on texture or fractal dimension, an object-oriented image analysis approach and subsequent application-specific analysis taking into account the object attributes. The lecturers then presented an object-based segmentation and classification approach, as implemented by the software package e-Cognition. Examples of landcover segmentation were given with emphasis on vegetation mapping and crop monitoring. A comparison between pixel- and object-based approaches was given, mentioning limitations of the former and explaining key procedures of the object-based ones, including shape and texture parameters.

Snapshot from the Gala Dinner with traditional African dances and music.

B. 'Applications of Imaging Radar', Prof. M. R. Inggs, Radar Remote Sensing Group, Department of Electrical Engineering, University of Cape Town. The tutorial was at a very appropriate level for the workshop participants and didactically excellent. It was presented in two sections. In the first section, Prof. Inggs discussed topics relating to applications of imaging radar, introduction to the theory of imaging radar, examples of geological applications and existing airborne and spaceborne data sources and pricing. The second section dwelt on map generation using SAR, a wide range of imaging radar applications, especially on environmental and resource monitoring, and African experiences. Regarding costs it was mentioned that airborne data is expensive due to mobilisation costs, reaching more than US$50/km2 and rising to US$150/km2 for a processed DEM. Satellite data is relatively inexpensive, if bought from existing databases, e.g. for ERS about US$0.1/km2. In spite of that, both airborne and spaceborne sensors have their unique applications. Inggs reported that SAR-processing can be performed using some general purpose Remote Sensing as well as dedicated commercial packages. However, the processing, especially interferometry and DEM generation, is highly technical and tedious and requires skill and experience.

Technical Presentations and Proceedings

36 papers from 59 authors in 16 countries were arranged in five technical sessions. All submitted abstracts were presented, with just one exception, where however the full paper was still submitted. Thus, no programme changes, as often happens in other events, were necessary. Presentation time was short, focussing on the main points of each paper, with common discussion of all papers of each session at the end of the session. The presentations gave valuable and detailed enough information and were mature in many aspects with very few exceptions. More details can be found in the full papers, which are available in the proceedings and on the WEB. The proceedings of the workshop include all papers, except the invited talk and 3 papers. They were published as International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, Vol. 34, Part 6/W6 and consist of 225 pages including colour figures. They can be ordered from GITC bv, P.O. Box 112, 8530 AC Lemmer, The Netherlands, tel. +31-514-561854, fax +31-514-563898, e-mail: mailbox@gitc.nl, http://www.gitc.nl. The proceedings were also distributed on a CD, which included additional material like the tutorials, other information from ESA and OOSA and PR material. The papers were made available on the workshop WEB site two weeks in advance.

Panel Discussions

The topics of the two panel discussions, co-ordinated by Prof. H. Ruther and Dr. G. Begni respectively, were: Education and Training, and International Co-operation and Technology Transfer. Among the key issues raised and agreed upon were:

- Education and training requires co-ordination and networking. There is need for creation of networks (South-South and North-South) to facilitate sharing of human and training material resources
- It is important to train and, due to new technological developments, also retrain personnel at various levels: technician, professional, management and career officer. This can be facilitated through modularised training
- There is need for vigorous awareness campaigns, at all possible levels, in the area of Geo-information to increase involvement
- Training in Geo-information should be both application-oriented as well as being linked to core profession courses supported by Geo-information
- It is important that facilities are developed so that those trained can apply the technologies
- The policy makers at various levels (governmental, NGOs, intergovernmental, international) should facilitate job creation so as to create opportunities for those trained in Geo-information
- There is need for regional/international co-operation to avoid duplication of efforts
- There are limited institutional and financial resources in Africa to facilitate creation of critical technical masses and, therefore, there is need to create critical masses while building teams of core professionals
- Multi-media education has been hampered in Africa by poor communication network, hindering information exchange and international co-operation
- The role played by EIS-Africa in bringing together players and stakeholders in Geo-information was recognised and other institutions (particularly technical ones) were asked to play leading roles in the use of Geo-information
- Funding fellowships for further training should be made available not only to persons in governmental institutions, as up to now, but also to professionals in private institutions
- There is need for African countries to identify their priority needs in the area of Geo-information

Technical visits

The workshop was concluded with visits to the following institutions in Dar es Salaam, involved in Geomatics technologies: GeoInformation Centre (GIC) of UCLAS and the Institute of Resource Assessment - TANRIC both of the University of Dar es Salaam, Infobridge Ltd. (a major private geoinformation company in Dar es Salaam) and the GEODESA laboratory of the EU-supported GIS Centre of the Southern and Eastern Africa Mineral Research Centre (SEAMIC). The visits included short presentation of activities, visit of the facilities and demonstrations on selected topics, projects and products. Particularly impressive were the activities of GIC with very good facilities in GIS, Photogrammetry and Remote Sensing, and increasing personnel and research and development output.

Varia

- The workshop found considerable attention in the local press (e.g. English newspaper Guardian, Dar es Salaam) with multiple articles, even on the first page
- ISPRS Council provided institutions the opportunity to order gratis existing copies of the ISPRS Archives. In addition, free copies of the ISPRS Journal were delivered to selected important educational institutions
- The WEB page of the workshop was set-up early enough and provided complete and well-structured information that was helpful in the successful holding of the workshop. The workshop programme, together with full information (incl. free proceedings, tutorial notes, keynote speech and panel discussion conclusions), can be found at the WEB site of the workshop (http://www.commission6.isprs.org/daressalaam/)

General Observations and Specific Recommendations

- The workshop was generally very well organised, before and during the workshop with the support of the Local Organising Committee
- From presentations and discussions made, it appears that the usage of Geomatics data has not yet very much come of age in Africa. This could be attributed to a number of factors:
- Lack of awareness at the policy level of the large amount of geo-information data and their relatively low cost
- Inadequately trained personnel in the use of Geomatics technologies and data, stressing the serious need for high-level training at graduate or postgraduate level. In the past, the focus has been on short training courses that has created awareness but not in-depth understanding of these technologies
- The developments in Geomatics technologies have been too rapid to cope with - particularly in Africa where in-depth understanding of Geomatics technologies has not been up-to-date
- Most data (particularly geo-spatial data such as topographic and thematic maps) in Africa are out-of-date. The geo-spatial data generators and geo-spatial application institutions such as Government Departments, Regional Centres, the -United Nations Environment Programme (UNEP), etc. should come together to discuss areas of collaboration to assist in information updating in Africa
- There is an urgent need to build and enhance capacity, particularly human resources, as a means of improving the use of geo-information in Africa. Fellowships/scholarships should be provided for graduate and postgraduate training. Organisations, especially regional and international, may assist either directly or through donors to provide funds for training in order to enhance geo-information data understanding and usage globally, and particularly in Africa where the resources base is quite limited

- Extensive use of Remote Sensing data, especially in emergency situations, is hampered by, among other factors, the fact that only one receiving station in Africa is active (SAC, S. Africa) with limited coverage of the continent
- There is need to (a) standardise and harmonise available geo-information to facilitate and ease data exchange and transfer and (b) generate metadata for all existing data in order to evaluate its quality, quantity and availability, and enhance its use
- Currently in Africa, there is a limited data-exchange network, something that should be improved urgently – by the Africans themselves
- There is a lack of information exchange and co-operation within African countries, between countries and even more regions, with obvious negative effects
- Scientific events, like this workshop, organised by ISPRS or other organisations, need to be better coordinated and have more continuity, with additional measures taken (see above), in order to be able to have a lasting impact and improve the current situation in Africa

ISPRS Journal of Photogrammetry and Remote Sensing - Call for Papers Theme Issue: 'Integration of Geodata and Imagery for Automated Refinement and Update of Spatial Databases'

Guest editors: C. Heipke, K. Pakzad, F. Willrich (University of Hannover, Germany), A. Peled (University of Haifa, Israel), Planned publication date:Winter 2003/04

This theme issue focuses on the integration of geodata in vector format with non-interpreted raster data, e. g. optical aerial or high-resolution satellite imagery, airborne radar or laser imagery and digital terrain or surface models, for automated refinement and update of the input vector geodata. Vector data may come from maps, cadastral plans, geospatial databases etc. and should describe important objects like buildings, roads, water surfaces, vegetation and forests, parcels etc. Regarding input imagery, the focus will be on airborne photogrammetric imagery from digital cameras or scanned film. Used DTMs/DSMs can come from any source. Refinement refers to improvement, upgrade and extension of the input data, e.g. by improving their planimetric accuracy, adding height information and new attributes etc. Regarding methods focus will be on automatic/semi-automatic methods and extraction of 3D information. A major issue is the full exploitation of the geometric, topological and semantic description of existing geodata to facilitate object extraction and quality control by various means (restrict search space, bridge result gaps and difficult cases, derive reliability/accuracy measures etc.). Techniques for combining various raster data sets only, as well as methods for generation of the input data, are not subject of this theme issue. Topics addressed in this issue include:

- General methods/algorithms and strategies/architectures for combining vector and raster data
- Use of various object cues, incl. cost/benefit analysis, and integration of partial results from different cues and/or algorithms
- Use and comparison of various processing options: orthoimages vs. stereo vs. multi-image, black/white vs. RGB vs. additional use of NIR or other spectral channels, various image scales, DTM vs. DSM or both with varying point spacing and accuracy etc.
- Use and improvement of a priori information on the input vector data regarding geometry, topology and attributes; data mining to extract new explicit information
- Studies concerning cost/benefit analysis of manual intervention
- Self-tuning / automated adaptation of software input parameters
- Methods and measures for qualitative and especially quantitative control of completeness, reliability and accuracy/consistency of geometry, topology and attributes, incl. error detection, and handling and propagation of uncertainty
- Reports on extensive tests using accurate reference data
- Experimental and operational systems, possibly integrated with digital photogrammetric, remote sensing and GI systems

The papers must be original contributions, not previously published in or submitted to other journals. Papers published or submitted for publication in conference proceedings can be considered to the extent that they are considerably extended and improved. Very good research and relevant-for-practice papers will be preferred. Papers must follow the instructions for authors described at http://www.photogrammetry.ethz.ch/joumal. Please submit the full manuscript in Word or PDF format by e-mail to pakzad@ipi.uni-hannover.de by 15 January 2003.

Christian Heipke, Kian Pakzad, Felicitas Willrich
Institute for Photogrammetry and GeoInformation
University of Hannover
30167 Hannover, GERMANY
Fax: +49 511 7622483

Ammatzia Peled
Department of Geography
University of Haifa
Haifa 31905, ISRAEL
Fax: +972 4 8249605

ISPRS Journal of Photogrammetry and Remote Sensing - Call for Papers Theme Issue: 'Advanced Techniques for Analysis of Geo-spatial Data'

Guest Editors:

- Wenzhong Shi, Advanced Research Centre for Spatial Information Technology, Department of Land Surveying and Geo-Informatics, The Hong Kong Polytechnic University, Hong Kong, E-mail: lswzshi@polyu.edu.hk
- Yvan Bédard, Département des Science Géomatiques, Pavillion Louis-Jacques-Casault, Université Laval, Québec, G1K 7P4, Canada, E-mail: yvan.bedard@scg.ulaval.ca
- Zhilin Li, Department of Land Surveying and Geo-Informatics, The Hong Kong Polytechnic University, Hong Kong, E-mail: lszlli@polyu.edu.hk

Planned publication date: September 2003

Topics

This issue of the ISPRS Journal of Photogrammetry and Remote Sensing is focused on advanced techniques for analysis of geo-spatial data, and in particular spatial, temporal, topological and attribute analysis of geo-spatial data related to data capturing, processing, assessment, information and knowledge derivation and spatial decision support. Therefore, effective and advanced techniques for analysis of geo-spatial data constitute a fundamental issue for using of geo-spatial data and information in spatial decision making. This issue is a joint effort by ISPRS Commission IV (Spatial Information Systems and Digital Mapping) and Commission II (Systems for Data Processing, Analysis and Representation). The topics of this special issue include:

- New methods and approaches to spatial analysis of vector data, raster data and hybrid data
- New techniques to derive information and knowledge from geo-spatial data; advanced data mining techniques;
- Multi-scale hierarchies of spatial operators; abstraction, generalisation, aggregation in spatial analysis
- Error detection, error propagation and accuracy assessment for spatial analysis; quality assessment of spatial analysis resulting from interoperable systems and heterogeneous data sources
- Spatial analysis for spatial decision support systems (SDSS), including multidimensional decision spaces, multi-objective and multi-criteria decision rules
- Change and time series analysis methods, such as Markov fields, cellular automata etc.

Submitted papers should be original contributions, not previously published in or submitted to other journals or conference proceedings. Paper published in conference proceedings can be considered for publication after considerable improvement. The papers must follow the instructions for authors described in www.photogrametry.ethz.ch/journal.

This theme issue will be an evolution of the scientific outcomes of the Joint International Symposium on GeoSpatial Theory, Processing and Applications in Ottawa in July 2002 and the Symposium on Integrated System for Spatial Data Production, Custodian and Decision Support in Xi'an in August 2002. Please submit the full manuscript in electronic form (Word) by **30 November 2002** to the email address below:

Wenzhong Shi
Advanced Research Centre for Spatial Information Technology
Department of Land Surveying and Geo-Informatics
The Hong Kong Polytechnic University, HONG KONG
Fax: +852-2330 2994; Tel.: +852-2766 5975, E-mail: lswzshi@polyu.edu.hk

Professor Ron Li Chosen As Participating Scientists for Mars Explorer Rover 2003 Mission

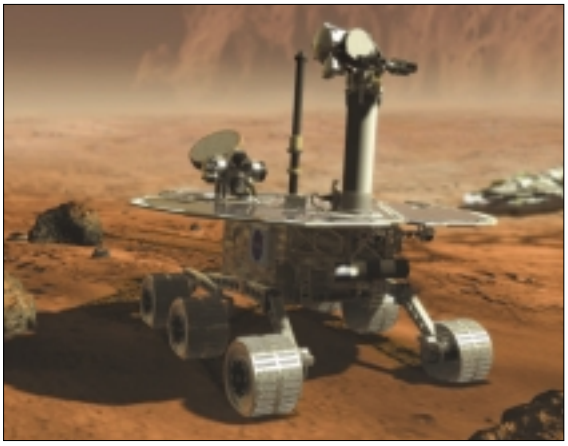
By Rongxing Li, Professor of Geodetic Science at The Ohio State University

Dr. Rongxing Li, professor of geodetic science at The Ohio State University, was chosen on May 29 as one of 28 participating scientists for NASA's Mars Exploration Rover (MER) 2003 mission. Dr. Li, along with co-investigator Dr. Kaichang Di and research assistant Fengliang Xu, have developed a software program that allows for highly-precise mapping as well as pinpoint location of robots 'roving' across the planet's surface (thus called 'rovers'). His project, 'Surface Image-based High-precision Near Real-time Landing Site Mapping and Long-range Rover Localisation,' was chosen from among 84 submissions on the basis of quality of design, need for application, and proven research results that were based on data from the 1997 Mars Pathfinder mission.

Each participating scientist will work with the MER Program Office at NASA's Jet Propulsion Laboratory (JPL) in Pasadena, California. They will become full MER science team members, joining previously selected scientists as part of the Athena science team. Participating scientists will collaborate closely with NASA engineers at JPL headed by Larry Matthies, supervisor of JPL's machine vision group.

Dr. Li's involvement with the program began in 1997, when he approached NASA with the design for a computerised navigation system for the Mars rovers. The prototype system was tested in the desert at Silver Lake, California using helicopters to simulate the Mars landing.

The navigation and mapping system will automatically (or semi-automatically) register images taken by the rover as it moves across the Martian surface with images taken by orbital sensors to build a 3D image network. High precision landing site mapping and rover localisation will be achieved by bundle adjustment of the image network and follow-up photogrammetric processing. This new systems allows the rover not only to travel a much longer distance from the landing vehicle, but also to leave and return to identical positions much more precisely.



(photo courtesy of NASA JPL).

Additional information on this project can be found on the web sites of the OSU Mapping & GIS Laboratory [http://shoreline.eng.ohio-state.edu] and the NASA Jet Propulsion Laboratory [http://mars.jpl.nasa.gov/gallery/spacecraft/2003rover.html].

Photo Ron Li: Courtesy of The Columbus Dispatch and photographer Neal C. Lauron

John Trinder, President of ISPRS, and Robert Foster, President of FIG, sign a memorandum of understanding between their two organisations at the meeting of the Joint Board of Spatial Information Societies held in Washington during the FIG congress.