



# ICA News

## Nouvelles de l'ACI

Number 47, December 2006 Numéro 47, Décembre 2006 <http://www.icaci.org>

International Cartographic Association

Association Cartographique Internationale



# ICA Executive Committee

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## ICA Executive Committee

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*Tsunami-2004, entry to the Barbara Petchenik Children's Map Competition of the 22nd ICC, A Coruna, Spain, 2005. Entry receiving the largest public vote for the category 13-15 years old. Author: Polina Kosovskaya, age 15, Mayna, Respublika Khakasia (Russian Federation).*

## Editorial

Dear Colleagues

As usual, members of the Executive Committee and Commissions' Chairs have done their best to assisting in the preparation of a varied and interesting issue of the ICA Newsletter.

Aside from the usual presidential report, this issue contains the latest information on the 23rd International Cartographic Conference and 14th ICA General Assembly to be held in Moscow in early August 2007. A website ([www.icc2007.com](http://www.icc2007.com)) has been prepared for online submission of abstracts (the deadline has been extended to the 15th December 2006), payment of conference fees, hotel reservation, pre- and post-conference tours, and assistance with visas. Colleagues are encouraged to check the website for the latest news.

The conference and commissions' report sections contain a summary of activities undertaken in Asia and Europe by several ICA Commissions, ranging from an innovative Cartosemiotic European Heritage' excursion, to workshops and meetings in Seoul, Wuhan, Crete, Manchester, Utrecht, Berlin, Vienna, Kaliningrad, and the list goes on. The special features section contains two interesting articles. The first on 'Cartography at the enterprise level: sustainable development in the future' is a compilation of notes from a public panel discussion at the Intercarto-12 conference held in Berlin. In that paper our colleagues propose a new definition of sustainable development, analysing also the role that cartography plays in sustainable development. The second reports on mobile cartography and the use of cellphone technology in activity and travel data collection being undertaken in one of our member nations, South Africa.

Lastly, do not forget to check the section on Forthcoming Events, and pencil in your diary '4-10 August, 2007; Place to be: Moscow, Russia'.

Wishing you a happy festive season, I like to share with you a quotation from Eleanor Roosevelt for the New Year to begin:

"I wish for those I love this New Year an opportunity to earn sufficient, to have that which they need for their own and to give that which they desire to others, to bring into the lives of those about them some measure of joy, to know the satisfaction of work well done, of recreation earned and therefore savoured, to end the year a little wiser, a little kinder and therefore a little happier." E.R., January 1, 1937

Looking forward to meeting you at the 23rd International Cartographic Conference.

*Graciela Metternicht*  
Editor, ICA Newsletter.

## President's Report

The conference GICON 2006 - Geoinformation Connecting Societies held on 10th -14th July 2006 at the University Institutsgebäude in Vienna, Austria, was a symbol of cooperation among GI organizations. For the first time, representatives of large scientific societies, namely the International Cartographic Association (ICA), the International Society for Photogrammetry and Remote Sensing (ISPRS) and the International Geographical Union (IGU) as well as local associations that focus on geoinformation participated in a joint event. The concept of the conference was to allow all registered participants for one single fee to attend any sessions of interest at all of the three parallel conferences, regardless of organization with

which they are affiliated. The aim of the conference was to link people and scientific societies through participation in a joint event spanning all areas of spatial data handling.

The conference was successfully organized by Prof. Wolfgang Kain and his team. The ICA was represented on the highest level – its President gave one of introductory addresses and the program was also attended by Vice-Presidents Kirsi Virrantaus, William Cartwright and Dave Fairbairn, as well as former Presidents Bengt Rystedt and Joel Morrison, who presented the keynote speech of the conference.

In Vienna, also a session of the ICA Spatial Data Standards Commission took place on 5th – 8th July 2006. The session was chaired by Bin Jing and it was attended by chairmen and/or vice-chairmen of other ICA commissions, such as Peter Jordan, Alexander Wolodtschenko, Laszlo Zentai, Jan Menno Kraak, Karel Kriz, Georg Gartner and many others. An additional, relaxation part of the program was Orienteering Events on International Cartographic Conferences, organized by Robert Ditz and Georg Gartner with the support of Laszlo Zentai.

Part of the GICON 2006 Conference was also a session of the Joint Board of Geospatial Information Societies (on Tue, 11 July) attended by Presidents of FIG, IAG, ISPRS, IHO, IMTA and ICA. The session was focused on matters of helping African countries and finding a „complimentary approach“ based on mutual help (financial, expertise, etc.) of the above-mentioned organizations with the aim to create effective capacity building.

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# President's Report

On 17th – 23rd August, a meeting of ICA Executive Committee was held in Moscow. It was devoted mainly to the ICC 2007 in Moscow. The ICA leaders have met with management of the Rosskartografiya led by General Manager A.V. Borodko in order to consider matters related to organization of the ICC 2007.

On 30th – 31st August, I as the ICA President have visited the Congress of Czech Geographers in Ceske Budejovice and presented one of keynote papers.

On 14th – 15th September, I participated in the prestigious annual Forum of the Western Australia Land Information System (WALIS), held in the city of Perth, Australia. For the first time, ICA was present as an endorsement organization, and I was asked to present a keynote speech on 'Cartography Today: Potentials, Tasks, Challenges'. It had turned out that conference participants were very much interested in our ideas on the current status and further developments of cartography, because most of them specialize in the area of geodesy, remote sensing, geoinformatics/geomatics, and photogrammetry. The speech attracted much attention. I would be glad if the main results of the WALIS Forum were reflected in further ICA activities, and, on the other hand, I would also appreciate a regular participation of ICA representatives in the WALIS Forum. During my stay in Perth, I also met the ICA News editor, Professor Graciela Metternicht, who will step down from her editorial duties at the ICC 2007, after 8 years on that position. I was glad I could congratulate her in the name of ICA for her nomination as Fellow of the Spatial Science Institute of Australia.

On 18th – 22nd September, Vice-President V.S. Tikunov and I, participated at the Seventeenth United Nations Regional Cartographic Conference for Asia & the Pacific in Bangkok called "Geo- information integration for Disaster Management and Sustainable Development in the Context of the Millennium Development Goals". At the conference, I (in the name of ICA) presented an invited speech elaborated with the help of Vice-President Haggai Nyapola entitled Capacity Building for Geo-information Development: highlighting issues and influencing factors. The conference also included a joint PCGIAP-ICA-ISCGM Workshop: Use of Geo-information for mitigating large scale disaster and attaining sustainable development, in which the ICA participated with the following speeches: Tikunov V.S.: Geoinformation System for Developing Scenarios of Global Demographic Process, and Konecny M: Mobile and Adaptive Cartography and Geoinformatics in Early Warning and Crises Management. Even though the conference was somewhat disrupted by a military coup, it was successful and has brought promising results.

The joint FIG/InterGeo conference held in Munich on 8th – 13th October was the largest GI community conference held this year. Connection of two well-established brands – FIG and InterGeo has attracted more than 2,500 participants to the Bavarian capital. The conference also provided space for presentation of sister organizations including the ICA. The event was very well organized and contained speeches of great significance. As the ICA President I co-chaired (together with FIG President Prof. Magele) the session of the prestigious presidential block Technology – Global Players – Service Providers. I also presented a speech on 'Global Spatial Data Infrastructures and International Cartographic Association'. The conference program also included a meeting Geospatial Information in Risk and Disaster Management as a reaction to establishment of

working group Risk and Disaster Management Joint Board GIS in 2005. Chair of this group is former president of ICA Bengt Rystedt.

Another meeting held at the FIG/InterGeo conference was a session of the Joint Board of Geospatial Information Societies. This session was an opportunity to continue in discussion on matters of helping African countries with focus on capacity building. It was attended by many well-established institutions, such as British Ordnance Survey and ITC Enschede. The conference was also a climax of successful activity of FIG and JB GI society President, Professor Holger Magele. I would like to thank him for his great support of the ICA idea of establishing a Joint Board, in which the FIG secures its operation by its secretariat, and also for his generous approach to solving problems of contemporary world with the use of geodesy, geoinformatics, cartography, and other disciplines.

At the FIG General Assembly, Prof. Stig Enemark from Denmark was elected the new President. I would like to congratulate him to his election and I am looking forward to further development of cooperation between FIG and ICA.

On 23rd – 25th October, the SMF/UPIMAP 2006 (Joint Symposium of Seoul Metropolitan Forum and Second International Workshop on Ubiquitous, Pervasive and Internet Mapping) was held in Seoul. This successful conference was co-organized by ICA commissions on Ubiquitous Mapping and Maps and the Internet. Leaders of the conference were the chairmen of these two commissions - Prof. Morita from Japan and Michael Peterson from the USA. As the ICA President, I have presented an address on behalf of ICA and - in the conference program - a paper elaborated with T. Bandrova from Bulgaria called 'Proposal for Standard in Cartographic Visualization of Natural Risks and Disasters'. ICA also prepared a poster devoted to issues of Early Warning and Crises Management. I have also visited the National Institute for Geographic Information.

On 26th – 31st October, I attended the GEOMATICA 2006 conference in Wuhan, China, and also celebrations of the 50th anniversary of teaching of geodesy and mapping at the Wuhan University. I have presented a paper called 'Geoinformatic and Cartographic Potentials for Early Warning and Disaster Managements Actions', attending also the annual meeting of Chinese cartographers, geoinformatics specialists and other natural scientists. In connection with the conference, there was also a session of the ICA Commission on Theory of Cartography chaired by Alexander Wolodtschenko. The conference was also attended by Vice-President Cartwright and the chairman of the Maps and the Internet Commission Michael Peterson.

The attendance to all of the above-mentioned conferences has strengthened my opinion that the ICA has to participate in all significant international activities and - together with sister organizations - search for solutions of complicated problems of contemporary world, especially show the potential of knowledge and know-how that can be utilized in solving them.

*Milan Konecny,  
ICA President*

## XXIII International Cartographic Conference: Cartography for everyone and for you

The ICC 2007 will be held in one of the first-rate hotels of Moscow, "Cosmos" which is situated within 20 minutes drive from the city centre. The closest metro station is "VDNKh". The biggest exhibition complex "All-Russian Exhibition Centre", count Sheremetiev memorial estate, Ostankinskaya television tower, botanical gardens and "Losiny Ostrov" national park are situated nearby "Cosmos".

Delegates will be offered transfers from airport to hotel and from hotel to airport. While arriving to Sheremetyevo 2 and Domodedovo airports, delegates will be met by representatives of "MONOMAX" Co with banner of "ICC 2007". To make an order for transfer you need let us know following information: a) name; b) family name; c) date and time of arrival; d) flight number. You'll be able to make an order for transfer by means of our web site, [www.icc2007.com](http://www.icc2007.com)

### Pre-conference schedule

- 1) Deadline for submission of abstracts: 15 December 2006.
- 2) Notification of authors: 15 January 2007.
- 3) Deadline for submission of full papers: 15 February 2007.

The abstracts should be submitted online at the Conference website <http://www.icc2007.com/> (choose Abstracts in the sidebar, and then click on 'how to submit abstracts'). Abstracts should include the following information: the main idea of the presentation, contribution to cartography development, the research characteristics, basis in the view of originality and innovations. The abstracts received by the Organizing Committee, will be reviewed. The information on acceptance of abstracts will be provided to authors and the program will be formatted. The abstracts review will be finalized by January, 15, 2007.

The language of the abstracts is optional: English (preferably), French or Russian. Abstracts in English or French languages should be transmitted separately.

### Main requirements for the abstract:

- 4) Abstract body 2 pages, A4 format.
- 5) Title, author's name, and company name must be introduced separately from the main text. These data should not appear again in the abstract's body.
- 6) Abstracts' title in English should be entered in the field "Comments"
- 7) Using web interface attach abstract body as a file. File format should be RTF or DOC. Left margin 3 cm, right and bottom margins – 2,5 cm. Font - Times New Roman 12, line spacing - one and half.

### Conference themes

1. Theoretical cartography
2. Map projections
3. Map design and production
4. Education and training in cartography, internet courses
5. Digital cartography and GIS for sustainable development
6. Geographical information systems
7. Spatial data infrastructures (NSDI, GSDI and SDI), development, standards
8. Incremental updating and versioning of spatial data
9. NTW data collection and versioning of spatial data bases
10. Cartographic generalization and multiple representation
11. Cartography and satellite imagery for the management of natural resources and the environment, early warning and natural disasters mitigation

12. Maps and the Internet
13. Internet location-based services, mobile mapping and navigation systems
14. Marine cartography, navigation and ocean mapping
15. National and regional atlases, electronic atlases, thematic and multimedia cartography
16. Copyright and cartography, access to cartographic information
17. Virtual models, 3d and geovisualization in cartography
18. History of cartography
19. World and aeronautical cartography and military cartography
20. Mountain cartography
21. Tourist cartography
22. Cartography for children, educational products
23. Maps for the blind and visually impaired
24. Planetary cartography
25. Research and development, new products and cartographic systems
26. Other themes: cartography and advertising, maps in the media, census cartography, cadastral maps, new concepts in cartographic symbology, space and time in GIS, toponymy, analytical cartography, cartography and health, cartography and poverty reduction, colonial mapping history

### Visa information

All foreign participants of the Conference should obtain an entry visa to The Russian Federation. Monomax Congress and Incentives Co Ltd. will provide participants with the documents necessary for obtaining a Russian Tourist Visa for the period of the Conference.

Monomax Congresses and Incentives Co Ltd. has the reference number in the Russian Ministry for Foreign Affairs and has the right to provide participants with Russian Tourist Visa support documents (letter of invitation and hotel voucher). Supporting documents will be made based on your personal information submitted on-line at the Visa Support section. In order to obtain Russian Tourist Visa please contact to the nearest Russian Consulate or Embassy in your home country for the further information.

**IMPORTANT!!** According to legislation of the Russian Federation, all foreign citizens should be registered within 3 days at the accommodation place (hotel). If you have any further questions or need any assistance, please do not hesitate to contact by e-mail [Alexei.Rybalov@monomax.org](mailto:Alexei.Rybalov@monomax.org).

### Registration Fees Categories

	Until April, 30 2007 (Euros)	From April, 30 2007 (Euros)
Full participant	490	550
Student/Senior*	245	275
Only One day	150	170
Accompanying person	150	170
Participant from Russia	250	300
Participant from Russia	250	300*

Students must be less than 30 years old by 1st July 2007 and should include proof of their student status. Seniors must be 65 years or older by 1st July 2007 and should include a copy of the related page of their passport.



# Conference Reports

## Social programme

The social programme prepared by the LOC offers a unique possibility to combine business part of your stay in Moscow with opportunity to visit and familiarize yourself with the richest historical and cultural heritage of Russia. A description of the excursions available (visit to the Kremlin, the Novodevichy Convent, the Pushkin Museum of Fine Arts, the Cathedral of Christ the Savior, etc.) including the cost, is available at <http://www.icc2007.com> (select the 'social programme' on the sidebar).

## International Map Exhibition

The deadline for submissions of maps for the International Map Exhibition to be held at the 23rd ICC, is March 1, 2007. Complete entry forms available at the conference's web site ([www.icc2007.com](http://www.icc2007.com)) need to be sent to Mr. Vladimir Zhukovskiy, Mr. Eugeny Bredikhin, Coordinator of the International Cartographic Exhibition Committee and Member of Committee. They can be reached via email at [info-atkar@yandex.ru](mailto:info-atkar@yandex.ru)

Exhibition entries are for: Topographic maps; Nautical Charts and Bathymetric Maps; Urban Maps; Satellite Images; Recreation and Orienteering Maps; Globes and Atlases; Thematic Maps; Scientific Maps; Relief Maps; Parks & Recreation; Others.

## 14th General Assembly ICA

Dear National ICA members

On Saturday August 4 (09-17) and Thursday August 9 (09-12), 2007, the 14th General Assembly of the International Cartographic Association will be held in Hotel Cosmos in Moscow, Russia, the site of the 23rd International Cartographic Conference (ICC).

During this General Assembly the new 2007-2011 ICA Executive Committee will be elected, as well as new commission chairs and there will be a vote on a change in the statutes. There will be a proposal for the 2007-2011 budget.

According to the statutes, all member states have to hand in a national report about national developments in cartography and GIS in their country. These national reports should be available prior to the ICC. Until the deadline of March 4, 2007 member states can propose candidates for:

- 1) ICA president, Secretary-General and Vice President (only one representative from each member state may serve on the executive committee simultaneously)
- 2) ICA commissions, commission chairs and their terms of reference (when a commission is proposed, this proposal should also contain its terms of reference and a nomination for its chairperson)

Prior to the General Assembly the ICA Secretariat should also be informed about the names of the delegates each member state will send to the GA, and who will be supposed to vote on behalf of their organisations.

The ICA secretariat will send out more detailed information on the General Assembly (agenda, minutes of the previous meeting) in the coming months, and the names of the candidates proposed for the EC or for commission chairs will be incorporated with their relevant CV's and views on the ICA website, as soon as they come in.

*Ferjan Ormeling*  
*Secretary-General*

## Conference Reports

### Mapping (through) networks: 9th Greek cartographic conference in Chania, Crete

November 2-4, the 9th Biannual Cartographic Conference of the Hellenic Cartographic Society (XEEE) was held, this time in Chania, the cultural capital of Crete, in the old Venetian Arsenal, which has been magnificently restored. The conference theme was networks: cartography of networks and the role of networks in cartography, that is in the spatial data infrastructure.

More than 100 cartographers and also a number of students from the Department of Mineral Resources of the Technical University of Crete, located in Chania, participated in the 7 sessions on Networks and history, Networks and people, Networks and civilization, Networks and the environment, Networks and transport, and Networks and cartographic practice. Local organizer had been E.Manoutsoglou, with overseas assistance from Thessaloniki (Kaltsikis, Kousoulakou, Livieratos and XEEE president Myridis) and Athens (XEEE secretary Tsoulos).

Two exhibitions had been mounted for the conference: there was an exhibition on the new series of Greek Educational Wall charts for schools, produced by a group from the Pedagogical Institute led by Nicolas Soulakellis, from the Geography Dept of the University of the Aegean in Lesbos, and there was a selection of the maps on Crete from the well-known Samourka collection, organized by the ICA Working Group on Digital Technologies for the Cartographic Heritage. ICA was also represented in a paper by Georg Gartner on the work of the ICA Commission on maps and the Internet. During the conference the new book by D.Rossikopoulos Geometric measurement, the history of surveying (in Greek) was launched, another proof of the big interest in cartography in Greece.

The influence of the ICA Working Group on Digital Technologies in Cartographic Heritage could be discerned in the first session on Networks and history, where the road and settlement networks of Crete were analyzed on the basis of the Tabula Peutingeriana and Ptolemy's Geography. Another paper that actually belonged here was the one on Mapping a myth: the Cretan Labyrinth. On nearly all the old maps of Crete in the exhibition the labyrinth was rendered, be it in different shapes and locations. The next session on Networks and people for instance dealt with the propagation of diseases, or the communication of earthquake risks. The session on Networks and Civilization for instance dealt with monument networks on the World heritage list and with mapping European cultural networks. The session on Networks and environment had an interesting application in the management of cemeteries with the help of GIS and internet, and with open code databases for hydrographic networks.

The session on Networks and Transport had new cartographic approaches to the European transport, communication and energy network systems, inspired on the work of the former French RECLUS geographical research institute. It had papers on seismological and other natural risk maps for road networks and on urban navigation systems. The final sessions on Networks and practical cartography dealt with linear generalisation with the help of hierarchical tree structures, but also with SDI-connected subjects like mobile cartographic information systems.

The conference had a series of posters as well, and those such as myself with insufficient knowledge of the Greek language, left with a sense of loss of what they had therefore missed. The 37 papers presented were proof of an impressive cartographic research production. Extensive local interest was mirrored in the media: the local newspapers had a colour spread on the conference, highlighting the historical-cartographical contributions.

*Ferjan Ormeling*  
*ICA Secretary General*



*A session of the 9th Greek cartographic conference in Chania.*

## Sustainable Development of Territories: GIS Theory and Practical Experience.

The international conference “Sustainable Development of Territories: GIS-Theory and Practical experience” took place in Kaliningrad on the 24-27 August 2006 and Berlin (28-30 August 2006). The conference continued the tradition of many years of international scientific arrangements “InterCarto – InterGIS” conducted under the aegis of the International Cartographic Association. This conference was organized and conducted in Kaliningrad by Immanuel Kant’s University of Kaliningrad with support of the Russian Fund of Fundamental Research, JSC “Lukoil”, Baltic aero geodesic enterprise and the Berlin-Brandenburg Section of the German Cartographic Society.

More than 100 specialists, working in the fields of cartography, geo information technologies, creating and using GIS in practice, from different Russian regions and cities (Moscow, Barnaul, Irkutsk, Kaliningrad, Stavropol) and also from Austria, Australia, Canada, Czech Republic, France, Germany, Hungary, Nigeria, the Netherlands, Poland, Rumania, Serbia and Montenegro, Spain, Switzerland, Vietnam, Zaire took part in this international conference.

At the conference 74 reports regarding theory and methods of cartographic modeling and geo information technologies to guarantee stable territory development were presented. Members of the conference noted that the use and development of GIS-technologies and GIS-projects, cartographic modeling and prediction are very important in science and practice. The level of works on these fields increases steadfastly and dynamically, opening a vast territory for researching and inculcation of the latest cartographical and geo informational methods and technologies. Concurrently with the International conference, a special session of ICA Commission on History of Cartography Developments was conduct. In Berlin, both the Planetary Cartography Commission and the Educational and Training Commission of ICA had working meetings. In addition, the Berlin conference offered a public round table meeting on “Science for Sustainable Development”. Two volumes of conference proceedings with 104 reports of Russian and foreign authors were print in Kaliningrad (555 pages) and one volume was printed in Berlin (33 addresses, 103 pages). For details see <http://www.intercarto12.net>.

When all reports were presented and discussed, members of International Conference InterCarto-InterGIS-12 decided, to:

1. Recognize the realization of the International Conference as an important contribution in the development of theoretical and

methodical geo-information basis for sustainable development of territories;

2. Recommend broadening the use of cartographic and geo informational researching methodology in working up concrete ecological local and regional projects, using the experience of leading scientific and educational institutions;
3. Recognize expedient implementation of special seminars in the field of cartography security and geo informational technology for specialists of state and municipal government bodies;
4. Develop research in the history of development and automation in cartography, and on the use of geo informational technologies. Likewise, promote the preparation and printing of facsimile historical cartography publications in regions where the conference InterCarto-InterGIS took place;
5. Promote broader availability of results of regional thematic cartographic works (socio-ecological and medical-geography direction) for the public;
6. Increase a sustainable development of the Kaliningrad region, to secure a gradual economy transition, based on knowledge, with due regard for the geographic location of the Russian enclave, recommend by the Kaliningrad Government Scientific and Expert Council;
7. Present the “Geography atlas of Kaliningrad region” at the international map exhibition of the next International Cartography Conference, to be held in Moscow in 2007;
8. Support the initiative of the Baltic Geodesic Enterprise in the creation of a common Cartography laboratory for research and training on GIS-technology, with the Immanuel Kant’s University of Kaliningrad;
9. Support the tradition of carrying conferences of commissions of the International Cartographic Association as part of the conference InterCarto-InterGIS.

Participants of InterCarto-InterGIS-12 also took part of a visit to a Government organization, town excursions, visiting Ocean Museum, National park “Kurshskaya kosa” and Tangermuende (Germany).

*Evgeny Krasnov, Horst Kremers, Vyacheslav Orlyonok and Vladimir Tikunov*



*Organisers of InterCarto 12 Vladimir Tikunov and Horst Kremers (Berlin).*

# Commissions' Reports

## Education and Training: annual meeting at InterCarto InterGIS 12

The annual meeting of the ICA Commission on Education and Training was organized as the part of InterCarto InterGIS 12 in Berlin, Wednesday 30th August. The conference brought together 72 individuals from Germany, Russia, Hungary, Australia, Poland, Romania, Canada, Spain, Switzerland, Czech Republic, Pakistan, Belgium, Tanzania, Austria, Zambia, Serbia, Netherlands. The ICA Commission on Education and Training was represented by Laszlo Zentai, Rufino Gomez and David Fraser who each presented papers. The Commission meeting was productive with one of the ICA vice-Presidents', Vladimir Tikunov contributing to our discussions. The report from CET chairman, Laszlo Zentai concentrated on the positive outcomes we have achieved in the last two years and vice-President Tikunov congratulated the Commission members for the work that is being done at the international level to promote cartographic education and training. The web pages for the commission (<http://lazarus.elte.hu/cet/>) provide a significant amount of information relating to the Commission. The listing of cartographic courses is now completed and most countries have a presence. The concept of the on-line Bachelor of Science provided through the ICA has taken a number of changes in direction. It was decided at the meeting in Berlin to create a structure into which the existing teaching modules can be access by individuals wanting to undertake professional development activities. Once the modules are in place work will begin on creating a set of standard assessment tasks which will provide the way forward for individuals qualifying for different levels of certification. Members are encouraged to offer their services to assist with the activities of the Commission so that we can report on a number of successful outcomes at the ICA conference in Moscow in 2007. Thanks go to Laszlo Zentai for his leadership and actions associated with the work of the CET.

David Fraser



David Fraser, Kira Shingareva and László Zentai at InterCarto- InterGIS 12

## Marine Cartography

### CoastGIS 2006, Wollongong and Sydney, NSW, Australia, 12 – 16 July 2006

In July 2006, approximately 150 delegates, drawn from all inhabited continents (we think from 18 countries including Iran and Peru), converged on Sydney's Olympic Park and Wollongong University in New South Wales, Australia, for the 7th International CoastGIS meeting.

CoastGIS, the International Symposium on GIS and Computer Mapping for Coastal Management, is a series of conferences that began in Cork, Ireland, in 1995 as a collaboration between the Commission on

Coastal Systems of the International Geographical Union and the Commission on Marine Cartography of the International Cartographic Association of which the author is presently Chair. Although that meeting was planned as a one-off, it was such a success that CoastGIS has now evolved into a regular, yearly event. CoastGIS meetings have now been held in Aberdeen, Scotland (1997); Brest, France (1999); Halifax, Nova Scotia, Canada (2001); Genoa, Italy (2003); and Aberdeen again (2005). And now, in 2006, CoastGIS went to the Southern Hemisphere for the first time, and the meeting held in Australia.

Fully in keeping with the CoastGIS tradition, the latest meeting was a great success on all fronts. Before the Symposium itself, a pre-conference visit and workshop was held at the Sydney Olympic Park, co-hosted by the Sydney Olympic Park Authority, SOPA, and the Department of Geography at Sydney University. In the morning of the Workshop, delegates were treated to a fascinating guided tour of the entire site, and learned about the history, current management and future plans for SOPA. Of particular interest and focus, of course, were detailed overviews and descriptions of the role GIS plays in the process. This was followed, in the afternoon, by a choice of half-day workshops on "Fuzzy Logic in Coastal GIS", "Modelling of Marine and Coastal Oil and Chemical Spills in Australia" and "Developments in Mapping of Australian Coastal Seabed Habitats", before the delegates travelled on to Wollongong in the evening.

The conference proper offered three days of papers and poster presentations, on topics as diverse as technologies for capturing and managing data for on- and off-shore environments; the challenges inherent in joining up marine and terrestrial data into integrated seamless databases; institutional aspects of designing and implementing spatial data infrastructures; and GIS-based modelling of coastal processes and activities; as well as a broad diversity of applications of the techniques for coastal zone planning, management and administration.

In all, more than 80 presentations were delivered. While the majority of papers were understandably and inevitably concerned with aspects of the Australian coast, a much broader geographical reach was ensured, with other papers focusing on coasts from China to Europe, Kenya, the United States, Brazil, and even the lakeshores of Azerbaijan and northern Iran. For this reviewer (Darius Bartlett), one particularly satisfying aspect of the conference programme was the balance achieved between the technical and the more theoretical or conceptual papers, and also the mix of presentations from academics and those from practitioners in a wide diversity of coastal science and management agencies and disciplines. As regards the academic presentations, particular mention should also be made of the number of extremely high-quality papers presented by postgraduate (and, in at least one case, undergraduate) students, describing research work undertaken in the course of their thesis projects. If this particular sample is indicative of the current status of graduate research and training, then it seems clear there is a dynamic new generation of very able, engaged and GIS-committed coastal managers and scientists working their way up through the system, and about to emerge into the professional arena.

Two other interesting trends were also evident, particularly to those participants who have attended a number of CoastGIS meetings over the years. The first of these concerns a clear gradual shift of geographic focus, from mainly land-based coastal issues that were discussed in early CoastGIS meetings, particularly Cork, Aberdeen and Brest, to a progressively greater marine and deep-sea focus seen at the conferences in Halifax and Genoa. Now, at the 2006 meeting in Wollongong, the pendulum seems to be starting to shift back again, with increasing attention being devoted to the not inconsiderable challenges of integrating and linking the landward and seaward elements of the coast into truly unified, seamless 3- and 4-dimensional geospatial databases.



The second observation worthy of note relates to the evolution of coastal GIS applications presented at successive CoastGIS meetings. In part this clearly reflects the emergence, development and availability of new technologies, but to my mind it also indicates a more deep-seated and growing maturity of the field of Coastal GIS itself, with a correspondingly greater degree of confidence and innovation on the part of the practitioner community. At early CoastGIS meetings, most presentations focused on issues relating to the creation of geospatial databases for mapping, resource inventory and relatively simple (from our present-day perspective) analytical operations such as buffering and overlay techniques. Over successive meetings, this focus has gradually shifted to more advanced and computationally-intensive analyses, including integration of GIS with an ever-greater diversity of Earth Observation and positioning technologies (GPS, sonar, LIDAR, orbiting and airborne remote sensing instruments, etc.); connection of GIS with numerical modelling techniques (hydrodynamics, climatic, sediment transport, etc.); greater use of geo-statistical and related methods of quantitative analysis; increased use of dynamic and animated visualisations, including fly-throughs; and, inevitably perhaps, a greater use of internet technologies for integrating databases, publishing data and information, connecting up stakeholders and user-groups from various provenances, etc. Finally, in Wollongong especially, we see an increasing attention being given to the technical and organisational / human-related contributions that emergent spatial data infrastructures might make in assisting integrated and sustainable coastal zone management.

Those full papers that were received by the conference organisers in time were compiled and distributed to delegates on CD-ROM, and it is also intended that they will be posted on the CoastGIS website ([www.coastgis.org](http://www.coastgis.org)) in due course. In addition, it is planned that an edited and fully peer-reviewed selection of papers will also appear in a special issue of the *Journal of Spatial Science* shortly.

Post-conference saw a well attended field trip take place along the south coast which included a boat trip down the Shoalhaven River estuary, while we were educated on geomorphology and history by Professor Colin Woodroffe, while Mick, the boat operator, regaled us with anecdotal history!

Photographs were taken throughout the conference and a selection for the curious is at

[http://www.uow.edu.au/science/eesc/conferences/docs/coastgis06\\_photos.pdf](http://www.uow.edu.au/science/eesc/conferences/docs/coastgis06_photos.pdf)

## STOP PRESS

The next CoastGIS – CoastGIS'07 will be held in Santander, northern Spain from 8th – 10th October, 2007. Watch out for the fuller details on [www.coastgis.org](http://www.coastgis.org) or contact the author at [rfurness@ozemail.com.au](mailto:rfurness@ozemail.com.au).

*Ron Furness (based on conference report by Darius Bartlett)*

## Maps and Graphics for Blind and Partially Sighted People

### 2005-2006: Summary of Activity

The following report brings readers up-to-date with activities of the commission since July 2005.

### Conferences

ICC2005 A Coruña, Spain: Constituted the highest profile given to tactile maps for years. One poster session and three themed paper sessions were notable for the number of 'hands on' examples used to illustrate each presentation. As evidence suggests that interest in tactile cartography remains fairly constant, this trend does not necessarily

reflect an upsurge in tactile map research, but was achieved at least in part by asking commission chairs to be involved in the scientific committee. The importance of this process especially for tactile mapping when many potential presenters are not cartographers should not be underestimated.

ICC2005 Cartographic Exhibition: Examples of maps for visually impaired people from 5 different countries; Chile, Japan, Poland, Spain and Turkey, featured in the exhibition. Tactile maps dominated the 'Other Maps' section in the ICC2005 conference awards. A tactile map from Chile depicting plate tectonics came a distinguished 2nd place in the category; and a tactile outline Finger Map from Japan was placed a creditable 3rd. The Geographical Atlas of Poland for schools received 3rd place in the 'Globes and Atlases' section.

Tactile Graphics 2005, Birmingham, UK: A conference dedicated to maps diagrams and pictures for blind and partially sighted people took place in December. As a member of the international steering committee the ICA commission played an influential role in helping to advertise TG2005. Spread over three days, approximately 200 people from 28 countries were present for 8 pre-conference workshops, 36 presentations, 30 exhibition stands and 6 poster displays all related to tactile graphics.

### Commission Meetings

The 1st commission meeting of 2005 was held in A Coruña. Despite the poor timetable slot 25 people attended, the largest number for any ICA conference in living memory.

A 2nd commission meeting was held at Tactile Graphics in Birmingham, December 2005. Approximately 40 delegates participated in this short meeting, of whom only two were also present in A Coruña. Given the number of ICA debutants the meeting was considered a useful promotional exercise for the commission and a success.

### International Tactile Activity

Emerging from the commission meetings a summary of the most exciting tactile map activity worldwide reported to the commission appeared in *TacNews* (5) and (6). Highlights included: a continental wide initiative to make small-scale geographical maps of South America for schools, an intention by China to consult the commission about producing tactile maps for visually impaired competitors and spectators at the Paralympics 2008 in Beijing; the use of force feedback technology to allow visually impaired sailors to navigate at sea in France, the development of multi-modal interface devices incorporating GIS and GPS technologies in Canada and US; the unveiling of a School Atlas of Poland (see Figure below); the launch of new tactile maps of London underground stations; and Turkey and Iran announcing their first tactile map releases.



*A new tactile atlas of Poland for blind and partially sighted people is launched at ICC2005 in A Coruña, Spain. Commission Chair Jonathan Rowell is second from the left.*

# Commissions' Reports

## New Commission Co-Chair

Dan Jacobson from University of Calgary, Canada, was appointed co-chair of the commission in A Coruña. A brief CV and pen picture of the new co-chair appeared in TacNews (6).

## Commission Website

According to feedback the commission website INTACT is held in high regard. Though figures for the number of hits are not available, personal communication indicates it is a resource that many tactile map producers report accessing regularly. It also generates a steady trickle of new enquiries from around the globe. The most recent addition to the site (early 2006) is an electronic version of TacNews.

## Commission Newsletter

Popularity of the commission newsletter TacNews continues to grow. There are now over 150 names on the subscriber's list, an increase in excess of 100% since the newsletter was launched two years ago. Though not an academic publication it recently featured in the British Journal of Visual Impairment and also received its first citations. As the numbers of contributions rise, occasional issues run to 12 pages. Content is evermore international with recent articles from Chile, France, Iran, the Netherlands, Norway, Poland and the US. If readers would like more news they are advised to subscribe to TacNews by contacting the commission chair.

An update of commission activity and future plans will appear in the next issue of ICA News.

*Jonathan Rowell, Commission Chair*

## Mapping from satellite imagery

### United Nations/Zambia/ESA Regional Workshop on the Applications of Global Navigation Satellite System Technologies in Sub-Saharan Africa

In June 2006, 80 participants from 23 countries attended the UN/ESA workshop hosted by the Ministry of Health of Zambia, in Lusaka. This regional workshop addressed, inter alia, the space technology applications such as remote sensing, precision agriculture, aviation, transport and communications, e-learning, telehealth and landscape epidemiology. Since 2001, the programme of Space Applications of the Office of Outer Space Affairs of the United Nations (UNOOSA) has organised a series of regional workshops and international meetings to promote the use of GNSS. These workshops and meetings presented the status of existing and near-term GNSS systems and their augmentations and also presented examples of GNSS applications that support sustainable development and protect the environment.

Presentations at the UN/ESA/Zambia workshop focused on GNSS-based application areas, policies and strategies for promoting sustainable development, international initiatives and experiences on GNSS implementation and uses in agriculture and management of the environment, tele-health, landscape epidemiology, civil aviation and land transportation; and education and training. Most of the presentations related to agriculture and natural resource management dealt with the use of integrated space technologies (e.g. remote sensing and GNSS) assisted by GIS for surveying, mapping and monitoring aimed at improved decision making. Prof Metternicht, represented the ICA Commission on Mapping from Satellite Imagery with two oral presentations on the "Use of remote sensing and GNSS in precision agriculture" and "Current developments of remote sensing for mapping

and monitoring land degradation at regional scale". This commission activity took place as result of the MOU signed between the ICA and the United Nations Office for Outer Space Affairs in 2005, which aims to increase the awareness of the use and applications of GNSS and other space technologies to support sustainable development in all its aspects: economical, environmental, asocial, technological, cultural and ethical.

A session on applications of GNSS included meteorology, application of satellite information in disaster management and emergency response in Malawi; uses and applications of GNSS technology in environmental and resources management in the Niger Delta; GPS applications for GIS purposes in Swaziland; applications of GNSS and remote sensing for environmental sustainability, and GNSS applications for mineral exploration in Zambia.

A special session to identify regional cooperation in applying GNSS technologies to the areas of agriculture management of environment, tele-health and landscape epidemiology, and civil aviation and land transportation was held on Wednesday afternoon. Issues and concerns of application, requirements of implementation, possibilities of success, mechanisms and resources for implementation were discussed. The session concluded with the identification of 4 main projects, namely on:

- 3) International cooperation and networking: legal framework, policy and strategy for the GNSS applications
- 4) Mapping, data access and sharing
- 5) Capacity building and education for: authorities/experts. Knowledge transfer to users and other and users (users: small scale farmers, etc).
- 6) Space technology application for tele health.

The project on capacity building proposes, amongst other things, the creation of an e-library, for framework of information access/sharing of educational and scientific materials in different areas of the geospatial sciences to African countries of the Sub-Saharan region. Datasets are stored at the country level (UNOOSA web portal). The contributor has the right to request a password (info access password protected). Members of the Mapping Science Institute interested in contributing on the creation of this e-library are encouraged to contact Ms Sharafat Gadimova (sharafat.gadimova@unvienna.org). The workshop concluded on Friday with a presentation of summary reports of the sessions. Copy of the presentations can be accessed at <http://www.unoosa.org/oosa/SAP/act2006/zambia/presentations.html>

*Graciela Metternicht, Commission Chair (acting)*

## Working Group on Use and Map User Use and User issues in Manchester

Some 30 people interested in use and user issues met during the ICA conference in A Coruña, Spain on 13 July 2005 and proposed to the Executive Committee to establish a new Working Group. The ICA responded positively and agreed with the following terms of reference for the period 2005-2007:

- Set up an on-line bibliographical database. The main categories in this bibliography are: the user, usability (user-centred design and methods and techniques of evaluation/testing) and improvement of user abilities.
- Set up a forum on the Web to exchange knowledge and information.
- Set up a database of individuals working on, or with expertise in, the various use and user issues and denote it with keywords to stimulate exchange of information.

- Foster publications on use and user issues in cartography and geo-information processing and dissemination.
- Organize a workshop or seminar in 2006.
- Promote sessions on use and user issues at ICC 2007 in Moscow, August 2007.

It should be made clear that, although the Working Group operates under the umbrella of the International Cartographic Association, the subject of study is certainly not just map use. The scope is much broader: it also includes use, users and usability of, for instance, hardware, software and information systems, interfaces, geographic data and databases.

In the meantime, work has been carried out on:

- Establishing a mailing list of people interested in contributing to the activities of the Working Group. This is a dynamic list. If you want to be added to the list as well, you may send an email to the address below.
- The design of a website with the following URL: <http://plone.itc.nl/icawguse/>
- The categorization that is required for the bibliographical database. The categorization is put to the test by asking Working Group members to submit some key references.
- Organizing a Seminar.

In co-operation with Chris Perkins (University of Manchester) and Bob Lilley (Chair of the BCS Programme Committee) the Working Group organized a Seminar on Use and User Issues at the 43rd Annual Symposium and Map Curators' Workshop of The British Cartographic Society which was held from 7 to 10 September 2006 in Manchester, UK. Presentations were made by an international group of speakers: ICA Vice-President David Fairbairn (using electronic charts in marine navigation), Corné van Elzakker (testing the use of web maps in the retrieval of regional statistical data), Jacqueline Anderson (children as map users) and Annu-Maaria Nivala (usability methods' familiarity among map application developers). As the Working Group already expected beforehand and as noted by highly esteemed ICA celebrities like Ferjan Ormeling, Chris Board and Michael Wood who were also present, the BCS Symposium proved to be an excellent forum for sharing ideas and opinions on "the user", usability testing and improving user abilities. The extremely valuable comments made by BCS members in the Forum Discussion will definitely be of use in the further activities of the new ICA Working Group.

When you are interested in these activities of this Working Group, please contact: Corné van Elzakker, ITC, Department of Geo-Information Processing, P.O. Box 6, 7500 AA Enschede, The Netherlands. Email: [elzakker@itc.nl](mailto:elzakker@itc.nl)

*Corné van Elzakker, Working Group Chair*

## Ubiquitous Mapping and Maps and the Internet

### Second International Workshop on Ubiquitous, Pervasive and Internet Mapping (UPIMap2006)

UPIMap2006 was held in Seoul, Korea, from the 23rd to the 25th October 2006. This workshop was the second event, the first one was held in Tokyo in September 2004, sponsored by the ICA Commission on Ubiquitous Mapping and the Commission on Maps and the Internet, and for this time, the University of Seoul. Its main purpose is to bring

together ideas from different countries on the concepts and state of art of this field, and to discuss future direction of study of the domain. The local organizing committee was set up by professor Yun-Soo Choi (Chair) of the University of Seoul, assisted by his departmental staffs.

On the first day, after the morning registration, an opening ceremony was held as part of the Seoul GIS Symposium at the Hall of Korean Chamber of Commerce and Industry, located in center of Seoul. A welcome address was delivered by the dean of the University of Seoul San-Bum Lee. Then a representative of the city of Seoul explained the prospective of U-GIS in the city of Seoul. Guest speaker was Dr. Masatoshi Arikawa, associate professor of the Center for Spatial Information Science of the University of Tokyo, who gave a speech on "Ubiquitous mapping in Japan" explaining the general situation of the field, and pointing out the similarity for an ubiquitous mapping environment in the eastern part of Asia, especially between Korea and Japan; thus proposing to search for possible collaboration in the future. After lunch, there was a technical tour to the Seoul Transport Operation and Information Service where we received a lecture about the objective, the system's functions and its effectiveness, in the operation room equipped with big screens. The objective of the system is to collect various types of traffic information in real time and to establish scientific traffic management and transportation policy as well as to offer to citizens various kind of traffic information. On the way to the service, student guides demonstrated the pedestrian navigation system using cellular phone. People pay about \$10 per month to use this function (cf. \$2-3 in Tokyo). We finished the first day with a wonderful Chinese cooking invited by the deputy mayor of Seoul.

The second and the third day were devoted to oral and poster presentations. There were 38 papers from 10 different countries (Korea, Japan, U.S.A, Germany, Austria, Czech, Bulgaria, Latvia, Iran and Philippines), divided into nine sessions. At the beginning of the opening session, Professor Ki-Ho Kim, the director of the Institute for Urban Science of the University of Seoul, delivered his welcome speech. Then ICA President Milan Konecny introduced overall activities and studies of ICA, followed by the chair of the commission of ubiquitous mapping Takashi Morita, who explained the aims of the workshop.

Sessions were composed of "concept and methodology (1), (2)", "system design (1), (2)", "data and spatial information (1), (2)", "visualization (1), (2)", "application issues", including four papers in each. As a whole, we could verify the progress of this field since the last workshop in 2004, shown by the increasing number of proposals of various systems, and more concrete and new proposals deducing from experiences of real system uses. The similarity between Seoul and Tokyo urban spatial structure, address system, sign system, the development of navigation systems and confronting similar issues for finding directions, was very suggestive to re-evaluate the importance of the notion of the spatial context; interaction between real space, map and user, in the concept of ubiquitous mapping.

The last session was closed by the address of Professor Jay-Hyoun Kwon of the University of Seoul and the general manager of the workshop, declaring the success of the workshop.

*Takashi MORITA*  
*Chair, Commission on Ubiquitous Mapping*

# Commissions' Reports



*Local organizing members and participants from abroad*



*Technical tour at Seoul Transport Operation and Information Service*

## History of Cartography

The ICA Commission of the History of Cartography has organized three meetings:

- Spain (during the ICA Conference);
- Hungary (during the International Conference on the History of Cartography);
- Russia (Kaliningrad), at the ICA Commission on the History of Cartography Symposia "Development of Ideas and Methods in Cartography: Eighteenth - through Twentieth Centuries" as part of the Program of the International Conference "InterCarto - InterGIS".

Materials approved on these three meetings run as follows.

### *ICA Commission on the History of Cartography's Terms of Reference and Plans of activities*

Based on the main character of the International Cartographic Association, as a scientific community dealing with the development of Cartographic Ideas, Theory, Methods, Design, and Technology of maps' reproduction by different means, as well as with Geographical Information Systems and their applications in Cartography, we deem it

necessary to concentrate our forces on these topics which are essential for the recent Cartography. In other words, we think that in the ICA's world of professional cartographers it would be proper to pay a thorough attention to the scientific and technological development of this branch of Geographical Science and Practice. That is to say that we would like to promote the study of the development of cartographic ideas, theories, methods and practices in the cartographic traditions of different countries and cultures.

On the other hand, we think it is advisable to concentrate our efforts on those periods of the History of Cartography which are now being under consideration in the ongoing work for volumes Four (Cartography in the European Enlightenment) and Six (Cartography in the Twentieth Century) of the International History of Cartography. To fulfil this general program in some kind of finished form during the period of functioning left to the current Commission, we propose to concentrate our work on the bibliography and source studies of the following topics:

- Field surveys: manuals and instructions (manuscripts including), reports, tables of symbols, theoretical publications (including chapters in geographical books), textbooks; same kind of materials

for compiling of geographical descriptions during (or after) the surveys.

- Small scale (cabinet) general and thematic cartography: published and manuscript works on map compilation with use of different source materials, instruments, and techniques; publications and writings on map projections and their use; works on maps' generalization.
- Use of maps: instructions for professionals (cartographers, geographers, and others) and ordinary consumers; geographers' writings and remarks on the matter.

As a result, we should compile a research tool for scholars in the form of an annotated bibliography of published and manuscript works on these topics for each country. This Program has been partly realised in form of publications for the ICA Commission on the History of Cartography Symposia *"Development of Ideas and Methods in Cartography: Eighteenth through Twentieth Centuries"* in the Program of the International Conference "InterCarto – InterGIS". These materials were published as part of the Conference's Proceedings, and as a separate edition: *Development of Ideas and Methods in Cartography: Materials of the Commission Meeting in Kaliningrad* (August, 2006). Editor: Chair, ICA Commission on History of Cartography, Prof. Dr. Alexey Postnikov; Language Editors: Dr. Irina Sirotkina, Dr. Roger Smith. (Moscow: OOO INFOKOR, 2006), 167 p. ISBN 5-98866-008-8 (978-5-98866-008-8).

The next Commission's meeting will take place at Moscow (Russia) during the ICA Conference in 2007.

## Members 2003-2007:

Prof. Dr. Alexey Vladimirovich Postnikov (Chair); Dalia Varanka, Ph.D; Professor Dr. Elri Liebenberg; Dr. Robert W. Karrow, Jr.; Lucyna Szaniawska; Dr. Imre Josef Demhardt; Milan V. Drápela; Pellervo Kokkonen; Prof. Li Xiacong; Carme Montaner; Águeda Saucedo Escudero; Evangelos Livieratos; Katalin PLIHÁL; Dr. Zsolt TÖRÖK; Dr. Nikolay Komedchikov; Prof. Koji Hasegawa; Dr. sc. Mirela Slukan-Altić; Margit Tohver; MSc. Lyudmila Zinchuk; Jana Moser; Dr. Peter van der Krogt; Dr. Markus Oehrli.

*Alexey Vladimirovich Postnikov, Commission Chair*

## ICA Working Group on the History of Colonial Cartography in the 19th and early 20th centuries

### First International Symposium, Utrecht, The Netherlands: 21-23 August 2006

The history of the cartography undertaken by colonial powers during the 19th and early 20th centuries has acquired more than average importance in post-colonial times which led to the formation of a separate ICA Working Group in 2004. The first international symposium of this Working Group took place at Utrecht University in the Netherlands on 21-23 August 2006. The symposium was open to all cartographers, geographers, historians, map collectors, academics and lay persons interested in the history of overseas cartography from the mid-18th to the mid-20th centuries and was attended by approximately 30 delegates. Countries represented were the Netherlands, Belgium, Germany, Croatia, the United Kingdom, Ireland, Israel and South Africa.

The symposium was opened by Prof Dr B van der Zwaan, Dean of Utrecht University's Faculty of Geosciences, after which Prof Ferjan Ormeling, Head of the Department of Cartography and Secretary-General of the ICA, welcomed delegates on behalf of the ICA. The contributions were presented in five sessions, namely Dutch Colonial Cartography; Theoretical aspects and Cartographical Sources; Mapping

the Exploration of Africa; British Military Mapping, and 20th Century Mapping of Africa. The proceedings of the conference were published on CD-Rom and the papers that were presented can be accessed on the Working Group's website [www.histcolcarto.org](http://www.histcolcarto.org)

During the symposium an interesting and constructive discussion instigated by Dr Andrew Cook of the British Library took place as regards the function and future credibility of the Working Group. It was decided that future international meetings will also have a workshop component where aspects such as the sources and methods used in researching colonial cartography could be discussed. Such a component will not only encourage researchers to discuss mutual problems but will also make it easier for prospective delegates to acquire the necessary funding to attend the meeting.

The social and technical aspects of the symposium were equally successful. On Sunday 20 August 2006 the Cartography Department of Utrecht University kindly sponsored an ice-breaker meeting at the Mitland Hotel, and throughout the duration of the symposium the Map Library of Utrecht University presented an outstanding exhibition of Dutch colonial maps. On Wednesday, 23 August 2006, delegates were taken on two organised technical excursions, one to the Royal Tropical Institute (formerly Colonial Institute) in Amsterdam and another to the Amsterdam University Library which houses, amongst others, the Map Collection of the Royal Dutch Geographical Society.

*Elri Liebenberg, Chair, ICA WG on the History of Colonial Cartography in the 19th and 20th centuries*



*Delegates to the International Symposium of the ICA WG on the History of Colonial Cartography in the 19th and 20th centuries, Utrecht University, Utrecht, The Netherlands, 21-23 August 2006.*



*Nessa Cronin (Ireland), Christopher Board (UK) and Andrew Cook (UK) in die Map Library of Utrecht University.*



# Commissions' Reports

## Theoretical Cartography

### Prehistoric maps and sign systems in focus

From the 6-13 August 2006 the ICA Commission on Theoretical Cartography, the TU Dresden (Germany) and the Shevchenko University (Kyiv, Ukraine) hold a small excursion with the motto "Cartosemiotic European Heritage". The goal of this trip was a visit to four selected European museums with prehistoric maps (prehistoric map-like images) and prehistoric sign systems. There were following museums: in Dolni Vestonice (Czech Republic), the museum of the Pavlov map; in Kyiv, the Museum of Nature with the Mezhirich map; the Archaeological Museum "Stone Grave" with petroglyphs, located in Melitopol; and in Simferopol, Palaeolithic and Neolithic sites, all in Ukraine. A short report entitled "The 1st cartosemiotic study trip" was published in the Dresden Universitaetsjournal, No 14, 2006, page 8. Furthermore, a copy of the report can be found in the website: [http://tu-dresden.de/die\\_tu\\_dresden/verwaltung/dezernat\\_5/sachgebiet\\_5\\_7/uj/bilder/pdf2006/UJ14-06.pdf](http://tu-dresden.de/die_tu_dresden/verwaltung/dezernat_5/sachgebiet_5_7/uj/bilder/pdf2006/UJ14-06.pdf)

Our excursion was a small part of the international pilot-project "Cartosemiotic European Heritage". I have reported about this project at the 1st Workshop on Digital Approaches to Cartographic Heritage, held in Thessaloniki (WG DACH), on the 18-19 May 2006. In principle it is possible to repeat the same excursion for 1-2 groups participants of the 23rd ICC 2007 in Moscow, as post-conference excursions.

The possible routes for these trips can be: Moscow - Kyiv (Nature museum, Trypillie museum) or Moscow - Melitopol (archaeological museum).

Alexander Wolodtschenko, Commission Chair



The "Stone Grave" in the near of Melitopol city /Ukraine/

## Theoretical Cartography and Geoinformation

The international symposium held on the 28 - 29 October 2006 in Wuhan, China, was organized by the ICA Commission on Theoretical Cartography and the School of Resource and Environmental Science of the Wuhan University, in cooperation with Commissions on Cartography and GIS of the Chinese Society of Geodesy, Photogrammetry and Cartography, and the 'Geographical Society of China'.

The program for the first day included the ceremony of the 50th anniversary of the Wuhan University, and participation in the opening session of the 14th international conference on geoinformatics (Geoinformatics 2006) in Wuhan.

On the second day, after greetings by Qingquan Li, Vice President of the Wuhan university, Milan Konecny, ICA President, William Cartwright, ICA Vice President, and Alexander Wolodtschenko, Chair, ICA Commission on Theoretical Cartography, the participants from Australia, Austria, Canada, Czech Republic, Germany, Italy, Russia,

Ukraine, USA and the host country China gave oral and poster presentations of their papers. The following papers were presented in four oral sessions:

**Session 1:** *Art and Cartography* (Cartwright, W.); *The Cartosemiotics of Maps: Towards an Overview* (Schlichtmann, H.); *Meaning and Drawing in Mapping: The Iconic Information* (Bianchin, A.); *When and How Maps Do not Work: Cartosemiotic Aspects* (Wolodtschenko, A.).

**Session 2:** *Changing our Conception of Space through Internet and Mobile Mapping* (Peterson, M.); *A Tetrahedron Model for Icon-based Geocommunication* (Angsüsser, S.); *Maps of New Generation. Modern Stage* (Artemyev, Ju.); *Graph-image Thinking in Geo-Science Research and Application* (Qi, Q.)

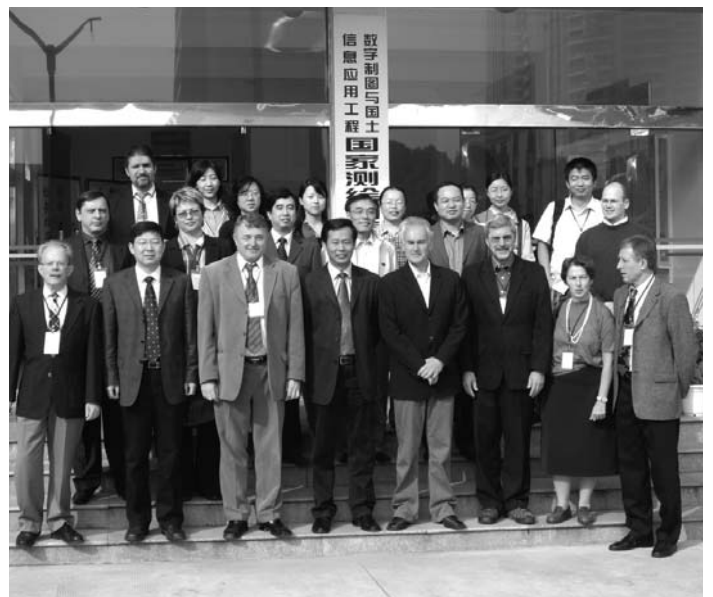
**Session 3:** *Application of Cartographic Information to GIS and Ecological Modeling: Problems and Experience* (Rotanova, I.N., Mikhailov, S.A., Shibkikh, A.A., Vedukhina, V.G.); *A Conceptual Model for Designing an Adaptive Map Symbol System* (Wang, Y.); *The Special Maps to Represent Spatial Cognition* (Ai, T.); *GIS: From Static to Dynamic* (Tang, X.)

**Session 4:** *Linguistic Paradigm Bridging Geometric and Semantic Model of GIS* (Du, Q.); *A Matching Approach Focused on Parallel Roads and Looping Crosses in Digital Maps* (Meng, Z., Wei, S., Meng L.); *A Watermarking Algorithm for Vector Map Data Based on Wavelet Transformation* (Zhu, Z.); *The Language of Russian Geographical Drawings of the Period before Peter I (the 16th - 17th Centuries)* (Komedchikov, N.); *Mapping of the Black and Azov Seas: Research of History of Cartography* (Gordyeyev, A.); *Visual Art of Cartographic Symbolization Taking Structuralism and Deconstruction Perspective* (Ma, C.).

A productive discussion, moderated by W.Cartwright, M.Peterson and A.Wolodtschenko took place after papers and posters presentations. The results of the symposium will be published on the web site: <http://www.ais.fraunhofer.de/and/Wuhan2006>.

A cultural program was planned on the 30th and 31st October, where the participants had the opportunity to visit "Three Gorges Household" and "Three Gorges Dam". The next cartographic symposium is planned for August 2008 in Barnaul and Novosibirsk (Russia).

Alexander Wolodtschenko, Chair, Commission on Theoretical Cartography



## Cartography at the Enterprise Level: Sustainable Development in the Future

Notes from a Public Panel Discussion at InterCarto – InterGIS 12 International Conference, Berlin, August 29, 2006

The public panel discussion of InterCarto-InterGIS 12, Berlin 2006 aimed at raising strategic issues with respect to the interdisciplinary scope of the conference. Here, a collection of the main discussion results as well as a set of recommendations are compiled. In addition to personal information of individual scientists these results also can be useful in innovation-related project definitions, for consideration in research framework programs, and in emphasizing new directions in the curricula for environmental sciences education on local, regional, national and international level.

**Sustainable Development:** Sustainable development or sustainability is a term that is constantly evolving in definition and application. It reflects the dynamic character of natural and human systems. Current literature seeks to define sustainable development as a paradigm that has distinct meaning but is flexible enough to apply to the broad base of sectors that it encompasses

[<http://www.iisd.org/sd/principle.asp?pid=42&display=1>]

Now, the ideology of sustainable development is becoming a universal social imperative with practically no alternative in modern society. In this context Development is understood to mean a logical process of change in society which is examined inseparably from nature. Let us define sustainability as the ability of a system (either natural or social) to keep its basic qualitative parameters during the process of development. According to G. H. Brundtland, the concept of sustainable development (SD) is, first and foremost, a compromise between the interests of the present and future generations. In reality this compromise can be achieved due to progressive (ascending) changes. The report "Our Common Future" produced by the World Commission on Environment and Development affirms:

*«Sustainable development is possible for the mankind - one that meets the needs of the present without compromising the ability of future generations to meet their own needs»* [Our Common Future, 1989]. Thus, it is necessary to regard SD as an invariant process of reproducing the state of the social environment whereby the natural dynamics of social systems do not affect their structural and qualitative features.

However, in view of the issues discussed at INTERCARTO 12 in Berlin, this definition can be expanded as follows: *"Sustainable Development is the fundamental process by which society advances into the future, meeting the needs of the present without compromising the ability of future generations to meet their own needs. In practice sustainable development is understood, valued and communicated through science, public interaction and freedom"*.

Sustainable Development requires accurate education, research and knowledge transfer. Cartographic professionals and the geospatial industry are uniquely able to contribute toward these goals, since land, water, air and people are all located somewhere.

The common denominator of location transcends boundaries and borders, disciplines and individual culture and ideology, providing a context from which holistic and diverse communication, resources and finances can be converged and agreement achieved. To meet these challenges several realities must be recognized and addressed:

**Language:** Multi-lingual products and services are becoming more important and should be supported. They allow greater cross-cultural

awareness to occur, increase levels of participation and are likely to ensure longer-term support. Cartographic information related to sustainable development should strive to provide more multilingual options.

**Cartography / Sustainable Development:** Cartography is not solely about producing a map, but instead, is a form of communication. It is noteworthy that many individuals within the geospatial industry internationally are now beginning to understand and view cartography as a fundamental part of the business process – at the enterprise level. That is, cartography is viewed at the same level as human relations (HR), customer relations and management (CRM) and accounting systems. It is an integral component of 'doing business' – therefore fundamental to sustainable development.

**Standardization:** To meet the challenges of communicating information and knowledge, standardization is required on numerous levels, from context to metadata and from syntax to cartographic symbology. Hardware systems and data transfer protocols (i.e. GML, XML, ISO) are also necessary for achieving higher levels of conformity and understanding. Sustainable Development should necessarily consider, participate in and utilize geospatial standards. High levels of standardization are available in both proprietary and open source products and services. Sustainable development should consider 'best of breed' applications and resources that include standardized interfaces, supporting those with high levels of openness.

**Communication:** Communication may take several modes and types. A large number of people still utilize hard copy mapping products, which provide their only source of spatial information. While nearly 70% of households have a computer, the distribution is uneven and broadband services are not available throughout Europe and Asia. Products and services should consider all forms of communication including computer distribution, hardcopy products, DVD and radio. It would be worthwhile to consider more conferences regionally which educate and inform smaller communities about the value of sustainable development.

**Critical Problem of Resources:** Resources are not always available within the 'sustainable development' community to advance the goals and objectives outlined by the cartographic community nor the 'environmental' community. Since Sustainable Development involves economic considerations in the process, it should be recognized that private industry can contribute and would likely be willing to play a larger role. The agricultural and forestry communities, along with the wider geospatial community control and manage large amounts of both financial and land capital. Insofar as practical, sustainable development initiatives and the cartographic community should consider to involve corporate and private industry more closely, at the decision making level.

**Usability:** The usability of spatial information as data, products and services is highly related to cost, legal copyright and the ability to re-create information through analysis and development of new products. These factors must be considered so that people using products can achieve a sense of 'entrepreneurial spirit' in both participation and activity. A key factor that dictates high level of use is related to accuracy of the spatial data and information products. High quality products tend to be re-used. The current trend internationally is toward higher accuracy technologies. In all cases, the cartographic community must seek to maintain, and advance, the use and application of higher accuracy technologies.

**Level of Users:** The use of cartographic products and spatial information can be viewed on a 'continuum' which ranges from those

# Special Features

with little knowledge and interest through to professionals and executives. Use of cartographic products should not be viewed as a dichotomy, instead, level of use should recognize that current cartographic product research and availability is becoming increasingly object oriented, and users are becoming 'creators' of cartographic products – as a form of communication. High level executives will continue to use varied types of documents for decision making, but sustainable development plans will occur within the real of many individuals communicating needs, ideas and strategies, using cartographic technologies as communicative elements.

**Research/Social/Behavioral:** Research in the domain of cartography should continue for both applied and basic research. As a domain, cartography is under change and adaptation as the internet and new publishing methodologies are being developed internationally. While sustainable development plans will require well-known cartographic services, the broader goal of understanding the role of cartography within the context of new programming, communication and behavior-oriented social strategies is not wholly known. Thus basic research remains a high goal for the discipline and that research should consider to venture more fully into the 'sustainable development' domain – including social and economic scientists as well as communication professionals.

**European Commission:** Over the years, a wealth of research has been conducted in the fields of ICT and Environment, in which the evolution of geospatial data had played a vital role in advancing the understanding of environmental processes, predicting environmental impacts and supporting environmental decision making and management. The European Commission is well positioned to interface other European agencies such as Eurostats, European Space Agency, Agriculture and forestry communities and to initiate and support cross border data use, harmonization and education goals related to cartography. During the course of FP6, the IST programme gave priority to promoting research related to ICT for disaster risk reduction and emergency management, where particular advances are being made in designing and developing open service oriented information architectures, and sensor networking for improved environmental monitoring. In FP7 the area of application will be widened to include general environmental risk management, the management of natural resources, and improved energy efficiency, in order to more effectively address sustainable growth.

**Financial Resources:** In principle, sustainable development, if properly developed and implemented should be self-sufficient financially. Strategies need to be developed which include sufficient financial support to sustain the very systems and structures that are being implemented. This is a key reason why cartographic and spatial information needs to be addressed at the enterprise level and implemented through alignment with the decision making process. It is not an add-on or after thought, spatial data and information is a strategic resource upon which decision making occurs.

## Recommendations

Education is an essential tool for achieving sustainability. People around the world recognize that current economic development trends are not sustainable and that public awareness, education, and training are keys to moving society toward sustainability.

*Improving the education for every citizen:* Education directly affects sustainability plans in the following three areas:

*Implementation:* An educated citizenry is vital to implementing informed and sustainable development. In fact, a national sustainability plan can be enhanced or limited by the level of education attained by the nation's citizens. Nations with high illiteracy rates and unskilled workforces have fewer development options. For the most part, these nations are forced to buy energy and manufactured goods on the international market with hard currency. To acquire hard currency, these countries need international trade; usually this leads to exploitation of natural resources or conversion of lands from self-sufficient family-based farming to cash-crop agriculture.

*Decision making:* Good community-based decisions - which will affect social, economic, and environmental well-being - also depend on educated citizens. Development options, especially "greener" development options, expand as education increases. With a growing map awareness, maps are increasingly used as decision support tools in different spheres of human endeavor. Notable examples are map use in car navigation systems for way-finding decisions and poverty mapping for poverty alleviation targeting purposes upon which the lives of millions of people depend. To better contribute to sustainable development, it is important to know where and how cartographic products are to be used. This will be pivotal in significantly contributing to sustainable development and further integrating the many disciplines involved in sustainable development as maps are increasingly used. Outside the spatial science disciplines, maps have proved very useful in generating hypotheses in understanding the problem at hand and in the presentation of research findings. The cartographic community must seek to engage other scientists, notably the social scientists in the use and application of spatial technologies. Cross-boundary applied research into map use, particularly in the area of map usage in the actor-specific information process chains for decision making is highly recommended.

*Quality of life:* Education is also central to improving quality of life. Education raises the economic status of families; it improves life conditions, lowers infant mortality, and improves the educational attainment of the next generation, thereby raising the next generation's chances for economic and social well-being. Improved education holds both individual and national implications.

*Financial support and correlated activities:* The European Commission supports the funding of international applied research projects through its Framework Programmes for Research and Technological Development. But in order to assure a better communication between different actors and actions in Sustainable development it is necessary to obtain a local support. Other international bodies support also the projects having as target the SD: ICA, UN, etc.

The problem is how to harmonize such kind of activities in order to respect the principles of Sustainable development at different levels. Sustainable development will focus on improving the quality of life for all of the Earth's citizens without increasing the use of natural resources beyond the capacity of the environment to supply them indefinitely. It requires an understanding that inaction has consequences and that we must find innovative ways to change institutional structures and influence individual behaviour. It is about taking action, changing policy and practice at all levels, from the individual to the international.

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## Mobile Cartography

### The use of cellphone technology in activity and travel data collection

Transport decision-makers and transport planners increasingly rely on detailed information of individual-level travel and activity patterns in disaggregate form for transport planning decisions and policy formulation. Historically, most of this information was collected using origin-destination (OD) surveys, which required that (selected) households be visited and information be collected on place of residence, place of employment, transport mode used, time of departure/arrival, etc. (the information related mainly to the main commuting trips). Such surveys are often expensive, contain relatively little information about the complete daily travel pattern and can be of dubious quality if the exercise is not planned and executed well. Furthermore, as the shortcomings of the conventional aggregate transport planning approach received more attention, theoretical, conceptual and methodological advancements in activity/travel behaviour research have necessitated the need for more detailed, disaggregated activity and travel data.

Location-aware technologies (LAT) offer interesting and potentially very useful techniques and tools to augment; complement and, in some instances, even replace traditional OD-surveys and activity-travel diaries. These technologies include the Global Positioning System (GPS), the Global System for Mobile Communication (GSM), and radio-frequency identification (RFID), and are supported by computer assisted data collection technologies and tools, satellite imagery and mobile computing technology. This technology can overcome the problems associated with traditional data collection diaries and questionnaires such as respondent burden, incomprehension or illiteracy, and erroneous recording (e.g. wrong time and location) while providing supplementary information not previously available, such as the exact space-time activity/travel trajectory. In a developing country such as South Africa, where GSM cellular telephones (cell phones) are widely used, they can be particularly useful to overcome the known problems associated with trip under-reporting, missing and/or incomplete data (in specific locational data) and finally incomplete, missing, or inconsistent trip details.

The use of GPS in tracking of vehicles, freight pallets and individual animals is well established, but has not been used to track people on a large scale, primarily because of the cost of providing GPS receivers to all the participants in large-scale surveys of human activities, such as the travel behaviour of commuters. The proliferation of cell phones and their inherent locational positioning and temporal features provides for an interesting technology to address some of the data and technology concerns. Cell phones, however, also have some inherent problems in data collection, notably with pinpointing their location accurately. Complex positional algorithms supported by much additional data may be required to overcome this. A cell phone's position may be determined by the phone itself (which requires custom software for each brand of cell phone, or even each model) or by the network, such as by identifying the base station (GSM transmitter or cell phone tower) currently used by the cell phone.

For large-scale studies, it is only feasible to use the network option. Accuracy is very dependent on the density of base stations and the quality of the signals in the study area. In urban areas with a higher density of base stations, resolution can be as fine as 50 – 300 metres

based on the size of the cell. In outlying areas, the accuracy may be considerably less and in areas with few base stations, the positional data may be rather poor owing to cell sizes over 70km in diameter.

When using cell phones for tracking purposes, permission must obviously first be obtained from the study participants. During 2005 the CSIR, a science council based in Pretoria, South Africa, ran a pilot study over two days with the participation of 66 employees. The cell phone numbers were forwarded to the service provider who recorded at five-minute intervals over the two days, the base stations used by each of the 66 cell phones. The cell phone (whether being used to make a call or not) is in constant contact with a GSM network as long as it is switched on and the location information is accessed by sending the cell phone a signal. The service provider supplied the research team with the data, adding the geographical coordinates of the centroids of the reception areas of each of the base stations used. Positional accuracy (at a first level) is provided by the 'catchment' radius of the base stations (which may be divided into segments). The data were then transferred to a processing unit which added contextual information to the data and 'interrogated' the raw data with labelling algorithms and cleaning rules. A daily activity-travel path was derived and data for use in applications, such as transport planning, was then extracted (see Figure 1 below).

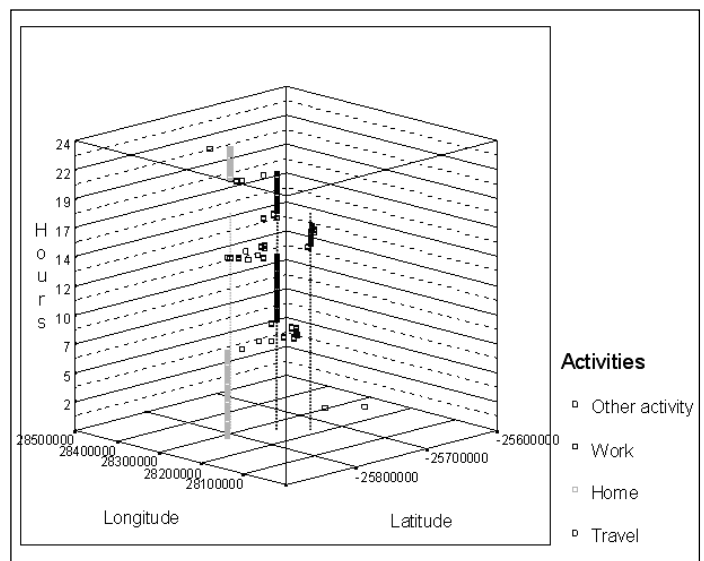


Figure 1: Comparison of cellphone tracked record with daily activity pattern

Flowmap, a model designed to analyse interactions and flows, was used to link the cell phone movement to the nearest road network. This was done to illustrate the "traffic" on certain roads to and from the CSIR. Most of the movement to the CSIR was from the south-eastern suburbs of Pretoria, where most of the participants' homes (origins) are. Obviously, with most of the participants working at the CSIR on a daily basis, the highest traffic volume was around the CSIR. Figure 2 illustrates the movement to and from the CSIR over the study period. The proof-of-concept study showed that it is possible to obtain individual-level travel behaviour data from cell phones. However, while information such as the origin and destination of trips (and the linking thereof to transport zones) can be 'extracted' from cell phone data without significant labour and technological intervention, obtaining a more richer description of individuals' entire daily activity and travel patterns proved considerably more complex requiring (at least initially) much more methodological innovation.

# Forthcoming Events

Based on the success of this pilot, we are currently engaged in a bigger project aiming at looking at much larger samples of commuters, refining the models and techniques, improving the data, and identifying niche applications of the technology.

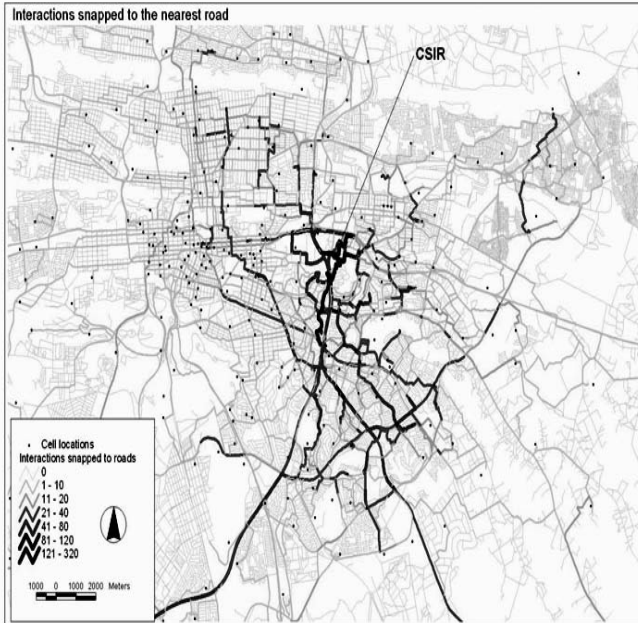


Figure 2: Modelling traffic movement based on cellular telephone data

Peter Schmitz<sup>1</sup>, Antony Cooper<sup>1</sup> and Stephan Krygsman<sup>2</sup>

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## Forthcoming Events

### 2nd ICA Workshop on Geospatial Analysis and Modeling

12-13 July 2007

Athens, GA, USA

Contact: xyao@uga.edu; bin.jiang@polyu.edu.hk

<http://www.ggy.uga.edu/people/faculty/xyao/Workshop2007/>

### ICA Workshop "Map Language and Geoinformation"

Moscow, Russia

Date: 3-4 August 2007

Contact: alexander.wolodtschenko@mailbox.tu-dresden.de

### Map World Forum

Hyderabad International Convention Centre, Hyderabad, India

22-25 January 2007

Email: [info@mapworldforum.org](mailto:info@mapworldforum.org)

Website: [www.mapworldforum.org](http://www.mapworldforum.org)

### V International Conference GEOMATICA 2007

12-16 February

Havana, Cuba

Web site: <http://www.informaticahabana.com/>

### INTERGEO East.

28 February - 2 March

Sofia, Bulgaria

Web site: [www.intergeo-east.com](http://www.intergeo-east.com)

### Map Middle East 2007

Dubai, UAE

26 - 29 March

E-mail: [info@mapmiddleeast.org](mailto:info@mapmiddleeast.org)

Website: <http://www.mapmiddleeast.org>

### 10th AGILE International Conference on Geographic Information Science

8-11 May

Aalborg University, Denmark

Web site: <http://468041.g.portal.aau.dk/>

### FIG XXX General Assembly and Working Week.

13-17 May

Hong Kong SAR, China

Web site: [www.figww2007.hk](http://www.figww2007.hk)

### 5th International Symposium on Spatial Data Quality

Enschede, The Netherlands

13 - 15 June

Website: <http://www.itc.nl/ISSDQ2007>

### 32nd International Symposium of Remote Sensing of Environment

25-29 June

San Jose, Costa Rica

Web site: [www.cenat.ac.cr/simposio/index.htm](http://www.cenat.ac.cr/simposio/index.htm)

### XXIII International Cartographic Conference.

4-10 August, Moscow, Russian Federation

Web site: [www.icc2007.com](http://www.icc2007.com)

### XII Congress of the Spanish Remote Sensing Association

Date: 19- 21 September 2007

Mar del Plata, Argentina

[www.xiicongreso-aet.org.ar](http://www.xiicongreso-aet.org.ar)

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