



Presentation of commissions and working group activities

2011–2015

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Commission on Art and Cartography

The working group on Art & Cartography was created in Moscow in August 2007 and became an ICA Commission in Paris in July 2011. The main goal of this Commission is to strengthen the relationships between art and cartography, which involves rethinking the way we approach spatial expressions and facilitating interactions between cartographic and artistic practices. The Commission on Art & Cartography has been pretty active between 2011 and 2015, as illustrated by the following list of activities.

2011

July. Multiple activities at the 25th ICC 2011 (Paris) including: (1) A workshop entitled “**Mapping Processes and Practices: Arts, Maps and Society**” organized jointly with the Commission on Maps and Society (more details: <http://artcarto.wordpress.com/2011/05/09/workshop-paris-july-2nd-2011-program/>); (2) An experimental walking tour in Paris entitled “**Exploring visible and invisible borders in Paris – a dialogic walk with cartographers and artists**”; (3) A screening of “Zig-Zag, Snakes and Ladders (a didactical fiction about cartography)” by Raul Ruiz (1980).

October: publication of an edited Book: Caquard S., Vaughan L. and Cartwright W. (eds.) (2011) *Mapping Environmental Issues in the City: Arts and Cartography Cross-Perspectives*, Springer-Verlag (<http://www.springerlink.com/content/978-3-642-22440-9>).

November: publication of a **special issue** of *The Cartographic Journal* on “Cartographies of Fictional Worlds” (Volume 48, Number 4) guest-edited by B. Piatti and L. Hurni (<http://www.maneyonline.com/toc/caj/48/4>).

2012

June. Organization of a **workshop** on “Cartography & Narratives” that took place at ETH Zurich (Institute of Cartography and Geoinformation) on June 11-13, 2012. This workshop brought together 30 artists, scholars and students from cartography, geography, the humanities and the arts interested in exploring further the relationships between maps and narratives from multiple perspectives (e.g. theory, performance, technology, design) (More details here: <https://cartonarratives.wordpress.com/>).

2013

April. Release of a **curated film** by Matthew Bissen, Paul Ritchard and Laurene Vaughan entitled “Narrating Place” that combines 21 short movies of 45 seconds each (http://narratingplace.info/?page_id=87).

August. Multiple activities at the 26th ICC 2013 (Dresden):

- Aug. 25th. Pre-conference **workshop** on Maps and Games (in collaboration with the Maps and Society Commission). About 20 participants from all over the world joined us for this workshop, which included a playground gaming session organized by the collective of artists and game designers Invisible Playground (<https://artcarto.wordpress.com/2013/03/15/maps-and-games-in-dresden-germany-august-25th-2013/>).

- **Movie screening** of a first version of “MDMD – A Multi Dimensional Mapping Device”, an experimental movie made collaboratively between artists and cartographers.
- Art and Cartography **commission meeting** + Three **paper sessions**.

2014

May. Organization of **colloquy** in Montreal entitled “Cartographier les récits : enjeux méthodologiques et technologiques” (full program is available here: <http://www.acfas.ca/evenements/congres/programme/82/300/310/c>). During two days (May 12-13, 2014), 25 students, professors and researchers from geography, cartography, literature, sociology and anthropology got together to discuss (in French) issues around mapping different kinds of stories.

June. Publication of a **special issue**. S. Caquard and W. Cartwright (Guest Eds.) Cartography and Narratives, *The Cartographic Journal* 51, 2 (<http://www.maneyonline.com/toc/caj/51/2>).

November. Publication of a **special issue**. M. Bissen and L. Vaughan (Guest eds.) Narratives and Cartography, *NANO – New American Notes Online (issue 6)* (<http://www.nanocrit.com/issues/6-2014/nano-special-issue-cartography-and-narratives>).

2015 (forthcoming)

August. Multiple activities at the 27th ICC 2015 (Rio de Janeiro)

- Aug. 21-23: A workshop entitled "**Mapping Ephemeralities / Ephemeral Cartographies**" organized jointly with the Commission on Maps and Society (<https://ephemeralcartographies.wordpress.com/>).
- Aug. 26th (12:30 to 13:30): A screening of “Unmappable” a documentary about Denis Wood, one of the most famous and controversial contemporary cartographer. This screening will take place in the room Plenary 1.
- Several paper sessions focusing on the relationships between maps, arts and culture.

2016 (Forthcoming)

Publication of a **special issue**. T. Joliveau & S. Caquard (Guest Eds.) La mise en carte des récits, *Mappemonde*.

Overall, between 2011 and 2015, the Art & Cartography commission has organized **two international conferences** (Zurich 2012 & Montréal 2014), **two pre-conference workshops** (Paris 2011 & Dresden 2013), published **three special issues** of academic journals (Piatti & Hurni 2011; Caquard & Cartwright 2014; Bissen & Vaughan 2014 + 1 in preparation Joliveau & Caquard 2016), released **two collaborative films**, and organized several activities during the ICC (Paris 2011 & Dresden 2013). We have now developed a strong international network of more than 50 artists and cartographers and we are several projects planned for the next years.

*Sébastien Caquard, Chair
Montréal, July 25th 2015*

Commission on Atlases

www.univie.ac.at/cartography/karto/project/cnra/

By the ICA General Assembly held in the framework of ICC Paris 2011, the former Commission on National and Regional Atlases was renamed to Commission on Atlases indicating that the Commission was responsible for the entire field of atlas production extending from school atlases via city, regional and national atlases to monothematic atlases like population or gender atlases. Peter JORDAN (Austria) was again elected chair of the Commission and supported by René SIEBER (Switzerland) as the first vice-chair and Qingwen QI (China) as the new second vice-chair. Also in his second term, it was the main intention of the chair to further elaborate, complete and publish a “cookbook” for atlas editors. All structures for this project had already been established in the earlier term and about half of the chapters had already been written. In the term 2011–2015 indeed some new chapters could be added and an agreement with Springer Publishers on the publication of the book be concluded. But by the end of the term the book still lacks some chapters and neither an English proof-reading of the chapters written by non-English native speakers nor the layout of the existing chapters could be accomplished. The insufficiency also of this second attempt may be attributed to three factors: (1) the odium of the cook-book project as a long-term and never-ending story; (2) the fact that right the best authors are short in time and can invest efforts only after their main tasks are completed; (3) the vigour of the chair and main editor to push authors and other co-operators declined.

What really could be established, is a network of cooperation with other ICA commissions, notably with the Commission on the History of Cartography (chair: Elri LIEBENBERG), the Joint ICA/IGU Working Group/Commission on Toponymy (ICA chair: Paulo DE MENEZES) and the Commission on Theoretical Cartography (chair: Qingyun DU). This cooperation resulted in a series of very fruitful workshops and symposia to be a.o. mentioned below. They constitute certainly the highlights of the Commission work in the past four years.

Pre-conference workshop Paris, 2nd July 2011

The workshop was devoted to presentations of new national, regional, city, thematic and school atlases as well new developments with existing atlases and took place at the Institut géographique national (IGN) in Vincennes, well supported by the local organizers. It was attended by 17 colleagues from seven countries and saw 15 paper presentations.

Conference “National Atlases in the Formation of the Global Information Space”, 5th All-Ukrainian Scientific and Practical Conference “National Mapping”, Kiev, 13–14 September 2012

With this conference the ICA Commission on Atlases functioned as a co-organizer, while the main organizer was the National Committee of Geographers of Ukraine; other organizers the Ukrainian Geographical Society, Ukrainian Cartographic Association, Ukrainian Academy of Sciences (Institute of Geography), State Scientific and Production Enterprise “Kartographia”. The conference dealt with characteristics of national and regional atlases of different countries, modern conceptual approaches to the creation of national and regional atlases, problems of information reflection and coordination of thematics of border regions maps, software and technology of creation of paper and electronic versions of national atlases.

Commission Workshop on city atlases, Guangzhou (China), 15-16 November 2012

The workshop took place in conjunction with the 7th National Conference of Cartography & GIS “Digital Cities Benefit Human Beings” at the Institute of Geography and Natural Resources Research, Chinese Academy of Sciences, Guangzhou. Local organizers were the Chinese Academy of Sciences, Institute of Geography and Natural Resources Research, the Geographical Society of China, the Surveying & Mapping Society of China and the Geology Society of China. The workshop had a respectable Chinese participation.

International Symposium on Service-Oriented Mapping (SOMAP 2012), Vienna, 22-23 November 2012

In the framework of this symposium at the Austrian Federal Office for Metrology and Surveying [Bundesamt für Eich- und Vermessungswesen (BEV)], the Atlas Commission organized a special session with presentations of new atlases from Central Europe (and beyond). The session provided for a comprehensive survey over recent atlas production in Central Europe.

Seminar on historical maps, atlases and toponymy, Leipzig, 22-23 August 2013

As a pre-conference event of the 26th International Cartographic Conference in Dresden, three ICA commissions/working groups (on Atlases, on the History of Cartography, on Toponymy) organized a workshop on historical maps, atlases and toponymy at the Leibniz Institute of Regional Geography [Leibniz Institut für Länderkunde]. It had a focus on the function and use of place names on historical maps and in all kinds of atlases (ranging from scientific to school atlases and from macro-regional and national atlases to city atlases). Proceedings are still to be published by the Leibniz Institute of Regional Geography.

Workshop on Theoretical Cartography and Geo-Information Science, Beijing, 17-19 October 2014

The workshop was organized by the ICA Commission on Theoretical Cartography, the ICA Commission on Atlases, the Commission of Cartography and GIS, the China Society of Surveying Mapping and Geo-Information Commission of Mapping and the Chinese Industrial Association of Geographic Information. Local organisation was in the hands of Qingyun Du (chair, Commission on Theoretical Cartography) and Qingwen Qi (vice-chair, Commission on Atlases).

Pre-Conference Symposium on Atlases, Toponymy and the History of Cartography, Rio de Janeiro, 19-21 August 2015

The symposium took place in the premises of the Brazilian Institute of Geography and Statistics (IBGE). Like its predecessor in Leipzig it was co-organized by the Joint ICA/IGU Working Group/Commission on Toponymy, the ICA Commission on the History of Geography and the ICA Commission on Atlases, but with substantial participation of the IBGE. The event for about 60 participants comprised 23 oral presentations delivered by Brazilian and international experts, and technical visits to the National Library [Fundação Biblioteca Nacional] as well as to the Navy Museum [Museu Naval].

Referring to the terms of reference of our Commission, the following progress can be stated

Produce a cookbook for the production of (digital) national and regional atlases: This attempt resulted again not in the publication of the cookbook. Progress in the period in question was made as regards the completion of some chapter manuscripts and an agreement with Springer Publishers.

Promote and support the design, production and use of national, regional, city and thematic atlases and atlas information systems: Workshops and symposia (co-)organized by the Commission contributed certainly a lot to this goal.

Conduct workshops and/or seminars that present recent and potential atlas developments and innovations: Not less than seven workshops/seminars (see above) as well as presentations of atlases were (co-)organized.

Document guidelines and procedures for the design, production and use of national, regional, city and thematic atlases: No activity in this field.

Elaborate and maintain an electronic inventory of national, regional, city and thematic atlases containing the main characteristics of these map works as well as relevant addresses in order to support information exchange between atlas editors as well as to disseminate information on atlases to a wider public: First efforts to develop an inventory on the Commission website very made, but not continued.

Maintain a commission website and update it regularly with the major aims of providing for information exchange between commission members and disseminating information on activities in this field to a wider public: The Commission website is maintained by the University of Vienna, Institute of Geography and Regional Research.

Encourage efforts for integrating data for the development of electronic atlases and national and regional atlas information systems by:

evaluating metadata standards as they apply to atlas design, creation and dissemination.

acknowledging requirements for diverse geographic and temporal data themes.

identifying and exploring various alternatives to data integration issues.

No activity in this field.

*Peter Jordan, Chair,
ICA Commission on Atlases*

Commission on Cartography and Children



Commission meetings:

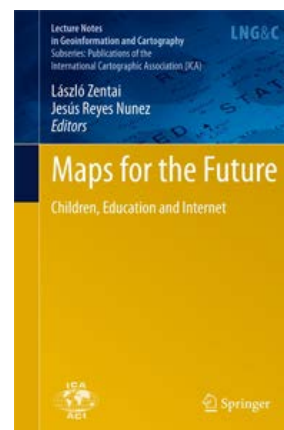
- 4th Conference on Cartography and GIS in Albena, Bulgaria (afternoon of 20 June 2012)
- 26th International Cartographic Conference in Dresden, August 2013
- 5th International Conference on Cartography and GIS (Bulgarian Riviera, 15-21 June 2014)
- Joint ICA meeting (Cartography and Children, Planetary Cartography, IMY Working Group) a day before the 9th ICA Workshop on Digital Approaches to Cartographic Heritage (Budapest, 3-4 September 2014)
- Next meeting: 27th International Cartographic Conference in Rio de Janeiro, August 2015

Newsletters:

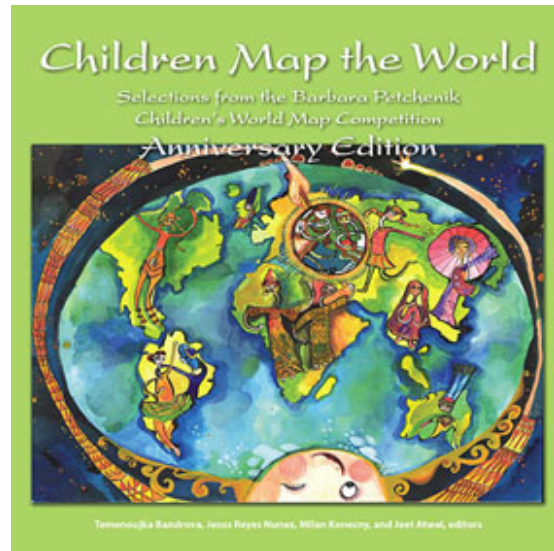
- 12 newsletters (from 17th to 26th, an average of three by year) were sent for the Commission members in this period.

Publications:

- „Maps for the Future: Children, Education and Internet“ book (editors: László Zentai and Jesús Reyes, Springer-Verlag, 2012) containing a selection of papers presented in the Joint ICA Symposium held at the University of Orleans on 30 June and 1 July of 2011. The book includes 24 works written by authors from Australia, Austria, Belgium, Brazil, Bulgaria, Hungary, Indonesia, Poland, The Netherlands and USA. More detailed information about the book can be found at: <http://www.springer.com/earth+sciences+and+geography/geographical+information+systems/book/978-3-642-19521-1>
- „A response to Denis Wood's review of Children Map the World“ (author: José Jesús Reyes Nuñez, Commission Chair). Published in: *Cartographica: The International Journal for Geographic Information and Geovisualization* 48:1, 2013, 67-69 old. University of Toronto Press, Canada.
- CD Proceedings of the „Sharing Knowledge“ Joint ICA Symposium, held at Dresden University of Technology on 23 August 2013 and containing 16 works sent to this event from Austria, Brazil, Germany, Hungary, Indonesia and USA. Web version: <http://lazarus.elte.hu/jointsymposium2013/>
- Article entitled „Maps for Children, by Children“ written by Commission Chair, José Jesús Reyes Nunez, in a special issue dedicated to Cartography of the *Sangsaeng* journal (December 2013) produced by the UNESCO Asia-Pacific Centre of Education for International Understanding (APCEIU). Among other topics, the article introduced the Barbara Petchenik Competition for the readers. The journal can be downloaded on http://www.unescoapceiu.org/board/bbs/board.php?bo_table=m411&wr_id=68, the article can be found on pages 15-18.



- Anniversary volume of the “Children Map the World” series – Book published by ESRI Press with a selection of 50 drawings sent to the competition 2015 and a selection of 20 drawings from all the previous competitions, celebrating the 20th Anniversary of the first Barbara Petchenik Competition in 1993. Date of publication: April 2015. Website of the book: <http://esripress.esri.com/display/index.cfm?fuseaction=display&websiteID=282&moduleID=0>
- “The World as seen by Children” – Book to be published by the Chinese Sinomaps Press, containing a selection of 100 drawings from the competitions organized in 2009 and 2011. Planned date of publication: 2015.
- Next publication: CD Proceedings of the „Cartography beyond the ordinary world” Joint ICA Symposium, to be held at Fluminense Federal University, Niterói (Brazil) on 21-22 August 2015.



Representation of the Commission in international events and relations with sister organizations:

- EUROGEO Annual Conference (Dublin, 1-2 June 2012) – presentation on activities developed by ICA and the Commission on Cartography and Children in the first day of the event.
- IGU-CGE 2012 Symposium in Freiburg (Germany), 22-25 August 2012 - personal contacts with representatives of the Commission on Geographical Education of the International Geographical Union (IGU).

Organization of ICA events:



- Joint ICA Symposium on „Sharing knowledge” (Dresden, Germany, 23 August 2013), with the participation of four ICA Commissions (Cartography and Children, Education and Training, Maps and Graphics for Blind and Partially Sighted People and Planetary Cartography). Keynote speakers were also invited to have presentations in the opening session: Joop van der Schee (VU University Amsterdam, The Netherlands) introduced the IGU Commission on Geographical Education of which he is Co-Chair, while Sean O’Connor (National Geographic Society, USA) talked us about “Maps for Spatial Thinking and Learning across the K-12 Education Continuum”. Anthony C. Robinson (Pennsylvania State University, USA) presented a special workshop entitled “Bridging Distance in Cartographic Education”. The Proceedings containing all the papers sent to the symposium were published on digital format (CD) and made public in the website of this event.
- Next event: „Cartography beyond the ordinary world” Joint ICA Symposium, to be held at Fluminense Federal University, Niterói (Brazil) on 21-22 August 2015; counting with the participation of the ICA Commissions on: Cartography and Children, Maps for Blind and

Partially Sighted People, Planetary Cartography and Cartography for Early Warning and Crisis Management.

Facebook profile of the Commission on Cartography and Children:

- The profile was made public on 21 July 2012. It was created by two main reasons: first to facilitate the communication with those members who have their own Facebook profile and second to make known the Commission and our activities for a wider spectrum of people. The address of the profile is: <http://www.facebook.com/icaccc>. On 1st July 2015 the profile counted with 683 followers.

Barbara Petchenik Competitions in 2013 and 2015:

- Voting process for the selection of a new theme for the next two Barbara Petchenik Competitions (Dresden 2013 and Rio de Janeiro 2015). Representatives from 20 countries participated: Argentina, Australia, Austria, Brazil, Bulgaria, Canada, Chile, Finland, Hungary, Indonesia, Israel, Lithuania, The Netherlands, Poland, Russia, South Africa, Spain, Switzerland, United Kingdom and USA. A total of 47 votes were received by the Commission Chair and the winner theme was “My place in today’s world” with 16 votes, proposed by Prof. Dr. Rosangela Doin de Almeida from the Sao Paulo University in Brazil.
- E-mail-based voting process was organized between 26 June and 15 July 2012, to take decisions about changes to the rules of the competition and counting with the participation of 35 colleagues from 22 countries.
- Organization of both competitions, collaboration in the organization of the International Exhibitions and in the organization and development of the judging process.

Budapest, 1 July 2015

José Jesús REYES NUÑEZ
Chair
Associate Professor
Department of Cartography and
Geoinformatics
Eötvös Loránd University
Pázmány Péter sétány 1/A, Budapest,
H-1117
Tel: +36 1 372 2975 Fax: +36 1 372 2951
jesusreyes@caesar.elte.hu
HUNGARY

Carla Cristina R. G. de SENA
Vice Chair
Professor
Universidade Estadual Paulista (UNESP)
Campus de Ourinhos
Avenue Vitalina Marcusso, 1500.
Ourinhos – São Paulo
Tel: +55 14 3302-5712
cacrisusp@gmail.com,
carla@ourinhos.unesp.br
BRAZIL

Commission on Cartography in Early Warning and Crisis Management

Chairperson: Prof Dr. Milan KONECNY (Czech Republic)
Vice-Chair: Dr Christophe LIENERT (Switzerland)
Vice-Chair: Prof. LI Jing (P.R. of China)
Executive Committee liaison: Prof. LIU Yaolin

COMMISSION HISTORY

ICA was first between members of JBGIS who started to deal with the problem of usage spatial information in EW and CM. The topic was also incorporated into the 2005 Memorandum of Understanding between the United Nations Office for Outer Space Affairs and the ICA. At the 13th ICA General Assembly, in ICC, La Coruna was agreed to establish a WG on EW and CM, which was approved in ICC, Moscow.

AIMS - During the period 2011- 2015 the Commission aimed to:

1. Provide leadership in the development of concepts, ontologisation and standardization for early warning, hazard, risk and vulnerability mapping.
2. Promote the cartographic use of remotely sensed and other geospatial data for EW and CM through scientific conferences, seminars and workshops.
3. Investigate psychological condition of end user given by their personal character and situation and psychological condition of rescued persons (with support of ubiquitous and adaptive mapping).
4. Foster quality mapping and cartographic modelling, including state-of-the-art visualization technologies, geospatial processing and publishing tools, for EW and CM through topic related publication activities.
5. Participate and contribute to global initiatives in EW and CM through the maintenance of a website, newsletters and social network channels.
6. Promote the development of dynamic and real-time cartographic visualization concepts and techniques for enhanced operational early warning activities through active collaboration with governmental authorities.
7. Establish and cultivate professional networks for exchange of information among stakeholders in the domains of crisis management and early warning.
8. Develop mechanisms of command and control systems integration as well as improve real-time data-centric intelligence based on field sensors for purposes of Crisis Management.
9. Develop mapping methodologies and technologies for EW and CM in children perspectives. Promote the process of teaching, understanding and using maps for EW and CM in children aspects.

MEETINGS - In the period of 2008-2011 Commission maintained this structure of activities:

- Regular annual or bi-annual meetings (Novosibirsk, Albena, Riviera),
- Activities initiated by commission and realized in cooperation with other organizations (mainly ISPRS, FIG, GEO, ISDE, Gi4DM, etc.),
- Participating in the World sound and influential organizations activities (Geospatial World Forum, high level EU projects, etc.),
- Cover by activities many parts of the World (North and South America, New Zealand, Australia, Russia)
- Organize special EW and CM conferences and workshops (China, Malaysia, Colombia, EU).

ACTIVITIES - All meetings have been accompanied by commission meetings with intention to inform potential members of commission about our activities and plans. Simplified overview of activities is provided in two groups: commission original activities, and initiated by commission and realize in cooperation with sister organizations (structured according to location, datum, and commission representative):

- 2011, September 14-16, Split Croatia: 3rd Croatian NSDI and INSPIRE Day and the 7th Cartography and Geoinformation conference, M. Konecny
- 2012, April 18, Novosibirsk, Russia: The VIII. International Exhibition and Scientific Congress "InterExpo Geo-Siberia -2012, the International Conference Early Warning and Crises/Disaster Management: Strategy, Technology, Social and Economical Aspects. M. Konecny
- 2012, April 21, Amsterdam, The Netherlands: Geospatial World Forum, participation and speech in ICA session, M. Konecny
- 2012, Munich, Germany: The ESRI's German-speaking User Conference 2012, paper presented by Ch. Lienert
- 2012, June 15, Beijing, China, First Opening meeting of EU-China Disaster Risk Management High level project, M. Konecny
- 2012, June 18-22, Albena, Bulgaria, 4th International Conference on Cartography and GIS and International Seminar of Early Warning and Crises Management, M.Konecny, Ch. Lienert, T. Bandrova
- 2012, July 2-4, Aix en Provence, France, European kick-off EU-China Disaster Risk Management project, M. Konecny
- 2012, July 14-17, Hamburg, Germany, the 10th International Conference 2012 on Hydro-Informatics; paper presented by Ch. Lienert
- 2012, March 1st, Sofia, Bulgaria, EU project OBSERVE and project CARAVAN; M. Konecny
- 2012, October 19-21, Cambridge, England; Workshop of Earthquakes without Frontiers; paper presented by LI Jing
- 2012, November 27, Ljubljana, Slovenia, "Disaster Management and Remote Sensing Application" invited speech in University, LI Jing
- 2012, September 18-19, Almaty, Kazakhstan, the conference "Innovative Technologies for an Efficient Geospatial Management of Earth Resources"; Round Table: "STRATEGIES FOR EARLY WARNING and CRISES/DISASTER MANAGEMENT"; together with ICA, FIG, ISPRS, SSGA Novosibirsk, Russia, and East Kazakhstan State Technical University named after D. Serikbayev, Ust-Kamenogorsk, Kazakhstan. Keynote speech presented by M. Konecny
- 2012, August 25-September 1st, ISPRS Congress Melbourne, Australia, special session on Disaster Management, in cooperation with ISPRS. paper presented by M. Konecny, T. Bandrova
- 2012, September 1-5, Wellington, New Zealand, session Digital Earth and Crises Management: with International Society on Digital Earth. paper presented by M.Konecny
- 2012, November 24-25, Beijing, China, International Conference on Emergency Management; with CAG, M. Konecny and LI Jing

- 2012, November 27-30, The High Level FORUM and Workshop on Crises Management, M. Konecny and Li Jing
- 2012, December 13-14, Enschede, The Netherlands, The 8th International Conference on Geo-Information for Disaster Management, ICA VP Jan Menno Kraak and M. Konecny, invited for cooperation by Gi4DM
- 2013, February 6-8, Bogota, Colombia, CEGeolC, H. and M. Kremers. Commission participated by paper in Proceedings, invited by CODATA-Germany LNIS.
- 2013, April 25, Novosibirsk, Russia, The IX. InterExpo Geo-Siberia. The International Workshop on "The Risk and Emergency Management Cycle: How to Support it by Cartography, Geoinformatics, GPS and Remote Sensing?"; M. Konecny, V.S. Tikunov, G. Gartner, D. Lisickij, S. Dysljuk
- 2013, May 22-23, Budapest, Hungary, The "Conference and Workshop for Building V4 Network Researching Spatial and Social Aspects of Disaster Management, ICA invited by Hungarian CASCADOSS Association, M.Konecny
- 2013. May, Lisbon and Coimbra, Portugal, Commission presentation, University of Nova Lisboa and University of Coimbra. Papers presented by M. Konecny
- 2013, June 20-23, Kaifeng, P.R. China, CPGIS, 21st Int. Conference on Geoinformatics, keynote paper M. Konecny
- 2013, August, Kuala Lumpur, Malaysia; The special seminar on EW Warning and CM, The JUPEM, papers presented by T. Bandrova and M.Konecny.
- 2013, August 30, Dresden, Germany; ICC, all day commission session and discussion
- 2013, November 19, Baden, Switzerland, Colloquium DGfK, keynote presented by Ch. Lienert
- 2013, December 3-5, Wuhan, P.R. China; ICA International Workshop Cartography and Geoinformatics in Early Warning and Crises Management: discovering the new potentials. Keynote papers presented by VP of ICA Liu Yaolin, Li Jing, Ch. Lienert and M. Konecny
- 2014, April 16-18, Novosibirsk, Russia; InterExpo Geo-Sibir-2014, Workshop on Early Warning and Disaster/Crises Management in the Big Data Era; with Siberian State Academy of Geodesy (SSGA) in Novosibirsk, ISPRS, FIG, Gi4DM; papers presented by ICA SG L. Zentai and M. Konecny.
- 2014, April 28, Istanbul, Turkey, InterGeo conference; paper presented by M. Konecny.
- 2014, May 5-9, Geneve, Switzerland; Geospatial World Forum, paper presented by M. Konecny,
- 2014, June 15-20, Riviera, Varna, Bulgaria; the 5th International Conference on Cartography and GIS, 5th EU seminar on EW and CM; T. Bandova, M. Konecny, Ch. Lienert,
- 2014, July 7-9, Beijing, China; IRDR and CODATA events, BIG DATA Potentials in Early Warning and Crises Management, paper presented by M. Konecny
- 2014, September 28-29, Beijing, China; EU-China Disaster Risk Management project of highest level, EU Commission and Chinese government), paper presented by M. Konecny.

SELECTED PUBLICATIONS (Books, Papers, Proceedings)

- Konecny M., Zlatanova S., T. L. Bandrova (eds.): Geographic Information and Cartography for Risk and Crisis Management. Lecture Notes in Geoinformatics and Cartography. Heidelberg: Springer, 2010.
- S. S. Dysljuk, A.G. Novitskaya (eds.): International Workshop on "Early Warning and Crises/Disaster and Emergency Management". 28- 29 April 2011. Novosibirsk: SSGA, Russian Federation, 2011.
- M. Konecny et al: Dynamic Geovisualization in Crisis Management. Masaryk University, Brno, 2011(in Czech).
- M. Konecny, Li Jing, E. Mulickova, P. Kubicek (eds.): Geoinformation Support for Flood Management in China and the Czech Republic. Brno: Masaryk University, 2011.

- T. Bandrova, M. Konecny (Eds.) 4th and 5th International Conference on Cartography and GIS, CD Proceedings, Albena, Riviera: University of Architecture, Civil Engineering and Geodesy, Bulgaria, 2012, 2014.
- The Value of Geoinformation for Disaster and Risk Management (VALID). Copenhagen: JB GIS, 2013.
- Wuhan CEW&CM Seminar Proceedings, December 2014. In Preparation.
- Commission members also participated in the preparation and publication of the book Thematic Cartography for the Society (Bandrova T., Konečný M., Zlatanova S., eds.), LNG&C, Springer, 357 p.

WEBSITE - Currently being finalized

Commission on Cognitive Visualization

The ICA Commission on Cognitive Visualization (CogVis) was established during the General Assembly in Paris in July 2011. Since that time, we have been dedicated to building a community of researchers who are interested in helping to build a cognition- and perception-informed theoretical framework for designing and implementing static and interactive maps and geoinformation displays.

The overall goals of our Commission in the current term were set through our terms of reference. For each term below, we provide a non-exhaustive list of examples of Commission activities that have worked towards achieving each of these goals.

Progress Against Terms of Reference: 2011-2015

- promote the awareness of cognitive issues in cartography, developing human-centered cartographic theory and practice based on sound empirical findings on the use of cartographic displays for spatio-temporal inference and decision-making.

Our Commission now includes 211 members from over 34 countries, including all six inhabited continents, so it is a truly international Commission. After ICC 2015, we will have organized scientific events on three continents, and plan to expand our research further, should our Commission be renewed for a second term. We have helped to organize CogVis paper sessions at the ICC 2013 (68 submissions, 19 full papers) with record high submission numbers in the Commission's promoted research themes and ICC 2015 (18 papers, 9 posters).

In our first term, we have held two workshops (USA/Brazil) dedicated to training of PhD students, early career researchers, and scientists new to empirical user studies. We have organized special sessions at four geography conferences (AAG in the USA x 4), and organized or helped to organize three scientific meetings focused on particular topics (Germany x 2/Czech Republic).

We use various publication types and our website to further disseminate scientific knowledge presented and/or developed at our meetings and workshops. Peer-reviewed publications that have been produced as a result of our Commission's activities and in collaboration with other sister Commissions (i.e., Use and User Issues, Geovisualization, Map Design) include:

Robinson, A.C., Roth, R. (2014). Special Issue with selected papers from the Cognition, Behavior, and Representation Sessions at the 2014 Association of American Geographers' Annual Meeting in Tampa, Florida, Apr. 21-25, 2014, *Cartographic Perspectives*, No. 77, 2014.

Andrienko, G., Fabrikant S. I., Dykes, J., Griffin, A., Schiewe, J. (eds.) (2014). Special Issue on selected papers from Geoviz Hamburg 2013, *International Journal of Geographical Information Science*, vol. 28, no. 10.

Griffin, A., Fabrikant S. I., Kent, A. (2012). Special Issue on Spatial Cognition, Behaviour and Representation. *Cartographic Journal*, Vol. 49, No. 4.

Tutorial materials are made freely available for reuse by members of the community through our webpage at the following URL: <https://www.geo.uzh.ch/microsite/icacogvis/tutorials.html>

- define short and medium term research goals that address key issues associated with building a sound theoretical base to support the construction and use of cognitively adequate and perceptually salient visual displays of geographic information.

We are currently in the process of defining a research agenda for interactive cartography along with the Commissions on Geovisualization, Use and User Issues and Map Design. The first step towards the eventual production of a journal special issue with the research agenda papers is a pre-ICC

2015 workshop in Curitiba where three groups have been established to discuss a set of position papers that group members have produced about key research challenges. The key challenge that is most directly related to CogVis's thematic scope is: *"How can we best develop a systematic understanding of the intersection between human abilities, cartographic design decisions, and map use context? Can we predict what will work?"*

- Encourage interdisciplinary and international collaboration with cognate disciplines and relevant stakeholders, including other ICA commissions and working groups.

We have been actively working with a range of other ICA commissions when we organize scientific activities. Commissions with whom we have collaborated in our first term include the Commission on Geovisualization, the Commission on Use and User Issues, and the Commission on Map Design.

Flagship Results, 2011-2015

While a full accounting of our Commission's activities can be found on our website (<https://www.geo.uzh.ch/microsite/icacogvis/activities.html>, <https://www.geo.uzh.ch/microsite/icacogvis/publications.html>), two activities that we would particularly like to highlight include the following:

- The very successful workshop on eye tracking that we organized with the Commission on Geovisualization and the Commission on Use and User Issues in Dresden. This workshop drew participants from several fields, including cartography, cognitive science, information visualization, and remote sensing. It included presentations from eye tracking vendors, and sharing of research challenges and successes. It was attended by over 60 participants and was excellently supported by the Dresden LOC.
- The upcoming pre-ICC workshop organized with the Commission on Geovisualization, Commission on Use and User Issues, and the Commission on Map Design to further the development of a research agenda for interactive cartography. This workshop is a key step in the agenda's development. We started with asking our respective commissions to identify the "big questions" facing interactive cartography today. From that series of suggestions, we identified three key questions whose importance was flagged by many Commission members. Workshop participants have produced a series of position papers on these three key questions, which will be the focus of discussions at the workshop. At present time of writing, 36 researchers have registered to participate in the workshop. Based on the workshop discussion, we will move forward with producing research agenda papers for publication as a special issue in a journal, sometime in 2016.

Commission on Data Quality

No report available.

Commission on Digital Technologies in Cartographic Heritage

Terms of Reference: According to the 2011-2015 period Terms of Reference (ToR) the Commission dealt with the deepening and broadening of the issue of Cartographic Heritage (CH), the development of methodologies and standards for proper 2- and 3- d digitization of CH objects, the study and implementation of tools for comparative analyses on the content of old maps, the digital map libraries and collections (archiving, matching, management, networking, accessibility) and the modern IT and interactivity for attracting the general public to CH. The Commission attracted **young researchers** from non-technological fields of study and research (e.g. geography, humanities, librarianship) CH familiarising with digital and exploited the grounds for cooperation with **map libraries, map archives, map collections and map curators** and with SMEs dealing with digital high quality image capturing, processing and visualization technologies. For the cooperation with curatorship operators the contribution of the Vice-Chair **Carme MONTANER** was significant.

Websites: The **Commission website** (www.web.auth.gr/ICA-Heritage) was redesigned and kept updated as well as a new website (www.web.auth.gr/ICA-Heritage/MAGIC) designed and kept updated by the Commission in order to satisfy the strategic partnership agreement with the **Map & Geoinformation Curators Group (MAG-IC)**.

Organisation: In order to enforce the Commission's administrative capacity and to attract the institutional interest to its work and activities two "groups" were introduced in the structure of the Commission, namely the **Supporting Institutions (SI)** group and the local **Commission Desk (CD)** group. The SI members with interests in the Commission's were from the **Institut Cartogràfic i Geològic de Catalunya**, Map Library, Barcelona (contact: Carme MONTANER), the **Università IUAV di Venezia**, Photogrammetry Lab, Cartography Lab (contact: Frances-co GUERRA, Caterina BALLETTI), the **National Library of Scotland**, Map Collections, Edinburgh (contact: Chris FLEET), the **Eötvös Loránd University**, Department of Cartography and Geoinformatics, Budapest (contact: Laszlo ZENTAI), the **Ionian University**, History Department, Corfu (contact: Dimitrios ANOYATIS-PELÉ) and the **Aristotle University of Thessaloniki**, School of Rural and Surveying Engineering, Department of Cadastre, Photogrammetry and Cartography (contact: Chryssoula BOUTOURA, Alexandra KOUSOULAKOU). The SIs supported the Commission work especially in organising its annual Conference in association with the CD members at Thessaloniki. The combination of the SIs with the CD (Chryssoula BOUTOURA, Alexandra KOUSOULAKOU, Ange-iki TSORLINI, Maria PAZARLI, Nopi PLOUTOGLOU) proved to be an excellent example of good practice for the overall and the specific Commission work, helping among other things the advancement of the consolidation of an international group working, publishing and participating actively on the issues of the ToR, which was particularly evident in the annual Commission's Conferences.

Annual Conferences: Fundamental task was the organization of the annual series of Conferences **Digital Approaches to Cartographic Heritage** (www.ica-heritage.org/workshops.html). The 6 Commission Conferences of the period 2006-2011 organised in Thessaloniki, Athens, Barcelona, Venice, Vienna and The Hague supported by the hosting institutions. The 2012-2015 period 4 annual Conferences organised in:

- o **Barcelona** www.ica-heritage.org/2011_2015/BARCELONA_2012/index.htm
- o **Rome** www.ica-heritage.org/2011_2015/Roma2013/index.htm
- o **Budapest** www.ica-heritage.org/Budapest_2014.htm
- o **Corfu** www.ica-heritage.org/Corfu_2015.htm.

Thanks to these 10 annual Conferences the Commission succeeded to: (a) formulate and advance CH and its place in the ICT mainstream, (b) expand the horizons and open new ways in CH research, (c) inspire new and innovative partnerships and joint ventures, (d) contribute in the development of new products in digitisation hardware and services, (e) encourage and promote the dialogue between the ICT and the history of cartography - curatorship communities and (f) develop expertise and a new CH field of study and research. The Commission offered also expertise organising two **Tutorials:** on 3-D digitisation focused on globes guided by IUAV and AUTH SI members (National Library of France, Paris 2011) and on **Georeference for “non-experts”** guided by AUTH SI members (State Archives of Greece, Corfu 2015) www.ica-heritage.org/Corfu/Georeference.html.

Cooperation with other ICA Commissions and Cartographic Societies: The meeting of ICA Commission on **Map Projections** (Chair Miljenko LAPAINE) was hosted in Corfu, May 2015, during the CH Commission 10th Conference, making free use of all available facilities. The Commission keeps close ties with the **Hellenic Cartographic Society** (HCS), assisting its National Conferences held every two years. Significant was the contribution to the 12th HCS Conference, Kozani 2012, at the presence of the ICA Secretary General Laszlo ZENTAI (ICA News, 60, 2013, 1, p.11-12, icaci.org/files/documents/newsletter/ica_news_60_2013_1_lq.pdf) and to the 13th HCS, Patras 2014, celebrating HCS’s 20 years, at the presence of the ICA President Georg GARTNER (ICA News, 63, 2014, 2, p.11, http://icaci.org/files/documents/newsletter/ica_news_63_2014_2_lq.pdf)

Strategic Partnership: In May 2014, after a period of discussions with LIBER’s Groupe des Cartothécaires, the Commission partnership with the then established **Maps & Geoinformation Curators Group (MAGIC)** was decided in a relevant Conference held in the National Library of Slovenia at Ljubljana, with representatives from Belgium, Croatia, Czech Republic, Estonia, France, Germany, Hungary, Latvia, Netherlands, Russia, Serbia, Slovenia, Spain, Sweden and the United States (ICA News, 62, 1, 2014). Since then the strategic partnership was flourishing as it was seen in the next Commission Conferences of Budapest (2014) and Corfu (2015). icaci.org/files/documents/newsletter/ica_news_62_2014_1_lq.pdf.

Publications: The output of the Commission work is documented in the independent free web international journal **e-Perimtron** (www.e-perimtron.org), on sciences and technologies affined to the history of cartography and maps. This journal founded in 2006 is since then in close association with the Commission publishing selected papers presented in the annual Commission Conferences, coupling the Commission work and contributing in the spreading of the content and context of CH and its evolution into the Digital. In the 9 complete volumes, from 2006 to 2014, plus the two 2015 issues, the journal counts 38 issues with 204 papers (ca 5 papers per issue) for a total of 2354 pages (ca 11.5 pages per paper). According to the statistics kept since 2009, e-Perimtron was viewed, in average, 5940 times per year, or 16 times per day, by 2850 visitors per year or almost 8 visitors per day, from 130 countries (the top-10 in %, from: Greece 21.9; USA 16.1; Italy 8.1; UK 5.0; Germany 4.5; France 4.3; Spain 3.3; Brazil 2.4, Switzerland 2.3; Czech Rep. 2.0)

Focused contributions: The Commission is contributing invited at focused scientific events, as it was the case of the important recent Workshop on **Ancient Chinese Maps and Exchange of Chinese-Western Cartographical Culture** held in Beijing, June 2015, at the Institute of Geographic Sciences and Natural Resources Research of the Chinese Academy of Sciences, co-organised by the Commission of Cartography and GIS of the China Society of Surveying & Mapping and Geoinformation under the sponsorship and support of the Zhengzhou University of Information Engineering and the State key Laboratory of Resources and Environmental Information System. Invited academicians, professors, scientists, researchers and graduate students coming from research institutes of the Chinese Academy of Sciences, Universities, the National Library of China and other Institutions, presented their research on the issue and participated in round table discussions for future work and cooperation.

Impact: In its 10 years of work, the Commission contributed in the rising of a number of new key issues, like e.g., the introduction of a new field of thought, literacy, research and implementation in the international cartographic community, that of CH, and of CH as a discrete component in the overall Cultural Heritage; the attraction in the cartographic community of new partners from other communities dealing with maps, like the map libraries, map archives and museums; the explicit involvement of the cartographic digital mainstream, in the context of geomatics, into the general domain of Cultural Heritage; the merging of young researchers from geomatics, geography and humanities to focus on a common object of research and implementation, that of CH; the providing new tools and examples of good practice for the study of old maps. The Commission's working output and production of ideas influenced SME operators, in the digitizing industry and in the development of applications, to design, implement and provide better products and innovative services to their clients, mostly in map libraries, and accommodated groups of researchers in humanities and relevant fields of study to approach cartography and maps.

The broad diffusion of the goals achieved these 10 years should be now the main concern in order to spread the Cartographic Heritage into the largest possible communities of people dealing with the legacy and the culture of maps.

*Evangelos LIVIERATOS, livier@auth.gr
Commission Chair*

Commission on Education and Training

The Commission on Education & Training (CET) was re-elected by the ICA General Assembly in Paris in 2011, with Dr David Fraser (Australia) as chair and Dr David Fairbairn (UK) as vice-chair. The expectation that the vice-chair would succeed to the chair's position after Dr Fraser retired was fulfilled when Dr Fairbairn became chair in July 2012. **The Terms of Reference (ToR)** approved in Paris retained their validity after the change of leadership. Prof Necla Ulugtekin (Turkey) volunteered to become the new vice-chair.

The ToR collectively addressed the three basic functions of the CET: to monitor educational provision in the field of cartography; to advise on and to deliver educational material in varying arenas; and to consider the impact of generic research and experiences in education at all levels.

CET (2011–2015) has addressed its ToR by maintaining an overview of cartographic education worldwide; by delivering presentations, papers, workshops and contributions to other programmes, which focus on educational material in the subject of cartography; and by investigating and reporting on technologies, concepts and methods of educational and training courses.

Presentations by members of CET have been delivered in a variety of venues. The Paris 25th International Cartographic Conference (ICC) included several sessions devoted to education at all levels, from kindergarten to CPD, moderated by the CET, and other ICA Commissions with educational interests. One year later, a keynote by the Chair to the GeoCart2012 conference in Auckland, New Zealand (September 2012), was one of several educational contributions to that meeting. A number of sessions within the 26th ICC held in Dresden, Germany, (August 2013) were directed specifically to education with over 20 papers given; and the 2015 ICC to be held in Rio de Janeiro, Brasil, will also have a full range of presentations on the themes of education and training. Commission members have delivered presentations on educational content and methods of delivery to international meetings organised by the International Society of Photogrammetry and Remote Sensing (ISPRS) (e.g. its 22nd Congress, 2012, Melbourne, Australia: presentation by Cartwright and Fairbairn at <http://www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XXXIX-B6/83/2012>

[/isprsarchives-XXXIX-B6-83-2012.pdf](http://isprsarchives-XXXIX-B6-83-2012.pdf)), by the Bulgarian Cartographic Association (e.g. 5th Jubilee Conference on Cartography and GIS, Riviera, Bulgaria: presentation by Basaraner, Ulugtekin et al. at http://cartography-gis.com/docs/bca/5ICCandGIS_Proceedings.pdf), and by ESRI (e.g. 2014 ESRI Education GIS Conference, San Diego, USA: presentation by Robinson at <http://proceedings.esri.com/library/userconf/educ14/index.html>).

Many of these presentations have been worked up into **Papers**, published in conference proceedings (as above) and also in more formal publications. The Paris ICC printed outputs were published as two books by Springer: Vol 2 (<http://www.springer.com/us/book/9783642192135>) has a section on Map, GIS and Education with five chapters covering aspects of education from tools for teaching GIS, to designing graphical icons for school cartographic education. The volume *Cartography from Pole to Pole* (<http://www.springer.com/us/book/9783642326172>), presenting the highlights from the Dresden ICC, has four chapters specifically devoted to education.

During the 2011–2015 period, CET has been involved in several **Symposia**, organised in conjunction with other groups. 'Sharing Knowledge' was presented as a pre-conference (ICC) meeting in Dresden, Germany, in August 2013. Several ICA Commissions – CET, Cartography & Children, Maps & Graphics for Blind & Partially Sighted People, and Planetary Cartography – joined to address topics of common interest (<http://lazarus.elte.hu/jointsymposium2013/docs/proceedings.pdf>).

A joint meeting with the CET equivalent of ISPRS was held in Wuhan, China, in May 2014. Primarily organised by CET Commission members Profs Jianya Gong and Huayi Wu, who also lead ISPRS Commission VI, this event addressed a range of topics related to education in the geospatial sciences. Publications arising from this event include a volume of the ISPRS Archives

(<http://www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XI-6/index.html>) discussing educational topics of relevance to cartography and geospatial science, and a volume of the ISPRS Annals (<http://www.isprs-ann-photogramm-remote-sens-spatial-inf-sci.net/II-6/index.html>).

CET was also formally represented at the annual meeting of the Association of American Geographers, which met in Chicago, USA, in April 2015, where special sessions on education, and meetings on renewing the Body of Knowledge, were held. Publication of some of the presentations at this meeting will form the core of a forthcoming issue of the journal *Cartographic Perspectives*, guest-edited by the Commission chair.

A joint symposium of CET, with the ICA Commission on Maps & the Internet, will be presented as a pre-conference (ICC) event in Curitiba, Brasil, in August 2015. This will incorporate a first day workshop on Mapping in the Cloud, delivered by Prof Michael Peterson, and, on the second day, a range of presentations on common topics related to the web and education.

Formal knowledge transfer in the form of **Workshops** also formed one of the ToR of CET. In Wuhan, China, in May 2014, a practical hands-on 5 day workshop was delivered, in conjunction with the ICA Commission on OpenSource Geospatial Technologies. Prof Jorge Rocha, Portugal, assisted by Dr Zhijie Zhang, China, and the CET Chair, delivered a well-received set of integrated exercises to over 35 students from China, Russia, India and the Philippines. Further workshops of this type should be delivered: a possible future event is being planned for late 2015 in the Maldives, Indian Ocean.

In terms of further **Projects**, CET is intimately involved in the roll-out of the UN-endorsed, and ICA-managed, International Map Year (IMY). The Chair of CET is on the IMY Working Group, and has contributed a chapter, with exercises, on 'Education in cartography' in the online textbook *The World of Maps* (also translated into French, Spanish and, soon, Chinese) (www.mapyear.org). CET was consulted (2014) on planned curricula for the African GeoSpatial Sciences Institute (Tunisia).

The activities of the Commission have been reported regularly in ICA News and in the ICA page of GIM International magazine. **Reporting** of issues related to education and training is also evident in the monthly editions of eCarto News, prepared by David Fraser and incorporating items trawled from the web, of general interest to all cartographers around the world. eCarto News, available on the main ICA website (www.icaci.org), grew out of the regular newsletter about educational and associated topics which David compiled during his chairmanship of CET 2007-2012 (all available on the Commission's website at <http://lazarus.elte.hu/cet/newsletter/newsstart.htm>). Our outreach is enhanced by the website (<http://lazarus.elte.hu/cet/>), still maintained by Prof Laszlo Zentai, previous Chair of the Commission, and now Secretary-General of ICA.

The biennial **Business meeting** of CET, at the ICC in Dresden, was a valuable 'mid-term' check on progress. This meeting, attended by many Commission members, included open discussion on further capacity building in developing countries, sources for online materials, commission publications, inter-society collaboration, cartography in high schools, emerging technologies, mapping competitions, the Commission's web site, and membership of the Commission. These topics helped inform **Future plans** for the Commission, with modified ToR (2015-2019) addressing these fundamental topics, along with curriculum development, research training in cartography, best practice in promoting cartography in universities, and development of online courses.

Commission on Generalisation and Multiple Representations

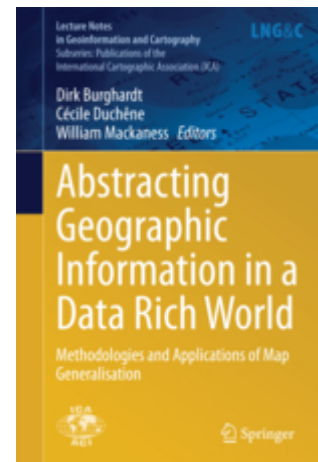
Activities

An overview of ICA workshops and symposiums can be found at <http://generalisation.icaci.org/index.php/prevents>

- 14th ICA Workshop on Generalisation and Multiple Representation - jointly organised with ISPRS Commission II/2 Working group on Multiscale Representation of Spatial Data; 30th June to 1st July 2011, Paris, France (with around 40 participants, 20 paper / presentations)
- Generalisation Tutorial, W. Mackaness, N. Regnaud, L. Harrie, J. Stoter, D. Burghardt, C. Duchêne, 2nd July 2011, Paris, France (with around 35 participants)
- 15th ICA Workshop on Generalisation and Multiple Representation - jointly organised with EuroSDR Commission on Data Specifications, 13th to 14th September, 2012, Istanbul, Turkey (with around 35 participants, 15 paper / presentations)
- ICA / EuroSDR NMA Symposium "Designing MRDB and multi-scale DCMs: sharing experience between governmental mapping agencies", 21st to 22nd March, 2013, Barcelona, Spain (with around 15 participants, 12 paper / presentations)
- 16th ICA Workshop on Generalisation and Multiple Representation - jointly organised with the ICA Commission on Map production and Geo-Business, 23rd to 24th August, 2013, Dresden, Germany (with around 40 participants, 20 paper / presentations)
- 17th ICA Workshop -with special focus on Integration, Filtering and Abstraction of User Generated or Multi-Source Spatial Content, 23rd September, 2014, Vienna, Austria (with around 25 participants, 13 paper / presentations)
- Thematic Workshop on building an Ontology of Generalisation for On-demand Mapping, 26th to 27th March 2015, Paris, France (with around 15 participants)
- 18th ICA Workshop on Generalisation and Multiple Representation - jointly organised with ISPRS WG II/2 "Multi n-dimensional Spatial Data Representations, Data Structures and Algorithms", 21st August 2015, Rio de Janeiro, Brazil

Publications

- The commission has published a new structured generalisation book through Springer with the title "Abstracting Geographic Information in a Data Rich World – Methodologies and Applications of Map Generalisation" in 2014.
 - The book contains 12 chapters, with 27 case studies whereby contributions from 45 commission members were received.
 - Technical oriented subsections were included from the most active NMA's to illustrate the usage of automated generalisation in map production.
 - <http://www.springer.com/us/book/9783319002026>
- 104 reviewed paper publications in preparation of the ICA workshops between 2011 and 2015, see website of the commission
- Members of the Commission have recently written an entry entitled 'Map Generalization' as part of the forthcoming Wiley-AAG International Encyclopedia of Geography: People, the Earth, Environment, and Technology.
- supported paper by the ICA Commission on Generalisation and Multiple Representation with title "Ontology of Generalisation for On-demand Mapping", which presents one major research direction for the next years



Major achievements

1. Generalisation for paper map production has reached a new level with nearly full automated solutions at several NMA´s (degree of interactive post-processing depends on varying quality requirements) – see Springer Publication / Chapter 11 “Generalisation in Practice Within National Mapping Agencies”
2. Research and development on Web based Generalisation Services is still essential to achieve sustainable, platform and programming language independent solutions - see Springer Publication / Chapter 7 “Process Modelling, Web Services and Geoprocessing”
3. New research directions has been identified with focus on
 - a. Integration, Filtering and Abstraction of User Generated or Multi-Source Spatial Content – see 17th ICA Workshop in Vienna and Springer Publication / Chapter 5 “Integrating and Generalising Volunteered Geographic Information”
 - b. Development of an Generalisation Ontology for On-demand Mapping – see Thematic workshop in Paris 2015 and common summary paper

Planned activities

- o Second ICA/EuroSDR Symposium for National Mapping Agencies on automated generalisation for topographic map production, 3rd to 4th December, 2015, Amsterdam, Netherlands
- o The ICA Commission on Generalisation and Multiple Representation is interested to publish a special issue within the new ICA-Journal "The International Journal of Cartography" in the period 2015/2016.

Chair/Vice-Chairs
Dirk Burghardt, Cecile Duchene, William Mackaness

Commission on Geoinformation Infrastructures and Standards

No report available.

Commission on Geospatial Analysis and Modeling

The ICA Commission on Geospatial Analysis and Modeling (2011-2015) has continued its efforts made in the previous term (2007-2011) to advance the subject of geospatial analysis and modeling. We have closely followed the emerging topics in the field, e.g., volunteered geographic information, Web 2.0 technologies, social media, big data, and organized two workshops, one conference, and one tutorial surrounding these hot topics. Out of these activities, we have edited and published 6 theme issues with some international journals. The following are a few examples:

International Conference on Location-Based Social Media Data, March 13-14, 2015, Athens, GA, USA

(<http://research.franklin.uga.edu/iclsm/content/welcome-iclsm>)

GIScience 2014 tutorial on on big data analytics, Vienna, September 23rd, 2014

(<https://sites.google.com/site/giscience2014tutorial/>)

Jiang B. and Thill J. C. (editors, forthcoming), Special issue on geospatial analysis of volunteered geographic information, *Computers, Environment and Urban Systems*, xx(x), xx-xx, Elsevier.

Benenson I. and Jiang B. (editors, 2012), Special issue on urban and regional modeling versus planning practice: bridging the gap, *Journal of Urban and Regional Information Systems Association (URISA Journal)*, 24(1), 5-92, URISA.

These activities are joint efforts of this commission members, and other commission members. For example, we organized a joint workshop with the ICA Commission on Geovisualization on “Linking geovisualization with spatial analysis and modeling”. Some of these activities are collaborated with ISPRS workshop groups: ISPRS Working Groups IV/5, and II/1. Through these organized activities, we have recruited many members for our commission. This is the most efficient way of networking and recruiting new members.

Terms of reference (2011-2015):

- Network cartographers, geographic information scientists, and other researchers involved in geospatial analysis and modeling
- Facilitate the interaction and communication between the computational community and cartographic community for creation of geographic knowledge
- Foster a new research community centered on visual geospatial analysis and modeling
- Organize ICC sessions and ICA workshops on geospatial analysis and modeling
- Edit and publish geospatial analysis and modeling related reports, books, and special issues with some scientific journals
- Activities including
 - Organization of the 4th ICA workshop and continuation of the ICA workshop series in general
 - Use of Web 2.0 technologies for networking and recruiting more members and researchers
 - Organization of specialty tutorials for young researchers

For more details on the commission activities and results we have achieved, one can refer to the commission site (<https://sites.google.com/site/commissionofica/>).

Bin Jiang and Xiaobai Yao
Co-chairs of the ICA commission on geospatial analysis and modeling

Commission on Geovisualization

The Commission on GeoVisualization of the International Cartographic Association (ICA) was established in 2007 by **Gennady Andrienko** (Fraunhofer Institute IAIS) and **Jason Dykes** (City University London) to continue the work of the highly successful Commission on Visualization and Virtual Environments, which was key in establishing the emergent discipline of 'Geovisualization' since 1995.

The main focus for the period 2007-2015 was on the use of interactive maps and cartographic techniques to support interactive visual analysis of complex, voluminous and heterogeneous information involving measurements made in space and time.

In 1995 interactive maps were predominantly used by scientists involved in analysis and hypothesis generation in the private realm. Now interactive maps are being widely used for research, education and information consumption through a range of accessible media and technologies in a variety of disciplines and applications scenarios on all sorts of computers in all sorts of places. In this broad and evolving context there is a clear need for the cartographic community to contribute to and learn from the development and use of interactive maps and cartographic techniques that are designed specifically for visual analysis. These interactive maps are being used as flexible spatial interfaces and are being applied to data sets that were either unavailable in 1995 or that could not be visualized through existing technologies and techniques. They are being applied to data sets that are massive, collected in real time by advanced sensors, and not necessarily spatial. They are used increasingly in GIScience and beyond for knowledge building and theory generation, decision support, disaster management, information communication, education and learning.

WORKSHOPS, SPECIAL ISSUES AND RESEARCH AGENDA

During the eight-year period, the commission has organized workshops on a regular basis as a focus and forum for research activity in which possibilities for geovisualization are explored and knowledge about geovisualization is established. Most of the workshops have been attached to major conferences (e.g. ICC, GIScience, AGILE), whilst several others have been organized as a successful stand-alone conference at HafenCity Universität Hamburg. Jochen Schiewe and his team at the g2Lab have established the GeoViz conference series as an innovative, original and inspiring forum for presenting and discussing new ideas in geovisualization. The workshops have resulted in 11 special issues of established journals:

- GeoVisual Analytics: Interactivity, Dynamics, and Scale (CaGIS in preparation)
- GeoViz: interactive maps that help people think (IJGIS 2014)
- Geospatial Visual Analytics: Time to Focus on Time (Information Visualization 2014)
- GeoViz – Linking Geovisualization with Spatial Analysis and Modelling (Cartographica 2011)
- Challenging Problems in Geovisual Analytics (JVLC 2011)
- Geospatial Visual Analytics: Focus on Time (IJGIS 2010)
- Geospatial Visual Analytics: Focus on Time (JLBS 2010)
- GeoVisualization and the Digital City (CEUS 2010)
- GeoSpatial Visual Analytics (CaGIS 2009)
- Geovisualization of Dynamics, Movement and Change (Information Visualization 2008)
- Geovisual Analytics for Spatial Decision Support (IJGIS 2007)

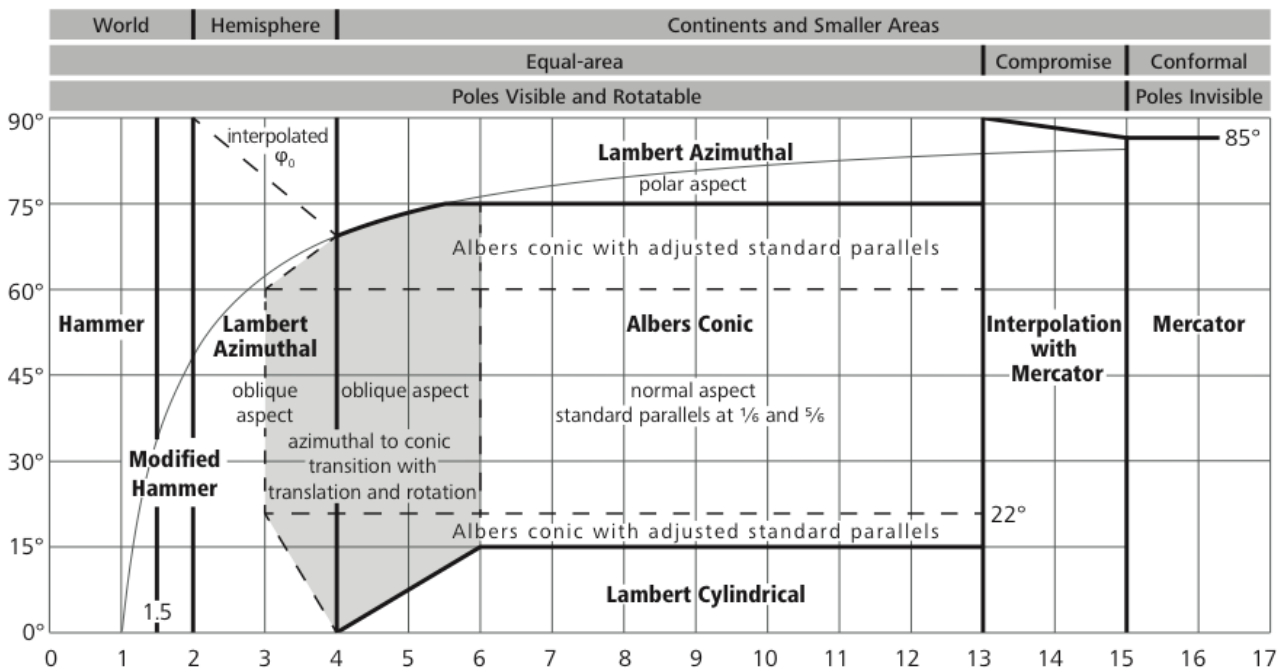
The commission prepared several strategic papers associated with these activities and publications, including:

- Geovisual Analytics for Spatial Decision Support. Setting the Research Agenda. DOI 10.1080/13658810701349011
- Geovisualization of Dynamics, Movement and Change: Key Issues and Developing Approaches in Visualization Research. DOI 10.1057/ivs.2008.23
- Space, Time, and Visual Analytics. DOI 10.1080/13658816.2010.508043
- Challenging Problems of Geospatial Visual Analytics. DOI 10.1016/j.jvlc.2011.04.001

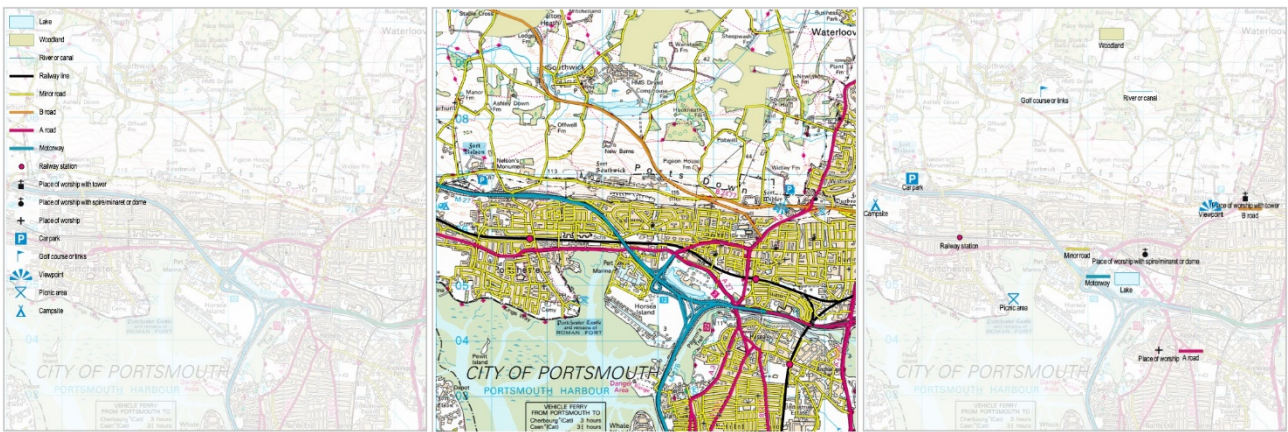
These papers received a large number of citations and have helped shape ongoing research in geovisualization.

CARTOGRAPHY & COMPUTER SCIENCE

An important achievement of the commission is the cross-fertilization of geovisualization research activity in broader disciplines within computer science, including information visualization, data mining, and the important developing area of visual analytics. Commission members aim to contribute cartographic knowledge to these disciplines and learn from and take advantage of the knowledge and techniques that they offer. One particular focus has been the influential IEEE VIS conference series (rated A+ by CORE) and associated journal IEEE Transactions in Visualization and Computer Graphics (A). These high-ranking computer science conferences have seen a wide range of papers and presentations from commission members and cartographers more widely since 2007. Cartographic ideas are informing and influenced by visualization – for instance Dykes et al. (2010) used the cartographic back-catalogue to create prototypes and establish guidelines for legends in visualization, whilst Jenny (2012) developed adaptive composite map projections and an interactive interface through which these can be explored.

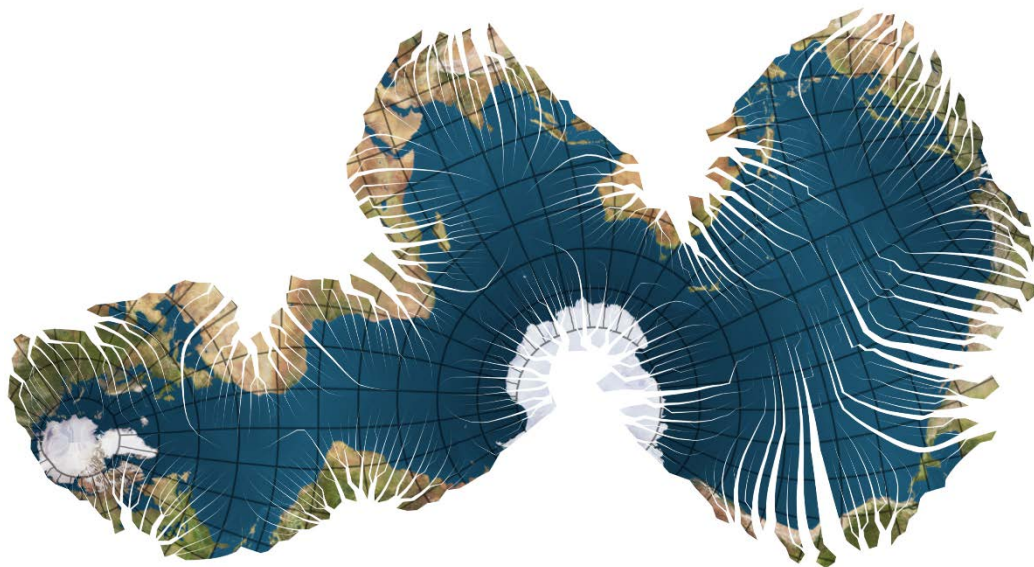


Adaptive Composite Map Projections (Jenny 2012) - this projection diagram acts as an interactive interface to select appropriate projections.



Rethinking Map Legends with Visualization (Dykes et al, 2010) - exploring the use of interactive legends in cartography and information visualization.

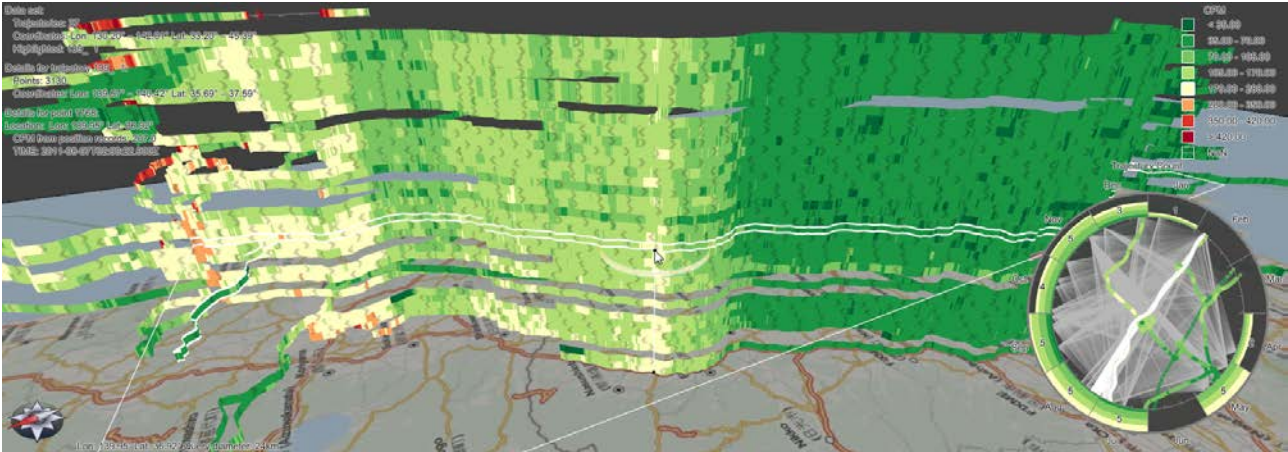
Citations of cartographic work in the visualization literature are increasing as the cartographic literature influences visualization. Several cartographers are now on the programme committees of VIS and IEEE TVCG and many cartographers review regularly to transfer knowledge of geovisualization to this broader community. Andrienko is now Associate Editor of IEEE TVCG and papers chair of the IEEE Visual Analytics Science and Technologies conference (VAST) at VIS – a role previously held by MacEachren. Dykes has twice been papers chair of IEEE Information Visualization (InfoVis) and is now a member of the conference steering committee – the first member of the cartographic community to hold such a position at a major visualization conference. And this works both ways. Senior members of the visualization community are publishing innovative work in cartographic fora (e.g. Isenberg 2013, van Wijk 2008) and developing interesting and informed cartographic techniques in the visualization conferences and journals.



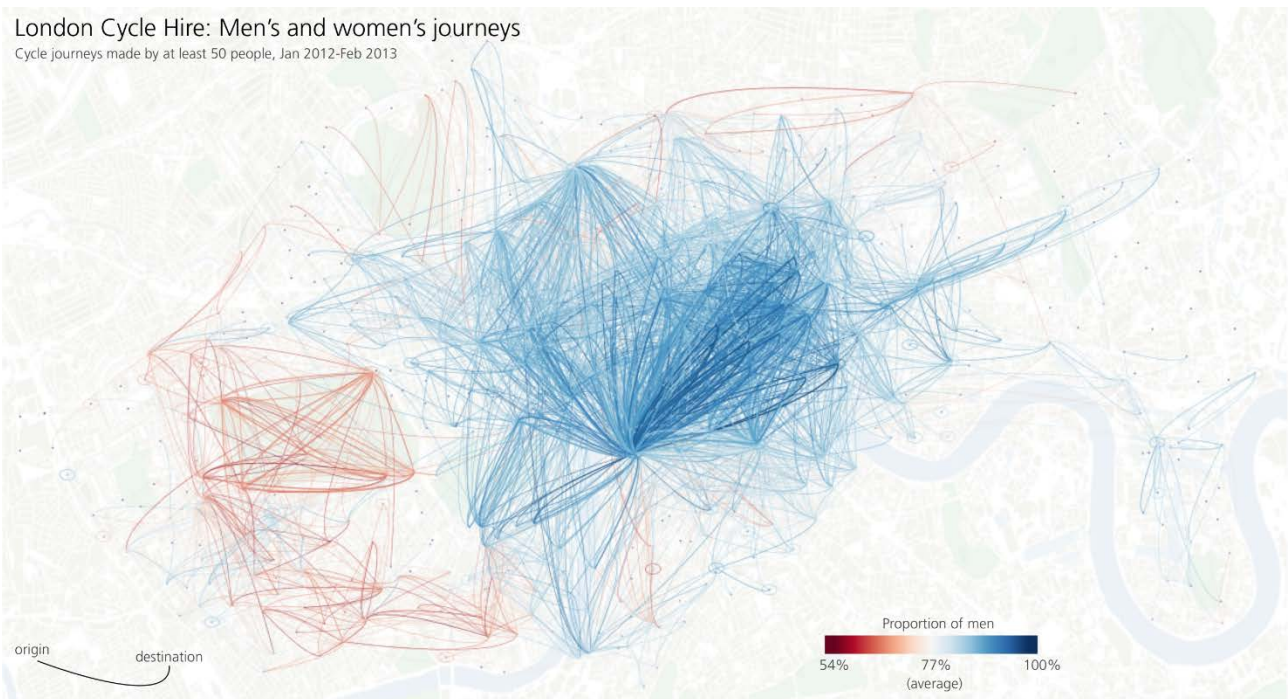
Myriahedral map projections (van Wijk, 2008) - a projection that shows the Earth's oceans.

Core research produced by commission members has involved new methods of representation (e.g. Tominski et al. 2012; Wood et al., 2012; Kinkeldey et al., 2014; Beecham & Wood, 2014),

knowledge about representation techniques (MacEachren et al., 2012) and models of interaction (e.g. Roth, 2013) and for design (e.g. Lloyd & Dykes, 2011; Goodwin et al., 2013).



Trajectory wall (Tominski et al., 2012) - interactive access to spatio-temporal data.



London Cycle Hire: Men's and women's journeys
Cycle journeys made by at least 50 people, Jan 2012-Feb 2013

Cycling Flow Maps (Beecham & Wood, 2014) - clear gender-related differences in cycling behaviour in London relate to workplace location, road layout and attitudes to cycling.

EU RESEARCH PROJECTS

Commission members have participated in several EU-funded projects that helped with this activity, including VisMaster: *Visual Analytics - Mastering the Information Age (2008-2010)*, MODAP: *Mobility, Data Mining and Privacy (2009-2012)*, MOVE: *Knowledge Discovery for Moving Objects (2009-2013)*, Energic: *Exploring Research into Geospatial Information Crowdsourcing: software and methodologies for harnessing geographic information from the crowd (2013-2017)*, VALCRI: *Visual Analytics for Sense-Making in Criminal Intelligence Analysis (2014-2017)*. The commission has thus helped to promote the role of geovisualization through these projects and in these disciplines.

COMMISSION ON VISUAL ANALYTICS

In 2015 the commission will change focus and leadership after the ICA elections in Rio. **Anthony Robinson** (Penn State University) and **Urška Demšar** (University of St Andrews) will direct the next term of activity. As GIScience enters the big data era, new visual and analytical methods to extract knowledge and value from massive spatio-temporal data sets are in greater demand than ever, and we aim to bring the commission closer to the established and influential field of Visual Analytics. To reflect this focus, we propose clarifying the focus of the commission's work on visual analytics for spatio-temporal data and to change its title to "Commission on Visual Analytics". We will promote and support research that will address the challenges associated with new visual analysis of massive spatio-temporal data sources. To help users solve real world problems, we need new and improved approaches that facilitate analytical reasoning through interactive visual interfaces. As it has done for many years already in its previous incarnations, the commission will foster interdisciplinary and international collaborations between potential users of map-oriented visual analytics and researchers, as well as between allied research communities in other disciplines and other ICA Commissions. It will build upon the relationships that have been established with Computer Science.

We plan to do this through three different pathways: events, dissemination and web presence.

Firstly, we will continue to organise **annual meetings, workshops and related events**, either on our own or via linkages to related ICA commissions and/or organisations from allied fields. We plan to develop the new research agenda for the spatio-temporal visual analytics through organisation of specialised expert workshops. We will co-locate some of these events with international conferences (for example, GIScience, Geocomputation, IEEE VIS, AGILE, and other series), to expand our reach beyond traditional cartographic audiences. As an example, our first two events under the umbrella of the new commission will be the following (organised in collaboration with the Commissions on Cognitive Visualisation, Use and User Issues, and Map Design):

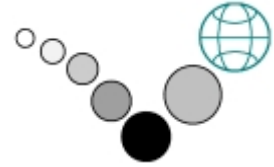
- ICC 2015 Pre-Conference Workshop: Envisioning the Future of Cartographic Research (21 Aug 2015, Curitiba, Brazil)
- The workshop "GeoVIS 2015: Rendering and Cognition with Images and Hybrid Visualizations", co-located with the ISPRS Geospatial Week 2015 (28 Sept - 2 Oct 2015, La Grande Motte, France).

Secondly, we will promote dissemination of technical and methodological advances in spatio-temporal visual analytics by providing appropriate publication opportunities, such as **special issues of journals** on topics related to spatio-temporal visual analytics.

For the third pathway, we will maintain a **dedicated web presence** for the commission in order to reach audiences beyond attendance at in-person meetings. We plan to increase our engagement with members all over the world through social media, and will introduce new forms of distance participation in commission activities, including online seminar series and regular twitter chats.

We encourage those with an interest in understanding, developing and applying interactive analytical cartography to participate in commission activities as cartography contributes to visual analytics.

Commission on GI for Sustainability



<http://SusGIS.net>

The Commission consists of 25 persons from 21 countries.

Activities:

1. **The activities of the Commission was to organize** an annual conference:
 - International Conference “InterCarto/InterGIS-18 SUSTAINABLE DEVELOPMENT OF TERRITORIES: GIS THEORY AND PRACTICE» (26 -28 June 2012, Smolensk, Russia; 2-4 July 2012, St.Die des Vosges, France) is held.
 - InterCarto/InterGIS-19 February 2-4, 2013 in Kursk (Russia) and February 6-8, 2013 in Bogota (Colombia);
 - InterCarto/InterGIS-20 «Sustainable Development of Territories: Cartography and GI Support»: July 23–24, 2014, Belgorod (Russia), July 25, 2014, Kharkov (Ukraine), July 28–30, 2014, Kigali (Rwanda), August 6-8, 2014, Nairobi (Kenya)

It was attended by 147 participants from China, Russia, Denmark, Hong Kong, Belgium, Canada, Hungary, Tanzania, Kenya and Rwanda. The number of papers presented during the conference amounted to 63.

Next conference will be held in November 2015 in Krasnodar, Sochi and Suva.

The conference outcomes are summarized as follows:

- GIS and Cartography are crucial tools in natural resource management.
 - Incorporation of GIS and cartography and remote sensing helps significantly in disaster risk reduction.
 - Human resource capacity in GIS at Master’s and PHD level.
 - There is a low level of knowledge exchange in the area of GIS and cartography.
 - The low level of partnership and networking is also a challenge at national, regional and international level.
 - GIS and cartography are still underutilized.
 - Conferences on GIS and cartography should be organized as frequently as possible.
2. **RIMMA2014** - Interdisciplinary CODATA Workshop «Risk Information Management, Risk Models, and Applications», Berlin, 17-18 November 2014.
This international interdisciplinary CODATA workshop on Risk Information Management, Risk Models, and Applications will enable sharing of best practices as well as giving space for discussing methodological problems in risk modeling from the information systems point of view for all phases of the disaster cycle.
The following areas will be of central interest for the workshop: risk information management, risk information models, risk databases, risk information interoperability, standards development, risk information processes modelling and applications, services and service composition, natural, technical, chemical risks from local to international level, risk information system structure, components, risk-related databases, risk and multi-risk cartographic issues, risk and risk-model change in time and space, risk modeling issues for infrastructure (e.g. factories, railways, highways, pipelines, maritime traffic etc.), disaster management and emergency preparedness, prevention, alert, response and mitigation, data processing related to risk management issues with special regard to information system structural aspects and Risk Model Methodology and implementation, documentation, archiving, and open access to risk and disaster information, health and biological risks issues for humans, and the environment, risk communication, decisionmaking, actors, public awareness etc., urban neighborhood risk information and mapping, user-group specific risk management issues

According to the CODATA principles of the broadest interdisciplinary discourse in the domain of Data for Science and Technology, contributions are expected from different fields of the science communities to exchange best practices and initiate recommendations for future research and development

3. **Annual 'GIS in Central Asia' Conference:** GISCA 2014 "Silk Road in space and time: the Urumqi node" in Urumqi - capital city of Xinjiang Uyghur Autonomous Region of China from from May 29 to 31, 2014. Benefit for students, staffs in Central Asian Country who study or work on GI field 100 participants from Kyrgyzstan, Tajikistan, Uzbekistan, United Arab Emirates, United States of America, Belgium, Austria, Japan, Rwanda, Swiss, Russia, China (Hong Kong, Beijing, Shenzhen, Xinjiang).
4. **Organization of schools of young scientists (Educational and Training Workshops for students)** . Previously, these schools were carried out in Sevastopol (Ukraine), Istanbul (Turkey), Urumqi (China 5 times), or by boat on the Volga (Perm, Kazan, Saratov, Astrakhan, Volgograd, Samara) and Barnaul (2 times). Next Workshop was held in July 2014 in the city of Kigali (Rwanda) - trainees from 10 different government organizations and higher education institutions. Such as Ministry of Education of Rwanda, Rwanda Natural Resources, total 53 trainees attended and got certificates. The last school was held in June-July 2015 in FYR Nacedonia, Kosovo, Albania and Greece.
5. **A book on GI for Sustainability** are under discussion (the members of the Commission and other interested people will can participate in this work).
6. **Project:**
 - "Digital Great Altai"- a GIS support for ecosystem sustainability in Great Altay Ecoregion
 - Collected existed GIS data about the region
 - Digitized paper maps for GIS database.
 - Investigated all neighbouring countries spatial data sharing policy, special focused on topographic maps and thematic maps control policy (classifying policy)

The commission publishes its organizational details and calls for events participation on its homepage <http://SusGIS.net>

Contact

Chair V.S. Tikunov

tikunov@geogr.msu.su

Vice Chair H. Kremers

office@Horst-Kremers.de

Commission on the History of Cartography



Chairperson: Prof Elri Liebenberg (South Africa)
Vice-Chair: Dr Imre Josef Demhardt (USA)
Vice-Chair: Dr Peter Collier (UK)

AIMS

During the period 2011- 2015 the Commission aimed to

1. investigate the impact of technological innovations on cartography during the last two centuries;
2. examine the role of maps worldwide as cartographical (as opposed to historical) documents during the late 18th, the 19th and the 20th centuries;
3. document the recent history of GI science in general and computer-aided mapping and Geographical Information Systems in particular.

The Commission Executive tried to promote these aims by

- Organising annual meetings/symposia to discuss and monitor research work undertaken.
- Publishing research findings in Proceedings and accredited journals.
- Maintaining a dedicated website to act as a database for interested researchers.
- Undertaking a project which has as aim the publication of a series of regional monographs on the history of cartography from 1780 until 1945.
- Fostering closer ties with other professional groups working in the field of the history of cartography.

MEETINGS

- Two business meetings, one in Paris (ICC2011) and one in Dresden (ICC2013).
- Joint meeting with ISHM (International Society for the History of the Map), Budapest, 30 June 2012.

ACTIVITIES

- 4th International Symposium (Eötvös Loránd University, Budapest), 38-29 June 2012.
- 5th International Symposium (University of Ghent, Belgium), 3-5 December 2014, jointly organised by the Commission on the History of Cartography, the Brussels International Map Circle, and the ICA Commission on Map Production and Geo-Business.
- Joint Workshop with Commission on Atlases and WG on Toponymy, Leipzig, Germany, 22-23 August 2013.
- ICA Session on "19th century Maps of the Baltic Area", ICHC2013, Helsinki, Finland with contributions by the Russian State Library, National Library of Norway, Staatsbibliothek zu Berlin, National Library of Latvia, National Library of Finland.
- Participate in the Second Euro-SDR Workshop on the "Preservation of the Geographical Production Process", University of Ghent, 1 December 2014. The first workshop which took place in 2013 was organised by a consortium of Ghent University, Swisstopo and the National Geographic Institute of Belgium.

PUBLICATIONS

Since 2011 the Commission has published two books with the ICA's official publisher Springer Verlag:

- Liebenberg, Elri & Demhardt, Imre J. 2012 History of Cartography. International Symposium of the ICA Commission, 2010. Series: Lecture Notes in Geoinformation and Cartography. Springer: Heidelberg. 303 p. 120 illus., 3 in color. ISBN 978-3-642-19087-2
- Liebenberg, Elri, Collier, Peter and Török, Zolt.G. 2013. History of Cartography. International Symposium of the ICA Commission, 2012 Series: Lecture Notes in Geoinformation and Cartography. Heidelberg, Germany: Springer Verlag. 252 p. 145 illus. 25 in color. ISBN 978-3-642-33316-3

The manuscript of a third book will be submitted to Springer on 15 August 2015:

- Liebenberg, Elri & Demhardt, Imre J. 2012 History of Cartography. International Symposium of the ICA Commission, 2014. Series: Lecture Notes in Geoinformation and Cartography. Springer: Heidelberg

“MONUMENTA CARTOGRAPHICA MODERNA”, 1780-1945

During ICC2013 in Dresden, the ICA Commission on the HoC submitted a proposal to the ICA Executive Committee to launch a project which has as aim the publication of a series of regional monographs on the history of cartography from 1780 until 1945. Each monograph will be accompanied by a digital database containing relevant maps and documents. In December 2013 the ICA Executive Committee endorsed the planned print series as part of the ICA Book Series with Springer-Verlag. A preliminary endorsement of the digital database was issued which needs to be confirmed when further details about the funding, operation, maintenance and responsibilities of such a database are submitted.

Work on this project is progressing satisfactorily and since 2013 various persons have been approached on an ongoing basis to contribute. The creation of a digital database is still under discussion with Springer.

MEMBERSHIP

The ICA Commission on the HoC has currently 71 members.

WEBSITE

The Commission's website www.icahistcarto.org has been maintained on an ongoing basis.

*Elri Liebenberg
Imre Josef Demhardt
Peter Collier*

Commission on Map Design

The Commission on Map Design has enjoyed a fantastic four year term 2011-2015. Organized to fill a perceived gap in ICA activities, the Commission's original terms of reference have been surpassed as the work and ambitions gained momentum. While map design is implicit in the work of many Commissions (and cartography more generally), the Commission on Map Design was formed to make these ideas explicit and to bring focus to design as a core component of cartography and map-making more generally.

The Commission provides a forum for discussion, exchange of ideas and the development and spread of the principles and practice of high quality, effective cartographic design. The Commission was established to focus attention on establishing effective patterns for new map makers; to encourage excellence in design; and to bring together a wide variety of people from different disciplines to help shape cartographic design.

The original terms of reference were:

- To develop a web site as a focal resource for researchers in map design and map-makers of all kinds;
- To organize sessions at ICA conferences in 2013 and 2015 focused on map design theory and practice;
- To organize annual Commission meetings;
- To publish every two years a special issue of a cartographic journal or book on products arising from the work of the Commission; and
- To collaborate with colleagues in other ICA Commissions in complementary areas of interest.



The Commission was chaired by Kenneth Field, formerly of Kingston University London and now at Esri in Redlands, CA. Ken was Editor of *The Cartographic Journal* until 2015 when the role was taken on by Commission Vice-Chair Alex Kent, of Canterbury Christ Church University UK. Bernhard Jenny, of Oregon State University in the US and Anja Hopfstock, of the Federal Agency for Cartography and Geodesy, Germany completed the core team. Together, the team brought a strong design background and a wealth of cartographic experience from thematic mapping to relief depiction

and symbol evaluation. They also exhibited strong backgrounds in both academic cartography and commercial cartography that gave a cross-cutting insight.

The Commission website mapdesign.icaci.org was created in 2011 and populated with core information and useful resources. Rather than a formal membership structure, the Commission used the web site (blog) and social media (e.g. @ICAMapDesign on Twitter and ICAMapDesign on Pinterest) to communicate with participants. Ken co-authored a paper with Aileen Buckley on 'Affective design in cartography' as part of a collection of papers at the 2011 North American Cartographic Information Society (NACIS) conference that explored research in this field to date and offered some thoughts on future work to develop understanding in this area. In conjunction with the Commission on Cognitive Visualization, the Commission organized two paper sessions at the

Association of American Geographers meeting in 2012 where ten papers exploring relevant themes in map design were presented. The best papers from the sessions were published as part of a Special Issue of The Cartographic Journal later in 2012 and evidences the importance of design in mapping. The Commission co-sponsored a range of sessions at 2012 NACIS meeting; the Aesthetics of Mapping forum was a cross-disciplinary discussion led by participants with various backgrounds in cartography, economics, and the humanities and which spawned a Special Issue of Cartographic Perspectives with commissioned essays and papers from the forum. The Commission also hosted paper sessions at the 2012 GeoCart conference, including a two-day workshop on map design using ArcGIS. Presentations were also made at the British Cartographic Society conference and the Society of Cartographers Summer School in 2012. Ken and Damien Demaj (Saunder) undertook a wide-ranging survey into map design which were published in The Cartographic Journal as a two-part paper and which went on to win the Henry Johns best paper award in 2013.

In 2013, the Commission worked alongside the Commission on NeoCartography to co-convene three paper sessions at the AAG meeting in Los Angeles. Organized and chaired by Ken and Andrew Turner (vice-chair Neocartography), the sessions brought together a terrific mix of cutting edge work on a wide variety of topics that cross-cut themes of map design in the digital age. We also collaborated to host a successful pre-conference one-day workshop in Dresden ahead of the International Cartographic Conference 2013 chaired by Ken and Steve Chilton (Chair Neocartography). The Commission had as strong presence at ICC2015 where we held our business meeting as well as contributed to numerous papers and session chairs to the conference. Ken and William Cartwright also wrote a lead article for GIM International magazine on 'Modern Times, Modern Maps, Modern Mapping' that was made available to conference delegates in Dresden. The article drew together themes that are current to the modern mapping landscape and what it means for cartography. Ken won the best map at ICC2015 for 'Death in the Grand Canyon'. The Commission also organized, co-sponsored and managed the judging and awards for the FOSS4G Map Gallery, Nottingham, UK.

Our main initiative in 2014 was the daily MapCarte blog. MapCarte showcases an example of great map design, either classic or contemporary via the Commission blog and associated Pinterest (pinterest.com/icamapdesign/mapcarte). We feature an illustration, or a link to the web map and also provide a short description of why the map is regarded as exhibiting high cartographic quality. This was a monumental commitment – 365 maps, each with 300 words of discussion or thereabouts. We are seeing many people reading the blogs, subscribing to the blog and sharing the links. This is truly bringing the idea of quality map design to the masses and represents the first gallery of maps with a focus on design, with accompanying comments that are curated by cartographers. The Commission also staged the world's first *Mapathon* in collaboration with the British Cartographic Society. Held at the BCS Symposium in the United Kingdom, the *Mapathon* was a day long event where people collaborate in teams to produce a map that can be used by a non-for-profit organization. We also had representation at the GeoCart 2014 event where Ken also won an award for his socio-economic tectonics map as well as at Autocarto and NACIS meetings in the USA. Bernie Jenny represented the Commission at FOSS4G in Portland, Oregon where his Plan Oblique Europe map won several awards. Ken gave several keynotes during 2014 and contributed the lead essay for the NACIS Atlas of Design Volume 2. Kenneth Field and William Cartwright had a paper published in the last issue of The Cartographic Journal in 2014 on the design of the London Underground map and its use and exploitation in cartography, design and marketing. Ken also contributed to 'The Times History of the World in Maps' by The Times (HarperCollins) and 'Map' by Phaidon Press which used a number of the MapCarte entries.

In the early part of 2015, further sessions were co-convened with the Commission on Cognitive Visualization at the AAG meeting in Chicago. Looking ahead, we are actively pursuing a second

term as an ICA Commission. The Map Design Commission is working with the Commissions on Cognitive Visualisation, Use and User Issues and Geovisualization to organize and deliver an ICC 2015 pre-conference workshop in Curitiba, Brazil as well as play a full and active part in ICC2015 in Rio. Alexander Kent and co-author Peter Vujakovic are in the initial stages of preparing a Handbook on Cartography in which Design will feature as a core component. Kenneth Field and Damien Saunder are currently writing a new textbook on cartography focusing on design and the intersection of map-making with other design environments. The intent is for this book to become a definitive work for cartographers and map-makers. Finally, the MapCarte initiative has been reflected in a general improvement and appreciation for good quality mapping. Many books have been published in 2013-2015 as curated collections and web sites previously fond of promoting quantity have revised their editorial policy towards quality. MapCarte entries have also been incorporated in a new book called 'MAP' by Phaidon Press – a collection of 300 of the world's best maps with associated commentaries. We've certainly led by example. Others have followed.

In summary, Commission members have been highly active in promoting the importance of design and exploring both the theories and practices. Classic and contemporary design has been showcased and emerging issues tackled and published in the academic literature and through blogs to reach a wider audience. Commission members have been involved in many activities beyond those reported here but the Commission allows us to provide a focal point to bring together related work; and to demonstrate our commitment under the auspices of ICA. The main achievements across our first term are:

- o collaboration with Commissions on a range of activities including wide-ranging conference participation;
- o publication of special Issues of The Cartographic Journal and Cartographic Perspectives;
- o the MapCarte daily blog at mapdesign.icaci.org which has been phenomenally successful; and
- o bringing together of award winning, active and motivated commission members at the forefront of map design.

We will be seeking a further four year term with a new core team of Kenneth Field, Damien Saunder and Ian Muehlenhaus but we intend to further evangelize map design and work towards clarifying what this means to modern map-making.

*Kenneth Field
Redlands, CA
Chair, ICA Commission on Map Design*

Commission on Map Production and Geo-business

<http://mapproduction.icaci.org/>

Terms of Reference

These terms of reference should be achieved by specific meetings involving the different sectors, knowledge transfer via workshops and the wide usage of publication media. The terms of reference are:

- Enhance the study on map production- and process management, map economics and geobusiness.
- Research on the impact by modern communication methods on production, business models, change management and design thinking.
- Research the impact of Service Oriented Architectures and future technologies on Map-Production, Publishing and Archiving.
- Encourage international collaboration on the study of map production and geobusiness with particular emphasis on bridging research, government and commercial sectors.
- Participate and contribute to activities of other relevant ICA interest groups (e.g. Commission on Use and User Issues, National Mapping Organisations).

Past Activities 2011

1. Business meeting of the Commission on Map Production and Geo-Business, Paris (France), July 2nd, 2011

Past Activities 2012

1. A two-day, hands-on workshop on the topic “Modern Cartography: Webmapping” was held on behalf of ICA at the GeoTunis conference in March 2012
2. A pre-symposium workshop for the UN community was organised jointly with the ICA Commission on Geospatial Open Source Technologies, Barend Köbben, from 20th to 21st 2013 at the Vienna University of Technology in Vienna.
3. A workshop on “Service-Oriented Mapping 2012 (the influence of SOA on Map Production and GeoBusiness)” was organised from November, 22nd to 23rd 2012 in Vienna, Austria. Further information is available at the symposium website <http://somap.cartography.at>.
4. The book „SOMAP 2012” has been published as symposium proceedings (37 chapters) and service oriented mapping cookbook (11 hands-on lectures). [JOBSTMedia Verlag, ISBN 3-95032039-2-9].
5. An “International Conference Mercator revisited” took place in Sint-Niklaas (Belgium), with the participation of the ICA Commission on Map Production and Geo-Business, from 25 till 28 April

Past Activities 2013

1. A workshop together with the Commission on Generalization and Multiple Representation as preconference workshop before the ICC2013 in Dresden has been successfully held from August 23rd to 24th 2013 at the Technical University in Dresden.
2. Working group kick-off: “Preservation of the Geographical Production Process”, an initiative of EuroSDR, Eurogeographics, IGN-B, ICA Commission on Map Production and Geobusiness and Ghent University, 21st - 22nd May 2013 at IGN-Belgium. The participants of this kick-off meeting established a Statement of Brussels.
3. Business meeting of the Commission on Map Production and Geo-Business, Dresden (Germany), August, 2013

4. Kick-off EuroSDR heritage working group, May 21-22, 2013, Brussels (Belgium), organised in collaboration with the Commission on Map Production and Geo-Business. This working group focuses on conservation of map production techniques. <http://geoheritage.ugent.be>

Past Activities 2014

1. The international symposium 'Cartography in Times of War and Peace' was held from Tuesday, 2 December to Saturday, 6 December 2014 in Ghent and Brussels. Organizing partners were the ICA Commission on the History of Cartography, the ICA Commission on Map Production and Geo-Business and the Brussels Map Circle.
2. The second symposium on "Service-Oriented Mapping" took place from November 26th to 28th 2014 at the Vienna University of Technology, Austria together with the LBS 2014 symposium. Please have a look at the symposium website: <http://somap.cartography.at>.
3. The hands-on workshop "Open Source GIS and Modern Webmapping" was a 2-day workshop on November 24th & 25th 2014 in Vienna, Austria. It was organized on behalf of the Commission on Map Production and Geobusiness and Commission on Open Source Geospatial Technologies of the International Cartographic Association (ICA).
4. A workshop called "Hands-On Cultural Heritage Geospatial Infrastructures - a fundament for collaboration and exchange" was held during the 19th International Conference on Cultural Heritage and New Technologies from November 3rd to 5th 2014 in the city hall of Vienna.
5. The workshop "Webmapping and Service-Oriented Architectures" took place from February 12th - 14th 2014 in St.Maarten at the URISA Caribbean Chapter 2014.
6. 2nd meeting of the EuroSDR heritage working group, December 1-2, 2014, Ghent (Belgium), organised in collaboration with the Commission on Map Production and and Geo-Business

Upcoming Activities 2015

1. Business meeting of the Commission on Map Production and Geo-Business, Rio de Janeiro (Brazil), August 25th, 2015
2. We still plan to publish a Springer book on "Changing Paradigm in Map Production". Information and participation can be requested at the book website <http://www.cartography.at/bookonmapproduction>.

Flagships results / highlights

Highlight was putted on

1. *preservation of the history of map production techniques as a testimony of the past and esp. for 20th Century for avoiding the loss of knowledge that is now still available;*
 2. *and use of new production techniques for esp. web mapping and service-oriented mapping*
- this resulted in several workshops/conferences and publications.

Past co-chairs:

Prof. Philippe DE MAEYER

Department of Geography, Ghent University, BELGIUM

philippe.demaeyer@ugent.be

Dr. Markus JOBST

Department of Geodesy and Geoinformation, Research Group Cartography, TU Wien, AUSTRIA

markus@jobstmedia.at

Nominated chair:

Dr. Peter SCHMITZ

Built Environment, CSIR and Centre for Geoinformation Science, University of Pretoria, SOUTH AFRICA, pschmitz@csir.co.za

Commission on Map Projections

ica-proj.kartografija.hr

Organisation

Contact details for Chair
Prof. Dr. Miljenko Lapaine
University of Zagreb
Faculty of Geodesy
Kaciceva 26
10000 Zagreb
Croatia
phone: +385 1 4639-273
fax: +385 1 4828-081
e-mail: mlapaine@geof.hr

Contact details for Vice-Chair
E. Lynn Usery
Research Geographer and Director
Center of Excellence for Geospatial
Information Science
U.S. Geological Survey
1400 Independence Rd.
Rolla, MO 65401-2502
phone: 573-308-3837
fax: 573-308-3652
e-mail: usery@usgs.gov
<http://cegis.usgs.gov>

The CoMP has 18 regular members who have discussed the activities of the Commission during meetings and by e-mails between meetings. There is a list with about 80 e-mail addresses of members and other interested people. The CoMP web-site address is ica-proj.kartografija.hr

In each country, topographic mapping has its own tradition, including the selection of map projections and datum. Similarly, it is well known that in thematic cartography, map projection is an important element in map design and effectiveness. For national mapping, Geocentric WGS84-based systems are applied in many countries, but it is still important for cartographers and even the general public to know the properties and applications of various projections and to manage their application and conversions among them.

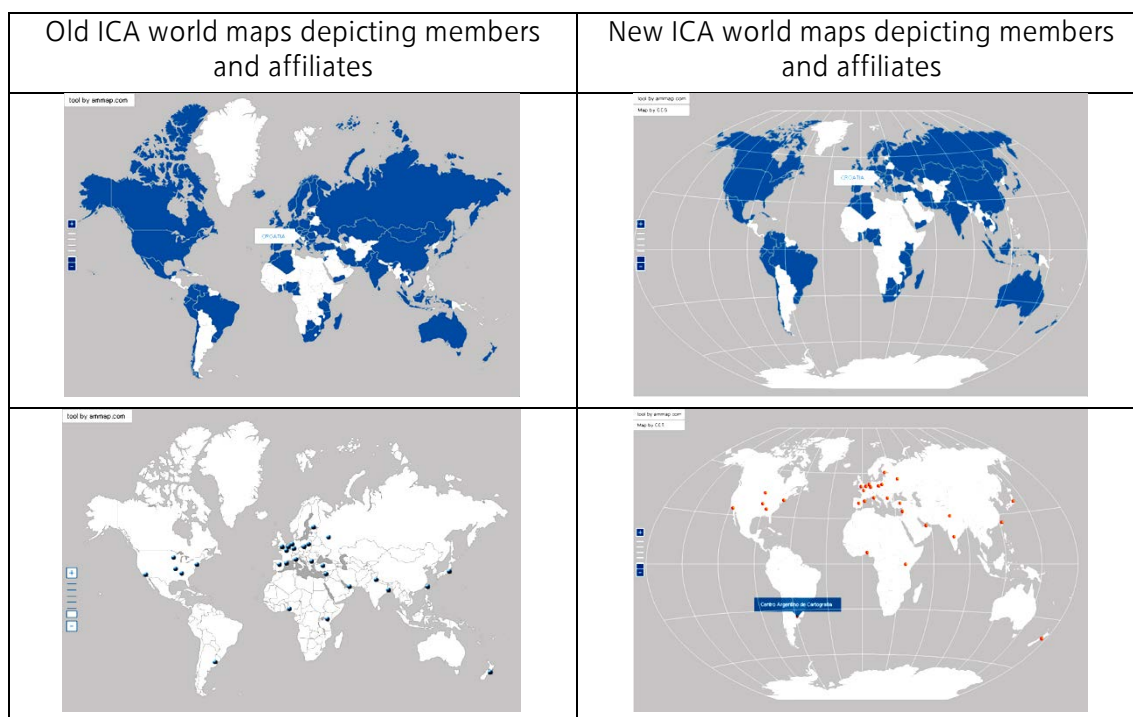
In practice, many GIS software tools and online services offer transformations among projections, datums and coordinate systems, while mobile and ubiquitous applications often compute transformations on the fly. Map projections and transformations, along with their associated mathematical studies of distortion, are established and valid areas of cartographic research. Map projections research has implications in reference frames for mobile applications, data structures for virtual globes, use of data from Global Navigation Satellite Systems, and the transformation of remotely sensed data from satellite, aerial platforms and ground-based (Virrantaus K, Fairbairn D, Kraak M-J: *ICA Research Agenda on Cartography and GI Science*, The Cartographic Journal, 2009).

In the last four years, the Commission on Map Projections (CoMP) organised nine meetings: at the Paris ICC, 2011, Albena, Bulgaria, June 21, 2012, Vienna, Austria, November 21, 2012, Dresden, Germany, August 24, 2013, Riviera, Bulgaria, June 15, 2014, Pittsburgh, PA, USA, October 5, 2014, Zagreb, Croatia, October 11, 2014, Corfu, Greece, May 29, 2015 and Rio de Janeiro, Brazil, August 25, 2015

The CoMP wiki is going on as a continuation of the project initiated by the Commission in the previous period.

A chapter on map projections and reference systems for the book *World of Maps*, as requested by ICA WG for the *International Map Year*, was prepared and published on the IMY web-site (<http://internationalmapyear.org>).

CoMP is currently finishing the book *Choosing a Map Projection*. It is edited by Miljenko Lapaine (Croatia) and E. Lynn Usery (USA).



As it was shown at CoMP meetings and especially at the Pittsburgh meeting, the map projection field does not only include the mathematics of map projections, but also the study of new projections, their implementation on the Internet, as well their application to new technologies, e.g. geocomputation, parallel computing, grid computing, etc. The incorporation of increasing content from geoinformatics requires further study of terminology and the next book prepared by CoMP could be a dictionary on map projections with definitions.

CoMP will continue working in the next four-year period as a separate commission, because it has very clear and straightforward goals. The future work of CoMP has been agreed on and proposed to the ICA General Assembly.

July 25, 2015

Miljenko Lapaine, Commission on Map Projections Chair

Commission on Mapping from Remote Sensor Imagery

Chair: Xiaojun Yang (USA)

Vice-Chairs: Jonathan Li (Canada), Jan Feranec (Slovakia) & Yifang Ban (Sweden)

Website: <http://myweb.fsu.edu/xyang/ica>

Background

The ICA Commission on Mapping from Remote Sensor Imagery was created in 1999 as one of the 17 commissions approved by the 11th ICA General Assembly. Serge Le Blanc (France) was Commission Chair from 1999-2003. In 2003, the 12th ICA General Assembly approved the Commission as one of the 19 commissions and working groups, and Serge Le Blanc and Graciela Metternicht (Australia) were Commission Chair and Vice-Chair. In 2005, the 13th General Assembly changed the Commission name from "Cartography from Satellite Imagery" into "Mapping from Satellite Imagery", and Graciela Metternicht was appointed Acting Chair and Serge Le Blanc Vice-Chair. In 2007, the 14th General Assembly approved the Commission as one of the 22 commissions, and Graciela Metternicht and Xiaojun Yang (USA) were Chair and Vice-Chair. Following Graciela Metternicht's resignation in late 2007, Xiaojun Yang became Chair and Jonathan Li (Canada) Vice-Chair for 2007-2011. In 2011, the 15th General Assembly approved the Commission as one of the 28 commissions and working groups, and changed the Commission name into "Mapping from Remote Sensor Imagery".

Terms of Reference: 2011 - 2015

- Promote the original and practical research concerning the development and use of existing and forthcoming aerospace remote sensor systems for topographic and thematic mapping.
- Produce a book with a state-of-the-art review on remote sensors and data processing techniques applied for topographic and thematic mapping. It reviews the latest developments in remote sensors and information extraction techniques, examines the utilities of sensors and techniques for cartographic feature extraction, and showcases latest developments in thematic mapping.
- Network with ISRPS, IAG, FIG, and other ICA commissions with similar interests in applications of remote sensor imagery. Such networking would help organize one or more joint workshops, seminars, or symposia during 2011–2015.
- Develop closer links with international organizations concerned with the use of remote sensor imagery for strengthening ICA's presence and developing joint courses or seminars on cartographic applications of remote sensor imagery.
- Promote knowledge transfer at fundamental and advanced levels on the use of remote sensor imagery for cartographic applications related to natural and built environments, early warning and natural disaster mitigation.
- Prepare promotional materials reflecting the Commission's terms of reference and activities that can be used to support ICA's presence at international forums.

Commission Membership

Recruiting active researchers or scholars into the Commission has been critical in order to accomplish the above terms of reference. By now, the Commission has more than 15 full members who are usually their national representatives (including Commission Chair and Vice Chairs) and several corresponding members.

Commission-Sponsored Conference Activities

The Fifth International Conference on Earth Observation for Global Changes (EOGC 2015), Al-Ain, United Arab Emirates, 8-10 December 2015

EOGC 2015 will be hosted by the United Arab Emirates University (UAEU), with a sponsorship from the ICA Commission on Mapping from Remote Sensor Imagery. Jonathan Li (Commission Vice-Chair) serves as a Conference Chair and Scientific Committee Chair. Multiple Commission members serve on the Scientific Committee. Conference website: <http://conferences.uaeu.ac.ae/eogc-git4ndm/en/committee.shtml>

The Second International Workshop on Temporal Analysis of Satellite Images, Stockholm, Sweden, 17-19 June 2015

This highly successful workshop was hosted by Royal Institute of Technology in Stockholm, Sweden, with a sponsorship from the ICA Commission on Mapping from Remote Sensor Imagery. Yifang Ban (Commission Vice-Chair) led the Local Organization Committee and the workshop Scientific Committee. Xiaojun Yang (Commission Chair) and Jonathan Li (Commission Vice-Chair) also served on the workshop Scientific Committee.

The Third International Conference on Earth Observation for Global Changes (EOGC 2013), Toronto, Canada, 5-7 June 2013

EOGC2013 was successfully held, with a sponsorship from the ICA Commission on Mapping from Remote Sensor Imagery. Jonathan Li (Commission Vice-Chair) and Xiaojun Yang (Commission Chair) led the conference Scientific Committee. Multiple commission members served on the Scientific Committee.

Publications

Book: Monitoring and Modeling of Global Changes: A Geomatics Perspective (Editors: Jonathan Li and Xiaojun Yang, to be published by Springer in August 2015)

The chapters in this book present state-of-the-art geomatics technologies applied in global environmental studies. This text provides the latest research findings and delivers complete references to related publications. This book will motivate the undergraduate and graduate students, researchers and practitioners to better understand the environmental changes with informed solutions.

Global Change studies are increasingly considered a vital source of information to understand the Earth Environment, especially in the framework of human-induced, climate change and land use transformation. Satellite Earth Observing systems and geomatics technologies provide a unique tool to monitor and model the changes, respectively. While the range of applications and innovative techniques are always increasing, this book provides a summary of key study cases where satellite data offers critical information to understand the usefulness of the geomatics technologies and global environmental issues. Geomatics technologies provide powerful tools to model and analyze the effects of those global environmental changes towards minimizing their adverse impacts on human health and the environment.

Book: Advances in Mapping from Remote Sensor Imagery: Techniques and Applications (Editors: Xiaojun Yang and Jonathan Li; published by CRC Press in 2013)

Designed for both the academic and business sectors, the proposed volume is a state-of-the-art review on remote sensors and data processing techniques applied for topographic and thematic mapping. The book comprises three major parts. The first part provides an overview on the latest developments in remote sensors and information extraction techniques. The second part examines the utilities of various remote sensors and techniques for the extraction of several types of geographic features that are essential for topographic map production, such as elevation (including near-shore bathymetry and shorelines), vegetation, hydrography, roads, and human settlements. The last part showcases some latest developments in the synergistic use of remote sensing and relevant data processing techniques for thematic mapping in environmental and ecologic domains.

ISPRS Journal of Photogrammetry & Remote Sensing: Special Issue on Global Land Cover Mapping and Monitoring (Guest editors: Yifang Ban, Peng Gong and Chandra Giri; published in 2015)

IEEE Journal on Selected Topics in Applied Earth Observations and Remote Sensing: Special Issue on the Analysis of Multitemporal Remote Sensing Images (Guest editors: Joseph M. Piwowar, Yifang Ban, Greg McDermid and Lorenzo Bruzzone; published in 2014)

Environmental Management: Special Feature on Land Use and Watershed Assessment (Guest Editors: Xiaojun Yang, Liding Chen & Yaning Chen; published in 2013)

Commission on Maps and Graphics for Blind and Partially Sighted People

ALEJANDRA COLL ESCANILLA

Chair of the Commission
Centro de Cartografía Táctil,
Universidad Tecnológica Metropolitana (UTEM),
Santiago, Chile

WALDIRENE RIBEIRO DO CARMO

Vice-Chair of the Commission
FFLCH - Departamento de Geografia,
Universidade de São Paulo, Brasil

EDWIN HUNT WALLIS

Technical Secretary of the Commission
Instituto Geografico Militar de Chile,
Santiago, Chile

The Work Plan for the period 2011–2015 was prepared within the framework of tactile cartography and mainly for the benefit of visually handicapped persons. The tasks taken on have included: Rebuilding and updating the contact database, exchanging and distributing information about producing cartographic, graphic and text materials, and studying the potential value of maps and graphics. Links to other ICA commissions was also included, with the aim of sharing experiences, developing complementary relationships, adapting and strengthening geocartographic knowledge in its various forms of multisensory expression.

The commission has the very substantial support of the Tactile Tactile Cartography Centre (CECAT) of the Metropolitan Technological University of Chile (UTEM), which is linked mainly to Spanish-speaking countries in Latin America through the Pan American Institute for Geography and History (PAIGH), a technical organization attached to the OAS.

From 2012 onwards, the Commission has made various contributions to “ICA News” concerning publications, training, participation in conferences, research and the production of tactile maps and educational materials in Braille or audio and tactile media.

The CECAT and the Design School of the UTEM in Chile, together with the Chilean National Public Library System, hosted an academic forum with the participation of Philippe Claudet from France, the specialist in education for handicapped children and founder of the Association “Les Doigts Qui Rêvent” (fingers that dream).

MA. Teresa Barrientos and Dr. Pilar Correa, researchers linked to the UTEM, led the workshop on “Signs and activities using books with textures” in the framework of the 32nd International Book Fair of Santiago, Chile.

For ICC 2013, the Commissions contributed to setting up the sessions, reviewing the paper submissions and presenting the activities of the Commission to the Plenary Session.

In 2013, with the approval of the ICA authorities, the web site of the commission was set up at <http://visualdisabilities.wix.com/icahome>. The information in the various fields has been developed in accordance with the activities of the Commission.

The “Educational Resources Center for Visually Handicapped Persons” was set up on the basis of the agreement signed between the Education Ministries of Spain and Chile, the Spanish “ONCE” Foundation for Latin America (FOAL), and the Organization of Iberian-American States for

Education, Science and Culture (OEI). These entities have enabled the Center to be implemented by donating state-of-the-art tactile equipment. From this year the Chilean Education Ministry has assigned projects to the CECAT concerning "Creation of study texts in Braille, Macrotype and Audio-texts, together with cartographic and tactile teaching materials for visually handicapped school pupils, to be distributed freely throughout the country".

At the "26th International Cartographic Conference", Msc. Waldirene Ribeiro, Vice-chair of the Commission, led the various tasks that had been prepared, together with the Commission Chair, during the first half of 2013. This included the submission: "School Tactile Cartography in Brazil: the challenge of training teachers" and the poster: "Global Warming Teaching through Maps and Diagrams Touch", jointly authored with Alejandra Coll.

In Chile the PAIGH-OAS International Workshop titled "Teaching Geography through tactile maps and educational material to teachers of students with special needs in Latin America", led by its coordinator Enrique Pérez of the UTEM with participants from Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico and Panama.

Researchers from universities and institutions involved in visual handicap from Argentina, Brazil, Chile and Perú, from 2014 onwards have been working on the project: "Proposal for standardizing tactile symbology for Latin America: application in cartography for tourism", led by the CECAT-UTEM of Chile and financed by the PAIGH-OAS. The international work team with skills in the areas of cartography, design, geography, special-needs education and tourism, among other specializations, gathered at the CEBE center in Cusco, Peru.

The Commission Chair and Vice-Chair will participate in the 27th International Cartographic Conference of the ICA with the poster titled: "Experience with tactile maps: towards a standardization of tactile symbols".

The Commission has published two Newsletters; the first covered the period 2012 and 2013, and the second covered 2104, while announcing some activities to come in 2015.

This Commission is supporting the initiative "International Map Year" (IMY) by providing a new chapter to add to the book "The World of Maps", which is the main text that the ICA is publishing in the framework of the IMY. The chapter now being drafted will be a short text about tactile cartography.

During the four years of the work of this Commission, annual meetings have been held with the Commission Chair (Alejandra Coll), Vice-Chair (Waldirene Ribeiro), Technical Secretary (Edwin Hunt), and two contributors to the core group (Teresa Barrientos and Jennifer Pinto) all present, so that the Commission can sustain its network and monitor progress in the tasks that it has committed itself to for each year.

July 2015

Commission on Maps and Society

No report available.

Commission on Maps and the Internet

In August of 2011 the Maps and the Internet Commission leadership passed to new chairs and co-chairs. The commission had been led by Michael Peterson, USA and Georg Gartner, Austria. The new leadership consisted of Rex G. Cammack, USA, Pyy Kettunen, Finland and Long Yi, China. The commission set out to continue the trend of providing both research excellence and forums for scholars from around the world to share and present their latest research on topics involving cartography and the Internet. The two largest activities the commission has hosted were the 2013 commission meeting in Plzen, Czech Republic and the joint meeting with the ICA Commission on Cartographic Education in 2015 in Curitiba, Brazil. These pre conference meetings were well attended and allowed the presenters to exchange their research in a collaborative environment.

In addition to these commission meetings, the commission has sponsored a wide number of other conferences and symposiums. In March of 2015, the Maps and the Internet commission joined the ICA commissions on Theoretical Cartography and Ubiquitous Mapping in Tokyo, Japan for The International Symposium on Cartography in Internet and Ubiquitous Environments 2015. Scholars from around the world attended this event and presented some of the latest mapping research from China, Japan, USA, and Malaysia. Currently the papers submitted from this conference are under review and being edited into a collection of chapters for a book to be published under the ICA publication agreement with Springer publishing. The timetable for completion of the Maps and the Internet 2015 book is November, 2015.

In addition to conferences and symposiums the Maps and Internet Commission has worked to establish an active membership listing. Overtime all membership lists eventually become out of date. This new membership list will become an important tool to communicate upcoming events and activities the commission is involved in. This active membership list is coupled with a more active approach to leverage our website for our interested community.

The commission has a long history of doing workshops to promote education. In the past four years the commission has supported several of these workshops. The latest one will be held in Curitiba, Brazil but other workshops have been held in Columbia and the Czech Republic. The commission thanks Michael Peterson for his services in providing these important outreach opportunities to promote cartography.

As the Maps and Internet Commission moves into a new two-year phase, planning has already begun for the 2017 ICC preconference commission meeting to be held in Williamsburg, Virginia, USA on June 28th to the 30th. The commission will welcome other commissions to join them near historical Williamsburg to exchange and present their cartographic research and interests.

*Rex Cammack, USA
Pyy Kettunen, Finland
Long Yi, China*

Commission on Mountain Cartography

0. Introduction, history

Based on a proposal made to the Executive Committee of the International Cartographic Association (ICA) during the International Cartographic Conference (ICC) in Barcelona in 1995 a preliminary Working Group on Mountain Cartography was formed in 1997. The goal was to focus on special topics in the field of mountain cartography in order to attract a larger group of participants from the international community. In 1998, the ICA Working Group organized the first mountain cartography workshop at Silvretta in the Austrian Alps. The workshop attracted 33 participants from seven countries, which demonstrated the breadth and necessity of this research area. Based on the successful Silvretta workshop, the General Assembly of the ICA at the ICC 1999 in Ottawa approved the ICA Commission on Mountain Cartography.

1. Chair / Co-chair

Assistant Prof. Dr. **Karel Kriz** (Chair), University of Vienna, Austria

Prof. Dr. **Lorenz Hurni** (Co-chair), Swiss Federal Institute of Technology (ETH) Zurich, Switzerland

2. Terms of Reference 2011–2015

- Further define the topics of Mountain Cartography and promote the methods and knowledge of mountain cartography among scientists and professionals in cartography and related fields.
- Provide an updated, attractive web-site with information about Commission activities, links to other events and theme-specific knowledge.
- Provide an updated web-portal with links to related web-sites and bibliographic information.
- Emphasize cartographic design issues and map related representations in large-scale topographic mapping.
- Continue the well-established workshop series.
- Promote publication activities (proceedings, web-proceedings, journal articles and special issues) and common research activities.

3. Business Meetings

- April 25, 2014, Banff, Canada
- August 29, 2013, Dresden, Germany
- September 4, 2012, OPC, Mt. Ruapehu, New Zealand
- July 5, 2011, Paris, France
- Minutes are published at:
<http://www.mountaincartography.org/activities/meetings/index.php>

4. Workshops

4.1 8th Workshop Taurewa, New Zealand, 1 to 5 September 2012

4.2 9th Workshop Banff, Canada, 22 to 26 April 2014

4.2 Supported events, conference sessions

- 9th Workshop Banff, Canada, 22 to 26 April 2014
- ICC 2013, Dresden: three sessions on Mountain Cartography
- 8th Workshop Taurewa, New Zealand, 1 to 5 September 2012
- ICC 2011, Paris: three sessions on Mountain Cartography

5. Commission publications (proceedings, book chapters, special journal issues, web-sites)

- CMC (2015) ICA Commission on Mountain Cartography Homepage, <http://www.mountaincartography.org/> (accessed July 2015)
- Kriz K. (ed.) (2015) Mountain Cartography – 16 Years ICA Commission on Mountain Cartography (1999–2015), Wiener Schriften zur Geographie und Kartographie, Volume 21, Institut für Geographie der Universität Wien, 212 p.
- NZCS (eds.) (2013) Mapping Mountain Dynamics – from Glaciers to Volcanoes. Proceedings of the 8th ICA Mountain Cartography Workshop, 1-5 September 2012, Taurewa, New Zealand
- Wheate R. (ed.) Proceedings of the 9th Workshop Banff, Canada, 22 to 26 April 2014 (in preparation)

6. Website

The commission web-site <http://www.mountaincartography.org> has been entirely redesigned and updated to include all commission publications by Stefan Räber, cartographer and webmaster of the Institute of Cartography and Geoinformation at ETH Zurich.

7. Comments, lessons learned

During the last several years, the Commission and its activities has attracted a rather mixed group of cartographers, GIS specialists, geographers, remote sensing specialists and other professionals. Various interest groups can be observed: Specialist in the fields of topographic mapping and relief representation, thematic specialists with GIS applications in mountainous areas as well as 3D visualization specialists and artists. This interesting combination makes the workshops unique and always creates a real mountain cartography spirit.

8. Proposed terms of reference 2015–2019

Based on the experiences during the reporting period and the review comments, the commission proposes to focus on the following terms of reference for the period 2015–2019:

1. Define the topics of Mountain Cartography and promote the methods and knowledge of mountain cartography among scientists and professionals in cartography and related fields.
2. Provide an updated, attractive web-portal with information about Commission activities, links to other events, theme-specific knowledge, related web-sites and bibliographic information
3. Discuss different issues about mountain cartography and map related representations in large-scale topographic mapping, as similarity and differences in symbolization and map design, technological issues, maps use, connections to Location-based Services (LBS).
4. Continue the well-established workshop series.
5. Promote publication activities (proceedings, web-proceedings, journal articles and special issues) and common research activities.

9. Future activities

The commission is planning to continue its highly successful series of workshops with the next workshop in Germany in April 2016 (see <http://www.mountaincartography.org>). Further workshops are also envisioned. The commission is intending to cooperate with other ICA commissions, organizing joint workshops, publications and other activities. Proposed chair/co-chair for the period 2015-2019 are Dušan Petrovič (Slovenia) and Tom Patterson (USA).

Vienna, Zurich, Washington, Ljubljana, July 2015

Karel Kriz, Chair of the ICA Commission on Mountain Cartography

Lorenz Hurni, Co-Chair of the ICA Commission on Mountain Cartography

Tom Patterson, Regular Member of the ICA Commission on Mountain Cartography

Dušan Petrovič, Regular Member of the ICA Commission on Mountain Cartography

Commission on Neocartography

No report available.

Commission on Open Source Geospatial Technologies

Organisation

Contact details for Chair:

Dr Suchith Anand
Nottingham Geospatial Institute
Nottingham Geospatial Building
University of Nottingham
NG7 2 TU, United Kingdom
Phone: +44 (0)115 8232750
E-Mail: suchith.anand@nottingham.ac.uk

Contact details for Vice-Chair:

Prof. Thierry Badard
Centre for Research in Geomatics
Louis-Jacques Casault Hall
1055, avenue du Séminaire
Laval University
Quebec (Quebec) G1V 0A6, Canada
Tel.: +1.418.656-7116 +1.418.656-7116
Email: Thierry.Badard@scg.ulaval.ca

Summary of Activities

The ICA Commission on Open Source Geospatial Technologies has been working tirelessly in our efforts to make geospatial education and opportunities accessible to all.

Though the ICA-OSGeo MoU is that we have now established Open Source Geo research labs in 6 continents through the Geo4All initiative. We have grown to over 100 research labs across the world. Full list at <http://www.geoforall.org/locations/>

ICA-OSGeo labs Network in collaboration with MundoGeo launched and running the “Open Geospatial Science and Applications” webinar series. Each webinar is watched by hundreds of participants throughout the world. Previous webinars recording will be available at both Geo For All <http://www.geoforall.org/> website and MundoGeo at <http://mundogeo.com/webinar/opengeoscienceandapplications/>

The various labs are organising many activities to promote geospatial education. For example , the NASA World Wind Europa Challenge (organised by Maria Brovelli and colleagues) aims to inspire ideas for building great applications that serves the INSPIRE Directive and uses NASA's open source virtual globe technology World Wind. Details at <http://eurochallenge.comopolimi.it/>

There were workshops/events that members organised such as :

- o Barend Kobben (ITC) organised the Open Source GIS and WebMapping for UN staff workshop on 20 and 21 November 2012 in Vienna alongside SOMAP 2012
- o The Open Source GIS Conferences were organised at the University of Nottingham, UK in 2011, 2012, 2014
- o Also we contributed to FOSS4G 2013 Nottingham

Many commission members attended these events.

Full list of our activities are available at <http://opensourcegeospatial.icaci.org/>

We also maintain a maillist <http://lists.nottingham.ac.uk/mailman/listinfo/ica-opensource>

We have around 270 members subscribed in the mailing list

We are working for selected papers from the Academic Track of FOSS4G published as special issue in TGIS. Barend Köbber (ITC Netherlands) is leading this initiative.

We have good contacts with members from other ICA Commissions and Working groups. Also we have close collaboration with Open Source Geospatial Foundation. OSGeo UK chapter is co-organiser of the OSGIS conference series. Thierry Badard and Suchith Anand are also OSGeo charter members . Thierry also acts as a member of the OSGeo conference committee and a reviewer for the OSGeo Journal. He is in charge of the free software commission in the OSGeo Francophone local chapter and he is a founding co-chairs the OSGeo Quebec local chapter. He also acts a liaison officer in the OSGeo Education working group for both these local chapters. With the ICA-OSGeo MoU now in place, we are working in more joint activities.

Future Plans

Dr Silvana Comboim (Brazil) is to be nominated as the new Chair of the ICA Commission on Open Source Geospatial Technologies (2011-2015) at ICC 2015

The next Commission meeting is planned at ICC 2015 conference in Rio. We are also having joint pre conference workshop with ICA Commission on Standards.

Commission on Planetary Cartography

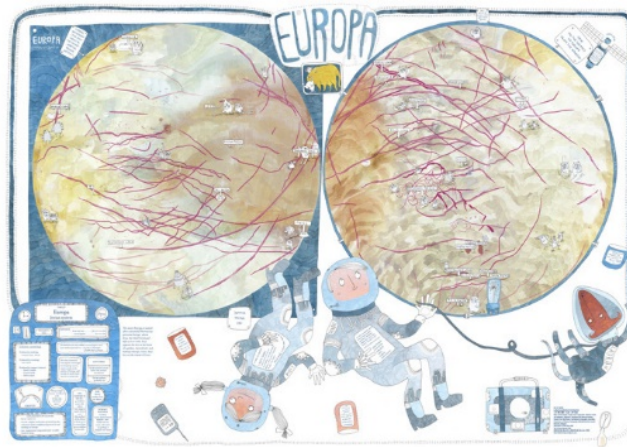
Our place in the community: Planetary Cartography has several professional organizations worldwide: NASA's Planetary Data Archiving, Restoration, and Tools program, and NASA's planet-specific Data Analysis Programs provides funding and implementation - through USGS - of new geological and thematic planetary mapping of results derived from US space missions. Planetary mapping of results from European missions are implemented by DLR. Aside ICA, another professional organization dealing with planetary cartography is ISPRS WG IV/8 Planetary Mapping and Spatial Databases which provides definition and development of planetary cartography resources for professional cartographers. In this environment, ICA's Commission on Planetary Cartography is focusing on involvement of classical cartographic products that involve no new base research, but are the cartographic representations of planetary surfaces utilizing already published data. Nevertheless, these are higher order products or products of historic importance. The commission also aims at opening the so-called planetary geological and other thematic mapping to non-US citizens.

We would like to note in this report that one of the co-founders of the Commission, also a co-chair at that time, *Kira Shingareva* passed away in 2013. This is a great loss for the planetary cartographic community.

Our results according to the titles in our terms of reference:

1. Update of the Multilingual Maps of Terrestrial Planets and their Moons series

We have created and published online a brand new series of six planetary bodies in 11 languages, specifically targeting children. <https://childrensmaps.wordpress.com/>



Papers related to this project:

- o Hargitai H and 11 others (2015) Multilingual Narrative Planetary Maps for Children. Lect. Notes Geoinf., Cartography, Claudia Robbi Sluter et al. (Eds): Cartography - Maps Connecting the World.
- o Hargitai H and 10 others (2015) Planetary Map Series For Children. 46th Lunar and Planetary Science Conference #2257

2. Participation in Specialized Planetary Cartography GIS projects

One of this project is the development of **Phobos GIS** at MIIGAIK's MexLab. <http://cartsrv.mexlab.ru/geoportal/>

On another pathway, we have started to explore the opportunities of ArcGIS related planetary mapping projects, but no project was completed. The GIS projects underway are extracting spatial

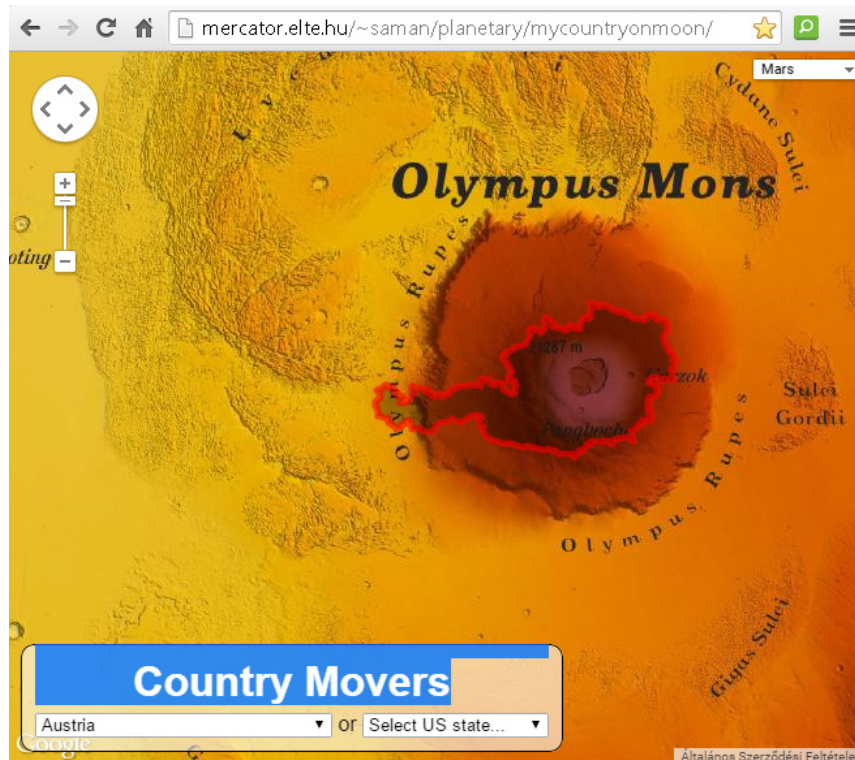
data from professional publications and make them publicly available through our website, in ArcGIS-ready format.

An important addition deals with the **ontology and symbology** of planetary cartography. This project is carried out in Germany. Paper: Stephan van Gasselt, Andrea Naß (2013) Planetary Geologic Mapping: Initial Thoughts on an Ontology Framework. 26th International Cartographic Conference, Dresden.

We have developed a **planetary geovisual application** that helps in estimating distances and areas on planetary surfaces by comparing them to terrestrial country and state outlines;

Papers:

- o Country Movers – an Extraterrestrial Geographical Application. Cartography Beyond the Ordinary World Symposium, Niteroi, 21-22 August 2015.
- o <http://mercator.elte.hu/~saman/planetary/mycountryonmoon/>



3. Planetary Nomenclature / Gazetteer supplements

We have co-authored a paper on Chinese and Russian planetary gazetteer development that can serve as type examples for future gazetteers.

Papers:

- o Henrik Hargitai, Chunlai Li, Zhoubin Zhang, Wei Zuo, Lingli Mu, Han Li, Kira B. Shingareva and Vladislav Vladimirovich Shevchenko (2014) Chinese and Russian Language Equivalents of the IAU Gazetteer of Planetary Nomenclature: an Overview of Planetary Toponym Localization Methods. The Cartographic Journal. DOI: 10.1179/1743277413Y.0000000051
- o Historic toponym research and database-building is conducted by Thomas Gangale and Marilyn Dudley-Flores.
- o Paper: Thomas Gangale and Marilyn Dudley-Flores (2013) Proposed Additions to the Cartographic Database of Mars. 26th International Cartographic Conference, Dresden.

We have developed a nomenclature database frame for future use

http://emc.elte.hu/~hargitai/planetary_gazetteer/database/

4. Foundation of a new, bi-annual international children's and student's drawing competition, with special focus on planetary cartography

This project was not implemented. Instead, we have focused on creating a series of children's maps that can serve as a basemap for future drawing competitions.

5. Development of a curriculum for geography or physics teachers at high school level, in which they can use planetary cartographic products

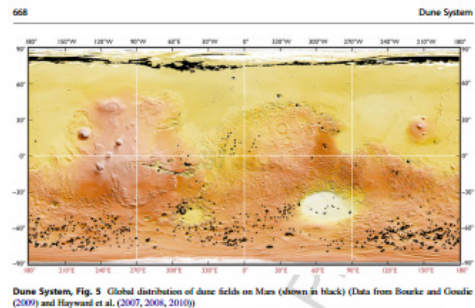
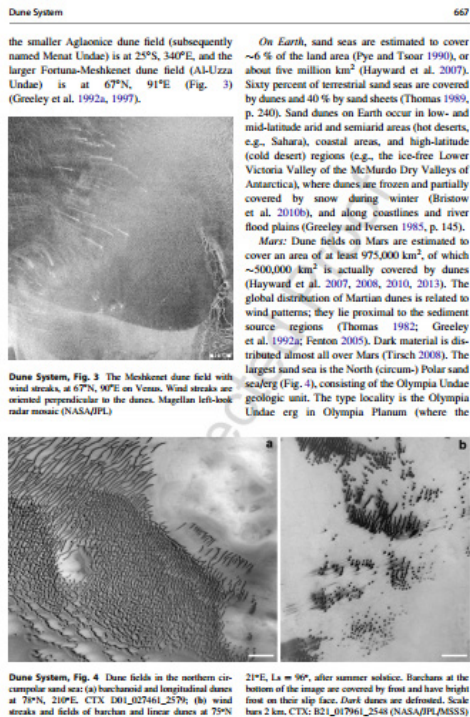
This project was not realized.

6. Participation in the making of a textbook on Extraterrestrial Geography at high school and university level, and creation of cartographic products for this available online

Instead of a textbook, an encyclopedia was developed with thematic entries on planetary landforms, and features.

Book:

- o Hargitai H, Kereszturi A (2015) Encyclopedia of Planetary Landforms. Springer-Verlag New York



material underlying Olympia Undae is itself a frozen paleoerg; Byrne and Murray 2002 (Fig. 5).

Most sand dunes are dark, interpreted to be free of a dust coating, which is bright (Thomas 1984). (Note: TARs are bright.) Outside the circum-polar regions, much of the sand is concentrated in topographic lows (Lamy and Bridgès 2009); in troughs, valleys, and – about 70 % of the non-circumpolar dune fields – on impact crater floors. Only ~4 % of the dune fields are located between 40°S and 70°N (Hayward et al. 2013). On the southern hemisphere of Mars, dunes are stabilized poleward of 60° latitude, which corresponds to the region where the near-surface ground ice makes sediment supply nonmobile (Fenton and Hayward 2010). Polar dunes on Mars are covered by a seasonal frost layer for up to 2/3 of the Martian year (Fig. 4b), during which time sand cannot be transported. Polar dunes are typically the first surfaces to be covered by frost in the autumn (Malin and Edgett 2000). Water ice from frost/snow stabilizes the polar dunes, resulting from permafrost conditions within tens of centimeters of the surface (Bristow et al. 2010b) (= Niveo-Aeolian Deposits). Defrosting processes, however, enhance sand

transport on the avalanche slope of the dunes (Bourke et al. 2010 and references therein). (On Titan, dune fields (Equatorial Sand Sea) cover 12–18 million km² (15–20 % of the surface) (Lorenz et al. 2009). The dunes on Titan are 1–2 km wide, up to hundreds of kilometers long, and are proposed to be longitudinal dunes (Lorenz et al. 2006) (straight = linear dunes). Dunes are only observed at equatorial latitudes (±30°) (Fig. 6).

History of Investigation

Viking images revealed that four major circum-polar ergs contain most northern dune fields (Cutts et al. 1976), while most dune fields in the south are located in topographic depressions: craters, troughs, and valleys. Greeley and Iversen (1985) characterized the discovery of the north circum-polar sand sea "one of the most impressive discoveries of the Mariner 9 and Viking missions." (See also "aeolian sand deposits.")

7. Online resources

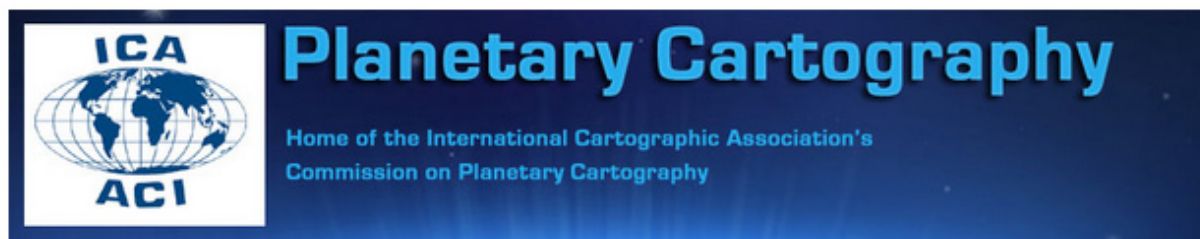
See 8.

8. Creation of a new, updated website for the commission with various resources for the planetary cartographer community worldwide, including the International Planetary Cartography Database which is a documentation, bibliography and analysis of the international planetary cartography products

We created and maintain and update the following websites:

The International Planetary Cartography Database - <http://planetologia.elte.hu/ipcd/>

Commission website: <https://planetcarto.wordpress.com/>



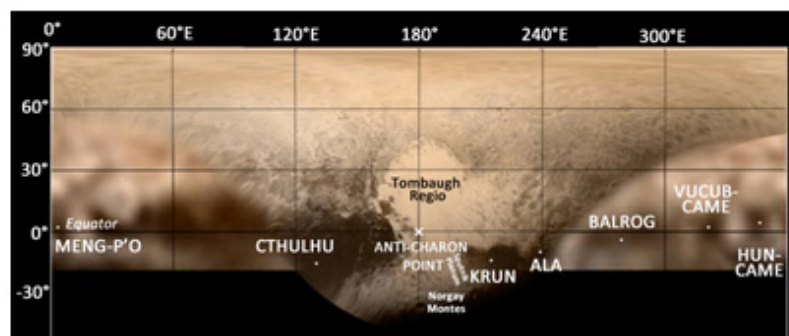
Mapping other worlds

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New map of Pluto and Charon

JULY 17, 2015

Here is the latest map of Pluto, including latest imagery and informal names. We will update this map as new information is becoming available from the New Horizons team.



type and press enter

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Commission Facebook page: <https://www.facebook.com/pages/ICA-Commission-on-Planetary-Cartography/143498362419996?ref=hl>

9. Making official contacts with the WG of Extraterrestrial Mapping at ISPRS, with IAU Commission on Solar System Nomenclature, with planetary mapping groups in Germany (DLR), the USA (NASA/USGS), China and Japan

Only informal contacts have been made as the commission moved to different pathways as these organizations.

HIGHLIGHTS:

- Multilingual childrens planetary map series
- Paper on Chinese and Russian Planetary Gazetteers
- Publication of Encyclopedia of Planetary Landforms

Commission on Theoretical Cartography

Original aims

In order to best serve the discipline, the ICA Commission of Theoretical Cartography establishes the following objectives :

1. Comparing and studying selected topics of theoretical interest in a multi-disciplinary, cross-cultural and historical, methodological perspective ;
2. Promoting the research topics from carto-semiotics to more general philosophical concerns for Cartography theory construction including Ontology, Epistemology and Linguistics etc. ;
3. Promoting the application of theoretical research fruits and relevant adaption and improvement in cartographic and GIS practice. ;
4. Establishing an efficient information system to facilitate collaboration among the researchers in the field by maintaining an up-to-date Commission website with news important for the membership,
5. Reporting on the activities of the commission, information on recent publications of interest, on the past and future meetings in the field, etc. ;
6. Promoting the existing glossary in multi-language in the circle of researcher and extending the glossary with the further research interest. ;
7. Conducting workshops or symposia about selected aspects of theoretical cartography in different nations. ;
8. Compiling and publishing reports and collected papers about the work of the commission.

Activities

1. Two business meetings during ICC 2011, Paris and ICC 2013, Dresden, more than 30 scholars attended the meeting and several topics on theoretical cartography were discussed.
2. Two workshops held in 2014, Beijing and 2015, Tokyo respectively jointly with ICA Commission on Atlases, Commission on Ubiquitous Mapping and Commission on Map and the Internet. 30 scholars from Austria, Czech, India, Columbia and China attended the workshop in 17-19 October, 2014 in Beijing and 13 presentations were given regarding ethnic group mapping, national atlas, map linguistics, smart spatial computing, cognitive and emergency mapping etc.. 60 scholars from Australia, United States, Kuwait, Japan and China attended the workshop in 17-19 March, 2015 in Tokyo and more than 20 presentations were given on the topics of social media and mass data mapping, 3D and real-time surveying, internet mapping, theoretical cartography and map visualization etc.
3. Another pre-conference workshop will be held on 21st August, 2015 in Rio.
4. Manage an open access journal <http://meta-carto-semiotics.org/> by members of the commission, more than 30 papers in 4 volume are published.



Workshop in Beijing



Workshop in Tokyo



Meta-carto-semiotics Journal

Commission on Ubiquitous Mapping

Due to the emergence of information technology, maps are more useful and essential in our lives. Maps can be regarded as a basic need in this new services-based world of Ubiquitous Environments. The commission of ubiquitous mapping has focused on rethinking the concept of maps, mapping and Cartography from theoretical, pragmatic and technical viewpoints in this changing information environment. Our main achievement will be explained from the following two aspects.

(A) Constructing the theories on ubiquitous mapping

[Original aim]

@Place the notion of Ubiquitous Mapping based on real-world map interaction and ICT-based context-aware mapping services in the domain of Theoretical Cartography; examining (1) Primal mapping between geomeia (real, graphic and language spaces) and human (cognitive space), and (2) Secondary or ICT-based mapping between geomeia (real, graphic and language spaces) and geodatabase.

Develop the theory of Map Evolution on ICT enabled socio-cultural environment, by (1) Clarifying similarity and difference in comparing variant systems to establish an evaluation scheme, (2) Revealing significant factors such as ubiquity and egocentrism for Map Evolution on ICT, and (3) Creating map evolutionary tree diagrams representing natural selection of maps in past, current and future according to real ICT-based ubiquitous mapping services and socio-cultural environment of different countries, particularly East Asia including Japan, China and Korea.

[Achievement]

The commission have held meetings and constructed the theories on ubiquitous mapping. Some of the result are open in public as follows.

[1] Takashi Morita, 2015. Evolution of Cartography in Internet and Ubiquitous Environments. CIU2015, ICA, Tokyo, March 17 to 20. (Open access from <http://ubimap.csis.u-tokyo.ac.jp/ciu2015/>)

[2] Min Lu and Masatoshi Arikawa, 2015. Towards human-centered mobile mappings: Methodologies and implementations. CIU2015, ICA, Tokyo, March 17 to 20. (Open access from <http://ubimap.csis.u-tokyo.ac.jp/ciu2015/>)

[3] Masatoshi Arikawa, 2014. Towards human-centered three-dimensional geospatial information, The Journal of Cartographers Association, Map, 52(3), 5-14 (In Japanese).

[4] Masatoshi Arikawa, 2015. Semantics of Map Evolution ? cooperative representation process between human and computer -, Chizu Joho Journal, 31(1), Preface, International cartographic information center (In Japanese).

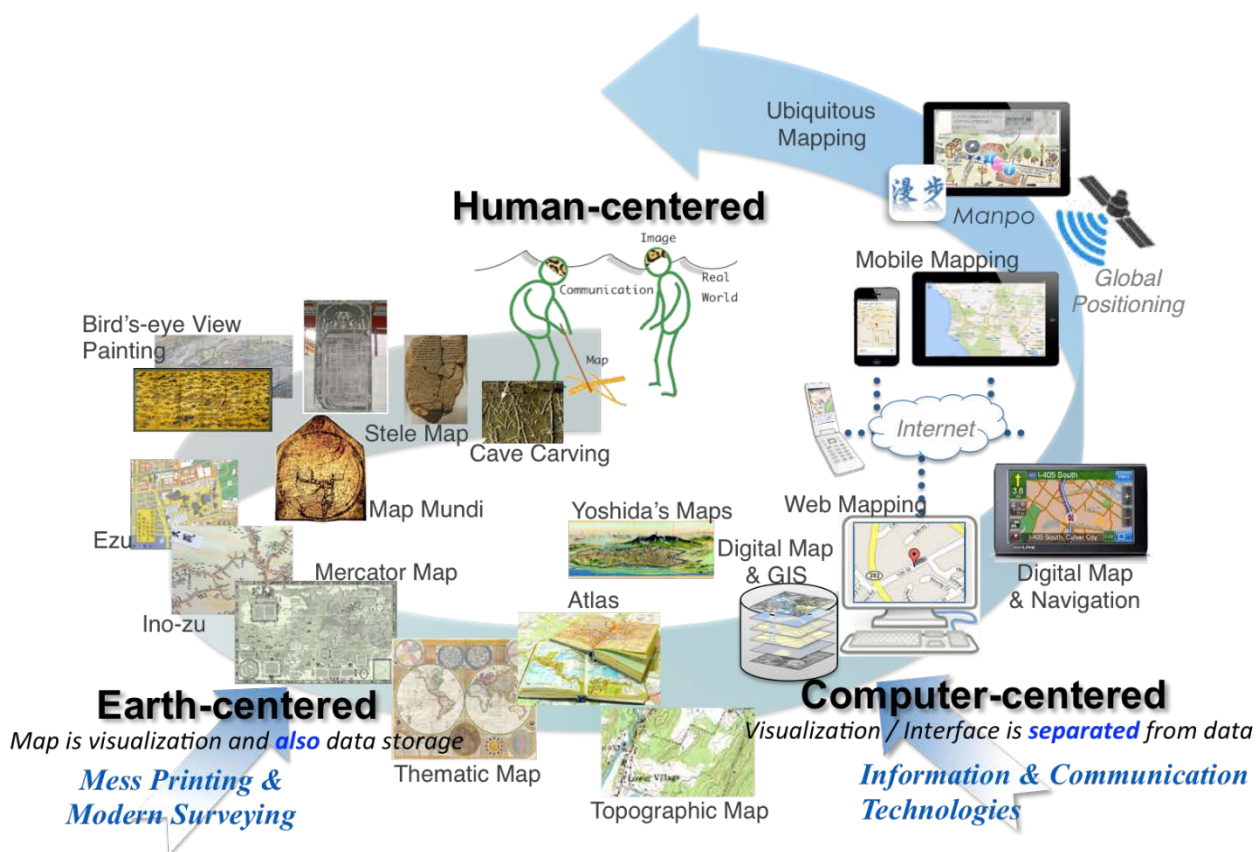


Fig. 1 Diagram of the spiral up evolutions of maps.

(B) Activating and leading a research community on ubiquitous mapping in the world

[Original aim]

Organize regional workshops including site observation to comprehend contemporary situation of ubiquitous mapping.

[Achievement]

We have held the following international symposium and workshops on ubiquitous mapping.

[1] ICA Workshop on Ubiquitous Mapping in Tokyo and Kesennuma, Japan from July 28 to 31, 2012

The workshop was composed of two parts. The first part was held on one day, that is, July 28, 2012 at the University of Tokyo, Kashiwa Campus. The part focused on exchanging ideas through aural presentations of research and planning for activity of ICA Commission of Ubiquitous Mapping. The number of the participants of the first day is about thirty. The second part was held on three days from July 29 to 31 in Kesennuma City which is famous as beautiful ria coast and was destroyed in part by Tsunami on March 11th, 2011. The workshop has provided participants with several mobile applications on iPhone®s which were developed by our local organizing group to efficiently understand on site what happened in the areas damaged by Tsunami on March 11th, 2011 using past aerial photos and the borders Tsunami arrived overlaid on aerial photos and residential maps with GPS positioning.

[2] ICA International Symposium on Cartography in Internet and Ubiquitous Environments (CIU2015) in Tokyo, Japan from March 17 to 20, 2015.

The three commissions, which are Maps and the Internet, Theoretical Cartography, and Ubiquitous Mapping, organized a joint International Symposium on Cartography in Internet and Ubiquitous Environments (CIU2015) in Tokyo, Japan from March 17th to 20th, 2015. It was also sponsored by Center for Spatial Information Science (CSIS) of the University of Tokyo. The first and fourth days were spent for technical tours of visiting Roppongi Hills (one of the largest integrated property

development in Japan), Tokyo Traffic Control Center, the Geospatial Information Authority of Japan (GSI), Geological Museum and so on. The participants experienced various kinds of maps and the culture behind them in Japan. The conference was held on the second and third days at Sanjo Conference Hall in Hongo Campus of the University of Tokyo. The number of the participants was about seventy, and they came from China, USA, Taiwan, Philippines, Vietnam, Indonesia, Australia, India, Bangladesh, Iran, Kuwait, Egypt, German and Japan.

[3] ICA Joint Workshop - Towards Evolutionary Cartography from Global Perspectives - Organized by Commissions of Theoretical Cartography and Ubiquitous Mapping (TEC2015), Rio de Janeiro, Brazil, August 21st, 2015.



Fig. 2 Group Photo of CIU2015 on March 17-20, 2015

[Website of the commission on Ubiquitous Mapping:]

<http://ubimap.csis.u-tokyo.ac.jp/>

[Steering members:]

Chair: Masatoshi Arikawa (Center for Spatial Information Science, The Univ. of Tokyo, Japan)

Vice-chair: Yuefeng Liu (Institute of Remote Sensing and GIS, Peking Univ., China)

Secretary: Min Lu (Center for Spatial Information Science, The Univ. of Tokyo, Japan)

Advisor: Takashi Morita (Hosei Univ., the previous chair)

Executive Committee liaison: William Cartwright

Commission on Use and User Issues

Terms of Reference 2011-2015

1. Maintain and expand the website (www.univie.ac.at/icacomuse) for the exchange of knowledge, news and information on use and user issues in cartography and geo-information processing and dissemination
2. Maintain and fill the on-line bibliographical database on use and user issues which is accessible through the website (http://www.univie.ac.at/cartography/project/ica_user/bibliography/index.php/topics).
3. Set-up and maintain a database of individuals working on, or with expertise in, the various use and user issues and denote it with keywords (similar to the listings used in the bibliography) to stimulate exchange of information. This database will be accessible through the current website.
4. Provide a Web discussion forum through the current website.
5. Produce The Handbook for User Research in Geoinformation (textbook focusing on methods and techniques of use, user and usability research in cartography and geo-information processing and dissemination).
6. Foster, stimulate and contribute to other publications on use and user issues in cartography and geo-information processing and dissemination.
7. Organize (or help organizing) sessions on use and user issues at future ICA conferences.
8. Establish one or more “Project Groups” that deal with a specific aspect of use and user issues in cartography and geo-information processing and dissemination. The Project Groups will execute concrete tasks within a given time span.
9. Organize (or help organizing) specialist workshops or seminars on focused topics related to use and user issues in cartography and geo-information processing and dissemination.
10. Participate in / contribute to other workshops / seminars organized by representatives of other disciplines (e.g. human computer interaction, computer science) or by other ICA Commissions / Working Groups.
11. Involve young (PhD) researchers in all Commission activities.

The commission was highly successful in meeting ToR 1, 2, 6, 7, 9, 10 and 11. Work was done on the other ToR's as well, but they could not be completed yet.

Core Group and membership

- Chair: Dr. Corné van Elzaker (University of Twente, The Netherlands)
- Vice-chairs: Dr. David Forrest (University of Glasgow, UK), Dr. Kristien Ooms (Ghent University, Belgium), Dr. Alexander Pucher (University of Vienna, Austria)

The commission now has more than 125 members from all over the world and from a variety of backgrounds on the mailing list. Almost half of the members are female and many of them are PhD researchers.

Website

The commission maintains a dynamic website (see www.univie.ac.at/icacomuse) which was kept up-to-date reasonably well. The website supplied information about upcoming and past meetings, conferences, workshops and other Commission activities and gives access to the materials presented on those occasions. During the term, a number of “Vacancies and PhD positions” were added to inform young (PhD) students about international opportunities for their careers. Recently completed PhD dissertations on use and user issues were made accessible through the website as well.

The online bibliography was filled up with more recent works regarding use, user and usability research in Cartography and related fields. Commission core members can enter new annotated entries and allocate keywords (based on the Commission's classification of use and user topics) to these entries. Visitors may interactively search the database in various ways.

Publications (by, or on behalf of, the Commission)

- van Elzaker, C. P. J. M., & Griffin, A. L. (2013). Focus on geoinformation users: Cognitive and use/user issues in contemporary cartography. *GIM International*, 27(8), 20-23.
- van Elzaker, C.P.J.M. (2013) The atlas of experience. In: *Geospatial World*, 4 (2013)4 pp. 34-36.
- van Elzaker, C.P.J.M. and Forrest, D. (2014) Reflections on "Usability evaluation of web mapping sites". In: *Landmarks in mapping: 50 years of the Cartographic Journal* / ed. by K. Field and A.J. Kent. Leeds: Maney Publishing, 2014. ISBN: 978-1-909662-38-4. pp. 257-260
- van Elzaker, C.P.J.M. (2014) Aandacht voor gebruik en gebruikers bij de Internationale Kartografische Vereniging (ICA). In: *Geo - Info: vakblad voor geo - informatie Nederland (GIN)*, 11 (2014)2 pp. 24-27.
- Contributions to a special issue of *Cartographic Perspectives* published on the occasion of AAG 2014. For the table of contents, see: <http://www.cartographicperspectives.org/index.php/journal/issue/view/cp77>
- Contributions to: Brus, J.; Vondrakova, A. & Vozenilek, V. (Eds.) (2015) *Modern Trends in Cartography. Selected papers of CARTOCON 2014. Lecture Notes in Geoinformation and Cartography*. Springer. ISBN: 978-3-319-07925-7 (Print) 978-3-319-07926-4 (Online).

A major activity was the work on the textbook publication on research methods and techniques. This book should be more than a loose variety of submitted chapters, but a real textbook in which, for instance, different methods and techniques will be discussed in a standard format. Unfortunately, partly because of this ambitious plan, the book could not be fully completed within this term. However, some chapters are in place.

Meetings, conference sessions, workshops

The Commission had business meetings in Vienna (2011), Ghent (2012), Dresden (2013), Olomouc (2014), Curitiba / Rio de Janeiro (2015)

The Commission organized, formally contributed to, or supported many scientific workshops, seminars or conference sessions:

1. 2011 - Paris, France - 6 use and user issues (oral) sessions at ICC 2011
2. 2012 - Newcastle upon Tyne, UK - 4th Workshop on Geographic Information Usability
3. 2012 - Columbus, Ohio, USA - Pre-AutoCarto2012 Workshop on Designing and Conducting User Studies (together with the ICA Commission on Cognitive Visualization)
4. 2012 - Vienna, Austria - SOMAP 2012 - Symposium on Service-Oriented Mapping
5. 2013 - Paris, France - Pre-CHI2013 Workshop on Geographic Human-Computer Interaction
6. 2013 - Dresden, Germany - Workshop on Working with Eye-Tracking: Why, When, and How? (together with the ICA Commissions on Cognitive Visualization and Geovisualization)
7. 2013 - Dresden, Germany - 4 use and user issues (oral) sessions at ICC 2013
8. 2014 - Olomouc, Czech Republic - CARTOCON 2014
9. 2014 - Tampa, Florida, USA - Sessions at AAG 2014
10. 2015 - Curitiba, Brazil - Two pre-ICC2015 workshops: WS1 - "How to design and conduct user studies" (together with the ICA Commission on Cognitive Visualization) and WS 2 - "Envisioning the future of cartographic research" (together with the ICA Commissions on Cognitive Visualization and Geovisualization and Map Design)
11. 2015 - Rio de Janeiro, Brazil - 4 use and user issues (oral) sessions at ICC 2015

Outreach and capacity building

Outside the bi-annual ICC's, in selecting the places and occasions of the meetings listed above the Commission was keen on exposing itself and its domain to other disciplines, e.g. 2, 4, 5, 6 and 9 in the list above. Right from the moment of establishment in 2007 one of the formulated key policies was to try to involve in the work of the Commission as many young (PhD) researchers as possible. The Commission started with two vice-chairs working on their PhD and two other PhD researchers have set up the online bibliography on use and user issues the purpose of which is to support other young researchers as well. Three out of these four researchers (including the two Vice-Chairs) obtained their PhD degrees during this term whilst they were active for the Commission. Another policy goal is to foster the involvement of females in our traditionally male dominated cartographic discipline. This seems to work out well, as almost half of the Commission members are female and about the same ratio is applicable to many Commission events.

Need for continuation of the Commission

Continuation for 2015-2019 has been proposed as well as a new Chair: Dr. Kristien Ooms (Belgium).

Working Group on International Map Year



INTERNATIONAL MAP YEAR 2015–2016

After a motion from the Swedish Association of Cartography, the ICA General Assembly decided at their meeting in Paris 2011 to promote International Map Year (IMY) during 2015. Later, it was decided that IMY should be coordinated with Barbara Petchenik children's map competition in 2015, so IMY will also take place during 2016. That decision was taken at an ICA Executive Committee meeting in Olomouc in February 2014.

The target groups of IMY are the general public, school children, professionals in cartography and geographic information, and people in government agencies. The aim is to make maps and their use better understood and appreciated among the general public, to make maps and geographic information more useful in schools, and to make maps more central to the work of professionals and governments. It is hoped that the IMY initiative will attract more students to geoscience and more members to ICA.

The official inauguration of IMY will be during the opening session of the International Cartographic Conference (ICC) in Rio de Janeiro, Brazil in August 2015. At this conference, an IMY T-shirt will be distributed to all participants.

The IMY website, (mapyear.org), administered by ICA, is managed by Manuela Schmidt at the Cartography Department of Vienna Technical University. The initial webpage was developed by two PhD students of the cartographic department of Eötvös Loránd University in Budapest.

Since IMY was first conceived, related activities have been reported in all ICA News issues since 2011 and has been the subject of discussion at many conferences.

Establishment of the IMY Working Group

The ICA Executive Committee formed an ICA special working group to help plan IMY. Bengt Rystedt, Sweden, is the chairperson and Ferjan Ormeling, Netherlands, is the deputy chairperson. Additional working group members include Ayako Kagawa (UN Cartographic Section), Aileen Buckley (United States), Serena Coetzee (South Africa), Vit Vozenilek (Czech Republic) and David Fairbairn (United Kingdom). The working group terms of reference read:

- Create a text book on cartography and geographic information for the general public;
- Elaborate plans for national activities and establish national contacts;
- Involve the ICA commissions in the work;
- Find sponsors among the affiliate members;
- Establish contacts with the UN and the sister organizations (through the ICA Executive Committee and the JBGIS);
- Produce information that can be used at national Map Days;
- Follow up and update the working plan at the ICC in Dresden 2013.

The textbook

The textbook, *The World of Maps*, was written in English by individual ICA members and has been translated into French and Spanish. The book can be downloaded freely from the IMY web site. Groups have also been formed to translate the book into Chinese and Arabic. The French version has been printed by the French Cartographic Society. The ICA Executive Committee is exploring the possibility of having printed versions available at the ICC in Rio.

Plans for national activities and national contacts

It is recommended that each country form a national organizing committee to spearhead their nation's IMY activities. All countries that have formed organizing committees are listed on the IMY website. A central activity of IMY is national Map Days, organized by each country and administered by the national organizing committee. Map Days can be held at municipalities, schools, universities, museums and archives. During a national Map Day, commercial firms, especially ICA affiliate members, may be invited to demonstrate their mapping products and procedures for collecting geographic information.

Involvement of ICA Commissions

Contacts were established early with the ICA Commission on Cartography and Children for cooperation on the Petchenik competition. Several other commissions became involved by writing chapters for the textbook. There is an open invitation to all ICA commissions to take part in IMY in order to give them a higher profile nationally.

Find sponsors among affiliate members

Efforts are being made to find sponsors for IMY through ICA's affiliate members and outside the organization. To date, ESRI is the biggest sponsor. More Map Days sponsors are expected to be identified during 2015 and 2016.

Cooperation with the United Nations

Attempts were made to have the United Nations declare IMY as an official UN year. That action required a proposal from a UN member state. The national governments contacted were reluctant because there was no clear understanding of possible future costs. At the UN Regional Cartographic Conference in Bangkok in 2012 the UN issued a resolution that the ICA should organize IMY starting in 2015. In a proposal from the UN Cartographic Section, the ICA invited the UN Initiative on Global Geospatial Information Management (UN-GGIM) to be involved in the organization of IMY. Their involvement was approved at the UN-GGIM meeting in New York in August 2014.

Produce information for use at Map Days and for other events

The IMY web site offers suggestions and guidelines for organizing national committees and planning activities such as a national map Day. The web page, <http://mapyear.org/promotional-materials/>, provides templates and downloads for the promotion of IMY and Map Days. Materials on the IMY web site are in English, so some countries will want to translate the information. Posters are also being produced for use at events, such as conferences and meetings, to promote IMY.

It is planned that a series of interviews will be added to the IMY web site. The subjects planned are: cartographers (I make maps); map users (I use maps) and researchers (I study maps). The three questions asked in these interviews will be written or recorded on videos shared on YouTube. More interviews will be added until IMY culminates at the end of 2016.

Follow-up to the activities

All activities are discussed in the IMY working group and shared with the ICA Executive Committee via the liaison Georg Gartner. The IMY working group has met at several times and communicate regularly via email.

The future of IMY working group

IMY will continue until the end of 2016; therefore, the working group will continue its work until 2019. The main activities will be to produce final reports and provide follow-up for IMY activities.

Joint ICA Working Group and IGU Commission on Toponymy

Paulo Márcio Leal de Menezes

ICA Chair Joint ICA/IGU Working Group/ Commission on Toponymy

Cosimo Palagiano

IGU Chair Joint ICA/IGU Working Group/ Commission on Toponymy

Peter Jordan

ICA Chair Joint ICA/IGU Working Group/ Commission on Toponymy

1 INTRODUCTION

The talks for the creation of an ICA/ IGU working group or technical commission acting on toponymy, were initiated during the 26th UNGEGN, in Vienna. It was discussed the need of a specific group inside the two organizations, ICA and IGU, due to its importance, mainly for the geographical aspect, as well as for the cartographic one. In the lack of a specific commission, researches on the theme were presented in events, without a dedicated forum for the discussions. The discussions about the joint working group would continue during the 25th International Cartographic Conference in Paris, France, in 2011. During the meeting in Paris, Prof. Georg Gartner exposed about the importance of toponymy and the need of a cooperation among the sister organizations, just as IGU, informing that its President, Prof Ron Abler supported entirely the idea of a joint commission ICA / IGU on the theme, in conversations that occurred in previous events. It was explained the role and structure of existing toponymic fora such as the United Nations Group of Experts on Geographical Names (UNGEGN) and the International Council of Onomastic Sciences (ICOS).

To represent ICA, Prof. Paulo Menezes from Brazil was appointed by Prof. Georg Gartner and immediately after Paris´ Conference it was proposed to the ICA Executive Committee the creation of a Working Group on Toponymy, as a first step to be defined a Joint ICA/IGU commission on toponymy.

With the ICA Executive Committee agreement for the proposal and relating the terms of reference, it was submitted to the IGU Executive Board, to organize within the framework of the Regional IGU conference in Santiago, Chile in 2011(November), a first meeting of the proposed joint commission, and to take steps that this commission is initiated by IGU as well.

The meeting at IGU 2011 occurred on November, 17th with presence of Prof. Ron Abler, President of IGU, Prof. Cosimo Palagiano, Italy, Prof. Peter Jordan, Austria and Prof. Paulo Menezes, Brazil, ICA Chair. Prof. Ron ABLER, president of IGU, communicated that the IGU Executive Board had approved this joint institution in the rank of a commission from the IGU side and had nominated Prof. Cosimo Palagiano (Italy) IGU chair of this commission.



Figure 1 shows Prof. Cosimo Palagiano, Prof. Ron Abler, Prof. Paulo Menezes and Prof. Peter Jordan, at the Santiago meeting.

On November, 26th, 2011, during the EC Meeting in Vienna, the Joint ICA/IGU Working Group/Commission was consolidated. The joint Commission/Working Group will be co-chaired by a representative of IGU and ICA. It will also have a steering committee of up to 10 persons from different countries, invited by the two chairs, also membership was open to everybody who was interested. From the ICA side was confirmed Prof. Paulo Menezes (Brazil) as ICA chair of this Working Group.

2 TERMS OF REFERENCE

- It was presented a number of terms of reference for a joint ICA/IGU Commission on Toponymy, which during the ensuing discussion was extended by several other suggestions brought forward from the audience, resulting in the following possible terms of reference for the proposed commission:
- to foster geographic/cartographic research in the field of place names, especially as regards:
 - functions of place names on maps
 - rendering of place names on maps
 - names placement on maps
 - elaborating principles for creating new place names
 - place names as expression of time – or space-related identity
 - place name/feature relations
 - motives for place naming
 - place names and administration
 - place names and transportation
 - place names in the cyber world
 - social dimensions of place names
 - elaborating principles for solving place-name conflicts
- to disseminate the scientific knowledge on processing and use of place names within geography and cartography;
- To verify the use of others sciences' toponymy concepts, such as anthropology, linguistic and others, in favor of cartography and geography;
- to support the establishment of national and regional boards on geographical names.
- to support the efforts of international standardization of geographical names, such as undertaken by UNGEGN);
- to maintain contacts and scientific exchange with UNGEGN and ICOS, such as by organizing joint events;
- to support and encourage the elaboration and publication of gazetteers, toponymic data files and place-names reference systems (such as EuroGeoNames);
- It was questioned if this comprehensive list should not be streamlined and whether it was valid enough for cartographers and also for geographers.

3 RESEARCH AGENDA

A possible research agenda for cartographers and geographers regarding place names may be outlined in the following way:

- (1) Functions of place names on maps.
- (2) Rendering of place names on maps.
- (3) Names placement on maps.
- (5) Place names as expression of time- or space-related identity.
- (6) Place name/feature relation.
- (7) Motivations for place naming.
- (8) Place names and administration.

- (9) Place names and transportation.
- (10) Place-name conflicts.

4 COMMISSION/WORKING GROUP ACCOMPLISHMENTS

During its still short history, of not even four years, this young Commission/Working Group has already set a number of activities:

- (1) 32nd International Geographical Congress, Cologne [Köln], Germany, 26-30 August 2012: Four toponymic sessions titled "Place names as markers and ingredients of space-related identity 1-4" with a total of 15 papers had been organized by Peter JORDAN (Austria).
- (2) Peter JORDAN & Ferjan ORMELING (eds.) (2013), *Toponyms in Cartography. Proceedings of the Toponymic Sessions at the 25th International Cartographic Conference, Paris, 3-8 July 2011* (= *Name & Place*, 2). Hamburg, Verlag Dr. Kovač.
- (3) IGU Regional Conference Kyoto, Japan, 4-9 August 2013: Four sessions on geographical approaches to toponymy with a total of 15 papers had been organized by Kohei WATANABE (Japan). The proceedings have been published in the geographical journal *Semestrare di Studi e Ricerche di Geografia*, Rome, XXV, 2, edited by Riccardo MORRI.
- (4) Seminar "Historical maps, atlas maps, and toponymy", Leipzig, Germany, 21-23 August 2013: As a pre-conference event of ICC Dresden three ICA commissions/working groups, i.e. the ICA Commission on the History of Cartography (chair: Elri LIEBENBERG, South Africa), the ICA Commission on Atlases (chair: Peter JORDAN, Austria) and the IGU/ICA Commission/Working Group on Toponymy (chair: Paulo DE MENEZES, Brazil) in co-operation with the Leibniz Institute of Regional Research [Leibniz Institut für Länderkunde, IfL] Leipzig, met in the facilities of this Institute in Leipzig. The seminar saw 40 registered participants and 17 paper presentations with a lot of fruitful interdisciplinary discussion. The proceedings will be published open access by the host institute as a volume of its book series "forum IfL".
- (5) 26th International Cartographic Conference (ICC) Dresden, Germany, 26-30 August 2013: In two sessions organized by the Commission/WG in total six papers on toponymy were presented.
- (6) 4th EuGeo Congress Rome, 5-7 September 2013: In a panel on toponyms organized by Cosimo PALAGIANO (Italy) five papers were presented.
- (7) IGU Regional Conference Cracow, Poland, 18-22 August 2014: Five sessions on geographical approaches to toponymy with a total of 19 papers had been organized by Peter JORDAN (Austria).
- (8) Symposium on place-names changes, Rome, Italy, 17-18 November 2014: The symposium was jointly organized with the Accademia Nazionale dei Lincei (the Italian Academy of Sciences) and took place in its headquarter, the Villa Farnesina. It saw 53 registered participants and 40 paper presentations. It was organized by Peter JORDAN (Austria) and Cosimo PALAGIANO (Italy). The proceedings will in 2015 be published as Volume 5 of the toponymic book series *Name & Place*, edited by Peter JORDAN and Paul WOODMAN and financed by Peter JORDAN.

5 PLANNING FOR 2015

- (1) IGU Regional Conference Moscow, Russian Federation, 17-21 August: A session on place-name study and geographical research will be organized by Andrew HERZEN (Russia).
- (2) 5th EuGeo Congress Budapest, 30 August-2 September 2015: A session on “The Importance of Using Exonyms. On the use of exonyms in school atlases and other educational media” will be organized by Peter JORDAN (Austria).
- (3) Symposium on “Place names, diversity and heritage”, to be organized together with the Unit for Language Facilitation and Empowerment, University of the Free State, Free State Province, South Africa, in Clarens, Free State Province, South Africa, 17-18 September 2015; organizers: Theodorus DU PLESSIS and Peter RAPER (both South Africa).

6 CONCLUSIONS

- The joint Commission/Working Group conceives its function complementary to the tasks of UNGEEN whose focus is concentrated on standardization issues and international politics on geographical names. In the other hand, the focus of the Joint Commission/WG is on scientific researches about toponymy, trying to disseminate knowledge on place names to geographers and cartographers and to anyone who works with Toponymy.
- The adopted model of a Joint IGU/ICA Commission worked very well during these four years, with a high demand on scientific papers, as can be seen along the eight events during these years.
- In this way, The BRAZILIAN SOCIETY OF CARTOGRAPHY – SBC, National Representative of Brazil, proposes to the 16th General Assembly of the International Cartographic Association to create a new Commission on Toponymy, continuing the Working Group on Toponymy, operating since 2011, jointly with IGU Commission on Toponymy.