ACTIVITY REPORT
2007-2011

Commission Website:
Http://mailer.fsu.edu/~xyang/ica

Prepared by
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BACKGROUND

The International Cartographic Association (ICA) Commission on Mapping from Satellite Imagery was created in 1999, as one of the seventeen 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 nineteen commissions. Serge Le Blanc and Graciela Metternicht (Australia) were Commission Chair and Vice-Chair. In 2005, the 13th ICA General Assembly slightly modified the Commission name (Cartography from Satellite Imagery), and Graciela Metternicht was appointed Acting Chair and Serge Le Blanc Vice-Chair. In 2007, the 14th ICA General Assembly approved the Commission as one of the twenty-two 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 2008-2011.

TERMS OF REFERENCE: 2007-2011

- Maintain and improve the Commission’s digital repository on topics related to: a. analysis of existing and forthcoming satellite imagery in view of their potential inputs for producing and updating topographic and thematic maps and databases; b. cartographic capabilities of different remote sensing systems.
- Produce a special edition of selected papers of the ICC theme ‘Cartography and satellite imagery for the management of natural resources and the environment, early warning and natural disasters mitigation’ presented or
to be presented at ICC2007 or ICC 2009 in a scholarly journal of remote sensing, or a book on Mapping from Satellite Imagery.

- Develop closer links with international organizations concerned with the use of satellite imagery (e.g., UNOOSA, UNEP, PAIGH), in view of strengthening ICA’s presence, and to produce joint courses or seminars on cartographic applications of satellite imagery.
- Promote knowledge transfer at fundamental and advanced levels on the use of satellite 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 presence at international forums (e.g., World Map, Map Middle East, meetings of Joint Societies, UN meetings, other regional conferences).
- Network with ISRPS (International Society for Photogrammetry and Remote Sensing) and other ICA commissions with similar interests in applications of satellite imagery. Such networking would be in view of producing joint workshops or seminars within the period 2007-2011.

**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 a total of 13 full members who are usually their national representatives (including Commission Chair and Vice Chair) and 4 corresponding members.
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International Symposium on LIDAR and RADAR Mapping (LIDAR & RADAR 2011), Nanjing, China, 26-29 May 2011

LIDAR & RADAR 2011 was hosted by Hohai University in Nanjing, China, with a sponsorship from the ICA Commission on Mapping from Satellite Imagery and four additional international professional societies, i.e., International Society for Photogrammetry and Remote Sensing (ISPRS), International Federation of Surveyors (FIG), International Society for Optical Engineering (SPIE) and International Association of Geodesy (IAG). Dr. Jonathan Li (Vice-Chair of the Commission) and Dr. Xiaojun Yang (Chair of the Commission) led the Scientific Committee.

Website for LIDAR & RADAR 2011
Third International Conference on Earth Observation for Global Changes (EOGC2011), Munich, Germany, 13-15 April 2011.

The EOGC2011 was hosted by the Technical University of Munich, with a sponsorship from the ICA Commission on Mapping from Satellite Imagery and three additional international professional societies, i.e., International Society for Photogrammetry and Remote Sensing (ISPRS), International Association of Geodesy (IAG), and International Society for Digital Earth (ISDE). Dr. Xiaojun Yang (Chair of the ICA Commission on Mapping from Satellite Imagery) and Dr. Jonathan Li (Vice Chair of the Commission) served as co-chairs of the EOGC2011 Scientific Committee. In addition, Dr. Yifang Ban (Swedish Representative for the ICA Commission on Mapping from Satellite Imagery) and Dr. Julian Smit (Representative of South Africa for the ICA Commission on Mapping from Satellite Imagery) served in the EOGC2011 Scientific Committee. The EOGC 2011 major themes covered a wide range of topics such as global geodetic observing systems, land changes, natural hazards, geospatial data processing for global change studies, among others. A total of nine technical sessions were included. A selected collection of the papers that were presented at EOGC2011 will be included in a book to be published by Springer.

ICA Workshop on Advances in Sensors and Algorithms for Topographic and Thematic Mapping in Orlando, Florida, 19 November 2010

The ICA Workshop on Advances in Sensors and Algorithms for Topographic and Thematic Mapping has been successfully held in Orlando, Florida, USA, 19 November 2010. The event was organized by the ICA Commission on
Mapping from Satellite Imagery with co-sponsorship from the ICA Commission on Geospatial Analysis and Modeling. It was held in conjunction with the Special Joint Symposium of ISPRS Technical Commission IV and AutoCarto2010. Three oral paper sessions were included in the Workshop, which covered a variety of topics ranging from new remote sensors, improved information extraction algorithms, and innovative topographic and environmental mapping applications. Workshop attendees included active scholars from the United States, Canada, Sweden, and China. Professor Zhilin Li, ICA Vice President, was present during the Workshop.
Second International Conference on Earth Observation for Global Changes (EOGC 2009) in Chengdu, China, 25-29 May 2009

The Second International Conference on Earth Observation for Global Changes (EOGC2009) was successfully held in Chengdu, China, 25-29 May 2009. The EOGC2009 was sponsored by the ICA Commission on Mapping from Satellite Imagery, together with three other international professional societies, i.e. International Society for Photogrammetry and Remote Sensing (ISPRS), International Association of Geodesy (IAG), and International Society for Digital Earth (ISDE). Dr. William Cartwright (ICA President) and Dr. Zhilin Li (ICA Vice President) served in the EOGC2009 International Advisory Committee. Dr. Xiaojun Yang (Chair of the ICA Commission on Mapping from Satellite Imagery) and Dr. Jonathan Li (Vice Chair of the Commission) led the EOGC2009 Scientific Committee. In addition, Dr. Yifang Ban (Swedish Representative for the ICA Commission on Mapping from Satellite Imagery) and Dr. Julian Smit (Representative of South Africa for the ICA Commission on Mapping from Satellite Imagery) served in the EOGC2009 Scientific Committee).

The EOGC2009 has received more than 680 abstracts and 456 full papers. More than 320 delegates from 20 countries or regions attended the conference. In addition, seven industrial sponsors presented their services and products in the exhibition space. The opening session featured the presentations by international speakers from ICA, ISPRS, IAG, ISDE, United Nations Environment Development (UNEP), Asia-Pacific Space Cooperation Organisation (APSCO), Chinese Academy of Sciences, and Peking University. Five Best Student Paper Awards were presented to the graduate students from China, Canada, USA and Hong Kong. Several well-know scholars
delivered keynote presentations, including Dr. John Townshend (University of Maryland, USA), Dr. Chris Rizos (University New South Wales, Australia), Dr. Emilio Chuvieco (Universidad de Alcalá, Spain), Dr. Ashbindu Singh (UNED), Prof. Jun Chen (ISPRS), Prof. Qingxi Tong (Peking University, China), and Dr. Wei Zhang (APSCO).

The EOGC technical sessions covered a wide range of topics on thematic applications of remote sensing, GNSS and GIS technologies to Earth observation and disaster management. Specific topics included coastal and marine ecosystems, land use and land cover changes, earthquake monitoring and assessment, urbanization and environmental impacts, geodetic techniques for global changes, and vegetation mapping and analysis.

The conference was formally closed in the morning of the 29th of May after the presentations by universities from China, Germany, Canada and the USA on their GIS and Remote Sensing programmes. The afternoon of the 29th was dedicated to a technical field trip to Yingxiu, the epicenter of the Wenchuan Earthquake that struck on the 12th of May 2008.

The post-conference publications include a SPIE volume entitled Remote Sensing of Earth Surface Changes, with a total of 80 peer-reviewed papers to be published in 2009, a Springer book on Advances in Earth Observation of Global Change, with about 20 peer-reviewed chapters (expected 2010), and a special issue on Earth Observations and Remote Sensing for Environmental Management and Hazard Mitigation with about 6-10 peer-reviewed papers, to be published by the IEEE Journal of Selected Topics in Earth Observations and Remote Sensing in 2010.

Our Commission recently sponsored this student-oriented research meeting. It was organized by the Florida State University (FSU) Department of Geography, and the Society for Geospatial Sciences (the FSU Student Chapter of the American Society for Photogrammetry and Remote Sensing-ASPRS). This conference attracted several dozens of graduate students from the United States, along with several world-class scholars, to the city of Tallahassee from 28 to 30 March 2008. Dr. Xiaojun Yang, Chair of the ICA Commission on Mapping from Satellite Imagery, served as Scientific Advisor to this conference, and the keynote speaker was Dr. Marguerite Madden,
President of ASPRS. This conference attracted early-career researchers, mainly from the United States, to their first involvement with ICA activities.

In addition to the above major events, the Commission also sponsored several other conferences including the 2009 Joint Urban Remote Sensing Event, the 2011 Joint Urban Remote Sensing Event, and several special paper sessions at the 2010 Annual Meeting of the Association of American Geographers.

PUBLICATIONS

Journal Special Issue by Environmental Management: Land Use and Watershed Assessment (Guest Editors: Yang, X. Chen, L., and Chen, Y.; to be published in 2012)

This special edition of peer-reviewed papers features the research contributed by scholars who presented a paper at the several special sessions of the 2010 Annual Meeting of the Association of American Geographers (AAG) that the ICA Commission on Mapping from Satellite Imagery sponsored.

Book: Advances in Mapping from Aerospace Imagery: Techniques and Applications (Editors: Yang, X. and Li, J.; to be published by the CRC Press in 2012)

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.


This SCI-indexed special issue is one of the four major publications as related to the Second International Conference on Earth Observation for Global Changes (EOGC2009) that the ICA Commission on Mapping from Satellite Imagery has sponsored (see ICA Newsletter No. 54). This volume includes seven papers selected from more than twenty submissions that have been peer reviewed according to the established criteria. These papers cover urban impervious surface mapping, soil moisture retrieval, urban heat island intensity simulation, coastal water dynamics, flood mapping, and subsidence estimation.

**Book: Advances in Earth Observation of Global Change. Edited by Chuvieco, E., Li, J. and Yang, X., published by Springer in 2010, 283p.**
This book is one of the four major publications as related to the Second International Conference on Earth Observation for Global Changes (EOGC2009) that the ICA Commission on Mapping from Satellite Imagery has sponsored (see ICA Newsletter No. 54). This Global Change studies are increasingly being considered a vital source of information to understand the Earth Environment, in particular in the framework of human-induced climate change and land use transformation. Satellite Earth Observing systems provide a unique tool to monitor those changes. While the range of applications and innovative techniques is constantly increasing, this book provides a summary of key case studies where satellite data offer critical information to understand the causes and effects of those environmental changes, minimizing their negative impacts.

This book will be of interest to researchers and practitioners in the field of remote sensing, geographical information, meteorology and environmental sciences. Also scientists and graduate up to post-graduate level students in environmental science will find valuable information in this book.

This SCI-indexed special issue is one of the four major publications as related to the Second International Conference on Earth Observation for Global Changes (EOGC2009) that the ICA Commission on Mapping from Satellite Imagery has sponsored (see ICA Newsletter No. 54).

More information can be found from the Commission’s website:
http://mailer.fsu.edu/~xyang/ica