

# THE INTERNATIONAL SOCIETY FOR PHOTOGRAMMETRY AND REMOTE SENSING



information from imagery

## 2012-13 Biennial Report



# ISPRS MIDTERM SYMPOSIA 2014

[WWW.ISPRS.ORG/SYMPOSIA](http://WWW.ISPRS.ORG/SYMPOSIA)

**COMMISSION I** Sensors and Platforms for Remote Sensing  
**17 - 20 November 2014 in Denver, USA**

**COMMISSION II** Joint International Conference on Geospatial Theory,  
Processing, Modeling and Application  
**6 - 8 October 2014 in Toronto, Canada**

**COMMISSION III** Photogrammetric Computer Vision - PCV 2014  
**5 - 7 September 2014 in Zurich, Switzerland**

**COMMISSION IV** Geospatial Databases and Location Based Services  
**14 - 16 May 2014 in Suzhou, China**

**COMMISSION V** Close-Range Imaging, Ranging and Applications  
**23 - 25 June 2014 in Riva del Garda, Italy**

**COMMISSION VI** Data, Information and Knowledge Sharing for  
Geo-Education  
**19 - 21 May 2014 in Wuhan, China**

**COMMISSION VII** Thematic Processing, Modeling and Analysis of  
Remotely Sensed Data  
**29 September - 2 October 2014 in Istanbul, Turkey**

**COMMISSION VIII** Operational Remote Sensing Applications:  
Opportunities, Progress and Challenges  
**9 - 12 December 2014 in Hyderabad, India**

# XXIII ISPRS CONGRESS 2016

[WWW.ISPRS2016-PRAGUE.COM](http://WWW.ISPRS2016-PRAGUE.COM)

**LOCATION:** Prague, Czech Republic, 12 - 19 July 2016

**HOST:** Czech Society for Photogrammetry and Remote Sensing

**CONGRESS DIRECTOR:** Lena Halounová

Czech Technical University in Prague

INTERNATIONAL SOCIETY FOR  
PHOTOGRAMMETRY AND REMOTE SENSING

2012-2013  
BIENNIAL REPORT

## ABOUT ISPRS - WWW.ISPRS.ORG

ISPRS is an international non-governmental organization that promotes international cooperation between the worldwide organizations with interests in the photogrammetry, remote sensing and spatial information sciences. Established in 1910, ISPRS is the oldest international umbrella organization in its field, which may be summarized as addressing “information from imagery”. ISPRS achieves its aims by:

- advancing knowledge in the areas of interest of ISPRS by encouraging and facilitating research and development, scientific networking and inter-disciplinary activities,
- facilitating education and training with particular emphasis on less developed countries,
- promoting public recognition of the contributions from the photogrammetry, remote sensing and spatial information sciences for the benefit of humankind and the sustainability of the environment.

## ISPRS MISSION

- To advance the photogrammetry, remote sensing and spatial information sciences through international cooperation in research, development and education for the benefit of society and for environmental sustainability.

## ISPRS VISION

- To be the foremost scientific organization in its field,
- to speak for all people working in the field,
- to provide the necessary resources to develop the field.

# TABLE OF CONTENTS

Message from the President .....	6
Message from the Secretary General.....	8
Message from the Congress Director.....	9
Commission I - Sensors and Platforms for Remote Sensing .....	10
Commission II - Theory and Concepts of Spatial Information Science .	12
Commission III - Photogrammetric Computer Vision and Image Analysis .....	14
Commission IV - Geospatial Databases and Location Based Services.	16
Commission V - Close-Range Imaging, Analysis and Applications .....	18
Commission VI - Education, Technology Transfer and Capacity Development.....	20
Commission VII - Thematic Processing, Modeling and Analysis of Remotely Sensed Data.....	23
Commission VIII - Remote Sensing Applications and Policies .....	25
ISPRS International Policy Advisory Committee (IPAC) .....	27
International Science Advisory Committee (ISAC).....	29
ISPRS Scientific Initiative 2014 .....	31
VALID - The Value of Geoinformation for Disaster and Risk Management .....	32
ISPRS Joint Conference - Serving Society with Geoinformatics.....	33
ISPRS Hannover Workshop - High Resolution Earth Imaging for Geospatial Information.....	35
ISPRS Events and Publications since the XXII ISPRS Congress 2012 in Melbourne .....	37

## MESSAGE FROM THE PRESIDENT

ISPRS is a leading international society in the field of photogrammetry, remote sensing and spatial information sciences, with a long history, high reputation and strong influence. We are now entering a new phase with unprecedented grand challenges that include understanding and responding to climate change and ensuring sustainable development. A better understanding and sustainable development of our planet requires more reliable information about the Earth and its environment, more effective analysis and simulation, more advanced visualization and representation. This has provided us a good opportunity for advancing photogrammetry, remote sensing and geo-spatial sciences, promoting spatially enabled government and societies, and facilitating easier access to geo-spatial education.

ISPRS has a long tradition in developing and presenting scientific vision to address those key questions, such as what are the major scientific and technical challenges, what are the latest developments, what are the key issues to be addressed? Since the year 2013, ISPRS Council has led the preparation of an overarching scientific vision paper on “Information from imagery: scientific vision and research agenda”. It will examine new demands and challenges from different aspects, review the state-of-the-art of obtaining information from imagery and current trends, and present scientific research topics and policy issues for the future. Moreover, we have initiated two theme issues with review/overview papers on individual subjects. The overarching vision paper and two theme issues will appear in the ISPRS Journal of Photogrammetry and Remote Sensing (ISPRS J. PRS), and ISPRS Journal of Geo-spatial Information Sciences (ISPRS J. GIS) before the 2016 ISPRS congress. We hope that these vision and overview papers will not only encourage innovative research and development activities in this field, but also support the preparation of 2016 congress resolutions, the TORs of Technical Commissions, and the formation of new working groups.

During the past two years, ISPRS has strengthened the collaboration with other international and regional organizations. For instance, ISPRS and the United Nations Global Geographic Information Management (UN-GGIM) have co-organized a survey of the mapping status of the world and released the preliminary summary report at the UN-GGIM Cambridge Conference in July, 2013. On Sept. 3, 2013, a booklet VALID (Value of Geoinformation for Disaster and Risk Management - Benefit Analysis /Stakeholder Assessment) was published in Vienna by ISPRS, ICSU-GeoUnions, JBGIS and UNOOSA/ UN-SPIDER. This has stimulated and promoted the inter-disciplinary research, development and education activities for the benefits of the society.

Since the 2012 Melbourne congress, we have one new associate member from Azerbaijan, and two sustaining members from Iran and India. Efforts have also been devoted to improve our services to members and the whole community. The major progress on items under consideration include setting up individual membership, the optimization of ISPRS conference structures, improvement of technical commission structures,

having ISPRS annals cited in the major indices ISI and SOPUS, and the publication of this new ISPRS Biennial Report.

You may understand that providing stronger scientific voices, promoting closer multi-disciplinary collaboration and developing better services are not easy tasks. It relies very much on teamwork within the ISPRS community. ISPRS council has been working very closely with TCPs, working group chairs and co-chairs, ISAC, IPAC, journal editors, regional representatives, and other ISPRS officers. We have also had continuous support from ordinary members, regional members, sustaining members, associate members and honorary members, fellows and many others. With this first Biennial Report, I hope you will learn more about ISPRS and offer more support!



Chen Jun,  
National Geomatics  
Center of China,  
Beijing



ISPRS Council and Technical Commission Presidents at the ISPRS Joint Conference - *Serving Society with Geoinformatics*, held in November 2013 in Antalya, Turkey



VALID book launch at UN Headquarters in Vienna, Sep. 2013

## MESSAGE FROM THE SECRETARY GENERAL

Welcome to the new ISPRS Biennial Report. Council thought that communication with the outside world - obviously a very important issue for any organisation - could be enhanced by providing you news about the society not only on our web page [www.isprs.org](http://www.isprs.org), which contains the latest news in a timely fashion, but every two years also in printed form. We hope you like this new way of providing you with information and look forward to your feedback.

Since the 2012 Melbourne Congress, the society and its officers have been very busy. You will read about the workshops and other activities of the Commissions and Working Groups. This booklet also contains reports about special events such as the first ISPRS Intercommisison Conference held in November 2013 in Antalya and the launch of the VALID booklet on the value of geoinformation in disaster and risk management at the United Nations headquarters in Vienna.

During the second half of 2013, ISPRS launched a call for participation in Scientific Initiatives. Working Group officers were invited to submit project ideas to support scientific and other initiatives with the aim of further improving the international status of ISPRS in the field of the photogrammetry, remote sensing and spatial information sciences and in order to benefit all ISPRS members. During the meeting in Antalya, six projects were selected and are funded at a maximum of CHF 10.000 per year. For details visit:

[www.isprs.org/news/announcements/131117-ISPRS-Scientific\\_Initiative-summaries.pdf](http://www.isprs.org/news/announcements/131117-ISPRS-Scientific_Initiative-summaries.pdf)

ISPRS has also improved possibilities for authors to publish their work in high ranking journals and other media. The flag ship journal is, of course, the well known ISPRS Journal of Photogrammetry and Remote Sensing, which ranks third in its field. A new open access journal, the ISPRS International Journal for Geo-Information, was launched shortly before the last Congress and is quickly gaining momentum. The new series of ISPRS Annals, containing double-blind peer reviewed papers, has been very well adopted by both workshop organisers and authors. The Annals complement the well known International Archives, in which papers are published after abstract review. In 2013, ISPRS filed an application for the inclusion of its proceedings in the major citation indices. We hope to soon report success in this regard.

Last, but not least, there are every-day tasks, ranging from updating the address database, revising the society documents, generating new promotion material to answering all kinds of individual inquires. This job is perfectly managed by Annette Radtke, who joined ISPRS Headquarters in early 2013 as administrator.



Christian Heipke,  
Leibniz Universität  
Hannover



## MESSAGE FROM THE CONGRESS DIRECTOR

The activities of the ISPRS Congress Director started shortly after the end of the Melbourne Congress. The contract between ISPRS and the Society for Photogrammetry and Remote Sensing, the Czech ordinary member, and the XXIII ISPRS Congress organizer, was signed in January 2013.

The Congress Director collected remarks and notes from many participants of the XXII Congress to have supporting material for the successful organization of the next congress. The final report was presented and discussed during the joint Council and Technical Commission Presidents' meeting in Chengdu in December 2012. These experiences and recommendations are being taken into account for the preparation of the next congress.

2013 was dedicated to preparing the reviewing process for submissions to the ISPRS Archives and Annals. The process was first discussed with Council members in May, adapted in consultation with Prof. Uwe Stilla from TU Munich, revised by the Secretary General, and then sent to Technical Commission Presidents for review in autumn.

The reviewing process was prepared together with the time schedule of individual steps and due dates for the ISPRS Congress Archives and Annals. The deadline for full papers to be published in the Annals is 30 November 2015, the deadline for abstracts for the Archives is 13 December 2015 and the deadline for camera ready manuscripts is 28 February 2016.

The second sphere of activities was oriented towards the preparation of interesting technical tours. The general programme outline of the DLR excursion was proposed by Gunter Schreier, and a further tour will lead participants to RIEGL Laser Measurement Systems GmbH 2 in Horn, Austria. Additional technical tours are under preparation.

The third target of the Congress preparation was to find financial support from private organizations to allow organizers to cover all necessary financial demands which must be paid one year before the Congress. To be able to do so, the Congress Director and her co-operators issued the Sponsorship Book, which is available on

[http://www.isprs2016-prague.com/downloads/SPONSORSHIP%20BOOK\\_KV.pdf](http://www.isprs2016-prague.com/downloads/SPONSORSHIP%20BOOK_KV.pdf).

A contract with Leica Geosystems, which became the Platinum Sponsor of the Congress, was signed during the InterGeo exhibition in Essen on 10 October 2013.

The fourth group of activities is focused on presenting and advertising the Congress and ISPRS at various international meetings and conferences using personal contacts, and newsletters which are sent out to ISPRS members per e-mail. The newsletters from May, August and December and other information are publicized on the ISPRS Congress web page:

<http://www.isprs2016-prague.com>



Lena Halounová,  
Czech Technical  
University in Prague

## COMMISSION I - SENSORS AND PLATFORMS FOR REMOTE SENSING

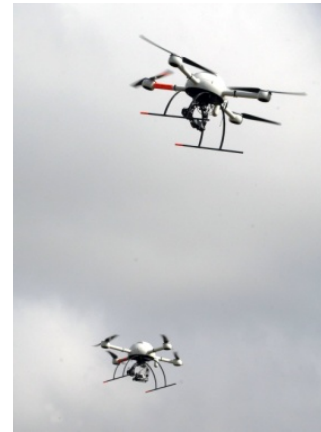
Technical Commission I is predominantly focused on primary data acquisition and processes, including remote sensing technologies, sensor platforms, geometric and radiometric sensor calibration, geo-referencing and sensor orientation, image and data standards, low-level sensor integration, and system design. In terms of activities, the working groups (WG) play the key role to organize meetings to foster multidisciplinary research and developments, and to extend on international cooperation.

The first major event, the *International Conference on Computer Vision in Remote Sensing*, jointly organized by Intercommission WG I/Va and WG I/3, was held at the Xiamen University, Xiamen, China, December 16-18, 2012. The conference, co-sponsored by IEEE, ICA and FIG, featured four keynotes, and all the 74 papers, selected from 140 submissions, went through double blind-review and were published in IEEE eXpress.

The extremely successful 8<sup>th</sup> *International Symposium on Mobile Mapping Technology (MMT 2013)*, jointly organized by TC I, WG I/3 and ICWG I/Va, was held at NCKU, Tainan, Taiwan, April 30 – May 2, 2013, and attracted 243 participants from 19 countries. The program included four keynotes, three invited papers, 57 oral and 35 poster presentations in 16 sessions, and the best papers were published in a special issue of the *Journal of Aeronautics, Astronautics and Aviation*. A pre-symposium two-day Summer School provided by TC 1 officers had 125 students.



The *Workshop on UAV-g 2013*, organized by WG I/Vb and supported by WG III/1 addressed the hottest issues in UAV/UAS technology, and attracted a record 230 attendees from 35 countries. On the 2<sup>nd</sup> day, a well received air-show was organized to demonstrate various UAV technologies by 15 vendors, including exhibition, data acquisition flights and subsequent processing. Combined with ground reference, the entire dataset will be available for comparative testing and evaluation.



The biennial ISPRS Hannover Workshop, jointly organized by Working Groups I/4, III/4, IV/2 and VII/2, supported by the ISPRS Commission I, and WG IV/1, was held at the Leibniz University Hannover, May 21-24, 2013. The workshop, attended by 126 participants from 29 countries, included five key note speakers, 39 oral presentations and 38 interactive presentations. TC I serves as an editor for the special issue of the ISPRS Journal, dedicated to the Hannover Workshop.

Several WGs provided major contributions to various meetings, including WG I/1 to the *35<sup>th</sup> International Symposium on Remote Sensing of Environment (ISRSE)*, Beijing, China, WGs I/4 and I/Va to the *2<sup>nd</sup> International Conference on Sensors and Models in Photogrammetry and Remote Sensing (SMPR 2013)*, Tehran, Iran, WG I/5 to the *International Symposium on Satellite Mapping Technology and Application (ISSMTA 2013)*, Nanjing, China, Nov 6-8, 2013; WGs I/2, I/3 and I/Va to the *Laser scanning Workshop 2013*, Antalya, Turkey, Nov 11-13, 2013; and WG I/Vb to the *Image Sequence Analysis Workshop (ISA)*, Antalya, Turkey, Nov 11-13, 2013.

In an effort to seek new members and reach out to the geosciences community in general, TC I has supported several meetings by providing keynotes, workshops, tutorials, and promoting TC I activities, incl. the *International LiDAR Mapping Forum*, Denver, USA, the *Wissenschaftlich-Technische Jahrestagung der DGPF*, Freiburg, Germany, the ASPRS 2013 Annual Conference, Baltimore, USA, the *International Conference on Earth Observation of Global Change (EOGC 2013)*, Toronto, Canada, June 5-7, 2013; the *5<sup>th</sup> International Conference on Geoinformation Technologies for Natural Disaster Management (GiT4NDM 2013)*, Mississauga, Canada, and the *Latin American Remote Sensing Week (LARS 2013)*, Santiago, Chile.

The activity level of TC I WGs is well-represented by the fact that five applications were submitted to the new ISPRS Science Initiative, and two were selected for funding. The special issue of the ISPRS Journal on *Rapid Response Imaging*, organized by TC I is in the final phase of the review process.

Charles Toth,  
The Ohio State University,  
Columbus



## COMMISSION II - THEORY AND CONCEPTS OF SPATIAL INFORMATION SCIENCE

The period 2012 to 2013 saw tremendous research and application progress within the discipline of geospatial information science. Nevertheless, there is still much that remains to be done to further advance fundamental research on theory, concepts, technology and applications. One specific challenge is the development of representation and modelling that are more suited for multi-scale, multi-dimensional and multi-temporal data to provide better support to spatial decision making. A second challenge is to develop effective methods, tools and algorithms for integrating, mining and visualizing of existing and newly created multi-resolution spatio-temporal sensor data. A third challenge is to implement robust quality control assessment of spatial data and analysis at multiple scales using existing and new approaches to spatial uncertainty modelling including multivariate statistics, crowd-sourcing and citizen science. In addition, an emerging challenge is geo-computing infrastructures, specially the development of server, web and mobile frameworks to enable high performance computing (e.g., grid and cloud computing) for big geospatial data processing and geospatial modelling and simulation.

It is anticipated that more attention will be paid on the role of the citizens (volunteered geographic information), the use of pervasive geographic information, dynamic geospatial computing for real-time monitoring and analysis, and the importance of temporal dimension and uncertainty issues.

The aim of the Technical Commission II is to advance the research, technology and application of spatial information science. The major topics covered include:

- Fundamentals of spatial database design, spatial data structures, spatial analysis and geo-statistics, spatial querying, spatial reasoning, spatial and temporal modelling;
- Aggregation, generalization, abstraction and rendering of image and vector data;
- Spatial decision support systems;
- Processing, analysis and modelling of multi-dimensional geospatial data;
- System integration and modelling aspects for data and geospatial information processing;
- Interoperability of heterogeneous spatial information systems;
- Semantic and geometric integration of heterogeneous spatial information;
- Communication and visualization of spatial data;
- Data mining, filtering, retrieval and dissemination; and
- Spatial data quality and spatial model quality.

The major activity of the Commission in 2013 was the preparation and organization of the Mid-Term Symposium, which will be held in October 2014 in Toronto, Canada. The Symposium will be joined by the 2014 Spatial Data Handling Symposium in collaboration with the International Geographical Union (IGU). The Symposium organization is proceeding well so far. More information about the joint conference can be found at <http://www2.isprs.org/2014GeoTPMA/home.html>.

Together with Technical Commission III, IV and VII, the Commission co-organized the ISPRS Conference on "Serving Society with Geo-information", 11-17 November 2013, Antalya, Turkey.

The Commission has established eight working groups and three inter-commission working groups to address the above topics. All working groups became operational in January 2013, and have been active since then. More information about the working groups, e.g., officers, topics and activities, can be found at <http://www2.isprs.org/commissions/comm2.html>. The following provides some highlights of major activities carried out by the working groups:

- Involved in organizing or co-organizing of 7 ISPRS-sponsored and more than 10 other conferences, workshops or technical sessions,
- Involved in the publications of 2 proceedings in ISPRS Annals and 5 proceedings in ISPRS Archives,
- Co-organized the 8<sup>th</sup> International Symposium on Spatial Data Quality, 30 May - 1 June 2013, Hong Kong, by WG II/1, WG II/2, WG II/4, WG II/6, and ICWG II/IV,
- The "TIC - The Tracking and Imaging Challenge 2015" project proposed by WG II/8 in collaboration with WG III/3 has been selected for funding by the ISPRS Scientific Initiative program.

### Summary of Working Group Activities

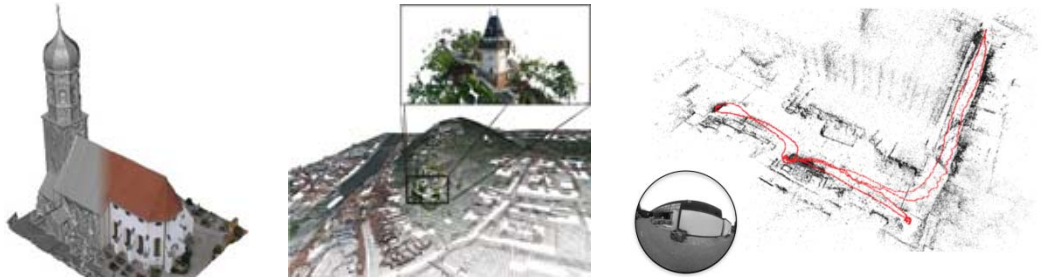
All working groups were actively involved in organizing or co-organizing scientific meetings. Some working groups participated in editing special journal issues, in addition to other types of publications (e.g., book volumes, non-ISPRS conference proceedings). Special issues on "Borderlands Modelling and Analysis" (WG II/8), "Innovations in 3D Geo-information Management" (WG II/2), "Geovisual Analytics: Technology and Human Factors" (WG II/6), and "Spatial Statistics" (WG II/4) are to be published in various journals.

The working groups have been collaborating with other WGs inside the Commission, WGs of other ISPRS Technical Commissions (e.g., WG I/4, WG IV/5, WG III/2, WG IV/6 and WG IV/7), and sister societies (e.g., AGILE, CIG, ICA and ACM SIGSPATIAL).

Songnian Li,  
Ryerson University,  
Toronto



## COMMISSION III - PHOTGRAMMETRIC COMPUTER VISION AND IMAGE ANALYSIS

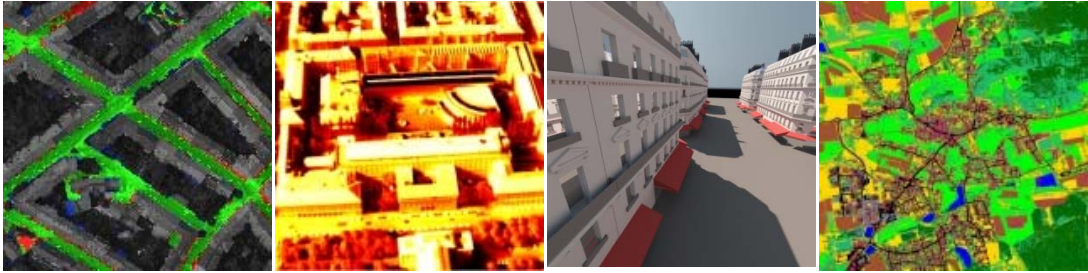


TC III is the “theory and algorithms commission” of ISPRS – our mission is to design, develop and evaluate mathematical models and automatic methods for geometric reconstruction and semantic interpretation from image and range data. This includes in particular calibration and orientation of images as well as surface reconstruction, processing and analysis of laser scans and similar range data, image and point cloud interpretation, and the analysis of dynamic scenes based on image sequences. Emphasis is given to sound geometric, semantic, and statistical models of the data as well as the observed objects and events. TC III also serves as a link to the neighbouring disciplines of computer vision, computer graphics, pattern recognition and machine learning.

After the last congress in August 2012, the Commission has constituted its current seven working groups (including two inter-commission working groups with TC I and TC VII, respectively), all led by established scientists from the fields of photogrammetry, remote sensing, computer vision, and computer graphics.

For the current working period of the Commission a strong focus has been put on open data sets and benchmarks to further scientific progress and to enable comparisons of research results. Several initiatives are underway in TC III, most notably

- a new, extended version of the already very successful ISPRS Urban Classification and Reconstruction Benchmark ([www2.isprs.org/commissions/comm3/wg4/tests.html](http://www2.isprs.org/commissions/comm3/wg4/tests.html)). The extension will feature larger data sets, additional high-level challenges, and improved ground truth, and is also supported financially by the ISPRS Scientific Initiative 2013/14
- a tracking and imaging challenge for image sequence analysis, currently in preparation in collaboration with TC II, and also supported by the ISPRS Scientific Initiative.
- an up-to-date, large-scale (trillion-point), open mobile mapping dataset for point cloud and image based rendering, to be released in mid-2014
- a multi-modal dataset of UAV images, terrestrial images and LiDAR scans for high-accuracy 3D surface reconstruction



Since the beginning of 2013 TC III working groups have planned and organized several scientific workshops and meetings, including

- *Virtual City Modeling 2013* (Regina, Canada), in conjunction with the Canadian Robot Vision Meeting
- the *Laser Scanning Workshop 2013* (Antalya, Turkey), as part of the newly established joint ISPRS fall meeting week
- *City Models, Roads and Traffic (CMRT) 2013* (Antalya, Turkey), as part of the same meeting
- the inaugural *ISPRS Image Sequence Analysis Workshop 2013*, also as part of the same meeting
- the *Indoor3D Workshop 2013* (Cape Town, South Africa)

Beyond these workshops lead by TC III, members of the Commission have contributed significantly to

- *Serving Society with Geoinformatics 2013* (joint TC II / III / IV / VII meeting), also within the fall meeting week
- the Sixth *ACM SIGSPATIAL International Workshop on Computational Transportation Science* (Orlando, US)
- the traditional *ISPRS Workshop on High-Resolution Earth Imaging for Geospatial Information* (Hannover, Germany)

TC III also contributes to the society's flagship publication, the ISPRS Journal of Photogrammetry and Remote Sensing. The Commission President Konrad Schindler serves as associate editor for the journal, covering the areas of 3D reconstruction, computer vision, image interpretation and pattern recognition. Moreover, Commission Officers Franz Rottensteiner, Jan Dirk Wegner, Markus Gerke and Gunho Sohn have served as guest editors of a special issue "Urban Object Extraction and 3D Building Reconstruction", to appear in 2014.



Konrad Schindler,  
ETH Zurich

## COMMISSION IV - GEOSPATIAL DATABASES AND LOCATION BASED SERVICES

The area of study and scientific challenges of ISPRS Technical Commission IV include:

- Development, management, archiving, updating and quality control of multi-scale, multi-dimension geospatial databases for the earth and extraterrestrial planets;
- Highly efficient data acquisition, analysis and processing from multi-sources, including field surveying, remote sensing, real-time sensors and volunteers;
- Development of web and cloud-based services for improved access, retrieval, display, dissemination, interoperability and exploration of geospatial data;
- Rapid modelling, mapping, visualizing and interfacing of dynamic geo-spatial phenomenon and static/mobile geo-entities;
- Geospatial data infrastructures for global/regional geographic monitoring and analysis, disaster management, and various industry, government and social applications;
- Standards and specifications for metadata, datasets, data processing and location-based services.

Within the above fields, the TC IV will follow and provide initiative in the technical and scientific progress, to identify and evaluate the results of research and development, to assist in international standardization activities, and to promote continuing education, by establishing working groups, arranging international symposia, organising tutorials, and organizing experiments on research.

Since the 2012 Congress, TC IV has set up the following activities:

- Finalized the Terms of References of the TC based on the resolutions of ISPRS;
- Set up eight working groups and two inter-commission working groups under the terms of reference of the Commission. The WG officers come from 14 countries/regions, namely Australia, Canada, China, China Taiwan, Germany, India, Italy, Japan, Russian, South Africa, Sweden, The Netherlands, United Kingdom, and USA. By the end of 2013, six WG workshops have been successfully organised. The topics of the WGs and the workshops are as following:
  - WG IV/1 - Methods for the Update and Verification of Geospatial Databases
  - WG IV/2 - Global Status of Mapping and Geospatial Database Updating. Organised a workshop on “Global Geospatial Information”, April 2013 in Novosibirsk, Russia



- WG IV/3 - Global DEM Interoperability
- WG IV/4 - Geospatial Data Infrastructure. Co-organized a joint workshop with WG VIII/1 on “Geospatial Data for Disaster and Risk Reduction”, November 2013 in Hyderabad, India.
- WG IV/5 - Web and Cloud Based Geospatial Services and Applications. Organised a workshop on “Global Spatial Grid & Cloud-based Services”, November 2013 in Xuzhou, China.
- WG IV/6 - Sensor Web and Internet of Things
- WG IV/7 - 3D Indoor Modelling and Navigation. Organised a joint workshop with WG I/2, ICWG II/IV, WG III/2, WG IV/6 and OGC SWG IndoorGML on “3D Indoor Modelling, Modelling, Visualisation and Navigation”, December 2013 in Cape Town, South Africa.
- WG IV/8 - Planetary Mapping and Spatial Databases
- IC WG IV/III/VIII - Global Land Cover Mapping and Services. Organised a workshop on “High Resolution Global Land Cover (GLC) Mapping “, April 2013 in Beijing, China, and co-organised the ISPRS/ IGU/ICA Joint Workshop on “Borderlands Modelling and Understanding for Global Sustainability”, December 2013, in Beijing, China.
- ICWG IV/II - Computing Optimization for Spatial Databases and Location based Services
- Established the TC website in an English and a Chinese version;
- Preparing the TC IV Mid-Term Symposium, 14-16 May 2014 in Suzhou, China. The Symposium venue and hotels have been reserved, the Symposium website published, and announcements distributed. To date more than 120 papers/abstracts have been received.
- Efforts on allying with other organisations, including Regional Committee of United Nations Global Geospatial Information management for Asia and the Pacific (UNGGIM-AP), ICA, OGC, etc.

In the coming months, TC IV will focus on the following aspects:

- Organise the Mid-term Symposium in May 2014;
- Carry out TC IV related actions as instructed by the ISPRS Council;
- Enhance the communication with WG officers to follow policies and decisions of ISPRS Council; for example, organising WG workshops, special issues, ally with related organisations.
- Preparing for coming ISPRS events, including TCP meetings and Congress.

Jiang Jie,  
National Geomatics,  
Center of China Beijing

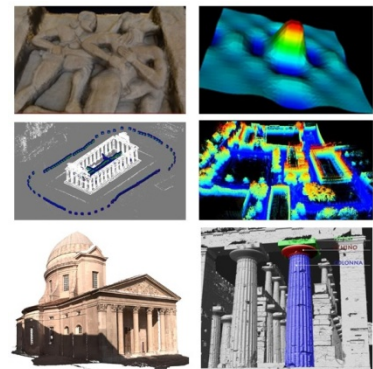


## COMMISSION V - CLOSE-RANGE IMAGING, ANALYSIS AND APPLICATIONS

Technical Commission V deals with close-range imaging sensors and applications in the field of industrial metrology, cultural heritage, architecture, biomedical and geosciences ([www.commission5.isprs.org](http://www.commission5.isprs.org)). Close-range photogrammetry is nowadays based on professional and consumer grade digital cameras as well as active sensors like terrestrial laser scanners, range cameras, gaging or stripe projection systems. These sensors are investigated, combined and used for 3D representation and analysis of static and dynamic objects or scenes. Systems and algorithms for real-time imaging, mobile mapping applications and 3D modelling issues are also considered and developed. The ISPRS Commission V scientific activities are organised through five working groups (Vision Metrology, Cultural Heritage Data Acquisition and Processing, Terrestrial 3D Imaging and Sensors, Terrestrial 3D modelling: Algorithms and Methods, Close-range Measurements for Biomedical Sciences and Geosciences) and two inter-commission working groups jointly coordinated with Technical Commission I (Mobile Scanning and Imaging Systems for 3D Surveying and Mapping, Unmanned Vehicle Systems: Sensors and Applications).

Congratulations go to Francesco Nex (secretary of ICVG I/Vb) who was successful in securing funding from the ISPRS Scientific Initiative to realize a new benchmark dataset for multi-platform very high resolution photogrammetry. With this initiative and project the visibility of ISPRS across domains will be promoted and its connection with other societies (e.g. EuroSDR) and communities will be strengthened.

In summary, Technical Commission V is facing an increasingly mature nature of non-contact active and passive optical 3D measurement systems. Automated data processing is quickly evolving and bringing successful stories even if there is still a great amount of work to be done in the image- and range-based 3D modelling domain for applications in the fields of geology, forestry, cultural heritage, architecture (BIM), etc.



The accomplishment and activities for Commission V in the past two years are numerous. WG officers from across Commission V have been involved in the organization of many meetings and scientific activities: 5<sup>th</sup> 3D-ARCH Workshop (25-26 Feb 2013, Trento, Italy), 8<sup>th</sup> International Symposium on Mobile Mapping Technology (1-3 May 2013, Tainan, Taiwan), 12<sup>th</sup> Videometrics Conference (14-15 May 2013, Munich, Germany – in collaboration with SPIE Optical Metrology), CIPA Symposium (2-6 Sept 2013, Strasbourg, France), UAV-g (4-6 Sept 2013, Rostock, Germany), Laser Scanning Workshop (11-13 Nov 2013, Antalya, Turkey). At the same time, scientific sessions have been organized within other associations and societies events (e.g. EGU, IAG, LVMC, etc.).



In 2014 the Technical Commission V Symposium will be held in Riva del Garda (Italy) from 23<sup>rd</sup> to 25<sup>th</sup> June (<http://isprs-commission5.fbk.eu>). The Symposium will feature 3 days with plenary and parallel sessions.

There will be five invited speakers: Prof. Andrea Fusiello (University of Udine, Italy) on “Structure from motion: state of the art, examples and open issues”; Prof. Andreas Georgopoulos (National Technical University of Athens, Greece) on “ICT at the service of Cultural Heritage”; Dr. Sven Havemann (Technical University Graz, Austria) on “Shape and its semantics in BIM”; Dr. Florent Lafarge (Sophia Antipolis, France) on “Dense image matching and surface reconstruction: when photogrammetry meets computational geometry”; and Prof. Michael Wimmer (Technical University Vienna, Austria) titled "Do we need the full 3D reconstruction pipeline?".

The Symposium will feature also an exhibition of the most important business players in the close-range domain. The ISPRS Technical Commission V Symposium will provide ample opportunities for scientific exchange and discussion. All submitted papers will be handled electronically according to two types of submissions: (1) full papers undergoing a double-blind peer-review process and (2) extended abstracts undergoing a review process. The event will be organized in collaboration with FBK Trento, ARIDA (Association for Real-time Imaging and Dynamic Analysis) and SIFET (Italian Society of Photogrammetry and Remote Sensing).



Fabio Remondino,  
FBK - Bruno Kessler  
Foundation, Trento

## COMMISSION VI - EDUCATION, TECHNOLOGY TRANSFER AND CAPACITY DEVELOPMENT

ISPRS Technical Commission (TC) VI continues its role in supporting, promoting, and stimulating education, training, technology transfer, and capacity development. Examples of new and significant developments include summer schools, workshops, free satellite data distribution, new curriculum development, and web-based resource sharing. Some activities continue the very successful tradition started by the Student Consortium in 2004, including the 3S - Summer Students Seminar started in 2010.

Regional activities are emerging, where universities and other organisations can support each other in the development of seminars, tutorials, workshops, courses and training programs. A new WG for Promotion of Regional Cooperation and Regional Capacity Development in Geoinformatics has been formed to initiate and develop regional action for capacity building and knowledge dissemination and mutual support for education programs and regional institutes.

There are also significant efforts in the scientific domain to promote cyberinfrastructure based research and education. One focus is to promote web-based sharing of geographic information resources for education, research and collaboration. The effort can reinforce capacity building to promote sharing of various resources within ISPRS and beyond. Resources for sharing include, but are not limited to, online or offline test data (RS images, vector, statistic data, documents), sensor resources, algorithms, geoprocessing knowledge, teaching materials including courseware for teaching, and open source software. Presently, the appropriate way is to adopt web service technologies for developing a platform, which enables students and researchers to investigate various scientific problems in a web-based environment with online tools and services. Thus, the platform will offer capabilities for sharing data, algorithm, and problem-solving knowledge.

### **Activities:**

An ISPRS grant for scientific initiatives has been awarded to develop a curriculum for The African Geospatial Sciences Institute (AGSI). The objective is to draft a curriculum based on the requirements of the region. The project involves ISPRS Working Groups, ISPRS Regional Members, cognate societies and local organisations. The project will be led by Ian Dowman, former President of ISPRS, and a number of ISPRS Regional Members will participate. WGs of ISPRS TC VI have organized a set of successful workshops and summer schools.

- WG VI/1 (Web-based Resource Sharing for Education and Collaborative Research) co-sponsored the workshop of Global Spatial Grids and Cloud-based Services, which was a joint workshop of the 3rd International Workshop on Web Mapping and Geoprocessing Services and Applications & 8th International Workshop on Dynamic Multidimensional GIS, held in Xuzhou, China.

- The WG VI/2 (Methodology and Curriculum Development for E-learning) organised a workshop of Innovative Learning Tools 2013, with a specific emphasis on strategies for earth resources management. The workshop was hosted by CEPT University, Ahmedabad, India.
- WG VI/3 (Promotion of International Collaborative Education Programs) has been awarded the ISPRS Scientific Initiative fund (see above).
- WG VI/4 (Promotion of Regional Cooperation and Regional Capacity Development in Geoinformatics) have organized two ISPRS 3S - Summer Students Seminars. Topics of the 3rd edition, at MIIGAiK, Moscow, in summer of 2012, were InSAR and Urban 3D. The 4th edition, held at the Siberian State Academy of Geodesy, Novosibirsk, dealt with InSAR and Web GIS.



Group photos of the 3rd and the 4<sup>th</sup> ISPRS 3S - Summer Students Seminars

- WG VI/5 (Promotion of the Profession to Young People) and the Student Consortium (SC) organized and co-organized several activities, including summer schools, workshops and free satellite data distribution.

The 8th ISPRS Student Consortium and WG VI/5 Summer School was held in Burapha University (BUU), Chonburi, Thailand, from November 30th to December 4th, 2012. The theme of this summer school was “Advance Remote Sensing for Coastal Zone Monitoring and Disaster Management”. Forty-seven students from 17 countries and regions participated in this summer school.

The 9th ISPRS Student Consortium and WG VI/5 Summer School was held in Werdhapura Sanur, Bali, Indonesia, from 25th to 30th October, 2013. The theme of the 9th ISPRS Summer School was “Remote Sensing and GIS Technologies for Monitoring Climate and Environment”, consisting of 16 lecturing and computer laboratory sessions. Fifty-four graduate students from 13 different countries participated in this summer school.

The 10th ISPRS Student Consortium and WG VI/5 Summer School was held at the United Nations Economic Commission for Africa (UNECA) Headquarters in Addis Ababa, Ethiopia, from October 29th to November 2nd, 2013. This was the first time in history that an official ISPRS Summer School was planned and carried out in Africa. It was a joint effort by

ISPRS, UNECA, the Regional Center for Mapping of Resource for Development (RCMRD), and the Ethiopian Mapping. The theme of the summer school was “Geospatial Science for Monitoring of Environment for Sustainable Development” and consisted of class lecturing, spatial information software practice and social events. Thirty-six students from 9 countries attended the summer school.



Group Photo of the 8th (left) and 9th (right) ISPRS Student Consortium and WG VI/5 Summer School

In terms of the Student Consortium activities, the SC board members have been actively helping organizing ISPRS Summer Schools, Workshops and other ISPRS-related events. They also participated in these events and act as the seeds to attract more young generations to join the ISPRS activities. In addition, four issues of the ISPRS SC Newsletter are published every year by the SC.

- The WG VI/6 (Technology Transfer and Capacity Development) organized the workshop on "Advanced Applications of Geospatial Technology" at Pokhara, Nepal on September 12-13, 2013.

In addition, TC VI and WG VI/1 propose to advance the capacity building and knowledge transfer through applications of geospatial service platforms. To fulfil this goal, TC VI, WG VI/1, and the State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing (LIESMARS) of Wuhan University have developed a new curriculum, named “Geospatial Service Platform for Education and Research”, which will be held in the ISPRS Summer School in May 2014 at Wuhan University, China. The course will share cutting-edge achievements of a geospatial service platform with students from different countries, and train them with online tools from the platform for geospatial data processing and scientific research.



Jianya Gong,  
Wuhan University

# COMMISSION VII - THEMATIC PROCESSING, MODELING AND ANALYSIS OF REMOTELY SENSED DATA

This is a concise report covering the scientific trends and recent findings relevant to Technical Commission VII. TCVII is concerned with thematic processing, modelling and analysis of remotely sensed data, with the aim of promoting remote sensing in general and information extraction in particular.

Remote sensing has made major advances over the last 50 years. Currently, and for the foreseeable future, the major influences, if not to say the major challenges, are the ever increasing number of 'specialist' sensors and the ever increasing volume of data. More and more, the environment is seen as a complex system which has to be monitored by a system of tools (hence the advent of GEO, GEOSS etc.) – a set of remote sensing and ancillary data tools. To enable exploitation of this information and data, it requires: greater understanding of the electromagnetic properties of the objects being sensed; physical models to be developed in order to understand the processes involved; fusion and synergy techniques based on physical models to optimise exploitation of the data; references, standards and quality assessment techniques to be developed to underpin reliability and data integration; expert systems to be developed so that information is transferred from the scientific to the social domain; and systems, representations, and techniques developed to extract meaningful information from 'big data' in a timely fashion. These requirements are reflected in the commission's 'Terms of Reference' and implemented through its working groups.

Actually, one of the most important developments in recent years, which affect all of the above issues, is the rapid development of geoinformatics: geoinformatics cover many aspects of the management, research, and information relevant to geospatial information. Its importance to our TC is that it provides not only a unifying framework for development but also a framework for passing on this information to end-users. Geoinformatics is a new and rapidly developing field, so TCVII organised a very interesting cross-commission conference so that research, developments, and ideas from across ISPRS could be aired and shared.

The issue of 'big data' was also discussed at the symposium in a one-day session of the International Policy Advisory Committee (IPAC) with representatives from the European Commission, the European Space Agency, the intergovernmental **GROUP ON EARTH OBSERVATIONS (GEO)**, Google, and others.

In the area of Physical Modelling and Signatures in Remote Sensing, the main emphasis has been on the further development of the key in-situ site database and the exchange of information with other site and database developers.



TCVII was the host and main organiser of the ISPRS2013 Joint Conference on Serving Society with Geoinformatics (SSG) held in Antalya, Turkey, from 11-17th, November, 2013. The conference was organised with TCII, II, IV, and VII.

Within the realm of DEM Generation and Surface Deformation Monitoring from SAR Data, work has been continuing with the developing and testing of techniques used to create DEMs using SAR data. Of particular interest this year, is the availability of TanDEM-X data, and the group has been investigating the data quality in detail.

In the area of Information Extraction from Hyperspectral Data, an exciting new project on the "Fusion of HSR and LIDAR data" (EUFAR2 JRA2) using airborne data won approval and will be starting soon. Other highlights include the publication of a chapter on hyperspectral remote sensing in an advance level text book. The main activity in the calibration and validation area was the collaboration of scientists from France (University Nantes), Japan (AIST), China (CAS), Israel (ISA-TAU) and Australia (CSIRO), in a field experiment in Western Australia with the particular aim of developing the potential of the Southern Hemisphere to contribute to these activities. One of the results of this collaboration will be a protocol for Vicarious Calibration aimed at the 'High Spectral Resolution' community. In the future, the group will continue investigating HSR satellite borne sensors using new methods and the sites selected during the campaigns. In the laboratory, progress in calibration and validation is being made by developing a standard protocol on how to measure soil spectral information.

An interesting development is the synergy in radar and lidar, see the resource website [www2.isprs.org/commissions/comm7/wg7/resource.html](http://www2.isprs.org/commissions/comm7/wg7/resource.html).

Filiz Sunar,  
Techncal University  
Istanbul





## COMMISSION VIII - REMOTE SENSING APPLICATIONS AND POLICIES

Technical Commission VIII constitutes a bridge between the Earth Observation (EO) technology and users. The TC activities specifically address bridging the gap between the technology, and its adoption by users. Another important aspect is the identification of good practices and standard operational procedures in the form of work flow, as developed by the technically competent organizations, for adoption by the users. Over the last 18 months the working groups, which encompass various thematic disciplines, have reached different levels of maturity; the Working Group officers and their co-organizers have undertaken considerable efforts to address the technology and user issues of EO.

I am very happy to note continued penetration of such large scale EO adoption at user level, from information and policy level, for applications ranging from future climate to local resources management and disaster preparedness for human welfare.

### **Commission activities during 2012-13**

WG VIII/1 (Disaster and Risk Reduction) organized a workshop on "Geospatial Data for Disaster and Risk Reduction" in Nov. 2013 at INCOIS, Hyderabad, jointly with WG IV/4. During the workshop, two important initiatives related to disaster risk reduction, namely the Integrated Seismic and GNSS Network Project and the V-SAT Aided Emergency Communication System were launched. The WG VIII/1 officers have also contributed to the publication of a report entitled "The Value of Geoinformation for Disaster and Risk Management", directed at end users of geoinformation products for disaster management (see also Valid book launch report).

WG VIII/2 (Health) organized the 2nd Symposium on Advances in Geospatial Technologies for Health, held in Arlington, VA, in Aug. 2013, in collaboration with MEDGEO 2013. The main goal was to explore inter-disciplinary collaboration between the geospatial science, earth science and health science communities. The WG also contributed four tutorials organized as part of 3rd International UN OOSA Workshop on Space Technology for Socio-Economic Benefits, Santiago, in Nov. 2012. In Sept. 2012, the WG published a volume of the ISPRS Book Series entitled "Environmental Tracking for Public Health Surveillance".

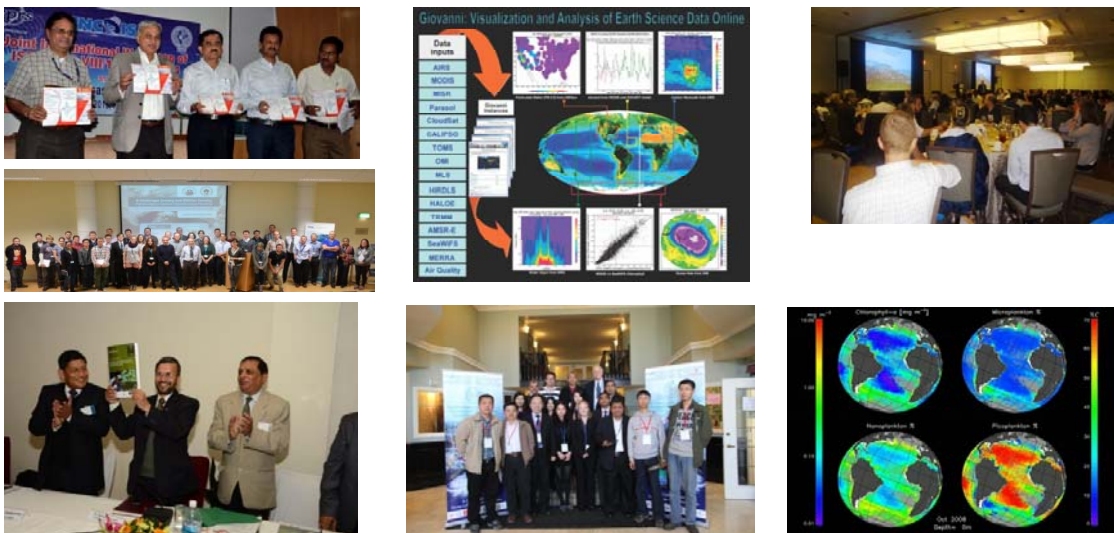
WG VIII/5 (Energy & Geology Applications) jointly organized a workshop along with ICA, IAG, FIG and AGeolCT in Ontario, in Oct. 2013, entitled "Save the Earth with Informed Solutions".

WG VIII/6 (Cryosphere) Chair was involved in preparing the IPCC/WG1 AR5 report as a lead author of the chapter on "Cryosphere Observations". He delivered plenary talks at DACA-13 in Davos, in July 2013, and at GEM (Greenland Ecosystem Monitoring), Hvalso, in Dec. 2013. The WG also organized a mini workshop on Sea Ice Monitoring in January 2013, and deliberated on cryosphere research cooperation at the International Symposium on Remote Sensing (ISRS) in May, 2013, both in Tokyo.

WG VIII/7 (Forestry, Natural Ecosystems and Biodiversity) organized a meeting on “Multi Scale Forest Biomass Assessment and Monitoring of Hindu Kush-Himalayan Ecosystem using Geospatial Systems” at ICIMOD, Nepal in Dec. 2013. Reliable baseline assessment and monitoring strategies at multiple scales to generate optimal supply demand resource scenarios for effective use of forest resources as well as leverage carbon mitigation benefits were among the topics discussed.

WG VIII/8 (Land Cover & Dynamics, including Agricultural and Urban Land Use) conducted a workshop on ‘Global Cropland Area Databases (GCAD30) in Nov. 2013.

WG VIII/9 (Coastal and Ocean Applications) organized a session during the 35th International Symposium on Remote Sensing of Environment in Apr. 2013 in Beijing. The latest developments in coastal remote sensing were reviewed. The meeting also served as a forum to bring together the marine optics communities of the UK and those from other countries. The WG is actively involved in the International Ocean-Colour Coordinating Group, and sponsored a meeting of RSPSoc Marine Optics Special Interest Group at Plymouth Marine Laboratory, UK, in Dec. 2013.



TC VIII WG activities in 2012-13

**Future plan of activities:**

Technical Commission VIII will be hosting the midterm symposium on Operational Remote Sensing Applications: Opportunities, Progress and Challenges from December 09-12, 2014 at Hyderabad, with active participation of all working groups. The Commission has plans to collaborate with many other scientific organisations, such as: CEOS, IGOS, IGSM, GEO, ICSU, SHWB, IUGS, GEOSS, REDD, GEOGLAM, RSSJ, AARS etc.

Many activities are also lined up for 2015. The WGs plan to organize workshops, tutorials, algorithm development, bringing out special peer reviewed journal issues, text book series, virtual online workshops etc.

Vinay Kumar Dadhwal, National Remote Sensing Centre, Hyderabad



# ISPRS INTERNATIONAL POLICY ADVISORY COMMITTEE (IPAC)

## **New IPAC Chair**

In 2012, Mr. Gunter Schreier, deputy director of the German Remote Sensing Data Center at DLR in Oberpfaffenhofen, Germany, was asked by the ISPRS Council to act as new chair of the International Policy Advisory Committee (IPAC). The Council and all IPAC members thanked the outgoing chair, Mr. Rainer Sandau, for his excellent service for IPAC during the previous years.

## **New IPAC Members and Terms of Membership**

One of the first tasks of IPAC was to review its structure and the membership composition of its committee. The ISPRS Council accepted a proposal by the IPAC Chair which reviewed the IPAC membership. Therein, 5 members have finished their duties with IPAC and new members have been invited to join. The new members have been selected to better represent international organizations (such as GEO and space agencies), Earth observation companies, an increased representation from Africa and South America and more women. In total, the IPAC membership has been enlarged to now 16 members. The names of the IPAC members are displayed at the IPAC web site under [www.isprs.org/structure/ipac.aspx](http://www.isprs.org/structure/ipac.aspx). Also, a revision of the terms of membership has been discussed. This aims for more flexibility and balance in the representation of groups and organizations interested in ISPRS related policy issues.

## **IPAC Terms of Reference (ToRs)**

The new IPAC also reviewed the IPAC ToRs. The general ToRs remained the same, while a specific expression “legal issues... in the context of ISPRS” has been added and the reference to specific international bodies has been generalized. The new ToRs are displayed at the IPAC web site.

## **IPAC Work Plan**

The IPAC discussed a new work plan for the coming years. Apart from the standard duties to provide the ISPRS Council with early warning of relevant international policy issues and the representation of ISPRS in international organisations and fora, the work plan proposes IPAC to be more active on establishing fora for exchange and publishing relevant papers and documents. Specifically, the work plan asked for the conduction of an IPAC specific workshop, addressing a variety of topics. Based on the findings of this workshop, it should be considered to publish a “state-of-the-art” paper (or even a book) on selected topics of Earth Observation Policy.

## **Representation at International Organizations**

Amongst the duties of the IPAC Chair, is the representation of ISPRS in selected international fora and organizations. The IPAC Chair participated at the UNOOSA meetings in Vienna (Feb. 2013). He is also active as the secretary of the Earth Observation Committee of the International Astronautical Federation (IAF) and is looking for synergies between ISPRS and

IAF. With regards to Earth Observation Data Policy, the IPAC chair and several IPAC members (e.g. from GEO, ESA, USGA) are deeply involved in defining policies for large scale Earth observation programs (e.g. Copernicus, Landsat-8). Within Copernicus (i.e. the Sentinel satellite series), one success for the international science community was the acceptance of a “free and open” data policy, which was officially announced by a representative of the EC during the IPAC workshop, on November 15<sup>th</sup>, 2013.

### Other IPAC Work

The IPAC chair participated in various meetings by invitation of the ISPRS council. IPAC gave recommendations to planned studies from UK to study social-legal issues on the use of unmanned aerial systems. IPAC is also involved in contributing to chapters for an ISPRS vision paper, edited by the ISPRS president.

### IPAC Workshop: Maximizing the Utility of Earth Observation Data in the Internet Age

The work plan of IPAC also scheduled a specific IPAC workshop. IPAC was happy to accept the invitation of the local organizers to have the IPAC workshop included in the ISPRS-2013 SSG conference, hosted from November 11-17, 2013, in Antalya, Turkey.

The IPAC Workshop was conducted one full day on November 15<sup>th</sup>. It aimed at soliciting expert opinions on EO data policy and data sharing in today’s age of internet computing and enhanced capabilities to manage and access large amounts of EO data and information. The workshop solicited perspectives from local and national agencies, international organizations, and academia.

Three sessions with 12 speakers, partly representing IPAC and partly invited members, focused on various aspects of data policy and the challenges and opportunities Earth observation, photogrammetry and image science is facing from new internet based technologies. Hence, the final presentation was held by Google. The workshop was concluded by a round table discussion with active participation from the audience.



Final discussion panel during the IPAC workshop in Antalya

The presentations of the IPAC Workshop can be found on the conference web page under: <http://www.isprs2013-ssg.org/scientific-program/>.

As a next step, IPAC plans to review the results of the workshop and to consider a related ISPRS publication. Follow-on IPAC workshops shall be planned on a biennial basis.

Gunter Schreier, IPAC Chair

# INTERNATIONAL SCIENCE ADVISORY COMMITTEE (ISAC)

## **Terms of Reference and Membership**

The terms of reference and membership of ISAC can be found at <http://www.isprs.org/structure/isac.aspx>

## **Activity in 2013**

Since the Congress in 2012, ISAC has been asked by Council to carry out 3 tasks:

- Reviewing terms of reference of working groups, completed in 2012.
- Reviewing ISPRS meeting structure
- Reviewing definitions of photogrammetry, remote sensing and spatial information science

## **Review of ISPRS Meeting Structure**

ISAC was asked to comment on the current meeting structure in view of the large number of meetings and the possible need for ISPRS to be more visible in the 'odd' years. There was agreement amongst most respondents on some issues:

- Some reorganisation is needed.
- Keep the 4 year congress and intermediate symposia.
- More coordination of meetings is necessary to avoid duplication.
- Big meetings are productive and efficient.
- Small specialist workshops are useful but not always economical in terms of cost and travel.

Council is now considering how to organize meetings in the future.

## **Definition of Photogrammetry, Remote Sensing and Spatial Information Science**

Members of ISAC have made valuable and perceptive comments on the definitions and descriptions of photogrammetry, remote sensing and spatial information science. Several versions of the definitions and descriptions have been proposed. These have been given to Council which will make a decision in due course.

## **Meeting in Antalya**

At the ISPRS Conference held in Antalya in November IPAC organised a one day workshop in which the chair of ISAC participated. There was very useful discussion of future policies for ISPRS and how ISAC and IPAC can collaborate.

## **Future activity**

As well as responding to Council requests, the key requirement of ISAC is to "identify and prioritize scientific and technologic (S&T) trends which will impact the S&T activities of the Society and recommend actions to ISPRS Council". There have been many important scientific developments in the

field in recent years which include UAVs, high resolution satellite images, building information modelling, wearable computing, the internet of things and crowdsourcing. ISPRS should ensure that working groups are addressing these developments and looking at the wider issues of data integration and standards

In addition, there has been recognition that organisations such as ISPRS must respond to changes in society and orient activities to serve society; the issues include catering for all of the community, understanding the environment, improving land administration and the need to work with other organisations. The great interest in using geospatial information to respond to disasters and to manage risk, and the ubiquitous use of map data from portals such as Google create a need to ensure that data is fit for purpose and that users understand the quality of information.

In the future, ISAC will consider how ISPRS should respond to these changes and will identify the scientific areas which are of priority in addressing the needs of society. ISAC will also work with IPAC in identifying external organisations to collaborate with, developing policies for education and training.

Ian Dowman,  
ISAC Chair

## ISPRS SCIENTIFIC INITIATIVE 2014

In accordance with the statutory mission and activities of ISPRS, the Society shall provide funds to support scientific and other initiatives, which will further improve its international status in the field of the photogrammetry, remote sensing and spatial information sciences, and will therefore benefit all ISPRS members. To this end, a call for new Scientific Initiatives was issued in September 2013 with a 2014 budget of 40,000 Swiss Francs. By the call deadline, 11 teams of researchers across six of the eight Technical Commissions had submitted cases for support.

Comment was sought from the relevant Technical Commission Presidents, and a sub-committee of three Council members was convened to independently review the proposals on the basis of scientific excellence. The sub-committee then convened at the SSG Conference in Antalya to draw up a ranked list of projects to be funded. The sub-committee's recommendation to fund the following projects was accepted by ISPRS Council at its meeting in Antalya:

Title	PI	Affiliation	WG
Benchmark on High Density Image Matching for DSM Computation	Norbert Haala	University of Stuttgart	I/2
TIC - The Tracking and Imaging Challenge 2015	Stephan Winter	University of Melbourne	II/8
ISPRS Benchmark on Urban Object Detection and 3D Building Reconstruction	Markus Gerke	University of Twente	III/4
Status of Global Geospatial Information	Gottfried Konecny	Leibniz University Hannover	IV/2
A new benchmark dataset for multi-platform very high resolution photogrammetry	Francesco Nex	FBK Trento	ICWG I/Vb
Development of a curriculum for The African Geospatial Sciences Institute (AGSI)	Ian Dorman	University College London	VI/3

ISPRS Council would like to thank all scientists who submitted proposals, and to congratulate the successful applicants. The decision to allocate more funding than originally budgeted reflects the high quality of the proposals received, and ISPRS Council's desire to support and pump-prime scientific endeavours across all Commissions that submitted proposals to the call. Council looks forward to hearing of the future success of the funded projects and reporting the outcomes through this and other media in due course.

Jon Mills,  
ISPRS Treasurer

## VALID - THE VALUE OF GEOINFORMATION FOR DISASTER AND RISK MANAGEMENT

Knowledge transfer from geospatial science to professionals and decision-makers in Disaster and Risk Management (DRM) is a major challenge in view of the global upward trend in major disasters which is likely to continue due to the impacts of climate change and population growth in areas exposed to natural hazards.

The Joint Board of Geospatial Information Societies (JBGIS), and the United Nations Office of Outer Space Affairs (UN-OOSA), which runs the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER), have embarked on a major initiative to demonstrate the potential of geospatial technologies for DRM to decision makers in government and administration, disaster management professionals and other stakeholders.

In the follow-on of the booklet “Geoinformation for Disaster and Risk Management - Examples and Best Practices” published by JBGIS and UN-OOSA in 2010, a second publication was prepared in the framework of an interdisciplinary project named VALID (The Value of Geoinformation for Disaster and Risk Management). The VALID report, published by the JBGIS, the International Council for Science-GeoUnions (ICSU-GeoUnions), and UN-OOSA, was officially launched on 3 September 2013 at OOSA in Vienna, Austria, and is available online at

<http://www.un-spider.org/sites/default/files/VALIDPublication.pdf>.

Based on a dedicated case study as well as a web-based global stakeholder survey, the VALID report gives evidence of economic, operational and strategic benefits of geoinformation in DRM. A two-fold approach was followed in order to ensure a detailed as well as a holistic view on the benefits of geoinformation, and to obtain best possible coverage of the disaster management cycle, addressing prevention as well as response aspects. Among other points, the survey results from end-users highlighted the benefit of all 10 geoinformation products shortlisted for appraisal for reducing losses in public economy and in support of preventive strategies.

In addition to the benefit appraisal, the VALID report also provides detailed descriptions of the scientific and technical background of the geoinformation items assessed, also addressing such issues as methodology, data requirements, costs, access to available products and recommendations for future activities.

The presentation event was attended by representatives of the Permanent Missions to the United Nations in Vienna, other international organisations, and the media. Participants welcomed the VALID publication and encouraged the project group to go ahead for a third booklet project.

Orhan Altan, ISPRS 1<sup>st</sup> Vice President, and Robert Backhaus, UN-OOSA



# ISPRS JOINT CONFERENCE - SERVING SOCIETY WITH GEOINFORMATICS

Geoinformatics is the synergy of data and systems from various disciplines such as photogrammetry, remote sensing, spatial information science, computer science, etc, brought together to provide information on the state of the Earth. It is a fairly recent concept and, as a science, is responding to the exponential increase in spatial data availability over the last few years. Applications of geoinformatics address real-world issues in the management and interaction of the natural and anthropogenic environments encompassing the fields of natural resource management, resource planning, and decision-making. As geoinformatics has such wide applications, and covers such a wide range of science and technology, it has developed into a core and critical subject in several of the technical commissions of ISPRS. It is in this context that a joint meeting of interested ISPRS Technical Commissions entitled "Serving Society with Geoinformatics" (SSG) was held in Antalya, Turkey, on 11-17 November 2013. The technical commissions involved were Commissions II, III, IV, and VII.

An exciting component of the meeting was the combination with two well established and one new ISPRS workshop which provided an opportunity for high quality scientific presentations and discussion on cutting-edge research on specific topics. These were Laser Scanning (LS); Object Extraction for 3D City Models, Road Databases and Traffic Monitoring (CMRT) - both have been successfully run as separate workshops in the past - and Image Sequence Analysis (ISA), a new ISPRS workshop. Besides a number of very interesting keynote presentations, contributed papers of very high quality were presented. They were selected based on double-blind peer review, and are published in the ISPRS Annals proceedings series.

A whole day of sessions in parallel with the ISPRS SSG Conference was devoted to the ISPRS International Policy Advisory Committee (IPAC) Workshop, where expert opinions on earth observation data policy and data sharing in today's age of internet computing and enhanced computational capabilities were solicited. Representatives from the European Space Agency (ESA), the European Commission (EU), the Group on Earth Observation (GEO) and Google attended this meeting.

The relevance of the SSG conference theme to a wide variety of disciplines is reflected in the diverse range of papers that have been submitted for publication. Abstracts were evaluated according to content, significance, originality, relevance and clarity of presentation. In total, 176 participants from 27 countries registered for the meeting, representing all five continents. Besides the workshop presentations, the audience could listen to 7 invited papers and 38 presented papers, all of them are included in the ISPRS Archive. These, together with the 10 poster presentations, served to demonstrate the importance of the SSG Conference for sharing ideas and findings with a truly international community.

The SSG Conference was officially opened by Filiz Sunar, ISPRS TC VII President, followed by welcome addresses by the Turkish National Society for Photogrammetry and Remote Sensing (TNSPRS) President, Metin Keşap and ISPRS President, Chen Jun. The opening keynote speech was given by Barbara Ryan, Secretariat Director of GEO (Group on Earth Observation), and was entitled “Building a Global Earth Observation System of Systems (GEOSS)”.



Opening session, chair Filiz Sunar (left) and keynote speaker, Barbara Ryan (right)

The different sessions provided the framework for wider discussions on the developments on geoinformatics that have been fostered to date and what can be done to explore new horizons in the future. Indeed, the six days were buzzing with lively discussion and debate – not only during the interactive sessions, but also around the coffee tables! The participants had yet another chance to socialize, delve into interesting discussions, and exchange ideas as well as to develop new contacts and friendships.

The SSG organization committee is particularly grateful to the ISPRS Council for their support. First and foremost to all those who have contributed to producing such a comprehensive conference and the members of the Scientific Committee for their reviews, but also to Copernicus officers for their successful management of the reviewing process and uploading of papers and final programme. Special thanks go to the K2 Conference and Event Management Company, for helping us through everything in successful organization. And last, but certainly not least, the SSG wishes to thank wholeheartedly all participants of this event for making it an informative as well as enjoyable week!

In summary, this first four ISPRS technical commission's joint action experience has certainly been a sound basis for further advancing education and research activities of ISPRS.

Filiz Sunar,  
Conference Chair and President, ISPRS Technical Commission VII

## ISPRS HANNOVER WORKSHOP - HIGH RESOLUTION EARTH IMAGING FOR GEOSPATIAL INFORMATION

The joint workshop of the ISPRS Working Groups I/4, III/4, IV/2 and VII/2, supported by the ISPRS Commission I, Working Group IV/1 and the International Academy of Astronautics (IAA) was held at the Leibniz University Hannover from the 21<sup>st</sup> to 24<sup>th</sup> May, 2013. The ISPRS Hannover Workshop has been running successfully once every two years for a considerable period of time. The aim is to reach not only participants from universities and research centres but also to include people from industry, government agencies, and private companies. The workshop provides a wonderful opportunity to discuss both recent and future developments.

In total, 126 participants were registered from 29 countries and all five continents. The workshop included five key note speakers, 39 oral presentations and 38 interactive presentations. As there was no parallel program offered during the interactive (poster) session, and afternoon tea was provided for participants, it was well attended and offered a great opportunity for intense discussions with the authors. The publications of the workshop are freely available on the ISPRS webpage.

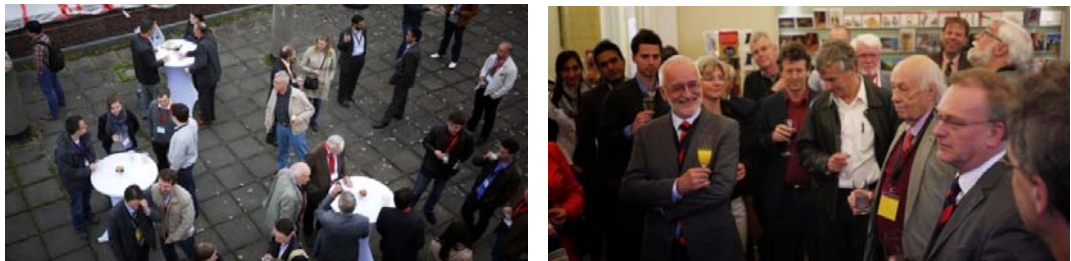
The workshop was officially opened by Uwe Sörgel, followed by welcome addresses by the IAA Technical Director Rainer Sandau and ISPRS General Secretary Christian Heipke. Heipke used his welcome address also to hand out 5 travel grants provided by TIF - The ISPRS Foundation. Two keynote speeches followed. The first speaker, Ranganath Naval Gund from the Indian Space Research Organisation (ISRO), talked about “Earth Observation in Early Warning Systems”. The second key note talk by Rainer Sandau (AAA) was entitled “Global Space Cooperation – New Activities for Disaster Management and Climate Change”. The three other key note speakers opened sessions on the following days of the workshop. The speakers were Lorenzo Bruzzone (Trento University) on the topic of “Current Scenario and Challenges in the Analysis of Multi-Temporal Remote Sensing Images”, Charles Toth (The Ohio State University) about “Remote Sensing Sensors and Platforms: The Trends”, and Michael McCullagh (University of Nottingham) about “Crowd-Sourcing Mapping – Letting Amateurs into the Temple?”



Christian Heipke, (2nd from left) with the winners of the TIF grants, Ewelina Rupnik, Marta Kubiak, Faith Karanja, Khelifa Djerriri and Henrique Candido de Oliveira (from left to right)

The success of any event, such as this, also rests on the opportunity to socialise with fellow international participants, to discuss and exchange ideas, as well as to develop new contacts and friendships.

On the first night all participants met for the *Get together party* on the top of the local *Messdach* (a survey observation platform on the roof of a building on campus). On the *Messdach* everyone could not only enjoy a nice view over the *Herrenhäuser Gärten* (a local tourist attraction) and the city, but a buffet with drinks. The second night the workshop dinner took place at the *Wilhelm-Busch-Museum* (Wilhelm Busch is widely considered to be the inventor of comics), close by to the workshop venue. At the museum the participants could enjoy a superb dinner supported by Hexagon. The authors would like to thank Hartmut Rosengarten and Hexagon for the support and sponsorship of this workshop and for the organisation of a master class on Thursday afternoon.



Social events: on the *Messdach* (left) and at the *Wilhelm-Busch-Museum* (right).

Thanks also go to Christian Heipke, Uwe Sörgel, Karsten Jacobsen and Franz Rottensteiner with Claudia Sander, Annette Radtke, Uwe Breitkopf and many others for the excellent organisation of the event. Their efforts included the preparation of the conference, the technical support and the organisation of food and drinks for all participants during the conference. Let us end with a wish: We are looking forward to seeing you all again 2015 in Hannover.

Antje Thiele, Karlsruhe Institute of Technology, and Petra Helmholz, Curtin University Perth

# ISPRS EVENTS AND PUBLICATIONS SINCE THE XXII ISPRS CONGRESS 2012 IN MELBOURNE

Event	Date/Place	Publication
WG V/4 3D-ARCH 2013 - 3D Virtual Reconstruction and Visualization of Complex Architectures	25-26 Feb 2013 Trento, ITALY	Archives Vol. XL-5/W1
WG V/3 The Role of Geomatics in Hydrogeological Risk	27-28 Feb 2013 Padua, ITALY	Archives Vol. XL-5/W3
ICWG IV/II/VIII The 3rd International Workshop on High Resolution Global Land Cover Mapping	27-28 April 2013 Beijing, CHINA	-
WG IV/2 ISPRS Workshop Global Geospatial Information	25 April 2013 Novosibirsk, RUSSIA	-
WG I/4, III/4, IV/2, VII/2 ISPRS Hannover Workshop 2013 - High-Resolution Earth Imaging for Geospatial Information 2013	21-24 May 2013 Hannover, GERMANY	Archives Vol. XL-1/W1
WG II/3 ISSA 2013 - International Symposium on Spatial Analysis and Data Mining	23-25 May 2013 Wuhan, CHINA	-
WG III/4 VCM 2013 - ISPRS International Workshop on 3D Virtual City Modeling	28-31 May 2013 Regina, CANADA	Annals Vol. II-3/W1
WG IV/7 UDMS 2013 - 29th Symposium of the Urban Data Management Society	29-31 May 2013 London, UK	Archives Vol. XL-4/W1
WG II/1, II/2, II/4, II/6, IC WG II/IV 8th International Symposium on Spatial Data Quality	30 May - 1 June 2013 HONG KONG	Archives Vol. XL-2/W1
WG VII/6 3rd International Workshop on Image and Data Fusion	20-22 Aug 2013 Antu, CHINA	Archives Vol. XL-7/W1
WG VIII/2 2nd Symposium on Advances in Geospatial Technologies for Health	25-29 Aug 2013 Arlington, USA	-
XXIVth CIPA Heritage Documentation Symposium	2 - 6 Sept 2013 Strasbourg, FRANCE	Archives Vol. XL-5/W2 Annals Vol. II-5/W1
ICWG I/Vb UAV-g	4-6 Sept 2013 Rostock, GERMANY	Archives Vol. XL-1/W2
WG VI/6 International Workshop on Advanced Geospatial Technologies for Sustainable Environment and Culture	12-13 Sept. 2013 Pokhara, NEPAL	-
WG I/4, II/4 SMPR 2013 - 2 <sup>nd</sup> International Conference on Sensors and Models in Remote Sensing and Photogrammetry	5-8 Oct. 2013 Tehran, IRAN	Archives Vol. XL-1/W3
WG IV/8 Advances and Activities in Planetary Mapping and Databases	11-12 Oct. 2013 Moscow, RUSSIA	-
10th ISPRS Student Consortium & WG VI/5 Summer School - Geospatial Science for Monitoring of Environment for Sustainable Development	29 Oct - 2 Nov. 2013 Addis Ababa, ETHIOPIA	-
WG IV/5 - 3rd International Workshop on Web Mapping and Geoprocessing Services and Applications (WebMGS 2013)	11-12 Nov. 2013 Xuzhou, CHINA	Archives Vol. XL-4/W2

TC II, III, IV & VII Joint ISPRS Conference on Serving Society with Geoinformation including: WG III/3 - Image Sequence Analysis for Object and Change Detection WG V/3, I/2, I/3, III/2, V/2, VII/7, ICWG I/Va Laser Scanning 2013 WG III/4, ICWG III/VII CMRT13 - Object Extraction for 3D City Models, Road Databases and Traffic Monitoring	11-17 Nov. 2013 Antalya, TURKEY	Archives Vol. XL-7/W2
	11 Nov. 2013 Antalya, TURKEY	Annals Vol. II-3/W2
	11-13 Nov 2013 Antalya, TURKEY	Annals Vol. II-5/W2
	12-13 Nov 2013 Antalya, TURKEY	Annals Vol. II-3/W3
WG VIII/1, IV/4 Geospatial Data for Disaster and Risk Reduction	21-22 Nov 2013 Hyderabad, INDIA	-
3D GeoInfo 2013 - 8th 3D GeoInfo Conference & WG II/2 Workshop on Advances in Multi-Scale and Multi-Dimensional Modeling and Data Representation	26-29 Nov 2013 Istanbul, TURKEY	Archives Vol. XL-2/W2 Annals Vol. II-2/W1
ISPRS/IGU/ICA/GSC Joint Workshop Borderlands Modelling and Understanding for Global Sustainability	5-6 Dec 2013 Beijing, CHINA	Archives Vol. XL-4/W3
WG VIII/7 Multi Scale Forest Biomass Assessment and Monitoring of Hindu Kush-Himalayan Ecosystem using Geospatial Systems	9-10 Dec 2013 Kathmandu, NEPAL	-
WG IV/7, IV/6, I/2, II/2, ICWG II/IV 3D Indoor Modelling and Navigation Acquisition and Modelling of Indoor and Enclosed Environments	11-13 Dec 2013 Cape Town SOUTH AFRICA	Archives Vol. XL-4/W4 Annals Vol. II-4/W1

Archives: The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences

Annals: The ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences

## ISPRS COUNCIL 2012-16

**President: Chen Jun (CHINA)**

chenjun@nsdi.gov.cn

**Secretary General: Christian Heipke (GERMANY)**

isprs-sg@ipi.uni-hannover.de

**First Vice President: Orhan Altan (TURKEY)**

oaltan@itu.edu.tr

**Second Vice President: Marguerite Madden (USA)**

mmadden@uga.edu

**Congress Director: Lena Halounová (CZECH REPUBLIC)**

Lena.Halounova@fsv.cvut.cz

**Treasurer: Jon Mills (UNITED KINGDOM)**

jon.mills@ncl.ac.uk

## ISPRS TECHNICAL COMMISSIONS 2012-2016

**COMMISSION I** Sensors and Platforms for Remote Sensing

**President:** Charles Toth (USA), toth@cfm.ohio-state.edu

**COMMISSION II** Theory and Concepts of Spatial Information Science

**President:** Songnian Li (Canada), snli@ryerson.ca

**COMMISSION III** Photogrammetric Computer Vision and Image Analysis

**President:** Konrad Schindler (Switzerland), schindler@geod.baug.ethz.ch

**COMMISSION IV** Geospatial Databases and Location Based Services

**President:** Jiang Jie (China), jjie@nsdi.gov.cn

**COMMISSION V** Close-Range Imaging, Analysis and Applications

**President:** Fabio Remondino (Italy), remondino@fbk.eu

**COMMISSION VI** Education, Technology Transfer and Capacity Building

**President:** Jianya Gong (China), gongjy@whu.edu.cn

**COMMISSION VII** Thematic Processing, Modeling and Analysis of remotely sensed data

**President:** Filiz Sunar (Turkey), fsunar@itu.edu.tr

**COMMISSION VIII** Remote Sensing Applications and Policies

**President:** Vinay K. Dadhwal (India), [director@nrsc.gov.in](mailto:director@nrsc.gov.in)



### **ISPRS Headquarters:**

Christian Heipke, Secretary General  
Leibniz Universität Hannover  
Institute of Photogrammetry and GeoInformation  
Nienburger Str. 1  
Hannover 30167  
GERMANY  
Tel: +49-511-762-2482  
Fax: +49-511-762-2483  
email: [isprs-sg@ipi.uni-hannover.de](mailto:isprs-sg@ipi.uni-hannover.de)

For more information on ISPRS go to [www.isprs.org](http://www.isprs.org)