

# The XXII Congress of the International Society for Photogrammetry and Remote Sensing

25 August – 1 September 2012

Melbourne Convention and Exhibition Centre | Melbourne, Australia

## Final Program

The 16th ARSPC is being held in  
conjunction with the ISPRS Congress



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## Committee

Cliff Ogleby	Congress Director
Mark Shortis	Technical Program Director
Chris Bellman	Treasurer
Simon Jones	Workshop & Tutorials
Robyn McCutcheon	SSSI Liaison
John Trinder	16ARSPC Convenor
Joanne Poon	Technical Tours
Nathan Quadros	Volunteers
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**Spatial Scientific**  
**University of Melbourne**  
**University of Southern Queensland**

## Welcome from Congress Director



It is with much pleasure that I welcome you all to the XXII Congress of ISPRS, in my home town of Melbourne, Australia. An ISPRS Congress always offers the opportunity to meet old friends, make new ones, experience the latest developments in the science and art of photogrammetry, remote sensing and spatial sciences, and to experience this in a unique and rewarding location. I have always anticipated the next ISPRS Congress with enthusiasm and pleasure, and now it is Australia's turn to repay that experience to the ISPRS community.

There have been many advances in the science and technology of information from imagery over the last 4 years since the Congress in Beijing. People everywhere now use on-line satellite image services routinely to navigate, to explore new places and to plan their visit. We now have systems where users can contribute to the image and map database of 'space and place'; for example crowd sourced data is now an indispensable part of disaster response planning. Today there are small satellites that can be launched for a fraction of the cost of earlier imaging programmes, giving smaller nations affordable access to multispectral satellite imagery. This technology can only continue to improve, making high resolution satellite imagery and the associated spatial information ubiquitous.

The mission of ISPRS is information from imagery. This encompasses far more than the speedy delivery of imagery over the internet. Our profession can almost automatically derive 3d models of the built environment, determine the shrinkage of the world's glaciers, determine sea level and temperature, monitor development and the impact on arable land, measure the size of cancer tumours, model tangible cultural heritage and give decision makers the tools they need to make informed and justifiable decisions. As a profession we can be proud of what we have achieved and can offer the world. The participation by so many people here at the Melbourne Congress is testament to the important role the Congress plays in the sharing of this knowledge.

You should also make time to discover Melbourne while you are here, it is a vibrant multi-cultural community with a long tradition of science, technology and the arts. There are many reasons why Melbourne is consistently awarded the honour of the world's most liveable city.

On behalf of the ISPRS, the Surveying and Spatial Sciences Institute of Australia, and the City of Melbourne, I welcome you all to the Congress and wish you a rewarding and enriching experience.

**Cliff Ogleby**  
*Congress Director*

## Welcome from ISPRS President



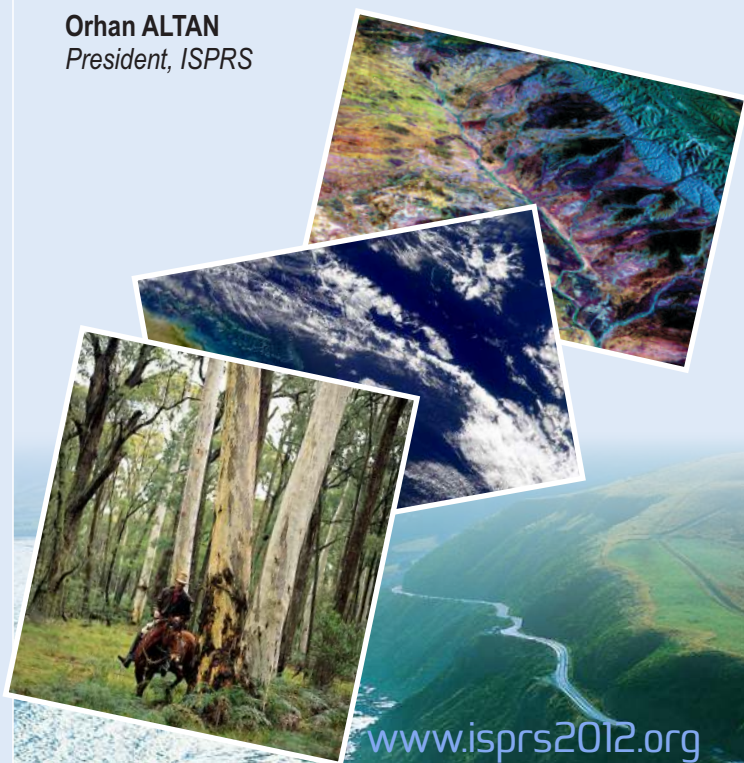
Now the program of the Congress is ready. So I cordially invite you once more to attend the XXII ISPRS Congress in Melbourne, Australia from 25 August – 1 September 2012. Program of the Congress consists of meetings of the General Assembly, the decision making body of the Society; plenary and technical parallel sessions, with oral and interactive presentations of papers on new developments in a broad range of topics in the photogrammetry, remote sensing and spatial information sciences; a large commercial exhibition displaying the latest equipment and services that are related to the topics covered by ISPRS; and a scientific exhibition displaying the many achievements of ISPRS members. It is the culmination of four years' work of many researchers, scientists, practitioners and administrators working in the fields covered by ISPRS. In the name of the ISPRS I thank all paper presenters for their contribution.

Melbourne will be an exciting location for the Congress. The unique culture of Australia is an exotic mixture of different cultures and the past. A visit to Melbourne and other parts of Victoria will reveal many architectural and cultural gems, as well as pleasant landscapes. I am sure that all who attend the Congress will be fascinated by their visit to Australia.

I encourage all who have an interest in the photogrammetry, remote sensing and spatial information sciences to participate in this ISPRS quadrennial Congress.

I am sure that this Congress will prove to be very successful and rewarding for all participants.

**Orhan ALTAN**  
*President, ISPRS*



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## Welcome from the State of Victoria



### Minister for Innovation, Services and Small Business Minister for Tourism and Major Events

121 Exhibition Street  
Melbourne Victoria 3000  
GPO Box 4509  
Melbourne Victoria 3001  
Telephone: (03) 9651 9900  
Facsimile: (03) 9651 9962

Welcome to Melbourne and the XXII Congress of the International Society for Photogrammetry and Remote Sensing.

Melbourne is the capital of the State of Victoria, the most geographically diverse state in Australia; home to a dynamic scientific research community among nine Universities. Our long and prestigious history of scientific research and technical innovation make Melbourne the perfect city to host the XXII Congress of the International Society for Photogrammetry and Remote Sensing.

With a population of approximately four million people, Melbourne is one of the most cosmopolitan and multicultural cities in the world with 140 nationalities representing 100 religious faiths and 180 different languages. While you are in Melbourne for the Congress, please explore the city's range of delights. There is something for everyone in Melbourne, with diverse arts and cultural attractions, delightful parks and gardens, exciting entertainment options and a vibrant food and wine culture.

I encourage you to also take the time to enjoy the attractions of regional Victoria; from sweeping coastlines and pristine beaches to national parks and forests teeming with wildlife to wineries, lakes and mountains offering skiing, climbing and hiking. Many of Victoria's unique and varied landscapes are easily accessible as day trips from Melbourne.

I wish you all the best for a productive meeting here in Melbourne and hope that this important and topical gathering provides a platform for the exchange of ideas and an opportunity to forge new partnerships and friendships.

Welcome to Melbourne, enjoy the meeting and please come and visit us again.

**THE HON LOUISE ASHER MP**  
Minister for Innovation, Services and Small Business  
Minister for Tourism and Major Events

## Plenary Speakers

### **Piero Boccardo**

Politecnico di Torino, Italy

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### **Gilberto Câmara**

Director of INPE, Brazil

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### **Madhu Chandra**

Technische Universitaet Chemnitz, Germany

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### **Juergen Dold**

Hexagon, Switzerland

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### **Peng Gong**

Tsinghua University, Beijing and University of California, Berkeley, USA

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### **Lawrie Jordan**

ESRI, USA

### **Stuart Lane**

University of Lausanne, Switzerland

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### **Gordon McBean**

President Elect of the International Council for Science

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### **Ranganath Navalgund**

Director, Space Applications Centre, ISRO, Ahmedabad, India

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### **Sandau Rainer**

International Academy of Astronautics, Germany

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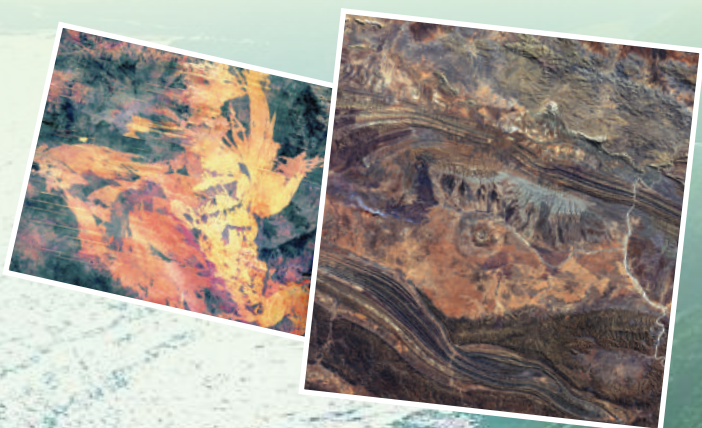
### **Konrad Schindler**

ETH Zurich, Switzerland

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### **Stewart Walker**

BAE Systems, San Diego, USA



## Sunday, 26 August 2012

Time	Location	Session Code	Sunday August 26	
9:00-10:30	Plenary 2		Plenary 1	
11:00-12:30	Plenary 2	TS714	VII/4: Methods for Land Cover Classification-1	
	208	SS901	CIPA, ICOMOS and WG V/2: Advances in Digital Documentation-1	
	210	TS801	VIII/1: Earthquakes and Damage Assessment	
	211	TS701	VII/1: Physical Modelling and Signatures in Remote Sensing-1	
	212	TS501	V/1: Vision Metrology - Best Practice, Systems and Applications-1	
	213	TS401	IV/1: Geospatial Data Infrastructure-1	
	216	SS911	ISPRS and GSDI: Spatially Enabled Society	
	217	TS601	VI/1: Web Based Education and VI/2: E-Delivery of Education Services-1	
	218	TS101	I/1: Standardization of Airborne Platform Interface	
	219	TS301	III/4: Building Reconstruction	
	220	TS201	II/1: Cognition and Modeling of Space and Time-1	
2:00-3:30	Plenary 2	TS715	VII/4: Methods for Land Cover Classification-2	
	208	SS902	CIPA, ICOMOS and WG V/2: Advances in Digital Documentation-2	
	209	TS805	VIII/2: Environment and Health-1	
	210	TS802	VIII/1: Mass Movements	
	212	TS502	V/1: Vision Metrology - Best Practice, Systems and Applications-2	
	213	TS402	IV/1: Geospatial Data Infrastructure-2	
	216	SS914	URSI and ISPRS: Disaster Management	
	217	TS602	VI/1: Web Based Education and VI/2: E-Delivery of Education Services-2	
	218	TS102	I/2: LIDAR, SAR and Optical Sensors for Airborne and Spaceborne Platforms-1	
	219	TS302	III/4: ISPRS Benchmark-1	
		220	TS202	II/1: Cognition and Modeling of Space and Time-2
		5.2.03-4		ALCM Consortium Meeting
4:00-5:30	Plenary 2	TS716	VII/4: Methods for Land Cover Classification-3	
	208	SS904	EuroSDR and WG IV/2: Automatic Updates of National Core Geospatial databases	
	209	SS908	ICA and WG IV/7: Exploring the Moon!	
	210	TS806	VIII/2: Environment and Health-2	
	211	TS703	VII/1: Physical Modelling and Signatures in Remote Sensing-2	
	212	TS503	V/2: Cultural Heritage Data Acquisition and Processing-1	
	213	TS403	IV/1: Geospatial Data Infrastructure-3	
	216	TS311	ICWG III/VII: Feature Analysis for Image Classification	
	217	TS604	VI/5: Promotion of the Profession to Young People	
	218	TS103	I/2: LIDAR, SAR and Optical Sensors for Airborne and Spaceborne Platforms-2	
	219	TS303	III/4: ISPRS Benchmark-2	
		220	TS203	II/2: Urban / City Generalization
		5.2.03-4		ALCM Consortium Meeting

09:00-10:30 MCEC Plenary 2

**Plenary 1**

Co-Chair: Orhan Altan, Istanbul Technical University, Turkey  
Ian Dowman, University College London, UK

09:00 **Seeing the Future through Better Knowledge of the Present** 1001

Gordon McBean, President-elect International Council for Science, Western University, London, Ontario, Canada

09:30 **Small Satellites Status, Opportunities and Challenges** 1002

Rainer Sandau, International Academy of Astronautics (IAA), German Aerospace Center, Germany

10:00 **Whither Radar Remote Sensing?** 1003

Madhu Chandra, Chemnitz University of Technology, Chemnitz, Germany

11:00-12:30 MCEC208

**CIPA, ICOMOS and WG V/2: Advances in Digital Documentation-1**

Chair: Paul Bryan, English Heritage, United Kingdom

11:00 **Advancing Documentation of Buried Archaeological Landscapes** 1004

Michael Doneus, University of Vienna, Austria

11:22 **Artefact Mobile Data Model to Support Cultural Heritage Data Collection and Interpretation** 1005

Zaffar Sadiq Mohamed Ghouse, Sinclair Knight Merz, Australia

11:44 **Archaeological Site Monitoring: UAV Photogrammetry can be an Answer**

1006

Fulvio Rinaudo, Politecnico di Torino, Italy

12:06 **An Approach to Find Localization of Non-Existent Historical Buildings by Terrestrial Photogrammetry** 1007

Ugur Acar, Yildiz Technical University, Turkey

11:00-12:30 MCEC216

**ISPRS and GSDI: Spatially Enabled Society**

Chair: Abbas Rajabifard, The University of Melbourne, Australia

11:00 **An Imperative of e-planning in Integrating Land Administration Functions for Housing Production** 1008

Abbas Rajabifard, The University of Melbourne, Australia

11:00-12:30 MCEC218

**I/1: Standardization of Airborne Platform Interface**

Chairs: Andrew C Roberts, Northrop Grumman, United States and Guo Huadong, CEODE, China

11:00 **The Results from the International Forum which Promotes Airborne Science Platform Capabilities**

**Sponsored by the ISPRS** 1009

Andrew C Roberts, Northrop Grumman Information Systems, United States

11:22 **Request Analysis of DGPS/IMU on the Air-borne InSAR System** 1010

Sheng Liang Lou, Xi'an Research Institute of Surveying and Mapping, China

11:44 **Direct Georeferencing: A New Standard in Photogrammetry for High Accuracy Mapping** 1011

Aldino Rizaldy, Bakosurtanal, Indonesia

12:06 **Accuracy Verification of Gps-Ins Method in Indonesia** 1012

Kohei Uesugi, PASCO Corporation, Indonesia

11:00-12:30 MCEC220

**II/1: Cognition and Modeling of Space and Time-1**

Chair: Xinming Tang, State Bureau of Surveying and Mapping, China

11:00 **Mapping Coral and Algal Patches at Heron Reef, Australia using Object-based Analysis and Pan-sharpened WordView-2 Images** 1013

Chris M Roelfsema, The University of Queensland, Australia

11:22 **Refined Topological Relations Computation Model between Spatial Objects with 'Euler-number' and 'Degree of Point'** 1014

Xiaoguang Zhou, Central South University, China

11:44 **A Qualitative Representation of Spatio-temporal Change** 1015

Xinming Tang, Satellite Surveying and Mapping Application Center, China

## Sunday, 26 August 2012

11:00-12:30 MCEC219

### III/4: Building Reconstruction

Chair: Franz Rottensteiner, Leibniz University Hannover, Germany

11:00 **The ISPRS Benchmark on Urban Object**

**Classification and 3D Building Reconstruction** 1016

Franz Rottensteiner, Leibniz University Hannover, Germany

11:30 **Sub-Surface Growing and Boundary**

**Generalization for 3D Building Reconstruction** 1017

Martin Kada, University of Osnabrück, Germany

12:00 **Automatic Reconstruction of Building Roofs through Effective Integration of LIDAR and Multispectral Imagery** 1018

Mohammad Awrangjeb, The University of Melbourne, Australia

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11:00-12:30 MCEC213

### IV/1: Geospatial Data Infrastructure-1

Chair: Jie Jiang, National Geomatics Center of China, China

11:00 **A New Multi-resolution Algorithm to Store and Transmit Compressed DTM** 1019

Ludovico Biagi, Politecnico di Milano, Italy

11:22 **Concepts, Models and Implementation of the Marine Spatial Data Infrastructure in Germany (MDI-DE)** 1020

Ralf Bill, University Rostock, Germany

11:44 **Geometrical Adjustment toward the Alignment of Vector Databases** 1021

Sagi Dalyot, Institut für Kartographie und Geoinformatik (IKG), Germany

12:06 **Interpolating Terrain Points for TIN based on Local Relief** 1022

Lin Li, Wuhan University, China

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11:00-12:30 MCEC212

### V/1: Vision Metrology - Best Practice, Systems and Applications-1

Chair: Stuart Robson, University College London, United Kingdom

11:00 **Implementation of Zoom-Dependent Camera Calibration in Close-Range Photogrammetry** 1023

Clive S Fraser, CRC for Spatial Information, Australia

11:37 **Monte-Carlo-Simulation for Accuracy Assessment of a Single Camera Navigation System** 1024

Thomas Luhmann, Jade University of Applied Sciences, Germany

11:54 **Automatic Calibration of Stereo-cameras using Ordinary Chess-board Patterns** 1025

Anthony Prokos, National Technical University of Athens, Greece

12:11 **Development of a Wind Observation System using Photogrammetry** 1026

Hideaki Kawasaki, Tokyo Metropolitan Government, Japan

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11:00-12:30 MCEC217

### VI/1: Web Based Education and VI/2: E-Delivery of Education Services-1

Chair: Martien Molenaar, ITC, The Netherlands

11:00 **E-Learning - Best Practice in Photogrammetry, Remote Sensing and GIS: Status and Challenges** 1027

Gerhard König, Technische Universität Berlin, Germany

11:22 **Web-based Education- Issues and Challenges** 1028

Anjana Narendra Vyas, CEPT University, India

11:44 **Evaluation and Development of e-Learning Tools and Methods in Digital Photogrammetry and Remote Sensing for Non Experts from Academia and Industry** 1029

Eberhard Gülch, Stuttgart University of Applied Sciences, Germany

12:06 **Development and Evaluation of Technology Education using Earth Observation Technique** 1030

Yosuke Ito, Naruto University of Education, Japan

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11:00-12:30 MCEC211

**VII/1: Physical Modelling and Signatures in Remote Sensing-1**

Chair: Shunlin Liang, University of Maryland, United States

**11:00 Reflectance Calibration Scheme for Airborne Frame Camera Images 1031**

Ulrich Beisl, Leica Geosystems, Switzerland

**11:37 Quantitative Benthos and Bathymetry Assessment: In Situ, Airborne and Spaceborne Requirements 1032**

Arnold G Dekker, CSIRO Land and Water, Australia

**11:54 Measuring the Particulate Backscattering in Inland Waters: A Comparison of Techniques 1033**

Glenn Campbell, University of Southern Queensland, Australia

**12:11 Retrieving Forest Structure Variables from Very High Resolution Satellite Images using an Automatic Method 1034**

Benoît Beguet, University of Bordeaux, France

11:00-12:30 MCEC Plenary 2

**VII/4: Methods for Land Cover Classification-1**

Chair: Peijun Li, Peking University, China

**11:00 Analysis of Multitemporal and Multisensor Remote Sensing Data for Crop Rotation Mapping 1035**

Guido Waldhoff, University of Cologne, Germany

**11:37 Automatic Refinement of Training Data for Classification of Satellite Imagery 1036**

Torsten Büschenfeld, Institut für Informationsverarbeitung, Germany

**11:54 Modeling Spatial Distribution of a Rare and Endangered Plant Species - *Brainea insignis* 1037**

Wen Chiao Wang, Chung-Hsing University, Taiwan

**12:11 Optimization of Decision-Making for Spatial Sampling in the North China Plain, Based on Remote-Sensing a Prior Knowledge 1038**

Jianzhong Feng, Institute of Agriculture Information of Chinese Academy of Agricultural Sciences, China

11:00-12:30 MCEC210

**VIII/1: Earthquakes and Damage Assessment**

Chair: Piero Boccardo, Politecnico di Torino, Italy

**11:00 Rapid Disaster Damage Estimation 1039**

Tuong Thuy Vu, University of Nottingham, Malaysia

**11:22 Fusion of Multi Precursors Earthquake Parameters to Estimate the Date, Magnitude and Affected Area of the Forthcoming Powerful Earthquakes 1040**

Mehdi Akhoondzadeh, University of Tehran, Iran

**11:44 KAL-Haïti: A Research Database for Risks Management and Sustainable Reconstruction in Haïti 1041**

Alain Giros, CNES, France

**12:06 Hydrologic Modelling of Katsina-Ala River Basin: An Emerging Scenario from Lake Nyo Threat 1042**

Joseph O Akinyede, African Regional Centre for Space Science and Technology Education in English (ARCSSTE-E), Nigeria

14:00-15:30 MCEC208

**CIPA, ICOMOS and WG V/2: Advances in Digital Documentation-2**

Chair: Bharat Lohani, IIT Kanpur, India

**14:00 Recording Approach of Heritage Sites based on Merging Point Clouds from High Resolution Photogrammetry and Terrestrial Laser Scanning 1043**

Pierre Grussenmeyer, INSA, LSIT-TRIO Strasbourg, France

**14:22 Hydrologic and Feature-based Surface Analysis for Tool Mark Investigation on Archaeological Finds 1044**

Kristof Kovacs, University of Innsbruck, Austria

**14:44 Costless Platform for High Resolution Stereoscopic Images of a High Gothic Façade 1045**

Sébastien Giordano, IGN, France

**15:06 3D Imaging for Museum Artefacts: A Portable Test Object for Heritage and Museum Documentation of Small Objects 1046**

Mona Hess, University College London, United Kingdom

## Sunday, 26 August 2012

14:00-15:30 MCEC216

### **URSI and ISPRS: Disaster Management**

Chair: Tullio Tanzi, Telecom-Paris Tech, France

14:00 **Haiti Earthquake Damage Assessment: Review of the Remote Sensing Role** 1047

Piero Boccoardo, Politecnico di Torino, Italy

14:22 **Event-Driven Observations and Comprehensive Evaluation for Natural Disaster Assessment in China** 1048

Zhi Wang, Northeastern University, China

14:44 **Flash Flood Forecasting and Early Warning in Small Catchments with a Quasi-Distributed Hydrological Model using WRF Precipitation Dataset** 1049

Romeji Singh Ngangbam, India

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14:00-15:30 MCEC218

### **I/2: LIDAR, SAR and Optical Sensors for Airborne and Spaceborne Platforms-1**

Chairs: Boris Jutzi, Karlsruhe Institute of Technology, Germany and Huadong Guo, Center for Earth Observation and Digital Earth, China

14:00 **An Airborne InSAR Mapping System** 1050

Huadong Guo, Center for Earth Observation and Digital Earth, China

14:37 **Surface Complexity Component of LiDAR Point Cloud Error Characterization** 1051

Charles Toth, The Ohio State University, United States

14:54 **High Resolution Airborne Shallow Water Mapping** 1052

Frank Steinbacher, University of Innsbruck, Austria

15:11 **A New Effective Way for Vegetation Monitoring: Using Multi-wavelength Canopy Lidar** 1053

Bo Zhu, Wuhan University, China

Wei Gong, Wuhan University, China

Shuo Shi, Wuhan University, China

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14:00-15:30 MCEC220

### **II/1: Cognition and Modeling of Space and Time-2**

Chair: Stephan Winter, The University of Melbourne, Australia

14:00 **Accuracy Analysis of a Low-Cost Platform for Positioning and Navigation** 1054

Sabine Hofmann, Leibniz Universitaet Hannover, Germany

14:22 **Wavelet-based Identification of Topographic Descriptors for the Registration of Digital Terrain Models** 1055

Ophir Almog, Technion - Israel Institute of Technology, Israel

14:44 **Working with the Spatiotemporal Data Type** 1056

Ale Raza, Esri, United States

15:06 **A Maximum Entropy Model of the Bearded Capuchin Monkey Habitat Incorporating Topography and Spectral Unmixing Analysis** 1057

Allison Howard, University of Georgia, United States

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14:00-15:30 MCEC219

### **III/4: ISPRS Benchmark-1**

Chair: Gunho Sohn, York University, Canada

14:00 **Conditional Random Fields for LiDAR Point Cloud Classification in Complex Urban Areas** 1058

Joachim Niemeyer, Leibniz University Hannover, Germany

14:30 **Urban Object Extraction from Digital Surface Model and Digital Aerial Images** 1059

Dejan Grigillo, University of Ljubljana, Slovenia

Ursa Kanjir, Institute of Anthropological and Spatial Studies, ZRC SAZU, Slovenia

15:00 **Context-based Urban Terrain Reconstruction from Images and Videos** 1060

Dimitri Bulatov, Fraunhofer Institute of Optronics, Germany

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14:00-15:30 MCEC213

**IV/1: Geospatial Data Infrastructure-2**

Chair: Pattabhi Rama Rao, Indian National Centre for Ocean Information Services, India

**14:00 Coastal Ocean Observing Network – Open Source Architecture for Data Management and Web-based Data Services 1061**

Pattabhi Rama Rao, Indian National Centre for Ocean Information Services, India

**14:22 Understanding Irrigated Agricultural Land use Change through the Integration of Satellite-based Land Cover Measurements, Spatial Information Systems and Market Segmentation Models 1062**

Andrew McAllister, Department of Primary Industries, Victoria, Australia

**14:44 Collaborative Web GIS Platform for Systematic Exploration of Lake Geneva 1063**

Yosef Akhtman, École Polytechnique Fédérale de Lausanne, Switzerland

**15:06 Representation of Physical Building Model in 3D Cadastre 1064**

Minghui Hao, Chinese Academy Surveying and Mapping, China

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14:00-15:30 MCEC212

**V/1: Vision Metrology - Best Practice, Systems and Applications-2**

Chair: Thomas Luhmann, Jade University of Applied Sciences, Germany

**14:00 Real Time Data Processing for Optical Remote Sensing Payloads 1065**

Jürgen Wohlfel, German Aerospace Center (DLR), Germany

**14:22 Determination of the Degree of Gravel Aggregate-Bitumen-Coverage by Multi-Directional Reflectance Measurements 1066**

Christian Mulsow, Technical University of Dresden, Germany

**14:44 Construction of a System for Defining Areas which are not Obtained Data from Stereo Images 1067**

Hideharu Yanagi, Japan Association of Surveyors, Japan  
Hirofumi Chikatsu, Tokyo Denki University, Japan

**15:06 IPS - A System for Real-time Navigation and 3D Modelling 1068**

Jürgen Wohlfel, German Aerospace Center (DLR), Germany

14:00-15:30 MCEC217

**VII/1: Web Based Education and VI/2: E-Delivery of Education Services-2**

Chair: Gerhard König, Technische Universität Berlin, Germany

**14:00 Building Interactivity in Higher Education to Support Student Engagement in Spatial Problem Solving and Programming 1069**

Elizabeth-Kate S Gulland, Curtin University, Australia

**14:22 E-Learning Applications for Urban Modelling and OGC Standards Using HTML5 Capabilities 1070**

Robert Kaden, Technische Universität Berlin, Germany

**14:44 The Earth Observation Technology Cluster 1071**

Paul Aplin, University of Nottingham, United Kingdom

**15:06 Issues and Challenges in Geomatics Education in Haryana State, India 1072**

Bhagwan Singh Chaudhary, Kurukshetra University, India

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14:00-15:30 MCEC Plenary 2

**VII/4: Methods for Land Cover Classification-2**

Chair: Peijun Li, Peking University, China

**14:00 Classification of Polarimetric SAR Images using Joint Hierarchical Classification and Parametric Multidimensional Analysis 1073**

Ying Bao Yang, Hohai University, China

Yan Wen Li, Hohai University, China

**14:22 Orientation Based Building Outline Extraction in Aerial Images 1074**

Andrea Kovacs, Hungarian Academy of Sciences, Hungary

**14:44 The Low Backscattering Targets Classification in Urban Areas 1075**

Lei Shi, China

PingXiang Li, Wuhan University, China

**15:06 Assessing the Feature Sensitivity to Segmentation Errors in Object-oriented Classification using High Resolution Imagery 1076**

Tiantian Feng, Tongji University, China

## Sunday, 26 August 2012

14:00-15:30 MCEC210

### VIII/1: Mass Movements

Chair: T Srinivasa Kumar, National Centre for Ocean Information Services, India

#### 14:00 LiDAR and SAR Data Application for Landslide Study in Carpathians Region (Southern Poland) 1077

Andrzej Borkowski, Wroclaw University of Environmental and Life Sciences, Poland

#### 14:22 MUNOLD: A Spatial Sensor Network for Landslide Monitoring 1078

Ping Lu, Tongji University, China

#### 14:44 Capability of ASCAT and ASAR, C-band Active Microwave Sensors, for Monitoring of Extreme Flood and Drought Events in Lower Mekong Countries 1079

Vahid Naeimi, German Aerospace Center (DLR), Germany

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14:00-15:30 MCEC209

### VIII/2: Environment and Health-1

Chairs: Amelia Budge, Earth Data Analysis Center, USA and Stanley Morain, University of New Mexico, USA

#### 14:00 Remote Sensing in a Changing Climate and Environment: The Rift Valley Fever Case 1080

Yves M Tourre, Columbia University, United States

#### 14:22 Mapping the Risks of Malaria, Dengue and Influenza using Satellite Data 1081

Stanley Morain, University of New Mexico, United States

#### 14:44 Risk Zone Modelling and Early Warning System for Visceral Leishmaniasis (Kala-azar) Disease in Bihar, India using Remote Sensing and GIS 1082

Jeyaram Alagarsamy, Indian Space Research Organisation, India

#### 15:06 Night-time Lights and Levels of Development: A Study using DMSP-OLS Night Time Images at the Sub-national Level 1083

Koel Roychowdhury, RMIT University, Australia

16:00-17:30 MCEC208

### EuroSDR and WG IV/2: Automatic Updates of National Core Geospatial Databases

Chair: Dieter Fritsch, University of Stuttgart, Germany

#### 16:00 Mono-temporal GIS Update Assistance System based on Unsupervised Coherence Analysis and Evolutionary Optimization 1084

Christian Becker, Leibniz Universität Hannover, Germany

#### 16:22 Service Oriented Architecture for Wireless Sensor Networks in Agriculture 1085

S A Sawant, Indian Institute of Technology Bombay, India

#### 16:44 The Challenge of Automated Change Detection: Developing a Method for the Updating of Land Parcels 1086

Leena Matikainen, Finnish Geodetic Institute, Finland

#### 17:06 Sensor Web Services for Early Flood Warnings Based on Soil Moisture Profiles 1087

Thomas Brinkhoff, Jade University Oldenburg, Germany

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16:00-17:30 MCEC209

### ICA and WG IV/7: Exploring the Moon!

Chair: Jürgen Oberst, German Aerospace Center (DLR), Germany

#### 16:00 Exploring the Moon with the Lunar Reconnaissance Orbiter Camera 1088

Emerson J Speyerer, Arizona State University, United States

#### 16:17 LandSAfe: Landing Site Risk Analysis Software Framework 1089

Ralph Schmidt, Leibniz Universität Hannover, Germany

#### 16:34 Lunar Cartography: Progress in the 2000's and Prospects for the 2010's 1090

Randolph L Kirk, U.S. Geological Survey, United States

#### 16:51 Digital Elevation Models and Derived Products from LROC NAC Stereo Observations 1091

Kyle N Burns, Arizona State University, United States

#### 17:08 In-Flight Geometric Calibration of the Lunar Reconnaissance Orbiter Camera 1092

Emerson J Speyerer, Arizona State University, United States

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16:00-17:30 MCEC218

**I/2: LIDAR, SAR and Optical Sensors for Airborne and Spaceborne Platforms-2**

Chair: Franz Meyer, University of Alaska Fairbanks, USA

16:00 **Fusing Passive and Active Sensed Images to Gain Infrared-textured 3D Models** 1093

Stefan Hinz, Karlsruhe Institute of Technology, Germany

16:22 **EnMAP Detector Calibration and Verification** 1094

Ralf Reulke, Humboldt-Universität zu Berlin, Germany

16:44 **Automated Data Production for a Novel Airborne Multiangle SpectroPolarimetric Imager (AirMSPI)** 1095

Veljko M Jovanovic, NASA, United States

17:06 **Using Relative Orientation Constraints to Produce Virtual Images from Oblique Frames** 1096

Antonio MG Tommaselli, UNESP, Brazil

16:00-17:30 MCEC220

**II/2: Urban / City Generalization**

Chair: Monika Sester, Leibniz University of Hannover, Germany

16:00 **Pattern Classification Approaches to Matching Building Polygons at Multiple Scales** 1097

Martien Molenaar, ITC, The Netherlands

16:29 **Multi-Level Building Reconstruction for Automatic Enhancement of High Resolution DSM** 1098

Hossein Arefi, German Aerospace Center (DLR), Germany

16:49 **Multiscale and Multitemporal Urban Remote Sensing** 1099

Victor Mesev, Florida State University, United States

16:00-17:30 MCEC219

**III/4: ISPRS Benchmark-2**

Chair: Markus Gerke, ITC, The Netherlands

16:00 **An Implicit Regularization for 3D Building Rooftop Modeling using Airborne LIDAR Data** 1100

Gunho Sohn, York University, Canada

16:30 **A Line-based 3D Roof Model Reconstruction Algorithm: TIN-Merging and Reshaping (TMR)** 1101

Giann-Yeou Rau, National Cheng Kung University, Taiwan

17:00 **Automatic Roof Outlines Reconstruction from Photogrammetric DSM** 1102

Francesco Nex, FBK - Bruno Kessler Foundation, Italy

16:00-17:30 MCEC216

**ICWG III/VII: Feature Analysis for Image Classification**

Chair: Wolfgang Förstner, Bonn University, Germany

16:00 **Semi-supervised Marginal Fisher Analysis for Hyperspectral Image Classification** 1103

Hong Huang, Chongqing University, China

Yinsong Pan, Chongqing University, China

16:30 **A Modified Stochastic Neighbor Embedding for Combining Multiple Features for Remote Sensing Image Classification** 1104

Lefei Zhang, Wuhan University, China

17:00 **An Evaluation of Feature Learning Methods for High Resolution Image Classification** 1105

Piotr Tokarczyk, ETH Zurich, Switzerland

16:00-17:30 MCEC213

**IV/1: Geospatial Data Infrastructure-3**

Chair: Michael P Finn, U.S. Geological Survey, United States

16:00 **Developing and Testing a 3D Cadastral Data Model- A Case Study in Australia** 1106

Ali Aien, The University of Melbourne, Australia

16:17 **Data Updating Methods for Spatial Data Infrastructure that Maintain Infrastructure Quality and Enable its Sustainable Operation** 1107

Saya Murakami, Kokusai Kogyo Co., Ltd., Japan

## Sunday, 26 August 2012

16:34 **Development of a Metadata Management System for an Interdisciplinary Research Project** 1108  
Constanze Curdt, University of Cologne, Germany

16:51 **A Study of Urban Land Intensity Evaluating System** 1109  
Jirong Gu, Sichuan Normal University, China

17:08 **Seamless Navigation Using Various Sensors: An Overview of the Seamless Navigation Campaign** 1110  
Masafumi Nakagawa, Shibaura Institute of Technology, Japan

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16:00-17:30 MCEC212  
**V/2: Cultural Heritage Data Acquisition and Processing-1**  
Chair: Paul Bryan, English Heritage, United Kingdom

16:00 **High Resolution Surface Reconstruction from Imagery for Close Range Cultural Heritage Applications** 1111  
Konrad Wenzel, University of Stuttgart, Germany

16:22 **Conservation Monitoring of a Heritage Ceiling by Photometric Stereo** 1112  
Stuart Robson, University College London, United Kingdom

16:44 **High Precision Texture Reconstruction for 3D Sculpture Model** 1113  
Fan Zhang, Wuhan University, China

17:06 **Increase of Readability and Accuracy of 3D Models using Fusion of Close Range Photogrammetry and Laser Scanning** 1114  
Mateo Gasparovic, University of Zagreb, Croatia  
Iva Malaric, Geofoto d.o.o., Croatia

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16:00-17:30 MCEC217  
**V/5: Promotion of the Profession to Young People**  
Chair: Manos Baltasvias, ETH Zurich, Switzerland

16:00 **ISPRS Student Consortium: The Network of Youth in Geoinformation Society** 1115  
Cemal Özgür Kivilcim, Istanbul Technical University, Turkey  
Krzysztof Sterenczak, Warsaw University of Life Sciences, Poland  
Ursa Kanjir, University of Ljubljana, Slovenia  
Ahmet Sengül, Istanbul Technical University, Turkey  
Elena Lobo, Smithsonian Tropical Research Institute, Panama

16:30 **Activities of Asian Students and Young Scientists on Photogrammetry and Remote Sensing** 1116  
Hiroyuki Miyazaki, The University of Tokyo, Japan

16:50 **Higher Education in Balkan Region and its Contribution to the Earth Observation** 1117  
Anka Lisec, University of Ljubljana, Slovenia

17:10 **Applied Geospatial Education: Acquisition and Processing of High Resolution Airborne Lidar and Orthoimages for the Great Smoky Mountains National Park, Southeastern United States** 1118  
Thomas R Jordan, University of Georgia, United States

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16:00-17:30 MCEC211  
**VII/1: Physical Modelling and Signatures in Remote Sensing-2**  
Chair: Mitsunori Yoshimura, Remote Sensing Technology Center of Japan

16:00 **Characterising Vegetated Surfaces Using MODIS Multi-angular Satellite Data** 1119  
Geoffrey W McCamley, RMIT University, Australia

16:17 **The Model of Wheat Yield Forecast Based on MODIS NDVI - A Case Study in Xinxiang** 1120  
Hong-wei Zhang, Xinxiang Meteorological Service, China

16:34 **Geostatistical Analysis of Surface Temperature and Soil Moisture for Improved LST Time Series from MODIS** 1121  
Mammatt Sohrabinia, University of Canterbury, New Zealand

16:51 **Development of a Model to Correct Multi-view Angle Above Water Measurements for the Analysis of the Bidirectional Reflectance of Coral and Other Reef Substrates** 1122  
Bruce C Forster, The University of New South Wales, Australia

17:08 **Sensitivity Analysis in the Retrieval of Turbid Coastal Water Bathymetry Using WorldView-2 Satellite Data** 1123  
Chew Wai Chang, National University of Singapore, Singapore

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16:00-17:30 MCEC Plenary 2

**VII/4: Methods for Land Cover Classification-3**

Chair: Julian Smit, University of Cape Town, South Africa

16:00 **Context Models for CRF-Based Classification of Multitemporal Remote Sensing Data** 1124

Christian Heipke, Leibniz Universitaet Hannover, Germany

16:22 **Fast Mean-Shift Based Classification of Very High Resolution Images: Application to Forest Cover Mapping** 1125

Samia Boukir, University of Bordeaux, France

16:44 **Support Vector Machine Classification of Object-based Data for Crop Mapping, using Multi-temporal Landsat Imagery** 1126

Rakhesh Devadas, Department of Environment and Resource Management, Queensland, Australia

17:06 **Land Cover Classification of Multi-sensor Images by Decision Fusion using Weights of Evidence Model** 1127

Peijun Li, Peking University, China

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16:00-17:30 MCEC210

**VIII/2: Environment and Health-2**

Chair: Stanley Morain, University of New Mexico, United States

16:00 **Modernized Method for Estimating Time-Weighted Urban Population Distributions** 1128

Jeffrey M Young, LizardTech, United States

16:22 **Spatial Analysis Based Health And Safety Risk Assessment For Linear Construction Projects** 1129

Gonul Toz, Istanbul Technical University, Turkey

16:44 **A New Approach to Estimate Ground-Level Fine Particles for Health Impact Analysis** 1130

Fazlay S Faruque, The University of Mississippi Medical Center, United States

David J Lary, University of Texas, United States

17:06 **Monitoring Environment with GIS for Part of Thiruvallur Town using Cartosat 1 Stereo, PAN & Resourcesat Liss 4 MSS Merged Data** 1131

Ghouse Shaik Mohamed, Anna University, India

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## Monday, 27 August 2012

Time	Location	Session Code	Monday August 27
9:00-10:30	Plenary 2		GA II
	208	TS728	VII/6: Remote Sensing Data Fusion-1
	209	TS807	VIII/3: Cloud and Atmospheric Data Analyses
	210	TS804	VIII/1: Projects and Systems
	211	TS704	VII/2: Deformation Monitoring
	212	TS504	V/2: Cultural Heritage Data Acquisition and Processing-2
	213	TS404	IV/2: Automatic Geospatial Data Acquisition and Image-Based Databases-1
	216	1001	16ARSPC/1: Plenary Session - Sustaining Earth Observation for Australia
	217	TS605	Youth Forum-1
	218	TS104	I/2: LIDAR, SAR and Optical Sensors for Airborne and Spaceborne Platforms-3
	219	TS304	III/4: Database Updating and Diagnostic
	220	TS204	II/2: Terrain Generalization
	5.2.01-2	SS907	ICA and WG IV/5: Crowdsourcing and Volunteered Geographic Information
	5.2.03-4	TS606	Youth Forum-2
11:00-12:30	Plenary 2		GA II
	208	TS729	VII/6: Remote Sensing Data Fusion-2
	209	TS808	VIII/3: Climate Change and Temperature Estimation
	210	TS813	VIII/6: Crop Assessment
	211	TS705	VII/2: Interferometric Image Analysis and Object Extraction
	212	TS505	V/3: Laser Scanning I: Point Cloud Registration
	213	TS405	IV/2: Automatic Geospatial Data Acquisition and Image-Based Databases-2
	216	1002	16ARSPC/2: Land Cover Mapping 1
	217	TS607	Youth Forum-3
	218	TS105	I/3: Multi-Platform Multi-Sensor Inter-Calibration-1
	219	TS320	III/4: Dense Matching for Surface Reconstruction
	220	TS205	II/3: Spatio-Temporal Pattern Analysis
	5.2.01-2	TS608	Youth Forum-4
	5.2.03-4	TS409	IV/4: Virtual Globes and Context-Aware Visualisation-1



Time	Location	Session Code	Monday August 27
2:00-3:30	210	PS801	VIII/1: Disaster Management; VIII/3: Atmosphere, Climate and Weather
	211	PS701	VII/1: Physical Modelling and Signatures in Remote Sensing; VII/2: SAR Interferometry; VII/3, VII/6, III/2, V/3: Integration of hyperspectral and lidar data
	213	PS401	ICWG IV/VIII: Updating and Maintenance of Core Spatial Databases; IV/2, IV/4: Point Cloud Processing, Management and Visualization; IV/2, IV/II: GeoSensor Networks and Sensor Web; IV/2: Automatic Geospatial Data Acquisition and Image-Based Databases
	216	1003	16ARSPC
	217	TS610	Youth Forum - Panel of Invited Speakers
	218	PS406	IV/8: 3D Spatial Data Integration for Disaster Management & Env. Monitoring; IV/II, IV/8, IV/1: Volunteered Geospatial Information; IV/7: Planetary Mapping and Databases
	219	PS301	ICWG III/VII: Pattern Recognition in Remote Sensing
	220	PS201	ICWG II/IV: Semantic Interoperability and Ontology for Geospatial Information; II/1: Cognition and Modeling of Space and Time; II/5: Multidimensional and Mobile Data Models
	5.2.01-2	VS101	Hexagon Vendor Session 1
	5.2.03-4	VS101	Hexagon Photogrammetry and Geospatial Solutions
4:00-5:30	Plenary 2	TS717	VII/4: Methods for Land Cover Classification-4
	209	TS410	IV/4: Virtual Globes and Context-Aware Visualisation-2
	210	TS809	VIII/4: Coastal Regions and Wetlands
	211	TS706	VII/2: Monitoring of Deformation and Motion
	212	SS903	CIPA, TC IV: 3D Dynamic Landscape Visions for Cultural Heritage/Archaeology
	213	TS406	IV/3: Mapping from High Resolution Data-1
	216	1004	16ARSPC/4: Applications of Earth Observation Data and Terminology
	217	TS611	Youth Forum - General Assembly
	218	TS106	I/3:Multi-Platform Multi-Sensor Inter-Calibration-2
	219	TS321	III/4: Surface Reconstruction
	220	ThS324	TCs III and V: Medical Imaging and Human Motion

## Monday, 27 August 2012

09:00-10:30 MCEC216

### **16ARSPC/1: Plenary Session 1 - Remote Sensing Policy**

Chair: Peter Woodgate, CRC for Spatial Information, Australia

### **09:00 Australia's Remote Sensing Science Capabilities - Building and Sustaining a Critical Resource**

Stuart R Phinn, University of Queensland, Australia

### **09:30 Linking Science to Management: State Agencies Perspectives**

Richard Hicks, NSW Department of Premier and Cabinet, Australia

### **10:00 Trust Me, I'm a Doctor: The Critical Need for Transparency, Provenance and Auditability in the Environmental Sciences 2003**

Stuart Minchin, Geoscience Australia, Australia

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09:00-10:30 MEC5.2.01-02

### **ICA and WG IV/5: Crowdsourcing and Volunteered Geographic Information**

Chair: Bert G Veenendaal, Curtin University, Australia

### **09:00 openemotionmap.org - Emotional Response to Space as an Additional Concept in Cartography 2004**

Georg Gartner, Vienna University of Technology, Austria

### **09:22 Google Maps for Crowdsourced Emergency Routing 2005**

Sisi Zlatanova, TU Delft, The Netherlands

### **09:44 The Development of an Online Social Network and Crowd-sourcing-based Geospatial Cyberinfrastructure Platform 2006**

Steve Liang, University of Calgary, Canada

### **10:06 Development of an Urban Management Platform based on SOA using Volunteered Geographic Information 2007**

Jian Li, Wuhan University, China

09:00-10:30 MCEC218

### **I/2: LIDAR, SAR and Optical Sensors for Airborne and Spaceborne Platforms-3**

Chair: Charles Toth, The Ohio State University, United States

### **09:00 Image Quality and Image Resolution 2008**

Ralf Reulke, Humboldt-Universität zu Berlin, Germany

### **09:22 Property of the Large Format Digital Aerial Camera DMC II 2009**

Karsten Jacobsen, Leibniz University Hannover, Germany

### **09:44 UltraCam Eagle, Details and Insight 2010**

Michael Gruber, Microsoft, Austria

### **10:06 The UltraCam Story 2011**

Franz Leberl, Technical University Graz, Austria

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09:00-10:30 MCEC220

### **II/2: Terrain Generalization**

Chair: Lars Harrie, Lund University, Sweden

### **09:00 Generalisation of Terrain Features on a Contour Map 2012**

Eric Guilbert, Hong Kong Polytechnic University, Hong Kong

### **09:29 A Study of Variables Characterizing Drainage Patterns in River Networks 2013**

Ling Zhang, Hong Kong Polytechnic University, Hong Kong

### **09:49 Study on Evaluation Index System of Contour Simplification Algorithms 2014**

Jingsong Ma, Nanjing University, China

### **10:09 Delaunay Triangulation Parallel Construction Method and its Application in Map Generalization 2015**

Jie Shen, Nanjing Normal University, China

09:00-10:30 MCEC219

**III/4: Database Updating and Diagnostic**

Chair: Franz Rottensteiner, Leibniz University Hannover, Germany

09:00 **Verification of 3D Building Models using Mutual Information in Airborne Oblique Images** 2016

Adam P Nyaruhuma, University of Twente, The Netherlands

09:30 **Multiple Model Based Verification of Road Data** 2017

Uwe Breitkopf, Leibniz University Hannover, Germany

10:00 **Network Snakes for Adapting GIS Roads to Height Data of Different Data Sources – Performance Analysis using ALS Data and Stereo Images** 2018

Jens Göpfert, Leibniz University of Hanover, Germany, Germany

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09:00-10:30 MCEC213

**IV/2: Automatic Geospatial Data Acquisition and Image-Based Databases-1**

Chair: Petra Helmholz, Leibniz University of Hannover, Germany

09:00 **A Structure-Based Approach for Matching Road Junctions with Different Coordinate Systems** 2019

Xuechen Luan, Wuhan University, China

09:17 **Automated 3D Road Sign Mapping with Stereovision-based Mobile Mapping Exploiting Disparity Information from Dense Stereo Matching** 2020

Stefan Cavegn, University of Applied Sciences Northwestern Switzerland, Switzerland

09:34 **HouseDiff: A Map-Based Building Change Detection from High Resolution Satellite Imagery Using Geometric Optimization Method**2021

Nobuhiro Ishimaru, Hitachi, Ltd., Japan

09:51 **Automated Modeling of 3D Building Roofs using Image and LIDAR Data** 2022

Emmanuel Baltsavias, ETH Zurich, Switzerland

10:08 **The Digital Camera as GPS Compass: Location Matching using Point Clouds**2023

Masafumi Nakagawa, Shibaura Institute of Technology, Japan

09:00-10:30 MCEC212

**V/2: Cultural Heritage Data Acquisition and Processing-2**

Chair: Fulvio Rinaudo, Politecnico di Torino, Italy

09:00 **A Method of 3D Measurement and Reconstruction for Cultural Relics in Museums** 2024

Shunyi Zheng, Wuhan University, China

09:22 **High Resolution 3D Modeling of the Behaim Globe** 2025

Fabio Menna, Foundation Bruno Kessler, Italy

09:44 **From Point Cloud to 3D Model, Modelling Methods based on Architectural Knowledge Applied to Fortress of Chatel-sur-moselle (France)** 2026

Emmanuel Alby, INSA Strasbourg, France

10:06 **Protecting UNESCO World Heritage Properties's Integrity: The Role of Recording and Documentation in Risk Management** 2027

Mario e Santana Quintero, Carleton University, Canada

Ona Vileikis, University of Leuven, Belgium

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09:00-10:30 MCEC217

**Youth Forum-1**

Chair: Cemal Ozgur Kivilcim, Istanbul Metropolitan Municipality, Turkey

09:00 **Determination of the UAV Position by Automatic Processing of Thermal Images** 2028

Wilfried Hartmann, ETH Zurich, Switzerland

09:22 **A Study on Automatic UAV Image Mosaic Method for Paroxysmal Disaster** 2029

Ming Li, Wuhan University, China

09:44 **Activities of the Student Forum of the Geoinformation Forum Japan** 2030

Akihiro Oba, Keio University, Japan

10:06 **An Assessment of Shadow Enhanced Urban Remote Sensing Imagery of a Complex City - Hong Kong** 2031

Cheuk-Yan Wan, Hong Kong Polytechnic University, Hong Kong

## Monday, 27 August 2012

09:00-10:30 MEC5.2.03-04

### Youth Forum-2

Chair: Ursa Kanjir, Institute of Anthropological and Spatial Studies, ZRC SAZU, Slovenia

09:00 **Hierarchical Matching of Uncertain Building Models with Oblique View Airborne IR Image Sequences** 2032

Dorota Iwaszczuk, Technische Universitaet Muenchen, Germany

09:22 **Feature Analysis for Multi-window Matching** 2033

Wen-Chi Chang, Department of Civil Engineering, National Central University, Taiwan

09:44 **Automated Multi-Source Remote Sensing Image Registration Based on Phase Congruency** 2034

Jie Shan, Wuhan University, United States

10:06 **A New Approach for the Semi-automatic Texture Generation of the Buildings Facades, from Terrestrial Laser Scanner Data** 2035

Ersilia V Oniga, Romanian Society of Photogrammetry and Remote Sensing, Romania

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09:00-10:30 MCEC211

### VII/2: Deformation Monitoring

Chair: Uwe Soergel, Leibniz Universität Hannover, Germany

09:00 **High Resolution Deformation Time Series Estimation for Distributed Scatterers using TerraSAR-X Data** 2036

Kanika Goel, German Aerospace Center (DLR), Germany

09:22 **Detecting Land Subsidence Using RPC Model with High-resolution SAR Data** 2037

Hongbo Pan, Wuhan University, China

09:44 **Ultrashort-baseline Persistent Scatterer Radar Interferometry for Subsidence Detection** 2038

Guoxiang Liu, Southwest Jiaotong University, China

09:00-10:30 MCEC208

### VII/6: Remote Sensing Data Fusion-1

Chair: Jixian Zhang, Chinese Academy of Surveying and Mapping, China

09:00 **Fusion of Active and Passive Microwave Observations to Create an Essential Climate Variable Data Record on Soil Moisture** 2039

Wolfgang Wagner, Vienna University of Technology, Austria

09:37 **AdaBoost-based Feature Relevance Assessment in Fusing Airborne LiDAR and Image Data for Classification of Trees and Vehicles in Urban Scenes** 2040

Uwe Stilla, Technische Universitaet Muenchen, Germany

09:54 **Monitoring of Glacial Change in the Head of the Yangtze River from 1997 to 2007 Using InSAR Technique** 2041

Hong'an Wu, Chinese Academy of Surveying and Mapping, China

10:11 **Fast Occlusion and Shadow Detection for High Resolution Remote Sensing Image Combined with Lidar Point Cloud** 2042

XiangYun Hu, Wuhan University, China

Xiaokai Li, Wuhan University, China

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09:00-10:30 MCEC210

### VIII/1: Projects and Systems

Chair: Piero Boccardo, Politecnico di Torino, Italy

09:00 **Global Burned Area Mapping From European Satellites: The ESA Fire\_cci Project** 2043

Emilio Chuvieco, Universidad de Alcalá, Spain

09:22 **Multi-Modal, Multi-Touch Interaction with Maps in Disaster Management Applications** 2044

Volker Paelke, Institut de Geomatica, Spain

09:44 **Low-cost Optical Camera Systems for Disaster Monitoring** 2045

Franz Kurz, German Aerospace Center (DLR), Germany

10:06 **Burn Severity Mapping in Australia 2009** 2046

Randy A McKinley, U.S. Geological Survey, United States

09:00-10:30 MCEC209

**VIII/3: Cloud and Atmospheric Data Analyses**

Chair: Tatsuya Yokota, NIES, Japan

09:00 **Stereo Derived Cloud Top Height Climatology Over Greenland from 20 Years of the Along Track Scanning Radiometer (ATSR) Instruments** 2047  
Daniel N Fisher, University College London, United Kingdom

09:22 **Ground-Based Cloud Observation for Satellite-Based Cloud Discrimination and its Validation** 2048  
Megumi Yamashita, Survey College of Kinki, Japan

09:44 **Atmospheric LIDAR Noise Reduction Based on Ensemble Empirical Mode Decomposition** 2049  
Jun Li, Wuhan University, China

10:06 **Total Column Methane Retrievals Using the Tropospheric Infrared Mapping Spectrometer Over Sunlight Waters** 2050  
North F Larsen, Lockheed Martin, United States

11:00-12:30 MCEC216

**16ARSPC/2: Land Cover Mapping 1**

Chair: Simon Jones, RMIT University, Australia

11:00 **Integrating Landsat, IceSAT and ALOS PALSAR for Regional Scale Vegetation Structure Assessment** 2051  
Peter Scarth, The University of Queensland, Australia

11:18 **A National Framework for Calibration and Validation** 2052  
Simon Jones, RMIT University, Melbourne, Australia

11:36 **Unlocking the Landsat Archive** 2053  
Matthew Purss, Geoscience Australia, Australia

11:54 **The Effect of Observer Experience Levels on the Variability of Fractional Ground Cover Reference Data** 2054  
Rebecca Trevithick, Queensland Department of Environment and Resource Management, Australia

12:12 **Object-based Classification of Rehabilitated Vegetation in a Mine Closure Site**  
Nisha Bao, China University of Geosciences, China

11:00-12:30 MCEC218

**I/3: Multi-Platform Multi-Sensor Inter-Calibration-1**

Chair: Ayman F Habib, University of Calgary, Canada

11:00 **Rigorous Image Formation from Airborne and Spaceborne Digital Array Scanners** 2056  
Henry J Theiss, National Geospatial-Intelligence Agency, United States

11:22 **A Geometric Calibration Method Based On Finite Elements Model With Distortion Smooth Constraint** 2057  
Guo Zhang, Wuhan, China, China

11:44 **New Method for the Calibration of Multi-Camera Mobile Mapping Systems** 2058  
Ayman F Habib, University of Calgary, Canada

12:06 **A Rigorous and Flexible Calibration Method for Digital Airborne Camera Systems** 2059  
Rongfu Tang, University of Stuttgart, Germany

11:00-12:30 MCEC220

**II/3: Spatio-Temp Pattern Analysis**

Chairs: Yaolin Liu, Wuhan University, China and Tao Cheng, University College London, United Kingdom

11:00 **Space-Time Analysis of Crime Patterns in Central London** 2060  
Tao Cheng, University College London, United Kingdom

11:17 **Brazilian Amazonia Deforestation Detection using Spatio-temp Scan Statistics** 2061  
Carlos A O Vieira, Federal University of Santa Catarina, Brazil

11:34 **A Fast Matching Approach of Polygon Features** 2062  
Qingxiang Meng, Wuhan University, China  
Zhongliang Fu, Wuhan University, China

11:51 **A VoMR-tree Based Parallel Space-range Query Method of Distributed Spatial Database** 2063  
Siyuan Liu, Wuhan University, China

12:08 **Relationship Between Intra-Urban Vegetation Change and Social-Economic Data** 2064  
Leila MG Fonseca, National Institute for Space Research, Brazil

## Monday, 27 August 2012

11:00-12:30 MCEC219

### **III/4: Dense Matching for Surface Reconstruction**

Chair: Gunho Sohn, York University, Canada

#### **11:00 Globally Optimal Multi View Dense Matching for Aerial Images 2065**

Arnold Irschara, Graz University of Technology, Austria

#### **11:30 3D Modeling from Gnomonic Projections 2066**

Mattia Previtali, Politecnico di Milano, Italy

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11:00-12:30 MCEC213

### **IV/2: Automatic Geospatial Data Acquisition and Image-Based Databases-2**

Chair: Jens Göpfert, Leibniz University of Hanover, Germany, Germany

#### **11:00 In-Database Raster Analytics: Map Algebra and Parallel Processing in Oracle Spatial GeoRaster 2067**

Qingyun (Jeffrey) Xie, Oracle Corporation, United States

#### **11:17 ArcGIS Data Models for Managing and Using Imagery 2068**

Hong Xu, Esri, United States

#### **11:34 The Microsoft Global Ortho Program 2069**

Wolfgang Walcher, Microsoft, United States

#### **11:51 Fusion of Airborne and Terrestrial Image-based 3D Modelling for Road Infrastructure Management – Vision and First Experiments 2070**

Stephan Nebiker, University of Applied Sciences Northwestern Switzerland, Switzerland

#### **12:08 Entities and Features for Classification of Airborne Laser Scanning Data in Urban Area 2071**

George Vosselman, University of Twente, The Netherlands

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11:00-12:30 MEC5.2.03-04

### **IV/4: Virtual Globes and Context-Aware Visualisation-1**

Chair: Jianya Gong, Wuhan University, China

#### **11:00 Verification of Image Based Augmented Reality for Urban Visualization 2072**

Takashi Fuse, University of Tokyo, Japan

#### **11:17 OpenWebGlobe – An Open Source SDK for Creating Large-Scale Virtual Globes on a WebGL Basis 2073**

Benjamin Loesch, University of Applied Sciences Northwestern Switzerland, Switzerland

#### **11:34 GeoGlobe-based Application: User Case Analysis 2074**

Jing Geng, Wuhan University, China

#### **11:51 Information Management Systems for Monitoring and Documenting World Heritage - the Silk Roads CHRIS 2075**

Ona Vileikis, KULeuven, Belgium

#### **12:08 The Direct Registration of LiDAR Point Clouds and High Resolution Image Based on Linear Feature by Introducing an Unknown Parameter 2076**

Chun Jing Yao, Wuhan University, China

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11:00-12:30 MCEC212

### **V/3: Laser Scanning I: Point Cloud Registration**

Chair: Derek D Lichti, University of Calgary, Canada

#### **11:00 Towards Transparent Quality Measures in Surface based Registration Processes: Effects of Deformation onto Commercial and Scientific Implementations 2077**

Daniel Wujanz, Technical University of Berlin, Germany

#### **11:22 Rigorous Point-to-Plane Registration of Terrestrial Laser Scans 2078**

Darion S Grant, Purdue University, United States

#### **11:44 Co-Registration of 3D Point Clouds by Using an Errors-in-Variables Model 2079**

Umut Aydar, Istanbul Technical University, Turkey  
Devrim Akca, Isik University, Turkey

#### **12:06 Automated Feature based TLS Data Registration for 3D Building Modeling 2080**

Kazuo Kitamura, Topcon Corporation, Japan

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11:00-12:30 MCEC217

**Youth Forum-3**

Chair: Krzysztof Jan Sterenczak, Warsaw University of Life Sciences, Poland

11:00 **Reconstructing Three-dimensional Specific Curve Building Models From A Single Perspective View Image** 2081

Huan Chang, National Central University, Taiwan

11:22 **LIDAR and VHRS Data for Assessing Living Quality in Cities - An Approach based on 3D Spatial Indices** 2082

Piotr Tompalski, University of Agriculture in Krakow, Poland

11:44 **Knowledge Discovery from a Spatialized Literature Database of Land Cover Mapping Activities in the World** 3157

Le Yu, Tsinghua University, China

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11:00-12:30 MEC5.2.01-02

**Youth Forum-4**

Chair: Anka Lisec, University of Ljubljana, Slovenia

11:00 **Comparative Study on Methods for 3D Modelling of Urban Areas** 2085

Ersilia V Oniga, Romanian Society of Photogrammetry and Remote Sensing, Romania

11:22 **An Improved Algorithm Used in Automatic Matching for Low-altitude Aerial Image** 2086

Xue Wan, Wuhan University, China

11:44 **Assessment of Coastal Vulnerability to Sea Level Rise of Bolinao, Pangasinan Using Remote Sensing and Geographic Information Systems** 2087

Sheryl Rose C Reyes, University of the Philippines, Philippines

12:06 **Modeling of the "Plan da Mattun" Archaeological Site using a Combination of Different Sensors** 2088

Piotr Tokarczyk, ETH Zurich, Switzerland

11:00-12:30 MCEC211

**VII/2: Interferometric Image Analysis and Object Extraction**

Chair: Uwe Soergel, Leibniz Universität Hannover, Germany

11:00 **Airborne X-HH Incidence Angle Impact on Canopy Height Retrieval: Implications for Spaceborne X-HH Tandem-X Global Canopy Height Models** 2090

M Lorraine Tighe, Intermap Technologies, United States

11:22 **Automatic Calculation of Oil Slick Area from Multiple SAR Acquisitions for Deepwater Horizon Oil Spill** 2091

Filiz Sunar, Istanbul Technical University, Turkey

11:44 **InSAR of Aquatic Bodies** 2152

Parviz Tarikhi, Iranian Space Agency, Iran

12:06 **A Block Adjustment Calibration Method for Airborne InSAR System** 2158

Guoman Huang, Chinese Academic of Surveying and Mapping, China

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11:00-12:30 MCEC208

**VII/6: Remote Sensing Data Fusion-2**

Chair: Zhong Lu, U. S. Geological Survey Center for EROS, United States

11:00 **Pansharpening of Hyperspectral Images in Urban Areas** 2092

Chembe Chisense, Stuttgart University of Applied Sciences, Germany

11:22 **Comparison of the Spectral Properties of Pansharpen Images Generated from AVNIR-2 and PRISM Onboard ALOS** 2093

Masayuki Matsuoka, Kochi University, Japan

11:44 **A Parallel Implementation Framework for Remotely Sensed Image Fusion** 2094

Jinghui Yang, Chinese Academy of Surveying and Mapping, China

12:06 **Research on Image Translation between SAR and Optical Imagery** 2095

Zhongliang Fu, Wuhan University, China

## Monday, 27 August 2012

11:00-12:30 MCEC209

### VIII/3: Climate Change and Temperature Estimation

Chair: Tatsuya Yokota, NIES, Japan

#### 11:00 Multi-scale Remote Sensing for Resolving Urban Heating and Cooling 2096

Stuart R Phinn, University of Queensland, Australia

#### 11:22 An Investigation of Local Effects on Surface Warming with Geographically Weighted Regression (GWR) 2097

Yucui Xue, National Administration of Surveying, Mapping and Geoinformation, China

#### 11:44 Surface Temperature Estimation of Gangotri Glacier Using Thermal Remote Sensing 2098

Kamal Jain, Indian Institute of Technology Roorkee, India

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11:00-12:30 MCEC210

### VIII/6: Crop Assessment

Chair: Ranganath R Navalgund, Indian Space Research Organisation, India

#### 11:00 MODIS-based Evapotranspiration for Crop Performance Monitoring and Drought Early Warning Applications 2099

Gabriel B Senay, U.S. Geological Survey, United States

#### 11:22 Temporal Indices Data for Specific Crop Discrimination using Fuzzy Based Noise Classifier 2100

Vijaya Musande, Jawaharlal Nehru Engineering College, India

#### 11:44 Evaluation of Wheat Growth Monitoring Methods based on Hyperspectral Data of Later Grain Filling and Heading Stages in Western Australia 2101

Taira Nakanishi, Kokusai Kogyo Co., Ltd., Japan

#### 12:06 Establishing Crop Productivity Using RADARSAT-2 2102

Heather McNairn, Agriculture and Agri-Food Canada, Canada

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14:00-15:30 MCEC217

### Youth Forum: Panel of Invited Speakers

Chair: Martien Molenaar, ITC, The Netherlands

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14:00-15:30 MEC5.2.01-04

### Hexagon Photogrammetry and Geospatial Solutions

#### 14:00 Hexagon Photogrammetry and Geospatial Solutions

William LaRocque, Intergraph, Madison, AL, United States

#### 14:30 Hexagon Photogrammetry and Geospatial Solutions

Ruedi J Wagner, Hexagon Geosystems, Switzerland

#### 15:00 Hexagon Photogrammetry and Geospatial Solutions

Ron Roth, Leica Geosystems, United States

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14:00-15:30 MCEC216

### Short+Interactive

#### 16ARSPC

Chair: Craig Smith, Geoscience Australia

#### 14:00 Analysis of Relationship between Land Surface Temperature and Green Cover in Sydney Metropolitan Area using Time-series Satellite Images 2103

Xihua Yang, NSW Department of Premier and Cabinet, Australia

#### 14:03 High Resolution Remote Sensing of Farm Dams in New South Wales, Australia 2104

Mustak Shaikh, NSW Department of Primary Industries, Australia

#### 14:06 Spatial Resolution Requirements for Vegetation Parameters Estimation 2105

Lola Suarez, EMMAH, France

#### 14:09 Object-based Classification of Vegetation Community Type using Supervised Classification and a Species Distribution Model 2106

Adam Roff, New South Wales Office of Environment and Heritage, Australia

#### 14:12 Efficient Photogrammetric Reconstruction of Highwalls in Open Pit Coal Mines 2107

Klaus Thoeni, The University of Newcastle, Australia

#### 14:15 Estimation of Coarse Woody Debris using Airborne LiDAR 2108

Naoko Miura, The University of Tokyo, Japan



14:18 **Multi-temp Classification of Woody Vegetation using Pan-Sharpended SPOT-5 Data** 2109

Michael Day, New South Wales Office of Environment and Heritage, Australia

14:21 **Modelling Surface Water Dynamic As A Function Of Climate Using Remote Sensing Imagery And Spatially Explicit Climate Data** 2110

Mirela Tulbure, University of New South Wales, Australia

14:24 **Image Enhancement from a Stabilised Video Sequence** 2111

Gabriel Scarmana, University of Southern Queensland, Australia

14:27 **Land Use Mapping in Queensland: Past, Present and Future** 2112

James Taylor, Queensland Land Use Mapping Program, Australia

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14:00-15:30 MCEC220

**Short+Interactive**

**ICWG II/IV: Semantic Interoperability and Ontology for Geospatial Information; II/1: Cognition and Modeling of Space and Time; II/5: Multidimensional and Mobile Data Models**

Chair: Alias Abdul Rahman, University of Technology Malaysia

14:00 **Geo-ontology-based Object-oriented Spatiotemp Data Modeling** 2113

Jingwen Li, Guilin University of Technology, China

14:03 **Simplified 3D City Models from LIDAR** 2114

Jochem Lesparre, Delft University of Technology, The Netherlands

14:06 **Classification of Multitemp Imagery using Decision Trees** 2115

Thales S Korting, INPE, Brazil

14:09 **A Novel Dynamic Unified Data Model of Geo-interaction for Aircraft Navigation in Terminal Area** 2116

Deren Li, Wuhan University, China

14:12 **Implementation of a Forest Stand Map Services on Android Platform** 2117

In-Kyu Jeong, Kookmin University, Korea

14:15 **Correction of Faulty Lines in Muscle, to be used in 3D Building Network Construction** 2118

Ismail R Karas, Karabuk University, Turkey

14:18 **Digital Archiving of People Flow by Recycling Large-scale Social Survey Data of Developing Cities** 2119

Yoshihide Sekimoto, University of Tokyo, Japan

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14:00-15:30 MCEC219

**Short+Interactive**

**ICWG III/VII: Pattern Recognition in Remote Sensing**

Chair: Wolfgang Förstner, Bonn University, Germany

14:00 **Multi-temp and Multi-sensor Image Matching Based on Local Frequency Information** 2120

Xiaohu Zhang, National University of Defense Technology, China

14:03 **The Use of High Spatial and Medium Spectral Resolution Satellite Imagery for the Mapping of Urban Trees** 2121

David A Bruce, University of South Australia, Australia

14:06 **Spectral Regression Discriminant Analysis for Hyperspectral Image Classification** 2122

Yinsong Pan, Chongqing University, China

14:09 **3D Classification of Crossroads from Multiple Aerial Images using Markov Random Fields** 2123

Sergey G Kosov, Institute of Photogrammetry and Geoinformation, Germany

14:12 **Research on the Improved Image Dodging Algorithm Based on Mask Technique** 2124

Han Hu, Wuhan University, China

14:15 **Removing Shadows from High-resolution Urban Aerial Images Based on Color Constancy** 2125

Qin Ye, Tongji University, China

14:18 **On Land Slide Detection using TerraSAR-X over Earthen Levees** 2126

Nicolas H Younan, Mississippi State University, United States

14:21 **Feature Evaluation for Building Facade Images: An Empirical Study** 2127

Michael Ying Yang, University of Bonn, Germany

## Monday, 27 August 2012

14:24 **Morphological Hit-or-Miss Transform Based Approach for Building Damage Estimation from VHR Airborne Imagery in 2011 Pacific Coast of Tohoku Earthquake and Tsunami** 2128

Chandana Dinesh Kumara Parape, Kyoto University, Japan

14:27 **Fast Power Line Detection and Localization using Steerable Filter for Active UAV Guidance** 2129

Yuee Liu, Australian Research Centre for Aerospace Automation, Australia

14:30 **Feature Modelling of High Resolution Remote Sensing Images Considering Spatial Autocorrelation** 2130

Kun Qin, Wuhan University, China

14:33 **An Algorithm for Coastline Detection Using SAR Images** 2131

Fusun Balik Sanli, Yildiz Technical University, Turkey

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14:00-15:30 MCEC213

**Short+Interactive**

**ICWG IV/VIII: Updating/Maintenance of Core Spatial Databases; IV/2, IV/4: Point Cloud Processing, Management & Visualization; IV/2, IV/II: GeoSensor Networks & Sensor Web; IV/2: Automatic Geospatial Data Acquisition & Image-Based Databases**

Chair: Costas Armenakis, York University, Canada

14:00 **Precise Mapping a Solar Energy Resource of Korea Peninsula Using 5m-DEMs** 2132

You-Kyung Seo, Kookmin University, Korea

14:03 **Automatic Airborne LiDAR Mounting Bias Calibration** 2133

Wanshou Jiang, Wuhan University, China

14:06 **An Integrated Spatial Indexing of Huge Point Image Model** 2134

Yanmin Wang, Beijing University of Civil Engineering and Architecture, China

14:09 **A Corroding Method for Building Boundary Extraction and 3D Reconstruction from LIDAR Data** 2135

Hui-ying Li, Jilin University, China

14:12 **Research on the Prototype of Rail Clearance Measurement System** 2136

Slawomir Mikrut, AGH University of Science and Technology, Poland

14:15 **Variometry Tests for Accelerometers Sensors** 2137

Maria Grazia MG D'Urso, University of Cassino, Italy

14:18 **Multitemp Quality Assessment of Grassland and Cropland Objects of a Topographic Dataset** 2138

Petra Helmholz, Leibniz University of Hannover, Germany

14:21 **Gap Filling in Road Extraction using Radon Transformation** 2139

Hosein Pourali, RMIT University, Australia

14:24 **Multi-temp Analysis of Landscapes and Urban Areas** 2140

Fabio Menna, FBK - Bruno Kessler Foundation, Italy

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14:00-15:30 MCEC218

**Short+Interactive**

**IV/8: 3D Spatial Data Integration for Disaster Management & Env. Monitoring; IV/II, IV/8, IV/1: Volunteered Geospatial Information; IV/7: Planetary Mapping and Databases**

Chair: Zhizhong Kang, China University of Geosciences, China

14:00 **The Visualization Method of the 3D Concentration Distribution of Asian Dust in the Google Earth** 2141

Takashi Kusaka, Kanazawa Institute of Technology, Japan

14:03 **Study of Influence of Effluent on Ground Water using Remote Sensing, GIS and Modeling Techniques** 2142

Suparn Pathak, Department of Space, India

14:06 **Ortho-Rectification of HJ-1A/1B Multi-Spectral Image based on the GCP Image Database** 2143

Guoyuan Li, Satellite Surveying and Mapping Application Center of National Administration of Surveying, Mapping and Geoinformation, China

14:09 **A Cellular Automata Model to Simulate Forest Fire Spread in Northeast China considering Combustible Instance Index and Real-time Weather Forecast** 2144

Kaiming Xu, Heilongjiang Geomatics Center, China

14:12 **Application Possibility of Smartphone as Payload for Photogrammetric UAV System** 2145

MyungHyun Yun, Pukyong National University, Korea

14:15 **A Bottom-up Geospatial Data Update Mechanism for Spatial Data Infrastructure Updating** 2146

Wenwen Tian, Wuhan University, China

14:18 **Improved Phobos Atlas from Mars Express HRSC/SRC Image Data** 2147

Konrad Willner, Technical University of Berlin, Germany

14:21 **Stereo-photogrammetric Analysis of MESSENGER Mercury Images** 2148

Frank Preusker, German Aerospace Center (DLR), Germany

14:24 **Shape of Asteroid (4) Vesta** 2149

Frank Preusker, German Aerospace Center (DLR), Germany

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14:00-15:30 MCEC211

**Short+Interactive**

**VII/1: Physical Modelling and Signatures in Remote Sensing; VII/2: SAR Interferometry; VII/3, VII/6, III/2, V/3: Integration of Hyperspectral and Lidar Data**

Chair: Uwe Sörgel, Leibniz Universität Hannover, Germany

14:00 **SAR Doppler Parameters Estimation Based on POS Data** 2150

Yushan Sun, Chinese Academy of Surveying and Mapping, China

14:03 **Atmospheric Correction Comparison of SPOT-5 Image Based on Model FLAASH and Model QUAC** 2151

Yunkai Guo, Changsha University of Science & Technology, China

14:06 **Sar Polarimetric Signatures For Urban Targets - Polarimetric Signature Calculation and Visualization** 2153

Anjana Narendra Vyas, CEPT University, India

14:09 **Sources of Artefacts in Synthetic Aperture Radar Interferometry Data Sets** 2154

Kazimierz Becek, Universiti Brunei Darussalam, Brunei Darussalam

14:12 **A Novel Approach of Representing Persistent Scatterer Interferometry (PSI) Point Targets using Hue and Saturation Scale** 2155

Ping Lu, University of Firenze, Italy

14:15 **The Extraction of Low Coherent Area and Interferometric Phase Reconstruction** 2156

Chunshen Chen, Chinese Academy of Surveying and Mapping, China

14:18 **Multi-Baseline Airborne InSAR for DEM Measuring** 2157

Fenfen Hua, Chinese Academy of Surveying and Mapping, China

14:21 **The Accuracy Analysis of the SRTM-X Elevation Model on the Area of Poland** 2159

Artur Karol Karwel, Institute of Geodesy and Cartography, Poland

14:24 **InSAR Atmospheric Delay Mitigation by GPS; Case Study Izmit Earthquake Interferograms** 2160

Mehmet Ugur Altin, Istanbul Technical University, Turkey

14:27 **Testing the Generalization Efficiency of Oil Slick Classification Algorithm using Multiple SAR Data for Deepwater Horizon Oil Spill** 2161

Filiz Sunar, Istanbul Technical University, Turkey

14:30 **Fusion of Optical Data and SAR Data for the Estimation of Nitrogen Concentration in Pearl River Estuary Hong Kong Seas, China** 2162

Xiangnan Liu, China University of Geosciences, China

14:33 **The Benefits of Terrestrial Laser Scanning and Hyperspectral Data Fusion Products** 2163

Simon J Buckley, University of Bergen, Norway

14:36 **Edge Feature Registration of Remote Sensing Images via the Parameters Decomposition of Affine Transformation Model** 2164

Tianze Chen, National University of Defense Technology, China

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14:00-15:30 MCEC210

**Short+Interactive**

**VIII/1: Disaster Management; VIII/3: Atmosphere, Climate and Weather**

Chair: Tatsuya Yokota, NIES, Japan

14:00 **Soft Computing Approach for Liquefaction Identification using Landsat-7 Temp-indices Data** 2165

Anil Kumar, Indian Institute of Remote Sensing, India

## Monday, 27 August 2012

14:03 **Methodology for Landslide Monitoring in a Road Cut by Means of Terrestrial Laser-Scanning Techniques** 2166

M Angeles Hernandez, University of Jaen, Spain

14:06 **Spectroscopy of Brachiaria Brizantha Plants Contaminated by Liquid Hydrocarbons as Indicator of Small Leakages in Pipelines** 2167

Giuliana C Mercuri Quiterio, UNICAMP, Brazil

14:09 **Geometric Integration of Multi-source High-resolution Remotely Sensed Imagery with Applications to Natural Hazard Mitigation** 2168

Xiaohua Tong, Tongji University, China

14:12 **Bushfires in the Krachi District: The Socio-Economic and Environmental Implications** 2169

John M Kusimi, University of Ghana, Ghana

14:15 **Geographical Information Analysis of Tsunami Flooded Area by the Great East Japan Earthquake using Mobile Mapping System** 2170

Mamoru Koarai, Geospatial Information Authority of Japan, Japan

14:18 **Direct Detection of Soils Contaminated with Liquid Hydrocarbons using Hyperspectral Data** 2171

Lucíola A Magalhães, State University of Campinas, Brazil

14:21 **Using Full Spectrum MODIS and VIIRS Reflectance Observations for Australian Surface, Biosphere and Atmospheric Science Products** 2172

Mark A Gray, Curtin University, Australia

14:24 **Quantification of Aerosol Signal in MTSAT Visible Imagery over China** 2173

Linyan Bai, Centre For Earth Observation and Digital Earth, China

14:27 **Image Interpretation of Coastal Areas** 2174

Maria A Lazaridou, Aristotle University of Thessaloniki, Greece

16:00-17:30 MCEC216

**16ARSPC/4: Applications of Earth Observation Data and Terminology**

Chair: Shona Chisholm, Geoimage Pty Ltd, Australia

16:00 **Preliminary Design of a Small Satellite Constellation for Monitoring Bushfires in Australia** 2175

Manuel F Dionizio, Australia

16:17 **Comparing Landsat TM and Rapideye Imagery for Mapping Woody Vegetation Damage Following Cyclone Yasi** 2176

Michelle Newstead, University of Southern Queensland, Australia

16:34 **In Situ Observations of Vegetation Response to Fire** 2177

Vaibhav Gupta, RMIT University, Australia

16:51 **International Photogrammetric Terminology - A New Edition** 2178

Paul R T Newby, Remote Sensing and Photogrammetry Society, United Kingdom

17:08 **The Queensland Ground Cover Monitoring Program** 2179

Michael Schmidt, Queensland Department of Environment and Resource Management, Australia

16:00-17:30 MCEC212

**CIPA, TC IV: 3D Dynamic Landscape Visions for Cultural Heritage/Archaeology**

Chair: Minna Lonnqvist, University of Oulu, Finland

16:00 **Satellite Perspectives on Highland - Lowland Human Interaction in Ancient Syria** 2180

Minna Lönqvist, University of Oulu, Finland

16:22 **Improved Understanding of Historical Sites with 3D Geovisualization: Reconstructing Visions of Wormsloe State Historic Site, Georgia, USA** 2181

Marguerite Madden, University of Georgia, United States

16:44 **The New Three-dimensional Visualization Method of Heritage Sites by LIDAR Data** 2182

Noritsuna Fujii, Asia Air Survey Co.,Ltd., Japan

17:06 **Combination of Virtual Tours, 3D Model and Digital Data in a 3D Archaeological Knowledge and Information System** 2183

Mathieu Koehl, INSA Strasbourg, France

16:00-17:30 MCEC220

**TCs III and V: Medical Imaging and Human Motion**

Chair: Harvey Mitchell, University of Newcastle, Australia

**16:00 Detection and Evaluation of Skin Disorders by One of Photogrammetric Image Analysis Methods** 2184

Merve Guçin, Istanbul Technical University,, Turkey

**16:22 Accuracy Test of Microsoft Kinect for Human Morphologic Measurements** 2185

Bence Molnár, BUTE Department Photogrammetry and Geoinformatics, Hungary

**16:44 Natural User Interface Sensors for Human Body Measurement** 2186

Jan Boehm, University College London, United Kingdom

**17:06 Image Based 3D Reconstruction and Analysis for Orthodontia** 2187

Vladimir A Knyaz, State Research Institute of Aviation System, Russia

16:00-17:30 MCEC218

**I/3:Multi-Platform Multi-Sensor Inter-Calibration-2**

Chair: Cheng Wang, Xiamen University, China

**16:00 Simultaneous Orientation and Calibration of Images and Laser Point Clouds with Straight Segments** 2188

Eduard Angelats Company, Institute of Geomatics, Spain

**16:22 Calibration of Low Cost Digital Camera Using Data from Simultaneous Lidar and Photogrammetric Surveys** 2189

Edson A Mitishita, Federal University of Parana, Brazil

**16:44 Orientation Strategies for Aerial Oblique Images** 2191

Albert Wiedemann, BSF Swissphoto, Germany

16:00-17:30 MCEC219

**III/4: Surface Reconstruction**

Chair: Markus Gerke, ITC, The Netherlands

**16:00 Image-based Topography Reconstruction by Minimizing the Reprojection-Error over a Surface** 2192

Sagi Filin, Technion - Israel Institute of Technology, Israel

**16:30 Automatic Fusion of Partial Reconstructions** 2193

Franz Leberl, Graz University of Technology, Austria

**17:00 Comparison of Laser Scanning, Photogrammetry and SFM-MVS Pipeline Applied in Structures and Artificial Surfaces** 2194

Dimitrios P Skarlatos, Cyprus University of Technology, Cyprus

16:00-17:30 MCEC213

**IV/3: Mapping from High Resolution Data-1**

Chair: Pradeep K Srivastava, Indian Space Research Organisation, India

**16:00 Morphological Building Index (MBI) and Morphological Shadow Index (MSI) for Automatic Building Extraction from High-resolution Remotely Sensed Imagery** 2195

Xin Huang, Wuhan University, China

**16:17 Automating the Photogrammetric Workflow in a National Mapping Agency** 2196

David A Holland, Ordnance Survey, United Kingdom

**16:34 Information Content of Very High Resolution Optical Space Imagery** 2197

Mehmet Alkan, Zonguldak Karaelmas University, Turkey

**16:51 Object-oriented True Ortho-image Rectification Method Based on Multi-view Images** 2198

Qing Zhu, Wuhan University, China

**17:08 Mapping and Geospatial Analysis of Seagrass Coverage in Bolinao, Pangasinan using Remote Sensing and Geographic Information System** 2199

Ayin M Tamondong, University of the Philippines, Philippines

## Monday, 27 August 2012

16:00-17:30 MCEC209

### **IV/4: Virtual Globes and Context-Aware Visualisation-2**

Chair: Huayi Wu, Wuhan University, China

### **16:00 Development of a New Geospatial Data Sharing/Overlay System for Land Environmental Studies – CEReS Gaia 2200**

Ryutaro Tateishi, Chiba University, Japan

### **16:17 An Innovation Approach for Developing a 3D Model by Registering a Mono Image on a DTM 2201**

Amir Saeed Homainejad, Independent Research Group on Geospatial, Iran

### **16:34 Establishing Web3D Virtual Campus Using Open Source Software 2202**

Fan En Kung, National Chengchi University, Taiwan

### **16:51 Towards a Reactive Virtual Environment. Simulation of Smart 3D Objects 2203**

Falak R Sheth, Department of Primary Industries, Australia

### **17:08 True 3D Images and Their Applications 2204**

Zheng Wang, HuaZheng Duowei Software Company, United States

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16:00-17:30 MCEC217

### **Youth Forum: General Assembly**

Chair: Manos Baltasavias, ETH Zurich, Switzerland

16:00-17:30 MCEC211

### **VII/2: Monitoring of Deformation and Motion**

Chair: Uwe Sörgel, Leibniz Universität Hannover, Germany

### **16:00 TerraSAR-X InSAR Processing in Northern Bohemian Coal Basin using Corner Reflector (Preliminary Results) 2205**

Lena Halounova, CTU in Prague, Czech Republic

### **16:22 Matching Persistent Scatterers to Buildings 2206**

Alexander Schunert, Leibniz Universität Hannover, Germany

### **16:44 A New Persistent Scatter Network Construction Algorithm for PS-InSAR and its Application to the Detection of Urban Subsidence 2207**

Xiao-jun Luo, SouthWest JiaoTong University, China  
Guo-xiang Liu, SouthWest JiaoTong University, China

### **17:06 Glacier Surface Monitoring by Maximizing Mutual Information 2208**

Esra Erten, ETH Zurich, Switzerland

16:00-17:30 MCEC Plenary 2

### **VII/4: Methods for Land Cover Classification-4**

Chair: Julian Smit, University of Cape Town, South Africa

### **16:00 Combination of Genetic Algorithm and Dempster-Shafer Theory of Evidence for Land Cover Classification using Integration of SAR and Optical Satellite Imagery 2209**

Hai Tung Chu, The University of New South Wales, Australia

### **16:22 Adaptive Multi-objective Sub-pixel Mapping Framework based on Memetic Algorithm for Hyperspectral Remote Sensing Imagery 2210**

Yanfei Zhong, Wuhan University, China

### **16:44 Using LiDAR Data for Extracting Land Cover Information 2211**

Ahmed Shaker AbdElrahman, Ryerson University, Canada

### **17:06 Seasonal Differences in Spatial Scales of Chlorophyll-A Concentration in Lake Taihu, China 2212**

Ying Bao, Nanjing University, China, China

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16:00-17:30 MCEC210

### **VIII/4: Coastal Regions and Wetlands**

Chair: Ricky J Van Dongen, Department of Environment and Conservation, Australia

### **16:00 Coastal Currents Monitoring Using Radar Satellites Based on Wave Tracking Approach 2213**

Abbas Abedini, University of Tehran, Iran

### **16:22 Hydroperiod Classification of Cervantes Coolimba Coastal Wetlands using Landsat Time Series Imagery 2214**

Ricky J Van Dongen, Department of Environment and Conservation, Australia

### **16:44 Monitoring Temp Dynamics of Wetland Vegetation in the Great Artesian Basin in Australia using MODIS Normalized Difference Vegetation Index (NDVI) 2215**

Megan Lewis, The University of Adelaide, Australia

### **17:06 Remote Sensing of Water Quality in Optically Complex Lakes 2216**

Tiit Kutser, University of Tartu, Estonia

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## Tuesday, 28 August 2012

Time	Location	Session Code	Tuesday August 28
9:00-10:30	208	SS905-1	IAA and ISPRS: Earth Observation Forum-1
	209	TS810	VIII/4: Hydrological Estimations, Sediment and Geomorphology
	210	TS815	VIII/6: Vegetation and Ecosystems-1
	211	TS707	VII/2: DEM Extraction and Validation
	212	TS506	V/3: Laser Scanning II: Mobile Mapping and Deformation Measurement
	213	TS407	IV/3: Mapping from High Resolution Data-2
	216	1005	16ARSPC/5: Plenary 2
	217	TS730	VII/6: Remote Sensing Data Fusion-3
	218	TS107	I/3: Multi-Platform Multi-Sensor Inter-Calibration-3
	219	TS322	III/4: Performance Analysis
	220	TS207	II/3: Spatial Data Mining - 1
	5.2.01-2	SS908	ICA and WG IV/7: Exploring the Moon!
11:00-12:30	208	SS905-2	IAA and ISPRS: Earth Observation Forum-2
	209	TS736	Highlights of TC VII
	210	TS816	VIII/6: Vegetation and Ecosystems-2
	211	TS708	VII/3: Information Extraction from Hyperspectral Data-1
	212	TS507	V/3: Laser Scanning III: Multi-sensor Integration
	213	TS408	IV/3: Mapping from High Resolution Data-3
	216	1006	16ARSPC/6: Advanced image processing
	217	SS910	ICA, FIG, IEEE, EuroSDR, TCVI: CrossBorder Education for the Global GI-Community
	218	TS108	I/4: Performance of Very High Resolution Optical Sensors - Geometry and DEM
	219	TS312	ICWG III/VII: Image Classification
	220	TS208	II/3: Spatial Data Mining - 2
	5.2.03-4	ThS425	IV/5, IV/1, II/IV, IV/8, IV/3: Free and Open Source Web Mapping and Processing



Time	Location	Session Code	Tuesday August 28
2:00-3:30	208	SS905-3	IAA and ISPRS: Earth Observation Forum-3
	210	PS802	VIII/4: Water
	211	PS702	VII/3: Information Extraction from Hyperspectral Data; VII/4: Methods for Land Cover Classification
	213	PS402	IV/1: Geospatial Data Infrastructure; IV/1,4,5, II/2,6,8: Data Modeling for Online Geographic Information Services
	216	PS306	III/4: Complex Scene Analysis and 3D Reconstruction
	218	PS101	I/2: LIDAR, SAR and Optical Sensors for Airborne and Spaceborne Platforms; I/3: Multi-Platform Multi-Sensor Inter-Calibration
	219	PS302	ICWG III/VII: Pattern Recognition in Remote Sensing; III/1: Pose Estimation and Surface Reconstruction from Image and/or Range Data
	5.2.01-2	VS102	Hexagon Vendor Session 2
	5.2.03-4	VS102	New Solutions from Hexagon Geosystems and Intergraph
4:00-5:30	208	SS905-4	IAA and ISPRS: Earth Observation Forum-4
	209	TS731	VII/7: Theory and Experiments in Radar and Lidar-1
	210	TS817	VIII/6: Vegetation Dynamics
	211	TS709	VII/3: Information Extraction from Hyperspectral Data-2
	212	TS508	V/3: Laser Scanning IV: Other Ranging Sensors and Point Cloud Modelling
	213	TS428	IV/3: Mapping from High Resolution Data-4
	216	1008	16ARSPC/8: Land Cover Mapping 2
	217	TS812	VIII/5: Energy and Solid Earth
	218	TS109	I/4: Large Scale Adjustment of Space Borne Stereo Image Data
	219	TS305	III/2: Tree Detection and Characterization
	220	TS209	II/4: Quality of DEMs and Related Spatial Models
	5.2.01-2	SS906	IAG and TC I: New Trends in Direct Geo-referencing Technologies

## Tuesday, 28 August 2012

09:00-10:30 MCEC216

### **16ARSPC/5: Plenary 2: Space Policy**

Chair: Stuart Minchin, Geoscience Australia, Australia

### **09:00 National Support for Science and Management - The Role of GA**

Adam Lewis, Geoscience Australia, Australia

### **09:30 National Support for Science and Management - Role of Bureau of Meteorology**

Anthony Rea, Bureau of Meteorology, Australia

### **10:00 The Role of the Space Policy Unit in Defining Space Policy for Australia**

Anthony Wicht, Space Policy Unit, Australia

09:00-10:30 MCEC208

### **IAA and ISPRS: Earth Observation Forum-1: The Role of International and National Agencies**

Chairs: Jim Weber, ICRSE and Guo Huadong, CEODE

### **09:00 NASA Earth Science & Applications**

Lawrence Friedl, NASA, United States

### **09:15 China's Earth Observing Satellites for Digital Earth**

Guo Huadong, CEODE, China

### **09:30 Earth Observation Data Continuity and Dependencies in Australia's R&D Sector**

Alex Held, CSIRO, Australia

### **09:45 JAXA's Earth Observation Programme**

Toru Fukuda, JAXA, Japan

09:00-10:30 MCEC218

### **I/3: Multi-Platform Multi-Sensor Inter-Calibration-3**

Chair: Mostafa Madani, Sanborn, United States

### **09:00 Accuracy Potential and Applications of MIDAS Aerial Oblique Camera System 3009**

Mostafa Madani, Sanborn, United States

### **09:22 Bubble Cam: A Commercial-Grade Spherical Camera 3010**

Michael A Chapman, Ryerson University, Canada

### **09:44 Performance Analysis of Fast AT for Corridor Aerial Mapping 3011**

Marta Blázquez, Institute of Geomatics, Spain

### **10:06 One-step and Two-step Calibration of a Portable Panoramic Image Mapping System 3012**

Yi-Hsing Tseng, National Cheng-Kung University, Taiwan

09:00-10:30 MCEC220

### **II/3: Spatial Data Mining - 1**

Chair: Abdulvahit Torun, General Command of Mapping, Turkey

### **09:00 Analysis of Light Intensity Data by the DMSP/OLS Satellite Image using Existing Spatial Data for Monitoring Human Activity in Japan 3013**

Yuki Akiyama, The University of Tokyo, Japan

### **09:22 Prediction of Individual's Movement based on Interesting Places 3014**

Udo Feuerhake, Leibniz University of Hannover, Germany

### **09:44 Verification and Risk Assessment for Landslides in the Shimen Reservoir Watershed of Taiwan Using Spatial Analysis and Data Mining 3015**

Jhe-Syuan Lai, National Central University, Taiwan

Fuan Tsai, National Central University, Taiwan

### **10:06 Monitoring Urban Development of Small Chinese Cities using Innovative Aerial Surveying Technologies 3016**

Li Hongbo, Big Map Air Photo Technology & Service Co. Ltd., China

09:00-10:30 MCEC219

### **III/4: Performance Analysis**

Chair: Franz Rottensteiner, Leibniz University Hannover, Germany

### **09:00 Diagnostic-robust Statistical Analysis for Local Surface Fitting in 3D Point Cloud Data 3017**

Abdul Awal Md Nurunnabi, Curtin University, Australia

### **09:30 Deformation Detection in Piping Installations using Profiling Techniques 3018**

George Sithole, University of Cape Town, South Africa

10:00 **Optimal Camera Network Design for 3D Reconstruction of Cultural Heritage** 3019  
Bashar Saleem Alsadik, Twente University - ITC, The Netherlands

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09:00-10:30 MCEC213  
**IV/3: Mapping from High Resolution Data-2**  
Chair: David A Holland, Ordnance Survey, United Kingdom

09:00 **Graph-based Urban Land Use Mapping from High Resolution Satellite Images** 3020  
Irene Walde, Friedrich-Schiller University Jena, Germany

09:22 **Analysis of the Effects of the Image Quality on Digital Map Generation from Satellite Images** 3021  
Hye-Yeon Kim, Inha University, Korea

09:44 **High Performance Photogrammetric Processing on Computer Clusters** 3022  
Victor N Adrov, Racurs, Russia

10:06 **A Comparison of Accuracies of the RPC Models: Homo- and Hetero-type Stereo Pairs of GeoEye and WorldView Images** 3023  
Sun Yong Choi, Agency for Defense Development, Korea

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09:00-10:30 MCEC212  
**V/3: Laser Scanning II: Mobile Mapping and Deformation Measurement**  
Chair: Marco Scaioni, Politecnico di Milano, Italy

09:00 **Automatic Processing of Mobile Laser Scanner Point Clouds for Building Façade Detection** 3024  
Nalani Hetti Arachchige, Institute of Photogrammetry and Remote Sensing, Sri Lanka

09:22 **Curb-based Street Floor Extraction from Mobile Terrestrial LIDAR Point Cloud** 3025  
Sherif M Ibrahim, University of Calgary, Canada

09:44 **Continuously Deformation Monitoring of Subway Tunnel based on Terrestrial Point Clouds** 3026  
Zhizhong Kang, China University of Geosciences, China

10:06 **Deformation Monitoring of Motorway Underpasses using Laser Scanning Data** 3027  
Iván Puente, Spain

09:00-10:30 MCEC211  
**VII/2: DEM Extraction and Validation**  
Chair: Uwe Sörgel, Leibniz Universität Hannover, Germany

09:00 **The Global TanDEM-X DEM: Production Status and First Validation Results** 3028  
Martin Huber, German Aerospace Center (DLR), Germany

09:22 **Validation of DEMs Derived from High Resolution SAR Data: A Case Study on Barcelona** 3029  
Uwe Sörgel, Leibniz Universität Hannover, Germany

09:44 **Radargrammetric Digital Surface Models Generation from TerraSAR-X Imagery: Case Studies, Problems and Potentialities** 3030  
Mattia Crespi, Università di Roma, Italy

10:06 **Towards an Urban DEM Generation with Satellite SAR Interferometry** 3031  
Cristian Rossi, German Aerospace Center (DLR), Germany

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09:00-10:30 MCEC217  
**VII/6: Remote Sensing Data Fusion-3**  
Chair: J L van Genderen, ITC, The Netherlands

09:00 **Automatic Registration of Multi-source Data using Mutual Information** 3032  
Ebadat Ghanbari Parmehr, Cooperative Research Centre for Spatial Information, Australia

09:17 **A Proposed Framework to Unmix Scattering Mechanisms of Polarimetric Radar Images using Very High Resolution Optical Images** 3033  
Sébastien Giordano, Ecole Nationale des Sciences Géographiques (ENSG), France

09:34 **Integrated Fusion Method for Multiple Temporal-Spatial Spectral Images** 3034  
Huanfeng Shen, Wuhan University, China

09:51 **Radar Backscatter and Optical Textural Indices Fusion for Pine Plantation Structure Mapping** 3035  
Ali Shamsoddini, University of New South Wales, Australia

10:08 **The Influence of Spectral Wavelength on the Quality of Pan Sharpened Image Simulated using Hyperspectral Data** 3036  
Masayuki Matsuoka, Kochi University, Japan

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## Tuesday, 28 August 2012

09:00-10:30 MCEC209

### **VIII/4: Hydrological Estimations, Sediment and Geomorphology**

Chair: Duong Dinh Nguyen, Vietnam Academy of Science and Technology, Vietnam

#### **09:00 Water Body Extraction from Multi Spectral Image by Spectral Pattern Analysis 3038**

Duong Dinh Nguyen, Vietnam Academy of Science and Technology, Vietnam

#### **09:22 Shallow-water Bathymetry Over Variable Bottom Types using Multispectral Worldview-2 Image 3039**

Georgia Doxani, Aristotle University of Thessaloniki, Greece

#### **09:44 Exploring Climate Change Effects on Watershed Sediment Yield and Land Cover-Based Mitigation Measures using SWAT Model, RS and GIS: Case of Cagayan River Basin, Philippines 3040**

Jeark A Principe, University of the Philippines Diliman, Philippines

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09:00-10:30 MCEC210

### **VIII/6: Vegetation and Ecosystems-1**

Chairs: Yoshiaki Honda, Chiba University, Japan and Ferdaous Chaabane, Ecole Supérieure des Communications de Tunis, Tunisia

#### **09:00 Status and Distribution of Mangrove Forests of the World using Earth Observation Satellite Data 3041**

Chandra P Giri, U.S. Geological Survey, United States

#### **09:22 The Role of Remote Sensing for Sustainable Elephant Management in South Africa. Four Medium Sized Game Reserves as Case Studies 3042**

Maarten Jordaan, University of South Africa, South Africa

#### **09:44 Mapping Thermal Habitat of Ectotherms Based on Behavior Thermoregulation in a Controlled Thermal Environment 3043**

Teng Fei, Wuhan University, China

#### **10:06 Does the Improved Spectral Resolution of Worldview-2 Multispectral Imagery Improve Discrimination of Invasive Tussock, Buffel Grass (Cenchrus Ciliaris)? 3044**

Victoria M Marshall, The University of Adelaide, Australia

11:00-12:30 MCEC216

### **16ARSPC/6: Advanced Image Processing**

Chair: Tim Whiteside, Department of Sustainability, Environment, Water, Population & Communities, NT, Australia

#### **11:00 Long Term Land Cover and Seagrass Mapping using Landsat and Object Based Image Analysis from 1972 – 2010 3045**

Mitchell B Lyons, University of Queensland, Australia

#### **11:17 Discrimination and Classification of Australian Native Forest Species at the Leaf, Canopy and Community Levels Using Hyperspectral Remote Sensing Data and Machine-learning Algorithms 3046**

Xiao Shang, University of Wollongong, Australia

#### **11:34 Forest Classification using Random Forests with Multisource Remote Sensing and Ancillary GIS Data 3047**

Andrew Mellor, Victorian Department of Sustainability and Environment, Australia

#### **11:51 Combining Multiple Satellite Sensors to Map Inflow Dependent Ecosystems in Australia 3048**

Joanne Poon, Sinclair Knight Merz, Australia

#### **12:08 Broadscale Monitoring of Riparian Vegetation in the Great Barrier Reef Catchments using GIS and Landsat Satellite Imagery 3049**

Andrew J Clark, Queensland Department of Environment and Resource Management, Australia

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11:00-12:30 MCEC208

### **IAA and ISPRS: Earth Observation Forum-2: The Business Perspective**

Chairs: Naser El-Sheimy, University of Calgary, Canada and Charles Toth, The Ohio State University, USA

#### **11:00 The ESA Approach to Sustainable Earth Observation**

Stephen Ward, ESA/CEOS

#### **11:20 Commercial EO Industry: A Media Perspective on the Way Forward**

Bhanu Rheka, Geospatial Media, India

#### **11:40 The DMC International Collaboration and Serving Public Entities with Commercial Data**

Gary Holmes, DMC International Imaging, United Kingdom

#### **12:00 Collaborative Thoughts in a Competitive World**

John Ahlrichs, RapidEye AG, Germany

11:00-12:30 MCEC217

**ICA, FIG, IEEE, EuroSDR, TCVI: CrossBorder Education for the Global GI-Community**

Chair: Martien Molenaar, ITC, The Netherlands

**11:00 EduServ – The Education Service of EuroSDR - Sharing Experience for Capacity Building 3052**

Dieter Fritsch, Stuttgart University, Germany

**11:15 Outreach Programmes for Education and Training: Contributions from the International Cartographic Association 3053**

William Cartwright, RMIT University, Australia

**11:30 FIG Educational Activities 3054**

Kate Fairlie, Chair, FIG Young Surveyors Network, Australia

**11:45 Activities of the ISPRS Student Consortium on Education, Promotion of Profession and International Cooperation 3055**

Emmanuel Baltsavias, ETH Zurich, Switzerland

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11:00-12:30 MEC5.2.03-04

**IV/5, IV/1, II/IV, IV/8, IV/3: Free and Open Source Web Mapping and Processing**

Chair: Songnian Li, Ryerson University, Canada

**11:00 Valorisation of Como Historical Cadastral Maps through Modern Web Geoservices 3056**

Maria A Brovelli, Politecnico di Milano, Italy

**11:22 Design of Livestock Management Tool for Climate Change Risk in Mongolia 3057**

Akihiro Oba, Keio University, Japan

**11:44 User Friendly Open GIS Tool for Large Scale Data Assimilation – A Case Study of Hydrological Modelling 3058**

Prasun Kumar Gupta, Indian Institute of Remote Sensing (ISRO), India

**12:06 National Land Cover and Resource Statistics 3059**

Anne Nilsen, Norwegian Forest and Landscape Institute, Norway

11:00-12:30 MCEC218

**I/4: Performance of Very High Resolution Optical Sensors - Geometry and DEM**

Chair: Peter Reinartz, German Aerospace Center (DLR), Germany

**11:00 DEM Generation with Worldview-2 Images 3060**

Gurcan Buyuksalih, BIMTAS, Turkey

**11:17 Testfield Trento - Geometric Evaluation of Very High Resolution Satellite Imagery 3061**

Giorgio Agugiaro, Foundation Bruno Kessler, Italy

**11:34 3D Photogrammetric Processing of Worldview-2 Data without GCP 3062**

Peter Reinartz, German Aerospace Center (DLR), Germany

**11:51 Temporal Correlation of Metadata Errors for Commercial Satellite Images: Representation and Effects on Stereo Extraction Accuracy 3063**

John T Dolloff, National Geospatial-Intelligence Agency, United States

**12:08 Performance Analysis of 3D Least Square Matching for Automatic DEM Extraction from High Resolution Satellite Images 3064**

Sooahm Rhee, Inha University, Korea

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11:00-12:30 MCEC220

**II/3: Spatial Data Mining - 2**

Chair: Yaolin Liu, Wuhan University, China

**11:00 Urban Land Surface Characterization of City of Monash, Melbourne using LiDAR Data 3065**

Sultana Nasrin Nury, Monash University, Australia

**11:22 Evaluating the Novel Methods on Species Distribution Modeling in Complex Forest 3066**

Chun-Hao Tu, National Chung-Hsing University, Taiwan

**11:44 Fusion of the Remote Sensing and Modeling Techniques in Assessing the Spatiotemp Variations of Chlorophyll-a in the Lake Paldang System of Korea 3067**

Kon Joon Bhang, Kumoh National Institute of Technology, Korea

## Tuesday, 28 August 2012

11:00-12:30 MCEC219

### **ICWG III/VII: Image Classification**

Chair: Wolfgang Förstner, Bonn University, Germany

11:00 **Extraction of Vineyards out of Aerial Ortho-image using Texture Information** 3068

Arnaud Le Bris, IGN - Laboratoire MATIS, France

11:30 **Geometrical Correlation and Matching of 2D Image Shapes** 3069

Sergey Yu Zheltov, State Research Institute of Aviation Systems, Russia

12:00 **Combine Markov Random Fields and Marked Point Processes to Extract Building from Remotely Sensed Images** 3070

Dengfeng Chai, Zhejiang University, China

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11:00-12:30 MCEC213

### **IV/3: Mapping from High Resolution Data-3**

Chair: Zhanguo He, Aerophotogrammetry and Remote Sensing of China Coal

11:00 **Rapid Change Detection Algorithm for Disaster Management** 3071

Ulrich Michel, University of Education Heidelberg, Germany

11:22 **Seamline Network Optimized Method based on Segmentation for Orthoimage Mosaicking** 3072

Jun Pan, Wuhan University, China

11:44 **Contribution of the New WorldView-2 Spectral Bands for Urban Mapping in Coastal Areas: Case Study São Luis (Maranhão State, Brazil)** 3073

Ulisses Denache Souza, INPE - National Institute for Space Research, Brazil

12:06 **Object-Based Image Analysis of WorldView-2 Satellite Data for the Classification of Mangrove Areas in the city of São Luis, Maranhão State, Brazil** 3074

Hermann J H Kux, INPE - National Institute for Space Research, Brazil

11:00-12:30 MCEC212

### **V/3: Laser Scanning III: Multi-sensor Integration**

Chair: Hans-Gerd Maas, Technische Universität Dresden, Germany

11:00 **A Method for the Registration of Hemispherical Photographs and TLS Intensity Images** 3075

Anja Schmidt, Technische Universität Dresden, Germany  
Hans-Gerd Maas, Technische Universität Dresden, Germany

11:22 **Automatic Procedure for the Registration of Thermographic Images with Point Clouds** 3076

Julia Armesto, University of Vigo, Spain

11:44 **An Automatic Procedure for Combining Digital Images and Laser Scanner Data** 3077

Wassim Moussa, University of Stuttgart, Germany

12:06 **Multi-source Registration of 3D Models from Close-range Sensors** 3078

Marco Scaioni, Politecnico di Milano, Italy

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11:00-12:30 MCEC211

### **VII/3: Information Extraction from Hyperspectral Data-1**

Chair: Eyal Ben Dor, Tel Aviv University, Israel

11:00 **Extracting Bathymetric Information of Shallow Water from Hyperspectral Imageries** 3079

Enjie Jing, Defence Science and Technology Organisation, Australia

11:37 **Road Classification and Condition Determination using Hyperspectral Imagery** 3080

Maryam Mohammadi, University of Applied Sciences Stuttgart, Germany

11:54 **Extracting Temp and Spatial Distributions Information about Algal Blooms Based on Multitemp MODIS** 3081

Chunguang Lv, Nanjing University, China

12:11 **Hyperspectral Image Denoising With Cubic Total Variation Model** 3082

Hongyan Zhang, Wuhan University, China

11:00-12:30 MCEC209

**Highlights of TC VII**

Chair: Wolfgang Wagner, Vienna University of Technology, Austria

11:00 **Sea Surface Altimetry Based on Airborne GNSS Signal Measurements** 3083

Kegen Yu, University of New South Wales, Australia

11:22 **An Investigation of Automatic Change Detection for Topographic Map Updating** 3084

Patricia Duncan, Department of Rural Development and Land Reform, South Africa

11:44 **Change Detection on Land use and Land Cover Dynamics at a Regional Scale from MODIS Time-series Imagery** 3085

Yudi Setiawan, University of Tsukuba, Japan

12:06 **Evaluation of Terrestrial Laser Scanning for Rice Growth Monitoring** 3086

Nora Tilly, University of Cologne, Germany

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11:00-12:30 MCEC210

**VIII/6: Vegetation and Ecosystems-2**

Chair: Heather McNairn, Agriculture and Agri-Food Canada

11:00 **Riparian Vegetation Status and Rates of Water Use from Satellite Data** 3088

Kathryn Sheffield, Department of Primary Industries, Australia

11:22 **Identification of Potential Habitat Patches using Multi-Criteria Evaluation for Connectivity in Andhra Pradesh, India** 3090

Shanthala Devi B S, ISRO, India

11:44 **Two-way Spatial Extrapolation and Validation on Ecological Patterns of *Elaeocarpus Japonicus* between Main Watersheds in Huisun of Central Taiwan** 4149

Sheng-Yang Su, National Chung Hsing University, Taiwan

12:06 **Plant Species Monitoring in the Canary Islands using WorldView-2 Imagery** 4150

Laia Nunez-Casillas, University of La Laguna, Spain

14:00-15:30 MCEC208

**IAA and ISPRS: Earth Observation Forum-3: Non Commercial and Legal Issues**

Chair: Gunter Schreier, German Remote Sensing Data Centre, Germany

14:00 **A Steppingstone for Global Space Cooperation** 3091

Rainer Sandau, International Academy of Astronautics (IAA), German Aerospace Center, Germany

14:15 **Advances in the Use of Remote Sensing and Geoinformation Technologies in Nuclear Non-proliferation and Arms Control Verification Regimes** 3092

Irmgard Niemeyer, Nuclear Waste Management and Reactor Safety, Germany

14:30 **Establishing a Network of Space Agencies, Space Universities and Space Private Sector for the Well-being of the Natural and Cultural Heritage of the World**

Mario Hernandez, UNESCO, France

14:45 **Australian Government use of Commercial EO Capabilities**

Adam Lewis, Geoscience Australia, Australia

15:00 **Earth Observation for Science and Public Use: Rules, Experiences and Plans**

Gunter Schreier, German Remote Sensing Data Centre, Germany

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14:00-15:30 MEC5.2.01-04

**New Solutions from Hexagon Geosystems and Intergraph**

14:00 **New Solutions from Hexagon Geosystems and Intergraph**

Juergen Dold, Hexagon, Switzerland

14:30 **New Solutions from Hexagon Geosystems and Intergraph**

Kaushik Chakraborty, Intergraph, India

15:00 **New Solutions from Hexagon Geosystems and Intergraph**

Ruedi J Wagner, Hexagon Geosystems, Switzerland

## Tuesday, 28 August 2012

14:00-15:30 MCEC218

### Short+Interactive

**I/2: LIDAR, SAR and Optical Sensors for Airborne and Spaceborne Platforms; I/3: Multi-Platform Multi-Sensor Inter-Calibration**

Chair: Boris Jutzi, Karlsruhe Institute of Technology, Germany

14:00 **High-Precision DEM Production for Spaceborne Stereo SAR Imagery Based on SIFT Matching and Region-based Least Squares Matching** 3096

Xiaotian Shi, Wuhan University, China

Guo Zhang, Wuhan University, China

14:03 **Classification of Land Cover Using Fused Images of Polarimetric SAR and SPOT5 Based on SVM Method** 3097

Chunhong Bao, Chinese Academy of Surveying and Mapping, China

14:06 **Synthetic Aperture Radar Interferometry for Digital Elevation Model of Kuwait Desert - Analysis of Errors** 3098

Rao S Kota, Kuwait University, Kuwait

14:09 **A Preliminary Study on the Mechanism of LAI Inversion Saturation** 3099

Jing Zhao, Chinese Academy of Sciences, China

14:12 **Real Time Power Line Detection from Online Generated Point Clouds** 3100

Bo Guo, Wuhan University, China

14:15 **Planialtimetric Accuracy Evaluation of Digital Surface Model (DSM) and Digital Terrain Model (DTM) Obtained from Aerial Survey with LIDAR** 3101

Carla Bernadete Madureira Cruz, Universidade Federal do Rio de Janeiro (UFRJ), Brazil

14:18 **The Leica RCD30 Medium Format Camera – A Revolutionary Tool for (Airborne) Imaging Applications** 3102

Ruedi J Wagner, Hexagon Geosystems, Switzerland

14:21 **Estimation of Radiometric Calibration Coefficients of EGYPTSAT-1 Sensor** 3103

Ayman Hamed Nasr, National Authority for Remote Sensing and Space Sciences, Cairo, Egypt

14:24 **A Survey of LANDNET Sites Focusing on Tuz Golu Salt Lake, Turkey** 3104

Hilal Özen, TUBITAK Space Technologies Research Institute, Turkey

14:27 **Preliminary Results of the Comparison of Satellite Imagers using Tuz Gölü as a Reference Standard** 3105

Hilal Özen, TUBITAK Space Technologies Research Institute, Turkey

14:30 **Image-based Deformation Monitoring of Statically and Dynamically Loaded Beams** 3106

Ivan D Detchev, University of Calgary, Canada

14:33 **Cross-calibration of the RapidEye Multispectral Imager Payloads using Pseudo-Invariant Test Sites** 3107

Michael Thiele, RapidEye AG, Germany

14:36 **Sensor Calibration of Three-Line CCD Scanners on ZY-3** 3108

ShengHui Fang, Wuhan University, China

14:39 **Calibration Procedures in Mid Format Camera Setups** 3109

Gerhard Kemper, GGS, Germany

14:42 **Optical-to-SAR Image Registration Based on Gaussian Mixture Model** 2190

Hanyun Wang, National University of Defense Technology, China

14:00-15:30 MCEC219

### Short+Interactive

**ICWG III/VII: Pattern Recognition in Remote Sensing; III/1: Pose Estimation and Surface Reconstruction from Image and/or Range Data**

Chair: Wolfgang Förstner, Bonn University, Germany

14:00 **Texture Analysis for Classification of RISAT-II Images** 3110

Debasish Chakraborty, Indian Space Research Organization, India

14:03 **Feature-Based Digital Watermarking for Remote Sensing Images** 3111

Pai-Hui Hsu, National Taiwan University, Taiwan



14:06 **On Object Extraction using Airborne Laser Scanner Data and Digital Images for 3D Modelling** 3112  
Kazuya Nakano, Aero Asahi Corporation, Japan

14:09 **Dense and Reliable Image Matching Based on Self-Adaptive Triangulations** 3113  
Bo Wu, The Hong Kong Polytechnic University, Hong Kong

14:12 **Photogrammetric Model based Method of Automatic Orientation of Space Cargo Ship Relative to International Space Station** 3114  
Yury B Blokhinov, State Research Institute of Aviation Systems, Russia

14:15 **An Experience of High-accuracy DEMs for Forested and Snow Covered Territories Creation basing on GeoEye-1 Satellite Stereo Space Imagery** 3115  
Alexander V Orlovsky, Geoinnovation Agency Innoter, Russia

14:18 **Obtaining Approximate Values of Exterior Orientation Elements of Multi-intersection Images Using Particle Swarm Optimization** 3116  
Xin Li, Wuhan University, China

14:21 **Image-based Navigation of Forest Harvesters** 3117  
Marc Schulze, Dresden University of Technology, Germany

14:24 **Using Stereo Vision to Support the Automated Analysis of Surveillance Videos** 3118  
Moritz Menze, Leibniz Universität Hannover, Germany

14:27 **Image to Point Cloud Method of 3D-modeling** 3119  
Alexander G Chibunichev, Moscow State University of Geodesy and Cartography, Russia

14:30 **Iterative Determination of Camera Pose from Line Features** 3120  
Xiaohu Zhang, National University of Defense Technology, China

14:33 **A Refining Method for Building Object Aggregation and Footprint Modeling using Multi-source Data** 3121  
Yan Li, International Institute for Earth System Science, Nanjing University, China  
Lin Zhu, PASCO Corporation, Japan  
Kikuo Tachibana, PASCO Corporation, Japan

14:36 **Line-based Multi-image Matching for Façade Reconstruction** 3122  
Tee-Ann Teo, National Chiao Tung University, Taiwan

14:39 **Fully Automated Generation of Accurate Digital Surface Models with Sub-meter Resolution from Satellite Imagery** 3123  
Jürgen Wohlfel, German Aerospace Center (DLR), Germany

14:42 **Evaluation of Penalty Functions for Semi-Global Matching Cost Aggregation** 3124  
Christian Banz, Leibniz Universität Hannover, Germany

14:45 **A Hybrid Method of Stereo Cameras and Laser Structured Light for Insulator Geometric Parameters Measurement** 3125  
Zheng Ji, Wuhan University, China

14:00-15:30 MCEC216

**Short+Interactive**

**III/4: Complex Scene Analysis and 3D Reconstruction**  
Chair: Franz Rottensteiner, Leibniz University Hannover, Germany

14:00 **Performance Assessment of Fully Automatic Three-Dimensional City Model Reconstruction Methods** 3126  
Thomas Krauss, German Aerospace Center (DLR), Germany

14:03 **From Image Contours to Pixels** 3127  
Gabriel Scarmana, University of Southern Queensland, Australia, Australia

14:06 **Road Detection by Neural and Genetic Algorithm in Urban Environment** 3128  
Arpad Barsi, Budapest University of Technology and Economics, Hungary

14:09 **Edge-based Registration for Airborne Imagery and LIDAR Data** 3129  
Liang-Chien Chen, National Central University, Taiwan

14:12 **Reconstruction of Sky Illumination Domes from Ground-Based Panoramas** 3130  
Mathieu Brédif, Institut Géographique National, France

## Tuesday, 28 August 2012

14:15 **LEGION Segmentation for Building Extraction from LiDAR based DSM Data** 3131

Chun Liu, Tongji University, China

14:18 **Manhole Cover Detection using Vehicle-based Multi-Sensor Data** 3132

Shunping Ji, Wuhan University, China

14:21 **The Research of Line Matching Algorithm under the Improved Homograph Matrix Constraint Condition** 3133

Weixi Wang, Land and Resources Research Centre, China

14:24 **Toward Automated Façade Texture Generation for 3D Photo-Realistic City Modeling with Smartphones or Tablet PCs** 3134

Sendo Wang, National Taiwan Normal University, Taiwan

14:27 **Automatic 3D Building Model Generation from LiDAR and Image Data Using Sequential Minimum Bounding Rectangle (MBR)** 3135

Eunju Kwak, University of Calgary, Canada

14:30 **A Multi-View Image Matching Method for Feature Points Based on The Moving Z-Plane Constraint** 3136

Jingxue Wang, Liaoning Technical University, China

14:33 **Primitive-based 3D Building Reconstruction Method Tested by Reference Airborne Data** 3137

Wuming Zhang, Beijing Normal University, China

14:36 **Automatic Extraction of Building Roofs from Pictometry's Orthogonal and Oblique Images** 3138

Yandong Wang, Pictometry International Corporation, United States

14:39 **Ground Object Recognition using High Resolution Airborne Images and DSM** 3139

Qingming Zhan, Wuhan University, China

14:42 **Extracting Semantic Building Models from Aerial Images and Conversion to CityGML** 3140

Ahmet Sengül, Istanbul Technical University, Turkey

14:45 **Mono Space Imagery 3D Feature Extraction** 3141

Vladimir M Laritchkin, Center for Applied Geoinformatics Terra Space, Russia

14:00-15:30 MCEC213

**Short+Interactive**

**IV/1: Geospatial Data Infrastructure; IV/1,4,5, II/2,6,8: Data Modeling for Online Geographic Information Services**

Chair: Jiang Jie, National Geomatic Center of China

14:00 **Web-based Delivery System for Disaster Prevention Information using a new JMA DPI XML Format and AMeDAS Data** 3142

Masahiro Nishio, Kinki University, Japan

Masatoshi Mori, Kinki University, Japan

14:03 **Development of Spatial Information Consulting Method for Merged Local Governments** 3143

Naoya Oku, Kokusai Kogyo Co.,Ltd., Japan

14:06 **Global Mapping Project – Applications and Development of Version 2 Dataset** 3144

Taro Ubukawa, Geospatial Information Authority of Japan, Japan

14:09 **Datum Transformation of Spatial Data and Application in Cadastre** 3145

Lutfi Ekin, General Directorate of Land Registry and Cadastre, Turkey

14:12 **The Method to Obtain Position using GNSS and RFID for Realization of Indoor and Outdoor Seamless Positioning** 3146

Masaaki Shikada, Kanazawa Institute of Technology, Japan

14:15 **Revisiting the Procedures for the Vector Data Quality Assurance in Practice** 3147

Mustafa Erdogan, General Command of Mapping, Turkey

14:18 **Building Road Centerline Database from Massive Smartphone GPS Data** 3148

Songnian Li, Ryerson University, Canada

14:21 **Integrating GIS into our Daily Lives in a Developed Economy** 3149

Joseph O Akinyede, ARCSSTE-E, Nigeria

14:24 **Design and Realization of Online Retrieval System for Grassland Biomass Based on MODIS Data** 3151

Minyan Duan, Chinese Academy of Surveying and Mapping, China

14:27 **Usage of Stereo Orthoimage in GIS: Old Concept, Modern Solution** 3152

Krystian Pyka, AGH University of Science and Technology  
Krakow, Poland

14:30 **Planialtimetric Evaluation of a Cartosat-1 Stereo Pair – Case Study on São Sebastião, SP, Brazil** 5109

Rafael S Barros, Universidade Federal do Rio de Janeiro,  
Brazil

14:00-15:30 MCEC211

**Short+Interactive**

**VII/3: Information Extraction from Hyperspectral Data;  
VII/4: Methods for Land Cover Classification**

Chair: Eyal Ben-Dor, Tel Aviv University, Israel

14:00 **Capabilities of Remote Sensing Hyperspectral Images for the Detection of Lead Contamination** 3158

Ali A Al Maliki, University of South Australia, Australia  
David Bruce, University of South Australia, Australia

14:03 **Soil Spectral Imaging: Moving from Proximal Sensing to Spatial Quantitative Domain** 3159

Eyal Ben Dor, Tel Aviv University, Israel

14:06 **Analysis of Concrete Reflectance Characteristics Using Spectroradiometer and VNIR Hyperspectral Sensor** 3160

Jin-Duk Lee, Kumoh National Institute of Technology, Korea

14:09 **Spectral Analysis of Different Vegetation Cover using the Hyperion Sensor - A Case Study in the State of Rio de Janeiro – Brazil** 3161

Elizabeth Rocha de Souza, UFRJ, Brazil

14:12 **Assessing the Significance of Hyperion Spectral Bands in Forest Classification** 3163

Glenn J Newnham, CSIRO Division of Land and Water,  
Australia

14:15 **Anomaly Detection and Comparative Analysis of Hydrothermal Alteration Materials through Hyperspectral Multisensor Data in the Turrialba Volcano** 3164

Juan G Rejas, National Institute for Aerospace Technology (INTA), Spain

14:18 **Identifying and Assessing Mineralization Processes using Hyperspectral Data** 3166

Trude V. King, U.S. Geological Survey, United States

14:21 **Optimizing Object-based Classification in Urban Environments using Very High Resolution GeoEye-1 Imagery** 3167

Manuel A Aguilar, Almería University, Spain

14:00-15:30 MCEC210

**Short+Interactive**

**VIII/4: Water; VI/5: Promotion of the Profession to Young People; Youth Forum**

Chair: Martien Molenaar, ITC, The Netherlands

14:00 **Assessment of Ground Water Potential Exploration Using Remote Sensing and Geographic Information System (Case Study: Sele-Bon Watershed)** 3168

Aliakbar Damavandi, Agriculture-Natural Resource Department, Iran

14:03 **Yangon River Geomorphology Identification and its Environmental Impacts Analysis by Optical and Radar Sensing Techniques** 3169

Aung Lwin, Mandalay Technological University, Myanmar

14:06 **Runoff Simulation using Distributed Hydrological Modeling Approach, Remote Sensing and GIS Techniques: A Case Study from Indian Agricultural Watershed** 3170

Chowdary M Vemuri, Indian Space Research Organization, India

14:09 **Geomorphic and Hydrologic Analysis for River Restoration using Optical & SAR Imagery** 3171

Romeji Singh Ngangbam, India

14:12 **Bathymetric Extraction using WorldView-2 High Resolution Images** 3172

Monica Deidda, University of Cagliari, Italy

14:15 **Photogrammetry - Remote Sensing and Geoinformation** 3153

Maria A Lazaridou, Aristotle University of Thessaloniki, Greece

## Tuesday, 28 August 2012

14:18 **International Summer Student Seminar (3S), from Idea to Realization** 3154

Igor A Musikhin, Siberian State Academy of Geodesy, Russia

14:21 **Visual Tour Based on Panoramic Images for Indoor Places in Campus** 3155

Tolga Bakirman, Yildiz Technical University, Turkey

14:24 **Performing Improved Two-step Camera Calibration with Weighted Total Least-squares** 3156

Jue Lu, Tongji University, China, China

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16:00-17:30 MCEC216

**16ARSPC/8: Land Cover Mapping 2**

Chair: David Byrne, AEROMETREX P/L, Australia

16:00 **Estimation of Foliage Projective Cover, Leaf Area Index and Crown Cover from Airborne LIDAR across Multiple Bioregions in Eastern Australia** 3173

Peter Scarth, University of Queensland, Australia

16:17 **Validating MODIS Soil Fractional Cover for Arid Regions, using the Albedo from Very High-resolution Satellite Imagery** 3174

Erika Lawley, The University of Adelaide, Australia

16:34 **Deriving RUSLE Cover Factor from Time-series Satellite Data for Dynamic Soil Erosion Assessment in New South Wales** 3175

Xihua Yang, NSW Department of Premier and Cabinet, Australia

16:51 **A Rule-based Approach to Segment and Classify Floodplain Vegetation from WorldView-2 Imagery** 3176

Tim Whiteside, Department of Sustainability, Environment, Water, Population and Communities, NT, Australia

17:08 **Patterns of Forest Cover Loss Along the Indonesia-Malaysia Border on Borneo** 3177

Mark Broich, University of New South Wales, Australia

16:00-17:30 MCEC208

**IAA and ISPRS: Earth Observation Forum-4: Panel Discussion Involving all Sectors**

Co-Chair: Lawrence Friedl, NASA, United States and Ian Dowman, ISPRS

Panel Members:

Gunter Schreier, DLR and Chair Elect of ISPRS IPAC

Mario Hernandez, UNESCO and ISPRS Regional

Representative for Latin America

Alex Held, CSIRO

Guo Huadong, CEODE

Rainer Sandau, DLR and Chair ISPRS IPAC

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16:00-17:30 MEC5.2.01-02

**IAG and TC I: New Trends in Direct Geo-referencing Technologies**

Chairs: Allison Kealy, The University of Melbourne, Australia and Kai-Wei Chiang, National Cheng Kung University, Taiwan

16:00 **The Performance Analysis of a 3D Map Embedded INS/GPS Fusion Algorithm for Seamless Vehicular Navigation in Elevated Highway Environments** 3178

Yi-Hsuan Lee, National Cheng Kung University (NCKU), Taiwan

16:17 **Vibrations on a Gyrocopter - An Analysis Using Synchronized IMUs** 3179

Alvand Miraliakbari, Stuttgart University of Applied Sciences (HFT), Germany

16:34 **The Performance of a Tight INS/GNSS/Photogrammetric Integration Scheme for Land Based MMS Applications in GNSS Denied Environments** 3180

Chien-Hsun Chu, National Cheng Kung University, Taiwan

16:51 **Mapping Crop Status from an Unmanned Aerial Vehicle for Precision Agriculture Applications** 3181

Tao Guo, Hitachi, Ltd., Japan

17:08 **A Location-Tracking Testbed using Vision-Assisted Scheme for Wireless Sensor Networks** 3182

Fuan Tsai, National Central University, Taiwan

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16:00-17:30 MCEC218

**I/4: Large Scale Adjustment of Space Borne Stereo Image Data**

Chair: Karsten Jacobsen, Leibniz University Hannover, Germany

16:00 **Toward a Global Bundle Adjustment of SPOT 5 – HRS Images** 3183

Stéphane Massera, IGN, France

16:22 **Generation of the Australian Geographic Reference Image through Long-Strip ALOS PRISM Orientation** 3184

Clive Fraser, The University of Melbourne, Australia

16:44 **Minimizing Ground Control Requirements for Large Cartosat-1 Stereo Blocks** 3185

Pablo d'Angelo, German Aerospace Center (DLR), Germany

17:06 **Research on Geometric and Radiometric Correction Order and Its Impact for Remote Sensing Image** 3186

Jiahui Xu, Nanjing University, China

16:00-17:30 MCEC220

**II/4: Quality of DEMs and Related Spatial Models**

Chair: Alfred Stein, University of Twente - ITC, The Netherlands

16:00 **Visual and Statistical Analysis of Digital Elevation Models Generated Using IDW Interpolator with Varying Powers** 3187

Fahmy F Asal, University of Tabuk, Saudi Arabia

16:17 **Evaluation of Elevation, Slope and Stream Network Quality of Spot DEMs** 3188

Laurent Polidori, Laboratoire de Géodésie et Géomatique (L2G), ESGT, France

16:34 **GIS Comparison of Digital Elevation Models used to Create Waterways and Catchments over Large Areas** 3189

Bruce R Harris, BTM WBM, Australia

16:51 **Assessment of Three-dimensional Models Derived from LIDAR and TLS Data** 3190

Tania Landes, INSA de Strasbourg, France

17:08 **Spatial Uncertainty in Line-Surface Intersections with Applications to Photogrammetry** 3191

John D Marshall, National Geospatial-Intelligence Agency, United States

16:00-17:30 MCEC219

**III/2: Tree Detection and Characterization**

Chair: George Vosselman, ITC, The Netherlands

16:00 **A Comparative Study using Geometric and Vertical Profile Features Derived from Airborne LiDAR for Classification Tree Genera** 3192

Gunho Sohn, York University, Canada

16:30 **Tree Detection in Mobile Laser Scans of Urban Scenes based on Accumulations of Geometric Descriptors** 3193

Bruno Vallet, IGN, France

16:00-17:30 MCEC213

**IV/3: Mapping from High Resolution Data-4**

Chair: Zhanguo He, Aerophotogrammetry and Remote Sensing of China Coal

16:00 **Extraction of Spatial Parameters from Classified LiDAR Data and Aerial Photograph for Sound Modelling** 3194

Bharat Lohani, IIT Kanpur, India

16:22 **Evaluation of Cartosat 1 PAN Stereo and Resourcesat LISS 4 MSS Merged Data with Morphometric Analysis for Delineation of Drainage Basins and Codification in Tamil Nadu India and Australia** 3195

Ghouse Shaik Mohamed, Anna University, India

16:44 **Application of Thermal Imaging in Melbourne Local Council Areas** 3196

Shobhit Chandra, Sinclair Knight Merz, Australia

17:06 **Medium-format Cameras and Their Use in Topographic Mapping** 3197

Joachim Höhle, Aalborg University, Denmark

## Tuesday, 28 August 2012

16:00-17:30 MCEC212

### **V/3: Laser Scanning IV: Other Ranging Sensors and Point Cloud Modelling**

Chair: Pedro Arias Sanchez, University of Vigo, Spain

#### **16:00 Performance Analysis of a Low-cost Triangulation-based 3D Camera: Microsoft Kinect System**

3198

Jacky CK Chow, University of Calgary, Canada

#### **16:22 Robust Real-time and Rotation-invariant American Sign Language Alphabet Recognition using Range Camera**

3199

Hervé Lahamy, University of Calgary, Canada

#### **16:44 Analysis of Mobile Laser Scanning Data and Multi-view Image Reconstruction**

3200

Christian Briese, LBI for Archaeological Prospection and Virtual Archaeology and Vienna University of Technology, Austria

#### **17:06 Dynamic Concrete Beam Deformation Measurement with 3D Range Cameras**

3201

Xiaojuan Qi, University of Calgary, Canada

16:00-17:30 MCEC211

### **VII/3: Information Extraction from Hyperspectral Data-2**

Chair: Eyal Ben Dor, Tel Aviv University, Israel

#### **16:00 Mapping the Wetland Vegetation Communities of the Australian Great Artesian Basin Springs using SAM, MTMF and Spectrally Segmented PCA Hyperspectral Analyses**

3202

Davina C White, The University of Adelaide, Australia

#### **16:22 Hyperspectral Analysis of Rice Phenological Stages in Northeast China**

3203

Martin Leon Gnyp, University of Cologne, Germany

#### **16:44 Assessing Hyperspectral Vegetation Indices for Estimating Leaf Chlorophyll Concentration of Summer Barley**

3204

Kang Yu, University of Cologne, Germany

#### **17:06 Evaluation the Potential of Meta-Heuristic Optimization Algorithms in Determination of Optimum SVMs Classifiers for Hyperspectral Imagery**

3205

Hadiseh Hasani, University of Tehran, Iran

16:00-17:30 MCEC209

### **VII/7: Theory and Experiments in Radar and Lidar - 1**

Chair: Yifang Ban, Royal Institute of Technology - KTH, Sweden

#### **16:00 Radiometric Calibration of Multi-wavelength Airborne Laser Scanning Data**

3206

Christian Briese, Vienna University of Technology and LBI for Archaeological Prospection and Virtual Archaeology, Austria

#### **16:22 Full Waveform Active Hyperspectral Lidar**

3207

Teemu Hakala, Finnish Geodetic Institute, Finland

#### **16:44 Signal Noise Reduction based on Wavelet Transform in Two-wavelength Lidar System**

3208

Shuo Shi, Wuhan University, China

Wei Gong, Wuhan University, China

Bo Zhu, Wuhan University, China

16:00-17:30 MCEC217

### **VIII/5: Energy and Solid Earth**

Chairs: Carlos de Souza Filho, University of Campinas, Brazil and Yoshiki Ninomiya, Geological Survey of Japan

#### **16:00 Continental Scale ASTER Products and Geoscience Applications in Australia**

3209

Matilda Thomas, Geoscience Australia, Australia

#### **16:22 Integrated Interpretation of Various Remotely Sensed Datasets in Areas of Limited Geological Outcrop**

3210

Tsehaie Woldai, University of Twente - ITC, The Netherlands

#### **16:44 Identification of Geomorphic Signatures of Neotectonic Activity using DEM in the Precambrian Terrain of Western Ghats, India**

3211

Jayappa Siddappa Kathihally, Mangalore University, India

#### **17:06 Shadow Effect on Photovoltaic Potentiality Analysis using 3D City Models**

3212

Md Nazmul Alam, University of Applied Sciences, Stuttgart, Germany

16:00-17:30 MCEC210

**VIII/6: Vegetation Dynamics**

Chair: Haruhisa Shimoda, Tokai University Research and Information Center, Japan

16:00 **Shifts in ANPP and Rainfall Use Efficiency Across Australian Savannas using MODIS and TRMM Data** 3213

Alfredo R Huete, University of Technology Sydney, Australia

16:22 **MODIS Time Series for Land use Change Detection in Fields of the Amazon Soy Moratorium** 3214

Joel Risso, National Institute for Space Research (INPE), Brazil

16:44 **Analysing and Quantifying Vegetation Responses to Rainfall with High Resolution Spatio-temp Time Series Data for Different Ecosystems and Ecotones in Queensland** 3215

Michael Schmidt, Department of Environment and Ressource Management, Australia

17:06 **Vegetation Responses to Climatic Variability in the Southeast United States: An Analysis of Changes in Greenness and Primary Productivity during the First Decade of the 21st Century** 3216

Sergio Bernardes, The University of Georgia, United States

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## Wednesday, 29 August 2012

Time	Location	Session Code	Wednesday August 29
9:00-10:30	Plenary 2		Plenary 2
11:00-12:30	Plenary 2	TS718	VII/4: Methods for Land Cover Classification-5
	208	SS915	GEO, CEOS and ISPRS: Global DEMs for the 21st century
	209	TS826	VIII/8: Landscape Biophysical Characterization
	210	TS818	VIII/6: Biophysical Parameter Retrieval
	211	TS710	VII/3: Information Extraction from Hyperspectral Data-3
	212	TS509	V/4: Image-Based and Range-Based 3D Modelling-1
	213	TS411	IV/5: Distributed and Web-Based Geoinformation Services and Applications-1
	216	TS419	IV/8: 3D Spatial Data Integration for Disaster Management & Env. Monitoring-1
	217	TS115	ICWG IV: 3D Extraction using Unmanned Systems
	218	TS110	I/4: New and Future Satellite Mission: Modelling and Performance
	219	TS306	III/1: Image Processing
	220	TS210	II/4: Applied Spatial Uncertainty and Quality Control
	5.2.03-4	TS211	II/5: Multidimensional and Mobile Data Models
2:00-3:30	Plenary 2		GA III
	208	PS901	Special Sessions
	210	PS803	VIII/6: Agriculture, Ecosystems and Bio-Diversity
	211	PS703	VII/4: Methods for Land Cover Classification; VII/5: Methods for Change Detection and Process Modelling
	212	PS501	V/1: Vision Metrology-Best Practice, Systems and Applications; V/2: Cultural Heritage Data Acquisition and Processing; V/4: Image-Based and Range-Based 3D Modelling
	213	PS403	IV/3: Mapping from High Resolution Data
	216	PS307	III/4: Complex Scene Analysis and 3D Reconstruction; III/5: Image Sequence Analysis
	218	PS102	I/4: Geometric and Radiometric Modeling of Optical Spaceborne Sensors
	219	PS303	III/1: Pose Estimation and Surface Reconstruction from Image and/or Range Data; III/2: 3D Point Cloud Processing
	220	PS202	II/3: Spatial Analysis and Data Mining
	5.2.01-2	VS103	ESRI Vendor Session 1
5.2.03-4	VS103	A Comprehensive Imagery System	
4:00-5:30	Plenary 2		GA III
	208	TS824	VIII/7: Biomass Estimation with Active Sensors
	209	TS711	VII/3: Information Extraction from Hyperspectral Data-4
	210	TS819	VIII/6: Agricultural Management
	211	TS721	VII/5: Methods for Change Detection and Process Modelling-1
	212	TS510	V/4: Image-Based and Range-Based 3D Modelling-2
	213	TS412	IV/5: Distributed and Web-Based Geoinformation Services and Applications-2
	216	TS313	III/5: UAVs
	217	TS116	ICWG IV: Remote Sensing in Remote Areas using Unmanned Systems
	218	TS111	I/4: Radiometric and Geometric Modelling and Adjustment
	219	TS307	III/1: Mobile Mapping Systems
	220	TS212	II/6: Geo-Visualization and Virtual Reality-1
	5.2.01-2	SS909	ICA and WG IV/8: Maps, Imagery and Crowd Sourcing for Disaster Management
	5.2.03-4	ThS421	IV/2, IV/II: GeoSensor Networks and Sensor Web



09:00-10:30 MCEC Plenary 2

**Plenary 2**

Co-Chair: Chen Jun, National Geomatics Center of China, China

Ammatzia Peled, University of Haifa, Israel

09:00 **Towards Dynamic GIS**

Juergen Dold, Hexagon, Switzerland

09:30 **Global Land Cover Mapping at Fine Resolutions** 4002

Peng Gong, Institute for Global Change Studies, Tsinghua University, China

10:00 **Geomatics and Disaster Management: State-of-the-art and New Perspectives** 4003

Piero Boccoardo, ITHACA-Politecnico di Torino, Italy

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11:00-12:30 MCEC208

**GEO, CEOS and ISPRS: Global DEMs for the 21st Century**

Chair: Jan-Peter Muller, University College London, United Kingdom

11:00 **TanDEM-X: Mission Status and Science Activities**

Steffen Wollstadt, German Aerospace Centre (DLR), Germany

11:30 **ASTER Global DEM: The Kaizen approach** 4005

David J Meyer, U.S. Geological Survey, United States

11:49 **GMTED2010: Source Evaluations between the ASTER GDEM Version 2 and Comparable Higher Resolution Data Sources** 4006

Dean B Gesch, U.S. Geological Survey, United States

12:08 **NASADEM: A New NASA Digital Topographic Data Set** 4007

Michael Kobrick, NASA Jet Propulsion Laboratory, United States

11:00-12:30 MCEC218

**I/4: New and Future Satellite Mission: Modelling and Performance**

Chair: Daniela Poli, AVT, Austria

11:00 **The Future Spaceborne Hyperspectral Imager EnMAP: Its In-Flight Radiometric and Geometric Calibration Concept** 4008

Mathias Schneider, German Aerospace Center (DLR), Germany

11:22 **Development of Camera Model and Geometric Calibration/Validation of XSAT IRIS Imagery** 4009

Xiaojing Huang, National University of Singapore, Singapore

11:44 **Sentinel-2 Level 1 Products and Image Processing Performances** 4010

Simon J Baillarin, Centre National d'Etudes Spatiales, France

12:06 **Introducing ZY-3: China's First Civilian High-Res Stereo Mapping Satellite** 4011

Chengzhi Sun, Satellite Surveying and Mapping Application Center, China

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11:00-12:30 MCEC217

**ICWG I/V: 3D Extraction using Unmanned Systems**

Chair: Armin Gruen, ETH Zurich, Switzerland

11:00 **Dense Multiple Stereo Matching of Highly Overlapping UAV Imagery** 4012

Norbert Haala, University of Stuttgart, Germany

11:37 **Processing of UAV based Range Imaging Data to Generate Detailed Elevation Models of Complex Natural Structures** 4013

Tobias K Kohoutek, ETH Zurich, Switzerland

11:54 **Aerial Images from an UAV System: 3D Modeling and Tree Species Classification in a Park Area** 4014

Rossana Gini, Politecnico di Milano, Italy

12:11 **Automatic Texture Mapping with an Omnidirectional Camera Mounted on a Vehicle Towards Large Scale 3D City Models** 4015

Fei Deng, Wuhan University, China

## Wednesday, 29 August 2012

11:00-12:30 MCEC220

### **II/4: Applied Spatial Uncertainty and Quality Control**

Chair: Mahmoud R Delavar, University of Tehran, Iran

#### **11:00 The use of Random Sets to Model Uncertainties in Spatial Studies 4016**

Alfred Stein, Twente University - ITC, The Netherlands

#### **11:17 Quality Checking and Evaluation of Digital Line Graph Based on Rule Database and Fuzzy Comprehensive Evaluation Method 4017**

Xiaoming Gao, National Administration of Surveying, Mapping and Geoinformation, China

#### **11:34 Quality Evaluation of Generalized Building Groundplans 4018**

Yevgeniya Filippovska, University of Stuttgart, Germany

#### **11:51 Integration of Genetic Algorithms and Fuzzy Logic for Urban Growth Modeling 4019**

Mahmoud Reza Delavar, University of Tehran, Iran

#### **12:08 Consistency Matching in the Integration of Contour and River Data by Spatial Knowledge 4020**

Ming Yang, Wuhan University, China

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11:00-12:30 MEC5.2.03-04

### **II/5: Multidimensional and Mobile Data Models**

Chair: Abdul A Rahman, Universiti Teknologi Malaysia (UTM), Malaysia

#### **11:00 Integrated Management of Heterogeneous Geodata with a Hybrid 3D Geographic Information System 4021**

Susanne Becker, Stuttgart University, Germany

#### **11:22 Data Oriented Algorithm for Route Choice Set Generation in a Metropolitan Area using Mobile Phone GPS Data 4022**

Toshikazu Nakamura, University of Tokyo, Japan

#### **11:44 Kinetic Algorithms for Harbour Management 4023**

Christopher M Gold, Universiti Teknologi Malaysia (UTM), Malaysia

#### **12:06 CAD Construction Method of 3D Building Models for GIS Analysis 4024**

Pawel Boguslawski, Universiti Teknologi Malaysia (UTM), Malaysia

11:00-12:30 MCEC219

### **III/1: Image Processing**

Chair: Helmut Mayer, Bundeswehr University Munich, Germany

#### **11:00 Evaluation of Correction Methods of Chromatic Aberration in Digital Camera Images 4025**

Ryuji Matsuoka, Kokusai Kogyo Co., Ltd., Japan

#### **11:30 Detecting and Correcting Motion Blur from Images Shot with Channel-dependent Exposure Time 4026**

Mathieu Brédif, Institut Géographique National - Laboratoire MATIS, France

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11:00-12:30 MCEC213

### **IV/5: Distributed and Web-Based Geoinformation Services and Applications-1**

Chair: Maria A Brovelli, Politecnico di Milano, Italy

#### **11:00 Building an Integrated Web-based Environment for Exploratory Spatiotemp Data Analysis 4027**

Bing She, Wuhan University, China

#### **11:22 Field Ground Truthing Data Collector - A Mobile Toolkit for Image Analysis and Processing 4028**

Xiaoliang Meng, Wuhan University, China

#### **11:44 Extending Cyberinfrastructure to Share More Than Data: Geospatial Service Web 4029**

Huayi Wu, Wuhan University, China

#### **12:06 A Robust Parallel Framework for Massive Spatial Data Processing on High Performance Clusters 4030**

Xuefeng Guan, Wuhan University, China

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11:00-12:30 MCEC216

### **IV/8: 3D Spatial Data Integration for Disaster Management & Env. Monitoring-1**

Chair: Sisi Zlatanova, Delft University of Technology, The Netherlands

#### **11:00 Augmenting 3D City Model Components by Geodata Joins to Facilitate Ad-hoc Geometric-Topologically Sound Integration 4031**

Robert Kaden, Technische Universität Berlin, Germany

11:22 **Flood Hazard Assessment by the Integration of 3D-GIS and Flood Simulation** 4032

Yulin Ding, Wuhan University, China

11:44 **Three-dimensional Visualization of Spatial Data for Yangtze River Flood Prevention and Control Operation** 4033

Fuling Bian, Wuhan University, China

12:06 **A Pedestrian Accessible Position Extraction Method of Existing 3D Files for Large Building Evacuations** 4034

Lei Niu, Henan University of Urban Construction, China

11:00-12:30 MCEC212

**V/4: Image-Based and Range-Based 3D Modelling-1**

Chair: Fabio Remondino, FBK - Bruno Kessler Foundation, Italy

11:00 **Automatic Texture Mapping of Architectural and Archaeological 3D Models** 4035

Thomas Kersten, HafenCity University Hamburg, Germany

11:22 **3D Modeling of Architecture by Edge-Matching and Integrating the Point Clouds of Laser Scanner and those of Digital Camera** 4036

Nobuo Kochi, Topcon Corporation, Japan

11:44 **From Geometry to Diagnosis: Experiences of Geomatics in Structural Engineering** 4037

Pedro Arias Sanchez, University of Vigo, Spain

12:06 **A Novel Image Acquisition and Processing Procedure for Fast Tunnel DSM Production** 4038

Riccardo Roncella, Università degli Studi di Parma, Italy

11:00-12:30 MCEC211

**VII/3: Information Extraction from Hyperspectral Data-3**

Chair: Arnold G Dekker, CSIRO Land and Water, Australia

11:00 **Hyperspectral Data Classification using Factor Graphs** 4039

Rupert Mueller, German Aerospace Center (DLR), Germany

11:22 **A Classification Algorithm for Hyperspectral Data based on Synergetics Theory** 4040

Daniele Cerra, German Aerospace Center (DLR), Germany

11:44 **Super-Resolution of Hyper Spectral Images using Compressive Sensing based Approach** 4041

Rakesh C Patel, Dhirubhai Ambani Institute of Information and Communication Technology, India

12:06 **A Hybrid Segmentation-based Approach for Exploiting Spectral and Spatial Information Facilitating Hyperspectral Classification** 3165

Huan Xie, Tongji University, China

11:00-12:30 MCEC Plenary 2

**VII/4: Methods for Land Cover Classification-5**

Chair: Julian Smit, University of Cape Town, South Africa

11:00 **Mapping and Monitoring Invasive Saltcedar with Landsat TM imagery and Landscape Metrics** 4042

Le Wang, The State University of New York at Buffalo, United States

11:22 **Identification of Land Cover in the Past using Infrared Images at Present** 4043

Vaclav Safar, GEODIS BRNO, Czech Republic

11:44 **Comparative Performance Analysis of a Hyper-temp NDVI Analysis Approach and a Landscape-ecological Mapping Approach** 4044

Amjad Ali, University of Twente - ITC, The Netherlands

12:06 **A Novel Approach to Super Resolution Mapping of Multispectral Imagery Based on Pixel Swapping Technique** 4045

Milad Niroumand Jadidi, K.N. Toosi University of Technology, Iran

11:00-12:30 MCEC210

**VIII/6: Biophysical Parameter Retrieval**

Chairs: Alfredo R Huete, University of Technology Sydney, Australia and N R Patel, IIRS, India

11:00 **Remote Sensing Canopy Conductance for Combined Water and Carbon Studies** 4047

Marta Yebra, CSIRO, Australia

11:22 **Estimation of Vegetation Height through Satellite Image Texture Analysis** 4048

Zisis Petrou, Imperial College London AND Centre for Research and Technology Hellas, Greece

## Wednesday, 29 August 2012

11:44 **Remote-Sensing-Based Biophysical Models for Estimating LAI of Irrigated Crops in Murry Darling Basin** 4049

Indira Wittamperuma, Charles Sturt University, Australia

12:06 **Monitoring Spatial Patterns of Vegetation Phenology in an Australian Tropical Transect using MODIS EVI** 4050

Xuanlong Ma, University of Technology Sydney, Australia

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11:00-12:30 MCEC209

**VIII/8: Landscape Biophysical Characterization**

Chair: Laurie A Chisholm, University of Wollongong, Australia

11:00 **Validation of Landsat based Time-Series of Persistent Green-Vegetation Fraction for Australia** 4051

Kasper Johansen, The University of Queensland, Australia

11:17 **Operational Observation of Australian Bioregions With Bands 8-19 of MODIS** 4052

Brendon K McAtee, Landgate Satellite Remote Sensing Services, Australia

11:34 **Developments in Monitoring Rangelands using Remotely-sensed Cross-fence Comparisons** 4053

Adam D Kilpatrick, The University of Adelaide, Australia

11:51 **Application of High Dynamic Range Imaging for Ground-Based Monitoring of Vegetation and Photosynthetically Active Radiation** 4054

Dennis G Dye, U.S. Geological Survey, United States

12:08 **High Temp Frequency Biophysical and Structural Vegetation Information from Multiple Remote Sensing Sensors can Support Modelling of Event based Hillslope Erosion in Queensland** 4055

Birte Schoettker, University of Queensland, Australia

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14:00-15:30 MEC5.2.01-04

**Esri Presentation - A Comprehensive Imagery System**

14:00 **A Comprehensive Imagery System** 4056

Peter Becker, Environment System Research Institute, United States

Melanie Harlow, Environment System Research Institute, United States

14:00-15:30 MCEC218

**Short+Interactive**

**I/4: Geometric and Radiometric Modeling of Optical Spaceborne Sensors**

Chair: Peter Reinartz, German Aerospace Center (DLR), Germany

14:00 **The Geometric Correction Model based on Areal Features for Multisource Images Rectification** 4057

Weili Jiao, Chinese Academy of Sciences, China

14:03 **The Transformation from Tilted Image to Horizontal Image based on the Rational Function Model** 4058

Danchao Gong, Xi'an Institute of Surveying and Mapping, China

14:06 **Accuracy Analysis of HRSI-based Geopositioning using Least Squares Collocation** 4059

Gang Qiao, Tongji University, China

14:09 **SENSOR++: Simulation of Remote Sensing Systems from Visible to Thermal Infrared** 4060

Carsten Paproth, German Aerospace Center (DLR), Germany

14:12 **Self Calibration of Small and Medium Format Digital Cameras** 4061

Jon Christopherson, SGT, United States

14:15 **Comparison of Particle Swarm Optimization and Genetic Algorithm in Rational Function Model Optimization** 4062

Somayeh Yavari, K. N. Toosi University of Technology, Iran

14:18 **Image Registration using Terrain Relief Correction based on the Rigorous Sensor Models** 4063

Hyunsuk Kim, Satrec Initiative, Korea

14:21 **Triple Linear-array Imaging Geometry Model of the ZiYuan-3 Surveying Satellite and Its Validation** 4064

Xinming Tang, Satellite Surveying And Mapping Application Center, China

14:00-15:30 MCEC220

**Short+Interactive**

**II/3: Spatial Analysis and Data Mining**

Chair: Tao Cheng, University College London, UK

**14:00 Forest Disturbance Leads to the Rapid Spread of the Invasive Leucaena Leucocephala in Taiwan 4065**

ChaurTzuhn Chen, National Pingtung University of Science and Technology, Taiwan

**14:03 Cost Analysis of Spatial Data Production as a Part of Business Intelligence within the Mapping Department 4066**

Sinan Colak, General Directorate of Land Registry and Cadastre, Turkey

**14:06 GIS-Based Spatial Statistical Analysis of College Graduates Employment 4067**

Ruidai Tang, Wuhan University, China

**14:09 Automatic Map Retrieval and Map Interpretation in the Internet 4068**

Volker Walter, University of Stuttgart, Germany

**14:12 An Efficient Algorithm for the Convex Hull of Planar Scattered Point Set 4069**

Zhongliang Fu, Wuhan University, China  
Yuefeng Lu, Wuhan University, China

**14:15 A Research on Spatial Topological Association Rules Mining 4070**

Jiangping Chen, Wuhan University, China

**14:18 A Study on the Comprehensive Simulation of Nonpoint Source Pollution for Er-hai Lake's Watershed in Dali of China 4071**

Kun Yang, GIS Technology Research Center of Resource and Environment in Western China, China

**14:21 Properties of the Q-Tree Representation of a Scalar Field 4072**

Kazimierz Becek, Universiti Brunei Darussalam, Brunei Darussalam

14:00-15:30 MCEC219

**Short+Interactive**

**III/1: Pose Estimation and Surface Reconstruction from Image and/or Range Data; III/2: 3D Point Cloud Processing**

Chair: Christoph Strecha, EPFL, Switzerland

**14:00 A New Approach of Digital Bridge Surface Model Generation 4073**

Charles Toth, The Ohio State University, United States

**14:03 SIFT for Dense Point Cloud Matching and Aero Triangulation 4074**

Jaan-Rong Tsay, National Cheng Kung University, Taiwan

**14:06 An Accuracy Assessment of Automated Photogrammetric Techniques for 3D Modeling of Complex Interiors 4075**

Athanasios Georgantas, IGN, France

**14:09 A Multi-Sensor Approach to Semi-Global Matching 4076**

William LaRocque, Intergraph, United States

**14:12 RANSAC Algorithm for Automatic Extraction of the Ground Surface from LiDAR Data 4077**

Norbert Pfeifer, Vienna University of Technology, Austria

**14:15 L1 Estimation with Different Adjustment Models 4078**

Jim Bethel, Purdue University, United States

**14:18 Classification by Using Multispectral Point Cloud Data 4079**

Chen-Ting Liao, National Chengchi University, Taiwan

**14:21 UltraMap: The all in one Photogrammetric Solution 4080**

Alexander Wiechert, Microsoft Vexcel Imaging GmbH, Austria

**14:24 Advances of Flash LiDAR Development Onboard UAV 4081**

Guoqing Zhou, Guilin University of Technology, China

**14:27 Finding Cuboid-Based Building Models in Point Clouds 4082**

William Nguatem, Bundeswehr University Munich, Germany

**14:30 Structure Line Detection from Lidar Point Clouds using Topological Elevation Analysis 4083**

Chao-Yuan Lo, National Central University, Taiwan

## Wednesday, 29 August 2012

14:33 **General Mathematical Model of Least Squares 3D Surface Matching and its Application of Strip Adjustment** 4084

Zhiqian Zuo, Chinese Academy of Surveying and Mapping, China

14:36 **Algorithm for DEM Generation from Full-Waveform LIDAR Data of Forest Areas** 4085

Yungang Cao, Southwest Jiaotong University, China

14:39 **Classification of Airborne Laser Scanning Data in Wadden Sea Areas using Conditional Random Fields** 4086

Alena Schmidt, Leibniz Universität Hannover, Germany

14:42 **Automated Reconstruction of Walls from Airborne LIDAR Data for Complete 3D Building Modelling** 4087

Yuxiang He, Cooperative Research Centre for Spatial Information, Australia

14:45 **Alternative Methodologies for the Estimation of Local Point Density Index: Moving Towards Adaptive LIDAR Data Processing** 4088

Zahra Lari, University of Calgary, Canada

14:00-15:30 MCEC216

**Short+Interactive**

**III/4: Complex Scene Analysis and 3D Reconstruction;**

**III/5: Image Sequence Analysis**

Chair: Gunho Sohn, York University, Canada

14:00 **A New Object Based Method for Automated Extraction of Urban Objects from Airborne Sensors Data** 4089

Naser El-Sheimy, University of Calgary, Canada

14:03 **Kinect-based Real-time RGB-D Image Fusion Method** 4090

Tangwu Du, Wuhan University, China

14:06 **Complex Building Model Reconstruction from Point Clouds by Smart Components** 4091

Xianfeng Huang, Wuhan University and Microsoft Research Asia, China

14:09 **Plane Matching with Object-Space Searching using Independently Rectified Images** 4092

Hiroshi Takeda, Kokusai Kogyo Co.,Ltd, Japan

14:12 **Gestalt Grouping on Façade Textures from IR Image Sequences: Comparing Different Production Systems** 4093

Dorota Iwaszczuk, TU Munich, Germany

14:15 **LIBRJMMC: An Open-source Generic C++ Library for Stochastic Optimization** 4094

Mathieu Brédif, IGN, France

14:18 **Accuracy Assessment of Building Models Created from Laser Scanning Data** 4095

Grzegorz Jozkow, Wrocław University of Environmental and Life Sciences, Poland

14:21 **Development of 3D Building Creation Software using Vertical and Oblique Aerial Images** 4096

Sunghoon Lee, Geontech, Korea

14:24 **3D Building Reconstruction Based on Synergistic Combination of LiDAR Data and Digital Aerial Imagery** 4097

Hossein Arefi, German Aerospace Center (DLR), Germany

14:27 **Quality Analysis on RANSAC-based Roof Facets Extraction from Airborne LIDAR Data** 4098

Jixing Yan, Wuhan University, China

14:30 **Intensity and Range Image based Features for Object Recognition in Mobile Mapping Data** 4099

Geoff Alec West, Curtin University, Australia

14:33 **Optimisation of Fuzzy based Soft Classifiers for Remote Sensing Data** 4100

S K Ghosh, Indian Institute of Technology, India

14:36 **Real Time Speed Estimation From Monocular Video** 4101

Sitki Külür, Istanbul Technical University, Turkey

14:39 **Persistent Object Tracking with Randomized Forests** 4102

Tobias Klinger, Leibniz Universität Hannover, Germany

14:42 **Spectrum-based Object Detection and Tracking Technique for Digital Video Surveillance** 4103

Yury V Vizilter, GosNIIAS, Russia

14:45 **Image Acquisition Constraints for Panoramic Frame Camera Imaging** 4104

Heikki J Kauhanen, Aalto University, Finland

14:48 **A Novel Object of Interest Extraction Method for Mobile Mapping Systems** 4190

Peng Li, National University of Defense Technology, China

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14:00-15:30 MCEC213

**Short+Interactive**

**IV/3: Mapping from High Resolution Data**

Chair: David Holland, Ordnance Survey, UK

14:00 **Road Extraction from High Resolution Satellite Images** 4105

Meral Özkaya, Bilisim Ltd., Turkey

14:03 **Reliable and Practical City Map Generation at 1:1000 or 1:500 Scale based on "Five Control Points" Rectification of Digitized Images** 4106

Wei Ruan, Tong Ji University, China

14:06 **Power Line Detection from SAR Imagery using Coherence of Co- and Cross-polarisation Estimated in the Hough Domain** 4107

Shaoping Deng, Wuhan University, China

14:09 **Accuracy Improvement of DEM for Generating Orthophoto by Reverse Projection Method** 4108

Fuminori Sugiyama, Aeroasahi Co., Japan

Hirofumi Chikatsu, Tokyo Denki University, Japan

14:12 **Research of Image Matching Algorithm Based on Rotation Vector Field** 4109

YanSong Duan, Wuhan University, China

14:15 **VHRS Stereo Images for 3D Modelling of Buildings** 4110

Aleksandra Bujakiewicz, Warsaw University of Technology, Poland

14:18 **Satellite "Canopus-V" Images Processing Technology Development for Cartography Purposes based on Prelaunch Simulation** 4111

Victor V Nekrasov, VNIIEM, Russia

14:21 **A Method for True Orthophoto Generation based on Projection and Iteration Strategy** 4112

Xiao Wang, Chinese Academy of Sciences, China

14:24 **A Class of Regression-cum-ratio Estimators in Two-phase Sampling for Utilizing Information from High Resolution Satellite Data** 4113

Bijoy Krishna Handique, Department of Space, India

14:27 **Extraction of Forest Stands Parameters from ASTER Data in Open Forest** 4114

Hamid Reza Riyahi Bakhtyari, University of Shiraz, Iran

14:30 **Orthorectification by Using GPGPU Method** 4115

Hakan Sahin, General Command of Mapping, Turkey

14:33 **Dense Corresponding Pixel Matching using a Fixed Window with RGB Independent Information** 4116

Teng Hu, Wuhan University, China

Huayi Wu, Wuhan University, China

Jianya Gong, Wuhan University, China

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14:00-15:30 MCEC212

**Short+Interactive**

**V/1: Vision Metrology-Best Practice, Systems and Applications; V/2: Cultural Heritage Data Acquisition and Processing; V/4: Image-Based and Range-Based 3D Modelling**

Chair: Bharat Lohani, IIT Kanpur, India

14:00 **Efficient Extraction Method of the Change of Buildings for Fixed Property Investigation** 4117

Yasuhiro Tanauchi, Aero Asahi Corporation, Japan

14:03 **Using Vision Metrology System for Quality Control in Automotive Industries** 4118

Nikrouz Mostofi, Islamic Azad University, Iran

14:06 **Determining the Technical Standards of Ping Pong Table by Using Close Range Photogrammetry** 4119

Ugur Acar, Yildiz Technical University, Turkey

14:09 **Building 3D Model of Stairs Structure Using Close Range Photogrammetry** 4120

Seyed Mohammad Ayazi, National Cartography Center (NCC), Iran

14:12 **Determining Pull-out Deformations of Bonded Metal Anchors Embedded in Concrete by Means of Photogrammetry** 4121

Ozgun Avsar, Istanbul Technical University, Turkey

## Wednesday, 29 August 2012

14:15 **Imaging a Sustainable Future in 3D** 4122  
Walter Schuhr, University of Applied Sciences Magdeburg,  
Germany  
Jin-Duk Lee, Kumoh National Institute of Technology, Korea

14:18 **Stereometric Modelling** 4123  
Pietro Grimaldi, Politecnico di Bari, Italy

14:21 **Deformation Monitoring of the “Passetto di Borgo” in Rome using Geomatics Integrated Techniques** 4124  
Benedetto Villa, University of Palermo, Italy

14:24 **High Resolution Survey of Festòs Palace (Crete) by TLS and Terrestrial Photogrammetry** 4125  
Vladimiro Achilli, University of Padova, Italy

14:27 **Simple Room Shape Modeling with Sparse 3D Point Information using Photogrammetry and Application Software** 4126  
Shun Hirose, TOPCON Corporation, Japan

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14:00-15:30 MCEC211

### Short+Interactive

**VII/4: Methods for Land Cover Classification; VII/5: Methods for Change Detection and Process Modelling**  
Chair: Julian Smit, University of Cape Town, South Africa

14:00 **Classification of Active Microwave and Passive Optical Data Based on Bayesian Theory and MRF** 4127  
Fan Yu, Chinese Academy of Surveying and Mapping, China

14:03 **Spatial Interpolation as a Tool for Spectral Unmixing of Remotely Sensed Images** 4128  
Xi Li, Wuhan University, China

14:06 **Application of MODIS Data to Assess the Latest Forest Cover Changes of Sri Lanka** 4129  
Kithsiri Perera, University of Southern Queensland, Australia

14:09 **Accuracy Evaluation of Two Global Land Cover Data Sets Over China Wetlands** 4131  
Zhenguo Niu, Chinese Academy of Sciences, China

14:12 **Evaluation of ASTER Images for Characterization and Mapping of Ametist Mining Residues** 4132  
Paulo Roberto Markoski, UFRGS, Brazil

14:15 **Random Forests-Based Feature Selection for Land-Use Classification using LIDAR Data and Orthoimagery** 4133  
Jun Yu, Xiamen University, China

14:18 **Post-classification Approach Based on Geostatistics to Remote Sensing Images: Spectral and Spatial Information Fusion** 4134  
Jingxiong Zhang, Wuhan University, China

14:21 **Impact of Different Topographic Corrections on Prediction Accuracy of Foliage Projective Cover (FPC) in a Topographically Complex Terrain** 4135  
Sisira Ediriweera, Southern Cross University, Australia

14:24 **Land use Mapping in Khuzestan Province by using the Satellite Imagery** 4136  
Maisam Toosi, Mamaghan Islamic Azad University, Iran

14:27 **Defining Densities for Urban Residential Texture, through Land use Classification, from Landsat 7etm+ Imagery: Case Study of Spanish Mediterranean Coast** 4137  
Nicola Colaninno, Universitat Politècnica de Catalunya, Spain

14:30 **Comparison of Various Techniques of Glacial Lake Mapping in Teesta River Basin, India** 4138  
Rahul Dev Garg, Indian Institute of Technology, India

14:33 **Albedo Pattern Recognition and Time-series Analyses in Malaysia** 4139  
Siti Aekbal Salleh, Universiti Teknologi MARA, Malaysia

14:36 **Quantitative Analysis of Urban Expansion in Central China** 4140  
Yongnian Zeng, Central South University, China

14:37 **Combining Local Features and Progressive Support Vector Machine for Urban Change Detection of VHR Images** 4141  
Chunlei Huo, Chinese Academy of Sciences, China

14:42 **Identifying Building Change Using High Resolution Point Clouds - An Object-based Approach** 4142  
Steve du Plessis, Intergraph, United States

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14:00-15:30 MCEC210

**Short+Interactive**

**VIII/6: Agriculture, Ecosystems and Bio-Diversity**

Chair: Heather McNairn, Agriculture and Agri-Food Canada, Canada

14:00 **NDVI from Active Optical Sensors as a Measure of Canopy Cover and Biomass** 4143

Elizabeth M Morse-McNabb, Department of Primary Industries, Australia

14:03 **Estimating Biochemical Parameters of Tea (Camellia sinensis (L.)) using Hyperspectral Techniques** 4144

Meng Bian, Wuhan University, China

14:06 **Evaluation Model for Rice under Heavy Metal Cd Stress using Hyperspectral Data** 4145

Ping Wang, Northeast Normal University, China  
Xiangnan Liu, China University of Geosciences, China

14:09 **Subdivision of Pantanal Quaternary Wetlands: MODIS NDVI Time-series in the Indirect Detection of Sediments Granulometry** 4146

Natasha Costa Penatti, University of São Paulo, Brazil

14:12 **Estimation of the Area under Sugarcane Cultivation using Multi-scene SLC-off ETM+ Images** 4147

Hamed Fahimnejad, Sepehr Geomatics Engineering Co., Iran

14:15 **Participatory Geographic Information System for Soil Conservation in Phewa Watershed of Nepal** 4148

Krishna Prasad Bhandari, Tribhuvan University, Nepal

14:18 **Implementation of an Agricultural Environmental Information System (AEIS) for SanJiang Plain, NE-China** 4151

Quanying Zhao, University of Cologne, Germany

14:21 **Impact Assessment of Watershed in Desert Region** 4152

Vasala Madhava Rao, National Institute of Rural Development, India

14:00-15:30 MCEC208

**Short+Interactive**

**Special Sessions**

Chair: Mark Shortis, RMIT University, Australia

14:00 **Photogrammetric and LIDAR Documentation of the Royal Chapel (Cathedral-Mosque of Cordoba, Spain)** 4153

Javier Cardenal, University of Jaén, Spain

14:03 **Comparison of Low Altitude Photogrammetric Methods for Obtaining DEMs and Orthoimages of Archaeological Sites** 4154

Antonio T Mozas-Calvache, University of Jaén, Spain

14:06 **Surveying and Monitoring the Rialto Bridge in Venice by Integrated Methodologies** 4155

Giuseppe Artese, University of Calabria, Italy

14:09 **Laser Scanner Survey to a Cultural Heritage Conservation and Restoration** 4156

Giuseppina Vacca, University of Cagliari, Italy

14:12 **Indian Remote Sensing Satellite, Resourcesat 2 for Australian Land, Water, Ecological and Environment Monitoring and Management** 4157

Murthy Remilla RIn, Antrix Department of Space, India

14:15 **Revised Coordinates for Apollo Lunar Modules and ALSEPs** 4158

Robert V Wagner, Arizona State University, United States

14:18 **Parallel and Adaptive Uniform-Distributed Registration Method for Chang'e-1 Lunar Remote Sensed Imagery** 4159

Xiaogang Ning, Chinese Academy Surveying and Mapping, China

14:21 **Precise Locations of Landed US and Soviet Lunar Spacecraft** 4160

Mark S Robinson, Arizona State University, United States

14:24 **On the National Geographical Condition Monitoring Several Strategic Issues** 4161

Dezhu Gui, State Bureau of Surveying Mapping and Geoinformation, China

14:27 **Pleiades-HR Image Quality commissioning** 4162

Laurent Lebegue, CNES, France

## Wednesday, 29 August 2012

14:30 **PLEIADES Absolute Calibration: Inflight Calibration Sites and Methodology** 4163  
Sophie Lacherade, CNES, France

14:33 **Restoration Technique for Pleiades-HR Panchromatic Images** 4164  
Christophe Latry, CNES, France

14:36 **Attitude Assessment using PléiadesHR Capabilities** 4165  
Jean-Marc Delvit, CNES, France

14:39 **Automatic and Generic Mosaicing of Multisensor Images: An Application to Pleiades HR** 4166  
Simon Baillarin, CNES, France

14:42 **Pleiades HR in Flight Geometrical Calibration: Location and Mapping of the Focal Plane** 4167  
Françoise de Lussy, CNES Centre Spatial de Toulouse, France

14:45 **Automatic Damaged Building Detection Using Fast Fourier Transform from Close Range Optical Imagery in Case of Natural Hazards** 4168  
Chandana Dinesh Kumara Parape, Kyoto University, Japan

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16:00-17:30 MEC5.2.01-02  
**ICA and WG IV/8: Maps, Imagery and Crowd Sourcing for Disaster Management**  
Chair: Milan Konecny, Masaryk University, Czech Republic

16:00 **Three-Dimensional Maps for Disaster Management** 4169  
Milan Konecny, Masaryk University, Czech Republic

16:22 **The Use of Lidar and Volunteered Geographic Information to Map Flood Extents and Inundation** 4170  
Kevin McDougall, University of Southern Queensland, Australia

16:44 **The Important of Toponym in the Middle of Maps and Imagery for Disaster Management** 4171  
Aji Putra Perdana, Bakosurtanal, Indonesia

17:06 **From Orthophoto to Info Clouds – Automated Image Processing for Emergency Response** 4172  
Ruedi J Wagner, Hexagon Geosystems, Switzerland

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16:00-17:30 MEC5.2.03-04  
**IV/2, IV/II: GeoSensor Networks and Sensor Web**  
Chair: Anthony Stefanidis, George Mason University, USA

16:00 **A Hybrid Pull-Push System for Near Real-Time Notifications on Sensor Web** 4173  
Chih-Yuan Huang, University of Calgary, Canada

16:22 **Qtrajectories: Improving the Quality of Object Tracking using Self-organizing Camera Networks** 4174  
Uwe Jaenen, Leibniz University of Hannover, Germany

16:44 **Integrated Remote and In-Situ Sensing Data Processing for a Real-time Landslide Monitoring Sensor Network System** 4175  
Tiantian Feng, Tongji University, China

17:06 **Deployable Non-linear Geomovies and 3D Augmented Reality Space-time Visualizations as New Forms of Situated Public Environmental Information Tools** 4176  
Nick Hedley, Simon Fraser University, Canada

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16:00-17:30 MCEC218  
**I/4: Radiometric and Geometric Modelling and Adjustment**  
Chair: Gurcan Buyuksalih, BIMTAS, Turkey

16:00 **Bundle Block Adjustment with Self-Calibration of Long Orbit CBERS-02B Imagery** 4177  
Maoteng Zheng, Wuhan University, China

16:22 **Interior Orientation Error Modelling and Correction for Precise Georeferencing of Satellite Imagery** 4178  
Chunshun Zhang, The University of Melbourne, Australia

16:44 **Study on the Influence of Spacecraft Jitter on RFM Precision and Methods for Jitter Elimination** 4179  
Bin Liu, Chinese Academy of Sciences, China

17:06 **An Attribute and Orbit Parameter Fitting Method for Chinese Satellite Based on Hidden Markov Model** 4180  
Xiuxiao Yuan, Wuhan University, China

16:00-17:30 MCEC217

**ICWG IV: Remote Sensing in Remote Areas using Unmanned Systems**

Chair: Norbert Haala, University of Stuttgart, Germany

**16:00 UAV Photogrammetry in Remote Areas – 3D Modeling of Drapham Dzong, Bhutan 4181**

Armin Gruen, ETH Zurich, Switzerland

**16:37 Searching Lost People with UAVs: The System and Results of the CLOSE-SEARCH Project 4182**

Pere Molina, Institute of Geomatics, Spain

**16:54 Using a Micro-UAV for Ultra-high Resolution Multi-sensor Observations of Antarctic Moss Beds 4183**

Arko Lucieer, University of Tasmania, Australia

**17:11 Photogrammetric Measurements in Fixed Wing UAV Imagery 4184**

Eberhard Gülch, Stuttgart University of Applied Sciences, Germany

16:00-17:30 MCEC220

**II/6: Geo-Visualization and Virtual Reality-1**

Chair: Chris Pettit, Department of Primary Industries, Australia

**16:00 3D Geovisualization - Definition and Structures for the Assessment of Usefulness 4185**

Susanne Bleisch, University of Applied Sciences Northwestern Switzerland, Switzerland

**16:22 A Framework of Online Spatial-temp Data Visualization based on HTML5 4186**

Bo Mao, Royal Institute of Technology, Sweden

**16:44 Landscape Visualisation on the Internet 4187**

Mark P Imhof, Department of Primary Industries, Australia

**17:06 Simultaneous Visualization of Different Utility Networks for Disaster Management 4188**

Thomas H Kolbe, Technische Universität Berlin, Germany

16:00-17:30 MCEC219

**III/2: Mobile Mapping Systems**

Chair: Christoph Strecha, EPFL, Switzerland

**16:00 Off-line Vs. On-line Calibration of a Panoramic-Based Mobile Mapping System 4189**

Bertrand Cannelle, Institut Géographique National, France

**16:30 Trajectory-based Registration of 3D LIDAR Point Clouds Acquired with a Mobile Mapping Systems 4191**

Adrien Gressin, Institut Géographique National, France

16:00-17:30 MCEC216

**III/5: UAVs**

Chair: Uwe Stilla, Technische Universitaet Muenchen, Germany

**16:00 Complex Event Detection in Pedestrian Groups from UAVs 4192**

Florian Burkert, Technische Universität München, Germany

**16:30 Developing Species Specific Vegetation Maps using Multi-spectral Hyperspatial Imagery from Unmanned Aerial Vehicles 4193**

Christoph Strecha, EPFL, Switzerland

**17:00 3D Modelling and Monitoring of Granite Quarry using Unmanned Aerial Vehicle 4194**

Diego Gonzalez-Aguilera, University of Salamanca, Spain

## Wednesday, 29 August 2012

16:00-17:30 MCEC213

### **IV/5: Distributed and Web-Based Geoinformation Services and Applications-2**

Chair: Bert G Veenendaal, Curtin University, Australia

16:00 **A Geospatial Web Services Composition Framework Supporting Real-Time Status Monitoring** 4195  
Lan You, Wuhan University, China

16:22 **Distributed Infrastructure Enabling Effective Integration of Earth Observation Information Resources for Collective Solution of Archiving, Searching, Processing and EO Data Analyzing Tasks** 4196  
Victor P Savorskiy, Kotelnikov's Institute of Radioengineering and Electronics of RAS, Russia

16:44 **The Application of Digital Line Graphs and Map in the Network Environment** 4197  
Xincheng Guo, Chang'an University, China

17:06 **An Automated End-to-End Multi-Agent QoS Based Architecture for Selection of Geospatial Web Services** 4198  
Yogesh Verma, ISRO, India

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16:00-17:30 MCEC212

**V/4: Image-Based and Range-Based 3D Modelling-2**  
Chair: Jan Boehm, University College London, United Kingdom

16:00 **Detailed Primitive-based 3D Modelling of Architectural Elements** 4199  
Fabio Remondino, FBK Bruno Kessler Foundation, Italy

16:22 **Fully Automated Image Orientation in the Absence of Targets** 4200  
Christos Stamatopoulos, CRC for Spatial Information, Australia

16:44 **Implementing an Adaptive Approach for Dense Stereo-matching** 4201  
Christos Stentoumis, National Technical University of Athens, Greece

17:06 **Estimation of Tree Stem Attributes using Terrestrial Photogrammetry** 4202  
Mona Forsman, Swedish University of Agricultural Sciences, Sweden  
Niclas Börlin, Umeå University, Sweden

16:00-17:30 MCEC209

**VII/3: Information Extraction from Hyperspectral Data-4**  
Chair: Arnold G Dekker, CSIRO Land and Water, Australia

16:00 **Towards Standards for the Exchange of Spectral Datasets** 4203  
Tim J Malthus, CSIRO Land and Water, Australia

16:22 **A Graph and Simplex Regularized Nonnegative Matrix Factorization for Hyperspectral Unmixing** 4204  
Yuancheng Huang, Xi'an Institute of Optics and Precision Mechanics, China

16:44 **Comparison of Wavelet-Based and HHT-Based Feature Extraction Methods for Hyperspectral Image Classification** 4205  
Xiu-Man Huang, National Taiwan University, Taiwan

17:06 **Study on Oil-gas Information Detecting Methods using Hyperspectral Remote Sensing** 3162  
Qingjiu Tian, Nanjing University, China

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16:00-17:30 MCEC211

**VII/5: Methods for Change Detection and Process Modelling-1**

Chair: Qiming Zhou, Hong Kong Baptist University, Hong Kong

16:00 **Seasonal Trends in Tibetan Lake Level Changes as Observed by ICESat Laser Altimetry** 4206  
Vu H Phan, Delft University of Technology, The Netherlands

16:37 **Analysis of Thickness Changes on Amery Ice Shelf and its Surroundings, East Antarctica, using ICESat Crossovers** 4207  
Hongchao Fan, Tongji University, China

16:54 **On the use of Dual-co-polarized TerraSAR-X Data for Wetland Monitoring** 4208  
Andreas Schmitt, German Aerospace Center (DLR), Germany

17:11 **Feasibility to Detect Signs of Potential CO<sub>2</sub> Leakage with Multi-temp SPOT Satellite VEGETATION Imagery in Otway, Victoria** 4209  
Paula Rattanasuda Cholathat, The University of New South Wales, Australia  
Linlin Ge, The University of New South Wales, Australia

16:00-17:30 MCEC210

**VIII/6: Agricultural Management**

Chair: Shibendu S Ray, Indian Space Research Organisation,  
India

16:00 **Exploiting the DMC Satellite Constellation for  
Applications in Agriculture, Forest Monitoring and  
Disaster Response** 4210

Gary Holmes, DMC International Imaging, United Kingdom

16:17 **Satellite-based Measurements for Benchmarking  
Regional Irrigation Performance in Goulburn-Murray  
Catchment** 4211

Mohammad Abuzar, Department of Primary Industries,  
Australia

16:34 **Global Monitoring for Food Security and  
Sustainable Land Management – Recent Advances of  
Remote Sensing Applications to African and Siberian  
Show Cases** 4212

Klaus U Komp, EFTAS, Germany

16:51 **Regionalization of Agricultural Management by  
using the Multidata Approach (MDA)** 4213

Georg Bareth, University of Cologne, Germany

17:08 **Monitoring of Agricultural Landscape in Norway**  
4214

Hanne Gro Wallin, Norwegian Forest and Landscape Institute,  
Norway

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16:00-17:30 MCEC208

**VIII/7: Biomass Estimation with Active Sensors**

Chair: Erwan Renaudin, University of Calgary, Canada

16:00 **Improved Interpretation of ALOS PALSAR  
Backscattering Coefficients for Estimation of Forest Stem  
Volume at Mountainous Stand Level** 4215

Min-Gee Hong, Kookmin University, Korea

16:22 **Voxel-based Approach for Estimating Urban Tree  
Volume From Terrestrial Laser Scanning Data** 4216

Thomas Voegtle, Karlsruhe Institute of Technology, Germany

16:44 **Biomass Estimation using Vertical Forest  
Structure from SAR Tomography: A Case Study in  
Canadian Boreal Forest** 4217

Erwan Renaudin, University of Calgary, Canada

## Thursday, 30 August 2012

Time	Location	Session Code	Thursday August 30
9:00-10:30	208	CATCON-1	CATCON-1: Presentations
	209	TS712	VIII/3: Information Extraction from Hyperspectral Data-5
	210	TS820	VIII/6: Wetland Ecosystems
	211	TS722	VII/5: Methods for Change Detection and Process Modelling- Session 2
	212	TS511	V/5: Sensor Calibration-1
	213	TS413	IV/5: Distributed and Web-Based Geoinformation Services and Applications-3
	216	TS420	IV/8: 3D Spatial Data Integration for Disaster Management & Env. Monitoring-2
	217	TS314	III/5: Image Sequence Analysis
	218	TS117	ICWG IV: Instruments and Methods for Unmanned Systems Based Remote Sensing
	219	TS308	III/2: Façades
	220	TS213	II/6: Geo-Visualization and Virtual Reality-2
11:00-12:30	208	CATCON-2	CATCON-2: User Evaluations
	209	TS829	VIII/8: Drought, Moisture and Stress Detection
	210	TS821	VIII/7: Forest Change Detection
	211	TS723	VII/5: Methods for Change Detection and Process Modelling- Session 3
	212	TS512	V/5: Sensor Calibration-2
	213	TS414	IV/6: Global DEM Interoperability-1
	216	TS422	ICWG IV/VIII: Updating and Maintenance of Core Spatial Databases-1
	217	TS603	VI/4: Cross-Border Education - Joint Educational Programs
	218	TS118	ICWG IV: Unmanned Systems for Mapping
	219	TS309	III/4: Building Outlining
	220	TS214	II/6: Geo-Visualization and Virtual Reality-3
2:00-3:30	210	PS804	VIII/7: Forestry; VIII/10: Cryosphere
	211	PS704	VII/5: Methods for Change Detection and Process Modelling; VII/6: Remote Sensing Data Fusion
	212	PS502	V/3: Terrestrial Laser Scanning and 3D Imaging; V/6: Close Range Morphological Measurement for the Earth Sciences
	213	PS404	IV/3: Mapping from High Resolution Data
	216	PS308	III/5: Image Sequence Analysis; TCs III and V: Medical Imaging and Human Motion
	219	PS304	III/2: 3D Point Cloud Processing
	5.2.01-2	VS104	ESRI Vendor Session 2
	5.2.03-4	VS104	Easily Manage and Make Large Collections of Imagery and Remote Sensing Data Accessible
4:00-5:30	208	TS830	VIII/9: Ocean Temperature, Salinity and Carbon
	209	ThS733	VII/7, III/2, V/1, V/3, ICWG VI: Low-cost UAVs (UVSs) and Mobile Mapping Systems-1
	210	TS822	VIII/7: Classification and Lidar
	211	TS724	VII/5: Methods for Change Detection and Process Modelling-4
	212	TS513	V/6: Close Range Morphological Measurement for the Earth Sciences
	213	TS415	IV/6: Global DEM Interoperability-2
	216	TS316	III/1: Image Orientation
	217	SS913	ISPRS and OGC: Open Geospatial Consortium Forum
	218	TS112	I/5: Integrated Systems for Sensor Georeferencing and Navigation-1
	219	TS310	III/2: Efficient Algorithm Implementation and Data Management
	220	TS215	II/7: Spatial Decision Support and Location-Based Services-1

09:00-10:30 MCEC208  
**CATCON-1: Presentations**

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09:00-10:30 MCEC218  
**ICWG I/IV: Instruments and Methods for Unmanned Systems Based Remote Sensing**  
Chair: Eberhard Gulch, Stuttgart University of Applied Sciences, Germany

09:00 **Development of Four Vision Camera System for a Micro-UAV** 5001  
Görres J Grenzdoerffer, Rostock University, Germany

09:22 **Measurement of Large-Scale Solar Power Plant by Using Images Acquired by Non-Metric Digital Camera on board UAV** 5002  
Ryuji Matsuoka, Kokusai Kogyo Co., Ltd., Japan

09:44 **Comparison and Analysis of Nonlinear Least Squares Methods for Vision Based Navigation (VBN) Algorithms**  
5003  
Bassem I Sheta, University of Calgary, Canada

10:06 **The Performance Analysis of a UAV based Mobile Mapping System** 5004  
Meng-Lun Tsai, National Cheng Kung University, Taiwan

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09:00-10:30 MCEC220  
**II/6: Geo-Visualization and Virtual Reality-2**  
Chair: Bo Wu, The Hong Kong Polytechnic University, Hong Kong

09:00 **Visualisation Support for Exploring Urban Space and Place** 5005  
Christopher J Pettit, The University of Melbourne, Australia

09:22 **An Open Source Geovisual Analytics Toolbox for Multivariate Spatio-temp Data for Environmental Change Modeling** 5006  
Arzu Coltekin, University of Zurich, Switzerland

09:44 **A Geo-Visual Analytics Approach to Biological Shepherding: Modelling Animal Movements and Impacts** 5007  
Jean-Philippe Aurambout, Department of Primary Industries, Australia

10:06 **Spatio-Temp Clustering of Movement Data: An Application to Trajectories Generated by Human-Computer Interaction**  
5008  
Gavin McArdle, National University of Ireland Maynooth, Ireland

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09:00-10:30 MCEC219  
**III/2: Façades**  
Chair: Qingming Zhan, Wuhan University, China

09:00 **Streamed Vertical Rectangle Detection in Terrestrial Laser Scans for Facade Database Production** 5009  
Jerome Demantke, IGN, France

09:30 **Learning a Compositional Representation for Facade Object Categorization** 5010  
Susanne Wenzel, University of Bonn, Germany

10:00 **Building Facade Separation in Vertical Aerial Images** 5011  
Philipp Meixner, Graz University of Technology, Austria

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09:00-10:30 MCEC217  
**III/5: Image Sequence Analysis**  
Chair: Stefan Hinz, University of Karlsruhe, Germany

09:00 **Integration of Video Images and CAD Wireframes for 3D Object Localization** 5012  
Costas Armenakis, York University, Canada  
Gunho Sohn, York University, Canada

09:30 **Optical Flow for Glacier Motion Estimation** 5013  
Christoph Vogel, ETH Zurich, Switzerland

10:00 **Real-time Camera Guidance for 3D Scene Reconstruction** 5014  
Wolfgang Förstner, University of Bonn, Germany

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## Thursday, 30 August 2012

09:00-10:30 MCEC213

### **IV/5: Distributed and Web-Based Geoinformation Services and Applications-3**

Chair: Songnian Li, Ryerson University, Canada

09:00 **Hierarchical Optimization Model on GeoNetwork** 5015

Jie Jang, National Geomatics Center of China, China

09:22 **Results of an Evaluation of the Orchestration Capabilities of the ZOO Framework and the 52° North Platform for an Intelligent Geoportal** 5016

Victoria Rautenbach, University of Pretoria, South Africa

09:44 **Virtual Cultural Landscape Laboratory based on Internet GIS Technology** 5017

Frank Niemeyer, Rostock University, Germany

10:06 **Incorporating Load Balancing Spatial Analysis into XML-based WebGIS** 5018

Haosheng Huang, Vienna University of Technology, Austria

09:00-10:30 MCEC212

### **V/5: Sensor Calibration-1**

Chair: Ralf Reulke, Humboldt University of Berlin, Germany

09:00 **Comparison of Methods for Geometric Camera Calibration** 5023

Jan Hieronymus, Humboldt University of Berlin, Germany

09:22 **Accuracy Evaluation of Stereo Camera Systems with Generic Camera Models** 5024

Dominik Rueß, German Aerospace Center (DLR), Germany

09:44 **Assessing the Photogrammetric Potential of Cameras in Portable Devices** 5025

Martin J Smith, The University of Nottingham, United Kingdom

10:06 **“Kanopus-V” Perspective Satellite. “Kanopus-V” Satellite Images Processing Technology in the “Photomod” Digital Photogrammetric System** 5026

Elena V Kravtsova, Geoinnovation Agency “Innoter”, Russia

Victor V Lavrov, Geoinnovation Agency “Innoter”, Russia

09:00-10:30 MCEC216

### **IV/8: 3D Spatial Data Integration for Disaster Management & Env. Monitoring-2**

Chair: Zhizhong Kang, China University of Geosciences, China

09:00 **Aerial Images and Lidar Data Fusion for Disaster Change Detection** 5019

John C Trinder, University of New South Wales, Australia

09:22 **Strategic Multiple sensor Data Fusion for Time-critical Natural Disaster Response** 5020

Seongsam Kim, National Disaster Management Institute, Korea

09:44 **Role Assessment of GIS Analysis and its Reliability while Ranking Urban Sustainability using Scenarios Specific to Regional Climate, Community and Culture** 5021

Huda Al Salmi, Abu Dhabi City Municipality, United Arab Emirates

10:06 **The Use of Satellite Imagery to Guide Field Plot Sampling Scheme for Biomass Estimation in Ghanaian Forest** 5022

Bhuwadeshwar P Sah, PASCO Corporation, Japan

09:00-10:30 MCEC209

### **VII/3: Information Extraction from Hyperspectral Data-5**

Chair: Megan Lewis, The University of Adelaide, Australia

09:00 **Spectral Information Retrieval for Sub-Pixel Building Edge Detection** 5027

Janja Avbelj, German Aerospace Center (DLR) and Technical University Munich, Germany

09:22 **Classification of Roof Materials using Hyperspectral Data** 5028

Chembe Chisense, Stuttgart University of Applied Sciences, Germany

09:44 **Robust Metric Based Anomaly Detection in Kernel Feature Space** 5029

Bo Du, Wuhan University, China

Liangpei Zhang, Wuhan University, China



09:00-10:30 MCEC211

**VII/5: Methods for Change Detection and Process Modelling-2**

Chair: Qiming Zhou, Hong Kong Baptist University, Hong Kong

09:00 **Evaluating the Consistency of Remote Sensing based Snow Depth Products in Arid Zone of Western China** 5030

Bo Sun, Hong Kong Baptist University, Hong Kong

09:22 **An Improved Method of Tracking Large-Area Mangrove Deforestation with Time Series of High-Fidelity MODIS Imagery** 5031

Abdullah Faiz Rahman, Indiana University, United States

09:44 **Automatic Moving Vehicle's Information Extraction from One-Pass WorldView-2 Satellite Imagery** 5032

Rakesh Kumar Mishra, University of New Brunswick, Canada

10:06 **Soybean Crop Area Estimation and Mapping in Mato Grosso State, Brazil** 5033

Anibal Gusso, Federal University of Rio Grande do Sul, Brazil

09:00-10:30 MCEC210

**VIII/6: Wetland Ecosystems**

Chair: Ross Lunetta, U.S. Environmental Protection Agency, USA

09:00 **Multi-sensor Synergies Provide New Understanding of Great Artesian Basin Wetlands** 5034

Megan M Lewis, The University of Adelaide, Australia

09:22 **Spectral Characteristics of Selected Hermatypic Cs from Gulf of Kachchh, India** 5035

Nandini Ray Chaudhury, ISRO, India

09:44 **Low-cost, Ultra-high Spatial and Temp Resolution Mapping of Intertidal Rock Platforms** 5036

Mitch Bryson, The University of Sydney, Australia

10:06 **Impact of The Atatürk Dam Lake on Agro-Meteorological Aspects of the Southeastern Anatolia Region Using Remote Sensing and GIS Analysis** 5037

Orkan Ozcan, Istanbul Technical University, Turkey

11:00-12:30 MCEC208

**CATCON-2: User Evaluations**

11:00-12:30 MCEC218

**ICWG I/V: Unmanned Systems for Mapping**

Chair: Armin Gruen, ETH Zurich, Switzerland

11:00 **Evaluation of the Navigational Performance of Micro UAVs for Swarm Applications** 5038

Dietmar J Backes, University College London, United Kingdom

11:22 **Determination of Exterior Orientation Parameters through Direct Geo-referencing in a Real time Aerial Monitoring System** 5039

Hojun Kim, The University of Seoul, Korea

11:44 **Land Survey from Unmanned Aerial Vehicle** 5040

Vid Peterman, Modri Planet, Slovenia

12:06 **Introducing a Low-cost Mini-UAV for Thermal- and Multispectral-Imaging** 5041

Juliane V Bendig, University of Cologne, Germany

11:00-12:30 MCEC220

**II/6: Geo-Visualization and Virtual Reality-3**

Chair: Arzu Coltekin, University of Zurich, Switzerland

11:00 **Visualization and Analysis of Light Pollution: A Case Study in Hong Kong** 5042

B Wu, The Hong Kong Polytechnic University, Hong Kong

11:22 **An Interactive Tool for Analysis and Optimization of Texture Parameters in Photorealistic Virtual 3D Models** 5043

Aleksandra Anna Sima, Centre for Integrated Petroleum Research, Norway

11:44 **A Cache Design Method for Spatial Information Visualization in 3D Real-time Rendering Engine** 5044

Hanjiang Xiong, Wuhan University, China

12:06 **Experimental Evaluation of LiDAR Data Visualization Schemes** 5045

Bharat Lohani, IIT Kanpur, India

## Thursday, 30 August 2012

11:00-12:30 MCEC219

### III/4: Building Outlining

Chair: Franz Rottensteiner, Leibniz University Hannover, Germany

#### 11:00 Building Edge Detection Using Small-footprint Airborne Full-waveform Lidar Data 5046

Clement Mallet, IGN, France

#### 11:30 Automatic Building Outlining from Multi-view Oblique Images 5047

Jing Xiao, University of Twente - ITC, The Netherlands

#### 12:00 An Automated Method for 3D Roof Outline Generation and Regularization in Airborne Laser Scanner Data 5048

Sanka Nirodha Perera, Technische Universität Dresden, Germany

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11:00-12:30 MCEC213

### IV/6: Global DEM Interoperability-1

Chair: Jan-Peter Muller, University College London, United Kingdom

#### 11:00 Extracting Precise and Affordable DEMs Despite of Clouds. Ajax: The Joining of Radar and Optical Strengths 5049

Marc Bernard, Astrium Services GEO Information, France

#### 11:22 Global DEM Resolution and Accuracy Enhancements 5050

Robert E Crippen, NASA Jet Propulsion Laboratory, United States

#### 11:44 DEM Registration based on Mutual Information 5051

Mehdi Ravanbakhsh, The University of Melbourne, Australia  
Clive Fraser, The University of Melbourne, Australia

#### 12:06 Validation Study on ALOS PRISM DSM Mosaic and ASTER GDEM 2 5052

Takeo Tadono, Japan Aerospace Exploration Agency, Japan

11:00-12:30 MCEC216

### ICWG IV/VIII: Updating and Maintenance of Core Spatial Databases-1

Chairs: Ammatzia Peled, University of Haifa, Israel and Zhao Renliang, National Geomatics Center of China

#### 11:00 Maintenance of Core Geospatial Databases in India: Search for an Appropriate Legal and Policy Framework 5053

Pramod K Singh, Institute of Rural Management Anand, India

#### 11:22 Upgrading to PostGIS 2.0 in the Brazilian Federal Police forensics GIS 5054

Daniel A Miranda, Brazilian Federal Police, Brazil

#### 11:44 Conflation of National Bridge Inventory Database with TIGER-Based Road Vectors 5055

Bryan Mercer, University of Calgary, Canada

#### 12:06 Towards Automated GIS Feature Verification for Terrestrial Mobile Mapping Systems 5056

Cheng Wang, Xiamen University, China

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11:00-12:30 MCEC212

### V/5: Sensor Calibration-2

Chair: Martin J Smith, The University of Nottingham, United Kingdom

#### 11:00 Accuracy Aspects of Utilizing RAW Imagery in Photogrammetric Measurement 5057

Christos Stamatopoulos, The University of Melbourne, Australia

#### 11:22 Geometric Properties of a Mechanical Forward Motion Compensation System Controlled by a Piezoelectric Drive 5058

Julien Losseau, Optech Incorporated, Belgium

#### 11:44 Study on Shadow Effects of Various Features on Close Range Thermal Images 5059

Chia-Ling Liao, National Chengchi University, Taipei, Taiwan

#### 12:06 New Airborne Sensors and Platforms for Solving Specific Tasks in Remote Sensing 5060

Gerhard Kemper, GGS GmbH, Germany

11:00-12:30 MCEC217

**VI/4: Cross-Border Education - Joint Educational Programs**

Chair: P S Roy, Indian Institute of Remote Sensing, India

11:00 **The African Geospatial Sciences Institute (AGSI) - A New Approach to Geospatial Training in North Africa** 5061

Stefan Oeldenberger, German GeoConsultants Group, Tunisia

11:30 **Satellite Based Education and Training in Remote Sensing and Geo-Information: An E-Learning Approach to Meet the Growing Demands in India** 5062

Penumetcha Lakshmi Narasa Raju, Indian Institute of Remote Sensing, India

11:50 **The Status of Geospatial Information Capacity in Africa and the Way Forward** 5063

Olajide Kufoniyi, Obafemi Awolowo University, Nigeria

12:10 **Transfer of Technology for Cadstral Mapping in Tajikistan using High Resolution Satellite Data** 5064

Romuald Kaczynski, Military University of Technology, Poland

11:00-12:30 MCEC211

**VII/5: Methods for Change Detection and Process Modelling-3**

Chair: Jean-Francois Cretaux

11:00 **Determining Cropping Patterns and Intensities through the use of Multi-temp MODIS Imagery for the Murray-Darling Basin, Queensland Australia** 5065

Andries B Potgieter, The University of Queensland, Australia

11:22 **Multi-temp SAR Change Detection and Monitoring** 5066

Ferdaous Chaabane, Ecole Supérieure des Communications de Tunis, Tunisia

11:44 **Multitemp Spaceborne SAR Data for Urban Change Detection: A Case Study in Beijing** 5067

Yifang Ban, Royal Institute of Technology, Sweden

12:06 **Determining Landsat's Potential as a Rapid Response Compliance Tool** 5068

Jeremy R Anderson, Queensland Department of Environment and Resource Management, Australia

11:00-12:30 MCEC210

**VIII/7: Forest Change Detection**

Chair: Noam Levin, The Hebrew University of Jerusalem, Israel

11:00 **Wildfire Regime in Israel in the 2000s – A National Analysis using Satellite Images** 5069

Noam Levin, The Hebrew University of Jerusalem, Israel

11:22 **Application of Spatial Modeling Approaches, Sampling Strategies and 3S Technology within an Ecological Framework** 5070

Hou-Chang Chen, Chung-Hsing University, Taiwan

11:44 **Species-specific Forest Variable Estimation using Non-parametric Modeling of Multi-spectral Photogrammetric Point Cloud Data** 5071

Jonas Bohlin, Swedish University of Agricultural Sciences, Sweden

12:06 **Impact of Climate Variability on Forest Fire Vulnerability in Chhattisgarh India** 5072

Bijan Debnath, National Remote Sensing Centre, India

11:00-12:30 MCEC209

**VIII/8: Drought, Moisture and Stress Detection**

Chairs: Laurie Chisholm, University of Wollongong, Australia and Alfredo Huete, University of Technology Sydney, Australia

11:00 **Gullies, Google Earth and the Great Barrier Reef: A Remote Sensing Methodology for Mapping Gullies over Extensive Areas** 5073

Uri Gilad, Queensland Department of Environment and Resource Management, Australia

11:22 **Improvement of Thermal Estimation at Land Cover Boundary by Using Quantile** 5074

Tsukasa Hosomura, Tokyo Denki University, Japan

11:44 **Sediment Yield Estimation and Prioritization of Watershed using Remote Sensing and GIS** 5075

Sreenivasulu Vemu, Jawaharlal Nehru Technical University, India

12:06 **Remote Sensing Techniques as a Tool for Environmental Monitoring** 5076

Kamil Faisal, Ryerson University, Canada

## Thursday, 30 August 2012

14:00-15:30 MEC5.2.01-04

**Esri Workshop - Easily Manage and Make Large Collections of Imagery and Remote Sensing Data Accessible**

14:00 **Easily Manage and Make Large Collections of Imagery and Remote Sensing Data Accessible** 5077

Peter Becker, Environment Systems Research Institute, United States

Mark Romero, Environment Systems Research Institute, United States

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14:00-15:30 MCEC219

**Short+Interactive**

**III/2: 3D Point Cloud Processing**

Chair: George Vosselman, ITC, The Netherlands

14:00 **Eigenvalues Analysis for Range Image Segmentation** 5078

Jorge AS Centeno, Federal University of Paraná, Brazil

14:03 **Reconstruction of Building Outlines in Dense Urban Areas based on LiDAR Data and Address Points** 5079

Malgorzata Jarzabek-Rychard, Wroclaw University of Environmental and Life Sciences, Poland

14:06 **Hierarchical Algorithm in DTM Generation and Automatic Extraction of Road from LiDAR Data** 5080

Hui-ying Li, Jilin University, China

14:09 **3D Modeling of Architectural Elements with a Complex Structure using the Convex-hull Method** 5081

Przemyslaw Tymkow, Wroclaw University of Environmental and Life Sciences, Poland

14:12 **Classification of Mobile Laser Scanning Data with Fast Point Feature Histograms** 5082

Tingting Cui, Wuhan University, China

14:15 **A Recognition Method for Airplane Targets Using 3D Point Clouds Data** 5083

Mei Zhou, Chinese Academy of Sciences, China

14:18 **Terrestrial Laser Scanning Data Classification Using Expectation Maximization Algorithm** 5084

Chao Luo, York University, Canada

14:21 **A Novel Approach for Segmentation of Airborne Laser Scanning Point Cloud Located on Roof Structure** 5085

Hongchao Fan, The University of Heidelberg, Germany

14:24 **Knowledge-based Object Detection in Laser Scanning Point Clouds** 5086

Frank Boochs, University of Applied Sciences Mainz, Germany

14:27 **Evaluation Model for Pavement Surface Distress on 3D Point Clouds from Mobile Mapping System** 5087

Kazuya Aoki, PASCO Corporation, Japan

14:30 **A Least Squares Collocation based Elevation Error Correction Method for Laser-point Cloud** 5088

Liang Zhang, Wuhan University, China

14:33 **Progressive Densification and Region Growing Methods for LiDAR Data Classification** 5089

Jose Luis Pérez-García, Universidad de Jaén, Spain

14:36 **Quality Monitoring of Large-Scale Steel Buildings Using Terrestrial LiDAR Technology** 5090

Yanmin Wang, Beijing University of Civil Engineering and Architecture, China

14:39 **Combined Geometric/Radiometric Point Cloud Matching for Shear Analysis** 5091

Stephan Gehrke, North West Geomatics, Canada

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14:00-15:30 MCEC216

**Short+Interactive**

**III/5: Image Sequence Analysis; TCs III and V: Medical Imaging and Human Motion**

Chair: Uwe Stilla, Technische Universitaet Muenchen, Germany

14:00 **Location Determination in Urban Environment from Image Sequences** 5092

Qingming Zhan, Wuhan University, China

14:03 **Quality Analysis of Vehicle-based Sequence Images Relative Orientation based on Computer Vision** 5093

Zhenliang Xu, Wuhan University, China

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14:06 **Multiple Human Tracking in Complex Situation by Data Assimilation with Pedestrian Behavior Model** 5094  
Wataru Nakanishi, The University of Tokyo, Japan

14:09 **Co-registration between Multisource Remote-sensing Images** 5095  
Joz Wu, National Central University, Taiwan

14:12 **Mapping Major Cropping Patterns in Southeast Asia from MODIS Data using Wavelet Transform and Artificial Neural Networks** 5096  
Nguyen-Thanh Son, National Central University, Taiwan

14:15 **Retrieving Surface Soil Moisture from MODIS and AMSR-E Data: A Case Study in Taiwan** 5097  
Chi-Farn Chen, National Central University, Taiwan

14:18 **Quality Assessment of Mapping Building Textures from Infrared Image Sequences** 5098  
Ludwig Hoegner, Technische Universität München, Germany

14:21 **A Step Towards Dynamic Scene Analysis with Active Multi-view Range Imaging Systems** 5099  
Boris Jutzi, Karlsruhe Institute of Technology, Germany

14:24 **An Investigation on the Use of the Independent Component Analysis (ICA) Techniques for Elimination of the Changes of the Unwanted Lighting Conditions from Video Images** 5100  
Sedat Dogan, Ondokuz Mayıs University, Turkey

14:27 **Investigating the Dynamics of Wandoo Crown Decline with Time Series Landsat Imagery** 5101  
Katherine Zdunic, Department of Environment and Conservation Western Australia, Australia

14:30 **Photogrammetric Network for Evaluation of Human Faces for Face Reconstruction Purpose** 5102  
Peter Schrott, Budapest University of Technology and Economics, Hungary

14:33 **3D Geometric Accuracy Analysis of CT devices** 5103  
Károly Fekete, Budapest University of Technology and Economics, Hungary

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14:00-15:30 MCEC213

#### **Short+Interactive**

#### **IV/3: Mapping from High Resolution Data**

Chair: Zhanguo He, Aerophotogrammetry and Remote Sensing of China Coal

14:00 **Object-oriented Information Extraction of High Resolution Imagery Based on Multi-Classifer Fuzzy Integration** 5104

Yu Zeng, Chinese Academy of Surveying and Mapping, China

14:03 **Characterising Upland Swamps using Object-based Classification Methods and Hyper-spatial Resolution Imagery Derived from an Unmanned Aerial Vehicle** 5105

Alex M Lechner, The University of Queensland, Australia

14:06 **Ultra-high Resolution Aerial Photography – Bridging the Gap between Ecology and Spatial Sciences** 5106

Bertram Ostendorf, The University of Adelaide, Australia

14:09 **UltraMap V3 – A Revolution in Aerial Photogrammetry** 5107

Bernhard Reitinger, Microsoft, Austria

14:12 **True Ortho Generation from Multi Angular World-View Imagery** 5108

Masooome Shariat, University of Tehran, Iran

14:15 **Impact of Terrain Slope on Vegetation Canopy Height Extraction from X-HH InSAR** 5110

M Lorraine Tighe, Intermap Technologies, United States

14:18 **Precise Close Range UAV Mapping in Difficult Field Conditions** 5111

Jakub Mirijovsky, Palacky University in Olomouc, Czech Republic

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## Thursday, 30 August 2012

14:00-15:30 MCEC212

### Short+Interactive

**V/3: Terrestrial Laser Scanning and 3D Imaging; V/6: Close Range Morphological Measurement for the Earth Sciences**

Chair: Simon Buckley, University of Bergen, Norway

14:00 **Cylinder-based Self-calibration of a Panoramic Terrestrial Laser Scanner** 5112

Ting On Chan, University of Calgary, Canada

14:03 **A New Approach for Subway Tunnel Deformation Monitoring: High-Resolution Terrestrial Laser Scanning** 5114

Jian Li, Wuhan University, China

14:06 **Acquiring Underwater DSM Using Green-wavelength Terrestrial Laser Scanner** 5115

Pu-Hsin Hsu, National Cheng-Kung University, Taiwan  
Chi-Kuei Wang, National Cheng-Kung University, Taiwan

14:09 **Integration of Photogrammetric and Laser Scanning Data Based on Selected Examples** 5116

Slawomir W Mikrut, AGH University of Science and Technology, Poland

14:12 **Photogrammetry and Laser Scanning for the Earth Sciences- Working Group V6** 5117

Rene Wackrow, Loughborough University, United Kingdom

14:15 **Kilimanjaro Ice Cliff Monitoring with Close Range Photogrammetry** 5118

Klaus Hanke, University of Innsbruck, Austria

14:18 **Dem Assessment Derived from Close Range Photogrammetry: A Case Study from Kadavur Area, Karur District, Tamil Nadu, India** 5119

Anbarasan S Anbarasan, Oxford Engineering College Tiruchirappalli, India

14:21 **Close-range Photogrammetry for Deformation Measurement of Small-scale Object in Geotechnical Application by Using Consumer-grade Digital Camera** 5120

Gang Qiao, Tongji University, China

14:00-15:30 MCEC211

### Short+Interactive

**VII/5: Methods for Change Detection and Process Modelling; VII/6: Remote Sensing Data Fusion**

Chair: Qiming Zhou, Hong Kong Baptist University

14:00 **Object-based Changed Detection Using High-Resolution Remotely Sensed Data and GIS** 5121

Manfred Ehlers, University of Osnabrueck, Germany

14:03 **Object-oriented Change Detection using Discriminant Function** 5122

Brian R Kloer, Intergraph, United States

14:06 **A Method to Analyze Neighborhood Spatial Scale Effects in Cellular Automata Simulation of Land Use** 5123

Hao Wu, Wuhan University of Technology, China

14:09 **Environmental Changes Analysis in Bucharest City Using CORONA, SPOT HRV and IKONOS Images** 5124

Ioan I Noaje, Technical University of Civil Engineering Bucharest, Romania

14:12 **A Multi-band Remote Sensing Image Change Detection Algorithm based on the MRF** 5125

Liangpei Zhang, Wuhan University, China  
Pingxiang Li, Wuhan University, China

14:15 **Forest Resources Study in Mongolia using Advanced Spatial Technologies** 5126

Damdinsuren Amarsaikhan, Mongolian Academy of Sciences, Mongolia

14:18 **Semi-automated Cloud/Shadow Removal and Land Cover Change Detection using Satellite Imagery** 5127

Nami Kubo, PASCO Corporation, Japan

14:21 **Object-level Change Detection Based on High-resolution Remote-sensing Images and Its Application in Japanese Earthquake on March 11, 2011** 5128

Kaimin Sun, Wuhan University, China

14:24 **Methods for Multitemp Analysis of Satellite Data Aimed at Environmental Risk Monitoring** 5129

Mauro Caprioli, Politecnico di Bari, Italy

14:27 **Ice-sheet Mass Change Analysis in Antarctic Area based on Multiple Geodetic Measurements from 2003 to 2010** 5130

Jian Zhao, Tongji University, China

14:30 **Determination of Magnitude and Direction of Land Use/ Land Cover Changes in Terkos Water Basin, Istanbul** 5131

Cigdem Goksel, Istanbul Technical University, Turkey

14:33 **Geospatial Modelling for Urban Sprawl using IRS-1C and P-6 Signatures of Remote Sensing: A Case Study of Gurgaon City, NCR Region, India** 5132

Madan Mohan, Jamia Millia Islamia (Central University), India

14:36 **Texture Analysis Based Fusion Experiments Using High-Resolution SAR and Optical Imagery** 5133

Shuhe Zhao, Nanjing University, China

14:39 **Large Area Land Cover Classification with LANDSAT ETM+ Images Based on Decision Tree** 5134

Liang Zhai, Chinese Academy of Surveying and Mapping, China

14:42 **Construction of Disaster Prevention Map based on Digital Imagery** 5135

Hee Cheon Yun, Chungnam National University, Korea

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14:00-15:30 MCEC210

**Short+Interactive**

**VIII/7: Forestry; VIII/8: Land; VIII/9: Oceans; VIII/10: Cryosphere**

Chair: Kohei Cho, Tokai University, Japan

14:00 **Estimating Mixed Broadleaves Forest Stand Volume using DSM Extracted from Digital Aerial Images** 5136

Hormoz Sohrabi, Tarbiat Modares University, Iran

14:03 **Developing a 3D Waveform LiDAR Simulator for Forest** 5137

Takahiro Endo, The University of Tokyo, Japan

14:06 **Investigating the Capability of IRS-P6-LISS IV Satellite Image for Pistachio Forests Density Mapping (Case study: Northeast of Iran)** 5138

Ali Asghar Darvishsefat, University of Tehran, Iran

14:09 **A Case Study of a Forest Carbon Stock Monitoring System for REDD+ in Lao PDR** 5139

Mitsuru Nasu, Asia Air Survey Co., Ltd., Japan

14:12 **Extreme Airborne LiDAR - Validating Aerial Surveys Over Antarctic Pack Ice** 5140

Adam D Steer, University of Tasmania, Australia

14:15 **Monitoring Glacier Variations in the Southern Patagonia Icefield Utilizing Images Landsat 7 ETM+** 5141

Luís Felipe Ferreira, Universidade Federal do Rio Grande do Sul, Brazil

14:18 **3D Volumetric Modeling on Trunk Volumes Using Ground-Based Lidar** 5186

Shou-Tsung Wu, Shih Chien University, Taiwan

14:21 **Cloud Detection based on Decision Tree Over Tibetan Plateau with MODIS Data** 6124

Lina Xu, Wuhan University, China

14:24 **Detecting Slums from Quick Bird Data in Pune using an Object Oriented Approach** 6125

Sulochana Shekhar, Central University of Karnataka Gulbarga, India

14:27 **Trajectory Analysis of Forest Changes in Northern Area of Changbai Mountains, China from Landsat TM Image** 6126

Fang Huang, Northeast Normal University, China

14:30 **Automated Construction of Coverage Catalogues of ASTER Satellite Image for Urban Areas of the World** 6127

Hiroyuki Miyazaki, The University of Tokyo, Japan

14:33 **A Glimpse into the Past: Using Historical Aerial Photography to Map Seagrass Distribution Dynamics in Port Phillip Bay, Victoria, Australia** 6128

Mariela Soto-Berelov, RMIT University, Australia

## Thursday, 30 August 2012

16:00-17:30 MCEC217

### **ISPRS and OGC: Open Geospatial Consortium Forum**

Chair: Ian Dowman, University College London, UK

### **16:00 A Partnership for Geospatial Information - OGC Activities Relevant to ISPRS 5142**

George S Percivall, Open Geospatial Consortium (OGC), United States

### **16:22 Web Mapping Services in a Crowdsourced Environment for Disaster Management: State-of-the-art and Further Development 5143**

Paolo Pasquali, ITHACA, Italy

### **16:44 Assessment of the Homogeneity/Evolution of Volunteered Geographic Information in South Africa 5144**

Lindy-Anne Siebritz, National Geospatial Information, South Africa

### **17:06 Photogrammetry and Remote Sensing: New German Standards (DIN) Setting Quality Requirements of Products Generated by Digital Airborne Cameras, Pan Sharpening and Classification 5145**

Ralf Reulke, Humboldt-Universität zu Berlin, Germany

16:00-17:30 MCEC209

### **VII/7, III/2, VI/1, V/3, ICWG VI: Low-cost UAVs (UVSs) and Mobile Mapping Systems-1**

Chair: Harri Kaartinen, Finnish Geodetic Institute, Finland

### **16:00 An Accuracy Assessment of Georeferenced Point Clouds Produced Via Multi-view Stereo Techniques Applied to Imagery Acquired Via Unmanned Aerial Vehicle 5146**

Steve J Harwin, University of Tasmania, Australia

### **16:37 Hyperspectral Reflectance Signatures and Point Clouds for Precision Agriculture by Light Weight UAV Imaging System 5147**

Lauri Markelin, Finnish Geodetic Institute, Finland

### **16:54 Aerial Terrain Mapping Using Unmanned Aerial Vehicle Approach 5148**

Khairul Nizam Tahar, Universiti Teknologi MARA, Malaysia

### **17:11 Assessing the Feasibility of UAV-based LiDAR for High Resolution Forest Change Detection 5149**

Luke O Wallace, University of Tasmania, Australia

16:00-17:30 MCEC218

### **I/5: Integrated Systems for Sensor Georeferencing and Navigation-1**

Chair: Ismael Colomina, Institute of Geomatics, Spain

### **16:00 Integrated Georeferencing of Stereo Image Sequences Captured with a Stereovision Mobile Mapping System – Approaches and Practical Results 5150**

Hannes Eugster, University of Applied Sciences Northwestern Switzerland, Switzerland

### **16:22 Automated Blur Detection and Removal in Airborne Imaging Systems using IMU data 5151**

Chintan A Shah, United States

### **16:44 A Lunar Astronaut Spatial and Orientation Information System 5152**

Rongxing Li, The Ohio State University, United States

### **17:06 The Need and Keys for a New Generation Network Adjustment Software 5153**

Ismael Colomina, Institute of Geomatics, Spain

16:00-17:30 MCEC220

### **II/7: Spatial Decision Support and Location-Based Services-1**

Chair: Alireza Sharifi, Tehran University, Iran

### **16:00 Evaluation of Photogrammetric Approach of Image-based Positioning 5154**

Xun Li, University of New South Wales, Australia

### **16:22 Solar Radiation Estimation on Building Roofs and Web-based Solar Cadastre 5155**

Giorgio Agugiaro, FBK - Bruno Kessler Foundation, Italy

### **16:44 Building Analysis for Urban Energy Planning using Key Indicators on Virtual 3D City Models - The Energy Atlas of Berlin 5156**

Andreas Krüger, Technische Universität Berlin, Germany

### **17:06 Tracking Vehicles in GSM Network to Support Intelligent Transportation Systems 5157**

Zoltan Koppanyi, Budapest University of Technology and Economics, Hungary



16:00-17:30 MCEC219

**III/2: Efficient Algorithm Implementation and Data Management**

Chair: George Vosselman, ITC, The Netherlands

16:00 **Memory Efficient Semi-Global Matching** 5158

Maximilian Buder, German Aerospace Center (DLR), Germany

16:30 **The OPALS Data Manager - Efficient Data Management for Processing Airborne Laser Scanning Projects** 5159

Johannes Otepka, Vienna University of Technology, Austria

17:00 **Octree-Based SIMD Strategy for ICP Registration and Alignment of 3D Point Clouds** 5160

Daniel Eggert, Leibniz Universitaet Hannover, Germany

16:00-17:30 MCEC216

**III/1: Image Orientation**

Chair: Yongjun Zhang, Wuhan University, China

16:00 **Bundle Adjustment for Multi-camera Systems with Points at Infinity** 5161

Johannes Schneider, University of Bonn, Germany

16:30 **Relative Pose Estimation from Airborne Image Sequences** 5162

Tanja Reize, German Aerospace Center (DLR), Germany

17:00 **Detection and Correction of Changes in Exterior and Interior Orientations while Estimating 3-D Object Deformations from Multiple Images with Weak or Strong Imaging Geometry** 5163

Henrik Haggrén, Aalto University, Finland

16:00-17:30 MCEC213

**IV/6: Global DEM Interoperability-2**

Chair: Takeo Tadono, JAXA Earth Observation Research Center, Japan

16:00 **Data Acquisition Strategies for ASTER Global DEM Generation** 5164

Minoru Urai, Geological Survey of Japan, Japan

16:22 **Summary of the Validation of the Second Version of the ASTER GDEM** 5165

David Meyer, U.S. Geological Survey, United States

16:44 **Removal of Tree Offsets from SRTM and Other Digital Surface Models** 5166

Arthur M Read, CSIRO Land and Water, Australia

17:06 **The Use of Existing Global Elevation Dataset for Absolute Orientation of High Resolution Image without GCPs** 5167

Jaehoon Jeong, Inha University, Korea

16:00-17:30 MCEC212

**V/6: Close Range Morphological Measurement for the Earth Sciences**

Chair: Jim H Chandler, Loughborough University, United Kingdom

16:00 **Multidimensional Roughness Characterization for Microwave Remote Sensing Applications using a Simple Photogrammetric Acquisition System** 5168

Philip Marzahn, Ludwig-Maximilians-University of Munich, Germany

16:17 **Studying Glacial Melt Processes using Sub-centimeter DEM Extraction and Digital Close-range Photogrammetry** 5169

Jim H Chandler, Loughborough University, United Kingdom

16:34 **Laboratory Flume Experiment with a Coded Structured Light System** 5170

Devrim Akca, Isik University, Turkey

16:51 **In Situ Measurement of Bedrock Erosion** 5171

Dirk H Rieke-Zapp, University of Bern, Switzerland

17:08 **Close Range Hyperspectral Imaging Integrated with Terrestrial Lidar Scanning Applied to Rock Characterisation at Centimetre Scale** 5172

Tobias H Kurz, University of Bergen, Norway

## Thursday, 30 August 2012

16:00-17:30 MCEC211

### **VII/5: Methods for Change Detection and Process Modelling-4**

Chair: Jean-Francois Crétau, Laboratoire d'Études en Géophysique et Océanographie Spatiales, France

#### **16:00 CEST Analysis: Automated Change Detection from Very-High-Resolution Remote Sensing Images 5173**

Manfred Ehlers, University of Osnabrueck, Germany  
Ulrich Michel, University of Education Heidelberg, Germany

#### **16:22 Kernel-Composition for Change Detection in Medium Resolution Remote Sensing Data 5174**

Uwe Weidner, Karlsruhe Institute of Technology, Germany

#### **16:44 Absolute Relative Spectral Mixture Analysis: A New Remote Sensing Tool for Quantifying Changes in Fractional Ground Cover 5175**

Ken D Clarke, University of Adelaide, Australia

#### **17:06 A Shape Similarity Based Change Detection Approach of Multi-resolution Remote Sensing Images 5176**

Penglin Zhang, Wuhan University, China

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16:00-17:30 MCEC210

### **VIII/7: Classification and Lidar**

Chair: William L Woodgate, RMIT University, Australia

#### **16:00 A Proposed New Vegetation Index, the Total Ratio Vegetation Index (TRVI), for Arid and Semi-arid Regions 5177**

Hadi Fadaei, Japan Agency for Marine-Earth Science and Technology, Japan

#### **16:17 Change Analysis of the Spectral Characteristics of Rubber Trees at Canopy and Leaf Scales during the Brazilian Autumn 5178**

Cibele Hummel do Amaral, University of São Paulo, Brazil

#### **16:34 Time-series Analysis of Coastal Erosion in the Sundarbans Mangrove 5179**

Mahmudur Rahman, Bangladesh Space Research and Remote Sensing Organization, Bangladesh

#### **16:51 A Comparison of Different Point Density for Detecting tree position of a Subtropical Forest from Airborne Lidar Data 5180**

Chung-Cheng Lee, National Cheng Kung University, Taiwan  
Chi-Kuei Wang, National Cheng Kung University, Taiwan

#### **17:08 An Intercomparison of Passive Terrestrial Remote Sensing Technologies to Derive LAI and Canopy Cover Metrics 5181**

William L Woodgate, RMIT University, Australia

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16:00-17:30 MCEC208

### **VIII/9: Ocean Temperature, Salinity and Carbon**

Chairs: Samantha Lavender, RSPSoc, United Kingdom and  
Timothy Liu, Jet Propulsion Laboratory, United States

#### **16:00 Using Satellite Sea Surface Temperature Data to Measure Diurnal Warming in the Tropical Warm Pool Region 5182**

Helen M Beggs, Bureau of Meteorology, Australia

#### **16:22 Satellite Sea Surface Temperature Products for the Australian Region from IMOS 5183**

Leon Majewski, Bureau of Meteorology, Australia

#### **16:44 Spacebased Observation of Ocean-atmosphere Carbon Dioxide Exchange 5184**

W Timothy Liu, Jet Propulsion Laboratory, United States

#### **17:06 SAC-D Aquarius a Satellite for Ocean, Climate and Environment. One Year of Data 5185**

Sandra Torrusio, CONAE (Argentine Space Agency), Argentina

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## Friday, 31 August 2012

Time	Location	Session Code	Friday August 31
9:00-10:30	Plenary 2		Plenary 3
11:00-12:30	Plenary 2	TS719	VII/4: Methods for Land Cover Classification-6
	208	SS917	NASMG and WG II/1: ZY-3 Satellite Data Processing and Application
	209	TS831	VIII/9: Ecology
	210	TS823	VIII/7: Biomass
	211	TS725	VII/5: Methods for Change Detection and Process Modelling-5
	212	ThS514	V/6, IV/8: Morphological Change Detection
	213	TS416	IV/6: Global DEM Interoperability-3
	216	TS423	ICWG IV/VIII: Updating and Maintenance of Core Spatial Databases-2
	217	ThS325	WGs from TCs III and I: Pléiades System Applications
	218	ThS735	VII/7, III/2, V/3: Waveform Lidar for Remote Sensing
	219	TS315	III/2: Object Detection in 3D Point Clouds
	220	TS216	II/7: Spatial Decision Support and Location-Based Services-2
2:00-3:30	Plenary 2		GA IV
	211	PS705	VII/6: Remote Sensing Data Fusion; VII/7, III/2, V/1, V/3, ICWG V/I: Low-cost UAVs (UVSs) and mobile mapping systems; VII/7, III/2, V/3: Waveform lidar for remote sensing; VII/7: Theory and Experiments in Radar and Lidar
	212	PS503	V/5: Image Sensor Technology; ICWG V/I: Land-Based Mobile Mapping Systems
	213	PS405	IV/5: Distributed and Web-Based Geoinformation Services and Applications; IV/6: Global DEM Interoperability
	218	PS104	I/5: Integrated Systems for Sensor Georeferencing and Navigation; ICWG IV: Unmanned Vehicle Systems (UVS) for Mapping and Monitoring Applications
	219	PS305	III/2: 3D Point Cloud Processing; III/3: Image Analysis for Indexation and Image Retrieval
	220	PS203	II/4: Uncertainty Modeling and Quality Control for Spatial Data; II/6: Geo-Visualization and Virtual Reality; II/7: Spatial Decision Support and Location-Based Services
	5.2.01-2	VS105	ESRI Vendor Session 3
	5.2.03-4	VS105	Working with Lidar in a GIS Environment
4:00-5:30	Plenary 2		GA IV
	208	TS832	VIII/10: Cryosphere: Sea Ice
	209	TS732	VII/7: Theory and Experiments in Radar and Lidar-2
	210	TS827	VIII/8: Land Cover Dynamics
	211	TS726	VII/5: Methods for Change Detection and Process Modelling-6
	212	TS515	ICWG V/I: Land-Based Mobile Mapping Systems-1
	213	TS417	IV/7: Planetary Mapping and Databases - Moon
	216	TS318	III/1: Registration-2
	217	SS912	ISPRS and IAA: Pléiades Inflight Calibration and Performance Assessment
	218	TS114	I/5: Integrated Systems for Sensor Georeferencing and Navigation-2
	219	TS317	III/2: Registration-1
	220	ThS734	VII/7, III/2, V/1, V/3, ICWG V/I: Low-cost UAVs (UVSs) and Mobile Mapping Systems-2
	5.2.01-2	TS217	ICWG II/IV: Semantic Interoperability
	5.2.03-4	ThS426	IV/5,4,1,8, II/6, VI/1,2: Web-based Virtual and Shared Geospatial Environments

09:00-10:30 MCEC Plenary 2

**Plenary 3**

Co-Chair: Cliff Ogleby, University of Melbourne, Australia  
Mike Renslow, Renslow Mapping Services, USA

09:00 **Earth Observation for Early Warning Systems**  
6001

Ranganath R Navalgund, Indian Space Research  
Organization, India

09:30 **Developments in Photogrammetry**

Stewart Walker, BAE System, United States

10:00 **Developments in Computer Vision**

Konrad Schindler, ETH Zurich, Institute of Geodesy and  
Photogrammetry, Switzerland

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11:00-12:30 MCEC208

**NASMG and WG II/1: ZY-3 Satellite Data Processing and  
Application**

Chair: Wolfgang Kainz, University of Vienna, Austria

11:00 **An Introduction of ZY-3 Satellite** 6004

Xinming Tang, State Bureau of Surveying and Mapping, China

11:25 **Calibration and Data Processing of ZY-3 Satellite**  
6005

Guo Zhang, Wuhan University, China

11:42 **Exploring the Environmental Monitoring  
Potentials of ZY-3 Satellite** 6006

Xiaoliang Wu, CSIRO, Australia

11:59 **An Introduction of ZY-3 Satellite Data Products  
and Distribution Service** 6007

Guoyuan Li, Satellite Surveying and Mapping Application  
Center of National Administration of Surveying, Mapping and  
Geoinformation, China

11:00-12:30 MCEC217

**WGs from TCs III and I: Pléiades System Applications**

Chair: Nicolas Paparoditis, IGN, France

11:00 **3D Capabilities of Pleiades Satellite** 6008

Marc Bernard, Astrium Services GEO Information, France

11:22 **ORFEO, the PLEIADES Accompaniment Program  
and its In-flight Thematic Commissioning** 6009

Alain Giros, CNES, France

11:44 **Pléiades: Responsiveness, Flexibility, Reactivity**  
6010

Robert Lees, Astrium Geoinformation Services, Australia

12:06 **Automatic Cloud Detection from Multi-temp  
Satellite Images: Towards the use of Pléiades Time Series**  
6011

Nicolas Champion, IGN-F, France

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11:00-12:30 MCEC212

**V/6, IV/8: Morphological Change Detection**

Chair: Dirk Rieke-Zapp, Universität Berne, Switzerland

11:00 **Pilot Studies with a Photogrammetric Glacier  
Lake Outburst Flood Early Warning System** 6012

Hans-Gerd Maas, Technische Universität Dresden, Germany

11:22 **Geospatial Data Integration for Assessing  
Landslide Hazard on Engineered Slopes** 6013

Pauline E Miller, Newcastle University, United Kingdom

11:44 **Terrestrial Laser Scanning for Coastal  
Geomorphologic Research in Western Greece** 6014

Dirk Hoffmeister, University of Cologne, Germany

12:06 **Detection and Quantification of Rock Glacier  
Creep using Image Data of Virtual Globes** 6015

Viktor Kaufmann, Graz University of Technology, Austria

## Friday, 31 August 2012

11:00-12:30 MCEC218

### **VII/7, III/2, V/3: Waveform Lidar for Remote Sensing**

Chair: Wolfgang Wagner, Vienna University of Technology, Austria

### **11:00 Full Waveform LiDAR Exploitation Technique and its Evaluation in the Mixed Forest Hilly Region** 6016

Subas Chhatkuli, PASCO Corporation, Japan

### **11:22 Identifying Standing Dead Trees in Forest Areas Based on 3D Single Tree Detection from Full Waveform LIDAR Data**

6017

Wei Yao, Munich University of Applied Sciences, Germany

### **11:44 Comparison of Discrete Return and Waveform Terrestrial Laser Scanning for Dense Vegetation Filtering**

6018

Alberto Guarneri, University of Padova, Italy

### **12:06 Exploring Weak and Overlapped Returns of a LiDAR Waveform with a Wavelet-based Echo Detector**

6019

Cheng-Kai Wang, National Cheng-Kung University, Taiwan

11:00-12:30 MCEC220

### **II/7: Spatial Decision Support and Location-Based Services-2**

Chair: Shattri Mansor, Universiti Putra Malaysia, Malaysia

### **11:00 Optimization of Land use Suitability for Agriculture using Integrated Geospatial Model and Genetic Algorithms** 6020

Shattri B Mansor, Universiti Putra Malaysia, Malaysia

### **11:22 A New Model for Emergency Evacuation under the Disaster Condition** 6021

Luliang Tang, Wuhan University, China

### **11:44 Modelling Vague Knowledge for Decision Support in Planning Archaeological Prospections** 6022

Hartmut Mueller, Mainz University of Applied Sciences, Germany

### **12:06 Multi-Criteria Path Finding** 6023

Ehsan Mohammadi, University of Calgary, Canada

11:00-12:30 MCEC219

### **III/2: Object Detection in 3D Point Clouds**

Chair: Qingming Zhan, Wuhan University, China

### **11:00 Implicit Shape Models for Object Detection in 3D Point Clouds** 6024

Alexander Velizhev, 1) Lomonosov Moscow State University 2) Moscow State University of Geodesy and Cartography, Russia

### **11:30 A Marked Point Process Model for Vehicle Detection in Aerial LIDAR Point Clouds** 6025

Csaba Benedek, MTA SZTAKI, Hungary

### **12:00 Reconstruction of Rectangular Windows in Multi-looking Oblique View ALS Data** 6026

Sebastian Tuttas, Technische Universität München, Germany

11:00-12:30 MCEC213

### **IV/6: Global DEM Interoperability-3**

Chair: Dean Gesch, U.S. Geological Survey, United States

### **11:00 Validation of the ASTER Global Digital Elevation Model Version 2 over the Conterminous United States**

6027

Dean Gesch, U.S. Geological Survey, United States

### **11:22 Evaluation of ASTER GDEM v. 2 using GPS Checkpoints, OSGB DEM Values and Photogrammetrically Derived DEMs** 6029

Jane Drummond, University of Glasgow, United Kingdom

### **11:44 Evaluation of ASTER GDEM ver2 Using GPS Benchmarks and SRTM ver4.1 in China** 6030

Jan-Peter Muller, University College London, United Kingdom  
Jane Drummond, University of Glasgow, United Kingdom

11:00-12:30 MCEC216

**ICWG IV/VIII: Updating and Maintenance of Core Spatial Databases-2**

Chairs: Costas Armenakis, York University, Canada and Ammatzia Peled, University of Haifa, Israel

11:00 **Understanding the Past, Managing the Future** 6031

Orhan Altan, Istanbul Technical University, Turkey

11:37 **An Updating Production Line System for National Topographical Database at 1:50k of China based on Digital Map Generalization** 6032

Renliang Zhao, National Geomatics Center of China, China

11:54 **Object-Based Building Extraction from High Resolution Satellite Imagery** 6033

Reza Attarzadeh, Islamic Azad University, Iran

12:11 **An Iterative Terrain Recovery Approach to Automated DTM Generation from Airborne LiDAR Point Clouds** 6034

Ming Cheng, Xiamen University, China

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11:00-12:30 MCEC Plenary 2

**VII/4: Methods for Land Cover Classification-6**

Chair: Peijun Li, Peking University, China

11:00 **Improving Markov Random Field based Super Resolution Mapping Through FUZZY Parameter Integration** 6035

Duminda R Welikanna, Kyoto University, Japan

11:22 **Empirical Distribution Analysis (EDA)- based Object Classification** 6036

Brian R Kloer, Intergraph, United States

11:44 **A New Integrated Pixel- and Object Based Techniques for Efficient Urban Classification using WorldView-2 Data** 6037

Ahmed S Elsharkawy, University of Calgary, Canada

12:06 **Hierarchical Classification of Polarimetric SAR Image Based on Statistical Region Merging** 6038

Fengkai Lang, Wuhan University, China

11:00-12:30 MCEC211

**VII/5: Methods for Change Detection and Process Modelling-5**

Chair: Jean-Francois Crétaux, Laboratoire d'Etudes en Géophysique et Océanographie Spatiales, France

11:00 **Detection and Quantification of Morphological Changes using Multi-resolution Terrestrial Laser Scans** 6039

Reuma Arav, Technion - Israel Institute of Technology, Israel

11:22 **Super-pixel Unsupervised Change Detection using Multi-dimensional Change Vector Analysis and SVM-based Classification** 6040

Zhaocong Wu, Wuhan University, China

11:44 **Accuracy Improvement of Change Detection Based on Color Analysis** 6041

Jing Wang, NEC System Technologies, Ltd., Japan

12:06 **A Semiautomatic Anomalous Change Detection Method for Monitoring Aims** 6042

Giuseppe Artese, University of Calabria, Italy

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11:00-12:30 MCEC210

**VIII/7: Biomass**

Chair: Mitsunori Yoshimura, PASCO Corporation, Japan

11:00 **Development of Photogrammetry System for Grasping Forest Resources Information** 6043

Yoichi Uramoto, PASCO Corporation, Japan

11:22 **Forest Resource Management System by Standing Tree Volume Estimation using Aerial Stereo Photos** 6044

Hirokazu Koizumi, NEC System Technologies, Ltd., Japan

11:44 **Crown Delineation Influence on Standing Volume Calculations in Protected Area** 6045

Krzysztof Jan Sterenczak, Warsaw University of Life Sciences, Poland

12:06 **Fusion of LiDAR Data with High Resolution Optical Image for Biomass and Carbon Estimation in Bois Noir Forests in the French Alps** 6046

Yousif Ali Hussin, University of Twente - ITC, The Netherlands

## Friday, 31 August 2012

11:00-12:30 MCEC209

### VIII/9: Ecology

Chairs: Samantha Lavender, RSPSoc, UK and Joji Ishizaka, University of Nagasaki, Japan

11:00 **The use of MODIS Data to Define Natural Boundaries and Regions in the Marine Water Column** 6047

Joseph H Leach, University of Melbourne, Australia

11:17 **Satellite Ocean Color in Yangtze Estuarine and Coastal Waters** 6048

Yunxuan Zhou, East China Normal University, China

11:34 **Extraction of Benthic Cover Information From Video Tows and Photographs Using Object-based Image Analysis** 6049

Mari Trix L Estomata, University of Philippines Diliman, Philippines

Ariel Blanco, University of Philippines Diliman, Philippines

11:51 **Fluorescent Analysis of Photosynthetic Microbes and Polycyclic Aromatic Hydrocarbons Linked to Optical Remote Sensing** 6050

Daoxi Zhang, University College London, United Kingdom

12:08 **Improved Capability for Marine Oil Spill Detection using New Generation of SAR Imaging Satellites** 6051

Jonathan Li, University of Waterloo, Canada

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14:00-15:30 MEC5.2.01-04

### Esri Presentation - Working with Lidar in a GIS Environment

14:00 **Working with Lidar in a GIS Environment** 6052

Lindsay Weitz, ESRI, United States

Melanie Harlow, ESRI, United States

14:00-15:30 MCEC218

### Short+Interactive

**I/5: Integrated Systems for Sensor Georeferencing and Navigation; ICWG I/V: Unmanned Vehicle Systems (UVS) for Mapping and Monitoring Applications**

Chair: Ismael Colomina, Institute of Geomatics, Spain

14:00 **An Autonomous Star Identification Algorithm Based on the Directed Circularity pattern** 6053

Junfeng Xie, State Bureau of Surveying and Mapping, China

14:03 **Misalignment Calibration of Ultracam D and XP** 6054

Shirin Malihi, NCC, Iran

14:06 **A Route Backtracking Method Based on Video and Road Network** 6055

Tao Hu, Wuhan University of China

14:09 **Preliminary Estimation on Pointing Accuracy of Japanese Quasi-Zenith Satellite-1 (Michibiki) L1-SAIF** 6056

Mitsuharu Tokunaga, Kanazawa Institute of Technology, Japan

14:12 **Application of Mobile Lidar Mapping for Damage Survey after Great East Japan Earthquake** 6057

Megumi Koizumi, Asia Air Survey Co., Ltd, Japan

Emiko Ariyasu, Asia Air Survey Co., Ltd, Japan

14:15 **Study on Construction of 3D Building Based on UAV Images** 6058

Feifei Xie, Wuhan University; Chinese Academy of Surveying and Mapping, China

14:18 **Application of UAV System for Low Altitude Photogrammetry in Shanxi** 6059

Zongjian Lin, Chinese Academy of Surveying and Mapping, China

14:21 **Sensor Correction and Radiometric Calibration of a 6-Band Multispectral Imaging Sensor for UAV Remote Sensing** 6060

Joshua M Kelcey, University of Tasmania, Australia

14:24 **UAVRS Application in Linear Engineering** 6061

Jinkuan Yin, National Engineering Research Center of Surveying and Mapping, China



14:27 **Visual UAV Trajectory Plan System based on Network Map** 6062

Zongjian Lin, Chinese Academy of Surveying and Mapping, China

Guozhong Su, Chinese Academy of Surveying and Mapping, China

14:30 **Method for Stereo Mapping Based on ObjectARX and Pipeline Technology** 6063

Fengzhu Liu, Shandong University of Science and Technology, China

14:33 **1:500 Aerial Triangulation Accuracy Test for Unmanned Airship** 6064

Ying Yang, Chinese Academy of Surveying and Mapping, China

14:36 **Relative Orientation in Low Altitude Photogrammetry Survey** 6065

Jin Wang, Wuhan University, China

14:39 **The Features of the Geodetic Reference of the Satellite Images** 6066

Magsad Huseyn Gojamanov, Baku State University, Azerbaijan

14:42 **3D Building Modeling based on Low Altitude Mapping System** 6067

Yuan Zhou, Chinese Academy of Surveying and Mapping, China

14:45 **Today and Future of Mobile Mapping via Low-cost UAV Systems** 6068

Mehmet Zeki Coskun, Istanbul Technical University, Turkey

14:00-15:30 MCEC220

**Short+Interactive**

**II/4: Uncertainty Modeling and Quality Control for Spatial Data; II/6: Geo-Visualization and Virtual Reality; II/7: Spatial Decision Support and Location-Based Services**

Chair: Bo Wu, The Hong Kong Polytechnic University, Hong Kong

14:00 **Designing a Spatial Model of Residential Energy Consumption to Assess Urban Environment Sustainability** 6069

Maryam Saydi, The University of Melbourne, Australia

14:03 **Trusting Geospatial Data and Modeling: A Recent Progress** 6070

Xiaohua Tong, Tongji University, China

14:06 **3D Visualization System for Cadastres** 6071

Davood Shojaei, The University of Melbourne, Australia

14:09 **Information Systems for Architecture: An Application for Prisons of the Inquisition in Palermo, Italy** 6072

Andrea Scianna, Institute for Data Processing and High Performance Networks, Italy

14:12 **Controlling Virtual Clouds and Making it Rain Particle Systems in Real Spaces using Situated Augmented Simulation and Portable Virtual Environments** 6073

Nick Hedley, Simon Fraser University, Canada

14:15 **Using Situated Citizen Sampling, Augmented Geographic Spaces and Geospatial Game Design to Improve Resilience in Real Communities at Risk from Tsunami Hazards** 6074

Nick Hedley, Simon Fraser University, Canada

14:18 **Land Transactions in Peri-Urban Ghana – A Dynamic Approach in a GIS Environment: A Case Study of Juaben Ekyiniso** 6075

Agnes Addai, Building and Road Research Institute, Ghana

14:21 **Spatial Comparison Between Densely Built-up Districts from the Viewpoint of Vulnerability to Road Blockades with Respect to Evacuation Behaviour** 6076

Kiichiro Kumagai, Setsunan University, Japan

14:24 **The Evaluation of Potential Slope Failure of Forest Roads Using Artificial Neural Network and GIS** 6077

Zahra Azizi, Tarbiat Modares University, Iran

14:27 **A GIS Based Multi-criteria Evaluation System for Selection of Landfill Sites: A Case Study from Abu Dhabi, United Arab Emirates** 6078

Salem Mohammad Issa, United Arab Emirates University, United Arab Emirates

## Friday, 31 August 2012

14:00-15:30 MCEC219

### Short+Interactive

**III/2: 3D Point Cloud Processing; III/3: Image Analysis for Indexation and Image Retrieval**

Chair: Qingming Zhan, Wuhan University, China

14:00 **Min-cut based Segmentation of Airborne LiDAR Point Clouds** 6079

Serkan Ural, Purdue University, United States

14:03 **Planar Projection of Mobile Laser Scanning Data in Tunnels**6080

Jose A Goncalves, University of Porto, Portugal

14:06 **Research on the Three Angular Resolution of Terrestrial Laser Scanning**6081

Ronghua Yang, Chongqing University, China

14:09 **A Comparison of Two Different Approaches of Point Cloud Classification Based on Full-waveform LiDAR Data** 6082

Jinhu Wang, Academy of Opto-Electronics, China

14:12 **Multi Times Image Fusion based on Wavelet Theory** 6083

Mahmoud Reza Delavar, University of Tehran, Iran

14:15 **Study on the Necessity of Introduction NIR into Ground Close-range Building RGB Images for Automatic Removal and Repair Vegetation Occlusion** 6084

Yawen Liu, Wuhan University, China

14:18 **Indexing of Satellite Images of Different Spatial Resolutions using Multi Features** 6085

Bin Luo, Wuhan University, China

14:21 **Image Fusion Applied to Satellite Imagery for the Improved Mapping and Monitoring of C Reefs: A Proposal** 6086

Mahdi M Gholoum, University of South Australia, Kuwait

14:24 **A Joint Pixel and Region Based Multiscale Markov Random Field for Image Classification** 6087

Tiancan Mei, Wuhan University, China

14:27 **Analysis on the Utility of Satellite Imagery for Detection of Agricultural Facility** 6088

Joon Mook Kang, Chungnam National University, Korea

14:30 **Evaluating Tasselled Cap Transform Coefficients for KOMPSAT-2 IMAGES of Korea Peninsula** 6089

Choen Kim, Kookmin University, Korea

14:00-15:30 MCEC213

### Short+Interactive

**IV/5: Distributed and Web-Based Geoinformation Services and Applications; IV/6: Global DEM Interoperability**

Chair: Ludovico Biagi, Politecnico di Milano, Italy

14:00 **Database Organisation in a Web-enabled Free and Open-source Software (FOSS) Environment for Spatio-temp Landslide Modelling** 6090

Iswar Das, Indian Institute of Remote Sensing, India

14:03 **Using Imagery Information Easily with Online GIS** 6091

Renee Brandt, Esri, United States

14:06 **A KML-based Approach for Distributed Collaborative Interpretation of Remote Sensing Images in the Geo-browser** 6092

Liang Huang, Wuhan University, China

14:09 **Towards Thematic Web Services for Generic Data Visualization and Analysis** 6093

Teerayut Horanont, The University of Tokyo, Japan

14:12 **Automating Mapping Production for the Enterprise: From Contract to Delivery** 6094

Belai T Beshah, North West Geomatics Ltd, United States

14:15 **Online Maps and Cloud-Supported Location-Based Services Across a Manifold of Devices** 6095

Daniel Buchmueller, Microsoft Corporation, United States

14:18 **Implementation of the Distributed Parallel Program for Geoid Heights Computation using MPI and OpenMP** 6096

Seongkyu Lee, Pukyong National University, Korea

14:21 **TANDEM-X: A New Era of Global Digital Elevation Data** 6097

Thomas Schrage, Astrium Services, Germany

14:24 **DTM Cross Validation and Merging: Problems and Solutions for a Case Study within the HELI-DEM Project** 6098

Laura Carcano, Politecnico di Milano, Italy

14:27 **Estimation of Accuracy of EuroDEM on the Area of the Poland** 6099

Ireneusz Ewiak, Institute of Geodesy and Cartography, Poland

14:00-15:30 MCEC212

**Short+Interactive**

**V/5: Image Sensor Technology; ICWG VII: Land-Based Mobile Mapping Systems**

Chair: Pauline Miller, Newcastle University, United Kingdom

**14:00 Robust Person Tracking with Multiple Non-Overlapping Cameras in an Outdoor Environment 6100**

Sebastian Hellwig, Humboldt-Universität zu Berlin, Germany

**14:03 The Scanning Photogrammetry 6101**

Tao Ke, Wuhan University, China

**14:06 Investigations on a Combined RGB / Time-of-Flight Approach for Dynamic Close Range Applications 6102**

Heidi Hastedt, Jade University Oldenburg, Germany

**14:09 Simulation of Images MUX(Camera Multispectral) from CBERS-3 (Brazil-China Satellite Earth Resources) 6103**

Giovanni A Boggione, National Institute for Space Research, Brazil

**14:12 Assisted Control Point Measurement for Close Range Photogrammetry 6104**

Emilio Mata, University of Jaen, Spain

**14:15 Calibration and Epipolar Geometry of Generic Heterogeneous Camera Systems 6105**

Andreas Luber, German Aerospace Center, Germany

**14:18 The Range and Intensity Calibration of the Mobile Laser Scanner using Portable Calibration Targets 6106**

Eero Ahokas, Finnish Geodetic Institute, Finland

**14:21 Applications of Mobile GIS in Forestry South Australia 6107**

Peter Mackenzie, Forestry South Australia, Australia

**14:24 Error Distribution Evaluation of the Third Vanishing Point Based on Random Statistical Simulation 6108**

Chang Li, Central China Normal University, China

**14:27 Object-space Multi-image Matching of Mobile-Mapping-System Image Sequences 6109**

Yung-Chuan Chen, De-Lin Institute of Technology., Taiwan

**14:30 The Rail Mapper – A Dedicated Mobile Lidar Mapping System for Railway Networks 6110**

Jens Kremer, IGI mbH, Germany

**14:33 Terrestrial Mobile Laser Scanning for 3D Urban Infrastructure Mapping 6111**

Jun Li, Xiamen University, China

14:00-15:30 MCEC211

**Short+Interactive**

**VII/6: Remote Sensing Data Fusion; VII/7, III/2, V/1, V/3, ICWG VI/L:Low-cost UAVs (UVSs) and mobile mapping systems; VII/7, III/2, V/3: Waveform lidar for remote sensing; VII/7: Theory and Experiments in Radar and Lidar**

Chair: Yifang Ban, Royal Institute of Technology, Sweden

**14:00 Urban Detection, Delimitation and Morphology: Comparative Analysis of Selective “Megacities” 6112**

Blanca Ramos Arellano, Technical University of Catalonia, Spain

**14:03 Planning Tripoli Metro Network by the Use of Remote Sensing Imagery 6113**

Othman Alhusain, Budapest University of Technology and Economics, Hungary

**14:06 An Improved High Frequency Modulating Fusion Method Based on Modulation Transfer Function Filters 6114**

Yonghong Jia, Wuhan University, China

**14:09 A Transformation Method for Texture Feature Description under Different Imagine Conditions 6115**

Zequn Guan, Tongji University, China

**14:12 Synthetic Aperture Radar (SAR) and Optical Imagery Data Fusion: Crop Yield Analysis in Southeast Asia 6116**

Susan M Parks, Exelis Visual Information Solutions, United States

**14:15 The Performance Analysis of an AKF Based Tightly Coupled INS/GPS Integrated Positioning and Orientation Scheme with Odometer and Non-holonomic Constraints 6117**

Cheng-An Lin, National Cheng Kung University, Taiwan

## Friday, 31 August 2012

14:18 **Reconstruction of 3D Landscapes from UAV Images and Flight-Control Data** 6118  
Zhi Wang, Northeastern University, China

14:21 **Waveform Analysis for the Extraction of Post-fire Vegetation Characteristics** 6119  
Francesco Pirotti, CIRGEO - Interdepartmental Research Center in Geomatics, Italy

14:24 **Canopy Profiling for Vegetation Mapping in South-western Australian Forested Ecosystems** 6120  
Antonius GT Schut, Curtin University, Australia

14:27 **LIDAR Waveform Simulation over Complex Targets** 6121  
Seongjoon Kim, The University of Seoul, Korea

14:30 **PollnSAR Experiments of Multi-mode X-Band Data Over South Area of China** 6122  
Lijun Lu, Chinese Academy of Surveying and Mapping, China

14:33 **Tensor-based Quality Prediction for Building Model Reconstruction from LiDAR Data and Topographic Map** 6123  
Bo-Cheng Lin, National Cheng Kung University, Taiwan

16:00-17:30 MCEC217  
**ISPRS and IAA: Pleiades Inflight Calibration and Performance Assessment**  
Chair: Nicolas Paparoditis, Institut Géographique National, France

16:00 **PLEIADES System Architecture and Main Performances** 6129  
Alain Gleyzes, CNES, France

16:17 **PLEIADES-HR System Products Performance after In-orbit Commissioning Phase** 6130  
Chantal Panem, CNES, France

16:34 **Pleiades-HR Innovative Techniques for Radiometric Image Quality Commissioning** 6131  
Gwendoline Blanchet, CNES, France

16:51 **Pleiades-HR Innovative Techniques for Geometric Image Quality Commissioning** 6132  
Daniel Greslou, CNES, France

17:08 **Star-Based Methods for Pleiades HR Commissioning** 6133  
Sebastien Fourest, CNES, France

16:00-17:30 MEC5.2.03-04  
**IV/5,4,1,8, II/6, VI/1,2: Web-based Virtual and Shared Geospatial Environments**  
Chair: Maria A Brovelli, Politecnico di Milano, Italy

16:00 **Feature Positioning on Google Street View Panoramas** 6134  
Victor J D Tsai, National Chung Hsing University, Taiwan

16:22 **3D Town Project: Augmented Urban Spaces** 6135  
Gunho Sohn, York University, Canada

16:44 **pRasterBlaster: High-Performance Small-Scale Raster Map Projection Transformation Using the Extreme Science and Engineering Discovery Environment** 6136  
Michael P Finn, U.S. Geological Survey, United States

17:06 **An Integrated Web-Based 3D Modeling and Visualization Platform to Support Sustainable Cities** 6137  
Sam Amirebrahimi, Centre for SDIs and Land Administration, Australia

16:00-17:30 MCEC220  
**VII/7, III/2, V/1, V/3, ICWG V/I: Low-cost UAVs (UVSs) and Mobile Mapping Systems-2**  
Chair: Antero Kukko, Finnish Geodetic Institute, Finland

16:00 **Automatic Exterior Orientation Procedure for Low-cost UAV Photogrammetry using Video Image Tracking Technique and GPS Information** 6138  
Tetsuji Anai, TOPCON Corporation, Japan

16:22 **Direct Georeferencing with Onboard Navigation Components of Light Weight UAV Platforms** 6140  
Norbert Pfeifer, Vienna University of Technology, Austria

16:00-17:30 MCEC218

**I/5: Integrated Systems for Sensor Georeferencing and Navigation-2**

Chair: Ismael Colomina, Institute of Geomatics, Spain

**16:00 Pose Estimation of Unmanned Aerial Vehicles Based on Multisensor Data Fusion 6141**

Ghasem Abdi, University of Tehran, Iran

**16:22 Photogrammetry for Mapping Underground Utility Lines with Ground Penetrating Radar in Urban Areas 6142**

Diana Pagliari, Politecnico di Milano, Italy

**16:44 UAV Borne Low Altitude Photogrammetry System 6143**

Zongjian Lin, Chinese Academy of Surveying and Mapping, China

**17:06 Update on the DMC Constellation and Next Generation Satellites 6144**

Gary Holmes, DMC International Imaging, United Kingdom

16:00-17:30 MEC5.2.01-02

**ICWG II/IV: Semantic Interoperability**

Chair: Ryosuke Shibasaki, The University of Tokyo, Japan

**16:00 Toward Real Time Semantic Interoperability in AD HOC Networks of Geospatial Data Sources: Challenges, Achievements and Perspectives 6145**

Mir Abolfazl Mostafavi, Laval University, Canada

**16:17 A Comparison of Semantic Similarity Models in Evaluating Concept Similarity 6146**

Qianxiang Xu, The Hong Kong Polytechnic University, China

**16:34 Critical Metadata Protocols in Hyperspectral Field Campaigns for Building Robust Hyperspectral Datasets 6147**

Barbara Rasaiah, RMIT University, Australia

**16:51 Facilitating Integrated Spatio-temp Visualization and Analysis of Heterogeneous Archaeological and Palaeoenvironmental Research Data 6148**

Christian Willmes, University of Cologne, Germany

**17:08 Non-spatial and Geospatial Semantic Query of Health Information 6149**

François Anton, DTU Informatics, Denmark

16:00-17:30 MCEC219

**III/2: Registration-1**

George Vosselman, ITC, The Netherlands

**16:00 Improving 3D LiDAR Point Cloud Registration using Optimal Neighborhood Knowledge 6150**

Adrien Gressin, Institut Géographique National, France

**16:30 Probabilistic Feature Matching Applied to Primitive based Registration of TLS Data 6151**

Jean-Francois Hullo, INSA, France

**17:00 3D Feature-Based Matching by RSTG Approach 6152**

Tzu-Yi Chuang, National Taiwan University, Taiwan

16:00-17:30 MCEC216

**III/2: Registration-2**

Chair: Christoph Strecha, EPFL, Switzerland

**16:00 Registration of Laser Scanning Point Clouds and Aerial Images using Either Artificial or Natural Tie Features 6153**

Petri N Rönholm, Aalto University, Finland

**16:30 Automated Registration of Terrestrial Laser Scanner Point Clouds using Natural Planar Surfaces 6154**

Pascal Theiler, ETH Zurich, Switzerland

**17:00 Semi-Automatic Co-Registration of Photogrammetric and Lidar Data using Buildings 6155**

Costas Armenakis, York University, Canada

16:00-17:30 MCEC213

**IV/7: Planetary Mapping and Databases – Moon**

Chairs: Randolph L Kirk, U.S. Geological Survey, United States and Konrad Willner, Technische Universität Berlin, Germany

**16:00 Rigorous Photogrammetric Processing Of Chang'E-1 And Chang'E-2 Stereo Imagery for Lunar Topographic Mapping 6156**

Kaichang Di, Chinese Academy of Sciences, China

## Friday, 31 August 2012

16:17 **Comparison of Lunar Topographic Models Derived from Multiple Sources Based on Least Squares Matching** 6157

Jian Guo, The Hong Kong Polytechnic University, Hong Kong  
Bo Wu, The Hong Kong Polytechnic University, Hong Kong

16:34 **Lunar Topographic Mapping using OSU OrbiterMapper and LROC NAC Stereo Images** 6158

Rongxing Li, The Ohio State University, United States

16:51 **Topographic Modeling of Wide- and Narrow-angle Stereo Images Obtained by the LRO Camera – and Applications in Lunar Geodesy and Geology** 6159

Jürgen Oberst, German Aerospace Center (DLR), Germany

17:08 **Jigsaw: The ISIS3 Bundle Adjustment for Extraterrestrial Photogrammetry** 6160

Kenneth L Edmundson, U.S. Geological Survey, United States

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16:00-17:30 MCEC212

**ICWG VII: Land-Based Mobile Mapping Systems-1**

Chair: Jonathan Li, Waterloo Laboratory for GeoSpatial Technology and Remote Sensing, Canada

16:00 **Panoramic Epipolar Image Generation for Mobile Mapping System** 6161

Tianen Chen, PASCO Corporation, Japan

16:22 **Stereovision Mobile Mapping: System Design and Performance Evaluation** 6162

Joel Burkhard, University of Applied Sciences Northwestern Switzerland, Switzerland

16:44 **Benchmarking Mobile Laser Scanning Systems using a Permanent Test Field** 6163

Harri Kaartinen, Finnish Geodetic Institute, Finland

17:06 **Implementation and Evaluation of a Mobile Mapping System based on Integrated Range and Intensity Images for Traffic Signs Localization** 6164

Mozhdeh Shahbazi, University of Tehran, Iran

16:00-17:30 MCEC211

**VII/5: Methods for Change Detection and Process Modelling-6**

Chair: Georg Bareth, University of Cologne, Germany

16:00 **Processing Australia's AVHRR HRPT Archive to a Long-term Record of Australian Land Surface Dynamics** 6165

Ian F Grant, Australian Bureau of Meteorology, Australia

16:22 **3D Building Change Detection using High Resolution Stereo Images and a GIS Database** 6166

Gholam Reza Dini, Leibniz University Hannover, Germany

16:44 **Updating Building Maps Based on Object Extraction and Building Height Estimation** 6167

Lin Zhu, PASCO Corporation, Japan

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16:00-17:30 MCEC209

**VII/7: Theory and Experiments in Radar and Lidar-2**

Chair: Wolfgang Wagner, Vienna University of Technology, Austria

16:00 **Automatic Extraction of Water in High-resolution SAR Images based on Multi-scale Level Set Method and OTSU Algorithm** 6168

Haigang Sui, Wuhan University, China

Chuan Xu, Wuhan University, China

16:22 **Evaluation of Filters for ENVISAT ASAR Speckle Suppression in Pasture Area** 6169

Linlin Ge, The University of New South Wales, Australia

16:44 **Research on DEM Extraction with StereoSAR in Difficult Mapping Area** 6170

Shucheng Yang, Chinese Academy of Surveying and Mapping, China

17:06 **Spaceborne SAR Imagery Stereo Positioning Based on Range-Coplanarity Equation** 6171

Chunquan Cheng, Chinese Academy of Surveying and Mapping, China

16:00-17:30 MCEC210

**VIII/8: Land Cover Dynamics**

Chair: Laurie Chisholm, University of Wollongong, Australia

16:00 **Quantifying Land Use/cover Change and Landscape Fragmentation in Danang City, Vietnam: 1979-2009** 6172

Linh Hoang Khanh Nguyen, Goettingen University, Germany

16:17 **Global Land Cover Classification Using MODIS Surface Reflectance Products** 6173

Haruhisa Shimoda, Tokai University, Japan

16:34 **Dynamics of the Yellow River Delta** 6174

Igor Klein, German Remote Sensing Data Center, Germany

16:51 **Observed Changes and Vulnerability of Philippine Forestry and Agriculture** 6175

Gay Jane P Perez, University of the Philippines/NASA

Goddard Space Flight Center, Philippines

17:08 **Spectral Unmixing of Blended Reflectance for Denser Time-series Mapping of Wetlands** 6176

Ryo Michishita, University of Utah, Japan

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16:00-17:30 MCEC208

**VIII/10: Cryosphere: Sea Ice**

Chair: Josefino C Comiso, NASA Goddard Space Flight Center, United States

16:00 **Rapid Changes in Sea Ice Cover and Productivity in the Arctic** 6177

Josefino C Comiso, NASA Goddard Space Flight Center, United States

16:37 **A Study on Extracting Thin Sea Ice Area from Space** 6178

Kohei Cho, Tokai University, Japan

16:54 **Interannual Variability in Antarctic Sea-ice Motion Derived from (A)SAR Imagery** 6179

Petra Heil, AAD and ACE CRC, Australia

17:11 **Assessment of Sea Ice Freeboard and Thickness in McMurdo Sound, Antarctica, Derived by Ground Validated Satellite Altimeter Data** 6180

Daniel DF Price, University of Canterbury, New Zealand

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## Saturday, 1 September 2012

Time	Location	Session Code	Saturday September 1
9:00-10:30	208	TS833	VIII/10: Cryosphere: Glaciers and Ice Sheets
	209	SS916	GEO, GOFC-GOLD and ISPRS: Global Land Cover Mapping at Fine Resolutions
	212	TS516	ICWG V/I: Land-Based Mobile Mapping Systems-2
	213	TS418	IV/7: Planetary Mapping and Databases - Mars
	216	ThS427	IV/II, IV/8, IV/1: Volunteered Geospatial Information
	217	TS319	III/1: Image Orientation and Reconstruction
	218	TS119	I/6 and IAA: Small Satellites for Earth Observation
	219	TS323	III/2: 3D Point Cloud Classification
	220	TS218	ICWG II/IV: Ontologies for Geospatial Applications
11:00-12:30	Plenary 2		Plenary 4
2:00-3:30	Plenary 2		Closing Ceremony

09:00-10:30 MCEC209

**GEO, GOFC-GOLD and ISPRS: Global Land Cover Mapping at Fine Resolutions**

Chair: Peng Gong, Tsinghua University, China

09:00 **US GEO Global 30 m Land Cover Initiative: Progress and Plans**

Chandra P Giri, U.S. Geological Survey, United States

09:17 **Preliminary Results on 250m Global Land Cover Map of 2010 from MODIS Time Series Data**

Peng Gong, Tsinghua University, China

09:34 **Preliminary Study on Global Land Cover Mapping Based on Hierarchical Classification Strategy**

Lijun Chen, National Geomatics Center of China, China

09:51 **Land Cover Change Knowledge Representation using Temp Logic and Operation Relations** 7004

Chen Jun, National Geomatics Center of China, China

10:08 **GEO Global Land Cover task and its critical role to the development of the Global Earth Observation System of Systems (GEOSS)**

Georgios Sarantakos, GEO, Switzerland

09:00-10:30 MCEC216

**IV/II, IV/8, IV/1: Volunteered Geospatial Information**

Chair: Anthony Stefanidis, George Mason University, USA

09:00 **Exploring The Application of Volunteered Geographic Information to Catchment Management: A Survey Approach** 7005

Dev Raj Paudyal, University of Southern Queensland, Australia

09:22 **Automated Matching Crowdsourcing Road Networks using Probabilistic Relaxation** 7006

Yunfei Zhang, Wuhan University, China

09:44 **Comprehensive Evaluation and Analysis of China's Mainstream Online Map Service Websites** 7007

Qian Wang, National Geomatics Center of China, China

10:06 **Visual-Aided Context-Aware Framework for Personal Navigation Services** 7008

Sara Saeedi, University of Calgary, Canada



09:00-10:30 MCEC218

**I/6 and IAA: Small Satellites for Earth Observation**

Chair: Xiaoliang Wu, CSIRO, Australia

09:00 **Hypxim, an Advanced Hyperspectral Satellite for Environment, Security and Defence** 7009

Marie-José Lefevre-Fonollosa, Centre National d'Etudes Spatiales, France

09:22 **An Optimal Imaging-scheduling Algorithm for the Multi-strip Imaging-mode of the High-resolution Agile Satellites Based on Certain Step-size Search**7010

Mi Wang, Wuhan University, China

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09:00-10:30 MCEC220

**ICWG II/IV: Ontologies for Geospatial Applications**

Chair: Mir Abolfazl Mostafavi, Laval University, Canada

09:00 **Integration of Spatial Planning and Environmental Data using Ontologies** 7011

Adam Iwaniak, Wroclaw University of Environmental and Life Sciences, Poland

09:17 **Ontological Standardization for Historical Map Collections: Studying the Greek Borderlines of 1881** 7012

Eleni Gkadoulou, Harokopio University of Athens, Greece

09:34 **The Development of Cadastral Domain Model Oriented at Unified Real Estate Registration of China based on Ontology** 7013

Ming Li, Wuhan University, China

09:51 **Cardinal Direction Relations Query Modeling Based on Geo-ontology** 7014

Xinyan Zhu, Wuhan University, China  
Di Chen, Wuhan University, China

10:08 **Earth Observation Data Interoperability Arrangement with Ontology Registry** 7015

Ryosuke Shibasaki, University of Tokyo, Japan

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09:00-10:30 MCEC217

**III/1: Image Orientation and Reconstruction**

Chair: Helmut Mayer, Bundeswehr University Munich, Germany

09:00 **Orientation and Dense Reconstruction of Unordered Terrestrial and Aerial Wide Baseline Image Sets** 7016

Jan Bartelsen, Bundeswehr University Munich, Germany

09:30 **Efficient Reconstruction of Large Unordered Image Datasets for High Accuracy Photogrammetric Applications** 7017

Dieter Fritsch, University of Stuttgart, Germany

10:00 **Combined Multi-View Matching Algorithm with Multiple Long-Strip Satellite Images from Different Orbits** 7018

Yong-jun Zhang, Wuhan University, China

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09:00-10:30 MCEC219

**III/2: 3D Point Cloud Classification**

Chair: Qingming Zhan, Wuhan University, China

09:00 **Moving Window Segmentation Framework for Point Clouds** 7019

George Sithole, University of Cape Town, South Africa

09:30 **Automatic Powerline Scene Classification and Reconstruction using Airborne LIDAR Data** 7020

Heungsik Brian Kim, York University, Canada

10:00 **Object-based Classification of Urban Airborne Lidar Point Clouds with Multiple Echoes using SVM** 7021

Jixian Zhang, Chinese Academy of Surveying and Mapping, China

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## Saturday, 1 September 2012

09:00-10:30 MCEC213

### **IV/7: Planetary Mapping and Databases - Mars**

Chairs: Kaichang Di, Chinese Academy of Sciences, China and Jürgen Oberst, German Aerospace Center (DLR), Germany

09:00 **Automatic Registration of Multi Sensor Remotely Sensed Images from the Mars** 7022

Bin Luo, Wuhan University, China

09:17 **Evaluation of Area-based Image Matching Applied to DTM Generation with Hirise Images** 7023

Cristina Re, Università di Padova, Italy

09:34 **Improved Phobos Shape and Gravity Working Models** 7024

Konrad Willner, Technische Universität Berlin, Germany

09:51 **A Generalized Matching Concept for Area-based Reconstruction of Planetary** 7025

Jürgen Oberst, German Aerospace Center (DLR), Germany

10:08 **Systematic Bundle Adjustment of HRSC Image Data** 7026

Jonas Bostelmann, Leibniz Universität Hannover, Germany

09:00-10:30 MCEC212

### **ICWG VII: Land-Based Mobile Mapping Systems-2**

Chair: Antonio MG Tommaselli, UNESP, Brazil

09:00 **Generation of High Resolution and High Precision Orthorectified Road Imagery from Mobile Mapping System** 7027

Mitsuteru Sakamoto, PASCO Corporation, Japan

09:22 **Multiplatform Approach to Mobile Laser Scanning** 7028

Antero Kukko, Finnish Geodetic Institute, Finland

09:44 **Empirical Accuracy Assessment of MMS Laser Point Clouds** 7029

Koji Mano, PASCO Corporation, Japan

09:00-10:30 MCEC208

### **VIII/10: Cryosphere: Glaciers and Ice Sheets**

Chair: Josefino C Comiso, NASA Goddard Space Flight Center, United States

09:00 **The ICESat-2 Mission: Concept, Applications and Pre-launch Performance Assessments for Monitoring Cryospheric Changes** 7030

Beata Csatho, University at Buffalo, United States

09:37 **Comparison of Microwave Backscatter Anisotropy Parameterisations Over the Antarctic Ice Sheet** 7031

Alexander D Fraser, Antarctic Climate and Ecosystems Cooperative Research Centre, Australia

09:54 **Application of Surface Matching for Improved Measurements of Historic Glacier Volume Change in the Antarctic Peninsula** 7032

Jon P Mills, Newcastle University, United Kingdom

10:11 **A Novel Approach for Change Detection from Laser Altimetry Data** 7033

Tony Schenk, University at Buffalo, United States

11:00-12:30 MCEC Plenary 2

### **Plenary 4**

Co-Chair: Armin Gruen, ETH Zurich, Switzerland and Rainer Sandau, International Academy of Astronautics (IAA), German Aerospace Center (DLR), Germany

11:00 **Climate Change Futures, Earth Surface Processes and Landscapes Across-scales: The Critical Role of Terrain Measurement** 7034

Stuart Lane, Université de Lausanne, Switzerland

11:30 **Geoinformation in Brazil**

Gilberto Camara, INPE, Brazil

12:00 **The Future Belongs to The Simple & The Quick - A New Era in Remote Sensing and GIS** 7036

Lawrie Jordan, ESRI, United States



## Business Meetings

### Saturday 25 August

09:30 - 15:00 MCEC Plenary 2  
**General Assembly I**

16:00 - 17:30 MCEC Plenary 2  
**Opening Ceremony of the Congress**

18:00 - 20:00 MCEC Foyer  
**Welcome Reception**

### Sunday 26 August

10:00 - 11:00 MCEC 207  
**Accompanying Persons Reception**

13:00 - 14:00 MCEC 218  
**Open Meeting Technical Commission I**

13:00 - 14:00 MCEC 220  
**Open Meeting Technical Commission II**

13:00 - 14:00 MCEC 219  
**Open Meeting Technical Commission III**

13:00 - 14:00 MCEC 210  
**Open Meeting Technical Commission VIII**

13:00 - 18:00 MCEC 207  
**Joint Board of Geospatial Information Societies**

14:00 - 17:30 MEC 5.2.03-04  
**ALCM Consortium**

17:30 - 18:30 Crown Metropol  
**Brock Award Reception**

### Monday 27 August

09:00 - 12:30 MCEC Plenary 2  
**General Assembly II**

12:30 - 13:30 MCEC 207  
**ASIERA Meeting**

12:45 - 13:45 MEC 5.2.01-04  
**Hexagon UGM**

13:00 - 14:00 MCEC 213  
**Open Meeting Technical Commission IV**

13:00 - 14:00 MCEC 212  
**Open Meeting Technical Commission V**

13:00 - 14:00 MCEC 217  
**Open Meeting Technical Commission VI**

13:00 - 14:00 MCEC 211  
**Open Meeting Technical Commission VII**

13:30 - 14:30 MEC Exhibit Area  
**Opening of Technical Exhibition**

13:30 - 15:30 MEC 5.1.02  
**IJIDF Journal Editorial Board**

14:00 - 15:30 MCEC 207  
**Meeting Incoming - Outgoing TCPs and Council**

16:00 - 17:30 MCEC 207  
**Foundation Board Meeting**

18:30 - 20:30 MEC Exhibit Area  
**Exhibitors Reception**

## Tuesday 28 August

10:30 - 12:30 MCEC 207  
**White Elephant Meeting**

12:45 - 13:45 MCEC 216  
**SSSI RS&P Commission Meeting**

13:00 - 14:00 MCEC 220  
**Incoming/Outgoing TCP II Candidate WG Chairs**

13:00 - 14:00 MCEC 219  
**Incoming/Outgoing TCP III Candidate WG Chairs**

13:00 - 14:00 MCEC 213  
**Incoming/Outgoing TCP IV Candidate WG Chairs**

13:00 - 14:00 MCEC 210  
**Incoming/Outgoing TCP VIII Candidate WG Chairs**

13:30 - 17:30 Albert Park Indoor Sports Centre  
**Indoor Football Competition**

14:00 - 15:00 MCEC 207  
**Sustaining Members Meeting**

14:00 - 17:00 MEC 5.1.02  
**GSIS Journal Editorial Board**

17:30 - 18:30 Clarendon Room  
**Earth Observation Forum Reception**

## Wednesday 29 August

11:00 - 12:30 MCEC 207  
**EuroSDR + New TCPs**

13:00 - 14:00 MCEC 218  
**Incoming/Outgoing TCP I Candidate WG Chairs**

13:00 - 14:00 MCEC 212  
**Incoming/Outgoing TCP V Candidate WG Chairs**

13:00 - 14:00 MCEC 217  
**Incoming/Outgoing TCP VI Candidate WG Chairs**

13:00 - 14:00 MCEC 211  
**Incoming/Outgoing TCP VII Candidate WG Chairs**

14:00 - 17:30 MCEC Plenary 2  
**General Assembly III**

19:00 - 22:00 The Meat Market  
**Foundation Dinner**

19:30 - 22:30 Regent Theatre  
**VSEA Dinner**

## Thursday 30 August

07:30 - 08:30 Hilton Hotel  
**Breakfast Meeting Incoming - Outgoing Council**

09:00 - 10:30 MEC 5.2.01-02  
**Visit of the Exhibitors**

10:00 - 11:30 MEC 5.1.02  
**Business Meeting: Intergraph Board Meeting**

12:00 - 18:00 MEC 5.1.02  
**Business Meeting: ICSM**

## Friday 31 August

14:00 - 17:30 MCEC Plenary 2  
**General Assembly IV**

19:00 - 23:00 Flemington Racecourse  
**Conference Gala Dinner**

## Saturday 1 September

13:30 - 15:00 MCEC Plenary 2  
**Closing Ceremony**

16:00 - 17:00 MCEC 207  
**Meeting of the Incoming TCPs with Regional Chairs and Sister Societies**

18:30 - 22:30 MCG Football Ground  
**Australian Rules Football Game Essendon v Collingwood**

## Congress Social Program



### Welcome Reception

Date: Saturday, 25 August 2012  
Time: 18:00 – 20:00  
Venue: Melbourne Convention and Exhibition Centre



### Exhibitors' Reception

Date: Monday, 27 August 2012  
Time: 18:30 – 20:30  
Venue: Exhibition Hall, Melbourne Convention and Exhibition Centre



### Foundation Function

Date: Wednesday, 29 August 2012  
Time: 19:00 – 22:00  
Venue: The Meat Market



### Congress Dinner

Date: Friday, 31 August 2012  
Time: 19:00 – 23:00  
Venue: Flemington Racecourse



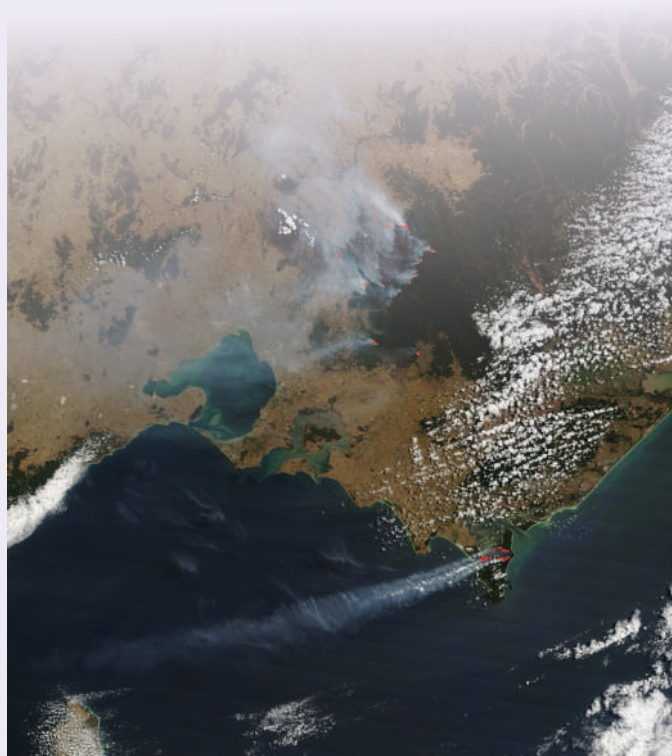
### The Inaugural ISPRS International Indoor Soccer Cup

Date: Tuesday, 28 August 2012  
Time: 13:30 – 17:30  
Venue: Albert Park

Website: [www.apisc.com.au/indoor-soccer-locations.htm](http://www.apisc.com.au/indoor-soccer-locations.htm)

## Registration Desk Hours

Friday 24 August	0800 – 1730
Saturday 25 August	0800 – 1900
Sunday 26 August	0800 – 1730
Monday 27 August	0830 – 1730
Tuesday 28 August	0830 – 1730
Wednesday 29 August	0830 – 1730
Thursday 30 August	0830 – 1730
Friday 31 August	0830 – 1730
Saturday 1 September	0830 – 1400



## Presentation Information

### Session Chairs

Please ensure that you are available in your presentation room at least ten minutes prior to the start of the session.

### Oral Presentations

It is important that all speakers upload their presentation in the Speakers' Preparation Room at least two hours prior to the commencement of their allocated session. Speakers who are presenting at an early morning session should check-in their presentation the day before their presentation. An audio visual technician will be available in the Speakers' Preparation Room to assist with this process.

### Short + Interactive Presentations

ePosters will be available for viewing from Sunday 26 August through to Friday 31 August. ePoster presenters must upload their presentation at the Speakers' Preparation Room.

Speakers are requested to register at the registration desk at least two hours prior to the scheduled presentation.

### Speakers' Preparation Room

The Speaker's Preparation Room is located adjacent to the registration desk.

Friday 24 August	0800 – 1730
Saturday 25 August	0800 – 1900
Sunday 26 August	0800 – 1730
Monday 27 August	0830 – 1730
Tuesday 28 August	0830 – 1730
Wednesday 29 August	0830 – 1730
Thursday 30 August	0830 – 1730
Friday 31 August	0830 – 1730
Saturday 1 September	0830 – 1000



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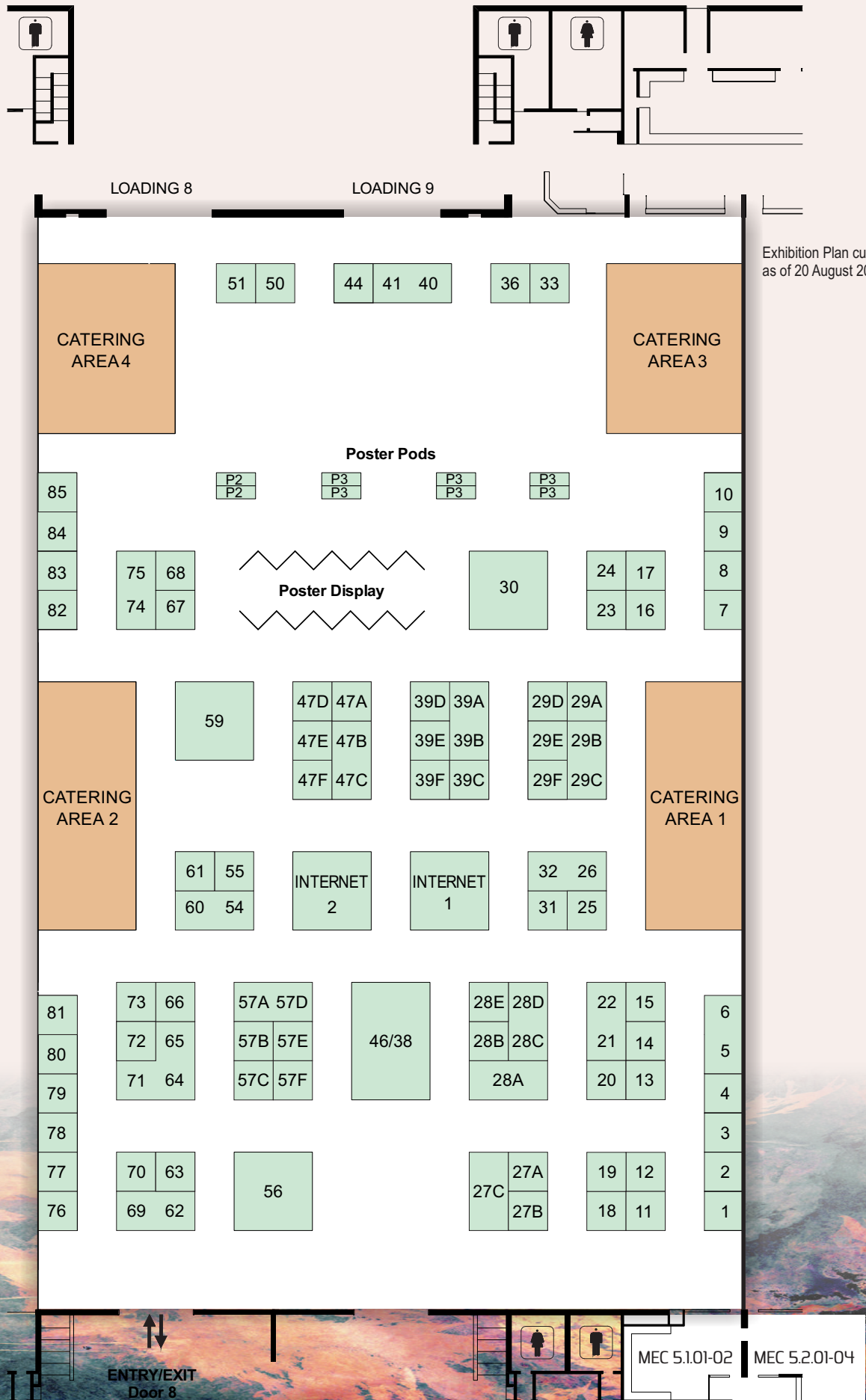
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IMAGING

## Exhibition Information





## Exhibition Hours

The Exhibition is located in Main Foyer of the Melbourne Convention Centre and will be open during the following hours:

Sunday 26 August	1000 - 1730
Monday 27 August	1000 - 2030
Tuesday 28 August	1000 - 1730
Wednesday 29 August	1000 - 1730
Thursday 30 August	1000 - 1730
Friday 31 August	1000 - 1600

## Exhibitors

3D Laser Mapping / Terrasolid	57F
AAM	66
Adam Technology	31
Adept Turnkey Pty Ltd	23
Aerodata Australia Pty Ltd	5&6
AEROMETREX Pty Ltd	57B
American Society for Photogrammetry & Remote Sensing	25
Antrix Corporation Ltd	72
APPLANIX	79
ASD Inc.	36
Asia Air Survey Co Ltd	16
Astrium Services	74;75
Auletris, SRO	18
BAE Systems	57A;57D
Beijing Ceke Spacial Info-Tech Co Ltd	47F
Beijing Geo-Vision Technology Company Limited	39C
Beijing GEOWAY Software Co. Ltd	47D
Blue Marble Geographics	27B
Chinese Academy of Surveying and Mapping	47B;47C
DAT/EM Systems International	26;32
DMCii Ltd	70
Earthmine, Inc	76
Eastdawn Corporation	29B;29C
Elsevier BV	7
Environmental Systems Research Institute, Inc	28D
Esri	28C;28D
Euclidean	51
Exelis Visual Information Solutions	28E
Fugro Spatial Solutions	27A
GAIA3D, Inc	77
GeoCue Corporation / QCoherent Software	19
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GPSat Systems Australia Pty Ltd	28B
Hexagon	38;46
Hi-Target Surveying Instrument Co., Ltd	39F
HyVista Corporation	78
IGI mbH	3
Intergraph	38;46
ISPRS Student Consortium	1
ISPRS WGI-1 Airborne Platform Interface	2
ITRES Research Limited	44
KLT Associates Inc	10
KQ GEO Technologies	39D
Maptek	12
National Administration of Surveying, Mapping and Geoinformation of China	39E
National Geomatics Centre of China	29D
NZ Aerial Mapping Ltd	57C
Optech Incorporated	20
PASCO Corporation	5;6
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Satellite Surveying And Mapping Application Centre, NASG	29A
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Silver Data Spatial-GIS Co. Ltd (Xiamen)	81
Simactive Inc	80
South Surveying & Mapping Instrument Co Ltd	39A;39B
Spatial Scientific Pty Ltd	68
Supresoft Inc.	30
Taylor & Francis	85
Trimble Germany GmbH	62;69
Ultimate Positioning	63
USQ Engineering and Surveying	27C
Vekta Pty Ltd	15
Vexcel Imaging GMBH	64,65,71
VisionMap	21;22
Wuda Geoinformatics Co Ltd	56
Wuhan HuaZheng Duowei Software Company	67
Wuhan Visiontek Inc.	47A
Xi'an ARSC Information Industry Co. Ltd	29E;29F

## Exhibitor Profiles

### Booth 57F

3D Laser Mapping Ltd &  
Terrasolid Ltd



Contact     Iain Bramwell  
Address     Level 3, 267 St Georges Terrace,  
              Perth, WA, 6000  
Telephone   +61 8 9261 7703  
Email       info@3dlasermapping.com  
Website     www.3dlasermapping.com / www.terrasolid.com

3D Laser Mapping is a world-leading integrator of laser scanning technology for the mining, mapping and modelling industries.

Our technology draws on many years of developing highly effective solutions to multinational companies around the world.

Terrasolid Ltd is the world leader in airborne and mobile laser scanning software solutions.

### Booth 66

AAM Pty Ltd



Address     2 / 33 Waterloo Road,  
              Macquarie Park, 2113 NSW  
Telephone   +61 2 8879 1600  
Facsimile   +61 2 8879 1633  
Email       info@aamgroup.com  
Website     www.aamgroup.com

AAM's proven technology leadership includes a range of advanced systems for the collection, analysis and presentation of geospatial information. Comprising a multi-disciplinary team of more than 350 geospatial professionals, AAM operates from an extensive office network throughout Australia, New Zealand, Malaysia and South Africa. AAM has a long-standing reputation for adopting the latest technologies and tailoring innovative, customised solutions to meet client needs.

### Booth 31

Adam Technology



Contact     Kevin Ha  
Address     Suite 3, 41 Belmont Ave, Belmont,  
              WA 6104, Australia  
Telephone   +61 8 9479 5575  
Facsimile   +61 8 9479 5585  
Email       adam@adamtech.com.au  
Website     www.adamtech.com.au

ADAM Technology is a Western Australian company that has been developing innovative photogrammetric solutions since 1986. 3DM Analyst Mine Mapping Suite, the current flagship product, is used worldwide for numerous aerial, terrestrial, underground, and underwater surveying, mapping, and modelling applications by mining companies, service providers, researchers, and many government departments.

### Booth 23

Adept Turnkey  
Pty Ltd



Contact     Marc Fimeri  
Address     Level 1, 15 Drake Street,  
              Osborne Park, WA, 6017  
Telephone   +61 8 9242 5411  
Facsimile   +61 8 9201 9991  
Email       mfimeri@adept.net.au  
Website     www.specim.fi

Adept Turnkey specialises in supplying Vision and imaging technology to the Aust/NZ markets. Adept Turnkey represents Specim, a world-leading manufacturer of hyperspectral imaging instrumentation. We provide solutions for the most demanding applications in laboratory, field and remote sensing. AISA airborne hyperspectral sensors are the market leader in remote sensing with more than 80 systems successfully being deployed.

## Booth 57B

### Aerodata Australia Pty Ltd



Contact Luc Van Hoorick  
Address Level 19, AMP Place, 10 Eagle Street,  
Brisbane, QLD 4000, Australia  
Telephone +61 7 3303 0888  
Facsimile +61 7 3303 8445  
Email info@aerodata-australia.com  
Website www.aerodata-australia.com

Aerodata Australia has been established in mid 2010 to respond to the growing demand for updated aerial imagery and geospatial data over large areas in the Australian and Pacific region. The branch benefits of the experience and resources of one of the largest aerial survey group in the world, Aerodata International Surveys part of the PASCO group of companies.

The company operates 8 aircraft equipped with state-of-the art aerial survey digital mapping cameras Microsoft Vexcel UC Xp and WA, VisionMap A3 as well as LiDAR, Hyperspectral and Thermography systems. We provide a range of services and products from high resolution vertical and 3d aerial imagery to digital terrain models and mapping via photogrammetric data capture and LiDAR.

## Booth 57B

### AEROMETREX Pty Ltd



Contact David Byrne  
Address 59 King William Street, Kent Town SA 5067  
Telephone +61 8 8362 9911  
Facsimile +61 8 8363 2777  
Email david.byrne@aerometrex.com.au  
Website www.aerometrex.com.au

AEROMETREX provides accurate digital image mapping and geospatial engineering solutions by exploiting both existing and emerging air and ground imaging technologies.

We specialize in digital orthophoto and seamless mosaic production, survey accurate terrain and feature capture.

Our various markets and industries include: Environment, Infrastructure & Transport, Urban Planning, Energy & Mining and all tiers of Governments.

## Booth 25

### American Society for Photogrammetry and Remote Sensing



Contact Kim Tilley  
Address 5410 Grosvenor Lane, Suite 210,  
Bethesda, MD 20814, USA  
Telephone +1 301 493 0290  
Facsimile +1 301 493 0208  
Email kimt@asprs.org  
Website www.asprs.org

American Society for Photogrammetry and Remote Sensing (ASPRS) is an international professional organization of geospatial professionals. ASPRS is devoted to advancing knowledge and improving understanding of the mapping sciences to promote responsible application of photogrammetry, remote sensing, geographic information systems and supporting technologies. For information, visit [www.asprs.org](http://www.asprs.org).

## Booth 72

### Antrix Corporation Ltd



Contact Manish Parmar  
Address ISRO HQ, New BEL Road,  
Bangalore, India. 560231  
Telephone +91 80 2217 8331  
Facsimile +91 80 2217 8341  
Email mail@antrix.gov.in  
Website www.antrix.gov.in

Antrix Corporation Limited is the commercial wing of Indian Space Research Organisation (ISRO) for promotion and commercial exploitation of space products and services to international customers worldwide. With fully equipped state-of-the-art facilities, Antrix provides solutions for satellite manufacturing, launch services, earth observation data & services, transponders lease, mission support services.

## Booth 79

APPLANIX



Contact John Sacke  
Address 85 Leek Crescent, Richmond Hill,  
Ontario, L4B 3B3, Canada  
Telephone +1 905 709 4600  
Facsimile +1 905 709 6027  
Email jsacke@applanix.com  
Website www.applanix.com

Applanix has a simple mission - to be the industry leader in the development, manufacture, sales, and support of Mobile Mapping products and solutions. Our technology is specifically designed for commercial applications, including aerial survey and remote sensing, land-based mobile mapping, and marine survey operations – markets we helped pioneer.

## Booth 16

Asia Air  
Survey Co Ltd



ASIA AIR SURVEY CO.,LTD.

Contact Saeko Kamiyama  
Address 1-2-2 Manpukuji, Asao-ku, Kawasaki,  
Kanaga wa, 215 0004, Japan  
Telephone +81 44 967 6305  
Facsimile +81 44 954 8165  
Email sae-kamiyama@ajiko.co.jp  
Website www.ajiko.co.jp

Asia Air Survey is an aerial surveying and geomatics company excelling in surveying, soft technology development and consulting solutions. Since 1947, AAS has been providing solutions for our clients in a wide range of fields such as disaster, environment and land management using our innovative geomatics.

## Booth 36

ASD Inc.



Contact David Hatchell  
Address 2555 55th Street, Suite 100,  
Boulder, Colorado 80301 (U.S.A.)  
Telephone +1 303 444 6522  
Facsimile +1 303 444 6825  
Email David.Hatchell@asdi.com  
Website www.asdi.com

ASD Inc. is a recognized world leader in reflectance spectroscopy for remote sensing. Researchers across the globe trust our instruments because they are portable, rugged and easy to use - providing research critical measurements in the field. ASD FieldSpec® instruments and accessories can be adapted for unique field research needs.

## Booth 74 & 75

Astrium Services

Address 5 rue des Satellites, BP 14 359, F-31030  
Toulouse cedex 4, France  
Telephone +33 5 62 19 40 40  
Facsimile +33 5 62 19 40 11  
Email info@astrium-geo.com  
Website www.astrium-geo.com

Astrium GEO-Information Services (former Spot Image and Infoterra), one of the leaders in the geo-spatial information market, provides decision-makers with complete solutions for security, agriculture, oil, gas and mining, natural resources and environment monitoring and also has exclusive access to data from the SPOT, TerraSAR-X, TanDEM-X and Pléiades satellites.

#### Booth 57A & 57D

### BAE Systems

**BAE SYSTEMS**

Contact Anand Santhanam  
Address Level 2, 14 Childers Street, Canberra City,  
Australia 2601  
Telephone +61 2 6195 2700  
Facsimile +61 2 6160 4001  
Email Anand.Santhanam@baesystems.com  
Website www.baesystems.com/gxp

BAE Systems' software SOCET GXP v4.0 offers rigorous photogrammetry, including 3-D site and city modeling, automatic feature extraction, and advanced terrain editing (TIN and Grid, including LiDAR point clouds). In addition, our newest product offering, GXP Xplorer, introduces a revolutionary way to access, catalog, and share data. [www.baesystems.com/gxp](http://www.baesystems.com/gxp)

#### Booth 47D

### Beijing GEOWAY Software Co Ltd

**GEOWAY**  
The way of geomatics

Contact Xiuxiu Hou  
Address F16, Wanshang Plaza, 22 Shijingshan Road,  
100043 Beijing, China  
Telephone +86 10 6863 8580  
Facsimile +86 10 6863 8766  
Email houxiuxiu@geoway.com.cn  
Website www.geoway.cn

Beijing GEOWAY is the leading provider of geomatic solutions in China, and is competitive in imagery processing and database-based mapping worldwide. GEOWAY is engaged in research and development of geoinformation processing system, image processing system and digital photogrammetric system, while carrying out stereo mapping, image processing, electronic map production, 3D modelling and other spatial data processing business.

#### Booth 47F

### Beijing Ceke Spacial Info-Tech Co Ltd

Contact Lin Zongjian  
Address 16 Bei tai Ping Road, Beijing 100039, China  
Telephone +86 10 6818 7752  
Facsimile +86 10 6816 8748  
Email lincasm@casm.ac.cn

#### Booth 27B

### Blue Marble Geographics



Contact Patrick Cunningham  
Address 397 Water Street, Suite 100,  
Gardiner, ME 04345, United States  
Telephone +1 207 582 6747  
Facsimile +1 207 582 7001  
Email info@bluemarblegeo.com  
Website www.bluemarblegeo.com

Blue Marble Geographics of Gardiner, ME is a leading developer and provider of software products and services for highly accurate geospatial data conversion solutions. Blue Marble is known for the Blue Marble Desktop, Geographic Calculator, GeoCalc SDK, and as of November 2011, Global Mapper Desktop and SDK.

#### Booth 39C

### Beijing Geo-Vision Technology Co Ltd

Contact Weiping Jia  
Address 16 Beitaiping Road, Beijing, 100038 China  
Telephone +86 10 8827 9961  
Facsimile +86 10 8827 9780  
Email jwp\_casm@sina.com

## Booth 47C

### Chinese Academy of Surveying and Mapping

Contact Wzang Ying  
Address 28 Lianhuachixi Road, Beijing, 100830 China  
Telephone +86 010 6388 0812  
Facsimile +86 010 6388 0822  
Email zangyi@casm.ac.cn

## Booth 70

### DMCii Ltd



Contact Gary Holmes  
Address Tycho House, 20 Stephenson Road, Surrey Research Park, Guildford, Surrey GU2 7YE UK  
Telephone +44 1483 803925  
Facsimile +44 1483 803804  
Email info@dmcii.com | sales@dmcii.com  
Website www.dmcii.com

DMC International Imaging Ltd (DMCii) supplies imagery from the DMC satellite constellation. Each satellite carries a wide (650km) swath multispectral sensor with 22m-32m spatial resolution - ideal for monitoring large land areas on a regular basis for applications such as land cover mapping, forest monitoring, agricultural monitoring and disaster response.

## Booth 26 & 32

### DAT/EM Systems International



Contact Jeffrey Yates  
Address 8240 Sandlewood Place #101, Anchorage AK, United States  
Telephone +1 907 522 3681  
Facsimile +1 907 522 3688  
Email sales@datem.com  
Website Datem.com

DAT/EM Systems International is a leader in the development of software for digital mapping and photogrammetric applications. DAT/EM Systems serves over 500 photogrammetric firms, engineering firms, and government agencies in more than 70 countries worldwide. We take pride in a reputation for delivering quality systems and superior customer service at a fair price.

## Booth 76

### Earthmine, Inc



Contact Anthony Fassero  
Address 2390A 4th Street, Berkley CA, 94710, United States  
Telephone +1 510 768 7001  
Facsimile +1 510 295 2871  
Email sales@earthmine.com  
Website www.earthmine.com

Earthmine is a world leader in 3D street-level imagery delivering a full end-to-end solution including collection hardware, software and cloud-based hosting.

## Booth 29B & 29C

### Eastdawn Corporation

Contact Daniella Li  
Address 10th Floor, Sinosteel Plaza, Haidian District,  
Beijing 100080 China  
Telephone +86 106 268 6799  
Facsimile +86 106 268 6790  
Email [dwli@east-dawn.com.cn](mailto:dwli@east-dawn.com.cn)

## Booth 7

### Elsevier BV



Contact Anita Offers  
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The Netherlands  
Telephone +31 20 485 3003  
Facsimile +31 20 485 3228  
Email [a.offers@elsevier.com](mailto:a.offers@elsevier.com)  
Website [www.elsevier.com](http://www.elsevier.com)

Elsevier is the leading publisher in remote sensing and photogrammetry, renowned for its high quality and high impact factor journals, offering a variety of open access solutions. Elsevier partners with experts worldwide to drive innovation. Elsevier publishes the ISPRS Journal of Photogrammetry and Remote Sensing.

## Booth 28D

### Environmental Systems Research Institute, Inc

Contact Tim Flewelling  
Address 380 New York Street Redlands CA 92373 USA  
Telephone +1 909 793 2853  
Facsimile +1 909 307 3102  
Email [tflewelling@esri.com](mailto:tflewelling@esri.com)

## Booth 28C & 28D

### Esri



Address 380 New York St. Redlands, CA 92373  
Telephone +1 909 793 2853  
Email [info@esri.com](mailto:info@esri.com)  
Website [www.esri.com](http://www.esri.com)

Esri® develops geographic information systems solutions used by more than a million people on any given day and over 350,000 organizations worldwide. Our main product, ArcGIS, is a comprehensive imagery system for managing, visualizing, analyzing and disseminating all forms of geospatial data.

## Booth 51

### Euclideon

Contact Tamaryn Osborne  
Address 3/8 Miller Street, Murrarie QLD 4216  
Email [tosborne@euclidoen.com](mailto:tosborne@euclidoen.com)  
Website [www.euclidoen.com](http://www.euclidoen.com)

## Booth 28E

### Exelis Visual Information Solutions



Contact Eduardo Iturrate  
Address 4990 Pearl East Circle, Boulder,  
CO 80301, USA  
Telephone +1 303 786 9900  
Facsimile +1 303 786 9909  
Email [info@exelisvis.com](mailto:info@exelisvis.com)  
Website [www.exelisvis.com](http://www.exelisvis.com)

Exelis VIS offers software solutions that help geographers, GIS specialists, and scientists make important discoveries using remotely sensed imagery. Regardless of the kinds of data you use, from airborne and spaceborne imagery to complex numerical and LiDAR data, Exelis products allow you to access and analyze data and disseminate results.

## Booth 27A

### Fugro Spatial Solutions



Contact Michael de Lacy  
Address PO Box 10, Sunnybank Qld, 4109  
Telephone +61 7 3841 3433  
Facsimile +61 7 3841 3466  
Email t.crabb@fugrospatial.com.au  
Website www.fugrospatial.com.au

Fugro Spatial Solutions is a leading provider of geospatial products and services, utilising LiDAR, Aerial and Satellite Imaging, GeoSAR, Land Survey and Geospatial solutions. Through Fugro's international network, we can deliver local expertise, specialist disciplines, pioneering technologies and world-class resources that combine to provide unified support for your projects worldwide.

## Booth 77

### GAIA3D, Inc

Contact Seo-in Kim  
Address #702, SJ Techno Ville Seol 153-769  
South Korea  
Telephone +82 23 399 3475  
Facsimile +82 23 397 3478  
Email sikim@gaia3d.com  
Website www.gaia3d.com

## Booth 19

### GeoCue Corporation / QCoherent Software



Contact Ashley Love  
Address 9668 Madison Blvd., Suite 202 Madison,  
AL 35758 USA  
Telephone +1 256 461 8289  
Facsimile +1 256 461 8249  
Email info@geocue.com | info@qcoherent.com  
Website www.GeoCue.com | www.QCoherent.com

GeoCue Corporation is a software development and consulting services company specializing in geospatial production management solutions. We will be demonstrating our GeoCue product family of integrated solutions at booth #208. These products provide an integrated end-to-end processing framework that, when combined with industry leading production tools, significantly reduces production time from data acquisition to finished product.

Qcoherent is an innovative provider of high-capacity LIDAR software. Our extensive knowledge of LIDAR and geospatial software has been applied to LP360 for ArcGIS desktop solutions and LIDAR Server for point cloud visualization and distribution via the web. With unparalleled performance in point cloud processing, classification, extraction, and operating environment options, QCoherent is the provider of choice for LIDAR software.

## Booth 13

### GeoFly GmbH



Contact Aicke Damrau  
Address Ottersleber Chaussee 91, 39120 Magdeburg,  
GERMANY  
Telephone +49 391 50 95 95 80  
Facsimile +49 391 50 95 95 899  
Email info@geofly.eu  
Website www.geofly.eu

GeoFly is one of the leading German companies for aerial data acquisition. Digital aerial photo-flights are the base of a photogrammetric project. Scope of work is providing 3-D data set for True-Ortho-Maps and 3D-City-Models. GeoFly is also providing Thermography and Airborne Laser Scan.



## Booth 55

### GGG – Geotechnik, Geoinformatik & Service GmbH



Contact Gerhard Kemper  
Address Kammererstr 14 Speyer 67346 Germany  
Telephone +49 6232 629 271  
Facsimile +49 6232 629 274  
Email kemper@ggs-speyer.de  
Website www.aeropol.com

We provide innovative solutions for aerial survey work

AeroTopoL: Mission Planning and Flightmanagement System  
AeroStab 3: Small Camera Stabilizer  
AeroStab Twin: Stabilizer for Dual Midformat Cameras  
AeroDiDOS: Direct Referencing System  
AeroCam: Midformat Metric Aerial Cameras  
AeroScan: Laserscanner

We provide integration of your existing equipment and consulting in aerial survey.

## Booth 73

### GoInnovation Agency "Innoter"

Contact Victor Lavrov  
Address Office 304 Moscow 117208 Russia  
Telephone +7 495 319 8180  
Facsimile +7 495 319 8179  
Email molchashkina@innoter.com  
Website www.innoter.com

## Booth 28B

### GPSat Systems Australia Pty Ltd



Contact Graeme Hooper  
Address Suite 1/22 Aberdeen Road Macleod Vic 3085  
Telephone +61 3 9455 0041  
Facsimile +61 3 9455 0042  
Email info@gpsatsys.com.au  
Website www.gpsatsys.com.au

GPSat Systems delivers innovative satellite navigation equipment, system solutions and technical services to Australian markets. As the distributor for both NovAtel and Spirent equipment, our dedicated team of engineers with broad multidisciplinary skills in electronics, software, geomatics and communication engineering, maintain elite technical expertise with the world's leading GNSS components and test equipment.

## Booth 38 & 46

### Hexagon (Platinum Sponsor)



Contact Katy Greer  
Address 5051 Peachtree Corners Circle, Suite 100  
Norcross, GA 30092  
Telephone +1 770 776 3497  
Email katy.greer@hexagon.com  
Website www.hexagon.com

Intergraph®/ERDAS, Leica Geosystems and Z/I Imaging are part of Hexagon, Platinum Sponsor of ISPRS2012. Hexagon (Nordic exchange: HEXA B) is a leading global provider of design, measurement and visualisation technologies. Our customers design, measure and position objects, and process and present data, to stay one step ahead of a changing world.

Hexagon's technologies increase productivity, enhance quality and allow for faster, better operational decisions, saving time, money and resources.

Hexagon has over 13 000 employees in more than 40 countries and net sales of about 2 200 MEUR. Our products are used in a broad range of industries including surveying, power and energy, aerospace and defence, safety and security, construction and manufacturing. Learn more at [www.hexagon.com](http://www.hexagon.com).

## Booth 39F

### Hi-Target Surveying Instrument Co., Ltd



Contact Daisy Lei  
Address 10th Floor, ChuangXin Building,  
Tian'An Technology Zone, No.555,North of  
Panyu Road, Panyu District, Guangzhou,  
China, 511400  
Telephone +86 20 2288 3916  
Facsimile +86 20 2288 3900  
Email daisylei@zhdgps.com  
Website www.hi-target.com.cn

Hi-Target Surveying Instrument Co., Ltd is a leading company specializing in R&D, manufacturing and sales of Landing Surveying Instrument, GIS, Marine Products and CORS system development for more than 12 years. It owns more than 1000 staff and has established a nationwide sales and service centers. Now Hi-Target is the No.1 Chinese GNSS brand.

### Hewlett-Packard Company



Contact Cathy Brett  
Address 3404 E. Harmony Rd, Fort Collins,  
Colorado, USA  
Telephone +1 970 898 0016  
Email cathy.ela.brett@hp.com  
Website www.hp.com

Accelerate your geospatial applications with HP Workstations. When you perform spatial and spectral analysis, carry out photogrammetric processes, or produce maps and visual representations, you have a distinct set of workstation needs. You need high performance I/O sub-systems, large memory capacities, robust processing and 3D visualization capabilities, and highly reliable systems. You'll find all of this and more in the HP portfolio of desktop and mobile workstations. HP Workstations deliver the I/O, memory, processing, and visualization performance you need to accelerate your work with large data sets. Better still, they give you the assurance that comes with rigorous system testing with key software applications and a full three-year warranty.

## Booth 78

### HyVista Corporation



Contact Dr. Michael Hussey  
Address 11/10 Gladstone Rd., Castle Hill, NSW 2154  
Telephone +61 2 8850 0262  
Facsimile +61 2 9899 9366  
Email info@hyvista.com  
Website www.hyvista.com

HyVista specialises in the world-wide supply of airborne hyperspectral remote sensing imagery and information products for applications including geological mapping, mineral exploration, and environmental monitoring. Providing a significant advantage over conventional satellite-imaging, HyMap sensors produce unprecedented maps of the Earth's surface, revealing complex mineralogy and chemistry and simplifying mapping.

## Booth 38 & 46

### Intergraph

Contact Andrew Bashfield  
Address Level 3, 420 St Kilda Road,  
Melbourne Victoria 3004  
Telephone +61 3 9292 9600  
Facsimile +61 3 9292 9601  
Email Andrew.bashfield@intergraph.com  
Website www.intergraph.com

Intergraph Security, Government & Infrastructure (SG&I) provides geospatially powered solutions to the public safety and security, defence and intelligence, government, transportation, photogrammetry, utilities and communications industries. Now part of Intergraph, ERDAS provides integrated products for remote sensing, photogrammetry, and geospatial data management and delivery. Intergraph Government Solutions (IGS) is an independent subsidiary for SG&I's U.S. federal business. Intergraph SG&I is one of two divisions of Intergraph Corporation, a wholly owned subsidiary of Hexagon AB.

### Booth 3

## IGI mbH



Contact Philipp Grimm  
 Address Langenauer Str. 46, 57223 Kreuztal, Germany  
 Telephone +49 2732 5525 0  
 Facsimile +49 2732 5525 25  
 Email info@igi-systems.com  
 Website www.igi-systems.com

IGI mbH was founded in 1978. The primary goal of the company was to manage airborne sensor systems for flight guidance, sensor control using GNSS (Global Navigation Satellite System) and INS (Inertial Navigation Systems). Today the portfolio includes customised sensor systems using LiDAR, digital camera systems and thermal camera systems.

### Booth 1

## ISPRS Student Consortium



Contact Cemal Özgür KIVILCIM  
 Address Istanbul, Turkey  
 Website www.isprs-studentconsortium.org

The ISPRS Student Consortium(SC) is an important connection between young generation and ISPRS. It provides a platform for exchange of information and organise student-specific events either independently (e.g. international summer schools) or within larger ISPRS events. SC also cooperate with other international and regional student organisations. Advanced Diploma, Master, PhD students and young professionals in ISPRS fields can become a SC member. SC reached 800 members from 87 countries by 2012.

### Booth 2

## ISPRS WGI-1 Airborne Platform Interface

Contact Jim Weber  
 Address 5376 Mad River Lane Columbia MD 21044 USA  
 Telephone +1 410 730 0845  
 Facsimile +1 410 730 0845  
 Email jdaleweber@comcast.net  
 Website www.comcast.net

### Booth 44

## ITRES Research Limited



Contact Steve Mah, Andrew House  
 Address 110 3553-31st. Street Nw Calgary, Alberta, Canada  
 Telephone +1 403 250 9944  
 Facsimile +1 403 260 9916  
 Email smah@itres.com | ahouse@itres.com  
 Website www.itres.com

ITRES (1979) manufactures airborne hyperspectral electro-optical imagers for high resolution remote sensing applications (coastlines, water quality, minerals, heat loss, fire mapping, search and rescue target detection). Custom imager design services are offered in the VNIR, SWIR, MWIR, and LWIR infrared spectral regions. Worldwide hyperspectral mapping and derived product generation services also offered.

### Booth 10

## KLT Associates Inc

Address 100 Corporate Place, Peabody, MA 01960-3809  
 Telephone +1 978 536 9100  
 Facsimile +1 978 536 9110  
 Email sales@kltassoc.com  
 Website www.kltassoc.com

KLT ASSOCIATES, ATLAS provides the latest tools for all photogrammetric software applications processes. Today using the same data structure that was developed 25 years ago, a user can take an archived MAPPs 300 file, MAP/CE file, and many other formats and use the file with the latest Windows version of ATLAS, KLT's feature based vector data collection software(ATLAS), integrated into a user friendly digital stereo plotter (ATLAS/DSP). This philosophy, of data migration continues today with each KLT product. The benefits of this philosophy is a user can prepare a job, compile the data, TIN the data (ATLAS/TIN), produce an ortho mosaic (ATLAS/ORTHO) and deliver a product without changing neither environments nor moving or translating data. All data is maintained in an easy to use and easy to understand ASCII format for manipulation and modification. Driven by our customers and technologies, KLT Associates continues to develop and enhance the KLT products, be it digital aerial cameras, Aerial Triangulation (KLT/AT), LIDAR, close range, or simply stream lining a process, minimizing time factors by using batch processes, KLT Associates is always listening to our customers. We pride ourselves in customer support and response; we provide toll free numbers to our customers with support at no additional cost available through out the world. Look us up at ISPRS, email or call us, we will be happy to discuss your needs and requirements and show you how KLT Associates can address your specific photogrammetric needs.

## Booth 39D

### KQ GEO Technologies



Contact Maggie Wang  
Address Room 1915-1922, Jianda Building,  
Dongtucheng Road, Chaoyang District,  
Beijing, China  
Telephone +86 10 8527 1488 ext 830  
Facsimile +86 10 8527 1489  
Email marketing@kanq.com.cn  
Website www.kqgeo.com www.kanq.com.cn

Founded in May, 2001, KQ GEO TECHNOLOGIES CO., LTD. is one of the few A level surveying and mapping service providers qualified by the State Bureau of Surveying and Mapping in China. With over 200% annual sales growth rates, the sales exceeded \$30 million in 2009, of which software sales were up to more than \$15 million. With over 800 employees, 25 regional offices in China, KQ GEO TECHNOLOGIES CO., LTD. has become one of the leading suppliers of GIS platforms, GNSS technologies & equipments, spatial data service, and GPS technologies. The company is dedicated to providing superior and comprehensive solutions for customers. It founded two research centers in Beijing and Wuhan, and one research lab in the University of Nottingham, providing powerful technical support for various applications. KQ GEO TECHNOLOGIES CO., LTD. delivers many well-proven products which have lots of successful applications in industries such as land, conservation, forestry, water, transportation, communication, electric power, municipal facility, real estate, navigation and so on. The company has complete solutions for land resource management, 3D urban scenery, real estate management, comprehensive municipal management, road administration, management of underground pipelines and GIS-based e-government. All the solutions have been widely used.

## Booth 12

### Maptek



Contact Jason Richards  
Address 31 Flemington Street, Glenside SA 5065  
Telephone +61 8 8338 9222  
Facsimile +61 8 8338 9229  
Email info@maptek.com  
Website www.maptek.com

Maptek I-Site™ systems combine accurate 3D laser scanners with advanced point cloud processing software for survey, civil, mining and forensic applications. Products include the I-Site 8800 and I-Site 8400 laser scanners, I-Site Studio intuitive point cloud software and I-Site Forensic software.

## Booth 29D

### National Geomatics Centre of China



Contact PENG Shu  
Address 28 Lianhuachi West Road, Haidian District,  
Beijing, 100830, P.R. China  
Telephone +86 10 6388 1906  
Facsimile +86 10 6388 1905  
Email kj@ngcc.cn  
Website www.ngcc.cn

National Geomatics Center of China (NGCC) is a governmental agency, subordinating to National Administration of Surveying, Mapping and Geoinformation of China (NASG). The responsibilities for NGCC are construction, management, distribution, archiving and application of national fundamental geoinformation data; planning, designing and execution of national major surveying and mapping projects etc.

## Booth 57C

### NZ Aerial Mapping Ltd

Contact David Napier  
Address PO Box 6, Hastings, New Zealand  
Telephone +64 6 873 7550  
Facsimile +64 6 878 1290  
Email [service@nzam.com](mailto:service@nzam.com)  
Website [www.nzam.com](http://www.nzam.com)

NZAM provide aerial photography and LiDAR capture, photogrammetry and data processing services to clients worldwide. Employing over 40 staff and with 76 years experience, NZAM utilise a fleet of six aircraft with state of the art equipment and leading edge technologies.

## Booth 5 & 6

### PASCO Corporation



Contact Akiko Otsuki  
Address 1-1-2 Higashiyama, Meguro-ku,  
Tokyo 153 0043, Japan  
Telephone +81 3 4570 3065  
Facsimile +81 3 4570 3067  
Email [aikku8794@pasco.co.jp](mailto:aikku8794@pasco.co.jp)  
Website [www.pasco.co.jp/eng/](http://www.pasco.co.jp/eng/)

Established since 1953, PASCO CORPORATION is a Japan-based leading company specialized in providing comprehensive geospatial information services. The company is actively involved in referencing, measuring and analysing the data captured from spaceborne, airborne, on the ground and even ship-borne systems and presents customized value-added products.

## Booth 20

### Optech Incorporated



Contact Tatijana Pantovic  
Address 300 Interchange Way, Vaughan,  
Ontario, Canada L4K 5Z8  
Telephone +1 905 660 0808  
Facsimile +1 905 660 0829  
Email [inquiries@optech.com](mailto:inquiries@optech.com)  
Website [www.optech.com](http://www.optech.com)

Optech is the world leader in the development, manufacture and support of advanced lidar and camera survey instruments. Optech offers both standalone and fully integrated lidar and camera solutions in airborne mapping, airborne lidar bathymetry, mobile mapping, terrestrial laser scanning, mine cavity monitoring, industrial process control, and space-proven sensors.

## Booth 11

### PCI Geomatics



Contact Brad Schmidt  
Address 50 West Wilmot St. Richmond Hill,  
Ontario, Canada  
Telephone +1 905 764 0614  
Facsimile +1 905 764 9604  
Email [info@pcigeomatics.com](mailto:info@pcigeomatics.com)  
Website [www.pcigeomatics.com](http://www.pcigeomatics.com)

PCI Geomatics is a world-leading developer of software and systems to process aerial and satellite imagery. The company provides integrated Esri imagery workflows, standalone image processing capability, and large volume processing throughput, giving customers the ability to produce high-quality image products and derived information for any project.

## Booth 61

### Phase One A/S



Contact Peter Lange  
Address Roskildevej 39, 2000 Frederiksberg,  
Copenhagen, Denmark  
Telephone +45 28 88 69 92  
Facsimile +45 36 46 02 22  
Email pcl@phaseone.com  
Website Industrial.phaseone.com

#### Team Phase One

Our products are known for their quality, flexibility and speed enabling shooting in a wide range of formats to achieve visions without compromise. Phase One iXA aerial camera and lenses are designed to deliver superior quality image capture and investment value. Phase One companies include Leaf-Imaging and Mamiya Camera company.

## Booth 82

### Photomapping Services Pty Ltd



Contact Peter Saunders  
Address 133 Abbotsford St, North Melbourne, Vic 3051  
Telephone +61 3 9328 3444  
Facsimile +61 3 9326 6476  
Email phomap@photomapping.com.au  
Website www.photomapping.com.au

Photomapping are mapping and airborne imagery specialists delivering economical spatial solutions. Focusing on acquisition, manipulation, management and presentation of geospatial data.

#### Comprising

- Four aircraft with state of the art Optech LiDAR, Leica ADS80 digital acquisition, Zeiss film cameras.
- Australia wide film archive from 1930.
- Five precise scanners.

## Booth 18

### PRAGUE 2016 – ISPRS CANDIDACY



Contact Lena Halounova – Chairperson of the Czech Society for Photogrammetry and Remote Sensing  
Address Thákurova 7, 166 29 Prague 6, Czech Republic  
Telephone +420 224 354 952  
Facsimile +420 224 355 419  
Email lena.halounova@fsv.cvut.cz  
Website www.isprs2016-prague.com

The Czech Society for Photogrammetry and Remote Sensing (SFDP), representing Prague 2016 – ISPRS Candidacy, is an organization engaged in photogrammetry, remote sensing, laser scanning and GIS. The Photogrammetry Society was founded in our country by Czechoslovakian pioneers in 1930 and constant progress accompanies the Society since then.

## Booth 54 & 60

### Racurs



Contact Mona Awada  
Address Ul. Yaroslavskaya, 13A. Office 15, 129366  
Moscow, Russia  
Telephone +7 495 720 5127  
Facsimile +7 495 720 5128  
Email info@racurs.ru  
Website www.racurs.ru

Racurs successfully works in the Russian and international market of geoinformatics and is one of the recognized leaders of this area in Russia. Our flagship product PHOTOMOD was one of the first DPW on the market designed to work on off-the-shelf PCs. PHOTOMOD is a powerful toolkit for processing of RSD.

## Booth 24

### RapidEye AG



Contact James Durana  
Address Molkenmarkt 30; 14776  
Brandenburg an der Havel,  
Brandenburg an der Havel  
Telephone +49 3381 8904 100  
Facsimile +49 3381 8904 101  
Email sales@rapideye.com  
Website www.rapideye.com

RapidEye is a leading provider of quality high-resolution satellite imagery. With a constellation of five Earth Observation satellites, RapidEye images over 4 million square kilometers of earth every day, and adds approximately one billion square kilometers of earth to its archive yearly. Viewing RapidEye's extensive archive is easy with EyeFind! www.rapideye.net

## Booth 40 & 41

### RIEGL Laser Measurement Systems GmbH



Contact Silvia Zaiser  
Address Riedenburgerstraße 48, A-3580 Horn, Austria  
Telephone +43 2982 4211  
Facsimile +43 2982 4210  
Email szaiser@riegl.co.at  
Website www.riegl.com

With 30 years of experience in the research, development and production of laser scanners, rangefinders and distance-meters RIEGL delivers proven innovations in 3D. Dedicated to producing the best possible laser sensors for the desired application in order to perfectly fulfill the given measurement task and therefore fully satisfy the customers' expectations worldwide.

## Booth 29A

### Satellite Surveying And Mapping Application Centre, NASG



Contact Gao Xiao Ming  
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Beijing 100830 China  
Telephone +86 10 6388 1321  
Facsimile +86 10 6388 1400  
Email gaoxm@sasmac.cn  
Website www.sasmac.cn

## Booth 50

### SFPT – Paris 2016 Candidate City

Contact Nicolas Paparoditis,  
Congress Director Candidate  
Address 6-8 avenue Blaise Pascal – Cité Descartes –  
77455 Marne-La-Vallée Cedex 2 - France  
Telephone +33 1 64 15 32 86  
Facsimile +33 1 64 15 32 85  
Email Nicolas.paparoditis@ign.fr  
Website www.sfpt.fr

The French Society for Photogrammetry and Remote Sensing would be pleased to welcome the ISPRS Congress in Paris in 2016. This application is organized in partnership with Colloquium, a recognized professional congress organiser, and supported by the French government, the city of Paris, CNES (French Space Agency), IGN (French Institute for Geographic and Forestry Information) and the national scientific and industrial community, which are strongly involved in ISPRS. Know more about our activities and publications on our booth N°50.

## Booth 47E

### Shaanxi Tirain Science & Technology Co Ltd



Contact Chen Li  
Address Floor 21, No 2-1 Wanda Plaza  
Xi'an Shaanxi Province 710054 China  
Telephone +86 29 8527 0519  
Facsimile +86 29 8527 0528  
Email contact@trgis.com  
Website www.trgis.com

Shaanxi Tirain Science & Technology Co., Ltd specialize in aerial Photogrammetry and Remote Sensing, engineering survey, cadastral survey, map compilation, GIS projects, GIS software design, mobile GIS, WebGIS and other related areas. We provide high quality geoinformation products and solutions to support a wide range of land-use and natural resource management activities. We possessed Surveying and Mapping Class A Qualification Certificate, passed the ISO9001 Quality System Certification and obtained the High-tech Enterprise Certificate in July 2005. Also, we have the honor that being awarded the title of "Excellent Credit Company" by the Xi'an Municipal Government for consecutive years. Over the years, our company have focused on the market, adhered to customer-centric philosophy, developed with innovative technologies and pursued high quality. With the excellent services and high-quality products we have won the trust of all users.

## Booth 81

### Silver Data Spatial-GIS Co. Ltd (Xiamen)



Contact Candy Zhu  
Address Room 403, No 16 Guanri Road,  
Software Park Phase II, Xiamen China  
Telephone +86 592 205 3766  
Facsimile +86 592 222 0556  
Email [oversea@silverdata.com.cn](mailto:oversea@silverdata.com.cn)  
Website [www.silverdata.com.cn](http://www.silverdata.com.cn)

Established in 2003, with total capital RMB 50 million. Our business scope covers surveying & mapping, aerial photogrammetry, aerial surveying and remote sensing, engineering surveying, digital city information platform development, GIS application and development. We offer one-stop service from data acquisition, processing, establishment to GIS comprehensive application and development.

## Booth 39A & 39B

### South Surveying & Mapping Instrument Co Ltd



Contact Jackie Cheung  
Address 2/F, No. 26 Surveying Building, Ke Yun Road,  
Tian He District, Guangzhou 510665, China  
Telephone +86 20 2338 0888  
Facsimile +86 20 2338 0800  
Email [export@southsurvey.com](mailto:export@southsurvey.com)  
Website [www.southinstrument.com](http://www.southinstrument.com)

SOUTH, the top Chinese manufacturer as well as an uprising star in the global geomatics community, has recently landed in Australia for further developments. A variety of surveying equipments and solutions are available such as GNSS products, Total Stations and other regular instruments, Lasers, plus automatic deformation monitoring system, high-speed railway measurement, etc.

## Booth 80

### Simactive Inc



Address 465 St-Jean Street, Suite 510,  
Montreal (Quebec), Canada, H2Y 2R6  
Telephone +1 514 288 2666  
Facsimile +1 514 288 6665  
Email [contact@simactive.com](mailto:contact@simactive.com)  
Website [www.simactive.com](http://www.simactive.com)

SimActive is the developer of Correlator3D™ software, a patented end-to-end photogrammetry solution for the generation of high-quality geospatial data from satellite and aerial imagery. Correlator3D™ produces dense digital surface models (DSM), digital terrain models (DTM), orthomosaics and vectorized 3D features. Powered by GPU technology, Correlator3D™ ensures matchless processing speed to support rapid production of large datasets.

## Booth 68

### Spatial Scientific Pty Ltd



Contact Paul Dare  
Address PO Box 520, BLACKWOOD SA 5051  
Telephone +61 8 8376 0772  
Facsimile +61 8 8278 8067  
Email [info@spatialscientific.com.au](mailto:info@spatialscientific.com.au)  
Website [www.spatialscientific.com.au](http://www.spatialscientific.com.au)

Spatial Scientific is a leading provider of airborne thermal imaging services. We are an authorized reseller and integrator of FLIR thermal imaging technologies. We also provide custom-designed geospatial software and camera control software for a wide range of imaging applications. Clients include multi-national mining companies, environmental consultants, government and academia.



## Booth 30

Supresoft Inc.



Contact Chang Zheng  
Address Room 30301, Scitech Plaza, No.22  
JianGuoMenWai Avenue, Beijing 100004, China  
Telephone +86 10 8511 8988  
Facsimile +86 10 6525 8060  
Email changzheng@supresoft.com.cn  
Website www.supresoft.com

Supresoft's proprietary spatial data processing software products are including VirtuoZo (a full digital photogrammetric system), DPGRID (the new generation of digital photogrammetric system) and 3D GIS. VirtuoZo is remarked to be one of the most advanced surveying and mapping software suites available today.

## Booth 85

Taylor & Francis



Address Level 2, 11 Queens Road, Melbourne, Vic, 3004  
Telephone +61 3 8842 2413  
Facsimile +61 3 8842 2461  
Email enquiries@tandf.com.au  
Website www.tandfonline.com

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## Booth 62 & 69

Trimble Germany GmbH



Contact Todd Taylor  
Address 10355 Westmoor Drive,  
Westmoor Technology Park, Building 4,  
Westminster, Colorado 80021  
Telephone +1 800 trimble (874 6253)  
Email Geospatial\_info@trimble.com  
Website www.trimble.com/geospatial

Trimble applies geospatial technologies to a variety of industry-specific workflows, enabling the seamless creation of geo-information from raw data. Trimble's land and aerial mobile sensors capture geo-referenced images and point clouds that are interpreted using Trimble's production-scale photogrammetry, terrain modeling and feature extraction software. The resulting high-fidelity models increase business productivity and improve decision-making for a diverse community of global customers, including aerial and land mapping service companies, governments, utilities and transportation.

## Booth 63

Ultimate Positioning



Contact Paul Standen  
Address Unit 1, 6 Garden Rd, CLAYTON,  
Victoria, Australia  
Telephone +61 3 9518 7400  
Facsimile +61 3 9518 7401  
Email paul\_standen@ultimatepositioning.com  
Website www.ultimatepositioning.com

Ultimate Positioning has teamed up with senseFly, Gatewing and Pix4D to provide a booth dedicated to the latest UAV technology. Ultimate Positioning represents these companies for Eastern and Central Australia. This fast developing technology is revolutionising the world of photogrammetry for cost effective, accurate, and on demand imagery and DTMs.

## Booth 27C

### USQ Engineering and Surveying



Contact Raylene Jones  
Address West Street, Toowoomba, QLD 4350  
Telephone +61 7 46 312525  
Facsimile +61 7 46 312526  
Email [study@usq.edu.au](mailto:study@usq.edu.au)  
Website [www.usq.edu.au](http://www.usq.edu.au)

USQ is renowned for its delivery of online (distance education) Engineering and Spatial Science programs. Students can study while they work and tailor their studies to meet individual needs. USQ is able to deliver consistently high quality courses and research supervision in areas such as Surveying, Photogrammetry, Geographic Information Systems and Remote Sensing.

## Booth 64,65 & 71

### Vexcel Imaging GMBH

Contact Silke Kemmer  
Address Anzengrubergergasse 8 Graz 8010 Austria  
Telephone +43 316 84 90 66 966  
Facsimile +43 316 84 90 66 999  
Email [i-sikemm@microsoft.com](mailto:i-sikemm@microsoft.com)  
Website [www.iFlyUltraCam.com](http://www.iFlyUltraCam.com)

Aerial Mapper Takes Digital Images 30 Percent Faster with Large-Format Camera Driven by customer demand for high-quality aerial images, Peace Map switched from film cameras to the UltraCam digital aerial cameras. Peace Map purchased six cameras: one UltraCamD, two UltraCamXp, and three UltraCamLp photogrammetric digital aerial cameras. The company now delivers superior images with up to 30 percent more efficiency and plans to purchase more UltraCam cameras in the future.

## Booth 15

### Vekta Pty Ltd



Contact David Lowe  
Address 630 Coronation Drive, Toowong, QLD 4066  
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Website [www.vekta.net.au](http://www.vekta.net.au)

Vekta is Australia's premier survey and spatial company providing professional surveying consultancy and project services to some of the country's largest resource infrastructure projects. Vekta's ability to combine the use of aerial and land surveying methods and technologies makes them ideally suited to partner on major infrastructure projects on a long term basis to deliver all spatial requirements throughout the project lifecycle.

## Booth 21 & 22

### VisionMap



Address Menachem Begin 7, Ramat Gan, Israel 52681  
Telephone +972 3 609 1042  
Facsimile +972 3 609 1043  
Email [info@visionmap.com](mailto:info@visionmap.com)  
Website [www.visionmap.com](http://www.visionmap.com)

VisionMap is a leading provider of state-of-the-art digital automatic aerial survey and mapping systems. VisionMap's unique technology created innovative data acquisition and data processing system which optimizes mapping work and sets a new standard for productivity in the geospatial data industry.

## Booth 56

### Wuda Geoinformatics Co Ltd



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Website www.geostar.com.cn

Wuda Geoinformatics Co., Ltd. is an enterprise that transfers scientific and technological achievements of Wuhan University. Founded in 1999 and with its IPR, it is the only high-tech company in China which provides service covering the entire life cycle of geospatial information, including spatial data acquisition and production, integration and management, sharing and publishing.

## Booth 47A

### Wuhan Visiontek Inc.



Contact Xiaoqing Cheng  
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Facsimile +86 27 8663 8700  
Email Chengxq@visiontek.cn  
Website www.visiontek.com.cn/index

Accurate Measuring, Colourful World.  
Wuhan Visiontek Inc., a high-tech enterprise, is specialized in developing photogrammetric software, providing spatial information digitization solutions, digital city comprehensive solutions, and 4D products production. It owns over 20 core products of proprietary intellectual property rights.

## Booth 67

### Wuhan HuaZheng Duowei Software Company



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Website www.hzgeospace.com

HuaZheng Duowei Software Co., Ltd is a geospatial data and services provider. The company currently has offices in Wuhan and Beijing, China and a representative office in Maryland, USA. HuaZheng Duowei Software Co., Ltd is an innovative company with its own proprietary software tools that are leading in the production and applications of 3D urban models.

## Booth 29E & 29F

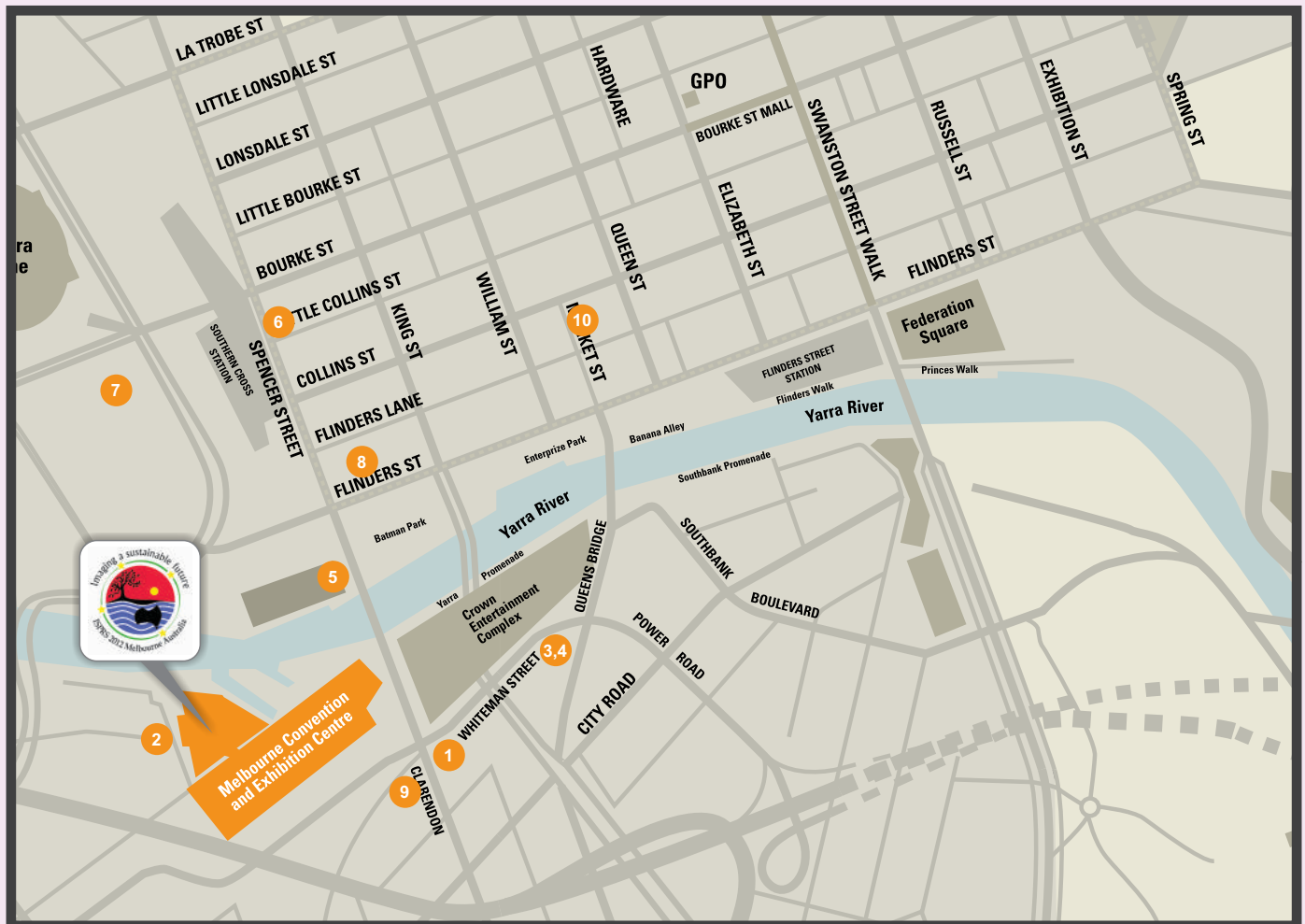
### Xi'an ARSC Information Industry Co., Ltd



Contact Li Jianbo  
Address No.3 Jianxi Street, Xi'an, China, 710054  
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Xi'an ARSC Information Industry Co.,Ltd, subordinated to Aerial Photogrammetry and Remote Sensing Bureau of China National Administration of Coal Geology(ARSC) which was founded in 1965, was approved as "National Western 3S Spatial Information Industry Base" by Ministry of Science and Technology and Shaanxi Provincial Geographic Information Engineering Technology Research Center.

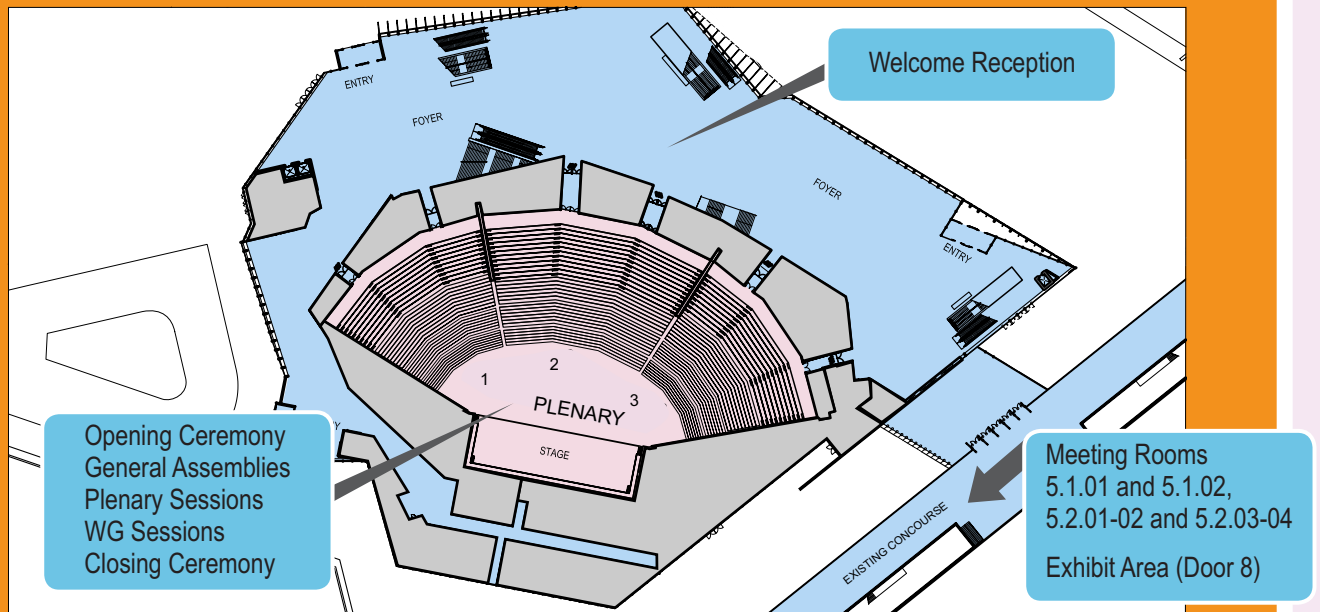
## Accommodation and Venue Location



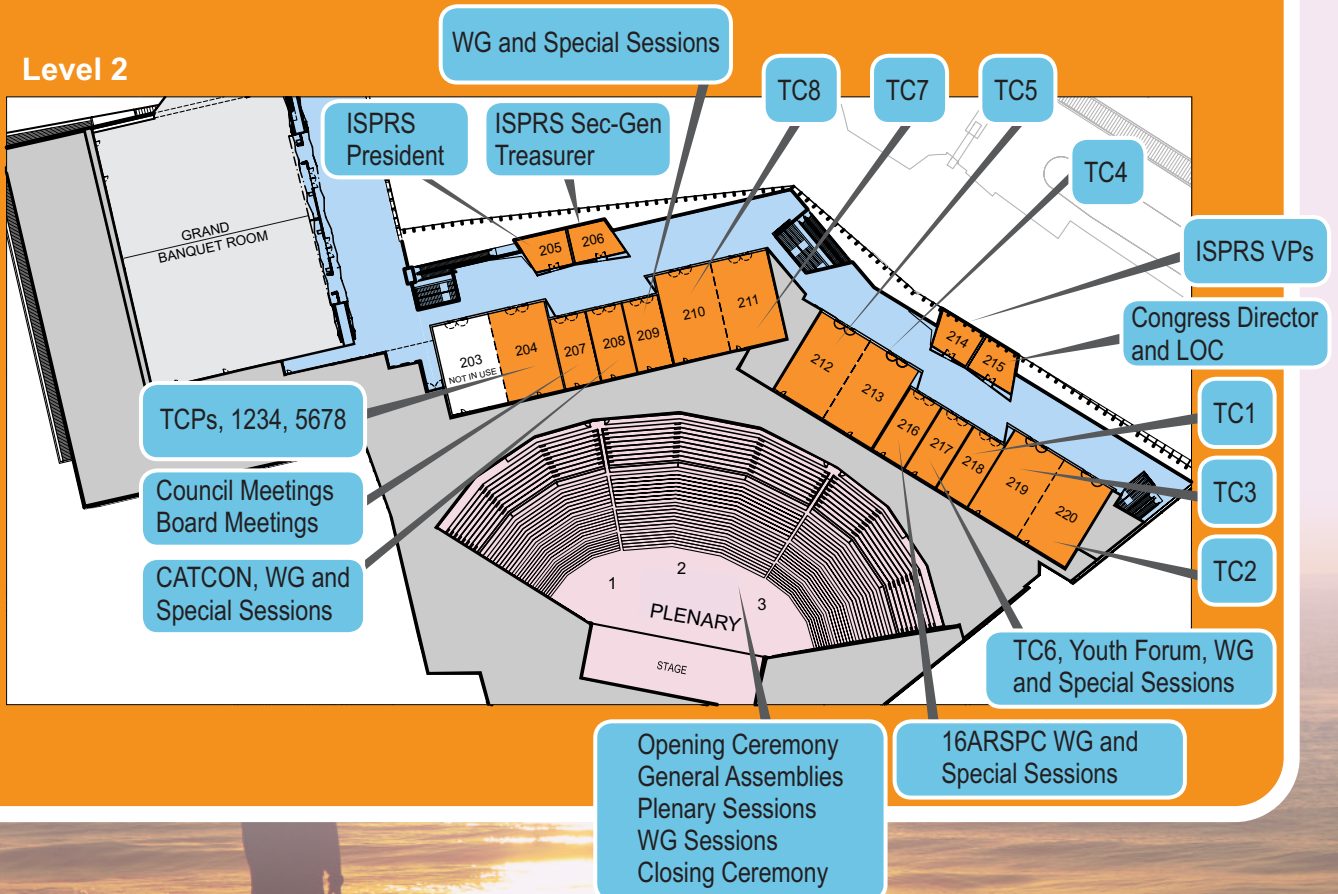
- |    |   |       |     |  |       |
|----|---|-------|-----|--|-------|
| 1. | <b>Crown Metropol (Congress Hotel)</b><br>Cnr Whiteman and Clarendon Street, Southbank<br>+61 3 9292 8888 | ★★★★★ | 6.  | <b>Vibe Savoy Hotel Melbourne</b><br>630 Little Collins Street, Melbourne<br>+61 3 9622 8888 | ★★★★★ |
| 2. | <b>Hilton South Wharf</b><br>2 Convention Centre Place, South Wharf<br>+61 3 9027 2000                    | ★★★★★ | 7.  | <b>Travelodge Docklands</b><br>66 Aurora Lane, Docklands<br>+61 3 8615 1000                  | ★★★★  |
| 3. | <b>Crown Towers</b><br>8 Whiteman Street, Southbank<br>+61 3 9292 8888                                    | ★★★★★ | 8.  | <b>Medina Executive Northbank</b><br>550 Flinders Street, Melbourne<br>+61 3 9246 0000       | ★★★★  |
| 4. | <b>Crown Promenade</b><br>8 Whiteman Street, Southbank<br>+61 3 9292 6688                                 | ★★★★  | 9.  | <b>Melbourne Short Stay Apartments</b><br>63 Whiteman Street, Southbank<br>+61 3 8256 7500   | ★★★★★ |
| 5. | <b>Crowne Plaza Melbourne</b><br>1-5 Spencer Street, Melbourne<br>+61 3 9648 2777                         | ★★★★★ | 10. | <b>Oaks on Market</b><br>60 Market Street, Melbourne<br>+61 31300 790 687                    | ★★★★★ |

# Venue Information - Melbourne Convention and Exhibition Centre

## Ground Floor



## Level 2



## General Information

### Attendance Certificate

A certificate of attendance is included in your name badge.

### Car Parking

Parking is available at the Melbourne Exhibition Centre and adjacent car parks.

### Basic Registration Entitlements

- . Entry to all sessions
- . Attendance at Welcome Reception
- . Congress Satchel
- . Copy of Final Program
- . Digital Copy of Proceedings
- . Entry to the Exhibition
- . Morning and Afternoon Tea each day of the Congress
- . Attendance at the Exhibitors' Reception

### Standard Registration Entitlements

- . Entry to all sessions
- . Attendance at Welcome Reception
- . Congress Satchel
- . Copy of Final Program
- . Digital Copy of Proceedings
- . Entry to the Exhibition
- . Lunch each day of the Congress
- . Morning and Afternoon Tea each day of the Congress
- . Attendance at the Exhibitors' Reception

### Full Registration Entitlements

- . Entry to all sessions
- . Attendance at Welcome Reception
- . Congress Satchel
- . Copy of Final Program
- . Digital Copy of Proceedings
- . Entry to the Exhibition
- . Morning and Afternoon Tea each day of the Congress
- . Lunch each day of the Congress
- . Attendance at the Congress Gala Dinner
- . Attendance at the Exhibitors' Reception

### Day Registration Entitlements

- . Entry to all sessions, ceremonies and receptions on the day of registration
- . Congress Satchel
- . Copy of Final Program
- . Entry to the Exhibition
- . Lunch on day of attending Congress

### Accompanying Persons Entitlements

- . Access to the Exhibition
- . Attendance at the Welcome Reception
- . Attendance at the Opening Ceremony
- . Congress Satchel
- . Attendance at the Closing Ceremony
- . Attendance at the Exhibitors' Reception
- . Accompanying Persons' Morning Tea

### Congress Office

#### ICMS Pty Ltd

84 Queensbridge Street

Southbank, VIC 3006 AUSTRALIA

Phone: +61 1300 792 466

Fax: +61 3 9682 0288

Email: [isprs2012@icms.com.au](mailto:isprs2012@icms.com.au)

Website: [www.isprs2012.org](http://www.isprs2012.org)

### Liability Disclaimer

In the event of industrial disruption or other unforeseen circumstances, the Congress Office, the Organising Committee and the Host Organisations accept no responsibility for loss of monies incurred by participants and /or accompanying persons. The Congress Office, the Congress Committee and the Host Organisations accept no liability for injuries/losses of whatever nature incurred by participants and/or accompanying person, nor for loss or damage to their luggage and/or personal belongings. Participants and or/accompanying persons should make their own arrangements with respect to personal insurance.

### Mobile Phones and Pagers

As a courtesy to speakers and other delegates, we request that all mobile phones and pagers are in silent mode or switched off before entering sessions.

### Messages

The Congress registration desk staff will take messages for delegates during the Congress. Messages will be posted on the message board, located next to the registration desk. Delegates are requested to check the message board during breaks.

### Congress App

The official ISPRS2012 App will keep you organized during the congress. Within the App you can view the entire program, plan your own schedule, and make direct contact with colleagues at the congress.

#### Downloading the ISPRS 2012 Mobile App is easy!

For iPhone (plus, iPod Touch & iPad) and Android phones: visit your App Store or Android Market on your phone and search for 'ISPRS 2012' and download the app like you would any other! For All Other Phone Types (including BlackBerry and all other web browser-enabled phones): Point your mobile browser to: <http://m.core-apps.com/invisage-isprs2012>.

(Username and Password: Photogrammetry)

From there you will be directed to your native app store to download the app for your particular device, or on some phones, bookmark this page for future reference.

Additionally you can also scan the QR code to download.



## Name Badges

Your name badge is your entrance ticket to all Congress sessions and the Exhibition. Please wear your name badge at all times. Your tickets for the pre-Congress workshops, lunches and Congress dinner are also included in your name badge holder.

## No Smoking Policy

Delegates should be aware that smoking is banned in all public buildings, hotels and restaurants throughout Victoria, including the Congress venue.

## Tickets

Delegates will receive all pre-booked tickets at registration. Tickets are required for the pre-Congress workshops, site tours, welcome reception and Congress dinner. If you have misplaced your tickets or have not received tickets for functions you wish to attend, please see the staff at the Registration Desk.

## WiFi

WiFi access is available free of charge throughout the MCEC and Exhibition.



## Congress Proceedings

All delegates registered for the Technical Program receive two USB drives, one containing PDF copies of the papers in the ISPRS Annals of Photogrammetry, Remote Sensing and Spatial Information Sciences and one containing PDF copies of the papers in the International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences. Papers in the Annals are accepted based on double blind, peer review and comprise four volumes. Papers in the Archives are accepted based on the abstract only and comprise eight volumes.

All twelve volumes are available as printed proceedings and will be despatched to delegates post-congress. Orders for any of the twelve volumes can be placed at the registration desk. A nominal fee for surface mail or air mail postage will be included as an additional cost.

## Volume Fees

Commission 1 (1 Volume)	\$75
Commission 2 (2 Volumes)	\$90
Commission 3 (2 Volumes)	\$120
Commission 4 (2 Volumes)	\$100
Commission 5 (1 Volume)	\$75
Commission 6 (1 Volume)	\$60
Commission 7 (2 Volumes)	\$120
Commission 8 (1 Volume)	\$70
All Volumes	\$700





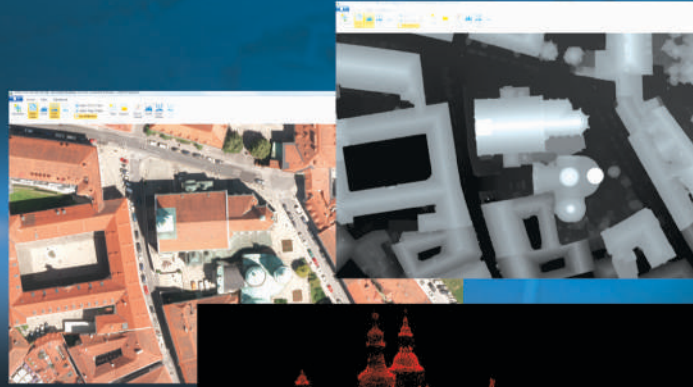




## Program Overview

	Saturday August 25	Sunday August 26	Monday August 27	Tuesday August 28	Wednesday August 29	Thursday August 30	Friday August 31	Saturday September 1
9:00	Workshops and Tutorials	Plenary	Technical, Theme and Special	Technical, Theme and Special	Plenary	Technical, Theme and Special	Plenary	Technical, Theme and Special
9:30			ARSPC Plenary	ARSPC Plenary		CATCON		
10:00			Youth Forum					
10:30	Coffee Break							
11:00	Workshops and Tutorials	Technical, Theme and Special	Technical, Theme and Special	Technical, Theme and Special	Technical, Theme and Special	Technical, Theme and Special	Technical, Theme and Special	Plenary
11:30			ARSPC Plenary	ARSPC Plenary		CATCON		
12:00			Youth Forum					
12:30	Lunch Break							
13:00	Business Meetings							
13:30	Workshops and Tutorials	Technical, Theme and Special	Short plus Interactive	Short plus Interactive	Short plus Interactive	Technical Tour	Short plus Interactive	Closing Ceremony
14:00			Youth Forum					
14:30			ARSPC Plenary	ARSPC Plenary				
15:00			Youth Forum					
15:30	Coffee Break							
16:00	Opening Ceremony	Technical, Theme and Special	Technical, Theme and Special	Technical, Theme and Special	Technical, Theme and Special	Technical Tour	Technical, Theme and Special	
16:30			ARSPC Plenary	ARSPC Plenary				
17:00			Youth Forum					
17:30	Networking Break							
18:00	Welcome Reception		Exhibitors Reception				Pre-dinner drinks	
18:30								
19:00								
20:00		Home Hospitality Evening		Theatre Evening	Restaurant Evening and Foundation Function	Free Evening	Conference Dinner	AFL Game (Australian Rules Football)
20:30								
21:00								
21:30								

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