

**FIG CONGRESS 2002
WASHINGTON, DC, USA
19–26 APRIL 2002**

FIG TECHNICAL PROGRAMME

PROCEEDINGS

Monday

14.00-15.30

NS1

Virginia C

National Showcases I

Chair: Robert W. Foster, President of FIG, USA

National reports and best practices from the FIG member associations. In this session at least the following associations will make their reports:

Gordon "Sam" Best, President-Elect (NSPS), The American Congress on Surveying and Mapping (ACSM)

Louis Armstrong, Chief Executive, The Royal Institution of Chartered Surveyors (RICS)

Prof. Stig Enemark, Vice President, The Danish Association of Chartered Surveyors (DdL): The Danish Way

Hagen Graeff, President, Deutscher Verein für Vermessungswesen e. V. DVW

TS2.1

Wilson B

Virtual Academy – Case Studies and Experiences

Chair: Prof. Kirsi Virrantaus, Chair of Commission 2, Finland

Prof. Henrik Haggrén, Finland and Esben Munk Sørensen, Denmark: FIG Working Group 2.2 Report 1998–2002

Tim Bennett, United Kingdom: Virtual Learning, Web Based Training and Knowledge Management

Prof. Stig Enemark and Prof. Esben Munk Sørensen, Denmark: Learning Lab Geomatics – The Danish Approach to Virtual Academy

Ales Cepek and Jan Pytel, Czech Republic: Free Software – An Inspiration for Virtual Academy

Marjaana Laurema and Prof. Kirsi Virrantaus, Finland: Virtual Academy on Geoinformatics – A Joint Project of Four Finnish Universities

TS3.1

Wilson A

Commission 3 in Progress

Chair: Peter Laarakker, The Netherlands

Jes Ryttersgaard, Denmark: Commission 3 Spatial Information Management – Progress Report

Gerhard Muggenhuber, Austria: Commission 3 Work Plan 2002–2006

Robert P. Mahoney and Robin McLaren, United Kingdom and Jes Ryttersgaard, Denmark: The Nairobi Conference on Spatial Information for Sustainable Development

Peter Laarakker, The Netherlands, Robert P. Mahoney, United Kingdom, Reinfried Masnberger, Austria, Robin McLaren, United Kingdom and Kari Strande, Norway: Land Information Management for Sustainable Development of Cities – Best Practice Guidelines

TS4.1 Standards and Education in Hydrography

Marriott Balcony C Chair: Dennis St. Jacques, Chair of Commission 4, Canada

Dennis St. Jacques, Canada: Commission 4 – Report on Activities 1998 to 2002

Svante Astermo, Sweden and Hugo Gorziglia, Chile: Standards of Competence for Hydrographic Surveyors and for Nautical Cartographers

Mike Johnston, Canada: Implementing a Quality Management System for the Canadian Hydrographic Service

Dave Wells et al. Canada and USA: Hydrographic Education in North America

TS5.1 Commission 5 Activities: Yesterday and Tomorrow

Cortillion North Chair: Jean-Marie Becker, Chair of Commission 5, Sweden and Matthew Higgins, Australia

Prof. Jean-Marie Becker, Sweden: Commission 5 Activities 1998-2002 Overview

Matthew B. Higgins, Australia: Commission 5 Activities in the Future: 2002–2006 Work Plan

Prof. Hans Heister, Germany and Dr Vaclav Slaboch, Czech Republic: Report on Standards, Quality Assurance and Calibration – FIG WG 5.1 Activities in 1998–2002

Prof. Michel Kasser, France: New Modern Height Determination Techniques – Report about the WG 5.2 Activities in 1998–2002

Dr. Naser El-Sheimy, Canada: Report on Kinematic and Integrated Positioning Systems

Dr. Nicolas Paparoditis, France: Report on Integration of Techniques for Digital Mapping

Dr. Paul Cross, United Kingdom: Report on Reference Frame in Practice

TS6.1 Engineering Surveys for Construction Works and Structural Engineering I

Marriott Balcony A Chair: Dr. Michel Mayoud, Chair of Commission 6, France

Dr. Michel Mayoud, France and Svend Kold Johansen, Denmark: Commission 6 (Engineering Surveys) – Report 1998–2002 and Work Plan 2002–2006

Andrew Wetherelt and Dr. Paul Hunt, United Kingdom: Underground Azimuth Determinations Using an Adapted Wild GAK1

Prof. Fritz Brunner and Dr. Ekkehart Grillmayer, Austria: On the Temperature Dependence of Gyroscopic Measurements Using the GYROMAT 2000

TS7.1 Cadastral Innovation I

Marriott Ballroom II Chair: Dr. Paul Munro-Faure, Chair of Commission 7, United Kingdom

Dr. Paul Munro-Faure, United Kingdom: Report on the Activities of Commission 7: Cadastre and Land Management, 1998-2002

Jürg Kaufmann, Switzerland: Benchmarking Cadastral Systems – Results of the Working Group 7.1

Daniel Steudler, Switzerland and Prof. Ian P. Williamson, Australia: A Framework for Benchmarking Land Administration Systems

Johan de Meijere, The Netherlands and Mabel Alvarez de Lopez, Argentina: Spatial Data, Good Governance and Society

JS1 Professionals Role in Implementing the Habitat Agenda and Agenda 21 – Habitat Wilson Professionals Forum

Joint Session of FIG Commission 8 and the Habitat Professionals Forum
Chair: Prof. Holger Magel, Vice President of FIG, Germany

Dr. Irene Wiese – von Ofen, President of the International Federation of Housing and Planning (IFHP) and Chair of the Habitat Professionals Forum, Germany: Professionals Role in Implementation the Habitat Agenda and Agenda 21 – Habitat Professionals Forum

David Mammen, President of the Institute of Public Administration, USA

Prof. Holger Magel, Vice President of FIG and Babette Wehrmann, Germany: Applying Good Governance to Urban Land Management – Why and How?

TS10.1 Affordable Housing

Marriott Balcony B Chair: John Collinge, Chair of Commission 10, United Kingdom

Murtala A. Oladapo, Nigeria: Procurement Systems and Project Organisational Model for Low Cost Housing (This paper has not been presented at the FIG 2002)

Husaini A. Dikko, Nigeria: Cost Control Models for Housing and Infrastructure Development

Han C. Ong and Prof. Dennis Lenard, United Kingdom: Can Private Finance Be Applied in the Provision of Housing

Monday

16.00-17.30

**NS2
Virginia C**

National Showcase II
Chair: Jerome C. Ives, Vice President of FIG, USA

National reports and best practices from the FIG member associations. In this session at least the following associations will make their reports:

Jürg Kaufmann, Dr. Erich Gubler, Thomas Glatthard and Daniel Steudler, Switzerland: Swiss Cadastre: Cadastre 2014 for Sustainability

Steponas Deveikis, Lithuania: National Report by the Lithuanian Association of Property Valuers

Sarkis Fadous, President, The Order of Surveyors – Lebanon: The National Report for Order of Surveyors - Lebanon

Elena Vargas, Executive Secretary of Sociedad Colombiana de Topografos SCT, Colombia: Reflections of Past and Future of Ingenieria Topografica in Colombia

Araik Babayan and Arthur Melikyan, Association of Private Surveyors of the Republic of Armenia APS

Eduardo Infantozzi, President of the Asociación de Agrimensores del Uruguay AAC, Uruguay: Land Surveying Profession in Uruguay

**TS2.2
Wilson B**

Virtual Academy and Curricula Contents
Chair: Prof. Esben Munk Sørensen, Denmark

Prof. Stig Enemark, Denmark: International Trends in Surveying Education

Prof. Kirsi Virrantaus and Prof. Henrik Haggrén, Finland: FIG Educational Portal - A Method and User Interface to Manage Surveying Educational Curricula

Arzu Cöltekin, Finland: A Prototype of FIG Surveying Education Portal

**TS3.2
Marriott Balcony C+D**

Legal Aspects and GIS for Decision Support

Chair: Dr. Chryssy Potsiou, Greece

Michael Sutherland and Dr. Susan Nichols, Canada: Web-GIS Technologies and their Potential as Decision Support Tools for Sustainable Development

Radoš Šumrada, Slovenia: Legal Issues Regarding Spatial Data

Dr. Raisa Iakovleva, Russian Federation: Legal Aspects in Spatial Information Management in Russian Federation

TS4.2 Data Management

Marriott Balcony A Chair: Adam Greenland, United Kingdom

Robert M. Stirling, United Kingdom: Data Management in the 21st Century – Emerging Technologies and their Implications for Hydrography

Paul Day, United Kingdom: Demonstration on Emerging Technologies and their Implications for Hydrography

Stephen Forbes, Robert Burke and Gerard Costello, Canada: Canadian Hydrographic Service Information Network

JS2 GPS for Cadastral Applications

Cotillion North Joint Session of Commissions 5 and 7

Chair: Prof. Jean-Marie Becker, Chair of Commission 5, Sweden and Dr. Paul Munro-Faure, Chair of Commission 7, United Kingdom

Brian Dalager, USA: Developing and Implementing a Large Scale Cadastral Resurvey with GPS

Dr. Michael D. Londe, USA: Standards and Guidelines for Cadastral Surveys Using Global Positioning Methods

Dr. Martin A. Salzmann, The Netherlands: Do-it-yourself Determination of Cadastral Boundaries: Will GPS make it happen?

Dr. Ehab Nabil Nassif, Egypt: A Radical Solution for the Cadastre Problem in Egypt Using Integrated GPS-GIS System

Prof. Alexander Martynenko, Russia: Electronic Earth as Methodology and Technology of Our Time

TS6.2 Engineering Surveys for Construction Works and Structural Engineering II

Wilson A Chair: Svend Kold Johansen, Denmark

Ralph Glaus and Prof. Hilmar Ingensand, Switzerland: Tunnel Surveys for New CERN Particle Accelerators

Prof. Penggen Cheng, Wenzhong John Shi, and Wanxing Zheng, China: Large Structure Health Dynamic Monitoring Using GPS Technology

Dr. Gethin W. Roberts, Dr. Xiaolin Meng and Prof. Alan H. Dodson, United Kingdom: Using Adaptive Filtering to Detect Multipath and Cycle Slips in GPS/Accelerometer Bridge Deflection Monitoring Data

Dr. Gethin W. Roberts, Oluropo Ogundipie and Prof. Alan H. Dodson, United Kingdom: Construction Plant Control Using RTK GPS

TS7.2 Cadastral Innovation II

Marriott Ballroom II Chair: Dr. Paul van der Molen, The Netherlands

Prof. Ian P. Williamson, Australia: The Cadastral “Tool Box” – a Framework for Reform

Prof. Penggen Cheng, Associate Prof. Rong Liu and Chengrui Wang, China: Data Capture Quality Control Issues in Cadastration

Jaap Zevenbergen, The Netherlands: A Systems Approach to Land Registration and Cadastre

Prof. Tommy Österberg, Sweden: The Importance of Cadastral Procedures for Sustainable Development

TS10.2 Finance and Infrastructure

Marriott Balcony B Chair: Murtala A. Oladapo, Nigeria

Dr Eric Aligula, Kenya: Infrastructure Services and Low Cost Housing in Kenya – The Policy and Policy Implementation Gaps

Andrew W. Morley, United Kingdom: The Economic Benefits of Infrastructure Projects Procured with Private Finance

Han Ching Ong and Prof. Dennis Lenard, United Kingdom: Partnerships between Stakeholders in the Provision of and Access to Affordable Housing in Malaysia

Tuesday

9.00-10.30

Plenary Session **Toward the implementation of local, national and regional compatible Spatial Data Infrastructure (SDI) and its contribution to a Global Spatial Data Infrastructure (GSDI)**
Marriott Ballroom

Chair: Robert W. Foster, President of FIG

One example of a local to global public/private partnership is the one between North-Rhine-Westphalia, Germany and North Carolina, USA in cooperation with the Atlantic Institute, US Federal Geographic Data Committee (FGDC), Intergraph Corporation, and Microsoft Corporation. The outcome is a better understanding of regional and global issues and their role on the physical, economic and social well being as well as the creation of a more peaceful world.

Preetha Pulusani, President, Intergraph Mapping & GIS Solution, USA: An Open Political and Business Agreement to Underscore the Importance of Global Co-operation

Klaus J. Barwinski, Director of Surveying and Mapping, Agency of Northrhine-Westphalia, Germany: Spatial Data Play-Offs in Political Decisions

HS1 Surveying and Mapping the Americas – Lines of Distinction

Delaware A+B Chair: Bill Soderberg, USA

Todd M. Babcock, USA: Stargazers, Ax-men and Milkmaids – The Men who Surveyed Mason and Dixon's Line

Edwin Danson, UK: The Work of Charles Mason and Jeremiah Dixon

David Lee Ingram, USA: The Fairfax Line Survey

Tuesday

11.00-12.30

JS3 **Standards – The Response by Professional Organisations**
Cotillion North Joint session of FIG and Space Information Societies
Chair: Christian Andreasen, Vice President of FIG, USA

Contributions from

- International Federation of Surveyors, Iain Greenway, Chair of FIG Task force on Standards: Standards and Surveyors – FIG’s Past and Future Response
 - International Association of Geodesy (IAG)
 - International Cartographic Association (ICA), Prof. Harold Moellering, Chair of the the ICA Spatial Data Standards Commission: Contributions of the ICA to World Spatial Data Standards Efforts
 - International Hydrographic Organization (IHO)
 - International Society for Photogrammetry and Remote Sensing (ISPRS), Liping Di
 - The International Cost Engineering Council (ICEC), John Hollman, Member of Standards Committee
 - International Society for Mine Surveying (ISM), Carl Vender, ISM Presidium Senior Member, USA
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TS2.3 **Teaching and Learning Methods and CPD**
Coolidge Chair: Prof. Pedro Caverio, Spain

Stefan Willgalis, Germany: Learning in an Increasingly Complex World: Teaching of Graduate Students in Research Oriented Projects

John Chadderton, United Kingdom: Interactive Learning for the Property Professional in the 21st Century

Jacobus H. (Raubie) Raubenheimer, South Africa: Co-operative Education in Surveying

Prof. Bela Markus, Hungary: Spatial Knowledge Management in Land Administration

Dr. Analía I. Argerich and Prof. Héctor V. Laitán, Argentina: Professional Continuous Updating in Remote Sensing Applications in Argentina

TS4.3 **Hydrographic Surveying I**
Marriott Balcony A Chair: Keith Millen, United Kingdom

Dr. Joachim Behrens, Germany: PDGPS and Multi Beam Echosounder Systems for Precise Surveying of Waters in the FRG

Andy Palmer-Felgate, UK: A Risk Analysis of Submarine Cable Burial Operations

Steve Blasco, Canada: Application of Multibeam Surveying to Resource Mapping

TS5.2 Height Determination Questions

Marriott Ballroom I Chair: Prof. Michel Kasser, France and Prof. Hilmar Ingensand, Switzerland

Felix Schneider and David Dixon, Switzerland: The New Leica Digital Levels DNA03 and DNA10

Prof. Jean- Marie Becker, Sweden: Levelling over the Öresund Bridge at the Millimetre Level

Dr. Stig-Göran Mårtensson, Sweden: Height Determination by GPS – Accuracy with Respect to Different Geoid Models in Sweden

Dr. Wusheng Hu, Yuedong Kong, Yongfeng Deng, China P. R. and Dr. Shanlong Kuang, USA: A New Method to Derive Normal Height from GPS Height Based on Neural Network

Gershon Steinberg, Israel: Sea Level Difference between the Mediterranean and the Red Sea

TS6.3 Deformation Measurement and Analysis I

Harding Chair: Prof. Adam Chrzanowski, Canada and Dr Lothar Gründig, Germany

Prof. Adam Chrzanowski, Canada: Report of the Commission 6 Working Group 6.1 on Deformation Measurements

Dr. Craig D. Hill and Karl D. Sippel, Switzerland: Modern Deformation Monitoring: A Multi Sensor Approach

Michael A. Duffy and Cecilia Whitaker, USA and Adam Chrzanowski and James Lutes, Canada: Interpretation of First Results from the Automated and Integrated Monitoring Scheme at Diamond Valley Lake in California

Dr. João Casaca and Dr. Maria João Henriques, Portugal: The Geodetic Surveying Methods in the Monitoring of Large Dams in Portugal

TS7.3 Global Survey of Cadastral Experience

Marriott Ballroom II Chair: Jürg Kaufmann, Switzerland

Dr. Božena Lipej, Slovenia: Slovenian State Projects in the Field of Real Estate Registration

Bengt Kjellson, Sweden: What Do Americans Pay for Not Having a Public LIS?

Dr. Winfried Hawerk, Germany: Cadastre 2020 – New Trends in Germany’s Cadastre ?!

Dr. Greenville Barnes, USA: Lessons Learned: An Evaluation of Cadastral Initiatives in Latin America over the Past Two Decades

Dr. Bijan Azad and Ted Huberts, Lebanon: E-Cadastre = e-Processes + Business Rules: The Lessons of Lebanon Cadastre Automation Project

TS8.1 **Basic Planning Aspects and Examples Worldwide**
McKinley Chair: Helmut Brackmann, Germany

Helmut Brackmann, Germany: Commission 8 Activities 1998–2002

Juha Talvitie, Finland: The Influence of Information Technology on Spatial Development

Prof. Willy A. Schmid, Switzerland: Spatial Planning with Respect to Aesthetics in Mind

Mette F. Kragh, Denmark: Land and the City: New Ways Towards More Dynamic Spatial Planning Methods as Recently Observed in Denmark

S. Sence Turk, Turkey: Land Development and Realization of Local Physical Plans in Urban Areas in Turkey: A Model

TS9.1 **Real Estate Valuation Trends and Issues**
Hoover Chair: G. Michael Yovino-Young, Chair of Commission 9, USA

G. Michael Yovino-Young, USA: Chairman's Report: Commission 9 1998–2002

Owen Connellan, United Kingdom: Land Assembly for Development – The Role of Land Pooling, Land Re-adjustment and Land Consolidation

Dr. Ian Wilson, Stuart Paris, Dr Andrew Ware and David Jenkins, United Kingdom: Residential Price Forecasting at National and Regional Levels

TS10.3 **Sustainability**
Marriott Balcony B Chair: Andrew Morley, United Kingdom

Ifeanyi Anago, Nigeria: Environmental Impact Assessment as a Tool for Sustainable Development: The Nigerian Experience

TBD: The Measurement of Sustainability of Buildings by Capital Energy Assessment

Derek Smith and David Carrick, United Kingdom: Project Risks: Proportionment and Contractual Relationships

HS2 **Surveying and Mapping the Americas – Great Surveyors**
Delaware A+B Chair: Jane Insley, United Kingdom

Thomas Glatthard and Alfred Bollinger Switzerland: Swiss Precision for US Mapping – Ferdinand Rudolph Hassler – First Chief of US Coast and Geodetic Survey and US Bureau of Standards

Kermit Remele, USA: Verplanck Colvin, American Wilderness Surveyor and Savior

Gregory C. Spies, USA: Major Andrew Ellicott, Esq. – Colonial American Astronomical Surveyor, Patriot, Cartographer, Legislator, Scientific Instrument Maker, Boundary Commissioner & Professor of Mathematics

Tuesday

14.00-15.30

JS4 **Standards – ISO/TC211 and FIG**
Cotillion North Joint Session of Commission 1, FIG Task Force on Standards and ISO/TC211
Chair: Iain Greenway, FIG Lead to ISO TC211, UK

Olaf Ostensen, ISO/TC211: Overview and Status of ISO/TC211

Prof. Hans Knoop, Germany: ISO/TC211 Project 19122 Geographic Information/Geomatics – Qualifications and Certification of Personnel – Technical Report

Markus Seifert, Germany: On the Use of ISO Standards in Cadastral Information Systems in Germany

George Percivall, USA: ISO 19119 and OGC Service Architecture

TS2.4 **Virtual Academy and New Teaching and Learning Methods**
Coolidge Chair: Prof. Henrik Haggrén, Finland

Mark Shortis, Frank Leahy, Cliff Ogleby, Allison Kealy and Fiona Ellis, Australia: The Use of Simulations and Visual Feedback in Learning Spatial Design and Analysis Concepts

Katri Koistinen, Finland: Towards Virtual Academy – Teacher’s Changing Role

Prof. Jean-Robert Schneider, Switzerland: No Educational Progress in Geomatics without Web !

Dale R. Johnson, USA: University Applications Using a New Tool to Mosaic and Georeference Imagery: “New Tool = DIME Software”

TS4.4 **Hydrographic Surveying II**
Marriott Balcony A Chair: TBD

Edwin Danson, United Kingdom: The Economies of Scale: Using Autonomous Underwater Vehicles (AUVs) for Wide-Area Hydrographic Survey and Ocean Data Acquisition

Neil Brown, Timothy O’Leary, Dr. Frank Leahy and Dr. Joseph Leach, Australia: Modelling Uncertainty in the Search for HMAS Sydney

John K. Longenecker and Edward J. van den Aamele, USA: Maximizing NOAA’s Ship Productivity Through the Use of Airborne Laser Hydrography

David Bingham and Tony Drake, United Kingdom, Andrew Hill, USA and Roger Lott, United Kingdom: The Application of Autonomous Underwater Vehicle (AUV) Technology in the Oil Industry – Vision and Experiences

TS5.3

Height Determinations: Height Network

B North 3/4

Chair: Prof. Hilmar Ingensand and Prof. Michel Kasser, France

Dr. Wolfgang Augath and Dr. Johannes Ihde, Germany: Definition and Realization of Vertical Reference Systems – The European Solution: EVRS /EVRF 2000–

Per-Ola Eriksson, Mikael Lilje, Per-Anders Olsson and Runar Svensson, Sweden: Validation and Preparation of Data for the Computation of a New Height System in Sweden

Prof. Michel Kasser, France: Progress of the Maintenance of the French National Levelling Network (NGF) Using GPS

TS6.4

Deformation Measurement and Analysis II

Harding

Chair: Cecilia Whitaker, USA and Prof. William (Bill) Teskey, Canada

Dr Anna Szostak-Chrzanowski, Michel Massiera, Dr. Adam Chrzanowski and Fabien Le Hoan, Canada and Cecilia Whitaker, USA: Verification of Material Parameters of Earthen Dams at Diamond Valley Lake Using Geodetic Measurements

Štefan Lukáč and Jozef Kožár, Slovakia: Deformation Monitoring of Objects of the Gabčíkovo Dam by the Terrestrial Surveying Methods and GPS Methods

Henrik Lennartz-Johansen and Søren Ellegaard, Denmark: Analyzing Europe's Largest Suspension Bridge

Georg Gassner, Dr. Andreas Wieser and Prof. Fritz K. Brunner, Austria: GPS Software Development for Monitoring of Landslides

TS7.4

Land Consolidation: New Perspectives

B North 5/6

Chair: Dr. Don Grant, Australia

Jan Sonnenberg, The Netherlands: Fundamentals of Land Consolidation as an Instrument to Abolish Fragmentation of Agricultural Holdings

Franz Derlich, France: Land Consolidation: A Key for Sustainable Development – French Experience

Solfried Mykland Falkgård and Prof. Per Kåre Sky, Norway: Mediation as a Component in Land Consolidation

Mikko Uimonen, Finland: New Tools and Processes for Land Consolidation

Prof. Wojciech Wilkowski and Adrianna Pulecka, Poland: Landscape Aspects in Land Consolidation Procedures in Poland

Humphrey K. Njuguna, Kenya: Appraisal of the Land Inconsistent with the Cadastral Records

TS8.2
McKinley

Land Readjustment and Consolidation of Land
Chair: Helmut Brackmann, Chair of Commission 8, Germany

Rainer Müller-Jökel, Germany: Land Evaluation in Urban Development Process in Germany

Andreas Hennemann, Germany: Sustainable Development by Land Consolidation in Bavaria from the Point of View of Good Governance

TS9.2
Hoover

New Directions in Valuation Methodologies I
Chair: Stephen Yip, Hong Kong, China

Dr. Frances Plimmer, United Kingdom, Prof. William McCluskey, New Zealand and Owen Connellan, United Kingdom: Property Taxation – Value Banding

Simon Adcock, Australia: Managing Risks in Property Exposure via Valuations / Appraisal Assessment

Philip Clarke, Louise Ellison and William Rodney, United Kingdom: Financing Property Development: The changing issues facing the public and private sector in the UK

Raúl R. Barcelata, México: Commercial Values of Properties for Tax Purposes

Steponas Deveikis and Arvydas Bagdonavicius, Lithuania: Towards an Efficient Property Markets in Lithuania – The Impact on Valuation

TS10.4
Marriott Balcony B

Discussion Group – The Role of Professional Institutions in the Current International Commercial Market Place
Chair: Phil Shearer, United Kingdom
Introduction: John Collinge, United Kingdom

Tony Elven, United Kingdom: Dispute Resolution UK Style – Moving into the 21st Century

HS3
Delaware A+B

Surveying and Mapping the Americas – The Influence of the Spanish and of National Organisations
Chair: David Wallis, United Kingdom

Roy Minnick, USA: The Spanish Influence on Surveying and Mapping in the Americas

Dr. Joe Knetsch, USA: The Impact of Spanish Land Grants on the Development of Florida and the South Eastern United States

Gerald D. Jennings, USA: History of Surveying in Alaska and the Arctic

Tuesday

16.00-17.30

**JS5
Cotillion North**

**TC211 Forum and Discussion – Implementation of TC211 Standards –
Case Examples**

Joint Session of FIG, ISO/TC211 and Open GIS Consortium (OGC)
Chair: Olaf Ostensen, ISO/TC211

The format for the Forum is similar to the semi-annual “Workshops on Standards in Action” organised by ISO/TC211. Presentations will highlight practical information/examples on application of ISO/TC211 standards.

Dr Thad Mauney and Ty Hale, USA: Testing the Implementation of the ISO/TC211 Positioning Services and Spatial Referencing by Coordinates Draft Standards in Mobile Mapping Software

TBD

TBD

TBD

**TS2.5
Coolidge**

Surveying Core Curriculum
Chair: Prof. Stig Enemark, Denmark

Dr. Steven Frank, USA: US Surveying and Mapping Education Core Curricula

Prof. Kazimierz Czarnecki, Poland: The “Minimal Surveying Curricula” – A Step towards Standardisation of Surveyors Education in Poland

Inna Sedelnikova, Russia: Education Programmes of the Department of Engineering Geodesy at the Moscow State University Civil Engineering

Dr. Peter C. Nwilo and Olusegun T. Badejo, Nigeria: Surveying and Geoinformatics Curriculum Development in Nigeria

**TS4.5
Marriott Balcony A**

Hydrographic Surveying III
Chair: Dr. Ahmed El-Rabbany, Canada

Samer Diarbakerly, Dr. Ahmed El-Rabbany and Prof. David Coleman, Canada: On the Integration of Sea Ice Information into ECDIS

**TS5.4
B North 3/4**

Orthometric Height Determinations
Chair: Mikael Lilje and Per-Ola Eriksson, Sweden

Sverre Wisløff, Norway: Deriving Orthometric Heights from GPS Measurements Using a Height Reference Surface

Dr. Dursun Z. Seker and Abdullah Yildirim, Turkey: Orthometric Height Derivation from GPS Observations

Dr. Alexander Kohli, Switzerland: Renewal of the Reference Network and the Realization of Orthometric Heights Using GPS in Kosovo

**TS6.5
Harding**

Deformation Measurement and Analysis III

Chair: Prof. Y Q Chen, Hong Kong, China and Dr. Gethin W. Roberts, United Kingdom

Assoc. Prof. Tor Yam Khoo, Singapore: L1, L2, Kalman Filter and Time Series Analysis in Deformation Analysis

Serif Hekimoglu, Hüseyin Demirel and Cüneyt Aydın, Turkey: Reliability of the Conventional Deformation Analysis Methods for Vertical Networks

Yang Fu and Zhu Wenyaoyao, China, P.R: Tisserand Condition in ITRF2000 and its Global Plate Motion Model

Bachir Gourine, Boualem Ghezali, Abdelkader Nadir Nabed, Abdelmadjid Boudjemai, Algeria and Ali Merbah, Algeria: Analysis of the Geodetic Network Deformations of Chelif Region by Two-Dimension Elastic Finite Element Method

**TS7.5
B North 5/6**

Land Administration for the New Millennium

Chair: Agneta Ericsson, Sweden

Prof. Paul van der Molen, The Netherlands: Land Administration Theory: Thinking in Terms of Migration of Systems

Agneta Ericsson, Sweden: Womens' Access to Land

Prof. Ian P. Williamson, Australia and Prof. Donald M. Grant, Australia: United Nations – FIG Bathurst Declaration on Land Administration for Sustainable Development: Development and Impact

Prof. Hans Sevatdal, Norway: Land Administration and Land Management – An Institutional Approach

Martijn J. Rijdsdijk, The Netherlands: Application of Innovative Techniques in Multi Purpose Land Development

**TS8.3
Harding**

Urban Regeneration and Shaping the Future

Chair: Paul Lohmann, The Netherlands

Associate Prof. Michael Tophøj Sørensen, Denmark: Planning and Regulation of Retail Trade to Protect the Inner City Environment and to Prevent Unhealthy Competition

Harry Greenberg, Israel: City Development in Israel

Helmut Brackmann, Germany: Basic Ideas and Interim Report about the Working Group on Urban Regeneration

Perti Tamminen, Finland: Redevelopment of Old Industrial Sites as a Resource for Urban Development

Paul A. G. Lohmann, The Netherlands: Neighbourhood Development Corporations: A tool to combat metropolitan problems

JS6 **New Directions in Valuation Methodologies II**
Hoover Joint Session of Commission 9 and 1
Chair: Stephen Yip, Hong Kong, China

Nick Nunnington and Dr. Tom Kennie, United Kingdom: Property Valuation & Management: In the eye of the tornado of change: A model of the major challenges facing the real estate profession

Peter Dent, United Kingdom: Modernising Government: A New Way to Manage Property Assets?

Prof. Kari I. Leväinen, Finland: Contracting out Property and Facility Management Services

Leonie Newnham, Simon Adcock and Jack Dunham, Australia: Valuation Best Practice Changing a Largely Paper Based System to a Fully Electronic Valuation System – The Victorian Experience

HS4 **Surveying and Mapping the Americas – In the Andes of South America**
Delaware A+B Chair: Jan de Graeve, Belgium

Jim R. Smith, United Kingdom: The Meridian Arc Measurement in Peru 1735–1745

Jane Insley, United Kingdom: “Lower It Would Not Go” – Travels amongst the Great Andes by Edward Whymper in 1879-1880

Summary of the Seminar on Surveying and Mapping in Americas

Wednesday

9.00-10.30

Plenary Session **Housing Policy in the New Millennium: The development of housing and housing finance in developing countries**
Marriott Ballroom Moderator: G Michael Yovino-Young, MAI, SRA, Chair of FIG Commission 9

Hon. Mel Martinez, USA (invited): Secretary, U.S. Department of Housing and Urban Development

Bozena Krupa, Consultant, World Bank

Brian A. Glanville, MAI, President, Appraisal Institute, USA

Bert N. Lomax, Business Development, Business Development Officer, Export-Import Bank of the U.S.

Wednesday

11.00-12.30

TS1.1

McKinley

Business Practices

Chair: Prof. John Parker, Chair of Commission 1, Australia

Prof. John Parker, Australia: FIG Commission 1 (Professional Standards and Practice) – Report on Activities 1998–2002

Iain Greenway, United Kingdom: Business Practices: Supporting the Practising Professional

Michael Keller and Gerhard Hofmann, Switzerland: Legal Framework of Conditions with Respect to International Surveying Activities

Tim Bennett, United Kingdom: Proposal Paper for Knowledge Management Commission

Dr Paul Watson, United Kingdom: Implementing the European Foundation for Quality Management Excellence Model

JS7

Coolidge

Education on Land Administration, Law and Cadastre

Join Session of Commission 2 and 7

Chair: Prof. Bela Markus, Hungary

Dr. Klas Ernard Borges, Sweden: The Education Market of the 80's Youngsters

S. N. Volkov, Russia: Higher Education in the Field of Land Use Planning and Cadastre in Russia

Prof. Ulf Jensen, Sweden: A Common Course in Real Estate Law

TS3.3

Cotillion North

Spatial Data Infrastructure: Developing Trends

Chair: Robin McLaren, United Kingdom

Gerhard Muggenhuber, Austria: Components of Spatial Information – What is Needed?

Bernd Teichert, Germany: Report from the Working Group 3.2 Spatial Data Infrastructure

Prof. Earl F. Burkholder, USA: The Global Spatial Data Model (GSDM): A New Paradigm for Spatial Information

Keith Murray, United Kingdom: A New Geo-information Framework for Great Britain

Dr Chryssy Potsiou, Greece: Spatial Information Management: Knowledge, Organizations and Tools

TS4.6 **Vertical Datums and Sea Levels**
Kennedy Chair: TBD

Boris Shirman and Yossi Melzer, Israel: Mediterranean Sea Level Changes over the Period 1961–2000

Charles O'Reilly, Canada: Global Vertical Reference Frame

TS5.5 **Reference Frame in Practice**
Cotillion South Chair: Matthew Higgins, Australia

Lars E. Engberg and Mikael Lilje, Sweden: A New Co-ordinate System for Sweden

Masao Ishihara, Japan: The World Geodetic Network System and the Amendment of the Japanese Surveying Law

A. V. Gorbov, N. L. Makarenko and V. L. Zoubinsky, Russia: On Development of High Precision Geodetic Network Based on GLONASS and GPS Measurements in Russia

Dr. Dalal S. Alnaggar, Dr. A. A. Saad and Dr. G. M. Dawood, Egypt: Establishment of Egyptian National Gravity Standardization Network

TS6.6 **Engineering Surveys for Industry and Research**
Harding Chair: Dr. Michel Mayoud, Chair of Commission 6, France

Iveta Čeryová, Patrik Kubanka, Dr. Alojz Kopáček and Peter Kyrinovič, Slovakia: Dynamic Tests of Robot Stations

Prof. Rudolf Staiger, Germany: Laser Scanning in an Industrial Environment

Li Zong-chun, Prof. Li Guang-yun and Jin Chao, China P. R.: On the Data Processing Methods of Surface Antenna's Inspection

Dr. Mikko Takalo, Paavo Rouhiainen, Pekka Lehmuskoski and Veikko Saaranen, Finland: On the Systematic Behaviour of the Digital Levelling System Zeiss DiNi12

JS8 **Understanding and Supporting Land Market Development**
Marriott Ballroom II Joint Session of Commission 7, 3 and 9
Chair: Gerda Schennach, Austria

Jan Sonnenberg, The Netherlands and András Oskó, Hungary: Report – Commission 7 Working Group 3 on Land Markets Activities 1998–2002

András Oskó, Hungary and Jan K. B. Sonnenberg, The Netherlands: Rural Land Markets in Central and Western Europe

Joakim Ollén, Sweden: ArcCadastre and EULIS – New tools for higher value and increased efficiency in the property market

TS8.4 Economical Aspects of Planning and Implementation
Marriott Balcony B Chair: Paul Lohmann, The Netherlands

Prof. August E. Røsnes, Norway: Regulatory Systems and the Enabling of Plans

Diane A. Dumashie and Mark Hannam, United Kingdom and Prof. H. B. Liu, China: Exploring and Developing the Application of a New Information Management and Decision Support System as an Economic Land Regeneration Tool: In Coastal Cities

Prof. Kari I. Leväinen, Finland and Prof. Willem Korthals Altes, The Netherlands: Land Development Contracts – A Comparative Study in Finland and in the Netherlands

Terry van Dijk, The Netherlands: The Potential Power of Land Funds – A déjà vu of Dutch history in current Central Europe

JS9 Spatial Information and Land Management

Marriott Balcony A Joint Session of Commissions 3 and 7
Chair: Reinfried Mansberger, Austria

Prof. Mohammed Essadiki, Morocco: New Method for Land Reallocation by Using a Geographic Information System

Dr. Nebiye Musaoglu, Dr. Sinasi Kaya, Dr. Dursun Z. Seker and Dr. Cigdem Goksel, Turkey: A Case Study of Using Remote Sensing Data and GIS for Land Management – Catalca Region

M. Marey, Dr. R. Crecente, Dr. M. L. Chas, Dr. M. C. Lorenzo and Dr. U. Fra, Spain: Methodology for Inventorying and Characterizing Non-Industrial Private Forestry

O. R. Sodeinde, Nigeria: Software for Landuse Management: Modelling with GIS

JS10 GSDI and Cadastre

Marriott Balcony C+D Joint Session of Commissions 3 and 7 and the Global Spatial Data Infrastructure (GSDI)
Chair: Dr. Paul Munro-Faure, Chair of FIG Commission 7, UK and Dr Alan R Stevens, GSDI Secretariat, USA

Mabel Alvarez de Lopez, Argentina and Yovanny Martinez Martinez, Colombia: Cadastre – An Essential Component in Developing Spatial Data Infrastructures – Experiences in Argentina and Colombia

Boipuso Nkwae and Dr. Susan Nichols, Canada: Spatial Data Infrastructures: African Experiences

Jacob Opadeyi, Trinidad and Tobago: Spatial Data Infrastructure and the Cadastral System of Trinidad and Tobago: the Caribbean Experience

Wednesday

14.00-15.30

TS1.2 The Practice of Surveying – Reform and Legislation

McKinley Chair: Ken Allred, Canada

Raimo Vajavaara, Finland: Legislation for the New Land Information System in Finland

Prof. Kazimierz Czarnecki and Prof. Wojciech Wilkowski, Poland: Surveyor Licences in Poland – Professional Aspects, Association Contribution

Wilhelm A. Schmidt, USA: FIG Model Code of Professional Conduct: Moral and Ethical Components

Helge Onsrud, Norway: Privatising Cadastral Surveying in Norway

Tony Bevin and Anselm Haanen, New Zealand: Reforms in the Regulation of Surveying in New Zealand

JS11 The Modern Profile of Surveyors – Gender Aspects I

Coolidge Joint Session of Commissions 1 and 2 and Task force on Under-represented Groups in Surveying and ACSM/NSPS Forum for Equal Opportunity
Chair: Gail Oliver, Chair of the ACSM/NSPS Forum for Equal Opportunity, USA

Gerda Schennach, Austria: Challenges for Women in a Changing Profession

Gabriele Dasse, Germany: Wanted: Women Engineers!

Wendy J. Woodbury Straight, USA: Advantages and Reflections: Efforts to include women in United States surveying and mapping, 1981–2001

Karin Haldrup, Denmark: Mainstreaming Gender Issues in Land Administration – Awareness, Attention and Action

TS3.4 Spatial Data Infrastructure Supporting Sustainable Development

Cotillion North Chair: Rob Mahoney, United Kingdom

Orlando Rodríguez Pabón, Canada: Spatial Data Infrastructures in a Social Interactionism Perspective: A challenge for sustainable development

Prof. Ian P Williamson, Australia: Land Administration and Spatial Data Infrastructures – Trends and Developments

Garfield Giff and Dr. David Coleman, Canada: Spatial Data Infrastructure Funding Models: A necessity for the success of SDIs in Emerging Countries

Stephen Djaba, Ghana: Geo-Information for Sustainable Development in Ghana – The Role of the Land Surveyor as Agent for Revenue Collection

Anthony A. Adeoye and Babatunde A. Okunlade, Nigeria: National Geographic Information Infrastructure for Sustainable Development in Nigeria

JS12
Roosevelt **Marine Cadastre**
Joint Session of Commissions 4 and 7
Chair: TBD

Michael Sutherland and Dr. Susan Nichols, Canada: Marine Boundary Delimitation for Ocean Governance

Sara Cockburn, Canada: Effects of the Law on the Marine Cadastre: Title, Administration, Jurisdiction and Canada's Outer Limit

Sam Ng'ang'a and Dr. Susan Nichols, Canada: Using Marine Protected Areas to Visualize the Property Rights Infrastructure of a Canadian Marine Cadastre

Albert H. J. Christensen, USA: A Fully Automated Delineator for Sea Boundaries

TS5.6
Cotillion South **The Status of Virtual Reference Systems (VRS)**
Chair: Dr. Joachim Behrens, Germany

Matthew B. Higgins, Australia: Australia's Changing Surveying Infrastructure from Marks in the Ground to Virtual Reference Stations

Dr. Jaakko Santala and Seppo Tötterström, Finland: On Testing RTK-Network Virtual Concept

Werner Lienhart, Dr. Andreas Wieser and Prof. Fritz K. Brunner, Austria: Positioning by an Active GPS System: Experimental Investigation of the Attainable Accuracy

Narve Kjørsvik, Norway: Assessing the Multi-Base Station GPS Solutions

Abdelkader Nadir Nabel, Bachir Gourine, Boualem Ghezali, Ali Zeggai and Habib Taibi, Algeria: Some GPS Guidelines and Recommendations for Large-Scale Applications

Paul Cruddace, I Wilson and Mark Graves, United Kingdom, Hans-Jürgen Euler and R. Keenan, Switzerland and G. Wuebbana, Germany: The Long Road to Establishing a National Network RTK Solution

TS6.7
Johnson **Engineering Surveys for Transportation and Utility Lines**
Chair: Svend Kold Johansen, Denmark

Dr. Günther Retscher, Austria: Multi-Sensor Systems for Machine Guidance and Control

Henrik Vad, Denmark: Dynamic Surface / Grid Levelling for Optimal Surfacing

Dr. Ivo Milev and Prof. Lothar Gruendig, Germany: High Speed Rail Alignment and Maintenance – Data Modelling, Data Acquisition and Analysis

Gianfranco Morocutti, Italy and Gerda Schennach, Austria: Brenner Base Tunnel Project – Rails for Europe

TS7.6 Land Tenure and Sustainable Development
Marriott Ballroom II Chair: Dr. Susan E. Nichols, Canada

Dr. Paul Munro-Faure, FAO: Land Tenure in Context of Sustainable Rural Development: the Contribution of the Land Tenure Service of the Food and Agricultural Organization of the United Nations

Bruce H. Moore, The Popular Coalition to Eradicate Hunger and Poverty: “In their hands”: for the Rural Poor Sustainable Development Means Secure Access to Land

Mika-Petteri Törhönen, Finland: Land Tenure in Transition: Case Uzbekistan

Assistant Prof. Mele E. T. Rakai and Dr. Susan E. Nichols, Canada: Towards a Multicultural Land Tenure Model for Cross-Cultural Tenure Systems

Anatoliy Bondar, Ukraine and Boo Lilje, Sweden: Land Privatization in Ukraine

Prof. Richard Bullard, United Kingdom: Land Ownership and Sustainable Development

TS8.5 Urban Regeneration and Environment
Taft Chair: Helmut Brackmann, Germany

Muhammed Haji Ali and Muhammed Salim Sulaiman, Zanzibar, Tanzania: The Making and Contents of Zanzibar National Land Use Plan: A brief account on a donor funded project

Helmut Brackmann, Germany: Water and Soil in a Former Industrial Region – or Shaping the Future in Sustainability

Dr. Violeta Puscasu, Romania: Urban and Rural Land Use Planning Instruments in Romania

JS13 Spatial Information and Cadastre
Marriott Balcony B Joint Session of Commissions 3 and 7
Chair. Yerach Doytsher, Israel

Arvo Kokkonen and Matti Vahala, Finland: The Cadastre as a Cornerstone in the Information Society Infrastructure

Olof Olsson, Sweden: User Interface 2000 – New standard for the new cadastral index map of Sweden

Prof. Peter van Oosterom and Christiaan Lemmen, The Netherlands: Impact Analysis of Recent Geo-ICT Developments on Cadastral Systems

JS14 Cadastral Appraisal, Land Markets and Valuation

Marriott Balcony C+D Joint Session of Commissions 7 and 9

Chair: András Ossko, Hungary

Dr. Andrzej Hopfer and Łukasz Żuk, Poland: Methodological and Practical Aspects of Rural Land Market Assessment – the Polish Example

Tony Vickers and Mark Thurstain-Goodwin, United Kingdom: Visualising Landvaluescape without a Cadastre

Prof. Erik Stubkjær, Denmark: Modelling Real Property Transactions

Hülya Demir, Mehmet Gür and Volkan Cagdas, Turkey: Land Consolidation, Valuation and Cadastre

JS15 Forum and Discussion on Draft Technical Report on ISO/TC211 Project 19122 Geographic Information/Geomatics, Qualifications and Certification of Personnel

Marriott Balcony A

Joint Session of FIG, FIG Task Force on Mutual Recognition and ISO/TC211

Chair: Dr Robert Maher, TC211/19122, Canada and Iain Greenway, Lead of FIG to ISO/TC211, United Kingdom

Dr Robert Maher, TC211/19122, Canada: Draft Technical Report on ISO/TC211 Project 19122

Prof. Stig Enemark, Denmark and Dr. Frances Plimmer, United Kingdom: FIG Policy on Mutual Recognition of Qualifications

Wednesday

16.00-17.30

TS1.3 Organisational Practices

McKinley

Chair: Klaus Rürup, Germany

Prof. Peter Dale, Scotland National Mapping Agencies – A new model for the 21st Century

Richard Kirwan and Iain Greenway, Ireland: The Changing World of National Mapping in Ireland

Prof. Alexander Sharavin, Russia: Managing Interdisciplinary Teams

Aviel Ron and Joseph Forrai, Israel: Interdisciplinary Teams in Professional Practice

Anders Ekengren, Sweden: Benchmarking City Surveying Offices as a Tool for Development

Jerzy Albin, Poland: Current Directions of Activities of the Geodetic and Cartographic Services in Poland

JS16**Coolidge****The Modern Profile of Surveyors – Gender Aspects II**

Joint Session of Commissions 1 and 2 and Task force on Under-represented Groups in Surveying and ACSM/NSPS Forum for Equal Opportunity
 Chair: Gabriele Dasse, Chair of FIG Task force, Germany

Boo G. Lilje, Sweden: Why Are Young Women Attracted to Survey Education in Sweden

Pat Turrell, Sara J. Wilkinson, Vanessa Astle and Samantha Yeo, United Kingdom: A Gender for Change: The Future for Women in Surveying

General discussion on the Under-represented Groups in Surveying

TS3.5**Cotillion North****Spatial Data Infrastructure: National and Regional Examples**

Chair: Tarja Myllymäki, Finland

Bastiaan van Loenen and Bas Kok, The Netherlands: Dutch NGII on Course: A practical approach on implementing a vision

Hans-Erik Wiberg, Sweden: The Swedish National Spatial Data Infrastructure

Milo Robinson, USA: Improved Policy for Coordinating the Development of the National Spatial Data Infrastructure

TS5.7**Cotillion South****Integration of Techniques for Digital Mapping**

Chair: Dr. Nicolas Paparoditis, France and Dr. Naser El-Sheimy, Canada

Prof. Kang Joon-Mook, Dr. Lee Young-Wook, Dr. Park Joung-hyun and Lee Eun-Soo, Republic of Korea: Application of GPS/GLONASS Combination to the Revision of Digital Map

Ruben C. Rodriguez and Dr. Claudio A. Brunini, Argentina and Albert H. J. Christensen, USA: The National Mapping Act and the Status of Cartography in the Argentine Republic

JS17**Marriott Balcony A****Special Sensors and Techniques in Engineering Surveys**

Joint Session of Commissions 6 and 5

Chair: Dr. Fritz Brunner, Austria

Dr. Dorota A. Grejner-Brzezinska and Dr. Charles K. Toth, USA: Multisensor System for Automatic Monitoring of Highway Linear Features

G. X. Liu, Prof. Y. Q. Chen, Dr. X. L. Ding, Dr. Z. L. Li and Z. W. Li, China: Monitoring Ground Settlement in Hong Kong with Satellite SAR Interferometry

Z.W. Li, X. L. Ding, G.X. Liu, Y. Q. Chen, Z.L. Li and J. J. Zhu, China: Study of Atmospheric Effects on Satellite Synthetic Aperture Radar (SAR) Measurements in Tropical Regions

Prof. Bill Teskey and Ryan Fox, Canada: Use of GPS for Determining Free Flight Performance

TS7.7 Land Policy and Land Reform in Sub-Saharan Africa
Marriott Ballroom II Chair: Mikko Uimonen, Finland

Prof. Stig Enemark, Denmark and Prof. Rexford Ahene, USA: Capacity Building in Land Management – Implementing land policy reforms in Malawi

Augustine Mulolwa, The Netherlands: Appropriate Tenure Model for Sub-Saharan Africa

Sam Zhou, Zimbabwe: Subdivisions, a Viable Option for Land Redistribution in Zimbabwe

Prof. Michael Barry and David Mayson, South Africa: Conflicts in a Rural Land Restitution Case: Reconstructing the Elandskloof Mission Community, South Africa

Eugène Rurangwa, Rwanda: Perspective of Land Reform in Rwanda

TS7.8 3D Cadastre
Marriott Ballroom I Chair: Dr Martin A. Salzmann, The Netherlands

Dr. Paul van der Molen, The Netherlands: Institutional Aspects of 3D Cadastres

Helge Onsrud, Norway: Making Laws for 3D Cadastre in Norway

Drs Jantien Stoter, Dr. Martin A. Salzmann, Prof. Peter van Oosterom and Prof. Paul van der Molen, The Netherlands: Towards a 3D Cadastre

András Osskó, Hungary: Problems in Registration in the Third Vertical Dimension in the Unified Land Registry in Hungary and a Possible Solution

Moshe Benhamu and Prof. Yerach Doytsher, Israel: A Multilayer 3D Cadastre: Problems and Solutions

JS18 Spatial Information for Planning and Management Models
Marriott Balcony B Joint Session of Commissions 3, 7 and 8
Chair: Tor Valstad, Norway

Tian Guangjin, Liu Jiyuan, Zhang Zengxiang and Zhou Quanbin, China P. R.: Study on Chinese Rural Settlements by Remote Sensing and GIS

Dr. Erwin Heine and Dr. Reinfried Mansberger, Austria and Prof. Mihaly Agfalvi, Prof. Bela Markus and Dr. Judit Nyiri, Hungary: Assessment and Analysis of Property and Land Use Changes in the Cross Border Region Austria – Hungary

Patricia Vela Coiffier, José Ma. Villarreal, Julie Noriega, Dr. Fabián Lozano, Ernesto Enkerlin, Jorge Brenner, Rubén Marroquín, Romualdo López, Adriana Nelly Correa, Sergio Medellín and Miguel Angel Cruz, Mexico: GIS Based Ecological Planning and Sustainable Management Models for the Laguna Madre, Tamaulipas, México

Jaeik Liou, Republic of Korea: New Landscape of Poverty Management through Land Information System

Kobina Abaka Quagraine, Ghana: GIS for Ghana

JS19 Solutions in a Challenging Environment: Kosovo

Marriott Balcony C+D Joint Session of Commissions 7, 2, 3 and 9

Chair: Dr. Winfried Hawerk, Germany

Leif Eidenstedt, Sweden/Kosovo: Legal Aspects on the Creation of a Modern Cadastre in Kosovo

Tor Valstad and Ole-Jørgen Haugholt, Norway/Kosovo and Hyzri Llabjani, Kosovo: The Rebuilding of the Cadastre in Kosovo

Perti Onkalo, Abdurrahman Kuleta and Blerim Jashari, Kosovo: Capacity Building as a Part of the Cadastre Development in Kosovo

Bengt Andersson, Sweden/Kosovo and Murat Hoxha, Kosovo: Reforming the Cadastre and Land Administration in Kosovo

Skënder Tullumi, Kosovo: A Short History of Cadastre Survey in Kosovo

Thursday

9.00-10.30

Plenary Session Sustainable Development and Property Management

Marriott Ballroom Moderator and introduction: Professor Ian Williamson, Director of FIG/UN Liaison, Australia

Gershon Feder, Research Manager, Development Research Group, World Bank: Land Administration: A Cornerstone for Economic Development

Helge Onsrud, Norway: FIG Agenda 21 – Committing Surveyors to Sustainable Development

Thursday

11.00-12.30

TS1.4 Professional Associations – A time of change

Hoover Chair: Michael Keller, Switzerland

Prof. Stig Enemark, Denmark: Surveying the Surveying Profession

G. K. (Ken) Allred, Canada: The Professional Association – Guardian of the Public Interest

Gianfranco Morocutti, Italy: The Involvement of the Mediterranean Countries

Giuseppe Rando and Fiorenzo Guaralda, Italy: The Professional Profile of the “Geometra” in the Third Millennium

TS2.6 **Changes in Curricula**
Marriott Balcony A Chair: Jud Rouch, USA

Prof. Richard K. Bullard and Robert W. Dixon-Gough, United Kingdom: Geomatics and Land Management – Changing Profile and Career, UK and RICS Experiences

Prof. Bertold Witte and Prof. Bernhard Heck, Germany: Changes and Perspectives in University Education for Geodetic Engineers in Germany

Prof. Wolffried Wehmann and Prof. Michael Hahn, Germany: On the Introduction of Staged Bachelor and Master Courses of Study for Surveyors in Germany

Gert Steinkellner, Austria: Developments in the Austrian Surveying Education

Dr. Frank J. Leahy, Australia: A New Curriculum for Geodetic Computation

TS3.6 **Spatial Information – Open Access and Cooperation**
Coolidge Chair: Gerhard Muggenhuber, Austria

Yvette Pluijmers, USA: The Economic Impacts of Open Access Policies for Public Sector Spatial Information

Tarja Myllymäki, Finland: On the Way to Open Access to Digital Geographic Information

Anne Kjølhede Revald, Denmark: Public Administration in Denmark Use GI to Make Information Available to the Citizens

Dr. Anne Kirsten S. Høstmark, Norway: GEOVEKST – A Norwegian Program for Cost Sharing in Production, Updating and Administration of Geographic Data

Mabel Alvarez de Lopez, Juan Carlos Usandivaras, Blanka Agudiak and Gwyn Jones, Argentina: Experiences of Inter-Institutional Collaborative Work as Forms of Multiplying the Benefits of Territorial Information

JS20 **International Borders**
Cotillion North Joint Session of Commissions 5, 1, 3 and 7
Chair: Matthew Higgins, Australia and Ron Adler, Israel

Prof. Ralf Schroth and Hans-Dieter Arnold, Germany: Demarcation of International Border Lines

Ron Adler, Israel: Surveyors Role in Delineation and Demarcation of International Land Boundaries

Dr. György Busics, Hungary: State Border Line Measurement with GPS – Measuring and Processing Experiences

Fabien Ombougou, Cameroon: Borders and Globalisation

TS5.8
Harding

Problems Related to the Use of GPS
Chair: Neil Brown, Australia

Neil Brown, Allison Kealy, James Millner, Peter Ramm and Prof. Ian Williamson, Australia Quality Control and Integrity Monitoring of the Victorian GPS Reference Station Network

Abdelkader Nadir Nabel, Bachir Gourine, Sid-Ahmed Benahmed Dahou, Boualem Ghezali and Ali Zeggai, Algeria: Combination of Mixed Adjustment Model and Geodetic Lines Method to Transform GPS Coordinates into National Coordinates

Dr. Xiaoli L. Ding, D. W. Zheng, Y. Q. Chen, C. Huang and W. Chen, China: Analysis of Seasonal and Interannual Variations in the Positions of Permanent GPS Tracking Stations

Stefan Willgalis and Prof. Günther Seeber, Germany and Prof. Cláudia Pereira Krueger and Prof. Verônica M. C. Romão, Brazil: A Real Time GPS Reference Network for Recife, Brazil, Enabling Precise and Reliable Cadastral Surveys

JS21

Marriott Balcony B

Education of Valuers – Experiences
Joint Session of Commissions 9 and 2
Chair: Stephen Yip, Hong Kong, China

Prof. Kauko Viitanen, Finland: Education of Valuers: Plans for the Coming Period – Working Group Report

Alfred Bollinger, Switzerland: New Swiss Guidelines for Valuation of Agricultural Ground Include Ecological Values and Support Sustainable Development

Tuomo Heinonen, Finland: Education of Valuers – Experiences in Developing Cambodia

Henning Elmstrøm, Denmark: Valuation Legislation Purposes in Selected Countries

JS22

Marriott Balcony C

Roundtable Discussion on the Role of Valuation Standards
Joint Session of FIG Commission 9 and International Valuation Standards Committee IVSC
Chair: Brian Waldy, FIG Commission 9, United Kingdom

Roundtable discussion on the international valuation standards with contributions from the World Bank, FIG, IVSC and the Appraisal Institute.

- Greg McNamara, Australia, Chair of the International Valuations Standards Committee IVSC

Thursday

14.00-15.30

JS23 **Cadastral Reform – Organisational**
Hoover Joint Session of Commissions 1 and 7
Chair: Leonie Newnham, Australia

Ivan Pesl and Dr. Vaclav Slaboch, Czech Republic: Ten Years of Cadastral Reform in the Czech Republic: From defective cadastre to Internet access to reliable cadastral and land registry data

Arbind Man Tuladhar, The Netherlands: Developing a Framework for Cadastre and Land Registration Systems in Land Administration Organizations

Dr. Clarissa Fourie, South Africa: Cadastral Reform for Good Governance and Poverty Alleviation

Jiri Rydval, Czech Republic: Cadastral Offices and the Reform of the Czech Cadastre

Charisse Griffith-Charles, Trinidad and Tobago: Designing Effective Cadastral Reform – Trinidad and Tobago

TS2.7 **Descriptions of Curricula**
Marriott Balcony A Chair: Prof. Pedro Cavero, Spain

Prof. Pedro Cavero, Spain: The Studies of Surveying in Latin America

Dr. Tomas Egeltoft, Sweden: A Proposed New Curriculum for the Master of Science Program in Surveying at KTH

Ass. Prof. Alojz Kopáčik, Slovakia: Modern Surveying Education in Slovakia

Ning Jinsheng, Prof. Liu Yanfang and Liu Yaolin, China P. R.: Different Models on the Curriculum for the Higher Education of Surveying & Mapping in China

Emmanuel Tembo and Mike Manisa, Botswana: The Evolution of Geomatics at the University of Botswana

Oluwaseun Samuel Adewale, Nigeria: Surveying and Geomatics Curricula in Nigerian Universities – The Professional and Educational Challenges

TS3.7 **Spatial Information Management – Technical Developments**
Coolidge Chair: Jes Ryttersgaard, Denmark

Dr. Martin Scheu and Dr. Andreas Rose, Germany: Data Migration – The Component View

Wonjun Choi, Republic of Korea: Institutional Issues of the Spatial Data Exchange in Korea

Arie Croitoru and Prof. Yerach Doytsher, Israel: A Step Toward Accuracy-Based Vector-Data Prioritizing

Dr. Panos Lolonis, Greece: A Chi-Square Statistic for Checking Satisfactory Edge Matching of Maps and Diagrams that Depict Adjacent Areas

TS5.9 **Digital Photogrammetry**
Cotillion North Chair: Dr. Nicolas Paparoditis, France

Dr Nicolas Paparoditis, France: Integrating Digital Cameras with Theodolites or Total Stations for Field and Building Surveys

Dr. Ashraf Aly Elkoushy, Egypt: Object Reconstruction and Prediction from Three Images

Kris Morin, USA and Dr. Naser El-Sheimy, Canada: Post-mission Adjustment Methods of Airborne Laser Scanning Data

Minha Park and Dr. Yang Gao, Canada: Development of an Internet-Based Mobile Equipment Management System

JS24 **Valuation Standards for Global Profession**
Marriott Balcony C Joint Session of FIG Commission 9 and International Valuation Standards Committee IVSC
Chair: G. Michael Yovino-Young, Chair of FIG Commission 9, USA

Brian Waldy, United Kingdom: The Role of International Valuation Standards in the Provision of Funding for Development

John A. Edge, Chairman-Elect and UK Representative to IVSC, United Kingdom: The Globalization of Real Estate Valuation

Dr. Sarah Sayce, Owen Connellan and Dr. Frances Plimmer, United Kingdom: Global Standards for a Global Profession: Developing Understanding of 'Value in Use'

Matthew S. Myers, Fiji: International Valuation Standards: Another form of imperialistic colonisation of lesser-developed countries?

Thursday

16.00-17.30

JS25 **e-Business**
Hoover Joint session of Commissions 1, 3 and 7
Chair: Don Buhler, USA

Sara J. Wilkinson, Pat Turrell and Simon Harbour, United Kingdom: Intranet and Internet Uptake and Usage within UK Building Surveying Practices. A user based evaluation of advantages and disadvantages

Nehemiah Mavetera, South Africa: An Electronic Geoinformation Supply Model for Land Registry Organisations (LROs) in Countries in Transition – South Africa and Zimbabwe

Leonie Newnham, Allan Stewart and Bryan King, Australia: Building an E-business Framework for a Natural Resources Agency – A case study of the Victorian Department of Natural Resources and Environment e-business development

James Millner and Leonie Newnham, Australia: The Development of an Application Service Provider Model for the Delivery of Government Spatial Information

Dr Bijan Azad, Lebanon: Mapping the Business Processes Before Mapping the Ground: Building the e-Land Administration Infrastructure

Irina Fartukova, Russia: Statistics of Development the Internet of Technologies in the Field of a Geodesy and Cadastre (This paper has not been presented at the FIG 2002)

TS2.8 **Different Aspects in Planning and Implementing Curricula**
Marriott Balcony A Chair: Prof. Kirsi Virrantaus, Chair of FIG Commission 2, Finland

David Rodgers, United Kingdom: The Relationship between Funding and the University Curriculum

Ian Frame and Mike Canter, United Kingdom: A Menu of Graduate Skills – The Specification of Degree Level Skills for Construction and Surveying Students

Mazlan Hashim, Mohd Ibrahim Seeni Mohd and Kasturi Devi Kanniah, Malaysia: Remote Sensing Education in Malaysia: A systematic approach at Universiti Teknologi Malaysia

Prof. Francis A. Fajemirokun, Dr. Peter C. Nwilo and Olusegun T. Badejo, Nigeria: Geomatics Education in Nigeria

TS3.8 **Spatial Information Based Services**
Coolidge Chair: Kari Strande, Norway

Bengt-Olof Käck and Stefan Gustafsson, Sweden: Digital Surveying Archive and Old Maps

Linda Carton, The Netherlands: Strengths and Weaknesses of Spatial Language: Mapping activities as debating instrument in a spatial planning process

Prof. Chulmin Jun, Republic of Korea: Solving a Land Use Problem by Integrating Fuzzy-LP and GIS

Prof. Olubodun O. Ayeni and Amos O. Adebisi, Nigeria: Management of National Resources through an Electronic Atlas Database: The Case Study of Nigeria

Liu Yaolin, Martin Molenaar and Menno-Jan Kraak, The Netherlands: Automated Organization of Hierarchical Catchments in River Network Based Constrained Delaunay Triangulation

Gennady G. Pobedinsky and Alexander N. Prusakov, Russia: Problem of Optimum Visualization of Electronic Maps on the Display with Use Variable-Scale of Projections

TS5.10 **Geodetic Problems and Solutions**
Cotillion North Chair: Dr. Yang Gao, Canada

Xiaobing Shen and Dr. Yang Gao, Canada: Kinematic Processing Analysis of Carrier Phase based Precise Point Positioning

Dr. Z. C. Luo and Prof. Y. Q. Chen, Hong Kong, China: Precise Determination of Hong Kong Geoid Using Heterogeneous Data

Mikael Lilje and Prof. Jean-Marie Becker, Sweden, Björn Engen, Norway, Bo Jonsson, Sweden, Niels Andersen and Sigvard Stampe Villadsen, Denmark, Prof. Martin Vermeer and Risto Kuittinen, Finland, Magnus Gudmunsson and Björn Geirr Harsson, Norway and Lars Sjöberg, Sweden: Nordic Geodetic Commission – A successful collaboration between the Nordic countries in the field of geodesy

E. E. Duncan, P. Baffoe and F. Bilson-Darku, Ghana: The Evolution of the Two Standards of Measure to the Present Day Electromagnetic Distance Measurements (EDM)

JS26 **Education of Valuers – Collecting the Substance for Virtual Academy**
Marriott Balcony C Joint Session of Commissions 9 and 2
Chair: Prof. Kauko Viitanen, Finland

Prof. Kauko Viitanen, Finland: Just Compensation in Expropriation?

Dieter Kertscher, Germany: On the Way to a Valuation-GIS / Valuation Information System

Eero Carlson, Finland: Kohonen Map, GIS and the Analysis of Real Estate Sales

Friday

9.00-10.30

TS3.9 **Spatial Information for Health Monitoring and Population Management**
Marriott Balcony A Chair: Dr. Martin Scheu, Germany

Dr. Madan Mohan, India: GIS-Based Spatial Information Integration, Modeling and Digital Mapping: A New Blend of Tool for Geospatial Environmental Health Analysis for Delhi Ridge

Armstrong Kamadi Indusa, Kenya: The Use of GIS in Mapping, Analysis and Evaluation of HIV/AIDS Occurrence Patterns

Prof. Olubodun O. Ayeni and Oluwaseun S. Adewale, Nigeria: GIS Queries for Population Data Analysis and Management

Prof. Choi Yun-Soo and Koh June-Hwan, Republic of Korea: The Current Status and Reform Strategies of GIS Projects for Urban Infrastructure Management in Korea

TS5.11 Standards, Quality Assurance and Calibration

Marriott Balcony C+D Chair: Dr. Vaclav Slaboch, Czech Republic and Prof. Hans Heister, Germany

Prof. Jean-Marie Becker, Sweden: Recommendations Concerning Survey Instruments Maintenance and Quality Specification

Prof. Hans Heister, Germany: The Term Uncertainty of Measurement and the Concept of Its Determination

Dr. Michael Illner, Germany: Investigations Concerning the Reliability and the External Accuracy of GPS Real-Time Measurements

Prof. Hilmar Ingensand, Switzerland: Check of Digital Levels

TS7.9 Technical Innovation in the Cadastre

Coolidge Chair: Frantz Derlich, France

Gerda Schennach, Austria: Security of Land Property

Gotfred Rygh, Norway: The Multi-Purpose Cadastre: Experiences from the Automated Census Project in Norway

Arne Gøtø, Denmark: Interactive Graphic Software for Creating Cadastral Alterations

Carlton A. Brown, USA: Investigation of the Use of the Ellipsoidal Normal to Model the Plumb Line in a Millimeter Cadastre

TS7.10 Regional Experience in the Cadastre – Near East

Harding Chair: Daniel Steudler, Switzerland

Yohanan Gavish and Prof. Yerach Doytsher, Israel: Analytical Cadastre in Israel: Restoring Land Boundaries Based on Photogrammetric Tools

Dr. Necdet Poyraz and Dr. Orhan Ercan, Turkey: The Design, Development and Implementation of the Turkish Land Registry and Cadastre Information System

Dr. Adib Fares, Lebanon: The Cadastral System in Lebanon Comparing to the other International Systems

TS7.11 Regional Experience in the Cadastre – Europe I

Hoover Chair: Peter Dent, United Kingdom

Francis Gäbele and Marc Vanderschueren, Belgium: Benchmarking and Belgian Cadastre

Piero Panunzi and Fiorenzo Guaralda, Italy: The Reform and the New Systems of Census and Classification of the Italian Cadastre

Dr. Charalambos Ioannidis, Greece: The Hellenic Approach for Implementation of a Modern Cadastre – Difficulties and Perspectives

Jaap Zevenbergen and Dr. Jitske de Jong, The Netherlands: Public Law Information Regarding Land: Dutch proposal for registration

Peter Dütchler, Switzerland: Cadastre 2014 in Practice – Activities of the Swiss Private Sector

TS9.3 Special Valuation Problems I
Marriott Balcony B Chair: David Smejkal, Czech Republic

David Smejkal, Czech Republic: Market Appraisal of Real Estate in the Czech Republic via Software

Dr Vida Malienė, Prof. Artūras Kaklauskas and Prof. Edmundas Kazimieras Zavadskas, Lithuania: Application of a New Multiple Criteria Analysis Method in the Valuation of Property

Jean-Louis Dargere, France: Valuation of Hotels in France

Yaacoub Saade, Lebanon: The Real Estate Management in Lebanon and the Influence of the Urban Planning and Cadastre on the Valuation

Mehmet Gur, Volkan Cagdas and Hülya Demir, Turkey: A General Overview Real Estate Valuation Applications in Turkey

Friday

11.00-12.30

TS3.10 Spatial Information in Mapping and Cadastral Systems
Marriott Balcony A Chair: Tarja Myllymäki, Finland

Uzochukwu Okafor, Namibia: Digital Map Revision – A Namibian Experience

Bastian Graeff and Prof. Alessandro Carosio, Switzerland: Automatic Interpretation of Raster-Based Topographic Maps by Means of Queries

Jurkka Tuokko, Finland: Renewed Topographic Data System Integrates to Cadastral Data Management in Finland

Assistant Prof. Seyed Kazem Alavi Panah and Associated Prof. Gholam Reza Zehtabian, Iran: A Database Approach for Soil Salinity Mapping and Generalization from Remote Sensed Data and Geographic Information System

Associated Prof. Gholam Reza Zehtabian, Assistant Prof. Seyed Kazem Alavipanah and Amir Hoshang Ehsani, Iran: The Use of Landsat Thematic Mapper Data for Mapping the Marginal Playa Soils in Damghan Playa, Iran

TS5.12 Calibration of Survey Equipment

Marriott Balcony C+D Chair: Prof. Hans Heister, Germany and Dr. Vaclav Slaboch, Czech Republic

Prof. Naser El-Sheimy, Canada: Boresight Calibration of Mobile Mapping System

Prof. Hans Heister and Martin Lang, Germany and Jiri Lechner and Dr. Vaclav Slaboch, Czech Republic: Metrological Comparison of Length and Azimuth Standards between German and Czech Geodetic Laboratories According to ISO Standards

Helmut Woschitz and Prof. Fritz K. Brunner, Austria and Prof. Hans Heister, Germany: Scale Determination of Digital Levelling Systems Using a Vertical Comparator

Dr. Charles K. Toth, Nora Csanyi and Dorota A. Grejner-Brzezinska, USA: Automating the Calibration of Airborne Multisensor Imaging Systems

Helmut Heier, Dr Michael Kiefner and Dr. Wolfgang Zeitler, Germany: Calibration of the Digital Modular Camera

JS27 Engineering Survey Databases and Facility Management Systems

Marriott Balcony B Joint Session of Commissions 6 and 3

Chair: Dr. Lothar Gruendig, Germany

Dr. Frank Gielsdorf and Prof. Lothar Gruendig, Germany: Geometrical Modeling for Facility Management Systems Applying Surface Parameters

Prof. Gerd Kehne, Germany: Visualisation of Buildings Using VRML – An Example

Dr. James B. Olaleye and J. O. Sangodina, Nigeria: Network Analysis in GIS: A Tool for Transportation and Utility Management – A Case Study of Nigerian Transportation and Utility Management

Dr. Kurt Novak, USA: Hillsborough County's Roadway Asset GIS Street Infrastructure Survey & System Integration

Dr. Gethin W. Roberts, Kathryn Strange and Martin Waller, United Kingdom: The Detection of Abandoned Mineshafts Using GPS and Capacitively Coupled Resistivity Imaging

TS7.12 Regional Experience in the Cadastre – Europe II

Coolidge Chair: Francis Gäbele, Belgium

Prof. Kauko Viitanen, Finland: 3 x 3D Property Ownership and Use – Registration of apartments and premises in Finland

Franz Derlich, France: French Property Registering System: Evolution to a Numeric Format?

Leiv Bjarte Mjøs, Norway: New Cadastre in Norway

Lars Jansson and Göran Eriksson, Sweden: Reforming the Swedish Cadastre

Monica Johansson, Sweden: Land Register in Sweden – Present and Future

TS7.13 **Regional Experience in the Cadastre – Countries in Transition**
Harding Chair: Tommy Österberg, Sweden

Prof. Y. K. Neumyvakin, Russia: Technological Aspects of Land Plots Surveying in Russia

Dr. Ioan Stangu, Romania: Cadastre – The Interface between the Human Society and the Environment

Prof. Hans Knoop, Germany and Prof. Wojciech Wilkowski, Poland: Integrated Cadastral System (ICS) of Poland Supported by the European Union

Vladimir Evtimov, Bulgaria: The Bulgarian Cadastre and Property Register Act and the Pertinent Project

Alexander Lazarov and Hristo Dechev, Bulgaria: Cadastral Information System of Sofia

Lydmila Lazarova, Bulgaria: Ownership Data in Cadastral Information System of Sofia (CIS – Sofia) from the Available Cadastral Map

Prof. Vladimir Golubev, Russia: Creation Cadastre of Educational Institutions of Russia (This paper has not been presented at the FIG 2002)

TS7.14 **Automating the Cadastre – The New Zealand Experience**
Hoover Chair: Tony Bevin, New Zealand

Anselm Haanen, Tony Bevin and Neil Sutherland, New Zealand: e-Cadastre – Automation of the New Zealand Survey System

David Spaziani, New Zealand: Constructing a Survey Accurate Digital Cadastre

Jeffrey Needham, New Zealand: Benefits of Stakeholder Involvement

TS9.4 **Special Valuation Problems II**
McKinley Chair: Henning Elmstrøm, Denmark

Prof. Krzysztof Koreleski, Poland: Appraisal of the Environment and Social Values of Woodlands

Timothy Eccles and Andrew Holt, United Kingdom: Accounting Versus Surveying: Value as a Professional Paradigm

Gitonga Aritho, Kenya: Valuation Issues in Compensation and Resettlement Action Plans: The case of Kwale Titanium Minerals Project in Kenya

Ruud M. Kathmann, The Netherlands: Valuation is Computerised: Market Analysis is Business

Kaberere Ndungu, Mwenda Makathimo and Mary Kaaria, Kenya: The Challenges in Globalisation of Valuation Profession – Lessons from Nairobi Kenya

Friday**12.30-14.00**

TS3.11 GIS – A Tool for Documentation
Marriott Balcony A Chair: Dr. Bernd Teichert, Germany

Zaide Duran, Ganer Güney, Assoc. Prof. Dursun Z. Seker and Prof. Gonul Toz, Turkey: Using GIS Technology for the Documentation of Historical Monuments

Jeannie Regan-Dinius, Dr. Hadi Yamin and R. Stephen Hansell, USA: Creating a Spatial Database for Indiana's Cemetery and Burial Ground Registry

Assistant Prof. Seyed Kazem Alavi Panah, Farokh Barzegar, Hassan Ahmadi, Associated Prof. Gholam Reza Zehtabian and Naser Mashhadi, Iran: Application of Remote Sensing and Geographic Information System Technologies in the Study of Yardangs of Lut Desert, Iran

Dr. Sankaran Rajendran, Prof. M. Arumugam and Prof. V. A. Chandrasekaran, India: Potential Use of High Resolution IRS-1C Satellite Data and Detection of Urban Growth in and around of Tiruchirapalli City, Tamil Nadu State, India

Prof. El Hassane Semlali, Mohammed El Fadili and Tarik El Maftouhi, Morocco: GIS Application to Establish Hydraulic Development Plans

TS5.13 Integration of Techniques
Marriott Balcony B Chair: Dr. Naser El-Sheimy, Canada and Dr. Yang Gao, Canada

Prof. El Hassane Semlali, Abdelghani Saïdi, and Mohamed Baaya, Morocco: GPS and Total Stations Data Acquisition and Treatment Methodology for Automatic Drawing of Topographic Plans Using ArcCOGO

Dr. Gethin W. Roberts, Andrew Evans, Prof. Alan H. Dodson, Prof. Bryan Denby, Simon Cooper and Dr. Robin Hollands, United Kingdom: The Use of Augmented Reality, GPS and INS for Subsurface Data Visualisation

Maris Abele, Dr. Janis Balodis, Krishs Balodis, August Rubans and Ansis Zarinsh, Latvia: SLR for Low Orbit Satellite Observation

Henri Audirac and Juan C. Villegas, Mexico: AU3-Win – A Digital Photogrammetric Workstation Developed in Mexico – A step in favor of Agenda 21

JS28 **Integration of Techniques and Corrections to Achieve Accurate
Marriott Balcony C+D Engineering Survey**

Joint Session of Commissions 5 and 6
Chair: Jean M Rüeger, Australia

Prof. Hilmar Ingensand, Switzerland: Concepts and Solutions to Overcome the Refraction Problem in Terrestrial Precision Measurement

Jean M. Rüeger, Australia: Refractive Index Formulae for Radio Waves

Stefan Cacoń and Piotr Grzempowski, Poland: Effect of Ground Changes on the Reference Benchmarks in a Levelling Network of a Large City

Prof. Michael Scherer, Germany: Advantages of the Integration of Image Processing and Direct Coordinate Measurement for Architectural Surveying – Development of the System TOTAL

Dr. Otakar Švábenský and Dr. Josef Weigel, Czech Republic: Accuracy Management in GPS Engineering Applications

TS7.15 **Regional Experience in the Cadastre – Africa and the Americas**
Coolidge Chair: Sam Zhou, Zimbabwe

Fitzherbert Reyes and Charisse Griffith-Charles, Trinidad and Tobago: Establishment of a Computerised Cadastral Records System for Trinidad and Tobago West Indies

Yovanny Arturo Martínez M. and Nyrian Angélica Ubaque U., Colombia: Management and Modernization of the Cadastral Infrastructure in Colombia

John D. McCauley and Raymond Wiseman, USA: Yakama Cadastral / GIS Project

Dr. Francis W. Derby, USA: Improving and Facilitating Land Title Registration Processes in Tanzania

TS7.16 **Land Consolidation Experience from the Field**
Harding Chair: Prof. Hans Sevatdal, Norway

Terry van Dijk, The Netherlands: Central European Land Fragmentation in the Years to Come – A Scenario Study into the Future Need for Land Consolidation in Central Europe

Mats Backman, Sweden: Rural Development by Land Consolidation in Sweden

S. Sence Turk and Celil Turk, Turkey: The Use of Land Readjustment as a Land Development Method in Turkey

Volkan Cagdas, Hülya Demir and Mehmet Gur, Turkey: Concept of Ownership in Land Arrangement Studies in Turkey

Mehmet Gür and Zerrin Demirel, Turkey: Development in Rural Land Arrangement and Legal Regulations in Turkey