

FIG

FIG WORKING WEEK 2017

Messukeskus Helsinki Finland

29 May - 2 June

Surveying the world of tomorrow -
From digitalisation to augmented reality

Organised by



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Greetings from Chryssy Potsiou

Dear Colleagues,

Our 2017 FIG Working Week in Finland has a clear technical focus that aims to motivate surveyors to improve their knowledge, education, technical skills, qualifications and networks to deal with the challenging and rapidly changing aspects of our profession.

Our Finnish organizers have chosen an appropriate theme for our congress and have done their best to organize a memorable event. We feel privileged to share their experience on the theme as well as to be updated on their professional achievements. Our experienced keynote speakers, as well as our highly qualified FIG Commission chairs, FIG Network chairs and FIG Task Force chairs aim to lead surveyors to embrace the emerging technological possibilities and to apply them in a useful and practical way assuring that spatial data are collected affordably, managed properly, used reliably and are made available to maximize the benefits for the users.

A great variety of technical sessions and presentations are offered this year, starting with professional standards, reference systems, GNSS measurements, drone mapping and point clouds, land administration and land management success stories, 3d modeling and deformation analysis; and continuing with human geodesy, blue economy, property markets and the Blockchain, construction cost standardization, tools for making cities resilient and wiser through crowdsourcing and VGI, developing skills for efficiently combining and coordinating available technologies and platforms; and including the potential of online training and the need for revising the surveyor's education curriculum, as well as our concept about professional ethics – to mention a few.

Land policy reforms are of top concern as we attempt to facilitate a desirable progress for our world. Upgrading our skills can be useful in many ways: in the development of sustainable and inclusive urban areas and smart cities; in the management of rural areas by improving security of food and water for all; in the improvement of interconnectivity and of global safety; in the achievement of environmental and social resilience. I am sure you will prioritize and enjoy the especially planned FIG sessions in partnership with UN Habitat GLTN, FAO and the WB.

And make sure you do not miss the focus on best practices for surveyors in the workshop on BIM, and the new developments in this field. For the full experience of an FIG Working Week take in STDM training, our traditional FIG History Symposium, the Young Surveyors activities, the roundtable discussions, the sponsors' sessions, our technical exhibition, the charity run and our social events as well.

On behalf of FIG Council and Office, for all of you and especially for our new-comers “a warm welcome to our FIG family”.

Chryssy Potsiou | FIG President



On behalf of the organisers, Finnish Association of Geodetic and Land Surveyors (MIL) and Finnish Association of Surveyors (MAKLI), I am very pleased to welcome you to Helsinki, Finland.

The theme of the 79th FIG Working Week is “Surveying the world of tomorrow – From digitalisation to augmented reality”. We wish to emphasise the change from just digitalising things as we have always done to renewing the way we think about the world.

This year we have a record number of good presentations in the technical programme. Almost six hundred presentations were proposed! We appreciate a lot that the Working Week has received so much attention from your side. Even if it is us, the local organisers, that are responsible for the organisational issues, the event could not exist without active participation in and input to the technical programme. Maybe that is also the reason why FIG Working Week is such a fascinating concept; making things happen together!



It is my pleasure, on behalf of the local organising committee, to welcome you to the FIG Working Week 2017 in Helsinki, Finland.

Helsinki, capital of Finland, is the centre of Finland’s administrative, educational and cultural life and also the finance and business centre of the country. Together with the neighbouring cities Helsinki forms the metropolitan area with over a million inhabitants. Over 450 years of history, several architectural layers and the impact of different periods can clearly be seen in Helsinki. The beauty of the surrounding nature blends seamlessly together with high-tech achievements, while old traditions mix with the latest trends.

Where ever you want to go, it is easy to move around in the city with short distances and a well-functioning public transportation system. Also the venue for the Working Week, Messukeskus

You have many opportunities to discover our city – joining the technical tours, social tours or on your own. The city is very safe and easy to access on foot or by public transportation. You will be here just when the summer begins, the trees have fresh leaves, and the nature really bursts alive. That is the most beautiful time of the year.

During the Working Week we will have also our national surveyor’s day. It has been combined with the Working Week, and I believe that this gives an extra flavour to our event. Also the History symposium, BIM seminar and Young Surveyor’s event will be held as part of the Working Week. I believe that the week is going to be a great platform for founding new relationships and connections between surveyors throughout the World.

I feel very honoured that the FIG community chose us to organise the 79th FIG Working Week. Welcome to Finland!

Paavo Häikiö

MIL President

Helsinki, Expo and Congress Centre, is located only minutes away from the city centre by local train.

The theme of the Working Week “Surveying the world of tomorrow – From digitalisation to augmented reality” reflects the continuous development around us. Tomorrow is only a short step away or maybe even here already. We believe that the Working Week is a perfect place to get a glimpse of those future developments but also to study the ideas and solutions of today.

Dear colleagues, besides putting every effort to offer you an event to remember, we also encourage you to take a look at our country beyond the capital area and see the archipelago, the lakes, or even the far north of Lapland.

Tervetuloa! We look forward to seeing you in Helsinki.

Pekka Halme

Chair, Local Organising Committee

Co-Conference Director



A FIG Working Week is not “just” another conference – a Working Week is a lot more; thus, this somewhat different name. FIG Working Week is where surveyors meet and work together in a professional environment. A large technical programme is offered, the exhibition showcases the latest news; many other things are also going on – administrative meetings, commission meetings and activities, meetings among various groups, partner activities, corporate product demonstrations etc. In short, a week full of active people; participants, exhibitors, organisers, partners... From previous years we know that 1/3 of the participants attend for the first time. If you attend for the first time, join us in the newcomer’s session. Here you will be introduced to FIG and to the Working Week.

The Working Week is not over when you return to your daily work. Hopefully you will bring home a lot of inspiration; the people you have met, the messages and ideas from the sessions, from exhibitors from co-attendees and “just” from attending the Working Week. All this will hopefully give you extra energy, ideas, inspiration to your daily work. A special thanks to the Local Organisers who have worked so hard and intense to create a memorable Working Week, to all the exhibitors, to the sponsors without whom the Working Week could not be a reality, to our institutional partners which cooperation is appreciate very much, and to all the participants for coming to Helsinki to make this Working Week very special. And your contribution is important. At sessions, in the commission work, at the exhibition – at the Working Week.

Learn, enjoy and have fun!

Louise Friis-Hansen

FIG Director and Co-Conference Director



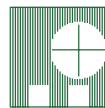
International Federation of Surveyors - FIG

FIG is the premier international organisation representing the interests of surveyors worldwide. It is a federation of the national member associations and covers the whole range of professional fields within the global surveying community.

FIG was founded in 1878 in Paris and was known as the Fédération Internationale des Géomètres. This has become anglicized to the International Federation of Surveyors. It is a UN-recognized non-government organisation (NGO), representing more than 120 countries throughout the world, and its aim is to ensure that the disciplines of surveying and all who practise them meet the needs of the markets and communities that they serve.

The FIG vision is of a modern and sustainable surveying profession in support of society, environment and economy by providing innovative, reliable and best practice solutions to our rapidly changing and complex world, acting with integrity and confidence about the usefulness of surveying, and translating these words into action.

FIG has been organising international surveying conferences since 1878. The first one was held in Paris 18–20 July when representatives of national surveying associations of six countries met to establish the organisation. This year’s Working Week is the 79th major international surveying conference that FIG has organised.



Finnish Association of Geodetic and Land Surveyors - MIL

The Finnish Association of Geodetic and Land Surveyors (MIL) is an intellectual and professional association founded in 1890. Members of MIL have a master’s degree and work in the field of surveying, land administration, and related sectors. MIL has 800 members.

The purpose of the association is to function as a link between its members, to monitor the position and rights of its members in the society, further a continuous and ethically high level maintenance of their professional skills, advance the development of the surveying profession, distribute branch related knowledge and offer its members opportunities to participate in the development work of the members’ profession.



Finnish Association of Surveyors - MAKLI

The Finnish Association of Surveyors (MAKLI) is a union based on the needs of its members. MAKLI was founded in 1959 and has 740 members, who are working in municipality, state and the private sector. Members are professional surveyors educated mainly at Universities of Applied Sciences.

MAKLI acts as a liaison between its members and promotes the cohesion of the sector and the profession. MAKLI works and negotiates in legal, professional, and educational matters. The key priorities of MAKLI are: advance cooperation in the field of land surveying organizations, development of member services, participation in national and international activities, monitoring law and statutes of the surveying sector, development of the education sector and support the activities of local associations. MAKLI includes 11 regional associations that support the communality and networking of members.

Conference Steering Committee

Dr. **Chryssy Potsiou**, President (FIG)

Mr. **Pekka Halme**, Co-Conference Director (NLS)

Ms. **Louise Friis-Hansen**, Co-Conference Director (FIG)

Local Organising Committee

Mr. **Pekka Halme**, Chair (NLS)

Mr. **Mikael Still** (NLS)

Mr. **Paavo Häikiö** (MIL)

Mr. **Ari Tella** (NLS)

Ms. **Hanna Lauhkonen** (NLS)

Ms. **Heli Ursin** (NLS)

Mr. **Martti Pietikäinen** (MAKLI)

Ms. **Päivi Varis** (NLS)

Ms. **Kirsikka Riekkinen** (Aalto University)

FIG Office

Ms. **Louise Friis-Hansen**, FIG Director and Co-Conference Director

Ms. **Claudia Stormoen Pedersen**, Conference Manager

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| Time | | | | Exhibition | | | | | | | |
|-------|--|---|--|---|------------------------------------|----------------------------|------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--|
| | Sunday 28 May | Monday 29 May | Tue 10:30–17:30 Tuesday 30 May | Wed 10:30–17:30 Wednesday 31 May | Thu 10:30–17:00 Thursday 1 June | Friday 2 June | | | | | |
| 8:00 | Registration 8:00–12:00 | Registration 8:00–17:30 | Registration 8:00–17:30 Newcomers' Session | Registration 8:00–17:30 | Registration 8:00–17:30 | Registration 8:00–14:00 | | | | | |
| 9:00 | 5th FIG Young Surveyors European Meeting BIM for Surveyors History Symposium | General Assembly Part 1 | Opening Ceremony | Plenary Session 2 | Plenary Session 3 | FIG Presidents' Meeting | | | | | |
| 10:00 | | | | | | | Coffee / Tea | Coffee / Tea | Coffee / Tea | Coffee / Tea | Coffee / Tea |
| 11:00 | | | | | | | General Assembly Part 1 (cont.) | Plenary Session 1 | 10 Parallel Technical Sessions | 10 Parallel Technical Sessions | General Assembly Part 2 |
| 12:00 | | | | | | | Lunch 12:30–13:30 | Lunch 12:30–14:00 | Lunch 12:30–14:00 | Lunch 12:30–14:00 | Lunch 12:30–13:30 |
| 13:00 | | | | | | | General Assembly Part 1 (cont.) | 10 Parallel Technical Sessions | 10 Parallel Technical Sessions | 10 Parallel Technical Sessions | General Assembly Part 2 (cont.) and Closing Ceremony |
| 14:00 | | | | | | | Coffee / Tea | Coffee / Tea | Coffee / Tea | Coffee / Tea | Farewell Reception |
| 15:00 | | | | | | | Mutual Recognition – VGGT | 10 Parallel Technical Sessions | 10 Parallel Technical Sessions | 10 Parallel Technical Sessions | |
| 16:00 | | | | | | | | | FIG Commissions Annual Meetings | Charity Run/Walk | |
| 17:00 | | | | | | | | | | | |
| 18:00 | | | | | | | | | | | |
| 19:00 | | Welcome Reception at Helsinki City Hall | Finnish Evening / FIG Foundation Dinner at Crowne Plaza | Commission Dinners / Free evening | Gala Dinner at Finlandia Hall | | | | | | |
| 20:00 | | | | | | | | | | | |
| 21:00 | | | | | | | | | | | |

MAANMITTAUSPÄIVÄT 2017 9:45–16:50



Registration and Conference Services

The FIG Registration desk is on the first floor of Messukeskus across the main entrance.

Speakers' Preparation Desk

The speakers' preparation desk is located next to the Registration Desk. You are required to bring your PowerPoint presentation to the staff at the desk for upload by 16:00 the day prior to your presentation. Your presentation will be on the laptop in the session room prior to your session. Please note that you cannot bring your presentation to the session room.

In order to allow the sessions to run smoothly and in fairness to other speakers, all presentations are expected to adhere strictly to the time allocated. Check the starting time for your presentation at www.fig.net/fig2017.

Refreshments and Lunches

Complimentary refreshments will be served during the morning and afternoon breaks at coffee stations in the exhibition hall in Winter Garden. Lunches will also be served in the same place.

Badges

Each registered delegate will receive a name badge. This badge will be your official pass and must be worn to obtain entry to all sessions, exhibition and social functions.

Bag and Certificates

Each full delegate will receive a conference bag. Certificates of attendance and presentation will be sent by email after the conference.

Wireless Internet

Wireless Internet is available at Messukeskus. No password is required.

Conference Apps

The free FIG Conference Web App at www.fig.net/app allows you to get the latest information about the programme and list the speakers and the participants. You can also read abstracts and full papers, create a personalised programme, rate the sessions and papers, as well as take and send your conference photos to be viewed by other users.

In addition, you can download from Google Play an Android-based *Conferest* mobile app developed by the Finnish Geospatial Research Institute (FGI) of National Land Survey of Finland (NLS), jointly with the software company Qwik. *Conferest* utilises Here's WiFi indoor positioning technology to guide you to various locations within the conference area.

International Federation of Surveyors (FIG)

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E-mail: fig2017.loc@nls.fi
www.makli.fi

Conference Web Site and Apps

- Conference web site: fig.net/fig2017
- FIG Conference Web app: fig.net/app
- Conferest Event App: download from Google Play

Conference Proceedings

www.fig.net/resources/proceedings/fig_proceedings/fig2017 and FIG Conference Web App

Social Media



www.facebook.com/#!/internationalfederationofsurveyors



twitter.com/FIG_NEWS



www.linkedin.com/groups?trk=group-name&gid=2669121



Tuesday 30 May at 9:00-10:30
Hall 101, Messukeskus Conference Centre

The opening ceremony will provide a spectacular introduction to the FIG Working Week, its theme, and its unique location - a festive start of the week.

Welcome Addresses

- Mr. **Pekka Halme**, Co-Conference Director
- Mr. **Jari Leppä**, Minister of Agriculture and Forestry
- Dr. **Juha Talvitie**, FIG Honorary President
- Dr. **Chryssy Potsiou**, FIG President

Keynote Speaker



Mr. Ed Parsons – geospatial technologist at Google, will set the scene for the FIG Working Week. Ed Parson is responsible for evangelising Google’s mission to organise the world’s information using geography.

Ed will talk about the activities going on both above and below the radar and the professional’s role in the future from an overall level setting the tone and context of our world. Is the reality that urbanisation for ALL across the world will all be smart and digitalised? What positively happens to professional’s scope of work if geospatial data is now in the hands of all? The digitalisation version 2.0 can change much around the world – but in different ways.

For preparation to the key note presentation you can download *Google Expeditions* which is available at Google Play for Android devices, and at App Store for iOS devices.

Eat with Ed – During the lunch break you will have the chance to hear more closely about his approach and vision in a Q&A session. Ed Parsons will be ready for questions at the stage in the exhibition hall.



The programme is underpinned by high-level presentations in three plenary sessions covering topics within the overall theme “Surveying the world of tomorrow - From digitalisation to augmented reality”. These specially invited presenters set the agenda for each day, sharing insights into their own experience and pitfalls, as well as presenting their vision and predictions.

Plenary Session 1 - Living of Tomorrow - In a Digitalised World

Tuesday 30 May 2017 at 11:00–12:30 Hall 101, Messukeskus Conference Centre



Mr. Arvo Kokkonen

Director General, National Land Survey, Finland

Does the Surveying Sector Change Quickly Enough?

Focus will be on the ever more up-to-date data and information service. The information we produce comprises new dimensions – not only the X,Y,Z, and time – but also geograph-

ically. How does the surveying sector renew itself as far as both administration and content and, most importantly, in relation to its customers.

Arvo Kokkonen is a surveyor employed by the National Land Survey of Finland (NLS) for nearly 30 years. He has also worked as Survey Counsellor in the Ministry of Agriculture and Forestry for two years and as cadastral surveyor in the town of Haapajärvi for five years.



Mr. Greg Bentley

CEO of Bentley Systems

Going Digital: Reality Modeling Advances Engineering and Surveying

New technologies and processes for capturing existing conditions through digital photography and scanning are transforming traditional workflows and creating opportunities for engineers and surveyors to provide new value throughout the infrastructure lifecycle. With these breakthroughs, surveying can be virtually continuous, creating detailed, engineering-ready 3D models of a facility, an active construction site, or a city, resulting

in an immersive environment for engineering, construction progressing and infrastructure asset operations. The presentation will feature real-world examples of reality modeling, including the latest 3D city modeling of Helsinki, and highlight how surveying can now play a key role in emerging workflows for *conceptioneering*, *constructioneering*, *inspectioneering*, and *productioneering*.

Greg Bentley joined his four brothers at Bentley Systems in 1991. Previously, he founded a financial trading software firm, which became part of SunGard Data Systems, Inc., an S&P 500 company. He holds an M.B.A. in finance and decision sciences from Wharton.



Mr. Oumar Sylla

Land and GLTN Unit Leader, UN-Habitat/Global Land Tool Network

The Development of Cities After Habitat III and the Surveyors' Role

The talk will serve as awareness creation for broader Land Professionals in successes of the United Nations Conference on Housing and Sustainable Urban Development (Habitat III). It will highlight the centrality of land in the New Urban Agenda and how the professionals will participate in implementation and the role played

by GLTN Partners and Land and GLTN Unit of UN-Habitat in emphasising the role of land in the Agenda.

Oumar Sylla is the Land and GLTN Unit Leader within the Urban Land Legislation and Governance (ULLG) branch at UN Habitat. Prior to joining Land and GLTN Unit, Oumar served as a Senior Advisor in UN-Habitat's Regional Office for Africa. Before that, he supported implementation of the GLTN programme and managed UN-Habitat land programme in Democratic Republic of Congo in a peace building context as Chief Technical Advisor.

Plenary Session 2 - Professional Behaviour - In a Digitalised World

Wednesday 31 May 2016 at 9:00–10:30, Hall 101, Messukeskus Conference Centre



Prof. Heidi Kuusniemi

Director, Navigation and Positioning,
Finnish Geospatial Research Institute, NLS

Future Trends in Pervasive Positioning

Focus will be on the future trends in pervasive positioning. With the development of technologies, more diverse location services are needed to meet the demand of customers. What kind of pervasive positioning technologies are we going to

use to create new opportunities via large-scale data collection of position and sensor measurements?

Prof. Heidi Kuusniemi is the Director of the Department of Navigation and Positioning. She is also an Adjunct Professor at Aalto University, Department of Real Estate, Planning and Geoinformatics, and at Tampere University of Technology, Department of Electronics and Communications Engineering, Finland. She is the President of the Nordic Institute of Navigation.



Prof. Dr. Yola Georgiadou

Professor in Geo-Information for Governance,
Faculty of Geo-Information Science and Earth
Observation (ITC), University of Twente

Geo-ethics: Past, Present, Future

Geo-ethics has a long tradition. Thirty years ago, Brian Harley suggested that geo-ethics is much more than a code of professional conduct. Geo-ethics refers to transcendental values that go to the heart of social justice in the world at large. Geo-ethics combines ethical issues from natural sciences (accuracy), social sciences (respect for human subjects, non-discrimination, avoidance of cultural bias), engineering sciences (environment, risks, impacts) and informa-

tion sciences (information privacy, security, censorship, intellectual property). Presently, in the age of big data, geo-ethics is fiercely debated among techno-optimists and techno-pessimists. But the debate does not need to be polarized. In the future, geospatial scientists and engineers may shape geo-information technology in a socially responsible way.

Yola Georgiadou is professor in geo-information for governance. Her research is at the interface of geo-information technology, policy and global development. She is past member of the Board of the GSDI Association, of the Capacity Building Working Group of CODI-Geo, United Nations Economic Commission of Africa and of Executive Committee of the International Society of Digital Earth (ISDE).



Dr. Jolyne Sanjak

Chief Program Officer, Landesa

Innovative and More Affordable Technology and How to Democratize Data Gathering

Based on her own experience both from current work at Landesa, and also from previous experience within FAO working on the VGGT, Dr. Sanjak will explore what is innovative and more affordable technology and how to democratize data gathering.

Dr. Jolyne Sanjak is an agricultural economist with specialization in development economics. She has more than 25 years of technical, research and managerial experience relating to inclusive global economic development, with technical expertise in areas including rural and urban land governance, as well as with rural livelihoods and agricultural development. Currently serving as Landesa's Chief Program Officer, she provides strategic leadership, oversight and technical support to Landesa's programmatic work worldwide.

Plenary Session 3 - The Contribution of Our Profession - In a Digitalised World

Thursday 1 June 2016 at 9:00-10:30, Hall 101, Messukeskus Conference Centre



Prof. Dr. Markku Poutanen

Director, Geodesy and Geodynamics, Finnish Geospatial Research Institute, NLS

Future of Geodetic Reference Frames

New emerging techniques will change our ways and possibilities for precise georeferencing. This will imply changes in most basic entities like the reference frames. Crustal deformations, like land uplift or continent motion will affect our measurements to be made in global, not a local reference frame.

With increased accuracy demands, new ways of thinking and new methods are needed to fulfill the requirements.

Markku Poutanen is the Director of the Department of Geodesy and Geodynamics. He has been working in the Finnish Geospatial Research Institute since 1985 on satellite geodesy and positioning, reference frames and metrology. He has an Associate professorship in two universities. He is the president of EUREF, commission of the European Reference Frames. He is chairing the UN_GGIM Europe working group of Geodetic reference frame in Europe.



Dr. Janet Edeme

Policy Officer, Africa Union

The LSBi Initiative

What does the LSBi initiative means for professionals and their contribution in society? Edeme will set the tone and context of our world in human settlements, the reality is that societally pressures in rural and urban areas and access to resources will not immediately be smart! What will the role be for surveyors around the world?

Janet Edeme is presently the Head, Rural Economy Division in the Department of Rural Economy and Agriculture of the African Union Commission in Addis Ababa, Ethiopia. Within the African Union Department of Rural Economy and Agriculture, she is the focal point following up on the status of implementation of initiatives and programmes adopted by the AU Heads of State and Government, such as the implementation of the AU Abuja Declaration on Fertilizer, The AU Declaration on Land through the Land Policy Initiative, The Comprehensive African Agriculture Development Programme (CAADP) and the African Seed and Biotechnology Programme (ASBP) to name a few. World Excellence Awards



Prof. Dr. Juha Hyyppä

Director, Remote Sensing and Photogrammetry, Finnish Geospatial Research Institute, NLS

What about the Future? Radical Changes Created by the Technological Development

Technological changes happen rapidly. How can surveyors prepare for this new world? How can we e.g. collect point clouds good enough to enable us to create accurate 3D models of the topography using cars, work machines, other vehicles... This challenges the future roles of surveyors. What will be the roles of various players like National Mapping and Cadastre Agencies in the future? Of the organizations who collect and produce topographic data; of the surveyors involved in point clouds; for those who create a 3D

model of the road landscape. Surveyors need to think about how to create a whole new network around topographic or geographic data.

Juha Hyyppä has over 400 scientific and technical papers on remote sensing, especially in the field of laser scanning, radar and point cloud processing. The recognitions he has received include ISPRS President's Citation 2008, ASPRS second best paper in PERS (2009), Innovation Award (2010) and recognition from MWP Symposium in 2011. He has been Editor/Guest Editor of several journals, including ISPRS Journal of Photogrammetry and RS, Centenary Celebration Issue, MDPI Remote Sensing on LS and Forestry Special Issue, and MLS Special issue.

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|  Derinsu Underwater Engineering & Consulting www.derinsu.com | Derinsu Underwater Engineering & Consulting www.derinsu.com |
|  Geoide Geosystems S.a. www.geoide.pt | Geoide Geosystems S.a. www.geoide.pt |
|  NEH Engineering Survey and Mapping Limited Company, Vietnam | NEH Engineering Survey and Mapping Limited Company, Vietnam |

Regional Level

| | |
|---|---|
| | Branco Etera Ltd, Kazakhstan |
|  Concord Surveying Works Co. concordsurveying.com | Concord Surveying Works Co. concordsurveying.com |
|  Coordinates Magazine www.mycoordinates.org | Coordinates Magazine www.mycoordinates.org |
|  DataLife Environmental Services www.datalifereserve.com | DataLife Environmental Services www.datalifereserve.com |
|  Génie Congo Sarl linkedin.com/in/genie-congo-sarl-22a395138 | Génie Congo Sarl linkedin.com/in/genie-congo-sarl-22a395138 |
|  GEO:connexion Ltd www.geoconnexion.com | GEO:connexion Ltd www.geoconnexion.com |
|  Georeference Engineering Consultants, Saudi Arabia, yas@geo.sa | Georeference Engineering Consultants, Saudi Arabia, yas@geo.sa |
|  Innovation for Trading and Contracting www.innovation-tc.com | Innovation for Trading and Contracting www.innovation-tc.com |
|  JKO Surveyors & Consultants (Pvt) Ltd, Sri Lanka, www.jko.lk | JKO Surveyors & Consultants (Pvt) Ltd, Sri Lanka, www.jko.lk |
|  M/s Accord Marine Surveyors & Consultants www.easternwaterways.com | M/s Accord Marine Surveyors & Consultants www.easternwaterways.com |
|  M/s Survey Scale Pvt. Limited www.facebook.com/surveyscale | M/s Survey Scale Pvt. Limited www.facebook.com/surveyscale |
|  Orbits Engineering Firm www.orbitseng.com | Orbits Engineering Firm www.orbitseng.com |

Other Sponsorship Chinese Society for Surveying, Mapping and Geoinformation, CSSMG



A number of attractive and informative Technical Tours have been organised to complement the conference experience. These tours will visit sites and organisations of particular interest to delegates. All tours will start at Messukeskus at 13:30. Tickets may be available for purchase from the Registration Desk.

Tuesday May 30

TT1 - Jätkäsaari, New Residential Area by the Sea

Jätkäsaari is one of the biggest construction sites in Helsinki metropolitan area, and it will be built as a part of old downtown area. Former harbor area will populate 18,000 inhabitants and there will be 6,000 workplaces. At the moment there is going on construction work for building 1800 apartments.

TT2 - Finnish Consulting Group, Innovation Studio of 3D City Models

FCG is a multi-expertise company that provides services in infrastructure, environmental and urban design, in multidisciplinary training and in developing public services. The company's clients represent a broad range of private and public sector organisations.

TT3 - Clean Energy from the Depths of the Earth

The Finnish energy company St1 is drilling seven kilometres into the bedrock of Espoo – deeper than ever before in Finland. The goal of St1 Deep Heat is to build Finland's first industrial scale heat plant running on geothermal energy.

Wednesday May 31

TT4 - Finnish Geospatial Research Institute

FGI is a research and expert institute at the National Land Survey that carries out research and development for spatial data infrastructures.

TT5 - Design Factory at Aalto University - Place for Passion, Project and Problem Based Learning

Aalto Design Factory was born from a research project focused on creating an ideal physical and mental working environment for product developers and researchers. Today ADF is one of the

spearhead projects and one of the first physical manifestations of Aalto University encouraging and enabling fruitful interaction between students, researchers, and professional practitioners.

TT6 - Kone Elevators

Kone Elevators provides elevators, escalators and automatic building doors, as well as solutions for modernization and maintenance to add value to buildings throughout their life cycle.

TT7 - Commission 4 Technical Tour

Visit to a hydrographic survey vessel at Lauttasaari, Helsinki. Possibility to go onboard a hydrographic survey launch to a short sailing outside the port. Onboard the depot vessel possibility to look at raw data processing.

Thursday June 1

TT8 - Icebreaker Visit

Arctia's icebreaking expertise is based on modern specialised vessels and expert crews with years of experience in winter navigation.

TT9 - Visit to the National Land Survey of Finland (NLS)

The NLS has developed digital processes for many years and now all work-flows has been digitalized. The NLS takes care of landregister and cadaster and also small scale mapping.

TT10 - West Metro: 13 New Stations, 21 Kilometres

West metro project is the biggest infrastructure project in Finland. In the first phase, there are eight new stations, and five more will be included in the second phase. The metro will operate on a rail line of 21 kilometres underground in two parallel tunnels. The entire metro line runs through a rock tunnel.

FIG Working Week is much more than a conference with technical sessions. FIG Working Week is also administrative and organisational meetings, forums and sessions, pre-events, and special sessions with partners.

| Pre-Conference Events | Date | Time | Location |
|--------------------------------------|------------|-------------|---|
| FIG Young Surveyors European Meeting | Sun 28 May | 09:00–18:00 | Room 208 – see fig.net/fig2017/youngsurveyors.htm |
| History Symposium | Sun 28 May | 09:00–17:30 | Room 217 – see fig.net/fig2017/history.htm |
| BIM for Surveyors | Sun 28 May | 09:00–18:00 | Room 209 – see fig.net/fig2017/bim.htm |
| STDM Workshop | Mon 29 May | 09:00–17:15 | Room 216 – see fig.net/fig2017/stdm.htm |

| FIG Sessions | Date | Time | Location |
|---|------------|-------------|-----------|
| General Assembly – First Session | Mon 29 May | 09:00–15:30 | Hall 101 |
| Recognition Agreements Around the Globe, Special Session for Presidents / Heads of Delegation of Member Associations, Affiliate, Academic and Corporate Members | Mon 29 May | 16:00–17:30 | Room 102 |
| Newcomers session – introduction to FIG Working Week | Tue 30 May | 08:00–08:45 | Room 102 |
| FIG Member Associations Forum | Tue 30 May | 14:00–15:30 | Room 207 |
| FIG Director Generals Forum | Tue 30 May | 14:00–15:30 | Room 208 |
| FIG Task Force on Property Markets | Wed 31 May | 11:00–12:30 | Room 216 |
| Annual Meetings of FIG Commissions. The Commission Meetings are open for all interested. After the meeting each commission organises a dinner (self-paid). | Wed 31 May | 17:30–18:30 | Varied |
| FIG Standards Network Session | Thu 1 June | 11:00–12:30 | Room 217 |
| Regional Bodies Forum | Thu 1 June | 11:00–12:30 | Room 212 |
| FIG Task Force on Commission Structure: Open Discussion on the Task Force Recommendations | Thu 1 June | 13:00–13:50 | Room 103A |
| FIG Academic Members Forum joint with FAO | Thu 1 June | 14:00–15:30 | Room 208 |
| FIG Corporate Members Meeting | Thu 1 June | 16:00–17:30 | Room 212 |
| FIG Presidents' Meeting | Fri 2 June | 08:30–10:30 | Room 103 |
| General Assembly – Second Session including Closing Ceremony | Fri 2 June | 11:00–15:00 | Hall 101 |

| FIG Sessions with Partners | Date | Time | Location |
|---|------------|-------------|----------|
| STDM Awareness Training (FIG YSN & GLTN UN-Habitat) | Mon 29 May | 09:00–17:15 | Room 216 |
| Valuation of Unregistered Lands Methodology (UN-Habitat GLTN & FIG) | Tue 30 May | 16:00–17:30 | Room 216 |
| Eastern European Success Story in Developing Land Administration Systems 1 (World Bank & FIG) | Wed 31 May | 11:00–12:30 | Room 208 |
| Eastern European Success Story in Developing Land Administration Systems 2 (World Bank & FIG) | Wed 31 May | 14:00–15:30 | Room 208 |
| Social Tenure Domain Model Development Innovations (FIG YSN & UN-Habitat GLTN) | Wed 31 May | 14:00–15:30 | Room 216 |
| Voluntary Guideline on the Responsible Governance of Tenure (VGGT) (FAO & FIG) | Thu 1 June | 11:00–12:30 | Room 208 |
| Fit-for-Purpose Land Administration (GLTN UN-Habitat & FIG) | Thu 1 June | 11:00–12:30 | Room 207 |
| Academic Forum on VGGT (FAO & FIG) | Thu 1 June | 14:00–15:30 | Room 208 |
| Land Tools for Tenure Security (FIG & UN-Habitat GLTN) | Thu 1 June | 14:00–15:30 | Room 209 |





Social Programme

FIG Working Week wouldn't be anything without the interaction and networking of our participants. Join these events to get to know your fellow peers.

| Event | Date | Time | Location | Details |
|---|--------|-------------|---|---|
| Welcome Reception | 29 May | 19:00–20:30 | Helsinki City Hall, Pohjoisesplanadi 11–13 | All participants are invited |
| Finnish Evening / FIG Foundation Dinner | 30 May | 19:00–23:00 | Hotel Crowne Plaza, Mannerheimintie 50 | Tickets: 100 EUR *) |
| FIG Commission Dinners | 31 May | | To be decided by each Commission – check www.fig.net/fig2017 | Individual payment |
| Gala Dinner | 1 June | 19:00–22:30 | Finlandia Hall, Mannerheimintie 13 | Tickets: 120 EUR *) |
| Charity Run/Walk | 1 June | 17:30–18:30 | Töölönlahti, Karamziniranta 4 | 10 EUR donation to FIG Foundation |
| Farewell Reception | 2 June | 15:00–16:00 | Winter Garden, Messukeskus | All participants are invited. Hosted by FIG Congress 2018, Istanbul, Turkey |

*) Tickets available for purchase from the Registration Desk.

Accompanying Persons Programme

Registered accompanying person for the FIG Working Week are invited to attend the Welcome Reception and Opening Ceremony. An exciting day trip has been organised Wednesday 31 May. Meet at Messukeskus at 9:00. Tour ends approximately at 17:00. Lunch is included.

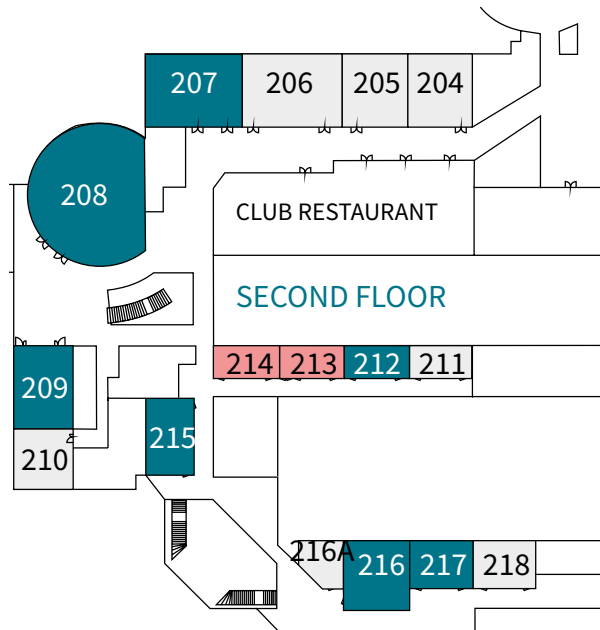
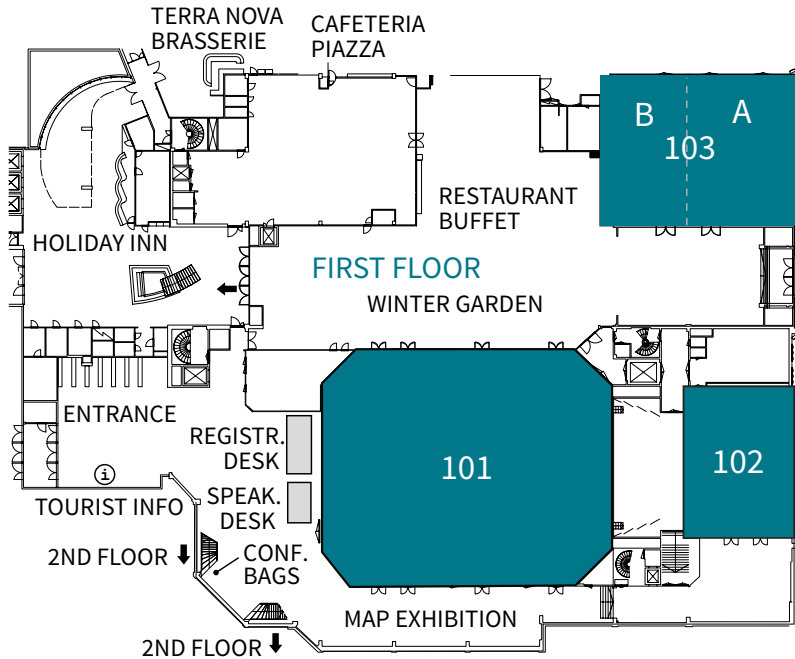
Social Tours

A range of social tours will be offered for participating delegates and accompanying persons.

| Event | Meeting Point | Date | Time | Cost (€) |
|---|--|--------------------|-------------|----------|
| ST1 – Day Cruise to Medieval Old Town of Tallinn | West Harbour Terminal | Sun 28 May | 09:30–21:30 | 153 *) |
| ST2 – Helsinki Highlights & coffee with locals | Messukeskus | Mon 29 May | 13:00–17:00 | 58*) |
| ST5 – Finnish Sauna Experience to Uunisaari | Messukeskus | Wed 31 May | 17:30–20:30 | 83*) |
| ST7 – Islands tour to Vallisaari & Suomenlinna Fortress | Messukeskus | Fri 2 June | 13:00–17:00 | 88*) |
| ST8 – Day cruise tour to Tallinn | West Harbour Terminal | Fri 2 June | 09:30–21:30 | 153*) |
| ST9 – Nuuksio National Park | Kiasma Modern Art Museum bus stop near Central railway station | Sat 3 June | 12:00–16:30 | 80*) |
| ST10 – VISA-free 2 nights cruise to Saint Petersburg | West Harbour Terminal | Sat 3 – Mon 5 June | 16:30–09:00 | 355–610 |

*) Tickets available for purchase from the Registration Desk.

The FIG Working Week 2017 will be held at Messukeskus Helsinki, Expo & Convention Centre, located only four kilometres from the centre of Helsinki and has excellent transport connections.



The Conference Centre Building

The Working Week will take place at Conference Centre building of Messukeskus – located on the right side of the Southern Entrance to the exhibition halls. The entrance to the Conference Centre is to the right of the entrance to Hotel Holiday Inn.

Messuaukio 1 (see map on p. 49)

00520 Helsinki

tel. +358 40 450 3250

messukeskus.com

| | |
|--|--------------------------|
| General Assembly and Plenary Sessions | Hall 101 |
| Technical Sessions | Rooms marked in blue |
| FIG President's Office | Room 213, 2nd Floor |
| FIG/LOC Office | Room 214, 2nd Floor |
| Dinner and Coffee/Tea Breaks | Winter Garden, 1st Floor |

Getting to and from the Conference Venue

- Trains: All local and long-distance trains (except Allegro trains) stop at Pasila Railway Station, just a 300-metre walk from Messukeskus.
- Buses: 69 (from Kamppi Bus Station) and 506 (Töölö-Viikki cross traffic line) to Messukeskus, and bus 551 from Espoo to Pasila Railway Station.
- Trams: From the centre of Helsinki: 7A, 7B and 9.
- Taxi: A taxi rank can be found in front of Messukeskus. Taxis are allowed to drive right up to the entrance.

Free Transportation Card

With your free-of-charge transportation card kindly sponsored our partners City of Helsinki and Helsinki Region Transport you can get around the city centre and to the Conference Centre.



Maanmittauspäivät 2017

MAANKÄYTTÖ · KIINTEISTÖT · MITTAUS & MALLINNUS

WEDNESDAY MAY 31

www.maankaytto.fi/mmp2017

Haaga-Helia / SLK Building • Programme

| | |
|-------------|---|
| 09.45–10.00 | Tilaisuuden avaaminen • Järjestelytoimikunta |
| 10.00–10.30 | Avajaispuhe • Pääjohtaja Arvo Kokkonen , Maanmittauslaitos |
| 10.30–11.00 | Kahvitauko Messukeskuksessa |
| 11.00–11.15 | Muistopalkinnot, stipendit |
| 11.15–11.45 | Nuoret Maanmittarit esittäytyvät • Tuomas Jylhä , Nuoret Suomalaiset Maanmittarit • Eva-Maria Unger , Itävalta, FIG Young Surveyors Network |
| 11.45–12.00 | Tauko ja siirtyminen rinnakkaissessioihin |

| | SÄHKÖINEN ASIOINTI JA SOVELLUKSET | GIS / KARTAT | MAAPOLITIIKKA JA KIINTEISTÖTEKNIikka |
|-------------|--|---|--|
| 12.00–12.30 | MML:n sähköisten arkistoaineistojen käyttö: toimitus-asiakirjat, -kartat ja kirjaamisaineistot • Johtava asiantuntija Kari Rantalainen , MML | 3D-kaupunkitietomalli • Projektipäällikö Jarmo Suomisto , Helsingin kaupunki | Lunastuslain uudistaminen • Lainsäädäntöneuvos Jari Salila , oikeusministeriö |
| 12.30–13.30 | Lounas Messukeskuksessa | | |
| 13.30–14.00 | Sähköinen asunto-osakerekisteri • Innovaatiojohtaja Antti Kosonen , MML | Paikkatietoaineistojen yhteiskäyttö – mitkä mahdollisuudet! • Sovellusasiantuntija Teemu Saloriutta , MML, Paikkatietokeskus | Pelimaailmalta avainvoittavaan maapolitiikkaan? • Kehittämispäällikö Juuso Heinisuo , Hämeenlinnan kaupunki |
| 14.00–14.30 | Sähköinen kiinteistönvaihdanta: Paneelikeskustelu • Alustus: Johtava asiantuntija Satu Dahlqvist , MML | Kansallinen maastotietokanta • Johtava asiantuntija Kari-Pekka Karlsson (ja/tai Antti Jakobsson), MML | Katasteri 2035 – tuoreen tutkimuksen tulokset • Tohtorikoulutettava Pauliina Krigsholm , Aalto-yliopisto |
| 14.30–15.00 | Keskustelu: Maankäyttöinsinööri Tanja Hämäläinen , Kaarinan kaupunki; Esko Maukonen , Metsähallitus; Juha Pohjola , Danske Bank | Suomi.fi-kartat • Johtava asiantuntija Teija Tarvainen , MML | Toimitusinsinöörin uudet kelpoisuusvaatimukset • Johtaja Mauri Asmundela , MML |
| 15.00–15.30 | Sähköiset tietopankit kuntien päätöksenteon tueksi • Kehittämispäällikö Matti Holopainen , Kuntaliitto | Lennoxin käyttö toimitustuotannon kartoituksessa • Maanmittausinsinööri (AMK) Jussi Syväjärvi , MML | Yksityistielaki uusiksi: Mikä muuttuu? • Ylitarkastaja Kaisa Kuukasjärvi , liikenne- ja viestintäministeriö |
| 15.30–16.00 | Kahvitauko Messukeskuksessa | | |
| 16.00–16.30 | Maanmittaus eilen, tänään ja tulevaisuudessa • Kehityspäällikö Jani Hokkanen , MML | | |
| 16.30–16.50 | Yllätysesitintyö ja päivän päätös | | |



Messukeskus / Visit Helsinki

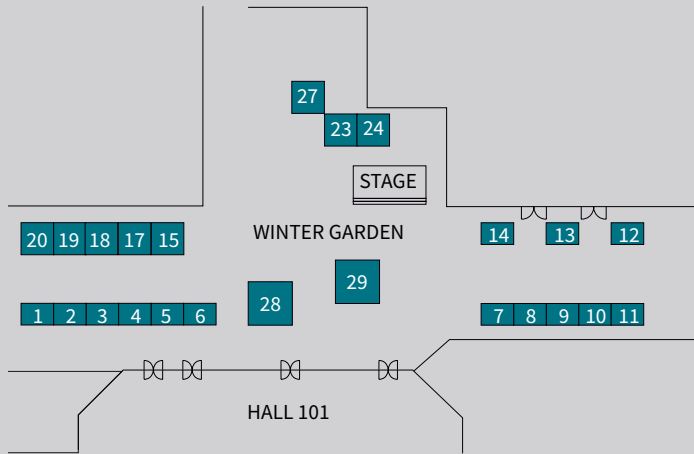


Messukeskus / Visit Helsinki



Messukeskus / Visit Helsinki

An exhibition is running concurrently with the conference in the Winter Garden, showcasing the latest and best in surveying and spatial products and services.



Opening Hours

The exhibition is open 10:30–17:30 on Tuesday 30 and Wednesday 31 May, and 10:30–17:00 on Thursday 1 June.

Stage at Winter Garden

A platform within the exhibition is allocated for technical/product presentation and briefing or launching:

| Wednesday 31 May | Thursday 1 June |
|---------------------|-------------------------------|
| 10:45–11:30 Trimble | 10:45–11:30 Trimble |
| 11:45–12:30 | 11:45–12:30 SenseFly |
| 12:45–13:30 ESRI | 12:45–13:30 ESRI |
| 13:45–14:30 Bentley | 13:45–14:30 ComNav Technology |
| 14:45–15:30 | 14:45–15:30 |
| 15:45–16:30 | 15:45–16:30 |

Platinum Member Sessions

| | | |
|-------------------------|-------------------------------|------|
| Trimble | Tuesday, 30 May 14:00–15:30 | 103B |
| Bentley Systems | Wednesday, 31 May 11:00–12:30 | 103B |
| Esri | Wednesday, 31 May 14:00–15:30 | 103B |
| Leica Geosystems | Thursday, 1 June 11:00–12:30 | 103B |

| | | |
|--|---|----|
| | Posimo Oy | 1 |
| | REIB OÜ // Estonian Surveyors | 2 |
| | Keypro Oy | 3 |
| | Nordic Working Group for International Services | 4 |
| | ChinterGEO | 5 |
| | Geo-Plus | 6 |
| | ComNav Technology Ltd. | 7 |
| | FIG XXVI Congress 2018 Istanbul, Turkey | 8 |
| | FIG Working Week 2019 Hanoi, Vietnam | 9 |
| | FIG Working Week 2020 Amsterdam, Netherlands | 10 |
| | FIG | 11 |
| | NavVis GmbH | 12 |
| | Topcon Europe Positioning B.V. | 13 |
| | Terrasolid Oy | 14 |
| | Maanmittauslaitos | 15 |
| | Bentley Systems | 17 |
| | Spatineo, Sito & Pointscene | 18 |
| | RIPRO | 19 |
| | Leica Geosystems Oy | 20 |
| | Pix4D | 23 |
| | Ghana Institution of Surveyors Licensed Surveyors Assoc. of Ghana | 24 |
| | Korea Cadastral Survey Corp. | 27 |
| | Esri | 28 |
| | Trimble Inc. | 29 |

THE STORY OF THE MAP – EXHIBITION

PRINTED MAPS The Story of the Map exhibition displays maps that represented the top of their era in the field of mapping. One of the treasures of the exhibition is Mercator's 1595 map of the Nordic countries.

DIGITAL MAPS The TouchMaps multi-touch map application is intended for public spaces where high resolution multi-touch screens encourage users to collaborative exploration.

The map-exhibition is located in the lobby, next to Hall 101

OPEN MON-FRI 8:00-17:30

Saturday, 27 May 2017

FIG COUNCIL MEETING

SATURDAY, 27 MAY 9:00–17:00
VENUE: ROOM 214, FIG / LOC OFFICE
CHAIR: DR. CHRYSY POTSIOU, FIG PRESIDENT, GREECE

– By invitation only

Sunday, 28 May 2017

ACCO MEETING

SUNDAY, 28 MAY 9:00–17:30
VENUE: ROOM 210
CHAIR: DR. DIANE DUMASHIE, FIG VICE PRESIDENT, UNITED KINGDOM

– By invitation only

Sunday, 28 May 2017

BIM FOR SURVEYORS

SUNDAY, 28 MAY 9:00–18:00

VENUE: ROOM 209

CHAIR: PROF. CHRISTIAN CLEMEN, GERMANY

RAPPOREUR: MR. SEE LEAN ONG, MALAYSIA

Building Information Modeling (BIM) is changing the way how surveyors work, think, collaborate and earn money. Using and sharing multidimensional digital representations of buildings are the driving forces for the digitalization of our work. This affects many tasks surveyors and GIS professionals perform, e. g. cost estimation, GIS analysis, engineering surveying, construction work,

land management and facilities management.

Scope of the Workshop:

- Teaching theoretical background of the BIM method (concepts, workflows and standards)
- Best practice presentations from large projects and SME (from surveyor's point of view)
- Presentation of the latest software (surveying, integration and collaboration with BIM, CAD, GIS)

For more information, please visit www.fig.net/fig2017/bim.htm

- Registration is required
- Tickets available for purchase from the Registration Desk

FIG HISTORY SYMPOSIUM

SUNDAY, 28 MAY 9:00–17:00

VENUE: ROOM 217

CHAIR: MR. JOHN BROCK, AUSTRALIA

Prior to the FIG Working Week the International Institution of History for Surveying and Measurement, a permanent institution of FIG, is hosting a one day symposium.

For more information, please visit <http://www.fig.net/fig2017/history.htm>

- Registration is required
- Tickets available for purchase from the Registration Desk

FIG YOUNG SURVEYORS EUROPEAN MEETING

SUNDAY, 28 MAY 9:00–18:00

VENUE: ROOM 208 – BENTLEY

CHAIR: MS. EVA-MARIA UNGER, CHAIR OF YSN, AUSTRIA

RAPPOREUR: MS. MELISSA HARRINGTON, NEW ZEALAND

FIG, MIL and MAKLI have decided on a special focus on the young surveyors and to give Young Surveyors an outstanding opportunity to participate both in the Working Week with its variety of sessions and a special Young Surveyors Conference. The Young Surveyors conference will include a tailor made programme aimed at young professionals.

For more information, please visit <http://www.fig.net/fig2017/youngsurveyors.htm>

- Registration is required
- Tickets available for purchase from the Registration Desk



Monday, 29 May 2017

GENERAL ASSEMBLY – PART 1

MONDAY, 29 MAY 9:00–15:30

VENUE: HALL 101

CHAIR: DR. CHRYSY POTSIOU, FIG PRESIDENT, GREECE

- For all FIG members
- Open for observers

STDM AWARENESS TRAINING (UN-HABITAT GLTN & FIG YSN)

MONDAY, 29 MAY 9:00–17:15

VENUE: ROOM 216

CHAIR: MS. EVA-MARIA UNGER, CHAIR OF YSN, AUSTRIA
RAPPOREUR: MR. JOHN GITAU, UN-HABITAT GLTN, KENYA

The objectives of the event are:

- Introduce GLTN land tools, and in particular the technical aspects, purposes, mainstreaming, adoption and probable piloting and roll out of STDM tool.
- Promote conceptual awareness of the Social Tenure Domain Model (STDM) and its application, at scale.
- Provide an overview of the main functionality of the STDM tool and potential use cases.
- Share country level experience in the tool implementation.
- Encourage interaction and future networking for in-country application of land tools by GLTN and partners.

For more information, please visit <http://www.fig.net/fig2017/stdm.htm>

- By invitation only

DEVELOPING PROFESSIONAL NETWORKS AND MUTUAL RECOGNITION AGREEMENTS AROUND THE GLOBE

MONDAY, 29 MAY 16:00–17:30

VENUE: ROOM 102

CHAIR: MS. KATE FAIRLIE, UNITED KINGDOM

RAPPOREUR: MS. PAULA DIJKSTRA, NETHERLANDS

This session is a short workshop to (a) gather an update on the institutional status of existing and emerging mutual recognition procedures and agreements including Australia, New Zealand, Europe, North America, ASEAN, East Africa and South Africa; and (b) share key lessons and challenges with the aim to identify necessary updates to the FIG Publication on Mutual Recognition of Professional Qualifications and core needs of mutual recognition moving forward.

For Presidents/Heads of Delegation of Member Associations and other FIG members

WELCOME RECEPTION

MONDAY, 29 MAY 19:00–20:30

VENUE: HELSINKI CITY HALL, POHJOIS-ESPLANADI 11–13

FIG Working Week is invited to a Welcome Reception at the Helsinki City Hall, where attendees, accompanying persons and exhibitors will officially be welcomed to Helsinki. The City Hall is located next to the Market Square; a very central location at the City Centre.

The City Hall was designed by C.L. Engel as a hotel in 1833, the building has been the City Hall since the 1930s. The Helsinki coat-of-arms can be seen on the tympanum. With the exception of the facade, it was completely rebuilt in 1967–1970 under the architect Aarno Ruusuvuori.

All are welcomed with drinks and canapés.

Tuesday, 30 May

| | Conference Centre, 1st Floor | | | | Conference Centre, 2nd Floor | |
|-------------|---|---|---|---|--|---|
| | Hall 101 | Room 102 | Room 103A | Room 103B | Room 207 TRIMBLE | Room 208 BENTLEY |
| 08:00–08:45 | | Newcomers Session | | | | |
| 09:00–10:30 | Opening Ceremony | | | | | |
| 11:00–12:30 | Plenary Session 1 Hall 101 | | | | | |
| 14:00–15:30 | TS01A: Improving Procedures in Land Management – C: 7 | ISS: Continuing Professional Standards and Education and Mapping Policies | TS01C: Tectonic Movements – C: 5 | FIG Platinum Member Session: TRIMBLE | FIG Member Association Forum – By invitation | Director Generals Forum – By invitation |
| 16:00–17:30 | TS02A: Land Registration in a Smart World – C: 7 | ISS: Geospatial Delivery of Public Facilities, Critical Services and Infrastructure | TS02C: UAV and Photogrammetric Methods – C: 5 | TS02D: Construction Management and Technology – C: 10 | TS02E: Crowdsourcing and VGI – C: 3 | TS02G: Curriculum on the Move – C: 2 |

Wednesday, 31 May

| | | | | | | |
|-------------|--|---|--|---|--|---|
| 07:00–08:45 | | | | | | |
| 07:45–08:45 | | | FIG Asia Pacific Regional Network | FIG Africa Regional Network | | |
| 09:00–10:30 | Plenary Session 2 Hall 101 | | | | | |
| 11:00–12:30 | TS03A: Spatial Data and Geomatic Technology in Land Registration Procedures – C: 3 and 7 | ISS: Tools for: Land Administration, Management & Natural Resources | TS03C: UN Resolution on GGRF – C: 5 | FIG Platinum Member Session: BENTLEY SYSTEMS | TS03E: FIG YSN – Who mentors you? – C: Young Surveyors Network | Eastern European Success Story in Developing Land Administration Systems – 1 (World Bank & FIG) |
| 12:30–14:00 | | | | | | |
| 14:00–15:30 | TS04A: Land Management in Areas of Public Interest – C: 7 | ISS: Geodesy and Surveying Applications I | TS04C: Geodynamic Effects on Reference Frames – C: 5 | FIG Platinum Member Session: ESRI | TS04E: Spatial Data Infrastructure – C: 3 | Eastern European Success Story in Developing Land Administration Systems – 2 (World Bank & FIG) |
| 16:00–17:30 | TS05A: Fit-for-Purpose in the Global Diversity – C: 7 | TS05B: Roundtable Discussion on BIM – C: 10 | TS05C: Reference Systems and Frames – C: 5 | TS05D: Environment & Survey Applications – C: 4 | TS05E: Land Administration System – SIM – 3D Models – C: 3 | TS05G: Innovation in Education – C: 2 |
| 17:30–18:30 | FIG Commission Annual Meeting Messukeskus Various | | | | | |

Thursday, 1 June

| | | | | | | |
|-------------|---|---|---|---|--|--|
| 09:00–10:30 | Plenary Session 3 Hall 101 | | | | | |
| 11:00–12:30 | TS06A: Land Management in Growing Urban Zones – C: 7 | ISS: Geodesy and Surveying Applications II | TS06C: Classical and Emerging Positioning Techniques – C: 5 | FIG Platinum Member Session: LEICA GEOSYSTEMS | Fit-for-Purpose Land Administration (UN-Habitat GLTN & FIG) | Voluntary Guideline on the Responsible Governance of Tenure (VGGT) (FAO & FIG) |
| 13:00–13:50 | | | FIG Task Force on Commission Structure | | | |
| 14:00–15:30 | TS07A: Finding Synergies for Land Planning and Land Registration – C: 7 and 8 | ISS: Tools in Land Governance, Climate Change and the Cadastre | TS07C: GNSS I – C: 5 | TS07D: Construction Standard, Regulation & Best Practices – C: 10 | TS07E: GIS as a Critical Tool in Research and Disaster Recovery Preparedness, Recovery and Management – C: 3 | Academic Forum on VGGT (FAO & FIG) |
| 16:00–17:30 | TS08A: Securing Rights with New Technologies – C: 7 | ISS: The Way we Work: Considering Land Consolidation, Compensation and Boundaries | TS08C: GNSS II – C: 5 | TS08D: Technology and Sensors – C: 4 | TS08E: Cartography and Aereophotogrammetry – C: 3 | TS08G: Demand, Quality and Accreditation of Education – C: 2 |

Tuesday, 30 May

| Room 209 | Room 215 ESRI | Room 216 | Room 217 | Meeting Room 212 | |
|---|--|--|-------------------------|---|-------------|
| | | | | | 08:00–08:45 |
| | | | | | 09:00–10:30 |
| | | | | | 11:00–12:30 |
| TS01F: Deformation Monitoring and Analysis I – C: 6 | TS01H: Cadastre in a Multidimensional World – C: 7 | TS01I: Improving Land Market Operations and Access to Credit for a Better Future – C: 9 | TS01J: Ethics – C: 1 | TS01K: Responsible Land Administration Curriculum | 14:00–15:30 |
| TS02F: Deformation Monitoring and Analysis II – C: 6 | TS02H: Developing and Sharing Educational Standards and Practices for Mutual Recognition | Valuation of Unregistered Lands Methodology (UN-Habitat GLTN & FIG) | TS02J: French Session I | UNGGIM GRF Meeting – By invitation | 16:00–17:30 |

Wednesday, 31 May

| | | | | | |
|--|---|---|--|--|-------------|
| | | | | FIG Foundation Meeting – By invitation | 07:00–08:45 |
| | | | | | 07:45–08:45 |
| | | | | | 09:00–10:30 |
| TS03F: Engineering Surveys for Constructive Works and Structural Monitoring – C: 6 | TS03H: Sustainable Planning: the Use and Management of the Water and Natural Resource – C: 7 and 8 | FIG Task Force on Property Markets | TS03J: French Session II | | 11:00–12:30 |
| | | | | ILMS Meeting – By invitation | 12:30–14:00 |
| TS04F: Wide Area Engineering Surveys for Monitoring and Features Determination – C: 6 | TS04H: Rural Development and Public Private Partnership – C: 8 | Social Tenure Domain Model Development Innovations (FIG YSN & UN-Habitat GLTN) | TS04J: History Session | | 14:00–15:30 |
| TS05F: Kinematic Data Acquisition and Processing Techniques I – C: 6 | TS05H: Urban and Cities Planning – C: 8 | TS05I: The Valuation Models of Tomorrow and Commission 9 Working Groups – C: 9 | TS05J: FIG Commission 1 Working Group Issues – C: 1 | GLTN Professional Cluster Meeting | 16:00–17:30 |
| | | | | | 17:30–18:30 |

Thursday, 1 June

| | | | | | |
|---|---|--|---|---|-------------|
| | | | | | 09:00–10:30 |
| TS06F: Registration of Rights as a Tool for Real Estate Markets – C: 7 | TS06H: Unpacking Planning Principles for Sustainable Development – C: 8 | TS06I: Real Estate Taxation Solutions for a Changing World – C: 9 | FIG Standards Network | Regional Bodies Forum – By invitation | 11:00–12:30 |
| | | | | | 13:00–13:50 |
| Land Tools for Tenure Security (UN-Habitat GLTN & FIG) | TS07H: Preparedness or Response: The Dilemma in Planning Policy Choices for Environmental Hazards and Sustainable Development – C: 8 | TS07I: Extreme Valuation Challenges and How to Overcome Them – C: 9 | | | 14:00–15:30 |
| TS08F: Taking Responsibility for Interest Groups and Stakeholders – C: 7 | TS08H: Land Governance in Planning Policies – C: 8 | TS08I: GIS and its Evolving Roll in Valuation and Standards – C: 9 | TS08J: New Survey Regulations – C: 1 | FIG Corporate Members Meeting – By invitation | 16:00–17:30 |

Tuesday, 30 May

Tuesday, 30 May 2017 14:00-15:30

OPENING CEREMONY

TUESDAY, 30 MAY 9:00–10:30
VENUE: HALL 101

Welcome addresses by

- Mr. **Pekka Halme**, Co-conference Director
- Mr. **Jari Leppä**, Minister of Agriculture and Forestry
- Dr. **Juha Talvitie**, FIG Honorary President
- Dr. **Chryssy Potsiou**, FIG President

Keynote Speaker:

Mr. **Ed Parsons**, Geospatial Technologist at Google
 Ed will talk about the activities going on both above and below the radar and the professional's role in the future from an overall level setting the tone and context of our world. Is the reality that urbanisation for ALL across the world will all be smart and digitalised? What positively happens to professional's scope of work if geospatial data is now in the hands of all? The digitalisation – version 2.0 can change much around the world – but in different ways.

NEWCOMERS SESSION

TUESDAY, 30 MAY 8:00–8:45
VENUE: ROOM 102
CHAIR: DR. DIANE DUMASHIE, FIG VICE PRESIDENT, UNITED KINGDOM

New to the FIG Working Week?

Join us at the session for newcomers on Tuesday, 29 May to meet members of the council, the FIG Office and other participants who will experience the FIG Working Week for the first time. Do not miss this opportunity to learn more about FIG, on how to maximize your conference experience and making most of your attendance. First time attendees will be introduced to the programme, the keynote speakers, the sessions tracks, the roundtable discussions, the sponsors and social events.

PLENARY SESSION 1

TUESDAY, 30 MAY 11:00–12:30
VENUE: HALL 101
CHAIR: DR. CHRYSY POTSIU, FIG PRESIDENT, GREECE
RAPPORTEUR: MR. PEKKA HALME, FINLAND

Theme: Living of Tomorrow – In a Digitalised World

- Mr. **Arvo Kokkonen**, Director General, National Land Survey, Finland
- Mr. **Greg Bentley**, Chief Executive Officer, President and Chairman of the Board, Bentley Systems
- Mr. **Oumar Sylla**, Land and GLTN Unit Leader, UN Habitat / Global Land Tool Network

FIG MEMBER ASSOCIATION FORUM

TUESDAY, 30 MAY 14:00–15:30
VENUE: ROOM 207 – TRIMBLE
CHAIR: MR. PAAVO HÄIKIÖ, MIL PRESIDENT, FINLAND

The 2017 FIG Member Associations Forum provides national leaders of our Profession the opportunity for peer-to-peer engagement to exchange share and discuss current and in-country challenges and opportunities facing the Profession. Presidents, Chairpersons, Heads of Delegations (or their representatives) representing FIG Member Associations at the 40th FIG General Assembly can interact and exchange experiences, initiatives and programmes.

- By invitation only

ISS: CONTINUING PROFESSIONAL STANDARDS AND EDUCATION AND MAPPING POLICIES

TUESDAY, 30 MAY 14:00–15:30
VENUE: ROOM 102
CHAIR: DR. DIANE DUMASHIE, FIG VICE PRESIDENT, UNITED KINGDOM

Jani Kylmäaho and Timo Aarnio (Finland):
 How to Build a Successful Co-Operation Around Open Source Software – Case Oskari (8623)

Nigel Sellars (United Kingdom):
 Global Conflicts of Interest Standards – Bringing Confidence to the Users of Surveying Related Activities (8653)

Luis Rubio and Daniel Paéz (Colombia):
 Development of Inverse Pedagogy Through the Implementation of a Wireless Reference System: Lessons Learned from the Geomatics Course (8861)

Florence Elfriede Sinthauli Silalahi and Suprajaka Suprajaka (Indonesia):
 Development and Implementation Geospatial Information Standards in Support of Indonesian Professional Competency (8879)

Anna Shnaidman, Boris Shirman and Yossef Melzer (Israel):
 Geo-Magnetic Measurements in Israel (8957)

Emil Ljung (Sweden):
 Digitalization Crucial for Team-Based-Work and Production Distribution at the National Land Survey of Sweden (9019)

Vladimira Zufanova (Czech Republic):
 From Cadastral Maps in Paper Form Into a Fully Digital Form (9051)

Siti Noor Chayati and I Made Andi Arsana (Indonesia):
 The Study on Potential of Electrical Power and Energy Resulted From Wave Generated by Wind (9122)

TS01A: IMPROVING PROCEDURES IN LAND MANAGEMENT

TUESDAY, 30 MAY 14:00–15:30
VENUE: HALL 101
COMMISSION: 7
CHAIR: MR. GYULA IVAN, HUNGARY
RAPPORTEUR: MS. HYUNSOOK LEE, REPUBLIC OF KOREA

Helge Nysæter (Norway):
 Coordinates of Boundary Points in Norway (9032)

Gershon Steinberg and Gilad Even-Tzur (Israel):
 Improved Practical Mechanism for Reconstruction of Old Cadastral Boundaries by Coordinate Transformation (8510)

Sergei Shavrov, Olga Burdyko and Miroslav Kobasa (Belarus):
 Land Administration Quality Assessment: LGAF, DoingBusiness, WPLA UNECE. What Next? (8663)

Eric Hagemans (Netherlands):
 The Cadastral Map of the Netherlands Improved (8579)

Dubravka Sladić, Aleksandra Radulović and Miro Govedarica (Serbia):
 Cadastral Records in Serbian Land Administration (8731)

Violeta Poposka, Predrag Lazarevski (Macedonia, FYR) and **Milica Pesic** (Serbia):
 Comparative Analysis of the Legalization Processes in Republic of Serbia and Republic of Macedonia (8850)

TS01C: TECTONIC MOVEMENTS

TUESDAY, 30 MAY 14:00–15:30
VENUE: ROOM 103A
COMMISSION: 5
CHAIR: MR. NIC DONNELLY, NEW ZEALAND
RAPPORTEUR: MR. KEVIN KELLY, UNITED STATES

Muzaffer Kahveci, Oya Panukcu, Ayca Cirmik and Tolga Gonenc (Turkey):
 GPS Study of N-S Trending Karaburun Belt (Turkey) and its E-W Trending Eastern Part (8488)

Paul Denys, John Beavan, John Hannah, Chris Pearson and Sigrun Hreinsdottir (New Zealand):
 New Zealand's Long Term Tide Gauge Record and the Effect of Seismically Induced Vertical Land Motion (8728)

Haluk Ozener, Bahadır Aktug and Asli Dogru (Turkey):
 GPS-Constrained Estimate of Present-Day Slip Rate Along Major Faults of Turkey (8969)

Burhaneddin Bilgen, Cevat Inal, Sercan Bulbul and Bayram Turgut (Turkey):
 Determinability of the Changes in East-West and North-South Directions with GNSS Technique (8954)

Basara Miyahara, Yu Morishita and Yuji Miura (Japan):
 3-D Crustal Deformation Detected by SAR Interferograms of ALOS-2 Satellite (8783)

Joseph Odumosu, Augustine Abiodun, Senior Lecturer (Nigeria), **Kelly Kevin**, Geodesist (USA) and **Gbedu Adamu** (Nigeria):
 An Empirical Investigation of the Effect of Sea Level Variation on Vertical Reference Frames: Case study of Lagos state (8563)

ISS - INSPIRATIONAL SHORT SESSIONS

In the Inspirational Short Sessions the presentations are short, sharp and specific, hence maximize information and idea gathering. Following the inspiring presentations there will be a lively discussion. The representatives have 5 minutes for their presentation. The session chair will afterwards encourage a discussion and ask strategic questions.

Tuesday, 30 May 2017 14:00-15:30

TS01F: DEFORMATION MONITORING AND ANALYSIS I**TUESDAY, 30 MAY 14:00-15:30****VENUE:** ROOM 209**COMMISSION:** 6**CHAIR:** MR. REMY BOUDON, FRANCE
RAPPORTEUR: DR. GETHIN ROBERTS, UNITED KINGDOM**Gacoki Thomas Gicira** (Kenya): Computation of Curve Staking out Coordinates on the Excel Spreadsheet (8671)
*This is a peer reviewed paper.***Jacob Ehiorobo and Mercy****Ekun** (Nigeria):

Geomatics Support View in Unlocking the Potentials for Multiple Utilization of Dams and Reservoirs in Nigeria (8825)

Miriam Zamecnikova and Hans Neuner (Austria):

Towards the Influence of the Angle of Incidence and the Surface Roughness on Distances in Terrestrial Laser Scanning (9064)

Engin Güla, Tamer Baybura, Kayhan Aladoğan, Mehmet Nurullah Alkan and Veli İlçi

(Turkey): Deformation Measurements on Obruk Dam Precise Leveling Method (9094)

DIRECTOR GENERALS FORUM**TUESDAY, 30 MAY 14:00-15:30****VENUE:** ROOM 208 – BENTLEY**CHAIR:** MR. BENGT KJELLSON, SWEDENThe DG Forum this year will focus on the way digitalisation will affect and transform our operations and organisations. A panel consisting of **Arvo Kokkonen**, Director General Finland, **Brent Jones**, ESRI, and **Bengt Kjellson**, Director General Sweden.

– By invitation only

TS01H: CADASTRE IN A MULTIDIMENSIONAL WORLD**TUESDAY, 30 MAY 14:00-15:30****VENUE:** ROOM 215 – ESRI**COMMISSION:** 7**CHAIR:** MR. LEIV BJARTE MJØS, NORWAY
RAPPORTEUR: MR. HAODONG ZHANG, HONG KONG SAR, CHINA**Helena Åström Boss** (Switzerland):

3D Documentation of Condominium in Switzerland – Today and a Draft for the Future (9043)

Nida Celik Simsek and Bayram Uzun (Turkey):

Trends and Expectations Towards to Three-Dimensional Property System in Turkey (9016)

Gintcho Kostov (Bulgaria):

Application of 3D Terrestrial Laser Scanning in the Process of Update or Correction of Errors in the Cadastral Map (8802)

Markku Markkula (Finland):

Three Dimensional Real Estate Formation in Finland (8680)

Lara Humby and Jennifer Whittal (South Africa):3D Cadastral Parcels in South Africa – Representing the Third Dimension in the South African Cadastral System (8537)
*This is a peer reviewed paper.***Freddy Every, Charisse Griffith-Charles, Riëncy Holder** (Netherlands Antilles),**Mathilde Molendijk, Peter van Oosterom, Rolando Ocampo Alcántar** (Mexico), **Jocelyne Marie Marguerite Croes** (Aruba), **Christiaan Lemmen, Hendrik Ploeger** (Netherlands) and **Michael Sutherland** (Trinidad and Tobago):

Initial Inventory of 3D Cadastre Use Cases in the Caribbean (9063)

Mohsen Kalantari, Abbas Rajabifard and Ian Williamson (Australia):

3D Property Ownership Map Base for Smart Urban Land Administration (8609)

TS01I: IMPROVING LAND MARKET OPERATIONS AND ACCESS TO CREDIT FOR A BETTER FUTURE**TUESDAY, 30 MAY 14:00-15:30****VENUE:** ROOM 216**COMMISSION:** 9**CHAIR:** MR. STEVEN NYSTROM, UNITED STATES
RAPPORTEUR: MR. MANOHAR VELPURI, DENMARK**Manohar Velpuri** (Denmark), **Madhu Aman Sharma** (Canada), **Maringanti Chetan** (Switzerland), **Anusha Pidugu** (USA) and **Jyothsna Velpuri** (Australia): Improving Access to Credit in Property Markets using Blockchain (8515)
*This is a peer reviewed paper.***Chan K** (Hong Kong SAR, China): Assessing the Management Implications from Change of Ownership in Public Real Estate (8524)
*This is a peer reviewed paper.***Monica Obongo** (Kenya):

Is a “Land Price Index” the Solution to Escalating Land Values in Infrastructure Projects? – A Case Study of Thika Super Highway in Kenya (8840)

Trevor Knowles and Craig Harris (New Zealand):

Better Every Day-Making Better and Faster Acquisition and Disposal Decisions at Land Information New Zealand (8855)

Mohd Arif Mat Hassan and Rahah Ismail (Malaysia):

Real Estate Players’ Commitment Towards Sustainable Development in Malaysia (8870)

TS01J: ETHICS**TUESDAY, 30 MAY 14:00-15:30****VENUE:** ROOM 217**COMMISSION:** 1**CHAIR:** DR. BRIAN COUTTS, NEW ZEALAND
RAPPORTEUR: MS. ROBYN MCCUTCHEON, AUSTRALIA**Gary Strong** (United Kingdom): Why Ethics Standards Are of Limited Use on Their Own for Professionals Working in Land, Property and Construction – and If to Be Effective How Such Standards Need to Be Embedded, Monitored and Regulated Against by Professional Bodies (8705)**Torben Juulsager** (Denmark): When Public Affairs is an Affair for the Surveying Profession (9093)**Eunice Macharia** (Kenya): Challenges in Professional Practice, Standards and Ethics – A Review of Institution of Surveyors of Kenya’s Response (8755)**Wafula Nabutola** (Kenya): Integrating of RICS Standards Into County Government Development Efforts in Kenya (9034)**TS01K: RESPONSIBLE LAND ADMINISTRATION CURRICULUM****TUESDAY, 30 MAY 14:00-15:30****VENUE:** ROOM 212**CHAIR:** DR. DAVID MITCHELL, AUSTRALIA

The research and training cluster of the Global Land Tool Network (GLTN) are developing a knowledge base to support a curriculum on Responsible Land Administration. Work to date has included an EGM at the University of East London to seek guidance on the design of the knowledge base, and topic experts have been selected to develop the modules.

Scope of the workshop: The session will involve a presentation to update participants on work to date and the structure of the knowledge base, followed by a discussion on the potential for implementation of the knowledge base.

FIG PLATINUM MEMBER SESSION: TRIMBLE**TUESDAY, 30 MAY 14:00-15:30****VENUE:** ROOM 103B

Trimble is a leading provider of advanced location-based solutions that maximize productivity and enhance profitability. The Company integrates its positioning expertise in GPS, laser, optical and inertial technologies with application software, wireless communications, and services to provide complete commercial solutions



Tuesday, 30 May 2017 16:00-17:30

ISS: GEOSPATIAL DELIVERY OF PUBLIC FACILITIES, CRITICAL SERVICES AND INFRASTRUCTURE**TUESDAY, 30 MAY 16:00-17:30****VENUE:** ROOM 102**CHAIR:** PROF. YERACH DOYTSHER, ISRAEL**Ceciliar Nkechi Baywood Chukwuma, Udo A Emmanuel, Johnbosco Ojiako and Odoemalam Baywood Chukwuma** (Nigeria):

Development of a Geospatial Database for Public Secondary School Facilities in Umuahia North LGA, Abia State (8508)

Ridvan Ertugrul Yildirimand **Aziz Sisman** (Turkey): Service Area Capability of Emergency Units Based on Traffic Accidents; Case Study of Sam-sun (8532)**Yasemin Ozkan, Aziz Sisman and Ridvan Ertugrul Yildirim** (Turkey):

Examining Service Area of Fire Stations in Forest Fire with Network Analysis (8557)

Njike Chigbu and Susan Chiawolam Nmergini

(Nigeria): Use of GIS in the Study of the Impact of Road Network Accessibility in Electricity Infrastructure Distribution and Monitoring a Review (8758)

Shengpeng Jing, Engineer, **Qianhong Pan**, Engineer, **Feng You**, Director and **Qianguo Li**, Engineer (China, PR): Research on Urban Spatial Extension Evolution and Regulation of Lanzhou (9104)**Sushmita Timilsina and Punya Prasad Oli** (Nepal):

Spatial Data Base for Hydro-power Projects in Nepal (8667)

Ibrahim Usman Jibril (Nigeria): Nigeria Erosion and Watershed Management Project (NEWMAP); an Innovative Way of Solving Gully Erosion and Addressing Land Management Issues in Nigeria (9139)**Isaac Adedurin** (Nigeria): OGIS Consult Limited Presents Proposal for National Security Integrated Land Databank (8482)**VALUATION OF UNREGISTERED LANDS METHODOLOGY (UN-HABITAT GLTN & FIG)****TUESDAY, 30 MAY 16:00-17:30****VENUE:** ROOM 216**CHAIR:** DR. CHRYSY POTSIOU, FIG PRESIDENT, GREECE**RAPPOREUR:** MR. STEVEN NYSTROM, UNITED STATES

Key aspects of the publication on valuation of unregistered lands focussing on most fit for purpose valuation methodologies. The session will be in partnership with UN-Habitat/GLTN, FIG, FAO and RICS, including experts and practitioners on valuation.

Objectives:

- Create awareness on the "Guide on Valuation of Unregistered Lands" publication
- Solicit ideas on application of the guide within country context and possible support requirements
- Discuss links and synergies with other relevant initiatives.

Tentative Programme:**Cyprian Selebalo**, Land and GLTN Unit, UN-Habitat (Kenya):The Need for Valuation of Unregistered Lands Guide **Mike McDermott** (Australia): Synopsis of "Guide on Valuation of Unregistered Lands" Publication**James Kavanagh**, RICS (United Kingdom): International Land Reporting Standards and Land Valuation - Update on Current Initiatives

Open Discussion Way Forward and closing

Oumar Sylla, UN Habitat GLTN (Kenya)**Chryssy Potsiou**, FIG (Greece)**TS02A: LAND REGISTRATION IN A SMART WORLD****TUESDAY, 30 MAY 16:00-17:30****VENUE:** HALL 101**COMMISSION:** 7**CHAIR:** DR. GERDA SCHENNACH, AUSTRIA**RAPPOREUR:** MR. LIBOR TOMANL, CZECH REPUBLIC**Daniel Janonius Löwgren**

(Sweden):

Rising Expectations – Public Institutions Facing a New Reality in a Digital Era (8634)

Aanchal Anand (USA):

Blockchain and Land Administration: Challenges and Opportunities (9013)

Madan Mohan (India):

Geospatial Land Governance and Management through Digitalisation: A Study in Perspective to Real World's Land Developments in India (8897)

Jue Zeng, Director (China, PR): Application of Internet+ Field Survey Technology in China's Land Management (9137)**Xavier Comtesse, Daniel Steudler and Jeffrey****Huang** (Switzerland):The Land Code (8828)
Miodrag Ročić, Saša Vranić, Tomaš Kliment, Baldo Staničić and Hrvoje Tomić (Croatia): Development of Multipurpose Land Administration Warehouse (8545)**TS02C: UAV AND PHOTOGRAMMETRIC METHODS****TUESDAY, 30 MAY 16:00-17:30****VENUE:** ROOM 103A**COMMISSION:** 5**CHAIR:** DR. DAVID MARTIN, FRANCE**RAPPOREUR:** DR. DANIEL ROMAN, UNITED STATES**Jonas Vautherin, Simon Rutishauser, Klaus Schneider-Zapp, Hon Fai Choi, Venera Chovancova and Christoph Strecha** (Switzerland): Photogrammetric Accuracy and Modeling of Consumer Cameras (8517)**Ehsan Khoramshahi, Eija Honkavaara and Tomi Rosnell** (Finland):

An Automatic Method for Adjustment of a Camera Calibration Room (8912)

Željko Bačić, Danijel Šugar and Roko Grzunov

(Croatia): Investigation of GNSS Receiver's Accuracy Integrated on UAVs (9060)

Reinhard Gottwald (Switzerland), **Winfried Mayer** (Germany) and **Nando Docci** (Switzerland): Humanitarian Demining – UAV-Based Detection of Land Mines (8531)**Jonathan Li** (China, PR) and **Xinqu Chen** (Canada): 3D Modeling of Urban Tree Crown Volumes Using Multispectral LiDAR Data (8875)**Olli Nevalainen, Eija Honkavaara, Tomi Rosnell, Teemu Hakala and Kimmo Nurminen** (Finland): Unmanned Aerial Vehicles in Municipality Level 3D Topographic Data Production in Urban Areas (9036)**Marcus Bergsli** (Germany): Navvis – Enabling Digital Value Creation Indoors (8936)**TS02D: CONSTRUCTION MANAGEMENT AND TECHNOLOGY****TUESDAY, 30 MAY 16:00-17:30****VENUE:** ROOM 103B**COMMISSION:** 10**CHAIR:** MR. SEE LEAN ONG, MALAYSIA**RAPPOREUR:** MR. RUYA FADASON, NIGERIA**Holman Latorre Bossa and César Arango Gómez** (Colombia): Monitoring and Control Progress of Task Times in Construction Projects with UAV and BIM Models: Case-Of-Study: Universidad de La Sabana, Bogotaá Colombia (8988)**Kh Chan** (China, PR): Evaluating the Critical Factors in Effective Project Management (8523)**Krishna Mochtar** (Indonesia): Problem of Green Building Construction Local Technology and Material in Indonesia (8521)**Olajide Timothy Ibiroko, Olufisayo Adewumi Adedokun, Isaac Olaniyi Aje and Oladele Johnson Agboola** (Nigeria): Assessment of Risk Factors Associated with Building Projects in a Developing Country (8485) *This is a peer reviewed paper.***Gry Brandin Stenersen** (Norway): Urban Development of Areas with Low Social Status from Shipyards and Industry to Living and City Center-Areas (9101)**Dragana Popović, Vladimir Pajić, Dušan Jovanović, Filip Sabo and Jovana Radović** (Serbia):

Semi-Automatic Classification of Power Lines by Using Airborne Lidar (8862)

TS02E: CROWDSOURCING AND VGI

TUESDAY, 30 MAY 16:00–17:30

VENUE: ROOM 207 – TRIMBLE

COMMISSION: 3

CHAIR: PROF. HARTMUT MÜLLER, GERMANY

RAPPORTEUR: MR. CROMWELL MANALOTO, ITALY

Eliana Bshouty and Sagi Dalyot:

Extraction of Building Heights from Volunteered Photographs for LoD1 OpenStreetMap (OSM) Building Models (8700)

Esa Tiainen (Finland):

Georef – Linked Data Deployment for Spatial Data; Finnish Initiative (8781)

Christian Kaul (Switzerland)

and **Jürg Lüthy (Switzerland):** From SDI to an OGD Platform – Challenges and Opportunities (8851)

Mari Laakso, Mikko Rönneberg

and **Tapani Sarjakoski (Finland):** Piloting a Map Service to Collect VGI for National Topographic Database (8968)

Anne Dahlhaus, Ulrike Klein and Hartmut Müller

(Germany): Primary Health Care: Digital Data Sources for Spatial Accessibility Analysis (8974)

Graham Hammond (Australia):

Australia's National Elevation Framework (NEDF) in Practice (9061)

Maria Gkeli, Charalabos Ioannidis and Chryssy Potsiou

(Greece): Review of the 3D Modelling Algorithms and Crowdsourcing Techniques. An Assessment of their Potential for 3D Cadastre (9114)

TS02F: DEFORMATION MONITORING AND ANALYSIS II

TUESDAY, 30 MAY 16:00–17:30

VENUE: ROOM 209

COMMISSION: 6

CHAIR: DR. GETHIN ROBERTS, UNITED KINGDOM

RAPPORTEUR: MR. ROOPE NÄSI, FINLAND

Edi Meier and Michael Boege

(Switzerland): Precise Magnet Girder Position Monitoring at the Swiss Light Source (SLS) (8541)

Alojz Kopacik, Imrich Liptak, Jan Erdelyi and Peter Kyrinovic

(Slovakia): Deformation Monitoring of Danube Bridges in Slovakia by Integrated Measurement System (8542)

Ulku Kirici and Yasemin Sisman

(Turkey): The Comparison of the Adjustment Methods In Geoid Determination Method (8572)

Bahattin Erdogan, Serif Hekimoglu and Utkan Mustafa Durdag

(Turkey): Theoretical and Empirical Minimum Detectable Displacements for Deformation Networks (8590)

TS02G: CURRICULUM ON THE MOVE

TUESDAY, 30 MAY 16:00–17:30

VENUE: ROOM 208 – BENTLEY

COMMISSION: 2

CHAIR: DR. FAHRIA MASUM, GERMANY

RAPPORTEUR: DR. ELENA RANGELOVA, CANADA

Mikail Olaniran and Thomas Ashaolu

(Nigeria): Assessment of Curriculum and Knowledge Updates in Nigerian Valuation Education (8717)

Marinus de Bakker and Guido Quik

(Netherlands): The Curriculum of Geo Media & Design and an Example of the Working Practice: the Base Registration Large Scale Topography (bgt) (8859)

Ulla Kallio (Finland):

25 Years of Teaching Least Squares Adjustment (8880)

Märít Walfridsson, Marina Edlund and Stig-Göran Mårtensson

(Sweden): Land Surveying Education in Sweden: Addressing Global Challenges (8922)

Leiv Bjarte Mjøs (Norway):

New Education in Land Management at Western Norway University of Applied Sciences (9027)

TS02H: DEVELOPING AND SHARING EDUCATIONAL STANDARDS AND PRACTICES FOR MUTUAL RECOGNITION

TUESDAY, 30 MAY 16:00–17:30

VENUE: ROOM 215 – ESRI

CHAIR: MS. KATE FAIRLIE, UNITED KINGDOM

RAPPORTEUR: MS. NARELLE UNDERWOOD, AUSTRALIA

This session will review education standards in the context of inter- and intra-national recognition of surveying qualifications. The development of a core standard curriculum will be explored as well as the sharing of academic templates.

TS02J: FRENCH SESSION 1

TUESDAY, 30 MAY 16:00–17:30

VENUE: ROOM 217

CHAIR: MR. MARC VANDERSCHUEREN, BELGIUM

RAPPORTEUR: MS. GODELIVE PHANZU VANGU, CONGO, DR

The session is in French to permit an active participation for the non-English speaking members of FGF (Federation of the French Speaking Surveyors).

Jean-François Dalbin (France):

Le Bornage Numérique (9166)

François Mazuyer (France):

Le Géomètre et l'expertise Judiciaire – un Triple Intérêt (9152)

Léopold Degbegnon (Benin):

La Problématique de l'Aménagement Foncier vue par un Géomètre-Expert : cas de la Commune d'Abomey-Calavi (9119)

Vaiva Deveikiene and Steponas Deveikis

(Lithuania): Le Jardin dans un Milieu Urbain – la Ville Conçue et Dressée depuis la Fin de XIXe Siècle jusqu'à Nos Jours | The Garden in an Urban Setting – the City Designed and Erected since the End of 19th Century to the Nowadays (8951)

Jean Philippe Lestang and Eric Thalgott

(France): Mise En Œuvre d'une Réforme Foncière En Haïti (9154)

Francis Roy and Yaïves Ferland

(Canada): L'Institution de l'Enregistrement Foncier et du Cadastre entre 1830 et 1867 au Québec : une Source d'Inspiration Toujours Actuelle? (9077)

FINNISH EVENING / FIG FOUNDATION DINNER

TUESDAY, 30 MAY 19:00–23:00

VENUE: HOTEL CROWNE PLAZA, MANNERHEIMINTIE 50

We are delighted to invite you to the Finnish Evening – full of excellent food, good music, stylish ambience and cultural insights. This night will be the perfect occasion to share knowledge with colleagues, to be entertained and to celebrate your latest scientific achievements in the exclusive atmosphere of Hotel Crowne Plaza.

The Finnish Evening Dinner will be held on the second floor of the hotel with nice view to the surrounding park in the gentle end-of-May-evening light. A buffet dinner is served with some modern Finnish entertainment.

- Sponsored by Trimble
- Ticket is required



THE FIG FOUNDATION



UNGGIM GRF MEETING

TUESDAY, 30 MAY 16:00–17:30

VENUE: ROOM 212

CHAIR: MR. MIKAEL LILJE, SWEDEN

– By invitation only

Wed, 31 May

Wednesday, 31 May 2017 11:00-12:30

PLENARY SESSION 2

WEDNESDAY, 31 MAY 9:00-10:30
VENUE: HALL 101
CHAIR: DR. ORHAN ERCAN, FIG VICE PRESIDENT, TURKEY
RAPPORTEUR: MR. PAAVO HÄIKIÖ, FINLAND

Theme: Professional Behaviour – In a Digitalised World

- Prof. **Heidi Kuusniemi**, Director, Navigation and Positioning, Finnish Geospatial Research Institute, NLS
- Prof. **Yola Georgiadou**, Professor in geo-information for governance, Faculty of Geo-Information Science and Earth Observation (ITC)
- Prof. Dr. **Jolyne Sanjak**, Chief Program Officer, Landesa

FIG FOUNDATION MEETING

WEDNESDAY, 31 MAY 7:00-8:45
VENUE: ROOM 212

- By invitation only

ASIA PACIFIC FIG REGIONAL NETWORK – BREAKFAST MEETING

WEDNESDAY, 31 MAY 7:45-8:45
VENUE: ROOM 103A
CHAIR: MR. ROB SARIB, AUSTRALIA

The main purpose of this meeting is to discover and share information on FIG activities that are occurring in Asia and the Pacific region. The meeting would also like attendees to voice their opinions on the capacity development challenges being faced by our industry and how FIG can assist to address these challenges through collaboration and exchanging of information and ideas.

AFRICA FIG REGIONAL NETWORK – BREAKFAST MEETING

WEDNESDAY, 31 MAY 7:45-8:45
VENUE: ROOM 103B
CHAIR: DR. DIANE DUMASHIE, FIG VICE PRESIDENT, UNITED KINGDOM

Tea and croissants served for the FIG annual networking meeting of African Land professionals with the following objectives: to overview 2016 activities in Ivory Coast, to share with key partners including Africa YSN & FGF to hear inspirational papers, to discuss ARN Strategic Framework document and to agree activity and venue for 2017.

FIG TASK FORCE ON PROPERTY MARKETS

WEDNESDAY, 31 MAY 11:00-12:30
VENUE: ROOM 216
CHAIR: MR. PEKKA HALME, FINLAND

Winrich Voss (Germany): Well-functioning Real Estate Markets – Criteria and Examples (9076)

Chryssy Potsiou (Greece): Sustainable Real Estate Markets – Policy Framework and Necessary Reforms (9109)

Chryssy Potsiou (Greece), **Murat Meha** (Kosovo), **Sonila Jazo** (Albania), **Luljeta Vuthi** (Kosovo) and **Helge Onsrud** (Norway): Formalizing Unpermitted Real Estate in Kosovo (9110)

ISS: TOOLS FOR LAND ADMINISTRATION, MANAGEMENT & NATURAL RESOURCES

WEDNESDAY, 31 MAY 11:00-12:30
VENUE: ROOM 102
CHAIR: MR. ORHAN ERCAN, FIG VICE PRESIDENT (TURKEY)

Tian Zhong Zhang and **Qiang Jun Zhao** (China, PR): Project Evaluation of Intensive Land Use – Taking Gansu Province Case 106 PV project (8767)

Lilie Tanli, Ming Luo and **Hong Yang** (China, PR): Land Management Measures and Practices on Supporting Poor People out of Poverty in China (8981)

Sajid Rashid, Sana Khushi and **Ather Ashraf** (Pakistan): Rapid urbanization in Punjab: A real challenge to soil protection and food security (9048)

Andrés Guarín, Lina Baron (Colombia), **Lorenz Jenni** (Switzerland) and **Silvia Salamanca** (Colombia): LADM – A Tool for Land Administration in Post-Conflict Colombia (8766)

Bancy Kinuthia (Kenya): Public Private Partnerships as a Means of Developing Affordable Housing A Case Study of the Civil Servants Housing Scheme Fund Kenya (8835)

Hasan Jamil, Mohd Noor Isa, Chee Hua Teng, Keat Lim Chan, Alias Abdul-Rahman, Ivin Amri Musliman, Bernad Siew, Uznir Ujang, Hairi Karim, Nur Amalina Zulkifli, Imzan Hassan, Peter van Oosterom, and Suhaibah Azri, (Malaysia): Converting The Strata Building to LADM (8920)

Charles Paradzayi, Robert Mapamula and **Nolan Chida** (Zimbabwe): A Framework for the Adoption of the Land Administration Domain Model in Zimbabwe (9009)

Karuna Kar Ghimire, Bindu Giri and **Amrit Poudel** (Nepal): “Challenges of Land Use in Nepal and Way forward “ (8696)

Ezgi Candas and **Tahsin Yomralioglu** (Turkey): Modelling A Spatial Data Infrastructure For Urban Regeneration Projects (8938)

EASTERN EUROPEAN SUCCESS STORY IN DEVELOPING LAND ADMINISTRATION SYSTEMS – 1 (WORLD BANK & FIG)

WEDNESDAY, 31 MAY 11:00-12:30
VENUE: ROOM 208 – BENTLEY
CHAIR: MR. MIKA-PETTERI TÖRHÖNEN, WORLD BANK

David Egiashvili (Georgia): How to Fix a Land Agency in One Year (8721)

Aivar Tomson and **Ülleke Eerik** (Estonia): First Steps and Further Steps: Creation of Property Market Estonia Case Study (8907)

Sedat Bakici (Turkey): Seamless Digital Cadastral Map and Geodetic Infrastructure in Turkey (8606)

Aleksandra Radulović, Dubravka Sladić and **Miro Govedarica** (Serbia): Serbian Profile of the Land Administration Domain Model (8698)

TS03A: SPATIAL DATA AND GEOMATIC TECHNOLOGY IN LAND REGISTRATION PROCEDURES

WEDNESDAY, 31 MAY 11:00-12:30
VENUE: HALL 101
COMMISSION: 3 AND 7
CHAIR: MR. SAGI DAYLOT, ISRAEL
RAPPORTEUR: MS. TERESA PEREIRA, PORTUGAL

Michaud Stephanie (Canada): Combining Geomatics Technology for Successful Land Development Projects and Pilots (8507)

Divyani Kohli (Netherlands), **Rohan Bennett** (Australia), **Christiaan Lemmen, Kwabena Asiana** and **Jaap Zevenbergen** (Netherlands): A Quantitative Comparison of Completely Visible Cadastral Parcels Using Satellite Images: A Step towards Automation (8739)

Marcin Karabin, Robert Olszewski, Dariusz Gotlib, Krzysztof Bakuta and **Anna Fijałkowska** (Poland): The New Methods of Visualisation of the Cadastral Data in Poland (8994)

Brent Jones (USA): Enabling Multipurpose Cadastre (8604)

Maphale Lopang (South Africa): Towards the Augmented Reality of Botswana Tribal Villages (8518)
This is a peer reviewed paper.

Konstantinos Apostolopoulos, Charalabos Ioannidis (Greece), **Florin Nache, Cornel Paunescu** (Romania) and **Chryssy Potsiou** (Greece): A Proposal for Flexible, Affordable and Reliable Systematic Cadastres: Examples from Greece and Romania (9115)

Bilgehan Ozsoy, Mehmet Diri and **Unsal Ergun** (Turkey): Property Based Land Information Systems of Turkey: TAKBIS & MEGSIS (8617)

WINTER GARDEN

WEDNESDAY, 31 MAY 10:45-11:30
TRIMBLE
PRODUCT DEMONSTRATION



TS03C: UN RESOLUTION ON GGRF

WEDNESDAY, 31 MAY 11:00–12:30
VENUE: ROOM 103A
COMMISSION: 5
CHAIR: PROF. VOLKER SCHWIEGER, GERMANY
RAPPORTEUR: MR. ROB SARIB, AUSTRALIA

Markku Poutanen (Finland): UN Resolution on GGRF (9124)
Laila Loevhoeiden (Norway) and **Gary Johnston** (Australia): Implementation plan for the UN-GGIM GGRF Resolution (9129)

Hansjörg Kutterer (Germany): GGOS – The Global Geodetic Observing System of the International Association of Geodesy (IAG) (9127)

Ruth Neilan (USA), **Gary Johnston** (Australia) and **Steven Fisher** (USA): IGS – The International GNSS service 2017 (9125)

Asakaia Tabuabisataki (Fiji): GGRF in the Pacific Island Countries (9128)

TS03E: FIG YSN – WHO MENTORS YOU?

WEDNESDAY, 31 MAY 11:00–12:30
VENUE: ROOM 207 – TRIMBLE
COMMISSION: YOUNG SURVEYORS NETWORK
CHAIR: MS. EVA-MARIA UNGER, CHAIR OF YSN, AUSTRIA
RAPPORTEUR: MS. MELISSA HARRINGTON, NEW ZEALAND

“The greatest good you can do for another is not just to share your riches but to reveal to him his own.” – Benjamin Disraeli
 There are a number of challenges being presented to the surveying and spatial science community; global trends, technology changes and a declining number of surveyors world wide. To ensure the successful future of our profession we need to establish a well connected global community. The Young Surveyors Network and mentoring is key to this.
 This session will highlight the benefits of mentoring to the mentee, mentor and organisation. From here we will build upon previous workshops to launch our strategy to move mentoring within FIG and the FIG Young Surveyors forward

TS03F: ENGINEERING SURVEYS FOR CONSTRUCTIVE WORKS AND STRUCTURAL MONITORING

WEDNESDAY, 31 MAY 11:00–12:30
VENUE: ROOM 209
COMMISSION: 6
CHAIR: MR. REMY BOUDON, FRANCE
RAPPORTEUR: PROF. ALOJZ KOPÁČIK, SLOVAKIA

Wallace Mukupa (China, PR), **Gethin Roberts** (United Kingdom), **Craig Hancock** and **Khalil Al-Manasir** (China, PR): Correction of Terrestrial LIDAR Data Using a Hybrid Model (8547)
This is a peer reviewed paper.

Fernando Soares, Maria Henriques and **Rocha César** (Portugal): Concrete Block Tracking in Breakwater Models (8550)
This is a peer reviewed paper.

Boris Resnik (Germany): Monitoring of Concrete Bases of Wind Turbines with Modern Inclinometers: Approaches and Experience (8570)

Slaven Kalenjuk and **Werner Lienhart** (Austria): Automated Surface Documentation of Large Water Dams Using Image and Scan Data of Modern Total Stations (8801)

Roman Shults, Iulia Kravchenko and **Denys Gorkovchuk** (Ukraine): Getting a Correct Geometrical Information from TLS Data for Building Constructions Control Surveying (8857)

Ioulia Peppas, Panos Psimoulis and **Xiaolin Meng** (United Kingdom): Potential of Detecting Dynamic Motion by Analysing SNR of GPS Satellite Signal (9010)

TS03H: SUSTAINABLE PLANNING: THE USE AND MANAGEMENT OF THE WATER AND NATURAL RESOURCE

WEDNESDAY, 31 MAY 11:00–12:30
VENUE: ROOM 215 – ESRI
COMMISSION: 7 AND 8
CHAIR: MR. BRUCE KEITH, UNITED KINGDOM
RAPPORTEUR: MR. KWAME TENADU, GHANA

Walter Timo de Vries (Germany): Human Geodesy – Shaping a New Science and Profession for the World of Tomorrow (8578)

Emma Wilcox and **Peter Matthews** (United Kingdom): Integration is the Way Forward .. the UK Experiences Presented to the FIG Working Week 2017 “Surveying the world of tomorrow – From digitalisation to augmented reality” (8699)

Holger Hoppe and **Michael Jeskulke** (Germany): Flood Risks in Urban Areas – Data Analysis, Communication and Mitigation (9026)

Jonathan Skelly and **Johannes Tiusanen** (Finland): Massively Reducing Irrigation through Permanent Wireless Below-Ground Monitoring (9035)

Hellen Nyamweru, Cyprian Selebalo, John Gitau and **Danilo Antonio** (Kenya): Towards Actualizing the Continuum of Land Rights in Support of Sustainable Development Goals (8782)

TS03J: FRENCH SESSION II

WEDNESDAY, 31 MAY 11:00–12:30
VENUE: ROOM 217
CHAIR: MR. FRANÇOIS MAZUYER, FRANCE
RAPPORTEUR: DR. LEOPOLD DEGBEGNON, BENIN

The session is in French to permit an active participation for the non-English speaking members of FIG (Federation of the French Speaking Surveyors).

Maurice Barbieri (Switzerland): Point de Vue du CLGE au Sujet de la Politique Foncière du « minimum suffisant » (9168)

Francis Roy (Canada), **Liza Groenendijk** (Netherlands), **Chethna Ben** (Fiji), **Mohsen Kalantari** (Australia) and **Walter Timo de Vries** (Germany): La Formation des Géomètres à La Lumière des Directives Volontaires pour une Gouvernance Responsable des Régimes Fonciers (8726)

Phanzu Bitaka (Democratic Republic of Congo): Le Géomètre en RDC (9107)

Moulay Hafid Bouhamidi (Morocco): Quelle Stratégie pour la Mobilisation du Foncier pour les Grands Projets ? Cas du Plan Solaire Marocain (9040)

Yaïves Ferland (Canada): La Mesure de la Toponymie Locale parmi les Problèmes de Représentation Cartographique (9078)

J. F. Beaupre (Canada): Les Leçons Oubliées de l'histoire du Cadastre au Québec (Canada) (8848)

Marc Vanderschueren (Belgium): La Modélisation des Données du Bâtiment (BIM) (9134)

Claire Galpin (France): Les Cadastres Multifinalités ; une Réalité Augmentée? (9153)

FIG PLATINUM MEMBER SESSION: BENTLEY SYSTEMS

WEDNESDAY, 31 MAY 11:00–12:30
VENUE: ROOM 103B

Bentley Map Meets Reality Modeling

Intro: Bentley Map as Mapping Tool to describe the real world as a model have enormous capacities to bring your data sources together. Data sources like 2D Maps, Mashs, Point clouds, reality models etc. Showing the real world as a model bring additional value in all parts of the infrastructure world and help to show and understand e.g. design process with all the dependencies to the real world. The session will show the capacities of BentleyMap and how Bentley Reality Modelling tools can bring an additional value for your existing data.



WINTER GARDEN

WEDNESDAY, 31 MAY
12:45–13:30
ESRI
PRODUCT DEMONSTRATION



Wednesday, 31 May 2017 14:00-15:30

ISS: GEODESY AND SURVEYING APPLICATIONS I

WEDNESDAY, 31 MAY 14:00-15:30

VENUE: ROOM 102

CHAIR: PROF RUDOLF STAIGER, GERMANY

JungKyu Lee (Republic of Korea):

Introduction of Beacon Control Points Using IoT (9159)

Hai Wei and Shu Cheng You (China, PR):

Progress and Development Trend of Remote Sensing on Land in China (9135)

Wioleta Błaszczyk Bąk and Anna Sobieraj Żłobińska (Poland):

How to Properly Plan the Reduction in the LIDAR Big Dataset? (8679)

Xuan Lv, Zezhong Ma and Aidi Li (China, PR):

A Subblock Partition Of Multi-Layer Pattern Based Remote Sensing Image Classification Approach (8795)

Vu Nguyen Dang, Phong Minh Nguyen and Binh Thanh Nguyen Thi (Viet Nam):

Terrestrial 3D Laser Scanning to Rebuild Son Doong Cave (8927)

Niendyawati Supardan, Wiwin Ambarwulan and Murdaningsih Panularsih (Indonesia):

Land Use Change Identification Using SPOT 6 Imagery for Food Security Analysis of Denpasar City, Bali Province, Indonesia (8980)

Murat Yakar (Turkey):

Photogrammetric Survey of Three Tombs (UC KUMBETLER) (9097)

WINTER GARDEN

WEDNESDAY, 31 MAY 13:45-14:30

BENTLEY SYSTEMS PRODUCT DEMONSTRATION



EASTERN EUROPEAN SUCCESS STORY IN DEVELOPING LAND ADMINISTRATION SYSTEMS - 2 (WORLD BANK & FIG)

WEDNESDAY, 31 MAY 14:00-15:30

VENUE: ROOM 208 - BENTLEY

CHAIR: DR. CHRYSY POTSIOU, FIG PRESIDENT, GREECE

Mika Petteri Törhönen (Finland):

Land Administration Success Story; the World Bank Collaboration in Eastern Europe and Central Asia (8760)

Željko Obradović, Nedžad Pašalić and Denis Tabučić (Bosnia and Herzegovina):

Implementation of Client Oriented Cadastral Services, the Federation of BH experience and lessons learned (8793)

Rimantas Ramanauskas, Kestutis Sabaliauskas, Arvydas Bagdonavicius and Albina Aleksiene (Lithuania): The Relationship Between the Land Cadastre and the Mass Valuation System - Mutual Benefits and Challenges (8812)

Dušan Mitrović and Martin Smodiš (Slovenia):

Implementation of Mass Valuation System in Slovenia and its impact to the Land Administration System (8597)

ILMS MEETING

WEDNESDAY, 31 MAY 12:30-14:00

VENUE: ROOM 212

CHAIR: MR. JAMES KAVANAGH, UNITED KINGDOM

- By invitation only

NOTE THE TIME!

SOCIAL TENURE DOMAIN MODEL DEVELOPMENT INNOVATIONS (FIG YSN & UN-HABITAT GLTN)

WEDNESDAY, 31 MAY 14:00-15:30

VENUE: ROOM 216

CHAIR: MR. CHEEHAI TEO, FIG HONORARY PRESIDENT, MALAYSIA

RAPPORTEUR: MR. DANILO ANTONIO, UN-HABITAT GLTN, KENYA

The session will expose participants to improvements in STDM including ease of customisation, web-based approach, and readiness for release of QGIS 3. The session will be in partnership with members of STDM Advisory Committee, STDM Technical Working Group, OGC, etc. The session will be in partnership with FIG YSN, OSGeo, FIG Foundation, Kadaster & UN-Habitat/GLTN.

Objectives:

- Introduce participants to the basic concepts of STDM
- Provide technical updates on STDM development including key features
- Share country experiences on STDM application of the tools
- Discuss different roles of key partners and proposed strategies for support
- Explore next steps and way forward.

Tentative Programme:

Christiaan Lemmen (Netherlands): STDM Concepts and Rationale
John Gitau/Arnulf Christl, UN Habitat GLTN (Kenya)/ OSGeo (Germany): STDM Development and Technical Implementation
Oumar Sylla, UN Habitat GLTN (Kenya): Practical Applications of STDM in Select Countries
 Open Discussion
 Young Surveyors Network Support to STDM Implementation

Eva-Maria Unger, FIG Young Surveyors Network
John Hoho, FIG Foundation
 Open Discussion

Teo CheeHai (Malaysia) and **Daniilo Antonio** (Kenya): Summary and Closing

TS04A: LAND MANAGEMENT IN AREAS OF PUBLIC INTEREST

WEDNESDAY, 31 MAY 14:00-15:30

VENUE: HALL 101

COMMISSION: 7

CHAIR: MR. MARKKU MARKKULA, FINLAND

RAPPORTEUR: MR. MARC VANDERSCHUEREN, BELGIUM

KiYoung Hong, YunSoo Choi and JaeMyeong Kim (Republic of Korea):

An Extraction and Accuracy Assessment of Dead Tree Using Object-Based Classification (9160)

WonJong Lee, Yunsoo Choi, Kijong Han and Heeyoon Park (Republic of Korea):

Construction of Tidal Datums Based on Ellipsoid Using Spatial Interpolation (9163)

Janne Murtoniemi (Finland): Automatic Registration Finnish Land Registry and Electronic Mortgages (8806)

Pauliina Krigsholm, Juhana Hiironen, Karin Kolis and Kirsikka Riekkinen (Finland): Land Property Rights and Economic Development in Urban Areas: a Systematic Literature Review (8539)

Yanxia Lu, Director (China, PR): Analysis on the Change of Farmland Resources in China from 1996-2009 (9136)

Teemu Ulvi and Milla Mäenpää (Finland): The Main Challenges in the Management of Joint Property Units in Waters in Finland (8798)

Jesper M. Paasch, Mårit Walfridsson, Anna Eriksson, Emmy Hedlund and Marija Juric (Sweden):

Abandoned Swedish Joint Facilities and Utility Easements - a Case of "Legal Pollution" (8528)
This is a peer reviewed paper.

TS04C: GEODYNAMIC EFFECTS ON REFERENCE FRAMES

WEDNESDAY, 31 MAY 14:00-15:30

VENUE: ROOM 103A

COMMISSION: 5

CHAIR: MR. MIKAEL LILJE, SWEDEN

RAPPORTEUR: DR. DANIEL ROMAN, UNITED STATES

Rui Fernandes (Portugal): EPOS - Improving the Infrastructure for GNSS Data and Products in Europe (9130)

Zuheir Altamimi, Laurent Métivier, Paul Rebeschung, Hélène Rouby and Xavier Collilieux (France): ITRF2014 Plate Motion Model (9123)

Martin Lidberg, Jonas Ågren and Holger Steffen (Sweden): On the Use of Crustal Deformation Models in the Management of ETRS89 Realizations in Fennoscandia (9131)

Pasi Häkli (Finland), **Martin Lidberg** and **Lotti Jivall** (Sweden): A New Transformation Including Deformation Model for the Nordic and Baltic Countries (8915)

Jyrki Mononen (Finland): A Harmonized Vertical Reference System for the Baltic Sea (9132)

FIG PLATINUM MEMBER SESSION: ESRI

WEDNESDAY, 31 MAY 14:00-15:30
VENUE: ROOM 103B
CHAIR: MR. BRENT JONES, UNITED STATES

Modern Technology for Land Administration – The GIS Platform for Cadastre, National Mapping and Valuation

Gone are the days of building custom cadastral systems with disparate technologies. ArcGIS is a complete, interoperable, open, and purpose-built system for cadastral and mapping operations to improve efficiency, manage data integrity, and share data across your organization and with the public. Whether you aim to improve data quality, increase throughput, or improve spatial accuracy – web-GIS and the ArcGIS platform delivers necessary capabilities. All conference attendees are welcome. An interactive discussion is expected.



TS04E: SPATIAL DATA INFRASTRUCTURE

WEDNESDAY, 31 MAY 14:00-15:30
VENUE: ROOM 207 – TRIMBLE
COMMISSION: 3
CHAIR: PROF. CHARALABOS IOANNIDIS, GREECE
RAPporteur: MR. DANIELE BRANCATO, ITALY

Nor Zetty Akhtar Abdul Hamid and Samsung Lim (Australia):

A Whole-of-Government Approach to Bruneian Geospatial Data Management (8522)

This is a peer reviewed paper.

Bloksma Ron (Netherlands): Interoperability in Surveying (8529)

Arvo Kokkonen, Jani Kylmäaho and Heli Ursin (Finland):

Arctic Spatial Data Infrastructure (Arctic SDI) (8732)

Peter Wasström (Sweden) and Maria Lodin (Norway): How the Nordic NMCA's Contribute in Development Projects (9088)

Shlomi Sivan (Israel): The National Spatial Data Infrastructure of Zambia (9098)

Giuseppina Vacca (Italy): A WebGIS for the Knowledge and Conservation of the Historical Wall Structures of the 13th – 18th Centuries (9116)

Hansjoerg Kutterer, EuroGeographics Vice President (Belgium): A vision for future European Location Services (9117)

TS04F: WIDE AREA ENGINEERING SURVEYS FOR MONITORING AND FEATURES DETERMINATION

WEDNESDAY, 31 MAY 14:00-15:30
VENUE: ROOM 209
COMMISSION: 6
CHAIR: PROF. ALOJZ KOPACIK, SLOVAKIA (SLOVAK REPUBLIC)
RAPporteur: MR. VEIKKO SAARANEN, FINLAND

Lam Lityin (Hong Kong SAR, China):

Too Detail to Survey – UAV, Photogrammetry and Remote Sensing for Construction Projects (8688)

Remy Boudon (France): Exploring New Solutions for Large Areas or Long Linear Structures Monitoring: INSAR from Satellites and Lidar from UAV (8762)

Marijana Petković, Tosa Ninkov, Vladimir Bulatović, Mehmed Batilović and Jasmina Ninkov (Serbia): Application of Mobile Laser Scanning Technology in Making the as Built Projects of Industrial Objects (8799)

Emi Sukiyah, Pulung A. Pranantya, Suherman Dwinuryana and Myke Jones (Indonesia): The Morphotectonic 3-D Modelling of Cisadane Watershed Based on Interpretation of Satellite Imagery and Field Survey in the Region of South Tangerang, West Java, Indonesia (8992)

TS04H: RURAL DEVELOPMENT AND PUBLIC PRIVATE PARTNERSHIP

WEDNESDAY, 31 MAY 14:00-15:30
VENUE: ROOM 215 – ESRI
COMMISSION: 8
CHAIR: MS. YVONNE SOWAH, GHANA
RAPporteur: MS. ROSY LIAO RONG, CHINA

Lauren Power, Con Charalambou, Kane Orr, Mark Dunford and Russell Hay (Australia):

Australia Exposed: Exposure Information for Ensuring Australia's Community Safety (8883)

Zainal A Majeed, Saiful Nizam Saip and Eng Guan Ng (Malaysia): Towards Augmented Topographic Map: Integration of Digital Photograph Captured from MAV and UAV Platforms (8916)

Wiwin Ambarwulan, Widiatmaka Widiatmaka, Niendyawati Niendyawati, Titiek Suparwati and Irman Firmansyah (Indonesia): Land Suitability and Dynamic System Model for Land Use Planning of Paddy Field in Indramayu Regency, Indonesia (8960)

Pierre Damien Ntihinurwa (Rwanda) and Fahria Masum (Germany): Participatory Land Use Consolidation in Rwanda: From Principles to Practice (9008)

Michael Klaus (Germany): Integrated Rural Development as Tool to Strengthen Rural Areas – The Case Study Sanbaishan Municipality PR China (9069)

TS04J: HISTORY SESSION

WEDNESDAY, 31 MAY 14:00-15:30
VENUE: ROOM 217
CHAIR: MR. JOHN BROCK, AUSTRALIA

John Brock (Australia): HADRIAN'S WALL: Boundary Monument for the Northern Frontier of Roman Britannia! (9164)

Francis Roy (Canada): Quebec Land System 1830-60 (9165)

Aune Rummukainen (Finland): Property Boundaries and Boundary Markers in Finland (8580)

Wednesday, 31 May 2017 16:00-17:30

TS05A: FIT-FOR-PURPOSE IN THE GLOBAL DIVERSITY

WEDNESDAY, 31 MAY 16:00-17:30
VENUE: HALL 101
COMMISSION: 7
CHAIR: MR. DANIEL PAEZ, COLOMBIA
RAPPORTEUR: MS. ZUFANOVA VLADIMIRA, CZECH REPUBLIC

Gernod Schindler and **Erik Schuetz** (Germany): Fit-for-Purpose Land Administration in Practical Application (8943)

Robin McLaren (United Kingdom) and **Stig Enemark** (Denmark): Global Campaign to Achieve 80% Security of Tenure by 2030 (8702)

Stig Enemark (Denmark) and **Robin McLaren** (United Kingdom): Implementing Fit-For-Purpose Land Administration at Country Level (8704)

Paula Dijkstra (Netherlands), **David Mitchell** (Australia), **Bennett Rohan** (Netherlands), **Ganesh Prasad Bhatta** and **Raja Ram Chhatkuli** (Nepal): Ignition for Fit For Purpose Land Administration in Nepal (9054)

Gertrude Pieper and **Markus Hakalin** (Finland): Development of an Open Source Land Records System for Urban Centers in Ethiopia (8730)

Steven Ambani, **Judith Kalinga**, **Moses Kiambuthi** (Kenya), **Mathilde Molendijk**, **Martien Tomberg**, **Eva Maria Unger**, **Christiaan Lemmen** (Netherlands) and **Brent Jones** (USA): Fit-for-Purpose and Fit-for-Future Technology for Cadastral Systems (8494)

TS05B: ROUNDTABLE DISCUSSION ON BIM

WEDNESDAY, 31 MAY 16:00-17:30
VENUE: ROOM 102
COMMISSION: 10
CHAIR: PROF. CHRISTIAN CLEMEN, GERMANY
RAPPORTEUR: MR. SEE LIAN ONG, MALAYSIA

Review of the Pre-Workshop "BIM for Surveyors" Report by **Christian Clemen**
 Open BIM-Microphone Discussion lead by **See Lian Ong**
 Open Short-Presentations by BIM vendors and NGOs

TS05C: REFERENCE SYSTEMS AND FRAMES

WEDNESDAY, 31 MAY 16:00-17:30
VENUE: ROOM 103A
COMMISSION: 5
CHAIR: DR. DANIEL ROMAN, UNITED STATES
RAPPORTEUR: MR. ROB SARIB, AUSTRALIA

Daniel Roman (USA): The U.S. National Spatial Reference System in 2022 (8841)

Amy Peterson and **Robert Sarib** (Australia): Transitioning to a New Paradigm – the Development and Implementation of a Modernised National Datum from a Regional Perspective (8931)

Igor Stolarov, **Viktor Popadyev** and **Vladimir Gorobets** (Russia): The Russian State Geodetic Coordinate System – 2011, Founded on Satellite Network (9121)

Nic Donnelly (New Zealand): Re-establishing the geodetic system after the 14 November 2016 Kaikoura earthquake (8898)

Graeme Blick (New Zealand): Progress towards an Integrated Vertical Datum for New Zealand (8864)

Kevin Ahlgren, **Simon Holmes**, **Xiaopeng Li**, **Yan Wang** and **Monica Youngman** (USA): Geoid Modeling at NOAA's National Geodetic Survey as 2022 Approaches (8815)

TS05D: ENVIRONMENT & SURVEY APPLICATIONS

WEDNESDAY, 31 MAY 16:00-17:30
VENUE: ROOM 103B
COMMISSION: 4
CHAIR: MS. ANGELA ETUONOVBE, NIGERIA
RAPPORTEUR: MR. SIMON IRONSIDE, NEW ZEALAND

Gordon Johnston (United Kingdom): The Blue Economy – Will a Marine Cadastre Lead to Developing a Blue Growth in the European Region – a Recent Study (9140)

Cheng Wang (China, PR): Road Damages Identification based on Traffic Big Data for Coastal City Disaster Relief (9167)

Sylvester Owhojeta (Nigeria): Onshore Drilling Rig Decommissioning at Dibi Area, Benin River – A Case Study of Parker-74 Drilling Rig Barge (8761)

Michael Sutherland and **Charisse Griffith-Charles** (Trinidad and Tobago): Marine Information Systems: Reality and Visions of Augmented Reality (8970)

Axel Annaert (Belgium): Study of the Changing of the Position of the Principal Fairway on the River Scheldt Between Terneuzen and Hansweert by Means of Old River Charts (8844)

TS05E: LAND ADMINISTRATION SYSTEM – SIM – 3D MODELS

WEDNESDAY, 31 MAY 16:00-17:30
VENUE: ROOM 207 – TRIMBLE
COMMISSION: 3
CHAIR: PROF. YERACH DOYTSHER, ISRAEL
RAPPORTEUR: DR. NIKOS ZACHARIAS, GREECE

Efi Dimopoulou and **Dimitra-Efstathia Andrianesi** (Greece): Investigating an Interoperability Platform for Sustainable Land Management (8555)
This is a peer reviewed paper.

Gertrude Njar (Nigeria): Assessment of Public-Private Partnership in Affordable Housing Provision in Cross River State, Nigeria (8734)

Njike Chigbu, **Maduabughichi Okezie** and **Veronica Ugonma Okoye** (Nigeria): Realization of a Functional Photo-Realistic 3D City Geographic Information System (3D GIS), the Place of Google Earth and Arc Scene (8757)

Lorenz Jenni (Switzerland), **Victor M. Bajo Pérez** (Spain), **Andrés Guarín** (Colombia), **Michael Germann** and **Claude Eisenhut** (Switzerland): LADM Implementation in Colombia – Process, Methodology and Tools Developed and Applied (8853)

Danièle Brancato, **Cromwell Manaloto**, **Alessandro DalMasso**, **Luca DalBuono** and **Gianrico Baldini** (Italy): Drone in Agriculture: A Start-Up Case Study in Ragusa (9017)

Gualtiero Parmeggiani, **Luca DalBuono**, **Alessandro Dalmasso**, **Cromwell Manaloto** and **Daniele Brancato** (Italy): 3D Model of Underground Canal "Aposa" Bologna (9047)

Pietro Grimaldi (Italy): GIS for a Small Town (9059)

Mladen Femic (Montenegro): Land use Plan in Project "Bar-Boljare Highway" – the first Highway in Montenegro (8511)

TS05F: KINEMATIC DATA ACQUISITION AND PROCESSING TECHNIQUES I

WEDNESDAY, 31 MAY 16:00-17:30
VENUE: ROOM 209
COMMISSION: 6
CHAIR: MS. MARIA JOAO HENRIQUES, PORTUGAL
RAPPORTEUR: MR. ENGIN GÜLAL, TURKEY

Ivan Detchev (Canada), **Ayman Habib** (USA) and **Derek Lichti** (Canada): Stability Analysis of a Multi-Camera Photogrammetric System Used for Structural Health Monitoring (8565)

Otto Lerke and **Volker Schwieger** (Germany): Steering Method for Automatically Guided Tracked Vehicles (8588)

Veikko Saarinen (Finland): On the Robotization of Precise Levelling Measurements (8773)

Roope Näsi, **Eija Honkavaara**, **Teemu Hakala**, **Niko Viljanen** and **Pirjo Peltonen-Sainio** (Finland): How Farmer Can Utilize Drone Mapping? (9004)

David Holdener (Switzerland), **Derek D. Lichti**, **Jeremy Steward** and **Pedram Kaheh** (Canada): Monitoring Masonry Walls Subjected to Earthquake Loading with a Time-of-Flight Range Camera (9073)

TS05G: INNOVATION IN EDUCATION

WEDNESDAY, 31 MAY 16:00–17:30
VENUE: ROOM 208 – BENTLEY
COMMISSION: 2
CHAIR: MR. REINFRIED MANSBERGER, AUSTRIA
RAPPOREUR: MR. ALIAS ABDUL-RAHMAN, MALAYSIA

Jennifer Whittal (South Africa): Teaching Property Law in Geomatics Degree Programmes: Innovations to Enhance Student Engagement and Learning (8535)

Mohsen Kalantari, Abbas Rajabifard, Farzad Alamdara and Behnam Atazadeh (Australia): A 3D Game-Based Learning System for Land Administration Subjects (8605)

Paul Kenny, Karen McLean and Renee Coysh (Australia): Teaching Surveying in the Digital World (8750)

Agus Sutanto, Iwan Fahlevi Setiawan and Saut Sagala (Indonesia): Implementing a Blended Training Course on the Introduction of Geology for Spatial Planning: Potentials and Lessons Learnt (8873)

Elena Rangelova and Jude Lacoste (Canada): Challenges of Flipping a Course in Geomatics Engineering (8878)

GLTN PROFESSIONAL CLUSTER MEETING

WEDNESDAY, 31 MAY 16:00–17:30
VENUE: ROOM 212
CHAIR: DR. CHRYSY POTSIOU, FIG PRESIDENT, GREECE

The GLTN Professional Cluster has 13 members and is currently led by FIG. In this meeting the current and future GLTN cluster activities will be discussed. At present, GLTN is in the process of developing a six-year Phase 3 Strategy. In this context, the contribution of the Professional Cluster is important.

TS05H: URBAN AND CITIES PLANNING

WEDNESDAY, 31 MAY 16:00–17:30
VENUE: ROOM 215 – ESRI
COMMISSION: 8
CHAIR: MS. MARIJE LOUWSMA, NETHERLANDS
RAPPOREUR: MR. KWASI DARKO ASARE, GHANA

Pertti Tamminen (Finland): Urban Sustainability in Vuores, a New Housing Development in Tampere (8683)

Isabelle Klein and Alexandra Weitkamp (Germany): How to Define Threshold Households in Different Big German and European Cities (8719)

Christelle van den Berg (Netherlands), **Daviz M. Simango** (Mozambique) and **Christiaan Lemmen** (Netherlands): Urbanisation Versus Occupation in the Beira Municipality in Mozambique; How Land Registration Supports Spatial Planning Processes (8720)

Maarit Kahila and Anna Broberg (Finland): Making Cities Wiser – Crowdsourcing for Better Decisions (8847)

Gozde Bakioglu and Asli Dogru (Turkey): GIS-Based Model for Estimation of Level of Service (8852)

Efthimios Bakogiannis, Charalampos Kyriakidis, Maria Siti and Chryssy Potsiou (Greece): Increasing Urban Resilience of Athens' Historic Center (9045)

TS05I: THE VALUATION MODELS OF TOMORROW AND COMMISSION 9 WORKING GROUPS

WEDNESDAY, 31 MAY 16:00–17:30
VENUE: ROOM 216
COMMISSION: 9
CHAIR: MR. STEVEN NYSTROM, UNITED STATES
RAPPOREUR: MR DAVID SMEJKAL, CZECH REPUBLIC

Antonio Benvenuti (Italy): Market Value with the Direct Capitalisation Through the Building and Land Rate (8722)

Seppo Järvinen and Esa Ärölä (Finland): Market Based Income Approach for Forest Valuation (8937)

Alexander Dorndorf, Matthias Soot, Alexandra Weitkamp and Hamza Alkhatib (Germany): A Heuristic Robust Approach for Real Estate Valuation in Areas with Few Transactions (8982)

TS05J: FIG COMMISSION 1 WORKING GROUP ISSUES

WEDNESDAY, 31 MAY 16:00–17:30
VENUE: ROOM 217
COMMISSION: 1
CHAIR: MR. GARY STRONG, UNITED KINGDOM
RAPPOREUR: MS. KATE FAIRLIE, UNITED KINGDOM

Brian Coutts (New Zealand): Geospatial Surveyors – What's in a Name? (9133)

Robyn McCutcheon (Australia): Status of Women in the Spatial Industry Internationally (8771)

Kate Fairlie (United Kingdom), **Eva-Maria Unger** (Austria) and **Cecilia Linden** (Sweden): Tracking the Gender Dimensions of a Surveying Career (9020)

Donald Grant (Australia): International Boundaries on a Dynamic Planet – Issues Relating to Plate Tectonics and Reference Frame Changes (8882)

Haim Srebro (Israel): The Influence of Changes in the Jordan and Yarmouk Rivers on the International and Cadastral Boundaries (8534)

Michel Bacchus (France): Recent Improvements to the Digital Files of International Borders of France (9066)

Henning Elmström (Denmark) and **Jean-Yves Pirlot** (Belgium): FIG and the Regional Organizations (9105)

FIG COMMISSIONS ANNUAL MEETINGS

WEDNESDAY, 31 MAY 17:30–18:30
VENUE: MESSUKESKUS

The FIG Commissions are responsible for pursuing FIG's professional and technical objectives and are the backbone of the professional work in FIG.

The Commission meetings are open for everyone who are interested in the work. After the meeting each commission hosts a dinner.

Join the meetings in following rooms:

- Commission 1: Professional Standards and Practice in **Room 217**
- Commission 2: Professional Education in **Room 209**
- Commission 3: Spatial Information Management in **Room 207**
- Commission 4: Hydrography in **Room 103B**
- Commission 5: Positioning and Measurement in **Room 103A**
- Commission 6: Engineering Surveys in **Room 208**
- Commission 7: Cadastre and Land Management in **Room 101**
- Commission 8: Spatial Planning and Development in **Room 215**
- Commission 9: Valuation and the Management of Real Estate in **Room 216**
- Commission 10: Construction Economics and Management in **Room 102**

COMMISSION DINNERS

WEDNESDAY, 31 MAY 19:00–23:00
VENUE: TO BE DECIDED BY EACH COMMISSION

Details of Commission Dinner will be sent to Commission delegates.

Thursday, 1 June

Thursday, 1 June 2017 11:00-12:30

PLENARY SESSION 3

THURSDAY, 1 JUNE 9:00-10:30
VENUE: HALL 101
CHAIR: MR. MIKAEL LILJE, FIG VICE PRESIDENT, SWEDEN
RAPPORTEUR: MR. MIKAEL STILL, FINLAND

Theme: The Contribution of Our Profession – In a Digitalised World

- Prof. Dr. **Markku Poutanen**, Director, Geodesy and Geodynam-ics, Finnish Geospatial Research Institute, NLS
- Dr. **Janet Edeme**, Policy Officer, Africa Union
- Prof. Dr. **Juha Hyypä**, Director, Remote Sensing and Photogrammetry Finnish Geospatial Research Institute, NLS

REGIONAL BODIES FORUM

THURSDAY, 1 JUNE 11:00-12:30
VENUE: ROOM 212
CHAIR: MR. MAURICE BARBIERI, BELGIUM

A Forum of Regional Bodies will meet for the second time in Helsinki. This meeting has the following goals:

- Build on the first meeting of the Forum in Christchurch to discuss its Terms of Reference
- Exchange priorities, trends and best practices
- Advise FIG about possible strategies (proposal CLGE: Global Surveyors Day).

WINTER GARDEN

THURSDAY, 1 JUNE
10:45-11:30
TRIMBLE

PRODUCT DEMONSTRATION



FIG STANDARDS NETWORK SESSION

THURSDAY, 1 JUNE 11:00-12:30
VENUE: ROOM 217
CHAIR: DR. DAVID MARTIN, FRANCE
RAPPORTEUR: MR. NIC DONNELLY, NEW ZEALAND

The FIG Standards Network meets regularly to discuss relevant standards in the Survey Profession. The terms of reference of the Network are:

- Building and maintaining relations with the secretariats of standardisation bodies
- Proposing priorities on FIG’s standardisation activities, including advising the Council on priorities for spending
- Setting up necessary Liaison relationships with standardisation bodies
- Ensuring that lead contacts to Technical Committees etc... are in place
- Maintaining an information flow on standardisation to FIG members, including through the FIG website, and more directly to relevant Commission Officers
- Maintaining this Guide, and related material on the FIG website
- Working with other NGOs, within the framework of the MOUs signed by the Council
- Advising FIG’s officers and members on standardisation activities as necessary.

All those interested in standards and their influence on the surveying profession are cordially invited to attend the meeting.

ISS: GEODESY AND SURVEYING APPLICATIONS II

THURSDAY, 1 JUNE 11:00-12:30
VENUE: ROOM 102
CHAIR: MR. MIKAEL LILJE, SWEDEN

Mirjam Bilker Koivula, Jyrki Mononen, Christoph Förste, Franz Barthelmes, Jonas Ågren (Sweden), **Biao Lu** (Germany) and **Timo Saari** (Finland): Improving the Geoid Model for Future GNSS-based Navigation in the Baltic Sea (8935)

Ernesto Rodríguez Roche (Cuba): Modernization of the Cuban National Geodetic Network – Building the Fundamental GNSS Network (8622)

Belhadji Attaouia, Kahlouche Salem, Ghezali Boualem and Gourine Bachir (Algeria): Computation of Continuous Displacement Field from GPS Data -Comparative Study with Several Interpolation Methods (8754)

Linjie Men, Yahan Zhang, Yongzhong Feng and Yonghong Wang (China, PR): Research on Application of GNSS Precision Single Point Positioning in UAV Surveying (8780)

Christoph Holst, Berit Schmitz and Heiner Kuhlmann (Germany): Investigating the Applicability of Standard Software Packages for Laser Scanner Based Deformation Analyses (8736)

Kristian Evers and Thomas Knudsen (Denmark): Transformation pipelines for PROJ.4 (9156)

Bani Nugroho and Pulung Pranantya (Indonesia): Terrestrial Laser Scanning Application For Headrace Tunnel Inspection, A Case Study Cirata Tunnel Indonesia (8619)

Christopher Page, Pascal Sirguy, Richard Hemi (New Zealand), **Ghyslain Ferré, Elisabeth Simonetto, Christophe Charlet and Damien Houvet** (France): Terrestrial Laser Scanning for the Documentation of Heritage Tunnels: An Error Analysis (8891)

Daniel Gillins and Michael Dennis (USA): Inclusion of Leveling with GNSS Observations in a Single, 3-D Geodetic Survey Network Adjustment (9075)

Hendriatiningsih Sadikin, Heri Andreas and Andika Prasetya Suherman Putra (Indonesia): Land Parcel 3d Mapping Using Terrestrial Laser Scanning (tls), Case Study: Mutiara Beach, Jakarta, Indonesia (8894)

FIT-FOR-PURPOSE LAND ADMINISTRATION (UN-HABITAT GLTN & FIG)

THURSDAY, 1 JUNE 11:00-12:30
VENUE: ROOM 207 – TRIMBLE
CHAIR: MR. KEES DE ZEEUW, KADASTER INTERNATIONAL, NETHERLANDS
RAPPORTEUR: DR. ROBIN MCLAREN, UNITED KINGDOM

This session will focus on Surveyor Generals and other government representatives. The session will be in partnership with UN-Habitat/GLTN, FIG and Kadaster

Objectives:

- Sensitize stakeholders on the need for FFP approach to land administration
- Have a stock-taking exercise on how the Fit-For-Purpose Land Administration is moving forward
- Identify gaps, initial challenges and ways to address them.

Tentative Programme:

Introduction: Programme Objectives
Stig Enemark (Denmark): Synopsis: Fit-For-Purpose Land Administration
Christiaan Lemmen, Suzanne Valkman and Carline Amsing (Netherlands): FFP Land Administration in Select Countries – “The Partnership on Land in National Development”
Oumar Sylla, UN Habitat GLTN (Kenya): Mainstreaming FFP Land Administration Approaches in GLTN Priority Countries
TBA

Institutionalizing FFP Land Administration in World Bank Supported Projects

Open Discussion

– Gaps, Challenges and Opportunities

Diane Dumashie, FIG (United Kingdom)

FIG’s View on Way Forward

Robin McLaren (United Kingdom)

Summary and Closing

VOLUNTARY GUIDELINE ON THE RESPONSIBLE GOVERNANCE OF TENURE (VGGT) (FAO & FIG)

THURSDAY, 1 JUNE 11:00-12:30
VENUE: ROOM 208 – BENTLEY
CHAIR: MR. MORTEN HARTVIGSEN, FAO (HUNGARY),
RAPPORTEUR: DR. DAVID EGIASHVILI, GEORGIA

Marije Louwsma, Christiaan Lemmen (Netherlands), **Morten Hartvigsen** (Hungary), **Juhana Hiironen, Juhana Hiironen and Jean du Plessis** (Kenya): Land Consolidation and Land Readjustment for Sustainable Development – the Issues to Be Addressed (8973)

Morten Hartvigsen, Katalin Ludvig and Maxim Gorgan (Hungary): Land Consolidation as Vehicle for Implementation of VGGTs and SDGs (9007)

David Egiashvili (Georgia): The Relationship Between Land Administration, Land Consolidation and VGGT Implementation (9170)

U Soe Htun Aung (Myanmar): Experiences So Far from Introduction of Land Consolidation in Myanmar (9171)

WINTER GARDEN

THURSDAY, 1 JUNE
11:45-12:30
SENSEFLY

PRODUCT DEMONSTRATION



Thursday, 1 June 2017 11:00-12:30

TS06A: LAND MANAGEMENT IN GROWING URBAN ZONES

THURSDAY, 1 JUNE 11:00-12:30

VENUE: HALL 101

COMMISSION: 7

CHAIR: MS. PAULA DIJKSTRA, NETHERLANDS

RAPPOREUR: MR. HABTEMICAEL WELDEGIORGIS, ERITREA

Yoko Horie, Saya Kobayashi and Masaru Kaidzu (Japan): A Concept of Land Administration Tool against City Sprawl (8769)

Ine Buntinx, Serene Ho, Bruno Broucker and Joep Cromptvoets (Belgium): Implementing Innovative Land Tenure Tools In East-Africa: SWOT-Analysis Of Land Governance (9044)

Ashokkumar Shrestha, Purna Nepali and Reshma Shrestha (Nepal): Livelihoods of Squatter Settlements: Analysis from Tenure Perspective (8536)
This is a peer reviewed paper.

Abebe Zeluel, Solomon Kebede, Baheru Zeyenu and Tuomo Heinonen (Ethiopia): New Urban Land File Management System of Ethiopia (9005)

Isa Mohd Noor, Teng Chee Hua, A. Rahman M. Jazuli, Sarah Shaharuddin and Siti Baiduri Mohd Yusof (Malaysia): Cadastral In Supporting Smart Cities In Malaysia (8908)

Chukwubueze Onwuzuligbo, Victor Nnam, Precious Alozie and Emeka Ejezie (Nigeria): Implementation of Social Tenure Domain Model in Okpoko, Anambra Stae, Nigeria (8569)

TS06C: CLASSICAL AND EMERGING POSITIONING TECHNIQUES

THURSDAY, 1 JUNE 11:00-12:30

VENUE: ROOM 103A

COMMISSION: 5

CHAIR: MR. KEVIN KELLY, UNITED STATES

RAPPOREUR: DR. SUELYNN CHOY, AUSTRALIA

Vassilis Gikas, Harris Perakis, Allison Kealy (Australia), **Guenther Retscher** (Austria), **Constantinos Antoniou** (Germany) and **Thanassis Mpimis** (Greece): Indoor Parking Facilities Management Based on RFID CoO Positioning in Combination with Wi-Fi and UWB (8576)
This is a peer reviewed paper.

Harald Sternberg and Thomas Willemssen (Germany): Position Estimation Based on MEMS Inertial Sensors for the Use as Pedestrian Navigation (8558)
This is a peer reviewed paper.

Laura Ruotsalainen and Simo Gröhn (Finland): Conferest – Event Application for Comfortable Visiting Experience (8965)

Milan Horemuz and Patric Jansson (Sweden): Optimum Establishment of Total Station (8846)

Francis Okeke, Olayemi Odumodu and Victor Nnam (Nigeria): Relative Study of the Accuracy of Spirit Levelling and GNSS Levelling (8581)

Alain de Wulf, Michiel Decock, Annelies Vandenbulcke, Cornelis Stal and Philippe de Maeyer (Belgium): Noise Reduction Algorithm for Mobile LiDAR Data of Sand Ripples in Intertidal Zones of Beaches (8813)

Jorma Jokela (Finland): Use of Nummela Standard Baseline in Present-Day European Metrology Research (8971)

TS06F: REGISTRATION OF RIGHTS AS A TOOL FOR REAL ESTATE MARKETS

THURSDAY, 1 JUNE 11:00-12:30

VENUE: ROOM 209

COMMISSION: 7

CHAIR: DR. DAVID MITCHELL, AUSTRALIA

RAPPOREUR: DR. LUDMILA PIETRZAK, POLAND

Richard Grover (United Kingdom): Fair, Efficient and Accessible Property Markets (8986)

Leikny Gammelmø (Norway): Should People Trust Information from the Cadastre? – the Case of Public Administrative Usage in Norway (8501)
This is a peer reviewed paper.

Alexandra Höglblom Moisés (Sweden): 3D Real Property Formation in Sweden (8991)

Caleb Oluwadare and Olajide Kufoniyi (Nigeria): Space-Enhanced Systematic Land Titling and Registration: a Stride at Resuscitating Nigeria's Dead Capital (8564)
This is a peer reviewed paper.

Rong (Rosy) Liao (China, PR): The Direction of Rural Land Management Reform in China (9138)

Haodong Zhang and Conrad Tang (Hong Kong SAR, China): A Participatory Model for the Assessment of Cadastral Survey Systems – Case study report of Hong Kong (8591)
This is a peer reviewed paper.

TS06H: UNPACKING PLANNING PRINCIPLES FOR SUSTAINABLE DEVELOPMENT

THURSDAY, 1 JUNE 11:00-12:30

VENUE: ROOM 215 – ESRI

COMMISSION: 8

CHAIR: DR. MICHAEL KLAUS, CHINA

RAPPOREUR: MS. ROSY LIAO RONG, CHINA

Peter Nwilo, Emmanuel Ayodele and Chukwuma Okolie (Nigeria): Determination of the Impacts of Landscape Offsets on the 30-metre SRTM DEM through a comparative analysis with Bare-Earth Elevations (8560)
This is a peer reviewed paper.

Peter Nyhlén (Sweden): National Geodata Strategy for Sweden 2016-2020 Developed Co-Operation for Open and Usable Geodata Via Services (8791)

Mark Obbink (Netherlands): Widen Your View with SKETCH 'n MATCH Empowering Participatory Planning in Rural and Spatial Development (8823)

Robert Kaden and Christian Clemen (Germany): Applying Geodetic Coordinate Reference Systems within Building Information Modeling (BIM) (8967)

Yaïves Ferland, Francis Roy and Guy Mercier (Canada): The Rise and Fall of Zoning (9071)

TS06I: REAL ESTATE TAXATION SOLUTIONS FOR A CHANGING WORLD

THURSDAY, 1 JUNE 11:00-12:30

VENUE: ROOM 216

COMMISSION: 9

CHAIR: MR. RICHARD GROVER, UNITED KINGDOM

RAPPOREUR: MR. RISTO PELTOLA, FINLAND

Risto Peltola (Finland): How Finland Approaches Land Value Taxation: an Experiment to Cost-Effectively Value Land in a System Where Land and Structures Are Valued Separately (8666)

Quang Thanh Bui (Viet Nam): House Price Estimation in Hanoi Using Artificial Neural Network and Support Vector Machine: in Considering Effects of Status and House Quality (8751)

Maximilian Karl (Germany): The Fiscal Reform of Land Tax in Germany: Still a Report for the Time Being? Same Old, Same Old... (8810)

Nanin Sugito, Irawan Sumarto, Hendriantingsih Sadikin and Bambang Leksono (Indonesia): Urban Land Sector Assessment using Simultaneous Equation Model as Single Value for Multi-purpose (8917)

FIG PLATINUM MEMBER SESSION: LEICA GEOSYSTEMS



THURSDAY, 1 JUNE 11:00-12:30

VENUE: ROOM 103B

CHAIR: MS. VANDA KADLECICKOVA & MR. VAHUR JOALA, FINLAND

When it has to be right

This presentation is planned to be as dialogue between **Vanda Kadlecikova** from Heerbrugg (BLK360 team) and **Vahur Joala** from Leica Finland.™

Dialogue is built up on base how Leica can provide needed solutions to the customers.

This is not just technical presentation. Dialogue is supported with PPT and videos.

WINTER GARDEN

THURSDAY, 1 JUNE
12:45-13:30
ESRI

PRODUCT
DEMONSTRATION



FIG TASK FORCE ON COMMISSION STRUCTURE: OPEN DISCUSSION ON THE TASK FORCE RECOMMENDATIONS

THURSDAY, 1 JUNE 13:00-13:30

VENUE: ROOM 103A

CHAIR: MR. MIKAEL LILJE, SWEDEN

Open discussion on the Task Force recommendations

NOTE THE TIME!

Thursday, 1 June 2017 14:00-15:30

ACADEMIC FORUM ON VGGT (FAO & FIG)

THURSDAY, 1 JUNE 14:00-15:30
VENUE: ROOM 208 - BENTLEY
CHAIR: PROF. WALTER DE VRIES, NETHERLANDS

The 2017 FIG Academic Members Forum is the platform within the 40th FIG General Assembly where the Academic Members of FIG and other academicians gather to discuss about academic responsibilities and prepare actions. This session presents the outcome of the work of the Academic Members Working Group 'Exploring the VGGT in Practice' on the implementation of The Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security, the VGGT, in the surveying profession and professional education. In a Round Table setting the results will be discussed resulting in an agreement on the way forward.

Walter Timo de Vries (Germany), **Chethna Ben** (Fiji), **Mohsen Kalantari** (Australia), **Liza Groenendijk** (Netherlands) and **Francis Roy** (Canada): How is the VGGT Travelling over Time in the Survey Community? (8735)

Liza Groenendijk (Netherlands), **Francis Roy** (Canada), **Walter Timo de Vries** (Germany), **Mohsen Kalantari** (Australia) and **Chethna Ben** (Fiji): Land Governance for Surveyors: the VGGT in the Curriculum (8602)

David Mitchell (Australia), **Siraj Sait** (United Kingdom), **Jean du Plessis** (Kenya) and **Dimo Todorovski** (Netherlands): Towards a Responsible Land Administration Curriculum (8876)

ISS: TOOLS IN LAND GOVERNANCE, CLIMATE CHANGE AND THE CADASTRE

THURSDAY, 1 JUNE 14:00-15:30
VENUE: ROOM 102
CHAIR: MR. SIMON IRONSIDE, NEW ZEALAND

Christiaan Lemmen, Kees de Zeeuw and Peter van Oosterom (Netherlands): Further Development of Operational Standards in Support to Land Administration (9033)

Ludmila Pietrzak and Andrzej Hopfer (Poland): Extension of Property Rights in the Context of Marking Parcel Lines in Works Related to Cadastral Parcel Lines (9157)

Babu Ram Acharya (Nepal): Towards Responsible Land Governance in Nepal (8682)

Diah Dzihrina, Heru Murti and Hanhan L. Syahid (Indonesia): A Way to Accelerate Land Registration Programme through Participatory Mapping (Case Study: Indonesia) (9106)

Mehmet Alkan and Zeynel Abidin Polat (Turkey): Design and Determine the Spatio-Temporal Cadastral Data Infrastructure for LADM (8633)

Asmamaw Yehun, Amezene Reda, Animaw Mekonen and Solomon Chekole (Ethiopia): Evaluation of Current Urban Cadastre Practice in Ethiopia: Case of Bahir Dar, Gondar and Dessie (8804)

Charisse Griffith-Charles and Michael Sutherland (Trinidad and Tobago): Determining Cadastral System Conformity to the VGGTs (8849)

Sandra Rodriguez, Daniel Páez (Colombia) and **Abbas Rajabifard** (Australia): Analysis of the Implementation of Multi-purpose Cadastre in Colombia from an International Perspective (8866)

Tarja Myllymäki and Tuomas Kautto (Finland): Why Interoperability of Data Is So Challenging? (8979)

Asli Dogru, Deniz Okcu, Asli Sabuncu and Haluk Ozener (Turkey): Interaction of Spatial and Temporal Integration of Climate Characteristics by GIS (8966)

Wang Xiaofan, Dai Erfu and Guo Xudong (China, PR): Modelling the Coupled Effects of Climate Change and Management Approaches in the Plantations of Southern China (8596)

LAND TOOLS FOR TENURE SECURITY (UN-HABITAT GLTN & FIG)

THURSDAY, 1 JUNE 14:00-15:30
VENUE: ROOM 209
CHAIR: DR. CHRYSY POTSIOU, FIG PRESIDENT, GREECE
RAPPORTEUR: MR. DANILO ANTONIO, UN-HABITAT GLTN, KENYA

This session highlights land tools for achievement the Sustainable Development Goals, New Urban Agenda, Voluntary Guidelines.

The session will be in partnership with FIG, University of Twente, RMIT University & UN-Habitat/GLTN.

Objectives:

- Sensitize stakeholders on the need for the development of pro-poor and gender responsive land tools
- Provide an overview on the development and application of land tools in support of the continuum of land rights by GLTN partners
- Showcase the emerging outcomes from land tools application.

Tentative Programme: Overview of the Session - Introduction
Jaap Zevenbergen (Netherlands): Land Tools: Why, What and How?

Diane Dumashie, FIG (United Kingdom): Responding to the Challenge: The Role of FIG and Land Professionals

David Mitchell (Australia): Bridging the Gaps: The Need for Capacity Development Open Discussion

Oumar Sylla, UN Habitat GLTN (Kenya): Tools Application: Emerging Stories from the Field Open Discussion: Gaps, Challenges and Way Forward

Summary/Closing

TS07A: FINDING SYNERGIES FOR LAND PLANNING AND LAND REGISTRATION

THURSDAY, 1 JUNE 14:00-15:30
VENUE: HALL 101
COMMISSION: 7 AND 8
CHAIR: MR. ARI TELLA, FINLAND
RAPPORTEUR: MS. CLAIRE GALPIN, FRANCE

Salim Khamis Al Najashi (Oman): The Development of a Prototype SDI Compliant 2D Cadastral Parcels Model to Produce a Cadastral Dataset for Oman (8568)

Hyeong Jo (Republic of Korea): Spatial Planning and Management Using Augmented Reality (9161)

Shimon Barazani and Yaron Felus (Israel): New Cadastral Processes for Town Planning Aim at Expediting Land Registration (9080)

Carline Amsing, Rohan Bennett, Jaap Zevenbergen (Netherlands) and **Serene Ho** (Belgium): Assessing Technological Possibility Against Societal Need: Smart Sketch Maps for Fit-Purpose Land Administration (8737)

Jani Hokkanen and Esa Tiainen (Finland): Cadaster Development and Support to UN SDGs (8842)

Mikko Marjomaa (Finland): Land Consolidation and Jointly Owned Forest - Case Haukipudas (8833)

Sri Karina Bangun, Louis Marrou (France) and **Soegiono Soetomo** (Indonesia): The Influence of Land Development and Planning on Rubarnism in Barito Kuala, South Kalimantan, Indonesia (9108)

TS07C: GNSS I

THURSDAY, 1 JUNE 14:00-15:30
VENUE: ROOM 103A
COMMISSION: 5
CHAIR: DR. SUELYNN CHOY, AUSTRALIA
RAPPORTEUR: DR. NEIL WESTON, UNITED STATES

Hannu Koivula, Antti Laaksonen, Sonja Lahtinen, Jaakko Kuokkanen and Simo Marila (Finland): Finnish Permanent GNSS Network, FinnRef (8939)

Sadat Bakici, Omer Salgin, Tahsin Kara, Serdar Erguner, Erkan Kulaksiz and Ali Ilbey (Turkey): Business Model of CORS-TR (TUSAGA-AKTIF) (8913)

Tansu Erol, Bilal Erkek and Sedat Bakici (Turkey): Trusted Data Communication and Security Issues in RTK GNSS Network (8613)

Hancock Craig, Huib de Ligth (China, PR) and **Xu Tang** (China, PR): The Possibility of Using GNSS Quality Control Parameters to Assess Ionospheric Scintillation Errors (8822)

Kazuki Sakai, Basara Miyahara, Yohei Hiyama and Tomoaki Furuya (Japan): Development of GNSS Positioning Technique for Improving Positioning Accuracy Under Urban Environments (8784)

Fuat Basciftci, Cevat Inal, Omer Yildirim and Sercan Bulbul (Turkey): Determination of Regional TEC Values by GNSS Measurements, A Case Study: Central Anatolia Sample, Turkey (8940)

TS07D: CONSTRUCTION STANDARD, REGULATION & BEST PRACTICES

THURSDAY, 1 JUNE 14:00-15:30
VENUE: ROOM 103B
COMMISSION: 10
CHAIR: ING. ROBERT SINKNER, CZECH REPUBLIC
RAPPORTEUR: PROF. CHRISTIAN CLEMEN, GERMANY

Ayodeji Oke, Clinton Aigbavboa (South Africa) and **Olayinka Ibitoye** (Nigeria):

Effects of Globalization on Quantity Surveying Practice in an Emerging Economy (8483)
This is a peer reviewed paper.

Ayodeji Oke (South Africa), **Treasure Ijeh** (Nigeria) and **Clinton Aigbavboa** (South Africa):

Appraisal of Qualitative Factors Affecting Contractors' Tender Price in a Developing Country (8484)
This is a peer reviewed paper.

Ruya Fadason, Chitumu Danladi and Sharon Jatau (Nigeria):
 Construction Standard and Regulation in Nigeria (8746)

Ong See Lian (Malaysia):
 ICMS – Global Consistency in Reporting Construction Cost (8890)

TS07E: GIS AS A CRITICAL TOOL IN RESEARCH AND DISASTER RECOVERY PREPAREDNESS, RECOVERY AND MANAGEMENT

THURSDAY, 1 JUNE 14:00-15:30
VENUE: ROOM 207 – TRIMBLE
COMMISSION: 3
CHAIR: DR. JUERG LUETHY, SWITZERLAND
RAPPORTEUR: PROF. GIUSEPPINA VACCA, ITALY

Denny Lumban Raja, Adang Saputra (Indonesia) and **Johannes Anhorn** (Germany):
 Spatial Analysis of Soil Erosion and its Correlation with Landslide Events: Case Study of Cipongkor, West Bandung District (8713)

Rudiney Pereira, Emanuel Silva, Elisiane Alba and Juliana Marchesan (Brazil):
 Open Source Tools for Integrated Production Information on Forest Areas – Study Case: Spatial Analysis of Forest Fragments in Rio Grande do Sul State, Brazil (8797)

Suman Baral (Nepal):
 Web and Mobile GIS for Disaster Recovery and Rehabilitation: Use Case of Nepal (8836)

Dewi Gentana, Emi Sukiyah, M. Lobo Balia, Nana Sulaksana and Euis Tintin Yuningsih (Indonesia):
 Determination of Tanggamus Geothermal Prospect Area, Lampung Province, South Sumatra Based on Remote Sensing and 3D Micromine Software (8871)

Cromwell Manaloto, Alessandro Dalmaso, Daniele Brancato, Luca Dal Buono and Gianrico Baldini (Italy):
 Surveyors' Role In Post-Seismic Scenario: The Earthquake In Centre Italy (9018)

TS07H: PREPAREDNESS OR RESPONSE: THE DILEMMA IN PLANNING POLICY CHOICES FOR ENVIRONMENTAL HAZARDS AND SUSTAINABLE DEVELOPMENT

THURSDAY, 1 JUNE 14:00-15:30
VENUE: ROOM 215 – ESRI
COMMISSION: 8
CHAIR: MR. KWAME TENADU, GHANA
RAPPORTEUR: MR. BRUCE KEITH, UNITED KINGDOM

Habtemicael Weldegiorgis (Eritrea):
 The Role of National Park Development in 'Recovery from Disaster' (8492)
This is a peer reviewed paper.

Lukas Rammer, Gerhard Navratil and Julius Ernst (Austria):
 After the Disaster – Cadastral Processes to Establish Legal Security (8519)
This is a peer reviewed paper.

Biplov Bhandari (Nepal), **Manzul Kumar Hazarika** (India) and **Nuwan Waidyanatha** (Sri Lanka):
 The role of SAMBRO as Cross-Agency Situational-Awareness Platform for Disaster Risk Management (8592)

Hassan Chtouki (Morocco):
 The Contribution of the City Planning in the Urban Resilience to the Hazards of Earthquakes and Floods: the Case of Morocco (8759)

Andiani Andiani (Indonesia) and **Sulamith Kastl** (Germany):
 A Guideline to Incorporate Geological Hazard Information to Spatial Planning for Local Governments in Indonesia (8877)

Asli Sabuncu (Turkey):
 Object Based Land Cover Classification with Orthophoto Data After Natural Disaster (8924)

Theo Koetter (Germany):
 Stress Testing Cities – How to Measure the Resilience of Cities (9095)

TS07I: EXTREME VALUATION CHALLENGES AND HOW TO OVERCOME THEM

THURSDAY, 1 JUNE 14:00-15:30
VENUE: ROOM 216
COMMISSION: 9
CHAIR: MR. JAMES KAVANAGH, UNITED KINGDOM
RAPPORTEUR: MR. MICHAEL MCDERMOTT, AUSTRALIA

Felician Komu (Tanzania):
 Property Valuation Systems and Methods in Tanzania – An Empirical Analysis (8551)
This is a peer reviewed paper.

Matthias Soot, Alexander Weitkamp, Alexander Dorndorf, Anja Jeschke and Hamza Alkhatib (Germany):
 Different Regions with Few Transaction – An Approach of Systematization (8648)

Michael McDermott (Australia) and **Matt Myers** (USA):
 Presenting a Guide to the Valuation of Unregistered Land (8796)

Efstathios Katagis and Konstantina Mangina (United Kingdom):
 Logistics: the New High Street. Is Greece Capable of Following the Example of Poland? (8865)

ISS: THE WAY WE WORK: CONSIDERING LAND CONSOLIDATION, COMPENSATION AND BOUNDARIES

THURSDAY, 1 JUNE 16:00-17:30
VENUE: ROOM 102
CHAIR: MR ROBERT W. FOSTER, UNITED STATES

Zhang Jing, Wang Ke, Xu Hongwei, Deng Jingsong and Yu Zhoulu (China, PR):

Research on the Consolidation of Rural Construction Land under China's New Urbanization Plan – A Case Study in Tongxiang City, Zhejiang Province, China (8786)

Shiguang He and Yongzhong Feng (China, PR):
 Land Consolidation Helps Rural Poor Population Get Rid of Poverty – Taking Gansu Province of China as an Example (8729)

Lei Yang (China, PR):
 Smart Land Consolidation Approach in China a Case Study of Chengdu Plain (8777)

Kalle Kontinen (Finland):
 The Reliction in the Finnish Cadaster – A Very Finnish Problem (8647)

Bambang Edhi Leksono, Nanin Trianawati Sugito, Andri Rapiq Ahmadi, Levana Apriani, Muhammad Ihsan, Agung Budi Harto and Wiwin Windupranata (Indonesia):
 Study of Public Lands Compensation in Capacity and Existence of Abrasion and Accretion (Case Study: Northern Coast Region, Indramayu, West Java) (8790)

Petri Lukin (Finland):
 Expropriation in Finland (8932)

Atifah Rabbani, Alfita Puspa Handayani and Andri Hernandi (Indonesia):
 Spatial Analysis about the Adjustment of NJOP based on Assessment Ratio in Bandung (8949)

FIG CORPORATE MEMBERS MEETING

THURSDAY, 1 JUNE 16:00-17:30
VENUE: ROOM 212
CHAIR: DR. CHRYSY POTSIOU, FIG PRESIDENT, GREECE

WINTER GARDEN

THURSDAY, 1 JUNE 13:45-14:30
COMNAV SYSTEMS

PRODUCT DEMONSTRATION



Thursday, 1 June 2017 16:00-17:30

TS08A: SECURING RIGHTS WITH NEW TECHNOLOGIES**THURSDAY, 1 JUNE 16:00-17:30****VENUE:** HALL 101**COMMISSION:** 7**CHAIR:** DR. ROBIN MCLAREN, UNITED KINGDOM**RAPPORTEUR:** DR. KIRSikka RIEKKINEN, FINLAND**Kees de Zeeuw and Martin Salzmann** (Netherlands): Tenure Security as a Service (8976)**Sanjaya Manandhar and Bijaya Kumar Manandhar** (Nepal): The Importance of RRR in Cadastral System (8747)**Libor Tomandl** (Czech Republic): Solutions for Increasing Legal Credibility of Property Boundary (8884)**Murat Meha, Muzafer Çaka and Rexhep Kqiku** (Kosovo): Enhancing Cadastral Land Information System Towards Soa in Republic of Kosovo (8631)**Leiv Bjarte Mjøs** (Norway): Cadastral Development in Norway and Need for Reforms (9024)**Donald Grant** (Australia): Earthquake Affected Cadastral Boundaries in New Zealand – Legislation and Maintenance of Cadastral Spatial Accuracy (8934)**TS08C: GNSS II****THURSDAY, 1 JUNE 16:00-17:30****VENUE:** ROOM 103A**COMMISSION:** 5**CHAIR:** DR. NEIL WESTON, UNITED STATES**RAPPORTEUR:** DR. SUELYNN CHOY, AUSTRALIA**Gethin Wyn Roberts** (United Kingdom): Triple Frequency Multi-GNSS Cycle Slip Detection Using Ionospheric Residuals (8785)**Hussein Msaewe, Craig Hancock, Panos Psimoulis, Gethin Roberts and Lukasz Bonenberg** (United Kingdom): Assessment of the Effects of Combining Multi-GNSS Constellations on the Solution Accuracy and Availability (8831)**Cetin Mekik, Ilke Deniz and Gokhan Gurbuz** (Turkey): Determination of the Most Applicable Precipitable Water Vapour Model for Turkey Using GNSS (8512)**Li Zhang and Volker Schwieger** (Germany): Investigation of a L1-optimized Choke Ring Ground Plane for a Low-Cost GPS Receiver-System (8513)
*This is a peer reviewed paper.***Jeremiah Richard and Chima Ogba** (Nigeria): Analysis of Accuracy of Differential Global Positioning System (DGPS) and Google Earth Digital Terrain Model (DTM) Data using Geographic Information System Techniques (8585)**Reinhard Blasi and Alina Hriscu** (Czech Republic): European GNSS for Surveying and Mapping (8738)**TS08D: TECHNOLOGY AND SENSORS****THURSDAY, 1 JUNE 16:00-17:30****VENUE:** ROOM 103B**COMMISSION:** 4**CHAIR:** MR. MICHAEL SUTHERLAND, TRINIDAD AND TOBAGO**RAPPORTEUR:** MR. GORDON JOHNSTON, UNITED KINGDOM**Hungkyu Lee, Yunsu Choi, Guenwoo Ham and Seonghyeon Yun** (Republic of Korea): Experimental Assessment of Achievable Accuracy of GNSS-Derived Heights from Carrier Phase-Based Positioning Techniques for Ellipsoidally Referenced Hydrographic Surveys (8792)**Hugh Parker, Mark Sinclair and Benoit Cajelot** (Australia): Airborne LIDAR Bathymetry Operations in Challenging Environments as Experienced in Finland (8885)**Erwin Heine** (Austria): Multi-Transducer Sediment Echo Sounder for 3D Documentation of Submerged Archaeological Sites – a Case Study at a Prehistoric Pile Dwelling at Lake Mondsee (Austria) (9012)**Tanja Dufek** (Germany): Concept of Autonomous UUV/USV Operations for Harbor Surveys (8554)
*This is a peer reviewed paper.***Dino Dragun** (Croatia), **Lieselot Noppe, Pierre Serpe** (Belgium), **Emeline Caron and Astrid Robert** (France): Semi-Buried Seabed Object Detection: Sonar vs. Geophysical Methods (9102)**TS08E: CARTOGRAPHY AND AEREOPHOTOGRAMMETRY****THURSDAY, 1 JUNE 16:00-17:30****VENUE:** ROOM 207 – TRIMBLE**COMMISSION:** 3**CHAIR:** PROF. PIETRO GRIMALDI, ITALY**RAPPORTEUR:** MR. ALESSANDRO DALMASSO, ITALY**Harry Ferdiansyah** (Germany): Scheme for Enriching Authoritative Geospatial Information using Participatory Mapping Data in Indonesia (8520)
*This is a peer reviewed paper.***Jinyue Wang, Martin Metzner and Volker Schwieger** (Germany): Accuracy and Quality Assessment of Various Digital Road Maps for Wrong-Way Driving Detection on German Autobahn (8614)
*This is a peer reviewed paper.***You Shao and Samsung Lim** (Australia): A Semi-Automatic Method for Building Boundary Extraction from Airborne Lidar Data (8779)**Juha Oksanen, Christian Koski, Pyry Kettunen and Tapani Sarjakoski** (Finland): Automatic Generation of Cartographic Features for Relief Presentation Based on LIDAR DEMs (8950)**Hayrettin Acar, Mehmet Ozturk, Fevzi Karsli and Mustafa Dihkan** (Turkey): Automatic Extraction of Oblique Roofs for Buildings from Point Clouds Produced by High Resolution Colour-Infrared Aerial Images (9002)**Lingli Zhu, Juha Suomalainen, Eero Salminen, Juha Hyyppä, Harri Kaartinen, Arttu Julin and Hannu Hyyppä** (Finland): Augmented Reality and Remote Sensing: Using Multi-Spectrum to Exhibit Our Physical Environment (9029)**Zenabu Sisay** (Ethiopia): Feature Orientation and Positional Accuracy Assessment of Digital Orthophoto and Line Map for Large Scale Mapping: The Case Study on Bahir Dar Town, Ethiopia (9081)**TS08F: TAKING RESPONSIBILITY FOR INTEREST GROUPS AND STAKEHOLDERS****THURSDAY, 1 JUNE 16:00-17:30****VENUE:** ROOM 209**COMMISSION:** 7**CHAIR:** DR. DANIEL STEUDLER, SWITZERLAND
RAPPORTEUR: MS. MARIJA JURIC, SWEDEN**James Kavanagh** (United Kingdom): Land Transfer Standards – Bringing Fit for Purpose Concepts to the Land Transaction Process (8594)**Kim Muni** (Republic of Korea): Revolutionizing Land Survey in the 5G era (9162)**Maliheh Gholamhosseini** (Iran), **Arbind (Man) Tuladhar and Liza Groenendijk** (Netherlands): Insecurity of Land Tenure and Women Vulnerability in Climate Change (8684)**Ceciliar Nkechi Baywood Chukwuma, Udo A Emmanuel, Johnbosco Ojiako and Chinedu Brown** (Nigeria): Women Right to Land in Nigeria (8509)**Michael Barry** (Canada): A Word Processor Based Deed Design to Facilitate Land Title Adjustment (8687)**Mehmet Fatih Diri** (Turkey): Sustainable and Effective Land Management (8615)**Thomas Dabiri** (Nigeria): Delta State Government of Nigeria Good Cadastre Initiative And Poor Cadastre Infrastructure: A Weak Foundation For Good Governance And Good Citizenship (8926)

TS08G: DEMAND, QUALITY AND ACCREDITATION OF EDUCATION

THURSDAY, 1 JUNE 16:00-17:30

VENUE: ROOM 208 – BENTLEY

COMMISSION: 2

CHAIR: DR. FRANCIS ROY, CANADA

RAPPORTEUR: MS. BENEDICTA AMARACHI UGWULEBO, NIGERIA

Thomas Ashaolu (Nigeria): Assessment of Asset-Specific Competencies in Valuation: a Survey of Nigerian Practitioners (8571)
This is a peer reviewed paper.

Ibrahim Sa'idu Jahun (Nigeria): The Roles and Contributions of Nigerian Polytechnics in the Development of Surveying and Geo-Informatics Education, Issues, Prospects and Challenges: A Global Perspective (8584)

Dimo Todorovski, Jaap Zevenbergen and Liza Groenendijk (Netherlands): Land Administration Master's Programme Mission Revisited (8616)

Fahria Masum (Germany), Liza Groenendijk (Netherlands), Reinfried Mansberger (Austria) and Audrey Martin (Ireland): Enhancing the Role of Surveyors: Bridging the Gap Between Demand for and Supply of Professional Education (8681)

Alias Abdul Rahman and W. M. Aminuddin Wan Hussin (Malaysia): Establishing The Geomatic Accreditation Council In Malaysia (8752)

Ashim Babu Shrestha (Nepal): Opportunities and Challenges of Geospatial (Geomatics/Surveying) Education in Nepal (9003)

TS08H: LAND GOVERNANCE IN PLANNING POLICIES

THURSDAY, 1 JUNE 16:00-17:30

VENUE: ROOM 215 – ESRI

COMMISSION: 8

CHAIR: DR. MICHAEL KLAUS, CHINA

RAPPORTEUR: MS. YVONNE SOWAH, GHANA

Paul Visigah and Iyenemi Kakulu (Nigeria): A Planning Approach to Incremental Housing Development in Port Harcourt, Nigeria (8562)
This is a peer reviewed paper.

Eunice Ms Matey (Ghana), Monica Lengoiboni and Mila Koeva (Netherlands): Zoning Standards and Compliance in the Context of Customary Tenure System: a Case Study of West Ashiye, Adentan Municipality in Ghana (8695)

Akkelies Van Nes (Norway): Spatial Improvement Strategies for Deprived Neighbourhoods (8718)

Julia Berglund (Sweden): Social Responsibility in Land Allocation Agreements – An Example from Malmö (Sweden) (8911)

Chiahemba Jesse Nor (United Kingdom), Zainab Thomas Gagaji, Chinedu Stephen Okoro, Nwosu Ikechukwu and Esther Baba (Nigeria): The Making of Global Mega Projects in Abuja's Central Area: Processes, Actors and Incentives (8941)

Guy Mercier, Francis Roy, Etienne Berthold and Yaïves Ferland (Canada): Understanding Current Cities Through the Individual Actions of Land Developers: A New Biographical Methodology (9053)

TS08I: GIS AND ITS EVOLVING ROLL IN VALUATION AND STANDARDS

THURSDAY, 1 JUNE 16:00-17:30

VENUE: ROOM 216

COMMISSION: 9

CHAIR: MR. BEN ELDER, UNITED KINGDOM

RAPPORTEUR: MR. MANOAHAR VELPURI, DENMARK

Solve Bærug (Norway): Legal, Tolerated, Illegal: IVS Market Value Definition and the "Legally Permissible" (8559)
This is a peer reviewed paper.

Ben Elder (United Kingdom): Significant Changes in International Standards – What Do They Mean for the Valuation Practitioner (8603)

Gunnar Rutegård and Anders Boghed (Sweden): Use of Laser Data as a Tool when Calculating the Volume of Standing Forest in Property Tax Assessment of Agricultural Properties (8794)

Abdullah Kara, Volkan Cagdas, Umit Isikdag (Turkey), Peter van Oosterom (Netherlands) and Erik Stubkjær (Denmark): Towards an International Information Standard for Immovable Property Valuation (8901)

Volkan Cagdas, Abdullah Kara (Turkey), Peter van Oosterom, Christiaan Lemmen (Netherlands) and Erik Stubkjær (Denmark): A Knowledge Organization System for the Development of an ISO 19152:2012 LADM Valuation Module (8904)

Ali Elbattay, Abderrzak Bannari and Nadir A. Hameed (Bahrain): Development of a Fast and Cost Effective Geospatial Techniques to Monitor Real Estate Potential of Residential Manmade Islands in the Countries of the Gulf Cooperation Council (9025)

TS08J: NEW SURVEY REGULATIONS

THURSDAY, 1 JUNE 16:00-17:30

VENUE: ROOM 217

COMMISSION: 1

CHAIR: MS. ROBYN MCCUTCHEON, AUSTRALIA

RAPPORTEUR: DR. BRIAN COUTTS, NEW ZEALAND

Kristian Holmén (Finland): The Impact of the General Data Protection Regulation (EU) 2016/679 on Land Surveying in Finland (9049)

Arve Leiknes (Norway): Proposal for Introduction of Professional Cadastral Surveying in Norway (9028)

Vadim Fishbein, Yaron Felus, Shimon Brazani and Ronen Regev (Israel): The New Israeli Survey Regulations (9057)

Jerry Carter and Tami Patrick (USA): Surveying Licensure in the United States – The Licensure Process and Efforts to Promote the Surveying Profession (9111)

Hartmut Müller and Ulrike Klein (Germany): Geo Data Management, a New Area of Activity for Surveyors (8972)

Gennady Pobedinskiy and Alexander Prusakov (Russia): The Legal and Technical Regulation of the Geodetic, Cartographic and Spatial Data in the Russian Federation (9120)

GALA DINNER

THURSDAY, 1 JUNE 19:00-23:00

VENUE: FINLANDIA HALL, MANNERHEIMINTIE 13

The Gala Dinner will be held in one of the most famous buildings in Finland and the venue of the 1990 FIG Congress, the Finlandia Hall. It is a masterpiece of Finnish architect, created by the world-renowned Finnish architect, Alvar Aalto. Its combination of an all-embracing aesthetic vision, distinctive atmosphere and functionality is unique. The location in a park by the sea in the centre of Helsinki adds the final touch to a building which has no equivalent, neither in Finland nor anywhere else. A splendid three-course meal will be followed by speeches and music performances, among others masterpieces composed by the Finnish composer Jean Sibelius.
– Ticket is required

FIG PRESIDENTS' MEETING

FRIDAY, 2 JUNE 8:30-10:30

VENUE: ROOM 103A

CHAIR: DR. CHRYSY POTSIOU, FIG PRESIDENT, GREECE

RAPPORTEUR: MS. LOUISE FRIIS-HANSEN, DENMARK

This event is convened by the FIG President and is reserved for Presidents or Heads of delegation of Member Associations (or their representatives)
– By invitation only

FIG GENERAL ASSEMBLY – PART 2 AND CLOSING CEREMONY

FRIDAY, 2 JUNE 11:00-15:00

VENUE: HALL 101

CHAIR: DR. CHRYSY POTSIOU, FIG PRESIDENT, GREECE

FAREWELL RECEPTION, HOSTED BY FIG CONGRESS 2018

FRIDAY, 2 JUNE 15:30-16:30

VENUE: WINTER GARDEN, MESSUKESKUS

Delegates are invited to farewell the Working Week 2017 and its host city in an informal environment. Join us as we toast to a successful event and at the same time have a taste of FIG Congress 2018 in Istanbul, Turkey.
All participants are invited. Hosted by FIG Working Week 2018, Istanbul, Turkey.

FIG YSN CHARITY RUN / WALK

THURSDAY, 1 JUNE 17:30-18:30

VENUE: TÖÖLÖNLAHTI, KARAMZININRANTA 4

Join us – for our 5k charity walk/run. Everybody can do it – it's all about the joined activity with our friends and colleagues.

- Humanitarian Open Street Map
- FIG Foundation





THE FIG
FOUNDATION

The FIG Foundation is an independent body under the International Federation of Surveyors and has been established for the purpose of raising funds to finance surveying education development projects and supporting young surveyors in order to build a sustainable future.

The FIG Foundation will build a sustainable future by:

- grants and scholarships to projects, for instance to develop curricula for surveying education, training and capacity building, especially in developing countries;
- encouraging research into all disciplines of surveying and to disseminate the results of that research;
- promoting high standards of education and training for surveyors and to facilitate continuing professional development;
- educating people in the disciplines of surveying, particularly

in developing countries and countries in transition;

- promoting the use of distance learning, networking, eLearning and knowledge management in surveying education and continuing professional development;
- promoting the exchange of surveying personnel for greater understanding of all facets of the profession of surveying;
- supporting by seed funding conferences, meetings of young surveyors and similar events in co-operation with international agencies such as the United Nations.

Donations to the FIG Foundation

By attending the Working Week you support the FIG Foundation with 10 EUR. Your participation in the Cultural Evening/Foundation dinner also supports the Foundation with 10 EUR. If you would like to give an extra donation contact the registration desk.

More information at www.fig.net/foundation.

WE WANT TO DO GOOD – and give back.

With this charity walk/run we will support Humanitarian Open Street Map Team and FIG Foundation.

THE HUMANITARIAN OPENSTREET-MAP TEAM (HOT) applies the principles of open source and open data sharing for humanitarian response and economic development.

FIG FOUNDATION is an independent body under FIG established for raising funds to finance surveying education development projects and supporting young surveyors.

TO REGISTER:

www.fig.net/fig2017/charityrun.htm



Riku Kettunen / Visit Helsinki

CHARITY RUN/WALK

Thursday 1 June at 17:30 Karamzinranta 4 Töölönlahti



Visit Helsinki

A Senate Square

Senate Square and its surroundings make up the oldest part of central Helsinki. It presents Carl Ludvig Engel's architecture as a unique allegory of political, religious, scientific and commercial powers. Landmarks and famous buildings around the square are the Helsinki Cathedral, the Government Palace, University of Helsinki, and Sederholm House, dating from 1757, currently functioning as Helsinki City Museum.



Lauri Rotko / Visit Helsinki

B Esplanade Park

The popular Esplanade Park, colloquially known as "Espa", is the green heart of Helsinki. It was designed by the architect Carl Ludvig Engel, and was originally opened in 1818. The eastern end of the park houses the Kappeli restaurant, and promenades on both sides of the park are full of shops, cafés and restaurants worth a visit.



Petri Virtanen / Visit Helsinki

C Museum of Modern Art Kiasma

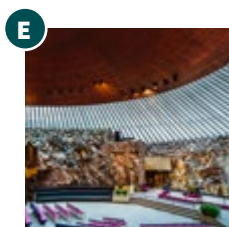
ARS17 is a major exhibition of international contemporary art on the theme of digital revolution, showcasing a large number of leading contemporary artists. Mannerheiminaukio 2, open Tue 10–17, Wed–Fri 10–20:30, Sat 10–18, Sun 10–17, Mon closed.



Lauri Rotko / Visit Helsinki

D Market Square

The Market Square is Helsinki's most international and famous market. The booths here sell traditional market foods and treats, as well as handicrafts and souvenirs. Old Market Hall nearby has served its customers since 1889. Address Eteläsatama, Mon–Fri 6:30–18, Sat 6:30–16, Sun 10–17.



Jussi Hellsten / Visit Helsinki

E Tempeliaukio Church (Rock Church)

Quarried out of the natural bedrock, Tempeliaukio Church is one of Helsinki's most popular tourist attractions. The interior walls are created naturally by the rock. The church was designed by architects Timo and Tuomo Suomalainen and opened in 1969. Address Lutherinkatu 3. Opening hours vary weekly, please listen to the bulletin +358 (0)9 2340 5940.

Other

F Ateneum Art Museum

Has the country's oldest and largest art collection. The new collections exhibition presents well-loved classics alongside seldom-exhibited works of art. Address Kaivokatu 2. Open Tue, Fri 10–18, Wed–Thu 10–20, Sat–Sun 10–17, Mon closed.

G Suomenlinna Sea Fortress

One of the biggest sea fortresses in the world, founded in 1748 and built by Augustin Ehrensvärd on islands off the coast of Helsinki. Suomenlinna was included in UNESCO World Heritage List in 1991.

H Design District Helsinki

Brings together creative people in the heart of Helsinki. The district covers Punavuori, Kaartin-kaupunki, Kamppi and Ullanlinna and is an area full of design and antique shops, fashion stores, museums (e.g. Design Museum), art galleries, restaurants and showrooms.

I Helsinki Art Museum, HAM

Current exhibitions include e.g. *Modern Life! – Finnish Modernism and the International Dimension* showcasing Finnish architecture, design and visual art between 1917 and 1968, and exhibition of works of much beloved artist *Tove Jansson* (1914–2001). Address Eteläinen Rautatiekatu 8, open Tue–Sun 11–19, Mon closed.

Other Popular Attractions in Helsinki

- SkyWheel Helsinki
- Allas Sea Pool
- Löyly Sauna
- Helsinki Zoo in Korkeasaari
- Linnanmäki Amusement Park

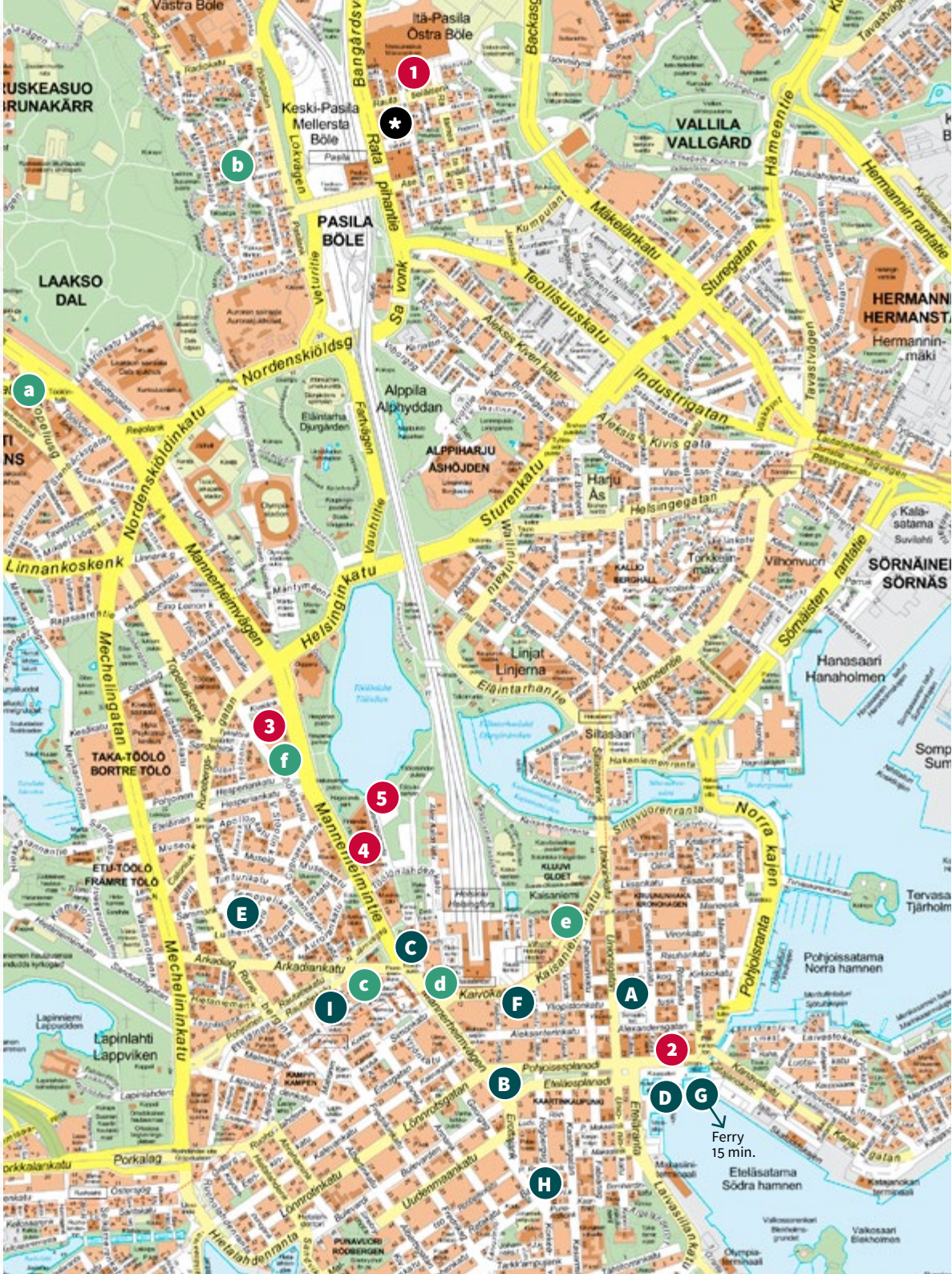
For more information check visithelsinki.fi and consult the Finland 100 stand in the registration area.

- 1** Messukeskus
Helsinki Expo and
Convention Centre
- 2** Welcome Reception
Helsinki City Hall
- 3** Foundation Dinner /
Finnish Evening
Hotel Crown Plaza
- 4** Gala Dinner
Finlandia Hall
- 5** Charity Run/Walk
Karamziniranta 4
- a** Cumulus Meilahti
- b** Original Sokos
Hotel Pasila
- c** Original Sokos
Hotel Presidentti
- d** Original Sokos
Hotel Vaakuna
- e** Radisson Blu Plaza
- f** Scandic Park
- *** Helsinki Islamic
Centre Mosque
Veturitori 4
Open 10–20
all weekdays.

**FOR ONLINE MAPS,
PLEASE CHECK
THE FOLLOWING:**

- fig.net/fig2017/map.htm
- reittiopas.fi (local traffic)
- kartta.helsinginseutu.fi
- kartta.hel.fi

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Finland's Big Year 2017

Finland became an independent state on 6 December 1917. The newly born country was willed into being by the Finns after a long struggle. In spite of hard times, the Finnish people are engaged in the building of their country and making decisions together.

Join the Finns celebrating Finland's Centennial in 2017. The theme for the 100 years of independence is 'Together'. Come along and explore all that Finland has to offer on this celebratory year, from diverse events and good vibes to experiencing the beautiful nature that is always close by.

Free Public Transport Card

With our partners City of Helsinki and Helsinki Region Transport we will offer free public transport cards to conference delegates, accompanying persons, exhibitors and sponsors. The card is valid from Sunday May 28 till Saturday June 3 in the Helsinki Region i.e. the city of Helsinki, Espoo, Vantaa, Kauniainen. You will get your card when you register at Messukeskus. With a transport card you can hop aboard trams, buses, the metro and even the ferry to Suomenlinna.

Getting to Know Helsinki

An excellent way to getting to know the city is by visiting Finland 100 booth in the registration area. The staff will be happy to give tips and highlight current trends and happenings in Helsinki. You can also check My Helsinki web site at myhelsinki.fi to get tips by local residents.

Shopping

Helsinki attracts design and architecture fans from around the world. Finnish design is characterised by minimalism and clean lines. Helsinki is an ideal city for purchasing designer goods and discovering fresh designer culture! For general information on shopping in Helsinki, check visithelsinki.fi.

Delicious Helsinki

In just a short time Helsinki has developed into the home of good food. "New Nordic Cuisine" has taken over the scene and found a truly receptive audience among the trendy small restaurants that have been established in recent years by up and coming chefs.

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