FIG WORKING WEEK 2019
22–26 April, Hanoi, Vietnam

“Geospatial Information for a Smarter Life and Environmental Resilience”
Commission Work Plans

Commission 3, 4, 5, 6 and 10
Presentation of Commission 3 Workplan

Hartmut Müller, Germany, Chair of Commission 3
FIG 42nd General Assembly, Hanoi, Vietnam, 22 April 2019
Handover
FIG COMMISSION 3
Spatial Information Management

Handover
The new team

Sagi Dalyot, Israel
Vice Chair, WG 3.3

Hartmut Müller, Germany
Chair

Kevin McDougall, Australia
Vice Chair, WG 3.1

Ulrike Klein, Germany
Vice Chair of Admin

Charalabos Ioannides, Greece
Vice Chair, WG 3.2
WG 3.1
Geospatial Information Infrastructure for Smart Cities

WG 3.2
Geospatial Big Data: collection, processing, and presentation

WG 3.3
User-Generated Spatial Content Empowering Communities

WG 3.4
3D Cadastres

WG 3.5
GIS Tools for Spatial Planning

WG 3.6
Geospatial Next

Commission 3
2019 - 2022
Mission of Commission 3

- Increase awareness about successful SIM approaches and achievements within the e-Society by showing good practice like availability, reliability, efficiency and accessibility of spatial information for better decision making and processes.
- Support the use of spatial information and SIM-tools by surveyors and by all participants in decision-making to serve the goals of good governance.
- Share good practice on managerial processes and infrastructure required for data handling, using information and distributing knowledge.
- Share good practice and develop high-level methods and techniques for merging and managing updated spatial information at various levels according to market requirements.
- Establish and maintain data - and data-quality-standards relevant to SIM, while cooperating with international spatial data standard committees.
- Encourage the use of spatial information within e-government and e-commerce.
- Cooperate and coordinate with the related United Nations Committees and other geospatial information societies and organizations active in the field based on request from the Council, they key focus will be in co-operation with ISPRS (Commission IV on Geodatabases and Digital Mapping), ICA (commission on Geospatial Data Standards), UN-GGIM, EUROGI.
WG 3.1 Specific Topics

- Geospatial information infrastructure challenges
- Integrating authoritative and crowdsourced data
- Data sharing and data openness: open source, open standards, open data.
- Managing geospatial information for smart cities and sensor integration
- Applications for geospatial information infrastructure in smart cities
- Semantic technologies, geospatial ontologies, geospatial data analytics
- Crowdsourced geospatial data, citizen geo-participation, empowerment and decision making for smart cities.
- Future ICT and geospatial technologies to support geospatial information infrastructure and smart cities
WG 3.2 Specific Topics

- Hardware and Software for GBD collection and processing
- IoT and surveying activity
- Spatial computing techniques/methodologies
- Algorithms of GBD processing
- Visualization of GBD
- GBD and mobile devices
- GBD handling methods in storing, managing, processing, analyzing, visualizing, verifying the quality of data, data security
- Cloud computing and cloud storage for efficient access and process of GBD
- Methodological/Theoretical/Technical developments in modelling, processing, analyzing, visualizing GBD
- Data mining for decision support
- Knowledge discovery from GBD
- Cluster-based systems for processing GBD
Utilization of crowdsourced user-generated spatial content in SDI, SIM and environmental knowledge
Working methodologies of user-generated spatial content in developing countries
User-generated spatial content collection, analysis, and visualization
Crowdsourced land administration management tools
Initiatives of spatial information solutions addressing global and national challenges
User-generated spatial content standards, uncertainty, ethics, authenticity, validity
Applications making use of user-generated spatial content in managing the built environment
Case studies and processes
Joint WG 3.4 Specific Topics

Joint COM3/COM7 WG 3.4
3D Cadastres

Joint COM3/COM8 WG 3.5
GIS Tools for Spatial Planning

Joint COM3/YS WG 3.6
Link com3/YS (to be discussed YS)
- Examine current GIS tools used in spatial planning practice and consider the potential role for future applications.
- Develop guidelines based on best practices regarding data standards, functionality and usability of GIS tools.
- Encourage the use of spatial information and public participation in spatial planning by using e-government.
- Foster transparency, inclusiveness and legal certainty in decision-making by providing tools for stakeholders to access information and participate in spatial planning processes.
Joint WG 3.6 Specific Topics

- Maintain the link with the changing role of surveyor in the society based on the near future geospatial technologies and next generations within the scope of Commission 3
- Bring along a synergy of young professionals into Com. 3 activities, an awareness of the new professional perspectives with good applications in industry
- Platform for the continuum of the members of the new generation of geospatial professionals who are aware of the society through various ways and FIG Young Surveyors Network and who are willing to take next level of experiences by contributing to FIG under Commission 3 topics.
Specific Commission 3 Events

- FIG Working Week 2019 Hanoi, Vietnam
- FIG Working Week 2020 Amsterdam, The Netherlands
- FIG Working Week 2021 Accra, Ghana
- FIG Congress 2022 Cape Town, South Africa

Advances in Geodata Analytics for Smart Cities and Regions

2019 Cluj-Naboca, Romania, 23-26 Sept
in conjunction with the Romanian Surveying Week

2020 Berlin, Germany, Oct
in conjunction with INTERGEO

2021, to be discussed
2022, to be discussed
New FIG Publication No. 73 available

online at
http://fig.net/resources/publications/figpub/index.asp
Special Session on FIG Publication No. 73

New Trends in Geospatial Information: The Land Surveyors Role in the Era of Crowdsourcing and VGI

Wednesday, 24 April
14:00-15:30
207abc ("FIG FOUNDATION ROOM")

Chair: Prof. Abbas Rajabifard, Australia
Rapporteur: Prof. Hartmut Müller, Chair FIG Commission 3, Germany

In this session the new FIG Publication on New Trends in Geospatial Information is presented and formally launched. Since 2011 a Working Group under FIG Commission 3 has undergone a research study on the new trends Crowdsourcing and Volunteered Geographic Information VGI. The collection and dissemination of geographic data and knowledge has been shifting into a new era of human mapping efforts, especially in terms of data collection, but also for knowledge production.

Yehonah Boytsher (Israel): Crowdsourcing vs. Wisdom of the Crowd: The Implementation in the Geo-Science Domain (10190)
[abstract] [paper] [handouts]

Chryssy Potsiou and Charalabos Ioannidis (Greece): Why Crowdsourcing in Surveying (10191)
[abstract] [paper] [handouts]

Hartmut Müller (Germany): Integration of Authoritative Geospatial Information and Crowdsourced Volunteered Geographic Information (10192)
[abstract] [paper] [handouts]

Charalabos Ioannidis and Chryssy Potsiou (Greece): 2D and 3D Crowdsourced Cadstral Surveys - Looking Ahead (10193)
[abstract] [paper] [handouts]

Enrico Rispoli (Italy): Search Path Towards the Era of Crowdsourcing and Big Data Management (10194)
[abstract] [paper] [handouts]

by
Mohd Razali Mahmud
Chair of FIG Commission 4
Commission 4 is committed to achieving both the long term and immediate aims and objectives of FIG. Its strategy over the next four years is aligned with that of the FIG Council and among others will include:

- Support for the Hydrography profession internationally including development of best practice guides, certification pathways and advocacy;
- Support the International Hydrographic Organization (IHO) and associated United Nations programmes;
- Cooperation with other FIG Commissions, including joint working groups;
- Active support and participation in FIG regional events;
- Cooperation with sister organisations and other appropriate bodies;
- Cooperation with national surveying and mapping agencies.
FIG COMMISSION 4 - WORKING GROUPS

- Working Group 4.1 - Standards and Guidelines for Hydrography
- Working Group 4.2 – Blue Growth & UN Sustainable Development Goal 14
- Working Group 4.3 – Mapping the Plastic
- Working Group 4.4 – Marine Development and Administration
Working Group 4.1 – Standards and Guidelines for Hydrography

Focus in assisting in the development and recognition of standards of competency; assisting in the development of technical standards and guidelines.

Example of Specific Project - Support the International Hydrographic Organization (IHO) through the work of its Hydrographic Services and Standards Committee (HSSC) by participating in HSSC working groups to review hydrographic standards and guidelines.

Neil Hewitt - Chair
Working Group 4.2 – Blue Growth & UN Sustainable Development Goal 14

The primary focus for Working Group 4.2 is the development and promotion of measures to manage the oceans and seas in a sustainable manner based upon accurate data, sound environmental principles and good management practices.

Gordon Johnston - Chair

Specific Project - To promote and engage with international government and non-governmental organisations to increase the understanding and awareness of the importance of the marine and ocean areas.
Working Group 4.3 – Mapping the Plastic
(a combined initiative with the FIG Young Surveyors Network)

Focus on the dumping of plastics (and other waste) into major rivers, river systems and deltas at strategic locations around the world. Waste measurement in these water bodies using remote sensing, bathymetric, current measurement and topographical surveys of plastic waste along the banks of rivers will enable a greater understanding of the quantum of plastic waste being transported to the oceans and inform the control and regulation of land use practices with an ultimate goal of eradicating the dumping of plastics into river systems.

Specific Project - A pilot project will focus on the Mekong River delta in the south of Vietnam at its outfall to the South China Sea. This project will be undertaken in conjunction with The Centre for Supporting Green Development (GreenHub), a Vietnamese, non-governmental, not-for-profit organisation and Australia’s Commonwealth Scientific and Industrial Research Organisation (CSIRO).

Simon Ironside - Chair
Working Group 4.4 – Marine Development and Administration

Focus in assisting in the development of institutional policy and framework; assisting in the development of conceptual and technical standards, guidelines and practice; assisting in the land and sea governance for a marine cadastre.

Abdullah Hisam Omar - Chair

Example of Specific Project - Development of Marine Cadastre Institutional Framework for participating countries (pilot project in ASEAN).
Annual FIG Commission 4 Event


- Commission 4 meeting
- Presentation by the Working Groups
Benefits of working together: Technical visit to IHO Secretariat, Monaco on 8 April 2019 – Commission 4 with the Director General of Department of Survey and Mapping Malaysia cum Chairman of Land Surveyors Board Malaysia, Director General of National Hydrographic Centre cum Chief Hydrographer of Malaysia, The Association of Authorised Land Surveyors Malaysia, and CEO/Secretary of Land Surveyors Board Malaysia
Thank you
Daniel Roman
Commission 5
“Positioning and Measurement”
Commission 5 - Overview

- Vice-Chair of Administration: Kevin Ahlgren, U.S.A.
- WG 5.1: Standards, Quality Assurance and Calibration: David Martin, France
- WG 5.2: 3D Reference Frames: Nic Donnelly, New Zealand
- WG 5.3: Vertical Reference Frames: David Avalos-Naranja, Mexico
- WG 5.4: GNSS: Suelynn Choy, Australia & Ryan Keenan, Australia
- WG 5.5: Multi-Sensor-Systems: Allison Kealy, Australia & Guenther Retscher, Austria
- WG 5.6: Cost Effective Positioning: Leonid Lipatnikov, Russia & Li Zhang, Germany
Current Work and Collaboration

- Reference Frames in Practice Seminar – April 2019
  - With 39 participants/ 7 UN-OOSA-sponsored/ 8 local Vietnamese
  - Supported BELS+ training on second day
- Meeting with International GNSS Service Control Board – April 2019
  - Establishing liaisons between FIG and IGS for GNSS-related studies
  - IGS expressed interest in FIG WW/Congress scheduled for Accra and Capetown
- Best Paper Award (NavXperience Award) to be made TS07E: Multi-Sensor Positioning session on Thursday, 25 April, 14:00–15:30 in room 309b ("ESRI ROOM")
- Heading FIG Standards Network and contributing to ISO TC 172/SC 6 and ISO TC 211 (David Martin) including ISO 19161-1 adoption of the ITRS
Current Work and Collaboration

• UN Office of Outer Space Affairs
  – Continuing to work with IGS in support of International Committee on GNSS
  – UN-OOSA support for RFIP
• UN Global Geospatial Information Management – SubCommittee on Geodesy
  – Multiple work groups under UN SCoG
  – Working collaboratively with WG Education Training and Capacity Building
  – FIG YSN and Commissions 2 and 5
• Looking to tie ETCB in with aspects of the UN Integrated Geospatial Information Framework (IGIF)/World Bank work
Future Work and Collaboration

- Joint International Symposium on Deformation Monitoring in Athens – May 2019
- UN-GGRF meeting in Buenos Aires – September 2019
- FIG WW in Amsterdam – May 2019
- Update to RFIP Manual in Amsterdam – May 2019
- RFIP in conjunction with SIRGAS meeting in November 2020
- RFIP in conjunction with FIG WW in Accra in 2021
- RFIP in conjunction with FIG Congress in Cape Town in 2022

- Development of ETCB archive of courses/opportunities in conjunction with UN SCoG
Message to GA/ Member Associations

• Positioning and Measurement is evolving
  – GNSS technologies are the key to this evolution
  – Access to this ITRF using multi-GNSS, PPP, RTK

• An International Terrestrial Reference Frame has been agreed upon by UN-GGIM
  – Smart Cities, Smart Roads, BIM all will be dependent on this frame
  – It will be dynamic and account for time variability

• All of FIG including Commission 5 seeks to enable Members to thrive during this change
Commission 6
Engineering surveys
• Support and accompany the development and the implementation of projects in several domains of civil, mechanical and industrial engineering as well as in highly topical domains like energy production and environmental safety.

• Promote the application of innovative and advanced methodologies and technologies during the design and construction phase as well as throughout the operation phase of the above-mentioned projects.

• Improve the collaboration between engineering surveyors and experts from neighbouring disciplines for a better sharing of knowledge and improvement of results.

• Contribute to the change of professional thinking in order to improve the awareness of our profession.
Chair
Maria Henriques

Vice-chair
Corinna Harmening
WG 6.1 – Deformation Monitoring and Analysis

support specialists in deformation studies with state-of-the-art solutions and provide latest developments and future oriented concepts:

Chair
Wolfgang Niemeier

Vice-chair
Vassilis Gikas
WG 6.2 – Landslides Monitoring

to support specialists in landslides monitoring studies with state-of-the-art solutions and provide latest developments and future oriented concepts

Chair
Gilbert Ferhat
WG 6.3 – UAV in Surveying

UAV in construction sites, visual inspections and displacements monitoring

UAV for boundary detection
Upcoming events

4th Joint International Symposium on Deformation Monitoring, Athens, Greece
Board meeting in Athens

Geodecision 2019 Meeting, Porto, Portugal

(6th FIG Young Surveyors European Meeting, Porto, Portugal)

8th International Conference on Engineering Surveying, ?, Croatia
Commission 10
Commision 10 Work Plan:
Construction Economics and Management

Chair: Alan G Muse, UK

Vice-Chair: Mercy T Iyortyer, Nigeria
Context

- Global construction spend – 85% growth by 2030 (source: PWC)

- Performance and delivery – 86% probability of overrunning (source: Flyvbjerg)/performance gap

- New technologies
Mission statements

• Cost Engineering, Cost and Commercial Management and Quantity Surveying
  – Improving global cost management through standards and new technology across the building and infrastructure sectors

• Project and Construction Management
  – Establishing best practice management methods, for application to the dynamic team environment of construction, and to ensure full benefits realisation for projects
Working groups

- **ICMS**
  - Support and adoption of ICMS 2 to be published in August 2019

- **Digital construction**
  - BIM/Al/Blockchain
  - Profession/technology interface
  - BIM workshop

- **Education and Research**
  - Developing the financial management of construction as a unified and cohesive profession worldwide
Key partners

- UN – SDG
- World Bank
- ICEC
- PAQS
- CEEC
- IPMA
- PMI
- RICS