



WORKSHOP AND ANNUAL MEETING
**SPATIAL INFORMATION
IN THE ERA OF DATA SCIENCE:
CHALLENGES AND PRACTICAL SOLUTIONS**

NAPOLI
3-6 DECEMBER 2018



International Federation of Surveyors
Fédération Internationale des Géomètres
Internationale Vereinigung der Vermessungsingenieure

FIG COMMISSION 3
Spatial Information Management



Enrico Rispoli
Chair of FIG Commission 3
Consiglio Nazionale Geometri
e Geometri Laureati
Italy

Dear Ladies and Gentlemen, Colleagues and Friends,
As chair of Commission 3, I thank you for accepting the invitation to participate in the Workshop and Commission 3 Annual Meeting 2018, organized in joint with the Consiglio Nazionale Geometri e Geometri Laureati, the Collegio dei Geometri e Geometri Laureati di Napoli and the EGoS General Assembly, 3rd to 6th December 2018, Naples, Italy.

The number of participants, from five Continents and so many different Countries, is very large.

The place will be the ideal opportunity to explore and discuss the latest progress and research on enhancing spatial data networks, ensure user trust and boost the digital transformation process on "Spatial Information in the Era of Data Science: Challenges and Practical Solutions".

Data can be cataloged by volume, services and variety.

Big Data involves unprecedented data volumes, such as those available from information systems, sensors, business transactions, social media, online publications and so on.

Data is available in many forms and in real time on ubiquitous and pervasive technologies, such as smartphone apps. The variety of data, given the multitude of sources that can be available on a single topic, makes it difficult to integrate information into a single result that can be sure.

The techniques for dealing with the volume of data are constantly expanding with tried and tested methods, but the requirements for adequate management and services, and the variety of sources raise new problems. Services and variety imply the use of ever more complex processes and algorithms, dealing with technical, interoperability, applications, user-requirements, open source, etc. to be handled. They make it difficult to integrate information into a result that you can rely on. A rich exchange of

ideas on geographical knowledge will always be essential for an effective management of information systems in general, and Geographic Information Systems in particular.

Geographic Information Systems (GIS) are designed to correlate data concerning the territory around the planet; make this information easy to view, analyze and share. The use of Big Data in this field has become so widespread as to constitute a modern science that, while offering new and unique opportunities, pushes for incessant research, involves challenges and raises many technical, social and educational questions that require increasingly updated solutions.

The workshop aims to put the evolution of recent Data Science themes related to spatial information in the spotlight, to discuss how these are translated to new ideas and contributions to projects, develop technological solutions and evaluate their effectiveness.

The papers will be able to explain how spatial information management is having great development, especially in relation to the ways in which geographic and territorial data are collected, processed and disseminated.

The program also includes the holding of a special session lasting 4 hours, on the morning of Wednesday 5 December 2018 at the Hotel Oriente, which will be open to the participation of numerous Italian surveyors and constitutes an educational event with speakers of significant international importance.

The topics that will be discussed are indicated in the attached program.

As Chair of Commission 3, I am pleased to rely on such participation and to be able to propose a program of such high scientific value.

The three days workshop and meeting will certainly be a great opportunity to meet with professional and academic colleagues in the field of surveying and to follow the reports of international members about the latest and curious news.

Welcome to Napoli

Enrico Rispoli,
Chair of FIG Commission 3
Consiglio Nazionale Geometri e Geometri Laureati - Italy



Maurizio Carlino
President of
Collegio Geometri e
Geometri Laureati della
Provincia di Napoli

Dear Colleagues,

as Chair of "Collegio Geometri e Geometri Laureati della Provincia di Napoli", and on behalf of the members and Surveyors of Naples, I have the great pleasure to welcome you all to the Annual Meeting of FIG Commission 3 in this wonderful city and I invite you to participate in the Meeting and in the Workshop.

Hosting in this house of Surveyors a so prestigious event of FIG that represents the biggest organization in the world of surveyors is a source of great pride and honor whose merit goes to all of you participants who have joined the event and to our National CNGeGL board member as well as Chair of the Commission 3, Surveyor Enrico Rispoli.

The realization of this very important initiative at the Collegio of Surveyors of Naples has been possible thanks to the commitment of the whole Council and all collaborators.

Allow me to thank the President of the Consiglio Nazionale Geometri e Geometri Laureati, Surveyor Maurizio Savoncelli, for the enthusiasm shown in supporting this exceptional initiative.

Last but not least I thank all of you who with your authoritative presence have made possible the realization of this event.

I look forward to seeing you at the Workshop and I wish you a successful meeting and a good time in the beautiful city of Naples.

Maurizio Carlino
President of Collegio Geometri e Geometri Laureati della Provincia di Napoli

16:30 | Opening Session **"Opening Session of Commission 3"**
18:30 | Session **Venue**

Collegio Geometri e Geometri Laureati
della Provincia di Napoli Headquarter

Welcome Speeches and Introduction of the events
Chair John Hohol, USA - President of FIG Foundation

Maurizio Carlino

President of Collegio Geometri e Geometri Laureati della Provincia di Napoli

Enrico Rispoli

Chair Commission 3 Spatial Information Management - FIG

Nikolaos Zacharias

President of the European Group of Surveyors - EGoS

Vladimir Tikhonov

Secretary General of the Council of European Geodetic Surveyors

Chryssy Potsiou

President of the International Federation of Surveyors

20:00 | Welcome Reception **"Welcome Reception" FIG Commission 3**
EGoS - European Group of Surveyors
Venue

Collegio Geometri e Geometri Laureati
della Provincia di Napoli Headquarter

09:00 | Session 1

FIG Commission 3 - Technical Session 1

10:30 |

"BIG Data - Research and Role of Surveyors in GIS"

Chair Charalabos Ioannidis, Greece

Integrating GIS and BIM to support the management of large building stocks

Giuseppina Vacca and Emanuela Quaquero, Italy

**Semantic-based Technologies for Interoperable BIM and GIS 3D Modelling,
Storage and Retrieval**

Katerina Athanasiou, Ioannis Pispidikis and Efi Dimopoulou, Greece

Trajectory Interpretation from Heterogeneous Sources: Dance Recognition Case

Eftychios Protopapadakis, Ioannis Rallis and Anastasios Doulamis, Greece

10:30 - 11:00 ☞ Coffee Break

11:00 | Session 2

EGoS Workshop and Commission 3 - Technical Session 2

12:30 |

The social role of the professional surveyor in the society - the informal mediation for the party wall matters and for the cadastral

Chair Malcolm Lelliott, United Kingdom

The Role of the Surveyors in the Informal Mediation for the Party Wall Matters and for the Cadastre

Nikos Zacharias - European Group of Surveyor (EGoS), Greece

Outline of Dispute resolution processes used in the UK plus the Party Wall Etc. Act 1996

Malcolm Lelliott - European Group of Surveyors, United Kingdom

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Shara Sherlock

12:30 - 14:00  Lunch

14:00 | Session 3 **FIG Commission 3 - Technical Session 3**
15:30 | "Emerging Applications in Geospatial Data"
Chair Sagi Daylot, Israel

The methodology proposed to estimate solar potential through a fast method using cloud computing

Mudit Kapoor and Rahul Dev Garg, India

Spatio-Temporal Analysis and Modeling of Urban Growth of Biratnagar City, Nepal
Sanjeevan Shrestha, Nepal

The future of authoritative geospatial data in the big data world – trends, opportunities and challenges

Kevin McDougall and Saman Koswatte, Australia

Crowdsourcing and VGI, Current State and Practices within the Land Surveying, Mapping and Geo-science Communities

Hartmut Mueller, Germany

15:30 - 16:00 ☞ Coffee Break

16:00 | Session 4 FIG Commission 3 - Technical Session 4
17:30 | "Spatial and Data Management for Sustainable Environment"
Chair Hartmut Mueller, Germany

Requirements for Standardised Representation of Public Law Restrictions based on LADM

Dimitrios Kitsakis, Eftychia Kalogianni, Efi Dimopoulou and Peter van Oosterom, Greece

Preliminary Results of Environmental Change Detection in Digital Elevation Models Produced by UAV Imagery

Tal Bauman and Sagi Dalyot, Israel

Valorization of territory of ancient mine for tourism

Matteo Tartaglini and Luca Massaccesi, Italy

Wednesday December 5

Venue

Grand Hotel Oriente, Via Diaz, 44

SURVEYORS AND THE EVOLUTION OF CADASTRAL INFORMATION SYSTEMS IN ITALY AND IN THE WORLD

Simultaneous translation available

9.00 Registration

9.30 Welcome Greetings

Geom. Maurizio CARLINO

President of Collegio Geometri e Geometri Laureati della Provincia di Napoli

Geom. Maurizio SAVONCELLI

President of Consiglio Nazionale Geometri e Geometri Laureati

Ing. John HOHOL

President of FIG Foundation

Ing. Vladimir TIKHONOV

General Secretary of CLGE
Comité de Liaison des Geometer Européens

Ing. Nikolaos ZACHARIAS

President of EGoS - European Group of Surveyors

Prof. Chryssy POTSIUO

President of FIG - International Federation of Surveyors

10.00 Keynote session 1 - New Cadastral Systems Chair Geom. Enrico Rispoli

Ing. Vladimir TIKHONOV

"The Cadastre in Russia and collaboration with Italy"

Ing. Franco MAGGIO - Central Director for Cadastral, Carto- graphic and Land Registration Services in the Italian Revenue Agency

"ITALIAN CADASTRAL SYSTEM:
innovative ways in the management and use of the Italian Cadastral Cartography"

Prof.ssa Chryssy POTSIUO

"Inter-correlation between Cadastre and Big Data"

11.00 Break

11.30 Keynote session 2 Big data management Chair Prof. Harmut Müller

Ing. Fabio Giulio TONOLO - PhD in Geodesy and Geomatics, ITHACA - Information Technology For Humanitarian Assistance, Cooperation and Action (Turin, Italy)

"The role of geospatial reference data in Emergency Mapping: challenges and solutions"

Geom. Bruno RAZZA - Past FIG Vice President

"The importance of advertising sensitive spatial data in improving the quality of life"

Prof. Giulio Zuccaro - Professor of Construction Science - Università degli Studi di Napoli Federico II

"Big Data, risk assessment and emergency planning: perspectives in research and practice"

Dr. Michal BABÁČEK - European Global Navigation Satellite System Agency Senior Consultant at SpaceTec Partners

"E-GNSS: Benefits and Key Features for Geospatial Users"

Geom. Stefano NICOLODI - President of Collegio Geometri e Geometri Laureati della Provincia di Firenze

"Professional activity and Geodesy"

13.30 Conclusions

15:30 | Session 5 FIG Commission 3 - Technical Session 5

17:00 | "Laser Scanning and 3D Modelling"

Chair Yerach Doytsher, Israel

The importance of Mobile laser scanning in the collection of road infrastructure data
Dejan Vasić, Mehmed Batilović, Tatjana Kuzmić and Marina Davidović, Serbia

**An Evaluation of Land Use Changes by Using Remote Sensing Technology:
A Case Study of Kartal – Pendik - Sultanbeyli Districts (Istanbul, Turkey)**
Cemre Sahinkaya, Turkey

The rock churches, jewels carved into the rock: survey and new technologies
Pietro Grimaldi, Italy

Modeling Ottoman Era Dome Structures from Point Clouds for Smart City Applications
Cemal Ozgur Kivilcim and Zaide Duran, Turkey

17:00 - 17:30 ☕ Coffee Break

18:30 Annual Meeting of Commission 3

20:30 🍽️ Dinner of Commission 3

09:00 | Session 6 FIG Commission 3 - Technical Session 6
10:30 | "Cadastre, GIS and SDI Procedure and Research"
Chair John Hohol, USA

Participatory Methods for Measuring Quality of Life
Ulrike Klein and Hartmut Müller, Germany

**A Proposed Procedure for Reliable 2D Crowdsourced Cadastral Surveys:
Case Studies from Greece and Romania**
Chryssy Potsiou, Cornel Paunescu, Charalabos Ioannidis,
Konstantinos Apostolopoulos and Florin Nache, Greece - Romania

Marking the Spot: Addressing the Need of Mapping Land Professionals
Manaloto Cromwell, Italy

Wishes and Realities in SDI Education - a Practical Example from the Western Balkans
Ulrike Klein and Drazen Tutic, Germany

10:30 - 11:00 ☞ Coffee Break

Thursday December 6

11:00 - 12:30 Fig Commission 3 Closing Session

Highlights of the Conference and Closing:

Proclamation of the best paper of Commission 3 / Summary - Conclusions

Enrico Rispoli - Chair Commission 3 Spatial Information Management

Hartmut Mueller - Incoming Chair Commission 3 Spatial Information Management

Chryssy Potsiou, President of International Federation of Surveyors - FIG

12:30 - 14:00  Lunch

14:30 - 18:30 Technical Visit

FIG COMMISSION 3 ORGANIZING COMMITTEE

Dott. Geom. Enrico Rispoli - Commission Chair, Italy

Dott. Geom. Maurizio Carlino, President of Collegio Geometri e Geometri Laureati della Provincia di Napoli

Dott. Geom. Antonio Cangianiello, Board Member of Collegio Geometri e Geometri Laureati della Provincia di Napoli

Prof. Dr.-Ing. Hartmut Müller - Vice Chair and Chair of WG 3.1, Germany

Prof. Dr. Ioannidis Charalabos - Vice Chair and Chair of WG 3.2, Greece

Dr. Sagi Dalyot - Vice Chair and Chair of WG 3.4 and Web Master, Israel

Prof. Yerach Doytsher, Past President of Commission 3, Israel

Dott.ssa Maria Grazia Scorza - Vice Chair of Administration, Italy

SCIENTIFIC COMMITTEE

Enrico Rispoli, Chair of Commission 3 FIG – CNGeGL Italy

Sagi Dalyot, Technion - Israel Institute of Technology

Izabela Karsznia, Warsaw University

Hartmut Müller, HS Mainz University of Applied Sciences - Germany

Efi Dimopoulou, National Technical University of Athens - Greece

Jan-Henrik Haurert, Integrating and Generalising VGI - Universität Osnabrück - Hannover - Germany

Vyron Antoniou, Hellenic Military Geographical Service - Greece

Yerach Doytsher, Technion - Israel Institute of Technology - Israel

Danny Vandenbroucke, Division SADL (Spatial Applications Division Leuven) SADL/KU Leuven -Belgium

Charalabos Ioannidis, National Technical University of Athens - Greece

Joep Cromptoets, KU Leuven - Public Management Institute - Belgium

Bashkim Idrizi, Geo-SEE Institute Macedonia

Rahmi Nurhan Çelik, Istanbul Technical University - Turkey

Chryssy Potsiou, National Technical University of Athens - Greece

Frances Plimmer, Chartered Institution of Civil Engineering Surveyors (ICES) - The UK

Vlado Cetl, University of Zagreb - Croatia



VENUE

**Collegio Geometri e
Geometri Laureati della Provincia di Napoli**
Via Cardinale Guglielmo Sanfelice, 24
80134 Napoli