



LISBOA  
27-30 NOVEMBER 2017

**FIG Commission 3 Workshop and Annual Meeting 2017 JOINT TO  
Ordem dos Engenheiros (the Portuguese Engineers Association) and  
EGoS General Assembly**

**Volunteered Geographic Information  
Emerging Applications in Public Science  
and Citizen Participation**



International Journal of  
**Geo-Information**  
an Open Access Journal by MDP

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ORDEM  
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## VENUE

**Ordem dos Engenheiros** Headquarters  
Av. António Augusto de Aguiar, 3D  
1069-030 - Lisboa



**Teresa Sá Pereira**

Chair of "Surveying Engineering  
College of Portugal's Engineers  
Professional Association"

Dear Colleagues,

As Chair of "Surveying Engineering College of Portugal's Engineers Professional Association", OE, I am glad to welcome you all to the Annual Meeting of FIG Commission 3 in Lisbon and I invite you to participate on the Meeting and Workshop associated.

This Annual Meeting is an excellent opportunity for all colleagues in the field of surveying to meet up and hear first-hand about Spatial Information Management and particularly about Volunteered Geographic Information, VGI, to learn about its applications and to share experiences.

VGI, in the age of the internet of things, is a capability and also an inescapable tool in the present and future for better and faster geospatial knowledge and, more than a threat for the surveyors community, it will have to be a source for their professional activity.

The integration of VGI in Spatial Data Infrastructure (SDI), one of the themes of the workshop, is a big challenge for our community. Let us hear what the speakers have to say to us about.

VGI can also be an important geospatial data source in order to the management land planning, urban area, cultural heritage, civil protection, and so many more areas.

This Annual Meeting and Workshop has the participation of some of the most renowned experts in the field and a significant participation of Portuguese from four National Universities.

I look forward to seeing you at the Meeting and Workshop in Lisbon.



**Chryssy A Potsiou**  
FIG President

Dear colleagues and guests,

The surveying profession in this 21st century is constantly adapting to new tools and new concepts. We are alternately challenged by, and excited by, new concepts like The Internet of Things, The Block chain (and crypto currencies), Data mining, and Crowdsourcing.

Crowdsourcing, a relatively new concept in surveying today, is a major subject of this conference and is, like all new concepts defined differently by different experts.

One definition explains, "How the power of the many can be leveraged to accomplish feats that were once the responsibility of a specialized few." Another says that crowdsourcing is "The practice of obtaining needed services, ideas or content by soliciting contributions from a large group of people..."

The principle of crowdsourcing is, apparently, that more heads are better than one, and every person has something of value to contribute. How, then, is crowdsourcing an application of benefit to surveying? Much of what we read about crowd sourcing has to do with so-called ideation, meaning that the technique is applied in a search for new ideas.

It is used for problem solving. Crowdsourcing is often used in micro-tasking, that is, in breaking work up into very small tasks and sending the work out to the crowd.

The theory is that work may be done faster and cheaper and with fewer errors when validation systems are in place.

We understand that when crowdsourcing is utilized in surveying, its value is primarily in the geo-data collection process. For instance, collecting data on pedestrian traffic in a large urban commercial district could be accomplished by the crowd. But when used in surveying the issue of validation will be critical, and assumes a certain amount of preparation and training of members of the so-called crowd. In which case, is it really a crowd or should it be thought of as a collection of amateur volunteers? But is crowdsourcing suitable for identification of fixed objects and material features, as is the objective of much surveying? The presentation of such information in x, y, z format is what surveyors do so that other professionals, like engineers and constructors, will incorporate the information into their own professional operations. For the professional surveyor in this type of crowdsourcing activity precision and accuracy are paramount and the risk of liability is problematic.

This FIG Commission 3 has since many years initiated a focused research in this field. This year the FIG Commission 3 Workshop will elaborate better the fields where crowdsourcing is of great value for the surveying profession in order to obtain affordable geospatial data reliably and timely, as well as it will investigate what are the validation systems available to the surveyor in such an operation.

Looking forward to meeting you all soon and enjoy fruitful discussions on this interesting topic.

Commission 3 is pleased to welcome all those who have accepted the invitation to participate in the Workshop and Commission 3 Annual Meeting 2017 in Lisbon.

The choice to hold the Commission 3 Meeting together with a major European Association of Surveyors will also allow to deal with professional issues of major interest.

The number of participants is very large. Almost seventy members will join us from five Continents and so many different Countries. In the technical sessions we will have 8 Keynote Speakers and over 20 Papers from Authors coming from Algeria, Australia, Germany, Greece, Hungary, Indonesia, Israel, Italy, Malta, Nigeria, Benin, Portugal, Romania, Sierra Leone, Spain, Switzerland, Turkey, United Kingdom, USA. These 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.

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. To achieve these results, a good and successful teamwork was required with the local partner - the Ordem dos Engenheiros, the Portuguese Engineers Association - and with the Vice Chairs of Commission 3, EGoS, FIG and the Scientific Committee. Certainly the merit is also of the beautiful location of the Ordem dos Engenheiros.

Lisbon, which is one of Europe's greatest sought-after gems, has had its appeal. In this environment, 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.

After the previous workshops, this year's theme "Volunteered Geographic Information Emerging Applications in Public Science and Citizen Participation" suggests to continue the search of the previous years and to illustrate the new aspects of Volunteered Geographic Information and other issues of the Commission. The features of deep transformation will be traced regarding data, information and SIM knowledge. Particular aspects that link the progress of public science with private research of collective interest will be considered.

Therefore we can deepen the crowdsourcing theories and applications for the production of more and more useful geodetic knowledge. In fact, emerging applications are the new challenges between the needs of management makers and decision makers.

The workshop will offer the opportunity for Delegates and Speakers to present their research and share their experiences.

Welcome to Lisbon



**Enrico Rispoli**

Chair of FIG Commission 3

Consiglio Nazionale Geometri e  
Geometri Laureati - Italy

**15:00** | Ordem dos Engenheiros  
Headquarters

**Registration**

**16:30** | Auditório  
**18:30** |

**Opening session of Commission 3**  
**Welcome speeches and Introduction of the events**  
Chair: Robert W. Foster - Honorary President of FIG - USA

Welcome speeches and Introduction

Maria Teresa Sá Pereira, Chair Colégio Nacional de Engenharia Geográfica, Ordem dos Engenheiros

Enrico Rispoli, Chair Commission 3 Spatial Information Management - FIG

Maurice Barbieri, President of the Council of European Geodetic Surveyors - CLGE

Nikolaos Zacharias, President of the European Group of Surveyors - EGOS

Carlos Mineiro Aires, President Colégio Nacional de Engenharia Geográfica, Ordem dos Engenheiros

Chryssy Potsiou, President of the International Federation of Surveyors - FIG

Célia Ramos, Secretary of State for Spatial Planning and Nature Conservation in the Committee on Environment,  
Spatial Planning, Decentralization, Local Government and Housing

**20:00** | Bar

**Welcome reception**  
**FIG Commission 3**  
**EGoS - European Group of Surveyors**  
**Ordem dos Engenheiros**

08:00 | Ordem dos Engenheiros    **Registration**  
09:00 | Headquarters

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09:00 | Auditório    **FIG Commission 3 - Keynote Session 1**  
10:30 |    **“Spatial Management: Optical Imagery, Mapping and Environmental Risk Prevention”**  
Chair: Charalabos Ioannidis - Greece

- » The Potentialities of Sentinel 2 Data for environmental risk prevention and disaster management  
Prof. Ana Cláudia Teodoro - University of Porto
- » How can 3D models and augmented reality visualization based on mobile platforms enhance the value of urban heritage?  
Prof. José António Tenedório,  
Dr. Luis Marques - University of Lisbon
- » Precise mobile mapping with action cameras  
Prof. José A. Gonçalves, Prof. André Pinhal - University of Oporto

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10:30 |     **Coffee Break**  
11:00 |



11:00 | Auditório  
12:30 |

**FIG Commission 3 technical session "Geographic Information and 3D Modelling"**  
Chair: Yerach Doytscher - Israel

- » The Future of GI in a Changing World  
**Maurice Barbieri – President of CLGE - Switzerland**
- » 3D Modelling from 3D Survey to BIM 3D Model  
**Malcolm Lelliott - Generl Secretary of EGoS - UK**
- » IFC standard as BIM interoperable format to apply into 3D GIS trends  
**Edgar Barreira, Inês Vilas Boas, Nuno Pinto - Portugal**
- » VGI in 3D Cadastre: A Modern Approach (Peer Review)  
**Maria Gkeli, Charalabos Ioannidis, Chryssy Potsiou - Greece**

12:30 / 14:00



**Lunch**

14:00 | Auditório  
15:30 |

**FIG Commission 3 technical session "Topography and VGI in Public and Citizen participation"**  
Chair: Alessandro Dalmaso - Italy

- » Cliff and steep slope topography measurement by dense point cloud method  
**Cihan Altuntas - Turkey**
- » Quality assessment of VGI and CSD using semantics and Geographical Information Retrieval techniques (Peer review)  
**Saman Koswatte, Kevin McDougall, Xiaoye Liu – Australia**
- » Geodata management, a key enabler for e-governance and research infrastructures  
**Hartmut MÜLLER, Ulrike Klein - Germany**
- » Driving Sustainable Development through Public-Private-People Partnership in Land Information System and Land Governance in Nigeria  
**Muhammad Bashar Nuhu - Nigeria**

15:30 / 16:00

 Coffee Break

16:00 | Auditório

**FIG Commission 3 technical session "Expert Role of Surveyors in GIS"**

17:30 |

Chair: Maria Joao Henriques - Portugal

- » Analyzing Folklore Dance Similarities via Spatial and Temporal Embedding and Signal Analysis  
Eftychios Protopapadakis, Anastasios Doulamis, Charalabos Ioannidis,  
Sofia Soile, Stephanos Camarinopoulos, Nikolaos Doulamis – Greece
- » The Role of the Professional Surveyor in the Land Management  
Nikolaos Zacharias – President of EGoS - Greece
- » GIS urbanism and architecture, case of Tbessa Algeria  
Abdelkrim Moulati – Algeria
- » Informal Real Estate in Greece: Assessment of the Formalization Framework  
Konstantinos Apostolopoulos, Giorgos Mittas, Chryssy Potsiou - Greece

09:30 | Auditório **FIG Commission 3 Keynote Session 2 "Emerging Applications in Geographic Information"**  
10:30 | Chair: Sagi Dalyot - Israel

- » Contribution of Internet of Things to Volunteered Geographic Information  
Prof. Dr. Rahmi Nurhan Celik - Department of Geomatic Engineering, Istanbul Technical University - Turkey
- » Adding value to existing VGI - Two case studies  
Prof. Cidália Fonte, University of Coimbra
- » The protection of harbours in coastal areas  
Prof. Fernando Soares, University of Lisbon

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10:30 / 11:00  **Coffee Break**

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11:00 | Sala 4° **Opening meeting of EGoS General Assembly – only for EGoS Representatives**  
12:30 | Piso

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11:00 | Auditório **FIG Commission 3 technical session**  
12:30 | **"Primary Topics and Opportunities for Professional Growth - Research in GPS Applications"**  
Chair: Pietro Grimaldi - Italy

- » Garante Privacy – the Challenges of Open Data in Italy  
Cromwell Manaloto, Alessandro Dalmasso, Daniele Brancato, Luca Dal Buono - Italy
- » Globalized Ethics  
Robert W. Foster – Honorary President of FIG - USA
- » GIS and GPS applications in East Africa: Building the Technical Office of Gabiley-Somaliland  
Maurizio Foderà - Italy  
Monitoring the vertical and horizontal displacements of the Poiana Mărului dam  
Roxana-Augustina Stanescu, Florin Nache, Cornel Paunescu - Romania

12:30 / 14:00



Lunch

14:00 | Auditório  
15:30 |

**FIG Commission 3 technical session "Emerging Applications in Geographic Information n. 2"**  
Chair: Harmut MÜLLER - Germany

- » Positional Accuracy Analysis of OpenStreetMap using Historical Versions of Node Locations  
Talía Dror, Yerach Doytsher, Sagi Dalyot - Israel
- » Volunteered Status Updates of Geodetic Control Points  
Andras Kolesar - Hungary
- » A tool for 5D Urban Real Estate Sustainable Management  
Akritidou Kleio, Doulamis Nikos, Soile Sofia, Potsiou Chryssy – Greece
- » Survey to Planning: New Technologies and Land Protection  
Pietro Grimaldi, Italy

| Sala 4°  
| Piso

**EGoS General Assembly – only for EGoS Representatives**

15:30 / 16:00



Coffee Break

## Wednesday November 29

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16:00 | Auditório

### EgoS Workshop open to Commission 3 Delegates

18:15 |

Chair: Malcolm Lelliott - The United Kingdom

- » Presentation about EgoS  
**Nikolaos Zacharias, President of EgoS – Greece**
- » The Professional Card  
**Malcolm Lelliott – General Secretary of EgoS, Kevin Sheridan – General Secretary of AEEBC, UK**
- » International Young Surveyors Training Courses  
**Randolph Camilleri, Past President of EgoS – Malta**
- » The problems of the Professional Associations in nowadays  
**Nikolaos Zacharias, President of EgoS – Greece**
- » The Problems of the Professional Associations in nowadays in Portugal  
**Maria Teresa Sá Pereira, Chair Colégio Nacional de Engenharia Geográfica, Ordem dos Engenheiros - Portugal**

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18:30 | Sala Sande

### Commission 3 Annual meeting - only for Commission delegates

19:30 | Lemos

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20:00 | Venue to  
be decided

### Commission 3 Dinner

09:00 | Auditório **FIG Commission 3 - Keynote Session 3 "GNSS Surveying"**  
09:30 | Chair: Cromwell Manaloto, Italy

High Precision "GNSS Surveying": state of the art and future perspectives  
Ing. Roberto Capua, RLD – SOGEI Ricerca e Laboratorio Digitale – Italy

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09:30 | Auditório **FIG Commission 3 technical session "Expert Role of Surveyors in GIS 2"**  
10:30 |

- » Toward a methodology for noise mapping using VGI (Peer Review)  
Efthimios Bakogiannis, Charalampos Kyriakidis, Maria Siti, Filippos Iliadis, Chryssy Potsiou – Greece
- » Collecting Typhoon Disaster Information from Twitter Based on Dynamic Keywords  
Zi Chen, Samsung Lim – Australia

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10:30 / 11:00  Coffee Break

11:00 | Auditório  
12:30 |

**FIG Commission 3 closing session - Highlights of the Conference and Closing Proclamation of the best paper of Commission 3**

- » Summary - Conclusions  
Maria Teresa Sá Pereira, Chair Colégio Nacional de Engenharia Geográfica, Ordem dos Engenheiros
  - » Chryssy Potsiou, President of FIG  
Enrico Rispoli, Chair Commission 3 Spatial Information Management
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12:30 / 14:00



Lunch

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14:00

**FIG Commission 3 Technical Visit**



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