TEP-213 Photogrammetric and Topometric Systems

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The activity of the “Photogrammetric and Topometric Systems” research group focuses on the different disciplines encompassed under the denomination of Geomatics Engineering, which ranges from data capture and their processing and analysis for obtaining useful information to generating topographic and cartographic products and all matters relative to their dissemination through map and cartography servers. This activity is approached from a double perspective. On one hand, the basic one of developing new equipment, methodologies and products and services and, on the other, through their application to different spheres such as, for example, Historical and Natural Heritage, Natural Risks and Industry, among others.

In this task the research group has modern equipment in place, with emphasis on the different UAV systems (Asctec Falcon 8, Atyges Topodron, DJI Inspire, DJI Phantom 3 Professional) equipped with information capture sensors (visible, thermal, etc.) as well as computer equipment (workstations, servers and specific software for information processing), completed with the use of equipment such as Terrestrial Laser Scanner (Optech Ilris 3D), terrestrial cameras –with the possibility of using motorized tripods– and GNSS/GPS systems to ensure the quality of the data capture.

The “Photogrammetric and Topometric Systems” group is integrated into the network of the Copernicus Academy Program and so has access to tools and information of the different R&D projects this initiative offers (observation of the Earth, waters and atmosphere, tracking of emergencies, security and the processing of images of the Sentinel programs).

Website for the group

Website for the Photogrammetric and Topometric Systems Research Group

Research lines

- Photogrammetry and Remote Sensing Automation of photogrammetric processes Integration of information from different sensors (image, LiDAR, thermal, multispectral) 3D modeling Information extraction
- Topometry Capture and processing of mass information by means of laser scanner systems and extraction of information of interest from 3D point clouds
- Application of UAVs for capturing cartographic information Generation of products Integration of sensors
- Use of low-cost systems in Photogrammetry
- Applications of Photogrammetry and Topometry to the Environment, Natural Risks and Resources, Heritage Documentation and Industry
- Geostatistics applications for processing spatiotemporal data: estimation and simulation

Related services and products

- Adapter for attaching equipment or instruments to swivel-head tripods
- Adapter element for attaching equipment or instruments to swivel-head tripods
- Universal base for topographic targets and prism holders

- Comprehensive advice on projects relating to Geomatics Engineering in its different spheres of application
- Cartographic surveys by means of UAV systems using images in both the visible and the thermal spectrum
- Processing of 3D point clouds obtained through photogrammetric and capture techniques using laser scanner systems (LiDAR), both from airborne sensors (ALS) and terrestrial sensors (TLS) 3D modeling
- Advanced processing of satellite images and generation of products and services
- Quality control in projects within the sphere of Geomatics Engineering
- Development of specific software tools for developing controls in production environments in the field of Geomatics Engineering
- Heritage documentation by means of applying photogrammetric techniques
- Industrial measurements by means of topometric and photogrammetric techniques
- Geostatistical studies by means of applying estimation and simulation techniques Optimization of sampling networks
- Study and control of landslide risks, erosion control, etc. by means of topographic and photogrammetric techniques
- Specialization courses in Photogrammetric and Topometric Systems

Spanish website: http://bit.ly/2QHpGom