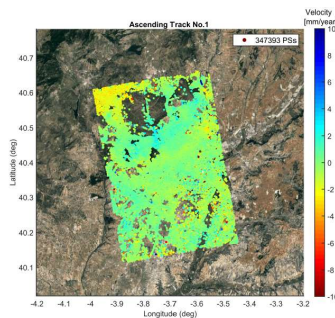
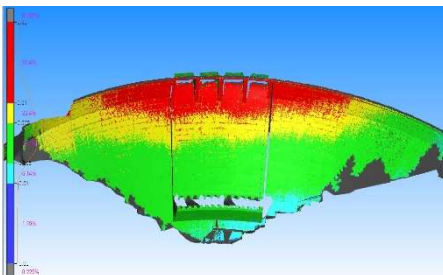


Geomatics Engineering Laboratory

Geomatics Engineering Laboratory (ETSI Caminos UPM) has the mission of promoting teaching, research and technology transfer in the area of **Geomatics applied to Civil and Environmental Engineering**.

Our vision is to become a bridge between **Geomatics and Applied Civil Engineering**.

Facilities and infrastructures



Geomatics Lab has one main process server and 58 computers for teaching and research. It has two Computer rooms for 40+30 students. These rooms are used intensively in both research and teaching (20 hours per week), in the subjects as Topography and Cartography GIS and Remote Sensing.

It also has technical Survey equipment (RTK GPS, 12 Total Stations and 12 Levels) as well as a Digital Photogrammetric Station.

We work in agreement with main Geomatics companies (Leica Geosystems, Topcon, Trimble,...) that provide latest equipment for Research and PhD Thesis (Multi-Station, TLS, Ground Based Radar- GBSAR).

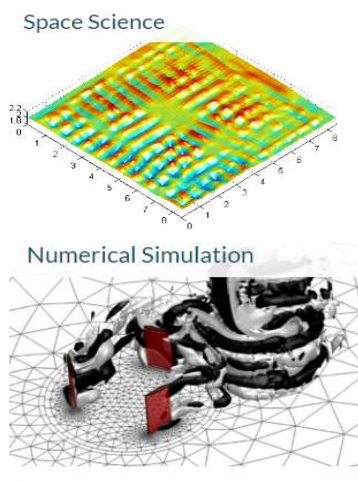
The Geomatics Lab performs remote sensing works processing at UPM Cloud (Drive UPM) as well as other services.

The Laboratory supports UPM spin-off DETEKTIA, active in the field of radar ground and structural monitoring .

detektia



Research areas associated with Big Science



Control of movements of Ground and Infrastructures.

Geomatics applied to Water and Environmental Engineering.

Geomatics applied to Urban Development and Smart Cities.

Main projects in Big Science

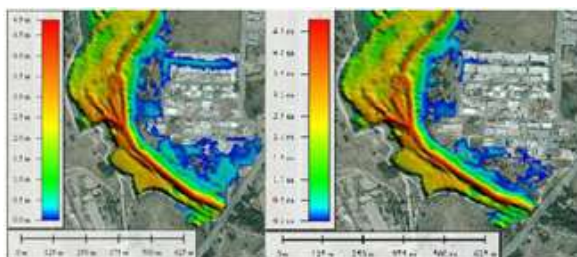
- **WOODNET**: connectivity patterns and processes along a gradient of European landscapes with woody vegetation and spatial heterogeneity. Biodiversa (<https://www.biodiversa.org/1026>).
- **TALE**: towards multifunctional agricultural landscapes in Europe. Assessing and governing synergies between food production, biodiversity, and ecosystem services. Biodiversa (<https://www.biodiversa.org/1084>).
- Geological-geotechnical risks from aquifer exploitation through space and terrestrial techniques. Applications to urban structures and infrastructures (ESP2013-47780-C2-2-R).
- **FORECASTER**: Facilitating the application of Output from REsearch and CAse Studies on Ecological Responses to hydromorphological degradation and rehabilitation.

Collaboration with Large European Scientific Facilities

- **ESA**: start-up DETEKTIA S.L. accepted in ESA BIC.
- **ESA**: participation in the following ESA scientific working groups: FRINGE 2015&2017 / BIOMASS 2015 / LIVING PLANET SYMPOSIUM 2015&2019.

Software, tools or licenses to be applied to Big Science

- Digital Terrain Modelling: **Autodesk Civil3D**.
- GIS: **ArcGIS, QGIS**.
- Remote Sensing: **SNAP, STAMPS, Sarproz**.
- 2D Hydraulic Modelling: **Infoworks, IBER**.



UPM contact:

Coordinator: Prof. Rubén Martínez

ruben.martinez@upm.es

UPM contact (ESA): Prof. Miguel Marchamalo

miguel.marchamalo@upm.es