

**Doctoral Thesis Proposal:** Wide-area monitoring using Sentinel-1 interferometric data.

**Supervisor/s:** Michele Crosetto (Centre Tecnològic de Telecomunicacions de Catalunya) and Luis Ángel Ruiz Fernández (Universitat Politècnica de València)

**Abstract:** SAR interferometry is a powerful remote sensing technique to monitor deformation for a variety of applications, like tectonics, volcanology, landslide and subsidence monitoring, etc. Sentinel-1 interferometric SAR (Synthetic Aperture Radar) data offer a set of unique characteristics, which confer them a great potential in terms of deformation monitoring. These characteristics include a wide area coverage of the Interferometric Wide Swath mode; the 12-day revisiting cycle of Sentinel-1A (6 days with the Sentinel-1B); the reduced orbital tube; the high image coherence; the acquisition in background mode; and the free of charge data availability. The proposed thesis will be focused on wide-area deformation monitoring using Sentinel-1 interferometric data. By wide-area we mean covering entire regions, if not countries. The thesis will include two main parts. The first one is the development of new data processing and analysis tools and methods, to improve the existing tools available in the Geomatics Division of CTTC. The second part will be devoted to develop a methodology to systematically exploit the deformation monitoring results.

**Available Means:** CTTC includes a Remote Sensing Department, which is specialized in deformation monitoring using radar-based techniques (<http://geomatics.cttc.es/remote-sensing/>). This Department has a rich set of in-house developed software. The capability with spaceborne interferometric data is complemented by a 10-year experience with terrestrial remote sensing systems.

The Geo-Environmental Cartography and Remote Sensing Group (<http://cgat.webs.upv.es>), from Department of Cartographic Engineering, Geodesy and Photogrammetry, has a rich set of in-house developed software. This software, hardware and databases will be available for the thesis development.

#### References:

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