



Persistent Scatterer Interferometry using Sentinel-1 Data

Oriol Monserrat (1), Michele Crosetto (1), Nuria Devanthery (1), Maria Cuevas-Gonzalez (1), Huang Qihuan (1), Anna Barra (1), and Bruno Crippa (2)

(1) Centre Tecnologic de Com. de Cat. (CTTC), Remote Sensing, Castelldefels, Spain (oriol.monserrat@cttc.es), (2) Department of Geophysics, University of Milan, Via Cicognara 8, I-20129, Milan, Italy

This work will be focused on the deformation measurement and monitoring using SAR imagery from the C-band Sentinel-1, a space mission funded by the European Union and carried out by the European Space Agency (ESA) within the Copernicus Programme. The work will firstly address the data processing and analysis procedure implemented by the authors. This includes both Persistent Scatterer Interferometry (PSI) tools to analyse large stacks of SAR images (say, typically more than 20 images), and Differential SAR Interferometry (DInSAR) tools to analyse short SAR image stacks. The work will discuss the characteristics of the main products derived by using Sentinel-1 DInSAR and PSI: deformation maps, deformation velocity maps, deformation time series, residual topographic error, etc. The analysis will be carried out over different types of land use area, e.g. urban, peri-urban and rural areas. The deformation monitoring based on Sentinel-1 data will be compared with the monitoring based on data from pre-existing missions, e.g. C-band ERS and Envisat, X-band TerraSAR-X and CosmoSkyMed, etc. The comparison will concern different study areas, mainly located in Italy and Spain.