



The InSAR Italy portal for open access to crustal deformation data

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InSAR Italy is a web portal devised to provide open access services to crustal deformation data measured using multitemporal SAR Interferometry techniques over the Italian territory. It is an evolution of the VELISAR initiative, promoted in 2006 by the Istituto Nazionale di Geofisica e Vulcanologia, and originally participated by IREA-CNR and TRE srl.

InSAR Italy was developed tailoring the Multi-sensor Evolution Analysis (MEA) environment, an Earth Observation and geospatial data analysis tool empowered with OGC standard interfaces. The web interface allows an easy browsing of the ground deformation maps obtained for each satellite image dataset, leading to a clear picture and improved analysis of the displacement time series over single pixels or large areas. Web Coverage Service (WCS) and Web Coverage Processing Service (WCPS) are used to access and process the maps, respectively. The crustal deformation data are provided by INGV and IREA-CNR as products of publicly-funded research projects, and are disseminated in compliance with the national legislation on the Open Data Access; metadata associated to the products are published according to the INSPIRE specifications.

The information provided through InSAR Italy is mainly based on InSAR data maintained in the ESA archives, in particular from the ERS satellites for the 1992-2000 period, and ENVISAT for the period 2003-2010, however, ground velocity maps obtained from COSMO-SkyMed data will also be released in the near future.

The InSAR Italy deformation maps consist of time series of ground displacement at resolution varying between 5 and 80 m, and the relative mean velocity values. The data sets can be queried and mean velocities can be recalculated over user-defined time periods, to account for possible non-linear displacement trends. The MEA spatiotemporal data analysis capability allows to investigate deformation phenomena occurring at very different spatial scales, from single buildings to entire regions, and have a wide range of possible uses. Simple data analysis can be performed on the time series, as averaging, regression and interpolation. The user can download the ground displacement time series in digital format for his/her private or public use under a Creative Commons license (CC:BY:NC 4.0); commercial use is not permitted.

InSAR Italy (<http://mea.eo.esa.int/InSARItaly/>) is an open initiative, to which other research institutions are invited to participate to share the results of similar research with the general public and the scientific community.