



## **The Mw 7.2 Van Earthquake (2011): co-seismic and post-seismic deformation imaged by DInSAR data, and source modeling**

C. Tolomei, E. Trasatti, S. Atzori, J. Merryman, A. Antonioli, G. Pezzo, and S. Salvi  
Istituto Nazionale di Geofisica e Vulcanologia, Rome, Italy (cristiano.tolomei@ingv.it)

A strong earthquake (Mw 7.2) struck the Eastern Anatolia (Turkey), close to the city of Van, on the 23rd of October 2011, at a depth of 16 kilometers. The earthquake caused 604 casualties and injured over 4,000 people. We have investigated the co-seismic surface displacements using the DInSAR technique. Different data frames have been processed in order to map the whole co-seismic area, exploiting adjacent ENVISAT (C-Band) tracks and a COSMO-SkyMed (X-Band) interferometric pair; offset tracking was also included to measure the ground displacement in the azimuth and range directions.

We solved for the fault geometry and mechanism, and we retrieved the slip distribution on the fault plane, inverting the co-seismic DInSAR data. Results show a maximum slip of about 7-9 m at a depth of 12 km in the SW part of the fault.

We finally investigated the post-seismic deformation using several COSMO-SkyMed acquisitions. Post-seismic DInSAR interferograms and a preliminary mean velocity map obtained with the SBAS (Small BAseline Subset) approach algorithm will be shown.

All the results have been obtained in the framework of the SiGRiS project, funded by ASI, to demonstrate operational services for Seismic Risk management ([www.sigris.it](http://www.sigris.it)).