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The key role of radar images in the understanding of earthquakes

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The investigation and the understanding of the reasons underlying an earthquake have been greatly improved thanks to the exploitation of radar images acquired from satellite. Following the pioneer applications in the eighties, Interferometry from Synthetic Aperture Radar (InSAR) gained a prominent role as source of geodetic data; the capability of measuring small deformations of few millimeters for wide areas and the large data availability, from the early nineties, lead InSAR technique to be accepted as standard tool in the tectonic studies. Though several factors can worsen the quality of the results, InSAR, often with GPS measurements, is commonly used to infer the seismic source of an earthquake by means of inversion techniques applied to analytical and/or numerical models. Newly developed algorithms, known as InSAR time-series, allowed to further improve the data accuracy and completeness, strengthening the InSAR contribution even in the study of the inter- and post-seismic phase. Today, almost all the inshore earthquakes and the most active tectonic regions are investigated with the support of InSAR data.

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