Geophysical Research Abstracts
Vol. 20, EGU2018-16092, 2018
EGU General Assembly 2018

Application of Advanced SAR Interferometric approaches to the Monitoring of Cultural Heritage

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Differential Interferometric Synthetic Aperture Radar (DInSAR) technique has revolutionizing the applications of high resolution radar imaging from the space. The class of so called Persistent Scatterers Interferometry (PSI) approaches provides the capability of very accurate localization and monitoring at high resolution of ground assets. Among them 4D (space-velocity) tomographic SAR imaging uses both the phase and the amplitude of the received signal to achieve high density of measurements especially when applied to data with metric/submetric spatial resolution acquired by the new generation very high-resolution (VHR) X-Band SAR sensors. Context information can be exploited in the so called covariance based approaches to trade off the spatial resolution and the measurement coverage.
In this work we discuss the application of 4D imaging and covariance based processing to the data acquired by the X-band relevant to Cultural Heritage sites.