

PERSISTENT SCATTERER INTERFEROMETRY BASED ON TERRASAR-X IMAGERY: THE BARCELONA TEST AREA

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ABSTRACT:

The paper will discuss the deformation monitoring over urban areas based on Persistent Scatterer Interferometry (PSI). It will be focused on the performances of PSI analyses based on the Very High Resolution (VHR) X-band SAR imagery coming from TerraSAR-X. The paper will address the following aspects; a description of the main characteristics of PSI; a discussion of the most important PSI products and their performances, analysing in detail their spatial sampling, the so-called residual topographic error and PSI geocoding, the average displacement rates and the deformation time series; a preliminary assessment of the improvement, in term of deformation monitoring capability, obtained so far with X-band VHR data. This is a key issue because, after years almost three years from the launch of TerraSAR-X (at the date of the Living the Planet conference) will be time to make a balance. The key questions are: What are the key achievements in terms of (new) applications of these new high resolution data? What has considerably improved? And what has not improved (i.e. this question addresses in particular all limitations that are similar to those of previous sensors). What about data availability and cost? Etc. These points will be illustrated by using experimental PSI and DInSAR results obtained by the authors using ERS and Envisat, TerraSAR-X over the city of Barcelona.

TOPIC: Microwave remote sensing

ALTERNATIVE TOPIC: Remote sensing applications