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A Workstation for Spaceborne Interferometric SAR Data

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Abstract

In the last decade SAR interferometry (InSAR) has emerged as a very promising mapping technique that has the potential to routinely provide quantitative information on height, deformation and change, and allowing a full geocoding of SAR imagery. A growing number of applications have become feasible or are researched.

Atlantis has developed a commercially available InSAR workstation that provides both research and routine users of spaceborne InSAR data the opportunity to process and interact with data of varying quality and from various platforms and sources. It contains the full chain of steps necessary for interferometric processing e.g. image coregistration, interferogram generation, coherence products generation, interferogram enhancement, phase unwrapping, DEM / deformation map generation and geocoding. The InSAR workstation is based on the ERGOvista image analysis software. The workstation approach features a state of the art interferogram enhancement and filtering. The dataset geometry is characterized in terms of master and slave state vector and orbital propagators. Toolkit functions provide the opportunity to handle inaccurate state vectors. Several phase unwrapping algorithms have been implemented including the Atlantis patented algorithm. Toolkit functions are available to compensate for potential data quality limitations.

During the workshop the details of the processing approach and workstation setup will be demonstrated. Results and examples of interferometric products will be shown using JERS-1 interferometric SAR data of the Great Hanshin (Kobe) earthquake and ERS-1/2 and RADARSAT data over mountainous terrain.

Keywords: