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INSAR Products of the JENA-SAR Software System

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Abstract

JENA-SAR is a new modular software package which is being developed at Jena-Optronik for a large field of spaceborne interferometric SAR (INSAR) researches and applications.
On the one hand intensity images, coherence images and interferograms are generated from SLC data. Especially for GIS applications various geocoding procedures (map projections, slant range - azimuth projection) for SLC data as well as for INSAR products are available.
JENA-SAR can generate the interferometric phase of the 'flat' earth and of digital elevation models (DEM) in the form of synthetic interferograms using the true geometry of the orbit pair, the earth ellipsoid and several DEM coordinate systems. These products can be used for DEM generation or differential interferometric SAR (INSAR) applications.
A main goal of the software system is on the other hand the detection of small motions especially with the use of corner reflectors (CR). There for procedures for the accurate determination of the interferometric base line, the fringe period, the height per fringe etc. at exactly measured tie points and for known orbits are an important part of JENA-SAR. It is possible to create and manipulate orbits for an interactive varying of the interferometric base in order to generate for instance special artificial interferograms. By means of terestrical measured CR positions the relative location of an orbit pair can be calculated with high precision.
Some results of SAR interferometric processing with JENA-SAR are presented here. JENA-SAR is an open system and further moduls will be added in progress.

Keywords: