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A Novel Interferometric Processor based on Chirp Scaling

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Abstract

Generating an interferogram from a pair of complex SAR images requires a very accurate co-registration of the data. In order to avoid this time consuming processing step we investigated the possibility of including the co-registration in the generation of the complex images.

The Extended Chirp Scaling Algorithm allows to generate co-registered SAR images. We are developing such a 2D-processor, which uses precise orbit information together with radar parameters to simultaneously generate and co-register two SAR images. The scaling which is not only applied in range but also in azimuth allows to correct for the different viewing geometry and for different sampling distance in range and azimuth (e.g. different PRF). The processor also includes spectral filtering in order to reject the non-overlapping parts of the two image spectra.

The performance was tested with simulated data as well as with data from ERS-1/2. Results from ERS-1 and from the tandem mission will be presented at the workshop.

Keywords: