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INTERFEROMETRIC PHASE ANALYSIS FOR MONITORING SLOW DEFORMATION PROCESSES

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Abstract

SAR interferometry has proven to be a feasible tool for detecting ground deformations caused by earthquakes or volcano activity. However, the application of the technique for deformation processes which take place on a longer time scale remains difficult for a number of reasons. Limiting factors for monitoring slow deformation processes are mainly temporal decorrelation and atmospheric delay differences within a SAR scene. Especially areas with agricultural activity lose coherence typically within an interval of days, which is too short to unravel the slow deformation rates. The systematical analysis of series of interferograms seems to be the only possibility for extracting feasible subsidence rates from SAR interferometry. In this paper we will give an overview of the possible error sources and propose a method for the analysis of severely decorrelated phase interferograms.

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