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Detection of landslides in early phases using SAR interferometry

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Abstract

This contribution describes the applications of several permanent scatterer interferometry (PSI) campaigns in Slovenia that were used to assess the applicability of the PSI methodology for monitoring landslides and soil creeping. The major pros and cons of the radar interferometry method are presented based on the analytical results derived from the approach for two different geomorphologic areas – mountainous Alpine and hilly perialpine terrains. Furthermore, observed displacement rates have been explained and compared with other available in-situ data. In the case of Alpine terrain the methodology was, and is still, used to monitor potentially dangerous landslide that could evolve into a devastating debris-flow by coupling the observations with GNSS data to achieve high accuracy point displacement data. In the case of the perialpine campaign, PSI data was used to assess the success of the uranium mill tailing deposit stabilisation that was subjected to severe slope instability in the 1990's.

