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Attempts to investigate the dynamic surface changes in the Carpathian bend area using archive ascending and descending ENVISAT images processed by persistent scatterers interferometry

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Acquired during the ESA scientific project proposal (30142) we have 23 ascending and 32 descending ENVISAT raw images of the investigated area. For the data processing the StaMPS persistent scatterers interferometry (PSI) software packages (developed by Andy Hooper) is available. This software can estimate the average velocities of persistent scatterers (PS) in the line of sight (LOS) directions.
Although the LOS velocities in ascending (ASC) or descending (DES) directions can contribute to the interpretation of the observed processes, the combination of ASC and DES velocities can be applied to estimate the nearly vertical and east-west components of the velocities, which may be distorted by the unknown north-south velocity components.
For this combination we have to look for close ASC and DES PSs, and determine whether they are available in large number. We have developed a program package, which selects the close PSs. From the chosen groups of ASC and DES PSs dominant points (DP) are interpolated, where the nearly vertical and east-west components are also estimated. Selecting proper reference areas the derived parameters of DPs can be uploaded into geographic information systems (GIS) that can be used to interpret the observed processes in topocentric coordinate system.
In this contribution we have investigated the effects of unknown north-south velocity components. The first attempts of combined data processing are also shown and the experienced limitations of the environmental effect are summarized.