

## **REVEALING CHANGES IN DISPLACEMENT PATTERN OF THE RAPID LANDSLIDE WITH HIGH-RESOLUTION SAR IMAGES**

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Landslide risk is one of the most significant hazards in populated areas, which may have both natural and man-made triggers. Especially in the context of climate change, which includes rising temperature and precipitation frequency, the proper understanding and monitoring of landslide-prone areas is essential as the number of people affected is increasing. Monitoring of such phenomena is challenging due to a lack of knowledge when and where the rapid landslide will occur. This study investigates the potential of using medium- and high-resolution SAR images to measure the progress of the displacement field of the rapid landslide that occurred in Ponzano, Italy, in 2017. The horizontal displacements are delivered via the offset-based method, and the pace of the evolution is determined in time. Moreover, in order to determine the most optimal parameters to obtain reliable displacement maps, the analyses of various registration window sizes and their influence on accuracy were carried out. The balance between the background noise and visibility of details was assessed by measuring the standard deviation in stable zones around landslide. This study revealed also for the first time that even several days after the main phase of the movements, still some residual horizontal displacement up to 1.4 m occurs in the landslide area. It means that the offset-tracking methods and high-resolution imagery can be used for quick mapping of the disaster and its progress, which may help decision-makers with risk management issues.