



How is space borne SAR useful to investigate rapid mass movements?

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The analysis of Earth surface processes through Space borne Synthetic Aperture Radar (SAR) observations is becoming more and more popular. The recent advent of the Copernicus Sentinel-1 constellation has boosted our capabilities to map and monitor surface changes globally, with unprecedented spatial and temporal resolutions. SAR data is nowadays invaluable to study surface changes due to the co-seismic and post-seismic effects of earthquakes, to analyze volcanic unrest and eruptions, and to monitor mass movements. In this contribution, I will focus on the application of space borne SAR to study rapid mass wasting, by discussing advantages and specific limitations, and showing real application scenarios in alpine areas and active volcanic regions. The examples presented will range from catastrophic slope failures, such as the rock avalanche of Piz Cengalo and the subsequent debris-flow recently occurred in the Swiss Alps, to the investigation of active volcanic environments, such as erosion and deposition processes due to pyroclastic flows and lahars at Colima volcano.