



Monitoring of rock glacier dynamics by multi-temporal UAV images

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During the last years several steps forward have been made in the comprehension of rock glaciers dynamics mainly for their potential evolution into rapid mass movements phenomena. Monitoring the surface movement of creeping mountain permafrost is important for understanding the potential effect of ongoing climate change on such a landforms. This study presents the reconstruction of two years of surface movements and DEM changes obtained by multi-temporal analysis of UAV images (provided by SenseFly Swingleet CAM drone). The movement rate obtained by photogrammetry are compared to those obtained by differential GNSS repeated campaigns on almost fifty points distributed on the rock glacier. Results reveals a very good agreements between both rates velocities obtained by the two methods and vertical displacements on fixed points. Strengths, weaknesses and shrewdness of this methods will be discussed. Such a method is very promising mainly for remote regions with difficult access.