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Landslide detected by InSAR and optical images in central Georgia: a tectonic or a man made trigger?

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The Caucasus area is a seismically highly active area on Earth, created by collision of the Eurasian plate with Arabian. Landslides are one of the most devastating natural hazards in the central Caucasus (Georgia), causing severe damage to population and infrastructure.
Here we present a series of remotely sensed data to assess landslide occurrence, use airborne images for structural mapping, and modelling for estimating (man made) topographic changes.
The radar images are acquired from 2007-2010 by ALOS satellite. After interferometric processing, this InSAR data shows pronounced phase shifts related to landslides. Structural mapping using high resolution aero images shows kinematic landslide indicators, and spatially agree with the displacement area constrained by InSAR.
As the foot of the landslide area is excavated by a major mining area, we further test the influence of man made topography change on landslide occurrence. Numerical model simulations are constructed to assess the effects of mining induced changes in the hill slopes, potentially unloading and further enhancing the landslide in part.