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# Landslide monitoring in the Colca Valley, Peru: combined effect of precipitation and earthquake on the Maca landslide kinematic.

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## Abstract

The Maca slow-moving landslide ( $\sim 1\text{m/yr}$ ), located in the Colca Valley, in South Peru is threatening the security of the village composed of around 800 inhabitants, the development of tourism in the Colca valley (160 000 tourists in 2009) and the pre-Inca heritages. A continuous monitoring of the landslide started in 2015 when 3 huts were built, 2 on the landslide and one on the rim the landslide, and equipped with continuous GPS and broadband seismometers. Those data are a key to study the combined effect of earthquakes and precipitations on the landslide dynamics. Preliminary results showing the response of the landslide to 2 major earthquakes of magnitude 5.2 and 5.3 are shown, and hypothesis regarding the associated mechanics will be presented. The results enable us to conclude that earthquakes have a much higher impact on the landslide kinematics in wet than in dry season, pointing out to a possible pre-conditioning or susceptibility role of water content on earthquake triggering of landslides.

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