

Monitoring of an active landslide in chaotic clay shales (Emilia Romagna region, Northern Apennines)

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Sassi Neri landslide is located in the Farini area (North Apennines), about 40 kilometers southwest of Piacenza city. The geology of the area is quite complex, with strongly tectonically deformed shales (Palombini Shales formation) thrusting over an arenaceous-pelitic flysch (Bettola Flysch formation). Starting from '50s, the landslide has been subjected to many reactivations developed as earthflows, the last one in the period between November 2013 and January 2014. The landslide is about 700 m long with a maximum width of about 200 m and a slip surface lying at a depth varying from 5 m to 15 m (Pizziolo et al 2014). In early fall 2016, Sassi Neri landslide seemed starting to move again; hence, a monitoring system has been installed in order to study the landslide's displacements and displacement rates and their correlation with rainfall events, pore water pressure and shear wave velocity (Vs) variations. The monitoring system consists of: 1) a CR1000 datalogger (Campbell Scientific), 2) a charge controller STECA SOLSUM 88F, 3) two time lapse cameras (Brinno TLC200 pro), 4) a pore water pressure sensor (buried at a depth of almost 1 meter), 5) a rain gauge and 6) four vertical polarized geophones at 4.5 Hz. The geophones are placed at intervals of 2 m and are acquiring the ambient seismic noise (passive mode) with a sampling frequency of 300 Hz for 2min every hours and all the data are collected in a Flash Memory Drive (SC115). The information about the displacements are collected analyzing the time-lapse video and using the free software Tracker. Preliminary collected data are presented here and their possible correlation is analyzed.