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Comprehensive analysis of the local seismic response in the complex Büyükçekmece landslide area (Turkey) by engineering-geological and numerical modelling

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ABSTRACT

Multi-risk management requires a strong comprehension of possible effects induced by natural hazardous events. In this regard, landslides triggering due to earthquakes results from complex interactions between seismic waves and slopes. Multidisciplinary approaches can significantly contribute to better understand such interactions. The large Büyükçekmece landslide (about 1500 m wide and 1830 m long) located in Turkey (Avcilar peninsula), about 15 km northward from the North Anatolian Fault Zone (NAFZ), was selected as case-study in the framework of the European project “MARSite – Marmara Supersite: new directions in seismic hazard assessment through focused Earth observation in the Marmara Supersite”.

The Avcilar area was recently affected by the 17\textsuperscript{th} August 1999 Mw 7.4 Kocaeli and by the 12\textsuperscript{th} November Mw 7.2 Düzce earthquakes. The Büyükçekmece landslide involves upper Oligocene to lower Miocene deposits, consisting of silty clays, tuffs and sands. No
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