



Natural hazards at the southern margin of the Central Anatolian Plateau (CAP) (southern Turkey): Tsunami evidence

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In regions that are located in steep, orogenic plateau margins, such as the coastal area of the Central Anatolian Plateau (CAP) southern margin, natural hazard studies related to active tectonics and events that are triggered by active tectonics (e.g., earthquakes, landslides, tsunamis) are very essential in the context of preventing possible damages. This work herein, represents some evidence of the tsunami hazard along the coast between Aydıncık and Narlıkuyu, in southern Turkey. The work is based on a study on out-of-place beachrock-slab boulder accumulation in Aydıncık district, which were transported onshore by sliding process, and on out-of-place more rounded boulders that were transported by saltation process in Narlıkuyu and Yeşilovacık districts. The presence of intertidal organisms (e.g., lithophaga boring, balanids, oysters, etc.) encrusting the boulders of both localities shows that those boulders were carried onland from a marine environment. According to their dimensions and weight, in agreement with out-of-place boulders from areas surely affected by tsunamis, those out-of-place boulders here are interpreted as due to tsunami waves. The tsunamites in the Aydıncık area are located on beachrock slabs. They are platy and some of those blocks are embricated and oriented perpendicular to the shoreline (NE-SW direction). Those boulders have been interpreted as transported by sliding process, in relation with the coastal morphology and the boulder geometry, which means that to move those boulders the energy of the tsunami not necessarily should have been as high as in saltation or rolling transport processes. On the contrary, in Narlıkuyu and Yeşilovacık localities, the boulders are well-rounded and ellipsoidal shaped, suggesting that they were transported by rolling and/or saltation mode rather than by sliding. To carry onland the tsunami boulders observed in the Narlıkuyu and Yeşilovacık districts, which in the Yeşilovacık area they are located at 2.6 m above sea level, it requires a minimum run-up of 3.0 m. Given the steep southern margin of the CAP and its seismic activity, it is highly possible that submarine landslides and/or middle-small magnitude offshore earthquakes, possibly triggered by active normal fault at the CAP southern margin (i.e. the offshore Ecemiş fault zone), may be responsible for the tsunami waves that transported onshore those out-of-place boulders. It is important to record such data considering the proximity of the out-of-place boulders locations to strategic infrastructures planned to be built on the southern Anatolia coastal area (e.g., Akkuyu Nuclear Power Plant).