Analysis on the 1999 Kocaeli earthquake tsunami in Turkey

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The field investigation to measure the underwater landslide along the coast at Degirmendere and tsunami traces in Izumit bay in October 1999 is carried out. Maximum change of sea bottom of 15 m at the area of 250 m in width and 80 m in length offshore Degirmendere is found. The numerical analysis with fault model combined with landslide model is done to fine the best tsunami source corresponding with the measured tsunami runup and eyewitness. The tsunami caused by the underwater landslide exceed 2 m runup at Degirmendere, but the effected would be limited around this area. The best fault model is one with 10 km in length and maximum bottom deformation of 1.64 m, which western end is located just at the center of the Izumit bay.

The tsunami was generated by the strike fault (Mw=7.4) at Kocarli in Turkey on 17 August 1999. The field investigation to measure the underwater landslide along the coast at Degirmendere and tsunami traces in Izumit bay in October 1999 is carried out. Maximum change of sea bottom of 15 m at the area of 250 m in width and 80 m in length offshore Degirmendere is found. The numerical analysis with fault model combined with landslide model is done to fine the best tsunami source corresponding with the measured tsunami runup and eyewitness. The tsunami caused by the underwater landslide exceed 2 m runup at Degirmendere, but the effected would be limited around this area. The best fault model is one with 10 km in length and maximum bottom deformation of 1.64 m, which western end is located just at the center of the Izumit bay, suggesting the future earthquake in north Anatolia fault zone would start at this point.