



Investigation of paleotsunami deposits in the cores of Kucukcekmece Lagoon, Sea of Marmara, Turkey

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The northern coasts of the Sea of Marmara, Turkey have been hit by numerous co-seismic tsunami waves. The tsunami waves occurred during the earthquake of 15 August 553 affected the coastal area inundating 2 km-wide strip. During 18 October 1343 ($M_s=7.0$) event, the sea surged up and swept away flat coastal plains. Dry-land inundation distance across relatively low-lying coastal areas was as much as 2.2 km. On the other hand, a few minutes before the latest earthquake occurred in the central Sea of Marmara (10 July 1894, $I_o=XI$, $M_s=7.3$), the sea receded about 50 m throughout the 50 km-long coastal area between Buyukcekmece to Kartal. Within a few minutes it came back like a rock throwing away the boats to the land and sweeping off the quays along the coast between two lagoons of Kucukcekmece and Buyukcekmece.

To understand and determine the tsunami potential and their possible effects to Marmara and Istanbul coasts, the Kucukcekmece lagoon area was investigated, using the results of a high-resolution seismic reflection survey and recovering two cores with up to 4.63 m length, located as far as 166 m from the narrow (300-350 m) strip of sandbar separating the lagoon from the sea. The stratigraphic sequence is composed mainly by fine sediments, from clay to silt, with some distinctive thin coarse grained layers. Preliminary results will be presented combining sedimentological, micropaleontological,

XRF Core Scanner chemical, and Multi Sensor Core Logger (MSCL) analyses.