

*Seafloor records of earthquake-triggered turbidity and seiche oscillations in the Sea of Marmara
(fairly independent processes)*

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Earthquake-induced submarine slope destabilization is known to cause debris flows and turbidity currents but data on the deep-sea hydrodynamic events following earthquakes are limited. An instrumented frame deployed at the seafloor in the Sea of Marmara Central Basin near the outlet of a canyon recorded some consequences of MW 4.7 and 5.8 earthquakes that occurred Sept 24 and 26, 2019 without causing any tsunami. The hypocenters were located 10-12 km beneath the canyon, 4 km ENE of the device. The instrumentation comprises a pressure recorder and a 1.9-2 MHz Doppler recording current meter set 1.5 m above the seafloor. The records of the MW5.8 show that even a moderate earthquake can trigger a complex response involving mud flows and turbidity currents. We infer slope failures at various locations produced complex current patterns and caused build-up of kinetic energy over several hours. This implies caution should be taken in marine paleoseismology when attempting to tie seismoturbidites with large earthquakes of historical importance. The same device deployed at various locations on the Sea of Marmara Seafloor recorded long period water column resonant oscillations (seiches) over periods of 6 months. These results are being used to constrain tsunami models.