



Seismo-tectonic influences on post-glacial sedimentary fills of the Sea of Marmara (İstanbul, Turkey); evidences from high-resolution seismic and core studies

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The Sea of Marmara is a seismically active basin and has several strike-slip sub-basins aligned from east to west. A detailed high resolution seismic and core studies evidenced sedimentation influenced by huge gravity reworking (mass wasting, turbidites) and local bottom current in the deep basins of the Sea of Marmara. An attempt here to search records of major historical earthquakes along active North Anatolian Fault within the sedimentary archive of Marmara Sea. The deformation and large earthquake records have been investigated through giant piston core MD01-2425 obtained (MARMACORE Cruise, 2001) from Çınarcık Basin of the Sea of Marmara. These records have been represented by seismo-turbidite sequences on the basis of sedimentologic and textural description of core sediments. These sequences can be recognizable by occurrences of homogenous clay over coarse-grained basal section.

The detailed grain size measurements of the selected turbidite sequence from lacustrine part of the core can explain the depositional processes of the seismo-turbidites. The fining-up trend and the range of particle size from the basal coarse-grained section clearly suggest bed-load of tractive currents, whereas the upper homogenous section accumulated by uniform and graded suspension as the final settling of turbidity current. Presences of the cross-laminated basal section would be interpreted as indicators of to-and-fro particle displacement following the earthquakes. This could probably be generated during oscillatory motion (seiche effect) of the water surface in the SoM. On the basis of detailed grain-size analysis on core sediments, eight main seismo-turbidite sequences were deposited by regional big ($M > 7$) seismic events. The youngest one was deposited at the termination of Younger Dryas (YD), whereas two other turbidite sequences in the lower section were accumulated in the beginning of the Holocene. The two other seismic-turbidites that deposited prior to Holocene, are dated at 12.8 and 13.2 ka BP.