
Seismo-Geodetic monitoring of the Marmara Seismic Gap

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Abstract

The North Anatolian Fault Zone in the Sea of Marmara did not generate a $M > 7.0$ earthquake since 1766. This fault section stores ~ 20 mm annual slip deficit and therefore is expected to accommodate at least one at most three $M > 7.0$ in near future. In this study, we continuously monitor this critically strained fault section using seismo-geodetic stations that are equipped with 100Hz sampling seismographs and 1Hz sampling GPS recorders. This configuration allows covering a broad spectral band and is sensitive to both fast/slow tectonic motions at large/small temporal and spatial scale, from milliseconds to years, from centimeters to tens of kilometers. Therefore, recorded seismo-geodetic data will be used to identify (1) along-fault variation of the slip deficit, (2) fault segmentation, (3) interaction between slip-deficit and background seismicity, (4) pre-seismic seismo-geodetic symptoms and (5) co-seismic slip in case of $M > 7.0$ earthquake(s).

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