

Comparison between the Tidal Zone Deposits and the Terrace Deposits Emerged in the 1703 and 1923 Kanto Earthquakes

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Recurrent giant earthquakes at the plate boundary along the Sagami Trough have been considered as one of the greatest thread of the Tokyo Metropolitan area. At the southwestern tip of the Miura Peninsula, in south of Tokyo, the tide gauge station records the coseismic uplift amount of 1.4 m and the interseismic subsidence amount of 0.3 m in and after 1923 earthquake, respectively. It is effective to reveal evidences of the past coseismic uplift to know the future earthquake.

Wave-cut benches which emerged in 1923 are widely distributed along the rocky coast. Higher wave-cut benches, good indicators of coseismic uplift prior to 1923, are also recognizable. It is, however, often difficult to spatially compare one another due to the erosion.

We investigated the distribution of the tidal-flat deposits and the 1923 wave-cut benches at two small bays in the southwestern and southern parts of the Peninsula. The aggradation of the coastline associated with the 1923 uplift was identified by the comparison between the 1:25,000 topographic maps before and after the 1923 earthquake. Observations of outcrops and drilling cores at the 1923-formed marine terrace showed that the tidal-flat deposits consist of shelly sand and gravels. The elevation of tidal-flat deposits indicates the coseismic uplift in 1923 and the interseismic subsidence after 1923. The uplift amount was estimated approximately 0.9 m and 2.1 m at the southwestern and southern parts of the Miura Peninsula, respectively. The uplift amount inferred from the tidal-flat deposits is concordant with that inferred by the wave-cut benches.

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