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Terrigenous organic carbon contents of submarine earthquake and flood induced sediments

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Deep-sea sediments can preserve records of submarine earthquakes and floods older than the historical record, because they are unlikely to be affected by post-depositional erosion and transport. In this study, we analyzed the stable organic carbon isotope of seafloor sediments from the large 19th century Totsukawa flood, the severe flood in August, 2003, the Offshore Southeast of the Kii Peninsula Earthquakes 2004, and the 2011 Pacific coast of Tohoku Earthquake. The terrigenous organic carbon ratio of sediments from these natural disasters were estimated and correlated with those of normal seafloor sediments.

Flood induced sediments were characterized by high contents of terrigenous organic carbon. The contents of terrigenous organic carbon were low and similar in submarine earthquake-induced sediments and normal sediments. These results are useful for sedimentary analyses of older natural disaster.

Keywords: seafloor sediments, turbidite, flood, submarine earthquake, terrigenous organic matter, stable carbon isotope ratio