Shallow marine tsunami deposits and bioturbation

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The huge tsunami waves induced by the 2011 off the Pacific coast of Tohoku Earthquake severely affected shallow marine ecosystems along the Pacific coast of northeastern Japan. Among shallow marine settings, subtidal seafloor ecosystems composed of fine-grained sediments are the most heavily disturbed by tsunami waves as they are greatly altered by rapid erosion and deposition processes (Seike et al., 2013). In order to discuss preservation potential of the tsunami deposits in relation to sediment mixing by recolonizing benthic animals, we have monitored temporal changes in the sedimentary structures of the tsunami affected area (Seike et al., 2016, 2017a). Tsunami deposits also provide useful information on the nature of bioturbation because there are no pre-existing burrows in the sediments. We revealed the nature of bioturbation such as burrowing depth, substrate-softening effect by echinoid bioturbation on the basis of observations on the 2011 tsunami deposit (Seike et al., 2017b, 2018).

References

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