

Potential tsunamigenic submarine landslides in active margins

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A review of modern, historical and submarine landslides from the geological record shows that landslides in active continental margins can generate tsunamis. The tsunamis may damage coastal and seabed infrastructure and so represent an important element of marine geohazards research due to their potentially significant impacts on society. The primary trigger mechanism of tsunamis in this type of setting was thought to be earthquake activity; however, there are also a number of alternative hypotheses regarding the likely initiation mechanism including the generation of submarine landslides. In this paper, we briefly review the geological features and trigger mechanisms of tsunamigenic submarine landslides on active margins. Large tsunamigenic submarine landslides appear to occur mostly on margins characterized by non-accretion. These observations has implications for tsunami warning systems as the Japanese system does not consider the scenario of tsunami excitation by submarine landslides

Keywords: tsunamigenic submarine landslide, tsunami earthquake, tectonic erosion, Japan trench, the 2011 Tohoku-Oki earthquake