

## Origin of Tsunami and Disaster Prevention Project

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Tsunami disasters often cause huge damages killing over ten thousand people.

The prevention program seems to be impossible, so far as we believe that the initial cause of a tsunami is upward rebound of overlying lithosphere by decoupling of asperity on descending slab as a fate of huge earthquake. This idea has come from seismologists. If it is wrong, the story changes completely and a simple tsunami disaster prevention project appears.

The origin of tsunamis could be due to huge-scale submarine landslides between arc-trench gap regions, where large sedimentary basins develop and are locally cut by submarine canyons. Through time, the steady-state supply of clastic sediments from landmasses fill the basins, and finally a large-scale submarine landslides occur to generate turbidity currents by the collapse of the basins to transport the unconsolidated sediments down to the trench axis by the trigger of an earthquake. The largest scale turbidite sandstone unit is up to ca. 100m thick among thick piles of those sedimentary rocks on the past 500 m.y. long geo-history of the Japanese islands. The trigger to form such huge-scale turbidity currents is an earthquake such as March 11, 2011 Tohoku Earthquake with a magnitude 9.0. The submarine research for the ocean-floor after the earthquake clearly showed submarine landslide deposits along the trench off Sendai and off the Sanriku-region, presumably in the order of thickness ca. 100 meters.

To prevent tsunami disasters, the gravitationally unstable unconsolidated water-rich sediments between arc-trench gap regions must be removed artificially down to the trench. Along the Japanese islands, the most unstable regions could be off the Kii Peninsula and off the Bay of Tokyo along SW Japan. If, as proposed by geologists, huge submarine slides are the cause of tsunamis, then a disaster prevention project is possible to prevent tsunami disaster.