



## **Tsunami source parameters estimated from slip distribution and their relation to tsunami intensity**

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Estimation of the level of tsunami hazard on the basis of earthquake moment magnitude often fails. The most important reason for this is that tsunamis are related to earthquakes in a complex and ambiguous way. In order to reveal a measure of tsunamigenic potential of an earthquake that would be better than moment magnitude of earthquake we introduce a set of tsunami source parameters that can be calculated from co-seismic ocean-bottom deformation and bathymetry. We consider more than two hundred ocean-bottom earthquakes (1923-2014) those for which detailed slip distribution data (Finite Fault Model) are available on USGS, UCSB, Caltech, and eQuake-RC sites. Making use of the Okada formulae the vector fields of co-seismic deformation of ocean bottom are estimated from the slip distribution data. Taking into account bathymetry (GEBCO\_08) we determine tsunami source parameters such as double amplitude of bottom deformation, displaced water volume, potential energy of initial elevation, etc. The tsunami source parameters are examined as a function of earthquake moment magnitude. The contribution of horizontal component of ocean bottom deformation to tsunami generation is investigated. We analyse the Soloviev–Imamura tsunami intensity as a function of tsunami source parameters. The possibility of usage of tsunami source parameters instead of moment magnitude in tsunami warning is discussed. This work was supported by the Russian Foundation for Basic Research, project 14-05-31295