

Numerical simulation of tsunamis due to a landslide

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Numerical simulation of tsunamis due to a landslide has been performed using a MPS method, where the water surface is indicated based on the spatial gradient of number density of particles. In comparison with the water surface displacements through hydraulic experiments, the calculation results are accurate when the inflow can be assumed as a fluid. The larger the initial potential energy of the inflow is, the larger the tsunami height becomes, although the tsunami height is not large when the initial position of inflow is below the water surface since the initial relative potential energy of the inflow is lower, as well as without impact of plunging. Due to the inflows of the assumed initial values for mass, shape, and velocity caused by a sector collapse of Sakurajima Island, the tsunami height shows more than ten meters in Kagoshima Bay.

Keywords: tsunami, landslide, sector collapse, MPS method