EGU2020-13314
https://doi.org/10.5194/egusphere-egu2020-13314
EGU General Assembly 2020

Field surveys and numerical modeling of the December 2018 Anak Krakatau volcanic tsunami

Mohammad Heidarzadeh[1], Purna Sulastya Putra[2], Abdul Muhari[3], and Septriono Hari Nugroho[4]
[1]Brunel University London, Brunel University London, Civil Engineering, Uxbridge, United Kingdom of Great Britain and Northern Ireland (mohammad.heidarzadeh@brunel.ac.uk)
[2]Research Center for Geotechnology, Indonesian Institute of Sciences, Bandung, Indonesia
[3]Indonesian National Board for Disaster Management, Jakarta, Indonesia
[4]Research Center for Deep Sea, Indonesian Institute of Sciences, Ambon, Indonesia

We report results of field surveys and numerical modeling of the tsunami generated by the Anak Krakatau volcano eruption on 22 December 2018. We conducted two sets of field surveys of the coastal areas destroyed by the Anak Krakatau tsunami in 26-30 December 2018 and 4-10 January 2020. Field surveys provided information about the maximum tsunami height as well as the most damaged area. The maximum tsunami height was up to 13 m. Most locations registered a wave height of 3-4 m. Tsunami inundation was limited to approximately 100 m. For modeling, we considered 12 source models and conducted numerical modeling. The scenarios have source dimensions of 1.5–4 km and initial tsunami amplitudes of 10–200 m. By comparing observed and simulated waveforms, we constrained the tsunami source dimension and initial amplitude in the ranges of 1.5–2.5 km and 100–150 m, respectively. The best source model involves potential energy of 7.14×10^{13}–1.05×10^{14} J which is equivalent to an earthquake of magnitude 6.0–6.1.