

Preservation and weathering of tsunami deposits formed during the eruption of Anak Krakatau volcano, Indonesia, on December 22, 2018

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On December 22, 2018, the eruption of Anak Krakatau volcano, Indonesia caused a tsunami up to about 15 m in Banten Province, Java. Following the tsunami, abundant coral boulders were carried up and deposited on the coast of the area, and sandy tsunami deposits were also formed. The Indonesian Institute of Sciences (LIPI) conducted a survey of tsunami traces one week after the tsunami occurred, and recorded the features of the fresh tsunami deposits left on the surface. We visited the affected area around one year after the tsunami, from December 2019 to February 2020 to examine the early stage of weathering and preservation of the tsunami deposits on the tropical coral coast. Thickness and grain size characteristics of the tsunami deposits mainly composed of coral fragments were well preserved after one year. There are places where a silt layer, which is considered to be reworked, was formed at the top of the sediment and new soil was being formed on it. The reason that deposits are well preserved in this area is that vegetation recovers quickly. For microfossils such as foraminifera and diatoms, their preservation potential was studied while examining soil properties. We also conducted a survey in the Ujung Kulon National Park area. This is the first survey of tsunami and tsunami deposits in this park. Since there are no settlements or roads in the park and access to tourists is restricted, the formation and preservation process of tsunami deposits in the natural environment can be confirmed. The 2018 tsunami deposits were already covered with soil in the forest and were well preserved as patchy very fine sand near the run-up limit of more than 500 m inland from the coast. It was also found that coral tsunami boulders, which may be tsunami deposits of the Krakatau volcano in 1883, have been left inland at the run-up limit of the 2018 tsunami. This work was supported by Japan Science and Technology Agency (JST) as part of SICORP.

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