Origin of the pumiceous deposits of the Kikai-Akahoya eruption in Yakushima Island, SW Japan

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Numerous wood trunks are involved in pumiceous deposits of the Kikai-Akahoya (K-Ah) eruption along Nagata, Isso and Miyanoura rivers on the northern side of Yakushima Island, 60 km south of Kyushu Island (Geshi, 2009; Okuno et al., 2013). All tree specimens are not charred. It implies that the origin of these deposits is not of pyroclastic flow, and these trees were soaked or floated in the rivers or in the sea when the deposits reached the island. At least two large-scale earthquakes occurred during the eruption (Kobayashi and Naruo, 2002). Geologic evidence of the earthquake is the existence of many clastic dikes which reached some horizons in the K-Ah tephra. The first earthquake occurred shortly before the ignimbrite eruption, and the second one occurred during the ignimbrite eruption. The plausible model is that the first severe earthquake caused many landslides on this mountainous island, and that a lot of trees were transported either by the rivers or in the sea. Tsunamis had to be triggered by those earthquakes, but the largest tsunami occurred apparently after the end of the ignimbrite eruption by the caldera collapse (Kobayashi, 2008). Just after the ignimbrite eruption, the sea surface was widely covered by floating pumice. Therefore, pumiceous deposits must have been formed by the final tsunami, which flowed up along the rivers more than 30 meters a. s. l.