

The generation of tsunami deposit resulting from the 7.3 ka Kikai Caldera eruption along the Ishizaki River of northern Miyazaki Plain, southern Kyushu, Japan

Kiyotaka Matsuda², *Futoshi Nanayama¹, Fukashi Maeno⁴, Shinji Sugiyama³, Hidetoshi Naruo⁵, Toshihiko Ichihara⁶

1.Geological Survey of Japan, AIST, 2.Miyazaki Prefectural Museum of Nature and History, 3.Paleoenvironment Research Institute Co. Ltd., 4.ERI, Tokyo Univ., 5.Takeokadai High School, 6.Fukken Co. Ltd.

Many researchers have noted that the coast of southern Kyushu may have been struck by a huge tsunami before the Koya pyroclastic flow at the time of the Kikai Caldera eruption about 7.3 ka (Maeno et al., 2006), but there is currently no clear evidence of this. In 1996 Dr. Shinji Nagaoka created a large stripped sample during improvement along Ishizaki River, northern Miyazaki Plain, and Miyazaki Prefecture Museum of Nature and History have been kept it. According to Nagaoka et al. (1991), we analyzed Holocene stratigraphy near the Ishizaki River lowland using sedimentological, volcanological and micro-paleontological methods. Also we dated them using radiocarbon and tephrochronological methods. We already got some information about this tsunami event as bellow. (1) The 7.3ka tsunami deposit is 28cm in thickness and consists of medium to coarse sand grain. This layer shows the high flow regime bedform like an antidune. Its base has a clear erosional surface, and covers the estuary mud layer. Pumice is at the bottom of the sand layer to be compared to Koya pumice is, on the other hand on the top include wood fossils are numerous. Sand layer is covered in reworked sediment in the water of the K-Ah volcanic ash. Thus the 7.3 ka tsunami struck Miyazaki coast only once between falling stages of Koya pumice and K-Ah volcanic ash. This event can be contrasted to the first of the earthquake events of the Akahoya period (Naruo and Kobayashi, 2002).

(2) K-Ah volcanic ash layer is 44cm in thickness, and convolute lamination is observed over the layer. As the cause of liquefaction, the second earthquake events of the Akahoya period (Naruo and Kobayashi, 2002).

(References)

Nagaoka, S., Maemoku, H. and Matsushima, Y., 1991, Evolution of Holocene coastal landforms in the Miyazaki Plain, Southern Japan. *The Quaternary Research*, 30, 59-78.

Naruo, H. and Kobayashi, T., 2002, Two large-scale earthquakes triggered by a 6.5ka BP Eruption from Kikai Caldera, southern Kyushu, Japan. *The Quaternary Research*, 41, 287-299.

Maeno, F., Imamura, F. and Taniguchi, H., 2006, Numerical simulation of tsunamis generated by caldera collapse during the 7.3 ka Kikai eruption, Kyushu, Japan. *Earth Planets Space*, 58, 1013-1024.

Keywords: 7.3 ka Kikai Caldera eruption, tsunami, tsunami deposit, Koya pumice, K-Ah volcanic ash, Miyazaki Plain