

八丈島津波石の古地磁気学的研究

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Paleomagnetic research for Tsunami boulder in Hachijo Island

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In Hachijo Island, there is isolated andesite boulders at an altitude of 20-m above sea level situated on the western side of the land. One of these is about 3000-4000kg in weight without any sign of organic carbon, such as fossils. Such huge boulders are paid some attentions as a key to understanding of past tsunami events. If it is the coral boulder, we can estimate the date of past tsunami by using radiocarbon dating. However, there is no way to estimate the date of the volcanic boulders without any organic fossils. One of an alternative way to date volcanic boulders is the cosmogenic nuclide exposure dating because it simply accumulate on boulder surface. But, the cosmogenic dating can not apply to the boulders if the boulder had experienced multiple rotations. Recent study tried to reveal the date of multiple emplacements of coral boulders in Ishigaki Island, Japan, by using paleomagnetic approach. Therefore, we applied this approach to this volcanic-origin boulder and tried to examine when tsunami event had occurred, and how it had moved. Boulders acquire the secondary magnetic component, called viscous remanent magnetization (VRM) after tsunami. The secondary viscous remanence is acquired to the original magnetic vector after the boulder has been removed from the original state. And by using Neel's thermal activation theory, the magnetization at low temperature for a long time can be demagnetized at high temperature in a short time. So we can count backward to the age when VRM was acquired (i.e. the past tsunami event). And we can understand how they emplaced, by displacement of direction of magnetization. In the presentation, we will present the current results.