

R004-P05

ポスター 2 : 11/5 AM1/AM2 (9:00-12:30)

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Viscous remanent magnetization and radiocarbon dating reveal the multiple movements of tsunami boulders on Ishigaki Island

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Massive tsunami boulders on the coastal regions are prominent geomorphic features. Tracking their movement history is important for reconstructing past tsunami events; however, the reworking movements of massive tsunami boulders remain unresolved. The boulder field on the Ishigaki Island was formed by repeated tsunamis. Although the individual movement histories of tsunami boulders contribute to retrodict the history of different magnitude tsunamis, their radiocarbon ages only correspond to the tsunamis that detached boulders from the reef. Viscous remanent magnetization dating methods have been applied in reworking movements. These methods reveal signals associated with remanent magnetization that gradually grew since the reworking event, which helps to determine the passage of time. The methods were verified by comparison to the radiocarbon ages of un-reworked boulders detached by the recent Meiwa tsunami, while the estimated ages of such two boulders based on the classical relaxation theory contradicted the radiocarbon ages. Here, we show that a method based on the stretched exponential function addressed this contradiction. The reworking movement was estimated using an additional boulder, whose, using our method, radiocarbon age indicated that an older AD 800 tsunami moved it onshore, whereas the remanent magnetization age unveiled a reworking of the boulder attributed to the Meiwa tsunami.