

[JJ] Evening Poster | M (Multidisciplinary and Interdisciplinary) | M-IS Intersection

[M-IS11]tsunami deposit

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The 2011 off the Pacific coast of Tohoku Earthquake and tsunami have an influence on the development of tsunami deposit research. After the tsunami, a lot of findings have been reported on various research fields. However, identification criteria of the tsunami deposit are not yet established. Moreover, it is still uncertain how to use the tsunami deposit in the risk assessment. In this session, we welcome researches from all aspect of sedimentary records of modern and paleo tsunamis both onshore and offshore, and numerical and experimental modeling studies for risk assessment. In addition, we also welcome other event deposits, such as flooding and storm surge, that they are considered to be important for discrimination of tsunami deposit.

[MIS11-P20]Tsunami deposits detection along the west coast of Kyushu, Japan

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Tsunamis that cause damage to the west coast of Kyushu, unlike their counterparts on the Pacific Ocean side, are assumed to be of a smaller scale and less frequency, therefore, there are few examples of tsunami deposit survey. We carried out tsunami deposit survey in this region since 2013, and the results up to now are described.

We conducted a boring survey at 14 areas on the northwest coastal region of Kyushu and identified event deposits at 6 areas (Nijinomatsubara: ca. 7.1/2.3/2.2/0.6ka, Minatomachi: ca. 6.2/3.9/3.4ka, Fuonji: ca. 8.2/6.4/6.1ka, Hoshikachoshimodamen: 4 layers about 7.0ka under study, Iktsukichomisaki: 3 layers about 7.0ka under study, Yahataura: ca. 2.8/0.8ka). According to the tsunami deposit identification flow (Goto et al., 2017), event layer of Minatomachi ca. 6.2 ka was of "There are any materials that are characterized by landward sediment transport from the sea (group B)," and others were of "Presence of characteristic sedimentary features such as basement erosion and upward grading is evaluated (group C)." Additionally, at the Minatomachi ca. 3.4 ka event layer have a possibility of a correlation with event layer of ca. 3.5ka reported at Iki and Shimonoseki [URL1].

We conducted a boring survey at 16 areas on the southwest coastal region of Kyushu and identified event deposits at 6 areas (Teuchi: 9 layers between ca. 6.7-0.6ka, Nakayama: many layers between ca. 6.2-0.5ka, Nakakoshiki: ca. 4.3/3.8/3.4/2.5ka, Hashima: ca. 7.4/7.3ka, Ikedaie: many layers between ca. 8.0-0.5ka, Gumizakicho: 12 layers between ca. 9.6-1.3ka). According to the tsunami deposit identification flow, event layers of Hashima at ca. 7.3ka and Gumizakicho at ca. 7.3/6.3ka were of "The deposit may show evidence of distinctive tsunami origin in some cases (group A1)," the several layers between Nakayama at ca. 3.0-0.5ka, the Nakakoshiki ca. 4.3ka, and Hashima and Gumizakicho ca. 7.4ka were of "group B," and others were of "group C" or "The deposit that was instantaneously formed during a geological event (group X)." Hashima and Gumizakicho at ca. 7.4ka, Hashima, Gumizakicho, and Ikedaie at ca. 7.3ka, Teuchi at ca. 6.2ka and Gumizakicho at ca. 6.3ka, and Teuchi and Nakakoshiki ca. 3.4ka event layers have a possibility of correlation with each other. Additionally, Hashima, Gumizakicho and Ikedaie ca. 7.3 ka event layer include Kikai-Akahoya Tephra-derived pumices

and volcanic glasses that are not found in a lower layer, and may be correlated of 7.3ka Kikai caldera eruption-related event (e.g., Maeno et al., 2006; Naruo and Kobayashi, 2002).

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References: Goto, K. et al., 2017, Tsunami engineering technical report, 33, 45-54.; Maeno, F. et al., 2006, Earth, Planets and Space, 58, 1013-1024.; Naruo, H. and Kobayashi, T., 2002, Quaternary Research 41, 4, 287-299.

[URL1]: Earthquake Research Institute, University of Tokyo "The integrated research project on seismic and tsunami hazards around the Sea of Japan"; 2017 First Steering Committee Documents "2-1-2 Tsunami Deposits Survey"; Urabe, A., 2017.9.29, http://www.eri.u-tokyo.ac.jp/project/Japan_Sea/2-1-2nihonkai_170929.pdf