

Identification criteria of the tsunami deposits based on the Japanese paleotsunami researches

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Identification criteria of the tsunami deposits have frequently been discussed by many researchers (e.g., Morton et al., 2007; Goff et al., 2012). As Goto et al. (2014) noted, it is generally agreed that there is no single criterion that can be used to identify a tsunami deposit but rather that multi-proxy analyses of criteria, such as sedimentology, micropaleontology and geochemistry are required.

Identification criteria may be different in countries and local regions because of the difference of geological, historical, and cultural backgrounds. For example, Japan has ~1,300 years historical records of earthquake and tsunami. Therefore, many tsunami deposits up to 1,300 years can be correlated to the historically described tsunami events and this is used as one of the most important identification criteria in Japan (e.g., Komatsubara et al., 2006).

This study investigated previously published research papers that discussed about candidate tsunami deposits along the Japanese coast to explore the identification criteria of the tsunami deposits specifically for Japan. We found that the identification criteria that were used in the previous papers can be classified into 40 to 50 categories. Some of them are used to specify whether the candidate deposit is the event deposit and thus those are not straightforward ones to identify tsunami deposit. On the other hand, there are some categories that would be useful to identify the tsunami deposit. These information would be valuable to assign the validity to the tsunami deposit identification for the future researches.

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