Investigation of strong sea wave events on the Coastal Range of Taiwan in the past 3000 years.

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Abstract

Strong sea waves had occurred on the eastern coast of Taiwan for many times in the past 3000 years. One of the greatest events was a strong sea wave that struck Ami’s settlement in 1850 AD. There are two different hypothesis about this event. The first hypothesis held that the tragedy was a tsunami, on the other hand, the second hypothesis argued that it had been caused by a large storm. Therefore, the aim of this research was to investigate the trigger of strong sea wave phenomena on the eastern coast of Taiwan along Feng-pin to Tu-lan over the past 3000 years. This study tried to collect several loose sediment materials from the coastal terrace in three locations, which are Feng-pin, Chang-pin, and Tu-lan. Loose sediments were observed using point counting method and biozonation analysis to obtain the rock facies, provenance, and sediment transport mechanism. Observation in the field shows the presence of coral fragment, marine and terrestrial shells in deposits. Moreover, there are rip-up clasts on marine sand deposits in Chang-pin. The coastal terraces consist of 7 facies, that are beach sand, deep marine sand, sub-rounded alluvial fan, angular alluvial fan, beach gravel, fluvial gravel, and marine sand. Marine sand deposits exhibit the product of high energy deposition. The age of foraminiferal assemblages in marine sand deposits depicts Pleistocene-Holocene. Additionally, paleobathymetry of foraminiferal assemblages is dominated from Outer Neritic (100-200 m under sea level). The interpretation indicates that marine sand deposits on the uppermost are the result of a strong sea wave event. The conclusion of this research is that the tsunami events did occur on the eastern coast of Taiwan in the past 3000 years.