

Environmental changes within submarine cave during the past 7,000 years, based on stratigraphic distribution of lateritized grains

Akihisa Kitamura[1]; Nagisa Yamamoto[2]; Takashi Toyofuku[3]

[1] Insti, Geo, Shizuoka Univ; [2] Institute of Geosciences, Shizuoka Uni; [3] IFREE4, JAMSTEC

We discovered that lateritized debris, which are detritus particles from paleosols, commonly occur in the horizon deposited between 7,000 and 5,000 years BP. The occurrences of lateritized debris is explained by the concept of a high-energy window. In reef sites where sea level rose rapidly to its present position at about 7 ka BP, the window may have remained open from the first complete submergence of the antecedent foundations until the moment at which modern reef flats began to develop. Under such condition, higher hydrodynamic energy may have helped in the rapid winnowing of finer particles from paleosols and terrigenous sediments deposited on inner shelves and coastal zones. From 6 ka BP, the window progressively closed as reef tops reached a sea level stabilized around its present position and reef flats became sufficiently extended laterally and then caused decrease of the supply of detritus. It seems that the stratigraphic distribution of lateritized debris provides direct evidence of the mid-Holocene high-energy window.