Possible biological index (Corallinates) to decode coseismic coastal uplift by great earthquakes occurring beneath Sagami Trough

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Corallinales are continuously developed in tidal zone along rocky shorelines in Japan (Baba, 2000) and can be available as an index to detect coastal vertical movements originated from large earthquakes, as well as paleo-enviromental index. Along the coastline of Miura Peninsula repeatedly attacked by plate boundary-originated great earthquakes, we took detailed observation of geomorphology and biological condition between low tide and emerged shoreline topography, and examined whether Corallinales is useful index as a fossil to identify cosesimic events. Present Corallinales observed in the peninsula belongs to corallinale red algae, Rhodophyta. Those are densely distributed between +40cm and -45cm to the mean tide, covering notches and marine cliffs by abrasion. Emerged corallinale red algae, got bleached, are the same species as present one. They are recognized as zone structures below 10 meters in altitude and are divided into nine levels (Group I to Group IX, lower to higher) depending on their appearing altitudes and continuity. Comparing these levels to previously age-determined Holocene marine terraces and shoreline topography, Group I is correlated with 1923 Taisho Kanto Earthquake event, Group II with 1703 Genroku Kanto Earthquake event, Group VIII likely with 3.6ka - Nobi III terrace. This correlation indicates that at least eight great earthquakes occurred beneath the Sagami Trough since 3.6 ka and that the recurrence interval of Taisho type earthquake is estimated to be about 700 years. These results suggest that emerged fossil,corallinale red algae Rhodophyta is probably available to distinguish intermittent coseismic events recorded near coastlines retroactive to mid Holocene, namely to paleoseismology. Remaining problem is dating and technical improvement for sample cleaning is required to remove contaminant deeply intruding into cells.