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Coseismic Crustal Movements during the 1923 Kanto Earthquake in the Southern Part of Miura Peninsula, Central Japan

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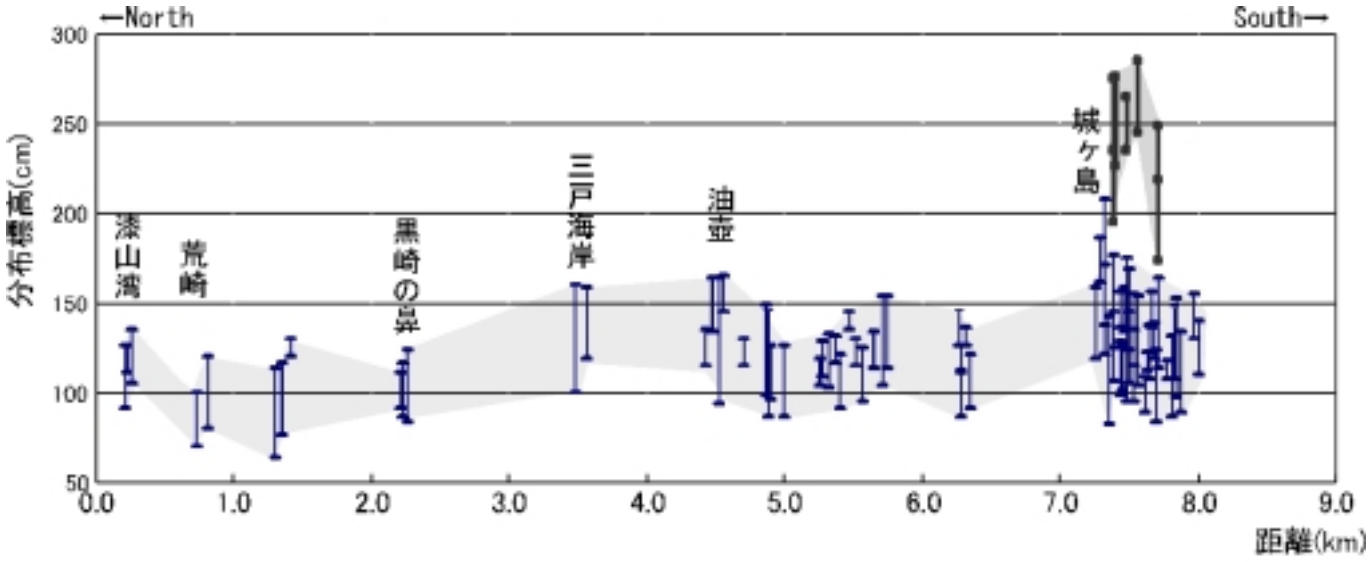
The southern part of the Miura Peninsula, central Japan had been uplifted about 1-2 m during the 1923 Taisho Kanto earthquake, according to the reliable data measured by re-leveling of benchmarks (Land Survey Department, 1930). However, there was no data in the southernmost part of the peninsula. To evaluate the coseismic crustal movements during the 1923 event, we measured the height of emerged sea level indicators.

Pomatoleios kraussii, a kind of lugworm stuck to rock, is one of the best sea-level indicators because it lives in narrow vertical range among tidal zone. Fossilized Pomatoleios kraussii zoning above high water level shows abrupt relative sea level fall associated with coseismic uplift. We estimated the amount of uplift during the 1923 event by measuring the height of the assemblages from mean sea level corrected by tide table and tide gage data in the Abratsubo station.

The height distribution of fossilized Pomatoleios kraussii along the western coast provides two interpretations as follows. At first, there are two levels of fossilized assemblage in Jogashima. The higher one measured about 2.5 m asl might have been emerged during the 1703 Genroku Kanto earthquake. Secondly, the height distribution of the assemblage in the area from Mito to North Aburatsubo (1.1-1.6 m asl) tends to be 20-30 cm higher than that of the neighboring regions (0.9-1.3 m asl). This result implies that the deformation during the 1923 event in the southwestern part of the Miura Peninsula has been undulated.

Two parallel active faults of the Minamishitaura fault and the Hikihashi fault trending W-E are distributed in the southeastern part of the Miura Peninsula. The location of the faults in the southwestern part of the peninsula cannot be traced precisely, but the Minamishitaura fault probably strikes between Kurosaki-no-hana and Mito. Timing of the latest event of these faults was inferred to be 20,000-22,000 yrs BP on the Minamishitaura fault and before 6,100 yrs BP on the Hikihashi fault respectively from the results of trenching survey (Kanagawa Prefecture, 2000). However, the relative 20-30 cm uplift area during the 1923 event along the southwestern coast just accords with the area sandwiched between these two faults. This fact suggests the possibility that the Minamishitaura fault and the Hikihashi fault in the southwestern part of the peninsula were displaced during the 1923 Taisho Kanto earthquake, propagated from the slip of subduction thrust along the Sagami Trough



三浦半島南部西岸における化石ヤッコカンザシの分布高度南北投影断面図