[EJ] Evening Poster | S (Solid Earth Sciences) | S-SS Seismology

[S-SS08]Active faults and paleoseismology

convener:Mamoru Koarai(Earth Science course, College of Science, Ibaraki University), Hisao Kondo(Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology), Ryosuke Doke(神奈川県温泉地学研究所, 共同), Nobuhisa Matsuta(Okayama University Graduate School of Education)

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Geologic and historic information on seismic cycles and on the magnitude and source faults of past earthquakes is essential information to understand future large earthquakes. The study of past faulting and seismicity is an important issue for an interdisciplinary community of seismologists, geologists, geomorphologists, archaeologists, and historians.

[SSS08-P10]Late Quaternary active tectonic deformation of marine and fluvial terrace surfaces in the southern part of the Sagami plain, central Japan

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Based on the accumulation-release process of the strain between the plates in the subduction zone, the crustal deformation associated with the large earthquake cycle is canceled out and are hardly recorded in the topography and strata. Therefore, it is necessary to re-examine the reason of the permanent deformation and paleoseismology deduced from the earthquake cycle. From this point of view, this research aims to quantitatively clarify the active tectonics deforming late Quaternary terrace surfaces developed in the southern part of the Sagami coastal plain where the inter-plate earthquake called the Kanto earthquake is thought to cause their terrace surface deformation. We analyzed the actual state of the deformation of the late Quaternary topography using 5 m DEM (Digital Elevation Model) and did geological drilling to decide the top height and age of Holocene marine sediments.The Quaternary terrace surfaces are classified into four late Pleistocene surfaces named K, S I, S II and S III surfaces in descending order, and into the lowest Holocene coastal lowland L surface. The Pleistocene surfaces show a remarkable northward back tilt which corresponds to the north wing of the E-W anticlinal axis of observed in the Middle Pleistocene strata, and its hinge coincides with the synclinal axis of the same strata. Moreover, the larger dip in older surfaces and strata show the cumulative tectonic deformation. These suggests that a local active structure (active fold) has grown and has deformed the terrace surfaces. This active anticline probably produces the high maximum uplift rate of 3 mm/yr estimated from the height of 9 m and the age of 3.3 - 7 ka of Holocene marine sediments. The structure of such active fold probably demonstrates a fault related fold accompanied by the reverse faulting, because of the successive ductile deformation of unconsolidated sediment overlying the fault. Since this active tectonic structure possibly connects to the subsidiary fault derived from the plate boundary like the Miura peninsula fault zone, that is considered to be activated and deform the southern part of the Sagami coastal plain when the slip at the inter-plate earthquake is sometimes partitioned into the subsidiary fault.