
 [JJ] Evening Poster | S (Solid Earth Sciences) | S-GL Geology

[S-GL31]Regional geology and tectonics

convener:Takeshi Yamagata(Department of Natural Sciences, Komazawa university), Makoto Otsubo(National Institute of Advanced Industrial Science and Technology (AIST), Institute of Earthquake and Volcano Geology)

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The main aim of this session is to discuss geologic structure and tectonic history of East Asia, especially of Japanese Islands, on the basis of the recent results of geology and other earth sciences.

[SGL31-P14]On Zircon U-Pb Ages from "Sarashikubi beds" in the Shimanto Superbelt, Kii Peninsula, SW Japan

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Peculiar mudstones beds containing various sized sandstone breccia, called as "Sarashikubi beds", are observed at the Tako seashore in the southern Kii Peninsula. The beds are subdivided into three units, i.e., the Ozarashi, the Tomiyama conglomerates, and the Kozarashi in ascending order (Hisatomi et al. 1980; Kishu Shimanto Research Group, 2012). The Ozarashi is composed mainly of massive mudstones including various sized breccias of mudstones, sandstones, conglomerates and alternating beds of conglomerate and sandstone. The Tomiyama conglomerates consist of bedded sandstones and conglomerates with intercalated mudstones including breccias. Hummocky Cross Stratification (HCS) is frequently observed in the sandstone layers. The Kozarashi comprise well stratified mudstone with abundant breccias. The Ozarashi and Kozarashi were originally interpreted to be a submarine debris flow deposits (Hisatomi et al.1980, Kishu Shimanto Research Group, 2012). Recently different interpretation that the Ozarashi is a diapiric melange and the Kozarashi is erupted sediments of mud volcano, has been proposed by Shiozaki and Miyata (2012). To contribute to clarify these hypotheses, Zircon U-Pb dating of three specimens of sandstone from the Sarashikubi beds were conducted by using LA-ICP-MS. 1) The concordant ages of the sandstone breccia in the Ozarashi are assigned to range from 50Ma to 1800Ma. The weighted mean of the youngest cluster (58.8 ± 0.4 Ma) have been considered as the age value. 2) The concordant ages of the sandstone from alternating beds of conglomerate and sandstone in the Ozarashi are scattered from 22 Ma to 1900Ma. The weighted mean of the youngest cluster (26.8 ± 0.3 Ma) have been considered as the age value. 3) The concordant ages of the sandstone in the Tomiyama conglomerates range from 60Ma to 2500Ma. The youngest cluster of U-Pb ages have not been founded in this sample, therefore, the age of the youngest single grain (61.8 ± 0.4 Ma) have been considered as the age value. Assuming that the youngest U-Pb age (26.8Ma; Chattian; late Oligocene) of the sandstone of alternating beds of conglomerate and sandstone of the Ozarashi nearly implies the depositional age, this age is presumed to be the depositional age of submarine debris flow forming the Ozarashi. Parallel laminations of alternating thin-bedded fine gravels and sands are founded in the beds. Moreover, the gravels in the beds show high ellipticity. Judging from these facts, the sedimentary environment of the beds is inferred to be foreshore. Furthermore, these occurrences of alternating beds will exclude the possibility of diapiric origin of the Ozarashi. The sandstone breccia in the Ozarashi dated at 59Ma (Thanetian; Late Paleocene). This U-Pb age is close to the one of tuffaceous sandstone from the Nyunokawa Formation belonging to the Otonashigawa Accretionary Sequence (63 Ma; Danian; Early Paleocene; Tokiwa et al., 2016). This breccia is thought to be originating from the Otonashigawa Accretionary Sequence. If so, it is further necessary to ascertain existence

of breccia derived from the Muro Accretionary Sequence. The sandstone in the Tomiyama conglomerates dated at 62Ma (Danian; Early Paleocene). This age is also close to the age of tuffaceous sandstone from the Nyunokawa Formation. The depositional age of 62 Ma is too much older than that of the Muro Accretionary Sequence (Eocene to Oligocene), which suggests that the Tomiyama conglomerates are not beds but exotic block. As stated previously, Hummocky Cross Stratification (HCS) is frequently observed in the sandstone layers of the Tomiyama conglomerates. This evidence means that the sandstones were deposited at lower shoreface to inner shelf, but not by turbidity current at trench basin. These U-Pb dating data are too scarce to more precisely clarify the origin of "the Sarashikubi Bed" and further studies are eagerly needed in future. This study was supported by a grant from the Nanki Kumano Geopark Promotion Council.