[EJ] Evening Poster | S (Solid Earth Sciences) | S-CG Complex & General

[S-CG59]Structure and evolution of Japanese islands - Formation of island arc systems and earthquake cycles

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Subduction processes such as accretion, back-arc-spreading, and arc-arc collisions have shaped the Japanese island arc. Recent advances in seismic imaging, both passive and controlled source, have produced new images of the crust-mantle structure under Japan and surrounding regions. Through the influence of pre-existing faults and rheological structures, these crust and mantle structures are exerting strong control on active tectonic processes like seismic activity and crustal deformation in the overriding plate. We seek contributions that document and/or model the deformation of the Japanese islands over a variety of time scales from the earthquake cycle to the tectonic evolution of the Japanese island arc, and from a range of research fields including seismology, geology, geochemistry, tectonic geomorphology, and geodynamics. Multidisciplinary studies are encouraged. We also welcome contributions in numerical or analogue geodynamical modeling that explore deformation processes.

[SCG59-P03]Dating detrital zircons of unidentified pre-Cenozoic sandstones on both sides of the Median Tectonic Line in the Mikawa-ohno area, in central Japan: their omparison and the initiation age of the age of the low-angle MTL

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The Median Tectonic Line is a significant fault continuing for 1000 km, which defines the boundary between the Cretaceous Ryoke granitoid belt and the Sanbagawa high-P/T metamorphic belt. Recent seismological analysis demonstrated that the essential nature of MTL is a N-dipping low-angle fault extended to the bottom of the crust; however, the age of the low-angle faulting has not been determined. The 3D structure of the low-angle MTL (paleo-MTL) is well preserved in the Mikawa-ohno area in central Japan, where undated weakly metamorphosed clastic rocks occur. In order to determine the initiation age of low-angle MTL activity in the area, we collected sandstones of these undated units, separated detrital zircons, and determined their U-Pb ages by LA-ICPMS. The results clarified that the previously undated clastic rocks are clearly classified into two groups; i.e., the upper Cretaceous sandstone/conglomerate along the southern margin of the Ryoke belt (Nanasato-isshiki Fm and Atera-nanataki conglomerate), and the lower Cretaceous sandstone on the northern margin of the Sanbagawa belt (Rokutazawa Fm). These two groups have different from each other in distribution, lithofacies, and zircon age spectrum. The zircon age spectrum of the Nanasato-isshiki Fm is the same as that of the substrate sandstone of the Atera-nanataki conglomerate, which is enriched with late Cretaceous grains, and the youngest grain indicates the depositional ages of both sandstones are probably Maastrichtian or

later. These sandstone/conglomerate on the Ryoke belt are correlated with those of the Izumi Group in Shikoku and Kii Peninsula. On the contrary, the sandstone of the Rokutazawa Fm on the northern margin of the Sanbagawa belt, is enriched with Permian and Jurassic grains with Precambrian grains, but lacks Cretaceous grains. The youngest grain indicates that depositional age is probably early Cretaceous. The age specturum of the Rokutazawa sandstone suggests that this unit is correlated with the Atogura and Tochiya formations, in northern Kanto Mountains, and the Maana Fm, in western Shikoku. This shows that the hanging wall of MTL has the Nanasato-isshiki Fm (latest Cretaceous), and the foot wall has the Rokutazawa Fm (early Cretaceous). These new data indicates that initiation age of the low-angle MTL is constrained as follows; the low-angleMTL appeared (1) after the sedimentation and deformation of the latest Cretaceous (Maastrichtian or later) strata on the Ryoke side, (2) after the post-Eocene emplacement of lower Cretaceous on the Sanbagawa high-P/T schists, and (3) before the formation of the Miocene Shitara cauldron. The low-angle MTL was born probably in the Oligocene.