Zircon U-Pb Ages from sandstones of the Muro Accretionary sequence in the Shimanto Superbelt, Kii Peninsula, Southwestern Japan

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The depositional ages of Shimanto Accretionary Prism in the Kii Peninsula, Southwestern Japan, have been mainly determined by radiolarian fossils. But recently, the fission track and U-Pb ages of detrital zircon in the sandstone have been reported (Ohira et al, 2016; Tokiwa et al 2016, 2017). However, these reports are confined to Cretaceous and early Paleogene System. Zircon U-Pb dating of three specimens of sandstone from the later Paleogene Muro Accretionary Sequence (AC) was carried out by using LA-ICP-MS. The consideration on the difference of radiolarian ages and U-Pb ages of detrital zircon has been done. Moreover, the cause of increasing supply from East Asia Precambrian detritus after Middle Eocene were examined. Muro AC is subdivided into three tectonostratigraphic units (TU) by thrusts, i.e., the Notake, the Ohkamidawasan, the Ichikano and the Susami TU from north to south. The Radiolarian fossil age of Notake TU shows Middle Eocene. The one of the Ichikano TU are assigned to range from later Middle Eocene to Late Eocene and the one of the Susami TU range from later Middle Eocene to Early Oligocene.As for the zircon U-Pb age, the Notake TU dated at 72.0±0.2 Ma, the Ichikano TU at 36.1±1.9 Ma and Susami TU at 59.6±1.0 Ma respectively deduced from the weighted mean of the youngest cluster.The value of the zircon U-Pb age from Notake and Susami TU are clearly older than the radiolarian fossil age. These gaps are presumed to be due to influence of Magmatic hiatus. The zircon U-Pb age from Ichikano TU is concordant with the radiolarian fossil age. The part of the zircon being included in Ichikano TU is thought to be derived from contemporaneous igneous rocks. Paleo-Proterozoic zircons (1600-2500 Ma) have been slightly found in all samples and Almost of these zircons are rounded. Therefore, these zircons are thought to be recycled grains. As it becomes more abundant in the younger TU, i.e., Susami TU, the supply from the Precambrian clastics of East-Asia continent is presumed to be increased. These Precambrian clastics are well exemplified by containing rounded zircon, purple zircon, Ig2-type garnet (Teraoka et al., 1998; Bessho,2012) and Orthoquartzite (Tokuoka,1970; Tokuoka and Bessho, 1980). Furthermore, the increasing of Precambrian zircon will support this hypothesis. As for the cause of increasing of East Asia Precambrian detritus, three assumptions will be suggested. In the first place, igneous activity was poor in the deposition time of Muro AS. In the second place, subaerial erosion became intense because of the fall of sea level by glacial eustacy (Bickert and Heinrich, 2011). Furthermore, large submarine fan composing Muro AS grew up in the trench basin.This study was supported by a grant from the Nanki Kumano Geopark Promotion Council.

Keywords: Zircon U-Pb dating, Paleogene Muro Accretionary Sequence, Shimanto Superbelt, Kii Peninsula

