The Setouchi Volcanic Rocks in the Southwest Japan; Re-examination of the ages

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Many remarkable geological events in the Southwest Japan were concentrated in several millions of years around the early-to-middle Miocene period; so called 'Green Tuff' activity around the Japan Sea region, formation of the Paleo-Setouchi marine basins and activity of the Setouchi Volcanic Rocks (SVR) along the Setouchi region, eruption and intrusion of the acidic rocks around the Outer Zone, and the formation of the fore-arc marine basins accompanying the volcanic/plutonic rocks along the very marginal zone facing the trench.

The geneses or the significance of these geological events have been linked to the 'Rapid Clockwise rotation model of the Southwest Japan block in the middle Miocene' (e.g. Torii, 1983; Otofuji et al.,1985) proposed in early 80's.

According to the common understanding in those days, the ages of the Outer Zone Acidic Rocks (OZAR) are estimated as 15 Ma to 13 Ma (Shibata, 1978), the ages of silicic rocks of the SVR are estimated as15 Ma to 14 Ma though the mafic rocks including high-magnesium andesites are estimated as 13 Ma to 12 Ma. The rotation event itself was estimated as between the ages of OZAR and that of the SVR mafic rocks.

Various models on the genesis of these volcanic activities are, in general, discussed in a restriction of the age relationship reviewed above.

As the time estimation of the rotation event itself is depend on the chronological information on the geological units which give paleomagnetic information, it might be revised to the revision of the ages of these rocks (e.g. Hayashida et al.,1991; Otofuji et al.,1991; Shimada et al.,2001).

The author have reported the detail reexamination by means of K-Ar dating on the ages of the SVR and OZAR in several regions (e.g. Sumii et al., 1998; Sumii and Shinjoe, 1999; Sumii, 2000; Shimada et al., 2001). The results requires the revision in the general understanding on the time-and -space distribution of these volcanic activities, especially on that of SVR.

The author will present the totalized summary on the age of SVR and the time-and -space relationship of the geological events before and after the repid rotation of the Southwest Japan block.