

Sandstone compositions of the early Campanian - Middle Eocene Shimanto Supergroup, western Shikoku, Southwest Japan

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The Shimanto Supergroup in the Nakamura area, western Shikoku, is favorable for the examination of tectonic evolution around the boundary between the Cretaceous and the Tertiary, because the Maastrichtian and Paleocene strata, which are not exposed in the most of the Shimanto Belt, crop out the Nakamura area.

The Shimanto Supergroup in the area, can be divided into the following 9 formations : Nonokawa Fm. [early Campanian], Oyu Melange [late Campanian], Nakamura Fm. [late Campanian~Early Maastrichtian], Ukibuchi Fm. [(late Campanian)~Maastrichtian], Ishimiji Fm. [Early Paleocene], Ida Fm. [Late Paleocene], Kamochi Fm. [Early Eocene], Inomisaki Fm. [Middle Eocene], Warabioka Fm. [Santonian~early Campanian]. Radiolarian ages of the formations become younger southward except for the Warabioka Formation.

Petrographic and geochemical studies on sandstones led the authors to the following conclusions.

1) Late Cretaceous to Early Paleocene sandstones (Nonokawa Fm., Oyu Melange, Nakamura Fm., Ukibuchi Fm. and Ishimiji Fm.) were mainly derived from felsic volcanic rocks in the Inner Zone of Southwest Japan.

2) Late Paleocene sandstones (Ida Formation) are inferred to have been supplied mainly from The Sanbagawa Metamorphic Belt.

3) Early Eocene sandstones (Kamochi Formation) have intermediate features between 1) and 2) for their provenance. That is, the provenance occupied by high P/T metamorphic rocks and felsic volcanic rocks is inferred.

4) Middle Eocene sandstones (Inomisaki Formation) were mainly derived from granitic rocks in the Inner Zone of Southwest Japan.