Radiolarian biostratigraphy and striped chert of the Sakahogi section in the Mino Terrane, Japan

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Bedded cherts are well exposed along the Kiso River, Gifu Prefecture. The Sakahogi section is located on the north bank of the Kiso River near Sakahogi, and corresponds to the Inuyama CH-2 chert unit. Lithologic columnar section at a scale of 1:10 was measured to clarify detailed lithostratigraphy.

The investigated interval (72m in thickness) is lithostratigraphically divided into three (lower, middle and upper) parts. Three claystone layers of 2-8cm thick (called CS-1, CS-2, CS-3) limit the top of each part. The lower part of the section (21 m in thickness) is mainly composed of rhythmical bedded brick-red chert. The middle part of 22 m thick is dominated by amalgamated greenish gray chert. In 12m thick of the upper part, rhythmical bedded red chert and amalgamated greenish gray chert are alternated. Samples for radiolarian biostratigraphy were collected at an interval of every 1m or less.

The lower part is characterized by the occurrence of Triassocampe coronata Bragin, T. deweveri (Nakaseko and Nishimura), Pseudostylosphaera japonica (Nakaseko and Nishimura), Spine A2, Yeharaia elegans Nakaseko and Nishimura, Tritortis kretaensis (Kozur and Mostler), Muelleritortis cochleata (Nakaseko and Nishimura), Spongoserrula dehli Cordey, De Wever, Dumitrica, Danelian, Kito and Vrielynck and Capnuchosphaera sp. This assemblage is correlative with late Anisian to early Carnian (TR 2C to 5A). The middle part yielded Capnodoce anapetes De Wever, Poulpus carcharus Sugiyama, Trialatus robustus (Nakaseko and Nishimura), indicating early Carnian to early Norian (TR 5A to 6B). Lysemelas olbia Sugiyama, Praemesosaturnalis multidentatus (Kozur and Mostler), Praemesosaturnalis pseudokahleri Sugiyama, Skirt F occur from the upper part. This assemblage is correlative with early Norian to early Rhaetian (TR 6B to 8C). The Sakahogi section records continuous pelagic sedimentation in the Triassic.

There are striped cherts in this section. It is characterized by bedding parallel laminae-like sedimentary structures. Stripe structures can be observed and traced laterally even if the color of chert beds changes. The striped structures are categorized into three types; thinning upward, thickening upward and constant in thickness. The first occurence of striped chert is late Ladinian (TR4A). Chert beds with striped structure are common in middle part (Carnian-early Norian; TR5A-6B). The last occurrence of striped chert is late Norian (TR8A).

The abundant occurrence of striped chert together with amalgamated nature is possibly indicative of high productivity signature. To better estimate a sedimentation rate, a more detailed chronostratigraphic framework is required.