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Detailed examination on upper Triassic radiolarian biostratigraphy in the Sakahogi section of the Mino Terrane, Japan

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The Sakahogi section, exposed along the Kiso River, has continuous Panthalassa sedimentation records in the Triassic (Nikaido and Matsuoka, 2007). The interval is litho-stratigraphically divided into three (lower, middle and upper) parts. Three claystone layers that named CS-1, 2 and 3 (Sugiyama, 1997) of 2-8cm thick 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. This part is characterized by late Anisian to early Carnian (TR 2C to 5A) radiolarian assemblage. Conical Nassellarians are dominant in lower horizons of this part. The middle part of 22 m thick is dominated by amalgamated greenish gray chert. The common occurrence of the striped cherts characterizes the middle part. These striped cherts occur the most commonly in the midst of the middle part and decrease in number downward and upward. The assemblage from this part indicate early Carnian to early Norian (TR 5A to 6B). Spherical Spumellarians are dominant in the midst of this part. The upper part (12 m in thickness) is alternation of rhythmical bedded red chert and amalgamated greenish gray chert. The rhythmical bedded chert sequence is similar to the lower part. The amalgamated bedded chert sequence looks like the middle part, however, the striped chert is very few. Three white chert layers are observed. Radiolarian assemblages from the upper part indicate early Norian to early Rhaetian (TR 6B to 8C). Characteristic radiolarian taxa include Japonocampe nova (Yao), Podobursa sp., Syringocapsa batodes De Wever, Paronella norica Kozur and Mock, Poulpus curvispinus Dumitrica, Kozur and Mostler, P. piabyx De Wever, Sarla vetusta Pessagno, Capnuchosphaera deweveri Kozur and Mostler, C. sagaris Sugiyama, C. colemani De Wever, Capnodoce anapetes De Wever, C. sarisa De wever, Praeheliostaurus laevis Kozur and Mostler, Xipha nodosa Sugiyama, Trialatus robustus (Nakaseko and Nishimura), Lysemelas olbia Sugiyama, Parentactinocarpus sevaticus Kozur and Mostler, P. tetracanthus Dumitrica, Praemesosaturnalis multidentatus (Kozur and Mostler), P. pseudokahleri Sugiyama, P. heilongjiangensis Yang and Mizutani and Dreyericyrantium ithacanthum Sugiyama. The TR6B-7 radiolarian Zonal boundary is situated slightly above CS-2. TR6B assemblage is dominated by spherical Spumellarians. On and above the top of TR6B, saturnalid Spumellarians are strongly diversified. This saturnalid high diversity continues to late Norian. Rhaetian assemblages are characterized by Deflandrecyrtiidae Nassellarians.

Keywords: chert, Late Triassic, radiolarian fossils, Sakahogi section, Mino Terrane, Panthalassa