

Integrated biostratigraphy and magnetostratigraphy of the Upper Triassic to Lower Jurassic bedded chert sequences from Inuyama area, central Japan

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The stratigraphic record of several catastrophic events has been recently recognized in the Upper Triassic bedded chert successions from the Jurassic accretionary complex in Japan. Although their stratigraphic record is particularly important for understanding the impact of global catastrophic events in the Late Triassic, this process has been hampered by the poor age control for the cherts. The ages of the Triassic bedded cherts were predominantly determined from the radiolarian biostratigraphy, however, the accurate calibration of chronostratigraphic stages and substages has been developed using ammonite and conodont biostratigraphies and magnetostratigraphy. In order to calibrate the Upper Triassic radiolarian zonation with the standard Triassic timescale, the conodont biostratigraphic and magnetostratigraphic studies are required in the pelagic chert successions in Japan. Here, we present the conodont biostratigraphy and magnetostratigraphy established in exactly the same sections that Sugiyama in 1997 used as the type sections for his radiolarian biozones. The stratigraphic intervals from the Carnian to the Hettangian in his sections H, N, Q and R in the Inuyama area, central Japan were examined.

Based on recent conodont taxonomy and the stratigraphic distribution of marker species, eight conodont zones were defined: *Paragondolella? tadpole* interval Zone, *Quadralella tualica* interval Zone, *Epigondolella quadrata* interval Zone, *E. triangularis* interval Zone, *Mockina postera* interval Zone, *Mockina bidentata* interval Zone, *Misikella hernsteini* interval Zone, and *Misikella posthernsteini* interval Zone. These were correlated with the coeval radiolarian zonation established by Sugiyama in 1997, and comparable to that in British Columbia, the Pizzo Mondello section, the Steinbergkogel section, and other sections in southwest Japan.

Magnetostratigraphic results delineate 20 substantive normal and reverse magnetozones, defined by measurement of 357 samples. Although the magnetostratigraphic data in the vicinity of the early-late Carnian boundary is the first record from the marine section, the magnetostratigraphy of samples in Carnian-Rhaetian interval was well correlatable with that of Tethyan marine sections. This correlation implies that the bedded chert of Inuyama area was deposited in the Northern Hemisphere, assuming that the rocks in the Tethyan marine sections were deposited in the Northern Hemisphere. The correlation of the magnetostratigraphic data also suggests that loss of the stratigraphic record at the Triassic-Jurassic boundary (TJB) in the study sections, possibly due to structural erosion or hiatus. The intercalibrated conodont-radiolarian biostratigraphy and magnetostratigraphy from the studied sections accurately calibrates the radiolarian zones in Japan with standard chronostratigraphic stages and substages.

Keywords: Late Triassic, magnetostratigraphy, biostratigraphy, bedded chert, Mino belt, Panthalassa