

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

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The Late Triassic was characterized by several catastrophic events, such as widespread eruption of the Central Atlantic Magmatic Province flood basalts, and large extraterrestrial impacts. The stratigraphic record of these events has been recently reported from the Triassic bedded chert successions in Japan, deposited within a Paleo-Pacific (Panthalassa) deep basin. However, the ages and durations of these events are uncertain because the magnetostratigraphic studies and the conodont biostratigraphic studies of chert sequence in Japan are not well known, and the radiolarian biostratigraphy of Sugiyama (1991) established in the chert sequence is not correlated with the Tethyan biostratigraphy.

Here we present Carnian to Rhaetian magnetostratigraphy and biostratigraphy (conodont and radiolaria) of the Upper Triassic bedded chert successions from the Mino belt, Inuyama area, central Japan. 416 oriented samples were collected at four sections (Section H, N, Q, R) where Sugiyama (1997) investigated the radiolarian biostratigraphy. All samples were thermally demagnetized and analyzed at the paleomagnetic laboratory of Center for Advanced Marine Core Research, Kochi Univ.

Based on detailed study of the conodont biostratigraphy from the study sections, seven conodont zones are recognized and calibrated with the Sugiyama's radiolarian zone. Thermal demagnetization showed four distinct remanent magnetization components from the cherts. The highest blocking temperature component shows positive reversal test and is regarded as the primary remanent magnetization, which produced a magnetostratigraphy of the Carnian to Rhaetian. Paleomagnetic polarity reversals observed at the vicinity of Carnian/Norian boundary and middle Norian/upper Norian boundary are correlated with those of Tethyan marine sections (Pizzo Mondello and Silická Brezová). Assuming that the rocks in the two Tethyan marine sections were deposited in the Northern Hemisphere, the magnetostratigraphic correlation indicates that the bedded chert of Inuyama area was deposited in the Northern Hemisphere. The mean inclination of the last demagnetized component suggests the bedded chert originated in an equatorial area.

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