

## Cyclostratigraphic analysis of the Middle Triassic bedded chert sequences in Southwest Japan

SODA, Katsuhito<sup>1\*</sup> ; ONOUE, Tetsuji<sup>1</sup> ; IKEDA, Masayuki<sup>2</sup>

<sup>1</sup>Kumamoto Univ., <sup>2</sup>Shizuoka Univ.

Milankovitch cycle recorded in sedimentary rocks provides a high resolution and precision astronomical time scale throughout the Earth history. Bedded chert sequences of the Jurassic accretionary complexes in Southwest Japan have a potential for the template of the early Mesozoic astronomical time scale. Although astronomically paced sedimentary rhythm of the Triassic bedded chert sequence was detected in the Inuyama area of the Mino Belt, central Japan (Ikeda et al., 2010), the validity requires detailed stratigraphic correlations to other Triassic bedded chert sequences in Japan.

In this study, we investigated the sedimentary cycle of the Middle Triassic (Anisian) bedded chert sequence in the Tsukumi area of the Chichibu Belt, Southwest Japan. The study section is located at the Ajiro Island in the Tsukumi area of the Chichibu Belt, Southwest Japan. The depositional age for the bedded chert sequence is Middle Triassic (Anisian) based on radiolarian bio and magnetostratigraphy (Uno et al., 2012).

The average duration of a chert and shale couplet in the Middle Triassic bedded chert of the Tsukumi area is ca. 10 kyr. This duration is inconsistent with the ca. 20 kyr duration of the precession cycle during the Triassic, which was confirmed by estimated average duration of a chert and shale couplet in the Triassic bedded chert of the Inuyama area. The dominant cycles in a bed number series of thickness variations in the Middle Triassic chert beds show approximately 2, 5, 10, 40, 200, 300 and 400 beds cycles. Given that the average duration of one chert and shale couplet is ca. 10 kyr, these cycles correspond to approximately 20, 50, 100, 400, 2000, 3000 and 4000 kyr periodicities. The periodicities of the Tsukumi chert are consistent with those of the Inuyama chert (approximately 40, 60, 100, 140, 240, 400 and 4000 kyr).

Previous palaeomagnetic studies have revealed that the Middle Triassic bedded chert in the Ajiro Island section were deposited in the equatorial region, whereas the deposition of the Inuyama chert occur at relatively higher latitude. If the interpretation that rhythmical alternations of chert and shale beds are paced by precession and eccentricity cycles is valid, the average duration of a chert and shale couplet from the Tsukumi area might reflect the semiprecession cycle (ca. 10 kyr) in the equator area caused by biannual passage of the Sun. However, the phases of the bedded chert thicknesses in a bed number series show no clear relationships between Tsukumi and Inuyama areas despite bio and magnetostratigraphic correlation. Further stratigraphic analyses will be required to estimate the paleolatitudinally dependent patterns in the cyclicities of the Triassic bedded chert sequences in Japan.