

# Lithology and age of Middle Paleozoic siliceous-clastic strata related to the opening of the Paleo-Tethys in the Klaeng area, Rayong Province, southeastern Thailand

\*Toshiyuki Kurihara<sup>1</sup>, Hidetoshi Hara<sup>2</sup>

1. Graduate School of Science and Technology, Niigata University, 2. Institute of Geology and Geoinformation, Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology

The Devonian continental-margin to deep-water facies in Thailand provides important information about the marine environmental change during the opening of the Paleo-Tethys (Hara et al., 2010). In the present study, Devonian siliceous and clastic rocks, exposed at Laem Krabang Phet, approximately 20 km southwest of Klaeng, Rayong Province, southeastern Thailand (Kamata et al., 2015), were examined in terms of lithostratigraphy and geologic age. The strata of the study section are subdivided into the following three rock-facies: black carbonaceous mudstone, sandstone, and chert (Unit I), felsic tuff, tuffaceous sandstone, tuffaceous chert, and chert (Unit II), and siliceous mudstone associated with various lithologies (chert, black carbonaceous mudstone, sandstone) (Unit III).

From near the locality where we studied, Kamata et al. (2015) reported *P. cladophorum* and some entactiniid species such as *S. cf. pusilla*. They concluded that this fauna is probably referable to the Middle-Late Devonian. We collected over 50 samples including black carbonaceous mudstone, chert, tuffaceous chert, felsic tuff and siliceous mudstone from the study section, with the aim of determining detailed biostratigraphic age. As a result, we recovered moderately well-preserved radiolarians from gray to dark gray chert of Unit II and black siliceous mudstone of Unit III. The radiolarian fauna from both samples has similar species composition, including *T. minax*, *T. vetusta*, *T. davidi*, *T. elegans*, and *T. echinata*. *Trilonche minax* and other *Trilonche* species are the representative species of the *T. minax* assemblage (Aitchison et al., 1999). Based on the age calibration by Aitchison et al. (1999), the fauna of our samples can be assigned to latest Givetian to early Frasnian (latest Middle Devonian to early Late Devonian).

Kamata et al. (2015) suggested that the lithological assemblage in the study section is dissimilar to that of the Devonian part of the Fang chert (Chiang Dao area of northern Thailand), which is related to the opening of the Paleo-Tethys (Hara et al., 2010). However, the result of the present study shows that the stratigraphy consisting of black carbonaceous mudstone of Unit I and overlying fine-grained siliceous and tuffaceous rocks (Unit II) is similar to that of black shale and overlying siliceous shale and tuffaceous chert in the Chiang Dao area of Hara et al. (2010).

Keywords: Paleo-Tethys, Devonian, Radiolaria