

Latitudinal changes of radiolarian assemblage in the Japan Sea during Pliocene to Pleistocene

*Takuya Itaki¹, Kaoru Niino², Isao Motoyama², Kenji Marc Raymond Matsuzaki⁴, Shin-ichi Kamikuri³

1. Geological Survey of Japan, AIST, 2. Yamagata University, 3. Ibaraki University, 4. University of Tokyo

The Japan Sea (3,700 m maximum water depth) is a marginal sea of the northwestern Pacific, connected to adjacent marginal seas and the Pacific Ocean through four shallow straits (sill depth < 130 m). The only inflow of oceanic water is derived from the Tsushima Warm Current (TWC), which enters the Japan Sea through the Tsushima Strait (130 m in depth) in the south.

Radiolarians are one group of the planktic Protista distributed in the world oceans and their fossil records are widely used as a proxy for paleoceanographic study. In the summer 2013, IODP Exp. 346 drilled seven sites in the Japan Sea and two sites in northern part of the East China Sea. We have analyzed radiolarian fossils for all these sites. In this study, geographic distributions of radiolarian assemblage in the Japan Sea during Pliocene to Pleistocene are discussed, such as their relation to global climatic changes and topographic changes with local/regional tectonics.

Significant variations of the well-preserved radiolarian assemblage recorded in the drill sites imply unique oceanic circulation changes in this sea through the examined period. The radiolarian species such as *Dictyocoryne* spp. and *Tetrapyle* spp., which characterize the TWC water occurred commonly during interglacial periods since 1.7 Ma suggesting a beginning of warm water inflow from the southern strait. Relative abundance of these subtropical radiolarians tends to be much higher at the southern sites than at northern sites, related to the relative contribution of the TWC. On the other hand, during the Pliocene period, minor influence of subtropical water was only recognized at the southern site suggesting influence of the TWC restricted to the southern coastal area.