International Session (Oral) | Symbol M (Multidisciplinary and Interdisciplinary) | M-IS Intersection

[M-IS01_29PM2]Land-ocean linkages in East Asian marginal seas

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Integrated Ocean Drilling Program (IODP) Expedition 346 "Asian Monsoon" aimed to explore the timing of the onset as well as the evolution of the Asian Monsoon and its impact on paleoceanography in East Asian marginal seas through scientific drilling in the Japan Sea and the northern East China Sea. The expedition was conducted in the summer of 2013 and successfully retrieved continuous sedimentary records as old as 15 Ma.? These long and continuous sedimentary records will be soon open to the geoscience community and will provide a unique opportunity to study paleoceanography and paleoclimatology in East Asian marginal seas and the interactions between the Asian continent and East Asian marginal seas.? Before starting intensive studies using these valuable materials, it will be worthwhile to summarize the existing knowledge on paleoclimate in East Asia, the stratigraphy and paleoceanography of the East Asian marginal seas, and? the interactions between them.? This international session (and a special volume for a new JpGU online journal) aims to review and synthesize such existing knowledge and provide guidance to future directions of research in these fields.

5:50 PM - 6:00 PM

△[MIS01-P01_PG]Changes of water structures in the Sea of Japan during the Late Pliocene

3-min talk in an oral session

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Keywords:Sea of Japan, Late Pliocene, ostracode, Mg/Ca, water structure

An analysis of fossil ostracode assemblages in the Kuwae Formation, central Japan, clarify the paleoenvironmental changes related to glacial and interglacial cycles during MIS G19 and G10 (Irizuki et al., 2007). Added to this, temperate intermediate waters which were warmer than those of today, were existed in interglacial periods during 3.5 to 2.8 Ma. Radiolarian faunas inferred that enhancement of ventilation due to global cooling started at approximately 2.5 Ma (Kamikuri and Motoyama, 2007). However, temperatures of the temperate intermediate waters and the timing are uncertain. So, our aims are to clarify quantitative temperatures of shallow and intermediate waters during the late Pliocene based on Mg/Ca, and to discuss change of water structures in the Sea of Japan. Siltstones collected from the Kuwae Formation along the Tainai River were soaked in H_2O_2 for 24 hours before they were washed. Ostracode shells of genus *Krithe* (intermediate water species) and *Cytheropteron miurense* and *Cytheropteron sawanense* (shallow water species) were taken from the residues, and their Mg/Ca were measured by ICP-AES at Kochi University. Two intervals were identified in the study section based on quantitative temperature of intermediate and shallow waters and their vertical changes. Intermediate water temperatures ranged between 0 and 10℃ and fluctuated in short-time intervals during MIS G19-G16, although they were stable and showed a small amplitude between 3 and 7℃ during MIS G15-G13. Moreover, difference in temperature between shallow and intermediate waters was large in MIS G19 and G16, but was small in MIS G15-G13. These temperature difference and shifts suggest that strong stratification of shallow and intermediate waters during MIS G19-G16 changed to a condition in which

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temperature gradients were small due to enhance of ventilation in the Sea of Japan. MIS G15 and G13 were characterized by a large oxygen isotope values compared with those in other inter-glacial periods of the study intervals. The relative cooling in inter-glacial periods might be caused a beginning of ventilation in the Sea of Japan.

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