

Holocene environmental change of coastal lagoon inferred from diatom assemblage in Lake Hwajinpo, Korea

*Cho Ara¹, Deakyo Cheong³, JinCheul Kim², DongYoon Yang², JinYoung Lee², Kaoru Kashima¹, Kota Katsuki⁴

1. Kyushu University, 2. Korea Institute of Geoscience and Mineral Resources, 3. Kangwon National University, 4. Shimane University

Hwajinpo is the largest lagoon in Korea, and its bottom sediment preserves good the Holocene records. To reconstruct the evolution of the Hwajinpo inner lake, analysis of AMS radiocarbon dating, OSL dating, grain size, and diatom assemblage were performed to the 11 m core obtained from the small river mouth of the inner lake (HJ02). According to diatom assemblage and grain size analysis, the environments were divided into 6 periods, labeled unit 1 to 6. The Hwajinpo lagoon was an estuarine environment which was influenced by marine water about 8 ka (Unit 1). Unit 2 is dominated by bay indicator species, meaning that the estuary changed to open bay condition which is connected to ocean. After then, marine species gradually decreased and the open bay changed to semi-closed bay as developed the sand bar. In case of Unit 4, marine species didn't occur because sand barrier is completely developed and there was a hiatus between 5.5 and 1.7 ka in about 7m depth because of flooding and delta switching event. Then, the environment of this site changed to an Oligohaline lagoon (Unit5) because of climate change especially precipitation increase. Since 1ka, the environment changed to like modern lagoon condition based on diatom assemblage which has been similar to modern assemblages.

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