

Environmental and climatic change over the past bimillennium inferred from diatom assemblage in Hamana lagoon, Japan

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Hamana is a coastal lagoon in central Japan whose the past bimillennium sediments give a critical record of climatic change. The past bimillennium environmental and climatic changes were reconstructed by diatom analysis, geochemical analysis, and radiocarbon dating of a sediment core (Hm-1C and Hm-2C) with high temporal resolution. The most dramatic change in Hamana lagoon is changed brackish lagoon from the freshwater lake through the inlet which was constructed by the Meio earthquake around A.D. 1945. Hamana lagoon was brackish lagoon between B.C. 500 and A.D. 150. *Cyclotella atomus* is freshwater to brackish species. However, *Tabularia fasciculata* inhabits the hypersaline environment. From A.D. 150 to A.D. 340, it was heavy rainfall because *Achnantheidium minutissimum* which is a terrestrial species and *Fallacia nyella* which is a marine species abruptly increased. The dominant species changed to *Aulacoseira ambigua* and *A. granulata*. Those species inhabit in freshwater. Therefore, Hamana lake was freshwater lake until A.D.1945. However, *A. ambigua* and *A. granulata* suddenly decreased and *Pseudosaurosira* ssp. which is benthic species and *T. fasciculata* increased from A.D. 900 to A.D. 1300. It means an environment of coring site changed to salt marsh from freshwater lake. After Meio earthquake, Hamana lake changed to brackish lagoon like a modern lagoon. The diatom assemblage shows the cycle of monsoon to weaken and strengthen. The total valves show is lowest and *Cyclotella* var. *gracilis* which indicates warmer climate suddenly decreased around A.D. 1495-1560, 1620-1720. This mean Asian monsoon event became weak. In other hands, Asia monsoon gets stronger around A.D. 1560-1620, A.D. 1720-1800.

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