

## **Ostracods Reveal Jomon Transgression – A Case Study of the Holocene Borehole Core from Maejima Island, Kumamoto, Southwest Japan –**

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### **Abstract**

A total of 63 ostracod species were identified from 14 samples from a borehole core (Bor.5) on the northern coast of Maejima Island, north of Kami-Amakusa Island, Kumamoto, Kyushu, Japan. Four ostracod biofacies (I–IV) were identified using Q-mode cluster analysis, and the time range of each ostracod biofacies was computed using a core depth and age model on the basis of five accelerator mass spectrometry radiocarbon dates. Biofacies I, which showed the mouth of the inlet environment, appeared to be at least 7237 yr BP. Biofacies II, which showed the open bay species, appeared to be between 7237 and 5637 yr BP. Biofacies III, which indicated a small embayment environment, flourished over 5600 yr BP, with temporal appearances (2988–2798 yr BP) of Biofacies IV, which appeared in the inner part of the small embayment. We reconstructed the temporal change of the sea level at Maejima Island as follows: Before ca. 7200 yr BP, no marine fossils, including ostracods, occurred. The depositional environment was marsh/lagoon from the sedimentological characters, indicating that the sea level was lower than it is today. About 7200 yr BP, the transgression occurred, and the sea level rapidly increased to 4.0 m. After that (ca. 7200–5600 yr BP), the water depth was high ca. 6800–6200 yr BP; the maximum and minimum paleo-bottom water temperatures also reached their highest values. In the southwest part of Maejima Island, the Maejima shell mound, which was constructed at 12 m above sea level ca. 6500 yr BP. These results indicate that the Jomon people lived during the warm Jomon transgression period on Maejima Island, supporting the previous notion that the Jomon peoples were temperate hunter-fisher-gathers who had adapted to the postglacial environmental fluctuation. Topographically, Maejima Island has not changed since ca. 1900 yr BP, and the Umedono-zuka burial mound was constructed ca. 1400 yr BP. Thus, the sea level reached its maximum levels ca. 6800–6200 yr BP, which is a slight shift compared to the previous report in the Kanto area (6500–5000 yr BP). Our results imply that regional tectonics also play an important role in considering and reconstructing the Holocene sea level curve in Japan.