

## Palaeogeography and depositional system after Jomon transgression in the Echigo Plain, Niigata Prefecture, central Japan

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The Echigo Plain, on which the city of Niigata is located, lies on the back-arc side of Japan. This large coastal plain forms between the lower courses of the Shinano and Agano rivers. In the Echigo Plain, multiple coastal sand dunes are distributed almost parallel to the present coastline. In the northern part of the Plain, there are 10 rows of coastal sand dunes, which are grouped into the Recent Sand Dune I, Recent Sand Dune II, and Recent Sand Dune III, based on the distribution and characteristics of their sediments (Niigata Ancient Dune Research Group, 1974). The Recent Sand Dune I has been considered to be a primary barrier sand body formed during the Holocene maximum transgression stage (Jomon transgression) (e.g., Nishida and Chihara, 1956; Naruse, 1985; Umitsu, 1994). The Echigo Plain is a typical barrier type coastal plain (strand plain), where the coastal sand dunes and lagoons have expanded toward the inland. However, according to the recent research, the sedimentation system of the Plain does not show the simple progradation and sedimentation, and it has the complicated process by a balance of various factors.

The Recent sand dune I is distributed in the north and western margin of the plain, but it is not distributed in present surface at the Nishikanbara region in the central part of the plain. Then, Urabe and Takahama (2002) and Urabe et al. (in press) clarified the distribution and subsidence of the barrier sand body from the reexamination of the boring data and the depositional facies analysis by all core boring. From the examination by these data, Kamoi et al. (2002) and Hoyanagi et al. (2002), the barrier of the central part of the plain were begun to form since approx. 8000 years ago, and existed as the barrier till about 5000-6000 years ago with the small-scale progradation and backstep of the barrier system.

On the basis of the Numazawa volcanic ash about 5000 years ago, the barrier formed by the barrier-lagoon system is distributed in the Nishikanbara area that subsides the barrier sand body (Urabe and Takahama, 2002). In contrast to the Nishikanbara area, the sediment by delta system of fluvial was distributed to near the present coastline in the east part of Niigata City. After 5000 years ago, the plain of the Nishikanbara area are deposited by the progradation of the barrier-lagoon system. In the east part of Niigata City, the delta system went back to the recent distribution of the Recent sand dune II, and again progradated, and the sedimentation of the plain seemed to be made to prograde to the present coastline. It seems that this phenomenon as the geomorphological movement of the coastline was caused by a balance of the factors (1.The excellence of the ocean wave effect in the subsiding region. 2.Relationship between the increase of the sediment supply by the frequent occurrence of debris flow in the hinterland and conversion from barrier-lagoon system to the delta system.3.The regression of sedimentation system by the tectonic subsiding event. 4.The effect of the coastal current etc.) of forming the landform in the space where the deposition of whole plain area was almost finished by the Jomon transgression.