

# Sea level rise and changes of tidal current v around eastern Neko Seto Strait, Seto Inland Sea, Japan

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Seto Inland Sea, studded with many islands, has been formed during the sea level rise after the Last Glacial Maximum of about 20,000 years ago and has experienced various environmental changes with formations of many straits. In order to clarify the process of environmental changes in the model sea area, historical development of some channels are discussed.

Basal depths of Pleistocene to Holocene sediments near the channels can be observed in Bubble pulsar acoustic survey record. The order of strait formations is judged by the basal depth of Pleistocene to Holocene sediments in cross section. As a result, the depth of basement of Pleistocene to Holocene sediments is the deepest around Neko Seto Strait which is about -60m. Therefore, Neko Seto Strait was considered to have been formed first. Akashi Seto Strait was formed second ca.10500 B.P. and Yanagino Seto Strait was formed third ca.10200 B.P. At about -35m sea-level, the strait between Toyo island and Kamikamagari island was formed fourth ca.10000 B.P. At about -30m sea-level, the last strait between the Toyo island and Osakisimo island was formed ca. 9500 B.P.

Acoustic record around the Neko Seto Strait show a change from erosional to depositional environment. An internal acoustic reflector can be observed beneath the sea bottom.

Geologic history of the area can be summarized as follows: (1) Formation of basement ca.20000 B.P., (2) The Neko Seto Strait and the sea cauldron was formed during the sea level rise after the LGM. At this time, tidal current velocity was the fastest during the Neko Seto Strait's history and the area was erosional. (3) Yanagino Seto Strait was formed and the amount of sea water exchanges through the Neko Seto Strait was decreased. Sedimentary condition near Neko Seto Strait has changed from erosional to depositional by the formation of Yanagino Seto Strait that is connected to the same sea area. Tidal current velocity is supposed to have been decreased by these formations of younger straits.