

Shifting velocity of a large sand dune and its direction in the Seto Inland Sea, southwest Japan

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Many sand dunes lie in the Seto Inland Sea southwest Japan. Sand dunes are formed by the clastic materials supplied from hollows of nearest straits where current velocities are fast.

Sand dune called Ozu lies in the northern sea area off Matsuyama city southwest Japan. Water depth is less than 15m at the shallowest part. Clastic materials of Ozu are supplied from deep hollows in the Tsurushima strait located to the west and that of the Takahama strait located south.

Bottom samples were taken using Smith-McIntyre grab sampler at 26 points every month from February to November in 2003. In order to observe bottom topographic changes in sand dune, acoustic survey using narrow multi beam was carried out at intervals of one year.

Water depth in the area becomes shallower from southwest to northeast and steepens over the top of sand dune. Water depth is the shallowest along the northeastern steep slope and along the south slope of Ozu. Bottom surface sediments in this area is, in general, coarser in the southwestern part, and finer in the northeastern part of Ozu.

Distribution pattern of clastic sediments of Ozu is influenced by the tidal current of two directions. Based on a result of acoustic survey, very slow movement of the sand dune to the south was observed. However, the maximum shifting velocity is about 2m/yr at a small area of southern steep slope.