



Submarine sand ridges and sand waves in the eastern part of the China Sea

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Integrated with multi-beam and single-beam echo sounding data, as well as historical bathymetric data, submarine bathymetric maps of the eastern part of the China Sea, including the Bohai Sea, Huanghai Sea, and East China Sea, are constructed to systematically study submarine sand ridges and sand waves in the eastern part of the China Sea, combined with high-resolution seismic, sub-bottom profile and borehole data. Submarine sand ridges are extraordinarily developed in the eastern part of the China Sea, and 7 sand ridge areas can be divided from north to south, that is, the Laotieshan Channel sand ridge area in the Bohai Sea, the Korea Bay sand ridge area in the southern Huanghai Sea, the sand ridge area in the eastern Huanghai islands and the Huanghai Troughs, the Jianggang sand ridge area in the western Huanghai Sea, the sand ridge area in the East China Sea shelf, and the sand ridge and sand wave area in the Taiwan Strait and Taiwan Banks. The distribution area of the sand ridges and sand waves covers more than 450,000 km², wherein ~10,000 km² in the Bohai Bay, ~200,000 km² in the Huanghai Sea, ~200,000 km² in the East China Sea shelf, and ~40,000 km² in the Taiwan Strait and Taiwan Banks, respectively. The great mass of sand ridges are distributed within water depth of 5-160 m, with a total length of over 160 km and a main width of 5-10 km. The inner structure of the sand ridges presents features of high-angle inclined beddings, with main lithology of sands, sand-mud alternations partly visible, and a small number of mud cores. Dating results indicate that the sand ridges in the eastern part of the China Sea are mainly developed in the Holocene. Sea-level variation dominates the sand ridge evolution in the eastern part of the China Sea since the LGM, and the sand ridges developed in the area of < 60m water depth are appeared in bad activity, meanwhile sand ridges with good activity are still developed in large scale.