



Stratigraphy and evolution history of the continental shelf deposits in the South Sea, Korea

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High-resolution (Chirp and Sparker system) seismic profiles were analyzed to investigate the stratigraphy and evolution history of the continental shelf deposits in the South Sea, Korea. Approximately 1940 line-km data of chirp and sparker profiles was acquired. Along with seismic profiling, 30 piston core samples were collected and two previous long drill cores (SSDP-103 and 104) were used to compare with seismic data. The seismic profiles of this study show nine types of seismic facies separated by seafloor morphology and subbottom acoustic characters. Based on the sequence analysis of seismic profiles, the continental shelf deposit of the South Sea above sequence boundary of pre-LGM deposit can be divided into five sedimentary units (S1, S2, S3, S4, and S5 from top to bottom). Each sedimentary unit shows different seismic facies and geometry, and is clearly separated by boundaries formed since the LGM. The correlation between cores data and the seismic data suggests that unit S5 is incised channel fill formed by fluvial or coastal sediments during the early transgressive stage, accompanied by backstepping of the shoreline. Unit S4 is transgressive sand layer resulted by the selective sedimentation of the coarse sediments due to the strong current and tide with the rapid retreat of the coastline. Unit S3 is paleo channel or basin fill deposit made in estuary or delta environments formed near the inner continental shelf. Unit S2 is inner shelf transgressive sand layer including sand ridge. Unit S1 is interpreted as the most recent mud formed during the highstand stage when the sea-level rise terminated. The evolution history of the continental shelf deposit in the South Sea, since LGM, is closely related to the postglacial sea-level changes, distribution of Seomjin paleo channel, sediment supply, and erosion.