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Stratigraphic reconstruction of Plio–Quaternary transgressive/regressive deposits on the southeastern continental shelf, Korea

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Based a dense network of high-resolution seismic reflection profiles, we investigated the stratigraphy and depositional history of Plio–Quaternary deposits on the southeastern continental shelf of Korea. Analysis of high-resolution seismic profiles and sediment data give a good evidence for the high-frequency sequence stratigraphic architecture on the Korea Strait shelf. The shelf sequences consist of seven depositional sequences bounded by erosional unconformities. Individual sequences are characterized by well-stratified and complex sigmoid-oblique prograding reflection configurations, reflecting a history of upbuilding and outbuilding in response to repetitive transgressive and regressive events driven by sea level changes. During the regression to lowstand of sea level, lowstand prograding wedges were formed seaward along the present shelf margin, whereas during the highstand of sea level, as in the present condition, highstand deposits were deposited in the inner shelf along the coast. However, as the subsequent regression began, the inner-shelf highstand deposits were severely eroded out and/or formed a condensed section. Volumetrically, the forced regressive and lowstand systems tracts are the most important components of the study area. Consequently, the shelf sequences in this area consist of a succession of stacked progradational lowstand wedges, mainly formed during the regression and lowstand of sea level.