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## Evolution and stratigraphy of the Nakdong River valley deposits in response to late Quaternary sea-level change

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Sequence analysis using borehole samples and high-resolution seismic data in the Nakdong River valley reveals that the Nakdong River valley deposits, approximately 60 - 70 m thick, consist of a set of lowstand, transgressive, and highstand systems tracts that corresponds to a fifth-order (20 ka) sea-level cycle. Four main depositional systems, including ten sedimentary facies, constitute these systems tracts: fluvial, estuary, coastal/shoreface, and delta. The lowstand systems tract (LST), consisting of gravelly sand, forms a fluvial depositional system (Unit I) which fills the thalweg of river valley mainly developed approximately before 12 ka. The transgressive systems tract (TST) can be divided into two depositional systems (Unit II and III). The river-derived sediments were trapped within the paleo-estuary, forming an estuarine depositional system (Unit II) developed between 12 and 6 ka. As the transgression continued, the coarse sediments were deposited and redistributed by coastal processes, resulting in coastal/shoreface depositional system (Unit III). It is characterized by an isolated sand body and thin sand veneer. The HST is composed of deltaic depositional system including delta plain, delta front, and prodelta (Unit IV). During the delta progradation, most coarse-grained sands derived from the river were deposited in the lower delta plain and delta front, forming sand bars and shoals less than 15 m deep. The remaining fine-grained sediments were transported further offshore in a suspension mode and deposited in the inner shelf off the present river mouth, forming a subaqueous prodelta. Radiocarbon and **optically stimulated luminescence (OSL)** dating suggest that the recent deltaic system was initiated by aggradational and progradational stacking patterns at approximately 8 ka during the last stage of decelerated sea-level rise, and was then followed by a prograding clinof orm after the highest sea level at approximately 6 ka.