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ARCHITECTURE AND DEPOSITIONAL STYLE OF FLUVIAL DEPOSITS IN THE NORTHWESTERN PART OF KYONGSANG BASIN

조형래*, 한국해양연구소 극지연구본부, hrjo@kordi.re.kr
조성권, 서울대학교 지구환경과학부

In the northwestern part of Kyongsang Basin (Early Cretaceous), non-marine successions largely comprise interbedded sandstone and mudstone with local conglomeratic deposits in the basin margin, reflecting marginal alluvial fan systems and fluvial depositional environments. These successions are divided into successive stratigraphic units on the basis of facies assemblages and architecture of sandstone bodies. A stratigraphic unit (Sinpyong-Anpyong unit) is documented in detail, highlighting the architecture of sandstone bodies. Architectural elements are defined on the basis of large-scale stratal patterns and constituent facies. Each element represents a particular process or a set of processes related to a within-channel geomorphic unit. Based on the assemblages of architectural elements and their spatial relationships within sandstone bodies, fluvial styles are assessed.

The deposits of Sinpyong-Anpyong unit are divided into three major components, i.e., thick sandstone, thin sandstone, and mudstone-dominated bodies, representing major channels and channel belts, crevasse splays, and floodplains and shallow lakes, respectively. Measurements of paleocurrents are indicative of southward- or southeastward-draining channel systems. Detailed architectural analysis reveals that the thick sandstone bodies (2-47 m thick) are characterized by lateral superposition of numerous bar and channel deposits, limited extent of individual lateral-accretion sets, and the presence of mid-channel bar deposits, indicating deposition in braided rivers. Reconstructions of fluvial bars and channels at large-scale sections suggest a range of processes including growth, coalescence, and erosion of bars and migration, switching, and filling of channels. Lateral accretion of bars and the associated channel migration might have been principal processes in the Sinpyong-Anpyong river systems. Bars were commonly coalesced by lateral superposition, forming large bar complexes.