

## **Nature and significance of contrasting depositional systems within the late Cretaceous succession, Kirthar Foldbelt, Pakistan. Deciphering the fragmentation of Indian passive margin prior to collision**

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The Late Cretaceous succession in the N-S trending Kirthar fold belt of western Pakistan is dominated by sandstones with subordinate mudstones and marls. Recent work demonstrates that these were formed in two partly coeval depositional systems. The northern system is characterised by deposits formed on a gently inclined, storm and river-flood dominated clastic ramp that can be assigned to four main facies associations, and includes excellent examples of Mutti-type shelf delta lobes. The southern system is dominated by deepwater turbidite sand-bodies formed in both channels and restricted lobes within deep slope and basin-floor settings.

The palaeoflow patterns and sandstone petrography of these two systems are also significantly different. The northern, shelfal sands display paleoflow to W and NW and appear to be sourced from the thermally uplifting Indian shield to the east, while the deepwater sands in the southern system were emplaced by N and NNW directed gravity flows but were derived from an easterly source that included volcanics. The architecture, regional distribution and vertical sequence of sand-bodies within both systems provide important clues to the physiographic and tectonic character of the Indian passive margin during its northward drift, just prior to collision with Eurasia.