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**Lithofacies characters and depositional processes of a Middle Miocene
Lower Siwalik fluvial system of the Himalayan foreland basin, India**

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Abstract

The Lower Siwalik sequence in south-eastern Uttarakhand state of India records fluvial sedimentation during middle Miocene in the Himalayan foreland basin. Three distinct lithofacies associations ('A', 'B' and 'C') have been identified, each one of which comprises one or more of the eight major lithofacies and points to specific sub-environments of fluvial depositional setting. The lithofacies association 'A' is sandstone dominated and suggests deposition mainly by 0.09–2.0 m/s flowing traction currents in braided streams. The lithofacies association 'B' is sandstone–mudstone dominated and suggests deposition by 0.1–1.0 m/s flowing traction currents as well as suspension fallout in meandering streams and adjoining overbank areas. The facies association 'C' is mudstone dominated, characteristically pedogenically altered and disassociated with any major channel sandstone body. It represents reworking of pre-deposited sediments by ephemeral sheet and shallow channelized flows in the upland interfluvial regions. The palaeoflow pattern reveals regional radial outward sediment dispersal by a distributary fluvial system, indicating convex-up transverse surface profile. The dominance of fine- to medium-grained sand and general absence of coarser extrabasinal clasts suggests that this distributive fluvial system of meandering and braided streams was located in the middle-distal part of a megafan. The

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