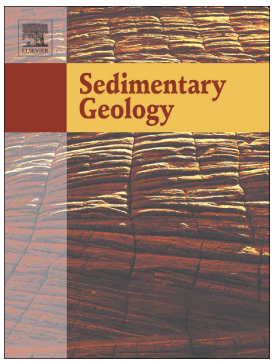

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Classification and sedimentary characteristics of lacustrine hyperpycnal channels: Triassic outcrops in the south Ordos Basin, central China

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Abstract

Subaquatic channels are known as active conduits for the delivery of terrigenous sediments into related marine and lacustrine basins, as well as important targets for hydrocarbon exploration. Compared to submarine channels, lacustrine subaqueous channels created by hyperpycnal flows are understudied. Using well-exposed outcrops collected from three different locations in the southern Ordos Basin, central China, morphologies and architecture of a channelized hyperpycnal system were studied and classified. Six facies associations represent sedimentary processes from strong erosion by bedload dominated hyperpycnal flows, to transitional deposition jointly controlled by bedload and suspended-load dominated hyperpycnal flows, finally to deposition from suspended-load dominated hyperpycnal flows. On the basis of channel morphologies, infilling sediments and sedimentary processes, the documented channels can be classified into four main categories, which are erosional, bedload dominated, suspended-load dominated, and depositional channels. In very proximal and very distal locations, erosional channels and depositional channels serve as two

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