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Differences in mouthbar complex geometry and grain size trends across systems with different sediment supply compositions

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In deltaic environments, preserved mouth bar deposits are the sand-rich building blocks of the delta front. While different sediment supply composition will necessarily lead to different grain size trends in the mouth bars, this relationship may not always be linear. We investigate this relationship through a set of process based models of delta formation, using the well-established modelling software Delft3D. We show how the different sediment supply composition generates deltas with different channel morphologies and -dynamics. These channel networks act as the conduits through which sediment is transported to the delta front. In addition to the sediment supply composition, the different morphologies and dynamics of the channel networks represent an additional control on the depositional trends and preservation potential of the mouth bar complexes.