

Suppressed autocyclic behavior of graded delta distributaries.

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Delta lob forms and aggrades at downstream end (i.e., shoreline) of an active river channel. As alluvial aggradation propagates upstream, the channel becomes lower in slope and finally takes a new path of sediment-water transport which in general is at lower places. A well-accepted notion states that this is an autocyclic process of alluvial river channel that empties into sea and builds deltaic lobes. Accordingly, the graded state of a river, by which deltaic lobes can prograde but not aggrade, would suppress its autocyclic behavior of lateral shifting. This presumption is examined in flume-tank experiment. Using a stepped basement which functions as a submerged weir to interrupt the basinward advance of delta toe, a quasi-graded river can be easily generated with stationary water level. It has been confirmed through experimental runs that once a river channel becomes quasi-graded, it no longer migrates to a significant extent but is stabilized to a particular path in the delta plain, whereby it is suggested that quasi-graded rivers tend to be free from the autocyclic lateral migration of active river channel.