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Quantifying Effects of Flux Controls on Autogenic Processes in Fluvio-deltaic Settings: A Computer Modeling Approach

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Understanding of the connection between sedimentary processes and their resulting stratigraphic signatures provides an important key to indicate paleo-depositional environments. Changes in the external (allogenic) forcing of sedimentary systems are, traditionally, the main avenues through which the sedimentary past is understood; intrinsic (autogenic) sedimentary processes are regarded as minor events and are not understood well enough to be quantified. Certain signatures that can be produced via autogenic processes are often attributed to high-frequency alogenic forces. However, in this study, we treat autogenic processes as significant contributors to the sedimentary record and test the autogenic processes as possible recorders of depositional environmental changes. In order to specifically examine the controls of sediment flux and water discharge on autogenic behaviour, no subsidence and no sea level change conditions are applied while sediment flux and water discharge are system changed through a series of experimental runs. A numerical model is implemented in order to test model behaviour and inquire into the characteristics of autogenic change.

Keywords: Autogenic, Delta, Flux Controls, Numerical Model