



## **Normal fault tectonics and landscape response constrained from deltaic grain size distributions**

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Fault-driven tectonics can synchronously drive both uplift and subsidence, typically building erosive landscapes on one side of the fault and creating basins on the other. Coarse sediment derived from the landscape typically finds its way into the basins, and there deposits as proximal fans or deltas. In principle, the stratigraphic architecture and sedimentary characteristics of these deposits record quantitative information about both the erosion rates in the uplifted block, but also the slip rates on the driving fault(s). Here we present preliminary sedimentary data from Akrata area of the Gulf of Corinth rift, Greece, part of a suite of uplifted megadeltas on the south side of the basin. Our analysis of the data demonstrates that by measuring grain size distributions down different horizons of the delta stratigraphy, we can indeed quantify palaeo-slip rates for the driving normal faults creating the accommodation space, independent of inferences from delta form or biostratigraphy. These data are also consistent with the expected dynamics of a wave of incision sweeping up through the footwall catchment following fault acceleration. The results emphasise that consideration of transient landscape response is vital when interpreting the sedimentary record of rift zone dynamics.