



Deltaic processes on Titan – the role of grain size

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In Titan's polar regions the Cassini spacecraft observed numerous hydrocarbon lakes surrounded by river valley systems. The rivers transport sediments to the lakes which serve as local sedimentary basins. The shape and evolution of the sedimentary deposits depends, among other parameters, on grain size. This is a result of dependence of settling velocity and drag force on diameter of the sediment particle. In consequence the deltas and alluvial cones take different shapes depending on the source of sediments and the distance from the source, due to natural sorting of rocky material. We used numerical models to simulate development of river deltas in Titanian and terrestrial conditions. Despite differences in gravity and composition, affecting effectiveness of sediment transport, we found many similarities in evolution of sedimentary landforms on both bodies. This gives us another tool for understanding the evolution of the surface of this unique moon.