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### **Sedimentary Evidence for Turbidity Maximum Influenced Fluvial Deposition in the Modern Mahakam Delta**

The modern Mahakam delta, located in East Kalimantan, Indonesia, is currently prograding into the Makassar Strait under a mixed fluvial/tidal regime and very low wave energy. Tides in the area are semi-diurnal with range of approximately 3 m. The high mean annual rainfall in the drainage basin (3,000-4,000 mm) results in high fluvial and sediment discharge. Flood pulses are dampened in the upper drainage basin and never reach the delta, creating a more constant, relatively high discharge of fresh water in to the strait, sometimes resulting in a highly stratified water column within the distributary mouths. This situation results in residual circulation and the occurrence of a salt water wedge and turbidity maximum, which extend landward up the channel and create a trap for fine grained suspended sediments. The velocity of residual currents and position of the turbidity maximum vary with tides and river discharge, and determine the amount of fine grained sediment that will be deposited with the sands that are transported as bed load on the distributary floor. The relative influence of the turbidity maximum at a particular location is recorded in the sedimentary record. This preliminary study compared vibracores from two sand bars, one in each distal and proximal positions within a distributary using X-Ray radiography and grain size analysis. The results show marked differences in sedimentary structure, sand/mud ratio, mean grain size and sorting, indicating the increased influence of tides and the turbidity maximum on distal fluvial deposits.