

An experimental approach for submarine canyon-fan system

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We present results from a novel sandbox experiment designed to study how sediment gravity flows shape and form a submarine canyon-fan system. In the experiment, unconfined saline gravity flows were released onto an inclined sand bed with an internal, continuously increasing relief that was used to represent a dynamic continental slope. In areas influenced by the gravity flows, we observed deeply incised submarine canyons and dynamically swinging submarine fans. Successive high-resolution digital elevation models allow us to quantify canyon piracy, fan coalescing and sediment routes. The preliminary results show encouraging canyon-fan morphology that behavior similarly in several important respects to that observed in the field.

Keywords: submarine canyon-fan system, sandbox experiment, sediment gravity flow