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An introduction to the Hele-Shaw beach experiments ANTHONY THORNTON, BRAM VAN DER HORN, DEVARAJ VAN DER MEER, University of Twente, WOUT ZWEERS, FabLab, ONNO BOKHOVE, University of Twente — The sea, as well as being a destructive force can also be constructive and can move great quantities of sand often forming a beach. Waves can move material both up and down the beach, leading to the construction of sloping beaches. Wave-sand dynamics are studied via experiments. The tank is narrow, just over one-particle diameter wide, creating a quasi-2D set-up also geared towards mathematical modelling. There is strong two-way feedback between the free-surface waves and the beach morphology. The waves transport the particles, changing the basal topography, causing the waves to transform from rolling to breaking. “All” classical breaker types (plunging, collapsing, spilling and surging) are observed on a time-scale of about a second. Finally, on longer time-scales many steady beach morphologies are observed, including dry and wet beaches, dry berms/dunes, and bars. The highlight being dry dunes which have dynamic waves crashing on the seaward-side and quiescent water on the far side.

Anthony Thornton
University of Twente

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