

Abstract Submitted
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The big picture of barchan-barchan interactions¹ ERICK FRANKLIN, WILLIAN ASSIS, UNICAMP - University of Campinas, GRANULAR LAB TEAM — Barchans are crescent-shaped dunes that are often organized in barchan fields, where binary interactions play a significant role in regulating their dynamics and sizes. We investigate experimentally the different types of interactions occurring between two barchans and which physical aspects govern them. The experiments were conducted in a water channel of transparent material where controlled grains were poured inside, forming pairs of granular piles in both aligned and staggered configurations. For each test, a given water flow was imposed, forming a pair of barchans that interacted differently depending on the tested conditions. In our experiments, different grain types (diameter and density), pile masses, distances and water flow rates were used, and a high-definition camera acquired images of the bedforms. As a result, five different patterns were identified for each configuration (aligned or staggered), for which we propose pattern maps that depend on the ratio between the number of grains of each dune and the Shields number. Our results shed light on the size regulation of barchans in a dune field.

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