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Blowing in the wind: aeolian patterns

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Barchan dunes are crescent-shaped patterns that can be found in deserts and which are caused by the intricate interaction between wind and granular media. Their natural size is too large to study them in a laboratory, but we have found a way to dramatically reduce it by modulating gravity. The central question is how a granular bed extracts energy from a turbulent wind, and, in turn, feeds back on the turbulence. Answers are found in well-controlled experiments with gravity as one of the key control parameters.