

Abstract Submitted  
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**Bed-load characteristics over evolving and developed subaqueous barchan dunes**<sup>1</sup> ERICK M. FRANKLIN, CARLOS A. ALVAREZ, UNICAMP - University of Campinas — In the morphodynamics of crescent-shaped dunes, known as barchans, many complex aspects are involved. One of them concerns the trajectories of individual grains over the dune, and how they affect its shape. In this study, we investigate experimentally the formation and evolution of subaqueous barchan dunes in a closed conduit. In our experiments, granular heaps of conical shape were placed on the bottom wall of a rectangular channel and they were entrained by turbulent water flows. We measured the trajectories of grains migrating to horns of both evolving and developed dunes and showed that most of the grains came from peripheral regions upstream of the dune centroid, with significant transverse displacements. These results diverge from the generally accepted description that the barchan horns form from the advance of the lateral dune flanks. Hence, our results reveal a new mechanism for barchan formation that might be complementary to that accepted so far.

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