

Abstract Submitted
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Erosion sculptures LEIF RISTROPH, M.N.J. MOORE, STEPHEN CHILDRESS, MICHAEL SHELLEY, JUN ZHANG, New York University, Courant Institute — Erosion by flowing fluids carves the striking landscapes imprinted on the Earth and on the surfaces of our neighboring worlds. In these processes, solid boundaries both influence and are shaped by the surrounding fluid, but the emergence of morphology as a result of this interaction is not well understood. We study the coevolution of shape and flow in the context of clay bodies immersed in fast flowing water. Although commonly viewed as a smoothing process, we discover that erosion sculpts surprisingly sharp points and corners that persist as the body shrinks. These features result from a natural tendency to form surfaces that erode uniformly, and we argue that this principle may also apply to the more complex scenarios that occur in nature.

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