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Sediment ripple profiles ABIGAIL KOSS, JUSTIN KAO, TAYLOR PERRON, Massachusetts Institute of Technology — Sand ripples are a commonly observed phenomenon in shallow-water environments with oscillatory flow. Ripple morphology reflects patterns of sediment transport and turbulence across the bottom of the bed, providing easily measurable information about the mathematical form of sediment transport laws. A set of flume experiments has been conducted to record equilibrium ripple profiles produced by a wide range of wave orbital diameters and bed shear stresses. Results indicate that normalized ripple profiles are similar across the experimental range of wave conditions: i.e., that any ripple profile can be predicted from a standard ripple shape scaled by wave orbital diameter and bed shear stress. These experiments have also quantified ripple profile asymmetry and the nonlinear relationship between ripple wavelength and amplitude.

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