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Rippled Bed Evolution over Wave Groups: Implications to Bottom Roughness Calculations DIANE FOSTER, SYLVIA RODRIGUEZ ABUDO, University of New Hampshire — Outside of the surf zone, seabed ripples are the source of significant dissipation of free surface gravity energy. The dissipation is a function of both the ripple geometry and the hydrodynamic forcing. Observations of natural irregularly rippled beds and the oscillatory, two-dimensional, time-varying velocity field were collected using a submersible Particle Image Velocimetry (PIV) system in both a full-scale and smaller-scale environments. The full-scale observations were obtained over natural sand beds, whereas the smaller-scale observations were obtained over artificial low specific gravity beds. Bedform evolution regimes characterized by the ripple radius of curvature were examined relative to measures of the non-dimensional bed stress (the grain roughness Shields parameter), the non-dimensional pressure gradient (the Sleath parameter), and the water column coherent structure formation from the ripples (the swirling strength). Anorbital bedforms were found to respond to individual waves by modulating amplitude as wave groups passed. These observations suggest that the bottom dissipation due to movable sediment beds may be more dynamic than previously assumed.

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