Abstract Submitted
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The Effect of Wind on Shoaling Wave Shape[1] THOMAS ZDYRSKI, FALK FEDDERSEN, University of California, San Diego — Wave shape is a key factor in sediment transport, beach morphology, and ship safety. The authors previously showed that wind can affect the skewness and asymmetry of waves in shallow, intermediate, and deep water over a flat bottom. Wave shoaling has long been known to induce wave asymmetry, but it has not yet been shown how wind-generated and shoaling-generated asymmetry interact. In this study, the evolution of waves propagating over a gentle slope $\partial_x h \ll 1$ are examined using a multiple scales analysis. Wind forcing is parametrized through a surface pressure, and the induced changes to skewness and asymmetry are calculated numerically. The relative influences of shoaling and wind are examined by applying both onshore and offshore wind of different strengths. These results will be used to contextualize observations of wind's effect on shoaling wave shape.

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