Abstract Submitted
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An Experimental Investigation of Wind- and Mechanically Generated Short Wavelength Spilling Breakers[1] J.D. DIORIO, X. LIU, J.H. DUNCAN, Department of Mechanical Engineering, University of Maryland — Short wavelength spilling breakers are studied in a wind wave tank that is 12.8 m long and 1.15 m wide and 0.91 m deep. The crest profile histories during breaking are measured with a photographic technique that employs a high-speed digital movie camera, a laser light sheet, and fluorescent dye. The photographic system is mounted on an instrument carriage that is set to move along the tank in phase with the crests of the breaking waves. In the first step in the experiment, breakers generated by the wind are measured at three wind speeds and three fetches at each wind speed. In the second step in the experiment, a mechanical wave maker is used without wind to generate a wave train consisting of a dominant wave and two unstable sidebands. The amplitudes and frequencies of these wave components are adjusted to create breakers at the various fetches and dominant wave frequencies found in the wind wave experiments. The similarities and differences between the ripple patterns at the crest during breaking between the wind wave and mechanical wave cases are discussed.

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