A model for nonlinear wave-current interaction WOOYOUNG CHOI, New Jersey Institute of Technology, DAVID LYZENGA, CALEB SCHILLINGER, University of Michigan — We study interaction of surface gravity-capillary waves with surface currents using a system of coupled nonlinear evolution equations for two surface variables: the free surface elevation and the velocity potential at the free surface. Results of our numerical simulations found via a pseudo-spectral method are compared with solutions of the wave action equation. Both narrow- and wide-band initial wave spectra are considered and special attention is paid to nonlinear effects on their evolution.

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