Drag coefficient comparisons between observed and model simulated directional wave spectra under hurricane conditions

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In this study, Donelan et al. (2006) source function is used to calculate drag coefficients from both the scanning radar altimeter (SRA) measured two dimensional wave spectra obtained during hurricane Ivan in 2004 and the WAVEWATCH III simulated wave spectra. The drag coefficients disagree between the SRA and model spectra mainly in the right/left rear quadrant of the hurricane where the observed spectra appear to be bimodal while the model spectra are single peaked with more energy in the swell frequencies and less energy in the wind sea frequencies. These results suggest that WAVEWATCH III is currently not capable of providing sensible stress calculations in the rear quadrants of the hurricane.

Keywords: air-sea interaction, hurricane prediction, surface gravity waves

