SWIM directional spread as compared to Sentinel-1 and wave buoys

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Résumé

SWIM instrument is designed to measure the directional wave spectra, mainly using the 10◦ and 8◦ incidence angle beams. The SWIM measurement principle involves an integration of backscattered energy for each range gate over the width of the 20km footprint, which has a curvature increasing as the incidence angle decrease. This together with the short-crestedness of the ocean waves can artificially increase the directional spread as compared to the true directional spread of 2D wave spectra. We provide here an analysis of the measured directional spread for each incidence angle beams and compare them to the equivalent independant estimates from collocated Sentinel-1 and directional wave buoy observations.

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