

I recommend publication. SWIFT buoys are used in a range of settings, and comparison with ground truth is valuable.

This paper compares wave statistics from a fixed (AWAC) in 4.5m depth with wave height (H) statistics with statistics from a group (between 10-25) of free floating micro-SWIFT drifters released in about 5m depth. SWIFT drifted shoreward to the beach where they were recovered. Most SWIFT observations were between 2-6m depth. The single ground truth in 4.5m depth is inadequate SWIFT performance for H in the surfzone is not addressed. Wave shape (skewness/asym) is not discussed. The comparison shown (Fig 10b) suggests SWIFT errors might be larger than the errors expected from modern numerical wave models. Wave shape (e.g. skewness/asymmetry) is not discussed.

Last sentence in abstract: *“These data will be used as a validation dataset for wave-averaged and wave-resolving models and will be used to investigate nearshore wave dynamics.”* The authors see a robust instrument, *“suitable for investigating dynamics of nearshore waves in both a statistical and wave-by-wave framework.”* I see an instrument not ready for prime wave-time. Given fig 10, I cannot conjure a nearshore wave dynamics question that could be investigated confidently with SWIFT buoys. The authors should include a plausible example dynamics investigation. *“Beauty is in the eye of the beholder”* certainly holds here.

235 subset of waves, we compute the significant wave height as the mean of the third-largest waves in the distribution. To calculate a significant wave height from one of these subsets of data, we require at least 30 wave realizations in the distribution. Thus, we do not compute a significant wave height for every mission. We compare the computed significant wave heights to those from the 4.5 m AWAC (Figure 10). Panel (a) shows that the time series of significant wave height from the 4.5 m AWAC and the estimates from the microSWIFT arrays qualitatively agree. Panel (b) directly compares the significant wave heights
240 between the 4.5 m AWAC and the microSWIFT arrays. The linear regression between the 4.5 m AWAC and microSWIFT array significant wave heights has a slope of 1.08 and an R^2 value of 0.67, showing a strong correlation between the two significant wave height estimates. This agreement is reasonable given that the microSWIFTs are measuring at a different alongshore location than the AWAC, although in similar water depths. We also expect that the microSWIFT arrays may under-predict some significant wave heights as the sampling windows are shorter than the AWAC, potentially not measuring the largest and
245 least likely waves in the distribution. Nevertheless, the strong agreement in significant wave height and scalar energy density spectra supports that the microSWIFT data are robust and suitable for investigating the dynamics of nearshore waves in both a statistical and wave-by-wave framework.

This 2022 reference is incomplete.

Rainville, E. J., Thomson, J., Moulton, M., and Derakhti, M.: Measurements of Nearshore Waves through Coherent Arrays of Small-Scale, Free-Drifting Wave Buoys, 2022.

Fig 7 : *One error bar is shown for the largest confidence interval of the spectra with 51 degrees of freedom.*

What does “Largest: mean? All confidence limits are the same on a log plot?”

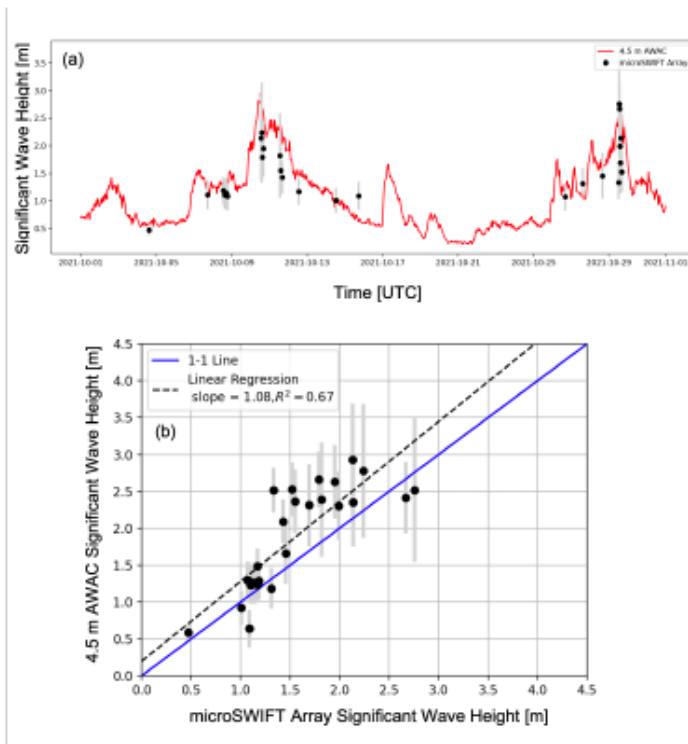


Figure 10. Comparison of the estimated significant waves heights from the microSWIFT arrays to the estimates from the 4.5 m AWAC. While the microSWIFT arrays are not in the same water depth as the 4.5 m AWAC we see that the microSWIFT array characterizes the size of the waves with good comparison to the 4.5 m AWAC. The gray bars indicate error bars (± 1 standard deviation of the top third largest wave heights) around each of the significant wave height estimates.