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Structure of Turbulent Boundary Layers Subjected to Wave Forcing MAIUS WONG, OWEN WILLIAMS, Univ of Washington — Surface waves are known to have a strong non-linear interaction with the turbulence of current-induced bottom boundary layers, making the prediction of mixing and nutrient transport in estuaries and rivers difficult to predict. To aid our understanding of this interaction, we examine the turbulent spatial structure of submerged boundary layers within the newly constructed Air-Sea Interaction facility at the University of Washington (WASIRF). Initial studies have indicated that surface waves disrupt the large-scale turbulence of the bottom boundary layer, altering structures of the size of the wavelength or larger. We build upon this result by observing the boundary layer response to a wider range of wave parameters. Changes to velocity statistics under the triple decomposition are compared with highly converged Partial Orthogonal Decomposition (POD) modes, linking the structure of productive motions to more conventional single-point statistics.

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