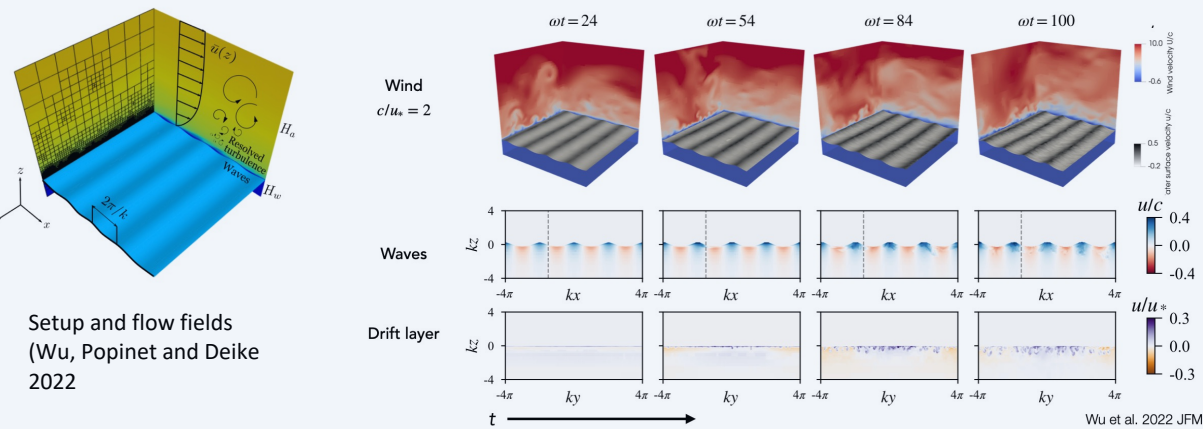


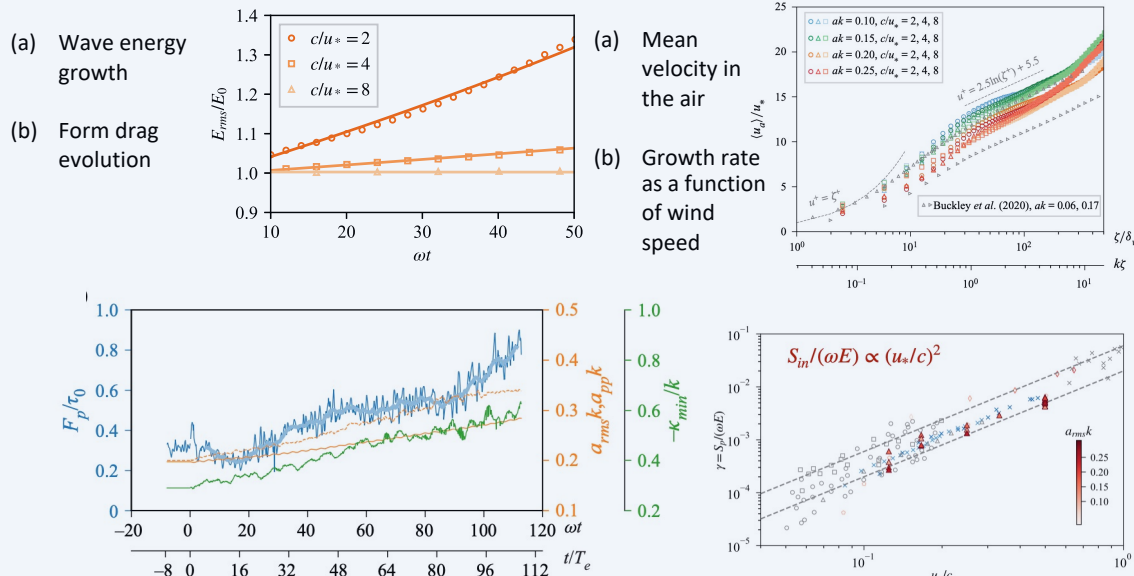


Scope and approach: high fidelity modeling of small scale surface waves coupled with atmospheric and oceanic turbulent boundary layers

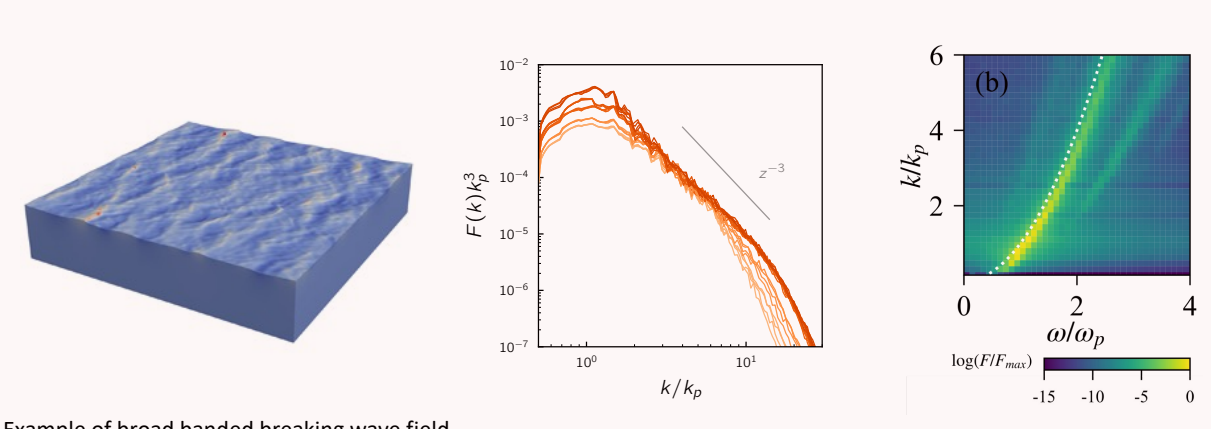
Direct numerical simulations of wind-wave-current coupling; including breaking and parasitic capillary waves



Setup and flow fields (Wu, Popinet and Deike 2022)



Multi-layer modeling for wave dynamics coupled with upper ocean, including breaking waves



Example of broad banded breaking wave field (Wu, Popinet and Deike 2023)

