Center for Environmental & Applied Fluid Mechanics

"Tracing the New Arctic"

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For the past sixteen years, satellite records of sea ice extent have consistently shown a decrease in summer sea ice cover linked to warming temperatures. Nevertheless, our ability to understand and accurately model sea ice dynamics has not been fully developed. The focus in developing next-generation sea ice models and observing systems is shifting from a continuum-based approach towards resolving the mechanical and thermodynamical atmosphere-ice-ocean interactions at the scales of individual ice plates (known as floes). In this talk, I will present new advances for the automatic identification and tracking of ice floes in optical satellite imagery that provides a unique record of ice floe shapes, trajectories, and rotational characteristics. These new observations allow us to examine the dynamical structure of the sea ice field and describe how free-drifting ice plates can be used as a proxy to infer the ocean eddy dynamics within the mesoscale-submesoscale range. Our ability to retrieve daily observations from a long-term satellite record of high-resolution sea ice images provides a road map to understand the dynamics of critical momentum and heat transfer processes in the Arctic Ocean.

Fall 2022 CEAFM Seminar Series

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https://wse.zoom.us/j/93762992307

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