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Title: The marginal ice zone, the CICE6 floe size distribution and connections to the Earth system

Abstract:

The marginal ice zone (MIZ) is the outer band of the sea ice covered ocean. It is characterised by a granular ice cover consisting of relatively small ice floes separated by frazil, slush, brash, etc or open water, and the presence of ocean waves that regulate the properties of the ice cover. This gives the MIZ dynamic and thermodynamic properties that are distinct from the inner ice pack.

The past decade has seen major research advances in modelling and observations of the MIZ, including integration of prognostic floe size distributions in sea ice models and coupling between wave and sea ice models. I will give an overview of the modelling advances in the CICE6 sea ice model, preliminary predictions of the MIZ and the potential to investigate the nonlinear feedbacks involving the MIZ in the broader Earth system that have been proposed.