A simple model for the Transpolar Drift and mean ice thickness in the Arctic Ocean

The goal of this study is to develop a simple model for the Transpolar Drift and mean ice thickness in the Arctic Ocean. The approach makes use of asymptotic solutions to the governing ice momentum and thickness equations and idealized configurations of a coupled ocean/ice general circulation model of the Arctic Ocean. Two distinct dynamic/thermodynamic regimes are identified, an eastern region with thin ice and a western region with thick ice. The influences of wind, ice parameters (strength, conductivity), basin size, and atmospheric cooling on the ice distribution, ice-atmosphere heat flux, and ice export from the Arctic are discussed.

Live webcast: http://ucarconnect.ucar.edu/live
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