



A parameterisation of frazil ice collection thickness in leads and polynyas for sea ice models

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In large scale sea ice models, newly formed ice in leads and polynyas is customarily accreted instantaneously alongside the flanks of pre-existing ice with a prescribed accretion, or collection, thickness of 0.1-0.5 m. In reality, the frazil ice collection thickness, H , depends on factors such as the width of the lead or polynya, the oceanic wave activity, and the relative velocity of the frazil ice flow with respect to that of the consolidated ice. A parameterisation of H based on the conservation of ice mass and momentum at the lead/polynya edge has been introduced in a large scale sea ice-ocean general circulation model and its impact on the seasonal cycle of the Arctic and Southern Ocean sea ice covers has been investigated. Result from this simulation are presented here. Comparison with an integration in which H was held constant in space and time is also discussed.