



Improving the spatial thickness distribution of modelled Arctic sea ice

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The spatial distribution of ice thickness/draft in the Arctic Ocean is examined using a sea ice model optimized using satellite-derived observations of ice extent, speed and thickness. An initial comparison of modelled sea ice draft with submarine observations of draft made during cruises between 1987 and 1997 reveals that the model has the same deficiencies found in previous studies, namely ice that is too thick in the Beaufort Sea and too thin near the North Pole. It is then shown that substantial improvements in the model's spatial distribution of sea ice thickness can be achieved by further tuning of the model's dynamic parameters, and that the newly-optimized model simultaneously improves the agreement between modelled and ERS-derived 1993-2001 mean winter ice thickness. Consequences for modelled thickness and volume trends are briefly discussed.