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Heat flux from the Atlantic waters to the Arctic ice cover, verifying an ice-ocean model with SHEBA data and quantifying ice growth and melt.

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To quantify the heat flux from the Atlantic layer and its effect on the ice cover, a coupled ice-ocean, one-dimensional model for the upper Arctic ocean, based on Kato-Phillips mixed layer dynamics is used (Björk, 1988 and Björk,1997). The model has been verified against data from the SHEBA field experiment regarding turbulent heat fluxes, surface salinities and mixed layer depth. The model is then used to quantify the ice growth and melt dependent on various types of ocean stratification and the ice concentration.