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# Sea ice validation in the HiGEM model

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The high resolution global climate model HiGEM is based on the Hadley centre HadGEM1 model which has new dynamical core, which is non hydrostatic, has semi-langrangian transport and an improved vertical grid. The ocean model for both HadGEM1 and HiGEM includes Elastic Viscous Plastic sea ice dynamics and multiple category ice thickness distribution. The main difference is the increased resolution in HiGEM to ˜1° for the atmosphere and 1/3° for the ocean.

The HiGEM model representation of sea ice is validated in terms of ice concentration, thickness and velocities against observations for both hemispheres. The effect of the higher resolution in HiGEM is investigated by comparison with both HadGEM and a lower resolution model HadCM3. A special focus is given to the dynamical and thermodynamical growth of sea ice within the model in various seasons. The effect of changing the ice strength parameter within the HiGEM model is discussed too.