



Variability of antarctic sea ice in the unified model

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Two versions of the Hadley Centre Unified Model are examined in terms of Antarctica climate representation, mainly in terms of sea ice distribution and thickness. The two models are HadCM3 and the newer Hadley centre Global Environmental Model HadGEM. HadCM3 is a Eulerian, hydrostatic, coupled atmosphere-ocean model that has been used extensively in climate model runs. The new model is a semi-Lagrangian, non-hydrostatic version, which includes new boundary layer and convection parametrisations as well as improved vertical resolution. The formulation also includes a new cloud microphysics scheme with prognostic ice and a new GLOBE orography dataset. The ocean model includes EVP sea ice dynamics and multiple-category ice thickness distribution. The effect of the higher resolution and the change in model dynamics will be discussed, with focus to the EVP sea ice dynamics. The impact of the correct representation for the tropical SSTs on ice distribution in both models will be presented and the models performances are validated against observations.