



Adjoint analysis of the summer 2007 low in Arctic sea-ice area

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Summer 2007 saw an extremely low sea ice cover in the Arctic, especially over the Canadian basin. We analyse this event by means of the adjoint of the coupled ocean sea-ice model NAOSIM, which has been developed within the EU project DAMOCLES. We show sensitivities of the target region's ice-cover with respect to the model's initial and boundary conditions in each grid cell of the model domain. This quantitative assessment of areas and quantities of high impact on the ice-cover in the Canadian basin allows to rank the importance of candidate mechanisms behind the event, such as wind forcing vs. thermodynamic forcing, and to identify its possible origin.