



## **Use of ERAinterim Surface Conditions to drive the Arctic Sea Ice Cover modeled by a Global 1/4° OGCM.**

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The Mercator Océan modelling team sets up the 1/4° global ocean configuration for the Mercator operational systems and reanalysis (1992-2009). A brief description of the NEMO3.1-based OGCM model is provided with emphasis on the treatment of the atmosphere-ocean exchanges and on the LIM2 (EVP version) sea ice model.

The ERAinterim reanalysis surface products are used to drive the Mercator Océan global ocean reanalysis. Following recent results in the literature, specific corrections on the ERAinterim surface air temperature and humidity over the Arctic Ocean have been implemented. Interannual experiment over the ERAinterim period (1989-2009) have then been performed.

Results are discussed in terms of trends, interannual variability and seasonal cycle of the modeled sea ice cover. Validation of the experiment is made by comparisons with satellite observations. Results are focused on the sea ice fraction and on the sea ice drift, quantities which are identified as control variables (state vector) for the future Mercator Océan sea ice assimilation system.

The 21 years sea ice extent and sea ice speed trends are realistically reproduced. Strong interannual variability correlations (up to 0.9) of both sea ice fraction and sea ice speed are found between the experiments and the observations. Even if experiment shows overestimation of the melting processes during the recent summers, it is able to capture the extremes events.

Discussions are made on the origins of the positive trend in the mean Arctic sea ice speed during the last decade.