

Ensemble of sea ice initial conditions for interannual climate predictions

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Polar climate studies are severely hampered by the sparseness of the sea ice thickness observations. To fill this critical gap, two 5-member sea ice historical simulations strongly constrained by ocean and atmosphere observational data and covering the 1960-2006 and 1979-2012 periods are produced. The reasonable agreement between the sea ice cover and the few available observations is illustrated in this presentation. These best estimates of sea ice cover conditions served subsequently as initial sea ice conditions for a set of 3-year long retrospective climate predictions, which is compared here to a set in which the sea ice initial conditions are taken from a single-member sea ice historical simulation constrained by atmosphere observations only. The improved skill in predicting the Arctic sea ice cover and Arctic near surface temperature is illustrated, as well as the larger spread between the members for the sea ice variables, thus more representative of the forecast error.