



Is Fram Strait ice export a driver for Arctic sea ice decline?

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Arctic sea ice properties of the historical simulations from a set of CMIP5 global climate models are investigated. Earlier studies suggested that the ice export through the Fram Strait could be a potential driver for the decline in the Arctic sea ice extent. The hypothesis is tested on the models that most realistically represent the seasonal cycle and inter-annual variability of the Arctic sea ice area and the ice export in the Fram Strait. The simulated Arctic sea ice area of the CMIP5 models is compared to the mean seasonal cycle of passive microwave satellite data for the period 1980-2000. The inter-annual variability of the simulated summer and winter sea ice area is evaluated for 1979-2005. The modelled seasonal cycle of the Fram Strait ice export is evaluated against a new SAR (Synthetic Aperture Radar)-based time series covering the period 2004-2010, whereas the modelled interannual variability is compared to a proxy based on re-analysis geostrophical wind for the years 1958-2010. The model-data comparison uses the Taylor diagram method.