



Forecast quality and economic value of near-term Arctic climate forecasts

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Introduction:

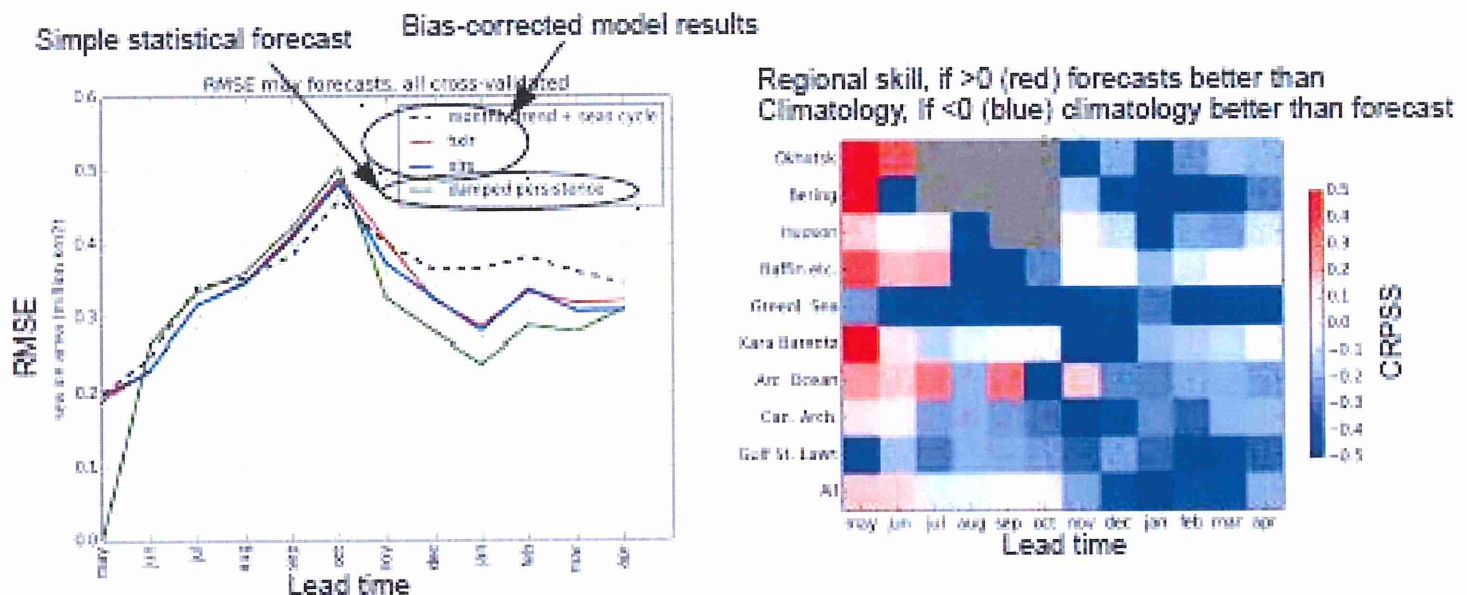
The aim of this project is to assess the skill in seasonal to multi-year forecasts of Arctic sea ice. First, we study mechanisms that can provide predictability of sea ice. Second, we analyse the real skill of seasonal to multi-year sea ice predictions, through initialized re-forecasts of the Arctic sea ice from 1979 to 2012. Third, we would like to assess the economic value of these sea ice predictions for various stakeholders in the Arctic region.

Approach:

- Use climate models (CMIP5) to identify mechanism that can provide predictability
- Use climate model (EC-Earth) to assess the real skill of sea ice (re)forecasts
- Use Stakeholder analysis and cost-benefit analysis to assess value for stakeholders

Main results:

There are multiple mechanisms that can provide predictability of sea ice, mainly persistence of anomalies spring to autumn anomaly re-emergence. However, skill of real forecasts of Arctic sea ice area is still marginal, as shown in figures below.



1) Difficult to beat simple statistical forecast

2) Some regions have higher skill than Arctic total

Publications and conference presentations

- Krikken and Hazeleger 2015; Arctic energy budget in relation to sea ice variability on monthly-to-annual time scales. *Journal of Climate*
- Krikken and Hazeleger 2016; Skill of ensemble bias-correct sea ice forecasts (in prep)
- Bintanja and Krikken 2016; Magnitude and pattern of Arctic warming governed by seasonality of radiative forcing (in prep)
- Krikken and Hazeleger 2017; Explaining model drift of re-forecasts of Arctic sea ice using EC-Earth (very much in prep..)
- Presentation at EGU 2015
- Poster presentation at BBOS 2014, 2015 and talk in 2013, S2D workshop Toulouse 2013