



Regional seasonal forecasts of the Arctic sea ice in two coupled climate models

Matthieu Chevallier (1), Virginie Guémas (1,2), David Salas y Mélia (1), and Francisco Doblas-Reyes (2)

(1) CNRM-GAME, Météo-France/CNRS, GMGEC, Toulouse, France, (2) Institut Català de Ciències del Clima, Barcelona, Spain

The predictive capabilities of two state-of-the-art coupled atmosphere-ocean global climate models (CNRM-CM5.1 and EC-Earth v2.3) in seasonal forecasting of the Arctic sea ice will be presented with a focus on regional skill. 5-month hindcasts of September sea ice area in the Arctic peripheral seas (Barents-Kara seas, Laptev-East Siberian seas, Chukchi sea and Beaufort sea) and March sea ice area in the marginal ice zones (Barents, Greenland, Labrador, Bering and Okhotsk sea) have been produced over the period 1990-2009. Systems mainly differ with respect to the initialization strategy, the ensemble generation techniques and the sea ice components. Predictive skill, assessed in terms of actual and potential predictability, is comparable in the two systems for both summer and winter hindcasts. Most interestingly, the multi-model prediction is often better than individual predictions in several sub-basins, including the Barents sea in the winter and most shelf seas in the summer. Systematic biases are also reduced using the multi-model predictions. Results from this study show that a regional zoom of global seasonal forecasts could be useful for operational needs. This study also show that the multi-model approach may be the step forward in producing accurate and reliable seasonal forecasts based on coupled global climate models.