SESSION: (B2) Modelling issues in S2D prediction

(B2-08)

Development and current S2D prediction skill of the Norwegian Climate Prediction Model

Wang, Yiguo (1,4), Counillon François (1,2,4), Keenlyside Noel (1,2,4), Kimmritz Madlen (1,4), Bethke Ingo (3,4), Langehaug Helene (1,4)

Nansen Center, Norway (1), University of Bergen, Norway (2), Uni Research Climate, Norway (3), Bjerknes Centre for Climate Research, Norway (4)

The Norwegian Climate Prediction Model (NorCPM), developed within the Bjerknes Center, combines the Norwegian Earth System Model (NorESM) with the ensemble Kalman filter data assimilation method. NorCPM can currently assimilate observations of ocean and sea ice into the ocean and sea ice components, while the other model components are left unchanged by data assimilation. We present the development and S2D prediction capacity of the version of NorCPM that will contribute to CMIP6 DCPP. With the assimilation of SST data only, NorCPM can achieve competitive skills at 6- and 12-month lead time compared to the North American Multimodel Ensemble (NMME). It can predict the variability of SST in the Nordic Seas and the sea ice extent in the Barents Sea up to one year in advance. Complementing the system with the assimilation of ocean subsurface data shows moderate improvements for seasonal prediction but shows great improvements for interannual to decadal prediction in the North Atlantic Subpolar Gyre region and into the Arctic. The prediction skill of the prototype that also assimilates sea ice concentration will be briefly presented.