Seasonal Predictability over the Arctic Region - exploring the role of boundary conditions

R.E. Benestad (1), Y.J. Orsolini (2), I.T. Kindem (3), A.Melsom (1)

(1) The Norwegian Meteorological Institute, (2) Norwegian Institute for Air Research, (3) Bjerknes Centre for Climate Research

Thus far, seasonal prediction efforts have not made an optimal use of the information that is inherent in the initial states and memories of the cryosphere and the ocean. The impact of stratospheric events also needs to be considered in this context. The objective of the proposed project is to exploit how the low frequency forcing agents sea-ice, SST, snow cover, stratospheric conditions and oceanic heat anomalies affect the predictability of weather pattern statistics on seasonal time scales. Our focus will be to examine this predictability for the Arctic, but our results will also be used to illuminate predictability associated with Arctic conditions for northern Europe. The working hypothesis is that several factors act simultaneously and that the response is non-linear over a combination of conditions. Here, the sensitivity to the above-mentioned boundary conditions will be explored both individually and in combination. The proposed work will provide complementing results that together with the EU projects DEMETER/ENSEMBLES advance the science of seasonal predictability within Europe.