The role of the high-latitude climate variability in seasonal predictability of the boreal winter based on model forecasts

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The relationship between polar and mid-latitude climate variability is important topic in recent years. Especially, effect of extreme change in polar climate, Arctic Amplification, on mid-latitude has been disputable question and actively researched. Latest studies show the relationship between polar and extra-tropical climate relationship in boreal winter by statistical and physical method. Melting of Arctic sea ice is one of important process which can affect mid-latitude climate variability.

Based on previous theories, some variables over Arctic sea have relationship with mid-latitude climate is analyzed using seasonal forecast data sets from a few models. This analysis shows different characteristics of statistical relationship according to used models. Using theoretical relationship, statistically adjusted surface air temperature over Arctic sea is used to know how it affects mid-latitude climate variables. That result shows improvement of predictability over high-latitude region can induce high forecast accuracy over mid-latitude region.