Abstract:

The Arctic amplification is a byproduct of the climate change, manifested by faster warming in the Arctic region compared to other parts of the planet. This paper summarises the basic understanding of the mechanisms underlying this phenomenon (mainly snow-ice albedo and temperature feedback) and the potential impacts of Arctic amplification for atmospheric circulation at mid-latitudes. The research is completed by a correlation analysis describing the relationship between Arctic amplification and the North Atlantic Oscillation. Based on the literature it is suggested that Arctic amplification may influence various factors of the mid-latitude atmospheric circulation (e.g., phases of the North Atlantic Oscillation, jet stream, circumpolar vortex), but natural variability of the climate makes it difficult to unravel this relationship. Recent climate model outputs seems more likely to show a smaller influence of Arctic amplification compared to the internal variability of the climate system. This is demonstrated by the results of the correlation analysis, which show very little statistical connection of the observed variables and large statistical uncertainty in the results.