



Uncertainties in future climate attributable to uncertainties in future Northern Annular Mode trend

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Atmospheric circulation variability associated with the Northern Annular Mode (NAM) modulates the climate over large areas in the Northern Hemisphere. Therefore, it is expected that future NAM changes in response to greenhouse gas concentration increases and other forcing will influence the climate change in these regions. Climate models simulate a wide range of future NAM changes, which introduces an uncertainty into regional climate predictions. To quantify this uncertainty we use the intermodel spread of the climate projections by the models participated in the Intergovernmental Panel on Climate Change Fourth Assessment Report. We show that the intermodel spread of the future NAM projections account for up to 40% of the variance of the surface temperature and precipitation projections over some regions in Eurasia and North America across the simulations. This result implies that the uncertainty in the future NAM makes a considerable contribution into the overall uncertainty in regional climate predictions.