Biases in stratosphere–troposphere coupling in subseasonal forecast systems

Simon Lee

School of Earth and Environmental Sciences, University of St Andrews

Abstract

Differences between a model's climate and the climate of the real world – known as model biases – are a ubiquitous problem in climate modelling. Biases can arise due to fundamental errors, model resolution, parameterisations or circulation feedbacks owing to the former. For initialised models used in weather and climate prediction, the evolution of the atmospheric state from the initialised, real-world climate toward the model's mean state – the 'drift' – occurs rapidly during the subseasonal-to-seasonal (S2S) timescale (from 15 days to 2 months ahead).

As part of a recent community effort by the APARC Stratospheric Network for the Assessment of Predictability (SNAP), we analyse biases in the polar vortex and associated stratosphere-troposphere coupling in S2S forecast systems. Here I will focus on results for the Northern Hemisphere winter, and present a set of diagnostics which can be used in model evaluation and development.