

## **Stratosphere-troposphere coupling: How well do the CMIP5 models simulate stratospheric major mid-winter warmings**

Andrew Charlton-Perez<sup>†</sup>; Lorenzo Polvani

<sup>†</sup> University of Reading, United Kingdom

Leading author: [a.j.charlton@reading.ac.uk](mailto:a.j.charlton@reading.ac.uk)

Much recent work has highlighted the importance of stratospheric major mid-winter warmings in linking climate variability in the stratosphere and troposphere. However, studies of both standard climate resolution models and models with a well-resolved stratosphere often reveal deficiencies in the simulation of frequency, climatology and structure of stratospheric major mid-winter warmings. In this study, well-developed techniques for identifying and characterising major mid-winter warmings are applied to the model integrations performed as part of CMIP5. The impact of biases in the simulation of major warmings on predictions of future stratospheric climate and stratosphere-troposphere coupling is assessed.