



Association between blocking and extreme temperature and precipitation events in CMIP5 models

J. A. Anstey (1) and J. Sillmann (2)

(1) Atmospheric, Oceanic and Planetary Physics, Department of Physics, University of Oxford, Oxford, United Kingdom (anstey@atm.ox.ac.uk), (2) Canadian Centre for Climate Modelling and Analysis, Victoria, Canada

Blocking of the tropospheric jet stream is often observed to be associated with persistent spells of anomalous weather and extremes of temperature and precipitation. In order to predict the likelihood of such events, it is important that climate models accurately represent the relationship between blocking and weather or climate extremes. Here we analyze the ability of Coupled Model Intercomparison Project Phase 5 (CMIP5) coupled atmosphere-ocean general circulation models (AOGCMs) to capture this relationship as represented by reanalysis data. As there is a general tendency for AOGCMs to underestimate blocking frequency in the North Atlantic, it is of interest to ask if the relationship of blocking to extreme temperature and precipitation events is also misrepresented by these models, and if the multi-model ensemble can outperform individual model performance. We address this question by analyzing the historical simulations of the CMIP5 multi-model ensemble. The information gained from the analysis of present climate conditions will also be valuable for the analysis of future projections of possible changes in atmospheric blocking conditions and associated extremes.