



Land/sea warming ratios in the recent observed record and CMIP5 GCMs

Craig Wallace and Manoj Joshi

UNIVERSITY OF EAST ANGLIA, SCHOOL OF ENVIRONMENTAL SCIENCES, NORWICH, United Kingdom
(craig.wallace@uea.ac.uk)

A difference in warming between the land and ocean surface is a key feature of the climate system's response to radiative forcing and can be attributed to processes other than a simple difference between land and ocean thermal inertia. The warming ratio is a feature present in both recent climate observations and simulations by global circulation models. Here we quantify and compare the ratio of the land/sea warming as calculated using the latest climate observations and CMIP5 GCM simulations. We investigate how the ratio changes when marine surface (i.e. skin or SST) and marine air temperature are used interchangeably which is an important quantification since it is the former (combined with land air temperature) that is only available for the observed record. Finally, we also investigate the relationship of the warming ratio to other aspects of the atmosphere system - principally relative humidity, and show how these connections contribute to the evolution of the ratio.