

Diagnosing Radiative Forcings in CMIP5 Models

Brian Soden [bsoden@rsmas.miami.edu], Rosenstiel School for Marine and Atmospheric Science, University of Miami, Florida.

The fundamental driver of climate change on decadal to centennial time scales is external radiative forcing. The Coupled Model Intercomparison Project 5 (CMIP5) provides a unique and highly valuable set of coordinated experiments in which dozens of climate models from all over the world attempt to perform identical experiments to understand past and future climate change. Unfortunately, there is relatively little information about the actual radiative forcings used to drive climate model experiments as part of CMIP5 or other similar model inter comparison projects. Despite its fundamental importance in driving climate change, radiative forcing is not routinely calculated or archived as part of model experiments. In this talk I will outline how radiative kernels can be used to for diagnosing radiative forcing from archived model simulations. The analysis suggests that differences in the implementation of radiative forcing across climate models may account for as much as 1/3 of the inter model spread in climate response.