

Benchmark experiments for feedback analysis
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Within the last year, a lively discussion has taken place within the climate modeling community concerning optimization of the design of a set of simulations that might prove ideally suited for assessing the uncertainty in model projections of climate change. This discussion, impelled by the planning timeline for a possible Fifth Assessment Report of the IPCC Working Groups 1 and 2, has centered on attempting to diagnose the reasons for model differences in the climate sensitivity. The hope is that through careful planning of the experiment design, the understanding of why models differ in their response to anthropogenic influences will be improved.

A set of experiments, proposed at an Aspen Workshop convened in the summer of 2006 and discussed at the last session of the WGCM, focused primarily on quantifying uncertainty in carbon cycle feedbacks, but largely omitted consideration of other important feedbacks in the climate system (e.g., clouds, water vapor, sea ice). A modified suite of experiments has been subsequently proposed (see attachment from K. E. Taylor: "Maximizing the Value of Community-Coordinated Experiments with AOGCMs and ESMs), which augments the so-called "realistic" scenarios proposed in Aspen with idealized experiments in which only the concentration of carbon dioxide is prescribed to change. These idealized experiments, along with some short diagnostic simulations, will enable performance of a fully unified feedback analysis of coupled carbon-climate projections.