

5.100 Atmospheric chemistry and climate in the cloud: Complex models available for all.

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Abstract:

We will present our exciting new interdisciplinary project that aims to transform the way in which global models are run. Our goal is to make them available for a broader range of atmospheric scientists and from walks of life beyond that. The project joins environmental and computer scientists to develop methods of enabling straightforward ways to (say) run global chemistry climate models on cloud computing infrastructure. The novel computing challenges are capturing the atmospheric scientists "language" (changed emissions, altered reaction rates etc) and translating that into the set up of the model, and then developing the underlying software framework to run the environmental model in the cloud. Our proposed case studies will use NCAR's Community Earth System Model (CESM) to explore the uncertainty in the evolution of atmospheric composition over the 20th and 21st centuries, using an ensemble approach with different emissions and physical parameterizations.

At this first presentation of our project, we will be seeking input into the kinds of modeling experiments other scientists may want to run. Our overall aim is to provide a powerful tool that can be used by the whole community.