

1086-AC-1301 **Steve Sain***, ssain@ucar.edu. *Quantifying Uncertainty in Climate Model Experiments.*

Climate models are large-scale, deterministic computer models that attempt to capture characteristics of the Earth's climate through simulation. There are a number of sources of uncertainty in such models, including uncertainty about initial states, parameterizations and sub-grid-scale approximations, and, of course, uncertainty about future greenhouse gas emissions and the Earth's response to those emissions. Climate scientists study this uncertainty by running models under different conditions or by considering a collection of different models. In this talk, I will discuss one such experiment that is associated with the North American Regional Climate Change Assessment Program (NARCCAP). Focused on the multi-model ensemble of regional climate models that is at the heart of NARCCAP, I will discuss statistical methodology based on the concept of the functional analysis of variance that seeks to partition the variability in the model output and projections of climate change and attribute that variability to different sources. (Received September 20, 2012)