## Uncertainty in climate change projections: The role of internal variability

<u>Clara Deser</u><sup>†</sup>; <sup>†</sup>NCAR, USA Leading author: <u>cdeser@ucar.edu</u>

Uncertainty in future climate change presents a key challenge for adaptation and mitigation planning. An overlooked source of climate change uncertainty is natural variability due to processes internal to the atmosphere, ocean, and coupled system. We investigate the role of natural variability using a new 40-member ensemble of forced simulations for the period 2000-2061 with the National Center for Atmospheric Research Community Climate System Model Version 3 (CCSM3) under the SRES A1B greenhouse gas and stratospheric ozone recovery scenarios. Questions we address are: What is the minimum ensemble size needed to detect the forced climate response? When does the forced climate response first becomes detectable? What are the relative contributions of atmospheric and coupled ocean-atmosphere processes to the uncertainty in the forced climate response? How large is the contribution of natural variability to climate projection uncertainty in the CMIP3 multi-model archive?