

CGD SEMINAR



DATE: Tuesday 15 October, 2019

TIME: 11 am – 12 pm

LOCATION: NCAR, 1850 Table Mesa Drive
Mesa Lab, Main Seminar Room

TITLE: Isolating the Effects of Anthropogenic
Aerosols and Greenhouse Gases in the
CESM1 Large Ensemble

SPEAKER: Clara Deser, NCAR

ABSTRACT:

The CESM1 initial-condition Large Ensemble has been widely used to disentangle forced climate change from internal variability at regional scales. Here, we introduce a complementary set of single-forcing ensembles with CESM1 to study the individual roles of GHG and anthropogenic aerosols in the evolution of multi-decadal trends since 1920, with a focus on large-scale patterns of tropical precipitation and SST. We find that the signal-to-noise of the forced responses relative to internal variability is generally low, limiting attribution. In addition, the forced signals project onto leading patterns of internal variability, confounding interpretation and underscoring the importance of evaluating models' internal variability. We also investigate the degree to which the responses to GHG and anthropogenic aerosols are additive. Finally, we discuss some preliminary attempts to attribute evolving trends in the observational record, in light of the prominent role of internal variability and data constraints.

Live webcast: <http://ucarconnect.ucar.edu/live>

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