

CGD SEMINAR



DATE: Tuesday 7 January, 2020

TIME: 11 am – 12 pm

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

TITLE: How much of the uncertainty in
paleoclimate reconstructions stems from
uncertain climate physics?

SPEAKER: Dan Amrhein, NCAR

ABSTRACT:

Reconstructing past climate conditions requires interpolating between sparse, noisy proxy observations. Because of this, errors and uncertainties arise not just from the data, but also from uncertain representations of climate processes (typically derived from models or instrumental records) used to relate climate variables across time and space. What are the origins of these errors, and how wrong should we expect reconstructions to be as a result?

Perfect-model ensemble optimal interpolation reconstructions of last-millennium climate illustrate that uncertainties from physics can be as large as those arising from observational noise, with regional covariances in space, suggesting that generating suitable model representations of past climates may be as important as new proxy records for reducing uncertainty. Reconstructions over the last deglaciation reveals qualitative differences in diagnostics of the Hadley and Walker circulation arising from different model physics. Inflation, multi-model ensembles, and other approaches from data assimilation provide promising ways forward to address these problems.

Live webcast: <https://www.ucar.edu/live>

For more information, contact Tracy Baker, tbaker@ucar.edu, 303.497.1366