

# CGD SEMINAR



**DATE:** Tuesday, 28 March 2017

**TIME:** 11 a.m.

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

**TITLE:** Revisiting the parametrization  
problem

**SPEAKER:** Hannah Christensen, NCAR/CGD

## ABSTRACT:

Parametrization schemes have traditionally been formulated in a deterministic manner. In other words, given a particular state of the resolved scale variables, the most likely forcing from the sub-grid scale motion is calculated and used to predict the evolution of the large-scale flow. Over the last decade, an alternative paradigm has developed: the use of stochastic parametrization schemes. In this talk I will discuss the motivation behind stochastic schemes, as well as highlight the variety of approaches that have been proposed for a range of physical processes. However, despite the exciting developments in such physically-motivated schemes, many operational weather forecasting centers use a comparatively basic approach. I discuss why this might be the case, and reflect on the pros and cons of these operational schemes.

Finally, I turn my attention to the use of stochastic parametrizations in climate models. I will discuss experiments in CCSM and EC-Earth that demonstrate the potential for improving climate simulations by using stochastic parametrization schemes. I conclude by discussing the potential for using stochastic schemes to represent model uncertainty in ensembles of climate simulations, in a comparable way to existing perturbed parameter or multi-model approaches.

A final remark: CMIP6 will include the first integrations from a climate model with a stochastic parametrization scheme – perhaps by CMIP7, other models will have followed suit!

**Live webcast:** <http://www.fin.ucar.edu/it/mms/ml-live.htm>

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