

# CGD SEMINAR



**DATE:** Tuesday, 26 September 2017

**TIME:** 11 a.m.

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

**TITLE:** Building Convection from the  
Ground Up

**SPEAKER:** Ahmed Tawfik, NCAR

## ABSTRACT:

This talk explores how convection initiates and grows with emphasis on the role of the land surface. There are two processes that will be specifically outlined, the effects of surface energy partitioning on convective initiation and the impact of land use/land cover change on convection. This will be viewed through the lens of three levels of model complexity: 1) single-column models, 2) large-eddy simulations and mesoscale models, and 3) Earth Systems Models. The shortcomings and advantages of each technique will be discussed. Beyond the particular shortcomings this talk will attempt to map what is actually being represented in terms of physical processes for each modeling strategy. Using the single column approach I will show how convective onset time shifts given drier and wetter than normal surface conditions. Unlike typical single-column studies the effects of synoptic scale vertical velocity will also be considered. A strategy for including moving clouds produced by local initiation will also be discussed.

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

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