CGD SEMINAR

NCAR

DATE: Tuesday, 27 February 2018

TIME: 11 a.m.

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

TITLE: Advances in land modeling: Implications
            for our understanding of land forcing and
            feedbacks on climate

SPEAKER: David Lawrence, NCAR

ABSTRACT:

Global models of the terrestrial system continue to increase in complexity and accuracy as a result of improving existing process representations while also incorporating new processes and functionality. These models are used to gain understanding as to how land processes and anthropogenically forced or naturally evolving land states affect and interact with weather, climate, and climate change. As a community model, CLM benefits from continual and extensive evaluation, criticism, and improvement by CLM users and developers. Over the past 10 years, the Community Land Model has evolved through three major model versions (CLM4, 2010; CLM4.5, 2013; CLM5, 2018).

A comprehensive set of land-only simulations that have been conducted in support of the CLM5 release will be examined to assess progress across model generations, specifically by employing the new International Land Model Benchmarking (ILAMB) metrics package as well as experimental manipulation data. Encouragingly, CLM5, which is the outcome of model development over the last several years by more than 50 researchers from 15 different institutions, shows broad improvements across many metrics including LAI, LH, vegetation carbon stocks, the historical net ecosystem carbon balance, and the response to CO_2 fertilization and nutrient addition, among others. The suite of simulations will be utilized to review and advance our understanding of key forcings and feedbacks in the climate system associated with terrestrial processes (e.g., the terrestrial carbon cycle, land-use and land-cover change, land-atmosphere interactions, and water resources).

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

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