CGD Seminar

 NCAR

Date: Wednesday 6 February, 2019

Time: 11 am – 12 pm

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

Title: Evaluating a New Mountain Wave Parameterization for CESM

Speaker: Julio Bacmeister, NCAR

Abstract:

An updated parameterization of mountain wave drag for CAM/CESM is described and then evaluated using several approaches. The updated scheme incorporates a new specification of wave forcing and orientation derived from observed characteristics of topography, as well as a representation of nonlinear near-surface drag processes, e.g., form drag, that were missing in the previous scheme. The performance of the updated scheme is initially evaluated using standard climate model diagnostics from long simulations. Diagnostics based on tendencies in nudging and data assimilation experiments are also examined. Finally, direct comparisons of parameterized mountain waves with satellite data, balloon data and with high resolution numerical simulations are made.

These various diagnostics of parameterization behavior provide consistent "messages" in some cases and conflicting messages in others. In general, in the troposphere all diagnostics agree that more parameterized drag is an improvement. However, in the lower stratosphere and above standard climate diagnostics, and some observations, indicate that larger parameterized mountain wave forcing is needed, while nudging experiments suggest the opposite. This talk will attempt to explain these conflicting assessments, as well as to suggest future wave drag parameterizations that perform better across all time and space scales.

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

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