
MMM SEMINAR NCAR

Thunderstorms Don't Get Butterflies

Professor Dale Durran
Department of Atmospheric Sciences
University of Washington

One important limitation on the accuracy of weather forecasts is imposed by unavoidable errors in the specification of the atmosphere's initial state. Much theoretical concern has been focused on the limits to predictability imposed by small-scale errors, potentially even those on the scale of a butterfly. Very modest errors at much larger scales may nevertheless pose a more important practical limitation. We demonstrate the importance of large-scale uncertainty by analyzing ensembles of idealized squall-line simulations. Our results imply that minimizing initial errors on scales around 100 km is more likely to extend the accuracy of forecasts at lead times longer than 3--4 hours than efforts to minimize initial errors on much smaller scales. These simulations also demonstrate that squall lines, triggered in a horizontally homogeneous environment with no initial background circulations, can generate a background mesoscale kinetic energy spectrum roughly similar to that observed in the atmosphere.

This seminar will be webcast live at:
<http://www.fin.ucar.edu/it/mms/fl-live.htm>

Recorded seminar link can be viewed here:
<https://www.mmm.ucar.edu/events/seminars>

Thursday, 5 November 2015, 3:30 PM
Refreshments 3:15 PM
NCAR-Foothills Laboratory
3450 Mitchell Lane
Bldg 2 Main Auditorium, Room 1022