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MMM SEMINAR *NCAR*

Anelastic and Compressible Simulation of Moist Deep Convection

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Moist deep convection is an example of a nonhydrostatic atmospheric flow that involves multiscale dynamics and extreme ranges of the temperature, pressure and humidity accompanied by strong vertical velocities. We compare anelastic and compressible solutions for two moist deep-convection benchmarks, a two-dimensional thermal rising in a saturated moist-neutral deep atmosphere and a three-dimensional supercell formation. In the anelastic model, the pressure applied in the moist thermodynamics comes from either the environmental hydrostatically-balanced pressure profile in the standard anelastic model or is combined with nonhydrostatic perturbations from the elliptic pressure solver in the generalized anelastic model. The compressible model applies either an explicit acoustic-mode resolving scheme requiring short time steps or a novel implicit scheme allowing time steps as large as those used in the anelastic model. The consistency of the unified numerical framework facilitates direct comparisons of results obtained with anelastic and compressible models.

*****Please note the special day for this seminar*****

Wednesday, 2 July 2014, 3:30 PM

Refreshments 3:15 PM

NCAR-Foothills Laboratory
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