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*Hurricanes from Scratch*

***Chris Davis***

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The upscale aggregation of convection is used to understand the emergence of rotating, coherent mid-tropospheric structures and the subsequent process of tropical cyclone formation. The CM1 model is integrated on an f-plane with uniform SST and prescribed uniform background flow. Moist cyclonic vortices form, merge, and eventually result in a single dominant vortex that subsequently forms a tropical cyclone. Consistent with previous studies, the approach to saturation within the mid-tropospheric vortex accelerates the genesis process. A novel result is that, while updrafts do not intensify prior to genesis, downdrafts do. Stronger downdrafts produce cold pools that maximize their negative buoyancy about one day prior to genesis. Shear-cold-pool dynamics promote organization of lower-tropospheric updrafts that spin up the surface vortex. It is inferred that the observed inconsistency between convective intensity and thermodynamic stabilization prior to genesis results from sampling limitations of the observations wherein the important cold pool gradients are unresolved.

*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, 9 April 2015, 3:30 PM**  
Refreshments 3:15 PM  
NCAR-Foothills Laboratory  
3450 Mitchell Lane  
Bldg 2 Main Auditorium, Room 1022

MMM SEMINAR COORDINATOR  
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