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*Quasi-Stationary Mesoscale Convective Systems*

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Quasi-stationary mesoscale convective systems (MCSs) are responsible for a large fraction of warm season flash floods in the continental United States. They typically occur at night within an environment characterized by maximum convective available potential energy (CAPE), and minimum convective inhibition (CIN) located above ground level (hereinafter referred to as elevated). Despite the societal impacts posed by these MCSs, the mechanisms for their quasi-stationary behavior remain poorly understood.

I will initially discuss recent scientific literature that addresses the dynamics of quasi-stationary MCS behavior. I will then provide an overview of my own research results, which specifically address the dynamics of the Training Line – Adjoining Stratiform (TL/AS) MCS archetype. TL/AS MCSs often exhibit particularly complex behavior, including the concurrent presence of adjacent forward propagating and quasi-stationary convective lines and the partial decoupling of convection from outflow boundaries. The factors that contribute to the quasi-stationary behavior of these systems are then generalized through the analysis of a series of numerical modeling experiments. External factors (imposed by the large scale environment) include persistent and geographically stationary meso- $\alpha$  scale forcing for low-level ascent in the presence of moisture and instability. Factors resulting from upscale convective feedbacks include locally enhanced isentropic upglide over stationary outflow boundaries and local modifications to the low-level wind field accomplished by earlier (relative to the training convection of interest) rounds of convective activity.

Finally, I will discuss potential future avenues of research pertaining to the subject matter, which include additional numerical modeling experiments and analysis of field observations obtained from the Plains Elevated Convection at Night (PECAN) field campaign.

*This seminar will be webcast live at:*

*<http://www.fm.ucar.edu/it/mms/fl2-live.htm>*

*Recorded seminar link can be viewed here:*

*<https://www.mmm.ucar.edu/events/seminars>*

**Thursday, 12 February 2015, 3:30 PM**

Refreshments 3:15 PM

NCAR-Foothills Laboratory

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