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***Regional Convection-Permitting Climate Modeling:  
Demonstrations, Prospects, and Challenges***

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Convection permitting models bring benefits to weather forecasts but do they also bring benefits for climate simulation? Regional climate modeling using convection-permitting models (CPMs; horizontal grid spacing  $\leq 4$  km) emerges as a promising framework to provide more reliable climate information on regional to local scales compared to traditionally used large-scale models (LSMs; horizontal grid spacing  $> 10$  km). CPMs no longer rely on convection parameterization schemes, which have been identified as a major source of errors and uncertainties in LSMs. Moreover, CPMs allow for a more accurate representation of surface and orography fields. In the first part of the talk we will review the state-of-the-art in CPM climate modeling primarily focusing on potential added value and major challenges. In the second half we will take a first look at the next generation of CPMs climate simulations using the example of a continental scale WRF simulation downscaling ERA-Interim across the Contiguous United States. We investigate the sources of significant model errors, compared to an ensemble of gridded observational data sets, in specific weather situations and regions. The goal is to provide a benchmark on the ability of continental scale CPMs to simulate present day climate and to support the model development and model setup. This allows for more physically based climate projections and climate information on the impact scale.

*This seminar will be webcast live at:*

*<http://www.fin.ucar.edu/it/mms/fl-live.htm>*

*Recorded seminar link can be viewed here:*

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**Thursday, 19 November 2015, 3:30 PM**

Refreshments 3:15 PM

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