

**CRUNCH Seminars at Brown, Division of Applied Mathematics**

**Friday – February 8, 2019**

**The Acquisition and Uncertainty Quantification of Land Surface Evapotranspiration at the Satellite  
Pixel Scale**

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In this talk I present include three parts: the introduction of my research group in China, the research progress and the next steps. For the first part, I will briefly introduce the background and content of the research group. For the second part, I will mainly introduce my research objectives, research progress and some results. Simply speaking, based on observation data and remote sensing data, firstly, the spatial heterogeneity of land surface is analyzed using coefficient of variation; secondly, a variety of methods (e.g., mechanism model method, Kriging method and some machine learning methods) are used to compared and optimized, and then a combined method is selected to solve the problem of the spatial-scale mismatch between in situ observations and remotely sensed evapotranspiration (ET). For the last part, namely the next step work, the uncertainty quantification frameworks for analyzing the upscaled results will be introduced, including variance decomposition, Monte Carlo, generalized polynomial chaos, probabilistic graphical model, and information theory methods.