

BI-CO MATHEMATICS COLLOQUIUM

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“Statistical extremes: Theory and practice”

Monday, March 18, 2019

Talk at 4:00 – H109

Tea at 3:30 – Foyer outside of H109

Abstract:

Extreme outcomes are of great interest in a number of disciplines, including climate science and finance. This talk will discuss some of the basic mathematical ideas underlying the statistical theory of extremes and how it is used to study extreme quantiles of distributions. I will then describe recent work of mine on flexible parametric models of distributions that can capture a wide range of behaviors for extreme quantiles. I apply these models to daily temperature data from an ensemble of 50 model runs from a global climate model. The large ensemble provides much more data than one could obtain from observations, thus making it possible to compare different methods for estimating extreme quantiles. At the locations I consider, the approach based on flexible parametric models clearly outperforms traditional extreme value approaches.

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