DEPARTMENT OF STATISTICS AND BIOSTATISTICS

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Some thoughts on the use of extreme value theory for temperature extremes

April 12, 2017
3:20 – 4:20pm
Light refreshments will be served
110 Frelinghuysen Road

Abstract: Most studies of extremes focus on fat-tailed distributions. However, temperature distributions tend to be thin-tailed. Indeed, when one fits extreme value distributions to temperature data, one generally obtains negative estimates of the shape parameter, which implies that temperature distributions are bounded. This talk will explore a number of issues that arise when applying extreme value methods to daily temperature data, including the use of long climate model runs to estimate properties of extremes, taking account of seasonality and models for dependence. I will also describe a weighted composite likelihood approach to estimating the upper tail of a distribution that avoids having to pick a sharp cutoff for which observations are excluded from the estimation.

BioMichael Stein graduated from MIT in 1980 with a B.S. in mathematics and received the M.S. and Ph.D. in statistics from Stanford in 1982 and 1984. After spending a year at the IBM T.J. Watson Research Center, he joined the faculty at the University of Chicago, where he is now the Ralph and Mary Otis Isham Professor of Statistics and the College. He was chairman of the department 1998-2001.

Most of Stein's research has been in the area of spatial statistics and its applications to environmental sciences and astrophysics. His current research focuses on statistical models and methods for natural processes in space-time and the computational challenges that arise in studying such problems.

Michael Stein is married to Laurie Butler, a professor of chemistry at the University of Chicago. They have one daughter, Ellyn, born in 1995. His outside interests include horseback riding and the guitar.