MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

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Statistical Methods for Modeling and Prediction of Space-Time Environmental Data

Thursday, April 13, 2023
10:20 AM - 11:10 AM Eastern Time
Zoom

Abstract
We will discuss the context and challenges of statistical modeling for multidimensional processes, and in particular, but not restricted to, environmental data. The methods presented aim at characterizing, predicting and simulating complex phenomena by reproducing target quantities such as probabilistic distributions, extremes, space-time dependence, and interaction among variables, as well as multiscale aspects of processes at stake. We focus on several applications of such statistical models: 1) the modeling of the bulk and both tails of temperature distribution used in power-grid long-term planning, 2) stochastic enhancement of subgrid-scale variability of unresolved wind-related quantities in weather and climate models, and 3) the use of statistical methods to estimate compression ratios in lossy compression for scientific data.

Bio
Julie Bessac received the B.Sc. degree in fundamental Mathematics and the M.S. degree in Probability and Statistics, respectively in 2008 and 2011 from the University of Rennes 1, France. She received the Ph.D. degree in 2014 in applied Mathematics from the University of Rennes 1, France. Between 2014 and 2017, she was a post-doctoral appointee in the Mathematics and Computer Science Division at Argonne National Laboratory, Argonne, IL. Between 2017 and 2023, she has been a Computational Statistician at Argonne National Laboratory. She recently joined the National Renewable Energy Laboratory as a computational statistician as a remote employee and she is an adjunct professor at the Mathematics Department of Virginia Tech where she is located. Her research focuses on the statistical modeling, forecasting and uncertainty quantification for diverse applications, as for instance geophysical processes and their applications to energy systems, computer science and nuclear physics.

Zoom details can be found at: https://stt.natsci.msu.edu/stt-colloquium-zoom-info/
To request an interpreter or other accommodations for people with disabilities, please call the Department of Statistics and Probability at 517-355-9589.