

MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

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Statistics in Paleoclimate Reconstruction

Tuesday, November 24, 2015
10:20 a.m. - 11:10 am
Refreshments 10:00 am
C405 Wells Hall

Abstract

Understanding the complex dynamics of Earth's climate system is a grand scientific challenge. Projecting climate for 50 or 100 years into the future is, however, complicated by the fact that the behavior of the Earth system over such time scales is not well characterized over the modern instrumental interval, which only stretches back about 100-150 years with global extent. Paleoclimate reconstructions using climate proxies such as tree rings, ice cores, and lake sediments, among others, have partially remediated this challenge by providing estimates of climate variability prior to widespread availability of instrumental records. I will first introduce the statistical challenges and their developments in paleoclimate reconstruction, then talk about some recent work I have done in this field. Specifically, I will discuss (1) whether and how the long-memory temporal correlation plays a role in the index reconstruction. (2) statistical methods to assess the difference between random fields resulted from climate field reconstructions and climate models.

This is joint work with L. Barboza, J. Smerdon, M. Tingley, F. Viens and X. Zhang.

To request an interpreter or other accommodations for people with disabilities, please call the Department of Statistics and Probability at 517-355-9589.