The University of Chicago

Department of Statistics

Seminars for Fourth Year Ph.D. Students

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Modeling Processes on Spheres

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ABSTRACT

A big challenge in modeling processes on the surface of a sphere comes from estimating the covariance function, which defines the correlation structure of the entire process. We would like this function to be able to capture the small as well as the large scale properties of the data, while minimizing the computational burden of a model with many parameters. In this talk, we focus primarily on the class of "axially symmetric" covariance functions, those which are stationary in terms of longitude.

Specifically, we are interested in using these models to study Aerosol Optical Depth, a spatially dense, global data set collected daily by NASA. We will consider a subset of this data in hopes of ascertaining what types of properties we may want our model to reflect.

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