Public Abstract

First Name:Ali

Middle Name:

Last Name:Arab

Adviser's First Name:Christopher

Adviser's Last Name:Wikle

Co-Adviser's First Name:

Co-Adviser's Last Name:

Graduation Term:SS 2007

Department:Statistics

Degree:PhD

Title:Hierarchical Spatio-Temporal Models For Environmental Processes

The processes governing environmental systems are often complex, involving different interacting scales of variability in space and time. The complexities, and often high dimensionality, of such spatio-temporal processes can be effectively addressed using a hierarchical modeling framework where a complex problem is decomposed into a series of simpler problems that are linked through rules of probability.
 In this dissertation, hierarchical spatio-temporal models are developed and utilized for environmental processes. The methods discussed in this dissertation include a wide scope of problems related to the modeling of spatio-temporal environmental processes. Specifically, methods are described for efficient modeling of spatio-temporal environmental processes using both discrete- and continuous-valued data.