32nd Spring Lecture Series, University of Arkansas

Spatial and Spatio-Temporal Statistics

April 12-14, 2007

Continuing Education 402

Principal Lecturer

Noel Cressie, Ohio State University

Noel Cressie received the Bachelor of Science degree with first class honors in Mathematics from the University of Western Australia. He received the MA and PhD in Statistics from Princeton University.

Dr. Cressie is Professor of Statistics, Distinguished Professor of Mathematical and Physical Sciences, and Director of the Program in Spatial Statistics and Environmental Sciences at The Ohio State University. His research interests are in the statistical modeling and analysis of spatial and spatio-temporal data. This has led to the development of Bayesian and empirical Bayesian methodology in complex, non-linear systems, such as long-lead forecasting of the El Nino phenomenon, remote sensing of global environmental processes, ice-stream dynamics, Bayesian statistical exposure modeling from sources to biomarkers, and mapping of disease risk over a collection of contiguous small areas. He is the author of around 200 refereed articles and of two books, including "Statistics for Spatial Data, rev. edn.", published by John Wiley and Sons.

Dr. Cressie is a Fellow of the American Statistical Association and the Institute of Mathematical Statistics, and he is an Elected Member of the International Statistical Institute.

Organizers: Joon Jin Song and Giovanni Petris

http://comp.uark.edu/~jjsong/SLS2007

Conference Schedule

Thursday, April 12, 2007

Morning Session Chair: Giovanni Petris
Afternoon Session Chair: Victor DeOliveira

8:00-8:45am Registration

8:45-9:00am Welcome by Department Chair

9:00-10:00am Principal Lecture #1: Noel Cressie
Spatial Statistics in the Presence of Location Error

10:00-10:45am Invited Speaker: Victor DeOliveria
Objective Bayesian Analysis of Spatial Data with Measurement Error

10:45-11:00pm Break

11:00-12:00pm Contributed Session #1

1. Sujit Sahu: High Resolution Space-Time Ozone Modeling
2. Ali Arb: Semiparametric Zero-Inflated Poisson Models for Spatio-Temporal Environmental Processes
3. Murali Haran: Crop disease: Estimating the risk of an FHB epidemic

12:00-1:30pm Lunch

1:30-2:30pm Principal Lecture #2: Noel Cressie
Modeling Dynamic Controls on Ice Streams: A Bayesian Statistical Approach

2:30-3:15pm Invited Speaker: Alan Gelfand
Stochastic Space-Time Modelling Using Differential Equations

3:15-3:30pm Break

3:30-4:15pm Invited Speaker: James Zidek
Using a Multivariate Approach to Model Univariate Environmental Space Time Processes

4:15-5:15pm Contributed Session #2

1. Ateq Al-Ghamedi: Variance of Trimmed Mean for Symmetric Stable Distributions
2. Dan Nordman: An Empirical Likelihood Method for Variogram Inference
3. Gavino Puggioni: Spatio-temporal modeling using Stochastic Differential Equations

7:15-9:15pm Poster Session

Friday, April 13, 2007

Morning Session Chair: Hedibert Lopes
Afternoon Session Chair: Sujit Ghosh

9:00-10:00am Principal Lecture #3: Noel Cressie
Relating Rates in Space through Hierarchical Statistical Modeling

10:00-10:45am Invited Speaker: Marc Genton
Modeling and Testing Properties of Space-Time Covariance Functions

10:45-11:00am Break

11:00-12:00pm Contributed Session #3

1. Petrutza Caragea: Exploring Dependence with Spatial Lattice Data
2. Gentry White: A spline based conditionally autoregressive model for spatial data
3. Ranga Vatsavai: Comparison of MRF and SAR Models for Multi-class Classification of Remote Sensing Imagery

12:00-1:30pm Lunch

1:30-2:30pm Principal Lecture #4: Noel Cressie
Spatial and Spatio-Temporal Satellite Data Processing

2:30-3:15pm Invited Speaker: Christopher Wikle
Nonlinear Spatio-Temporal Dynamic Models

3:15-3:30pm Break

3:30-4:15pm Invited Speaker: Jay Ver Hoef
Space-Time Zero-Inflated Count Models of Harbor Seals

4:15-5:15pm Contributed Session #4

1. Hedibert Lopes: Spatial Dynamic Factor Models
2. Gunter Spoeck: Noninformative Priors with special Application to Spatial Prediction
3. Mevin Hooten: Characterizing invasions with hierarchical rule-based systems

6:00-10:00pm Conference Dinner (Ozark Mountain Smokehouse, 215 West Dickson, Fayetteville, AR, 479-442-2154)

Saturday, April 14, 2007

Morning Session Chair: Jeffery Picka
Afternoon Session Chair: Murali Haran

9:00-10:00am	Principal Lecture #5: Noel Cressie Loss-Based Prediction of Spatial Exceedances of Spatial Exceedances and Spatial Exceedance Regions
10:00-10:45am	Invited Speaker: Jun Zhu Markov Chain Monte Carlo for a Spatial-Temporal Autologistic Regression Model
10:45-11:00am	Break
11:00-11:45pm	Invited Speaker: Sujit Ghosh A Class of Kernel-Based Conditionally Autoregressive Models for Spatial Data
11:45-1:30pm	Lunch
1:30-2:15pm	Invited Speaker: Richard Smith Extreme Precipitation Trends over the Continental United States
2:15-3:15pm	Contributed Session #5 1. Richard Gunst: Spatial Modeling and Analysis of SPECT Brain Imaging Data 2. Jeffery Picka: Classification of Non-Poisson-Based Random Patterns 3. Michael Porter: Anomaly Detection in Space-Time (and higher dimensional) Point Processes

Poster Session:

1. Dipankar Bandyopadhyay: Bayesian modeling of multivariate spatial binary data: application to dental epidemiology
2. Wassim Kamoun: Comparing Switching Model and Space-Time Autoregressive Model for Forecasting Ozone Concentration
3. Jong-Min Kim: Application of Spatial Copula
4. Jiexiang Li: Hazard rate estimation on random fields
5. Andy Radomski: Spatio-temporal movement patterns of wintering Double-crested Cormorants in the southeastern states
6. Brain Reich: A multivariate semiparametric Bayesian spatial modelling framework for hurricane surface wind fields
7. Changxiang Rui: Point and Block Prediction in Log-Gaussian Random Fields: The Non-Constant Mean Case

Conference Dinner Restaurant