

<<Spatial statistics a>>

图书基本信息

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内容概要

Spatial statistics and Markov Chain Monte Carlo (MCMC) techniques have each undergone major developments in the last decade. Also, these two areas are mutually reinforcing, because MCMC methods are often necessary for the practical implementation of spatial statistical inference, while new spatial stochastic models in turn motivate the development of improved MCMC algorithms. This volume shows how sophisticated spatial statistical and computational methods apply to a range of problems of increasing importance for applications in science and technology. It consists of four chapters: 1. Petros Dellaportas and Gareth O. Roberts give a tutorial on MCMC methods, the computational methodology which is essential for virtually all the complex spatial models to be considered in subsequent chapters. 2. Peter J. Diggle, Paulo J. Ribeiro Jr., and Ole F. Christensen introduce the reader to the model-based approach to geostatistics, i.e. the application of general statistical principles to the formulation of explicit stochastic models for geostatistical data, and to inference within a declared class of models. 3. Merrilee A. Hurn, Oddvar K. Husby, and Håvard Rue discuss various aspects of image analysis, ranging from low to high level tasks, and illustrated with different examples of applications. 4. Jesper Møller and Rasmus P. Waagepetersen collect recent theoretical advances in simulation-based inference for spatial point processes, and discuss some examples of applications. The volume introduces topics of current interest in spatial and computational statistics, which should be accessible to postgraduate students as well as to experienced statistical researchers. It is partly based on the course material for the "TMR and MaPhySto Summer School on Spatial Statistics and Computational Methods," held at Aalborg University, Denmark, August 19-22, 2001. The editor, Jesper Møller, Professor of statistics at Aalborg University, and the above-mentioned contributors have all been associated with the European Union's TMR network "Statistics and Computational Methods for the Analysis of Spatial Data. ERB-FMRX-CT96-0095."

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媒体关注与评论

"This book is a compilation of lecture notes from a number of distinguished professors from the United States, England, France, and Germany. This type of publication in statistics is specifically useful for postgraduate students and scientists." "Spatial Statistics and Computational Methods successfully presents and updates the recent theoretical advances accompanied by examples and applications in simulation-based inferences. This book will be of practical use for many readers, particularly graduate students." Technometrics, February 2004 "An impressive team of 10 experts wrote this book's four informative chapters on modern computational methods in spatial statistics...Spatial Statistics and Computational Methods...enjoys the clarity of organization and exposition that would make it a suitable main reference for a graduate course in modern methods in spatial statistics." Journal of the American Statistical Association, September 2004 "I found this book to be a valuable contribution...MCMC and spatial statistics have undergone major development over the past ten years. The tutorials covered in this book capture some of these developments and present them in a manner that is accessible to the statistically minded scientific community." Environmetrics Newsletter, 2004 "...Provides the reader with a very good overview of MCMC methodology...it can serve as a reading material for a graduate course that discusses these topics...Well-written chapter[s]." Journal of Statistical Software, April 2005

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