



Spatial Analysis Along Networks: Statistical and Computational Methods

By Atsuyuki Okabe, Kokichi Sugihara

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In the real world, there are numerous and various events that occur on and alongside networks, including the occurrence of traffic accidents on highways, the location of stores alongside roads, the incidence of crime on streets and the contamination along rivers. In order to carry out analyses of those events, the researcher needs to be familiar with a range of specific techniques. Spatial Analysis Along Networks provides a practical guide to the necessary statistical techniques and their computational implementation.

Each chapter illustrates a specific technique, from Stochastic Point Processes on a Network and Network Voronoi Diagrams, to Network K-function and Point Density Estimation Methods, and the Network Huff Model. The authors also discuss and illustrate the undertaking of the statistical tests described in a Geographical Information System (GIS) environment as well as demonstrating the user-friendly free software package SANET.

Spatial Analysis Along Networks:

- Presents a much-needed practical guide to statistical spatial analysis of events on and alongside a network, in a logical, user-friendly order.
- Introduces the preliminary methods involved, before detailing the advanced, computational methods, enabling the readers a complete understanding of the advanced topics.
- Dedicates a separate chapter to each of the major techniques involved.
- Demonstrates the practicalities of undertaking the tests described in the book, using a GIS.
- Is supported by a supplementary website, providing readers with a link to the free software package SANET, so they can execute the statistical methods described in the book.

Students and researchers studying spatial statistics, spatial analysis, geography, GIS, OR, traffic accident analysis, criminology, retail marketing, facility management and ecology will benefit from this book.

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Review

“Students and researchers studying spatial statistics, spatial analysis, geography, GIS, OR, traffic accident analysis, criminology, retail marketing, facility management and ecology will benefit from this book.”
(*Zentralblatt MATH*, 1 May 2013)

From the Back Cover

Atsuyuki Okabe, School of Cultural and Creative Studies, Aoyama Gakuin University; Emeritus Professor, University of Tokyo

Kokichi Sugihara, Graduate School of Advanced Mathematical Sciences, Meiji University; Emeritus Professor, University of Tokyo

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