



# **Spatial and Spatio-temporal Bayesian Models** with R - INLA

By Marta Blangiardo, Michela Cameletti



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Spatial and Spatio-Temporal Bayesian Models with R-INLA provides a much needed, practically oriented & innovative presentation of the combination of Bayesian methodology and spatial statistics. The authors combine an introduction to Bayesian theory and methodology with a focus on the spatial and spatio-temporal models used within the Bayesian framework and a series of practical examples which allow the reader to link the statistical theory presented to real data problems. The numerous examples from the fields of epidemiology, biostatistics and social science all are coded in the R package R-INLA, which has proven to be a valid alternative to the commonly used Markov Chain Monte Carlo simulations



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#### **Editorial Review**

From the Back Cover

#### The reference book for spatio-temporal modeling with INLA

The Bayesian approach is particularly effective at modeling large datasets including spatial and temporal information due to its flexibility and ease with which it can formally include correlation and hierarchical structures in the data. However, classical simulation methods such as Markov Chain Monte Carlo can become computationally unfeasible; this book presents the Integrated Nested Laplace Approximations (INLA) approach as a computationally effective and extremely powerful alternative.

Spatial and Spatio-temporal Bayesian Models with R-INLA introduces the basic paradigms of the Bayesian approach and describes the associated computational issues. Detailing the theory behind the INLA approach and the R-INLA package, it focuses on spatial and spatio-temporal modeling for area and point-referenced data.

The combination of detailed theory and practical data analysis is beneficial for readers at any level. The coding of all the examples in R-INLA and the availability of all the datasets used throughout the book on the INLA website (www.r-inla.org) make an appealing feature for applied researchers wanting to approach or increase their knowledge and practice of the INLA method.

About the Author

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