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INTRODUCTION

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Spatial Statistics concerns the quantitative analysis of spatial data, including their dependencies and uncertainties. Spatio-temporal statistics extend this to the spatio-temporal domain. It addresses three major types of spatial data: lattice data, geostatistical data that represent continuous spatial variation and spatial point data. These data all share a specific way of spatial dependence and a common hierarchical approach applies.

These types of data and dependence modeling have their logical extension into the space-time domain, where the relations remain similar, but estimation may be different. Methodology for spatial statistics is found in probability, stochastics and mathematical statistics as well as in information science. Typical applications are mapping of the data, assessing spatial data quality, modeling of the dependency structure and drawing valid inference on the basis of a limited set of data. Applications of spatial statistics may occur in but are not limited to the following fields: agriculture, geology, soils, hydrology, the environment, ecology, mining, oceanography, forestry, air quality, remote sensing, but also in social/economic fields like spatial econometrics, epidemiology and disease mapping.

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