Spatial Data Analysis and Geographic Information Systems

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ABSTRACT: Spatial data analysis deals with the situation where observational data are available on some process operating in _space_ and methods are sought to describe or explain the behavior of this process and its possible relationship to other spatial phenomena.

The main purpose of the analysis is:

- ❖ To increase our basic understanding of the process
- ❖ To assess the evidence in favor of various hypotheses concerning it
- ❖ To predict values in areas where observations have not been made.

In this talk, statistical methods used for different types of spatial data will be overviewed and role of geographic information systems (GIS) in spatial data analyses will be emphasized. The characteristics of the three main data types, namely, spatially discrete point data, spatially continuous point data and area data, and analyses methods for each data type will be briefly explained. Moreover, utilization of GIS in spatial data analyses will be illustrated by several application examples.