Problems Associated with Spatial Pattern Analysis

- Scale
- Zoning
- Dependence
- Heterogeneity
- Boundaries
- Missing Data
- Large Data Sets

MAUP: The Scale Problem

- How do changes in scale change results
- What is the appropriate scale?
- Aggregation and the ecological fallacy
- Multi-scale analyses

MAUP: The Zoning Problem

- How do changes in zoning change results
- The political redistricting problem
- Preconceived restrictions
- Appropriate zoning
- Multiple zonings

The Dependence Problem

- Tobler's Law
- The problem of nearness
- The value of an observation problem
- Too many observations
- Spillovers/bisection
- Traditional statistics and independence
- Overcoming the problem

The Heterogeneity Problem

- Uneven distributions at the global scale
- How does heterogeneity affect our results
- Stationarity
- Drift and its effect on analysis
- Some suggested solutions

The Boundaries Problem

- What affect do boundaries have on results?
- How do we take them into account?
- Sampling problems
- Awareness and care

The Missing Data Problem

- “Empty areas”
- Census restrictions, Privacy
- Imputation
- Algorithms and common sense solutions
- TINs, Kriging, etc.

The Large Data Set Problem

- Censuses
- Remotely sensed data
- Dependence and heterogeneity
- Data mining, partitioning and filtering, principal components analysis