Visualization of urban change patterns

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Visualization problem

• “before” and “after” maps do not provide clear information
Change/difference map not informative either

[Map showing red and green areas with legends 'Unequal' and 'Equal']

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Change/difference map not informative either

Except for individual categories

- in none of the maps
- in both maps
- only in map 1, not in map 2
- only in map 2, not in map 1
Visualizing structural change

- Landscape structure metrics in a moving window
Structure metrics

Increase in landscape diversity

Change in patch density
Structure metrics

Change in edge density

Increase in residential rea

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Is it possible to synthesise these metrics?

- Many metrics
  - Evaluated at different scales
  - Evaluated for individual land use categories

- Objective:
  - Combine metrics into a classification of urban change patterns
  - Describe, visualize urban areas in terms of their dynamics

- Method
  - Nearest neighbour clustering of multi-dimensional transition matrices
  - Each metric takes one dimension in the transition matrix
Five classes of urban change patterns
Five classes of urban change patterns

Classes relate to population density
Discussion

- The “detour” approach of first expanding information and then contracting is common in modelling exercises, for instance:
  - land value,
  - transition probability,
  - accessibility

- Is this approach specific to field/raster data?

- How useful is the identification and visualization of change patterns if the patterns are not explicitly defined?
Colofon

UrbanPulse - Instruments for monitoring and analysis of urban change

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