Performing Polygon-to-Polygon Predictions Using Areal Interpolation

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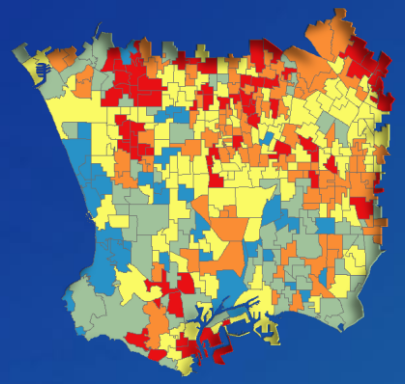
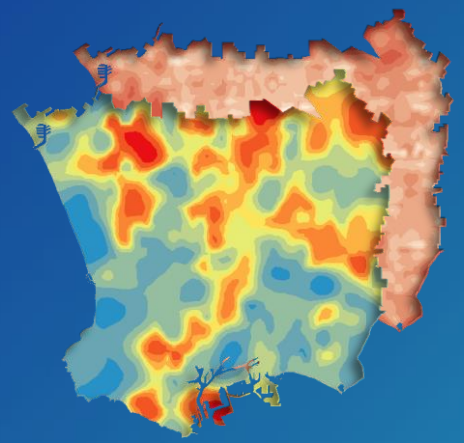
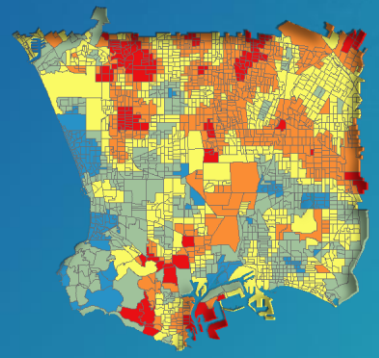
Areal Interpolation



Obesity by school zone



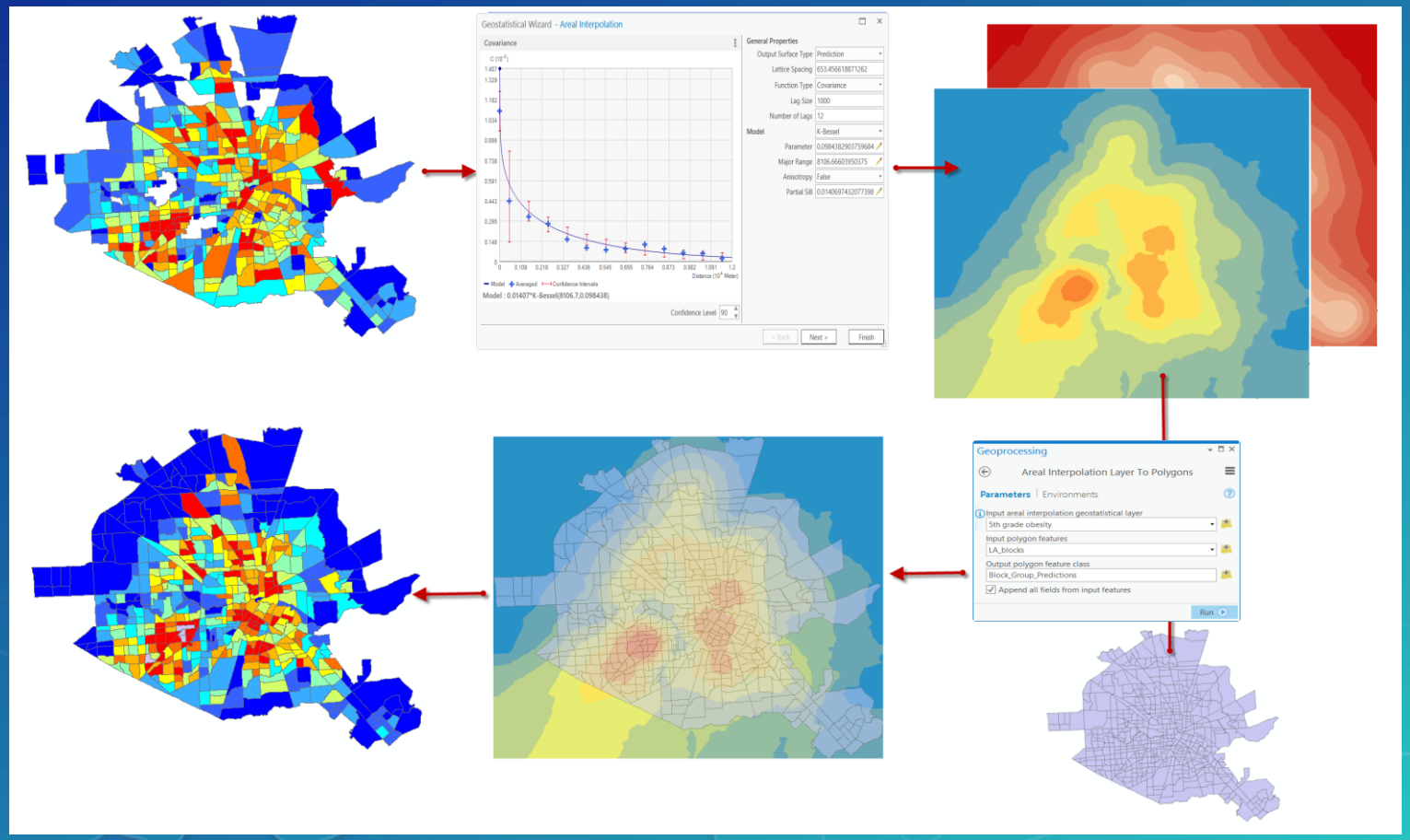
Obesity surface and error surface



Obesity by census block

- Predict data in a different geometry
  - School zones to census block groups
- Model and fill-in missing data

Areal Interpolation Workflow



Types of Areal Interpolation

- Average (Gaussian) Areal Interpolation
  - Example:
    - Interpolate radiation levels from measurements averaged in polygons
    - Median age, average household income
  - Takes Gaussian data averaged over polygons
  - Variable of interest
    - Interpolate to predict value of Gaussian variable at individual point locations

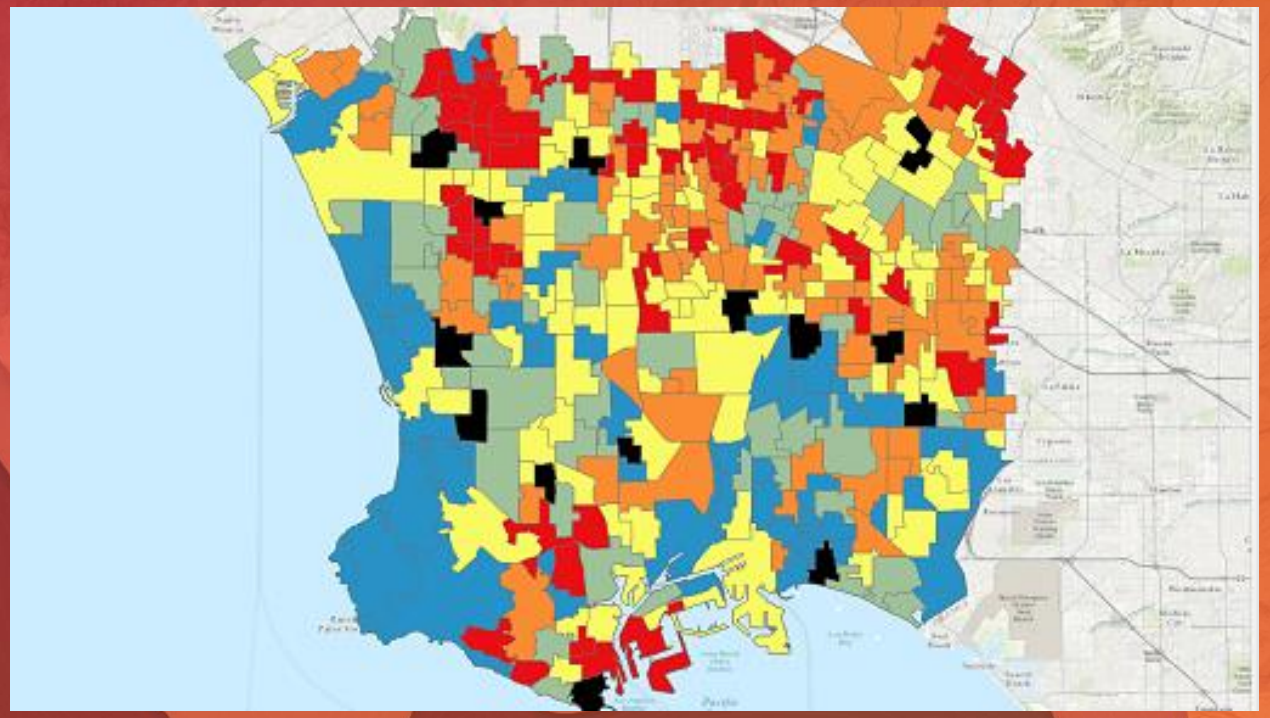
Types of Areal Interpolation

- Rate (Binomial) Areal Interpolation
  - Example:
    - Interpolate proportion of lung cancer cases
  - Takes two input fields:
    - Number of individuals randomly sampled from the population of a polygon
    - Number of individuals with a particular characteristic
  - Variable of interest
    - Proportion of individuals with the characteristic

Types of Areal Interpolation

Count (Overdispersed Poisson) Areal Interpolation

- Example:
  - Counts of whales over polygons in the ocean
- Takes two input fields:
  - Number of instances of a certain event counted within a polygon
  - Amount of time spent counting within the polygon
- Variable of interest
  - Interpolate on density/risk of making an observation at a given location



Demo

Areal Interpolation

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