

Spatial Data Analysis in Archaeology
Anthropology 589b

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Problem Set 5: House Size Variation at AR5: LISA

The Problem

In our previous analysis of the AR 5 data set, we discovered a provocative trend in house size using loess and trend-surface analysis, and a very cool pattern of spatial dependence in the residuals from these trends – with negative autocorrelation at roughly a 40 m. lag. Make sure you can produce a similar analytical result. Evaluate its statistical significance by comparing the 95% confidence limits of the randomization distribution with the actual statistical values for the Moran's I and Geary's c correlograms. Outline the hypothesis about social dynamics that you think best explains this result. Then go on to further explore and evaluate your argument by examining the pattern of local autocorrelation in the house size diameters and/or residuals. Make sure you include a brief account of just how each LISA works and what it measures. The SAS code in the LISA_AR5.sas file will help you with the LISA analysis. Use it to examine and map LISAs at different spatial lags. How do the LISA results support (or not) your hypothesis for the global pattern? What kinds of additional data might you want to collect from the site to evaluate further the LISA results?

What to Turn In

A short (< 2 page single spaced) description of the problem, the methods you used to address it, your results, and your conclusions. Come to class prepared to describe your results. Due date: 03.19.07.