

## CHANGE OF SUPPORT AND THE MODIFIABLE AREAL UNIT PROBLEM

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### ABSTRACT

Geostatistics, which is concerned with inference on spatial processes over a continuous spatial domain, has long recognized the importance of a spatial variable's level of aggregation. For example, in mining exploration, core samples that are each just a few cubic feet in volume are used to predict the average ore grade of mining units that are thousands of cubic feet in volume. The same principle applies to the restoration of environmentally damaged regions, where restoration-unit volumes are typically much larger than sampling-unit volumes. Failure to take into account this change of spatial support can result in severely biased predictions. Similarly, the modifiable areal unit problem is concerned with the influence of the level of aggregation on relationships between two (or more) spatial variables. The geostatistical approach to change of support has only been developed in the univariate setting. This paper shows how a similar approach in a bivariate setting can be used to tackle the modifiable areal unit problem.