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# Multiscale Effects of Grain Size on Landscape Pattern Analysis

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## **Abstract**

We used multiple resolutions of remotely sensed data to explore the relationship between grain size and landscape pattern. Holding extent constant, we aggregated fine grained and coarse grained data to provide a continuum of grain sizes ranging from 5 m to 30 m on a side. Landscape metrics were calculated for each image and varied widely between grain sizes. Finer grained images appeared to be more fragmented and complex than coarser grained images for the same landscape. Most metrics varied smoothly as a function of grain size and were fitted to nonlinear models. Results showed that the models failed to accurately predict the metrics for the second landscape, although the metrics did display similar scaling patterns as in the first image. Further research using additional images of landscapes and a greater range of grain sizes is necessary to determine whether general scaling laws can be determined.

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