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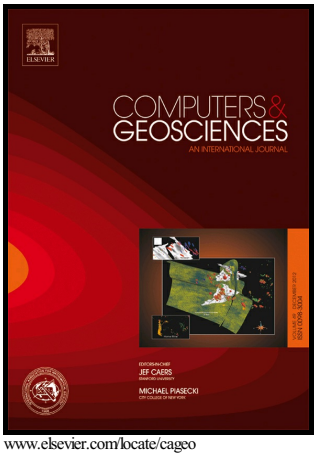

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Fractal generator for efficient production of random planar patterns and symbols in digital mapping

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Abstract: In digital cartography, the automatic generation of random planar patterns and symbols is still an ongoing challenge. Those patterns and symbols of randomness have randomly variated configurations and boundaries, and their generating algorithms are constrained by the shape features, cartographic standards and many other conditions. The fractal geometry offers favorable solutions to simulate random boundaries and patterns. In the work presented in this paper, we used both fractal theory and random Iterated Function Systems (IFS) to develop a method for the automatic generation of random planar patterns and symbols. The marshland and the trough cross-bedding patterns were used as two case studies for the implementation of the method. We first analyzed the morphological characteristics of those two planar patterns. Then we designed algorithms and implementation schemes addressing the features of each pattern. Finally, we ran the algorithms to generate the patterns and symbols, and compared them with the requirements of

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