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Fractal Geometry and Spatial Phenomena

A Bibliography

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PREFACE

Fractal research seems to have permeated most, if not all, areas of research concerned with form, from the micro-level aggregation of water molecules or particles of zinc oxide to the macro analysis of the structure of landmasses and cities. Given that the study of spatial form and its links to spatial processes is one of basic research areas within Geography, it is not surprising that research on fractals can be found in many subfields of the discipline, including geomorphology, climatology, urban and regional analysis, cartography, and remote sensing.

Within this working paper, we provide a sample of the growing literature in this area. The emphasis is on references that have appeared in the published literature. The bibliography is arranged in three sections: general references; measurement issues; and applications. Each of these general topics is further subdivided. While we have attempted to be as consistent as possible in our indexing, there are many references that could be placed in more than one category and in some cases the decision into which category they are placed has been somewhat subjective. To minimize this problem, in some cases where a reference clearly spans two or more of our subheadings, we have listed the reference more than once. Additional references of interest but which do not fall into any of the designated categories are listed at the end of this bibliography under the heading of miscellaneous.

The concepts associated with fractal analysis have been discussed at the Specialist Meetings of Initiatives 1 (The Accuracy of Spatial Data) and 3 (Multiple Representations) and we acknowledge these meetings as a source of inspiration for the development of this bibliography. We would also like to acknowledge the financial support of the National Center for Geographic Information and Analysis under NSF grant (SES-8810917).

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III. APPLICATIONS

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