

# **Geostatistics in Geotechnical Engineering: A Fad or An Empowering Approach?**

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## **ABSTRACT**

Geotechnical engineering by nature demands tools for coping with the large uncertainties and variations in soil and rock properties. One such tool, which the profession has tried to adopt, is geostatistics. This paper examines the question of whether geostatistics really holds much promise for geotechnical engineering, and attempts to identify conditions that if satisfied could convert geostatistics into a real design aid for geotechnical engineers.

To track the evolution of geotechnical engineering interest in geostatistics, the paper conducts a simple survey of geotechnical engineering papers that list “geostatistics” in their descriptions or keywords. It shows that interest peaks and falls a few times, and currently seems to be at another low.

The paper briefly looks at the origins of geostatistics, and examines its successful application to a variety of fields. It also describes the potential benefits geostatistics can bring to geotechnical engineering, and explores possible reasons underlying geotechnical engineering’s difficulties in fully harnessing the power of the method. The paper conjectures that primary reasons include widespread unfamiliarity with the concepts of geostatistics, and a lack of geostatistical software tools that can be readily used in geotechnical analysis.

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