

Geostatistics in numerical modeling

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Geostatistics was initiated in the 1950s in South Africa and was then set into a rigorous mathematical framework by Georges Matheron in France. First applied to mining, petroleum exploration and environmental problems [1, 2, 3], geostatistics has been transposed since two decades into the more abstract context of the modeling of computer experiments [4]. Within the last decade geostatistical methods have also been introduced successfully into meshfree approaches in computational mechanics [5].

In this presentation, after a brief reminder about the origins of geostatistics, we will look at its use in response surface modeling and in meshless methods.

Références

- [1] CHILÈS, J P, DELFINER P, *Geostatistics: Modeling Spatial Uncertainty*, 2nd edition, Wiley, 2012.
- [2] LANTUÉJOUL, C, *Geostatistical Simulation: Models and Algorithms*, Springer, 2002.
- [3] WACKERNAGEL, H, *Multivariate Geostatistics: an Introduction with Applications*, 3rd edition, Springer, 2003.
- [4] SACKS, J, WELCH, W J, MITCHELL, T J, WYNN, H P, *Design and analysis of computer experiments*, 409–435, 4, *Statistical Science*, 1989.
- [5] GU, L, *Moving kriging interpolation and element-free Galerkin method*, 1–11, 56, *International Journal for Numerical Methods in Engineering*, 2003.