

Interactive comment on “Modelling Bedrock Topography” by Nils-Otto Kitterød and Étienne Leblois

Anonymous Referee #2

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This is a misleading and dangerous paper for the readers of Earth Surface Dynamics to follow. Main objections are: 1. The authors should have never published results that poorly characterize the attribute of interest. The solution to the smoothing and the poor connectivity of extreme values is to use stochastic simulation instead of kriging (Mariethoz and Caers, 2015). 2. The research is based on geostatistical literature of more than 20 years ago (Journel and Huijbregts, 1989; Isaaks and Srivastava, 1989; Deutsch and Journel, 1998). 3. Kriging with trend is a more advanced form of minimum mean square error method that automatically accounts for trend (e.g., Remy et al., 2009). 4. The attribute of interest is not a continuous variable. Indicators should be used to model the two populations, the populations of thickness and the population where the attribute is missing. 5. It is not true that ordinary kriging is a method based

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on multi-Gaussian statistics. 6. The authors define a second variable that is a function of the first one: D/L. 7. Cross-validation has some problems that compromise any conclusions that can be obtained from it. 8. The value of cross-validation is further compromised in this case for using too small a sample—10 measurements—which explains the anomalous results in section 6.2. REFERENCES Deutsch, C.V., and Journel, A.G.: GSLIB. Geostatistical Software Library and User's Guide, 2nd. Oxford, New York: Oxford University Press, 1998. Isaaks, H., and Srivastava, R.M.: An Introduction to Applied Geostatistics, 1989. Journel, A.G., and Huijbregts, Ch.J.: Mining geostatistics, 4th ed. Academic Press, London, 1989. Mariethoz, G., and Caers, J.: Multiple-Point Geostatistics, Wiley, 2015. Remy, N., Boucher, A., and Wu, J.: Applied Geostatistics with SGeMS, Cambridge University Press, 2009

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