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Discussions
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Interactive comment on "Multiscale analysis of nitrogen adsorption and desorption isotherms in soils with contrasting pedogenesis and texture" *by* J. Paz-Ferreiro

Anonymous Referee #3

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The multifractal analyses of nitrogen adsorption and desorption isotherms is obtained from soil samples of 6 different profiles in São Paulo State, Brazil and the effect of soil texture on the multifractal patterns of the isotherms is studied. A similar paper wrote by Paz-Ferreiro et al. (2013) presented a similar analysis with a different database from a different experimental site.

In my opinion the basis of the analysis that has been performed has serious problems, even if the potential value of the conclusions of the analysis in the context of soil sciences is high. This is because the analysis itself is not well founded from a numerical point of view. Specifically, it is not clear that any conclusion about the multifractal behavior of a one dimensional series (temporal, spatial or of any other nature) with 41

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or 52 data points could be reliable. In that respect I would put forward the work of A. Turiel, C. J. Pérez-Vicente and J. Grazzini entitle “Numerical methods for the estimation of multifractal singularity spectra on sampled data: A comparative study” (Journal of Computational Physics 216 (2006) 362–390). They study appropriate methods to assess multifractality over experimental discretized data and establish criteria to measure the confidence degree on the estimates. Manuscript npg 2105-72 do not comply with that criteria.

I understand that a mayor revision of the work should be undertaken in order to adapt the length of the series the authors use in their investigation to the type of analysis they propose. It is imperative to insure the consistency of the work done taking into account the potential benefit of the implications of this type of analysis for the “soil community”.

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