

The revised version of the manuscript with reference NPG-2016-15-R2 and entitled “Comparison of the multifractal characteristics of heavy metals in soils within two areas of contrasting economic activities in China” authored by X. Li, F. Yuan, S.M. Jowitt, X. Li, T. Zhou, J. Zhou, X. Hu, and Y. Li and submitted to the Special Issue “Multifractal analysis in soil systems” to be published in *Nonlinear Processes in Geophysics* represents an improvement from the former version submitted to the journal. Authors have addressed the comments and suggestions made by the reviewers.

However, there are still several issues to be corrected prior to an eventual publication in the journal. I detected several mistakes in the reference list as well as some problems with English.

Therefore, I still advice for a minor revision prior to the acceptance of the manuscript.

In the following pages, I provide the authors with a number of suggestions/comments for improving their manuscript.

Specific comments to the authors:

Abstract:

Line 22: “city. We used a multifractal” instead of “city and use a multifractal”.

Line 25: Remove “for these soil geochemical data”.

Lines 28-31: Please, consider re-phrasing this sentence. For instance, I propose to reduce it to “The degree of multifractality suggests that the differing economic activities in Daxing and Yicheng generate very different heavy metal pollution loads”.

Introduction and overview of the study area:

Line 47: “may allow for assessing” instead of “can investigate”.

Line 48: “with pollutants, as well as” instead of “with pollutants and as well as”.

Line 61: Remove “in this case”.

Lines 72-73: Please, check the order of citations here. Besides, please, consider reducing the number of citations seems I think there are far too many than necessary.

Study area and geochemical data:

Line 109: Remove “was” from “was monitored”.

Multifractal spectrum analysis:

Check the readability of equation 1. Parenthesis and symbols are overlapping.

Lines 141-142: You should indicate what are α and $f(\alpha)$.

Line 146: “a given dataset” instead of “the dataset in question”. Indicate the symbols that you used for “left and right branches”.

Lines 148-150: Check the readability of equations 4 to 6. The “min” is not visible.

Lines 156-160: Re-phrase, not clear.

Line 164: “monofractal” instead of “single fractal”.

Lines 165-168: Consider removing, already stated in lines 77-80.

Geochemical analysis results

Lines 173-174: Ok, but the minimum and the mean were higher in the Daxing area.

Line 185: I do not think that you need multifractals to discriminate this.

Calculation processes of multifractal spectrum and discussion

Lines 196-197: “using a range of q values from -10 to 10 with an interval of 1” should be stated in the “multifractal spectrum analysis” section.

Line 212: “have a high multifractality” instead of “have highly multifractality”.

Line 215: It should be $\Delta\alpha$ instead of α .

Line 222: “but not maximum”, if you look at your histogram (figure 2) you will see that most of the samples from Yicheng were below 0.31 mg/kg of Hg, whereas in Daxing there are more samples above 0.5 mg/kg of Hg.

Line 229: What do you mean by “deleterious effects such as the heavy metal pollution of people, crops and animals”?

Line 236: “the elements within the samples from” instead of “different elements within”.

Lines 238-245: Please, remove all references to standard deviation because it is not used for sorting the elements according to table 3.

Line 262: “indicate” instead of “indicates”.

Line 276: “polluting more than others” instead of “more polluting than others”.

Lines 296-297: How was spatial density assessed? It is not explained anywhere.

Lines 302-305: When you are talking about correlation value, do you refer to coefficient of correlation? Could you indicate the p-values for these correlations, please?

Line 308: “do” instead of “does”.

Lines 308-311: Please, re-phrase, not clear.

Line 339: Include a parenthesis after “water”.

Line 340: Remove “or other source”.

Line 346: Inverse distance weighted interpolation is not mentioned or explained in the methodology.

Line 360: How was this density map created? This should be explained in the methods.

Table 4: How was this correlation matrix made? It is not explained in the methodology.

Lines 365-367: There is no figure 8.

Lines 368-371: Is this needed?

Conclusions:

Lines 374-376: Consider removing the first sentence.

Line 382: Remove “the overall order in soils”.

Line 390: Remove the word “well”.

Lines 393-396: I think that this sentence can be removed.

References:

Lines 417-418: Caniego et al. 2005 are not cited in the text. Please, remove.

Lines 429-431: Dathe et al. 2006 are not cited in the text. Please, remove.

Lines 445-447: Hasley et al. 1986 are not cited in the text. Please, remove.

Lines 469-474: McGrath et al. 2004 should come before Mulligan et al. 2001.