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Comment

## ***Interactive comment on “Site effect classification based on microtremor data analysis using concentration–area fractal model” by A. Adib et al.***

### **Anonymous Referee #1**

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Please find here an excerpt of Section 4.1 from Cheng et al., 1994 : "In Appendix A it is shown in detail that if the element concentration per unit area satisfies a fractal or multifractal model, then the area  $A(p)$  has indeed a power-law type relation with  $p$ . When the concentration per unit area follows a fractal model, this power-law relation has only one exponent. On the other hand, when the concentration per unit area satisfies a multifractal model with a spectrum of fractal dimensions, then several separate power-law relations between area  $A(p)$  and  $p$  can be established. For a range of  $p$  close to its minimum value  $p$  the predicted multifractal power-law relations are: Equation (2a) where  $C_1$  and  $C$  are constants and  $a_1$  and  $b_1$  are exponents associated with the maximum singularity exponent. For a range of  $p$  close to its maximum value  $p$ , the predicted power-law relation is: Equation (2b) where  $C_1$  is another constant and  $C$  is the exponent associated with the minimum singularity exponent (see Appendix A)." The two extreme

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asymptotical relationships are developed for  $p$  close to minimum and maximum. The appendix A contains the mathematical developments of those two asymptotical relationships, which is the heart of the article: separating geochemical "anomalies" from "background". All graphs presented in this article show one or two linear asymptotical domain in log/log space but never more than 2 linear domains. Again, several power laws can be established in the multifractal case, which apparently the case of your data but there is no rationale in the Concentration-Area model to identify them. A discussion of this point should appear in the article.

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Interactive comment on Nonlin. Processes Geophys. Discuss., 1, 1133, 2014.

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