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A Multi-Fractal approach to soil thin sections in gray levels.

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In the environment, as it is complex flows where Reynold number is quite high due to non-linear interactions in flows, several scales are developed. This type of hierarchy is detected in velocities as well as in the structure of scalar fields, as temperatures, tracer concentrations, density, etc. In these cases is interesting to relate in some way the geometrical o topological characteristics observed in flow images with their physical properties and dynamics. In the last decades many scientist has been applying fractal analysis to these types of images extracting several fractal dimensions for different intensity intervals. This type of analysis is what we call Multi-Fractal.

We are going to apply the same method to soil image thin sections in gray levels. A first step will be to select which intervals of gray levels should be choosing in this new context and with which criteria. The next point will be which range of scales should be selected to extract the fractal dimension applying the box-counting method. A discussion about the interpretations and implications of the results will be show.