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Influence of thresholding in mass dimension of 3-D Soil Images

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3D images (45 mm resolution) of soil samples exhibiting different spatial arrangements and porosities, ranging from 8% to 27%, were analyzed to calculate their mass fractal dimension (D). Four different threshold criteria were used to transform CT grey-scale imagery in binary imagery of pore and solid CT units. Each threshold criteria had a direct influence in the porosity obtained, varying from 8 to 24% in one of the samples. Linear scaling was observed over all the cubes sizes and D estimation was easily performed. D values showed a clear relation with the percentage of black voxels in the image. The numerical differences in values among replicates and threshold values are discussed.