



Rethinking soil textural classification: Is the usual clay-silt-sand soil texture representation the best choice?

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The soil texture representation with the standard textural fraction triplet 'sand-silt-clay' is commonly used to estimate soil properties. The objective of this work was to test the hypothesis that other fraction sizes in the triplets may provide better representation of soil texture for the reconstruction of the particle size distribution (PSD) and for estimating some soil parameters. We estimated the whole PSD and bulk density from a self-similar entropy representation of the textural triplet with experimental data for 6240 soil samples. Results supported the hypothesis. For example, simulated distributions were not significantly different from the original ones in 25 and 85 % of cases when the 'sand-silt-clay' and 'very coarse+coarse + medium sand - fine +very fine sand - silt+clay', were used, respectively. When the same standard and modified triplets were used to estimate the average bulk density, the coefficients of determination were 0.001 and 0.967, respectively. Overall, the textural triplet selection appears to be application- and data specific.