Influences of Organic Matter Addition, Dry-Wet Cycles and Texture on Short-Term Aggregate Formation. (S03-degryze073525-Oral)

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Abstract:

To predict soil structure dynamics, a quantitative understanding is necessary of the factors controlling aggregate formation and breakdown. We focused on short-term aggregate formation driven by texture and organic matter addition. We used 5 differently textured soils from a toposequence in Belgium. Soil structure was removed by crushing the soil through a 53 micron sieve without changing the texture. Aggregate reformation was investigated in a lab incubation after addition of wheat straw and applying dry-wet cycles. In a second experiment, we added several amounts (0, 0.5, 0.5)1, 1.5 and 2%) of organic matter to three of these soils. The effect of organic matter on aggregate formation was texture dependent: the effect was greatest on the soil having the largest sand content. The data was fitted using a system of linear and constant coefficient ordinary differential equations. Both the sensitivity of the solution and the stability of the fitting procedure were tested. We evaluated the effect of the number of model pools on aggregate dynamics, and aggregate turnover times. An estimate and evaluation of the

error of aggregate turnover times using this technique will be presented.

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