



## **Study of the sensitivity of PTF specific to the contribution of the structural state on variation in soil water retention**

Sami Touil (1), Aurore Degre (2), and Mohamed Nacer Chabaca (1)

(1) ENSA Algiers, Algeria, (2) University of Liege, Agro-BioTech, Belgium

The objective of this study was to analyze the sensitivity of estimating water retention properties of 54 soil samples collected from Lower Cheliff (northwestern of Algeria) by pedotransfer functions, our results show that training models for input and method adopted, reacts differently in estimation of water retention, and also influenced by the size and mode of particle assembly and differences in clay content. The water retention curve, which was established for three classes, proves to be an essential element for understanding the hydrodynamic behavior of soil. Additional, in soil texture clay and clay-loam and silty clay, nonlinear methods based on variables including clay fraction, behave much better in estimating of mean water retention curve. In contrast, in well structured soils the multiple linear regression showed a better quality of estimation, based on the bulk density and sand fraction as inputs. The results suggest that the PTF parametric derived should be used to estimate retention curves rather than PTF point.

Keywords: Pedotransfer Function, Water Retention curve, sensitivity