A critique on combing the water stress function with root density distributions to find vertical water uptake profiles in SVAT models

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This talk aims to highlight some problems related to the widely applied parametrizations for root-water-uptake in SVAT models, which are based on rooting density distributions and a reduction function. Using a small scale model of the water flow towards a single root within a bulk soil context we demonstrate that rooting density has a comparatively low influence on portioning root water uptake between different soil compartments. While rooting density distributions is the same, the distribution of root water uptake changes considerably with time particulary for the period when soil moisture is not yet limiting uptake. Our resutls show that the uptake profile is not a unique function of root lenght density and soil water content, at least not from the point of ciew of the physical environentment of the plant.