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Hydrology and Earth System Sciences Discussions

Interactive comment on "Implementing small scale processes at the soil-plant interface – the role of root architectures for calculating root water uptake profiles" *by* C. L. Schneider et al.

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It was a pleasure reading this manuscript. Manuscript shows that the presented microscopic approach allows for simulation of compensated root water uptake. I only have one major comment. In order for me to understand of what was presented, I had to re-read this manuscript various times. I therefore strongly suggest that the authors include an introductory paragraph to section 2 (p. 4237) that explains that the manuscript makes a comparison between 2 model approachs. Approach 1 uses the fully 3D Richards equation solver coupled with the Feddes reduction function to sim-

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ulate soil water stress effects on root water uptake. Approach 2 uses the fully 3D Richards equation only to provide for the macroscopic soil water potential, which is coupled to the microscopic radial soil water flow and aRoot water transport models. Possibly, the organization of section 2 could be changed for that purpose.

I also like to point out that Simunek and Hopmans recently published a paper that shows how the macroscopic approach can be adopted to allow for compensated root water uptake as well. See:

Simunek, J., and J.W. Hopmans. 2008. Modeling compensated root water and nutrient uptake. Ecological Modeling. doi:10.1016/j.ecolmodel.2008.11.004.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 6, 4233, 2009.