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DK Seminar

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University of Vienna, Faculty of Mathematics, OMP 1, HS 2

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Soil moisture dynamics coped with the root growth in semiarid environments

Abstract: The maximization of the crop yield in order to avoid food shortage is crucial especially in the regions characterized by drought intensification. Thus, it is important to identify which are the plants that show a better adaptation to water limited environments. In order to investigate the efficiency of the root systems in different hydrological conditions we develop a model that simulates the water flow into the soil accounting for evaporation and rainfall dynamics. The soil water dynamics are coped through a water uptake function to a root growth model. The movement of the water into the soil is described using the Richards equation, a non-linear partial differential equation with an additional sink term that represents the root water uptake. Here, I will describe the model developed and I will show and comment the early findings obtained.