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Use of the model CANDY at the lysimeter scale – model validation on weighable monolithic equilibrium suction field lysimeters

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Two weighable monolithic equilibrium suction field lysimeters were installed at the field research site Wagna (Austria) in 2004. Using data from high precision lysimeters and accompanying soil hydrologic measuring profiles the influence of different management systems on groundwater quality are investigated, water movement and nutrient transport in the unsaturated zone are being determined. An additional grass reference lysimeter has been installed in 2006.
Lysimeter data has been used to calibrate the simulation system CANDY for site specific conditions. CANDY describes relevant soil processes concerning the dynamics of C and N as one-dimensional processes on a daily time step. Key driving variables are soil physical properties, meteorological data and management information. Simulation of mass specific transfer is based on a well known soil water balance.
The adaptability of soil water balance part of the CANDY model at the conventional cultivated lysimeter, and the grass reference lysimeter at Wagna test site will be presented. The problem of using a model outside of its primary calibration area is discussed.