



Design and Operation of Large Field Precision Weighing Lysimeters under Snow Conditions

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The management of water resources requires an accurate evaluation of water fluxes in atmosphere, soils and groundwater. Precision weighing lysimeters with controlled suction at their bottom are recognized to be the best possible measuring instruments to quantify the soil water dynamics, especially the interfaces soil/atmosphere and soil/groundwater under conditions of predominantly one-dimensional water flow in soils. The operation of lysimeters in winter time with snowfall and freezing, however, poses still a major problem. Load force interference from the surrounding area onto the lysimeter, transmitted by the snow cover, can cause big measurement errors. In this presentation we discuss this problem and propose technical solution strategies to handle the problem in order to get unbiased data. We present suitable technical modifications of lysimeters that enable them to for precision water budget calculations also under snow conditions. This is of particular importance for lysimeters that are used in alpine environments.