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Predicting water suppy and actual evapotranspiration of street trees

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It's well known that street trees cool air temperature in summer-time by transpiration and shading and also reduce runoff. However, it's difficult to analyse if trees have water shortage or not. This contribution focus on predicting water supply, actual evapotranspiration, and runoff by using easily available climate data (precipiation, potential evapotranspiration) and site characteristics (water retention, space, sealing degree, groundwater depth). These parameter were used as input data for Hydro-Pedotransfer-Functions (HPTFs) allowing the estimation of the annual water budget. Results give statements on water supply of trees, drought stress, and additional water demand by irrigation. Procedure also analyse, to which extent the surrounding partly sealed surfaces deliver water to the trees. Four representative street canyons of Berlin City were analysed and evaluated within in training program for M.A. students of „Urban Eco-system Science" at the Technische Universität Berlin.