

## **The impact of soil hydrological parameters on vegetation dynamics**

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Infiltration is an important hydrologic parameter because it represents a primary control on the amount of water available for plant uptake as well as streamflow. However, few of these measurements exist due to the challenges associated with setting up and monitoring the necessary equipment. This is particularly true in remote areas of the tropics. As a result, state-of-the-art models used to model vegetation hydrodynamics are often poorly calibrated. We address this issue by using 12-months of sub-daily infiltration observations from a percolation flux meter to run an inverse model simulation within the HYDRUS 1D model at an old growth Amazon forest site near Manaus, Brazil. The site has a high clay content soil, yet is well-drained making it a challenge for most texture-based hydraulic models. Next, we are planning to use the calibrated hydrological parameters from HYDRUS in the DOE-sponsored vegetation dynamics model, the Functionally Assembled Terrestrial Simulator (FATES), to estimate plant hydrodynamics and vegetation dynamics within this ecosystem. We will compare the calibrated hydrological parameter results to a base case where the standard pedotransfer function in FATES is used. The results will be used to estimate potential biases when using the standard method from similar forested sites within the tropics. Research outcomes are aimed at improving model parameters employed within dynamic vegetation models and encouraging better precision with calibration techniques.