



Biophysical interactions between plant and soil: theory and practice

Martine van der Ploeg

Wageningen University, Environmental Sciences, Soil Physics and Land Management, Wageningen, Netherlands
(martine.vanderploeg@wur.nl)

Vegetation plays an essential role in the hydrological cycle, as it regulates the water flux to the atmosphere through evapotranspiration, while it is dependent on adequate water supply. Vegetation shapes the land surface by changing infiltration characteristics as a result of root growth, and controls soil moisture storage, which in turn affect runoff characteristics and groundwater recharge. Vegetation and the underlying geology are in constant interaction, wherein water plays a key role. The resilience of the coupled vegetation-soil system critically depends on its sensitivity to environmental changes.

Models are a useful tool to explore interaction and feedbacks between vegetation, soil and landscape. Plants respond biochemically to their environment, while the models used for hydrology are often based on physical interactions. Gene-expression and genotype adaptation may complicate our modelling efforts in for example climate change impacts.

Combination of new techniques to assess soil and plant properties facilitates assessment of biophysical interactions. This poster will review these techniques and compare the obtained insights of soil-plant relationships with the current modeling approaches.