



Stable isotopes in leaf water and transpiration - tools to assess leaf physiology and water uptake

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New laser based isotope technology allows online determination of the isotopic composition of water transpired from leaves. With this tool we can get new insights into leaf water physiology during day-night-cycles but also track the dynamics of plant water uptake with high temporal resolution. This talk we will give an overview on the following emerging topics

- Leaf level physiology: The isotopic non-steady state of leaf water during the diel course
- Plant-soil-atmosphere coupling: Dynamics of water uptake by plants

Brought together both topics allow to get deeper insights into the effects of environmental parameters on the water balance of ecosystems bridging temporal and spatial scales. The findings from this research might help integrating plant physiological information, soil hydrological processes and the interaction between plant and soil processes in hydrological models.