



Controls on tree water uptake and information storage in tree rings

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Controls on tree water uptake are investigated in various forest stands in the northeastern German lowlands by a multi-method approach. This approach combines sapflow and dendrometer measurements as well as tree-ring analyses with soil moisture derived root water uptake rates. The latter method has the advantage that it provides depth distributions of root water uptake and thus additional information allowing for a more detailed analysis of the relationship between water availability and water uptake. High resolution climatic data makes it possible to investigate the site specific interplay between atmospheric demand and water availability on the one hand and tree response and adaptation on the other hand. The comparison of spatio-temporal patterns of these responses with concurrent tree growth as well as tree-ring analyses enables a first matching of actual and “archived” patterns and thus an estimate of how much of this information is stored in tree rings.