



**Professur für Bodenökologie  
Professur für Hydrologie**

*Universität Freiburg*

**KOLLOQUIUM**



**24. Januar 2013, 16 ct – 18 Uhr  
Hörsaal Fahnenbergplatz (Rektoratsgebäude)**



**Dr. Bernhard Longdoz**

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**Soil drought: Comparing tree species strategies for soil water uptake by using water stable isotopes and impact on the carbon and water dynamic.**

Zapater M., Granier A., Bréda N, Bonal D., Longdoz B.

2003 drought was exceptionally severe in many European regions (Germany, France), in duration and intensity. The carbon and water net ecosystem exchange, measured continuously at 12 European sites, were reduced by drought, due to stomatal closure, when relative extractable water in the root zone (REW) dropped below 0.4. The question of the tree species influence on the response to drought came up. The behavior of 36 trees (4 broadleaf species) submitted to artificial drought was studied by using stable isotopes of water. The  $^{18}\text{O}$  and  $^2\text{H}$  labeling in surface soil water and deeper layers in the root zone combined with the sampling of tree xylem and transpiration allowed us to identify the different strategies of the tree species when soil water decrease.