

Scientific Paper:

Wurzelexsudation in der Wasserfluktuationszone des Dreischluchten-Reservoirs, VR China. Ein Ansatz für Einblicke in eine überflutungsgestresste Rhizosphäre am Beispiel von *Salix variegata* Franch.

C. M. Schreiber, B. Zeng*, U. Schurr und A.J. Kuhn

Institut für Chemie und Dynamik der Geosphäre ICG-3: Phytosphäre, Forschungszentrum Jülich, D-52425 Jülich, Deutschland

*Southwest China University chongqing-Beibei (SWCU), PR China

Abstract:

The construction of the Three-Gorges-Dam (Yangtze River, P.R. China) creates a water fluctuation zone (WFZ) in its reservoir of 600km length, 350km² area and a water level fluctuation of 30m each year, combined with a flood pulse changed from summer- to winter high water. To gain insights into the eco-environmental changes, flooding tolerance and survival strategies of several established species (here *Salix variegata* FRANCH.) are investigated. Special interest is taken into the interaction plant root – exudates – microorganisms (MO) under the changing environmental conditions.

For a better spatial and temporal resolution of the rhizosphere situation, the imaging method, presented by Blossfeld und Gansert (2007) is taken further to investigate flooding events in a rhizotrone setup. With two pH- and O₂-sensitive foils (planar optodes, PRESENS, Germany) measurement takes place directly at the root and can be done automated for longer time periods. Parallel, on the opposite rhizotrone side exists access via capillaries for sampling of soil solution. The dynamics of exudation give information about the influence of flooding events on rhizosphere processes and plant reaction. First results of observation of pH, O₂ and the spatial distribution of OA are shown for *S. variegata*.