

Metal Fluxes and Stresses in Terrestrial Ecosystems

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"Mechanisms of Action and Indicator Development"

In this international and interdisciplinary workshop 95 participants from 28 countries studied metal fluxes and their effects in matter, space and time. They followed the metals pathway from deposition to their exchange between soil and water and the effects on plants and associated organisms. They considered the influence of climate, the usability of phytoremediation, the risk for food and health, the nutrient chain up to sustainable land use of contaminated areas and restoration of economic and natural resources.

Discussions were particularly fruitful because of the balanced age, gender, nationality, and disciplinary knowledge of the participants.

Most of the currently used methods to determine metal contamination destroy the soil structure and do not relate to the rhizosphere or long term effects and processes. New combined methods are needed, which consider the mutual influence of metals, organisms, climate and matter. Aside the problems with the measuring methods, statistics and international comparability, monitoring of metal contamination in the soil has to consider former land use, climate change, nutrient chain and water contamination.

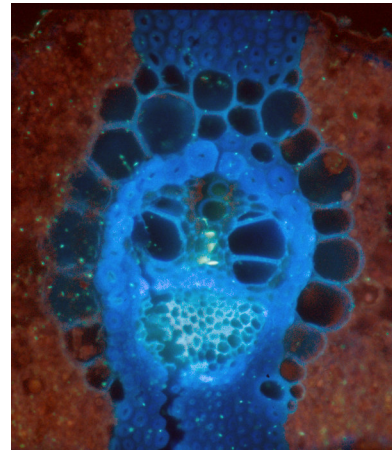
A better knowledge of the rhizosphere processes leading to a rhizosphere management is needed for safer food production, phytostabilisation of metals and reduced soil toxicity. Unfortunately the ecology of contaminated sites (biogeochemistry « interorganismic biology « medicine) is often neglected and 'dilution is the solution to pollution' is no solution. An increased knowledge on how plants acquire their nutrient and eliminate, avoid and detoxify toxic metal concentrations should be used for an increased food safety.

Land use, influenced by climate change, environmental pollution and economy is fundamental to living in a world with limited resources. Because woody plants have proved to be quite tolerant to metal contamination allocating up little metal in the wood, but stabilizing metals in the soil, wood and energy production appears to be of an important use for contaminated areas. This is even more the case since uncontaminated soil is seldom available when contaminated soil is removed and an alternative occupation to crop production has to be supplied to the local population. Investigations on 'metals in diet' such as trace zinc or copper should also be favoured.

International and interdisciplinary workshop 'Metal Fluxes and Stresses in Terrestrial Ecosystems'

Centro Stefano Franscini, Monte Verità, Ascona, Switzerland, October 15 - 20, 2005
http://www.waldschutz.ch/bioindic/monte_verita/

Abstracts: Swiss Federal Institute for Forest, Snow and Landscape Research WSL (Ed): Metal fluxes and stresses in terrestrial ecosystems, 12p. <http://www.wsl.ch/lm/publications/newpub-de.ehtml>
Papers from the meeting will be published in the journal "Forest, Snow, and Landscape Research", 2006.



The workshop logo shows microscopically yellow fluorescent zinc crystals in the conducting tissue of a reed leaf as a symbolic face for heavy metal stress, flux and communities.