

Schematic diagram of the global biogeochemical selenium cycle (adapted from Winkel et al. 2012, Environmental Science & Technology)

INORGANIC ENVIRONMENTAL GEOCHEMISTRY

Understanding global trace element cycling and predicting trace element distributions in the environment.

Research Areas

- Biogeochemistry of essential and toxic trace elements;
- Trace element cycling from the global to molecular scale;
- Trace element speciation in environmental matrices (water, soil, biological tissues);
- Geospatial modeling of broad-scale trace element distributions in groundwater and soils.

Regions

Switzerland, European countries, USA, and Vietnam.

Partners

Paul Scherrer Institute (PSI); University of Applied Sciences and Arts Northwestern Switzerland; Agroscope; NASA/LCLUC; University of Grenoble; and University College London.

Contact

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Contribution to the WFSC

We study biogeochemical cycles of trace elements with important health effects. Essential trace elements serve as micronutrients. Too low or too high dietary intakes of these elements may lead to deficiency or toxicity. Other trace elements are toxic over their entire intake ranges. The spatial distribution, chemical speciation and bioavailability of essential and toxic trace elements are governed by an array of environmental processes. Our aim is to provide fundamental understanding of these processes and predict distributions and bioavailability of trace elements in agricultural and aquatic ecosystems.



Prof. Lenny Winkel



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