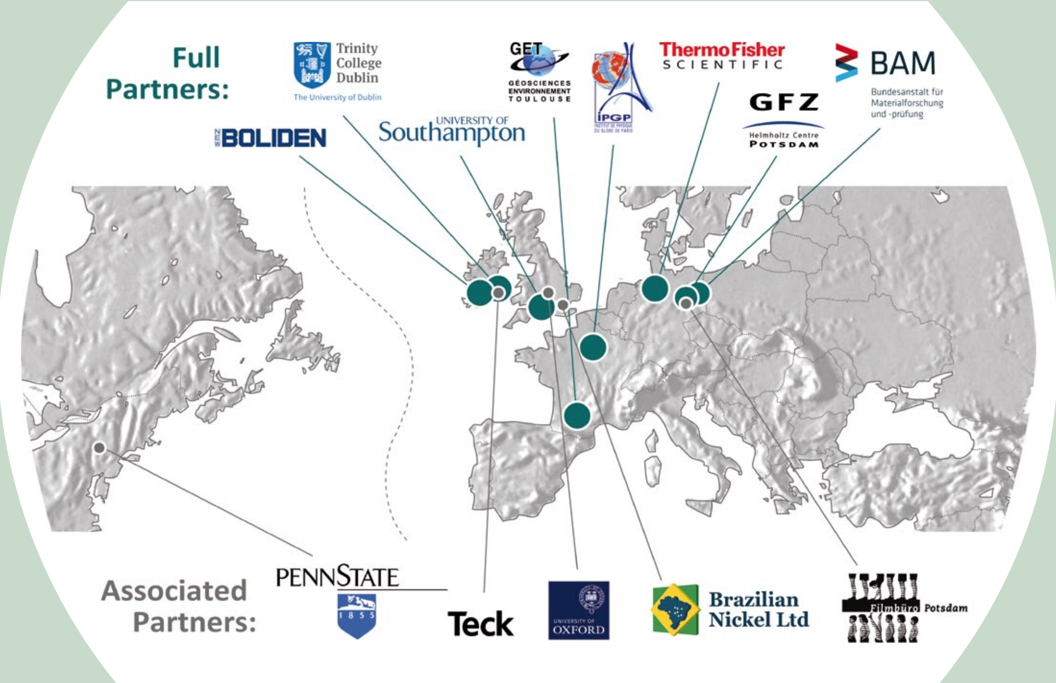
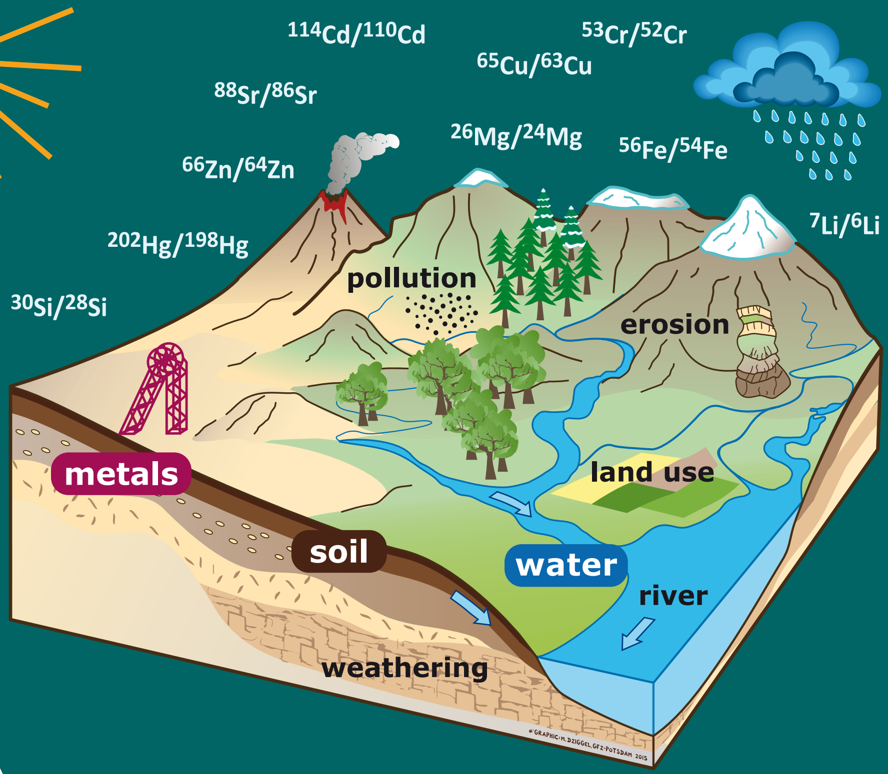
ISONOSE

IsoTopic Tools as Novel Sensors of Earth Surface Resources

The Marie Curie Initial Training Network "Isotopic Tools as Novel Sensors of Earth Surface Resources – IsoNose" is an alliance of eight international partners and four associated partners from science and industry. The project is coordinated at the Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences and will run until February 2018.





IsoNose will focus on three major Earth surface resources: soil, water and metals. These resources are currently being exploited to an unprecedented extent and their efficient management is essential for future sustainable development. Novel stable isotope techniques will disclose the processes generating (e.g. weathering, mineral ore formation) and destroying (e.g. erosion, pollution) these resources.

Within this field the following **CENTRAL QUESTIONS** will be addressed and answered:

- How do novel stable isotope signatures characterize weathering processes?
- How do novel stable isotope signatures trace water transport?
- How to use novel stable isotope as environmental tracers?
- How to use novel stable isotope for detecting and exploring metal ores?
- How to improve analytical capabilities and develop robust routine applications for novel stable isotopes?

In the last 15 years advances in novel mass-spectrometric methods have opened opportunities to identify isotopic "fingerprints" of virtually all metals and to make use of the complete information contained in these fingerprints. The knowledge gained with these new tools will ultimately guide the sustainable use of Earth surface environments.

However, progress in bringing these methods to endusers crucially depends on the interdisciplinary dialogue between the following groups:

(1) Isotope Geochemistry and Environmental Sciences, Microbiology, Economic Geology

(2) instrument designers and users in the development of mass spectrometric methods

(3) potential users in the industry

The ITN IsoNose is organized in eight work packages (WP) and is steered by the Supervisory Board. The WPs cover among others an intensive training and research programme. Starting from the **CENTRAL QUESTIONS** the research programme is divided into five WPs, addressing the following topics:

1. Making soil from rock
2. Dissolved metals in the global water cycle
3. Human influence on metal cycling
4. Innovations in metal ore exploration
5. New analytical tools

IsoNose fellows in the Albert Einstein Science Park in Potsdam, Germany.
From left to right: Daniela Mavric, Daniel Frick, Grant Craig, Ruben Gerrits, Franziska Stamm, Ann-Kristin Kalveram, Jens Krüger, Maria Cristina Castillo Alvarez, David Mike Fries, Marie Küßner, Carolina Rosca, Rasesh Pokharel, Maja Tesmer (project manager), Xu Zhang, Friedhelm von Blanckenburg (project coordinator) and Nils Suhr

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