

## USING ANIMATIONS TO TALK ABOUT EARTH SCIENCE – an Example on Emerging Pollutants

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Teaching and Learning material for school and out-of-school educational environments such as museums, school-labs, geo-parks and others is crucial to implement Earth and Space science issues in modern science classes. To reach the primary audience, which consists not only of children and pupils but has to target teaching professionals from schools as well as from out-of-school venues, multimedia applications with accompanying teaching materials are advisable.

GeoEd (<http://geoeducation.de/>) started to develop such material in a pilot project that aims on the analysis of emerging pollutants. Thallium is used for various high-technology products (optics, electronics or even medicine). It is only used in small amounts, but because of its unique characteristics it has become an important raw material in modern consumer electronics. Nevertheless, Thallium is toxic. Since Thallium is also a by-product of mining processes and is transferred into natural water and soil supplies, it is important to identify thallium concentrations in food plants and water respectively.

To foster public engagement, a holistic approach to communicate systemic background information is crucial. Therefore, this GeoEd-project will introduce a commonly underrepresented perspective to decision making processes in political strategies related to urbanization, resource and land management, and other topics. The lack of specialized knowledge which enables the public to better assess political decisions in reference to the implications on their daily life and the environment (e.g. recycling programs, establishment of permitted limit concentrations of substances, composition of building materials in schools, etc.) will be addressed by training the first link (teachers) in the chain of dissemination of knowledge. On a secondary level, the project seeks to sensitize the general public (last link in the chain) to better identify environmental process and interdependencies in their natural and urban environment.

The outreach project, related to the ISPETI-project funded by AXA Research Fund, will highlight the importance of sampling and extraction methods to identify environmental risks related to thallium. Modern technologies to determine the concentration of toxic materials in soil, water and food might become an integral part of environmental policy for example in mining regions with growing population and an increased demand for land, soil and water. Schools, out-of-school projects, museums and other educational venues provide exceptional opportunities to initiate a dialogue between scientists, the public and decision makers. Parallel to focussing on thallium, the project will also highlight other materials which also present a possible environmental risks, such as antimony, arsenic and others.

This presentation will show, how GeoEd approached the development and dissemination of a most recent research topic. We will present, how a set of animation, printed information and workshops can implement a complex issue into learning environments. A special focus will be set on the implementation of the Open Educational resources (OER) concept that aims towards freely accessible, openly licensed documents and media that are useful for teaching, learning, and assessing as well as for research purposes. While there is an ongoing debate about the heterogeneity of OER initiatives on national and international levels, the core element of OER is undisputed. By implementing the OER concept to new initiatives and projects, educational material will be accessible without time-wise or spatial barriers.

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