Geophysical Research Abstracts
Vol. 15, EGU2013-13899, 2013
EGU General Assembly 2013

Be-7 as a tracer for short-term soil surface changes - opportunities and limitations

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Within the last 20 years the cosmogenic nuclide Beryllium-7 was successfully established as a suitable tracer element to detect soil surface changes with a high accuracy. Particularly soil erosion rates from single precipitation events are in the focus of different studies due to the short radioactive half-life of the Be-7 isotope. High sorption at topmost soil particles and immobility at given pH-values enable fine-scaled erosion modelling down to 2 mm increments. But some important challenging limitations require particular attention, starting from sampling up to the final data evaluation. E.g. these are the realisation of the fine increment soil collection, the limiting amount of measurable samples per campaign due to the short radioactive half-life and the specific requirements for the detector measurements. Both, the high potential and the challenging limitations are presented as well as future perspectives of that tracer method.