A New Importance



NEW TOOLS: SEDIMENT TRACING

- A. Fallout Radionuclides
- B. Sediment Source Fingerprinting

The use of fallout radionuclides as a soil and sediment tracer

210Pb_{ex} 100years 137Cs 50 years 7Be 1 month 239-240Pu 50 years Using Low Density Sampling of ¹³⁷Cs inventories to Investigate Soil Redistribution within small and intermediate sized catchments



Porto, P., Walling, D.E. and Callegari, G. (2011) Using ¹³⁷Cs measurements to establish catchment sediment budgets and explore scale effects. *Hydrological Processes* 25, 886-900.





Average annual soil redistribution rates over the past ca. 60 years









- Composite Fingerprints
- Testing Source Discrimination
- Multicomponent Mixing Models goodness of fit
- Particle size effects (Selectivity)
- Incorporating Uncertainty into the final result



SUSPENDED SEDIMENT SOURCES



Fingerprints: Sediment Geochemistry, Colour, Compound Specific Stable Isotopes

Thank You