Use of stable isotope ratios for evaluating sulfur sources and losses at the Hubbard Brook Experimental Forest

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

ID 86898
Author(s) Mitchell, MJ; Mayer, B; Bailey, SW; Hornbeck, JW; Alewell, C; Driscoll, CT; Likens, GE
Author(s) at UniBasel Alewell, Christine ;
Year 2001
Title Use of stable isotope ratios for evaluating sulfur sources and losses at the Hubbard Brook Experimental Forest
Journal Water, air and soil pollution
Volume 130
Number 1-4
Pages / **Article-Number** 75-86
Keywords atmospheric deposition, organic S, S budgets, stable isotopes, watersheds, weathering
Anthropogenic S emissions have been declining in eastern North America since the early 1970s. Declines in atmospheric S deposition have resulted in decreases in concentrations and fluxes of SO42- in precipitation and drainage waters. Recent S mass balance studies have shown that the Outflow Of SO42- in drainage waters greatly exceeds current S inputs from atmospheric deposition. Identifying the S source(s) which contribute(s) to the discrepancy in watershed S budgets is a major concern to scientists and policy makers because of the need to better understand the rate and spatial extent of recovery from acidic deposition. Results from S mass balances combined with model calculations and isotopic analyses of SO42- in precipitation and drainage waters at the Hubbard Brook Experimental Forest (HBEF) suggest that this discrepancy cannot be explained by either underestimates of dry deposited S or desorption of previously stored SO42-. Isotopic results suggest that the excess S may be at least partially derived from net mineralization of organic S as well as the weathering of S-bearing minerals.

Publisher Kluwer
ISSN/ISBN 0049-6979
edoc-URL http://edoc.unibas.ch/dok/A5251169
Full Text on edoc No;
ISI-Number WOS:000171538500010
Document type (ISI) ArticleProceedings Paper