

**Publication****Spotting zones of dissimilatory sulfate reduction in a forested catchment  
: the S-34-S-35 approach****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 86901**Author(s)** Alewell, C; Novak, M**Author(s) at UniBasel** [Alewell, Christine](#) ;**Year** 2001**Title** Spotting zones of dissimilatory sulfate reduction in a forested catchment : the S-34-S-35 approach**Journal** Environmental pollution**Volume** 112**Number** 3**Pages / Article-Number** 369-377**Keywords** stable sulfur isotopes, sulfur metabolism, S-35 radiolabeling

The localization of sulfate reducing sites in forested catchments is of major importance, because dissimilatory sulfate reduction can be a considerable sink for deposited sulfate. To localize dissimilatory sulfate reduction sites in a forested catchment (northeastern Bavaria, Germany), three sites within the catchment (upland site, intermittent seep, fen) were investigated for delta S-34 depth profiles of soil sulfur and potential sulfate reduction rates were measured with S-35 radiolabeling. Stable sulfur isotopes indicate that aerobic metabolism is the dominant process on the upland site and the intermittent seep (delta S-34 Of soil sulfur between + 1.6 and + 9.0 parts per thousand) and dissimilatory reduction is not a significant sink for sulfate. However, results of the S-35 radiolabeling indicated for the upland site that the soil has potentially high sulfate reduction rates under laboratory conditions. Soil sulfur of the fen was markedly depleted in S-34 (delta S-34 between -6 and +2.6 parts per thousand). Both, S-34 and S-35 data indicated that dissimilatory sulfate reduction is an ongoing process on this site. The S-34 and S-35 approaches are complementary. While measurements using S-35 can show momentary potential for dissimilatory bacterial sulfate reduction, delta S-34 data reflect long-term predominance of either assimilatory or dissimilatory S metabolism at a particular site. (C) 2001 Elsevier Science Ltd. All rights reserved.

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