

Quantifying fine-sediment sources in primary and selectively logged rainforest catchments using geochemical tracers

Abstract

Detailed information on post-logging sediment dynamics in tropical catchments is required for modelling downstream impacts on communities and ecosystems. Sediment tracing methods, which are potentially useful in extending to the large catchment scale and longer time scales, are tested in primary and selectively logged rainforest catchments of Sabah, Borneo. Selected nutrient (P and N) and trace metal (Ni and Zn) concentrations are shown to discriminate surface, shallow subsurface and deep subsurface sediment sources. Analysis of channel-stored fine-sediment samples and use of an unmixing model allow the relative importance of these vertical sediment sources to be estimated and erosion processes to be inferred for catchments of contrasting size.