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## **Titel**

Long-term dynamics of soil solution in Bavarian forests: Is there a recovering from acidification?

## **Abstract**

Acid deposition has damaged soils in Central Europe and has been a major source of disturbance for forest ecosystems in the last century. Although acid deposition decreased continuously since the 1990s, it is not clear how fast the damaged soils will recover. We have analysed time series of up to 20 years of precipitation, throughfall and soil solution of the top- and subsoil from 15 Level II forest monitoring sites in Bavaria (Germany). These sites represent a broad range of tree species and soil conditions. As indicators of soil acidification, we calculated the Bc/Al ratio (the ratio of the nutrient cations K, Mg and Ca to Al) and the alkalinity. Additionally, we analysed the trends in Al and SO<sub>4</sub> concentrations. To evaluate the temporal dynamics, we extracted the trend of the time series using the model-free method Empirical Mode Decomposition. Our first results suggest that recovery from acidification, i.e. decrease of Al and increase of Bc/Al and alkalinity, is neither uniform nor continuous. We attribute the distinct responses to differences in soil properties among the studied sites.