

Recent atmospheric metal deposition in peatlands of northeast China

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Peat records of past environmental changes are still sparse but there are definite advances in the reconstruction of trace metal pollution in China. In this contribution, we present an overview of the spatial distribution of peatlands in China and the applications of peatland geochemical fingerprinting in tracing the metal deposition/emission history. This contribution includes a summary of important studies on Hongyuan peatland (eastern Qinhai-Tibetan Plateau) as one of the most studied areas of peatland in China. In addition, we illustrate the power of reconstructing pollution history through peat records with examples of our recent works in northeast China. We investigated 10 peatlands in northeast China and collected multiple cores. Atmospheric deposition history of trace metals over the last 2 centuries was reconstructed in northeast using inorganic geochemistry and radioisotope measurements. Different periods of elevated atmospheric trace metal deposition related to human emissions were identified by high enrichment factors, accumulation rates and singular Pb isotope signatures. Recent Pb isotopic sequences were firstly presented from the peat records and a clear anthropogenic signature exists after leaded gasoline phased-out in 2000 in northeast China. These results would be interesting to a very broad scientific community.