Hydrology and Biogeochemical Cycles

Mercury cycling in boreal ecosystems: The long-term effect of acid rain constituents on peatland pore water methylmercury concentrations

1. Brian A. Branfireun
2. Kevin Bishop
3. Nigel T. Roulet
4. Gunnar Granberg
5. Mats Nilsson

Article first published online: 7 DEC 2012

DOI: 10.1029/2000GL011867

Issue

Geophysical Research Letters

Volume 28, Issue 7, (/doi/10.1002/grl.v28.7/issuetoc) pages 1227–1230, 1 April 2001

Additional Information

How to Cite

(2001), Mercury cycling in boreal ecosystems: The long-term effect of acid rain constituents on peatland pore water methylmercury concentrations. Geophysical Research Letters, 28: 1227–1230. doi: 10.1029/2000GL011867

Publication History

1. Issue published online: 7 DEC 2012
2. Article first published online: 7 DEC 2012
3. Manuscript Accepted: 7 DEC 2000
4. Manuscript Received: 12 JUN 2000

- Abstract
- References (/doi/10.1029/2000GL011867/references)
- Cited By (/doi/10.1029/2000GL011867/citedby)

Get PDF (487K) (/doi/10.1029/2000GL011867/pdf)

Sulphate-reducing bacteria have been identified as primary methylators of mercury (Hg) in the laboratory and in field investigations. However, no studies have investigated the effect of long-term deposition of sulphate on methylmercury (MeHg) dynamics in peatlands, which are known to be significant sources of MeHg to downstream waters in the boreal forest zone. As an ancillary experiment to a larger project investigating the effects of acid rain constituents on peatland carbon dynamics, the influence of experimentally elevated Na_2SO_4 and/or NH_4NO_3 deposition on peat pore water MeHg concentrations was determined using a simple mesocosm experimental design. After three years, additions of S in amounts equivalent to the 1980s dry and wet deposition in Southern Sweden resulted in peat pore water MeHg concentrations up to six times above background levels. Elevated N loads had no effect on pore water MeHg concentrations.

Get PDF (487K) (/doi/10.1029/2000GL011867/pdf)

More content like this

Find more content:

- like this article (/advanced/search/results?articleDoi=10.1029/2000GL011867&scope=allContent&start=1&resultsPerPage=20)

Find more content written by:

- Brian A. Branfireun (/advanced/search/results?searchRowCriteria[0].queryString="Brian A. Branfireun"&searchRowCriteria[0].fieldName=author&start=1&resultsPerPage=20)
- Kevin Bishop (/advanced/search/results?searchRowCriteria[0].queryString="Kevin Bishop"&searchRowCriteria[0].fieldName=author&start=1&resultsPerPage=20)
- Nigel T. Roulet (/advanced/search/results?searchRowCriteria[0].queryString="Nigel T. Roulet"&searchRowCriteria[0].fieldName=author&start=1&resultsPerPage=20)
- Gunnar Granberg (/advanced/search/results?searchRowCriteria[0].queryString="Gunnar Granberg"&searchRowCriteria[0].fieldName=author&start=1&resultsPerPage=20)
- Mats Nilsson (/advanced/search/results?searchRowCriteria[0].queryString="Mats Nilsson"&searchRowCriteria[0].fieldName=author&start=1&resultsPerPage=20)

- All Authors (/advanced/search/results?searchRowCriteria[0].queryString="Brian A. Branfireun" "Kevin Bishop" "Nigel T. Roulet" "Gunnar Granberg" "Mats Nilsson"&searchRowCriteria[0].fieldName=author&start=1&resultsPerPage=20)

Index Terms:

- Anthropogenic effects (/agu/search/easi/results?originPage=taxonomyBrowse&searchRow.searchOptions.indexTerms=http://psi.agu.org/taxonomy5/1803&searchRow.searchOptions.indexTermNames=Anthropogenic effects)
- Chemistry of fresh water (/agu/search/easi/results?originPage=taxonomyBrowse&searchRow.searchOptions.indexTerms=http://psi.agu.org/taxonomy5/1806&searchRow.searchOptions.indexTermNames=Chemistry of fresh water)
- Geochemistry (/agu/search/easi/results?originPage=taxonomyBrowse&searchRow.searchOptions.indexTerms=http://psi.agu.org/taxonomy5/1000&searchRow.searchOptions.indexTermNames=Geochemistry)
- Geochemistry: Trace elements (/agu/search/easi/results?originPage=taxonomyBrowse&searchRow.searchOptions.indexTerms=http://psi.agu.org/taxonomy5/1065&searchRow.searchOptions.indexTermNames=Geochemistry: Trace elements)