

## Research Project

### Elemental mercury evasion from boreal mires

#### **Project funded by own resources**

**Project title** Elemental mercury evasion from boreal mires

**Principal Investigator(s)** [Alewell, Christine](#) ;

**Co-Investigator(s)** [Bishop, Kevin](#) ;

**Project Members** [Osterwalder, Stefan](#) ;

#### **Organisation / Research unit**

Departement Umweltwissenschaften / Umweltgeowissenschaften (Alewell)

**Project Website** <https://umweltgeo.unibas.ch/forschung/aktuelle-projekte/>

**Project start** 01.04.2012

**Probable end** 31.12.2018

**Status** Completed

Human activities, such as mining and burning of fossil fuels, have increased the mobilization of mercury (Hg) into the environment and raised the amounts in the atmosphere, soils, fresh waters, and oceans by a factor of three to five. International efforts to alleviate the problem of Hg in the environment are focused on reducing Hg deposition. However, it seems doubtful that these efforts will have a considerable effect, especially in northern countries, since so much Hg has already accumulated in the superficial organic soils of mires.

Knowing the land-atmosphere exchange of Hg in mires is crucial to predict how effective efforts to reduce anthropogenic Hg emissions will be in reducing the pool of Hg in these mires and ultimately the loading of the extremely toxic methylmercury (MeHg) from mires to surface waters.

We have developed the first long term application of the Relaxed Eddy Accumulation (REA) technique, a micrometeorological method, which has only been used in a few short-term studies on Hg fluxes from contaminated sites up to now. Since our instrument has been tested successfully, we are able to quantify the first seasonal land-atmosphere exchange of gaseous elemental mercury (Hg

**Keywords** mercury, evasion, mire, peatland, relaxed eddy accumulation, flux chamber

#### **Financed by**

University funds

Other funds

#### **Add publication**

#### **Published results**

2821781, Fritsche, Johannes; Osterwader, Stefan; Nilsson, Mats B.; Sagerfors, Jorgen; Akerblom, Staffan; Bishop, Kevin; Alewell, Christine, Evasion of Elemental Mercury from a Boreal Peatland Suppressed by Long-Term Sulfate Addition, 2328-8930, Environmental science & technology letters, Publication: JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

3641328, Osterwalder, S.; Fritsche, J.; Åkerblom, S.; Nilsson, M.; Bishop, K.; Alewell, C., Mercury evasion from a boreal peatland determined with advanced REA and chamber methods, 1420-6773, BGS Bulletin, Publication: Other Publications (Forschungsberichte o. ä.)

3696510, Osterwalder, Stefan, Land-atmosphere exchange of elemental mercury: New insights using a novel relaxed eddy accumulation system and enclosure techniques, Publication: Thesis (Dissertationen, Habilitationen)

3645270, Osterwalder, Stefan; Fritsche, Johannes; Alewell, Christine; Schmutz, Michael; Nilsson, Mats; Jocher, Georg; Sommar, Jonas; Rinne, Janne; Bishop, Kevin, A dual-inlet, single detector relaxed eddy accumulation system for long-term measurement of mercury flux, 1867-1381 ; 1867-8548, Atmospheric Measurement Techniques, Publication: JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

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### Add documents

### Specify cooperation partners

ID	Kreditinhaber	Kooperationspartner	Institution	Laufzeit - von	Laufzeit - bis
411056	Fritsche, Johannes	Kevin Bishop	Sveriges Lantbruksuniversitet	01.01.2010	31.12.2012
411057	Fritsche, Johannes	Mats Nilsson	Sveriges Lantbruksuniversitet	01.01.2010	31.12.2012
983625	Alewell, Christine	Bishop, Kevin, Prof. Dr.	University of Uppsala	03.01.2012	31.12.2015