

## Publication list Jan G. Wiederhold (November 2018)

ISI-Web of Science / [Google Scholar](#): h-index = 19 / 21, citations = 1215 / 1485

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### Peer-reviewed publications: (\* corresponding author)

- Grigg ARC, Gilli R, Kretzschmar R, **Wiederhold JG\*** (2018) Mercury isotope signatures of digests and sequential extractions from industrially contaminated soils and sediments. *Sci. Tot. Environ.* 636, 1344–1354. (doi: [10.1016/j.scitotenv.2018.04.261](#))
- Jiskra M\*, **Wiederhold JG\***, Kronberg R-M, Skyllberg U, Kretzschmar R (2017) Source tracing of natural organic matter bound mercury in boreal forest runoff with mercury stable isotopes. *Environ. Sci.: Processes Impacts* 19: 1235–1248. (doi: [10.1039/C7EM00245A](#))
- Kronberg RM, Schaefer JK, Jiskra M, **Wiederhold JG**, Björn E, Skyllberg U (2016) Methyl mercury formation in hillslope soils of Boreal forests – the role of forest harvest and anaerobic microbes. *Environ. Sci. Technol.* 50: 9177–9186. (doi: [10.1021/acs.est.6b00762](#), corr. [10.1021/acs.est.7b06052](#))
- Kronberg RM, Drott A, Jiskra M, **Wiederhold JG**, Björn E, Skyllberg U (2016) Forest harvest contribution to Boreal freshwater methyl mercury load. *Glob. Biogeochem. Cycles* 30: 825–843. (doi: [10.1002/2015GB005316](#))
- Jiskra M\*, **Wiederhold JG\***, Kronberg R-M, Skyllberg U, Hajdas I, Kretzschmar R (2015) Mercury deposition and re-emission pathways in boreal forest soils investigated with Hg isotope signatures. *Environ. Sci. Technol.* 49: 7188–7196. (doi: [10.1021/acs.est.5b00742](#)) **Open Access Article**
- Smith RS, **Wiederhold JG\***, Kretzschmar R (2015) Mercury isotope fractionation during precipitation of metacinnabar ( $\beta$ -HgS) and montroydite (HgO). *Environ. Sci. Technol.* 49: 4325–4334. (doi: [10.1021/acs.est.5b00409](#))
- Wiederhold JG\*** (2015) Metal stable isotope signatures as tracers in environmental geochemistry - Critical Review. *Environ. Sci. Technol.* 49: 2606–2624. (doi: [10.1021/es504683e](#)) **Open Access Article**
- Smith RS, **Wiederhold JG\***, Jew AD, Brown, Jr. GE, Bourdon B, Kretzschmar R (2015) Stable Hg isotope signatures in creek sediments impacted by a former Hg mine. *Environ. Sci. Technol.* 49: 767–776. (doi: [10.1021/es503442p](#))
- Wiederhold JG\***, Skyllberg U, Drott A, Jiskra M, Jonsson S, Björn E, Bourdon B, Kretzschmar R (2015) Mercury isotope signatures in contaminated sediments as tracer for local industrial pollution sources. *Environ. Sci. Technol.* 49: 177–185. (doi: [10.1021/es5044358](#))
- Jiskra M, Saile D, **Wiederhold JG\***, Bourdon B, Björn E, Kretzschmar R (2014) Kinetics of Hg(II) exchange between organic ligands, goethite, and natural organic matter studied with an enriched stable isotope approach. *Environ. Sci. Technol.* 48: 13207–13217. (doi: [10.1021/es503483m](#))
- Smith RS, **Wiederhold JG\***, Jew AD, Brown, Jr., GE, Bourdon B, Kretzschmar R (2014) Small-scale studies of roasted ore waste reveal extreme ranges of stable mercury isotope signatures. *Geochim. Cosmochim. Acta* 137: 1–17. (doi: [10.1016/j.gca.2014.03.037](#))
- Wiederhold JG\***, Smith RS, Siebner H, Jew AD, Brown, Jr. GE, Bourdon B, Kretzschmar R (2013) Mercury isotope signatures as tracers for Hg cycling at the New Idria Hg mine. *Environ. Sci. Technol.* 47: 6137–6145. (doi: [10.1021/es305245z](#))
- Hindshaw RS, Reynolds BC, **Wiederhold JG**, Kiczka M, Kretzschmar R, Bourdon B (2013) Calcium isotope fractionation in alpine plants. *Biogeochem.* 112: 373–388. (doi: [10.1007/s10533-012-9732-1](#))
- Jiskra M, **Wiederhold JG\***, Bourdon B, Kretzschmar R (2012) Solution speciation controls mercury isotope fractionation of Hg(II) sorption to goethite. *Environ. Sci. Technol.* 46: 6654–6662. (doi: [10.1021/es3008112](#))
- Kiczka M, **Wiederhold JG\***, Frommer J, Voegelin A, Kraemer SM, Bourdon B, Kretzschmar R (2011) Iron speciation and isotope fractionation during silicate weathering and soil formation in an alpine glacier forefield chronosequence. *Geochim. Cosmochim. Acta* 75: 5559–5573. (doi: [10.1016/j.gca.2011.07.008](#))

- Bernasconi SM, Bauder A, Bourdon B, Brunner I, Bünemann E, Christl I, Derungs N, Edwards P, Farinotti D, Frey B, Frossard E, Furrer G, Gierga M, Göransson H, Gülland K, Hagedorn F, Hajdas I, Hindshaw R, Ivy-Ochs S, Jansa J, Jonas T, Kiczka M, Kretzschmar R, Lemarchand E, Luster J, Magnusson J, Mitchell EAD, Olde Venterink H, Plötze M, Reynolds B, Smittenberg R, Stähli M, Tamburini F, Tipper ET, Wacker L, Welc M, **Wiederhold JG**, Zeyer J, Zimmermann S, Zumsteg A (2011) Chemical and biological gradients along the Damma Glacier soil chronosequence (Switzerland). *Vadose Zone J.* 10: 867–883. (doi: [10.2136/vzj2010.0129](https://doi.org/10.2136/vzj2010.0129))
- Hindshaw RS, Tipper ET, Reynolds BC, Lemarchand E, **Wiederhold JG**, Magnusson J, Bernasconi SM, Kretzschmar R, Bourdon B (2011) Hydrological control of stream water chemistry in a glacial catchment (Damma Glacier, Switzerland). *Chem. Geol.* 285: 215-230. (doi: [10.1016/j.chemgeo.2011.04.012](https://doi.org/10.1016/j.chemgeo.2011.04.012))
- Hindshaw RS, Reynolds BC, **Wiederhold JG**, Kretzschmar R, Bourdon B (2011) Calcium isotopes in a proglacial weathering environment: Damma glacier, Switzerland. *Geochim. Cosmochim. Acta* 75: 106-118. (doi: [10.1016/j.gca.2010.09.038](https://doi.org/10.1016/j.gca.2010.09.038))
- Kiczka M, **Wiederhold JG\***, Kraemer SM, Bourdon B, Kretzschmar R (2010) Iron isotope fractionation during Fe uptake and translocation in alpine plants. *Environ. Sci. Technol.* 44: 6144–6150. (doi: [10.1021/es100863b](https://doi.org/10.1021/es100863b))
- Wiederhold JG\***, Cramer CJ, Daniel K, Infante I, Bourdon B, Kretzschmar R (2010) Equilibrium mercury isotope fractionation between dissolved Hg(II) species and thiol-bound Hg. *Environ. Sci. Technol.* 44: 4191-4197. (doi: [10.1021/es100205t](https://doi.org/10.1021/es100205t))
- Kiczka M, **Wiederhold JG\***, Frommer J, Kraemer SM, Bourdon B, Kretzschmar R (2010). Iron isotope fractionation during proton-and ligand-promoted dissolution of primary phyllosilicates. *Geochim. Cosmochim. Acta* 74: 3112-3128. (doi: [10.1016/j.gca.2010.02.018](https://doi.org/10.1016/j.gca.2010.02.018))
- Mikutta C, **Wiederhold JG**, Cirpka OA, Hofstetter TB, Bourdon B, Von Gunten U (2009) Iron isotope fractionation and atom exchange during sorption of ferrous iron to mineral surfaces. *Geochim. Cosmochim. Acta.* 73: 1795-1812. (doi: [10.1016/j.gca.2009.01.014](https://doi.org/10.1016/j.gca.2009.01.014))
- Wiederhold JG\***, Teutsch, N, Kraemer SM, Halliday AN, Kretzschmar, R (2007) Iron isotope fractionation in oxic soils by mineral weathering and podzolization. *Geochim. Cosmochim. Acta* 71: 5822-5834. (doi: [10.1016/j.gca.2007.07.023](https://doi.org/10.1016/j.gca.2007.07.023))
- Wiederhold JG\***, Teutsch, N, Kraemer SM, Halliday AN, Kretzschmar, R (2007) Iron isotope fractionation during pedogenesis in redoximorphic soils. *Soil Sci. Soc. Am. J.* 71: 1840-1850. (doi: [10.2136/sssaj2006.0379](https://doi.org/10.2136/sssaj2006.0379))
- Wiederhold JG\***, Kraemer SM, Teutsch N, Borer PM, Halliday AN, Kretzschmar R (2006) Iron isotope fractionation during proton-promoted, ligand-controlled, and reductive dissolution of goethite. *Environ. Sci. Technol.* 40: 3787-3793. (doi: [10.1021/es052228y](https://doi.org/10.1021/es052228y))

#### **selected manuscripts in preparation:**

- Brocza F, Biester H, Richard J-H, Kraemer SM, **Wiederhold JG\*** (in preparation) Mercury isotope fractionation in the subsurface of a Hg(II)-chloride-contaminated industrial legacy site.
- Brocza F, Biester H, Richard J-H, Mishra B, Kraemer SM, **Wiederhold JG\*** (in preparation) Mercury speciation in Hg-contaminated soil investigated by a multi-method approach.
- Wiederhold JG**, Biester H, Richard J-H, Schönbacher M\* (in preparation) Mercury concentrations, Hg speciation, and Hg isotope compositions of chondrites and eucrites.

### Other publications:

**Wiederhold JG** (2008) Eisen im Boden – und der kleine Unterschied. Geosciences Actuel, Platform of the Swiss Academy of Sciences 4: 26-29. ([Link](#))

Bernasconi SM and **BigLink project members** (2008) Weathering, soil formation and initial ecosystem evolution on a glacier forefield: a case study from the Damma Glacier, Switzerland. Mineralogical Magazine 72(1): 19-22. (doi: [10.1180/minmag.2008.072.1.19](https://doi.org/10.1180/minmag.2008.072.1.19))

**Wiederhold JG** (2006) Iron isotope fractionation in soils – from phenomena to process identification. PhD thesis, Department of Environmental Sciences, ETH Zurich. (doi: [10.3929/ethz-a-005275890](https://doi.org/10.3929/ethz-a-005275890))  
**ETH Medal for outstanding PhD thesis**

**Wiederhold JG**, Teutsch N, Kraemer SM, Borer PM, Halliday AN, Kretzschmar R (2005) Stabile Eisen-Isotope in der Bodenkunde - Untersuchung der Fraktionierungsmechanismen in der Natur und im Labor. Mitteilungen der Deutschen Bodenkundlichen Gesellschaft 107 (2): 673-674. ([Link](#))

**Wiederhold JG**, Teutsch N, Kretzschmar R, Kraemer SM, Halliday AN (2003) Fraktionierung von Eisen-Isotopen: Entwicklung einer neuen Tracermethode für den biogeochemischen Eisen-Kreislauf in Böden. Mitteilungen der Deutschen Bodenkundlichen Gesellschaft 102 (2): 413-414. ([Link](#))

**Wiederhold JG** (2002) Fraktionierung von Eisen-Isotopen in einer Stagnogley-Ockererde-Catena auf Buntsandstein. Diploma thesis, Institute for Mineralogy and Geochemistry, University Karlsruhe (TH), Germany.

**Wiederhold JG** (2001) MSc in Oregon: Ein Jahr zwischen culture shock, Crater Lake und eisenreduzierenden Bodenbakterien. Forum Geoökol. 12 (1): 16-19. ([Link](#))

**Wiederhold JG** (2000) Iron isotope fractionation in a seasonally reduced soil. Project report, Department of Crop and Soil Science, Oregon State University, Corvallis, USA.

### Recent conference abstracts (only last 5 years):

Brocza FM, **Wiederhold JG**, Biester H, Kraemer SM, Richard, J-H, Mishra B (2018) Mercury speciation at a former wood preservation site. (17th International Conference on X-ray Absorption Fine Structure, Krakow, Poland, July 22-27, 2018)

Roethlin RL, Gilli A, Wehrli B, Gilli RS, **Wiederhold JG**, Dubois N (2018) Tracking the source of heavy metal pollution in Lake X (Switzerland): A combination of mercury isotopes, XRF core scanning and ICP-OES. (IPA-IAL conference, Stockholm, Sweden, June 8-21, 2018)

Brocza FM, Biester H, Mishra B, Richard, J-H, Kraemer SM, **Wiederhold JG** (2018) Terrestrial biogeochemistry of Hg at a wood preservation site. (AOGS 15th Annual Meeting, Honolulu, Hawaii, USA, June 3-8, 2018)

**Wiederhold JG**, Grigg ARC, Gilli R, Kretzschmar R (2018) Mercury stable isotope variations in soils and sediments from an industrial contamination site in Switzerland. (EGU General Assembly, Vienna, Austria, April 8-13, 2018)

Brocza FM, Biester H, Richard, J-H, Mishra B, Kraemer SM, **Wiederhold JG** (2018) A deep look at a highly mobile soil mercury pool, using Hg stable isotope analysis, XANES and EXAFS. (EGU General Assembly, Vienna, Austria, April 8-13, 2018)

**Wiederhold JG**, Brocza FM, Grigg ARC, Kraemer SM (2017) Tracing sources and fate of mercury in soils and groundwater at industrial contamination sites with stable mercury isotopes. (Stable Isotope Network Austria (SINA) – 15th Meeting, Vienna, Austria, November 24-25, 2017)

Brocza FM, Biester H, Richard, J-H, Kraemer SM, **Wiederhold JG** (2017) Tracing Hg transformations in contaminated soil using Hg isotopes. (Goldschmidt conference, Paris, France, August 13-18, 2017)

**Wiederhold JG**, Grigg ARC, Gilli R, Kretzschmar R (2017) Mercury isotope signatures as tracer for industrial Hg contamination. (Goldschmidt conference, Paris, France, August 13-18, 2017)

Grigg ARC, Kretzschmar R, Gilli R, **Wiederhold JG** (2017) Hg isotope analysis and sequential extractions of industrially contaminated soils in Valais, CH. (Goldschmidt conference, Paris, France, August 13-18, 2017)

- Wiederhold JG**, Brocza FM, Biester H, Richard, J-H, Kraemer SM (2017) Mercury speciation and isotope signatures in soils and groundwater at a HgCl<sub>2</sub> contaminated site - evidence for fractionation processes during species transformations controlling Hg mobility. (13<sup>th</sup> International Conference on Mercury as a Global Pollutant, Providence, Rhode Island, USA, July 16-21, 2017)
- Biester H, **Wiederhold JG**, Richard, J-H, Schönbächler M (2017) Mercury speciation by pyrolysis-thermo-desorption and Hg isotope signatures by CV-MC-ICP-MS in meteorites. (13<sup>th</sup> International Conference on Mercury as a Global Pollutant, Providence, Rhode Island, USA, July 16-21, 2017)
- Wiederhold JG** (2017) Mercury isotope signatures as tracers for environmental Hg cycling. (Isotopes 2017, Ascona, CH, July 9-14, 2017) *Invited keynote lecture*
- Brocza F, Biester H, Richard, J-H, Kraemer SM, **Wiederhold JG** (2017) Tracing mercury transformations in a contaminated soil-aquifer system using Hg isotope signatures. (Isotopes 2017, Ascona, CH, July 9-14, 2017)
- Schönbächler M, Biester H, **Wiederhold JG** (2016) The origin of the elevated Hg concentrations in meteorites. (Goldschmidt conference, Yokohama, Japan, June 26 - July 1, 2016)
- Wiederhold JG**, Kraemer SM (2015) Mass-dependent and mass-independent fractionation of stable Hg isotopes as two-dimensional tracer for mercury cycling in the environment. (Stable Isotope Network Austria (SINA) – 14th Meeting, Tulln, Austria, November 26-27, 2015)
- Wiederhold JG**, Schönbächler M (2015) The history of volatile elements in the solar system: Mercury isotope systematics in chondrites and eucrites. (78th Annual Meeting of the Meteoritical Society, Berkeley, USA, July 27-31, 2015)
- Hedge C, Obrist D, Kretzschmar R, **Wiederhold JG**, Biester H, Chow J, Moore C, Agnan Y, Helmig D (2015) Soil and plant mercury concentrations and pools in the Arctic tundra of northern Alaska. (12<sup>th</sup> International Conference on Mercury as a Global Pollutant, Jeju, Korea, June 14-19, 2015)
- Wiederhold JG**, Schönbächler M (2015) Mercury concentrations and Hg isotope compositions of chondrites and eucrites. (Lunar and Planetary Science Conference, Houston, USA, March 16-20, 2015)
- Jiskra M, Saile D, **Wiederhold JG**, Björn E, Bourdon B, Kretzschmar R (2014) Slow and incomplete exchange during competitive Hg(II) binding to model ligands, NOM, and goethite. (Goldschmidt conference, Sacramento, USA)
- Wiederhold JG**, Jiskra M, Skyllberg U, Drott A, Jonsson S, Björn E, Bourdon B, Kretzschmar R (2013) Tracing local industrial pollution sources with mercury isotopes. (Goldschmidt conference, Florence, Italy)
- Wiederhold JG** (2013) Fractionation of metal isotopes in soils and sediments explored by sequential extractions – examples from Fe and Hg isotopes. (EnvironMetal Isotopes conference, Ascona, CH)
- Jiskra M, **Wiederhold JG**, Kronberg RM, Skyllberg U, Kretzschmar R (2013) Stable mercury isotopes – a tracer for mercury cycling in boreal forest soils and river runoff. (EnvironMetal Isotopes conference, Ascona, CH)
- Smith RS, **Wiederhold JG**, Jew AD, Brown, Jr. GE, Bourdon B, Kretzschmar R. (2013) Source tracing in sediments downstream of the New Idria Hg mine using stable Hg isotope signatures. (EnvironMetal Isotopes conference, Ascona, CH)
- Wiederhold JG**, Smith RS, Siebner H, Jew AD, Brown GE, Bourdon B, Kretzschmar R (2013) Mercury isotope signatures as tracers for Hg cycling at the New Idria Hg mine. (11<sup>th</sup> International Conference on Mercury as a Global Pollutant, Edinburgh, UK)
- Wiederhold JG**, Jiskra M, Kronberg RM, Skyllberg U, Kretzschmar R (2013) Stable Fe isotope ratios as tracer for biogeochemical Fe cycling in small forest catchments in northern Sweden. (FIMIN Conference “Iron Biogeochemistry - From Molecular Processes to Global Cycles”, Ascona, UK)