

Dr. sc. Helmut Bürgmann

Eawag: Swiss Federal Institute of Aquatic Science and Technology
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Date of Birth: September 4, 1971 in Weingarten, Germany
Nationality: German
Family Status: Married to Simone von der Geest.
Two children: Lisa (Aug. 23, 2005) and Leonie (May 31, 2008)

Research: Functional roles and diversity of microbial communities of inland waters.
Roles of freshwater microbes in the carbon and nutrient cycles.
Resilience of aquatic microbial communities and their functions.
Antibiotics resistance in the aquatic environment
More information on the group website: <http://tinyurl.com/5s2mea3>

Education and work experience:

since 2006 **Senior scientist, research group leader.**
Microbial Ecology research group,
Department of Surface Waters - Research and Management,
Eawag, Switzerland.

2005-2006 **Postdoctoral research associate.**
Moran Research Group, Molecular Microbial Ecology,
Department of Marine Sciences,
University of Georgia, Athens, Georgia.

2003-2004 **Postdoctoral research associate and group leader**
Molecular Ecology Workgroup, Chair of Soil Biology (J. Zeyer),
Institute of Terrestrial Ecology,
Swiss Federal Institute of Technology (ETH), Zürich, Switzerland.

1999-2003 **Ph.D. student** (Dr. sc. ETH Zürich).
Chair of Soil Biology (J. Zeyer)
Institute of Terrestrial Ecology,
Swiss Federal Institute of Technology (ETH), Zürich, Switzerland.

1992-1998 **Diploma student** in Geoecology (Dipl. Geoökol. Univ.).
University of Bayreuth, Germany.

Selected career achievements:

- 2001-present*** 39 peer-reviewed articles published.
Involved in successful grant proposals raising over 3 million CHF.
Directly supervised 4 PhD students and co-supervised 6 others. Supervised 6 successful master student theses.
Teaching experience with university lectures and laboratory courses.
- 2005-2006*** Postdoctoral research: First transcriptional microarray study on a marine *Roseobacter*, development of environmental microarrays, and part of the team that discovered the *dmdA* gene.
- 1999-2003*** PhD research: First successful studies of *nifH* mRNA in soil environments.

Grants:

Involved in proposals raising over 3 million CHF from competitive funding sources

Research grants and contracts:

- 2015*** Antimicrobial resistance in Swiss Drinking Water sources and drinking water. SVGW / FOWA: Forschungs, Entwicklungs- und Förderungsfonds der Schweizer Wasserversorgungsbranche. H. Bürgmann (30 kCHF)
- 2015*** Understanding resistance gene flow during passage of wastewater treatment (RESIST-Flow). H. Bürgmann, A. Johnson, C. McArdell. Eawag Discretionary Funds project (176 kCHF)
- 2015*** Understanding the diversity of aerobic methane oxidizing bacteria in lacustrine oxyclines using community ecology and trait-based modeling (MOBtrait). H. Bürgmann, A. Brandt (460 kCHF)
- 2013*** Quantification and identification of low nucleic acid (LNA) content bacteria from natural and engineered freshwater environments. Eawag discretionary funds (51 kCHF)
- 2013*** Elimination von Antibiotikaresistenten Mikroorganismen durch eine Ultrafiltrations-Pilotanlage der Kläranlage von Lausanne. Service d'Assainissement Lausanne (17.5 kCHF)
- 2012*** Evaluation und Optimierung einer Methode zur Beurteilung der Antibiotikaresistenz in Gewässern. BAFU Projekt (95 kCHF)
- 2012*** Verhalten von Antibiotikaresistenzen bei der oxidativen Behandlung von Abwasser. U. von Gunten, H. Bürgmann, F. Hammes. BAFU Projekt (220 kCHF).

Concluded grants (last 5 years):

- 2010-2015** Food-web and ecosystem responses to global change: testing ecological theory in aquatic mesocosms. B. Matthews (PI), H. Bürgmann, M.O. Gessner, C. Winter. SNF project (331 kCHF)
- 2009-2015** Decentralized urine treatment with the nitrification /anammox process (DUNOX). K. Udert (PI), H. Bürgmann, T.A. Larsen. SNF project (177.8 kCHF), with continuation.
- 2013-2015** Distribution and elimination of antibiotic resistance genes and antibiotic resistant bacteria in a drinking water facility of Lausanne (St. Sulpice), Switzerland. H. Bürgmann, F. Hammes, N. Czekalski. Eau Service Lausanne (73 kCHF).
- 2008-2013** Microbial resistance, ecotoxicological impact, and risk assessment of micropollutants in a mid-sized lake. H. Bürgmann (PI), N. Chèvre, J. Poté, A. Wüest. SNF ProDoc Research Module (393 kCHF), extended in 2011 (53 kCHF), and funding for Eawag PhD summer school through the ProDoc Training Module (150 kCHF).
- 2008-2012** Terrestrial/aquatic linkages in microbial biodiversity in alpine floodplains: Swiss National Science Foundation project proposal. Shifting Role of Bacteria in Ecosystem Functioning (MICROLINK). C. Robinson (PI), H. Bürgmann, S. Findlay. SNF project (273 kCHF), extended in 2011.
- 2011** Degradation and transformation of lacustrine organic nitrogen compounds: microbiology and biogeochemistry – continuation grant. C. Schubert (PI), H. Bürgmann (PI). SNF project (108 kCHF).
- 2009** R'Equip grant proposal for a Confocal Laser Scanning Microscope. M. Ackermann (PI), E. Morgenroth, H. Bürgmann, and others. SNF R'Equip proposal (230 kCHF).

Hosted Scholarships:

- 2011-2012** Fulbright / Swiss Government Scholarship for Karen Sullam, Drexel University. 9 month research scholarship on project “Resilience of microbial communities to manipulations of aquatic foodweb structure” (H. Bürgmann (PI), B. Matthews).
- 2011-2012** IHE-UNESCO MSc Student scholarship for Radhika Sigdel in the research project “Sources and fate of Antibiotic resistance in a mid-sized lake” H. Bürgmann (PI), N. Czekalski.
- 2011-2012** Eawag Postdoctoral fellowship for George H. Wells (E. Morgenroth (PI), M. Ackermann, H. Bürgmann (collaborator), et al..
- 2010-2011** IHE-UNESCO MSc scholarship for Susma Bhattarai in the research project “Microbial diversity in spring-influenced sediments in Lake Kivu”. H. Bürgmann (supervisor), K.-A. Ross, M. Schmid (PI).

Supervised research students:

Supervised Ph.D. students:

- 2015-present** Magdalena Mayr (Eawag, Surface Waters)
- Microbial Ecology and trait based modelling of aerobic methanotrophs in stratified lakes
- 2009-2012** Nadine Czekalski (Eawag, Surface Waters)
- Sources and fate of Antibiotic resistance in a mid-sized lake (Defended: March 2013)
- 2008-2012** Krista Köllner (Eawag, Surface Waters)
- Degradation and transformation of organic nitrogen compounds in the water column and sediments (Defended: September 2012)

Co-supervised Ph.D. students (collaborative projects or free collaborations):

- 2014-present** C. Guggenheim (Eawag, Surface Waters, subproject supervision)
role of Cu in regulating freshwater methanotrophs
- 2011-2015** J. Birtel (Eawag, Aquatic Ecology, co-supervision)
- Food-web and ecosystem responses to global change: testing ecological theory in aquatic mesocosms
- 2009-2015** S. Jenni (Eawag, Process Engineering, co-supervision)
- Decentralized urine treatment with the nitrification/anammox process (DUNOX)
- 2009-2013** F. Ugolini (ETH Zürich, IBP, co-supervision)
- In-situ extraction of microorganisms from aquifer sediments
- 2008-2013** D. Carstens (Eawag, Surface Waters, co-supervision)
- Degradation and transformation of organic nitrogen compounds in the water column and sediments
- 2008-2012** R. Freimann (Eawag, Aquatic Ecology, co-supervision)
- Terrestrial/aquatic linkages in microbial biodiversity in alpine floodplains: shifting role of bacteria in ecosystem functioning MICROLINK (Defended: May 2012). ETHZ Silver Medalist
- 2011-2012** R. Brankatschk (ETH Zürich, project collaboration)
- 2007-2009** L. Bryant (U. Virginia, project collaboration)
- Association of Environmental Engineering and Science Professors (AEESP). Outstanding Doctoral Dissertation Award 2011
- 2007-2009** N. Pasche (Eawag, Surface Waters, project collaboration)
- Hydrobiologie-Limnologie-Award 2010
- 2004-2009** L. Duc (ETH Zürich, project collaboration)
- ETH Silver Medalist
- 2003-2004** C. Miniaci (ETH Zürich, co-supervision (part), project collaboration)

Supervised Diploma/Master/Bachelor students:

- 2013-2014** K. Schweichler, (U. Jena, Germany, Master)
- 2012-2013** N. Bircher (ETH Zürich, Bachelor)
- 2011-2012** R. Sigdel (UNESCO-IHE Institute for Water Education, Delft, Master)
- 2010-2011** S. Bhattarai (UNESCO-IHE Institute for Water Education, Delft, Master)
- 2009** T. Wunderlin (ETH Zürich, Master)
- 2005** G. Bleikolm (Univ. Lausanne, Master)
- B. Meier (ETH Zürich, Dipl.)
- 2000** R. Schaubhut (ETH Zürich, Dipl.)

Services to the scientific community:

Editorial boards & Panels:

- 2015-present** Member of the scientific committee for the Agroscope research program REDYMO
- 2014-present** Associate editor, Aquatic Ecology (Springer)
- 2013-2014** Swiss National Strategy Antibiotic Resistance – Stakeholder workshops
- 2009-present** Swiss coordinator, leader of Working Group 3, and member of the Management Committee of COST Action TD0803 “Detecting evolutionary hot spots of antibiotic resistances in Europe (DARE)”.
- 2007-present** Participated in four recruitment committees for academic positions at Eawag and elsewhere.
- 2008-2011** Helped initiate and participated in Eawag’s “Working Group Bioinformatics”, planning Eawag’s new bioinformatics infrastructure

Organized courses, workshops and sessions:

- 2014-2015** Organizer, Swiss Microbial Ecology meeting, Ascona, Switzerland, September 10-12, 2015
- 2015** Chair, Dissemination of antibiotics and antibiotic resistance genes through aquatic ecosystems / sewage treatment plant, 3rd international symposium of the environmental dimension of antibiotic resistance (EDAR-3), May 18-21, Werningerode, Germany
- 2011** Co-chair, metagenomics workshop, FEMS congress, June 26-30, 2011, Geneva, Switzerland
- 2010** Organization of the 2010 meeting of Working Group 3 of COST Action TD0803 “Detecting evolutionary hot spots of antibiotic resistances in Europe (DARE)”, November 23-24, 2010, Agroscope Wädenswil, Switzerland.
- 2009** Main organizer of the first International Eawag PhD Summer School at Eawag Kastanienbaum: “Interactions between ecological and evolutionary processes in aquatic systems”, July 15-28, 2009. The Summer School program continues with yearly changing topics.

Committee member / Opponent:

- 2015** C. Hands, (Newcastle University) PhD defense committee
- 2013** T. Wunderlin (University of Neuchatel) PhD defense committee
- 2013** H.J.R. Blees (University of Basel) – PhD defense committee
- 2012** N. Czekalski (Eawag, Surface Waters, EPFL) – PhD defense committee
- 2012** K. Köllner (Eawag, Surface Waters, ETH) – PhD defense committee
- 2012** R. Freimann (Eawag, Aquatic Ecology, ETH) - PhD defense committee
- 2008** S. Flury (Eawag, Aquatic Ecology, ETH) - PhD defense committee
- 2005** C. Bleikolm (Univ. Lausanne) - Master thesis defense committee

Peer reviews:

- 2006-present** Regular peer reviews for international journals, among others: Environmental Microbiology, Microbial Ecology, Environmental Science & Technology, PLOS one, Water Research, Molecular Ecology, Aquatic Ecology, Applied Microbiology and Biotechnology, Applied Microbiology, Chemosphere, Journal of Environmental Monitoring, Wetlands, Biotechniques, Microbiological Research, Hydrobiologia
- 2013** 2 Proposal reviews for Swiss National Science Foundation
- 2013** Proposal review for Polish National Science Centre

Teaching:

2008-present	Tutor, Term paper course
2008-2013	Lecture “Microbial Metabolism”, with exercises, 1 SWS
2009	Main organizer, teaching lecture and practical course module, International Eawag PhD Summer School “Interactions between ecological and evolutionary processes in aquatic systems”
2007-2011	Lab course “Microbial Ecology” at ETH Zürich (with J. Zeyer and assistants)
2003-2004	Lecture and associated lab course “Environmental Microbiology” at ETH Zürich (with J. Zeyer and assistants)
1999-2003	Teaching of semester-long lab-courses on microbial ecology in terrestrial systems: Molecular methods for soil microbes. Teaching one week lab course on soil nitrogen cycling. Teaching responsibilities in annual field excursions on soil science

Affiliations:

ISME	International Society for Microbial Ecology.
ASM	American Society for Microbiology.
ASLO	American Society for Limnology and Oceanography.
SGM	Swiss Society for Microbiology.
VGöD	German Society for Geoecology.

Courses visited:

2014	Motor boat course, obtained Swiss motor boat license
2012	Biosafety Officer (BSO) of Safety Level 1, BAFU/b-safe, Bern Switzerland
2010	Leadership and personnel management course “Mitarbeiter führen”, BPP/Eawag, Switzerland
2009	E-learning applications course “Aktives und selbstverantwortliches Lernen mit einfachsten E-Learning-Applikationen”, UZH / ETH Zürich, Switzerland
2007	Project Management course “Projektmanagement”, Eawag, Switzerland
2005	Microarray Workshop. ASM general Meeting, Atlanta, GA, USA.
2002	Advanced course in molecular microbial ecology Alpine Center Piora / Lago Cadagno, Switzerland

Publications:

Publication statistics (September 2015):

Google scholar: 46 publications, >1660 citations, h-index: 21, i10-index: 25
 Scopus: 38 publications, >1110 citations, h-index: 18, i10-index: 22

Peer-reviewed publications:

* marks important recent papers

2015:

40) Hydrologic linkages drive spatial structuring of bacterial assemblages and functioning in alpine floodplains (2015, in press) Freimann, R., Bürgmann, H., Findlay, S.E.G., Robinson, C.T. **Frontiers in Microbiology**

39) Does human activity impact the natural antibiotic resistance background? Abundance of antibiotic resistance genes in 21 Swiss lakes. (2015) Czekalski, N., Sigdel, R., Birtel, J., Matthews, B., Bürgmann, H.. **Environment International** 81C, 45-55, doi: 10.1016/j.envint.2015.04.005

38) Estimating bacterial diversity for ecological studies: methods, metrics, and assumptions (2015) Birtel, J., Walser, J.C., Picho, S., Bürgmann, H., Matthews, B. **PLoS One**, doi: 10.1371/journal.pone.0125356

37) Tackling antibiotic resistance: the environmental framework (2015) Berendonk, T.U., Manaia, C.M. Merlin, C., Fatta-Kassinos, D., Cytryn, E., Walsh, F. Bürgmann, H., Sørum, H. Norström, M., Pons, M.N. Kreuzinger, N., Huovinen, P., Stefani, S. Schwartz, T., Kisand, Veljo V., Baquero, F. Martinez, J.L., and the European COST Action DARE group, **Nature Reviews Microbiology** 3, 310-317, doi:10.1038/nrmicro3439

2014:

36) Spatio-Temporal patterns of major bacterial groups in alpine waters (2014) Freimann, R., Bürgmann, H., Findlay, S.E.G., Robinson, C.T., **PLoS ONE** 9(11), e113524, doi:10.1371/journal.pone.0113524

35) Eintrag von Antibiotika- und Antibiotikaresistenzen in Wassersysteme der Schweiz (2014). Bürgmann, H. **Prävention und Gesundheitsförderung**, 9(3), 185-190, Schwerpunkttheft „Antibiotika und Antibiotikaresistenzen im urbanen Abwasser“, doi: 10.1007/s11553-014-0444-3

34) Early diagenetic sediment processes dominated by Mn/Fe layers in Lake Baikal, Siberia. (2014) Torres, N.T., Och, L., Hauser, P. C., Furrer, G., Brandl H., Vologina E., Sturm M., Bürgmann, H. and Müller, B. **Environmental Science: Processes & Impacts**, 16, 879-889, doi: 10.1039/C3EM00676J

33) *Wastewater as a point source of antibiotic resistance genes in the sediment of a freshwater lake (2014). Czekalski, N., Gascón Díez, E. Bürgmann, H., **ISME Journal**, 8, 1381–1390, doi:10.1038/ismej.2014.8

32) Physical extraction of microorganisms from a water-saturated, packed sediment (2014) Ugolini, F., Schroth, M.H., Bürgmann, H., Zeyer, J., **Water Environment Research**, 86 (5), 407-416, doi: 10.2175/106143013X13807328848216

31) In-situ sonication for enhanced recovery of aquifer microbial communities (2014) Ugolini, F., Henneberger, R., Bürgmann, H., Zeyer, J., Schroth, M.H. **Groundwater**, 52(5), 737-747, doi: 10.1111/gwat.12105

2013:

30) *Bacterial structures and ecosystem functions in glaciated floodplains: contemporary states and potential future shifts (2013) Freimann, R., Bürgmann, H., Findlay, S.E.G., Robinson, C.T., **ISME Journal**, 7, 2361-2373, doi: 10.1038/ismej.2013.114

- 29) Chemical extraction of microorganisms from water-saturated, packed sediment** (2013) Ugolini, F., Schroth, M.H., Bürgmann, H., Hammes, F., and Zeyer, J., **Water Environment Research**, 85(6), 503-513, doi: 10.2175/106143012X13560205144452
- 28) A brief multi-disciplinary review on antimicrobial resistance in medicine and its linkage to the global environmental microbiota** (2013) Cantas L., Shah S.Q.A., Cavaco L.M., Manaia C., Walsh F., Popowska M., Garelick H., Bürgmann H., and Sorum H. **Frontiers in Microbiology - Antimicrobials, Resistance and Chemotherapy**, 4(96), doi: 10.3389/fmicb.2013.00096
- 27) Response of lotic microbial communities to altered water source and nutritional state in a glaciated alpine floodplain** (2013) Freimann, R., Bürgmann, H., Findlay, S.E.G., Robinson, C.T., **Limnology and Oceanography**, 58(3), 951-965, doi: 10.4319/lo.2013.58.3.0951
- 26) *Impact of particulate organic matter composition and degradation state on the vertical structure of particle-associated and planktonic lacustrine bacteria** (2013). Köllner, K. E., Carstens, D., Schubert, C. J., Zeyer, J., Bürgmann, H. **Aquatic Microbial Ecology**, 69, 81-92, doi: 10.3354/ame01623

2012:

- 25) *Fundamentals of microbial community resistance and resilience** (2012) Shade A., Peter, H., Allison, S., Baho, D., Berga, M., Bürgmann, H., Huber, D., Langenheder, S., Lennon, J., Martiny, J., Matulich, K., and Schmidt, T., Handelsman, J. **Frontiers in Microbiology – Aquatic Microbiology**, 3(417), doi: 10.3389/fmicb.2012.00417
- 24) Contribution of bacterial cells to lacustrine organic matter based on amino sugars and d-amino acids** (2012). Carstens, D., Köllner, K., Bürgmann, H., Wehrli, B., Schubert, C. **Geochimica et Cosmochimica Acta**, 89, 159-172, doi: 10.1016/j.gca.2012.04.052
- 23) Efficiency of real-time qPCR depends on template: a simple absolute quantification method correcting for qPCR efficiency variations in microbial community samples** (2012) Brankatschk, R., Bodenhausen, N., Zeyer, J., Bürgmann, H. **Applied and Environmental Microbiology**, 78(12), 4481-4489, doi: 10.1128/AEM.07878-11
- 22) *Increased levels of multiresistant bacteria and resistance genes after waste water treatment and their dissemination into Lake Geneva, Switzerland** (2012). Czekalski, N., Berthold, T., Caucci, S., Egli, A., Bürgmann, H. **Frontiers in Microbiology - Antimicrobials, Resistance and Chemotherapy**, 3, 00106, doi: 10.3389/fmicb.2012.00106
- 21) Local conditions structure unique archaeal communities in the anoxic sediments of meromictic Lake Kivu** (2012). Bhattarai, S., Ross, K.-A., Schmid, M., Bürgmann, H., **Microbial Ecology**, 64(2), 291-310, doi: 10.1007/s00248-012-0034-x
- 20) Response of sediment microbial community structure in a freshwater reservoir to manipulations in oxygen availability** (2012). Bryant, L., Little, J., Bürgmann, H. **FEMS Microbiology Ecology**, 80, 248-263, doi: 10.1111/j.1574-6941.2011.01290.x
- 19) *Bacterial chitin hydrolysis in two lakes of contrasting trophic status** (2012). Köllner, K.E., Carstens, D., Vazquez, F., Schubert, C., Bürgmann, H. **Applied and Environmental Microbiology**, 78(3), 695-704, doi: 10.1128/AEM.06330-11

2011:

- 18) *Regime shifts and microbial dynamics in a sequencing batch reactor for nitrification-anammox treatment of urine** (2011). Bürgmann, H., Jenni, S., Vazquez, F., Udert, K.M. **Applied and Environmental Microbiology**, 77(17), 5897-5907, doi: 10.1128/AEM.02986-10
- 17) *Methane sources and sinks in Lake Kivu** (2011). Pasche, N., Schmid, M., Vazquez, F., Schubert, C., Wüest, A., Kessler, J., Pack, M.A., William S. Reeburgh, W.S. Bürgmann, H. **Journal of Geophysical Research – Biogeosciences**, 116, G03006, doi: 10.1029/2011JG001690

16) Analysis of sulfur-related transcription by *Roseobacter* communities using a taxon-specific functional gene microarray (2011). Rinta-Kanto, J. M., Bürgmann, H., Gifford, S. M., Sun, S., Sharma, S., Kiene, R. P., Moran, M.A.. **Environmental Microbiology**, 13(2), 453-467, doi: 10.1111/j.1462-2920.2010.02350.x

15) Changes in dimethylsulfoniopropionate demethylase gene assemblages in response to an induced phytoplankton bloom (2011). Howard, E.C., Sun, S., Reisch, C.R., del Valle D.A., Bürgmann, H., Kiene, R.P., Moran, M.A. **Applied and Environmental Microbiology**, 77(2), 524-531, doi: 10.1128/AEM.01457-10

2009:

14) Large iron isotope fractionation at the oxic-anoxic boundary in Lake Nyos (2009). Teutsch, N., Schmid, M., Müller, B., Halliday, A.N., Bürgmann, H., Wehrli, B. **Earth and Planetary Science Letters**, 285, 52–60

13) Microbial community structure in various habitats of a freshwater marsh (2009). Buesing, N., Filippini, M., Bürgmann, H., Gessner, M.O. **FEMS Microbiology Ecology**, 69, 84–97

12) High diversity of diazotrophs in the forefield of a receding alpine glacier (2009). Duc, L., Noll, M., Meier, B.E., Bürgmann, H., Zeyer, J. **Microbial Ecology**, 57, 179–190

2008:

11) Detection and quantification of *Dehalococcoides*-related bacteria in a chlorinated ethene-contaminated aquifer undergoing natural attenuation (2008). Bürgmann, H., Kleikemper, J., Bunge, M., Schroth, M., Zeyer, J. **Bioremediation Journal**, 12(4), 193-209

10) Progress in the ecological genetics and biodiversity of freshwater bacteria (2008). Logue, J.B., Bürgmann, H., Robinson, C.T. **BioScience**, 58(2), 103-113
(Featured in the editorial and on the title page)

2007:

9) Transcriptional response of *Silicibacter pomeroyi* DSS-3 to dimethylsulfoniopropionate (DMSP) (2007). Bürgmann, H., Howard, E.C., Ye, W., Sun, F., Sun, S., Napierala, S., Moran, M.A. **Environmental Microbiology**, 9(11), 2742-2755

8) Effects of pioneering plants on microbial structures and functions in a glacier forefield (2007). Miniaci, C., Bunge, M., Duc, L., Edwards, I., Bürgmann, H., Zeyer, J. **Biology and Fertility of Soils**, 44(2), 289-297

2006:

7) Bacterial taxa that limit sulfur flux from the ocean (2006). Howard, E., Henriksen, J.R., Buchan, A., Bürgmann, H., Welsh, R., Ye, W., Mace, K., González, J.M., Joye, S.B., Kiene, R.P., Whitman, W.B., Moran, M.A. **Science**, 314, 649-652

6) Variation in microbial community composition and culturability in the rhizosphere of *Leucanthemopsis alpina* (L.) Heywood and adjacent bare soil along an alpine chronosequence (2006). Edwards, I., Miniaci, C., Bürgmann, H., Zeyer, J. **Microbial Ecology**, 52(4), 679-92

2005 and older:

5) Effects of model root exudates on structure and function of a soil diazotroph community (2005). Bürgmann, H., Meier, S., Widmer, F., Zeyer, J. **Environmental Microbiology**, 7(11), 1711-1724

4) New molecular screening tools for the analysis of free-living diazotrophs in soil (2004). Bürgmann, H., Widmer, F., Sigler, W. V., Zeyer, J. **Journal of Applied and Environmental Microbiology**, 70(1), 240-247

3) Endophytic *nifH* gene diversity in African sweet potato (2003). Reiter, B., Bürgmann, H., Burg, K., Sessitsch, A. **Canadian Journal of Microbiology** 49, 549-555

2) mRNA extraction and reverse transcription PCR protocol for detection of *nifH* gene expression of *Azotobacter vinelandii* in soil (2003). Bürgmann, H., Widmer, F., Sigler, W.V., Zeyer, J. **Journal of Applied and Environmental Microbiology**, 69(4), 1928-1935

1) **A strategy for optimizing quality and quantity of DNA extracted from soil** (2001). Bürgmann, H., Pesaro, M., Widmer, F., Zeyer, J. **Journal of Microbiological Methods**, 45, 7-20

Book contributions:

Methane formation and future extraction in Lake Kivu (2012). Wüest, A., Jarc, L., Bürgmann, H., Pasche, N. Schmid, M. *In*: Descy et al (Eds.): Lake Kivu: Limnology and biogeochemistry of a tropical great lake. Aquatic Ecology Series 5, 165-180, doi: 10.1007/978-94-007-4243-7_10, Springer Science+Business Media B.V.

Methane oxidation (aerobic) (2011). Bürgmann, H. In: Reitner J., Thiel, V. (Eds.): **Encyclopedia of Geobiology**, 575-578, Springer Verlag, Heidelberg, ISBN 978-1-4020-9211-4

Soil DNA content - a novel quantitative bulk parameter for description of microbiological soil characteristics (2002). Pesaro, M., Bürgmann, H., Widmer, F., Zeyer, J. Proceedings of COST Action 831, Biotechnology of Soil: Monitoring, Conservation and Remediation, Workshop 'Managing Soil Quality', Budapest, Hungary, September 12-13, 2002

Submitted:

The effect of predator and predator trait variation on microbial communities (submitted, FEMS ME) Sullam K.E., Matthews, B., Aebischer, T., Seehause, O., Bürgmann, H.

The growth of Nitrosococcus-related ammonia oxidizing bacteria causes strong acidification in high strength nitrogen wastewater (submitted to ES&T) Fumasoli A., Bürgmann H., Weissbrodt D.G., Wells G.F., Beck K. Mohn J., Morgenroth E., Udert K.

Microbes as engines of ecosystem function: does microbial community structure enhance predictions of ecosystem process rates? (Submitted to ISMEJ) Graham E.B., ..., Bürgmann H., (various contributors...) Nemergut D.R.

In preparation / in revision: (Manuscripts available):

Microbes as engines of ecosystem function: does microbial community structure enhance predictions of ecosystem process rates? (in revision). Graham, E.B. et al.

Contrasting diversity of bacterial chitinases in distinct lake habitats (in revision). Köllner, K. E., Bürgmann, H.

Microbial community dynamics in the developing anodic biofilm of a microbial electrolysis cell revealed by high throughput sequencing (in preparation) Bürgmann, H., Vazquez, F., Udert, K.M.

Antibiotics resistance in environmental hotspots: Developing a framework for risk assessment (In preparation) Bürgmann, H., Czekalski, N. et al. (COST action contributors)

Other publications:

Verbreitung von Antibiotikaresistenzen im Wasser (2015) Eawag fact sheet. Bürgmann, H. http://www.eawag.ch/fileadmin/Domain1/Beratung/Beratung_Wissenstransfer/Publ_Praxis/Faktenblaetter/fb_antibiotikaresistenzen_juli15.pdf

Microbial Diversity - unseen variety (2010). Bürgmann, H. **Eawag News**, 69d, 12-14 (http://www.eawag.ch/medien/publ/eawag/news_69/en69e_buergmann.pdf; also available in German and French). Republished in **Laborscope**.

Funktionelle Vielfalt in der Abwasserreinigung (2010). Morgenroth, E., Bürgmann, H., and Udert, K.M. **Eawag News**, 69d, 15-17 (http://www.eawag.ch/medien/publ/eawag/news_69/en69e_morgenroth.pdf; also available in German and French)

Degradation and transformation of organic nitrogen compounds in two Swiss lakes-linking biogeochemistry and microbiology (2009). Carstens, D., Köllner, K, Bürgmann, H., and Schubert, C.J. Published abstract. **Geochimica and Cosmochimica Acta Supplement**, 73, A195

Leben unter der Erdoberfläche: Mehr als nur Riesenpilze? (2004). Zeyer, J., Schroth, M., Kleikemper, J., and Bürgmann, H. **Bulletin ETH Zürich**, 294, 30-33
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Activity and diversity of nitrogen-fixing microorganisms: Novel tools to characterize populations in soil (2003). Bürgmann, H. Ph.D. thesis., Naturwissenschaften ETH Zürich, Nr. 15127, Zürich, Switzerland. 167 p.
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Nachweis, Transport und Interaktionen von Mikroorganismen im Boden (2002). Maurhofer, M., Bürgmann, H., Keel, C., Zeyer, J., and Haas, D. **Proceedings of 'Perspektiven der Biosicherheit'**, vol. 5, Bern, Switzerland, April 5, 2002

Soil quality changes under *Pinus radiata* plantations in the IXth region of Chile: applicability of soil microbial activity and nutrient analysis for the evaluation of sustainability (1998). Bürgmann, H. Diploma thesis, Universität Bayreuth. Bayreuth, Germany. 128 p.

Presentations

(* marks international conferences, ‡ marks invited talks)

Selected presentations:

***Diversity, abundance, and activity of chitinolytic bacteria in contrasting freshwater lakes.**

Bürgmann, H., Köllner, K.E. Presentation: EMBO conference on Aquatic Microbial Ecology - SAME13, Stresa, Italy, September 8-13, 2013

***The interplay of organic matter dynamics and microbial communities in the depth gradient of freshwater lakes.** Bürgmann, H., Carstens, D., Schubert, C.J., Vazquez, F., Köllner, K.E. *Presentation*: "The power of the small" - 14th International Symposium on Microbial Ecology (ISME 14). Copenhagen, Denmark, August 19-24, 2012

***Bacterial community dynamics in a microbial electrolysis cell biofilm analyzed by 16S rRNA tag sequencing.** Bürgmann, H., Vazquez, F., and Udert, K.M. *Invited Talk*: 4TH Congress of European Microbiologists Geneva, Switzerland, June 26-30, 2011

***Antibiotic resistance as an emerging environmental contaminant.** Bürgmann, H., Czekalski, N., Grossart, H.-P., Kisand, V., Lupo, A., Mania, C.M., Popowska, M., Schwartz, T., Walsh, F., Berendonk, T.U., and COST Action TD0803 'Detecting evolutionary hot spots of antibiotic resistances in Europe'. *Presentation*: 4TH Congress of European Microbiologists Geneva, Switzerland, June 26-30, 2011

***Regime shift and microbial dynamics in a sequencing batch reactor for nitrification-anammox treatment of urine.** Bürgmann, H., Vazquez, F., Jenni, S., and Udert, K.M.. *Presentation*: "Stewards of a changing planet" - 13th International Symposium on Microbial Ecology (ISME 13). Seattle (WA), USA, August 22-27, 2010

Full list of presentations:

2015:

***Antibiotikaresistenzen in der Umwelt – und im Trinkwasser?** Bürgmann H., Gas- und Wasserfachtagung, 17. September 2015, Geneva

*** Antibiotikaresistenzen im Abwasser: Eintrag, Verbreitung, Elimination, Risiken.** VSA Jahrestagung, 30. April 2015, Lucerne

Anaerobic methane- and ammonium-oxidation occurs in stacked redox zones linked to iron- and manganese oxide layers in Lake Baikal sediment. Bürgmann, H., 9th symposium for European Freshwater Science, July 5-10, 2015

***Temporal dynamics and source-to-tap connectivity in a surface-water fed drinking water distribution system.** Bürgmann H., Environmental Dimension of Antibiotic Resistance (EDAR-3), Werneingerode, Germany, 17-21 May 2015

‡A genetic contamination? Wastewater as a point source of antibiotic resistance genes in sediments of Lake Geneva. Bürgmann H, Gascon-Diez E., Czekalski N. Invited Lecture: ContaSed 2015, Monte Verita, Ascona, Switzerland, March 08-13, 2015

2013:

‡Antibiotikaresistenzen in urbanen Wassersystemen und Eintrag in natürliche Gewässer: Erfahrungen aus der Schweiz. Bürgmann H., Fachtagung Anti-resist, Dresden, Germany, October 20-21, 2013

***Diversity, abundance, and activity of chitinolytic bacteria in contrasting freshwater lakes.** Bürgmann, H., Köllner, K.E. Presentation: EMBO conference on Aquatic Microbial Ecology - SAME13, Stresa, Italy, September 8-13, 2013

***A reciprocal transplant experiment studying the response of lotic microbial communities to altered water source and nutritional state in a glaciated alpine floodplain.** Bürgmann, H., Freimann, R., Findlay, S., Robinson, C.T.. Poster: EMBO conference on Aquatic Microbial Ecology - SAME13, Stresa, Italy, September 8-13, 2013

***Presence of fish, their evolutionary history and feeding habits affect aquatic microbial communities – a mesocosm study.** Bürgmann, H., Sullam, K., Aebischer, T., Seehausen, O., Matthews, B. Poster: EMBO conference on Aquatic Microbial Ecology - SAME13, Stresa, Italy, September 8-13, 2013

***Antibiotic Resistance as a Genetic Contaminant in the Aquatic Environment – Evaluation, Risks, and Pitfalls?** Bürgmann, H. *Presentation*: Eawag Seminar, Dübendorf, Switzerland, April 12, 2013

***Antibiotic resistance as an emerging environmental contaminant?** Bürgmann, H., Santos-Cáceres, J., Sigdel, R., Czekalski, N. *Presentation*: 5th Swiss Microbial Ecology (SME) Meeting, Murten, Switzerland, February 4-6, 2013

2013 Coauthored presentations:

Elimination of antibiotic resistance genes by an ultrafiltration pilot plant at the waste water treatment plant Lausanne, Switzerland? Santos-Cáceres, J., Czekalski, N., Bürgmann, H., *Poster*: 5th Swiss Microbial Ecology (SME) Meeting, Murten, Switzerland, February 4-6, 2013

Comparing process performance and stability between replicate MBBR and suspended growth combined nitrification-anammox reactors. Wells, G. F., Shi, Y.-J., Joss, A., Bürgmann, H., Johnson, D. R., Morgenroth, E. *Presentation:* 9th International Conference on Biofilm Reactors, Paris, France, May 28-31, 2013.

Influence of aggregate architecture and microbial community structure on process stability in combined nitrification-anammox process variations. Wells, G. F., Shi, Y.-J., Joss, A., Johnson, D. R., Bürgmann, H., Morgenroth, E. *Poster:* 2nd Water Research Conference, Singapore, January 20-23, 2013.

Quantification and identification of uncultivable, low nucleic acid (LNA) content bacteria from natural and engineered freshwater environments. Besmer, M., Köttsch, S., Hammes, F., Beck, K., Bürgmann, H. *Presentation:* Eawag Symposium, Dübendorf, Switzerland, September 3, 2013

2012:

***The interplay of organic matter dynamics and microbial communities in the depth gradient of freshwater lakes.** Bürgmann, H., Carstens, D., Schubert, C.J., Vazquez, F., Köllner, K.E. *Presentation:* "The power of the small" - 14th International Symposium on Microbial Ecology (ISME 14). Copenhagen, Denmark, August 19-24, 2012

***OPC method – a simple absolute quantification method correcting for a quantitative PCR efficiency.** Brankatschk, R., Bodenhausen, N., Zeyer, J., Bürgmann, H. *Poster:* "The power of the small" - 14th International Symposium on Microbial Ecology (ISME 14). Copenhagen, Denmark, August 19-24, 2012

2012 Coauthored presentations:

***Are increased antibiotic resistance levels in Swiss lakes related to human activities?** Czekalski, N., Sigdel, R., Bürgmann, H. *Poster:* SETAC World Congress 2012, Berlin, Germany, 20.-24. May, 2012

Antibiotikaresistenzen auf dem Vormarsch: Multiresistente Bakterien im Genfer See. Czekalski, N., Bürgmann, H. *Presentation:* AWEL Amt für Abfall, Wasser, Energie und Luft, Abt. Abfallwirtschaft und Betriebe, Sektion Biosicherheit (SBS), Zürich, Switzerland, 11. June, 2012

Antibiotic resistant bacteria and their genes in waste water (Lausanne) and the Vidy bay, Lake Geneva. Czekalski, N., Bürgmann, H. *Presentation:* Eauservice Lausanne, Division études & constructions, Lausanne Switzerland, 26. June 2012

Neuartige Verunreinigungen im Wasser: Antibiotikaresistenzen auf dem Vormarsch. Multiresistente Bakterien im Genfer See. Czekalski, N., Bürgmann, H. *Presentation:* Gas und Wasserfachtagung des Schweizerischer Vereins des Gas- und Wasserfaches SVGW, Winterthur, Switzerland, 06.September 2012

Functioning of lotic bacteria assemblages in alpine floodplains. Robinson, C.T., Bürgmann, H., Findlay, S., Freimann, R. *Presentation:* ASLO Aquatic Sciences Meeting, Lake Biwa, Otsu, Japan. July 8-13, 2012

2011:

***‡ Bacterial community dynamics in a microbial electrolysis cell biofilm analyzed by 16S rRNA tag sequencing.** Bürgmann, H., Vazquez, F., and Udert, K.M. *Invited presentation:* 4th Congress of European Microbiologists Geneva (FEMS), Switzerland, June 26-30, 2011

***Methane cycling and microbial populations of Lake Kivu.** Bürgmann, H.; Pasche, N., Vazquez, F., Schubert, C., Wüest, A., and Schmid, M. *Poster:* 4th Congress of European Microbiologists Geneva (FEMS), Switzerland, June 26-30, 2011

***Antibiotic resistance as an emerging environmental contaminant.** Bürgmann, H. Czekalski, N., Grossart, H.-P., Kisand, V., Lupo, A., Mania, C.M., Popowska, M., Schwartz, T., Walsh, F., Berendonk, T.U., and COST Action TD0803 'Detecting evolutionary hot spots of antibiotic resistances in Europe'. *Presentation:* 4th Congress of European Microbiologists Geneva, Switzerland, June 26-30, 2011

***Antibiotics resistance as an environmental contaminant in the wastewater treatment system of Lausanne, Switzerland.** Bürgmann, H. and Czekalski, N. *Poster:* 11th Conference of Bacterial Genetics and Ecology (BAGECO), Corfu, Greece, May 29 – June 2, 2011

Microbial community development in a microbial electrolysis cell biofilm. Bürgmann, H., Vazquez, F., and Udert, K.M. *Presentation:* 4th Swiss Microbial Ecology (SME) Meeting, Engelberg, Switzerland, February 2-4, 2011

2011 Coauthored presentations:

***The unique geomorphology, geochemistry and archaeal composition of the subaquatic springs that sustain Lake Kivu's stratification.** Ross, K.A., Pasche, N., Bhattarai, S., Vazquez, F., Bürgmann, H., De Batist, M., Anselmetti, F.S., Schmid, M., Wüest, A. *Poster:* 5th International Limnological Congress, Konstanz, Germany, August 31 - September 3, 2011

Archaeal communities in Lake Kivu. Bhattarai, S., Ross, K.A., Schmid, M., and Wüest, A., Vazquez, F., and Bürgmann, H. *Poster:* Symposium "Methane in Lakes and Wetlands", University of Bern, Switzerland, September 12, 2011

***Spatial-Temporal Patterns and Shifting Role of Bacteria in Ecosystem Functioning in Swiss Alpine Floodplains.** Freimann, Remo; Bürgmann, H.; Findlay, S.; Robinson, C. *Presentation:* Symposium for European Freshwater Sciences (SEFS), Annual Meeting: Freshwater ecosystems- Challenges between conservation and management under global change, Girona, Spain, June 27 - July 1, 2011

***Multiresistant environmental bacteria isolated from a wastewater system in Lausanne, Switzerland.** Czekalski, N., Bürgmann, H. *Poster:* 4th Congress of European Microbiologists (FEMS), Geneva, Switzerland, June 26-30, 2011

***Sites of bacterial chitin hydrolysis in two Swiss lakes of different trophic status.** Köllner, K.E., Carstens, D., Vazquez, F., Schubert, C.J., Bürgmann, H. *Poster:* 4th Congress of European Microbiologists (FEMS), Geneva, Switzerland, June 26-30, 2011

***Reciprocal transplant experiments for examining microbial community assembly in alpine floodplains.** Freimann, Remo; Bürgmann, H.; Findlay, S.; Robinson, C. *Presentation:* North American Benthological Society (NABS), Annual Meeting: Responding to the Global Water Crisis, Providence, Rhode Island, USA, 22-26 May 2011

Seismic stratigraphy and sedimentology of Lake Kivu: a chemically stratified, methane-rich lake. Ross, K.A., Schmid, M., Wüest, A., Pasche, N., Muvindja, F., Bhattarai, S., Vazquez, F., Bürgmann, H., Anselmetti, F.S. *Poster:* Nineteenth Meeting of Swiss Sedimentologists, Fribourg, Switzerland, February 26, 2011

Microbial diversity in alpine floodplains: the shifting role of bacteria in ecosystem functioning. Freimann, R., Robinson, C., Bürgmann, H., and Findlay, S. *Presentation:* 4th Swiss Microbial Ecology (SME) Meeting, Engelberg, Switzerland, February 2-4, 2011

Hot-spots of bacterial chitin hydrolyzation in two Swiss lakes of different trophic status. Köllner, K.E., Carstens, D., Schubert, C., and Bürgmann, H. *Poster:* 4th Swiss Microbial Ecology (SME) Meeting, Engelberg, Switzerland, February 2-4, 2011

Antibiotic-resistance profile of environmental bacteria isolated from a wastewater system in Lausanne, Switzerland. Czekalski, N. and Bürgmann, H. *Poster:* 4th Swiss Microbial Ecology (SME) Meeting, Engelberg, Switzerland, February 2-4, 2011

2010:

‡The weather-makers' transcriptome: Microarray studies with marine DMSP-degrading Roseobacters. Bürgmann, H., Rinta-Kanto, J., Gifford, S., Howard, E.C., Ye, W., Sun, F., Sun, S., and M.A. Moran. *Invited presentation:* REAL symposium "Metagenome and Transcriptome Approaches". IGB – Leibnitz Institute of Freshwater Ecology and Inland Fisheries, Neuglobsov, Germany, January 27-28, 2010

‡Antibiotic resistance in aquatic environments. Bürgmann, H. and N. Czekalski. *Invited lecture:* Hydrobiologisches Seminar. TU Dresden, Germany, January 21, 2010

***Performance and Microbial Population Dynamics of a Nitrification/Anammox Reactor treating Urine.** Bürgmann, H., Vazquez, F., Jenni, S., Larsen, T.A., and K.M. Udert. *Poster:* The Water Research Conference. Lisbon, Portugal, April 11-14, 2010

‡Mikrobielle Diversität - Vielfalt im Verborgenen. H. Bürgmann. Eawag Info-Tag 2010, ETH Zürich, Switzerland, June 22, 2010

Regime shift in a nitrification-anammox sequencing batch reactor. Bürgmann, H., Jenni, S., Vazquez, F., and K.M. Udert. *Poster:* "The Many Faces of Microbial Life", 69th annual assembly of the Swiss Society for Microbiology, SSM. ETH Zürich, Switzerland, June 24-25, 2010

***Regime shift and microbial dynamics in a sequencing batch reactor for nitrification-anammox treatment of urine.** Bürgmann, H., Vazquez, F., Jenni, S., and K.M. Udert. *Presentation:* "Stewards of a changing planet" - 13th International Symposium on Microbial Ecology (ISME 13). Seattle (WA), USA, August 22-27, 2010

‡TD0803 Detecting evolutionary hot spots of Antibiotic Resistances in Europe (DARE). Bürgmann, H., Mc Ardell, C. *Presentation:* Meeting COST – Cluster 2 « Naturwissenschaften », Bern, Switzerland, November 25, 2010

2010 Coauthored presentations:

Linking Microbiology and biogeochemistry in two Swiss lakes. Köllner, K.E., Carstens, D., Schubert, C., and H. Bürgmann. *Poster:* IBP Student Congress, ETH Zürich, Switzerland, April 9, 2010.

***Microbial biodiversity in Swiss alpine floodplains: seasonal aspects and the shifting role of bacteria in ecosystem functioning.** Freimann, R., Robinson, C., Bürgmann, H., and S. Findlay. *Poster:* 2010 ASLO/NABS meeting "Aquatic Sciences: Global Changes from the Center to the Edge", Santa Fe, NM, June 6-11, 2010

Wastewater is a source for antibiotic resistant bacteria in Lake Geneva, Switzerland. Czekalski, N., Kohn, T. and H. Bürgmann. *Poster:* 2nd ASM Conference on Antimicrobial Resistance in Zoonotic Bacteria and Foodborne Pathogens in Animals, Humans and the Environment June 8 - 11, 2010, Toronto, Canada and "The Many Faces of Microbial Life", 69th annual assembly of the Swiss Society for Microbiology, SSM. ETH Zürich, Switzerland, June 24-25, 2010

Hot-spots of bacterial chitin hydrolyzation in two Swiss lakes of different trophic status. Köllner, K.E., Carstens, D., Vazquez, F., Schubert, C., Zeyer, J. and H. Bürgmann. *Poster:* "The Many Faces of Microbial Life", 69th annual assembly of the Swiss Society for Microbiology, SSM. ETH Zürich, Switzerland, June 24-25, 2010

Macun as an example of microbial diversity and functions in alpine floodplains. Freimann, R., Bürgmann, H., S. Findlay, and Robinson, C. *Presentation:* 10th anniversary Macun (SNP), Lavin, Switzerland, July 31, 2010

***Linking bacterial community patterns to amino sugar and amino acid profiles in two Swiss lakes of different trophic status.** Köllner K. E., Carstens D., Vazquez F., Egli A., Schubert C. and Bürgmann H. *Poster:* "Stewards of a changing planet" - 13th International Symposium on Microbial Ecology (ISME 13). Seattle (WA), USA, August 22-27, 2010

2009:

***Microbes involved in oxidation of extremely high methane concentrations in Lake Kivu.** Bürgmann, H.; Pasche, N.; Vazquez, F.; Schubert, C. J.; Wehrli, B.; Schmid, M.; and A. Wüest. *Poster:* ASLO Aquatic Sciences Meeting 2009. Nice, January 25-30, 2009

Microbial population dynamics during nitrification/Anammox treatment of urine. Bürgmann, H., Vazquez, F., Jenni, S., Larsen, T.A., and K.M. Udert. *Poster:* 3rd Swiss Microbial Ecology meeting (SME). Einsiedeln, Switzerland, January 28-30, 2009

The other extreme environment: Microbial dynamics in source-separated urine treatment reactors. Bürgmann, H., Vazquez, F., and K.M. Udert. *Presentation:* Seminar series of the Department Surface Waters: Research and Management. Eawag Kastanienbaum, Switzerland, May 04, 2009,

Aquatic microbes and their Functions: an overview of current activities of the Microbial Ecology group, and ideas on common interests. Bürgmann, H. *Presentation:* Seminar series of the Department Fish Ecology and Evolution. Eawag Kastanienbaum, Switzerland, April 29, 2009

Fingerprinting microbial communities in the environment: DGGE and the alternatives. Bürgmann, H. *Presentation:* Seminar series of the Department Environmental Microbiology. Eawag Dübendorf, Switzerland. April 07, 2009

***Functional diversity of aquatic microbes.** H. Bürgmann. *Presentation:* Summer School Symposium "Interactions between ecological and evolutionary processes in aquatic systems". Eawag Kastanienbaum, Switzerland, July 11, 2009

2009 Coauthored presentations:

***Water protection beyond septic tanks. Nitrogen removal from urine in on-site reactors.** Udert K.M., Jenni S., Kraj A., Bürgmann H., Larsen, T.A.. *Poster:* Alliance for Global Sustainability, Annual Meeting. Zurich, Switzerland, January 26-29, 2009

Microbial degradation of chitin in lacustrine systems linking microbiology to biogeochemistry. Köllner, K., Carstens, D., Bürgmann, H. *Poster:* 3rd Swiss Microbial Ecology meeting (SME). Einsiedeln, Switzerland, January 28-30, 2009

***Heterotrophic population dynamics during nitrification/anammox treatment of urine.** Jenni S., Bürgmann H., F. Vazquez, Kraj A., Larsen T.A., Udert, K.M.. *Poster:* IWA Specialised Conference on Microbial Population Dynamics in Biological Wastewater Treatment. Aalborg, Denmark, May 24-27, 2009

***Degradation and transformation of organic nitrogen compounds in two Swiss lakes - linking biogeochemistry and microbiology.** Carstens, D., Köllner, K., Bürgmann, H., Schubert, C.J. *Poster:* 19th Annual VM Goldschmidt Conference, Davos, Switzerland, June 21, 2009

On-site Advanced Nutrient Removal from Urine. Udert K.M., Bürgmann H., Larsen T.A., Jenni, S. *Poster:* Handlungsfeld Symposium. Eawag Dübendorf, Switzerland, September 15, 2009

2008:

***DMSP degradation in marine Roseobacters: Genomics and transcriptomics.** Bürgmann, H., Howard, E.C., Ye, W., Sun, F., Sun, S., and M.A. Moran. *Presentation:* Society for general Microbiology 162nd Meeting. Edinburgh, March 31- April 6, 2008

2008 Coauthored presentations:

***Ecological genetics and running waters: Role in ecological/evolutionary theory.** Robinson, C., Hughes, J., and H. Bürgmann. *Presentation:* NABS special session Freshwater Benthic Science. NABS 56th Annual Meeting. Salt Lake City, Utah, May 25-30, 2008

2006:

***Global transcriptional response of a marine roseobacter to DMSP.** Bürgmann, H., Howard, E., Ye, W., Sun, F., Sun, S., Napierala, S., and M.A. Moran. *Poster:* ASM general meeting. Orlando, FL, May 21-25, 2006

***Transcriptional response to DMSP in the Marine roseobacter *Silicibacter pomeroyi* strain DSS3.** Bürgmann, H., Howard, E., Ye, W., Sun, F., Sun, S., Napierala, S., and M.A. Moran. *Presentation:* "The hidden powers-microbial communities in action" - 11th International Symposium on Microbial Ecology, ISME-11. Vienna, Austria, August 20-25, 2006

2006 Coauthored presentations:

***Identification of bacterial taxa limiting sulfur flux from the ocean using genomics and metagenomics.** Howard, E., Henriksen, J.R., Buchan, A., Reisch, C. R., Bürgmann, H., Kiene, R. P., Whitman, W. B., and M.A. Moran. *Poster:* Genomes, Medicine and the Environment Conference, Hilton Head, SC, October 2006

2004 and earlier:

Microbial production and community structure in a littoral reed stand. Buesing, N., Filippini, M., Bürgmann, H., and M.O. Gessner. *Poster:* Swiss Microbial Ecology Meeting. Neuchâtel, September 22-23, 2004

****nifH* transcription profiles and population change of soil diazotrophs in the presence of model root exudates.** Bürgmann, H., Meier, S., Bunge, M., Widmer, F., and J. Zeyer. *Presentation:* "Microbial planet: sub-surface to space" - 10th International Symposium on Microbial Ecology, ISME-10. Cancun, Mexico, August 22-27, 2004

***Transcription profiles and population change of soil diazotrophs in the presence of model root exudates.** Bürgmann, H., Meier, S., Widmer, F., and J. Zeyer. *Presentation:* International Symposium on "Structure and Function of Soil Microbiota", Marburg, Germany, September 18-20, 2003

‡**Der mRNA Ansatz: neue Methoden zur Verknüpfung von Populationsstruktur und Aktivität Stickstoff-fixierender Bodenmikroorganismen.** Bürgmann H., Widmer, F., Sigler, W.V., and J. Zeyer. *Invited presentation:* Colloquium of the Swiss Federal Agricultural Research Station Reckenholz (FAL). Zurich, Switzerland, December 4, 2002

***Analysis of *nifH* gene expression in soil.** Bürgmann, H., Widmer, F., Sigler, W.V., and J. Zeyer. *Poster:* „Management of Soil Quality – Using Microbial Resources“ - COST Action 831 Workshop. Budapest, Hungary, September 12-14, 2002

***Detection and analysis of *nifH* mRNA from pure cultures and communities growing in soil.** Bürgmann, H., Sigler, W.V.,

Widmer, F., and J. Zeyer. *Poster*: 102nd General Meeting of the American Society for Microbiology, Salt Lake City, USA, May 19-23, 2002

‡**Nachweis, Transport und Interaktionen von Mikroorganismen im Boden.** Maurhofer, M., Bürgmann, H., Keel, C., Défago, G., Zeyer, J., and D. Haas: *Invited presentation*: SPP Biotech / BATS (Zentrum für Biosicherheit und Nachhaltigkeit): Perspektiven der Biosicherheit - Rückblick und Ausblick auf die Biosicherheitsforschung in der Schweiz. Bern, Switzerland, April 5, 2002

***Detection and Analysis of *nifH* mRNA in soil.** Bürgmann, H., Widmer, F., Sigler, W.V., and J. Zeyer. *Poster*: COST Action 831 workshop „Biotechnology of Soil: Monitoring, Conservation and Remediation“, Wageningen, the Netherlands, November 22-23, 2001

Nitrogen fixation by free-living microorganisms: specific detection of *nifH* genes and activities in soil. Bürgmann, H., Widmer, F., Sigler, W.V., and J. Zeyer. *Presentation*: Workshop of Swiss members of COST Action 831. Zürich, Switzerland, September 14, 2001

Monitoring *Azotobacter vinelandii* nitrogen fixation activity in soil: acetylene reduction and *nifH* gene abundance. Bürgmann, H., Widmer, F., and J. Zeyer. *Presentation*: Annual Meeting of the German Soil Science Society (DBG). Vienna, Austria, September 1-9, 2001

***Nitrogen fixation by free-living soil microorganisms: group-specific detection of *nifH* genes and activities in soil.** Bürgmann, H., Widmer, F., Sigler, W. V., and J. Zeyer. *Presentation*: “Interactions in the microbial world” - 9th International Symposium on Microbial Ecology, ISME-9. Amsterdam, the Netherlands, August 26-31, 2001

Monitoring *Azotobacter vinelandii* nitrogen fixation activity in soil: acetylene reduction and *nifH* gene abundance. Bürgmann, H., Widmer, F., and J. Zeyer. *Poster*: Annual meeting of the German Society for General and Applied Microbiology (VAAM). Oldenburg, Germany, March 25-28, 2001

***Reliable DNA extraction from soil: optimization of the bead-beating method.** Bürgmann, H., Pesaro, M., Widmer, F., and J. Zeyer. *Presentation and poster*: „Evaluating Soil Quality“- Combined Meeting of COST Action 831. Kiel, Germany, May 18-20, 2000

Characterization of N₂ fixation in soil using molecular methods. Bürgmann, H., Widmer, F., and J. Zeyer. *Poster*: Annual meeting of the German Society for General and Applied Microbiology (VAAM). Munich, March 12-16, 2000

Reliable DNA-extraction from soil: optimization of bead-beating methods. Bürgmann, H., Pesaro, M., Widmer, F., and J. Zeyer. *Poster*: Annual meeting of the Swiss Society for Microbiology (SGM). Zurich, March 23-24, 2000