

CURRICULUM VITAE - STEFAN M. SIEVERT

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EDUCATION

B.S. (Vordiplom), Biology, Johannes Gutenberg-University, Mainz, Germany, 1990
Visiting graduate student (Fulbright Grantee), University of Washington (WA) 1992/1993
M.S., (Diplom), Biological Oceanography, University of Bremen, Germany, 1996
Ph.D., Microbial Ecology, University of Bremen, Germany, 1999, summa cum laude

PROFESSIONAL EXPERIENCE

Associate Scientist, Woods Hole Oceanographic Institution (WHOI), 01/2007 – present
Assistant Scientist, WHOI, 06/2002 – 12/2006
Postdoctoral Investigator, WHOI, 03-05/2002
Postdoctoral Scholar, WHOI, 09/2000 – 02/2002
Postdoctoral Investigator, Max-Planck-Institute for Marine Microbiology, Bremen, Germany, 11/1999 – 08/2000

RESEARCH INTERESTS

Elucidating the composition, diversity, and function of microbial communities, with the objective of understanding the relationship between microorganisms and their role in the ocean biogeochemical cycles. Of particular interest are environments where chemolithoautrophic processes are important, such as deep-sea hydrothermal vents, gas- and hydrocarbon seeps, and oxygen minimum zones. Emphasis is on microbes involved in sulfur cycling, and the ecological importance of CO₂-fixation pathways other than the Calvin-Benson-Bassham cycle.

CRUISE PARTICIPATION

R/V Atlantis/Alvin, AT-15-38, Guaymas Basin, Gulf of California and 9-10°N East Pacific Rise, Oct 13, 2008 – Nov 5, 2008. Chief Scientist.

R/V Atlantis/Alvin, AT-15-28, 9-10°N East Pacific Rise, Dec 28, 2007 – Jan 19, 2008. Chief Scientist.
R/V Atlantis/Alvin, AT-15-15, 9-10°N East Pacific Rise, Jan 8 – Feb 7, 2007.
R/V Atlantis/Alvin, RESET06 cruise 9-10°N East Pacific Rise, June 18 – July 7, 2006.
R/V Atlantis/Alvin, EXTREME2002 cruise 9-10°N East Pacific Rise, Oct 20 – Nov 12, 2002.
R/V Meteor, Hydrothermal Fluxes and Biological Production in the Aegean and Fluxes in the Anoxic Basins of the Mediterranean Ridge (M40/2), Dec 2 – Dec 23, 1998

PUBLICATIONS:

- Ehrhardt, C. J., R. M. Haymon, **S. M. Sievert**, and P. A. Holden. 2009. An improved method for nanogold *in situ* hybridization visualized with environmental scanning electron microscopy. *Journal of Microscopy* doi: 10.1111/j.1365-2818.2009.03207.x
- Voordeckers J. W., M. Do, M. Hügler, V. Ko, **S. M. Sievert**, and C. Vetriani. 2008. Culture dependent and independent analyses of 16S rRNA and ATP citrate lyase genes: a comparison of microbial communities from different black smoker chimneys on the Mid-Atlantic Ridge. *Extremophiles* 12:627-640.
- Sievert S. M.**, K. M. Scott, M. Klotz, et al. 2008. The genome of epsilonproteobacterial chemolithoautotroph *Sulfurimonas denitrificans*. *Applied and Environmental Microbiology* 74:1145-1156
- Sievert., S.M.**, M. Hügler, C. O. Wirsen, and C. D. Taylor. 2008. Sulfur oxidation at deep-sea hydrothermal vents. Pp 238-258 *In* “Microbial Sulfur Metabolism”, C. Dahl & C. G. Friedrich (eds), Springer, Berlin, Germany. ISBN-13 978-3-540-72679-1
- Kniemeyer O., F. Musat, **S. M. Sievert**, K. Knittel, H. Wilkes, M. Blumenberg, W. Michaelis, C. Bolm, S. B. Joye, and F. Widdel. 2007. Anaerobic oxidation of propane and butane by novel marine sulphate-reducing bacteria. *Nature* 449:898-901.
- Sievert, S. M.**, R. Kiene, and H. Schulz. 2007. The sulfur cycle. *The Oceanography Society* June '07 special issue “A Sea of Microbes” edited by Lita Procter and David Karl.
- Tait, E., M. Carman, and **S. M. Sievert**. 2007. Phylogenetic diversity of bacteria associated with ascidians in Eel Pond (Woods Hole, Massachusetts, USA). *Journal of Experimental Marine Biology and Ecology*. 342:138-146
- Markert S., C. Arndt, H. Felbeck, R. A. Feldman, D. Becher, **S. M. Sievert**, M. Hügler, D. Albrecht, J. Robidart, S. Bench, M. Hecker, and T. Schweder. 2007. Approaching the uncultivable endosymbiont of *Riftia pachyptila* by physiological proteomics. *Science* 315:247-250.
- Hügler M., H. Huber, S. J. Molyneaux, C. Vetriani, and **S. M. Sievert**. 2007. Autotrophic CO₂ fixation via the reductive tricarboxylic acid cycle in different lineages within the phylum *Aquificae*: Evidence for two ways of citrate cleavage. *Environmental Microbiology* 9:271-276.
- Sievert, S. M.**, E. B. A. Wieringa, C. O. Wirsen, C. D. Taylor. 2007. Growth and mechanism of filamentous-sulfur formation by *Candidatus Arcobacter sulfidicus* in opposing oxygen-sulfide gradients. *Environmental Microbiology* 9:81-92.

- Scott, K. M., **S. M. Sievert** et al. The genome of deep-sea vent chemolithoautotroph *Thiomicrospira crunogena* XCL-2. PLoS Biology, Vol. 4, No. 12, e383 doi:10.1371/ journal.pbio.0040383
- Bach, W., K. E. Edwards, J. M. Hayes, J. A. Huber, **S. M. Sievert**, and M. L. Sogin. 2006. Energy in the Dark: Fuel for Life in the Deep Ocean and Beyond. EOS Transactions, American Geophysical Union, Vol. 87, No. 7, 14 February 2006
- J. D. Tolli, **S. M. Sievert**, and C. D. Taylor. 2006. Unexpected Diversity of Bacteria Capable of Carbon Monoxide Oxidation in a Coastal Marine Environment, and Contribution of the Roseobacter-Associated Clade to Total CO Oxidation. Applied and Environmental Microbiology 72:1966-1973.
- Hügler M., C. O. Wirsen, G. Fuchs, C. D. Taylor, and **S. M. Sievert**. 2005. Evidence for autotrophic CO₂ fixation via the reductive tricarboxylic acid cycle by members of the ϵ -subdivision of proteobacteria. Journal of Bacteriology, 187: 3020-3027
- Zemmelink, H. J., L. Houghton, **S. M. Sievert**, N. M. Frew, J. W. H. Dacey. 2005. Dimethylsulphide, Dimethylsulphoniopropionate, Dimethylsulphoxide, and bacteria in the sea-surface microlayer and subsurface water. Marine Ecology Progress Series, 295:33-42.
- Simmons S. L., **S. M. Sievert**, R. B. Frankel, D. A. Bazylinski, K. J. Edwards. 2004. Spatio-temporal distribution of marine magnetotactic bacteria in a seasonally stratified coastal salt pond. Appl. Environ. Microbiol. 70: 6230-6239.
- Wirsen C. O., **S. M. Sievert**, C. M. Cavanaugh, S. J. Molyneaux, A. Ahmad, L. T. Taylor, E. F. DeLong and C. D. Taylor. 2002. Characterization of an autotrophic sulfide-oxidizing marine *Arcobacter* that produces filamentous sulfur. Appl. Environ. Microbiol., 68:316-325.
- Kuever J., **S. M. Sievert**, H. Stevens, T. Brinkhoff, G. Muyzer. 2002. Microorganisms of the oxidative and reductive part of the sulphur cycle at a shallow-water hydrothermal vent in the Aegean Sea (Milos, Greece). Cahiers de Biologie Marine 43: 413-416
- Sievert S. M.**, W. Ziebis, J. Kuever, and K. Sahm. 2000. Relative abundance of *Archaea* and *Bacteria* along a thermal gradient quantified by rRNA slot-blot hybridization at a shallow-water hydrothermal vent. Microbiology, 146:1287-1293.
- Sievert, S. M.**, T. Heidorn, and J. Kuever. 2000. *Halothiobacillus kellyi* sp. nov., a mesophilic obligately chemolithoautotrophic sulfur-oxidizing bacterium isolated from a shallow-water hydrothermal vent in the Aegean Sea and emended description of the genus *Halothiobacillus*. Int. J. Syst. Evol. Microbiol., 50:1229-1237.
- Sievert, S. M.**, and J. Kuever. 2000. *Desulfacinum hydrothermale*, sp. nov., a thermophilic sulfate-reducing bacterium from geothermally heated sediments near Milos island (Greece). Int. J. Syst. Evol. Microbiol., 50:1239-1246.
- Sievert S. M.**, J. Kuever, and G. Muyzer. 2000. Identification and distribution of 16S rDNA-defined bacterial populations at a shallow submarine hydrothermal vent. Applied and Environmental Microbiology, 66:3102-3109.

- Dando, P. R., S. Aliani, C. N. Bianchi, S. Cocito, S. W. Fowler, J. Gundersen, L. Hooper, R. Kölbl, J. Kuever, P. Linke, K. C. Makropoulos, R. Meloni, J.-C. Miquel, C. Morri, S. Müller, C. R. Robinson, H. Schlesner, **S. Sievert**, R. Stöhr, D. Stüben, M. Thomm, S. P. Varnavas, & W. Ziebis. 2000. Hydrothermalism in the Aegean Sea. *Chemistry and Physics of the Earth, Part B*, 25:1-8
- Sievert, S. M.**, T. Brinkhoff, G. Muyzer, W. Ziebis, and J. Kuever. 1999. Spatial heterogeneity of bacterial populations along an environmental gradient at a shallow submarine hydrothermal vent near Milos island (Greece). *Applied and Environmental Microbiology*, 65:3834-3842
- Brinkhoff, T., **S. M. Sievert**, J. Kuever, and G. Muyzer. 1999. Distribution and diversity of sulfur-oxidizing *Thiomicrospira* spp. at a shallow-water hydrothermal vent in the Aegean Sea (Milos, Greece). *Applied and Environmental Microbiology*, 65:3843-3849.
- Böttcher, M. E., **S. M. Sievert**, and J. Kuever. 1999. Fractionation of sulfur isotopes during dissimilatory reduction of sulfate by a thermophilic gram-negative bacterium at 60°C. *Archives of Microbiology*, 172:125-128.

INVITED PRESENTATIONS AT SCIENTIFIC MEETINGS/SYMPOSIA

- Sievert S. M. Genome Enabled Insights into the Ecology of Sulfur-Oxidizing Epsilonproteobacteria. EMBO-FEMS Workshop on Microbial Sulfur Metabolism, Tomar, Portugal, 15-18 March, 2009.
- Sievert S. M. An integrated approach to study chemolithoautotrophic processes at deep-sea hydrothermal vents at 9°N, East Pacific Rise. International Workshop on Deep-Sea Microbiology, Xiamen, China, November 22-24, 2008.
- Sievert S. M. Who is driving the system: Microbial sulfur metabolism and autotrophic carbon-fixation at vents. InterRidge Theoretical Institute, Woods Hole, September 10-14, 2007.
- Hügler, M., and S. M. Sievert. Sulfur oxidation at deep-sea hydrothermal vents. International Symposium on Microbial Sulfur Metabolism. Münster, Germany, June 29 - July 02, 2006.
- Sievert, S. M. The Genome of the Sulfur-Oxidizing Bacterium *Thiomicrospira denitrificans*: A Model for Epsilon-Bacterial Autotrophs at Vents and other Redox Interfaces. ASM General Meeting, Orlando, FL, May 21-26, 2006.
- Sievert, S. M. Beyond the Calvin Cycle: Microbiology and Biogeochemistry of Autotrophic Microbes in the Subsurface at Hydrothermal Vents. General Assembly of the European Geosciences Union, Vienna, Austria, April 2-7, 2006.
- Sievert, S. M., et al. Microbiology and biogeochemistry of autotrophic microbes in the subsurface at hydrothermal vents: the potential importance of the reductive tricarboxylic acid cycle for autotrophic carbon fixation. Third International Symposium on Hydrothermal Vent and Seep Biology, San Diego, CA, September 2005.

HONORS AND AWARDS

Fulbright Scholarship (1992), visiting graduate student at the School of Oceanography, University of Washington, Seattle, WA, sponsor: Prof. John A. Baross

Postdoctoral Scholar Award in Ocean Science and Engineering, WHOI (2000)

Fellowship of the Hanse Institute for Advanced Studies, Delmenhorst, Germany (2004)