

## *Curriculum Vitae*

### Gregory J. Dick

Department of Earth & Environmental Sciences  
University of Michigan  
1100 N. University Ave.  
Ann Arbor, MI 48109-1005

email: [gdick@umich.edu](mailto:gdick@umich.edu)  
phone: (734) 763-3228  
fax: (734) 763-4690  
[www.earth.lsa.umich.edu/geomicrobiology/](http://www.earth.lsa.umich.edu/geomicrobiology/)

#### **Education**

- 2006 Ph.D., Marine Biology, Scripps Institution of Oceanography, University of California San Diego
- 2002 Microbial Diversity Summer Course, Marine Biological Laboratory, Woods Hole, MA.
- 2000 B.A., Biology, University of Virginia (Chemistry Minor)

#### **Professional Positions**

- 2016-present Associate Chair for Curriculum and Undergraduate Studies, Department of Earth and Environmental Sciences, University of Michigan
- 2014-present Associate Professor, Department of Earth and Environmental Sciences, University of Michigan
- 2014-present Associate Professor, Department of Ecology and Evolutionary Biology, University of Michigan
- 2011-present Faculty Affiliate, Program in the Biomedical Sciences, University of Michigan
- 2009-present Faculty Affiliate, Center for Computational Medicine and Bioinformatics
- 2008-2014 Faculty Associate, Program in the Environment, University of Michigan
- 2008-2014 Assistant Professor, Department of Earth and Environmental Sciences, University of Michigan
- 2011-2014 Assistant Professor, Department of Ecology and Evolutionary Biology, University of Michigan
- 2007-2008 Postdoctoral Researcher, Department of Earth and Planetary Science, University of California, Berkeley
- 2000-2006 Graduate Research Fellow, Scripps Institution of Oceanography, UCSD
- 1999 Research Associate, NASA Ames Astrobiology Academy

#### **Honors and Awards**

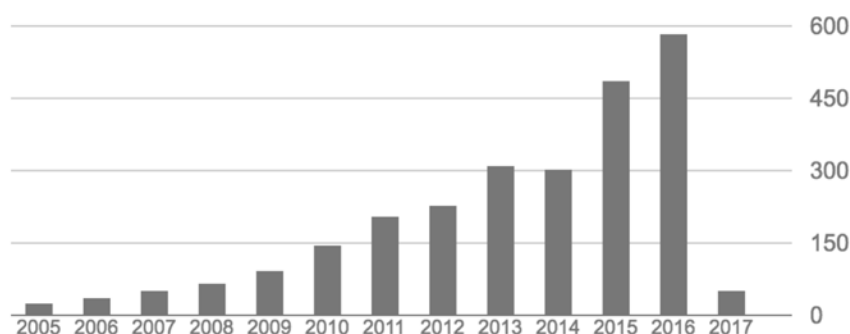
- 2015 Individual Award for Outstanding Contributions to Undergraduate Education, College of Literature, Science, and Arts, University of Michigan
- 2013 Alfred P. Sloan Research Fellow in Ocean Sciences
- 2010 University of Michigan Nominee for the David and Lucile Packard Fellowship in Science and Engineering
- 2006 2<sup>nd</sup> place Oral Presentation, Southern California Geobiology Annual Meeting, Irvine, CA.
- 2000 2<sup>nd</sup> place, Katz Symposium for Undergraduate Research, University of Virginia

## Publications

### Google Scholar:

Citation indices	All	Since 2012
Citations	2588	1955
h-index	26	24
i10-index	32	32

Citations per year



**Note that the convention for my field is for the senior author (PI) to be last author.**

underline = group member; <sup>1</sup> = student advisee; <sup>2</sup> = postdoc advisee

### *Peer-reviewed papers, reviews, and book chapters*

2017

54. Meyer, KA, Davis, TW, Watson, SB, Deneff, VJ, Berry, MA & Dick, GJ (2017). Genome sequences of lower Great Lakes *Microcystis* sp. reveal strain-specific genes that are present and expressed in western Lake Erie blooms. *PLoS One*, submitted.
53. Sharrar AM, BE Flood, JV Bailey, DS Jones, B Biddanda, SA Ruberg, DN Marcus, and GJ Dick (2017). Novel large sulfur bacteria in the metagenomes of groundwater-fed chemosynthetic microbial mats in the Lake Huron basin. *Frontiers in Microbiology*, in revision.
52. Stadler LB, J Delgado Vela, S Jain, GJ. Dick, and NG Love (2017). Elucidating the impact of microbial community diversity on pharmaceutical biotransformation during wastewater treatment. *Environmental Science and Technology*, in 2<sup>nd</sup> review.

51. MA Berry, JD White, TW Davis, S Jain, TH Johengen, GJ Dick, O Sarnelle, and VJ Denef (2017). Are oligotypes meaningful ecological and phylogenetic units? A case study of *Microcystis* in freshwater lakes. *Frontiers in Microbiology*, in press.
50. Marcus DN, A Pinto, K Anantharaman, SA Ruberg, EL Kramer, L Raskin, GJ Dick (2017). Diverse manganese (II) - oxidizing bacteria are prevalent in drinking water systems. *Environmental Microbiology Reports*, in press.
49. Berry, M, RM Cory, TW Davis, MB Duhaime, TJ Johengen, GW Kling, JA Marino, PA Den Uyl, D Gossiaux, GJ Dick, and VJ Denef (2017). Cyanobacterial harmful algal blooms are a biological disturbance to western Lake Erie bacterial communities. *Environmental Microbiology*, in press.
48. Snider, MJ, BA Biddanda, SL Grim<sup>1</sup>, and GJ Dick. Versatile photophysiology of compositionally similar cyanobacterial mat communities inhabiting submerged sinkholes of Lake Huron. *Aquatic Microbial Ecology*, in press.
47. Kinsman-Costello, LE<sup>2</sup>, CS Sheik<sup>2</sup>, ND Sheldon, GA Burton, D Costello, DN Marcus, P Den Uyl, and G.J. Dick (2017). Groundwater shapes sediment biogeochemistry and microbial diversity in a submerged sinkhole. *Geobiology* in press. DOI: 10.1111/gbi.12215

2016

46. Grim, SL, and GJ Dick (2016). Photosynthetic Versatility in the Genome of *Geitlerinema* sp. PCC 9228 (Formerly *Oscillatoria limnetica* ‘Solar Lake’), a Model Anoxygenic Photosynthetic Cyanobacterium. *Frontiers in Microbiology* 7: 1546.
45. Den Uyl, P, LL Richardson, S Jain, and GJ Dick (2016). Unraveling the physiological roles of *Geitlerinema* sp. BBD and other Black Band Disease community members through genomic analysis of a mixed culture. *PLoS ONE* 11: e0157953.
44. Li, M<sup>2</sup>, S Jain, and GJ Dick (2016). Genomic and transcriptomic resolution of organic matter utilization among deep-sea bacteria in Guaymas Basin hydrothermal plumes. *Frontiers in Extreme Microbiology* 7: 1125.
43. Flood, BP, B Fliss, D Jones, J Bailey, GJ Dick, and S Jain, M Mußmann, and M Winkel (2016). Draft genome of *Thiomargarita nelsonii*, a giant sulfide-oxidizing bacterium from a marine methane seep, assembled from tetranucleotide binning of a metagenome. *Frontiers in Extreme Microbiology* 7: 603. DOI: 10.3389/fmicb.2016.00603.
42. Cory RM, TW Davis, GJ Dick, TJ Johengen, VJ Denef, MA Berry, SE Page, SB Watson, K Yuhas, & GW Kling (2016). Seasonal dynamics in dissolved organic matter, hydrogen peroxide, and cyanobacterial blooms in Lake Erie. *Frontiers in Marine Science* 3: 54.
41. Lazar, CS, BJ Baker<sup>1</sup>, K Seitz, AS Hyde, GJ Dick, K Hinrichs, and AP Teske (2016).

Genomic evidence for distinct carbon substrate preferences and ecological niches of widespread benthic archaea in estuarine sediments. *Environmental Microbiology* 18: 1200-1211.

40. Toner, BM, CR German, GJ Dick, and JA Breier (2016). Deciphering the Complex Chemistry of Deep-Ocean Particles Using Complementary Synchrotron X-ray Microscope and Microprobe Instruments. *Accounts of Chemical Research*. 49: 128-137. DOI: 10.1021/acs.accounts.5b00282.
39. Voorhies, AV<sup>1</sup>, SD Eisenlord, DN Marcus, MB Duhaime, JD Cavalcoli, BB Biddanda, and GJ Dick (2016). Ecological and genetic interactions between cyanobacteria and viruses in a low-O<sub>2</sub> mat community inferred through metagenomics and metatranscriptomics. *Environmental Microbiology* 18: 358-371.
38. Anantharaman<sup>1</sup>, K, JA Breier and GJ Dick (2016). Metagenomic resolution of microbial functions in deep-sea hydrothermal plumes across the Eastern Lau Spreading Center. *The ISME Journal* 10: 225-239.

2015

37. Pinto, A, DN Marcus, U Ijaz, Q Bautista-de los Santos, GJ Dick and L Raskin (2015). Genome of a Nitrospira-like organism with the potential to oxidize ammonia and nitrite. *mSphere* 1: e00054-15
36. Dick, G.J. and P.Y.T. Lam (2015). Omic approaches to microbial geochemistry. *Elements* 11: 403-408. DOI: 10.2113/gselements.11.6.403
35. Li, M.<sup>2</sup>, B.J. Baker<sup>1</sup>, K. Anantharaman<sup>1</sup>, S. Jain, J.A. Breier, and G.J. Dick (2015). Genomic and transcriptomic evidence for scavenging of diverse organic compounds by widespread deep-sea archaea. *Nature Communications* 6: 8933.
34. Schofield, M.M., S. Jain, G.J. Dick, and D.H. Sherman (2015). Identification and analysis of the bacterial endosymbiont specialized for production of the chemotherapeutic natural product ET-743. *Environmental Microbiology* 17: 3964-3975.
33. Reed, D.C.<sup>2</sup>, J.A. Breier, H. Jiang, K. Anantharaman<sup>1</sup>, C.A. Klausmeier, B.M. Toner, C. Hancock, K. Speer, A.M. Thurnherr, and G.J. Dick (2015). Predicting the response of the deep-ocean microbiome to geochemical perturbations by hydrothermal vents. *The ISME Journal* 9: 1857-1869.
32. Sheik, C.S.<sup>2</sup>, E.I. Stevenson, P. Den Uyl<sup>1</sup>, C.A. Arendt, S.M. Aciego, and G.J. Dick (2015). Glacial discharge associated microbial communities exhibit temporal and spatial stability and correlate with geochemistry. *Frontiers in Extreme Microbiology* 6: 495.
31. Sheik, C.S.<sup>2</sup>, K. Anantharaman<sup>1</sup>, John A. Breier, Jason B. Sylvan, Katrina J. Edwards, and G.J. Dick (2015). Spatially resolved sampling reveals dynamic microbial communities in rising hydrothermal plumes across a back-arc basin. *The ISME Journal* 9: 1434-1445.

30. Brett J. Baker<sup>1</sup>, Cassandre S. Lazar, Andreas Teske, and G.J. Dick (2015). Genomic resolution of linkages in carbon, nitrogen, and sulfur cycling among widespread estuary sediment bacteria. *Microbiome* 3:14. DOI: 10.1186/s40168-015-0077-6

2014

29. Castro-Contreras, S.I., M.K. Gingras, E. Pecoits, N.R. Aubet, D.A. Petrsah, G.J. Dick, and K.O. Konhauser (2014). Textural and geochemical features of freshwater microbialites from Laguna Bacalar, Quintana Roo, Mexico. *Palaios* 29: 192-209. doi: <http://dx.doi.org/10.2110/palo.2013.063>
28. Breier, J.A., D.A. Gomez-Ibanez; R.T. Sayre-McCord; R. Sanger; C. Rauch; M. Coleman, S.A. Bennett, B. Cron; C.S. Sheik<sup>2</sup>, M. Li<sup>2</sup>, C.R. German, B.M. Toner, G.J. Dick (2014). A large volume particulate and water multi-sampler with in situ preservation for microbial and biogeochemical studies. *Deep-Sea Research Part I* 94: 195-206.
27. Vorobev, A., S. Jagadevan, S. Jain, K. Anantharaman<sup>1</sup>, G.J. Dick, S. Vuilleumier, and J.D. Semrau (2014). Genomic and transcriptomic analyses of the facultative methanotroph *Methylocystis* sp. strain SB2 grown on methane or ethanol. *Applied and Environmental Microbiology* 80: 3044-3052.
26. Anantharaman, K.A.<sup>1</sup>, M.B. Duhaime, J.A. Breier, K. Wendt, B.M. Toner, and G.J. Dick (2014). Sulfur oxidation genes in diverse deep-sea viruses. *Science* 344: 757-760.
25. Li, M.<sup>2</sup>, B.M. Toner, B.J. Baker<sup>1</sup>, J.A. Breier, C.S. Sheik<sup>2</sup>, and G.J. Dick (2014). Microbial iron uptake as a mechanism for dispersing iron from deep-sea hydrothermal vents. *Nature Communications* 5: 3192. doi: 10.1038/ncomms4192
24. Reed, D.C.<sup>2</sup>, C.K Algar, J.A. Huber, and G.J. Dick (2014). Gene-centric approach to integrating environmental genomics and biogeochemical models. *Proceedings of the National Academy of Sciences* 111: 1879-1884. Doi: 10.1073/pnas.1313713111.
23. Li, M.<sup>2</sup>, S. Jain, B.J. Baker<sup>1</sup>, C. Taylor<sup>1</sup>, and G.J. Dick (2014). Novel hydrocarbon monooxygenase genes in the metatranscriptome of a natural deep-sea hydrocarbon plume. *Environmental Microbiology* 16: 60-71. doi: 10.1111/1462-2920.12182
22. Sheik, C.S.<sup>2</sup>, S. Jain, and G.J. Dick (2014). Metabolic flexibility of enigmatic SAR324 revealed through metagenomics and metatranscriptomics. *Environmental Microbiology* 16: 304-317. doi: 10.1111/1462-2920.12165

2013

21. Baker, B.J.<sup>1</sup>, C.S. Sheik<sup>2</sup>, C.A. Taylor<sup>1</sup>, S. Jain, A. Bhasi, J.D. Cavalcoli, and G.J. Dick (2013). Community transcriptomic assembly reveals microbes that contribute to deep-sea carbon and nitrogen cycling. *The ISME Journal* 7: 1962-1973. doi: 10.1038/ismej.2013.85

20. Dick, G.J., K. Anantharaman<sup>1</sup>, B.J. Baker<sup>1</sup>, M. Li<sup>2</sup>, D.C. Reed<sup>2</sup>, and C.S. Sheik<sup>2</sup> (2013). Hydrothermal vent plume microbiology: ecological and biogeographic linkages to seafloor and water column habitats. *Frontiers in Microbiology* 4: 124. doi: 10.3389/fmicb.2013.00124.

19. Anantharaman, K.<sup>1</sup>, J.A. Breier, C.S. Sheik<sup>2</sup>, and G.J. Dick (2013). Evidence for hydrogen oxidation and metabolic plasticity in widespread deep-sea bacteria. *Proceedings of the National Academy of Sciences* 110: 330-335. doi: 10.1073/pnas.1215340110.

## 2012

18. Baker, B.J.<sup>1</sup>, R.A. Lesniewski, and G.J. Dick (2012). Genome-enabled transcriptomics reveals archaeal populations that drive nitrification in a deep-sea hydrothermal plume. *The ISME Journal* 6: 2269-2279. doi: 10.1038/ismej.2012.64.

17. Lesniewski, R.A., S. Jain<sup>1</sup>, P.D. Schloss, K. Anantharaman<sup>1</sup>, and G.J. Dick (2012). The metatranscriptome of a deep-sea hydrothermal plume is dominated by water column methanotrophs and lithotrophs. *The ISME Journal* 6: 2257–2268. doi: 10.1038/ismej.2012.63.

16. Voorhies, A.A.<sup>1</sup>, B.A. Biddanda, S.T. Kendall, S. Jain<sup>1</sup>, D.N. Marcus<sup>1</sup>, S.C. Nold, N.D. Sheldon, and G.J. Dick (2012). Cyanobacterial life at low O<sub>2</sub>: Community genomics and function reveal metabolic versatility and extremely low diversity of a cyanobacterial mat. *Geobiology* 10: 250-267. doi: 10.1111/j.1472-4669.2012.00322.x.

## 2011

15. Biddanda, B. A., Nold, S. C., Dick, G. J., Kendall, S. T., Vail, J. H., Ruberg, S. A. & Green, C. M. (2011). Rock, water, microbes: underwater sinkholes in Lake Huron are habitats for ancient microbial life. *Nature Education Knowledge* 2(12):9.

14. Lee, P.K.H., D. Cheng, P. Hu, K.A. West, G.J. Dick, E.L. Brodie, G.L. Andersen, S.H. Zinder, J. He, and L. Alvarez-Cohen (2011). Comparative genomics of two newly isolated Dehalococcoides strains and an enrichment using a genus microarray. *The ISME Journal* 5: 1014-1024. doi: 10.1038/ismej.2010.202.

## 2010

13. Baker, B.J., L.R. Comolli, G.J. Dick, L. Hauser, D. Hyatt, B. Dill, M. Land, N.C. VerBerkmoes, R.L. Hettich and J.F. Banfield (2010). Enigmatic, ultra-small uncultivated Archaea. *Proceedings of the National Academy of Sciences* 107: 8806-8811. doi: 10.1073/pnas.0914470107.

12. Dick, G.J., and B.M. Tebo (2010). Microbial diversity and biogeochemistry of the Guaymas Basin hydrothermal plume. *Environmental Microbiology* 12, 1334-1347. doi: 10.1111/j.1462-2920.2010.02177.x.

## 2009

11. Dick, G.J., A. Andersson, B.J. Baker, S.S. Simmons, B.C. Thomas, and J.F. Banfield (2009). Community-wide analysis of microbial genome sequence signatures. *Genome Biology*, R85: 10. doi:10.1186/gb-2009-10-8-r85.
10. Dick, G.J., B.G. Clement, S.M. Webb, F.J. Fodrie, J.R. Bargar, and B.M. Tebo (2009). Enzymatic microbial Mn oxidation in the Guaymas Basin deep-sea hydrothermal plume. *Geochimica et Cosmochimica Acta*, 73: 6517-6530. doi:10.1016/j.gca.2009.07.039.
9. Goltsman, D.S.A., V.J. Deneff, S.W. Singer, N.C. VerBerkmoes, M.Lefsrud, R. Muller, G.J. Dick, C. Sun, K. Wheeler, A. Zemla, B.J. Baker, L. Hauser, M. Land, M. Shah, M.P. Thelen, R.L. Hettich, and J.F. Banfield (2009). Community genomic and proteomic analyses of chemoautotrophic, iron-oxidizing *Leptospirillum rubrum* (group II) and *Leptospirillum ferrodiazotrophum* (group III) bacteria in acid mine drainage biofilms. *Applied and Environmental Microbiology*, 75: 4599-4615. doi: 10.1128/AEM.02943-08.
8. Andersen, C.R., G.J. Dick, M-L. Chu, J-C. Cho, R. Davis, S. Bräuer, and B.M. Tebo (2009). *Aurantimonas manganoxydans*, sp. nov. and *Aurantimonas litoralis*, sp. nov. : Manganese oxidizing representatives of a globally distributed clade of  $\alpha$ -proteobacteria from the order *Rhizobiales*. *Geomicrobiology Journal*, 26: 189-198. doi: 10.1080/0149045090272484.

2008

7. Dick, G.J., S. Podell, H.A. Johnson, Y. Rivera-Espinoza, R. Bencheikh-Latmani, J.K. McCarthy, J.W. Torpey, B.G. Clement, T. Gaasterland, and B.M. Tebo (2008). Genomic insights into Mn(II) oxidation by the marine alphaproteobacterium *Aurantimonas* strain SI85-9A1. *Applied and Environmental Microbiology*, 74: 2646-2658. doi: 10.1128/AEM.01656-07.
6. Dick, G.J., J.W. Torpey, T.J. Beveridge, and B.M. Tebo (2008). Direct identification of a bacterial Mn(II) oxidase, the multicopper oxidase MnxG, from spores of several different marine *Bacillus* species. *Applied and Environmental Microbiology*, 74: 1527-1534. doi: 10.1128/AEM.01656-07.

2007

5. Tebo, B.M., B.G. Clement, and G.J. Dick (2007). Biotransformations of manganese, p. 1223-1238. In C. J. Hurst, R. L. Crawford, J. L. Garland, D. A. Lipson, A. L. Mills, and L. D. Stetzenbach (ed.), *Manual of environmental microbiology*, 3rd ed. ASM Press, Washington, DC.

2006

4. Dick, G.J., Y.E. Lee, and B.M. Tebo (2006). Manganese(II)-oxidizing *Bacillus* spores in Guaymas Basin hydrothermal sediments and plumes. *Applied and Environmental Microbiology*, 72: 3184-3190. doi: 10.1128/AEM.72.5.3184-3190.2006.
3. Mix, L, G.J. Dick, and F.J. Stewart (2006). The Astrobiology Primer, an outline of general knowledge-Version 1, 2006. *Astrobiology*, 6: 735-813. doi: 10.1089/ast.2006.6.735.

2005

- Webb, S.M., G.J. Dick, J.R. Bargar, and B.M. Tebo (2005). Evidence for the presence of Mn(III) intermediates in the bacterial oxidation of Mn(II). *Proceedings of the National Academy of Sciences*, 102: 5558-5563. doi: 10.1073/pnas.0409119102.

2004

- Tebo, B.M., J.R. Bargar, B.G. Clement, G.J. Dick, K.J. Murray, D. Parker, R. Verity, and S.M. Webb. (2004) Biogenic manganese oxides: Properties and mechanisms of formation. *Annual Reviews of Earth and Planetary Sciences*, 32: 287-328. doi: 10.1146/annurev.earth.32.101802.120213.

### *Other Publications: Perspectives, Comments, & Reports*

Dick, G.J. (2017). Embracing the mantra of modelers and synthesizing omics, experiments, and models. *Environmental Microbiology*, in press.

Druschel, G., G.J. Dick, and E.S. Boyd (2014). Geomicrobiology and Microbial Geochemistry 2014 Workshop Report. <https://dx.doi.org/10.6084/m9.figshare.3083524.v1>

Druschel, G. and G.J. Dick (2014). Geochemistry and Microbial Geochemistry Workshop (meeting report). *Eos*, 95: 90.

Gilbert, J.A., G.J. Dick, B. Jenkins, E.E. Allen, K. Mackey, and E.F. DeLong (2014) Meeting report: Ocean 'omics science, technology and cyberinfrastructure: current challenges and future requirements (August 20-23, 2013). *Standards in Genomic Sciences* 9(3): 1252-1258. doi:10.4056/sigs.5749944

Baker, B.J.<sup>1</sup> and G.J. Dick (2013). Omic Approaches in Microbial Ecology: Charting the Unknown. *Microbe* 8: 353-360.

Times cited: (not listed)/0/2 Impact factor = not available

### *Patents*

2015 U.S. Patent 20150361470. Title: *Nonribosomal Peptide Synthetases*. Inventors: David Sherman, Michael Kaufman-Schofield, Sunit Jain, and Gregory J. Dick.

### *Selected media coverage*

2016 Sinkhole project featured on NPR's *All Things Considered*.  
 2014 Anantharaman et al. (2014) highlighted in *Nature Reviews Microbiology*, *Cell*, *Microbe*, and in numerous popular media outlets.  
 2014 Li et al. (2013) recommended by *Faculty of 1000*  
 2013 G. Dick profiled in *Microbe* magazine  
 2012 Lesniewski et al. (2012) recommended by *Faculty of 1000*  
 2012 Sinkhole research featured in *LSA Magazine*  
 2011 Sinkhole research featured by the *Discovery Channel*  
 2011 Sinkhole research featured in *Earth* magazine



*Manuscripts in preparation*

Voorhies, A.V.<sup>1</sup>, B.A. Biddanda, J.D. Cavalcoli, and G.J. Dick. Metabolic function and microbial mediation of geochemical cycling revealed by community genomic analysis and gene expression of a low-O<sub>2</sub> cyanobacterial mat. In preparation for *The ISME Journal* (draft complete).

Dick, G.J. Genomic Approaches to Earth and Environmental Science [invited e-book]. Analytical Methods in Earth and Environmental Science. Peer-reviewed proposal accepted, contract signed with Wiley-Blackwell.

Anantharaman, K.<sup>1</sup>, M. Lerner<sup>1</sup>, D.N. Marcus<sup>1</sup>, and G.J. Dick. Ubiquitous *Burkholderiaceae* sp. oxidize manganese(II). In preparation for *PLoS One*.

D.N. Marcus<sup>1</sup>, Ameet J. Pinto, M. Balke<sup>1</sup>, K. Anantharaman<sup>1</sup>, E. Kramer<sup>1</sup>, B. Callahan<sup>1</sup>, A. Essene<sup>1</sup>, S.A. Ruberg, Lutgarde Raskin, and G.J. Dick. Manganese(II)-oxidizing bacteria in freshwater and drinking water systems. In preparation for *Environmental Science and Technology* (draft complete).

Breier, J.A., H. Jiang, B.M. Toner, J.V. Sorensen, K.A. Wendt, G.J. Dick, K. Anantharaman<sup>1</sup>, C.S. Sheik<sup>2</sup>, J.B. Sylvan. Particle biogeochemistry of a buoyant hydrothermal Plume, ABE Vent Field, Eastern Lau Spreading Center. In preparation for *G-cubed* (draft complete).

**Invited Lectures**

2016	Stanford University Department of Earth System Science
2016	International Society of Microbial Ecology Meeting, Montreal, Canada
2016	Johns Hopkins University Department of Geography and Environmental Engineering
2016	Geobiology Gordon Conference, Galveston, Texas
2015	Saturday Morning Physics, University of Michigan (public lecture)
2015	Goldschmidt Geobiology and Low-Temperature Geochemistry Town Hall
2015	University of Tennessee Department of Microbiology
2015	Montana State University Department of Microbiology
2014	University of British Columbia Department of Microbiology
2013	AGU Fall Meeting, San Francisco, CA
2013	Goldschmidt 2013, Florence, Italy ( <i>keynote</i> )
2013	Geologists of Jackson Hole (public lecture)
2013	California Institute of Technology Geological and Planetary Sciences
2012	AGU Fall Meeting, San Francisco, CA
2012	Kellogg Biological Station, Michigan State University
2012	Eastern Michigan University Biology Department
2012	Argonne Soil Metagenomics Annual Meeting
2012	University of California-Davis Dept. of Geology
2012	Michigan State University Dept. of Microbiology & Molecular Genetics
2012	University of Michigan Tri-Dept. Symposium (EARTH, AOSS, Astro.)
2012	UM-CILER seminar for the NOAA Assistant Administrator (OAR)
2012	North Dakota State University Dept. of Geosciences
2012	North Dakota Dept. of Geological Sciences and Geological Engineering

2012	Wayne State University Dept. of Environmental Science/Geology
2011	Program in the Biomedical Sciences Seminar, University of Michigan
2011	MIT Biogeochemistry & Chemical Oceanography Seminar
2011	2011 University of Michigan Bioinformatics Kickoff
2011	University of Kansas Dept. of Geology
2011	Keystone Symposium, Breckenridge, CO
2011	University of Michigan Dept. of Ecology and Evolutionary Biology
2010	Futures in Geobiology and Low-Temperature Geochemistry Workshop, Carnegie Institute of Washington
2010	Grand Valley State University & Annis Water Resources Institute
2010	NOAA Great Lakes Environmental Research Lab
2009	University of Michigan Microbiome Research Initiative, Department of Microbiology and Immunology
2009	University of Michigan School of Medicine Center for Computational Medicine and Bioinformatics
2009	Gordon Research Conference for Applied and Environmental Microbiology, Mt. Holyoke, MA
2009	American Chemical Society, Spring Meeting, Salt Lake City, UT
2008	University of Michigan School of Public Health 2008 Microbial Ecology pre-symposium seminar
2007	University of Michigan Dept. of Geological Sciences
2006	California Institute of Technology Geobiology Seminar
2004	Gordon Graduate Research Seminar in Bioinorganic Chemistry, Ventura, CA

## **Research Grants**

### *External sponsors*

2016-2019	\$387,151, 55.0% indirect, NSF Geobiology and Low-Temperature Geochemistry. <i>Revealing the interplay between light, sulfur cycling, and oxygen production in cyanobacterial mats</i> Role: PI, 80% contribution (Co-PIs: Wiebke Ziebis, USC; Jacob Waldbauer, U. Chicago; Bopi Biddanda, GVSU).
2015-2018	\$226,033, 55.0% indirect, NSF. <i>GP-IMPACT: Broadening pathways to geosciences with an integrated program at The University of Michigan.</i> Role: PI, 50% contribution (Project Coordinator Jenna Munson)
2013-2017	\$1,163,656 (GD portion: \$82,461); 55.5% indirect, NSF. <i>Global Ocean Biogeochemical Mapping Enabled by an Autonomous Vertical Sampling Vehicle.</i> Role: Co-PI, 10% contribution (PI John Breier, Co-PIs Mak Saito and Michael Jakuba, Woods Hole Oceanographic Institute).
2013-2017	\$50,000, 0% indirect. Sloan Research Fellowship in Ocean Sciences. <i>Linking Microbiology and Geochemistry in the Deep Sea.</i>

Role: PI, 100% contribution.

- 2014-2015 \$75,894 (\$27,368 to GJD), 55.5% indirect, Cubist Pharmaceuticals. *DNA sequencing of 100 bacterial genomes provided by Cubist Pharmaceuticals*.  
Role: Co-PI, 40% contribution (PI David Sherman)
- 2014 High throughput metagenomic sequencing service (3 lanes of Illumina HiSeq; \$0), Census of Deep Life, Sloan Foundation. *Microbial life in an underground ocean: Metagenomics of the Soudan Iron Mine*  
Role; Co-PI, 20% contribution (Co-PIs Jon Badalamenti, Jeff Gralnick, Brandy Toner, U. Minnesota; Cody Sheik, U. Michigan).
- 2013 High throughput DNA pyrosequencing services: 12 lanes of Illumina Hi-Seq sequencing (U-M portion: \$0); DOE Joint Genome Institute Community Sequencing Program. *Insights into Metabolisms of the Cosmopolitan, Enigmatic Miscellaneous Crenarcheota Group (MCG) in Marine Sediments*.  
Role: Co-PI, 10% contribution (PI U-M PhD student Brett Baker; Co-PIs Andreas Teske, University of North Carolina and Kai-Uwe Hinrichs, University of Bremen).
- 2013 \$764,336 plus 30 days ship time (U-M portion: \$0; one ship berth to GD); 0% indirect, Schmidt Ocean Institute. *Robotic Exploration of the Mid-Cayman Rise using Sentry and Nereus*.  
Role: Collaborator, 5% contribution (PI Christopher German, Woods Hole Oceanographic Institute).
- 2011-2014 \$99,978 (U-M portion: \$78,461), 55.5% indirect, NSF. *EAGER: Collaborative Research: Genomic Insights into Proterozoic Geobiology – Single-Cell and Metagenomic Sequencing of Metabolically Versatile Purple Cyanobacteria*.  
Role: PI, 70% contribution (Co-PIs: Bopi Biddanda, Grand Valley State University; Nathan Sheldon, U-M).
- 2010-2014 \$1,718,987 (\$355,250 subcontract to WHOI; \$235,531 subcontract to U. Minn.), 12.5% indirect. The Gordon and Betty Moore Foundation, Marine Microbiology Initiative. *Unveiling the Microbiology that Underpins Deep-Sea Biogeochemistry*.  
Role: PI, 80% contribution (Co-PIs: John Breier and Houshuo Jiang, Woods Hole Oceanographic Institute; Brandy Toner, University of Minnesota; Patrick Schloss, U-M).

- 2010-2014 \$771,644 (GD portion: \$245,300), 55.5% indirect, NSF. *Collaborative Research: Integrating Geochemistry, Microbiology, and Hydrodynamics: A Model for Trace Element Transport and Fate in Hydrothermal Plumes.*  
Role: PI, 30% contribution (PI John Breier, Woods Hole Oceanographic Institute; PI Brandy Toner, University of Minnesota).
- 2010-2014 \$367,176, 54.5% indirect, NSF. *Linking Biogeochemistry and Microbial Community Dynamics in Deep-Sea Hydrothermal Plumes.*  
Role: PI, 100% contribution.
- 2011-2012 High throughput DNA pyrosequencing services (U-M portion: \$0). Census of Deep Life (CoDL), Deep Carbon Observatory, Alfred P. Sloan Foundation. *Deep Terrestrial Biosphere Observatory: Shield Brines, Microbial Mats, and Banded Iron Formations at the Soudan Iron Mine.*  
Role: Co-PI, 33% contribution (PI Jeffrey Gralnick and Co-PI Brandy Toner, University of Minnesota).
- 2010-2012 \$244,019 (U-M portion: \$0), 12.5% indirect. The Gordon and Betty Moore Foundation. *Developing a Particulate Sampling and In Situ Preservation System for High Spatial and Temporal Resolution Studies of Microbial and Biogeochemical Processes.*  
Role: Collaborator, 5% contribution (PI John Breier, Woods Hole Oceanographic Institute)
- 2009-2010 5 plates of 454 Titanium DNA pyrosequencing services (\$0 to U-M; ~\$60,000 value). The Gordon and Betty Moore Foundation Marine Microbiology Initiative. *Metagenomics and Metatranscriptomics of Biogeochemistry in the Guaymas Basin Hydrothermal Plume.*  
Role: PI, 100% contribution.
- Internal, University of Michigan*
- 2014-2015 \$249,485 (GD portion: \$102,947), 0% indirect, U-M Water Center. *Building Capacity for Freshwater Science: Integrating Microbial Genomics, Environmental Chemistry, and Ecosystem Processes to Understand Harmful Algal Blooms.*  
Role: PI, 50% contribution (Co-PIs Vincent Denef, U-M EEB and Tom Johengen, U-M CILER).
- 2013-2014 \$60,000, Mcubed. *Will Climate, Invasives and Toxicants Imperil Unique Biodiversity in the Great Lakes?*  
Role: PI, 50% contribution (Co-PIs Nathan Sheldon and Allen Burton).

- 2011-2013 \$48,192, U-M Center for Computational Medicine and Bioinformatics (CCMB) Pilot Research Grant Program. *De Novo Assembly and Clustering of DNA Sequencing Reads from Metagenomic Samples*.  
Role: Co-PI, 33% contribution (PI Jim Cavalcoli, CCMB).
- 2009-2010 \$7,500, U-M OVPR. *Molecular Biogeochemistry in Buoyant Hydrothermal Plumes at the Eastern Lau Spreading Center*.  
Role: PI, 100% contribution.
- 2009-2010 \$13,322, Rackham Faculty Research Grant, *Genomic Windows into Deep-Sea Microbial Biogeochemistry*.  
Role: PI, 100% contribution.

### **Courses Taught and Leaves Taken**

#### *Course information*

<b>Number</b>	<b>Title</b>	<b>Format</b>	<b>Cr</b>	<b>Semesters Taught</b>
EARTH 112	Life in Extreme Environments	Lecture; mini-course	1	F10, W12, F13
EARTH 175	The Microbial World	Lecture + discussion	4	W09, W10, W11, W13
EARTH 202	Environmental Science in the Rockies	Lecture + field + lab	5	S11, S12, S13, S14, S15, S16
EARTH 208/497	Hot Topics in the Earth Sciences	Seminar	1	W11
EARTH 313	Geobiology	Lecture + lab	4	F10, F12, F13, F15, F16
EARTH 413	Geomicrobiology	Lecture	3	W16
EARTH 513	Geomicrobiology	Lecture	3	F09, F11, W14
EARTH 523	Microbial Community Omics	Lecture + lab	2	F14, W17

#### *Enrollment & student evaluations*

Questions:

Q1: Overall, this was an excellent course.

Q2: Overall, this instructor was an excellent teacher.

Q3: I learned a great deal from this course.

Q4: I had a strong desire to take this course.

Student responses: 5-strongly agree; 4-agree; 3-neutral; 2-disagree; 1-strongly disagree.

AY	Semester	Course	Cr. <sup>a</sup>	Enroll.	# student response	Q1	Q2	Q3	Q4	
2016-2017	F2016	EARTH 313	2	28	20	4.33	4.73	4.50	4.36	
	S2016	EARTH 202	5	18	18	4.02	4.96	3.96	4.51	
2015-2016	W2016	EARTH 413	3	27	14	4.10	4.50	4.21	4.13	
	F2015	EARTH 313 <sup>b</sup>	2	52	40	4.18	4.73	4.45	4.06	
	S2015	EARTH 202 <sup>c</sup>	3	16	15	4.2	4.82	4.62	4.64	
2014-2015	<i>4 cr. release from teaching for sabbatical</i>									
	F2014	EARTH 523	2	12	8	4.83	4.83	4.50	4.70	
	S2014	EARTH 202 <sup>c</sup>	2	8	8	4.92	5.00	4.92	4.17	
2013-2014	W2014	EARTH 513	3	16	12	4.25	4.83	4.64	4.64	
	F2013	EARTH 112	1	339	274	4.08	4.54	4.07	3.30	
	F2013	EARTH 313 <sup>b</sup>	2	55	36	4.39	4.63	4.64	3.97	
	S2013	EARTH 202 <sup>c</sup>	2	10	9	4.93	5.00	4.93	4.63	
2012-2013	W2013	EARTH 175	4	58	40	4.32	4.81	4.65	3.67	
	F2012	EARTH 313 <sup>b</sup>	2	47	40	3.83	4.55	3.98	4.00	
	S2012	EARTH 202 <sup>c</sup>	2	15	15	4.71	4.82	4.96	4.78	
2011-2012	W2012	EARTH 112	1	263	210	4.04	4.39	4.07	3.41	
	<i>4 cr. release from teaching for 3<sup>rd</sup> year review nurturance</i>									
	-									
	F2011	EARTH 513	3	13	10	4.67	4.50	4.79	4.50	
	S2011	GEOSCI 202 <sup>c</sup>	0	18	18	4.75	4.85	4.86	4.86	
2010-2011	W2011	GEOSCI 208/497	1	6	4	4.50	4.50	4.50	4.50	
		GEOSCI 175	4	57	39	4.47	4.73	4.53	3.64	
	F2010	GEOSCI 313 <sup>b</sup>	2	11	7	4.00	4.75	4.17	4.17	
		GEOSCI 112	1	187	103	4.21	4.59	4.16	3.47	
2009-2010	W2010	GEOSCI 175	4	45	31	4.29	4.76	4.68	3.45	
	F2009	GEOSCI 513	2	8	7	5.00	4.92	4.92	4.80	
<i>2 cr. release from teaching for 2<sup>nd</sup> year</i>						-	-	-	-	
2008-2009	W2009	GEOSCI 175	4	32	13	3.92	4.06	4.00	3.88	
	F2008	<i>4 cr. release from teaching for 1<sup>st</sup> year</i>				-	-	-	-	

<sup>a</sup> Credits received

<sup>b</sup> Co-taught with Jeff Wilson (50%);

<sup>c</sup> Co-taught with Chris Poulsen

**Students, Postdocs, and Staff Advised and Supervised***PhD students, Primary Advisor (Dept. of Earth & Environmental Sciences unless noted)*

<b>Name</b>	<b>Years</b>	<b>Current Position &amp; Affiliation</b>
7. Jeseth Delgado	2016-present (Co-Chair with Nancy Love, CEE)	
6. Derek Smith	2015-present (Co-advised with Tim Davis, NOAA-GLERL)	
5. Matthew Medina	2015-present	
4. Sharon Grim	2014-present	
3. Brett Baker	2010-2014	Assistant Prof., University of Texas Austin
2. Alex Voorhies	2009-2014	Postdoc, J. Craig Venter Institute
1. Karthik Anantharaman	2009-2014	Postdoc, University of California Berkeley

*MS students, Primary Advisor*

5. Jesse Fenno, Earth and Environmental Sciences CUGS (2015-2016)
4. Sunit Jain, Bioinformatics Program (no dissertation) (2009 – 2010)
3. Kathryn Iverson, Bioinformatics Program (no dissertation) (2009 – Fall 2011).
2. Chris Taylor, Bioinformatics Program (no dissertation) (2011).
1. Prashanna Balaji Venkatasubramanian, Bioinformatics Program (no dissertation) (2011 – 2012).

*Postdoctoral Fellows Hosted*

<b>Name (% sponsor)</b>	<b>Years</b>	<b>Current Position, Affiliation</b>
6. Judith Klatt (50%)	2015-present	Turner Postdoc, University of Michigan
5. Kevin Meyer (50%)	2015-present	Postdoc, University of Michigan
4. Lauren Kinsman (33%)	2013	Research Scientist, Kent State University
3. Cody Sheik (100%)	2011-2015	Assistant Prof., U. Minnesota-Duluth Postdoc
2. Meng Li (100%)	2011-2014	Assistant Prof., Shenzhen University
1. Daniel Reed (100%)	2011-2014	Postdoc, Washington State University

*Undergraduate students, Independent Research Advisor*

23. Keith Hildwein (Winter 2017 – present)
22. Olivia Metcalf (Fall 2016 – present)
21. Kirk Olsen (Fall 2016 – present)
20. Kiah Lowe (Winter 2016 – Fall 2016)
19. Chien Li (Winter 2016 – present)
18. Megan McConnell (Winter 2016)
17. Changrui Li (Fall 2015 – Winter 2016)
16. Allison Sharrar (Fall 2014 – Winter 2015, with Honors Dissertation).
15. Danielle Boshers (Fall 2013 – Winter 2015, with Honors Dissertation).
14. Nicholas Aquilina (Fall 2013 – Fall 2015).
13. Grace Tsaloff (Fall 2013 – 2014).
12. Chelsea Mervenne; co-advised with Nathan Sheldon (Winter 2013 – Winter 2014).
11. Kathryn Gallagher; co-advised with Nathan Sheldon (Winter 2013 – Summer 2013).
10. Matthew Sabuda (Fall 2012 – Winter 2013).
9. Michael Balke (Fall 2012 – Summer 2013).
8. Paul Den Uyl (Fall 2012 – Summer 2013).
7. Issac Anderson (Summer 2012).

6. Clayton Wheeler, UROP student (Fall 2011 – Winter 2012).
5. Eva Kramer (Summer 2011 – Summer 2012).
4. Michael Lerner, UROP student (Fall 2010 – Winter 2012).
3. Daniel Marcus (Winter 2010 – Winter 2011).
2. Bridget Callahan, UROP student (Fall and Winter 2009).
1. Adam Essene, Oberlin College (Summer 2009).

*PhD Dissertation Committee Member (24 total since 2008)*

<b>Name</b>	<b>Year of Degree</b>	<b>Current Position &amp; Affiliation</b>
<i>Department of Earth &amp; Environmental Sciences</i>		
William Bender	in process	
Timothy Gallagher	2016	
Collin Ward	2015	Postdoc, University of Michigan
Sae Yun Kwon	2015	Postdoc, MIT
Patrick Donovan	2015	
Meghan King	2013	Postdoc, Central Michigan University
Qiaona Hu	2011	Senior Data Analyst, Exameam
Devon Renock	2010	Assistant Prof., Dartmouth University
<i>Atmospheric, Oceanic and Space Sciences:</i>		
Yuxing Yun	2012	Postdoc, Princeton University
<i>Biochemistry:</i>		
Sam Slocum	in progress	
<i>Civil and Environmental Engineering:</i>		
Nadine Kotlarz	in progress	
Xunchang Fei	2015	Postdoc, University of Michigan
Tara Clancy	2014	Postdoc, Cornell University
Jeongdae Im	2011	Research Asst. Prof., U. of Massachusetts
Sukhwan Yoon	2010	Asst. Prof., Korea Adv. Inst. of Sci. & Tech.
<i>Ecology and Evolutionary Biology:</i>		
Jen-Pan Huang	2016	
Tory Hendry	2012	Research Scientist, Cornell University
Byron Smith	in progress	
Marian Schmidt	in progress	
<i>Microbiology &amp; Immunology:</i>		
Matt Jenior	in progress	
Alyxandria Schubert	2015	Staff Fellow, US Food and Drug Administration
Michael Schillaci-Schofield	2015	Freelance Science Writer
Joseph Zackuklar	2014	Postdoc, Vanderbilt University Admin.
<i>School of Natural Resources and the Environment:</i>		
Elizabeth Entwistle	2016	



*Research Scientists, Staff & Visiting Scholars Mentored/Hosted*

<b>Name</b>	<b>Years</b>	<b>Current Position &amp; Affiliation</b>
Melissa Duhaime (0%)	2012-2016	Assistant Research Scientist, U-M EEB
Sunit Jain (100%)	2012-2015	Bioinformatics Specialist, 2 <sup>nd</sup> Genome
Anders Andersson (100%)	2011	Assistant Professor, Uppsala University.

**Service***Proposal Review Panels, Editorial Duties, Professional Societies*

2014-present	Editorial Board, <i>Environmental Microbiology</i>
2014-present	Subject Editor (Molecular Geomicrobiology), <i>Geobiology</i> .
2012-present	Editorial Advisory Board, <i>Geobiology</i>
2014-2015	Co-Guest Editor (with Greg Druschel), <i>Elements</i> special issue on Geomicrobiology and Microbial Geochemistry (December, 2015).
2011	Proposal Review Panel: NSF Geobiology and Low-Temperature Geochemistry
2011	Proposal Review Panel: NASA Astrobiology: Exobiology and Evolutionary Biology
2002-present	Professional society memberships: American Geophysical Union; Geochemical Society; International Society for Microbial Ecology; American Society for Microbiology

*University Service*

2016 – present	Science Council, University of Michigan Water Center (5 hours per semester)
2014 – present	Program Advisory Committee, Integrated Training in Epidemiology and Microbiome Science, a \$2.5 million training grant awarded to U-M by the Burroughs Wellcome Fund (5 hours per semester).
2015 – 2017	Faculty Committee on Environment and Sustainability Programs at the University of Michigan (2-10 hours per week).
2014 – 2016	Organizing Committee, Michigan Meeting: “Unseen Partners: Microbes in Human and Environmental Health” held May, 2016.
2013	Selection Committee for the Dow Sustainability Fellows Program.
2013	Advisory Committee Member for Arvind Venkataraman T32 Training Fellowship from the University of Michigan Multidisciplinary Training Program in Lung Disease.
2013	Core Team Member and Key Scientific Personnel, Moore and Sloan Foundations Data Science Competition and site visit to the University of Michigan.
2012	PitE GSI Selection Committee.

*Department Service (Dept. of Earth & Environmental Sciences unless otherwise noted)*

2016-present	Associate Chair for Curriculum and Undergraduate Studies
2015-present	Department liaison for M-Sci
2014-present	Mentor for Assistant Research Scientist, Assistant Professor Melissa Duhaime (EEB)
2012-present	Graduate student application review, Department of Ecology and Evolutionary Biology (6-9 applications per year)

2016	Chair, Search Committee for Faculty Search in Geobiology and Biological Oceanography
2015-2016	Executive Committee Member
2015-2016	Student Awards Committee
2014	Tenure Committee for Brian Arbic
2012-2013	Search Committee for faculty position in aqueous/low-temperature geochemistry
2010-present	Department Outreach Coordinator
2009-present	Faculty Sponsor and Developer of EARTH 494, Experiential Learning
2009-present	Faculty Advisor, Geoclub
2009-present	Guest lectures: EARTH 325, Env. Geochemistry (2), EARTH 315, Earth Materials (3); EARTH 346, Plate Tectonics; EEB 401, Microbial Ecology
2012	Turner Awards Committee
2010	Search Committee for faculty position in microbial ecology (Department of Ecology and Evolutionary Biology)
2010	Collaborator, proposal to NSF Opportunities for Enhancing Diversity in the Earth Sciences
2009-2010	Student Awards Committee
2008-2010	Graduate Program & Admissions Committee
2009	Alumni Board talk
2008	Graduate student recruiting: seminars to undergraduates at Carleton College, Macalester College, and the University of Minnesota, Twin Cities

### *Community Service/Outreach*

2014	Moderator, University of Michigan Water Center Workshop
2012-present	Faculty advisor and lecturer, Earth Camp
2012	Lead for screening and discussion of Switch energy documentary to Earth Camp M-STEM, and MITE programs (~150 high school students).
2012	Lecture to IDEA Institute Banquet
2011	Lecture to IDEA Institute Programs Reunion (students & parents).
2010-2011	IDEA Institute Advisory Board.
2010-2011	Director and lecturer, IDEA Institute Summer Geoscience Camp.
2010-2011	Lectures and lab tours to Great Lakes Summer Fellows Program.
2010	Lecture to IDEA Institute Summer Chemistry Camp.
2008	Roundtable leader, 2008 Microbial Ecology Symposium, a campus-wide initiative hosted at the School of Public Health.
2006	Instructor and Curriculum Developer, Birch Aquarium at Scripps Summer Camp
2005	Instructor, The Ocean Institute, Dana Point, CA. Ridge2000 SEAS (“Student Experiments at Sea”), Teacher Workshop on Deep-Sea Hydrothermal Vents
2003-2005	Laboratory mentor, one high school teacher, four high school students, one undergraduate student.

### *Other Professional Service*

2016-2017	Organizer of International Geobiology Society Meeting, Banff Canada
2016	Theme Team Member, Goldschmidt 2017.
2015	Organizer of workshop, “Omic Approaches for Freshwater Science”, Bowling Green State University, April 2015.

- 2014 Steering Committee Member, EarthCube RCN
- 2013 Proposal co-author and workshop co-coordinator, NSF workshop on “Geomicrobiology and Microbial Geochemistry” (October 10-12, 2013, Chicago, IL).
- 2013-present Advisory Board Member, NSF Chemical Oceanography Biogeochemistry of the Great Lakes initiative.
- 2012-2013 Member, Theme Team, Goldschmidt 2013, Theme 17, Biogeochemistry: Activities, mechanisms, and cycles.
- 2007-present Ad hoc reviewer:
- Funding agencies (~6 proposals per year): NSF (Geobiology & Low Temperature Geochemistry, Biological Oceanography, Marine Geology and Geophysics, Antarctic Organisms and Ecosystems, Center for Dark Energy Biosphere Investigations Postdoctoral Fellowship Program); NASA (Exobiology and Evolutionary Biology); Gordon and Betty Moore Foundation (Marine Microbiology Initiative); Schmidt Ocean Institute; American Philosophical Society; CCMB Pilot Program (University of Michigan Medical School); Marine Science & Technology Foundation, Canada Research Chairs Program (2013-2014)
  - Journals (~12 papers per year): *Science, Applied and Environmental Microbiology, Geobiology, Molecular Systems Biology, Limnology and Oceanography, ISME Journal, PNAS, FEMS Microbiology Ecology, Population Ecology, Geochimica et Cosmochimica Acta, Biogeosciences, G-cubed, Journal of the Royal Society Interface, Freshwater Biology*
- 2010-2013 Workshop participant:
- “Grand Challenges for the Great Lakes” (Michigan State University, 2014);
  - “EarthCube: Ocean Omics” (NSF, 2013);
  - “Biogeochemistry of the Great Lakes” (NSF, 2013);
  - “Merging Complex -omic Data and Computational Ecosystem Models” (Gordon and Betty Moore Foundation, 2013);
  - “Future Directions in Geobiology and Low-Temperature Geochemistry” (NSF, 2010).
- 2014 Co-convener, “Geo-omics” session at Goldschmidt 2015, Prague.
- 2010 Co-convener, “Geomicrobiology of Mid-Ocean Ridge Systems: Connections Among Subseafloor, Plume, and Low-Temperature Alteration Environments” session at Goldschmidt 2010, Knoxville, TN.
- 2009 Convener, “The genomics of geochemistry” session at Goldschmidt 2009, Davos, Switzerland.
- 2005 Co-convener, NASA Astrobiology Graduate Conference, La Jolla, CA.

### **Oceanographic research cruise experience**

OASES2 Cruise. Mid-Cayman Rise. Port Everglades, FL to Port Everglades, FL, January 6 – 28, 2012. R/V *Atlantis*, ROV *Jason*. Chief Scientist Chris German.

GoCAL3 Cruise. Guaymas Basin, Gulf of California. San Diego, CA to San Diego, CA, July 23 – August 13, 2005. R/V *New Horizon*, Chief Scientists Fred Prah and Brian Popp.

GoCAL2 Cruise. Guaymas Basin, Gulf of California. San Diego, CA to San Diego, CA, January 25 – February 9, 2005. R/V *New Horizon*, Chief Scientists Fred Prah and Brian Popp.

GoCAL1 Cruise. Guaymas Basin, Gulf of California. San Diego, CA to San Diego, CA, July 7 – 22, 2004. R/V *New Horizon*, Chief Scientists Fred Prah and Brian Popp.

Black Sea Cruise. Istanbul, Turkey to Istanbul, Turkey, April 14 - May 10, 2003. R/V *Knorr*, Chief Scientists George Luther, Jim Murray.

HOLA-1 Cruise. Guaymas Basin, Gulf of California. San Diego, CA to Manzanillo, Mexico. April, May 2002. R/V *Atlantis*, DSV *Alvin*, Chief Scientist James P. Cowen.

Extreme 2001 Cruise. 9°N, East Pacific Rise. Puntarenas, Costa Rica to Manzanillo, Mexico. October, November, 2001. R/V *Atlantis*, DSV *Alvin*, Chief Scientist Craig Cary.