

Joanne B. Emerson

Professor

Department of Plant Pathology

University of California, Davis

Phone: 530-752-9848 | E-mail: jbemerson@ucdavis.eduWebsite: <https://emersonlab.faculty.ucdavis.edu/>**Education**

University of California, Berkeley, Ph.D. Earth and Planetary Science	2012
College of William and Mary, B.S. Biology	2003

Professional Experience

2026-present	Professor, Department of Plant Pathology, University of California, Davis
2023-2026	Associate Professor, Department of Plant Pathology, University of California, Davis
2017-2023	Assistant Professor, Department of Plant Pathology, University of California, Davis
2015-2017	Postdoctoral Researcher, University of Arizona and The Ohio State University
2012-2015	Postdoctoral Researcher, University of Colorado at Boulder
2003-2007	Research Associate, J. Craig Venter Institute/The Institute for Genomic Research

Teaching

PLP 298: Microbial Ecology (~25 graduate students, 3 one-hour lecture/discussion periods per week, bioinformatics project), Spring Quarters 2023, 2026

PLP 201A: Impacts, Mechanisms, and Control of Plant Diseases (~15 graduate students, 3 one-hour lectures on Plant Virology per week for 3 weeks), Fall Quarters 2021-2023

GDB 187: Global Disease Biology Seminar (~25-60 undergraduate students, 2 one-hour lectures/discussions per week and a TA-led discussion), Winter Quarter 2022, Spring Quarters 2019-2024 and 2026

SAS 13: Disease and Society (350 undergraduate students, 3 one-hour lectures per week), Winter Quarters 2019-2021

Service (selected examples)

DOE JGI Prokaryotic Advisory Board	2021-present
Senior Editor, <i>The ISME Journal</i>	2020-present
Organizing Committee and Instructor, International Viromics Workshops (OH)	2019-present
Organizing Committee, Viral EcoGenomics and Applications (VEGA) Symposia	2017-present
Co-Organizer, Ecology of Soil Microorganisms Conference (Helsinki, Finland)	2024-2025
Co-Organizer, International Soil Virus Conference (Livermore, CA)	2024
Reviewer, National Academies One Health Report	2024

Honors and Awards

Presidential Early Career Award for Scientists and Engineers (PECASE)	2025
NSF CAREER Award	2023
DOE Early Career Award	2020

Grants and Other External Support (selected active awards)

DOE RENEW, “*STEM training to characterize bacterial resistance mechanisms towards phages and contribution to bioenergy production*” 2025-2028. (PI Archana Anand, \$1.79M, \$145K to Co-PI Emerson)

NIH HVP, “*Establishing laboratory methods for quantitative recovery of diverse DNA and RNA viral sequences from human biosamples*” 2024-2028. (PI Emerson, \$2.1M, Subaward PI Matthew Olm, Collaborator Sean Adams).

USDA NIFA OREI, “*Hunting for healthy soils: Organic management of micro-predators for pathogen control*” 2024-2028. (PI Samuel Martins, \$3.5M, \$844K to Co-PI Emerson).

Human Frontier Science Program (HFSP), “*Scaling the impact of viruses from single cells to the global methane cycle*” 2024-2027. #RGP018/2024 (PI Ashish Malik, \$1.35M, \$337.5K to Co-PI Emerson).

DOE JGI CSP, “*Scaling wetland viral impacts on methane cycling from single cells to ecosystems*” 2024-2027. #509865 (PI Emerson, in-kind sequencing support, ~20 Tbp, ~\$400K equivalent, Co-PIs Ashish Malik, Karthik Anantharaman, Christina Hazard, Graeme Nicol, Caitlin Singleton).

NSF CAREER, “*CAREER: Leveraging soil viromics to unravel ecological patterns in complex communities*” 2023-2028. #2236611 (PI Emerson, \$898,516).

DOE BER Genomic Sciences, “*Predicting post-fire N cycling through traits and cross-kingdom interactions*” 2022-2025. (PI Sydney Glassman, \$3.1M, \$521,805 to Co-PI Emerson).

DOE LLNL Soil Microbiomes SFA, “*Microbes Persist: Systems Biology of the Soil Microbiome*” 2021-2028. (PI Jennifer Pett-Ridge, \$29M, \$1.2M to Co-PI Emerson).

DOE Early Career Award, “*Infective viruses and inert virions: illuminating abundant unknowns in terrestrial biogeochemical cycles*” 2020-2026. DE-SC0021198. (PI Emerson, \$750,957).

Publications (72 peer-reviewed, 4 preprints)

*undergraduate, §graduate student, †postdoc, or **technician in our group; ^equal contributions

76. †Goemann, H.M., †Stern, L., §Perry, M., †Hillary, L.S., **Emerson, J.B.** (2026). PEONY: a global reference database of DNA viral (vOTU) sequences from viral size-fractionated metagenomes (viromes). *submitted*, will be on *bioRxiv* imminently
75. †Hillary, L.S., Knotts, T.A., Adams, S.H., Ali, M.R., Olm, M.R., **Emerson, J.B.** (2025). DNA extraction and virome processing methods strongly influence recovered human gut viral community characteristics. *bioRxiv*. 2025.11.25.690293.
74. §Gogul, G., Allen, G.M., Lelewi, I., Blazewicz, S.J., Pett-Ridge, J., **Emerson, J.B.**, Trubl, G. (2026). Divergent successional patterns and infection dynamics in virion and transcriptionally active soil viral communities following phosphorus amendment and wet-up. *bioRxiv*. 2026.04.11.717596.
73. §ter Horst, A.M., *Adebisi, T.V., Hernandez, D.A., §Fudyma, J.D., **Emerson, J.B.** (preprint). Almond rhizosphere viral, prokaryotic, and fungal communities differed significantly among four California orchards and in comparison to bulk soil communities. *bioRxiv*. 2023.06.03.543555.

72. †[^]Stern, L., §[^]ter Horst, A.M., Simpson-Johnson, K.E., Gaudin, A.C.M., **Emerson, J.B.** (2026). Host community activity, but not always composition, explains viral biogeography in bulk and rhizosphere soils over a tomato growing season. *The ISME Journal*, in press.
71. §Fudyma, J.D., Penev, P., Estera-Molina, K., Hoff, J., Blazewicz, S.J., Pett-Ridge, J., **Emerson, J.B.** (2026). Spatial and depth structuring predominate over temporal variation in Mediterranean grassland soil viral communities. *ISME Communications*, in press.
70. Lin, J.Y., Brandão Gontijo, J., McMillan, C.K., §Fudyma, J.D., Wang, D., Yao, E.H., Sayre, J.M., **Emerson, J.B.**, Lipson, D.A., Lazcano, C., Scow, K.M., Mazza Rodrigues, J.L. (2026). Multi-omics resolved integration reveals microbial niche separation in soil aggregates. *ISME Communications*. ycag161.
69. †Denison, E.R., †Hillary, L.S., **Bolanos, H.A., **Anagu, H.I., **Emerson, J.B.** (2026). DNA viral size fraction metagenomics for human stool samples. *Journal of Visual Experiments*. 229:e70187.
68. †Sorensen, J.W., §ter Horst, A.M., †Zinke, L.A., **Emerson, J.B.** (in press). Soil viral communities differed by management and over time in organic and conventional tomato fields. *ISME Communications*, in press.
67. Martin, C., **Emerson, J.B.**, Roux, S., Anantharaman, K. (2025). A call for caution in the biological interpretation of viral auxiliary metabolic genes. *Nature Microbiology*. 10:2122-2129.
66. Berg, M., Reiter, T., **Emerson, J.B.**, Brown, C.T., Roux, S. (2025). Comparison of short-read and long-read metagenome assemblies in a natural soil community highlights systematic bias in recovery of high-diversity populations. *NAR Genomics and Bioinformatics*. 7(4):lqaf163.
65. Kelliher, J.M., Mirzayi, C., Bordenstein, S.R., Oliver, A., Kellogg, C.A., Hatcher, E.L., Berg, M., Baldrian, P., Mashael, A., Miller, C.M.L., Mungall, C., Novak, V., Palucki, A., Smith, E., Tabassum, N., Bonito, G., Brister, J.R., Chain, P.S.G., Chen, M., Degregori, S., Dundore-Arias, J.P., **Emerson, J.B.**, Fernandes, V.M.C., Flores, R., Gonzalez, A., Hansen, Z.A., Jackson, S.A., Moustafa, A.M., Northen, T.R., Pariente, N., Pett-Ridge, J., Record, S., Reji, L., Reysenbach, A.-L., Rich, V.I., Richardson, L., Roux, S., Schriml, L.M., Shabman, R.S., Sierra, M.A., Sullivan, M.B., Sundaramurthy, P., Thibault, K.M., Thompson, L.R., Tighe, S., Vereen, E., [many more authors], and Eloë-Fadrosch, E.A. (2025). STREAMS guidelines: standards for technical reporting in environmental and host-associated microbiome studies. *Nature Microbiology*. 10:3059-3068.
64. Hazard, C., Anantharaman, K., †Hillary, L.S., Neri, U., Roux, S., Trubl, G., Williamson, K., Pett-Ridge, J., Nicol, G.W., **Emerson, J.B.** (2025). Beneath the surface: Unsolved questions in soil virus ecology. *Soil Biology and Biochemistry*. 205:109780.
63. Kelliher, J.M., Aljumaah, M., Bordenstein, S.R., Brister, J.R., Chain, P.S.G., Dundore-Arias, J.P., **Emerson, J.B.**, Fernandes, V.M.C., Flores, R., Gonzalez, A., Hansen, Z.A., Hatcher, E.L., Jackson, S.A., Kellogg, C.A., Madupu, R., Miller, C.M.L., Mirzayi, C., Moustafa, A.M., Mungall, C., Oliver, A., Pariente, N., Pett-Ridge, J., Record, S., Reji, L., Reysenbach, A.-L., Rich, V.I., Richardson, L., Schriml, L.M., Shabman, R.S., Sierra, M.A., Sullivan, M.B., Sundaramurthy, P., Thibault, K.M., Thompson, L.R., Tighe, S., Vereen, E., and Eloë-Fadrosch, E.A. (2025). Microbiome data management in action

workshop: Atlanta, GA, USA, June 12–13, 2024. *Environmental Microbiome*. 20:40.

62. Touceda-Suárez, M., §Perry, M.A., Frizzo, R., Lotz-McMillen, J.H., Gilmore, R.A., Bennett, S.M., Basso, J.T.R., Donovan, W., §Fudyma, J.D., §Geonczy, S.E., Gittrich, M., §Gogul, G., Hazard, C., †Hillary, L.S., Jameson, E., †Jiraska, L., Johnson, S.S., Kosmopoulos, J.C., Leleiwi, I., Ma, B., Mageeney, C.M., Millard, A., Neri, U., Rodríguez-Ramos, J., Roux, S., Tong, D., Wang, Y., Williamson, K., Wu, R., Dalcin Martins, P., Sapkota, R., **Emerson, J.B.**, Trubl, G. (2025). Meeting report: International soil virus conference 2024. *Virus Research*. 354:199544.
61. Alfenas-Zerbini, P., **Emerson, J.B.**, Massart, S., Mauck, K.E., Nouri, S., Whitfield, A.E. (2025). The Phytovirome. *Phytobiomes Journal*. 9(1):2471-2906.
60. §Geonczy, S.E., †Hillary, L.S., †Sorensen, J.W., †Santos-Medellín, C., **Emerson, J.B.** (2025). Patchy burn severity explains heterogeneous soil viral and prokaryotic responses to fire in a mixed conifer forest. *mSystems*. 0:e01749-24.
59. §Geonczy, S.E., §ter Horst, A.M., **Emerson, J.B.** (2025). Soil viral communities shifted significantly after wildfire in chaparral and woodland habitats. *ISME Communications*. 5(1):ycaf073.
58. §Geonczy, S.E., †Hillary, L.S., †Santos-Medellín, C., §Fudyma, J.D., †Sorensen, J.W., **Emerson, J.B.** (2025). Virome responses to heating of a forest soil suggest that most dsDNA viral particles do not persist at 90°C. *Soil Biology and Biochemistry*. 202: 109651.
57. Carriera, C., Lønborg, C., Acharya, B., Aryal, L., Buivydaite, Z., Borim Corrêa, F., Chen, T., Lorenzen Elberg, C., **Emerson, J.B.**, †Hillary, L.S., Khadka, R.B., Langlois, V., Mason-Jones, K., Netherway, T., Sutela, S., Trubl, G., wa Kang'eri, A., Wang, R., White III, R.A., Winding, A., Zhao, T., Sapkota, R. (2024). Integrating viruses into soil food web biogeochemistry. *Nature Microbiology*. 9(8):1918-1928.
56. §Fudyma, J.D., §ter Horst, A.M., †Santos-Medellín, C., †Sorensen, J.W., §Gogul, G.G., †Hillary, L.S., §Geonczy, S.E., Pett-Ridge, J., **Emerson, J.B.** (2024). Exploring viral particle, soil, and extraction buffer physicochemical characteristics and their impacts on extractable viral communities. *Soil Biology and Biochemistry*. 194:109419.
55. ^*Matsumoto, B.L., ^†Sieradzki, E.T., Greenlon, A., Perilla-Henao, L.M., §ter Horst, A.M., §Geonczy, S.E., Cook, D.R., **Emerson, J.B.** (2024). Viruses of nitrogen fixing *Mesorhizobium* bacteria in globally distributed chickpea root nodules. *Phytobiomes Journal*. 8(2):2471-2906.
54. §ter Horst, A.M., §Fudyma, J.D., Sones, J.L., **Emerson, J.B.** (2023). Dispersal, habitat filtering, and eco-evolutionary dynamics as drivers of local and global wetland viral biogeography. *The ISME Journal*. 17:2079-2089.
53. †Santos-Medellín, C., Blazewicz, S.J., Pett-Ridge, J., Firestone, M.K., **Emerson, J.B.** (2023). Viral but not bacterial community successional patterns reflect extreme turnover shortly after rewetting dry soils. *Nature Ecology & Evolution*. 7:1809-1822.
52. **Emerson, J.B.** (2023). Introducing our 15th Anniversary article collection. *The ISME Journal*. 17:949.
51. Buivydaite, Z., Aryal, L., Correa, F.B., Chen, T., Langlois, V., Elberg, C.L., Netherway, T., Wang, R., Zhao, T., Acharya, B., **Emerson, J.B.**, †Hillary, L.S., Khadka, R.B., Mason Jones, K., Sapkota, R., Sutela, S., Trubl, G., White III, R.A., Winding, A., Carreira, C.

- (2023). Meeting report: the first soil viral workshop (2022). *Virus Research*. 331(2023):199121.
50. †Santos-Medellín, C., Estera-Molina, K., Yuan, M., Pett-Ridge, J., Firestone, M.K., **Emerson, J.B.** (2022). Spatial turnover of soil viral populations and genotypes overlain by cohesive responses to moisture in grasslands. *Proceedings of the National Academy of Sciences*. 119(45):e2209132119.
 49. ^*Durham, D.M., ^†Sieradzki, E.T., §ter Horst, A.M., †Santos-Medellín, C., *Bess, C.W.A., §Geonczy, S.E., **Emerson, J.B.** (2022). Substantial differences in soil viral community composition within and among four Northern California habitats. *ISME Communications*. 2:100.
 48. ^Roux, S. and ^**Emerson, J.B.** (2022). Diversity in the soil virosphere: to infinity and beyond? *Trends in Microbiology*. 30(11):1025-1035.
 47. Martins, S.J., Taerum, S.J., Triplett, L., **Emerson, J.B.**, Zasada, I., de Toledo, B.F., Kovac, J., Martin, K., Bull, C.T. (2022). Predators of soil bacteria in plant and human health. *Phytobiomes Journal*. 6:3.
 46. Albright, M.B.N., Gallegos-Graves, L.V., Feeser, K.L., Montoya, K., **Emerson, J.B.**, Shakya, M., Dunbar, J. (2022). Experimental evidence for the impact of soil virus additions on carbon cycling during surface plant litter decomposition. *ISME Communications*. 2:24.
 45. Albright, M.B.N., Louca, S., Winkler, D.E., Feeser, K.L., Haig, S.J., Whiteson, K.L., **Emerson, J.B.**, Dunbar, J. (2022). Solutions in microbiome engineering: prioritizing barriers to organism establishment. *The ISME Journal*. 16:331-228.
 44. Lee, S., †Sorensen, J.W., Walker, R.L., **Emerson, J.B.**, Nicol, G.W., Hazard, C. (2022). Soil pH influences the structure of virus communities at local and global scales. *Soil Biology and Biogeochemistry*. 166:108569.
 43. §ter Horst, A.M., §Fudyma, J.D., †Bak, A., Hwang, M., †Santos-Medellín, C., Stevens, K.A., Rizzo, D.M., Al Rwahnih, M., **Emerson, J.B.** (2022). RNA viral communities are structured by host plant phylogeny in oak and conifer leaves. *Phytobiomes Journal* 7(2): 2471-2906.
 42. †Sorensen, J.W., †Zinke, L.A., §ter Horst, A.M., †Santos-Medellín, C., *Schroeder, A., **Emerson, J.B.** (2021). DNase treatment improves viral enrichment in agricultural soil viromes. *mSystems*. 6(5):e0061421.
 41. §ter Horst, A.M., †Santos-Medellín, C., †Sorensen, J.W., †Zinke, L.A., Wilson, R.M., Johnston, E.R., Trubl, G., Pett-Ridge, J., Blazewicz, S.J., Hanson, P.J., Chanton, J.P., Schadt, C.W., Kostka, J.E., **Emerson, J.B.** (2021). Minnesota peat viromes reveal terrestrial and aquatic niche partitioning for local and global viral populations. *Microbiome*. 9:233.
 40. **Emerson, J.B.**, Varner, R.K., Wik, M., Parks, D.H., Neumann, R.B., Johnson, J.E., Singleton, C.M., Woodcroft, B.J., Tollerson II, R., Owusu-Dommey, A., Binder, N., Freitas, N.L., Crill, P.M., Saleska, S.R., Tyson, G.W., Rich, V.I. (2021). Diverse sediment microbiota shape methane emission temperature sensitivity in Arctic lakes. *Nature Communications*. 12:5815.
 39. †Santos-Medellín, C., †Zinke, L.A., §ter Horst, A.M., Gelardi, D.L., Parikh, S.J., **Emerson, J.B.** (2021). Viromes outperform total metagenomes in revealing the spatiotemporal

- patterns of agricultural soil viral communities. *The ISME Journal*. 15:1956-1970.
38. †Zinke, L.A., Evans, P.N., †Santos-Medellín, C., *Schroeder, A.L., Parks, D.H., Varner, R.K., Rich, V.I., Tyson, G.W., **Emerson, J.B.** (2021). Evidence for non-methanogenic metabolisms in globally distributed archaeal clades basal to the *Methanomassiliicoccales*. *Environmental Microbiology*. 23(1):340-357.
 37. Trubl, G., Stedman, K., Bywaters, K., Boston, P.J., Kaelber, J.T., Roux, S., **Emerson, J.B.**, Breitbart, M., Yin, J., Janjic, A., Sommers, P., Rodriguez-Roman, E. (2021). Astrovirology: Expanding the Search for Life. *Bulletin of the American Astronomical Society*. 53(4):516.
 36. Wilson, R.M., Zayed, A., Krossen, K., Woodcroft, B.J., Tfaily, M., **Emerson, J.B.**, Raab, N., Hodgkins, S.B., Verbeke, B., Tyson, G.W., Crill, P.M., Saleska, S.R., Chanton, J.P., Rich, V.I. (2021). Functional capacities of microbial communities to carry out large scale geochemical processes are maintained during ex situ anaerobic incubation. *PLoS ONE*. 16(2):e0245857.
 35. †Bak, A. & **Emerson, J.B.** (2020). Cauliflower mosaic virus (CaMV) biology, management, and relevance to GM plant detection for sustainable organic agriculture. *Frontiers in Sustainable Food Systems*. 4:21.
 34. Bolduc, B., Hodgkins, S.B., Varner, R.K., Crill, P.M., McCalley, C.K., Chanton, J.P., Tyson, G.W., Riley, W.J., Palace, M., Duhaime, M.B., Hough, M.A., IsoGenie Project Coordinators, IsoGenie Project Team (including **Emerson, J.B.**), A2A Project Team, Saleska, S.R., Sullivan, M.B., Rich, V.I. (2020). The IsoGenie database: an interdisciplinary data management solution for ecosystems biology and environmental research. *PeerJ*. 8:e9467.
 33. Dundore-Arias, J.P., Elloe-Fadrosh, E., Schriml, L.M., Beattie, G.A., Brennan, F.P., Busby, P.E., Calderon, R.B., Castle, S.C., **Emerson, J.B.**, Everhart, S.E., Eversole, K., Frost, K.E., Herr, J.R., Huerta, A.I., Iyer-Pascuzzi, A.S., Kalil, A.K., Leach, J.E., Leonard, J., Maul, J.E., Prithiviraj, B., Potrykus, M., Redekar, N.R., Rojas, J.A., Silverstein, K.A.T., Tomso, D.J., Tringe, S.G., Vinatzer, B.A., Kinkel, L.L. (2020). Community-driven Metadata Standards for Agricultural Microbiome Research. *Phytobiomes Journal*. 4(2):115-121.
 32. †Bak, A.B. & **Emerson, J.B.** (2019). Multiplex quantitative PCR for single-reaction genetically modified (GM) plant detection and identification of false-positive GM plants linked to Cauliflower mosaic virus (CaMV) infection. *BMC Biotechnology*. 19(1):73.
 31. **Emerson, J.B.** (2019). Soil Viruses: A New Hope. *mSystems*. 4(3):e00120-19.
 30. Roux S., Adriaenssens, E.M., Dutilh, B.E., Koonin, E.V., Kropinski, A.M., Krupovic, M., Kuhn, J.H., Lavigne, R., Brister, J.R., Varsani, A., Amid, C., Aziz, R.K., Bordenstein, S.R., Bork, P., Breitbart, M., Cochrane, G.R., Daly, R.A., Desnues, C., Duhaime, M.B., **Emerson, J.B.**, Enault, F., Fuhrman, J.A., Hingamp, P., Hugenholtz, P., Hurwitz, B.L., Ivanova, N.N., Labonte, J.M., Lee, K.-B., Malmstrom, R.R., Martinez-Garcia, M., Mizrachi, I., Ogata, H., Paez-Espino, D., Petit, M.-A., Putonti, C., Rattei, T., Reyes, A., Rodriguez-Valera, F., Rosario, K., Schriml, L., Schulz, F., Steward, G.F., Sullivan, M.B., Sunagawa, S., Suttle, C.A., Temperton, B., Tringe, S.G., Thurber, R.V., Webster, N.S., Whiteson, K.L., Wilhelm, S.W., Wommack, K.E., Woyke, T., Wrighton, K.C., Yilmaz, P., Yoshida, T., Young, M.J., Yutin, N., Zeigler-Allen, L., Kyrpides, N.C., Elloe-Fadrosh, E.A. (2019). Minimum Information about an Uncultivated Virus Genome (MIUViG): a

- community consensus on standards and best practices for describing genome sequences from uncultivated viruses. *Nature Biotechnology*. 37(1):29.
29. Trubl, G., Jang, H.B., Roux, S., **Emerson, J.B.**, Solonenko, N., Vik, D.R., Solden, L.M., Ellenbogen, J., Runyon, A.T., Bolduc, B.J., Woodcroft, B.J., Saleska, S.R., Tyson, G.W., Wrighton, K.C., Sullivan, M.B., Rich, V.I. (2018). Soil viruses are underexplored players in ecosystem carbon cycling. *mSystems*. 3(5):e00076-18.
28. **Emerson, J.B.**, Roux, S., Brum, J.R., Bolduc, B., Woodcroft, B.J., Jang, H.B., Singleton, C.M., Solden, L.M., Naas, A.E., Boyd, J.A., Hodgkins, S.B., Wilson, R.M., Trubl, G., Li, C., Frolking, S., Pope, P.B., Wrighton, K.C., Crill, P.M., Chanton, J.P., Saleska, S.R., Tyson, G.W., Rich, V.I., Sullivan, M.B. (2018). Host-linked soil viral ecology along a permafrost thaw gradient. *Nature Microbiology*. 3(8):870.
27. Woodcroft, B.J., Singleton, C.M., Boyd, J.A., Evans, P.N., **Emerson, J.B.**, Zayed, A.A.F., Hoelzle, R.D., Lamberton, T.O., McCalley, C.K., Hodgkins, S.B., Wilson, R.M., Purvine, S.O., Nicora, C.D., Li, C., Frolking, S., Chanton, J.P., Crill, P.M., Saleska, S.R., Rich, V.I., Tyson, G.W. (2018). Genome-centric view of carbon processing in thawing permafrost. *Nature*. 560(7716):49.
26. Clements, N., Keady, P., **Emerson, J.B.**, Fierer, N., Miller, S.L. (2018). Seasonal variability of airborne particulate matter and bacterial concentrations in Colorado homes. *Atmosphere*. 9(4):133.
25. Probst, A.J., Ladd, B., Jarett, J.K., Geller-McGrath, D.E., Sieber, C.M.K., **Emerson, J.B.**, Anantharaman, K., Thomas, B.C., Malmstrom, R.R., Stieglmeier, M., Klingl, A., Woyke, T., Ryan, C.M., Banfield, J.F. (2018). Differential depth distribution of microbial function and putative symbionts through sediment-hosted aquifers in the deep terrestrial subsurface. *Nature Microbiology*. 3:328-336.
24. Roux, S., **Emerson, J.B.**, Eloie-Fadrosch, E.A., Sullivan, M.B. (2017). Benchmarking viromics: An *in silico* evaluation of metagenome-enabled estimates of viral community composition and diversity. *PeerJ*. 5:e3817.
23. **Emerson, J.B.**, Adams, R.I., Betancourt Roman, C.M., Brooks, B.B., Coil, D.A., Dahlhausen, K., Ganz, H.H., Hartmann, E.M., Hsu, T., Justice, N.B., Paulino Lima, I.G., Luongo, J.C., Lymperopoulou, D., Gomez Silvan, C., Rothschild-Mancinelli, B., Balk, M., Huttenhower, C., Nocker, A., Vaishampayan, P., Rothschild, L.J. (2017). Schrödinger's microbes: Tools for distinguishing the living from the dead in microbial ecosystems. *Microbiome*. 5:86.
22. **Emerson, J.B.**, Keady, P.B., Clements, N., Morgan, E.E., Awerbuch, J., Miller, S.L., Fierer, N. (2017). High temporal variability in airborne bacterial diversity and abundance inside single-family residences. *Indoor Air*. 27(3):576-586.
21. Vik, D.R., Roux, S., Brum, J.R., Bolduc, B., **Emerson, J.B.**, Padilla, C.C., Stewart, F.J., Sullivan, M.B. (2017). Putative archaeal viruses from the mesopelagic ocean. *PeerJ*. 5:e3428.
20. Probst, A.J., Castelle, C.J., Singh, A., Brown, C.T., Anantharaman, K., Sharon, I., Hug, L.A., Burstein, D., **Emerson, J.B.**, Thomas, B.C., Banfield, J.F. (2017). Genomic resolution of a cold subsurface aquifer community provides metabolic insights for novel microbes adapted to high CO₂ concentrations. *Environmental Microbiology*. 19(2):459-474.

19. **Emerson, J.B.**, Thomas, B.C., Alvarez, W., Banfield, J.F. (2016). Metagenomic analysis of a high carbon dioxide subsurface microbial community populated by chemolithoautotrophs and bacteria and archaea from candidate phyla. *Environmental Microbiology*. 18(6):1686-1703.
18. Andrade, K., Logemann, J., Heidelberg, K.B., **Emerson, J.B.**, Comolli, L.R., Hug, L.A., Probst, A.J., Keillor, A., Thomas, B.C., Miller, C.S., Allen, E.E., Moreau, J.W., Brocks, J.J., Banfield, J.F. (2015). Metagenomic and lipid analyses reveal a diel cycle in a hypersaline microbial ecosystem. *The ISME Journal*. 9:2697-2711.
17. **Emerson, J.B.**, Keady, P.B., Brewer, T.E., Clements, N., Morgan, E.E., Awerbuch, J., Miller, S.L., Fierer, N. (2015). Impacts of flood damage on airborne bacteria and fungi in homes after the 2013 Colorado Front Range flood. *Environmental Science & Technology*. 49(5):2675-2684.
16. Tully, B., **Emerson, J.B.**, Andrade, K., Brocks, J.J., Allen, E.E., Banfield, J.F., Heidelberg, K.B. (2014). De novo sequences of *Haloquadratum walsbyi* from Lake Tyrrell, Australia reveal a variable genomic landscape. *Archaea*. 2014:875784.
15. Probst, A.J., Weinmaier, T., Raymann, K., Perras, A., **Emerson, J.B.**, Rattei, T., Wanner, G., Klingl, A., Berg, I., Yoshinaga, M., Viehweger, B., Hinrichs, K., Thomas, B.C., Meck, S., Auerbach, A.K., Heise, M., Schintlmeister, A., Schmid, M., Wagner, M., Gribaldo, S., Banfield, J.F., Moissl-Eichinger, C. (2014). Biology of a widespread uncultivated archaeon that contributes to carbon fixation in the subsurface. *Nature Communications*. 5:5497.
14. Podell, S., **Emerson, J.B.**, Jones, C.M., Ugalde, J.A., Welch, S., Heidelberg, K.B., Banfield, J.F., Allen, E.E. (2014). Seasonal fluctuations in ionic concentrations drive microbial succession in a hypersaline lake community. *The ISME Journal*. 8(5):979-990.
13. Bowers, R.M., Clements, N., **Emerson, J.B.**, Wiedinmyer, C., Hannigan, M.P., Fierer, N. (2013). Seasonal variability in the bacterial and fungal diversity of the near-surface atmosphere. *Environmental Science & Technology*. 47(21):12097-12106.
12. Doll, H.M., Armitage, D.W., Daly, R.A., **Emerson, J.B.**, Goltsman, D.A., Yelton, A.P., Kerekes, J., Firestone, M.K., Potts, M.D. (2013). Utilizing novel diversity estimators to quantify multiple dimensions of microbial biodiversity across domains. *BMC Microbiology*. 13:259.
11. **Emerson, J.B.**, Thomas, B.C., Andrade, K., Heidelberg, K.B., Banfield, J.F. (2013). New approaches indicate constant viral diversity despite shifts in assemblage structure in an Australian hypersaline lake. *Applied and Environmental Microbiology*. 79(21):6755-6764.
10. **Emerson, J.B.**, Andrade, K., Thomas, B.C., Norman, A., Allen, E.E., Heidelberg, K.B., Banfield, J.F. (2013). Virus-host and CRISPR dynamics in archaea-dominated hypersaline Lake Tyrrell, Victoria, Australia. *Archaea*. 2013:370871.
9. Heidelberg, K.B., Nelson, W.C., Holm, J.B., Eisenkolb, N., Andrade, K., **Emerson, J.B.** (2013). Characterization of eukaryotic microbial diversity in hypersaline Lake Tyrrell, Australia. *Frontiers in Microbiology*. 13(4):115.
8. **Emerson, J.B.**, Thomas, B.C., Andrade, K., Allen, E.E., Heidelberg, K.B., Banfield, J.F. (2012). Dynamic viral populations in hypersaline systems as revealed by metagenomic assembly. *Applied and Environmental Microbiology*. 78(17):6309-6320.

7. Narasingarao, P., Podell, S., Ugalde, J.A., Brochier-Armanet, C., **Emerson, J.B.**, Brocks, J.J., Heidelberg, K.B., Banfield, J.F., Allen, E.E. (2012). *De novo* metagenomic assembly reveals abundant, novel major lineage of Archaea in hypersaline microbial communities. *The ISME Journal*. 6(1):81-93.
6. Bik, E.M., Long, C.D., Armitage, G.C., Loomer, P., **Emerson, J.**, Mongodin, E.F., Nelson, K.E., Gill, S.R., Fraser-Liggett, C.M., and Relman, D.A. (2010). Bacterial diversity in the oral cavity of 10 healthy individuals. *The ISME Journal*. 4(8):962-974.
5. Brulc, J.M., Antonopoulos, D.A., Berg Miller, M.E., Wilson, M.K., Yannarell, A.C., Dinsdale, E.A., Edwards, R.E., Frank, E.D., **Emerson, J.B.**, Wacklin, P., Coutinho, P.M., Henrissat, B., Nelson, K.E., White, B.A. (2009). Gene-centric metagenomics of the fiber adherent bovine rumen microbiome reveals forage specific glycoside hydrolases. *Proceedings of the National Academy of Sciences*. 106(6):1948-1953.
4. DeBoy, R.T., Mongodin, E.F., Fouts, D., Tailford, L., Khouri, H., **Emerson, J.B.**, Mohamoud, Y., Watkins, K., Henrissat, B., Gilbert, H.J., Nelson, K.E. (2008). Insights into plant cell wall degradation from the genome sequence of the soil bacterium *Cellvibrio japonicus*. *Journal of Bacteriology*. 190(15):5455-5463.
3. Mongodin, E.F., Shapir, N., Daugherty, S.C., DeBoy, R.T., **Emerson, J.B.**, Shvartzbeyn, A., Radune, D., Vamathevan, J., Riggs, F., Grinberg, V., Khouri, H., Wackett, L.P., Nelson, K.E., Sadowsky, M.J. (2006). Secrets of soil survival revealed by the genome sequence of *Arthrobacter aurescens* TC1. *PLoS Genetics*. 2(12):e214.
2. DeBoy, R.T., Mongodin, E.F., **Emerson, J.B.**, Nelson, K.E. (2006). Chromosome evolution in the Thermotogales: large-scale inversions and strain diversification of CRISPR sequences. *Journal of Bacteriology*. 188(7):2364-2374.
1. Mongodin, E.F., **Emerson, J.B.**, Nelson, K.E. (2005). Microbial metagenomics. *Genome Biology*. 6(10):347.1-347.3.