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Birth date: 31 July 1970
Citizenship: U.S.A.

Education:

Ph.D., Microbiology, The Ohio State University, Columbus, Ohio, 2002.
Thesis advisors: John N. Reeve, Lonnie G. Thompson, and Ellen Mosley-Thompson

M.S., Microbiology, University of Dayton, Dayton, Ohio, 1996.
Thesis advisor: John J. Rowe

B.S., Molecular Biology and Biotechnology, Westminster College, New Wilmington, Pennsylvania, 1992.

Supplemental Coursework:

National Science Foundation Antarctic Biology Course, January 2001. McMurdo Station, Antarctica.

Microbial Diversity Course, June-July 1999. Marine Biological Laboratory, Woods Hole, Massachusetts.

Professional Experience:

Associate Professor, 2016-. Department of Microbiology and Cell Science, University of Florida, Gainesville, Florida.

Visiting Researcher, 2014. Institut National de la Recherche Agronomique, Unité de Pathologie Végétale, Montfavet, France.

Associate Professor, 2011-2015. Department of Biological Sciences, Louisiana State University, Baton Rouge, Louisiana.

Assistant Professor, 2006-2011. Department of Biological Sciences, Louisiana State University, Baton Rouge, Louisiana.

Assistant Research Professor, 2004-2006. Department of Land Resources and Environmental Sciences, Montana State University, Bozeman, Montana.

Postdoctoral Researcher, 2002-2004. Laboratory of John C. Priscu, Department of Land Resources and Environmental Sciences, Montana State University, Bozeman, Montana.

Graduate Research Assistant, 1997-2002. Laboratories of John N. Reeve, Ellen Mosley-Thompson, and Lonnie Thompson, Department of Microbiology and The Byrd Polar Research Center, The Ohio State University, Columbus, Ohio.

Teaching Assistant, 1994-1995. Department of Biology, University of Dayton, Dayton, Ohio.

Research Associate in Molecular Biology, 1992-1993. Laboratory of John R. Hassell, Eye and Ear Institute, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania.

Publications:

Peer-reviewed research articles:

50. Gill Olivas, B., Telling, J., Tranter, M., Skidmore, M., **Christner, B.**, O'Doherty, S. & Priscu, J. Subglacial erosion has the potential to sustain microbial processes in subglacial Lake Whillans, Antarctica. *Commun. Earth Environ.* (accepted).
49. Priscu, J. C., Kain, J., Winans, J., Campbell, T., Siegfried, M. R., Skidmore, M., Dore, J. E., Leventer, A., Harwood, D. M., Duling, D., Zook, R., Burnett, J., Gibson, D., Krula, E., Mironov, A., McManis, J., Roberts, G., Rosenheim, B. E., **Christner, B. C.**, Kasic, K., Fricker, H. A., Lyons, W. B., Barker, J., Bowling, M., Collins, B., Davis, C., Gagnon, A., Gardner, C., Gustafson, C., Kim, O.-S., Li, W., Michaud, A., Patterson, M. O., Tranter, M., Venturelli, R., Vick-Majors, T., Elsworth, C. & the SALSA Science Team. Scientific access into Mercer Subglacial Lake: scientific objectives, drilling operations, and initial observations *Ann. Glaciol.* 1-13, doi:10.1017/aog.2021.10. (2021).
48. Moore, R. A., Bomar, C., Kobziar, L. N. & **Christner, B. C.** Wildland fire as an atmospheric source of viable microbial aerosols and biological ice nucleating particles. *The ISME J.* **15**, 461-472 (2021).
47. Flint, M. K., Martin, J. B., Summerall, T. I., Barry-Sosa, A. & **Christner, B. C.** Nitrous oxide processing in carbonate karst aquifers. *J. Hydrol.* **594**, 125936 (2021).
46. Michaud, A. B., Vick-Majors, T. J., Achberger, A. M., Skidmore, M. L., **Christner, B. C.**, Tranter, M. & Priscu, J. C. Environmentally clean access to Antarctic subglacial aquatic environments. *Antarct. Sci.* **32**, 329–340 (2020).
45. Vick-Majors, T. J., Michaud, A. B., Skidmore, M. L., Turetta, C., Barbante, C., **Christner, B. C.**, Dore, J. E., Christianson, K., Mitchell, A. C., Achberger, A. M., Mikucki, J. A. & Priscu, J. C. Biogeochemical connectivity between freshwater ecosystems beneath the West Antarctic Ice Sheet and the sub-ice marine environment. *Global Biogeochem. Cycles* **34**, e2019GB006446 (2020).
44. Moore, R. A., Hanlon, R., Powers, C., Schmale, D. G. & **Christner, B. C.** Scavenging of sub-micron to micron-sized microbial aerosols during simulated rainfall. *Atmosphere (Basel)*. **11**, 1–14 (2020).

43. Aho, K. A., Weber, C. F., **Christner, B. C.**, Vinatzer, B. A., Morris, C. E., Joyce, R., Failor, K. C., Werth, J. T., Bayless-Edwards, A. L. H. & Schmale, D. G. Spatiotemporal patterns of microbial composition and diversity in precipitation. *Ecol. Monogr.* **90**, e01394 (2020).
42. Joyce, R. E., Lavender, H., Farrar, J., Werth, J. T., Weber, C. F., D'Andrilli, J., Vaitilingom, M. & **Christner, B. C.** Biological ice-nucleating particles deposited year-round in subtropical precipitation. *Appl. Environ. Microbiol.* **85**, e01567-19 (2019).
41. Bryan, N. C., **Christner, B. C.**, Guzik, T. G., Granger, D. J. & Stewart, M. F. Abundance and survival of microbial aerosols in the troposphere and stratosphere. *ISME J.* **13**, 2789-2799 (2019).
40. **Christner, B. C.**, Lavender, H. F., Davis, C. L., Oliver, E. E., Neuhaus, S. U., Myers, K. F., Hagedorn, B., Tulaczyk, S. M., Doran, P. T. & Stone, W. C. Microbial processes in the weathering crust aquifer of a temperate glacier. *Cryosphere* **12**, 3653-3669 (2018).
39. Kayani, M. R., Doyle, S. M., Sangwan, N., Wang, G., Gilbert, J. A., **Christner, B. C.** & Zhu, T. F. Metagenomic analysis of basal ice from an Alaskan glacier. *Microbiome* **6**, 123 (2018).
38. Schuerger, A. C., Smith, D. J., Griffin, D. W., Jaffe, D. A., Wawrik, B., Burrows, S. M., **Christner, B. C.**, Gonzalez-Martin, C., Lipp, E. K., Schmale III, D. G. & Yu, H. Science questions and knowledge gaps to study microbial transport and survival in Asian and African dust plumes reaching North America. *Aerobiologia* **34**, 425-435 (2018).
37. Clark, E. B., Bramall, N. E., **Christner, B.**, Flesher, C., Harman, J., Hogan, B., Lavender, H., Lelievre, S., Moor, J., Siegel, V. & Stone, W. C. An intelligent algorithm for autonomous scientific sampling with the VALKYRIE cryobot. *Int. J. Astrobiol.* **17**, 247-257 (2018).
36. Wang, C., Pakhomova, S., Newcomer, M. E., **Christner, B. C.** & Luo, B.-H. Structural basis of antifreeze activity of a bacterial multi-domain antifreeze protein. *PLoS One* **12**, e0187169 (2017).
35. Michaud, A. B., Dore, J. E., Achberger, A. M., **Christner, B. C.**, Mitchell, A. C., Skidmore, M. L., Vick-Majors, T. J. & Priscu, J. C. Microbial oxidation as a methane sink beneath the West Antarctic Ice Sheet. *Nat. Geosci.* **10**, 582-586 (2017).
34. Achberger, A. M., **Christner, B. C.**, Michaud, A. B., Priscu, J. C., Skidmore, M. L., Vick-Majors, T. J., Adkins, W., Anandakrishnan, S., Barbante, C., Barcheck, G., Beem, L., Behar, A., Beitch, M., Bolsey, R., Branecky, C., Carter, S., Christianson, K., Edwards, R., Fisher, A., Fricker, H., Foley, N., Guthrie, B., Hodson, T., Jacobel, R., Kelley, S., Mankoff, K., McBryan, E., Mikucki, J., Mitchell, A., Powell, R., Purcell, A., Sampson, D., Scherer, R., Sherve, J., Siegfried, M. & Tulaczyk, S. Microbial community structure of subglacial Lake Whillans, West Antarctica. *Front. Microbiol.* **7**, 1457 (2016).

33. Vick-Majors, T. J., Mitchell, A. C., Achberger, A. M., **Christner, B. C.**, Dore, J. E., Michaud, A. B., Mikucki, J. A., Purcell, A. M., Skidmore, M. L., Priscu, J. C., Adkins, W. P., Anandakrishnan, S., Barbante, C., Barcheck, G., Beem, L., Behar, A., Beitch, M., Bolsey, R., Branecky, C., Edwards, R., Fisher, A., Fricker, H. A., Foley, N., Guthrie, B., Hodson, T., Horgan, H., Jacobel, R., Kelley, S., Mankoff, K. D., McBryan, E., Powell, R., Sampson, D., Scherer, R., Siegfried, M. & Tulaczyk, S. Physiological ecology of microorganisms in subglacial Lake Whillans. *Front. Microbiol.* **7**, 1705 (2016).
32. Wang, C., Oliver, E. E., **Christner, B. C.** & Luo, B.-H. Functional analysis of a bacterial antifreeze protein indicates a cooperative effect between its two ice-binding domains. *Biochemistry* **55**, 3975-3983 (2016).
31. Vick-Majors, T. J., Achberger, A., Santibáñez, P., Dore, J. E., Hodson, T., Michaud, A. B., **Christner, B. C.**, Mikucki, J., Skidmore, M. L., Powell, R., Adkins, W. P., Barbante, C., Mitchell, A., Scherer, R. & Priscu, J. C. Biogeochemistry and microbial diversity in the marine cavity beneath the McMurdo Ice Shelf, Antarctica. *Limnol. Oceanogr.* **61**, 572–586 (2016).
30. Mikucki, J. A., Lee, P. A., Ghosh, D., Purcell, A. M., Mitchell, A. C., Mankoff, K. D., Fisher, A. T., Tulaczyk, S., Carter, S., Siegfried, M. R., Fricker, H. A., Hodson, T., Coenen, J., Powell, R., Scherer, R., Vick-Majors, T., Achberger, A. A., **Christner, B. C.** & Tranter, M. Subglacial Lake Whillans microbial biogeochemistry: A synthesis of current knowledge. *Philos. Trans. R. Soc. A Math. Phys. Eng. Sci.* **374**, 20140290 (2016).
29. Cameron, K. A., Hagedorn, B., Dieser, M., **Christner, B. C.**, Choquette, K., Sletten, R., Crump, B., Kellogg, C. & Junge, K. Diversity and potential sources of microbiota associated with snow on western portions of the Greenland Ice Sheet. *Environ. Microbiol.* **17**, 594-609 (2015).
28. Bryan, N. C., Stewart, M., Granger, D., Guzik, T. G. & **Christner, B. C.** A method for sampling microbial aerosols using high altitude balloons. *J. Microbiol. Methods* **107**, 161-168 (2014).
27. Purcell, A. M., Mikucki, J. A., Achberger, A. M., Alekhina, I. A., Barbante, C., **Christner, B. C.**, Ghosh, D., Michaud, A. B., Mitchell, A. C., Priscu, J. C., Scherer, R., Skidmore, M. L., Vick-Majors, T. J., Adkins, W. P., Anandakrishnan, S., Barcheck, G., Beem, L., Behar, A., Beitch, M., Bolsey, R., Branecky, C., Carter, S., Christianson, K., Edwards, R., Fisher, A., Fricker, H., Foley, N., Guthrie, B., Hodson, T., Jacobel, R., Kelley, S., Mankoff, K., McBryan, E., Powell, R., Sampson, D., Severinghaus, J., Sherve, J., Siegfried, M. & Tulaczyk, S. Microbial sulfur transformations in sediments from Subglacial Lake Whillans. *Front. Microbiol.* **5**, 594 (2014).
26. **Christner, B. C.**, Priscu, J. C., Achberger, A. M., Barbante, C., Carter, S. P., Christianson, K., Michaud, A. B., Mikucki, J. A., Mitchell, A. C., Skidmore, M. L., Vick-Majors, T. J., Adkins, W. P., Anandakrishnan, S., Anandakrishnan, S., Beem,

- L., Behar, A., Beitch, M., Bolsey, R., Branecky, C., Fisher, A., Foley, N., Mankoff, K. D., Sampson, D., Tulaczyk, S., Edwards, R., Kelley, S., Sherve, J., Fricker, H. A., Siegfried, S., Guthrie, B., Hodson, T., Powell, R., Scherer, R., Horgan, H., Jacobel, R., McBryan, E. & Purcell, A. A microbial ecosystem beneath the West Antarctic ice sheet. *Nature* **512**, 310-313 (2014).
25. Brown, J. R., Seymour, J. D., Brox, T. I., Skidmore, M. L., Wang, C., **Christner, B. C.**, Luo, B.-H. & Codd, S. L. Recrystallization inhibition in ice due to ice binding protein activity detected by nuclear magnetic resonance. *Biotechnol. Reports* **3**, 60-64 (2014).
24. Tulaczyk, S., Mikucki, J. A., Siegfried, M. R., Priscu, J. C., Barcheck, C. G., Beem, L. H., Behar, A., Burnett, J., **Christner, B. C.**, Fisher, A. T., Fricker, H. A., Mankoff, K. D., Powell, R. D., Rack, F., Sampson, D., Scherer, R. P. & Schwartz, S. Y. WISSARD at Subglacial Lake Whillans, West Antarctica: Scientific operations and initial observations. *Ann. Glaciol.* **55**, 51-58 (2014).
23. Dieser, M., Broensen, E. L. J. E., Cameron, K. A., King, G. M., Achberger, A., Choquette, K., Hagedorn, B., Sletten, R., Junge, K. & **Christner, B. C.** Molecular and biogeochemical evidence for methane cycling beneath the western margin of the Greenland Ice Sheet. *ISME J.* **8**, 2305-2316 (2014).
22. Montross, S., Skidmore, M., **Christner, B.**, Samyn, D., Tison, J.-L., Lorrain, R., Doyle, S. & Fitzsimons, S. Debris-Rich Basal Ice as a Microbial Habitat, Taylor Glacier, Antarctica. *Geomicrobiol. J.* **31**, 76-81 (2014).
21. Dieser, M., Battista, J. R. & **Christner, B. C.** DNA double-strand break repair at -15°C. *Appl. Environ. Microbiol.* **79**, 7662-7668 (2013).
20. Doyle, S. M., Montross, S. N., Skidmore, M. L. & **Christner, B. C.** Characterizing microbial diversity and the potential for metabolic function at -15 °C in the basal ice of Taylor Glacier, Antarctica. *Biology* **2**, 1034-1053 (2013).
19. Priscu, J. C., Achberger, A. M., Cahoon, J. E., **Christner, B. C.**, Edwards, R. L., Jones, W. L., Michaud, A. B., Siegfried, M. R., Skidmore, M. L., Spigel, R. H., Switzer, G. W., Tulaczyk, S. & Vick-Majors, T. J. A microbiologically clean strategy for access to the Whillans Ice Stream subglacial environment. *Antarct. Sci.* **25**, 637-647 (2013).
18. **Christner, B. C.**, Montross, G. G. & Priscu, J. C. Dissolved gases in frozen basal water from the NGRIP borehole: Implications for biogeochemical processes beneath the Greenland Ice Sheet. *Polar Biol.* **35**, 1735-1741 (2012).
17. Achberger, A. M., Brox, T. I., Skidmore, M. L. & **Christner, B. C.** Expression and partial characterization of an ice-binding protein from a bacterium isolated at a depth of 3,519 m in the Vostok ice core, Antarctica. *Front. Microbiol.* **2**, 255 (2011).

16. Amato, P., Doyle, S. M., Battista, J. R. & **Christner, B. C.** Implications of subzero metabolic activity on long-term microbial survival in terrestrial and extraterrestrial permafrost. *Astrobiology* **10**, 789-798 (2010).
15. Phillips, V. T. J., Andronache, C., **Christner, B.**, Morris, C. E., Sands, D. C., Bansemer, A., Lauer, A., McNaughton, C. & Seman, C. Potential impacts from biological aerosols on ensembles of continental clouds simulated numerically. *Biogeosciences* **6**, 987-1014 (2009).
14. Amato, P., Doyle, S. & **Christner, B. C.** Macromolecular synthesis by yeasts under frozen conditions. *Environ. Microbiol.* **11**, 589-596 (2009).
13. Amato, P. & **Christner, B. C.** Energy metabolism response to low-temperature and frozen conditions in *Psychrobacter cryohalolentis*. *Appl. Environ. Microbiol.* **75**, 711-718 (2009).
12. **Christner, B. C.**, Cai, R., Morris, C. E., McCarter, K. S., Foreman, C. M., Skidmore, M. L., Montross, S. N. & Sands, D. C. Geographic, seasonal, and precipitation chemistry influence on the abundance and activity of biological ice nucleators in rain and snow. *Proc. Natl. Acad. Sci. U. S. A.* **105**, 18854-18859 (2008).
11. Priscu, J. C., **Christner, B. C.**, Dore, J. E., Westley, M. B., Popp, B. N., Casciotti, K. L. & Lyons, W. B. Supersaturated N₂O in a perennially ice-covered Antarctic lake: Molecular and stable isotopic evidence for a biogeochemical relict. *Limnol. Oceanogr.* **53**, 2439-2450 (2008).
10. Raymond, J. A., **Christner, B. C.** & Schuster, S. C. A bacterial ice-binding protein from the Vostok ice core. *Extremophiles* **12**, 713-717 (2008).
9. **Christner, B. C.**, Morris, C. E., Foreman, C. M., Cai, R. & Sands, D. C. Ubiquity of biological ice nucleators in snowfall. *Science* **319**, 1214 (2008).
8. **Christner, B. C.**, Royston-Bishop, G., Foreman, C. M., Arnold, B. R., Tranter, M., Welch, K. A., Lyons, W. B., Tsapin, A. I., Studinger, M. & Priscu, J. C. Limnological conditions in subglacial Lake Vostok, Antarctica. *Limnol. Oceanogr.* **51**, 2485-2501 (2006).
7. Royston-Bishop, G., Priscu, J. C., Tranter, M., **Christner, B.**, Siegert, M. J. & Lee, V. Incorporation of particulates into accreted ice above subglacial Vostok lake, Antarctica. *Ann. Glaciol.* **40**, 145-150 (2005).
6. **Christner, B. C.**, Mikucki, J. A., Foreman, C. M., Denson, J. & Priscu, J. C. Glacial ice cores: A model system for developing extraterrestrial decontamination protocols. *Icarus* **174**, 572-584 (2005).
5. **Christner, B. C.**, Kvitko II, B. H. & Reeve, J. N. Molecular identification of Bacteria and Eukarya inhabiting an Antarctic cryoconite hole. *Extremophiles* **7**, 177-183 (2003).

4. **Christner, B. C.**, Mosley-Thompson, E., Thompson, L. G. & Reeve, J. N. Bacterial recovery from ancient glacial ice. *Environ. Microbiol.* **5**, 433-436 (2003).
3. **Christner, B. C.** Incorporation of DNA and protein precursors into macromolecules by bacteria at -15°C. *Appl. Environ. Microbiol.* **68**, 6435-6438 (2002).
2. **Christner, B. C.**, Mosley-Thompson, E., Thompson, L. G. & Reeve, J. N. Isolation of bacteria and 16S rDNAs from Lake Vostok accretion ice. *Environ. Microbiol.* **3**, 570-577 (2001).
1. **Christner, B. C.**, Mosley-Thompson, E., Thompson, L. G., Zagorodnov, V., Sandman, K. & Reeve, J. N. Recovery and identification of viable bacteria immured in glacial ice. *Icarus* **144**, 479-485 (2000).

Book chapters, reviews, and conference proceedings:

13. Achberger, A. M., Michaud, A. B., Vick-Majors, T. J., **Christner, B. C.**, Skidmore, M.L., Priscu, J.C. & Tranter, M.. Microbiology of Subglacial Environments. In *Psychrophiles: From Biodiversity to Biotechnology*, Springer, pp. 83-110 (2017).
12. Doyle, S. M., Diesler, M., Broemsen, E. & **Christner, B. C.** General characteristics of cold-adapted microorganisms. In L. Whyte and R.V. Miller (eds), *Polar and Sub-Polar Microbiology*. American Society of Microbiology Press, Washington, D.C, pp. 103-125 (2012).
11. Fricker, H. A., Powell, R., Priscu, J., Tulaczyk, S., Anandakrishnan, S., **Christner, B.**, Holland, D., Horgan, H., Jacobel, R., Mikucki, J., Mitchell, A., Scherer, R. & Severinghaus, J. Siple Coast Subglacial Aquatic Environments: The Whillans Ice Stream Subglacial Access Research Drilling (WISSARD) project. In M. Siegert and M. Kennicutt (eds), *Proceedings of the Chapman Conference on the Exploration and Study of Antarctic Subglacial Aquatic Environments*. American Geophysical Union, Washington, D.C, pp. 199-220 (2011).
10. Junge, K., **Christner, B. C.** & Staley, J. T. Diversity of psychrophilic bacteria from sea ice and glacial ice communities. In K. Horikoshi, G. Antranikian, A. Bull, F. Robb, and K. Stetter (eds), *Extremophiles Handbook*. Springer, Heidelberg, Germany, pp. 793-816 (2011).
9. **Christner, B. C.** Bioprospecting for microbial products that affect ice crystal formation and growth. *Appl. Microbiol. Biotechnol.* **85**, 481-489 (2010).
8. Amato, P., Doyle, S. M. & **Christner, B. C.** Microbial survival in the cold subsurface. *Geochim. Cosmochim. Acta.*, **73**, A35 (2009).
7. Skidmore, M., Bakermans, C., Brox, T., **Christner, B.** & Montross S. Microbial respiration at subzero temperatures in laboratory ices. *Geochim. Cosmochim. Acta.*, **73**, A1234 (2009).

6. Priscu, J. C., Tulaczyk, S., Studinger, M., Kennicutt, M. C. II, **Christner, B. C.** & Foreman, C. M. Antarctic subglacial water: origin, evolution and microbial ecology. In W. Vincent and J. Laybourn-Parry (eds), *Polar Limnology*. Oxford University Press, pp. 119-135 (2008).
5. Christner, B. C., Skidmore, M. L., Priscu, J. C., Tranter, M. & Foreman, C. M. Bacteria in subglacial environments. In R. Margesin, F. Schinner, J.-C. Marx, and C. Gerday (eds), *Psychrophiles: From Biodiversity to Biotechnology*. Springer, New York (2008).
4. Priscu, J. C., **Christner, B. C.**, Foreman, C. F. & Royston-Bishop, G. Biological material in ice cores. In S.A. Elias (ed.), *Encyclopedia of Quaternary Science*, Volume 2, pp. 1156-1166. Elsevier, UK (2007).
3. **Christner, B. C.**, Mosley-Thompson, E., Thompson, L. G. & Reeve., J. N. Recovery and identification of bacteria from polar and non-polar glacial ice. In S. O. Rogers and J. Castello (eds), *Life in Ancient Ice*, pp. 209-227. Princeton University Press, Princeton, New Jersey (2005).
2. Priscu, J. C. & **Christner, B. C.** Earth's icy biosphere. In Bull, Alan T. (ed.), *Microbial Diversity and Bioprospecting*, pp. 130-145. American Society for Microbiology, Washington, D.C (2004).
1. **Christner, B. C.**, Mosley-Thompson, E., Thompson, L. G., Zagorodnov, V., Sandman, K. & Reeve, J. N. Isolation and identification of bacteria from ancient and modern ice core archives. In: *The Patagonian Ice Fields. A unique natural laboratory for environmental and climate change studies*, edited by G. Casassa, F.V. Sepúlveda, and R. Sinclair, Kluwer Academic / Plenum Publishers, New York (2002).

Other publications:

12. Sapp, A., Huguet-Tapia, J. C., Sánchez-Lamas, M., Antelo, G. T., Primo, E. D., Rinaldi, J., Klinke, S., Goldbaum, F. A., Bonomi, H. R., **Christner, B. C.** & Oteroc, L. H. Draft genome sequence of *Methylobacterium* sp. strain V23, isolated from accretion ice of the Antarctic subglacial Lake Vostok. *Genome Announc.* **6**, e00145-18 (2018).
11. Hand, K. P., Murray, A. E., Garvin, J. B., Brinkerhoff, W. B., **Christner, B. C.**, Edgett, K. S., Ehlmann, G. L., German, C. R., Hayes, A. G., Hoehler, T. M., Horst, S. M., Lunine, J. I., Neelson, K. H., Paranicas, C., Schmidt, B. E., Smith D. E., Rhoden, A. R., Russell, M. J., Templeton, A. S., Willis, P. A., Yingst, R. A., Philips, C. B., Cable, M. L., Craft, K. L., Hofmann, A. E., Nordheim, T. A., Pappalardo, R. P. & the Project Engineering Team. Report of the Europa Lander Science Definition Team. NASA (2017).
10. **Christner, B.C.** Cloudy with a chance of microbes. *Microbe* **7**, 70-75 (2012).

9. Lee, J. H., Koh, H. Y., Lee, S. G., Doyle, S., **Christner, B. C.** & Kim, H. J. Draft genome sequence of *Paenisporosarcina* sp. strain TG-20, a psychrophilic bacterium isolated from the basal ice of Taylor Glacier. *J. Bacteriol.* **194**, 6636 (2012).
8. Koh, H. Y., Lee, S. G., Lee, J. H., Doyle, S., **Christner, B. C.** & Kim, H. J. Draft genome sequence of *Paenisporosarcina* sp. Strain TG-14, a psychrophilic bacterium isolated from sediment-laden stratified basal ice from Taylor Glacier, McMurdo Dry Valleys, Antarctica. *J. Bacteriol.* **194**, 6656-7 (2012).
7. **Christner, B. C.** Subglacial Antarctic environments: the *other* deep biosphere. In-Depth (Newsletter of the National Ice Core Laboratory - Science Management Office, USA), **5**, 3-5 (2010).
6. Hallar, A. G., Wiedinmyer, C., McCubbin, I. B., Bowers, R. B., Fierer, N., Mazzoleni, L., **Christner, B.**, Obrist, D. & Fain, X. A High-altitude Interdisciplinary Field Campaign - The Storm Peak Aerosol and Cloud Characterization Study (SPACCS08). SPACC article Mountain Research Newsletter (2009).
5. **Christner, B. C.** & Priscu, J. C. Antarctica: a last frontier for microbial exploration. *Microbiology Today*, **35**, 70-73 (2008).
4. Doyle, S. M., Amato, P. & **Christner, B. C.** Life in and under the Antarctic ice sheets (cover article). *Microscopy Today*, **16**, 6-9 (2008).
3. **Christner, B. C.** & Priscu, J. C. Subglacial Lake Vostok. Invited contributor to the Encyclopedia of Water, edited by Jay H. Lehr, John Wiley and Sons Publishing (2005).
2. **Christner, B. C.** Cryoconite hole ecosystems in Antarctic glacier ice. Invited contributor to the Encyclopedia of the Antarctic, edited by Beau Riffenburgh, Routledge Reference (2004).
1. **Christner, B.C.** Detection, recovery, isolation, and characterization of bacteria in glacial ice and Lake Vostok accretion ice. Ph.D thesis, Department of Microbiology, The Ohio State University (2002).

Scientific Presentations: (>40 in last 5 years; *italics* denote presenting author)

Kobziar, L., D. Vuono, R. Moore, T. Dean, D. Betancourt, A. Watts, B. Christner, J. Aurell, B. Gullet. High intensity forest fires emit high concentrations of diverse, viable, and ice nucleating bioaerosols. Presentation at the American Association for Aerosol Research. Albuquerque, NM, 18-22 October 2021.

Hawkings, J., M. Skidmore, J. Priscu, E.S. Troein, C. Davis, B. Christner, O.-S. Kim, M. Sieber, T. Conway, C. Gardner, T. Vick-Majors, A. Michaud, M. Tranter, L.G. Benning and R. Spencer. A ferrous wheel beneath the Antarctic Ice Sheet. Presentation at Goldschmidt 2021. Lyon, France, 4-9 July 2021.

Li, W., C. Davis, B. C. Christner, A. Achberger, T. J. Vick-Majors, A. B. Michaud, and J. C. Priscu. Viruses in subglacial Antarctic lake environments. Presentation at the American Geophysical Union Fall Meeting. Virtual meeting, 1-17 December 2020.

Davis, C., A. Achberger, J. D. Barker, T. Campbell, J. E. Dore, D. M. Harwood, J. Hawkings, O. –S. Kim, A. Leventer, A. Michaud, M. Patterson, J. Priscu, B. Rosenheim, M. Skidmore, A. Steigmeyer, R. Venturelli, B. Christner, and the SALSA Science Team. Influence of past climate change on subglacial microbial communities and biogeochemical processes beneath Siple Coast ice streams, West Antarctica. Presentation at the American Geophysical Union Fall Meeting. Virtual meeting, 1-17 December 2020.

Faber, Q., C. Davis, R. Moore, and B. Christner. Metagenomic analysis of atmospherically transported glacier algae. Presentation at the American Geophysical Union Fall Meeting. Virtual meeting, 1-17 December 2020.

Barry-Sosa A., M.K. Flint, J.D. Gulley, T. Summerall, J.B. Martin, and B.C Christner. The Upper Floridian Aquifer as an analog for extraterrestrial subsurface environment. Presentation at the 3rd International Planetary Caves Conference, San Antonio, TX, 18 February 2020.

Davis, C.L., A.M. Achberger, B.C. Christner, J.E. Dore, T.J. Vick-Majors, A.B. Michaud, W. Li, and the SALSA Science Team. Microbial communities in hydrologically active subglacial lakes of the Siple Coast, West Antarctica. Presentation at the American Geophysical Union Fall Meeting. San Francisco, CA, 9-13 December 2019.

Li, W., T.J. Vick-Majors, J. Barker, J.E. Dore, A.J. Steigmeyer, M.L. Skidmore, C.L. Davis, B.C. Christner, J.C. Priscu, the SALSA Science Team, and the WISSARD Science Team. New insights into microbial ecosystems in Antarctic subglacial lake environments. Presentation at the American Geophysical Union Fall Meeting. San Francisco, CA, 9-13 December 2019.

Vick-Majors, T.J., W. Li, J. Barker, M.L. Skidmore, J.E. Dore, C.L. Davis, B.C. Christner, J.C. Priscu, and the SALSA Science Team. Physiological ecology of microbial communities in Antarctic subglacial aquatic environments. Presentation at the American Geophysical Union Fall Meeting. San Francisco, CA, 9-13 December 2019.

Dore J.E., C.L. Davis, B.C. Christner, W. Li, A.B. Michaud, M.L. Skidmore, M. Tranter, J.C. Priscu, and the SALSA Science Team. Methane pools and dynamics within the subglacial “wetlands” of West Antarctica. Presentation at the American Geophysical Union Fall Meeting. San Francisco, CA, 9-13 December 2019.

Kobziar, L., R.A. Kohn, D.C. Vuono, A. Watts, and B.C. Christner. The life of smoke: how wildland fire aerosolizes viable microbial communities with atmospheric and terrestrial ramifications. Presentation at the American Geophysical Union Fall Meeting. San Francisco, CA, 9-13 December 2019.

Christner, B.C., R. Joyce, H. Lavender, J. Farrar, J.T. Werth, C.F. Weber, J. D’Andrilli, and M. Vaitilingom. Effect of aerosol source and cloud structure on the deposition of

biological ice nucleating particles in precipitation. Presentation at the American Geophysical Union Fall Meeting. San Francisco, CA, 9-13 December 2019.

Flint, M.K., A. Barry-Sosa, T. Summerall, J.B. Martin, and **B.C. Christner**. Biogeochemical and hydrological controls on nitrous oxide cycling in karstic aquifers. Presentation at the American Geophysical Union Fall Meeting. San Francisco, CA, 9-13 December 2019.

Kobziar, L.N., Watts, A., Nelson, K., Moore, R., **Christner, B.C.**, Pingree, M., Vuono, D. Dreaden, T. Accessing the life in smoke: UAS application for smoke microbe sampling. Presentation at the 8th International Fire Ecology & Management Congress, Tucson, AZ, 17-22 November 2019.

Skidmore, M.L., C. Gardner, A.J. Steigmeyer, M. Siegfried, A. Michaud, J. Barker, **B. Christner**, C. Davis, J.E. Dore, B.G. Olivas, J. Hawkings, W. Li, W.B. Lyons, M. Tranter, T. Vick-Majors, J.C. Priscu, & the SALSA Science Team. A tale of two lakes – contrasting biogeochemical weathering regimes in proximal subglacial Antarctic systems. Presentation at West Antarctic Ice Sheet Workshop 2019, Camp Cedar Glen, Julian, CA. 16-18 October 2019.

The SALSA Science Team. Surprises in the sediments collected from Mercer Subglacial Lake. Presentation at 2019 Interdisciplinary Antarctic Earth Science Conference, Camp Cedar Glen, Julian, CA. 13-15 October 2019.

Rosenheim, B.E., R.A. Venturelli, C. Davis, T. Vick-Majors, A. Michaud, A. Leventer, D. Harwood, **B.C. Christner**, J. Dore, and the SALSA Science Team. Surprises in the sediments collected from Mercer Subglacial Lake. Presentation at 2019 Interdisciplinary Antarctic Earth Science Conference, Camp Cedar Glen, Julian, CA. 13-15 October 2019.

Skidmore, M.L., C. Gardner, A.J. Steigmeyer, M. Siegfried, A. Michaud, J. Barker, **B.C. Christner**, C. Davis, J.E. Dore, B.G. Olivas, J. Hawkings, W. Li, W.B. Lyons, M. Tranter, T. Vick-Majors, J.C. Priscu, and the SALSA Science Team. A tale of two lakes – contrasting biogeochemical weathering regimes in proximal subglacial Antarctic systems. Presentation at 2019 Interdisciplinary Antarctic Earth Science Conference, Camp Cedar Glen, Julian, CA. 13-15 October 2019.

Kobziar, L.N., Pingree, M., Dreaden, T., Larson, H., Watts, A., Vuono, D. Moore, R., **Christner, B.C.** The life of wildland fire smoke. Presentation at Linking sources and sinks in the long distance aerial dissemination of microorganisms conference and workshop, Reykholt, Iceland, 2-7 September 2019.

Rosenheim, B.E., J. Broda, A. Michaud, A. Gagnon, A. Leventer, J. Dore, M. Patterson, T. Campbell, R. Venturelli, M. Skidmore, **B.C. Christner**, J. Priscu, and the SALSA Science Team. Challenges and successes coring sediment from Mercer Subglacial Lake. Presentation at the International Symposium on Antarctic Earth Sciences (ISAES), Incheo, Korea. 22-26 July 2019.

*Gardner, C.B., W.B. Lyons, T.H. Darrah, E.L. Maletic, J.D. Barker, M. Skidmore, W. Li, J.E. Dore, T. Vick-Majors, **B.C. Christner**, C.L. Davis, M. Tranter, A.B. Michaud, J.C. Priscu and The SALSA Science Team.* Chemical weathering and meltwater sources in Mercer Subglacial Lake, West Antarctic Ice Sheet. Presentation at the International Symposium on Antarctic Earth Sciences (ISAES), Incheo, Korea. 22-26 July 2019.

*Bryan, N.C., **B.C. Christner**, T.G. Guzik, D. Granger, and M. Stewart.* Abundance and survival of microbial aerosols in the troposphere and stratosphere. Poster presentation at the Astrobiology Science Conference 2019 (AbSciCon2019), Seattle, Washington, 22-26 June 2019.

*Harrold, Z., L. Venturelli, N. Patel, F. Azam, **B.C. Christner**, R. Willaert, G. Dietler, S. Kasas, and A.E. Murray.* Nanomotion detection: A novel tool for investigating psychrophile activity. Oral presentation at the Astrobiology Science Conference 2019 (AbSciCon2019), Seattle, Washington, 22-26 June 2019.

*Davis, C., W. Li, T. Vick-Majors, J.D. Barker, A.B. Michaud, J.E. Dore, M. Siegfried, M. Tranter, M.L. Skidmore, C. Gardner, R. Venturelli, T. Campbell, M.O. Patterson, A. Leventer, D.M. Harwood, B.E. Rosenheim, J.C. Priscu, and **B.C. Christner**.* Life below an ice sheet: Mercer Subglacial Lake, West Antarctica. Oral presentation at the Astrobiology Science Conference 2019 (AbSciCon2019), Seattle, Washington, 22-26 June 2019.

*Murray, A.E., R. Proksch, J.M. Birch, **B.C. Christner**, Z. Harrold, M.H. Hecht, S. Jesse, S. Kasas, D. Pargett, W.T. Pike, A. Ponce, C.A. Scholin, U. Straufer, L. Venturelli, and K.H. Williford.* Biosignature detection using the Analyzer of Nanoscale Textures for Objects in Near-surface Ice on Europa (ANTONIE) and other icy ocean worlds. Oral presentation at the Astrobiology Science Conference 2019 (AbSciCon2019), Seattle, Washington, 22-26 June 2019.

Christner, B.C. Subglacial lake ecosystems beneath lower Mercer and Whillans Ice Streams, West Antarctica. Keynote presentation at Climate Change Research at Ohio State, A Byrd Polar and Climate Research Center Symposium. 22 March 2019.

*Harrold, Z., N. Patel, L. Venturelli, F. Azam, **B. Christner**, R. Willaert, G. Dietler, S. Kasas, and A.E. Murray.* Investigating atomic force microscopy as a biosignature detection tool in Europa-analog samples. Presentation at the American Geophysical Union Fall Meeting. Washington, D.C. 10-14 December 2018.

*Harrold, Z., L. Venturelli, N. Patel, F. Azam, **B. Christner**, R. Willaert, G. Dietler, S. Kasas, and A.E. Murray.* Investigating the value of atomic force microscopy and force distance measurements for biosignature detection in Europa-analog samples. Presentation at Extremophiles 2018, Ischia, Italy. 16-20 September 2018.

*Davis, C.L., **B.C. Christner**, H.F. Lavender, E.E. Oliver, S.U. Neuhaus, K.F. Myers, B. Hagedorn, S.M. Tulaczyk, P.T. Doran, and W.C. Stone.* A microbial community within the weathering crust aquifer of a temperate glacier. Poster presentation at the 17th International Symposium on Microbial Ecology, Leipzig, Germany. 12-17 August 2018.

Christner, B.C., H.F. Lavender, C.L. Davis, E.E. Oliver, S.U. Neuhaus, K.F. Myers, B. Hagedorn, S.M. Tulaczyk, P.T. Doran, and W.C. Stone. Biogeochemical processing in the weathering crust aquifer of a subarctic glacier. Oral presentation at the ASLO 2018 Summer Meeting, Victoria, British Columbia. 10-15 July 2018.

Priscu, J.C., A.B. Michaud, M.L. Skidmore, T.J. Vick-Majors, J.E. Dore, and **B.C. Christner**. Biogeochemistry during permanent winter conditions in lakes beneath the West Antarctic Ice Sheet. Oral presentation at the ASLO 2018 Summer Meeting, Victoria, British Columbia. 10-15 July 2018.

Li, Wei, J.E. Dore, A.J. Steigmeyer, P.G. Kibler, R.M. Morgan-Kiss, M.L. Skidmore, **B.C. Christner**, and J.C. Priscu. Methane production in the oxygenated water column of a permanently ice-covered Antarctic lake. Oral presentation at the ASLO 2018 Summer Meeting, Victoria, British Columbia. 10-15 July 2018.

Willis, P., W. Brinkerhoff, A. Ricco, J. Creamer, M.F. Mora, A. Noell, J. Eigenbrode, S. Getty,² D. Glavin, P. Mahaffy, T. Hoehler, R. Quinn, J. Chapman, **B. Christner**, and K. Zacny. A universal approach in the search for life at the molecular level. Oral presentation at the Committee on Space Research (COSPAR), Pasadena, California. 14-22 July 2018.

D'Andrilli, J., J.R. McConnell, **B.C. Christner**, R.E. Joyce, R.A. Kohn, and A. Sapp. A global perspective of ice core fluorescent organic matter records. Oral presentation at POLAR2018, Davos, Switzerland. 19-23 June 2018.

Hand, K.P., A.E. Murray, J. Garvin, S. Horst, W. Brinkerhoff, K. Edgett, T. Hoehler, M. Russell, A. Rhoden, A. Yingst, C. German, B. Schmidt, C. Paranicas, D. Smith, P. Willis, A. Hayes, B. Ehlmann, J. Lunine, A. Templeton, K. Nealson, **B. Christner**, M. Cable, K. Craft, R. Pappalardo, A. Hofmann, T. Nordheim, and C. Phillips. The Europa Lander Mission Concept and Science Goals---Highlighting Ice Properties and Surface Activity. Oral presentation at the Cryovolcanism in the Solar System workshop. Lunar and Planetary Institute, Houston, Texas, 5-7 June 2018.

Liu, L., B. Hagedorn, R.S. Sletten, K. Choquette, K. Cameron, M. Dieser, **B. Christner**. Understanding chemical weathering in periglacial/ subglacial environments by inverse modeling of West Greenland glacial meltwater using PHREEQCi. Poster presentation at the Geological Society of America's Annual Meeting, Seattle, Washington. 22-25 October 2017.

Bayless-Edwards, A.L.H., K. Aho, C. Weber, J.T. Werth, B.A. Vinatzer, D.G. Schmale III, **B.C. Christner**, R. Joyce, and H. Lavender. Examining spatial and temporal trends in precipitation-borne microbial communities: a novel quantification across Virginia, Idaho and Louisiana. Poster presentation at the 2017 meeting of the Ecological Society of America, Portland, Oregon, 6-11 August 2017.

Aho, K., A.L.H. Bayless-Edwards, **B.C. Christner**, R. Joyce, H. Lavender, D.G. Schmale III, B.A. Vinatzer, C. Weber, and J.T. Werth. Bacterial composition of precipitation is correlated with geographic location, season and meteorological

conditions. Oral presentation at the 2017 meeting of the Ecological Society of America, Portland, Oregon, 6-11 August 2017.

D'Andrilli, J., J.R. Junker, R.A. Payn, M.B. Storb, H.M. Valett, M. Peipoch, **B.C. Christner**, R.E. Joyce, R.A. Kohn, E.A. Scholl, R. Engel, and C. Romero. Patterns in dissolved organic matter character provide perspective on the interconnection and function of watershed ecosystems. Poster presentation at the Society for Freshwater Science Annual Meeting, Raleigh, North Carolina, 4-8 June 2017.

Christner, B.C., H. Lavender, E. Oliver, C. Davis, S. Tulaczyk, and P. Doran. Microbial activity in the intergranular habitat of a temperate glacier. Oral presentation at the Astrobiology Science Conference 2017 (AbSciCon2017), Mesa, Arizona, 24-28 April 2017.

Hand, K.P., A.E. Murray, J. Garvin, S. Horst, W. Brinkerhoff, K. Edgett, T. Hoehler, M. Russell, A. Rhoden, A. Yingst, C. German, B. Schmidt, C. Paranicas, D. Smith, P. Willis, A. Hayes, B. Ehlmann, J. Lunine, A. Templeton, K. Nealson, **B. Christner**, M. Cable, K. Craft, R. Pappalardo, and C. Phillips. Science Goals, Objectives, and Investigations of the 2016 Europa Lander Science Definition Team Report. Oral presentation at the 48th Lunar and Planetary Science Conference. The Woodlands, Texas, 20-24 March 2017.

Creamean, J., C. Carr, **B. Christner**, K. Pratt, R. Sheesley, W. Simpson, N. Spada, and J. Stutz. Understanding the Impacts of Aerosols and Trace Gases in the Central Arctic during MOSAiC. Presentation at The Arctic Science Summit Week 2017. Prague, Czech Republic, 31 March-7 April 2017.

Priscu, J.C., A. M. Achberger, **B.C. Christner**, A.B. Michaud, M.L. Skidmore, and T.J. Vick-Majors. Subglacial Lake Whillans: an active ecosystem beneath the Antarctica Ice Sheet. Keynote presentation at the International Society of Limnology. Torino, Italy, 31 July – 5 August 2016.

Membership in Professional Societies:

American Geophysical Union
American Society of Limnology and Oceanography
American Society for Microbiology

Grants:

Investigator on NASA-Exobiology grant (1/21-1/24). Understanding the genetics of extreme stress resistance in bacteria. Funding: \$420,800.

Co-Principal Investigator on NSF-DEB grant (5/21-5/24). Collaborative Proposal: Biomass burning smoke as a driver of multi-scale microbial teleconnections. Funding: \$71,811.

Co-Principal Investigator on NSF-OPP grant (8/20-7/24). Significance of Ice-loss to Landscapes in the Arctic: SILA (Inuit concept of the physical world and weather). Funding: \$2,244,966.

Investigator on University of Florida, Water Institute grant (8/19-8/23). High Latitude Hydrology: Water in a Changing World. Funding: \$1,082,916.

Principal Investigator on Thomas Jefferson Fund grant (9/18-9/21). Assessing the impact of biological aerosols on rainfall: effects of land cover diversity and landscape properties. Funding: \$10,000.

Investigator on NASA-PSTAR grant (9/18-9/21). THOR (Thermal High-voltage Ocean-penetrator Research platform). Funding: \$61,181.

Co-Principal Investigator on NSF-AISS grant (8/16-8/21). Subglacial Antarctic Lakes Scientific Access (SALSA): Integrated study of carbon cycling in hydrologically-active subglacial environments. Funding: \$457,198.

Principal Investigator on University of Florida Biodiversity Institute grant (6/18-5/19). MICROFLORA (Microbial Communities that Remain Obscure in the FLORidan Aquifer). Funding: \$40,000.

Principal Investigator on USDA – McIntire-Stennis grant (11/17-3/19). EMBER: Exploring Microbial Bioaerosol Effects on Rainfall. Funding: \$39,500.

Investigator on NASA-CLDTCH grant (12/16-2/19). ARCHIMEDES [A Really Cool High Impact Method for Exploring Down into European Subsurface]. Funding: \$36,655.

Investigator on NASA grant (1/16-12/17). SPINDLE (South Pole Ice Navigation, Descent, and Lake Exploration) Phase A. Funding: \$28,986.

Investigator on NASA Biodiversity grant (5/16-10/17). A Transoceanic Aerobiology Biodiversity Study (TABS) to Characterize Microorganisms in Asian and African Dust Plumes Reaching North America. Funding: \$21,063.

Investigator on NASA-JPL grant (1/16-12/16). Europa Lander Science Definition Team for the Europa Mission. Funding: \$9,343.

Co-Principal Investigator on NSF-AISS grant (11/15-11/16). Whillans Ice Stream Subglacial Access Research Drilling: Integrative Study of Marine Ice Sheet Stability and Subglacial Habitats in West Antarctica. Funding: \$64,355.

Investigator on NASA's Undergraduate Student Instrument Project (USIP) Educational Flight Opportunity (9/13-2/15). High Elevation Impact Sampling Tool (HEIST). Funding: \$50,000.

Principal Investigator on National Science Foundation, Dimensions of Biodiversity grant (1/13-12/16). Dimensions: Collaborative Research: Research on Airborne Ice Nucleating Species (RAINS). Funding: \$446,103.

Investigator on grant for the NASA Astrobiology Science and Technology for Exploring Planets (ASTEP) Program (1/11 – 12/14). VALKYRIE 2 (Very-deep Autonomous Laser-powered Kilowatt-class Yo-yoing Robotic Ice Explorer). Funding: \$196,327.

Co-Principal Investigator on National Science Foundation, Arctic Research Opportunities grant (8/10 - 7/13). Collaborative Research: Greenland melt water geomicrobiology. Funding: \$291,353.

Principal Investigator on NASA EPSCoR grant (7/10 - 6/13). Modes of Adaptation, Resistance, and Survival for Life Inhabiting a Freeze-dried-radiation-bathed Environment (MARS LIFE). Total award: \$1,410,000.

Principal Investigator on grant from the NASA, Astrobiology: Exobiology and Evolutionary Biology Program (6/10 - 5/14). DNA repair under frozen conditions: implications for the longevity of microorganisms in terrestrial and extraterrestrial ices. Funding: \$353,351.

Co-Principal Investigator on grant from the National Science Foundation, Office of Polar Programs (9/09 - 8/15). Collaborative research: WISSARD (Whillans Ice Stream Subglacial Antarctic Research Drilling): Geobiology of Antarctic subglacial environments beneath the Whillans Ice Streams. Funding: \$380,906.

Principal Investigator on grant from the Louisiana Space Consortium (5/09 - 8/10). High Altitude Biological Testing of the Atmosphere (HABITAT): Developing a Sampling Platform to Measure the Upper Boundaries of the Biosphere. Funding: \$38,653.

Co-Principal Investigator on grant from the National Science Foundation, Office of Polar Programs grant award (7/07 - 6/10). Collaborative Research: Biogeochemistry and geomicrobiology of Taylor Glacier basal ice. Funding: \$190,806.

Principal Investigator on grant from the Faculty Research Grant program, LSU Office of Sponsored Programs (6/07 - 5/08). Biological ice nuclei in precipitation. Funding: \$10,000.

Investigator on grant from the National Science Foundation, Research in Biogeosciences (1/06 - 12/09). Microbial Activity in Solid Ice: Implications for Modifying the CO₂ Record in Ice Cores. Funding: \$133,225.

Awards:

2016 Preeminent Scholar in Biodiversity, Institute of Food and Agricultural Sciences, University of Florida.

2014 Carruth McGehee Award for Excellent Research, College of Science, Louisiana State University.

2011 College of Science Research Award, Louisiana State University.

2010 Charles C. Randall Lectureship Award from the South Central Branch of the American Society for Microbiology.

Louisiana State University “Rainmaker” for 2008 and 2009, an award that recognizes faculty who are nationally and internationally recognized for innovative research and creative scholarship, who compete for external funding at the highest levels and who attract and mentor exceptional graduate students. Awarded by the LSU Office of Research & Economic Development.

Discover Magazine named research on biological ice nuclei in precipitation as one of the “Top 100 stories of 2008”.

Antarctic Service Medal of the United States of America from the National Science Foundation for scientific exploration and service in Antarctica. March 1, 2006.

Peer Review:

Journals:

Annals of Glaciology, Antarctic Science, Applied and Environmental Microbiology, Applied Soil Ecology, Archives of Microbiology, Astrobiology, Atmospheric Chemistry and Physics, Atmospheric Environment, Canadian Journal of Microbiology, Earth and Planetary Science Letters, Environmental Microbiology, Environmental Research Letters, Environmental Science and Technology, Extremophiles, FEMS Microbiology Ecology, Frontiers in Microbiology, Gene, Genomics, Geobiology, Geophysical Research Letters, Global Biogeochemical Cycles, International Journal of Astrobiology, International Society for Microbial Ecology Journal, Journal of Geophysical Research - Biogeosciences, Journal of Sedimentary Research, Limnology and Oceanography, Limnology and Oceanography-Methods, Microbial Ecology, Nature Geosciences, Nature Reviews Microbiology, Planetary and Space Science, PLoS ONE, Polar Biology, Polar Record, Polar Research, Proceedings of the National Academy of Science (USA), and Reviews in Environmental Science and Biotechnology, Science, and Scientific Reports.

Grant applications:

Australian Antarctic Division, British Antarctic Survey, Deutsche Forschungsgemeinschaft, Icelandic Research Fund, Leverhulme Trust, Marsden Fund, National Aeronautics and Space Administration (Astrobiology: Exobiology and Evolutionary Biology Program, Astrobiology Science and Technology for Exploring Planets, Earth and Space Science Fellowship Program, Graduate Fellowship Program, and NASA Postdoctoral Program), National Science Foundation (Antarctic Organisms and Ecosystems, Arctic Natural Sciences, Biogeosciences, Biological Oceanography, CAREER, Division of Environmental Biology, Division of Integrated Organismal Systems, Environmental Genomics, Geobiology and Low-Temperature Geochemistry, GSTEP, Microbial Observatory/Microbial Interactions and Processes, Ocean Sciences, and Office of Polar Programs), Natural Environment Research Council (UK), Swiss National Science Foundation, Villum Foundation, and Washington Sea Grant.

Scientific Committees and Synergetic Activities:

Member of the Subglacial Access Working Group (SAWG), an advisory committee to the U.S. Ice Drilling Program, 2013-.

Member of the Europa Lander Science Definition Team, NASA, 2016-17.

Panel member for the Europa Mission Enhancement Option Review, NASA, 2015-16.

Member of the US Ice Core Working Group (ICWG) and Sample Allocation Committee (SAC), which provides oversight of the National Ice Core Laboratory, Denver, CO, 2007-14.

Co-Chair, International Scientific Board, 5th International Conference on Polar and Alpine Microbiology, Big Sky, Montana, September 9-12, 2013.

Chair of “Analog” group for the 2012 NASA Astrobiology: Exobiology and Evolutionary Panel, 14-17 August 2012, Washington D.C.

Invited participant to the National Research Council’s Planetary Protection Dissemination Workshop, 9-10 July 2012, Washington D.C.

NASA Astrobiology Science and Technology for Exploring Planets panel reviewer, 16-18 January 2012, Washington D.C.

Chair of session “Microbial Diversity and Evolution”. Fourth International Conference on Polar and Alpine Microbiology. Ljubljana, Slovenia, 4-8 September 2011.

Member of the Life Sciences Research Development Group (RDG) at Louisiana State University, which advises the LSU Council on Research on matters related to their respective areas of scholarship or research (2011-2016).

Chair of the Science and Technical Liaison Subcommittee for the WISSARD project (2009-2015).

Member of the US Ice Core Working Group (ICWG) and Sample Allocation Committee (SAC), which provides oversight of the National Ice Core Laboratory, Denver, CO (2007-14).

United States Subglacial Antarctic Lake Environments (US-SALE) Science and Technology Steering Committee. Chair, committee on biology and genomics.

Chair of session “You Call This a Living?: The Microbial Ecology and Biogeochemistry of the Atacama Desert and Antarctic Dry Valleys”. Goldschmidt 2009, Davos, Switzerland, July 21-26, 2009.

NSF Antarctic Organisms and Ecosystems panel reviewer, 23-25 September, 2009

NASA Astrobiology: Exobiology and Evolutionary Biology panel reviewer, 13-16 January, 2009, Washington. D.C.

Participant at the WAIS Divide Ice Core Science and Executive Committee Meeting. Denver, CO, 1-3 October 2008.

Participant at the Subglacial Antarctic Lake Exploration (SALE) Workshop. Grenoble, France, April 24-26, 2006.

Invited participant at the Principles of Environmental Stewardship for the Exploration and Study of Subglacial Environments, Subglacial Lakes Meeting. The National Academies, February 13-14, 2006.

Invited US-SALE representative at the International Polar Year Education/Outreach Workshop. NASA Goddard Space Flight Center, Greenbelt, MD, September 8-9, 2005.

United States representative at the North Greenland Ice Core Project (NGRIP) Basal Ice Meeting. Niels Bohr Institute, Copenhagen, Denmark, November 29-30, 2004

Invited participant at the Antarctic Biology Course Workshop, University of California, Santa Cruz, October 2003.

Invited participant at the FASTDRILL Workshop: Polar Research Based on Fast Ice-Sheet Drilling, University of California, Santa Cruz, October 2002.

Participant at the Antarctic Program New Investigators Workshop, National Science Foundation, Washington, D.C., August 2002.

Participant at The Future of U.S. Ice Coring Science Workshop, National Science Foundation, Washington, D.C., March 2002.

Invited consultant for NASA Johnson Space Center, Acquisition and Curation Team. Technical seminar on microbiological contamination issues relevant to the recovery and curation of Martian samples. March 2001.

Outreach and Broader Impacts:

Research highlighted in a number of media articles and public broadcasts including: Astrobiology Magazine, BBC Worldwide, Bloomberg News, Chemical and Engineering News, CBC Radio, CBS Sunday Morning, CBS radio, CNN Radio, Discovery Magazine ("Top 100 stories of 2008"), Environmental Research Web, Forum, Geotimes, Globe and Mail, Ivanhoe Newswire, La Presse, LiveScience, KDKA Radio, Live Science, Microbiology Today, Microscopy Today, National Geographic, Nature, Nature Reviews Microbiology, New Scientist, Science Magazine, Science Podcast, Science Friday (NPR), Science Daily, Science Podcast, Scientific American, The Advocate, The Astrobiology Web, The Bozeman Chronicle, The New York Times, The Telegraph, The Washington Post, Time, Wired, WVLA, and Yahoo News.

Participant in Louisiana State University's Microbiology and Food Sciences summer camp 2014.

Participant in Trinity Episcopal Day School's 2014 SMART (Science, Math, Art, Religion, and Technology) day, Baton Rouge, LA.

Participant in the inaugural Math/Science Week 2014, hosted by the LSU College of Science.

Host of research laboratory tour for Grant AP Biology High School (Alexandria, LA) students, February 2013.

Featured scientist in audio segments for Hear the Answer, a media platform produced in partnership with PBS and WETA/Washington, D.C. as a premier science, environmental and technology educational resource for teachers, students, and the public.

Featured scientist in "Invisible", a documentary special for the History Channel, Flight 33 Productions.

Featured scientist in April 2012 cover story of Discover Magazine, "The clouds are alive".

MARSLIFE project hosted an interactive presentation and demonstration for the Sally Ride Science Festival, 22 September 2012 on the LSU campus. The festival was designed to encourage 5th-8th grade girls in science.

Participant in the EnvironMentors program, a national college access initiative that prepares at-risk high school juniors and seniors for college degree programs in environmental and related science fields, 2011-2013.

Featured scientist in 2011 Simon & Schuster popular science book "First Contact: The Glorious Science of Life Beyond Earth", authored by Washington Post science writer Marc S. Kaufman.

Saturday Science at LSU lecture, "Cool Microbes", 7 May 2011. An outreach program run by the LSU Department of Physics and Astronomy, featuring a monthly lecture series targeting high school students, teachers, and open to the public.

Hosted laboratory tours for the LSU BIOS program August 2007-2010, a 1 week intensive biology "bootcamp" for incoming freshmen at LSU.

National Science Teachers Association Web Seminar, "Under The Ice: Studying One of the Last Unexplored Aquatic Environments on Earth", 27 May 2010. Sponsored by NASA, NOAA, and NSF as an extension of the last International Polar Year (http://learningcenter.nsta.org/products/symposia_seminars/IPY/webseminar3.aspx).

Antarctic research featured on LiveScience.com and National Science Foundation website during June 2010.

Science presentation/demonstration for Louisiana high school students at the Louisiana Junior Science and Humanities Symposia, 14-16 January 2010.

Graduate student Shawn Doyle developed an outreach program with Sulphur High School AP Biology students consisting of an interactive online Antarctic field blog (glacialmicrobes.blogspot.com) and experimentation module.

Participant in PolarTREC during the 2009-2010 Antarctic field season, which is an educational research experience, funded by the NSF and managed by the Arctic Research Consortium, in which K-12 teachers participate in a polar research experience.

Featured scientist in "Discovering Astrobiology", an Education and Public Outreach (E/PO) video project in collaboration with the Highland Road Park Telescope Observatory (Baton Rouge, LA).

Pre-K and Kindergarten outreach program at University Methodist Preschool and South Boulevard Magnet, Baton Rouge, LA, 2009-10.

Invited speaker for undergraduate student program and seminar in the Biology department at Trinity University, San Antonio, TX (November 10, 2008).

Participant in job shadow program with Baton Rouge high school student Torrey Fourier, March 2008.

Participant in POLAR/PLANET-PALOOZA, Baton Rouge, LA, 15-17 November 2007.

Presented public science lecture at McMurdo station, Antarctica in October 2007 entitled "The Antarctic cryoecosphere: a new paradigm for life on Earth".

Invited keynote speaker for Project SCIENCE (Science Content and Investigations to Engage, Nurture and Challenge Educators) workshop, "Life on Earth... and Elsewhere? An Educator Resource Guide in Astrobiology" (September 2006).

Invited speaker for the Space Telescope Science Institute colloquium series, Baltimore, MD. Habitats for life in glacier environments. March 1, 2006.

Assistant instructor for the NSF-sponsored course "Integrative Biology and Adaptation of Antarctic Marine Organisms". McMurdo Station, Antarctica, January-February, 2006.

Participant (2003-2005) in the American Indian Research Opportunities (AIRO) program, which trains underrepresented high school students to conduct and present scientific research.

Public lectures given to middle school science classes (Centerville Middle School, Ohio) and public lectures at the COSI Institute (Toledo, OH) about the relevance of microbiological research in Antarctica.

Contributor to the Digital Educational Resources in Microbial Ecology, Evolution and Diversity (DERMEED-1) library, which is part of the larger Science Math Engineering and Technology Education (SMETE) digital library.

Involved in the making of a film for high school science classes titled “Living Ice”, which focuses on microbiological research in Antarctica. The film is accompanied by a hypothesis-based research project and addresses National Science Teaching Standards.

Supervision of Students and Postgraduate Scholars:

High School Students:

Leona Bird (summer 2003), Sierra Davis (summer 2004), Torrey Fourrier (winter 2008), Fiza Shaikh (2011-2015), and Sunny WhiteMan (summer 2005).

Undergraduate Students:

Syverine Abrahamson (2004-2005), Amanda Achberger (2008-2010), William (Peyton) Adkins (2009-2013), Josh Allison (2010), Brianna Arnold (2003-2005), Ryan Blair (2001-2002), Noelle Bryan (2009-2010), Timothy Brox (2007-2011), Mark Clark (2005-2006), Shawn Doyle (2007-2008), Jennifer Farrar (2013-2014), Aubrey Gilliland (2012-2014), Peyton Graham (2014), Grace Hunt (2014-2015), Sahiti Kilaru (2010-2012), Brian Kvitko (2001-2002), Charles Moll (2017), Michelle Nguyen (2007-2010), Erin Oliver (2012-2015), Amanda Sapp (2016-2018), Min So (2009), Charles Taggart (2008), Christina Tran (2011), and Matthew Williams (2013).

Graduate Students:

Amanda Achberger (Ph.D., 2010-2016), Runa Antony (Visiting PhD Fellow, 2012), Adrian Barry Sosa (Ph.D., 2018-), Erik Broemsen (M.S., 2009-2013), Noelle Bryan (Ph.D., 2010-2017), Rongman Cai (M.Ap.Stat., 2006-2007), Christina Davis (Ph.D., 2016-), Shawn Doyle (Ph.D., 2009-2015), Adam Ellington (Ph.D., 2018-), Quincy Faber (Ph.D., 2019-), Syed Jilani (2012), Rachel Joyce (Ph.D., 2014-2020), Peter Kibler (MS, 2016-2018), and Rachel (Kohn) Moore (Ph.D., 2017-2020).

Postdoctoral researchers:

Pierre Amato (2007-2008) Markus Dieser (2010-2013), and Bidyut Mohapatra (2013-2014).

Graduate Student Committees:

Apu Borcar (2009-2015), Madison Flint (2018-2021), Kelley Gwin (2010-2015), Michael Henson (2014-2015), Brittany Hinyard (2012-2013), Sarah Hird (2011-2013), Caitlin King (2009-2013), Chang Liu (2010), James McQueen (2019-), Marisa Myers (2014-2015), Andrew Oberhelman (2020-), Georgina Olysse (2016-2020), Karine Posbic (2011-2015), Jana Robins (2008-2011), Yuseung Shin (2020-), Udayabharathi (Bharathi) Vallalar (2011-2012), and Carolyn Weber (2007-2009).