

Curriculum Vitae—Jacob Anderson

Department of Geosciences
Boise State University
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Education

- 2018 Ph. D., Geophysics, Boise State University, Boise, ID. *Pressure Waves and Tephra Dispersal from Volcanic Explosions: Models, Observations, and Instrumentation*
- 2013 M.S., Geophysics, New Mexico Tech, Socorro, NM. *Mapping Thunder Sources by Inverting Acoustic and Electromagnetic Observations*
- 2009 B.S., Geology and Math (Honors), University of North Carolina, Chapel Hill, NC. *Topographic Effects on Seismic Waves at Santiaguito Volcano, Guatemala*

Employment

- July 2021-present Assistant Research Professor, Boise State University
- June 2019-June 2021 Research Scientist, Boise State University
- January 2019-June 2019 Postdoc, Boise State University

Awards, Fellowships, and Honors

- 2018 Outstanding Student Presentation Award, American Geophysical Union
- 2018 Outstanding Upper-Level TA Award, Boise State Dept. of Geosciences
- 2018 College of Arts and Sciences Award, Boise State Graduate Student Showcase Posters
- 2018 Boise Society of Mining and Metallurgical Engineers Poster Session, third prize
- 2016 Geological Society of America Graduate Research Grant; MGPV Division Award (\$3875)
- 2014 Idaho Space Grant Consortium Fellowship (\$15,000)
- 2012 NSF Graduate Research Fellowship Honorable Mention
- 2009 UNC Geological Sciences Department Service Award
- 2009 Poster Session Winner, UNC Celebration of Undergraduate Research
- 2005 Carolina Scholarship and National Merit Scholarship

Professional Memberships

- American Geophysical Union (2009-present)
- Seismological Society of America (2021)

Refereed Publications Since Current Appointment

Double underlined names = BSU undergraduate students

Underlined names = BSU graduate students

2025

Johnson, J. B., **Anderson, J. F.**, Yedinak, K. (2025) Infrasound produced by a small pile fire. *Applied Acoustics*, 231, 110559.

Gauvain, S.J., **Anderson, J.F.**, Yager, E., McNamara, J. Effects of discharge and morphology and fluvial sound. *Submitted to Earth and Space Science*.

2024

Silber, E. A., Bowman, D. C., Carr, C. G., Eisenberg, D. P., Elbing, B. R., Fernando, B., Garcés, M. A., Haaser, R., Krishnamoorthy, S., Langston, C. A., Nishikawa, Y., Webster, J., **Anderson, J. F.**, Arrowsmith, S., Bazargan, S., Beardslee, L., Beck, B., Bishop, J. W., Blom, P., Bracht, G., Chichester, D. L., Christe, A., Clarke, J., Cummins, K., Cutts, J., Danielson, L., Donahue, C., Eack, K., Fleigle, M., Fox, D., Goel, A., Green, D., Hasumi, Y., Hayward, C., Hicks, D., Hix, J., Horton, S., Hough, E., Huber, D. P., Hunt, M. A., Inman, J., Islam, S. M. A., Izraelevitz, J., Jacob, J. D., Johnson, J., KC, R. J., Komjathy, A., Lam, E., LaPierre, J., Lewis, K., Lewis, R. D., Liu, P., Martire, L., McCleary, M., McGhee, E. A., Mitra, I., Nag, A., Ocampo Giraldo, L., Pearson, K., Plaisir, M., Popenhagen, S. K., Rassoul, H., Ronac Giannone, M., Samnani, M., Schmerr, N., Spillman, K., Srinivas, G., Takazawa, S. K., Tempert, A., Turley, R., Van Beek, C., Viens, L., Walsh, O. A., Weinstein, N., White, R., Williams, B., Wilson, T. C., Wyckoff, S., Yamamoto, M., Yap, Z., Yoshiyama, T., Zeiler, C. (2024). Geophysical Observations of the 2023 September 24 OSIRIS-REx Sample Return Capsule Reentry. *The Planetary Science Journal*, 5(9), 213.

Bosa, A. R., Bejar, G., Waite, G. P., Mock, J. C., Pineda, A., & **Anderson, J. F.** (2024). Dynamics of rain-triggered lahars and destructive power inferred from seismo-acoustic arrays and time-lapse camera correlation at Volcán de Fuego, Guatemala. *Natural Hazards*, 1-42.

Anderson, J. F., Huber, D. P., & Walsh, O. A. (2024). A Sensor Probe with Active and Passive Humidity Management for In Situ Soil CO₂ Monitoring. *Sensors*, 24(18), 6034.

2023

Scamfer, L.T., **Anderson, J.F.** (2023). *Exploring background noise with a large-N infrasound array: waterfalls, thunderstorms, and earthquakes*. Geophysical Research Letters 50(24), e2023GL104635. <https://doi.org/10.1029/2023GL104635>

Anderson, J.F., Johnson, J.B., Mikesell, T.D., Liberty, L.M. (2023). *Remote imaging*

of seismic ground shaking via large-N infrasound beamforming. Nature Communications Earth and Environment 4(1), 399. <https://doi.org/10.1038/s43247-023-01058-z>

Hoppinen, Z., Johnson, J. B., Capelli, A., **Anderson, J. F.**, & Marshall, H. P. (2023). *Snow Attenuation of Infrasound Signals and Wind Noise*. Seismological Research Letters, 94(6), 2801-2812.

Tatum, T.A., **Anderson, J.F.**, Ronan, T.J. (2023). *Whitewater Sound Dependence on Discharge and Wave Configuration at an Adjustable Wave Feature*. Water Resources Research 59(8), e2023WR034554. <https://doi.org/10.1029/2023WR034554>

Anderson, J.F., Anderson, K.S., Beschorner, T. (2023). *gemlog: Data conversion for the open-source Gem Infrasound Logger*. Journal of Open-Source Software 8(86), 5256. <https://doi.org/10.21105/joss.05256>

Johnson, J.B., Boyer, T., Watson, L.M., **Anderson, J.F.** (2023) *Volcano opto-acoustics: mapping the infrasound wavefield at Yasur Volcano (Vanuatu)*. Geophysical Research Letters 50(8), e2022GL102029. <https://doi.org/10.1029/2022GL102029>

Johnson, J.B., Roca, A., Pineda, A., Merida, R., Escobar-Wolf, R., **Anderson, J.F.**, Mock, J., Bosa, A., Bejar, G., Waite, G. (2023). *Infrasound Early Warning Detections for Lahars*. Scientific Reports 13(1), 6476. <https://doi.org/10.1038/s41598-023-32109-2>

2022

Rosenblatt, B. B., Johnson, J. B., **Anderson, J. F.**, Kim, K., & Gauvain, S. J. (2022). *Controls on the frequency content of near-source infrasound at open-vent volcanoes: a case study from Volcán Villarrica, Chile*. Bulletin of Volcanology, 84(12), 103. doi:10.1007/s00445-022-01607-y

Watson, L. M., Iezzi, A. M., Toney, L., Maher, S. P., Fee, D., McKee, K., Ortiz, H. D., Matoza, R. S., Gestrich, J. E., Bishop, J. W., Witsil, A. J. C., **Anderson, J. F.**, & Johnson, J. B. (2022). *Volcano infrasound: progress and future directions*. Bulletin of Volcanology, 84(5), 1-13. doi:10.1007/s00445-022-01544-w

Averbuch, G., Giannone, M. R., Arrowsmith, S., & **Anderson, J.** (2022). *Evidence for short temporal atmospheric (tropospheric) variations observed by infrasonic signals*. The Journal of the Acoustical Society of America, 150(4), A178-A179. doi:10.1029/2021EA002036

2021

Bosa, A., Johnson, J. B., De Angelis, S., Lyons, J., Roca, A., **Anderson, J.**, & Pineda,

A. (2021). *Tracking secondary lahar flow paths and characterizing pulses and surges using infrasound array networks at Volcán de Fuego, Guatemala*. *Volcanica*, 4(2), 239-256. doi:10.30909/vol.04.02.239256

Johnson, J.B., **Anderson, J.F.**, Havens, S., Hopkinson, C., Marshall, H.P., Saurer, M., Watson, L.M. (2021). *Snow Avalanche Detection and Source Constraints Made Using Multiple Infrasound Sensor Arrays*. *Journal of Geophysical Research—Earth Surface*. doi:10.1029/2020JF005741

Refereed Publications Before Current Appointment

2020

Johnson, J. B., Mikesell, T. D., **Anderson, J. F.**, & Liberty, L. M. (2020). *Mapping the sources of proximal earthquake infrasound*. *Geophysical Research Letters*, e2020GL091421. doi:10.1029/2020GL091421

2018

Haney, M.M., Van Eaton, A.R., Lyons, J.J., Kramer, R.L., Fee, D., Iezzi, A.M., Dziak, R.P., **Anderson, J.F.**, Johnson, J.B., Lapierre, J.L., Stock, M., (2020). *Characteristics of thunder and electromagnetic pulses from volcanic lightning at Bogoslof volcano, Alaska*. *Bulletin of Volcanology*, 82 (2), 1-16. doi:10.1007/s00445-019-1349-y

Anderson, J.F., Johnson, J.B., Steele, A.L., Ruiz, M.C., Brand, B.D., (2018). *Diverse eruptive activity revealed by acoustic and electromagnetic observations of the 14 July 2013 intense vulcanian eruption of Tungurahua volcano, Ecuador*. *Geophysical Research Letters*, 45 (7), 2976–2985. doi:10.1002/2017GL076419

Johnson, J.B., Watson, L.M., Dunham, E.M., Palma, J.L., **Anderson, J.F.**, (2018). *Forecasting a paroxysmal lava lake eruption using resonant infrasound tones*. *Geophysical Research Letters*, 45, 2213-2220. doi:10.1002/2017GL076506

2017

Anderson, J.F., Johnson, J.B., Bowman, D.C., Ronan, T.J., (2017). *The Gem infrasound logger and custom-built instrumentation*. *Seismological Research Letters*, 89 (1), 153-164. doi:10.1785/0220170067

Ronan, T. J., Lees, J.M., Mikesell, T.D., **Anderson, J.F.**, and Johnson, J.B., (2017). *Acoustic and seismic fields of hydraulic jumps at varying Froude numbers*. *Geophysical Research Letters*, 44 (19), 9734-9741. doi:10.1002/2017GL074511

Anchundia, D.J., **Anderson, J.F.**, and Anderson, D.J., (2017). *Overland flight by seabirds at Isla Isabela, Galápagos*. *Marine Ornithology*, 45 (2), 139-141.

2014

Anderson, J.F., Johnson, J.B., Arechiga, R.O., Thomas, R.J., (2014). *Mapping*

thunder sources by inverting acoustic and electromagnetic observations. Journal of Geophysical Research—Atmospheres, 119 (23), 13287-13304.
doi:10.1002/2014JD021624

Bowman, D.C., Taddeucci, J., Kim, K., **Anderson, J.F.**, Lees, J.M., Graettinger, A.H., Sonder, I., Valentine, G.A., (2014). *The acoustic signatures of ground acceleration, gas expansion, and spall fallback in experimental volcanic explosions*. Geophysical Research Letters, 41, doi:10.1002/2014GL059324.

Anderson, J.F., Lees, J.M., (2014). *Instrument corrections by time-domain deconvolution*. Seismological Research Letters, 85 (1) 197-201.
doi:10.1785/0220130062

2013

Johnson, J.B., **Anderson, J.F.**, Anthony, R.E., Sciotto, M., (2013). *Detecting geyser activity with infrasound*. Journal of Volcanology and Geothermal Research 256, 105-117. doi:10.1016/j.jvolgeores.2013.02.016

2012

Anderson, J.F., Lees, J.M., Waite, G.P., Johnson, J.B., (2012). *Source and propagation effects on near-field co-eruptive ground motion at Santiaguito volcano, Guatemala*. Bulletin of the Seismological Society of America 102 (2), 696-706.
doi:10.1785/0120110106

Johnson, J.B., **Anderson, J.F.**, Marcillo, O., Arrowsmith, S., (2012). *Probing local wind and temperature structure using infrasound from Volcan Villarrica (Chile)*. Journal of Geophysical Research--Atmospheres, 117, D17107,
doi:10.1029/2012JD017694.

2011

Johnson, J.B., Arechiga, R.O., Edens, H.E., Thomas, R.J., **Anderson, J.F.**, Johnson, R.L., (2011). *Imaging Thunder*. Geophysical Research Letters 38:L19807.
doi:10.1029/2011GL049162

2006

Berenhaut, K.S., Gibson, B.G., Newman, J.H., **Anderson, J. F.**, (2006). *Bounds for fourth order (0,1) difference equations*. Computers and Mathematics with Applications 54:1250-1259. doi:10.1016/j.camwa.2006.10.039.

Abstracts Since Current Appointment (* invited)

2024

Hunt, M. A., **Anderson, J. F.** *Beamforming Analysis of Infrasound Signals from Rangeland Fire*. AGU Fall Meeting, December 2024, Washington, D.C.. Poster.

Hunt, M. A., Anderson, J. F., Johnson, J. B., Yedinak, K. *Monitoring Fire Spreading in a Southwest Idaho Rangeland Fire using Infrasound*. AGU Fall Meeting, December 2024, Washington, D.C. Poster.

Anderson, J. F., Huber, D. P., Walsh, O. A. *A sensor probe with active and passive humidity management for in-situ soil CO₂ monitoring*. AGU Fall Meeting, December 2024, Washington, D.C. Poster.

Anderson, J. F., Johnson, J. B., Walsh, O. A., Mock, J., Hunt, M. A. *An integrated seismo-acoustic logger*. AGU Fall Meeting, December 2024, Washington, D.C. Poster.

Johnson, J. B., **Anderson, J. F.**, Yedinak, K. *Fire Infrasound: Signature and Detectability of a Small Pile Fire*. AGU Fall Meeting, December 2024, Washington, D.C. Poster.

Johnson, J. B., **Anderson, J. F.**, Mock, J., Walsh, O. A., Pineda, A., Rosenblatt, B. *Low cost infrasound sensors in dangerous places: Adventures of the Gem in hostile volcanic environments*. AGU Fall Meeting, December 2024, Washington, D.C. Poster.

***Anderson, J. F.**, Johnson, J. B. *Frugal Infrasound*. Acoustical Societal of America Meeting, November 2024, Remote.

2023

Anderson, J.F., Gauvain, S., Ronan, T., Scamfer, L., & Tatum, T. *Infrasound from whitewater features*. AGU Fall Meeting, December 2023, San Francisco. Oral presentation.

Havens, S., Johnson, J.B., **Anderson, J.F.**, Mock, J., Trujillo, E., Marshall, H.P., Walsh, O., & Hunt, M.A., *Ensemble analysis of dry and wet avalanches from Little Cottonwood Canyon (Utah) using infrasound array analysis*. AGU Fall Meeting, December 2023, San Francisco. Oral presentation.

Walsh, O., Johnson, J.B., Mock, J., & **Anderson, J.F.** *How does volcano infrasound impact buildings?* AGU Fall Meeting, December 2023, San Francisco. Poster.

Anderson, J.F., Hunt, M.A., Yedinak, K.M., & Johnson, J.B. *Mapping infrasound emissions for tracking fire activity*. AFE International Fire Ecology and Management Congress, December 2023, Monterey, CA. Poster.

2022

Anderson, J.F., Johnson, J. B., & Walsh, O. *Progress toward a self-contained, rapid-deploy, low-cost, low-power, lightweight, seismo-acoustic logging system*. AGU Fall

Meeting, December 2022, Chicago. Poster.

Walsh, O., **Anderson, J.F.**, & Johnson, J.B. *3D-Printing a Seismo-Acoustic Logger Enclosure Housing*. AGU Fall Meeting, December 2022, Chicago. Poster.

Johnson, J. B., Havens, S., **Anderson, J.F.**, Watson, L. M., Marshall, H. P., Mock, J., & Keskinen, Z. *Tracking Snow Avalanches Using a Network of Infrasound Arrays in Little Cottonwood Canyon (Utah, USA)*. AGU Fall Meeting, December 2022, Chicago. Oral presentation.

Johnson, J. B., Bosa, A., Pineda, A., Roca, A., Mock, J., **Anderson, J.F.**, Bejar, G., Waite, G.P., & Escobar-Wolf, R. P. *Seismo-acoustic Analysis of Secondary Lahar Activity at Fuego Volcano (Guatemala)*. AGU Fall Meeting, December 2022, Chicago. Poster.

Gauvain, S., **Anderson, J.F.** *Acoustic and Morphological Properties of Adjustable Plunging Jets*. AGU Fall Meeting, December 2022, Chicago. Oral presentation.

2021

Anderson, J.F., Gauvain, S., Ronan, T., Tatum, T., Satterwhite, T., Holahan, M., Rosenblatt, B. *Whitewater acoustic sources and wavefields*. AGU Fall Meeting, December 2021, New Orleans. Poster.

Gauvain, S., Tatum, T., Bosa, A., Satterwhite, T., **Anderson, J.F.** *Variability of acoustic properties among whitewater features*. AGU Fall Meeting, December 2021, New Orleans. Poster.

Tatum, T., Gauvain, S., Ronan, T., **Anderson, J.F.** *Sound dependence on discharge and configuration at an adjustable hydraulic jump*. AGU Fall Meeting, December 2021, New Orleans. Poster.

Johnson, J.B., Kim, K., Boyer, T., Watson, L., **Anderson, J.F.**, Rosenblatt, B. *Volcano opto-acoustics: joint visual and infrasound observations of crater resonance*. AGU Fall Meeting, December 2021, New Orleans. Oral presentation.

Averbuch, G., Giannone, M. R., Arrowsmith, S., **Anderson, J.** *Evidence for short temporal atmospheric (tropospheric) variations observed by infrasonic signals*. Acoustical Society of America, 2021.

Abstracts Before Current Appointment (* invited)

2020

Anderson, J.F., Johnson, J.B., Mikesell, T.D., Liberty, L.M. *Resolving complex wavefields from earthquake infrasound using a dense array*. AGU Fall Meeting, December 2020, San Francisco. Poster.

Mock, J.C., **Anderson, J.F.**, Johnson, J.B., Rosenblatt, B.B., Gauvain, S.J.
Topographic effects of infrasound wave propagation. AGU Fall Meeting, December 2020, San Francisco. Poster.

Johnson, J.B., Mikesell, T.D., **Anderson, J.F.**, Liberty, L.M. *Mapping the sources of proximal earthquake infrasound*. AGU Fall Meeting, December 2020, San Francisco. Oral presentation.

Rosenblatt, B.B., Johnson, J.B., **Anderson, J.F.**, Kim, K., Bosa, A., Gauvain, S.J., Mock, J.C. *Frequency Fluctuations of Volcanic Infrasound: Why Does Volcán Villarrica's Peak Frequency Waver?* AGU Fall Meeting, December 2020, San Francisco. Poster.

2019

***Anderson, J.F.**, Johnson, J. B. (2019, December). *Are your sensors holding you back? Lessons from developing a custom infrasound logger*. AGU Fall Meeting , December 2019, San Francisco. eLightning.

Anderson, J.F., Ronan, T., Ortiz, H.D., Gomes, D., Barber, J., Johnson, J.B., McNamara, J.P. *Whitewater Acoustics*. AGU Fall Meeting, December 2019, San Francisco. Poster.

Anderson, J.F., Ronan, T., Ortiz, H. D., Johnson, J. B., Bowman, D. C. *Acoustics as a tool for detecting and inferring streamflow*. AGU Fall Meeting, December 2019, San Francisco. Poster.

Johnson, J. B., **Anderson, J.F.**, De Angelis, S., Escobar-Wolf, R. P., Lyons, J. J., Marshall, H. P., Pineda, A. *On the capabilities of networked infrasound arrays for investigating rapid gravity-driven mass movements: lahars and snow avalanches*. AGU Fall Meeting, December 2019, San Francisco. Oral presentation.

Ortiz, H. D., Johnson, J. B., Anzieta, J. C., Matoza, R. S., **Anderson, J.F.**, Vargas, S. V., Cordova, J., Ruiz, M.C., Fernanda Naranjo, M., Ramon, P., Hernandez, S. *Overview of Reventador infrasound activity: from January 2015 to June 2019*. AGU Fall Meeting, December 2019, San Francisco. Oral presentation.

2018

Johnson, J.B., **Anderson, J.F.**, Behnke, S.A., Del Bello, E., Edens, H.E., Marshall, A.A., Ortiz, H.D., Pineda, A., Taddeucci, J., Vallejo Vargas, S., Watson, L.M., Zom, E. *Volcano storytelling*. AGU Fall Meeting, December 2018, Washington, DC. Oral presentation.

***Anderson, J.F.**, Johnson, J.B., Calhoun, D. *Modeling nonlinear infrasound*

propagation in discrete volcanic explosions. AGU Fall Meeting, December 2018, Washington, DC. Oral presentation.

Anderson, J.F., Johnson, J.B., Bowman, D.C., Ronan, T.J., Ortiz, H.D., Von Lintig, M.R., Florence, T. *The Gem Infrasound Logger: a low-cost, lightweight, easy-to-use, single-channel infrasound system*. AGU Fall Meeting, December 2018, Washington, DC. Poster.

Haney, M., Van Eaton, A., Lyons, J., Kramer, R., Fee, D., Iezzi, A., Dziak, R., **Anderson, J.**, Johnson, J., Lapierre, J., Stock, M. *Characteristics of volcanic thunder and electromagnetic pulses from lightning at Bogoslof*. AGU Fall Meeting, December 2018, Washington, DC. Oral presentation.

Johnson, J., Marshall, H.P., Loo, S.M., Nalli, B., Saurer, M., Havens, S., Colton, J., **Anderson, J.** *Detection and tracking of snow avalanches in Little Cottonwood Canyon, Utah using multiple small-aperture infrasound arrays*. International Snow Science Workshop, October 2018, Innsbruck, Austria.

Loo, S.M., Marshall, H.P., Davis, A., Lavery, M., Anderson, G., Durrant, A., Larsen, C., Johnson, J., **Anderson, J.**, Nalli, B., Saurer, M. *Avalanche monitoring using portable low-cost infrasound systems*. International Snow Science Workshop, October 2018, Innsbruck, Austria.

2017

Anderson, J.F., Johnson, J.B. *Modeling nonlinear air waves from explosive volcanic eruptions*. AGU Fall Meeting, December 2017, New Orleans. Oral presentation.

Johnson, J.B., Watson, L.M., Dunham, E.M., **Anderson, J.F.**, Franco, L., Cardona, C., Palma, J. *Hindcasting the paroxysmal eruption of Villarrica using resonant infrasound tones*. AGU Fall Meeting, December 2017, New Orleans. Poster.

Ortiz, H.D., Mikesell, T.D., Palacios, P., **Anderson, J.F.**, Anzieta, J.C. *Semidiurnal effects on infrasound wave propagation at local distances*. AGU Fall Meeting, December 2017, New Orleans. Oral presentation.

Anderson, J.F., Johnson, J.B. *Nonlinear infrasound models and explosive gas flux*. IAVCEI, August 2017, Portland. Oral presentation.

Miller, A.J.C., Johnson, J.B., **Anderson, J.F.**, Von Lintig, M. *Constraining plume velocity and pulsed emissions from two months of continuous video data at Volcan Villarrica, Chile*. IAVCEI, August 2017, Portland. Oral presentation.

Ronan, T.J., Lees, J.M., Mikesell, T.D., **Anderson, J.F.** *Quantifying river turbulence: new insights into the fluvial seismo-acoustic field*. Seismological Society of America,

April 2017, Denver. Oral presentation.

2016

Anderson, J.F., Johnson, J.B., Bowman, D., Ronan, T. *In-house infrasound instrumentation: convenient, customized, lower-cost*. Infrasound Technology Workshop, November 2016, Quito, Ecuador. Oral presentation.

2015

Anderson, J.F., Johnson, J.B., Bowman, D., Ronan, T., Brand, B. *Scoria fallout modeling and the 3 March 2015 VEI-2 eruption of Villarrica volcano, Chile*. AGU Fall Meeting, December 2015, San Francisco. Oral presentation.

Bowman, D.C., Johnson, C.S., Gupta, R.A., **Anderson, J.F.**, Lees, J.M., Drob, D.P., Phillips, D. *High Altitude Infrasound Measurements using Balloon-Borne Arrays*. AGU Fall Meeting, December 2015, San Francisco. Oral presentation.

2014

Anderson, J.F., Johnson, J.B., Steele, A., Anzieta, A., Ortiz, H., Hall, M., Ruiz, M. *Volcanic lightning, pyroclastic density currents, ballistic fall, vent tremor, and one very loud blast: acoustic analysis of the 14 July 2013 vulcanian eruption at Tungurahua, Ecuador*. AGU Fall Meeting, December 2014, San Francisco. Poster.

Ronan, T.J., Terbush, B., Miller, A.J.C., **Anderson, J.F.**, Johnson, J.B. *Infrasound from rock fall at Santiaguito volcano, Guatemala*. AGU Fall Meeting, December 2014, San Francisco. Poster.

Anderson, J.F., Johnson, J.B., Steele, A., Hall, M., Ruiz, M. *Tracking complex eruptive activity with acoustic and seismic recordings during an intense vulcanian eruption at Tungurahua (Ecuador)*. Cities on Volcanoes 8, September 2014, Yogyakarta, Indonesia. Oral presentation.

2013

Anderson, J.F., Johnson, J.B., Steele, A., Ruiz, M. *Shock waves from volcanic explosions*. AGU Fall Meeting, December 2013, San Francisco. Poster.

Bowman, D.C., Kim, K., **Anderson, J.F.**, Lees, J.M., Taddeucci, J., Graettinger, A.H., Sonder, I., Valentine, G.A. *Precursory acoustic signals and ground deformation in volcanic explosions*. AGU Fall Meeting, December 2013, San Francisco. Oral Presentation.

2012

Anderson, J.F., Johnson, J.B., Arechiga, R.O. Thomas, R.J. *Inversion of acoustic and electromagnetic recordings for mapping current flow in lightning strikes*. AGU Fall Meeting, December 2012, San Francisco. Oral presentation.

Johnson, J.B., Andrews, B.J., **Anderson, J.F.**, Lyons, J.J., Lees, J.M. *Volcano geodesy at Santiaguito using ground-based cameras and particle image velocimetry*. AGU Fall Meeting, December 2012, San Francisco. Oral presentation.

Lyons, J.J., Johnson, J.B., **Anderson, J.F.**, Lees, J.M. *Cyclic dome deformation during vigorous lava effusion at Santiaguito volcano*. AGU Fall Meeting, December 2012, San Francisco. Oral presentation.

Anderson, J.F., Johnson, J.B., Lyons, J., Lees, J.M. *Integrated geophysical observations of cyclic dome deformation and rapid dome uplift at Santiaguito (Guatemala)*. Cities on Volcanoes meeting, November 2012, Colima, Mexico. Oral presentation.

2011

Anderson, J.F., Johnson, J.B., Arechiga, R.O., Edens, H.E. Thomas, R.J. *Location of acoustic radiators and inversion for energy density using radio-frequency sources and thunder recordings*. AGU Fall Meeting, December 2011, San Francisco. Poster.

Johnson, J.B., **Anderson, J.F.**, Sanderson, R.W., McIntosh, W.C., Goto, A., Waite, G.P., Palma, J.L., Richardson, J.P. *Intense monotonic infrasound at Volcan Villarrica: Insights from an Integrated Seismo-acousto-optico-thermo-UV imager field approach*. AGU Fall Meeting, December 2011, San Francisco. Oral presentation.

2010

Goto, A., Johnson, J.B., Sanderson, R.W., **Anderson, J.F.**, Varley, N.R. *Vent geometry detected from infrasound observation on Villarrica volcano, Chile*. AGU Fall Meeting, December 2010, San Francisco. Poster.

2009

Anderson, J.F., Lees, J.M., Waite, G.P., Johnson, J.B. *Topographic effects on ground motion at Santiaguito volcano, Guatemala*. AGU Fall Meeting, December 2009, San Francisco. Oral presentation.

Invited Seminars

Sandia National Lab, Ground-Based Nuclear Monitoring program: Albuquerque, NM, October 2022.

Boise State University, Geosciences: Boise, ID, October 2021.

Cascades Volcano Observatory: Vancouver, WA, January 2020

Observatorio Volcanológico de los Andes del Sur: Temuco, Chile, January 2020 (Spanish)

UC Berkeley, Space Science Laboratory: Berkeley, CA, October 2019

Los Alamos National Lab, Geophysics: Los Alamos, NM, January 2019

Sandia National Laboratories, Geosciences: Albuquerque, NM, January 2019

Instituto Geofísico—Escuela Politécnica Nacional: Quito, Ecuador, August 2016 (Spanish)

Other Forms of Scholarly Activity

I build and distribute open-source infrasound loggers (Anderson et al., 2018) and maintain related data-processing software. These are specialized instruments that fill important niches in our fieldwork (our small fields are not served adequately by major instrument companies). Sales revenue covers the cost of my labor (management, purchasing, instrument validation, and technical support) and student labor (assembly and testing), in addition to material costs. Ten undergraduates have so far been supported by this self-sustaining project.

Between the start of my current appointment and spring 2025, I sold 111 infrasound loggers; while at BSU before my current appointment, I sold another 49. These infrasound loggers went to 17 institutions in the US and 5 other countries.

As part of an NSF award, I also operate a lending pool of 100 infrasound loggers. Through this, I have supported 15 instrument loans with a median size of 10 loggers and median duration of 6 months, and a total of 161 loggers and 1275 logger-months. These loans play an important role in broadening infrasound science by disproportionately supporting projects for which the cost of buying instruments is a barrier, including students, early-career researchers, and new or emerging infrasound applications.

This high-impact work qualifies as scholarly activity under the framework of Shulman and Hutchings (1998) because it is publicly observable (open-source hardware designs, firmware, and data conversion software), accessible and widely used by the scholarly community (through sales and loans), and amenable to critical appraisal (e.g., an evaluation of infrasound technology by Slad and Merchant, 2021).

Summary of funded proposals since current appointment

Agencies	Programs	Total Amount	BSU Amount
NSF	Geophysics, Hydrologic Sciences, Instrumentation/Facilities, Geobiology and Low-Temperature Geochemistry	\$938k	\$919k
US Army	Corps of Engineers Cold Regions Research Lab	\$5.5M	\$2.5M
USFS	Forest Products Lab	\$225k	\$225k
BSU (Internal)	Office of Technology Transfer	\$10k	\$10k
Total		\$6.67M	\$3.65M

Summary of all proposals since current appointment

Source	Role	Title	Dates	Total Amount	BSU Amount	Status
NSF EAR Instrumentation/Facilities	PI	ITD: Development of moisture-controlled gas probes and open-source data logging system for reliable long-term monitoring in soil and water	2026-2028	\$570k	\$570k	Pending*
BSU Office of Technology Transfer (internal)	PI	Commercializing a Rugged Low-Cost Soil Gas Probe	2025	\$10k	\$10k	Awarded
NSF EAR Study of Physics of Earth	Co-PI	Infrasound generation produced by earthquakes: an ensemble analysis of networked seismo-acoustic data acquired during the Stanley (Idaho) 2020 aftershock sequence	2025-2028	\$440k	\$440k	Declined
NSF EAR Instrumentation/Facilities	PI	Development of moisture controlled CO ₂ and CH ₄ probes and open-source data logging system for reliable long-term monitoring in soil and water	2025-2028	\$566k	\$566k	Declined*
NSF EAR Instrumentation/Facilities	PI	Development of a soil greenhouse gas sensing and logging system	2025-2028	\$599k	\$599k	Declined
USFS	PI	Mapping Wildland Fire Infrasound Sources	2023-2025	\$225k	\$225k	Awarded
NSF EAR Geobiology/Low-Temperature Geochemistry	Co-PI	RAPID: Mechanisms of Fire-Induced Carbonate Formation in a Cold Desert Ecosystem.	2023-2024	\$81k	\$62k	Awarded
US Army Corps of Engineers	Co-PI	Climate and natural hazards, snow-covered and mountain environment sensing research	2022-2024	\$4.5M	\$1.5M	Awarded
NSF EAR	PI	Development of a user-friendly, low-cost, low-power, low-	2021-2024	\$374k	\$374k	Awarded

Instrumentation/Facilities		noise, lightweight, self-contained infrasound logging system.				
NSF EAR Hydrologic Sciences	PI	Efficient discharge monitoring using whitewater sounds.	2021-2026	\$391k	\$391k	Awarded

*All proposals to EAR/IF were rejected without review in summer 2025 due to its solicitation being abruptly terminated. The program officers allowed these proposals to be modified and submitted to PAPPG as unsolicited proposals.

Summary of all proposals before current appointment

Source	Role	Title	Dates	Total Amount	BSU Amount	Status
NSF EAR Instrumentation/Facilities	PI	Development of a user-friendly, low-cost, low-power, low-noise, lightweight, self-contained infrasound logging system.	2020-2022	\$405k	\$405k	Declined
NSF Geophysics	Co-PI	RAPID: Seismo-acoustic radiation from a local earthquake aftershock sequence: how, when, and why seismic waves cross the ground-atmosphere interface.	2020-2021	\$74k	\$74k	Awarded
USGS Earthquake Hazards Program	PI	Earthquakes and Infrasound: Using High Density Proximal Arrays to Detect and Quantify Ground Shaking	2020-2022	\$72k	\$72k	Declined
US Army Corps of Engineers	Co-PI	Advancement of snow monitoring for water resources, vehicle mobility, and hazard mitigation, using electromagnetic, acoustic, and seismic techniques	2020-2022	\$1M	\$1M	Awarded
NSF Environmental Engineering	Co-PI	SitS NSF-UKRI: Source or sink? Using novel sensors and geophysical methods to investigate irrigation-driven changes in inorganic soil carbon storage	2019-2022	\$800k	\$800k	Declined

Teaching (Past 8 Years)

Semester	Course	Credits	Students
Spring 2025	UF100-008, (Un)natural Hazards	4	100
Spring 2024	GEOPH 536, Geoscience Instrumentation	3	8
Spring 2024	GEOPH 597, Intermediate Geoscience Instrumentation	1	1
Spring 2023	GEOS 497/597, Geoscience Instrumentation	3	8
Spring 2023	GEOS 480, Undergraduate Research	1	1
Fall 2022	GEOS 597, Infrasound Seminar (special topics)	1	4
Spring 2022	GEOS 597, Geoscience Instrumentation	3	7
Spring 2022	GEOS 480, Undergraduate Research	1	1
Fall 2021	GEOS 497/597, Infrasound Seminar (special topics)	1	6
Fall 2021	GEOS 480, Undergraduate Research	1	1
Spring 2021	GEOS 589, Infrasound Seminar	1	4
Spring 2020	GEOS 497/597, Geoscience Instrumentation	3	9
Spring 2019	GEOS 497/597, Geoscience Instrumentation	2	11
Fall 2018	GEOS 420, Digital Signal Processing	3	5
Summer 2018	GEOS 482, Geology Summer Field Camp	6	5
Spring 2018	GEOS 597, Geoscience Instrumentation	1	10

BSU Student Mentoring Since Current Appointment

PhD Committee Co-Chair

Madeline Hunt: Infrasound monitoring of wildland fires. 2023-2029 (anticipated).

MS Committee Chair

Scott Gauvain: Effects of Discharge and Morphology on Fluvial Sound. 2021-2023.

Undergraduate Research Supervisor

Hunter Godkin: Assessing remote monitoring needs in active wildland fires. 2025.

Logan Scamfer: Exploring background noise with a large-N infrasound array: waterfalls, thunderstorms, and earthquakes (undergrad-led publication in Geophysical Research Letters). 2022-2023.

Taylor Tatum: Whitewater Sound Dependence on Discharge and Wave Configuration at an Adjustable Wave Feature (undergrad-led publication in Water Resources Research). 2021-2023.

Tamara Beschorner: An automated test suite for the Gem Infrasound Logger. 2021-2022.

MS Committee Member

Parker Wilkerson: The relationship between meltwater and short term velocity variations of the Sit' Kusá glacier, Alaska. 2024-2026 (anticipated).

Owen Walsh: Avalanches, Artillery, and Acoustics: Explosion Infrasound in a Dynamic Snowpack. 2024-2026 (anticipated).

Bryan Rosenblatt: Controls on the frequency content of near-source infrasound at an open-vent volcano (Villarrica, Chile). 2019-2021.

Taylor Bienvenue: Laboratory measurement of electrical and hydraulic properties of regolith over granitic bedrock. 2019-2021.

Professional Development Since Current Appointment

2025

National Outdoor Leadership School

Wilderness First Responder Recertification (24 hours)

2024

Boise State University Center for Teaching and Learning:

Introduction to Open Educational Resources (OER) (1 hour)

More than Textbooks: Exploring Ancillary OER Materials (1 hour)

Choosing the Right Active Learning Strategies (2 hours)

2023

Boise State University Center for Teaching and Learning:

Reflecting on Evidence of Teaching (1 hour)

Understanding the Student Experience: Strategies for Supporting Students with Disabilities (1.5 hours)

National Outdoor Leadership School

Hybrid Wilderness First Responder (80 hours)

Professional Development Before Current Appointment

2019

Boise State University Center for Teaching and Learning:

Introduction to Effective Course Design (3 hours)

2018

National Association of Geoscience Teachers

NAGT Traveling Workshop: course design, active learning, metacognition, and strategies for supporting students (16 hours)

Service

2025

University

Presented infrasound-sound-ultrasound activity at BSU Engineering/Science Festival

Served as judge for Graduate Student Showcase

2024

Professional

Peer reviewer for 1 article in Seismological Research Letters

University

Presented infrasound-sound-ultrasound activity at BSU Engineering/Science Festival

Community

Designed an infrasound-sound-ultrasound activity for visiting students; presented to small groups visiting lab

2023

Professional

Peer reviewer for 1 article in Geophysical Research Letters, 1 article in Bulletin of the Seismological Society of America, and 1 article in Seismological Research Letters

Community

Hosted lab demonstrations for visiting K-12 students

2022

Professional

Reviewed research proposal for Moore foundation

2021

Professional

Led a report representing the US infrasound community establishing best practices in infrasound recording, and set up website for group

Peer reviewer for 1 article in Geophysical Research Letters, 1 article in Earth and Space Science, and 1 article in Atmospheric Research

2020

Professional

Co-led white paper "Infrasound Needs for NSF Geophysical Facility" with 14 infrasound co-authors

Peer reviewer for 1 article in *Volcanica* and 1 article in *Frontiers in Geoscience*

2019

Community

Assisted with Greenhouse Gas Tag activity at elementary school in Nampa

Co-designed, co-taught, and documented outreach activity on erosion at elementary school

Led laser lab demonstration for visiting Jr High students