

Briony H. N. Horgan

January 2025

Professor of Planetary Science
Department of Earth, Atmospheric, and Planetary Sciences
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Education and Appointments

- 2023-present **Professor**, Purdue University
Department of Earth, Atmospheric, and Planetary Sciences
Courtesy appointment: School of Aeronautics and Astronautics
- 2020-2023 **Associate Professor**, Purdue University
- 2014-2020 **Assistant Professor**, Purdue University
- 2013 **Faculty Research Associate**, Arizona State University
School of Earth and Space Exploration
- 2010-2012 **Exploration Postdoctoral Fellow**, Arizona State University
Advisor: Prof. Phil Christensen
- 2005-2010 **Ph.D., Cornell University**, Astronomy and Space Sciences
Advisor: Prof. Jim Bell
- 2001-2005 **B.S., Oregon State University**, Physics, *summa cum laude*

Fields of Expertise

- Geology and mineralogy of the terrestrial planets from rovers and orbital remote sensing
- Visible/near-infrared, short wave-infrared, and mid-infrared spectroscopy
- Field and lab studies of Earth and planetary surface processes
- Mapping and analysis of large hyperspectral and multispectral datasets
- Tactical and strategic rover operations

NASA Mission Experience

- 2021-present Long-Term Planner and Tactical Science Lead, Mars 2020 Mission
- 2015-present Co-I, Mastcam-Z imaging investigation, Mars 2020 Mission
- 2016-2022 Participating Scientist, Mars Science Laboratory Mission
- 2019-2020 Co-I, Mars Orbiter for Resources, Ices, and Env., Mission Concept Study
- 2018 Co-I, Chariot to the Moons of Mars, PSDS3 Mission Concept Study
- 2008-2014 Science Team, THEMIS, Mars Odyssey Mission

Awards and Honors

- College of Science Diversity Award, Purdue University (2023)
- College of Science Research Award, Purdue University (2022)
- *NASA Group Achievement Award, Mars 2020 Mastcam-Z Science and Ops Team (2022)*
- University Faculty Scholar, Purdue University (2021-2027)
- *NASA Group Achievement Award, Mars 2020 Mastcam-Z Development Team (2021)*
- *NASA Group Achievement Award, Pre-Landing Strategic Science Group (2021)*

- NASA Group Achievement Award, Mars 2020 Instrument Ops Development Team (2021)
- NASA Group Achievement Award, Mars Science Laboratory Science Team (2017)
- College of Science Undergraduate Mentoring Award, Purdue University (2016)
- Arizona State University Exploration Postdoctoral Fellowship (2010-2012)
- Cornell University Eleanor Norton York Prize in Astronomy (2009)
- NASA Mars Exploration Student Travel Award (2009, 2010)
- Lunar and Planetary Institute Career Development Award (2008)
- NASA Harriet G. Jenkins Pre-doctoral Fellowship (2008)
- NASA Earth and Space Science Fellowship (2008)
- Cornell Graduate School Research Travel Grant (2007)
- Oregon State University Physics Undergraduate Scholar Award (2004)
- Zonta Service Foundation Scholarship (2003)
- Oregon State University Excellence in Science Scholarship (2002)
- Krane Scholarship in Physics (2002)
- Oregon State University Achievement Scholarship (2001-2005)
- Oregon University System PASS Scholarship (2001-2005)

Publications

G = grad student, U = undergrad, P = postdoc, bold = Horgan is primary advisor

1. **A. Klidas**^G, **R. Navarre**^U, **B. Horgan**, W. Farrand, **A. Broz**^P, T. Goudge, and R. Moore (2025) Topography and mineralogy of clay deposits signify an epoch of warm and humid climate on early Mars. Accepted, *Geology*.
2. **L. Zeng**^P, **B. Horgan** (2025) Hydrothermal activity generated by impact melt emplacement on the rim of Ritchey crater, Mars. Accepted, *Nature Communications*.
3. M. Schmidt, 13 others, **B. Horgan** and 18 others (2025) Diverse and highly differentiated lava suite in Jezero crater, Mars: Constraints on intracrustal magmatism revealed by Mars 2020 PIXL, Accepted, *Science*.
4. C. Royer, C. Bedford, J. Johnson, **B. Horgan**, **A. Broz**^P, and 29 others (2024) Intense alteration on early Mars revealed by high-aluminum rocks at Jezero Crater. *Nature Earth & Environment*, accepted.
5. **A. Broz**^P, **B. Horgan**, and 35 others (2024) Diagenetic history and biosignature preservation potential of fine-grained rocks at Hogwallow Flats, Jezero Crater, Mars (2024) *Journal of Geophysical Research – Planets*, 129, doi:10.1029/2024JE008520.
6. E. Mansbach^G, T. Kizovski, E. Scheller, T. Bosak, L. Mandon, **B. Horgan**, and 9 others (2024) Likely Ferromagnetic Minerals Identified by the Perseverance Rover and Implications for Future Paleomagnetic Analyses of Returned Martian Samples. *Journal of Geophysical Research – Planets*, accepted.
7. M. Jodhpurkar^G, J. Bell, **B. Horgan**, S. Gupta (2024) Mapping and Characterizing the Northern Fan Deposits in Jezero Crater, Mars. *Journal of Geophysical Research – Planets*, accepted.
8. E. Shoemaker^P, T. Casademont, L. Carter, P. Russell, H. Dypvik, S. Alwmark, **B. Horgan**, and 9 others (2024) Observations of Igneous Subsurface Stratigraphy during the Jezero Crater

Floor Rapid Traverse from the RIMFAX Ground-penetrating Radar, *The Planetary Science Journal*, 5, 191, doi:10.3847/PSJ/ad6445.

9. L. Mandon^P, B. Ehlmann, R. Wiens, **B. Garczynski^G**, **B. Horgan**, 5 others, **A. Broz^P**, and 11 others (2024) Variable iron mineralogy and redox conditions recorded in ancient rocks measured by in situ visible/near-infrared spectroscopy at Jezero crater, Mars. *Journal of Geophysical Research – Planets*, accepted.
10. C. Bedford^P, E. Rampe, M. Thorpe^P, R. Ewing, K. Mason^G, **B. Horgan**, **A. Rudolph^G**, M. Lapotre, **P. Sinha**, and 5 others (2024) The Geochemical and Mineralogical Signature of Glaciovolcanism Near Þórisjökull, Iceland, and its Implications for Glaciovolcanism on Mars. Submitted to *Journal of Geophysical Research – Planets*, accepted.
11. **A. Rudolph^G**, **B. Horgan**, and 8 others (2024) An Orbital Comparison of a Late Mantling Unit on Aeolis Mons with Other Erosion-Resistant Strata Explored by MSL in Gale Crater, Mars. *Journal of Geophysical Research – Planets*, doi:10.1029/2023JE008242..
12. N. Mangold, 12 co-authors, **B. Horgan**, and 8 others (2024) Architecture of fluvial and deltaic deposits exposed along the eastern edge of Jezero crater western fan. *Journal of Geophysical Research – Planets*, accepted.
13. K. Stack, 20 co-authors, **B. Horgan**, and 21 others (2024) Sedimentology and Stratigraphy of the Shenandoah Formation, Western Fan, Jezero Crater, Mars. *Journal of Geophysical Research – Planets*, doi:10.1029/2023JE008187.
14. **H. Vannier^G**, **B. Horgan**, J. Stopar, M. Henderson (2024). Constraining formation hypotheses for irregular mare patches on the Moon with VNIR spectral data. Submitted to *Journal of Geophysical Research – Planets*, doi:10.1029/2023JE008108.
15. D. Paige, 15 co-authors, and **B. Horgan** (2024) Ground penetrating radar observations of the contact between the western delta and the crater floor of Jezero Crater, Mars. *Science Advances*.
16. **E. Rogers^U**, **H. Dawson^U**, **B. Qualizza^U**, **J. Heidenreich^U**, **B. Horgan** (2023) Silica-bearing mounds and strata in the southwest Melas Basin, Valles Marineris, Mars: Evidence for a hydrothermal origin, *Journal of Geophysical Research – Planets*, doi: 10.1029/2023JE007881.
17. L. Pigue^G, K. Bennett, **B. Horgan**, L. Gaddis (2023) Relationship between explosive and effusive volcanism in the Montes Apenninus region of the Moon, *Journal of Geophysical Research – Planets*, accepted.
18. M. Yang, Y. Qian, **B. Horgan**, J. Huang, and L. Xiao. Mineralogy of Surface Materials at the Chang'E-5 Landing Site and Possible Exotic Sources from in-situ Spectral Observations. *Journal of Geophysical Research – Planets*, accepted.
19. **B. Horgan** and 45 co-authors (2023) Mineralogy, morphology, and emplacement history of the Maaz formation on the Jezero crater floor from orbital and rover observations. *Journal of Geophysical Research – Planets*, 128, doi: 10.1029/2022JE007612.
20. **M. Henderson^G**, **B. Horgan**, J. Stopar, L. Gaddis, S. Lawrence (2023) Mineralogy of Explosive and Effusive Volcanic Edifices in the Marius Hills Volcanic Complex. *Icarus*, 404, doi: 10.1016/j.icarus.2023.115628.

21. L. Crumpler, **B. Horgan**, and 22 co-authors (2023) In Situ Geologic Mapping Transect Observations on the Jezero Crater Floor from Perseverance Rover, *Journal of Geophysical Research – Planets*, 128, doi: 10.1029/2022JE007444.
22. C. Quantin-Nataf, 15 co-authors, **B. Horgan**, and 6 co-authors (2023) The Complex Exhumation History of Jezero Crater Floor Unit., *Journal of Geophysical Research – Planets*, 128, doi: 10.1029/2022JE007628.
23. V. Sun, 27 co-authors, **B. Horgan**, and 20 co-authors (2023) Exploring the Jezero Crater Floor: Summary and Synthesis of Perseverance’s First Science Campaign, *Journal of Geophysical Research – Planets*, 128, doi: 10.1029/2022JE007613.
24. Chaves, L.^G, M. Thompson, M. Loeffler, C. Dukes, P. Szabo, **B. Horgan** (2023) Evaluating the effects of space weathering on magnetite on airless planetary bodies, *Icarus*, 402, doi:10.1016/j.icarus.2023.115634.
25. Simon, J., 34 co-authors, **B. Horgan**, and 32 co-authors (2023) The First Samples Collected by the NASA Perseverance Rover Mission, *Journal of Geophysical Research – Planets*, 128, doi: 10.1029/2022JE007474.
26. Rice, M., J. Johnson, C. Million, M. St. Clair, **B. Horgan**, and 15 others (2023) Spectral variability of rocks and soils on the Jezero crater floor: A summary of multispectral observations from Perseverance’s Mastcam-Z instrument, *Journal of Geophysical Research – Planets*, 128, doi: 10.1029/2022JE007548.
27. A. Udry, 8 co-authors, **B. Horgan**, and 47 co-authors (2023) A Mars 2020 Perseverance SuperCam Perspective on the Igneous Nature of the Máaz formation at Jezero crater, Mars. *Journal of Geophysical Research – Planets*, doi:10.1029/2022JE007440.
28. A. Vaughan, 7 co-authors, **B. Horgan**, and 17 co-authors (2023) Regolith of the crater floor units, Jezero crater, Mars: Textures, composition, and implications for provenance. *Journal of Geophysical Research – Planets*, doi:10.1029/2022JE007437.
29. S. Alwmark, **B. Horgan**, and 16 co-authors (2023) Varied origins of Artuby signals complex series of geologic events in Jezero crater, Mars, *Journal of Geophysical Research – Planets*, doi:10.1029/2022JE007446.
30. K. Farley, K. Stack-Morgan, D. Shuster, **B. Horgan**, and 104 others (2022) Aqueously altered igneous rocks on the floor of Jezero crater, Mars. *Science*, eabo2196.
31. Y. Liu, 38 co-authors, **B. Horgan**, and 30 co-authors (2022) An olivine cumulate outcrop on the floor of Jezero crater, Mars. *Science*, eabo2756.
32. J. F. Bell III, 8 co-authors, **B. Horgan**, and 83 co-authors (2022) Geological and Meteorological Imaging Results from the Mars 2020 Perseverance Rover in Jezero Crater. *Science Advances*, 8(47), eabo4856.
33. R. Wiens, 21 co-authors, **B. Horgan**, and 70 co-authors (2022) Compositionally and density stratified igneous terrains in Jezero crater, Mars, *Science Advances*, 8(34), eabo3399.
34. M. Rice, 8 co-authors, **B. Horgan**, 8 co-authors (2022), Spectral diversity of rocks and soils in Mastcam observations along the Curiosity rover’s traverse in Gale crater, Mars. *Journal of Geophysical Research - Planets*, 127(8), e2021JE007134.
35. **J. Haber**^G, **B. Horgan**, A. A. Fraeman, J. Johnson, J. F. Bell III, M. Starr, M. Rice, N. Mangold, L. Thompson, D. Wellington, S. Jacob, and E. Cloutis. (2022). Mineralogy of a possible ancient

lakeshore in the Sutton Island member of Mt. Sharp, Gale Crater, Mars, from Mastcam multispectral images. *Journal of Geophysical Research - Planets*, doi: 10.1029/2022JE007357.

36. **A. Rudolph**^G, **B. Horgan**, J. Johnson, K. Bennett, **J. Haber**^G, J. F. Bell III, V. Fox, S. Jacob, S. Maurice, E. Rampe, M. Rice, C. Seeger, R. Wiens (2022), The distribution of clay minerals and their impact on diagenesis in Glen Torridon, Gale crater, Mars. *Journal of Geophysical Research - Planets*, doi: 10.1029/2021JE007098.
37. K. Bennett, 20 co-authors, **A. Rudolph**^G, 2 co-authors, **B. Horgan**, and 4 others. An Overview of the Curiosity Rover's Campaign in Glen Torridon, Gale Crater, Mars (2022) *Journal of Geophysical Research - Planets*, 128, doi:10.1029/2022JE007185.
38. R. Smith^P, S. McLennan, B. Sutter, E. Rampe, E. Dehouck, K. Siebach, **B. Horgan**, V. Sun, A. McAdam, C. Achilles, N. Mangold, and M. Salvatore (2022) X-ray amorphous sulfur-bearing phases in Gale crater sedimentary rocks, Mars. *Journal of Geophysical Research - Planets*, e2021JE007128, doi: 10.1029/2021JE007128.
39. S. Ruff, V. Hamilton, A. D. Rogers, C. Edwards, **B. Horgan** (2022). Olivine and carbonate-rich bedrock in Gusev crater and the Nili Fossae region of Mars may be altered ignimbrite deposits, *Icarus*, 380, doi: 10.1016/j.icarus.2022.114974.
40. **P. Sinha**^G and **B. Horgan** (2022), Sediments within the icy north polar deposits of Mars record recent impacts and volcanism, *Geophysical Research Letters*, 49, doi:10.1029/2022GL097758.
41. A. Broz^G, J. Clark, B. Sutter, D. Ming, V. Tu, **B. Horgan**, L. Silva (2022). Mineralogy and diagenesis of Mars-analog paleosols from eastern Oregon, USA. *Icarus*, 380, doi: 10.1016/j.icarus.2022.114965.
42. E. Rampe, **B. Horgan**, **R. Smith**^P, **N. Scudder**^G, E. Bamber^U, **A. Rutledge**^P, R. Christofferson (2022). A Mineralogical Study of Glacial Flour from Three Sisters, Oregon: An Analog for a Cold and Icy Early Mars. *Earth and Planetary Science Letters*, doi: 10.1016/j.epsl.2022.117471.
43. J. Tarnas, K. Stack, M. Parente, A. Koepfel, J. Mustard, K. Moore, **B. Horgan**, F. Seelos, E. Cloutis, P. Kelemen, D. Flannery, A. Brown, K. Frizzell, P. Pinet (2021). Characteristics, origins, and biosignature preservation potential of carbonate-bearing rocks within and outside of Jezero crater, *Journal of Geophysical Research - Planets*, 126, doi: 10.1029/2021JE006898.
44. N. Mangold, S. Gupta, O. Gasnault, G. Dromart, J. Tarnas, S. Sholes, **B. Horgan**, and 32 others (2021). Perseverance rover finds a delta-lake system and ancient flood deposits at Jezero crater, Mars. *Science*, 374, 711-717, doi:10.1126/science.abl4051.
45. S. Holm-Alwmark, K. Kinch, M. Hansen, S. Shahrzad, K. Svennevig, W. Abbey, R. Anderson, F. Calef III, S. Gupta, E. Hauber, **B. Horgan**, and 7 others (2021). Stratigraphic Relationships in Jezero Crater, Mars – Constraints on the Timing of Fluvial-Lacustrine Activity from orbital observations, *Journal of Geophysical Research - Planets*, doi: 10.1029/2021JE006840.
46. K. Bennett, F. Rivera-Hernandez, **C. Tinker**^U, **B. Horgan**, D. Fey, C. Edwards, L. Edgsar, R. Kronyak, K. Edgett, A. Fraeman, L. Kah, **M. Henderson**^G, N. Stein, E. Dehouck, A. Williams

- (2021). Extensive diagenesis revealed by fine-scale features at Vera Rubin ridge, Gale crater, Mars, *Journal of Geophysical Research – Planets*, 126, doi:10.1029/2019JE006311
47. **R. Smith^P** and **B. Horgan** (2021). Nanoscale variations in natural amorphous and nanocrystalline weathering products in mafic to intermediate volcanic terrains on Earth: Implications for amorphous detections on Mars. *Journal of Geophysical Research – Planets*, 126, doi:10.1029/2020JE006769.
48. R. Smith, S. McLennan, C. Achilles, E. Dehouck, **B. Horgan**, N. Mangold, E. Rampe, M. Salvatore, K. Siebach, V. Sun (2021). X-ray amorphous components in sedimentary rocks of Gale crater, Mars: Evidence for ancient formation and long-lived aqueous activity, *Journal of Geophysical Research - Planets*, doi:10.1029/2020JE006782.
49. K. Kinch, J. Sølberg, **B. Horgan**, J. Adler, A. Hayes, J. Hurowitz, M. Rice (2021). Landing on Mars: A cross-institutional research-based seminar series, *International Journal of Teaching and Learning in Higher Education*, v33, n3, p328-360 2022.
50. J. Bell, 34 co-authors, **B. Horgan**, and 13 others (2021). The Mars 2020 Perseverance rover Mast Camera Zoon (Mastcam-Z) Multispectral Stereoscopic Imaging Investigation, *Space Science Reviews*, 217, doi:10.1007/s11214-020-00755-x.
51. A. Hayes, P. Corlies, C. Tate, J. Bell, J. Maki, M. Caplinger, K. Kinch, K. Herkenhoff, **B. Horgan**, and 30 others (2021) Pre-flight calibration of the Mars 2020 rover Mastcam Zoom (Mastcam-Z) Multispectral Stereoscopic Imager, *Space Science Reviews*, 217, doi:10.1007/s11214-021-00795-x.
52. **N. Scudder^G**, **B. Horgan**, E. Rampe, R. Smith, A. Rutledge (2021), The effects of magmatic evolution, crystallinity, and microtexture on the visible/near-infrared and thermal-infrared spectra of volcanic rocks, *Icarus*, 359, doi:10.1016/j.icarus.2021.114344.
53. **M. Henderson^G**, **B. Horgan**, M. Rowe, K. Wall, **N. Scudder^G** (2020), Determining the eruption style of explosive volcanic eruptions from spectroscopy of tephra deposits. *Earth & Space Sciences*, 8, doi:10.1029/2019EA001013.
54. **B. Horgan**, J. Johnson, A. Fraeman, M. Rice, C. Seeger^G, J. Bell, K. Bennett, E. Cloutis, and 10 others (2020), Diagenesis of Vera Rubin ridge, Gale crater, Mars from Mastcam multispectral images, *Journal of Geophysical Research – Planets*, 125, doi: 10.1029/2019JE006322.
55. A. Fraeman, 27 co-authors, **B. Horgan**, and 13 others (2020), The origin of Vera Rubin ridge, Gale crater, Mars: Summary and synthesis of Curiosity's exploration campaign, *Journal of Geophysical Research – Planets*, 125, doi: 10.1029/2020JE006527.
56. A. Fraeman, J. Johnson, R. Arvidson, M. Rice, D. Wellington, R. Morris, V. Fox, **B. Horgan**, S. Jacob, M. Salvatore, V. Sun, P. Pinet, J. Bell, R. Wiens, A. Vasavada (2020), Synergistic ground and orbital observations of iron oxides on Mt. Sharp and Vera Rubin ridge, *Journal of Geophysical Research – Planets*, 125, doi: 10.1029/2019JE006294.
57. S. Jacob^G, D. Wellington, J. Bell, C. Achilles, A. Fraeman, G. Peters, J. Johnson, **B. Horgan**, E. Rampe, L. Thompson, R. Wiens, S. Maurice (2020), Spectral, Compositional, and Physical Properties of the Upper Murray Formation and Vera Rubin Ridge, Gale Crater, Mars (2020), *Journal of Geophysical Research – Planets*, 125, doi: 10.1029/2019JE006290.

58. J. L'Haridon, 16 co-authors, **B. Horgan**, and 4 others (2020), Iron Mobility during Diagenesis as Observed by ChemCam at the Vera Rubin Ridge, Gale Crater, Mars, *Journal of Geophysical Research – Planets*, 125, doi: 10.1029/2019JE006299.
59. K. Stack, 41 co-authors, **B. Horgan**, and 23 others (2020). Photogeologic Map of the Perseverance Rover Field Site in Jezero Crater Constructed by the Mars 2020 Science Team, *Space Science Reviews*, **216**, 127, doi: 10.1007/s11214-020-00739-x.
60. J. Huang, Z. Xiao, L. Xiao, **B. Horgan**, X. Hu, P. Lucey, X. Xiao, S. Zhao, Y. Qian, R. Xu, B. Xue, H. Hang, VNIS PCAM TCAM LCAM team (2020), No olivine-rich mantle material has been detected by Chang'E-4 in-situ observation, *Geology*, 48, doi:10.1130/G47280.1.
61. N. Balci, Y. Gunes, J. Kaiser, S. Acker, K. Edis, **B. Garczynski**^G, **B. Horgan** (2020) Biotic and abiotic imprints on Mg-rich stromatolites: lessons from Lake Salda, SW Turkey, *Biogeosciences*, 37, doi: 10.1080/01490451.2019.1710784.
62. I. Smith, 9 co-authors, **B. Horgan**, and 27 others (2020) The holy grail: A strategy for unlocking the climate record stored within Mars' polar layered deposits, *Planetary & Space Science*, 184, doi:10.1016/j.pss.2020.104841.
63. J. Bishop, C. Gross, J. Danielson, M. Parente, S. Murchie, **B. Horgan**, J. Wray, C. Viviano, B. Ehlmann, F. Seelos (2020) Multiple mineral horizons in layered outcrops at Mawrth Vallis, Mars, signify changing geochemical environments on early Mars, *Icarus*, 341, doi:10.1016/j.icarus.2020.113634.
64. F. Poulet, C. Gross, **B. Horgan**, D. Loizeau, J. Bishop, J. Carter, C. Orgel, J.-P. Bibring. (2020) Mawrth Vallis, Mars: A fascinating place for future in situ exploration, *Astrobiology*, 20, doi:10.1089/ast.2019.2074.
65. **B. Horgan**, R. Anderson, G. Dromart, E. Amador^P, M. Rice (2020), The mineral diversity of Jezero crater: Evidence for possible lacustrine carbonates on Mars, *Icarus*, 339, doi: 10.1016/j.icarus.2019.113526.
66. S. Warren^G, E. Kite, J-P. Williams, **B. Horgan** (2019), Through the thick and thin: New constraints on Mars paleopressure history 3.8 - 4 Ga from small exhumed craters. *Journal of Geophysical Research*, 124, doi: 10.1029/2019JE006178.
67. **P. Kinzelman**^U, **B. Horgan** (2019). Preservation of surface and subsurface environments on Mars in filled fractures at Mawrth Vallis. *Journal of Purdue Undergraduate Research*, 9, 42-48, doi:10.5703/1288284316931.
68. **iMOST** (2019), *The Potential Science and Engineering Value of Samples Delivered to Earth by Mars Sample Return*, (co-chairs D. Beaty, M. Grady, H. McSween, E. Sefton-Nash; documentarian B. L. Carrier; plus **66 co-authors**), *Meteoritics & Planetary Science*, 54(3), 667-671 (executive summary only), <https://doi.org/10.1111/maps.13232>; open access web link to full report: <https://doi.org/10.1111/maps.13242>.
69. J. Lai^G, **B. Horgan**, J. Bell (2019), Assessing martian bedrock mineralogy through “windows” in the dust using near-infrared and thermal-infrared remote sensing, *Icarus*, doi:10.1016/j.icarus.2019.01.019
70. **R. Smith**^P, E. Rampe, **B. Horgan**, E. DeHouck (2018), Deriving amorphous component abundance and composition of rocks and sediments on Earth and Mars, *Journal of Geophysical Research - Planets*, doi: 10.1029/2018JE005612.

71. E. Rampe, 18 co-authors, **B. Horgan**, and 9 others (2018), Sand mineralogy within the Bagnold Dunes, Gale crater, as observed in situ and from orbit, *Geophysical Research Letters*, doi: 10.1029/2018GL079073.
72. **A. Rutledge^P**, **B. Horgan**, J. Havig, E. Rampe, **N. Scudder^G**, T. Hamilton (2018) Silica dissolution and precipitation in glaciated volcanic environments, and implications for Mars, *Geophysical Research Letters*, doi: 10.1029/2018GL078105.
73. T. Bristow, E. Rampe, C. Achilles, D. Blake, S. Chipera, P. Craig, J. Crisp, D. Des Marais, R. Downs, R. Gellert, J. Grotzinger, R. Hazen, **B. Horgan**, and 12 others (2018), Clay mineral diversity and abundance in sedimentary rocks of Gale crater, Mars, *Science Advances*, 4, doi: 10.1126/sciadv.aar3330.
74. **S. Ackiss^G**, **B. Horgan**, F. Seelos, W. Farrand, J. Wray (2018), Mineralogic evidence for subglacial volcanism in the Sisyphi Montes Region of Mars, *Icarus*, 311, 357-370, doi: 10.1016/j.icarus.2018.03.026.
75. H. Melosh, J. Kendall^G, **B. Horgan**, B. Johnson, T. Bowling, P. Lucey, G. Taylor (2017). South Pole-Aitken basin ejecta reveal the Moon's upper mantle, *Geology*, 45(12), 1063-1066.
76. L. Hays, H. Graham, **B. Horgan**, S. Potter-McIntyre, A. Williams, D. Des Marais, M. Parenteau, E. Hausrath, T. McCollom, K. Lynch (2017). Report from the Biosignature Preservation and Detection in Mars Analog Environments Workshop, *Astrobiology*, 17, 363-400, doi:10.1089/ast.2016.1627.
77. R. Smith^G, **B. Horgan**, P. Mann, E. Cloutis, P. Christensen (2017). Acid weathering of basalt and basaltic glass: II. Effects of microscopic alteration textures on spectral properties, *Icarus*, doi:10.1002/2016JE005112.
78. **B. Horgan**, R. Smith^G, P. Mann, E. Cloutis, P. Christensen (2017). Acid weathering of basalt and basaltic glass: I. Near-infrared spectra, mid-infrared spectra, and implications for Mars, *Icarus*, doi:10.1002/2016JE005111.
79. B. Ehlmann, 17 co-authors, **B. Horgan**, and 28 others (2016). The sustainability of habitability on terrestrial planets: Insights, questions, and needed measurements from Mars for understanding the evolution of Earth-like worlds, *Journal of Geophysical Research*, doi:10.1002/2016JE005134.
80. L. Fenton, J. Bishop, S. King, B. Lafuente^G, **B. Horgan**, D. Bustos, P. Sarrazin (2016). Sedimentary differentiation of aeolian grains at the White Sands National Monument, NM, USA, *Aeolian Research*, 26, 117-136, doi:10.1016/j.aeolia.2016.05.001.
81. K. Bennett^G, **B. Horgan**, L. Gaddis, B. Greenhagen, C. Allen, P. Hayne, J. Bell, and D. Paige (2016). Complex explosive volcanic activity within Oppenheimer Crater on the Moon, *Icarus*, 273, 296–314, doi:10.1016/j.icarus.2016.02.007.
82. R. Soare, **B. Horgan**, S. Conway, C. Souness, M. El Maarry (2015). Volcanic terrain and the possible periglacial formation of “excess ice” at the mid-latitudes of Utopia Planitia, Mars, *Earth & Planetary Science Letters*, 423, 182–192, doi:10.1016/j.epsl.2015.04.033.
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91. **B. Horgan**, J. Bell (2012). Widespread weathered glass on the surface of Mars, *Geology*, 40, 391-394, doi: 10.1130/G32755.1.
92. **B. Horgan**, J. Bell (2012). Seasonally active slipface avalanches in the north polar sand sea of Mars: Evidence for a wind-related origin, *Geophysical Research Letters*, 39, L09201, doi:10.1029/2012GL051329.
93. L. Fenton, M. Bishop, M. Bourke, C. Bristow, R. Hayward, **B. Horgan**, and 5 others (2010). Summary of the Second International Planetary Dunes Workshop: Planetary Analogs — Integrating Models, Remote Sensing, and Field Data. *Aeolian Research*, 2, 173-178, doi: 10.1016/j.aeolia.2010.09.001
94. **B. Horgan**, J. Bell, E. Noe Dobrea, E. Cloutis, D. Bailey, M. Craig, L. Roach, J. Mustard (2009). Distribution of hydrated minerals in the north polar region of Mars, *Journal of Geophysical Research*, 114, E01005, doi:10.1029/2008JE003187.
95. M. Kangas, M. Ansmann, **B. Horgan**, N. Lemaster, R. Leonardi, A. Levy, P. Lubin, J. Marvil, P. McCreary, T. Villela (2005). A 31 pixel flared 100-GHz high-gain scalar corrugated non-bonded platelet antenna array, *IEEE: Antennas and Wireless Propagation Letters*, 4, 245-248.
96. M. Kangas, M. Ansmann, K. Cosey, **B. Horgan**, R. Leonardi, P. Lubin, T. Villela (2005). A 100-GHz High-gain Tilted Corrugated Nonbonded Platelet Antenna, *IEEE: Antennas and*

Upcoming Manuscripts

1. **B. Horgan, A. Broz^P, and A. Klidas^G**. Clay stratigraphies, chapter in *Clays on Mars*, edited by Javier Cuadros, accepted.
2. **B. Garczynski^G, B. Horgan**, and 37 others. Rock coatings as evidence for late surface alteration on the floor of Jezero crater, Mars. Submitted to *Journal of Geophysical Research – Planets*.
3. **J. Haber^G, B. Horgan, A. Rudolph^G**, Widespread diagenesis at unconformities in Gale crater as observed from Curiosity and orbit. Submitted to *Journal of Geophysical Research – Planets*.
4. N. Tosca et al., In-situ evidence for serpentinization within the Maaz Formation, Jezero Crater, Mars. Submitted to *Nature*.
5. B. Kathir^G et al., Multispectral Observations of Float Rocks Used to Investigate the Origin of Boulders on the Western Jezero Fan Front, Mars. Submitted to *Journal of Geophysical Research – Planets*.
6. L. Chaves^G, M. Thompson, C. Dukes, M. Loeffler, **H. Vannier^G, B. Horgan**. Experimental simulations of space weathering on pentlandite. Submitted to *Meteoritics & Planetary Science*.
7. **A. Broz^P, B. Horgan, A. Klidas^G, and 4 others**. Weathering-climate feedbacks on early Mars. Submitted to *Science Advances*.
8. **R. Moore et al.** Martian clay stratigraphies influenced by a balance of physical and chemical weathering. Submitted to *Nature Astronomy*.

Other Publications

1. M. Mischna and **B. Horgan** (2023) [Mars Concurrent Exploration Science Analysis Group \(MCE-SAG\) Final Report](#), July 2023.
2. P. Niles, 9 co-authors, **B. Horgan**, and 6 co-authors (2023). [Science Objectives for Human Exploration of Mars Workshop Report](#), February 2023.
3. M. Rice and **B. Horgan** (2021) [NASA's Perseverance Rover Is Closer Than Ever to Finding Ancient Alien Life on Mars](#), *The Conversation*, October 2021.
4. **B. Horgan** (2021) The Perseverance Mars Rover: NASA's Next Giant Leap in the Search for Signs of Life Beyond Earth, [LPI Bulletin](#), January 2021.
5. Mars Architecture Strategy Working Group (MASWG), Jakosky, B., R. Zurek, 6 others, **B. Horgan**, 7 others (2020). [Mars, the Nearest Habitable World—A Comprehensive Program for Future Mars Exploration](#).
6. W. Calvin, N. Putzig, J. Holt, A. Bramdon, C. Dundas, B. Ehlmann, **B. Horgan**, G. Morgan, S. Murchie, W. Patterson, K. Seelos, H. Sizemore (2020) MORIE: Mars Orbiter for Resources, Ices, and Environments, [Planetary Mission Concept Study report](#).
7. **B. Horgan** and M. Rice (2020) NASA's big move to search for life on Mars – and to bring rocks home. [The Conversation](#), 7/30/2020.

8. **B. Horgan** and 18 co-authors (2020) The evolution of habitable environments on terrestrial planets: Insights and knowledge gaps from studying the geologic record of Mars ([White paper](#)). Submitted to the *Planetary Science & Astrobiology Decadal Survey*.
9. **B. Horgan** (2013). Planetary Science: Evolved Magma on Mars (News & Views). *Nature Geoscience*, doi:10.1038/ngeo2010.

Support: Current and Past

- 2025-2029 Co-Investigator, NASA Planetary Science Enabling Facilities (PI: Dr. Michelle Thompson). *Purdue Resources Enabling Coordinated Investigations of...*
- 2024-2027 Principal Investigator, NASA Mars Data Analysis Program (Science PI: Dr. Lingqi Zeng). *Remote sensing of impact-induced hydrothermal systems on Mars...*
- 2023-2026 Co-Investigator, NASA Mars Data Analysis Program
The climate record of polar outliers on Mars (PI: Dr. Mike Sori)
- 2021-2025 Principal Investigator, NASA Mars Data Analysis Program
Constraining the nature of Noachian surface environments and climates...
- 2021-2026 Long-Term Planner, Mars 2020 Mission
- 2021-2025 Co-Investigator, NASA Solar Systems Working Program
Between a rock and a frozen place: Cold-based glacial... (PI: Dr. Allie Rutledge)
- 2020-2021 Co-Investigator, NASA Planetary Mission Concepts Studies
Mars Orbiter for Resources, Ice, and Environment (PI: Prof. Wendy Calvin)
- 2020-2025 Co-Investigator, NASA Mars2020 Mission Phase E/EM1
Mastcam-Z: A Geologic, Stereoscopic, and Multispectral... (PI: Prof. Jim Bell)
- 2020-2023 Co-Investigator, NASA Lunar Data Analysis Program
Investigating Explosive Volcanic Deposits in the... (PI: Dr. Kristen Bennett)
- 2019-2023 Co-Investigator, NASA Solar System Workings Program
Investigating the Role of Sulfides and Fe-Oxide... (PI: Prof. Michelle Thompson)
- 2019-2022 Co-Investigator, NASA Lunar Data Analysis Program
Remote Sensing Investigations of Irregular Mare Patches... (PI: Dr. Julie Stopar)
- 2018-2023 Co-Investigator, NASA Planetary Science Through Analog Research Program, *SAND-E: Semi-Autonomous Navigation for Detrital...* (PI: Prof. Ryan Ewing)
- 2017-2018 Co-Investigator, NASA Planetary Science Deep Space SmallSats Program, *Chariot to the Moons of Mars* (PI: Prof. David Minton)
- 2016-2021 Principal Investigator, NASA MSL Participating Scientist Program
Using composition to constrain paleoenvironments and sites of organic...
- 2016-2019 Principal Investigator, NASA Solar System Workings Program
Icy environments on Mars: Investigating Glacial Weathering in Volcanic...
- 2016-2019 Co-Investigator, NASA Lunar Data Analysis Program
Lunar pyroclastic deposits: Windows to the Lunar Interior (PI: Dr. Lisa Gaddis)
- 2016-2019 Co-Investigator, NASA Mars Data Analysis Program
Determining the Distribution of Martian Chlorine Salts (PI: Dr. Jennifer Hanley)
- 2015-2020 Co-Investigator, NASA Mars2020 Mission Phases B-D
Mastcam-Z: A Geologic, Stereoscopic, and Multispectral... (PI: Prof. Jim Bell)
- 2013-2016 Principal Investigator, NASA Mars Data Analysis Program
Investigating the origin and alteration history of north polar sediments...

- 2012-2015 Co-Investigator, NASA Mars Data Analysis Program
Imaging and spectroscopic studies of the martian surface (PI: Prof. Jim Bell)
- 2010-2012 Fellow, Exploration Postdoctoral Fellowship, Arizona State University
Reconstructing ancient surface environments on Mars: Spectral and analog...
- 2008-2011 Student Co-I, NASA Mars Data Analysis Program
Mineralogic and morphologic studies of Mars and... (PI: Prof. Jim Bell)
- 2008-2010 Fellow, NASA Harriet G. Jenkins Pre-doctoral Fellowship
Minerals, ice, and dunes: Signs of water-related... (Mentor: Dr. Ken Tanaka)

Students and Postdocs Mentored

Students are listed by graduation year, with current position when known.

Postdocs by years advised (current position)

- 2023- Lingqi Zeng
- 2022- Adrian Broz
- 2016-2018 Rebecca Smith (Environmental Consultant, State of New Mexico)
- 2015-2019 Alicia Rutledge (Assistant Professor, Northern Arizona University)

PhD students

- 2028 Margaret Deahn
- 2027 Athanasios Klidas
- 2025 Hunter Vannier
- 2023 James Haber (Postdoc, Smithsonian Institution)
Brad Garczynski *NASA Early Career Collab. Award, EAPS K-12 Outreach Award*
(Postdoc, Western Washington University)
Amanda Rudolph *NSF Fellow, Amelia Earhart Fellow, LPI Career Development Award*
(Postdoc, Smithsonian Institution)
- 2022 Prakhar Sinha *NASA Future Investigator* (Postdoc, MIT)
- 2020 Marie Henderson *NSF Fellow, Amelia Earhart Fellow, EAPS Outstanding Graduate Student Award* (Postdoc, NASA Goddard Space Flight Center)
- 2018 Sheridan Ackiss *NASA Fellow, Purdue Doctoral Fellow* (Consultant, ESRI)

MS students

- 2023 Noel Scudder, *MS in Planetary Science, NASA Fellow, EAPS Andrews Fellow*
- 2018 Prakhar Sinha, *MS in Aeronautical and Astronautical Engineering*

Geodata Science Professional MS

- 2025 Rachel Caulfield
- 2022 Kirtee Ramo (*PhD student at Stony Brook Univ.*)

Undergraduate researchers by graduation year

- 2026 Laura Barratt, Sam Singer
- 2025 Chandler Albright, David Moore, Matt Winter
- 2024 Madison Schaefer (*MS student at Ohio State Univ.*)
- 2023 Adrienne Rudolph (*PhD student at Univ. Maryland*), Eshaana Aurora, Adler Edsel,

- Taylor Bourikas (*PhD student at UCF*), Ryan Navarre (*MS student at MSU*)
- 2022 Emma Rogers (*PhD student at Dartmouth College*)
- 2021 Henry Dawson (*PhD student at Wash. Univ.*), Briar Qualizza, Joseph Heidenreich
- 2020 Connor Tinker (*PhD student at Stony Brook Univ.*), Dan McGahan, Adam Lechowicz, Phoebe Kinzelman (*MS, Boise State Univ.; Glacial hydrologist, State of Oregon*), Rebecca Carmack (*PhD student at Northern Arizona Univ.*), Madeson Van Buskirk
- 2019 Ben Oxley (*PhD, Northwestern*), Bryan Howl (*MS, Stony Brook Univ.*), Jonathan Forss, Minna Rubio
- 2018 Laura Chaves Moreno (*PhD student at Purdue*), Brandon Smith
- 2017 John Riccione (*Founder & CEO at Classmate, LLC*), Aaron Campbell (*US Congressional staffer*), Rhianna Moore (*PhD student at Univ. Tennessee – Knoxville*), Elizabeth Spiers (*PhD student at Georgia Tech*)
- 2016 Ellen Czaplinski (*PhD, Univ. Arkansas, Postdoc at JPL*), Rachel Maxwell (*PhD at Univ. California – Santa Cruz, Postdoc at Stanford*), Caleb Engle (*MS, Colorado School of Mines*)
- 2014 Danielle Clarke (*Engineer, Intel*)

Graduate committees:

Marcella Yant (Stonybrook University Geological Sciences PhD 2017), Ya-Huei Huang (EAPS PhD 2018), Andy Hesselbrock (EAPS PhD 2018), Jordan Hill (IE PhD 2020), Carlisle Wishard (EAPS PhD 2023), Dara Laczniak (EAPS PhD 2023), Laura Chaves (EAPS PhD 2023), Eli Mansbach (MIT Geophysics PhD 2024), Alexander Kling (EAPS PhD 2025), Stephanie Menten (EAPS PhD 2026), Henry Manelski (EAPS PhD 2027), Steph Connell (EAPS PhD 2027), Santa Perez Cortes (EAPS PhD 2027), Grace Miller (MSU Biology PhD 2028), Noah Martin (EAPS PhD 2029)

Teaching Experience

- 2023-present **Undergraduate Committee Chair**, EAPS, Purdue University
- 2014-present **Curriculum Coordinator**, Planetary Science major.
- 2014-present **Faculty Instructor**, EAPS, Purdue University
EAPS 105 “The Planets”; EAPS 205 “Applied Planetary Science”; EAPS 556 “Planetary Surface Processes”, EAPS 577 “Remote Sensing of the Planets”, Grad seminars: Mars Exploration, Mars 2020 Landing Sites, Volcanism
- 2014-present **Advisor** for Undergraduate and Graduate Students, Purdue University
- 2009 **Field trip leader**, Cornell University, *Astro 577, “Planetary Surface Processes”*
- 2005-2006 **Graduate Teaching Assistant**, Cornell University
Astro 102, “Our Solar System”; Astro 310, “Planetary Image Processing”
- 2003-2005 **Undergraduate Teaching Assistant**, Oregon State University
Introductory and Advanced Physics courses
- 2003-2005 **Physics Department Tutor**, Oregon State University

Professional Service

Current roles:

- 2025-2026 **Vice Chair**, Mars Exploration Program Analysis Group

2024-present *Associate Editor*, Science Advances
2024-present *Chair*, Purdue College of Science Undergrad. Curriculum & Acad. Policy Comm.
2023-present *Chair*, Purdue EAPS Undergraduate Committee
2023-present *Elected Member*, Purdue EAPS Executive Committee
2020-2025 *Steering Committee*, Mars Exploration Program Analysis Group (MEPAG)
2014-present *Member*, Purdue EAPS Diversity, Equity, and Inclusion Committee

Past academic service:

2021-2023 *Invited Member*, Purdue Provost's Committee on Diversity and Inclusion
2021-2024 *Elected Member*, Purdue College of Science Faculty Council
2020-2022 *Chair*, Purdue EAPS Code of Conduct Ad Hoc Committee
2018-2020 *Elected Member*, Purdue EAPS Executive Committee
2006-2009 Cornell Graduate and Professional Student Assembly: *Co-founder*, Student Advocacy Committee; *Assembly Member* for the Physical Sciences; *Council of Representatives Member* for the Department of Astronomy
2007-2008 *Vice President*, Cornell Graduate Women in Physics
2006-2008 *Chair*, Cornell Department of Astronomy Planetary Lunch Seminar
2006-2008 *Founding VP and President*, Cornell Astronomy Graduate Network

Past scientific community leadership:

2023-2024 *Guest Associate Editor*, Mars 2020 Fan Front Special Issue, JGR – Planets
2022-2023 *Co-chair*, Mars Concurrent Exploration Science Analysis Group (MCE-SAG)
2019-2020 *Invited Member*, NASA Mars Strategic Architecture Committee (MASWG)
2018-2020 *Goals Committee*, NASA Mars Exploration Program Analysis Group (MEPAG)
2017-2018 *Invited Member*, International Mars Sample Return Objectives and Samples Team, International Mars Exploration Working Group
2017 *Invited Participant*, Keck Institute for Space Studies, Caltech
2016-2019 *Co-Organizer*, LPSC Early Career Planetary Faculty Lunch

Conference Organizing Committees:

2024 10th International Conference on Mars
2022 Science Objectives for Human Exploration of Mars
2019 9th International Conference on Mars
2018 Mars Amazonian Climate Workshop
2016 6th International Mars Polar Conference
2016 Biosignature Preservation Workshop
2015 4th International Planetary Dunes Workshop
2012 Third Planetary Dunes Workshop
2008 40th AAS Division of Planetary Science Meeting

Outreach activities:

2024 *Contributor and Panelist*, Boilers to Mars, Purdue Short Film
2024 *Invited talks*: Lafayette Kiwanis; GLC AAAE Airports Conf.
2023 *Invited talks*: Indianapolis Sciencetech; Purdue Science Student Council
2022 *Keynote Speaker*, Indiana STEM Education Conference
2022 *Invited talks*: Purdue Undergraduate Research Association; Indiana 4-H
2021 *Invited talks*: Rotary Club of Greater Lafayette; Purdue Women's Network;

Chicago Astronomical Society; Indiana 4-H
 2020 *Invited talks: Purdue Honors College Visiting Scholars*
 2017 *Instructor, Wabash Area Lifetime Learning Association*
 2012-2013 *Organizer, Salt River Pima-Maricopa Indian Community Science Fair*
 2010-2014 *Instructor and Advisor, Mars Student Imaging Program, ASU*
 2007-2009 *Initial Contacts Chair, Expanding Your Horizons Youth Conference, Cornell*

Invited Talks

2025 Jan. Northern Arizona University, APS Colloquium, Flagstaff, AZ
 Jan. University of Florida, Geology Colloquium, Gainesville, FL
 2023 Feb. Arizona State University, SESE Colloquium, Tempe, AZ
 July Goldschmidt 2023 Conference, Keynote Speaker, Lyon, France
 Oct. Washington University, EPS Colloquium, St. Louis, MO
 2022 Apr. University of Idaho Geology Colloquium, *virtual*
 Apr. University of California – Los Angeles Planetary Science Seminar, *virtual*
 May University of Chicago, Geophysical Sciences Seminar, Chicago, IL
 Oct. Indiana Univ. Medical School Colloquium, Bloomington, IN
 2021 Feb. Planetary Science Decadal Survey Panel on Mars, *virtual*
 Apr. University of Nevada – Reno Geology Colloquium, *virtual*
 Apr. Oregon State University Physics Colloquium, *virtual*
 Apr. Montana State Univ. Earth Sciences Colloquium, *virtual*
 Sept. Purdue – Fort Wayne Physics Colloquium, *virtual*
 2020 June Lunar & Planetary Institute Colloquium, *virtual*
 Sep. University of Notre Dame, Physics Colloquium, *virtual*
 Oct. University of California – Santa Cruz, *virtual*
 2019 Feb. University of Kentucky, Earth & Env. Sci. Seminar, Lexington, KY
 Mar. University of Michigan, Earth & Env. Sci. Seminar, Ann Arbor, MI
 Aug. Goldschmidt 2019 Conference, Keynote Speaker, Barcelona, Spain
 Sep. Southern Illinois University, Geology Colloquium, Carbondale, IL
 Sep. Purdue University, EAPS Colloquium, West Lafayette, IN
 2018 Feb. EPS Seminar Series, Northwestern University, Evanston, IL
 Apr. Earth & Env. Sciences Seminar, University of Illinois, Chicago, IL
 June Clay Minerals Society Annual Meeting, Champaign-Urbana, IL
 June Mars Workshop on Amazonian and Present Day Climate, Denver, CO
 July Star Quest, Central Appalachian Astronomy Club, Greenbank, WV
 Nov. ExoMars 5th Landing Site Selection Workshop, Leicester, UK
 Dec. American Geophysical Union Fall Meeting, Washington, D.C.
 2017 Jan. Texas A&M Geology & Geophysics seminar, College Station, TX
 Apr. Physics Colloquium, IUPUI, Indianapolis, IN
 2016 Feb. Purdue Back to Class alumni seminar, Naples, FL
 Mar. Geology Colloquium, Univ. of Cincinnati, Cincinnati, OH
 Apr. Purdue Meet the Dean alumni seminar, Indianapolis, IN
 July Purdue President’s Council Family Day, Chicago, IL
 Oct. SESE Colloquium, Arizona State University, Tempe, AZ

- Oct. Indiana Astronomical Society, Indianapolis, IN
- Oct. National Geographic Live! Mankind to Mars, Chicago, IL
- 2015 Feb. EPS Colloquium, State University of New York – Stonybrook, Stonybrook, NY
- May Seminar, NASA Goddard Space Flight Center, Greenbelt, MD
- June Seminar, Southwest Research Institute, Boulder, CO
- Sept. Dawn or Doom 2 Conference, Purdue University, West Lafayette, IN
- Nov. NASA Astrobiology Institute Seminar, University of Washington, Seattle, WA
- Dec. American Geophysical Union Fall Meeting, San Francisco, CA
- 2014 Nov. University of Tennessee EPS Colloquium, Knoxville, TN
- 2012 May Planetary Science Institute Seminar, Tuscon, AZ
- Nov. Harvey Mudd Physics Colloquium, Claremont, CA
- Nov. Geological Society of America Annual Meeting, Charlotte, NC
- 2011 April USGS Astrogeology Science Center Seminar, Flagstaff, AZ
- 2010 Aug. Buffalo State University Science Colloquium, Buffalo, NY
- 2009 April MIT Women in Aerospace Symposium, Cambridge, MA

Media Coverage

1. [Podcast Ep. 119: 'Boilers to Mars' Film Premiere Panel...](#), *Persistent Pursuit*, 10/17/2024.
2. [7 minutes of terror... a special episode](#), Castrol on Mars podcast series, 10/03/2024.
3. [Purdue premieres first short-film 'Boilers to Mars'](#), *The Exponent*, 09/13/2024.
4. *Purdue short film: Boilers to Mars* (2024)
5. [Perseverance rover is making a steep ascent to reach unexplored Mar...](#), *CNN*, 08/24/2024.
6. [Accidentally exposed yellowish-green crystals reveal 'mind-blowing'...](#), *CNN*, 07/20/2024.
7. [NASA's Perseverance rover may have just found what it was looking...](#), *CNN*, 07/26/2024.
8. [What mud cracks on Mars tell us about whether life could...](#), *PBS Newshour*, 09/29/2023.
9. [Mars region offers NASA rover environment to search for...](#) *Purdue News*, 09/20/2023.
10. [What has Perseverance found in two years on Mars?](#), *Science News*, 02/17/2023.
11. [NASA's Perseverance rover opens a window to Mars' watery past](#), *Space.com*, 11/23/2022.
12. [The sands of Mars are green as well as red, rover Perse...](#), *Purdue News*, 08/25/2022.
13. [Perseverance: Nasa rover begins key drive to find life on Mars](#), *BBC*, 05/22/2022.
14. [Enigmatic Rocks On Mars Show Evidence Of A Violent Origin](#), *Space Ref*, 04/26/2022.
15. [NASA's Perseverance Rover Is Hunting for Ancient Life](#), *Popular Mechanics*, 03/19/2022.
16. [Perseverance rover's second year on Mars to focus on rock samples...](#), *UPI*, 02/18/2022.
17. [NASA's Perseverance rover marks its first year hunting for...](#), *NPR*, 02/18/2022.
18. [A year after landing on Mars, Perseverance rover sets sights on ...](#), *CNN*, 02/18/2022.
19. [NASA's Perseverance rover prepares for its longest Mars drive yet](#), *Axios*, 02/17/2022.
20. [A year on Mars & the gift of space](#), *NPR Are We There Yet? Podcast*, 02/15/2022.
21. [Purdue professor, Perseverance member preparing for...](#), *Purdue news*, 02/14/2022.
22. [Purdue professor, Mars rover mission team member looks...](#), *Lafayette J&C*, 01/23/2022.
23. [This Martian Wasteland Was Once a Lake](#), *The Atlantic*, 10/07/2021.
24. [See some of the most intriguing photos from NASA's Perse...](#), *Science News*, 08/19/2021.
25. [Excitement as Mars rover drills first rock core for return to Earth](#), *Nature*, 08/06/2021
26. [Perseverance rover prepares to collect Martian samples that...](#), *CNN*, 07/22/2021.
27. [The Focus: Wednesday April 21](#), *Radio Adelaide (AU)*, 04/21/2021.

28. [Purdue Scientist Discusses Role in NASA's...](#), *This is Purdue Podcast*, 04/29/2021.
29. [Where did Mars's liquid water go? A new theory...](#), *National Geographic*, 3/16/2021.
30. [The Focus: Tuesday March 2](#), *Radio Adelaide (AU)*, 03/02/2021.
31. [Purdue Prof. Discusses work on Mars rover team](#), *WLFI*, 02/25/2021.
32. ['You only get one shot': Purdue professor part of NASA...](#), *Journal & Courier*, 02/20/2021.
33. [What we're learning for NASA's Perseverance Mars...](#), *NPR Here & Now*, 02/25/2021.
34. Red Planet 'touchdown' kicks off hunt for ancient... (print), *Washington Post*, 02/22/2021.
35. Mars (special print issue + map), *National Geographic*, 02/2021.
36. [Mars landing: Nasa's Perseverance rover in 'great shape'](#), *BBC News*, 02/19/2021.
37. [NASA Mars rover: Perseverance robot all set for big test](#), *BBC News*, 02/18/2021.
38. [LIVE STREAM: Watch NASA's Perseverance Rover Land on Mars...](#), *Vice News*, 02/18/2021.
39. [NASA's fifth Mars rover, Perseverance, makes historic landing](#), *Al Jazeera*, 02/18/2021.
40. [NASA Rover Successfully Lands On Mars, Begins Search...](#), *NPR Here and Now*, 02/18/2021.
41. [NASA's rover is on Mars. What happens next is up to Washington.](#), *Politico*, 02/18/2021.
42. [NASA Rover Survives 7 Minutes of Terror, Lands on Mars in...](#), *Daily Beast*, 02/18/2021.
43. [NASA's Perseverance rover lands on Mars](#), *PBS News Hour*, 02/18/2021.
44. [What a lake in Turkey can tell us about Mars](#), *NASA Earth Observatory*, 02/17/2021.
45. [How NASA Aims to Achieve Perseverance's High-Stakes...](#), *Scientific American*, 02/17/2021.
46. [NASA's Perseverance rover ready to search for signs of ancient...](#), *LA Times*, 02/17/2021.
47. [Explore Jezero Crater, the future home of NASA's Perseverance rover](#), *CNN*, 02/16/2021.
48. Live interview, 4pm Newscast, *Fox 59 News*, 02/16/2021.
49. [The hunt for life on Mars: A visual guide to NASA's latest mission](#), *Nature*, 02/16/2021.
50. [Upcoming Mars rover landing marks latest step in research...](#), *Purdue News*, 02/15/2021.
51. *Mars mach mobil*, *Neue Zürcher Zeitung* (Swiss newspaper, printed), 02/14/2021.
52. [NASA's Perseverance rover is about to land on Mars...](#), *New Scientist*, 02/11/2021.
53. [Mars professor searching for signs of the red planet's...](#), *Purdue News*, 02/11/2021.
54. [Search For Life On Mars Aided By Purdue Expert](#), *WBAA*, 02/09/2021.
55. [Purdue scientist reflects on her passion for studying Mars'...](#), *Purdue News*, 02/09/2021.
56. [Panelist: Perseverance Mars Rover Pre-Landing News Conference](#), NASA, 01/27/2021
57. [Purdue's Connection to NASA's Perseverance...](#), *Full Steam Ahead Podcast*, 10/20/2020.
58. [Solar System Smackdown: Mars v. Venus](#), *NPR Science Friday*, 10/09/2020.
59. [Is there other life in the universe? Purdue scientist is...](#), *Purdue News*, 09/28/2020.
60. [Lake Salda, Turkey Shares A Similar Mineralogy...](#), *NASA Press Release*, 07/31/2020.
61. [NASA Goes Looking for Tiny Ancient Martians](#), *The Atlantic*, 7/30/2020.
62. [Jez like Mars](#), *NASA Earth Observatory*, 7/30/2020.
63. [With Perseverance, NASA launches new stage in ...](#), *Christian Science Monitor*, 7/30/2020.
64. [Purdue scientist plays a critical role in 2020 NASA Mars...](#), *Purdue News*, 7/30/2020.
65. [NASA's Perseverance rover will seek signs of past life on Mars](#), *Science News*, 07/28/2020.
66. [The end of the beginning of Mars exploration](#), *Axios*, 7/28/2020.
67. [Mars \(probably\) has a lake of liquid water](#), *Science News*, 07/25/2020.
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