

Kirsten L. Siebach, Ph.D.

Assistant Professor at Rice University

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EDUCATION

- Ph.D. in Geology, California Institute of Technology, June 2016, Advisor: John Grotzinger, Thesis: Formation and Diagenesis of Sedimentary Rocks in Gale Crater, Mars.
- B. A. in Earth & Planetary Science and Chemistry, Washington University in St. Louis, minor in English Literature, *summa cum laude*, May 2011, Advisor: Raymond Arvidson.

PROFESSIONAL EXPERIENCE

Assistant Professor <i>Dept of Earth, Environmental, and Planetary Sci., Rice University</i>	2018 – present
Visiting Assistant Professor, <i>McDonnell Center for Space Sciences, Wash U in St. Louis</i>	2021 – present
Mars 2020 Perseverance Science and Operations Team <i>NASA</i>	2020 – present
Mars Science Laboratory Science and Operations Team Collaborator <i>NASA</i>	2011 – present
Mars Exploration Rover Science and Operations Team Collaborator <i>NASA</i>	2010, 2012 – 2019
Postdoctoral Associate <i>Department of Geosciences, Stony Brook University</i>	2016 – 2017
Graduate Research Assistant <i>Division of Geological and Planetary Sci., Caltech</i>	2011 – 2016
NASA Student Airborne Research Program Intern <i>NASA Airborne Science Program</i>	2011
Undergraduate Research Assistant <i>Washington University in St. Louis</i>	2007 – 2011
Undergraduate Research Intern <i>Smithsonian Air and Space Museum</i>	2010
Mars Phoenix Lander Science and Operations Team Collaborator <i>University of Arizona</i>	2008
Science and Engineering Apprenticeship Program Intern <i>Naval Research Laboratory</i>	2006 – 2007

HONORS AND AWARDS

- American Association of Petroleum Geologists Halbouty Lecturer (2026)
- NASA Group Achievement Award: Mars 2020 Campaign Planning Team (2025)
- NASA Group Achievement Award: Mars 2020 Jezero Western Fan & Margin units Team (2025)
- Rice University Outstanding Undergraduate Research Mentor Award (2020, 2024)
- American Association of Petroleum Geologists Harrison Schmitt Award (2023)
- Rice University Natural Sciences Award for Excellence in Outreach (2022)
- Editors' Citation for Excellence in Refereeing - JGR-Planets (2020)
- New Orleans Geological Society Best Presentation Award (2019)
- Early Career Scholarship from NASA Astrobiology Institute for partial support to attend Astrobiology Grand Tour in Western Australia (2018)
- NASA Group Achievement Award: MSL Extended Mission-1 Science and Operations Team (2017)
- NASA Group Achievement Award: MSL Prime Mission Science and Operations Team (2015)
- ExxonMobil/GSA Student Science Award (2014)
- NASA Group Achievement Award: MER Science Development and Operations Team (2014)
- NASA Group Achievement Award: MSL Science Development and Operations Team (2013)
- National Science Foundation Graduate Research Fellowship Honorable Mention (2013)
- Washington University "Outstanding Graduate" recognition (Fall 2011)
- Courtney A. Werner Memorial Prize for outstanding academic achievement in the Earth and Planetary Sciences at Washington University in St. Louis (Fall 2011)

- NASA Group Achievement Award: Phoenix Mission Team (2008)
- Washington University Dean's list 5 semesters (2007-2011)
- Deans Honorary Scholarship at Washington University (2007-2011)
- Fossett Fellowship: annual funding for research activities (2008-2011)

TEACHING EXPERIENCE

University Courses for Undergraduate and/or Graduate Students

- **EEPS 111 *Inhabiting Planet Earth***, developed “flipped classroom” introductory course about why Earth is habitable from formation to climate change, part online, co-taught with Prof. Dee in F20 and F22, taught F21, F25, F26
- **EEPS 114 *Discoveries in EEPS Seminar***, different faculty introduce themselves and their labs each week for undergraduate students. Participated F21, S22, F22, S23, F23, S24, S25, F25, Taught F24
- **EEPS 203 *Undergraduate Field Trip Seminar***, co-taught undergraduate field trip to Portland, Oregon with Prof. Melodie French S25
- **EEPS 425/625 *Planetary Surface Processes***, developed course on the processes responsible for the formation and modification of solar system surfaces, Rice University, S19, S23, S25
- **EEPS 435/635 *Remote Sensing***, developed course on using electromagnetic radiation to learn about Earth, life, and other planets via satellite, airborne, and other remote sensing datasets, F22, S24, S26
- **EEPS 537 *Sedimentology Seminar***, graduate student reading seminar covering planetary and sedimentology papers, S22, F22, S23, S24, F24, S25, F25, S26, F26
- **EEPS 334 *Geological Field Techniques*** undergraduate course covering field methods and geologic mapping with a spring break trip to NM. Helped with trip and GIS teaching in S19 with Prof. Gonnermann, co-taught course in S20 with Prof. Lee but field trip cancelled for COVID, used ArcGIS remotely to visualize and map the field site
- **EEPS 536 *Type Locale Field Trip***, graduate student enrichment course with an early summer field trip to NM, CO, UT, AZ, S20 (field trip cancelled due to COVID-19)
- **EEPS 557 *Special Topics: Water on Mars***, graduate student reading seminar covering water on Mars from accretion to surface water, atmospheric escape, and to the present, S20
- **Guest Lectures** in BIOS/HIST Astrobiology, PHYS 145 Traces of Life, Fort Lewis College Sedimentology in addition to those mentioned above

Non-traditional Additional Teaching Experience

- **Glasscock School of Continuing Studies at Rice University**
 - ***Driving Curiosity: The Evolution of Martian Science***, recorded lectures and activity session for Lifelong University initiative, F25
 - ***Missions to Mars: Exploration of the Red Planet***, online short course for continuing education students, F21, S22, F22
 - ***Midweek Medley***, in-person lecture for continuing education students, F19, S22
- **Instructor of Record *Exploring Mars***, NASA Endeavor Online Teaching Program (8 week online course for K-12 teachers), S18
- **Instructor of Record *Eyes on Earth***, NASA Endeavor Online Teaching Program (8 week online course for K-12 teachers), Summer 2017
- ***Geology Teacher Schooling for Life American Frontiers Trip***, 2 week field trip for home-schooled high school students, Summer 2016
- ***Martian Explorations*** Institute for Educational Advancement, developed and taught 8 week after-school classes for gifted elementary school students in Spring 2014, Fall 2014, and Winter 2015

Teaching Assistant Experience

- **Field and Teaching Assistant *Ireland Geological Field Course***, James Madison University, 2 weeks, Summer 2015
- **Teaching Assistant *Remote Sensing***, Caltech Graduate Course, Spring 2013 and Spring 2015
- **Teaching and Lab Assistant *Intro to Geology***, Caltech Undergraduate Course, Fall 2014
- **Teaching and Lab Assistant *Land Dynamics***, Washington University in St. Louis, Spring 2008, Spring 2009, and Spring 2010

STUDENT ADVISING

Context note: In geoscience, it is common to have group sizes with ~2-5 PhD students

Current Advisees

- **Undergraduate:**
 - Nat Pujet (expected graduation 5/2027)
- **PhD Students:**
 - Eleanor Moreland (started Fall 2021, passed qualifying exam 4/2023)
 - Jack Henry (started Fall 2022, passed qualifying exam 5/2024)
 - Daniel Sikes (started Fall 2025)
 - Laurel Bourg (accepted, will start Fall 2026)
- **Postdoctoral Scholars:**
 - Christina Seeger (started November 2025)

Past Advisees

- **Summer Students:**
 - Abigail Mebane (2023, Rice Planetary Habitability REU Program)
 - Sako Sunami (Spring 2023, TOMODACHI program for women from Tohoku University)
- **Undergraduate:**
 - Seunggyu Shin (Fall 2024)
 - Ariaan Ghatate (Spring 2024)
 - Marlo Wilcox (2021-2024, did Masters at Cambridge, starting PhD at University of Utah)
 - Senior Honors Thesis: Vikings, Volcanoes, and Satellites: An Analysis of Icelandic NDVI Trends and the Problem of Scale in Vegetation Remote Sensing
 - Sarah Preston (2020- 2023, now PhD student at UCLA)
 - Senior Honors Thesis: Differences between modern and ancient Martian grain size distributions may reveal different paleoatmospheric conditions and provenance
 - Bavan Rajan (2023, now PhD student at WashU)
 - Senior Honors Thesis (Environmental Science): Report on Degradation of “Scholar’s Way” for the Museum of Fine Arts, Houston
 - Astra Burke (Spring 2021)
 - Jessica Sheldon (2018-2021, now Flood Resilience Planner at Arcadis)
 - Senior Honors Thesis: When is Drone Photogrammetry Useful for Flood Risk Assessment?
 - Madison Morris (2019-2021, now PhD student at Stony Brook University)
 - Senior Honors Thesis: Characterizing Multiple Episodes of Fluid Alteration within Stimson Fracture Halos, Gale Crater, Mars
- **Graduate Students:**
 - Audrey Putnam (Fall 2020, defended PhD 12/9/2025, currently remote Research Assistant for Rice) Thesis title: Investigating geological evidence of lava-water interaction in outcrop, alteration stoichiometry, and downstream sedimentary detritus
 - Rostislav Kovtun (Spring 2020-Fall 2021, now researcher at NASA-JSC)

- **Postdoctoral Scholars:**

- Valerie Payre (2018-2020, now Assistant Professor at University of Iowa)
- Michael Thorpe (2018-2020, now Mars Scientist at NASA-Goddard)

Current Thesis Committee Member for

- Amelia Bettati (Rice, EEPS, PhD, advisor Bidong Zhang)
- Thembi Chaza (Rice, EEPS, PhD, advisor Carrie Masiello)
- Jiale Mou (Rice, EEPS, PhD, advisor Rajdeep Dasgupta)

Past Thesis Committee Member for

- Rahul Sudhakar, Masters, Spring 2019 (Rice, EEPS, advisor Andre Droxler)
- Leah Hall, Masters, Spring 2019 (University of Houston)
- Trevor Cole, Masters, Spring 2020 (Rice, EEPS, advisor Mark Torres)
- Chenliang Wu, PhD, Spring 2020 (Rice, EEPS, advisor Jeffrey Nitttrouer)
- Tanyel Baykut, Masters, Fall 2020 (Rice, EEPS, MS, advisor Andre Droxler)
- Anthony Giljum Spring 2020 (Rice, Applied Physics/Electrical Engineering, Masters, advisor Kevin Kelly)
- Emily Falkson, Masters, Spring 2021 (Rice, EEPS, MS, advisor Rajdeep Dasgupta)
- Eric Barefoot, PhD, Spring 2021 (Rice, EEPS, advisor Jeffrey Nitttrouer)
- Alison Farrish, PhD, Spring 2021 (Rice, Physics & Astronomy, advisor David Alexander)
- Laura Flagg, PhD, Spring 2021 (Rice, Physics & Astronomy, advisor Christopher Johns-Krull)
- Haolin Zhao Fall 2022 (Rice, EEPS, qualifying exam committee member, advisor Mark Torres)
- Maria Rodriguez, Fall 2023 (Rice, EEPS, MS, advisor Rajdeep Dasgupta)

STUDENT AWARDS

- 2026 Department Service Award in EEPS to Eleanor Moreland
- 2026 Outstanding Graduate Student Award to Audrey Putnam
- 2026 Eugen Merten Memorial Prize in Geology & Geophysics to Nat Pujet
- 2025 Douglas and Martha Lou Broussard Fellowship to Eleanor Moreland
- 2024-2025 Texas Space Grant Consortium Graduate Fellowship to Eleanor Moreland
- 2024 Wagoner Foreign Study Scholarship to Marlo Wilcox
- 2022-2023 Allison Henning Teaching Award in EEPS to Eleanor Moreland
- 2022-2023 Peter Vail Fellowship in Earth, Environmental, and Planetary Sciences to Audrey Putnam
- 2021-2022 Outstanding Undergraduate Student Award to Sarah Preston
- 2021 AGU Soffen Memorial Fund Travel Grant to Sarah Preston
- 2021 Top 10% of presentations at Rice Undergraduate Research Symposium to Sarah Preston

PEER-REVIEWED PUBLICATIONS – IN PREP

Only includes drafted publications with first authors in my group

- [◇]Wilcox et al. - Quantifying Influences of Spatial and Temporal Resolution on Icelandic Vegetation Trends
- Siebach et al. - The Upper Fan Campaign of the Mars 2020 Perseverance Rover on the Western Delta of Jezero Crater
- ^{*}Henry et al. – An expanded LIBS calibration using multiple laser energies to model realistic variability in exploratory LIBS datasets

PEER-REVIEWED PUBLICATIONS – SUBMITTED

Context note: In planetary geoscience, author order is typically in order of contribution, with groups of authors with similar contribution levels sorted by alphabetical order

Symbols denote [◇]undergraduate, *graduate student or †postdoctoral author in my group

58. ***Putnam, A. R., K. L. Siebach**, G. Costin, S. Rahman, (submitted) Stoichiometric Clustering in Microprobe Measurements of Enigmatic Palagonite.
57. Treiman, A. K. P. Hand, T. Kizovski, L. O'Neil, E. Clavé, O. Beyssac, F. Poulet, T. Fouchet, C. Quantin-Nataf, A. Vaughan, J. R. Johnson, M. Cable, A. Udry, J. A. Hurowitz, M. M. Tice, Y. Liu, B. C. Clark, S. J. VanBommel, M. E. Schmidt, E. Dehouck, B. Horgan, **E. L. Moreland***, **K. L. Siebach**, D. Klevang, M. W.M. Jones, B. Ganly, A. C. Allwood, (submitted) An Aluminous Impact Melt Rock, Jezero Crater, Mars: Chemistry, Mineralogy, and Source in Aqueously Altered Basalt.
56. Mandon, L., N. Mangold, O. Forni, E. Dehouck, P. Beck, O. Beyssac, S. Schröder, Y. Phua, J. A. Hurowitz, Z. U. Wolf, E. Clavé, **E. L. Moreland***, W. Rapin, A. J. Jones, J. R. Johnson, T. Fouchet, J. I. Simon, S. Silijeström, R. Barnes, C. C. Bedford, M. S. Bramble, A. J. Brown, A. P. Broz, E. L. Cardarelli, S. A. Connell, E. Cloutis, B. J. Garczynski, B. H. Horgan, R. S. Jakubek, H. Kalucha, A. Klidas, H. Manelski, A. Murphy, C. Royer, M. S. Rice, P. S. Russell, A. H. Treiman, K. Uckert, A. Udry, A. C. Pascuzzo, **K. L. Siebach**, J. F. Bell III, K. P. Hand, S. Hamran, A. Cousin, R. C. Wiens, (submitted) Complex diagenetic history of organic-bearing sedimentary rocks in Neretva Vallis, Mars.
55. Labrie, J., M. Schmidt, T. Kizovski, J. Hurowitz, K. Ramo, L. Hallis, N. Moore, **K. L. Siebach**, **E. L. Moreland***, F. Thiessen, D. Klevang, A. Allwood, M. Cable, M. Tice, M. Jones, F. Willcocks, J. Bridges, (submitted) Mars 2020 PIXL-analogous petrological characterization of Mars Sample Return Jezero Crater Floor terrestrial analogue igneous rocks from Rùm, Scotland and Hart Mountain, OR, USA.
54. Caravaca, G., N. Mangold, R. M. E. Williams, S. Gupta, **K. L. Siebach**, K. M. Stack, R. Barnes, L.S. Crumpler, G. Dromart, L.C. Kah, L.R.W. Ives, S. Gwizd, O. Gasnault, S. Le Mouélic, O. Beyssac, J.A. Hurowitz, M.M. Tice, J.W. Rice, N. Carlot, M. Nachon, N. Randazzo, J.F. Bell III, E. Dehouck, A. Annex, J.I. Simon, A. Cousin, S. Maurice, R.C. Wiens, (in review) Forced regression in Lake Jezero (Mars), recorded by downstepping deltaic geometries observed by Perseverance rover.
53. Tamborski, J. S. Rahman, M. T. Thorpe, M. O. Sarker, D. Burdige, **A. Putnam***, **M. Wilcox[◇]**, **K. L. Siebach**, E. B. Rampe, (in review) A novel approach to determining chemical weathering rates and secondary phase formation in groundwater-surface water mixing zones.
52. Gwizd, S., K. Stack, M. P. Lamb, L. R. Ives, S. Gupta, A. Vaughan, S. F. Sholes, R. E. Kronyak, N. Randazzo, J. I. Simon, L. S. Crumpler, J. Rice, B. H. Horgan, L. C. Kah, N. Cavallo, N. R. Williams, R. Barnes, O. Cianciolo, C. Quentin-Nataf, O. Beyssac, V. Z. Sun, D. Shuster, J. R. Voigt, J. F. Bell III, J. N. Maki, **K. L. Siebach**, M. Nachon, (in review) Depositional history of the Otis Peak formation, Western fan, Jezero crater, Mars.

PEER-REVIEWED PUBLICATIONS – ACCEPTED

2026

51. ***Moreland, E. L.**, M. S. Bramble, **K. L. Siebach**, A. C. Pascuzzo, M. M. Morris, S. J. VanBommel, M. W. Jones, S. Siljeström, A. Shrivastava, A. H. Treiman, J. A. Hurowitz, (2026) [Alteration of a mantle-derived dunite boulder in Jezero Crater, Mars](#). *Geophysical Research Letters*, DOI: 10.1029/2025GL121438.
50. ***Putnam, A. R., K. L. Siebach**, M. T. Thorpe, V. Tu, E. B. Rampe, C. C. Bedford, G. Costin, J. Tamborski, (2026) [Testing the Limits of Provenance Analysis from Basaltic Fluvial Sediment near Sandvatn, Iceland, as a Mars Analog](#). *Journal of Geophysical Research: Planets*, DOI:10.1029/2025JE009400.

49. Orenstein, B. J., D. T. Flannery, M. W. M. Jones, **E. L. Moreland***, **K. L. Siebach**, M. M. Tice, A. H. Treiman, B. Horgan, B. Kamber, A. Klidas, L. Nothdurft, Y. Liu, E. Cloutis, A. C. Allwood, S. VanBommel, (2026) [Igneous and sedimentary origins of Jezero crater units from X-ray crystal mapping on Mars](#). *Communications Earth & Environment*, DOI: 10.1038/s43247-026-03227-2.
48. ***Moreland, E. L.**, S. K. Dee, Y. Jiang, G. Bischof, M. Mischna, N. Hartigan, J. Russell, J. Moores, **K. L. Siebach**, (2026) [Seasonal ice cover could allow liquid lakes to persist in a cold Mars paleoclimate](#). *AGU Advances*, 7,1, e2025AV001891. DOI: 10.1029/2025AV001891.

2025

47. Ives, L. R. W., K. M. Stack, E. C. Geyman, S. Gupta, G. Caravaca, **K. L. Siebach**, S. Gwizd, J. P. Grotzinger, M. P. Lamb, N. Mangold, O. Kanine, R. Barnes, P. Russell, J. Núñez, J. I. Simon, B. P. Weiss, A. Yingst, S. Sharma, S. Le Mouélic, J. Huggett, A. Pascuzzo, B. Wogsland, W. W. Fischer, N. Randazzo, (2025) [Sedimentology and stratigraphy of the fluvial-deltaic Skrinkle Haven member, Tenby formation, Jezero Crater, Mars](#). *Journal of Sedimentary Research* 95(6): 1080–1113. DOI: 10.2110/jsr.2025.019.
46. ***Henry, J. D.**, **K. L. Siebach**, M. D. Dyar, K. H. Lepore, C. R. Ytsma, (2025) [Predicting Geochemistry in Geological Samples Using Laser-Induced Breakdown Spectroscopy \(LIBS\): Effects of Compositional and Textural Outliers](#). *Spectrochimica Acta Part B: Atomic Spectroscopy*, 235. DOI: 10.1016/j.sab.2025.107376.
45. ***Moreland E. L.**, **K. L. Siebach**, G. Costin, M. M. Tice, J. A. Hurowitz, A. H. Treiman, J. I. Simon, Y. Liu, Y. Jiang, A. Udry, and E. Dehouck, (2025) [Multiple Episodes of Fluid Alteration in Jezero Crater Indicated by MIST Mineral Identifications in PIXL XRF Data From the First 1100 Sols of the Mars 2020 Mission](#). *Journal of Geophysical Research: Planets*, 130(9). DOI: 10.1029/2024JE008797.
44. Hurowitz, J. A., M. M. Tice, A. C. Allwood, M. L. Cable, K. P. Hand, A. E. Murphy, K. Uckert, J. F. Bell, 3rd, T. Bosak, A. P. Broz, E. Clave, A. Cousin, S. Davidoff, E. Dehouck, K. A. Farley, S. Gupta, S. E. Hamran, K. Hickman-Lewis, J. R. Johnson, A. J. Jones, M. W. M. Jones, P. S. Jorgensen, L. C. Kah, H. Kalucha, T. V. Kizovski, D. A. Klevang, Y. Liu, F. M. McCubbin, **E. L. Moreland***, G. Paar, D. A. Paige, A. C. Pascuzzo, M. S. Rice, M. E. Schmidt, **K. L. Siebach**, S. Siljestrom, J. I. Simon, K. M. Stack, A. Steele, N. J. Tosca, A. H. Treiman, S. J. VanBommel, L. A. Wade, B. P. Weiss, R. C. Wiens, K. H. Williford, R. Barnes, P. A. Barr, A. Bechtold, P. Beck,...Z. U. Wolf. (2025) [Redox-Driven Mineral and Organic Associations in Jezero Crater, Mars](#). *Nature*, 645, 332-340. DOI: 10.1038/s41586-025-09413-0.
43. **Siebach, K. L.**, **E. L. Moreland***, G. Costin, Y. Jiang, (2026) [MIST: An Online Tool Automating Mineral Identification by Stoichiometry](#). *Computers & Geosciences*, 206, 106021. DOI: 10.1016/j.cageo.2025.106021.
42. Kizovski, T. V., M. E. Schmidt, L. O'Neil, M. W. M. Jones, N. J. Tosca, D. A. Klevang, J. A. Hurowitz, C. T. Adcock, E. M. Hausrath, **K. L. Siebach**, Z. U. Wolf, S. Sharma, S. J. VanBommel, F. M. McCubbin, E. Cloutis, M. L. Cable, Y. Liu, B. C. Clark, A. H. Treiman, M. M. Tice, D. C. Catling, J. Maki, T. J. Bosak, B. P. Weiss, A. G. Fairén, J. R. Christian, A. L. Knight, N. R. Randazzo, P. S. Jørgensen, P. Lawson, L. Wade, C. Heirwegh, W. T. Elam, A. C. Allwood. (2025) [Fe-phosphates in Jezero Crater: Chemical, Structural, and Spectral Evidence for an Ancient Habitable Environment on Mars](#). *Nature Communications*, 16(1), 6470. DOI: 10.1038/s41467-025-60026-7.
41. Jones, M. W. M., D. T. Flannery, J. A. Hurowitz, M. T. Tice, C. E. Schrank, A. C. Allwood, N. J. Tosca, D. C. Catling, S. J. VanBommel, A. L. Knight, B. Ganly, **K. L. Siebach**, K. C. Benison, A. P. Broz, M.-P. Zorzano, C. M. Heirwegh, B. J. Orenstein, B. C. Clark, K. P. Sinclair, A. O. Shumway, L. A. Wade, S. Davidoff, P. Nemere, A. P. Wright, A. E. Galvin, N. Randazzo, J. Martinez-Frias, L. P. O'Neil. (2025) [In-situ crystallographic mapping constrains sulfate deposition and timing in Jezero crater, Mars](#). *Science Advances*, 11(16), eadt3048. DOI: 10.1126/sciadv.adt3048.

40. Lee, C.-T., D. Keller, R. Dasgupta, **K. Siebach**, P. McGovern, J. Borchardt, J. Zhang. (2025) [Crustal thickness effects on chemical differentiation and hydrology on Mars](#). *Earth and Planetary Science Letters*, 651. DOI: 10.1016/j.epsl.2024.119155.

2024

39. ^o**Preston, S. L., K. L. Siebach**, M. G. A. Lapôtre, S. Banham. (2024) [Grain Size Measurements of the Eolian Stimson Formation, Gale Crater, Mars and Implications for Sand Provenance and Paleatmospheric Conditions](#). *Journal of Geophysical Research: Planets*, 129(11). DOI: 10.1029/2024JE008369.
38. ***Putnam, A. R., K. L. Siebach**, C. C. Bedford, S. Simpson, M. T. Thorpe, J. J. Tamborski, E. B. Rampe. (2024) [Ice-marginal volcanic sequence in Iceland found on a nondescript gradual hillslope: An unexpected record of ice thickness late in deglaciation](#). *Journal of Volcanology and Geothermal Research*, 455. DOI: 10.1016/j.jvolgeores.2024.108195.
37. Blake, D., V. Tu, T. Bristow, E. Rampe, D. Vaniman, S. Chipera, P. Sarrazin, R. Morris, S. Morrison, A. Yen, R. T. Downs, R. M. Hazen, A. Treiman, D. Ming, G. Downs, C. Achilles, N. Castle, T. Peretyazhko, D. De Marais, P. Craig, B. Lafuente, B. Tutolo, E. Hausrath, S. Simpson, R. C. Walroth, M. Thorpe, J. Meusburger, A. Pandey, M. Gailhanou, P. Dera, J. Berger, L. Thompson, R. Gellert, A. McAdam, C. D. O'Connell-Cooper, B. Sutter, J. M. Morookian, A. Fraeman, J. Grotzinger, **K. Siebach**, S. Madsen, and A. Vasavada. (2024) [The Chemistry and Mineralogy \(CheMin\) X-ray Diffractometer on the MSL Curiosity Rover: A Decade of Mineralogy from Gale Crater, Mars](#). *Minerals*, 14(6). DOI: 10.3390/min14060568.
36. Banham, S. G., A. L. Roberts, S. Gupta, J. M. Davis, L. M. Thompson, D. M. Rubin, G. Paar, **K. L. Siebach**, W. E. Dietrich, A. A. Fraeman, A. R. Vasavada, (2024) [Ice? Salt? Pressure? Sediment deformation structures as evidence of late-stage shallow groundwater in Gale crater, Mars](#). *Geology*, 52(7), 492-496. DOI: 10.1130/G51849.1.

2022

35. Thorpe, M. T., T. F. Bristow, E. B. Rampe, N. J. Tosca, J. P. Grotzinger, K. A. Bennett, C. N. Achilles, D. F. Blake, S. J. Chipera, G. Downs, R. T. Downs, S. M. Morrison, V. Tu, N. Castle, P. Craig, D. J. D. Marais, R. M. Hazen, D. W. Ming, R. V. Morris, A. H. Treiman, D. T. Vaniman, A. S. Yen, A. R. Vasavada, E. Dehouck, J. C. Bridges, J. Berger, A. McAdam, T. Peretyazhko, **K. L. Siebach**, A. B. Bryk, V. K. Fox, and C. M. Fedo. (2022) [Mars Science Laboratory CheMin data from the Glen Torridon region and the significance of lake-groundwater interactions in interpreting mineralogy and sedimentary history](#). *Journal of Geophysical Research: Planets*, 127(11). DOI: 10.1029/2021JE007099.
34. Liu, Y., M. M. Tice, M. E. Schmidt, A. H. Treiman, T. V. Kizovski, J. A. Hurowitz, A. C. Allwood, J. Henneke, D. A. K. Pedersen, S. J. VanBommel, M. W. M. Jones, A. L. Knight, B. J. Orenstein, B. C. Clark, W. T. Elam, C. M. Heirwegh, T. Barber, L. W. Beegle, K. Benzerara, S. Bernard, O. Beyssac, T. Bosak, A. J. Brown, E. L. Cardarelli, D. C. Catling, J. R. Christian, E. A. Cloutis, B. A. Cohen, S. Davidoff, A. G. Fairen, K. A. Farley, D. T. Flannery, A. Galvin, J. P. Grotzinger, S. Gupta, J. Hall, C. D. K. Herd, K. Hickman-Lewis, R. P. Hodyss, B. H. N. Horgan, J. R. Johnson, J. L. Jorgensen, L. C. Kah, J. N. Maki, L. Mandon, N. Mangold, F. M. McCubbin, S. M. McLennan, K. Moore, M. Nachon,... (incl. **K. L. Siebach**)... M. P. Zorzano (2022) [An olivine cumulate outcrop on the floor of Jezero crater, Mars](#). *Science*, 377(6614), 1513-1519. DOI: 10.1126/science.abo2756.
33. [†]**Payre, V., K. L. Siebach, M. T. Thorpe**, P. Antoshechkina, E. B. Rampe. (2022) [Tridymite in a Lacustrine Mudstone in Gale Crater, Mars: Evidence for an Explosive Silicic Eruption during the Hesperian](#). *Earth and Planetary Science Letters*, 594. DOI: 10.1016/j.epsl.2022.117694.
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OTHER PUBLICATIONS

1. Siebach, K. L., (2016) [Formation and Diagenesis of Sedimentary Rocks in Gale Crater, Mars](#). Ph.D. Dissertation, California Institute of Technology, DOI: 10.7907/Z97D2S4K.

PUBLISHED DATASETS**2026**

- ***Moreland, E. L.**, M. S. Bramble, **K. L. Siebach**, A. C. Pascuzzo, M. M. Morris, S. J. VanBommel, M. W. Jones, S. Siljeström, A. Shrivastava, A. H. Treiman, J. A. Hurowitz. (2026). [PIXL and SHERLOC Data from Falcon Lake Boulder](#) [Data set]. Zenodo. DOI: [10.5281/zenodo.17991650](#)
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PROFESSIONAL SERVICE**National Academy of Science Advisory Panels**

- A Science Strategy for the Human Exploration of Mars: Panel on Geosciences (2024-2025)
- Decadal Survey for Planetary Science Mars Panel (2020-2021)
- Review of the Report of the NASA Planetary Protection Independent Review Board (2019-2020)

NASA Mission Leadership Roles

- Mars Science Laboratory: Campaign Science Leader for the “Boxwork” or “Fracture Townies” Campaign (2022-present)
- Mars 2020: Campaign Science Leader for “Upper Fan” Campaign (2022-2023)

NASA Advisory Panels

- Mars Sample Return: Ad-hoc Advisory sub-group to the Mars Sample Return Campaign Science Group called the “Rock Team” to identify and collect terrestrial analog samples as engineering analogs for Mars Sample Return samples; led field campaigns for sedimentary analogs (2022-2023)
- Mars Sample Return: Caching Strategy Steering Committee for the joint NASA-ESA Mars Sample Return Project (2020-2021)

Proposal Reviews

- Mission Proposal: Science Review Panel for NASA New Frontiers 4 Mission Selection Phase 2 (2019)
- Proposal Evaluation Panels: NASA Exobiology, NASA Solar System Workings, NASA Participating Scientist Selection Panel
- Individual Proposal Reviews: Leverhulme Foundation

Session Chair/Meeting Service

- Accepted Session for GSA 2026
- International Sedimentary Geosciences Congress II
- LPSC 2018, 2021, 2026
- AGU 2022
- 9th International Conference on Mars, 10th International Conference on Mars

Manuscript Peer-Review

Nature, Nature Astronomy, Nature Geoscience, Science Advances, Earth and Planetary Science Letters, GSA Bulletin, Journal of Geophysical Research-Planets, Icarus, Earth and Space Sciences, Canadian Journal of Earth Sciences

DEPARTMENTAL AND UNIVERSITY SERVICE**Department Committees**

EEPS Field Trip Committee (2023-)
EEPS Undergraduate Curriculum and Recruiting Committee member (2021-)
ENVS Curriculum Committee member (2018-)
EEPS Visualization Committee chair (2018-)
EEPS Computation and IT Committee member (2018-)
EEPS Ombudsperson (2020-2024)
EEPS Seminar Committee member (2018-2024)
EEPS Search Committee for Tenure-Track Planetary Science Professor (2022-23)
EEPS Search Committee for Assistant Teaching Professor (2021)
EEPS Co-chair for Search Committee for Data Scientist (2019)
Managed Restoration and Update of 3D Chevron Visualization Laboratory (2019)
Actively participated in interviews for five additional Tenure Track Searches in EEPS(2022 Environmental Science, 2023 Planetary Science, 2023 Energy Transition, 2024 Planetary Science, 2025 Solid Earth)

Student Clubs

Faculty Sponsor for the Rice American Association of Petroleum Geologists (AAPG) Student Chapter (2021-)
Faculty Sponsor for the Rice American Women in Geoscience (AWG) Student Chapter (2024-)
Faculty Sponsor for the Rice Latter-Day Saint Student Association (LDSSA) (2018-2022)

University Service

Advisory Board Member for new Natural Sciences Center for Science Communication and Public Engagement (SCOPE) (2026-)
Advisory Board Member for Boniuk Institute (2024-)
EEPS Liaison for Rice NTT Research Project (2022-)
Advisory Board Member for Ken Kennedy Institute (2020-2023)

ACTIVE FUNDED GRANTS

- Texas Space Commission award to Rice Center for Space Technologies (sub-project, lead Rice PI: Fred Higgs). Project: AI-controlled rover traction and mining capabilities for developing space resources. (Siebach as Project PI) \$239,770 for Siebach lab. 6/11/2026-10/31/2029.
- NASA JPL PIXL sub-award (Siebach as Instrument Co-PI): M2020 PIXL: Mineral Identification by Stoichiometry. \$446,326. Start date 1/5/2025, currently funded through 9/24/2028. Eligible for renewal.
- NASA 80NSSC25K7052 (Siebach PI, Jack Henry FI): Textural Effects of Loose Powders on LIBS Measurements: Implications for ChemCam and SuperCam Analyses of Sand and Drilled Materials on Mars, 10/4/2024-10/3/2027. \$149,120.

COMPLETED GRANTS

- NASA 80NSSC21K1173 (sub-award): Lake Sediments in Basaltic Terrains: Implications for Early Diagenetic Processes on Mars, 10/1/2020-12/31/2026. \$307,861 (Rice portion) (Lead PI: Elizabeth Rampe, NASA-JSC; Science PI: Michael Thorpe, NASA-JSC)
- NASA 80NSSC21K0331 (Siebach PI): Deriving Mineralogical Data from PIXL using Machine Learning in order to Decipher Ancient Surface and Diagenetic Environments in a Source-To-Sink Framework and Optimize Mars Return Sample Selection, 1/4/2021-1/4/2025. \$391,297.
- Rice University Faculty Initiatives Fund (Siebach Co-PI, Lead PI Prof. Sylvia Dee): Planetary Water Cycles: Refining Climate Model Physics using Clues from Massive Lakes, 4/30/2021-8/31/2024. \$49,960.

INVITED PRESENTATIONS

2026

- Lucian Symposium, St. Edward's University, Austin, TX, September 18.
Exploring Mars with Curiosity and Perseverance
- IMAGE Conference, Halbouty Lecture, Houston, TX, August 19. [KEYNOTE]
Exploring Sedimentary Basins on Mars with Curiosity and Perseverance
- Genes in Space Finals, Houston, TX, July 29. [KEYNOTE]
A Martian Studying Earth
- Chevron's Geophysics Community of Practice, Houston, TX, June 10.
Source-to-Sink Processes on Mars as Observed by Curiosity and Perseverance
- Mars 2020 Team Meeting, Pasadena, CA, June 2.
Mineralogy and Crystal Chemistry along the full rover traverse from PIXL using the MIST Model
- Inner Solar System Workshop: From Formation to Coupled Interior-Surface Evolution, Houston, TX, May 13.
How rover observations of sedimentary deposits have informed our understanding of igneous evolution on Mars
- Industry-Rice Earth Science Symposium, Houston, TX, April 9.
Ancient hydrothermal activity on Mars: How hot was water on the Red Planet?
- New Jersey Astronomical Association, virtual, March 28.
Updates from Exploring Mars with Curiosity and Perseverance
- NASA Office of Strategic Infrastructure GIS Community of Practice, virtual, February 23.
Boxwork on Mars: A GIS Study Ground-Truthed 14 Years Later

2025

- Mars Science Laboratory Team Meeting, virtual, October 28.

Synthesis of Boxwork Campaign “Phase 3” and Current Formation Hypotheses
Astronomy Society of Long Island, virtual, April 16.

Perseverance on Mars: Selecting the First Samples for Return to Earth

2024

Workshop on Secondary Minerals on Earth and Mars, Houston, TX, December 3-4.

Automated Mineral Identification by Stoichiometry (MIST): A Tool for Geochemical Dataset Standardization

Mars Science Laboratory Team Meeting, Pasadena, CA (presented virtually), October 24.

Scientific Objectives of the Boxwork Investigation

Houston Philosophical Society, Houston, TX, September 19.

Perseverance on Mars: Selecting the First Samples for Return to Earth

Mars 2020 Perseverance Science Team Meeting, Pasadena, CA July 19.

Western Fan Update

Rice Alumni Volunteer Leadership Conference, Houston, TX, May 18.

Perseverance on Mars: Selecting the First Samples for Return to Earth

2023

Carnegie Earth and Planets Laboratory Seminar, Washington DC, October 5.

Sedimentary Systems on a Volcanic World: Exploring Mars with Curiosity and Perseverance

Chevron Social METwork Seminar, Houston, TX, July 13.

Perseverance on Mars: Selecting the First Samples for Return to Earth

Mars 2020 Perseverance Science Team Meeting, with Gwenaél Caravaca and Libby Ives, Paris, France, June 27.

Upper Fan Sedimentology and Stratigraphy: Curvilinear Units

University of Iowa, Department of Earth & Environmental Sciences, Department Seminar, Iowa City, IA, April 28.

Sedimentary Systems on a Volcanic World: Exploring Mars with Curiosity and Perseverance

University of Texas at Austin Soft Rock Seminar, virtual, April 10.

Sedimentary Systems on a Volcanic World: Exploring Mars with Curiosity and Perseverance

Rice ION: Innovation on Tap: Disruptive Technology, Houston, TX, March 23.

Perseverance on Mars: Selecting the First Samples for Return to Earth

2022

Houston Geological Society Environmental and Engineering Geology, Houston, TX, November 9.

Perseverance on Mars: Selecting the First Samples for Return to Earth

Mars Science Laboratory Team Meeting, Pasadena, CA, October 6.

Fracture Townies” Science Campaign to Visit Boxwork Structures on Mount Sharp

NASA Student Airborne Research Program interns, virtual, July 11.

Roving with Curiosity and Perseverance: Investigating Sedimentary Rocks on the Red Planet

Rice Natural Sciences Science Communication Symposium, Houston, TX, April 25.

Experiences with Science Communication

National Science Teaching Association Meeting Featured Presentation, Houston, TX, April 1.

Roving Mars with Curiosity and Perseverance

Lakeside Country Club’s “Breakfast Club” Dinner, Houston, TX, January 19.

Roving Mars with Curiosity and Perseverance

2021

Mars Science Laboratory Team Meeting, virtual, October 21.

Boxwork Structures on Mount Sharp

IMAGE Conference (AAPG and SEG Annual Meetings) Opening Session Keynote, Denver, CO, September 26. [KEYNOTE]

Exploring Mars with Curiosity and Perseverance

Harvard University, Department of Earth and Planetary Sciences, Department Seminar, virtual, September 20.

Roving with Curiosity and Perseverance: Investigating Sedimentary Processes on Mars

Steepest Descent Conference after the European Geophysical Union annual meeting, virtual, May 3. [KEYNOTE]

Roving with Curiosity and Perseverance: Investigating Sedimentary Rocks on the Red Planet

NASA Student Airborne Research Program interns, virtual, July 5.

Roving with Curiosity and Perseverance: Investigating Sedimentary Rocks on the Red Planet

AAPG Virtual Outcrop Field Trip, virtual, April 22.

My Favorite Martian Outcrop

Rice University Reach for the Stars STEM Festival, Houston, TX, April 17. [KEYNOTE]

Roving Mars with Curiosity and Perseverance

Houston Geological Society Environmental and Engineering Geology, virtual, April 14.

[*Roving Mars with Curiosity and Perseverance*](#)

Houston Retired Physicians Organization Luncheon, virtual, April 13.

Roving Mars with Curiosity and Perseverance

Rice "Science Café," virtual, March 22.

[*Roving Mars with Curiosity and Perseverance*](#)

AAPG "Lunch-n-Learn" with M. T. Thorpe, virtual, March 18.

Perseverance and Mars Sample Return

University of New Mexico, Department of Earth and Planetary Sciences Seminar, virtual, January 22.

Source-to-Sink Processes in Gale Crater: Investigating Sedimentary Rocks on the Red Planet

Rice Alumni ROMEO Club Speaker, virtual, January 15.

*Sedimentary records from another world: Exploring Gale crater with the Curiosity rover***2020**

NASA Alumni Club, virtual, December 3.

[*Reading the Martian Rock Record: Stories from a Previously Habitable World*](#)

University of Rochester, Department of Earth and Environmental Sciences, Seminar, virtual, November 6.

Source-to-Sink Processes in Gale Crater: Investigating Sedimentary Rocks on the Red Planet

Northern Arizona University, Department of Astronomy and Planetary Science, Planetary Surfaces Brown Bag Seminar, virtual, November 3.

Source-to-Sink Processes in Gale Crater: Investigating Sedimentary Rocks on the Red Planet

Astronomy Society of Long Island, virtual, October 28.

Reading the Martian Rock Record: Stories from a Previously Habitable World

University of Maryland, Department of Geology Seminar, virtual, October 23.

[*Source-to-Sink Processes in Gale Crater: Investigating Sedimentary Rocks on the Red Planet*](#)

University of Colorado-Boulder, Geological Sciences Colloquium, virtual, October 14.

Source-to-Sink Processes in Gale Crater: Investigating Sedimentary Rocks on the Red Planet

SEG20 Gravity and Magnetism Luncheon Keynote Speaker, virtual, October 13. [KEYNOTE]

Sedimentary Records from Another World: Exploring Gale Crater Basin with the Curiosity Rover

Tulsa Geological Society and Foundation Awards Lunch Keynote Speaker, virtual, October 6.
[KEYNOTE]

Reading the Martian Rock Record: Stories from a Previously Habitable World
NASA Student Airborne Research Program Interns, virtual, July 8.

Reading the Martian Rock Record: Stories from a Previously Habitable World
Houston Geological Society dinner lecture, virtual, Houston, TX, June 10.

[Curiosity – the Science, the People, the Future of Mars Exploration](#)
Houston Spaceport Frontier Lecture (virtual), Rice University, April 9.

[Reading the Martian Rock Record: Stories from a Previously Habitable World](#)
Washington University in St. Louis, Earth & Planetary Science Department Seminar, St. Louis, MO,
February 13.

Source-to-Sink Processes in Gale Crater: Investigating Sedimentary Rocks on the Red Planet
Houston Philosophical Society Dinner, Houston, TX, January 16.
The Destination: What do we know about Mars?

2019

Brigham Young University Department of Geological Sciences, Provo, UT, October 31.
Sedimentary Records from Another World: Exploring Gale Crater Basin with the Curiosity Rover
Keynote at West Texas Geological Foundation Annual Luncheon, Midland, TX, April 11.
[KEYNOTE]

Sedimentary Records from Another World: Exploring Gale Crater Basin with the Curiosity Rover
Mars Science Laboratory Team Meeting, Columbia, MD, April 2.

Compositional and Sedimentary Trends throughout the Murray: how does Glen Torridon fit in?
Industry-Rice Earth Science Symposium (IRESS) Dinner Keynote, Houston, TX, March 21.
[KEYNOTE]

Understanding Earth through the Exploration of Other Planets: Mars 2020 and Rice's Planetary Future
Rice Visual Communication Symposium, Houston, TX, March 2.

Exploring Mars through the Eyes of Robots
ExxonMobil-Rice Workshop, The Woodlands, TX, February 22.
Constraining Source-to-Sink Characteristics of a Martian delta system from Mars Science Laboratory rover observations

2018

Chevron New Ventures Exploration Team, Houston, TX, December 7.
Sedimentary Records from Another World: Exploring Gale Crater Basin with the Curiosity Rover
Society for Rice University Women, Rice University, Houston, TX, October 22.

Stories from a Martian Geologist: Exploring Gale crater with the Curiosity Rover.
LDS Professional Women's Lecture Series, Houston, TX, October 3.

Stories from a Martian Geologist: Exploring Gale crater with the Curiosity Rover.
Rice Science Café, Houston, TX, October 2.

Reading the Martian Rock Record: Stories of a previously-habitable world.
Four Corners Geological Society, Durango, CO, September 20.

Sedimentary Records from Another World: Exploring Gale Crater Basin with the Curiosity Rover
Lunar and Planetary Institute Cosmic Explorations Series, Houston, TX, September 6.

[Curiosity and our Evolving View of the Red Planet](#)
New Orleans Geological Society New Orleans, LA, August 6.

Sedimentary Records from Another World: Exploring Gale Crater Basin with the Curiosity Rover
AAPG URTeC "Topical Breakfast," Houston, TX, July 23.

Sedimentary Records from Another World: Exploring Gale Crater Basin with the Curiosity Rover.
iPOLs Annual Biophysics Meeting, Houston, TX, June 26.

The Curiosity rover and the search for martian life
Lunar and Planetary Institute Research Seminar, Houston, TX, June 22.

Sedimentary Records from Another World: Exploring Gale Crater Basin with the Curiosity Rover
Sigma Xi Chapter Monthly Dinner, San Antonio, TX, May 24.

Sedimentary Records from Another World: Exploring Gale Crater Basin with the Curiosity Rover
Southwest Research Institute (SwRI) Research Seminar, San Antonio, TX, May 24.

Sedimentary Records from Another World: Exploring Gale Crater Basin with the Curiosity Rover
TEF Education Conference, Istanbul, Turkey, May 18, 2018.

[Exploration and Discovery on Mars and in the Classroom: Stories from a NASA Geologist](#)
Brown University Dept of Earth, Environmental, and Planetary Sciences Colloquium, Providence, RI,
April 12.

Formation and Diagenesis of Sedimentary Rocks in Gale Crater, Mars
Houston Geological Society "Rice Night" Dinner Houston, TX, March 4.

[Sedimentary Records from Another World: Exploring Gale Crater Basin with the Curiosity Rover](#)
IRESS Frontiers Seminar Day, Rice University, Houston, TX, February 21.

Expanding our horizons: Sedimentary and volatile cycling on Mars
NASA Community College Aerospace Scholars, Johnson Space Center, Houston, TX, February 14.

Five Years of Roving on Mars with Curiosity

2017

University of South Alabama Seminar with Dr. Kathryn Stack, Mobile, AL, December 1.

Exploring Mars with the Mars Science Laboratory and Mars 2020 Rovers
Gulf Coast Exploreum Science Center Spark Talk with Dr. Kathryn Stack, Mobile, AL, November 30.

Exploring Mars with the Mars Science Laboratory and Mars 2020 Rovers
GEMS Modern School, Dubai, UAE, November 8.

Five Years of Exploring Mars with the Curiosity rover
AAPG-SEG ICE Opening Ceremony Keynote, London, UK, October 2017. [KEYNOTE]
Sedimentary Records from Another World: Exploring Gale Crater Basin with the Curiosity Rover
Lamont-Doherty Earth Observatory of Columbia University SGT-MGG seminar, Palisades, NY,
October 4.

Formation and Diagenesis of Sedimentary Rocks in Gale Crater, Mars
Astronomical Society of Long Island, Centerport, NY, July 5.

Exploring Mars with Curiosity
Rice University Department of Earth, Environmental, and Planetary Sciences Seminar, Houston, TX,
March 28.
Formation and Diagenesis of Sedimentary Rocks in Gale Crater, Mars
Industry-Rice Earth Science Symposium Dinner Keynote, Rice University, Houston, TX, February 23.
[KEYNOTE]

Sedimentary Records from Another World: Exploring Gale Crater Basin with the Curiosity Rover

2016

Stony Brook University Geoscience Department Colloquium, Stony Brook, NY, September 22.
Formation and Diagenesis of Sedimentary Rocks in Gale Crater, Mars

Mars Science Laboratory Team Meeting, Pasadena, CA, April 12.

APXS Geochemical Trends in the Mount Sharp Rocks: Overview

Global Education Supplies & Solutions Conference, Dubai, UAE, March 3. [KEYNOTE]

The Process of Discovery, on Mars and in the Classroom

Los Angeles Valley College Planetarium, Valley Glen, CA, March 13.

Exploring Mars

Science Sunday Public Lecture at Caltech, Pasadena, CA, January 25.

Road Trips on Mars: Rovers Explore the Red Planet

2015

Rector's Tea at Yale-National University of Singapore, Singapore, September 14.

Exploring Mars with the Curiosity Rover

LEGO Education Conference, Singapore, Singapore, September 15. [KEYNOTE]

Exploring Mars with the Curiosity Rover

Mars Science Laboratory Team Meeting, Paris, France, June.

Distinguishing Provenance, Sorting, and Diagenetic Effects in Sedimentary Rocks along Curiosity's Traverse

Mars Science Laboratory Team Meeting, Pasadena, CA, February.

Correlations between Rock Chemistry, Texture, and Stratigraphic Position

2014

Mars Science Laboratory Team Meeting, Pasadena, CA, September 2014.

Introduction to Cements at Gale

Caltech Geological and Planetary Science Division "Geoclub" Seminar Series, Pasadena, CA, September 4.

Diagenesis of Martian Sediments in Gale Crater

Siemen's Competition Regional Finals held at Caltech, November 7.

Exploring Mars

Mars Science Laboratory Team Meeting, Pasadena, CA, April 2014.

Sandstone Porosity along Curiosity's Traverse

2013

Caltech Kliegel Lectures in Planetary Science, Pasadena, CA, April.

Formation of Boxwork Structures on Mount Sharp, Gale Crater, Mars

2011

NASA booth at the AGU Fall Meeting 92, December 2011.

Monitoring evapotranspiration of almond orchards using a METRIC model with MASTER imagery

OUTREACH EFFORTS

2026

- Panel discussion at SCOPE Symposium, Rice University, Houston, TX, 9-11-2026
- [Faculti Interview: What volcanic signals survive in basaltic sand transport](#), posted 8-5-2026
- Participated in two panel discussions at 2026 Humans to the Moon and Mars Summit, Houston, TX, 7-22-2026
- Panel discussion at URTEC 2026, Houston, TX, 6-22-2026
- Assembly at Beta Academy Charter School for 7th-9th grade students, Houston, TX, 5-7-2026
- "Owl Days" Presentation for accepted high school students, Houston, TX, 4-13-2026

- Houston Museum of Natural Science Docent Brown Bag Luncheon Series, 3-3-2026
- 2025**
- Community College “Take Flight” Scholars at Rice, Houston, TX, 10-31-2025
 - [Houston Public Media “Houston Matters” Radio/Youtube Interview, Houston](#), 9-22-2025
 - EEPS Open House booth with students, 5-3-2025
 - “Owl Days” Presentation for potential students and parents, Houston, TX, 4-11-2025
 - “Science Salon” with Rice alumni, Houston, TX, 3-27-2025
 - HISD Teacher Training on Mars Exploration (virtual), 3-26-2025
- 2024**
- “Traveling Owls” trip to Churchill, CA, two lectures, 10-28-2024 and 10-31-2024
 - HISD Teacher Training on Mars Exploration (virtual), 4-24-2024
 - “The Great Owl Eclipse,” Bandera, TX, 4-7-2024 and 4-8-2024
- 2023**
- [Story Collider Astronomy Night, St. Louis, MO](#), 9-29-2023 (on national podcast 2-9-2024)
- 2022**
- Serving on the Mars Advisory Council for Tinkering School, virtual, 2022+
 - NASA-Rice 60th Anniversary of JFK Moonshot Speech, organized Mars booth materials, ~20 hours at a booth for the public and two short talks, Houston, TX, 9-10-2022 to 9-12-2022
 - “Follow the Water” Teacher Development Workshop, Miami-Dade (virtual), 9-3-2022
 - Rice REU Students in Earth, Environmental, and Planetary Sciences (virtual), 7-7-2022
 - Rice Admitted Students, Panel on Opportunities with NASA (virtual), 3-28-2022
- 2021**
- Rice REU Students in Earth, Environmental, and Planetary Sciences, Houston, TX, 7-14-2021
 - Owls in Space Symposium, Panel on Space Education, Rice University (virtual), 3-6-2021
 - [Cosmic Companion Discussion of Perseverance Landing \(virtual\)](#), 2-23-2021
 - [Perseverance Landing Party, Rice University \(virtual\)](#), 2-18-2021
 - [Cosmic Companion Discussion about the Climate of Ancient Mars \(virtual\)](#), 1-26-2021
- 2020**
- [Space Center Houston Thought Leaders Panel – Our Future on Mars \(virtual\)](#) 10-29-2020
 - Perseverance Launch Party, Rice and Houston Museum of Natural History (virtual), 7-30-2020
 - STEM High School Girls Physics camp at Rice (virtual), 6-25-2020
 - [Astronomy on Tap St. Louis \(virtual\)](#), 5-11-2020
 - SEDS Panel Night on Academic Careers in the Space Industry, Rice University, 1-30-2020
- 2019**
- STEM High School Girls Physics camp at Rice, 6-18-2019
 - Assembly at Yes Prep North Forest High School, 5-30-2019
- 2018**
- [Guest speaker on “miniGeology” radio/podcast](#), 11-13-2018
 - [Guest speaker on “The Space Show” radio/podcast](#), 10-29-2018
 - [American Chemical Society "Program-In-A-Box": *Voyage to Mars: Red Planet Chemistry*. Online.](#) 10-23-2018
 - STEM High School Girls Physics camp at Rice, lunchtime talks for 2 summer sessions, 2018
 - Mars Exploration talks for two school assemblies in Istanbul, Turkey associated with LEGO Education, 2018

- Assembly for The Village School middle school students and on-campus visit for 2 classes, 2018

2008-2017

- Geology Open Night at Stony Brook University, 2017
- [Stony Brook University Postdoc Spotlight event](#), 2017
- Invited Lecture for NASA Student Airborne Research Program 2012, 2013, 2014, 2015, 2016
- Finalist in 3 Minute Thesis Competition, Caltech, 2016
- *Reel Science* Caltech Outreach Program Talks, each to ~500 attendees 9-15 years old: 2013 – Rock my World: the Power of Volcanoes, 2014 – Trial by Fire, 2015 – Ultimate Mars Challenge
- Expert Reader for National Geographic Kids book, “*Mars*”, Fall 2014 and Summer 2016
- Developed and ran a one-day seminar for gifted elementary students on William Smith and Geologic Mapping at the Huntington Gardens in Pasadena, November 2014
- Judge for American Geophysical Institute Award at Intel International Science Fair, 2014
- Organized and staffed Caltech “Exploration Station” booth at the 2013 AGU conference meeting
- High School Teacher Training Talk on Applications of Spectroscopy, DNP Conference 2012
- Caltech Classroom Connection Volunteer (2011-12); aid with school farm soil testing
- Invited Lecture at Central Methodist University Math and Science Competition, 2008
- Various outreach talks to public and school groups *in addition to those listed above*; over 50 talks reaching over 2000 people, and volunteer at 7 NASA booth events

DOCUMENTARIES

- History Channel’s The UnXplained Mysteries of the Universe: Season 1 Episode 2 “*Alien Earthlings*” released May 10, 2024.
- History Channel’s The UnXplained: Season 3 Episode 7 “*Mysteries of Mars*” released December 17, 2021.
- CuriosityStream Three Part Documentary Series “*Becoming Martian*” released August 26, 2021.
- Xploration Station Series “*Life 2.0*” Episode “*A New Species of Human Emerges on Mars*” released September 5, 2020.
- National Geographic Documentary “*Mars: One Day on the Red Planet*” released January 5, 2020.

PRESS RELEASES

- Rice News 1/5/2026: Thin ice may have protected lake water on frozen Mars [\[link\]](#)
- Rice News 9/17/2025: New Mars research reveals multiple episodes of habitability in Jezero Crater [\[link\]](#)
- Rice News 8/20/2025: Rice scientists launch powerful new online tool to streamline mineral identification [\[link\]](#)
- Rice News 12/2/2020: Rice scientist joins next Mars adventure [\[link\]](#)

CONFERENCE ABSTRACTS

Context note: Abstracts for planetary science conferences such as the *Lunar and Planetary Science Conference (LPSC)* and *International Conferences on Mars* are extended abstracts with two pages of text, figures, and references. These sometimes serve as quick avenues to explain and present rover observations that do not always make it into the literature otherwise and, accordingly, may accumulate citations.

Symbols denote [◊]*undergraduate*, ^{*}*graduate student* or [†]*postdoctoral author* in my group

Upcoming

183. ***Moreland, E. L., K. L. Siebach**, M. Jones, A. H. Treiman. (2026) [Crystal Chemistry of Igneous Minerals in Jezero Crater, Mars from the First 100 PIXL Scans of Abraded Rocks on the Mars 2020 Mission](#). *GSA Annual Meeting*, Denver, CO, Abstract 291-8.
182. Williams, R. E., E. Hausrath, **K. L. Siebach**, E. Dehouck, M. E. Schmidt, S. Sharma, B. Colburn, L. C. Kah, R. A. Yingst, M. E. Minitti, A. Pascuzzo, J. Huggett. (2026) [Martian Mineralogy as Manifested in Perseverance's Abrasion Patterns](#). *GSA Annual Meeting*, Denver, CO, Abstract 142-9.
181. ***Sikes, D., K. L. Siebach**. (2026) [Adapting Image-Based Grain-Size Analysis Techniques to Characterize Poorly Sorted Regolith on Mars](#). *GSA Annual Meeting*, Denver, CO, Abstract 142-8.
180. Mondro, C. A., **C. Seeger†, K. L. Siebach**, P. Gasda, S. Schwenzer, L. M. Thompson, C. O'Connell-Cooper. (2026) [Constraints on Fracture Formation in the Boxwork Region Investigated by the Curiosity Rover in Gale Crater, on Mars](#). *GSA Annual Meeting*, Denver, CO, Abstract 77-5.
179. **†Seeger, C., K. L. Siebach**, C. A. Mondro, C. O'Connell-Cooper, S. Schwenzer, P. Gasda, W. E. Dietrich, S. Banham, G. Caravaca, L. Scuderi. (2026) [Sedimentology and Diagenesis of Curiosity's traverse through the Boxwork-Hosting Altadena Member, Gale Crater, Mars](#). *GSA Annual Meeting*, Denver, CO, Abstract 77-4.
178. **Siebach, K. L., C. Seeger†**, C. A. Mondro, E. Hausrath, C. O'Connell-Cooper, W. E. Dietrich, S. Schwenzer, P. Gasda, L. M. Thompson, L. Scuderi. (2026) [Formation of the Boxwork Unit in Gale Crater, Mars](#). *GSA Annual Meeting*, Denver, CO, Abstract 77-3.
- 2026**
177. Liu, Y., J. A. Hurowitz, A. H. Treiman, M. E. Schmidt, J. I. Simon, K. Ramo, G. White, **E. L. Moreland*, K. L. Siebach**, the PIXL Team. (2026) [Igneous Rocks in Noachian Crust Measured by PIXL Outside the Jezero Crater Rim](#). *88th Annual Meeting of the Meteoritical Society*, Frankfurt, Germany. Abstract 5260.
176. **Siebach, K. L., V. Payré, A. Putnam*, E. L. Moreland*, J. D. Henry*, S. Preston♦**, M. Lapôtre, S. Banham, S. Gupta. (2026) [Seeing a World in a Grain of Sand: Learning about Mars from Sand in River and Dune Deposits](#). *International Sedimentary Geosciences Congress II*, Golden, CO. Abstract 78.
175. **†Seeger, C. H., K. L. Siebach**, C. A. Mondro, C. O'Connell-Cooper, S. Schwenzer, P. Gasda, L. Thompson, B. Dietrich, S. Banham, J. P. Grotzinger, S. Gupta, G. Caravaca, L. Scuderi. (2026) [Sedimentology and Diagenesis of the Boxwork-Hosting Altadena Member, Gale Crater, Mars](#). *International Sedimentary Geosciences Congress II*, Golden, CO. Abstract 66.
174. Schwenzer, S. P., **K. L. Siebach, C. Seeger†**, C. A. Mondro, C. O'Connell-Cooper, L. Thompson, W. Dietrich, P. Gasda, F. Willcocks, J. Bridges, E. Hausrath, S. Banham, A. Vasavada. (2026) The boxwork structures at Gale Crater: a tale of fluids and wind. *British Planetary Science Conference*, St. Andrews, Scotland.
173. Gasda, P. J., F. Willcocks, K. Nikolajsen, W. H. Farrand, J. R. Johnson., S. P. Schwenzer, C. C. Bedford, C. Mondro, **K. L. Siebach, C. Seeger†**, B. M. Tutolo, M. Thorpe, D. G. Burt, L. Scuderi, W. Rapin, J. Bridges, N. Lanza, C. O'Connell-Cooper, L. M. Thompson, A. Fraeman, A. R. Vasavada. (2026) [Redox gradients preserved in Upper Aeolis Mons strata in Gale Crater, Mars](#). *Astrobiology Science Conference*, Madison, WI.
172. **♦Pujet, N. C., J. D. Henry*, K. L. Siebach**, M. D. Dyar, K. H. Lepore, and C. R. Ytsma. (2026) Experimental Laser-Induced Breakdown Spectroscopy of Mineral Powder Mixtures. *Natural Sciences Undergraduate Research Symposium*, Houston, TX.
171. Dietrich, W. E., **K. L. Siebach, C. Seeger†**, C. O'Connell-Cooper, L. M. Thompson, S. Schwenzer, P. Gasda, and C. A. Mondro. (2026) [Evolution of a Boxwork Structure, Gale Crater, Mars: Hypothesis 2](#). *57th LPSC*, Houston, TX. Abstract 1400.
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39. **Siebach, K. L.**, C. M. Fedo, L. E. Edgar, K. Edgett, J. P. Grotzinger, A. A. Fraeman, L. M. Thompson, S. Gupta, C. H. House, and C. O'Connell-Cooper. (2019) [Overview of Gale Crater Stratigraphy and Sedimentology from 6 Years of Roving with Mars Science Laboratory](#). *50th LPSC*, Houston, TX. Abstract 1479.
38. †**Thorpe, M. T.**, J. A. Hurowitz, and **K. L. Siebach**. (2019) [Constraining the Climate of Ancient Mars Using Terrestrial Analogs](#). *50th LPSC*, Houston, TX. Abstract 1266.

2018

37. Rampe, E., T. Bristow, D. Blake, D. Vaniman, R. Morris, D. Ming, A. Yen, C. Achilles, S. Chipera, V. Tu, K. Edgett, J. Eigenbrode, R. Gellert, J. Grotzinger, S. Morrison, D. Des Marais, G. Downs, R. T. Downs, S. Gupta, ...N. Lanza. (incl. **K. L. Siebach**) (2018) [Evidence for Alteration and Diagenesis at Gale Crater, Mars from the Curiosity Rover](#) (Invited). *AGU Fall Meeting*, Washington, DC. Abstract P43A-01.
36. Sun, V., K. Stack, L. Kah, A. Williams, L. Thompson, R. Wiens, S. J. VanBommel, S. S. Johnson, C. House, M. Nachon, W. W. Fischer, R. Kronyak, M. Minitti, **K. L. Siebach**, and D. Sumner. (2018) [Diagenetic Concretions in the Murray Formation, Gale Crater, Mars](#). *AGU Fall Meeting*, Washington, DC. Abstract P43A-10.
35. **Siebach, K. L.**, E. B. Rampe, and S. M. Morrison. (2018) [Source Characteristics, Chemical Weathering, and Lithification of the Stimson Sandstone and Lessons for the Martian Sedimentary Record](#). *GSA Annual Meeting*, Indianapolis, Indiana. Abstract 15-9.
34. Fedo, C. M., J. P. Grotzinger, J. Schieber, S. Gupta, C. H. House, K. S. Edgett, **K. L. Siebach**, A. A. Fraeman, L. A. Edgar, R. E. Kronyak, L. C. Kah, S. Gwizd, and A. Vasavada. (2018) [Things Are Not Always as They Seem: Detangling Intersecting Planar and Curvi-Planar Veins and Fractures from Primary Bedding in the Vera Rubin Ridge Member, Murray Formation, Mars](#). *GSA Southeastern Section - 67th Annual Meeting*, Knoxville, TN. Abstract 5-5.
33. **Siebach, K. L.**, and S. M. McLennan. (2018) [Re-Evaluating the CIA Paleoclimate Proxy on Mars at Curiosity's Drill Sites](#). *49th LPSC*, Houston, TX. Abstract 2694.

2017

32. Ehlmann, B., K. Edgett, B. Sutter, C. Achilles, M. Litvak, M. Lapotre, R. Sullivan, A. Fraeman, R. Arvidson, D. Blake, N. Bridges, P. Conrad, A. Cousin, R. T. Downs, T. Gabriel, R. Gellert, V. Hamilton, C. Hardgrove, J. Johnson, ...A. Yen. (2017) [The Sands of the Bagnold Dunes, Mars and Volatiles in Mars Soils](#) (Invited). *AGU Fall Meeting*, New Orleans, LA. Abstract P51H-10.

31. Lewis, K. W., C. Fedo, J. Grotzinger, S. Gupta, N. Stein, F. Rivera-Hernandez, J. Watkins, S. Banham, K. Edgett, M. Minitti, J. Schieber, L. Edgar, **K. L. Siebach**, K. Stack, H. Newsom, C. House, D. Sumner, and A. Vasavada. (2017) [Paleo-environmental Setting of the Murray Formation of Aeolis Mons, Gale Crater, Mars, as Explored by the Curiosity Rover](#). *AGU Fall Meeting*, New Orleans, LA. Abstract P33F-01.
 30. **Siebach, K.**, M. B. Baker, J. Grotzinger, S. McLennan, R. Gellert, L. M. Thompson, and J. Hurowitz. (2017) [Mineral Fractionation during Sediment Comminution and Transport in Fluvio-Deltaic and Lacustrine Rocks of the Bradbury Group, Gale Crater, Mars](#) (Invited). *AGU Fall Meeting*, New Orleans, LA. Abstract EP12B-05.
 29. Fedo, C. M., J. P. Grotzinger, S. Gupta, S. G. Banham, L. A. Edgar, K. Edgett, C. H. House, K. Lewis, M. E. Minitti, H. E. Newsom, F. Rivera-Hernandez, J. Schieber, **K. L. Siebach**, K. M. Stack, N. Stein, D. Y. Sumner, and A. Vasavada. (2017) [Paleoenvironments and Stratigraphic Architecture of an Ancient Lake Basin, Gale Crater, Mars](#). *GSA Annual Meeting*, Seattle, WA. Abstract 232-8.
 28. Hurowitz, J. A., J. P. Grotzinger, W. W. Fischer, S. M. McLennan, R. E. Milliken, N. Stein, A. R. Vasavada, D. F. Blake, E. DeHouck, J. L. Eigenbrode, A. G. Fairen, J. Frydenvang, R. Gellert, J. A. Grant, S. Gupta, K. E. Herkenhoff, D. W. Ming, E. B. Rampe, M. E. Schmidt, ... R. C. Wiens. (incl. **K. L. Siebach**) (2017) [Redox Stratification of an Ancient Lake in Gale Crater, Mars](#). *Fourth Conference on Early Mars: Geologic, Hydrologic, and Climatic Evolution and the Implications for Life*, Flagstaff, AZ. Abstract 3057.
 27. Edgett, K. S., **K. L. Siebach**, K. M. Stack, L. A. Edgar, C. M. Fedo, N. T. Stein, F. Rivera-Hernandez, S. G. Banham, R. A. Yingst, and M. E. Minitti. (2017) [Recognition and Observations of the Mafic Sandstones of Gale Crater, Mars, Using Curiosity's Mars Hand Lens Imager \(MAHLI\)](#). *GSA Cordilleran Section - 113th Annual Meeting*, Hawaii.
 26. **Siebach, K. L.**, M. B. Baker, J. P. Grotzinger, S. M. McLennan, R. Gellert, L. M. Thompson, and J. A. Hurowitz. (2017) [Untangling Provenance Signals in Fluvio-Deltaic-Lacustrine Facies, Gale Crater, Mars](#). *SEPM Research Conference: Propagation of Environmental Signals within Source-to-Sink Stratigraphy*, Tremp & Ainsa, Spanish Pyrenees. Abstract p. 109-112.
 25. Fedo, C. M., J. P. Grotzinger, S. Gupta, N. T. Stein, J. Watkins, S. Banham, K. S. Edgett, M. Minitti, J. Schieber, **K. L. Siebach**, K. Stack-Morgan, H. Newsom, K. W. Lewis, C. House, and A. R. Vasavada. (2017) [Facies Analysis and Basin Architecture of the Upper Part of the Murray Formation, Gale Crater, Mars](#). *48th LPSC*, Houston, TX. Abstract 1689.
 24. Kronyak, R. E., L. C. Kah, C. M. Fedo, K. M. Stack, K. S. Edgett, and **K. L. Siebach**. (2017) [Capping Units of the Murray Formation, Gale Crater, Mars: Salsberry Peak as a Pre-Stimson Formation Caprock](#). *48th LPSC*, Houston, TX. Abstract 1523.
 23. **Siebach, K. L.**, S. M. McLennan, and C. M. Fedo. (2017) [Geochemistry of the Stimson Sandstone, Gale Crater, Mars](#). *48th LPSC*, Houston, TX. Abstract 2499.
- 2016**
22. Bristow, T., R. Haberle, D. Blake, D. Vaniman, J. Grotzinger, **K. L. Siebach**, D. Des Marais, E. Rampe, J. Eigenbrode, B. Sutter, A. Fairen, M. Mischne, and A. Vasavada. (2016) [Constraining Hesperian martian PCO₂ from mineral analysis at Gale crater](#). *AGU Fall Meeting*, San Francisco, CA. Abstract P21C-2113.
 21. Edgett, K., **K. L. Siebach**, J. Grotzinger, E. Heydari, G. M. Krezoski, M. R. Kennedy, and D. Fey. (2016) Curiosity Rover Mars Hand Lens Imager (MAHLI) [Grain-Scale Observations of Silica-Enriched Fracture-Associated Halos in Stimson Formation Sandstones, Gale Crater, Mars](#). *AGU Fall Meeting*, San Francisco, CA. Abstract P11B-1859.
 20. **Siebach, K. L.**, S. M. McLennan, J. P. Grotzinger, R. Gellert, J. A. Hurowitz, and W. W. Fischer. (2016) [Causes of Geochemical Diversity in Three Gale Crater Sedimentary Rock Formations](#). *GSA Annual Meeting*, Denver, CO. Abstract 20-12.

19. Bristow, T., R. Haberle, D. Blake, D. Vaniman, J. Grotzinger, **K. L. Siebach**, D. Des Marais, E. Rampe, J. Eigenbrode, B. Sutter, A. Fairen, M. Mischna, and A. Vasavada. (2016) [Constraining Hesperian Martian PCO₂ from Mineral Analysis at Gale Crater](#). *Goldschmidt2016*, Yokohama, Japan. Abstract 306.
18. **Siebach, K.**, J. Grotzinger, J. Hurowitz, S. McLennan, W. Fischer, and R. Gellert. (2016) [Sedimentary Petrology of the Murray Mudstone, Gale Crater, Mars](#). *Goldschmidt2016*, Yokohama, Japan. Abstract 2858.
17. Hurowitz, J. A., J. P. Grotzinger, W. W. Fischer, R. E. Milliken, E. Dehouck, A. G. Fairen, J. Frydenvang, S. Gupta, S. M. McLennan, **K. L. Siebach**, K. Stack-Morgan, D. Y. Sumner, and R. C. Wiens. (2016) [Dynamic Geochemical Conditions Recorded by Lakebed Mudstones in Gale Crater, Mars](#). *47th LPSC*, Houston, TX. Abstract 1751.
16. Mangold, N., L. M. Thompson, O. Forni, C. Fabre, L. Le Deit, R. C. Wiens, A. J. Williams, R. Williams, R. B. Anderson, D. L. Blaney, F. Calef, S. M. Clegg, A. Cousin, G. Dromart, W. E. Dietrich, K. S. Edgett, M. R. Fisk, O. Gasnault, R. Gellert, ...A. Yingst. (2016) [Chemistry of Conglomerates Analyzed by the Curiosity Rover](#). *47th LPSC*, Houston, TX. Abstract 1614.

2015

15. **Siebach, K. L.**, J. P. Grotzinger, S. M. McLennan, M. B. Baker, R. Gellert, J. A. Hurowitz, and D. L. Blaney. (2015) [Sorting out APXS Compositional Variations in Gale Crater Sedimentary Rocks, Mars](#). *GSA Annual Meeting*, Baltimore, MD. Abstract 94-2.
14. McLennan, S. M., E. Dehouck, J. P. Grotzinger, J. A. Hurowitz, N. Mangold, **K. L. Siebach**, and M. S. Team. (2015) [Geochemical Record of Open-System Chemical Weathering at Gale Crater and Implications for Paleoclimates on Mars](#). *46th LPSC*, Houston, TX. Abstract 2533.
13. Rampe, E. B., R. V. Morris, D. L. Bish, S. J. Chipera, D. W. Ming, D. F. Blake, D. T. Vaniman, T. F. Bristow, P. Cavanagh, J. D. Farmer, S. M. Morrison, **K. L. Siebach**, A. H. Treiman, C. N. Achilles, D. Blaney, J. A. Crisp, D. J. Des Marais, R. T. Downs, K. Fendrich, ...M. S. L. S. Team. (2015) [Potential Cement Phases in Sedimentary Rocks Drilled by Curiosity at Gale Crater, Mars](#). *46th LPSC*, Houston, TX. Abstract 2038.
12. **Siebach, K. L.**, J. P. Grotzinger, S. M. McLennan, J. A. Hurowitz, D. W. Ming, D. T. Vaniman, E. B. Rampe, D. L. Blaney, L. C. Kah, and M. S. Team. (2015) [Constraining the Texture and Composition of Pore-Filling Cements at Gale Crater, Mars](#). *46th LPSC*, Houston, TX. Abstract 2234.

2014

11. Grotzinger, J., D. Blake, J. Crisp, K. Edgett, R. Gellert, S. Gupta, K. Lewis, P. Mahaffy, M. Malin, H. Newsom, T. J. Parker, M. Rice, D. Rubin, **K. L. Siebach**, K. Stack, D. Sumner, R. Wiens, and R. Williams. (2014) [Geologic Framework for Aeolis Palus Bedrock, and Its Relationship to Mt. Sharp, Mars](#) (Invited). *AGU Fall Meeting*, San Francisco, CA. Abstract P42C-01.
10. **Siebach, K.**, J. Grotzinger, S. McLennan, J. Hurowitz, L. Kah, K. Edgett, R. Williams, R. Wiens, and J. Schieber. (2014) [Sandstone Diagenesis at Gale Crater, Mars, As Observed By Curiosity](#). *AGU Fall Meeting*, San Francisco, CA. Abstract P42C-07.
9. Williams, R. M. E., L. C. Kah, **K. L. Siebach**, J. P. Grotzinger, D. Y. Sumner, J. D. Farmer, R. A. Yingst, E. Heydari, D. Z. Oehler, and M. D. Dyar. (2014) [Lithification of Sedimentary Rocks on Mars - A View from Curiosity](#). *GSA Annual Meeting*, Vancouver, British Columbia. Abstract 170-8.
8. Yingst, A. R., M. E. Minitti, K. S. Edgett, S. Gupta, E. Heydari, S. K. Rowland, and **K. L. Siebach**. (2014) [Textures of Gale crater rocks as viewed by the Mars Hand Lens Imager \(MAHLI\): Mechanical aqueous alteration dominates](#). *GSA Annual Meeting*, Vancouver, British Columbia. Abstract 170-6.

7. **Siebach, K. L.**, and J. P. Grotzinger. (2014) [Characterizing Sandstone Porosity Along Curiosity's Traverse Using MAHLI Imagery](#). *Eighth International Conference on Mars*, Pasadena, CA. Abstract 1466.
6. Yingst, R. A., M. E. Minitti, K. S. Edgett, E. Heydari, L. C. Kah, and **K. L. Siebach**. (2014) [Textures of Gale Crater as Viewed by the Mars Hand Lens Imager \(MAHLI\)](#). *Eighth International Conference on Mars*, Pasadena, CA. Abstract 1168.

2013

5. Stack, K. M., J. P. Grotzinger, L. C. Kah, D. Y. Sumner, L. A. Edgar, M. S. Rice, D. Z. Oehler, A. Fairen, **K. L. Siebach**, and M. S. Team. (2013) [The Distribution and Origin of Nodules and Minibowls within the Sheepbed Member: Implications for Early Diagenesis in Yellowknife Bay, Gale Crater, Mars](#). *GSA Annual Meeting*, Denver, CO. Abstract 227794.
4. **Siebach, K. L.**, and J. P. Grotzinger. (2013) [Formation of Boxwork Structures on Mount Sharp, Gale Crater, Mars](#). *44th LPSC*, Houston, TX. Abstract 1875.

2010

3. Grant, J. A., D. Buczkowski, R. P. I. Irwin, and **K. L. Siebach**. (2010) [A Lake in Uzboi Vallis and Implications for Late Noachian Climate on Mars](#). *41st LPSC*, Houston, TX. Abstract 1834.
2. **Siebach, K.**, R. Arvidson, N. Cabrol, and A. S. Team. (2010) [Recent Spirit Results: Microscopic Imager Analysis of Particle Properties in Scamander Crater, West of Home Plate](#). *41st LPSC*, Houston, TX. Abstract 2548.

2009

1. Shaw, A., R. E. Arvidson, H. U. Keller, M. Lemmon, M. T. Mellon, A. Trebi-Ollennu, M. Robinson, **K. L. Siebach**, and R. Volpe. (2009) [Phoenix Mission Trenching in Arctic Mars](#). *40th LPSC*, Houston, TX. Abstract 2097.

SCIENCE TEAM AND PROFESSIONAL MEMBERSHIPS

Mars 2020 Perseverance Rover Science and Operations Team Participating Scientist
 Mars Science Laboratory Science and Operations Team Collaborator
 Mars Exploration Rover Science and Operations Team
 Phoenix Lander Geology Science and Operations Team
 American Geophysical Union (AGU)
 Geological Society of America (GSA)
 American Association of Petroleum Geologists (AAPG)
 Society for Sedimentary Geology (SEPM)
 Houston Geological Society (HGS)
 Ken Kennedy Institute (KKI)
 Sigma Xi

FIELD AND TECHNICAL WORKSHOP EXPERIENCES

Gardnos Impact Crater, Norway with Mars 2020 Science Team	1 day, 6/2025
Portland, OR, Rice EEPS 203 Undergraduate Field Trip Seminar (teacher)	5 days, 2/2025
Churchill, Canada with Rice Traveling Owls	5 days, 10/2024
Ridge Basin and Salton Sea, CA for Mars Analog Sampling	2 days, 5/2023
Iceland, Sandvatn and Apavatn, DIGMARS team	2 weeks, 6/2022
Iceland, Sandvatn Lake, Field work for SSW Proposal, DIGMARS team	9 days, 8/2021
Early Career Geoscience Faculty Workshop (virtual)	4 days, 7/2020
Albuquerque, NM, Rice ESCI 334 Geological Field Techniques Field Trip (TA)	4 days, 3/2019
Pix4D Software user workshop, Houston, TX	1 day, 1/2019

Belize Barrier Reef, Belize, Rice ESCI 516 Carbonates Field Trip	5 days, 10/2018
Western Australia, “Astrobiology Grand Tour”, NASA Astrobiology Institute	9 days, 7/2018
Mason, TX, Carbonate Reef trip led by Prof. Andre Droxler	3 days, 4/2018
Ainsa Basin, Spanish Pyrenees, SEPM Source-to-Sink Conference	5 days, 6/2017
Maine Bedrock, New England Intercollegiate Geological Conference	2 days, 9/2016
WY-MT-CO-SD, American Frontiers Trip, Schooling for Life (teacher)	2 weeks, 8/2016
Ireland Geological Field Camp, James Madison University (TA)	2 weeks, 6/2015
Mojave Desert, CA, Ge157 Remote Sensing Field Trip (TA)	2 days, 5/2015
Guadalupe Mountains, NM, ExxonMobil Geoscience Trip	7 days, 4/2015
Iceland, Geophysics and Planetary Surfaces Enrichment Trip, Caltech	2 weeks, 8/2014
Turks and Caicos, Ge110 Sedimentology Field Course, Caltech	10 days, 2/2014
Mojave Desert, CA, Ge151 Planetary Surfaces Field Trip, Caltech	2 days, 11/2013
Utah Sedimentology and Diagenesis GSA Field Trip, U. Nebraska	4 days, 10/2013
Greece, Geophysics Enrichment Course, Caltech	3 weeks, 9/2013
Belt Basin, MT, Agouron Field Course	10 days, 7/2013
Mojave Desert, CA, Ge157 Remote Sensing Field Trip (TA)	2 days, 5/2013
California Coast, CA, Ge136 Field Course, Caltech	3 days, 11/2012
Death Valley, CA, Ge110 Geomorphology Field Course, Caltech	9 days, 3/2012
Guadalupe Mountains, NM, Ge110 Sedimentology Field Course, Caltech	7 days, 3/2012
Baja Peninsula, Mexico, Ge136 Field Course, Caltech	3 days, 11/2011
Death Valley, CA, Ge112 Sedimentology, Caltech	3 days, 11/2011
White Sands NM, Pathfinder Program, Wash. U. St. Louis	7 days, 8/2010
The Big Island, HI, Volcano Seismology Field Camp, New Mexico Tech	2 weeks, 7/2010
Ireland Geological Field Camp, James Madison University	6 weeks, 5/2010
The Big Island, HI, Pathfinder Program, Wash. U. St. Louis	9 days, 1/2010
Ozarks, MO, Pathfinder Program, Wash. U. St. Louis	2 days, 10/2009
American Southwest, Survey Geological Trip, Wash. U. St. Louis	9 days, 5/2009
The Big Island, HI, Pathfinder Program, Wash. U. St. Louis	9 days, 1/2009
Mojave Desert, CA, Pathfinder Program, Wash. U. St. Louis	9 days, 3/2008

TECHNICAL SKILLS

Computer Programs: ArcGIS, ENVI, Matlab, Microsoft Office, NASA-MSLICE, NASA-MAESTRO, Tableau, Adobe Lightroom, Pix4D

Programming Languages: Matlab, IDL, some Java