

Edwin S. Kite

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Appointments:

University of Chicago

Associate Professor (with tenure) 2022 –

Assistant Professor 2015-2021

Princeton University

Harry Hess Fellow, 1/2014-12/2014. Joint postdoc, Astrophysics+Geoscience departments.

California Institute of Technology

O.K. Earl Fellow, 1/2012-1/2014 (Divisional fellowship).

Education:

University of California, Berkeley (Ph.D., 2011)

Department of Earth and Planetary Science. Berkeley Fellowship.

Cambridge University (M.Sci & B.A., 2007)

Natural Sciences Tripos. First Class.

Awards and Distinctions:

Participating Scientist, Mars *Curiosity* rover 2022–

SciLog Fellow 2020-2022.

National Academy of Sciences - Committee on Astrobiology and Planetary Science 2017–2023.

American Geophysical Union - Greeley Early Career Award in Planetary Science 2016.

Caltech O.K. Earl Postdoctoral Fellowship 2012-2013

AAAS Newcomb Cleveland Prize 2009 (most outstanding *Science* paper; shared).

Papers

— = *mentee*

95. Ansari, S., **Kite, E.S.**, Ramirez, R., Steele, L.J., & Mohseni, H., “FEASIBILITY OF KEEPING MARS WARM WITH NANOPARTICLES,” *Science Advances*, in press (2024).
94. Turner, M.L., Khan, S., Lewis, K., and **Kite, E.S.**, “MARS SEDIMENTATION IN SPACE AND TIME,” in preparation
93. **Kite, E.S.**, Gasda, P., Weitz, C., Thompson, L., Tutolo, B., Mondro, C., Farrand, W., Gupta, S., Schieber, J., Dietrich, W.E., and Lewis, K.W., “HYPOTHESES FOR THE WATER AND METAL FLUXES TO THE RIPPLED AMAPARI MARKER BAND, GALE CRATER, MARS,” in preparation
92. **Kite, E.S.**, Tutolo, B.M., Turner, M., Franz, H., Burt, D.G., Bristow, T.F., Fischer, W.W., Milliken, R., Fraeman, A.A., & Zhou, D., “CARBONATE FORMATION AND FLUCTUATING HABITABILITY ON MARS,” submitted
91. **Kite, E.S.** and Caracas, R., “LARGE-SCALE ATMOSPHERE DISSOLUTION IN MAGMA OCEANS IN EXOPLANETS”, in review.
90. Bryk, A.B., Dietrich, W.E., Bennett, K.A., Fox, V.K., Fedo, C.M., Lamb, M.P., **Kite E.S.**, and 32 others, “PEDIMENT FORMATION AND SUBSEQUENT EROSION IN GALE CRATER: CLUES TO CLIMATE HISTORY OF MARS”, in review
89. Tutolo, B.M., Hausrath, E.M., **Kite, E.S.**, Rampe, E.B., Bristow, T.F., Downs, R.T., Peretyazhko, T., Thorpe, M.T., Grotzinger, J., Archer, D., Des Marais, D., Blake, D.F., Vaniman, D.T., Morrison, S.M., Chipera, S., Hazen, R.M., Morris, R.V., Tu, V.M., & 18 others, “IN SITU EVIDENCE OF AN ACTIVE CARBON CYCLE ON ANCIENT MARS,” revised version resubmitted to *Science*

88. D.G. Burt, J.C. Stern, C.R. Webster, H.B. Franz, B. Sutter, M.T. Thorpe, **E.S. Kite**, J.L. Eigenbrode, A.A. Pavlov, C.H. House, B.M. Tutolo, D.J. Des Marais, E.B. Rampe, A.C. McAdam, C.A. Malespin, “HIGHLY ENRICHED CARBON AND OXYGEN ISOTOPES IN CARBONATE-DERIVED CO₂ AT GALE CRATER, MARS,” revised version resubmitted to *PNAS*
87. Mondro, C.A., and 14 others including **Kite, E.S.**, “WAVE RIPPLES IN THE AMAPARI MARKER BAND AND PROW FORMED IN ICE-FREE LAKES IN GALE CRATER, MARS”, in review at *Science Advances*.
86. Coy, B.P. & **Kite, E.S.**, “DISKWORLD: MODELLING THE LIMITED SENSITIVITY OF LONG-TERM PLANETARY HABITABILITY TO TECTONIC NOISE,” in revision
85. Mondro, C.A., and 21 others including **Kite, E.S.**, “DEPOSITIONAL ENVIRONMENT OF THE AMAPARI MARKER BAND: RISING WATER LEVELS FORMED KILOMETER-SCALE LAKE IN GALE CRATER, MARS”, in review.
84. A. Rudolph, B. Horgan, K. Bennett, C. Weitz, R. Sheppard, S. G. Banham, A. B. Bryk, **E. Kite**, A. Roberts, L. Scuderi, “AN ORBITAL COMPARISON OF A LATE MANTLING UNIT ON AEOLIS MONS WITH OTHER EROSION RESISTANT STRATA EXPLORED BY MARS SCIENCE LABORATORY IN GALE CRATER, MARS,” revised version resubmitted
83. Warren, A.O., Wilson, S.A., Howard, A., Noblet, A., & **Kite, E.S.**, “MULTIPLE OVERSPILL FLOOD CHANNELS FROM YOUNG CRATERS REQUIRE SURFACE MELTING AND HUNDREDS OF METERS OF MID-LATITUDE ICE LATE IN MARS HISTORY,” *Planetary Science Journal*, in press (2024)
82. Doyon, R., & 68 others including **Kite, E.S.**, “A ROADMAP FOR THE ATMOSPHERIC CHARACTERIZATION OF TERRESTRIAL EXOPLANETS WITH JWST” *Nature Astronomy*, in press (2024)
81. **Kite, E.S.**, & Conway, S., “GEOLOGIC EVIDENCE FOR MULTIPLE CLIMATE TRANSITIONS ON EARLY MARS,” *Nature Geoscience*, 17, 10-19 (2024)
80. Dai, F., & 76 others including **Kite, E.S.**, “AN EARTH-SIZED PLANET ON THE VERGE OF TIDAL DISRUPTION”, *Astronomical Journal*, in press (2024)
79. Meyer, M.J, Milliken, R. E., Stack, K. M., Edgar, L. A., Rampe, E. B., Turner, M.L., Lewis, K. W., **Kite, E.S.**, Caravaca, G., Vasavada, A.R., Dietrich, W.E., Bryk, A.B., Gasnault, O., Le Mouélic, S., Seeger, C.H., & Sheppard, R.Y., “THE GEOLOGICAL CONTEXT AND SIGNIFICANCE OF THE CLAY-SULFATE TRANSITION REGION IN MOUNT SHARP, GALE CRATER, MARS: AN INTEGRATED ASSESSMENT BASED ON ORBITER AND ROVER DATA,” *Geological Society of America Bulletin*, in press doi:10.1130/B37355.1 (2024)
78. Gu, J., Peng, B., Ji, X., Zhang, J., Yang, H., Hoyos, S., Hirschmann, M.M., **Kite, E.S.**, & Fischer, R.A., “COMPOSITION OF EARTH’S INITIAL ATMOSPHERE AND FATE OF ACCRETED VOLATILES SET BY CORE FORMATION AND MAGMA OCEAN REDOX EVOLUTION,” *Earth & Planetary Science Letters*, 629, 118618 (2024)
77. Hu, R., Gaillard, F., & **Kite, E.S.**, “NARROW LOOPHOLE FOR H₂-DOMINATED ATMOSPHERES ON HABITABLE ROCKY PLANETS AROUND M DWARFS,” *Astrophysical Journal Letters*, 948, L20 (2023)
76. Peterson, M., Benneke, B., Collins, K., Piaulet, C., Crossfield, I.J.M., Ali-Dib, M., Christiansen, J.L., Gagné, J., Faherty, J., **Kite E.S.**, & 58 others, “A TEMPERATE EARTH-SIZED PLANET WITH TIDAL HEATING TRANSITING AN M6 STAR,” *Nature*, 617, 701-705 (2023).
75. Fan, B., Jansen, M., Mischna, M.A., and **Kite, E.S.**, “WHY ARE MOUNTAINTOPS COLD? THE TRANSITION OF SURFACE LAPSE RATE ON DRY PLANETS,” *Geophysical Research Letters*, 50, 23, e2023GL106683 (2023)

74. Butkus, C.R., Warren, A.O., **Kite, E.S.**, Torres, S., Naoz, S., & Glass, J.B., A NOTE ON GRAPHITE HYDROGENATION AS A SOURCE OF ABIOTIC METHANE ON ROCKY PLANETS: A CASE STUDY FOR MERCURY,” *Icarus*, 400, 115580 (2023)
73. Barclay, T., & 34 others including **Kite, E.S.**, “THE TRANSMISSION SPECTRUM OF THE POTENTIALLY ROCKY PLANET L 98-59 C,” (in review)
72. Ji, X., Bailey, N., Fabrycky, D., **Kite, E.S.**, Jiang., J.H., & Abbot, D.S., “INNER HABITABLE ZONE BOUNDARY FOR ECCENTRIC EXOPLANETS,” *Astrophysical Journal Letters*, 943, 1 (2023)
71. Rapin, W., Dromart, G., Clark, B.C., Schieber, J., **Kite, E.S.**, Kah, L.C., Thomson, L.M., Meslin, P-Y., Gasnault, O., Gasda, P.J., & Lanza, N.L., “IN SITU EVIDENCE FOR SUSTAINED WET-DRY CYCLING ON EARLY MARS,” *Nature*, 620, 299-302 (2023)
70. Warren, A.O., & **Kite, E.S.**, “NARROW RANGE OF EARLY HABITABLE VENUS SCENARIOS PERMITTED BY MODELING OF OXYGEN LOSS AND RADIOGENIC ARGON DEGASSING,” *Proceedings of the National Academy of Sciences*, 120(11), e2209751120 (2023)
69. Zaki, A.S., Edgett, K.S., Pajola, M., **Kite, E.S.**, Davis, J.M., Madof, A.S., Grindrod, P., Gupta, S., Hughes, C.M., Sangwang, K., Thomas, N., Cremonese, G., & Castellort, S., “PROLONGED RECORD OF HYDROCLIMATIC CHANGES AT ANTONIADI CRATER, MARS” , *Journal of Geophysical Research – Planets*, 128, e2022JE007606 (2023)
68. Jansen, M.F., Kang, W., **Kite, E.S.**, & Zeng, Y., “ENERGETIC CONSTRAINTS ON OCEAN CIRCULATIONS OF ICY OCEAN WORLDS,” *Planetary Science Journal*, 4, 117 (2023)
67. Brinkman, C.L., Weiss, L.M., Dai, F., Huber, D., **Kite, E. S.**, & 21 others, “TOI-561 B: A LOW DENSITY ULTRA-SHORT PERIOD “ROCKY” PLANET AROUND A METAL-POOR STAR” , *Astronomical Journal*, 165, 88 (2023)
66. **Kite, E.S.**, & Noblet, A., “HIGH AND DRY: BILLION-YEAR TRENDS IN THE ARIDITY OF RIVER-FORMING CLIMATES ON MARS,” *Geophysical Research Letters*, 49(24), e2022GL101150 (2022)
65. Whittaker, E.A., Malik, M., Ih, J., Kempton, E. M.-R., Mansfield, M., Bean, J.L., **Kite, E.S.**, Koll, D.D.B., Cronin, T.W., & Hu, R., “THE DETECTABILITY OF ROCKY PLANET SURFACE AND ATMOSPHERE COMPOSITION WITH JWST: THE CASE OF LHS 3844B,” , arXiv:2207.08889, *Astronomical Journal*, 164, 258 (2022)
64. Damiano, M., & 22 others including **Kite, E.S.**, “A TRANSMISSION SPECTRUM OF THE SUB-EARTH PLANET L98-59 B IN 1.1 - 1.7 μm ,” *Astronomical Journal* 164, 225 (2022)
63. Li, A., **Kite, E.S.**, & Keating, K.A., “THE AGE AND EROSION RATE OF YOUNG SEDIMENTARY ROCK ON MARS,” *Planetary Science Journal*, 3, 246 (2022)
62. **Kite, E.S.**, Mischna, M.A., Fan, B., Morgan, A.M., Wilson, S.A., & Richardson, M.A., “CHANGING SPATIAL DISTRIBUTION OF WATER FLOW CHARTS MAJOR CHANGE IN MARS GREENHOUSE EFFECT,” *Science Advances*, 8, eabo5894 (2022)
61. **Kite, E.S.**, & Schaefer, L., “WATER ON HOT ROCKY EXOPLANETS,” *Astrophysical Journal Letters* 909:L22 (2021)
60. Holo, S.J., **Kite, E.S.**, Wilson, S.A., & Morgan, A.M. “THE TIMING OF ALLUVIAL FAN FORMATION ON MARS,” *Planetary Science Journal*, 2, 210 (2021)
59. Fan, B., Shaw, T.A., Tan, Z., & **Kite, E.S.**, “REDUCING SURFACE WETNESS LEADS TO TROPICAL HYDROLOGICAL CYCLE REGIME TRANSITION,” *Geophysical Research Letters*, 48(8), e2020GL090746 (2021)
58. **Kite, E.S.**, Steele, L.J., Mischna, M.A., & Richardson, M.I., “WARM EARLY MARS SURFACE ENABLED BY HIGH-ALTITUDE WATER ICE CLOUDS,” *Proceedings of the National Academy of Sciences*, 118(18), e2101959118 (2021)

57. Stucky de Quay, G., Goudge, T.A., **Kite, E.S.**, Fassett, C.I., & Guzewich, S.D., “LIMITS ON RUNOFF EPISODE DURATION FOR EARLY MARS: INTEGRATING LAKE HYDROLOGY AND CLIMATE MODELS,” *Geophysical Research Letters*, 48(15), e2021GL093523 (2021)
56. Hu, R., Damiano, M., Scheucher, M., **Kite, E.S.**, Seager, S., & Rauer, H., “UNVEILING SHROUDED OCEANS ON TEMPERATE SUB-NEPTUNES VIA TRANSIT SIGNATURES OF SOLUBILITY EQUILIBRIA VS. GAS THERMOCHEMISTRY,” *Astrophysical Journal Letters*, 921:L8 (2021)
55. Liu, Z., Liu, Y., Pan, L., Zhao, J., **Kite, E.S.**, Wu, Y., & Zou, Y., “INVERTED CHANNEL BELTS AND FLOODPLAIN CLAYS TO THE EAST OF TEMPE TERRA, MARS: IMPLICATIONS FOR PERSISTENT FLUVIAL ACTIVITY ON EARLY MARS,” *Earth & Planetary Science Letters*, 562, 116854 (2021)
54. Warren, A.O., Holo, S., **Kite, E.S.**, & Wilson, S.A. “OVERSPILLING SMALL CRATERS ON A DRY MARS: INSIGHTS FROM BREACH EROSION MODELING,” *Earth & Planetary Science Letters*, 554, 116671, 11 pp. (2020)
53. Ermakov, A., and 15 others including **Kite, E.S.**, “A RECIPE FOR GEOPHYSICAL EXPLORATION OF ENCELADUS,” *Planetary Science Journal*, 2, 157 (2021)
52. **Kite, E.S.** & Barnett, M.N., 2020, “EXOPLANET SECONDARY ATMOSPHERE LOSS AND REVIVAL,” *Proceedings of the National Academy of Sciences*, 117(31), 18264-18271 (2020)
51. **Kite, E.S.**, Fegley, B., Schaefer, L., & Ford, E.B., “ATMOSPHERE ORIGINS FOR EXOPLANET SUB-NEPTUNES,” *Astrophysical Journal*, 891:111, 16 pp. (2020)
50. Heard, A., & **Kite, E.S.**, “A PROBABILISTIC CASE FOR A LARGE MISSING CARBON SINK ON MARS AFTER 3.5 BILLION YEARS AGO,” *Earth & Planetary Science Letters*, 531, 116001, 13 pp. (2020)
49. Holo, S., & **Kite, E.S.**, “THE SPATIAL SIGNATURE OF A CHANGING ANCIENT IMPACTOR POPULATION FOR MARS,” *Icarus*, 337, 113447, 6 pp. (2020)
48. **Kite, E.S.**, Mischna, M., Gao, P., Yung, Y., & Turchet, M., “METHANE RELEASE ON EARLY MARS BY ATMOSPHERIC COLLAPSE AND ATMOSPHERIC REINFLATION,” *Planetary & Space Science*, 181, 104820, 17 pp. (2020)
47. Archer, D., **Kite, E.S.**, & Lusk, G., “THE ULTIMATE COST OF CARBON,” *Climatic Change*, 162, 2069–2086 (2020)
46. **Kite, E.S.**, Mayer, D.P., Wilson, S., Davis, J., Lucas, A.S., & Stucky de Quay, G., “PERSISTENCE OF INTENSE, CLIMATE-DRIVEN RUNOFF LATE IN MARS HISTORY,” *Science Advances*, 5(3), eaav7710 (2019)
45. **Kite, E.S.**, Fegley, B., Schaefer, L., & Ford, E.B., “SUPERABUNDANCE OF EXOPLANET SUB-NEPTUNES EXPLAINED BY FUGACITY CRISIS,” *Astrophysical Journal Letters*, 887:L33 (2019)
44. **Kite, E.S.**, “GEOLOGIC CONSTRAINTS ON EARLY MARS CLIMATE,” *Space Science Reviews*, 215:10, 47 pp. (2019)
43. Warren, A.O., **Kite, E.S.**, Williams, J.-P., & Horgan, B., “THROUGH THE THICK AND THIN: NEW CONSTRAINTS ON MARTIAN PALEOPRESSURE HISTORY 3.8-4 GA FROM SMALL EXHUMED CRATERS,” *Journal of Geophysical Research – Planets*, 121, 2793-2818 (2019)
42. Stucky de Quay, G., **Kite, E.S.**, & Mayer, D.P., “PROLONGED FLUVIAL ACTIVITY FROM CHANNEL-FAN SYSTEMS ON MARS,” *Journal of Geophysical Research – Planets*, 124, 3119–3139 (2019)
41. **Kite, E.S.**, & Melwani Daswani, M., “GEOCHEMISTRY CONSTRAINS GLOBAL HYDROLOGY ON EARLY MARS,” *Earth & Planetary Science Letters*, 524, 115718, 10 pp. (2019)

40. Mansfield, M., **Kite, E.S.**, Hu, R., Koll, D.B., Malik, M., Bean, J.L., & Kempton, E. M.-R., “IDENTIFYING ATMOSPHERES ON ROCKY EXOPLANETS THROUGH INFERRED HIGH ALBEDO,” *Astrophysical Journal* 886:141, 11 pp. (2019)
39. de Kleer, K., Nimmo, F., & **Kite, E.S.**, “VARIABILITY IN IO’S VOLCANISM ON TIMESCALES OF PERIODIC ORBITAL CHANGES,” *Geophysical Research Letters*, 46, 6327–6332 (2019)
38. Koll, D., Malik, M., Mansfield, M., Kempton, E. M.-R., **Kite, E.S.**, Abbot, D., & Bean, J.L. “IDENTIFYING CANDIDATE ATMOSPHERES ON ROCKY M-DWARF PLANETS VIA EMISSION PHOTOMETRY,” *Astrophysical Journal* 886:140, 13 pp. (2019)
37. Malik, M., Kempton, E. M.-R., Koll, D.B., Mansfield, M., Bean, J.L., & **Kite, E.S.** “ANALYZING ATMOSPHERIC TEMPERATURE PROFILES AND SPECTRA OF M DWARF ROCKY PLANETS,” *Astrophysical Journal*, 886:142, 13 pp. (2019)
36. Mansfield, M., **Kite, E.S.**, & Mischna, M., “EFFECT OF MARS ATMOSPHERIC LOSS ON SNOW MELT POTENTIAL IN A 3.5-GYR CLIMATE EVOLUTION MODEL,” *Journal of Geophysical Research – Planets*, 123, 794–806 (2018)
35. **Kite, E.S.**, & Ford, E., “HABITABILITY OF EXOPLANET WATERWORLDS,” *Astrophysical Journal*, 864:75, 28 pp. (2018)
34. Seybold, H.J., **Kite, E.S.**, & Kirchner, J., “BRANCHING GEOMETRY OF VALLEY NETWORKS ON MARS AND EARTH AND ITS IMPLICATIONS FOR EARLY MARTIAN CLIMATE,” *Science Advances*, 4(6), eaar6692 (2018)
33. Holo, S.J., **Kite, E.S.**, & Robbins, S.J., “MARS OBLIQUITY HISTORY CONSTRAINED BY ELLIPTIC CRATER ORIENTATIONS,” *Earth & Planetary Science Letters*, 496, 206–214 (2018)
32. Steele, L., **Kite, E.S.**, & Michaels, T.I., “CRATER MOUND FORMATION BY WIND EROSION ON MARS,” *Journal of Geophysical Research – Planets*, 123, 113–130 (2018)
31. Gabasova, L., & **Kite, E.S.**, “COMPACTION AND SEDIMENTARY BASIN ANALYSIS ON MARS,” *Planetary & Space Science*, 152, 86–106 (2018)
30. Spencer, J., Nimmo, F., Ingersoll, A., Hurford, T.A., **Kite, E.S.**, Rhoden, A., Schmidt, J., & Howett, C.J.A., “PLUME ORIGINS AND PLUMBING (OCEAN TO SURFACE),” pp. 163-174 in Schenk, P., et al., eds., *Enceladus and the Icy Moons of Saturn*, University of Arizona Press (2018)
29. **Kite, E.S.**, Gaidos, E., & Onstott, T.C., “VALUING LIFE DETECTION MISSIONS,” *Astrobiology*, 18, 834-840 (2018)
28. **Kite, E.S.**, Gao, P., Goldblatt, C., Mischna, M., Mayer, D.P., & Yung, Y., “METHANE BURSTS AS A TRIGGER FOR INTERMITTENT LAKE-FORMING CLIMATES ON POST-NOACHIAN MARS,” *Nature Geoscience*, 10, 737–740 (2017)
27. **Kite, E.S.**, Sneed, J., Mayer, D.P., & Wilson, S.A., “PERSISTENT OR REPEATED SURFACE HABITABILITY ON MARS,” *Geophysical Research Letters*, 44, 3991–3999 (2017)
26. Melwani Daswani, M., & **Kite, E.S.**, “PALEOHYDROLOGY ON MARS CONSTRAINED BY MASS BALANCE AND MINEROLOGY OF PRE-AMAZONIAN SODIUM CHLORIDE LAKES: DEEP GROUNDWATER NOT REQUIRED”, *Journal of Geophysical Research – Planets*, 122, 1802–1823 (2017)
25. **Kite, E.S.**, & Mayer, D.P., “MARS SEDIMENTARY ROCK EROSION RATES CONSTRAINED USING CRATER COUNTS, WITH APPLICATIONS TO ORGANIC-MATTER PRESERVATION AND TO THE GLOBAL DUST CYCLE,” *Icarus*, 286, 212–222 (2017)
24. **Kite, E.S.**, & Rubin, A., “SUSTAINED ERUPTIONS ON ENCELADUS EXPLAINED BY TURBULENT DISSIPATION IN TIGER STRIPES,” *Proceedings of the National Academy of Sciences*, 113, 3972–3975 (2016)
23. **Kite, E.S.**, Fegley, B., Schaefer, L., & Gaidos, E., “ATMOSPHERE-INTERIOR EXCHANGE ON HOT ROCKY EXOPLANETS,” *Astrophysical Journal*, 828, 80, 20 pp (2016)

22. **Kite, E.S.**, Sneed, J., Mayer, D.P., Lewis, K.W., Michaels, T.I., Hore, A., & Rafkin, S.C.R., “EVOLUTION OF MAJOR SEDIMENTARY MOUNDS ON MARS,” *Journal of Geophysical Research – Planets*, 121, 2282–2324 (2016)
21. Richter, F., Chaussidon, M., Mendybaev, R., & **Kite, E.S.**, “REASSESSING THE COOLING RATE AND GEOLOGIC SETTING OF MARTIAN NAKHLITE METEORITES, WITH SPECIAL EMPHASIS ON MIL 03346 AND NWA 817,” *Geochimica et Cosmochimica Acta*, 182, 1–23 (2016)
20. Ehlmann, B., and 46 others including **Kite, E.S.**, “THE SUSTAINABILITY OF HABITABILITY ON TERRESTRIAL PLANETS,” *Journal of Geophysical Research – Planets*, 121, 1927–1961 (2016)
19. **Kite, E.S.**, Howard, A., Lucas, A., & Lewis, K.W., “RESOLVING THE ERA OF RIVER-FORMING CLIMATES ON MARS USING STRATIGRAPHIC LOGS OF RIVER-DEPOSIT DIMENSIONS,” *Earth & Planetary Science Letters*, 420, 55–65 (2015)
18. **Kite, E.S.**, Howard, A., Lucas, A., Armstrong, J.C., Aharonson, O., & Lamb, M.P., “STRATIGRAPHY OF AEOLIS DORSA, MARS: STRATIGRAPHIC CONTEXT OF THE GREAT RIVER DEPOSITS,” *Icarus*, 253, 223–242 (2015)
17. Borlina, C., Ehlmann, B.L., & **Kite, E.S.**, “MODELING THE THERMAL AND PHYSICAL EVOLUTION OF MOUNT SHARP’S SEDIMENTARY ROCKS, GALE CRATER, MARS,” *Journal of Geophysical Research – Planets*, 120, 1396–1414 (2015)
16. **Kite, E.S.**, Williams, J.-P., Lucas, A., & Aharonson, O., “LOW PALAEOPRESSURE OF THE MARTIAN ATMOSPHERE ESTIMATED FROM THE SIZE DISTRIBUTION OF ANCIENT CRATERS,” *Nature Geoscience*, 7, 335–339 (2014)
15. **Kite, E.S.**, Lewis, K.W., Lamb, M.P., Newman, C.E., & Richardson, M.I., “GROWTH AND FORM OF THE MOUND IN GALE CRATER, MARS: SLOPE-WIND ENHANCED EROSION AND TRANSPORT,” *Geology*, 41, 543–546 (2013) (Science “Highlight of the Meeting”: Science, 338, 1522).
14. **Kite, E.S.**, Halevy, I., Kahre, M.A., Manga, M., & Wolff, M., “SEASONAL MELTING AND THE FORMATION OF SEDIMENTARY ROCKS ON MARS,” *Icarus*, 223, 181–210 (2013a)
13. **Kite, E.S.**, Lucas, A., & C.I. Fassett, “PACING EARLY MARS RIVER ACTIVITY,” *Icarus*, 225, 850–855 (2013b)
12. Šrámek, O., McDonough, W., **Kite, E.S.**, Lekić, V., Zhong, S.T., & Dye, W.F., “GEOLOGICAL AND GEOCHEMICAL CONSTRAINTS ON GEONEUTRINO FLUXES FROM EARTH’S MANTLE,” *Earth & Planetary Science Letters*, 361, 356–366 (2013)
11. Mangold, N., **Kite, E.S.**, Kleinbans, M., Newsom, H.E., Ansan, V., Hauber, E., Kraal, E., Quantin-Nataf, C. & K. Tanaka, “THE ORIGIN AND TIMING OF FLUVIAL ACTIVITY AT EBERSWALDE CRATER, MARS,” *Icarus*, 220, 530–551 (2012)
10. Manga, M., Patel, A., Dufek, J., & **Kite, E.S.**, “WET SURFACE AND DENSE ATMOSPHERE ON EARLY MARS INFERRED FROM THE BOMB SAG AT HOME PLATE, MARS,” *Geophysical Research Letters*, 39, L01202, 5 pp. (2012)
9. Rappaport, S., Levine, A., Chiang, E., El Mellah, I., Jenkin, J., Kalomeni, B., **Kite, E.S.**, Kotson, M., Nelson, L., Rousseau-Nepton, & Tran, K., “POSSIBLE DISINTEGRATING SHORT-PERIOD SUPER-MERCURY ORBITING KIC 12557548,” *Astrophysical Journal*, 752:1, 13 pp. (2012)
8. **Kite, E.S.**, Gaidos, E. & M. Manga, “CLIMATE INSTABILITY ON TIDALLY LOCKED EXOPLANETS,” *Astrophysical Journal*, 743, 41, 12 pp. (2011)
7. **Kite, E.S.**, Rafkin, S.C.R., Michaels, T.I., Dietrich, W.E., & Manga, M., “CHAOS TERRAIN, STORMS, AND PAST CLIMATE ON MARS,” *Journal of Geophysical Research – Planets*, 116, E10002, 26 pp. (2011)

6. **Kite, E.S.**, Michaels, T.I., Rafkin, S.C.R., Manga, M., & W.E. Dietrich, “LOCALIZED PRECIPITATION AND RUNOFF ON MARS,” *Journal of Geophysical Research – Planets*, 116, E07002, 20 pp. (2011)
5. Chiang, E., **Kite, E.**, Kalas, P., Graham, J. R., & Clampin, M., “FOMALHAUT’S DEBRIS DISK AND PLANET: CONSTRAINING THE MASS AND ORBIT OF FOMALHAUT B USING DISK MORPHOLOGY,” *Astrophysical Journal*, 693, 734–749 (2009)
4. **Kite, E.S.**, Matsuyama, I., Manga, M., Perron, J.T., & Mitrovica, J.X., “TRUE POLAR WANDER DRIVEN BY LATE-STAGE VOLCANISM AND THE DISTRIBUTION OF PALEOPOLAR DEPOSITS ON MARS,” *Earth Planet. Sci. Lett.*, 280, 254–267 (2009)
3. **Kite, E.S.**, Manga, M., & Gaidos, E., “GEODYNAMICS AND RATE OF VOLCANISM ON MASSIVE EARTH-LIKE PLANETS,” *Astrophysical Journal*, 700, 1732–1749 (2009)
2. Kalas, P., Graham, J. R., Chiang, E., Fitzgerald, M. P., Clampin, M., **Kite, E. S.**, Stapelfeldt, K., Marois, C., & Krist, J., “OPTICAL IMAGES OF A PLANET 25 LIGHT YEARS FROM EARTH,” *Science*, 322, 1345–1348 (2008)
(*Science* #2 “Breakthrough of the Year”).
1. **Kite, E.S.**, & R.C.A. Hindmarsh, “DID ICE STREAMS SHAPE THE LARGEST CHANNELS ON MARS?,” *Geophysical Research Letters*, 34, L19202, 5 pp. (2007)

Advising

Ph.D. program advisor for:

Samuel Holo (2016–2020, Ph.D. 2021), Alexandra (Sasha) Warren (2018–2023, Ph.D. 2023), Bowen Fan (2025 - anticipated), Brandon Coy (2027 - anticipated), & Daniel Zhou (2028 - anticipated).

Postdoctoral advisor for:

Mohit Melwani Daswani (Jun 2015–Apr 2017), Liam Steele (Jan 2017–Aug 2018), & Madison (Maddy) Turner (Oct 2023 –)

Senior thesis advisor for: An Li (2021), and James Hu (2022).

Visiting graduate student advisor for:

Gaia Stucky de Quay (Imperial College London) (3/2018–9/2018) & Martin Turbet (U. Paris) (9/2018–12/2018; advising jointly with D. Abbot), & Gwenaël Van Looveren (U. Vienna) (9/2023–10/2023).

Summer project / visiting student advisor for:

Bowen Fan (Peking U. senior, 2017) & Leila Gabasova (U. Paris predoc, 2015).

Ph. D. or MSci thesis advisory committee for:

Nathan Baskin (MSci, 2016), Andrew Malone (Ph.D., 2017), Matouš Ptáček (MSci, 2018), Predrag Popovic (Ph.D., 2020), Adrien Sy (MSci, 2020), Megan Mansfield (Ph.D., 2021; I was the primary advisor for Mansfield’s M.Sci thesis), Jade Checlair (Ph.D. 2021), Jennika Greer (Ph.D. 2022), Jisheng Zhang (Department of Astronomy & Astrophysics, Ph.D. 2023), Xinyi (Camilla) Liu (on committee 2019–2022, Ph.D. 2024), Xuan Ji (Ph.D. 2025 - anticipated), Eric Van Camp (Ph.D. 2025 - anticipated), and Yaoxuan Zeng (Ph.D. 2026 - anticipated).

Former lab members and former visitors:

Mohit Melwani Daswani, postdoc Jun 2015–Mar 2017 (*now Research Scientist at JPL*).

Liam Steele, postdoc Feb 2017–Aug 2018 (*now Research Scientist at ECMWF*).

Sam Holo, graduate student 2016–2020 (*now at McKinsey & Company*).

Megan Mansfield, graduate student (co-advised) 2016–2018

(*Assistant Professor at University of Maryland, starting 2025*).

Sasha Warren, graduate student 2018–2023 (*now at World Wide Technology*).

Gaia Stucky de Quay, visiting graduate student Mar–Sep 2018

(*now Assistant Professor at MIT*).

Jonathan Sneed, full-time Mars research assistant 2016–2018
(*now in the Planetary Science Ph.D. program at UCLA*).

David Mayer, planetary GIS/data specialist 2015–2017
(*now at US Geological Survey Astrogeology Program, Flagstaff, AZ*).

Leila Gabasova, 2015 summer student.
(*Now a Ph.D. student at Institut de Planétologie et Astrophysique de Grenoble*).

An Li, 2020-2021 senior thesis student.
(*Now in the Planetary Science Ph.D. program at the University of Washington*).

Invited talks Institute for Advanced Study (2025), NASA Goddard Sellers Exoplanet Environments Collaboration (2024, 2019); Zhejiang University (2024), U. Vienna (2024), Foresight Institute (2024, twice), Laboratoire de Météorologie Dynamique, Institut Pierre Simon Laplace, Paris (1023), U. Notre Dame (2023), Freie Universität Berlin (2023); Northwestern (2023), Université de Nantes (2022, keynote); U. Texas at Austin (2022, 2018, 2012); NASA Jet Propulsion Laboratory (2022, 2012, 2010); Princeton (2021, 2013); Stony Brook (2021); Queens College, CUNY (2021); 9th Joint Workshop on High Pressure, Planetary and Plasma Physics, Münster (keynote) (2021, keynote); MIT (2021); UC Berkeley (2021); UCLA (2021, 2012); Caltech (2021); Rice (2021, 2014); UC Santa Cruz (2020*, 2011, 2009); Penn State (2018); U. Minnesota (2018); U. Bern (2017); Arizona State University (2016); National Academy of Sciences / Chinese Academy of Sciences Forum for New Leaders in Space Science, Shanghai (2015); McGill University (2015); U. Washington (2015); Planetary and Space Sciences Research Institute (UK) (2015); Kavli Institute of Theoretical Physics (2015); U. Illinois (2015), NOAA Geophysical Fluids Dynamics Laboratory (2014); Columbia University / Earth Institute (2014); Weizmann Institute of Science (2013); University of Arizona (2013); Johns Hopkins (2013); University of Chicago (2013); iPLEX (2012); Purdue (2012); Space Sciences Laboratory (2010); SETI Institute (2009).
* = *postponed*.

Funding: (* = current)

total ~\$2.5 M

PI, NASA Solar System Workings grant,
Wind erosion of layered sediments on Mars: the role of terrain (NNX15AH98G) (\$314 K)

PI, NASA Exoplanet Research Program grant,
Origin of the volatile envelopes of small-radius exoplanets (NNX16AB44G) (\$268 K)

PI, NASA Solar System Workings grant,
Quantifying the effect of Mars obliquity on the intermittency of surface liquid water (NNX16AG55G) (\$374 K)

PI, NASA Mars Data Analysis Program grant,
Unscrambling Noachian crater degradation on Mars (NNX16AJ38G) (\$251 K)

PI, NASA Solar System Workings grant,
Modeling the drying-out of Mars (80NSSC20K0144) (\$307 K)

PI, NASA Future Investigators (FINESST) grant awarded to Alexandra (Sasha) Warren,
Small exit breach craters as probes of Martian climate since 3.5 Ga (80NSSC20K1382) (\$134 K)

PI, NASA Mars Science Laboratory Participating Scientist, (*)
Linking rover observations with models of timing and flow of surface and subsurface waters at Gale crater (80NSSC22K0731) (\$201 K)

PI, NASA Mars Data Analysis Program grant, (*)
Mars sedimentation in space and time (80NSSC22K1084) (\$318 K)

Co-I, NASA Mars Data Analysis Program grant,
Environment and evolution of Martian alluvial fans (NNX15AM49G) (\$66 K)

Co-I, NASA Mars Data Analysis Program grant,
*Assessing a cold-icy vs. warm-wet climate for Early Mars with valley network
morphometry and landscape evolution* (80NSSC18K1476) (\$69K)

+ Co-PI on two Scialog seed grants (total \$110 K), Co-I or Administrative Co-I on four
James Webb Space Telescope grants (*)

Reviewing: *Science, Nature, Proceedings of the National Academy of Sciences,
Astrophysical Journal Letters*, and 20 other journals.

American Geophysical Union Editor's Citation for Excellence in Refereeing 2017

Panelist for NASA (11 panels including Habitable Worlds, Emerging Worlds,
Mars Data Analysis Program, and 3 NASA mission selection evaluation teams), and NSF.

Teaching:

As instructor:

GEOS 28600, Earth and Planetary Surface Processes (with Death Valley field trip): 2024.

GEOS 13100, Physical geology: 2023 (twice), 2024.

GEOS 28600, Earth and Planetary Surface Processes: 2017, 2018, 2020, 2021, 2022.

GEOS 22060 / GEOS 32060 / ASTR 45900, Planetary habitability: 2016, 2018, 2019,
2020, 2021, 2022, 2023.

Undergraduate & Predoctoral Researchers:

Complete list (22 total): Wen Bo, Vespera Luo, Ev Sun, Brandon Coy, James Hu,
Courtney Leung, Charlie Willard, Eric Blom, An Li, Katarina Keating, Samantha Baker,
Deirdre Edward, Thomas Cortellesi, Daniel Eaton, Julian Marohnic, Shane Coffield,
William Misener, Leila Gabasova, Chuan Yin, Emily Thompson, Edward Warden, James
Andrew Billingsley.

Other/Outreach:

Instructor + team mentor at Rossbypalooza (climate science summer school), 2018 & 2022.

Invited senior participant and team mentor at CIDER (Cooperative Institute for
Dynamic Earth Research) summer school, UC Berkeley, 2022.

Published 6 introductory-level science outreach / education articles in *Astronomy Now*,
Chemistry Review, *Spaceflight Now*, and *Earth Space Review*.

Invited speaker at public events for Adler Planetarium, etc.

Service: *External:*

Committee for Astrobiology and Planetary Science, National Academy of Sciences, 2017–
2023

(supports scientific progress in astrobiology and planetary science by providing advice to
the federal government on the implementation of Decadal Survey recommendations).

Mars Concurrent Exploration Science Analysis Group (MCE-SAG), 2022

Admissions Committee, Summer Science Program (high-school planetary science summer
program nonprofit of which I am an alumnus; <10% admissions rate), 2018 & 2021.

Led advocacy articles in *EoS: Trans. AGU* (2021) & *Physics Today* (2013).

Internal:

Chair of Department Chamberlin Fellowship committee 2018–2019
Co-Chair of Department Conduct Committee 2021
Committee to Write The Department Expansion Plan, 2021–2022
Lead of ad-hoc committee on Postdoc Recruiting and Professional Development 2019
Department Graduate Admissions Committee, 2015–2016, 2020–2021, 2022–2023
Department Postdoctoral Fellowship (Chamberlin) Committee, 2017–2018 & 2019–2020
Department Website Committee, 2015–2016 & 2020–2021 & 2022–2024
Department Colloquium Committee, 2015–2016
Time Allocation Committee, Research Computing Center, University of Chicago, 2018–9.

Field experience:

Greece, England, Scotland, California, Hawaii, Spain, Central India, NW Australia, Utah, Arizona (field trip leader), California/Nevada (field trip leader).

Selected research experience at locations other than college or graduate school:

NASA Jet Propulsion Laboratory: Visiting Associate, 2012-2015.
Weizmann Institute, Israel: Visiting scholar, summer 2013.
Hubble Space Telescope: Co-I on General Observer Programs 11818 & 16448.
James Webb Space Telescope: Co-I on Programs 01743, 01846, 03263, and 04818. I am Administrative Co-I on JWST Program 06284, for which graduate student Coy is PI.