

Mackenzie Day

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Department Earth, Planetary, and Space Sciences, University of California Los Angeles

EDUCATION

2012-2017	University of Texas at Austin (Austin, TX) PhD, Geology
2008-2012	California Institute of Technology (Pasadena, CA) BS, Geology

APPOINTMENTS

2024-present	Associate Professor	University of California Los Angeles
2018-2024	Assistant Professor	University of California Los Angeles
2017-2018	Postdoctoral Fellow	University of Washington

SELECTED AWARDS

2022	American Geophysical Union Early Career Planetary Sci. Greeley Award
2021	National Science Foundation; CAREER Award
2020	Hellman Fellow; Hellman Fellows Fund for Assistant Professors
2020	Faculty Career Development Award; UCLA
2017	Best PhD Exit talk; Jackson School of Geosciences,
2015, 2013	NASA Group Achievement Award, Mars Science Laboratory Team

BOOK CHAPTERS

- 2) **Day, M.**, “Chapter 6: Eolian Erosion and Deposition in the Solar System” in *Erosion, Deposition, and Weathering Across the Solar System*, Eds. J Radebaugh and A. Morgan. (2025), Elsevier. Accepted; waiting on other chapters.
- 1) **Day, M.**, “Dune-Field Patterns” in *Treatise on Geomorphology: Reference Module in Earth Systems and Environmental Science*, 2nd ed., Ed. N. Lancaster, (2021), Elsevier: London. <https://doi.org/10.1016/B978-0-12-818234-5.00049-3>

PUBLICATIONS

- 40) Widmer, J. M., S. Diniega, **M. Day**, S. Cartwright, & N. Alsaeed. “Atmospheric drivers of interannual variability from the northern hemisphere seasonal cap on Mars”. (2025) Icarus, 116786. <https://doi.org/10.1016/j.icarus.2025.116786>
- 39) Pérez-Cortés, S. L., A. M. Bramson, C. M. Sowinski, and **M. Day**, "Scour pits in the Medusae Fossae Formation and Olympus Mons Region on Mars." (2025). JGR Planets, 130, e2024JE008664. <https://doi.org/10.1029/2024JE008664>

- 38) Dorn, T., and **M. Day**, “Spatial variability in aeolian abrasion: Ibex Dune Field, Death Valley National Park.” (2024) *Sedimentology*, 72(1), 258-274.
<https://doi.org/10.1111/sed.13233>
- 37) Courrech du Pont, S., D. M. Rubin, C. Narteau, M. Lapôtre, **M. Day**, P. Claudin, I. Livingstone, M. Telfer, J. Radebaugh, C. Gadal, and A. Gunn, “Complementary classifications of aeolian dunes based on morphology, dynamics, and fluid mechanics.” (2024) *Earth-Science Reviews*, 255, p.104772.
<https://doi.org/10.1016/j.earscirev.2024.104772>
- 36) Chojnacki, M., L. Fenton, L. Edgar, **M. Day**, C. Edwards, A. Weintraub, A. Gullikson, and M. Telfer, “Global survey of paleo-bedforms on Mars.” (2024) *Geomorphology*, 466, p.109428. <https://doi.org/10.1016/j.geomorph.2024.109428>
- 35) Bretzfelder, J. M., K. M. Stack, A. A. Fraeman, **M. Day**, W. E. Dietrich, and A. B. Bryk, “Bedrock Ridges in Gale Crater, Mars” *Icarus* 408 (2024): 115855.
<https://doi.org/10.1016/j.icarus.2023.115855>
- 34) Marvin, M. C., M. Lapotre, A. Gunn, **M. Day**, and A. Soto, “Dune interactions record changes in boundary conditions.” *Geology*, (2023). <https://doi.org/10.1130/G51264.1>
- 33) Dorn, T., and **M. Day**, “Exploring the transition between water and wind-dominated landscapes in Deep Springs, California as an analog for transitioning landscapes on Mars.” *Earth Surface Dynamics*, (2023), 11, 149–165. <https://doi.org/10.5194/esurf-11-149-2023>
- 32) **Day, M.**, J. Bretzfelder, and D. Le, “Not Every Circle Is a Crater: Kettle Hole Size Distributions and Their Implications in Planetary Surface Age Dating.” *Geosciences*, 13(1), (2023), 18. <https://doi.org/10.3390/geosciences13010018>
- 31) Nizam, N., C. Divola, **M. Day***, A. Yin, & S. Moon, “Development of Chaos Terrain as Subaqueous Slide Blocks in Galilaei Crater, Mars.” *Remote Sensing*, 14(9), (2022), 1998.
<https://doi.org/10.3390/rs14091998>
- 30) Stack, K.M., W. Dietrich, M. Lamb, R. Sullivan, J. Christian, C. Newman, C. O’Connell-Cooper, J. Sneed, **M. Day**, M. Baker, and R. Arvidson, “Orbital and In-Situ Investigation of Periodic Bedrock Ridges in Glen Torridon, Gale Crater, Mars,” *Journal of Geophysical Research: Planets*, (2022), no. p.e2021JE007096. <https://doi.org/10.1029/2021JE007096>
- 29) Hunt, A., **M. Day***, K. Edgett, and M. Chojnacki, "The lithified aeolian dune field adjacent to the Apollinaris Sulci, Mars: Geological history and paleo-wind record." *Icarus* 373 (2022), 114788. <https://doi.org/10.1016/j.icarus.2021.114788>
- 28) **Day, M.**, "Interaction bounding surfaces exposed in migrating transverse aeolian ridges on Mars." *Geology* 49, no. 12 (2021), 1527-1530. <https://doi.org/10.1130/G49373.1>

- 27) **Day, M.** and J. Zimbelman, “Ripples, Megaripples, and TARs, Oh, My! Recommendations Regarding Mars Aeolian Bedform Terminology,” *Icarus*, 369, (2021), no. 114647. <https://doi.org/10.1016/j.icarus.2021.114647>
- 26) Bretzfelder, J. and **M. Day**, “Alien Aeolian Bedforms: a Comparative Sedimentary Analysis of the Dingo Gap Bedform and Hidden Valley Ripple Traverses, Gale Crater, Mars,” *Journal of Geophysical Research: Planets* 126.8, (2021), no. e2021JE006904. <https://doi.org/10.1029/2021JE006904>
- 25) Rana, S., W. Anderson, and **M. Day**, “An entrainment paradox: how hysteretic saltation and secondary transport augment atmospheric uptake of aeolian source materials,” *Journal of Geophysical Research: Atmospheres*, 126, (2021), no. e2020JD033493, <https://doi.org/10.1029/2020JD033493>
- 24) Banham, S., S. Gupta, D. Rubin, K. S. Edgett, R. Barnes, J. Van Beek, J. Watkins, L. Edgar, C. Fedo, R. Williams, K. Stack, J. Grotzinger, K. Lewis, R. Ewing, **M. Day**, and A. Vasavada “A Rock Record of Complex Aeolian Bedforms in a Hesperian Desert Landscape: the Stimson formation as exposed in the Murray buttes, Gale crater, Mars”, *Journal of Geophysical Research: Planets*, 126, (2021), no. e2020JE006554. <https://doi.org/10.1029/2020JE006554>
- 23) Yin, A., S. Moon, and **M. Day**, “Glacial landform evolution of Oudemans crater on Mars: Geomorphological constraints on the Tharsis ice cap hypothesis”, *Icarus*, 360, (2021), no. 114332. <https://doi.org/10.1016/j.icarus.2021.114332>
- 22) Mason J., B. Cardenas, **M. Day***, et al., “Subaqueous dune field pattern evolution and interactions: North Loup River, Nebraska, USA,” *Journal of Sedimentary Research*, 90 (12), (2021) pp. 1734–1746 <https://doi.org/10.2110/jsr.2020.066>
- 21) Runyon, K., C. Viviano, **M. Day**, “Pyroclastic linear paleodunes in Syria and Daedalia Plana, Mars,” *Earth and Planetary Science Letters*, 557, (2021), no. 116719. <https://doi.org/10.1016/j.epsl.2020.116719>
- 20) **Day, M.** and W. Anderson, “Wind erosion on Mars exposes ideal targets for sample return,” *Geophysical Research Letters*, 48, (2021), no. e2020GL090580. <https://doi.org/10.1029/2020GL090580>
- 19) Bretzfelder, J., R. Klima, B. Greenhagen, D. Buczkowski, N. Petro, and **M. Day**, “Identification of Potential Mantle Rocks Around the Lunar Imbrium Basin,” *Geophysical Research Letters*, 47, (2020), no. e2020GL090334. <https://doi.org/10.1029/2020GL090334>
- 18) Dorn, T. and **M. Day**, “Intracrater sediment trapping and transport in Arabia Terra, Mars,” *Journal of Geophysical Research: Planets*, 125, (2020), no. e2020JE006581. <https://doi.org/10.1029/2020JE006581>

- 17) Rana, S., W. Anderson, and **M. Day**, “Turbulence-Based Model for Sub-Threshold Aeolian Saltation,” *Geophysical Research Letters*: 47, (2020), no. e2020GL088050. <https://doi.org/10.1029/2020GL088050>
- 16) **Day, M.**, K. S. Edgett, & D. Stumbaugh, “Ancient Stratigraphy Preserving a Wet-to-Dry, Fluvio-Lacustrine to Aeolian Transition Near Barth Crater, Arabia Terra, Mars,” *Journal of Geophysical Research: Planets*, (2019), 124, pp. 3402– 3421. <https://doi.org/10.1029/2019JE006226>
- 15) **Day, M.** and L. Rebolledo, “Intermittency in wind-driven surface alteration on Mars interpreted from wind streaks and measurements by InSight,” *Geophysical Research Letters*, 46, (2019), pp. 12747-12755. <https://doi.org/10.1029/2019GL085178>
- 14) Williams, J., **M. Day***, M. Chojnacki, and M. Rice, “Scarp orientation in regions of active aeolian erosion on Mars,” *Icarus*, 335, (2019), no. 113384. <https://doi.org/10.1016/j.icarus.2019.07.018>
- 13) **Day, M.** and D. Catling, “Potential aeolian deposition of intra-crater layering: A case study of Henry crater, Mars,” *GSA Bulletin*, 132(3-4), (2019), pp. 608-616. <https://doi.org/10.1130/B35230.1>
- 12) **Day, M.** and T. Dorn, “Wind in Jezero crater,” *Geophysical Research Letters*, 46, (2019), pp.3099– 3107. <https://doi.org/10.1029/2019GL082218>
- 11) **Day, M.** and G. Kocurek, “Pattern similarity across planetary dune fields” *Geology* 46(11), (2018), pp.999-1002. <https://doi.org/10.1130/G45547.1>
- 10) Kocurek, G., R. Martindale, **M. Day**, et al., “Antecedent aeolian dune topographic control on carbonate and evaporite facies: Jurassic Todilto Member, Wanakah Formation, Ghost Ranch, New Mexico, USA,” *Sedimentology*, 66, (2018), pp.808-837. <https://doi.org/10.1111/sed.12518>
- 09) **Day, M.** and D. Catling, “Dune casts preserved by partial burial: the first identification of “ghost dune” pits on Mars” *Journal of Geophysical Research: Planets*, 123, (2018), pp. 1431–1448. <https://doi.org/10.1029/2018JE005613>
- 08) Banham, S., S. Gupta, D. Rubin, J. Watkins, D. Sumner, K. Edgett, J. Grotzinger, K. Lewis, L. Edgar, K. Stack-Morgan, R. Barnes, J. Bell, **M. Day**, et al., “Ancient Martian aeolian processes and the palaeomorphology reconstructed from the Stimson formation on the lower slope of Aeolis Mons, Gale crater Mars,” *Sedimentology*, 63, (2018), pp. 993-1042. <https://doi.org/10.1111/sed.12469>
- 07) **Day, M.** and G. Kocurek, “Aeolian dune interactions preserved in the ancient rock record,” *Sedimentary Geology*, 358, (2017), pp. 187-196. <https://doi.org/10.1016/j.sedgeo.2017.07.009>

- 06) Anderson, W. and **M. Day**, “Turbulent flow over craters on Mars: Vorticity dynamics reveal aeolian excavation mechanism,” *Physical Review E*, 96, (2017), pp. 043110-1-043110-20. <https://doi.org/10.1103/PhysRevE.96.043110>
- 05) Kocurek, G. and **M. Day**, “What is preserved in the aeolian rock record? A Jurassic Entrada sandstone case study at the Utah-Arizona border,” *Sedimentology*, 65 (4), (2017), pp. 1301-1321. <https://doi.org/10.1111/sed.12422>
- 04) Ewing, R., M. Lapotre, K. Lewis, **M. Day**, et al, “Sedimentary processes of the Bagnold Dunes: Implications for the eolian rock record of Mars”, *Journal of Geophysical Research: Planets*, 122, (2017), pp. 2544–2573, <https://doi.org/10.1002/2017JE005324>
- 03) **Day, M.**, W. Anderson, G. Kocurek, and D. Mohrig, “Carving intracrater layered deposits with wind on Mars,” *Geophysical Research Letters*, 43, (2016), <https://doi.org/10.1002/2016GL068011>
- 02) **Day, M.** and G. Kocurek “Observations of an aeolian landscape: From surface to orbit in Gale Crater,” *Icarus*, 280 (2016), pp. 37-71. <https://doi.org/10.1016/j.icarus.2015.09.042>
- 01) Lapotre, M., R. Ewing, M. Lamb, W. Fischer, J. Grotzinger, D. Rubin, K. Lewis, M. Ballard, **M. Day**, et al. “Large wind ripples on Mars: A record of atmospheric evolution,” *Science*, 353, (2016), pp. 55-58. <https://doi.org/10.1126/science.aaf3206>

TEACHING EXPERIENCE AND DEVELOPMENT

<i>EPSS 103b: Sedimentary Petrology</i>	Fall, annually
Mineralogy, interpretation, and analysis of sedimentary rocks and structures	
<i>EPSS 111: Stratigraphic and Field Geology</i>	Spring, annually
Field techniques and identification culminating in construction of a geologic map	
<i>EPSS C143/243: Advanced Physical Sedimentology</i>	Winter, biannually
Multi-system sedimentary rock and mineral characterization and analysis	
<i>EPSS 19: Fiat Lux freshmen seminar</i>	Two quarters/year
Light-hearted analysis of science in Hollywood to build critical thinking	
<i>EPSS 009: Solar System and Planets</i>	Winter, biannually
Overview of planetary science for non-STEM undergraduate majors	
<i>GeoAllies</i>	2021-2023
NSF-Funded training program aimed to improve geoscience field teaching practices	
<i>UC Riverside Fieldwork Toolkit Webinar Series</i>	2020
Training on creating a positive safe learning environment in field settings	
<i>National Association of Geoscience Teachers Workshop</i>	Summer 2018
Pedagogy training and workshop for new faculty in Earth Sciences	

GRADUATE STUDENT ADVISEES

<i>Name</i>	<i>Degree</i>	<i>Year</i>	<i>Current position</i>
Taylor Dorn	PhD	2023	Faculty at Front Range Community College
Jordan Bretzfelder	PhD	2024	NASA Postdoctoral Fellow at Marshall SFC
Imani Lawrence	MS	2025	Environmental Scientist at GEI Consultants
Jacob Widmer	PhD	2026	
Alana Archbold	PhD	2027	
Sarah Preston	PhD	2028	
BreeAnn Getman	PhD	2028	

PROFESSIONAL MEMBERSHIPS

2011-present American Geophysical Union
 2013-present Geological Society of America
 2017-present Planetary Society
 2017-present International Society of Aeolian Research
 2012-2017 Austin Partners in Education

SELECTED PRESENTATIONS

Day, M., A. Archbold, J. Sneed, and K Stack, “Aeolian bedform shielding – How transverse aeolian ridges control periodic bedrock ridge formation on Mars.” 8th International Planetary Dunes Workshop, Alghero Sardinia, Italy, (2025).
<https://www.hou.usra.edu/meetings/dunes2025/pdf/3009.pdf>

Archbold, A., M. Day, and **J. Ye** “Dating dune fields on Earth and other planets.” 8th International Planetary Dunes Workshop, Alghero Sardinia, Italy, (2025).
<https://www.hou.usra.edu/meetings/dunes2025/pdf/3007.pdf>

Getman, B., M. Day, A. Wilson, and D. Paige, “Titan and Venus in the optical: Machine learning SAR data translation.” 8th International Planetary Dunes Workshop, Alghero Sardinia, Italy, (2025). <https://www.hou.usra.edu/meetings/dunes2025/pdf/3011.pdf>

Diniega, S., J. Nield, R. Warrilow, M. Day, C. Swann, T. Titus, “Investigating present-day dune dynamics on Mars: From orbit and in situ.” 8th International Planetary Dunes Workshop, Alghero Sardinia, Italy, (2025).
<https://www.hou.usra.edu/meetings/dunes2025/pdf/3047.pdf>

Preston, S. and **M. Day.** “Petrography and morphology of Mars-analog aeolian bedforms near Fossil Falls, CA.” 56th Lunar and Planetary Science Conference, Woodlands, TX, (2025).
<https://www.hou.usra.edu/meetings/lpsc2025/pdf/2506.pdf>

Jarmak, S., D. Stillman, and **M. Day.** “Experimental Benchmarks for Numerical Simulations of Dry Grainflow Mechanisms Potentially Driving Recurring Slope Lineae and Slope Streak Formation on Mars,” Division of Planetary Sciences annual meeting, (2025), Helsinki, Finland.

Archbold, A. and **M. Day,** “Scour in aeolian sandstone” Geological Society of America annual meeting (2024), Anaheim, CA.

Lawrence, I., M. Day, A. Bramson, and D. Paige. “Sublimation of polar ices underlying dune sands on Mars.” Geological Society of America annual meeting (2024), Anaheim, CA.

- Marvin, M. C., M.G.A. Lapôtre, J. Radebaugh, W. Bo, **M. Day**, A. Gunn, A. Soto “Surface conditions on Titan through a dune pattern analysis”. Geological Society of America annual meeting (2024), Anaheim, CA.
- Widmer, J., **M. Day**, S. Diniega, “Cold-trapped water – A potential driver of interannual variability in Mars’ northern seasonal cap.” 8th International Conference on Mars Polar Science and Exploration. White Horse, Canada, (2024).
<https://www.hou.usra.edu/meetings/marspolar2024/pdf/6047.pdf>
- Lawrence, I., S. L. Pérez-Cortés, **M. Day**, A. M. Bramson, “Melting of polar Martian ice beneath warmed basaltic dune sands.” 55th Lunar and Planetary Science Conference, Woodlands, TX, (2024). <https://www.hou.usra.edu/meetings/lpsc2024/pdf/2309.pdf>
- Stack, K. M., K. S. Edgett, S. Gupta, S. G. Banham, G. Caravaca, B. T. Cardenas , **M. Day**, L. A. Edgar, C. M. Fedo, A. A. Fraeman, T. A. Goudge, J. P. Grotzinger, S. Gwizd, L. R. W. Ives, E. S. Kite, M. P. Lamb, M. G. A. Lapôtre, N. Mangold, M. J. Meyer, R. E. Milliken, K. L. Siebach, M. Tebolt, A. R. Vasavada, ”The Martian sedimentary rock record: Recent advances in our understanding of depositional processes and environments.” 10th International Conference on Mars, Pasadena, CA, (2024).
<https://www.hou.usra.edu/meetings/tenthmars2024/pdf/3201.pdf>
- Preston, S. and **M. Day**, “Mars analogue meter-scale aeolian bedforms near Fossil Falls, CA.” 10th International Conference on Mars, Pasadena, CA, (2024).
<https://www.hou.usra.edu/meetings/tenthmars2024/pdf/3500.pdf>
- Day, M.**, E. Kim, M. Sullivan, T. Goudge, D. Paige, “High Resolution DTMs for Mars: A repository of paired HiRISE and CTX DTMs,” 6th Planetary Data Workshop, Flagstaff, AZ, (2023). <https://www.hou.usra.edu/meetings/planetdata2023/pdf/7062.pdf>
- Dorn, T. and **M. Day**, “Exploring a water to wind transitioning landscape in Deep Springs California as an analog for ancient and modern martian environments”. Geological Society of America annual meeting, (2023), Philadelphia PA.
- Marvin, M. C., W. Bo, J. Radebaugh, A. Gunn, **M. Day**, and M. Lapotre, “Global Analysis of Dune Patterns on Titan”, American Geophysical Union Fall Meeting, (2023), San Francisco, CA.
- Telfer, M. and **M. Day**, “Extensive paleodunes on steep slopes in Noctis Labyrinthus, Mars,” International Conference on Aeolian Research XI, (2023), Las Cruces, New Mexico.
- Courech du Pont, S., D. Rubin, C. Narteau, M. Lapotre, **M. Day**, P. Claudin, I. Livingstone, M. Telfer, J. Radebaugh, C. Gadal, A. Gunn, P. Hesp, S. Carpy, C. Bristow, A. Baas, R. Ewing, and G. Wiggs, “Complementary classifications of aeolian dunes based on morphology, dynamics, and fluid mechanics,” International Conference on Aeolian Research XI, (2023), Las Cruces, New Mexico.
- Diniega, S., J., Nield, **M. Day**, C. Swann, and T. Titus, “Investigating present-day dune formation on Mars: from orbit and in-situ,” International Conference on Aeolian Research XI, (2023), Las Cruces, New Mexico.
- Marvin, C., M. Lapotre, A. Gunn, **M. Day**, and A. Soto, “Dune interactions as an indicator of morphodynamic equilibrium,” International Conference on Aeolian Research XI, (2023), Las Cruces, New Mexico.
- J. Bretzfelder and **M. Day**, “Wind tunnel analog for aeolian sediment motion under planetary conditions,” 54th Lunar and Planetary Science Conference (2023),
<https://www.hou.usra.edu/meetings/lpsc2023/pdf/2881.pdf>

- J. Widmer and **M. Day**, “Martian rover track monitoring – A helpful tool to understand aeolian activity,” 54th Lunar and Planetary Science Conference (2023), <https://www.hou.usra.edu/meetings/lpsc2023/pdf/1272.pdf>
- Archbold, A. and **M. Day**, “Aeolian bounding surface geometry,” International Meeting for Applied Geoscience and Energy (2023), Houston, TX.
- S. Diniega, N. Barba, L. Giersch, B. Jackson, A. Soto, D. Banfield, **M. Day**, G. Doran, C. Dundas, M. Mischna, S. Rafkin, I. Smith, R. Sullivan, C. Swann, T. Titus, I. Walker, J. Widmer, D. Burr, L. Mandrake, N. Vriend, K. Williams, “It’s Time for Focused In Situ Studies of Planetary Surface-Atmosphere Interactions.” 2022 IEEE Aerospace Conference (AERO), (2022), 1–19. <https://doi.org/10.1109/AERO53065.2022.9843357>
- Dorn, T. and **M. Day**, “Surface Changes in a Transitioning Wet and Dry Depositional Environment, Deep Springs Playa, California with Implications for Mars,” American Geophysical Union Fall Meeting, (2022).
- Bretzfelder, J., A. Fraeman, K Stack, and **M. Day**, “Ridges bedrock terrain in Gale crater, Mars,” Geological Society of America Annual Meeting, (2022).
- Bretzfelder, J., and **M. Day**, “Wind Tunnel Experiments as an Analog for Sediment Motion in Planetary Systems,” American Geophysical Union Fall Meeting, (2022) , Chicago, IL.
- Widmer, J. and **M. Day**, “The degradation of Opportunity’s rover tracks – A proxy for local aeolian activity on Mars,” 53rd Lunar and Planetary Science Conference (2022), <https://www.hou.usra.edu/meetings/lpsc2022/pdf/1662.pdf>
- Marvin, M. C., A. Gunn, **M. Day**, and M. G. A. Lapôtre, “Quantifying Dune Interactions on Planetary Surfaces: Updated Methodology and Implications for Dune Pattern Analyses,” 53rd Lunar and Planetary Science Conference (2022), <https://www.hou.usra.edu/meetings/lpsc2022/pdf/1236.pdf>
- Marvin, M. C., A. Gunn, **M. Day**, and M. G. A. Lapôtre, “Quantifying Dune Interactions on Planetary Surfaces: Exploring Pattern Development Dependence on Environmental Conditions,” 7th International Planetary Dunes Workshop (2022), <https://www.hou.usra.edu/meetings/dunes2022/pdf/3023.pdf>
- Lapôtre, M.G.A., S. Carpy, M. Chojnacki, **M. Day**, S. Diniega, O. Durán-Vinent. R.C. Ewing, L. Fenton, M. Golombek, A. Gunn, L. Kerber, J. Radebaugh, L. Rubanenko1, S. Silvestro, C. Swann, D. Tirsch, D. Vaz, C. Weitz, H. Yizhaq, and J. Zimbelman, “Martian eolian science: Recent advances, remaining questions, and roadmap for future in situ investigations” Optimizing Planetary In Situ Surface-Atmosphere Interaction Investigation Workshop (2022).
- Rana, S., W. Anderson W., and **M. Day**, “Turbulence-driven mechanisms of aeolian dust entrainment on Earth and Mars,” Bluebonnet Symposium on Thermal-Fluid Sciences, (2022), Dallas, Texas.
- Day, M.** and S. Pérez-Cortés, “Scour pits formed by wind erosion on Mars,” American Geophysical Union Fall Meeting, (2021).
- Archbold, A. and **M. Day**, “Dune-Field Patterns in the American Southwest,” American Geophysical Union Fall Meeting, (2021).
- Dorn, T. and **M. Day**, “Spatial Variability of Aeolian Abrasion: Early Results from Ixex Dune Field, Death Valley National Park” American Geophysical Union Fall Meeting, (2021).
- Bretzfelder, J. and **M. Day**, “Sediment Motion Initiation: A Modern and Interplanetary Experimental Approach,” American Geophysical Union Fall Meeting, (2021).

- Paige, D., **M. Day**, R. Nuno, and A Yin, “P25A-09A Glacial Land systems Model for Jezero Crater,” American Geophysical Union Fall Meeting, (2021).
- Pérez-Cortés, S. and **M. Day**, “Characterization of scour pits in the Medusae Fossae Formation of Mars. Geological Society of America Annual Meeting, (2021).
- Runyon, K., C. E. Viviano, K. Seelos, and **M. Day**, “Abraded pyroclastic linear paleodunes in Syria and Daedalia Plana, Mars,” 52nd Lunar and Planetary Science Conference (2021), #1683. Virtual meeting due to COVID-19.
- Sneed, J., **M. Day**, and K. Edgett, “Fresh impact crater detection from difference mapping of CTX images,” 51st Lunar and Planetary Science Conference, (2020). Meeting canceled due to COVID-19. <https://www.hou.usra.edu/meetings/lpsc2019/pdf/1224.pdf>
- Sneed, J., K. Stack, **M. Day**, and A. Fraeman, “Large-Scale HiRISE Survey Demonstrates a Genetic Relationship Between Martian Periodic Bedrock Ridges and Transverse Aeolian Ridges,” American Geophysical Union Fall Meeting, (2020), # EP018-0009. Virtual meeting due to COVID-19.
- Hunt, A., and **M. Day**, “Geological Map of Petrified Dunes and Yardangs in Apollinaris Sulci,” American Geophysical Union Fall Meeting, (2020), # EP018-0011. Virtual meeting due to COVID-19.
- Witchalls, J. and **M. Day**, “Geological Mapping in Northern Meridiani Planum: Insights into Flooding in Paleo-dune Fields,” American Geophysical Union Fall Meeting, (2020), #P045-0001. Virtual meeting due to COVID-19.
- Light, A., **M. Day**, and A. Yin, “Linear Dunes – What controls the direction of their bifurcations?” American Geophysical Union Fall Meeting, (2020), # EP018-0007. Virtual meeting due to COVID-19.
- Day, M.**, “Bedform interaction strata exposed in transverse aeolian ridges on Mars,” American Geophysical Union Fall Meeting, (2020), #EP014-01. Virtual meeting due to COVID-19.
- Dorn, T. and **M. Day**, “Intracrater sediment trapping and transport in Arabia Terra,” American Geophysical Union Fall Meeting, (2020), #EP018-0003. Virtual meeting due to COVID-19.
- Burr, D., **M. Day**, L. Fenton, M. Lapotre, L. Neakrase, C. Swann, I. Walker, D. Williams, “Facilities for Planetary Aeolian Experimental Research: A Draft White Paper,” 6th International Planetary Dunes Workshop (2020), #3029. Virtual meeting due to COVID-19. <https://www.hou.usra.edu/meetings/dunes2020/pdf/3029.pdf>
- Bretzfelder, J. and **M. Day**, “Analysis and Classification of the Aeolian Bedform at Dingo Gap,” American Geophysical Union Fall Meeting, (2020), # EP018-0006. Virtual meeting due to COVID-19.
- Nizam, S., C. Divola, **M. Day**, “Geologic Map and Interpreted Formation of Chaos Terrain in Galilaei crater, Mars,” American Geophysical Union Fall Meeting, (2020), #P038-05. Virtual meeting due to COVID-19.
- Day, M.** “Finding hidden aeolian strata on Mars,” 11th International Conference on Aeolian Research. Session 6. (2020). Canceled due to COVID-19. <https://www.hou.usra.edu/meetings/lpsc2021/pdf/1683.pdf>
- Burr, D., **M. Day**, L. Fenton, M. Lapotre, L. Neakrase, C. Swann, I. Walker, D. Williams, “Facilities for Planetary Aeolian Experimental Research: A Draft White Paper,” 6th International Planetary Dunes Workshop (2020), #3029. Virtual meeting due to COVID-19. <https://www.hou.usra.edu/meetings/dunes2020/pdf/3029.pdf>

- Runyon, K., C. Viviano, **M. Day**, “Dunes to Yardangs: Deposition and Erosion in Syria and Daedalia Plana, Mars,” 6th International Planetary Dunes Workshop (2020), #3037. Virtual meeting due to COVID-19.
<https://www.hou.usra.edu/meetings/dunes2020/pdf/3037.pdf>
- Dorn, T., and **M. Day**, “Intracrater Sediment Trapping and Transport in Arabia Terra,” 6th International Planetary Dunes Workshop (2020), #3038. Virtual meeting due to COVID-19. <https://www.hou.usra.edu/meetings/dunes2020/pdf/3038.pdf>
- Sneed, J., **M. Day**, K. Stack, and A. Fraeman, “Experimental Hypothesis Testing of the Origins of Periodic Bedrock Ridges,” 6th International Planetary Dunes Workshop (2020), #3040. Virtual meeting due to COVID-19.
<https://www.hou.usra.edu/meetings/dunes2020/pdf/3040.pdf>
- Day**, **M.**, T. Dorn, D., Stumbaugh, and K. Edgett, “Interpreting Ancient Climate from Aeolian Features on Mars: Case studies from Jezero crater and Arabia Terra,” American Geophysical Union Fall Meeting, (2019), #EP23B-04
- Valdez-Luna, C. and **M. Day**, “Geologic Mapping in the Midway Mars 2020 Landing Ellipse,” American Geophysical Union Fall Meeting, (2019), # P33G-3504.
- Mejia, M., and **M. Day**, “Geologic mapping in Henry crater, Mars” American Geophysical Union Fall Meeting, (2019), #P41C-3452.
- Day**, **M.**, D., Stumbaugh, and K. Edgett. “Geologic mapping of a paleo-dune field near Barth crater, Mars,” Geological Society of America annual meeting, (2019), #T95-278.
- Dorn, T. and **M. Day**, “Temporal wind variability and erosion of the western delta fan in Jezero crater,” the Ninth International Conference on Mars Science, July 2019.
- Lapotre, M., N. Bridges, B. Ehlmann, E. Rampe, R. Ewing, J. Johnson, F. Ayoub, M. Baker, S. Banham, M. Chojnacki, A. Cousin, **M. Day**, S. Diniega, O. Duran, C. Edwards, L. Fenton, T. Gabriel, M. Golembek, L. Kerber, J. Kok, M. Lamb, J. Lasue, C. Newman, C. O’Connell-Cooper, D. Rubin, S. Silvestro, J. Stern, R. Sullivan, A. Vasavada, D. Vaz, C. Weitz, H. Yizhaq, J. Zimbelman, “Martian eolian science since the eighth international conference on Mars: Summary of advances and remaining questions,” the Ninth International Conference on Mars Science, July 2019.
- Sneed, J., **M. Day** and K. Edgett, “Fresh impact crater detection from difference mapping of CTX images,” 50th Lunar and Planetary Science Conference, (2019), #1224.
<https://www.hou.usra.edu/meetings/lpsc2019/pdf/1224.pdf>
- Dorn, T. and **M. Day**, “Temporal variations in wind patterns within Jezero crater,” 50th Lunar and Planetary Science Conference, (2019), #2081.
<https://www.hou.usra.edu/meetings/lpsc2019/pdf/2081.pdf>
- Stack, K., V. Sun, R. Arvidson, C. Fedo, **M. Day**, K. Bennett, L. Edgar, V. Fox, and S. Cofield, “Origin of linear ridges in the clay-bearing unit of Mount Sharp, Gale crater, Mars” 50th Lunar and Planetary Science Conference, (2019), #1210.
<https://www.hou.usra.edu/meetings/lpsc2019/pdf/1210.pdf>
- Stumbaugh, D., T. Dorn, and **M. Day**, Investigating an Aeolian Origin to Washboard Terrain on Mars. Abstract EP51C-1833. American Geophysical Union Fall Meeting, Washington DC, December, 2018.
- McCarthy, F., **M. Day**, and P. Davis, Exploring the gravitational anomaly of Mount Sharp in Gale crater, Mars. Abstract EP51C-1830. American Geophysical Union Fall Meeting, Washington DC, December, 2018.

- Day, M.**, and D. Catling. Preserved morphologies of an ancient dune field – the first identification of negative cast “ghost dunes” on Mars. Abstract EP51C-1835. American Geophysical Union Fall Meeting, Washington DC, December, 2018.
- Newman, C., **M. Day**, N. Teanby, and M. Richardson. Reproducing the characteristics of Mars dune fields using the MarsWRF model. International Conference on Aeolian research, Bordeaux, France, June 2018.
- Day, M.**, and D. Catling. Dune casts preserved by partial burial: the first identification of “ghost dune” pits on Mars. European Geosciences Union General Assembly, Vienna, Austria, April 2018.
- Banham, S., S. Gupta, D. Rubin, J. Watkins, D. Sumner, K. Edgett, J. Grotzinger, K. Lewis, L. Edgar, K. Stack-Morgan, R. Barnes, J. Bell, **M. Day**, R. Ewing, M. Lapotre, N. Stein, F. Rivera-Hernandez, and A. Vasavada. An ancient sand sea in Gale crater, and its significance for martian climate: Stimson formation. American Geophysical Union Fall Meeting, New Orleans, LA. December 2017.
- Ewing, R., M. Lapotre, K. Lewis, **M. Day**, N. Stein, D. Rubin, and N. Bridges. Relating sedimentary processes in the Bagnold Dunes to the development of crater basin aeolian stratification. Geological Society of America annual meeting, Seattle, WA. October 2017.
- Day, M.** and G. Kocurek. How perfect if perfect in a dune field pattern? Geological Society of America annual meeting, Seattle, WA. October 2017.
- Calef, F., **M. Day**, H. Newsom. Crater densities on lower Mount Sharp as a proxy for modern geologic erosion. Geological Society of America annual meeting, Seattle, WA. October, 2017.
- Banham, S. G., S. Gupta, D. Rubin, J. Watkins, D. Sumner, J. Grotzinger, K. Lewis, K Edgett, L. Edgar, K. Stack, J. Bell, R. Ewing, **M. Day**, M. Lapotre. Anatomy of an ancient eolian sandstone on Mars: The Stimson formation in Gale crater. 5th Planetary Dunes Conference. St. George, UT. May 2017.
- Banham, S. G., S. Gupta, D. Rubin, J. Watkins, D. Sumner, J. Grotzinger, K. Lewis, K Edgett, L. Edgar, K. Stack, J. Bell, **M. Day**, R. Ewing, M. Lapotre. The Stimson formation: Determining the morphology of a dry aeolian dune system and its climate significance in Gale crater, Mars. 48th Lunar and Planetary Science Conference, Woodlands, TX, March, 2017.
- Day, M.**, and G. Kocurek. Preserved dune interactions in sandstones on the Colorado Plateau, USA. Abstract 144747. American Geophysical Union Fall Meeting, San Francisco, CA, December, 2016. (poster)
- Anderson, W., **M. Day**, G. Kocurek. Modeling turbulent flows in the atmospheric boundary layer of Mars: application to Gale crater, Mars, landing site of the Curiosity rover. Abstract R35.0001. 69th Annual Meeting of APS Division of Fluid Dynamics, Portland, OR, November 2016.
- Lapotre, M., R. Ewing, M. Lamb, W. Fischer, J. Grotzinger, D. Rubin, K. Lewis, M. Ballard, **M. Day**, et al. Origin of the two scales of wind ripples on Mars. Abstract 134355. American Geophysical Union Fall Meeting, San Francisco, CA, December, 2016.
- Calef, F., D. Archer, B. Clark, **M. Day**, W. Goetz, J. Lasue, J. Martin-Torres, M. Zorzano, R. Navarro-Gonzalez. Assessing Gale Crater as an exploration zone for the first human mission to Mars. 47th Lunar and Planetary Science Conference, Woodlands, TX, March 2016. (poster)

- Anderson, R., C. Dundas, L. Edgar, O. Gasnault, S. LeMouelic, H. Newsom, N. Bridges, R. Weins, J. Frydenvang, A. Vasavada, and **M. Day**. Ongoing and planned long distance remote micro imager observations of targets on Aeolis Mons identified from orbit. 47th Lunar and Planetary Science Conference, Woodlands, TX, March 2016. (poster)
- Lapotre, M., R. Ewing, M. Lamb, W. Fischer, K. Lewis, M. Ballard, **M. Day**, D. Rubin, J. Grotzinger. Orbital and in-situ observations in support of the existence of an unknown stable aeolian bedform regime on Mars. 47th Lunar and Planetary Science Conference, Woodlands, TX, March 2016.
- Calef, F., B. Clark, **M. Day**, W. Goetz, J. Lasue, J. Martin-Torres, M. Zorzano. Assessing Gale crater as a landing site for the first human mission to Mars. First Landing Site/Exploration Zone Workshop for Human Mission to the Surface of Mars, Houston, TX, October 2015.
- Bridges, N., B. Ehlmann, P. Conrad, R. Ewing, F. Ayoub, **M. Day**, M. de la Torre, M. Fisk, et al. Investigation of the Bagnold Dunes by the *Curiosity* rover: Plans for the first study of an active dune field on another planet. 4th International Planetary Dunes Workshop, Boise, ID, May 2015.
- Bridges, N., D. Blaney, **M. Day**, K. Herkenhoff, N. Lanza, S. Le Mouelic, F. Martin-Torres, S. Maurice, C. Newman, et al., Rock abrasion and landscape modification by windblown sand as documented by the MSL *Curiosity* rover. 46th Lunar and Planetary Science Conference, Woodlands, TX, March 2015. (poster)
- Jacob, S., S. Rowland, K. Edgett, **M. Day**, F. Calef, M. Palucis, and R. Anderson. Characteristics and Origin of a Cratered Unit near the MSL Bradbury Landing Site (Gale Crater, Mars) Based on Analyses of Surface Data and Orbital Images. American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.
- Bridges, N., **M. Day**, F. Martin-Torres, H. Newsom, A. Ullan, et al. Rock abrasion as seen by the MSL *Curiosity* rover: insights on physical weathering on Mars. American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.
- Day, M.**, G. Kocurek, N. Bridges, R. Ewing, W. Anderson, C. Newman, the MSL team. Temporal and spatial differences in wind indicators in Gale Crater. Geological Society of America Annual Meeting, Vancouver, BC. Canada. October 2014.
- Jacob, S., S. Rowland, K. Edgett, **M. Day**, F. Calef, and M. Palucis. Crater density as an aid to mapping the Cratered Surface unit at Gale Crater, Mars. Geological Society of America Annual Meeting, Vancouver, BC. Canada. October 2014. (poster)
- Day, M.**, G. Kocurek, W. Anderson, A. Hamed, K. Christiansen. Aeolian Erosion of Filled Martian Craters. 45th Lunar and Planetary Science Conference, Woodlands, TX, March, 2014. (poster)
- Alibay, F., R. McGranaghan, R. Clegg, P. Craig, **M. Day**, et al. Design of a High-Value, Low-Cost Mission to the Neptunian System, IEEE Aerospace Conference, Big Sky, Montana, March 2014.
- Day, M. D.**, M. Malaska, et al. Neptune and Triton: A Study in Future Exploration. Abstract P51G-1822, American Geophysical Union Fall Meeting, San Francisco, CA, December, 2013. (poster)
- Day, M. D.**, F. J. Calef, P. Buhler, and J. P Grotzinger. Small Crater Analysis of the Mars Science Laboratory Landing Sites, 5th Landing Site Selection Workshop, Pasadena, CA. May 2011.
- Day, M. D.**, F. J. Calef, P. Buhler, and J. P Grotzinger. Small Crater Analysis of the Mars Science Laboratory Landing Site, Abstract P33C-1773, American Geophysical Union Fall Meeting, San Francisco, CA, December, 2011. (poster)