

Emily R. Bamber

Publications

Bamber, E. R., (2024) *Rivers versus Crater Rims: How to Form a Lake on Mars. Chapter 4: Modeling the Influence of Impact Crater Morphology on Fluvial Characteristics and Connectivity*. [Doctoral dissertation chapter, University of Texas at Austin - *in preparation for peer-reviewed publication*]. <https://repositories.lib.utexas.edu/items/ea31229-82e1-4989-a1f6-b44245169797>

Goudge, T.A., Fassett, C. I., Coholich, M., **Bamber, E. R.**, (2023) Assessing Controls on the Incomplete Draining of Martian Open-Basin Lakes. *Journal of Geophysical Research – Planets*, 128, e2022JE007443, DOI: 10.1029/2022JE007443. <https://doi.org/10.1029/2022JE007443>

Bamber, E. R., Goudge, T. A., Fassett, C. I., Osinski, G. R., Stucky de Quay, G. (2022b). Paleolake inlet valley formation: Factors controlling which craters breached on early Mars. *Geophysical Research Letters*, 49(24). DOI: 10.1029/2022GL101097. <https://doi.org/10.1029/2022GL101097>

Bamber, E. R., Goudge, T. A., Fassett, C. I., Osinski, G. R. (2022a). Constraining the formation of paleolake inlet valleys across crater rims. *Icarus*, 378, 114945, DOI: 10.1016/j.icarus.2022.114945. <https://doi.org/10.1016/j.icarus.2022.114945>

Rampe, E., Horgan, B., Smith, R., Scudder, N., **Bamber, E. R.**, Rutledge, A., Christoffersen, R. (2022). A mineralogical study of glacial flour from Three Sisters, Oregon: An analog for a cold and icy early Mars. *Earth and Planetary Science Letters*, 584, 117471, DOI: 10.1016/j.epsl.2022.117471. <https://doi.org/10.1016/j.epsl.2022.117471>

Proposals

NASA Future Investigators (FINESST) Program 2020: Exploring Controls on the Lack of Valley Network-Fed Crater Lakes on Early Mars. **PI: Emily Bamber** (proposal written entirely by Bamber), **PI: T. A. Goudge**

NASA Mars Data Analysis Program 2021: How Do Crater Lakes on Mars Develop Inlets?

PI: T. A. Goudge, Emily Bamber was a contributor.

Presentations

- 2025 MIT, Planetary Geology Seminar [[talk](#)], *Rivers versus Craters*
- 2024 Lunar & Planet. Sci. Conf., [[talk](#)], *How do impact craters influence fluvial structure? A modeling approach.* <https://www.hou.usra.edu/meetings/lpsc2024/pdf/1110.pdf>
- 2024 MIT, Gaia Group Seminar [[talk](#)], *Forming Lakes on Mars: Rivers vs. Crater Rims*
- 2024 British Planetary Science Conference, [[talk](#)], *How Do Rivers Traverse Impact Crater Topography?*
- 2023 AGU, [[invited](#), [poster](#)], *Modeling Mars' Competition Between Impact Crater Rims and Fluvial Connectivity.* <https://ui.adsabs.harvard.edu/abs/2023AGUFMEP31D2119B/abstract>
- 2023 GSA, [[invited](#), [talk](#)], *Hydrology versus Crater Rims: How to Form a Lake on Mars & [poster] Modeling Martian Lake Formation by Inlet Valley Breaching.* <https://gsa.confex.com/gsa/2023AM/meetingapp.cgi/Paper/392565>
- 2023 GSA Penrose, [[poster](#)], *Overflow as a mechanism of crater lake-inlet valley formation*
- 2023 EGU, [[poster](#)] *Investigating Crater Inlet Valley Formation: Field Study at Lonar Crater, India.* <https://meetingorganizer.copernicus.org/EGU23/EGU23-1437.html>
- 2023 Kerala University [[talk](#)], *How do drainages cross crater rims from upstream?*
- 2023 Lunar & Planet. Sci. Conf., [[poster](#)] *Factors Controlling Which Craters Developed Inlet Valleys on Early Mars.* <https://www.hou.usra.edu/meetings/lpsc2023/pdf/1062.pdf>
- 2023 Lunar & Planet. Sci. Conf., [[poster](#)] *Impact Crater Lakes and Fluvial Valley Incision on Early Mars (contributor).* <https://www.hou.usra.edu/meetings/lpsc2023/pdf/2747.pdf>
- 2023 Lunar & Planet. Sci. Conf., [[poster](#)] *Cascading boulder and boulder track experiment at Barringer Meteorite Crater (aka Meteor Crater), Arizona. (contributor).* <https://www.hou.usra.edu/meetings/lpsc2023/pdf/2186.pdf>
- 2022 Lunar & Planet. Sci. Conf., [[talk](#)], *Exploring Controls on the Fluvial Breaching of Degraded Impact Craters.* <https://www.hou.usra.edu/meetings/lpsc2022/pdf/1017.pdf>
- 2021 Lunar & Planet. Sci. Conf., [[poster](#)], *Formation of Inlet Valleys into Crater-Hosted Lakes on Mars.* <https://www.hou.usra.edu/meetings/lpsc2021/pdf/1793.pdf>
- 2020 AGU, [[e-Lightning poster](#)], *Insight into Erosion and Lake-Filling Process from Crater Rim Fluvial Breaches on Mars. (*AGU Outstanding Presentation Award (OSPA)).* <https://agu.confex.com/agu/fm20/meetingapp.cgi/Paper/722423>