

CONTACT INFORMATION	Photogrammetry and Image Processing Scientist Lunar and Planetary Laboratory University of Arizona 1541 E. University Boulevard Tucson, AZ 85721 USA	Office: (520) 626-0759 Email: ssutton@lpl.arizona.edu
RESEARCH INTERESTS	Planetary surface processes on Mars, Earth, the Moon, Europa, and Io, planetary volcanism, aeolian processes, geomorphology, digital terrain modeling, geologic mapping, remote sensing, field geology, stereophotogrammetry, change detection of active planetary surfaces, image processing, optical instrumentation and calibration, digital signal processing.	
EDUCATION	PhD, University of Arizona “Fissure-Fed Volcanism on Mars and Earth” MS, Planetary Sciences, University of Arizona BS, Mathematics, University of Arizona BFA, <i>Cum Laude</i> , Studio Art/Painting, University of Arizona	2022 2019 2008 1994
EMPLOYMENT	Research Scientist, Lunar and Planetary Laboratory, University of Arizona NASA Goddard Space Flight Center Intern, Greenbelt, MD Data Scientist, Lunar and Planetary Laboratory, University of Arizona Staff Technician, Lunar and Planetary Laboratory, University of Arizona Undergraduate Student Research Assistant, University of Arizona NASA Space Grant Intern, University of Arizona	2022–present 2019 2014–2022 2008–2014 2006–2008 2005–2006
AWARDS	Geological Society of America and Meteoritical Society, Pellas-Ryder Award University of Arizona, College of Science Galileo Circle Scholarship University of Arizona, Graduate & Professional Student Council Travel Grant NASA Group Achievement Award, OSIRIS-REx Mission Team University of Arizona, University Fellows Professional Development Grant University of Arizona, Curson Education Plus Fund Award National Science Foundation, Graduate Research Fellowship Lunar and Planetary Institute, Career Development Award University of Arizona, University Fellows Award NASA Group Achievement Award, LRO Extended Science Mission Team NASA Group Achievement Award, MRO Comet Siding Spring Observing Team Lunar and Planetary Laboratory Appointed Personnel Excellence Award NASA RHG Exceptional Achievement for Science, LRO Science Mission Team University of Arizona, Staff Advisory Council, Emily Krauz Staff Scholarship NASA Group Achievement Award, MRO HiRISE Science Team University of Arizona, Dean’s List with Distinction	2022 2020 2018 2017 2017 2016 2016–2021 2016 2015 2015 2015 2015 2015 2013 2012 2011 Spring, 2008
MISSIONS	Io Volcano Observer (NASA Discovery Phase A Selection) Europa Clipper (NASA), EIS, Professional Affiliate Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer (OSIRIS-REx) (NASA), OCAMS, Collaborator Mars Trace Gas Orbiter (ESA), CaSSIS Lunar Reconnaissance Orbiter (NASA), LROC Mars Reconnaissance Orbiter (NASA), HiRISE	2020 2018–present 2015–2019 2010–present 2008–present 2006–present

- SUBMITTED PERRY, J.E., R. Heyd, M. Read, L.L. Tornabene, **S. S. Sutton**, S. Byrne, N. Thomas, A. Fennema, JOURNAL A. McEwen, K. Berry. Geometric Processing of TGO CaSSIS Observations. *Planetary and PUBLICATIONS Space Sciences*, In review, 2022.
- REFEREED Manheim, M. R., M.R. Henriksen, M.S. Robinson, H.R. Kerner, B.A. Karas, K.J. Becker, M. Cho- JOURNAL jnacki, **S. S. Sutton**, D.T. Blewett. High-resolution regional digital elevation models and PUBLICATIONS derived products from MESSENGER MDIS images. *Remote Sensing*, 14(15), 3564, doi:10.3390/rs14153564, 2022.
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- Sutton, S. S.**, C. W. Hamilton, V. Cataldo, D. A. Williams, J. E. Bleacher. Sinuous channels east of Olympus Mons, Mars: Implications for volcanic, hydrological, and tectonic processes. *Icarus*, 374, 114798, doi:10.1016/j.icarus.2021.114798, 2022.
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- Schaefer, E. I., A. S. McEwen, **S. S. Sutton**. A case study of recurring slope lineae (RSL) at Tivat crater: Implications for RSL origins. *Icarus*, 317, 621–648, doi:10.1016/j.icarus.2018.07.014, 2019.
- DellaGiustina, D. N., C. A. Bennett, K. Becker, D. R. Golish, L. Le Corre, D. A. Cook, K. L. Edmundson, M. Chojnacki, **S. S. Sutton**, and 32 others. Overcoming the Challenges Associated with Image-based Mapping of Small Bodies in Preparation for the OSIRIS-REx Mission to (101955) Bennu. *Earth and Space Science*, 5, 929–949, doi:10.1029/2018EA000382, 2018.
- Dundas, C. M., A. M. Bramson, L. Ojha, J. J. Wray, M. T. Mellon, S. Byrne, A. S. McEwen, N. E. Putzig, D. Viola, **S. S. Sutton**, E. Clark, J. W. Holt. Exposed subsurface ice sheets in the Martian mid-latitudes *Science*, 359:6372, doi:10.1126/science.aao1619, 2018.
- Tornabene, L. L., F. P. Seelos, A. Pommerol, N. Thomas, C. M. Caudill, P. Becerra, J. C. Bridges, S. Byrne, and 16 others, including **S. S. Sutton**. Image Simulation and Assessment of the Colour and Spatial Capabilities of the Colour and Stereo Surface Imaging System (CaSSIS) on the ExoMars Trace Gas Orbiter. *Space Science Reviews*, 214:1, doi:10.1007/s11214-017-0436-7, 2017.
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- Chojnacki, M., A. S. McEwen, C. Dundas, L. Ojha, A. Urso, **S. S. Sutton**. Geologic context of recurring slope lineae in Melas and Coprates Chasmata, Mars. *Journal of Geophysical Research*, 121:7, 1204–1231, doi:10.1002/2015JE004991, 2016.

- Diot, X., M. R. El-Maarry, L. Guallini, F. Schlunegger, K. P. Norton, N. Thomas, **S. S. Sutton**, P. M. Grindrod. An ice-rich flow origin for the banded terrain in Hellas basin, Mars. *Journal of Geophysical Research*, 120:12, 2258–2276, doi:10.1002/2015JE004956, 2015.
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- (Note: Name change from Mattson to Sutton January, 2015)
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- BOOK** **Sutton, S. S.**, A. K. Boyd, R. L. Kirk, D. Cook, J. W. Backer, A. Fennema, R. Heyd, A. S. McEwen,
CHAPTERS S. D. Mirchandani. Correcting spacecraft jitter in HiRISE images. in *Planetary Remote Sensing and Mapping*, B. Wu, K. Di, J. Oberst, and I. Karachvtseva (Eds.), Taylor & Francis Group/CRC Press, London, Chapter 8, pp. 91–106, ISBN: 978-1-138-58415-0, 2018.

- PAPERS IN PREPARATION **Sutton, S. S.**, J. A. Richardson, P. W. Whelley, C. W. Hamilton, S. P. Scheidt, et al. Degradation of the 2014–2015 Holuhraun vent edifice.
- SELECTED CONFERENCE PRESENTATIONS **Sutton, S. S.**, M. Chojnacki, A. S. McEwen, R. L. Kirk, C. M. Dundas, E. I. Schaefer, S. J. Conway, S. Diniega, G. Portyankina, M. E. Landis, N. F. Baugh, R. Heyd, S. Byrne, L. L. Tornabene, L. Ojha, C. W. Hamilton, Revealing active Mars with HiRISE digital terrain models and orthoimages. *53rd Lunar and Planetary Science Conference*, Abstract 2509, 7–11 March 2022, The Woodlands, Texas, Poster.
- Sutton, S. S.**, C. W. Hamilton, V. Cataldo, D. A. Williams, J. E. Bleacher, Channels and fossae east of Olympus Mons as indicators of Late Amazonian volcanic, hydrological, and tectonic processes. *53rd Lunar and Planetary Science Conference*, Abstract 1226, 7–11 March 2022, The Woodlands, Texas, Poster.
- Richardson, J. A., **S. S. Sutton**, P. L. Whelley, S. P. Scheidt. Vent development at the Holuhraun lava flow (Northern Iceland) and small Martian volcanoes. *Geological Society of America Abstracts with Programs*. Vol 53, No. 6, Invited Presentation, doi: 10.1130/abs/2021AM-370494
- Sutton, S. S.**, J. A. Richardson, P. L. Whelley, C. W. Hamilton, S. P. Scheidt, K. E. Young, A. Höskuldsson, I. Jónsdóttir, T. Thordarson. The onset of degradation of a large spatter rampart in Iceland. *51st Lunar and Planetary Science Conference*, Abstract 1527, 15–20 March 2020, The Woodlands, Texas, Talk.
- Sutton, S. S.**, J. A. Richardson, P. W. Whelley, C. W. Hamilton, K. E. Young, S. P. Scheidt, J. Voigt, J. E. Bleacher. The onset of degradation of the Holuhraun spatter rampart. *Geological Society of America*, 25 September 2019, Phoenix, Arizona, Talk.
- Sutton, S. S.**, C. W. Hamilton, J. E. Bleacher, S. P. Scheidt, V. Cataldo, D. A. Williams. Late Amazonian channelized flows east of Olympus Mons, Mars: Implications for volcanism and aqueous flooding. *Late Mars Workshop*, 1–2 October 2018, Houston, Texas, Talk.
- Sutton, S. S.**, C. W. Hamilton, J. E. Bleacher, D. A. Williams. Channelized flows east of Olympus Mons, Mars. *2017 Meeting of the International Association of Volcanology and Chemistry of the Earth's Interior*, 13–16 August 2017, Portland, Oregon, Talk.
- Sutton, S. S.**, S. Byrne, K.E. Herkenhoff, A.S. McEwen. Seasonal and interannual changes in meter-scale pits in Mars' north polar layered deposits. *48th Lunar and Planetary Science Conference*, Abstract 2592, March, 2017, The Woodlands, Texas, Poster.
- Sutton, S. S.**, A. Boyd, A. S. McEwen, R. Heyd, A. Fennema, R. Kirk, D. Cook, and S. Mirchandani. Correcting Spacecraft Jitter in HiRISE Images. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XLII-3/W1, 2017 International Symposium on Planetary Remote Sensing and Mapping, 13–16 August 2017, Hong Kong, Talk (given by R. Kirk).
- Sutton, S. S.**, C.W. Hamilton, J.E. Bleacher. Investigating channel morphologies in the eastern Olympus Mons region of Mars: Implications for volcanic and fluvial processes. *47th Lunar and Planetary Science Conference*, Abstract 2759, March, 2016, The Woodlands, Texas, Poster.
- Sutton, S. S.**, M. Chojnacki, A. Kilgallon, and HiRISE Team. Precision and Accuracy of Simultaneously Collected HiRISE Digital Terrain Models. *46th Lunar and Planetary Science Conference*, Abstract 3010, March, 2015, Poster.
- Mattson, S.**, A. McEwen, R. Kirk, E. Howington-Kraus, M. Chojnacki, K. Runyon, G. Cremonese, and C. Re. Martian Landscapes in Motion. In *European Geophysical Union General Assembly Conference*, volume 16 of *EGU General Assembly Conference Abstracts*, page 10153, May 2014, Vienna, Austria, Talk/PICO poster.

- Mattson, S.**, A. Kilgallon, S. Byrne, A. S. McEwen, K. Herkenhoff, C. Okubo, N. E. Putzig, and P. Russell. Meter-Scale Pits in Mars' North Polar Layered Deposits. In *45th Lunar and Planetary Science Conference*, Abstract 2431, March 2014, The Woodlands, Texas, Poster.
- Mattson, S.**, A. S. McEwen, M. S. Robinson, E. Speyerer, and B. Archinal. Exploring the Moon with LROC-NAC Stereo Anaglyphs. In *European Planetary Science Congress 2012*, page 486, September 2012, Talk.
- Mattson, S.**, N. T. Bridges, R. L. Kirk, E. Howington-Kraus, N. Mogk, and L. Ojha. Studying Martian Dune Changes with HiRISE DTMs and Orthoimages. *LPI Contributions*, 1673:68–69, June 2012, Poster.
- Mattson, S.**, A. Bartels, A. Boyd, P. Calhoun, O. Hsu, A. McEwen, M. Robinson, J. Siskind, and T. Tran. Continuing Analysis of Spacecraft Jitter in LROC-NAC. In *Lunar and Planetary Science Conference*, volume 42 of *Lunar and Planetary Inst. Technical Report*, page 2756, March 2011, Poster.
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- Mattson, S.**, M. Robinson, A. McEwen, A. Bartels, E. Bowman-Cisneros, R. Li, J. Lawver, T. Tran, K. Paris, and LROC Team. Early Assessment of Spacecraft Jitter in LROC-NAC. In *Lunar and Planetary Science Conference*, volume 41 of *Lunar and Planetary Inst. Technical Report*, page 1871, March 2010, Poster.
- Mattson, S.**, A. Boyd, R. L. Kirk, D. A. Cook, and E. Howington-Kraus. HiJACK: Correcting spacecraft jitter in HiRISE images of Mars. In *European Planetary Science Congress 2009*, page 604, September 2009, Poster.
- Mattson, S.**, van Leeuwen, W., Yool, S. Fire effects on vegetation recovery in the Santa Catalina Mountains. In *U.S. Regional Association of the International Association of Landscape Ecology conference*, Tucson, Arizona, 2007, Talk.

GRANTS

- Characterizing Global Sand Flux for Martian Bedform Construction Times and Erosion Rates*, MDAP, PI Matthew Chojnacki, 2015–2017.
- Ejecta and Melt Interactions During Impact Ejecta Emplacement*, LDAP, PI Veronica Bray, 2015.
- Recurring Slope Lineae (RSL) on Mars*, MDAP, PI Alfred McEwen, 2013–2015.
- Advanced Change Detection Studies of Martian Dunes*, MDAP, PI Nathan Bridges, 2012–2013.
- Linking Visible and Radar Stratigraphy in the Martian Polar Deposits*, MDAP, PI Patrick Russell, 2009–2012.

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| PROFESSIONAL SERVICE | Mapping and Planetary Spatial Infrastructure Team, Steering Committee
NASA PGG-USGS Cartography Program Review panelist
NASA ROSES grant programs External Reviewer
Reviewer for <i>Icarus</i> , <i>Earth and Space Science</i> , <i>Photogrammetric Engineering & Remote Sensing</i> , <i>Space Science Reviews</i> , <i>Chinese Optics Letters</i> | 2015–2021
2014–2015 |
| PROFESSIONAL MEMBERSHIPS | American Geophysical Union (AGU)
Geological Society of America (GSA)
International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI) | |