

Dr. Frances Rivera-Hernández
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EDUCATION

- 2018 **Ph.D., Geology, University of California, Davis**
Dissertation: *Establishing diagnostic criteria for identifying ancient perennially ice-covered lakes in the sedimentary record of Earth and Mars*
Advisor: Dr. Dawn Y. Sumner
- 2014 **M.S., Earth and Space Sciences, University of Washington**
Thesis: *Characterizing the thermal infrared spectral effects of optically thin surface dust: Implications for remote-sensing and in situ measurements of the martian surface*
Advisor: Dr. Joshua L. Bandfield
- 2009 **Bachelor of Science, Astronomy/Astrophysics, University of Wyoming**
Bachelor of Science, Geology, University of Wyoming

ACADEMIC APPOINTMENTS

- 2021-present Assistant Professor, Department of Earth and Atmospheric Sciences, Georgia Institute of Technology (Georgia Tech), Atlanta, GA
- 2018-2020 Postdoctoral Researcher, Dartmouth College (Advisor: Dr. Marisa Palucis)
- 2018-2020 Visiting Research Scientist, Stony Brook University, NY
- 2017 Visiting Graduate Researcher (Chateaubriand STEM Fellow), Univ. de Nantes, France
- 2014-2017 Graduate Research Assistant, Univ. of California, Davis, USA
- 2015 Graduate Teaching Assistant, Univ. of California, Davis, USA
- 2010-2014 Graduate Research Assistant, Univ. of Washington, USA
- 2011 Graduate Teaching Assistant, Univ. of Washington, USA
- 2007-2009 Undergraduate Teaching Assistant, Univ. of Wyoming, USA

NASA MISSION EXPERIENCE

- Jan. 2021-present Science Team Collaborator, Mars Science Laboratory *Curiosity* rover
Instrument team involvement: MAHLI and ChemCam
Activities: Science operations tactical planning as Geology Science Theme Lead
- 2018-2020 Collaborator of Participating Scientist, Mars Science Laboratory *Curiosity* rover
Activities: Science operations tactical planning as Geology Science Theme Lead
- 2014-2018 Student Collaborator, Mars Science Laboratory *Curiosity* rover
Activities: Science operations tactical planning as Geology Theme Group
Documentarian and Keeper of the Plan

GRANTS & FUNDING

Research Grants (PI=4 @ ~\$1 Million; Co-I= 7 @ \$~12.3 Million; Total=11 @ ~\$13.3 Million)

- 2023 Co-I, NASA Solar System Workings, "*Improving prediction of outburst flooding on Earth and Mars with granular fluid modeling*", Total: \$356,577
- 2023 Co-I, NASA Solar System Workings, "*Laboratory Analog Mudflow Experiments: Insights into Mars Rheology and Morphology*", Total: \$654,261
- 2023 Co-I, NASA SSERVI, "*Center for Lunar Environment and Volatile Exploration Research (CLEVER)*", Total: \$7,500,000

- 2022 Co-PI, NSF RAPID, "*Collaborative Research: RAPID: The fate of landslide-derived sediment following tropical cyclones: a case study of Hurricane Fiona in Puerto Rico*", Total: \$50,000
- 2022 PI, Hiesing-Simons Foundation, "*Rapid Response Characterization of Landslides and their Cascading Effects in Puerto Rico after Hurricane Fiona*", Total: \$15,000
- 2022 Co-PI, Hiesing-Simons Foundation via Scialog-SLU, "*Mars Sample Return: Connecting Martian Environmental Geochemistry to Returned Samples*", \$55,000/Person, Total: \$110,000
- 2022 Co-PI, NSF Centers for Innovation and Community Engagement in Solid Earth, "*Track 1 - Center Catalyst: Collaborative Center for Landslide and Ground Failure Geohazards*", Total: \$497,132
- 2022 Co-I, NASA Planetary Science and Technology Through Analog Research, "*LASSIE: Legged Autonomous Surface Science in Analogue Environments*", Total: \$2,959,270.00
- 2021 PI, NASA Solar System Workings, "*Paleolake deposits in Miers Valley, Antarctica: An analog depositional record for martian lakes through late Noachian to early Hesperian climatic transitions*", Total: \$700,000
- 2021 PI, NASA Mars Data Analysis Program, "*Conglomerates in Gale crater, Mars: Sedimentary archives of martian paleohydrology and paleoclimate*", Total: \$247,000
- 2021 Co-I, NASA Mars Data Analysis Program, "*Do delta deposits around the martian crustal dichotomy record an ancient northern ocean?*", Total: \$277,000
- 2018 Contributed and funded as Postdoc, NASA Solar Systems Workings, "*How much water does it take to build a fan under a "cold and icy" Mars climate scenario?*", PI: Marisa Palucis
- 2011 Contributed and funded as Graduate Student, NASA Mars Data Analyses Program Grant, "*Investigation of Planetary Surface Anisothermality Using Thermal Infrared Observations*", PI: Joshua L. Bandfield

Small Grants

- 2023 CSTAR Faculty Strategic Initiative, Georgia Tech, \$5,000
- 2017 Durrell Grant, Dept. Of Earth and Planetary Sciences, University of California, Davis, \$1,300
- 2017 Travel Award, Graduate Studies, University of California, Davis, \$500
- 2016 Durrell Grant, Dept. Of Earth and Planetary Sciences, University of California, Davis, \$800
- 2016 Travel Award, Graduate Studies, University of California, Davis, \$500
- 2013 Travel Award from Columbia University to attend Electromagnetic and Light Scattering Conference in Lille, France, \$2,000 (Declined Award)
- 2009 NSF EPSCoR for undergraduates, University of Wyoming

FELLOWSHIPS, HONORS, & AWARDS

- 2022 Scialog Fellow, Signatures of Life in the Universe Initiative
- 2021 AGU 2020 Editors' Citation for Excellence in Refereeing for GRL
- 2019 Guarini Dean's Postdoctoral Fellowship in Earth Sciences, Dartmouth College
- 2017 NASA Group Achievement Award: MSL Extended Mission-1 Science and Ops Team
- 2016 Chateaubriand STEM Graduate Fellowship, Embassy of France in the U.S.
- 2015 NASA Group Achievement Award: MSL Prime Mission Science and Ops Team
- 2013 Distinguished Graduate Student Research Fellowship, Earth and Space Sciences Dept., Univ. Of Washington, 1 quarter graduate student RA salary
- 2012 Peter Misch Fellowship Endowment, Earth and Space Sciences Dept., Univ. of Washington, 1 quarter graduate student RA salary

PEER-REVIEWED PUBLICATIONS: ACCEPTED OR PUBLISHED (28 published or in press)

Scopus h-index=12; total citations: 674 by 362 documents

Google Scholar h-index=14; i10-index=21; total citations: 955

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=55703569100>

Google Scholar: https://scholar.google.com/citations?user=o_nrldYAAAAJ&hl=en

1. Burr, D., Diniega, S., Quick, L. C., Gardner-Vandy, K., **Rivera-Hernández, F.** (2022) Foundational women in planetary geomorphology: some contributions in fluvial, aeolian, and (cryo)volcanic subdisciplines. *Earth Surface Processes and Landforms*, doi: 10.1002/esp.5465

2. Palucis, M.C., Morgan, A.M., Strauss, J.V., **Rivera-Hernández, F.**, Marshall, J.A., Menio, E. C., Miller, R., (2022) Rates and processes controlling periglacial alluvial fan formation: Implications for martian fans. *GSA Bulletin*, doi: 10.1130/B36459.1
3. Sholes, S. F. and **Rivera-Hernández, F.** (2022) Constraints on the Uncertainty, Timing, and Magnitude of Potential Mars Oceans from Topographic Deformation Models. *Icarus*, 114934
4. Gwizd, S., Fedo, C., Grotzinger, J., Edgett, K., Banham, S., **Rivera-Hernández, F.**, Stack, K. M., Siebach, K., Thorpe, M., Thompson, L., O'Connell-Cooper, C., Stein, N., Edgar, L., Gupta, S., Rubin, D., Sumner, D., Vasavada, A. (2022) Sedimentological and geochemical perspectives on a marginal lake environment recorded in the Hartmann's Valley and Karasburg members of the Murray formation, Gale crater, Mars. *Journal of Geophysical Research: Planets*, doi: 10.1029/2022JE007280
5. Caravaca, G., Mangold, N., Dehouck, E., Schieber, E., Zaugg, L., Bryk, A.B., Fedo, C.M., Le Mouélic, S., Le Deit, L., Banham, S.G., Gupta, S., Cousin, A., Rapin, W., Gasnault, O., **Rivera-Hernández, F.**, Wiens, R.C., Lanza N.L. (2022) From Lake to River: Documenting an Environmental Transition across the Jura/Knockfarril Hill Members Boundary in the Glen Torridon Region of Gale crater (Mars). *Journal of Geophysical Research: Planets*, doi: 10.1029/2021JE007093
6. Bedford, C. C., Banham, S., Bridges, J. C., Forni, O., Cousin, A., Bowden, D., Turner, S. M. R., Wiens, R. C., Gasda, P. J., Frydenvang, J., Gasnault, O., Rammelkamp, K., **Rivera-Hernández, F.**, Rampe, E. R., Smith, R., Achilles, C., Dehouck, E., Bryk, A. B., Schwenzer, S. P., Newsom, H. (2022) An insight into ancient aeolian processes and post-Noachian aqueous alteration in Gale crater, Mars, using ChemCam geochemical data from the Greenheugh capping unit. *Journal of Geophysical Research: Planets*, e2021JE007100.
7. Bennett, K.A., **Rivera-Hernández, F.**, Tinker, C., Horgan, B., Powell, K., Edwards, C., Fey, D., Edgar, L., Kronyak, R., Edgett, K., Fraeman, A., Williams, A., Yingst, A., Stein, N., Sun, V. (2021) Diagenesis Revealed by Fine-Scale Features at Vera Rubin Ridge, Gale Crater, Mars. *Journal of Geophysical Research: Planets*, e2019JE006311.
8. Méndez et al. (2021) Habitability Models for Astrobiology. *Astrobiology*, 21(8), 1017-1027.
9. Horgan, B., Johnson, J.R., Fraeman, A. A., Bell III, J.F., Bennett, K.A., Cloutis, E.A., Edgar, L. A., Grotzinger, J. P., Frydenvang, J., L'Haridon, J., Mangold N., Morris, R.V., Jacob, S.R., Rasmussen, E.B., Rice, M.S., **Rivera-Hernández, F.**, Sun, V.Z., Thompson, L.M., Wellington, D. (2020) Diagenesis of Vera Rubin ridge, Gale crater, Mars from Mastcam multispectral images. Vera Rubin ridge special issue in *Journal of Geophysical Research: Planets*, 125(11), e2019JE006322
10. Nachon, M., Borges, S., Sumner, D.Y., Ewing, R.C., Stein, N., **Rivera-Hernández, F.**, and Van Beek, J.K. (2020) Coupling Mars ground and orbital views: generate viewsheds of Mastcam images from the Curiosity rover, using ArcGIS and public datasets. *Earth and Space Science*, 7(9), e2020EA001247.
11. Wiens, R.W., Edgett, K., Stack Morgan, K., Dietrich, W., Bryk, A., Mangold, N., Bedford, C., Gasda, P., Fairen, A., Thompson, L., Johnson, J., Gasnault, O., Clegg, S., Cousin, A., Forni, O., Frydenvang, J., Lanza, N., Maurice, S., Newsom, H., Ollila, A., Payre, V., **Rivera-Hernández, F.**, Vasavada, A. (2020). Origin and Composition of Three Heterolithic Boulder- and Cobble-Bearing Deposits Overlying the Murray and Stimson Formations, Gale Crater, Mars. *Icarus*, 113897. doi: 10.1016/j.icarus.2020.113897
12. Thomas, N. H., Ehlmann, B. L., Rapin, W., **Rivera-Hernández, F.**, Stein, N. T., Frydenvang, J., Meslin, P.-Y., Maurice, S., and Wiens, R. C. (2020) Hydrogen Variability in the Murray Formation, Gale Crater, Mars. Vera Rubin ridge special issue in *Journal of Geophysical Research: Planets*. doi: 10.1029/2019JE006289
13. Edgar, L. A., Fedo, C. M., Gupta, S., Banham, S. G., Fraeman, A. A., Grotzinger, J. P., Stack, K. M., Stein, N. T., Bennett, K. A., **Rivera-Hernández, F.**, Sun, V. Z., Edgett, K. S., Rubin, D. M., House, C., Van Beek, J. (2020) A lacustrine paleoenvironment recorded at Vera Rubin ridge, Gale crater: Overview of the sedimentology and stratigraphy observed by the Mars Science Laboratory Curiosity rover. *Journal of Geophysical Research: Planets*. doi: 10.1029/2019JE006307
14. **Rivera-Hernández, F.**, Sumner, D. Y., Mangold N., Wiens, R.W., Edgett, K., Fedo, C., Schieber, J., Banham, S.G., Newsom, H., Gupta, S., Heydari, E., Stack, K.M., Nachon, M., Stein, N., & Maurice, S. (2020) Grain Size Variations in the Murray Formation: Stratigraphic Evidence for Changing Depositional Environments in Gale Crater, Mars. *Journal of Geophysical Research: Planets*. doi:10.1029/2019JE006230
15. Kling, A. M., Haberle, R. M., McKay, C. P., Bristow, T. F., & **Rivera-Hernández, F.** (2019) Subsistence of ice-covered lakes at Gale crater, Mars long into the Hesperian: a cold and wet hypothesis. *Icarus*. doi: 10.1016/j.icarus.2019.113495

16. Rapin, W., Ehlmann, B. L., Dromart, G., Schieber, J., Thomas, N., Fischer, W.W., Fox, V., Stein, N., Nachon, M., Clark, B., Kah, L.C., Thompson, L., Meyer, H.A., Gabriel, T.S.J., Hardgrove, C., Mangold, N., **Rivera-Hernández, F.**, Wiens, R.C., Vasavada, A. (2019) An interval of high salinity in ancient Gale crater lake, Mars. *Nature Geoscience*, 12(11), 889-895.
17. Thomas, N. H., Ehlmann, B. L., Meslin, P.-Y., Rapin, W., Anderson, D. E., Freissinet, C., **Rivera-Hernández, F.**, Forni, O., Schröder, S., Cousin, A., Mangold, N., Gasnault, O., and Wiens, R. C. (2019) Mars Science Laboratory Observations of Chloride Salts in Gale Crater, Mars. *Geophysical Research Letters*. doi:10.1029/2019GL082764
18. **Rivera-Hernández, F.** & Palucis, M. C. (2019) Do deltas along the crustal dichotomy boundary of Mars in the Gale crater region record a northern ocean? *Geophysical Research Letters*. doi: 10.1029/2019GL083046
19. Mangold N., Dehouck, E., Fedo, C., Forni, O., Achilles, C., Bristow, T., Frydenvang, J., Gasnault, O., L'Haridon, J., Le Deit, L., Maurice, S., McLennan, S.M., Meslin, P.-Y., Morrison, S., Newsom, H.E., Rampe, E., **Rivera-Hernández, F.**, Salvatore, M., Wiens, R.C. (2019) Chemical alteration of fine-grained sedimentary rocks at Gale crater. *Icarus*. doi:10.1016/j.icarus.2018.11.004
20. **Rivera-Hernández, F.**, Sumner, D. Y., Mangold N., Stack, K.M., Forni, O., Newsom, H., Williams, A., Nachon, M., L'Haridon, J., Gasnault, O., Wiens, R.W., Maurice, S. (2019) Using ChemCam LIBS data to constrain grain size in rocks on Mars: Proof of concept and application to rocks at Yellowknife Bay and Pahrump Hills, Gale crater. *Icarus*. doi:10.1016/j.icarus.2018.10.023
21. Stack, K. M., Grotzinger, J. P., Lamb, M. P., Gupta S., Rubin, D. M., Kah, L.C., Edgar, L. A., Fey, D.M., Hurowitz, J., McBride, M., **Rivera-Hernández, F.**, Sumner, D. Y., Van Beek, J. K., Williams, R. M. E., Yingst, R. A. (2018) Evidence for plunging river plume deposits in the Pahrump Hills member of the Murray formation, Gale crater, Mars. *Sedimentology*. doi:10.1111/sed.12558
22. **Rivera-Hernández, F.**, Sumner, D. Y., Mackey, T.J., Hawes, I., Andersen, D.T. (2018) In a PICL: The sedimentary deposits and facies of perennially ice-covered lakes. *Sedimentology*. doi:10.1111/sed.12522
23. Banham, S. G., Gupta, S., Rubin, D.M., Watkins, J.A., Sumner, D.Y., Edgett, K.S., Grotzinger, J.P., Lewis, K.W., Edgar, L.A., Stack-Morgan, K.M., Barnes, R., Bell III, J.F., Day, M.D., Ewing, R.C., Lapotre, M.P.A., Stein, N.T., **Rivera-Hernández, F.**, Vasavada, A.R. (2018) Ancient Martian aeolian processes and palaeomorphology reconstructed from the Stimson formation on the lower slope of Aeolis Mons, Gale crater, Mars, *Sedimentology*, 65: 993-1042.
24. Dietrich, W. E., Palucis, M. C., Williams, R. M., Lewis, K. W., **Rivera-Hernández, F.**, & Sumner, D. Y. Fluvial Gravels on Mars. (2017) *Gravel-Bed Rivers: Processes and Disasters*, 755-783.
25. Cloutis, E.A., Jonatanson, V, Bandfield, J.L., Amador, E.A., **Rivera-Hernández, F.**, Mann, P., and Mertzman, S.A. (2017) Hydrothermally-altered dacite terrains in the Methana peninsula Greece: Relevance to Mars. *Planetary and Space Science*, 10.1016/j.pss.2017.01.013.
26. **Rivera-Hernández, F.**, Bandfield, J. L., Ruff, S. W., & Wolff, M. J. (2015). Characterizing the thermal infrared spectral effects of optically thin surface dust: Implications for remote-sensing and in situ measurements of the martian surface. *Icarus*, 262, 173-186.
27. Arcos, M. E. M., MacInnes, B. T., Arreaga, P., **Rivera-Hernández, F.**, Weiss, R., & Lynett, P. (2013). An amalgamated meter-thick sedimentary package enabled by the 2011 Tohoku tsunami in El Garrapatero, Galapagos Islands. *Quaternary Research*, 80(1), 9-19.
28. Shetrone, M., **Rivera, F.**, Smith, G., & Carveth, C. (2008). Time Variability of the Ca II K Emission Line of Giants. *Publications of the Astronomical Society of the Pacific*, 120(869), 730-739.

PEER-REVIEWED PUBLICATIONS: SUBMITTED OR IN REVIEW (1 co-author)

1. P. J. Gasda, N. L. Lanza, P.Y. Meslin, S. N. Lamm, A. Cousin, R. Anderson, O. Forni, E. Swanner, J. L'Haridon, J. Frydenvang, N. Thomas, N. Stein, W. W. Fischer, J. Hurowitz, D. Sumner, **F. Rivera-Hernández**; L. Crossey, A. Ollila, A. Essunfeld, H. E. Newsom, B. Clark, R. C. Wiens, O. Gasnault, S. M. Clegg, S., Maurice, D. Delapp, A. Reyes-Newell (*In review*) Manganese-rich sandstones as an indicator of ancient oxic lake water conditions in Gale crater, Mars, *JGR Planets*

PUBLICATIONS IN PREPARATION (2 first author, 3 co-author; † advisee or postdoc)

1. **Rivera-Hernández, F.**, Sumner, D. Y., & Mackey, T.J. Ice Cover Thickness and Roughness Effects on Perennially Ice-Covered Lake Facies. Prepared for *the Cryosphere*.
2. **Rivera-Hernández, F.**, Minitti, M.E., Bennett, K.A., Gupta, S., Wiens, R.C. Rock Textures and Grain Sizes in the Glen Torridon Region (Gale Crater, Mars). Prepared for *JGR Planets*.
3. Ando, J. †, **Rivera-Hernández, F.**, Palucis, M. Connecting Drainage Basin Morphology and Climate Using Circularity. Prepared for *Icarus Notes*.
4. Adler, J. †, **Rivera-Hernández, F.**, Kerner, H.R. Unsupervised Cluster Mapping of the Cucomungo Alluvial Fan, and Implications for Mapping Fans on Mars. Prepared for *Geophysical Research Letters*.
5. Lehnigk, K. †, Wilson, S.A., **Rivera-Hernández, F.**, Grant, J.A. Constraints on flood sizes and sources of Ares Vallis, Mars. Prepared for *Geophysical Research Letters*.

PUBLISHED DATASETS

1. Frances Rivera-Hernandez. (2020). Gini index mean score grain size estimates for Murray formation rocks (Gale crater, Mars) from ChemCam LIBS data (sols 766-1804) (Version 1) [Data set]. *Journal of Geophysical Research: Planets*. Zenodo. <http://doi.org/10.5281/zenodo.3605603>
2. Frances Rivera-Hernandez. (2020). Gini index mean score grain size estimates for Murray formation rocks in the Vera Rubin ridge (Gale crater, Mars) from ChemCam LIBS data (sols 1808-2298) (Version 1) [Data set]. *Journal of Geophysical Research: Planets*. Zenodo. <http://doi.org/10.5281/zenodo.3672073>

CONFERENCE ABSTRACTS & PRESENTATIONS: PRIMARY AUTHOR (* presenter, if not me)

- March 2022 Talk, **Rivera-Hernández, F.**, Burdell, M., Palucis, M., Kim G., Grain Size Analysis of Conglomerates in Gale Crater: Providing Insights Into The Hydrology Of Early Mars, LPSC 53, Abstract #2763.
- March 2020 (conference canceled due to COVID-19), **Rivera-Hernández, F.**, Sumner, D. Y., Minitti, M., Bennett, K.A., Bryk, A., Edgett, K.S., Yingst, R.A., Fedo, C., Mangold N., Schieber, J., Wiens, R.C., Maurice, S. Grain Size and Facies Variations In Glen Torridon (Gale Crater, Mars): Perspective From Mahli, Mastcam, and Chemcam LIBS Data, LPSC 51, Abstract #2814
- Dec. 2019 Talk. **Rivera-Hernández, F.**, Caballero-Gill, R. *, Brockamp, B., Crisostomo-Figueroa, A., Guerra, C., Jimenez, Y., Llano-Ocampo, C., Macedo, I., Nowajewski P. GeoLatinas (Latinas in Earth and Planetary Sciences) Contributing to Professional Development and Retention of Underrepresented Groups at Large, AGU Fall Meeting, #ED32C-02
- Dec. 2019 Poster. **Rivera-Hernández, F.**, Morgan, A.M., Strauss, J.V., Menio, E. C., Marshall, J.A., and Palucis, M.C., Periglacial Fans in the Aklavik Range, Northwest Territories: An Analog Depositional Environment for a Cold and Icy Mars, AGU Fall Meeting, #EP21E-2210
- March 2019 Poster. **Rivera-Hernández, F.** and Palucis, M. Alluvial Fans in the Aklavik Range, Northwest Territories: Analogs for Fans in a Cold and Icy Mars Scenario, Lunar and Planetary Science Conference 50, #2976
- March 2019 Poster. **Rivera-Hernández, F.** Sumner, D. Y., Mangold N., Stack, K.M., Edgett, K., Wiens, R.W., Sun, V.Z., Heydari, E., Maurice, S. Vera Rubin Ridge (Gale Crater, Mars) Grain Size Observations from Chemcam LIBS Data, and Interpretations, Lunar and Planetary Science Conference 50, #3029
- Dec. 2018 Poster. **Rivera-Hernández, F.** and Palucis, M. Deltas Along the Crustal Dichotomy of Mars Likely Record Large Lakes, Not a Global Ocean, AGU Fall Meeting, #P31I-3821.
- March 2018 Talk. **Rivera-Hernández, F.**, Sumner, D. Y., Mangold N., Stack, K.M., Edgett, K., Stein, N., Heydari, E., Fedo, C., Banham, S.G., Gupta, S., Schieber, J., Newsom, H., Forni, O., Yingst, A., Nachon, M., L'Haridon, J., Gasnault, O., Wiens, R.W., Maurice, S. Characterizing shifting ancient depositional environments in the Murray Formation, Gale Crater, Mars from ChemCam LIBS data. Lunar and Planetary Science Conference 49, #2973
- Oct. 2017 Talk. **Rivera-Hernández, F.**, Sumner, D. Y., Mackey, T.J., Hawes, I., Andersen, D.T. In a PICL: The unique sedimentary deposits and facies of perennially ice-covered lakes, International Meeting of Sedimentology 33, #159533.
- April 2017 Talk. **Rivera-Hernández, F.**, Mangold, N., Sumner, D.Y., Nachon, M., Wiens, R.C., Maurice, S., Forni, O., Frydenvang, J., Newsom, H., Dehouck, E. and Payre, V. Understanding chemical

and facies variability in the Murray Formation, Gale crater, from ChemCam data, EGU General Assembly Conference 19, #17380.

- Dec. 2016 Poster. **Rivera-Hernández, F.**, Sumner, D. Y., & Mackey, T. J. Were lakes on early Mars perennially ice-covered?, AGU Fall Meeting, #P21C-2112.
- May 2016 Talk. **Rivera-Hernández, F.**, Mackey, T.J., Sumner, D.Y. Establishing criteria for Identifying Ancient Perennially Ice Covered Lakes in the Sedimentary Record of Mars, International Association of Sedimentology 32, Marrakech, Morocco, #261.
- June 2015 Talk. **Rivera-Hernández, F.**, Mackey, T.J., Sumner, D.Y.* Developing a sedimentary facies model for perennially ice covered lakes: implications for Mars habitability, Astrobiology Science Conference, #7415.
- March 2015 Poster. **Rivera-Hernández, F.**, Mackey, T.J., Sumner, D.Y. (2015, March). Establishing criteria for Identifying Ancient Perennially Ice Covered Lakes on Earth and Mars from Sedimentary Rocks, Lunar and Planetary Science Conference 46, #1686.
- March 2014 Poster. **Rivera-Hernández, F.**, Bandfield, J.L., Ruff, S.W., Wolff, M.J. A Radiative Transfer Approach to Characterizing the Optically Thin Dust Spectral Component in Mini-TES Observations of the Martian Surface, Lunar and Planetary Science Conference 45, #1656.
- March 2013 Poster. **Rivera-Hernández, F.**, Bandfield, J.L., Ruff, S.W. Mid-Infrared Spectral Effects of Thermally Isolated Dust Coated Surfaces, Lunar and Planetary Science Conference 44, #2674.
- Jan. 2009 Poster. **Rivera, F.**, Ganguly, R., Feldmeier, J., Barlow, R., A catalog of [O III] 5007 photometric standards in the Virgo cluster region, American Astronomical Society 213 (Vol. 41, p. 427).
- Jan. 2008 Poster. **Rivera, F.**, Shetrone, M.D, Smith, G., Time Variability of the Ca II K Line for Red Giants near the Dividing Line, American Astronomical Society 211 (Vol. 39, p. 920).
- Dec. 2007 Poster. **Rivera, F.**, Ressler, R., Kinemuchi, K., & Smith, H. A. (2006, December). Photometric Observations of RR Lyrae Stars at Red Buttes Observatory. In *Bulletin of the American Astronomical Society* (Vol. 38, p. 942).

CONFERENCE ABSTRACTS & PRESENTATIONS: CONTRIBUTING AUTHOR († advisee)

- Dec. 2022 Talk. Thompson, S.†, **Rivera-Hernández, F.**, Adler, J. †, Sylvest, M., Brož, P., Patel, M. Mars Laboratory Analog Sediment Flows: Investigating the Effects of Pressure and Water-rock Ratio, AGU 2022, EP26A-08
- Dec. 2022 Talk. Gibson, T.†, **Rivera-Hernández, F.**, Palucis, M., Williams, R.M.E., Morgan, A., Kah, L. Using Rounding to Reconstruct the Depositional and Transport Histories of Conglomerates in Gale Crater, Mars, AGU 2022, EP36C-03
- Dec. 2022 Poster. Adler, J. †, **Rivera-Hernández, F.**, Thompson, S.†, Sylvest, M., Brož, P., Patel, M. Mars Laboratory Analog Sediment Flows: Investigating the Effects of Composition, AGU 2022, EP32D-1333
- Oct. 2022 Talk. Fanson, G.†, Wray, J., **Rivera-Hernández, F.**, Hughes, E., Matiella Novak, A. Further Evidence for Ancient Volcanism in Northern Arabia Terra, Mars, GSA 2022
- March 2022 Poster. Tebolt, M., Goudge, T.A., Stack, K.M., Fedo, C. M., Gwizd, S., **Rivera-Hernández, F.**, Constraining the Paleoenvironment of the Darwin Outcrop in Gale Crater from Facies and Stratigraphic Mapping, LPSC 53, Abstract #1098.
- Dec. 2021 Talk. Adler, J. †, **Rivera-Hernández, F.**, Palucis, M., Salvatore, M., Unsupervised Cluster Mapping of the Cucomungo Alluvial Fan, and Implications for Mapping Fans on Mars., AGU 2021, EP22B-06
- Oct. 2021 Talk. Cuevas Quiñones, S. †, Wray, J., **Rivera-Hernández, F.**, Adler, J., Evaluating a potential volcano on the rim of Jezero crater, Mars. GSA Connects (2021): #240-9.
- Oct. 2021 Talk. Burdell, M. †, **Rivera-Hernández, F.**, Palucis, M. Conglomerates In Gale Crater: Providing Insights Into The Hydrology Of Ancient Rivers On Mars. Geological Society of America Connects (2021): #240-9.
- March 2021 Poster. Minitti, M.E., **Rivera-Hernández, F.**, Bennett, K.A., Gupta, S., Wiens, R.C. Rock Textures and Grain Sizes in the Glen Torridon Region (Gale Crater, Mars) Observed by the Mars Hand Lens Imager (MAHLI) and ChemCam, Lunar and Planetary Science Conference 52, Abstract #2435.

- March 2021 Poster. Ando, J. †, **Rivera-Hernández, F.**, Palucis, M.C., Does the Morphology of Alluvial Fan Drainage Basins Reflect their Climate?: A Case Study of Terrestrial Basaltic Fans., Lunar and Planetary Science Conference 52, Abstract #1593.
- March 2021 Talk. Bedford, CC. et al., Identifying Ancient Dune Processes In The Stimson Formation Of Gale Crater Using Geochemical Data From Chemcam: New Insights From The Greenheugh Capping Unit, Lunar and Planetary Science Conference 52, Abstract #1569
- March 2021 Talk. Méndez, A., et al., Habitability Models for Planetary Sciences, Lunar and Planetary Science Conference 52, Abstract #2291
- March 2021 Talk. Palucis, M.C., Morgan, A.M., Strauss, J.V., **Rivera-Hernández, F.**, Marshall, J.A., Menio, E. C., Miller, R., What Do You Call a Martian That (Still) Likes Stream Deposits? A Big Alluvial Fan, Lunar and Planetary Science Conference 52, Abstract #1918.
- March 2020 Palucis, M.C. , Morgan, A.M., Strauss, J.V. , **Rivera-Hernández, F.**, Marshall, J.A., Menio, E. C., Miller, R., What Do You Call A Martian That Likes Stream Deposits? An Alluvial Fan, LPSC 51, Abstract #1599
- March 2020 Fox, V.K., Bennett, K.A., Bryk, A., Bristow, T., Dehouck, E., Dietrich, B., Ehlmann, B., Fedo, C., O’Connell, C., Rampe, L., **Rivera-Hernández, F.**, Thompson, L., Wiens, R.C., and the MSL Science Team One Year in Glen Torridon: Key Results from the Mars Science Laboratory Curiosity Rover exploration of Clay-bearing units, LPSC 51, Abstract #2833
- March 2020 Caravaca, G., Mangold, N., Le Mouélic, S., Le Deit, L., Gasnault, O., **Rivera-Hernández, F.**, Fedo, C., Wiens, R.C. Characterization Of Small Sedimentary Structures in Rocks Of The Glen Torridon Region (Gale Crater, Mars) Using Photogrammetry, LPSC 51, Abstract #1455
- March 2020 Fedo, C., Grotzinger, J.P., Bryk, A., Edgar, L.A., Bennett, K.A., Fox, V., Stein, N., Fraeman, A., Banham, S., Gupta, S., Edgett, K.S., Caravaca, G., House, C., **Rivera-Hernández, F.**, Sun., V., Vasavada, A.R. Ground-Based Stratigraphic Correlation of the Jura and Knockfarril Hill Members of the Murray Formation, Gale Crater: Bridging the Vera Rubin Ridge – Glen Torridon Divide, LPSC 51, Abstract #2345
- March 2020 Smith, R.J., McLennan, S.M., Dehouck, E., Horgan, B., Jacob, S., Mangold N., **Rivera-Hernández, F.**, Siebach, K., Sun, V. Exploring Silica Diagenesis in Gale Crater, Mars Using the Chemostratigraphy of X-Ray Amorphous Materials, LPSC 51, Abstract #2708
- March 2020 Gwizd, S., Fedo, C., Grotzinger, J.P., Edgett, K.S., **Rivera-Hernández, F.**, Gupta, S., Stack, K., Banham, S., Edgar, L.A., Sumner, D. Y., Stein, N. Transition From a Lacustrine Margin to a Lacustrine Basin In Gale Crater, Mars: The Hartmann’s Valley and Karasburg Members of the Murray Formation., LPSC 51, Abstract #2719
- Dec. 2019 Poster. Kanine, M.K. †, Putnam, E.T., Horvath, D., **Rivera-Hernández, F.**, and Palucis, M.C., Quantitative Geomorphic and Hydrologic Evidence of Paleolakes on the Martian Crustal Dichotomy, AGU Fall Meeting, #EP21E-2214
- Dec. 2019 Poster. Wagner, D. †, **Rivera-Hernández, F.**, and Palucis, M.C., Characterizing Surface Roughness On Periglacial Alluvial Fans In The Aklavik Range, Northwest Territories, As An Analog For Cold and Icy Martian Fans, AGU Fall Meeting, #EP21E-2199
- Dec. 2019 Talk. Mackey, T., Sumner, D.Y., Hawes, I., Jungblut, A.D., Dillon, M., Andersen, D.T., Lawrence, J., Leidman, S.Z., **Rivera-Hernández, F.**, and Coleman, L. Antarctic ice-covered lakes as windows into ancient microbial ecosystems, AGU Fall Meeting, #B41E-08
- March 2019 Poster. Kanine, M.K. †, Putnam, E.T., **Rivera-Hernandez, F.**, Palucis, M. Quantitative geomorphic and hydrologic analysis of paleo-lake basins in the Gale Crater region, Mars, Lunar and Planetary Science Conference 50, #2491
- March 2019 Thomas, N.H., Ehlman, B.L., Rapin, W., **Rivera-Hernandez, F.**, Wiens, R.C. Hydrogen Variability in the Murray Formation, Gale Crater, Mars, Lunar and Planetary Science Conference 50, #3079
- March 2019 Gasda, P., Lanza, N., Meslin, P.Y., Forni, O., L’Haridon, Fisher, W.W., Hurowitz, J., **Rivera-Hernandez, F.**, Sumner, D.Y., Stein, N., Lamm, S.N., Ollila, A., Clark, B.C., Fairen, A.G., Newsom, H., Frydenvang, J., Clegg, S.M., Wiens, R.C., Maurice, S. High-Mn Sandstone as Evidence for Oxidized Conditions in Gale Crater Lake, Lunar and Planetary Science Conference 50, #1620

- March 2019 Nellesen, M.A., Baker, A.M., Newsom, H.E., Jackson, R.S., Williams, J., Nachon, M., **Rivera-Hernandez, F.**, Wiens, R.C., Gasda, P., Lanza, N., Ollila, A., Clegg, S., Frydenvang, J., Gasnault, O., Maurice, S., Meslin, P.Y., Cousin, A., Rapin, W., Lasue, J., Forni, O., L'Haridon, J., Blaney, D., Payre, V., Mangold, N., Le Deit, L., Anderson, R. Distribution and Analysis of Calcium Sulfate-Cemented Sandstones Along the MSL Traverse, Gale Crater, Mars, Lunar and Planetary Science Conference 50, #3031
- Dec. 2018 Nellesen, M.A., Baker, A.M., Newsom, H.E., Jackson, R.S., Williams, J., Clegg, S.M., Wiens, R.C., **Rivera-Hernandez, F.**, Nachon, M., Bristow, T. Distribution and Analysis of Calcium Sulfate Cemented Sandstones Along the MSL Traverse, Gale crater, Mars. 100th AGU Fall Meeting, #P31F-3760
- Dec. 2018 Poster. Lanza, N., Gasda, P. J., Clark, B.C., Clegg, S. M., Fairen, A.G., Fischer, W.W., Forni, O., L'Haridon, J., Hurowitz, J., Lamm, S.N., Maurice, S., Meslin, P.Y., Newsom, H.E., **Rivera-Hernandez, F.**, Sumner, D.Y., Stein, N., Wiens, R. C., Frydenvang, J. Evidence for Shallow, Oxic Waters in the Gale Crater Lake. 100th AGU Fall Meeting, #P21I-3435.
- Oct. 2018 Talk. Palucis, M., Kanine, M., **Rivera-Hernandez, F.** Extent and timing of hydrologic activity in the Gale crater region of Mars. GSA 130th Annual Meeting, #138-5.
- March 2018 Poster. Nellesen, M.A., Baker, A.M., Newsom, H.E., Jackson, R.S., Nachon, M., **Rivera-Hernandez, F.**, Williams, J., Wiens, R.C., Frydenvang, J., Gasda, P., Lanza, N., Ollila, A., Clegg, S., Gasnault, O., Maurice, S., Meslin, P.Y., Cousin, A., Rapin, W., Lasue, J., Forni, O., L'Haridon, J., Blaney, D., Payré, V., Mangold, N., LeDeit, L., Edgett, K., R. Anderson. Distribution and Analysis of Calcium Sulfate-Cemented Sandstones Along the MSL Traverse, Gale Crater, Mars. Lunar and Planetary Science Conference 49, #2858.
- March 2018 Talk. Fedo, C. M., Grotzinger, J. P., Gupta, S., Fraeman, A., Edgar, L., Edgett, K., N. Stein, N., **Rivera-Hernandez, F.**, Lewis, K., Stack, K. M., House, C., Rubin, D., Vasavada, A. R. Sedimentology and Stratigraphy of the Murray Formation, Gale Crater, Mars. Lunar and Planetary Science Conference 49, #2078
- March 2018 Talk. Newsom, H.E., Edgett, K.S., Fey, D.M., Wiens, R.C., Frydenvang, J., Banham, S.G., Gupta, S., Williams, A.J., Grotzinger, J.P., Mangold, N., J. Schieber, J., **Rivera-Hernandez, F.** A Buried Aeolian Lag Deposit at an Unconformity Between the Murray and Stimson Formations at Marias Pass, Gale Crater, Mars. Lunar and Planetary Science Conference 49, #2263.
- March 2018 Poster. Gwizd, S., Fedo, C., Grotzinger, J., Edgett, K., **Rivera-Hernandez, F.**, Stein, N. Depositional History of the Hartmann's Valley Member, Murray Formation, Gale Crater, Mars. Lunar and Planetary Science Conference 49, #2150.
- March 2018 Poster. Borges, S. R., Nachon, M., Sumner, D. Y., **Rivera-Hernandez, F.**, Bjørnerud, M., Kronyak, R., Kah, L., Rapin, W., L'Haridon, J., Orientation of Calcium Sulfate Veins and Their Implications for Fluid Circulation Events at Gale Crater, Mars. Lunar and Planetary Science Conference 49, #2776.
- March 2018 Poster. Gasda, P. J., Lanza, N. L., Lamm, S. N., L'Haridon, J., Meslin, P.Y., Forni, O., Frydenvang, J., Stein, N., Fischer, W., **Rivera-Hernandez, F.**, Newsom, H. E., Clark, B., Wiens, R. C., Clegg, S. M., Maurice, S., Evidence Of Redox Sensitive Elements Associated With Possible Shoreline Sediments In Gale Crater. Lunar and Planetary Science Conference 49, #2483.
- Dec. 2017 Talk. Vasavada, A., Arvidson, R., Edgett, E., Fairen, A., Fedo, C., Grotzinger, J., Gupta, S., House, C., Lewis, K., **Rivera-Hernandez, F.**, Wiens, R., Climate Implications of an Ancient Lake Basin in Gale Crater, Mars. 99th AGU Fall Meeting, #P31F-07.
- Dec. 2017 Talk. Lewis, K., Fedo, C., Grotzinger, J., Gupta, S., Stein, N., **Rivera-Hernandez, F.**, Watkins, J., Banham, S., Edgett, K., Minitti, M., Schieber, J., Edgar, L., Siebach, K., Stack, K., Newsom, H., House, C., Sumner, D., Vasavada, A., Paleo-environmental Setting of the Murray Formation of Aeolis Mons, Gale Crater, Mars, as Explored by the Curiosity Rover. 99th AGU Fall Meeting, #P33F-01.
- Dec. 2017 Talk. Gupta, S., Banham, S., Rubin, D., Watkins, J.A., Edgett, K.S., Sumner, D.Y., Grotzinger, J.P., Lewis, K.W., Edgar, L.A., Stack-Morgan, K.M., Day, M.D., Lapotre, M., Bell III, J.F.,

- Ewing, R.C., Stein, N.T., **Rivera-Hernández, F.**, Vasavada, A.R. P33F-02: From lakes to sand seas: a record of early Mars climate change explored in northern Gale crater, Mars. 99th AGU Fall Meeting, #P33F-01.
- Oct. 2017 Talk. Fedo, C., Grotzinger, J., Gupta, S., Banham, S., Edgar, L.⁵, Edgett, K., House, C., Lewis, K., Minitti, M., Newsom, H., **Rivera-Hernandez, F.**, Schieber, J., Siebach, K., Stack, K., Stein, N., Sumner, D., Vasavada, A. Paleoenvironments and stratigraphic architecture of an ancient lake basin, gale crater, mars, GSA Annual Meeting #49, No. 6, #304779
- Oct. 2017 Talk. Mangold N., Dehouck E., Forni O., Frydevang J., L'Haridon J., Le Deit L., Meslin P.Y., McLennan S., Newsom H., **Rivera-Hernández, F.**, Salvatore M., Gasnault, O., Maurice, S., Wiens, R. Chemistry of lacustrine mudstones on Mars by the ChemCam instrument onboard the Curiosity rover, International Meeting of Sedimentology 33, Toulouse, France.
- Oct. 2017 Talk. Newsom, H., Edgett, K., Wiens, R., Mangold, N., Schieber, J., Stack, K., Rapin, W., Stein, N., **Rivera-Hernández, F.**, Imaging and chemical signatures of sandstone cemented by calcium sulfate, in the Stimson and Murray formation rocks of Gale Crater, Mars, International Meeting of Sedimentology 33, Toulouse, France.
- May 2017 Talk. Edgett, K.S., Siebach, Kirsten L., Stack, K. M., Edgar, L.A., Fedo, C. M., Stein, N. T., **Rivera-Hernández, F.**, Banham, S. G., Yingst, R. A. and Minitti, M. E., Recognition and observations of the mafic sandstones of Gale crater, Mars, using Curiosity's Mars Hand Lens Imager (MAHLI), GSA Cordilleran Section, 113th Meeting, # 292551.
- April 2017 Talk. Nachon, M., Sumner, D.Y., Watkins, J., Stack K., Banham S., **Rivera-Hernández, F.**, Wiens, R.C. Stratigraphic distribution of veins observed by the curiosity rover at gale crater, mars, and implications for subsurface habitability, Astrobiology Science Conference, #1965.
- March 2017 Talk. Mangold, N., Dehouck, E., Forni, O., Le Deit, L., **Rivera-Hernández, F.**, L'Haridon, J., Frydevang, J., Meslin, P.Y., McLennan, S.M., Newsom, H.E. and Salvatore, M. Aqueous Alteration in Mt. Sharp Mudstones Evidenced by ChemCam, Curiosity, Lunar and Planetary Science Conference 48, #1894.
- Jan. 2017 Talk. Kling, A. M., Haberle, R. M., McKay, C. P., Bristow, T. F., & **Rivera-Hernández, F.** The Ice-Covered Lakes Hypothesis in Gale Crater: Implications for the Early Hesperian Climate, 6th International Workshop on the Mars Atmosphere: Modeling and Observations, #745.
- Dec. 2016 Poster. Kling, Alexandre, Haberle, R., McKay, C., Bristow, T., and **Rivera-Hernández, F.** The Antarctic analogy for ancient lakes at Gale crater, Mars, AGU Fall Meeting, #P33D-2181.
- Dec. 2015 Poster. Dietrich, W. E., Palucis, M. C., Williams, R. M. E., Lewis, K. W., **Rivera-Hernández, F.**, & Sumner, D. Y. What gravel size may tell us about the rivers draining from the north wall of Gale Crater, AGU Fall Meeting, #P43B-2114.

INVITED SEMINARS & COLLOQUIUMS

- Dec. 2023 (scheduled) Colloquium, Department of Geology, **University of Georgia**, Athens, GA, USA
- March 2023 Virtual Colloquium, Laboratory for Atmospheric and Space Physics (LASP), **University of Colorado at Boulder**, Boulder, CO, USA
- March 2023 Virtual Colloquium, Department of Earth & Space Sciences, **University of Washington**, Seattle, WA, USA
- Sept 2022 Virtual Seminar, **AGU Earth & Planetary Surface Processes (EPSP) Connects**
- May 2022 Colloquium, Department of Geosciences, **University of Arizona**, Tucson, AZ, USA
- April 2022 Virtual Colloquium, School of Earth Sciences, **Rutgers University**, New Brunswick, NJ, USA
- March 2022 Virtual Seminar, **International Geomorphology Week**
- Jan 2022 Virtual Colloquium, School of Earth Sciences, **University of Pennsylvania**, Philadelphia, PA, USA
- Nov. 2021 Colloquium, Department of Geosciences, **Williams College**, Williamston, MA, USA
- Oct. 2021 Virtual Colloquium, Astronomical Observatory, **University of Puerto Rico-Humacao**, Humacao, PR, USA
- Sept. 2021 Virtual Colloquium, Department of Physics and Astronomy, **Northern Arizona University**, AZ, USA

- April 2021 Virtual Colloquium, School of Earth Sciences, **University of Bristol**, Bristol, UK
- April 2021 Virtual Colloquium, Dept. of Earth & Planetary Sciences, **University of New Mexico**, Albuquerque, NM, USA
- April 2021 Virtual Colloquium, DeFord Lecture Series, Jackson School of Geosciences, **University of Texas at Austin**, Texas, USA
- March 2021 Virtual Colloquium, Dept. of Physics, **Florida International University**, Miami, FL
- March 2021 Virtual Colloquium, Dept. of Geological and Environmental Sciences, **Appalachian State University**, Boone, NC
- Dec. 2020 Virtual Colloquium, Dept. of Earth, Environmental and Planetary Sciences, **Brown University**, Rhode Island
- Dec. 2020 Virtual Colloquium, Dept. of Geological Sciences and Engineering, **University of Nevada-Reno**, Reno, NV, USA
- Nov. 2020 Virtual Colloquium, McGill Space Institute, **McGill University**, Canada
- Oct. 2020 Virtual Seminar, SpaceTalk for SEDS-UPRM, Dept. of Geology, **University of Puerto Rico - Mayaguez**, Mayaguez, PR, USA
- Sept. 2020 Virtual Colloquium, Dept. of Geology, **College of William & Mary**, VA, USA
- Oct. 2019 Seminar, Division of Biology & Paleo Environment, **Lamont-Doherty**, NY, USA
- Oct. 2019 Virtual Seminar, Schlumberger, International
- Sept. 2019 Colloquium, School of Earth & Environmental Sciences, **Queens College**, NY, USA
- March 2019 Colloquium, Dept. of Earth & Atmospheric Sciences, **City College of New York**, NY, USA
- March 2019 Colloquium, Dept. of Astronomy, **New Mexico State**, Las Cruces, NM, USA
- Feb. 2019 Colloquium, Dept. of Earth & Atmospheric Sciences, **Georgia Tech**, Atlanta, GA
- Feb. 2019 Seminar, Dept. Earth & Planetary Sciences, **American Museum of Natural History**, NY, USA
- Feb. 2019 Colloquium, Dept. of Earth Sciences, **Dartmouth College**, Hanover, NH, USA
- Nov. 2018 Seminar, Dept. of Geosciences, **Virginia Tech**, Blacksburg, VA, USA
- Nov. 2018 Colloquium, Dept. of Geosciences, **Stony Brook University**, Stony Brook, NY, USA
- Oct. 2018 Colloquium, Dept. of Geosciences, **Penn State University**, State College, PA, USA
- Oct. 2018 Colloquium, **Lunar and Planetary Institute (LPI)**, Houston, TX, USA
- Oct. 2018 Planetary Lunch Seminar, Dept. Earth, Environmental, & Planetary Sciences, **Brown University**, Providence, RI, USA
- Nov. 2016 Seminar, Laboratoire de Planétologie et Géodynamique, **Université de Nantes**, France

TEACHING EXPERIENCE

Main instructor: EAS 1601: Habitable Planet (Georgia Tech, Spring 2022; Fall 2022), EAS 4803/8803: Land Remote Sensing (Georgia Tech, Fall 2021), EAS 4801-SEM/8001-SEM: Planetary Science and Astrobiology Seminar (Georgia Tech, Fall 2021, Spring 2022, Fall 2022)

Guest Lecturer: EAS8802: Seminal Papers in Astrobiology (Georgia Tech, Spring 2021, Spring 2022), EAS Geomorphology (City College of New York, Spring 2020), EARS 67/167: Environmental Geomechanics (Dartmouth, Spring 2019), GEL109: Earth History: Sediments and Strata (UC Davis, Winter 2016), ESS495: Rocks-n-Stars (UW, Spring 2014), ESS 212: Earth Materials (UW, Winter 2011)

Teaching Assistant: GEL109: Earth History: Sediments and Strata (UC Davis, Winter 2016), ESS 212: Earth Materials (Univ. of Washington, Winter 2012), ESS 400, Field Geology (Univ. of Washington, Summer 2011), ASTRO 1050: Survey of Astronomy (Univ. of Wyoming, Spring 2007, 2009), PHYS 1050: Concepts of Physics (Univ. of Wyoming, Spring 2008)

POSTDOC & STUDENT MENTORING

Postdoctoral Fellows (3)

- Dr. Benjamin McKeeby (Main advisor, Georgia Tech, Started Nov. 2022)
- Dr. Karin Lehnigk (Co-advisor, Georgia Tech, Started Oct. 2022)
- Dr. Jacob Adler (Main advisor, Georgia Tech, April 2021-August 2022)

Graduate students (4)

Emmy Hughes (Co-advisor, PhD, Georgia Tech, EAS, 2022-present)
Sharissa Thompson (Main advisor, PhD, Georgia Tech, EAS, 2021-present)
Tatiana Gibson (Main advisor, PhD, Georgia Tech, EAS, 2021-present)
Grace Kim (Former Main advisor, Georgia Tech, EAS, 2021-2022)

Undergraduate students & Post-bacs (16): Allie Hearn (co-advising, Georgia Tech), Lisbeth Minaya (UMass-Amherst, NASA SUPPR intern at Georgia Tech), Sydney Peters (co-advised, Cal State Fresno, REU intern at Georgia Tech), Haley Bos (Georgia Tech), Grace Fanson (co-advising, Georgia Tech), Elana Alevy (Colby student, NASA SUPPR intern at Georgia Tech), Christina Singh (co-advised, Connecticut College student, REU intern at Georgia Tech), Abigail Russ (co-advised, Georgia Tech), Sara Cuevas Quiñones (co-advised, Purdue student, REU intern at Georgia Tech), Margaret Burdell (Univ. of Georgia student, REU intern at Georgia Tech), Jordan Ando (co-advised, Swathmore student, NASA SUPPR intern at Dartmouth College), Diane Wagner (co-advised, NASA SUPPR intern), Kevin Gross (Dartmouth), Oak Kanine (co-advised, Dartmouth), Schuyler Borges (co-advised, Lawrence University student, intern at UC Davis), Cesar Comparan (UC Davis)

Team Undergraduate Mentoring

1. 2020/21, University of Puerto Rico-Mayagüez DECIPHER team, NASA 2021 RASC-AL engineering design competition (Theme: Human mission to Ceres)
2. 2019/20, University of Puerto Rico-Mayagüez EMPRESS team, NASA 2020 RASC-AL engineering design competition, Theme: Lunar South Pole Multi-Purpose Rover, Won Best in theme and Best overall

Service on PhD Comprehensive Exams

1. Angelo Tarzona, Georgia Tech, Ph.D., School of Earth & Atmospheric Sciences, in progress
2. Dru-Ann Harris, Georgia Tech, Ph.D., School of Earth & Atmospheric Sciences, in progress
3. Emmy Hughes, Georgia Tech, Ph.D., School of Earth & Atmospheric Sciences, in progress
4. Tatiana Gibson, Georgia Tech, Ph.D., School of Earth & Atmospheric Sciences, in progress
5. Sharissa Thompson, Georgia Tech, Ph.D., School of Earth & Atmospheric Sciences, in progress
6. Tyler Tippens, Georgia Tech, Ph.D., School of Earth & Atmospheric Sciences, Fall 2022
7. Chen Chen, Georgia Tech, Ph.D., School of Earth & Atmospheric Sciences, Spring 2022
8. Jordan Mckaig, Georgia Tech, Ph.D., School of Earth & Atmospheric Sciences, Spring 2022

Service on Thesis or Dissertation Committees

1. Christina Buffo, Georgia Tech, Ph.D., School of Chemistry, in progress
2. Taylor Plattner, Georgia Tech, M.S., School of Earth & Atmospheric Sciences, in progress
3. Samantha Motz, Georgia Tech, B.S., Earth & Atmospheric Sciences, Dec. 2022
4. Renée Clavette, Georgia Tech, M.S., Earth & Atmospheric Sciences, Graduated May 2022
5. Angela Dapremont, Georgia Tech, Ph.D., School of Earth & Atmospheric Sciences, Summer 2021

PUBLIC & COMMUNITY SERVICE

Workshop & Forum Panelist

- Nov. 2022 *Invited Speaker*, [Alcanzando las Estrellas](#), Sponsored by Lunar & Planetary Institute
- Oct. 2021 *Invited Panelist*, LOGRAS Faculty Panel: Expectations for Graduate Students, Sponsored by the Latino Organization of Graduate Students (LOGRAS) of Georgia Tech
- April 2021 *Invited Panelist*, [Dia del Planeta Tierra: Exploracion a Marte, Sponsored by the University of Puerto Rico](#), Arecibo's Integrated Science Multiuse Laboratory (ISML)
- Feb. 2021 *Invited Panelist*, [NASA's Ask an Astrobiologist: Mars 2020 Perseverance Special Panel](#), Sponsored by NASA Astrobiology and Blue Origins
- Dec. 2020 *Invited Panelist*, [The Future of the Arecibo Observatory](#), Sponsored by El EcoExploratorio
- Nov. 2020 *Invited Panelist*, LOGRAS Academic job search and preparation panel, Sponsored by the Latino Organization of Graduate Students (LOGRAS) of Georgia Tech
- Nov. 2020 *Invited Panelist*, Las mujeres en las geociencias: How is the role of Latin woman seen in geosciences?, Sponsored by GeoLatinas Medellin Chapter

- Oct. 2020 *Invited Panelist*, Diversity and inclusion in the geosciences, Sponsored by the University of Wyoming course GEOL 4200/5200 taught by Dr. Dario Grana
- Aug. 2020 *Invited Panelist*, [AGU EPSP Connects: 'Productive work habits in grad school and beyond'](#), Sponsored by the AGU Earth and Planetary Surface Processes group
- April 2020 *Invited Panelist*, '[Sharing Planetary Science: Presenting to Culturally Diverse Audiences](#)', Sponsored by the Lunar and Planetary Institute
- March 2019 *Invited Panelist*, 'Live from LPSC 50', Sponsored by the Lunar and Planetary Institute at the annual Lunar & Planetary Science Conference, The Woodlands, TX

Science outreach & K-12/Community mentoring

- Oct. 2021 STAR Academy virtual seminar, I talked about my research and career path to high school students participating in the STAR Academy, a STEM program for high school students in Puerto Rico sponsored by the Arecibo Observatory (Event in Spanish)
- May 2021 Video chatted with high school students from Mexico, Colombia, and Puerto Rico about Mars as part of the [Virtual Reality Space Challenge Project](#), Organized by the International Aerospace Academy (Event in Spanish)
- May 2021 Video chatted with 4th graders from Oakton Elementary School (Oakton, VA) about Mars exploration and the Curiosity rover
- April 2021 STAR Academy virtual seminar, I talked about my research and career path to high school students participating in the STAR Academy, a STEM program for high school students in Puerto Rico sponsored by the Arecibo Observatory (Event in Spanish)
- March 2021 Atlanta Science Festival, I talked to students from Forest Park Middle School, Atlanta the Science Club about Mars and the Curiosity rover
- Oct-Apr 2021 Mentor for [Semillas de Triunfo: IF/THEN](#), mentoring middle school girls in Puerto Rico interested in STEM and helping them become STEM ambassadors in their communities
- Dec. 2020 STAR Academy virtual seminar, I talked about my research and career path to high school students participating in the [STAR Academy](#), a STEM program for high school students in Puerto Rico sponsored by the Arecibo Observatory
- Oct. 2020 Mentor for [GeoFutures](#) program, Providing mentorship to URM undergraduates before, during, and after SACNAS and helping develop a sense of identity and community in the geosciences
- 2019/20 Faculty advisor for the University of Puerto Rico, Mayagüez EMPRESS team participating in the NASA 2020 RASC-AL engineering design competition, Theme: Lunar South Pole Multi-Purpose Rover, Won Best in theme and Best overall
- 2019 Video chatted with elementary students from the Escuela Luis Muñoz Rivera (Rio Piedras, Puerto Rico) and was 'interviewed' by them as part of their school newspaper club.
- 2019 Translated webpage in Spanish for Inspiring Girls Expeditions: Girls on Ice Canada
- 2019 Panelist at a forum with high school students on the effects of climate change in Puerto Rico. I also talked about my STEM career path. EcoExploratorio, San Juan, Puerto Rico
- 2018-2019 *SpaceTime* participant with the Planetary Society, I video chat with K-12 classrooms across the U.S. about space and planetary science in Spanish and English
- 2017 Translated educational material on the Solar Eclipse in Spanish for the Planetary Society
- 2017 Day mentor for the CAMP Migrant Student Leadership Institute, Talked to high school students who are children of migrant workers (in Spanish and English) about my academic journey and engaged in a hands-on activity about the scientific method, Sacramento State University, CA
- 2014 Exploring Earth System Science Exhibit Content Expert, Pacific Science Center, Seattle, WA
- 2011-2013 Participated in Polar Science Weekend outreach, Pacific Science Center, Seattle, WA
- 2010-2013 Active member of '*Rocking Out*' a graduate student led organization at the Univ. of Washington that gave geoscience instructional activities at elementary schools in the greater Seattle area
- 2010 Gave educational talks and helped facilitate outreach activities at the Visitors Center, NASA Goddard Space Flight Center, Greenbelt, MD
- 2007 Helped facilitate astronomy tours and star parties at the McDonald Observatory Visitors Center, TX

Community engagement

- 2020-present Faculty advisor for the Latino Organization of Graduate Students (LOGRAS) at Georgia Tech
- 2018-present Member of the [Society of Latinx Earth and Space Scientists \(SOLESS\)](#), a community of Latinx academics dedicated to increasing and reinforcing representation of Latinxs in the Earth and Space Sciences through outreach, visibility, networking, and mentorship
- 2018-present Member of [GeoLatinas](#), a networking and public engagement group aimed at empowering and inspiring younger generations of Latinas to study Earth Science
- 2018-present Founding Member of [Boricua Planeteers](#), a mentoring, networking, and public engagement group for Puerto Rican STEM professionals in the space and planetary sciences
- 2018 Had a round table discussion with the Association of Women Geoscientists (AWG) chapter at Penn State about my career path and had an open Q&A
- 2018 Had a round table discussion with undergraduate and graduate students at Brown University (Dept. of Earth, Environmental and Planetary Sciences) of about my career path and had an open Q&A about DEI in the geosciences
- 2011-2014 [Science Communications Fellow](#), Pacific Science Center, Seattle, WA
- 2005-2009 Physics Club Member at the University of Wyoming
- 2005-2009 Geology Club Member at the University of Wyoming

INSTITUTE SERVICE & CONTRIBUTIONS

- 2023-Present Internal Advisory Board, Georgia Tech's Center for Promoting Inclusion and Equity in the Sciences (C-PIES)
- 2022 Member, Planetary job search committee at Georgia Tech EAS
- 2021-Present Co-director, Georgia Tech Astrobiology Program
- 2021-Present Organizer and Host, Planetary Science & Astrobiology seminar at Georgia Tech
- 2021-Present Committee Member, AGU Bridge Program at Georgia Tech EAS
- 2021-Present Faculty advisor, Latino Organization of Graduate Students (LOGRAS) at Georgia Tech

PROFESSIONAL ACTIVITIES & SERVICE

- 2022-present Committee Member (Prize Committee), AAS Division of Planetary Science (DPS)
- 2022 Committee Member (Planning Committee), AGU Planetary Sciences Division
- 2022 Session co-chair, LPSC 53
- Session R703: “*Sedimentary Rocks on Mars: Deposition, Diagenesis, and Stratigraphy*”
- 2022 Session chair, AbSciCon 2022
- Session: “*Terrestrial analogues for in situ rover investigations on Mars and sample return*”
- 2021 Session convener, American Geophysical Union annual conference
- Session P15E: “*Paleohydrology and Fluvial Dynamics of Martian Channels II*”
- 2019 Session convener, American Geophysical Union annual conference
- Session ED31B: “*Revamping Our Geo-Village: Diversity, Equity, and Inclusion Strategies That Contribute to Retention*”
 - Session EP23B: “*The ABCs of Sediment Transport*”
- 2019-present Reviewer for scientific journals, e.g., Geology, Geomorphology, Icarus, JGR: Planets, GRL
- 2014-present Review panelist, NASA funding programs and Netherlands Space Office
- 2014, 2018 Executive secretary, NASA funding programs

PRESS & MEDIA COVERAGE

Media appearances

- RadioIsla, 10/07/2021, “Geóloga planetaria boricua irá a Antártica a estudiar un antiguo lago que ayudará a evidenciar la existencia de vida en Marte”, <https://radioisla.tv/geologa-planetaria-boricua-ira-a-antartica-a-estudiar-un-antiguo-lago-que-ayudara-a-evidenciar-la-existencia-de-vida-en-marte/>
- 11Alive, 03/30/2021, “Why is NASA so invested in exploring Mars?”, https://www.11alive.com/article/news/local/outreach/why-guy/nasa-mars-exploration/85-ace4134e-3ab7-402a-9ef9-91773e05e7e2?utm_campaign=snd-autopilot

Telemundo PR, 02/19/2021, “Robot de la NASA que llegó a Marte busca detectar signos de vida pasada”, <https://www.telemundopr.com/noticias/local-decision/robot-de-la-nasa-que-llego-a-marte-busca-detectar-signos-de-vida-pasada/2182572/>
NASA TV (aired live), 02/02/2021, Mars 2020 panel episode, <https://youtu.be/FYpxArtb6pU>
VICE News, 30/07/2020, Mars 2020: Countdown to Launch, <https://youtu.be/wkESY8M4a5A?t=3764>

News articles

Georgia Tech College of Science, 02/22/2023, “Researchers Land RCSA Funding to Study Mars Samples, Develop SMART Collaborations”, <https://cos.gatech.edu/news/researchers-land-rdsa-funding-study-mars-samples-develop-smart-collaborations>
Georgia Tech College of Science, 02/15/2023, “In Puerto Rico, Georgia Tech Researchers Team Up to Build ‘Landslide-Ready’ Communities”, <https://cos.gatech.edu/news/puerto-rico-georgia-tech-researchers-team-build-landslide-ready-communities>
Georgia Tech College of Science, 10/17/2022, “Frances Rivera-Hernández Lands NASA and Scialog Grants for Planetary Research, Signatures of Life”, <https://eas.gatech.edu/news/frances-rivera-hernandez-lands-nasa-and-scialog-grants-planetary-research-signatures-life>
Georgia Tech College of Science, 08/29/2022, “To the Moon, Back, and Beyond”, <https://news.gatech.edu/BackToTheMoon>
Georgia Tech College of Science, 10/04/2021, “Hispanic and Latinx Heritage Month: Faculty Perspectives on Representation, Mentoring, Leadership in STEM”, <https://cos.gatech.edu/news/hispanic-and-latinx-heritage-month-faculty-perspectives-representation-mentoring-leadership>
Georgia Tech College of Science, 08/12/2021, “Rivera-Hernández Wins NASA Grant to Aid Current Mars Rover Missions — and Find ‘Martian Lakes’ for Future Rovers and Crews”, <https://cos.gatech.edu/news/rivera-hernandez-wins-nasa-grant-aid-current-mars-rover-missions-and-find-martian-lakes-future>
EOS, 07/30/2021, “In Appreciation of AGU’s Outstanding Reviewers of 2020”, <https://eos.org/agu-news/in-appreciation-of-agus-outstanding-reviewers-of-2020>
Concord Monitor, 08/11/2020, “Even a story about going to Mars can’t avoid COVID-19”, <https://www.concordmonitor.com/mars-dartmouth-nasa-35601141>
Science American, 07/07/2020, “Summer on Mars: NASA’s Perseverance Rover Is One of Three Missions Ready to Launch”, <https://www.scientificamerican.com/article/summer-on-mars-nasas-perseverance-rover-is-one-of-three-missions-ready-to-launch/>
Prensa RUM, 19/06/2020, “Equipo SEDS UPRM revalida campeonato en competencia de la NASA”, <https://www.uprm.edu/portada/2020/06/19/sedsuprmcampeonesnasa/>
Dartmouth News, 14/01/2020, “Mars Lab Asks: Where There Was Water, Was There Life?”, <https://news.dartmouth.edu/news/2020/01/mars-lab-asks-where-there-was-water-was-there-was-life>
Concord Monitor, 14/10/2019, “Granite Geek: Dartmouth researcher develops interesting idea for seeing if Mars had water” <https://www.concordmonitor.com/mars-water-dartmouth-nh-29245860>
Motherboard VICE, 23/10/2015, “When We Meet Aliens, Will We Even Recognize Them?” https://motherboard.vice.com/en_us/article/qkjd3m/when-we-meet-aliens-will-we-even-recognize-them

WORKSHOPS, SUMMER SCHOOLS, & TRAINING COURSES ATTENDED

2018 Future Faculty Development Program (FFDP), Virginia Tech, Blacksburg, VA
2015 Josep Comas i Solà International Astrobiology Summer School,
Theme: The Origin of Life: From Monomers to Cells, Santander, Spain
2013 NASA Planetary Volcanology Field Workshop, Analogs to Volcanic and Volcano-Sedimentary Features in Satellite and Rover Images, Kilauea Volcano, HI
2011 Science Communication Course, Pacific Science Center, Seattle, WA

UNDERGRADUATE INTERNSHIPS

2010 NASA, Goddard Space Flight Center Internship in Informal Education; Greenbelt, MD
Duties: At the Goddard Visitors Center I helped plan future exhibits (including one on the Lunar Reconnaissance Orbiter), updated online information on the rockets exhibit, worked at the help desk,

- lead tours and gave educational talks to visitors using Science on a Sphere, and participated in outreach activities for kids of all ages. Advisor: William L. Buckingham
- 2007 NSF Research Experience for Undergraduates, McDonald Observatory, TX
Duties: Made astronomical observations of Red Giants and reduced data to characterize the time variability of the Ca II K emission Line. Advisor: Dr. Matthew D. Shetrone
- 2006 NSF Research Experience for Undergraduates, U of Wyoming, Dept. Physics and Astronomy
Duties: Made astronomical observations of RR Lyrae stars and reduced the data to produce light curves to constrain their pulsation periods. Advisor: Dr. Karen Kinemuchi

FIELD CERTIFICATIONS COMPLETED

Certified Scientific Diver, UC Davis Bodega Marine Laboratory; Certified PADI Rescue Diver, Specialty Dry Suit Diver, Advanced Open Water Diver; Certified Wilderness First Aid