Suniti Karunatillake

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LinkedIn profile

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Curriculum Vitæ

Research Mission

I investigate the evolution of martian and other planetary surfaces with remote sensing data, *in situ* data, and terrestrial analogs. In this broad area of interest, my expertise resides in identifying geochemical and geological processes on other planets by combining data at macro (e.g., regional, hemispheric, global, bulk regolith) spatial scales with those at the micro-spatial scales (e.g., *in situ* soil, *in situ* rocks, local outcrop remote sensing, surficial alteration). In such exploration, I not only use data derived from mutually independent instrumentation (e.g., satellite gamma spectroscopy, infrared spectroscopy, *in situ* alpha particle X-ray spectroscopy) but also apply complementary analytical methods. Ultimately, I wish to apply my knowledge of planetary surfaces in the search for exobiology. Through mentorship and public outreach, I also hope to inspire others to participate in planetary exploration and to help establish the next generation of planetary scientists.

Research Highlights

•Fe-sulfates as key minerals that hydrate martian bulk soil at regional scales. Highlighted by Geophys. Res. Lett. Editor at EOS.
•Semi-automated photoanalytical methods for granulometry of martian sediment.
•Nature of halogen volatility in martian soil.
•Evolution of the Radar Stealth region on Mars with chemical, mineralogic, and climatic insight.
•Igneous origins of northern low-albedo regions (surface type 2) from the synthesis of Mars Odyssey Gamma Ray Spectrometer (GRS) and Mars Global Surveyor Thermal Emission Spectrometer (TES) derived compositional data.
•Ground-truth constraints between GRS and *in situ* APXS data sets.
•Hydrodynamic sorting of unconsolidated sediment at Gusev Crater.

Career Highlights

Jan 2019 - current	**Associate Professor,** Geology and Geophysics, Louisiana State University **(Instructed: planetary geology and remote sensing, GEOL 7972/4002; introductory physical geology, GEOL1001; introductory historical geology, GEOL1003)**
Jan 2013 – Jan 2019	**Assistant Professor,** Geology and Geophysics, LSU **(Instructed: planetary geology, GEOL 7972/4002; introductory physical geology, GEOL1001)**
Sep 2011 – Dec 2012	**Assistant Professor,** Chemistry, Biochemistry, and Physics, Rider University **(Instructed: mechanics with calculus, PHY 200/201)**

Career Highlights

Oct 2009, Apr 2010, Nov 2010	**Guest lecturer.** Mineralogy and geochemistry of Mars (GEO 604, GEO 106), terrestrial geology (GEO 102) Stony Brook University.
Sep 2008 – Sep 2011	**Postdoctoral research scholar,** Geosciences, Stony Brook Adviser: Dr. Scott M. McLennan
May 2002 – Sep 2008	**Graduate Research Assistant,** Astronomy, Cornell University, Ithaca, NY Adviser: Dr. Steven W. Squyres
2001, 2002, 2003, 2005	**Teaching Assistant,** Physics/Astronomy, Wabash College/Cornell University

Education

Apr 2005 – Sep 2008	**PhD, Physics/Astronomy/Planetary Science,** Cornell Dissertation: "A Chemical Odyssey on the Martian Surface" Dissertation adviser: Dr. Steven Weldon Squyres Committee: Drs. Jeevak Parpia, Veit Elser, Robert Kay Awarded: 19 Jan 2009
Aug 2001 – Apr 2005	**MSc, Physics/Astronomy/Planetary Science** Committee: Drs. Jeevak Parpia, Steven Weldon Squyres, Robert Kay, Veit Elser Awarded: 29 May 2005
1997 – 2001	**B.A., Summa Cum Laude, Physics/Math,** Wabash College, IN Advisers: Drs. Dennis Krause, Steve Bever (Hastings), Bonnie Gold (Monmouth) Awarded: 13 May 2001

Grants

*BSc; **MSc; ***PhD; ^Postdoctoral mentee

Year (fund in thousands $)	
9/2019 – 7/2020 (16)	PI on NASA-LaSPACE Graduate Research Assistantship (GSRA), funding Connor Matherne** on ""Identifying Shock Characteristics within the Brushy Creek Feature"
9/2018 – 9/2019 (16)	PI on NASA-LaSPACE Graduate Student Research Assistantship (GSRA), funding Connor Matherne** on "A possible impact feature in St. Helena Parish, Louisiana"
08/2021-08/2023 (250)	Mentoring collaborator on NASA- Mars Data Analysis Program grant on "Investigating Boulder Pattern Formation and Causes in the Martian Northern Lowlands" funding Donald Hood*** on his postdoc
7/2018 – 7/2022 (309)	PI for NASA: Mars Data Analysis Program (MDAP) grant on "Clarifying regional scale regolith hydration processes on Mars"
1/2018 – 5/2019 (67)	PI for NASA's Established Program to Stimulate Competitive Research (EPSCoR) via Louisiana's Board of Regents (BoR) and Louisiana Space Grant (LaSPACE) Research Award Program (RAP) on "Applying photoanalyses for soil sedimentology at Gale Crater, Mars"

Grants
*BSc; **MSc; ***PhD; ^Postdoctoral mentee

Year (fund in thousands $)	
8/2017 – 08/2018 (70)	PI for NASA's EPSCoR-BoR-LaSPACE Research Enhancement Award (REA) on "Discerning the mechanisms of global weathering from boulder fields on Mars"
9/2017 – 9/2018 (16)	PI on GSRA, funding Donald Hood*** on "Examining periglacial boulder clustering with MBARS"
8/2016 – 8/2017 (16)	PI on GSRA, funding David Susko** on "The geomorphology of martian supervolcanoes and implications for a shift in volcanism at the end of Noachian Mars"
8/2016 – 8/2017 (16)	PI on GSRA, funding Hood*** on "Developing the martian boulder atuomatic recognition system: MBARS"
2015 (5)	Council on Research (CoR) Summer Stipend Program award to junior faculty by LSU
2015 (4.5)	PI on Louisiana Board of Regents Supervised Undergraduate Research Experiences (SURE) award, funding mentee Ms. Katherine Davis* on "Finding CIPW Mineralogy on Mars Using Chemical Composition"
2014 - 2015 (64)	PI for REA on "Remote Sensing, Ground Infrared and Neutron Spectroscopy to Support Planetary Analog Exploration" with Co-I Dr. John Roma Skok^
6/2015 – 5/2018 (614)	Science advisor for NASA: Planetary Science and Technology Through Analog Research Program (PSTAR) grant on "Seeking Signs of Life in an Ancient Martian Hot Spring" by PI: ^Skok
10/2014 – 9/2017 (365)	Science advisor for MDAP grant on "Revealing the Pre-Noachian Crust of Mars" by PI: ^Skok
5/2013 – 5/2017 (250)	PI for MDAP grant on "Chemically Striking Regions on Mars"

Honors

Year	
2008	Mars Exploration Rover Group Achievement Award by NASA
2007	Wabash College notable alumnus
2005	2001 Mars Odyssey Group Achievement Award by NASA
2001	Excellence in undergraduate physics, Wabash College
2001	Class of 2001 valedictorian, Wabash College
2000	Phi Beta Kappa induction, Wabash College Chapter
1997 – 2001	Dean's list, Wabash College
1997 – 2001	Merit fellowship for undergraduates, Wabash College
1995 – 1996	Mahapola merit scholarship for undergraduates, Sri Lanka

Professional affiliations and leadership

2017 – current	Steering committee member, Africa Initiative for Space and Planetary Science (AFIPS)

Professional affiliations and leadership

2017 – current	Steering co-lead, LSU-2025 College of Science Planetary Initiative to Explore Mars and Beyond with Dr. John Larkin
2014 – current	Member, American Association for the Advancement of Science
2007 – current	Member, American Geophysical Union
2004 – 2012	Research Associate, Mars Exploration Rover Mission, Science Team
2002 – 2012	Research Associate, 2001 Mars Odyssey Mission, Flight Investigation Team

Peer Review Experience (panel years redacted)

	NASA Habitable Worlds reviewer
	NASA Discovery Data Analysis Program (DDAP) review panelist
2017	Reviewer for Earth and Planetary Science Letters
2017, 2018	Reviewer for the Carnegie Trust of the universities of Scotland
	NASA MMX mission instrument review panelist
	NASA Habitable Worlds review panelist
	NASA SIMPLex review panelist, for new and innovative interplanetary CubeSat Mission proposals
	NASA PDART external reviewer
2015, 2016, 2017	Reviewer for *Nature Communications*
	NASA Earth and Space Science Fellowship (NESSF) review panelist
2015, 2017	Reviewer of planetary proposals to the Netherlands Space Office (NSO)
2013, 2015, 2016, 2017, 2018, 2020	Reviewer for *J. Geophys. Res.*
	Member of joint NASA review panel on Astrobiology Science and Technology for Instrument Development and Planetary Instrument Definition and Development
	Reviewer of participating scientist proposals to the Mars Science Laboratory mission
Jan 2011	Reviewer for *Analytical and Bioanalytical Chemistry*
	NASA Mars Data Analysis Program's review panelist
Dec 2010	Reviewer for *Analytical and Bioanalytical Chemistry*
Mar 2010	Reviewer for *Geophys. Res. Lett.*
	Reviewer of a proposal to the Mars Fundamental Research Program
	Reviewer of Messenger Neutron Spectrometer's Calibrated Data
Mar 2009, 2010, 2012, 2013	Judged at the Lunar and Planetary Institute Dwornik Competition
2020, 2008, 2014	Reviewer for *Icarus*

Experience mentoring laboratory members

Jan 2013 – Nov 2014	Dr. J. R. Skok (PhD, Brown), **post-doctoral associate**, Geology & Geophysics, LSU, Baton Rouge, LA
August 2015 – July 2017	Mr. David Susko (BSc., LSU), **MSc candidate**, Geology & Geophysics, LSU, Baton Rouge, LA

Experience mentoring laboratory members

June 2013 – November 2017	Ms. N. E. Button (B.A., Cornell), **MSc candidate**, Geology & Geophysics, LSU, Baton Rouge, LA
August 2014 – Dec 2019	Mr. Donald Hood (B.A., Carnegie-Mellon), **PhD candidate**, Geology and Geophysics, LSU, Baton Rouge, LA
Jan 2014 – May 2014	Messrs. David Susko and Taylor Judice, **senior theses for BSc** candidacies, Geology and Geophysics, LSU, Baton Rouge, LA
Jan 2016 – May 2016	Ms. Allison Barbato, **GEOL3909** Independent Research, Geology and Geophysics, LSU, Baton Rouge, LA
Jan 2016 – Jan 2017	Ms. Sarah Zadei; Messrs. Cameron Gernant, Chris C. Diaz, Stuart Skopec, Vaibhav Rajora; BSc candidates, multiple departments at LSU.
August 2015 – December 2015	Mr. Robert Narmour, **GEOL3909** Independent Research, Geology and Geophysics, LSU, Baton Rouge, LA
May – Aug 2015	Ms. Franciele Marcelina dos Santos, Viviane De Oliviera Chaves; Messrs. Wildson Melo Vasconcelos, Wellinton Mauricio, and Lucas Alves Ribeiro as Brazil Science Mobility Program (BSMP) interns
August 2014 – August 2015	Messrs. Nicholas Olsen, Chris C. Diaz, Rory Bentley, C. J. Everhardt; Ms. Katherine Davis (supported by a Board of Regenets Supervised Undergraduate Research Experience, SURE $4.5k grant); BSc candidates, multiple departments at LSU.
Jun – Aug 2016	**Ms. Lorraine Carnes and Mr. Anthony Maue, NASA-Planetary Geology & Geophysics Undergraduate Research Program (PGGURP) interns**
2017 – 2018	Ms. Lexie Duhon (G&G minor, recruited from GEOL1001); Messrs. Glendon Rewerts (G&G minor), Augustus Bates (G&G major, **senior thesis**)
2015 - 2017	Mr. David Susko, MSc candidate, Geology & Geophysics
May – Aug 2017	Mr. Binlong Ye, visiting undergraduate mentee from the China University of Geosciences, Wuhan
May – Aug 2017	**Ms. Dara Laczniak and Elizabeth Pesar, PGGURP interns**
2018 - current	Mr. Connor Matherne, MSc candidate, Geology & Geophysics
Feb 2018 – Oct 2018	Dr. Heidi Fuqua-Haviland, visiting post-doctoral mentee
May – Aug 2018	**Ms. Molly Brown, PGGURP intern**
Dec 2018 – current	Ms. Xiyu Wang, visiting doctoral mentee from the Chinese Academy of Sciences, Guiyang, Guizhou
Feb 2019 – May 2019	Ms. Amina Meselhe (LSU President's Future Leaders in Research scholar), Hannah Paradis (Geology & Geophysics major), Isabella Canova (Civil and Environmental Engineering major), and Anna Parent (CEE major); Messrs. Marcus Cepeda (CEE major) and Jeffrey Patrick Brothers (CEE major)
Aug 2019 - current	Mr. Augustus Bates, PhD candidate, Geology & Geophysics
March 2020 – current	Ms. Alka Rani, visiting doctoral mentee from the Physical Research Laboratory, Ahmedabad, India

Experience mentoring laboratory members

May 2020 – current	**Ms. Emily Hughes, NASA-Summer Undergraduate Program for Planetary Research (SUPPR) intern**
Jan 2020 - current	Ms. Yutong Shi, visiting doctoral mentee from the China University of Geoscience, Wuhan

Dissertation committee participation at LSU and externally

2015 - 2018	Ms. Krista Myers, MSc (Geology & Geophysics) committee member
30 July 2014	Ms. Sara Yu-Yan Zhao, PhD final exam (Geosciences). Role: external committee member for Dept. of Geoscience, Stony Brook University.
12 June 2014 06 April 2015	Mr. Justin Erdman, PhD general exam (Electrical Engineering and Computer Science) and defense. Role: Dean's representative.
06 June 2014	Mr. Hong Lee, PhD final exam (Finance and Business). Role: Dean's representative.
16 May 2014	Ms. Kathryn Denommee, PhD general exam (Geology and Geophysics). Role: Departmental representative.
2013	Ms. Jie Shen, PhD general exam (Geology and Geophysics). Role: Dean's representative.
2013	Mr. Zhanyu Diao, PhD defense (Physics and Astronomy). Role: Dean's representative.

Book Chapter

S. Karunatillake, L. Carter, H.B. Franz, L. Hallis, J.A. Hurowitz (2019), *Geochemical Interpretations Using Multiple Remote Datasets*, Chapter 17 in Remote Compositional Analysis: Techniques for Understanding Spectroscopy, Mineralogy, and Geochemistry of Planetary Surfaces, J. Bell, J. Bishop, and J. Moersch Eds., Cambridge University Press DOI 10.1017/9781316888872

Boynton, W. V., Taylor, G. J., Karunatillake, S., Reedy, R. C., and Keller, J. M. (2008), Elemental abundances determined via the Mars Odyssey GRS, in The Martian Surface: Composition, Mineralogy and Physical Properties, Jim Bell ed., Cambridge University Press, pp. 105–124

Chaired Conference Sessions

Suniti Karunatillake (lead convener), James Wray, Agnes Cousin, and Tara Jonell Panel^ Session P51H (The Nature of Soil Across Earth and Mars) at American Geophysical Union December 2017.
Suniti Karunatillake, James Wray, and J.R. Skok^ co-convened Session 2603 (Exploring the igneous evolution of Mars with observations and analogs) at American Geophysical Union December 2014.

Chaired Conference Sessions

Julianne Gross and Suniti Karunatillake co-chaired Session F552 (Mars Volatiles from Mantle to Atmosphere: Water, Halogens, and Organics) at 44th Lunar and Planetary Science Conference 2013.

A. Deanne Rogers, James J. Wray, and Suniti Karunatillake co-convened Session T148 (Geochemistry, Mineralogy, and Petrology of Mars) at Geological Society of America 2012.

Total : 42 Peer-reviewed Publications (Web of Science H-index: 19) in reverse chronologic order

*BSc; **MSc; ***PhD; ^Postdoctoral mentee

42 Ojha, Lujendra; Quesnel, Yoann; Plattner, Alain; Karunatillake, Suniti; Tikoo, Sonia (2021) The role of serpentinization in magnetizing the Noachian crust of Mars. *Earth and Space Science Open Archive ESSOAr*. DOI:10.1002/essoar.10507035.1

41 Ojha, L., Karunatillake, S., Karimi, S. et al. (2021) Amagmatic hydrothermal systems on Mars from radiogenic heat. *Nat Communications.* 12, 1754. https://doi.org/10.1038/s41467-021-21762-8

40 Rani, A.***, Basu Sarbadhikari, A., Sinha, R. K., Karunatillake, S., Komatsu, G., & Bates, A.*** (2021). Evidence of regionally distributed tectono-volcanism in a floor fractured crater of North-Central Arabia Terra, Mars. *Journal of Geophysical Research: Planets*, 126, e2020JE006748. https://doi.org/10.1029/2020JE006748

39 Wang, X.***, Zhao, Y.-Y. S., Hood, D. R.***, Karunatillake, S., Laczniak, D.*, Schmidt, M. E., & Vithanage, M. (2021). Multiphase volatilization of halogens at the soil-atmosphere interface on Mars. Journal of Geophysical Research: Planets, 126, e2021JE006929. https://doi.org/10.1029/2021JE006929

38 Certini, G., Karunatillake, S., Sara Zhao, Y.-Y., Meslin, P.-Y., Cousin, A., Hood, D. R.***, & Scalenghe, R. (2020). Disambiguating the soils of mars. *Planetary and Space Science*, 186, 104922. https://doi.org/10.1016/j.pss.2020.104922

37 Matherne, C.**, Skok, J. R.^, Mustard, J. F., Karunatillake, S., & Doran, P. (2020). Multistage ice-damming of volcanic flows and fluvial systems in Northeast Syrtis Major. *Icarus*, 340, 113608. https://doi.org/https://doi.org/10.1016/j.icarus.2019.113608

36 Hood, D. R.***, Karunatillake, S., Gasnault, O., Williams, A. J., Dutrow, B. L., Ojha, L., … Fralick, C. (2019). Contrasting Regional Soil Alteration across the Topographic Dichotomy of Mars. *Geophysical Research Letters*, 1–10. https://doi.org/10.1029/2019GL084483

35 Ojha, L., Karunatillake, S., & Lacovino, K. (2019). Atmospheric Injection of Sulfur from the Medusae Fossae Forming Events. *Planetary and Space Science*, 179 https://doi.org/10.1016/j.pss.2019.104734

34 Vithanage, M., Kumarathilaka, P., Oze, C., Karunatilake, S., Hseu, Z.-Y., Gunarathne, V., … Rinklebe, J. (2019). Occurrence and cycling of trace elements in ultramafic soils and their impacts on human health : A critical review. *Environment International*, 131, 104974. https://doi.org/10.1016/j.envint.2019.104974

33 Zhao, Y. Y. S., McLennan, S. M., Jackson, W. A., & Karunatillake, S. (2018). Photochemical controls on chlorine and bromine geochemistry at the Martian surface.

Earth and Planetary Science Letters, 497, 102–112. https://doi.org/10.1016/j.epsl.2018.06.015

32 Ojha, L., Lewis, K., Karunatillake, S., & Schmidt, M. (2018). The Medusae Fossae Formation as the single largest source of dust on Mars. *Nature Communications*, 9(1), 1–7. https://doi.org/10.1038/s41467-018-05291-5

31 Susko, D.**, S. Karunatillake, G. Kodikara, J. R. Skok^, J. Wray, J. Heldmann, A. Cousin, and T. Judice* (2017), A record of igneous evolution in Elysium, a major martian volcanic province, *Sci. Rep.*, *7*, 43177, doi:10.1038/srep43177.

30 Nowicki, S. F., L. G. Evans, R. D. Starr, J. S. Schweitzer, S. Karunatillake, T. P. McClanahan, J. E. Moersch, A. M. Parsons, and C. G. Tate (2016), Modeled Martian Subsurface Elemental Composition Measurements with the Probing In situ with Neutrons and Gamma-ray (PING) Instrument, *Earth Sp. Sci.*, doi:10.1002/2016EA000162.

29 Hood, D. R.***, T. Judice*, S. Karunatillake, D. Rogers, J. M. Dohm, D. Susko**, and L. K. Carnes* (2016), Assessing the geologic evolution of Greater Thaumasia, Mars, J. Geophys. Res. Planets, 1–17, doi:10.1002/2016JE005046.

28 Karunatillake, S., J. J. Wray, O. Gasnault, S. M. Mclennan, A. D. Rogers, S. W. Squyres, W. V. Boynton, J. R. Skok^, N. E. Button**, and L. Ojha** (2016), The association of hydrogen with sulfur on Mars across latitudes, longitudes, and compositional extremes, J. Geophys. Res., 1–29, doi:10.1002/2016JE005016.

27 Heldmann, Jennifer L., Anthony Colaprete, Richard C. Elphic, Darlene Lim, Matthew Deans, Amanda Cook, Ted Roush, J.R. Skok^, Nicole E. Button,** S. Karunatillake, Carol Stoker, Jessica J. Marquez, Mark Shirley, Linda Kobayashi, David Lees, John Bresina, Rusty Hunt (2016), Lunar polar rover science operations: Lessons learned and mission architecture implications derived from the Mojave Volatiles Prospector (MVP) terrestrial field campaign, *Adv. Sp. Res.*, 58(4), 545–559, doi:10.1016/j.asr.2016.05.011.

26 Williams, A. J., D. Y. Sumner, C. N. Alpers, S. Karunatillake, and B. A. Hofmann (2015), Preserved Filamentous Microbial Biosignatures in the Brick Flat Gossan, Iron Mountain, California, *Astrobiology*, 15(8), 637 – 667, doi:10.1089/ast.2014.1235.

25 Karunatillake, S., J J Wray, O Gasnault, S M McLennan, A D Rogers, S W Squyres, W V Boynton, J R Skok^, L Ojha***, and N Olsen*. 2014. Sulfates hydrating bulk soil in the Martian low and middle latitudes. *Geophysical Research Letters* 41: 7987–7996. doi:10.1002/2014GL061136.

24 Karunatillake, S., S. M. McLennan, K. E. Herkenhoff, J. M. Husch, C. Hardgrove, and J. R. Skok^ (2014), A Martian case study of segmenting images automatically for granulometry and sedimentology, Part 2: assessment, *Icarus*, doi 10.1016/j.icarus.2013.09.021.

23 Karunatillake, S., S. M. McLennan, K. E. Herkenhoff, J. M. Husch, C. Hardgrove, and J. R. Skok^ (2014), A Martian case study of segmenting images automatically for granulometry and sedimentology, Part 1: algorithm, *Icarus*, doi 10.1016/j.icarus.2013.10.001.

Total : 42 Peer-reviewed Publications (Web of Science H-index: 19) in reverse chronologic order
***BSc; **MSc; ***PhD; ^Postdoctoral mentee**

22 Lujendra Ojha***, J. J. Wray, S. L. Murchie, A. S. McEwen, M. J. Wolff, and Suniti Karunatillake (2013), Spectral Constraints on the Formation Mechanism of Recurring Slope Lineae, Geophys. Res. Lett., 40, GL057893, doi: 10.1002/2013GL057893

21 Karunatillake, S, Y.-Y. S. Zhao***, S. M. McLennan, J. R. Skok,^ and N. E. Button** (2013), Does martian soil release reactive halogens to the atmosphere? *Icarus,* 226 (2), 1438 – 1446, doi: 10.1016/j.icarus.2013.07.018

20 Karunatillake, S., O. Gasnault, S. W. Squyres, J. M. Keller, D. M. Janes, W. V. Boynton, and H. E. Newsom (2012), Martian Case Study of Multivariate Correlation and Regression with Planetary Datasets, *Earth, Moon Planet.* doi: 10.1007/s11038-012-9395-x

19 Karunatillake, S., S. W. Squyres, O. Gasnault, J. M. Keller, D. M. Janes, W. V. Boynton, and M. J. Finch (2011), Recipes for spatial statistics with global datasets: A Martian case study, *J. Sci. Comput.* doi: 10.1007/s10915-010-9412-z

18 Karunatillake, S., S. M. McLennan, and K. E. Herkenhoff (2010), Regional and grain size influences on the geochemistry of soil at Gusev Crater, Mars, *J. Geophys. Res.* doi: 10.1029/2010JE003637

17 Taylor, G. J., L. M. V. Martel, S. Karunatillake, O. Gasnault, and W. V. Boynton (2009), Mapping Mars Geochemically, *Geology* doi: 10.1130/G30470.1

16 Gasnault, O., G. J. Taylor, Suniti Karunatillake, J. Dohm, H. Newsom, O. Forni, and P. Pinet (2009), Quantitative geochemical mapping of Martian provinces, *Icarus* doi: 10.1016/j.icarus.2009.11.010

15 Karunatillake, S., S. W. Squyres, J. J. Wray, G. J. Taylor, O. Gasnault, S. M. McLennan, W. Boynton, M. R. El Maarry, and J. M. Dohm (2009), Chemically striking regions on Mars and Stealth revisited, *J. Geophys. Res.* doi: 10.1029/2008JE003303

14 Maarry, M. R., O. Gasnault, M. J. Toplis, D. Baratoux, J. M. Dohm, H. E. Newsom, W. V. Boynton, and S. Karunatillake (2009), Gamma-ray constraints on the chemical composition of the martian surface in the Tharsis region: A signature of partial melting of the mantle?, *J. Volcanol. Geoth. Res.,* 185(1-2), 116-122, doi:10.1016/j.jvolgeores.2008.11.027

13 Dohm, J. M., R. C. Anderson, N. G. Barlow, H. Miyamoto, A. G. Davies, G. J. Taylor, V. R. Baker, W. V. Boynton, J. Keller, K. Kerry, D. Janes, A. G. Fairén, D. Schulze-Makuch, M. Glamoclija, L. Marinangeli, G. G. Ori, R. G. Strom, J.-P. Williams, J. C. Ferris, J.A.P. Rodríguez, M. A. de Pablo and S. Karunatillake (2008), Recent geological and hydrological activity on Mars: The Tharsis/Elysium corridor, *Plant. Space Sci.*, 56, 985 – 1013, doi: 10.1016/j.pss.2008.01.001

12 Boynton, W. V., G. J. Taylor, L. G. Evans, R. C. Reedy, R. Starr, D. M. Janes, K. E. Kerry, D. M. Drake, K. J. Kim, R. M. S. Williams, M. K. Crombie, J. M. Dohm, V. Baker, A. E. Metzger, S. Karunatillake, J. M. Keller, H. E. Newsom, J. R. Arnold, J. Brückner, P. A. J. Englert, O. Gasnault, A. L. Sprague, I. Mitrofanov, S. W. Squyres, J. I. Trombka, L. d'Uston, and H. Wänke (2007), Concentration of H, Si, Cl, K, Fe, and Th in the low and mid latitude regions of Mars, *J. Geophys. Res.*, doi: 10.1029/2007JE002887

Total : 42 Peer-reviewed Publications (Web of Science H-index: 19) in reverse chronologic order
***BSc; **MSc; ***PhD; ^Postdoctoral mentee**

11 Hahn, B. C., S. M. McLennan, G. J. Taylor, W. V. Boynton, J. M. Dohm, M. J. Finch, D. K. Hamara, D. M. Janes, S. Karunatillake, J. M. Keller, K. E. Kerry, A. E. Metzger, and R. M. S. Williams (2007), Mars Odyssey Gamma Ray Spectrometer elemental abundances and apparent relative surface age: Implications for Martian crustal evolution, *J. Geophys. Res.*, 112, E03S11, doi:10.1029/2006JE002821

10 Karunatillake, S., J. M. Keller, S. W. Squyres, W. Boynton, J. Brückner, D. M. Janes, O. Gasnault, and H. E. Newsom (2007), Chemical compositions at Mars landing sites subject to Mars Odyssey Gamma Ray Spectrometer constraints, *J. Geophys. Res.*, doi: 10.1029/2006JE002859

9 Newsom, H. E., L. S. Crumpler, R. C. Reedy, M. T. Petersen, G. C. Newsom, L. G. Evans, G. J. Taylor, J. M. Keller, D. M. Janes, W. V. Boynton, K. E. Kerry, and S. Karunatillake (2007), Geochemistry of Martian soil and bedrock in mantled and less mantled terrains with gamma ray data from Mars Odyssey, *J. Geophys. Res.*, 112, E03S12, doi:10.1029/2006JE002680

8 Karunatillake, S., S. W. Squyres, G. J. Taylor, J. M. Keller, O. Gasnault, L. G. Evans, R. C. Reedy, R. Starr, W. Boynton, D. M. Janes, K. E. Kerry, J. M. Dohm, A. L. Sprague, B. C. Hahn, and D. Hamara (2006), Composition of northern low albedo regions of Mars: Insights from the Mars Odyssey Gamma Ray Spectrometer, *J. Geophys. Res.*, 111, E03S05, doi:10.1029/2006JE002675

7 Keller, J. M., W. V. Boynton, S. Karunatillake, V. R. Baker, J. M. Dohm, L. G. Evans, M. J. Finch, B. C. Hahn, D. Hamara, D. M. Janes, K. Kerry, H. E. Newsom, R. C. Reedy, A. L. Sprague, S. W. Squyres, R. D. Starr, G. J. Taylor, and R. M. S. Williams (2006), Equatorial and midlatitudinal distribution of chlorine measured by Mars Odyssey GRS, *J. Geophys. Res.*, 111, E03S08, doi:10.1029/2006JE002679

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4 Feldman, W. C., T. H. Prettyman, S. Maurice, J. J. Plaut, D. L. Bish, D. T. Vaniman, M. T. Mellon, A. E. Metzger, S. W. Squyres, S. Karunatillake, W. V. Boynton, R. C. Elphic, H. O. Funsten, D. J. Lawrence, and R. L. Tokar (2004), Global distribution of near-surface hydrogen on Mars, *J. Geophys. Res.*, 109, E09006, doi:10.1029/2003JE002160

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Total : 42 Peer-reviewed Publications (Web of Science H-index: 19) in reverse chronologic order
*BSc; **MSc; ***PhD; ^Postdoctoral mentee

Squyres, R. D. Starr, and R. L. Tokar (2004), Composition and structure of the Martian surface at high southern latitudes from neutron spectroscopy, *J. Geophys. Res.*, 109, E05001, doi: 10.1029/2003JE002139

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1 Fischbach, E., S. W. Howell, S. Karunatillake, D. E. Krause, R. Reifenberger, and M. West (2001), Testing gravity in space and at ultrashort distances, *Class. Quantum Grav.*, 18 (13), 2427-2434, doi: 10.1088/0264-9381/18/13/305

Invited Talks

Seminar "Processes controlling the regional availability of water in martian soil," 5/22/2018, L'Institut de Recherche en Astrophysique et Planétologie, Toulouse, France.
Seminar "The nature of water in martian soil at regional scales," 09/09/2016, Tulane University Department of Earth and Environmental Sciences seminar, New Orleans, LA
Host Dr. Nancye H. Dawers
Seminar "Exploring the unknowns of Br in the martian halogen cycle," 14 – 16 June 2016, Center for Lunar and Planetary Science (CLPS), China Academy of Science, Guiyang, China
Host Dr. Yuyan Sara Zhao
Seminar "Glimpsing the geology of Greater Thaumasia Planum on Mars," 14 – 16 June 2016, Center for Lunar and Planetary Science (CLPS), China Academy of Science, Guiyang, China
Host Dr. Yuyan Sara Zhao
Seminar "Insight on the volatility of Martian halogens," 20 August 2013, MIT-Skoltech Initiative, MIT, Cambridge, MA.
Host Dr. Dava Newman
Seminar "Do ferric sulfates affect the distribution of water on Mars?" 02 April 2013, Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA.
Host Dr. James J. Wray
Seminar "Crustal evolution and chemically trapped water of Mars from near and afar," May 2012, Geology & Geophysics, Louisiana State University, Baton Rouge, LA.
Hosts Drs. Carol Wicks and John Larkin
"Martian geochemistry," March 2012, CNRS, Tolouse, France.
Colloquium "Counting sand grains locally and seeking hydrous sulfates globally on Mars," December 2011, Geophysics Department, Princeton University, Princeton, NJ.
Host Dr. Tullis C. Onstott.
At "Quantifying the Martian geochemical reservoirs" workshop, April 2011, International Space Science Institute, Bern, Switzerland.
Organizer Dr. M. Toplis
At "Nuclear Planetology" workshop, May 2011, Institut de Recherche Astrophysique et Planétologie (IRAP), Tolouse, France.

Invited Talks

Organizer Dr. Claude d'Uston
Colloquium "Mars Stealth and other regions explored," December 2010, at Physical Research Laboratory - Division Indian Space Research Organization, Ahmedabad, India.
Host Dr. S. Murty

Total: 80 Abstracts in alphabetic order
*BSc; **MSc; ***PhD; ^Postdoctoral mentee

1 Barbato, A.*, Karunatillake, S., Hood, D. R.***, & Vithanage, M. (2019). Variations in Serpentine along the HC-VC Suture Zone of Sri Lanka: an Analogue for Studying Martian Serpentinites. In 50th Lunar and Planetary Science Conference 2019 (p. Abstract 3143). Retrieved from https://www.hou.usra.edu/meetings/lpsc2019/pdf/3143.pdf

2 Bates, A.*, & Karunatillake, S. (2019). Placing putative Arabia paterae eruptions in context with regional martian geologic events. In 50th Lunar and Planetary Science Conference 2019 (p. Abstract 2774). Retrieved from https://www.hou.usra.edu/meetings/lpsc2019/pdf/2774.pdf

3 Bates, A.*, Karunatillake, S., Hood, D. R.***, Susko, D.**, Carnes, L.*, & Pesar, E*. (2018). The Putative Martian Paterae Within Northwest Arabia Terra Compared with Contemperaneous Volcanic Provinces. In Lunar and Planetary Science Conference (Vol. 49, p. 3010).

4 Borg, C., S. Kobs-Nawotniak, S. Hughes, D. Sears, J. Heldmann, D. Lim, C. Haberle, H. Sears, R. Elphic, L. Kobayashi, W. Garry, C. Neish, S. Karunatillake, N. Button,** S. Purcell, H. Mallonee, B. Ostler (2015), Overlapping Ballistic Ejecta Fields: Separating Distinct Blasts at Kings Bowl, Idaho, AGU 2015, Abstract V51D-3065

5 Boynton, W. V., G. J. Taylor, D. Hamara, K. Kerry, D. Janes, J. Keller, W. Feldman, T. Prettyman, R. Reedy, J. Brückner, H. Wänke, L. Evans, R. Starr, S. Squyres, S. Karunatillake, and O. Gasnault (2003), Compositional diversity of the Martian crust: Preliminary data from the Mars Odyssey Gamma-Ray Spectrometer, in 34th LPSC, Abstract 2108

6 Brown, M. A.*, Hood, D. R.***, & Karunatillake, S. (2019). Chemical Investigations of Friable Deposits in Northeast Arabia Terra Mars. In 50th Lunar and Planetary Science Conference 2019 (p. Abstract 1217). Retrieved from https://www.hou.usra.edu/meetings/lpsc2019/pdf/1217.pdf

7 Brueckner, J., S. Karunatillake, D. Hamara, W. V. Boynton (2009), Sulfur concentrations of the Martian surface derived from orbital Mars Odyssey GRS and in-situ MER APXS measurements: implications on the selection of future landing sites, AGU 2009, Abstract P43D-1457.

8 Button, N.E.**, S. Karunatillake, C. Diaz*, S. Zadei*, V. Rajora*, A. Barbato* and M. Piorkowski* (2017), Block Distribution Analysis of Impact Craters in the Tharsis and Elysium Planitia Regions on Mars, AGU 2017, Abstract 274672

9 Button, N. E.**, S. Karunatillake, C. Diaz,* S. Zadei,*, V. Rajora,*, A. Barbato,* M. Piorkwoski* (2017), Block distribution analysis of impact craters on mars, including the Tharsis Region and Elysium Planitia, LPSC 2017, Abstract 2830

10 Button, N. E.,** J. R. Skok,^ J. L. Heldmann, D. Thompson, K. Ortega, R. Francis, M. Deans, D. Lees, G. Garcia, S. Karunatillake (2015), Classifying planetary surfaces with

results from texturecam processing with the mojave volatiles prospector (MVP) rover mission, LPSC 2015, Abstract 2239

11 Button, N. E.**, Husch, J. H., Karunatillake, S., and Skok, J. R.^ (2013), Distinguishing Between Bombsags and Dropstones on Mars with Implications for Gusev and Gale Craters, AGU 2013, Abstract P23B-1781

12 Carnes, L. K.*, S. Karunatillake, D. A. Susko**, D. R. Hood*** (2017), Delineating the Arabia Terra region on mars to investigate paterae origins, LPSC 2017, Abstract 1756

13 Dohm, J. M., M.G. Spagnuolo, J.-P. Williams, C.E. Viviano-Beck, S. Karunatillake, O. Álvarez, R.C. Anderson, H. Miyamoto, V.R. Baker, A. Fairén, W.C. Mahaney, T.M. Hare, S.J. Robbins, T. Niihara, A. Yin, T. Judice,* N. Olsen,* S. Maruyama (2015) The mars plate-tectonic-basement hypothesis, LPSC 2015, Abstract 1741

14 Dohm, J. M., V. R. Baker, W. V. Boynton, A. G. Fairén, J. S. Kargel, S. Karunatillake, J. M. Keller, and D. Schulze-Makuch(2007), GRS as a test for the MEGAOUTLFO hypothesis, in 38th LPSC, Abstract 1686

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16 Feldman, W. C., S. Maurice, T. H. Prettyman, M. T. Mellon, S. W. Squyres, S. Karunatillake, R. C. Elphic, H. O. Funsten, D. J. Lawrence, and R. L. Tokar (2003), Association of Measured Distribution of Near-Surface Hydrogen at High Northerly Latitudes with Surface Features on Mars, in 3rd International Conference on Mars Polar Science and Exploration, Abstract 8101

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Fuqua-Haviland, H.^, Karunatillake, S., Susko, D. A.**, Ojha, L., Baratoux, D., Toplis, M., & El Maary, R. (2019). Characterizing Elysium's Magmatic Evolution and Chemistry Initial Study. In 50th Lunar and Planetary Science Conference 2019 (p. Abstract 3206). Retrieved from https://www.hou.usra.edu/meetings/lpsc2019/pdf/3206.pdf

19 Gasnault, O., G. J. Taylor, W. V. Boynton, S. Karunatillake, H. E. Newsom, B. Janes, C. d'Uston, J. Brückner, and Mars Odyssey GRS Team (2006), Statistically rigorous geochemical mapping of Mars, in Geophysical Research Abstracts, vol. 8, p. 07690, European Geosciences Union, Vienna, Austria

20 Heldmann, J.L., A. Colaprete, A. Cook, T. Roush, M. Deans, R. Elphic, D. Lim, J. R. Skok,^ N. E. Button,** S. Karunatillake, G. Garcia (2015), Mojave volatiles prospector (MVP): science and operations results from a lunar polar rover analog field campaign, LPSC 2015, Abstract 2165

21 Hood, D. R.***, Karunatillake, S., Fassett, C. I., & Sholes, S. F. (2019). Verification of automatically measured boulder populations in HiRISE images. In 50th Lunar and Planetary Science Conference 2019 (p. Abstract 1893). Retrieved from https://www.hou.usra.edu/meetings/lpsc2019/pdf/1893.pdf

22 Hood, D. R.***, Karunatillake, S., Gasnault, O., Williams, A., Dutrow, B., Ojha, L., … Fralick, C. (2019). Contrasting regional soil hydration processes across the topographic dichotomy of Mars. In 50th Lunar and Planetary Science Conference 2019 (p. Abstract 1887). Retrieved from https://www.hou.usra.edu/meetings/lpsc2019/pdf/1887.pdf

23 Hood, D. R.***, Karunatillake, S., Fassett, C. I., & Sholes, S. F. (2018). Automated Boulder Detection and Measuring in HiRISE Images. In Lunar and Planetary Science Conference (Vol. 49, p. 2437).

24 Hood, D. R.***, S. Karunatillake, C. Fassett (2017), Mapping of Boulder Ejecta around Late Amazonian Impact Craters on Mars, AGU 2017, Abstract P41C-2842

25 Hood, D. R.***, S. Karunatillake (2017), Semi-automated measurement of boulder clustering in the martian northern plains, LPSC 2017, Abstract 2640

26 Hood, D. R.,*** T. Judice,* S. Karunatillake, D. Rogers, J. Dohm, J. R. Skok^ (2016), Assessing the Geologic Evolution of Greater Thaumasia, Mars, with Chemistry and Mineralogy, LPSC 2016, Abstract 2737

27 Hood, D. R.,*** S. Karunatillake, D. Susko** (2016), Assessing Martian Bulk Soil Hydration through Principal Component Analysis of Regional Chemical Data, LPSC 2016, Abstract 2124

28 Hurowitz, J., S. Karunatillake, L. Kerber, and M. Mischna (2016), Volatile Insight on Global Circulation on Mars, with Implications for Mars 2020 Landing Sites, LPSC 2016, Abstract 2008

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32 Matherne, C. M.**, Skok, J. R.^, Mustard, J. F., & Karunatillake, S. (2019). Fluvial Activity in Northeast Syrtis Major and its Relationship to Glacial Processes in the Hesperian. In 50th Lunar and Planetary Science Conference 2019 (p. Abstract 1922). Retrieved from https://www.hou.usra.edu/meetings/lpsc2019/pdf/1922.pdf

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34 Ojha, L., K. Lewis, S. Karunatillake (2017), The density of the medusae fossae formation: implications for its composition, origin, and importance in martian history, GSA 2017, Abstract 25-12

35 Ojha, L, K. Lewis, S. Karunatillake (2017), Volcanic Origin of Medusae Fossae Formation from Gravity and Topography Data, LPSC 2017, Abstract 2475

36 Judice, T.,* S. Karunatillake, D. Rogers, J. M. Dohm, and D. A. Susko* (2014), Seeking Signatures of Martian Magmatic Evolution within the Greater Thaumasia Plateau, AGU 2014, Abstract P41B-3902.

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38 Karunatillake, S., James J. Wray, Olivier Gasnault, Scott M. McLennan, A. Deanne Rogers, Steven W. Squyres, William V. Boynton, J. R. Skok,^ Nicole E. Button,** Lujendra Ojha** (2015), Latitudinal variation in the association of H_2O with sulfur in martian soil, LPSC 2015, Abstract 1175

39 Karunatillake, S., James Wray, Olivier Gasnault, Scott McLennan, Deanne Rogers, William Boynton, J.R. Skok,^ Lujendra Ojha,** Nicole Button** (2014), Variations in the association of H2O with sulfur on Mars, AGU 2014, Abstract P41A-3890

40 Karunatillake, S., J. J. Wray, O. Gasnault, S. M. McLennan, D. Rogers, W. V. Boynton, J. R. Skok,^ L. Ojha,*** and N. E. Button** (2014), Variations in the association of H_2O with sulfur on Mars, AGU 2014, Abstract 28386.

41 Karunatillake, S., N. E. Button,** J. R. Skok^ (2013), Compositionally constraining Elysium lava fields, AGU 2013, Abstract P41A-1919

42 Karunatillake, S., Y.-Y. S. Zhao,*** S. M. McLennan, and J. R. Skok^ (2013), Does Martian Soil Release Reactive Halogens to the Atmosphere? In LPSC 2013, Abstract 2428.

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44 Karunatillake, S., O. Gasnault, S. M. McLennan, A. D. Rogers, J. J. Wray, S. W. Squyres, and W. V. Boynton (2012), The Hydration State of Sulfates on Mars, in AbSciCon 2012, Abstract 5014

45 Karunatillake, S., O. Gasnault, S. M. McLennan, A. D. Rogers, J. J. Wray, S. W. Squyres, and W. V. Boynton (2012), The Hydration State of Sulfates on Mars, in 2012 LPSC, Abstract 2940

46 Karunatillake, S., S.M. McLennan, and K. Herkenhoff (2011), Segmenting images automatically for granulometry and sedimentology of Martian soil, in GSA annual conference, p. 167-11

47 Karunatillake, S., Y. Zhao,*** and S. M. McLennan (2010), Sulfur, Chlorine, and Bromine Variations in the Soil Profile at Gusev Crater, Mars, in 2010 AGU Fall Meeting, p. P53A-1485

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49 Karunatillake, S. and S. M. McLennan (2010), Relationships between chemical trends and grain size in Gusev soils, in 41st LPSC, Abstract 1382

50 Karunatillake, S., S. W. Squyres, J. J. Wray, G. J. Taylor, O. Gasnault, S. M. McLennan, W. Boynton, M. R. El Maarry, and J. M. Dohm (2009), Chemically striking Martian regions and Stealth revisited, in 40th LPSC, Abstract 1302

51 Karunatillake, S., S. Squyres, J. Taylor, O. Gasnault, S. McLennan, and W. V. Boynton (2007), The Mars Odyssey Gamma Ray Spectrometer reveals chemically striking regions on Mars, in 7th International Conference on Mars, Abstract 3190

52 Karunatillake, S., S. W. Squyres, G. J. Taylor, J. M. Keller, O. Gasnault, L. G. Evans, R. C. Reedy, R. Starr, W. Boynton, D. M. Janes, K. E. Kerry, J. M. Dohm, A. L. Sprague, B. C. Hahn, and D. Hamara (2006), Northern low albedo regions of Mars: GRS implications, in 37th LPSC, Abstract 2070

53 Keller, J. M., W. V. Boynton, R. M. S. Williams, S. Karunatillake, and GS Team (2006), Analysis of layering at Mars near-surface using attenuation of chlorine gamma rays, in 37th LPSC, Abstract 2343

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55 Krause, D. E., E. Fischbach, S. W. Howell, S. Karunatillake, and M. West (2002), Gravity experiments in the Casimir regime, The Ninth Marcel Grossmann Meeting, 1822-1824

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Teaching Experience

Fall 2019	**Instructor.** Course: SCI 1001, Freshman science seminar in the College of Science, Louisiana State University
Spring 2019	**Instructor.** Course: GEOL 1003, introductory historical geology, Geology & Geophysics, Louisiana State University.
06/01/2017	**Presenter** at LSU's Center for Academic Success Faculty Initiative workshop on 06/01/2017 organized by Mohler, Layzell, Brocato, and Cheatham. Presented innovative strategies for increasing student engagement in large enrollment classes. That focused on *interleaving and other peer-reviewed methods that may spark a dream to learn in general education classes*.
10/14/2016	**Panelist** at the LSU Undergraduate Research Conference, entitled Space: The Next Frontier.
Spring, Fall 2014, 2015, 2016, 2017, 2018, 2019	**Instructor.** Course: GEOL1001, Introductory physical geology, Geology and Geophysics, Louisiana State University

Teaching Experience

Fall 2013, Spring 2020	**Instructor.** Course: GEOL 4002, Planetary surfaces as windows to geology/Remote sensing of the Earth, Moon and Mars with a glimpse of life beyond Earth, Geology & Geophysics, Louisiana State University
22 – 26 July 2013	**Participant.** Gulf Coast Summer Institute workshop on pedagogy, Louisiana State University
Spring 2013, Spring 2015	**Instructor.** Course: GEOL 7972/7981, Planetary surfaces as windows to geology, Geology & Geophysics, Louisiana State University
Sep 2011 – Sep 2012	**Instructor.** Course: PHY 200/201, Physics with mechanics, Department of Chemistry, Biochemistry, and Physics, Rider University
May 2011	**Coordinator.** "The Science of Pedagogy: Beyond Tradition & Myths" discussion on pedagogical methods, Stony Brook University
Nov 2010	**Guest lecturer**. Instructor: Timothy Glotch, Stony Brook University. Course: GEO 102, Terrestrial Geology
Apr 2010	**Guest lecturer.** Instructor: Timothy Glotch, Stony Brook University. Course: GEO 106, Planetary Geology
Oct 2009	**Guest lecturer.** Instructor: Timothy Glotch, Stony Brook University. Course: GEO604, Mineralogy and Geochemistry of Mars
Jun 2007 – Aug 2007	**Research Mentor**. High School intern: Nicole Button, Department of Astronomy, Cornell University Investigated the current consensus on the mineralogy of surface type 2; discussed fundamental concepts; reviewed lecture notes; guided planetary lunch colloquium
Jan 2005 – Jun 2005	**Teaching assistant.** Instructor: S. W. Squyres, Department of Astronomy, Cornell University Graded undergraduate term papers (course ASTRO 280: Space Exploration)
Jan 2003 – May 2003	**Teaching assistant.** Instructor: Hasan Padamsee, Department of Physics, Cornell University Consultation, section instruction, grading, and course design for undergraduates (course PHYS 203: Physics of Heavens and Earth)
Jan 2002 – May 2002	**Teaching assistant.** Instructors: Robert Woodbury Kay, Peter Ian Kuniholm, and Robert H. Silsbee, Departments of Physics, Arts, Geology, and Archaeology, Cornell University Consultation, grading, and course design for undergraduates (course PHYS 200: Art, Archaeology, and Analysis)
Sep 2001 – Dec 2001	**Teaching assistant.** Instructor: Andre LeClaire, Department of Physics, Cornell University Section instruction, grading, and laboratory instruction for undergraduates (course PHYS 213 Physics II: Heat/Electromagnetism)
Jan 2001 – May 2001	**Astronomy lab assistant.** Instructor: Steve Bever, Physics Department, Wabash College, Crawfordsville, IN Laboratory instruction and design for non-science majors (course PHY 101 Astronomy: Fundamentals and Frontiers)

Outreach Activities

December 2018	**Speaking of Science, Louisiana Experimental Program to Stimulate Competitive Research (EPSCoR-SoS)** Talk on "Planetary geoscience careers and research possibilities" at the Haynes Academy for Advanced Studies, Metairie, LA. Host: Ms. Shawn Rome, Assistant Principal
18 September 2017	**Communication across the Curriculum (CxC) at LSU** Discussion on "Space Between Us" at a movie night Host: Dr. Paige Jarreau
23 January 2017	**Communication across the Curriculum (CxC) at LSU** Discussion on "The Martian" at a movie night in the CxC science studio Host: Drs. Paige Jarreau and Becky J Carmichael
December 2016	**Popular Science magazine electronic interview by Ms. Kate Baggaley on water on Mars**
20 December 2016	**EPSCoR-SoS** Talk on "Exobiology and the availability of water in martian soil" at the Shreveport Geological Society. Host: Mr. Scott Comegys
14 October 2016	**Contributed to NASA Astrobiology news report by C. Q. Choi (**https://astrobiology.nasa.gov/news/water-on-mars-the-story-so-far/**)**
September 2016	LSU's Daily Reveille interview on planetary research by reporter Ms. Natalie Anderson.
August 2016	Contributed content to and LSU College of Science a blog post on everyday questions about Mars (link). Author: Dr. Paige Jarreau.
07 October 2015	TV news interview by Ms. Alex Meachum on martian brine activity for the NBC channel in Shreveport.
12 May 2015	**EPSCoR-SoS** Talk on "Living Science Fiction on Mars and Beyond" at SciPort, LSU-S. Host: Mr. Greg Andrews
14 October 2014	**EPSCoR-SoS** Talk on "Discoveries Unimagined by 2001: A Space Odyssey" to Middle School students of Lake Castle Madisonville Private School, Inc. Host: Regina Harvey
27 June 2014	**Math/ Science week at LSU for Sherwood Middle rising 8th graders,** workshop on exploring Earth, humanity, and Mars, over unimaginable time scales, with geological tools. Organizer: Dr. Guillermo S Ferreyra
19 Oct 2013	**Saturday Science Lecture:** what may chemically bind water in Martian soil? Department of Physics and Astronomy, Louisiana State University. Host: Dr. Ravi Rau
30 July 2013	**Science Café:** water on the Martian surface, Louisiana State University. Host: Ashley Berthelot
29 Feb 2012	**Leap day** astronomy discussion with WBCB 1490 AM in Levittown, PA (Journalist: Ms. Emily Czerniakowski)

Outreach Activities

02 June 2010	**Keynote speaker,** Science symposium at Hauppauge High School, NY (Organizer: Ms. Jocelyn Handley-Pendleton)
2006 – 2010	**Contributor**, Planetary Exploration, **Ask an Astronomer Website**, Cornell University, Ithaca, NY. Responded to queries by the public, and edited entries on the solar system
2007 – current	**Contributor**, Planetary Exploration, **Wikipedia**. Edited entries on planetary surfaces, atmospheres, and space travel
19 Mar 2008	**Online discussion**, Planetary Exploration, **Space Explorers**. Discussed Martian and planetary exploration with K12 school students and teachers
Nov 2007	**Presentation**, Mars Exploration, Conversation with a scientist program, Dryden High School. Designed and conducted "Research at Cornell with the Astronomy Department." Presenter: Nicole Button, Dryden high school
Oct 2007	**Workshop leader**, Mars Exploration, **John Hopkins Center for Talented Youth**, Cornell University. Designed and conducted workshop on Mars Exploration Rover and Mars Odyssey missions for teenagers grades 7–8. Co-leader: Briony Horgan, Astronomy graduate
Jun 2007	**Workshop leader**, Mars within our reach, **Focus For Teens**, Cornell University. Designed and conducted one-day workshop on Martian exploration for high schoolers. Co-leader: Nicole Button, Dryden high school
Apr 2007	**Workshop contributor**, Mars within our reach, **Expand Your Horizons**, Cornell University. Designed and conducted one-day workshop on Martian exploration for female children ages 8–12. Leaders: Diane Bollen, Athena Project coordinator for the Mars Exploration Rover mission, and Nancy Schaff, EPO coordinator, Department of Astronomy
Nov 2006	**Workshop leader**, Martian exploration, Empowering underserved children, **Dewitt and Boynton Middle Schools**, Ithaca, NY. Designed and conducted 1 hr workshop on Mars for children ages 8–12. Co-leader: Nancy Schaff, EPO coordinator, Department of Astronomy
Apr 2006	**Workshop leader**, Mars within our reach, **Expand Your Horizons**, Cornell University. Designed and conducted one-day workshop on Martian exploration for female children ages 8–12. Co-leaders: Diane Bollen, Athena Project Coordinator for the Mars Exploration Rover mission, Department of Astronomy and John R. Skok, Geosciences undergraduate
Apr 2005	**Workshop assistant**, Rockets, **Expand Your Horizons**, Cornell University. Supported prototype rocket assembly and launch for female children ages 8–12. Leader: Sabrina Stierwalt, Department of Astronomy graduate

Outreach Activities

Apr 2004	**Workshop assistant**, Rockets, **Expand Your Horizons**, Cornell University. Supported prototype rocket assembly and launch for female children ages 8–12. Leader: Sabrina Stierwalt, Astronomy graduate