

**Timothy David Glotch**  
Department of Geosciences, Stony Brook University  
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**Education**

Ph.D., 2004: Geological Sciences, Arizona State University  
B.A., 1999: Astrogeophysics, Colgate University

**Employment**

2012-present Associate Professor, Stony Brook University  
2007-2012: Assistant Professor, Stony Brook University  
2006-2007: Caltech Postdoctoral Scholar at JPL  
2005-2006: Postdoctoral Scholar, California Institute of Technology  
2004-2005: Postdoctoral Research Associate, Arizona State University

**Courses Taught**

GEO 102: The Earth  
GEO 106: Planetary Geology  
GEO 330/530: Geology of Mars  
GEO 604: Geology of the Moon  
GEO 604: Mineralogy and Geochemistry of Mars  
GEO 604 Advanced Spectroscopic Methods  
GEO 607: Geology of Saturn's Moons  
SSO 102: Diamonds

**Advising**

Congcong Che	Postdoc	2012-present
Mehmet Yesiltas	Postdoc	2015-present
Yang Liu	Postdoc	2013-2014
Jessica Arnold	Postdoc	2014

Cheng Ye	Ph.D.	current
Carey Legett IV	Ph.D.	current
Gen Ito	Ph.D.	current
Steven Jaret	Ph.D.	current
Melinda Rucks	Ph.D.	current
Katherine Shirley	Ph.D.	current
Lonia Friedlander	Ph.D.	2014
Elizabeth Sklute	Ph.D.	2014
Jessica Arnold	Ph.D.	2014
Congcong Che	Ph.D.	2012
Hedi Jensen	M. S.	2011

**Honors and Awards**

2015: NASA Group Achievement Award for Diviner Lunar Radiometer Experiment  
2013: NASA Group Achievement Award for Diviner Lunar Radiometer Experiment

2012: NSF CAREER Award  
2004: NASA Group Achievement Award for Mars Exploration Rovers  
2003: NASA Group Achievement Award for 2001 Odyssey THEMIS  
2001-2004: NASA Graduate Student Researcher Program Fellow  
1999: Founders Award, Colgate University Department of Physics and Astronomy

### **Professional Service**

Associate Editor, *Journal of Geophysical Research—Planets*, 2012-present  
External reviewer for NSF EAR Petrology and Geochemistry program  
External reviewer for NSF Major Research Instrumentation program  
External reviewer for NASA MDAP, MFRP, and NLSI programs  
NASA MFRP, MDAP, PIDDP, MIDP, MMAMA, SALMON (chief), LASER, LDAP (chief), Participating Scientist, and Discovery Step 2 review panels  
Reviewer for journals *JGR-Planets*, *Icarus*, *Geology*, *American Mineralogist*, *Earth and Planetary Science Letters*, *Meteoritics and Planetary Science*, *Spectroscopy Letters*, *Nature Communications*  
Convener, *Workshop on Space Weathering of Airless Bodies*, Nov. 2-4, 2015.  
1999-Present: Numerous public outreach and education presentations

### **Professional Membership**

American Geophysical Union  
Geological Society of America  
Mineralogical Society of America  
New York Academy of Sciences

### **Invited Talks:**

International Symposium on Lunar and Planetary Science, Wuhan, China—June 2016  
University of Pittsburgh—November, 2015  
University of Western Ontario—October, 2015  
NASA Headquarters Seminar—October, 2014  
3D Raman Imaging and Correlative Scanning Microscopy Techniques Workshop, Harvard University—August, 2014  
Lunar and Planetary Institute—July, 2012  
University of Toronto—October, 2010  
American Museum of Natural History—April 2009  
Stony Brook University—March, 2007; February 2008  
Dartmouth College—February, 2007  
Brown University—April, 2006  
Colgate University—September, 2005

### **Funded Research**

NASA SSERVI: Remote, In Situ, and Synchrotron Studies for Science and Exploration (RIS4E), PI, 2014-2019, Total Budget: \$5.48M.

NASA SSW: Spectroscopy of salt-bearing mineral assemblages, PI, 2015-2018, Total Budget: \$281.5k

NASA PG&G: Spectroscopy of nanophase materials, PI, 2014-2017, Total Budget: \$358k.

NASA PG&G: Spectral and petrologic analyses of minerals and rocks subjected to high pressures, CO-I with PI Jeffrey Johnson, APL, 2014-2017, Total Budget: \$312k (117.3k for Glotch)

NASA MFRP: Infrared and Raman spectroscopic study of biosignature preservation in terrestrial clay-rich sediments: Implications for Martian astrobiological exploration, PI, 2014-2017, Total Budget: \$233k

NASA MDAP: Spectroscopic and geologic analyses of chloride salt deposits on Mars, PI, 2014-2016, Total Budget: \$187k

NASA PG&G: Pyroxene Spectroscopy: Composition, Structure and Thermal History, Co-I with PI Rachel Klima, APL, 2013-2016. Total budget: \$347k (\$58.7k for Glotch).

NSF CAREER: CAREER: Fundamental Measurements of Mineral Optical Properties and Theoretical Treatment of Light Scattering at Infrared Wavelengths, PI, 2012-2017, Total Budget: \$494k.

NASA LASER: Understanding the Formation and Evolution of Mixed-Origin Terrains in the Copernicus Lunar Quadrangle (LQ10), Co-I with PI Justin Hagerty, USGS, 2012-2015, Total Budget: \$345K (\$26.5k for Glotch)

NASA LASER: Reflectance and Emission Spectroscopy (0.35-100  $\mu\text{m}$ ) in a Simulated Lunar Environment, PI, 2012-2015, Total Budget: \$456k.

NASA MDAP: Dehydrated and dehydroxylated clays on Mars: Assessment of post-depositional alteration of Martian sedimentary deposits, PI, 2012-2015, Total Budget: \$318k.

NASA DLRE Science Mission, Co-I with PI David Paige, UCLA, 2011-present.

NASA PG&G: Integrated spectroscopy of pyroxenes: composition, structure, and thermal history, Co-I with PI Rachel Klima, APL, 2011-2012, Total Budget: \$100k (\$25k for Glotch).

NASA MFRP: Effects of shock metamorphism on phyllosilicate spectroscopy, Co-I with PI Joseph Michalski, PSI, 2010-2013, Total Budget: \$453k (\$84.6k for Glotch).

NASA MMAMA: Evaluating new instrument technologies and operational procedures critical for maximizing science during field studies of basaltic terrains on the Earth, Moon, and Mars, Co-I with PI Jacob Bleacher, NASA Goddard, 2009-2013, Total Budget: \$287k (\$0k for Glotch).

NSF MRI: MRI: Acquisition of Imaging Micro-FTIR and Micro-Raman Spectrometers in Support of Research at Stony Brook University, PI, 2009-2010, Total Budget: \$340k.

NASA MFRP: Infrared, NMR, and X-ray Characterization of Dehydration and Dehydroxylation of Clay Minerals, PI, 2008-2012, Total Budget: \$297k.

NASA MDAP: Geologic Characterization of Likely Chloride Salt Deposits on Mars, PI, 2008-2012, Total Budget: \$260k.

NASA LRO PS: Compositional Variability of the Lunar Surface from the Diviner Lunar Radiometer Experiment and the Lunar Reconnaissance Orbiter Camera, PI, 2008-2011, Total Budget: \$347k.

NASA MDAP: Analysis of Layered Terrains near Mawrth Vallis: Comparisons with Meridiani Planum, Co-I with PI William Farrand, SSI, 2006-2009, Total Budget: \$205K (\$32.9k for Glotch).

### **Book Chapters**

[3]Bell, J. F. III, **T. D. Glotch**, V. Hamilton, T. McConnochie, A. McEwen, and P. Christensen (2008), Visible to Near-IR Multispectral Orbital Observations of Mars, In: J. F. Bell, III (Ed.) *The Martian Surface: Composition, Mineralogy, and Physical Properties*, 636 pp., Cambridge University Press, Cambridge.

[2]Christensen, P. R., J. L. Bandfield, D. Rogers, **T. D. Glotch**, V. E. Hamilton, M. B. Wyatt, and R. Clark (2008), Global Mineralogy Mapped from the Mars Global Surveyor Thermal Emission Spectrometer, In: J. F. Bell, III (Ed.) *The Martian Surface: Composition, Mineralogy, and Physical Properties*, 636 pp., Cambridge University Press, Cambridge.

[1]Ruff, S. W., P. R. Christensen, **T. D. Glotch**, D. L. Blaney, J. E. Moersch, and M. B. Wyatt (2008), The Mineralogy of Gusev Crater and Meridiani Planum Derived from the Miniature Thermal Emission Spectrometers on the Spirit and Opportunity Rovers, In: J. F. Bell, III (Ed.) *The Martian Surface: Composition, Mineralogy, and Physical Properties*, 636 pp., Cambridge University Press, Cambridge.

### **Publications (including in prep) \* denotes student author**

[63]Ito, G.\*, J. A. Arnold, and **T. D. Glotch** (2015), Calculation of scattering properties and radiative transfer models for particulate surfaces, *J. Geophys. Res.*, manuscript in preparation.

[62]Liu, Y., **T. D. Glotch**, N. Scudder\*, M. Kraner\*, T. Condu\*, R. Arvidson, E. Guinness, M. Wolff, and M. Smith (2015), Spectral mixture analysis of CRISM hyperspectral data: A case study on southwest Melas Chasma, Mars, *J. Geophys. Res.*, in review.

[61]Jaret, S. J.\*, B. L. Phillips, D. T. King, Jr., T. D. Glotch, Z. Rahman, and S. P. Wright (2016), An unusual occurrence of coesite at the Lonar Crater, India, *Met. Planet. Sci.*, in review.

- [60]Braden, S. E., M. S. Robinson, S. Lawrence, B. R. Hawke, T. A. Giguere, and **T. D. Glotch** (2015) The Gruithuisen domes: Age and morphology of silicic nonmare volcanism, *Icarus*, in review.
- [59]Arnold, J. A.\*, **T. D. Glotch**, P. G. Lucey, E. Song, I. R. Thomas, and N. E. Bowles (2015), Lunar olivine as seen by Diviner and M<sup>3</sup>: A Comparison of MIR and VNIR spectral data, *J. Geophys. Res.*, in review.
- [58]Farrand, W. H., S. P. Wright, A. D. Rogers, and T. D. Glotch (2016), Basaltic glass formed from hydrovolcanic and impact processes: Characterization and clues for detection of mode of origin from VNIR through TIR reflectance spectroscopy, *Icarus*, in press.
- [57]Sutter, B., R. C. Quinn, P. D. Archer, D. P. Glavin, **T. D. Glotch**, S. Kounaves, M. M. Osterloo, E. Rampe, and D. W. Ming (2016), Oxychlorine species on Mars and possible remediation strategies, *Int. J. Astrobio.* in press.
- [56]Lucey, P. G., B. T. Greenhagen, E. Song, J. A. Arnold, M. Lemelin, K. Donaldson Hanna, N. Bowles, **T. D. Glotch**, and D. A. Paige (2016), Space weathering effects in Diviner Radiometer measurements of the lunar Christiansen Feature: Characteristics and mitigation, *Icarus*, press.
- [55]Donaldson Hanna, K. L., B. T. Greenhagen, W. M. Patterson III, C. M. Pieters, J. F. Mustard, N. E. Bowles, D. A. Paige, **T. D. Glotch**, and C. Thompson (2016), Effects of varying environmental conditions on emissivity spectra of bulk lunar soils: Application to Diviner thermal infrared observations of the Moon, *Icarus*, in press.
- [54]Friedlander, L.\*, **T. D. Glotch**, B. Phillips, J. Vaughn\*, and J. R. Michalski (2016), Comparing structural and related spectral change between iron and magnesium-bearing 2:1 smectites after experimental impacts between 10-40 GPa, *Clay. Clay Min.*, in press.
- [53]Hardgrove, C. J., A. D. Rogers, **T. D. Glotch**, and J. A. Arnold (2016), Thermal emission spectroscopy of microcrystalline sedimentary phases: Effects of natural surface roughness on spectral feature shape, *J. Geophys. Res.*, 121, 542-555.
- [52]**Glotch, T. D.**, J. L. Bandfield, J. A. Arnold\*, M. J. Wolff, and C. Che (2016), Constraining the composition and grain size of salt-bearing deposits on Mars, *J. Geophys. Res.*, 121, 454-471.
- [51]Ashley, J. W., M. S. Robinson, J. D. Stopar, **T. D. Glotch**, B. R. Hawke, S. J. Lawrence, B. L. Jolliff, H. Hiesinger, C. H. van der Bogert, B. T. Greenhagen, and D. A. Paige (2016), The Lassell Massif - a silicic lunar volcano, *Icarus*, 273, 248-261.

- [50]Cloutis, E. A., P. Mann, M. R. M. Izawa, D. M. Applin, C. Samson, R. Kruzelecky, **T. D. Glotch**, S. Mertzman, K. R. Mertzman, T. W. Haltigin, and C. Fry (2015) The Canadian Space Agency planetary analogue materials suite, *Planet. Space. Sci.*, 119, 155-172.
- [49]Friedlander, L. R.\* , **T. D. Glotch**, D. L. Bish, M. D. Dyar, T. G. Sharp, E. C. Sklute, and J. R. Michalski (2015), Structural and spectroscopic changes to natural nontronite induced by experimental impacts between 10 and 40 GPa, *J. Geophys. Res.*, 120, doi:10.1002/2014JE004638.
- [48]Sklute, E. C.\* , **T. D. Glotch**, J. Piatek, W. Woerner\*, A. Martone\*, and M. Kraner\* (2015), Optical constants of synthetic potassium, sodium, and hydronium jarosite, *Am. Miner.*, 100,1110-1122.
- [47]Jaret, S. J.\* , W. R. Woerner\*, B. L. Phillips, L. Ehm, H. Nekvasil, S. P. Wright, and **T. D. Glotch** (2015), Maskelynite formation via solid-state transformation: Evidence of infrared and X-ray anisotropy, *J. Geophys. Res.*,120, 570-587, doi:10.1002/2014JE004764.
- [46]**Glotch, T. D.**, J. L. Bandfield, P. G. Lucey, P. O. Hayne, B. T. Greenhagen, R. R. Ghent, J. A. Arnold\*, and D. A. Paige (2015), Formation of lunar swirls by magnetic field standoff of the solar wind, *Nature Communications*, 6, 6189, doi:10.1038/ncomms7189.
- [45] Arnold, J. A.\* , **T. D. Glotch**, and A. M. Plonka\* (2014), Mid-infrared optical constants of clinopyroxene and orthoclase derived from oriented single-crystal reflectance spectra, *Am. Miner.*, 99, 1942-1955.
- [44] Farrand, W. H., **T. D. Glotch**, and B. Horgan (2014), Detection of Copiapite in the northern Mawrth Vallis Region of Mars: Evidence of acid sulfate alteration, *Icarus*, 241, 346-357.
- [43]Che, C., and **T. D. Glotch** (2014), Thermal alteration: A possible reason for the inconsistency between OMEGA/CRISM and TES detections of phyllosilicates on Mars?, *Geophys. Res. Lett.*, 41, 321-327, doi:10.1002/2013GL058649.
- [42]Lawrence, S. J., J. D. Stopar, B. R. Hawke, B. T. Greenhagen, J. T. S. Cahill, J. L. Bandfield, B. L. Jolliff, B. W. Denevi, M. S. Robinson, **T. D. Glotch**, D. B. J. Bussey, P. D. Spudis, T. A. Giguere, and W. B. Garry (2013), Morphology and surface roughness of volcanic constructs in the Marius Hills, *J. Geophys. Res.*, *J. Geophys. Res.*, 118, 615-634.
- [41]**Glotch, T. D.** and A. D. Rogers (2013), Evidence for magma-carbonate interaction beneath Syrtis Major, Mars, *J. Geophys. Res.*, 118, 1-12, doi:10.1029/2012JE004230.

- [40]Yang, B., P. Lucey, and **T. D. Glotch** (2013), Are large Trojan asteroids salty? An observational, theoretical, and experimental study, *Icarus*, 223, 359-366.
- [39]Wilson, J. H.\*, S. M. McLennan, **T. D. Glotch**, and E. T. Rasbury (2012), Pedogenic hematitic concretions from the Mesozoic New Haven Arkose, Connecticut: Implications for understanding Martian diagenetic processes, *Chem. Geol.*, 312-313, 195-208.
- [38]Che, C.\*, and **T. D. Glotch** (2012), The effect of high temperatures on the mid-to-far-infrared emission and near-infrared reflectance spectra of phyllosilicates and natural zeolites: Implications for Martian exploration, *Icarus*, 218, 585-601.
- [37]Jensen, H. B.\*, and **T. D. Glotch** (2011), Investigation of the near infrared spectral character of putative Martian chloride deposits, *J. Geophys. Res.*, 116, E00J03, doi:10.1029/2011JE003887.
- [36]Smith, A. and 60 others (including **T. D. Glotch**) (2011), Lunar Net – A proposal in response to an ESA M3 call in 2010 for a medium sized mission, *Experiment. Astron.*, doi:10.1007/s10686-011-9250-5.
- [35]**Glotch, T. D.**, J. J. Hagerty, P. G. Lucey, B. R. Hawke, T. A. Giguere, J. A. Arnold\*, J.-P. Williams, B. L. Jolliff, and D. A. Paige (2011), The Mairan Domes: Silicic volcanic constructs on the Moon, *Geophys. Res. Lett.*, 38, L21204, doi:10.1029/2011GL049548.
- [34]Lane, M. D., **T. D. Glotch**, M. D. Dyar, C. M. Pieters, R. Klima, T. Hiroi, J. L. Bishop, and J. Sunshine (2011), Midinfrared spectroscopy of synthetic olivines: Thermal emission, attenuated total reflectance, and spectral and diffuse reflectance studies of forsterite to fayalite, *J. Geophys. Res.*, 116, E08010, doi:10.1029/2010JE003588.
- [33]Jolliff, B. L., S. A. Wiseman, S. J. Lawrence, T. N. Tran, M. S. Robinson, B. R. Hawke, F. Scholten, J. Oberst, H. Hiesinger, C. van der Bogert, B. T. Greenhagen, **T. D. Glotch**, and D. A. Paige (2011), Non-mare silicic volcanism on the lunar farside at Compton-Belkovich, *Nature Geosciences*, 4, 566-571.
- [32]Che, C.\*, **T. D. Glotch**, D. L. Bish, J. R. Michalski, and W. Xu (2011), Spectroscopic study of the dehydration and dehydroxylation of phyllosilicate and zeolite minerals, *J. Geophys. Res.*, 116, E05007, doi:10.1029/2010JE003740.
- [31]Dyar, M. D., **T. D. Glotch**, M. D. Lane, B. Wopenka, J. M. Tucker, S. J. Seaman, G. J. Marchand, R. Klima, T. Hiroi, J. L. Bishop, C. Pieters, and J. Sunshine (2011), Spectroscopy of Yamato 984028, *Polar Science*, 4, 530-549.
- [30]**Glotch, T. D.** (2010), News and Views: Hidden Martian Carbonates, *Nature Geoscience*, 3, 745-746.

- [29]Paige, D. A., M. A. Siegler, J. A. Zhang, P. O. Hayne, B. T. Greenhagen, E. J. Foote, K. A. Bennett, A. R. Vasavada, B. T. Greenhagen, J. T. Schofield, D. J. McCleese, M. C. Foote, E. DeJong, B. G. Bills, W. Hartford, B. C. Murray, C. C. Allen, K. Snook, L. A. Soderblom, S. Calcutt, F. W. Taylor, N. E. Bowles, J. L. Bandfield, R. C. Elphic, R. Ghent, **T. D. Glotch**, M. B. Wyatt, and P. G. Lucey (2010), Diviner Lunar Radiometer observations of cold traps in the Moon's south polar region, *Science*, 330, 479-482.
- [28]**Glotch, T. D.**, P. G. Lucey, J. L. Bandfield, B. T. Greenhagen, I. R. Thomas, R. C. Elphic, N. Bowles, M. B. Wyatt, C. C. Allen, K. Donaldson-Hanna, and D. A. Paige (2010), Highly silicic compositions on the Moon, *Science*, 329, 1510-1513.
- [27]Greenhagen, B. T., P. G. Lucey, M. B. Wyatt, **T. D. Glotch**, C. C. Allen, J. A. Arnold\*, J. L. Bandfield, N. E. Bowles, K. L. Donaldson Hanna, P. O. Hayne, I. R. Thomas, and D. A. Paige (2010), Global silicate mineralogy of the Moon from the Diviner Lunar Radiometer, *Science*, 329, 1507-1509.
- [26]**Glotch, T. D.**, J. L. Bandfield, L. L. Tornabene, H. B. Jensen\*, and F. P. Seelos (2010), Distribution and formation of chlorides and phyllosilicates in Terra Sirenum, Mars, *Geophys. Res. Lett.*, 37, L16202, doi:10.1029/2010GL044557.
- [25]Lichtenberg, K. A., R. E. Arvidson, R. V. Morris, S. L. Murchie, J. L. Bishop, D. Fernandez-Remolar, **T. D. Glotch**, E. N. Dobrea, J. F. Mustard, J. Andrews-Hanna, and L. H. Roach (2010), Stratigraphy of hydrated sulfates in the sedimentary deposits of Aram Chaos, Mars, *J. Geophys. Res.*, 115, E00D17, doi:10.1029/2009JE0003353.
- [24]Farrand, W. H., **T. D. Glotch**, J. W. Rice, J. Hurowitz, and G. Swayze (2009), Discovery of jarosite-bearing surfaces within the Mawrth Vallis region of Mars: Implications for the geologic history of the region, *Icarus*, 204, 478-488.
- [23]**Glotch, T. D.**, and G. R. Rossman (2009), Mid-infrared spectra and optical constants of six iron oxide/oxyhydroxide phases, *Icarus*, 204, 663-671.
- [22]Bleacher, J. E., L. S. Glaze, R. Greeley, E. Hauber, S. M. Baloga, S. E. H. Sakimoto, D. A. Williams, and **T. D. Glotch** (2009), Spatial and alignment analyses for a field of small volcanic vents south of Pavonis Mons and implications for the Tharsis province, Mars, *J. Volc. Geotherm. Res.*, 185, 96-102.
- [21]Dyar, M. D., E. C. Sklute, O. N. Menzies, P. A. Bland, D. Lindsley, **T. Glotch**, M. D. Lane, M. W. Schaeffer, B. Wopenka, R. Klima, J. L. Bishop, T. Hiroi, C. Pieters, and J. Sunshine (2009), Spectroscopic characteristics of synthetic olivine: An integrated multi-wavelength and multi-technique approach, *Am. Miner.*, 94, 883-898.
- [20]Calvin, W. M. and 18 others (including **T. D. Glotch**) (2008), Hematite spherules at Meridiani: Results from MI, Mini-TES and Pancam, *J. Geophys. Res.*, 113, E12S37.



- [19] **Glotch, T. D.**, and M. D. Kraft (2008), Thermal transformations of akaganéite and lepidocrocite to hematite: Assessment of possible precursors to Martian crystalline hematite, *Phys. Chem. Min.*, 35, 569-581.
- [18] Osterloo, M. M., V. E. Hamilton, J. L. Bandfield, **T. D. Glotch**, A. M. Baldridge, P. R. Christensen, L. L. Tornabene, and F. S. Anderson (2008), Chloride-bearing materials in the southern highlands of Mars, *Science*, 319, 1651-1654.
- [17] Grant, J.A. and 10 others (including **T. D. Glotch**) (2008), HiRISE imaging of impact megabreccia and sub-meter aqueous strata in Holden Crater, Mars, *Geology*, 36, 195-198.
- [16] **Glotch, T. D.**, G. R. Rossman, and O. Aharonson (2007), Mid-infrared (5-100  $\mu\text{m}$ ) reflectance spectra and optical constants of 10 phyllosilicate minerals, *Icarus*, 192, 605-62.
- [15] **Glotch, T. D.**, and A. D. Rogers (2007), Aqueous deposition of hematite and sulfate-rich light-toned layered deposits in Aureum and Iani Chaos, Mars, *J. Geophys. Res.*, 112, E06001, doi:10.1029/2006JE00286.
- [14] Squyres, S. W. and 38 others (including **T. D. Glotch**) (2006), Overview of the Opportunity Mars Exploration Rover mission to Meridiani Planum: Eagle Crater to Purgatory Ripple, *J. Geophys. Res.*, 111, E12S12, doi:10.1029/2006JE002771.
- [13] **Glotch, T. D.**, and J. L. Bandfield (2006), Determination and interpretation of surface and atmospheric Mini-TES spectral endmembers at the Meridiani Planum landing site, *J. Geophys. Res.*, 111, E12S06, doi:10.1029/2005JE002671.
- [12] **Glotch, T. D.**, J. L. Bandfield, P. R. Christensen, W. M. Calvin, S. M. McLennan, B. C. Clark, A. D. Rogers, and S. W. Squyres (2006), The mineralogy of the light-toned outcrop at Meridiani Planum as seen by the Miniature Thermal Emission Spectrometer and implications for its formation, *J. Geophys. Res.*, 111, E12S03, doi:10.1029/2005JE002672.
- [11] Squyres, S. W. and 17 others (including **T. D. Glotch**) (2006), Two years at Meridiani Planum: Results from the Opportunity Rover, *Science*, 313, 1403-1407.
- [10] Squyres, S. W. and 20 others (including **T. D. Glotch**) (2006), Bedrock formation at Meridiani Planum, *Nature*, 443, E1-E2.
- [9] **Glotch, T. D.**, P. R. Christensen, and T. G. Sharp (2006), Fresnel modeling of hematite crystal surfaces and application to martian hematite spherules, *Icarus*, 181, 408-418.

- [8] McLennan, S. M. and 31 others (including **T. D. Glotch**) (2005), Provenance and diagenesis of the evaporate-bearing Burns formation, Meridiani Planum, Mars, *EPSL*, 240, 95-121.
- [7] **Glotch, T. D.** and P. R. Christensen (2005), Geologic and mineralogic mapping of Aram Chaos: Evidence for a water-rich history, *J. Geophys. Res.*, 110, E09006, doi:10.1029/2004JE002389.
- [6] Soderblom, L. A. and 42 others (including **T. D. Glotch**) (2004), Soils of Eagle Crater and Meridiani Planum at the Opportunity Rover Landing Site, *Science*, 306, 1723-1726.
- [5] Christensen, P. R., M.B. Wyatt, **T. D. Glotch**, and 24 others (2004), Initial Results from the Miniature Thermal Emission Spectrometer Experiment at the Opportunity Landing Site on Meridiani Planum, *Science*, 306, 1733-1739.
- [4] Christensen, P. R. and 24 others (including **T. D. Glotch**) (2004), Initial Results from the Miniature Thermal Emission Spectrometer Experiment at the Spirit Landing Site in Gusev Crater, *Science*, 305, 837-842.
- [3] **Glotch, T. D.**, R. V. Morris, P. R. Christensen, and T. G. Sharp (2004), Effects of precursor mineralogy on the thermal infrared emission spectra of hematite: Application to martian hematite mineralization. *Journal of Geophysical Research*, 109, E07003, doi:10.1029/2003JE002224.
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