

CURRICULUM VITAE

Wesley Andrés Watters
Diana Chapman Walsh Assistant Professor
Department of Astronomy, Wellesley College
106 Central St., Wellesley, MA 02481
wwatters@wellesley.edu, (781) 283-2170

Education

Massachusetts Institute of Technology, Cambridge, MA, USA

- Bachelor of Science (S.B.) in Mathematics, June 1999
- Bachelor of Science (S.B.) in Physics, Sept. 1999;
Thesis: *The Spitzer Mass Stratification Instability in Dense Star Clusters*
- Master of Science (S.M.) in Earth & Planetary Sciences, Jan. 2000;
Thesis: *Digital Reconstruction of Fossil Morphologies, Nama Group, Namibia*
- Doctor of Philosophy (Ph.D.) in Planetary Science and Planetary Geophysics, Dept. Earth, Atmospheric & Planetary Sciences (EAPS); Defense date: Dec. 11, 2008;
Thesis: *Hypervelocity Impacts and the Evolution of Planetary Surfaces and Interiors*

Articles

- Robbins, S.J., **W.A. Watters**, J.E. Chappelow, V.J. Bray, I.J. Daubar, R.A. Craddock, R.A. Beyer, M. Landis, L.R. Ostrach, L.L. Tornabene, J. Riggs, B.P. Weaver. (2017), Measuring Impact Crater Depth Throughout the Solar System. *Meteoritics & Planet. Sci.* DOI: 10.1111/maps.12956. (**In press**)
- Tornabene, L.L., **W.A. Watters**, G.R. Osinski, J.M. Boyce, T.N. Harrison, V. Ling, A.S. McEwen. (2018), A Depth vs. Diameter Relationship for the Best-Preserved Melt-Bearing Complex Craters on Mars. *Icarus*, 299, pp. 68-83.
- **Watters, W.A.**, C. Hundal,* A. Radford,* G. S. Collins, L. L. Tornabene. (2017), Dependence of Secondary Crater Characteristics on Downrange Distance: High-Resolution Morphometry and Simulations. *J. Geophys. Res.: Planets.*, 122, pp. 1773-1800.
- Fassett, C.I., M.C. Crowley, C. Leight, D. Dyar, D. Minton, M. Hirabayashi, B. Thomson, **W.A. Watters**. (2017), Evidence for Rapid Topographic Evolution and Crater Degradation on Mercury from Simple Crater Morphometry. *Geophys. Res. Lett.*, 44, pp. 5326-5335.
- **Watters, W.A.**, L. M. Geiger,* M. Fendrock,* R. Gibson,* C. Hundal.* (2017), The Role of Strength Defects in Shaping Impact Crater Planforms. *Icarus*, 286, pp. 15-34.
- **Watters, W.A.**, L. M. Geiger,* M. Fendrock,* R. Gibson.* (2015), Morphometry of Small Recent Impact Craters on Mars: Size and Terrain Dependence, Short-term Modification. *J. of Geophys. Res.: Planets.* 120, pp. 226-254.

- El-Maarry, M.R., **W.A. Watters**, Z. Yoldi, A. Pommerol, D. Fischer, U. Eggenberger, & N. Thomas. (2015), Field Investigation of Dried Lakes in Western United States as an Analogue to Desiccation Fractures on Mars. *J. of Geophys. Res.: Planets*, 120, 2241-2257.
- El-Maarry, M.R., **W. A. Watters**, N.K. McKeown, J. Carter, E. Noe Dobrea, J.L. Bishop, A. Pommerol, N. Thomas. (2014), Potential Desiccation Cracks on Mars: A Synthesis from Modeling, Analogue-Field Studies, and Global Observations. *Icarus*, 241, pp. 248-268.
- **Watters, W.A.**, J.P. Grotzinger, J. Bell III, J. Grant, A. Hayes, R. Li, S. Squyres, M. Zuber. (2011), Origin of the Structure and Planform of Small Impact Craters in Fractured Targets: Endurance Crater at Meridiani Planum, Mars. *Icarus*, 211 (1), doi:10.1016/j.icarus.2010.08.030.
- Hayes, A.G., J.P. Grotzinger, L.A. Edgar, S.W. Squyres, **W.A. Watters** and J. Sohl-Dickstein. (2011) Reconstruction of eolian bed forms and paleocurrents from cross-bedded strata at Victoria Crater, Meridiani Planum, Mars. *J. Geophys. Res: Planets*, 116.
- **Watters, W.A.**, M.T. Zuber, B. H. Hager. (2009), Thermal Perturbations caused by Large Impacts and Consequences for Mantle Convection. *J. Geophys. Res.: Planets*, 114, E02001, doi:10.1029/2007JE002964.
- Wilson, J.P., W. Fischer, D. Johnston, A. Knoll J. Grotzinger, M. Walter, N. McNaughton, M. Simon, J. Abelson, D. Schraga, R. Summons, A. Allwood, M. Andres, C. Gammon, J. Garvin, S. Rashby, M. Schweizer, **W. Watters**. (2010), Geobiology of the Late Paleoproterozoic Duck Creek Formation, Western Australia. *Precambrian Research*, 179 (1-4), doi: 10.1016/j.precamres.2010.02.019.
- Farrand, W. H., J. F. Bell III, J. R. Johnson, B. L. Jolliff, A. H. Knoll, S. M. McLennan, S. W. Squyres, W. M. Calvin, J. P. Grotzinger, R. V. Morris, J. Soderblom, S. D. Thompson, **W. A. Watters**, A. S. Yen. (2007), Visible and Near-Infrared Multispectral Analysis of Rocks at Meridiani Planum, Mars, by the Mars Exploration Rover Opportunity. *J. Geophys. Res.: Planets*, 112, E06S02, doi:10.1029/2006JE002773.
- Garrick-Bethell, I., E. Mazarico, and **W. A. Watters**. (2007), Global Scale Lunar Sample Return Using Projectiles Launched from a Low-Flying Spacecraft. *Advances in Space Research*, 39, pp. 627-635.
- Li, R. R. E. Arvidson, K. Di, M. Golombek, J. Guinn, A. Johnson, M. Maimone, L. H. Matthies, M. Malin, T. Parker, S. W. Squyres, **W. A. Watters**. (2007), Opportunity Rover Localization and Topographic Mapping at the Landing Site of Meridiani Planum, Mars, *J. Geophys. Res.: Planets*, 112, E02S90, doi:10.1029/2006JE002776.
- Grant, J. A., R. E. Arvidson, L. S. Crumpler, M. P. Golombek, B. Hahn, A. F. C. Haldemann, R. Li, L. A. Soderblom, S. W. Squyres, S. P. Wright, and **W. A. Watters**. (2006), Crater Gradation in Gusev crater and Meridiani Planum, Mars. *J. Geophys. Res.: Planets*, 111, E02S08, doi:10.1029/2005JE002465.
- Jerolmack, D. J., D. Mohrig, J. P. Grotzinger, D. A. Fike, **W. A. Watters**. (2006), Spatial Grain Size Sorting in Eolian Ripples and Estimation of Wind Conditions on Planetary Surfaces: Application to Meridiani Planum, Mars. *J. Geophys. Res.: Planets*, 111, doi:10.1029/2005JE002544.

- Adams, E. W., J. P. Grotzinger, **W.A. Watters**, S. Schröder, D. S. McCormick, H. A. Al-Siyabi. (2005), Digital Characterization of Thrombolite-Stromatolite Reef Distribution in a Carbonate Ramp System (terminal Proterozoic, Nama Group, Namibia). *AAPG Bulletin*, 89 (10), pp. 1293-1318.
- Grotzinger, J.P., R.E. Arvidson, J.F. Bell III, W. Calvin, B.C. Clark, D.A. Fike, M. Golombek, R. Greeley, A. Haldemann, K.E. Herkenhoff, B.L. Jolliff, A.H. Knoll, M. Malin, S.M. McLennan, T. Parker, L. Soderblom, J.N. Sohl-Dickstein, S.W. Squyres, N.J. Tosca, **W. A. Watters**. (2005), Stratigraphy and Sedimentology of a Dry to Wet Eolian Depositional System, Burns Formation, Meridiani Planum, Mars. *Earth & Planet. Sci. Letters*, 240 (1), pp. 11-72.
- McLennan, S.M., J.F. Bell III, W.M. Calvin, P.R. Christensen, B.C. Clark, P.A. de Souza, J. Farmer, W.H. Farrand, D.A. Fike, R. Gellert, A. Ghosh, T.D. Glotch, J.P. Grotzinger, B. Hahn, K.E. Herkenhoff, J.A. Hurowitz, J.R. Johnson I, S.S. Johnson I, B. Jolliff M, G. Klingelhfer, A.H. Knoll, Z. Learner. M.C. Malin, H.Y. McSween Jr., J. Pockock, S.W. Ruff, L.A. Soderblom, S.W. Squyres, N.J. Tosca, **W.A. Watters**, M.B. Wyatt, A. Yen. (2005), Provenance and Diagenesis of the Evaporite-Bearing Burns Formation, Meridiani Planum, Mars. *Earth & Planet. Sci. Letters*, 240 (1), pp. 95-121.
- Sullivan, R., D. Banfield, J.F. Bell, W. Calvin, D. Fike, M. Golombek, R. Greeley, J. Grotzinger, K. Herkenhoff, D. Jerolmack, M. Malin, D. Ming, L. A. Soderblom, S.W. Squyres, S. Thompson, **W. A. Watters**, C. M. Weitz, A. Yen. (2005), Aeolian Processes at the Mars Exploration Rover Meridiani Planum Landing Site. *Nature*, 436, pp. 58-61.
- Soderblom, L. A., R. C. Anderson, R. E. Arvidson, J. F. Bell III, N. A. Cabrol, W. Calvin, P. R. Christensen, B. C. Clark, T. Economou, B. L. Ehlmann, W. H. Farrand, D. Fike, R. Gellert, T. D. Glotch, M. P. Golombek, R. Greeley, J. P. Grotzinger, K. E. Herkenhoff, D. J. Jerolmack, J. R. Johnson, B. Jolliff, G. Klingelhofer, A. H. Knoll, Z. A. Learner, R. Li, M. C. Malin, S. M. McLennan, H. Y. McSween, D. W. Ming, R. V. Morris, F. P. Seelos IV, J. M. Soderblom, J. W. Rice Jr., L. Richter, R. Rieder, D. Rodionov, C. Schro, S. W. Squyres, R. Sullivan, **W. A. Watters**, C. M. Weitz, M. B. Wyatt, A. Yen, J. Zipfel. (2004), Soils of Eagle Crater and Meridiani Planum at the Opportunity Rover Landing Site. *Science*, 306, pp. 1723-1726.
- Fleury, V., **W.A. Watters**, A. Levy, T. Devers. (2002), Rapid Electroplating of Insulators. *Nature*, 416, pp. 716-719.
- **Watters, W.A.**, J.P. Grotzinger. (2001), Digital Reconstruction of Calcified Early Metazoans, Nama Group, Namibia. *Paleobiology*, 27 (1), pp. 159-171.
- **Watters, W.A.**, K. Joshi, R.A. Rasio. (2000), Thermal and Dynamical Equilibrium in Two-Component Star Clusters. *The Astrophysical Journal*, 539, pp. 331-341.
- Grotzinger, J.P., **W.A. Watters**, and A.H. Knoll. (2000), Calcified Metazoans in Thrombolite-Stromatolite Reefs of the Terminal Proterozoic Nama Group, Namibia. *Paleobiology*, 26 (3), pp. 334-359.
- **ArXiv only (not peer-reviewed):**
Feder, J., H., Nordhagen, **W. A. Watters**. (2005) Dynamic Scaling in Stick-Slip Friction. arXiv:nlin/0504034v1.

*Wellesley College student coauthor.

Abstracts

- Watters, W. A., T. M. Davison, and G. S. Collins (2017), Influence of Target Strength on Low-Velocity Cratering: 3-D simulations, *Planetary Crater Consortium meeting*, USGS Flagstaff, AZ, USA, Aug. 9-11.
- Watters, W. A., T. M. Davison, and G. S. Collins (2017), Secondary Cratering on Mars: 3-D Simulations and High-Resolution Morphometry, in *Lunar and Planetary Science Conference*, vol. 48, p. 2877.
- Bina, A., L. L. Tornabene, J. L. Piatek, N. G. Barlow, G. R. Osinski, S. J. Robbins, and W. A. Watters (2017), Visible and Thermophysical Mapping of Craters with Transitional Morphologies: Insights into the Nature and Extent of Crater Degradation on Mars, in *Lunar and Planetary Science Conference*, vol. 48, p. 2856.
- King, I. R., C. I. Fassett, B. J. Thomson, D. A. Minton, and W. A. Watters (2017), Evolution of Circular Polarization Ratio (CPR) Profiles of Kilometer-Scale Craters on the Lunar Maria, in *Lunar and Planetary Science Conference*, vol. 48, p. 1612.
- Watters, W.A., M. Marlette,* K. Jaramillo,* and D. Jerolmack. Decameter-scale Impact-related Aeolian Features Surrounding Well-preserved Impact Craters on Mars. (2016), *Planetary Crater Consortium meeting*, Brown University, Providence, RI, USA. Aug. 15-17.
- King, I., C. Fassett, B. J. Thomson, D. A. Minton, and W. A. Watters (2016), CPR Evolution of Kilometer-Scale Craters on the Lunar Mare, in *AAS/Division for Planetary Sciences Meeting Abstracts*, vol. 48, p. 223.10.
- Watters, W. A., G. S. Collins, C. Hundal,* A. Radford,* and L. L. Tornabene (2016), Dependence of Secondary Crater Shape on Impact Velocity, in *79th Annual Meeting of the Meteoritical Society, LPI Contributions*, vol. 1921, p. 6502.
- Watters, W. A., C. I. Fassett, R. Gibson,* and C. Hundal* (2016), Morphometric Characterization of Crater Modification in Diverse Settings on Mars, in *Lunar and Planetary Science Conference*, vol. 47, p. 2972.
- Watters, W. A., L. Geiger,* M. Fendrock,* R. Gibson,* and A. Radford* (2015), Statistical Morphometry of Small Martian Craters: New Methods and Results, in *Issues in Crater Studies and the Dating of Planetary Surfaces, LPI Contributions*, vol. 1841, p. 9032.
- Watters, W. A., and G. S. Collins (2015), Measured and Modeled Morphometry of Simple Impact Craters, in *Bridging the Gap III: Impact Cratering In Nature, Experiments, and Modeling, LPI Contributions*, vol. 1861, p. 1083.
- Watters, W. A., L. Geiger,* M. Fendrock,* R. Gibson,* and C. Hundal.* (2015), Planform Morphometry of Well-preserved Martian and Lunar Impact Craters. *Planetary Crater Consortium (PCC) meeting*, USGS Flagstaff, AZ, USA, Aug. 12-15.

- Watters, W. A., L. Geiger,* M. Fendrock,* and R. Gibson* (2015), Morphometry of Recent Simple Impact Craters on Mars: Size and Terrain Dependence, in *Lunar and Planetary Science Conference*, vol. 46, p. 2465.
- Watters, W. A., L. Geiger,* M. Fendrock,* R. Gibson,* and C. Hundal.* (2015), Planform Morphometry of Well-preserved Martian and Lunar Impact Craters. *Planetary Crater Consortium meeting*, USGS Flagstaff, AZ, USA, Aug. 12-15.
- Watters, W. A., and A. C. Radford* (2014), 3-D Morphometry of Martian Secondary Impact Craters from Zunil and Gratteri, in *Lunar and Planetary Science Conference*, vol. 45, p. 2836.
- El Maarry, M. R., W. Watters, N. K. McKeown, J. Carter, E. Noe Dobrea, J. L. Bishop, A. Pommerol, and N. Thomas (2014), Potential Desiccation Cracks on Mars as Indicators of Paleolacustrine Sites: Implications for Future Exploration, *European Planetary Science Congress 2014, EPSC Abstracts, Vol. 9, id. EPSC2014-394, 9*, EPSC2014-394.
- El-Maarry, M. R., W. Watters, N. K. McKeown, J. Carter, E. Noe Dobrea, J. Bishop, A. Pommerol, and N. Thomas (2014), Potential Desiccation Cracks on Mars: A Synthesis from Modeling, Analog-Field Studies, and Global Observations, in *Lunar and Planetary Science Conference*, vol. 45, p. 2530.
- El-Maarry, M. R., W. Watters, N. K. McKeown, J. Carter, E. Noe Dobrea, J. L. Bishop, A. Pommerol, and N. Thomas (2014), Potential Desiccation Cracks on Mars: A Review of Global Observations Using HiRISE, in *Eighth International Conference on Mars, LPI Contributions*, vol. 1791, p. 1230.
- Watters, W. A., L. Geiger,* and M. Fendrock* (2013), Shape Distribution of Fresh Martian Impact Craters from High-Resolution DEMs, in *Lunar and Planetary Science Conference*, vol. 44, p. 3081.
- Cole, S. B., W. A. Watters, F. Aron, and S. W. Squyres (2013), Reconstructed Paleotopography of the Columbia Hills, Mars, *AGU Fall Meeting Abstracts*.
- Cole, S. B., W. A. Watters, and S. W. Squyres (2012), Structure of Husband Hill and the West Spur of the Columbia Hills, Gusev Crater, in *Lunar and Planetary Science Conference*, vol. 43, p. 1134.
- Wu, R., X. Meng, R. Li, W. Watters, J. Grant. (2012), Mapping of Martian Craters Using Orbital and Ground Imagery: a Case Study at Santa Maria Crater. *Congress Int.'l Soc. Photogrammetry & Remote Sensing*, Aug. 2012.
- Watters, W. A., and S. W. Squyres (2012), Pattern and Distribution of Shrinkage Fractures at Meridiani Planum, in *Lunar and Planetary Science Conference*, vol. 43, p. 2915.
- Watters, W. A., J. Bell, F. Calef, M. Golombek, J. Grant, A. Hayes, R. Li, T. Parker, R. Sullivan, S. Squyres, and S. Wright (2011), Structure and Morphology of Santa Maria Crater, Meridiani Planum, Mars, in *Lunar and Planetary Science Conference*, vol. 42, p. 2586.
- Rice, M. S., A. E. Batista, J. F. Bell, and W. A. Watters (2010), Searching for “Home Plates” Near Gusev Crater, Mars: Spirit’s Regional Context in an Area of Explosive Volcanism, *AGU*

Fall Meeting Abstracts.

- Watters, W. A. (2010), The Concave Planform of Transient Impact Craters in Fractured Targets, in *Lunar and Planetary Science Conference*, vol. 41, p. 2684.
- Watters, W. A., and S. W. Squyres (2009), Mechanisms for shrinkage fracturing at Meridiani Planum, *AGU Fall Meeting Abstracts*.
- Watters, W. A., and M. T. Zuber (2009), Relating Target Properties to the Planimetric Shape of Simple Impact Craters, in *Lunar and Planetary Science Conference*, vol. 40, p. 2556.
- Watters, W. A., and M. T. Zuber (2008), Fourier Shape Analysis of Simple Crater Morphology: Relating Crater Shape and Target Properties., *AGU Fall Meeting Abstracts*.
- Watters, W. A. (2006), Structure of Polygonal Craters at Meridiani Planum, Mars, and a Model Relating Target Structure to Crater Shape, in *Lunar and Planetary Science Conference*, vol. 37, edited by S. Mackwell and E. Stansbery.
- Watters, W. A., J. Grotzinger, W. Farrand, M. Golombek, J. Grant, A. Haldemann, J. Johnson, R. Li, S. Squyres, and Science Team (2006), Structural Model of Endurance Crater for Rover-Based Exploration of Crater Rims, *AGU Fall Meeting Abstracts*.
- Learner, Z. A., J. F. Bell, III, J. Farmer, W. H. Farrand, J. P. Grotzinger, J. R. Johnson, B. L. Jolliff, A. H. Knoll, S. M. McLennan, S. W. Squyres, and W. A. Watters (2006), Surface Coatings at Meridiani Planum, Mars, in *Lunar and Planetary Science Conference*, vol. 37, edited by S. Mackwell and E. Stansbery.
- Learner, Z. A., J. F. Bell, III, J. Farmer, W. H. Farrand, J. P. Grotzinger, J. R. Johnson, B. L. Jolliff, A. H. Knoll, M. B. Madsen, S. M. McLennan, S. W. Squyres, and W. A. Watters (2005), Fracture Fills and Surface Coatings at Meridiani Planum, Mars, in *AAS/Division for Planetary Sciences Meeting Abstracts #37, Bulletin of the American Astronomical Society*, vol. 37, p. 660.
- Sullivan, R. J., J. F. Bell, III, W. M. Calvin, D. Fike, M. P. Golombek, R. Greeley, J. P. Grotzinger, K. E. Herkenhoff, D. Jerolmack, M. C. Malin, D. Ming, L. A. Soderblom, S. W. Squyres, S. Thompson, W. A. Watters, C. M. Weitz, and A. S. Yen (2005), Aeolian Processes at the Mars Exploration Rover Opportunity Landing Site, in *Lunar and Planetary Science Conference*, vol. 36, edited by S. Mackwell and E. Stansbery.
- McLennan, S. M., J. F. Bell, III, W. M. Calvin, P. R. Christensen, B. C. Clark, P. A. de Souza, W. H. Farrand, D. Fike, R. Gellert, A. Ghosh, T. D. Glotch, J. P. Grotzinger, B. C. Hahn, K. E. Herkenhoff, J. A. Hurowitz, J. R. Johnson, S. S. Johnson, B. L. Jolliff, G. Klingelhöfer, A. H. Knoll, Z. Learner, M. C. Malin, H. Y. McSween, Jr., J. Pockock, S. W. Ruff, S. W. Squyres, N. J. Tosca, W. A. Watters, M. B. Wyatt, A. S. Yen, and Athena Science Team (2005), Provenance and Diagenesis of Impure Evaporitic Sedimentary Rocks on Meridiani Planum, Mars, in *Lunar and Planetary Science Conference*, vol. 36, edited by S. Mackwell and E. Stansbery.
- Li, R., S. W. Squyres, R. E. Arvidson, J. F. Bell, III, L. S. Crumpler, D. J. Des Marais, K. di, M. P. Golombek, J. Grant, J. Guinn, R. Greeley, R. L. Kirk, M. Maimone, L. H. Matthies, M. C. Malin, T. Parker, M. Sims, L. A. Soderblom, J. Wang, W. A. Watters,

P. Whelley, F. Xu, and Athena Science Team (2005), Results of Rover Localization and Topographic Mapping for the 2003 Mars Exploration Rover Mission, in *Lunar and Planetary Science Conference*, vol. 36, edited by S. Mackwell and E. Stansbery.

- Grant, J. A., M. P. Golombek, A. F. C. Haldemann, L. Crumpler, R. Li, W. A. Watters, and Athena Science Team (2005), Field Studies of Crater Gradation in Gusev Crater and Meridiani Planum Using the Mars Exploration Rovers, in *Workshop on the Role of Volatiles and Atmospheres on Martian Impact Craters, LPI Contributions*, vol. 1273, pp. 42–43.
- Calvin, W., S. Squyres, R. Arvidson, J. Bell, P. Christensen, K. Herkenhoff, B. Jolliff, G. Klingelhöffer, J. Farmer, W. Farrand, S. Gorevan, J. Grotzinger, A. Knoll, M. Madsen, R. Morris, S. McLennan, J. Rice, R. Rieder, L. Soderblom, P. de Souza, C. Weitz, A. Fallacaro, T. Glotch, W. Watters, and Athena Science Team (2004), “Blueberries”: A Summary of the Hematite Concretions Found at the Opportunity Landing Site, in *Second Conference on Early Mars: Geologic, Hydrologic, and Climatic Evolution and the Implications for Life*, edited by S. Clifford, J. Farmer, R. Haberle, H. Newsom, and T. Parker.
- Sullivan, R., D. Fike, M. Golombek, R. Greeley, J. Grotzinger, D. Jerolmack, G. Landis, M. Malin, L. Soderblom, S. Squyres, S. Thompson, W. Watters, and P. Whelley (2004), Aeolian Environments Observed by the Mars Exploration Rovers, *AGU Fall Meeting Abstracts*.
- Watters, W. A., D. A. Fike, R. Greeley, J. P. Grotzinger, D. J. Jerolmack, M. C. Malin, L. Soderblom, S. Squyres, R. Sullivan, and S. Thompson (2004), Aeolian Processes at Meridiani Planum, *AGU Fall Meeting Abstracts*.
- Watters, W. A., M. T. Zuber, and B. H. Hager (2003), Thermal Perturbations Caused by Large Impacts and Consequences for Mantle Convection, *AGU Fall Meeting Abstracts*.

*Wellesley College student coauthor.

Awards & External Grants

- Apgar Award for excellence in teaching, 2016 (Wellesley College)
- NASA Mars Data Analysis grant (PI), 2015-2018 (shared with co-I Caleb Fassett; NASA-Huntsville); *Modification of impact craters in diverse environments on Mars*
- NASA Lunar Data Analysis grant (co-I), 2016-2019 (subcontract from PI Caleb Fassett; NASA-Huntsville); *High resolution topography and radar observations of lunar craters and cratered surfaces*
- Diana Chapman Walsh assistant professorship, 2014-2017 (Wellesley College)
- Editors’ Citation for Excellence in Refereeing for JGR-Planets, 2011 (American Geophysical Union)
- NSF Graduate Research Fellow, 2001-2003 (U.S. National Science Foundation)
- Fulbright Fellow, 2000-2001 (U.S. Fulbright Foundation; U. of Oslo, Norway)
- Goldwater Scholar, 1998 (in mathematics and science, U.S. Barry Goldwater Foundation)

- Burchard Scholar, 1998 (in the humanities, MIT Dept. of Humanities & Social Sciences)
- Sigma Pi Sigma Physics Honor Society, elected 1998 (MIT Physics Dept.)

Invited talks & colloquia

- Brown University, Dept. Earth, Environmental, & Planetary Science; planetary sciences seminar; host: Prof. James Head III. 2016-10-27
- Massachusetts Institute of Technology, Dept. Earth, Atmospheric & Planetary Science; planetary sciences seminar; host: Dr. Jason Soderblom. 2015-02-19
- Harvard University, Dept. Earth & Planetary Science; department seminar; host: Prof. Francis MacDonald. 2013-11-18.
- U. Pennsylvania, Dept. Earth & Environmental Science; departmental seminar; host: Prof. Douglas Jerolmack. 2012-11-30.
- Wesleyan University, Dept. Earth & Environmental Sciences; departmental seminar; host: Prof. Martha Gilmore. 2012-11-15.
- Binghamton University, Dept. of Geological Sciences and Environmental Studies; departmental seminar; host: Prof. Tim Lowenstein. 2011-04-08
- Caltech Division of Planetary Sciences; division seminar; host: Prof. Edward Stolper, 2009-11-11.

Professional service

- External reviewer for NASA's Solar System Workings program (2016, 2017)
- Chair of the Planetary Nomenclature Subcommittee of the Planetary Crater Consortium (2015-present)
- Reviewer for articles for the journals *Icarus*, *Earth and Planetary Science Letters*, *Physics of the Earth & Planetary Interiors*, and *Journal of Geophysical Research-Planets*, (2011-present).
- NASA Mars Fundamental Research Panel (Oct. 18-22, 2010)

Academic work experience (post-doctoral)

- **Dept. Astronomy, Cornell University, Ithaca, NY, USA** (2009-June, 2011): Post-doctoral Research Associate. Evolution of the Meridiani and Gusev landing sites, especially the origin of polygonal fracturing at both locations via a combination of numerical modeling, morphometric analysis, and field-work in Death Valley, California. Part of my work involved leading an effort to gather observations required for a structural analysis of Santa Maria Crater near the MER-Opportunity landing site at Meridiani Planum (Supervisor: Prof. Steve Squyres, with funding from the MER and HiRISE missions.)