Kevin W. Lewis

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Earth and Planetary Sciences, Johns Hopkins University, Baltimore, MD 21218

Positions

Start 9/2014	*Assistant Professor* Johns Hopkins University Department of Earth and Planetary Sciences
2011–2014	*Associate Research Scholar* Princeton University Department of Geosciences
2009–2011	*Hess Postdoctoral Fellow* Princeton University Department of Geosciences
2003–2009	*Graduate Research & Teaching Assistant* California Institute of Technology Division of Geological and Planetary Sciences
1999–2003	*Research Assistant* Tufts University Departments of Physics, Chemistry

Education

2009	California Institute of Technology (Pasadena, CA) *Ph. D.*, Planetary Science
2003	Tufts University (Medford, MA) *B.S.*, Physics, Mathematics, Astrophysics

Awards

2014	NASA Group Achievement Award, MSL Science Team
2011	NASA Group Achievement Award, HiRISE Science Team
2009–2011	Harry Hess Postdoctoral Fellowship
2008	NASA Group Achievement Award, MER Science Team
2007–2009	NASA Earth and Space Science Fellowship
2006, 2007	Richard H. Jahns Teaching Prize, Caltech
2007	Recognition of Excellence in Teaching, Caltech Acad. Res. Council
2003	Henshaw Fellowship, Caltech
2003	Amos Emerson Dolbear Prize in Physics, Tufts Univ.
2002	F. W. Pote Memorial Fund Scholarship in Physics, Tufts Univ.

Service

Reviewer	Geophysical Review Letters, Journal of Geophysical Research, Planetary and Space Sciences, Icarus, Science, Nature Geoscience, Geological Society of America Bulletin
Reviewer	Mars Data Analysis Program, Mars Fundamental Research Program, Bilateral Science Foundation, Planetary Geology & Geophysics
Reviewer	Planetary Data System
2009-10	Lunar and Planetary Science Conference Organizing Committee

Funding

2012–2015	**NASA, MSL Participating Scientist (PI)** *Unlocking the Geologic Record: Quantitative Stratigraphy with the Mars Science Laboratory*
2011–2014	**NASA, Planetary Mission Data Analysis (Science PI)** *Structure and Evolution of the Venusian Lithosphere: Statistically Robust Localized Analysis of Magellan Gravity and Topography*
2007–2009	**NASA, Earth and Space Sciences Fellowship** *Quantitative Geomorphology of Martian Layered Deposits*

Teaching

2012	Undergraduate Research Mentor *Junior, Senior Thesis Project mentor, Gabriel Eggers, '13*
Fall 2009	Earth's Changing Surface and Climate *Field Assistant, Research Project Mentor; Instructors: Adam Maloof, Frederik Simons*
Spring 2005,8	Introduction to Planetary Surfaces *Teaching Assistant; Instructor: Oded Aharonson*
Spring 2006–7	Earth and Environment *Research Project Mentor; Instructor: Michael Brown*
Fall 2006	Mineralogy *Teaching Assistant; Instructor: George Rossman*
Fall 2005	Geomorphology and Stratigraphy *Teaching Assistant; Instructor: Kerry Sieh*

Publications

[1] K. A. Farley, C. Malespin, P. Mahaffy, J. P. Grotzinger, P. M. Vasconcelos, R. E. Milliken, M. Malin, K. S. Edgett, A. A. Pavlov, J. A. Hurowitz, J. A. Grant, H. B. Miller, R. Arvidson, L. Beegle, F. Calef, P. G. Conrad, W. E. Dietrich, J. Eigenbrode, R. Gellert, S. Gupta, V. Hamilton, D. M. Hassler, K.W. Lewis, S. M. McLennan, D. Ming, R. Navarro-Gonzalez, S. P. Schwenzer, A. Steele, E. M. Stolper, D. Y. Sumner, D. Vaniman, A. Vasavada, K. Williford, R. F. Wimmer-Schweingruber, and the MSL Science Team. In Situ Radiometric and Exposure Age Dating of the Martian Surface. *Science*, 343(6169), 2014.

[2] J. P. Grotzinger, D. Y. Sumner, L. C. Kah, K. Stack, S. Gupta, L. Edgar, D. Rubin, K. Lewis, J. Schieber, N. Mangold, R. Milliken, P. G. Conrad, D. DesMarais, J. Farmer, K. Siebach, F. Calef, J. Hurowitz, S. M. McLennan, D. Ming, D. Vaniman, J. Crisp, A. Vasavada, K. S. Edgett, M. Malin, D. Blake, R. Gellert, P. Mahaffy, R. C. Wiens, S. Maurice, J. A. Grant, S. Wilson, R. C. Anderson, L. Beegle, R. Arvidson, B. Hallet, R. S. Sletten, M. Rice, J. Bell, J. Griffes, B. Ehlmann, R. B. Anderson, T. F. Bristow, W. E. Dietrich, G. Dromart, J. Eigenbrode, A. Fraeman, C. Hardgrove, K. Herkenhoff, L. Jandura, G. Kocurek, S. Lee, L. A. Leshin, R. Leveille, D. Limonadi, J. Maki, S. McCloskey, M. Meyer, M. Minitti, H. Newsom, D. Oehler, A. Okon, M. Palucis, T. Parker, S. Rowland, M. Schmidt, S. Squyres, A. Steele, E. Stolper, R. Summons, A. Treiman, R. Williams, A. Yingst, and MSL Science Team. A Habitable Fluvio-Lacustrine Environment at Yellowknife Bay, Gale Crater, Mars. *Science*, 343(6169), 2014.

[3] K. W. Lewis and O. Aharonson. Global distribution and geologic setting of cyclic sedimentary rocks on mars. *J. Geophys. Res.*, 2014. in review.

[4] S. M. McLennan, R. B. Anderson, J. F. Bell, J. C. Bridges, F. Calef, J. L. Campbell, B. C. Clark, S. Clegg, P. Conrad, A. Cousin, D. J. Des Marais, G. Dromart, M. D. Dyar, L. A. Edgar, B. L. Ehlmann, C. Fabre, O. Forni, O. Gasnault, R. Gellert, S. Gordon, J. A. Grant, J. P. Grotzinger, S. Gupta, K. E. Herkenhoff, J. A. Hurowitz, P. L. King, S. Le Mou lic, L. A. Leshin, R. L veill, K. W. Lewis, N. Mangold, S. Maurice, D. W. Ming, R. V. Morris, M. Nachon, H. E. Newsom, A. M. Ollila, G. M. Perrett, M. S. Rice, M. E. Schmidt, S. P. Schwenzer, K. Stack, E. M. Stolper, D. Y. Sumner, A. H. Treiman, S. VanBommel, D. T. Vaniman, A. Vasavada, R. C. Wiens, R. A. Yingst, and MSL Science Team. Elemental Geochemistry of Sedimentary Rocks at Yellowknife Bay, Gale Crater, Mars. *Science*, 343(6169), 2014.

[5] D. W. Ming, P. D. Archer, D. P. Glavin, J. L. Eigenbrode, H. B. Franz, B. Sutter, A. E. Brunner, J. C. Stern, C. Freissinet, A. C. McAdam, P. R. Mahaffy, M. Cabane, P. Coll, J. L. Campbell, S. K. Atreya, P. B. Niles, J. F. Bell, D. L. Bish, W. B. Brinckerhoff, A. Buch, P. G. Conrad, D. J. Des Marais, B. L. Ehlmann, A. G. Fair n, K. Farley, G. J. Flesch, P. Francois, R. Gellert, J. A. Grant, J. P. Grotzinger, S. Gupta, K. E. Herkenhoff, J. A. Hurowitz, L. A. Leshin, K. W. Lewis, S. M. McLennan, K. E. Miller, J. Moersch, R. V. Morris, R. Navarro-Gonzalez, A. A. Pavlov, G. M. Perrett, I. Pradler, S. W. Squyres, R. E. Summons, A. Steele, E. M. Stolper, D. Y. Sumner, C. Szopa, S. Teinturier, M. G. Trainer, A. H. Treiman, D. T. Vaniman, A. R. Vasavada, C. R. Webster, J. J. Wray, R. A. Yingst, and MSL Science Team. Volatile and Organic Compositions of Sedimentary Rocks in Yellowknife Bay, Gale Crater, Mars. *Science*, 343(6169), 2014.

[6] M. E. Schmidt, J. L. Campbell, R. Gellert, G. M. Perrett, A. H. Treiman, D. L. Blaney, A. Olilla, F. J. Calef, L. Edgar, B. E. Elliott, J. Grotzinger, J. Hurowitz, P. L. King, M. E. Minitti, V. Sautter, K. Stack, J. A. Berger, J. C. Bridges, B. L. Ehlmann, O. Forni, L. A. Leshin, K. W. Lewis, S. M. McLennan, D. W. Ming, H. Newsom, I. Pradler, S. W. Squyres, E. M. Stolper, L. Thompson, S. VanBommel, and R. C. Wiens. Geochemical diversity in first rocks examined by the Curiosity Rover in Gale Crater: Evidence for and significance of an alkali and volatile-rich igneous source. *J. Geophys. Res.*, 2014.

[7] D. F. Blake, R. V. Morris, G. Kocurek, S. M. Morrison, R. T. Downs, D. Bish, D. W. Ming, K. S. Edgett, D. Rubin, W. Goetz, M. B. Madsen, R. Sullivan, R. Gellert, I. Campbell, A. H. Treiman, S. M. McLennan, A. S. Yen, J. Grotzinger, D. T. Vaniman, S. J. Chipera, C. N. Achilles, E. B. Rampe, D. Sumner, P.-Y. Meslin, S. Maurice, O. Forni, O. Gasnault, M. Fisk, M. Schmidt, P. Mahaffy, L. A. Leshin, D. Glavin, A. Steele, C. Freissinet, R. Navarro-Gonzlez, R. A. Yingst, L. C. Kah, N. Bridges, K. W. Lewis, T. F. Bristow, J. D. Farmer, J. A. Crisp, E. M. Stolper, D. J. Des Marais, P. Sarrazin, and the MSL Science Team. Curiosity at Gale crater, Mars: Characterization and analysis of the Rocknest sand shadow. *Science*, 341(6153):1239505, 2013.

[8] E. S. Kite, K. W. Lewis, M. P. Lamb, C. E. Newman, and M. I. Richardson. Growth and form of the mound in Gale Crater, Mars: Slope-wind enhanced erosion and transport. *Geology*, 41(5):543–546, 2013.

[9] R. M. E. Williams, J. P. Grotzinger, W. E. Dietrich, S. Gupta, D. Y. Sumner, R. C. Wiens, N. Mangold, M. C. Malin, K. S. Edgett, S. Maurice, O. Forni, O. Gasnault, A. Ollila, H. E. Newsom, G. Dromart, M. C. Palucis, R. A. Yingst, R. B. Anderson, K. E. Herkenhoff, S. Le Moulic, W. Goetz, M. B. Madsen, A. Koefoed, J. K. Jensen, J. C. Bridges, S. P. Schwenzer, K. W. Lewis, K. M. Stack, D. Rubin, L. C. Kah, J. F. Bell, J. D. Farmer, R. Sullivan, T. Van Beek, D. L. Blaney, O. Pariser, R. G. Deen, and the MSL Science Team. Martian Fluvial Conglomerates at Gale Crater. *Science*, 340(6136):1068–1072, 2013.

[10] K. W. Lewis and F. J. Simons. Local spectral variability and the origin of the martian crustal magnetic field. *Geophys. Res. Lett.*, 39(18), 2012.

[11] A. S. McEwen, M. E. Banks, N. Baugh, K. Becker, A. Boyd, J. W. Bergstrom, R. A. Beyer, E. Bortolini, N. T. Bridges, S. Byrne, B. Castalia, F. C. Chuang, L. S. Crumpler, I. Daubar, A. K. Davatzes, D. G. Deardorff, A. DeJong, W. A. Delamere, E. Noe Dobrea, C. M. Dundas, E. M. Eliason, Y. Espinoza, A. Fennema, K. E. Fishbaugh, T. Forrester, P. E. Geissler, J. A. Grant, J. L. Griffes, J. P. Grotzinger, V. C. Gulick, C. J. Hansen, K. E. Herkenhoff, R. Heyd, W. L. Jaeger, D. Jones, B. Kanefsky, L. Keszthelyi, R. King, R. L. Kirk, K. J. Kolb, J. Lasco, A. Lefort, R. Leis, K. W. Lewis, S. Martinez-Alonso, S. Mattson, G. McArthur, M. T. Mellon, J. M. Metz, M. P. Milazzo, R. E. Milliken, T. Motazedian, C. H. Okubo, A. Ortiz, A. J. Philippoff, J. Plassmann, A. Polit, P. S. Russell, C. Schaller, M. L. Searls, T. Spriggs, S. W. Squyres, S. Tarr, N. Thomas, B. J. Thomson, L. L. Tornabene, C. Van Houten, C. Verba, C. M. Weitz, and J. J. Wray. The High Resolution Imaging Science Experiment (HiRISE) during MRO's Primary Science Phase (PSP). *Icarus*, 205(1):2–37, 2012.

[12] J.C. Andrews-Hanna and K.W. Lewis. Early Mars hydrology: 2. Hydrological evolution in the Noachian and Hesperian epochs. *J. Geophys. Res.*, 116(E2):E02007, 2011.

[13] L. S. Crumpler, R. E. Arvidson, S. W. Squyres, T. McCoy, A. Yingst, S. Ruff, W. Farrand, H. Y. McSween, M. Powell, D. W. Ming, R. Morris, J. Bell, J. Grant, R. Greeley, D. Des Marais, M. Schmidt, N. Cabrol, A. Haldemann, K. W. Lewis, A. Wang, C. Schroder, D. Blaney, B. Cohen, A. Yen, J. Farmer, R. Gellert, E¿ Guinness, K. Herkenhoff, J. Johnson, G. Klingelhofer, A. McEwen, J. Rice, M. Rice, P. deSouza, and J. Hurowitz. Field reconnaissance geologic mapping of the columbia hills, mars, based on mars exploration rover spirit and mro hirise observations. *J. Geophys. Res.*, 116(E7), 2011.

[14] K. W. Lewis, T. L. Keeler, and A. C. Maloof. Matstrat: New software for plotting and analyzing stratigraphic data. *Eos*, 92:37–38, 2011.

[15] J.M. Metz, J.P. Grotzinger, D.M. Rubin, K.W. Lewis, S.W. Squyres, and J.F. Bell III. Sulfate-rich eolian and wet interdune deposits, erebus crater, meridiani planum, mars. *Journal of Sedimentary Research*, 79(5):247, 2009.

[16] LH Roach, JF Mustard, SL Murchie, JP Bibring, F. Forget, KW Lewis, O. Aharonson, M. Vincendon, and JL Bishop. Testing evidence of recent hydration state change in sulfates on mars. *J. Geophys. Res*, 114, 2009.

[17] R. E. Arvidson, S. W. Ruff, R. V. Morris, D. W. Ming, L. S. Crumpler, A. S. Yen, S. W. Squyres, R. J. Sullivan, J. F. Bell III, N. A. Cabrol, B. C. Clark, W. H. Farrand, R. Gellert, R. Greenberger, J. A. Grant, E. A. Guinness, K. E. Herkenhoff, J. A. Hurowitz, J. R. Johnson, G. Klingelhöfer, K. W. Lewis, R. Li, T. J. McCoy, J. Moersch, H. Y. McSween, S. L. Murchie, M. Schmidt, C. Schröder, A. Wang, S. Wiseman, M. B. Madsen, W. Goetz, and S. M. McLennan. Spirit Mars rover mission to the Columbia Hills, Gusev Crater: Mission overview and selected results from the Cumberland Ridge to Home Plate. *J. Geophys. Res.*, 113:E12S33, 2008.

[18] A Hayes, O Aharonson, P Callahan, C Elachi, Y Gim, R Kirk, K Lewis, R Lopes, R Lorenz, J Lunine, et al. Hydrocarbon lakes on Titan: Distribution and interaction with a porous regolith. *Geophys. Res. Lett.*, 35(9), 2008.

[19] K. W. Lewis, O. Aharonson, J. P. Grotzinger, R. L. Kirk, A. S. McEwen, and T.-A. Suer. Quasi-periodic bedding in the sedimentary rock record of Mars. *Science*, 322:1532–, 2008.

[20] K. W. Lewis, O. Aharonson, J. P. Grotzinger, S. W. Squyres, J. F. Bell III, L. S. Crumpler, and M. E. Schmidt. Structure and stratigraphy of Home Plate from the Spirit Mars Exploration Rover. *J. Geophys. Res.*, 113:E12S36, 2008.

[21] C. Okubo, K. W. Lewis, A. S. McEwen, and R. L. Kirk. Relative age of interior layered deposits in southwest candor chasma based on high-resolution structural mapping. *J. Geophys. Res.*, 2008.

[22] M. E. Schmidt, S. W. Ruff, T. J. McCoy, W. H. Farrand, J. R. Johnson, R. Gellert, D. W. Ming, R. V. Morris, N. Cabrol, K .W. Lewis, and C. Schröder. Hydrothermal origin of halogens at Home Plate, Gusev crater. *J. Geophys. Res.*, 113:E06S12, 2008.

[23] S. W. Squyres, O. Aharonson, B. C. Clark, B. A. Cohen, L. Crumpler, P. A. de Souza, W. H. Farrand, R. Gellert, J. Grant, J. P. Grotzinger, A. F. C. Haldemann, J. R. Johnson, G. Klingelhöfer, K. W. Lewis, R. Li, T. McCoy, A. S. McEwen, H. Y. McSween, D. W. Ming, J. M. Moore, R. V. Morris, T. J. Parker, J. W. Rice Jr., S. Ruff, M. Schmidt, C. Schröder, L. A. Soderblom, and A. Yen. Pyroclastic activity at Home Plate in Gusev crater, Mars. *Science*, 316:738–742, May 2007.

[24] K. W. Lewis and O. Aharonson. Stratigraphic analysis of the distributary fan in Eberswalde crater using stereo imagery. *J. Geophys. Res.*, 111(E06001), 2006.

[25] J. P. Grotzinger, 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, and W. Watters. Stratigraphy and sedimentology of a dry to wet eolian depositional system, Burns formation, Meridiani Planum, Mars. *Earth Planet. Sci. Lett*, 240:11–72, 2005.