

Bethany L. Ehlmann

California Institute of Technology
1200 E. California Blvd.
MC 150-21
Pasadena, CA 91125 USA

ehlmann@caltech.edu
Caltech office: +1 626.395.6720
JPL office: +1 818.354.2027
Fax: +1 626.568.0935

EDUCATION

Ph.D., 2010; **Sc. M.**, 2008, Brown University, Geological Sciences (advisor, J. Mustard)
M.Sc. by research, 2007, University of Oxford, Geography (Geomorphology; advisor, H. Viles)
M.Sc. with distinction, 2005, Univ. of Oxford, Environ. Change & Management (advisor, J. Boardman)
A.B. summa cum laude, 2004, Washington University in St. Louis (advisor, R. Arvidson)

Majors: Earth & Planetary Sciences, Environmental Studies; Minor: Mathematics

International Baccalaureate Diploma, Rickards High School, Tallahassee, Florida, 2000

Additional Training:

Nordic/NASA Summer School: Water, Ice and the Origin of Life in the Universe, Iceland, 2009

Vatican Observatory Summer School in Astronomy & Astrophysics, Castel Gandolfo, Italy, 2005

Rainforest to Reef Program: Marine Geology, Coastal Sedimentology, James Cook Univ., Australia, 2004

School for International Training, Development and Conservation Program, Panamá, Sept-Dec 2002

PROFESSIONAL EXPERIENCE

Professor of Planetary Science, *Division of Geological & Planetary Sciences, California Institute of Technology*, 2017-present; Assistant Professor 2011-2017; **Associate Director, Keck Institute for Space Studies** 2018-present

Research Scientist, Jet Propulsion Laboratory, *California Institute of Technology*, 2011-2020

Lunar Trailblazer, Principal Investigator, 2019-present

MaMISS ExoMars, Collaborator, 2019-present

EMIT (Earth Surface Mineral Dust Source Investigation), Co-I, 2018-present

Mars 2020 mission, Mastcam-Z, Co-I; SHERLOC, Co-I, 2014-present

Mars Science Laboratory Participating Scientist, 2011-present

Dawn Science Team, Affiliate, 2015-2020

Compact Reconnaissance Imaging Spectrometer for Mars (CRISM) Science Team, Deputy Principal Investigator, 2017-present; **Co-Investigator**, 2013-present; **Collaborator** 2006-2013

European Union Marie Curie Fellow, *Institut d'Astrophysique Spatiale, Université Paris-Sud XI*, France, 2010-2011

Graduate Research Fellow, *Brown University*, 2006-2010

Postgraduate Researcher, *School of Geography & Environment, Environmental Change Institute, University of Oxford*, 2004-2006.

Mars Exploration Rovers (MER) Athena Science Team, Science Collaborator, 2003-2004

Undergraduate Researcher, *Remote Sensing Laboratory, Washington University*, 2001-2004

Space Studies Board Intern, *National Research Council, National Academy of Sciences*, 2003

Student Science Consultant, *Interdisciplinary Enviro. Law Clinic, Washington Univ. School of Law*, 2003

Research Associate, *NASA Astrobiology Academy, Ames Research Center*, 2002

AWARDS AND FELLOWSHIPS

Urey Prize, Division for Planetary Sciences, American Astronomical Society (2017)

Macelwane Medal, American Geophysical Union (2015); AGU Fellow (2015)

Kavli Fellow, National Academy of Sciences (2015)

Mineralogical Society of America, Distinguished Lecturer (2014-2015)

National Geographic Emerging Explorer, 125th anniversary class (2013)

NASA Group Achievement Award, MSL Science Office Development and Operations Team (2013)

NASA Group Achievement Award, MSL ChemCam Instrument Development & Science Team (2013)

Zeldovich Medal, Comm. B (Planetary Science), Committee on Space Research (COSPAR) and Russian Academy of Sciences (2012)
Editors' Citation for Excellence in Refereeing for *Geophysical Research Letters* (2012)
Joukowsky Family Foundation Outstanding Dissertation Award, Brown University (2010)
Sherwood Chang-Eliot Kalmbach Award for Excellence in Astrobiology Research, student speaker award at the Gordon Origins of Life conference (2010)
Best student oral presentation, runner-up, International Clay Conference, Italy (2009)
Pellas-Ryder Award, best student-led, peer-reviewed planetary sciences paper, Geological Society of America and Meteoritical Society (2009)
Best Student Paper Award, Planetary Sciences Section, American Geophys. Union Fall Meeting (2008)
NASA Group Achievement Award, Mars Exploration Rover Science Operations Team (2005)
National Science Foundation Graduate Research Fellowship (2004-2009)
Rhodes Scholar (Missouri and Keble/Hertford, 2004)
Morris K. Udall Scholar in Environmental Studies (2002, 2003)
Barry M. Goldwater Scholar in Science, Mathematics, and Engineering (2002)

TEACHING EXPERIENCE

Ge151, Caltech. Fundamentals of Planetary Surfaces, Fall 2013-2020
Ge157c, Caltech. Remote Sensing for Environmental & Geological Applications, Spr. 2013-2019, 2021
Ge194, Caltech. Special Topics in Planetary Science:
Current Issues in Understanding Reservoirs of Water on Mars, winter 2012
Isotopic Tracers of Mars Atmosphere-Surface Interactions, spring 2015
Scientific Issues in Mars Rover Landing Site Selection, winter 2016 and spring 2016 (led and co-taught as a multi-institutional seminar with Cornell, Purdue, U Copenhagen, Arizona State, Western Washington Univ., SUNY-Stony Brook) ([weblink](#))
Lecturer, The 1st International Winter School for Aquaplanetology, Koyasan University, Japan, February 28 - March 3, 2019
Lecturer, Workshop in Geology and Geophysics of the Solar System, Petnica Science Center, Petnica, Serbia, June 23rd-July 1st 2018
Nordic Network of Astrobiology Lecturer, Impacts and their Role in the Evolution of Life, Saaremaa, Estonia, 25 July - 3 August 2017
NASA Astrobiology Institute Lecturer, International Summer School of Astrobiology 2011: Mars Exploration: Unveiling a Habitable Planet, Santander, Spain, June 27-July 1, 2011.
Brown University Sherdian Center Certificate IV: Teaching Consultant Program, Teaching Consultant 2009-2010; **Certificate I: Introduction to Reflective Teaching Practice**, five course seminar, May 2007
Teaching Assistant, GE133, Remote Sensing of the Environment, Brown University, 2010.
Teaching assistant, geosciences undergraduate spring break field trip, Brown University 2008
Tutor for Remote Sensing-GIS, Oxford University Hilary and Trinity terms 2005, Michaelmas term 2006. Hired by colleges to teach seminar courses in remote sensing (term-long and revision) for first-year Geography students (Mansfield, Worcester, St. Hilda's, Christ Church, Merton, Wadham, St. Edmond's Hall Colleges)
Teaching Assistant, EPSc 407 Remote Sensing, Washington University, 2003
Honorable Mention, Best Teaching Assistant, Earth & Planetary Sciences Dept., May 2003
Academic Tutor, Earth & Planetary Sci. Courses, Washington Univ., 2001-2002

ADVISING

Ph.D. advisor for

Brandon Rasmussen (Caltech 2025-anticipated)
Sergio Parra (Caltech 2024-anticipated; co-advised with Victoria Orphan)
Eva Scheller (Caltech, 2022-anticipated; co-advised with John Grotzinger)
Nathan Stein (Caltech 2020; co-advised with John Grotzinger)
Ellen Leask (Caltech, 2020)
Nancy Thomas (Caltech, 2019)

Daven Quinn (Caltech, 2018; co-advised with Jason Saleeby and John Grotzinger)
Jennifer Buz (Caltech, 2018; co-advised with Joe Kirschvink)
Lu Pan (Planetary Sciences, Caltech, 2017)
Mathieu Lapotre (Geology, Caltech, 2017; co-advised with Mike Lamb)

Advisor for projects with Jessica Watkins (UCLA, 2015), Peter Buhler (Caltech, 2018), Dana Anderson (Caltech, 2020), Peter Martin (Caltech, 2020), Cecilia Sanders (Caltech, 2021-anticipated), Kevin Roback (Caltech, 2021-anticipated)

Ph.D. Thesis Advisory/Examination Committee Member for Kathryn Stack (Caltech, 2014), Kirsten Siebach (Caltech, 2016), Joe O'Rourke (Caltech, 2016), Michael Wong (Caltech, 2018), Ian Wong (Caltech, 2018), Dana Anderson (Caltech-2019), Samantha Trumbo (Caltech-2020), Yangcheng Luo (Caltech-2023 anticipated)

Ph.D. Examination Committee Member: Renyu Hu (MIT, 2013), Steven Chemtob (Caltech, 2012), Cedric Pilorget (IAS-Orsay, 2012), Alejandro Soto (Caltech, 2011), Congcong Che (SUNY, 2011)

Postdoctoral advisor for

Valerie Fox (Washington University in St. Louis, 2017; now postdoc University of Minnesota)
William Rapin (Université de Toulouse, 2016; now CNRS research scientist, U. Toulouse)
Elena Amador (University of Washington, 2017; now science systems engineer at JPL)
Rebecca Greenberger (Brown Univ., 2015; now research scientist at Caltech)
Abigail Fraeman (Washington University, 2014; now research scientist at JPL)
Cedric Pilorget (IAS-Orsay, 2012; now research faculty at IAS-Orsay)
Christopher Edwards (Arizona State, 2012; now assistant professor at Northern Arizona University)

Undergraduate advisor for

Daniel Lo (Planetary Science '14; now graduate student at University of Arizona)
Valerie Pietrasz (Planetary Science, '16)
Tyler Perez (Planetary Science, '18)
Elise Cutts (Geology, '19)
Marcos Perex (Planetary Science '23)

Lunar Trailblazer Student Collaboration advisor (PCC student Caltech internship)

Hongyu Cui ('19/20), Emily Felder ('19/20), Winnie Jeng ('19/20), Liberty Locsin ('19/20)

SURF/SIP/high school summer student advisor for

Marcos Perez (Caltech '23)
Lauren Suezaki (Caltech '20)
Elise Cutts (Caltech '19; now graduate student, Harvard, geobiology)
Caue Borlina (U. Michigan '16; now graduate student at MIT, planetary sciences)
Cecilia Sanders (Harvard '16; now graduate student at Caltech, geology)
Jade Yang (Caltech '15)
Eyjolfur Gundmundsson (U. Reykjavik '13; now graduate student at U Chicago, medical physics)
Bryne Hadnott (WUSTL '13; now research scientist BlackSky imaging)
David Oh Smith (Troy High School, '13)

PROFESSIONAL SERVICE

Steering Committee Member; Vice-Chair, Mars Panel, Planetary Science Decadal Survey, National Academy of Sciences (July 2020-)
Board of Directors, The Planetary Society (2018- present); President (2020-present)
Editor for Planetary Science, *AGU Advances* journal (2019-present)
National Academy of Sciences, Committee on Astrobiology and Planetary Sciences (2016-present)
Mars Architecture Working Group (2019-2020)
PDS Reviewer, Dawn VIR dataset (2017-2020)
Mars 2020 Project Landing Site Working Group (2016-2019)

iMOST Report Section Lead. “The Potential Science and Engineering Value of Samples Delivered to Earth by Mars Sample Return”, Report of the International MSR Objectives and Samples Team (iMOST), Beaty et al., 2018 (2017-2018).

Co-Chair and Organizer, Working Group on Rock-Hosted Life (2016-2018)

NASA Europa Lander Science Definition Team (2016-2017)

Organizing Committee, National Academy of Sciences, Arab-American Frontiers of Science, Engineering and Medicine symposium (2016)

MEPAG Next Orbiter Science Analysis Group (May 2015-September 2015)

Convener, Eighth International Conference on Mars, July 14-18, 2014, Pasadena, California.

Scientific Program Committee, Planetary Systems: A Synergistic View, Rencontres du Vietnam, Jan-July 2015

Independent Assessment Team, Mars 2020 Science Definition Team, March-April 2013

Integration Panel, Concepts & Approaches for Mars Exploration LPI Workshop, June 12-14, 2012, Houston, TX

Scientific Organizing Committee, Third International Conference on Early Mars, May 2012

Session convener, AGU, 2011, 2012; IEEE Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing, 2013; Clay Minerals Society Annual Meeting, 2014; Goldschmidt 2016

Reviewer for *Science*, *Nature*, *Geology*, *Earth & Planetary Science Letters*, *Journal of Geophysical Research*, *Icarus*, *Planetary & Space Science*, *Eos*; Associate editor, *JGR CRISM* special issue (2012); Associate editor, *JGR MSL* special issue (2017)

Review panel member and External grant reviewer for diverse NASA programs

Rhodes Scholar Selection Committee, District XIII (2009-2012; 2014-2016), District XVI (2017- ; Secretary, 2018-)

CALTECH & JPL SERVICE

Advisory Committee on Student Admissions and Recruitment (2020-present)

Provost Committee on International Collaboration (2020-present)

Planetary Science Option representative (2017-present)

Faculty advisor, Caltech Student SmallSats Group (2017-present)

Keck Institute for Space Studies Steering Committee (2012-present); Associate Director (2017-present)

Caltech-GPS GIS Committee (2012-present)

JPL Hiring Committee, Planetary Science: Mars (2013-2015); Small Bodies (2019-2020)

Caltech Planetary Science Faculty Search Committee chair (2018-2019)

Caltech Library Committee (2012-2018)

Core Committee, Caltech-GPS (2013)

University Resources Committee (sets annual operating budget), graduate student representative, Brown University (2008-2010)

Rhodes/Marshall Scholarship Nominating Committee, Brown University (2006-2009)

Geoclub (geoscience graduate student group), Treasurer (2007); Rep. to Grad Student Council (2008)

Rhodes Scholar Southern Africa Forum, executive committee member (2005-6)

Committee on Environmental Quality, Washington University, student rep. and co-chair (2002-4)

Student Union, Washington University, Senator, Academic Affairs committee co-chair (2001-4)

SELECTED OUTREACH

Featured scientist for Amazon Prime series, in production

Interviews for NOVA’s *The Planets*, 2019

National Geographic Children’s Books, ISBN: 978-1426327988, *Dr. E’s Super-Stellar Solar System*. By Bethany Ehlmann and Jennifer Swanson, 2018

The Guardian Op-Ed (invited) on Curiosity’s Exploration, 2013

IAG Planetary Geomorphology Image of the Month contributor (10/2008, 5/2010)

Curriculum preparation for the National Science Teachers Association. “What we can learn at different spectral and spatial resolutions: an example from Mars” (2009)
Mentor for JHU-APL’s CRISM Mars Exploration Student Data Team, Kickapoo H.S., Missouri (2007-2008)
Docent for RI Museum of Natural History “Mars 3-D” exhibit (2007)
Bi-semesterly Earth science lessons for 2nd & 4th grades at Vartan Gregorian Elementary School (2006-2010)

RESEARCH GRANTS (external)

PI, NASA Solar System Workings, Tracing Serpentinization Across the Solar System, 2020-2023, \$596k
PI (J. Dickson, Science PI), NASA Mars Data Analysis, Global Mapping at High Resolution of Glacial Units on Mars: Calculating Constraints on the Long-Term Evolution of the Martian Climate, 2020-2023, \$477k
PI (E. Amador, Science PI), NASA Mars Data Analysis, A Quantitative Approach to Understanding the Distribution and Diversity of Key Water-Formed Minerals on Mars, 2019-2022, \$188k
Co-I, NASA Solar System Workings (T. McCollom, PI), Investigation of Jarosite and Alunite in Jurassic Snadstones as Analogs for Layered Sulfate-bearing Deposits on Mars, 2019-2022, \$50k
Co-I, NASA ICEE-2 (S. Murchie, PI), Europa Lander Stereo Spectral Imaging System, \$36k
Co-I, NASA DALI 2018 (A. Fraeman, PI), An Ultra Compact Imaging Spectrometer for the Moon, 2019-2022, \$103k
Co-I, European Union (C. Garcia-Panda, PI), FRAGMENT: Mineral fragmentation and dust emission, 2018-2023, \$60k
PI (J. Dickson, Science PI), NASA Planetary Data Analysis Research and Tools, A Global CTX Mosaic of Mars, 2019-2022, \$438k
Co-I, NASA Solar System Workings (W. Calvin, PI), Mineralogy of Hawaiian Shield Volcano Drill Core: Implications for Surface and Subsurface Aqueous History on Mars, 2018-2021, \$306k
PI, NASA Emerging Worlds, Isolating and Understanding Spectrally Active Constituents in Carbonaceous Chondrites: Linking Meteorite to Telescopic and Spacecraft Data, 2018-2021, \$398k
Co-I, NASA Habitable Worlds (R. Hu, PI), Constraining Early Mars’s Atmosphere and Habitability with Isotopic Measurements, 2017-2020, \$33k
PI, NASA Mars Data Analysis, The Plumbing of Martian Lakes, 2017-2020, \$440k
Co-I, NASA Solar System Workings (L. Rampe, PI), Understanding Diagenetic Processes on the Martian Surface through Laboratory Studies of Partially Chloritized Smectite, 2016-2018
PI, NASA/JPL, MRO CRISM Extended Mission Investigation Support, 2016-2019, \$63k.
PI, NASA MSL Participating Scientist Program Recognizing Aqueous Alteration While Roving and Disentangling Diagenesis, 2016-2020, \$600k
PI, NASA Solar Systems Working, Identifying and Quantifying Phyllosilicate-Bearing Materials on Solar System Bodies, 2015-2018, \$398k
Co-I, NASA Mars 2020 Investigations (J. Bell, PI), Mastcam-Z: A Geologic, Stereoscopic, and Multispectral Investigation for the NASA Mars 2020 Rover Mission, 2015-2020, \$198k
Co-I, NASA Mars 2020 Investigations (L. Beegle, PI), SHERLOC: Scanning Habitable Environments with Raman & Luminescence for Organics & Chemicals for Mars 2020, 2015-2020
Co-I, NASA Exbiology (J. Kirschvink, PI), Application of New Paleomagnetic and Rock Magnetism Techniques to Test the Origin of Magnetites in ALH84001 Carbonates, 2015-2018
PI (Science PI, postdoc C. Pilonget), NASA Mars Fundamental Research Program, Long-term Stability of the Polar Reservoirs of CO₂ Ice on Mars, 2014-2017, \$170k
Co-I, NASA Mars Fundamental Research Program (T. McCollom, PI), Methods for Remote Detection of Mineral Composition for the Alunite-Jarosite Group, 2014-2017, \$72k
PI, National Geographic Society, Emerging Explorers grant, 2013-2017, \$10k
Co-I, NSF Astronomy and Astrophysics Research Grants (M. Brown, PI), The Nature of Europa’s Surface and Ocean from New Infrared Spectroscopy, 2013-2017
Co-PI, Caltech-JPL PDF/RTD program, Surface-Based Hyperspectral Imaging for Advanced Planetary and Terrestrial Applications, 2013-2015, \$299k
PI, NASA Mars Fundamental Research Program, Planetary Major Equipment A Hyperspectral VNIR camera for Microscopic- and Outcrop-Scale Studies, 2013-2014, \$200k

- PI, JPL RFP Mars Future Landing Sites.** Jezero Crater Basin Stratigraphy, Sedimentology, and Mineralogy. 2012-2013, \$35k
- PI, JPL RFP Mars Future Landing Sites.** Land-on science at the Nili Fossae Carbonate Plains: Aqueous Alteration of Ultramafic Rocks and Clay-Carbonate Stratigraphy, 2012-2013, \$35k.
- PI, NASA Mars Data Analysis.** Phyllosilicates of the Northern Lowlands: Implications for Aqueous Alteration on Mars, 2012-2016, \$310k
- PI, NASA MSL Participating Scientist Program** Recognizing Evidence of Aqueous Alteration While Roving: Linking hydrated mineral detections from orbit to MSL remote and in-situ measurements, 2012-2016, \$598k
- PI, NASA Mars Fundamental Research Program** “Aqueous Alteration of Ultramafic Rocks in Oman as an Analog for Understanding Martian Carbonates: a Remote, Field and Laboratory Investigation.” 2012-2016, \$252k

PEER-REVIEWED PUBLICATIONS & PROCEEDINGS

(student under direct supervision; student-led collaboration; *=ugrad or #=lab member under supervision)

150. Rapin, W.[#], Dromart, G., Rubin, D., Le Deit, L., Mangold, N., Edgar, L. A., Gasnault, O., Herkenhoff, K., Le Mouélic, S., Anderson, R. B., Maurice, S., Fox, V., **Ehlmann, B. L.**, Dickson, J. L., & Wiens, R. C. (2021). Alternating wet and dry depositional environments recorded in the stratigraphy of Mount Sharp at Gale crater, Mars. *Geology*, 49, 5pp. doi: 10.1130/G48519.1.
149. Scheller, E. L., **Ehlmann, B. L.**, Hu, R., Adams, D. J., & Yung, Y. L. (2021). Long-term drying of Mars by sequestration of ocean-scale volumes of water in the crust. *Science*, 372(6537), 56-62. doi: 10.1126/science.abc7717.
148. Wordsworth, R., Knoll, A. H., Hurowitz, J., Baum, M., **Ehlmann, B. L.**, Head, J. W., & Steakley, K. (2021). A coupled model of episodic warming, oxidation and geochemical transitions on early Mars. *Nature Geoscience* 14, 127–132. doi: 10.1038/s41561-021-00701-8.
147. Hayes, A. G., et al. (incl. **B.L. Ehlmann**) (2021). Pre-Flight Calibration of the Mars 2020 Rover Mastcam Zoom (Mastcam-Z) Multispectral, Stereoscopic Imager. *Space Science Reviews* 217, 29. doi: 10.1007/s11214-021-00795-x.
146. Bell, J. F., et al. (incl. **B.L. Ehlmann**) (2021). The Mars 2020 Perseverance Rover Mast Camera Zoom (Mastcam-Z) Multispectral, Stereoscopic Imaging Investigation. *Space Science Reviews* 217, 24. doi: 10.1007/s11214-020-00755-x.
145. Kinch, KM, et al. (incl. **B.L. Ehlmann**) Radiometric Calibration Targets for the Mastcam-Z Camera on the Mars 2020 Rover Mission, *Space Science Reviews* 216, 141. doi: 10.1007/s11214-020-00774-8.
144. Kurokawa, H., **Ehlmann, B. L.**, De Sanctis, M. C., Lapôtre, M. G. A., Usui, T., Stein, N. T., et al. (2020). A probabilistic approach to determination of Ceres' average surface composition from dawn visible-infrared mapping Spectrometer and Gamma Ray and Neutron Detector data. *Journal of Geophysical Research: Planets*, 125, e2020JE006606. doi:10.1029/2020JE006606
143. Green, R. et al. (incl. **BL Ehlmann**) (2020). The Earth Surface Mineral Dust Source Investigation: An Earth Science Imaging Spectroscopy Mission. In 2020 *IEEE Aerospace Conference* (pp. 1–15). doi: 10.1109/AERO47225.2020.9172731
142. Scheller, E. L., & **Ehlmann, B. L.** (2020). Composition, stratigraphy, and geological history of the Noachian Basement surrounding the Isidis impact basin. *Journal of Geophysical Research: Planets*, 125, e2019JE006190. doi: 10.1029/2019JE006190
141. Greenberger, RN[#], **Ehlmann, BL**, Osinski, GR, Tornabene, LL, & Green, RO (2020). Compositional Heterogeneity of Impact Melt Rocks at the Houghton Impact Structure, Canada: Implications for Planetary Processes and Remote Sensing. *Journal of Geophysical Research: Planets*, 125, e2019JE006218. doi:10.1029/2019JE006218
140. Watkins, J.A., **BL Ehlmann**, A Yin (2020) Spatiotemporal evolution, mineralogical composition, and transport mechanisms of long-runout landslides in Valles Marineris, Mars. *Icarus*, 350 . Art. No. 113836
139. Rasmussen, BP, WM Calvin, **BL Ehlmann**, TF Bristow, N Lautze, AA Fraeman, JW DesOrmeau (2020) Characterizing low-temperature aqueous alteration of Mars-analog basalts from Mauna Kea at multiple scales. *American Mineralogist*, 105 (9). pp. 1306-1316. ISSN 0003-004X.
138. Smith, IB et al. (incl **BL Ehlmann**) (2020) The Holy Grail: A road map for unlocking the climate record stored within Mars' polar layered deposits. *Planetary and Space Science*, 184 . 104841.

137. Stein, N.T., D. Quinn, J. Grotzinger, C. Fedo, **B.L. Ehlmann**, K. Stack Morgan, L. Edgar, A. Fraeman, R. Deen. Regional structural orientation of the Mt. Sharp group revealed by in-situ dip measurements and stratigraphic correlations on the Vera Rubin ridge, submitted to *JGR-Planets*, doi: 10.1029/2019je006298
136. Thomas, N., **B.L. Ehlmann**, W. Rapin#, F. Rivera-Hernandez, N. Stein, J. Frydenvang, T. Gabriel, P-Y Meslin, S. Maurice, R. Wiens. Hydrogen Variability in the Murray Formation, Gale Crater, Mars, submitted to *JGR-Planets*, doi: 10.1029/2019je006289
135. Amador, ES# and **BL Ehlmann**, Early Mars, in *Planetary Astrobiology*, University of Arizona Press, 2020
134. Bubler, PB., A.P. Ingersoll, S. Piqueux, **B.L. Ehlmann**, P.O. Hayne. Co-Evolution of Mars' Atmosphere and Massive CO2 Ice Deposit. *Nature Astronomy*, 4(4). 364-371
133. Green, RO (incl. **BL Ehlmann**) et al. (2020) Earth Surface Mineral Dust Source Investigation: An Earth Science Imaging Spectroscopy Mission. *Proceedings IEEE Aerospace Conference*. 2020, pp. 1-15. ISBN 9781728127347.
132. Martin, PE., **BL Ehlmann**, NH Thomas, RC Wiens, JJR Hollis, LW Beegle, R Bhartia, SM Clegg, and DL Blaney, Studies of a Lacustrine-Volcanic Mars Analog Field Site with Mars-2020-like Instruments, *Earth & Space Science*, doi: 10.1029/2019EA000720
131. Murchie, SL, J-P Bibring, JL Bishop, J Carter, Y Langevin, F Poulet, JF Mustard, RE Arvidson, **BL Ehlmann**, KD Seelos, CE Viviano-Beck, L Riu. VSWIR spectral analyses of Mars from orbit using CRISM and OMEGA in *Remote Compositional Analysis*, ed. JL Bishop, JF Bell III, J Moersch, Cambridge University Press, doi: 10.1017/9781316888872.
130. Rossman, GR and **BL Ehlmann**, Electronic Spectra of Minerals in the Visible and Near-Infrared Regions, in *Remote Compositional Analysis*, ed. JL Bishop, JF Bell III, J Moersch, Cambridge University Press, doi: 10.1017/9781316888872.
129. Rapin, W.#, **B. L. Ehlmann**, G. Dromart, J. Schieber, N. Thomas, W.W. Fischer, V. Fox, N. Stein, M. Nachon, B. Clark, L. Kah, L. Thompson, H. A. Meyer, T.S.J. Gabriel, C. Hardgrove, N. Mangold, S. Clegg, R.C. Wiens, A. Vasavada. An interval of high salinity in ancient Gale crater lake, Mars. Submitted to *Nature Geoscience*, doi: 10.1038/s41561-019-0458-8
128. Thomas, N. H., **B. L. Ehlmann**, P.-Y. Meslin, W. Rapin, D. E. Anderson, F. Rivera-Hernández, O. Forni, S. Schröder, A. Cousin, N. Mangold, R. Gellert, O. Gasnault, and R. C. Wiens. N. H. Mars Science Laboratory Observations of Chloride Salts in Gale Crater, Mars. *Geophys. Res. Lett.*, doi: 10.1029/2019GL082764
127. Onstott, T.C., **B.L. Ehlmann**, H. Sapers, M. Coleman, M. Ivarsson, J.J. Marlow, A. Neubeck, P. Niles. Paleo-Rock-Hosted Life on Earth and the Search on Mars: a Review and Strategy for Exploration, submitted to *Astrobiology*, 19(10), doi:10.1089/ast.2018.1960
126. Quinn, DP., **BL Ehlmann**, A PCA-based framework for determining remotely-sensed geological surface orientations and their statistical quality, submitted to *Earth and Space Science*, 10.1029/2018EA000416, 2019.
125. Quinn, DP., **BL Ehlmann**, The deposition and alteration history of the northeast Syrtis Major layered sulfates, for *JGR-Planets*, submitted to *JGR-Planets*, 10.1029/2018JE005706, 2019.
124. Wong, I., M.E. Brown, J. Blacksberg, **B.L. Ehlmann**, A. Mahjoub. Hubble ultraviolet spectroscopy of Jupiter Trojans. *Astrophysical Journal*, 157(4), 10.3847/1538-3881/ab0e00.
123. Buz, J., **B.L. Ehlmann**, K. Kinch, M.B. Madsen, J.R. Johnson, M.S. Rice, J. Maki, J.F. Bell, Photometric characterization of Lucideon and Avian Technologies color standards including application for calibration of the Mastcam-Z instrument on the Mars 2020 rover, *Optical Engineering* 58(2), 027108 (2019), doi: 10.1117/1.OE.58.2.027108
122. Prettyman, TH, N Yamashita, E Ammannito, **BL Ehlmann**, HY McSween, DW Mittlefehldt, et al. Elemental composition and mineralogy of Vesta and Ceres: Distribution and origins of hydrogen-bearing species, *Icarus*, 318, 42-55, 2019
121. Yung, YL et al. (incl. **B. Ehlmann**) Methane on Mars and Habitability: Challenges and Responses. *Astrobiology*, 18 (10). pp. 1221-1242, 2018.
120. Lapotre, MGA, RC Ewing, CM Weitz, KW Lewis, MP Lamb, **BL Ehlmann**, DM Rubin. Morphologic Diversity of Martian Ripples: Implications for Large-Ripple Formation. *Geophysical Research Letters*, 45 (19). pp. 10229-10239.

119. Johnson, JR, Bell, JF III, Bender, S, Cloutis, E, **Ehlmann, B**, Fraeman, A, et al. Bagnold Dunes campaign phase 2: Visible/near-infrared reflectance spectroscopy of longitudinal ripple sands. *Geophysical Research Letters*, 45, 9480–9487. doi:10.1029/2018GL079025, 2018
118. Leask, EK, **Ehlmann, BL**, Dundar, MM, Murchie, SL, & Seelos, FP. Challenges in the search for perchlorate and other hydrated minerals with 2.1- μ m absorptions on Mars. *Geophysical Research Letters*, 45, 12,180–12,189. doi:10.1029/2018GL080077, 2018
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INVITED LECTURES

- 2021 Lunar Surface Innovation Consortium, GALCIT Caltech, Planetfest
- 2020 American Museum of Natural History, New York; Keck Institute for Space Studies, Caltech; TechCrunch conference
- 2019 Goldschmidt Conference Plenary Speaker, Barcelona, Spain; Japanese winter school on Aquaplanetology, Koyasan; Earth & Life Science Institute, Tokyo Tech; University of Texas; Astrobiology Science Conference Mars Plenary
- 2018 Massachusetts Institute of Technology; Earth and Life Sciences Institute, Tokyo Tech; University of California, Los Angeles; Arizona State University
- 2017 University of British Columbia, Harvard University, Max Planck Institute for Solar System Research, JHU Applied Physics Laboratory, NASA Night Sky Network
- 2016 AGU Union Public Outreach Event (featured panelist); IEEE WHISPERS (plenary speaker); Japan Society for the Promotion of Science (Washington, DC); Vatican Observatory Summer School; NASA Ames Summer Seminar Series (center-wide); JPL Mars seminar series
- 2015 Earth & Life Sciences Institute, Tokyo Tech; University of Toulouse, University of Utah, University of the Pacific, California State University, Chico; Mineralogical Society of Southern California; Kavli Symposium, Jerusalem
- 2014 University Massachusetts-Amherst; Southwest Research Institute; Silas Peirce Lecture, Boston University; McGill University; Lafayette College; Westchester University; California State University-Long Beach; Southwest Research Institute; Public event, National Geographic, Washington, DC; TED Youth, New York City
- 2013 Kongsberg Seminar, University of Oslo; University of Colorado; University of California, Santa Cruz; National Geographic Explorers Symposium, Washington, DC; Summer Science Program, Santa Barbara; LPL seminar, U. Arizona; Jackson School Geosciences, UT Austin
- 2012 National Geographic 50 Years of Robotic Solar System Exploration, Washington, DC; Division of Nuclear Physics Annual Meeting, Newport, CA; Earth & Space Sciences Colloquium, UCLA;

NAI Astrobiology seminar (webcast), University of Washington; Department of Geology, SUNY-Stony Brook; Geological Sciences Department, University of Nevada, Reno
2011 Division of Geological & Planetary Sciences, Caltech; Department of Astronomy, Cornell University; Department of Geological Sciences, Brown University; Universite de Lyon, France; The Open University, UK; Universite Toulouse, France; UCLA Planetary Science Seminar
2010 D. Foster Hewitt Lecture Series, Lehigh University; Universitat Bern; Universite de Poitiers
2009 Washington University in St. Louis; Planetary Sciences Seminar, Caltech PS seminar; JPL; NASA Ames; Indiana University
2008 Planetary Sciences Institute
2007 NASA Ames Academy for Exploration
2005 Oxford University Space and Astronomical Society
2004 Macquarie University, Australian Centre for Astrobiology

PROFESSIONAL ASSOCIATIONS

American Geophysical Union (since 2001), Fellow (since 2015)
Geological Society of America (since 2003)
Mineralogical Society of America (since 2009)
Division of Planetary Sciences, AAAS (since 2012)
British Society for Geomorphology (since 2005)
Clay Minerals Society (since 2009)
American Society for Photogrammetry and Remote Sensing (since 2014)
NASA Academy Alumni Association (since 2002; Executive Selection Board, 2005-9; Soffen Travel Grant Committee, 2006-9, 2011; Phone Interviewer, 2004, 2007, 2010, 2011)

ADDITIONAL SKILLS

Language: English (native), Spanish (advanced), French (intermediate)
TS clearance (SCI in process)
NOLS Wilderness First Responder
PADI Advanced Open Water Diver
IYT Skipper International Certificate of Competence