

MARISSA E. CAMERON

EARTH AND PLANETARY SCIENTIST



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La Crescenta, CA 91214

EDUCATION

DOCTOR OF PHILOSOPHY

Geology and Geophysics
University of Hawaii at Manoa
2018

MASTER OF SCIENCE

Geophysics
University of Texas at El Paso
2014

BACHELOR OF SCIENCE

Geology, *cum laude*
University of Texas at El Paso
2012

ASSOCIATE OF SCIENCE

Geology; General Studies
El Paso Community College
2009

SKILLS

ArcGIS

MATLAB

Fledermaus Visualization

Basic UNIX programming

Adobe Photoshop/Illustrator

Data manipulation and analysis

PROFESSIONAL PROFILE

Recent Ph.D. graduate in Geology and Geophysics with in-depth knowledge of icy satellite terrains, experience mapping planetary surfaces, and familiarity with a wide range of software in data processing, statistical analysis, and visualization.

RESEARCH AND EXPERIENCE

Research Assistant, University of Hawaii at Manoa, 2014 - 2018

Detailed mapping and characterization of geological features on Ganymede's surface using high-resolution Galileo imagery downloaded from PDS. Image processing was done with ISIS3 and georeferenced in ArcGIS for mapping. Map results were used in the development and application of tidally driven strike-slip Coulomb failure models for selected fractures.

Research and Teaching Assistant, University of Texas at El Paso, 2010 - 2014

Developed and applied tidally driven Coulomb failure model for icy fractures on Saturn's moon Enceladus and Jupiter's moon Europa. Developed visualizations and hands-on public outreach activities, focusing on grade school and family oriented events. Assisted with a course titled "Applications in Geoscience" and led software familiarization labs including MATLAB, Generic Mapping Tools, Fledermaus visualization, UNIX programming, and Adobe Illustrator and Photoshop.

Research Associate, NASA Ames Academy for Space Exploration, Summer of 2013

Used IDL, ENVI, and ArcGIS to analyze climate data collected from Antarctica dry valleys for input in a Mars analog model. Assisted with a group project building a flight-ready universal bioreactor platform capable of advanced testing methods for human biological systems.

Research Mentor, SOLARIS (Student Opportunity for Learning Advanced Research In geoScience), 2011 - 2012

Assisted a community college student with a geophysics research project. Set up real-time kinematic (RTK) survey equipment. Trained the student in Surfer, Adobe Illustrator and abstract writing.

INVITED TALKS

ThinkTech Hawaii TV Program, Remembering Cassini, September, 2017.

Geological Society of America Annual Meeting, Strike-Slip Tectonism on Ganymede: Investigating Coulomb Failure at a Global Scale, October, 2017.

NASA Jet Propulsion Laboratory, Mapping and Modeling Strike-slip Tectonism on Ganymede, January, 2017.

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ACTIVITIES & AWARDS

CIG (Computational Infrastructure for Geodynamics)
Crustal Deformation Modeling Workshop
2014

PRESENTATION AWARD

UTEP Geology Colloquium

1st place - 2013

2nd place - 2012

3rd place 2011

SCHOLARSHIP RECIPIENT

El Paso Gem and Mineral Society
2011

GRANT RECIPIENT

UTEP Pathways Research Program
2011

UTEP DEAN'S LIST

2004 - 2005

2011 - 2012

GRANTS

NASA Outer Planets
Research Program
NNX14AE15G

NASA Outer Planets
Research Program
NNG06GF44G

PUBLICATIONS

ME. Cameron, B.R. Smith-Konter, L. Burkhard, G.C. Collins, R.T. Pappalardo (2018), Morphological mapping of Ganymede: How does strike-slip tectonism play a role in the evolution of terrain types? *Icarus*, doi: 10.1016/j.icarus.2018.06.024.

ME. Cameron, B.R. Smith-Konter, L. Burkhard, G.C. Collins, D.A. Patthoff, R.T. Pappalardo (2018, in review), Investigating stress sources and fault parameters on Ganymede. *Icarus*.

ME. Cameron, B.R. Smith-Konter, L. Burkhard, G.C. Collins, D.A. Patthoff, R.T. Pappalardo, Ganymede then and now: How past eccentricity may have altered tidally driven Coulomb Failure. Manuscript in preparation for *EPSL*, expected submission July 2018.

ME. Cameron, A.L. Nahm, B.R. Smith-Konter, R.T. Pappalardo, Tidally driven Coulomb failure along Europa's Agenor Linea. Manuscript in preparation for *Icarus*, expected submission August 2018.

A.L. Nahm, **ME. Cameron**, B.R. Smith-Konter, R.T. Pappalardo, Stress Triggered faulting and displacement magnitude along Agenor Linea, Europa. Manuscript in preparation, *Icarus*.

B.B. Boston, S.M. Howell, J.D. Sleeper, A.A. Anderson, **ME. Cameron**, T.D. Sigurdardottir, J. Tree, H. Togia, B.R. Smith Konter, G.F. Moore, (2018), Seafloor Mapping at Your Fingertips: Setting Sail on Sonar Education with an Interactive Exhibit, *The Earth Scientist*, 34, 1, 11-15.

PROFESSIONAL MEETING ABSTRACTS

ME. Cameron, B.R. Smith-Konter, L. Burkhard, R.T. Pappalardo, G. C. Collins, Ganymede's stresses past and present: How evolving eccentricity effects tidally-driven Coulomb failure, *AGU*, 2017.

ME. Cameron, B.R. Smith-Konter, L. Burkhard, R.T. Pappalardo, G. C. Collins, Strike-slip tectonism on Ganymede: Investigating Coulomb failure at a global scale, *GSA*, 2017.

ME. Cameron, B.R. Smith-Konter, L. Burkhard, R.T. Pappalardo, G. C. Collins, Strike-slip tectonism and shear failure on Ganymede, *LPSC*, 2017.

ME. Cameron, B.R. Smith-Konter, L. Burkhard, R.T. Pappalardo, G. C. Collins, A case study on Uruk Sulcus, Ganymede: How variations in fault strike and stress distribution can affect shear failure, *AGU*, 2016.

ME. Cameron, B.R. Smith-Konter, L. Burkhard, R.T. Pappalardo, G. C. Collins, Strike-slip faulting on Ganymede: Morphological mapping and failure modeling, *LPSC*, 2016.

ME. Cameron, L. Burkhard, B.R. Smith-Konter, R.T. Pappalardo, G. C. Collins What causes an icy fault to slip? Investigating strike-slip failure conditions on Ganymede at Dardanus and Tiamat Sulcus, *AGU*, 2015.

ME. Cameron, B.R. Smith-Konter, R.T. Pappalardo, F. Siefert, G.C. Collins, What causes an icy fault to slip? Investigating the depth and frictional conditions for tidally driven Coulomb failure along major strike-slip faults of Europa and Ganymede, *DPS*, 2015.

ME. Cameron, L. Burkhard, B.R. Smith-Konter, R.T. Pappalardo, F. Siefert, G.C. Collins, Strike-slip mapping on Ganymede, *PMM*, 2015.

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PROFESSIONAL MEETING ABSTRACTS

F. Siefert, **ME. Cameron**, B.R. Smith-Konter, R.T. Pappalardo, G.C. Collins, Global morphological mapping of strike-slip structures on Ganymede, LPSC, 2015.

ME. Cameron, B.R. Smith-Konter, R.T. Pappalardo, Investigating Stress Sources and Fault Parameters Along Major StrikeSlip Linea on Europa, AGU, 2014.

B.R. Smith-Konter, **ME. Cameron**, F. Siefert, R.T. Pappalardo, Global morphological mapping of strike-slip structures on Ganymede, AGU, 2014.

ME. Cameron, B.R. Smith-Konter, R.T. Pappalardo, What causes an icy fault to slip? Investigating the depth and frictional conditions for tidally driven Coulomb failure along major strike-slip faults of Europa and Ganymede, DPS, 2014.

ME. Cameron, B.R. Smith-Konter, R.T. Pappalardo, Tidally driven Coulomb failure along Europa's Rhadamanthys Linea, AGU, 2013.

A.L. Nahm, **ME. Cameron**, B.R. Smith-Konter, R.T. Pappalardo, Displacement Magnitude and distribution along Agenor Linea, Europa: Effect of orbital eccentricity, GSA, 2013.

ME. Cameron, J. Heldmann, Physical and environmental characteristics of the periglacial environment of Earth and Mars, NASA Ames Academy, 2013.

ME. Cameron, B.R. Smith-Konter, G. C. Collins, R.T. Pappalardo, F. Nimmo, Tidally driven strike-slip failure mechanics on Ganymede, LPSC, 2013.

A.L. Nahm, **ME. Cameron**, B.R. Smith-Konter, R.T. Pappalardo, Stress-triggered faulting along Agenor Linea, Europa, LPSC, 2013.

ME. Cameron, B.R. Smith-Konter, R.T. Pappalardo, Shear failure of icy satellites: Presentday implications along Enceladus's Tiger Stripes and indications of past strikeslip faulting on Ganymede's Dardanus Sulcus, AGU, 2012.

A.L. Nahm, **ME. Cameron**, B.R. Smith-Konter, R.T. Pappalardo, Modeling of stress-triggered faulting and displacement magnitude along Agenor Linea, Europa, AGU, 2012.

B.R. Smith-Konter, T. Solis, **ME. Cameron**, Earthscope in 4D: Visualizing Earthquake Cycle Stress Evolution at Depth Along the San Andreas Fault System, GSA, 2012.

R.T. Pappalardo, B.R. Smith-Konter, **ME. Cameron**, L.C. DeRemer-Keeney, Strike-slip faulting on Ganymede, Now and Then, DPS, 2012.

A.L. Nahm, **ME. Cameron**, B.R. Smith-Konter, R.T. Pappalardo, Modeling of Stress Triggered Faulting at Agenor Linea, Europa, EGU, 2012.

ME. Cameron, A.L. Nahm, B.R. Smith-Konter, R.T. Pappalardo, Tidally driven Coulomb failure along Europa's Agenor Linea, LPSC, 2012.

A.A. Velasco, **ME. Cameron**, H. Gonzalez-Huizar, The Roles of Static and Dynamic Stresses in connecting earthquakes: Case studies of recent events, AGU 2011.