Hannah C.M. Susorney

Postdoctoral Fellow
Department of Earth, Atmospheric and Ocean Science
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EDUCATION

2017 Ph.D., **Johns Hopkins University**, Baltimore, Maryland
Earth and Planetary Science
Advisors: Olivier S. Barnouin & Darrell F. Strobel
Thesis: Using Altimetry to Investigate Impact Cratering in the Solar System

2015 M.A., **Johns Hopkins University**, Baltimore, Maryland
Earth and Planetary Science

2013 B.S., **Montana State University**, Bozeman, Montana
Major: Earth Science: Geology
Minor: Mathematics

RESEARCH EXPERIENCE

2017–present Postdoctoral Fellow, **University of British Columbia**, Vancouver, Canada
Advisor: Catherine L. Johnson

2013–2017 Graduate Research Assistant, **Johns Hopkins University**, Baltimore, Maryland
and **Johns Hopkins University Applied Physics Laboratory**, Laurel, Maryland
Advisor: Olivier S. Barnouin

2012, 2013 Intern, **Johns Hopkins University Applied Physics Laboratory**, Laurel, Maryland
Advisors: Carolyn M. Ernst, Nancy L. Chabot, and Olivier S. Barnouin

RESEARCH INTERESTS

Impact Cratering, Surface Roughness, Laser Altimetry, Surface Geology (asteroids and terrestrial planets), Impact Simulations, Polar Deposits

MISSION EXPERIENCE

OSIRIS-REx, OSIRIS-REx Laser Altimeter (OLA) Team Member 2017-present
OSIRIS-REx, Science Collaborator 2018-present

PUBLICATIONS

Publications in preparation and review

10. Barnouin O.S., et al., [inc. **Susorney, H.C.M.**] Overview of the OSIRIS-REx Altimetry Working Group Pipeline and Products (in prep.)
9. Kinczyk, M.J., Byrne, P.B., Prockter, L.M., **Susorney, H.C.M.**, and Barnouin, O. S. A morphological evaluation of crater degradation on Mercury: Revisiting crater classification with MESSENGER data (in prep.)
8. **Susorney, H.C.M.**, James, P. B., Johnson, C.L., Chabot, N.L., Ernst, C. M., Mazarico, E. M., Barnouin, O. S. and Neumann, G. A. Measuring the Thickness of Radar-Bright Deposits on Mercury from Individual Mercury Laser Altimeter (MLA) Tracks (in prep.)
7. **Susorney, H.C.M.**, Johnson, C.L., Barnouin, O.S., Daly, M.G., Seabrook, J., Bierhaus, E.B., and Lauretta, D.S. The Surface Roughness of 25143 Itokawa from the Hyabusa Laser Rangefinder and its Implications for Detecting Asteroid Interior Structure Using Topography (in prep.)
6. **Susorney, H.C.M.**, Barnouin, O.S. The Surface Roughness of 433 Eros from the NEAR-Shoemaker Laser Rangefinder (in review), Icarus.

Refereed Publications

5. **Susorney, H.C.M.**, Barnouin, O.S., Ernst, C.M., Stickle, A.M. The Surface Roughness of Large Craters on Mercury (accepted), J. Geophys. Res. Planets.
4. **Susorney, H.C.M.**, Barnouin, O.S., Stickle, A.M., Ernst, C.M., Crawford, D.A., and Cintala, M.J. The Role of Target Heterogeneity in Impact Crater Formation: Numerical Results (2017), Procedia Engineering, 204, 421-428.
3. **Susorney, H.C.M.**, Barnouin, O.S., Ernst, C.M., and Byrne, P.K. Surface Roughness from the Mercury Laser Altimeter (2017). J. Geophys. Res. Planets, 122 (6), 1372-1390.
2. Blewett, D.T., Stadermann, A.C., **Susorney, H.C.**, Ernst, C.M., Xiao, Z., Chabot, N.L., Denevi, B.W., Murchie, S.L., McCubbin, F.M., Kinczyk, M.J., Gillis-Davis, J.J., and Solomon, S.C. Analysis of MESSENGER high-resolution images of Mercury's hollows and implications for hollow formation (2016). J. Geophys. Res. Planets, 121(9), 1798-1813.
1. **Susorney, H.C.M.**, Barnouin, O.S., Ernst, C.M., Johnson, C.L. Impact Crater Morphology on Mercury from MESSENGER Altimetry and Imaging (2016). Icarus, 271, 180-193.

HONORS

Department of Johns Hopkins University Earth and Planetary Science Best 60 minute Journal Club Graduate Student Presentation	2016
Dwornik Award, Best Graduate Student Poster	2015
Johns Hopkins Applied Physics Laboratory Graduate Student Fellowship	2014-2017
Department of Johns Hopkins University Earth and Planetary Science Best 30 minute Journal Club Graduate Student Presentation	2014
National Science Foundation Graduate Research Fellowship, *Honorable Mention*	2014
Montana State University Top Geology Undergraduate	2013
Montana Space Grant Consortium Best Undergraduate Poster	2013
Montana State University Undergraduate Scholars Program Research Grant	2011, 2012
Montana State University Earth Science Colloquium Best Undergraduate Poster	2012

PROFESSIONAL SERVICE

NASA Small Body Advisory Group, *Committee Member* 2017-present
Reviewed Papers in: Journal of Geophysical Research-Planets, Advances in Space Research, Planetary and Space Sciences
NASA Review Panel, *External Reviewer* 2018
NASA Review Panel, *Panelist* 2017
NASA Review Panel, *Executive Secretary* 2015, 2017
Geological Society of America Student Advisory Council, *Chair* 2015-2016
Geological Society of America Planetary Geology Division, *Student Representative* 2014-2016
Local Organizing Committee for the Geological Society of America Annual Meeting 2015

RESEARCH ACTIVITIES

Lunar Planetary Institute's Meteor Crater Field Camp, *Participant* Meteor Crater, AZ, October 2014
NSF International Research Experience for Students (IRES), *Participant* Hangzhou, China, October 2014

GRANTS AWARDED

Johns Hopkins University Applied Physics Laboratory Graduate Student Fellowship, *240k USD*, 2014–2017
Hopkins Extreme Materials Institute (HEMI) Student Travel Grant, *1k USD*, 2017
Hypervelocity Impact Society Alex Charters Student Scholar, *2k USD*, 2017
Asteroids, Comets, and Meteorites 2017 Travel Grant, *1k USD*, 2017

TEACHING EXPERIENCE

Johns Hopkins University
Guest Lecturer Planetary Surface Processes (1 lecture) Fall 2015
Guest Lecturer Tour of the Solar System (1 lecture) Spring 2015, 2016, 2017

Montana State University
Undergraduate Teaching Assistant for Honors Earth System Science Fall 2011, 2012

OUTREACH ACTIVITIES

Roots and Branches Elementary School West Baltimore, MD May 2015
- Presented on asteroids and impact craters to $\sim$ 200 elementary age children.

The Johns Hopkins University Applied Physics Lab Laurel, MD Summer 2012, 2013
- Produced Images of the Day for the MESSENGER Public Website
- Assisted in responding to the public's question about Mercury and the MESSENGER mission

Father Marquette Middle School Marquette, MI May 2012
- Presented an hour long talk to two 6th grade classes ($\sim$ 30 students each) about my experience study science in college and recent research activities I was involved in

SELECTED CONFERENCE ABSTRACTS

- **Susorney, H.C.M.,** James, P.B., et al., (2018) The thickness of Mercury's radar-bright deposits from the Mercury Laser Altimeter. Mercury Current and Future Research of the Innermost Planet , Abstract 6013. Columbia, MD USA.
- **Susorney, H.C.M.,** Johnson, C.L., Barnouin, O.S., Daly, M.G., Seabrook, J.A., Lauretta, D.S., and Bierhaus, E.B., (2018) The Global Surface Roughness of 25143 Itokawa. 49th Lunar and Planetary Science Conference 2018, Abstract 1066. Houston, TX. USA.
- **Susorney, H.C.M.,** Johnson, C.L., Barnouin, O.S., and Daly, M.G. (2017) Using Surface Roughness to Probe the Interior Structure of Asteroids. 2017 American Geophysical Union Fall Meeting. Abstract P24C-07. New Orleans, LA. USA
- **Susorney, H.C.M.,** Barnouin, O.S., Stickle, A.M., Ernst, C.M., Crawford, D.A., and Cintala, M.J. (2017) The Role of Target Heterogeneity in Impact Crater Formation: Numerical Results. 14th Hypervelocity Impact Symposium. Canterbury, United Kingdom.
- **Susorney, H.C.M.,** and Barnouin, O.S. (2017) The Global Surface Roughness of 433 Eros:Implications for the Geology of Eros. Parellel5.b.2, Asteroids, Comets, and Meteors 2017. Montevideo, Uruguay.
- **Susorney, H.C.M.,** and Barnouin, O.S. (2016) The Global Surface Roughness of 433 Eros. 48th AAS Division of Planetary Science Annual Meeting, 516.12. Pasadena, CA. USA.

COMPUTING SKILLS

Python, Unix, IDL, ISIS, Git, R, GMT, MatLab, LaTeX, CTH

MEMBERSHIPS

American Geophysical Union, Planetary Sciences Section, 2011-present
Geological Society of America, Planetary Geology Division, 2010-present
AAS Division of Planetary Science, 2015-present