Curriculum Vitae – Gregory J. Gosselin

Distinguished Postdoctoral Fellow
Institute for Geophysics
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Education

Ph.D., Planetary Science 2018 – 2024
"Unraveling the formation and evolution of Mercury's Caloris basin"
Advisors: Andrew M. Freed and Brandon C. Johnson
Purdue University, West Lafayette, IN

B.S., Geology with Mathematics Minor (Cum Laude) 2016 – 2018
James Madison University, Harrisonburg, VA

A.A.S., General Education (Summa Cum Laude) 2013 – 2015
Blue Ridge Community College, Weyers Cave, VA

Professional Appointments

University of Texas at Austin

2025 – Present	Distinguished Postdoctoral Fellow – Advisors: Sean Gulick & Cyril Grima

Purdue University

2024 – 2025	Postdoctoral Research Associate – Advisor: Brandon Johnson
2022 – 2024	NASA FINESST Fellow – Advisors: Andrew Freed and Brandon Johnson
2019 – 2022	NSF Graduate Research Fellow – Advisors: Andrew Freed and Brandon Johnson
2018 – 2019	Graduate Teaching Assistant
2018	Graduate Research Assistant

James Madison University

2017 – 2018	Undergraduate Teaching Assistant
2016 – 2018	Undergraduate Research Assistant

Publications

Gosselin, G. J., S. Marchi, B. C. Johnson, A. M. Freed, and J. Korenaga (2025). Impact generated topography facilitates habitable conditions on the early Earth. In prep.

Gosselin, G. J., A. M. Freed, and B. C. Johnson (2025). Formation of Caloris Basin's positive mass anomaly by thermal contraction during its postimpact evolution. In review, *Geophysical Research Letters*.

Gosselin, G. J., A. M. Freed, and B. C. Johnson (2023). Crustal block and muted ring development during the formation of Mercury's Caloris megabasin. *Journal of Geophysical Research: Planets,* 128, e2023JE007920, doi: 10.1029/2023JE007920

Denton, C. A., **G. J. Gosselin**, A. M. Freed, and B. C. Johnson (2023). The formation and evolution of Pluto's Sputnik basin prior to nitrogen ice fill. *Icarus*, 398, 115541, doi: 10.1016/j/icarus.2023.115541

Gochenour, J. A., R S. McGary, **G. J. Gosselin**, and B. S. Suranovic (2017). Investigating subsurface void spaces and groundwater in Cave Hill karst using resistivity. *NCKRI Symposium 7; Proceedings of the 2018 Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst*, doi: 10.5038/9780991000982.1041

Extramural Funding

Program:	NASA Planetary Science Research Program, FINESST
PI:	Andrew M. Freed
Role:	Future investigator
Period:	July 2022 – August 2024

Program:	NSF Graduate Research Fellowship Program
PI:	Andrew M. Freed
Role:	Graduate research fellow
Period:	June 2019 – July 2022

Selected Conference Abstracts

† Denotes talk

†**Gosselin, G. J.**, A. M. Freed, and B. C. Johnson (2024). The effects of cooling and isostatic adjustment on the postimpact evolution of Mercury's Caloris basin. *AGU 2024*, vol. 2024, P44B-06, Abstract #1602127

Gosselin, G. J., Freed, A. M., and Johnson, B. C. (2023). Formation of Mercury's Caloris Basin Provides Insight into the Multiring to Megabasin Transition. *54th Lunar and Planetary Science Conference – Abstracts with Programs*, Abstract #2651

Denton, C.A., **G. J. Gosselin**, A M. Freed, and B. C. Johnson (2023). The Formation and Evolution of the Sputnik Basin, Pluto, Prior to Nitrogen Ice Fill. *54th Lunar and Planetary Science Conference – Abstracts with Programs***,** Abstract #1076

†**Gosselin, G. J.**, A. M. Freed, and B. C. Johnson (2021). Simulating the formation of Mercury's Caloris Basin to determine if it likely formed as a multiring basin. *Geological Society of America – Abstracts with Programs*, vol. 53, no. 6, doi: 10.1130/abs/2021AM-365120

†**Gosselin, G. J.**, A. M. Freed, and B. C. Johnson (2021). Where have all the rings gone? Exploring the reputed multiring nature of Mercury's Caloris basin. *52nd Lunar and Planetary Science Conference – Abstracts with Programs*, Abstract #1529

Gosselin, G. J., A. M. Freed, B. C. Johnson, and A. J. Trowbridge (2020). Reevaluating the origin of crust at the center of Mercury's Caloris basin. *51st Lunar and Planetary Science Conference – Abstracts with Programs*, Abstract #2401

Gosselin, G. J. and R S. McGary (2017). Numerical modeling of Ceres' thermal history and evolution using Dawn mission data and analyses to constrain possible evolutionary pathways. *Geological Society of America – Abstracts with Programs*, vol. 49, no. 6, doi: 10.1130/abs/2017AM-308340

Gosselin, G. J., J. A. Gochenour, B. S. Suranovic, and R S. McGary (2017). Characterizing void spaces and hydrological features associated with a karstic swale at Grand Caverns, VA, using resistivity. *Geological Society of America – Abstracts with Programs*, vol. 49, no. 3, doi: 10.1130/abs/2017SE-291542

Service & Outreach

Purdue University

2020 – 2022	Grade appeals committee for College of Science (graduate student rep.)
2019	Purdue Undergraduate Research Symposium judge
2018 – 2021	Graduate Student Senate department senator

Profession

Reviewer (JGR: Planets, PSJ)	2025
Session Moderator/Co-Chair	54th LPSC
Judge for Dwornik Award	53rd & 54th LPSC
Session Chair	GSA Connects 2021
Planetary Science Division booth volunteer	GSA Connects 2021

Outreach

2025	
2024	Figure generation & Python workshop for Purdue Graduate Student Association
2023	Career pathways invited talk at James Madison University (JMU)
2022	Graduate school Q&A panel discussion for NSF REU students at JMU
2019, 2021	Graduate school Q&A panel discussion for Purdue undergraduate students
2019	Impact cratering activity at Purdue's 50th anniversary of the Apollo 11 mission
2017 – 2018	Volunteer at JMU's John C. Wells Planetarium

Academic Honors & Awards

H. Jay Melosh Planetary Science Engagement Fund (Purdue University, 2022)
Geology & Environmental Science Research Scholarship (James Madison University, 2018)
W. A. Tarr Award (Sigma Gamma Epsilon, 2018)
Jeffrey E. Tickle '90 Family Endowment in Science & Mathematics (James Madison University, 2017)
Roddy Amenta Memorial Scholarship (James Madison University, 2017)
Geology Field Course Scholarship (James Madison University, 2017)

Teaching and Advising

Courses - † Instructor of record

2022 (Summer) †	EAPS 105: The Planets
2019 (Summer) †	EAPS 105: The Planets
2019 (Spring)	EAPS 105: The Planets
2019 (Spring)	EAPS 102: Earth Science for Elementary Teachers
2018 (Spring)	GEOL 442: Field Geophysics
2018 (Spring)	GEOL 388: Advanced Structure, Stratigraphy, and Tectonics
2017 (Fall)	GEOL 110: Physical Geology

Past Undergraduates

2021 – 2022	Benjamin Carpenter
2019 – 2021	Aubrey Bennett (Ph.D. student at University of Arizona)
2019 – 2021	Evan Robyn King (M.S., UT Austin; current Ph.D. student at MIT)
2019	Lindsay Marie Hutton

Relevant Computational & Numerical Experience

Tools
iSALE-2D shock physics code (Dellen release)
Abaqus finite element analysis software (v. 2018-2023)
JMARS geographic information service

Languages
Python 3.x (NumPy, SciPy, cartopy, PyGMT, pyshtools)
Fortran 90/95
MATLAB

Operating Systems
Linux (CentOS and Rocky 9.x)
MacOS (10.x and greater)

Professional Memberships

Geological Society of America, Planetary Science Division
American Geophysical Union
International Association for Geoscience Diversity