Ian Pamerleau | PhD Candidate

Contact Information

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Earth, Atmospheric, and Planetary Science
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Research Interests

Icy Body Geophysics, Numerical Modeling, Fluid Flow, Geologic Mapping

Education

2021–Present	PhD	Purdue University, Planetary Science Advisor: Michael Sori
2021	BS	University of Pittsburgh, Mathematics
2021	BS	University of Pittsburgh, Geology

Professional Experience

2021–Present	Graduate Research Assistant, Purdue University
2019–2021	Research Assistant, University of Pittsburgh (Advisor: Eitan Shelef)
2019	Research Assistant, University of Pittsburgh (Advisor: Ming Chen)

Awards & Honors

2025	Darrell Leap Hyrdogeology Purdue Graduate Research Award
2024	Purdue Graduate Student EXPO Award: Outstanding Poster
2022	NSF Graduate Research Fellowship Program Honorable Mention
2022	Purdue Donald W. Levandowski Memorial Scholarship in Geology
2021–2025	Purdue Ross Fellowship
2021	University of Pittsburgh Flint Memorial Field Geology Award
2020	University of Pittsburgh Brackenridge Research Fellowship
2020	University of Pittsburgh Samuel B. Frazier Student Resources Fund
2019	NASA Pennsylvania Space Grant Consortium Scholarship

Teaching Experience

2025	Teaching Assistant, Purdue University EAPS 309, Computer-Aided Analysis for Geosciences

2025	Teaching Assistant, Purdue University EAPS 111, Physical Geology Lab
2024	Teaching Assistant & Guest Lecturer, Purdue University, EAPS 556, Planetary Surface Processes
2024	Teaching Assistant, Purdue University, EAPS 507, Introduction to Analysis and Computing with Geoscience Data
2023	Guest Lecturer, Purdue University, EAPS 354, Earth and Planetary Geophysics
2020	Math Assistance Center Tutor, University of Pittsburgh, General University Level Math Including Calculus and Analysis

Field Work Experience

2024	Mars Desert Research Station, Crew 305, Executive Officer, Crew Geologist
2022	Field Training and Research Program at Meteor Crater
2021	Southern Utah University, GEO4960-30Y, Geology Field Camp (Online)

Leadership Experience

2024–Present	Purdue EAPS Graduate Student Association, President
2023–2024	Purdue EAPS Graduate Student Association, Treasurer
2021–2022	Purdue EAPS Graduate Student Association, Secretary
2020–2021	University of Pittsburgh Society of Physics Students, President
2018–2020	University of Pittsburgh Society of Physics Students, Treasurer
2018–2021	University of Pittsburgh Jazz Ensemble, President
2018–2019	University of Pittsburgh Fencing Team, President

Service

2025	Planetary Science Journal Reviewer
2023	Icarus Reviewer
2022–2023	Purdue EAPS Planetary Colloquium Coordinator

Publications

Blanco-Rojas, M., Sori. M. M., **Pamerleau, I. F.** (2025), Peaking into Oberon’s past: An isolated peak could imply the existence of a subsurface ocean or convecting ice shell, *JGR: Planets, in review*.

Pamerleau, I. F., Sori, M. M., Scully, J. E. C. (2024), An ancient and impure frozen ocean on Ceres implied by its ice-rich crust, *Nature Astronomy,* 8, 1373–1379.

Conference Abstracts

[11] **Pamerleau, I. F.**, Sori, M. M. (2025), Broad topographic domes as a test of Callisto's interior structure, *LPSC 56th*, 1329.

[10] Blanco-Rojas, M., Sori, M.M., and **Pamerleau, I. F.** (2024), Constraining Oberon's thermal history from the evolution of one of the tallest peaks in the Solar System, *The Uranus Flagship: Investigating new paradigms for outer planet exploration.*

[9] Sori, M.M., Blanco-Rojas, M., Bramson, A. M., Cartwright, R.J., Menten, S.M., Nordheim, T.A., and **Pamerleau, I. F.** (2024), Endogenic and exogenic evolution of the large Uranian moons can be revealed by observations of their surfaces from a Uranus Flagship mission, *The Uranus Flagship: Investigating new paradigms for outer planet exploration.*

[8] **Pamerleau, I. F.,** Sori, M. M., Scully, J. E. C. (2024), Asymmetric Relaxation of Large Craters in an Ice-Rich Crust are Consistent with Dawn Observations of Ceres, *LPSC* 55th, 1263.

[7] Blanco-Rojas, M., Sori, M. M., and **Pamerleau, I. F.** (2024), Oberon as an ocean world? Insights from the topography of one of the tallest peaks in the Solar System, *LPSC* 55th, 1468.

[6] Sori, M. M. and **Pamerleau, I. F.** (2023), Thermal history of Uranian moons and their oceans from topography: Constraints from Voyager 2 and prospects for a Uranian orbiter, *Uranus flagship: Investigations and instruments for a cross-discipline science workshop*, 8072.

[5] **Pamerleau, I. F.,** Sori, M. M., Scully, J. E. C. (2023), An ice-rich crust with unrelaxed craters on Ceres reflects an ancient frozen ocean, *LPSC* 54th, 1359.

[4] **Pamerleau, I. F.,** Sori, M. M., Johnson, B. C. (2023), Convection in Callisto's Ice Shell: Implications for Differentiation, *LPSC* 54th, 1647.

[3] Kring, D., Bamber, E., Blance, A., Brezfelder, J., Faucher, J., Flom, A., Lehman Franco, K., Harris, E., Jhoti, E., Laferriere, K. L., Martin, A., Meyer, M., **Pamerleau, I. F.**, Plan, A., Roberts, E., Shubham, S., Slumba, K., Zimmermann, N., Barrett, T., (2023)

Cascading Boulder and Boulder Track Experiment at Barringer Meteorite Crater (AKA Meteor Crater), Arizona, *LPSC*, 54th, 2186.

[2] **Pamerleau, I. F.,** Sori, M. M., Scully, J. E. C. (2022), Insolation-Driven Topographic Evolution on Ceres, *LPSC*, 53rd, 1711.

[1] **Pamerleau, I. F.,** Reid, M., Shelef, E., Rowland, J. C., Schwenk, J., Mishra, U. (2020), Automated Mapping of Arctic Floodplains to Improve Estimates of Sediment and Carbon Fluxes, *AGU Fall Meeting*, # H137-0002.

Skills

COMSOL Multiphysics (Finite Element Software)
JMARS & QGIS (GIS Softwares)
MATLAB (Topotoolbox, Mapping Toolbox)

References

Assistant Professor Michael Sori
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Professor Brandon Johnson
Purdue University, Department of Earth, Atmospheric, and Planetary Sciences; Department of Physics and Astronomy
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Associate Professor Eitan Shelef
University of Pittsburgh, Department of Geology and Environmental Science
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