

## November 2023 Newsletter II

### The AGU Annual Meeting is just around the corner!

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AGU23 is now just two weeks away! So we're taking the opportunity to let you know what to expect for all things planetary at the meeting.

First, we've had an incredible showing for the Planetary Sciences Section, with 985 abstracts submitted to the meeting. And, thanks to the AGU Program Committee—with Amanda Hendrix, Sarah Hörst and Wes Patterson representing our Section—there's a total of 91 in-person or online sessions led or co-sponsored by Planetary Sciences!

Below are some highlights of what you can look forward to at AGU23, but you can [explore the full program here](#).

On the Monday of the meeting, we'll have talks or posters on topics ranging from Korea's new Danuri lunar orbiter mission, through early Earth environments, to planetary rings. We'll also have our three named lectures, all in 201–202 Moscone South:

- The **Fred Whipple Lecture** will be given by **Tom Prettyman** at 9:00 AM
- The **Carl Sagan Lecturer** will be **Barbara Sherwood Lollar**, who will talk at 2:10 PM
- The **Eugene Shoemaker Lecture** will be delivered by **Dante Lauretta** at 4:00 PM

At the Whipple Lecture, we'll also celebrate the winner of this year's Ronald Greeley Early Career Award in Planetary Sciences, **Shaunna Morrison**, as well as our two newest Section-affiliated AGU Fellows, David Catling and Victoria Meadows!

Also on Monday, Planetary Sciences will be hosting our second annual **Mentorship Lunch** at 1:00 – 2:00 PM on Level 3 of the InterContinental hotel, matching students and early career scientists attending AGU23 with more experienced scientists. That evening, the fifth annual student/early **career Earth's Interior and Planetary Sciences Trivia Night** will be held in

Salon 9 in the Marriott Marquis hotel at 6:30 PM. The Trivia Night is a collaborative effort between Planetary Sciences and the Study of Earth's Deep Interior, Volcanology, Geochemistry, and Petrology, Mineral and Rock Physics, Seismology, Tectonophysics and Geodesy Sections, and offers a tremendous networking opportunity for student and early career planetary scientists!

Finally, the **NASA Planetary Science Division Town Hall** will be held at 6:30 PM Monday evening in 2001 Moscone West.

On the Tuesday, PS will host sessions spanning new lunar science, (exo)planetary atmospheres and exospheres, new results from the Juno mission, and future mission concepts. At 6:30 PM, join us for the **Planetary Sciences Reception and Section Gathering** in the Golden Gate Ballroom, Marriott Marquis. There, we'll report on the high-level findings of our Section survey (more about that in a moment), and celebrate last year's Outstanding Student Presentation Award winners:

- **Sarah Loughran**
- **Benjamin Moseley**
- **Matthew Reinhold**
- **Alexandra Warren**

We are always looking for OSPA reviewers, and this year is no different; to register as an OSPA reviewer for AGU23, [click here](#).

The AGU23 will continue for Planetary Sciences Wednesday through Friday, including (but not limited to) talks on giant planets, JWST and lunar science on Wednesday; Mercury, Venus, Mars and Titan oral sessions Thursday; and talks on Enceladus, radar investigations and icy and ocean worlds Friday. And remember there are two poster sessions (at 8:30 AM – 12:50 PM and 2:10 – 6:30 PM) each day. That's a lot of planetary science!

Oh, and if you've not already, please take our Planetary Sciences Section survey, which we're running to find out how to better position integrate PS within AGU, and vice versa. [You can access the survey here](#).

We hope to see many of you in San Francisco or virtually for AGU23 next month!

As always, if you have questions, concerns or comments, don't hesitate to reach out at [paul.byrne@wustl.edu](mailto:paul.byrne@wustl.edu). And if you have any deadlines, events or announcements you would like to share, please email [Sarah Hörst](#).

Paul

**Paul Byrne**, President

**Wendy Calvin**, President-Elect  
**Sarah Hörst**, Secretary  
**Emma Dahl**, Early Career representative  
**An Li**, Student representative  
**Michael Mischna**, Past President

## **(1) Planet Characterization 2024**

How does one characterize a planet? How do we handle borderline cases like Vesta, Hot Jupiters, or "rogue planets"? Can or should scientists consider round moons to be planets? How can scientists leverage planet characterization as a hook to increase scientific literacy in the population?

If those questions intrigued you, consider [submitting an abstract](#) for the Planet Characterization workshop 21-23 February in Houston and virtually.

Note that abstract submission ends 8 December.

Invited and confirmed speakers include Phil Metzger, University of Central Florida; Chris Bradburne, Johns Hopkins University Applied Physics Laboratory; Ravi Kumar Kopparapu, NASA Goddard Space Flight Center; Jack Lissauer, NASA Ames Research Center; Jean-Luc Margot, University of California; Constance Martin-Trembley, Endeavour Middle School; Alan Stern, Southwest Research Institute; Katie Bennett, Johns Hopkins University; and Steven Dick, NASA United States Naval Observatory.

Questions? Contact [Mark Sykes](#), [Alan Stern](#), [Katie Bennett](#), or [Kirby Runyon](#).

## **(2) Postdoctoral Positions in Planetary Science (Mars-2020, Hyperspectral Imaging)**

The Ehlmann Lab at Caltech is seeking to hire 1–2 postdoctoral scholars in specific fields related to the lab's near-term future work and long-term research interests. Please submit by 11 December 2023 a cover letter, a curriculum vitae and (optional) 2 letters of recommendation.

We are seeking candidates with demonstrated interest in one or more of the specific research topics listed on the webpage given below, together with a strong publication record, skills in complementary areas that extend the lab's expertise, and who will both benefit from and add to the community at Caltech and the mission teams with which the lab works.

<https://www.gps.caltech.edu/about/positions-available/postdoctoral-positions/postdoctoral-position-in-planetary-science>

The postdoctoral scholar is expected to spend ~75–80% of their time on one or more of the topics below with the remainder on other topics of interest, as agreed upon with Prof. Ehlmann. More information about the group and research interests can be found [here](#).

### (3) Journal of Geophysical Research: Planets, Volume 128, Issue 10

<https://agupubs.onlinelibrary.wiley.com/toc/21699100/2023/128/10>

Articles preceded by (OA) are published with open access.

1. (OA) Periodic Variation of Mesoscale Ultraviolet Contrast at the Cloud Top of Venus, by Tomoya Suda, Takeshi Imamura, Yeon Joo Lee, Atsushi Yamazaki, Takehiko Satoh, Takao M. Sato, <https://doi.org/10.1029/2023JE007852>
2. Plume-Induced Delamination Initiated at Rift Zones on Venus, by Andrea C. Adams, Dave R. Stegman, Hiva Mohammadzadeh, Suzanne E. Smrekar, Paul J. Tackley, <https://doi.org/10.1029/2023JE007879>
3. Paleo-Evolution of Martian Subsurface Ice and Its Role in the Polar Physical and Isotopic Layering, by E. Vos, O. Aharonson, N. Schörghofer, F. Forget, L. Lange, E. Millour, <https://doi.org/10.1029/2023JE007822>
4. Northwest Africa 12279: Evidence for the Interaction Between Early Lunar Mantle Melt and Anorthositic Crust, by Hongyi Chen, Lanfang Xie, Qiao Shu, Bingkui Miao, <https://doi.org/10.1029/2023JE007844>
5. Quantifying the Absorption Loss of Radiation Belt Energetic Particles by Saturn's Inner Moons, by Shaobei Wang, Chaoyue Si, Minyi Long, Peng Lu, Xing Cao, Binbin Ni, Guanglei Yang, <https://doi.org/10.1029/2023JE007912>
6. (OA) Modeling Slope Microclimates in the Mars Planetary Climate Model, by L. Lange, F. Forget, E. Dupont, R. Vandemeulebrouck, A. Spiga, E. Millour, M. Vincendon, A. Bierjon, <https://doi.org/10.1029/2023JE007915>
7. (OA) The Temporal Brightening of Uranus' Northern Polar Hood From HST/WFC3 and HST/STIS Observations, by Arjuna James, Patrick G. J. Irwin, Jack Dobinson, Michael H. Wong, Troy K. Tsubota, Amy A. Simon, Leigh N. Fletcher, Michael T. Roman, Nick A. Teanby, Daniel Toledo, Glenn S. Orton, <https://doi.org/10.1029/2023JE007904>
8. Mineralogy of Surface Materials at the Chang'E-5 Landing Site and Possible Exotic Sources From In Situ Spectral Observations, by Maosheng Yang (杨茂升), Yuqi Qian (钱煜奇), Briony Horgan, Jun Huang (黄俊), Long Xiao (肖龙), <https://doi.org/10.1029/2023JE007908>
9. An Examination of Soil Crusts on the Floor of Jezero Crater, Mars, by E. M. Hausrath, C. T. Adcock, A. Bechtold, P. Beck, K. Benison, A. Brown, E. L. Cardarelli, N. A. Carman, B. Chide, J. Christian, B. C. Clark, E. Cloutis, A. Cousin, O. Forni, T. S. J. Gabriel, O. Gasnault, M. Golombek, F. Gómez, M. H. Hecht, T. L. J. Henley, J. Huidobro, J. Johnson, M. W. M. Jones, P. Kelemen, A. Knight, J. A. Lasue, S. Le Mouélic, J. M. Madariaga, J. Maki, L. Mandon, G. Martinez, J. Martínez-Frías, T. H. McConnochie, P.-Y. Meslin, M.-P. Zorzano, H. Newsom, G. Paar, N. Randazzo, C. Royer, S. Siljeström, M. E. Schmidt, S. Schröder, M. A. Sephton, R. Sullivan, N. Turenne, A. Udry, S. VanBommel, A. Vaughan, R. C. Wiens, N. Williams, the SuperCam team and the Regolith working group, <https://doi.org/10.1029/2022JE007433>

10. (OA) In Situ Geologic Context Mapping Transect on the Floor of Jezero Crater From Mars 2020 Perseverance Rover Observations, by L. S. Crumpler, B. H. N. Horgan, J. I. Simon, K. M. Stack, S. Alwmark, G. Dromart, R. C. Wiens, A. Udry, A. J. Brown, P. Russell, H. E. F. Amundson, S.-E. Hamran, J. Bell III, D. Shuster, F. J. Calef III, J. Núñez, B. A. Cohen, D. Flannery, C. D. K. Herd, K. P. Hand, J. N. Maki, M. Schmidt, M. P. Golombek, N. R. Williams, <https://doi.org/10.1029/2022JE007444>
11. (OA) Sands on Meridiani Planum, Mars, by J. Kozakiewicz, M. Kania, D. Salata, L. Nowak, <https://doi.org/10.1029/2023JE007804>
12. (OA) Slopes of Lunar Crater Size-Frequency Distributions at Copernican-Aged Craters, by A. Oetting, N. Schmedemann, H. Hiesinger, C. H. van der Bogert, <https://doi.org/10.1029/2023JE007816>
13. (OA) Spectral Variability of Rocks and Soils on the Jezero Crater Floor: A Summary of Multispectral Observations From Perseverance's Mastcam-Z Instrument, by M. S. Rice, J. R. Johnson, C. C. Million, M. St. Clair, B. N. Horgan, A. Vaughan, J. I. Núñez, B. Garczynski, S. Curtis, K. B. Kinch, M. Merusi, A. Hayes, J. F. Bell, L. Duflot, K. Lapo, A. A. Evans, A. Eng, E. Cloutis, A. Brown, A. M. Annex, <https://doi.org/10.1029/2022JE007548>
14. Novel High-Pressure Potassium Chloride Monohydrate and Its Implications for Water-Rich Planetary Bodies, by Xinmiao Wei, Qiang Zhou, Fangfei Li, Caizi Zhang, Fuxing Sun, Zihan Zhang, Ruiyu Li, Hongyu Yu, Yalan Yan, Liang Li, Hanns-Peter Liermann, Sergio Speziale, Xinyang Li, <https://doi.org/10.1029/2022JE007622>
15. (OA) Martian Equatorial Atmospheric Tides From Surface Observations, by Joonas Leino, Ari-Matti Harri, Don Banfield, Manuel de la Torre Juárez, Mark Paton, Jose-Antonio Rodriguez-Manfredi, Mark Lemmon, Hannu Savijärvi, <https://doi.org/10.1029/2023JE007957>
16. Dust Lifting Observations With the Mars Science Laboratory Navigation Cameras, by Scott D. Guzewich, Emily L. Mason, Mark T. Lemmon, Claire E. Newman, Kevin W. Lewis, <https://doi.org/10.1029/2023JE007959>
17. The Effect of Pressure-Dependent Viscosity on the Dynamics of the Post-Overturn Lunar Mantle, by Wenbo Zhang, Nan Zhang, Yan Liang, Leif Tokle, <https://doi.org/10.1029/2023JE007933>
18. Simulated Atmospheric Response to Large-Scale Dust Forcing and Implications for Martian Dust Storm Growth, by Huiqun Wang, Anthony D. Toigo, Mark I. Richardson, <https://doi.org/10.1029/2023JE007956>
19. (OA) Detectability of Local Water Reservoirs in Europa's Surface Layer Under Consideration of Coupled Induction, by Jason Winkens, Joachim Saur, <https://doi.org/10.1029/2023JE007992>
20. (OA) Tying Shock Features to Impact Conditions: The Significance of Shear Deformation During Impact Cratering, by S. Alwmark, <https://doi.org/10.1029/2023JE008072>
21. (OA) Local Ice Mass Balance Rates via Bayesian Analysis of Mars Polar Trough Migration, by Kristel Izquierdo, Ali M. Bramson, Thomas McClintock, Kris L. Laferriere, Shane Byrne, Jonathan Bapst, Isaac Smith, <https://doi.org/10.1029/2023JE007964>
22. Characteristics of Lunar Surface Electrons Inferred From ARTEMIS Observations: 1. Backscattered Electrons, by Shaosui Xu, Andrew R. Poppe, Paul S. Szabo, Yuki Harada, Jasper S. Halekas, Phillip C. Chamberlin, <https://doi.org/10.1029/2023JE007983>

#### (4) Journal of Geophysical Research: Planets, Volume 128, Issue 9

<https://agupubs.onlinelibrary.wiley.com/toc/21699100/2023/128/9>

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1. On the Diversity and Formation Modes of Martian Minerals, by Robert M. Hazen, Robert T. Downs, Shaunna M. Morrison, Benjamin M. Tutolo, David F. Blake, Thomas F. Bristow, Steve J. Chipera, Harry Y. McSween, Doug Ming, Richard V. Morris, Elizabeth B. Rampe, Michael T. Thorpe, Allan H. Treiman, Valerie M. Tu, David T. Vaniman, <https://doi.org/10.1029/2023JE007865>
2. (OA) Thermal Tides on Mars Before and During the 2018 Global Dust Event as Observed by TIRVIM-ACS Onboard ExoMars Trace Gas Orbiter, by S. Guerlet, S. Fan, F. Forget, N. Ignatiev, E. Millour, A. Kleinböhl, A. Shakun, A. Grigoriev, A. Trokhimovskiy, F. Montmessin, O. Korabiev, <https://doi.org/10.1029/2023JE007851>
3. Energetic Neutral Atom (ENA) Emission Characteristics at the Moon and Mercury From 3D Regolith Simulations of Solar Wind Reflection, by P. S. Szabo, A. R. Poppe, A. Mutzke, S. Fatemi, A. Vorburger, P. Wurz, <https://doi.org/10.1029/2023JE007911>
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5. (OA) Crustal Block and Muted Ring Development During the Formation of Mercury's Caloris Megabasin, by G. J. Gosselin, A. M. Freed, B. C. Johnson, <https://doi.org/10.1029/2023JE007920>
6. (OA) Callisto's Atmosphere: The Oxygen Enigma, by Shane R. Carberry Mogan, Lucas Liuzzo, Andrew R. Poppe, Sven Simon, Jamey R. Szalay, Orenthal J. Tucker, Robert E. Johnson, <https://doi.org/10.1029/2023JE007894>
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8. (OA) Focal Mechanism Determination of Event S1222a and Implications for Tectonics Near the Dichotomy Boundary in Southern Elysium Planitia, Mars, by R. Maguire, V. Lekić, D. Kim, N. Schmerr, J. Li, C. Beghein, Q. Huang, J. C. E. Irving, F. Karakostas, P. Lognonné, S. C. Stähler, W. B. Banerdt, <https://doi.org/10.1029/2023JE007793>
9. (Commentary) Gentle Perseverance Lifts the Veil on Martian Dust, by Ralph D. Lorenz, <https://doi.org/10.1029/2023JE007843>
10. (OA) New Insights Into Composition Variation of Mars South Polar Layered Deposits From SHARAD Radar Sounder, by Peng Fang, Jinhai Zhang, <https://doi.org/10.1029/2023JE007812>
11. (OA) The Volcanic and Radial Expansion/Contraction History of the Moon Simulated by Numerical Models of Magmatism in the Convective Mantle, by Ken'yo U, Masanori Kameyama, Masaki Ogawa, <https://doi.org/10.1029/2023JE007845>

12. Thermal Moonquake Characterization and Cataloging Using Frequency-Based Algorithms and Stochastic Gradient Descent, by F. Civilini, R. Weber, A. Husker, <https://doi.org/10.1029/2022JE007704>
13. (OA) Temporal Variations in Vertical Cloud Structure of Jupiter's Great Red Spot, Its Surroundings and Oval BA From HST/WFC3 Imaging, by Asier Anguiano-Arteaga, Santiago Pérez-Hoyos, Agustín Sánchez-Lavega, José Francisco Sanz-Requena, Patrick G. J. Irwin, <https://doi.org/10.1029/2022JE007427>
14. Geologic Structure of the Vera Rubin Ridge, Gale Crater, Mars, by Madison Turner, Kevin Lewis, <https://doi.org/10.1029/2022JE007237>
15. Meteors May Masquerade as Lightning in the Atmosphere of Venus, by C. H. Blaske, J. G. O'Rourke, S. J. Desch, M. E. Borrelli, <https://doi.org/10.1029/2023JE007914>
16. Viscous Relaxation of Oort and Edgeworth Craters on Pluto: Possible Indicators of an Epoch of Early High Heat Flow, by William B. McKinnon, Michael T. Bland, Kelsi N. Singer, Paul M. Schenk, Stuart J. Robbins, <https://doi.org/10.1029/2023JE007831>
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