

December 2022 Newsletter

Greetings from Your Planetary Sciences Section Leadership!

Somehow it is already December. The AGU Fall Meeting is here, and we have a lot of great planetary sessions lined up. We hope to see you in person or virtually. Also, 31 December marks a change in our section committee. Our new elected committee for the next two years will be:

Paul Byrne (President)
Wendy Calvin (President-Elect)
Sarah Hörst (Secretary)

Happy Holidays!

Michael Mischna, President
Paul Byrne, President-Elect
Jennifer Whitten, Secretary
Emma Dahl, Early Career representative
An Li, Student representative
Rosaly Lopes, Past President

Upcoming Deadlines & Events

Upcoming Deadlines

- ROSES-2021: Rolling Submissions
 - [Several program will transition to No \(Fixed\) Due Dates \(NoDD\):](#)
 - Emerging Worlds (EW)
 - Solar System Workings (SSW)

- Planetary Data Archiving, Restoration, and Tools (PDART)
- Exobiology (ExoBio)
- Solar System Observations (SSO)
- Planetary Instrument Concepts for the Advancement of Solar System Observations (PICASSO)
- Laboratory Analysis of Returned Samples (LARS)

Upcoming Conferences

- **6-8 December 2022:** Commercial Lunar Payload Services (CLPS) Survive the Night Technology Workshop, Cleveland, Ohio/Virtual
- **12-16 December 2022:** [AGU Fall Meeting](#), Chicago, Illinois/Virtual
- **9-11 January 2023:** 1st Workshop on Ices in the Solar System: A Volatile-Excursion from Mercury and the Moon to the Kuiper Belt and Beyond, Montreal, Canada

Planetary Sciences Announcements/Updates

#1) THANK YOU TO OUR SPONSORS!

The Planetary Sciences section wants to thank our 2022 Fall Meeting corporate sponsors, Lockheed Martin and Ball Aerospace, for their generous contributions in support of our section activities. We continue to benefit from this ongoing relationship, enabling us to provide assistance to student and early career members for Fall Meeting registration costs, caregiver expenses and other community events. We are grateful for their continued support of the Planetary Sciences section, and their investment in our future.



#2) MRO SPECIAL ISSUE

Mars Reconnaissance Orbiter: Sixteen Years Observing a Changing Mars

For 16 years, the Mars Reconnaissance Orbiter (MRO) has used its three cameras, multi-spectral imaging spectrometer, shallow radar, and atmospheric sounder to observe the surface, subsurface and atmosphere of Mars at unprecedented spatial resolution and with expanded coverage in space and time. Over time, these observing capabilities have changed in response both to the technical changes inherent in a long-lived deep-space mission and to operational planning changes in response to what the MRO observations were telling us about the planet itself. For instance, although designed to "follow the water" of an ancient Mars climate, the very high spatial resolution imaging and growing timeline of observations has enabled MRO to reveal unprecedented changes occurring on the planet today (e.g., recurring slope lineae; annual patterns of regional dust storms). This special issue gives an overview of the evolving capabilities of MRO and its investigations, its key findings and evolving strategies. It will also include papers on the latest findings, together with plans for the ongoing exploration of Mars by MRO.

Submission open: Now

Submission deadline: 1 March 2023

Editorial Acceptance: 1 July 2023

Link: [Call for papers - Icarus | ScienceDirect.com by Elsevier](#)

Please select: Article Type = SI: MRO: 16 Years at Mars

Guest editors: [Rich Zurek](#) and [Leslie Tamppari](#)

#3) PLANETARY SCIENCE SECTION MENTORSHIP PROGRAM

[Sign up for the new Planetary Science section mentorship program during AGU Fall Meeting!](#)

The AGU Planetary Science section is launching a new mentorship program to match students and early career scientists with more experienced scientists going to Fall Meeting. Our goal is to help new planetary science students and early career scientists learn how to best navigate Fall Meeting. Mentees and mentors will meet each other and grab a free lunch on Monday 12 December from 12:45-1:45 pm. Interested mentors, please sign up here: <https://forms.gle/NovgR4vzMMjjboUi8>.

#4) STUDENT AND EARLY CAREERS EARTH AND PLANETARY INTERIORS TRIVIA NIGHT

If you are a student or early career scientist in planetary science, consider getting a ticket for the Earth and Planetary Interiors trivia night at AGU Fall Meeting!

The event will be on Monday, December 12 from 6:30-8:00 pm. Tickets are \$10/student and \$20/early career scientist. Hors d'oeuvres and drinks are included, and there will be prizes! It's a great way to meet people in your section and related fields, so we hope to see you in Chicago in December.

#5) AGU Journal of Geophysical Research: Planets Publications, November 2022 Issue

Journal of Geophysical Research: Planets, Volume 127, Issue 11

<https://agupubs.onlinelibrary.wiley.com/toc/21699100/2022/127/11>

Articles starting with (OA) are published with open access

1. (OA) Fundamental Science and Engineering Questions in Planetary Cave Exploration, by J. Wynne et al., <https://doi.org/10.1029/2022JE007194>
2. Life Underground: Investigating Microbial Communities and Their Biomarkers in Mars-Analog Lava Tubes at Craters of the Moon National Monument and Preserve, by M. M. Weng, et al., <https://doi.org/10.1029/2022JE007268>
3. Tidal Constraints on the Martian Interior, by L. Pou, et al. <https://doi.org/10.1029/2022JE007291>
4. (OA) Sedimentary Organics in Glen Torridon, Gale Crater, Mars: Results From the SAM Instrument Suite and Supporting Laboratory Analyses, by M. Millan, et al., <https://doi.org/10.1029/2021JE007107>
5. (OA) Episodic Plate Tectonics on Europa: Evidence for Widespread Patches of Mobile-Lid Behavior in the Antiojovian Hemisphere, by G. C. Collins et al., <https://doi.org/10.1029/2022JE007492>
6. (OA) Fingering Convection in the Stably Stratified Layers of Planetary Cores, by C. Guervilly, <https://doi.org/10.1029/2022JE007350>
7. Updated Model Parameters of Current Sheet and Magnetic Field in the Jovian Magnetosphere for Pre-Galileo, Galileo, and Juno Eras, by N. Momoki, H. Toh, <https://doi.org/10.1029/2022JE007493>
8. (OA) Characterizing Seasonal and Residual Ices at the South Pole of Mars Using a Universal Set of CRISM Spectral Endmembers, by S. F. A. Cartwright et al., <https://doi.org/10.1029/2022JE007372>
9. Spectroscopic Studies on the Puga Hot Spring Deposits, Ladakh, an Astrobiological Martian Analog Site in India, by S. Sarkar et al., <https://doi.org/10.1029/2022JE007299>
10. Ejecta Pattern of Oblique Impacts on the Moon From Numerical Simulations, by X-Z. Luo, M-H. Zhu, M. Ding, <https://doi.org/10.1029/2022JE007333>
11. (OA) Orbital and In Situ Investigation of the Bagnold Dunes and Sands of Forvie, Gale Crater, Mars, by E. L. Moreland et al., <https://doi.org/10.1029/2022JE007436>

12. The Physical Properties and Geochemistry of Grains on Aeolian Bedforms at Gale Crater, Mars, by C. M. Weitz et al., <https://doi.org/10.1029/2021JE007061>
13. Transport of Water Into the Polar Regions of Mars Through Scavenging by CO₂ Snowfall, by N. R. Alsaeed, P. O. Hayne, <https://doi.org/10.1029/2022JE007386>
14. Strong Heterogeneity in Shallow Lunar Subsurface Detected by Apollo Seismic Data, by X. Zhang et al., <https://doi.org/10.1029/2022JE007222>
15. LRO-LAMP Survey of Lunar South Pole Cold Traps: Implication for the Presence of Condensed H₂O, by L. O. Magaña et al., <https://doi.org/10.1029/2022JE007301>
16. (OA) Mounds in Oxia Planum: The Burial and Exhumation of the ExoMars Rover Landing Site, by J. D. McNeil et al., <https://doi.org/10.1029/2022JE007246>
17. (OA) Mars Science Laboratory CheMin Data From the Glen Torridon Region and the Significance of Lake-Groundwater Interactions in Interpreting Mineralogy and Sedimentary History, by M. T. Thorpe et al., <https://doi.org/10.1029/2021JE007099>
18. (OA) Impacts of Heterogeneous Chemistry on Vertical Profiles of Martian Ozone, by M. A. J. Brown et al., <https://doi.org/10.1029/2022JE007346>
19. Ionospheric Plasma Depletions at Mars Observed by the MAVEN Spacecraft, by P. Basuvaraj et al., <https://doi.org/10.1029/2022JE007302>
20. (OA) Determining Emplacement Conditions and Vent Locations for Channelized Lava Flows Southwest of Arsia Mons, by I. T. W. Flynn, D. A. Crown, M. S. Ramsey, <https://doi.org/10.1029/2022JE007467>
21. Multiple Shallow Crustal Origins for Spinel-Bearing Lithologies on the Moon: A Perspective From the Luna 20 Mission, by S. B. Simon et al., <https://doi.org/10.1029/2022JE007249>
22. Surface Roughness Variation Across Polar Ice Deposit Boundaries on Mercury, by A. N. Deutsch et al., <https://doi.org/10.1029/2021JE007114>
23. Rock Magnetic Characterization of Returned Samples From Asteroid (162173) Ryugu: Implications for Paleomagnetic Interpretation and Paleointensity Estimation, by M. Sato et al., <https://doi.org/10.1029/2022JE007405>
24. Identification and Geomorphometric Characterization of Volcanic Cones in the Marius Hills, the Moon, by S. Wan, L. Qiao, Z. Ling, <https://doi.org/10.1029/2022JE007207>
25. Alteration at the Base of the Siccar Point Unconformity and Further Evidence for an Alkaline Provenance at Gale Crater: Exploration of the Mount Sharp Group, Greenheugh Pediment Cap Rock Contact With APXS, by L. M. Thompson et al., <https://doi.org/10.1029/2021JE007178>
26. (OA) Structural Architecture and Deformation History of Tempe Terra, Mars, by C. J. Orlov et al., <https://doi.org/10.1029/2022JE007407>
27. Far-Ultraviolet Photometric Characteristics of JSC-1A and LMS-1 Lunar Regolith Simulants: Comparative Investigations With Apollo 10084, by C. J. Gimar et al., <https://doi.org/10.1029/2022JE007508>
28. Potential Caves: Inventory of Subsurface Access Points on the Surface of Titan, by M. J. Malaska et al., <https://doi.org/10.1029/2022JE007512>
29. (OA) Planetary Caves: A Solar System View of Processes and Products, by J. Wynne et al., <https://doi.org/10.1029/2022JE007303>

30. (OA) Characterization of Clasts in the Glen Torridon Region of Gale Crater Observed by the Mars Science Laboratory Curiosity Rover, by S. Y. Khan et al., <https://doi.org/10.1029/2021JE007095>
31. Magnetic Evidence for an Extended Hydrogen Exosphere at Mercury, by D. Schmid et al., <https://doi.org/10.1029/2022JE007462>
32. (OA) Dynamo Simulations of Jupiter's Magnetic Field: The Role of Stable Stratification and a Dilute Core, by K. M. Moore et al., <https://doi.org/10.1029/2022JE007479>
33. (OA) Constraining Alteration Processes Along the Siccar Point Group Unconformity, Gale Crater, Mars: Results From the Sample Analysis at Mars Instrument, by B. Sutter et al., <https://doi.org/10.1029/2022JE007387>
34. (OA) Callisto's Atmosphere: First Evidence for H₂ and Constraints on H₂O, by S. R. Carberry Mogan et al., <https://doi.org/10.1029/2022JE007294>
35. (OA) Modeling Seismic Recordings of High-Frequency Guided Infrasound on Mars, by Z. Xu et al., <https://doi.org/10.1029/2022JE007483>
36. (OA) Investigating the Role of Amazonian Mesoscale Wind Patterns and Strength on the Spatial Distribution of Martian Bedrock Exposures, by C. E. Gary-Bicas et al., <https://doi.org/10.1029/2022JE007496>
37. Comparable Bulk Radar Attenuation Characteristics Across Both Martian Polar Layered Deposits, by N. Abu Hashmeh et al., <https://doi.org/10.1029/2022JE007566>
38. (OA) Water and Chlorine in the Martian Subsurface Along the Traverse of NASA's Curiosity Rover: 1. DAN Measurement Profiles Along the Traverse, by I. G. Mitrofanov et al., <https://doi.org/10.1029/2022JE007327>
39. (OA) MarsQuakeNet: A More Complete Marsquake Catalog Obtained by Deep Learning Techniques, by N. L. Dahmen et al., <https://doi.org/10.1029/2022JE007503>
40. Vesicular Olivines and Pyroxenes in Shocked Kamargaon L6 Chondrite: Implications for Primary Volatiles and Its Multiple Impacts History, by K. Tiwari et al., <https://doi.org/10.1029/2022JE007420>
41. Thermal Structure of the Martian Upper Mesosphere/Lower Thermosphere From MAVEN/IUVS Stellar Occultations, by S. Gupta, et al., <https://doi.org/10.1029/2022JE007534>

Below is a message from our outgoing President, Michael Mischna:

As we head into the 2022 Fall Meeting and the new year, we are transitioning to new section leadership. I wish to thank the current Planetary Sciences leadership team: Paul Byrne, Jenny Whitten, An Li and Emma Dahl, for their work and time investment over the past two years. Starting 1 January, Paul will be taking over as section President, with a new team consisting of Wendy Calvin as President-Elect, Sarah Horst as Secretary, with An Li and Emma Dahl remaining on as our Student Representative and Early Career Representative, respectively. The section will be in good hands as we look to continue to grow and develop our activities in the coming years.

We've done a lot over the past two years for the section—introducing new initiatives and activities to make the AGU Planetary Sciences section work for you. We have introduced a program to offer Fall Meeting registration reimbursement to members in need, as well as caregiver support to give

members with caregiving responsibilities an opportunity to participate in the Fall Meeting. At the Fall Meeting, we have introduced, this year, a pilot mentoring program to help students and first-time attendees acclimate to the Fall Meeting under the guidance of experienced section members with similar interests. We are looking to broaden its reach in the coming years.

Within the section infrastructure itself, we've made some exciting additions to offer greater opportunity to participate in section activities—adding an Honors Canvassing Committee and Fall Meeting Grants and Awards Committee to our lineup of section committees and teams (including the Honors Selection Committee, Fall Meeting Program Committee and Outstanding Student Presentation Awards Committee). If you are interested in volunteering for a role within the section, please reach out to section leadership. We are excited to give you the chance to get involved!

We've drafted section bylaws as well, which will be found in our updated website shortly. Our monthly newsletters have also become more informative, providing you with more AGU-relevant news, and highlights of planetary science papers within the JGR/GRL infrastructure.

Thanks to all of you—all 2000+ members of the Planetary Sciences section—for your interest and support of the AGU. Leading this group has been an exceptionally rewarding experience, and I hope you will continue to find ways to advance your career by taking advantage of all the AGU has to offer.

See you in Chicago!

*Michael Mischna
President*