AGU ADVANCING EARTH AND SPACE SCIENCE | Planetary Sciences

January 2022 Newsletter

Greetings from Your Planetary Sciences Section Leadership!

Happy New Year! A lot happened in 2021 and we want to thank you all for a great year. In particular, we thank all of those who volunteered for important Planetary Science Section activities, such as judging student presentations at Fall Meeting, organizing sessions, and serving on our section committees, and performing other Section activities.

We have big plans for the coming year – including starting a few more initiatives and continuing to build momentum with those that we initiated last year. If you have any feedback or questions, please feel free to reach out to any one of us.

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 (all conferences virtual unless otherwise noted)

- **January 17-29, 2022:** Mars Science and Engineering
- **January 24-25, 2022:** 26th Meeting of the NASA Small Bodies Assessment Group (SBAG)
- **January 26-27, 2022:** Lunar Surface Science Workshop – Virtual Session 13: Inclusive Lunar Exploration
- **February 1-3, 2022:** MExAG Annual Meeting 2022
- **February 2-4, 2022:** SOFIA School

Planetary Sciences Announcements/Updates

1. NASA POSTDOCTORAL FELLOWSHIP – APPLICATION DEADLINE MARCH 1, 2022

The NASA Postdoctoral Program offers US and international scientists the opportunity to advance their research while contributing to NASA's scientific goals. The NPP supports fundamental science; explores the undiscovered; promotes intellectual growth; and encourages scientific connections.

Selected by a competitive peer-review process, NPP Fellows complete one- to three-year Fellowship appointments that advance NASA's missions in earth science, heliophysics, planetary science, astrophysics, space bioscience, aeronautics and engineering, human exploration and space operations, and astrobiology.

Current NPP research opportunities in planetary science can be viewed here: NPP Planetary Science Research Opportunities

Applicants must have a Ph.D. or equivalent degree in hand before beginning the fellowship, but may apply while completing the degree requirements. Please see current eligibility requirements.

Stipends start at $60,000 per year, with supplements for high cost-of-living areas and for certain academic specialties. Financial assistance is available for relocation and health insurance, and $10,000 per year is provided for professional travel.

Applications are accepted three times each year: **1 March**, 1 July and 1 November.

For further information and to apply, visit https://npp.usra.edu/.

Questions: npphelp@usra.edu

2. Application Call for the Extraterrestrial Materials Analysis Group

The Extraterrestrial Materials Analysis Group (ExMAG) is a community-based, interdisciplinary group providing a forum for discussion and analysis of matters concerning the collection, curation, and analysis of extraterrestrial samples. ExMAG is seeking applications for volunteers to serve on the regular committee, Secretary, Exploration Hardware, Lunar Subcommittee, and Microparticle subcommittee. Applications are due 14 January for three-year appointments starting in early 2022. All applications will be normalized to career stage and ExMAG strives to include many voices.

The full call, including position descriptions and application instructions, may be found here.

Questions may be directed to ExMAG.community@gmail.com.

3. NSF Dear Colleague Letter: Geoscience Lessons for and from Other Worlds (GLOW)

This DCL is to inform the community that NSF's Divisions of Earth Sciences (EAR), Atmospheric and Geospace Sciences (AGS), and Astronomical Sciences (AST) encourage the submission of proposals that bring together researchers and experts to develop projects which: 1) use the study of other worlds as a way to broaden and deepen our understanding of the Earth and its evolution, including all processes and systems from the core to the magnetosphere, and/or 2) use our geoscience knowledge to understand the environments of other worlds.

https://www.nsf.gov/pubs/2022/nsf22032/nsf22032.jsp

4. AGU Journal of Geophysical Research: Planets Publications, December 2021 Issue

We are going to be highlighting publications from the AGU Journal, JGR: Planets in our newsletters. The link to the December issue can be found here.

1. The Onset of a Globally Ice-Covered State for a Land Planet, T. Kodama, H. Genda, J. Leconte, A. Abe-Ouchi, https://doi.org/10.1029/2021JE006975
2. In Search of Subsurface Oceans Within the Uranian Moons, C. J. Cochrane, S. D. Vance, T. A. Nordheim, M. J. Styczinski, A. Masters, L. H. Regoli, https://doi.org/10.1029/2021JE006956

3. Widespread Megaripple Activity Across the North Polar Ergs of Mars, M. Chojnacki, D. A. Vaz, S. Silvestro, D. C. A. Silva, https://doi.org/10.1029/2021JE006970
4. True Polar Wander on Dynamic Planets: Approximative Methods Versus Full Solution, V. Patočka, https://doi.org/10.1029/2021JE006948
5. Insight Into Formation Processes of Layered Ejecta Craters on Mars From Thermophysical Observations, R. H. Hoover, S. J. Robbins, N. E. Putzig, J. D. Riggs, B. M. Hynek, https://doi.org/10.1029/2020JE006801
6. Multiphase Volatilization of Halogens at the Soil-Atmosphere Interface on Mars, X. Wang, Y.-Y. Sara Zhao, D. R. Hood, S. Karunatillake, D. Laczniak, M. E. Schmidt, M. Vithanage, https://doi.org/10.1029/2021JE006929
7. YORP Effect on Asteroid 162173 Ryugu: Implications for the Dynamical History, M. Kanamaru, S. Sasaki, T. Morota, Y. Cho, E. Tatsumi, M. Hirabayashi, N. Hirata, H. Senshu, Y. Shimaki, N. Sakatani, S. Tanaka, T. Okada, T. Usui, S. Sugita, S.-i. Watanabe, https://doi.org/10.1029/2021JE006863
8. Re-Evaluation of Large Martian Ripples in Gale Crater: Granulometric Evidence for an Impact Mechanism and Terrestrial Analogues, T. R. Gough, C. H. Hugenholtz, T. E. Barchyn, https://doi.org/10.1029/2021JE007011
9. Long-Term Earth-Moon Evolution With High-Level Orbit and Ocean Tide Models, H. Daher, B. K. Arbic, J. G. Williams, J. K. Ansong, D. H. Boggs, M. Müller, M. Schindelegger, J. Austermann, B. D. Cornuelle, E. B. Crawford, O. B. Fringer, H. C. P. Lau, S. J. Lock, A. C. Maloof, D. Menemenlis, J. X. Mitrovica, J. A. M. Green, M. Huber, https://doi.org/10.1029/2021JE006875
10. Ionization Efficiency in the Dayside Ionosphere of Mars: Structure and Variability, R. J. Lillis, S. Xu, D. Mitchell, E. Thiemann, F. Eparvier, M. Benna, M. Elrod, https://doi.org/10.1029/2021JE006923
11. The Oligocene-Miocene Guadalope-Matarranya Fan, Spain, as an Analog for Long-Lived, Ridge-Bearing Megafans on Mars, A. T. Hayden, M. P. Lamb, P. M. Myrow, D. Mohrig, R. M. E. Williams, J. L. Cuevas Martínez, B. T. Cardenas, C. P. Findlay, R. C. Ewing, B. J. McElroy, https://doi.org/10.1029/2021JE006993
12. Local Time Dependence of Jupiter's Polar Auroral Emissions Observed by Juno UVS, T. Greathouse, R. Gladstone, M. Versteeg, V. Hue, J. Kammer, R. Giles, M. Davis, S. Bolton, S. Levin, J. Connerney, J.-C. Gérard, D. Grodent, B. Bonfond, E. Bunce, M. F. Vogt, https://doi.org/10.1029/2021JE006954
13. Tectonism and Enhanced Cryovolcanic Potential Around a Loaded Sputnik Planitia Basin, Pluto, P. J. McGovern, O. L. White, P. M. Schenk, https://doi.org/10.1029/2021JE006964
14. Machine Learning Mid-Infrared Spectral Models for Predicting Modal Mineralogy of CI/CM Chondritic Asteroids and Bennu, L. B. Breitenfeld, A. D. Rogers, T. D. Glotch, V. E. Hamilton, P. R. Christensen, D. S. Lauretta, M. E. Gemma, K. T. Howard, D. S. Ebel, G. Kim, A. M. Kling, H. Nekvasil, N. DiFrancesco, https://doi.org/10.1029/2021JE007035
15. Collisions of Small Kuiper Belt Objects With (486958) Arrokoth: Implications for Its Spin Evolution and Bulk Density, X. Mao, W. B. McKinnon, K. N. Singer, J. T. Keane, R. A. Beyer, S. Greenstreet, S. J. Robbins, P. M. Schenk, J. M. Moore, S. A. Stern, H. A.

Weaver, J. R. Spencer, C. B. Olkin, the New Horizons Science Team, https://doi.org/10.1029/2021JE006961
16. The Four-Stage Evolution of Martian Mantle Inferred From Numerical Simulation of the Magmatism-Mantle Upwelling Feedback, M. Ogawa, https://doi.org/10.1029/2021JE006997
17. MAGMARS: A Melting Model for the Martian Mantle and FeO-Rich Peridotite, by M. Collinet, A.-C. Plesa, T. L. Grove, S. Schwinger, T. Ruedas, D. Breuer, https://doi.org/10.1029/2021JE006985
18. Thermal Forcing of the Nocturnal Near Surface Environment by Martian Water Ice Clouds, B. Cooper, M. de la Torre Juárez, M. Mischna, M. Lemmon, G. Martínez, D. Kass, A. R. Vasavada, C. Campbell, J. Moores, https://doi.org/10.1029/2020JE006737
19. Planetary-Scale Waves Seen in Thermal Infrared Images of Venusian Cloud Top, N. Kajiwara, T. Imamura, M. Taguchi, T. Kouyama, https://doi.org/10.1029/2021JE007047
20. Isotopic Composition of CO2 in the Atmosphere of Mars: Fractionation by Diffusive Separation Observed by the ExoMars Trace Gas Orbiter, J. Alday, C. F. Wilson, P. G. J. Irwin, A. Trokhimovskiy, F. Montmessin, A. A. Fedorova, D. A. Belyaev, K. S. Olsen, O. Korablev, F. Lefèvre, A. S. Braude, L. Baggio, A. Patrakeev, A. Shakun, https://doi.org/10.1029/2021JE006992
21. Constraints on Emission Source Locations of Methane Detected by Mars Science Laboratory, D. Viúdez-Moreiras, M. I. Richardson, C. E. Newman, https://doi.org/10.1029/2021JE006958
22. Simulation of Martian Dust Effects on Polar CO2 Ice Caps and Atmospheric Circulation Using the MarsWRF Model, Y. Zhao, L. Zhong, R. Yuan, C. Zhao, R. Li, Y. Wang, Y. Lian, M. Richardson, https://doi.org/10.1029/2021JE006937
23. The Internal Structure of Mercury's Core Inferred From Magnetic Observations, I. Wardinski, H. Amit, B. Langlais, E. Thébault, https://doi.org/10.1029/2020JE006792
24. Paleoclimate Evolution on Titan After Episodic Massive Methane Outgassing Simulated a Global Climate Model, by T. Tokano, R. D. Loren, https://doi.org/10.1029/2021JE007081