

The MERCURY NEWSLETTER

by the Mercury Exploration Assessment Group (MExAG)



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STAY IN THE LOOP

 <https://www.lpi.usra.edu/mexag/>

 @ExploreMercury

 MExAG list-serv:

<https://www.lpi.usra.edu/mexag/iofi/>

 Community forum:

mercury-planet-list@googlegroups.com

KEEP US IN THE LOOP

Please send Mercury community announcements and calendar items for inclusion in our next quarterly newsletter to mexag.sc@gmail.com.

FOURTH ANNUAL MEXAG MEETING DEBRIEF

The fourth Annual Meeting of the MExAG took place virtually over 6–8 February 2024 and was a wonderful success!

- By the numbers:
 - **207 registered participants**
 - **24 science, technology, and community talks**
 - **20 poster presentations [available here at the meeting website](#).**
 - **690 hours of shared Mercury science, community, and technology engagement – nearly a third of a Mercury year!**
- The Annual Meeting heard updates from the NASA Planetary Science Division, including on Open Science and the Planetary Data Ecosystem, as well as from the BepiColombo mission.
- The community discussed future observations below, at, and above the surface. The Steering Committee is working to distill these conversations.
- Slido collected community input on future priorities for MExAG. Select questions are presented below, and the full results on the [MExAG website Documents page](#).
- Findings from the meeting were presented to the NASA Planetary Advisory Committee and are uploaded to the [MExAG website Documents page](#).

A massive thank you to all presenters and participants! This meeting would not have been possible without the support and interest of the Mercury community or without the hard work and organization from LPI and the MExAG Steering Committee. We are already looking forward to MExAG25!

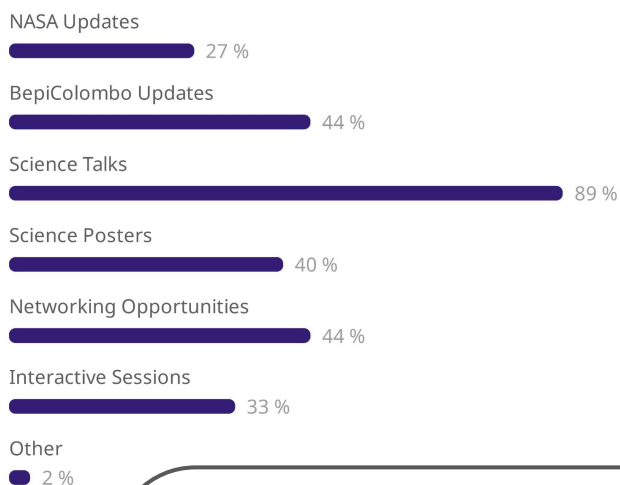
MERCURY SCIENCE and EXPLORATION NEWS

- The [Mercury 2024 meeting](#), which will be held 4–7 June 2024 in Japan, is the third meeting in the Mercury series, which [began in 2018](#) and [continued in 2022](#). The meeting will cover all scientific aspects of the planet Mercury, and the timing was chosen to be between [JpGU](#) and the [BepiColombo Science Working Team #23](#) to enable participation in multiple meetings.
- MExAG will begin advertising Mercury-related job opportunities submitted by the community in the MExAG newsletter, listserv, and Twitter! [Fill out this form](#) to submit an advertisement.
- Applications will be solicited in late April for multiple Steering Committee positions, with nominal three-year terms, starting in July 2024. The Steering Committee serves the MExAG community through the organization of community meetings, documents outlining scientific and exploration goals of the community, and community findings to be presented to NASA.
- NASA’s Science Mission Directorate has released [ROSES 2024!](#) Planetary programs that are particularly relevant to Mercury science include [C.11 \(DDAP\)](#), [C.3 \(SSW\)](#), [C.6 \(SSO\)](#), and [C.2 \(EW\)](#).

Select Slido questions from the 4th Annual MExAG Meeting

See the full results at the [MExAG website Documents page!](#)

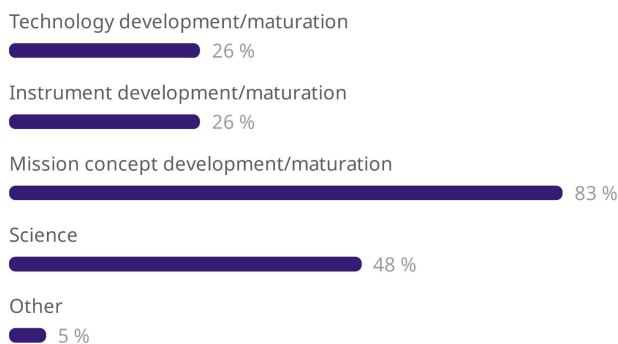
What do you consider the most useful part(s) of the MExAG annual meeting?



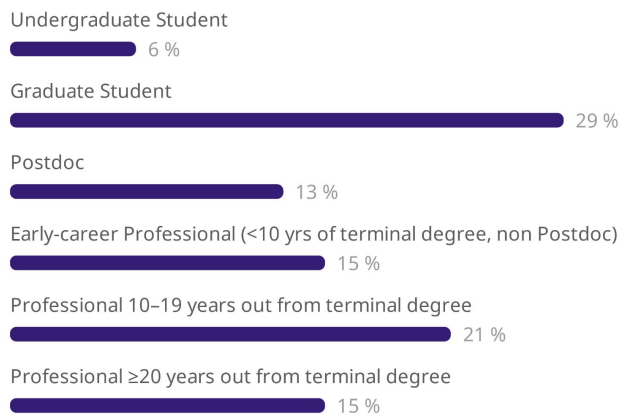
In one word, how would you describe Mercury?



What should MExAG prioritize during the next decade to advance Mercury exploration?



What is your career stage?



MERCURY EARLY CAREER SPOTLIGHT



Sophia Zomerdijk-Russell

PhD Student

Department of Physics, Imperial College London, United Kingdom

[Google Scholar](#), [ORCID](#), [LinkedIn](#), @SophiaZ_R on Twitter

Sophia investigates how Mercury's dayside magnetosphere is influenced by external factors, and how BepiColombo could probe Mercury's interior with electromagnetic induction techniques.



Stephan Loveless

PhD Candidate

Department of Geology, University of Georgia, GA, USA

[Google Scholar](#), [LinkedIn](#), [Website](#)

Stephan's work consists of modeling the subsurface fault architecture of shortening landforms on Mercury and assessing the planet's deformation at a global scale due to planetary contraction.



Emma Caminiti

PhD Student

LESIA, Paris Observatory, France

[LinkedIn](#), [ORCID](#)

Emma combines data analysis from MESSENGER/MASCS and experimental work to better understand the spectral properties and evolution of the surface of Mercury.

If you would like to be highlighted in our Spotlight, or know of an Early Career Researcher focusing on Mercury science and/or exploration, please email us at mexag.sc@gmail.com.

UPCOMING MEETINGS with MERCURY-RELATED CONTENT

[55th Lunar and Planetary Science Conference](#)

11-15 March 2024 (Virtual + The Woodlands, TX)

Don't miss these Mercury-focused sessions:

Mercury: Science from the Innermost Planet (Oral)	Tuesday	12 March, 09:55 CST
Mercury: Science from the Innermost Planet (Poster)	Tuesday	12 March, 18:30 CST
Mercury: Science from the Innermost Planet (Virtual poster)	Wednesday	13 March, 18:30 CST

MExAG is organizing a meetup at [Grogan's Mill on Tuesday, 12 March, 12:00-13:00 CST](#) – don't miss out!

[EGU 2024 General Assembly](#)

14-19 April 2024 (Vienna, Austria)

[Japan Geoscience Union Meeting 2024](#)

26-31 May 2024 (Virtual + Chiba, Japan)

[Mercury 2024](#)

Abstract deadline expected early/mid April

4-7 June 2024 (Kyoto, Japan)

[AOGS2024](#)

23-28 June 2024 (Pyeongchang, South Korea)

[Europlanet Science Conference 2024](#)

Abstracts due 15 May

8-13 September 2024 (Berlin, Germany)

RECENT MERCURY-RELATED PUBLICATIONS

View full list at <https://www.lpi.usra.edu/mexag/publications/>

2024 (as of February, new additions highlighted)

- Andolfo, S., Genova, A., & Del Vecchio, E. (2024), **Precise Orbit Determination of the MESSENGER Spacecraft**, Journal of Guidance, Control, and Dynamics, 47. <https://doi.org/10.2514/1.G007690>.
- Beddingfield, C. B., Crane, K., Klimczak, C., & Cartwright, R. (2024), **Mercury's Lobate Scarps Reveal that Polygonal Impact Craters Form on Contractional Structures**, The Planetary Science Journal, 5, 52. <https://doi.org/10.3847/PSJ/ad1fff>.
- Carli, C., Ferrari, S., Maturilli, A., Serventi, G., Sgavetti, M., et al. (2024), **Laboratory Emissivity Spectra of Sulphide-Bearing Samples, New Constraints for the Surface of Mercury: Oldhamite in Mafic Aggregates**, Minerals, 14, 62. <https://doi.org/10.3390/min14010062>.
- Christou, A. A., Egal, A., & Georgakarakos, N. (2024), **The Taurid Resonant Swarm at Mercury**, Monthly Notices of the Royal Astronomical Society, 527, 4834. <https://doi.org/10.1093/mnras/stad3516>.
- Connell, S. A., Applin, D. M., Turenne, N. N., Cloutis, E. A., Kiddell, C., et al. (2024), **The Iris CubeSat mission: Science payload description for a pathfinder geological space weathering investigation**, Acta Astronautica, 216, 381. <https://doi.org/10.1016/j.actaastro.2024.01.009>.
- Deutsch, A. N., Neumann, G. A., Kreslavsky, M. A., Pokorný, P., Martinez Camacho, J. M., Trang, D., Izenberg, N. R., Denevi, B. W., Galiano, A., & Filacchione, G. (2024), **Temperature-related Variations of 1064 nm Surface Reflectance on Mercury: Implications for Space Weathering**, The Planetary Science Journal, 5, 8. <https://doi.org/10.3847/PSJ/ad0e6d>.
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- Krüger, H., Thompson, M. S., Kobayashi, M., Mangano, V., Moroni, M., et al. (2024), **Understanding the Dust Environment at Mercury: From Surface to Exosphere**, The Planetary Science Journal, 5, 36. <https://doi.org/10.3847/PSJ/ad11f5>.
- Lai, S. H., Yang, Y.-H., & Ip, W.-H. (2024), **Magnetohydrodynamic Perspective on the Disappearance of Mercury's Bow Shock by Helios Data Exploration**, The Astrophysical Journal, 961, 83. <https://doi.org/10.3847/1538-4357/ad0a8a>.
- Nevsky, D., Lavrukhin, A., & Alexeev, I. (2024), **Mercury's Bow Shock and Magnetopause Variations According to MESSENGER Data**, Universe, 10, 40. <https://doi.org/10.3390/universe10010040>.
- Raymond, S. N., Kaib, N. A., Selsis, F., & Bouy, H. (2024), **Future trajectories of the Solar System: dynamical simulations of stellar encounters within 100 au**, Monthly Notices of the Royal Astronomical Society, 527, 6126. <https://doi.org/10.1093/mnras/stad3604>.
- Teubenbacher, D., Exner, W., Feyerabend, M., Narita, Y., Schmid, D., et al. (2024), **Solar wind entry into Mercury's magnetosphere: Simulation results for the second swingby of BepiColombo**, Astronomy and Astrophysics, 681, A98. <https://doi.org/10.1051/0004-6361/202347789>.
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- Xu, R., Xiao, Z., Wang, Y., & Cui, J. (2024), **Less than one weight percent of graphite on the surface of Mercury**, Nature Astronomy, <https://doi.org/10.1038/s41550-023-02169-5>.
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