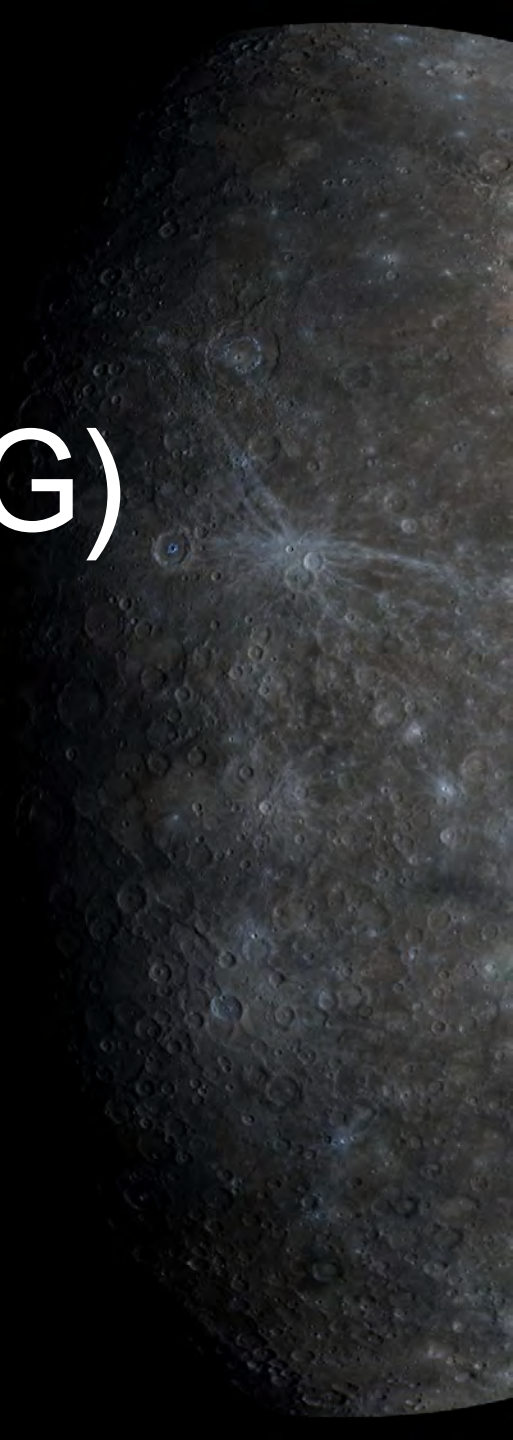


# Mercury Exploration Assessment Group (MExAG)

November 14, 2023

Carolyn Ernst, MExAG Chair

*Johns Hopkins Applied Physics Laboratory*



# Ongoing Findings and Notes

- BepiColombo IDS/GI Programs
  - MExAG encourages NASA to work with its international partners to secure the opportunity for U.S. participation in any future BepiColombo IDS/GI calls run by ESA and/or JAXA. In particular, MExAG would welcome an increase in the number of NASA-supported scientists who can participate, especially given the high-level of Mercury-science interest and expertise in the U.S.
- Discovery
  - Note: MExAG is the sole AG community for which Discovery is the only potential avenue for exploration in the next decade. This fact, compounded by the long cruise times for missions to Mercury, means that any delays or reductions in the Discovery AO cadence will disproportionately impact opportunities for exploration of the innermost planet and the health of the Mercury community.

# Mercury and MExAG Activities

- **Annual Meeting:** Annual MExAG meeting 6–8 Feb 2024 (virtual).
- **Science Goals Document:** Plan to release a complete draft of the first MExAG Science Goals Document for the MExAG meeting, will incorporate community feedback and release.
- **New Members:** Open geochemistry slot now filled, steering committee fully staffed.
- **Technology:** Compiling feedback to PESTO Technology Development Plan Framework.
- **BepiColombo:** Completed Mercury Flyby 3 (of 6) on June 20, next flyby 5 September 2024.

# Additional MExAG Materials



# Finding: Discovery Program

- MExAG is disappointed that problems with the Psyche mission have led to substantial negative consequences for other PI-led missions. The MExAG community supports the principle that each competitively selected, PI-led mission should have the opportunity to proceed through the development process, including reviews and key decision points, on its own merits to achieve the science for which it was selected.
- Further, MExAG notes that within the context of the recommended program for missions in the most recent Decadal Survey, *Origins, Worlds, and Life*, it is the only AG community for which Discovery is the sole potential avenue for exploration in the next decade. This fact, compounded by the long cruise times for missions to Mercury, means that any delays or reductions in the Discovery AO cadence will disproportionately impact opportunities for exploration of the innermost planet and the health of the Mercury community.

# BepiColombo IDS/GI Programs

- MExAG thanks NASA for working with ESA to include and support U.S.-based scientists on the BepiColombo team as an Interdisciplinary Scientist (IDS)/Guest Investigators (GIs).
- MExAG encourages NASA to work with its international partners to secure the opportunity for U.S. participation in any future BepiColombo IDS/GI calls run by ESA and/or JAXA. In particular, MExAG would welcome an increase in the number of NASA-supported scientists who can participate, especially given the high-level of Mercury-science interest and expertise in the U.S. Such participation would also continue to leverage NASA's significant investments in building Mercury expertise through the MESSENGER mission and analysis of the data it collected.
- In addition, MExAG notes that the previous call for BepiColombo Interdisciplinary Scientists and Guest Investigators stated "The aim of this AO is to appoint up to six IDSs and up to eleven GIs for the BepiColombo mission" without noting how many of those were potentially available to U.S. scientists. MExAG encourages NASA to provide explicit guidance for any future BepiColombo IDS/GI calls regarding the likely number of investigators that would be supported by NASA for this program, i.e., so that potential proposers are fully aware of the programmatic parameters.

# Decadal Survey – Highlighted Recommendations

- R&A constitute 10% of PSD budget.
- Technology be 6–8 % of PSD budget.
- New NF concepts due to new discoveries be evaluated before NF-7.<sup>a</sup>
- Plutonium-238 needs be evaluated against mission portfolio and increased as needed.<sup>a</sup>
- Expanding support for ground-based telescope observations and planetary astronomers.<sup>a</sup>
- Reviewing current radar infrastructure to meet community needs, including replacing capabilities lost with Arecibo.<sup>a</sup>

# MExAG Steering Committee 2023–2024



**Carolyn Ernst**  
JHU APL  
*Chair*



**Stephen Parman**  
Brown University  
*Vice-Chair*



**Steven A. Hauck, II**  
Case Western Reserve  
University  
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*Exosphere Discipline  
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**Suzanne Imber**  
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*International Liaison*



**Océane Barraud**  
DLR  
*International Early  
Career Member*



**Shoshana Weider**  
NASA HQ  
*NASA Liaison*





# Upcoming Mercury Events

- AGU 2023, 11–15 December 2023
- MExAG 2024, 6–8 February 2024
- LPSC 2024, 11–15 March 2024
- Mercury 2024, 4–7 June 2024 in Kyoto, Japan
- BepiColombo:
  - Mercury Flyby 4, 5 September 2024

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

Twitter: [@ExploreMercury](https://twitter.com/ExploreMercury)

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