

# Mercury Exploration Assessment Group (MExAG)

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# MExAG Activities and Findings

- **Goals Document:** On target to finalize in Q1 or Q2 2023
- **Technology Showcase:** Facilitated 3 mission concepts
- **MExAG23:** Feb 1–3, 2023 (virtual)
- **Finding:** MExAG encourages NASA to work with ground-based observatories where it acquires observation time to enact policies that equitably enable Mercury observations.  
(Full text of finding in backup)
- **Next:** BepiColombo Mercury Third Flyby on June 20, 2023

# Backup slides



# Ground-based Observatories

- Ground-based optical, infrared, and radio/radar observations play a critical role in the study of Mercury. MExAG encourages NASA to work with key facilities to address procedural/logistical obstacles that create serious challenges for proposals to observe Mercury, particularly during the coming years when support for – and coordinated science with – the BepiColombo mission is vital to provide increased science context.
- MExAG encourages NASA to:
  - Work with optical telescope facilities on which NASA acquires time (e.g., Keck Observatory) and their Telescope Allocation Committees (TACs) to ease the scheduling of twilight-time observations for Mercury. Many telescopes require half-night or even full night proposals; however, Mercury is only available for 1-2 hours at the beginning or end of the night, substantially disadvantaging observers of the innermost planet.
  - Engage with Goldstone and Green Bank Telescope, to ensure that there are equitable opportunities for planetary science observations, particularly now that Arecibo is no longer an option.
  - Allow observers to obtain letters of endorsement from NASA for Mercury observations in support of the BepiColombo mission during the upcoming flybys and orbital mission.



# MExAG Steering Committee



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NASA HQ  
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# Recent MExAG and Mercury Activities

- Goals Document Development
- Developing a process for selecting MExAG Chair and Vice-Chair positions
- Support for NASA Technology Showcase

# Decadal Survey – Notable Mercury

- Decadal level Mercury science was highlighted throughout *Origins, Worlds, and Life*, indeed in most of the priority question topics.
- Technological challenges, and the to address them, of Mercury's extreme environment were highlighted as well.
- Dozens of mentions of the need for samples and *in situ* measurements of Mercury underscore the importance of landing a spacecraft on the planet.



# 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>

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<sup>a</sup> MExAG has presented findings to the PAC in 2021 & 2022 consistent with these recommendations.



# Upcoming Mercury Meetings and Events

- Mercury Session, AGU Fall Meeting, 12–16 December 2023
- MExAG 2023, 1–3 February 2023
- Mercury 2024, To be held in Japan
- BepiColombo:
  - Mercury Flyby 3, 20 June 2023

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

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

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