The MERCURY NEWSLETTER

by the Mercury Exploration Assessment Group (MExAG)

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

MERCURY SCIENCE and EXPLORATION NEWS

The Fourth MExAG Annual Meeting will take place virtually 6-8 February 2024. This meeting will bring together the international Mercury community to share new and ongoing science and shape the future of Mercury exploration through technology- and community-focused sessions.

- **Submit your 1,000-character abstracts by 30 November 2023.** These abstracts are a great way to socialize and collaborate on projects of all maturity levels, from back-of-the-envelope ideas to recently published results.
- **More information and abstract submission at https://www.lpi.usra.edu/mexag/meetings/feb2024**
- This year's meeting will include an interactive discussion about geographic regions of interest led by Carolyn Ernst & Sébastien Besse to generate a preliminary list of locations/feature types, rationales, and priorities that could serve as inputs for a future lander mission and/or observations for BepiColombo.

WELCOMING OUR NEW STEERING COMMITTEE MEMBER

Brendan Anzures
Geochemistry Discipline Member, 2023-2026
Research Scientist
Jacobs / NASA Johnson Space Center, Houston, TX, USA

Brendan is an experimental petrologist and sample scientist who studies planetary materials to understand chemical processes at depth and at the surface, focusing on how volatile elements influence the redox, volatile, and thermal evolution of Mercury and meteorite parent bodies.

MERCURY EARLY CAREER SPOTLIGHT

Noah Jäggi
SNSF Postdoc.Mobility Fellow
Laboratory for Astrophysics and Surface Physics, University of Virginia, VA, USA
Website, ResearchGate, ORCID, Google Scholar

Noah uses numerical and experimental approaches to better quantify solar wind ion sputtering. He is currently investigating complex ion-surface interactions including defect mediated diffusion.

Charles Bowers
Postdoctoral Research Fellow
Dublin Institute for Advanced Studies, Dublin, Ireland
Google Scholar

Charlie uses MESSENGER observations of Mercury's magnetotail lobes to explore their relationship with the solar wind as external pressure and dayside reconnection modify their magnetic field.

Mireia Leon-Dasi
PhD Student
LESIA, Paris Observatory, France
LinkedIn, ORCID

Mireia uses machine learning techniques to improve understanding of the timing and size of explosive volcanic eruptions based on MESSENGER/MASCS observations.

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

American Geophysical Union (AGU) Fall Meeting
https://www.agu.org/fall-meeting
11-15 Dec 2023 (Virtual + San Francisco, CA)
Registration open and program available

Don't miss these Mercury-focused sessions:

P31C - *Mercury in the Solar Wind I Poster*	Wednesday	13 Dec, 08:30-12:50 PST
P31D - *Mercury: Interdisciplinary Research Inside and Out Poster*	Wednesday	13 Dec, 08:30-12:50 PST
P41A - *Mercury in the Solar Wind II Oral*	Thursday	14 Dec, 08:30-10:00 PST

Additional sessions with one or more Mercury-focused presentations include:
[P13G], [P21C], [P21E], [P31E], [SM43D], [SM24B], [SM11B], [SM51A], [DI23B], [DI31B], [ED41C], [MR43C]

The Fourth MExAG Annual Meeting
https://www.lpi.usra.edu/mexag/meetings/feb2024/
6-8 February 2024 (Virtual)
Abstracts due: 30 November 2023

55th Lunar and Planetary Science Conference
https://www.hou.usra.edu/meetings/lpsc2024/
11-15 March 2024 (Virtual + The Woodlands, TX)
Abstracts due: 9 January 2024

EGU 2024 General Assembly
https://www.egu24.eu/
14-19 April 2024 (Vienna, Austria)
Abstracts due: 10 January 2024

RECENT MERCURY-RELATED PUBLICATIONS

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

2023 (as of November, new additions highlighted)

Abbot, D. S., Hernandez, D. M., Hadden, S., Webber, R. J., Afentakis, G. P., & Weare, J., (2023), **Simple Physics and Integrators Accurately Reproduce Mercury Instability Statistics**, The Astrophysical Journal 944, 2. https://doi.org/10.3847/1538-4357/acb6ff.

Aizawa, S., Harada, Y., André, N., Saito, Y., Barabash, S., et al., (2023), **Direct evidence of substorm-related impulsive injections of electrons at Mercury**, Nature Communications, 14. https://doi.org/10.1038/s41467-023-39565-4.

Alberti, T., Sun, W., Varsani, A., Heyner, D., Orsini, S., et al., (2023), **High-energy particle enhancements in the solar wind upstream Mercury during the first BepiColombo flyby: SERENA/PICAM and MPO-MAG observations**, Astronomy & Astrophysics 669. https://doi.org/10.1051/0004-6361/202244662.

Barbaro, A., Zorzi, F., Lorenzetti, A., Ferrari, S., et al., (2023), **Thermal expansion of oldhamite, CaS: Implication for the surface of Mercury**, Icarus, 401. https://doi.org/10.1016/j.icarus.2023.115629.

Barraud, O., Besse, S., & Doressoundiram, A., (2023), **Low sulfide concentration in Mercury's smooth plains inhibits hollows**, Science Advances 9, 12. https://doi.org/10.1126/sciadv.add6452.

Bertone, S., Mazarico, E., Barker, M. K., Siegler, M. A., Martinez-Camacho, et al., (2023), **Highly Resolved Topography and Illumination at Mercury's South Pole from MESSENGER MDIS NAC**, The Planetary Science Journal, 4, 21. https://doi.org/10.3847/PSJ/acaddb.

Bott, N., Brunetto, R., Doressoundiram, A., Carli, C., Capaccioni, F., et al., (2023), **Effects of Temperature on Visible and Infrared Spectra of Mercury Minerals Analogues**, Minerals 13, 2. https://doi.org/10.3390/min13020250.

Bromley, J., & Chiang, E., (2023), **Chaotic winds from a dying world: a one-dimensional map for evolving atmospheres**, Monthly Notices of the Royal Astronomical Society, 521, 4. https://doi.org/10.1093/mnras/stad932.

Brown, G., & Hanno, R., (2023), **General relativistic precession and the long-term stability of the solar system**, Monthly Notices of the Royal Astronomical Society. https://doi.org/10.1093/mnras/stad719.

Butkus, C. R., Warren, A. O., Kite, E. S., Torres, S., Naoz, S., & Glass, J. B., (2023), **A note on graphite hydrogenation as a source of abiotic methane on rocky planets: A case study for Mercury**, Icarus, 400. https://doi.org/10.1016/j.icarus.2023.115580.

Caminiti, E., Doressoundiram, A., Besse, S., & Wright, J., (2023), **A Spectral Study of the Caloris Basin on Mercury and the Origin of Associated Volcanic Smooth Plains**, Journal of Geophysical Research: Planets, 128, 5. https://doi.org/10.1029/2022JE007685.

Cardinale, M., Vaz, D. A., D'Incecco, P., Mari, N., et al., (2023), **Morphostructural mapping of Borealis Planitia, Mercury**, Journal of Maps 19, 1. https://doi.org/10.1080/17445647.2023.2223637.

Chambers, J., (2023), **Making the Solar System**, The Astrophysical Journal 944, 2. https://doi.org/10.3847/1538-4357/aca96f.

Charbonnier, G., Boulila, S., Spangenberg, J. E., Vermeulen, J., & Galbrun, B., (2023), **Astrochronology of the Aptian stage and evidence for the chaotic orbital motion of Mercury**, Earth and Planetary Science Letters 610. https://doi.org/10.1016/j.epsl.2023.118104.

Chaufray, J. -Y., Quémerais, E, Koutroumpa, D., Robidel, R., Leblanc, F., et al., (2023), **The EUV Reflectance of Mercury's Surface Measured by BepiColombo/PHEBUS**, Journal of Geophysical Research: Planets 128, 3. https://doi.org/10.1029/2022JE007669.

Chen, Y.-W., Shue, J.-H., Zhong, J., & Shen, H.-W., (2023), **Anomalous Response of Mercury's Magnetosphere to Solar Wind Compression: Comparison to Earth**, The Astrophysical Journal, 957, 1. https://doi.org/10.3847/1538-4357/acf655.

RECENT MERCURY-RELATED PUBLICATIONS

Clement, M. S., Chambers, J. E., Kaib, N. A., et al., (2023), **Mercury's formation within the early instability scenario**, Icarus 394, 115445. https://doi.org/10.1016/j.icarus.2023.115445.

Davis, E. E., Winslow, R. M., & Lawrence, D. J., (2023), **Characterizing Interplanetary Coronal Mass Ejection-related Forbush Decreases at Mercury Using MESSENGER Observations: Identification of a One- or Two-step Structure**, The Astrophysical Journal 943, 83. https://doi.org/10.3847/1538-4357/acaca1.

Deng, Q., Xiao, Z., Zhong, Z., Ye, M., Li, F., et al., (2023), L**ithospheric Elastic Thickness Beneath the Caloris Basin: Implications for the Thermal Structure of Mercury**, Journal of Geophysical Research: Planets, 128, 5. https://doi.org/10.1029/2023JE007796.

Edvardsson, S., (2023), **Relativistic gravitational force**, Celestial Mechanics and Dynamical Astronomy, 135, 3. https://doi.org/10.1007/s10569-023-10138-3.

Filacchione, G., Capaccioni, F., Simioni, E., & Cremonese, G., (2023), **The Global Mapping of Mercury's Surface From SIMBIO-SYS Onboard BepiColombo: VIS-NIR Hyperspectral Coverage by the VIHI Channel**, IEEE Transactions on Geoscience and Remote Sensing, 61. https://doi.org/10.1109/TGRS.2023.3312788.

Galiano, A., Capaccioni, F., Filacchione, G., & Carli, C., (2023), **Principal Component Analysis applied on MASCS/MESSENGER data for the spectral investigation of Mercury's surface**, Icarus, 401. https://doi.org/10.1016/j.icarus.2023.115609.

Genova, A., Goossens, S., Del Vecchio, E., Petricca, F., Beuthe, M., Wieczorek, M., et al., (2023), **Regional variations of Mercury's crustal density and porosity from MESSENGER gravity data**, Icarus 391, 115332. https://doi.org/10.1016/j.icarus.2022.115332.

Glantzberg, A. K., Chabot, N. L., Barker, M. K., Mazarico, E., Siegler, M. A., et al., (2023), **Investigating the Stability and Distribution of Surface Ice in Mercury's Northernmost Craters**, The Planetary Science Journal, 4, 6. https://doi.org/10.3847/PSJ/acd68d.

Gläser, P., & Oberst, J., (2023), **Modeling the thermal environment of Mercury's north pole using MLA. Implications for locations of water ice**, Icarus 391, 115349. https://doi.org/10.1016/j.icarus.2022.115349.

Glass, A. N., Tracy, P. J., Raines, J. M., Xianzhe, J., Norberto, R., & DiBraccio, G. A., (2023), **Characterization of Foreshock Plasma Populations at Mercury**, Journal of Geophysical Research: Space Physics 128, 2. https://doi.org/10.1029/2022JA031111.

Gosselin, G. J., Freed, A. M., & Johnson, B. C., (2023), **Crustal Block and Muted Ring Development During the Formation of Mercury's Caloris Megabasin**, Journal of Geophysical Research: Planets, 128, 9. https://doi.org/10.1029/2023JE007920.

Griton, L., Issautier, K., Moncuquet, M., Pantellini, F., Kasaba, Y., & Kojima, H., (2023), **Electron density revealing the boundaries of Mercury's magnetosphere via serendipitous measurements by SORBET during BepiColombo first and second Mercury swing-bys**, Astronomy & Astrophysics 670. https://doi.org/10.1051/0004-6361/202245162.

Iacovino, K., McCubbin, F. M., Vander Kaaden, K. E., Clark, J., Wittmann, A., Jakubek, R. S., et al., (2023), **Carbon as a key driver of super-reduced explosive volcanism on Mercury: Evidence from graphite-melt smelting experiments**, Earth and Planetary Science Letters 602, 117908. https://doi.org/10.1016/j.epsl.2022.117908.

Izvekova, Yu. N., Popel, S. I., & Golub', A. P., (2023), **Wave Processes in Dusty Plasma near the Mercury's Surface**, Plasma Physics Reports, 49, 7. https://doi.org/10.1134/S1063780X23600585.

Jäggi, N., Mutzke, A., Biber, H., Brötzner, J., Szabo, P. S., et al., (2023), **New Compound and Hybrid Binding Energy Sputter Model for Modeling Purposes in Agreement with Experimental Data**, The Planetary Science Journal, 4, 5. https://doi.org/10.3847/PSJ/acd056.

Lark, L. H., Head, J. W., & Huber, C., (2023), **Evidence for a carbon-rich Mercury from the distribution of low-reflectance material (LRM) associated with large impact basins**, Earth and Planetary Science Letters, 613. https://doi.org/10.1016/j.epsl.2023.118192.

RECENT MERCURY-RELATED PUBLICATIONS

Lavorenti, F., Henri, P., Califano, F., Deca, J., Lindsay, S., et al., (2023), S**olar-wind electron precipitation on weakly magnetized bodies: The planet Mercury**, Astronomy & Astrophysics, 674. https://doi.org/10.1051/0004-6361/202245711.

Lavorenti, F., Jensen, E. A., Aizawa, S., Califano, F., D'Amore, M., et al., (2023), **Maps of Solar Wind Plasma Precipitation onto Mercury's Surface: A Geographical Perspective**, The Planetary Science Journal, 4, 9. https://doi.org/10.3847/PSJ/acef15.

Leblanc, F., Deborde, R., Tramontina, D., Bringa, E., Chaufray, J. Y., et al., (2023), **On the origins of backscattered solar wind energetic neutral hydrogen from the Moon and Mercury**, Planetary and Space Science 229. https://doi.org/10.1016/j.pss.2023.105660.

Leon-Dasi, M.,; Besse, S., & Doressoundiram, A., (2023), **Deep Learning Investigation of Mercury's Explosive Volcanism**, Remote Sensing, 15, 18. https://doi.org/10.3390/rs15184560.

Lézin, M., Amit, H., Terra-Nova, F., & Wardinski, I., (2023), **Mantle-driven north-south dichotomy in geomagnetic polar minima**, Physics of the Earth and Planetary Interiors 337. https://doi.org/10.1016/j.pepi.2023.107000.

Li, C., Jia, X., Chen, Y., Toth, G., Zhou, H., et al., (2023), **Global Hall MHD Simulations of Mercury's Magnetopause Dynamics and FTEs Under Different Solar Wind and IMF Conditions**, Journal of Geophysical Research: Space Physics, 128, 5. https://doi.org/10.1029/2022JA031206.

Lierle, P., Schmidt, C., Baumgardner, J., Moore, L., & Lovett, E., (2023), **Rapid Imaging Planetary Spectrograph**, Publications of the Astronomical Society of the Pacific, 135, 1051. https://doi.org/10.1088/1538-3873/acec9f.

Ma, P., Zhang, H., Yang, Y., Jiang, T., Britt, D., & Zhu, M., (2023), **A laboratory study of the phase ratio imagery method**, Icarus, 401. https://doi.org/10.1016/j.icarus.2023.115608.

Malliband, C. C., Rothery, D. A., Balme, M. R., Conway, S. J., Pegg, D. L., & Wright, J., (2023), **Geology of the Derain quadrangle (H10), Mercury**, Journal of Maps, 19, 1. https://doi.org/10.1080/17445647.2022.2112774.

Man, B., Rothery, D. A., Balme, M. R.,; Conway, S. J., & Wright, J., (2023), **Widespread small grabens consistent with recent tectonism on Mercury**, Nature Geoscience, 16, 10. https://doi.org/10.1038/s41561-023-01281-5.

Man, B., Rothery, D. A., Balme, M. R., Conway, S. J., Wright, J., et al., (2023), **Geology of the Neruda quadrangle (H13), Mercury**, Journal of Maps, 19, 1. https://doi.org/10.1080/17445647.2023.2256353.

Mari, N., Eggers, G. L., Filiberto, J., Carli, C., Pratesi, G., et al., (2023), **Boninites as Mercury lava analogues: Geochemical and spectral measurements from pillow lavas on Cyprus island**, Planetary and Space Science 236. https://doi.org/10.1016/j.pss.2023.105764.

Milillo, A., Sarantos, M., Grava, C., Janches, D., Lammer, H., et al., (2023), **Future Directions for the Investigation of Surface-Bounded Exospheres in the Inner Solar System**, Space Science Reviews, 219, 6. https://doi.org/10.1007/s11214-023-00994-8.

Morlok, A., Renggli, C., Charlier, B., Namur, O., Klemme, S., et al., (2023), **A mid-infrared study of synthetic glass and crystal mixtures analog to the geochemical terranes on Mercury**, Icarus 396. https://doi.org/10.1016/j.icarus.2023.115498.

Moroni, M., Mura, A., Milillo, A., Plainaki, C., Mangano, V., et al., (2023), **Micro-meteoroids impact vaporization as source for Ca and CaO exosphere along Mercury's orbit**, Icarus, 401. https://doi.org/10.1016/j.icarus.2023.115616.

Morrissey, L., et al., (2023), **Establishing a Best Practice for SDTrimSP Simulations of Solar Wind Ion Sputtering**, The Planetary Science Journal 4, 4. https://doi.org/10.3847/PSJ/acc587.

Mouser, M. D., & Dygert, N., (2023), **On the Potential for Cumulate Mantle Overturn in Mercury**, Journal of Geophysical Research: Planets, 128, 7. https://doi.org/10.1029/2023JE007739.

Munaretto, G., Lucchetti, A., Pajola, M., Cremonese, G., & Massironi, M., (2023), **Assessing the spectrophotometric properties of Mercury's hollows through multiangular MESSENGER/MDIS observations**, Icarus 389, 115284. https://doi.org/10.1016/j.icarus.2022.115284.

RECENT MERCURY-RELATED PUBLICATIONS

Mura, A., Plainaki, C., Milillo, A., Mangano, V., Alberti, T., Massetti, S., et al., (2023), T**he yearly variability of the sodium exosphere of Mercury: A toy model**, Icarus 394, 115441. https://doi.org/10.1016/j.icarus.2023.115441.

Nevskii, D. V., Lavrukhin, A. S., & Alexeev, I. I., (2023), **Automatic Detection of Bow Shock and Magnetopause Positions at Mercury's Magnetosphere Using MESSENGER Magnetometer Data**, Cosmic Research, 61, 3. https://doi.org/10.1134/S0010952522600081.

Nittler, L. R., Boujibar, A., et al., (2023), **Chromium on Mercury: New Results From the MESSENGER X-Ray Spectrometer and Implications for the Innermost Planet's Geochemical Evolution**, Journal of Geophysical Research: Planets, 128, 7. https://doi.org/10.1029/2022JE007691.

Ozaki, M., Yagitani, S., Kasaba, Y., Kasahara, Y., Matsuda, S., et al., (2023), **Whistler-mode waves in Mercury's magnetosphere observed by BepiColombo/Mio**, Nature Astronomy. https://doi.org/10.1038/s41550-023-02055-0.

Pirotte, H., Cartier, C., Namur, O., Pommier, A., Zhang, Y., et al., (2023), I**nternal differentiation and volatile budget of Mercury inferred from the partitioning of heat-producing elements at highly reduced conditions**, Icarus, 405. https://doi.org/10.1016/j.icarus.2023.115699.

Pokorny, P., Deutsch, A.N., Kuchner, M. J., (2023), **Mercury's circumsolar dust ring as an imprint of a recent impact**, The Planetary Science Journal 4, 33. https://doi.org/10.3847/PSJ/acb52e.

Popel, S. I., Zelenyi, L. M., Zakharov, A. V., (2023), **Dusty Plasma in the Solar System: Celestial Bodies without Atmosphere**, Plasma Physics Reports, 49, 8. https://doi.org/10.1134/S1063780X23600780.

Quémerais, E., Koutroumpa, D., Lallement, R., Sandel, B. R., Robidel, R., et al., (2023), **Observation of Helium in Mercury's Exosphere by PHEBUS on Bepi-Colombo**, Journal of Geophysical Research: Planets, 128, 6. https://doi.org/10.1029/2023JE007743.

Reitze, M. P., Weber, I., et al., (2023), **Mid-Infrared Spectroscopy of Feldspars From the Bühl Basalt (Northern Hesse, Germany) Formed Under Reducing Conditions as Terrestrial Analogue of Mercury for MERTIS**, Earth and Space Science, 10, 6. https://doi.org/10.1029/2023EA002903.

Righter, K., Boujibar, A., Humayun, M., Yang, S., Rowland, R., & Pando, K., (2023), A**ctivity model for 36 elements in Fe-Ni-Si-S-C liquids with application to terrestrial planet accretion and mantle geochemistry: New data for Ru, Re, Pt, Os, Ti, Nb, and Ta**, Geochimica et Cosmochimica Acta, 354. https://doi.org/10.1016/j.gca.2023.06.014.

Saha, P., & Mukherjee, G. D., (2023), **Thermal conductivity of iron and nickel during melting: Implication to the planetary liquid outer core**, Pramana 97, 1. https://doi.org/10.1007/s12043-022-02471-3.

Seuren, F., Triana, S. A., Rekier, J., Barik, A., & Van Hoolst, T., (2023), **Effects of the Librationally Induced Flow in Mercury's Fluid Core with an Outer Stably Stratified Layer**, The Planetary Science Journal, 4, 9. https://doi.org/10.3847/PSJ/acee77.

Shao, P., Ma, Y., Odstrcil, D., (2023), **Solar wind directional change triggering large-amplitude deflection of Mercury's current sheet**, Astrophysics and Space Science 368, 4. https://doi.org/10.1007/s10509-023-04191-5.

Soni, S. L., Selvakumaran, R., & Thampi, R. S., (2023), **Assessment of the arrival signatures of the March 2012 CME–CME interaction event with respect to Mercury, Venus, Earth, STEREO-B, and Mars locations**, Frontiers in Astronomy and Space Sciences 9. https://doi.org/10.3389/fspas.2022.1049906.

Subbotin, M., Kodukov, A., & Pavlov, D., (2023), **Reducing roundoff errors in numerical integration of planetary ephemeris**, Celestial Mechanics and Dynamical Astronomy, 135, 3. https://doi.org/10.1007/s10569-023-10139-2.

Szabo, P. S., Poppe, A. R., Mutzke, A., Fatemi, S., Vorburger, A., & Wurz, P., (2023), **Energetic Neutral Atom (ENA) Emission Characteristics at the Moon and Mercury From 3D Regolith Simulations of Solar Wind Reflection**, Journal of Geophysical Research: Planets, 128, 9. https://doi.org/10.1029/2023JE007911.

RECENT MERCURY-RELATED PUBLICATIONS

Teolis, B., Sarantos, M., Schorghofer, N. et al., (2023), **Surface Exospheric Interactions**, Space Sci Rev 219, 4. https://doi.org/10.1007/s11214-023-00951-5.

Tomko, D., & Neslušan, L., (2023), **Prediction of the collisions of meteoroids originating in comet 21P/Giacobini-Zinner with the Mercury, Venus, and Mars**, Icarus, 405. https://doi.org/10.1016/j.icarus.2023.115694.

Unterborn, C. T., Desch, S. J., Haldemann, J., Lorenzo, A., Schulze, J. G., et al., (2023), **The Nominal Ranges of Rocky Planet Masses, Radii, Surface Gravities, and Bulk Densities**, The Astrophysical Journal 944, 1. https://doi.org/10.3847/1538-4357/acaa3b.

Varela, J., & Pantellini, F., (2023), **Slow-mode rarefaction and compression fronts in the Hermean magnetosphere: From MESSENGER insights to future BepiColombo observations**, Astronomy & Astrophysics, 675. https://doi.org/10.1051/0004-6361/202245596.

Verkercke, S., Chaufray, J.-Y., Leblanc, F., Bringa, E. M., Tramontina, D., et al., (2023), **Effects of Airless Bodies' Regolith Structures and of the Solar Wind's Properties on the Backscattered Energetic Neutral Atoms Flux**, The Planetary Science Journal, 4, 10. https://doi.org/10.3847/PSJ/acf6bd.

Voitcu, G., Echim, M., Teodorescu, E., & Munteanu, C., (2023), **Kinetic simulations of solar wind plasma irregularities crossing the Hermean magnetopause**, Astronomy & Astrophysics, 674. https://doi.org/10.1051/0004-6361/202346214.

Wang, Y., Zhong, J., Slavin, J., Zhang, H., Lee., L.-C., et al., (2023), **MESSENGER Observations of Standing Whistler Waves Upstream of Mercury's Bow Shock**, Geophysical Research Letters, 50, 10. https://doi.org/10.1029/2022GL102574.

Weber, I., Reitze, M. P., Morlok, A., Stojic, A. N., Hiesinger, H., et al. (2023), **Mid-IR spectral properties of different surfaces of silicate mixtures before and after excimer laser irradiation**, Icarus, 404. https://doi.org/10.1016/j.icarus.2023.115683.

Williams, H., (2023), **An elementary approach to simulating the perihelion of Mercury**, European Journal of Physics, 44, 6. https://doi.org/10.1088/1361-6404/ad0188.

Wohlfarth, K., Wöhler, C., Hiesinger, H., & Helbert, J., (2023), **An advanced thermal roughness model for airless planetary bodies. Implications for global variations of lunar hydration and mineralogical mapping of Mercury with the MERTIS spectrometer**, Astronomy & Astrophysics, 674. https://doi.org/10.1051/0004-6361/202245343.

Xie, J., & Huang, C., (2023), **On the formation of thrust fault-related landforms on Mercury: The key parameters controlling the mechanical structure of the lithosphere**, Icarus, 401. https://doi.org/10.1016/j.icarus.2023.115594.

Yamada, I., Terasaki, H., Urakawa, S., Kondo, T., Machida, A., et al. (2023), **Sound velocity and elastic properties of Fe-Ni-S-Si liquid: the effects of pressure and multiple light elements**, Physics and Chemistry of Minerals, 50, 3. https://doi.org/10.1007/s00269-023-01243-8.

Zhong, J., Lee, L.-C., Slavin, J. A., Zhang, H., & Wei, Y., (2023), **MESSENGER Observations of Reconnection in Mercury's Magnetotail Under Strong IMF Forcing**, Journal of Geophysical Research: Space Physics 128, 2. https://doi.org/10.1029/2022JA031134.

Zomerdijk-Russell, S., Masters, A., Korth, H., & Heyner, D. (2023), **Modeling the time-dependent magnetic fields that BepiColombo will use to probe down into Mercury's mantle**, Geophysical Research Letters 50, e2022GL101607. https://doi.org/10.1029/2022GL101607.

Zomerdijk-Russell, S., Masters, A., Sun, W. J., Fear, R. C., & Slavin, J. A., (2023), **Does Reconnection Only Occur at Points of Maximum Shear on Mercury's Dayside Magnetopause?**, Journal of Geophysical Research: Space Physics, 128, 11. https://doi.org/10.1029/2023JA031810.

Additional Mercury Publications?
Let us know! Send a note to mexag.sc@gmail.com for inclusion in our quarterly newsletter.