

# Michael Manuel Sori

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## RESEARCH INTERESTS

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Planetary Science, Geophysics, Spacecraft Missions

## EDUCATION

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Ph.D.	2014	Massachusetts Institute of Technology (MIT), Planetary Science, Advisors: Maria Zuber, Taylor Perron
B.S.	2008	Duke University, Mathematics
B.A.	2008	Duke University, Physics

### *Certificates:*

Leading People and Teams	2024	University of Michigan
Foundations in College Teaching	2023	Purdue University

## PROFESSIONAL EXPERIENCE

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2020–now	Assistant Professor, Purdue University
2017–2020	Associate Staff Scientist, University of Arizona
2014–2017	Postdoctoral Research Associate, University of Arizona

## RESEARCH EXPERIENCE

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2009–now	Worked with Lunar Reconnaissance Orbiter, GRAIL, Dawn, and Mars Reconnaissance Orbiter NASA missions
2015	Iceland Field Workshop on active lava-water interactions
2010	Field Training and Research Program at Meteor Crater
2009	Internship at Hollifield Radioactive Ion Beam Facility with Ken Carter, Oak Ridge National Laboratory
2007–2008	Undergraduate research assistant at Duke Free Electron Laser Laboratory with Ying Wu, Duke University

## GRANTS

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### As principal investigator (PI) or lead:

2023–2028	Enabling the future of planetary geodesy, NASA Early Career Award Program (ECA)
2023–2026	The climate record of polar outliers on Mars, NASA Mars Data Analysis Program (MDAP)
2022–2025	Geophysical and geological tests of Ceres' crustal composition, NASA Discovery Data Analysis Program (DDAP)
2021–2024	The evolution of planetary crusts through lunar gravity and topography, NASA Lunar Data Analysis Program (LDAP)
2021	Cryovolcanism as an atmospheric source on Pluto's moon Charon, Purdue Ross-Lynn Scholars Grant
2020	Next Generation Planetary Geodesy, Caltech Keck Institute for Space Studies (KISS) Study Program
2017–2020	Ice deposits in polar craters on Mars, NASA Mars Data Analysis Program (MDAP)

### As co-investigator (Co-I):

2024	Mars Aerial and Ground Global Intelligent Explorer (MAGGIE), NASA Innovative Advanced Concepts (NIAC) (PI: Gecheng Zha, University of Miami)
2023	The Uranian moons as possible active worlds, NASA JPL Research & Technology Development Strategic Initiatives (PI: Tom Nordheim, NASA JPL)
2021	Purdue planetary science summer research program, Indiana Space Grant Consortium (PI: Briony Horgan, Purdue University)
2019–2020	Assessing dwarf planet Ceres' past and present habitability potential, NASA Planetary Mission Concept Studies (PI: Julie Castillo-Rogez, NASA JPL)

## AWARDS

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2021–2024	Teaching Honor Roll, Purdue University (×7, every class taught)
2023	NASA Planetary Science Early Career Award

2019	NASA RHG Exceptional Achievement for Science Award: The Dawn Science Team, Ceres encounter
2019	University of Arizona Outstanding Postdoctoral Scholar Award
2019	NASA PI Launchpad Workshop selection
2017	Early Career travel award, NASA Outer Planets Assessment Group (OPAG)
2014	MIT Grayce B. Kerr Fellowship
2013	NASA RHG Exceptional Achievement for Science Award: The LRO Science Mission Team
2011–2013	MIT Robert R. Shrock Fellowship

## MENTORSHIP

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### *At Purdue:*

Kristel Izquierdo	Postdoc	Supervisor, 2021–now
Abbey Dunnigan	PhD student	Advisor, 2024–now
Brianne Checketts	PhD student,	Advisor, 2024–now
Mariana Blanco-Rojas	PhD student	Advisor, 2023–now
Ian Pamerleau	PhD student	Advisor, 2021–now
Stephanie Menten	PhD student	Advisor, 2020–now
Greg Gosselin	PhD student	Committee member, 2024–now
Santa Pérez-Cortés	PhD student	Committee chair, 2023–now
Henry Manelski	PhD student	Committee member, 2023–now
Alexander Kling	PhD student	Committee chair, 2021–now
Kris Laferriere	PhD student	Committee chair, 2021–now
Riley McGlasson	PhD student	Committee chair, 2021–now
Hunter Vannier	PhD student	Committee chair, 2021–now
Austin Blevins	PhD student	Committee member, 2020–now
Adeene Denton	PhD student	Committee member, 2022
Prakhar Sinha	PhD student	Committee member, 2020–2022
Marie Henderson	PhD student	Committee member, 2020–2021
Hannah Gibson	MS student	Co-advisor, 2020–2021
Eva Zhao Petrini	Undergrad	Research mentor, 2023–now
Neo Patel	Undergrad	Research mentor, 2023–2024
William Vanderwaker	Undergrad	Research mentor, 2023–2024
Brianne Checketts	Undergrad	Research mentor, 2022–2024
Katie Burkman	Undergrad	Research mentor, 2023
Audrey Durham	Undergrad	Research mentor, 2022–2023
Isabella Hampton	Undergrad	Research mentor, 2022–2023
Kyle Morin	Undergrad	Research mentor, 2022–2023

Imani Lawrence	Undergrad	Research mentor, 2021–2023
Katherine Meves	Undergrad	Research mentor, 2021–2022
Lauren Dickson	Undergrad	Research mentor, 2021

*External to Purdue:*

Katie Broad (Baylor)	PhD committee member, 2023–now
Fiona Nichols-Fleming (Brown)	PhD committee member (defended 2023)
Sean O’Hara (Illinois-Chicago)	PhD committee member (defended 2019)
Elizabeth Bailey (MIT)	Undergrad research mentor (2013–2014)

## SERVICE

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2023–present	Associate Editor, <i>J. Geophysical Research: Planets</i>
2023–present	EAPS Department Head search advisory committee
2023–present	Purdue EAPS strategic plan committee
2020–present	Purdue EAPS undergraduate committee
2016–present	LPSC Session Chair, Dwornik Award judge
2015–present	NASA review panel member/group chief, multiple programs
2014–present	Reviewer for <i>Science Advances</i> , <i>Nature Geoscience</i> , <i>Nature Astronomy</i> , <i>Nature Communications</i> , <i>AGU Advances</i> , <i>Geology</i> , <i>Earth and Planetary Science Letters</i> , <i>Geophysical Research Letters</i> , <i>JGR Planets</i> , <i>Icarus</i> , <i>Planetary Science Journal</i> , <i>Advances in Space Research</i> , <i>Journal of Glaciology</i> , <i>Earth and Space Science</i> , <i>Planetary and Space Science</i> , <i>Monthly Notices of the Royal Astronomical Society</i>
2022–2023	Purdue Advanced Materials hiring committee
2021–2023	Purdue University College Grade Appeals committee
2020–2023	Purdue EAPS seminar committee
2023	Purdue Science Student Council Snack and Chat Event, EAPS faculty representative
2022–2023	NASA advisory committee member, Mars Concurrent Exploration Science Analysis Group
2022	Faculty panelist, EAPS Grad School info night
2020–2021	NASA advisory committee member, Mars Ice Core Working Group
2020	AGU session convener, Next-generation planetary geodesy
2020	“Fresh Faculty Recruits”, panel member, University of

	Arizona Postdoctoral Affairs office
2019	Review committee member, University of Arizona postdoctoral scholar and mentoring awards
2018–2019	NASA advisory committee member, Science Definition Team for Ceres mission studies
2016–2018	Guest editor, <i>Icarus</i> special issue for Mars Polar Science
2017	AGU session convener, Cryospheres of terrestrial planets
2017	Secretary of the IAVCEI/IACS Joint Commission on Volcano–Ice Interactions
2016–2017	Postdoctoral representative to the faculty, Lunar and Planetary Laboratory, University of Arizona
2012–2014	MIT EAPS Government Student Advisory Council, Graduate Student Committee Member
2011–2014	MIT EAPS Planetary Internal Colloquium Series, Organizer
2011–2012	MIT EAPS Student Advisory Council, President
2010–2011	MIT EAPS Student Advisory Council, Orientation Chair

## INVITED PRESENTATIONS

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May 16, 2024	Dwarf planet Ceres as an icy and accessible frozen ocean world, Stanford University
Sep 13, 2023	Ceres as an ice-rich and accessible frozen ocean world, Brown University
Jun 12, 2023	Origin and transport of volatiles on the moons of Uranus and Pluto, NASA SSERVI Volatiles Focus group seminar
Aug 8, 2022	Orbital control of Martian climate revealed in Burroughs Crater, Mars Polar Science virtual seminar
Feb 11, 2022	Gravity science and geology from orbiting spacecraft at the Moon, Mars, and beyond, Auburn University
Sep 3, 2021	Adventures in decoding paleoclimate records on Mars, Purdue University
Feb 17, 2021	Ice and fire on Mars and Triton: Do polar caps reveal planetary heat? University of California-Berkeley
Apr 22, 2019	Ceres as a laboratory for cryovolcanism and other planetary processes, Purdue University
Mar 6, 2019	Ceres as a laboratory for cryovolcanism and other planetary processes, Rutgers University
Feb 21, 2019	Ceres as a laboratory for cryovolcanism and other planetary processes, MIT
Jan 8, 2019	Ceres as a laboratory for cryovolcanism and other planetary processes, Georgia Tech

Mar 1, 2018	Ancient geological histories of the crusts of the Moon and Mercury from geophysics, University of Illinois at Chicago
Jan 23, 2018	The early histories of the Moon and Mercury revealed by gravity, CalTech
Sep 28, 2017	Mars climate and ice: Accumulation of the polar layered deposits, University of Bern
Mar 9, 2017	Decoding the geological histories encrypted into ices on Mars and Ceres, Brown University
Jan 31, 2017	Dynamic ices in the outer solar system, CalTech
Nov 7, 2016	Ices reveal planetary histories throughout the solar system, Southwest Research Institute
Feb 9, 2016	Quantifying the importance of ice flow on Mars, MIT
Oct 30, 2014	The nature of isostasy in the lunar highlands and implications for mantle structure, University of Iceland
Dec 5, 2013	A procedure for testing the orbital tuning of the Martian polar layered deposits, Brown University

## TEACHING

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2022–now	Instructor, Purdue University, EAPS 354, Earth and Planetary Geophysics
2021–now	Instructor, Purdue University, EAPS 580, Geodynamics
2022	Instructor, Purdue University, EAPS 591, Inner Planets: Mercury & Venus
2021	Instructor, Purdue University, EAPS 391, Planetary Interiors
2015–2019	Guest lecturer, University of Arizona, PTYS 411, Geology and Geophysics of the Solar System
2015–2019	Guest lecturer, University of Arizona, PTYS 554, Evolution of Planetary Surfaces
2013	Teaching Assistant, MIT Course 12.093, Field Course (Sample collection in the Western Himalayas)
2013	Teaching Assistant, MIT Course 12.002, Introduction to Geophysics and Planetary Science

## PUBLIC ENGAGEMENT AND PRESS

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2023	Speaker on Purdue “Superheroes of Science” podcast
2022	Press for study led by Purdue grad student Stephanie Menten on Charon cryovolcanism (publication #37 below), including from <a href="#">Inverse</a> , <a href="#">Physics Today</a> , and others

2021	Astronomy on Tap – Cradle of Astronauts Lecture
2021	National 4-H STEM Summit Career Panelist
2019	Steward Public Evening Lecture, University of Arizona
2019	Press for co-first-author study on Mars polar water (publication #18 below), including from <a href="#">Newsweek</a> , <a href="#">Mashable</a> , <a href="#">Arizona Daily Star</a> , and others
2018	Press for first-author study on Ceres cryovolcanism (publication #15 below), including from <a href="#">National Geographic</a> , <a href="#">Discover magazine</a> , and others
2018	Press for first-author study on Mercury’s crust (publication #12 below), including from <a href="#">Newsweek</a> , <a href="#">Forbes</a> , and others
2017	Press for first-author study on Ceres cryovolcanoes (publication #9 below), including from <a href="#">Popular Science</a> , <a href="#">Gizmodo</a> , and others
2017	Invited lectures, several Arizona amateur astronomy clubs
2012–2014	Presentations at the Boston Museum of Science, including the “Mars and Beyond” event and individual lectures
2012–2014	Presentations to Houston-area middle school classes during LPSC (Lunar and Planetary Science Conference)
2011	Presentations at the Boston Debate League (student club for high school students) at the Federal Reserve Bank

## PEER-REVIEWED PUBLICATIONS

(Superscripts of G, U, or P indicate an author that is a graduate student, undergraduate student, or postdoctoral researcher under Professor Sori’s advisement)

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**[48] Sori, M.M.**, A.I. Ermakov, and J.T. Keane (2024), Orbital gravity measurements can test the origin of the global dichotomy on Mars, *in revision*.

**[47] McGlasson, R.A.**, **M.M. Sori**, A.M. Bramson, and D. Lalich (2024), Radar sounding reveals common evolutionary history between the north polar layered deposits and outlier ice deposits on Mars, *in revision*.

**[46] Pamerleau, I.F.<sup>G</sup>**, **M.M. Sori**, and J.E.C. Scully (2024), An ancient and impure frozen ocean on Ceres implied by its ice-rich crust, *Nature Astronomy*, in press.

- [45] Menten, S.M.<sup>G</sup>, **M.M. Sori**, A.M. Bramson, T.A. Nordheim, and R.J. Cartwright (2024), [Volatile transport on Ariel and implications for the origin and distribution of carbon dioxide on Uranian moons](#), *J. Geophys. Res. Planets* 129, e2024JE008376.
- [44] Nichols-Fleming, F., A.J. Evans, B.C. Johnson, and **M.M. Sori** (2024), [Moment of inertia and tectonic record of asteroid 16 Psyche may reveal interior structure and core solidification processes](#), *J. Geophys. Res. Planets* 129, e2024JE008291
- [43] Wagner, N., P.B. James, A.I. Ermakov, and **M.M. Sori** (2024), [Evaluating the use of seasonal surface displacements and time-variable gravity to constrain the interior of Mars](#), *J. Geophys. Res. Planets* 129, e2023JE008053.
- [42] **Sori, M.M.**, I.T. Lawrence<sup>U</sup>, K. Izquierdo<sup>P</sup>, and D.E. Granger (2024), [Implications of MOLA topography on the presence of liquid water under the south polar cap of Mars](#), *Icarus* 416, 116083.
- [41] Izquierdo, K.<sup>P</sup>, **M.M. Sori**, B. Checketts<sup>U</sup>, I. Hampton<sup>U</sup>, B.C. Johnson, and J.M. Soderblom (2024), [Global distribution and volume of cryptomare and visible mare on the Moon from gravity and dark halo craters](#), *J. Geophys. Res. Planets* 129, e2023JE007867 (cover image).
- [40] Cashion, M.D., B.C. Johnson, H. Gibson, E.P. Turtle, **M.M. Sori**, and H.J. Melosh (2024), [Europa's double ridges produced by ice wedging](#), *J. Geophys. Res. Planets* 129, e2023JE008007.
- [39] McGlasson, R.A., A.M. Bramson, G.A. Morgan, and **M.M. Sori** (2023), [Varied histories of outlier polar ice deposits on Mars](#), *J. Geophys. Res. Planets* 128, e2022JE007592.
- [38] Bramson, A.M., L.M. Carter, G.W. Patterson, **M.M. Sori**, G.A. Morgan, L.M. Jozwiak, C.A. Nypaver, and J.T.S. Cahill (2022), [Burial depths of extensive shallow cryptomaria in the lunar Schiller-Schickard region](#), *Planet. Sci. J.* 3, 216.
- [37] Menten, S.M.<sup>G</sup>, **M.M. Sori**, and A.M. Bramson (2022), [Endogenically sourced volatiles on Charon and other Kuiper Belt Objects](#), *Nature Communications* 13, 4457.



[36] Egea–Gonzalez, I., P.C. Lois, A. Jiménez-Díaz, A.M. Bramson, **M.M. Sori**, and J. Ruiz (2022), [The stability of a liquid-water body below the south polar cap of Mars](#), *Icarus* 383, 115073.

[35] Dickson, L.H.<sup>U</sup> and **M.M. Sori** (2022), [The origin of mascons on Ceres as constrained by crater morphology](#), *Icarus* 382, 115024.

[34] **Sori, M.M.**, P. Becerra, J. Bapst, S. Byrne, and R.A. McGlasson (2022), [Orbital forcing of Martian climate revealed in a south polar outlier ice deposit](#), *Geophys. Res. Lett.* 49, e2021GL097450.

[33] Castillo-Rogez, J., M. Neveau, V. Vinogradoff, K. Miller, **M.M. Sori**, F. Tosi, B. Schmidt, K. Hughson, C. De Sanctis, H. McSween, J.E.C. Scully, M.M. Daswani, K. Hughson, H. McSween, C. De Sanctis, L. Quick, A. Ermakov, G. Thangjam, K. Otto, K. Krohn, P. Schenk, A. Nathues, and C. Raymond (2022), [Science drivers for the exploration of Ceres: From Solar System evolution to ocean world science](#), *Planet. Sci. J.* 3, 64.

[32] Castillo-Rogez, J., J. Brophy, K. Miller, **M.M. Sori**, J. Scully, L. Quick, R. Grimm, M. Zolensky, M. Bland, D. Buczkowski, C. Raymond, A. Hendrix, T. Prettyman, Y. Sekine, T. Titus, D. Williams, P. Backes, L. Barge, A. Ermakov, A. Galassi, S. Moreland, and K. Zacny (2022), [Concepts for the future exploration of dwarf planet Ceres' habitability](#), *Planet. Sci. J.* 3, 41.

[31] Nichols-Fleming, F., A.J. Evans, B.C. Johnson, and **M.M. Sori** (2022), [Porosity evolution in metallic asteroids: Implications for the origin and thermal history of asteroid 16 Psyche](#), *J. Geophys. Res. Planets* 127, e2021JE007063.

[30] Cartwright, R.J., T.A. Nordheim, D.R. Decolibus, W.M. Grundy, B.J. Holler, C.B. Beddingfield, **M.M. Sori**, M.P. Lucas, C.M. Elder, L.H. Regoli, D.P. Cruikshank, J.P. Emery, E.J. Leonard, and C.J. Cochrane (2022), [A CO<sub>2</sub> cycle on Ariel? Radiolytic production and migration to low latitude cold traps](#), *Planet. Sci. J.* 3, 8.

[29] Izquierdo, K.<sup>P</sup>, **M.M. Sori**, J.M. Soderblom, B.C. Johnson, and S.E. Wiggins (2021), [Lunar megaregolith structure revealed by GRAIL gravity data](#), *Geophys. Res. Lett.* 48, e2021GL095978.

[28] Cartwright, R.J., C.B. Beddingfield, T.A. Nordheim, C.M. Elder, J.C. Castillo-

Rogez, M. Neveu, A.M. Bramson, **M.M. Sori**, B.J. Buratti, R.T. Pappalardo, J.E. Roser, I.J. Cohen, E.J. Leonard, A.I. Ermakov, M.R. Showalter, W.M. Grundy, E.P. Turtle, and M.D. Hofstadter (2021), [The science case for spacecraft exploration of the Uranian satellites: Candidate ocean worlds in an ice giant system](#), *Planet. Sci. J.* 2, 120.

[27] Schaefer, E.I., C.W. Hamilton, C.D. Neish, **M.M. Sori**, A.M. Bramson, and S.P. Beard (2021), [Reexamining the potential to classify lava flows from the fractality of their margins](#), *J. Geophys. Res. Solid Earth* 126, e2020JB020949.

[26] **Sori, M.M.** (2021), [Can Triton's internal heat be inferred from its ice cap?](#) *Geophys. Res. Lett* 48, e2020GL090518.

[25] Johnson, B.C. and **M.M. Sori** (2020), [Landslide morphology and mobility on Ceres controlled by topography](#), *J. Geophys. Res. Planets* 125, e2020JE006640.

[24] Scully, J.E.C., P.M. Schenk, J.C. Castillo-Rogez, D.L. Buczkowski, D.A. Williams, J.H. Pasckert, K.D. Duarte, V.N. Romero, L.C. Quick, **M.M. Sori**, M.E. Landis, C.A. Raymond, A. Neesemann, B.E. Schmidt, H.G. Sizemore, and C.T. Russell (2020), [The varied sources of faculae-forming brines in Ceres' Occator crater emplaced via hydrothermal brine effusion](#), *Nature Communications* 11, 3680.

[23] Park, R.S., A.S. Konopliv, A.I. Ermakov, J.C. Castillo-Rogez, R.R. Fu, K.H.G. Hughson, T.H. Prettyman, C.A. Raymond, J.E.C. Scully, H.G. Sizemore, **M.M. Sori**, A.T. Vaughan, G. Mitri, B.E. Schmidt, and C.T. Russell (2020), [Evidence of non-uniform crust of Ceres from Dawn's high-resolution gravity data](#), *Nature Astronomy* 4, 748–755.

[22] Hamilton, C.W., S.P. Scheidt, **M.M. Sori**, A.P. de Wet, J.E. Bleacher, P.J. Mouginiis-Mark, S. Self, J.R. Zimbelman, W.B. Garry, P.L. Whelley, and L.S. Crumpler (2020), [Lava-rise plateaus and inflation pits within the McCarty's flow-field, New Mexico: An analog for pāhoehoe-like lava flows on planetary surfaces](#), *J. Geophys. Res. Planets* 125, e2019JE005975 (cover image).

[21] Johnson, B.C., **M.M. Sori**, and A.J. Evans (2020), [Ferrovolcanism on metal worlds and the origin of pallasites](#), *Nature Astronomy* 4, 41–44.

[20] **Sori, M.M.**, J. Bapst, P. Becerra, and S. Byrne (2019), [Islands of ice on](#)

[Mars and Pluto](#), *J. Geophys. Res. Planets* 124, 2522–2542 (cover image).

[19] Bland, M.T., D.L. Buczkowski, H.G. Sizemore, A.I. Ermakov, S.D. King, **M.M. Sori**, C.A. Raymond, J.C. Castillo-Rogez, and C.T. Russell (2019), [Dome formation on Ceres by solid-state flow analogous to terrestrial salt tectonics](#), *Nature Geoscience* 12, 797–801.

[18] Becerra, P., **M.M. Sori**, N. Thomas, A. Pommerol, S.S. Sutton, S. Tulyakov, E. Simioni, and G. Cremonese (2019), [Timescales of the climate record in the south polar ice cap of Mars](#), *Geophys Res. Lett.* 46, 7268–7277 (cover image).

[17] **Sori, M.M.\*** and A.M. Bramson\* (2019), [Water on Mars, with a grain of salt: Local heat anomalies are required for basal melting of ice at the south pole today](#), *Geophys. Res. Lett.* 46, 1222–1231. (\*Both authors contributed equally)

[16] Sizemore, H.G., B.E. Schmidt, D.A. Buczkowski, **M.M. Sori**, J.C. Castillo-Rogez, D.C. Berman, C. Ahrens, H.T. Chilton, K.H.G. Hughson, K. Duarte, K.A. Otto, M.T. Bland, A. Neesemann, J.E.C. Scully, D.A. Crown, S.C. Mest, D.A. Williams, T. Platz, P. Schenk, M.E. Landis, S. Marchi, N. Schorghofer, L.C. Quick, T.H. Prettyman, M.C. De Sanctis, A. Nass, G. Thangjam, A. Nathues, C.T. Russell, and C.A. Raymond (2019), [A global inventory of ice-related morphological features on dwarf planet Ceres: Implications for the evolution and current state of the cryosphere](#), *J. Geophys Res. Planets* 124, 1650–1689.

[15] Ruesch, O., L.C. Quick, M.E. Landis, **M.M. Sori**, O. Čadek, P. Brož, K.A. Otto, M.T. Bland, S. Byrne, J.C. Castillo-Rogez, H. Hiesinger, R. Jaumann, K. Krohn, L.A. McFadden, A. Nathues, A. Neesemann, F. Preusker, T. Roatsch, P.M. Schenk, J.E.C. Scully, M.V. Sykes, D.A. Williams, C.A. Raymond, and C.T. Russell (2019), [Bright carbonate surfaces on Ceres as remnants of salt-rich water fountains](#), *Icarus* 320, 39–48.

[14] **Sori, M.M.**, H.G. Sizemore, S. Byrne, A.M. Bramson, M.T. Bland, N.T. Stein, and C.T. Russell (2018), [Cryovolcanic rates on Ceres revealed by topography](#), *Nature Astronomy* 2, 946–950. Featured in *Nature Astronomy News & Views*.

[13] Hamilton, C.W., P.J. Mouginis-Mark, **M.M. Sori**, S.P. Scheidt, and A.M. Bramson (2018), [Episodes of aqueous flooding and volcanism from geologically recent outflow channels on Mars](#), *J. Geophys. Res. Planets* 123, 1484–1510.

[12] Sori, M.M. (2018), [A thin, dense crust for Mercury](#), *Earth Planet. Sci. Lett.* 489, 92–99.

[11] Sori, M.M., P.B. James, B.C. Johnson, J.M. Soderblom, S.C. Solomon, M.A. Wieczorek, and M.T. Zuber (2018), [Isostatic compensation of the lunar highlands](#), *J. Geophys. Res. Planets* 123, 646–665.

[10] Sori, M.M., J.N. Bapst, A.M. Bramson, S. Byrne, and M.E. Landis (2017), [A Wunda-full world? Carbon dioxide ice deposits on Umbriel and other Uranian Moons](#), *Icarus* 290, 1–13.

[9] Sori, M.M., S. Byrne, M.T. Bland, A.M. Bramson, A.I. Ermakov, C.W. Hamilton, K.A. Otto, O. Ruesch, and C.T. Russell (2017), [The vanishing cryovolcanoes of Ceres](#), *Geophys. Res. Lett.* 44, 1243–1250.

[8] Becerra, P., M.M. Sori, and S. Byrne (2017), [Signals of astronomical forcing in the exposure topography of Mars' north polar layered deposits](#), *Geophys. Res. Lett.* 44, 62–70.

[7] Smith, D.E., M.T. Zuber, G.A. Neumann, E. Mazarico, F.G. Lemoine, J.W. Head, P.G. Lucey, O. Aharonson, M.S. Robinson, X. Sun, M.H. Torrence, M.K. Barker, J. Oberst, T.C. Duxbury, D. Mao, O.S. Barnouin, K. Jha, D.D. Rowlands, S. Goossens, D. Baker, S. Bauer, P. Gläser, M. Lemelin, M. Rosenburg, M.M. Sori, J. Whitten, and T. Mcclanahan (2017), [Summary of the results from the Lunar Orbiter Laser Altimeter after seven years in lunar orbit](#), *Icarus* 283, 70–91.

[6] Becerra, P., S. Byrne, M.M. Sori, S. Sutton, and K.E. Herkenhoff (2016), [Stratigraphy of the north polar layered deposits of Mars using high-resolution topography](#), *J. Geophys Res. Planets* 121, 1445–1471.

[5] Sori, M.M., M.T. Zuber, J.W. Head, and W.S. Kiefer (2016), [Gravitational search for cryptovolcanism on the Moon: Evidence for large volumes of early igneous activity](#), *Icarus* 273, 284–295.

[4] Sori, M.M., S. Byrne, C.W. Hamilton, and M.E. Landis (2016), [Viscous flow rates of icy topography on the North Polar Layered Deposits of Mars](#), *Geophys. Res. Lett.* 43, 541–549.

[3] Neumann, G.A., M.T. Zuber, D.E. Smith, M.A. Wieczorek, J.W. Head, D.M.H.

Baker, S.C. Solomon, D.E. Smith, F.G. Lemoine, E. Mazarico, T.J. Sabaka, S. Goossens, H.J. Melosh, R.J. Phillips, S.W. Asmar, A.S. Konopliv, J.G. Williams, **M.M. Sori**, J.M. Soderblom, K. Miljkovic, J.C. Andrews-Hanna, F. Nimmo, and W.S. Kiefer (2015), [Lunar Impact Basins Revealed by Gravity Recovery and Interior Laboratory Measurements](#), *Science Advances* 1.

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