

SHANE BYRNE – Curriculum Vitae

Lunar & Planetary Laboratory, Univ. of Arizona	Pronouns: He/Him/His
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I am interested in surface processes that affect, or are driven by, planetary ices and enjoy working with a diverse group of students and postdocs. Our areas of activity include Martian ice stability; polar stratigraphy and connection to past climates; Ceres cryovolcanism and ground ice; and ice-sublimation landforms. I am acting PI of HiRISE, a co-Investigator of CaSSIS, was a Guest Investigator on the Dawn mission, and PI of a 2019 Discovery proposal.

Professional Positions

University of Arizona – Lunar and Planetary Laboratory

Professor & Director: Space Imagery Center (2007 – Present)

Assistant Department Head (2017 – 2021)

Research Associate – with HiRISE team. (9/2005 – 8/2007)

Massachusetts Institute of Technology

Postdoctoral Scholar – with Professor Maria Zuber (12/2003 – 9/2005).

California Institute of Technology

Assistant Scientist – with Professor Bruce Murray (6/2003 – 12/2003).

Graduate Research Assistant – with Prof.s Murray & Ingersoll (8/1998 – 6/2003).

Education

California Institute of Technology, Pasadena, CA. 1998-2003

Ph.D. Planetary Science, with minor in Astronomy (2003)

M.S. Planetary Science, with minor in Astronomy (2001)

University of Cardiff, Cardiff, United Kingdom 1994-1998

Master of Physics. Astrophysics (1998)

Planetary Mission and Technology Development

- High Resolution Science Experiment (HiRISE) – Principal Investigator
- Colour and Stereo Surface Imaging System (CaSSIS) – Co-Investigator
- Cold-Light Imager for Europa (C-LIFE) – PI [COLDTech and ICEE-2]
- Dawn Mission at Ceres (2014-2018) – Guest Investigator
- Mars Orbiter Laser Altimeter (MOLA) (2002-2006) – Science Team Affiliate.
- High-Resolution Stereo Color Imager (HiSCI) (2010-2012) – Deputy-PI
- Climate Orbiter for Mars Polar Atmospheric and Subsurface Science (COMPASS) Discovery proposal (2019) – PI
- Europa Camera Suite (ECAMS) proposal (2014) – Co-investigator
- Chronos Mars-scout proposal (2006) – Co-Investigator.
- MOSAIC Mars-scout proposal (2006) – Co-Investigator.
- Boreale Explorer Mars-scout proposal (2006) – Co-Investigator.

Students Advised

- Euibin Kim (current, Ph.D.)
- Christina Singh (current, Ph.D.)
- Claire Cook (Current, Ph.D.)
- Patrick O'Brien, 2022 (Ph.D.)
- Ali Bramson, 2018 (Ph.D.)
- Margaret Landis, 2018 (Ph.D.)
- Jonathan Bapst, 2018 (Ph.D. U. Washington)
- Patricio Becerra, 2016 (Ph.D.)
- Jamie Molaro, 2015 (Ph.D.)
- Priyanka Sharma, 2012 (Ph.D.)
- Serina Diniega, 2010 (Minor Advisor – Ph.D. App. Math)

Postdocs/Research staff Advised

- Guangfei Wei
- Michael Sori
- Michael Phillips
- Jennifer Fernando
- Jonathan Bapst

Other Service & Professional Activity

- NASA: Director of the Space Imagery Center (2007-Present)
A NASA Regional Planetary Image Facility (RPIF) (2007-2020)
International Mars Ice Mapper Measurement Definition Team
Mars Architecture Strategy Working Group (MASWG)
Ice and Climate Evolution Science Analysis Group (ICESAG)
Mars Next Orbiter Science Analysis Group (NEX-SAG)
MAPSIT (formerly the Planetary Cartography and Geologic Mapping Working Group) (2012-2016)
Numerous NASA proposal review panels and external reviewer
- U. Arizona Assistant Department Head – Planetary Sciences (2017-2021)
- Conferences: Planetary Photogrammetry Workshop Series Convener 2023-2024
Science Organization Committee: Mars Polar Science 2020 & 2024
Keck Institute for Space Studies: workshop convener 2017
Local Organization Committee: DPS 2014
Science Organization Committee: Mars Polar Science 2011
Science Organization Committee: DPS 2011
Session convener – AGU 2008
- Awards: UA: Outstanding Faculty for Graduate Students – 2nd place (2017)
NASA: Group Achievement Award, MRO HiRISE Team (2011)
NASA: Group Achievement Award, IMIM MDT (2024)
Caltech: Excellence in teaching award (2001).

Classes Taught

- PTYS 551: Remote Sensing of Planetary Surfaces
- PTYS 554: Evolution of Planetary Surfaces
- PTYS 594/590: Planetary Geology Field Studies
- PTYS 442/542: Mars (co-taught with Alfred McEwen)
- PTYS 411/511: Geology and Geophysics of the Solar System
- PTYS 395A: Mercury: Open Questions and New Data.
- PTYS 395B: The Moon.
- PTYS 206: Our golden age of planetary exploration

Peer-Reviewed Publications (119 papers, reverse chronological)

NASA ADS library at: <https://ui.adsabs.harvard.edu/public-libraries/SLJnbwZHS6-b1P1pSBPwjw>

- Cook, C. W. and S. Byrne 2026. Wavelet analysis of concentric crater fill surface ridges. *Icarus* 444, 116797.
- Thomas, N., M. Almeida, O. Mokhtari, A. Pommerol, M. Read, B. Geiger, L. Riu, M. R. Patel, S. Byrne, and S. Sutton 2025. Millefeuille: The layering of the Martian atmosphere observed in forward scattering geometry. *Science Advances* 11, eadu0859.
- Hansen, C. J., **S. Byrne**, W. M. Calvin, S. Diniega, C. M. Dundas, P. O. Hayne, A. S. McEwen, L. E. McKeown, S. Piqueux, G. Portyankina, M. E. Schwamb, T. N. Titus, and J. M. Widmer 2024. A comparison of CO₂ seasonal activity in Mars' northern and southern hemispheres. *Icarus* 419, 115801.
- Rangarajan, V. G., L. L. Tornabene, G. R. Osinski, C. M. Dundas, R. A. Beyer, K. E. Herkenhoff, **S. Byrne**, R. Heyd, F. P. Seelos, G. Munaretto, and A. Dapremont 2024. Novel quantitative methods to enable multispectral identification of high-purity water ice exposures on Mars using High Resolution Imaging Science Experiment (HiRISE) images. *Icarus* 419, 115849.
- Zurek, R., L. Tamppari, M. D. Johnston, S. Murchie, A. McEwen, **S. Byrne**, R. Seu, N. Putzig, D. Kass, M. Malin, and B. Cantor 2024. MRO overview: Sixteen years in Mars orbit. *Icarus* 419, 116102.
- McEwen, A. S., **S. Byrne**, C. Hansen, I. J. Daubar, S. Sutton, C. M. Dundas, N. Bardabelias, N. Baugh, J. Bergstrom, R. Beyer, K. M. Block, V. J. Bray, J. C. Bridges, M. Chojnacki, S. J. Conway, W. A. Delamere, T. Ebben, A. Espinosa, A. Fennema, J. Grant, V. C. Gulick, K. E. Herkenhoff, R. Heyd, R. Leis, L. Ojha, S. Papendick, C. Schaller, N. Thomas, L. L. Tornabene, C. Weitz, and S. A. Wilson 2024. The high-resolution imaging science experiment (HiRISE) in the MRO extended science phases (2009–2023). *Icarus* 419, 115795.
- Landis, M. E., C. M. Dundas, A. S. McEwen, I. J. Daubar, P. O. Hayne, **S. Byrne**, S. S. Sutton, V. G. Rangarajan, L. L. Tornabene, A. Britton, and K. E. Herkenhoff 2024. New, dated small impacts on the South Polar Layered Deposits (SPLD), Mars, and implications for shallow subsurface properties. *Icarus* 419, 115977.
- Izquierdo, K., Bramson, A. M., McClintock, T., Laferriere, K. L., **Byrne, S.**, Bapst, J., and Smith, I. 2023. Local Ice Mass Balance Rates via Bayesian Analysis of Mars Polar Trough Migration. *Journal of Geophysical Research: Planets*, 128(10).
- Almeida, M., M. Read, N. Thomas, G. Cremonese, P. Becerra, G. Borrini, **S. Byrne**, M. Gruber, R. Heyd, C. M. Marriner, G. McArthur, A. S. McEwen, A. Pommerol, J. Perry, and C. Schaller 2023. Targeting and image acquisition of Martian surface features with TGO/CaSSIS. *Planet. Space Sci.*, 231, 105697.
- Dundas, C. M., M. T. Mellon, L. V. Posiolova, K. Miljković, G. S. Collins, L. L. Tornabene, V. G. Rangarajan, M. P. Golombek, N. H. Warner, I. J. Daubar, **S. Byrne**, A. S. McEwen, K. D. Seelos, D. Viola, A. M. Bramson, and G. Speth 2023. A Large New Crater Exposes the Limits of Water Ice on Mars. *Geophys. Res. Lett.* 50, e2022GL100747.

- O'Brien, P. and **S. Byrne** 2022. Double Shadows at the Lunar Poles. *Planetary Sci. J.* 3, 258.
- Perry, J. E., R. Heyd, M. Read, L. L. Tornabene, S. S. Sutton, **S. Byrne**, N. Thomas, A. Fennema, A. McEwen, and K. Berry 2022. Geometric processing of TGO CaSSIS observations. *Planet Space Sci.* 223, 105581.
- O'Brien, P. and **S. Byrne** 2022. Degradation of the Lunar Surface by Small Impacts. *Planetary Sci. J.* 3, 235.
- Sutton, S. S., M. Chojnacki, A. S. McEwen, R. L. Kirk, C. M. Dundas, E. I. Schaefer, S. J. Conway, S. Diniega, G. Portyankina, M. E. Landis, N. F. Baugh, R. Heyd, **S. Byrne**, L. L. Tornabene, L. Ojha, and C. W. Hamilton 2022. Revealing Active Mars with HiRISE Digital Terrain Models. *Remote Sensing* 14, 2403.
- 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, e97450.
- Wei, G., **S. Byrne**, X. Li, J. Feng, and M. A. Siegler 2022. A New Method to Evaluate and Modify Chang'E-2 Microwave Radiometer Low-Frequency Data Constrained From Diviner Thermal Measurements. *IEEE Transactions on Geoscience and Remote Sensing* 60, 3077890.
- Dundas, C. M., P. Becerra, **S. Byrne**, M. Chojnacki, I. J. Daubar, S. Diniega, C. J. Hansen, K. E. Herkenhoff, M. E. Landis, A. S. McEwen, G. Portyankina, and A. Valantinas 2021. Active Mars: A Dynamic World. *J. Geophys. Res.* 126, e06876.
- Becerra, P., **S. Byrne**, and A. J. Brown 2021. Corrigendum to "Transient bright "Halos" on the South Polar residual cap of mars: Implications for mass-balance" [*Icarus* 251 (2015) 211-225]. *Icarus* 357, 114272.
- Dundas, C. M., M. T. Mellon, S. J. Conway, I. J. Daubar, K. E. Williams, L. Ojha, J. J. Wray, A. M. Bramson, **S. Byrne**, A. S. McEwen, L. V. Posiolova, G. Speth, D. Viola, M. E. Landis, G. A. Morgan, and A. V. Pathare 2021. Widespread Exposures of Extensive Clean Shallow Ice in the Midlatitudes of Mars. *J. Geophys. Res.* 126, e06617.
- O'Brien, P. and **S. Byrne** 2021. Physical and Chemical Evolution of Lunar Mare Regolith. *J. Geophys. Res.* 126, e06634.
- Wei, G., **S. Byrne**, X. Li, and G. Hu 2020. Lunar Surface and Buried Rock Abundance Retrieved from Chang'E-2 Microwave and Diviner Data. *Planetary Sci. J.* 1, 56.
- Martellato, E., A. M. Bramson, G. Cremonese, A. Lucchetti, F. Marzari, M. Massironi, C. Re, and **S. Byrne** 2020. Martian Ice Revealed by Modeling of Simple Terraced Crater Formation. *J. Geophys. Res.* 125, e06108.
- Cook, C. W., A. M. Bramson, **S. Byrne**, J. W. Holt, M. S. Christoffersen, D. Viola, C. M. Dundas, and T. A. Goudge 2020. Sparse subsurface radar reflectors in Hellas Planitia, Mars. *Icarus* 348, 113847.
- Cook, C., **S. Byrne**, C. D. d'Aubigny, D. Viola, J. Mikucki, and W. Ellis 2020. Detection Limits for Chiral Amino Acids Using a Polarization Camera. *Planetary Sci. J.* 1, 46.
- Smith, I. B., P. O. Hayne, **S. Byrne**, P. Becerra, M. Kahre, W. Calvin, C. Hvidberg, S. Milkovich, P. Buhler, M. Landis, B. Horgan, A. Kleinböhl, M. R. Perry, R. Obbard, J. Stern, S.

- Piqueux, N. Thomas, K. Zacny, L. Carter, L. Edgar, J. Emmett, T. Navarro, J. Hanley, M. Koutnik, N. Putzig, B. L. Henderson, J. W. Holt, B. Ehlmann, S. Parra, D. Lalich, C. Hansen, M. Hecht, D. Banfield, K. Herkenhoff, D. A. Paige, M. Skidmore, R. L. Staehle, and M. Siegler 2020. The Holy Grail: A road map for unlocking the climate record stored within Mars' polar layered deposits. *Planet Space Sci.* 184, 104841.
- Duarte, K. D., B. E. Schmidt, H. T. Chilton, K. H. G. Hughson, H. G. Sizemore, K. L. Ferrier, J. J. Buffo, J. E. C. Scully, A. Nathues, T. Platz, M. Landis, **S. Byrne**, M. Bland, C. T. Russell, and C. A. Raymond 2019. Landslides on Ceres: Diversity and Geologic Context. *J. Geophys. Res.* 124, 3329-3343.
- Sori, M. M., J. Bapst, P. Becerra, and **S. Byrne** 2019. Islands of ice on Mars and Pluto. *J. Geophys. Res.* 124, 2522-2542.
- Chilton, H. T., B. E. Schmidt, K. Duarte, K. L. Ferrier, K. H. G. Hughson, J. E. C. Scully, J. J. Wray, H. G. Sizemore, A. Nathues, T. Platz, N. Schorghofer, P. M. Schenk, M. E. Landis, M. Bland, **S. Byrne**, C. T. R. Russell, and C. A. Raymond 2019. Landslides on Ceres: Inferences Into Ice Content and Layering in the Upper Crust. *J. Geophys. Res.* 124, 1512-1524.
- Bapst, J., **S. Byrne**, J. L. Bandfield, and P. O. Hayne 2019. Thermophysical Properties of the North Polar Residual Cap using Mars Global Surveyor Thermal Emission Spectrometer. *J. Geophys. Res.* 124, 1315-1330.
- Bramson, A. M., **S. Byrne**, J. Bapst, I. B. Smith, and T. McClintock 2019. A Migration Model for the Polar Spiral Troughs of Mars. *J. Geophys. Res.* 124, 1020-1043.
- Ruesch, O., L. C. Quick, M. E. Landis, M. M. Sori, O. Čadež, 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.
- Combe, J.-P., A. Raponi, F. Tosi, M. C. De Sanctis, F. G. Carrozzo, F. Zambon, E. Ammannito, K. H. G. Hughson, A. Nathues, M. Hoffmann, T. Platz, G. Thangjam, N. Schorghofer, S. Schröder, **S. Byrne**, M. E. Landis, O. Ruesch, T. B. McCord, K. E. Johnson, S. M. Singh, C. A. Raymond, and C. T. Russell 2019. Exposed H₂O-rich areas detected on Ceres with the dawn visible and infrared mapping spectrometer. *Icarus* 318, 22-41.
- Dundas, C. M., A. S. McEwen, S. Diniega, C. J. Hansen, **S. Byrne**, and J. N. McElwaine 2019. The formation of gullies on Mars today. *Geological Society of London Special Publications* 467, 67-94.
- Landis, M. E., **S. Byrne**, J.-P. Combe, S. Marchi, J. Castillo-Rogez, H. G. Sizemore, N. Schorghofer, T. H. Prettyman, P. O. Hayne, C. A. Raymond, and C. T. Russell 2019. Water Vapor Contribution to Ceres' Exosphere From Observed Surface Ice and Postulated Ice-Exposing Impacts. *J. Geophys. Res.* 124, 61-75.
- Savage, R., L. F. Palafox, C. T. Morrison, J. J. Rodriguez, K. Barnard, **S. Byrne**, and C. W. Hamilton 2018. A Bayesian Approach to Subkilometer Crater Shape Analysis Using Individual HiRISE Images. *IEEE Transactions on Geoscience and Remote Sensing* 56, 5802-5812.

- 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.
- Bapst, J., **S. Byrne**, and A. J. Brown 2018. On the icy edge at Louth and Korolev craters. *Icarus* 308, 15-26.
- Tornabene, L. L., F. P. Seelos, A. Pommerol, N. Thomas, C. M. Caudill, P. Becerra, J. C. Bridges, **S. Byrne**, M. Cardinale, M. Chojnacki, S. J. Conway, G. Cremonese, C. M. Dundas, M. R. El-Maarry, J. Fernando, C. J. Hansen, K. Hansen, T. N. Harrison, R. Henson, L. Marinangeli, A. S. McEwen, M. Pajola, S. S. Sutton, and J. J. Wray 2018. Image Simulation and Assessment of the Colour and Spatial Capabilities of the Colour and Stereo Surface Imaging System (CaSSIS) on the ExoMars Trace Gas Orbiter. *Space Sci. Reviews* 214, 18.
- Dundas, C. M., A. M. Bramson, L. Ojha, J. J. Wray, M. T. Mellon, **S. Byrne**, A. S. McEwen, N. E. Putzig, D. Viola, S. Sutton, E. Clark, and J. W. Holt 2018. Exposed subsurface ice sheets in the Martian mid-latitudes. *Science* 359, 199-201.
- Dundas, C. M., A. S. McEwen, M. Chojnacki, M. P. Milazzo, **S. Byrne**, J. N. McElwaine, and A. Urso 2017. Granular flows at recurring slope lineae on Mars indicate a limited role for liquid water. *Nature Geoscience* 10, 903-907.
- Bramson, A. M., **S. Byrne**, and J. Bapst 2017. Preservation of Midlatitude Ice Sheets on Mars. *J. Geophys. Res.* 122, 2250-2266.
- Thomas, N., G. Cremonese, R. Ziethe, M. Gerber, M. Brändli, G. Bruno, M. Erismann, L. Gambicorti, T. Gerber, K. Ghose, M. Gruber, P. Gubler, H. Mischler, J. Jost, D. Piazza, A. Pommerol, M. Rieder, V. Roloff, A. Servonet, W. Trottmann, T. Uthaicharoenpong, C. Zimmermann, D. Vernani, M. Johnson, E. Pelò, T. Weigel, J. Viertl, N. De Roux, P. Lochmatter, G. Sutter, A. Casciello, T. Hausner, I. Ficaì Veltroni, V. Da Deppo, P. Orleanski, W. Nowosielski, T. Zawistowski, S. Szalai, B. Sodor, S. Tulyakov, G. Troznai, M. Banaskiewicz, J. C. Bridges, **S. Byrne**, S. Debei, M. R. El-Maarry, E. Hauber, C. J. Hansen, A. Ivanov, L. Keszthelyi, R. Kirk, R. Kuzmin, N. Mangold, L. Marinangeli, W. J. Markiewicz, M. Massironi, A. S. McEwen, C. Okubo, L. L. Tornabene, P. Wajer, and J. J. Wray 2017. The Colour and Stereo Surface Imaging System (CaSSIS) for the ExoMars Trace Gas Orbiter. *Space Sci. Reviews* 212, 1897-1944.
- Schorghofer, N., **S. Byrne**, M. E. Landis, E. Mazarico, T. H. Prettyman, B. E. Schmidt, M. N. Villarreal, J. Castillo-Rogez, C. A. Raymond, and C. T. Russell 2017. The Putative Cerean Exosphere. *Astrophys. J.* 850, 85.
- Landis, M. E., **S. Byrne**, N. Schörghofer, B. E. Schmidt, P. O. Hayne, J. Castillo-Rogez, M. V. Sykes, J.-P. Combe, A. I. Ermakov, T. H. Prettyman, C. A. Raymond, and C. T. Russell 2017. Conditions for Sublimating Water Ice to Supply Ceres' Exosphere. *J. Geophys. Res.* 122, 1984-1995.
- Molaro, J. L., **S. Byrne**, and J.-L. Le 2017. Thermally induced stresses in boulders on airless body surfaces, and implications for rock breakdown. *Icarus* 294, 247-261.
- Sori, M. M., J. 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.

- Schmidt, B. E., K. H. G. Hughson, H. T. Chilton, J. E. C. Scully, T. Platz, A. Nathues, H. Sizemore, M. T. Bland, **S. Byrne**, S. Marchi, D. P. O'Brien, N. Schorghofer, H. Hiesinger, R. Jaumann, J. H. Pasckert, J. D. Lawrence, D. Buzckowski, J. C. Castillo-Rogez, M. V. Sykes, P. M. Schenk, M.-C. Desantistis, G. Mitri, M. Formisano, J.-Y. Li, V. Reddy, L. Lecorre, C. T. Russell, and C. A. Raymond 2017. Geomorphological evidence for ground ice on dwarf planet Ceres. *Nature Geoscience* 10, 338-343.
- Forget, F., **S. Byrne**, J. W. Head, M. A. Mischna, and N. Schörghofer 2017. Recent Climate Variations. *Asteroids, Comets, Meteors - ACM2017* 464-496.
- Viola, D., A. S. McEwen, C. M. Dundas, and **S. Byrne** 2017. Subsurface volatile content of martian double-layer ejecta (DLE) craters. *Icarus* 284, 325-343.
- Titus, T. N., **S. Byrne**, A. Colaprete, F. Forget, T. I. Michaels, and T. H. Prettyman 2017. The CO₂ Cycle. *Asteroids, Comets, Meteors - ACM2017* 338-373.
- 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.
- Becerra, P., M. M. Sori, and **S. Byrne** 2017. Signals of astronomical climate forcing in the exposure topography of the North Polar Layered Deposits of Mars. *Geophys. Res. Lett.* 44, 62-70.
- Platz, T., A. Nathues, N. Schorghofer, F. Preusker, E. Mazarico, S. E. Schröder, **S. Byrne**, T. Kneissl, N. Schmedemann, J.-P. Combe, M. Schäfer, G. S. Thangjam, M. Hoffmann, P. Gutierrez-Marques, M. E. Landis, W. Dietrich, J. Ripken, K.-D. Matz, and C. T. Russell 2016. Surface water-ice deposits in the northern shadowed regions of Ceres. *Nature Astronomy* 1, 0007.
- Brown, A. J., W. M. Calvin, P. Becerra, and **S. Byrne** 2016. Martian north polar cap summer water cycle. *Icarus* 277, 401-415.
- Ruesch, O., T. Platz, P. Schenk, L. A. McFadden, J. C. Castillo-Rogez, L. C. Quick, **S. Byrne**, F. Preusker, D. P. O'Brien, N. Schmedemann, D. A. Williams, J.-Y. Li, M. T. Bland, H. Hiesinger, T. Kneissl, A. Neesemann, M. Schaefer, J. H. Pasckert, B. E. Schmidt, D. L. Buzckowski, M. V. Sykes, A. Nathues, T. Roatsch, M. Hoffmann, C. A. Raymond, and C. T. Russell 2016. Cryovolcanism on Ceres. *Science* 353, aaf4286.
- Combe, J.-P., T. B. McCord, F. Tosi, E. Ammannito, F. G. Carrozzo, M. C. De Sanctis, A. Raponi, **S. Byrne**, M. E. Landis, K. H. G. Hughson, C. A. Raymond, and C. T. Russell 2016. Detection of local H₂O exposed at the surface of Ceres. *Science* 353, aaf3010.
- Buzckowski, D. L., B. E. Schmidt, D. A. Williams, S. C. Mest, J. E. C. Scully, A. I. Ermakov, F. Preusker, P. Schenk, K. A. Otto, H. Hiesinger, D. O'Brien, S. Marchi, H. Sizemore, K. Hughson, H. Chilton, M. Bland, **S. Byrne**, N. Schorghofer, T. Platz, R. Jaumann, T. Roatsch, M. V. Sykes, A. Nathues, M. C. De Sanctis, C. A. Raymond, and C. T. Russell 2016. The geomorphology of Ceres. *Science* 353, aaf4332.
- Becerra, P., **S. Byrne**, M. M. Sori, S. Sutton, and K. E. Herkenhoff 2016. Stratigraphy of the north polar layered deposits of Mars from high-resolution topography. *J. Geophys. Res.* 121, 1445-1471.

- Thompson, M. S., T. J. Zega, P. Becerra, J. T. Keane, and **S. Byrne** 2016. The oxidation state of nanophase Fe particles in lunar soil: Implications for space weathering. *Meteoritics and Planet. Sci.* 51, 1082-1095.
- Bierson, C. J., R. J. Phillips, I. B. Smith, S. E. Wood, N. E. Putzig, D. Nunes, and **S. Byrne** 2016. Stratigraphy and evolution of the buried CO₂ deposit in the Martian south polar cap. *Geophys. Res. Lett.* 43, 4172-4179.
- Landis, M. E., **S. Byrne**, I. J. Daubar, K. E. Herkenhoff, and C. M. Dundas 2016. A revised surface age for the North Polar Layered Deposits of Mars. *Geophys. Res. Lett.* 43, 3060-3068.
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