

SHANE BYRNE – Curriculum Vitae

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| Lunar and Planetary Laboratory, University 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) – Acting-PI
- 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
- Jennifer Fernando
- Michael Sori
- Jonathan Bapst
- Michael Phillips

Other Service & Professional Activity

- NASA: Director of the Space Imagery Center
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)
NeMO Science Definition Team
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 (117 papers, reverse chronological)

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

- 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. Murriner, 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. 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.
- 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. Fikai 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. Wajner, 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. Buczkowski, 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.
- Buczkowski, 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.
- Daubar, I. J., C. M. Dundas, **S. Byrne**, P. Geissler, G. D. Bart, A. S. McEwen, P. S. Russell, M. Chojnacki, and M. P. Golombek 2016. Changes in blast zone albedo patterns around new martian impact craters. *Icarus* 267, 86-105.
- 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.
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