

Shane Byrne Assistant Professor	Department of Planetary Sciences University of Arizona
Mail: Lunar and Planetary Laboratory, The University of Arizona, 1629 E. University Blvd., Tucson, AZ 85721-0092, USA.	Phone: (520) 626-0407 Fax: (520) 621-4933 Email: shane@lpl.arizona.edu http://www.lpl.arizona.edu/~shane

Professional Positions

University of Arizona – Lunar and Planetary Laboratory, 8/2007 - Present

Assistant Professor

Director: Space Imagery Center–A NASA Regional Planetary Image Facility

University of Arizona – Lunar and Planetary Laboratory, 9/2005 – 8/2007.

Research Associate – with HiRISE team.

Massachusetts Institute of Technology, 12/2003 – 9/2005.

Postdoctoral Scholar – with Professor Maria Zuber.

California Institute of Technology, 6/2003 – 12/2003.

Assistant Scientist – with Professor Bruce Murray.

California Institute of Technology, 8/1998 – 6/2003.

Graduate Research Assistant – with Professors Murray and Ingersoll.

Education

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

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

Advisors: Professors Bruce C. Murray and Andrew P. Ingersoll

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

University of Cardiff, Cardiff, United Kingdom 1994-1998

Master of Physics. Astrophysics (1998)

Planetary Mission Involvement

- High-Resolution Stereo Color Imager (HiSCI) – Deputy-PI.
 - High Resolution Science Experiment (HiRISE) – Co-Investigator.
 - Chronos Mars-scout proposal (2006) – Co-Investigator.
 - MOSAIC Mars-scout proposal (2006) – Co-Investigator.
 - Boreale Explorer Mars-scout proposal (2006) – Co-Investigator.
 - Mars Orbiter Laser Altimeter (MOLA) (2002-2006).
 - MIT manned lunar exploration initiative (2004-2005).
 - Landing site selection, Mars Polar Lander (1999).

Service and Professional Memberships

- Conferences: Session convener – AGU 2008
Science organization committee: DPS 2011
Science organization committee: Mars Polar Science 2011
 - Session Chair: American Geophysical Union – Fall Meeting
International conference on Mars polar science and exploration
Lunar and Planetary Science Conference

- Reviewer for: Nature, Science, Journal of Geophysical Research, Geophysical Research Letters, Icarus, Planetary and Space Science, The Mars Journal, Annals of Glaciology, Geology.
- NASA: Director of Space Imagery Center
A NASA Regional Planetary Image Facility
 PG&G review panel
 MDAP, MFRP, PG&G external reviewer
- Member: American Geophysical Union
 American Astronomical Society – Division of Planetary Science

Academic and Teaching Honors

Caltech Planetary Science, Pasadena, CA

Excellence in teaching award for 'Planetary Surfaces' (2001).

University of Cardiff, Cardiff, United Kingdom

Received award for highest academic standing, 1995, 1996, 1997 & 1998

Classes Taught

- U. of Arizona, PTYS 554: Evolution of Planetary Surfaces
- U. of Arizona, PTYS411/511: Geology and Geophysics of the Solar System
- U. of Arizona, PTYS395A: Mercury: Open Questions and New Data.
- U. of Arizona, PTYS395B: The Moon.
- U. of Arizona, PTYS206: Our golden age of planetary exploration
- U. of Arizona, PTYS594: Planetary Geology Field Studies
- *Contributed lectures:*
 - U. of Arizona: PTYS442/542: Mars
 - MIT, EAPS 12.601: Essentials of Planetary Science
 - Caltech, Ge151: Fundamentals of Planetary Surfaces
 - Caltech, Ge158: Applications of Remote Sensing in the Field

Invited Talks

- Planetary Science Department, Caltech, Pasadena, CA, 2011.
- Jackson School of Geosciences, University of Texas, Austin, 2010.
- GSA, Annual meeting Portland Oregon, 2009.
- APS Department Seminar, LASP, University of Colorado, 2007.
- Department Seminar, LPL, University of Arizona, 2007.
- Geology Department Seminar, Northern Arizona University, 2006.
- Mars Polar Atmosphere Surfaces Interaction Workshop, Flagstaff, AZ, 2005.
- MIT, IAP seminar series on Natural Hazards, Cambridge, MA, 2005.
- National Academy of Sciences, 7th Annual Japanese-American Frontiers of Science, Irving, CA, 2004.
- Jet Propulsion Laboratory, Division 32 special seminar, Pasadena, CA, 2004.
- University of Washington, Earth and Space Sciences seminar, Seattle, WA, 2004.
- University of California - Los Angeles, Earth and Space Sciences seminar, Los Angeles, CA, 2002.
- Jet Propulsion Laboratory, Division 32 seminar, Pasadena, CA, 2002.

Peer-reviewed Publications

- McEwen, A.S., and 9 colleagues, Seasonal Flows on Warm Martian Slopes, *Science*, 333, 740-743, 2011.
- Hansen, C.J., and 11 colleagues, Seasonal Erosion and Restoration of Mars' Northern Polar Dunes, *Science*, 331, 575-578, 2011.
- Phillips, R.J., and 17 colleagues, Massive CO₂ Ice Deposits Sequestered in the South Polar Layered Deposits of Mars, *Science*, 332, 838-841, 2011.
- Diniega, S., S. **Byrne**, N.T. Bridges, C.M. Dundas and A.S. McEwen, Seasonality of Present-day Martian Dune-Gully Activity, *Geology*, 38(11), 1047-1050, 2010.
- Sharma, P., and S. **Byrne**, Constraints on Titan's topography through fractal analysis of shorelines, *Icarus*, 209(2), 723-737, 2010.
- Banks, M.E., S. **Byrne**, K. Galla, A.S. McEwen, V.J. Bray, K.E. Fishbaugh, C.M. Dundas, K.E. Herkenhoff, B.C. Murray and the HiRISE Team, Crater Population and Resurfacing of the Martian North Polar Layered Deposits, *J. Geophys. Res.*, 115, E08006, 2010.
- Reufer, A., N. Thomas, W. Benz, S. **Byrne**, V. Bray, C. Dundas and M. Searls, Models of high velocity impacts into dust-covered ice: Application to Martian northern lowlands, *Planet. Space Sci.*, 58(10), 2010.
- Diniega, S., K. Glasner and S. **Byrne**, Long-time evolution of models of aeolian sand dune fields: Influence of dune formation and collision, *Geomorphology*, 121, 55-68, 2010.
- Holt, J.W., K.E. Fishbaugh, S. **Byrne**, S. Christian, K. Tanaka, P. S. Russell, K.E. Herkenhoff, A. Safaeinili, N.E. Putzig, and R.J. Phillips, The Construction of Chasma Boreale on Mars, *Nature*, 465, 446-449, 2010.
- Dundas, C.M., A.S. McEwen, S. Diniega, and S. **Byrne**, New and recent gully activity on Mars as seen by HiRISE, *Geophys. Res. Lett.*, 37(7), L07202, 2010.
- Fishbaugh, K.E., C.S. Hvidberg, S. **Byrne**, P.S. Russell, K.E. Herkenhoff, M. Winstrup, and R.L. Kirk, The first high-resolution stratigraphic column of the martian north polar layered deposits, *Geophys. Res. Lett.*, 37(7), L07201, 2010.
- Dundas, C.M., and S. **Byrne**, Modeling Sublimation of Ice Exposed by Recent Impacts in the Martian Mid-Latitudes, *Icarus*, 206(2), 716-728, 2010.
- Fishbaugh, K.E., S. **Byrne**, K.E. Herkenhoff, R.L. Kirk, C. Fortezzo, P.S. Russell and A. McEwen, Evaluating the meaning of 'layer' in the martian north polar layered deposits and the impact on the climate connection, *Icarus*, 205(1), 269-282, 2010.
- Hansen, C.J., N. Thomas, G. Portyankina, A. McEwen, T. Becker, S. **Byrne**, K. Herkenhoff, H. Kieffer, M. Mellon, HiRISE Observations of gas sublimation-driven activity in Mars' southern polar regions: I. Erosion of the Surface, *Icarus*, 205(1), 283-295, 2010.
- McEwen, A., and 65 colleagues, The High Resolution Imaging Science Experiment (HiRISE) during MRO's Primary Science Phase (PSP), *Icarus*, 205(1), 2-37, 2010.

- Byrne**, S., and 17 colleagues, Distribution of Mid-Latitude Ground-Ice on Mars from New Impact Craters, *Science*, 325, 1674, 2009.
- Byrne**, S., The polar deposits of Mars, *Ann. Rev. Earth Plan. Sci.*, 37, 2009.
- Russell, P., N. Thomas, S. **Byrne**, K. Herkenhoff, K. Fishbaugh, N. Bridges, C. Okubo, M. Milazzo, I. Daubar, C. Hansen, A. McEwen, Seasonally active frost-dust avalanches on a north polar scarp of Mars captured by HiRISE, *Geo. Phys. Lett.*, 35(23), L23204, 2008.
- Brown, A., S. **Byrne**, L.L. Tornabene and T. Roush, Louth crater: Evolution of a layered water ice mound, *Icarus*, 196(2), 433-445, 2008.
- Winebrenner, D.P., M.R. Koutnik, E.D. Waddington, A.V. Pathare, B.C. Murray, S. **Byrne** and J.L. Bamber, Evidence for ice flow prior to trough formation in the martian north polar layered deposits, *Icarus*, 195(1), 90-105, 2008.
- Byrne**, S., M. T. Zuber, G. A. Neumann, Interannual and Seasonal Behavior of Martian Residual Ice-Cap Albedo, *Planet. Space Sci.*, 56(2), 194-211, 2008.
- Herkenhoff, K.E., S. **Byrne**, P.S. Russell, K.E. Fishbaugh, and A.S. McEwen, Meter-Scale Morphology of the North Polar Region of Mars, *Science*, 317(5845), 1711, 2007.
- McEwen, A.S., and 32 colleagues, A Closer Look at Water-Related Geologic Activity on Mars, *Science*, 317(5845), 1706, 2007.
- Koutnik, M., S. **Byrne**, B.C. Murray, A.D. Toigo, and Z.A. Crawford , Eolian controlled modification of the Martian south polar layered deposits, *Icarus*, 174, 490-501, 2005.
- Schaller, E., B.C. Murray, A.V. Pathare, J. Rasmussen, and S. **Byrne**, Modification of Secondary Craters on the Martian South Polar Layered Deposits, *J. Geophys. Res.*, 110, E02004, 2005.
- Jerolmack, D., D. Mohrig, M.T. Zuber, and S. **Byrne**, A minimum time for the formation of the Holden Northeast Fan, Mars, *Geophys. Res. Lett.*, 31, L21701, 2004.
- Byrne**, S., and A.B. Ivanov, The internal structure of the Martian south polar layered deposits, *J. Geophys. Res.*, 109, E11001, 2004.
- Piqueux, S., S. **Byrne**, and M.I. Richardson, The sublimation of Mars southern CO₂ ice cap and the formation of "spiders", *J. Geophys. Res.*, 108(E8), 5084, 2003.
- Byrne**, S., and A.P. Ingersoll, Martian climatic events on timescales of centuries: Evidence from feature morphology in the residual south polar cap, *Geophys. Res. Lett.*, 30(13), 2003.
- Byrne**, S., and A.P. Ingersoll, A Sublimation Model for Martian South Polar Ice Features, *Science*, 299, 1051-1053, 2003.
- Koutnik, M., S. **Byrne**, and B.C. Murray, South Polar Layered Deposits of Mars: The Cratering Record, *J. Geophys. Res.*, 107(E11), 5100, 2002.
- Byrne**, S., and B.C. Murray, North polar stratigraphy and the paleo-erg of Mars, *J. Geophys. Res.*, 107(E6), 5044, 2002.
- Murray, B.C., M. Koutnik, S. **Byrne**, L.A. Soderblom, K.E. Herkenhoff, and K.L. Tanaka, Preliminary Geological Assessment of the Northern Edge of Ultimi Lobe, Mars South Polar Layered Deposits, *Icarus*, 154, 80-97, 2001.