Paul Withers

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1. Education history

- PhD, Planetary Science, University of Arizona 2003
- MS, Physics, Cambridge University, Great Britain 1998
- BA, Physics, Cambridge University, Great Britain 1998

2. Employment record

2.1. Long-term positions

- Associate Professor , Astronomy Department, Boston University 2017-present
- Assistant Professor , Astronomy Department, Boston University 2010 – 2017
- Senior research associate, Boston University Dr. Michael Mendillo 2007 – 2010
- Research associate, Boston University Dr. Michael Mendillo 2003 – 2007
- Graduate research assistant, Univ. of Arizona Dr. Stephen Bougher 1998 – 2003

2.2. Short-term positions

- Visiting Research Fellow Open University, Great Britain 2004 – 2007
- Research consultant Dr. John Zarnecki (Open University) 2001(summer)
- Research assistant Dr. Greg Neumann (NASA/Goddard) 2000(summer)
- Research assistant Dr. Andrew Melatos (Caltech) 1997(summer)
- Website designer Dr. Nicholas Walton (ING, Spain) 1996(summer)

3. Honors, awards, and other recognition

- NASA Group Achievement Award to MAVEN Science Team 2016
- NASA Robert H. Goddard Exceptional Achievement for Science Award to MAVEN Science Team 2016
- Editors' citation for excellence in refereeing (Geophysical Research Letters) 2015
- Selected by National Academy of Sciences to participate in Forum for New Leaders in Space Science (bilateral forum with China) 2014
- NASA Group Achievement Award to MSL Science Office Development and Operations Team 2013
- Editors' citation for excellence in refereeing (Journal of Geophysical Research – Planets) 2012
- Elected as Committee Member of the Division for Planetary Sciences of the American Astronomical Society 2012
- NASA Early Career Fellowship 2009
- CEDAR Postdoctoral Fellowship from NSF for upper atmospheric research 2003
- Kuiper Memorial Award from the University of Arizona for excellence in academic work and research in planetary science 2002
- Nominated for the Meteoritical Society/Geological Society of America's Best Student Paper in Planetary Sciences Award 2002
- Travel award to attend Geoplanets Summer School, Italy 2002
- Galileo Circle Graduate Scholarship from the University of Arizona 2001
- Highly Commended in annual British Young Science Writer Contest 2000
- Fellowship to participate in NASA Goddard Summer Student Program 2000
- Fellowship to participate in JPL Planetary Sciences Summer School 1999
- Graduate Registration Fellowships from the University of Arizona 1999 – 2002
- Caltech Summer Undergraduate Research Fellowship 1997

4. Courses taught

- AS101 The solar system
  Course taught in the Astronomy Department of Boston University, targeted at undergraduate non-science majors fulfilling science requirement, 4 credits, laboratory component
  116 students enrolled, 2 teaching assistants 2013 (fall)
  44 students enrolled, 1 teaching assistant 2013 (spring)
  43 students enrolled, 2 teaching assistants 2010 (fall)
  19 students enrolled, 1 teaching assistant 2006 (summer)

- AS202 Principles of Astronomy I
  Course taught in the Astronomy Department of Boston University, primarily targeted at first year undergraduate students majoring in Astronomy, 4 credits, laboratory component
  42 students enrolled, 3 teaching assistants 2016 (fall)
  27 students enrolled, 2 teaching assistants 2015 (fall)
  21 students enrolled, 2 teaching assistants 2011 (fall)

- AS699 Teaching college astronomy
  Course taught in the Astronomy Department of Boston University, targeted at graduate students serving as teaching assistants in Astronomy Department, 2 credits
  2 students enrolled, 0 teaching assistants 2013 (fall)
  1 student enrolled, 0 teaching assistants 2013 (spring)
  2 students enrolled, 0 teaching assistants 2011 (fall)
  2 students enrolled, 0 teaching assistants 2010 (fall)

- AS781 Planetary Atmospheres
  Course taught in the Astronomy Department of Boston University, targeted at advanced graduate students in Astronomy, 4 credits
  4 students enrolled, 0 teaching assistants 2016 (spring)
  10 students enrolled, 0 teaching assistants 2012 (fall)

- AS802 Graduate research and scholarship
  Course taught in the Astronomy Department of Boston University, targeted at first year graduate students in Astronomy, 2 credits
  8 students enrolled, 0 teaching assistants 2017 (spring)
  5 students enrolled, 0 teaching assistants 2014 (spring)
  14 students enrolled, 0 teaching assistants 2011 (spring)

- AS803 Research methods in astronomical data analysis
  Course taught in the Astronomy Department of Boston University, targeted at first year graduate students in Astronomy, 2 credits
  7 students enrolled, 0 teaching assistants 2017 (spring)
  5 students enrolled, 0 teaching assistants 2014 (spring)
  15 students enrolled, 0 teaching assistants 2011 (spring)

5. Grants awarded

Dollar amounts listed are awards to BU. Dollar amounts are in parentheses if I was not the lead BU investigator. Dollar amounts are not listed if no funds were awarded to BU.

Total external funding as lead BU investigator $5,296,655

- Effects of crustal fields on the Martian ionosphere as seen by MAVEN, NASA Mars Data Analysis Program, Co-Investigator (PI Vogt, Boston University), 2017.08.01 to 2020.07.31, 80NSSC17K0735 ($435,578)
- Archiving ionospheric and neutral atmospheric profiles from Pioneer Venus Orbiter, NASA Planetary Data Analysis, Restoration, and Tools Program, Principal Investigator, 2017.04.01 to 2020.03.31, NNX17AK95G $275,868
- MAVEN Radio Occultation Science Experiment (ROSE), NASA MAVEN project via University of Colorado, Principal Investigator, 2016.10.01 to 2018.09.30, 50202634, $535,000
- Understanding the effects of solar flares on the upper atmospheres of Mars and Venus, NASA, Living With a Star Targeted Research and Technology Program, Co-Investigator (PI Ridley, University of Michigan), 2016.07.01 to 2020.06.30, NNX16AJ54G $222,366
- Archiving ionospheric electron density profiles from the Viking Orbiters, NASA Planetary Data Analysis, Restoration, and Tools Program, Principal Investigator, 2016.04.01 to 2018.03.31, NNX16AG45G $110,844
- Risk reduction demonstration for MAVEN radio occultations, NASA MAVEN project via University of Colorado, Principal Investigator, 2016.02.01 to 2016.09.30, 50202634 $40,000
- INSPIRE: Comparative ionospheric science – Earth, solar system, exo-planets, NSF, INSPIRE Program, Co-Principal Investigator (PI Mendillo, Boston University), 2015.09.01 to 2019.08.31, AST-1545581 ($999,875)
- The atmosphere of Mars: Observations of thermal tides at, above, and around Gale crater from the surface and from orbit, NSF, Astronomy and Astrophysics Program, Principal Investigator, 2015.08.15 to 2018.07.31, AST-1513224 $296,507
- The structure of the ionosphere above crustal magnetic fields, NASA, Mars Data Analysis Program, Principal Investigator, 2015.06.10 to 2018.06.09, NNX15AM59G $356,949
- Archiving Saturn and Titan ionospheric electron density profiles from Cassini, NASA, Planetary Data Archiving, Restoration, and Tools Program, Principal Investigator, 2015.04.17 to 2018.04.16, NNX15AI87G $412,840
- Characterizing the topside bulge in the ionosphere of Mars, NASA, Mars Data Analysis Program, Principal Investigator, 2014.07.02 to 2017.07.01, NNX14AM21G $144,428
- Integration of MAVEN neutral and plasma observations, NASA, MAVEN Participating Scientist Program, Principal Investigator, 2013.11.01 to 2016.09.30, NNX13AO35G $365,644
- Radio occultation studies at Mars, NASA, Early Career Fellowship Program, Principal Investigator, 2013.03.05 to 2015.03.04, NNX13AH89G $99,999
- Meteoric plasma layers on Venus and Mars, NASA, Planetary Atmospheres Program, 2013.03.01 to 2016.02.29, Principal Investigator, NNX13AH11G $232,000

- EDL reconstruction for MSL, NASA, JPL contract, 2012.12.19 to 2014.09.30, Principal Investigator, 1472312 $199,497
- The vertical structure of the Venus ionosphere and its implications for terrestrial planet ionospheres, NASA, NASA Earth and Space Science Fellowship Program, 2012.09.01 to 2015.08.31, Principal Investigator, NNX12AN03H $90,000
- Modeling day-to-day variability in the ionosphere of Venus, NASA, NASA Earth and Space Science Fellowship Program, 2012.09.01 to 2015.08.31, Principal Investigator, NNX12AN80H $90,000
- The ionosphere of Venus, NSF, Astronomy and Astrophysics Program, 2012.08.15 to 2015.07.31, Principal Investigator, AST-1211490 $294,211
- Exploring the ionosphere of Mars, NASA, Mars Data Analysis Program, 2012.05.16 to 2015.05.15, Principal Investigator, NNX12AJ39G $159,393
- Aspects of atmospheric dynamics from coordinated space measurements, JPL/Caltech Keck Institute for Space Studies, Step 1 workshop award, Co-Investigator (PI Manucci, JPL), 2011
- EDL Science, ESA ExoMars entry descent and landing demonstrator module (EDM) science opportunity, Co-Investigator (PI Ferri, Univ. Padua, Italy), 2011.06.08-end of mission
- Cosmic dust in the terrestrial atmosphere (CODITA), European Research Council, Collaborator (PI Plane, Univ. Leeds, UK), 2011.10.15 to 2016.10.14
- Magnetospheres of the outer planets (MOP) 2011 meeting, NASA, Topical workshops, symposia, and conferences program, 2011.08.01 to 2012.07.31, Principal Investigator, NNX11AO52G $15,000
- Developing a novel modeling approach for Mars' ionospheric electrodynamics, NASA, Mars Fundamental Research Program, 2010.06.30 to 2013.06.29, Collaborator (PI Paty, Georgia Tech), NNX10AM88G
- Thermospheric variability observed by past aerobraking missions and radio occultation experiments, NASA, Mars Critical Data Products Program, 2010.05.28 to 2012.09.30, Principal Investigator, 1407345 $192,802
- Analysis of Phoenix entry data to support future Mars lander, NASA, unsolicited proposal, 2009.03.15 to 2010.03.14, Principal Investigator, NNX09AG16G $76,858
- Venus Express atmospheric drag experiment, ESA, Co-Investigator (PI Mueller-Wodarg, Imperial College, UK), 2008.12.18-2014.12.31
- Simulations of the effects of extreme solar flares on technological systems at Mars, NASA, Living With a Star Targeted Research and Technology Program, 2008.05.15 to 2012.05.14, Principal Investigator, NNX08AP96G $357,219
- Development of a Mars ionosphere model with time-dependent solar forcing for studies of solar flare effects, NASA, Mars Fundamental Research Program, 2008.05.01 to 2012.04.30, Principal Investigator, NNX08AN56G $264,030
- Analysis of SPICAM stellar occultation data, NASA, Mars Data Analysis Program, 2008.04.02 to 2012.04.01, Principal Investigator, NNX08AK96G $312,205
- Application of Spirit and Opportunity atmospheric density/temperature profiles and TES temperature/pressure data to provide atmospheric density/temperature profiles for MSL EDL,

NASA, Mars Critical Data Products Program, 2007.10.01 to 2010.09.30, Principal Investigator, 1316618 $152,995

- Mars ionospheric disturbances, NASA, Mars Data Analysis Program, 2007.07.01 to 2010.06.30, Co-Investigator (PI Mendillo, Boston University), NNX07AN99G ($286,623)
- The Great Escape, NASA, Mars Scout Program, Step 1 award, Co-Investigator (PI Stern/Burch, SwRI, lead BU investigator Mendillo), 2007.01.08 to 2008.09.15 ($39,943)
- Analysis of accelerometer data from aerobraking, NASA, Mars Odyssey Participating Scientist Program, 2006.04.01 to 2007.03.31, Co-Investigator (PI Mendillo, Boston University) ($45,000)
- The escape of oxygen from Mars, NASA, HST Cycle 13 archival research program, 2005.01.01 to 2005.12.31, Co-Investigator (PI Wilson, Boston University) ($66,000)
- Studies of variability patterns and their causes in Mars' upper atmosphere, NASA, Mars Data Analysis Program, 2004.05.01-2007.04.30, Co-Investigator (PI Mendillo, Boston University) ($304,785)
- Comparative aeronomy: Photo-chemistry and neutral-plasma coupling at Earth and Mars, NSF, CEDAR Postdoctoral Fellowship Program, 2003.12.01-2005.11.30, Co-Investigator (PI Mendillo, Boston University), AGS-0334383 ($160,596)

6. Publications and working papers

My name written in bold font (e.g. **Withers**)

Names of BU graduate students are underlined (e.g. Matta)

Names of BU undergraduate students are underlined and in italicized font (e.g. *Lollo*)

6.1. Published

6.1.1. Book chapter

- Bougher, Brain, Fox, Gonzalez-Galindo, Simon-Wedlund, and **Withers** (2017) Upper neutral atmosphere and ionosphere, in "The atmosphere and climate of Mars", pp. 3-19, eds. Forget, Haberle Smith, Clancy, and Zurek, Cambridge University Press, pp. 405-432

- James, Christensen, Clancy, Lemmon, and **Withers** (2017) History of Mars atmosphere observations, in "The atmosphere and climate of Mars", eds. Forget, Haberle Smith, Clancy, and Zurek, Cambridge University Press, pp. 3-19

6.1.2. Journal article (refereed) 84 total, of which 38 as first author

- *Flynn*, Vogt, **Withers**, Andersson, England, and Liu (2017) MAVEN observations of the effects of crustal magnetic fields on electron density and temperature in the Martian dayside ionosphere, Geophysical Research Letters, 44, 10,812-10,821, doi:10.1002/2017GL075367

- Vogt, **Withers**, Fallows, Andersson, Girazian, Mahaffy, Benna, Elrod, Connerney, Espley, Eparvier, and Jakosky (2017) MAVEN observations of dayside peak densities in the ionosphere of Mars, Journal of Geophysical Research, 122, 891-906, doi:10.1002/2016JA023473

- Phipps and **Withers** (2017) Radio occultations of the Io plasma torus by Juno are feasible, Journal of Geophysical Research, 122, 1731-1750, doi:10.1002/2016ja023447

- **Withers** and Vogt (2017) Occultations of astrophysical radio sources as probes of planetary environments: A case study of Jupiter and possible applications to exoplanets, Astrophysical Journal, 836, 114, doi:10.3847/1538-4357/836/1/114

- Vogt, **Withers**, Fallows, Andersson, Girazian, Mahaffy, Benna, Elrod, Connerney, Espley, Eparvier, and Jakosky (2016) MAVEN observations of dayside peak electron densities in the ionosphere of Mars, Journal of Geophysical Research, 122, 891-906, doi:10.1002/2016JA023473

- **Withers** and Jakosky (2016), Implications of MAVEN's planetographic coordinate system for comparisons to other recent Mars orbital missions, Journal of Geophysical Research, 121, 802-807, doi:10.1002/2016JA023470.

- Mendillo, *Trovato*, Narvaez, Mayyasi, Moore, Vogt, Fallows, **Withers**, and Martinis (2016) Comparative aeronomy: Molecular ionospheres at Earth and Mars, Journal of Geophysical Research, 121, 10,269-10,288

- Vogt, **Withers**, Fallows, *Flynn*, Andrews. Duru, and Morgan (2016) Electron densities in the ionosphere of Mars: A comparison of MARSIS and radio occultation measurements, Journal of Geophysical Research, 121, 10241-10257

- Patzold, Hausler, Tyler, Andert, Asmar, Bird, Dehant, Hinson, Rosenblatt, Simpson, Tellmann, **Withers**, Beuthe, Efimov, Hahn, Kahan, LeMaistre, Oschlisniok, Peter, and Remus (2016) Mars Express 10 years at Mars: Observations by the Mars Express Radio Science Experiment (MaRS), Planetary and Space Science, 127, 44-90

- **Withers** (2016) On the feasibility of detecting the ionospheric effects of solar energetic particle events at Mars using spacecraft-spacecraft radio links, Radio Science, 51, 352-364, doi: 10.1002/2015RS005784

- England, Liu, **Withers**, Yigit, Lo, Jain, Schneider, Deighan, McClintock, Mahaffy, Elrod, Benna, and Jakosky (2016) Simultaneous observations of atmospheric tides from combined in situ and remote observations at Mars from the MAVEN spacecraft, Journal of Geophysical Research, 121, 594–607, doi:10.1002/2016JE004997

- **Withers**, Matta, Lester, Andrews, Edberg, Nilsson, Opgenoorth, Curry, Lillis, Dubinin, Fraenz, Hang, Kofman, Lei, Morgan, Paetzold, Peter, Opitz, Wild, and Witasse (2016) The morphology of the topside ionosphere of Mars under different solar wind conditions: Results of a multi-instrument observing campaign by Mars Express in 2010, Planetary and Space Science, 120, 24-34

- Holstein-Rathlou, *Maue*, and **Withers** (2016) Atmospheric studies from the Mars Science Laboratory Entry, Descent and Landing atmospheric structure reconstruction, Planetary and Space Science, 120, 15-23

- **Withers**, *Weiner*, and *Ferreri* (2015) Recovery and validation of Mars ionospheric electron density profiles from Mariner 9, Earth, Planets and Space, 67, 194, doi:10.1186/s40623-015-0364-2

- **Withers**, Vogt, Mahaffy, Benna, Elrod, and Jakosky (2015), Changes in the thermosphere and ionosphere of Mars from Viking to MAVEN, Geophysical Research Letters, 42, 9071-9079, doi:10.1002/2015GL065985

- Vogt, **Withers**, Mahaffy, Benna, Elrod, Halekas, Connerney, Espley, Mitchell, Mazelle, and Jakosky (2015), Ionopause-like density gradients in the Martian ionosphere: A first look with MAVEN, Geophysical Research Letters, 42, 8885-8893, doi:10.1002/2015GL065269

- **Withers**, Vogt, Mayyasi, Mahaffy, Benna, Elrod, Bougher, Dong, Chaufray, Ma, and Jakosky (2015), Comparison of model predictions for the composition of the ionosphere of Mars to MAVEN NGIMS data, Geophysical Research Letters, 42, 8966-8976, doi:10.1002/2015GL065205

- Bougher and 93 colleagues, including **Withers** (2015) Early MAVEN Deep Dip campaign reveals thermosphere and ionosphere variability, Science, 350, doi:10.1126/science.aad0459

- Jakosky and 93 colleagues, including **Withers** (2015) MAVEN observations of the response of Mars to an interplanetary coronal mass ejection, Science, 350, doi:10.1126/science.aad0210

- Girazian, **Withers**, Haeusler, Paetzold, Tellmann, and Peter (2015) Characterization of the lower layer in the dayside Venus ionosphere and comparisons with Mars, Planetary and Space Science, 117, 146-158

- Fallows, **Withers**, and *Gonzalez* (2015) Response of the Mars ionosphere to solar flares: Analysis of MGS radio occultation data, Journal of Geophysical Research, 120, 9805-9825

- **Withers** (2015) Trajectory and atmospheric structure from entry probes: Feasibility study of a real-time reconstruction technique using a radio link, Planetary and Space Science, 117, 345-355, doi:10.1016/j.pss.2015.07.005

- Fallows, **Withers**, and Matta (2015) Numerical simulations of the influence of solar zenith angle on properties of the M1 layer of the Mars ionosphere, Journal of Geophysical Research, 120, 6707-6721, doi:10.1002/2014JA020947

- Girazian and **Withers** (2015) An empirical model of the extreme ultraviolet solar spectrum as a function of F10.7, Journal of Geophysical Research, 120, 6779-6794, doi:10.1002/2015JA021436

- **Withers** (2015) Electromagnetic mirrors in the sky: Accessible applications of Maxwell's equations, American Journal of Physics, 83, 506-512

- Fallows, **Withers**, and Matta (2015) An observational study of the influence of solar zenith angle on properties of the M1 layer on the Mars ionosphere, Journal of Geophysical Research, 120, 1299-1310

- Matta, Mendillo, **Withers**, and Morgan (2015) Interpreting Mars ionospheric anomalies over crustal magnetic field regions using a 2-D ionospheric model, Journal of Geophysical Research, 120, 766-777

- **Withers**, Morgan, and Gurnett (2015) Variations in peak electron densities in the ionosphere of Mars over a full solar cycle, Icarus, 251, 5-11

- Grebowsky, Fast, Talaat, Combi, Crary, England, Ma, Mendillo, Rosenblatt, Seki, Stevens, and **Withers** (2015) Science enhancements by the MAVEN Participating Scientists, Space Science Reviews, 195, 319-355, doi:10.1007/s11214-014-0080-4

- **Withers** (2014) Predictions of the effects of Mars' encounter with comet C/2013 A1 (Siding Spring) upon metal species in its ionosphere, Geophysical Research Letters, 41, 6635-6643

- **Withers**, Moore, Cahoy, and Beerer (2014) How to process radio occultation data: 1. From time series of frequency residuals to vertical profiles of atmospheric and ionospheric properties, Planetary and Space Science, 101, 77-88

- Peter, Paetzold, Molina-Cuberos, Witasse, Gonzalez-Galindo, **Withers**, Bird, Haeusler, Hinson, Tellmann, and Tyler (2014) The dayside ionospheres of Venus and Mars: Comparing a one-dimensional photochemical model with MaRS (Mars Express) and VeRa (Venus Express) observations, Icarus, 233, 66-82

- **Withers**, *Fallows*, and Matta (2014) Predictions of electron temperature in the Mars ionosphere and their effects on electron densities, Geophysical Research Letters, 41, 2681-2686

- Riousset, Paty, Lillis, Fillingim, England, **Withers**, and Hale (2014) Electrodynamics of the Martian dynamo region near magnetic cusps and loops, Geophysical Research Letters, 41, 1119-1125

- Matta, Galand, Moore, Mendillo, and **Withers** (2014) Numerical simulations of ion and electron temperatures in the ionosphere of Mars: Multiple ions and diurnal variations, Icarus, 227, 78-88

- Mendillo, *Marusiak*, **Withers**, Morgan, and Gurnett (2013) A new semi-empirical model of the peak electron density of the Martian ionosphere, Geophysical Research Letters, 40, 5361-5365

- **Withers**, Christou, and Vaubaillon (2013) Meteoric ion layers in the ionospheres of Venus and Mars: Early observations and consideration of the role of meteor showers, Advances in Space Research, 52, 1207-1216

- Mendillo, Narvaez, **Withers**, Matta, Kofman, and Mouginot (2013) Variability in ionospheric total electron content at Mars, Planetary and Space Science, 86, 117-129

- Riousset, Paty, Lillis, Fillingim, England, **Withers**, and Hale (2013) Three-dimensional multifluid modeling of atmospheric electrodynamics in Mars' dynamo region, Journal of Geophysical Research, 118, 3647-3659

- Matta, **Withers**, and Mendillo (2013) The composition of Mars' topside ionosphere: Effects of hydrogen, Journal of Geophysical Research, 118, 2681-2693

- Girazian and **Withers** (2013) The dependence of peak electron density in the ionosphere of Mars on solar irradiance, Geophysical Research Letters, 40, 1960-1964

- **Withers** (2013) Landing spacecraft on Mars and other planets: An opportunity to apply introductory physics, American Journal of Physics, 81, 565-569

- **Withers** (2013) A smoothing technique for improving atmospheric reconstruction for planetary entry probes, Planetary and Space Science, 79-80, 52-55

- **Withers** and *Pratt* (2013) An observational study of the response of the upper atmosphere of Mars to lower atmospheric dust storms, Icarus, 225, 378-389

- **Withers**, Fillingim, Lillis, Haeusler, Hinson, Tyler, Paetzold, Peter, Tellmann, and Witasse (2012) Observations of the nightside ionosphere of Mars by the Mars Express Radio Science Experiment MaRS, Journal of Geophysical Research, 117, A12307, doi:10.1029/2012JA018185

- **Withers**, Fallows, Girazian, Matta, Haeusler, Hinson, Tyler, Morgan, Paetzold, Peter, Tellmann, Peralta, and Witasse (2012) A clear view of the multifaceted dayside ionosphere of Mars, Geophysical Research Letters, 39, L18202, doi: 10.1029/2012GL053193

- **Withers** (2012) Empirical predictions of martian surface pressure in support of the landing of Mars Science Laboratory, Space Science Reviews, 170, 837-860

- Vasavada, Chen, Barnes, Burkhart, Cantor, Dwyer-Cianciolo, Fergason, Hinson, Justh, Kass, Lewis, Mischna, Murphy, Rafkin, Tyler, and **Withers** (2012) Assessment of environments for Mars Science Laboratory entry, descent, and surface operations, Space Science Reviews, 170, 793-835

- *Lollo*, **Withers**, Fallows, Girazian, Matta, and Chamberlin (2012) Numerical simulations of the ionosphere of Mars during a solar flare, Journal of Geophysical Research, 117, A05314, doi:10.1029/2011JA017399

- Sheel, Haider, **Withers**, Kozarev, Jun, Kang, Gronoff, and Simon Wedlund (2012) Numerical simulation of the effects of a solar energetic particle event on the ionosphere of Mars, Journal of Geophysical Research, 117, A05312, doi:10.1029/2011JA017455

- Mendillo, *Lollo*, **Withers**, Matta, Paetzold, and Tellmann (2011) Modeling Mars' ionosphere with constraints from same-day observations by Mars Global Surveyor and Mars Express, Journal of Geophysical Research, 116, A11303, doi:10.1029/2011JA016865

- Xiong, Wan, Liu, **Withers**, Zhao, Ning, Wei, Le, Ren, Chen, He, and Liu (2011) Ionospheric response to the X-class solar flare on 7 September 2005, Journal of Geophysical Research, 116, A11317, doi:10.1029/2011JA016961

- **Withers**, *Pratt*, Bertaux, and Montmessin (2011) Observations of thermal tides in the middle atmosphere of Mars by the SPICAM instrument, Journal of Geophysical Research, 116, E11005, doi:10.1029/2011JE003847

- **Withers** (2011) Attenuation of radio signals by the ionosphere of Mars: Theoretical development and application to MARSIS observations, Radio Science, 46, RS2004, doi:10:1029/2010RS004450

- **Withers** and Catling (2010) Observations of atmospheric tides at the season and latitude of the Phoenix atmospheric entry, Geophysical Research Letters, 37, L24204, doi:10.1029/2010GL045382

- Lillis, Brain, England, **Withers**, Fillingim, and Safaeinili (2010) Total electron content in the Mars ionosphere: Temporal studies and dependence on solar EUV flux, Geophysical Research Letters, 115, A11314, doi:10.1029/2010JA015698

- **Withers** (2010) Trajectory and atmospheric structure from entry probes: Demonstration of a real-time reconstruction technique using a simple direct-to-Earth radio link, Planetary and Space Science, 58, 2044-2049

- Opgenoorth, Dhillon, Rosenqvist, Lester, Edberg, Milan, **Withers** and Brain (2010) Dayside ionospheric conductivities at Mars, Planetary and Space Science, 58, 1139-1151

- **Withers** (2010) Prediction of uncertainties in atmospheric properties measured by radio occultation experiments, Advances in Space Research, 46, 58-73

- Hathi, Ball, Colombatti, Ferri, Leese, Towner, **Withers**, Fulchigioni and Zarnecki (2009) Huygens HASI servo accelerometer: A review and lessons learned, Planetary and Space Science, 57, 1321-1333

- **Withers** (2009) A review of observed variability in the dayside ionosphere of Mars, Advances in Space Research, 44, 277-307

- Paetzold, Tellmann, Haeusler, Bird, Tyler, Christou and **Withers** (2009) A sporadic layer in the Venus lower ionosphere of meteoric origin, Geophysical Research Letters, 36, L05203, doi:10.1029/2008GL035875

- **Withers**, Mendillo, Hinson, and Cahoy (2008) Physical characteristics and occurrence rates of meteoric plasma layers detected in the martian ionosphere by the Mars Global Surveyor Radio Science Experiment, Journal of Geophysical Research, 113, A12314, doi:10.1029/2008JA013636

- **Withers** (2008) Theoretical models of ionospheric electrodynamics and plasma transport, Journal of Geophysical Research, 113, A07301, doi:10.1029/2007JA012918

- Colombatti, **Withers**, Ferri, Aboudan, Ball, Bettanini, Gaborit, Harri, Hathi, Leese, Makinen, Stoppato, Towner, Zarnecki, Angrilli, and Fulchignoni (2008) Reconstruction of the trajectory of the Huygens probe using the Huygens Atmospheric Structure Instrument (HASI), Planetary and Space Science, 56, 586-600

- Christou, Vaubaillon, and **Withers** (2008) The P/Halley stream: meteor showers on Earth, Venus, and Mars, Earth, Moon, and Planets, 102, 125-131

- Crosby, Bothmer, Facius, Griessmeier, Moussas, Panasyuk, Romanova, and **Withers** (2008) Interplanetary space weather and its planetary connection, Space Weather, 6, S01003, doi:10.1029/2007SW000361

- Christou, Vaubaillon, and **Withers** (2007) The dust trail complex of comet 79P/du Toit-Hartley and meteor outbursts at Mars, Astronomy and Astrophysics, 471, 321-329

- **Withers** (2007) A technique to determine the mean molecular mass of a planetary atmosphere using pressure and temperature measurements made by an entry probe: Demonstration using Huygens data, Planetary and Space Science, 55, 1959-1963

- Montabone, Lewis, Read, and **Withers** (2006) Reconstructing the weather on Mars at the time of the MERs and Beagle 2 landings, Geophysical Research Letters, 33, L19202, doi:10.1029/2006GL026565

- **Withers** and Smith (2006) Atmospheric entry profiles from the Mars Exploration Rovers Spirit and Opportunity, Icarus, 185, 133-142, doi:10.1016/j.icarus.2006.06.013

- Mendillo, **Withers,** Hinson, Rishbeth, and Reinisch (2006) Effects of solar flares on the ionosphere of Mars, Science, 311, 1135-1138

- Bougher, Bell, Murphy, Lopez-Valverde, and **Withers** (2006) Polar warming in the Mars thermosphere: Seasonal variations owing to changing insolation and dust distributions, Geophysical Research Letters, 33, L02203, doi:10.1029/2005GL024059

- **Withers** (2006) Mars Global Surveyor and Mars Odyssey Accelerometer observations of the martian upper atmosphere during aerobraking, Geophysical Research Letters, 33, L02201, doi:10.1029/2005GL024447

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- **Withers**, Girazian, Paetzold, Peter, Tellmann, Fillingim, Lillis, Hauesler, Hinson, Tyler, and Witasse (2013) Observations of the nightside ionosphere of Mars by the Mars Express Radio Science Experiment MaRS, EGU meeting, Abstract EGU2013-6005

- Witasse, Cardesin-Moinelo, Costa, Salah, Jakosky, Grebowsky, Lillis, Opgenoorth, **Withers**, and Opitz (2013) Plans for coordinated measurements with the Mars Express and MAVEN spacecraft, EGU meeting, Abstract EGU2013-2819

2012

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- Fallows, Girazian, Matta, and **Withers** (2012) Response of the M1 layer of the Mars ionosphere to solar variability, DPS meeting, Abstract 214.05

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- **Withers** (2012) Empirical predictions of martian surface pressure in support of the landing of Mars Science Laboratory, 9th International Planetary Probe Workshop, 18-22 June 2012, Toulouse, France

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2011

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- Mueller-Wodarg, Rosenblatt, Bruinsma, Yelle, Svedhem, Forbes, **Withers**, Keating and Lopez-Valverde (2010) The polar thermosphere of Venus, 38th COSPAR meeting, Bremen, Germany, Abstract C31-0009-10

2009

- Dhillon, Rosenqvist, Opgenoorth, **Withers**, Brain and Lester (2009) Studies of martian ionospheric conductivities undertaken using Mars Global Surveyor and Mars Express data, Fall AGU meeting, Abstract #P23A-1242

- Opgenoorth, Rosenqvist, Dhillon, Lester, **Withers** and Brain (2009) Ionospheric conductivities at planets and planet-like bodies without internal magnetic field, Fall AGU meeting, Abstract #P11B-1225

- **Withers**, *Lollo*, Mendillo, Paetzold and Tellmann (2009) Comparisons and simulations of same-day observations of the ionosphere of Mars by radio occultation experiments on Mars Global Surveyor and Mars Express, DPS meeting, Abstract #54.08

- **Withers**, Espley, Lillis and Morgan (2009) The ionosphere of Mars: A community white paper for the planetary decadal survey, DPS meeting, Abstract #16.20

- **Withers** and Mendillo (2009) The effects of solar flares on planetary ionospheres, AOGS meeting, Abstract #PS14-A004, Singapore

- **Withers** (2009) Observations of metal ion layers across the solar system, NSF CEDAR Aeronomy Meeting, Sante Fe, NM, 28 June - 2 July 2009

- **Withers**, Christou, Mendillo, Paetzold, Peter, Tellmann and Vaubaillon (2009) Observations of the effects of meteors on the ionospheres of Venus, Earth and Mars, International Conference on Comparative Planetology: Venus-Earth-Mars, ESTEC, 11-15 May 2009

- Mendillo, *Lombardi*, Matta, Martinis, Moore and **Withers** (2009) Comparative aeronomy: Ionospheric production for terrestrial planets, International Conference on Comparative Planetology: Venus-Earth-Mars, ESTEC, 11-15 May 2009

- Chamberlin, Lu, Sternovsky, **Withers** and Woods (2009) Using the Flare Irradiance Spectral Model (FISM) to study the response of the Earth, Mars and Moon to solar flares, EGU meeting, Abstract EGU2009-5970

- **Withers**, Bertaux, Montmessin, *Pratt* and *Russo* (2009) Observations of tides and temperatures in the martian atmosphere by Mars Express SPICAM stellar occultations, EGU meeting, Abstract EGU2009-5355

- Paetzold, Haeusler, Tellmann, Bird, Hinson, Tyler and **Withers** (2009) The ionospheres of Venus and Mars - A comparison of Venus Express and Mars Express observations, DPS meeting, Abstract #48.04

- **Withers** and Catling (2009) Preliminary reconstruction of martian atmospheric structure from Phoenix entry measurements, Fall AGU meeting, Abstract #P54B-08

- **Withers** (2009) A simple method for supporting future landers by predicting surface pressure on Mars, AOGS meeting, Abstract #PS08-A021, Singapore

- Tellmann, **Withers**, Paetzold, Haeusler, Tyler and Hinson (2009) The polar atmosphere as seen by the radio science experiment MaRS on Mars Express, Third International Workshop on Mars Polar Energy Balance and the CO2 Cycle, Abstract #7024, Seattle, WA, 21-24 July 2009

- **Withers** and Tellmann (2009) Simplifying the martian carbon dioxide cycle: An empirical method for predicting surface pressure, Third International Workshop on Mars Polar Energy Balance and the CO2 Cycle, Abstract #7009, Seattle, WA, 21-24 July 2009

2008

- Christou, Griffiths, McAuliffe, Koschny, Paetzold, Oberst, Trigo-Rodriguez, Vaubaillon, **Withers**, Chappelow and Patel (2008) A multi-instrument ExoMars study of meteoroid effects on the martian environment, European Planetary Science Congress, Abstract EPSC2008-A-00196

- Paetzold, Tellmann, Peter, Mendillo, **Withers**, Haeusler, Hinson, and Tyler (2008) The structure of the Mars ionosphere, European Planetary Science Congress, Abstract EPSC2008-A-00348

- Paetzold, Tellmann, Peter, Mendillo, **Withers**, Haeusler, Hinson, and Tyler (2008) The structure of the Mars ionosphere, 37th COSPAR meeting, Montreal, Abstract C32-0010-08

- **Withers** (2008) Variability of the ionosphere of Mars, 37th COSPAR meeting, Montreal, Abstract C32-0011-08

- Mendillo, *Niehof*, *Garcia*, *Prested*, *McGregor*, *Viall*, Moore, **Withers**, Martinis, and Stephan (2008) Can Equatorial Spread-F occur on other planets? 12th International Symposium on Equatorial Aeronomy, 18-24 May 2008, Crete, Greece

- Paetzold, Tellmann, Peter, Mendillo, **Withers**, Haeusler, Hinson, and Tyler (2008) The structure of the Mars ionosphere, EGU meeting, Abstract EGU2008-A-06804

- Christou, Vaubaillon and **Withers** (2008) Present and future observations of a meteor shower in the martian atmosphere, UK National Astronomy Meeting, Abstract P15/112

- **Withers**, Mendillo, Hinson, and Cahoy (2008) Morphology of meteoric plasma layers in the ionosphere of Mars as observed by the Mars Global Surveyor Radio Science Experiment, EGU meeting, Abstract EGU2008-A-02893

- **Withers** (2008) New data products from the Mars Odyssey Accelerometer: Report on scientific implications, data processing, validation and archiving, Third International Workshop on the Mars Atmosphere: Modeling and Observations, Williamsburg, VA, 10-13 November 2008, Abstract #9035

- **Withers**, Bendersky, Keller, and Murphy (2008) Upper atmospheric density profiles from the Mars Odyssey Accelerometer: Report on data processing, archiving plans, and scientific analysis, DPS meeting, Abstract #14.07

- Mueller-Wodarg, Bruinsma, Forbes, Yelle, Keating, **Withers,** and Lopez-Valverde (2008) The structure of Venus' upper atmosphere and forthcoming measurements by the Venus Express Atmospheric Drag Experiment, 37th COSPAR meeting, Montreal, Abstract C33-0023-08

- Keating, Mueller-Wodarg, Forbes, Yelle, Bruinsma, **Withers**, Lopez-Valverde, Theriot and Bougher (2008) Future drag measurements from Venus Express, 37th COSPAR meeting, Montreal, Abstract C33-0024-08

- **Withers**, Barnes, Justus, Justh, Kass, Montabone and Rafkin (2008) Comparison of atmospheric observations and predictions for the atmospheric entries of Spirit and Opportunity, LPSC, Abstract #2175

2007

- Paetzold, **Withers**, Tellmann, Mendillo, Peter, Haeusler, Hinson, and Tyler (2007) The structure of the Mars ionosphere, Fall AGU meeting, Abstract #P32A-01

- **Withers** (2007) New theoretical tools for studying ionospheric electrodynamics, Fall AGU meeting, Abstract #SA51A-0237

- Paetzold, Tellmann, Peter, Haeusler, Hinson, Tyler, Mendillo, and **Withers** (2007) The structure of the ionosphere of Mars as observed by the Mars Express Radio Science Experiment, European Mars Science and Exploration Conference: Mars Express and ExoMars, November 12-16, 2007, ESA-ESTEC, Noordwijk, The Netherlands, Abstract #1120009

- Christou, Griffiths, McAuliffe, Koschny, Paetzold, Oberst, Trigo-Rodriguez, Vaubaillon, **Withers** and Chappelow (2007) A multi-instrument ExoMars study of meteoroid effecs on the martian environment, European Mars Science and Exploration Conference: Mars Express and ExoMars, November 12-16, 2007, ESA-ESTEC, Noordwijk, The Netherlands, Abstract #1119183

- **Withers**, Mendillo, Paetzold, Tellmann, Christou, and Vaubaillon (2007) Comparison of ionospheric observations and dynamical predictions of meteor showers at Mars, DPS meeting, Abstract #59.08

- Christou, Vaubaillon, and **Withers** (2007) Annual and outburst meteor activity in the atmospheres of Venus and Mars, Meteoroids 2007, June 11-15, 2007, Barcelona, Spain

- Mendillo and **Withers** (2007) Simultaneous radio sounding of the ionospheres of Earth and Mars during a solar flare, Symposium in honor of Professor Bodo Reinisch's 70th birthday, University of Massachusetts - Lowell, 29 April 2007

- **Withers**, Wroten, Mendillo, and Chamberlin (2007) Simulations of the Mars ionosphere during a solar flare, Spring AGU, Abstract SA31B-05

- **Withers**, Wroten, Mendillo, Chamberlin, and Woods (2007) Modeling the effects of solar flares on the ionosphere of Mars, EGU meeting, Abstract EGU2007-A-05089

- **Withers**, Paetzold, Mendillo, Tellman, Haeusler, Hinson, and Tyler (2007) New observations of the topside ionosphere at Mars, EGU meeting, Abstract EGU2007-A-09435

- Paetzold, **Withers**, Tellman, Mendillo, Haeusler, Hinson, and Tyler (2007) Correlation between third layer formation in the Martian ionosphere and meteor streams at Mars, EGU meeting, Abstract EGU2007-A-09454

2006

- **Withers**, Mendillo, and Hinson (2006) Space weather effects on the Mars ionosphere due to solar flares and meteors, European Planetary Science Congress, Berlin, 18-22 September

- **Withers** (2006) Comparative aeronomy at Earth and Mars (Final CEDAR Postdoc Report), NSF CEDAR Aeronomy Meeting, Sante Fe, NM, 19 June - 23 June

- Mendillo and **Withers** (2006) Effects of solar flares on Earth and Mars, Spring AGU meeting, Abstract U52A-02

- **Withers**, Mendillo, and Rishbeth (2006) Ionospheric disturbances at Mars: Implications for radio propagation, EGU meeting, Abstract EGU06-A-02444

- **Withers**, Murphy, Gueth, Bougher, and Mendillo (2006) Mars Odyssey Accelerometer results, DPS meeting, Abstract #73.03

- **Withers** (2006) Determination of upper atmospheric properties on Mars and other bodies using satellite drag/aerobraking measurements, European Planetary Science Congress (invited presentation), Berlin, 18-22 September

- Ball, Mueller-Wodarg, Lewis, Zarnecki, Hathi, Leese, Towner, Ferri, Colombatti, Fulchignoni, and **Withers** (2006) Huygens Atmospheric Structure Instrument entry accelerometer: Application to Mars and Venus, 4th International Planetary Probe Workshop, June 27 - 30, Pasadena, CA

2005

- **Withers**, Mendillo, Wroten, Rishbeth, Hinson, and Reinisch (2005) Observations of the effects of solar flares on Earth and Mars, Fall AGU meeting, Abstract SA53B-1165

- **Withers**, Mendillo, Rishbeth, Hinson, and Arkani-Hamed (2005) Ionospheric characteristics above martian crustal magnetic anomalies, DPS meeting, Abstract #33.02

- Schoendorf, Siebert, Mendillo, **Withers**, and Wilson (2005) A new model of the solar wind interaction with the Mars ionosphere, Spring AGU meeting, Abstract #P21F-06

- **Withers** and Mendillo (2005) The response of an ionosphere to changes in the solar F10.7 flux: Comparison of Venus, Earth, and Mars, Spring AGU meeting, Abstract SA41A-03

- **Withers** (2005) Atmospheric profiles from Spirit and Opportunity, Spring AGU meeting, Abstract P24A-02

- Montabone, Lewis, Read, and **Withers** (2005) The weather on Mars at the time of MERs and Beagle 2 landing, European Geosciences Union Meeting, Abstract EGU05-A-09628

2004

- Schoendorf, Mendillo, **Withers**, and Wilson (2004) A new model of the solar wind interaction with Mars, DPS meeting, Abstract #37.03
- **Withers**, Mendillo, and Hinson (2004) The martian ionosphere in regions of crustal magnetic fields, DPS meeting, Abstract #26.09
- Mendillo and **Withers** (2004) Mars ionospheric studies using the MGS Radio Science Experiment, 35th COSPAR Scientific Assembly, Abstract #COSPAR04-A-02002
- Mendillo, **Withers**, and MIRI Team (2004) Approaches to a Mars international reference ionosphere, 35th COSPAR Scientific Assembly, Abstract #COSPAR04-A-02072
- **Withers** (2004) The influence of solar variability on the ionospheres of Earth and Mars (Interim CEDAR Postdoc Report), NSF CEDAR Aeronomy Meeting, Sante Fe, NM, 27 June - 2 July
- **Withers** and Mendillo (2004) Testing simple parameterizations for the basic characteristics of the martian ionosphere, Spring AGU meeting, Abstract #SA24A-05
- **Withers**, Martinis, Moore, Wilson, Wroten, and Mendillo (2004) Theoretical simulations of the martian ionosphere and comparisons to observations, Spring AGU meeting, Abstract SA14A-04
- Bougher, Keating, and **Withers** (2004) Mars aerobraking data and its interpretation with applications to future Mars missions, 35th COSPAR Scientific Assembly, Abstract #COSPAR04-A-00358
- **Withers** (2004) Should we believe atmospheric temperatures measured by entry accelerometers travelling at "slow" near-sonic speeds?, 2nd International Planetary Probe Workshop, August 23 - 27, NASA Ames

2003

- **Withers**, Bougher, and Keating (2003) Identification of topographically-controlled thermal tidal modes in the martian upper atmosphere, 6th International Mars Conference, July 20 - 25, Pasadena, CA, Abstract #3069
- Bougher, Engel, and **Withers** (2003) The NCAR Mars Thermospheric General Circulation Model: A review, Mars atmosphere modelling and observations workshop, Granada, Spain, January 13-15, 2003
- **Withers**, Towner, Hathi, and Zarnecki (2003) Review of the trajectory and atmospheric structure reconstruction for Mars Pathfinder, International Workshop on Planetary Probe Atmospheric Entry and Descent Trajectory Analysis and Science, Lisbon, Portugal, October 6 - 9, 2003
- **Withers** (2003) Scientific uses of crude telemetry during Mars atmospheric entry, DPS meeting, Abstract #14.24

2002

- **Withers**, Bougher, and Keating (2002) Winds in the martian upper atmosphere from MGS aerobraking density profiles, Fall AGU meeting, Abstract #P61C-0353

- **Withers**, Bougher, and Keating (2002) Measurements of winds in the martian upper atmosphere from the MGS Accelerometer, DPS meeting, Abstract #5.05

- **Withers**, Bougher, and Keating (2002) MGS Accelerometer-derived profiles of upper atmospheric pressures and temperatures: Similarities, differences, and winds, Spring AGU meeting, Abstract #P41A-10

- **Withers**, Hathi, Towner, and Zarnecki (2002) Development of software for analysing entry accelerometer data in preparation for the Beagle 2 mission to Mars: Towards a publicly available toolkit, LPSC, Abstract #1203

- **Withers**, Lorenz, and Neumann (2002) Errors in Viking Lander atmospheric profiles discovered using MOLA topography, LPSC, Abstract #1294

2001

- Bougher, Keating, Forbes, Murphy, Hollingsworth, Wilson, and **Withers** (2001) The upper atmospheric wave structure of Mars as determined by Mars Global Surveyor, Fall AGU meeting, Abstract #P32E-12

- **Withers**, Bougher, and Keating (2001) Unpredictable day-to-day variability in the martian upper atmosphere, DPS meeting, Abstract #19.29

- **Withers**, Bougher, and Keating (2001) Harmonic analysis of zonal density structures in martian upper atmosphere, Spring AGU meeting, Abstract #P41A-05

- **Withers** and Bougher (2001) Understanding the martian upper atmosphere with the MGS Accelerometer, 4th Lunar and Planetary Laboratory internal conference

- Keating, Tolson, Wilson, Dwyer, Bougher, **Withers**, and Forbes (2001) Persistent planetary-scale wave-2 and wave-3 density variations observed in Mars upper atmosphere from MGS accelerometer experiment, 26th EGS General Assembly, Session #PS2.02

- Grier and 25 colleagues, including **Withers** (2001) Defining long term goals and setting priorities for education and outreach, 2003 to 2013 - Panel Report, DPS meeting, Abstract #19.29

- **Withers** and Neumann (2001) A test of the martian northern ocean hypothesis, 4th Lunar and Planetary Laboratory internal conference

- **Withers** and Neumann (2001) Ridges in the martian northern plains, 33rd Brown-Vernadsky Microsymposium, Houston, TX

- **Withers** (2001) Meteor storm evidence against the recent formation of lunar crater Giordano Bruno, 4th Lunar and Planetary Laboratory internal conference

- **Withers** (2001) Meteor storm evidence against the recent formation of lunar crater Giordano Bruno, LPSC, Abstract #1007

- **Withers** and Lorenz (2001) Simple tests of simple climate models, Spring AGU meeting, Abstract #U32A-05

2000

- Keating, Dwyer, Wilson, Tolson, Bougher, **Withers**, Forbes (2000) Evidence of large global diurnal Kelvin wave in Mars upper atmosphere, DPS meeting, Abstract #50.02

- Bougher, **Withers**, Murphy, Roble, and Keating (2000) Longitude structure in the Mars upper atmosphere : Characterization and model simulations (Solicited Key Note Paper), 33rd COSPAR Scientific Assembly, Abstract #C3.2-0011

- **Withers**, Bougher, and Keating (2000) New results from the Mars Global Surveyor Accelerometer, LPSC, Abstract #1268

- **Withers** and Neumann (2000) Shallow ridges in the martian northern plains, Fall AGU meeting, Abstract #P62B- 02

- Lorenz, Lunine, **Withers**, and McKay (2000) Latitudinal temperature contrasts on Titan and the principle of maximum entropy production, DPS meeting, Abstract #17.07

- **Withers** (2000) Angle of repose-limited shapes of asteroids, 3rd Lunar and Planetary Laboratory internal conference

- **Withers** (2000) Angle of repose-limited shapes of asteroids, LPSC, Abstract #1270

1999

- **Withers**, Bougher and Keating (1999) The martian upper atmosphere during phase 2 of Mars Global Surveyor aerobraking: comparison to predictions, Fifth International Conference on Mars, Abstract #6073

- **Withers** and Bougher (1999) The Martian upper atmosphere as revealed by Mars Global Surveyor's aerobraking, 2nd Lunar and Planetary Laboratory internal conference

6.1.5. Proceedings (not refereed)

- **Withers** and Barnes (2012) Using satellites to probe extrasolar planet formation, Proceedings of IAU Symposium 276, doi:10.1017/S174392000038

- **Withers** and Catling (2010) The Phoenix Atmospheric Structure Experiment (ASE): Data processing and scientific results, proceedings of the Seventh International Planetary Probe Workshop

- Mendillo and **Withers** (2008) Solar flare effects upon the ionospheres of Earth and Mars, in "Radio Sounding and Plasma Physics" (eds. Song, Foster, Mendillo, and Bilitza), American Institute of Physics Conference Proceedings, 974, 58-70

- **Withers** (2004) Should we believe atmospheric temperatures measured by entry accelerometers travelling at "slow" near-sonic speeds?, in Proceedings of the Second International Planetary Probe Workshop, NASA Ames Research Center, California, 23-27 August 2004, NASA/CP-2004-213456, p. 13-20

- **Withers**, Towner, Hathi, and Zarnecki (2004) Review of the trajectory and atmospheric structure reconstruction for Mars Pathfinder, in Proceedings of the International Workshop Planetary Atmospheric Entry and Descent Trajectory Analysis and Science, 6-9 October 2003, Lisbon, Portugal. Edited by A. Wilson, ESA SP-544, 163-174

6.1.6. Other

- Schwadron and 14 colleagues, including **Withers** (2015) 10-Year Vision Beyond 2015, Report issued by the NASA Heliophysics Living With a Star Program

- Campbell, Zurek, and the Next Orbiter Science Analysis Group (NEX-SAG) (including **Withers**) (2015) MEPAG NEX-SAG Report, 77 pages posted December, 2015 by the Mars Exploration Program Analysis Group (MEPAG) at http://mepag.nasa.gov/reports.cfm

- Hamilton and 12 colleagues, including **Withers** (2015) Mars Scientific Goals, Objectives, Investigations, and Priorities: 2015, Report from the NASA Mars Exploration Program Analysis Group (MEPAG)

- Schwadron and 12 colleagues, including **Withers** (2013) Space Weather – Keeping pace with the demand for services in a rapidly changing technological world, white paper submitted to the NASA Living With a Star (LWS) program office

- Schwadron and 13 colleagues, including **Withers** (2013) NASA Living With a Star (LWS) Targeted Research and Technology (TR&T) steering committee report on recommended Focus Science Topics, 30 November 2013

- **Withers** and Barnes (2012) Using satellites to probe extrasolar planet formation, astro-ph publication arXiv:1204.0976v1

- Clarke, Schmidt, Baumgarder, Carveth, Matta, Mendillo, Moore, and **Withers** (2010) White paper on comparative planetary exosphere, white paper submitted to Heliophysics Decadal Survey

- Atkinson and 55 colleagues, including **Withers** (2009) Entry probe missions to giant planets, white paper submitted to Planetary Science Decadal Survey

- Kursinski and 33 colleagues, including **Withers** (2009) Dual satellite Mars climate and chemistry mission concept, white paper submitted to Planetary Science Decadal Survey

- Mischna and 21 colleagues, including **Withers** (2009) Atmospheric science research priorities for Mars, white paper submitted to Planetary Science Decadal Survey

- Beebe and 39 colleagues, including **Withers** (2009) Data management, preservation and the future of the PDS, white paper submitted to Planetary Science Decadal Survey

- **Withers** and 42 colleagues (2009) The ionosphere of Mars and its importance for climate evolution, white paper submitted to Planetary Science Decadal Survey

- Johnson, Amend, Steele, Bougher, Rafkin, **Withers**, Plescia, Hamilton, Tripathi, and Heldmann (2008) Mars science goals, objectives, investigations, and priorities: 2008, Report from the NASA Mars Exploration Program Analysis Group (MEPAG)

- Farrell and 11 colleagues, including **Withers** (2004) Report from the Mars Human Precursor Science Steering Group Atmosphere Focus Team. Incorporated into: Beaty et al. (2005) An analysis of the precursor measurements of Mars needed to reduce the risk of the first human mission to Mars, MEPAG report posted online in June 2005

- Grier and 28 colleagues, including **Withers** (2002) Defining long term goals and setting priorities for education and public outreach, in "The future of solar system exploration, 2003-2013" (ed. Sykes), Astronomical Society of the Pacific Conference Series, 272, 393-411

- **Withers** (2001) Atmospheric structure reconstruction using the Beagle 2 accelerometer, Technical report delivered to the Open University, Great Britain

7. Professional conference/symposium presentation

My name written in bold font (e.g. **Withers**)

Names of BU graduate students are underlined (e.g. Matta)

Names of BU undergraduate students are underlined and in italicized font (e.g. *Lollo*)

7.1. Papers presented

2017

- **Withers** (2017) Radio occultations, MAVEN Quarterly Status Review Meeting, 08 February 2017
- **Withers** (2017) Observing atmospheres, Boston University Research on Tap event, 13 February 2017
- **Withers**, Mendillo, Moore, Felici, and Jakosky (2017) First results from the MAVEN Radio Occultation Science Experiment (ROSE), International Conference on Mars Aeronomy, 15-19 May 2017 Boulder, Colorado, USA
- **Withers** (2017) The ionosphere of Mars, International Conference on Mars Aeronomy, 15-19 May 2017 Boulder, Colorado, USA
- **Withers** (2017) Radio occultations, MAVEN Quarterly Status Review Meeting, 26 June 2017
- **Withers** (2017) Radio Occultation Science Experiment (ROSE), MAVEN Quarterly Status Review Meeting, Tucson, Arizona, 09 October 2017
- **Withers** (2017) Radio Occultation Science Experiment (ROSE), MAVEN Project Science Group Meeting Tucson, Arizona, 10-13 October 2017
- **Withers** (2017) How do transiting exoplanets affect stellar radio emissions? Radio Stars from kHz to THz Workshop, Haystack Observatory, 01-03 November 2017
- **Withers** (2017) Radio occultation observations of the ionosphere of Mars, Northeast Radio Observatory Corporation (NEROC) Radio Science Symposium, Haystack Observatory, 08 November 2017

2016

- **Withers** and Mendillo (2016) Ionospheric results from radio occultations, MAVEN Project Science Group Meeting, Berkeley, California, 15-17 November 2016
- **Withers**, Vogt, and several MAVEN instrument teams (2016) In situ MAVEN observations of conditions at Mars' ionospheric peak, MAVEN Project Science Group Meeting, Boston, Massachusetts, 14-16 June 2016
- **Withers** and Mendillo (2016) Neutral atmospheric results from radio occultations, MAVEN Project Science Group Meeting, Boston, Massachusetts, 14-16 June 2016
- **Withers** and Mendillo (2016) X-band radio occultations (RO) to Earth, MAVEN Extended Mission 2 planning meeting, Boulder, Colorado, 5-6 January 2016

- **Withers** and Mendillo (2016) Electra UHF radio occultations (RO) to MRO, MAVEN Extended Mission 2 planning meeting, Boulder, Colorado, 5-6 January 2016

2015

- **Withers**, Vogt, and NGIMS team (2015) Changes in the thermosphere and ionosphere of Mars from Viking to MAVEN, MAVEN Project Science Group Meeting, Greenbelt, Maryland, 28-29 October 2015
- **Withers**, Vogt, and NGIMS team (2015) Comparison of model predictions for the composition of the ionosphere of Mars to MAVEN NGIMS data, MAVEN Project Science Group Meeting, Boulder, Colorado, 24-25 June 2015

2014

- **Withers** (2014) Simple model of the ionospheric effects of comet Siding Spring, MAVEN Project Science Group Meeting, Boulder, Colorado, 3-5 December 2014
- **Withers** (2014) Behavior of plasma in cusp-like regions of Mars's magnetic field, CAS-NAS Forum for New Leaders in Space Science, Irvine, California, 4 November 2014
- **Withers**, Fallows, and *Gonzalez* (2014) Response of the Mars ionosphere to solar flares: Analysis of MGS radio occultation data, Eighth International Conference on Mars, Abstract #1065
- **Withers** (2014) Report on Mars ionospheric research at BU, VEX/MEX Radio Science Team Meeting, Tokyo, Japan, 12 May 2014
- **Withers** (2014) Using radio waves to study extreme space weather events on Mars, CAS-NAS Forum for New Leaders in Space Science, Beijing, China, 8 May 2014
- **Withers** (2014) The morphology of the topside ionosphere of Mars under different solar wind conditions: Results of a multi-instrument observing campaign by Mars Express in 2010, Chapman conference on Magnetosphere-ionosphere coupling in the solar system, Yosemite, California, 9-14 February 2014

2013

- **Withers** (2013) Meteoric ion layers in planetary ionospheres, Fall AGU meeting, Abstract SA11B-1919
- **Withers** (2013) Integration of MAVEN neutral and plasma observations, MAVEN Project Science Group Meeting, Cocoa Beach, FL, 15-16 November 2013
- **Withers** (2013) Discussion of topside ionosphere projects, ISSI workshop on The induced magnetosphere of Mars: Physical processes and consequences, Berne, Switzerland, 26 August 2013
- **Withers** (2013) Exploring the ionosphere of Mars, UK National Astronomy Meeting, 1-5 July 2013, St. Andrews, UK
- **Withers** (2013) What's going on in the Mars ionosphere?, Workshop on coordinated upper atmospheric research at Mars, Boston, MA, 25-26 April 2013

- **Withers**, Matta, Fallows, Girazian, *Tarrh*, *Gonzalez*, and *Weiner* (2013) Mars ionosphere update from BU, VEX/MEX Radio Science Team Meeting, Pasadena, CA, 22 April 2013

- **Withers** and Cahoy (2013) Steady progress on processing radio occultation data, VEX/MEX Radio Science Team Meeting, Pasadena, CA, 22 April 2013

- **Withers** (2013) Mars Express Radio Science (MaRS), MAVEN Project Science Group Meeting, Cocoa Beach, FL, 10-11 April 2013

2012

- *Ferreri*, **Withers**, and *Wiener* (2012) Recovery of Mars ionospheric electron density profiles acquired by the Mariner 9 radio occultation instrument, Fall AGU meeting, Abstract SA51A-2140

- Paetzold, **Withers**, Fillingim, Lillis, Hauesler, Hinson, Tyler, Peter, Tellmann, and Witasse (2012) Observations of the nightside ionosphere of Mars by the Mars Express Radio Science Experiment MaRS, Fall AGU meeting, Abstract SA44A-07

- Moore, **Withers**, Cahoy, Beerer, Hu, Kennedy, Kingsbury, and Webber (2012) Development and validation of software to process radio occultation data: From time series of frequency residuals to vertical profiles of atmospheric and ionospheric properties, Fall AGU meeting, Abstract P22A-07

- **Withers** and Matta (2012) Simulations of the ionosphere of Mars, ISSI workshop on The induced magnetosphere of Mars: Physical processes and consequences, Berne, Switzerland, 13 November 2012

- **Withers** and *Pratt* (2012) An observational study of the response of the thermosphere of Mars to lower atmospheric dust storms, DPS meeting, Abstract 214.06

- **Withers** (2012) Empirical predictions of martian surface pressure in support of the landing of Mars Science Laboratory, 9th International Planetary Probe Workshop, 18-22 June 2012, Toulouse, France

- **Withers** (2012) Simulations of the response of the Mars ionosphere to solar flares and solar energetic particle events, EGU meeting, Abstract EGU2012-1449

- **Withers** (2012) Ionosphere of Mars: Miscellaneous stuff, VEX/MEX Radio Science Team Meeting, Cologne, Germany, 11 January 2012.

2011

- **Withers** (2011) Vertical structure of the ionosphere of Mars, VEX/MEX Radio Science Team Meeting, Brussels, Belgium, 14 March 2011.

- **Withers** (2011) Thermospheric Variability MCDP Work, MAVEN Project Science Group Meeting, Berkeley, CA, 19 October 2011.

- **Withers**, *Pratt*, Bertaux, Montmessin, Forbes, and Moudden (2011) Observations of thermal Tides in the middle atmosphere of Mars by the SPICAM instrument, The Fourth International Workshop on the Mars Atmosphere: Modelling and observation, Abstract #363.

- **Withers** (2011) Waviness in the Venus atmosphere, VEX/MEX Radio Science Team Meeting, Brussels, Belgium, 14 March 2011.

- **Withers** (2011) Planetary science (mostly atmospheres) at Boston University, Planetary Science Decadal Survey Townhall Meeting, Boston, MA, 25 March 2011.

- **Withers** (2011) Planetary atmospheres and ionosphere, BU Astronomy department symposium, Boston, MA, 14 October 2011.

- **Withers** (2011) NASA Planetary Science Decadal Survey, VEX/MEX Radio Science Team Meeting, Brussels, Belgium, 14 March 2011.

2010

- **Withers** (2010) An exploratory survey of the attenuation of radio signals by the ionosphere of Mars, Fall AGU meeting, Abstract #SH43A-1807

- Opgenoorth, **Withers**, Witasse and the MUAN team (2010) Mars upper atmosphere network, DPS meeting, Abstract #30.10

- **Withers**, Lillis, Witasse, Opgenoorth and the MUAN team (2010) Mars upper atmosphere network, 5th Alfven conference, Sapporo, Japan, 4-8 October 2010, Abstract P-84

- **Withers** (2010) Predicting radio occultation uncertainties, VEX/MEX radio science team meeting, Sugarbowl, CA, 3-4 August 2010

- **Withers** (2010) Unusual martian ionospheric features, VEX/MEX radio science team meeting, Sugarbowl, CA, 3-4 August 2010

- **Withers**, Witasse and Opgenoorth (2010) Mars upper atmosphere network, 38th COSPAR meeting, Bremen, Germany, Abstract C32-0044-10

- **Withers** (2010) Attenuation of radio signals by the ionosphere of Mars: Theoretical development and exploratory survey, meeting of the Living With a Star Targeted Research and Technology Focus Team on "Extreme space weather events in the solar system", Los Angeles, CA, 7 July 2010

- **Withers** (2010) The nightside ionosphere of Mars, VEX/MEX radio science team meeting, Bonn, Germany, 18-19 March 2010

- **Withers** and Matta (2010) Recent results from Boston University, Workshop on coordinated upper atmospheric research at Mars, Max Planck Institute for Solar System Research, Katlenburg-Lindau, Germany, 25-26 January 2010

- **Withers** and *Lollo* (2010) Thermospheric variability MCDP work, MAVEN Project Science Group meeting, Berkeley, CA, 20-22 October 2010

- *Pratt*, *Russo*, **Withers**, Bertaux and Montmessin (2010) Observations of thermal tides in the atmosphere of Mars by the SPICAM instrument, DPS meeting, Abstract #30.01

- **Withers** (2010) Oscillations in Venus neutral atmosphere, VEX/MEX radio science team meeting, Sugarbowl, CA, 3-4 August 2010

- **Withers** (2010) Rediscovering old datasets, VEX/MEX radio science team meeting, Sugarbowl, CA, 3-4 August 2010

- **Withers** (2010) The nightside ionosphere of Mars, VEX/MEX radio science team meeting, Bonn, Germany, 18-19 March 2010

- **Withers** (2010) Venera 15/16 ionospheric profiles, VEX/MEX radio science team meeting, Bonn, Germany, 18-19 March 2010

- **Withers** (2010) Trajectory and atmospheric structure reconstruction from entry probes: Demonstration of a real-time reconstruction technique using a simple direct-to-Earth radio link, DPS meeting, Abstract #30.11

- **Withers** and Catling (2010) Results from the Phoenix Atmospheric Structure Experiment, 7th International Planetary Probe Workshop, 14-18 June 2010, Barcelona, Spain

- **Withers** (2010) Radio tracking of Phoenix during its landing on Mars, VEX/MEX radio science team meeting, Bonn, Germany, 18-19 March 2010

2009

- **Withers** (2009) Simulations of the effects of extreme solar flares on technological systems at Mars, meeting of the Living With a Star Targeted Research and Technology Focus Team on "Extreme space weather events in the solar system", San Francisco, CA, 13 December 2009

- **Withers**, *Lollo*, Mendillo, Paetzold and Tellmann (2009) Comparisons and simulations of same-day observations of the ionosphere of Mars by radio occultation experiments on Mars Global Surveyor and Mars Express, DPS meeting, Abstract #54.08

- **Withers**, Espley, Lillis and Morgan (2009) The ionosphere of Mars: A community white paper for the planetary decadal survey, DPS meeting, Abstract #16.20

- **Withers** and Mendillo (2009) The effects of solar flares on planetary ionospheres, AOGS meeting, Abstract #PS14-A004, Singapore

- **Withers**, Espley, Lillis and Morgan (2009) The ionosphere of Mars and its importance for climate evolution, MEPAG meeting, Providence, RI, 29-30 July 2009.

- **Withers** (2009) Observations of metal ion layers across the solar system, NSF CEDAR Aeronomy Meeting, Sante Fe, NM, 28 June - 2 July 2009

- **Withers** (2009) Simulations of the effects of extreme solar flares on technological systems at Mars, meeting of the Living With a Star Targeted Research and Technology Focus Team on "Extreme space weather events in the solar system", Melbourne, FL, 8 June 2009

- **Withers**, Christou, Mendillo, Paetzold, Peter, Tellmann and Vaubaillon (2009) Observations of the effects of meteors on the ionospheres of Venus, Earth and Mars, International Conference on Comparative Planetology: Venus-Earth-Mars, ESTEC, 11-15 May 2009

- **Withers** (2009) Estimating uncertainties in measurements of atmospheric properties by radio occultations, VEX/MEX radio science team meeting, Cologne, 16-17 April 2009

- **Withers**, Bertaux, Montmessin, *Pratt* and *Russo* (2009) Observations of tides and temperatures in the martian atmosphere by Mars Express SPICAM stellar occultations, EGU meeting, Abstract EGU2009-5355

- **Withers** and Matta (2009) Research at Boston University on the upper atmosphere of Mars, Workshop on coordinated upper atmospheric research at Mars, ESTEC, 17-19 March 2009

- **Withers** and Catling (2009) Preliminary reconstruction of martian atmospheric structure from Phoenix entry measurements, Fall AGU meeting, Abstract #P54B-08

- **Withers** (2009) A simple method for supporting future landers by predicting surface pressure on Mars, AOGS meeting, Abstract #PS08-A021, Singapore

- **Withers** (2009) MEX surface pressure measurements, VEX/MEX radio science team meeting, Cologne, 16-17 April 2009

2008

- **Withers** (2008) Simulations of the effects of extreme solar flares on technological systems at Mars, meeting of the Living With a Star Targeted Research and Technology Focus Team on "Extreme space weather events in the solar system", San Francisco, CA, 14 December 2008
- **Withers** (2008) Mars ionospheric research at Boston University, VEX/MEX radio science team meeting, Brussels, 15-16 September 2008
- **Withers**, Paetzold and Christou (2008) Meteor layers in the martian and venusian ionospheres: Their connection to meteor showers, Europlanet N3 4th Strategic Workshop on Meteor Studies, Cologne, September 2008
- **Withers** (2008) Variability of the ionosphere of Mars, 37th COSPAR meeting, Montreal, Abstract C32-0011-08
- **Withers**, Mendillo, Hinson, and Cahoy (2008) Morphology of meteoric plasma layers in the ionosphere of Mars as observed by the Mars Global Surveyor Radio Science Experiment, EGU meeting, Abstract EGU2008-A-02893
- **Withers** (2008) New data products from the Mars Odyssey Accelerometer: Report on scientific implications, data processing, validation and archiving, Third International Workshop on the Mars Atmosphere: Modeling and Observations, Williamsburg, VA, 10-13 November 2008, Abstract #9035
- **Withers**, Bendersky, Keller, and Murphy (2008) Upper atmospheric density profiles from the Mars Odyssey Accelerometer: Report on data processing, archiving plans, and scientific analysis, DPS meeting, Abstract #14.07
- **Withers**, Barnes, Justus, Justh, Kass, Montabone and Rafkin (2008) Comparison of atmospheric observations and predictions for the atmospheric entries of Spirit and Opportunity, LPSC, Abstract #2175

2007

- **Withers** (2007) New theoretical tools for studying ionospheric electrodynamics, Fall AGU meeting, Abstract #SA51A-0237
- **Withers**, Mendillo, Paetzold, Tellmann, Christou, and Vaubaillon (2007) Comparison of ionospheric observations and dynamical predictions of meteor showers at Mars, DPS meeting, Abstract #59.08
- **Withers**, Wroten, Mendillo, and Chamberlin (2007) Simulations of the Mars ionosphere during a solar flare, Spring AGU, Abstract SA31B-05
- **Withers**, Wroten, Mendillo, Chamberlin, and Woods (2007) Modeling the effects of solar flares on the ionosphere of Mars, EGU meeting, Abstract EGU2007-A-05089
- **Withers**, Paetzold, Mendillo, Tellman, Haeusler, Hinson, and Tyler (2007) New observations of the topside ionosphere at Mars, EGU meeting, Abstract EGU2007-A-09435

2006

- **Withers**, Mendillo, and Hinson (2006) Space weather effects on the Mars ionosphere due to solar flares and meteors, European Planetary Science Congress, Berlin, 18-22 September
- **Withers** (2006) Comparative aeronomy at Earth and Mars (Final CEDAR Postdoc Report), NSF CEDAR Aeronomy Meeting, Sante Fe, NM, 19 June - 23 June
- **Withers**, Mendillo, and Rishbeth (2006) Ionospheric disturbances at Mars: Implications for radio propagation, EGU meeting, Abstract EGU06-A-02444
- **Withers** (2006) Analysis of Accelerometer data from aerobraking, Mars Odyssey Project Science Group Meeting, 14 - 17 November, 2006, Mauni Lani hotel, Big Island, Hawaii
- **Withers**, Murphy, Gueth, Bougher, and Mendillo (2006) Mars Odyssey Accelerometer results, DPS meeting, Abstract #73.03
- **Withers** (2006) Determination of upper atmospheric properties on Mars and other bodies using satellite drag/aerobraking measurements, European Planetary Science Congress (invited presentation), Berlin, 18-22 September

2005

- **Withers**, Mendillo, Wroten, Rishbeth, Hinson, and Reinisch (2005) Observations of the effects of solar flares on Earth and Mars, Fall AGU meeting, Abstract SA53B-1165
- **Withers**, Mendillo, Rishbeth, Hinson, and Arkani-Hamed (2005) Ionospheric characteristics above martian crustal magnetic anomalies, DPS meeting, Abstract #33.02
- **Withers** and Mendillo (2005) The response of an ionosphere to changes in the solar F10.7 flux: Comparison of Venus, Earth, and Mars, Spring AGU meeting, Abstract SA41A-03
- **Withers** (2005) Atmospheric profiles from Spirit and Opportunity, Spring AGU meeting, Abstract P24A-02

2004

- **Withers**, Mendillo, and Hinson (2004) The martian ionosphere in regions of crustal magnetic fields, DPS meeting, Abstract #26.09
- **Withers** (2004) The influence of solar variability on the ionospheres of Earth and Mars (Interim CEDAR Postdoc Report), NSF CEDAR Aeronomy Meeting, Sante Fe, NM, 27 June - 2 July
- **Withers** (2004) Getting your hands on Mars data and some sample science (2004) Withers, NSF CEDAR Aeronomy Meeting, Sante Fe, NM, 27 June - 2 July. Talk at Comparative Aeronomy on Earth and Mars workshop.
- **Withers** and Mendillo (2004) Testing simple parameterizations for the basic characteristics of the martian ionosphere, Spring AGU meeting, Abstract #SA24A-05
- **Withers**, Martinis, Moore, Wilson, Wroten, and Mendillo (2004) Theoretical simulations of the martian ionosphere and comparisons to observations, Spring AGU meeting, Abstract SA14A-04

- **Withers** (2004) Should we believe atmospheric temperatures measured by entry accelerometers travelling at "slow" near-sonic speeds?, 2nd International Planetary Probe Workshop, August 23 - 27, NASA Ames

2003

- **Withers**, Bougher, and Keating (2003) Identification of topographically-controlled thermal tidal modes in the martian upper atmosphere, 6th International Mars Conference, July 20 - 25, Pasadena, CA, Abstract #3069
- **Withers**, Towner, Hathi, and Zarnecki (2003) Review of the trajectory and atmospheric structure reconstruction for Mars Pathfinder, International Workshop on Planetary Probe Atmospheric Entry and Descent Trajectory Analysis and Science, Lisbon, Portugal, October 6 - 9, 2003
- **Withers** (2003) Scientific uses of crude telemetry during Mars atmospheric entry, DPS meeting, Abstract #14.24

2002

- **Withers**, Bougher, and Keating (2002) Winds in the martian upper atmosphere from MGS aerobraking density profiles, Fall AGU meeting, Abstract #P61C-0353
- **Withers**, Bougher, and Keating (2002) Measurements of winds in the martian upper atmosphere from the MGS Accelerometer, DPS meeting, Abstract #5.05
- **Withers**, Bougher, and Keating (2002) MGS Accelerometer-derived profiles of upper atmospheric pressures and temperatures: Similarities, differences, and winds, Spring AGU meeting, Abstract #P41A-10
- **Withers**, Zarnecki, Towner, and Hathi (2002) Trajectory reconstruction for Beagle 2, 6th Huygens Descent Trajectory Working Group Meeting, Pasadena, CA
- **Withers**, Hathi, Towner, and Zarnecki (2002) Development of software for analysing entry accelerometer data in preparation for the Beagle 2 mission to Mars: Towards a publicly available toolkit, LPSC, Abstract #1203
- **Withers**, Lorenz, and Neumann (2002) Errors in Viking Lander atmospheric profiles discovered using MOLA topography, LPSC, Abstract #1294
- **Withers** and Neumann (2002) Enigmatic northern plains of Mars, Geoplanets Summer School, Italy

2001

- **Withers**, Bougher, and Keating (2001) Unpredictable day-to-day variability in the martian upper atmosphere, DPS meeting, Abstract #19.29
- **Withers**, Bougher, and Keating (2001) Harmonic analysis of zonal density structures in martian upper atmosphere, Spring AGU meeting, Abstract #P41A-05
- **Withers** and Bougher (2001) Understanding the martian upper atmosphere with the MGS Accelerometer, 4th Lunar and Planetary Laboratory internal conference

- **Withers** (2001) Technical Report to the Open University on atmospheric structure reconstruction using the Beagle 2 accelerometer, presentation to the Open University upon completion of report

- **Withers** and Neumann (2001) A test of the martian northern ocean hypothesis, 4th Lunar and Planetary Laboratory internal conference

- **Withers** and Neumann (2001) Ridges in the martian northern plains, 33rd Brown-Vernadsky Microsymposium, Houston, TX

- **Withers** (2001) Meteor storm evidence against the recent formation of lunar crater Giordano Bruno, 4th Lunar and Planetary Laboratory internal conference

- **Withers** (2001) Meteor storm evidence against the recent formation of lunar crater Giordano Bruno, LPSC, Abstract #1007

- **Withers** and Lorenz (2001) Simple tests of simple climate models, Spring AGU meeting, Abstract #U32A-05

2000

- **Withers**, Bougher, and Keating (2000) New results from the Mars Global Surveyor Accelerometer, LPSC, Abstract #1268

- **Withers** and Neumann (2000) Shallow ridges in the martian northern plains, Fall AGU meeting, Abstract #P62B- 02

- **Withers** (2000) Angle of repose-limited shapes of asteroids, 3rd Lunar and Planetary Laboratory internal conference

- **Withers** (2000) Angle of repose-limited shapes of asteroids, LPSC, Abstract #1270

1999

- **Withers**, Bougher and Keating (1999) The martian upper atmosphere during phase 2 of Mars Global Surveyor aerobraking: comparison to predictions, Fifth International Conference on Mars, Abstract #6073

- **Withers** and Bougher (1999) The Martian upper atmosphere as revealed by Mars Global Surveyor's aerobraking, 2nd Lunar and Planetary Laboratory internal conference

7.2. Other presenting roles

- Chair of special session on "Impacts of cosmic dust in planetary atmospheres" at Fall AGU meeting 2013
- Chair of special session on "Solar system aeronomy: Ionospheres, thermospheres, auroras, and airglow " at Fall AGU meeting 2012
- Chair of special session on "Ionospheres of unmagnetized planets" at Fall AGU meeting 2011
- Chair of special session on "The atmosphere of Mars: New findings from modeling and observation" at Fall AGU meeting 2009
- Chair of special session on "Comparative meteor science - The effects of meteoroids in planetary atmospheres and ionospheres" at NSF/CEDAR meeting. 2009
- Chair of special session on "The martian atmosphere in late 2003 to early 2004: Observations, predictions, and analyses" at Spring AGU meeting 2005
- Chair of special session on "Comparative aeronomy on Earth and Mars" at NSF/CEDAR meeting 2004

7.3. Conference organizing activities

- Scientific organizing committee member, 2014 DPS meeting 2014
- Local organizing committee member, 2014 DPS meeting 2013-2014
- Coordinator of judging of student presentations in special session on "Impacts of cosmic dust in planetary atmospheres " at Fall AGU meeting 2013
- Convener of special session on "Impacts of cosmic dust in planetary atmospheres" at Fall AGU meeting 2013
- Host, Workshop on coordinated upper atmospheric research at Mars 2013
- Coordinator of judging of student presentations in special session on "Solar system aeronomy: Ionospheres, thermospheres, auroras, and airglow " at Fall AGU meeting 2012
- Convener of special session on "Solar system aeronomy: Ionospheres, thermospheres, auroras, and airglow " at Fall AGU meeting 2012
- Convener of special session on "Ionospheres of unmagnetized planets" at Fall AGU meeting 2011
- Local Organizing Committee member, Boston MOP meeting 2011
- Host, team meeting for Venus Express/Mars Express radio science team 2010
- Convener of special session on "The atmosphere of Mars: New findings from modeling and observation" at Fall AGU meeting 2009
- Convener of special session on "Comparative meteor science - The effects of meteoroids in planetary atmospheres and ionospheres" at NSF/CEDAR meeting. 2009
- Convener of special session on "The martian atmosphere in late 2003 to early 2004: Observations, predictions, and analyses" at Spring AGU meeting 2005

- Judge for student poster awards, SPA section, Spring AGU meeting 2005
- Convener of special session on "Comparative aeronomy on Earth and Mars" at NSF/CEDAR meeting 2004

8. Invited lectures and presentations

8.1. Outside my home institution

- The Ionosphere of Mars 2017
  International Mars Aeronomy Conference, Boulder, Colorado
- Mars 2017
  Keene State University
- New method to detect ionospheres in planets and exoplanets 2017
  University of Massachusetts – Lowell
- Life and living on the red planet 2015
  SEDS (Students for the Exploration and Development of Space) SpaceVision 2015 conference
- The ionosphere of Mars before the arrival of MAVEN, 2014
  MIT Haystack Observatory
- The ionosphere of Mars before the arrival of MAVEN, 2014
  University of Massachusetts – Lowell
- Space physics of the ionosphere of Mars, MIT 2013
- Exploring the ionosphere of Mars, Swedish Institute of Space Physics (IRF), Uppsala, Sweden 2012
- Exploring the ionosphere of Mars, University of Iowa 2012
- The ionosphere of Mars never looked like this before, University of Michigan 2012
- Getting the most out of entry probes, Georgia Tech 2012
- How the ionosphere of Mars works, MIT 2012
- The unusual electrodynamics of Mars, European Planetary Science Congress, Rome, Italy 2010
- Results from the Phoenix Atmospheric Structure Experiment, 2010
  7th International Planetary Probe Workshop, Barcelona, Spain
- The effects of solar flares on planetary ionospheres, AOGS meeting, 2009
  Singapore
- Exploring planetary ionospheres, Center for Atmospheric Research, 2009
  University of Massachusetts - Lowell
- Overview of my teaching and research, Department of Environmental, 2009
  Earth and Atmospheric Sciences, University of Massachusetts - Lowell
- Meteor layers in the martian and venusian ionospheres: Their connection to 2008
  meteor showers, Europlanet N3 4th strategic workshop on meteor studies, Cologne
- Plasma layers in the terrestrial, martian and venusian ionosphere: Their 2008
  origins and physical characteristics, Europlanet N3 4th strategic workshop on meteor studies, Cologne

- Variability of the ionosphere of Mars, 37th COSPAR meeting, Montreal 2008
- The Mars ionosphere: More than a Chapman layer, Armagh Observatory 2008
- The Mars ionosphere: More than a Chapman layer, University of Cologne 2007
- The top of the martian atmosphere, University College London 2007
- Determination of upper atmospheric properties on Mars and other bodies using satellite drag/aerobraking measurements, European Planetary Science Congress, Berlin 2006
- Huygens at Titan, MIT 2005
- Update on Spirit and Opportunity, Boston Museum of Science 2004
- Successes and failures of recent Mars exploration, Tufts University 2004
- Exploring Saturn with Cassini/Huygens, Tufts University 2004
- Oceans on Mars? Imperial College, London 2001

8.2. At my home institution

- The science of planetary ionospheres 2016
  Professor Oppenheim's AS783 class at Boston University
- Mars 2016
  Boston University Physics Teachers Network (Mark Greenman)
- Assessing nebular theory 2016
  Professor Mendillo's AS100 class at Boston University
- Mars 2014
  Professor West's AS105 class at Boston University
- The MAVEN mission to Mars and my role in it 2014
  Boston University Astronomical Society
- Integration of MAVEN neutral and plasma measurements 2014
  Boston University's Center for Space Physics
- Seven minutes of terror – A look at Curiosity's safe arrival on Mars 2012
  Boston University Astronomical Society
- Instruments used to study planetary ionospheres 2012
  Professor Oppenheim's AS783 class at Boston University
- The science of planetary ionospheres 2012
  Professor Oppenheim's AS783 class at Boston University
- The history of Earth's atmosphere 2011
  Professor Bania's AS117 class at Boston University
- Mars: A foundation for exploring planetary atmospheres and ionospheres 2010
  Boston University's Department of Astronomy
- A better way of modeling ionospheric electrodynamics, 2007
  Boston University's Center for Space Physics

- The mean molecular mass of Titan's atmosphere, 2007
  Boston University's Center for Space Physics
- Analysis of aerobraking accelerometer data from Mars, 2007
  Boston University's Center for Space Physics
- Space physics at Mars, Boston University's Center for Space Physics 2006
- The effects of solar flares on the ionospheres of Earth and Mars, 2005
  Boston University's Center for Space Physics
- How does the magnetic field of Mars affect the ionosphere? 2004
  Boston University's Center for Space Physics
- The martian atmosphere, 2004
  Professor Oliver's EC566 class at Boston University
- Tides in the martian upper atmosphere - and other topics, 2003
  Boston University's Center for Space Physics
- The martian upper atmosphere, 2003
  Professor Yelle's PTYS 544 class at the University of Arizona

9. Professional service

9.1. Service to the department

- Delegate, Center for Space Physics Director survey 2013
- Chair, Graduate Admissions Committee 2012-present
- Advisor for Geophysics and Planetary Sciences major 2011-present
- Led departmental fieldtrip to local planetarium 2011
- Advisor to visiting prospective undergraduate astronomy majors 2011, 2013
- Attended CAS Parent Lunch for Orientation 2011
- Annual review session for Astronomy Department Comprehensive Exam 2011-present
- Astronomy Department Representative, CAS Majors Fair 2011
- Member, Astronomy Department Comprehensive Exam Board 2011-present
- Delegate, Astronomy Department Chair survey 2011
- Member, Graduate Admissions Committee 2011 – 2012
- Undergraduate advisor 2010-present
- Host of departmental seminar series 2010 spring

9.2. Service to the university

- Member, Charles River Campus Faculty Review Committee on Research Conflicts of Interest 2015-present
- Organizer, first annual CAS Silas Pierce lecture 2013-2014
- Member, faculty search committee for Earth and Environment department 2013
- Panelist, Educational Resource Center's Engaging Professors workshops 2012
- Mentor, RISE program for rising high school seniors 2012
- Member, Learning Management System Steering Committee 2012-present
- Student Representative to the Dean's Board of Advisors, College of Science, University of Arizona 2002 - 2003

9.3. Service outside the university

9.3.1. Data archiving activities

- Led team that delivered atmospheric entry profiles (density, pressure, temperature) for Curiosity, and associated documentation, to NASA Planetary Data System for review and archiving 2017

- Delivered Mars ionospheric electron density profiles from Mariner 9 to NASA Planetary Data System for review and archiving 2015
- Coordinated delivery of Venus ionospheric data from Venera 15 and 16 to NASA Planetary Data System for review and archiving 2010
- Delivered atmospheric entry profiles (density, pressure, temperature) for Phoenix, and associated documentation, to NASA Planetary Data System for review and archiving 2010
- Advisor to Atmospheres node of the NASA Planetary Data System 2009-present
- Delivered atmospheric entry profiles (density, pressure, temperature) for Spirit and Opportunity, and associated documentation, to NASA Planetary Data System for review and archiving 2008
- Delivered Odyssey aerobraking data (measured accelerations, derived density profiles, fitted constant altitude densities), and associated documentation, to NASA Planetary Data System for review and archiving 2008

9.3.2. Service on panels that review archival datasets

- Participated in NASA Planetary Data System review of VEGA balloon and lander dataset 2017
- Participated in NASA Planetary Data System re-review of MAVEN accelerometer dataset 2015
- Participated in NASA Planetary Data System ad hoc review of PDS4 implementation 2014
- Participated in NASA Planetary Data System review of Cassini Radio Science User's Guide 2014
- Participated in NASA Planetary Data System review of MAVEN accelerometer dataset 2014
- Participated in NASA Planetary Data System review of VEX radio science dataset (VERA_1101 – VERA_1103) 2012
- Participated in NASA Planetary Data System review of PDS4 Build 1d 2011
- Participated in NASA Planetary Data System review of MGS radio science dataset (MORS_1102) 2007
- Participated in NASA Planetary Data System review of MRO aerobraking dataset (MROA_0001) 2007
- Participated in ESA Planetary Science Archive review of Rosetta radio science dataset 2007
- Participated in ESA Planetary Science Archive review of Huygens surface science package, descent trajectory working group, and housekeeping datasets 2005 - 2006
- Participated in NASA Planetary Data System review of Spirit entry dataset (MERIMU_1001) 2004

- Participated in NASA Planetary Data System review of Opportunity entry dataset (MERIMU_1001) 2004
- Participated in NASA Planetary Data System review of MGS aerobraking dataset (MGSA_0002) 2001

9.3.3. Service related to mission selections

9.3.3.1. Leadership responsibilities for mission selections

- Group chief for NASA New Frontiers 4 Program (Step 1) 2017

9.3.3.1. External reviewer for mission selections

- External reviewer for NASA Discovery Program (Step 1) 2011

9.3.4. Service related to research and analysis programs

9.3.4.1. Leadership responsibilities on review panels

- Group chief for NASA Mars Data Analysis Program 2011

9.3.4.2. Membership of review panels

- Review panel member for NSF Graduate Research Fellowship Program 2015
- Review panel member for NASA Planetary Astronomy Program 2013
- Review panel member for NSF Astronomy and Astrophysics Research Grants Program 2010
- Review panel member for NASA Mars Data Analysis Program 2010
- Review panel member for NASA Planetary Mission Data Analysis Program 2009
- Review panel member for NASA Mars Fundamental Research Program 2009
- Review panel member for NASA Planetary Instrument Definition and Development Program 2008
- Review panel member for NSF Astronomy and Astrophysics Research Grants Program 2007
- Review panel member for NASA Mars Fundamental Research Program 2006
- Review panel member for NSF Astronomy and Astrophysics Research Grants Program 2006
- Review panel member for NASA Mars Data Analysis Program 2005

- Review panel member for NASA Venus Express Participating Scientist Program 2005
- Review panel member for NASA Planetary Atmospheres Program 2005
- Review panel member for NASA Mars Data Analysis Program 2004

9.3.4.3. External reviewer for review panels

- External reviewer for British Royal Astronomical Society Research Fellowship Program 2017
- External reviewer for NASA Maturation of Instruments for Solar System Exploration Program 2017
- External reviewer for NASA Cassini Data Analysis Program 2017
- External reviewer for UK Space Agency Aurora Science Program 2016
- External reviewer for NASA Solar System Workings Program 2014
- External reviewer for NASA Outer Planets Research Program 2014
- External reviewer for NSF Atmospheric and Geospace Sciences' Magnetospheric Physics program 2014
- External reviewer for NSF Astronomy and Astrophysics Research Grants Program 2014
- External reviewer for ORAU NASA Postdoctoral Program 2014
- External reviewer for Swedish National Space Board 2013
- External reviewer for NASA Mars Data Analysis Program 2013
- External reviewer for NASA Outer Planets Research Program 2013
- External reviewer for NASA Earth and Space Science Fellowship Program 2013
- External reviewer for ORAU NASA Postdoctoral Program 2013
- External reviewer for NASA Instrument Concepts for Europa Exploration program 2013
- External reviewer for NASA Mars Fundamental Research Program 2013
- External reviewer for Swedish National Space Board 2012
- External reviewer for Romanian Executive Agency for Higher Education, Research, Development and Innovation Funding 2012
- External reviewer for ORAU NASA Postdoctoral Program 2011
- External reviewer for NASA Planetary Astronomy Program 2011
- External reviewer for NASA Discovery Program (Step 1) 2011
- External reviewer for NASA Mars Fundamental Research Program 2010
- External reviewer for NASA Planetary Mission Data Analysis Program 2010
- External reviewer for NASA Mars Fundamental Research Program 2008

- External reviewer for NASA Moon and Mars Analogue Mission Activities Program 2008
- External reviewer for NASA Living With a Star Targeted Research and Technology Program 2007
- External reviewer for NASA Lunar Reconnaissance Orbiter Participating Scientist Program 2007
- External reviewer for NASA Mars Reconnaissance Orbiter Participating Scientist Program 2006
- External reviewer for NASA Mars Fundamental Research Program 2005

9.3.5. Service related to Senior Reviews

- Review panel member for Senior Review of NASA Planetary Data System 2009

9.3.6. Review responsibilities for articles submitted to scientific journals

- Journal of Geophysical Research – Space Physics (3), Radio Science 2017
  Icarus, Journal of Small Satellites, American Geophysical Union Monograph Series
- Geophysical Research Letters (2), Journal of Geophysical Research – Space 2016
  Physics (3), Journal of Small Satellites, American Geophysical Union Monograph Series
- Geophysical Research Letters (2), Journal of Geophysical Research – Space 2015
  Physics, The Physics Teacher
- Advances in Space Research, Annales Geophysicae, Geophysical 2014
  Research Letters, Journal of Geophysical Research – Space Physics, Nature, Research in Astronomy and Astrophysics
- Geophysical Research Letters (2), Journal of Geophysical 2013
  Research – Planets, Journal of Geophysical Research – Space Physics, Planetary and Space Science
- Journal of Geophysical Research – Space Physics, Planetary and Space 2012
  Science
- Advances in Space Research, Geophysical Research Letters, Icarus, 2011
  Journal of Geophysical Research – Planets
- Icarus, Journal of Atmospheric and Solar-Terrestrial Physics, Journal of 2010
  Geophysical Research - Planets
- Geophysical Research Letters (3), Journal of Geophysical 2009
  Research - Planets
- Geophysical Research Letters (2), Icarus 2008
- Icarus (2), Planetary and Space Science 2007
- Advances in Space Research, Geophysical Research Letters (4), Icarus, 2006
  Journal of Spacecraft and Rockets, Mars, Planetary and Space Science
- Annales Geophysicae, Icarus, Journal of Geophysical Research - Planets (2) 2005

- Journal of Geophysical Research - Space Physics, Journal of Spacecraft and Rockets 2004
- Journal of Geophysical Research - Planets, Planetary and Space Science 2003
- Icarus 2002
- Meteoritics and Planetary Science, Science 2001

9.3.7. Service on professional committees and working groups

- NASA Mars Exploration Program Analysis Group (MEPAG) Next Orbiter Science Analysis Group member 2015
- NASA Living With a Star (LWS) Targeted Research and Technology (TR&T) Steering Committee 2013-2014
- DPS Executive Committee 2012-2015
- DPS Nominating Committee 2008-2011
- NASA Mars Exploration Program Analysis Group (MEPAG) Goals Committee member 2008-present
- NASA Mars Exploration Program Analysis Group (MEPAG) Mars Human Precursor Science Steering Group - Atmospheric Focus Team member 2004-2005

9.3.8. Membership of professional societies

- Royal Astronomical Society, Fellow 2013-2015
- UK Planetary Forum, Member 2001-present
- American Geophysical Union's Planetary Sciences Section, Member 2000-present
- American Astronomical Society's Division for Planetary Science, Member 2000-present

9.3.9. Other professional service

- Organizer of community white paper (42 authors) on the ionosphere of Mars submitted to Planetary Science Decadal Survey 2009
- Community Discussion Forum Moderator for Solar System Exploration Decadal Survey 2001

10. Other relevant professional accomplishments and information

10.1. Spacecraft mission involvement

- MAVEN Radio Occultation Science Experiment (Lead)
- MAVEN Participating Scientist
- ExoMars Entry Demonstrator Module Entry Science Investigation (Co-I)
- MAVEN Critical Data Products provider
- Venus Express Accelerometer Instrument (Co-I)
- Venus Express Radio Science Instrument (Co-I)
- Mars Express Radio Science Instrument (Co-I)
- Ranked in top 10% of ESA astronaut applicants in 2008, invited to next stage of screening, but unable to attend due to travel conflict
- Mars Science Laboratory "Atmospheric Council" for EDL Planning
- The Great Escape (TGE) Radio Science Instrument (Co-I, Phase A Study)
- The Great Escape (TGE) Accelerometer Instrument (Co-I, Phase A Study)
- Mars Odyssey Accelerometer Instrument (Participating Scientist)
- Huygens Atmospheric Structure Instrument (ACC sub-system Team Member)
- Huygens Surface Science Package (Team Member)
- Spirit Accelerometer (Member of MER Atmospheric Advisory Team)
- Opportunity Accelerometer (Member of MER Atmospheric Advisory Team)
- Beagle 2 Accelerometer (Member of Environmental Sensor Suite Team)
- Mars Odyssey Accelerometer (Student of a Member of ODY Atmospheric Advisory Group)
- Mars Climate Orbiter Accelerometer (Student of a Member of MCO Atmospheric Advisory Group)
- Mars Global Surveyor Accelerometer (Student of a Member of MGS Atmospheric Advisory Group)
- Mars Global Surveyor Laser Altimeter (Summer student with MOLA Team)

10.2. Media activities

- Interview on Mars colonization for BU Daily Free Press 2017
- Interview on scientific accuracy of The Martian for BU Today 2015
- Interview for NPR on New Horizons at Pluto 2015
- Interview on MAVEN for Museum of Science podcast 2013
- Research on meteoric layers in planetary ionospheres featured in space.com news article 2012

- Research on effects of solar storms on radio communications at Mars featured in media and BU CAS newsletter 2012
- Research on the ionosphere of Mars featured in ESA press release 2012
- Story about future directions of NASA in BU Today 2011
- Coverage of studies of meteor showers on Mars 2008
  Featured in Astronomy Now, Science Daily, Space.com, AHN News
- Coverage of studies of meteor showers on Mars 2007
  Featured in Sky and Telescope, University of Massachusetts - Lowell Sunrise Radio
- Coverage of studies of the effects of solar flares on Mars 2006
  Featured in Boston University Today, MSNBC, New Scientist, Space.com, and USA Today
- Coverage of New Horizons launch 2006
  Featured in Boston University Today
- Coverage of definition of a planet 2005
  Featured in Boston University Today and Reuters
- Coverage of Genesis landing 2004
  Featured in USA Today
- Coverage of Messenger launch 2004
  Featured in Bloomberg News
- Coverage of landings of Spirit and Opportunity Mars Rovers 2004
  Featured in Bostonia, Boston University Bridge, and USA Today
- Coverage of Mars Odyssey orbit insertion 2001
  Featured in University of Arizona News and Spacedaily.com
- Coverage of studies of lunar crater Giordano Bruno 2001
  Featured in Astronomy.com, BBC, Planetary Society News, Science, Sky and Telescope, NASA News, Spaceflightnow.com, University of Arizona News, and UPI
- Coverage of studies of martian northern plains 2001
  Featured in Astronomy.com, Arizona Daily Star, CNN, Discover, Space.com, Spacedaily.com, Spaceflightnow.com, TechTV News, University of Arizona News, and Arizona Daily Wildcat
- Winner of NASA competition to name the Deep Space 2 microprobes 1999
  Proposed names "Scott" and "Amundsen" selected from 17,000 entries. Featured in Journal of Aerospace and Defense Industry News, Arizona Daily Star, Planetary Society News, Space.com, Spacedaily.com, Spaceviews.com, and Arizona Daily Wildcat

10.3. Education/public outreach activities

- Exhibition on MAVEN to Museum of Science weekend event 2014
  Mars and Beyond, 7-8 June 2014
- Presentation to first grade students in Science Club for Girls, Boston 2010
- Science fair judge, O'Bryant School for Mathematics and Science, Boston 2009
- Science fair judge, O'Bryant School for Mathematics and Science, Boston 2008

- Radio interview with University of Massachusetts Lowell's Sunrise Stargazer program on meteors at Mars 2007
- Science fair judge, O'Bryant School for Mathematics and Science, Boston 2006
- "Update on Spirit and Opportunity" at Boston Museum of Science 2004
- "Successes and failures of recent Mars exploration" at Tufts University 2004
- TV interview on "Nitebeat with Barry Nolan" about Spirit and Opportunity 2004
- Presentation at Open House to celebrate orbit insertion of Mars Odyssey, University of Arizona 2001
- Member of Education and Public Outreach Community Panel for Solar System Exploration Decadal Survey 2001
- "Lunar crater Giordano Bruno" at the University of Arizona's Student Showcase 2000
- "Exploring Mars" at the University of Arizona's Student Showcase, awarded prize for best poster by a graduate student in the physical sciences 1999

10.4. Geological field experience

- Organized short sections of University of Arizona's planetary geology fieldtrips each semester, planning field stops and leading discussions. Participated in nine geological fieldtrips around the southwestern US and nearby Mexico 1998 - 2002
- Participated in Cambridge University geological fieldtrip to Greece 1997

10.5. Other teaching experiences

- Collaboration with Boston University Educational Resource Center 2010-present
- Participated in the University of Arizona's Scientist-Teacher Alliance, developed teaching plans and visited classrooms with middle school teachers 2002
- Attended three national workshops on graduate student teaching 2000 – 2002
- Teaching assistant for 100-level classes at University of Arizona 1999 - 2000

10.6. Postdoctoral researchers mentored

- Marianna Felici, Boston University 2017 – present
  MAVEN radio occultations
- Marissa Vogt, Boston University 2014 – present
  MAVEN ionospheric studies
- Christina Holstein-Rathlou, Boston University 2013 - present
  Reconstructing the atmospheric entry of the Curiosity rover

10.7. Graduate students mentored

- Kerry Hensley, Boston University Astronomy PhD student 2016 – present
  The ionosphere of Venus
- Phillip Phipps, Boston University Astronomy PhD student 2015 – present
  Radio occultations in the Jupiter and Saturn systems
- Zachary Girazian, Boston University Astronomy PhD student 2010 - 2015
  Investigating unusual features in the ionosphere of Mars
- Katy Fallows, Boston University Astronomy PhD student 2011 - 2014
  Investigating the morphology of the lower ionosphere of Mars
- Majd Matta, Boston University Astronomy PhD student 2007 - 2013
  Modelling the effects of magnetic fields on the martian ionosphere, jointly mentored with Professor Mendillo

10.8. PhD dissertations directed

- Zachary Girazian, Boston University, Astronomy 2015
  The Sun's influence on the vertical structures of the ionospheres of Venus and Mars

10.9. Undergraduate students mentored

- Ayush Dhananjai, Boston University Astronomy undergraduate research assistant. Cassini radio occultation data analysis. 2016 - 2017
- Jacob Hermann, University of Colorado undergraduate in Boston University summer REU program. Recovery of Pioneer Venus Orbiter ionospheric profiles, jointly mentored with Dr. Vogt 2016
- Casey Flynn, Boston University Astronomy undergraduate research assistant. Analysis of Viking observations of the ionosphere of Mars, jointly mentored with Dr Vogt 2015 - present
- Szilard Gyalay, UCLA undergraduate in Boston University summer REU program. The compressed and uncompressed magnetosphere of Jupiter, jointly mentored with Dr Vogt 2015
- Anthony Maue, Boston University Astronomy undergraduate research assistant. Study of the vertical structure of the atmosphere of Mars 2013 - 2016
- Gabriel Gonzalez, Boston University Astronomy undergraduate research assistant. Study of the effects of solar flares on the ionosphere of Mars 2012 - 2014
- Andrew Tarrh, Boston University Astronomy undergraduate research assistant. Analysis of Venus Express ionospheric observations 2012 - 2014
- Sarah Weiner, Boston University Astronomy undergraduate research assistant. Analysis of Mariner 9 ionospheric observations 2012 - 2014
- Nicholas Ferreri, Boston University Astronomy undergraduate research assistant. Recovery of Mariner 9 ionospheric observations 2011 – 2012
- Dane Sarcone, Boston University ECE undergraduate research assistant 2009
  The effects of extreme solar flares on technological systems at Mars

- Jeffrey Russo, Boston University Astronomy undergraduate research assistant. Comparison of SPICAM and aerobraking measurements of the martian upper atmosphere 2008 - 2011
- Robert Pratt, Boston University Astronomy undergraduate research assistant. The effects of thermal tides on SPICAM measurements of the martian atmosphere 2008 - 2011
- Anthony Lollo, Boston University Astronomy undergraduate research assistant. Numerical simulations of the martian ionosphere, jointly mentored with Professor Mendillo 2008 - 2010
- Bob Lombardi, Boston University Astronomy undergraduate research assistant. Comparative modelling of planetary ionospheres, jointly mentored with Professor Mendillo 2006 - 2007

10.10. Undergraduate senior theses directed

- Anthony Maue, Boston University Geophysics and Planetary Science major, Determining local stratigraphy from Venus shield field alignments, jointly mentored with Dr. Thomson 2016

10.11. Staff reseachers mentored

- Katy Fallows, Boston University. Studies of the ionosphere of Mars 2014 - 2017
- Robert Pratt, Boston University. Empirical studies of martian thermospheric variability 2011 - 2012
- Anthony Lollo, Boston University. Numerical simulations of the martian ionosphere and empirical characterization of aerobraking environment at Mars 2010 - 2011

10.12. High school students mentored

- Justin Robbins, Boston University RISE program. 2012

10.13 Teachers mentored

- Ken Magno, Norwell High School, jointly mentored with Katy Fallows 2016
- Marlene King, Wilmington High School, jointly mentored with Katy Fallows 2016