

VITA

Robert M. Winglee

Personal Biographical Data:

Birthplace and date: Sydney, Australia (Naturalized US Citizen);
10 May 1958
Education: Ph. D., University of Sydney, 1985
B. Sc. (Hons.), University of Sydney, 1980

Present Positions:

7/05—present: Chair, Department of Earth and Space Sciences, University of Washington
7/07 – present: Director, Washington Space Grant Consortium, University of Washington
9/00—present: Professor, Dept. of Earth and Space Sciences (formerly Geophysics Program), University of Washington
7/00—present: Adjunct Professor, Department of Aeronautics and Astronautics, University of Washington
5/93—present: Adjunct Professor, Department of Physics, University of Washington

Past Positions:

12/99—06/08 : Adjunct Professor, Department of Astronomy, University of Washington
9/96-9/00: Associate Professor, Geophysics Program, University of Washington
12/91-9/96: Assistant Professor, Geophysics Program, University of Washington
5/91-12/91: Professional Scientist, Department of Space Sciences, Southwest Research Institute
12/89-4/91: Senior Research Associate, Department of Astrophysical, Planetary and Atmospheric Sciences, University of Colorado at Boulder
3/88-4/91: Lecturer, Department of Astrophysical, Planetary and Atmospheric Sciences, University of Colorado at Boulder
10/86-12/89: Research Associate, Department of Astrophysical, Planetary and Atmospheric Sciences, University of Colorado at Boulder
8/85-10/86: Assistant Research Geophysicist, Institute of Geophysics and Planetary Physics University of California, Los Angeles
2/84-8/85: Post-doctoral Fellow, Department of Astrophysical, Planetary and Atmospheric Sciences, University of Colorado at Boulder

Professional Societies:

American Geophysical Union
American Institute of Aeronautics and Astronautics

Other Professional Activities

Associate Director for the Washington NASA Space Grant Consortium, 1999 - 2007
Associate Chair, Department of Earth and Space Sciences, Univ. of Washington, 2001-2005
Editor for *Geophysical Research Letters*, 1997- 2000
Associate Editor for *Geophysical Research Letters*, 1995 to 1997
Science Leader for UW undergraduate team for the 2001 Human Exploration and Development of Space: University Partners (HEDS-UP) Design Competition

Awards

DISCOVER Magazine Awards for Technological Innovation, sponsored by the Christopher Columbus Fellowship Foundation, Aerospace category, 2001.

Invited Outreach Presentations

Discovery Channel, "Mars Rising," 2007.
Discovery Channel, "Science of Star Wars," 2005.
Cascadia Con, North American Science Fiction Convention, 2005
Science Fiction Museum and Hall of Fame, "Space Exploration: Envisioning the Future," Seattle, 2005.

Fields of Interest:

Prof. Winglee has extensive experience in space plasma physics and engineering, particularly in relation to the space environments around the planets and advanced space propulsion systems. Significant areas of research include the generation of auroral kilometric radiation, heating of ionospheric ions in the auroral zone, the active injection of beams from spacecraft, reconnection in the magnetotail and magnetopause, ionospheric ion outflows, and planetary magnetospheres, and the development of electrodeless plasma systems for in-space propulsion. Particle and fluid simulations are used to model insitu spacecraft observations and the development of laboratory prototypes. The comparative studies include data Dynamics Explorer I, Solar Maximum Mission. Recent research has utilized data from Wind, Polar and IMAGE spacecraft. More recently, applications to Mars and the icy Moons of Jupiter using Mars Global Surveyor, Galileo and Cassini data have provide new insight into the space environments of these weakly magnetized systems. Dr. Winglee has also been the editor of three conference proceedings and has published or submitted for publication more than 120 papers. He was the Space Physics and Aeronomy Editor for *Geophysical Research Letters* between 1997 and 2000. He is lead investigator on the development of new plasma propulsion systems for spacecraft that has received international attention including M2P2 and Magbeam. He also continues to work with developing opportunities for students in higher education in Science, Technology, Engineering and Math through his activities associated with the Washington NASA Space Grant Consortium.

Ph. D.'s Supervised

- M. E. McKean, (APAS) *Influence of Wave-Particle Interactions on Solar Flare Dynamics*, Univ. of Colorado, 1990.
- Z. Zhu (Geophysics), *Particle Kinetic Effects on the Dynamics of the Earth's Magnetotail*, Univ. of Washington, 1994.
- R. K. Elsen (Geophysics), *Global Modeling of the Average Response of the Magnetosphere to Varying Solar Wind Conditions*, Univ. of Washington, 1996.
- A. Goodson (Physics), *Jet Launching Mechanisms from Young Stellar Objects*, Univ. of Washington, 1998
- M. Wilber (Physics), *Plasma Transport Across the Earth's Magnetopause*, Univ. of Washington, 1998.
- S. Matt (Astronomy), *The influence of poloidal magnetic field on astrophysical outflows*, Univ. of Washington, 2002.
- E. Harnett (Geophysics), *Mini-magnetospheres at the Moon and on Mars*, Univ. of Washington, 2003.
- T. Ziemba (Aeronautics and Astronautics), *Mini-Magnetospheric Plasma Propulsion*, Univ. of Washington, 2003.
- L. Giersch (Aeronautics and Astronautics), *Experimental investigation of plasma sail propulsion concepts using cascaded arcs and rotating magnetic field current drive*, Univ. of Washington, 2005.
- C. Paty (Earth and Space Sciences), *Ganymede's magnetosphere: Unraveling the Ganymede-Jupiter interaction through combining multi-fluid simulations and observations*, Univ. of Washington, 2006.
- J. Prager (Physics), *Experimental Investigation of Plasma Downstream of a High Power Helicon*, Univ. of Washington, 2008.

Masters Supervised

- Q. Li (Geophysics), *Anomalous plasma observed near the plasma sheet during substorm growth phase*, Univ. of Washington, 1999
- D. Collins (Physics), *Generating energetic particle populations in the Earth's magnetosphere*, Univ. of Washington, 2001.
- Matt Bartone (Aeronautics and Astronautics), *A micro plasma inductive thruster*, Univ. of Washington, 2007.
- D. Peters (Aeronautics and Astronautics), *Experimental Investigation of the Micro Pulsed Inductive Thruster*, Univ. of Washington, 2009.

Current Graduate Students

- D. Snowden (Earth and Space Sciences)
- B. Race Roberson (Earth and Space Sciences)
- A. Kidder (Earth and Space Sciences)
- M. Cash (Earth and Space Sciences)
- M. Young Choi (Earth and Space Sciences)
- I. Slobodov (Aeronautics and Astronautics)

Undergraduate Students Mentored in Research

- J. Hughes, Kelly Princehouse, Luke Winstrom, Ben Warrick, M. Bentz, E. Suthers, Hillary Cummings, John Cascarden, Laurel Rachmeler, Micheal Nivala, Tom Schnackenberg, Steven Isley, Angela Stickle, Erin Bell, J. Trescott, Greg Quetin, David Peters, Joey

Duncan, Jennifer Porter, Shawn Campbell, Alex Bourdages, Keith Cowan, Julian Picard, Deven Bryant, Sr., Theodore Newell

National and International Committees:

NASA Small-Class Explorer Mission Peer Review, January, 1989
NASA Solar Physics Peer Review, September, 1991
Allocation Committee, San Diego Supercomputing Center, 1992-4
Program Committee, Yosemite Conference on Solar System Plasma Physics: Resolution of Processes in Space and Time, 1993.
NASA Compton Gamma Ray Observatory Guest Investigator Peer Review, May, 1993.
Meta-Allocation Committee, NSF Supercomputing Centers, 1994.
International Space Physics Educational Consortium, 1994-1999.
NASA Space Physics Theory Program Peer Review, November, 1995.
NASA Ionospheric Program Peer Review, November, 1996.
Chair, Organizing Committee for the *6th International Conference on Substorms*, March 24-29, 2002.
Technical Committee for the *Space Technology and Applications International Forum 2002* on magnetic and plasma sails, Feb. 2002.
NASA Technology Working Group for the development of mini-magnetospheric plasma propulsion, 2001.
NASA Technology Assessment Group for the development of plasma sails, 2002.
American Institute of Physics Publication Committee, 2003-2007.
NSF Global Environment Modeling, Program Committee, 2004-6.
AGU James B. Macelwane Medal Committee, 2004-2006.
NSF Space Weather Review Panel, 2006.
NSF GEM Post-Doc Review Panel, 2006.
NASA Future Forum, 2007.
NASA Outer Planets Review Panel, 2008.
NASA Geospace Review Panel, 2009

Departmental/University Committees:

Admissions Committee, 1992, 1993
Building Committee, Chair 2003
College of the Environment: Administrator Search Committee 2009.
Computing Administrator, 2002
Computing Committee, 1993, 1999, 2002-04
Curriculum Committee, 1996, 1997; Chair 1998, 2000, 2001, 2002
Executive Committee, 2001-05.
Geophysics/Geology Interim Report Committee, Chair 2000
Goldwater Scholarship Committee, 2009.
Johnston Scholarship Award Committee, Chair, 1994
Promotions Committee, 2001
Qualifying Committee, 1994, Chair, 1995
Recruitment Committee, 1993
Search Committee, 2001, 2002

Ad Hoc Committee on Research Faculty 2002

Courses Taught (Last 7 yrs):

Access to Space (ESS205) Spring 2003
Advanced Space Plasma Physics (ESS577) Spring 2006
Current Topics in Space Physics, (ESS595) Fall 2002, Spring 2003
Computational Plasma Physics (ESS579) Spring 2003
Intro. To ESS Research (ESS594) Fall 06; Win 07
Kinetic Plasma Theory, (ESS578) Spring 2002, Spring 2004, Fall 08;
Rockets and Instrumentation (org ESS490/590 now ESS472/575) Aut 08, Win 09;Aut 09;
Space and Plasmas, (ESS 415/515) Winter 2002, 2003, Fall 2005
Space and Space Travel (ESS102) Fall 2002; Fall 2003;Winter 2004; Fall 2004; Winter 2005; Fall 07, Win 08.

Proceedings Published

MAX '91 Workshop 2: Developments in Observations and Theory for Solar Cycle 22, edited by R. M. Winglee and B. R. Dennis, Laurel, Maryland, 8-9 June, 1989.
MAX '91 Workshop 3: Max '91/SMM Solar Flares : Observations and Theory, edited by R. M. Winglee and A. L. Kiplinger, Estes Park, Colorado, June 3-7, 1990.
Sixth International Conference on Substorms, edited by R. M. Winglee, University of Washington Press, ISBN: 0-9711740-3-2, 2002.

LIST OF PUBLISHED PAPERS: LAST 5 Yrs

Paty, C., and R. M. Winglee, Multi-fluid simulations of Ganymede's magnetosphere, *Geophys. Res. Lett.*, **31**, L24806, doi:10.1029/2004GL021220, 2004.
Winglee, R. M., Influence of heavy ion outflows on tail reconnection and the auroral current system, *J. Geophys. Res.*, **109**, A09206, doi:10.1029/2004JA010385, 2004.
Winglee, R. M., W. Lewis, and G. Lu, Mapping of the heavy ion outflows as seen by IMAGE and multi-fluid global modeling for the April 17, 2002 storm, *J. Geophys. Res.*, **110**, A12S24, doi:10.1029/2004JA010909, 2005.
Harnett, E. M., R. M. Winglee, and P. A. Delamere, 3D multi-fluid simulations of Pluto's magnetosphere – a comparison to 3D hybrid simulations, *Geophys. Res. Lett.*, **32**, L19104, 2005GL023178, 2005.
Paty, C., and R. Winglee, The role of ion cyclotron motion at Ganymede: Magnetic field morphology and magnetospheric dynamics, *Geophys. Res. Lett.*, **33**, L10106, doi:10.1029/2005GL025273, 2006.
Ziemba, T., P. Euripides, J. Slough, R. Winglee, L. Giersch, J. Cascarden, T. Schnackenberg, S. Isley, Plasma characteristics of a high power helicon discharge, *Plasma Source Sci. Tech.*, **15**, 517, 2006.

- Harnett, E. M., R. M. Winglee, and C. Paty, Multi-scale/multi-fluid simulations of the post plasmoid current sheet in the terrestrial magnetosphere, *Geophys. Res. Lett.*, **33**, L21110, doi:10.1029/2006GL027376, 2006.
- Harnett, E. M., and R. M. Winglee, High-resolution multi-fluid simulations of the plasma environment near the Martian magnetic anomalies, *J. Geophys. Res.*, **112**, A05207, doi:10.1029/2006JA012001, 2007.
- Winglee, R., T. Ziemba, L. Giersch, J. Prager, J. Carscadden, and B. R. Roberson, Simulation and Laboratory Validation of Magnetic Nozzle Effects for High Power Helicon (HPH) Thruster, *Physics of Plasmas*, **14**, 063501, doi 10.1063/2734181, 2007.
- Winglee, R., T. Ziemba, L. Giersch, J. Prager, B. R. Roberson, and J. Carscadden, Advances in high power beamed plasma propulsion, 38th AIAA Plasmadynamics and Lasers Conference, Miami, June 25-28, *AIAA-2007-4384*, 2007.
- Winglee, R. M., and E. Harnett, Radiation mitigation at the Moon by the terrestrial magnetosphere, *Geophys. Res. Lett.*, **34**, L21103, doi:10.1029/2007GL030507, 2007.
- Snowden, D., and R. M. Winglee, Three-dimensional multi-fluid simulation of the plasma interaction at Titan, *J. Geophys. Res.*, **112**, A12221, doi:10.1029/2007JA012393, 2007.
- Winglee, R. M., E. Harnett, A. Stickle and J. Porter, Multi-scale/multi-fluid simulations of flux ropes at the magnetopause, *J. Geophys. Res.*, **113**, A02209:10.1029/2007JA012653, 2008.
- Paty, C., W. Paterson, and R. Winglee, Ion energization in Ganymede's magnetosphere: Using multi-fluid simulations to interpret ion energy spectrograms, *J. Geophys. Res.*, **113**, A06211, doi:10.1029/2007JA012848, 2008.
- Prager, J., R. M. Winglee, T. Ziemba, B. R. Roberson, and G. Quetin, Ion energy characteristics downstream of a high power helicon, *Plasma Sources, Science and Technology*, **17**, doi:10.1088/0963-0252/17/2/025003, 2008.
- Harnett, E. M., R. M. Winglee, A. Stickle, and Gang Lu, Prompt ionospheric/magnetospheric responses 29 October 2003 Halloween storm: Outflow and energization, *J. Geophys. Res.*, **113**, A06209, doi:10.1029/2007JA012810, 2008.
- Winglee, R. M., W. K. Peterson, A. W. Yau, E. Harnett, and A. Stickle, Model/Data Comparisons of ionospheric outflow as a function of invariant latitude and magnetic local time, *J. Geophys. Res.*, **113**, A06220, doi:10.1029/2007JA012817, 2008.
- Kidder, A., and R. M. Winglee, Regulation of the Centrifugal Interchange Cycle in Saturn's Inner Magnetosphere, *J. Geophys. Res.*, **114**, A02205, doi:10.1029/2008JA013100, 2009.
- Kidder, A., R. M. Winglee, and E. M. Harnett, Multi-fluid simulations of the dynamic ions in Mercury's magnetosphere, *J. Geophys. Res.*, **113**, A09223, doi:10.1029/2008JA013038, 2009.
- Winglee, R. M., D. Snowden, and A. Kidder, Modification of Titan's Ion Tail and the Kronian Magnetosphere: Coupled Magnetospheric Simulations, *J. Geophys. Res.*, **114**, A05215, doi:10.1029/2008JA013343, 2009.

- Winglee, R. M., E. Harnett, and A. Kidder, Relative Timing of Substorm Processes as Derived from the Multi-Fluid/Multi-Scale Model: I. Internally Driven Substorms, *J. Geophys. Res.*, *114*, A09213, doi:10.1029/2008JA013750, 2009.
- Prager, J., T. Ziemba, B. R. Roberson and R. M. Winglee, Wave propagation downstream of a high power helicon in a dipole-like magnetic field, *Physics of Plasmas*, in press, 2010.
- Winglee, R. M., Magnetized Plasma Sails, *Encyclopedia of Aerospace Engineering*, in press 2010.
- Snowden, D., and R. Winglee, Three-dimensional fluid modeling at Venus, Mars and Titan, *Space Science Reviews*, submitted, 2010.
- Snowden, D., R. M. Winglee and A. Kidder, New interpretations of Cassini's T9 flyby using a 3D Multi-fluid/Multi-scale simulation of the Saturn-Titan Interaction., *J. Geophys. Res.*, preparation, 2010.
- Snowden, D., and R. M. Winglee, Titan at the edge: Simulations of Titan near Saturn's Magnetopause, in preparation, 2010.
- Snowden, D., and R. M. Winglee, A Coupled Simulation of Titan crossing Saturn's Magnetopause: Comparison to Cassini's T32 Flyby, in preparation, 2010.
- Winglee, R. M., D. Snowden and A. Kidder, Titan on the move: Titan's dynamics within the Kronian Nightside Magnetosphere, in preparation, 2010.

INVITED TALKS : LAST 5 YRS

- Winglee, R. M., Plasma Propulsion for Future Exploration; Sailing the Solar Winds and Beyond, 23rd International Space Development Conference, National Space Society, Oklahoma City, Oklahoma, May 27-31, 2004.
- Winglee, R. M., Heavy ionospheric ion effects on reconnection in the magnetotail, Fall AGU, San Francisco, Dec. 13-17, 2004.
- Winglee, R. M., Developments in Advanced Electric Propulsion, Celebration of Distinction, Univ. of Washington, May 2005.
- Winglee, R. M., Heavy ion and ion cyclotron effects on reconnection in the Magnetotail, International Association of Geomagnetism and Aeronomy, Toulouse France, July 18-29, 2005.
- Winglee, R. M., T. Ziemba, J. Prager, B. R. Roberson, N. Stobie and J. Carscadden, High power helicon plasma propulsion using nonlinear helicon waves, National Radio Science Meeting, Boulder, Colorado, Jan. 4-7, 2006.
- Winglee, R. M., Ion cyclotron and heavy ion effects on tail reconnection and substorm dynamics, Earth-Sun System Exploration: Energy Transfer, Kona, Hawaii, Jan. 16-20, 2006.
- Paty, C. and, R. M. Winglee, Understanding the interaction between Ganymede's and Jupiter's magnetospheres through multi-fluid simulations and observations, European Geosciences Union, Vienna Austria, April 15-20, 2006.

- Winglee, R. M., and E. Harnett, Multi-scale/multi-fluid simulations of magnetic reconnection and flux ropes in the terrestrial magnetosphere, 8th International School on Space Simulations (ISSS-8), Lihue, Kauai, Feb. 26 – Mar. 2, 2007.
- Winglee, R. M., E. Harnett, and A. Kidder, The generation of Earthward Moving flux ropes and nightside auroral activity, Earth-Sun System Exploration: Energy Transfer, Kona, Hawaii, Jan. 14-18, 2008.
- Winglee, R. M., E. Harnett, and A. Kidder, Ion Cyclotron and Ion Skin Depth Effects Influences on Substorm Dynamics as Determined by Multi-Fluid/Multi-Scale Modeling: Small Scale versus Large Scale, 2008 AGU Joint Assembly, May 27- May 30, 2008, Ft Lauderdale, Florida.
- Winglee, R. M., E. Harnett, and A. Kidder, Influence of Ionospheric Ions on the Dynamics of the Magnetopause and Magnetotail Current Sheets, 37th COSPAR Scientific Assembly Montreal, Canada , 13-20 July 2008.
- Winglee, R. M., Influence of O⁺ on the Dynamics of the magnetotail during active periods, LWS TR&T Focused Science Topic Sponsored Workshop: Ionospheric-Magnetospheric Plasma Redistribution During Storms: Causes and Consequences, Boulder, Colorado, September 28-29, 2009.
- Paty, C. S., K. D. Retherford, R. Winglee, and W. R. Paterson, Coupling between the magnetospheres of Ganymede and Jupiter, 2009 AGU Fall Meeting, San Francisco, CA, 14-18 December, 2009.

CONTRIBUTED PAPERS: (LAST 5 YRS)

- “Influence of Ionospheric outflows during the April 17, 2002 storm,” R. Winglee, W. Lewis and Gang Lu, GEM, Snowmass Village, June 20-25, 2004.
- “High Power Helicon Plasma Source”, T. Ziemba, J. Slough, and R. M. Winglee, 46th Meeting of the American Physical Society, Division of Plasma Physics, Nov. 15-19, 2004.
- “High Power Helicon In-Space Thruster”, T. Ziemba, J. Slough, and R. M. Winglee, 46th Meeting of the American Physical Society, Division of Plasma Physics, Nov. 15-19, 2004.
- “Plasma Magnet: Using a Rotating Magnetic Field to Couple Thrust From the Solar Wind”, L. Giersch, J. Slough, and R. M. Winglee, 46th Meeting of the American Physical Society, Division of Plasma Physics, Nov. 15-19, 2004.
- “Radiation Mitigation at the Moon by the Terrestrial Magnetosphere,” R. M. Winglee, and E. Harnett, Fall AGU, San Francisco, Dec. 13-17, 2004.
- “3D multi-fluid simulations of the ionospheric loss rates at Mars from nominal solar wind conditions to magnetic cloud events”, E. Harnett and R. M. Winglee, Fall AGU, San Francisco, Dec. 13-17, 2004.
- “Multi-fluid Simulations of Ganymede's Magnetosphere: The Role of Heavy Ions in the Magnetotail”, C. Paty and R. M. Winglee, Fall AGU, San Francisco, Dec. 13-17, 2004.
- “Plasma sources and lifetimes within the Jovian magnetosphere”, A. Stickle, R. M. Winglee, E. Harnett and C. Paty, Fall AGU, San Francisco, Dec. 13-17, 2004.

- “Magnetized beamed plasma propulsion (Magbeam)”, NIAC 2005 Phase I Fellows Meeting, Atlanta, March 15-16, 2005.
- “Filamentation of Tail Current Sheet as seen Through High Resolution Global Multi-Fluid Simulations”, R. M. Winglee and E. Harnett, Fall AGU, San Francisco, Dec. 5-9, 2005.
- “Investigation of the structure of the Martian Magnetic Pileup Region using High Resolution 3D multi-fluid Simulations”, E. M. Harnett, R. M. Winglee, J. A. Porter, and C. Paty, Fall AGU, San Francisco, Dec. 5-9, 2005.
- “Plasma Energization in Ganymede's Magnetotail”, C. Paty, R. Winglee, and W. Paterson, Fall AGU, San Francisco, Dec. 5-9, 2005.
- “Relationship between Substorm Onset and Reconnection in The Magnetotail”, A. Stickle, R. M. Winglee, and E. M. Harnett, Fall AGU, San Francisco, Dec. 5-9, 2005.
- “3-D Multi-fluid simulations of the solar wind interaction with Mercury’s magnetosphere”, A. Kidder, R. Winglee, and E. Harnett, Fall AGU, San Francisco, Dec. 11-15, 2006.
- “Simulations of the Coupled Interaction of the Titan's Induced Magnetosphere with Saturn's Magnetosphere”, A. Stickle, R. Winglee, D. Snowden, A. Kidder and E. Harnett, Fall AGU, San Francisco, Dec. 11-15, 2006.
- “3D Multi-fluid simulations of Titan's plasma interaction highlighting the importance of ion gyroradius effects”, D. Snowden, and R. Winglee, Fall AGU, San Francisco, Dec. 11-15, 2006.
- “Multi-scale/Multi-fluid Simulations of Reconnection and Flux Ropes at the Magnetopause”, R. Winglee, and E. Harnett, Fall AGU, San Francisco, Dec. 11-15, 2006.
- “Advanced Computer Modeling of the Lunar Plasma Environment in the Dynamic Terrestrial Magnetosphere”, E. Harnett, R. Winglee, J. S. Halekas and J. A. Porter, Fall AGU, San Francisco, Dec. 11-15, 2006.
- “A Multi-fluid Model of Enceladus: Plume Interactions With Saturn's Local Magnetospheric Flow”, C. Paty, F. Crary, R. Goldstein, D. Pontius, R. Winglee, J. Burch and D. Young, Fall AGU, San Francisco, Dec. 11-15, 2006.
- “Examination of Plasma Filling of Saturn's Magnetosphere”, A. Kidder and R. M. Winglee, Magnetospheres of the Outer Planets, San Antonio, June 25 – 29, 2007.
- “3D Multi-fluid simulations of Titan’s induced magnetosphere including ion-neutral interactions”, D. Snowden and R. M. Winglee, Magnetospheres of the Outer Planets, San Antonio, June 25 – 29, 2007.
- “Modeling the Coupled Interaction of Titan with the Kronian Magnetosphere”, R. M. Winglee, D. Snowden, A. Kidder and E. Harnett, Magnetospheres of the Outer Planets, San Antonio, June 25 – 29, 2007.
- “3D Multi-fluid Simulations of the Saturn-Titan Interaction”, D. Snowden and R. M. Winglee, London Titan Workshop, Imperial College London, November 8-9, 2007.
- “Localized Reconnection and Plasma Structures at the Magnetopause”, J. A. Porter, R. M. Winglee and E. M. Harnett, Fall AGU, San Francisco, Dec. 10-14, 2007.

- “Activity Dependent O⁺ Transport Paths From the Ionosphere to the Ring Current”, W. Peterson, L. Andersson, B. Callahan, S. Elkington, R. Winglee, J. Scudder, H. Collin, Fall AGU, San Francisco, Dec. 10-14, 2007.
- “Modulation of the Fluxes of Energetic Particles in the Inner Magnetosphere Associated With Storm Conditions”, M. D. Cash, and R. M. Winglee, Fall AGU, San Francisco, Dec. 10-14, 2007.
- “Simulation of the Effect of Titan's Induced Magnetosphere on the Kronian Magnetosphere: Titan mass losses and Kronian mass loading”, D. Snowden and R. Winglee, Fall AGU, San Francisco, Dec. 10-14, 2007.
- “GPU Multi-Scale Particle Tracking and Multi-Fluid Simulations of the Radiation Belts”, T. Ziemba, J. Carscadden, D. O'Donnell, R. Winglee, E. Harnett, and M. Cash, Fall AGU, San Francisco, Dec. 10-14, 2007.
- “Regulation of the centrifugal interchange cycle in Saturn's inner magnetosphere”, Kidder, A. R., R. M. Winglee, E. M. Harnett, 2008 AGU Joint Assembly, May 27- May 30, 2008, Ft Lauderdale, Florida.
- “Multi-fluid/Multi-scale simulation of the Saturn-Titan Interaction: A new interpretation of Titan's wake structure during the Cassini T9 flyby”, Snowden, D., and R. M. Winglee, 2008 AGU Joint Assembly, May 27- May 30, 2008, Ft Lauderdale, Florida.
- “Advantages of Using a Multi-fluid Framework for Incorporating Ion-Neutral Interactions: Studying Enceladus` Interaction With Saturn`s Magnetosphere”, Paty, C., E. Harnett, D. Snowden, R. Winglee, F. Crary and A. Kidder, 2008 AGU Joint Assembly, May 27- May 30, 2008, Ft Lauderdale, Florida.
- “Velocity distribution and plasma density measurements in an inductive microthruster plume,” Peters, D., T. Ziemba, R. Winglee, 50th Annual Meeting of the Division of Plasma Physics, November 17-21, 2008, Dallas, Texas.
- “Characterization of Waves Propagating parallel and anti-parallel downstream of a high power helicon source,” J. Prager, T. Ziemba, R. Roberson, and R. Winglee, 50th Annual Meeting of the Division of Plasma Physics, November 17-21, 2008, Dallas, Texas.
- “Enhanced output from the high power helicon in association with macroscopic currents and magnetic field annihilation, R. Roberson, T. Ziemba, and R. Winglee, and J. Prager, 50th Annual Meeting of the Division of Plasma Physics, November 17-21, 2008, Dallas, Texas.
- “3-D multi-fluid simulations of Titan crossing Saturn's magnetopause; Comparison to T32 observations”, D. Snowden and R. Winglee, Fall AGU, San Francisco, Dec. 15-19, 2008.
- “Multi-fluid modeling of Mercury's Magnetosphere in Advance of the 2nd Messenger flyby”, A. Kidder, R. Winglee, and E. M. Harnett, Fall AGU, San Francisco, Dec. 15-19, 2008.
- “GPU Particle tracking and MHD simulations with greatly enhanced computational speed”, T. Ziemba, D. O'Donnell, J. Carscadden, M. Cash, R. Winglee, E. Harnett, Fall AGU, San Francisco, Dec. 15-19, 2008.
- “Energetic Oxygen flux at the Moon,” E. M. Harnett, R. M. Winglee, J. A. Porter, J. Halekas, Fall AGU, San Francisco, Dec. 15-19, 2008.

- “Formation of the Ring Current as a function of solar wind conditions,” M. Cash, R. M. Winglee, Fall AGU, San Francisco, Dec. 15-19, 2008.
- “Relative timing of substorm processes as derived from multi-fluid/multi-scale simulations: Reconnection versus current disruption,” R. M. Winglee, E. M. Harnett, A. Kidder, Fall AGU, San Francisco, Dec. 15-19, 2008.
- “Coupled Simulations of Io, the Io Plasma Torus and the Jovian Magnetosphere”, R. M. Winglee, E. Harnett, D. Snowden, A. Kidder, L. Lerud, and C. Paty, Magnetospheres of the Outer Planets 2009 , Cologne, Germany, 27 - 31, July, 2009.
- “The effect of solar wind dynamic pressure on the centrifugal interchange cycle in Saturn’s magnetosphere”, Kidder, A., R.M. Winglee, and E.M. Harnett, Magnetospheres of the Outer Planets 2009 , Cologne, Germany, 27 - 31, July, 2009.
- “Titan at the edge: 3D Multi-fluid simulations of Titan near Saturn’s Magnetopause”, D. S. Snowden, and R. M. Winglee, Magnetospheres of the Outer Planets 2009 , Cologne, Germany, 27 - 31, July, 2009.
- “Enhanced Output from the High Power Helicon Resulting from Modification of the Downstream Magnetic Field with a Magnetic Nozzle”, R Roberson, R. Winglee, T. Ziemba, and J. Prager, 51th Annual Meeting of the Division of Plasma Physics, November 2-6, 2009, Atlanta Georgia.
- “Characterization of the Micro Pulsed Inductive Thruster”, J. Prager, T. Ziemba, D. Peters, and R. Winglee, 51th Annual Meeting of the Division of Plasma Physics, November 2-6, 2009, Atlanta Georgia.
- Lerud, T., E. M. Harnett, R. Winglee, Classifications of substorm and storm triggering mechanisms, 2009 AGU Fall Meeting, San Francisco, CA, 14-18 December, 2009.
- Cash, M. D., Storm time production of ring current ions: Energization, injection, and trapping of ionospheric H⁺ versus O⁺, 2009 AGU Fall Meeting, San Francisco, CA, 14-18 December, 2009.
- Snowden, D. S., R. Winglee, 3-D multi-fluid model of coupled ion and neutral interaction between Titan’s ionosphere and Saturn’s magnetosphere, 2009 AGU Fall Meeting, San Francisco, CA, 14-18 December, 2009.
- Harnett, E. M., T. Lerud, and R. Winglee, Multi-fluid/multi-scale simulations of the February 26, 2008 substorm, 2009 AGU Fall Meeting, San Francisco, CA, 14-18 December, 2009.
- Choi, M. R. Winglee, and E. M. Harnett, 3D Multi-Fluid Simulations of Magnetic Reconnection at the Dayside Magnetopause for the THEMIS Encounter of June 19, 2007, 2009 AGU Fall Meeting, San Francisco, CA, 14-18 December, 2009.
- Kidder, A., R. Winglee, and E. Harnett, Multi-fluid simulations of plasmoid development at Saturn, 2009 AGU Fall Meeting, San Francisco, CA, 14-18 December, 2009.
- Winglee, R., E. M. Harnett, A. Kidder, and D. S. Snowden, Supplying the Io plasma torus: Local versus extended plasma sources, 2009 AGU Fall Meeting, San Francisco, CA, 14-18 December, 2009.