

Tamitha Mulligan Skov, Ph.D.

EDUCATION

Doctor of Philosophy, Geophysics and Space Plasma Physics, University of California, Los Angeles, 2002

Master of Science, Geophysics and Space Plasma Physics, University of California, Los Angeles, 2000

Bachelor of Science, Physics, University of California, Los Angeles, 1996 (*with honors*)

Bachelor of Science, Physical Chemistry, University of California, Los Angeles, 1996

INDUSTRIAL EXPERIENCE

Research Scientist, The Aerospace Corporation, Los Angeles, CA, 2004-present

Teaching and development of curricular materials:

- Space Environment Course (and tutorials) for: (1) The Aerospace Institute, January 2010-2012. (2) Aerospace Board of Trustees, June 2012. (3) Aerospace Student Intern Class 2012 (both graduate and undergraduate level science and engineering students).
- Space-physics signal processing applications in forensic science for the National Law Enforcement and Corrections Technology Center (NLECTC) supported by the National Institute of Justice. Co-wrote and taught “Digital Enhancement of Audio Sources for Law Enforcement” national/POST certified forensics course to members of FBI, Sheriff and police departments, DA offices, Public Safety, Inspector Generals, and Department of Corrections, 2004-2007.

Other Contributions:

- Data processing and analysis of Sun, Earth, and planetary radiation environments in both an academic environment and for the National Security Space (NSS) Interest
- Numerical code development and modeling of solar wind transients and energetic particle propagation through the heliosphere, magnetosphere, and spacecraft materials
- Team Lead on Air Force Space Weather Follow-on Architecture Studies and Aerospace review panels
- Tiger team and anomaly investigations of radiation environments /damage for NASA programs (e.g. JUNO, Solar Probe Plus, Solar Orbiter), NOAA, and other commercial and government agencies
- Instrument Specialist on independent review teams (IRTs) for GOES-R development through Critical Design Review and beyond (e.g. SUVI, EXIS, ABI)
- Given numerous international invited lectures; written/co-authored over 50 scientific and technical publications

Member of Technical Staff, Advanced Program Manager, Northrop Grumman, Woodland Hills, CA, 2002- 2004

- Systems Engineering of navigation units through design, QUAL testing, and delivery to NASA missions (e.g. Messenger, and Deep Impact)
- Redesigned computational tools for calibration navigation units for NASA programs
- Assessed program milestones, budget, contracts, and new business for inertial reference units for space applications

ACADEMIC EXPERIENCE

Graduate Researcher, University of California Los Angeles, Institute of Geophysics and Planetary Physics and the Department of Earth and Space Sciences, Space Physics Group, 1996-2002

Supervision and mentoring:

- Acted as a mentor and provided supervision of graduate and undergraduate students in numerical modeling of flux ropes in the solar wind at 0.7 AU and 1 AU, 1999-2003.
- The graduate level work led to an application of the modeling technique in conjunction with Faraday rotation estimates of the interplanetary magnetic field and solar wind velocity, which resulted in a successful doctoral dissertation

Other Contributions:

- Developed synoptic ICME model and spatial mapping algorithm that inverts multiple spacecraft observations of ICMEs (having flux rope and non-flux rope geometries) and places the results in spatial context with numerically interpolated solar wind parameters within a 2D spatial grid to facilitate interpretation of complex, multi-spacecraft data.
- Revealed connection between magnetic cloud orientation over the solar cycle and the orientation of the Sun's streamer belt neutral line and global polar field through statistical analysis of the 11-year Pioneer Venus Orbiter (PVO) dataset. The results of this study have allowed a better characterization and prediction of geoeffectiveness of transients from magnetic field observations of the solar surface.
- Published dissertation entitled, "The Three-Dimensional Structure and Solar Origins of Interplanetary Coronal Mass Ejections"

Undergraduate Student Researcher, University of California Los Angeles, Institute of Geophysics and Planetary Physics and the Department of Earth and Space Sciences, Space Physics Group, 1993-1996

Selected Contributions:

- Ground-test calibrations of tri-axial fluxgate magnetometer flight experiment aboard Cassini spacecraft
- Mars magnetic field analyses
- Assisted hardware and field testing of Sino-Magnetic Array at Low Latitudes (SMALL) ground-based magnetometers

SERVICE -- PROFESSIONAL

Selected Committee Leadership and Technical Service

- Editor, DataSets International Journal, papers in Geosciences, 2012-current
- Professional Mentor in physical sciences, MentorNet, 2012-current
- Team Lead for Air Force SBEM Analysis of Alternatives, 2013
- Team Lead for Iridium-Next Space Weather Architecture, 2012
- GOES-R IIRT instrument suite design review team, 2007- 2011
- Aerospace IR&D Review Team Leader, 2007, 2010
- GOES-N/OP SXI Entrance Filter Anomaly tiger team, 2008
- GOES-N/OP SXI CCD Anomaly tiger team, 2007
- GOES-N/OP SXI Corrective Action Review Team IIRT, 2007
- IRIDIUM Space Radiation Assessment tiger team, 2006
- American Geophysical Union Session Chair, 2006, 2009

- SHINE Workshop Campaign Session Leader, 2008

Reviewer for Professional Journals

- Planetary and Space Science
- Journal of Geophysical Research
- Geophysical Research Letters
- Journal of Atmospheric and Solar Terrestrial Physics
- Annales Geophysicae

Reviewer for Research Proposals

- NASA Space Science and the Sun-Earth Connection Research Opportunities
- NSF Solar Heliospheric and Interplanetary Environment Opportunities

Professional Affiliations

- Member, American Geophysical Union, 1996 – present
- Member, Audio Engineering Society, 2005 – present
- Member, American Astronautical Society, 2002 – 2004
- Member, American Astronomical Society, 1999 – 2000
- Honorary Member, American Chemical Society, 1990 – 1991

HONORS AND AWARDS

- Outstanding Scientific Journal Referee, Annales Geophysicae, 2007
- Top 40 Under 40, San Fernando Business Journal, 2004
- TAP Award for Excellence, Northrop Grumman, 2003
- Institute of Geophysics and Planetary Physics Student Research Fellowships, 1997-2001
- NASA Space Grant, University of California Los Angeles, 1996, 1997
- Departmental Honors in Physics, University of California Los Angeles, 1996
- Distinguished Alumni Scholarship, University of California Los Angeles, 1992-1993
- American Chemical Society Outstanding Achievement, Goldenwest College, 1990-1991

INVITED TALKS IN ACADEMIA

2013: LA Valley College Planetarium (USA)

2011: Shine Workshop (USA)

2010: University of California, Los Angeles (USA)

2008:

The Aerospace Corporation (USA)

Shine Workshop (USA)

2007: University of Riverside (USA)

2006: Polar Science Workshop, Berkeley (USA)

2005:

University College London (UK)

Bartol Research Institute (USA)

University of Delaware (USA)

CETP Workshop (France)

2004: University of Michigan (USA)

2002: First STEREO Meeting (France)