

TERESA ESMAN

Lunar and Planetary Laboratory, University of Arizona, Tucson AZ 85721

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EDUCATION

DEC 2018

MASTER OF SCIENCE - PLANETARY SCIENCE, UNIVERSITY OF ARIZONA

GPA 4.0

MAY 2015

BACHELOR'S OF ART - ASTRONOMY – PHYSICS, UNIVERSITY OF VIRGINIA

GPA 3.686

RESEARCH EXPERIENCE

NOV. 2018 – PRESENT

GRADUATE STUDENT RESEARCH ASSOCIATE, UNIVERSITY OF ARIZONA

Thesis work with Dr. Jared Espley and Prof. Joe Giacalone, investigating plasma waves at Mars using MAVEN MAG data. I use wavelet analysis and other techniques to approximate ion densities in regions that have never had direct ion density measurements and to search for evidence of lightning at Mars.

MAY 2018 – NOV. 2018, AUG. 2015 – MAY 2018

GRADUATE STUDENT RESEARCH ASSISTANT, UNIVERSITY OF ARIZONA

Research with Dr. Jared Espley and Prof. Joe Giacalone investigating MAVEN MAG data. Research under the guidance of Dr. Roger Yelle on the Martian upper atmosphere. Analysis is primarily conducted using MATLAB and some IDL.

AUG. 2014 – MAY 2015

STUDENT RESEARCH COLLABORATOR, NASA GODDARD SPACE FLIGHT CENTER

Senior thesis research with Dr. Jared Espley and Dr. Anne Verbiscer (UVA) on Martian ionosphere activity through analysis of Mars Global Surveyor and MAVEN MAG data.

SUMMERS OF 2014 AND 2013

INTERN, NASA GODDARD SPACE FLIGHT CENTER

Organized MGS MAG data, searched for evidence of Martian lightning, and isolated artificial signals within MAVEN cruise MAG data (Dr. Jared Espley)
Utilized an infrared spectral synthesis and retrieval model along with photochemistry and climate models to simulate exoplanet atmospheric spectra (Dr. Conor Nixon)

JAN. 2012 – JUN. 2013

PAID ASTRONOMY RESEARCHER, UNIVERSITY OF VIRGINIA

Investigated giant binary stars with Dr. Steve Majewski and the APOGEE research group. Conducted numerical simulation and stability analysis of nonlinear partial differential equations to investigate the orbital evolution of planets influenced by tidal forces with Dr. Phil Arras.

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SEPT. 2010 – JUNE 2011

HIGH SCHOOL RESEARCHER, UNIVERSITY OF MARYLAND, COLLEGE PARK

Researched Hot Jupiters and habitable zones with Dr. Derek Richardson as part of a senior research project at Thomas Jefferson High School for Science and Technology

SKILLS

- Proficient with IDL and Matlab
- Organized and led the 2018 Art of Planetary Science annual exhibition
- Experience with Java, HTML, Fortran, and other languages
- Experienced with Word, Excel, Powerpoint

HONORS & AWARDS

EXECUTIVE SECRETARY FOR NASA PROGRAM PANEL, AUG 2019

Assistant to the panel chair during the process of proposal evaluations.

COLLEGE OF SCIENCE GRADUATE TEACHING AWARD, COLLEGE OF SCIENCE, APRIL 2019

Annual award from the College of Science awarded to one Graduate Student per department.

GRADUATE TEACHING ASSISTANT EXCELLENCE AWARD, LUNAR AND PLANETARY LABORATORY
AUGUST 2018 & ANNUAL AWARD (2019)

Promote, recognize, and reward exemplary performance among graduate teaching assistants. Received Spring 2018 and the 2019 awards.

D. NELSON LIMBER PRIZE, UNIVERSITY OF VIRGINIA, MAY 2015

Each year an Astronomy undergraduate is chosen from the graduating class and recognized for outstanding undergraduate work.

PAPERS & PRESENTATIONS

- Peterson, W. K., C. M. Fowler, L. A. Andersson, E. M. B. Thiemann, S. K. Jain, M. Mayyasi, **T. M. Esman**, R. Yelle, M. Benna, J. Espley (2018), Martian Electron Temperatures in the Subsolar Region: MAVEN Observations Compared to a One-Dimensional Model, *JGR Space Physics*, 123 (17), 5960-5973
- Esman, T. M. et al. (2019) ELF Waves in the Martian Ionosphere, paper in prep and presentation at the Ninth Mars conference
- "A Search for Plasma Waves in the Distant Martian Environment" American Geophysical Union Fall 2018, Poster
- "Charge Balance in the Martian Ionosphere" Division for Planetary Sciences Fall 2016 Meeting, Poster
- "A Search for Lightning in the Martian Ionosphere" American Geophysical Union Fall 2014, Poster
- NASA GSFC 2014 and 2013 Intern Poster Session