

Guadalupe Tovar Mendoza

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EDUCATION

Dual-title PhD, Astronomy & Astrobiology

University of Washington

2017 - present

Seattle, WA

Masters of Science, Astronomy

University of Washington

August 2019

Seattle, WA

Bachelor of Science, Astronomy & Physics

University of Washington

June 2017

Seattle, WA

RESEARCH EXPERIENCE

Graduate Research Assistant

Astronomy & Astrobiology, University of Washington

Sept 2017 - Present

Seattle, WA

Advisor: James R.A. Davenport

- Studying how stellar variability on small stars affects our ability to detect and characterize exoplanets using data from the *Kepler*, *TESS*, and *Gaia* space-based telescopes

Graduate Research Assistant

Exoplanets & Stellar Astrophysics, NASA Goddard

Sept 2022 - Dec 2022

Greenbelt, MD

Advisors: Elisa Quintana, Allison Youngblood, Lynnae Quick

- Identified cold icy planets from the Exoplanet Archive and calculated both their internal heating rates and transmission spectroscopy metric for potential follow up observations

Undergraduate Research Assistant

Astronomy & Astrobiology, University of Washington

Sept 2016 - June 2017

Seattle, WA

Advisors: Victoria Meadows, Jacob Lustig-Yaeger

- Used simulations of Earth as an exoplanet to explore the possibility of ocean detection by spatially mapping the ocean glint signal using time series, multi-phase, directly imaged synthetic observations

Summer Research Intern

Center for Astrophysics, Harvard University

June 2016-Aug 2016

Cambridge, MA

Advisors: Benjamin Montet & John Johnson

- Calibrated the *Kepler* space telescope full frame images to do better photometry which allowed us to study the magnetic cycles of Sun-like stars

Undergraduate Research Assistant

Astronomy, University of Washington

April 2015 - Dec 2015

Seattle, WA

Advisor: Woodruff Sullivan

- Created a program in IDL to generate the precession of Polaris over a time frame of 1,800 years
- Studied archaeoastronomy using a baroque Catholic basilica as an astronomical chronometer while studying abroad in Italy

Undergraduate Research Assistant*Astronomy & Astrobiology, University of Washington***Sept 2013 - March 2015***Seattle, WA*

Advisors: Victoria Meadows, Giada Arney

- Performed and analyzed spectral simulations of different hazy terrestrial planetary atmospheres

MENTORING EXPERIENCE

Undergraduate Research Advisor*Pre-Majors in Astronomy Program, University of Washington***Winter 2021***Seattle, WA*

- Advised two undergraduate students on a quarter long research project titled "Searching for Flares on M Dwarf Stars"
- Met weekly with students to answer questions, provide feedback, and aid in research progress
- Helped students prepare for their final presentation on the project, which was presented to the UW Astronomy department at the end of the quarter

Academic Advisor*Pre-Majors in Astronomy Program, University of Washington***2020-2021***Seattle, WA*

- Responsible for mentoring and supporting 16 undergrad students in the Pre-MAP program
- Held weekly office hours, reviewed summer internship applications and wrote letters of recommendation

TEACHING EXPERIENCE

Graduate Teaching Assistant*Astronomy 101, University of Washington***March 2023 - Present***Seattle, WA*

Quarters taught: WTR '19, SPR '23

- Responsible for teaching and grading four lab sections of 20 students each

Graduate Teaching Assistant*Astronomy 150: The Planets, University of Washington***2018-2019***Seattle, WA*

Quarters taught: WTR '18, SPR '18, SPR '19, SU '19

- Responsible for teaching and grading four lab sections of 20 students for four academic quarters
- Implemented quizzes and exams and led group discussions

WORK EXPERIENCE

Admissions Reader*University of Washington***Dec 2019 - Feb 2020***Seattle, WA*

- Read and evaluated 1000 undergraduate admissions' applications

Student Ambassador*University of Washington Office of Minority Affairs & Diversity***Sept 2015 - June 2017***Seattle, WA*

- Planned outreach conferences to host 80-200 high school students on campus to assist them in applying to college.
- Gave tours of campus to various groups of people and presented in student panels, cultural workshops, and at resource fairs.

College Assistance Migrant Program Peer Mentor**Sept 2016 – June 2017**

- Mentored eight first generation, freshmen students as they transitioned into their first year of college

HONORS AND AWARDS

- SACNAS Travel Award Recipient (2022)
- NSF Graduate Research Fellow (2017)
- Husky 100 recipient (2017)
- Ronald E. McNair Scholar (2016-2017)
- Washington NASA Space Grant Consortium Scholar (2013-2017)
- College Assistance Migrant Program Scholar (2013)
- Hispanic Academic Achievement Program Scholar (2013)

Funding

NASA ADAP (\$544,087)

2022

"Detecting Activity Cycles Using Stellar Flares"

P-I: J. Davenport

REFEREED PUBLICATIONS

6. Quick, L. C., Robergre, A., **G. Tovar Mendoza**, et al. (2023) "Prospects for Cryovolcanic Activity on Cold Ocean Planets" submitted to ApJ
5. **G. Tovar Mendoza**, Davenport, J. R. A., Agol, E et al. (2022) "Llamaradas Estelares: Modeling the Morphology of White-light Flares" AJ, 164,17
4. Davenport, J. R. A., **Tovar Mendoza, G.**, Hawley, S. L. (2020) "10 Years of Stellar Activity for GJ1243" AJ, 160,36
3. Lustig-Yeager, J., V. S. Meadows, **Tovar, G.** et al.(2018) "Detecting Ocean Glint on Exoplanets Using Multiphase Mapping" AJ, 156,301
2. Montet, B. T., **Tovar, G.**, Foreman-Mackey, D. (2017) "Long Term Photometric Variability in Kepler Full Frame Images: Magnetic Cycles of Sun-Like Stars" ApJ, 851,116
1. Arney, G., V. S. Meadows, S. D. Domagal-Goldman, T. Robinson, D. Deming, T. Robinson, **Tovar, G.**, E. T. Wolf, E. Schwieterman. (2017) "Pale Orange Dots: The Impact of Organic Haze on the Habitability and Detectability of Earthlike Exoplanets" ApJ, 836,49

PROFESSIONAL PRESENTATIONS

Cold Ocean Worlds

Seattle, WA

UW Astrobiology Colloquium (Talk)

April 2023

A Journey Through Academia and the Cosmos

Seattle, WA

Gabriel E. Gallardo McNair Symposium (Invited Keynote)

April 2023

Chromatic Flares: Multi-Wavelength Observations to Probe Flare Temperatures

Seattle, WA

241st AAS Meeting (Talk)

January 2023

Cold Icy Worlds

NASA Goddard, MD

Habitable Worlds Observatory Seminar (Talk)

December 2021

Llamaradas Estelares: Modeling the Morphology of White-Light Flares <i>Cool Stars 21(Poster)</i>	Toulouse,FR <i>July 2022</i>
Modeling the Morphology of White-Light Flares <i>TESS Science Conference II (Poster)</i>	Seattle,WA <i>August 2021</i>
Planet Habitability <i>Earth & Space Sciences Seminar (Talk)</i>	Seattle,WA <i>April 2018</i>
Detecting Oceans on Exoplanets Using Phase- Dependent Mapping <i>Habitable Worlds Conference (Poster)</i>	Laramie,WY <i>Nov 2017</i>
Understanding the Activity Cycles of Solar Type Stars with Kepler <i>Northwest Astronomy Meeting (Poster)</i>	Bellingham,WA <i>Oct 2016</i>
Understanding the Activity Cycles of Solar Type Stars with Kepler <i>Banneker Institute Symposium (Talk)</i>	Cambridge,MA <i>Aug 2016</i>
The Meridian Line of the Basilica di Santa Maria degli Angeli <i>Undergraduate Research Symposium (Poster)</i>	Seattle,WA <i>Aug 2016</i>
Jupiter the King of the Planets <i>Theodor Jacobsen Observatory (Talk)</i>	Seattle,WA <i>April 2016</i>
The Effects of Clouds and Hazes on the Spectra of Terrestrial Planets <i>225th AAS Meeting (Poster)</i>	Seattle,WA <i>Jan 2015</i>
Titan's Atmosphere <i>Pre Majors in Astronomy Presentation (Talk)</i>	Seattle,WA <i>Dec 2013</i>

ACADEMIC SERVICE

- Outreaching Grad: Graduate Student Equity & Excellence Program (GSEE) (2019-present)
- Member: First Generation Graduate Student Advisory Board (2018- present)
- Member: Undergraduate Research Support Network Advisory Board (2017- present)
- Panelist: Equity in Graduate Education Summit (April 2022)
- Panelist: Research Community Connections - Undergrad Research Program (July 2021)
- Panelist: Women's Economic Empowerment – Breaking Gender Barriers and Advancing Equity (2018)

OUTREACH & VOLUNTEER EXPERIENCE

- Academic Tutor at Echo Glen Youth Detention Center (2021-Present)
- UW Planetarium Presenter (2017-present)
- Astronomy on Tap presenter (2019)
- Letters to a Pre-Scientist pen pal (2019-present)

Workshops

- NASA Astrobiology Summer School
- Catalyzing Advocacy in Science and Engineering (CASE) Workshop