

Michaela Leung

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EDUCATION

University of California, Riverside

Doctor of Philosophy in Earth and Planetary Sciences

Including courses on Planetary Habitability, Planetary Atmospheres, and Diversity, Equity, Inclusion and Justice in the Geosciences. GPA: 4.0

Riverside, CA

Sept. 2020 – Present

University of Washington

Bachelor of Science in Earth and Space Sciences

- Cum Laude with Departmental and Interdisciplinary Honors.
- Early entrance at age 15 through UW Academy for Young Scholars program

Seattle, WA

Sept. 2016 – June 2020

RESEARCH EXPERIENCE

Graduate Research Assistant

Department of Earth and Planetary Sciences, University of California, Riverside

Advisor: Dr. Edward Schwieterman

July 2020 – Present

Riverside, CA

- Substantial updates and revisions to the atmos 1-dimensional coupled climate photochemistry model including addition of new gaseous species.
- Interdisciplinary and vertically integrated approaches for evaluating novel process based biosignatures
- Climate, photochemical, and spectral simulations of terrestrial exoplanets.

Undergraduate Research Assistant

Virtual Planetary Laboratory, University of Washington

Advisor: Dr. Victoria Meadows

October 2017 – September 2020

Seattle, WA

- Used SMART radiative transfer model to analyze oxygen false positives
- Developed python scripts and modified existing FORTRAN code. Wrote first-author paper and gave poster presentations.

PUBLICATIONS

Submitted

- **Leung, M.**, Schwieterman, E. W., Parenteau, N., & Fauchez, T. J., (*in review*, *The Astrophysical Journal*). *Alternative Methylated Biosignatures I: Methyl Bromide*
- Peacock, S., Barman, T.S., Schneider, A. C., **Leung, M.**, Schwieterman, E. W... (*in review*, *The Astrophysical Journal*). *Accurate Modeling of Ly α Profiles and their Impact on Photolysis of Terrestrial Planet Atmospheres*
- **Leung, M.**, Meadows, V., & Lustig-Yaeger, J. (2020). High-resolution Spectral Discriminants of Ocean Loss for M-Dwarf Terrestrial Exoplanets, 160(1). <https://doi.org/10.3847/1538-3881/ab9012>

SELECTED PRESENTATIONS

- **Leung, M.**, Schwieterman, E. W., Parenteau, N., & Fauchez, T. J., (2022) CH₃Br: A New Capstone Biosignature for Exoplanets : oral presentation at AAS 240, June 2022
- **Leung, M.**, Schwieterman, E. W., & Parenteau, N. (2022) Novel Methylated Biosignatures: Outcomes of a General Metabolic Process as a New Class of Biosignatures : oral presentation at ExoPAG 26, June 2022
- **Leung, M.**, Schwieterman, E. W., & Parenteau, N., (2022) CH₃Br: A New Capstone Biosignature for Exoplanets : The Astrobiology Science Conference, May 2022
- **Leung, M.**, Schwieterman, E. W. & Parenteau, N., (2022) CH₃Br: A New Capstone Biosignature for Exoplanets : oral presentation at CHAMPS-hosted Early Career Highlight seminar, virtual, January 2022
- **Leung, M.**, Schwieterman, E. W. & Parenteau, N., (2022) CH₃Br: A New Capstone Biosignature for Exoplanets : oral presentation at AAS 239, Salt Lake City, UT, January 2022 *** Cancelled due to COVID-19

- **Leung, M.** & Meadows V., (2021) Impact of Photochemistry in Terrestrial P type Circumbinary Exoplanetary Atmospheres: poster presented at Habitable Worlds 2021, February 23
- **Leung, M.**, Meadows V. & Lustig-Yeager, J. (2021), High Resolution Spectral Discriminants of Ocean Loss for M Dwarf Terrestrial Exoplanets: oral presentation at AAS 237, Virtual Meeting, January 15
- **Leung, M.**, Meadows V., & Lincowski, A. (2020) Effects of Atmospheric Photochemistry in Circumbinary Planets: poster presented at the 52nd Annual Meeting of the Division of Planetary Sciences AAS, Virtual Meeting, October 26.

DIVERSITY, EQUITY, AND INCLUSION EXPERIENCE

Programming Committee Member

April 2021 – Present

The Women+ of Color Project

- Planning fall conference to support graduate applicants from marginalized communities through creating workshops and organizing the event program.

Committee Member

November 2020 – Present

Professional Culture and Climate Subcommittee

Division of Planetary Sciences, AAS

- Work on analyzing results from DPS meeting survey, and proposed ideas to improve culture and climate in DPS.

Undergraduate Representative

May 2019 – June 2020

Earth and Space Sciences Curriculum Committee, University of Washington

Seattle, WA

- Represented undergraduate students in discussions and decisions about curriculum updates and overhauls.
- Led discussions about equity and initiated review of teaching goals in required courses

TEACHING EXPERIENCE

Graduate Teaching Assistant

September 2021 – Present

GEO 013

- Taught 100+ students over three sections. Created interactive presentations on relevant topics and worked with students on graded activities.

Undergraduate Peer Tutor and Mentor

Odegaard Writing and Research Center, University of Washington

Seattle, WA

Peer Tutor: September 2018 – June 2020 | Peer Mentor: August 2019 – June 2020

- Worked with graduate and undergraduate student writers on various writing projects through question based, non-directive strategies.
- Developed mentorship and organization skills through supporting and training staff as well as planning events and programming.
- Supported transition to remote in April 2020. Led initiative to connect staff through COVID-19 induced isolation.

OUTREACH

Astrobiology Guest Speaker / Skype a Scientist

October 2020 – Present

- Conducting multiple virtual presentations with 300+ students in elementary and middle school science classes.
- 2021. "The Search for Life Beyond the Solar System" Battle Point Astronomical Association, June 12, 2021 via Zoom.

Undergraduate Research Leader

September 2019 – June 2020

Undergraduate Research Program, University of Washington

Seattle, WA

- Communicated about research opportunities at outreach events to first year and transfer students.

RELEVANT WORK EXPERIENCE

Technical Editor

May–July 2020

Math for Programmers

- Edited manuscript for technical accuracy and clarity. Created high quality figures and confirmed Python code functionality.

Interpretive Science Educator

February 2015 – June 2018

Pacific Science Center

Seattle, WA

- Facilitated informal science education. Examples include presenting interactive activities about remote sensing and transit detection of exoplanets.
- Learned strategies for science communication across age groups and utilized these skills to work primarily with families with young children
- Developed hands-on activities and planned event celebrating 2017 total solar eclipse using multimedia strategies including themed music and crafts
- Wrote successful grant application for \$165k to fund solar panel array. Worked with contractors and assessed bids. Developed educational signage and hands-on science communication activities.

HONORS AND AWARDS

- Honorable Mention, National Science Foundation Graduate Research Fellowship Program, March 2021
- Provost's Research Fellowship, University of California, Riverside (2020-2025, full funding 2020-2021)
- Undergraduate Student Speaker, Earth and Space Sciences Graduation, 2020
- Husky 100, 2020
- Mary Gates Research Scholarship, Spring 2020
- University of Washington Dean's List: 9 quarters
- Husky Leadership Certificate, University of Washington