

DOMINIQUE L STUMBAUGH

Los Angeles, California — dominiquestumbaugh.com

EDUCATION

University of California, Los Angeles

M.S., Atmospheric and Oceanic Sciences; GPA: 3.98

2023

Ph.D., Atmospheric and Oceanic Sciences

Expected 2026

Advisor: Jacob Bortnik

University of California, Los Angeles

B.S., Astrophysics; Atmospheric and Oceanic Sciences Minor

2019

RESEARCH EXPERIENCE

Doctoral Researcher, UCLA

Sep 2020 - Present

Department of Atmospheric and Oceanic Sciences, *Advisor: Prof. Jacob Bortnik*

- Research Goal: Investigate radiation belt dynamics.
- Researching electron precipitation via conjuncted spacecraft and using machine learning techniques to establish a predictive relationship between LEO and HEO. See publications.

Summer Intern, Aerospace Corporation

Summer 2024

Physical Sciences Laboratories, *Advisors: Dr. Tim Guild and Dr. Paul O'Brien*

- Research Goal: Modeling the LEO drift-loss cone region with a machine learning.
- Developing a physics informed neural network (PINN) in PyTorch to compute LEO electron fluxes and a drift diffusion framework.

Summer Intern, Los Alamos National Laboratory

Summer 2023

Space Weather Summer School, *Advisors: Dr. Gian Luca Delzanno and Dr. Justin Holmes*

- Project Goal: Optimize a radiation belt remediation strategy.
- Developed an optimized strategy that identified the strongest antenna or electron beam properties to remediate electrons with the most danger to spacecraft in terms of their radiation dose.

Researcher, JIFRESSE

Jun 2019 - Sep 2020

Joint Institute for Regional Earth System Science & Engineering

University of California, Los Angeles and NASA Jet Propulsion Laboratory

Advisors: Prof. Kuo-Nan Liou (UCLA) and Dr. Evan Fishbein (JPL)

- Project Goal: Measure the planetary boundary layer's thermodynamic structures from space to better understand the influence of clouds on the radiation budget.
- Collected data from Marine ARM GPCI Investigation of Clouds campaign and programed in Python to characterize measurement systems and sensitivities.

Undergraduate Researcher, UCLA

Jul 2018 - Jun 2019

Department of Earth, Planetary, and Space Sciences, *Advisor: Prof. Mackenzie Day*

- Project Goal: Interpret ancient climate from aeolian features on Mars.
- Used ArcGIS and CTX images to map deposits of lithified aeolian sandstone in the Arabia Terra region and found that the terrain's orientation contradicts the modern northeasterly winds.
- Concluded that the area must have undergone large-scale repeated wetting and drying sequences. See publications.

TEACHING EXPERIENCE

Teaching Assistant Consultant , UCLA Writing Programs	Fall 2024 - Present
Graduate Writing Consultant , UCLA Graduate Writing Center	Fall 2022 - Present
Associate Instructor , Cluster 10: Data and Justice - Life with Artificial Intelligence	Spring 2024
Teaching Assistant , AOS 111: Introduction to Machine Learning	Fall 2023
Teaching Assistant , AOS 101: Atmospheric Dynamics and Thermodynamics	Fall 2022
Teaching Assistant , AOS 1: Climate Change: From Puzzles to Policy	Spring 2022
Mentor , UCLA Alumni Mentor Program	2019 - 2022
Math Tutor , Mathnasium of Monrovia	2019 - 2021

PROFESSIONAL EXPERIENCE

Early Career Fellow , Center for Diverse Leadership in Science	2024 - Present
<ul style="list-style-type: none">• The Center for Diverse Leadership in Science (CDLS) fellowship is a unique opportunity for early-career scientists to build community, grow leadership skills, engage in collaborative research, and gain support.• This leadership award represents CDLS' confidence in a fellow's ability to engage in significant scholastic endeavors and create a positive impact in our communities.	
Practitioner , CIRTL@UCLA Certificate	Awarded 2024
<ul style="list-style-type: none">• The Center for the Integration of Research, Teaching, and Learning (CIRTL) program supports the professional and career development of graduate students who are engaged in teaching now, or considering academic careers.• Completed the Introduction to Evidence Based Teaching Course; reached Associate in 2023• Plan to reach the level of CIRTL Scholar, by presenting a Teaching-as-Research (TAR) project executed in Spring 2024	
Leader in Sustainability , UCLA Leaders in Sustainability Graduate Certificate	Awarded 2023
<ul style="list-style-type: none">• Leaders in Sustainability (LiS) is offered by the Institute of the Environment and Sustainability and requires interdisciplinary coursework and a leadership project.• Planned a leadership project entitled, "Creating a focus on Sustainability at UCLA's Exploring Your Universe (EYU) Science Fair" executed in Fall 2023.	
Executive Secretary , NASA Proposal Review Panel	Aug 2021
<ul style="list-style-type: none">• Generally facilitated the work of the Heliophysics Mission Concept Studies (HMCS) panel, gaining insight into the grant review process.• Assisted the Chair with facilitating the panel's discussions and editing the panel's reviews for grammar, spelling, etc.	

PUBLICATIONS

- **Stumbaugh, D.L.**, Bortnik, J., & Claudepierre, S.G., (2024). Reconstructing Equatorial Electron Flux Measurements from low-Earth-orbit: A Conjunction Based Framework. (in prep)
- Day, M., Edgett, K. S., & **Stumbaugh, D.L.**, (2019). Ancient Stratigraphy Preserving a Wet-to-Dry, Fluvio-Lacustrine to Aeolian Transition Near Barth Crater, Arabia Terra, Mars. *Journal of Geophysical Research: Planets*, 124, 3402– 3421, doi.org/10.1029/2019JE006226

AWARDS

CDLS Early Career Fellowship	2024 - Present
Future Investigators in NASA Earth and Space Science and Technology Award	2023 - Present
UCLA AOS Brian Lance Bosart Award	2024
UCLA AOS Morris Neiburger Award	2024
AGU Outstanding Student Presentation Award (OSPA)	Fall Meeting 2023
NSF Graduate Research Fellowship, Honorable Mention	2022
UCLA Graduate Division Award, Registration Fee Grant	2021 - 2022

PRESENTATIONS

Stumbaugh, D., J. Bortnik, and S. Claudepierre. Reconstructing Equatorial Electron Flux Measurements from LEO. Abstract NG13B-0636. American Geophysical Union Fall Meeting, San Francisco, CA December 2023. (poster) **Awarded an OSPA**

Stumbaugh, D., G.L. Delzanno, J. Holmes, G. Cunningham, and M. Cowee. Optimizing a Radition Belt Remediation Strategy. Abstract SM51C-2561-02. American Geophysical Union Fall Meeting, Chicago, IL December 2023. (poster)

Stumbaugh, D., S. Claudepierre, and J. Bortnik. Predicting Equatorial Electron Flux Measurements from Low Earth Orbit. Poster 1315. The Geospace Environment Modeling (GEM) Summer Workshop, Waikiki, HI, June 2022. (poster)

Stumbaugh, D., S. Claudepierre, and J. Bortnik. Comparing POES and Van Allen Probes electron flux measurements during magnetic conjunctions. Abstract SM25A-07. American Geophysical Union Fall Meeting, Virtual due to COVID-19, December 2021. (eLightning poster)

Stumbaugh, D., S. Claudepierre, and J. Bortnik. Comparing POES and Van Allen Probes electron flux measurements during magnetic conjunctions. Poster 1315. The Geospace Environment Modeling (GEM) Summer Workshop, Virtual due to COVID-19, July 2021. (poster)

Stumbaugh, D., E. Fishbein, and K.N. Liou. A Sensitivity Study of Microwave Spectra to Water Vapor Variability in the Extratropical Marine Planetary Boundary Layer. Abstract A11T-2818. American Geophysical Union Fall Meeting, San Francisco, CA, December 2019. (poster)

RELEVANT LEADERSHIP AND OUTREACH

Finance Chair , UCLA's Exploring Your Universe	2024
Student Representative , AGU Space Physics & Aeronomy Executive Committee	2023 - Present
Student Representative , AOS Department Seminar Committee	2022 - Present
Representative , NSF Geospace Environment Modeling (GEM) Student Committee	2022 - Present
President , Society for Gender Equity in Geoscience (SGEG)	2022 - Present
Keynote Speaker , Vintage Magnet Elementary's NASA Night	2023
Invited Speaker , UCLA's Exploring Your Universe on Space Physics	2022
Counselor , American Legion Auxiliary, California Girls State	2016 - Present
Communications Officer , Society for Gender Equity in Geoscience (SGEG)	2021 - 2022
Communications Co-Chair , UCLA's Exploring Your Universe	2018, 2020, 2021
Scholarship Reader , UCLA Alumni Scholarship Program	2019, 2020
Participant , APS Conference for Undergraduate Women in Physics	2019
Operations Officer , Chi Epsilon Pi (XEP), National Meteorology Honor Society	2018 - 2019