

# Hector E. Delgado Diaz

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## Education

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- Ph.D. University of Washington**, Astronomy and Astrobiology Sept 2019 – present
- Master of Science in Astronomy degree conferred 2021-03
  - GPA: 3.71/4.00
  - **Coursework:** Cosmology/Particle Astrophysics, Radiative Processes, Galactic Structure, Science Communication
- M.S. California State University Los Angeles**, Physics Aug 2017 – May 2019
- Dissertation Title: Stability of Nitrogen in Planetary Atmospheres in Contact with Liquid Water
- B.Sc. Universidad de Puerto Rico en Cayey**, General Sciences Aug 2012 – May 2017

## Academic Experience

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- University of Washington**, Research Assistant Seattle, WA, USA  
Sept 2019 – present
- VPlanet Group; Advisor: Rory Barnes
  - Using VPlanet, an open source code written in C, developed simulations of exoplanets orbiting M dwarf stars and studied their habitability based on stellar, orbital, rotational, and atmospheric parameters.
  - With Python, created simulations of exoplanetary atmospheric spectra and used bayesian approach to simulate JWST observations of such atmosphere to assess habitability.
- Universidad Nacional Autonoma de Mexico**, Research Assistant Ciudad de Mexico, Mexico  
June 2024 – Sept 2024
- Instituto de Ciencias Nucleares; Advisor: Antígona Segura
  - Used Python and Fortran to understand how energetic particles from solar flares could affect atmospheric nitrogen on exoplanets.
- Stanford University**, Research Assistant Palo Alto, CA, USA  
June 2023 – Sept 2023
- Earth and Planetary Sciences; Advisor: Laura Schaefer
  - Used MATLAB to add the physics of CO<sub>2</sub> outgassing from planetary interior on a magma ocean code.
- University of Washington**, Teaching Assistant Seattle, WA, USA  
Sept 2019 – May 2021
- Taught the Activity portion of Introduction to Astronomy for undergraduate students in-person and online.
  - Moderated discussions for 30+ students in the online course.
  - Migrated Introduction to Astrobiology course from in-person to online Canvas platform during the COVID pandemic and the course is still available online.
- CERN**, Research Intern Geneva, Switzerland  
June 2019 – Sept 2019
- ATLAS group; Advisor: Matt LeBlanc
  - Used C++ to process and clean data from particle collisions gathered by the ATLAS detector.
- NASA Jet Propulsion Laboratory**, Visiting Research Student La Canada, CA, USA  
Aug 2018 – May 2019
- Astrobiology Division; Advisor: Renyu Hu

- Used MATLAB to calculate the effect of lightning on atmospheric nitrogen when bodies of water are present on the exoplanet around GJ 876.

**California State University Los Angeles**, Research Assistant

- Physics Department; Advisor: Luca Ricci
- Used ALMA radio telescope data to study the chemical components of protoplanetary disks.

Los Angeles, CA  
Jan 2018 – June 2018

**Universidad de Puerto Rico en Cayey**, Student Researcher

- Laboratorio de Modelaje y Simulaciones Teoricas
- Modeled rate of reaction for different configurations of atmospheric CO<sub>2</sub> and H<sub>2</sub>O.

Cayey, PR, USA  
Aug 2015 – May 2017

**NASA Goddard Space Flight Center**, Summer Research Intern

- Planetary Systems Laboratory; Advisor: Paul Romani
- Used data from the Cassini-Huygens mission to constrain the source of stratospheric water of Saturn

Greenbelt, MD, USA  
June 2016 – Aug 2016

**The Washington Center**, International Relation Interns

- Social Inclusion Division at Organization of American States; Advisor: Alexandra Barrantes
- Assisted in communications between the Division of Social Inclusion and Diplomats of the American States for diplomatic meetings.
- Assisted in Translating, proofreading, and formatting the book "Protocolo San Salvador"
- Live English scribe for the Secretary of Social Inclusion Meetings for the American States.

Washington, DC, USA  
Jan 2015 – June 2015

**San Jose State University**, Summer Research Intern

- Laboratory of Neuroscience; Advisor: Katherine Wilkinson
- Used mice leg muscles to study the effects of lactic acid on nociceptors III and IV neurons and how obesity could be related to associated muscular and joint pain.

San Jose, CA, USA  
June 2014 – Aug 2014

## Publications

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**Climates of Gl 514 b (in-prep)**

**Hector Delgado Diaz**, Rory Barnes, Russell Deitrick, Mario Damasso

**Stability of Nitrogen in Planetary Atmospheres in Contact with Liquid Water**

Nov 2019

Renyu Hu, **Hector Delgado Diaz**

[10.3847/1538-4357/ab4cea](https://doi.org/10.3847/1538-4357/ab4cea) [↗](#) (The Astrophysical Journal)

## Awards And Fellowships

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**Beca Josep Comas i Sola Escuela de Astrobiologia**

Santander, Spain  
July 2023

**Bonderman Fellowship Award**

Apr 2021

- Selected out of 200 applicants to travel the world for 8 months as part of a cultural experience.
- Dates traveled: September 2023 - May 2024.

**Department of Astronomy Teacher of the Year Award**

Seattle, WA, USA  
Sept 2020

**ARCS Foundation Fellowship**

- Selected for a 3-year fellowship totaling \$17,500.

Seattle, WA, USA  
Aug 2019

<b>GEM Fellow</b>	Seattle, WA, USA Aug 2019
<b>Exo-Atmospheres Summer School Scholarship</b>	Chur, Switzerland June 2019
<b>Hispanic Scholarship Fund Award</b>	Los Angeles, CA, USA Aug 2018

## Talks And Posters

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<b>Climates of Gl 514 b</b>	Aug 2024
• Simposio en Materiales y Fisicoquímica - Sociedad Dominicana de Física	
<b>FLUXS - Gas Fluxes for Understanding and Experimenting the Subsurface</b>	July 2023
• Mars Ideation Factory, NASA Goddard	
<b>Climates of Gl 514 b</b>	June 2023
• Qualifying Exam, University of Washington	
<b>Climates of Gl 514 b</b>	May 2023
• AbGradCon, San Diego, CA, USA	
<b>Climates of Gl 514 b (poster)</b>	Jan 2023
• American Astronomical Society, Seattle, WA, USA	
<b>Procurando Exoplanetas Habitables con el Telescopio JWST</b>	Dec 2021
• Spanish talk for the Museum of Flight, Seattle, WA, USA	
<b>Searching for Habitable Exoplanets Using the Telescope JWST</b>	Oct 2021
• Museum of Flight, Seattle, WA, USA	
<b>Characterizing Exoplanetary Atmospheres with JWST</b>	May 2021
• Town Hall Seattle, WA, USA	
<b>Caracterizando Atmosferas de Exoplanetas con JWST</b>	Jan 2021
• Sociedad Dominicana de Física, presentacion en linea	
<b>Stability of Nitrogen in Planetary Atmospheres in Contact with Liquid Water</b>	Jan 2019
• American Astronomical Society, Seattle, WA, USA	
<b>Stability of Nitrogen in Planetary Atmospheres in Contact with Liquid Water</b>	Nov 2018
• American Physical Society Bridge Program Conference, Mountain View, CA, USA	
<b>Saturn's Stratospheric Oxygen Compounds</b>	Oct 2016
• Division of Planetary Science, Pasadena, CA, USA	
<b>Effect of Obesity and Lactic Acid on Muscle's Nociceptors III and IV neurons</b>	Nov 2015
• Annual Biomedical Research Conference for Minority Students, San Antonio, TX, USA	
<b>Effect of Obesity and Lactic Acid on Muscle's Nociceptors III and IV</b>	Oct 2015
• Society for the Advancement of Chicanos and Native Americans in Science, Los Angeles, CA, USA	

## Outreach And Volunteering Experience

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NASA Subject Matter Expert Volunteering	Oct 2021 – present
VPLanet Workshop - Tech Support	Aug 2023
UW Astronomy Graduate Senator	Sept 2020 – May 2021

## Professional Development

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Mars Ideation Factory	Greenbelt, MD, USA Aug 2023
Astrobiology Summer School	Santander, Spain July 2023
Carl Sagan Summer Workshop	Pasadena, CA, USA July 2023
Exo-Atmospheres Summer School	Chur, Switzerland June 2019

## Research Mentorship

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Kyler Reynolds (Everett College)	2024
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## Work Experience

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<b>Fusion Academy</b> , High School Science Teacher <ul style="list-style-type: none"><li>• Taught high school students Science courses: Astronomy, Chemistry, Physics, Biology, Math (Algebra-Calculus), and Earth and Space Science.</li><li>• Served as a substitute teacher for Spanish and Economy.</li></ul>	Pasadena, CA, USA June 2022 – Sept 2023
<b>Griffith Observatory</b> , Museum Guide and Online Support <ul style="list-style-type: none"><li>• Worked explaining astronomy history, instruments, and science to the general public in English and Spanish.</li><li>• Worked as online support for the Griffith Museum Online School Program.</li></ul>	Los Angeles, CA, USA June 2021 – Sept 2023

## References

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- **Dr. Rory Barnes** (UW) - Ph.D. Advisor: [rkb9@uw.edu](mailto:rkb9@uw.edu) 
- **Dr. Jessica Werk** (UW) - Astronomy Chair: [jwerk@uw.edu](mailto:jwerk@uw.edu) 
- **Dr. Eric Agol** (UW) - Graduate Advisor: [agol@uw.edu](mailto:agol@uw.edu) 