Cassidy Soloff

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Education

PhD in Atmospheric Science **Anticipated** May 2026
Minor: Statistics & Data Science; *University of Arizona, Tucson, AZ*

MS in Atmospheric Science May 2024
GPA: 4.00; *University of Arizona, Tucson, AZ*

BA Physics and Astronomy May 2022
Minor: Environmental Studies; GPA: 3.87; *Wesleyan University, Middletown, CT*

Professional Experience

Graduation Research Assistant May 2022 – Present
Advisor: Dr. Armin Sorooshian
University of Arizona, Tucson, AZ

- NASA's Aerosol Cloud meTeorology Interactions oVer the western ATlantic Experiment (ACTIVATE)
  - Researched the spatial evolution of aerosol and gas properties of the U.S. east coast using flights transiting from Virginia to Bermuda (Publication: https://doi.org/10.5194/egusphere-2024-926)
  - Predicted Cloud Condensation Nuclei (CCN) concentration from aerosol chemistry using Köhler theory and machine learning techniques and compared with direct CCN measurements to assess understanding of aerosol microphysics and instrumentation
- NASA's Arctic Radiation-Cloud-Aerosol-Surface-Interaction Experiment (ARCSIX)
  - Conducted lab study using Differential Aerosol Sizing and Hygroscopicity Spectrometer Probe (DASH-SP) to measure deliquescence and refractive index of different particle species
  - Collected data with DASH-SP instrument during ARCSIX mission in Northern Greenland during summer 2024, flying 28 combined hours on the NASA P-3 Orion aircraft
    - Diagnosed and resolved issues with of DASH-SP in the field
    - Developed scripts to process raw data from DASH-SP

NASA Student Airborne Research Program Intern Jun 2021 – Aug 2021
Advisors: Dr. Roya Bahreini, Andreas Beyersdorf; Mentor: Eva-Lou Edwards

- Researched the local radiative forcing from the 2018 Kīlauea flank eruption
- Flew 10 combined hours on NASA DC-8 research aircraft to monitor the aerosol instruments

Undergraduate Research Assistant Jan 2020 – May 2022
Advisor: Dr. Seth Redfield
Wesleyan University, Middletown, CT

- Modeled exoplanet atmosphere spectra and developed an exoplanet transit survey for hot, bright stars
- Worked as an Undergraduate Research Fellow in the Summer of 2020, assisting Dr. Seth Redfield as a co-investigator for his James Webb Space Telescope proposal to make spectral observations
- Conducted the first exoplanet transit observations with the Van Vleck Observatory's 24-inch PlaneWave telescope to derive the photometric sensitivity and precision of the new equipment
- Analyzed exoplanet transit curves to derive stellar and planetary properties

Telescope Operator Feb 2019 – Jan 2020
Wesleyan University, Middletown, CT

- Operated the 24-inch Perkin telescope and software to produce science images of stars and galaxies in specified wavelength bands, providing data for Wesleyan researchers

Teaching Experience

Astronomy Public Outreach Feb 2019 – May 2022
Wesleyan University, Middletown, CT

- Lead presentations for the department's Space Nights and assist in kids public outreach events

Course Assistant

Course Assistant: Introduction to Astronomy Sep 2021 – Dec 2021
Wesleyan University, Middletown, CT

- Assisted students in office hours and graded homework/exams

Peer-Reviewed Publications

1. **Soloff, C.**, Ajayi, T., Choi, Y., Crosbie, E. C., DiGangi, J. P., Diskin, G. S., Fenn, M. A., Ferrare, R. A., Gallo, F., Hair, J. W., Hilario, M. R. A., Kirschler, S., Moore, R. H., Shingler, T. J., Shook, M. A., Thornhill, K. L., Voigt, C., Winstead, E. L., Ziemba, L. D., & Sorooshian, A. (2024). Bridging Gas and Aerosol Properties between Northeast U.S. and Bermuda: Analysis of Eight Transit Flights. EGUsphere, 2024, 1-41. https://doi.org/10.5194/egusphere-2024-926

2. Rizos, J. L., Fernández-Valenzuela, E., Ortiz, J. L., Rommel, F. L., Sicardy, B., Morales, N., Santos-Sanz, P., Leiva, R., Vara-Lubiano, M., Morales, R., Kretlow, M., Alvarez-Candal, A., Holler, B. J., Duffard, R., Gómez-Limón, J. M., Desmars, J., Souami, D., Assafin, M., Benedetti-Rossi, G., Braga-Ribas, F., Camargo, J. I. B., Colas, F., Lecacheux, J., Gomes-Júnior, A. R., Vieira-Martins, R., Pereira, C. L., Morgado, B., Kilic, Y., Redfield, S., **Soloff, C.**, McGregor, K., Green, K., Midavaine, T., Schreurs, O., Lecossois, M., Boninsegna, R.,

Ida, M., Le Cam, P., Isobe, K., Watanabe, Hayato, Yuasa, S., Watanabe, Hikaru, Kidd, S. (2024). A study of centaur (54598) Bienor from multiple stellar occultations and rotational light curves. arXiv:2405.17235. Retrieved May 01, 2024, https://ui.adsabs.harvard.edu/abs/2024arXiv240517235R

3. Ajayi, T. A., Choi, Y., Crosbie, E. C., DiGangi, J. P., Diskin, G. S., Fenn, M. A., Ferrare, R. A., Hair, J. W., Hilario, M. R. A., Hostetler, C. A., Kirschler, S., Moore, R. H., Shingler, T. J., Shook, M. A., **Soloff, C.**, Thornhill, K. L., Voigt, C., Winstead, E. L., Ziemba, L., & Sorooshian, A. (2024). Vertical variability of aerosol properties and trace gases over a remote marine region: A case study over Bermuda. EGUsphere, 2024, 1-35. https://doi.org/https://doi.org/10.5194/egusphere-2024-1065

Articles

Soloff, C., Ouanemalay, E. (2022, January 5). Learning from Cognitive Deficiencies to Prevent the Next Pandemic. Medium. https://medium.com/resilience/learning-from-cognitive-deficiencies-to-prevent-the-next-pandemic-7f11cf9b6c8b

Presentations

(Oral) Soloff, Cassidy, et al. "Bridging Gas and Aerosol Properties between Northeast U.S. and Bermuda: Analysis of Eight Transit Flights." El Dia del Agua y la Atmosfera, Tucson, AZ, March 2024.
(Poster) Soloff, Cassidy, et al. "Characterization of Trace Gases and Particles Across the Northwest Atlantic: Analysis of Transit Flights during the NASA ACTIVATE Mission." American Geophysical Union, Fall Meeting, San Francisco, CA, December 2023.
(Poster) Soloff, Cassidy, et al. "Characterization of Trace Gases and Particles Across the Northwest Atlantic: Analysis of Transit Flights during the NASA ACTIVATE Mission." El Dia del Agua y la Atmosfera, Tucson, AZ, March 2023.
(Poster) Soloff, Cassidy, et al. "Radiative Forcing Analysis of the 2018 Kīlauea Flank Eruption." American Geophysical Union, Fall Meeting, Chicago, IL, December 2022.
(Poster) Soloff, Cassidy, and Seth Redfield. "Unseen Worlds: A Search for Exoplanet Transits of Bright Early-Type Stars." American Astronomical Society, Pasadena, CA, June 2022.

Scholarships, Fellowships & Honors

Sol Resnick Scholarship Aug 2024
Scholarship established in memory of Dr. Sol D. Resnick awarded to deserving graduate students in the department of Hydrology and Atmospheric Sciences

Roots for Resilience Fellowship Aug 2024
"The Roots for Resilience Program provides training and support to select graduate students on open, reproducible science and computational infrastructure tools to enhance research focused on resiliency in the environment."

Galileo Circle Student Scholarship April 2024
"The Galileo Circle awards scholarships to undergraduate and graduate students who demonstrate exceptional potential in the physical, mathematical, environmental, cognitive, or life sciences."

NASA Group Achievement Award Mar 2023
"2022 Agency Honor Awards for an outstanding group accomplishment that has contributed substantially to NASA's mission"

El Día del Agua y La Atmosfera Best Poster Mar 2023
Awarded by Pima County Environmental Quality

Littell Prize May 2022
"The gift of Franklin Bowers Littell, Class of 1891, for excellence in one or more advanced courses in astronomy."

NASA Undergraduate Research Grant May 2021
Awarded by NASA Connecticut Space Grant Consortium (CTSGC)

Wesleyan Undergraduate Research Fellowship May 2020
Funding to research at Wesleyan University with Dr. Seth Redfield in the summer of 2020

Qualifications & Skills

Skills: Proficient in Python; Basic in R, C
Instrumentation: DASH-SP
Strengths: Data analysis, machine learning, leadership, communication, teamwork, organization