

Miles Currie

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Office Address Department of Astronomy, University of Washington
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Education PhD in Astronomy and Astrobiology (dual-title) 2018–present
MS in Astronomy (2020)
University of Washington, Seattle, WA
Thesis: The Search for Life Outside the Solar System in the Era of Extremely Large Ground-based Telescopes
Advisor: Victoria Meadows

BS in Physics & Astrophysics, Minor in Mathematics 2013–2017
Florida State University, Tallahassee, FL

Research Interests

- Characterizing terrestrial exoplanets for habitability and life
- High-resolution cross-correlation spectroscopy

Research Experience

Graduate Research Assistant: Virtual Planetary Laboratory
2018–present
Terrestrial exoplanet atmospheres, ground-based high-res spectroscopy, space-based exoplanet characterization, astrobiology

Post-baccalaureate Research Assistant: Space Telescope Science Institute
2017–2018
Type 1a supernova cosmology, WFIRST science precursor study (advisors David Rubin, Susana Deustua, Andy Fruchter)

Post-baccalaureate Research Assistant: Geophysical Fluid Dynamics Institute
2017
Forest fire simulations (advisors Kevin Speer and Bryan Quaife)

Undergraduate Research Assistant: Florida State University, SETI Institute
2013–2017
Type 1a supernova cosmology (advisor David Rubin), Kepler/K2 exoplanet detection (advisors Susan Mullally and Fergal Mullally), particle physics collision simulations (advisor Todd Adams)

Teaching Experience

Research Mentor: Department of Astronomy, University of Washington
2020–present
Advising undergraduate students in exoplanet astronomy and astrobiology research

Teaching Assistant: Department of Astronomy, University of Washington
2018–2020
General Astronomy (ASTR 101) and The Planets (ASTR 150)

Publications

First-authored

1. Currie, M., K. Speer, J. K. Hiers, J. J. O'Brien, S. Goodrick, and B. Quaife. 2019. "Pixel-Level Statistical Analyses of Prescribed Fire Spread." *Canadian Journal of Forest Research. Journal Canadien de La Recherche Forestiere* 49 (1): 18–26.
2. Currie, Miles, and David Rubin. 2018. "Characterization of Unstable Pixels Using a Mixture Model: Application to HST WFC3 IR." *Research Notes of the AAS* 2 (3): 141.

Co-authored

1. Rasmussen, Kaitlin C., Matteo Brogi, Fahin Rahman, Hayley Beltz, **Miles Currie**, Emily Rauscher, and Alexander P. Ji. 2022. "SPORK That Spectrum: Increasing Detection Significances from High-Resolution Exoplanet Spectroscopy with Novel Smoothing Algorithms." *AJS; American Journal of Sociology* 164 (2): 35.
2. Hayden, Brian, David Rubin, Kyle Boone, Greg Aldering, Jakob Nordin, Mark Brodwin, Susana Deustua, et al. 2021. "The HST See Change Program. I. Survey Design, Pipeline, and Supernova Discoveries*." *The Astrophysical Journal* 912 (2): 87.
3. Rubin, D., G. Aldering, K. Barbary, K. Boone, G. Chappell, **M. Currie**, S. Deustua, et al. 2015. "UNITY: CONFRONTING SUPERNOVA COSMOLOGY'S STATISTICAL AND SYSTEMATIC UNCERTAINTIES IN A UNIFIED BAYESIAN FRAMEWORK." *The Astrophysical Journal* 813 (2): 137.

Presentations

Contributed Talks

1. Currie, Miles, Victoria Meadows, and Kaitkin Rasmussen. 2022. "There's more to life than O2: Assessing the detectability of biosignatures and environmental context for high-resolution spectroscopy of terrestrial exoplanets"
2. Currie, Miles, Victoria Meadows, and Kaitlin Rasmussen. 2022. "Simulating ELT capabilities for terrestrial exoplanet characterization and biosignature detection and assessment." 2022 Astrobiology Science Conference. AGU, 2022.

Posters

1. Currie, M., and V. Meadows. 2021. "There's More to Life than O2: Simulating the Detectability of a Range of Molecules for Ground-Based High-Resolution Spectroscopy of Transiting Terrestrial Exoplanets." *Habitable Worlds 2021*, id. 1237. *Bulletin of the American Astronomical Society*, Vol. 53, No. 3 e-id 2021n3i1237
2. Currie, Miles, Victoria Suzanne Meadows, and Jacob Lustig-Yaeger. "Detecting False Positives with O2: A Feasibility Study." In 2019 Astrobiology Science Conference. AGU, 2019.
3. Currie, Miles, and David Rubin. 2019. "Automated Recognition of Transients with a Convolutional Neural Network." *American Astronomical Society, AAS Meeting #233*, id.349.05
4. Currie, Miles, and David Rubin. 2018. "Improving the Calibration of the SN Ia Anchor Datasets with a Bayesian Hierarchical Model." *AAS Meeting #231*, id. 153.20
5. Currie, Miles, Fergal Mullally, and Susan E. Thompson. 2017. "Finding Planets in K2: A New Method of Cleaning the Data." *AAS Meeting #229*, id.146.13

6. Currie, Miles, David Rubin, Greg Scott Aldering, Charles Baltay, Parker Fagrelius, David R. Law, Saul Perlmutter, and Klaus Pontoppidan. 2016. “[Estimating the Supernova Cosmological Constraints Possible With the Wide-Field Infrared Survey Telescope](#).” AAS Meeting #227, id.139.17

Service and Outreach

Service

- Co-lead for NExSS Science Communication Working Group, 2020–present
- Organizer/graphic designer for Astronomy on Tap Seattle, 2019–present
- Graphic designer for Astronomy at Home (University of Washington), 2020–2022

Public Talks

- “Searching for Life in a Pixel: The Challenge of Exoplanet Astrobiology”, June 27, 2022, Science On Tap, Third Place Books, Seattle, WA
- “All About Venus”, 2020, Pacific Crest School, Virtual, Seattle, WA