

# ANA GLIDDEN

Massachusetts Institute of Technology

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Exoplanet Atmospheres | Habitability | Planet-Star Modeling

## EDUCATION

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**Massachusetts Institute of Technology (MIT), Cambridge, MA** *September 2018 - February 2024*  
Ph.D. in Planetary Science, GPA: 5.0/5.0  
Thesis Title: Isotopes as a Tool for Exploring Exoplanet Atmospheres  
Advisor: Prof. Sara Seager

**Massachusetts Institute of Technology (MIT), Cambridge, MA** *September 2014 - June 2016*  
B.S. in Physics

**California Institute of Technology (Caltech), Pasadena, CA** *October 2012 - June 2014*  
Astrophysics, English

## RESEARCH INTERESTS

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Modeling and characterization of exoplanet atmospheres with a focus on biosignature gases and tracers of formation history

## MEDIA

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**“NASA Webb Looks at Earth-Sized, Habitable-Zone Exoplanet TRAPPIST-1e”** *Sept 2025*  
*Multiple Media Outlets including New York Times, Scientific American, CNN, SETI Live, Sky & Telescope, Astrum Space, and AAS Nova with an estimated reach of 1.7 billion*

## HONORS AND AWARDS

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AAS Nova Research Highlight	2025
MIT Spot Appreciation Award	2025
Robert R. Shrock Fellow at MIT	2022-2023
Ida M. Green Fellow at MIT	2018-2019
NASA Silver Achievement Medal, TESS Project Team	2018
MIT Spot Appreciation Award	2017
Authored article selected for “Graduate Physics at MIT” Booklet	2016
Co-president of Caltech’s Student Advisory Council	2013
Caltech Undergraduate Writing Prize Winner for a Research Proposal	2013
Joanna Wall Muir Summer Undergrad Research Fellowship at Caltech	2013

## APPOINTMENTS AND WORK EXPERIENCE

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**Postdoctoral Associate, Department of Earth, Atmospheric and Planetary Sciences** *Jan 2024 -*  
*Massachusetts Institute of Technology* *Cambridge, MA*

- Research Group of Prof. Sara Seager
- Exoplanet atmosphere theory and spectral retrieval for terrestrial and giant planets
- Stellar spectral synthesis of cool exoplanet host stars

**Kaufman Teaching Certificate** *2025*  
*Massachusetts Institute of Technology* *Cambridge, MA*

**Research Mentoring Certificate Program** *2026-*  
*Massachusetts Institute of Technology* *Cambridge, MA*

**Teaching Assistant, Essentials of Planetary Science, Professor: Ben Weiss**  
*Massachusetts Institute of Technology*

Fall 2022  
Cambridge, MA

**Software Support Engineer, Transiting Exoplanet Survey Satellite (TESS)** June 2016-August 2018  
*Massachusetts Institute of Technology*

Cambridge, MA

- Deputy Manager of the TESS Payload Operation Center at MIT
- TESS Objects of Interest Steering Committee
- Developed software to support the Payload Operation Center at MIT
- Operated the four TESS flight cameras to assess performance and focus

**Undergraduate Research Opportunities Program (UROP)**  
*Massachusetts Institute of Technology*

2015-2016  
Cambridge, MA

- Analyzed spectral data from the Keck using Markov-Chain Monte-Carlo simulations to better understand galaxy and star formation

**Undergraduate Researcher**  
*Center for Astrophysics | Harvard Smithsonian (CfA)*

2014-2016  
Cambridge, MA

- Developed mathematical models of black hole accretion schemes to evaluate a collaborator's new model for active galaxies
- Analyzed optical astrophysical data using rigorous quantitative methods

**Joanna Wall Muir Summer Undergraduate Research Fellow (SURF)**  
*California Institute of Technology (Caltech)*

2013-2016  
Pasadena, CA

- Analyzed NuSTAR X-ray spectral data of active galactic nuclei
- Presented complex astrophysical data and theory to both general and scientific audiences for awareness, collaboration, and fundraising efforts

**NASA/IPAC Teacher Archive Research Program**  
*California Institute of Technology (Caltech)*

2012-2016  
Pasadena, CA

- Pioneered the development of a new method to determine extragalactic distances as part of a team of high school students

## SELECTED PUBLICATIONS

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**Total: 46 Refereed, 6 First Author, 2,720+ citations, h-index: 24**

- **My ADS Library:** <https://ui.adsabs.harvard.edu/public-libraries/6IgmsbevSx-a6OWfwP9Gkg>
- **Ana Glidden et al.**, (2026) Overestimated Pressure Broadening Misleads Model Spectra in Cool M Dwarf Stars, *ApJL*, Volume 997, L8, DOI 10.3847/2041-8213/ae3137
- **Ana Glidden et al.** (2025) JWST-TST DREAMS: Secondary Atmosphere Constraints for the Habitable Zone Planet TRAPPIST-1e, *ApJL*, Volume 990, Issue 2, DOI 10.3847/2041-8213/adf62e; **AAS Nova featured as one of the most-downloaded articles published in AAS journals in 2025**
- **Ana Glidden et al.** (2023) Can Isotopologues be used as Biosignature Gases in Exoplanet Atmospheres? *Life*, 13(12), 2325, DOI 10.3390/life13122325
- **Ana Glidden et al.** (2022) Can Carbon Fractionation Provide Evidence for Aerial Biospheres in the Atmospheres of Temperate Sub-Neptunes? *ApJ*, 930, 62, DOI 10.3847/1538-4357/ac625f
- **Ana Glidden et al.** (2016) Predominantly Low Metallicities Measured in a Stratified Sample of Lyman Limit Systems at  $z=3.7$ , *ApJ*, Volume 833, Issue 2, DOI 10.3847/1538-4357/833/2/270
- **Ana Glidden et al.** (2016) A Model for Type 2 Coronal Line Forest (CLiF) AGNs, *ApJ*, Volume 824, Issue 1, DOI 10.3847/0004-637X/824/1/34
- Michael Koss, **Ana Glidden et al.** (2016) NuSTAR Resolves the First Dual AGN Above 10 keV in SWIFT J2028.5+2543, *ApJL*, Volume 824, Issue 1, DOI 10.3847/2041-8205/824/1/L4

- Néstor Espinoza, Natalie H. Allen, **Ana Glidden** et al. (2025) JWST-TST DREAMS: NIRSpec/PRISM Transmission Spectroscopy of the Habitable Zone Planet TRAPPIST-1 e, ApJL, Volume 990, Issue 2, DOI 10.3847/2041-8213/adf42e
- Sukrit Ranjan, Nicholas F. Wogan, **Ana Glidden**, et al. (2025) The Photochemical Plausibility of Warm Exo-Titans Orbiting M-Dwarf Stars, ApJL, Volume 993, Issue L39, DOI 10.3847/2041-8213/ae1026
- Natalie Allen et al., including **Ana Glidden**, JWST TRAPPIST-1 e/b Program: Motivation and First Observations, Accepted to AJ Dec 3, 2025
- Jacob Lustig-Yaeger, including **Ana Glidden** (2025) JWST-TST DREAMS: The Nightside Emission and Chemistry of WASP-17b, ApJL, Volume 994, Issue L4, DOI 10.3847/2041-8213/ae17ae
- Amélie Gressier et al., including **Ana Glidden** (2025) JWST-TST DREAMS: Sulfur dioxide in the atmosphere of the Neptune-mass planet HAT-P-26 b from NIRSpec G395H transmission spectroscopy, AJ, Volume 170, Issue 5, DOI 10.3847/1538-3881/ae0929
- Dana R. Louie et al., including **Ana Glidden** (2025) JWST-TST DREAMS: A Precise Water Abundance for Hot Jupiter WASP-17b from the NIRISS SOSS Transmission Spectrum, AJ, 169, 86, DOI 10.3847/1538-3881/ad9688
- Rachana Agrawal et al., including **Ana Glidden** (2025) Warm, water-depleted rocky exoplanets with surface ionic liquids: A proposed class for planetary habitability, PNAS, 122, 33, DOI 10.1073/pnas.2425520122
- David Grant et al., including **Ana Glidden** (2023) JWST-TST DREAMS: Quartz Clouds in the Atmosphere of WASP-17b, ApJL, 956, L29, DOI 10.3847/2041-8213/acfc3b
- Amaury H.M.J. Triaud et al., including **Ana Glidden**, (2023) Atmospheric Carbon Depletion as a Tracer of Water Oceans and Biomass on Temperate Terrestrial Exoplanets, Nature Astronomy, DOI 10.1038/s41550-023-02157-9
- JWST Transiting Exoplanet Community Early Release Science Team, including **Ana Glidden** (2023), Identification of Carbon Dioxide in an Exoplanet Atmosphere, Nature, 614, 649–652, DOI 10.1038/s41586-022-05269-w
- Marvin Rose et al., including **Ana Glidden** (2015) Intermediate Inclinations of Type 2 Coronal-Line Forest AGN, MNRASL, Volume 451, Issue 1, DOI 10.1093/mnrasl/slv056

### Selected TESS Team Coauthored Publications

Total: 24

- Roland Vanderspek et al., including **Ana Glidden** (2018), TESS Discovery of an ultra-short-period planet around the nearby M dwarf LHS 3844, ApJL, 871, L24, DOI 10.3847/2041-8213/aafb7a
- Chelsea Huang et al., including **Ana Glidden** (2018), TESS Discovery of a Transiting Super-Earth in the pi Mensae System, ApJL, 868, L39, DOI 10.3847/2041-8213/aaef91
- Samuel N. Quinn et al., including **Ana Glidden** (2019), Near-resonance in a System of Sub-Neptunes from TESS, AJ, 158, 177, DOI 10.3847/1538-3881/ab3f2b
- Andrew Vanderburg et al., including **Ana Glidden** (2020) A Giant Planet Candidate Transiting a White Dwarf, Nature, 585, 363–367, DOI 10.1038/s41586-020-2713-y
- Gunther et al., including **Ana Glidden** (2020) Stellar flares from the first TESS data release: exploring a new sample of M dwarfs, 159, 60, DOI 10.3847/1538-3881/ab5d3a
- Shporer et al., including **Ana Glidden** (2019), TESS full orbital phase curve of the WASP-18b system, ApJ, 157, 178, DOI 10.3847/1538-3881/ab0f96

## ACCEPTED CO-I PROPOSALS

### JWST Cycle 4 GO Program Co-Investigator

ID: 8309

*Unearthing the silicate crystal structure in the atmosphere of WASP-17b*

### JWST Cycle 3 GO Program Co-Investigator

ID: 6456, 9256

*Using stellar contamination proxy TRAPPIST-1 b to search for an atmosphere on TRAPPIST-1 e*

### JWST Cycle 2 GO Program Co-Investigator

ID: 3593

*Towards Solving the Stellar Inhomogeneity Contamination of Exoplanet Transmission Spectra Problem with Star Spot and Faculae Spectra*

## PRESENTATIONS

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### “Secondary Atmosphere Constraints for the Habitable Zone Planet TRAPPIST-1 e”

- Invited talk at the Trottier Institute for Research on Exoplanets (IREx), Université de Montréal, Feb 2026
- Invited talk for the JWST Flight Ops Team, Dec 2025
- Boston Area Planetary Science Meeting at Boston University, contributed talk, Jan 2026

### “JWST-TST DREAMS: Preliminary Reconnaissance of TRAPPIST-1e with JWST NIRSpec PRISM”

- AAS, Contributed Talk, Jan 2025
- Know Thy Star 2, poster, Feb 2025
- Boston Area Planetary Science Meeting at Harvard, contributed Talk, Jan 2025
- EAPS Research Day, poster, Sept 2025
- TESS Science Conference III, poster, July 2024

### “JWST-TST DREAMS: Quartz Clouds in the Atmosphere of WASP-17b”

- Invited talk at the CfA Exoplanet Pizza Lunch, April 2024

### “Can Carbon Fractionation Provide Evidence for Aerial Biospheres in the Atmospheres of Temperate Sub-Neptunes?”

- STScI Spring Symposium, contributed talk, May 2023
- Emerging Researchers in Exoplanet Science Symposium, contributed talk, June 2023
- Giant Magellan Telescope Community Science Meeting, poster, September 2023

### “Constraining Atmospheric Scenarios of TRAPPIST-1e with Simulated JWST Observations”

- STScI Spring Symposium, poster, May 2023

### “The TESS Objects of Interest Process”, poster, AAS, January 2019

### “TESS Ground System Operations and Data Products”, AAS, January 2018

### Presentation at New England Regional Quasar and AGN Meeting, June 2015

### Contributed Presentations

- “TESS Objects of Interest”, AAS, January 2018
- “TESS Data Processing and Quick-look Pipeline”, AAS, January 2018
- “Investigating a Correlation Between Mid-IR Color and Inclination in Active Galactic Nuclei”, IAU General Assembly Meeting, August 2015
- “Color Magnitude Diagrams for Quasars Using SDSS, GALEX, and WISE Data”, AAS, January 2013
- “High School and Middle School Students Experience Authentic Science Research Investigating Active Galactic Nuclei”, AAS, January 2013

## OUTREACH AND VOLUNTEER ACTIVITIES

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<b>Organizer for MIT Exoplanet Tea journal club</b> <i>Four time recipient of the School of Science Quality of Life grant</i>	2024-
<b>Organizer of the MIT Exoplanet Learning Program</b> <i>Discussion-based science educational outreach for middle and high school students</i>	2022-
<b>Local Organizing Committee member for Boston Area Planetary Science Meetings</b>	2025-
<b>Volunteer designer for outreach science kits</b>	2025
<b>Volunteer for natural science educational non-profit</b>	2023-
<b>Local Organizing Committee member for TESS Science Conference</b>	2024
<b>EAPS application mentor for prospective graduate students (TIDE-AMP)</b> <i>Student-led DEI initiative</i>	2020-2023
<b>Sweet Paws Rescue and Cape Ann Animal Aid, foster for 105 cats and counting</b>	2020-