

Interests I am interested in characterizing exoplanets and their host stars. I study how stellar activity affects planet characterization via observations from the ground and from space, with Professors Eric Agol and Suzanne Hawley (UW).

Education

University of Washington, Seattle, WA PhD Candidate in Astronomy and Astrobiology (dual-title PhD program)	2014 – present
University of Washington, Seattle, WA M.S. in Astronomy	2013 – 2014
University of Maryland, College Park, MD B.S. with High Honors in Astronomy B.S. in Physics (double degree)	2009 – 2012

Publications *First author works:*

- [The Solar Benchmark: Rotational Modulation of the Sun Reconstructed from Archival Sunspot Records](#)
Morris, B.M.; Davenport, J.R.A.; Giles, H.A.C.; Hebb, L.; Hawley, S.L.; Angus, R.; Gilman, P.; Agol, E., MNRAS (2019)
- [Are Starspots and Plages Co-Located on Active G and K Stars?](#)
Morris, B.M.; Curtis, J.L.; Douglas, S.T.; Hawley, S.L.; Agüeros, M.A.; Bobra, M.G.; Agol, E. accepted in ApJL (2018)
- [Non-detection of Contamination by Stellar Activity in the Spitzer Transit Light Curves of TRAPPIST-1](#)
Morris, B.M., Agol E., Hebb L., Hawley S.L., Gillon M., Ducrot E., Delrez L., Ingalls J., Demory B-O. ApJL 863, L32 (2018)
- [Robust Transiting Exoplanet Radii in the Presence of Starspots from Ingress and Egress Durations](#)
Morris, B.M., Agol E., Hebb, L., Hawley, S.L., AJ 156, 91 (2018)
- [Possible Bright Starspots on TRAPPIST-1](#)
Morris, B.M., Agol, E., Davenport, J.R.A., Hawley, S.L. ApJ 857, 1 (2018)
- [Spotting stellar activity cycles in Gaia astrometry](#)
Morris, B.M., Agol, E; Davenport, J.R.A., Hawley, S.L. MNRAS 476 4 (2018)
- [Large Starspot Groups on HAT-P-11 in Activity Cycle 1](#)
Morris, B.M., Hawley, S.L., Hebb, L. RNAAS 2 1 (2018)
- [Photometric Analysis and Transit Times of TRAPPIST-1 b and c](#)
Morris, B.M., Agol, E., Hawley S.L. RNAAS, 2, 1 (2018)
- [astroplan: An Open Source Observation Planning Package in Python](#)
Morris, B.M., Tollerud E., Sipocz B., Deil C., Douglas S.T., Medina J.B., Vyhmeister K., Smith T.R., Littlefair S., Price-Whelan A.M., Gee W.T., Jeschke E. AJ 155, 128 (2018)
- [Chromospheric Activity of HAT-P-11: an Unusually Active Planet-Hosting K Star](#)
Morris, B.M., Hawley S.L., Hebb L., Saraki C., Davenport J.R.A., Isaacson H., Howard A.W., Montet B.T., Agol E., ApJ, 846, 99 (2017)
- [The Starspots of HAT-P-11: Evidence for a Solar-like Dynamo](#)
Morris, B.M., Hebb L., Davenport J.R.A., Rohn G., Hawley S.L., ApJ, 846, 2 (2017)
- [Kepler's Optical Secondary Eclipse of HAT-P-7b and Probable Detection of Planet-induced Stellar Gravity Darkening.](#)
Morris, B.M., Mandell, A.M., & Deming, D. ApJL, 764, L22 (2013)

nth author works:

22. [Diffuser-assisted Photometric Follow-up Observations of the Neptune-sized Planets K2-28b and K2-100b](#)
Stefansson G., Li Y., Mahadevan S., Wisniewski J., Hebb L. **Morris, B.M.** et al. (2018, submitted)
21. [The 0.6-4.55 \$\mu\$ m broadband transmission spectra of TRAPPIST-1 planets](#)
Ducrot, E., Sestovic, M., **Morris, B.M.**, et al. AJ (2018)
20. [Pre-MAP Search for Transiting Objects Orbiting White Dwarfs](#)
Wallach, A, **Morris, B.M.**, et al. RNAAS 2 1 (2018)
19. [The Astropy Project: Building an inclusive, open-science project and status of the v2.0 software](#)
Astropy Collaboration... **Morris, B.M.**, et al. ApJ (2018)
18. [Toward Space-like Photometric Precision from the Ground with Beam-shaping Diffusers](#)
Stefansson G., Mahadevan S., Hebb L., Wisniewski J., Huehnerhoff J., **Morris, B.M.** et al. ApJ (2017)
17. [Kepler Object of Interest Network II. Photodynamical modelling of Kepler-9 over 8 years of transit observations](#)
Freudenthal J., von Essen C., Dreizler S., Wedemeyer S., Agol E., **Morris B.M.** et al. A&A 2018
16. [Kepler Object of Interest Network. I. First results combining ground- and space-based observations of Kepler systems with transit timing variations](#)
von Essen, C, Ofir A., Dreizler S., Agol E., Freudenthal J., Hernández J., Wedemeyer S., Parkash V., Deeg H.J., Hoyer S., **Morris, B. M.** et al. A&A (2018)
15. [The First Post-Kepler Brightness Dips of KIC 8462852](#)
Boyajian T.S... **Morris B.M.** et al. ApJL (2018)
14. [A seven-planet resonant chain in TRAPPIST-1.](#)
Luger, R...**Morris B.M.**, et al. Nature Astronomy, 1, id. 0129 (2017).
13. [SDSS J1152+0248: an eclipsing double white dwarf from the Kepler K2 campaign](#)
Hallakoun N... **Morris B.M.**, et al. MNRAS (2016)

Observing Experience

- **Principle investigator** on more than 70 half-nights on the Astrophysical Research Consortium (ARC) 3.5 m Telescope at Apache Point Observatory (APO), with experience using many instruments including: ARCES, ARCTIC, Agile, NICFPS
- **Principle investigator** on Keck Observatory/MOSFIRE proposal: “[Probing Giant Planet Formation with MOSFIRE Exoplanet Transmission Spectroscopy](#)”, awarded 2 nights (2014)

Employment

Professional Assistantship in Holographic Microscopy November 2016 – present
Software consultant position in the UW Department of Oceanography under Prof. Jody Deming and Dr. J. Kent Wallace.

- Developed and maintained the **shampoo** digital holographic microscopy numerical reconstruction toolkit in Python, which was created during my Astrobiology Rotation project.
- This software enables efficient reconstruction of holograms for bacterial motility studies, with applications in life-detection for astrobiology.
- **shampoo** has become the lab-standard reconstruction software for our collaborators in the **SHAMU** lab (PI Jay Nadeau, Caltech)

Consultant: Center for Inquiry Science at the Institute for Systems Biology 2014-2015
STEM curriculum consulting for middle school science teachers

- Worked with school science teachers in Renton School District to adapt their curriculum to comply with new state standards as part of the Partnership in Science and Engineering Practices project.
- Collaborated with science teachers at Meeker Middle School (Tacoma, WA) to update a Sun-Moon-Earth system lab as part of the Observing for Evidence of Learning professional development model.

NASA Goddard Space Flight Center Research Assistantship Jan 2013 – Aug 2013
Post-baccalaureate research assistantship with advisor Dr. Avi Mandell at the Goddard Center for Astrobiology.

- Prepared a Python data reduction pipeline for near-infrared differential spectrophotometric observations with Keck/MOSFIRE and Keck/NIRSPEC of transiting exoplanet atmospheres.

Honors And Awards

- UW Astronomy Department Graduate Student Research Prize (2018)
- Poster competition winner at the NASA Kepler Science Conference IV (earned [prize talk presentation](#))
- Pacific Science Center [Science Communication Fellow](#) (2016-present)
- Chambliss Astronomy Achievement Graduate Student Award Honorable Mention. 225th AAS, Seattle, WA (2015), and 222nd AAS, Indianapolis, IN (2013).
- Astrobiology Fellow, University of Washington, 2013-2014.

Workshops

- Sagan Summer Workshop: “Is There a Planet in My Data? Statistical Approaches to Finding and Characterizing Planets in Astronomical Data.” Caltech, 2016.

Professional Presentations

- **Plenary talk:** “[The Activity Cycle of HAT-P-11.](#)” Cool Stars 20. Boston, MA. July 31, 2018.
- Poster: “[The Active Latitudes of HAT-P-11](#)” Kepler & K2 Science Conference IV, Mountain View, CA. June 19, 2017 (poster competition prize winner!)
- Contributed talk: “The Active Latitudes of HAT-P-11.” Northwest Astronomy Meeting 2016. Bellingham, WA. October 29, 2016.
- Contributed talk: “[astroplan: Observation Planning for Astronomers.](#)” Python in Astronomy Conference 2016. Seattle, WA. March 25, 2016.
- Poster: “[Exoplanet Transmission Spectroscopy in the Near-Infrared with Keck/MOSFIRE.](#)” 225th American Astronomical Society Meeting. Seattle, WA. January 6, 2015.
- Poster: “[Kepler’s Optical Secondary Eclipse of HAT-P-7b and Probable Detection of Planet-Induced Stellar Gravity Darkening.](#)” Second Kepler Science Conference, NASA Ames Research Center, Mountain View, CA. November 6, 2013.

Teaching Experience

- Course instructor (full teaching responsibilities): ASTR192 Pre-Major in Astronomy Program (Pre-MAP) in Fall 2016, developed [open-source Python curriculum](#)
- Academic mentor ASTR192 Pre-Major in Astronomy Program (Pre-MAP) in Fall 2015
- Instructor of UW Astro/Phys Python Bootcamp, 2016 (and co-instructor in 2015)
- Teaching assistant for ASTR150 The Planets (three quarters) and ASTR101 Intro Astronomy (one quarter).

Mentorship

- 2014-present: Formed the Search for Planets Around post-Main Sequence stars (SPAMS) research group with five undergraduates in the University of Washington’s Pre-Major in Astronomy Program ([Pre-MAP](#)), which searches for transiting planetary material orbiting white dwarfs
- 2015-2016: Academic mentor (paid position) for Pre-MAP Cohort 11

Public Outreach

- Co-founder and co-host of over forty events of the Seattle satellite branch of Astronomy on Tap (2015-present).
- Active [Science Communication Fellow](#) at the Pacific Science Center
- Given several Seattle-area public science talks at the Seattle Astronomical Society, Boeing Astronomical Society

Press

- Feature article: “[Counting Starspots](#)”, Astronomy Magazine. January 17, 2018.
- Science outreach TwitterBots that I created and maintain have been featured by [Popular Mechanics](#) and [Vocativ](#)
- *Press release:* “[NASA-funded Program Helps Amateur Astronomers Detect Alien Worlds](#)”. NASA Goddard Space Flight Center, Greenbelt, Md. September 4, 2013.