

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.

Employment Universität Bern, Switzerland July 2019 - present
NCCR PlanetS Postdoctoral Research Fellow

Education University of Washington, Seattle, WA June 2014 – April 2019
PhD in Astronomy and Astrobiology

University of Washington, Seattle, WA Sep 2013 – June 2014
M.S. in Astronomy

University of Maryland, College Park, MD Aug 2009 – Dec 2012
B.S. with High Honors in Astronomy
B.S. in Physics (double degree)

Publications *First author works:*

10. [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)
9. [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)
8. [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)
7. [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)
6. [Possible Bright Starspots on TRAPPIST-1](#)
Morris, B.M., Agol, E., Davenport, J.R.A., Hawley, S.L. ApJ 857, 1 (2018)
5. [Spotting stellar activity cycles in Gaia astrometry](#)
Morris, B.M., Agol, E; Davenport, J.R.A., Hawley, S.L. MNRAS 476 4 (2018)
4. [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)
3. [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)
2. [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)
1. [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)

Research Notes:

15. [arceset: ARC Echelle Spectrograph Exposure Time Calculator](#)
Morris, B.M., Dorn-Wallenstein T., Levesque E., Sakari C., Gies D., Lester K., Notsu Y., Youngblood A., McMillan, R. Journal of Open Source Software (2019)

14. [aesop: ARC Echelle Spectroscopic Observation Pipeline](#)
Morris, B.M. & Dorn-Wallenstein T. Journal of Open Source Software (2018)
13. [Pre-MAP Search for Transiting Objects Orbiting White Dwarfs](#)
Wallach, A, Morris, B.M., et al. RNAAS 2 1 (2018)
12. [Large Starspot Groups on HAT-P-11 in Activity Cycle 1](#)
Morris, B.M., Hawley, S.L., Hebb, L. RNAAS 2 1 (2018)
11. [Photometric Analysis and Transit Times of TRAPPIST-1 b and c](#)
Morris, B.M., Agol, E., Hawley S.L. RNAAS, 2, 1 (2018)

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, NCFPS
- **Principle investigator** on Keck Observatory/MOSFIRE proposal: “[Probing Giant Planet Formation with MOSFIRE Exoplanet Transmission Spectroscopy](#)”, awarded 2 nights (2014)

Past Employment

Professional Assistantship in Holographic Microscopy November 2016 – 2019
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](#) (2016-2019)
- 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

- 2014-2019: 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 (2015-2019).
- 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.