

**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. [arcesetc: 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, NIFPS
- **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 – 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. 225<sup>th</sup> AAS, Seattle, WA (2015), and 222<sup>nd</sup> 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.

<b>Professional Presentations</b>	<ul style="list-style-type: none"> <li>– <b>Plenary talk:</b> “<a href="#">The Activity Cycle of HAT-P-11.</a>” Cool Stars 20. Boston, MA. July 31, 2018.</li> <li>– Poster: “<a href="#">The Active Latitudes of HAT-P-11</a>” Kepler &amp; K2 Science Conference IV, Mountain View, CA. June 19, 2017 (poster competition prize winner!)</li> <li>– Contributed talk: “The Active Latitudes of HAT-P-11.” Northwest Astronomy Meeting 2016. Bellingham, WA. October 29, 2016.</li> <li>– Contributed talk: “<a href="#">astroplan: Observation Planning for Astronomers.</a>” Python in Astronomy Conference 2016. Seattle, WA. March 25, 2016.</li> <li>– Poster: “<a href="#">Exoplanet Transmission Spectroscopy in the Near-Infrared with Keck/MOSFIRE.</a>” 225<sup>th</sup> American Astronomical Society Meeting. Seattle, WA. January 6, 2015.</li> <li>– Poster: “<a href="#">Kepler’s Optical Secondary Eclipse of HAT-P-7b and Probable Detection of Planet-Induced Stellar Gravity Darkening.</a>” Second Kepler Science Conference, NASA Ames Research Center, Mountain View, CA. November 6, 2013.</li> </ul>
<b>Teaching Experience</b>	<ul style="list-style-type: none"> <li>– Course instructor (full teaching responsibilities): ASTR192 Pre-Major in Astronomy Program (Pre-MAP) in Fall 2016, developed <a href="#">open-source Python curriculum</a></li> <li>– Academic mentor ASTR192 Pre-Major in Astronomy Program (Pre-MAP) in Fall 2015</li> <li>– Instructor of UW Astro/Phys Python Bootcamp, 2016 (and co-instructor in 2015)</li> <li>– Teaching assistant for ASTR150 The Planets (three quarters) and ASTR101 Intro Astronomy (one quarter).</li> </ul>
<b>Mentorship</b>	<ul style="list-style-type: none"> <li>– 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 (<a href="#">Pre-MAP</a>), which searches for transiting planetary material orbiting white dwarfs</li> <li>– 2015-2016: Academic mentor (paid position) for Pre-MAP Cohort 11</li> </ul>
<b>Public Outreach</b>	<ul style="list-style-type: none"> <li>– Co-founder and co-host of over forty events of the Seattle satellite branch of Astronomy on Tap (2015-present).</li> <li>– Active <a href="#">Science Communication Fellow</a> at the Pacific Science Center</li> <li>– Given several Seattle-area public science talks at the Seattle Astronomical Society, Boeing Astronomical Society</li> </ul>
<b>Press</b>	<ul style="list-style-type: none"> <li>– Feature article: “<a href="#">Counting Starspots</a>”, Astronomy Magazine. January 17, 2018.</li> <li>– Science outreach TwitterBots that I created and maintain have been featured by <a href="#">Popular Mechanics</a> and <a href="#">Vocativ</a></li> <li>– <i>Press release:</i> “<a href="#">NASA-funded Program Helps Amateur Astronomers Detect Alien Worlds</a>”. NASA Goddard Space Flight Center, Greenbelt, Md. September 4, 2013.</li> </ul>