Riley McGlasson

✉ rmcglass@purdue.edu • rmcglass.github.io

Education

Purdue University — **West Lafayette, IN**
PhD, Planetary Sciences — *2020 – Present*

Macalester College — **Saint Paul, MN**
Bachelor of Arts in Physics (with Astronomy emphasis) and Mathematics minor, 3.77/4.0 — *2016 – 2020*

Acquincum Institute of Technology, Budapesti Műszaki Egyetem — **Budapest, Hungary**
Semester in Computer Science Abroad, 4.67/5.0 — *Fall 2018*

Research Experience and Professional Preparation

Graduate Research Assistant — **West Lafayette, IN**
Purdue University — *August 2020 – Present*
Advisor: Dr. Ali Bramson
- Analyzing SHARAD radar observations of ice deposits in Martian craters.
- Developing Martian radar analog lab capabilities for the Bramson Lab.

Astronomy Ranger Intern — **Bryce, Utah**
Bryce Canyon National Park — *Summer 2019*
Advisors: Dr. Anil Seth and Mr. Todd Cullins
- Developed and presented astronomy interpretive programs.
- Led educational "telescope tours" of planets, constellations, and deep sky objects to visitors of Bryce Canyon National Park.
- Presented "A Message to the Universe", a public talk about the Voyager missions, at the Bryce Canyon Annual Astronomy Festival.

REU Student — **Arecibo, Puerto Rico**
Arecibo Observatory — *Summer 2018*
Advisors: Dr. Sean Marshall and Dr. Flaviane Venditti
- Developed a shape model for the potentially hazardous asteroid Midas.
- Performed approximately 50 radar observations of near-Earth asteroids using the Arecibo radio telescope.

REU Student — **Huntsville, AL**
University of Alabama in Huntsville/NASA MSFC — *Summer 2017*
Advisor: Dr. Navdeep Panesar
- Studied the magnetic origins of solar coronal jets.

Undergraduate Research Assistant — **Saint Paul, MN**
Macalester College — *Spring 2017*
Advisor: Dr. John Cannon
- Performed the first characterization of the neutral ISM in two local volume dwarf galaxies using the HI 21cm spectral line.
- Determined cluster membership for galaxies around the Pisces-Perseus Supercluster, as part of the Arecibo Pisces-Perseus Supercluster Survey.

Peer-Reviewed Journal Publications

1. **McGlasson, R. A.**, Bramson, A. M., Morgan, G. A., Sori, M. M., (in press). Varied Histories of Outlier Polar Ice Deposits on Mars. Journal of Geophysical Research: Planets.
2. Virkki, A. K., Marshall, S. E., Venditti, F., et al. **(incl. McGlasson, R. A.)**, (2022). Arecibo Planetary Radar Observations of Near-Earth Asteroids: 2017 December - 2019 December. Planetary Science Journal, 3, 222.
3. Sori, M.M., Becerra, P., Bapst, J., Byrne, S., and **McGlasson, R. A.**, (2022). Orbital forcing of Martian climate revealed in an outlier ice deposit. Geophysical Research Letters, 49, e2021GL097450.

4. **McGlasson, R. A.**, Marshall, S. E., Venditti, F., et al. (2022). Radar and Lightcurve Observations and a Physical Model of Potentially Hazardous Asteroid 1981 Midas. The Planetary Science Journal, 3, 35.
5. **McGlasson, R. A.**, Panesar, N. K., Sterling, A. C., Moore, R. L., (2019). Magnetic Flux Cancellation as the Trigger Mechanism of Solar Coronal Jets. The Astrophysical Journal, 882, 16.
6. Cannon, J.M., Shen, Z., et al. **(incl. McGlasson, R. A.)**, (2018). Delayed Stellar Mass Assembly in the Low Surface Brightness Dwarf Galaxy KDG 215. The Astrophysical Journal Letters, 864, L14.
7. Bralts-Kelly, L., Bulatek, A. M., et al. **(incl. McGlasson, R. A.)**, (2017). First Characterization of the Neutral ISM in Two Local Volume Dwarf Galaxies. The Astrophysical Journal Letters, 848, L10.

Conference Posters and Presentations

* Indicates R. A. McGlasson is presenting author
† Indicates oral presentation

1. ***McGlasson, R.A.**, Bramson, A.M., Sori, M.M., Lalich, D.E. (2023). Time Series Analysis and Geologic Modeling of Radar Reflectors within Polar Outlier Ice Deposits in Korolev and Burroughs Craters on Mars. 54th Lunar and Planetary Science Conference, #2118.
2. †Sori, M.M., Laferriere, K.L., Burkman, K.S., Herring, J., Klidaras, A., Manelski, H.T., **McGlasson, R.A.**, Menten, S.M., Pamerleau, I.F., Pérez-Cortés S.L. (2023), 54th Lunar and Planetary Science Conference, #1103.
3. †Broad, K.E., Sadler, B.O., Hoover, S.L., James, P.B., Robitaille, B.A., Büttner, C., Schmitt, D.R., **McGlasson, R.**, Bramson, A.M., Sori, M. M., Hutton, L. M., Delph, J. R. (2023). A Gravity Survey of the Kentland Crater Formation. 54th Lunar and Planetary Science Conference, #2715.
4. Hoover, S.L., Broad, K.E., Sadler, B.O., James, P.B., Robitaille, B.A., Büttner, C., Schmitt, D.R., Bramson, A.M., Sori, M.M., Hutton, L.M., **McGlasson, R.** (2023). A Gravity Gradient Method for Calculating Bulk Density in Topographically Complex Areas. 54th Lunar and Planetary Science Conference, #2857.
5. Bramson, A.M., Laferriere, K., Izquierdo, K., **McGlasson, R.** (2022). Constraining Mars' Polar Environment through Multi-faceted Analyses of Orbital GPR Data. 19th International Conference on Ground Penetrating Radar.
6. ***McGlasson, R. A.**, Sori, M. M., Bramson, A. M., (2022). A Significant Periodicity of NPLD Layers as Revealed by SHARAD Observations. 53rd Lunar and Planetary Science Conference, #2063.
7. *†**McGlasson, R. A.**, Bramson, A. M., Morgan, G. A., Sori, M. M., (2021). Subsurface Radar Observations of Outlier Polar Ice Deposits on Mars. American Geophysical Union Fall Meeting 2021, #P32D-05.
8. Sori, M.M., Beccera, P., McGlasson, R.A., Bapst, J., Byrne, S. (2021), Morphology of crater ice deposits on Mars reveals Earth-like Milankovitch climate forcing, American Geophysical Union Fall Meeting 2021, 812204.
9. *†**McGlasson, R. A.**, Bramson, A. M., Morgan, G. A., Sori, M. M., (2021). Subsurface Radar Observations of Outlier Polar Ice Deposits on Mars. 52nd Lunar and Planetary Science Conference, #1649.
10. Repp, D. W., Marshall, S. E., et al. **(incl. McGlasson, R. A.)**, (2020). Shape modeling of potentially hazardous asteroid 2015 DP155 from radar and lightcurve observations. 51st Lunar and Planetary Science Conference, #2897.
11. Taylor, P. A., Rivera-Valentín, E. G., **(incl. McGlasson, R. A.)**, (2019). Radar and Optical Observations of Equal-Mass Binary Near-Earth Asteroids (190166) 2005 UP156 and 2017 YE5. 50th Lunar and Planetary Science Conference, #2945.
12. ***McGlasson, R. A.**, Marshall, S. E., et al., (2019). Shape Model of Potentially Hazardous Asteroid (1981) Midas from Radar and Lightcurve Observations. American Astronomical Society Meeting #233, 255.03.
13. Taylor, P. A., Brozovic, M., et al. **(incl. McGlasson, R. A.)**, (2018). Radar and Optical Observations

of Equal-Mass Binary Near-Earth Asteroid 2017 YE5. American Astronomical Society Division of Planetary Sciences meeting #50, 508.07.

14. Marshall, S. E., Cobb, A., et al. **(incl. McGlasson, R. A.)**, (2018). Using Bayesian Optimization to Find Asteroids' Pole Directions. American Astronomical Society Division of Planetary Sciences meeting #50, 505.01D.
15. ***McGlasson, R. A.**, Panesar, N. K., Sterling, A. C., Moore, R. L., (2017). Magnetic Flux Cancellation as the Trigger Mechanism of Solar Coronal Jets. American Geophysical Union Fall Meeting 2017, #SH43A-2796.

Awards and Grants

Purdue University Graduate Teaching Award: *Academic Year 2022–2023*

Purdue TA Honor Roll: *Fall 2021, Fall 2022*

Purdue Student Service-Learning Grant: *2021*
In support of development of the Astronomy on Tap program

NSF Graduate Research Fellowship Program, Honorable Mention: *2021*

Lunar and Planetary Institute Career Development Award: *2021*
52nd Lunar and Planetary Science Conference

Macalester Physics Department's Dr. Sherman W. Schultz Memorial Award: *2020*
For academic excellence and outstanding research

Chambliss Astronomy Achievement Award Student Prize: *2019*
American Astronomical Society 233rd meeting

Technical Skills

Python | IDL | Latex | Bash | Microsoft Office | ArcGIS | ENVI | Ground Penetrating Radar

Teaching Experience

EAPS 111: Physical Geology Teaching Assistant: *Fall 2020, Fall 2021, Fall 2022*
- Lab TA for Purdue introductory geology class

EAPS 100: Planet Earth Teaching Assistant: *Spring 2022*
- TA for Purdue introductory Earth science class

Observational Astronomy Preceptor: *Spring 2020*
- Undergraduate preceptor for Macalester upper-level observational astronomy course

Modern Astronomy Preceptor: *Spring 2019*
- Undergraduate preceptor for Macalester introductory Modern astronomy course

Volunteer Service and Outreach

Peer Reviewer: *Geophysical Research Letters* and *Journal of Geophysical Research: Planets* *2022 – Present*

"Leading Women to Space Careers" Mentor: Graduate student mentor for pilot mentorship program in the Purdue Honors College *2022*

EAPS Graduate Student Mentorship Program Coordinator: Organized mentorship pairs and development programs to support incoming graduate students in Purdue EAPS. *2022*

Prospective Student Expo Coordinator: Organized the prospective student interview weekend for Purdue EAPS. *2022*

Astronomy on Tap Organizer: Established and serve as primary organizer for the Lafayette, IN satellite series of "Astronomy on Tap". *Fall 2021 – Present*

Radio Host: Radio Astronomy – Macalester College's astronomy talk show *Fall 2017 – Spring 2020*

Host and Telescope Operator: Macalester College Public Observing Nights *Fall 2017, Fall 2019*

Arecibo Observatory Noche de Observación: "Ask a Scientist" booth *Summer 2018*

NASA in the Park Presenter: Presented vacuum chamber experiments to the public at the annual NASA in the Park event, Huntsville, AL *June 2017*

Astronomy Guest Speaker: Minnetonka Middle School East 8th grade science classes *Spring 2018*

Astronomy Presenter: Eden Prairie High School AP Physics classes *Spring 2017*

Destination Imagination Volunteer: judge for Destination Imagination, a global creative problem solving competition *January 2017 – January 2020*