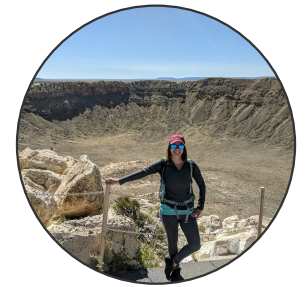# Amanda M. **Alexander**

UNIVERSITY OF COLORADO BOULDER · SOUTHWEST RESEARCH INSTITUTE

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Education

University of Colorado at Boulder — *Boulder, Colorado*

PH.D. IN GEOLOGICAL SCIENCE — *Expected May 2023*

- Advisers: Drs. Carolyn Crow & Stephen Mojzsis
- Focus: planetary geology, impact cratering physics, geomorphology, geochemistry, planetary formation

University of Colorado at Boulder — *Boulder, Colorado*

B.A. IN ASTROPHYSICAL AND PLANETARY SCIENCE — *Received Dec. 2018*

- magna cum laude
- geology minor

Research Projects

Southwest Research Institute — *Boulder, Colorado*

GRADUATE RESEARCH ASSISTANT — *May 2019-Present*

- Use of iSALE numerical hydrocode in planetary collisions
- Adviser: Dr. Simone Marchi

Southwest Research Institute — *Boulder, Colorado*

STUDENT SCIENTIST — *Jan. 2019-Aug. 2019*

- Rb-Sr Investigation of Sudbury Impact Structure via Thunderbay and Gunflit Lapilli
- Advisers: Drs. Scott Anderson, Tom Whitaker

University of Colorado Boulder — *Boulder, Colorado*

UNDERGRADUATE HONORS — *June 2017-Dec. 2018*

- The nature and origin of ancient oxygen heterogeneities in Mars Crust
- Adviser: Dr. Stephen Mojzsis

University of Alabama Huntsville + NASA MSFC — *Huntsville, Alabama*

UNDERGRADUATE REU — *May 2016-Dec. 2016*

- Applications of non-force free solar coronal magnetic field extrapolation
- Advisers: Drs. Qiang Hu, Jacob Heerekhuisen

Mission Involvement

NASA Discovery Mission, Psyche — *SwRI, Boulder, Colorado*

STUDENT COLLABORATOR — *Sep. 2020-Present*

- Numerical hydrocode modeling of impacts into Psyche-relevant materials.
- Project manager: Simone Marchi

NASA Earth Venture Mission, CYGNSS — *SwRI, Boulder, Colorado*

STUDENT ENGINEER, MISSION PLANNER — *Apr. 2017-Present*

- Flight controller for (8) satellite constellation CYGNSS.
- I develop scripts and programs for data processing and checklists in Python and use ITOS, STOL to communicate with spacecraft. As a mission planner, I determine pass windows and schedules for communication with spacecraft and coordinate such schedules with the ground stations via the Swedish Space Corporation (SSC).
- Project manager: Jillian Redfern

NASA Discovery Mission Lucy, SwRI — *SwRI, Boulder, Colorado*

STUDENT SCIENTIST — *Jan. 2018-Sep. 2019*

- I developed a pipeline using Python and MySQL to conduct astrometric and photometric data analysis of the Lucy mission target objects. The pipeline has been automated, implemented and pre-processed >18 months of data.
- Project manager: Dr. Marc Buie

Skills

- **Python,** astropy, numpy, pandas, pymysql, scipy, pytest
- **R,** data analysis and plotting
- **MySQL,** database developement, query caching via python, database workbench
- **Linux, Windows OS,** Ubuntu, Debian, Fedora, Windows 7-10
- **Microsoft Office,** excel, word, publisher, powerpoint
- **Adobe Creative Cloud,** photoshop, illustrator
- **Mission operations software,** ITOS/Galaxy, STK Scheduler, Systems Toolkit, SIMPL

Honors & Awards

2020	**Honorable Mention,** Graduate Research Fellowship Program	*NSF*
2019	**$2,500,** Diversity Fellowship	*CU Boulder*
2019	**$3,000,** Colorado Graduate Grant	*CU Boulder*
2019	**Honorable Mention,** Graduate Research Fellowship Program	*NSF*
2018	**Outstanding Graduate Award,** Astrophysical and Planetary Sciences Department	*CU Boulder*
2017	**$1,150,** CU Boulder Gold Grant	*CU Boulder*
2016	**$3,800,** CU Boulder Grant	*CU Boulder*
2015	**$2,500,** Patty Feist Scholarship	*CU Boulder*

Presentations

2020	**Division for Planetary Sciences (DPS),** Poster presentation	*Virtual*
2019	**49th Annual Astronomy Summer Camp at Beli Brezi,** Talk	*Ardino, Bulgaria*
2018	**Earth System and Space Science Conference (ESSS),** Poster presentation	*CU Boulder*
2018	**SwRI Colloquium,** Talk	*Boulder, CO*
2018	**Astrophysical & Planetary Sciences Department,** Thesis Defense	*CU Boulder*
2016	**American Geophysical Union (AGU),** Poster presentation	*San Fransisco, CA*

Service & Memberships

2020 -	**SwRI Boulder Diversity and Inclusion Initiative Group,** Co-founder	*SwRI*
2020 -	**Geology Department Newsletter,** Editor	*CU Boulder*
2020 -	**Geology Department Graduate Welcome Committee,** Member	*CU Boulder*
2020	**Geology Department Graduate Peer Mentoring Program,** Mentor	*CU Boulder*
2020	**AAS Division of Planetary Science,** Graduate Student Member	
2020	**National Association for Science Writers,** Graduate Student Member	
2019	**Geology Department Social Hour,** Co-Chair	*CU Boulder*
2019 -	**Graduate Planetary Society (GPS,** Planning Committee	*CU Boulder*
2017-2018	**Astronomy Department Colloquium Club,** Member	*CU Boulder*

Select Publications

- 2. **Alexander**, A.M., "The nature and origin of ancient oxygen isotopic heterogeneities in Mars' crust." Undergraduate Honors Theses. 1773., 2018 `https://scholar.colorado.edu/honr_theses/1773`

- 1. Medina, R, Redfern J, Wells, W, Birath E, Lamb, D, **Alexander, A.M.**, Ewing, T., "When You Have More Satellites than People: The Evolution of CYGNSS Flight Operations," 2019 IEEE Aerospace Conference, Big Sky, MT, USA, 2019, pp. 1-11. `https://ieeexplore.ieee.org/abstract/document/8741926`