

# Amanda M. Alexander

UNIVERSITY OF COLORADO BOULDER · SOUTHWEST RESEARCH INSTITUTE

☎ (+1) 808-937-3756 | ✉ alexander@boulder.swri.edu



## Education

### University of Colorado at Boulder

PH.D. IN GEOLOGICAL SCIENCE

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

*Boulder, Colorado*

*Expected May 2023*

### University of Colorado at Boulder

B.A. IN ASTROPHYSICAL AND PLANETARY SCIENCE

- magna cum laude
- geology minor

*Boulder, Colorado*

*Received Dec. 2018*

## Research Projects

### Southwest Research Institute

GRADUATE RESEARCH ASSISTANT

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

*Boulder, Colorado*

*May 2019-Present*

### Southwest Research Institute

STUDENT SCIENTIST

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

*Boulder, Colorado*

*Jan. 2019-Aug. 2019*

### University of Colorado Boulder

UNDERGRADUATE HONORS

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

*Boulder, Colorado*

*June 2017-Dec. 2018*

### University of Alabama Huntsville + NASA MSFC

UNDERGRADUATE REU

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

*Huntsville, Alabama*

*May 2016-Dec. 2016*

## Mission Involvement

### NASA Earth Venture-class Mission, CYGNSS

STUDENT ENGINEER

- 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

*SwRI, Boulder, Colorado*

*Apr. 2017-Present*

### NASA Discovery Mission Lucy, SwRI

STUDENT SCIENTIST

- 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

*SwRI, Boulder, Colorado*

*Jan. 2018-Sep. 2019*

## Skills

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- Python, astropy, numpy, pandas, pymysql, scipy, pytest
- R, data analysis and plotting
- MySQL, database development, 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

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

## Presentations

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

## Service & Memberships

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

## Select Publications

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- 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](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>