

TRENT B. THOMAS

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Department of Earth and Space Sciences, University of Washington, Seattle
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EDUCATION

- **University of Washington, Seattle, WA (UW).**
Dual-Title Ph.D. in Earth and Space Sciences and Astrobiology. In Progress.
Advisor: Professor David C. Catling.
- **University of California, Los Angeles, CA (UCLA).**
B.S. in Astrophysics. September 2016 – June 2020.

PROFESSIONAL EXPERIENCE

- **Research Assistant** (September 2020 – Present)
Department of Earth and Space Sciences, University of Washington, Seattle, WA.
Advisor: Professor David C. Catling.
- **Course Development Assistant** (August 2022 – March 2023)
Department of Earth and Space Sciences, University of Washington, Seattle, WA.
Advisor: Provost & Professor Mark Richards.
- **Research Intern** (October 2018 – February 2023)
Exoplanet Discovery and Science Group, NASA Jet Propulsion Laboratory, Pasadena, CA.
Advisor: Dr. Renyu Hu.

ACADEMIC AWARDS AND FELLOWSHIPS

- Robert and Jenny Winglee Endowed Graduate Support Fund and Space Physics Fellowship Support Fund, UW ESS, 2023
- Best Astrobiology Talk, UW ESS Research Gala, \$225, 2023
- NASA-Geochemical Society Planetary Science Travel Grant, \$1.5K, 2023
- AAS Division for Planetary Sciences Hartmann Travel Grant, \$2.2K, 2022.
- Lunar and Planetary Institute Career Development Award, \$1K, 2022.
- **National Science Foundation Graduate Research Fellowship, \$147K, 2020-2023.**
- UCLA Dean's Prize for Excellence in Undergraduate Research, 2020. 42 students selected from UCLA student body.
- Phi Beta Kappa Honor Society, 2020.
- NASA Astrobiology Institute Early Career Collaboration Award, \$2.9K, 2019.
- UCLA Department of Physics and Astronomy Rudnick-Abelmann Scholarship, \$3K, 2019.

PEER-REVIEWED PUBLICATIONS

Summary: 2 publications, 10 citations (Google Scholar).

Published:

1. **Thomas, T. B.,** Hu, R., and Lo, D. Y. (2023), Constraints on the Size and Composition of the Ancient Martian Atmosphere from Coupled CO₂-N₂-Ar Isotopic Evolution Models. *Planetary Science Journal*, 4, 41, DOI: <https://doi.org/10.3847/PSJ/acb924>

2. Hu, R., and **Thomas, T. B.** (2022), A Nitrogen-Rich Atmosphere on Ancient Mars Consistent with Isotopic Evolution Models, *Nature Geoscience*, 15, 106–111, DOI: <https://doi.org/10.1038/s41561-021-00886-y>

In Review/In Preparation:

- **Thomas, T. B.**, and Catling, D. C. A Global Carbon Cycle Model for the Formation of Cap Carbonates after Neoproterozoic Glaciation Events. *In preparation*.

PRESENTATIONS AND TALKS

Conference Presentations (* = Oral [9]; ^ = Poster [1]):

1. ***Thomas, T. B.**, and Catling, D. C. (2023). Untangling Planetary Processes in the Neoproterozoic with Cap Carbonates and a Geologic Carbon Cycle Model. *Goldschmidt Conference, Lyon, France*.
2. ***Thomas, T. B.** (2023). The 4 Billion Year History of Mars's Atmospheric Evolution Revealed by Isotopic Evolution Models. *UW Earth and Space Science Research Gala, Seattle, Washington*.
3. ***Thomas, T. B.**, Hu, R., and Lo, D. Y. (2022). Constraints on the Evolution and Ancient Composition of the Martian Atmosphere from Coupled CO₂-N₂-Ar Isotopic Evolution Models. *54th Division for Planetary Science Conference, London, Ontario, Canada*.
4. ***Thomas, T. B.**, and Catling, D. C. (2022). A Self-Consistent Model for Generating Marinoan Cap Carbonates and Constraining Neoproterozoic Climate. *Astrobiology Science Conference, Atlanta, Georgia*.
5. ***Thomas, T. B.** (2022). A Self-Consistent Model for Generating Marinoan Cap Carbonates and Constraining Neoproterozoic Climate. *UW Earth and Space Science Research Gala, Seattle, Washington*.
6. ***Thomas, T. B.**, Hu, R., and Lo, D. Y. (2022). Joint Models for the Evolutionary History of Carbon, Nitrogen, and Argon in the Martian Atmosphere. *53rd Lunar and Planetary and Science Conference, The Woodlands, Texas*.
7. ***Thomas, T. B.**, and Hu, R. (2020). A Nitrogen-Rich Atmosphere on Ancient Mars Indicated by Isotopic Evolution. *2020 AGU Fall Meeting, virtual*.
8. ***Thomas, T. B.**, and Hu, R. (2020). A Nitrogen-Rich Atmosphere on Ancient Mars Indicated by Isotopic Evolution. *52nd Division for Planetary Science Conference, virtual*.
9. ***Thomas, T. B.**, and Hu, R. (2020). A Nitrogen-Rich Atmosphere on Ancient Mars Indicated by Isotopic Evolution. *UCLA Undergraduate Research Week, virtual*.
10. ^**Thomas, T. B.**, and Hu, R. (2019), Evolutionary History of the Isotopic Composition of Nitrogen in the Martian Atmosphere, *9th International Conference on Mars, Pasadena, California*.

Invited Talks

- NASA Virtual Planetary Laboratory, Task C Group Meeting, 2023.
- NASA Jet Propulsion Laboratory, High Performance Computing User Group Meeting, 2022.
- NASA Goddard Institute for Space Science, ROCKE-3D GCM Journal Club, 2022.
- California Institute of Technology, Mars Atmosphere Journal Club, 2020.

TEACHING EXPERIENCE

The following course took place at the University of Washington, Seattle.

- **ESS 103: Earth's Origin and Transformation over 4.6 Billion Years.**

Developed syllabus, lectures, and other course material for a new undergraduate course with an emphasis on accessibility and universal design, 2022-2023.

ADDITIONAL TRAINING

- Sagan Summer Workshop, NASA Exoplanet Science Institute, 2023
- Origin of Life Fieldwork Workshop, UW Astrobiology, 2022.
- Storytelling Fellows Podcasting Workshop, UW Libraries, 2022.
- Planetary Exploration Mission Design Workshop, UW Astrobiology, 2022.
- VPlanet Developers Workshop, Virtual Planetary Laboratory, 2021.
- ROCKE-3D GCM Tutorial, NASA Goddard Institute for Space Science, 2021.
- Quantitative Habitability Workshop, NASA Nexus for Exoplanet System Science, 2020.
- Exoclims Simulation Platform Summer School, University of Bern, 2019.

OUTREACH AND SERVICE

- Science Communication Working Group, NASA Nexus for Exoplanet System Science, 2022-Present.
- Communication and Organization Team, NASA Network for Life Detection, 2022-Present.
- Graduate Student Retreat Committee, UW Earth and Space Sciences, 2023
- Graduate Student Mentor, Geosciences Education and Mentorship Support, 2022.
- Speaker at Astronomy on Tap, Seattle, 2022.
- Volunteer Teacher for 6th grade classes at Nelson Middle School: “Is There Life on Mars?”, 2022.
- Creator of the Wikipedia page “Prebiotic Atmosphere”, 2022.
- Guest Speaker at Delran School System K-12 STEM Family Engagement Night, 2022.
- Social Media Manager for UW Astrobiology, 2021-2022.
- Departmental Award Committee, UW Earth and Space Sciences, 2021-2022.
- Graduate-nominated Colloquium Speaker Committee, UW Earth and Space Sciences, 2021-2022.
- Computing Committee Graduate Representative, UW Earth and Space Sciences, 2021-2022.
- Peer Mentor, UW Earth and Space Sciences, 2021-2022.
- Organizer, Moderator, and Panelist for UW Astrobiology Public Science Panel Series, 2021.
- Volunteer Guide, UCLA Planetarium, 2019-2020.
- Volunteer Scientist, UCLA K-12 Exploring Your Universe, 2019.