Trent B. Thomas

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EDUCATION

2020-Now University of Washington, Seattle (UW).
Dual-Title Ph.D., Earth and Space Sciences, Astrobiology.
2016-2020 University of California, Los Angeles (UCLA).
B.S., Astrophysics. *Phi Beta Kappa.*

EXPERIENCE

2020-Now Research Assistant, UW.
Advisors: *Prof. David Catling*, *Prof. Victoria Meadows.*
2022-2023 Course Development Assistant, UW.
Advisor: *Provost & Professor Mark Richards*.
2018-2023 Research Intern, NASA Jet Propulsion Laboratory (JPL).
Advisor: *Dr. Renyu Hu*

AWARDS & FELLOWSHIPS

2023 Robert and Jenny Winglee endowed graduate support fund and space physics fellowship, UW ESS. *1 quarter of research funding*.
2023 Best astrobiology talk, UW ESS. *$255*.
2023 Planetary science travel grant, NASA & The Geochemical Society. *$1.5k*.
2022 Hartmann travel grant, AAS. *$2.2k*.
2022 Career development award, LPI. *$1k*.
2020 **National Science Foundation graduate research fellowship**. *3 years of research funding*.
2020 Dean's prize for excellence in undergraduate research (1 of 42 students selected from student body), UCLA.
2019 Early career collaboration award, NASA Astrobiology. *$2.9k*.
2019 Rudnick-Abelmann Scholarship, UCLA Physics & Astronomy. *$3k*.

PUBLICATIONS

PUBLISHED

1. **Thomas**, **Trent B.**, Renyu Hu, and Daniel Y. Lo. *2023*. Constraints on the Size and Composition of the Ancient Martian Atmosphere from Coupled CO2–N2–Ar Isotopic Evolution Models. *The Planetary Science Journal*. doi:10.3847/psj/acb924.

2. Hu, Renyu, and **Trent B. Thomas**. *2022*. A Nitrogen-Rich Atmosphere on Ancient Mars Consistent with Isotopic Evolution Models. *Nature Geoscience*. doi:10.1038/s41561-021-00886-y.

SUBMITTED/IN PREPARATION

- Adams, Danica, Markus Scheucher, Renyu Hu, **Trent B. Thomas**, and 7 others. Crustal Hydration Primed Early Mars with Warm and Habitable Conditions. *Submitted.*

- **Thomas, Trent B.**, and David C. Catling. A Global Carbon Cycle Model for the Formation of Cap Carbonates After Neoproterozoic Glaciation Events. *In preparation*.
- **Thomas, Trent B.**, Victoria S. Meadows, and others. Volcanic Outgassing of Water on the TRAPPIST-1 Exoplanets. *In preparation*.

PRESENTATIONS

CONFERENCE TALKS

- **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.
- **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.
- **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.
- **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.
- **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.
- **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.
- **Thomas, T. B.**, and Hu, R. (2020). A Nitrogen-Rich Atmosphere on Ancient Mars Indicated by Isotopic Evolution. 2020 AGU Fall Meeting, virtual.
- **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.
- **Thomas, T. B.**, and Hu, R. (2020). A Nitrogen-Rich Atmosphere on Ancient Mars Indicated by Isotopic Evolution. UCLA Undergraduate Research Week, virtual.

CONFERENCE POSTERS

- **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.

OTHER PRESENTATIONS

- UW Foundations Board, Discover UW. 2023.
- NASA Virtual Planetary Laboratory, Task C Group Meeting. 2023.
- NASA JPL, High Performance Computing User Group Meeting. 2022.
- NASA GISS, ROCKE-3D GCM Journal Club. 2022.

- California Institute of Technology, Mars Atmosphere Journal Club. 2020.

ADDITIONAL TRAINING

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

SERVICE

2024 Primary Convener for AbSciCon session: "*Global Environmental Changes and Increased Biological Complexity in the Neoproterozoic and Paleozoic"*
2020-Now UW ESS Graduate Student Positions: *retreat committee, award committee, graduate-nominated colloquium speaker committee (x2), computing committee graduate representative.*

TEACHING EXPERIENCE

2022-2023 ESS 103: Earth's Origin and Transformation over 4.6 Billion Years. Developed syllabus, lectures, and other material with an emphasis on accessibility. UW. TA for 1 quarter.

MENTORING EXPERIENCE

2022 Graduate Student Mentor, Geosciences Education and Mentorship Support.
2021-2022 Peer Mentor, UW ESS.

OUTREACH

2022-2023 Science Communication Working Group, NASA NExSS.
2022-2023 Communication and Organization Team, NASA NFoLD.
2022 Speaker at Astronomy on Tap, Seattle.
2022 Volunteer Teacher, Nelson Middle School.
2022 Creator of the Wikipedia page "Prebiotic Atmosphere".
2022 Guest Speaker, Delran Schools K-12 STEM Engagement Night.
2021-2022 Social Media Manager, UW Astrobiology.
2021 Organizer, Moderator, and Panelist, UW Astrobiology Public Science Panel Series.
2019-2020 Volunteer Guide, UCLA Planetarium.
2019 Volunteer Scientist, UCLA K-12 Exploring Your Universe.