**Nicholas Wogan**

Department of Earth and Space Science/Astrobiology Program

University of Washington, Seattle, WA

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**Education**

2017-Present **Ph.D Graduate Student**, Dual-title Earth and Space Science and Astrobiology, University of Washington, Seattle, WA.

2012-2016 **B.S.**, Physics major, University of Oregon Honors College.

**Professional Experience**

2017-Present **Research Assistant**, Planetary Science and Astrobiology, University of Washington, Seattle, WA. Advisor: David Catling.

* Research topics include the origin of life, the evolution of the Early Earth atmosphere, and interpretation of exoplanet biosignatures.

2016-2017 **Research Assistant**, Geophysics, University of Oregon, Eugene, OR. Supervisor: Eugene Humphreys

2014-2015 **Undergraduate Research Assistant**, Geophysics, University of Oregon, Eugene, OR. Supervisor: Dean Livelybrooks

2014 **Undergraduate Teaching Assistant**, Introductory Physics, University of Oregon, Eugene, OR. Supervisor: Ben McMorran.

**Awards and Honors**

2023 NASA Postdoctoral Program fellowship Recipient

2017 Department of Earth and Space Sciences Top Scholar Award, University of Washington

2016 Undergraduate Research Award, University of Oregon Physics department

2016 Undergraduate Honors Thesis: Passed with Distinction, University of Oregon Honors college

2012 Presidential Scholarship Recipient, University of Oregon

**Teaching Experience**

2019 **Teaching Assistant: Intro. Astrobiology (ASTBIO 115; Winter)**, University of Washington.

2018 **Teaching Assistant: Intro. Geology (ESS 101; Winter)**, University of Washington.

2014 **Undergraduate Teaching Assistant: Intro. Physics (PHYS 251)**, University of Oregon

**Recent Outreach**

2022-Present “Rockin’ Out” volunteer. Rockin' Out is a K-12 volunteer-based outreach program at the Department of Earth and Space Sciences at the University of Washington (UW).

2021-2022 Mentoring Maanit Goel, a high school student in Seattle, WA.

**Conference Presentations and Peer-Reviewed Publications**

Peer-Reviewed Publications

2023 Zachary Cohen, Zoe Todd, **Nicholas Wogan**, Roy Black, Sarah Keller, David Catling (2023). Plausible sources of membrane-forming fatty acids on the early Earth: a review of the literature and an estimation of amounts. *ACS Earth and Space Chemistry*. [DOI:10.1021/acsearthspacechem.2c00168](https://doi.org/10.1021/acsearthspacechem.2c00168).

2022 **Nicholas Wogan**, David Catling, Kevin Zahnle, and Mark Claire (2022). Rapid timescale for an oxic transition during the Great Oxidation Event and the instability of low atmospheric O2. *Proceedings of the National Academy of Sciences*. [DOI:10.1073/pnas.2205618119](https://doi.org/10.1073/pnas.2205618119).

2022 Maggie Thompson, Joshua Krissansen-Totton, **Nicholas Wogan**, Myriam Telus, and Jonathan Fortney (2022). The case and context for atmospheric methane as an exoplanet biosignature. *Proceedings of the National Academy of Sciences*. [DOI:10.1073/pnas.2117933119](https://doi.org/10.1073/pnas.2117933119)

2021 Joshua Krissansen-Totton, Max Galloway, **Nicholas Wogan**, Jasmeet Dhaliwal, and Jonathan Fortney (2021). Waterworlds Probably Do Not Experience Magmatic Outgassing. *The Astrophysical Journal*. [DOI:10.3847/1538-4357/abf560](https://doi.org/10.3847/1538-4357/abf560).

2021 Joshua Krissansen-Totton, Jonathan Fortney, Francis Nimmo, and **Nicholas Wogan**. Oxygen False Positives on Habitable Zone Planets Around Sun‐Like Stars. *AGU Advances*. [DOI:10.1029/2020AV000294](http://doi.org/10.1029/2020AV000294).

2020 **Nicholas Wogan,** Joshua Krissansen-Totton and David Catling. Abundant Atmospheric Methane from Volcanism on Terrestrial Planets Is Unlikely and Strengthens the Case for Methane as a Biosignature. *The Astrophysical Journal*. [DOI:10.3847/PSJ/abb99e](https://doi.org/10.3847/PSJ/abb99e).

2020 Kevin Zahnle, Roxana Lupu, David Catling, and **Nicholas Wogan**. ﻿Creation and Evolution of Impact-generated Reduced Atmospheres of Early Earth. *The Planetary Science Journal*[. DOI:10.3847/PSJ/ab7e2c](https://iopscience.iop.org/article/10.3847/PSJ/ab7e2c).

2020 **Nicholas Wogan** and David Catling. When is chemical disequilibrium in Earth-like planetary atmospheres a biosignature versus an anti-biosignature? Disequilibria from dead to living worlds. *The Astrophysical Journal*. [DOI:10.3847/1538-4357/ab7b81](https://iopscience.iop.org/article/10.3847/1538-4357/ab7b81).

Talks:

2022 **Nicholas Wogan**, David Catling and Kevin Zahnle. Atmospheric Nitriles for the Origin of Life from the Atmosphere after Large Asteroid Impacts on the Hadean Earth. Latsis Conference, Zurich, Switzerland.

2022 **Nicholas Wogan**, David Catling and Kevin Zahnle. Origin of Life Chemistry in the Atmosphere After Large Impacts on the Early Earth. Astrobiology Science Conference, Atlanta, GA.

2021 **Nicholas Wogan**, David Catling and Kevin Zahnle. Molecules for the origin of life from impact-generated atmospheres on early Earth. Simons Foundation Collaboration on the Origin of Life Annual meeting, remote conference.

2021 **Nicholas Wogan**, David Catling and Kevin Zahnle. Molecules for the origin of life from impact-generated atmospheres on early Earth. Goldschmidt 2021, remote conference.

2020 **Nicholas Wogan** and David Catling. Atmospheric Synthesis of Prebiotic Molecules on the Hadean Earth. Prebiotic Chemistry and Early Earth Environments Consortium (PCE3), remote conference.

2019 **Nicholas Wogan** and David Catling. When is chemical disequilibrium in Earth-like planetary atmospheres a biosignature versus an anti-biosignature? Investigating disequilibria from prebiotic to post-biotic worlds. American Geophysical Union Fall Meeting, San Francisco, CA.