

Tyler P. Janoski

Postdoctoral Fellow

Email: tjanoski@ccny.cuny.edu

tylerjanoski.com

[ORCID](#)

[GitHub](#)

[Google Scholar](#)

Education

Columbia University Graduate School of Arts and Sciences

New York, NY

Ph.D., Earth & Environmental Sciences

September 2023

Thesis: *Exploring the Timescales and Mechanisms of Polar Amplification*

Advisors: Dr. Lorenzo Polvani & Dr. Michael Previdi

M.Phil., Earth & Environmental Sciences

May 2021

M.A., Earth & Environmental Sciences

May 2019

Rutgers University School of Environmental and Biological Sciences

New Brunswick, NJ

B.S., Meteorology & Marine Science

May 2017

Senior Thesis Advisor: Dr. Anthony Broccoli

Awards and Honors

Travel Award to US CLIVAR Workshop on Polar Amplification	2024
Travel Award to USRRI Winter School in Research Engineering	2024
Ambassador to Columbia University Student-Trustee Luncheon	2023
American Geophysical Union Outstanding Student Presentation Award	2022
National Science Foundation Graduate Research Fellowship	2018-23
Travel Award for NCAR Polar Modeling Workshop	2018
Travel Award for CESM Tutorial	2018
Valedictorian, Rutgers SEBS Class of 2017	2017
Rutgers Meteorology Student of the Year	2017
Rutgers Marine Science Student of the Year	2017
George H. Cook Honors Program	2017
NOAA Hollings Scholarship	2015-16
Sally H. Peterson Scholarship	2016
Rutgers Representative to SIICUSP Symposium, University of São Paulo	2016
Rutgers University Academic Excellence Award	2015
Rutgers University Dean's List, all semesters	2013-2017

Research Experience

Postdoctoral Fellow

December 2023 – Present

City College of New York, New York, NY

- Analyze the processes responsible for the extreme precipitation generated by the September 2021 Hurricane Ida remnants in NYC & NJ using output from the National Severe Storms Laboratory (NSSL) Warn-on-Forecast system and satellite data
- Produce a statistical analysis of the predictability of this storm across different timescales and study the dynamic and thermodynamic characteristics of the event.

- Generate a database of historical synoptic conditions for understanding the climatology of extreme precipitation events in the NYC region
- Increase the communication and collaboration between the City College of New York and NSSL

Graduate Research Assistant

Sept 2017 – November 2023

Columbia University, New York, NY

- Investigated the evolution of Arctic amplification after an abrupt quadrupling of atmospheric CO₂ in Coupled Model Intercomparison Project (CMIP5/6) models
- Isolated mechanism contributions to Arctic amplification using radiative kernels to produce energy budget analyses
- Created 300+ new climate model simulations using the Community Earth System Atmosphere Model v1 (CESM1) to capture the development of polar amplification on ultrafast timescales
- Used Python and associated packages (e.g., Xarray, NumPy, Dask) to efficiently analyze and manage hundreds of TBs of climate model output
- Developed a new Python package to facilitate the calculation of radiative feedbacks using different kernels

Undergraduate Research Assistant

May 2014 – Aug 2017

Rutgers University, New Brunswick, NJ

- Characterized patterns of extratropical cyclone development in the North Atlantic in output from a long climate model simulation using Ferret, Matlab, and Python
- Continued the project begun at NOAA Geophysical Fluid Dynamics Laboratory to determine how the frequency and intensity of high-impact snowstorms will change with increased CO₂
- Regularly presented research to Rutgers colleagues and first-authored a peer-reviewed journal article documenting results

Hollings Scholar Intern

May 2016 – August 2016

NOAA Geophysical Fluid Dynamics Laboratory, Princeton, NJ

- Designed Hollings project on blizzard frequency and climate change using a GFDL coupled global climate model to quantify changes in snowfall and surface winds
- Developed a novel method for identifying blizzard-like storms well-suited for standard climate model output fields
- Participated in weekly research meetings and organized informal sessions to teach senior GFDL scientists introductory Python

Publications

Janoski, T.P., Mitevski, I., Kramer, R.J., Previdi, M., & Polvani, L.M. (2024). ClimKern: a new Python package and kernel repository for calculating radiative feedbacks, *in preparation*.

Janoski, T. P., Previdi, M., Chiodo, G., Smith, K. L., & Polvani, L. M. (2023). Ultrafast Arctic amplification and its governing mechanisms. *Environmental Research: Climate*, 2(3), 035009. <https://doi.org/10.1088/2752-5295/ace211>

Previdi, M., Janoski, T. P., Chiodo, G., Smith, K. L., & Polvani, L. M. (2020). Arctic Amplification: A Rapid Response to Radiative Forcing. *Geophysical Research Letters*, 47(17), e2020GL089933. <https://doi.org/10.1029/2020GL089933>

Catalano, A. J., Broccoli, A. J., Kapnick, S. B., & Janoski, T. P. (2019). High-Impact Extratropical Cyclones along the Northeast Coast of the United States in a Long Coupled Climate Model Simulation. *Journal of Climate*, 32(7), 2131–2143. <https://doi.org/10.1175/JCLI-D-18-0376.1>

Janoski, T. P., Broccoli, A. J., Kapnick, S. B., & Johnson, N. C. (2018). Effects of Climate Change on Wind-Driven Heavy-Snowfall Events over Eastern North America. *Journal of Climate*, 31(22), 9037–9054. <https://doi.org/10.1175/JCLI-D-17-0756.1>

Presentations

Oral Presentations

Ultrafast Arctic Amplification and Its Governing Mechanisms, 2022 American Geophysical Union Fall Meeting, Chicago, IL. Dec 2022

Examining the Fast Timescales of Arctic Amplification Following an Instantaneous CO₂ Increase, American Meteorological Society's 17th Conference on Polar Meteorology and Oceanography, Madison, WI. Aug 2022

Parameterization Sensitivity, NASA Center for Climate Sciences Climate Summer School, virtual, with L. Passos, S. Williamson, K. Dube, and O. Kehinde. Aug 2021

Arctic amplification (AA) as a rapid response to increased CO₂, NASA Center for Climate Sciences Climate Summer School, virtual. Aug 2021

Arctic amplification as a rapid response to increased CO₂, 2021 European Geophysical Union General Assembly Meeting, virtual. Apr 2021

Arctic Amplification: A Rapid Response to Radiative Forcing, 2020 CESM European Geophysical Union General Assembly Meeting, 2020 CESM Land Ice-Paleo-Polar Climate Working Group Meeting, National Center for Atmospheric Research, virtual. Jun 2020

The Temporal Evolution of Arctic Amplification in Coupled Climate Models, 2019 American Geophysical Union Fall Meeting, San Francisco, CA, invited talk given by Michael Previdi. Dec 2019

Impact of Cloud Optical Depth on Arctic Surfaces in CESM, 2018 CESM Polar Modeling Workshop, Boulder, CO, with C. Pettersen and A. Sampath. Aug 2018

Understanding the Timescales of Arctic Amplification, Department of Earth and Environmental Sciences 1st Year Colloquium, Lamont-Doherty Earth Observatory, Palisades, NY. Apr 2018

Climate Change and the Arctic: The Importance of Arctic Amplification, International Research Institute for Climate and Society Workshop, Columbia University, New York, NY. Dec 2017

Assessing Wind-Driven Extreme Snowfall Events under Climate Change, Rutgers George H. Cook Symposium, New Brunswick, NJ. Apr 2017

Extreme Wind and Snowfall Events on East Coast with CO₂ Doubling, NOAA Hollings Scholar Symposium, Silver Spring, MD. Aug 2016

Assessing East Coast Blizzards under Climate Change, NOAA Geophysical Fluid Dynamics Laboratory Summer Intern Symposium, Princeton, NJ. Jul 2016

Poster Presentations

ClimKern: a new Python package and kernel repository for calculating radiative feedbacks in the Arctic, US CLIVAR Workshop on Polar Amplification of Climate Change Across Hemisphere and Seasons, Boulder, CO. Jan 2024

ClimKern: a new Python package for calculating radiative feedbacks with a kernel database, 2023 American Geophysical Union Fall Meeting, San Francisco, CA. Dec 2023

Arctic Amplification, 2018 CESM Polar Modeling Workshop Aug 2018

Assessing East Coast Blizzards under Climate Change, American Meteorological Society Fall Meeting, Seattle, WA. Jan 2017

Trends in Extreme Snowfall and High Wind Events on the United States East Coast with Climate Change, 24th International Conference on Scientific and Technological Initiation of the University of São Paulo, SP, Brazil. Oct 2016

Teaching Experience

Guest Lecturer Fall 2020, Spring 2022-24

SUSC PS5060: Statistics, Data Analysis, and Coding for Sustainability Science

Columbia University, New York, NY

- Created and distributed interactive Jupyter notebooks to introduce students to Python and data analysis packages
- Gave several full-length lectures with in-class exercises to practice geoscience applications of Python

Graduate Teaching Assistant Fall 2018-20

EESC 4008: Introduction to Atmospheric Science

Columbia University, New York, NY

- Held weekly office hours to provide students with additional instruction
- Reformulated course problem sets and developed grading rubrics

Private Math Tutor Sep 2016 – Present

Wayne, NJ

- Provide tutoring and test-prep to middle, high school, and college math students

Math Instructor Jul 2015 – Sep 2018

Mathnasium of Wayne, Wayne, NJ

- Designed and taught supplemental math curricula to K-12 students, many of whom with learning disabilities

Calculus Peer Mentor & Grader

Sep 2015 – May 2017

Rutgers University Mathematics Dept., New Brunswick, NJ

- Held office hours and graded assignments to support Calculus II students

Community Service & Outreach

Peer Sexual Health Advocate

Sept 2018 – Present

Gay Health Advocacy Project, New York, NY

- Provide confidential sexual and reproductive health counseling to Columbia students, staff, and faculty
- Order STI screening tests for clients and discuss sexual health while destigmatizing this vital subject
- Perform community outreach and collaborate with the various schools at Columbia, such as the seminary, to connect students with our services

Mentor

October 2023 - Present

Geosciences Education & Mentorship Support (GEMS)

- Support a current undergraduate student in environmental science at UC Irvine as she contemplates her career and/or graduate school options

Peer Mentor

September 2023 – Present

Interagency Arctic Research Policy Committee Collaborations

- Meet monthly with a collection of other Arctic research from various disciplines to support each other through our careers and lives
- Focus on key issues in Arctic science – incorporating indigenous knowledge, equity in the field, etc.

Women in Science at Columbia (WISC) Undergraduate Mentor

Feb 2023 – May 2023

Columbia University, New York, NY

- Meet biweekly with a Barnard College student to provide mentorship and guidance specific to underrepresented groups in STEM

Scholarship Reviewer

Jul 2020 – Present

Out to Innovate

- Review applications for the Out to Innovate Scholarship, which offers thousands of dollars to LGBTQ+ students in STEM
- Help select recipients of the Out to Innovate Career Development Fellowship for Trans, Non-Binary, and Intersex graduate and postdoctoral researchers

Peer Mentor

Jul 2018 – Present

Lamont-Doherty Earth Observatory, Palisades, NY

- Mentor new graduate students and summer interns by meeting regularly to discuss research progress, academics, and career paths

STEM Pen Pal

September 2022 – Present

Letters to a Pre-Scientist

- Exchange letters with middle school students (“pre-scientists”), typically from lower socioeconomic backgrounds, to humanize STEM professionals and demystify STEM career pathways

District Coordinator

Jan 2021 – Apr 2022

Student Workers of Columbia, New York, NY

- Organized a successful campaign to reform the appeal process for sexual harassment cases on campus
- Acted as a student liaison to university leadership for five different departments, each with hundreds of students, in the natural sciences

Volunteer

Apr 2018

2018 Taste of Science

- Lead a Q&A session at a climate science-themed Taste of Science event at a bar to make science more accessible to adults

Professional Associations

American Meteorological Society	<i>2016 – Present</i>
American Geophysical Union	<i>2016 – Present</i>
Out to Innovate (formerly Nat. Org. of Gay & Lesbian Scientists)	<i>2017 – Present</i>
European Geophysical Union	<i>2021 - Present</i>

Programming Skills

Advanced: Python

Intermediate: Matlab, Bash, Ferret, NCO, NCL

Novice: Java, Fortran 90, R

Miscellaneous

- [Part of 500 Queer Scientists](#), a queer visibility campaign ensuring that the next generation of LGBTQ+ scientists have role models
- [Profiled in 2017](#) by the Rutgers University SEBS news team