Nina Grant

Ph.D. Candidate

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/in/nina-grant-2021

Final year Ph.D. student aspiring to become a researcher, data analyst, or consultant in the fields of climate science and sustainability. Committed to slowing global warming so future generations may have a healthy, livable planet.

EDUCATION

Ph.D. Rutgers University, Atmospheric Science 2021-present
Focus on climate intervention impacts, GPA: 4.0
Advisors: Alan Robock
Honors: Dean's Fellowship, Sigma Xi

M.S. Rutgers University, Atmospheric Science 2023
Focus on agricultural impacts of climate intervention, GPA: 4.0
Advisors: Alan Robock

B.A. Princeton University, Geosciences 2021
Focus on climate science and sustainability
Advisor: Gabriel Vecchi

RESEARCH EXPERIENCE

Research Assistant Aug 2021-present
Rutgers Impact Studies of Climate Intervention Lab New Brunswick, NJ
Advisors: Dr. Alan Robock and Lili Xia

- Investigated how stratospheric aerosol injections (SAI) impact Indian wheat and rice crop suitability and production using CESM2 ARISE-SAI-1.5 model outputs
- Researching the impact of climate intervention and nuclear war on coffee and cocoa yields in Brazil and Ghana using multi-model downscaled ISIMIP data
- Comparing the skill and suitability of machine learning and statistical downscaling methods for SAI scenarios

Weather & Climate Data Analyst Summer Student Employee Jun 2023 – Jan 2024
Electric Power Research Institute Remote
Tech Lead: Erik Smith

- Quantified the skill of 4 gridded datasets (ERA5, ERA5-Land, MERRA-2, and PRISM) at representing extreme temperatures and precipitation over the conterminous U.S.

Senior Thesis Aug 2020- May 2021
Princeton University Princeton, NJ
Advisor: Dr. Gabriel Vecchi

- *Solar Geoengineering Effects on the Indian Monsoon Precipitation Patterns*
- Analyzed GFDL climate model simulations of volcanic eruptions and a 1% decline in solar radiation to determine the impact of injection location and amount on monsoonal behavior
- Investigated whether local thermodynamics or large-scale dynamics were responsible for the pattern shifts

Junior Independent Work Sep 2019- Jan 2020
Princeton University Princeton, NJ
Advisor: Dr. Gabriel Vecchi

- *Sea Surface Temperature Variability as A Predictor of Indian Monsoon Activity*
- Revisited past work by Prof. Vecchi to verify whether, with more data, a predictive relationship persisted between breaks in the monsoon and sea surface temperatures in the Indian Ocean and the Bay of Bengal

Research Internship Jun 2019 – Aug 2019
ALMA Observatory Santiago, Chile
Advisors: Chentao Yang and Violette Impellizzeri

- Applied a new imaging technique for carbon tracing in deep-space, red-shifted galaxies acquiring experience with Linux OS, virtual machines, data analysis, presenting scientific research, and bilingual communication skills

PUBLICATIONS

Google Scholar | **ORCID: 0000-0003-4188-9275**

Grant, N., Kiniry, J., & Aziz, F. (2025) Modeling the impacts of climate change on cocoa. In *Theobroma cacao - Past, Present and Future Insights*. IntechOpen. https://doi.org/10.5772/intechopen.1011776

Smith, E., **Grant, N**., Luo, X. et al. (2025). Evaluating the ability of gridded climate datasets to capture temperature and precipitation trends and extremes. *Sci Rep, 15*(1), 12607. https://doi.org/10.1038/s41598-025-97570-7

Grant, N., Robock, A., Xia, L., Singh, J., and Clark, B. (2025). Impacts on Indian agriculture due to stratospheric aerosol intervention using agroclimatic indices. *Earth's Future*, *13*(1), e2024EF005262. https://doi.org/10.1029/2024EF005262.

Singh, J., Sahany, S., Xia, L., Robock, A., and **Grant, N**. Comparing quantile mapping and other statistical methods in downscaling rainfall for agriculture impacts. (Submitted)

Grant, N., Robock, A., Xia, L., Kiniry, J., and Clark, B. Can Solar Climate Intervention Save Coffee and Chocolate from Climate Change? (in prep.)

Reviewer: Earth's Future (2025)

HONORS AND AWARDS

Sigma Xi Nomination	2025
Solar Geo Society Ambassador	2024
Atmospheric Science Graduate Student Travel Grant ($1200)	2024
Elected Co-Chair of the 2026 Gordon Research Seminar on Climate Engineering	2024
Atmospheric Science Graduate Student Travel Grant ($1500)	2023
RCEI Travel Award ($500)	2023
RCI Fund Travel Award ($250)	2022
AGU Student Travel Grant ($1000)	2022
Dean's Fellowship, Rutgers University School of Graduate Studies ($49,736)	2021

LEADERSHIP (VOLUNTEER/SERVICE)

Solar Geo Society Ambassador	2024-Present
AGU Local Science Partner	2024-Present
Organizer of the 1st Rutgers Atmospheric Science Grad Student Retreat	2024
Student Convener of AGU'24 Session GC009	2024
Co-Chair of the 2026 Gordon Research Seminar on Climate Engineering	2024-Present
Conference Coordinator of the Princeton Energy Association Fall Conference	2020

TEACHING EXPERIENCE

Guest lecturer – Climate Modeling Aug-Nov 2024
Rutgers University (Remote)
16:107:544 Modeling of Climatic Change (Graduate)

- Led unit on a Python-based global climate model, deployed and tested model on Rutger's Amarel HPC, created reproducible setup via GitHub, and developed assignments, tutorials, and exercises. Gave guest lecture, supported students through the assignment, and coordinated with the model developer.

Tutor - Math Feb-Jul 2024
Private (Remote)

- Tutored a high school student in algebra and geometry, raising GPA by 1.6 points

Tutor - Math Sep 2022 – Apr 2023
Rutgers School of Environmental and Biological Sciences

- Tutored 14 undergraduate students in college-level mathematics (geometry, algebra, calculus) in weekly group and individual sessions, developed lesson plans, coordinated schedules for virtual and in-person sessions, adapted to the needs of the students each session

PRESENTATIONS AND INVITED TALKS

Invited Talk, *A brief introduction to the physical science of SRM*, New York, NY Sep 2025

Invited Talk, *The Modern Challenges of Geoengineering*, Global Affairs Canada Jul 2025

Oral Presentation, *Can stratospheric aerosol intervention save coffee and chocolate from climate change?* Degrees Global Forum May 2025

Poster Presentation, *Impacts on Indian Agriculture Due to Solar Climate Intervention Using Agroclimatic Indices,* Degrees Global Forum May 2025

Poster Presentation, *Can stratospheric aerosol intervention save coffee and chocolate from climate change?* AGU Fall Meeting Dec 2024

Poster Presentation, *Enhancing Climate Forcing Data for Crop Models: Addressing Challenges in Downscaling and Bias Correction under Climate Intervention and Nuclear Winter Scenarios,* AGU Fall Meeting Dec 2024

Poster Presentation, *Can Solar Climate Intervention Save Coffee and Chocolate from Climate Change?* 14th GeoMIP Meeting Jul 2024

Poster Presentation, *Impacts on Indian Agriculture Due to Solar Climate Intervention Using Agroclimatic Indices*, Gordon Research Conference on Climate Engineering Feb 2024

Invited Discussion Leader, *Climate Engineering: Processes, Uncertainties, Responses, and Impacts,* Gordon Research Conference on Climate Engineering Feb 2024

Poster Presentation, *Impacts on Indian Agriculture Due to Solar Climate Intervention Using Crop Suitability and Agroclimatic Indices*, AGU Fall Meeting Dec 2023

Poster Presentation, *Assessing the Ability of Reanalysis Data to Identify Local Extremes*, AGU Fall Meeting Dec 2023

Poster Presentation, *Indian Agricultural Impacts under GeoMIP G6 Experiments*, AGU Fall Meeting — Dec 2022

Poster Presentation, *Indian Monsoon Precipitation Changes in CESM2-WACCM GeoMIP6 Experiments*, Gordon Research Conference on Climate Engineering — Jun 2022

Invited Talk, *How I Got Involved in Sustainability Work*, The Hewitt School — May 2021

PROFESSIONAL TRAINING

Leadership & No-Blame Problem Solving Certificate — Jun 2025
Rutgers University (Online)

- Asynchronous 10-module course on civic leadership and practical governance skills using the No-Blame Problem Solving method. Taught how average citizens can enact local change. Covered citizen rights, local power structures, media literacy, and strategies for engaging in government decision-making.

AGU Local Science Partner Spring Congressional Visit Workshop — Mar 2025
Washington, D.C.

- Full-day workshop on science policy engagement, science communication, media advocacy, and congressional visit preparation. Included training on op-ed writing, messaging strategy, and mock meetings with legislators.

Climate Change AI Virtual Summer School — Aug 2024
Online

- 3-month course on the applications of AI and machine learning for tackling climate change problems with lectures and hands-on coding tutorials. Topics spanned agriculture, biodiversity, climate science, GHG accounting and monitoring, power systems, transportation, and more.

SciComp Workshop - Collaborative Coding with GitHub — Dec 2023
AGU Fall Meeting 2023, San Francisco, CA

- 4-hr workshop on version control, git, and GitHub best practices and how to use GitHub for scientific research projects

Machine Learning Specialization — Sep 2023
Online

- 10-week course hosted on Coursera by Stanford University and DeepLearning.AI on supervised learning (linear regression, logistic regression, neural networks, decision trees), unsupervised learning (clustering, anomaly detection), recommender systems, and reinforcement learning

CESM Tutorial — Jul 2023
Boulder, Colorado

- Selective week-long intensive on the science and advancements behind the CESM climate model and practical training exercises on running custom model simulations

CESM AGU Workshop Dec 2022
AGU Fall Meeting 2022, Chicago, IL
- 4-hr workshop on running simple custom models in CESM on the AWS cloud

PROFESSIONAL AFFILIATIONS

Sigma Xi 2025-Present

National Association of Black Geoscientists (NABG) 2025-Present

American Association for the Advancement of Science (AAAS) 2024-Present

American Geophysical Union (AGU) 2022-Present

National Society of Black Engineers (NSBE) 2018-2021

COMPUTER SKILLS

Programming languages: Python, Bash script, MATLAB, SQL, HTML

Python Packages: Xarray, Numpy, Pandas, Matplotlib, Cartopy, Salem, Seaborn, PyTorch, Scikit-learn, Keras, SciPy, PyAutoGUI

Applications and Platforms: MobaXTerm, VSCode, GitHub, Spyder IDE, DaVinci Resolve, HPCs (Cheyenne/Derecho, Amarel, Frontera)

Languages: English (native), Spanish (near native)