Dr. Paige E. Martin

Climate Data Scientist | **Open Science Enthusiast**

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CURRENT POSITION

Postdoctoral Research Scientist (dual affiliation)
Lamont-Doherty Earth Observatory, Columbia University, New York City, NY, USA
Australian National University, Canberra, Australia
Sep. 2020 – present
Advisor: Prof. Ryan Abernathey, *Lamont-Doherty Earth Observatory, Columbia University, New York City, NY, USA*
I work at the intersection of climate science and data science, using and developing open-source tools to analyze climate model data to better understand the physical mechanisms driving our climate system.

EDUCATION

University of Michigan, Department of Physics, Ann Arbor, MI, USA
Ph.D., Aug. 2019, **M.S.**, Dec. 2017
Advisor: Prof. Brian Arbic (Dept. of Earth and Environmental Science)
Thesis: Diagnosing Energy Transfer in an Idealized Ocean-Atmosphere Model: A Frequency-Domain Approach

Humboldt Universität, Physics Department, Berlin/**Potsdam Institute for Climate Impact Research**, Germany
Sep. 2011 – Aug. 2012
Advisor: Prof. Dr. Dr. h.c. Jürgen Kurths
Research focus: Climate network analysis to study the spatiotemporal evolution of rainfall in the Indian monsoon

Harvard University, Cambridge, MA, USA
A.B. with cum laude honors in Physics, minor in French, May 2011

Université Pierre et Marie Curie, Paris, France, Sep. 2009 – Jan. 2010, through Hamilton College Junior Year in France

PREVIOUS RESEARCH POSITIONS

Research Assistant, University of Michigan, Earth and Environmental Sciences Department, Ann Arbor, MI — Jun. 2019 – Jul. 2020

Graduate Student Research Assistant, University of Michigan, Earth and Environmental Sciences Department, Ann Arbor, MI — May 2013 – May 2019

FELLOWSHIPS

National Science Foundation Graduate Research Fellowship (NSF GRFP) — 2013 - 2018

Graduate Opportunities Worldwide, part of the NSF GRFP, awarded for research at the Australian National University, Canberra, Australia — Feb. – Jun. 2017

Fellow at the Geophysical Fluid Dynamics Program, Woods Hole Oceanographic Institute, MA — Jun. – Aug. 2014

DAAD Study/Research Graduate Scholarship in Germany, Potsdam Institute for Climate Impact Research, Humboldt University-Berlin — 2011-2012

OUTREACH & CAPACITY DEVELOPMENT

Co-lead for Global Ocean Corps and Conveyor (UN Ocean Decade endorsed programme) — Oct. 2021 – present

Scientific advisor for non-profit Plastic Punch, Accra, Ghana — Aug. 2019 – present

Co-organizer and lead computing instructor of the Coastal Ocean and Environment Summer School in Ghana — 2018 – present

Co-organizer and mentor at OceanHackWeek — Jun. – Aug. 2021

SERVICE

Member of the Pangeo Steering Council — Feb. 2022 – present

Member of the OceanHackWeek Steering Council — Feb. 2022 – present

Co-organizer of Pangeo Oceania, a regional branch of Pangeo — Jun. 2021 – present

Leader of "Working with Big and Challenging Data Collections" working group, part of the community-driven Australian Climate Data Guide — Feb. 2021 – present

Member of "Single Access Working Group", part of the community-driven Australian Climate Data Guide — Feb. 2021 - present

Elected Early Career Council Member of the American Geophysical Union (AGU) — Jan. 2019 – present

Co-organizer of the Student/Early Career Conference at the AGU Fall Meeting — 2016, 2020, 2021

Member of the AGU On-Demand Advisory Group for the 2016 AGU Fall Meeting — July – Sep. 2016

Student Member of the AGU Ocean Sciences Executive Committee — Feb. 2014 – Feb. 2016

Student Organizer for the 2016 Ocean Sciences Meeting — 2014 – 2016

Conference session convener:

- 2022 Ocean Sciences Meeting: *"Open Ocean Science"*
- 2021 AGU Fall Meeting: *"Open Science in Action"*
- 2021 Dask Distributed Summit: *"Pangeo Workshop"*

Journal reviewer: *Journal of Climate, Journal of Geophysical Research: Oceans*

Affiliations: American Geophysical Union, The Oceanography Society

PUBLICATIONS

Light, C.X., Arbic, B.K., **Martin, P.E.** *et al.* (2022) Effects of grid spacing on high-frequency precipitation variance in coupled high-resolution global ocean-atmosphere models, *Climate Dynamics,* https://doi.org/10.1007/s00382-022-06257-6

Loose, N., Abernathey, R., Grooms, I., Busecke, J., Guillaumin, A.P., Yankovsky, E., Marques, G., Steinberg, J.M., Ross, A.S., Khatri, H., Bachman, S.D., Zanna, L., **Martin, P.** (2022). GCM-Filters: A Python Package for Diffusion-based Spatial Filtering of Gridded Data, *Journal of Open Source Software*. doi: 10.21105/joss.03947.

Martin, P. E., Arbic, B. K., & Hogg, A. M. (2021). Drivers of Atmospheric and Oceanic Surface Temperature Variance: A Frequency Domain Approach, *Journal of Climate*, *34*(10), 3975-3990. https://doi.org/10.1175/JCLI-D-20-0557.1

Nyadjro, E.S., Arbic, B.K., Buckingham, C.E., **Martin, P.E.** *et al.* (2021) Enhancing Satellite Oceanography-Driven Research in West Africa: a Case Study of Capacity Development in an Underserved Region. *Remote Sens Earth Syst Sci.* https://doi.org/10.1007/s41976-021-00051-4

Martin, P. E., Arbic, B. K., McC. Hogg, A., Kiss, A. E., Munroe, J. R., & Blundell, J. R. (2020). Frequency-Domain Analysis of the Energy Budget in an Idealized Coupled Ocean–Atmosphere Model, *Journal of Climate*, *33*(2), 707-726. https://doi.org/10.1175/JCLI-D-19-0118.1

Stolbova, V., **Martin, P.**, Bookhagen, B., Marwan, N., and Kurths, J. (2014). Topology and seasonal evolution of the network of extreme precipitation over the Indian subcontinent and Sri Lanka, Nonlin. Processes Geophys., 21, 901–917, https://doi.org/10.5194/npg-21-901-2014

Martin, P., 2014: A Study of Heat Transport and the Runaway Greenhouse Effect using an Idealized Model, *Proceedings of the 2014 Summer Program in Geophysical Fluid Dynamics*, Woods Hole, MA, Woods Hole Oceanographic Institute

AWARDS AND HONORS

Outstanding Student Presentation Award, AGU Fall Meeting	2018
Invited participant at Physical Oceanography Dissertation Symposium (PODS), Kona, Hawaii	2018
Best talk, Student Conference, Research School of Earth Sciences, Australian National University	2017
Certificate of Achievement for "The Helping Hand: This is someone who has gone out of their way to help you or others," Rackham Graduate School, University of Michigan	2017

TEACHING AND OTHER WORK EXPERIENCE

February 2022	**Teaching Assistant** for Python for Atmosphere and Ocean Science workshop (ICSHMO 2022) *Online* Helped teach content from Data Carpentry lessons
August 2021/August 2020/ January 2021	**Instructor and Co-organizer** of the Coastal Ocean Environment Summer School in Ghana *Online* Computing instructor: created Jupyter notebook and video tutorials, hosted live tutorials on scientific Python, helped run a cloud-based JupyterHub for participants Provided general Python support for other topics and instructors at the school
August 2019	**Instructor and Co-organizer** of the Coastal Ocean Environment Summer School in Ghana *Regional Maritime University, Accra, Ghana* Intro. to Python and Jupyter for Ocean Sciences Applied Python (laboratory course) "Roaming Python Expert": converted all school materials from Matlab to Python and provided Python support
Fall 2018	**Graduate Student Instructor** (and converted the class from Matlab to Python) *University of Michigan* Introduction to Physical Oceanography
August 2018	**Instructor** at the Coastal Ocean Environment Summer School in Ghana *University of Ghana - Legon, Accra, Ghana* Introduction to Python
August 2017	**Teaching Assistant** at the Coastal Ocean Environment Summer School in Ghana *Regional Maritime University, Accra, Ghana*
Fall 2012 – Spring 2013	**Graduate Student Instructor** *University of Michigan* Physics 141: Elementary Lab 1 Physics 136: Life Sciences Lab 1
Summer 2011	**Information Technology Coordinator and Co-teacher** of course Physics and Go-Karts *Exploration Summer Program*
2008-2010	**Peer tutor** (physics, math, French) *Harvard College Bureau of Study Counsel*

PRESENTATIONS

Series of seminars on the same topic, given jointly with collaborators:
"Diversifying Oceanography: The Coastal Ocean Environment Summer School in Ghana"

Jan. 2022 Environmental Science and Engineering Seminar, *Caltech*
Jun. 2021 Research School of Earth Sciences School Seminar, *Australian National University*
Apr. 2021 Centre for Marine and Coastal Studies Seminar, *Universiti Sains Malaysia*
Jan. 2021 Department of Earth, Environmental and Planetary Sciences Colloquium, *Brown University*
Sep. 2020 Ocean and Climate Physics Seminar, Lamont-Doherty Earth Observatory, *Columbia University*

Feb. 2022 Ocean Sciences Meeting, virtual
Diagnosing air-sea interaction via ocean surface temperature variance across time scales
Ocean Corps: Inspiring sustained, long-term ocean science education and research collaborations between nations

Dec. 2021 AGU Fall Meeting, virtual
A Catch-All Approach to Ocean Capacity Building in West Africa
The Pangeo Community [invited speaker]
Social Responsibility in the Earth and Space Sciences: An Early-Career Perspective

Nov. 2021 CLEX Annual Workshop (Australian Research Council's Centre of Excellence in Climate Extremes)
Drivers of SST Variance Across Timescales and Model Resolution

Jun. 2021 Earthcube 2021, virtual
Frequency-Domain Analysis of Large Datasets

Dec. 2020 AGU Fall Meeting, virtual
Drivers of Atmospheric and Oceanic Surface Temperature Variance
Python and Open-Source Software for Developing Countries: A Catalyst for Change

Sep. 2020 Ocean and Climate Physics Seminar, Lamont-Doherty Earth Observatory (joint presentation)
Diversifying Oceanography: The Coastal Ocean and Environment Summer School in Ghana

Feb. 2020 Ocean Sciences Meeting, San Diego, CA:
Spectral Energy Budget Analysis in the Frequency Domain
Python and Open-Source Software for Developing Countries: A Catalyst for Change

Dec. 2019 AGU Fall Meeting, San Francisco, CA:
Poster: *Diagnosing Energy Transfer in an Idealized, North Atlantic, Ocean-Atmosphere Model*
Invited e-Lightning talk: *Frequency-Domain Analysis of the Energy Budget in an Idealized, Coupled, Ocean-Atmosphere Model*
Centennial Stage talk: *Enhancing research in developing countries: the power of open source software*

Dec. 2018 *Diagnosing Energy Transfer in an Idealized, North Atlantic, Ocean-Atmosphere Model*, AGU Fall Meeting, Washington, D.C.

Oct. 2018 *Diagnosing Energy Transfer in an Idealized, Ocean-Atmosphere Model: A Frequency-Domain Approach*, Physical Oceanography Dissertation Symposium (PODS), Kona, Hawaii

May 2018 *Frequency-Domain Analysis of Energy Transfer in an Idealized Ocean-Atmosphere Model*, Annual COSIMA Workshop, Canberra, Australia

Feb. 2018 *Frequency-Domain Analysis of Energy Transfer in an Idealized Ocean-Atmosphere Model*, Ocean Sciences Meeting, Portland, OR

Jan. 2018 *Frequency-Domain Analysis of Energy Transfer in an Idealized Ocean-Atmosphere Model*, DRAKKAR Annual Workshop, Université Grenoble-Alpes, Grenoble France

Sep. 2016 *Extratropical Frontal- and Meso-scale Air-Sea Interaction: Diagnosing Forced Versus Intrinsic Low-Frequency Variability in an Idealized North Atlantic Ocean-Atmosphere Model,* CLIVAR Open Science Conference, Qingdao, China

Feb. 2016 *The Ocean or the Atmosphere: Diagnosing Forced Versus Intrinsic Low-Frequency Variability in an Idealized North Atlantic Coupled Ocean-Atmosphere Model,* Ocean Sciences Meeting, New Orleans, LA

Dec. 2015 *Network Analysis of Atmospheric Rossby Wave Patterns in the Northern Midlatitudes,* AGU Fall Meeting, San Francisco, CA

Apr. 2015 EGU General Assembly, Vienna, Austria
Networks and Climate: Are they a Good Match?, Oral PICO ("Presenting Interactive Content") Student Pop-up Talk
Frequency Domain Analysis of Forced Versus Intrinsic Variability in a Quasi-Geostrophic Coupled Ocean Atmosphere Model, Poster

Dec. 2014 *Topology and Seasonal Evolution of the Network of Extreme Precipitation over the Indian Subcontinent and Sri Lanka,* AGU Fall Meeting, San Francisco, CA

RESEARCH CRUISE

1-8 Dec. 2019 R/V Sally Ride: Mode 2 internal waves near the Mendocino Ridge

OTHER INTERESTS

Singing, dancing, musical theater, partner acrobatics, gymnastics, aerial silks, hand balancing, pole vaulting, speaking in French and German, spotting Australian birds