Dr. Paige E. Martin

Climate Data Scientist | Open Science Enthusiast

pmartin@ldeo.columbia.edu ✉

https://paigem.github.io 🌐

paigem ⬤

ACHIEVEMENTS

Open science community leadership
Member of the Pangeo Steering Council working toward a sustainable future of open-source computing in big data geoscience, Organizer and convener of day-long conference sessions showcasing open science practitioners, Co-founder of Pangeo Oceania

Open-source software education and curriculum development
Developer and leader of Python computing curriculum at the Coastal Ocean Environment Summer School, Member of the Steering Council and co-organizer of the 2021 and 2022 OceanHackWeek, Leader of the Big Data group with the Australian Climate Data Guide

Global capacity development in ocean sciences
Co-lead of Global Ocean Corps and Conveyor - an endorsed programme through the UN Decade of the Ocean, Lead organizer of Coastal Ocean Environment Summer School in Ghana

Expertise in scientific and cloud computing, large datasets, and software development
Years of experience analyzing large ocean and climate model datasets using tools including Jupyter, Xarray, and Dask on cloud computing frameworks, Proficiency in Git and GitHub, Contributor to open-source tools (aerobulk-python, xrft)

POSITIONS

Support Scientist
NASA Transform to Open Science (TOPS)
Nov. 2022 – present
NY

Postdoctoral Research Scientist, Advisor: Ryan Abernathey
Lamont-Doherty Earth Observatory, Columbia University
May 2022 – Nov. 2022
NY

Postdoctoral Research Scientist (dual affiliation)
Research School of Earth Science, Australian National University
Advisor: Andy Hogg
Feb. 2021 – Apr. 2022
Australia

Lamont-Doherty Earth Observatory, Columbia University
Advisor: Ryan Abernathey
Apr. 2021 – Feb. 2022
NY

Research Assistant, *Advisor:* Brian Arbic
University of Michigan, Earth and Environmental Sciences Dept.
Jun. 2019 – Jul. 2020
MI

Graduate Student Research Assistant, *Advisor:* Brian Arbic
University of Michigan, Earth and Environmental Sciences Dept.
May 2013 – May 2019
MI

Graduate Student Instructor
University of Michigan, Physics Dept.
Sep. 2012 – May 2013
MI

EDUCATION

University of Michigan, Dept. of Physics, Advisor: Brian Arbic
Ph.D. in Physics & Physical Oceanography
M.S. in Physics
MI
Aug. 2019
Dec. 2017

Potsdam Institute for Climate Impact Research / Humboldt Universität, Physics Dept., *Advisor: Jürgen Kurths*	Sep. 2011 – Aug. 2012 *Germany*
One-year fellowship (non degree-seeking)	
Harvard University	May 2011
A.B. (cum laude honors) in Physics, minor in French	*MA*
Université Pierre et Marie Curie	Sep. 2009 – Jan. 2010
Junior year abroad (through Hamilton College)	*France*

FELLOWSHIPS

National Science Foundation Graduate Research Fellowship	2013 - 2018
Graduate Opportunities Worldwide (through NSF GRFP) Awarded for research at the Australian National University, Canberra	Feb. – Jun. 2017 *Australia*
Fellow at the Geophysical Fluid Dynamics Program Woods Hole Oceanographic Institute	Jun. – Aug. 2014 *MA*
DAAD Study/Research Graduate Scholarship in Germany Potsdam Institute for Climate Impact Research/Humboldt Universität	2011 - 2012 *Germany*

OUTREACH & CAPACITY DEVELOPMENT

Co-lead for Global Ocean Corps and Conveyor	2021 – present
Co-organizer and lead computing instructor of the Coastal Ocean and Environment Summer School in Ghana	2017 – present
Co-organizer and mentor at OceanHackWeek	2021 – present
Scientific advisor for non-profit Plastic Punch (Accra, Ghana)	2019 – present

SERVICE

Member of the Pangeo Steering Council	Feb. 2022 – present
Member of the OceanHackWeek Steering Council	Feb. 2022 – Nov. 2022
Co-organizer of Pangeo Oceania, a regional branch of Pangeo	Jun. 2021 – May 2022
Leader of "Working with Big and Challenging Data Collections" 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:

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

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 & 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 & OTHER WORK EXPERIENCE

Teaching Assistant for [Python for Atmosphere and Ocean Science workshop](#) ICSHMO 2022
Helped teach content from Data Carpentry lessons

Feb. 2022
Online

Instructor and Co-organizer of the Coastal Ocean Environment Summer School in Ghana
- 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

Aug. 2021/Aug. 2020/Jan. 2020
Online

Instructor and Co-organizer of the Coastal Ocean Environment Summer School in Ghana, *Regional Maritime University, Accra*
- 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

Aug. 2019
Ghana

Graduate Student Instructor, *University of Michigan*
- Introduction to Physical Oceanography
- Converted all class materials from Matlab to Python

Fall 2018
MI

Instructor at the Coastal Ocean Environment Summer School in Ghana, *University of Ghana - Legon, Accra*
- Introduction to Python

Aug. 2018
Ghana

Teaching Assistant at the Coastal Ocean Environment Summer School in Ghana, *Regional Maritime University, Accra*

Aug. 2017
Ghana

Graduate Student Instructor, *University of Michigan*
- Physics 141: Elementary Lab 1
- Physics 136: Life Sciences Lab 1

Fall 2012 – Spring 2013
MI

Information Technology Coordinator and Co-teacher of course Physics and Go-Karts, *Exploration Summer Program*

Summer 2011
MA

Peer tutor, *Harvard College Bureau of Study Counsel*
- Physics, Math, French

2008 – 2010
MA

PRESENTATIONS

"Diversifying Oceanography: The Coastal Ocean Environment Summer School in Ghana" / "Towards a Truly Global Ocean Science Enterprise: Ocean Corps and the Coastal Ocean Environment

Online

Summer School in Ghana", *a* series of seminars on the same topic, given jointly with collaborators:

- Earth Science Seminar, *Jet Propulsion Lab*
- Environmental Science and Engineering Seminar, *Caltech*
- Research School of Earth Sciences School Seminar, *Australian National University*
- Centre for Marine and Coastal Studies Seminar, *Universiti Sains Malaysia*
- Department of Earth, Environmental and Planetary Sciences Colloquium, *Brown University*
- Ocean and Climate Physics Seminar, Lamont-Doherty Earth Observatory, *Columbia University*

Jun. 2022
Jan. 2022
Jun. 2021

Apr. 2021

Jan. 2021

Sep. 2020

Ocean Sciences Meeting
- *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*

Feb. 2022
Online

AGU Fall Meeting
- *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*

Dec. 2021
Online

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

Nov. 2021
Online

Earthcube 2021
Frequency-Domain Analysis of Large Datasets

Jun. 2021
Online

AGU Fall Meeting
- *Drivers of Atmospheric and Oceanic Surface Temperature Variance*
- *Python and Open-Source Software for Developing Countries: A Catalyst for Change*

Dec. 2020
Online

Ocean Sciences Meeting
- *Spectral Energy Budget Analysis in the Frequency Domain*
- *Python and Open-Source Software for Developing Countries: A Catalyst for Change*

Feb. 2020
San Diego, CA

AGU Fall Meeting
- 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. 2019
San Francisco, CA

AGU Fall Meeting

Dec. 2018

• *Diagnosing Energy Transfer in an Idealized, North Atlantic, Ocean-Atmosphere Model*	*Washington, DC*
Physical Oceanography Dissertation Symposium (PODS)	Oct. 2018
• *Diagnosing Energy Transfer in an Idealized, Ocean-Atmosphere Model: A Frequency-Domain Approach*	*Kona, HI*
Annual COSIMA Workshop	May 2018
• *Frequency-Domain Analysis of Energy Transfer in an Idealized Ocean-Atmosphere Model*	*Canberra, Australia*
Ocean Sciences Meeting	Feb. 2018
• *Frequency-Domain Analysis of Energy Transfer in an Idealized Ocean-Atmosphere Model*	*Portland, OR*
DRAKKAR Annual Workshop	Jan. 2018
• *Frequency-Domain Analysis of Energy Transfer in an Idealized Ocean-Atmosphere Model*	*Grenoble, France*
CLIVAR Open Science Conference	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*	*Qingdao, China*
Ocean Sciences Meeting	Feb. 2016
• *The Ocean or the Atmosphere: Diagnosing Forced Versus Intrinsic Low-Frequency Variability in an Idealized North Atlantic Coupled Ocean-Atmosphere Model*	*New Orleans, LA*
AGU Fall Meeting	Dec. 2015
• *Network Analysis of Atmospheric Rossby Wave Patterns in the Northern Midlatitudes*	*San Francisco, CA*
EGU General Assembly	Apr. 2015
• Oral PICO ("Presenting Interactive Content") Student Pop-up Talk: *Networks and Climate: Are they a Good Match?*	*Vienna, Austria*
• Poster: *Frequency Domain Analysis of Forced Versus Intrinsic Variability in a Quasi-Geostrophic Coupled Ocean Atmosphere Model*	
AGU Fall Meeting	Dec. 2014
• *Topology and Seasonal Evolution of the Network of Extreme Precipitation over the Indian Subcontinent and Sri Lanka*	*San Francisco, CA*

RESEARCH CRUISE	R/V Sally Ride: Mode 2 internal waves near the Mendocino Ridge	Dec. 2019 *Pacific Ocean*

OTHER INTERESTS	Performing in musical theater (professional performer), singing, dancing, partner acrobatics, gymnastics, aerial silks, hand balancing, pole vaulting, speaking in French and German, birdwatching