Dr. Paige E. Martin

Climate Data Scientist | Open Science Enthusiast

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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

Postdoctoral Research Scientist, Advisor: Ryan Abernathey — May 2022 – present
Lamont-Doherty Earth Observatory, Columbia University — *NY*

Postdoctoral Research Scientist (dual affiliation)
Research School of Earth Science, Australian National University — Feb. 2021 – Apr. 2022 — *Australia*
Advisor: Andy Hogg
Lamont-Doherty Earth Observatory, Columbia University — Apr. 2021 – Feb. 2022 — *NY*
Advisor: Ryan Abernathey

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

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

EDUCATION

University of Michigan, Dept. of Physics, Advisor: Brian Arbic — *MI*
Ph.D. in Physics & Physical Oceanography — Aug. 2019
M.S. in Physics — 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) — Feb. – Jun. 2017
Awarded for research at the Australian National University, Canberra — *Australia*

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

DAAD Study/Research Graduate Scholarship in Germany — 2011 - 2012
Potsdam Institute for Climate Impact Research/Humboldt Universität — *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 – 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

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, 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 & 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 — Feb. 2022
ICSHMO 2022 — *Online*
Helped teach content from Data Carpentry lessons

Instructor and Co-organizer of the Coastal Ocean Environment Summer School in Ghana — Aug. 2021/Aug. 2020/Jan. 2020 — *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

Instructor and Co-organizer of the Coastal Ocean Environment Summer School in Ghana, *Regional Maritime University, Accra* — Aug. 2019 — *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

Graduate Student Instructor, *University of Michigan* — Fall 2018 — *MI*
- Introduction to Physical Oceanography
- Converted all class materials from Matlab to Python

Instructor at the Coastal Ocean Environment Summer School in Ghana, *University of Ghana - Legon, Accra* — Aug. 2018 — *Ghana*
- Introduction to Python

Teaching Assistant at the Coastal Ocean Environment Summer School in Ghana, *Regional Maritime University, Accra* — Aug. 2017 — *Ghana*

Graduate Student Instructor, *University of Michigan* — Fall 2012 – Spring 2013 — *MI*
- Physics 141: Elementary Lab 1
- Physics 136: Life Sciences Lab 1

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* — 2008 – 2010 — *MA*
- Physics, Math, French

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

- Earth Science Seminar, *Jet Propulsion Lab* — Jun. 2022
- Environmental Science and Engineering Seminar, *Caltech* — Jan. 2022
- Research School of Earth Sciences School Seminar, *Australian National University* — Jun. 2021 / 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*

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

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

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

Earthcube 2021 — Jun. 2021 — *Online*
Frequency-Domain Analysis of Large Datasets

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

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

AGU Fall Meeting — Dec. 2019
- Poster: *Diagnosing Energy Transfer in an Idealized, North Atlantic, Ocean-Atmosphere Model* — *San Francisco, CA*
- 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*

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