Dr. Paige E. Martin

Climate Data Scientist | Open Science Enthusiast

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https://paigem.github.io
paigem

ACHIEVEMENTS

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 in cloud-native frameworks, Proficiency in Git and GitHub, Contributor to open-source tools (aerobulk-python, xrft)

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, Instructor and co-developer of NASA's introductory open science curriculum (Open Science 101), 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 Nigeria and Ghana

POSITIONS

Support Scientist — Nov. 2022 – present
Office of the Chief Science Data Officer — *Remote from NY*
NASA Headquarters
Senior Principal Research Scientist, Contractor to NASA HQ
ASRC Federal

Postdoctoral Research Scientist, Advisor: Ryan Abernathey — May 2022 – Nov. 2022
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*

Graduate Student Instructor — Sep. 2012 – May 2013
University of Michigan, Physics 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 *France*
Junior year abroad (through Hamilton College)

FELLOWSHIPS

National Science Foundation Graduate Research Fellowship — 2013 - 2018

Graduate Opportunities Worldwide (through NSF GRFP) — Feb. – Jun. 2017 *Australia*
Awarded for research at the Australian National University, Canberra

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

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

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 – 2022

Scientific advisor for non-profit Plastic Punch (Accra, Ghana) — 2019 – present

SERVICE

Member of Open Source Science (joint NumFocus-IBM initiative) — Nov. 2022 – present

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 – Dec. 2022

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:

IGARSS 2023: *Open Science in Action*	2023
AGU Fall Meeting: *"Open Science Practices and Success Stories Across the Earth, Space, and Environmental Sciences"*	2023
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, npj Ocean Sustainability*

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

Instructor and Lead co-organizer of the Coastal Ocean Environment Summer School in Nigeria and Ghana, *University of Ghana* — Aug. 2023, *Ghana and Online*

- Computing lead: led a team of 6 scientific computing instructors
- Computing instructor: developed my own and curated community-supported Jupyter notebook tutorials from Project Pythia, hosted live virtual tutorials on scientific Python (including Intro to git/GitHub, Python en français, and Make a personal website with GitHub), and ran a cloud-based JupyterHub via 2i2c for participants
- Co-organizer of online school and co-lead organizer of the in-person school: co-developed the structure, organization, and schedule
- Project lead for the Python computing project group: led ~20 participants and 5 other instructors with the goal of increasing Python and scientific literacy and sharing knowledge for how to access NASA data
- Website maintainer (https://coessing.org)

Instructor of NASA's Open Science 101 — 2023

Taught at numerous conferences and events:

- American Meteorological Society's (AMS) Annual Meeting — *Denver, CO*
- American Association for the Advancement of Science (AAAS) Annual Meeting — *Washington, DC*
- NASA HQ workshop — *Washington, DC*
- Lunar and Planetary Science Conference (LPSC) — *Woodlands, TX*
- International Geoscience and Remote Sensing Symposium (IGARSS) 2023 — *Pasadena, CA*

Instructor and Lead co-organizer of the Coastal Ocean Environment Summer School in Nigeria and Ghana — Aug. 2022/ Aug. 2021/ Aug. 2020/ Jan. 2020, *Online*

- Computing lead: led a team of 5 scientific computing instructors
- Computing instructor: created Jupyter notebook and video tutorials, hosted live tutorials on scientific Python, helped run a cloud-based JupyterHub for participants
- Lead co-organizer of online school: developed the structure and hosted the online school

- Provided general Python support for other topics and instructors at the school
- Website maintainer (https://coessing.org)

Teaching Assistant for Python for Atmosphere and Ocean Science workshop ICSHMO 2022 — Feb. 2022, *Online*
Helped teach content from Data Carpentry lessons

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

Texas Open Science Summit — Sep. 2023, *Online*
- *NASA's Transform to Open Science Initiative*

West Africa Marine Science Symposium — Aug. 2023, *Accra, Ghana*
- *Transforming to Open Science: NASA's Open Data for the West African Community*

Python Ghana event: Python in Industry: Open Science, Healthcare, and More — Aug. 2023, *Accra, Ghana*
- *Perspectives on Open Science*

Invited seminar speaker at NCAR (National Center for Atmospheric Research): Computational and Information Systems Lab (CISL) Seminar — Aug. 2023, *Boulder, CO*
- *Invited speaker: Transforming to Open Science: Perspectives on How to Best Support Open Science*

IGARSS: International Geoscience and Remote Sensing Symposium — Jul. 2023, *Pasadena, CA*

- *Invited panelist: Towards Developing a Framework for Continuity of Satellite Observations of Earth's Climate and for Supporting Societal Resilience*
- *NASA Hyperwall talk: 2023 NASA's Year of Open Science*

SciPy 2023 Jul. 2023
- *Co-led townhall event: Funding Open Source Software* *Austin, TX*

IEEE Services: Symposium on Open Source Science Jul. 2023
- *Invited plenary panelist: Open Source in Science and Enterprise* *Chicago, IL*
- *Talk: To Be or Not To Be Open: A Scientist's Perspective*

"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*

- Harte Seminar, Texas A&M University-Corpus Christi Apr. 2023
- 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
- Centre for Marine and Coastal Studies Seminar, *Universiti Sains Malaysia* Apr. 2021
- Department of Earth, Environmental and Planetary Sciences Colloquium, *Brown University* Jan. 2021
- Ocean and Climate Physics Seminar, Lamont-Doherty Earth Observatory, *Columbia University* Sep. 2020

FOGSS (Future of Greenland Ice Sheet Science) Mar. 2023
- *Keynote talk: NASA effort to transform to open science* *Online*

IBM Climate Network Summit Jan. 2023
- *Invited panelist: open-source software in the climate sciences* *Yorktown Hts, NY*

AMS (American Meteorological Society) Annual Meeting Jan. 2023
- *Quantifying the influence of mesoscale-driven air-sea fluxes on a global scale* *Denver, CO*
- *Aerobulk Python: Climate model air-sea fluxes in Python*

AGU Fall Meeting Dec. 2022
- *Quantifying the influence of mesoscale-driven air-sea fluxes on a global scale* *Chicago, IL*
- *How does AGU's strategic plan affect me?*

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

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

AGU Fall Meeting — Dec. 2019, *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*

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

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

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

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

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

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

Ocean Sciences Meeting — Feb. 2016, *New Orleans, LA*

- *The Ocean or the Atmosphere: Diagnosing Forced Versus Intrinsic Low-Frequency Variability in an Idealized North Atlantic Coupled Ocean-Atmosphere Model*

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