JENNA L. PEARSON

Harry Hess Postdoctoral Fellow

Princton University, Guyot Hall, Princeton, NJ 08544

jennap@princeton.edu | jlpearso.github.io

Education

PhD in Earth, Environmental and Planetary Sciences — Sept 2015 - May 2020
Advisor: Prof. Baylor Fox-Kemper — *Brown University*

B.A. in Mathematics — Aug 2008 - Dec 2014
Advisor: Prof. Lidia Filus — *Northeastern Illinois University*
Magna cum laude

B.A. in Earth Science — Aug 2008 - Dec 2014
Advisor: Prof. Ken Voglesonger — *Northeastern Illinois University*
Magna cum laude

Research

Harry Hess Postdoctoral Fellow — Aug 2020 - Present
Advisor: Prof. Laure Resplandy — *Princeton University*
Analysis of observations and models to understand how both human-induced and natural processes regulate coastal hypoxia (harmfully low oxygen levels) in the northern Indian ocean. I also develop teaching aids and lesson plans for middle schoolers to understand climate change. This includes deployment, evaluation, and iteration of these tools to optimize effectiveness.

Graduate Research Assistant — Fall 2015-Spring 2020
Advisor: Prof. Baylor Fox-Kemper — *Brown University*
Statistical methods paired with models, observations, and theory to isolate biases in Lagrangian observation platforms as well as characterize reactive-tracer fields in the presence of turbulence.

Undergraduate Researcher — Summer 2014
Advisor: Prof. Björn Sandstede, Division of Applied Mathematics — *Brown University*
Analysis of data assimilation and parameter estimation schemes applied to traffic models.

Undergraduate Researcher — Summer 2013
Advisor: Prof. Alkes Price, Department of Epidemiology — *Harvard University*
Statistical methods to infer consistency across populations of genetic variants associated with type-II diabetes.

Teaching & Mentoring

Junior Project Student Co-Mentor — Fall-Spring 2020
Co-mentored a junior undergraduate student on two projects spanning one semester each with Laure Resplandy. Utilized observations of temperature, oxygen, and runoff to assess the persistence and drivers of hypoxia along the coasts of the United States. — *Princeton University*

Junior Colloquium Seminar Instructor — Oct 5,19 2020
Introduction to Python — *Princeton University*
Taught introductory level python via jupyter notebooks on a High Performance Computing cluster to undergraduate juniors over two online synchronous seminar sessions.

Course Designer and Instructor for Summer @ Brown (online & asynchronous) Summer 2020

Studying the Ocean: Past, Present and Future *Brown University*

Expanded my 2-week in-person Summer@Brown course (see below) for remote delivery over 4 weeks. Developed asynchronous canvas modules with lectures, discussions, at-home experiments, and a final group research project and presentation.

Co-Course Designer and instructor for Summer @ Brown Summer 2019

Studying the Ocean from the Classroom to the Bay taught with Abigail Bodner. *Brown University*

Developed and co-taught a two-week summer course introducing pre-college students to college-level oceanography through observations, theory and models. Included a day-long cruise in Narragansett Bay collecting observations and applying learned knowledge, rotating tank fluids experiments, MATLAB coding assignments, and a final research project and poster session.

Co-Course Designer and instructor for Summer @ Brown Summer 2018

Studying the Ocean from the Classroom to the Bay taught with Abigail Bodner. *Brown University*

Developed and co-taught a two-week summer course introducing pre-college students to college-level oceanography through observations, theory and models. Included a day-long cruise in Narragansett Bay collecting observations and applying learned knowledge, Python jupyter notebook coding assignments, and a final research project and poster session.

Graduate Teaching Assistant Spring 2019

Introduction to Oceanography *Brown University*

for Prof. Steve Clemens.

Responsibilities included holding regular office hours and grading homework assignments.

Graduate Teaching Assistant Fall 2017

Global Climate & Weather *Brown University*

for Prof. Amanda Lynch

Responsibilities included holding regular office hours, grading and developing homework assignments, assisting with advising and grading final research projects. Lectured on general ocean/atmospheric circulation and thunderstorms.

Elementary School Science Instructor 2015 - 2016

Developed and implemented hour-long science lessons for 2nd and 3rd grade students. *Vartan Gregorian Elementary*

Topics included weather and climate, phases of the moon, and the water cycle.

GRE Instructor Aug 2015

Student Center for Science Engagement *Northeastern Illinois University*

Taught a two-week summer course preparing students for the quantitative section of the GRE.

EMERGE Peer Leader Jul-Aug 2015

Department of Mathematics *Northeastern Illinois University*

Month long intensive summer course designed to prepare incoming undergraduate students for mathematics placement exams. Topics included algebra and trigonometry.

Mathematics Enrichment Workshop Program Peer Leader 2010-2012

Department of Mathematics *Northeastern Illinois University*

Semester long recurring program designed to assist students in Calculus series courses through weekly peer-led lessons and homework.

U.S. Army National Guard 2005-2013

Served in Iraq as an E-4 Specialist during 2011, honorably discharged in 2013.

Health care specialist, as well as medical trainer and Combat Lifesaver Course coordinator/instructor for the State of IL and in Balad, Iraq.

Publications

1. **Pearson, J.**, Resplandy, R., Poupon, M., *In Prep*: Coastlines at Risk of Hypoxia in the Northern Indian Ocean *Submitting to PNAS.*

2. Pearson, B., **Pearson, J.**, Fox-Kemper, B., 2021: Advective Structure Functions in Anisotropic Two-Dimensional Turbulence. *Journal of Fluid Mechanics.* DOI

3. **Pearson, J.**, Fox-Kemper, B., Pearson, B., Chang, H., Huntley, H., Haus, B., Horstmann, J., Huntley, H., Kirwan, D. A., Jr., Poje, A., 2020: Biases in structure functions from observations of submesoscale flows. *Journal of Geophysical Research: Oceans. 125, e2019JC015769* DOI

4. Chang, H., Huntley, H., Kirwan, D., Jr., Carlson, D., Mensa, J., Mehta, S., Novelli, G., Ozgokomen, T., Fox-Kemper, B., Pearson, B., **Pearson, J.**, Harcourt, R., 2019: Small-scale dispersion observations in the presence of Langmuir circulation. *Journal of Physical Oceanography. 49, 3069-3085* DOI

5. **Pearson, J.**, Fox-Kemper, B., Barkan, R., Choi, J., Bracco, A., & McWilliams, J., 2019: Impacts of convergence on structure functions from surface drifters in the Gulf of Mexico. *Journal of Physical Oceanography, 49, 675-690.* DOI

6. Xia, C., Cochrane, C., DeGuire, J., Fan, G., Holmes, E., McGuirl, M., Murphy, P., **Palmer, J.**, Carter, P., Slivinski, L., & Sandstede, B., 2017: Assimilating Eulerian and Lagrangian data in traffic-flow models. *Physica D: Nonlinear Phenomena*, 346, 59-72. DOI

Awards & Honors

Harry Hess Postdoctoral Research Fellowship	2020-2022
Tse Cheuk Ng Tai Innovations in Fluids and Health 2019 Award, Tse Cheuk Ng Tai Innovation Fund	2019
Brown University Graduate School Conference Travel Grant	2019
Fluids and Health 2019 Junior Researcher Fellowship	2019
Brown University Graduate School Conference Travel Grant	2019
Brown University Graduate School International Travel Grant	2019
GoMRI Scholar, Gulf of Mexico Research Initiative	2018
First Year Graduate Fellowship, Brown University	2015-2016
National Institute for Mathematical and Biological Synthesis Travel Grant	2013
National Science Foundation MaPs Scholar, Northeastern Illinois University	2012-2014
Society for Advancement of Chicanos and Native Americans in Science Travel Grant	2012
Army Achievement Medal, ILARNG	2011

For meritorious achievement, outstanding performance, personal sacrifice, and service as the primary instructor during the battalions Combat Lifesaver Course.

Command Sergeant Major's Award, ILARNG	2009

For outstanding service in successfully training soldiers in Combat Lifesaver skills, and performance of the highest standards befitting of soldiers who lead from the front.

Dean's List, Northeastern Illinois University	2008-2014

Skills & Training

Computer Languages & Software: MATLAB, Python, R, and LaTeX

Community Earth System Model (CESM) Tutorial 2019 08/05-08/09 2019
1 week of lecture and hands on activities to learn to operate CESM. *NCAR, CO*

Cornell Satellite Remote Sensing Training Program 06/03-06/14 2019
2 week summer course on remote sensing with a focus on ocean color. *Ithaca, NY*

American Institute of Biological Sciences & RI NSF EPSCoR/RI C-AIM Feb 2019
Enabling Interdisciplinary and Team Science Workshop: A Professional Development Program from AIBS *Kingston, RI*

The Harriet W. Sheridan Center for Teaching and Learning Fall 2018
Certificate I: Reflective Teaching *Providence, RI*

GODAE Oceanview International School Fall 2017
New frontiers in operational oceanography *Mallorca, Spain*

Consortium for Advanced Research on Transport of Hydrocarbon in the Environment III Summer 2017
2 weeks launching driftcards in the Gulf of Mexico shelf area of LA *Grande Isle, LA*

Northeastern Illinois University Field School Summer 2014
2 weeks producing detailed geologic maps, stereonets, and reports on geomorphological and glacial features of the Baraboo syncline area *Baraboo, WI*

Service & Outreach

Contributions

Online/in-person Math, Programming and Earth Science tutor for grades 5 through college-level. 2014-present
Virtual Research Presentation for the Gifted 5th Graders Program at Bensonhurst in Brooklyn, NY Jan 2020
Big Bang Science Fair Demonstrator, Waterfire in Providence, RI Sept 2019
Career Day Geosciences Speaker, Lincoln Middle School Apr 2019
GradCon Coordinator, Brown University 2018-2019

Reviews

Reviewer, Environmental Research Letters 2020-Present
Reviewer, Ocean Science 2019-Present
Reviewer, Journal of Physical Oceanography 2019-Present
Reviewer, Journal of Fluid Mechanics 2018-Present
Expert Reviewer, Intergovernmental Panel on Climate Change 2018

Departmental Service

Princeton Women in Geosciences Mentor, Princeton University 2020-2021
International Graduate Student Mentor, Brown University Fall 2017-2019
First Year Graduate Student Mentor, Brown University Fall 2017 - Spring 2018
Geoclub Treasurer, Brown University Fall 2016 - Spring 2017

Select Presentations

1. **Pearson, J.**, Resplandy, L., Poupon, M., 2020: Coastlines at Risk of Hypoxia in the Northern Indian Ocean. OCB 2020. Online poster.

2. **Pearson, J.**, Resplandy, L., Poupon, M., 2020: Observed Seasonal and Interannual Controls on Hypoxia in the Northern Indian Ocean. EGU 2020. Online poster. https://doi.org/10.5194/egusphere-egu21-1421

3. **Pearson, J.**, T., Sane, A., Ben-Horin, Fox-Kemper, B., 2019: Pathogen Dispersal in Narragansett Bay. Fluids and Health. **Oral**.

4. **Pearson, J.**, Fox-Kemper, B., Huntley, H., Chang, H., Kirwan, D., Jr., Pearson, B., 2019: Systematic Differences Between Eulerian and Surface Drifter Statistics in the Gulf of Mexico. AOFD, abstract 358490. Poster.

5. **Pearson, J.**, Fox-Kemper, B., Huntley, H., Chang, H., Kirwan, D., Jr., Pearson, B., 2019: Do surface drifters accurately represent Eulerian turbulence statistics? LAPCOD. **Oral**.

6. **Pearson, J.**, Fox-Kemper, B., Huntley, H., Chang, H., Kirwan, D., Jr., Pearson, B., 2019: Observed biases in surface drifter statistics in the Gulf of Mexico. CLIVAR. **Oral**.

7. **Pearson, J.**, Fox-Kemper, B., Barkan, R., Choi, J., Bracco, A., McWilliams, J., 2018: Impacts of convergence zones on Lagrangian structure function statistics in the Gulf of Mexico. GRS. Poster.

8. **Pearson, J.**, Fox-Kemper, B., Barkan, R., Choi, J., Bracco, A., McWilliams, J., 2018: Impacts of Convergence Zones on Lagrangian Structure Function Statistics in the Gulf of Mexico. KITP. Poster.

9. **Pearson, J.**, Fox-Kemper, B., Barkan, R., Choi, J., Bracco, A., McWilliams, J., 2018: Impacts of convergence zones on Lagrangian structure function statistics in the Gulf of Mexico. Waters Edge. Poster.

10. **Pearson, J.**, Fox-Kemper, B., Barkan, R., Choi, J., Bracco, A., McWilliams, J., 2018: Impacts of Convergence Zones on Lagrangian Structure Function Statistics in the Gulf of Mexico. OSM, abstract PS33A-01. Poster.

11. **Pearson, J.**, Fox-Kemper, B., Barkan, R., Choi, J., Bracco, A., McWilliams, J., 2017: Evaluation of Lagrangian Structure Function Statistics in the Gulf of Mexico. AOFD. **Oral**.

12. **Pearson, J.**, Fox-Kemper, B., Barkan, R., Choi, J., Bracco, A., McWilliams, J., 2017: Impacts of Convergence Zones on Lagrangian Structure Function Statistics in the Gulf of Mexico. GODAE International School. Poster.

13. **Pearson, J.**, Fox-Kemper, B., Bodner, A., 2016: Preparing for Model-Data Comparison: Structure Functions and Frontogenesis. CARTHE II All Hands Meeting. **Oral**.

14. **Pearson, J.**, Fox-Kemper, B., Barkan, R., Choi, J., Bracco, A., McWilliams, J., 2016: Structure Function Statistics to Detect Submesoscale Cascades. OSM, abstract PO34C-3066. Poster.

15. **Pearson, J.**, Xia, C., Cochrane, C., DeGuire, J., Fan, G., Holmes, E., McGuirl, M., Murphy, P., Carter, P., Slivinski, L., Sandstede, B., 2015: Microscopic and macroscopic traffic modeling utilizing data assimilation. The 5th Workshop in Statistical Mathematical Modeling. **Invited Oral**.

Affiliations and Memberships

Affiliate Graduate Student in the Institute at Brown for Environment Society (IBES)
Consortium for Advanced Research on Transport of Hydrocarbon in the Environment (CARTHE)

Graduate Fellow of the Rhode Island Consortium for Coastal Ecology Assessment Innovation & Modeling (RI C-AIM)
American Meteorological Society
American/European Geophysical Union
Graduate Women in Science & Engineering
Association for the Sciences of Limnology and Oceanography
