RILEY BRADY

Computational ocean biogeochemist interested in seasonal-to-decadal forecasting of the Earth's biosphere, high-performance computing, open-source software, and data visualization.

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bradyrx
publications

Education

University of Colorado Boulder, PhD, 2021
Atmospheric and Oceanic Sciences
Focus in Ocean Biogeochemistry

University of South Carolina, BS, 2016
Marine Science, *Magna Cum Laude*
Leadership Distinction in Research
South Carolina Honors College

Tools

Proficiency
python (dask, numpy, xarray) • QGIS •
MATLAB • git • bash • ParaView • NCO/CDO

Experience
C/C++ • OpenMP • MPI • javascript •
NCL • R • Fortran • HTML/CSS

Open-Source Software

Core Developer
climpred: verification of climate and weather forecasts
esmtools: a toolbox for Earth system model analysis
xskillscore: metrics for verifying forecasts

Contributor
esmlab: NCAR package for analyzing climate models
LIGHT: Lagrangian particle tracking system
MPAS-Analysis: analyses for the MPAS climate model

Awards

DOE Computational Science Graduate Fellow ($450,000)
Goldwater Scholar ($7,500)
NOAA Hollings Scholar ($30,000)
Runner-up, Data Viz and Storytelling Competition
4x scientific conference presentation awards
U. South Carolina McNair Scholar ($130,000)

Experience

McKinsey & Company Jan 2021–present
Senior Data Scientist, Climate Analytics Denver, CO
Founding member of the climate analytics team, delivering bespoke analyses of projected climate change impacts on companies and non-profits from a variety of sectors. Develop and maintain internal python software for statistical climate model downscaling and projections of physical hazard risks, such as water stress, drought, flooding, extreme precipitation, heat stress, and landslides.

University of Colorado Boulder Jun 2016–Jan 2021
Computational Science Graduate Fellow Boulder, CO
Led research studies related to decadal predictability of ocean carbon and internal climate variability of air-sea CO_2 fluxes. Supervised 6 undergraduate students through diversity programs. Wrote open-source python software for verifying weather and climate forecasts. Gave 20+ presentations and workshops at scientific conferences and academic institutions.

Oak Ridge National Laboratory May 2020–Aug 2020
Visiting Researcher, Computational Earth Sciences Remote
Assessed subseasonal-to-decadal predictability of the terrestrial growing season in a coupled, global Earth system model.

Los Alamos National Laboratory May–Aug 2018
Visiting Researcher, Theoretical Division Los Alamos, NM
Ran parallel, global simulations of the DOE's ocean model on 10,000 CPU cores. Led study investigating the 3-D flow of dissolved carbon in the Southern Ocean. Modified Fortran code base to add biogeochemical "sensors" to autonomous floats in a Lagrangian particle tracking system. Visualized unstructured Eulerian and Lagrangian model output in ParaView, resulting in a visualization award.

University of South Carolina Sep 2012–May 2016
Undergraduate Researcher, Marine Science Columbia, SC
Downloaded, post-processed, and stored petabytes of climate model output from the Coupled Model Intercomparison Project (CMIP5) using NCO, CDO, and MATLAB. Collaborated on studies projecting the long-term impacts of anthropogenic climate change on ocean circulation in the California Current.

NOAA Earth System Research Laboratory May–Aug 2015
NOAA Hollings Scholar, Physical Sciences Division Boulder, CO
Led a peer-reviewed published study isolating the response of ocean circulation in the California Current to anthropogenic climate change and internal climate variability. Processed and analyzed output from the CESM Large Ensemble project.

University of North Carolina at Chapel Hill May–Aug 2013
NSF REU Scholar, Institute of Marine Sciences Morehead City, NC
Assessed the influence of hard clams on shallow-water primary production, seeking creative solutions for seagrass degradation. Worked with lab instruments for organic matter analysis. Assisted in tagging hammerhead sharks off coastal North Carolina.