Ben Buchovecky

CONTACT INFORMATION

bgbucho@gmail.com

https://github.com/bbuchovecky

https://bbuchovecky.github.io

EDUCATION

Princeton University | Princeton, NJ — 2023
B.A. in Geosciences (oceans, atmosphere, and climate track)
Summa Cum Laude

HONORS AND AWARDS

Peter W. Stroh '51 Environmental Thesis Prize | Princeton University — 2023
Best senior thesis on an environmental topic

Arthur F. Buddington Award | Princeton University, Geosciences — 2023
Overall excellence in Geosciences

Membership in the Sigma Xi Society | Princeton University, Geosciences — 2023

Benjamin F. Howell Class of 1913 Prize | Princeton University, Geosciences — 2022
Excellence in junior independent research in Geosciences

RESEARCH EXPERIENCE

Research Scientist, Ecoclimate Lab | University of Washington — 2023 - Present
Advisor: Prof. Abigail Swann

- Using CESM2 simulations to examine the climate response to fixed vapor pressure deficit and the hydrologic response to land parameter perturbations

Senior Thesis, Vecchi Group | Princeton University — 2022 - 2023
Advisor: Prof. Gabriel Vecchi
"Effect of the plant physiological response to CO_2 on tropical precipitation and the ITCZ"

- Investigated tropical precipitation change using a variety of ITCZ metrics and quantified interhemispheric energy imbalances across 13 CMIP6 models
- Designed and ran experiments with the GFDL-AM2.5 model to further examine the tropical precipitation response globally and regionally in Africa

Research Internship, Ecoclimate Lab | University of Washington — 2022
Advisors: Prof. Abigail Swann, Prof. Kyle Armour
"Impacts of high-latitude land-climate interactions on Arctic climate change"

- Explored the contribution of the plant physiological response to Arctic amplification and heat transport across multiple CMIP6 models

Research Internship | Princeton University & NOAA GFDL — 2021
Advisors: Dr. Mitch Bushuk, Dr. Graeme MacGilchrist, Dr. Alex Haumann
"Potential predictability of the spring bloom in the Southern Ocean sea-ice zone"

- Quantified the seasonal-to-decadal predictability of phytoplankton blooms using a suite of perfect model experiments with the GFDL-ESM2M model

- Developed a mechanistic explanation for the progression of predictability from sea ice to biogeochemical fields in the Southern Ocean
- Principal author of paper accepted to *Geophysical Research Letters*

Junior Project, Resplandy Group | Princeton University 2021
Advisor: Prof. Laure Resplandy
"The effect of an amplified hydrological cycle on dissolved oxygen in the ocean"
- Examined how the "wet-get-wetter, dry-get-drier" paradigm affects sub-surface dissolved oxygen through surface salinity-driven circulation changes

PUBLICATIONS

Buchovecky, B., MacGilchrist, G. A., Bushuk, M., Haumann, F. A., Frölicher, T. L., Le Grix, N., & Dunne, J. (2023). Potential predictability of the spring bloom in the Southern Ocean sea ice zone. *Geophysical Research Letters*, 50, e2023GL105139.

PRESENTATIONS

Thesis Defense, Princeton University. May 2023. **Buchovecky, B**. "Effect of the plant physiological response to CO_2 on tropical precipitation and the ITCZ" (*talk*).

Spring Junior Project Poster Session, Princeton University. May 2022. **Buchovecky, B**. "Potential predictability of the spring bloom in the Southern Ocean sea-ice zone" (*poster*).

Ocean Sciences Meeting, AGU, virtual. February 2022. **Buchovecky, B**; Bushuk, M; MacGilchrist, G; Haumann, A; Frölicher, T. "Potential predictability of the spring bloom in the Southern Ocean sea-ice zone" (*talk*).

Fall Junior Project Poster Session, Princeton University. December 2021. **Buchovecky, B**. "The effect of an amplified hydrological cycle on dissolved oxygen in the ocean" (*poster*).

CONFERENCES

UW Program on Climate Change Summer Institute | Friday Harbor, WA 2023

Ocean Sciences Meeting, AGU | Virtual 2022

TECHNICAL SKILLS

Python (including numpy, pandas, xarray, matplotlib, cartopy, and IPython), Git, Bash/shell scripting, NCAR Command Language (NCL), MATLAB, LaTeX

RELEVENT COURSEWORK

Atmospheric Thermodynamics & Convection
Ocean Physics
Glacier Physics
Fluid Mechanics
Modeling the Earth System
Theoretical Ecology
Differential Equations
Probability & Stochastic Systems
Mathematics for Numerical Computing
Algorithms & Data Structures