# Jonathan Benoit

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## Research Experience

### ● Summer Undergraduate Research Fellowship
*Summer 2019 | Brown University*

➢ Validated the Ocean State Ocean Model (OSOM) against buoy data for temperature and salinity
➢ Developed a machine learning algorithm to automatically detect erroneous buoy data

*Summer 2020 – Spring 2021*

➢ Derived high resolution maps of temperature in Narragansett Bay from the Landsat satellite series in Google Earth Engine
➢ Calculated the rate of surface temperature warming in Narragansett Bay and conducted a post-impact analysis of the effect of thermal effluent in the region
➢ First author on a peer-reviewed publication to Frontiers in Marine Science. The publication was accepted with no major revisions
➢ Presented this work as a guest lecture in a Remote Sensing class in Spring 2022

### ● Hollings Scholarship | NOAA
*2020-2022 | National Weather Service | Key West, FL*

➢ Used statistics and machine learning to discover novel synoptic-scale meteorological phenomena from ERA5 that correspond to waterspout favorability in the Florida Keys
➢ Presented results in a poster at the AGU and AMS

### ● Senior Thesis
*2021-2022 | Advised by Dr. Baylor Fox-Kemper*

➢ Forced a coastal ocean model of Narragansett Bay (OSOM) with climate forcing under RCP 8.5 for past, present, and future (2100) scenarios using the Regional Ocean Modeling System (ROMS) and the Cheyenne supercomputer
➢ Predicted increases in temperature, sea level, salinity, and stratification within Narragansett Bay
➢ Visualized the effect of thermal effluent and climate change in 3D space and time
➢ Presented the work orally and in writing

## Scientific Visualization Experience

### ● RI C-AIM Visualization Intensive
*Spring 2020*

➢ Collaborated with the Rhode Island School of Design to create a sonification project that converted Narragansett Bay buoy data into sound

## Education

### ● Brown University | Sc.B. Geophysics
*Class of 2022 | Magna Cum Laude | Honors*

### ● Juneau Icefield Research Program
*Summer 2022 | Juneau, AK*

➢ Participating in an 8-week glaciology field course
➢ Developing skills in mountaineering, working in extreme and isolated environments, glacier physics, and leadership

## Leadership Experience

### ● DEEPS Spring Break Field Trip Leader
*2020 - 2022*

➢ *Organized (2020, 2022) and led (2022) an 8 day, 30-person trip to Utah for Brown's Earth Science department*
➢ Created an educational itinerary spanning environmental disciplines
➢ Coordinated group planning surrounding food, gear, fundraising, field guide writing, flights, camping, group bonding, and other trip logistics

### ● Teaching Assistant | Earth Processes
*Spring 2021*

➢ Provided technical support for a hybrid Earth processes course
➢ Graded homework and led office hours

## Skills

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| Matlab, Python (4+ years) | Remote Sensing |
| Google Earth Engine | GIS |
| Machine Learning | Statistics |
| Computational Modeling | Scientific Writing |

## Interests

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|---|---|
| Data Visualization | Climate Change |
| Earth System Modeling | Field Work |
| Sustainability | Teaching |
| Geophysics | Science Communication |

## Publications

➢ Benoit, J., & Fox-Kemper, B. (2021). Contextualizing thermal effluent impacts in Narragansett Bay using Landsat-derived surface temperature. *Frontiers in Marine Science, 8.* https://doi.org/10.3389/fmars.2021.705204
➢ "Modeling Estuary-Scale Climate Change: Narragansett Bay Under RCP 8.5" (senior thesis)
➢ Poster presentations at RI-CAIM SURF Conference 2019, American Geophysical Union 2021, American Meteorological Society 2022