

Elizabeth Ellison

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Professional Experience

Postdoctoral Research Fellow *Australia National University* Nov 2023-Current

Position funded by the Australian Research Council Centre of Excellence for Climate Extremes

Research topic: The interaction of mesoscale dynamics with Southern Ocean Biogeochemistry

Education

PhD in Civil and Sustainable Engineering *Imperial College London* 2018-July 2023

Skills gained: Scientific research and writing, quantitative climate model analysis, project management

Thesis: Investigating the role of coupled physical-biochemical ocean processes in climate dynamics

M.Sc., Oceanography, Distinction *University of Southampton, National Oceanography Centre* 2017-2018

Skills gained: Data analysis, report writing, research communication, ecosystem modelling

Subject studied: Biological, chemical and physical oceanography

B.Sc. (Hons), Natural Sciences, 2.1 *Durham University* 2013-2016

Skills gained: Time management, teamwork, independent research

Subject studied: Biology, Chemistry, Geology, Geography

A/AS levels: Maths (A*) Further Maths (A) Chemistry (A*) Biology (A*) Geography (A)

2013

Awards and Scholarships

2022: NSF, ONR and NOAA PODS bursary £4000

2022: Gordons Research Seminar Early Career Bursary £500

2019: Jersey Clipper Bursary £500

2019: Imperial College Grantham Institute travel bursary £400

2019: States of Jersey Postgraduate Student Bursary £4,000

2018: Engineering Physical Science Research Council £107,000

- Awarded by Imperial College Civil and Sustainable Engineering CDT

2018: University of Southampton *John Raymont Memorial Prize*

- Highest mark for the M.Sc. Oceanography course

2016: Team Durham *Half Palatinate Colours*,

- Outstanding contribution and achievement within the university sailing club

2016: Consolidated Minerals *David Miler Scholarship* £4,500

- To assist high potential students with further studies in Earth Sciences

Publications

Ellison, E., Mashayek, A., & Mazloff, M. (2023). The Sensitivity of Southern Ocean Air-Sea Carbon Fluxes to Background Turbulent Diapycnal Mixing Variability. *Journal of Geophysical Research: Oceans*, 128(9).

Ellison, E., Cimoli, L., & Mashayek, A. (2022). Multi-time scale control of Southern Ocean diapycnal mixing over Atlantic tracer budgets. *Climate Dynamics*, 60(9), 3039–3050.

N. Reynard, Mashayek, A, **E. Ellison**, A. Wilson, P. Williamson, J. O-Niles, E. Ransome, “The contribution of coastal blue carbon ecosystems to climate change mitigation and adaptation”, Grantham Institute Policy Paper, (2020), 34.

E. Ellison, L.Baker, A. Wilson "IPCC Special Report Meeting: Climate Change Around the Globe." (2020): 293-294.

In preparation

Ellison, E., Mashayek, A., & Mazloff, M. “Enhanced Southern Ocean biomass with increased Diapycnal mixing”, resubmitted after minor corrections to *Journal of Geophysical Research: Oceans*.

Ellison, E., Mashayek, A., & Mazloff, M. “Can Biogeochemical Tracer Observations Constrain Southern Ocean Diapycnal Mixing Rates?”

Technical Work Experience

Aug - Dec 2023: Coastal Flooding Modeller, Climate X

- Researched and implemented a globally scalable method for modelling storm surge flooding under a range of climate change scenarios
- Used AWS to run high resolution regional flood models
- Collected data for scalable flood modelling

Aug - Dec 2022: Graduate Teaching Assistant, Imperial College

- *Computation Methods*: Assist students with matlab tutorials and general queries
- *Fluid Mechanics*: Provide clear explanations to tutorial or general class problems

Spring 2019: Research Intern, Scripps Institute of Oceanography and The Carbon Institute (University of California San Diego)

- Identified key areas for novel research into ocean carbon storage potential
- Developed ideas with experts in climate policy and ocean dynamics

2016 – 2017: Project Geologist, Royal Road Minerals

- Researched potential mineral prospecting sites, analysed historic site records
- Establish a new project, focusing on deep sea mineral resources, researched legalities of deep sea mining.

Summer 2014: Shadow Geologist, Consolidated Minerals (Perth, WA)

- Assisted geologists within a large Manganese mine
- Gained skills in sample logging, and using GIS,

Customer facing Work Experience

2016: Weekend Volunteer, Durrell Wildlife Conservation Trust

- Worked within the education department to improve visitor's experiences
- Developed the ability to engage with a wide variety of audiences

2010 – 16: Sailing Instructor, St Catherine's Sailing Club / Hotel San Lucianu Corsica

- Communicated to students in a clear, enthusiastic, interesting manner
- Managed and trained younger less experienced members of the team

Committee Roles

2019-2022: Event Volunteer, The Royal Society London

- Demonstrate science experiments in an engaging and education way
- Provide feedback on how future events can be improved

2019-2021 Civil and Environmental engineering fluid dynamics representative

- Communicate problems and suggestions between staff and students
- Organise and budget social events throughout the year

2019: Event Volunteer, International Student Energy Summit

- Coordinated and assisted over 600 delegates
- Worked proactively to solve any problems

2019: Organising Committee, Imperial College CDT Festival of Science

- Planned, budgeted and organised an engaging program of events
- Identified, contacted and coordinated relevant speakers

2015-2016: Yachting Captain, Durham University Sailing Club

- Organised and budgeted major events for over 100 people
- Significantly improved on previous results through well planned training

Skills + Interests

Software: Matlab coding, Python, ArcGIS, QGIS, Latex, AWS, Github, Microsoft Packages

Sailing: RYA instructor, RYA Yacht master, RYA VHF licence, Placed 3rd in UK university circuit 2016

Diving: 80+ dives globally, PADI advanced diver, Indian Ocean reef ecology course