Elizabeth Ellison

25/ 67-69 St Pauls Street | elizabeth.ellison@anu.edu.au | 0468862104 | DOB:10/03/1995

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

2024:	**CLEX Postdoctoral Fellowship**	AU$100,000
2022:	**NSF, ONR and NOAA PODS bursary**	£4000
	Gordons Research Seminar Early Career Bursary	£500
2019:	**Jersey Clipper Bursary**	£500
	Imperial College Grantham Institute Travel Bursary	£400
	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	
	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	
	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?", submitted to *Geophysical Research Letters*

Climatic Reach of Small-Scale Ocean Turbulence

Industry Experience

Aug - Dec 2023: **Coastal Flooding Modeller, Climate X (London)**
- 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

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 (Jersey)**
- 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

Teaching

2020-2022: **Graduate Teaching Assistant, *Fluid Mechanics,* Imperial College**
- Provided clear explanations to tutorial or general class problems.
- Marked student summative and formative assignments.

2020-2022: **Graduate Teaching Assistant, *Computation Methods,* Imperial College**
- Assist students with MATLAB tutorials and general queries.
- Marked student summative and formative assignments.

Service

Ongoing: **Reviewer for high level scientific journals (4)**

2024: **Organising Committee, COSIMA Hackathon**

2019-2021 **Fluid Dynamics Section Student 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

Outreach

2019: **The Grantham Institute COP 25 Delegate**

- Presented research on blue carbon climate mitigation potential at a panel event to a generalist audience.
- Wrote social media posts communicating about COP 25 to followers

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

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

Presentations

CLEX Ocean Extremes Workshop – IMAS Hobart; *How does resolving mesoscale features in the Southern Ocean Impact biogeochemistry?,* 2024. Talk

IMOS Ocean Modelling and Observations Workshop – Canberra; *How does resolving mesoscale features in the Southern Ocean Impact biogeochemistry?,* 2024. Poster

Climate Fluid Physics Seminar – ANU Canberra; *How does resolving mesoscale features in the Southern Ocean Impact biogeochemistry?,* 2024. Talk

AGU Ocean Sciences – New Orleans; *Multi-time scale control of Southern Ocean diapycnal mixing over Atlantic tracer,* 2024. Talk

CLEX Annual Meeting- Brisbane; *The Sensitivity of Southern Ocean Carbon Fluxes to Diapycnal Mixing*, 2023. Poster.

Physical Oceanography Dissertation Symposium – Hawaii; *The Impact of Diapycnal Mixing on Southern Ocean Biogeochemical Tracers*, 2022. **Invited Talk.**

The Royal Society Southern Ocean Meeting- London; *The Sensitivity of Southern Ocean Carbon Fluxes to Diapycnal Mixing*, 2022. Poster.

European Geosciences Union General Assembly – Viennna; *Enhanced Southern Ocean biomass with increased parameterized background diapycnal mixing* European, 2022. Talk.

Ocean Biogeochemistry Gordons Research Conference - Barcelona; *The Sensitivity of Southern Ocean Carbon Fluxes to Diapycnal Mixing*, 2022. Poster.

Ocean Biogeochemistry Gordons Research Seminar - Barcelona; *The Rapid Response of Southern Ocean Biological Productivity to Changes in Background Small Scale Turbulence*, 2022. **Invited talk**.

Fluid Dynamics Section Seminar - Imperial College London; *Multi-time scale control of Southern Ocean diapycnal mixing over Atlantic tracer budgets*, 2021. Talk.

SOCCOM Annual Meeting; *The Sensitivity of Southern Ocean Carbon Fluxes to Diapycnal Mixing*, 2021. Talk (Online).

SOCCOM Modelling Group Seminar; *The Sensitivity of Southern Ocean Carbon Fluxes to Diapycnal Mixing*, 2020. Talk (Online).

COP 25 - Madrid; *The blue carbon contribution to climate change mitigation,* 2019. Pannel discussion.

Civil Engineering Seminar - Imperial College London; *On the inter-connected roles of deep ocean mixing and Southern Ocean dynamics in nutrient distribution and biogeochemical cycles*, 2019. Talk.

Schools and Workshops attended

2022:	Max Plank Earth System Modelling, Hamburg, Germany
2021:	NCAS Climate Modelling Summer School, Online.
2020 (postponed):	Ocean Physics Summer School, Bad Honnef, Germany
2019:	GFDL Summer School - visiting student, Woods Hole, USA
2018:	Imperial College Science Communication Retreat, London.