SAM HARTHARN-EVANS

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PhD Researcher studying internal solitary waves through laboratory experiments and lab-scale simulations. Applies a combined laboratory and numerical approach to geophysical flows, analysing using multi-disciplinary background. Confident communicating results through engaging presentations, and producing graphics and animations. Now seeking Postdoctoral Research experience in laboratory and numerical environmental fluid dynamics, from autumn 2023.

RESEARCH EXPERIENCE

PhD Research: **Internal Solitary Waves in Ice Covered Waters**

Newcastle University Sept 2019 - Sept 2023

Supervisors: Dr. Magda Carr, Prof. Andrew Willmott, Prof. Adrian Jenkins

- Laboratory investigation into Internal Solitary Waves in Ice-Covered Waters, developing techniques for flow visualisation and analysis (using Particle Image Velocimetry and Particle Tracking Velocimetry), designing and executing experiments in stratified fluid flows.
- Published articles in Journal of Fluid Mechanics and Environmental Fluid Mechanics.
- Use of High Performance Computing facilities to model fluid flows. Processing, analysis and presentation of model and laboratory data.
- Training including:
  - Reading course on "the Model-Observation mismatch in Antarctic Sea Ice extent"
  - Computational Research Skills in Physics Module
  - Newcastle Future Leaders Course
  - Health and Safety & Risk Assessments
  - Evidencing Learning and Teaching Skills
  - Unofficially Supervising.

NERC ONE Planet DTP Funded (grant [NE/S007512/1])

Research Exchange: **Understanding Mixing in Internal Wave Simulations**

University of Waterloo Jun-Jul 2022

- Six week research exchange to work at University of Waterloo, Canada with Prof. Marek Stastna on a new method of understanding mixing in the SPINS numerical model.

Supported by Turing Global Fellowship

EDUCATION

PhD Applied Mathematics

Newcastle University Sept 2019 – Ongoing

MSc Physical Oceanography - **First**

Bangor University 2018 – 2019

Thesis: **How does Siberian river outflow impact the onset and duration of sea ice formation and melt** - Supervisor: Dr. Yueng-Djern Lenn

AWARDS

Dr John Robert Jones Award 2018
£600 prizes awarded annually to six students across Bangor University whose academic performance is judged most meritorious.

Darbyshire Postgraduate Prize 2019
Awarded for the best postgraduate student in Marine Physical Sciences at Bangor University

EGU vOSPP
Virtual Outstanding Poster Presentation Award for Nonlinear Processes Division at European Geosciences Union 2021.

IT & COMPUTING

Microsoft Office	●●●●●
MATLAB	●●●●●
LaTeX	●●●●○
DigiFlow: Advanced image processing for fluid mechanics	●●●●○
SLURM / HPC	●●●○○
Affinity Designer (vector graphics editor)	●●●○○

Experience with Make, Python, Arduino, Git/GitHub and C++

ADMIN & TEACHING

ONE Planet DTP Cohort 1 Rep

Jan 2020 – Present

- Organised and chaired regular student forum meetings and student seminars, establishing a supportive ONE Planet community of researchers
- Relayed feedback from the cohort to the DTP Directors, as well as organising social activities, and raising EDI concerns.

- Studied modules including: Practical Oceanography, Geophysical Fluid Dynamics, Climate and Climate Change
- Designing, organising, collecting and analysing physical oceanographic data from Ship-Based Fieldwork as part of a group project.
- Awarded Darbyshire Postgraduate Prize for the best postgraduate student in Marine Physical Sciences, and £6250 Nautilus Scholarship - given to support MSc students in Ocean Sciences awarded the highest grades for their BSc.

BSc (Hons) Marine Biology & Oceanography - **First**

Bangor University 2015 – 2018

Dissertation: **What would the global climate implications of turning off the rivers flowing into the Arctic Ocean be?** Supervisor: Prof. Tom Rippeth

- Studied modules including: Tides, Waves and Sampling; Prince Madog Cruise; Estuary and Shelf Sea Processes; Coastal Processes Field Study
- Awarded Dr John Robert Jones Award for most meritorious academic performance across the university, and Darbyshire Prize 2018 awarded to the best final year student studying for a degree wholly within the School of Ocean Sciences.

Wirral Grammar School for Boys

Bebington, Wirral 2008 – 2015

- A Levels in Biology (**A***), Mathematics (**A***), Further Mathematics (**A**), Geography (**A**) & General Studies (**A**)
- **11 GCSEs A*-B**

VOLUNTEERING

Secretary | UniBrass Foundation

Feb 2019 – Present

- Produced agendas, minutes and trustees annual reports, and other charity administration.
- Wrote, reviewed, and ensured compliance of charity policies.
- Running outreach projects to increase awareness of university brass bands with youth band players, and website renovation.
- Taking on full legal responsibilities of Charity Trustee.
- Collaborated with a team of trustees and 50 volunteers to put on 2-3 large arts events a year.
- Represented UniBrass as a volunteer at other brass band events, working with professional musicians and young people to deliver seamless events

UniBrass Organising Committee Chair

Feb 2018 – Feb 2019

- Delivered a national project with budget of £20,000, involving many varied external organisations, and > 1000 attendees.
- Led the student UniBrass Organising Committee, delegating tasks and project managing.
- Liaised with senior staff from the university, arts centre, and other external organisations, negotiating to make sure that all involved organisations benefited from the event.
- Launching and ran student-led DTP twitter account to promote the DTP, and the work of PhD researchers.
- Coordinated the 2021 ONE Planet DTP virtual conference “Our Planet: ONE Planet Research Expo”

Teaching

- Delivered in-class assistance, demonstrating the use of Python for mathematical problem solving for MAS-1803 first year introductory programming module.
- Marked assignments for first year statistics course, and second year Fluid Dynamics problem sheets.
- Co-supervised two MMath Students and two BSc Physics students on projects, facilitating use of the SPINS numerical model.
- Submitted application for Associate Fellow of Higher Education Academy.

Peer review

Assisted peer review of 5 articles submitted to Journal of Fluid Mechanics, Communications Earth & Environment, Geophysical Research Letters, and Physical Review Fluids.

Outreach

Sept 2021 - Sept 2022

Organised and delived the ONE Planet Outreach scheme as part of a team of PGR students, which delivered over 7 events educating the public on issues relating to environmental change including on-campus school visits, a science fair at the Hancock Museum.

Treasurer | UK Polar Network

Sept 2021 – Present

- Managed the finances of the UKPN, to support UK Polar Early Career Researchers.
- Performed strategic budgeting to enable project groups to plan activities for the year

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PUBLICATIONS

- **Hartharn-Evans, S.G.**, Stastna, M. & Carr, M. (2022). Dense pulses formed from fissioning internal waves. *Environ Fluid Mech* https://doi.org/10.1007/s10652-022-09894-x
- **Hartharn-Evans, S. G.**, Carr, M., Stastna, M., & Davies, P. (2022). Stratification effects on shoaling internal solitary waves. *Journal of Fluid Mechanics*, **933**, A19. https://doi.org/10.1017/jfm.2021.1049

PRESENTATIONS & CONFERENCES

BRIDGE Group Seminar | Invited Seminar | **Bristol** | 14th Mar 2023 | *Transformation of Internal Waves on a slope: The effects of Stratification*

Hull University Fluids Group | Invited Seminar | **Hull** | 16th Feb 2022 | *Experimental and numerical modelling of internal solitary waves*

Virtual Physical Oceanography and Shelf Sea Seminar Series | Oral Presentation | 11th Jan 2023 | *The Interaction of Internal Solitary Waves and Sea Ice in the Laboratory*

Challenger 150 Conference | Oral Presentation | **London** | 5th Sept 2022 | *The Interaction of Internal Solitary Waves and Sea Ice in the Laboratory*
Ocean Modelling SIG: Understanding the "how and where" of mixing from shoaling internal waves using joint probability distributions

IX International Symposium on Stratified Flows ISSF | Oral Presentation | **Cambridge** | 29th Aug 2022 | *The interaction of internal solitary waves and sea ice in the laboratory*

EGU22 General Assembly | Oral Presentation | **Vienna** | 26th May 2022 | *The Interaction of Internal Solitary Waves and Sea Ice in the laboratory*

British Applied Mathematics Colloquium 2022 | **Loughborough** | 13th Apr 2022 | *The Interaction of Internal Solitary Waves and Sea Ice in the laboratory*

Newcastle University School of Mathematics, Statistics and Physics | Internal Seminar | 13th Oct 2021 | *Stratification effects on Shoaling Internal Solitary Waves*

Leeds Fluids CDT Conference | Invited Oral Presentation | 17th Jun 2021 | *Stratification effects on Shoaling Internal Solitary Waves*

Our Planet: ONE Planet Student Research Expo | Poster & Lightning Talk | 10th Jun 2021 | *Stratification effects on Shoaling Internal Solitary Waves*

ONE Planet Student Seminar | Oral Presentation | 19th May 2021 | *Stratification effects on Shoaling Internal Solitary Waves*

Polar Early Career Conference | Oral Presentation | 5th May 2021 | *Riverine drivers of Sea Ice Freezup in the Kara Sea*
Chaired employability session on "Staying in Academia"

vEGU 2021 | vPICO Poster & Lightning Talk | 26th Apr 2021 | *Stratification effects on shoaling Internal Solitary Waves*
Awarded virtual Outstanding Student Poster Presentation

Virtual Physical Oceanography and Shelf Sea Seminar Series | Oral Presentation | 4th Nov 2020 | *Shoaling internal solitary waves: Is stratification type important?*

SAgE Faculty Conference | Poster | **Newcastle University** | 1st-5th Jun 2020 | *Is the behaviour of internal solitary waves propagating up-slope dependent on stratification?*
Awarded runner up Best Poster