

Martyn Steel

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Education

University of Edinburgh, PhD in Computational Geophysics Oct 2022 - Oct 2026

- **Thesis:** "Integrating rock physics, geomechanics and survey design for carbon capture and storage"
- **Supervisors:** Prof. Mark Chapman, Dr. James Verdon (Bristol) and Dr. Rodney Johnston (BP)

University of Bristol, Visiting PhD student Jun 2024 - Sep 2024

University of Leeds, MSc in Exploration Geophysics Sep 2021 - Sep 2022

- **Grade:** Merit
- **Dissertation:** "Designing a geophysical program for monitoring leakage from abandoned wells"
- **Supervisors:** Dr. Mike Branston (SLB), James Butt (SLB) and Dr. Sjoerd de Ridder

University of Leicester, MGeol in Geology with Geophysics Sep 2013 - Sep 2017

- **Grade:** Upper second class honours
- **Dissertation:** "Surface wave tomography to illuminate the crust and upper mantle structure beneath the East African Rift System"
- **Supervisors:** Prof. Stewart Fishwick

Professional Experience

Postgraduate Teaching Assistant, University of Edinburgh, UK Jan 2023 - Present

• School of Geosciences:

- Lead demonstrator for Introduction to Geophysics (Pre-honours)
 - * Led workshops for up to 85 students on topics of gravity, seismic refraction, resistivity and magnetics
 - * Delivered field demonstrations of seismic refraction, DC resistivity sounding and magnetometry
 - * Involved in coursework marking for both formative and summative assignments
- Lead demonstrator for Seismic Reflection Interpretation (Masters)
 - * Led entire course component on practical use of PETREL software for seismic reflection interpretation for class of 21 students
 - * Hosted additional drop-in sessions outside of course hours for students
- Field demonstrator for Petroleum Systems (Honours)
 - * Assisting teaching geological field skills to 30 students across Northern Scotland for observing North Sea hydrocarbon systems analogues
- Demonstrator for Applied Hydrogeology and Near Surface Geophysics (Honours)
 - * Delivered field demonstrations of seismic refraction, EM31 and VHF
 - * Led data processing workshops for up to 40 students
- Demonstrator for Mathematical, Computational Methods for Geophysicists (Honours)
 - * Assisted the delivery of Python coding sessions in geophysical inverse theory
- Demonstrator for Petroleum Systems (Honours)
 - * Assisted the delivery of workshops to a mixed undergraduate and masters class in topics across petrophysics, well log interpretation and seismic reflection interpretation

• Edinburgh Parallel Computing Center:

- Demonstrator for Advanced Parallel Computing
 - * Assistant live debugger during online delivery of 2-day class, requiring knowledge of Python, bash, Jupyter, DASK and handling large datasets
 - * Course was part of the *Advanced Python for Environmental Scientists* course ran by The Carpentries collaboration between the National Oceanography Centre, University of Edinburgh and University of Oxford

- Seismic Data Processor**, RockWave, Remote Feb 2022 - Jul 2023
- Freelance marine seismic interpretation for offshore shallow ground investigations using DUG Insight
 - Manual interpretation of seabed horizons for static corrections to 3D towed-streamer and UHR seismic data
 - Contracted to 4 different projects for various wind farm installations
- SDM Research Intern**, Schlumberger, Remote May 2022 - Sep 2022
- Remote summer internship in the Solution, Design and Modelling team, as part of my dissertation towards my MSc Exploration Geophysics at the University of Leeds
 - Focused on rock physics and seismic refraction modelling for CO2 anomalies
 - Research outputs presented at SEG IMAGE 2023
- AI Data Analyst**, TELUS International, Remote Dec 2021 - May 2022
- Freelance manual data checking for SEO optimization
- Various Roles**, Sainsbury's Local Supermarkets, UK Oct 2019 - May 2022
- **Trading Assistant**, Leeds, UK
 - Self-demotion from manager to work part-time during MSc
 - **Customer and Trading Manager**, Newcastle-Upon-Tyne, UK
 - Managed in 2 stores around Newcastle-Upon-Tyne, moving from low trade volume to high trade volume
 - Rated in 2nd best performing manager for my operational area
 - Store lead on DEI, cash procedures, stock management and scheduling
- Various Roles**, McDonald's Restaurants, UK Mar 2012 - Oct 2019
- **Shift Running Floor Manager**, Newcastle-Upon-Tyne, UK
 - Responsibilities included people management, inventory management, cash and safe-management and customer-facing service
 - **Crew Trainer**, Newcastle-Upon-Tyne, UK
 - Responsibilities included preparation of training materials, structured training of new hires, ongoing training of staff and acting as kitchen or service leader
 - **Crew Member**, Newcastle-Upon-Tyne, UK

Publications

- Incorporating refraction time-shifts into geophysical monitoring systems for monitoring shallow CO2 accumulations** 2023
- M. Steel, S.A.L. De Ridder, M. Branston, J. Butt, G. Busanello
- <https://doi.org/10.1190/image2023-3913025.1>

Projects

- MSc Dissertation**, University of Leeds May 2022 - Sep 2022
- **Dissertation**: "Designing a geophysical program for monitoring leakage from abandoned wells"
- MGeol Dissertation**, University of Leicester Sep 2016 - Jul 2017
- **Dissertation**: "Surface wave tomography to illuminate the crust and upper mantle structure beneath the East African Rift System"
- Vardyquake**, University of Leicester Oct 2015 - Apr 2016
- Undergraduate-led project in collaboration with the British Geological Survey, to measure the ground motion of the crowd at Leicester City FC
 - Included analysis of raw seismic data using jAmaSEIS and calculation of modified local magnitude to IASPEI, 2005
 - Work was disseminated via a Twitter account and received some national and international news coverage

- Work included as part of Denton et al. (2018)

Professional Service and Community Roles

Grants and Awards

- EPSRC-BP iCase PhD studentship (EP/W522144/1) at the University of Edinburgh. Awarded £30,000 over 2022-2026.
- Dr David Marsden alumnus scholarship at the University of Leeds. Awarded £10,000 in open competition for 2022-2023
- Department of Geology commendation award at the University of Leicester. Awarded £500 for academic excellence in my first two years
- Department of Geology attainment award at the University of Leicester. Awarded £1000 for academic excellence prior to commencing my undergraduate studies
- Sports scholarship at the University of Leicester. Awarded £2500 for sporting excellence in rugby union and rugby league

Conferences and Seminar Presentations

- Bristol-Oxford Passive Seismic Research Group Meeting, 2024. *Talk*.
 - Testing the feasibility of seismic methods to detect CO₂ migration in caprocks at offshore CCS sites.
- British Geophysical Association Postgraduate in Research, 2024. *Poster*.
 - Implication of non-Gassmann effects for CO₂ monitoring.
- 7th International Workshop on Rock Physics, 2024. *Talk*.
 - Implication of non-Gassmann effects for CO₂ monitoring.
- British Geophysical Association Postgraduate in Research, 2023. *Poster*.
 - Anisotropic rock physics modelling of the Endurance CCS target site.
- Society of Exploration Geophysicists IMAGE, 2023. *Talk*.
 - Incorporating refraction time-shifts into geophysical monitoring systems for monitoring shallow CO₂ accumulations.
- Volcanics, Minerals Study Group and British Geophysical Association Joint Conference, 2017. *Poster*.
 - Surface wave tomography to illuminate the crust and upper mantle structure beneath the East African Rift System.

Technical Skills

Languages: Python, MATLAB, Unix.

Softwares: PETREL, Reveal, ArcGIS, GMT, Adobe Creative Suite.

Training Courses

- **Rock Physics and Computational Geophysics**
 - EAGE Interactive Online Short Course, delivered by Prof. Jose Carcione
- **Scotland's Mental Health First Aid**