

---

## PROFESSIONAL EXPERIENCE & EDUCATION

- MAY 2022 – Postdoctoral Research Associate, GFZ Potsdam**  
(ongoing) **ERC Grant** – *GyroSCoPe: Geomorphic and Sedimentary Responses to Climate Periodicity*  
Generating an improved understanding of the fundamental impacts of the magnitude and frequency of periodic climatic forcing on erosion rates and sediment transport through rivers.  
PI: Prof. Taylor Schildgen
- FEB 2021 – Postdoctoral Research Associate, Imperial College London**  
**APR 2022** **NERC Large Grant** – *Mantle Circulation Constrained (MC2): A multidisciplinary 4D Earth framework for understanding mantle upwellings*  
Using newly collected data on the history of Earth's surface uplift, as well as other geological, geochemical and geophysical datasets, to constrain and improve 4D mantle convection models.  
PI: Dr. Gareth Roberts
- APR 2017 – PhD, Imperial College London**  
**JAN 2021** *Understanding Continental-Scale Landscape Evolution: A Multi-Proxy Approach*  
Investigating the driving forces behind the formation, evolution, and decay of the Earth's surface, with a particular focus on modelling the coupled interactions between fluvial erosion, geology and tectonics recorded at a variety of spatial and temporal scales.  
Supervisor: Dr. Gareth Roberts, Dr. Alex Whittaker
- SEP 2015 – MSci Geological Sciences, Newnham College, University of Cambridge**  
**JUN 2016** *Independent Research Project - Investigating the drivers of subsidence of cratonic sedimentary basins, using the Parnaíba Basin (NE Brazil) as a case study.*  
Funding and data: (£10 000) BP  
Supervisor: Prof. Nicky White
- SEP 2012 – BA Natural Sciences**  
**JUN 2015** *Undergraduate Geological Mapping Project - 20km<sup>2</sup> area in the Serra da Capivara National Park, NE Brazil. Results yielded the first 1:10 000 geological map of the area.*  
Funding: (£30 000) Shell, BP, and Chevron Research Grants, Santander South America Travel Grant, Royal Geological Society Award, Newnham College Travel Grant, Earth Science Department Field Grant.  
Supervisor: Prof. Nicky White

---

## AWARDS

- 2020** **Graduate Teaching Assistant of the Year** for Faculty of Engineering
- 2020** **Outstanding Graduate Teaching Assistant** Imperial Student Union Choice Award nomination
- 2019** **Janet Watson Research Prize** for excellence in research, Imperial College London
- 2019** **Imperial Trust Award** for invited conference talk by PhD student
- 2018** **AGU Fall Meeting - Outstanding Student Presentation Award**

---

## PUBLICATIONS

- Lipp, A. G., Roberts, G. G., Whittaker, A., Gowing, C. & **Fernandes, V. M.** (2021). Unmixing river sediments for the elemental geochemistry of their source regions, *Geochemistry, Geophysics, Geosystems*.
- Wapenhans, I., **Fernandes, V. M.**, O'Malley, C. & Roberts, G. (2021). Scale-Dependant Tectonic and Lithological Controls on River Profile Shapes, *Journal of Geophysical Research: Earth Surface*.
- Lipp, A. G., Roberts, G. G., Whittaker, A., Gowing, C. & **Fernandes, V. M.** (2020). The Propagation of Geochemical Signals through Fluvial Systems, *Journal of Geophysical Research: Earth Surface*, preprint: <http://dx.doi.org/10.31223/osf.io/mf3s5>
- Fernandes, V. M.** & G. Roberts (2020), Patterns and Scales of Uplift from a Global Paleobiology Inventory, *Geological Society of America Bulletin*, <https://doi.org/10.1130/B35739.1>.
- Morris, M., **Fernandes, V. M.** & Roberts, G. G. (2020). Extricating dynamic topography from subsidence patterns: Examples from Eastern North America's passive margin, *Earth and Planetary Science Letters*, 530, <https://doi.org/10.1016/j.epsl.2019.115840>.
- Fernandes, V. M.**, G. Roberts, N. White, A. Whittaker (2019). Continental-Scale Landscape Evolution: A History of North American Topography, *Journal of Geophysical Research: Earth Surface*, 124(11), pp. 2689–2722, <https://doi.org/10.1029/2018JF004979>.

Stucky de Quay, G., Roberts, G. G., Rood, D. H. & **Fernandes, V. M.** (2019). Holocene uplift and rapid fluvial erosion of Iceland: A record of post-glacial landscape evolution, *Earth and Planetary Science Letters*, 505, pp. 118–130, <https://doi.org/10.1016/j.epsl.2018.10.026>.

---

#### ONGOING PROJECTS

**Fernandes, V. M.**, Whittaker, A., Roberts, G. & Braun, J. (*in prep.*). Predictions of erosion and sediment flux from landscape evolution modelling: how to get a sediment pulse from a 'dead' orogen.

**Fernandes, V. M.**, Roberts, G. & Richards, F. (*In prep.*). Observational constraints on mantle-driven surface uplift: investigating geodynamic and isostatic origins of uplift in the North American western interior.

---

#### PRESENTATIONS

**Invited talks** Schlumberger Abingdon Research Centre (2017), University of Chicago (2018), Vrije Universiteit Brussel (2021), AGU Fall Meeting (2019), GFZ Potsdam (2021), University of Colorado Boulder (2022), University College London (2022), Harvard University (2022), EGU Meeting (2022), GFZ Potsdam (2022), University of Potsdam (2022)

---

#### SERVICE & POSITIONS OF RESPONSIBILITY

**Convener** AGU Fall Meeting 2022 – (Invited repeat session) Quantifying drivers of landscape change across spatial and temporal scales  
AGU Fall Meeting 2021 – Quantifying drivers of landscape change across spatial and temporal scales

**Peer review** Basin Research, Earth Surface Dynamics

2022 **Geomorphica Journal EDI Committee**  
2021 – 2022 **Imperial College Earth Science and Engineering Department EDI committee**  
2019 – 2022 **Athena SWAN Bronze Committee**  
2018 – 2019 **Imperial College Graduate Society Committee** – Postgraduate rep, events and wellbeing  
2017 – 2018 **EAGE Student Chapter - Graduate Student Representative**

---

#### OUTREACH & PUBLIC ENGAGEMENT

2021 **Coffee & Geography Podcast** Guest speaker  
2021 **Native Scientist** – communicating science to children in their native language (Portuguese)  
2021 **Imperial Earth Science and Engineering Round Table**  
2021 **Women in Engineering Event** – Q&A between women scientists and girls aspiring to study STEM  
2021 – 2022 **Watson Forum** – Manager of YouTube/social media channels for promoting women in STEM.  
2019 **Imperial Lates** “Science Without Borders” (leading stand about what geologists take to the field).  
2019 **European Researcher Night** at the Natural History Museum (talk and Q&A).  
2019 **Great Exhibition Road Festival** “Blast from the Past”, showcasing IODP projects.  
2019 **4Cs of Science Communication Competition**  
2019 **Kingston Grammar School Visit** – student activity helper, workshop on landscape evolution models.  
2018 **Geologist’s Association Festival of Geology** – helper at multiple stands.  
2018 **Heathland School UCAS application workshop** for students from underrepresented backgrounds  
2015 – 2016 **Cambridge Earth Sciences Time Truck** – Outreach arm of the Cambridge Earth Sciences Department

---

#### TEACHING & STUDENT SUPERVISION

2017 – 2020 **Graduate Teaching Assistant**, Imperial College London  
Practical demonstrating for Global Geophysics, Basin and Tectonics, Structural Geology I and III, Continental Tectonics, Basin Analysis, Applied Geomorphology, Stratigraphy and Geomaterials, Year 1 Graphics workshop.

**Field Teaching Assistant**, Imperial College London  
Masters level fieldtrip to the Apennines (Italy) and Pyrenees (Spain), including 2020/2021 virtual trips.

#### *MSci Thesis supervision*

2019 – 2020 I. Wapenhans, *North American rivers: Scale-dependence, scale-variance and correlation to environment*  
2018 – 2019 M. Morris, *Neogene evolution of the New Jersey margin*  
S. Mitchell, *Long-term response to faulting: Insights from tectonic and landscape evolution modelling*  
2017 – 2018 B. Conway-Jones, *Neogene Epeirogeny of Iberia*.

*Student worker supervision*

2022 A. Pandey, Sample pre-processing for cosmogenic nuclide analysis

---

KEY TECHNICAL SKILLS

FIELDWORK

MAR 2022 **Patagonia – Los Glaciares National Park, Argentina**

Sample collection for low-temperature thermochronology and cosmogenic <sup>9</sup>Be/<sup>10</sup>Be dating.

AUG 2019 **Cairngorms, Scotland**

Sample collection for major element geochemical analysis of mud-silt grade fluvial sediment.

JUN 2018 **Calabria, Italy**

Sedimentology, geomorphology. Rock and fracture characterisation, Schmidt hammer measurement.

JUN 2017 **Vatnajökull National Park, Iceland**

Sample collection for cosmogenic <sup>3</sup>He/<sup>4</sup>He dating. Geomorphic descriptions, angle grinder, hammer and chisel, Trimble high-res GPS, UAV photogrammetry.

JUL 2014 **Serra da Capivara National Park, NE Brazil**

Geological mapping. Trip was awarded 'Expedition' status by the University of Cambridge.

Marlin Fieldwork First Aid; PADI Open Water Diving License; Full Drivers licence (Brazil); Mental Health First Aid

LABWORK

2022 **Cosmogenic Nuclide Dating**

HELGES Lab

Physical rock processing (jaw crusher, roll-mill grinder, sieving, frantzing), Quartz cleaning (150+ hours handling HF), Microscopy analysis, ICP-OES operation, Be extraction (clean lab operation, including handling of concentrated HF, column chemistry for Be extraction, BE precipitation in ammonia), target oxidation and pressing for AMS analysis.

2022 **Lab Setup – GFZ Section 4.6 Minsep Lab**

Coordinated and organised the installation of a new Wet Mineral Separation laboratory for separation and purification of quartz for cosmogenic nuclide analysis. Responsibilities: laboratory layout planning, equipment inventory, overseeing machinery installation, safety assessment, overview of operations.

THEORY & NUMERICAL MODELLING

Forward and inverse fluvial modelling; Open-source Landscape Evolution Modelling (Badlands, LandLab, FastScape); Database management; Plate rotation (GPlates); Isostatic modelling; Backstripping and subsidence modelling; Wavelet spectral analysis; Dynamic topography calculation from mantle convection models (CitcomS).

COMPUTING

2019 **Doctoral Summer School for Advanced Spatial Modelling** UCL Bartlett Centre for Spatial Analytics

Office Package (including Word, Excel, Powerpoint, etc.); Adobe Creative Suite (Photoshop, Illustrator); QGIS, ESRI ArcGIS, GRASS; Schlumberger Petrel; LaTeX; Bash shell scripting; GMT; Python; R; SQL.

---

OTHER WORK EXPERIENCE

2017 – 2019 **Tutor** Oxbridge Applications - Dukes Education, London, UK

Student mentoring, admissions test support, mock interviewing and tutorial group leader for students applying to Oxford and Cambridge for all physical sciences.

2016 **Schlumberger - Internship** Petrel Research Team, Abingdon Technology Centre, UK

2013 **Petrobras - Technical Internship** CENPES, Rio de Janeiro, Brazil

---

MISCELLANEOUS

**Professional Body Memberships** EAGE, AGU, AAPG, EGU

**Languages** Fluent in English and Portuguese, advanced Spanish, basic German and French

**Outdoor Expeditions – organisation and lead:** Ilha Grande (RJ, Brazil), Serra da Bocaina (SP, Brazil), Chapada Diamantina (BA, Brazil), Serra do Mar–Paraty (RJ, Brazil), Patagonia (Lago Nahuel Huapi, Argentina), Serra da Mantiqueira (MG, Brazil), Travessia Petrópolis–Teresópolis (RJ, Brazil), Mount Kenya (Kenya).