

## Curriculum Vitae

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Professor of Marine Geophysics

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### **Profile**

Much of my career has focused on understanding the processes that form and deform oceanic lithosphere and in particular the relationship between tectonics and magmatism. My early work involved mapping the magmatic plumbing beneath mid-ocean ridges and the response of the oceanic lithosphere to loading by ocean islands. More recently I have studied the pattern of magmatism along the continental margins of the Indian and Atlantic Oceans in order to determine the thermal conditions during breakup. Currently I am investigating the link between volatiles in the incoming plate to arc magmatism at the Antilles subduction zone. A second theme of my research is shallow-water processes. I conducted the first ever multibeam bathymetry survey of the UK continental shelf which led to the discovery that catastrophic megafloods separated Britain from Europe. This feature has now been designated as an offshore protected area by the UK Government. I am also interested in the application of high-resolution side-scan sonar for biological habitat mapping.

### **Education**

1990 Ph.D. Marine geophysics, Cambridge University (NERC studentship)  
1986 M.Sc. Exploration geophysics, Durham University (Britoil studentship)  
1983 B.Sc. Geology, Bristol University

### **Positions**

2018-date Professor, Imperial College London  
2010-2018 Reader, Imperial College London  
2002-2010 Senior Lecturer, Imperial College London  
1998-2002 Elf Lecturer, Imperial College London  
1996-1998 NERC Research Fellow, Cambridge University  
1995 Teaching Fellow, Leeds University  
1991-1994 University Research Scientist, Oxford University  
1983-1985 Systems Analyst, IBM UK Ltd.

### **Awards & Appointments (since 2015)**

2021 Science Committee. Dover-Calais UNESCO GeoPark proposal  
2016 Awarded Harold Jeffreys Lecturer by the Royal Astronomical Society  
2015 Appointed to NERC's Joint Capital Advisory Group (JCAG)  
2015 Appointed to NERC's Science Board  
2015 Elected President of the British Geophysical Association

## **Research Expedition Leadership**

- 2019 Irish Marine Institute – *R/V Celtic Explorer* cruise CE19007. Chief Scientist: C. McGonigle
- 2017 NERC. Volatile cycling at the Antilles subduction zone. *RRS James Cook* cruise JC149.  
[https://www.bodc.ac.uk/data/information\\_and\\_inventories/cruise\\_inventory/report/jc149.pdf](https://www.bodc.ac.uk/data/information_and_inventories/cruise_inventory/report/jc149.pdf)
- 2016 NERC. Volatile cycling at the Antilles subduction zone. *RRS James Cook* cruise JC133.  
[https://www.bodc.ac.uk/data/information\\_and\\_inventories/cruise\\_inventory/report/jc133.pdf](https://www.bodc.ac.uk/data/information_and_inventories/cruise_inventory/report/jc133.pdf)
- 2003 NERC. Structure of the conjugate Indian-Seychelles margins. *RRS Charles Darwin* cruise CD144.  
[https://www.bodc.ac.uk/data/information\\_and\\_inventories/cruise\\_inventory/report/5837/](https://www.bodc.ac.uk/data/information_and_inventories/cruise_inventory/report/5837/)
- 2003 English Heritage/ALSF - Multibeam survey of the submerged Palaeo-Arun: Reconstruction of Prehistoric landscapes and evaluation of archaeological resource potential.
- 2002 NERC. Structure of the conjugate Indian-Seychelles margins. *RRS Charles Darwin* cruise CD134B.  
[https://www.bodc.ac.uk/data/information\\_and\\_inventories/cruise\\_inventory/report/5862/](https://www.bodc.ac.uk/data/information_and_inventories/cruise_inventory/report/5862/)
- 2001 RGS/Shoals of Capricorn - Timelapse imaging of bleached coral reef recovery, Seychelles.
- 2000 SAMS - Seabed imaging for detecting environmental change due to artificial reefs, Loch Linhe, Scotland.
- 1998 RGS/Shoals of Capricorn - Sidescan sonar imaging of bleached coral reefs, Seychelles.

## **Research Interests**

Formation and evolution of continental margins, ocean basins, ocean islands and subduction zones.  
 The Quaternary history of continental shelves.  
 Environmental geophysics, habitat mapping, marine processes and physical properties of the seabed.

### **Specialism**

Marine geology and geophysics: passive source seismology; controlled source reflection and refraction seismology; high-frequency sidescan sonar; multibeam bathymetry; seismic interpretation; joint inversion; full waveform inversion.

### **Current research activities**

- Determining volatile circulation at the Antilles subduction zone by passive and active source seismology. This is a multidisciplinary NERC Large Grant project awarded in 2014. I led the field programme that comprised two cruises on the *RRS James Cook* in 2016/17. During the experiment we completed 160 ocean-bottom seismometer deployments with an overall data success rate of 96%. We will relate the volatile distribution in the incoming plate to arc volcanism.
- Understanding mantle thermal structure during continental break-up in the North and South Atlantic through the analysis of commercial and academic seismic data. The project included inversion of ultra-wide aperture multichannel seismic data to quantify along-strike magmatism.
- Full waveform inversion of time-lapse data from the East Pacific Rise. This project is in collaboration with scientists from IPG, Paris and Lamont. We will invert data from a new 3D seismic survey from the ridge crest to determine magma chamber properties over time and relate them to the known pattern of volcanism.
- Island Britain – analysis of the megaflood in the English Channel. I am part of a team of scientists from 4 nations studying geomorphic features on the floor of the English Channel by high-resolution seabed and sub-surface imagery. The significance of our discovery has resulted in the flood features being designated a marine conservation zone ( <http://archive.jncc.gov.uk/default.aspx?page=6776>)

## **Research Funding (since 2000)**

### **Awards**

- 2018 Backscatter and Biodiversity on Shelf Sea Habitats, Co-I, **Irish Marine Institute**, €375k

- 2014 Volatile recycling at the Lesser Antilles arc: Processes and Consequences, Co-I, **NERC Large Grant**, £535k + £362k OBS equipment loan). In addition, I led the two marine cruises – JC133 and JC149 (79 days ship time @50k/day = £4,300k)
- 2013 Magmatism and break-up in the South Atlantic, Co-I, **ION-GX** (Commercial seismic company), £15k
- 2009 Examining the relationship between acoustic backscatter and physical properties of the seabed from the South Coast REC, PI, **Department for Environment, Food and Rural Affairs (Defra)**, £156k
- 2003 Reconstructing Pleistocene ice limits in the central North Sea: Implications for climate change, Co-I, **British Geological Survey (NERC)**, £24k
- 2002 Submerged Palaeo-Arun and Solent Rivers: Reconstruction of Prehistoric landscapes and evaluation of archaeological resource potential, Co-I, **Marine Aggregate Level Sustainability Fund**, £430k
- 2002 Ocean bottom seismic and electromagnetic receivers for multidisciplinary studies in solid earth science, Co-I, **NERC/HEFCE (JREI)**, £170k
- 2002 Interpolated sparsely sampled seismic acquisition, Co-I, **Shell/DTI**, £383k
- 2001 Submerged fluvial valley evolution, PI, **Royal Society**, £10k
- 2001 Seabed imaging sonars for earth, environment, geohazards, coastal engineering and archaeological research, Co-I, **NERC/HEFCE (JREI)**, £524k
- 2001 Evaluating the influence of relatively rapid extension on continental margin formation: geophysical observations of the conjugate Seychelles-India margins, PI, **NERC Standard Grant**, £172k + £50k Tied PhD studentship + £250k OBS equipment loan. In addition, I led the two marine cruises – CD134b and CD144 (44 days ship time @50k/day = £2,200k)

### ***Research support awards***

Access to the following research facilities was granted by peer-reviewed proposals. Money either paid direct from funder to supplier or funder granted free-access at point of use.

- 2017 NERC – 63-days ship time *RRS James Cook* JC146. @50k/day = £3,150k
- 2016 NERC – 16-days ship time *RRS James Cook* cruise JC133. @50k/day = £800k
- 2014 ION-GX, Long-offset seismic data, estimated cost £5,000k
- 2014 Landmark - University Grant - Software licenses for seismic processing, interpretation and visualisation software. Commercial value \$500k
- 2005 NERC – 5 days of time on ICPMS geochemical analysis facility - estimated cost - £5k
- 2004 Landmark - University Grant - Software licenses for seismic processing, interpretation and visualisation software. Commercial value \$500k
- 2004 NERC – 2-days ship time *RRS Charles Darwin* cruise CD156. @50k/day = £100k
- 2003 NERC – 32-days ship time *RRS Charles Darwin* cruise CD144. @50k/day = £1,600k
- 2003 EU – Infrastructure and capacity award – 32 x Geomar OBS/H for 2 months, estimated cost £600k
- 2001 NERC- 10-days ship time *RRS Charles Darwin* cruise CD134B. @50k/day = £500k
- 2000 Royal Geographical Society – *Shoals of Capricorn* expedition, fieldwork costs for 3 week sidescan sonar survey in Seychelles. @5k/day = £105k
- 2000 Dunstaffnage Marine Laboratory (NERC centre, now SAMS) – fieldwork costs for 1 week sidescan sonar survey in Scotland. @5k/day = £35k

### ***Scientific Service (since 2010)***

#### **Community leadership (Committee member unless otherwise stated)**

- 2015-2019 NERC Science Board
- 2015-2019 NERC Joint Capital Advisory Group (JCAG)
- 2015-2018 British Geophysical Association – President
- 2013-2016 Royal Astronomical Society – Solid Earth Geophysics Forum

2012-15 NERC - Peer Review College

**International Research Grant Panels:**

2016 Canada Foundation for Innovation (CFI) – Marine science panel (remote)  
 2013 USA National Science Foundation – Marine science panel, Washington  
 2010-13 Norwegian Research Council – Earth science panel, Oslo

I routinely review individual proposals across all major international funders.

**Journal Editor:**

2018-2023 Geophysical Journal International  
 2014-2019 Royal Society – Open Science

**Conference convening:**

2021 Challenger Expedition 150 year Celebration, Natural History Museum, London.  
 2017 Co-convenor “TSG-VMSG-BGA Joint Assembly”. A 2-day national meeting, Liverpool.  
 2016 Co-convenor “Seismix 2016”. A 1 week international meeting, Aviemore, Scotland.  
 2016 Co-convenor “New Advances in Geophysics”. A 2-day international meeting, London.

**University Administration**

**External Examining: PhD**

Institut de Physique du Globe, Paris, France (Arnulf, 2011; Wang, 2014; Qin, 2015; Mechouachi, 2019)  
 University of Ghent, Belgium (Garcia-Moreno, 2017)  
 University of Reykjavik, Iceland (Blischke, 2020)

University of Southampton (Barker, 2004; Pinson, 2010; Moukos, 2013, Haughton 2019, Underhay 2022)  
 UCL (Harrison, 2007)  
 Royal Holloway (Keir, 2007; Perez-Diaz, 2016, Ros, 2018)  
 University of Cambridge (Jones, 2003)

**External Examining: Undergraduate degree programme**

2022 University of Cambridge Pt III  
 2019 Reviewer of new degree programme, University of Southampton  
 2018-date Leicester University  
 2006-09 Royal Holloway, University of London

**College Committees**

2022-date Co-Director NERC SSCP Doctoral Training Programme  
 2016-2019 NERC Strategy and Management Group  
 2015-2019 Engineering Faculty Horizon Scanning Forum  
 2013-16 NERC SSCP DTP Management Committee  
 2002 Graduate Training Committee

**Department Committees**

2019-2023 Co-Chair of the Board of Examiners  
 2016-2019 NERC Committee (Demand Management and Fellowships)  
 2013-2022 Research Committee  
 2012 Lectureship Appointment Committee  
 2010-13 MSc Petroleum Geophysics - Deputy Course Director

**Invited Seminars (since 2012)**

2022 Cambridge University “Volatile recycling at subduction zones”  
 2020 Oxford University “Volatile recycling at subduction zones”  
 2018 Cambridge University (Dept. Earth Sciences) “Island Britain”

- 2017 AGU, New Orleans: Keynote in Subduction session.
- 2016 GFZ, Potsdam: “Seaward-dipping reflector formation: New insights from long-offset seismic reflection data from the South Atlantic”
- 2016 Cambridge University (QSG): “Streamlined islands and the English Channel megaflood hypothesis”
- 2014 IPG Paris: “Continental break-up in the Indian Ocean: beyond the "hotspot-volcanic margin model”.
- 2014 IPG Paris: “Volatile recycling in the Lesser Antilles arc Processes and Consequences”.
- 2012 AGU, San Francisco: Keynote in Rifted margin session.
- 2012 ETH Zurich: “Beyond hotspots: the importance of rift history for volcanic margin generation”.
- 2012 Bristol University: “Beyond hotspots: the importance of rift history for volcanic margin generation”.
- 2012 Oxford University: “Island Britain: acoustic imaging of catastrophic flood terrains in the English Channel”.

### **Memberships of Professional Organisations**

European Geophysical Society; American Geophysical Union, Fellow of the Royal Astronomical Society

### **PhD Student Supervision**

#### **Stuart Humber**

Project: High-resolution side-scan imagery for characterising shallow tropical marine habitats.

Funding: GeoTek UK, Ltd, Marine Conservation Trust, and Grundy Education Trust.

Dates: 1999-2004

First destination: Max Fordham LLP (engineering company)

#### **Mohammed Al’Mazroey:**

Project: Precise fluid characterisation at the Oseberg Gas/Oil Field using pre-stack and post-stack attributes.

Funding: Petroleum Development of Oman.

Dates: 1999-2003

First destination: Petroleum Development of Oman (national oil company)

#### **Victoria Sansom:**

Project: Structure of the Seychelles margin.

Funding: NERC tied studentship.

Dates: 2002-2006

First destination: GX Technology (seismic contractor)

#### **Alistair Graham (with L. Lonergan):**

Project: Quaternary history of the North Sea from 3D seismic data

Funding: British Geological Survey joint-studentship

Dates: 2003-2007

First destination: British Antarctic Survey (academic research), then Lecturer, Exeter University

#### **Kerry Bushe:**

Project: The Hampshire Basin.

Funding: English Heritage

Dates: 2004-2008

First destination: RPS Group PLC (seismic contractor)

#### **Francesca Oggioni:**

Project: Breaching of the Dover Strait.

Funding: Department

Dates: 2009-2013

First destination: CGG (seismic contractor)

**Chandra Taposeea:**

Project: Numerical modelling of the opening of the South Atlantic

Funding: Department/Self

Dates: 2012-2017

First destination: InsardSAT UK (satellite imaging)

**Carl McDermott:**

Project: The volcanic continental margins of the South Atlantic

Funding: Department/ION GX

Dates: 2014-2018

First destination: Exxon

**Robert Allen:**

Project: Volatile recycling at the Lesser Antilles arc

Funding: NERC DTP

Dates: 2016-2020

**Zsofia Zalai:**

Project: The volcanic continental margins of the South Atlantic

Funding: Presidents scholarship

Dates: 2018-2021

**Lianjun Li:**

Project: Volatile recycling at the Lesser Antilles arc

Funding: Presidents scholarship

Dates: 2021-date

***Post-doctoral Staff***

**Andrew Palmer-Felgate:**

Project: Submerged Palaeo-Arun.

Funding: English Heritage grant

Dates: 2003-2004.

First destination: Senior Project Manager at Verizon

**Jonathan Pye:**

Project: Submerged Palaeo-Arun.

Funding: English Heritage grant

Dates: 2003-2004.

First destination: Senior Geophysics at Premier Oil

**John Armitage:**

Project: Numerical modelling of continental breakup.

Funding: NERC grant (Seychelles-India rifting)

Dates: 2008.

First destination: Senior Research Fellow, IPG, Paris

**Christopher McGonigle:**

Project: Analysis of backscatter data for seabed habitat mapping.  
Funding: ALSF grant  
Dates: 2009-2010.  
First destination: Lecturer, University of Ulster

**Richard Davy:**

Project: Velocity imaging of the Antilles subduction zone.  
Funding: NERC grant  
Dates: 2017-2019.

**Robert Allen:**

Project: Velocity imaging of the Antilles subduction zone.  
Funding: NERC grant  
Dates: 2020-2022.

**Publications**

My Google-Scholar page is here <http://scholar.google.co.uk/citations?user=6GFAdSAAAAAJ&hl=en>

***Peer-reviewed***

- Perez-Gussinye, M., J. S. Collier, J. J. Armitage, J. R. Hopper, Z. Sun and C. R. Ranero (2023). "Towards a process-based understanding of rifted continental margins." *Nature Reviews Earth & Environment* 4. Doi: 10.1038/s43017-022-00380-y
- Lindner, M., A. Rietbrock, L. Bie, S. Goes, J. Collier, C. Rychert, N. Harmon, S. P. Hicks, T. Henstock and VoiLA Consortium (2023). "Bayesian regional moment tensor from ocean bottom seismograms recorded in the Lesser Antilles: implications for regional stress field." *Geophysical Journal International* 233. Doi: 10.1093/gji/ggac494
- Hicks, S. P., L. Bie, C. A. Rychert, N. Harmon, S. Goes, A. Rietbrock, S. S. Wei, J. S. Collier, et al., (2023). "Slab to back-arc to arc: Fluid and melt pathways through the mantle wedge beneath the Lesser Antilles." *Science Advances* 9. Doi: doi:10.1126/sciadv.add2143
- Allen, R. W., J. S. Collier, T. J. Henstock and T. V. Consortium (2022). "The Role of Crustal Accretion Variations in Determining Slab Hydration at an Atlantic Subduction Zone." *Journal of Geophysical Research: Solid Earth* 127: e2022JB024349.
- Bie, L., S. Hicks, A. Rietbrock, S. Goes, J. Collier, C. Rychert, N. Harmon and B. Maunder (2022). "Imaging slab-transported fluids and their deep dehydration from seismic velocity tomography in the Lesser Antilles subduction zone." *Earth and Planetary Science Letters* 586: 117535. Doi: 10.1016/j.epsl.2022.117535
- Schlaphorst, D., N. Harmon, J. M. Kendall, C. A. Rychert, J. Collier, A. Rietbrock, S. Goes and the VoiLA Team (2021). "Variation in Upper Plate Crustal and Lithospheric Mantle Structure in the Greater and Lesser Antilles From Ambient Noise Tomography." ***Geochemistry, Geophysics, Geosystems*** 22: e2021GC009800 DOI: 10.1029/2021GC009800.
- Harmon, N., C. A. Rychert, S. Goes, B. Maunder, J. Collier, T. Henstock, L. Lynch, A. Rietbrock and the VoiLA Group (2021). "Widespread Hydration of the Back Arc and the Link to Variable Hydration of the Incoming Plate in the Lesser Antilles From Rayleigh Wave Imaging." ***Geochemistry, Geophysics, Geosystems*** 22: e2021GC009707 DOI: 10.1029/2021GC009707.
- Braszus, B., S. Goes, R. Allen, A. Rietbrock, J. Collier, N. Harmon, T. Henstock, S. Hicks, C. A. Rychert, B. Maunder, J. van Hunen, L. Bie, J. Blundy, G. Cooper, R. Davy, J. M. Kendall, C. Macpherson, J. Wilkinson and M. Wilson (2021). "Subduction history of the Caribbean from upper-mantle seismic imaging and plate reconstruction." ***Nature Communications*** 12: 4211 DOI: 10.1038/s41467-021-24413-0.

- Runya, R. M., C. McGonigle, R. Quinn, J. Howe, J. Collier, C. Fox, J. Dooley, R. O'Loughlin, J. Calvert, L. Scott, C. Abernethy and W. Evans (2021). "Examining the Links between Multi-Frequency Multibeam Backscatter Data and Sediment Grain Size." **Remote Sensing** 13: 1539. DOI: 10.3390/rs13081539.
- Arosio, R., J. S. Collier, J. Hawes, S. Gupta and J. Sperry (2021). "New perspectives on the English Channel megaflood hypothesis: High-resolution multibeam and seabed camera imaging of submarine landforms in the Northern Palaeovalley." **Geomorphology** 382: 107692.
- Cooper, G. F., C. G. Macpherson, J. D. Blundy, B. Maunder, R. W. Allen, S. Goes, J. S. Collier, L. Bie, N. Harmon, S. P. Hicks, A. A. Iveson, J. Prytulak, A. Rietbrock, C. A. Rychert, J. P. Davidson and the VoiLA Team (2020). "Variable water input controls evolution of the Lesser Antilles volcanic arc." **Nature** 582: 525-529.
- Davy, R. G., J. S. Collier, and T. J. Henstock (2020). "Wide-Angle Seismic Imaging of Two Modes of Crustal Accretion in Mature Atlantic Ocean Crust." **Journal of Geophysical Research** 125: e2019JB019100.
- Allen, R. W., J. S. Collier, A. G. Stewart, T. Henstock, S. Goes & A. Rietbrock, 2019. The role of arc migration in the development of the Lesser Antilles: A new tectonic model for the Cenozoic evolution of the eastern Caribbean. **Geology**. DOI: 10.1130/G46708.1
- Bie, L., A. Rietbrock, et al. 2019. Along Arc Heterogeneity in Local Seismicity across the Lesser Antilles Subduction Zone from a Dense Ocean Bottom Seismometer Network. **Seismological Research Letters** 91(1): 237-247. DOI: 10.1785/0220190147
- McDermott, C., J. S. Collier, L. Lonergan, J. Fruehn & P. Bellingham, 2019. Seismic velocity structure of seaward-dipping reflectors on the South American continental margin. **Earth and Planetary Science Letters** 521, 14-24. DOI: 10.1016/j.epsl.2019.05.049
- Harmon, N., C. Rychert, J. Collier, T. Henstock, J. van Hunen & J. J. Wilkinson, 2019. Mapping geologic features onto subducted slabs. **Geophysical Journal International** 219, 725-733. DOI: 10.1093/gji/ggz290
- Garcia-Moreno, D., S. Gupta, J. S. Collier, F. Oggioni, K. Vanneste, A. Trentesaux, K. Verbeek, W. Versteeg, H. Jomard, T. Camelbeeck and M. D. Batist, 2019. "Middle–Late Pleistocene landscape evolution of the Dover Strait inferred from buried and submerged erosional landforms." **Journal of Quaternary Science** 203: 209-232 DOI: 10.1016/j.quascirev.2018.11.011
- McDermott, C., L. Lonergan, J.S. Collier, P. Bellingham & K. McDermott, 2018. Characterisation of seaward-dipping reflectors along the S. American Atlantic margin and implications for continental breakup, **Tectonics** 37: DOI: 3303-3327. 10.1029/2017TC004923
- Bosence, D.W.J., J.S. Collier, S. Fleckner, A. Gallois & I.M. Watkinson, 2018. Discriminating between the origins of remotely sensed circular structures; carbonate mounds, diapirs or periclinal folds? Purbeck Limestone Group, Weymouth Bay, UK, **Journal of the Geological Society**. DOI: 10.1144/jgs2017-155:
- Allen, R.W., C. Berry, T.J. Henstock, J.S. Collier, F.J.Y. Dondin, A. Rietbrock, J.L. Latchman & R.E.A. Robertson, 2018. 30 Years in the Life of an Active Submarine Volcano: A Time-Lapse Bathymetry Study of the Kick-'em-Jenny Volcano, Lesser Antilles, **Geochemistry Geophysics Geosystems**, 19, 715-731. DOI: 10.1002/2017GC007270:
- Collier, J.S., C. McDermott, G. Warner, N. Gyori, M. Schnabel, K. McDermott & B.W. Horn, 2017. New constraints on the age and style of continental breakup in the South Atlantic from magnetic anomaly data, **Earth and Planetary Science Letters**, 477, 27-40. DOI: 10.1016/j.epsl.2017.08.007:
- Armitage, J.J. & J.S. Collier, 2017. The thermal structure of volcanic passive margins, **Petroleum Geoscience**. DOI: 10.1144/petgeo2016-101:
- Gupta, S., J.S. Collier, D. Garcia-Moreno, F. Oggioni, A. Trentesaux, K. Vanneste, M. De Batist, T. Camelbeeck, G. Potter, B. Van Vliet-Lanoe, & J.C. Arthur, 2017. Two-stage opening of the Dover Strait and the origin of island Britain, **Nat Commun**, 8, 15101. DOI: 10.1038/ncomms15101:
- Westhead, R.K., D.J. McCarthy, J.S. Collier & D.J. Sanderson, 2017. Spatial variability of the Purbeck–Wight Fault Zone—a long-lived tectonic element in the southern UK, **Proceedings of the Geologists' Association**. DOI: 10.1016/j.pgeola.2017.08.005:

- Sanderson, D.J., J.K. Dix, K.R. Westhead & J.S. Collier, 2017. Bathymetric mapping of the coastal and offshore geology and structure of the Jurassic Coast, Weymouth Bay, UK, **Journal of the Geological Society**, 174, 498-508. DOI: 10.1144/jgs2016-070:
- Taposeea, C.A., J.J. Armitage & J.S. Collier, 2016. Asthenosphere and lithosphere structure controls on early onset oceanic crust production in the southern South Atlantic, **Tectonophysics**. DOI: 10.1016/j.tecto.2016.06.026:
- Schlaphorst, D., J.M. Kendall, J.S. Collier, J.P. Verdon, J. Blundy, B. Baptie, J.L. Latchman, F. Massin, & M.P. Bouin, 2016. Water, oceanic fracture zones and the lubrication of subducting plate boundaries-insights from seismicity, **Geophysical Journal International**, 204, 1405-1420. DOI: 10.1093/gji/ggv509:
- Garcia-Moreno, D., K. Verbeeck, T. Camelbeeck, M. De Batist, F. Oggioni, O.Z. Hurtado, W. Versteeg, H. Jomard, J.S. Collier, S. Gupta, A. Trentesaux, & K. Vanneste, 2015. Fault activity in the epicentral area of the 1580 Dover Strait (Pas-de-Calais) earthquake (northwestern Europe), **Geophysical Journal International**, 201, 528-542. DOI: 10.1093/gji/ggv041:
- Collier, J.S., F. Oggioni, S. Gupta, D. Garcia-Moreno, A. Trentesaux & M. De Batist, 2015. Streamlined islands and the English Channel megaflood hypothesis, **Global and Planetary Change**, 135, 190-206. DOI: 10.1016/j.gloplacha.2015.11.004:
- Hammond, J.O.S., J.M. Kendall, J.S. Collier & G. Rumpker, 2013. The extent of continental crust beneath the Seychelles, **Earth and Planetary Science Letters**, 381, 166-176. DOI: 10.1016/j.epsl.2013.08.023:
- Hammond, J.O.S., J.S. Collier, J.M. Kendall, G. Helffrich & G. Rumpker, 2012. Plume scar in the mantle lithosphere beneath the Seychelles revealed by seismic imaging, **Earth and Planetary Science Letters**, 355, 20-31. DOI: 10.1016/j.epsl.2012.08.020:
- Collier, J.S. & S.R. Humber, 2011. Fringing reefs of the Seychelles inner granitic islands, Western Indian Ocean *In Seafloor Geomorphology As Benthic Habitat*, Ed P.T. Harris and E.K. Baker. Elsevier: Amsterdam. p. 339-347. DOI: 10.1016/B978-0-12-385140-6.00021-9
- Armitage, J.J., J.S. Collier, T.A. Minshull & T.J. Henstock, 2011. Thin oceanic crust and flood basalts: India-Seychelles breakup, **Geochemistry Geophysics Geosystems**, 12. DOI: 10.1029/2010gc003316:
- Armitage, J.J., J.S. Collier & T.A. Minshull, 2010. The importance of rift history for volcanic margin formation, **Nature**, 465, 913-917. DOI: 10.1038/nature09063:
- Collier, J.S., T.A. Minshull, J.O.S. Hammond, R.B. Whitmarsh, J.M. Kendall, V. Sansom, C.I. Lane & G. Rumpker, 2009. Factors influencing magmatism during continental breakup: New insights from a wide-angle seismic experiment across the conjugate Seychelles-Indian margins, **Journal of Geophysical Research-Solid Earth**, 114. DOI: 10.1029/2008jb005898:
- Minshull, T.A., C.I. Lane, J.S. Collier & R.B. Whitmarsh, 2008. The relationship between rifting and magmatism in the northeastern Arabian Sea, **Nature Geoscience**, 1, 463-467. DOI: 10.1038/ngeo228:
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### ***Non peer-reviewed (last 10 years only)***

Collier, J.S., 2023. "100 influential papers from Geophysical Journal International: Marine Geophysics"

<https://academic.oup.com/gji/pages/100-years-of-gji-virtual-issue#e2d49d0dd10cff01ed0c>

Goes S., J. S. Collier, J. Blundy, et al., 2019. Project VoiLA: Volatile Recycling in the Lesser Antilles. **Eos, Transactions American Geophysical Union**, 100, 10.1029/2019EO117309

Collier, J., 2017. A megaflood in the English Channel, **Astronomy & Geophysics**, 58, 38-42. DOI: 10.1093/astrogeo/atx062

Collier, J., 2014. Review of 'Mid-Ocean Ridges', **Geophysical Journal International**, 197, 1884-1884. DOI: 10.1093/gji/ggu041

### **Public Engagement and Media (last 10 years, selected)**

My research has attracted a wide-range of media interest and my aim has been to communicate my research to a wide audience. My most significant outreach activities are as follows:

#### **TV**

2023 Arte TV. 2 days filming for documentary that includes our work on how Britain separated from continental Europe. Not yet aired.

2017 Discovery Channel: *Daily Planet* (5/5/17). Half day filming onboard the RRS James Cook in Guadeloupe for a 6-minute news item. Shown Tue 17 Oct 2017.

<https://review.bellmedia.ca/view/45793672>

2016 Channel 4/NOVA/Blink: *Volatile Earth* (8/8/16). Two days filming for 1-hour documentary. Shown Sat 11 Nov 2017.

<http://www.pbs.org/wgbh/nova/earth/killer-floods.html>

2015 Channel 4/Renegade: *Walking Through Time* (2/8/15). Two days filming for 1-hour documentary. Shown Sat Feb 2016, 1.2 million viewers.

<http://www.channel4.com/programmes/walking-through-time>

#### **Radio/podcasts**

2024 Zero Pressure podcast with Helen Sharman [\*Zero Pressure: Turning the Tide - Seabeds and the Future of Security on Apple Podcasts\*](#)

2017 BBC Radio4, *Inside Science* (8/4/17). Recorded interview

2017 BBC World Service, *Science Today* (10/4/17). Recorded interview

#### **Print/online**

2019 BBC Bitesize article (12/4/19). <https://www.bbc.com/bitesize/articles/z7bqgwx>

2019 New Scientist (6/3/19). Including front page illustration.

<https://www.newscientist.com/article/mg24132200-200-brex-it-10000-bc-the-untold-story-of-how-britain-first-left-europe/>

2018 Earth Date (10/12/18) <http://earthdate.org/node/91>

2017 Guardian Terrawatch (30/4/17). Online article about Caribbean project

[www.theguardian.com/world/2017/apr/30/scientists-search-caribbean-quake-clues-terrawatch](http://www.theguardian.com/world/2017/apr/30/scientists-search-caribbean-quake-clues-terrawatch)

2015 Royal Astronomical Society, *A&G* magazine (Autumn 2015). Interview on personal motivation and career achievements. **Astronomy & Geophysics**, 56, 5.39-5.39. DOI: 10.1093/astrogeo/atv172:

#### **College outreach events**

2023 Exhibition Road Festival Panel member live event "20,000 leagues under the sea"

2018 Imperial College Science Festival – Water in the Deep Earth

2013 Imperial College Science Festival Lecture. "Island Britain" Video (05/12)

[www.youtube.com/watch?v=TW5HJWSpLWE&feature=plcp](http://www.youtube.com/watch?v=TW5HJWSpLWE&feature=plcp) [This now has >200 k views and is the 3rd most watched video of its type from Imperial (access Aug 2018)].

**Talks**

- 2019 Royal Astronomical Society Public Lecture series (12/2/19) "Brexit 1.0."  
2017 Mole Valley Geological Society (8/11/17) "Island Britain"  
2015 Institute of Physics, London (21/10/15) "Volatile Earth: The water beneath our feet"

**Teaching (past 5 years)**

**Courses**

**Global Geophysics (2nd year undergraduates)**

This 24-contact hour course introduces Earth structure and plate tectonics.

**Marine Geology & Geophysics (3rd/4th year undergraduates)**

This 24-contact hour course was taken as the highest-level geophysics course on our undergraduate program. The course presents material in a research context and includes linux practicals and group discussions of recent papers as well as conventional lectures.

**Practical Geophysics fieldtrip (2nd year undergraduates)**

Ten-day trip in Cyprus using different geophysical techniques, such as gravity, magnetics, resistivity and seismic. Students work in teams rotating each day to a new method.

***Masters student project supervision (past 10 years)***

Simon Fleckner (2014)

Haitham AlHindi (2015)

Amy Woodward (2021)

Fabio Contreras (2014)

Matt Wetton (2015)

Savvas Marcou (2021)

William Gregory (2014)

Cameron Berry (2016)

Louise Resche-Rigon (2021)

Luis Gavidia-Castillo (2014)

Sophie Butcher (2016)

Robert Lobinski (2023)

Azer Mohammed (2014)

George Warner (2016)

Adam Chema-Khan (2023)

Naomi Gyori (2015)

Theo Meenderink (2018)