

Dr James Wheeley PhD

Lecturer in Sedimentary Geology
GEES Senior Admissions Tutor

[School of Geography, Earth and Environmental Sciences \(/schools/gees/index.aspx\)](/schools/gees/index.aspx)

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About

James Wheeley is a teaching-focused lecturer in sedimentary geology and sedimentary basin analysis. His research interests lie in carbonate sedimentology and applied micropalaeontology (especially conodont isotopes) which he is using to address deep time (Palaeozoic) palaeoclimatic and palaeoecological problems. He is currently involved with the VISE (Vertebrate Isotopes and the Environment) research project working with Dr Ivan Sansom into the oxygen isotopic responses of chondrichthyan phosphatic hard tissue complexes to environmental variability and sample processing, and into the controls on oxygen isotopes in teleost carbonates (otoliths).

Qualifications

- PhD Carbonate Sedimentology (Cardiff University 2007)
- MSc (with Commendation) Palaeobiology (University of Bristol 2002)
- BSc (Hons) Geology (University of Durham 2000)

Biography

James completed his initial teacher training at the University of Gloucestershire in Geography (2006-2007). He completed his PhD on Ordovician limestones of Jämtland, Sweden, at Cardiff University in 2006 having previously studied for an MSc in Palaeobiology at the University of Bristol (2001-2002). His undergraduate degree is in Geology (University of Durham; 1997-2000). James joined the School as a Teaching Fellow in 2007 and in 2012 was appointed to a Lectureship in Sedimentary Geology.

Teaching

James Wheeley teaches sedimentary geology at undergraduate and postgraduate levels on all GEES Geology programmes. He advises Geology and Physical Geography project students on their independent research and supervises geological mapping students. Each year he is a supervisor on a number of MSci projects in sedimentary geology. James contributes to the Geology fieldwork programme including trips to SW England, Scotland and SE Spain.

Postgraduate supervision

- 2011-2015 Rosemary Dartnall. Gwna Mélange sedimentology. Principal supervisor: Prof. Ian Fairchild, co-supervisor: Dr J.R. Wheeley. External supervisors: Prof. Paul Smith (Oxford), Dr David Schofield (BGS).
- 2012-2015 Ban To Wan. Using Geological Information in Quantitative Prediction of Contaminant Movement in Groundwater Systems. Principal supervisor: Prof. John Tellam, co-supervisor: Dr J.R. Wheeley and Dr Alan Herbert.

Research

Current / Recent Research

Current research focuses on elucidating conodont oxygen isotopes ultimately for seawater palaeotemperature and palaeoclimate reconstruction (with Prof. Paul Smith and Dr Ian Boomer). The NERC ion microprobe at the University of Edinburgh is being used to measure oxygen isotopes of individual conodont elements and bulk silverphosphate samples are processed through Birmingham's isotope facility ([SILLA \(/facilities/silla/index.aspx\)](/facilities/silla/index.aspx)). Further oxygen isotope work on vertebrate hard tissues is being undertaken in co-operation with Birmingham's Sea Life centre (with Dr Ivan Sansom).

Research Funding

10. Sansom, I.J. and **Wheeley, J.R.** 2013 Oxygen isotopes in vertebrates: correlating between calcium phosphate and calcium carbonate. NERC Ion Microprobe Facility IMF497/1013 (**£12,500**)

9. Sansom, I.J. and **Wheeley, J.R.** 2012. Oxygen isotopes in shark teeth: testing for intra-tooth variability and the impact of processing methods. NERC Ion Microprobe Facility IMF470/1012 (**£11,250**).

8. Smith, M.P., **Wheeley, J.R.** and Boomer, I. 2011. *Constraining conodont $\delta^{18}\text{O}$ for marine palaeothermometry*. NERC IMF414/1010 (Graded Alpha-4) (**~£22,500**).

7. Žigaitė, Ž. and Sansom, I.J., **Wheeley, J.R.**, Boomer, I., Smith, M.P. 2011. *VISE: Vertebrate Isotopes and the Environment*. Marie Curie Intra-European Fellowship for Žilvė Žigaitė. (**£148,924**)

6. **Wheeley, J.R.** 2010. Deciphering Paleozoic paleoenvironmental changes using stable and radiogenic isotope proxies. GEES conference fund for attending and

organising a technical session at The Annual Meeting of the Geological Society of America, Denver, Colorado, 2010 (£1,600)

5. **Wheeley, J.R.** 2010. Nitrogen and organic carbon isotopes for conodont palaeoecology. The Palaeontological Association Research Grant (£3,500).

4. **Wheeley, J.R.** and Smith, M.P. 2010. Nitrogen and organic carbon isotopes in early vertebrate hard tissues – elucidating the trophic position and life modes of vertebrates in Ordovician ecosystems. Royal Society Research Grant (£14,015).

3. **Wheeley, J.R.**, Smith, M.P. and Boomer, I. 2009. Oxygen isotopes from conodont phosphate. NERC Isotope Geoscience Laboratories (NIGL) (~£500 in kind from NIGL).

2. **Wheeley, J.R.** and Braga, J.C. 2008. Early diagenetic aragonite dissolution in Neogene carbonates, SE Spain. Royal Society Outgoing International Short Visit, University of Granada, Spain (£990).

1. Smith, M.P., **Wheeley, J.R.**, Boomer, I. 2008. Conodonts as palaeotemperature indicators in Palaeozoic oceans? A proof-of-concept study. NERC IMF333/0508 (Graded Alpha-4) (~£6,250).

Research Cluster / Group Affiliation

Geosystems

Research Interests

- Carbonate sedimentology and diagenesis
- Conodont isotope records
- Early Palaeozoic climate change/palaeoceanography
- Permian-Triassic mass extinction and biotic recovery and climates
- Trace fossils and trilobite autecology

Other activities

Administrative Responsibilities in Earth Sciences

- GEES Senior Admissions Tutor
- Earth Sciences Admissions Tutor
- Earth Sciences Schools Liaison and Outreach Officer

Panel Membership/Review work

- Member of The Royal Society's Research Grants Scheme Physical Sciences Board (1 Jan 2013 - 31 December 2015)

Professional affiliations

- The Geological Society of America
- SEPM Society for Sedimentary Geology
- The Pander Society

Publications

Key Publications

12. Cherns, L., **Wheeley, J.R.**, Popov, L.E. Ghobadi Pour, M. Owens, R.M. and Hemsley, A.R. 2013. Long period orbital climate forcing in the early Palaeozoic? *Journal of the Geological Society, London*, 170, 707-710.

11. Price, G.D., Twitchett, R.J., **Wheeley, J.R.** & Buono, G. 2013. **Isotopic evidence for long term warmth in the Mesozoic.** (<http://www.nature.com/srep/2013/130313/srep01438/full/srep01438.html>) *Scientific Reports* 3, 1438; DOI:10.1038/srep01438

10. **Wheeley, J.R.**, Smith, M.P. and Boomer, I. 2012. Oxygen isotope variability in conodonts: implications for reconstructing Palaeozoic palaeoclimates and palaeoceanography. *Journal of the Geological Society, London*, 169, 239-250.

9. Hao Wang, Longyi Shao, Liming Hao, Pengfi Zhang, Glasspool, I.J., **Wheeley, J.R.**, Wignall, P.B. and Hilton, J. 2011. Palaeoenvironments, stratigraphy and sequence stratigraphy of the Lopingian (Permian) coal measures in southwestern China. *International Journal of Coal Geology* 85, 168-183.

8. Cherns, L., **Wheeley, J.R.**, and Wright, V.P. 2011. Taphonomic bias in shelly faunas through time: Early aragonite dissolution and its implications for the fossil record. In Allison, P.A. & Bottjer, D.J. (eds.) *Taphonomy, Second Edition: Process and Bias Through Time*. Topics in Geobiology 32. Springer, pp. 79-105.

7. Cherns, L. and **Wheeley, J.R.** 2009. Early Palaeozoic cooling events: peri-Gondwana and beyond. In Bassett, M.G. (ed.) Early Palaeozoic Peri-Gondwanan Terranes: New Insights from Tectonics and Biogeography. *The Geological Society, London, Special Publications*, 325, 256-278.

6. Cherns, L., **Wheeley, J.R.** and Wright, V.P. 2008. Taphonomic windows and molluscan preservation. *Palaeogeography, Palaeoclimatology, Palaeoecology* 270, 220-229.

5. **Wheeley, J.R.**, Cherns, L. and Wright, V.P. 2008. Provenance of microcrystalline carbonate cement in limestone-marl alternations: Aragonite mud or molluscs? *Journal of the Geological Society, London* 165, 395-403.

4. Cherns, L. and **Wheeley, J.R.** 2007. A pre-Hirnantian (Late Ordovician) interval of global cooling – The 'Boda event' re-assessed. *Palaeogeography, Palaeoclimatology, Palaeoecology* 251, 449-460.

3. Cherns, L.,* **Wheeley, J.R.*** and Karis, L. 2006. Tunneling trilobites: habitual infaunalism in an Ordovician carbonate seafloor. *Geology* 34, 657-660. (*joint first authors)

2. **Wheeley, J.R.** and Twitchett, R.J. 2005. Palaeoecological significance of a new Griesbachian (Early Triassic) gastropod fauna from Oman. *Lethaia* 38, 37-45.

1. Twitchett, R.J., Krystyn, L., Baud, A., **Wheeley, J.R.** and Richoz, S. 2004. Rapid marine recovery after the end-Permian extinction event in the absence of marine anoxia. *Geology* 32, 805-808.

