



## **Dr Jamie Wilson**

**BSc hons (Oxf.Brookes), MSc(E.Anglia), PhD**

Research Associate

### **Area of research**

Interactions between the carbon cycle, biogeochemistry and ecosystems

School of Geographical Sciences,  
University Road, Clifton BS8 1SS

[\(See a map\)](#)

[jamie.wilson@bristol.ac.uk](mailto:jamie.wilson@bristol.ac.uk)

### **Summary**

I am interested in the interactions between marine ecosystems and biogeochemistry, the carbon cycle and climate. My work involves developing and using representations of ecosystems and biogeochemistry in Earth System Models. I am particularly interested exploring how ecosystems and biogeochemistry interact in the modern ocean and how this may have changed in the past, and the implications for palaeoclimate.

Current and recent research:

- I am currently employed as a research associate on the ERC-funded PALEOGENE project, helping develop a trait-based ecosystem model in the Earth System Model 'GENIE' and using this to explore the response of ecosystems to extinction events in the paleorecord.
- I am developing the application of transport matrices (a method of diagnosing steady-state ocean transport) to GENIE.
- My PhD research focussed on constraining our mechanistic understanding of the biological pump in the modern ocean using both novel data analysis and modelling approaches.

### **Biography**

#### **2015 - Present**

Research Associate in Earth System Modelling at University of Bristol

#### **2011 - 2015**

PhD "Constraining Marine Carbon Fluxes in the Ocean Interior" at *Cardiff University with Stephen Barker and Andy Ridgwell*

This PhD contributed to the UK Ocean Acidification Research Programme (UKOARP)

#### **2009 - 2010**

MSc Climate Change *University of East Anglia & Climatic Research Unit (CRU)*

#### **2006-2009**

BSc (Hons) Environmental Science *Oxford Brookes University*

## Keywords

- Carbon cycle
- Marine Biogeochemistry
- Earth system modelling
- Ecosystem modelling
- Transport matrices
- Particulate Organic Carbon fluxes
- Phytoplankton diversity and evolution

## Memberships

### Organisations

[School of Geographical Sciences](#)

### Research groups

- [Bristol Research Initiative for the Dynamic Global Environment \(BRIDGE\)](#)

## Recent publications

- Wilson, J, Monteiro, F, Schmidt, D, Ward, B & Ridgwell, A, 2018, '[Linking Marine Plankton Ecosystems and Climate: A New Modeling Approach to the Warm Early Eocene Climate](#)'. *Paleoceanography and Paleoclimatology*.
- Grigoratou, M, Monteiro, FM, Schmidt, DN, Wilson, JD, Ward, BA & Ridgwell, A, 2018, '[A trait-based modelling approach to planktonic foraminifera ecology](#)'. *Biogeosciences Discussions*, vol 2018., pp. 1-36
- Wilson, J, Barker, S, Edwards, N, Holden, PB & Ridgwell, A, 2018, '[Sensitivity of atmospheric CO<sub>2</sub> to regional variability in particulate organic matter remineralization depths](#)'. *Biogeosciences Discussions*.
- Ward, B, Wilson, J, Death, R, Monteiro, F, Yool, A & Ridgwell, A, 2018, '[EcoGENIE 1.0: plankton ecology in the cGENIE Earth system model](#)'. *Geoscientific Model Development*, vol 11., pp. 4241-4267
- Hülse, D, Arndt, S, Wilson, JD, Munhoven, G & Ridgwell, A, 2017, '[Understanding the causes and consequences of past marine carbon cycling variability through models](#)'. *Earth-Science Reviews*, vol 171., pp. 349-382
- Wilson, J & Arndt, S, 2017, '[Modeling radiocarbon constraints on the dilution of dissolved organic carbon in the deep ocean](#)'. *Global Biogeochemical Cycles*, vol 31., pp. 775-786
- Wilson, J, Ridgwell, A & Barker, S, 2015, '[Can organic matter flux profiles be diagnosed using remineralisation rates derived from observed tracers and modelled ocean transport rates?](#)'. *Biogeosciences*, vol 12., pp. 5547-5562
- John, EH, Wilson, JD, Pearson, PN & Ridgwell, A, 2014, '[Temperature-dependent remineralization and carbon cycling in the warm Eocene oceans](#)'. *Palaeogeography, Palaeoclimatology, Palaeoecology*, vol 413., pp. 158-166
- Wilson, J, Barker, S & Ridgwell, AJ, 2012, '[Assessment of the spatial variability in particulate organic matter and mineral sinking fluxes in the ocean interior: Implications for the ballast hypothesis](#)'. *Global Biogeochemical Cycles*, vol 26.

[View complete publications list](#) in the University of Bristol publications system