Thomas F. Bristow
NASA Postdoctoral Fellow
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EDUCATION

2008 Ph.D. in sedimentology, mineralogy and geochemistry. Department of Earth Sciences, University of California, Riverside. Dissertation title: *Paleoenvironments of the Earliest Animal Fossils.* Supervisor: Prof. M. J. Kennedy

2002 BSc (Hons) 1st Class. Geosciences, University of St Andrews, Scotland
3rd year spent at Queen's University, Kingston, Canada
Thesis: *The Mudcracked and Grainstone Formations, Little Dal Group, Mackenzie Mountains, Northwestern Canada*

RESEARCH EXPERIENCE

Postdoctoral Fellow, Exobiology Branch, NASA Ames Research Center **Fall 2010-Present**

Postdoctoral Fellow, Division of Geological and Planetary Sciences, Caltech and JPL **Fall 2008 – Fall 2010**

Graduate Researcher, Department of Earth Sciences, University of California, Riverside **Fall 2003 – Fall 2008**

Field assistant, Queens University, Canada **Summer 2001**

Research technician, Coates Electrographics, UK **Sep 1997-July 1998**

TEACHING EXPERIENCE

Teaching Assistant, Department of Earth Sciences, University of California, Riverside. **Fall 2004 – Fall 2007**

PUBLICATIONS

Bristow, T. F. and Kennedy, M. J. (2008) Numerical constraints on the organic carbon inventory of the Ediacaran ocean. ***Geology*** *36:* 863-866.

Bristow, T. F., Kennedy, M. J., Derkowski, A., Droser, M. D., Jiang, G., Creaser, R., (2009) Mineralogical Constraints on Paleoenvironments of the Ediacaran Doushantuo Formation ***PNAS*** *106*: 13190-13195.

Bristow, T. F., Bonifacie, M. Derkowski, A., Grotzinger, J. P., Eiler, J. M., (*In Press)* A hydrothermal origin for isotopically anomalous cap dolostone cements from south China. ***Nature***.

Bristow, T. F., Milliken, R. E., A terrestrial perspective on authigenic clay production in Martian lakes. *In revision* for ***Clays and Clay Minerals***.

Derkowski**, A., Bristow, T. F.,** et al., Diagenesis of the Doushantuo Formation (South China): isotope dating of clay minerals and organic matter. *Submitted.*

Bristow, T. F, Kennedy M. J., Morrison, K. M. Mrofka, D. M., Sedimentological and isotopic evidence of precessional driven climate change in the Early Eocene. *In prep.*

Bristow, T. F. and Amidon, J. Mineral Quantification from X-ray Powder Diffraction Patterns using the web application Mineralzweb. *In Prep.*

PRESENTATIONS

- Mars Sedimentology and Stratigraphy conference, 2010. Talk: 'Criteria for identifying Lacustrine Clays on Mars.'
- Clay Minerals Society annual meeting, 2009. Poster: 'Cyclical trends in clay mineralogy of the Green River Formation.'
- Martian phyllosilcates workshop, 2008. **Invited Talk**: 'Mechanisms and conditions of saponite production in the Precambrian Doushantuo Formation.'
- Geological Society of America annual meeting, 2008. Talk: 'Controls on oil-shale deposition in the Green River Formation.'
- Harvard Geobiology Symposium 2008. **Invited Talk**: 'Oxidant budget of the Shuram excursion.'
- Clay Mineral Society annual meeting, 2007. Talk: 'A smoking gun for Precambrian non-marine depositional Environments.'
- Southern California Geobiology Symposium, 2007. Talk: 'Reinterpretation of the paleoenvironment of the first fossil animals.'
- American Association of Petroleum Geologists, 2007**. Invited Talk**: 'Organo-Clay Interactions: From Preservation to Oil Generation.'
- Geological Society of America annual meeting, 2006. Talk: 'Do Geochemical Records from the Doushantuo Formation Record a Marine Signal?'
- Geological Society of America annual meeting, 2005. Talk: 'Mineralogy and Geochemistry of Neoproterozoic black shales from the Doushantuo Formation: constraints on organic carbon preservation.'
- Earth Systems Processes 2, Calgary, 2005. Talk: 'Factors influencing the preservation of organic carbon in the Neoproterozoic Doushantuo Formation.'
- Southern California Geobiology Symposium, 2005. Poster: 'Precambrian Smectite of the Neoproterozoic Doushantuo Formation, China.'

GRANTS AND FELLOWSHIPS

NASA Post-doctoral Fellowship	(11/10-11/12)	$104,000
O.K Earl Post-doctoral Fellowship	(10/08-9/09)	$50,000
Blanchard Graduate Fellowship	(1/08-6/08)	$3200 stipend
Alpha Association of Phi Beta Kappa Alumni graduate study award	(9/07)	$1000
John Dunham Summer Field Grant	(6/07)	$1000
National Astrobiology Institute Travel Fund to present at Geological Society of America	(11/06)	$ 500
Paleontological Society Travel Fund to attend International Paleontological Congress in Beijing	(6/06)	$1000

Blanchard Field Fellowship, UC Riverside	(6/06)	$2500
Geological Society of America Student Research Grant	(6/06)	$2000
American Association of Petroleum Geologists Grants-In-Aid program	(6/04)	$2000
Dean's Fellowship UC Riverside stipend	(9/03-6/04)	$14,000
Bobby T Jones Fellowship, as part of exchange program between St Andrews and Queens University	(9/99-6/00)	Can$5000

AWARDS AND HONOURS

Runner-up Student Paper contest, Clay Mineral Society Annual meeting	2007
Runner-up Student Poster Competition, Southern California Geobiology Symposium	2005
Proctor and Gamble Award for best student in the field of chemical engineering	
Year-In-Industry annual exhibition	1998

TECHNICAL SKILLS

***Field experience*:**

- UC Riverside global and environmental change field camp, *10 days (9/2007)* – Examining records of Quaternary climate change in the Sierra Nevada (lake sediments, glacial geomorphological and sedimentary features, floral and faunal change).
- Eocene Green River Formation, WY and UT, *10 days* (6/2007) – fluvial/lacustrine sedimentology
- Doushantuo Formation and underlying glaciogenic rocks of South China, *6 weeks* (Summer 2004-2006) – sedimentology and stratigraphy
- Neoproterozoic history of the Death Valley region, CA, *~6 weeks total* (numerous trips from 2004-2007)
- Early Neoproterozoic microbial reefs and carbonate systems Mackenzie Mountains, Canada, *1 month* (7/2000)

***Analytical/interpretative skills*:**

- Clay isolation and identification using X-ray diffraction (XRD)
- Quantitative whole rock mineralogy from XRD using RockJock and BGMN software
- Box modeling of biogeochemical cycles using Stella and Berkeley Madonna software
- Elemental analysis (C, N, S)
- Extraction techniques for determining Fe-speciation and application as a paleoredox indicator
- Using Matlab as an optimization engine for data fitting

PROFESSIONAL ORGANIZATIONS

Geological Society of America, (2002 to present)
Clay Minerals Society, dates (2006 to present)