

JEREMY D. OWENS CURRICULUM VITAE

Woods Hole Oceanographic Institution
Geology and Geophysics Department
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Woods Hole, MA 02543
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EDUCATION

- 2013 Ph.D., Earth Sciences.** University of California, Riverside
Advisor – Timothy W. Lyons: *Exploring the Geochemical Fingerprints of an Oceanic Anoxic Event During the Late Cretaceous: the Global and Biological Implications*
- 2010 M.Sc., Earth Sciences.** University of California, Riverside
Advisor – Timothy W. Lyons: *An Iron Isotope Record of Ocean-Scale Iron Shuttling During OAE 2*
- 2006 B.S., Environmental Sciences.** University of California, Riverside

PROFESSIONAL EXPERIENCE

Woods Hole Oceanographic Institution – Agouon Postdoctoral Fellow (2013-present)

Lecturer – University of California, Riverside (2011)

Global climate through time

Guest Lecturer – University of California, Riverside (2009-2012)

Global climate through time – 2 lectures in 2011, 2 lectures in 2010, 1 lecture in 2009,
Oceanography – 1 lecture in 2012, 2 lectures in 2009

Teaching Assistant – University of California, Riverside (2009-2012) *denotes head TA

Oceanography – Discussion (2012*, 2011, 2009*)

Global climate through time – Laboratory (2012*, 2011*, 2010*, 2009*, 2008*)

TA for Earth Resources and Sustainability – Discussion (2008)

Cosmos Factory – Discussion (2007)

Research Specialist – University of California, Riverside (2006-2007)

Advisor – Silke Severmann

Undergraduate Research Assistant – University of California, Riverside (2005-2006)

Advisors – Silke Severmann and Timothy W. Lyons

GRANTS

2014 NSF Grant – chemical oceanography: *Fingerprinting and Calibrating Low Oxygen Conditions Using Vanadium Isotopes* PI: J.D. Owens **\$369,520**

2009 Graduate student coauthor. NSF Grant – geosciences: What are the sources and mechanisms of iron enrichments during oceanic anoxic event 2? - Evidence from iron stable isotopes PI: S. Severmann \$149,707

Graduate Student

2013 IODP Cretaceous Drilling Workshop Travel Grant

2013 Geochemical Society Travel Grant

2012 NAI NASA Research Travel Grant

2012 Society for Sedimentary Geology (SEPM): *Assessing Dust Delivery of Bioavailable*

- Iron to the Ocean as a Driver and Consequence of Cenozoic Climate Change*
2012 **Geological Society of America (GSA): Assessing Loess Deposits as an archive for Bioavailable Iron Delivery to the Oceans
2012 **EGU Keith Runcorn** Travel Grant**

AWARDS, SCHOLARSHIPS AND FELLOWSHIPS

- 2014 **NNOCCI Science Fellow**. WHOI
2013 **Agouron Postdoctoral Fellowship**. WHOI
2013 **Dissertation Year Fellowship**. UC Riverside
2012 **NSF fellowship – Urbino Summer School of Paleoclimatology**. UC Riverside
2012 **Roland Blanchard Fellowship**. UC Riverside
2012 **Best Student Presentation – SoCal Geobiology Conference**. UC Riverside
2012 **Agouron Archean Biomarker Workshop Fellow**. UC Riverside
2011 **Teaching Assistant of the Year**. UC Riverside
2010 **NASA Ocean Deoxygenation Workshop Scholarship**. UC Riverside
2010 **Roland Blanchard Fellowship**. UC Riverside

PUBLICATIONS

- Wehrmann L.M., Formolo M.J., **Owens J.D.**, Raiswell R., Ferdelman T.G., Riedinger N. and Lyons T.W. (2014), Iron speciation and cycling in glacially influenced high-latitude fjord sediments (West Spitsbergen, Svalbard) – Evidence for a benthic recycling-transport mechanism, *Geochimica et Cosmochimica Acta*.
- Owens J.D.**, Gill B.C., Jenkyns H.C., Bates S.M., Severnman S., Kuypers M.M.M., Woodfine R.G., and Lyons T.W. (2013), Sulfur isotopes track the global extent and dynamics of euxinia during Cretaceous Oceanic Anoxic Event 2, *Proceeding of the National Academy of Sciences*.
- Scott R.W., Formolo M., Rush N., **Owens J.D.** and Oboh-Ikuenobe F., (2013), Upper Albian OAE 1d Event in the Chihuahua Trough, New Mexico, U.S.A, *Cretaceous Research*.
- Planavsky N.J., Bekker A., Hofmann A., **Owens J.D.** and Lyons T.W. (2012) The causes and consequences of enhanced primary primary production following the rise of atmospheric oxygen, *Proceedings of the National Academy of Sciences*, doi: 10.1073/pnas.1120387109.
- Owens J.D.**, Lyons T.W., Li X., Kuypers M.M., Kuhnt W., Gordon G., Anbar A. and Severmann S. (2012) Iron isotope and trace metal records of iron cycling in the proto-North Atlantic during the Cenomanian-Turonian oceanic anoxic event (OAE-2), *Paleoceanography*, 27(3), PA3223, doi: 10.1029/2012pa002328.
- Mitchell, K., Mason P.R.D., Van Cappellen P., Johnson T.M., Gill B.C., **Owens J.D.**, Diaz J., Ingall E.D., Reichart G.-J., and Lyons T.W. (2012), Selenium as paleo-oceanographic proxy: A first assessment, *Geochimica et Cosmochimica Acta*, 89(0), 302-317, doi: 10.1016/j.gca.2012.03.038.
- Boyer, D. L., **Owens J.D.**, Lyons T.W., and Droser M.L. (2011), Joining forces: Combined biological and geochemical proxies reveal a complex but refined high-resolution palaeo-oxygen history in Devonian epeiric seas, *Palaeogeography, Palaeoclimatology, Palaeoecology*, 306(3-4), 134-146, doi: 10.1016/j.palaeo.2011.04.012.
- Brucker, R. P., McManus J., Severmann S., **Owens J.D.**, and Lyons T.W. (2011), Trace

metal enrichments in Lake Tanganyika sediments: Controls on trace metal burial in lacustrine systems, *Geochimica et Cosmochimica Acta*, 75(2), 483-499, doi: 10.1016/j.gca.2010.09.041.

Raiswell, R., Reinhard C.T., Derkowski A., **Owens J.D.**, Bottrell S.H., Anbar A.D., and Lyons T.W. (2011), Formation of syngenetic and early diagenetic iron minerals in the late Archean Mt. McRae Shale, Hamersley Basin, Australia: New insights on the patterns, controls and paleoenvironmental implications of authigenic mineral formation, *Geochimica et Cosmochimica Acta*, 75(4), 1072-1087, doi: 10.1016/j.gca.2010.11.013.

Yao, J., Li J., **Owens J.D.**, and Zhong W. (2011), Combining DNAzyme with single-walled carbon nanotubes for detection of Pb(ii) in water, *Analyst*, 136(4), 764-768, doi: 10.1039/C0AN00709A.

Manuscripts in Review or Submitted

Owens J.D., Reinhard C.T., Rohressen M., Love G.L. and Lyons T.W. (in review), Marine trace-metal drawdown during the Cenomanian-Turonian Oceanic Anoxic Event and implications for global redox and biological perturbation, *Earth and Planetary Science Letters*.

Sur S., **Owens J.D.**, Soreghan G.S., Raiswell R., Soreghan M.J. and Lyons T.W. (re-submitted), Did extreme, glacial-stage eolian delivery of highly reactive iron fuel biogeochemical cycling in the late Paleozoic seas?, *Geology*.

Osburn M.R., **Owens J.D.**, Bergmann K.D., Grotzinger J.P. and Lyons T.W. (in review), Dynamic changes in sulfate isotopes preceding the Ediacaran Shuram Excursion, *Geochimica et Cosmochimica Acta*.

Song H., Algeo T.J., Wignall P.B., Tong J., **Owens J.D.**, Song H., Tian L., Qiu H., Zhu Y., Liang L., Bates S.M. and Lyons T.W. (in review), Termination of the Early Triassic hyper-greenhouse by enhanced organic carbon burial at the Smithian-Spathian boundary, *Earth and Planetary Science Letters*.

Sahoo S.K., Planavsky N.J., **Owens J.D.**, Kendall B., Anbar A.D., Lyons T.W. and Jiang G. (in review) Widespread euxinia and iron limitation towards the dawn of animal life, *Geology*.

Zhou X., Jenkyns H.C., **Owens J.D.**, Junium C.K., Zheng X., Sageman B.B., Hardisty D.S., Lyons T.W., Ridgwell A. and Lu Z. (in review), Oxygenation dynamics of upper ocean during the Cenomanian-Turonian OAE2, *Paleoceanography*.

Manuscripts in Preparation

Owens J.D., Lyons T.W., Hardisty D.S., Lu Z., Lowery C. and Jenkyns H.C. (final prep). Anoxia preceding euxinic conditions during the Cenomanian-Turonian boundary event (OAE2) in carbonates and shales in central Italy (Furlo), *American Journal of Science*.

Owens J.D., Lyons T.W. and Jenkyns H.C. (final prep). Global organic carbon burial: A comparison between known deposition and isotopic estimates for OAE2, *Earth and Planetary Science Letters*.

PRESENTATIONS

Invited Presentations

Owens J.D., Reinhard C.T., Rohressen M., Love G.L. and Lyons T.W. 2014 Global redox conditions leading into and during a late Cretaceous oceanic anoxic event (OAE2) and its

- implications, University of Massachusetts, Amherst, Amherst, Massachusetts, USA
- Owens J.D.**, Lyons T.W., Gill B.C., Reinhard C.T. and Jenkyns H.C., 2013 Quantifying the extent of euxinia during a late Cretaceous oceanic anoxic event (OAE 2), University of Leeds, Leeds, UK.
- Owens J.D.**, Lyons T.W., Gill B.C., Reinhard C.T. and Jenkyns H.C., 2012 Quantifying the extent of euxinia during a late Cretaceous oceanic anoxic event (OAE-2), Woods Hole Oceanographic Institute, Woods Hole, Massachusetts, USA.

Conference Presentations

- Owens J.D.** and Nielsen N., 2014 Thallium isotope a new tool for tracking the global marine ferromanganese burial, American Geophysical Union (AGU), San Francisco – California, USA.
- Lee B., **Owens J.D.** and Lyons T.W., 2014 Implication of eolian delivery and accumulation of highly reactive iron to the Atlantic Ocean, American Geophysical Union (AGU), San Francisco – California, USA.
- Soreghan S.S., Sur S., **Owens J.D.**, Raiswell R., Heavens N.G., Mahowald N.M. and Lyons T.W., 2014 The biological impact of eolian delivery of reactive iron to late Palaeozoic icehouse seas, Geological Society of America (GSA), Vancouver – British Columbia, Canada.
- Chappaz A., **Owens J.D.** and Lyons T.W., 2014 Molybdenum Speciation in Modern and Ancient Euxinic Settings, Goldschmidt Conference, Sacramento – California, USA (oral).
- Lee B., **Owens J.D.** and Lyons T.W., 2014 Delivery and Accumulation of Highly Reactive Iron to the Open Ocean and Its Implications, Goldschmidt Conference, Sacramento – California, USA (poster).
- Owens J.D.**, Reinhard C.T., Rohrssen M., Love G.D. and Lyons T.W., 2014 Marine trace-metal drawdown during the Cenomanian-Turonian Oceanic Anoxic Event and implications for global redox and biological perturbation, Northeast Geobiology Symposium, New Haven – Connecticut, USA (oral).
- Gill B.C., **Owens J.D.**, Them T., Jenkyns H.C. and Lyons T.W., 2013 A refined investigation into the sulfur and iron cycles during the Toarcian OAE, American Geophysical Union (AGU), San Francisco – California, USA (oral).
- Reinhard C.T., Planavsky N.J., Wang X., **Owens J.D.**, Johnson T.M., Fischer W.W. and Lyons T.W., 2013 Chromium isotopes in siliciclastic sediments and sedimentary rocks as a developing proxy for Earth surface change, American Geophysical Union (AGU), San Francisco – California, USA (oral).
- Sahoo S.K., Ganqing J., Planavsky, N.J., Kendall B., **Owens J.D.**, Anbar A. and Lyons T.W., 2013 Tubulent times for early animals?, Geological Society of America (GSA), Denver – Colorado, USA (oral).
- Owens J.D.**, Reinhard C.T. and Lyons T.W., 2013 Trace metal drawdown during a Cretaceous oceanic anoxic event: implications for global redox conditions, Goldschmidt Conference, Florence, Italy (oral).
- Wehrmenn L.M., Formolo M.J., **Owens J.D.**, Ferdelman T.G., Raiswell R. and Lyons T.W. 2013 The cycling and transport of glacially derived iron in Arctic fjord sediments, Goldschmidt Conference, Florence, Italy (oral).
- Scott R.W., Rush N.K., Formolo M.J., Obihikuenobe F.E. and **Owens J.D.**, 2012 Late Albian

- Oceanic anoxia in the Chihuahua trough, South-Central New Mexico, Geological Society of America (GSA), Charlotte – North Carolina, USA (poster).
- Owens J.D.**, Wehrmann L.M., Raiswell R. and Lyons T.W., 2012 Enhanced delivery of bioavailable Fe through glacial processes in Kongsfjorden, Svalbard, Goldschmidt Conference, Montréal, Canada (oral).
- Gill B.C., Lyons T.W., **Owens J.D.**, Bates S., Brumsack H.J. and Jenkyns H., 2012 Interpreting the trace metal records of ancient epeiric seaways: Lessons from the Toarcian (Jurassic) black shales of Europe, Goldschmidt Conference, Montréal, Canada (oral).
- Wehrmann L.M., **Owens J.D.**, Formolo M.J., Ferdelman T.G. and Lyons T.W., 2012 Glacially derived iron as the key driver for biogeochemical processes in Arctic fjord sediments (West Svalbard), Goldschmidt Conference, Montréal, Canada (poster).
- Owens J.D.**, Gill B.C., Jenkyns H., Kuypers M.M.M., Severmann S., Bates S., and Lyons T.W., 2012 Perturbations to the Global Sulfur Cycle during a mid-Cretaceous Oceanic Anoxic Event (OAE 2: Cenomanian/Turonian), Urbino Summer School of Paleoclimatology (USSP), Urbino, Italy (poster).
- Owens J.D.**, Gill B.C., Jenkyns H., Kuypers M.M.M., Severmann S., Bates S., and Lyons T.W., 2012 Perturbations to the Global Sulfur Cycle during a mid-Cretaceous Oceanic Anoxic Event (OAE 2: Cenomanian/Turonian), European Geophysical Union (EGU), Vienna, Austria (oral).
- Owens J.D.**, Boyer D.L., Droser M.L. and Lyons T.W., 2012 Low oxygen bottom waters in the Devonian ocean through a combined biological and geochemical approach, European Geophysical Union (EGU), Vienna, Austria (poster).
- Owens J.D.**, Lyons T.W., Soreghan G.S., Soreghan M., Chappaz A. and Raiswell R., 2011 Quantifying bioavailable iron delivery by dust during the icehouse of the late Paleozoic, American Geophysical Union (AGU), San Francisco – California, USA (poster).
- Owens J.D.**, Lyons T.W., Severmann S., Gill B., Jenkyns H., Kuypers M.M.M., Gordon G., Anbar A. and Kuhnt W., 2011 Global Perturbation of the Marine Iron Cycle During OAE-2, Cretaceous Symposium, Utrecht, Netherlands (oral).
- Sur S., Soreghan G.S., **Owens J.**, Lyons T.W. and Soreghan M.J., 2010 Eolian delivery of highly reactive iron to the glacial ocean of the late Paleozoic, American Geophysical Union (AGU), San Francisco – California, USA (poster).
- Owens J.D.**, Gill B., Jenkyns H. and Lyons T.W., 2010 Perturbations to the Global Sulfur Cycle during Ocean Anoxic Events. Geological Society of America (GSA), Denver – Colorado, USA (poster).
- Raiswell R., Reinhard C., Derkowski A., **Owens J.D.**, Bottrell S., Anbar A. and Lyons T.W., 2010 Formation of syngenetic and early diagenetic iron minerals in the late Archean Mt. McRae Shales: paleoceanographic implications. Geological Society of America (GSA), Denver – Colorado, USA (oral).
- Severmann S., McManus J., Poulson-Brucker R., **Owens J.D.**, Lyons T.W. Anbar A. and Gordon G., 2010 Modern lakes and ancient oceans: trace metals and their isotopes in an anoxic African rift lake, Goldschmidt, Knoxville – Tennessee, USA (oral).
- Li X., Severmann S., **Owens J.D.** and Sageman B., (2010) Hydrothermal contributions to oceanic anoxic event 2? Evidence from trace metals, Goldschmidt, Knoxville – Tennessee, USA (oral).
- Owens J.**, Severmann S., Lyons T.W., Kuypers M.M.M., Kuhnt W., Gordon G., and Anbar A.,

- 2010 A $\delta^{56}\text{Fe}$ record of ocean-scale iron shuttling during OAE 2, Geobiology Symposium, Pasadena – California, USA (oral).
- Gill B., Lyons T.W., **Owens J.**, Brumsack H. and Jenkyns H., 2009 A multi geochemical proxy approach to deciphering the Toarcian OAE, American Geophysical Union (AGU), San Francisco – California, USA (poster).
- Owens J.**, Soreghan G.S., Gearhardt A, Sur S., Lyons T.W., 2009 Iron cycling in a late Paleozoic dust bowl, American Geophysical Union (AGU), San Francisco – California, USA (poster).
- Boyer D.L., Droser M.L. and **Owens J.**, 2009 High Resolution Biotic and Geochemical Data from Devonian Dysaerobic Shales of New York State, NAPC, Cincinnati – Ohio, USA (oral).
- Soreghan G.S., Sur S., Lyons T.W., Soreghan M.J. and **Owens J.**, 2009 Production and weathering of loess in late Paleozoic tropical Pangaea and implications for iron delivery to the glacial ocean, Goldschmidt, Davos, Switzerland (oral).
- Owens J.**, Severmann S., Lyons T.W., Kuypers M.M.M, Kuhnt W., Gordon G., and Anbar A., 2008 Perturbations of the Global Fe Cycle during OAE II, American Geophysical Union (AGU), San Francisco – California, USA (oral).
- Owens J.**, Severmann S., McManus J., Lyons T.W. and Gill B., 2008 Sulfur Isotopes in Lake Tanganyika, Southern California Geobiology Symposium, Los Angeles – California, USA (poster).
- Poulson Brucker R., McManus J., Severmann S., **Owens J.**, and Lyons T.W., 2008 Trace Metal Associations in an Anoxic Lake: the relative Roles of Organic Carbon and Reduced Sulfur, American Geophysical Union (AGU), San Francisco – California, USA (poster).
- Severmann S., McManus J., Berelson W.M., Riedel T. and **Owens J.**, 2008 The benthic flux of iron from river-dominated continental shelves of the North Pacific, Ocean Sciences Meeting, Orlando – Florida, USA (oral).
- Severmann S., McManus J., **Owens J.**, Lyons T.W., Gordon G. and Anbar A., 2006 Combined Fe-S stable isotopes in modern anoxic environments and the effects of Fe versus S limitation, American Geophysical Union (AGU), San Francisco – California, USA (oral).

MANUSCRIPT REVIEWER

Biogeosciences, Chemical Geology, Climate of the Past, Earth and Planetary Science Letters, Geochimica et Cosmochimica Acta, Geology, Palaeogeography Palaeoclimatology Palaeoecology, Geochemistry Geophysics Geosystems, and Precambrian Research

CURRENT COLLABORATORS (LAST 36 MONTHS)

Ariel Anbar (Arizona State University), Michael Formolo (Exxon Mobile), Benjamin Gill (Virginia Tech), Hugh Jenkyns (Oxford University), David Johnston (Harvard University), Ian Jarvis (Kingston University London), Ganqing Jiang (University of Nevada, Las Vegas), Marcel Kuypers (Max Planck Institute for Marine Microbiology), Gordon Love (University of California, Riverside), Zunli Lu (Syracuse University), Timothy Lyons (University of California, Riverside), Noah Planavsky (Yale University), Ken MacLeod (University of Missouri), Sune Nielsen (WHOI), Robert Raiswell (University of Leeds), Natascha Riedinger (Oklahoma State), Chris Reinhard (Georgia Tech), Silke Severmann (Rutgers), Caroline Slomp (Utrecht)

University), Shiling Yang (Chinese Academy of Sciences), Gerilyn Soreghan (University of Oklahoma), Laura Wehrmann (Stony Brook University)

FIELD EXPERIENCE

2012 Salton Sea, California
2012 Marche, Italy
2012 Northern China
2011 Svalbard, Norway
2011 Eastbourne, England
2010 Colorado and Nebraska
2010 Southern Utah and Nevada
2009 Southern Japan
2008 Bremen, Germany
2007 Southern Utah and Nevada
2007 R/V Wecoma Oregon/California Margin

MENTORING

2013 Co-advisor – Bridget Lee. UC Riverside
2012 Thesis Committee – McKensy Farmer. California State University, San Bernardino
2012 Senior thesis – Angela Gerhardt. UC Riverside
2011 Science Fair – Mahnoor Rahman and Nicole Perifoy – Martin Luther King High School
2012 Mentored 6 additional undergraduates. UC Riverside

APPOINTMENTS AND SERVICES

2014 Session co-chair, American Geophysical Union
2014 Co-organizer: *WHOI Paleoclimate Seminar Series*
2014 NNOCCI Science Fellow
2012 Session co-chair, Goldschmidt
2010 Designed carbon cycle lab, Beaumont High School
2009 Convener of 6th Annual Southern California Geobiology Symposium

WORKSHOPS

2013 IODP Cretaceous Drilling Workshop
2012 Urbino Summer School of Paleontology (USSP)
2012 Archean Drilling and Biomarker workshop
2010 IODP primer session

MEMBERSHIPS

American Association for the Advancement of Science (AAAS)
American Geophysical Union (AGU)
Geological Society of America (GSA)
Geochemical Society (GS)
Society for Sedimentary Geology (SEPM)