

Noah Planavsky
Assistant Professor
Yale University
Department of Geology and Geophysics

Education: Lawrence University 2002 –2006 (Bachelor of Arts, *Summa cum laude*).
University of California Riverside, 2007-2012, PhD, Advisor—Tim Lyons
Postdoctoral Fellow, California Institute of Technology, 2012-2013 Advisor, Woodward Fischer

Research Positions: Visiting researcher; Institut de Physique du Globe de Paris, Summer-Winter 2009, Advisor—Vincent Busigny; Guest investigator, Woods Hole Oceanographic Institute, Summer, Winter 2006, Advisor—Olivier Rouxel; Research Associate Rosenstiel School of Marine and Atmospheric Sciences, Fall 2006, Spring-Summer 2007, Advisor—Robert Ginsburg.

Selected Honors, Awards, and Grants: NSF Postdoctoral Fellowship, 2012; Marie Curie Postdoctoral Fellowship, 2012, University of California Dissertation Year Fellowship, 2011; Geological Society of America Research Award, 2011; Society for Sedimentary Geology Research Award, 2010 and 2011; NASA Astrobiology Research Scholarship, 2009; Geological Society of America Research Grant, 2009; American Philosophical Society Lewis and Clark Exploration Award, 2008; National Science Foundation Graduate Research Fellowship, 2007; University of California Chancellor's Fellowship, 2007; Institute on Lake Superior Geology Student Research Grant, 2007; Woods Hole Oceanographic Institute Summer Student Fellowship, 2006; Best student paper award, 52nd Institute on Lake Superior Geology, 2006; Lawrence University Excellence in Science award, 2006; Ocean Research and Education Summer Fellowship, 2005;

Professional Affiliations: American Geophysical Union, Geochemical Society, Geological Society of America, *Phi Beta Kappa*

Reviewer for: American Journal of Sciences; Chemical Geology; Earth and Planetary Science Letters; Earth Science Reviews; Geobiology; Geochimica et Cosmochimica Acta; Geology; Gondwana Research; Geological Journal; Nature Geoscience; Palaios; Precambrian Research; Science

Current Collaborators: Ariel Anbar (Arizona State University) Andrey Bekker (University of Manitoba), Vincent Busigny (Institut de Physique du Globe de Paris), Xuelei Chu (Chinese Academy of Sciences), Sean Crowe (University of Southern Denmark), Woodward Fischer (Caltech), Phil Fralick (Lakehead University), Axel Hofmann (University of Johannesburg), Kurt Konhauser (University of Alberta), Ganqing Jiang (University of Nevada, Las Vegas), Gordon Love (University of California, Riverside), Nathan Sheldon (University of Michigan), John Slack (USGS) Pam Reid (University of Miami), Olivier Rouxel (IFER-MER)

Selected Invited Talks:

Planavsky, NJ, 2013, New insights into Earth's oxygenation. University of Oxford, Department of Earth Sciences, Oxford, UK.

Planavsky, NJ, 2013, The utility of Cr isotopes. University of Nevada, Las Vegas, Geosciences Department, Las Vegas, NV, USA.

Planavsky, NJ, 2012, What we talk about when we talk about Earth's oxygenation. Dartmouth College, Biology Department, Hanover, NH, USA.

Planavsky, NJ, 2012, Proterozoic Redox Evolution, GAC-MAC-2012, St. John's, Canada.

Planavsky, NJ, 2011, Tracking the oxidation of the Earth's Surface, *Frontiers in Earth Surface System Interactions Symposium*, Yale University, New Haven, CT, USA.

Planavsky, NJ, Bekker A, Lyons, TW, 2010, High rates of primary productivity in the aftermath of the rise in atmospheric oxygen, *Goldschmidt-2010*, Knoxville, TN, USA.

Planavsky, NJ, Bekker A, Lyons, TW, 2010, High rates of primary productivity in the aftermath of the rise in atmospheric oxygen: Insights from the Lomagundi Formation, Zimbabwe, *GAC-MAC-2010*, Calgary, AB, Canada.

Planavsky, NJ, 2009, Insights from iron formations into the coevolution of the Earth's biosphere and redox state. *Institut de Physique du Globe de Paris, Laboratoire de Géochimie et Cosmochimie*, Paris, France.

Planavsky, NJ, 2009, The evolution of the marine phosphorous cycle through time, *University of Manitoba, Department of Geological Sciences*, Winnipeg, MB, Canada.

Publications:

•**Planavsky, NJ**, Asael, D, Hofmann, A, Reinhard, CT, Lalonde, SV, Wang, X, Knudsen, A, Ossa Ossa, F, Bekker, A, Johnson, TM, Lyons, TW, Rouxel, OJ, in review, Evidence for Oxygenic Photosynthesis Half a Billion Years Before the Great Oxidation Event, *Nature Geoscience*.

•Lyons, TW, Reinhard, CR, **Planavsky, NJ**, in review, The early rise of oxygen in the ocean and atmosphere. *Nature*.

•Castro-Contreras, SI, Gingras, MR, Pecoits, E, Aubet, NR, Petrash, D, Castro-Contreras, SM, **Planavsky, NJ**, Konhauser, KO, in revision, Textural and geochemical features of freshwater microbialites from Laguna Bacalar, Quintana Roo, Mexico. *Palaios*.

•McKenzie, NR, Hughes, NC, Myrow, PM, Dhiraj, M, Banerjee, M, Deb, M, **Planavsky, NJ**, in revision, New detrital zircon age constraints on the Proterozoic Aravalli-Delhi successions of central India and their implications, *Precambrian Research*.

•Konhauser, KO, **Planavsky, NJ**, Hardisty, D, Lyons, TW, Bekker, A, in revision, Iron formations as recorders of Neoproterozoic to Paleoproterozoic environmental history. In: D. Johnston and S. Poulton (eds.), *Revolutions in the Early Proterozoic: Tracking Geochemical and Geobiological Change*.

•Partin, CA, Lalonde, SV, **Planavsky, NJ**, Bekker, A, Rouxel, OJ, Lyons, TW, Konhauser, KO, in revision, Uranium in iron formations and the rise of atmospheric oxygen. *Chemical Geology*.

•Scott, CT, Wing, BA, Bekker, A, **Planavsky, NJ**, Medvedev, P, Bates, SM, Yun, SM, Lyons, TW, in revision, Pyrite multiple-sulfur isotope evidence for rapid expansion and contraction of the early Paleoproterozoic seawater sulfate reservoir. *Earth and Planetary Science Letters*.

•Tarhan, LG, **Planavsky, NJ**, Reid, RP, 2013, Microbial mat control on infaunal abundance and diversity in modern marine microbialites, *Geobiology*. 11, 485-497

•Bekker, A, **Planavsky, NJ**, Krapež, B, Rasmussen, B, Hofmann, A, Slack, JF, Rouxel, OJ, Konhauser, K.O., in press, Iron Formations: Their Origins and Implications for Ancient Seawater Chemistry, *Treatise on Geochemistry*. vol., 10.

- Robbins, LJ, Lalonde, SV, Saito, M, **Planavsky, NJ**, Mloszewska, AM, Pecoits, E, Dupont, CL, Kappler, A, Konhauser, KO, 2013, Authigenic iron oxide proxies for marine Zinc over geological time and implications for eukaryotic metallome evolution, *Geobiology*, 11, 295-306.
- Partin, C, Bekker, A, **Planavsky, NJ**, Gill, BG, Li, C, Podkovyrov, V, Maslov, A, Konhauser, KO, Lyons, TW, 2013, Large-scale fluctuations in Precambrian atmospheric and oceanic oxygen levels, *Earth and Planetary Science Letters*, 369, 284–293
- Reinhard, CT, **Planavsky, NJ**, Robbins, LJ, Partin, C, Gill, GC, Lalonde, SV, Bekker, A, Konhauser, KO, Lyons, TW, 2013, Proterozoic ocean redox and evolutionary stasis. *Proceedings of the National Academy of Sciences*. 110, 5357-5363.
- Reinhard, CR, **Planavsky, NJ**, Lyons, TW, 2013, Long-term sedimentary recycling of rare sulphur isotope anomalies and its significance for reconstructing atmospheric evolution, *Nature*. 497, 100-103.
- Scott, CT, **Planavsky, NJ**, Dupont, CL, Kendall, B, Gill, B, Robbins. LJ, Bekker, A, Konhauser, KO, Anbar, A, Lyons, TW, 2013, Marine zinc bioavailability through time and eukaryotic metallome evolution, *Nature Geoscience*. 6, 123-125.
- Huang, J, Chu, X, Lyons, TW, **Planavsky, NJ**, Wen, H, in 2013, A new look at saponite formation and early animal records in the Ediacaran of South China, *Geobiology*, 11, 3-14.
- Planavsky, NJ**, Bekker, A, Hofmann, A, Lyons, TW, 2012, Sulfur record of rising and falling marine oxygen and sulfate levels during the Lomagundi event. *Proceedings of the National Academy of Sciences*. 45 18300-18305.
- Bekker, A, Krapež, B, Slack, JF, **Planavsky, NJ**, Hofmann, A, Konhauser, KO, Rouxel, OJ, 2012, Iron Formation: The sedimentary product of a complex interplay among mantle, tectonic, oceanic, and biospheric processes—a reply. *Economic Geology* 107, 379-380.
- Sahoo, SW, **Planavsky, NJ**, Kendall, B, Wang, X, Shi, X, Scott, C, Anbar, AD, Lyons, TW, Jiang, G, 2012, Ocean oxygenation in the wake of the Marinoan glaciation. *Nature* 489, 546–549.
- Planavsky, NJ**, Rouxel, OJ, Bekker, A, Little, C, Hoffman, A, Lyons, TW, 2012, The iron isotope composition of some Archean and Paleoproterozoic iron formations. *Geochimica et Cosmochimica Acta*, 80, 158–169.
- Konhauser, KO, Lalonde, SV, **Planavsky, NJ**, Pecoits, E, Lyons, TW, Mojzsis, SJ, Rouxel, OJ, Barley, ME, Bekker, A, 2011, Aerobic bacterial pyrite oxidation and acid rock drainage during the Great Oxidation Event. *Nature*, 478, 369–373.
- Planavsky, NJ**, McGoldrick, P, Scott, C, Li, C, Reinhard, CT, Kelly, A, Bekker, A, Love, G, Lyons, TW, 2011, Widespread Iron-rich Conditions in Mid-Proterozoic Oceans, *Nature*, 477, 448–451.
- Reinhard, CR, **Planavsky, NJ**, 2011, Mineralogical constraints on Precambrian pCO₂. *Nature*, 474, E3-4.
- Planavsky, NJ**, Partin, C, and Bekker, A, 2011, Carbon isotopes as biogeochemical tracers, In: *Encyclopedia of Astrobiology*, Springer-Verlag, 1600 p., p. 249-253.

- Planavsky, NJ**, Rouxel, OJ, Bekker, A, Lalonde, SV, Konhauser, KO, Reinhard, CR, Lyons, TW, 2010, Evolution of marine phosphate concentrations, *Nature* 467: 1088–1090.
- Planavsky, NJ**, Bekker, A, Rouxel, OJ, Kamber, B, Knudsen, AH, Lyons, TW, 2010, The rare earth element and yttrium composition of Archean and Paleoproterozoic iron formations revisited: A new perspective on significance and mechanisms of iron formation deposition: *Geochimica et Cosmochimica Acta*, 74: 6387-6405.
- Bekker, A, Slack, JF, **Planavsky, NJ**, Krapež, B, Hofmann, A, Konhauser, KO, Rouxel, OJ, 2010, Iron Formation: The Sedimentary Product of a Complex Interplay Among Mantle, Tectonic, Oceanic, and Biospheric Processes. *Economic Geology* 105: 467-508.
- Planavsky, NJ**, 2009, Early Neoproterozoic origin of the metazoan clade recorded in carbonate rock texture: Comment, *Geology*, 37: e195.
- Planavsky, NJ**, Reid, RP, Myshrall, KL, Lyons, TW, Vischer, PT, 2009, Formation and diagenesis of modern marine calcified cyanobacteria, *Geobiology*, 7: 566 – 576.
- Grey, K, **Planavsky, NJ**, 2009, Microbialites of Lake Thetis, Cervantes, Western Australia—A Field Guide. Geological Survey of Western Australia Publication. Perth, Australia.
- Planavsky, NJ**, Rouxel, O, Bekker, A, Shapiro, RS, Fralick, PF, Knudsen, A, 2009, Iron-oxidizing microbial ecosystems thrived in Paleoproterozoic redox-stratified oceans, *Earth and Planetary Science Letters*, 286: 230-242.
- Planavsky, NJ**, Ginsburg, RN, 2009, The Taphonomy of Modern Marine Bahamian Microbialites, *Palaios*. 24: 5-18.
- Planavsky, NJ**, Grey, K, 2008, Stromatolite branching in the Neoproterozoic of the Centralian Superbasin, Australia: an investigation into sedimentary and microbial control of stromatolite morphology, *Geobiology*. 6: 33-45.
- Ginsburg, RN, **Planavsky, NJ**, 2008, Diversity of Bahamian stromatolite substrates. *in*, Links Between Geological Processes, Microbial Activities & Evolution of Life. pg. 177-195. eds., Dilek Y, Furnes H, Muehlenbachs K. Springer academic press. Amsterdam.