

CURRICULUM VITAE

Robert E. Kopp

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RESEARCH INTERESTS

- Earth system history, especially: paleoclimate, sea level change, the evolution of global biogeochemical cycles, the statistical interpretation of geohistorical data, and the implications of Earth history for future changes to Earth systems
- Climate and energy policy, especially the use of coupled human-natural system integrated assessment models to assess technological and policy solutions for building a sustainable global energy system in a warming world

EDUCATION

Ph.D. in Geobiology, California Institute of Technology, Pasadena, CA June 2007
M.S. in Geobiology, California Institute of Technology, Pasadena, CA June 2005
NSF Graduate Research Fellowship; Harrison Brown Memorial Moore Graduate Research Fellowship
Student, Agouron Geobiology Summer Course, USC Wrigley Institute, Catalina Island, CA July 2004
S.B. in Geophysical Sciences, University of Chicago, Chicago, IL June 2002
General and Departmental Honors; Junior Phi Beta Kappa; Student Marshal

PROFESSIONAL APPOINTMENTS

Assistant Professor, Department of Earth and Planetary Sciences, Rutgers University, New Brunswick, NJ 2011-
Associate Director, Rutgers Energy Institute, Rutgers University, New Brunswick, NJ 2011-
Associate Member, Graduate Faculty of Planning and Public Policy, Rutgers University, New Brunswick, NJ 2011-
Full Member, Graduate Faculty of Oceanography, Rutgers University, New Brunswick, NJ 2012-
AAAS Science & Technology Policy Fellow, Office of Climate Change Policy & Technology, Office of Policy & International Affairs, U.S. Department of Energy, Washington, DC 2009-2011
Science, Technology & Environmental Policy Postdoctoral Fellow, Woodrow Wilson School of Public & International Affairs and Department of Geosciences, Princeton University, Princeton, NJ 2007-2009
Graduate Research Fellow, California Institute of Technology, Pasadena, CA 2002-2007
Undergraduate Research Assistant, University of Chicago, Chicago, IL 1999-2002

TEACHING EXPERIENCE

Rutgers University, New Brunswick, NJ

- 01:090:252 *School of Arts & Sciences Honors Program Interdisciplinary Seminar: The Evolution of the Global Energy System – From Earth's Deep Past to Civilization's Future*, fall 2012
- 16:460:613 *Graduate seminar on Major Transitions in the Evolution of the Global Carbon Cycle*, spring 2012
- 11:546:196 *School of Environmental & Biological Sciences Honors Seminar: State of the Planet*, instructor for week on energy issues, spring 2012

California Institute of Technology, Pasadena, CA

- *Ge 11b: Earth and Biosphere* (undergraduate) and *Ge 104: Introduction to Geobiology* (graduate), teaching assistant for Prof. Joseph Kirschvink, winter 2005 and winter 2006
- *Geological & Planetary Sciences division field trip to Yellowstone National Park and surrounding areas*, co-coordinator, summer 2005
- *Ge 124: Paleomagnetism and Magnetostratigraphy*, teaching assistant for Prof. Joseph Kirschvink, spring 2005
- *Ge 136: Regional Field Geology of the Southwestern U.S.*, coordinated Colorado Plateau weekend field trip classes for Prof. Joseph Kirschvink, spring 2005
- *Geological & Planetary Sciences division field trip to Western Australia*, co-coordinator, summer 2004
- *Ge 136: Regional Field Geology of the Southwestern U.S.*, coordinated southwestern Utah weekend field trip classes for Prof. Joseph Kirschvink, spring 2004
- *ACM 118: Methods in Applied Statistics and Data Analysis*, teaching assistant for Prof. Tapio Schneider, fall 2003

RELATED CONSULTING EXPERIENCE

- Advisory and Review Board Member, Climate Tipping Points Study, PESETA II Project** 2012
European Commission Joint Research Centre
- Woodrow Wilson School of Public & International Affairs Workshop** 2008–2009
Consulting for Office of Air and Radiation, Environmental Protection Agency
 Report co-author, *Black Carbon: A Review and Policy Recommendations*
 Lead author of chapter on “The role of black carbon in climate change”
- Scientific Assessment Panel advising the Delta Committee of the Dutch Cabinet** 2008
 Report co-author, *Exploring high-end climate change scenarios for flood protection of the Netherlands*
 Lead author of section on “Paleo-climatological perspective”

ACADEMIC SERVICE

- Co-Convener, DIMACS Workshop on “Geological data fusion: Tackling the statistical challenges of interpreting past environmental change,”** Piscataway, NJ 2013
- Organizer, Rutgers Energy Institute Energy Policy Seminar Series** 2012
- Session Co-Chair, “Geomicrobiology and the magnetic signature of biogenic iron minerals”** 2012
 Ninth Santa Fe Conference on Rock Magnetism, Santa Fe, NM
- Rutgers Dept. of Earth & Planetary Sciences Faculty Search Committee** 2011-2012
- Intergovernmental Panel on Climate Change**
 Contributing Author, Fifth Assessment Report, Working Group 2, Ch. 19, “Emergent risks and key vulnerabilities” 2012
 Expert Reviewer for Fifth Assessment Report, Working Group 1 First Order Draft and Second Order Draft 2011-2012
 Peer Reviewer for Fifth Assessment Report, Working Group 2 Zero Order Draft 2011
 Department of Energy Adviser to U.S. Delegation to 31st Plenary 2009
- AAAS Science & Technology Policy Fellowship Application Reader** 2011
- Co-Organizer, DOE/EPA Workshops on “Improving the Assessment and Valuation of Climate Change Impacts for Policy and Regulatory Analysis,”** Washington, DC 2010-2011
- Session Convener, “Incorporating Climate Change Impacts into Policy Analysis”** 2010
 American Geophysical Union Fall Meeting, San Francisco, CA
- Organizer, Princeton Environmental Institute Energy Group Seminar Series** 2008-2009
- Organizer, Princeton University Environmental Geology and Geochemistry Seminar Series** 2008
- Session Convener, “Biogeomagnetism: Processes and Products”** 2005
 American Geophysical Union Fall Meeting, San Francisco, CA
- Secretary, Graduate Student Council,** California Institute of Technology, Pasadena, CA 2005-2006
- Committee Member, Caltech Y Social Activism Speakers Series,** Pasadena, CA 2004-2006
- Journal Referee:** *Climate of the Past; Climatic Change; Earth and Planetary Science Letters; Ecological Economics; Energy Policy; Environmental Microbiology; Environmental Research Letters; European Biophysics Journal; Geobiology; Geochemistry, Geophysics, Geosystems (G³); Geology; Geophysical Journal International; Geophysical Research Letters; Global and Planetary Change; Journal of Applied Physics; Journal of Climate; Journal of Geophysical Research: Biogeosciences; Journal of the Royal Society: Interface; Nature; Nature Climate Change; Nature Geoscience; Paleoceanography; Science; Weather, Climate and Society*
- Grant Referee:** National Science Foundation; Netherlands Organization for Scientific Research (NWO); Sigma Delta Epsilon/Graduate Women in Science; Swiss National Science Foundation; U.K. Natural Environment Research Council
- Member:** American Geophysical Union, Geological Society of America, American Association for the Advancement of Science

HONORS AND AWARDS

- AGU William Gilbert Medal 2012
 AGU Editor’s Citation for Excellence in Refereeing 2011
 Award for Special Service, U.S. Department of Energy 2010
 AAAS Science & Technology Policy Fellow 2009-2011

White House Fellows Program Regional Semi-Finalist	2009
Harrison Brown Memorial Moore Graduate Research Fellow, California Institute of Technology	2002-2006
National Science Foundation Graduate Research Fellow	2002-2005
Prize for Excellence, Sigma Xi (University of Chicago chapter)	2002
Student Marshal, University of Chicago Class of 2002	2001-2002
Junior Phi Beta Kappa	2001

SELECTED FIELD EXPERIENCE

British Columbia, Canada, August 2007 – Ten days of sedimentological characterization and geochemical and environmental magnetic samples of predominantly lacustrine early Eocene sediments of the Thompson and Okangan valleys, with Adam Maloof (Princeton).

Andros Island, Bahamas, December 2005 – One week of environmental magnetic and sedimentological coring of modern carbonate sediments of Three Creeks region, with Adam Maloof (Princeton), David Fike (Caltech), and Tanja Bosak (Harvard).

Ontario, Canada, August 2005 – One week of geobiological sampling in the Paleoproterozoic Gunflint Formation, with Ryan Petterson (Caltech) and Nicola McLoughlin (Oxford).

South Africa, September 2002 – Three weeks of ground work for the Agouron Institute Geobiology Drilling Project through the late Archean and Paleoproterozoic of the Kaapvaal Craton, and paleomagnetic sampling of Permo-Triassic sediments of the Karoo, with Joseph Kirschvink (Caltech), Michiel de Kock (University of Johannesburg), and colleagues from the University of Tokyo.

Ontario and Quebec, Canada, June 2002 – One week of paleomagnetic sampling in Paleoproterozoic Huronian Supergroup, with Joseph Kirschvink (Caltech) and colleagues from the University of Tokyo.

TAI CHI TRAINING

Instructor Certification, Wuwei Tai Chi School and International Society of Chen Taijiquan	Aug. 2009
<ul style="list-style-type: none"> Qualified to give instruction in Chen Family Xiaojia Taijiquan and Wuwei Qigong (Certification of instructor qualification ISCT-WT-09016). 	
Wuwei Tai Chi School , Princeton, New Jersey (<i>Wonchull Park, Head Instructor</i>)	2007-2009, 2011-
<ul style="list-style-type: none"> Trained in Chen Family Xiaojia Taijiquan (barehands form and push-hands) and Wuwei Qigong. 	
Tai Chi Chuan Club , Pasadena, California (<i>Peter Mugglebee and David Nakomoto, Instructors</i>)	2002-2007
<ul style="list-style-type: none"> Trained in Wu Hao long and sword forms and Yang long, knife, sword, and spear forms. 	
University of Chicago Tai Chi Tao Club , Chicago, IL (<i>Bruce Moran, Master Teacher</i>)	1999-2002
<ul style="list-style-type: none"> Trained in Yang family form, qigong, and tui na. 	

JOURNAL ARTICLES

- A. Marten, R. E. Kopp, K. C. Shouse, C. Griffiths, E. L. Hodson, E. Kopyts, B. K. Mignone, C. Moore, S. Newbold, S. Waldhoff and A. Wolvertson (in press). Improving the assessment and valuation of climate change impacts for policy and regulatory analysis. *Climatic Change*.
- J. Eom, K. Calvin, L. Clarke, J. Edmonds, S. Kim, R. E. Kopp, P. Kyle, P. Luckow, P. Patel, R. Moss, and M. Wise (2012). Exploring the future role of Asia utilizing a scenario matrix architecture and Shared Socio-Ecosystem Pathways. *Energy Economics*, doi:10.1016/j.eneco.2012.03.012.
- C. C. Hay, E. Morrow, R. E. Kopp and J. X. Mitrovica (2012). Detecting the sea level fingerprint of polar ice mass changes: Testing a new method for estimating the sources of global sea level change using tide gauge records. *Proc. Natl. Acad. Sci.*, doi:10.1073/pnas.1117683109.
- R. E. Kopp (2012). Paleoclimate: Tahitian record suggests Antarctic collapse. *Nature* 483: 549-550, doi:10.1038/483549a.
- R. E. Kopp, A. Golub, N. O. Keohane and C. Onda (2012). The influence of the specification of climate change damages on the social cost of carbon. *Economics* 6: 2012-13, doi:10.5018/economics-ejournal.ja.2012-13.
- R. E. Kopp and B. K. Mignone (2012). The U.S. government's social cost of carbon estimates after their first two years: Pathways for improvement. *Economics* 6: 2012-15, doi:10.5018/economics-ejournal.ja.2012-15.
- C. A. Katsman, A. Sterl, J. J. Beersma, H. W. van den Brink, J. A. Church, W. Hazeleger, R. E. Kopp, D. Kroon, J. Kwadijk, R. Lammersen, J. Lowe, M. Oppenheimer, H.-P. Plag, J. Ridley, H. von Storch, D. G. Vaughan, P. Vellinga, L. L. A. Vermeersen, R. S. W. van de Wal, and R. Weisse (2011). Exploring high-end scenarios for local sea level rise to develop flood protection strategies for a low-lying delta – the Netherlands as an example. *Climatic Change* 109: 617-645, doi:10.1007/s10584-011-0037-5.
- C. Kousky, R. E. Kopp and R. M. Cooke (2011). Risk premia and the social cost of carbon: a review. *Economics* 5: 2011-21, doi:10.5018/economics-ejournal.ja.2011-21.

- R. E. Kopp, J. X. Mitrovica, S. M. Griffies, J. Yin, C. C. Hay and R. J. Stouffer (2010). The impact of Greenland melt on regional sea level: a partially coupled analysis of dynamic and static equilibrium effects in idealized water-hosing experiments. *Climatic Change* 103:619-625, doi:10.1007/s10585-010-9935-1.
- R. E. Kopp and D. L. Mauzerall (2010). Assessing the climatic benefits of black carbon mitigation. *Proc. Natl. Acad. Sci.* 107: 11703-11708, doi:10.1073/pnas.0909605107.
- R. E. Kopp, F. J. Simons, J. X. Mitrovica, A. C. Maloof, and M. Oppenheimer (2009). Probabilistic assessment of sea level during the last interglacial stage. *Nature* 462: 863-867, doi:10.1038/nature08686.
- R. E. Kopp, D. Schumann, T. D. Raub, D. S. Powars, L. V. Godfrey, N. L. Swanson-Hysell, A. C. Maloof, and H. Vali (2009). An Appalachian Amazon? Magnetofossil evidence for the development of a tropical river-like system in the mid-Atlantic U.S. during the Paleocene-Eocene Thermal Maximum. *Paleoceanography* 24: PA4211, doi:10.1029/2009PA001783.
- D. R. Morrow, R. E. Kopp and M. Oppenheimer (2009). Toward ethical norms and institutions for climate engineering research. *Environ. Res. Lett.* 4: 045106, doi:10.1088/1748-9326/4/4/045106.
- J. L. Kirschvink and R. E. Kopp (2008). Paleoproterozoic global glaciation and the evolution of oxygen mediating enzymes: The case for a late origin of Photosystem-II. *Phil. Trans. Royal Soc. B* 363: 2755-2765, doi:10.1098/rstb.2008.0024.
- J. L. Kirschvink, R. E. Kopp, T. D. Raub, C. T. Baumgartner, and J. W. Holt (2008). Rapid, precise, and high-sensitivity acquisition of paleomagnetic and rock magnetic data: Development of a low-noise automatic sample changing system for superconducting rock magnetometers. *Geochem. Geophys. Geosys.* 9: Q05Y01, doi:10.1029/2007GC001856.
- R. E. Kopp and J. L. Kirschvink (2008). The identification and biogeochemical interpretation of fossil magnetotactic bacteria. *Earth Sci. Rev.* 86: 42-61, doi:10.1016/j.earscirev.2007.08.001.
- D. Schumann, T. D. Raub, R. E. Kopp, J-L. Guerquin-Kern, T-D. Wu, I. Rouiller, A. V. Smirnov, S. K. Sears, U. Leucken, R. Hesse, J. L. Kirschvink, and H. Vali (2008). Gigantism in unique biogenic magnetite at the Paleocene-Eocene Thermal Maximum. *Proc. Natl. Acad. Sci.* 105: 17648-17653, doi:10.1073/pnas.0803634105.
- R. E. Kopp, T. D. Raub, D. Schumann, H. Vali, A. V. Smirnov, and J. L. Kirschvink (2007). Magnetofossil spike during the Paleocene-Eocene Thermal Maximum: Ferromagnetic resonance, rock magnetic, and electron microscopy evidence from Ancora, New Jersey, USA. *Paleoceanography* 22: PA4103, doi:10.1029/2007PA001473.
- A. C. Maloof, R. E. Kopp, J. P. Grotzinger, D. A. Fike, T. Bosak, H. Vali, P. M. Poussart, B. P. Weiss, and J. L. Kirschvink (2007). Sedimentary iron cycling and the origin and preservation of magnetization in platform carbonate muds, Andros Island, the Bahamas. *Earth Planet. Sci. Lett.* 259: 581-598, doi:10.1016/j.epsl.2007.05.021.
- R. E. Kopp, C. Z. Nash, A. Kobayashi, B. P. Weiss, D. A. Bazylinski, and J. L. Kirschvink (2006). Ferromagnetic resonance spectroscopy for assessment of magnetic anisotropy and magnetostatic interactions: a case study of mutant magnetotactic bacteria. *J. Geophys. Res. B.* 111, B12S25, doi:10.1029/2006JB004529.
- M. Liang, H. Hartman, R. E. Kopp, J. L. Kirschvink, and Y. L. Yung (2006). Production of oxidants in the atmosphere of a Snowball Earth: implication for the origin of oxygenic photosynthesis. *Proc. Natl. Acad. Sci.* 103: 18896-18899, doi:10.1073/pnas.0608839103.
- R. E. Kopp, B. P. Weiss, A. C. Maloof, H. Vali, C. Z. Nash, and J. L. Kirschvink (2006). Chains, clumps, and strings: magnetofossil taphonomy with ferromagnetic resonance spectroscopy. *Earth Planet. Sci. Lett.* 247: 10-25, doi:10.1016/j.epsl.2006.05.001.
- A. Kobayashi, J. L. Kirschvink, C. Z. Nash, R. E. Kopp, D. A. Sauer, L. E. Bertani, W. F. Voorhout, and T. Taguchi. (2006). Experimental observation of magnetosome chain collapse in magnetotactic bacteria: Sedimentological, paleontological, and evolutionary implications. *Earth Planet. Sci. Lett.* 245: 538-550, doi:10.1016/j.epsl.2006.03.041.
- Y. Suzuki, R. E. Kopp, et al. (2006). Sclerite formation in the hydrothermal-vent "scaly-foot" gastropod -- possible control of iron sulfide biomineralization by the animal. *Earth Planet. Sci. Lett.* 242: 39-50, doi:10.1016/j.epsl.2005.11.029.
- R. E. Kopp, J. L. Kirschvink, I. A. Hilburn, and C. Z. Nash (2005). The Paleoproterozoic Snowball Earth: A climate disaster triggered by the evolution of oxygenic photosynthesis. *Proc. Natl. Acad. Sci.* 102: 11131-11136, doi:10.1073/pnas.0504878102.
- B.P. Weiss, S.S. Kim, J.L. Kirschvink, R.E. Kopp, M. Sankaran, A. Kobayashi, and A. Komeili (2004). Ferromagnetic resonance and low-temperature magnetic tests for biogenic magnetite. *Earth Planet. Sci. Lett.* 224: 73-89, doi:10.1016/j.epsl.2004.04.024
- B.P. Weiss, S.S. Kim, J.L. Kirschvink, R.E. Kopp, M. Sankaran, A. Kobayashi, and A. Komeili (2004). Magnetic tests for magnetosome chains in Martian meteorite ALH84001. *Proc. Natl. Acad. Sci.* 101: 8281-8284, doi:10.1073/pnas.0402292101.
- R.E. Kopp and M. Humayun (2003). Kinetic model of carbonate dissolution in Martian meteorite ALH84001. *Geochim. Cosmochim. Acta* 67, 3247-3256.

REPORTS AND BOOK CHAPTERS

- J. Eom, R. Moss, J. Edmonds, K. Calvin, B. Bond-Lamberty, L. Clarke, J. Dooley, S. H. Kim, R. E. Kopp, P. Kyle, P. Luckow, P. Patel, A. Thomson, M. Wise and Y. Zhou (forthcoming). Scenarios of future socio-economics, energy, land use and radiative forcing. In: *Engineering Response to Global Climate Change: Planning a Research and Development Agenda, Second Edition.* (R. G. Watts, ed.) Boca Raton: CRC Press.
- D. R. Morrow, R. E. Kopp and M. Oppenheimer (forthcoming). Research ethics and geoengineering. In: *The Governance of Climate Geoengineering: Science, Ethics, Policy and Law.* (J. Blackstock, C. Miller, and S. Rayner, eds.) Oxford: Earthscan.

- D. R. Morrow, R. E. Kopp and M. Oppenheimer (forthcoming). Political legitimacy in decisions about experiments in solar radiation management. In: *Geoengineering the Climate: Law, Ethics, and Policy Considerations*. (W. C. G. Burns and A. Strauss, eds.) Cambridge: Cambridge University Press.
- Contributing author to: Interagency Working Group on Social Cost of Carbon, United States Government (2010). Appendix 15a. Social cost of carbon for regulatory impact analysis under Executive Order 12866. In: *Final Rule Technical Support Document (TSD): Energy Efficiency Program for Commercial and Industrial Equipment: Small Electric Motors*, U.S. Department of Energy, <http://go.usa.gov/3fH>.
- K. L. Bice, A. G. Eil, B. Habib, P. L. Heijmans, R. E. Kopp, J. P. Nogues, F. L. Norcross, M. Sweitzer-Hamilton, A. Whitworth and D. L. Mauzerall (2009). *Black Carbon: A Review and Policy Recommendations*. Princeton, NJ: Woodrow Wilson School of Public and International Affairs, <http://tinyurl.com/wws2008-bc>.
- C. Katsman, J. Church, R. Kopp, D. Kroon, M. Oppenheimer, H.-P. Plag, S. Rahmstorf, J. Ridley, H. von Storch, D. Vaughan, and R. van der Wal (2008). High-end projection for local sea level rise along the Dutch coast in 2100 and 2200. In: *Exploring high-end climate change scenarios for flood protection of the Netherlands: an international scientific assessment*, P. Vellinga, C. A. Katsman, A. Sterl, and J. J. Beersma, eds. Wageningen, the Netherlands: KNMI and Wageningen UR (Alterra, Earth System Science and Climate Change Group).

JOURNAL VOLUMES

- Guest co-editor (with A. Marten and K. Shouse), *Climatic Change* special issue (2012). *Improving the Assessment and Valuation of Climate Change Impacts for Policy and Regulatory Analysis*.
- Guest co-editor (with R. Tol and S. Waldhoff), *Economics* special issue (2012). *The Social Cost of Carbon*. <http://www.economics-ejournal.org/special-areas/special-issues/the-social-cost-of-carbon>.

THESES

- R. E. Kopp (2007). The Identification and Interpretation of Microbial Biogeomagnetism. Ph.D. thesis in Geobiology (J. L. Kirschvink, advisor). California Institute of Technology, Pasadena, CA.
- R. E. Kopp (2002). Evidence for Antarctic alteration of Martian meteorite ALH84001. Senior thesis in Geophysical Sciences (M. Humayun, advisor). University of Chicago, Chicago, IL.

POPULAR PUBLICATIONS

- R. Kopp and B. Strauss. Rising seas a real threat to New Jersey. *Newark Star Ledger*, 10 July 2012.
- Geology reader for: S. Darksyde and M. Sumner (2006). *Kosmos: You are Here*. YearlyKos.org. Electronic book. <http://www.dailykos.com/storyonly/2006/5/1/63150/18071>
- Ghostwriter for: J. L. Kirschvink (2006). Red Earth, White Earth, Green Earth, Black Earth. *Engineering & Science* No. 4: 10-20.
- R. E. Kopp and J. L. Kirschvink (2004). The world's worst climate disaster. In: *Miracle Planet II: The Evolution of Our World*. Tokyo: NHK (Japan Broadcasting Corporation). [published in Japanese]

SELECTED ACADEMIC PRESENTATIONS AND ABSTRACTS

(Invited talks indicated by an *)

- * R. E. Kopp (2012). Climate change risk in benefit-cost analysis: Key sensitivities for the social cost of carbon and optimal emissions trajectories. Society for Risk Analysis Annual Meeting, San Francisco, CA, December 2012.
- * R. E. Kopp (2012). Balancing benefits and costs in a 4°C world: the need for and challenges of natural-social science dialogue. American Geophysical Union Fall Meeting, San Francisco, CA, December 2012.
- C. M. Little, Y. Liu, M. Oppenheimer, and R. E. Kopp (2012). A probabilistic assessment of the Antarctic contribution to 21st century sea level change on United States coastlines. American Geophysical Union Fall Meeting, San Francisco, CA, December 2012.
- C. Lombardi, K. G. Miller, J. D. Wright, J. V. Browning, and R. E. Kopp (2012). Lithostratigraphy and clay mineralogy of PETM sediments at new Wilson Lake, NJ, corehole. Geological Society of America Annual Meeting, Charlotte, NC, November 2012.
- J. D. Wright, M. F. Schaller, K. G. Miller, J. V. Browning, and R. E. Kopp (2012). Layering and high-resolution stable isotope records in the Marlboro Clay: temporal constraints for the onset of the PETM. Geological Society of America Annual Meeting, Charlotte, NC, November 2012.
- C. L. Hlavaty, R. E. Kopp, K. G. Miller, J. V. Browning, Y. F. Reinfelder, G. S. Mountain, and B. Slater. Carbon sequestration beneath the New Jersey continental shelf: an assessment of the geological and socio-political factors. Geological Society of America Annual Meeting, Charlotte, NC, November 2012.
- * R. E. Kopp (2012). Interpreting the noisy geological record of ancient sea level changes. NOAA Geophysical Fluid Dynamics Laboratory seminar, Princeton, NJ, October 2012.
- * R. E. Kopp (2012). Interpreting the noisy geological record of ancient sea level changes. American Museum of Natural History Earth & Planetary Sciences Department seminar, New York, NY, September 2012.
- * R. E. Kopp (2012). Climate change regulation and benefit-cost analysis: Opportunities and challenges. Princeton Science, Technology and Environmental Policy seminar, Princeton, NJ, September 2012.
- * R. E. Kopp (2012). Interpreting the noisy geological record of ancient sea level changes. Rutgers Statistics Department Colloquium, Piscataway, NJ, April 2012.

- * R. E. Kopp (2012). The sea level response to climate change: What can the past tell us about the future? Lafayette College Department of Geology and Environmental Geosciences, Easton, PA, February 2012.
- * R. E. Kopp (2012). The sea level response to climate change: What can the past tell us about the future? Rutgers Physics Department Colloquium, Piscataway, NJ, February 2012.
- * R. E. Kopp (2012). Reflections on two years of climate and energy policy in the Obama administration. Princeton Environmental Institute Energy Group seminar, Princeton, NJ, February 2012.
- * R. E. Kopp (2011). Searching for the geographic fingerprints of past and future sea level change amid uncertainty. Princeton University Department of Geosciences Solid Earth Brown Bag, Princeton, NJ, October 2011.
- * R. E. Kopp (2011). Searching for the geographic fingerprints of past and future sea level change amid uncertainty. PALSEA Workshop, Cambridge, MA, August 2011.
- * R. E. Kopp (2011). Macroeconomic rebound, Jevons' paradox, and economic development. Carnegie Mellon University Center for Environmental Decision Making Workshop on "Energy Efficiency and the Rebound Effect," Washington, DC, June 2011.
- * R. E. Kopp (2011). Incorporating Deep Time and the Long Now into policy and regulatory analysis: Lessons from a social cost of carbon assessment. University of Chicago Department of Geophysical Sciences, Chicago, IL, May 2011.
- * R. E. Kopp, J. X. Mitrovica, S. M. Griffies, J. Yin, C. C. Hay and R. J. Stouffer (2010). Dynamic and static equilibrium sea level effects of Greenland Ice Sheet melt: An assessment of partially-coupled idealized water hosing experiments. American Geophysical Union Fall Meeting, San Francisco, CA, December 2010.
- * R. E. Kopp, F. J. Simons, J. X. Mitrovica, A. C. Maloof and M. Oppenheimer (2010). Last Interglacial Sea Level: A Bayesian approach to integrating geological data and physical models. PALSEA Workshop, Bristol, UK, September 2010.
- * R. E. Kopp (2010). Department of Energy Office of Policy & International Affairs and Climate Change Technology Program impacts activities and needs. Energy Modeling Forum Workshop on Climate Change Impacts and Integrated Assessment, Snowmass, CO, July 2010.
- * R. E. Kopp (2010). New approaches in domestic and international climate policy. Princeton Environmental Institute Energy Group seminar, Princeton, NJ, April 2010.
- * R. E. Kopp (2010). Probabilistic assessment of local and global sea level during the Last Interglacial stage. Harvard ClimaTea seminar, Cambridge, MA, March 2010.
- R. E. Kopp, D. Schumann, T. D. Raub, D. S. Powars, L. V. Godfrey, N. L. Swanson-Hysell, A. C. Maloof, and H. Vali (2009). An Appalachian Amazon? Magnetofossil evidence for the development of a tropical river-like system in the mid-Atlantic U.S. during the Paleocene-Eocene Thermal Maximum. American Geophysical Union Fall Meeting, San Francisco, CA, December 2009.
- D. S. Powars, L. E. Edwards, R. E. Kopp, J. Self-Trail, and A. Schultz (2009). The PETM in the mid-Atlantic Coastal Plain: A widespread record of unique climate signatures in shallow-shelf Marlboro Clay. American Geophysical Union Fall Meeting, San Francisco, CA, December 2009.
- T. D. Raub and R. E. Kopp (2009). Global paleogeographic uncertainty at the PETM. American Geophysical Union Fall Meeting, San Francisco, CA, December 2009.
- R. E. Kopp, F. J. Simons, Jerry X. Mitrovica, A. C. Maloof, and M. Oppenheimer (2009). Local and global sea level during the Last Interglacial: A probabilistic assessment. AGU Chapman Conference on Abrupt Climate Change, Columbus, OH, June 2009.
- R. E. Kopp, F. J. Simons, A. C. Maloof, D. Kroon, S. Jung, and M. Oppenheimer (2009). Hazard and Rates of Sea Level Rise: What can we learn from the Last Interglacial? Climate Change: Global Risks, Challenges & Decisions. Copenhagen, Denmark, March 2009.
- R. E. Kopp, F. J. Simons, A. C. Maloof, and M. Oppenheimer (2008). Local and global sea level during the Last Interglacial: A Gaussian process approach. American Geophysical Union Fall Meeting, San Francisco, CA, December 2008.
- * R. E. Kopp, D. Schumann, T. D. Raub, J. L. Kirschvink, and H. Vali (2008). Magnetic microbes and the transformation of the iron cycle under severe global warming in the initial Eocene. Twelfth International Symposium on Microbial Ecology, Cairns, Australia. August 2008.
- R. E. Kopp, D. Schumann, T. D. Raub, J. L. Kirschvink, and H. Vali (2008). A magnetofossil lagerstätte: the North American Atlantic Coastal Plain during severe global warming in the initial Eocene. Workshop on Magnetotactic Bacteria, Balatonfüred, Hungary, July 2008.
- R. E. Kopp and J. L. Kirschvink (2008). The identification of magnetofossils, from the Neogene to the Precambrian. Workshop on Magnetotactic Bacteria, Balatonfüred, Hungary, July 2008.
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- * R. E. Kopp (2008). Tracing biological magnetism in sediments: from modern bacteria to ancient global warming. MIT Chemical Oceanography and Biogeochemistry seminar, Cambridge, MA, February 2008.
- * R. E. Kopp (2008). Tracing biological magnetism in sediments: from modern bacteria to ancient global warming. Rutgers University Earth & Planetary Sciences department seminar, New Brunswick, NJ, February 2008.
- R. E. Kopp and J. L. Kirschvink (2007). A scoring scheme for evaluating magnetofossil identifications. American Geophysical Union Fall Meeting, San Francisco, CA, December 2007.
- S. M. Tikoo, R. E. Kopp, A. V. Smirnov, T. D. Raub, D. Schumann, H. Vali, and J. L. Kirschvink (2007). Testing the Paleocene-Eocene Thermal Maximum Magnetofossil Spike Hypothesis. American Geophysical Union Fall Meeting, San Francisco, CA, December 2007.

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- R. E. Kopp, T. D. Raub, D. Schumann, H. Vali, A. V. Smirnov, and J. L. Kirschvink (2007). Magnetofossil spike during the Paleocene-Eocene Thermal Maximum: Ferromagnetic resonance, rock magnetic, and electron microscopy evidence from the Atlantic Coastal Plain of New Jersey. Geological Society of America Annual Meeting, Denver, CO, Paper 183-11, October 2007.
- * R. E. Kopp, A. C. Maloof, B. P. Weiss, and J. L. Kirschvink (2006). Assessing the source of magnetization in sediments with rock magnetism and ferromagnetic resonance spectroscopy. Geological Society of America Annual Meeting, Philadelphia, PA, Paper No. 164-6, October 2006.
- A. C. Maloof, R. E. Kopp, J. P. Grotzinger, B. P. Weiss, H. Vali, and J. L. Kirschvink (2006). The origin and preservation of magnetization in platformal carbonate muds, Andros Island, Bahamas. Geological Society of America Annual Meeting, Philadelphia, PA, Paper No. 164-7, October 2006
- * R. E. Kopp (2006). Developing tools for unlocking Earth history from a magnetotactic bacterium's perspective. University of Johannesburg Geology department seminar, Johannesburg, South Africa, September 2006.
- * R. E. Kopp, C. Z. Nash, B. P. Weiss, A. C. Maloof, A. Kobayashi, H. Vali, and J. L. Kirschvink (2006). Identifying magnetotactic bacteria and their fossils with ferromagnetic resonance. Goldschmidt Conference, Melbourne, Australia, Abstract No. 206.00, August 2006.
- * R. E. Kopp, C. Z. Nash, B. P. Weiss, A. C. Maloof, A. Kobayashi, H. Vali, and J. L. Kirschvink (2006). Identifying magnetotactic bacteria and their fossils with ferromagnetic resonance. Southern California Geobiology Symposium, Riverside, CA, April 2006.
- R. E. Kopp, B. P. Weiss, J. L. Kirschvink, C. Z. Nash, and A. C. Maloof (2006). Fossil magnetotactic bacteria: an iron biosignature. Astrobiology Science Conference, Washington, DC, Astrobiology 6(1), Abstract 20, March 2006.
- R. E. Kopp, J. L. Kirschvink, B. P. Weiss, and A. C. Maloof (2005). Identification of magnetosome chains by ferromagnetic resonance spectroscopy. American Geophysical Union Fall Meeting, San Francisco, CA, *Eos Trans. AGU* 86(52), Fall Meet. Suppl., Abstract B24A-03, December 2005.
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- J. L. Kirschvink and R. E. Kopp (2005). A Paleoproterozoic origin of oxygenic photosynthesis as a trigger for the Makganyene Snowball Earth. Earth System Processes 2, Calgary, Alberta, Canada, Paper No. 11-7, August 2005.
- R. E. Kopp, J. L. Kirschvink, and B. P. Weiss (2005). Magnetofossils as a novel tracer of ancient microbial communities and environments. Southern California Geobiology Symposium, Los Angeles, CA, April 2005
- R. E. Kopp, C. Z. Nash, J. L. Kirschvink, and J. R. Leadbetter (2004). A possible magnetite/maghemite battery in the magnetotactic bacteria. American Geophysical Union Fall Meeting, San Francisco, CA, *Eos Trans. AGU* 85(47), Fall Meet. Suppl., Abstract GP34A-06, December 2004.
- * R. E. Kopp, B. P. Weiss, S. S. Kim, and J. L. Kirschvink (2004). Ferromagnetic resonance spectroscopy in the hunt for magnetofossils. Institute for Rock Magnetism Santa Fe 6, Santa Fe, NM, June 2004.
- R. E. Kopp, C. Z. Nash, and J. L. Kirschvink (2004). Magnetosome batteries, magnetofossils, and the evolution of the planetary redox state. Southern California Geobiology Symposium, Pasadena, CA, February 2004
- * R. E. Kopp, J. L. Kirschvink, D. K. Newman, C. Z. Nash, and I. A. Hilburn (2003). Bacterial Bolsheviks: PS II and the evolution of the oxygenic revolution. American Geophysical Union Fall Meeting, San Francisco, CA, *Eos Trans. AGU* 84(46), Fall Meet. Suppl., Abstract U52B-07, December 2003.

SELECTED PUBLIC OUTREACH PRESENTATIONS

- “Solar Energy in the Global Energy System: Flows, Needs, Status, and Drivers,” Siemens Solar Exchange East 2012, Piscataway, NJ, May 2012.
- Panelist on “Jobs and the Environment,” U.S. EPA/Rutgers University conference on “Greening New Jersey Communities from the Ground Up,” New Brunswick, NJ, October 2011.
- Lecture on “Melting Ice Sheets in Earth's Past and Our Future”, delivered to the Philadelphia Geological Society, Philadelphia, PA, January 2010.
- Lecture on “Echoes of Ancient Times: Climate Change in Earth's Past and Our Future”, delivered to:
- Philo 250: Problems of Ethics and Society course taught by David Morrow at Hunter College, City University of New York, March 2008.
 - Liz Levin & Company Leadership Salon Series, Boston, MA, February 2008.
- Lecture on “Bacterial Bolsheviks? The Paleoproterozoic ice ages and the rise of oxygenic photosynthesis”, delivered to Environmental Charter High School, Lawndale, CA, April 2005.

RESEARCH GRANTS

- PI for “Collaborative Research: P2C2 -- Statistical estimation of past ice sheet volumes from paleo-sea level records,” National Science Foundation ARC-1203415, 2012-2015.
- PI for “Integrated Climate/Economic Modeling for Domestic and International Regulatory Analysis”, Pacific Northwest National Laboratory, 2011-2013.

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Author of “Magnetofossils: A Novel Biosignature of Ancient Ecosystems”, NASA Astrobiology: Exobiology and Evolutionary Biology 2005 proposal, funded to Joseph L. Kirschvink (California Institute of Technology), 2008-2010.

STUDENTS

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