

Klaus Keller

Associate Professor of Geosciences
436 Deike Building
The Pennsylvania State University
University Park, PA 16802-2714

Phone: (814) 865-6718
Fax: (814) 863-7823
kkeller@geosc.psu.edu
<http://www.geosc.psu.edu/~kkeller>

EDUCATION

Princeton University: Ph.D. in Civil and Environmental Engineering, 2000.
Princeton University: M.A. in Civil Engineering and Operations Research, 1998.
Technische Universität Berlin: Engineer's Degree in Environmental Engineering, 1995.
Massachusetts Institute of Technology: M.S. in Civil and Environmental Engineering, 1994.
Technische Universität Berlin: B.S. (Vordiplom) in Environmental Engineering, 1991.

PROFESSIONAL EXPERIENCE

2009 Visiting Professor at Macquarie University
(Sydney, Australia, from July to December)
2008 – present Director of the Penn State Center for Climate Risk Management.
2008 – present Associate professor of geosciences, Penn State.
2002 – 2008 Assistant professor of geosciences, Penn State.
2001 – 2002 Research scientist, Princeton University.
2001 Lecturer (spring term), Princeton University.
2000 – 2001 Postdoctoral research associate, Princeton University.
1995 Engineer, Gesellschaft für Umwelttechnik (Berlin, Germany).

HONORS

Nominated by the Intergovernmental Panel on Climate Change (IPCC) as a contributing author to the Fourth Assessment Report (chapter on “Assessing Key Vulnerabilities and the Risk from Climate Change”).
The IPCC shared the 2007 Nobel Peace Prize.
Invited talks at the U.S. National Research Council “Forum on Developing an Abrupt Climate Change Early Warning System” and “Workshop on Economic and Ecological Impacts of Abrupt Climate Change”.
Panelist at the National Oceanic and Atmospheric Administration Climate Observation Program Annual System Review.
Invited talks at workshops at the National Science Foundation, the Energy Modeling Forum, the Environmental Protection Agency, the American Association for the Advancement of Science and the National Oceanic and Atmospheric Administration.
I.N.S. national interest waiver ("advanced degree professional or alien of exceptional ability whose immigration is in the national interest").
Princeton Environmental Institute student and postdoctoral fellow.
German National Science Foundation undergraduate and graduate student fellow
(approximately top 1 % of German students).
TU Berlin-M.I.T. exchange-program fellow.

PUBLICATIONS

1. Urban, M. N. and K. Keller: Complementary observational constraints on climate sensitivity, *Geophysical Research Letters*, L04708, doi:10.1029/2008GL036457 (2009).
2. Keller, K., R.S.J. Tol, F.L. Toth, and G.W. Yohe: Abrupt climate change near the poles. *Climatic Change*, 91, 1-4 (2008).

3. Ricciuto, D. M., K. J. Davis, and K. Keller. A Bayesian synthesis inversion of carbon cycle observations: How do observations reduce uncertainties about future sinks? *Global Biogeochemical Cycles*, 22, GB2030, doi:10.1029/2006GB002908 (2008).
4. Keller, K., D. McInerney, and D. F. Bradford: Carbon dioxide sequestration: When and how much? *Climate Change*, 88:267–291 (2008).
5. Baehr, J., D. McInerney, K. Keller, and J. Marotzke: Optimization of an observing system design for the North Atlantic meridional overturning circulation, *Journal of Atmospheric and Oceanic Technology*, 25, 625-634 (2008).
6. Brennan, K., R. Matear, and K. Keller: Measuring oxygen concentrations improves the detection capabilities of an ocean circulation observation array, *Journal of Geophysical Research – Oceans*, 113, C02019, doi:10.1029/2007JC004113 (2008).
7. Keller, K. and D. McInerney, The dynamics of learning about a climate threshold. *Climate Dynamics*, 30, 321-332 (2008).
8. Baehr, J., K. Keller, and J. Marotzke: Detecting potential changes in the meridional overturning circulation at 26 °N in the Atlantic. *Climatic Change*, 91, 11-27 (2008).
9. McInerney, D. and K. Keller: Economically optimal risk reduction strategies in the face of uncertain climate thresholds. *Climatic Change*, 91, 29-41 (2008).
10. Keller, K., G. Yohe, and M. Schlesinger: Managing the risks of climate thresholds: Uncertainties and needed information. *Climatic Change*, 91, 5-10 (2008).
11. Keller, K., A. Robinson, M. Oppenheimer, and D.F. Bradford: The regrets of procrastination in climate policy. *Environmental Research Letters*, 2 024004 (4pp) <http://dx.doi.org/10.1088/1748-9326/2/2/024004> (This paper is part of the “Best of 2007” selection.) (2007).
12. Keller, K., C. Deutsch, M. G. Hall, and D. F. Bradford: Early detection of changes in the North Atlantic meridional overturning circulation: Implications for the design of ocean observation systems. *Journal of Climate*, 20, 145-157 (2007).
13. O’Neill, B. C., P. Crutzen, A. Grübler, M. Ha Duong, K. Keller, C. Kolstad, J. Koomey, A. Lange, M. Obersteiner, M. Oppenheimer, W. Pepper, W. Sanderson, M. Schlesinger, N. Treich, A. Ulph, M. Webster, and C. Wilson: Learning and climate change. *Climate Policy*, 6, 585-589 (2006).
14. Min, D.-H. and K. Keller: Errors in estimated temporal tracer trends due to changes in the historical observation network: A case study of oxygen trends in the Southern Ocean. *Ocean and Polar Research*, 27, 189-195 (2005).
15. Keller, K., M. G. Hall, S.-R. Kim, D. F. Bradford, and M. Oppenheimer: Avoiding dangerous anthropogenic interference with the climate system. *Climatic Change*, 73, 227-238 (2005).
16. Keller, K., B. M. Bolker, and D. F. Bradford: Uncertain climate thresholds and economic optimal growth. *Journal of Environmental Economics and Management*, 48, 723-741 (2004).
17. Moles, C. M., J. R. Banga, and K. Keller: Solving nonconvex climate control problems: Pitfalls and algorithm approaches. *Applied Soft Computing*, 5 (1), 35-44 (2004).
18. Kraepiel, M. L., K. Keller, H. B. Chin, E. G. Malcolm, and F. M. M. Morel, Sources and variations of mercury in tuna, *Environmental Science and Technology*, 37, 5551-5558 (2003).

19. Keller, K., R. Slater, M. Bender, and R. M. Key: Decadal scale trends in North Pacific nutrient and oxygen concentrations: Biological or physical explanation? *Deep-Sea Research*, 49, 345-362 (2002).
20. Gruber, N., K. Keller, and R. M. Key: What story is told by oceanic tracer concentrations? *Science*, 290, 455 (2000).
21. Keller, K., K. Tan, F. M. M. Morel, and D. F. Bradford: Preserving the ocean circulation: Implications for climate policy. *Climatic Change*, 47,17-43 (2000).
22. Keller, K. and F. M. M. Morel: A model of carbon isotopic fractionation and active carbon uptake in phytoplankton. *Marine Ecology Progress Series*, 182, 295-298 (1999).
23. Kraepiel, M., K. Keller, and F. M. M. Morel: A model for metal adsorption on Montmorillonite. *Journal of Colloid and Interface Science*, 210, 43-54 (1999).
24. Kraepiel, M., K. Keller, and F. M. M. Morel: On the acid-base chemistry of permanently charged minerals. *Environmental Science and Technology*, 32, 2829-2838 (1998).

Parts of books

25. Patwardhan, A., S. Semenov, S. Schneider, I. Burton, C. Magadza, M. Oppenheimer, B. Pittock, A. Rahman, J. Smith, A. Suarez, F. Yamin, K. Keller, A Todorov, A. Finkel, D. MacMynowski, M. Mastrandrea, M. Fuessel, J. Corfee-Morlot, R. Sukumar, J.-P. van Ypersele, and J. Zillman: Assessing key vulnerabilities and the risk from climate change, Chapter 19 in the *Intergovernmental Panel on Climate Change Fourth Assessment Report, Working group II: Impacts, Adaptation and Vulnerability*, Cambridge University Press (2007).
26. Keller, K., S.-R. Kim, J. Baehr, D. F. Bradford, and M. Oppenheimer: What is the economic value of information about climate thresholds? Book chapter in: *Integrated Assessment of Human Induced Climate Change*, Chief Editor: Michael Schlesinger, Cambridge University Press, (2007).

Articles published in non-refereed journals

27. Gessler, G. and K. Keller: Vergleich verschiedener Verfahren zur Vergärung von Bioabfällen, *Abfallwirtschaftsjournal*, (7) 377-383 (1995).

EXTERNAL FUNDING

Lead or Co-Principal Investigator on grants (e.g., from NSF, DOE, NOAA, EPA, and NASA) with a total research budget exceeding six million U.S.\$.

SYNERGISTIC ACTIVITIES

Member of the Editorial Board of *Environmental Research Letters* and *Climatic Change Letters*.

Co-organizer and session chair on “Detection of early warning signs and probabilistic predictions” at the Aspen Global Change Institute Workshop on Abrupt Climate Change: Mechanisms, Early Warning Signs, Impacts, and Economic Analyses (July, 2005) as well as an U.S. Environmental Protection Agency Workshop on “Uncertainty and Learning in IAMs of Climate Change - The State-of-the-Art and Research Needs”, Washington, D.C., May 4-5, 2006.