

## Curriculum Vita: David Archer

### PERSONAL

Date of Birth: 15 September 1960  
Citizenship: US  
Current Address: Department of the Geophysical Sciences  
5734 South Ellis Avenue  
University of Chicago  
Chicago, Ill 60637

### EDUCATION

B.S., 1983, Indiana University, Biochemistry  
Ph.D., August, 1990, University of Washington, Oceanography  
Dissertation: "Dissolution of Calcite in Deep Sea Sediments: an In Situ Microelectrode Study"

### EMPLOYMENT

June 2001- present: Full Professor of Geophysical Sciences, University of Chicago  
June 1997 – June 2001: Associate Professor of Geophysical Sciences, University of Chicago  
September 1993 - May 1997: Assistant Professor of Geophysical Sciences, University of Chicago  
August 1992 - September 1993: Postdoctoral Research Scientist at Lamont Doherty  
September, 1990 - July 1992: Lamont Fellow Postdoctoral Fellowship at Lamont Doherty Earth Observatory of Columbia University  
1994 - present: Adjunct Professor, Lamont Doherty Earth Observatory  
January 1996 - present: Adjunct Professor of Environmental Sciences, University of Chicago

### RESEARCH INTEREST

The carbon cycle of the Earth and its interaction with global climate.

### AWARDS

Lamont Postdoctoral Fellowship, 1990  
Packard Foundation Fellowship in Science and Engineering, 1996  
Walter Kistler Book Award, 2009  
AGU Fellowship 2010

### PUBLICATIONS

- Siedlecki, S.A., A. Mahadevan, and D. Archer. Mechanism for export of sediment-derived iron in an upwelling regime. *Geophys. Res. Lett.* (submitted).
- Jokulsdottir, T., and D.E. Archer. A Stochastic, Lagrangian Model of Sinking Biogenic Aggregates in the Ocean: Model Formulation, Validation and Sensitivity. *Global Biogeochem. Cycles* (submitted).
- Siedlecki, S.A., D.E. Archer and A. Mahadevan. Modeling mechanisms for nutrient supply and ventilation of benthic gases at the continental shelf break. *J. Geophys. Res.* (in press).
- Pfister, C.A., S.J. McCoy, J.T. Wootton, P.A. Martin, A.S. Collman, D. Archer. Rapid environmental change revealed by isotopic analysis of the California mussel in the northeast Pacific. *PLoS* 6:10 e25766 (2011).
- Archer, D. (2011) *Global Warming: Understanding the Forecast*, Second Edition. Wiley.

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- Archer, D. (2010) *The Global Carbon Cycle: Princeton Primer Series in Climate Science*. Princeton University Press.
- Morel, F.M.M., D. Archer, J. Barry, G.D. Brewer, J.E. Corredor, S.C. Doney, V.J. Fabry, G.E. Hofmann, D.S. Holland, J.A. Kleypas, F.J. Millero, U. Riebesell (2010) *Ocean Acidification: A national strategy to meet the challenges of a changing ocean*. National Research Council of the National Academies, 188 pages.
- Archer, D. and S. Rahmstorf (2010). *The Climate Crisis: An Introductory Guide to Climate Change*. Cambridge University Press.
- Kleinen, T., V. Brovkin, W. von Bloh, D. Archer, and G. Munhoven (2010), Holocene carbon cycle dynamics, *Geophys. Res. Lett.*, 37, L02705, doi:10.1029/2009GL041391
- Archer, D., M. Eby, V. Brovkin, A. Ridgwell, L. Cao, U. Mikolajewicz, K. Caldeira, K. Matsumoto, G. Munhoven, A. Montenegro, and K. Tokos (2009) Atmospheric lifetime of fossil-fuel carbon dioxide. *Annual Reviews of Earth and Planetary Sciences* 37:117–34, doi 10.1146/annurev.earth.031208.100206.
- Archer, D., Buffett, B., and Brovkin, V. (2009) Ocean methane hydrates as a slow tipping point in the global carbon cycle. *Proc. Nat. Acad. Sci.* doi 10.1073
- Archer, D. (2009) Carbon cycle - Checking the thermostat. *Nature Geoscience* 1 (5) 289-290.
- Brovkin, V., V. Petoukhov, M. Claussen, E. Bauer, D. Archer, C. Jaeger (2009). Geoengineering climate by stratospheric sulfur injection: Earth system vulnerability to technological failure. *Climatic Change* 92 (3-4) 243-259.
- Eby, M. K. Zickfeld, A. Montenegro, D. Archer, K. J. Meissner and A. J. Weaver (2009) Lifetime of anthropogenic climate change: Millennial time-scales of potential CO<sub>2</sub> and surface temperature perturbations. *Journal of Climate* 22 (10), 2501–2511.
- Honisch B, N.G. Hemming, D. Archer, M. Siddall, J.F. McManus (2009) Atmospheric carbon dioxide concentration across the mid-Pleistocene transition. *Science* 324: 1551-1554.
- Krey, V, J.G. Canadell, N. Nakicenovic, A. Yuichi, H. Andruleit, D. Archer, A. Grubler, N.T.M. Hamilton, A. Johnson, V. Kostov, J.-F. Lamarque, N. Langhorne, E.G. Nisbet, B. O'Neill, K. Riahi, M. Riedel, W. Wang and V. Yakushev (2009) Gas hydrates: entrance to a methane age or climate threat? *Environ. Res. Lett.* 4 (2009) 034007 doi:10.1088/1748-9326/4/3/034007.
- Schmidt, G. and D. Archer (2009) Too much of a bad thing. *Nature* 458: 1117.
- Archer, D. (2008) *The Long Thaw: How Humans are Changing the Next 100,000 Years of Earth's Climate*. A book for a popular audience, Princeton University Press.
- Archer, D., and V. Brovkin (2008). Millennial lifetime of fossil fuel CO<sub>2</sub>. *Climatic Change*. DOI: 10.1007/s10584-008-9413-1.

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- Brook, E. (lead author) and D. Archer, E Dlugokencky, S. Frolking, and D. Lawrence (contributing authors, alphabetical) (2008). Potential for Abrupt Changes in Atmospheric Methane. in *Abrupt Climate Change*, Chapter 4, CCSP SAP 3.4.
- Correll, R.W., S.J. Hassol, J. Melillo (lead authors), D. Archer, E. Euskirchen, F. S. Chapin, A.D. McGuire, T.R. Christensen, V.P. Fischelet, K. Walter, Q. Zhuang, T. Callaghan, S. Bech, and C. McMullen (contributors) (2008). Emerging challenges: Methane from the Arctic: Global warming wildcard. *UNEP Yearbook 2008*.
- Caldeira, K, D. Archer, J.P. Barry, R.G.J. Bellerby, P.G. Brewer, L. Cao, A.G. Dickson, S.C. Doney, H. Elderfield, V.J. Fabry, R.A. Feely, J.-P. Gattuso, P.M. Haugan, O. Hoegh-Guldberg, A.K. Jain, J.A. Kleypas, C. Langdon, J.C. Orr, A. Ridgwell, C.L. Sabine, B.A. Seibell, Y. Shirayama, C. Turley, A.J. Watson, R.E. Zeebe (2007) Comment on “Modern-age buildup of CO<sub>2</sub> and its effects on seawater acidity and salinity”. *Geophys. Res. Letters*. 34, L18608, doi:10.1029/2006GL027288.
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Archer, D., A. Winguth, D. Lea, and N. Mahowald (2000) What caused the glacial / interglacial atmospheric PCO<sub>2</sub> cycles? *Reviews of Geophysics* 38: 159-189.

Mahadevan, A., and D. Archer (2000) The impact of fronts and mesoscale circulation on the nutrient supply and biogeochemistry of the upper ocean. *J. Geophys. Res.* 105: 1209-1225.

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