

## 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

### SYNERGISTIC ACTIVITIES

Wrote a textbook for non-science majors about global warming, now in second edition.  
Blackwell, September 2011  
Developed a class for Coursera.org called Global Warming: The Science of Climate Change, currently ~12,000 users  
Developed and maintain OpenClimate101, an open-access on-line climate science class based on PHSC13400 at the University of Chicago, currently ~4000 users  
Wrote and co-wrote several climate outreach books for nonscientists and educators  
The Long Thaw, How humans are changing the next 100,000 years of Earth's climate  
The Climate Crisis, An introductory guide to climate change  
The Warming Papers, The scientific foundation for the climate change forecast  
Developed and maintain climatemodels.uchicago.edu, a suite of on-line interactive models on:  
Climate physics and the greenhouse effect  
The global carbon and methane cycles and their impact on climate  
Fossil fuel extraction and utilization  
Browsers for climate record data and AR5 model results

Served on National Research Council Committees on Ocean Acidification (2010) and Abrupt Climate Change Impacts (2013)  
Contributing editor for climate science web site [realclimate.org](http://realclimate.org)

## PUBLICATIONS

Committee on Understanding and Monitoring Abrupt Climate Change and its Impacts (2014)  
Abrupt Impacts of Climate Change: Anticipating Surprises. National Research Council, Washington, D.C.

Archer D.E. and T. Jokulsdottir. (2013) The biological pump and atmospheric CO<sub>2</sub>. Treatise on Geochemistry, Second Edition, Volume 6, The Oceans and Marine Geochemistry, edited by M. Mottl.

Archer, D.E. (2013) The state of climate negotiations: a personal scientific commentary. Carbon balance and management, vol. 8 (1), doi: 10.1186/1750-0680-8-5.

Archer, D.E., B.A. Buffett, and P.C. McGuire (2012) A two-dimensional model of the passive coastal margin deep sedimentary carbon and methane cycles. *Biogeosciences.*, 9, 1-20, doi:10.5194/bg-9-1-2012, 2012

Archer, D.E. and B.A. Buffett (2012) A two-dimensional model of the methane cycle in a sedimentary accretionary wedge. *Biogeosciences*, 9, 3323-3336, doi:10.5194/bg-9-3323-2012, 2012

Siedlecki, S.A., A. Mahadevan, and D. Archer (2012). Mechanism for export of sediment-derived iron in an upwelling regime. *Geophys. Res. Lett.* 39: L03601, doi:10.1029/2011GL050366

Brovkin, V., A. Ganopolski, D. Archer, and G. Munhoven (2012) Glacial CO<sub>2</sub> cycle as a succession of key physical and biogeochemical processes. *Clim. Past*, 8, 251-264.

Siedlecki, S.A., D.E. Archer and A. Mahadevan. (2011) Modeling mechanisms for nutrient supply and ventilation of benthic gases at the continental shelf break. *J. Geophys. Res.* 116: WOS:000292384500001.

Archer, D. (2011) *Global Warming: Understanding the Forecast*, Second Edition. Wiley.

Pfister, C.A., S.J. McCoy, J.T. Wootton, P.A. Martin, A.S. Colman, and D. Archer (2011) Rapid Environmental Change over the Past Decade Revealed by Isotopic Analysis of the California Mussel in the Northeast Pacific. *PLOS ONE* 6 (10) e25766 doi:10.1371/journal.pone.0025766

Archer, D. and Pierrehumbert, R. (2010) *The Warming Papers: An annotated compendium of classic papers on the science of anthropogenic climate change.* Wiley.

Archer, D. (2010) How it went down last time. *Nature Geoscience* 3: 819-829 (unrefereed News and Views piece).

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 (unrefereed News and Views piece).
- 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 (unrefereed News and Views piece).
- 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.
- Brook, E. (lead author) and D. Archer, E Dlugokencky, S. Frohling, 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. Fichelet, 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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doi:10.1029/2004GC000854
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- 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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