

## 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 and Modeling of Climate Change, currently ~45,000 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](http://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

Archer DE (2020) Carbon, in *Earth 2020: An insider's guide to a rapidly changing climate.* edited by P.D. Tortell, 43-49.

Magalhaes VH, B Buffett, D Archer, P McGuire, LM Pinheiro, JM Gardner (2019) Effects of oceanographic changes on controlling the stability of gas hydrates and the formation of authigenic carbonates at mud volcanoes and seepage sites on the Iberian continental margin of the Gulf of Cadiz. *Marine Geology*, 412 (2019) 69-80.

Archer DE and JD Blum (2018) A model of recycling and isotopic fractionation in the ocean. *Biogeosciences* 15 (20), 6297

Farahat NX, D.E. Archer, D.S. Abbot (2017) Validation of the BASALT model for simulating off-axis hydrothermal circulation in oceanic crust. *J. Geophys. Res: Solid Earth*

Archer DE (2016) Near Miss: The importance of the natural atmospheric CO<sub>2</sub> concentration to human historical evolution. *Climatic Change* 1, 11.

Tobin, T.S., C.M.Bitz, and D. Archer (2016) Modeling climatic effects of carbon dioxide emissions from Deccan Traps volcanic eruptions around the Cretaceous-Paleogene boundary. *Paleogeography, Paleoclimatology, Paleoecology.*

Jokulsdottir, T, D Archer (2016) A Stochastic, Lagrangian Model of Sinking biogenic aggregates in the ocean (SLAMS 1.0): model formulation, validation and sensitivity. *Geoscientific Model Development* 9 (4)

Clark, PU, JD Shakun, SA Marcott, AC Mix, M. Eby, S Kulp, A Levermann, GA Milne, PL Pfister, BD Santer, DP Schrag, SSolomon, TF Stocker, BH Strauss, AJ Weaver, R Winkelmann, DArcher, E Bard, A Goldner, K Lambeck, RT Pierrehumbert, G-K Plattner (2016) Consequences of twenty-first-century policy for multi-millennial climate. *Nature Climate Change* DOI: 10.1038/NCLIMATE2923

- Archer, D.E. (2015) A model of the methane cycle, permafrost, and hydrology of the Siberian continental margin. *Biogeosciences* 12. (10), 2953-2974
- Greene, S, KM Walter Anthony, D. Archer, A. Sepulveda-Jauregui, and K. Martinez-Cruz (2014) Modeling the impediment of methane ebullition bubbles by seasonal lake ice. *Biogeosciences*, 11, 6791-6811.
- 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: W05001, doi:10.1029/2011GL050366
- 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. 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.
- Brovkin, V., A. Ganopolski, D. Archer, and S. Rahmstorf (2007) Lowering of glacial pCO<sub>2</sub> in response to changes in oceanic circulation and marine biogeochemistry. *Paleoceanography* , 22, PA4202, doi:10.1029/2006PA001380.
- Montenegro, A., V. Brovkin, M. Eby, D. Archer, and A. J. Weaver (2007), Long term fate of anthropogenic carbon, *Geophys. Res. Lett.*, 34, L19707, doi:10.1029/2007GL030905.
- Stoll, H.M, N. Shimizu, D. Archer, and P. Ziveri (2007) Coccolithophore productivity response to greenhouse event of the Paleocene-Eocene thermal maximum. *Earth Planet. Sci. Lett.* 258 (2007) 192-206.
- Archer, D. (2007) Methane hydrate stability and anthropogenic climate change. *Biogeosciences* 4 (4): 521-544 2007
- Archer, D. (2006) *Global Warming: Understanding the Forecast*. A textbook for non-science major undergraduates, Blackwell Press, London.
- Clark, P.U., D. Archer, D. Pollard, J.D. Blum, J.A. Rial, V. Brovkin, A. Mix, N.G. Piasias, A. Roy. (2006) The middle Pleistocene transition: Characteristics, mechanisms, and implications for long-term changes in atmospheric pCO<sub>2</sub>. *Quat. Sci. Rev.* 25 (23-24) 3150-3184.
- Pagani, M., K. Caldeira, D. Archer, and J.C. Zachos (2006) An ancient carbon mystery. *Science* 314 (5805): 1556-1557.

- Gehrie, E., D. Archer, S. Emerson, C. Stump, C. Henning (2006) Subsurface ocean argon disequilibrium reveals the equatorial Pacific shadow zone. *Geophys. Res. Lett.* 33, L18608, doi:10.1029/2006GL026935.
- Henning, C., D. Archer, and I. Fung (2006) Argon as a tracer of cross-isopycnal mixing in the thermocline. *Journal of Physical Oceanography* 36, 2090-2105.
- Barker, S., D. Archer, L. Booth, H. Elderfield, J. Henderiks, and R. Rickaby, (2006) Globally increased pelagic carbonate production during the Mid-Brunhes dissolution interval and the CO<sub>2</sub> paradox of MIS 11. *Quat. Sci. Research.* 25 (23-24) 3278-3293.
- Archer, D. (2005) Fate of fossil fuel CO<sub>2</sub> in geologic time. *J. Geophys. Res.* doi: 10.1029/2004JC002625.
- Archer, D. and A. Ganopolski (2005), A movable trigger: Fossil fuel CO<sub>2</sub> and the onset of the next glaciation, *Geochem. Geophys. Geosyst.* 6, Q05003, doi:10.1029/2004GC000891
- Archer, D., and B. Buffett (2005) Time-dependent response of the global ocean clathrate reservoir to climatic and anthropogenic forcing. *Geophys., Geochem., Geosystems.* 6(3) doi: 10.1029/2004GC000854
- Martin P., D. Archer, and D. Lea (2005) Evidence for the role of deep sea temperature in glacial climate and carbon cycles. *Paleoceanography*, 20, PA2015, doi:10.1029/2003PA000914.
- Zeebe R.E. and D. Archer (2005) Feasibility of ocean fertilization and its impact on future atmospheric CO<sub>2</sub> levels. *Geophys. Res. Letters* 32, L09703, doi:10.1029/2005GL022449
- Buffett, B., and D. Archer (2004) Global inventory of methane clathrate: Sensitivity to changes in environmental conditions. *Earth and Planet. Sci. Letters.* 227: 185-199.
- Archer, D., P. Martin, B. Buffett, V. Brovkin, S. Rahmstorf, and A. Ganapolski (2004) The importance of the deep ocean temperature to global biogeochemistry. *Earth and Planet. Sci. Letters (Frontiers article)* 222: 333–348.
- Rahmstorf, S., D. Archer, O. Eugster, J. Jouzel, D. Maraun, U. Neu, G.A. Schmidt, J. Severinghaus, A.J. Weaver, and J. Zachos (2004) Cosmic rays, carbon dioxide, and climate. *EOS* 85(4), 38, 2004.
- Kheshgi, H., and D. Archer (2004) A nonlinear convolution model for the evasion of CO<sub>2</sub> injected into the deep ocean. *J. Geophys. Res.* 109: C02007, doi:10.1029/2002JC001489.
- Archer, D. (2003) Who threw that snowball? *Science* 302: 791-792 (unrefereed Perspectives piece).
- Archer, D. (2003) The Marine Geochemical Carbon Cycle, and Iron and Climate. in *Encyclopedia of Paleoclimatology and Ancient Environments*

- Archer, D. (2003) Biological fluxes in the ocean and atmospheric pCO<sub>2</sub>, in *Treatise on Geochemistry*, Volume 6, *The Oceans and Marine Geochemistry*, edited by H. Elderfield.
- Archer, D.E., P. Martin, J. Milovich, V. Brovkin, K. Plattner, and C. Ashendel (2003) Model sensitivity in the effect of Antarctic sea ice and stratification on atmospheric pCO<sub>2</sub>. *Paleoceanography*. 18, NO. 1, 1012, doi:10.1029/2002PA000760
- Archer, D., J.L. Morford, and S.R. Emerson (2002). A model of suboxic sedimentary diagenesis suitable for automatic tuning and gridded global domains. *Global Biogeochemical Cycles*. 16, 10.1029/2000GB001288.
- Bendtsen, J., C. Lundsgaard, M. Middelboe, and D. Archer (2002) Influence of bacterial uptake on deep-sea dissolved organic carbon. *Global Biogeochemical Cycles*. 16 doi: 10.1029/2002GB001947
- Mekik, F., P. Loubere, and D. Archer (2002) Organic carbon flux and the organic carbon to calcite flux ratio recorded in the deep sea carbonate record: Demonstration and a new proxy. *Global Biogeochemical Cycles*. 16, 10.1029/2001GB001634.
- Klaas, C, and D. Archer (2002) Association of sinking organic matter with various types of mineral ballast in the deep sea: Implications for the rain ratio. *Global Biogeochemical Cycles* 16, doi:10.1029/2001GB001765.
- Ridgwell, A., A. Watson, and D. Archer (2002) Modeling the response of the oceanic Si inventory to perturbation, and consequences for atmospheric CO<sub>2</sub>. *Global Biogeochemical Cycles* 16: doi:10.1029/2002GB001877.
- Anderson, D, and D. Archer (2002) Glacial ocean carbonate-ion saturation reconstructed from foraminifer preservation. *Nature* 416: 70-73.
- Archer, D.E. and Humayun, M (2002) *Ocean Structure and Development*, in *Encyclopedia of Global Change*, Ed. A.S. Goudie, Oxford University Press.
- Archer, D.E. and P. Martin (2001) Thin walls tell the tale. *Science* 294: 2108-2109 (unrefereed "Perspectives" piece).
- I.C. Prentice (Coordinating Lead Author), G. Farquhar, M. Fasham, M. Goulden, M. Heimann, V. Jaramillo, H. Kheshgi, C. Le Quéré, R. Scholes, D. Wallace (Lead Authors), D. Archer, O. Aumont, D. Baker, L. Bopp, W. Cramer, I. Enting, E.A. Holland, R.A. Houghton, J.I. House, A. Ishida, A. Jain, F. Joos, T. Kaminski, K. Kohlfeld, W. Knorr, R. Law, T. Lenton, K. Lindsay, E. Maier-Reimer, D. McGuire, R. Meyer, J.C. Orr, S. Piper, K. Plattner, P. Rayner, S. Sitch, S. Taguchi, M-F. Weirig, A. Yool (Contributing Authors). (2001) Chapter 3. The Carbon Cycle and Atmospheric CO<sub>2</sub>, for Intergovernmental Panel on Climate Change Scientific Assessment, Cambridge University Press.

- Archer, D., G. Eshel, A. Winguth, W. Broecker, R. Pierrehumbert, M. Tobis, and R. Jacob (2000) Atmospheric  $p\text{CO}_2$  sensitivity to the biological pump in the ocean. *Global Biogeochemical Cycles* 14: 1219-1230.
- Winguth, A.M.E., D. Archer, E. Maier-Reimer, and U. Mikolajewicz (2000) Paleonutrient data analysis of the glacial Atlantic using an adjoint ocean general circulation model, in *Inverse Methods in Global Biogeochemical Cycles*, AGU Geophysical Monograph Series, edited by P. Kasibhatla, M. Heimann, D. Hartley, N. Mahowald, R. Prinn, and P. Rayner. AGU, Washington D.C.
- Archer, D., and K. Johnson (2000) A model of the iron cycle in the ocean. *Global Biogeochemical Cycles* 14: 269-279.
- Archer, D., A. Winguth, D. Lea, and N. Mahowald (2000) What caused the glacial / interglacial atmospheric  $\text{PCO}_2$  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.
- Broecker W, J. Lynch-Stieglitz, D. Archer, M. Hofmann, E. Maier-Reimer, O. Marchal, T. Stocker, and N. Gruber (1999) How strong is the Harvardton-Bear constraint? *Global Biogeochemical Cycles* 13: 817-821.
- Lea, D.W., J. Bijma, H.J. Spero, and D. Archer (1999) Implications of a Carbonate Ion Effect on Shell Carbon and Oxygen Isotopes for Glacial Ocean Conditions in Proxies in *Paleoceanography: Examples from the South Atlantic*, edited by G. Fischer and G. Wefer, Springer, Berlin, pp 513-522.
- Kleypas, J., R.W. Buddemeier, D. Archer, J.-P. Gattuso, C. Langdon, and B. Opdyke (1999) Geochemical consequences of increased atmospheric  $\text{CO}_2$  on coral reefs. *Science* 284: 118-120.
- Winguth, A.M.E., D. Archer, E. Maier-Reimer, U. Mikolajewicz, and J.-C. Duplessy (1999) Sensitivity of paleonutrient tracer distributions and deep sea circulation to glacial boundary conditions. *Paleoceanography* 14: 304-323.
- Archer, D.E. (1999) Modeling  $\text{CO}_2$  in the ocean: A review, in *Scaling of Trace Gas Fluxes between Terrestrial and Aquatic Ecosystems and the Atmosphere*, *Developments in Atmospheric Science* Vol 24, 169-184, edited by A.F. Bouwman. Elsevier Sciences, Amsterdam.
- Heinze, C., E. Maier-Reimer, A.M.E. Winguth, and D. Archer (1999) A global oceanic sediment model for longterm climate studies. *Global Biogeochemical Cycles* 13: 221-250

- Kheshgi, H.S. and D. Archer, (1999) Modeling the evasion of CO<sub>2</sub> injected into the deep ocean. Proceedings of the Fourth International Conference on Greenhouse Gas Control Technologies, Interlaken, Switzerland, Elsevier, pages 287-292.
- Archer, D.E., H.Kheshgi, and E. Maier-Reimer (1998) The dynamics of fossil fuel CO<sub>2</sub> neutralization by marine CaCO<sub>3</sub>. *Global Biogeochemical Cycles* 12: 259-276.
- Catubig, N.R., D.E. Archer, R. Francois, P.B. deMenocal, W. Howard, and E.-F. Yu (1998) Global Deep-Sea Burial Rate of Calcium Carbonate during the Last Glacial Maximum. *Paleoceanography* 13: 298-310.
- Mahadevan, A., and D. Archer (1998) Modeling a limited region of the ocean. *J. Computational Physics* 145: 555-574.
- Keeling, R.F., B.B. Stephens, R.G. Najjar, S.C. Doney, D. Archer, and M. Heimann (1998) Seasonal variations in the atmospheric O<sub>2</sub>/N<sub>2</sub> ratio in relation to the air-sea exchange of O<sub>2</sub>. *Global Biogeochemical Cycles* 12: 141-164.
- Archer, D, J. Aiken, W. Balch, R. Barber, J. Dunne, P. Flament, W. Gardner, C. Garside, C. Goyet, E. Johnson, D. Kirchman, M. McPhaden, J. Newton, E. Peltzer, L. Welling, J. White, and J. Yoder (1997) A Meeting Place of Great Ocean Currents: Shipboard Observations of a Convergent Front at 2° N in the Pacific. *Deep Sea Research II* 44: 1827-1850.
- Archer, D., E.T. Peltzer, and D.L. Kirchman (1997) A timescale for dissolved organic carbon production in equatorial Pacific surface waters. *Global Biogeochemical Cycles* 11: 435-452.
- Archer, D, Kheshgi, H, and Maier-Reimer, E. (1997) Multiple timescales for the neutralization of fossil fuel CO<sub>2</sub>. *Geophys. Res. Letters.* 24, 405-409.
- deMenocal, P.B., D. Archer, and P. Leth (1997) Pleistocene variations in deep Atlantic circulation and calcite burial between 1.2 and 0.6 Ma: A combined data-model approach. In Proc. ODP, Sci. Res. edited by N.J. Shackleton, W. B. Curry, C. Richter, and T.J. Bralower, pp. 285-297, Ocean Drilling Program, College Station, TX.
- Feely, R.A., R. Wanninkhof, C. Goyet, D.E. Archer, and T. Takahashi (1997) Variability of CO<sub>2</sub> distributions and sea-air fluxes in the central and eastern equatorial Pacific during the 1991-94 El Niño. *Deep Sea Research II* 44: 1851-1867.
- Archer, D.E., Takahashi, T., Sutherland, S., Goddard, J., Rodgers, K., and Ogura, H (1996) Daily, seasonal, and interannual variability of sea surface carbon and nutrient concentration in the Equatorial Pacific Ocean. *Deep-Sea Res. II*, 779-808.
- Archer, D.E. (1996) A data-driven model of the global calcite lysocline. *Global Biogeochemical Cycles* 10: 511-526.

- Archer, D.E. (1996) An atlas of the distribution of calcium carbonate in sediments of the deep sea. *Global Biogeochemical Cycles* 10, 159-174.
- Archer, D. (1995) Neutralization of fossil fuel CO<sub>2</sub> by marine calcium carbonate revisited. *Proceedings of the Tsukuba Global Carbon Cycle Workshop, February 1995.*
- Archer, D. (1995) Upper ocean physics and chemistry as relevant to ecosystem dynamics: a Review. *Ecological Applications* 5, 724-739.
- Archer, D. and Maier-Reimer, E. (1994) Effect of deep-sea sedimentary calcite preservation on atmospheric CO<sub>2</sub> concentration. *Nature* 367, 260-264.
- Archer, D.E., Emerson, S., Powell, T., and Wong, C.S. (1993) Numerical prediction of pCO<sub>2</sub> at the sea surface at weathership station Papa. *Prog. Oceanogr.* 32, 319-351
- Archer, D., Lyle, M., Rodgers, K., and Froelich, P. (1993) What controls opal preservation in tropical deep-sea sediments? *Paleoceanography* 8, 7-21.
- Hales, B., Emerson, S. and Archer, D. (1993) Respiration and dissolution in the sediments of the western North Atlantic: estimates from models of in situ microelectrode measurements of porewater oxygen and pH. *Deep-Sea Res.*, 41: 695-719.
- Archer, D.E. and Devol, A.H. (1992) Benthic oxygen fluxes on the Washington shelf and slope: A comparison of in situ microelectrode and chamber flux measurements. *Limnol. Oceanogr.* 37(3), 614-629.
- Emerson, S.R. and Archer, D.E. (1992) Glacial carbonate dissolution cycles and atmospheric pCO<sub>2</sub>: a view from the ocean bottom. *Paleoceanography* 7(3), 319-332.
- Archer, D.E. (1991) Equatorial Pacific calcite preservation cycles: Production or dissolution? *Paleoceanography*. 6(5), 561-571
- Archer, D.E. (1991) Modeling the calcite lysocline. *J. Geophys. Res.*, 96(C2), 17,037-17,050.
- Archer, D.E. (1991) Modeling pCO<sub>2</sub> in the upper ocean: A review of relevant physical, chemical, and biological processes. *Technical Report No. TRO50, Department of Energy, Carbon Dioxide Research Division, Washington, D.C. 20545.*
- Emerson, S.R. and Archer, D.E. (1990) Calcium carbonate preservation in the ocean. *Phil. Trans. Royal Society.* A331, 29-40.
- Archer, D.E., Emerson S.R., and Reimers C.E. (1989) Dissolution of calcite in deep-sea sediments: pH and oxygen microelectrode results. *Geochim. Cosmochim. Acta*, 53: 2831-2845.

Jahnke, R.A., Emerson, S.R., Reimers, C.E., Schuffert, J., Ruttnerberg, K., and Archer, D.E. (1989) Benthic recycling of biogenic debris in the eastern tropical Atlantic Ocean. *Geochim. Cosmochim. Acta* 53, 2947-2960.

Archer, D.E., Emerson, S.R., and Smith, C.R. (1989) Direct measurement of the diffusive sublayer at the deep sea floor using oxygen microelectrodes. *Nature*, 340, 623-626.