

CURRICULUM VITAE

David Pollard

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Education:

PhD, Planetary Science, California Institute of Technology (1979)
MS, Aeronautics, California Institute of Technology (1974)
BA, Mathematics, Cambridge University, England (1973)

Professional Experience:

2021→: Research Professor Emeritus, Earth and Environmental Systems Institute, Pennsylvania State University, University Park, Pennsylvania.

2007-2020: Senior Scientist to Research Professor, Earth and Environmental Systems Institute, Pennsylvania State University, University Park, Pennsylvania.

1997-2007: Research Associate to Senior Research Associate, Earth System Science Center, Pennsylvania State University, University Park, Pennsylvania.

1988-1997: Associate Scientist III to IV, Climate and Global Dynamics Division, National Center for Atmospheric Research, Boulder, Colorado.

1983-1988: Software Engineer, Technical Economics Inc., Berkeley, California.

1980-1982: Postdoctoral Research Associate, Climatic Research Institute, Oregon State University, Corvallis, Oregon.

1974-1979: Research and Teaching Assistantships, Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California.

Professional Awards and Activities:

Link Fellowship, Division of Aeronautics, California Institute of Technology, 1973-1974.

Predocctoral participant, Geophysical Fluid Dynamics Summer Study Program, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts, 1976.

Editorial Board, Climatic Change, 1993-present.

Paleoclimate Modeling Intercomparison Project: coordinator for Ice-Sheet Mass Balance subproject, 1995-1999.

Editorial Board, *Climate Dynamics*, 2000-present.

Co-convenor of Antarctic Climate Evolution (ACE/ANTOSTRAT) Climate and Ice Sheet Modeling workshop, University of Massachusetts, May 30-June 2, 2002.

Co-featured in *Discover* magazine, *Circles of Life* by William Speed Weed, pgs. 42-47, November 2002.

Wilson EMS Faculty Mentoring Award, College of Earth and Mineral Sciences, Pennsylvania State University, April 2003.

Lecturer, "Ice Sheets and Glaciers in the Climate System" Utrecht University graduate course, organized by J. Oerlemans, Karthaus, Italy, 9-20 September, 2003.

Palaeo-3 most cited paper award 2003-2007, for "A coupled climate-ice sheet modeling approach to the early Cenozoic history of the Antarctic ice sheet", R. DeConto and D. Pollard, *Palaeogeogr., Palaeoclim., Palaeoecol.*, 198, 39-52, 2003.

Committee member, Antarctic Climate Evolution (ACE/SCAR) initiative: Holocene, Pleistocene, Oligocene-Miocene, 2005-2010.

Co-presenter with R. DeConto, Short Course "Geoscience Modeling for Novices", International Symposium on Antarctic Earth Sciences, University of California, Santa Barbara, August 2007.

Intergovernmental Panel on Climate Change certificate of contribution to IPCC award of 2007 Nobel Peace Prize.

Nature paper (Pollard and DeConto, 2009) featured in NSF press release 09-047, and in *New York Times* *Dot Earth* by Andrew Revkin, March 18 2009.

Interviewed for National Public Radio, "Antarctic ice may melt, but not for millennia", by Richard Harris, and for Nature Podcast "Antarctic Meltdown", by Rieko Kawabata, March 19 2009.

Featured in Penn State News online article, "Computer model documents the history of the West Antarctic Ice Sheet", by A'ndrea Messer, August 26 2009.

Antarctic modeling included in PBS NOVA documentary of the ANDRILL project, "Secrets Beneath the Ice", December 28 2010.

Expert reviewer and contributing author, IPCC Fifth Assessment Report, Working Group I, Chapter 13: Sea Level Change, 2011-2013.

Member of the Modelling Advisory Committee for BRITICE, a multi-university consortium synthesizing data from the last retreat of the British and Irish ice sheets, 2012-present.

American Geophysical Union Fellow, 2012.

Co-author, R. Alley and D. Pollard, opinion column "Despite record cold 'weather', climate is changing", *Centre Daily Times*, State College, Pennsylvania, January 8 2014.

Collaboration with M. Ballora, Penn State School of Music, on Sonification project with Antarctic model output, presented at PSU Polar Day, April 19 2014.

Project Partner for 3 UK NERC-funded projects, 2015-present: “Reconstructing millennial-scale ice sheet change in the western Amundsen Sea Embayment, Antarctica, using high precision exposure dating”, PI Joanne Johnson; “Assessing the role of oceanic forcing in West Antarctic Ice Sheet retreat since the Last Glacial Maximum”, PI James Smith; “Calving laws for ice sheet models”, PI Douglas Benn.

Member, external advisory and review panel for New York University Abu Dhabi (NYUAD) Center for Global Sea-Level Change (CSLC), PI David Holland, March 2015.

Wilson EMS Breakthrough of the Year Award, College of Earth and Mineral Sciences, Pennsylvania State University, April 2015.

EPSL paper (Pollard, DeConto, Alley, 2015) featured in Nature, This Week Research Highlights, January 22 2015, p. 415. Also in Ars Technica, “Updated ice sheet model matches wild swings in past sea levels”, by Scott Johnson, January 25 2015, and in The Guardian, Environment Planet Oz section, "Melting Antarctic: Failure to cut emissions now could raise world's oceans by several metres", by Graham Readfearn, May 5 2015.

Mentioned in New York Times Magazine article, “The Secrets in Greenland's Ice Sheet”, by Jon Gertner, November 15 2015.

Featured in Penn State News online article, “Antarctica's next top numerical model”, by Katie Bohn, November 17 2015.

Featured in many news outlets following March 2016 Nature paper: e.g., Climate Model Predicts West Antarctic Ice Sheet Could Melt Rapidly, by J. Gillis, New York Times, 3/30/16; Scientists nearly double sea level rise projections for 2100 because of Antarctica, by B. Dennis and C. Mooney, Washington Post, 3/30/16.

Co-instructor, short course “Mathematical modeling of Earth’s dynamic systems”, organized by L. Kump and R. Slingerland, Pennsylvania State University, August 1-5, 2016.

Featured with R. DeConto in “The Birth and Death of Ice Sheets: Understanding the past and predicting the future”, Scientia magazine, #112, 2017.

Featured in Rolling Stone article “The Doomsday Glacier” by Jeff Goodell, May 9 2017.

Featured in Grist (grist.org) article “Ice Apocalypse” by Eric Holthaus, November 21 2017.

Featured in Research Penn State article “Some Like it Cold” by Liam Jackson, 37:2, 2017.

Featured with R. DeConto in BBC-PRI The World episode “If Thwaites Glacier collapses, it would change global coastlines forever” by Carolyn Beeler, July 1 2019.

Reviewer on panel review for NASA ROSES Modeling, Analysis and Prediction program, February 2020.

Undergraduate and Graduate Student Advisory Committees (PSU unless noted):

J. Alder (Oregon State U., PhD), M.-J. Alfano (Geosciences, MS), P. Applegate (Geosciences, PhD), A. Avramov (Meteorology, PhD), C. Baggett (Meteorology, PhD), P. Batra (Geosciences, PhD), A. Edson (Geosciences/Meteorology, PhD), D. Flagg (Schreyer Honors College, PSU, senior thesis), J. Haqq-Misra (Geosciences/Meteorology, PhD), A. Herrmann (Geosciences, PhD), N. Johnson (Meteorology, PhD), S. Koenig (U. Massachusetts, PhD), B. Lamptey (Geosciences, PhD), Q. Li (Meteorology, PhD), Z. Richard (Geosciences, MS), S. Sadai (U. Massachusetts, PhD), S.-W. Son (Meteorology, PhD), N. Stevens (Geosciences, MS), C. Tabor (U. Michigan, PhD), J. Tsai (Meteorology, PhD), D. Vacco (Geosciences, PhD), X. Wang (Meteorology, PhD), J. Williams (Geosciences, MS).

Invited Presentations:

1993: California Institute of Technology, Department of Planetary Science, "Survey of ice sheet and climate modeling of the Quaternary ice ages".

1993: Oregon State University, Corvallis, Workshop on Recent Developments in Laurentide Ice Sheet Research, and AGU Fall Meeting, San Francisco, "Asynchronous coupling of ice sheet and atmospheric forcing models".

1995: INSTAAR/CIRES Seminar, University of Colorado, Boulder, "Ice-sheet initiation and mass balance in a new global climate model".

1995: AGU Fall Meeting, San Francisco, "Ice-sheet mass balance at 21 Kyr B.P. using the GENESIS global climate model version 2.0".

1996: University of California, Santa Cruz, Earth Sciences Department, "Ice sheets in the GENESIS global climate model: new methods and applications".

1996: Geological Society of America, Annual Meeting, Denver, Colorado, "Coupling of GCM climate with a high-resolution dynamic ice sheet model: applications at 116,000 BP and 21,000 BP".

1997: Paleoclimate Modeling Intercomparison Project workshop, Danville, California. "Results from the ice-sheet mass balance subproject".

1998: EISMINT Workshop on Climate and Ice Sheet Modelling, Aussois, France. "Climate and surface mass balance over ice sheets from PMIP GCM simulations".

1998: Environmental Protection Agency, Athens, Georgia. "Coupling of GCMs and fine-grid surface models: (1) ice sheets, (2) hydrology".

1999: University of Massachusetts, Department of Geosciences, Climate System Research Symposium. "Coupling climate models with fine-scale ice-sheet and hydrologic models".

2000: EPILOG (IMAGES/PAGES) 2000, Mt. Hood, Oregon. "Driving ice-sheet models using a generic matrix of GCM climates".

2002: ANTOSTRAT/ACE workshop, University of Massachusetts. "Orbitally paced sequences of Antarctic ice volume and sediment fluxes in the Oligocene simulated by a coupled climate-ice sheet-sediment model".

2003: EGS-AGU Joint Assembly, Nice, France, "Antarctic ice and sediment flux in the Oligocene simulated by a climate-ice sheet-sediment model".

2005: IAS conference on Glacial Sedimentary Processes and Products, Aberystwyth, Wales. "A coupled ice-sheet/ice-shelf/sediment model applied to Antarctica: Cenozoic and Quaternary variations".

2007: EGU General Assembly, Vienna, Austria. "Grounding-line behavior in a heuristically coupled ice sheet-shelf model".

2008: Equable Climates Workshop, Harvard University. "Biological feedbacks on clouds and the warm high-latitude problem".

2008: Pennsylvania State University, Department of Geography. "Modeling past growth and retreat of the West Antarctic Ice Sheet".

2009: Rapid Ice Sheet Destabilization Workshop, Harvard University, panel on "Future of ice sheet modeling".

2009: PAGES 3rd Open Science Meeting, Oregon State University. "Modeling Cenozoic variations of the Antarctic Ice Sheet".

2009: First Antarctic Climate Evolution symposium, Granada, Spain. "Aspects of Antarctic ice sheet variations: Eocene to future".

2009: ANTscape (Antarctic paleotopographic maps) workshop, Granada, Spain. "Topographic datasets from an ice sheet modeling point of view".

2009: Ocean Climate Model Development Meeting, GFDL, Princeton University. "Response of the Antarctic Ice Sheet to increased sub-ice oceanic melting".

2010: Workshop on Glacial Erosion Modelling, National Cooperative for the Disposal of Radioactive Waste (NAGRA), University of Zurich, Switzerland. "Coupling deformable sediment models with ice sheet models".

2010: EGU General Assembly, Vienna, Austria. "Response of the Antarctic Ice Sheet to increased ice-shelf oceanic melting".

2010: PALSEA meeting on Relative Sea Level, Ice Sheets and Isostasy, Bristol, UK. "Modeling Neogene and future variations of the Antarctic Ice Sheet".

2011: Pennsylvania State University, Earth Systems Science Center seminar. "Antarctic Ice Sheet evolution, 34 Ma to modern".

2011: Antarctica's Gamburtsev Province Project (AGAP) workshop, Lamont-Doherty Earth Observatory. "Implications for large-scale ice sheet modeling".

2011: SHALDRIL workshop, ISAES, Edinburgh, UK. "Paleoclimatic Antarctic Ice Sheet science topics".

2011: PALSEA workshop on Past, Rapid Changes in Sea Level, Harvard University. "Modeling Cenozoic Antarctic ice sheet variations".

2015: Penn State GEMS (Graduates of Earth and Mineral Sciences) Showcase Event, breakout session, September 25 2015.

2015: AGU Fall meeting, San Francisco, California. "Modeling past and future variations of the Antarctic Ice Sheet with large ensembles".

2016: NCAR CESM workshop, Land Ice Working Group session, Breckenridge, Colorado. "Modeling past and future variations of the Antarctic Ice Sheet".

2016: NCAR PaleoCSM Deep Time workshop, convened by J. Kiehl, Santa Cruz, California. "Large-ensemble modeling and paleo-validation of the Antarctic Ice Sheet".

2016: AGU Fall meeting, San Francisco, California. "Cenozoic trends of the Antarctic Ice Sheet - an ice sheet modeling perspective".

2020: Workshop on Mathematical Modelling in Glaciology, Banff International Research Station, Alberta, Canada. "Will structural failure occur during ice retreat into deep Antarctic basins?"

Research Grants (PI or co-I):

with L. Gates: "Modeling the Causes of the Quaternary Ice Age", National Science Foundation, November 1980 - October 1982.

with S. Thompson et al.: "The GENESIS Earth Systems Modeling Project", U.S. Environmental Protection Agency, September 1992 - August 1998.

with P. Clark and J. Glasmann: "Origin of the mid-Pleistocene Transition", National Science Foundation, July 1997 - June 2000.

with E. Barron: "High Resolution Simulation of Oxygen Isotope Stage Three Climate", National Science Foundation, August 1998 - July 2000.

with R. DeConto and W. Hay: "Modeling the Glacial Evolution on Antarctica and the Paleogene Transition from a Greenhouse to an Icehouse World", National Science Foundation, June 1999 - May 2002.

with P. Clark, S. Hostetler and S. Marshall: "Modeling Ice Sheet Evolution on Orbital and Millennial Time Scales", National Science Foundation, July 1999 - June 2003.

with D. Williams and J. Kasting: "Extraordinary Climates of Earth-Like Planets: GCM Simulations at High Obliquity", National Science Foundation, September 1999 - August 2002.

with Z.-B. Yu and E. Barron: "Coupling of Climate Models to a Fine-Scale Hydrologic Model", National Science Foundation, June 2000 - May 2003.

with T. White and C. Poulsen: "Evaluation of the Mid-Cretaceous Cool Tropics Paradox using Isotopic GCMs and Foraminiferal and Paleosol Siderite $d^{18}O$ Datasets", National Science Foundation, August 2003 - July 2006.

with D. Harwood, R. DeConto et al.: ANDRILL (Antarctic DRILLing) Stratigraphic Drilling for Climate and Tectonic History", National Science Foundation, June 2005 - May 2010 and extensions.

with R. DeConto: "Time-Continuous Climate Simulations of Abrupt Events and Transitions through the Cenozoic", National Science Foundation, March 2006 – February 2010.

with M. Mann et al.: "Acquisition of a High-Performance Computing Cluster for the Penn State Earth System Science Center", Instrumentation and Facilities, National Science Foundation, April 2006.

with L. Kump: "Numerical modeling of the Greenhouse-Icehouse transition: Eocene-Oligocene boundary", National Science Foundation, July 2007 – June 2009.

with C. Poulsen: "Investigating climate system sensitivity to orbital forcing", National Science Foundation, September 2009 – August 2012.

with P. Clark et al.: "A new reconstruction of the last West Antarctic Ice Sheet deglaciation in the Ross Sea", National Science Foundation, July 2011 – June 2014.

with M. Raymo et al.: "PLIOcene MAXimum sea level (PLIOMAX): Dynamic ice sheet-Earth response in a warmer world", National Science Foundation, Frontiers in Earth System Dynamics, September 2011 – August 2016.

with R. DeConto and M. Pagani: "The Oligocene-Miocene boundary: CO₂ sensitivity and ice sheet hysteresis", National Science Foundation, June 2012 – May 2015.

with K. Keller et al.: "What are sustainable climate-risk management strategies?", National Science Foundation, Sustainable Research Networks, October 2012 – September 2017.

with J. Kasting: "3-D models of thin-ice/Jormungand Snowball Earth states with sea-glacier flow included", NASA Astrobiology, September 2012 – August 2015.

with O. Sergienko et al.: "Representing calving and iceberg dynamics in global climate models", NOAA Modeling, Analysis, Predictions and Projections Program, September 2013 – August 2017.

with A. Timmermann: "Bipolar coupling of late Quaternary ice sheet variability", National Science Foundation, March 2014 – February 2017.

with M. Haran: "Statistical methods for ice sheet projections using large non-Gaussian space-time data sets and complex computer models". National Science Foundation, August 2014 – July 2017.

with B. Parizek et al.: "Evaluating retreat in the Amundsen Sea Embayment: Assessing controlling processes, uncertainties, and projections". National Science Foundation, July 2015 – June 2018.

with A. Condrón and R. DeConto: “Assessing the global climate response to melting of the Antarctic Ice Sheets”, National Science Foundation, August 2015 – July 2018.

with R. DeConto and R. Kopp: “Thresholds and envelopes of rapid ice-sheet retreat and sea-level rise: reducing uncertainty in coastal flood hazards”, National Science Foundation, August 2017 – July 2021.

with I. Velicogna et al.: “Quantifying and reducing uncertainty in future global and local sea-level estimated: linking physics, observations and risk analysis to inform climate adaptation”. National Aeronautics and Space Administration, September 2017 – August 2020.

with T. Wilson et al.: “Investigating ice sheet-solid Earth feedbacks in West Antarctica: Implications for ice sheet evolution and stability”, National Science Foundation, September 2018 – August 2022.

with R. DeConto, E. Gasson et al.: “Pliocene Sea Level Amplitudes (PLIOAMP)”, joint National Science Foundation – NERC (UK), July 2020 – June 2023.

Publications:

1976:

Kamb, B., **D. Pollard** and C.B. Johnson. 1976. Rock-frictional resistance to glacier sliding. EOS Transactions, American Geophysical Union, 57, 325.

Pollard, D. 1976. A functional for energy balance climate models. G.F.D. Summer Study Program, Woods Hole Oceanographic Institution, 137-149.

1978:

Pollard, D. 1978. An investigation of the astronomical theory of the ice ages using a simple climate-ice sheet model. Nature, 272, 233-235.

Pollard, D. 1978. Barotropic and baroclinic instabilities in Jupiter's zonal flow. Ph.D. thesis, California Institute of Technology, 159 pp.

1979:

Gierasch, P.J., A.P. Ingersoll and **D. Pollard.** 1979. Baroclinic instabilities in Jupiter's zonal flow. Icarus, 40, 205-212.

North, G.R., L. Howard, **D. Pollard** and B. Wielicki. 1979. Variational formulation of Budyko-Sellers climate models. J. Atmos. Sci, 36, 255-259.

1980:

Pollard, D. 1980. A simple parameterization for ice-sheet ablation rate. Tellus, 32, 384-388.

Pollard, D., M.L. Batteen and Y.-J. Han. 1980. Development of a simple oceanic mixed-layer and sea-ice model for use with an atmospheric GCM, Report No. 21, Climatic Research Institute, Oregon State University, Corvallis, 49 pp. Also in *J. Phys. Oceanogr.*, (1983), 13, 754-768.

Pollard, D., A.P. Ingersoll and J.G. Lockwood. 1980. Response of a zonal climate-ice sheet model to the orbital perturbations during the Quaternary ice ages. *Tellus*, 32, 301-319.

1982:

Pollard, D. 1982. A simple ice sheet model yields realistic 100 kyr glacial cycles. *Nature*, 296, 334-338.

Pollard, D. 1982. A coupled climate-ice sheet model applied to the Quaternary ice ages. Report No. 37, Climatic Research Institute, Oregon State University, Corvallis, 43 pp. Also in *J. Geophys. Res.*, (1983), 88, 7705-7718.

Pollard, D. 1982. Ice-age simulations with a calving ice-sheet model. Report No. 39, Climatic Research Institute, Oregon State University, Corvallis, 35 pp. Also in *Quat. Res.*, (1983), 20, 30-48.

Pollard, D. 1982. The performance of an upper-ocean model coupled to an atmospheric GCM: preliminary results. Report No. 31, Climatic Research Institute, Oregon State University, Corvallis, 33 pp.

Pollard, D. and W.L. Gates. 1982. Diagnosis of the oceanic heat transport implied in an atmospheric GCM simulation. Report No. 32, Climatic Research Institute, Oregon State University, Corvallis, 20 pp.

1983:

Ingersoll, A.P. and **D. Pollard**. 1983. Motion in the interiors and atmospheres of Jupiter and Saturn: scale analysis, anelastic equations, barotropic stability criterion. *Icarus*, 52, 62-80.

1984:

Pollard, D. 1984. Some ice-age aspects of a calving ice-sheet model. In: *Milankovitch and Climate, Part 2, Proceedings of the Milankovitch and Climate Symposium, Lamont-Doherty Geological Observatory, December, 1982*, A. Berger, J. Imbrie, J. Hays, G. Kukla and B. Saltzman, eds., Reidel Publ., Dordrecht, 541-564.

1990:

Pollard, D., I. Muszynski, S.H. Schneider and S.L. Thompson. 1990. Asynchronous coupling of ice sheet and atmospheric forcing models. *Annals of Glaciology*, 14, 247-251.

1992:

Bonan, G.B, **D. Pollard** and S.L. Thompson. 1992. Effects of boreal forest vegetation on global climate. *Nature*, 359, 716-718.

1993:

Barron, E.J., P.J. Fawcett, **D. Pollard** and S.L. Thompson. 1993. Model simulations of Cretaceous climates: the role of geography and carbon dioxide. *Phil. Trans. Roy. Soc.*, B341, 307-316.

Barron, E.J., W.H. Peterson, **D. Pollard** and S.L. Thompson. 1993. Past climate and the role of ocean heat transport: model simulations for the Cretaceous. *Paleoceanography*, 8, 785-798.

Bonan, G.B., **D. Pollard** and S.L. Thompson. 1993. Influence of subgrid-scale heterogeneity in leaf area index, stomatal resistance, and soil moisture on grid-scale land-atmosphere interactions. *J. Climate*, 6, 1882-1897.

Pollard, D., 1993. Book review of 'Physics of Climate' by J.P. Peixoto and A.H. Oort. *Climatic Change*, 23, 191-192.

Pollard, D. and S.L. Thompson. 1993. Users' Guide to the GENESIS Global Climate Model Version 1.02, Interdisciplinary Climate Systems Section, Climate and Global Dynamics Division, NCAR, Boulder, Colorado, 58 pp.

Robertson, F., E.J. Barron, S. Goodman, D. Fitzjarrald, B. Bishop, J. Christy, S.L. Thompson and **D. Pollard**. 1993. GENESIS climate model: intercomparisons with multiple climate data bases. Fourth AMS Symposium on Global Change Studies, 17-22 January 1993, Anaheim, CA.

1994:

Hay, W.W., S. Thompson, **D. Pollard**, K.M. Wilson and C.N. Wold. 1994. Results of a climate model for Triassic Pangea. *Zbl. Geol. Palaont. Teil I*, 11/12, 1253-1265.

Pollard, D. and M. Schulz. 1994. A model for the potential locations of Triassic evaporite basins driven by paleoclimatic GCM simulations. *Glob. Planet. Change*, 9, 233-249.

Pollard, D. and S.L. Thompson. 1994. Computational aspects of the GENESIS earth systems modeling project. Proceedings of the 14th IMACS World Congress on Computation and Applied Mathematics, vol. 3, W.F. Ames, ed., July 11-15 1994, Georgia Institute of Technology, Atlanta, 1420-1423.

Pollard, D. and S.L. Thompson. 1994. Sea-ice dynamics and CO₂ sensitivity in a global climate model. *Atmos.-Ocean*, 32, 449-467.

Wilson, K.M., **D. Pollard**, W.W. Hay, S.L. Thompson and C.N. Wold. 1994. General circulation model simulations of Triassic climates: preliminary results. In: *Pangea: Paleoclimate, Tectonics and Sedimentation during Accretion, Zenith and Breakup of a Supercontinent*, G.D. Klein, ed., Special Paper 288, Geological Society of America, Boulder, Colorado, 91-116.

1995:

Barron, E.J., P.J. Fawcett, W.H. Peterson, **D. Pollard** and S.L. Thompson. 1995. A "simulation" of mid-Cretaceous climate. *Paleoceanography*, 10, 953-962.

Henderson-Sellers, A., B. Henderson-Sellers, **D. Pollard**, J.M. Verner and A.J. Pitman. 1995. Applying software engineering metrics to landsurface parameterization schemes. *J. Climate*, 8, 1043-1059.

Pollard, D. and S.L. Thompson. 1995. Use of a land-surface-transfer scheme (LSX) in a global climate model: The response to doubling stomatal resistance. *Glob. Planet. Change*, 10, 129-161.

Pollard, D. and S.L. Thompson. 1995. Users' Guide to the GENESIS Global Climate Model Version 2.0, Interdisciplinary Climate Systems Section, Climate and Global Dynamics Division, NCAR, Boulder, Colorado, 93 pp.

Stillwell-Soller, L.M., L.F. Klinger, **D. Pollard** and S.L. Thompson. 1995. The Global Distribution of Freshwater Wetlands. NCAR Technical Note TN-416+STR, National Center for Atmospheric Research, Boulder, Colorado, 47 pp.

Thompson, S.L. and **D. Pollard**. 1995. A global climate model (GENESIS) with a land-surface-transfer scheme (LSX). Part 1: Present-day climate. *J. Climate*, 8, 732-761.

Thompson, S.L. and **D. Pollard**. 1995. A global climate model (GENESIS) with a land-surface-transfer scheme (LSX). Part 2: CO₂ sensitivity. *J. Climate*, 8, 1104-1121.

Wang, W.-C., X.-Z. Liang, M.P. Dudek, **D. Pollard** and S.L. Thompson. 1995. Atmospheric ozone as a climate gas. *Atmos. Research*, 37, 247-256.

1996:

Bettge, T.W., J.W. Weatherly, W.M. Washington, **D. Pollard**, B.P. Briegleb and W.G. Strand. 1996. The NCAR CSM Sea Ice Model. NCAR Technical Note TN-425+STR, National Center for Atmospheric Research, Boulder, Colorado, 25 pp.

Foley, J.A., I.C. Prentice, N. Ramankutty, S. Levis, **D. Pollard**, S. Sitch and A. Haxeltine. 1996. An integrated biosphere model of land surface processes, terrestrial carbon balance, and vegetation dynamics. *Global Biogeochemical Cycles*, 10, 603-628.

Foster, J., G. Liston, R. Koster, R. Essery, H. Behr, L. Dumenil, D. Versegny, S. Thompson, **D. Pollard** and J. Cohen. 1996. Snow cover and snow mass intercomparisons of general circulation models and remotely sensed datasets. *J. Climate*, 9, 409-426.

Foster, J., R. Koster, H. Behr, L. Dumenil, J. Cohen, R. Essery, G. Liston, S. Thompson, **D. Pollard** and D. Versegny. 1996. Snow-mass intercomparisons in the boreal forests from general circulation models and remotely sensed datasets. *Polar Record*, 32, 199-208.

Pollard D. and S.L. Thompson. 1996. PMIP experiments with GENESIS global climate model version 2.0. *PALEo TIMES*, vol. IV, 3-4.

Sloan, L.C., T.J. Crowley and **D. Pollard**. 1996. Modeling of middle Pliocene climate with the the NCAR GENESIS general circulation model. *Marine Micropaleontology*, special volume on "Climates and Climate Variability of the Pliocene", 27, 51-61.

1997:

Felzer, B., S.L. Thompson, **D. Pollard** and J.C. Bergengren. 1997. PALE modeling simulations of 6,10 and 21 ka BP. *PALEo TIMES*, vol. V, 4 pp.

Pollard, D. and S.L. Thompson. 1997. The climatic effect of doubled stomatal resistance. In: *Assessing Climate Change: the Story of the Model Evaluation Consortium for Climate Assessment*. W. Howe and A. Henderson-Sellers, eds., Gordon and Breach Science Publ., Chapter 13, 257-271.

Pollard, D. and S.L. Thompson. 1997. Climate and ice-sheet mass balance at the last glacial maximum from the GENESIS version 2 global climate model. *Quaternary Science Reviews*, 16, 841-864.

Pollard, D. and S.L. Thompson. 1997. Driving a high-resolution dynamic ice-sheet model with GCM climate: Ice-sheet initiation at 116 Kyr BP. *Annals of Glaciology*, 25, 296-304.

Thompson, S.L. and **D. Pollard**. 1997. Greenland and Antarctic mass balances for present and doubled CO₂ from the GENESIS version-2 global climate model. *J. Climate*, 10, 871-900.

Thompson, S.L. and **D. Pollard**. 1997. Ice-sheet mass balance at the last glacial maximum from the GENESIS version 2 global climate model. *Annals of Glaciology*, 25, 250-258.

Thompson, S.L. and **D. Pollard**. 1997. Computational aspects of the GENESIS Earth Systems Modeling project. In: *Next Generation Environmental Models and Computational Methods*, G. Delic and M.F. Wheeler, eds., Society for Industrial and Applied Mathematics, Philadelphia, 13-20.

1998:

Clark, P.U. and **D. Pollard**. 1998. Origin of the mid-Pleistocene transition by ice-sheet erosion of regolith. *Paleoceanography*, 13, 1-9.

Foley, J.A., S. Levis, I.C. Prentice, **D. Pollard** and S.L. Thompson. 1998. Coupling dynamic models of climate and vegetation. *Global Change Biology*, 4, 561-579.

Pollard, D., 1998. Book review of 'Ocean-Atmosphere Interaction and Climate Modelling' by B.A. Kagan. *Climatic Change*, 38, 493-495.

Pollard, D., J.C. Bergengren, L.M. Stillwell-Soller, B. Felzer and S.L. Thompson. 1998. Climate simulations for 10000 and 6000 years BP using the GENESIS global climate model. *Palaeoclimates - Data and Modelling*, 2, 183-218.

Sloan, L.C. and **D. Pollard**. 1998. Polar stratospheric clouds: a high latitude warming mechanism in an ancient greenhouse world. *Geophys. Res. Lett.*, 25, 3517-3520.

1999:

Agustsdottir, A.M., R.B. Alley, **D. Pollard** and W.H. Peterson. 1999. Ekman transport and upwelling during Younger Dryas estimated from wind stress from GENESIS climate model experiments with variable North Atlantic heat convergence. *Geophys. Res. Lett.*, 26, 1333-1336.

Clark, P.U., R.B. Alley and **D. Pollard**. 1999. Northern hemisphere ice-sheet influences on global climate change. *Science*, 286, 1104-1111.

Joussaume, S., K. Taylor, and 34 co-authors. 1999. Monsoon changes for 6000 years ago: results of 18 simulations from the Paleoclimate Modeling Intercomparison Project (PMIP). *Geophys. Res. Lett.*, 26, 859-862.

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