

David Aspinwall Dai Evans

USA and Australian citizenships; spouse Lely Dai Evans,
children Corinne (born 2002) and James (born 2003)

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Employment and education

- 2009– Professor of Geology & Geophysics, Yale University, New Haven, CT
Research and teaching in global tectonics and longterm trends in Earth's evolution. Head of the Yale paleomagnetic facility.
- 2007–08 Associate Professor of Geology & Geophysics, Yale University, New Haven, CT
2002–06 Assistant Professor of Geology & Geophysics, Yale University, New Haven, CT
- 2002–05 Deputy Director, Tectonics Special Research Centre. *Leading the Yale-Harvard node of the Australian-funded TSRC. Globally collaborative research toward reconstruction of pre-Pangean supercontinents and elucidating their effects on mantle dynamics, global climate, and biological evolution.*
- 1998–'01 Postdoctoral research fellow, University of Western Australia, Perth, Australia.
Paleomagnetic and SHRIMP-geochronologic research to constrain the history of supercontinents and glaciations during the Proterozoic Eon. Field work in Australia and southern Africa.
- 1994–98 California Institute of Technology (Caltech), Pasadena; Ph.D. in Geology
1992–94 California Institute of Technology (Caltech), Pasadena; M.S. in Geology
1988–92 Yale University, New Haven; B.S. in Geology & Geophysics

Principal research interests and experience:

Reconstruction of supercontinents through Earth history, using field- and laboratory-based paleomagnetic investigations. Assessment of supercontinental histories in the contexts of solid-Earth geodynamics and paleoenvironmental changes surrounding the evolution of life. Commitment to the combined endeavor of research, teaching, and academic administration.

Professional activities:

- 2006– Associate Editor, *American Journal of Science*
2005– Voting member, Subcommissions on Precambrian Stratigraphy and Neoproterozoic Stratigraphy (International Committee on Stratigraphy)
2005– Member, Geological Association of Canada
2005–10 Co-leader of UNESCO International Geoscience Program (IGCP) Project 509, "Palaeoproterozoic Supercontinents and Global Evolution"

- 1999–03 Associate Editor, *Tectonics*
1999– Member, Geological Society of Australia
1992– Member, Geological Society of America
1991– Member, American Geophysical Union

Awards:

- 2010 Finalist, Blavatnik Awards for Young Scientists. *One of ~10 top young faculty in science and engineering fields from New York, New Jersey or Connecticut, awarded by The New York Academy of Sciences.*
- 2005 University of Western Australia, Gledden Senior Visiting Fellow. *Competitive award for visiting faculty.*
- 2002–07 David and Lucile Packard Fellow in Science and Engineering. *One of 20 young scientists and engineers from a selected pool of applicants among 50 top U.S. academic institutions.*
- 2001 Editor's citation for Excellence in Refereeing, *Tectonics* (Am. Geophys. Union)
- 1999–02 Australian Research Council, Australian Postdoctoral Research Fellowship
1998–99 University of Western Australia Postdoctoral Fellowship. *Research proposals chosen from internationally competitive applicant pools.*
- 1997 Outstanding Student Paper, Geomagnetism and Paleomagnetism Section, Fall Meeting, Am. Geophys. Union. *Selected from ~100 student presentations at the meeting.*
- 1997–98 Thomas E. Everhart Distinguished Graduate Lecturer (Caltech). *One of three chosen from the entire Caltech graduate student body.*
- 1994–95 Richard H. Jahns Teaching Award for outstanding graduate teaching (Caltech). *Best teaching assistant in the Division of Geological and Planetary Sciences, as determined by student feedback report scores.*
- 1994 Geological Society of America Penrose Grant. *Competitive North American award for graduate student research projects.*
- 1993–96 National Science Foundation Graduate Fellowship. *Competitive national award for funding graduate careers.*
- 1992–93 Paul Carrington and Helen Runals Henshaw Fellowship (Caltech). *Competitive award for incoming graduate students.*
- 1992 William R. Belknap Prize for excellence in geology (Yale). *Highest honor bestowed on undergraduates in the Department of Geology & Geophysics.*
- 1991 Samuel Lewis Penfield Prize for proficiency in mineralogy (Yale). *Excellent underclassman performance in the Department of Geology & Geophysics.*

Refereed Publications:

*student advisee †postdoctoral advisee (for work done under advisement)

57. Calver, C.R., Crowley, J.L., Wingate, M.T.D., Evans, D.A.D., *Raub, T.D. & Schmitz, M.D., in press. Globally synchronous Marinoan deglaciation indicated by U-Pb geochronology of the Cottons Breccia, Tasmania, Australia. Geology.
56. Li, Z.-X., Evans, D.A.D. & Halverson, G.P., 2013. Neoproterozoic glaciations in a revised global paleogeography from the breakup of Rodinia to the assembly of Gondwanaland. Sedimentary Geology, v. 294, p. 219-232.
55. Zhang, S., Evans, D.A.D., Li, H., Wu, H., Jiang, G., Dong, J., Zhao, Q., Raub, T.D. & Yang, T., 2013. Paleomagnetism of Nantuo Formation and paleogeographic implications for the South China Block. Journal of Asian Earth Sciences, v.72, p.164-177.
54. Smirnov, A.V., Evans, D.A.D., Ernst, R.E., Söderlund, U. & Li, Z.-X., 2013. Trading partners: Tectonic ancestry of southern Africa and western Australia, in supercratons Vaalbara and Zimgarn. Precambrian Research, v.224, p.11-22.
53. Swanson-Hysell, N.L., Maloof, A.C., Kirschvink, J.L., Evans, D.A.D., Halverson, G.P. & Hurtgen, M.T., 2012. Constraints on Neoproterozoic paleogeography and Paleozoic orogenesis from paleomagnetic records of the Bitter Springs Formation, Amadeus Basin, central Australia. American Journal of Science, v.312, p.817-884.
52. Zhang, S., Li, Z.-X., Evans, D.A.D., Wu, H., Li, H. & Dong, J., 2012. Pre-Rodinia supercontinent Nuna shaping up: A global synthesis with new paleomagnetic results from North China. Earth and Planetary Science Letters, v.353-354, p.145-155.
51. *Mitchell, R.N., *Kilian, T.M. & Evans, D.A.D., 2012. Supercontinent cycles and the calculation of absolute palaeolongitude in deep time. Nature v.482, p.208-211.
50. *Peppe, D.J., Johnson, K.R. & Evans, D.A.D., 2011. Magnetostratigraphy of the Lebo and Tongue River Members of the Fort Union Formation (Paleocene) in the northeastern Powder River Basin, Montana. American Journal of Science, v.311, p.813-850.
49. *Mitchell, R.N., *Kilian, T.M., Raub, T.D., Evans, D.A.D., Bleeker, W. & Maloof, A.C., 2011. Sutton hotspot track: Resolving Ediacaran-Cambrian tectonics and true polar wander of Laurentia. American Journal of Science, v.311, p.651-663.
48. Evans, D.A.D. & *Raub, T.D., 2011. Neoproterozoic glacial palaeolatitudes: a global update. In: Arnaud, E., Halverson, G.P. & Shields-Zhou, G., eds., The Geological Record of Neoproterozoic Glaciations. Geological Society of London Memoirs, v.36, p.93-112.
47. †Smirnov, A.V., Tarduno, J.A. & Evans, D.A.D., 2011. Evolving core conditions ca. 2

- billion years ago detected by paleosecular variation. Physics of the Earth and Planetary Interiors, v.187, p.225-231.
46. Evans, D.A.D. & *Mitchell, R.N., 2011. Assembly and breakup of the core of Paleoproterozoic supercontinent Nuna. Geology, v.39, p.443-446.
 45. Li, Z.-X. & Evans, D.A.D., 2011. Late Neoproterozoic 40° intraplate rotation within Australia allows for a tighter-fitting and longer-lasting Rodinia. Geology, v.39, p.39-42.
 44. Evans, D.A.D. & Halls, H.C., 2010. Restoring Proterozoic deformation within the Superior craton. Precambrian Research, v.183, p.474-489.
 43. Evans, D.A.D., 2010. Proposal with a ring of diamonds. Nature, v.466, p.326-327.
 42. *Mitchell, R.N., Evans, D.A.D., & *Kilian, T.M., 2010. Rapid Early Cambrian rotation of Gondwana. Geology, v.38, p.755-758.
 41. Bindeman, I.N., Schmitt, A.K. & Evans, D.A.D., 2010. Limits of hydrosphere-lithosphere interaction: Origin of the lowest d¹⁸O silicate rock on Earth in the Paleoproterozoic Karelian rift. Geology, v.38, p.631-634.
 40. *Mitchell, R.N., Hoffman, P.F. & Evans, D.A.D., 2010. Coronation loop resurrected: Oscillatory apparent polar wander of Orosirian (2.05-1.8 Ga) paleomagnetic poles from Slave craton. Precambrian Research, v.179, p.121-134.
 39. Evans, D.A.D., 2009. The palaeomagnetically viable, long-lived and all-inclusive Rodinia supercontinent reconstruction. In: Murphy, J.B., Keppie, J.D. & Hynes, A., eds., Ancient Orogens and Modern Analogues. Geological Society of London Special Publication, v.327, p.371-404.
 38. Swanson-Hysell, N.L., Maloof, A.C., Weiss, B.P. & Evans, D.A.D., 2009. No asymmetry in geomagnetic reversals recorded by 1.1-billion-year-old Keweenaw basalts. Nature Geoscience, v.2, p.713-717.
 37. Denyszyn, S.W., Halls, H.C., Davis, D.W. & Evans, D.A.D., 2009. Paleomagnetism and U-Pb geochronology of Franklin dykes in High Arctic Canada and Greenland: A revised age and paleomagnetic pole constraining block rotations in the Nares Strait region. Canadian Journal of Earth Sciences, v.46, p.689-705.
 36. Li, Z.X., Bogdanova, S.V., Collins, A.S., Davidson, A., De Waele, B., Ernst, R.E., Evans, D.A.D., Fitzsimons, I.C.W., Fuck, R.A., Gladkochub, D.P., Jacobs, J., Karlstrom, K.E., Lu, S., Natapov, L.M., Pease, V., Pisarevsky, S.A., Thrane, K. & Vernikovskiy, V., 2009. How not to build a supercontinent: A reply to J.D.A. Piper. Precambrian Research, v.174, p.208-214.

35. †De Kock, M.O., Evans, D.A.D. & Beukes, N.J., 2009. Validating the existence of Vaalbara in the Neoarchaeon. Precambrian Research, v.174, p.145-154.
34. Payne, J.L., Hand, M., Barovich, K.M., Reid, A. & Evans, D.A.D., 2009. Correlations and reconstruction models for the 2500-1500 Ma evolution of the Mawson Continent. In: Reddy, S.M., Mazumder, R., Evans, D.A.D. & Collins, A.S., eds., Palaeoproterozoic Supercontinents and Global Evolution. Geological Society of London Special Publication v.323, p.319-355.
33. Eglinton, B.M., Reddy, S.M. & Evans, D.A.D., 2009. The IGCP 509 Database System: Design and application of a tool to capture and illustrate litho- and chrono-stratigraphic information for Palaeoproterozoic tectonic domains. In: Reddy, S.M., Mazumder, R., Evans, D.A.D. & Collins, A.S., eds., Palaeoproterozoic Supercontinents and Global Evolution. Geological Society of London Special Publication v.323, p.27-47.
32. Reddy, S.M. & Evans, D.A.D., 2009. Palaeoproterozoic supercontinents and global evolution: Correlations from core to atmosphere. In: Reddy, S.M., Mazumder, R., Evans, D.A.D. & Collins, A.S., eds., Palaeoproterozoic Supercontinents and Global Evolution. Geological Society of London Special Publication v.323, p.1-26.
31. Kendall, B., Creaser, R.A., Calver, C.R., *Raub, T.D. & Evans, D.A.D., 2009. Correlation of Sturtian diamictite successions in southern Australia and northwestern Tasmania by Re-Os black shale geochronology and the ambiguity of "Sturtian"-type diamictite - cap carbonate pairs as chronostratigraphic marker horizons. Precambrian Research, v.172, p.301-310.
30. †De Kock, M.O., Evans, D.A.D., Kirschvink, J.L., Beukes, N.J., *Rose, E. & Hilburn, I., 2009. Paleomagnetism of a Neoarchean-Paleoproterozoic carbonate ramp and carbonate platform succession (Transvaal Supergroup) from surface outcrop and drill core, Griqualand West region, South Africa. Precambrian Research, v.269, p.80-99.
29. *Peppe, D.J., Evans, D.A.D. & †Smirnov, A.V., 2009. Magnetostratigraphy of the Ludlow Member of the Fort Union Formation (Lower Paleocene) of the Williston Basin in North Dakota. Geological Society of America Bulletin, v.121, p.65-79.
28. †De Kock, M.O., Evans, D.A.D., Gutzmer, J., Beukes, N.J. & *Dorland, H.C., 2008. Origin and timing of BIF-hosted high-grade hard hematite deposits – a paleomagnetic approach. In: Hagemann, S., Rosiere, C., Gutzmer, J. & Beukes, N., eds., BIF-Related High-Grade Iron Mineralization. Reviews in Economic Geology, v.15, p.49-71.
27. Evans, D.A.D. & Pisarevsky, S.A., 2008. Plate tectonics on early Earth? -- weighing the paleomagnetic evidence. In Condie, K. & Pease, V., eds., When Did Plate Tectonics Begin? Geological Society of America Special Paper, v.440, p.249-263.

26. *Raub, T.D., Kirschvink, J.L. & Evans, D.A.D., 2007. True polar wander: Linking deep and shallow geodynamics to hydro- and bio-spheric hypotheses. In: Kono, M., ed., Treatise on Geophysics, Volume 5: Geomagnetism (Amsterdam, Elsevier), p.565-589.
25. *Raub, T.D., Evans, D.A.D. & †Smirnov, A.V., 2007. Siliciclastic prelude to Elatina deglaciation: Lithostratigraphy and rock magnetism of the base of the Ediacaran System. In: Vickers-Rich, P. & Komarower, P., eds., The Rise and Fall of the Ediacaran Biota. Geological Society of London Special Publication v.286, p.53-76.
24. Pettersson, Å, Cornell, D.H., Moen, H.F.G., Reddy, S. & Evans, D., 2007. Ion-probe dating of 1.2 Ga collision and crustal architecture in the Namaqua-Natal Province of southern Africa. Precambrian Research, v.158, p.79-92.
23. Evans, D.A.D., 2006. Proterozoic low orbital obliquity and axial-dipolar geomagnetic field from evaporite palaeolatitudes. Nature, v.444, p.51-55.
22. *De Kock, M.O., Evans, D.A.D., *Dorland, H.C., Beukes, N.J. & Gutzmer J., 2006. Paleomagnetism of the lower two unconformity bounded sequences of the Waterberg Group, South Africa: Towards a better-defined apparent polar wander path for the Paleoproterozoic Kaapvaal Craton. South African Journal of Geology, v.109, p.157-182.
21. *Dorland H.C., Beukes N.J., Gutzmer J., Evans, D.A.D. & Armstrong R.A., 2006. Precise SHRIMP U-Pb age constraints on the lower Waterberg and Soutpansberg Groups, South Africa. South African Journal of Geology, v.109, p.139-156.
20. Peterson K.J., McPeck M. & Evans D.A.D., 2005. Tempo and mode of early animal evolution: Inferences from rocks, *Hox*, and molecular clocks. In: Vrba E.S. & Eldredge N., eds, Macroevolution: Diversity, Disparity, Contingency: Essays in Honor of Stephen Jay Gould, Paleobiology, v.31, supplement to no.2, p.36-55.
19. Li Z.X., Evans D.A.D. & Zhang S., 2004. A 90° spin on Rodinia: Causal links among the Neoproterozoic supercontinent, superplume, true polar wander and low-latitude glaciation. Earth and Planetary Science Letters, v.220, p.409-421.
18. Evans D.A.D., Sircombe K., Wingate M.T.D., Doyle M., Pidgeon R.T., *McCarthy M. & *Van Niekerk H.S., 2003. Revised geochronology of magmatism in the western Capricorn orogen at 1805-1785 Ma: Diachroneity of the Pilbara-Yilgarn collision. Australian Journal of Earth Sciences, v.50, p.853-864.
17. Evans D.A.D., 2003. A fundamental Precambrian-Phanerozoic shift in Earth's glacial style? Tectonophysics, v.375, p.353-385.
16. Evans D.A.D., 2003. True polar wander and supercontinents. Tectonophysics, v.362, p.303-320.

15. Wingate M.T.D. & Evans D.A.D., 2003. Palaeomagnetic constraints on the Proterozoic tectonic evolution of Australia. In: Yoshida M., Windley B. & Dasgupta S., eds, Proterozoic East Gondwana: Super Continent Assembly and Break-up, Geological Society of London Special Publication 206, p.77-91.
14. Pisarevsky S.A., Wingate M.T.D., Powell C.McA., Johnson S. & Evans D.A.D., 2003. Models of Rodinia assembly and fragmentation. In: Yoshida M., Windley B. & Dasgupta S., eds, Proterozoic East Gondwana: Super Continent Assembly and Break-up, Geological Society of London Special Publication 206, p.35-55.
13. Evans D.A.D., Beukes N.J. & Kirschvink J.L., 2002. Paleomagnetism of a lateritic paleo-weathering horizon and overlying Paleoproterozoic redbeds from South Africa: implications for the Kaapvaal apparent polar wander path and a confirmation of atmospheric oxygen enrichment. Journal of Geophysical Research, v.107(B12), doi: 10.1029/2001JB000432.
12. Wingate M.T.D., Pisarevsky S.A. & Evans D.A.D., 2002. Rodinia connections between Australia and Laurentia: no SWEAT, no AUSWUS? Terra Nova, v.14, p.121-128.
11. Evans D.A.D., Gutzmer J., Beukes N.J. & Kirschvink J.L., 2001. Paleomagnetic constraints on ages of mineralization in the Kalahari Manganese Field, South Africa. Economic Geology, v.96, p.621-631.
10. Evans D.A.D., 2000. Stratigraphic, geochronological, and paleomagnetic constraints upon the Neoproterozoic climatic paradox. American Journal of Science, v.300, p.347-433.
9. Martin M.W., Grazhdankin D.V., Bowring S.A., Evans D.A.D., Fedonkin M.A. & Kirschvink J.L., 2000. Age of Neoproterozoic bilaterian body and trace fossils, White Sea, Russia: Implications for metazoan evolution. Science, v.288, p.841-845.
8. Evans D.A.D., Li Z.X., Kirschvink J.L. & Wingate M.T.D., 2000. A high-quality mid-Neoproterozoic paleomagnetic pole from South China, with implications for ice ages and the breakup configuration of Rodinia. Precambrian Research, v.100, p.313-334.
7. Mound J.E., Mitrovica J.X., Evans D.A.D. & Kirschvink J.L., 1999. A sea-level test for inertial interchange true polar wander events. Geophysical Journal International, v.136, p.F5-F10.
6. Evans D.A., 1998. True polar wander, a supercontinental legacy. Earth and Planetary Science Letters, v.157, p.1-8.
5. Evans D.A., Ripperdan R.L. & Kirschvink J.L., 1998. Polar wander and the Cambrian; response. Science, v.279, p.9, correction p.304. *Full article accessible at <http://www.sciencemag.org/cgi/content/full/279/5347/9a>.*

4. Kirschvink J.L., Ripperdan R.L. & Evans D.A., 1997. Evidence for a large-scale reorganization of Early Cambrian continental masses by inertial interchange true polar wander. Science, v.277, p.541-545.
3. Evans D.A., Beukes N.J. & Kirschvink J.L., 1997. Low-latitude glaciation in the Palaeoproterozoic era. Nature, v.386, p.262-266.
2. Evans D.A., Zhuravlev A.Yu., Budney C.J. & Kirschvink J.L., 1996. Palaeomagnetism of the Bayan Gol Formation, western Mongolia. Geological Magazine, v.133, p.487-496.
1. Baldrige W.S., Ferguson J.F., Braile L.W., Wang B., Eckhardt K., Evans D., Schultz C., Gilpin B., Jiracek G.R. & Biehler S., 1994. The western margin of the Rio Grande Rift in northern New Mexico: An aborted boundary? Geological Society of America Bulletin, v.106, p.1538-1551.

External funding:

- 2010-13 Collaborative Research: Integrated geochronology and paleomagnetism of Neoproterozoic-Paleoproterozoic dikes in Wyoming, a keystone of North American cratons (co-PI: Kevin Chamberlain), NSF Tectonics, \$238,335.
- 2007-09 Morphology, stability and paleointensity of the early geomagnetic field as recorded by 2.9–2.4 Ga mafic rocks in Western Australia. NSF Geophysics, subcontract to Michigan Technical University (PI: Aleksey Smirnov), \$31,475.
- 2005-08 Multidisciplinary study of the Precambrian biosphere and surficial oxygenation, Kaapvaal Craton, South Africa (continuation). Agouron Institute for Geobiology, \$131,674.
- 2003-05 Acquisition of a cryogenic magnetometer and demagnetization devices, with applications toward global geodynamics, long-term paleoclimate, regional tectonics, and stratigraphy. NSF Instrumentation & Facilities, \$172,710 (Yale cost-share \$71,297).
- 2003-06 SWEAT, AUSWUS, AUSMEX, or other? Testing Proterozoic supercontinent reconstructions by refining 1.8-1.6 Ga apparent polar wander paths from Laurentia and Australia. NSF Tectonics, \$203,014.
- 2002-07 Fellowship in Science and Engineering. David and Lucile Packard Foundation, \$625,000.
- 2002-05 Multidisciplinary study of the Precambrian biosphere and surficial oxygenation, Kaapvaal Craton, South Africa. Agouron Institute for Geobiology, \$249,835.

Thesis advisees (Yale unless otherwise noted):

B.S./B.Sc. Jenna Hessert (expected 2014), Jenn Kasbohm (2013), Ian Rose (2009), Catherine Izard (2006), Matt McCarthy (co-advisor: M.Doyle, Univ. of Western Australia, 2001).

M.Phil. Eben Rose (2004).

Ph.D. Taylor Kilian (expected 2013), Joseph Panzik (expected 2013), Ross Mitchell (2013), Dan Peppe (2009), Tim Raub (2008), Theresa Raub (2008), Michiel De Kock (co-advisor: N.J. Beukes, Univ. Johannesburg, 2007), Herman Van Niekerk (co-advisor: N.J. Beukes, Rand Afrikaans Univ., 2006), Herman Dorland (co-advisor: N.J. Beukes, Rand Afrikaans Univ., 2004).

Courses taught:

2013–14 G&G 010a, Earth, Resources, Energy, and the Environment
G&G 110a, Dynamic Earth
G&G 111La, Dynamic Earth Laboratory and Field Methods
G&G 212b, Global Tectonics
G&G 775, Seminar in Tectonics
2012–13 G&G 110a, Dynamic Earth
G&G 111La, Dynamic Earth Laboratory and Field Methods
G&G 212b, Global Tectonics
G&G 333a, Paleogeography
G&G 370b, Regional Perspectives on Global Geoscience
G&G 775, Seminar in Tectonics
Earlier G&G 205a, Natural Resources and Their Sustainability
G&G 260a, Plate Tectonics
G&G 777, Early Life

Yale University service:

2012– Member, Science Council
2011– Member, Physical Sciences and Engineering Tenure Appointments and Promotions Committee / Physical Sciences and Engineering Advisory Committee
2011–12 Member, Yale Climate & Energy Institute, Energy Fellowship Committee
2009– Secretary, Joint Boards of Permanent Officers
2009– Member, Scholar Awards Committee
2009– Director of Undergraduate Studies, Department of Geology & Geophysics