

# Gary D. Acton

**Contact Information:**

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**Education:**

Ph.D. (Geophysics), Northwestern University, 1990  
M.S. (Geophysics), University of Arizona, Tucson, 1986  
B.S. (Geology), Indiana University, Bloomington, 1984

**Professional Experience:**

Assistant Director, 2021-present, IODP–JRSO, Texas A&M University  
Manager of Technical & Analytical Services and Research Scientist, 2017-present,  
IODP–JRSO, Texas A&M University  
Assistant/Associate Professor, 2013-2017, Sam Houston State University  
Consultant/Chief Scientist, 2012, Siem Offshore and Overseas Drilling Limited  
Associate Research Scientist, 2005-2013, University of California, Davis  
Paleomagnetism Lab Manager, 2003-2006, University of California, Davis  
Project Manager/Staff Scientist, 1995-2003, Ocean Drilling Program (ODP), Texas A&M  
Lecturer in Geophysics, 1994-1995, University of New England  
Caswell Silver Research Professorship, 1992-1994, University of New Mexico  
Postdoctoral Fellow, 1990-1991, Woods Hole Oceanographic Institute  
Research/Teaching Assistant, 1986-1990, Northwestern University  
Geological Intern, Summer 1985, Sohio Petroleum Company  
Research/Teaching Assistant, 1984-1986, University of Arizona  
Geological Field Assistant, Summer 1984, U.S.G.S. in Denver

**Research Interests:**

Marine Geology and Geophysics, Scientific Ocean Drilling, Chronostratigraphy,  
Plate Tectonics, Geodynamics, Paleomagnetism, Geomagnetism, Paleoclimatology,  
Exploration Geophysics, and Data Analysis

**Teaching Experience:**

Over 1,500 lectures in classes on *Physical Geology, Plate Tectonics, Applied Geophysics, Solid Earth Geophysics, Paleomagnetism, and Graduate & Undergraduate Research Projects*

### **Scientific Cruises & Field Expeditions:**

International Ocean Discovery Program: Expedition 384, Engineering, N. Atlantic (2020)  
International Ocean Discovery Program: Expedition 374, Ross Sea, Antarctica (2018)  
Chief Scientist on the Baffin Bay Scientific Coring Program, a 9-week expedition on the *R/V JOIDES Resolution* funded by a consortium of petroleum companies (2012)  
Integrated Ocean Drilling Program: Expedition 339, Mediterranean Outflow (2011-2012)  
Integrated Ocean Drilling Program: Expedition 320, Equatorial Pacific Transect (2009)  
Integrated Ocean Drilling Program: Readiness Assessment Cruise (2009)  
ANDRILL: Chronostratigraphy Team Leader, Southern McMurdo Sound Project (2007)  
*D/V Chikyu* Shakedown Cruise (2006)  
Integrated Ocean Drilling Program: Expedition 306, N. Atlantic Paleoclimate (2005)  
Ocean Drilling Program: Legs 165, 172, 178, 186, 200, and 206 (1995-2004)  
Lake Baikal Field Expedition (1993)  
Western Interior Seaway Paleomagnetism (1987, 1988, 1989, 1992, 1993)  
Afar, Africa GPS and Paleomagnetism Campaign (1992)  
New Madrid GPS Campaign (1991)  
Mojave Desert Paleomagnetism (1985, 1986)

### **Awards and Service:**

Geological Society of America Fellow (2016-present)  
Review and Advisory Committee for the Institute for Rock Magnetism (2017-2020)  
IODP Science Evaluation Panel (SEP) (2017)  
U.S. Science Support Program's IODP Distinguished Lecturer (2014-2015)  
U.S. Advisory Committee for Scientific Drilling (USAC) (2009-2012)  
Secretary of the Geomagnetism and Paleomagnetism Section of AGU (2009-2010)  
Integrated Ocean Drilling Program Site Survey Panel (2006-2009)  
Society of Exploration Geophysicists Scholarship 1985-1989  
Allan V. Cox Student Research Award 1988 from the Geological Society of America  
Best student paper, Tectonophysics Section, Spring 1987 AGU meeting  
Phi Beta Kappa National Honorary Society (Selected 1984)

### **Thesis & Dissertation:**

Acton, G.D., Kinematic Studies of Propagating Rifts and Rotating Microplates, and Paleomagnetic Tests of Plate Reconstructions with Implications for Motion Between Hotspots, *Ph.D. Dissertation*, Northwestern University, Evanston, 1990.  
Acton, G., Paleomagnetism of Miocene Volcanic Rocks in the Mojave Region of Southeastern California, *M.S. Thesis*, University of Arizona, Tucson, 1986.

### **Articles & Books:**

(122) Lund, S., Acton, G., Clement, B., Okada, M., and Keigwin, L., 2020. On the relationship between paleomagnetic secular variation and excursions – records from MIS 8 - ODP Leg 172, *Geophysical Journal International*, 225, <https://doi.org/10.1093/gji/ggaa564>.  
(121) Nichols, M. D., Xuan, C., Crowhurst, S., Hodell, D. A., Richter, C., Acton, G. D., and Wilson, P. A., 2020. Climate-induced variability in Mediterranean Outflow to the North Atlantic Ocean during the late Pleistocene. *Paleoceanography and Paleoclimatology*, 35, e2020PA003947, <https://doi.org/10.1029/2020PA003947>.

- (120) Jovane, L., Florindo, F., Acton, G., Ohneiser, C., Sagnotti, L., Strada, E., Verosub, K. L., Wilson, G. S., Iacoviello, F., Levy, R. H., and Passchier, S., 2019. Miocene glacial dynamics recorded by variations in magnetic properties in the ANDRILL-2A drill core. *Journal of Geophysical Research: Solid Earth*, 124, <https://doi.org/10.1029/2018JB016865>.
- (119) Robertson, A. H. F., Kutterolf, S., Avery, A., Baxter, A. T., Petronotis, K., Acton, G. D., Carvallo, C., Schindlbeck, J. C., 2017. Depositional setting, provenance, and tectonic-volcanic setting of Eocene–Recent deep-sea sediments of the oceanic Izu–Bonin forearc, northwest Pacific (IODP Expedition 352), *International Geology Review*, <https://doi.org/10.1080/00206814.2017.1393634>.
- (118) van der Schee, M., Sierro, F.J., Jiménez-Espejo, F.J., Hernández-Molina, F. J., Flecker, R., Flores, J. A., Acton, G., Gutjahr, M., Grunert, P., García-Gallardo, Á., Andersen, N., 2016. Evidence of early bottom water current flow after the Messinian Salinity Crisis in the Gulf of Cadiz, *Marine Geology*, 380, 315-329, doi:10.1016/j.margeo.2016.04.005.
- (117) Levy, R.H., many others (including G. Acton), and the SMS Science Team, 2016. Antarctic Ice Sheet sensitivity to atmospheric CO<sub>2</sub> variations during the early to mid-Miocene, *Proceedings National Academy of Sciences (PNAS)*, 113, 3453-3458, doi:10.1073/pnas.1516030113
- (116) Petronotis, K.E., Acton, G.D., Jovane, L., Li, Y., Zhao, X., 2015. Data report: magnetic properties of sediments and basalts from the Costa Rica subduction margin (Expeditions 334 and 344), In Harris, R.N., et al., *Proc. IODP*, 344, College Station, TX (Integrated Ocean Drilling Program), doi:10.2204/iodp.proc.344.206.2015.
- (115) Hodell, D., Lourens, L., Crowhurst, S., Konijnendijk, T., Tjallingii, R., Jiménez-Espejo, F., Skinner, L., Tzedakis, P. C., Abrantes, F., Acton, G. D., Alvarez Zarikian, C. A., Bahr, A., Balestra, B., Barranco, E.L., and others, 2015. A reference time scale for Site U1385 (Shackleton Site) on the SW Iberian Margin. *Global and Planetary Change*, 133, 49-64. <http://dx.doi.org/10.1016/j.gloplacha.2015.07.002>.
- (114) Griener, K.W., Warny, S., Askin, R., and Acton, G., 2015. Early to middle Miocene vegetation history of Antarctica supports eccentricity-paced warming intervals during the Antarctic icehouse phase. *Global and Planetary Change*, 127, 67-78. <http://dx.doi.org/10.1016/j.gloplacha.2015.01.006>.
- (113) Hernández-Molina, F.J., Stow, D.A.V., Alvarez-Zarikian, C.A., Acton, G., and others, 2014. Onset of Mediterranean outflow into the North Atlantic. *Science*, 344, 1244-1250, doi:10.1126/science.1251306.
- (112) Dekkers, M.J., Heslop, D., Herrero-Bervera, E., Acton, G., and Krasa, D., 2014. Insights into magmatic processes and hydrothermal alteration of in situ superfast spreading ocean crust at ODP/IODP site 1256 from a cluster analysis of rock magnetic properties. *Geochemistry, Geophysics, Geosystems*, 15, 3430-3447, <https://doi.org/10.1002/2014GC005343>.
- (111) Westerhold, T., Röhl, U., Pälike, H., Wilkens, R., Wilson, P. A., and Acton, G., 2014. Orbitally tuned time scale and astronomical forcing in the middle Eocene to early Oligocene, *Climate of the Past*, 10, 955-973, doi:10.5194/cp-10-955-2014.
- (110) Dorador, J., Rodriguez-Tovar, F. J., and the IODP Expedition 339 Scientists (includes G. Acton), 2014. Quantitative estimation of bioturbation based on digital image analysis, *Marine Geology*, 349, 55-60, doi:10.1016/j.margeo.2014.01.003

- (109) Yamamoto, Y., Yamazaki, T., Acton, G. D., Richter, C., Guidry, E.P., and Ohneiser, C., 2014. Palaeomagnetic study of IODP Sites U1331 and U1332 in the equatorial Pacific—extending relative geomagnetic palaeointensity observations through the Oligocene and into the Eocene, *Geophys. J. Int.*, 196, 694-711, doi:10.1093/gji/ggt412.
- (108) Hernández-Molina, F.J., D. Stow, C. Alvarez-Zarikian, and Expedition 339 Scientists (includes G. Acton), 2013. IODP Expedition 339 in the Gulf of Cadiz and Off West Iberia: Decoding the environmental significance of the Mediterranean Outflow Water and its global implications. *Scientific Drilling*, 16, 1–11, doi:10.5194/sd-16-1-2013.
- (107) Hodell, L. Lourens, D.A.V. Stow, J. Hernández-Molina, C.A. Alvarez Zarikian, and the Shackleton Site Project Members (includes G.D. Acton), 2013. The “Shackleton Site” (IODP Site U1385) on the Iberian Margin. *Scientific Drilling*, 16, 13–19, doi:10.5194/sd-16-13-2013.
- (106) Ohneiser, C., Acton, G., Channell, J.E.T., Wilson, G.S., Yamamoto, Y., and Yamazaki, T., 2013. A middle Miocene relative geomagnetic paleointensity record from the equatorial Pacific, *Earth Planet. Sci. Lett.*, 374, 227-238, doi: dx.doi.org/10.1016/j.epsl.2013.04.038
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- (104) Toffanin, F., Agnini, C., Rio, D., Acton, G., and Westerhold, T., 2013. Middle Eocene to early Oligocene calcareous nannofossil biostratigraphy at IODP Site U1333 (equatorial Pacific), *Micropaleontology*, 59, 69–82.
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- (84) Florindo, F., Harwood, D.M., Levy, R.H., Acton, G., Fielding, C., Panter, K., Paulsen, T., Talarico, F., Taviani, M., Sangiorgi, F., Willmott, V., Lenczewski, M., and the ANDRILL-SMS Science Team, 2008-2009. Explanatory notes for the ANDRILL Southern McMurdo Sound Project, Antarctica, *Terra Antartica*, 15, 21-40.
- (83) Falconer, T., Pyne, A., Wilson, D., Levy, R.H., Nielsen, S., Petrushak, S. and the ANDRILL-SMS Science Team (includes G. Acton), 2008-2009. Operations overview for the ANDRILL Southern McMurdo Sound Project, Antarctica, *Terra Antartica*, 15, 41-48, 2008-2009.
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