

CURRICULUM VITAE
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Robert Jay Pulliam

Institute for Geophysics
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EDUCATION

University of California, Berkeley, California, 1984-1991, Ph.D. in Geophysics awarded July 1991
Thesis: Imaging Earth's Interior: Tomographic Inversions for Mantle P-wave Velocity Structure
Thesis committee: Lane Johnson (chair), Tom McEvilly, Barbara Romanowicz, Philip Stark

Cornell University, Ithaca, New York, 1981-83, A.B. in Physics awarded May 1983

Deep Springs College, Deep Springs, California, 1978-80

PROFESSIONAL EXPERIENCE

University of Texas at Austin, Austin, Texas

Institute for Geophysics
Research Scientist, 9/02-present
Research Associate, 9/97-8/02
Postdoctoral Fellow, 1/95-8/97

Department of Geological Sciences
Lecturer, 8/06-12/06

University of Puerto Rico at Mayagüez, Mayagüez, Puerto Rico
Department of Geology, Adjunct Professor, 8/01/04-6/30/05
Puerto Rico Seismic Network, Research Seismologist, 8/01/04-6/30/05

Utrecht University, Department of Theoretical Geophysics, Utrecht, The Netherlands
Visiting Researcher sponsored by the U.S. National Science Foundation, 4/93-12/94

University of Washington, Geophysics Program (and the IRIS Data Management Center), Seattle, WA
IRIS Postdoctoral Fellow, 11/92-3/93

University of California, Berkeley, Department of Statistics, Berkeley, CA
Postdoctoral Researcher, 7/91-11/92

Lawrence Berkeley National Laboratory, Earth Sciences Division, Berkeley, CA
Graduate Research Fellow, 1/89 to 7/91;
Research Assistant, 6/84-8/85 & 6/87-12/88

University of California, Berkeley, CA
Department of Geology and Geophysics and UC Seismographic Stations
Research Assistant, 8/85-5/87

U.S. Geological Survey, Branch of Atlantic/Gulf of Mexico Geology, Woods Hole, MA
Physical Sciences Technician, 6/83-5/84

TEACHING EXPERIENCE

Earth Dynamics, Dept of Geological Sciences, University of Texas at Austin (with Luc Lavier and Don Blankenship) Fall 2006

Advanced Seismology, Dept of Geology, University of Puerto Rico at Mayagüez (with Eugenio Asencio) Spring 2005

MEMBERSHIP IN PROFESSIONAL ASSOCIATIONS

American Geophysical Union
Society of Exploration Geophysicists
Professional Geophysicist, License #5207, Texas State Board of Geoscientists

Seismological Society of America
Geological Society of America

RESEARCH INTERESTS

experimental/observational seismology: broadband seismology in the oceans; lateral heterogeneity in the mantle; structure of Earth's internal discontinuities; anisotropy of the lithosphere, the core-mantle transition zone via waveform modeling; structure of the continental crust from waveform modeling of converted Sp, direct S, SsPmP, and shear-coupled PL phases.

Seismic investigation of tectonic processes: tectonics of the northeast Caribbean, the Cameroon Volcanic Line, and the Burma arc to Eastern Himalayas transition

seismic monitoring of a comprehensive nuclear test ban treaty: seismic event location with a single station; characterizing the crust with receiver functions; seismic event detection and discrimination

theoretical and computational seismology: ray perturbation theory; fast computation of Fresnel zones in 3D media; computation of synthetic seismograms for anisotropic media; parallel computing in seismology

inverse theory: seismic tomography; computation of confidence intervals in inverse problems; resolution estimation; global optimization methods

instrumentation: designing, testing, and building a new generation of broadband ocean bottom seismographs; designing and installing a network of broadband three-component seismographic stations in Texas (www.ig.utexas.edu/TexSeis)

ACADEMIC HONORS AND AWARDS

University of Texas Institute for Geophysics Postdoctoral Fellowship, 1995-97

U.S. National Science Foundation - North Atlantic Treaty Organization (NSF-NATO) Postdoctoral Fellowship in Science and Engineering, 1994

U.S. National Science Foundation, Division of International Programs Grant for a one-year visit to the Department of Theoretical Geophysics, Utrecht University, The Netherlands, 1993-94

U.S. Dept. of Energy Graduate Research Fellowship, Lawrence Berkeley National Laboratory, 1989-91
Don Tocher Fellowship, Department of Geology and Geophysics, UC Berkeley, 1988-89

Achievement Rewards for College Scientists (ARCS) Scholarship, 1986-87

Chevron Fellowship, Department of Geology and Geophysics, UC Berkeley, 1984-85

Scholarship to S.E.A. Oceanography Program, Woods Hole, MA, 1983

Cornell University Scholarship, Tuition Scholarship to Cornell University, Ithaca, NY, 1981-83

Telluride Association Scholarship, Room and Board Scholarship to Cornell University, 1981-83

Full Scholarship to Deep Springs College, Deep Springs, CA, 1978-80

National Merit Scholarship, U.S. Department of Education, 1978-79

REFERREED PUBLICATIONS

- Gao, S., K. Liu, R. Stern, G.R. Keller, J. Hogan, J. Pulliam, and E. Anthony, Characteristics of mantle fabrics beneath the south-central United States: Constraints from shear-wave splitting measurements, submitted to *Geophys. J. Int.*, August 2007.
- Gangopadhyay, A., J. Pulliam, and M.K. Sen, Seismic waveform modeling and inversion for crust and upper mantle velocity structure beneath Africa, *Geophys. J. Int.*, **170**, 1210–1226, 2007.
- Huerta, C., K. Stokoe II, and J. Pulliam, Modeling of Seafloor Soft Marine Sediments and Spectral Characteristics of Earthquakes Recorded on the Gulf of Mexico, *Journal of Offshore Mechanics and Arctic Engineering*, **127**, 59-67, 2005.
- Bowman, David, James Dolan, Eric Calais, Eugenio Fajardo, Jose Lockhart, Orlando Franco, Luis Pena, Ervin Vargas, Christine Herridge, Christa Hillebrandt, Victor Huerfano, Pamela Jansma, Glen Mattioli, Henry Turner, III, Paul Mann, Jay Pulliam, Luis Odonel Gomez, Juan Payero, Carol S. Prentice, Martitia P. Tuttle, Earthquake Shakes "Big Bend" Region of North America-Caribbean Boundary Zone, *Eos*, **85**, 77-88, 2004.
- Huerta, C., J. Pulliam, & Y. Nakamura, In-situ evaluation of shear wave velocities in seafloor sediments with a broadband ocean bottom seismograph, *Bull. Seism. Soc. Am.*, **93**, 139-151, 2003.
- Pulliam, J., Y. Nakamura, C. Huerta-Lopez, & B. Yates, Field Test of an Inexpensive, Small Broadband Ocean-Bottom Seismograph, *Bull. Seism. Soc. Am.*, **93**, 152-171, 2003.
- Nuth, V., J. Pulliam, & C. Wilson, Migration of radar altimeter waveform data, *Geophys. Res. Lett.*, **29**, 131-135, 2002.
- Frohlich, C., & J. Pulliam, 1999. Single-station location of seismic events: A review, and a plea for more research, *Phys. Earth Planet. Int.*, **113**, 277-291.
- Pulliam, J., & M. Sen, Anisotropy in the core-mantle transition zone, *Geophys. J. Int.*, **135**, 113-128, 1998.
- Pulliam, J., & R. Snieder, Ray perturbation theory, dynamic raytracing, and the determination of Fresnel zones, *Geophys. J. Int.*, **135**, 463-469, 1998.
- Luhurbudi, E.C., J. Pulliam, J.A. Austin, Jr., P.L. Stoffa, & S. Saustup, Tidal correction in a 3D marine seismic survey, *Geophysics*, **63**, 1036-40, 1998.
- Pulliam, J., and R. Snieder, Fast, efficient calculation of rays and travel times with ray perturbation theory, *J. Acoust. Soc. Am.*, **99**, 383-391, 1996.
- Vasco, D.W., L.R. Johnson, and R.J. Pulliam, Lateral variations in mantle velocity structure and discontinuities determined from P, PP, S, SS and SS-SdS travel time residuals, *J. Geophys. Res.*, **100**, 24,037-24,059, 1995.
- Pulliam, R.J., and P.B. Stark, Confidence regions for mantle travel time tomography, *J. Geophys. Res.*, **99**, 6931-6943, 1995.
- Vasco, D.W., R.J. Pulliam, L.R. Johnson, and P.S. Earle, Robust inversion of IASP91 travel time residuals for mantle P and S velocity structure, earthquake mislocations, and station corrections, *J. Geophys. Res.*, **99**, 13727-13755, 1994.
- Pulliam, R.J., and P.B. Stark, Bumps on the Core-Mantle Boundary: Are they facts or artifacts? *J. Geophys. Res.*, **98**, 1943-1955, 1993.
- Vasco, D.W., R.J. Pulliam, and L.R. Johnson, Formal inversion of ISC travel times for mantle P velocity, *Geophys. J. Int.*, **113**, 586-606, 1993.
- Pulliam, R.J., D.W. Vasco, and L.R. Johnson, Tomographic inversions for mantle P wave velocity structure based on the minimization of l^2 and l^1 norms of International Seismological Centre travel time residuals, *J. Geophys. Res.*, **98**, 699-734, 1993.
- Pulliam, R.J., and L.R. Johnson, What patterns of heterogeneity in the Earth's mantle can be revealed by seismic tomography?, *Phys. Earth Planet. Int.*, **73**, 109-151, 1992.

OTHER PUBLICATIONS

- Gangopadhyay, A., J. Pulliam, and M.K. Sen, Modeling of teleseismic waveforms for crust and upper mantle velocity structure, submitted to the National Conference on Modern Trends in Geophysical Sciences and Techniques, Indian School of Mines, Jharkhand, India, 5 pp., November 12-14, 2007.*
- Pulliam, J., M.K. Sen, and A. Gangopadhyay. Waveform modeling of teleseismic converted waves for crust and upper mantle structure beneath Canada and China, Proceedings of the 29th Monitoring Research Review: Ground-Based Nuclear Explosion Monitoring Technologies, 1-22, Denver, CO, September 25-27, 2007.*
- Pulliam, J., M.K. Sen, and A. Gangopadhyay. Determination of Crust and Upper Mantle Structure Beneath Africa Using a Global Optimization-Based Waveform Modeling Technique, Proceedings of the 28th Seismic Research Review: Ground-Based Nuclear Explosion Monitoring Technologies, pp. 196-208, Orlando, FL, September 19-21, 2006.*
- Pulliam, J., and M.K. Sen, Assessing Uncertainties in Waveform Modeling of the Crust and Upper Mantle Proceedings of the 27th Seismic Research Review: Ground-Based Nuclear Explosion Monitoring Technologies, pp. 152-160, Sponsored by the National Nuclear Security Administration, Palm Springs, CA, September 20-22, 2005.*
- Pulliam, J., and M.K. Sen, Waveform modeling of the Crust and Upper Mantle using S, Sp, SSPmP, and Shear-coupled PL Waves for Improved Event Location, Focal Depth Determination, and Uncertainty Estimation, Proceedings of the 26th Seismic Research Review: Trends in Nuclear Explosion Monitoring, Volume I, pp. 142-152, Sponsored by the National Nuclear Security Administration, Orlando, FL, September 21-23, 2004.*
- Pulliam, J., and M.K. Sen, Assessing uncertainties in waveform modeling of the crust and upper mantle Proceedings of the 25th Seismic Research Review: Nuclear Explosion Monitoring: Building the Knowledge Base, Sponsored by the National Nuclear Security Administration, Tucson, AZ, September 23-25, 2003.*
- Pulliam, J., M.K. Sen, C. Frohlich, and S.P. Grand, Crustal Structure from waveform inversion of shear-coupled PL, in Proceedings of the 24th Seismic Research Review: Nuclear Explosion Monitoring: Innovation and Integration, v. I, pp. 144-153, Ponte Vedra Beach, FL, September 17-19, 2002.*
- Huerta-Lopez, C.I., J. Pulliam, Y. Nakamura, and B. Yates, Modeling amplification effects of marine sedimentary layers via horizontal/vertical spectral ratios, Proceedings of the 71st Annual Meeting of the Society of Exploration Geophysicists, San Antonio, Texas, MC 2.8, v. 1, 825-828, Sept. 2001.*
- Pulliam, J., M.K. Sen, C. Frohlich, and S.P. Grand, Crustal Structure from waveform inversion of shear-coupled PL, in Proceedings of the 23rd Seismic Research Review: Worldwide Monitoring of Nuclear Explosions, Jackson, WY, 2001.*
- Huerta-Lopez, C.I., J. Pulliam, Y. Nakamura, & K.H. Stokoe II, Soft sediment characterization from passive motion measurements of the seafloor, Proceedings of the 2001 International Conference on Offshore Technology Research, pp. 32-51, April 26-27, Houston, TX, April 2001.*
- Pulliam, J., Book review of "Advances in seismic event location", edited by N. Rabinowitz and C.H. Thurber, Kluwer Academic Publishers, Dordrecht, 266 pp, in EOS, Transactions AGU, 82, 228, 2001.*
- Pulliam, J., C. Frohlich, & B. Phillips, Single Station Event Location: Epicentral Distance, Bearing, and Focal Depth, in Proceedings of the 22nd Annual Seismic Research Symposium: Planning for Verification of and Compliance with the Comprehensive Nuclear-Test-Ban Treaty, New Orleans, LA, 2000.*
- Pulliam, J., & C. Frohlich, Accuracy and uncertainty in single-station event location, in Proceedings of the 21st Annual Seismic Research Symposium: Technologies for Monitoring the Comprehensive Nuclear-Test-Ban Treaty, Las Vegas, NV, vol. I, pp. 589-598, 1999.*

- Pulliam, J., Book review of "The Earth's Mantle: Composition, Structure, and Evolution", edited by Ian Jackson, Cambridge U. Press, New York, 566 pp, in *EOS Transactions AGU*, **80**, 127, 1999.
- Pulliam, J., & C. Frohlich, Case Studies of Event Location with a Single Station, *Proceedings of the 20th Annual Seismic Research Symposium on Monitoring a Comprehensive Test Ban Treaty*, edited by J. Fantroy, D. Heatley, J. Warren, F. Chavez, and C. Meade, Santa Fe, N.M., 275-285, 1998.
- Pulliam, J., Sensitivity kernels for travel time tomography with band-limited seismic data, *Proc. of the 67th Annual Meeting of the Society of Exploration Geophysicists*, Dallas, Texas, pp. 1881-84, 1997.
- Pulliam, J., C. Frohlich, & S.P. Grand, Factors controlling single-station seismic event location, *Proceedings of the 19th Annual Seismic Research Symposium on Monitoring a Comprehensive Test Ban Treaty*, edited by M.J. Shore, R.S. Jih, A. Dainty, and J. Erwin, Orlando, FL, pp. 272-280, 1997.
- Pulliam, J., P.L. Stoffa, E.C. Luhurbudi, S. Saustруп, & J.A. Austin, Jr., 3-D depth migration of an ultra high resolution seismic survey on New Jersey's continental shelf, *Proceedings of the 66th Annual Meeting of the Society of Exploration Geophysicists*, Denver, Colorado, pp. 847-850, 1996.
- Pulliam, J., P.L. Stoffa, J.A. Austin, Jr., S. Saustруп, E. Luhurbudi, An ultrahigh resolution 3D survey of the shallow subsurface on the continental shelf of New Jersey, *The Leading Edge*, **15**, 839-845, 1996.
- Pulliam, J., and R. Snieder, Rays and traveltimes in heterogeneous media from ray perturbation theory, *Proceedings of the 65th Annual Meeting of the Society of Exploration Geophysicists*, Houston, Texas, pp. 1262-1265, 1995. Pulliam, R.J., and P.B. Stark, Confidence regions for mantle travel time tomography, *J. Geophys. Res.*, **99**, 6931-6943, 1995.

GRANTS

Year	Project Title	Funding Agency	Period of Performance
2007	EarthScope: Texas Gulf Coast Pilot Study PI: Jay Pulliam, Co-Investigators: Randy Keller (U. Oklahoma), Libby Anthony (UTEP), Bob Stern (UT Dallas), and Steve Gao (Missouri U. of Science and Technology)	National Science Foundation (Earth Sciences Division, EarthScope Program)	
2006	Acquisition of a New Generation of Ocean Bottom Seismographs PI: Jay Pulliam , Co-Investigators: Harm Van Avendonk (UT Austin), Mrinal K. Sen (UT Austin)	Jackson School of Geosciences, UT Austin	12/1/2006-11/30/2009
2004	Seismic Study of the Offshore Portion of the Cameroon Volcanic Line, Gulf of Guinea, West Africa PI: Jay Pulliam	National Science Foundation/Earth Sciences Division	12/1/2004-12/1/2006
2004	Ocean Bottom Refraction Data for NigeriaSpan PI: Harm van Avendonk, Co-Investigators: Jay Pulliam and Luc Lavier	GX Technology	10/1/2004-9/30/2006
2004	Expanding the use of sea-ice acoustic equipment to address new science targets within the Jackson School of Geosciences PI: Harm van Avendonk, Co-Investigator: Lawrence Lawver, Jay Pulliam	Jackson School of Geosciences	6/1/2004-8/31/2005
2003	Waveform Modeling of the Crust and Upper Mantle Using S, Sp, SsPmP, and Shear-Coupled PL Waves for Improved Event Location, Focal Depth Determination, and Uncertainty Estimation PI: Jay Pulliam , Co-Investigator: M. Sen	Dept of Energy, National Nuclear Security Administration (NNSA) and Dept of Defense, Air Force Research Laboratory (AFRL)	9/15/2004-9/15/2008
2003	Collaborative Proposal to Support Infrastructure for New IRIS/ANSS Broadband Seismographic Stations at Kenna, New Mexico, Amarillo, Texas, and in South Texas PI: Jay Pulliam , Co-PI: H. Gurrola (Texas Tech)	Incorporated Research Institutions for Seismology (IRIS)	3/1/2004-12/31/2004
2002	Collaborative Proposal to Support Infrastructure for a New IRIS/NSN Broadband Seismographic Station Near the City of Nacogdoches in East Texas and Plan Additional IRIS/NSN Stations PI: Jay Pulliam , Co-PI: H. Gurrola (Texas Tech)	Incorporated Research Institutions for Seismology (IRIS)	10/1/2002-9/30/2003
2002	Collaborative Research Concerning Texas Earthquakes: A Continuing Program to Educate Texas Citizens and Establish a Statewide Monitoring Capacity PI: Jay Pulliam , Co-Investigator: C. Frohlich	Federal Emergency Management Agency/Texas Governor's Division of Emergency Management	3/1/2000-8/31/2000

2000	Determining Crustal Structure by Waveform Inversion of Shear-coupled PL Phases via Global Optimization PI: Jay Pulliam , Co-Investigators: M.K. Sen, C. Frohlich, S.P. Grand	Defense Threat Reduction Agency	8/1/2000-7/31/2003
1999	Collaborative Proposal to Support Infrastructure for a New IRIS/NSN Broadband Seismic Station Located Near Cornudas Mountains, West Texas PI: Jay Pulliam	Incorporated Research Institutions for Seismology (IRIS)	3/1/2000-8/31/2000
1998	Small Grant for Exploratory Research: Proof-of-Concept ICEX Seismic Refraction Experiment Program PI: J. Huckabay, Co-Investigators: P.L. Stoffa, L.A. Lawver, and Jay Pulliam	NSF/Office of Polar Programs	6/1/1998-5/31/1999
1998	Texas Earthquakes: A Program to Educate Texas Citizens and Establish a Statewide Monitoring Capacity (PI: Jay Pulliam , Co-Investigator: C. Frohlich)	Federal Emergency Management Agency/Texas Governor's Division of Emergency Management	3/1/1999-8/31/1999
1997	BBOBS: A New Generation of Broadband Ocean Bottom Seismographs (PI: Y. Nakamura, Co-Investigator: Jay Pulliam)	Texas Advanced Technology Program	1/1/1998-12/31/1999
1997	Small Grant for Exploratory Research: Proof-of-Concept ICEX Seismic Refraction Experiment Program PI: J. Huckabay, Co-Investigators: P.L. Stoffa, L.A. Lawver, and Jay Pulliam	NSF/Office of Polar Programs	6/1/1998-5/31/1999
1997	Texas Earthquakes: Assessment of Risk and Determination of Appropriate Response PI: C. Frohlich, Co-Investigator: Jay Pulliam	Federal Emergency Management Agency/Texas Governor's Division of Emergency Management	3/1/1998-8/31/1998
1997	A Study of the Feasibility and Cost of Establishing a Broadband Seismographic Network in Texas PI: Jay Pulliam , Co-Investigator: C. Frohlich	Federal Emergency Management Agency/Texas Governor's Division of Emergency Management	3/1/1998-8/31/1998
1997	Parameter Estimation in Anisotropic Media PI: M.K. Sen, Co-Investigator: Jay Pulliam	National Science Foundation/Earth Sciences Division	1/1/1998-12/31/2001
1996	Comparison of Observed and Synthetic Waveforms for Seismic Event Location and Phase Association PI: C. Frohlich, Co-Investigators: S.P. Grand and Jay Pulliam	Defense Special Weapons Agency	4/1/1997-3/31/2000
1995	Anisotropic Earth Model Calculations PI: M.K. Sen, Co-Investigators: P. Stoffa and Jay Pulliam	Texas Advanced Research Program	1/1/1996-12/31/1997