

## CURRICULUM VITAE

### ANNE F. SHEEHAN

Campus Box 399, University of Colorado at Boulder  
Boulder, Colorado 80309 ph. (303) 492-4597  
afs@cires.colorado.edu; <http://cires.colorado.edu/science/groups/sheehan>  
Last Updated February 2, 2011

#### Education

B.S., University of Kansas, Geophysics (Highest Distinction and Honors), 1984  
Visiting Student/Researcher, University of Reading and Blacknest Seismological Laboratory,  
England, 1984-1985  
Ph.D., Massachusetts Institute of Technology, Geophysics, 1991

#### Research Interests

Earthquake seismology, structure of the Earth's crust and upper mantle, mountain building  
processes, active tectonics, seismicity and seismic hazards, GPS geodesy, shallow subsurface  
geophysics

#### Professional Experience

2006 - present *Professor*, Department of Geological Sciences, University of Colorado,  
Boulder, Colorado 80309  
1993 - present *Fellow* - Cooperative Institute for Research in Environmental Sciences (CIRES)  
University of Colorado, Boulder, Colorado 80309  
2010 – present *Associate Director for Solid Earth Sciences* - Cooperative Institute for Research  
in Environmental Sciences (CIRES), University of Colorado, Boulder, Colorado  
80309  
2007 *Green Scholar, Visiting Professor*, Institute of Geophysics and Planetary  
Physics, Scripps Institution of Oceanography, University of California, San  
Diego  
2000 - 2006 *Associate Professor*, Department of Geological Sciences, University of  
Colorado, Boulder, Colorado 80309  
2000 - 2001 *Visiting Professor*, Victoria University, Wellington, New Zealand  
1993 - 2000 *Assistant Professor*, Department of Geological Sciences, University of  
Colorado, Boulder, Colorado 80309  
1992 - 1993 *Research Assistant Professor*, Seismological Laboratory, University of Nevada,  
Reno, Nevada  
1991 - 1992 *Postdoctoral Fellow*, Lamont-Doherty Geological Observatory, Columbia  
University, Palisades, New York  
1985 - 1991 *Graduate Research Assistant*, Massachusetts Institute of Technology,  
Cambridge, Massachusetts  
1984 - 1985 *ITT International Fellow*, Blacknest Seismological Laboratory and University  
of Reading, Reading, England  
1984 *Geophysicist*, Mobil Exploration and Production Services, Dallas, Texas  
1983 *Seismology Intern*, Lawrence Livermore National Laboratory, Livermore,  
California

1980 – 1984 *Student Research Assistant*, Geophysics Group, Kansas Geological Survey,  
Lawrence, Kansas

### Honors and Awards

Erasmus Haworth Distinguished Alumni Award, University of Kansas Department of Geology	2009
Sloan Foundation Mentoring Award	2008
IRIS/SSA Distinguished Lecturer	2007
Green Scholar, Institute for Geophysics and Planetary Physics, Scripps Institution of Oceanography, University of California, San Diego	2007
CU Faculty Fellowship	2007
Emerging Leaders Program Fellow, CU President's Office	2005
NSF CAREER Award	1995
Lamont-Doherty Postdoctoral Fellowship	1991
ITT International Fellowship	1984
Society of Exploration Geophysicists Fellowship	1981-1984
Watkins Burger Scholar	1980-1984
University Scholar	1980-1984
Outstanding student in Geology and Geophysics, University of Kansas	1984
Outstanding woman in leadership, University of Kansas	1984
Sigma Pi Sigma (Physics Honor Society)	1983

### Professional Organizations

American Geophysical Union  
Seismological Society of America  
Society of Exploration Geophysicists  
Geological Society of America

### Field Experience

Bighorns Arch Seismic Experiment (BASE), Broadband seismometer deployment, Sheridan, Wyoming	2009
Intermediate period seismometer deployment, Buffalo, Wyoming	2010
Active source experiment, Buffalo and Shell, Wyoming	2010
New Zealand Ocean Bottom Seismometer deployment, Cruise TN229, R/V Thomas G. Thompson	2009
Cruise RR1002, R/V Roger Revelle	2010
Boulder Creek Critical Zone Observatory, Shallow subsurface geophysics (seismic refraction, GPR, ERT)	2008, 2009
Bijou Creek Terrestrial Lidar Survey, SE of Denver, Colorado,	2008
Instructor, CU Geophysics Field Course	1994, 1996, 1997, 1999, 2002, 2006
Rio Grande Rift GPS project, Colorado and New Mexico	2006-present
Ceren, El Salvador, Electrical resistivity survey	June 2005
Himalayan Nepal Tibet Seismic Experiment (HIMNT), Nepal,	2001-2002
New Zealand Marlborough Fault Zone Experiment,	2000-2001
Continental Dynamics of the Rocky Mountains (CDROM),	1999-2000
Front Range Seismic Network/ GEOL 4740 Class deployment, Instructor,	1996-1998
University of Colorado Field Geophysics course, Instructor,	1996-2002
Colorado Plateau/Great Basin PASSCAL seismic experiment,	1994-1995

Southern Sierra Seismic Experiment,	1993
UNR/USGS Little Skull Mountain aftershock deployment,	1992-1993
PASSCAL Rocky Mountain Front Experiment,	1992
Scientific Crew, R/V Moana Wave, Cruise MW8801 (Australian - Antarctic Discordance),	Jan-Feb 1988
MIT Geophysics Field Camp, Panamint Valley, California,	January 1987
University of Kansas Geology Field Camp, Canon City, Colorado,	June 1982
Kansas Geological Survey field assistant - shallow reflection, heat flow,	1980-1983

## Publications

### Books

Burger, R. L., A. F. Sheehan, and C. H. Jones, Introduction to Applied Geophysics: Exploring the Shallow Subsurface, 554 pages, *W. W. Norton Publishers*, New York, 2006.

### Peer-reviewed Papers (\*Graduate student, \*\*Postdoc or Research Associate, \*<sup>u</sup>Undergraduate)

\*\*Yang, Z., A. Sheehan, and P. Shearer (2011), Stress-induced upper crustal anisotropy in southern California, *J. Geophys. Res.*, doi:10.1029/2010JB007655.

\*\*Huang, G. C., F. T. Wu, S. W. Roecker, and A. F. Sheehan, Lithospheric structure of the central Himalaya from 3-D tomographic imaging, *Tectonophysics*, 475, 524-543, 2009.  
<http://dx.doi.org/10.1016/j.tecto.2009.06.023>

\*Monsalve, M., P. J. McGovern, and A. Sheehan, Mantle fault zones beneath the Himalayan Collision: Flexure of the continental lithosphere, *Tectonophysics*, 477, 66-76,  
10.1016/j.tecto.2008.12.014, 2009.

Sheehan, A. F., \*Thomas de la Torre, \*Gaspar Monsalve, Vera Schulte-Pelkum, Roger Bilham, Frederick Blume, Rebecca Bendick, Francis Wu, M. R. Pandey, S. Sapkota, S. Rajaure, Earthquakes and crustal structure of the Himalaya from the Himalayan Nepal Tibet Seismic Experiment (HIMNT), *Journal of the Nepal Geological Society*, 2009.

Bailey, A. R., and A. F. Sheehan, Shaking up the lesson plan, *Seismological Research Letters*, v. 79, n. 6, 879-880, 2008.

\*Monsalve, G., \*<sup>u</sup> C. Viviano, and A. Sheehan, An assessment of Colorado seismicity from a statewide temporary seismic station network, *Seismological Research Letters*, v. 79, n. 5, p. 645-652, 2008.

\*Monsalve, G., A. Sheehan, C. Rowe, S. Rajaure, Seismic structure of the crust and upper mantle beneath the Himalayas: Evidence for eclogitization of lower crustal rocks in the Indian Plate, *Journal of Geophysical Research*, v. 113, B8, B08315, doi: 10.1029/2007JB005424, 2008.

\*Monsalve, G., A. Sheehan, C. Rowe, S. Rajaure, Three-dimensional crust and upper mantle structure beneath Nepal and Tibet, *in press, Journal of Geophysical Research*, 2008.

\*De la Torre, T. L., \*G. Monsalve, A. F. Sheehan, S. Sapkota, F. Wu (2007) Earthquake processes of the Himalayan collision zone in eastern Nepal and the southern Tibetan Plateau, *Geophysical Journal International* 171 (2), 718-738. doi:10.1111/j.1365-246X.2007.03537.x

\*Boyd, O. S., M. K. Savage, A. F. Sheehan, and C. H. Jones, Illuminating the plate interface structure beneath Cook Strait, New Zealand, with receiver functions, *J. Geophys. Res.*, Vol. 112, B06310, doi:10.1029/2006JB004552, 2007.

- \*Monsalve, G., A. Sheehan, \*\*V. Schulte-Pelkum, S. Rajaure, M. R. Pandey, and F. Wu, Seismicity and one-dimensional velocity structure of the Himalayan collision zone: Earthquakes in the crust and upper mantle, *Journal of Geophysical Research*, Vol. 111, B10301, doi:10.1029/2005JB004062, 2006.
- \*\*Schulte-Pelkum, V., \*G. Monsalve, A. F. Sheehan, M. Pandey, S. Sapkota, R. Bilham, and F. Wu, Imaging the Indian subcontinent beneath the Himalaya, *Nature*, v. 435, pp. 1222-1225, 30 June 2005|doi:10.1038/nature03678, 2005.
- \*De la Torre, T., and A. F. Sheehan, Broadband seismic noise analysis of Himalayan Nepal Tibet Seismic Experiment, *Bull. Seismol. Soc. Am.*, v. 95, 1202-1208, doi:10.1785/0120040098, 2005.
- Sheehan, A. F., \*\*V. Schulte-Pelkum, \*O. Boyd, and \*C. Wilson, Passive source seismology of the Rocky Mountain region, in *The Rocky Mountain Region: An Evolving Lithosphere, Geophysical Monograph Series 154*, 10.1029/154GM23, p. 309-315, 2005.
- \*Boyd, O. S., and A. F. Sheehan, Attenuation tomography beneath the Rocky Mountain Front: Implications for the physical state of the upper mantle, in *The Rocky Mountain Region: An Evolving Lithosphere, Geophysical Monograph Series 154*, 10.1029/154GM27, p. 361-377, 2005.
- \*Fox, O. C., and A. F. Sheehan, Upper mantle anisotropy beneath Precambrian Province boundaries, Southern Rocky Mountains, in *The Rocky Mountain Region: An Evolving Lithosphere, Geophysical Monograph Series 154*, 10.1029/154GM26, p. 347-360, 2005.
- \*Lastowka, L. A., and A. F. Sheehan, CDROM interstation Pn study across the Rio Grande Rift, in *The Rocky Mountain Region: An Evolving Lithosphere, Geophysical Monograph Series 154*, 10.1029/154GM28, p. 379-384, 2005.
- \*Boyd, O. S., C. H. Jones, and A. F. Sheehan, Foundering lithosphere imaged beneath the Southern Sierra Nevada, California, *Science*, 305, 660-662, 2004.
- \*Wilson, C. K., C. H. Jones, P. Molnar, A. F. Sheehan, and \*O. Boyd, Distributed deformation in the lower crust and upper mantle beneath a continental strike-slip fault zone: Marlborough Fault System, South Island, New Zealand, *Geology*, 32, 837-840, doi:10.1130/G20657.1, 2004.
- \*Gilbert, H. J., and A. F. Sheehan, Images of crustal variations in the intermountain west, *Journal of Geophysical Research*, Vol. 109, B03306, doi:10.1029/2003JB002730, 2004.
- \*Gilbert, H. J., A. F. Sheehan, \*\*K. G. Dueker, P. Molnar, Receiver functions in the western United States, with implications for upper mantle structure and dynamics, *J. Geophys. Res.* Vol. 108 No. B5, 10.1029/2001JB001194, 2003.
- \*\*Blume, F., and A. F. Sheehan, Quantifying seismic hazard in the Southern Rocky Mountains through GPS measurements of crustal deformation, in *Engineering Geology in Colorado: Contributions, Trends, and Case Histories*, eds. D. Boyer, P. Santi, and W. Rogers, Association of Engineering Geologists Special Publication No. 15, Colorado Geological Survey Special Publication 55, 2003.
- Sheehan, A. F., \*<sup>u</sup> J. D. Godchaux, and \*<sup>u</sup>N. Hughes, Colorado Front Range Seismicity and Seismic Hazard, in *Engineering Geology in Colorado: Contributions, Trends, and Case Histories*, eds. D. Boyer, P. Santi, and W. Rogers, Association of Engineering Geologists Special Publication No. 15, Colorado Geological Survey Special Publication 55, 2003.
- Karlstrom, K. E., S. A. Bowring, K. R. Chamberlain, K. G. Dueker, T. Eshete, E. A. Erslev, G. L. Farmer, M. Heizler, E. D. Humphreys, R. A. Johnson, G. R. Keller, S. A. Kelley, A. Levander, M. B. Magnani, J. P. Matzel, A. M. McCoy, K. C. Miller, E. A. Morozova, F. J. Pazzaglia, C. Prodehl, H. M. Rumpel, C. A. Shaw, A. F. Sheehan, E. Shoshitaishvili, S. B.

- Smithson, C. M. Snelson, L. M. Stevens, A. R. Tyson, and M. L. Williams, Structure and evolution of the lithosphere beneath the Rocky Mountains: Initial results from the CD-ROM experiment, *GSA Today*, v. 12, no. 3, p. 4-10, March 2002.
- Wannamaker, P. E., J. M. Bartley, A. F. Sheehan, C. H. Jones, A. R. Lowry, Trevor A. Dumitru, Todd A. Ehlers, W. S. Holbrook, G. L. Farmer, M. J. Unsworth, D. B. Hall, D. S. Chapman, D. A. Okaya, B. E. John, and J. A. Wolfe, Great Basin-Colorado Plateau transition in central Utah: An interface between active extension and stable interior, in *The Geologic Transition, High Plateaus to Great Basin: A symposium and field guide: The Mackin Volume*, ed. by M. C. Erskine, J. E. Faulds, J. M. Bartley and P. Rowley, Utah Geol. Assoc. UGA\_30/Amer. Assoc. Petr. Geol. Guideb. GB78, Cedar City, Utah, September 20-23, p. 1-38, 2001.
- Smith, K.D., J. N Brune, D. dePolo, M. K. Savage, R. Anoshehpoo, and A. F. Sheehan, The 1992 Little Skull Mountain earthquake sequence, Southern Nevada Test Site, *Bull. Seismol. Soc. Am.*, 91, 1595-1606, 2001.
- \*Gilbert, Hersh J., A. F. Sheehan, D. A. Wiens, \*\*K. G. Dueker, L. M. Dorman, J. Hildebrand, and S. Webb, Upper mantle discontinuity structure in the region of the Tonga Subduction Zone, *Geophys. Res. Lett.*, 28, 1855-1858, 2001
- \*Lastowka, L. A., A. F. Sheehan, and \*J. M. Schneider, Seismic evidence for partial delamination model for Colorado Plateau uplift, *Geophys. Res. Lett.*, 28, 1319-1322, 2001.
- \*Hazler, S. E., A. Sheehan, D. McNamara, and W. Walter, One-dimensional shear velocity structure of northern Africa from Rayleigh wave group velocity dispersion, *Pure Appl. Geophys.*, 158, 1475-1493, 2001.
- Sheehan, A. F., Microearthquake study of the Colorado Front Range: Combining research and teaching in seismology, *Seismol. Res. Lett.*, 71, 175-179, 2000.
- Savage, M. K., and A. F. Sheehan, Seismic anisotropy and mantle flow from the Great Basin to the Great Plains, western United States, *Journal of Geophysical Research*, 105, 13715-13734, 2000.
- Sheehan, A. F., P. M. Shearer, \*H. Gilbert, and \*\*K. G. Dueker, Seismic migration processing of P-SV converted phases for mantle discontinuity structure beneath the Snake River Plain, western United States, *Journal of Geophysical Research*, v. 105, p. 19055-19065, 2000.
- \*\*Bhattacharyya, J., A. F. Sheehan, \*K. Tiampo, and J. Rundle, Using a genetic algorithm to model broadband regional waveforms for crustal structure in the western United States, *Bull. Seismol. Soc. Am.*, 89, 202-214, 1999.
- \*Bump, H., and A. F. Sheehan, Crustal thickness variations across the Northern Tien Shan mountains from teleseismic receiver functions, *Geophysical Research Letters*, 25, 1055-1058, 1998.
- \*\*Dueker, K. G., and A. F. Sheehan, Mantle discontinuity structure beneath the Colorado Rocky Mountains and High Plains, *J. Geophys. Res.*, 103, 7153-7169, 1998.
- Forsyth, D. W., D. S. Scheirer, S. C. Webb, L. M. Dorman, J. A. Orcutt, A. J. Harding, D. K. Blackman, J. Phipps Morgan, R. S. Detrick, Y. Shen, C. J. Wolfe, P. Canales, D. R. Toomey, A. F. Sheehan, S. C. Solomon, and W. S. D. Wilcock, Imaging the deep structure beneath a mid-ocean ridge: Overview of the seismological component of the MELT experiment, *Science*, 280, 1215-1218, 1998.
- \*\*Shen, Y., A. Sheehan, \*\*K. Dueker, \*\*C. de Groot-Hedlin, and \*H. Gilbert, Mantle discontinuity structure beneath the southern East Pacific Rise (MELT experiment region) from P-to-S converted phases, *Science*, 280, 1232-1235, 1998.

- Keller, G. R., C. M. Snelson, A. F. Sheehan, and \*\*K. G. Dueker, Geophysical studies of crustal structure in the Rocky Mountain region: A review, *Rocky Mountain Geology*, 33, 217-228, 1998.
- Lerner-Lam, A., A. Sheehan, S. Grand, E. Humphreys, \*\*K. Dueker, E. Hessler, H. Guo, D. K. Lee, and M. Savage, Deep structure beneath the Southern Rocky Mountains from the Rocky Mountain Front broadband seismic experiment, *Rocky Mountain Geology*, 33, 199-216, 1998.
- \*\*Dueker, K. G., and A. F. Sheehan, Mantle discontinuity structure from mid-point stacks of converted P to S waves across the Yellowstone hotspot track, *Journal of Geophysical Research*, 102, 8313-8327, 1997.
- \*Ozalaybey, S., M. K. Savage, A. F. Sheehan, J. N. Louie, and J. N. Brune, Shear wave velocity structure in the northern Basin and Range province from the combined analysis of receiver functions and surface waves, *Bulletin of the Seismological Society of America*, 87, 183-199, 1997.
- Sheehan, A. F., C. H. Jones, M. K. Savage, \*S. Ozalaybey, and \*J. M. Schneider, Contrasting lithospheric structure beneath the Colorado Plateau and Great Basin: Initial results from Colorado Plateau - Great Basin PASSCAL experiment, *Geophysical Research Letters*, 24, 2609-2612, 1997.
- Savage, M. K., A. F. Sheehan, and A. L. Lerner-Lam, Teleseismic shear-wave splitting observations from PASSCAL Rocky Mountain Front experiment, *Geophysical Research Letters*, 23, 2267-2270, 1996.
- Sheehan, A. F., G. A. Abers, A. L. Lerner-Lam, and C. H. Jones, Crustal thickness variations across the Colorado Rocky Mountains from teleseismic receiver functions, *J. Geophys. Res.*, 100, 20,391-20,404, 1995.
- Sheehan, A.F., and S.C. Solomon, Differential shear wave attenuation and its lateral variation in the north Atlantic region, *J. Geophys. Res.*, 97, 15,339-15,350, 1992.
- Douglas, A., A.F. Sheehan, and R.C. Stewart, On the onset of PP and other mini-max phases, *Geophys. J. Int.*, 108, 394-398, 1992.
- Douglas, A., A.F. Sheehan, and R.C. Stewart, Northern Chile earthquake of 1980 May 26: Evidence of unilateral fracture, *Geophys. J. Int.*, 110, 201-210, 1992.
- Sheehan, A.F., and S.C. Solomon, Joint inversion of shear wave travel time residuals, geoid, and depth anomalies along the Mid-Atlantic Ridge: Implications for upper mantle temperature and compositional variations, *J. Geophys. Res.*, 96, 19,981-20,009, 1991.
- Sheehan, A.F., and M.K. McNutt, Constraints on thermal and mechanical structure of the oceanic lithosphere at the Bermuda Rise from geoid height and depth anomalies, *Earth Planet. Sci. Lett.*, 93, 377-391, 1989.
- Riedesel, M.A., T.H. Jordan, A.F. Sheehan, and P.G. Silver, Moment-tensor spectra of the 19 Sept 85 and 21 Sept 85 Michoacan, Mexico, earthquakes, *Geophys. Res. Lett.*, 13, 609-612, 1986.
- Sheehan, A.F., and D.W. Steeples, Sensitivity of Kansas Microearthquake Network, *Earthquake Notes*, 54, 13-20, 1983.

### Teaching Activities

#### **Courses Taught**

- Introduction to Physical Geology (GEOL 1010), 2000, 2003, 2005, 2008, 2009, 2010  
Freshman level introduction to geological sciences  
Our Dynamic Earth I (GEOL 1130), 1994, 1996

- Freshman level general science elective course on geophysics and geology.  
Principles of Geophysics (GEOL 4130), 1995, 1996, 1998, 1999, 2000, 2002, 2003, 2005, 2006, 2007, 2009, 2010  
Senior level course introducing key principles of geophysics to Geology and Geophysics students. Until 1998 included lab covering seismic, gravity, and magnetism experiments and exercises.
- Field Geophysics (GEOL 4714/5714), 1996, 1997, 1999, 2002, 2006  
Geophysics field course for undergraduate geology and geophysics students and graduate engineering, archaeology, and geology students. Includes field experiments and subsequent analysis, makes use of computer laboratory exercises.
- Applied Geophysics (GEOL 4940/ 5940), 1994  
Senior level geophysics, beginning graduate student course. Includes lecture, field laboratory, and computer exercises. Rigorous development of theory behind geophysical measurement techniques (seismic, gravity, electrical, magnetic).
- Geodynamics (GEOL 5750), 1997  
Graduate course in continuum physics applied to geologic problems.
- Observational Seismology (GEOL/PHYS 6650), 1997  
Graduate geophysics course on applied earthquake seismology. Emphasis on waveform analysis.
- Geophysical Inverse Theory (GEOL/PHYS 6670), 1996, 1999, 2006, 2009  
Graduate geophysics course on application of inverse theory to problems in geophysics, engineering, and atmospheric science. Rigorous theoretical development, applications, computer exercises.
- Graduate Seminar: History and Physics of the Rocky Mountains and Colorado Plateau (GEOL/PHYS 6650), 1994. Graduate geology and geophysics course on tectonic history of the western United States, with emphasis on the Rocky Mountains and Colorado Plateau.
- Graduate Seminar: Mantle Structure and Composition (GEOL/PHYS 6650), 1998  
Graduate geology and geophysics seminar on mantle structure and composition. Geophysics and mineral physics aspects emphasized. Co-taught with J. Smyth.
- Graduate Seminar in Geophysics (GEOL/PHYS/ASTR 6650), Spring 2003, Fall 2010.  
Guest lecture series.
- Earth and Planetary Physics I (GEOL/PHYS/ASTR 6610), Spring 2000, Spring 2002, Spring 2011. Introduction to seismology and wave propagation at the graduate level.

### **Short Courses Taught**

- International Association of Seismology and Physics of the Earth's Interior (IASPEI), General Assembly 2005, Post-conference training school, Tomography short course, Departamento de Geofisica, University of Chile, Santiago, Chile, October 2005.
- Incorporated Research Institutions for Seismology (IRIS), Summer Intern Training School, New Mexico Tech, May 2006. Lectures on geophysical inverse theory, earthquake focal mechanisms and moment tensors, receiver functions, Himalayan seismotectonics.
- Cooperative Institute for Deep Earth Research (CIDER), Summer program – tutorial and workshop, Kavli Institute of Theoretical Physics, University of California, Santa Barbara, July 16 – August 4, 2006. Lecture and computer tutorial on receiver functions.

### **Ph.D. Theses Directed**

- Gilbert, Hersh, Ph.D. 2001, "Thermal and compositional structure of the upper mantle"  
Boyd, Oliver, Ph.D. 2004, "The Heterogeneous Upper Mantle: Insights from Seismology"  
De la Torre, Thomas, Ph.D. 2007, "Upper Lithospheric Seismic Characteristics Beneath the Himalaya and the Southern Tibetan Plateau"  
Monsalve, Gaspar, Ph.D. 2007, "Deformation and seismic structure of the upper lithosphere beneath the Himalayan collision"  
(19 additional Ph.D. thesis committees)

### **Master's Students Supervised**

- Bump, Heidi, M.S., "Study of the crustal structure of the Northern Tien Shan Mountain Belt, Kyrgyzstan, from teleseismic data", 1995.  
Schneider, Jeffrey M., M.S., "Crustal and upper mantle structure of the Colorado Plateau and Eastern Basin and Range", 1997.  
Hazler, Shannon, M.S., "One-dimensional velocity structure of Northern Africa as determined by Rayleigh wave group velocity dispersion", 1998.  
Lastowka, Lynda A., M.S., "The uppermost mantle beneath the southwestern United States", 2001.  
Rystrom, Victoria, M.S., "Structure of the Tucson Basin, Arizona from gravity and aeromagnetic data", 2003.  
Fox, Otina, M.S., "Seismic anisotropy across Precambrian province boundaries : southern Rocky Mountain region", 2002.  
Henry Berglund, "Geodetic Measurements of Deformation in the Rio Grande Rift Region", 2010.  
Kevin Befus, "Applied geophysical characterization of the shallow subsurface: Towards quantifying recent landscape evolution and current processes in the Boulder Creek watershed, Colorado", 2010.  
(6 additional MS Thesis committees)

### **Undergraduate Research**

#### *Honors Theses Directed-*

- Noah Hughes, Honors BA, 1997. "Results of a Microearthquake Field Study of the Front Range of Colorado"  
Scott Cook, Honors BA, 1999. "Seismic images of Archean/Proterozoic differences across the Cheyenne Suture"

#### *Independent Study/Research -*

- Lorenzo Trimble, 1993. "Aftershocks of Little Skull Mountain, Nevada, earthquake"  
Arthur Buck, 1994. "Geophysical Prospecting of Gold Claims in the Caribou-Grand Island District"  
Mitchell Weimer, 1995. "The application of seismic refraction and electrical resistivity to the search for groundwater"  
Demian DeSouza, 1996-97. "Seismic refraction investigation of gravel deposits and underlying bedrock at Rocky Flats, Jefferson County, Colorado," (this project formed the basis of DeSouza's senior thesis at the University of East Anglia, England, 1998).  
Richard Eden, 1997-98. "Mapping flood-plain gravel deposits in Colorado's Front Range using a variety of ground electromagnetic methods and seismic refraction," (this project formed the basis of Eden's senior thesis at the University of East Anglia, England, 1999).  
Ned Frost, 1998. "Magnetics and GPR survey of the Marshall Mesa"  
Matt Reynolds, 2001. "Six-mile fold geophysical investigation"

*Geological Sciences Mentorship –*

- Aaron Shoolroy, 1997-98. “A magnetic study of the Green Mountain kimberlite and its bearing on Front Range rotation”.
- Damon Lytle, 1999. Rocky Mountain Continental Dynamics project
- Daniel Brothers, 2002-2003. Himalayan seismotectonics.
- Max Knop, 2003. Himalayan seismotectonics.
- Jacob Walter, 2003-2004. Himalayan seismotectonics.
- Henry Berglund, 2007-2008. Rio Grande Rift GPS geodesy.
- Justin Ball, 2007-2008. Cheyenne Belt anisotropic receiver functions.
- Richard Schwering, 2008. Cheyenne Belt receiver functions.
- Casey Vockrodt, 2008-9. USArray receiver functions, Bighorns seismic experiment.
- Travis Kelsay, 2009. Shallow subsurface refraction: Boulder Creek CZO; 2010, Bighorn seismic experiment
- Graham McClave, 2009, Shallow subsurface refraction: Boulder Creek CZO; 2010, Bighorn seismic experiment
- Katherine Anarde, 2009, Shallow subsurface refraction: Boulder Creek CZO
- Mike Whitney, 2010, Bighorn seismic experiment
- Jeremiah Silver, 2010, Bighorn seismic experiment
- Casey Vockrodt, 2010, Bighorn seismic experiment
- Cletus Blum, 2010, Bighorn seismic experiment
- Morgan McConnel, 2010, Bighorn seismic experiment

*NSF Research Experiences for Undergraduates (REU) Interns -*

- Sebastian Kuzminsky, 1994-95. Great Basin / Colorado Plateau seismic experiment.
- Julie Bartsch, 1995-97. Great Basin / Colorado Plateau seismic experiment.
- Jason DenOtter, 1999. Rocky Mountain Continental Dynamics project
- Brian Zurek, 1999. Rocky Mountain Continental Dynamics project

*Summer Multicultural Access to Research Training (SMART) -*

- Mariela Salas, 2003. University of Puerto Rico, Mayaguez, Paleomagnetism and stratigraphy study of San Andreas Fault.

*CCHE Undergraduate Research Apprenticeship -*

- Jennifer Crews, 1994. Shallow subsurface structure, Rocky Mountains.

*Lamont-Doherty Summer Interns -*

- Jacob Lawrence, 1992. Receiver function analysis of Rocky Mountain Front experiment data.
- David Jones, 1992. Anisotropy and mantle strain beneath the Rocky Mountains.

*RESESS Summer Interns –*

- Emanuelle Bonilla, 2008. Bijou Creek Lidar Survey.

*IRIS Summer Interns –*

- John David Godchaux, 1999. Front Range earthquake network.
- David Fee, 2001. Marlborough, New Zealand, seismic experiment – local earthquakes.
- Christina Viviano, 2005. Seismicity of Colorado from Rocky Mountain Front Experiment data.
- Ariane Dean, 2007. Yucca Mountain crustal structure from high frequency receiver functions.
- Mollie Pettit, 2008. Nevada crustal structure from receiver functions.
- Austin Andrus, 2009. Shallow subsurface shear waves – refraction and surface waves
- Nicholas Mancinelli, 2010. Data Quality Analysis for the Bighorn Arch Seismic Array Experiment

### **Postdoctoral Associates**

Dr. Ken Dueker, 1994-99. Deep discontinuity structure beneath the western United States.  
Dr. Joydeep Bhattacharyya, 1995-97. Inversion of regional waveforms for crustal structure  
Dr. Frederick Blume, 2001-2003. Colorado GPS experiment. Himalayan Nepal Tibet Seismic Experiment.  
Dr. Vera Schulte-Pelkum, 2002-2004. Himalayan converted wave seismic imaging.  
Dr. Gaspar Monsalve, 2007-2008. Himalayan seismotectonics, flexural modeling.  
Dr. Hersh Gilbert, 2001-2. Deep discontinuity imaging.  
Dr. Zhaohui Yang, 2009 - , Bighorns EarthScope project and New Zealand OBS experiment  
Dr. Joshua Stachnik, 2010 - , Bighorns and New Zealand OBS experiment

### **Teacher Training**

Dan Tomlin, Manhattan Middle School, Boulder, Colorado. Teacher-at-Sea on New Zealand Ocean Bottom Seismographic expedition, 2009.

### **Professional Service**

#### *Incorporated Research Institutions for Seismology (IRIS)*

Chair, PASSCAL Director Search committee, 2010

IRIS Board of Directors, 2005-2008

IRIS Budget and Finance Subcommittee, 2006 - 2008

Chair, IRIS Budget and Finance Subcommittee, 2006 - 2008

IRIS Ocean Cable, Inc., Board of Directors, 2005 - 2007

Program for Array Studies of the Continental Lithosphere (Passcal)

Standing Committee, 2002 – 2004

Passcal Strategic Plan Committee Chair and Workshop Organizer, 2004-2005

Global Seismic Network Committee, 1997-1999

USArray subcommittee chair, 1998

Deep Earth Observatories on the Seafloor (DEOS), IRIS GSN liaison, 1998-1999

PASSCAL Instrument Center short list, 1997-1998

Institutional Representative, 1995-present

#### *EarthScope*

EarthScope National Meeting, Organizing Committee, 2009

GSA booth volunteer, 2008

#### *Ocean Drilling Program*

Lithosphere Panel, 1993-1996

Liaison to Ocean Seismic Network and International Ocean Network, 1994-1996

#### *Seismological Society of America*

Nominating Committee, 1996

Co-host, 1998 Annual Meeting, 1995-1998

Technical Program co-chair, 1998 Annual meeting

#### *American Geophysical Union*

Deep Interior focus group student awards committee, 2009

Nominated for Seismology Section president, 2009

Seismology section student awards committee, 2001

Public Information Committee, 1996-1998

Organizer of American Geophysical Union meeting session on Structure and Dynamics of the Colorado Plateau, Fall 1995

Co-Convenor of session 'Mineral fabric, seismic anisotropy, and deformation', Fall 2006 AGU. With Kevin Mahan and Vera Schulte-Pelkum.

*Geological Society of America*

Pardee Symposium invited lecture, October 2008, National GSA, Houston

Organizer of Geological Society of America meeting session on Colorado Plateau Uplift, Fall, 2000

Organizer of Geological Society of America meeting session on Tectonics of the Southern Rockies, Fall, 1999

*State of Colorado*

Colorado Earthquake Hazard Mitigation Council, 2003-2009

Earthquake Hazard Subcommittee of Colorado Natural Hazards Mitigation Council, 2000- 2002

*United States Geological Survey(USGS)*

PI for collaborative USGS/CU seismic station at Snowmass, Colorado, 2005

National Earthquake Hazard Program Review Panel, 2003

Advanced National Seismic System, Intermountain West Regional Working Group member, Colorado Representative, 2001-2005

*National Science Foundation*

IGERT Panel, 2006

*Science Foundation Ireland*

Earth Sciences Panel, 2008, 2009, 2010

*Colorado School of Mines, Golden, Colorado*

Visiting Committee, Department of Geophysics, Colorado School of Mines, 2006

Mentor, Colorado School of Mines Women in Geophysics Program, 2004-06

**Personal:**

Married, 2 daughters (born 1995, 1998)