

Eric Alan Sandvol

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Education:

Doctor of Philosophy, Major: Physics (emphasis in Seismology) Minor: Electrical Engineering
Graduated July, 1995; GPA 3.85 of a possible 4.0
New Mexico State University, Las Cruces, NM 88003-8001

Bachelor of Science, Major: Physics Minor: Geology
Graduated May 1989 with Honors; GPA 3.55 of a possible 4.0
South Dakota School of Mines and Technology (SDSM&T), Rapid City, SD 57701

Employment History:

University of Missouri, Department of Geologic Sciences, Columbia, MO 65201

Professor, September 2011 to present
Associate Professor, September 2005 to 2011
Assistant Professor, 2002 to September 2005

Cornell University, Institute for the Study of the Continents, Snee Hall, Ithaca, NY 14853

Adjunct Professor, June 2002 to present
Research Associate, 1998 to 2002. Researching wave propagation and crustal structure in the Middle East and North Africa using several different computational techniques. Helping in the development of Cornell's Middle East and North Africa GIS. Advising several graduate students on course of research. Writing research proposals, four of which have been funded.

Cornell University, Institute for the Study of the Continents, Snee Hall, Ithaca, NY 14853

Postdoctoral Research Associate, 1995 to 1998.

New Mexico State University, Department of Physics, Las Cruces, NM 88003-8001

Research Assistant, 1991 to 1995. Conducted research in shear-wave splitting, receiver functions, and waveform modeling (see publications). Also managed geophysics group database and wrote numerous programs for data processing and database management. Led field work teams in Pakistan and Tibet and participated in field work in New Mexico and California.

New Mexico State University, Department of Physics, Las Cruces, NM 88003-8001

Teaching Assistant, 1990. Taught and graded physics introductory laboratory.
Recitation Assistant, 1994. Tutored physics students.

Los Alamos National Laboratory, EES-3, Los Alamos NM 87545

Graduate Research Assistant, Summer of 1990. Processed and modeled amplitude data from seismic crosswell data; presented at 1990 AGU Fall Meeting.

Shell Oil, New Orleans, LA

Research Assistant Intern, Summer of 1989. Wrote a number of programs to assist the special processing division in processing seismic reflection data.

Field Experience:

- Extensive experience with REFTEK data acquisition systems and a working knowledge of Nanometrics' Taurus data acquisition system, Quanterra Q330 Data Acquisition System
- Participated in PASSCAL seismic experiments in the Rio Grande Rift, Pakistan Himalayas, Tibet, central Andes and throughout Turkey. Worked with Trillium 40s, Trillium 120s, STS-2, CMG-3T and CMG-3ESP broadband seismometers
- Participated in GPS experiment in Southern California. Worked with two frequency NORAVCO GPS receivers
- Aided the development and improvement of Syrian National Seismic Network

Computational Skills:

- Extensive computer experience with Fortran and a working knowledge of C
- Extensive experience with UNIX (Solaris, SunOS, Linux, and AIX) and VMS operating systems including the use of c-shell and bourne shell script languages
- Experience with Arc/Info GIS software; created large arc and point databases for Cornell's Middle East and North African GIS database system
- Extensive experience with ERMAPPER, Adobe Illustrator, MATLAB, and IDL graphic packages
- Extensive experience with SAC, SAC2000 and GEOTOOL along with the SAC and CSS3.0 seismic data formats

Awards:

2012 Visiting Research Fellow, Chinese Academy of Geological Sciences
2007 Provost's Outstanding Junior Faculty Research and Creativity Award
DOE Graduate Student Fellowship, 1991-1994
Experimental Physics Prize (SDSM&T), 1989

Professional and Scholarly Societies:

American Geophysical Union 1990- present
Seismological Society of America 1992-present
Chi Sigma Chi (National Graduate Student Honor Society) 1993-present
Sigma Pi Sigma (National Physics Honor Society) 1987-present

External Funding History

P.I., CD-Central Anatolian Tectonics (CD-CAT) Surface to mantle dynamics during collision to escape , NSF-Continental Dynamics, Awarded \$545,657, 09/01/2011–08/30/2016, Active.

P.I. (subcontract), High-Resolution Regional Phase Attenuation Tomography for Eastern Eurasia, Air Force Research Laboratory, \$119,811.00, 04/01/2010-3/30/2016.

P.I., Regional Phase Attenuation Across the Zagros: A detailed investigation of Regional Phase Amplitude Behavior across a Plate Boundary, Air Force Research Lab, Awarded \$472,895.00, 02/28/2014–02/27/2017.

P.I., Seismic Attenuation and Hazard in the Central and Eastern U.S. , USGS/NEHRP, \$58,456.00, 04/01/2014 – 03/30/2016.

P.I., High-Resolution Regional Phase Attenuation Models of the Iranian Plateau and Zagros, AFRL, \$296,971.00, 01-01-2011 - 04-30-2014, \$246,971.00, \$49,820.00, 5%, Active, PI.

P.I. (Institutional Lead) High-Resolution Seismic Velocity and Attenuation Models of Western China, DoD/NNSA, Requested-\$247,000.00/Awarded-\$257,000, 05/01/2010 – 04/30/2013.

P.I. (subcontract) Determination of 3-D Crustal Velocity Structure of Iran, Northern Iraq and Eastern Turkey, AFRL (DoD), Requested-\$90,000/Awarded-\$90,000, 01/01/2010-12/31/2012.

P.I. Collaborative research: The Growth of the Tibetan Plateau - A Seismic Investigation of the Qilian Shan and Surrounding Tectonic Blocks, NSF-Geophysics, Requested-\$146,049.00/Awarded-\$146,049, 05/01/2008 – 04/30/2011.

Co-PI. PIRE: A US-China Partnership in Research and Education of Intraplate Earthquakes, International NSF, Requested-\$2,160,000/Awarded--\$2,160,000, 08/01/2007 – 07/31/2012.

P.I. (subcontract) High-Resolution Seismic Velocity and Attenuation Models of the Caucasus-Caspian region, AFRL (DoD), Requested-\$112,000/Awarded-\$112,000, 01/01/2007-12/31/2008.

P.I., Deep Structure of the Northeastern Tibet Collision Zone: INDEPTH IV, NSF-Continental Dynamics, ,NSF-Continental Dynamics Requested-\$344,188/Awarded--\$329,188, 2/01/2007-01/31/2011.

P.I., Collaborative Research: Lithospheric Dynamics in the Southern Andean Plateau, NSF-Geophysics, Requested-\$323,000/Awarded-\$323,000, 10/01/2006-09/30/2009.

P.I., Collaborative Research: High-Resolution Tomographic Mapping of Regional Phase Q in the Middle East, NNSA (DoE), Requested-\$215,000/Awarded-\$215,000; 10/01/2003-10/01/2007.

Co-P.I.(subcontract), P.I. Ben Brooks, University of Hawaii, Collaborative Research: Ground Truth of African and Eastern Mediterranean Shallow Seismicity Using SAR Interferometry and

Gibbs Sampling Inversion, AFRL (DoD), Requested-\$180,000/awarded-\$180,000; 10/01/2003-10/01/2006.

Co.P.I., P.I. Mian Liu University of Missouri, Intraplate earthquakes in the central-eastern US: An integrated seismological and geodynamic study, USGS-NEHRP Requested-\$134,000/Awarded-\$110,000; 01/01/2004-1/01/2006.

Co.-P.I., P.I. Francisco Gomez University of Missouri, Acquisition of Geophysical Field Instrumentation and Computers for Integrated Studies of Continental Geodynamics, NSF - Instrument and Facilities requested-\$150,000/awarded--\$150,000; 01/01/2004 - 12/31/2005..

Co.-P.I., P.I.: Bob Bauer, University of Missouri, AN INTEGRATED FIELD HYDROLOGY, GEOCHEMISTRY, AND GEOPHYSICS MODULE FOR GEOSCIENCE FIELD CAMPS, NSF – Education CCLI, requested-\$90,396/awarded-\$65,000; 04/01/2004-03/31/2004..

P.I., Collaborative Research: Geographic Information System Databases for Tethyan Collisions, NSF, Requested - \$91,763/ Awarded-\$91,763, 10/01/2003-10/01/2005.

P.I., A Planning Visit to the Eastern Tien Shan, International NSF East Asia, Requested-\$2,400/Awarded-\$2,400; 08/01/2003-09/01/2004.

Publications:

(* Indicates Students, Postdocs and Visiting scholars who worked directly under me)

- Kaviani, A., **Sandvol, E.**, Bao, X., Rumpker, G., and Gök, R., The structure of the crust in the Turkish-Iranian Plateau and Zagros using Lg Q and velocity, (2016) *Geophysical Journal International*, In press.
- Tang, Y., Zhou, S., Chen, Y.J., **Sandvol, E.**, Liang, X., Feng, Y., Jin, G., Jiang, M., Liu, M., Crustal structures across the western Weihe Graben, North China: Implications for extrusion tectonics at the northeast margin of Tibetan Plateau (2015) *Journal of Geophysical Research B: Solid Earth*, 120 (7), pp. 5070-5081.
- Ranasinghe, N.R., Gallegos, A.C., Trujillo, A.R., Blanchette, A.R., **Sandvol, E.A.**, Ni, J., Hearn, T.M., Tang, Y., Grand, S.P., Niu, F., Chen, Y.J., Ning, J., Kawakatsu, H., Tanaka, S., Obayashi, M.. Lg attenuation in northeast China using NECESSArray data. (2015) *Geophysical Journal International*, 200 (1), pp. 67-76.
- Bao, X.*, **Sandvol, E.**, Chen, Y.J., Ni, J., Hearn, T., Shen, Y., Azimuthal anisotropy of Lg attenuation in eastern Tibetan Plateau, (2015) *Journal of Geophysical Research B: Solid Earth*, 117 (10), art. no. B10309, .
- Calixto, F.*, Robinson, D., **Sandvol, E.**, Kay, S., Abt, D., Fischer, K., Heit, B., Yuan, X., Comte, D., and Alvarado, P., Shear wave splitting and shear wave splitting tomography of the Southern Puna Plateau, *Geophysical Journal International*, in press, 2014.
- Mulcahy, P., Chen, C., Kay, S.M., Brown, L.D., Isacks, B.L., **Sandvol, E.**, Heit, B., Yuan, X., Coira, B.L. Central Andean mantle and crustal seismicity beneath the Southern Puna plateau and the northern margin of the Chilean-Pampean flat slab, (2014) *Tectonics*, 33.
- Nunn, C., Roecker, S.W., Tilmann, F.J., Priestley, K.F., Heyburn, R., **Sandvol, E.A.**, Ni, J.F., Chen, Y.J., Zhao, W. Imaging the lithosphere beneath NE Tibet: Teleseismic P and S body wave tomography incorporating surface wave starting models (2014) *Geophysical Journal International*, 196 (3), pp. 1724-1741.
- Gallegos, A., Ranasinghe, N., Ni, J., **Sandvol, E.**, Lg attenuation in the central and eastern United States as revealed by the EarthScope Transportable Array (2014) *Earth and Planetary Science Letters*, .

- Wang, C.-Y., **Sandvol, E.**, Zhu, L., Lou, H., Yao, Z., Luo, X., Lateral variation of crustal structure in the Ordos block and surrounding regions, North China, and its tectonic implications (2014) *Earth and Planetary Science Letters*, 387, pp. 198-211.
- Liang, X.*, **Sandvol, E.**, Kay, S., Heit, B., Yuan, X., Mulcahy, P., Chen, C., Brown, L., Comte, D., Alvarado, P. Delamination of southern Puna lithosphere revealed by body wave attenuation tomography (2014) *Journal of Geophysical Research: Solid Earth*, 119 (1), pp. 549-566.
- Heit, B., Bianchi, M., Yuan, X., Kay, S.M., **Sandvol, E.**, Kumar, P., Kind, R., Alonso, R.N., Brown, L.D., Comte, D. Structure of the crust and the lithosphere beneath the southern Puna plateau from teleseismic receiver functions(2014) *Earth and Planetary Science Letters*, 385, pp. 1-11.
- Skolbeltsyn, G.*, Mellors, R., Gök, R., Türkelli, N., Yetirmishli, G., **Sandvol, E.**, Upper mantle S wave velocity structure of the East Anatolian-Caucasus region, (2014) *Tectonics*, 33 (3), pp. 207-221.
- Li, X., Li, H., Shen, Y., Gong, M., Shi, D., **Sandvol, E.**, Li, A. Crustal velocity structure of the northeastern Tibetan plateau from ambient noise surface-wave tomography and its tectonic implications, (2014) *Bulletin of the Seismological Society of America*, 104 (3), pp. 1045-1055.
- Lü, Y., Zhang, Z., Pei, S., **Sandvol, E.**, Xu, T., Liang, X., 2.5-Dimensional tomography of uppermost mantle beneath Sichuan-Yunnan and surrounding regions, (2014) *Tectonophysics*, 627 (1), pp. 193-204.
- Leon-Soto, G., **Sandvol, E.**, Ni, J., Flesch, L., Hearn, T., Tilmann, F., Chen, J., and Brown, L.D., Significant and Vertically Coherent Seismic Anisotropy Beneath Eastern Tibet, *accepted to Journal of Geophysical Research*, 2012.
- Ceylan, S.*, Ni, J., Chen, J.Y., Zhang, Q., Tilmann, F., and **Sandvol, E.** Fragmented Indian plate and vertically coherent deformation beneath eastern Tibet, *Journal of Geophysical Research B: Solid Earth*, 117 (11), art. no. B11303, 2012.
- Liang, X.*, **Sandvol, E.** Chen, J.Y., Hearn, T., Ni, J., Klemperer, S., Shen, Y., and Tilmann, F., A complex Tibetan upper mantle: A fragmented Indian slab and no south-verging subduction of Asian lithosphere , *accepted to Earth Planetary Science Letters*, 2012.
- Bao, X.*, **Sandvol, E.**, Chen, Y.J., Ni, J., Hearn, T., Shen, Y., Azimuthal anisotropy of Lg attenuation in eastern Tibetan Plateau, *Journal of Geophysical Research B: Solid Earth*, 117 (10), art. no. B10309, 2012.
- Yue, H., John Chen, Y., **Sandvol, E.**, Ni, J., Hearn, T., Zhou, S., Feng, Y., Ge, Z., Trujillo, A., Wang, Y., Jin, G., Jiang, M., Tang, Y., Liang, X., Wei, S., Wang, H., Fan, W., Liu, Z., Lithospheric and upper mantle structure of the northeastern Tibetan Plateau, *Journal of Geophysical Research B: Solid Earth*, 117 (5), art. no. B05307, 2012.
- Bao, X.*, **Sandvol, E.**, Ni, J., Hearn, T., Chen, Y.J., Shen, Y., High resolution regional seismic attenuation tomography in eastern Tibetan Plateau and adjacent regions, *Geophysical Research Letters*, 38 (16), art. no. L16304, 2011.
- Bao, X.*, **Sandvol, E.**, Zor, E., Sakin, S., Mohamad, R., Gök, R., Mellors, R., Godoladze, T., Yetirmishli, G., Türkelli, N., Pg attenuation tomography within the Northern Middle East, *Bulletin of the Seismological Society of America*, 101 (4), pp. 1496-1506, 2011.
- Gök, R., Mellors, R.J., **Sandvol, E.**, Pasyanos, M., Hauk, T., Takedatsu, R., Yetirmishli, G., Teoman, U., Türkelli, N., Godoladze, T., Javakishvirli, Z., Lithospheric velocity structure of the Anatolian plateau-Caucasus-Caspian region *Journal of Geophysical Research B: Solid Earth*, 116 (5), art. No, 2011
- Jiang, M., Zhou, S., **Sandvol, E.**, Chen, X., Liang, X., Chen, Y.J., Fan, W., 3-D lithospheric structure beneath southern Tibet from Rayleigh-wave tomography with a 2-D seismic array, *Geophysical Journal International*, 185 (2), pp. 593-608, 2011.
- Zhang, Q.*, **Sandvol, E.**, Ni, J., Yang, Y., and Chen, Y., Rayleigh wave tomography of the northeastern margin of the Tibetan Plateau, *Earth Planetary Science Letters*, v. 304, p 103-112, 2011.
- Wei, S., Chen, Y., Zhou, S., Yue, H., Jin, G., Jiang, M., Wang, H., Fan, W., Ge, Z., Wang, Y., Feng, Y., **Sandvol, E.**, Hearn, T., and Ni J., Regional Earthquake Locations in Northeastern Tibetan Plateau: Implication for Lithospheric Strength in Tibet, *Geophysics Research Letters*, 2011.

- Bao, X.*, **E. Sandvol**, J. Ni, T. Hearn, Y. Chen, and Y. Shen (2011b), High resolution regional seismic attenuation tomography in eastern Tibetan Plateau and adjacent regions, *Geophys. Res. Lett.*, 38, L16304, doi: 10.1029/2011GL048012.
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- Zhang, Q. * and **Sandvol, E.**, Liu M.. Lithospheric Velocity Structure of the New Madrid Seismic Zone: A Joint Teleseismic and Local P Tomographic Study, *Geophysical Research Letters*, 2009.
- Bauer R., Siegel, D., **Sandvol, E.**, and . Lautz. L., Integrating hydrology and geophysics into a traditional geology field course: The use of advanced project options, *GSA Special Volume*, 2009
- Leon Soto, G., Ni, J., Grand, S., and **Sandvol, E.**, Valenzuela, Guzman-Speziale, Gomez-Gonzalez, and DomÁnguez-Reyes. Mantle flow in the Rivera-Cocos subduction zone, *Geophysical Journal International*, pp. doi: 10.1111/j.1365-, 2009.
- Zhang, Qie* and **Sandvol, Eric**. Tomographic Pn velocity and anisotropy structure in the Central and Eastern United States, *Bulletin of the Seismological Society of America*, p. 422-427, 99(1) 2008.
- Xinling Wang and James F. Ni, Richard Aster, **Sandvol**, David Wilson, Christopher Sine, Stephen Grand, W. Scott Baldrige. Shear Wave Splitting and Mantle Flow beneath The Colorado Plateau and the Colorado Plateau-Great Basin Transition, *Bulletin of the Seismological Society of America*, 98 (5), pp. 2526-2532, 2008.
- Rumpfhuber, E. ,Keller, **Sandvol, E.**, Wilson, and Velasco. Crustal Structure Variations Across Major Geologic Boundaries in the Rocky Mountains Based on Receiver Function Analysis, *J. Geophys. Res.*, , 2009.
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- Al-Tarazi, E.*, **Sandvol E.**, and Gomez F., The February 11, 2004 Dead Sea Earthquake $M_L=5.2$ in Jordan and its Tectonic Implication, *Tectonophysics*, 422 (1-4), pp. 149-158, 2006.
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- Angus, D., Wilson, D., **Sandvol, E.**, and Ni, J., Lithospheric of the Arabian and Eurasian plates from teleseismic S-wave receiver functions, *Geophysical Journal International*, 166 (3), pp. 1335-1346, 2006.
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- Barazangi, M., **Sandvol, E.**, and Seber, D., Structure and tectonic evolution of the Anatolia plateau in eastern Turkey, *GSA Special Publication*, Ed. Y. Dilek, 409, pp. 463-473, 2006.
- Li Q., Liu M., and **Sandvol E.**, Stress evolution following the 1811-1812 large earthquakes in the New Madrid Seismic Zone, *Geophys. Res. Lett.*, 32 (11): Art. No. L11310, 2005.
- Al-Damegh K*, **Sandvol E**, Barazangi M, Crustal structure of the Arabian plate: New constraints from the analysis of teleseismic receiver functions, *Earth and Planetary Sci. Lett.*, 231 (3-4): 177-196. 2005.
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- and Sn) and Pn attenuation in the Arabian Plate and surrounding regions, *Geophys. J. Int.*, 157, p. 775-795, 2004.
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- Gurbuz, C., Turkelli, N., Bekler, T., Gok, R., **Sandvol, E.**, Seber, D., and Barazangi, M. Seismic Event Location Calibration and Attenuation Using the Eastern Turkey Broadband Seismic Network: Analysis of the Agri Dam Explosion Bul. Seism. Soc. Amer., 2004.
- Sandvol, E.**, Turkelli, N., and Barazangi, M., The Eastern Turkey Seismic Experiment: The study of a young continent-continent collision, *Geophysical Research Letters*, **30**, 8038, doi:10.1029/2003GL018912, 2003
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- Mele, G., and **Sandvol, E.**, Deep crustal roots beneath the northern Apennines, *Geophysical Journal International*, 2003
- Langin, W., Brown, L., and **Sandvol, E.**, Seismicity of Central Tibet from Project INDEPTH III Seismic Recordings, *Bull. Seism. Soc.*, 93 (5), pp. 2146-2159, 2003.
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