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Education

Ph.D. in Geophysics with minor in Computer Science, Caltech, Pasadena, CA, USA. 1998

M.S. in Geophysics, Institute of Geophysics, State Seismo. Bureau, Beijing, PRC. 1988

B.S. in Geophysics, University of Science and Technology of China, Hefei, PRC. 1985

Professional Experience

07/2012–present Professor, Dept. Earth and Atmos. Sciences, Saint Louis U.

12/2011–present Guest Professor, School of Geophysics and Geomatics, CUG (Wuhan)

07/2002–present Guest Professor, Institute of Geophysics, China Earthquake Admin.

07/2007–06/2012 Associate Professor, Dept. Earth and Atmos. Sciences, Saint Louis U.

08/2001–06/2007 Assistant Professor, Dept. Earth and Atmos. Sciences, Saint Louis U.

07/2000–07/2001 Research Assistant Professor, Dept. Earth Sciences, U. of So. California.

04/1998–06/2000 Post-Doctoral Research Associate, So. California Earthquake Center.

07/1993–03/1998 Graduate Research Assistant, Seismological Laboratory, Caltech.

08/1988–06/1993 Assistant Research Fellow, Institute of Geophysics, SSB, Beijing, PRC.

Awards and Honors

1. 2005 Recipient of the President and the Dean of the Graduate School Citation for excellence in research and success in obtaining external support, Saint Louis University.
2. 1996 F. Beach Leighton Fellowship in geophysics, Caltech.

Professional Societies and Activities

- Member of the American Geophysical Union (AGU) since 1993.
- SLU Representative on the Board of Directors of Inc. Res. Inst. for Seis. (IRIS) since 2004.
- Editor of Pure and Applied Geophysics since 2006.
- Peer-reviewer of scientific journals BSSA, EPS, EPSL, G^3, GJI, GRL, JAES, JGR, and Tectonophysics, and funding agencies NSF, DoE, etc.
- Member of Intl. Professionals for the Adv. of Chinese Earth Sciences (IPACES) since 2005.
- Session convener and chair, Teleseismic Receiver Function Technique: Applications and Advancements, AGU Western Pacific Geophys. Meeting, Taipei, June22–25, 2010.
- Session co-chair, Earthquake Faulting II, AGU 2008 Fall Meeting.
- Session convener and chair, Crustal and Upper Mantle Structures beneath the Tibetan Plateau from Recent Seismic Experiments in Tibet, AGU Western Pacific Geophys. Meeting, Beijing, July, 2006.
- Session co-chair, Seismic Data and Network Developments Posters, AGU 2003 Fall Meeting.
- Session co-chair, Radiated Energy and Apparent Stress: Constant or Nonconstant Scaling? AGU 2002 Fall Meeting.
- Session co-chair, Geometry of Deep Extension of Earthquake Source Faults, International Symposium on Slip and Flow Processes in and below the Seismogenic Region, Sendai, Japan, Nov. 2001.
- Session co-chair, The Structure of the Eurasian Crust and Lithosphere, AGU 1998 Fall Meeting.
- Session co-chair, Structure and Evolution of the Tibetan Plateau, AGU 1996 Fall Meeting.
- Session co-chair, Modeling Earthquake Parameters, AGU 1995 Fall meeting.
- Co-chair of Seismo Seminar, Caltech, 1996–1997.

Refereed Journal Publications

[1] Y. Xu, L. Zhu, Y. Yang, Y. Luo, and J. Xia. Heat shielding effects in the earth's crust. *J. Earth Sci.*, 28:161–167, 2017.

[2] C. C. Tang, L. Zhu, and R. Huang. Empirical Mw-ML, mb, and Ms conversions in western China. *Bull. Seismol. Soc. Am.*, 106:2614–2623, 2016.

[3] Y. Xu, S. Zhang, W. L. Griffin, Y. Yang, B. Yang, Y. Luo, L. Zhu, J. C. Afonso, and B. Lei. How did the Dabie orogen collapse? insights from 3-D magnetotelluric imaging of profile data. *J. Geophys. Res.*, 121:5169–5185, 2016.

[4] Y. Xu, B. Yang, S. Zhang, Y. Liu, L. Zhu, R. Huang, C. Chen, Y. Li, and Y. Luo. Magnetotelluric imaging of a fossil Paleozoic intra-oceanic subduction zone in western Junggar, NW China. *J. Geophys. Res.*, 121:4103–4117, 2016.

[5] X. C. Wang, Z. F. Ding, and L. Zhu. Lithospheric structure of the northeastern North China Craton imaged by S receiver functions. *Pure Appl. Geophys.*, 173:2727–2736, 2016.

[6] S. Luo, Y. Luo, L. Zhu, and Y. Xu. On the reliability and limitations of the SPAC method with directional wavefield. *J. Applied Geophys.*, 126:172–182, 2016.

[7] L. Zhu and X. F. Zhou. Seismic moment tensor inversion using 3D velocity model and its application to the 2013 Lushan earthquake sequence. *Physics and Chemistry of the Earth*, 10:10–18, 2016.

[8] M. Peng, M. Jiang, Z. Li, Z. Xu, L. Zhu, W. Chan, Y. Chen, Y. Wang, C. Yu, J. Lei, L. Zhang, Q. Li, and L. Xu. Complex Indian subduction style with slab fragmentation beneath the Eastern Himalayan Syntaxis revealed by teleseismic P-wave tomography. *Tectonophysics*, 667:77–86, 2016.

[9] R. Huang, Y. Xu, L. Zhu, and K. He. Detailed moho geometry beneath southeastern China and its implications on thinning of continental crust. *J. Asian Earth Sci.*, 112:42–48, 2015.

[10] W. Chen, S. Ni, H. Kanamori, S. Wei, Z. Jia, and L. Zhu. CAPjoint, a computer software package for joint inversion of moderate earthquake source parameters with local and teleseismic waveforms. *Seismol. Res. Lett.*, 86:432–441, 2015.

[11] Z. E. Ross, Y. Ben-Zion, and L. Zhu. Isotropic source terms of San Jacinto fault zone earthquakes based on waveform inversions with a generalized CAP method. *Geophys. J. Int.*, 200:1269–1280, 2015.

[12] R. Huang, L. Zhu, and Y. Xu. Crustal structure of Hubei province of China from teleseismic receiver functions: Evidence for lower crustal delamination. *Tectonophysics*, 636:286–292, 2014.

[13] C. Y. Wang, E. Sandvol, L. Zhu, H. Lou, Z. Yao, and X. Luo. Lateral variation of crustal structure in the Ordos block and surrounding regions, North China, and its tectonic implications. *Earth Planet. Sci. Lett.*, 387:198–211, 2014.

[14] L. Zhu and Y. Ben-Zion. Parameterization of general seismic potency and moment tensors for source inversion of seismic waveform data. *Geophys. J. Int.*, 194:839–843, 2013.

[15] Van-Duong Nguyen, Bor-Shouh Huang, Tu-Son Le, Van-Toan Dinh, L. Zhu, and Kuo-Liang Wen. Constraints on the crustal structure of northern Vietnam based on analysis of teleseismic converted waves. *Tectonophysics*, 601:87–97, 2013.

[16] S. D'Amico, B. Orecchio, D. Presti, A. Gervasi, L. Zhu, I. Guerra, G. Neri, and R. B. Herrmann. Source parameters of small and moderate earthquakes in the area of the 2009 L'Aquila earthquake sequence (central Italy). *Physics and Chemistry of the Earth*, 52:283–293, 2013.

[17] Z. J. Xu, X. Song, and L. Zhu. Crustal and uppermost mantle S velocity structure under Hi-CLIMB seismic array in central Tibetan Plateau from joint inversion of surface wave dispersion and receiver function data. *Tectonophysics*, 584:209–220, 2013.

[18] S. D'Amico, B. Orecchio, D. Presti, A. Gervasi, L. Zhu, I. Guerra, G. Neri, and R. B. Herrmann. Testing the stability of moment tensor solutions for small earthquakes in the Calabro-Peloritan Arc region (southern Italy). *Bolletino of Geofisica Terica ed Applicata*, 52:283–293, 2011.

[19] H. Yang, L. Zhu, and E. S. Cochran. Seismic structures of the Calico fault zone inferred from local earthquake travel time modeling. *Geophys. J. Int.*, 186:760–770, 2011.

[20] Risheng Chu, Shengji Wei, Don V. Helmberger, Zhongwen Zhan, L. Zhu, and Hiroo Kanamori. Initiation of the great Mw 9.0 Tohoku-Oki earthquake. *Earth Planet. Sci. Lett.*, 308:277–283, 2011.

[21] Chi-Chia Tang, L. Zhu, Chau-Huei Chen, and Ta-Liang Teng. Significant crustal variation across the Chaochou fault, southwestern Taiwan: new tectonic implications for convergent plate boundary. *Journal of Asian Earth Sciences*, 41:564–570, 2010.

[22] H. Li and L. Zhu. Locating aftershocks using a small-aperture temporary seismic array. *Pure Appl. Geophys.*, 167, 2010.

[23] C. Y. Wang, L. Zhu, H. Lou, B.-S. Huang, Z. Yao, and X. Luo. Crustal thicknesses and Poisson's ratios in the eastern Tibetan Plateau and their tectonic implications. *J. Geophys. Res.*, B11301, 2010.

[24] H. Yang and L. Zhu. Shallow low-velocity zone of the San Jacinto fault from local earthquake waveform modeling. *Geophys. J. Int.*, 183, 2010.

[25] H.-L. Wang, H.-W. Chen, and L. Zhu. Constraints on average Taiwan reference Moho discontinuity model – receiver function analysis using BATS data. *Geophys. J. Int.*, 183, 2010.

[26] S. D'Amico, B. Orecchio, D. Presti, L. Zhu, R. B. Herrmann, and G. Neri. Broadband waveform inversion of moderate earthquakes in the Messina Straits, southern Italy. *Phys. Earth Planet. Inter.*, 179:97–106, 2010.

[27] R. Chu, D. V. Helmberger, D. Sun, J. M. Jackson, and L. Zhu. Mushy magma beneath Yellowtone. *Geophys. Res. Lett.*, 37:L01306, 2010.

[28] C. Y. Wang, H. Lou, P. Silver, L. Zhu, and L. Chang. Crustal structure variation along 30°N in the eastern Tibetan Plateau and its tectonic implications. *Earth Planet. Sci. Lett.*, 289:367–376, 2010.

[29] Chuansong He, L. Zhu, and Qingcai Wang. The significance of crust structure and continental dynamics inferred from receiver functions in west Yunnan. *Acta Geologica Sinica*, 83(6):1163–1172, 2009.

[30] Haijiang Zhang, Ping Wang, Robert van der Hilst, Nafi Toksoz, CLifford Thurber, and L. Zhu. Three-dimensional passive seismic waveform imaging around the SAFOD site, California, using the generalized Radon transform. *Geophys. Res. Lett.*, 36:L23308, 2009.

[31] R. Chu, L. Zhu, and D. V. Helmberger. Determination of earthquake focal depths and source time functions in central Asia using teleseismic P waveforms. *Geophys. Res. Lett.*, 36:L17317, 2009.

[32] H.-L. Wang, L. Zhu, and H.-W. Chen. Moho depth variation in Taiwan from teleseismic receiver functions. *J. Asian Earth Sciences*, 37:286–291, 2009.

[33] H. Yang, L. Zhu, and R. Chu. Fault plane determination of the April 18, 2008 Mt. Carmel, Illinois, earthquake by detecting and relocating aftershocks. *Bull. Seismol. Soc. Am.*, 99(6):3413–3420, 2009.

[34] Y. Xu, K. D. Koper, O. Sufri, L. Zhu, and A. R. Hutko. Rupture imaging of the *mw* 7.9 May 12, 2008 Wenchuan Earthquake from backprojection of teleseismic p waves. *Geochem. Geophys. Geosyst.*, 10, 2009.

[35] C. Y. Wang, H. Lou, Z. Y. Lu, J. P. Wu, L. J. Chang, S. G. Dai, H. C. You, F. T. Tang, L. Zhu, and P. Silver. *S*-wave crustal and upper mantle's velocity structure in the eastern Tibetan Plateau – deep environment of lower crustal flow. *Science in China, Ser. D: Earth Sciences*, 51 (2):263–274, 2008.

[36] H. Li, A. Michelini, L. Zhu, F. Bernardi, and M. Spada. Crustal velocity structure in italy from analysis of regional seismic waveforms. *Bull. Seismol. Soc. Am.*, 97(6):2024–2039, 2007.

[37] R. Zeng, Q. Wu, Z. Ding, and L. Zhu. India-eurasian collision vs. ocean-continent collision. *Acta Seismologica Sinica*, 20(1):1–10, 2007.

[38] H. Li, L. Zhu, and H. Yang. High-resolution structure of the Landers fault zone inferred from aftershock waveform data. *Geophys. J. Int.*, 171:1295–1307, 2007.

[39] N. Akyol, L. Zhu, B. J. Mitchell, H. Sozbilir, and K. Kekovali. Crustal structure and local seismicity in western Anatolia. *Geophys. J. Int.*, 166:1259–1269, 2006.

[40] L. Zhu, Y. Tan, D. V. Helmberger, and C. K. Saikia. Calibration of the Tibetan plateau using regional seismic waveforms. *Pure Appl. Geophys.*, 163:1193–1213, 2006.

[41] L. Zhu, N. Akyol, B. J. Mitchell, and H. Sozbilir. Seismotectonics of western Turkey from high-resolution earthquake relocations and moment tensor determinations. *Geophys. Res. Lett.*, 33:L07316, 2006.

[42] Y. Tan, L. Zhu, D. V. Helmberger, and C. K. Saikia. Locating and modeling regional earthquakes with two stations. *J. Geophys. Res.*, 111:B01306, 2006.

[43] L. Zhu, B. J. Mitchell, N. Akyol, I. Cemen, and K. Kekovali. Crustal thickness variations in the Aegean region and its implications for the extension of continental crust. *J. Geophys. Res.*, 111:B01301, 2006.

[44] F. Leyton, K. D. Koper, L. Zhu, and M. Dombrovskaya. On the lack of seismic discontinuities within the inner core. *Geophys. J. Int.*, 162:779–786, 2005.

[45] L. Zhu. Recovering permanent displacements from seismic records of the June 9, 1994 Bolivia deep earthquake. *Geophys. Res. Lett.*, 30(14):1740, 2003.

[46] Z. Peng, Y. Ben-Zion, A. J. Michael, and L. Zhu. Quantitative analysis of seismic fault zone waves in the rupture zone of the 1992 Landers, California, earthquake: evidence for a shallow trapping structure. *Geophys. J. Int.*, 155:1021–1041, 2003.

[47] L. Zhu. Deformation in the lower crust and downward extent of the San Andreas Fault as revealed by teleseismic waveforms. *Earth, Planets and Space*, 54:1005–1010, 2002.

[48] Y. Ben-Zion and L. Zhu. Potency-magnitude scaling relations for southern California earthquakes with $1.0 < M_L < 7.0$. *Geophys. J. Int.*, 148:F1–F5, 2002.

[49] L. Zhu and L. A. Rivera. A note on the dynamic and static displacements from a point source in multi-layered media. *Geophys. J. Int.*, 148:619–627, 2002.

[50] D. V. Helmberger, X. J. Song, and L. Zhu. Crustal complexity from regional waveform tomography: Aftershocks of the 1992 Landers earthquake, California. *J. Geophys. Res.*, 106:609–620, 2001.

[51] A. Venkataraman, J. Mori, H. Kanamori, and L. Zhu. Fine structure of the rupture zone of the April 26 and 27, 1997, Northridge aftershocks. *J. Geophys. Res.*, 105:19085–19093, 2000.

[52] L. Zhu. Crustal structure across the San Andreas Fault, southern California from teleseismic converted waves. *Earth Planet. Sci. Lett.*, 179:183–190, 2000.

[53] L. Zhu and H. Kanamori. Moho depth variation in southern California from teleseismic receiver functions. *J. Geophys. Res.*, 105:2969–2980, 2000.

[54] Scientists from the USGS, SCEC, and CDMG. Preliminary report on the 16 October 1999 M 7.1 Hector Mine, California, Earthquake. *Seismol. Res. Lett.*, 71(1):11–23, 2000.

[55] L. Zhu and D. V. Helmberger. Moho offset across the northern margin of the Tibetan Plateau. *Science*, 281:1170–1172, 1998.

[56] L. Zhu, D. V. Helmberger, C. K. Saikia, and B. B. Woods. Regional waveform calibration in the Pamir-Hindu Kush region. *J. Geophys. Res.*, 102:22799–22813, 1997.

[57] L. Zhu and D. V. Helmberger. Intermediate depth earthquakes beneath the India-Tibet collision zone. *Geophys. Res. Lett.*, 23:435–438, 1996.

[58] L. Zhu and D. V. Helmberger. Advancement in source estimation techniques using broadband regional seismograms. *Bull. Seismol. Soc. Am.*, 86:1634–1641, 1996.

[59] L. Zhu, T. J. Owens, and G. E. Randall. Lateral variation in crustal structure of the northern Tibetan plateau inferred from teleseismic receiver functions. *Bull. Seismol. Soc. Am.*, 85:1531–1540, 1995.

[60] L. Zhu, R. S. Zeng, F. T. Wu, T. J. Owens, and G. E. Randall. Preliminary study of crust-upper mantle structure of the Tibetan plateau by using broadband teleseismic body waveforms. *Acta Seismol. Sinica*, 6:305–315, 1993.

[61] R. S. Zeng, L. Zhu, Z. He, Z. Ding, and W. Sun. A seismic source model of the large earthquake in North China extensional basin and discussion on genetic process of the extensional basin and earthquakes. *Acta Geophys. Sinica*, 34:288–301, 1991.

[62] L. Zhu, R. S. Zeng, and F. T. Liu. Three dimensional P wave velocity structure under the Beijing network area. *Acta Geophys. Sinica*, 33:267–277, 1990.

[63] L. Zhu, R. S. Zeng, and F. T. Liu. A new model parameterization method for inversion of 3-dimensional velocity structure. *Acta Geophys. Sinica*, 33:34–43, 1990.

Non-refereed Publications

[1] X. Song and L. Zhu. Joint inversion of crustal and uppermost mantle structure in western china. In *Proceedings of the 32th Seismic Research Review: Ground-based Nuclear Explosion Monitoring Technologies*, Albuquerque, NM, 2012.

[2] A. Pitarka, C. K. Saikia, B. Woods, L. Zhu, and R. Herrmann. Developing multiple-frequency discriminants for use with regional coda-amplitude measurements. In *Proceedings of the 28th Seismic Research Review: Ground-based Nuclear Explosion Monitoring Technologies*, Orlando, FL, 2006.

[3] C. K. Saikia, K. Mayeda, L. Zhu, and R. Herrmann. Developing multiple-frequency discriminants for use with regional coda-amplitude measurements. In *Proceedings of the 27th Seismic Research Review: Ground-based Nuclear Explosion Monitoring Technologies*, Rancho Mirage, CA, 2005.

[4] L. Zhu. Lateral variation of the Tibetan lithospheric structure inferred from teleseismic waveforms. In Y. T. Chen, J. W. Teng, R. J. Kan, and C. Y. Wang, editors, *Advancements in Seismology and Physics of the Earth Interior in China: In Celebration of the 80th Birthday of Academician Rongsheng Zeng*, pages 295–310, Beijing, China, 2004. Seismology Press.

[5] L. Zhu. Deformation in the lower crust and extent of the San Andreas Fault as revealed by seismic waveforms. In *Proc. Int. Symposium on Slip and Flow in and below the Seismogenic Region*, Sendai, Japan, 2001.

[6] L. Zhu. *Broadband Waveform Modeling and Its Application to the Lithospheric Structure of the Tibetan Plateau.* PhD thesis, California Institute of Technology, Pasadena, 1998.

[7] L. Zhu and D. V. Helmberger. Crustal and upper mantle structure of the Tibetan plateau. In J. F. Lewkowicz, J. M. McPhetres, and D. T. Reiter, editors, *Proceedings of the 18th Annual Seismic Research Symposium on Monitoring a Comprehensive Test Ban Treaty*, volume PL-TR-96-2153, pages 439–447, Hanscom AFB, Mass., 1996. Phillips Lab.

[8] L. Zhu and D. V. Helmberger. Focal mechanism determination and propagation characteristics of high-frequency S-waves on the Tibetan plateau. In J. F. Lewkowicz, J. M. McPhetres, and D. T. Reiter, editors, *Proceedings of the 17th Annual Seismic Research Symposium*, volume PL-TR-95-2108, pages 702–710, Hanscom AFB, Mass., 1995. Phillips Lab.

[9] L. Zhu and D. V. Helmberger. Regional earthquake waveform modeling on the Tibetan plateau. In J. J. Cipar, J. F. Lewkowicz, and J. M. McPhetres, editors, *Proceedings of the 16th Annual Seismic Research Symposium*, volume PL-TR-94-2217, pages 407–413, Hanscom AFB, Mass., 1994. Phillips Lab.

[10] L. Zhu, R. S. Zeng, F. T. Wu, T. J. Owens, and G. E. Randall. Study on the crust-upper mantle structure of Qinghai-Tibet plateau by using broadband teleseismic body waveforms. In Guoyu Ding and Zhangli Chen, editors, *Continental Earthquakes – Selected Papers of the Second International Conference on Continental Earthquakes*, volume 3 of *IASPEI Publication Series for the IDNDR*, pages 259–266, Beijing, 1992. Seismol. Press.

[11] L. Zhu. Study on the inversion of 3-D velocity structure of crust and upper mantle. Master's thesis, Institute of Geophysics, SSB, Beijing, 1988.

Invited Lectures and Talks

[1] L. Zhu. Transformational faulting as a mechanism for deep-focus earthquakes: Laboratory observations on rupture processes in Mg2GeO4 revealed by in-situ acoustic emission monitoring and nanoseismological analysis. *Oral Presentation in Intl. Symposium of Frontiers in Earth Science*, Wuhan, China, June 18, 2016.

[2] L. Zhu. Seismic moment tensor inversion using 3D velocity model and its application to the 2013 Lushan earthquake sequence. *Invited Talk at Institute of Geodesy and Geophysics, Chinese Academy of Sciences*, Wuhan, China, Mar. 31, 2016.

[3] L. Zhu. Seismic moment tensor inversion using 3D velocity model and its application to the 2013 Lushan earthquake sequence. *Invited Talk at School of Geodesy and Geomatics of Wuhan University*, Wuhan, China, Jan. 13, 2016.

[4] L. Zhu. Crustal and upper mantle structure of eastern China and its implications on extension of continental lithosphere. *Invited Talk at Institute of Geophysics and Geomatics of China University of Geosciences*, Wuhan, China, Jan. 4, 2016.

[5] L. Zhu. Crustal and upper mantle structure of eastern China and its implications on extension of continental lithosphere. *Invited Talk at South China Sea Institute of Oceanography, Chinese Academy of Science*, Guangzhou, China, Jan. 7, 2016.

[6] L. Zhu. Seismic moment tensor inversion using 3D velocity model and its application to the 2013 Lushan earthquake sequence. *Invited Talk at Institute of Geophysics, China Earthquake Administration*, Beijing, China, July 30, 2015.

[7] L. Zhu. Active faults in the three gorges dam region based on detection and reclocation of earthquakes. *Oral Presentation in Intl. Symposium of Frontiers in Earth Science*, Nanjing, China, June 27, 2015.

[8] L. Zhu. Crustal structure of Hubei Province of China from teleseismic receiver functions: Evidence for lower crust delamination. *Invited Talk at Department of Geosciences, State University of New York at Stony Brook*, Stony Brook, NY, Aug. 28, 2014.

[9] L. Zhu. Crustal and upper mantle structure of eastern China and its implications on extension of continental lithosphere. *Invited Talk at Mathemaics Department of Tsinghua University*, Beijing, China, July 8, 2014.

[10] L. Zhu. Crustal structure of Hubei Province of China from teleseismic receiver functions: Evidence for lower crust delamination. *Oral Presentation in International Workshop of Computational Geodynamic Frontiers*, Beijing, China, July 1, 2014.

[11] L. Zhu. Crustal and upper mantle structure of eastern China and its implications on extension of continental lithosphere. *Invited Talk at School of Geodesy and Geomatics of Wuhan University*, Wuhan, China, June 25, 2014.

[12] L. Zhu. Crustal and upper mantle structure of eastern China and its implications on extension of continental lithosphere. *Invited Talk at the Institute of Geodesy and Geophysics, Chinese Academy of Sciences*, Wuhan, China, June 19, 2014.

[13] L. Zhu. Crustal and upper mantle structure of eastern China and its implications on extension of continental lithosphere. *Invited Talk at School of Earth and Space Sciences, University of Science and Technology of China*, Hefei, China, June 3, 2014.

[14] L. Zhu. Crustal structure in the western Hubei Province as revealed by teleseismic receiver functions. *Invited Talk at Institute of Geophysics, China Earthquake Administration*, Beijing, China, July 22, 2013.

[15] L. Zhu. Crustal structure in the western Hubei province as revealed by teleseismic receiver functions. *Invited Talk at School of Earth and Space Sciences, University of Science and Technology of China*, Hefei, China, June 25, 2013.

[16] L. Zhu. Crustal structure in the western Hubei province as revealed by teleseismic receiver functions. *Invited Talk at Institute of Geophysics and Geology, Chinese Academy of Sciences*, Beijing, China, July 17, 2013.

[17] L. Zhu. Joint inversion for crustal and upper mantle structure in western China. *Invited Talk in Workshop of East Asian Tectonics*, Boulder, CO, Dec. 10, 2012.

[18] L. Zhu. Fine structure of fault zones from modeling high-frequency body-wave waveforms of aftershocks. *Invited Talk in 5th International Conference on Environmental and Engineering Geophysics*, Changsha, China, June 15–18, 2012.

[19] L. Zhu. Arc-continent collision and complex crustal structure of Taiwan from teleseismic receiver function analysis. *Invited Talk at Woods Hole Oceanography Institution*, Woods Hole, MA, Oct. 21, 2011.

[20] L. Zhu. Real-time earthquake source estimation and early warning using a digital seismic network. *Invited Talk at AOGS*, Taipei, Taiwan, Aug. 10, 2011.

[21] L. Zhu. Rupture fault determination of the 2008 Mt. Carmel, Illinois Earthquake. *Invited Talk at Institute of Geosciences of National Taiwan University*, Taipei, Taiwan, Aug. 5, 2011.

[22] L. Zhu. Crustal structure variation of the Tibetan Plateau from teleseismic receiver function studies. *Invited Talk at 2011 Bi-Lateral Workshop under the Sino-US Earthquake Studies Protocol*, Chengdu, China, April 24, 2011.

[23] L. Zhu. Rupture fault determination of the 2008 Mt. Carmel, Illinois Earthquake. *Invited Talk at Department of Geological Sciences & Engineering, Missouri Universityof Science & Technology*, Rolla, Missouri, October 11, 2010.

[24] L. Zhu. Rupture fault determination of the 2008 Mt. Carmel, Illinois Earthquake. *Invited Talk at Department of Earth Sciences and Institute of Geophysics, National Central University*, Taipei, Taiwan, June 21, 2010.

[25] L. Zhu. Rupture fault determination of the 2008 Mt. Carmel, Illinois Earthquake. *Invited Talk at Institute of Earthquakes, China Earthquake Administration*, Wuhan, China, May 20, 2010.

[26] L. Zhu. Rupture fault determination of the 2008 Mt. Carmel, Illinois Earthquake. *Invited Talk at Institute of Geophysics and Geomatics, China University of Geosciences*, Wuhan, China, May 20, 2010.

[27] L. Zhu. Rupture fault determination of the 2008 Mt. Carmel, Illinois Earthquake. *Invited Talk at the Institute of Geodesy and Geophysics, Chinese Academy of Sciences*, Wuhan, China, May 21, 2010.

[28] L. Zhu. Rupture fault determination of the 2008 Mt. Carmel, Illinois Earthquake. *Invited Talk at Institute of Seismology, China Earthquake Administration*, Beijing, China, Dec. 10, 2009.

[29] L. Zhu. Complex crustal structure of Taiwan from teleseismic receiver function analysis. *Invited Talk at School of Geophysics and Information Technology, China University of Geosciences*, Beijing, China, Dec. 9, 2009.

[30] L. Zhu. Complex crustal structure of Taiwan from teleseismic receiver function analysis. *Invited Talk at Institute of Geophysics and Geology, Chinese Academy of Sciences*, Beijing, China, Dec. 4, 2009.

[31] L. Zhu. Complex crustal structure of Taiwan from teleseismic receiver function analysis. *Invited Talk at Institute of Earth Sciencs, Academica Sinica*, Taipei, Taiwan, Nov. 26, 2009.

[32] L. Zhu. Rupture fault determination of the 2008 Mt. Carmel, Illinois Earthquake. *Invited Talk at Institute of Seismology, National Chung Cheng University*, Chia-Yi, Taiwan, Nov. 17, 2009.

[33] L. Zhu. Complex crustal structure of Taiwan from teleseismic receiver function analysis. *Invited Talk at Institute of Geosciences of National Taiwan University*, Taipei, Taiwan, Sept. 9, 2009.

[34] L. Zhu. Imaging deep crustal faults with seismic waves from aftershocks. *Invited Talk at Department of Geosciences, State University of New York at Stony Brook*, Stony Brook, NY, June 23, 2009.

[35] L. Zhu. Imaging deep crustal faults with seismic waves from aftershocks. *Invited Talk at Institute of Earth Sciences, Academia Sinica*, Taipei, Taiwan, July 10, 2008.

[36] L. Zhu. Upper-mantle velocity structures beneath the Tibetan Plateau and surrounding areas from modeling seismic waveforms. *Invited Talk at Institute of Seismology, National Chung Cheng University*, Chia-Yi, Taiwan, July 7, 2008.

[37] L. Zhu. Real-time earthquake source estimation and early warning using a digital seismic network. *Invited Talk at China National Seismic Network Center, China Earthquake Administration*, Beijing, China, July 24, 2008.

[38] L. Zhu. Imaging deep crustal faults with seismic waves from aftershocks. *Invited Talk at Department of Earth, Atmosphere and Planetary Sciences, MIT*, Cambridge, MA, Oct. 24, 2007.

[39] L. Zhu. High-resolution structures of the Landers fault zone inferred from aftershock waveform data. *Invited Talk at Institute of Geophysics, China Earthquake Administration*, Beijing, China, July 28, 2006.

[40] L. Zhu. A seismic exploration in western turkey, where east meets west. *Invited Talk at the Department of Geophysics, Peking University*, Beijing, China, July 14, 2006.

[41] L. Zhu. High-resolution structures of the Landers fault zone inferred from aftershock waveform data. *Invited Talk at International Workshop of Earth as a Dynamical System, Graduate University of Chinese Academy of Sciences*, Beijing, China, July 5, 2006.

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[52] L. Zhu. The 2003 western Anatolia seismic experiment: an integrated study of crust/upper mantle structure and anisotropy in western Turkey. *Invited Talk at the School of Geology, Oklahoma State University*, Stillwater, OK, Sept. 18, 2002.

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[59] L. Zhu. Raising the Tibetan Plateau. *Invited talk in the Department of Geology, University of Illinois*, Urbana, IL, Oct. 26, 2001.

[60] L. Zhu. Imaging with seismic network data. *Invited Poster Presentation at the Society of Exploration Geophysicists Summer Research Workshop: Synergies in Geophysical, Medical and Space Imaging*, Newport Beach, CA, July 22–26, 2001.

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[70] L. Zhu. Does the San Andreas Fault break the entire crust? *Invited talk in the Department of Earth, Atmos. and Planetary Sciences, MIT*, Cambridge, MA, Oct. 21, 1999.

[71] L. Zhu. Teleseismic receiver function analysis of crustal structure of the Tibetan plateau. *Invited Talk at the Department of Earth and Space Sciences, UCLA*, Los Angeles, CA, May 28, 1997.

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Meeting Abstracts

[1] Feng Shi, Yanbin Wang, and Lupei Zhu. Eclogitization of dry granulite triggers deep crustal seismicity in southern Tibet. Abstract presented at EGU General Assembly 2017, 2017.

[2] Yanbin Wang, Lupei Zhu, Feng Shi, Alexandre Schubnel, Nadege Hilairet, Tony Yu, Mark Rivers, Julien Gasc, Ziyu Li, and Fabrice Brunet. A transformation-induced shear instability for deep earthquakes based on laboratory nanoseismological and microstructural observations. Abstract S34B-05 presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12–16 Dec., 2016.

[3] Yuchen Liu, Lupei Zhu, and Asiye Aziz Zanjani. Nonlinear joint inversion of surface wave dispersions and receiver function Ps delay times. Abstract S41A-2731 presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12–16 Dec., 2016.

[4] Yangfan Deng, Jiangtao Li, Xiaodong Song, and Lupei Zhu. Evidence for block-wise continuous deformation in northeast Tibetan Plateau from joint inversion of crustal structures. Abstract T12A-04 presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12–16 Dec., 2016.

[5] Xiaohuang Jiang, Lupei Zhu, and Rong Huang. Preliminary results of pre-stack reverse time migration of teleseismic receiver functions. Abstract S11A-2427 presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12–16 Dec., 2016.

[6] Justin Wood, James Conder, and Lupei Zhu. Anisotropic structure of the Wabash Valley Seismic Zone and Illinois Basin. Abstract S43B-2837 presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 14–18 Dec., 2016.

[7] Asiye Aziz Zanjani, Yuchen Liu, Shaoqian Hu, Lupei Zhu, Robert Herrmann, and James Conder. Imaging the crustal structure of the Wabash Valley Seismic Zone using ambient noise tomography and receiver functions. Abstract S13B-2555 presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 14–18 Dec., 2016.

[8] Lupei Zhu, Asiye Aziz Zanjani, Shaoqian Hu, Yuchen Liu, Robert Herrmann, and James Conder. Preliminary results of crustal structure beneath the Wabash Valley Seismic Zone using teleseismic receiver functions and ambient noise tomography. Abstract T11D-2924 presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 14–18 Dec., 2015.

[9] Song Luo, Lupei Zhu, and Yinhe Luo. Crustal structure beneath the western Hubei Province of China from joint inversion of ambient noise and receiver functions. Abstract S13A-2787 presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 14–18 Dec., 2015.

[10] Zachary Ross, Yehuda Ben-Zion, and Lupei Zhu. Full source tensor inversions of San Jacinto fault zone earthquakes using 3D Green's functions with the gCAP method. Abstract S51A-2662 presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 14–18 Dec., 2015.

[11] S. Hu and L. Zhu. Apply seismic migration technique to teleseismic receiver function study. In *Proceedings of the 2014 Annual IRIS Workshop*, Sunriver, OR, June 8–11 2014.

[12] Xaodong Song, Jiangtao Li, Wuewei Bao, and Lupei Zhu. Outward growth of Tibetan Plateau: Insights from joint inversion of lithosphere structure. Abstract T21B-4593 presented at 2014 Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec., 2014.

[13] R. Huang, L. Zhu, and Y. Xu. Study of active faults in the Three Gorges Dam region by detecting and relocating aftershocks. Abstract S23A-4467 presented at 2014 Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec., 2014.

[14] S. Hu and L. Zhu. Apply seismic migration technique to teleseismic receiver functions. Abstract S43B-4567 presented at 2014 Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec., 2014.

[15] J. Conder, K. Milliron, and L. Zhu. Microseismicity of the Wabash Valley intraplate seismic zone from short-period phased arrays. Abstract T13B-4633 presented at 2014 Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec., 2014.

[16] S. Hu and L. Zhu. An accurate and efficient method of computing differential seismograms. Abstract S53C-08 presented at 2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec., 2013.

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[18] Jianchang Zheng, Yehuda Ben-Zion, L. Zhu, and Zachary Ross. Earthquake source tensor inversion with the gCAP method and 3D Greens functions. Abstract S43A-2478 presented at 2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec., 2013.

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[20] Z. Ross, Y. Ben-Zion, and L. Zhu. Volumetric changes in source regions of earthquakes in the San Jacinto fault zone and the eastern California shear zone. In *Proceedings of the Mathematical Geophysics Meeting, 2012*, Edinburgh, UK, June 18–22 2012.

[21] Y. Zhou, L. Zhu, and X. Song. Crustal structure variation across the northern Yadong-Gulu rift from teleseismic receiver function studies. Abstract T23A-2639 presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec., 2012.

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[25] D. R. Torbeck, X. Song, D. H. Christensen, and L. Zhu. Imaging the crust and uppermost mantle of north central Alaska using the joint inversion of ambient seismic noise correlation and receiver function. Abstract S33A-2367 presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec., 2011.

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[27] Y. Zhou, L. Zhu, and X. Song. Crustal structure variation of the Tibetan Plateau from teleseismic receiver function studies. Abstract T43B-2218 presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec., 2010.

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[29] H. Yang and L. Zhu. Depth extent of low-velocity fault zones. Abstract T33B-2250 presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec., 2010.

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Funded Projects

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[7] R. B. Herrmann and L. Zhu. Toward automated focal mechanism and moment determination for the continental U.S. – an ANSS product. *USGS-NEHRP*, 1/2005–12/2005, $61,099.

[8] C. K. Saikia, K. Mayeda, and L. Zhu. Developing multiple-frequency discriminants for use with regional coda-amplitude measurements. *DoE/NNSA, DE-FC52-04NA25546*, 9/2004–8/2006, $24,990 (SLU portion).

[9] L. Zhu. Delineating earthquake faults in western Turkey. *SLU Summer Research Award*, 7/2004–9/2004, $3,556.

[10] L. Zhu. Refining the southern California 3-D model in the Los Angeles area using seismic waveforms. *USGS-NEHRP, 03HQGR0100*, 6/2003–5/2005, $48,278.

[11] K. Koper, B. Herrmann, B. Mitchell, T. Kusky, and L. Zhu. Upgrade of computer facilities for the seismology research group at Saint Louis University. *NSF, EAR-0214259*, 10/2002–09/2005, $67,425.

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[13] B. Mitchell and L. Zhu. US-Turkey cooperative research: Integrated seismological studies of crust/upper mantle structure and anisotropy in western Anatolia. *NSF, INT-0217493*, 08/2002–07/2004, $34,500.

[14] L. Zhu. Image crustal structure across the San Andreas Fault using the LARSE-II data. *SCEC*, 02/2001–01/2002, $20,000.

[15] T. Teng, W. Lee, and L. Zhu. Waveform tomography from an executed big footprint experiment, the Chi-Chi (Taiwan) Earthquake. *NSF, EAR-0001016*, 08/2000–09/2002, $130,000.

[16] L. Zhu. Image crustal structure across the San Andreas Fault using the LARSE-II data. *SCEC*, 03/2000–02/2001, $28,000.

[17] T. Teng and L. Zhu. Study of the Moho depth and crustal V_p/V_s variation in southern California from teleseismic waveforms. *USGS-NEHRP, 00HQGR0007*, 01/2000–12/2001, $97,000.

[18] L. Zhu. Strong ground-motion study using broadband seismic network in southern California. *SCEC*, 1998–2000, $72,000.

Courses Taught

EAS-130 Seismology of Nuclear Explosions.

EAS-242 Computer Applications in the Earth Sciences.

EAS-437 Earth Dynamics.

EAS-451/551 Seismic Exploration Methods

EAS-540 Continuum Mechanics.

EAS-546 Geodynamics.

EAS-610 Advanced Topics in Geophysics: Modeling Seismic Waveforms.

EAS-619 Advanced Seminar in Geophysics: Active Deformation of the Continents.

EAS-632 Advanced Seismology II: Normal Mode Theory and Free Oscillation of the Earth.

EAS-691 Geoscience Journal Club.

Graduate Students Supervised

1. Hongyi Li, Ph.D. (2005), now Professor in the China University of Geosciences, Beijing, China.
2. Risheng Chu, Ph.D. (2008), now Professor in the Wuhan Institute of Geodesy and Geophysics, Chinese Academy of Sciences.
3. Hongfeng Yang, Ph.D. (2010), now Assistant Professor in the Chinese University of Hong Kong.
4. Yuming Zhou, Ph.D. (2013), now at Schlumberger, Houston, TX, USA.
5. Shaoqian Hu, 2012–.

6. Asiye Aziz Zanjani, 2014–.
7. Yuchen Liu, 2014–.
8. Ziyu Li, 2015–.
9. Zhiyuan Gu, 2015–.