CHUNTAO LIANG

- Professor Of Geophysics
- Deputy Dean, College of Geophysics,Chengdu University of Technology
- Vice Director, Key Laboratory of Earth Exploration and Information Technology of Ministry of Education China,Chengdu University of Technology
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◆ EDUCATION

- PhD., Geophysics, July 2008, University of Memphis, USA.
- M.S., Geology, December 2003, University of Illinois at Urbana Champaign, USA.
- M.S., Geophysics, June 2001, Chengdu University of Technology, China
- B.S., Geophysics, June 1996, Chengdu College of Geology (Now Chengdu University of Technology), China.

◆ WORKING EXPERIENCE

- Sichuan Earthquake Bureau, assistant engineer, July 1996-Auhgust 2001, China
- Microseismic Inc., Research Geophysicist, July 2008 to May 2009; Summer internship, May-August 2007, USA
- GeoTomo LLC, senior Geophysicist, May 2009—March 2012, USA
- Chengdu University of Technology, Professor of Geophysics, March 2012-up to now, China.

◆ MAJOR AWARDS and HONORARY TITLES

(1) 2012, Sichuan 1000-Talented Program

(2) 2013, Second Prize of the Scientific and Technological Advancement in National Resources, Ministry of the Natural Resources

(3) 2016, Creative Award of the Oversea Chinese Federation

(4) 2018, Honorary Title for Excellent Expert with Outstanding Contribution to Sichuan Province

(5) 2020, First Prize of the Scientific and Technological Advancement of the China Geophysical Society

(6) 2021, Award for Excellent Contribution in Science Communication, Ministry of Emergency Management, China

(7) 2021, First Prize of the International Earthquake Science Communication Contest, China Seismological Society, Asian Seismological Council, ASPII

(8) 2021, First Prize of the Scientific and Technological Advancement of the Sichuan Province

(9) 2022, Second Prize of the Teaching Achievement Award of Sichuan Province, China

(10) 2022, First Prize of the Science Research Famous Achievement Award in Higher Institution, Ministry of Education

◆ MAJOR RESEARCH PROJECTS (￥200K or more per project)

(1) Sichuan Key Science & Technology Project: key technique for the seismic risk evaluation of the southern Longmenshan and Longquanshan, 202301-202512, ￥1M

(2) National Natural Science Foundation of China, General Project, Using the Wave Gradiometry method to invert for 3D Vs, anisotropy and Q value of the eastern Tibetan plateau and Western Yangtze Craton, No. 4217040570, 202201-202512, ￥788K

(3) Sub-project of State Key Science & Technology Project, Full waveform imaging based on wavegradiometry,2018YFC1503401-05, 201812-202112, ￥700K

(4) National Natural Science Foundation of China, General Project, The comprehensive study on the seismic gap between the Wenchuan and Lushan Eartquake, 41674059, 201701-202112, ￥700K

(5) Sub-project of State Key Science & Technology Project, Seismic Moment Inversion Based on the joint Inversion, 2016ZX05023004-003-002, 201601-202012, ￥898K

(6) Sichuan Key Science & Technology Project, Microseismic monitoring of Shale Gas exploitation, 2015RZ0032, 201501-201712, ￥800k

(7) National Natural Science Foundation of China, General Project, Inverting velocity,anisotropy using a wavegradiometry, 41374058, 201301-201712, ￥750K

(8) National Natural Science Foundation of China, Emergy Project, Microseismic Monitoring After Lushan Earthquake, 41340009, 201305-201405, ￥200K

(9) National Natural Science Foundation, Subproject of key Project, Shale gas reservoir prediction based on seismic and attributes, U1262206, 201301-201612, ￥2,600K

(10) Joint project with Sinopec, Developing microseismic monitoring system, 201401-201512, ￥600K

(11) Joint project with PetroChina, Microseismic monitoring system for shale gas exploitation, 201301-201412, ￥920K

(12) Joint project with PetroChina, Microseismic monitoring service for shale gas exploitation, 202001-202212, ￥940K

◆ BOOKS

(1)《测不可测，大起大落的地震预测研究》, Translated from the《Predicting the unpredictable, the tumultuous science on the earthquake prediction》, Science Press, March, 2015

(2)《地震学、震源及地球结构概论》, Translated from the《Introduction to seismology, earthquakes, and earth structures》,Science Press, April, 2020, ISBN 978-7-03-064644-6

◆ MAJOR JOURNAL PUBLICATIONS

(1) Liao J, Liang C*, Wang C, Cao F, Ye C and Yang Y (2022) Source Model for the 2022 Qinghai Menyuan Ms 6.9 Earthquake Based on D-InSAR. Front. Earth Sci. 10:948661 doi: 10.3389/feart.2022.948661

(2) Yang, Y., X. Zhang, Y. Dong, S. Sun, Q. Hua, and C. Liang (2022). Crustal Deformation Patterns in the Tibetan Plateau and Its Adjacent Regions as Revealed by Receiver Functions, Bull. Seismol. Soc. Am. XX, 1–18, doi: 10.1785/0120210228

(3) CHANG YingNa, LIANG ChunTao, CAO FeiHuang, ZHOU Lu, LIAO JiangTao, LU WeiFan, WANG ChaoLiang. 2022. Seismic velocity structure for the Anninghe-Zemuhe fault zone by wave gradiometry analysis. Chinese Journal of Geophysics (in Chinese), 65(8): 2886-2903, doi: 10.6038/cjg2022P0731

(4) Wang, C., and C. Liang* (2022). BSPASS: A Beam Search Based Phase Association and Source Scanning Earthquake Location Method, Seismol. Res. Lett. XX, 1–12, doi: 10.1785/0220210242

(5) Liu, Z., Liang, C*., Huang, H., Wang, C., & Cao, F. (2022). Seismic velocity variations at different depths reveal the dynamic evolution associated with the 2018 Kilauea eruption. Geophysical Research Letters, 49, e2021GL093691. https://doi.org/10.1029/2021GL093691

(6) Zhang Z, Liang C*, Long F, Zhao M and Wang D (2022) Spatiotemporal Variations of Focal Mechanism Solutions and Stress Field of the 2019 Changning Ms 6.0 Earthquake Sequence. Front. Earth Sci. 9:797907. doi: 10.3389/feart.2021.797907

(7) Zhen Liu, Xiaobo Tian*, Xiaofeng Liang, C. Liang, Xin Li, 2021. Magmatic Underplating Thickening of the Crust of the Southern Tibetan

Plateau Inferred from Receiver Function Analysis. Geophysical Research Letters, https://doi.org/10.1029/2021GL093754

(8) Liang CT, Yu YY, Wu FR, Kang L, and Tang J (2021). Local stress field inverted for a shale gas play based on focal mechanisms determined from the joint source scanning algorithm. Earthq Sci 34(3): 222–233, doi: 10.29382/eqs-2021-0003

(9) Yu Yangyang, Liang Chuntao, Du Yao, et al. 2021. Analysis of Shale Gas Hydraulic Fracturing Effect and Stress State Based on Joint Inversion Algorithm(JSSA)of Microseismic Location and Focal Mechanism. Earthquake Research in China, 37(2): 273-284.

(10) Jiang, NB., C. Liang*, W. Peng （2021）. Inversion of 3D velocity and anisotropy of near surfaces based on an azimuth-dependent dispersion curve inversion method. Appl. Geophys. 18, 213–225 (2021). https://doi.org/10.1007/s11770-021-0895-1.

(11) Wang L, Liang C T. 2021. Detecting small earthquakes using the theoretical Green's function of virtual earthquakes as templates. Chinese J. Geophys. (in Chinese), 64(7): 2374-2393, doi: 10.6038/cjg202100361.

(12) Zhu Z J, Wang X B, Liu Z Q, et al. 2021. Seismic anisotropy in the southeastern margin of the Tibetan Plateau revealed by ambient noise tomography based on high-density array. Chinese J. Geophys. (in Chinese), 64(3): 823-837, doi: 10.6038/cjg202100440.

(13) Yang Y H, Zhang X M, Hua Q, et al. 2021. Segmentation characteristics of the Longmenshan fault——Constrained from dense focal mechanism data. Chinese J. Geophys. (in Chinese), 64(4): 1181-1205, doi: 10.6038/cjg202100286.

(14) Wan Z X, Liang C T*, Luo Y H. Simulation study of slope terrain effect. (2020), Journal of Institute of Disaster Prevention（022）001.

(15) CAO Fei-huang, LIANG Chun-tao*, CHANG Ying-na. An overview of waveform gradiometry. (2020), Petroleum Geophysics, 18(03):77-83.

(16) Cao, F., Liang* C., Zhou, L., Zhu, J., 2020, Azimuthal anisotropy for the southeast Tibetan plateau extracted by Wave Gradiometry analysis, Journal of Geophysical Research, 10.1029/2019JB018395.

(17) Hua Q, Liang C T, Yang Y H, et al. 2020. Study on ambient seismic noise tomography of eastern Tibetan Plateau based on simulated annealing method. Chinese J. Geophys. (in Chinese), 63(5): 1787-1801, doi: 10.6038/cjg2020N0371.

(19) Wu Z B, Tang G B, Xu T, et al. 2020. Eclogitization of Indian lower crust during its northward subduction revealed by receiver function depth migration images. Chinese J. Geophys. (in Chinese), 63(11): 3996-4011, doi: 10.6038/cjg202000249.

(20) Liang, C., Liu, Z., Hua, Q., Wang, L., Jiang, N., & Wu, J. (2020). The 3D seismic azimuthal anisotropies and velocities in the eastern Tibetan Plateau extracted by an azimuth‐dependent dispersion curve inversion method. Tectonics, 39, e2019TC005747. https://doi.org/10.1029/2019TC005747

(21) Huang Y L, Liang C T, Wu J, et al. 2020. The seismicity in the southern Longmenshan fault zone based on a dense seismic array. Chinese J. Geophys. (in Chinese), 63(3): 1183-1196, doi: 10.6038/cjg2020N0227.

(22) Liu, Z., Liang*, C., Zhu, Z., Wang, L. Jiang, N., Wang, C., Wu, Z. (2019), The complex velocity variation induced by the precipitation and

the 2018 eruption of the Kilauea volcano in Hawaii revealed by ambient noise, Seismological Research Letters, Volume: 90 Issue: 6 Pages: 2154-2164 Published: NOV 2019 DOI：10.1785/0220190053

(23) Liu X M, Wu J, Liang C T, et al. 2019. The latest seismicity characteristics and significance in Longmenshan Fault Zone. Chinese J. Geophys. (in Chinese), 62(4): 1312-1322, doi: 10.6038/cjg2019M0283.

(24) Zhiqiang Liu, Chuntao Liang*, Qian Hua, Ying Li, Yihai Yang, Fujun He, Lihua Fang (2018),The seismic potential in the seismic gap between the Wenchuan and Lushan earthquakes revealed by the joint inversion of receiver functions and ambient noise data, Tectonics, 37,Issue: 11, Pages: 4226-4238,, https://doi.org/10.1029/2018TC005151

(25) Yangyang Yu, Chuntao Liang*, Furong Wu, Xuben Wang, Gang Yu, and Fangdong Chu (2018). ”On the accuracy and efficiency of the joint source scanning algorithm for hydraulic fracturing monitoring.” GEOPHYSICS, 83(5), KS77-KS85. https://doi.org/10.1190/geo2017-0473.1

(26) Yang,Y., C. Liang*, L. Fang, J. Su & Q. Hua, (2018), A comprehensive analysis on the stress field and seismic anisotropy in eastern Tibet. Tectonics, 37,June, 1648–1657. https://doi.org/10.1029/2018TC005011

(27) Chaoliang Wang, Chuntao Liang*, Kai Deng, Yanling Huang, Lu Zhou, Spatiotemporal Distribution of Microearthquakes and Implications Around the Seismic Gap Between the Wenchuan and Lushan Earthquakes, Tectonics, https://doi.org/10.1029/2018TC005000

(28) Zhenbo Wu, Tao Xu, Chuntao Liang, Chenglong Wu, Zhiqiang Liu, Crustal shear wave velocity structure in the northeastern Tibet based on the Neighbourhood algorithm inversion of receiver functions,

Geophysical Journal International, Volume 212, Issue 3, 1 March 2018, Pages 1920–1931, https://doi.org/10.1093/gji/ggx521

(29) Liang C T, Huang Y L, Wang C L, et al. 2018. Progress in the studies of the seismic gap between the 2008 Wenchuan and 2013 Lushan earthquakes. Chinese J. Geophys. (in Chinese), 61(5): 1996-2010, doi: 10.6038/cjg2018M0254.

(30) Yu Yang-yang, Liang Chuntao, Kang Liang, Yi Chen, Wu Furong. Design optimization of surface-based microseismic monitoring system for hydraulic fracturing. OGP, 2017, 52(5): 974-983..

(31) Zhou L, Liang C T, Yang Y H. 2017. Application of three-component seismic-wave gradiometry for the Central and Eastern United States. Chinese J. Geophys. (in Chinese), 60(9): 3352-3367, doi: 10.6038/cjg20170907.

(32) He F J, Liang C T*, Yang Y H, et al. 2017. The crust structure of the unruptured segment between Wenchuan and Lushan Earthquakes revealed by Receiver Functions. Chinese Journal of Geophysics, 60(6): 2130-2146, doi: 10.6038/cjg20170609.

(33) Yang Y H, C. Liang*, Li Z Q, et al. 2017. Stress distribution near the seismic gap between Wenchuan and Lushan earthquakes. Pure and Applied Geophysics, 174(6): 2257-2267, doi: 10.1007/s00024-016-1360-6.

(34) Liang, C., Yangyang Yu, Yihai Yang, Liang Kang, Cheng Yin, Furong Wu, 2016, Joint Inversion of Source Location and Focal Mechanism of Microseisms, GEOPHYSICS, VOL. 81, NO. 2 (MARCH-APRIL 2016); P. KS103–KS111, https://doi.org/10.1190/GEO2015-0272.1.

(35) Yang Y H, Liang C T*, Su J R. 2015. Focal mechanism inversion based on regional model inverted from receiver function and its application

to the Lushan earthquake sequence. Chinese Journal of Geophysics, 58（10）: 3583-3600, https://doi.org/10.6038/cjg20151013.

(36) Jiang Kezhi, Liang Chuntao, Yang Yihai, Yu Yangyang. Discussion on the construction of Wenchuan earthquake research information platform, E-science Technology & Application 2015, 6(2): 74－85, doi:10.11871/j.issn.1674-9480.2015.02.009

(37) Zhu J S, Jiang X T, Fan J, Liang C T, 2013. The Deep Velocity Structure and Crustal Flow Beneath the Eastern Margin of the Tibetan Plateau. Earthquake Science (English Edition), 87(supp.): 435-438, https://doi.org/10.1007/s11589-012-0871-1.

(38) Liang, C. et al., A new method to improve the signal-to-noise ratios of microseismic events by more than 5 times, 2009 SEG Extended Abstract, in preparation.

(39) Liang, C. et al., Reducing time length significantly required to extract reflectivity from ambient noise data with a novel technique, 2009 SEG Extended Abstract, in preparation.

(40) Liang, C., C. A. Langston (2009), 3D Crustal structure of Eastern North America deduced from ambient noise Tomography, J. Geophy. Res. https://doi.org/10.1029/2008JB005919.

(41) Liang, C., C. A. Langston (2009), Wave Gradiometry for USArray (1): Rayleigh waves, J. Geophy. Res. https://doi.org/10.1029/2008JB005918

(42) Langston, C. A., and C. Liang (2008), Gradiometry for polarized seismic waves, J. Geophys. Res., 113, B08305, https://doi.org/10.1029/2007JB005486.

(43) Liang, C., C. A. Langston (2008), Ambient Seismic Noise Tomography and Structure of Eastern North America, J. Geophy. Res., 113, B03309, https://doi.org/10.1029/2007jb005350

(44) Liang, C., and X. Song (2006), A low velocity belt beneath northern and eastern Tibetan Plateau from Pn tomography, Geophys. Res. Lett., 33, L22306, https://doi.org/10.1029/2006g1027926.

(45) Liang, C., X. Song and J. Huang (2004), Tomographic inversion of Pn travel times in China, J. Geophy. Res, 109, B11304. https://doi.org/10.1029/2003JB002789.

(46) Liang C T, Zhu J S, Cao J M (2000), Application of 3D ray tracing to study lithospheric structures in East Asia, Computing Techniques for Geophysical and Geochemical Exploration.

(47) Liang C T (1999), Data processing method for three-dimensional body wave inversion, Earthquake Research in Sichuan, 2001, 35(4):348-356.

◆ PATENTS & COPYRIGHTS

(1) Chuntao Liang; Michael P. Thornton; Peter M. Duncan, Method for imaging the earth's subsurface using passive seismic interferometry and adaptive velocity filter, 2011.11, USA, 8218394

(2) Chuntao Liang; Michael Thornton; Peter Morton, Method for passive seismic emisson tomography using adaptive velocity filter, 2012.07, USA, 8064288.

(3) Yangyang Yu, Chuntao Liang, Fast Inversion of Seismic Source based on the multiple-scanning algorithm. Patent No.201710023938.9, China

(4) Liang Wang, Chuntao Liang, A System for Convenient Seismic Monitoring and Data Transfer, Patent No. 202110966054.3, China

◆ SOCIAL SERVICES

(1) Vice Chair, Chengdu Science Communication Society

(2) Award Winning Science Outreach: Produced 10 videos for earthquake science outreaching, more than 1 million viewers, winning the first prize of the International Earthquake Science Communication Contest by the CSS, and ASC, ISPEII

(3) AOGS Session Conveners: Convened the session “In and Around the Tibetan Plateau: the Deep Structure, Geodynamics, Geohazards and Georesources”, 2019-2022

(4) Associate Editor for the journal of 《Geophysical and Geochemical Computation Techniques》

(5) Editorial board member for the journal of《Earthquake Science》

(6) Editorial board member for the journal of《Earthquake Geology》

(7) Editorial board member for the journal of《Geophysical Oil Exploration》