

## HUA-WEI ZHOU

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### RESEARCH INTERESTS

- ✓ Seismic imaging for petroleum exploration and solid Earth geophysics
- ✓ Tomographic velocity model building in applied and earthquake seismology
- ✓ Crustal & mantle seismology – probing the structure and properties of Earth's interior

### EDUCATION

Year	Degree/Field	Institution
1989	PhD/Geophysics	California Institute of Technology, Pasadena, CA, U.S.A.
1984	MS/Geology	California State University, Long Beach, CA, U.S.A.
1980	BS/Mathematics	China University of Geosciences, Wuhan, China

### PROFESSIONAL EXPERIENCE

Date	Position
9/12 –	Professor, Sheriff Endowed College Professorship, Dept of Earth & Atmospheric Sciences, University of Houston
2/13 – 7/19	Department Chair, Dept of Earth & Atmospheric Sciences, University of Houston
9/07 – 8/12	Professor and Joe Pevehouse Endowed Chair of Exploration Geophysics, Dept of Geosciences, Texas Tech University, Lubbock, TX
9/98 – 8/07	Associate Professor/Professor, Dept of Geosciences; Acting/Associate Director of the Allied Geophysical Lab, University of Houston
5/97 – 8/98	Research Specialist, Exxon Production Research Co., Houston, TX
9/95 – 5/97	Associate Professor, Dept of Geosciences, University of Houston
11/89 – 8/95	Assistant Professor, Dept of Geosciences, University of Houston
8/84 – 10/89	Research Assistant, Seismological Lab, Caltech, Pasadena, CA
6/82 – 5/84	Research Assistant, Dept of Geological Sciences, CalState University, Long Beach, CA
6/80 – 5/82	Lecturer, China University of Geosciences, Wuhan, China
10/75 – 3/77	Assistant Geologist, Geological Survey of Jiangsu Province, Nanjing, China

### TEACHING & ADVISING

- Supervised 22 post-docs, over 40 doctoral students, and 35 master students.
- Taught courses (shown below) at University of Houston & Texas Tech University.

**Undergraduate Courses (taught at University of Houston or Texas Tech University):**

- “Petroleum Geosciences for Petroleum Engineers” and “Geology of Hydrocarbons”
- “Introduction to Earthquakes” and “Earthquakes”
- “Geophysical Signals & Analysis”

**Graduate Courses (taught at University of Houston or Texas Tech University):**

- “Geophysical Data Processing” and “Seismic Data Processing”
- “Migration of Seismic Data” and “Seismic Migration”
- “Velocity Model Building” and “Seismic Velocity Analysis”
- “Exploration Geophysics” and “Petroleum Seismology”
- “Seismic Imaging” and “Seismic Depth Imaging”
- “Earthquake Seismology” and “Seismology: Theory & Practice”
- “Seismic Inversion: Current Concepts”

**Short Courses since 2018:**

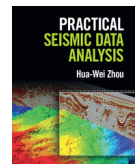
#	Date	Institute   Location	Title of Short Course
1.	Yearly	UH short course   Houston	Petroleum seismology
2.	2019	OUC (Qingdao)	Frontier of marine geophysics
3.	2018, 2019	Petrobras   Houston	Seismic migration
4.	2018	CUP (Beijing)	Seismic data processing & inversion

**PUBLICATIONS**

➤ **Published 1 book and over 170 refereed papers and expanded abstracts.**

**Book:**

1. **Zhou, H.**, Practical Seismic Data Analysis, Cambridge University Press, 482 pp., 2014.

**Refereed Journal Articles since 2016 (\* first author was my student/postdoc):**

1. 2016 Krupnik, D., S. Khan, U. Okyay, P. Hartzell, and **H. Zhou**, Study of diagenetic features in Upper Albian rudist buildups of the Edwards Formation using ground-based hyperspectral imaging and terrestrial laser scanning, *J. of Sedimentology*, 345. 154-167, DOI: 10.1016/j.sedgeo.2016.09.008, 2016.
2. 2016 Jing\*, H., **H. Zhou**, and A. Li, Quantification of the impact of seismic anisotropy in microseismic location, *International J. of Geosciences*, 7, 884-890, DOI: 10.4236/ijg.2016.77065, 2016.
3. 2016 邹志辉, 张翊孟, 卞爱飞, **周华伟**, 倪宇东, 李培明, 常规检波器数据低频的评价与恢复及在地震成像中的应用, *石油地球物理勘探 Petroleum geophysical exploration (in Chinese)*, 51 (5), 841-849, 2016.
4. 2016 Zou, Z., K. Liu, W. Zhao, H. Liu, **H. Zhou**, X. Meng, and Y. Li, Upper crustal structure beneath the northern South Yellow Sea revealed by wide-angle seismic tomography and joint interpretation of geophysical data, *Geological Journal*, 51(S1), 108-122, DOI: 10.1002/gj.2847, 2016.

5. 2016 Deng\*, P., Y. Chen, Y. Zhang, and **H. Zhou**, Weighted stacking of seismic AVO data using hybrid AB semblance and local similarity, *J. Geophys. Eng.*, *13*, 152-163, DOI: 10.1088/1742-2132/13/2/152, 2016.
6. 2017 Ding\*, Y., Y. Zheng, **H. Zhou**, M. Howell, H. Hu, and Y. Zhang, Propagation of Gaussian Wave Packets in complex media and the application to fracture characterization, *Geophys. J. Int.*, *210*, 1244-1251, 2017.
7. 2017 Sun, L., S. Khan, S. Sarmiento, M. R. Lakshmikantha, and **H. Zhou**, Ground-based hyperspectral imaging and terrestrial laser scanning for fracture characterization in the Mississippian Boone Formation, *Int J Appl Earth Obs*, *63*, 222-233, 2017.
8. 2017 Jing\*, H., **H. Zhou**, and A. Li, Micro-earthquakes in West Texas: Induced or not? *GSH J.*, *8(4)*, 12-18, 2017.
9. 2018 **Zhou, H.**, H. Hu, Z. Zou, Y. Wo, and O. Youn, Reverse time migration: A prospect of seismic imaging methodology, *Earth-Science Reviews*, *179*, 207-227, 2018.
10. 2018 Zou, Z., **H. Zhou**, H. Gurrola, A. Bian, Z. Huang, and J. Zhang, Impact and solutions of seawater heterogeneity on tomographic inversion of crustal velocity for wide-angle seismic survey in deep marine environment – numerical studies, *J. of Earth Science*, *29*, 1380-1389, 2018.
11. 2019 Wei\*, Z., H. Hu, **H. Zhou**, and A. Lau, Characterizing rock facies using machine learning algorithm based on a convolutional neural network and data padding strategy, *Pure & Applied Geophysics*, *176*, 3593-3605, 2019.
12. 2019 Liu, W., F. Wang, and **H. Zhou**, Parallel seismic modeling based on OpenMP+AVX and optimization strategy, *J. of Earth Science*, *30*, 843-848, 2019.
13. 2019 Ding\*, Y., **H. Zhou**, Y. Zheng, and Y. Wo, Synthesis of directional wave packets from shot records, *Pure & Applied Geophysics*, *176(10)*, 4321-4333, 2019.
14. 2019 Tong, S.Y., M. Chen, **H. Zhou**, L.W. Li, X.G. Xu, and Z Q. Wu, Reverse-time migration of converted S-waves of varying densities. *J. Ocean University of China*, *18(5)*, 1093-1097, 2019.
15. 2020 Zong\*, J., Y. Wo, **H. Zhou**, and N. Dyaour, Inversion for salt flank geometry using transmitted P- and S-wave traveltimes, *IEEE TRANS Geoscience & Remote Sensing*, *58(9)*, 6504-6511, DOI: 10.1109/TGRS.2020.2976953, 2020.
16. 2020 Wo\*, Y., **H. Zhou**, H. Hu, J. Zong, and Y. Ding, A layer-cell tomography for near-surface velocity model building using first arrivals, *Pure & Applied Geophysics*, *177*, 4161-4175, 2020.
17. 2020 Huang\*, X., Z. Guo, **H. Zhou**, Y. Yue, First arrival Q tomography based on adjoint-state method, *J. of Geophysics and Engineering*, *17*, 577-591, 2020.
18. 2020 Thongsang\*, P., H. Hu, A. Lau, and **H. Zhou**, Imaging enhancement in angle-domain common-image gathers utilizing connected-component labeling method, *Pure & Applied Geophysics*, *177*, 4897-4912, 2020.
19. 2020 Tang\*, S., Y. Ding, **H. Zhou**, and H. Zhou, Reconstruction of sparsely sampled seismic data via residual U-Net, *IEEE TRANS Geoscience & Remote Sensing*, *in press*, 2020.
20. 2021 **Zhou, H.**, Z. Zou, and Z. Li, On detecting artifacts in seismic images, *地球与行星物理论评 Reviews of Geophysics and Planetary Physics (in Chinese)*, *in press*, 2021.

**Plus 66 Refereed Journal Articles published during 1984 – 2015.**

**Refereed Expanded Abstracts since 2016 (\* first author was my student/postdoc):**

1. 2016 Deng\*, P., W. Huang, **H. Zhou**, Full-waveform inversion by multi-scale temporal integration, SEG, Expanded Abstract, *35*, 1432-1437, Dallas, 2016.
2. 2016 Ding\*, Y., Y. Zheng, **H. Zhou**, Y. Zhang, and H. Hu, Seismic characterization of fractures using exact localized waves: Gaussian wave packet, SEG, Expanded Abstract, *35*, 3646-3650, Dallas, 2016.

3. 2016 Huang\*, W., P. Deng, and **H. Zhou**, Effects of fracture density on P-wave reflection coefficients for shale/sand model with HTI anisotropy, SEG, Expanded Abstract, 35, 597-601, Dallas, 2016.
4. 2016 Huang\*, W., P. Deng, and **H. Zhou**, Least-squares reverse-time migration with Hessian preconditioning, SEG, Expanded Abstracts, 35, 4193-4197, Dallas, 2016.
5. 2016 Song\*, W., **H. Zhou**, Z. Deng, R. Wang, and F. Yan, Fast Matching pursuit decomposition based near surface seismic logging data Q estimate with shaping regularization, SEG, Expanded Abstracts, 35, 2334-2338, Dallas, 2016.
6. 2016 Thongsang\*, P., **H. Zhou**, and H. Hu, Analysis of oscillational behaviors of waves in gas-pocket reservoirs via decoupling wavefields, SEG, Expanded Abstracts, 35, 4049-4053, Dallas, 2016.
7. 2016 Wei\*, Z., H. Hu, A. Lau, Y. Zheng, and **H. Zhou**, Joint inversion for microseismic event positions and velocity structure by combining multi-scale deformable-layer tomography and master station earthquake location method, SEG, Expanded Abstract, 35, 2498-2502, Dallas, 2016.
8. 2016 Wo\*, Y., **H. Zhou**, and F. Wu, A layer-cell approach of near-surface first-arrival tomography, SEG, Expanded Abstract, 35, 2382-2386, Dallas, 2016.
9. 2017 Deng\*, P., W. Huang, **H. Zhou**, and L. Fu, Velocity and attribute analysis using AB semblance: A case study using 2D marine data from the Nankai trough, SEG Intern. Geophys. Conf., 99-103, Qingdao, 2017.
10. 2017 Bian, A., Y. Ni, Z. Zou, and **H. Zhou**, Constrained time-lapse waveform inversion for target oriented deep-water exploration, SEG 2017 Workshop: OBN/OBC Tech. & App., 79-82, Beijing, 2017.
11. 2017 Thongsang\*, P., H. Hu, **H. Zhou**, and A. Lau, Relaxed flatness-constraint of angle-domain-common-image gathers generating by Poynting vectors via concurrent vector-median-filter, SEG, Expanded Abstracts, 36, 4661-4665, Houston, 2017.
12. 2017 Deng\*, P., **H. Zhou**, W. Huang, Y. Zhang, Y. Tan, F. Li, and B. Yang, Double-weighted stacking using local similarity, SEG, Expanded Abstracts, 36, 5049-5053, Houston, 2017.
13. 2017 Jing\*, H., **H. Zhou**, and A. Li, Micro earthquakes in west Texas: Induced or not? SEG, Expanded Abstracts, 36, 5350-5355, Houston, 2017.
14. 2018 Wo\*, Y., and **H. Zhou**, Tomographic velocity model building for complex near surface and its impact on depth imaging, SEG, Expanded Abstract, 37, 2607-2611, Anaheim, 2018.
15. 2018 Thongsang\*, P., H. Hu, A. Lau, and **H. Zhou**, Imaging improvement in angle-domain common-image-gathers by a local stack utilizing segmentation method, SEG, Expanded Abstract, 37, 4221-4225, Anaheim, 2018.
16. 2018 Sun, W., Z. Zou, **H. Zhou**, Y. Rui, S. Zhao, Q. Cui, J. Zhang, Velocity model building based on multiscale deformable layer tomography using first-arrival and reflection traveltimes, SEG, Expanded Abstract, 37, 5228-5232, Anaheim, 2018.
17. 2019 **H. Zhou**, Heng Zhou, Boming Wu, and Zhehao Li, Assessing the source radiation pattern (SRP) of onshore seismic data: Preliminary results, SEG, Expanded Abstract, 38, ??, San Antonio, 2019.
18. 2019 Ding\*, Y., Y. Zheng, **H. Zhou**, Z. Li, and H. Hu, An asymmetrical reverse time migration scheme to image high-angle faults, SEG, Expanded Abstract, 38, ??, San Antonio, 2019.

**Plus 69 Refereed Expanded Abstracts published during 1991 – 2015.**

**ADDITIONAL 114 ABSTRACTS AT NATIONAL & INTERNATIONAL CONFERENCES**