

田冬冬

教授 博士生导师

中国地质大学（武汉）
地球物理与空间信息学院
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教育经历

2018 地球物理学博士，中国科学技术大学，中国安徽省合肥市

2012 地球物理学学士，中国科学技术大学，中国安徽省合肥市

工作经历

2022/12 至今 教授，中国地质大学（武汉），地球物理与空间信息学院

2021/11-2022/11 特任教授，中国地质大学（武汉），地球物理与空间信息学院

2018/08-2021/09 博士后研究助理，密西根州立大学，地球与环境科学系

研究方向及兴趣

- 地球深部结构
- 地震震源理论及观测
- 地震波传播理论

学术团体及服务

学术团体

- [美国地球物理联合会（AGU）](#) 会员（2012 至今）
- [中国地球物理学会（CGS）](#) 会员（2022 至今）
- [中国地震学会](#) 会员（2024 至今）

学术服务

- Earthquake Research Advances 副主编（2024 至今）
- 中国地震学会地震学专业委员会委员（2024 至今）
- 地球与行星深部研究 SEDI 中国委员会委员（2026 至今）
- Generic Mapping Tools (GMT) 指导委员会委员（2024 至今）
- 期刊/基金审稿人: *Nature Communications*, *Journal of Geophysical Research: Solid Earth*, *Geophysical Research Letters*, *Seismological Research Letters*, *Review of Scientific Instruments*, *Journal of Open Source Software*, *Results in Geophysical Sciences*, 华北地震科学, 国家自然科学基金面上项目及青年科学基金

- 创办博客及网站 [SeisMan 博客](#) (2013)、[GMT 中文社区](#) (2016) 和 [地震“学”](#) (2020)
- [Generic Mapping Tools \(GMT\)](#) 和 [PyGMT](#) 核心开发者 (2018 至今)
- [中国地震学参考模型](#) 研究助理及数据库管理员 (2016–2018)
- AGU 秋季会议 Outstanding Student Paper Award 评审 (2018–2020)
- [中国地震学参考模型](#) 工作组成员 (2023 至今)

学院服务

- 地空学院学位评定分委员会委员 (2023–2025)

荣誉

- 2022 湖北省高层次人才计划
- 2021 中国地质大学 (武汉) “百人计划”
- 2018 中国科学院院长奖
- 2018 中国科学技术大学优秀毕业生
- 2017 中国地球科学联合学术年会优秀学生论文奖
- 2017 博士生国家奖学金

科研基金

- 中国地质大学 (武汉) 中央高校优秀青年团队, 5 万, 2023/01–2024/12, 排名 5/6
- 国家自然科学基金面上项目 No. 42274122, 56 万, 2023/01–2026/12, 主持
- 中国地质大学 (武汉) “百人计划” 科研启动经费, 200 万, 2021/11–2026/12, 主持

已发表论文

* 通讯作者, # 共同一作

29. Zhang, Y.*, Wei, S. S.*, **Tian, D.**, Linkimer, L., Beck, S., Portner, D. E. (2026). Dehydration of the Pampean Flat Slab and Crustal Deformation in the Overriding Plate Revealed by Earthquake Stress Drops. *Geophysical Research Letters*, *accepted*.
28. Zhang, Z.*, Wei, S. S.*, Zhang, Y., Wang, F., **Tian, D.** (2026). Along-strike variations in sub-arc melting beneath the Alaska Peninsula revealed by P-wave attenuation. *Journal of Geophysical Research: Solid Earth*, 131(8), e2026JB033769. doi:[10.1029/2026JB033769](#)
27. **Tian, D.***, Fröhlich, Y., Leong, W. J., Grund, M., Schlitzer, W., Jones, M., Uieda, L., Luis, J. M. F. (2026). PyGMT: Bridging Python and the Generic Mapping Tools for Geospatial Visualization and Analysis. *Geochemistry, Geophysics, Geosystems*, 27(7), e2026GC013105. doi:[10.1029/e2026GC013105](#)
26. Li, H., Fu, L., Liu, Y., **Tian, D.**, Sun, Y., Zhou, C., Hu, X. (2026). Using the HVSr to Study the Land-slide Media Changes in Three Gorge Reservoir Area. *Seismological Research Letters*. doi:[10.1785/0220250223](#)
25. Liu, X., **Tian, D.*** (2026). Stress-drop variability in aftershocks of the 2018 Mw 7.9 Gulf of Alaska Outer-Rise Earthquake. *Seismological Research Letters*. doi:[10.1785/0220260048](#)

24. Wang, Z., Wang, D.*, Wan, Z., **Tian, D.***, Peng, Y. (2026). Decomposing earthquake moment tensors using P-wave first motion: Insights into global events with significant non-double-couple components. *Geophysical Research Letters*, 53(7), e2025GL121541. doi:[10.1029/2025GL121541](https://doi.org/10.1029/2025GL121541)
23. Zhang, Y. R.*, Wei, S. S.*, Byrnes, J. S., **Tian, D.**, Wang, F., Bezada, M. (2026). 3D P-wave attenuation tomography of the Tonga-Lau subduction system with improved earthquake source parameters and a transdimensional Bayesian Markov Chain Monte Carlo approach. *Journal of Geophysical Research: Solid Earth*, 131(4), e2025JB032176. doi:[10.1029/2025JB032176](https://doi.org/10.1029/2025JB032176)
22. Li, J.*, **Tian, D.**, Chu, R. (2026). Ultralow velocity zones at the core-mantle boundary in the subduction regions consistent with the iron-rich origins revealed by ScP waveform complexities. *Geophysical Journal International*, 245(1), ggag052. doi:[10.1093/gji/ggag052](https://doi.org/10.1093/gji/ggag052)
21. Li, J.*, **Tian, D.**, Li, M., Chu, R. (2025). Small-Scale Heterogeneities in the Lowermost Mantle Near the Perm Anomaly. *Journal of Geophysical Research: Solid Earth*, 130(8), e2025JB031160. doi:[10.1029/2025JB031160](https://doi.org/10.1029/2025JB031160)
20. Li, J.*, **Tian, D.***, Li, M., Sun, D., Mao, Z., Dobrosavljevic, V. (2025). Ultralow Velocity Zones at the Core-Mantle Boundary Near the Caroline Hotspot. *Journal of Geophysical Research: Solid Earth*, 130(7), e2024JB030763. doi:[10.1029/2024JB030763](https://doi.org/10.1029/2024JB030763)
19. Li, J.*, Sun, D., **Tian, D.** (2024). Localized Ultra-Low Velocity Zone as a Strong Scatterer at the Core-Mantle Boundary Beneath Central America. *Journal of Geophysical Research: Solid Earth*, 129(12), e2024JB029287. doi:[10.1029/2024JB029287](https://doi.org/10.1029/2024JB029287)
18. Li, J.*, **Tian, D.**, Sun, D., Tong, P. (2024). D" structures beneath the East China Sea resolved by P-wave slowness anomalies. *Journal of Geophysical Research: Solid Earth*, 129(11), e2024JB029584. doi:[10.1029/2024JB029584](https://doi.org/10.1029/2024JB029584)
17. **Tian, D.** (2024). HinetPy: A Python package for accessing and processing NIED Hi-net seismic data. *Journal of Open Source Software*, 9(98), 6840. doi:[10.21105/joss.06840](https://doi.org/10.21105/joss.06840)
16. Li, J.*, Zhang, B., Sun, D., **Tian, D.**, Yao, J. (2024). Detailed 3D structures of the western edge of the Pacific Large Low Velocity Province. *Journal of Geophysical Research: Solid Earth*, 129(4), e2023JB028032. doi:[10.1029/2023JB028032](https://doi.org/10.1029/2023JB028032)
15. **Tian, D.***, & Wen, L. (2023). Comment on "Inner Core Rotation Captured by Earthquake Doublets and Twin Stations" by Yang and Song. *Geophysical Research Letters*, 50(15), e2023GL103173. doi:[10.1029/2023GL103173](https://doi.org/10.1029/2023GL103173)
14. **Tian, D.***, Wei, S. S.*, Wang, W., & Wang, F. (2022). Stress drops of intermediate-depth and deep earthquakes in the Tonga slab. *Journal of Geophysical Research: Solid Earth*, 127, e2022JB025109. doi:[10.1029/2022JB025109](https://doi.org/10.1029/2022JB025109)
13. Yao, J.*, **Tian, D.**, Sun, L., & Wen, L. (2021). Comment on "Origin of temporal changes of inner-core seismic waves" by Yang and Song (2020). *Earth and Planetary Science Letters*, 553, 116640. doi:[10.1016/j.epsl.2020.116640](https://doi.org/10.1016/j.epsl.2020.116640)
12. Wei, S. S.*, Shearer, P. M., Lithgow-Bertelloni, C., Stixrude, L., & **Tian, D.** (2020). Oceanic plateau of the Hawaiian mantle plume head subducted to the uppermost lower mantle. *Science*, 370, 983–987. doi:[10.1126/science.abd0312](https://doi.org/10.1126/science.abd0312)

11. **Tian, D.***, Lv, M., Wei, S. S., Dorfman, S. M., & Shearer, P. M. (2020). Global variations of Earth's 520- and 560-km discontinuities. *Earth and Planetary Science Letters*, 552, 116600. doi:[10.1016/j.epsl.2020.116600](https://doi.org/10.1016/j.epsl.2020.116600)
10. Wessel, P*, Luis, J., Uieda, L., Scharroo, R., Wobbe, F., Smith, W. H. F., & **Tian, D.** (2019). The Generic Mapping Tools Version 6. *Geochemistry, Geophysics, Geosystems*, 20(11), 5556–5564. doi:[10.1029/2019GC008515](https://doi.org/10.1029/2019GC008515)
9. Yao, J.*, **Tian, D.**, Sun, L., & Wen, L. (2019). Temporal change of seismic Earth's inner core phases: inner core differential rotation or temporal change of inner core surface? *Journal of Geophysical Research: Solid Earth*, 124(7), 6720–6736. doi:[10.1029/2019JB017532](https://doi.org/10.1029/2019JB017532)
8. Fan, W.*, Wei, S. S., **Tian, D.**, McGuire, J. J., & Wiens, D. A. (2019). Complex and diverse rupture processes of the 2018 Mw 8.2 and Mw 7.9 Tonga-Fiji deep earthquakes. *Geophysical Research Letters*, 46(5), 2434–2448. doi:[10.1029/2018GL080997](https://doi.org/10.1029/2018GL080997)
7. Yao, J.***, **Tian, D.#**, Lu, Z., Sun, L., & Wen, L. (2018). Triggered seismicity after North Korea's 3 September 2017 nuclear test. *Seismological Research Letters*, 89(6), 2085–2093. doi:[10.1785/0220180135](https://doi.org/10.1785/0220180135)
6. Yao, J.***, **Tian, D.#**, Sun, L., & Wen, L. (2018). Source characteristics of North Korea's 3 September 2017 nuclear test. *Seismological Research Letters*, 89(6), 2078–2084. doi:[10.1785/0220180134](https://doi.org/10.1785/0220180134)
5. **Tian, D.****, Yao, J.#, & Wen, L. (2018). Collapse and earthquake swarm after North Korea's 3 September 2017 nuclear test. *Geophysical Research Letters*, 45(9), 3976–3983. doi:[10.1029/2018GL077649](https://doi.org/10.1029/2018GL077649)
4. 温联星*, **田冬冬**, 姚家园 (2018). 地球内核及其边界的结构特征和动力学过程. *地球物理学报*, 61(3), 803–818. doi:[10.6038/cjg2018L0500](https://doi.org/10.6038/cjg2018L0500)
3. **Tian, D.**, & Wen, L.* (2017). Seismological evidence for a localized mushy zone at the Earth's inner core boundary. *Nature Communications*, 8, 165. doi:[10.1038/s41467-017-00229-9](https://doi.org/10.1038/s41467-017-00229-9)
2. Chen, X.*, **Tian, D.**, & Wen, L. (2015). Microseismic sources during Hurricane Sandy. *Journal of Geophysical Research: Solid Earth*, 120(9), 6386–6403. doi:[10.1002/2015JB012282](https://doi.org/10.1002/2015JB012282)
1. Zhang, M.*, **Tian, D.**, & Wen, L. (2014). A new method for earthquake depth determination: stacking multiple-station autocorrelograms. *Geophysical Journal International*, 197(2), 1107–1116. doi:[10.1093/gji/ggu044](https://doi.org/10.1093/gji/ggu044)

学术报告

- 2021/01/07 南京大学
- 2020/11/27 南方科技大学
- 2019/02/23 Michigan State University
- 2018/06/15 中国科学院地质与地球物理研究所
- 2018/06/14 中国地震局地震预测所
- 2016/09/21 湖北省地震局
- 2016/06/30 中国地震台网中心

教学经验

本科生课程

- 连续介质力学 (2025–2026)
- 地球科学绘图基础 (2025–2026)
- 本科生地质实习 (秭归) (2025)
- 珠峰班地球物理实习 (云南) (2026)

研讨会

- InSAR 理论与实践暑期课程 “GMTSAR and Beyond”，指导讲师 (2024–2026)
- UNAVCO 短期课程 “The Generic Mapping Tools for Geodesy”，指导讲师 (2019–2022)
- AGU 秋季会议研讨会 SCIWS4: “Become a Generic Mapping Tools Contributor Even If You Can’t Code”，指导讲师 (2019)

指导学生

博士研究生

- 刘璇, 2022/09– (硕博连读)
- 周新宇, 2025/09–

硕士研究生

- 晏俊, 2024/09–

本科生

- 张煊, 2026/09–

往届学生

- 赵浩亮, 2023/09–2026/06 (硕士)
- 刘小余, 2023/09–2026/06 (硕士)
- 周新宇, 2024/09–2025/06 (学士; 校级优秀毕业论文)
- 买鸿轩, 2023/11–2024/06 (学士)
- 宋杨奇, 2022/02–2022/06 (学士)

野外经历

- LEEP (Lake Erie Earthquake exPeriment), 2018/10/12–2018/10/16, 在 Erie 湖周边安装 8 个宽频带地震仪

开源软件

- 2014 至今 **HinetPy** | <https://github.com/seisman/HinetPy/>
用于从 Hi-net 网站申请和处理地震波形数据的 Python 包
唯一开发者
- 2018 至今 **PyGMT** | <https://www.pygmt.org/>
地学制图工具 GMT 的 Python 接口
核心开发者
- 2018 至今 **GMT** | <https://www.generic-mapping-tools.org/>
地学制图工具 Generic Mapping Tools.
核心开发者