Dongdong Tian

Ph.D. in Geophysics

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Education

2018	**Ph.D** in Geophysics University of Science and Technology of China, Hefei, China
2012	**B.S.** in Geophysics University of Science and Technology of China, Hefei, China

Research Interests

- Structure of the Earth's Deep Interior
- Mechanisms of Small Seismic Events (Microseisms, Nuclear Explosions, Collapses)
- Numerical Simulation of Wave Propagation in Complex Media
- Full Waveform Inversion
- Seismic Interferometry

Professional Societies & Activities

2012 – present	Member of the American Geophysical Union (AGU)
2016 – 2018	Research assistant and database manager for China Seismological Reference Model
2016 – present	Founder and primary contributor of GMT China Community
2017 – present	Peer-reviewer of scientific journals: *Geophysical Research Letters* (1), *Seismological Research Letters* (2)

Awards & Honors

2018	Outstanding Graduate Student, University of Science and Technology of China, China [*top 15%*]
2017	Outstanding Student Paper Award, 2017 Annual Meeting of Chinese Geoscience Union, China
2017	National Scholarship for Doctoral Students, Ministry of Education, China [*top 5%*]
2014	Guanghua Scholarship for Graduate Students, Guanghua Education Fund, China
2010	Guanghua Scholarship for Undergraduate Students, Guanghua Education Fund, China
2009	Outstanding Volunteer, University of Science and Technology of China, China

Peer-reviewed Publications

*corresponding author, #co-first author.

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

4. Wen, L., **Tian, D.**, & Yao, J. (2018). Seismic structure and dynamic process of the Earth's inner core and its boundary. *Chinese Journal of Geophysics*, *61*(3), 803–818. doi:10.6038/cjg2018L0500 [in Chinese]

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

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

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

Papers submitted/under revision

3. Yao, J., **Tian, D.**#, Sun, L., & Wen, L. North Korea's 3 September 2017 nuclear test: location, yield and source characteristics. submitted to *Seimoslogical Research Letters*.

2. Yao, J., **Tian, D.**#, Lu, Z., Sun, L., & Wen, L. Triggered seismicity associated with North Korea's 3 September 2017 nuclear test. submitted to *Seismological Research Letters*.

1. Yao, J., **Tian, D.**, Sun, L., & Wen, L. Temporal change of seismic Earth's inner core phases: inner core differential rotation or temporal change of inner core surface? *under revision*.

Papers in Preparation

3. **Tian, D.**, & Wen, L. Improved relative moment tensor inversion method and applications to clusters of small earthquakes.

2. **Tian, D.**, & Wen, L. Three types of Earth's inner core boundary.

1. **Tian, D.**, & Wen, L. Simulating wave propagation in a faulted medium using a 3D finite difference method.

Meeting Abstracts

13. **Tian, D.**, Yao, J., & Wen, L. (2017). Collapse and earthquake swarm after North Korea's 3 September 2017 nuclear test. Abstract S43H-2968 presented at 2017 AGU Fall Meeting, New Orleans, LA, USA.

12. **Tian, D.**, & Wen, L. (2017). Three types of Earth's inner core boundary. Abstract DI33B-0404 presented at 2017 AGU Fall Meeting, New Orleans, LA, USA.

11. Yao, J., **Tian, D.**, & Wen, L. (2017). High-precision location, yield and tectonic release of North Korea's 3 September 2017 nuclear test. Abstract S43H-2967 presented at 2017 AGU Fall Meeting, New Orleans, LA, USA.

10. Yao, J., **Tian, D.**, Sun, L., & Wen, L. (2017). Temporal change of seismic Earth's inner core phases: Inner core differential rotation or temporal change of inner core surface? Abstract DI33B-0405 presented at 2017 AGU Fall Meeting, New Orleans, LA, USA.
9. **Tian, D.**, & Wen, L. (2017). Seismological evidence for a localized mushy zone at the Earth's inner core boundary. Presented at Gordon Research Conference: Interior of the Earth, South Hadley, MA, USA.
8. Yao, J., **Tian, D.**, Sun, L., & Wen, L. (2017). Temporal change of seismic Earth's inner core phases: Inner core differential rotation or temporal change of inner core surface? Presented at Gordon Research Conference: Interior of the Earth, South Hadley, MA, USA.
7. **Tian, D.**, & Wen, L. (2016). Seismic structures of the Earth's inner core boundary beneath the Bearing sea and Mexico. Abstract DI43A-2657 presented at 2016 AGU Fall Meeting, San Francisco, CA, USA.
6. **Tian, D.**, & Wen, L. (2015). Varying seismic property of the Earth's inner core boundary. Abstract DI33A-2606 presented at 2015 AGU Fall Meeting, San Francisco, CA, USA.
5. **Tian, D.**, & Wen, L. (2014). Seismic study on the properties of the Earth's inner core boundary. Abstract DI31B-4269 presented at 2014 AGU Fall Meeting, San Francisco, CA, USA.
4. Chen, X., **Tian, D.**, & Wen, L. (2013). Seismic tracking of hurricane sandy. Abstract S11A-2296 presented at 2013 AGU Fall Meeting, San Francisco, CA, USA.
3. **Tian, D.**, & Wen, L. (2013). Regional topography variation of Earth's inner core boundary. Abstract DI23A-2282 presented at 2013 AGU Fall Meeting, San Francisco, CA, USA.
2. Zhang, M., **Tian, D.**, & Wen, L. (2013). A new method for earthquake determination: stacking multiple-station autocorrelograms. Abstract S51A-2301 presented at 2013 AGU Fall Meeting, San Francisco, CA, USA.
1. **Tian, D.**, & Wen, L. (2012). Simulating wave propagation in a faulted medium using a 3D finite difference method. Abstract S43A-2458 presented at 2012 AGU Fall Meeting, San Francisco, CA, USA.

Talks

6. **Tian, D.** Collapse and earthquake swarm after North Korea's 2017 nuclear test. *Institute of Geology and Geophysics, Chinese Academy of Sciences*, Beijing, China. Jun. 15, 2018.
5. **Tian, D.** Seismological evidence for a localized mushy zone at the Earth's inner core boundary. *Institute of Geology and Geophysics, Chinese Academy of Sciences*, Beijing, China. Jun. 15, 2018. **[invited]**
4. **Tian, D.** Fine-scale structure of the Earth's inner core boundary and aftershocks of North Korea's 2017 nuclear test. *Institute of Earthquake Forcasting, China Earthquake Administration*, Beijing, China. Jun. 14, 2018.
3. **Tian, D.** Seismological evidence for a localized mushy zone at the Earth's inner core boundary. *2017 Annual Meeting of Chinese Geoscience Union (CGU)*, Beijing, China. Oct. 17, 2017. **[invited]**
2. **Tian, D.** Getting started with GMT in 60 minutes. *Workshop on Analysis and Applications of Crustal Deformation Data*, Wuhan, China. Sep. 21, 2016. **[invited]**
1. **Tian, D.** Seismic study on the properties of the Earth's inner core boundary. *China Earthquake Networks Center*, Beijing, China. Jun. 30, 2016. **[invited]**

Open Source Software

**Year indicates when the project was started. All projects are currently ongoing.*

2014 **HinetPy** – A python package to request and process seismic waveform data from Hi-net.
https://github.com/seisman/HinetPy/

Expertise & Skills

Languages	Mandarin Chinese, English.
Programming	C, Fortran, Perl, Shell, Python, MPI, LaTeX.
Seismological Tools	SAC, GMT, SOD, ObsPy, TauP.
Synthetics	Reflectivity Method, Finite Difference Method, Generalized Ray Theory, GRT-FD Hybrid method.
Others	gCAP (moment tensor inversion), Match&Locate (Small event detection and location), hk (receiver function).