Dongdong Tian

Postdoctoral Research Associate

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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

Employment

08/01/2018 – present	**Postdoctoral Research Associate** Michigan State University, East Lansing, MI, USA

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 Kwang-Hua Scholarship, Kwang-Hua Education Foundation, China

2010 Kwang-Hua Scholarship, Kwang-Hua Education Foundation, China

2009 Outstanding Volunteer, University of Science and Technology of China, China

Peer-reviewed Publications

*corresponding author, #co-first author.

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*. doi: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*. doi: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

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

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, Python, Fortran, Perl, Shell, 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).