

# Dongdong Tian

## Ph.D. in Geophysics

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## Education

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| 2018 | <b>Ph.D</b> in Geophysics<br>University of Science and Technology of China, Hefei, China |
| 2012 | <b>B.S.</b> in Geophysics<br>University of Science and Technology of China, Hefei, China |

## Employment

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| 08/01/2018 – now | <b>Postdoctoral Research Associate</b><br>Michigan State University, East Lansing, MI, USA |
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## 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

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| 2012 – present | Member of the American Geophysical Union (AGU)  |
| 2016 – 2018    | Research assistant and database manager for <a href="#">China Seismological Reference Model</a>                             |
| 2016 – present | Founder and primary contributor of <a href="#">GMT China Community</a>  |
| 2017 – present | Peer-reviewer of scientific journals: <i>Geophysical Research Letters</i> (1),<br><i>Seismological Research Letters</i> (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.**<sup>#</sup>, Sun, L., & Wen, L. Source characteristics of North Korea's 3 September 2017 nuclear test. *accepted*.
6. Yao, J., **Tian, D.**<sup>#</sup>, Lu, Z., Sun, L., & Wen, L. Triggered seismicity associated with North Korea's 3 September 2017 nuclear test. *accepted*.
5. **Tian, D.**<sup>\*</sup>, 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. Wen, L., **Tian, D.**<sup>\*</sup>, & 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](https://doi.org/10.6038/cjg2018L0500) [in Chinese]
3. **Tian, D.**<sup>\*</sup>, & 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.**<sup>\*</sup>, & 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.**<sup>\*</sup>, & 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)

## Papers submitted/under revision

1. Yao, J., **Tian, D.**<sup>\*</sup>, 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.**<sup>\*</sup>, & Wen, L. Improved relative moment tensor inversion method and applications to clusters of small earthquakes.
2. **Tian, D.**<sup>\*</sup>, & Wen, L. Three types of Earth's inner core boundary.
1. **Tian, D.**<sup>\*</sup>, & 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 Forecasting, 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

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