

# Xiaochuan Tian

## EDUCATION

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- 2015-2020      **Columbia University**, New York, NY, USA  
*M.A., M.Phil. & Ph.D. (expected in May, 2020) in Geophysics*  
Advisor: Dr. W. Roger Buck  
Thesis Title: *Magmatism and Tectonics at Large Igneous Provinces and Divergent Plate Boundaries*
- 2013-2015      **University of Memphis**, Memphis, TN, USA  
*M.Sc. in Geophysics*  
Advisor: Dr. Eunseo Choi  
Thesis Title: *3D Numerical Models for Along-axis Variations in Diking at Mid-Ocean Ridges*
- 2009-2013      **Sun Yat-sen University**, Guangzhou, Guangdong, China  
*B.Sc. in Geology*  
Advisor: Dr. Gu Cheng  
Thesis Title: *Basic Principles for Identifying Thin-bed by applying Spectral Inversion*

## ACADEMIC APPOINTMENTS

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- 2015-2019      **Graduate Research & Teaching Fellow**, Columbia University
- 2013-2015      **Graduate Research Assistant**, University of Memphis

## AWARDS AND FUNDS

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- 2017-2020      **National Science Foundation Awards OCE-1654745: \$319,977**  
*“Evaluating mechanisms for the formation, propagation and evolution of volcanic rifts and margins” (participated in writing a section of the proposal with Principal Investigator W. Roger Buck)*
- 2017            **National Science Foundation Awards OCE-1658072: \$179,333**  
*“Fully three-dimensional numerical models for along-axis variations in magmatic and tectonic processes at slow-spreading mid-ocean ridges” (participated in and funded by the project; mentored PhD student Hao Lu on developing the 3D models; Principal Investigator: Eunseo Choi)*
- 2015-2020      **Columbia University Dean’s Fellow: \$409,515**  
The highest honor conferred upon entering graduate students in the Department of Earth and Environmental Sciences

## PUBLICATIONS

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### *PEER-REVIEWED JOURNAL ARTICLES*

- Tian, X.**, & Buck, W. R. (2019). Lithospheric Thickness of Volcanic Rifting Margins: Constraints from Seaward Dipping Reflectors. *Journal of Geophysical Research: Solid Earth*, 124(4), 3254-3270.
- Tian, X.**, & Choi, E. (2017). Effects of axially variable diking rates on faulting at slow spreading mid-ocean ridges. *Earth and Planetary Science Letters*, 458, 14-21.

### *MANUSCRIPTS IN PREPARATION*

- Tian, X.**, & Buck, W. R. (In Prep) Basaltic intrusion before eruption may explain global warming preceding Large Igneous Province volcanism.
- Tian, X.**, & Buck, W. R. (In Prep) Synchronized Basin Subsidence and Flood Basalt Eruption at Columbia River Basalts.

## PRESENTATIONS

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### *TALKS* (\*: invited)

- Tian, X.**, & Buck, W. R. Constraints on the Lithospheric Strength at Volcanic Rifted Margins from the Geometry of Seaward Dipping Reflectors Using Analytic and Numerical Models. AGU Fall Meeting, 2017.
- \***Tian, X.**, & Buck, W. R. Seaward Dipping Reflectors at Rifted Margins: Formation Mechanism and Implications for Lithospheric Strength during Incipient Rifting. Seminar at the Center for Earthquake Research and Information, Memphis University, July 14<sup>th</sup>, 2017.
- Choi, E. and **Tian, X.** Effects of axially variable diking rates on faulting at slow spreading mid-ocean ridges. AGU Fall Meeting, 2016.

### *POSTERS*

- Tian, X.**, & Buck, W. R. Lower crustal flow and the generation of high versus low volcanic plateaus. AGU Fall Meeting, 2018.
- Tian, X.**, & Buck, W. R. The Role of Magmatic and Volcanic Loads in Generating Seaward Dipping Reflector Structures on Volcanic Rifted Margins. AGU Fall Meeting, 2016.
- Buck, W. R., & **Tian, X.** Reconciling Mantle Plume Initiation of Continental Breakup with the Inferred Direction of Rift Propagation. AGU Fall Meeting, 2016.
- Tian, X.**, Choi, E. & Buck, W. R. 3D Numerical Models of the Effect of Diking on the Faulting Pattern at Incipient Continental Rifts and Steady-State Spreading Centers. AGU Fall Meeting, 2015.
- Tian, X.** & Choi, E. 3D Numerical Models for Along-axis Variations in Diking. AGU Fall Meeting, 2014.

## FIELD AND SEAGOING EXPERIENCE

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**Peru, 2019.** 12-day Storke Memorial multi-disciplinary Field Course.

**Atlantic Ocean, 2018.** 35-day RV Atlantis cruise. Western North Atlantic Survey. Multi-channel seismic and multi-beam sonar data acquisition, processing, visualization. Principal Investigators: Mitch Lyle and Gregory Mountain. (NSF OCE-1656960)

**Azores, 2017.** 11-day field trip focusing on Volcanology.

**Basin and Range, 2016.** 9-day field trip on normal faulting at Basin and Range.

**North Kentucky, 2014.** 3-day field work: deployed seismic stations of Center for Earthquake Research and Information

**Memphis, 2013.** Field work: conducted electricity, gravity and seismology surveys near Memphis University.

## TEACHING EXPERIENCE

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### *COLUMBIA UNIVERSITY*

*Teaching Assistant* (delivered guest lectures, designed and led lab experiments, held office hours, and graded problem sets, papers, and exams) for the following courses:

2019        *Earth: Origin, Evolution, Processes and Future.*  
2018        *Earth's Environmental Systems: Solid Earth.*  
2016        *Geodynamics.*

## SERVICE AND OUTREACH

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2019 July    Invited intern lecture on “*Modeling Interactions of Magma and Tectonics*” at Lamont-Doherty Earth Observatory.

2017 June    Volunteer for lava flow demonstrations at the World Science Festival, NYU.

2015-2018   Assist in Exhibitions at Lamont-Doherty Earth Observatory Open House: Demonstrate analog models using gelatin: Mantle Plume induced Rifting; Mantle Plume upwelling; Visualizing stress patterns due to faults and flexure with Photo-elasticity.

2014 Dec.    AGU Fall Meeting session chair. T43A: *Three-Dimensional Observations and Models of Lithospheric Extension*