田小川 (Tian, Xiaochuan)

EDUCATION

2015-2021 **Columbia University**, New York, NY, USA
M.A., M.Phil. & Ph.D. in Geophysics
Advisor: Dr. W. Roger Buck
Thesis Title: *Structural and Climatic Effects of Large-Scale Basaltic Magmatism: Constraints and Insights from Geodynamic Models*

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

2021-2023 **Postdoctoral Research Fellow**, Boston College

2015-2019 **Graduate Research & Teaching Fellow**, Columbia University

2013-2015 **Graduate Research Assistant,** University of Memphis

AWARDS AND FUNDS

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

email: x.tian@columbia.edu *website: magmaxt.github.io*

PUBLICATIONS

PEER-REVIEWED JOURNAL ARTICLES

Tian, X., & Buck, W. R. (2022). Intrusions induce global warming before continental flood basalt volcanism. ***Nature Geoscience*** doi:10.1038/s41561-022-00939-w

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. How Lower Crustal Flow Controls the Topography of Volcanic Plateaux, in prep for submission to ***EPSL***.

Tian, X., Behn M., Ito G., Schierjott J., Kaus B., Popov A., Modes of Oceanic Transform Fault Topography, in prep for submission to ***Science***.

PRESENTATIONS

TALKS (*: invited)

Tian, X., & Buck, W. R., Modes of oceanic transform fault topography. AGU Fall Meeting, 2022

***Tian, X.**, & Buck, W. R., Intrusions induce global warming before continental flood basalt volcanism. AGU Fall Meeting, 2022

***Tian, X.**, & Buck, W. R., Intrusions induce global warming before continental flood basalt volcanism. University of Memphis, 2022

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 14th, 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

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

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

2019-2022	Reviewer for *Geophysical Research Letters*, *Journal of Geophysical Research, Tectonophysics*
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*