

Arushi Saxena

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EDUCATION

Center for Earthquake Research and Information

PhD in Geophysics

Advisor: Dr. Eunseo Choi

Thesis Title: *Investigating intraplate seismicity in the Central and Eastern US: Linking observations and numerical models*

University of Memphis, TN

Aug. 2015 – May 2020

Indian Institute of Technology

Integrated Master and Bachelor of Technology in Geophysics

Advisor: Dr. Rambhatla G. Sastry

Thesis Title: *Non invasive hydraulic conductivity estimation using microgravity survey*

Roorkee, India

Aug. 2009 – Aug. 2014

PROFESSIONAL EXPERIENCE

Post-doc, Math and Statistical Sciences, Clemson University

Jul, 2023 – Present

Post-doc, Geological Sciences, University of Florida

June, 2020 – Jun, 2023

Graduate Research Assistant, University of Memphis

Aug, 2015 – May, 2020

Junior Geophysicist, Sterling Oil and Gas, Nigeria

July, 2014 – May, 2015

Graduate Research Assistant, Indian Institute of Technology, India

Jun, 2013 – Jun, 2014

PUBLICATIONS

- ★ **Saxena, A.**, Dannberg J., Gassmöller, R., Fraters, M., Heister, T., & Styron, R. (2023). High-resolution mantle flow models reveal importance of plate boundary geometry and slab pull forces on generating tectonic plate motions. *J. of Geophys. Res.: Solid Earth*, 128, e2022JB025877
- ★ Lee, S., **Saxena, A.**, Song, J. H., Rhie, J., & Choi, E. (2022). Contributions from lithospheric and upper-mantle heterogeneities to upper crustal seismicity in the Korean Peninsula. *Geophys. J. Int.*, 229(2)
- ★ Chatterjee, A., **Saxena, A.**, Aslam, K., Van Alstine, A., & Zeb, M. S. (2022). The variation of b-Value of earthquakes during COVID-19 lockdowns: Case studies from the Cascadia Subduction Zone and New Zealand. *J. of Info. Manag.*, 21
- ★ **Saxena, A.**, & Langston, C. A. (2021). Detecting lithospheric discontinuities beneath the Mississippi Embayment using S-wave receiver functions. *Geophys. J. Int.*, 228(2)
- ★ **Saxena, A.**, Choi, E., Powell, C. A., & Aslam, K. S. (2021). Seismicity in the central and southeastern United States due to upper mantle heterogeneities. *Geophys. J. Int.*, 225(3)
- ★ Geng, Y., Powell, C. A., & **Saxena, A.** (2020). Joint local and teleseismic tomography in the central United States: exploring the mantle below the upper Mississippi Embayment and the Illinois Basin. *J. of Geophys. Res.: Solid Earth*, 125(10)

OTHER PUBLICATIONS

- ★ **Saxena, A.**, Heister, T. (2023). [Mantle flow model](#) *Interactive visualization of our global mantle flow models*
- ★ **Saxena, A.**, Fraters, M. (2021). [Earthquakes within plates](#) *blog of the Geodynamics Division of the European Geosciences Union*
- ★ **Saxena, A.**, Heister, T. (2021). [Starting Earth Models](#) *blog on Integrated Geodynamic Earth Models*,
- ★ **Saxena, A.**, Fraters, M. (2020). [Across Borders and Sectors](#) *blog on Geodynamics Division of the European Geosciences Union*

ONGOING PUBLICATIONS (IN-DRAFT)

- ★ **Saxena, A.**, Dannberg J., Gassmöller, R., Fraters, M., & Heister, T., From data to dynamics: Integration of geophysical constraints in global mantle circulation models
- ★ **Saxena, A.**, Heister, T., & Naliboff, J., Bayesian inversion to examine the role of 3D fault geometry on slip rates and off-fault deformation
- ★ Dannberg, J., Fraters, M., Gassmöller, R., Li., R. & **Saxena, A.** , Subduction initiation due to plunge in grain size

SELECTED INVITED TALKS

- ★ Seismological Society of America Annual Meeting, *Integration of Geophysical Constraints in Global Mantle Flow Models for Insights Into Plate Tectonics*, **Spring 2024**
- ★ ASPECT User Meeting, *From Data to Dynamics: Integration of Geophysical Constraints in Global Mantle Circulation Models*, **Spring 2024**
- ★ ASPECT User Meeting, *High-resolution mantle flow models reveal importance of plate boundary geometry and slab pull forces on plate motions* , **Spring 2023**
- ★ Pennsylvania State University, *Developing Geodynamic Models to Investigate Intraplate Tectonics and Global Plate-driving Forces*, **Spring 2023**
- ★ Center for Earthquake Research and Information, University of Memphis, *Developing Geodynamic Models to Investigate Intraplate Tectonics and Global Plate-driving Forces*, **Fall 2022**
- ★ Indian Institute of Science Education and Research, *Developing Geodynamic Models to Investigate Intraplate Tectonics and Global Plate-driving Forces*, **Spring 2022**
- ★ University of Florida, *Investigating intraplate seismicity in the Central and Eastern US using seismology and numerical models*, **Fall 2021**

FELLOWSHIP & GRANTS

Travel grant Eastern Section of Seismological Society of America 2019	\$500
Travel grant American Geophysical Union 2017	\$500
Graduate Research Scholarship Graduate Aptitude Test in Engineering 2013-2014	INR 12,000
Summer Research Fellowship Indian Academy of Sciences 2011	INR 6,000

FUNDING

- ★ **Co-PI** in “Computational Infrastructure for Geodynamics - Community Code Scaling”, Jun 2021–Aug 2022, **PI**: Lorraine Hwang, **Co-PIs**: Rene Gassmöller, Timo Heister, Hiroaki Matsui and Arushi Saxena
Funding Agency: Texas Advanced Computing Center \$63,173.70
- ★ **Co-PI** in “Computational Infrastructure for Geodynamics - Community Code Scaling”, Aug 2022–Aug 2023, **PI**: Lorraine Hwang, **Co-PIs**: Rene Gassmöller, Timo Heister, Hiroaki Matsui, Arushi Saxena, John Naliboff, Nick Featherstone and Wolfgang Bangerth
Funding Agency: Texas Advanced Computing Center \$67,813.2
- ★ **Co-PI** in “Computational Infrastructure for Geodynamics - Community Code Scaling”, Aug 2023–Aug 2024, **PI**: Lorraine Hwang, **Co-PIs**: Rene Gassmöller, Timo Heister, Hiroaki Matsui, Arushi Saxena, Menno Fraters and Julianne Dannberg
Funding Agency: Texas Advanced Computing Center \$72,504
- ★ **Collaborator** in “CIG Science Gateway and Community Codes for the Geodynamics Community”, Aug 2022–Aug 2024, **PI**: Lorraine Hwang, **Co-PIs**: Timo Heister, John Naliboff, Julianne Dannberg, Rene Gassmöller, Mohamed Gouiza,
Funding Agency: ACCESS Allocation Review Committee \$38,261.40
- ★ **Collaborator** in “Improving and Bringing the Geodynamic World Builder into the CIG community”, Jan 2022–July 2022, **PI**: Menno Fraters,
Funding Agency: Computational Infrastructure for Geodynamics \$49,768.67

SERVICE

- Volunteer Judge**, Outstanding Student Presentation Award, AGU Fall Meeting 2020–2023
- Session convener** of Exploring Multiscale Solid-Earth Dynamics Using Computational Methods and High-Performance Computing, AGU Fall Meeting 2021
- Blog Editor**, European Geophysical Union: Geodynamics 2020-2022
- Graduate Student Representative** at Center for Earthquake Research and Information, University of Memphis 2017-2019
- Secretary**, Society of Exploration Geophysicists—Student Chapter at University of Memphis 2016-2018

TEACHING EXPERIENCE

- ★ **Course Instructor** of GLY 4450, GLY 5455: Introduction to Geophysics, University of Florida, Spring 2022
- ★ **Substitute Instructor** Introduction to Geodynamics, University of Memphis, Fall 2018

MENTORING EXPERIENCE

- ★ Kate Schert, Undergraduate student, University of Florida 2020–2021
- ★ Sungho Lee, Graduate student, University of Memphis Summer 2021

PROFESSIONAL DEVELOPMENT

Peer Review

NSF-Geophysics Spring Panelist	2024
NSF-Geophysics Proposals: 3	2020–Present
Geophysical Journal International: 1	2021–Present
Geochemistry, Geophysics, Geosystems: 2	2022–Present

Code Development

Contributor of ASPECT , community geodynamic modeling software which has been used in over 112 publications	2017–Present
Contributor of GeodynamicWorldBuilder , open-source software used for setting complex initial conditions in geodynamic models	2020–Present

Field Deployment

Nodal Seismometers in Iris Community Wavefields Experiment, Oklahoma, US	Summer 2016
Gravimeter at Indian Institute of Technology, Roorkee, India	2013–2014
GPR, Institut national de la recherche scientifique, Quebec, Canada	Summer 2013

EDUCATION & OUTREACH

Guest Speaker , Scientist in Every Florida School Middle Schools in Florida	2020-2022
Volunteer , Can you Dig it? : A partner event with University of Florida to showcase Earth Science to general public, Florida Museum	2022-2023