

Arushi Saxena

POST-DOCTORAL FELLOW

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Education

Center for Earthquake Research and Information

University of Memphis, TN

PHD GEOPHYSICS

Aug. 2015 - May 2020

- Advisor: Dr. Eunseo Choi
- Thesis: Investigating intraplate seismicity in the Central and Eastern US: Linking observations and numerical models

Indian Institute of Technology

Roorkee, India

INTEGRATED MASTER AND BACHELOR OF TECHNOLOGY IN GEOPHYSICS

Aug. 2009 - Aug. 2014

- Advisor: Dr. Rambhatla G. Sastry
- Thesis: Non invasive hydraulic conductivity estimation using microgravity survey

Professional Appointments

2020 - Present **Post-doctoral Associate**, University of Florida, USA

2015 - 2020 **Graduate Research Assistant**, Center for Earthquake Research and Information, University of Memphis

2014 - 2015 **Junior Geophysicist**, Sterling Oil and Gas, Nigeria

2013-2014 **Graduate Research Assistant**, Indian Institute of Technology Roorkee, India

Publications

PUBLISHED

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)**, 1175-1192.

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**, 2240001.

Saxena, A., & Langston, C. A. (2021). Detecting lithospheric discontinuities beneath the Mississippi Embayment using S-wave receiver functions. *Geophys. J. Int.*, **228(2)**, 744-754.

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)**, 1624-1636.

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)**

IN REVIEW

Saxena, A., Dannberg, J., Gassmüller, R., Fraters, M., Heister, T., & Styron, R. Quantifying the controlling forces of global plate tectonics: Unifying global geodynamic models and observations. *J. of Geophys. Res.: Solid Earth*

IN PREP

Saxena, A., Choi, E., Powell, C. & Langston, C. A. Volatiles from slab contributes to intraplate seismicity at the New Madrid Seismic Zone.

Other Publications

Saxena, A., Fraters, M. (2021). Earthquakes within the plates *blog of the Geodynamics Division of the European Geosciences Union*, <https://blogs.egu.eu/divisions/gd/2021/06/23/earthquakes-within-the-plates/>

Saxena, A., Heister, T. (2021). Starting Earth Models *blog on Integrated Geodynamic Earth Models*, <https://integrated-earth.github.io/2021/08/25/starting-earth-models.html>

Saxena, A., Fraters, M. (2020). Across Borders and Sectors *blog on Geodynamics Division of the European Geosciences Union*, <https://blogs.egu.eu/divisions/gd/2020/12/02/across-borders-and-sectors/>

Funding

2021, 2022	Contributed to Computational Infrastructure for Geodynamics - Community Code Scaling , EAR2008 Frontera Pathways	150696 CPU hours
2022	Contributed to CIG Science Gateway and Community Codes for the Geodynamics Community , XSEDE Allocations	50000 CPU hours
2022	Collaborator in Improving and Bringing the Geodynamic World Builder into the CIG community , Computational Infrastructure for Geodynamics	

Fellowships & Grants

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

Presentations

INVITED TALKS

Fall 2022. *Reconciling mantle convection and associated surface deformation through numerical models*. Center for Earthquake Research and Information, University of Memphis, US

Spring 2022. *Developing geodynamic models to investigate regional tectonics and global plate-driving forces*. Indian Institute of Science Education and Research, India.

Fall 2021. *Investigating regional and global process through seismology and geodynamic models*. University of Florida, US

Fall 2021. *Reproducing present-day plate motions in high-resolution global mantle flow models with plate boundaries*. GFZ Postdam, Germany

RECENT CONFERENCE PRESENTATIONS *presenting author

Fall 2022*. High-resolution mantle flow models reveal importance of plate boundary geometry and slab pull forces on generating tectonic plate motions. Poster: American Geophysical Union.

Spring 2022*. Developing global mantle flow models to investigate effects of plate-driving forces on observed surface deformation. Oral: European Geophysical Union.

Fall 2021*. Reproducing present-day plate motions in high-resolution global mantle flow models with plate boundaries. Poster: American Geophysical Union.

Fall 2020. Geodynamic modeling for stress and seismicity in the southern Korean Peninsula driven by lateral variations of lithospheric thickness and plate kinematics. Poster: American Geophysical Union.

Fall 2020. Quantifying the Influence of an Evolving Mineral Grain Size on the Characteristics of Mantle Flow. Oral: American Geophysical Union.

Fall 2019*. Detecting lithospheric discontinuities beneath the Mississippi Embayment using S wave receiver functions. Oral: Eastern Section Seismological Society of America

Teaching Experience

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

Service & Professional Development

SERVICE AND OUTREACH

2017-Present	Contributor , Community geodynamic modeling software ASPECT , which has been used in 112 publications.	
2020-Present	Contributor , Open-source software WorldBuilder used for setting complex initial conditions in geodynamic models.	
2021	Volunteer Judge , Outstanding Student Presentation Award	<i>AGU Fall Meeting</i>
2021	Session convener , Exploring Multiscale Solid-Earth Dynamics Using Computational Methods and High-Performance Computing	<i>AGU Fall Meeting</i>
2020-2022	Guest Speaker , Scientist in Every Florida School	<i>Middle Schools in Florida</i>
Apr 2022	Volunteer , Can you Dig it?: A partner event with University of Florida to showcase Earth Science to general public	<i>Florida Museum</i>
2020-2022	Blog Editor , European Geophysical Union: Geodynamics	
2016-2020	Organizer , Departmental discussion hour, Center for Earthquake Research and Information	<i>University of Memphis</i>
2017-2019	Education & Outreach , Graduate Student Representative	<i>University of Memphis</i>
2016-2017	Secretary , Society of Exploration Geophysicists—Student Chapter	<i>University of Memphis</i>

PEER REVIEW

NSF-Geophysics Proposals: Reviewer

Geophysical Journal International: Reviewer

FIELD DEPLOYMENT

Summer 2016	Nodal Seismometers , Iris Community Wavefields Experiment	<i>Oklahoma, US</i>
2013-2014	Gravimeter , Indian Institute of Technology, Roorkee	<i>Roorkee, India</i>
Summer 2013	GPR , Institut national de la recherche scientifique	<i>Quebec, Canada</i>