Miguel Neves

PhD Candidate in Geophysics
Georgia Institute of Technology

mjneves@gatech.edu
miguelj-neves.github.io
miguelj-neves

Education

PhD Geophysics 2017–2023 (Expected)
School of Earth and Atmospheric Sciences, Georgia Institute of Technology
Minor in Higher Education
Advisor: Dr. Zhigang Peng

MSc Geophysical Sciences 2014–2016
Faculty of Sciences, University of Lisbon
Concentration in Solid Earth
Master Thesis: *Dynamic triggering of seismic activity in rifting and volcanic settings*
Advisor: Dr. Susana Custódio

BSc Engineering Physics 2010–2014
Instituto Superior Técnico, University of Lisbon

Experience

Teaching Assistant Fall 2018, Spring 2018 and 2020
School of Earth and Atmospheric Sciences, Georgia Institute of Technology *Atlanta, GA*
"EAS2600: Earth Processes" and "EAS1601: Habitable Planet"

Research Trainee March–August 2017
Instituto Dom Luiz, University of Lisbon *Lisbon, Portugal*
Research on the 2014 Fogo Island eruption, Cape Verde, using seismic ambient noise.
Advisor: Dr. Graça Silveira

Peer-reviewed Publications

M. Neves, Z. Peng and G. Lin *(accepted)*, *A High-Resolution Earthquake Catalog for the 2004 M6 Parkfield Earthquake Sequence using a Matched Filter Technique.* Seismological Research Letters.

G. Lin, Z. Peng and **M. Neves** (2022), *Comparisons of in situ Vp/Vs ratios and seismic characteristics between northern and southern California.* Geophysical Journal International, 229(3), 2162–2174, doi: 10.1093/gji/ggac038.

M. Neves, S. Custódio, Z. Peng and A. Ayorinde (2018), *Earthquake triggering in south-east Africa following the 2012 Indian Ocean earthquake.* Geophysical Journal International, 212(2), 1331-1343, doi: 10.1093/gji/ggx462.

M. Neves, L. Chuang, W. Li, Z. Peng and S. Ni *(in prep.)*, *Imaging a Complex Earthquake Sequence in Sparta, North Carolina, Eastern United States.*

M. Neves, Z. Peng, S. Custódio, M. Maceira and C. Chai *(in prep.)*,*New Perspective on Iberia's Seismicity using Dense Seismic Deployments and Deep Learning.*

General Audience Publications

M. Neves (2020), *Earthquakes in Turkey support two disparate models of earthquake initiation.* Temblor, http://doi.org/10.32858/temblor.133.

M. Neves (2020), *Challenges of earthquake early warning.* Temblor, http://doi.org/10.32858/temblor.0

Abstracts

M. Neves, L. Chuang, W. Li, Z. Peng and S. Ni, *Using a high-resolution earthquake catalog to unravel the Mw5.1 Sparta, North Carolina, earthquake sequence*, 2022 Eastern Section SSA Annual Meeting, Tampa, FL, USA, October 2022 (Oral presentation).

M. Neves, L. Chuang, W. Li, Z. Peng and S. Ni, *Imaging a Complex Earthquake Sequence in Sparta, North Carolina, Eastern United States*, StatSei 12 Statistical Seismology International Conference, Cargése, France, October 2022 (Poster presentation).

M. Neves, Z. Peng, G. Lin and J. Jiang,*A new look into the 2004 M6 Parkfield Earthquake sequence using an updated earthquake catalog*, 2022 SCEC Annual Meeting, Abstract #64, Palm Springs, CA, USA, September 2022 (Poster presentation).

Z. Peng, **M. Neves**, C. Daniels, Q. Zhai and S. Jaumé, *Systematic Detection of Microearthquakes During Several Moderate-Size Earthquake Sequences in Central and Eastern United States*, 2022 SAGE/GAGE Community Workshop, Pittsburgh, PA, USA, June 2022 (Poster presentation).

M. Neves, Z. Peng, S. Custódio, M. Maceira and C. Chai,*Illuminating Seismic Structures in Iberia Using a Deep Learning Seismic Phase Detector*, 54th AGU Fall Meeting, Abstract #T55D-0105, New Orleans, LA, USA, December 2021 (Poster presentation).

M. Neves, Z. Peng, G. Lin and C. Daniels,*Detailed Study of the 2004 Mw 6 Parkfield Earthquake Sequence Using a New Relocated Microearthquake Catalog*, 54th AGU Fall Meeting, Abstract #S45F-0361, New Orleans, LA, USA, December 2021 (Poster presentation).

M. Neves, L. Chuang, W. Li, Z. Peng and S. Ni, *Seismological studies of the 2020 M5.1 Sparta Earthquake sequence, North Carolina*, 2021 Eastern Section SSA Annual Meeting, Virtual, October 2021 (Oral presentation).

M. Neves, Z. Peng, S. Custódio, C. Chai and M. Maceira *Earthquake detection in Iberia based on dense seismic deployments using deep learning and matched filter techniques*, 37th General Assembly of European Seismological Commission, Virtual, September 2021 (Oral presentation).

M. Neves, Z. Peng, and G. Lin, *New Microearthquake Catalog for the Parkfield Section of the San Andreas Fault, California*, 2021 SSA Annual Meeting, Virtual, April 2021 (Poster presentation).

M. Neves, Z. Peng, and S. Custódio, *Earthquake Detection in Iberia using a Deep Convolutional Neural Network Phase Picker*, 52nd AGU Fall Meeting, Virtual, December 2020 (Poster presentation).

M. Neves, Z. Peng, and S. Custódio, *Seismicity Detection at the Slowly Deforming Iberia using Deep Learning*, 2020 Eastern Section SSA Annual Meeting, Virtual, October 2020 (Oral presentation).

M. Neves, Z. Peng, G. Lin and C. Daniels,*Study of the Parkfield section of the San Andreas Fault, California, using a new microearthquake catalog*, 52nd AGU Fall Meeting, Abstract #S53E-0496, San Francisco, CA, USA, December 2019 (Poster presentation).

Z. Peng, **M. Neves**, C. Daniels, L. Zhu, J. McLellan and J. Zhuang, *Seismic Detection of Very Early Aftershocks Following the 2004 M6.0 Parkfield Earthquake*, 51st AGU Fall Meeting, Abstract #S11C-0373, Washington D.C., USA, December 2018 (Poster presentation).

M. Neves, Z. Peng and S. Custódio, *Remote dynamic triggering in southeast Africa*, Seismology of the Americas, joint LASC and SSA meeting, Miami, FL, USA, May 2018 (Oral presentation).

M. Neves, Z. Peng, X. Meng, C. Daniels and G. Lin, *Systematic detections of microearthquakes and repeators in Parkfield long before and after the 2004 M6 Earthquake*, Seismology of the Americas, joint LASC and SSA meeting, Miami, FL, USA, May 2018 (Poster presentation).

M. Neves, S. Custódio and Z. Peng, *Dynamic earthquake triggering in southeast Africa*, EGU General Assembly, Abstract EGU2018-16344, Vienna, Austria, April 2018 (Poster presentation).

Awards

FCT Doctoral Fellowship 2019 – 2022
Fundação para Ciência e Tecnologia (Portuguese NSF)

Georgia Tech-Oak Ridge National Lab Seed Grants 2021
Georgia Institute of Technology

Graduate Student Symposium Best Poster Award 2019, 2018
School of Earth and Atmospheric Sciences, Georgia Institute of Technology

Computational Skills

Programming Languages: Proficient with Python, C/C++, Julia. Basic knowledge of Matlab and Fortran.

Software Libraries: Proficient with ObsPy, NumPy, SciPy, GMT, SAC. Working knowledge: Tensorflow, Keras, PyTorch, Scikit-Learn, CUDA, OpenMP.

Service and Outreach

Vice President, Graduates in Earth and Atmospheric Sciences 2019 – 2021
Georgia Institute of Technology *Atlanta, GA*

EAS Graduate Student Symposium Spring 2021
Georgia Institute of Technology *Atlanta, GA*
Organizing committee and oral session moderator.

Geophysics Seminar Coordinator Fall 2018 - Spring 2020
School of Earth and Atmospherics Sciences, Georgia Institute of Technology *Atlanta, GA*
Invite and schedule seminar speakers. Maintain website and divulge talks.

Volunteer 2015-2019
IDL Outreach activities (Lisbon), Atlanta Science Festival, EAS Halloween Open House (Atlanta), Ponce Science Showcase series(Atlanta)
Showcasing different activities to explain earthquake and atmospheric sciences.

Volunteer 2014–2017
Corpo Nacional de Escutas *Lisbon, Portugal*
Scout leader working with 10-18 year old children. Devise and plan opportunities for personal development, volunteering actions and outdoor activities.

Languages

Proficient: English **Native:** Portuguese

Basic conversation/writing: German, French and Spanish