Instituto de Geofísica
Circuito de la, Investigación Científica s/n
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Luis Antonio Domínguez Ramírez

Professional experience

- **2022-Presente**
  Assistant Professor
  National Autonomous University of Mexico
  Institute of Geophysics

- **2013-2022**
  Assistant Professor
  National Autonomous University of Mexico
  National School for Advance Studies, Campus Morelia

- **2012-2013 Estancia postdoctoral**
- National Autonomous University of Mexico
  Institute of Geophysics

Education

- **2012 PhD. Geophysics and Space Physics**
- University of California, Los Angeles (UCLA)
  Tesis: Seismic Scattering in the Subduction Zone of the Middle America Region
  Asesor: Dr. Paul Davis

- **2009 M.S. Geophysics and Space Physics**
  University of California, Los Angeles (UCLA)

- **2005 Telecommunications Engineering**
  National Autonomous University of Mexico
  School of Engineering

  Specializations
- Deep Learning Specialization. Coursera, 2020.
  https://www.coursera.org/account/accomplishments/specialization/certificate/BHLM4NVK7VFX
- Robotics, University of Pennsylvania, 2019.
  https://www.coursera.org/account/accomplishments/specialization/KNM5MRDYB3K5

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Publications

1. **Dominguez, L. A.,** Taira, T., Cruz- Atienza, V. M., Iglesias, A., Villafuerte, C., Legrand, D., Pérez-Campos, X., Raggi, M. (2022). Interplate slip rate variation between closely spaced earthquakes in southern Mexico: The 2012 Ometepec and 2018 Pinotepa Nacional thrust events. Journal of Geophysical Research: Solid Earth, 127, e2022JB024292. https://doi.org/10.1029/2022JB024292

2. Cruz-Atienza, V., Tago, J., Villafuerte, C., Wei, M., Garza-Girón, R., **Dominguez, L. A**., Kostoglodov, V., Nishimura, T., Franco, S. I., Real, J., Santoyo, M.A., Ito, Y. and Kazachkina, E. Short-term interaction between silent and devasting earthquakes in Mexico. Nature, Communications, 12(1), pp.1-14. *https://www.nature.com/articles/s41467-021-22326-6*

3. Plata-Martinez, R., Ide, S., Shinohara, M., Garcia, E., Mizuno, N., **Domínguez, L.A.**, Taira, T., Yamashita, Y., Toh, A., Yamada, T., Real, J., Husker, A., Cruz-Atienza, V.M., Ito, Y. Shallow slow earthquakes to decipher future catastrophic earthquakes in the Guerrero gap. Nature Communications 12, 3976 (2021). https://www.nature.com/articles/s41467-021-24210-94

4. Legrand, D., Iglesias, A., Singh, S.K., Cruz-Atienza, V., Yoon, C., **Dominguez, L. A.**, Valenzuela, R. W., Suárez, G., Castro-Artola, O., The influence of fluids in the unusually high-rate seismicity in the Ometepec segment of the Mexican subduction zone, Geophysical Journal International, 2021, ggab106, *https://doi.org/10.1093/gji/ggab106*

5. Meng, L., Huang, H., Xie, Y., Bao, H., and **Dominguez, L. A. (2019).** Nucleation and Kinematic Rupture of the 2017 Mw 8.2 Tehuantepec Earthquake. Geophysical Research Letters, 46. https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2018GL081074

6. **Dominguez, L. A.,** T. Taira, and M. A. Santoyo (2016). Spatiotemporal variations of characteristic repeating earthquake sequences along the Middle America Trench in Mexico. J. Geophys. Res. Solid Earth, 121, doi:10.1002/2016JB013242. https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2016JB013242

7. **Domínguez, L. A.,** B. Yildirim, A. L. Husker, Cochran, E., C. Christensen, V. Cruz-Atienza, J. F. Lawrence (2013). The Red Atrapa Sismos (Quake-Catcher Network in Mexico): Assesing performance during large and damaging earthquakes. *Seismological Research Letters*. Vol. 86, No. 3, May/June 2015.

8. **Dominguez, L. A.,** and P. M. Davis (2013), Seismic attenuation in the Middle America region and the frequency dependence of intrinsic Q, J. Geophys. Res. Solid Earth, 118, doi:10.1002/jgrb.50163.

9. **Domínguez, L. A.,** Davis, Paul and Hollis, Dan (2013). Application of *fk* Analysis and Entropy to Track the Transition from Spatially Coherent to Incoherent Earthquake Coda in Long Beach, California. *Seismological Research Letters*. July/August 2013.

10. **Domínguez, L. A.,** Sanchéz-Sesma, F. J., Davis P. M (2011). Scattering of teleseismic body waves by the lateral crustal heterogeneity at the Pacific trench of Mexico. Bull. Seism. Soc. Amer. Vol. 101, no. 3, pp. 1281-1290.

Teaching

1. Introduction to applied geophysics. **ENES, UNAM.** *2015-2.* 2014-2, 2015-2, 2016-2, 2017-2, 2018-2, 2019-2, 2020-2.
2. Geophysical electrical survey. **ENES, UNAM.** *2015-2.*
3. Gravimetry. **ENES, UNAM.** 2014-1, 2015-1, 2016-1.
4. Reología. **ENES, UNAM.** 2014-1, 2015-1, 2016-1, 2017-1, 2018-1, 2019-1, 2020-1, 2021-1, 2022-1.

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5. Spectral Analysis. **ENES, UNAM. 2015-2, 2017-2.**
6. Selected topics in Geosciences. **ENES, UNAM, 2016-2, 2017-2, 2018-2.**
7. Advance calculus. **ENES UNAM, 2016-1.**
8. Planet Earth. **ENES, UNAM. 2017-1.**
9. Seismology. **ENES UNAM. 2017-1, 2018-1, 2019-1, 2020-1, 2021-1.**
10. Electronics for geosciences. **ENES UNAM. 2017-1, 2018-1, 2019-1.**
11. Geophysical instrumentation. **ENES UNAM. 2019-1, 2020-1.**
12. Observation, processing, and interpretation of seismic data. **Masters in Earth Sciences. 2022-2, 2023-2.**
13. Continuum mechanics. **School of Sciences, UNAM. 2024-1.**

Undergraduate Thesis

1. Anahí Aidé Becerril Hernández. Evaluation of the seismic response of Tlatelolco Cultural Center using MEMS sensors. Original Title: *"Caracterización de la respuesta sísmica del Centro Cultural Tlatelolco usando acelerómetros de estado sólido"*. Degree: Geophysical engineering, School of Engineering. September 2016.

2. Stephany Ortuño Chanelo. Design and implementation of a Rover for planetary exploration. Original title: *"Diseño e implementación de una plataforma tipo Rover para exploración planetaria"*. Main Advisor. Dr. Armando Carrillo Vargas. Bachelor of Geosciences. National School for Advance Studies, Campus Morelia, UNAM. 2019.

3. Gerardo Alberto Rodríguez Valencia. Parallelization of repetitive earthquake search algorithms using graphical processing units. Original title: Paralelización de algoritmos de búsqueda de sismos repetitivos utilizando unidades de proceso gráfico (GPU). Bachelor of Information Technology in Science. ENES, Unidad Morelia. February 2020.

4. Aguilar Javier, Fernando Rodrigo. Earthquake detection using deep learning. Original Title. *"Detección de sismos utilizando aprendizaje profundo"*. Bachelor of Information Technology in Science. ENES, Unidad Morelia. October 2021.

5. Juárez Ruiz, María Guadalupe. Epicentral location of earthquakes using a short aperture seismological arrangement. Original title: *"Localización epicentral de sismos mediante un arreglo sismológico de apertura corta"*. Bachelor of Geosciences. National School for Advance Studies, Campus Morelia. November 2022.

Research Interest

1. *Analysis of repeating events.*
2. *Seismic wave modeling and interpretation.*
3. *AI applied to Earth Sciences.*

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Research and educational projects

1. *"MASE 2.0: Seismic array for the state of Michoacán, Mexico",* Proyecto PAPIIT TA101623, 2023.
2. *"Manual of 3D models for teaching Geosciences",* Proyecto PAPIME PE107123, 2023.
3. *"Visualization of scientific data to improve teaching in science and arts",* Proyecto PAPIME, PE 110217. *2017.*
4. *"Discovering the connection between slow slip events and large megathrust events in Mexico" Collaboration project – UCLA-UNAM. Grant number: UC-MEXUS 17-32.*
5. *"Investigation of slip behavior and seismic hazard along the Mexican subduction zone" Collaboration project. UNAM - Texas A&M. Grant Number: 2017-27.*
6. *Spatiotemporal variability of slip budget in the subduction of the Cocos plate beneath central Mexico inferred from repeating earthquake activity: Implication for time-dependent earthquake hazard assessment.* Collaboration Project. UC, Berkeley-UNAM. Co-Pi TakaAki Taira. *Grant Number:* UC-MEXUS CN 14-43.