Zyanya Itandehui Ramírez-Díaz

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EDUCATION

Texas Tech University – Lubbock, TX **2021-2026**
Ph.D. in Geosciences
Thesis: "Integrating Cellular, Epidemiological and Policy Perspectives on Dust Storms in West Texas: A Case of Research to Applications on Airborne Threats and Public Response"
Advisor: Dr. Jen Henderson

Texas Tech University – Lubbock, TX **2019-2021**
M. Sc. Atmospheric Sciences
Thesis: "The Impact of Clay Minerals on Lung Cells: An Analysis at the Single-Cell Level"
Advisor: Dr. Karin Ardon-Dryer.

National Autonomous University of Mexico – Mexico City, Mexico **2014-2019**
B. Sc. Earth Sciences. Minor: Atmospheric Sciences
Thesis: "Experimental Characterization and Conservation of Half Vortex Rings Circulation"
Advisor: Dr. Catalina Stern Forgach

RESEARCH EXPERIENCE

Risk and Education in Disasters Lab, Texas Tech University – Lubbock, TX **2024-Present**
Research Assistant
▪ Designed research instruments to identify challenges faced by Spanish-Speaking Broadcast Meteorologist at local, regional and national TV stations during the landfalling of tropical cyclones.
▪ Conducted on-site observations, semi-structured interviews and digital ethnographic research. Analyzed qualitative data and produced scientific reports.
▪ Collaborated with local government agencies to expand the dust storm monitoring system in Lubbock; wrote policy documents, conducted interviews and engaged in the policy process with the City Council, Public Health Department and Board of Health.

NOAA Center for Atmospheric Science and Meteorology – Washington, DC **Mar – Sep 2025**
Student Researcher
▪ Developed and implemented effective bilingual communication products for wildfire safety, ensuring their relevance in practical and cultural contexts.
▪ Built strong partnerships between the Texas A&M Forest Service, Telemundo Houston, and Texas Tech University and Howard University to Hispanic communities across the Texas Wildland-Urban Interface.

Aerosol Lab, Texas Tech University – Lubbock, TX **2018 – 2025**
Research Assistant
▪ Supervised operations and personnel at a Meteorological Station to monitor Lubbock's air quality and its impact on the population.

▪ Lead operations and trained personnel in a Biosafety Level 3 Laboratory; installed and operated a Nikon Ti2 Eclipse inverted microscope and its incubation system to perform live fluorescent imaging.
▪ Developed and optimized the new "Single-Cell Technique" for the evaluation of particle impacts on human health.
▪ Conducted over 200 experiments with a wide variety of particles: mineral dust, soot, coal fly ash, nano plastics, etc. to evaluate their impact on lung cells.
▪ Presented results on multiple scientific conferences and published several peer-reviewed papers in scientific journals.
▪ Mentored 3 undergraduate students and 3 master's students on laboratory techniques, MATLAB software and scientific writing.

Hydrodynamics and Turbulence Lab
National Autonomous University of Mexico – Mexico City, Mexico **2017-2019**
Research Assistant
▪ Conducted multiple experimental fluid dynamics experiments with diverse visualization techniques to quantify the circulation of half vortex rings and its implications in wave formation.
▪ Specialized on microscopy, high-speed and high-resolution imaging.

National Council of Science and Technology – Mexico City, Mexico
University of British Columbia – Vancouver, Canada **2017-2019**
Research Assistant
▪ Analyzed and interpreted data from Droplet Freezing Temperature (DFT) experiments to determine the efficiency of aerosol particles as Ice Nuclei
▪ Built the instrument Droplet Freezing Assay (DFA), which has been extensively used for cloud chamber experiments.

Institute of Ocean Sciences and Limnology
National Autonomous University of Mexico – Mexico City, Mexico **Jun- Dec 2016**
Student Researcher
▪ Analyzed samples and identified the presence and morphology of fossil bryozoans in the Pacific Ocean.
▪ Mentored undergraduate student on scientific writing, resulting in a 2nd place award at the national level.

TEACHING EXPIRIENCE

Texas Tech University – Lubbock, TX **2019 – 2026**
Teaching Assistant
ATMO 1100 – Atmospheric Sciences Laboratory
Guess Lecturer
ATMO 1300 – Introduction to Atmospheric Sciences
ATMO 3310 – Weather, Climate and Human Activities
PUAD 3329 – Environmental Politics and Policy

National Autonomous University of Mexico – Mexico City, Mexico **2019**
Teaching Assistant
ATMO 1079 – Climate Change

PUBLICATIONS

Ramírez-Díaz, Z., Henderson, J. & Wehde, W. (2026). Policy Memo: Advocating For the Enhancement of the Dust Storm Monitoring Network in Lubbock, Texas (In preparation).

Ramírez-Díaz, Z., Henderson, J. & Wehde, W. (2026). Advancing Air Quality Action Through Local Public Engagement in West Texas: Opening a Path to Bridge Research and Policy (In preparation).

Ramírez-Díaz, Z., Ardon-Dryer, K., Gollahon, L., Morales-Hernández, D.G. & Zhang, F. (2026). A Multilevel Scoping Review on the Health Impacts of Dust Events in the United States Population (Submitted to GeoHealth).

Hernández-Perez, R., Henderson, J., **Ramírez-Díaz, Z.,** Rico, I., and Nielsen, E. (2026). Hurricane Naming Conventions and Bilingual Audiences: Characterizing Spanish-Speaking Broadcast Meteorologists' Challenges Communicating Multiple Hazards in Landfalling Tropical Cyclones (In preparation).

Hernández-Perez, R., Ardon-Dryer, K., Carter, P., Eubanks, A., Ortiz, M. **Ramírez-Díaz, Z.,** Salkhi Khasraghi, G. and Henderson, J. (2025). Urban Social and Environmental Hazards: A Qualitative Mapping Strategy for Students from Disadvantaged Communities (In review at Community Science).

Ladino, L.A., Ardon-Dryer, K., Pereira, D.L., Proske, U. **Ramírez-Díaz, Z.,** Velicu, A. and Kanji, Z.A. (2025). The State of Diversity, Equity, and Inclusion in the Cloud Physics Community (In review at EGU Geoscience Communication Journal).

Ramírez-Díaz, Z., Deonarine, A., Plantier, M., Shaghaghi, N., & Ardon-Dryer, K. (2025). Cell Death and Proliferation Variability Caused by Different Dust Clay Minerals Using the Single-Cell Method. GeoHealth, 9(6), https://doi.org/10.1029/2024GH001280

Ladino, L. A., Juárez-Pérez, J., **Ramírez-Díaz, Z.,** Miller, L. A., Herrera, J., Raga, G. B., Simpson, K. G., Cruz, G., Pereira, D. L., and Córdoba, F. (2021). The UNAM-droplet freezing assay: An evaluation of the ice nucleating capacity of the sea-surface microlayer and surface mixed layer in tropical and subpolar waters, Atmósfera, 35(1), 127–141, https://doi.org/10.20937/ATM.52938

Ladino, L. A., Raga, G. B., Álvarez-Ospina, H., Andino-Enríquez, M. A., Rosas, I., Martínez, L., Salinas, E., Miranda, J., **Ramírez-Díaz, Z.,** Figueroa, B., Chou, C., Bertram, A. K., Quintana, E. T., Maldonado, L. A., García-Reynoso, A., Si, M., and Irish, V. E. (2019). Ice-nucleating particles in a coastal tropical site, Atmos. Chem. Phys., 19, 6147–6165, https://doi.org/10.5194/acp-19-6147-2019.

CONFERENCE PRESENTATIONS

Talks

Ramírez-Diaz, Z., Deonarine, D., Plantier, M., Shaghaghi, N., and Ardon-Dryer, K., *Death variability induced by different clay minerals: How A549 epithelial alveolar cells respond to changes in clay particle size and composition*; 105th Annual Meeting of the American Meteorological Society; New Orleans, LA; January 15th, 2025.

Hernández, R. A., Henderson J., Nielson E.R., **Ramírez-Díaz, Z.** and Rico, I., *Characterizing Spanish-Speaking Broadcast Meteorologists' Challenges Communicating Multiple Hazards in Landfalling Tropical Cyclones*, 105th Annual Meeting of the American Meteorological Society; New Orleans, LA; January 14th, 2025.

Ramírez-Diaz, Z., and Ardon-Dryer, K., *The Impacts of Dust Bowl and Mineral Dust (Montmorillonite) Particles on Lung Cells – an Analysis at the Single Cell Level*; 5th Texas Weather Conference, Lubbock, TX; April 2nd, 2022.

Ramírez-Diaz, Z. *El impacto de las partículas de arcilla en las células de pulmón: Un análisis a nivel celular*, 81st Meeting of the Joint Advisory Committee of the Texas Commission on Environmental Quality (Online); August 31st, 2021.

Ladino, L., Kanji, Z., Ardon-Dryer, K., **Ramírez-Díaz, Z.**, Pereira, D., and Proske, U. *Has Diversity, Equity and Inclusion Influenced Science and Research in the Cloud Physics Community?*, 18th IPCC Conference; Pune, India; August 5th, 2021.

Ramírez-Díaz, Z. and Ardon-Dryer, K. *The impacts of Dust Storm Particles on Lung Cells: An Analysis at the single-cell level*, 101st Annual Meeting of the American Meteorological Society (Online), January 12th, 2021.

Ramírez-Díaz, Z. and Ardon-Dryer, K. *The Impacts of Mineral Dust (Montmorillonite) Particles on Lung Cells – an Analysis at the Single Cell Level*, Texas Weather Conference, September, 24th, 2020.

Ramírez-Díaz, Z., Morales, D. and Arvizu, B., *Study of the Interaction between Interfaces*, V Earth Sciences Symposium of Research Workshops, Faculty of Sciences, Mexico City, May 31st, 2018.

Posters

Ramírez-Díaz, Z. and Henderson, J. *Advancing Air Quality Action Through Local Public Engagement in West Texas: Opening a Path to Bridge Research and Policy.* 2025 Annual Meeting of the Southwest Division of the American Association of Geographers; Las Cruces, NM; October 31st, 2025.

Agyapong, G., **Ramírez-Díaz, Z.** and Ardon-Dryer, K. *Effects of Coal Fly Ash Particles on Single Human Epithelial Lung Cells*, 105th Annual Meeting of the American Meteorological Society; New Orleans, LA; January 14th, 2025.

Ramírez-Díaz, Z. and Ardon-Dryer, K. *Examining the effect of Dust in West Texas on Epithelial Lung Cell's Engulfing Process and Cell Death*, 104th Annual Meeting of the American Meteorological Society, January 29th, 2024.

Ramírez-Díaz, Z. and Ardon-Dryer, K. *The impacts of Dust Storm Particles on Lung Cells: An Analysis at the single-cell level*, Fall Meeting of the American Geophysical Union, December 11th, 2020.

Ladino, A., Raga, G., Álvarez-Ospina, H., Andino-Enríquez, Manuel., Rosas, I., Martínez, L., Salinas, E., **Ramírez-Díaz, Z.**, Figeroa, B., García-Reynoso, A., Chou, C., Irish, V. and Bertram, A. *Ice Nuclei Particles in the Yucatan Peninsula: Concentration, Composition and Variability*, European Aerosol Conference, Zürich, Switzerland, August 27th, 2017.

Ramírez-Díaz, Z., Morales, D. and Arvizu, B., *Study of the Interaction between Interfaces*, IV Earth Sciences Symposium of Research Workshops, Faculty of Sciences, Mexico City, December 14th and 15th, 2017.

AWARDS

2024	Graduate Cross-Disciplinary Paper Award (1st. place) – Institute for Studies in Pragmaticism
2021	Best Student Poster (2nd. Place) – American Meteorological Society

FELLOWSHIPS

2021 – 2025	Distinguished Graduate Student Assistantship – Texas Tech University.
2019 – 2021	American-Mexican Friendship Waterman Scholarship – Texas Tech University.
2018	Program for Special Activities of Interinstitutional Cooperation for Internationalization Goals – National Autonomous University of Mexico.
2018	Research Assistant Fellowship: Researcher Level III – National Council of Science and Technology.
2015 – 2017	Academic Excellence Scholarship – Bécalos Program.

LEADERSHIP POSITIONS

2025 – Present	Secretary at the Geosciences Student Society, a student organization dedicated to impulse students in the Geosciences community through leadership and scholarships.
2024 – 2025	Secretary at El Club the Español, a student organization advocating to create safe spaces to practice Spanish at Texas Tech University – Lubbock, TX.

VOLUNTEERING

2025 – Present	Advanced BioFuels USA. In charge of redesigning communication products and updating scientific content for national and international audiences.

ADDITIONAL TRAINING

2016 – 2018	Actress, director, and playwright in the International University Theater Festival.
2015 – 2017	Actress in the International Book Fair of the Palace of Mining in dramatized readings.

LANGUAGES

Spanish – Native. | **English** – Fluent. | **French** – Conversational. – DELF A2: 85.