



DR. GABRIELA A. MARTINEZ

Geoscientist, Geoscience and Engineering Group

Energy & Environmental Research Center (EERC), University of North Dakota (UND)

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Principal Areas of Expertise

Dr. Martinez's principal areas of interest and expertise include geological data analysis and interpretation, geomechanics, petrophysics best practices, well log geophysics data formation evaluation, sound waveform inversion, data classification and analytics, and velocity modeling of unconventional and fractured reservoirs.

Education and Training

Ph.D., Geosciences, Texas Tech University, Lubbock, Texas, 2003.

M.S., Petroleum Engineering, Texas Tech University, Lubbock, Texas, 2000.

M.S., Geosciences, Colorado State University, Fort Collins, Colorado, 1997.

Licenciature in Geology – Buenos Aires University, Buenos Aires, Argentina, 1988.

Research and Professional Experience

June 2022–Present: Geoscientist, Geoscience and Engineering Group, EERC, UND. Dr. Martinez interfaces with a diverse team of scientists and engineers to assess project uncertainties in oil and gas development and geologic CO₂ storage. In this role, she develops and oversees the development of geophysical models of the subsurface and performs regional geological characterizations.

December 2019–May 2022: Professional development. Dr. Martinez focused on transferable skills such as fluid flow in porous media, environmental geology, geohazards subsurface formation characterization and mapping, and coursework on risk assessment, aquifers, and watershed evaluations.

- Learned watershed and groundwater cycle principles and modeling together with well hydraulics.
- Studied the 2018–2023 Colorado Hazard Mitigation Plan.
- Continued participating in local and national professional associations.
- Involved in a machine learning project at the Institute of Gas and Petroleum of the University of Buenos Aires.
- Updated data analytics and QGIS knowledge.
- In December 2020, finished a 4-month course on Geologic Risk Assessment and Hazard Analysis at the University of Buenos Aires. The course focused on geohazard analysis of tectonically active mountain regions prompted to seasonal mass movement events, volcanically active regions, and plains. The final report comprised an evaluation of the frequent and extraordinary hazards of Boulder County, Colorado.

- On July 17, 2020, remotely presented and discussed “Technique to Follow Hydraulic Fracturing, Microseismic” to an audience of 550 participants.
- Mentored petroleum engineering students at the University of Buenos Aires.

2005–2019: Senior Petrotechnical Geoscientist, Schlumberger, Denver, Colorado. Dr. Martinez held various senior-level positions, planning and executing subsurface geological assessments of well log and core data for U.S. land and worldwide conventional and unconventional reservoirs.

- Generated comprehensive geological characterizations and interpretations, including research, data mining, data quality evaluation, processing, interpretation, and reporting according to accepted petrophysics best practices.
- Served as the team lead of the regional Acoustic Data Service team, driving team growth in people and marketing development, improving workflow efficiencies, and establishing strategies and goals.
- Headed the acoustic and geomechanics processing of well log and geophysical well data for CO₂ sequestration projects such as the Wallula Pilot Program, Washington and the Decatur Project, Illinois, in the Denver office.
- Planned and monitored field operations designed to solve complex engineering client problems, improving data quality and interpretations.
- Acted as liaison between the company and customers to understand their needs, provide Solutions, and explain products and new developments to small groups as well as in conference settings.
- Advanced knowledge and expertise of geophysical well logs with applications to petrophysics, geomechanics, and geophysics in conventional and unconventional reservoirs, including but not limited to pulsed-neutron spectroscopy, state-of-the-art sonic tools, and nuclear magnetic resonance (NMR) logs.
- Initiated and led workflow generation of new applications in unconventional reservoirs, including core-log calibrations of anisotropic elastic properties for rock physics models. The workflows were originally developed to be applied in the Williston and Powder River Basins.
- Owned a new product utilizing waveform reflection data to characterize potential fractures and reservoir structural mapping, improving the understanding of rock conditions away from the borehole.
- Designed and taught courses locally and in strategic international markets, helping introduce new workflows and original techniques to the geoscience stakeholder.
- Coached and mentored several young professionals to drive their career advancement.
- Selected to become internal and external paper reviewer, helping professionals and sharing opinions and ideas.
- Participated in multidisciplinary teams in worldwide locations to create innovative solutions focused on specific customer factual problems.

Professional Activities

Member, Rocky Mountain Section of the Society for Sedimentary Geology; Secretary, Board of Directors (2006–present).

Member, American Association of Petroleum Geologists (AAPG) Women’s Network Mentoring Program, mentoring a young professional since November 2020 to successfully achieve her career goals.

Publications

Dr. Martinez has authored and coauthored numerous peer-reviewed and other professional publications.