Dr. Mélida Gutiérrez

Missouri State University, Department of Geography, Geology and Planning

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EDUCATION

Ph.D. in Geohydrology. University of Texas at El Paso (UTEP), graduated 1992.

Postgraduate in Environmental Science, Int. Institute of Hydrology, The Netherlands,1985.

M.Sc. in Biological Wastewater Treatment, University of Karlsruhe, Germany, 1979.

WORK EXPERIENCE

1993-to date: Missouri State University (MSU), Geography, Geology and Planning Dept.

COURSES TAUGHT AT MSU

Principles of Geology; Environmental Geology, Geochemistry, Contaminant Hydrology.

RESEARCH AREAS

Research interests include soil and water contamination, stream water quality, geochemistry of natural waters, geochemical modeling, and earth science education.

GRADUATE STUDENT THESES MENTORING (PAST 5 YEARS)

2020 – M.S. Geospatial Sci., R. Armstrong. Soils contaminated with smelter fallout in SE Missouri

2020 – M.S. Geospatial Sci., M.A. McClanahan. History and Legacy of the Tri-State Mining District

2019 – M.S. Geospatial Sci., Z. Collette. Mobility of sediments contaminated with mining wastes

2015 – MNAS, J. Drane, Earth Science activities designed to improve High School student comprehension

UNDERGRADUATE INDEPENDENT RESEARCH PROJECTS (PAST 2 YEARS)

2020 – D. Dehart, Geochemistry of Springfield springs

2019 – C. Sifuentes, Chloride in Springfield springs

2019 – H. Eades, Alkalinity in Springfield springs

2019 – Z. Lurvey, Mobility of sediments from Center Creek, MO

RECENT PUBLICATIONS – BOOK CHAPTERS

Gutiérrez, M., Bledsoe, M. A. Chapter 2 Nitrate in Agricultural Soils. *Nitrate Handbook: Environmental, Agricultural, and Health Effects*. New York: CRC Handbooks, Taylor and Francis *(Submitted)*

Martínez-Cruz, D., Gutiérrez, M., Alarcón-Herrera, M. T. (2020). Spatial and Temporal Analysis of Precipitation and Drought Trends Using the Climate Forecast System Reanalysis (CFSR). In Lucatello S., Huber-Sannwald E., Espejel I., Martínez-Tagüeña N. (Ed.), *Spatial and Temporal Analysis of Precipitation and Drought Trends Using the Climate Forecast System Reanalysis (CFSR)* (pp. 129-146). Heidelberg: Springer Climate. https://link.springer.com/chapter/10.1007/978-3-030-22464-6_8

Reyes-Gómez, V. M., Núñez, D., Gutiérrez, M. (2020). Changes in the Vegetation Cover and Quality of Aquifers in the Drylands of Mexico: Trends in an Urbanized Complex of Three Socio-Ecological Systems Within the Chihuahuan Desert. In Lucatello, S., Huber-Sannwald E., Espejel, I., Martinez-Taguella, N. (Ed.), *Stewardship of Future Drylands and Climate Change in the Global South* (pp. 57-77). Heidelberg: Springer.

RECENT PUBLICATIONS – REFEREED ARTICLES (MSU students underlined)

Gutiérrez, M., Qiu, X., Collette, Z. J., Lurvey, Z. T. (2020). Metal Content of Stream Sediments as a Tool to Assess Remediation in an Area Recovering from Historic Mining Contamination. *Minerals, 10*(247), 12.

Alarcón-Herrera, M. T., Martin-Alarcón, D., Gutiérrez, M., Olmos, D. (2020). Co-occurrence, possible origin, and health-risk assessment of arsenic and fluoride in drinking water sources in Mexico: Geographical data visualization. *Science of the Total Environment/Elsevier, 698*(134168), 15. www.elsevier.com/locate/scitotenv

Pearson, M.A., Biagioni, R. N., Gutiérrez, M. (2019). Geochemical fractionation of stream sediments impacted by Pb-Zn mining wastes: Missouri, USA. *Mine Water and the Environment, 38*(June), 378–384. https://doi.org/10.1007/s10230-018-0568-3

Ibarra Jaime P., Rivas-Lucero B.A., Zuñiga G., Gutiérrez M. (2019). Preliminary list of flora established in the Río San Pedro - Meoqui wetland after seven years of its Ramsar designation. *Tecnociencia Chihuahua, XIII*(2), 5. Chihuahua, Mexico.

Gutiérrez M., Collette Z., McClanahan A.M., Mickus K. (2019). Mobility of Metals in Sediments Contaminated with Historical Mining Wastes: Example from the Tri-State Mining District, USA. *Soil Systems, 3*(22), 11. www.mdpi.com/journal/soilsystems

Rivas-Lucero B.A., Gutiérrez M., Magaña E., Márquez F., Márquez W. (2018). Salt content of dairy farm effluents as an indicator of salinization risk to soils. *Soil Systems, 2*(4), 10. www.mdpi.com/2571-8789/2/4

Gutiérrez M., Biagioni R. N., Alarcon-Herrera M. T., Rivas-Lucero B. A. (2018). an overview of Nitrate sources and operating processes in arid and semi-arid aquifer systems. *Science of the Total Environment - Elsevier, 624*(2018), 1513-1522. doi.org/10.1016/j.scitotenv.2017.12.252

Reyes-Gómez V.M., Gutiérrez M., Alarcón M.T., Núñez D. (2017). Groundwater quality impacted by land use/land cover change in a semiarid region of Mexico. *Groundwater Management and Sustainability - Elsevier, 5*, 160-167. www.sciencedirect.com/science/article/pii/S2352801X16300637?via%3Dihub

Gutiérrez, M (2017). Conocer para cuidar: Entendiendo los bolsones. *Revista Pacana, 3*(11), 8-9. Pecan Growers Association, Delicias, Mexico.

SERVICE

Coordinator of GLG110 Principles of Geology; General Education assessment reports,

Coordinator of GLG110 Principles of Geology labs and lab instructors,

Reviewer for scientific journals (e.g., *Sci Tot Environ, Environ Monit Assessm, Sustainability*),

Judge of student presentations. MSU Frank Einhelling Interdisciplinary Graduate Forum,

Workshops Coordinator for 2021 Geological Society of America, to be held in Springfield, MO.