

# Muhammad Rizwan Mughal

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## ACADEMIC QUALIFICATION

Ph.D.	2021	} Geosciences	Department of Earth Sciences, Quaid-i-Azam University (QAU) Islamabad, Pakistan
M.Phil.	2011		
M.Sc.	2009		
B.Sc.	2007	Phy, Chem, Math	University of the Punjab, Lahore, Pakistan

## PROFESSIONAL POSITIONS

Assistant Professor	2023 – Present	Department of Meteorology, CUI, Islamabad Campus
Research Associate	2014 – 2022	Department of Meteorology, CUI, Islamabad Campus
Field Coordinator	Feb. 2013 – Dec. 2013	Department of Earth Sciences, CUI, Abbottabad Campus

## PUBLICATIONS

1. Niaz, A., Bin Nisar, U., **Mughal, M. R.**, Akhtar Ehsan, S., & Fiaz, R. (2025). Impact of 2019 Earthquakes on Shallow Aquifers in Northern sub-Himalayan Pakistan: A Detailed Analysis of Mirpur and Surrounding Areas. *Geofisica Internacional*, 64(3), 1627-1640.
2. Khan, S., Ullah, S., Nisar, U. B., Ahmed, W., **Mughal, M.R.**, Irfan., Nawaz, S., Rehman, U.S., (2024). Modeled and empirical approaches to evaluate rock petrophysics parameters: a case study of Dhodak Gas Field, Pakistan. *Nafta-Gaz*, 9, 531-550.
3. Nisar, U.B., Ehsan, S.A., Rafiq, M.I. and **Mughal, M.R.**, (2024). Integrated study for assessing groundwater dynamics of the Dehdan village, Haripur Basin, Pakistan. *Journal of Applied Geophysics*, 105419.
4. **Mughal, M. R.**, Nisar, U. B., Ali, J., Butt, F. M. (2024). Implications of urban development on groundwater resources: A step towards urban resilience. 8th International Water Conference, Islamabad, 50.
5. Nisar, U.B., Ehsan, S.A., and **Mughal, M.R.**, (2024). Groundwater dynamics of Dehdan village, Haripur Basin, Pakistan: Integrating science for sustainability. 8th international water conference. Islamabad. 49.
6. Nisar, U. B., **Mughal, M. R.**, Shahzad, A., Akhter, G., Khan, S., Wahid, A., & Ehsan, S. A. (2024). Evaluating the paleo-depositional environment of productive reservoir sand of Lower Goru Formation: an integrated stratigraphic and diagenetic study. *Environmental Earth Sciences*, 83(1), 5.
7. Nisar, U. B., Ahsan, S. A., **Mughal, M. R.**, (2024). Groundwater dynamics of Dehdan village, Haripur Basin, Pakistan: Integrating science for sustainability. 8th International Water Conference, Islamabad, 49.
8. Farooq, M., Nisar, U.B., Khan, S., Jalees, T., **Mughal, M. R.**, Ali, L., & Ahmed, T. (2022). Electrical resistivity tomography for delineating groundwater potential zones in fractured metasedimentary rocks, Lesser Himalayas, Pakistan. *Journal of Earth System Science*, 131(2), 1-14.
9. Nawaz, M., Khan, M.R., NISAR, U.B., & **Mughal, M.R.** (2022). Reducing uncertainty with fault seal analysis: A case study of Jherruck Block, Lower Indus Basin, Pakistan. *Turkish Journal of Earth Sciences*, 31(3), 305-317.

10. **Mughal, M.R.**, & Akhter, G. (2021). Predicting the gas resource potential in reservoir C-sand interval of Lower Goru Formation, Middle Indus Basin, Pakistan. *Open Geosciences*, 13(1), 49-71.
11. Ahmed, K.A., Khan, S., Nisar, U.B., **Mughal, M.R.**, & Sultan, M. (2021). Machine seismic: an automatic approach for the identification of subsurface structural models. *Soft Computing*, 25(13), 8169-8176.
12. Khan, N.M., Farooq, M., **Mughal, M.R.**, Nisar, U.B., (2021). Mesozoic Structural Architecture and Petrophysical analysis of Badin South Block, Lower Indus Basin, Pakistan, 13, 27.
13. **Mughal, M.R.**, & Akhter, G. (2020). Sandstone reservoir modeling based on rock physics characterization for hydrocarbon resource potential in Southern Pakistan. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 1-13.
14. **Mughal, M.R.**, Akhter, G., & Bangash, A.A. (2020). Fluid replacement modeling increases reservoir seismic gas response. *Oil & Gas Journal*, 118(10), 18-26.
15. **Mughal, M.R.**, & Akhter, G. (2020). Amplitude variation with offset (AVO) analysis via fluid replacement modeling (FRM) for characterizing the reservoir response of Cretaceous sand interval. *Nafta-Gaz*, 76.
16. Ahmed, K.A., Khan, S., Sultan, M., Nisar, U.B., **Mughal, M.R.**, & Qureshi, S.N. (2020). Landslides assessment using geophysical and passive radon exhalation detection techniques in Murree Hills, northern Pakistan: Implication for environmental hazard assessment. *Journal of Earth System Science*, 129(1), 1-10.
17. Nisar, U.B., **Rizwan, M.**, Khan, M.R., Farooq, M., Qureshi, S.N., & Ahmed, K.A. (2019). Identification of sealing potential through fault seal analysis: a case study of Badin area, Lower Indus Basin, Pakistan. *Geofísica internacional*, 58(2), 139-150.
18. **Rizwan, M.**, Akhter, G., Mustafa, A., Nisar, U.B., & Ashfaq, K. (2018). Amplitude versus offset (AVO) modelling and analysis for quantitative interpretation of porosity and saturation: A case study for Sawan gas field, middle Indus basin, Pakistan. *Geofísica internacional*, 57(2), 151-160.
19. Nisar, U.B., Khan, M.R., Khan, S., Farooq, M., **Mughal, M.R.**, Ahmed, K.A., ... & Niaz, A. (2018). Quaternary Paleodepositional Environments in relation to Ground water occurrence in lesser Himalayan Region, Pakistan. *Journal of Himalayan Earth Sciences Volume*, 51(1), 99-112.
20. Niaz, A., Khan, M.R., Nisar, U.B., Khan, S., Mustafa, S., Hameed, F., ... & **Rizwan, M.** (2017). The study of aquifers potential and contamination based on geoelectric technique and chemical analysis in Mirpur Azad Jammu and Kashmir, Pakistan. *Journal of Himalayan Earth Sciences*, 50(2), 60-73.
21. **Mughal, M.R.**, Iqbal, M. F., Mahmood, I., Butt, F. M., & Ullah, K. (2017). Predicting Potential Zones of Hydrocarbon through Seismic Stratigraphy within the Western Barents Sea, Norway. *International Letters of Natural Sciences*.
22. Mahmood, I., Iqbal, M.F., **Mughal, M R.**, Shahzad, M.I., Tariq, S., & Ullah, K. (2017). An investigation of 2013 Mw 7.7 Awaran Earthquake, Pakistan. *International Letters of Natural Sciences*, 61.
23. **Rizwan, M.**, Farooq, M.I., Imran, M.S (2016). Seismic Stability Analysis of Soil Slope Using Numerical Model, *Geodynamics Research International Bulletin Online*.
24. MonaLisa, **Rizwan, M.** (2012). Earthquake induced Slope Stability Analysis for Muzaffarabad area using factor of safety methods. *Journal of Himalayan Earth Science*, 45(2).

## TEACHING EXPERIENCE

### Graduate Courses

Course Code	Title	University	Semester
MET763	Natural Resource Exploration	CUI, Islamabad Campus	FA-2025
MET654	Digital Image Processing and Analysis	CUI, Islamabad Campus	SP-2025
MET601	Advanced Remote Sensing	CUI, Islamabad Campus	SP- & FA-2024
MET662	Hydrology and Water Resources	CUI, Islamabad Campus	SP- & FA-2024
MET601	Advanced Remote Sensing	CUI, Islamabad Campus	FA- 2023
MET662	Hydrology and Water Resources	CUI, Islamabad Campus	FA-2023
MET668	Active Remote Sensing	CUI, Islamabad Campus	SP-2023
MET662	Hydrology and Water Resources	CUI, Islamabad Campus	FA-2022
MET661	Forest Management	CUI, Islamabad Campus	FA-2022
MET663	Natural Resources Exploration	CUI, Islamabad Campus	SP-2022
MET686	Active Remote Sensing	CUI, Islamabad Campus	SP- & FA-2021
MET602	Advanced GIS	CUI, Islamabad Campus	SP- & FA-2021
MET686	Active Remote Sensing	CUI, Islamabad Campus	SP- & FA-2020
MET602	Advanced GIS	CUI, Islamabad Campus	SP- & FA-2020

### Undergraduate Courses

Course Code	Title	University	Semester
MET314	Application of Remote Sensing & GIS	CUI, Islamabad Campus	FA-2025
ERS494	Hydrochemistry and Groundwater Pollution	CUI, Abbottabad Campus	FA-2013
ERS465	Electrical Methods and Borehole Geophysics	CUI, Abbottabad Campus	FA-2013
ERS101	Physical Geology	CUI, Abbottabad Campus	SP-2013
ERS203	Environmental Geology	CUI, Abbottabad Campus	SP-2013

## SUPERVISION OF STUDENT RESEARCH

### Department of Meteorology, CUI, Islamabad Campus

#### Graduate Thesis Research (As primary advisor)

Name	Registration #	Degree Sought	Status
Junaid Ali	CIIT/SP20-RRG-003/ISB	M.S. (Remote Sensing & GIS)	Completed 2022
Muhammad Sheryar	CIIT/SP21-RRG-015/ISB	M.S. (Remote Sensing & GIS)	Completed 2024
Muhammad Zargham Khan	CIIT/SP22-RRG-012/ISB	M.S. (Remote Sensing & GIS)	Completed 2024
Hafiza Afifa Aymen	CIIT/FA21-RRG-004/ISB	M.S. (Remote Sensing & GIS)	Completed 2024
Usama Ejaz Wains	CIIT/FA22-RRG-012/ISB	M.S. (Remote Sensing & GIS)	Completed 2024
Muhammad Abubakar Saleh	CIIT/SP23-RRG-009/ISB	M.S. (Remote Sensing & GIS)	Completed 2025
Humaira Rasheed	CIIT/SP23-RRG-005/ISB	M.S. (Remote Sensing & GIS)	Completed 2025
Marwa Asif	CIIT/FA23-RRG-005/ISB	M.S. (Remote Sensing & GIS)	Completed 2025
Noor ul Huda	CIIT/FA24-RRG-007/ISB	M.S. (Remote Sensing & GIS)	In Process

## SERVICE TO THE CUI

### Department of Meteorology, CUI, Islamabad Campus

Incharge Graduate Programs	2025-Present
Member/Secretary, Departmental Advisory Committee (DAC)	2025-Present
Member, Departmental Academic Review Committee (DARC)	2025-Present
Member, Departmental Graduate Admission Committee (DGAC)	2025-Present
Member, Earth Science System Research Group	2015-Present
Member, Climate Change Diagnosis and Attributions Research Group	2015-Present
Member, PhD Supervisory Committee	2024-Present
Special Member, Board of Study (BoS)	2017-Present
Convener, Admission Affair Committee (RS & GIS)	2019-Present
Member, Seminar Committee	2015-Present
Member, Quality Enhancement Cell (QEC) Committee	2019-Present
Member, Audit committee	2019-Present
Member, Sports committee	2017-Present
Member, Website Maintenance Committee	2018-Present
Member, Meteorology and RS/GIS Lab Committee	2020-Present
Member, Departmental Security Committee	2018-Present

### Department of Earth Sciences, CUI, Abbottabad Campus

Convener, Geological/ Geophysical Field Trips Committee	2013
Convener, Geological/ Geophysical Lab Committee	2013
Member, Events/Seminar Organizing Committee	2013

## TRAINER / RESOURCE PERSON

### Conducted Training Workshops

Geospatial Techniques for Mineral Resource Mapping and Exploration, at OGTI Islamabad	18-22 August 2025
Urban Architecture and Planning, at Institute of Architects Pakistan, Rawalpindi-Islamabad Chapter	8 June 2024
Spatial Data Sciences: Innovations in Remote Sensing and GIS, at CUI Islamabad	Summer-Camp 2024
Remote Sensing and Cloud-Based Solutions for Climate Data Analysis	28 May 2024
Geospatial Techniques to Understand the Urban Architecture and Planning, at Architecture Department CUI	05 April 2024
Geospatial Techniques to Understand the Urban Architecture and Planning	27 December 2023
Climate Change Monitoring and Flood Mapping Bootcamp, at CUI Islamabad	21 December 2022
Training workshop on Geospatial Techniques for Hydrological Resources, at CUI Islamabad	24 June 2022

## PROFESSIONAL LEARNING

Course Title, Institute	Field of Study	
Achieving Net-Zero: Where CUI Stand, CCRD, CUI	Climate Change	2022
Sustainable Food system Under Climate Change in South Asia, CCRD, CUI	Climate Change	2018
Workshop on Geospatial Tools for Multidisciplinary Applications, Meteorology, CUI	Remote Sensing & GIS	2018
Climate Change, CDA Training Academy	Atmospheric Sciences	2016
Awareness Raising Amongst Students & Academia, UNDP	Academics	2016

Workplace Ethics, CCED, CUI	Professional Development	2015
Faculty Development Workshop, CUI, Abbottabad Campus	Teaching & Academics	2013
Practical Seismic Exploration, GIS Mapping & Computer Applications, Q A U, Islamabad	Earth & Atmospheric Sciences	2009
E-Commerce, AIMS	Programing	2003

## REFERENCES

1. Name: Dr. Khawar Ashfaq Ahmed

Position: Research Scientist AI

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2. Name: Dr. Muhammad Imran Shahzad

Position: Associate Professor || Chairman

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