

DR. ZAHID RAHMAN, Ph.D, PMP®

Exploration, Mining & Engineering Geophysicist | Geologist



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PROFESSIONAL PROFILE

PMP®-certified, Exploration, Mining, and Engineering Geophysicist (PhD) and Geologist (BS) with hands-on expertise delivering integrated geophysical solutions for large scale subsurface characterization and mineral exploration. Expert in leading full cycle exploration workflows; from survey design, acquisition, processing, and interpretation of Geophysical Surveys (Gravity, Magnetic, Radiometry, IP, SP, EM and ERT) to geological mapping and subsurface integration for target generation.

Experienced in engineering geophysics and geotechnical site characterization, including Ground Penetrating Radar (GPR) for underground utility detection, Multichannel Analysis of Surface Waves (MASW) for subsurface karstic feature investigations, shallow and borehole seismology (SSRT, cross-hole, down-hole & V_{s30}) for seismic site classification.

Proficient in industry-standard geophysical, geotechnical, and spatial processing software including Geosoft Oasis Montaj, QGIS, Surfer, ReflexW, RADAN, SurfSeis, and MATLAB with integration of AI and Machine Learning techniques to enhance data interpretation, predictive modeling, and technical reporting.

Proven track record directing end-to-end project lifecycles, managing multi-disciplinary teams, client engagement, commercial proposal development, and technical report approval under strict HSE and quality standards.

CORE EXPERTISE

Management Skills

- End-to-end project planning, scope, schedule, budget, and lifecycle management
- Field operations supervision, logistics, and multi-disciplinary team leadership
- Commercial proposal development, client engagement, and technical reporting
- Field data quality control (QC), assurance (QA), and deliverable sign-off
- HSE compliance, risk management, and site safety oversight

Geophysical Methods

- Magnetic, Gravity, EM, IP, SP, and Electrical Resistivity Tomography (ERT)
- Survey design, data acquisition, processing, 2D/3D inversion, and integration
- Ground Penetrating Radar (GPR) for underground utility detection and mapping
- Shallow and borehole seismology (MASW, SSRT, cross-hole, and down-hole)

Geotechnical and Geological Skills

- Subsurface characterization, engineering investigations, and void/cavity detection
- Subsurface characterization and engineering investigations
- Seismic site classification and groundwater investigations
- Geological mapping, structural interpretation, and lithological logging
- Mineral exploration, metallic prospectivity, and target generation
- Geohazard assessment, landslide analysis, and seismic hazard analysis (PSHA, DSHA, PGA)

Software & Analytical Tools

- MATLAB, QGIS, Oasis Montaj, Surfer, ZMAP
- ReflexW, RADAN, and SurfSeis
- AI and Machine Learning applications for geophysical interpretation and predictive modelling using MATLAB and QGIS

PROFESSIONAL EXPERIENCE

GEOPHYSICAL SURVEY TEAM LEADER

Saudi Geophysical / Saudi Aramco Project | Saudi Arabia | September 2026

- Led gravity survey operations using Scintrex CG-6 and CG-5 gravimeters, including survey planning, instrument setup, field data acquisition, and crew supervision.
- Conducted gravimeter drift tests, base station observations, repeat measurements, and daily QA/QC assessments to ensure reliable gravity data.
- Maintained the daily gravity survey database and performed comprehensive data processing, including data validation, drift correction, gravity reductions, Bouguer anomaly calculation, interpretation, and mapping.
- Trained and mobilized the magnetic survey crew, initiated field operations, and provided technical guidance on instrument operation, survey procedures, data acquisition, and field QA/QC.
- Supervised magnetic survey activities, ensuring compliance with survey specifications, planned station layouts, and quality standards.
- Coordinated field crews, daily progress reporting, technical documentation, and operational activities with project management.

MANAGER GEOPHYSICAL

Field Experts Company, KSA | Al Khobar, Saudi Arabia | March 2026 – Present

- Lead geophysical projects from client engagement, proposal preparation, and project planning through field execution, interpretation, and final reporting.
- Design and supervise geophysical surveys, ensuring compliance with project specifications, industry standards, and HSE requirements.
- Manage field operations, survey crews, equipment, logistics, and project schedules to ensure efficient project delivery.
- Perform quality control (QC) of field data, oversee data processing and interpretation, and ensure the accuracy and reliability of project deliverables.

- Review, approve, and deliver technical reports, providing practical recommendations to clients based on integrated geophysical interpretation.
- Coordinate with clients, consultants, and project teams to support technical discussions, project execution, and business development initiatives.

GEOPHYSICIST

MJR Holding Company | Riyadh, Saudi Arabia | Jan 2025 – Feb 2026

- Prepared technical proposals, quotations, cost estimates, and project documentation for geophysical and geotechnical drilling projects.
- Planned and supervised geophysical and geotechnical field operations, including mobilization of drilling rigs, equipment, personnel, and logistics.
- Supervised borehole drilling operations, Standard Penetration Tests (SPT), soil sampling, borehole logging, and site activities in accordance with project requirements.
- Performed and supervised MASW, Ground Penetrating Radar (GPR), and soil resistivity testing (8-direction Wenner method) for geotechnical site characterization.
- Managed geophysical data acquisition, quality control (QC), processing, interpretation, and preparation of technical deliverables.
- Coordinated with clients, consultants, drilling teams, and project engineers, attended technical meetings, and monitored daily project progress to ensure successful project execution.

PROJECT DIRECTOR (Geophysical Section)

GeoResource Mineral Exploration Co. (www.grmecpk.com) | Pakistan | 2024 – 2025

- Led integrated mineral exploration programs for copper, gold, lithium, chromite, and placer gold prospects through geological mapping and applied geophysics.
- Planned exploration strategies, selected appropriate exploration methods, and designed survey layouts, line spacing, and station intervals based on deposit type and geological conditions.
- Conducted geological mapping, structural mapping, lithological logging, rock sampling, and detailed geological field investigations to support exploration targeting.
- Supervised magnetic, electromagnetic (EM), and self-potential (SP) surveys, ensuring high-quality data acquisition and field quality control (QC).
- Processed, interpreted, and integrated geological and geophysical datasets to delineate exploration targets and recommend exploration targets.
- Prepared technical reports and exploration recommendations in collaboration with multidisciplinary exploration teams.

SENIOR GEOPHYSICIST

Rose Exploration Geosciences | Pakistan | 2023 – 2024

- Conducted integrated mineral exploration programs for chromite, placer gold, coal, and other mineral prospects using geological mapping and applied geophysical techniques.
- Planned and executed geological field investigations, including geological mapping, structural mapping, lithological logging, and rock sampling to support exploration activities.
- Performed and supervised magnetic, electromagnetic (EM), resistivity, and ADMT surveys, ensuring high-quality data acquisition and field quality control (QC).

- Processed, interpreted, and integrated geological and geophysical datasets to identify exploration targets and support mineral prospect evaluation.
- Conducted groundwater investigations and water-table assessments using resistivity and EM/ADMT methods in Karak, Islamabad, and Timergara, Pakistan.
- Prepared technical reports and provided exploration recommendations based on integrated geological and geophysical interpretation.

RESEARCH ASSOCIATE

National Centre of Excellence in Geology, University of Peshawar | Pakistan | 2021 – 2024

- Conducted advanced research in seismology, seismic hazard assessment, and earthquake characterization as part of Ph.D. research.
- Performed seismic data processing, interpretation, statistical analysis, and geophysical modelling using advanced analytical techniques.
- Conducted seismic site characterization, including VS30 estimation and seismic site classification for engineering and hazard assessment.
- Published peer-reviewed research in seismology, earthquake analysis, and applied geophysics in international scientific journals.
- Collaborated with multidisciplinary research teams and contributed to technical reports, scientific publications, and conference presentations.

MINING GEOLOGIST

Tariq & Co. Mine & Minerals | Pakistan | 2019 – 2021

- Conducted geological mapping and resource evaluation to support granite exploration and quarry development.
- Supervised quarry operations, block extraction, production activities, and quality assessment of dimension stone.
- Participated in mine planning, production monitoring, and geological evaluation to optimize extraction and resource utilization.
- Co-led the acquisition of a government mining lease for a Dir White Granite deposit, contributing to exploration, quarry development, and commercial production.
- Coordinated with mine management, contractors, and production teams to support safe and efficient mining operations.

CONSULTANT GEOLOGIST

Directorate General of Mines & Minerals | Pakistan | 2015 – 2019

- Conducted geological mapping, structural mapping and mineral resource investigations across prospective mineralized areas.
- Performed integrated geological investigations to support the exploration and evaluation of metallic and non-metallic mineral deposits.
- Collected, processed, and interpreted geological field data to identify prospective targets.
- Prepared geological maps, technical reports, and exploration documentation to support mineral resource assessment and decision-making.
- Collaborated with multidisciplinary teams during field investigations, mineral exploration programs, and government-funded geological projects.

EDUCATION

Ph.D. in Geophysics

National Centre of Excellence in Geology, University of Peshawar, Pakistan (2024)

M.S. in Geophysics

National Centre of Excellence in Geology, University of Peshawar, Pakistan (2020)

B.S. in Geology

University of Peshawar, Pakistan (2015)

SELECTED PROJECTS

1. **Saudi Aramco P-14 Geophysical Exploration Project, Saudi Arabia** – Geophysical Survey Team Leader- Gravity and Magnetic Surveys, Acquisition, Processing, QA/QC, and Mapping.
2. **Muslim Bagh Pakistan Chromite Exploration via geological and geophysical surveys (PD)**
Geological Mapping, Magnetic, EM & SP Surveys
3. **Sheringal Copper Project, Pakistan** – Project Director
Geological Mapping, Magnetic, EM & SP Surveys
4. **Dargai Chromite (Ophiolitic Complex) Pakistan, Exploration via geological and geophysical surveys**
5. **Chitral Porphyry Copper Project, Pakistan** – Project Director
Geological Mapping, Magnetic, EM & SP Surveys
6. **Chilas Placer Gold Project, Pakistan** – Project Director:
Geological Mapping, Magnetic Surveys
7. **Besho Orogenic Gold Project, Pakistan** – Project Director
Geological Mapping, Magnetic, EM & SP Surveys
8. **Geotechnical Investigation Projects, Saudi Arabia**
Multiple projects across Saudi Arabia involving MASW, GPR, Soil Resistivity, Borehole Logging, and Standard Penetration Testing (SPT).

SELECTED PUBLICATIONS

- Rahman & Rehman (2024). *Seismic b-value Analysis of Northern Pakistan: An Appraisal*. Environmental Earth Sciences, **83**(1).
- Anjum, M. N., et al., (2024). *The Impact of Mineralogical Characteristics on the Physicomechanical Properties of Serpentine from Prang Ghar, Mohmand District, Pakistan*. International Journal of Economic and Environmental Geology, **15**(4), 25–32.
- Khan, T., et al. (2024). *Development of Stress-Induced Fracture Patterns and Assessing Reservoir Potential of the Exposed Formations of Panoba Anticline*. Carbonates and Evaporites, **39**, 42.
- Rahman, Z., et al., (2021). *Re-appraisal of Earthquake Catalog in the Pamir–Hindu Kush Region, Emphasizing the Early and Modern Instrumental Earthquake Events*. Journal of Seismology, **25**(6), 1461–1481.

LANGUAGES

- English: Proficient
- Arabic: Conversational
- Urdu – Native

Professional references and detailed project portfolio available upon request request.