

Dr. Muhammad Armaghan Faisal Miraj

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Status: Married, Born 1978.

PhD (July 2017) from Institute of Geology, Mineralogy & Geophysics, Ruhr-University Bochum, Germany & worked on integrated seismic interpretation, structural restoration and numerical modelling of inverted structures in the western Barents Sea.

Main Area of Interest

- Structural/Petroleum Geology
- Numerical/Kinematic Modelling
- Fracture/Fault Analysis
- Paleostress Analysis
- Analogue modelling (Sandbox)
- Seismic interpretation
- Carbonate Sedimentology

Education

- **PhD. Structural Geology**, July 2017. Ruhr-University Bochum, Germany.
- **MS. Geology**. April 2009. Aarhus University, Denmark.
- **M.Sc. Geology**. February 2003. University of the Punjab, Lahore, Pakistan.
- **B.Sc. Applied Geology**. October 2000, University of the Punjab, Lahore, Pakistan.

Teaching/Research Experience

- Working as **Assistant Professor** at the **Institute of Geology, University of the Punjab**, Lahore, Pakistan since Sept. 2017 to date.
- Worked as **Teacher Assistant** at the **Institute of Geology, Mineralogy & Geophysics, Ruhr University, Bochum, Germany** (09.14 – 02.17).
- Worked as **Lecturer** at the **Institute of Geology, University of the Punjab**, Lahore, Pakistan from Jan. 2011 to Aug. 2013.

Professional Experience

SPUD Energy Pty Ltd (2010-2011)

Worked as **Geologist**

Job Description

- G&G studies
- Identification and evaluation of new prospects
- Development of New Play concept and Petroleum system
- Seismic interpretation
- Well log interpretation
- Geological report writing

Geosciences Associates (PVT) Limited, Pakistan. (2003-2005)

Worked as **Field Geologist**, assisted and involved in following activities:

- Geo-electrical Survey
- Geophysical Logging

Research Projects

- Analogue (Sandbox) modelling of thrust geometries of Northwest Himalayas, Pakistan.
- Numerical modelling of fractured rocks of northern Pakistan.
- Numerical modelling of Cenozoic compressional Events of NW Himalayas, Pakistan.
- Fracture analysis and discrete fracture network modelling of Early Eocene Sakesar limestone, Eastern Salt Range, Potwar Plateau, Pakistan.
- Evaluation of fracture pattern and paleostress analysis of NW, Himalaya Pakistan.
- Kinematic Analysis and Structural Restoration of Dunga Gali-Kuza Gali Area, Southern Hazara Basin Lesser Himalayas, Pakistan.
- 2D seismic interpretation of the inversion features of the western Barents Sea.
- Structural restoration of Cretaceous inversion events in the Bjørnøyrenna Fault Complex, western Barents Shelf.
- Numerical modelling of multistage basin inversion in the western Barents Shelf.
- 2-D seismic data interpretation, covering the comparative analysis of different salt structures in Southern North Sea, Dutch offshore sector. In particular, the timing of salt movement and the nature and style of different salt structures.

- Evaluation of hydrocarbon potential of Southern Potwar Deformed Zone (SPDZ), Upper Indus Basin, Pakistan.
- Evaluation of Hydrocarbon Prospects of Bela North & West Blocks Indus Basin, Pakistan.
- Evaluation of Hydrocarbon Prospects of Makran Region of Balochistan Basin, Pakistan.
- A report on the Geology and related aspects of Nathia Gali–Ayubia area of the sedimentary fold belt in the Lesser Himalaya part of the Northern Himalaya in Pakistan.
- A report on log interpretation, to plot and compare different logs and to find out the hydrocarbon content. (Well West lulu3, North Sea).
- A report on Hydrocarbon modelling (subsidence and thermal history curves) using Matlab software (Well B-1, North Sea).
- A full-length comprehensive report on “Well site geology and Aspects of Mud logging”.

Publications/ Conference papers

- **Miraj, M. A. F.**, Ahsan, N., Afgan, S., Saleem, R. F., Ali, A., 2020. Comparative Analysis of Salt Structures in the Southern North Sea, Dutch Offshore, the Netherlands. *Geotectonics* Vol. 54 (6).
- **Miraj, M. A. F.**, Pascal, C., Gabrielsen, R. H., Faleide, J. I., 2020. Structural Restoration of Cretaceous Inversion Events in the Bjørnøyrenna Fault Complex, Western Barents Shelf, accepted as oral presentation at AAPG ACE 2019, 07-10 June 2020, Houston, USA.
- **Miraj, M. A. F.**, Ali. Wajid., Numerical Modelling of Cenozoic Compressional Events of NW Himalayas, Pakistan. Poster presentation at AAPG ACE 2019, 19-22 May 2019, at the Henry B. González Convention Center in San Antonio, Texas, USA.
- Inam, R. H., Khan, M. I., Zafar, M. **Miraj, M. A. F.**, 2019. Stress Field and Fracture Analysis of Paleocene Rock Unit Using Borehole Image Data and 3-D Seismic Interpretation of Kohat Foreland Basin, Pakistan, oral presentation at AAPG ACE 2019, 19-22 May 2019, at the Henry B. González Convention Center in San Antonio, Texas, USA.
- Ahsan, N., Mahmood, T., Zaidi, S. F. A., Ejaz, A., Zaidi, S. I. A., **Miraj, M. A. F.**, 2019. Danian clastic shoreface shift on time transgressive surface in Kashmir

and adjoining basins, NW Himalaya, Pakistan. Geophysical Research Abstracts. 2019, Vol. 21, p1-1. 1p.

- **Miraj, M. A. F.**, Mehmood, H., Kashif, M., Zaidi, S. H., Ahsan, N., 2018. Fracture analysis and discrete fracture network modelling of Early Eocene Sakesar limestone, Eastern Salt Range, Potwar Plateau, Pakistan. Poster Presentation in HKT,08-10, September 2018, Lausanne, Switzerland. DOI: 10.5281/zenodo.1403887.
- Ahsan, N., Mahmood, T., Qayyum, A., **Miraj, M. A. F.**, Rehman, S., 2018. Muzaffarabad Paleo-high, NW Himalaya, Pakistan: Its impacts on depositional settings and development of Hazara-Kashmir Syntaxis. Poster Presentation in HKT, 08-10 September 2018, Lausanne, Switzerland. DOI: 10.5281/zenodo.1403887.
- **Miraj, M. A. F.**, Pascal, C., Gabrielsen, R. H., Faleide, J. I., 2018. Numerical modelling of Cenozoic basin inversion of western Barents Sea. Oral presentation at AAPG-ACE 20-23 May 2018, Salt Lake City, Utah, USA.
- Ahsan, N., Shah, F., **Miraj, M. A. F.**, 2018. Stages of Development of Jaccobabad - Khairpur High and Its Impact on Petroleum Plays of the Region, Southern Indus Basin, Pakistan – An Overview Based on Well Data. Poster presentation in AAPG-ACE 20-23 May 2018 Salt Lake City, Utah, USA.
- **Miraj, M. A. F.**, Pascal, C., Gabrielsen, R. H., Faleide, J. I., 2015. Numerical Modelling of multi-stage basin inversion in the western Barents Shelf. In EGU General Assembly Conference Abstracts (Vol. 18, p. 799, 2015), PICO presentation.
- Faleide, J. I., Gabrielsen, R. H., Kjetil, I., Sebastien, G., Aleksander, M., **Miraj, M. A. F.**, Pascal, C., 2015. Contractual events in the Barents Sea Basin evolution – Timing, causes and implications. 3P Arctic - The Polar Petroleum Potential, Stavanger, Norway, 29 September - 2 October 2015.
- **Miraj, M. A. F.**, Pascal, C., Gabrielsen, R. H., Faleide, J. I., 2014. Numerical modelling of main inverted structures in the Western Barents Sea. Proceedings of GeoMod 2014 (31.08.-05.09.14, Potsdam, DE, doi: 10.2312/GFZ. geomod. 2014. 001), Poster presentation.
- Ahsan, N., **Miraj, M. A. F.**, Rehman, S. U., Ali, A., 2013. Subsurface structural re-construction of Joya Mair structure, southeast Potwar sub-basin, Indus Basin, Pakistan. Int. J. Agric. Appl. Sci. Vol. 5, No. 1, P. 17 – 26.

- Ahsan, N., **Miraj, M. A. F.**, Mehmood, T., Ahmed, N., Iqbal, Z., Sameeni, S. j., 2013. 3D modelling of subsurface stratigraphy and structural evolution of Balkassar area, Eastern Potwar, Pakistan. Pakistan Journal of Hydrocarbon Research Vol. 22 & 23, P.25-40.
- Ahmad, N., Ahsan, N., Sameeni, S. J., **Miraj, M. A. F.**, Khan, B., 2013. Sedimentology and reservoir potential of the Lower Eocene Sakesar limestone of Dandot area, Eastern Salt Range, district Chakwal, Pakistan. Sci. Int. 25(3), 521-529.
- Ahmad, N., Ahsan, N., Sameeni, S. J., **Miraj, M. A. F.**, Khan. B., 2013. Sedimentology of the Early Middle Cambrian Jutana Formation of Khewra Area, Eastern Salt Range, District Chakwal, Pakistan. Sci. Int. 25(3), 551-558.

G & G Internship

Ten weeks (2001) training with OGDCL, Pakistan, as a trainee well site geologist, got adequate knowledge of mud logging techniques, drilling operations, wire line logging and interpretation, casing and cementing technologies.

G & G Training Courses Attended/Organized

- 2000 _ A GIS course with the collaboration of NUST and Hanns Siedel Foundation, Germany.
- 2001 – Well site Geology; Surface Data Logging and Introduction to Pressure Engineering.
- 2011 – Participated in training workshop on “Disaster Risk Management” Organized by National Disaster Management Authority, National Institute of Disaster Management.
- 2011 - The PAPG-SPE Annual technical conference at Islamabad.2011 - Seminar on “Organizational intelligence” organized by planning and development wing.
- 2012- 2 days’ workshop on Research Ethics, EndNote and Turnitin at Department of Library sciences, University of the Punjab, Lahore.
- 2012- Course on Gas Analysis” by Mr. Junaid Bhatti (Pressure Eng.) from MB Petroleum Oman at the Institute of Geology, University of the Punjab.
- 2012- Professional training on Software application (Kingdome suit) by Mr. Hassan (Petrophysicist) from LMKR at the Institute of Geology, University of the Punjab.

- 2012- Course on well log and Petrophysical interpretation by Mr. Fahad Arif (Senior Petrophysicist) from Schlumberger at the Institute of Geology, University of the Punjab.
- 2012- Comprehensive course on play fair way analysis by Dr. Nadeem (Manager Exploration) from PPL at the Institute of Geology, University of the Punjab.
- 2018- Course on well site geology and well completion by Basit Gaffar (Operation manager) from Petroservices, Islamabad at the Institute of Geology, University of the Punjab.
- 2018- Course on Formation Pressure Evaluation by Adnan Sheikh (Pressure Engineer) from Petroservices, Islamabad at the Institute of Geology, University of the Punjab.

Professional Memberships

- 2020 Member GSA (Geological society of America)
- 2019 member AAPG (American Association of Petroleum Geologist)
- Teacher Coordinator/Member of PAPG (Pakistan Association of Petroleum Geoscientists).
- 2019 Member EGU (European Geosciences Union)
- 2018 to date Incharge 2nd Professional, Institute of Geology, University of the Punjab.
- 2018 Member Board of Studies, Institute of Geology, University of the Punjab.
- 2011 – 2013 Member PGS (Punjab Geological Society, Pakistan)
- 2011 – 2013 Incharge Library and Map Section, Institute of Geology, University of the Punjab.
- 2011 – 2013 Member admission committee, Institute of Geology, University of the Punjab.

IT Skills

- Ansys workbench 15 (Stress pattern simulation)
- MOVETM (Structural restoration and modelling software by Midland Valley Exploration Ltd).
- Win Tensor (Paleostress analysis)
- Kingdom Suite 8.6/8.8 – Interpretation and mapping of seismic data
- Petrel – Interpretation of seismic data
- Code-Aster (FEM) & SALOME-MECCA
- Open detect – Interpretation and mapping of seismic data.