

# PROF. DR. NAVEED AHSAN

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## EDUCATION

- 2008** **Ph.D** in Geology  
College of Earth and Environmental Sciences, University of the Punjab, Lahore-54590, Pakistan  
*Thesis:* Facies Modeling, Depositional and Diagenetic Environments of Kawagarh Formation, Hazara Basin, Pakistan  
*Supervisor:* Prof. Emeritus Dr. Muhammad Nawaz Chaudhary
- 1992** **M.Sc** in Applied Geology  
Institute of Geology, University of the Punjab, Lahore-54590, Pakistan  
*Thesis:* Geology and Structure of Harno Area, Abbottabad  
*Supervisor:* Prof. Dr. Munir Ghazanfar and Prof. Emeritus Dr. Muhammad Nawaz Chaudhary
- 1990** **B.Sc** in Applied Geology  
Institute of Geology, University of the Punjab, Lahore-54590, Pakistan
- 1980/  
1984** **Secondary School Certificate and Intermediate**  
Board of Intermediate and Secondary Education, Sargodha, Pakistan

## ADMINISTRATIVE POSITIONS

- Nov. 2019 to Mar. 2023**  
**Director**, Institute of Geology, University of the Punjab, Lahore-54590, Pakistan
- Aug. 31. 2018 to Oct. 31 2019**  
**Director**, Office of Research, Innovation and Commercialization (ORIC), University of the Punjab, Lahore-54590, Pakistan
- May 03, 2016 to Oct. 31, 2019**  
**Course Coordinator** (M. Phil and Ph. D), Institute of Geology, University of the Punjab; Lahore-54590, Pakistan
- Aug.15. 2002 to June 11, 2010**  
**Program Coordinator**, College of Earth and Environmental Sciences, University of the Punjab, Lahore, Pakistan

## TEACHING AND PROFESSIONAL EXPERIENCE

- June 15, 2015 to date**  
**Professor**, Institute of Geology, University of the Punjab
- June 11, 2013 to Sep 05, 2015**  
**Associate Professor** in the Institute of Geology, University of the Punjab, Lahore
- Dec. 01, 2001 to June 10, 2013**  
**Assistant Professor** in the Institute of Geology, University of the Punjab, Lahore
- Aug. 1, 2000 to Nov. 30, 2001**  
**Lecturer** in the Institute of Geology, University of the Punjab, Lahore
- April 29, 1998 to July 30, 2000**  
**Lecturer** in Department of Earth Sciences, Quaid-e-Azam University, Islamabad
- Jan. 13, 1993 to April 28, 1998**  
**Research Assistant** at Building Research Station, Communication and Works Department, Government of the Punjab, Quaid-e-Azam Campus, Lahore

## VISITING SCHOLAR

July 07, 2017 to Aug. 10, 2017

July 23, 2016 to Aug. 06, 2016

Nanjing Institute of Geology and Paleontology, Chinese Academy of Sciences, Nanjing, China

## AWARDS

1998

**Award from American Association of Petroleum Geologists.** The American Association of Petroleum Geologists (AAPG) awarded \$2000/- for best proposal for research during the session 1998-99

1998

**Gold Medal from Punjab Geological Society.** The Punjab Geological Society Awarded a Gold Medal for Research in Sedimentology of Hazara Basin, NW Lesser Himalaya, on December 18<sup>th</sup>, 1998.

1997

**Gold Medal from Pakistan Academy of Geological Sciences.** The Pakistan Academy of Geological Sciences declared "The Geologist of the Year" and awarded a Gold Medal for outstanding contribution and research work in the Sedimentary Geology of Attock Hazara Fold and Thrust Belt of Pakistan on Jan. 4, 1997.

## RESEARCH INTERESTS

### Structural Geology

Working on numerical modeling, fault kinematics, and paleostress inversion techniques to better understand the structure and tectonic evolution of the **Hazara-Kashmir Basin**. Numerical Modeling is being done by using COMSOL software. The models will be later calibrated using surface geological data and FMI. The carbonate rocks model will determine the fracture propagation, their network and the way permeability is linked to geometry of fracture pattern. Fractures are targeted to check the accuracy of the carbonates to be a potential reservoir. With Fault Kinematics, orientation of the fault plane and the slickensides will be measured using field observations and high-resolution satellite images. The sense and direction of motion along the fault plane will be inferred from the orientation of the slickensides. The fault kinematics will be analyzed to understand the type and amount of displacement that occurred along the fault plane.

### Sedimentology

Working out paleoecology and depositional settings of Jurassic-Miocene rocks exposed in **Hazara-Kashmir Basin, NW Lesser Himalayas**, Pakistan. In addition to this, carrying out major and minor trace element geochemistry (Ca, Mg, Sr, Na, Mn and Fe) and stable isotope studies of these rocks to interpret diagenetic environment.

### Construction Materials

Completed HEC funded project on the **Indus River Gravel** and its tributaries from Skardu to Kalabagh to interpret Engineering Properties for their use as low cast construction material. Moreover, evaluated different rock types as construction material and classified soils of Punjab Plains. Presently, comparing engineering properties of crushed rock and gravel (terrace and stream bed) aggregates and their job mix formula.

### Environmental Geology

Working on the use of **geological materials like sands, rocks and minerals** as adsorbents of metals in treatment of wastewater.

### Trace element geochemistry and fluid inclusions:

Working on **trace element geochemistry** and **fluid inclusions** studies of Precambrian-Cambrian rocks of **Salt Range Pakistan and Sichuan Province, South China** in collaboration with Nanjing University and Nanjing Institute of Geology and Paleontology, Nanjing, China.

## RESEARCH PROJECTS

1998-2000

Analysis and interpretation of geotechnical properties, alkali aggregate reaction potential and provenance of Indus aggregate, 2000 (Funded by HEC, Pakistan)

**2007-2008**

Microfacies analysis and environment of deposition of Upper Cretaceous rocks exposed in NW Hazara Basin and Chitral, Pakistan (Funded by Punjab University, Pakistan,)

**2008-2009**

Microfacies and environment of deposition of Early Cambrian, Khewra Sandstone, Salt Range, Pakistan, (Funded by Punjab University, Pakistan)

**2009-2010**

Microfacies analysis and environments of deposition of Upper Cretaceous rocks exposed in NW Hazara Basin and Chitral (Funded by Punjab University, Pakistan)

**2010-2011**

Depositional Environment of Lumshiwai Formation, Hazara Basin, Pakistan (Funded by Punjab University, Pakistan)

**2011-2012**

Sedimentology of Kawagarh Formation, Attock Hazara Fold and Thrust Belt, NW Himalayas, Pakistan (Funded by Punjab University, Pakistan)

**2012-2013**

Depositional framework for Upper Cretaceous Rocks exposed North of Nathiagali Thrust, Hazara, NW Himalaya, Pakistan (Funded by Punjab University, Pakistan)

**2014-2015**

Sedimentology of Lockhart Formation, Hazara-Kashmir Basin, NW Himalaya, Pakistan. (Funded by Punjab University, Pakistan)

**2015-2016**

Morphometric analysis of NE Hazara Basin, NW Himalayas, Pakistan. (Funded by Punjab University, Pakistan)

**2017-2018**

Depositional settings and hydrocarbon potential of Margala Hill Limestone Khanpur SW Hazara Basin, NW Himalaya, Pakistan. (Funded by Punjab University, Pakistan)

**2019-2020**

Paleostress inversion analysis using using surface fracture data sets along Main Boundary Thrust (MBT), NW Himalayas, Pakistan

**2019-2023**

Sedimentary studies on Precambrian-Cambrian correlation between Salt Range area Pakistan and Sichuan Province, China (Funded by CAS, China).

## COURSES TAUGHT

### M. Sc. / MS/ M. Phill. and Ph. D Level

Carbonate Sedimentology, Siliciclastic Sedimentology, Global Tectonics, Geological Hazards, Regional Geology

### Undergraduate level

Geomorphology, General Geology, Sedimentology, Tectonics of Pakistan, Geography of Pakistan, Petrology, Stratigraphy and Paleontology, Environmental Geology, Petroleum Geology, Reservoir Geology, Mapping Techniques

## PUBLICATIONS (NATIONAL AND INTERNATIONAL)

### 2024

88. Depositional cyclicity of lower Cambrian strata in the NW Himalayas: Regional sequence stratigraphy of the Indian passive margin. *Marine and Petroleum Geology* 163.

### 2023

87. Permo-Triassic cyclicity on the western shoulder of Muzaffarabad-Hazara paleo-high, during the oceanisation of Neo-Tethys. *Marine and Petroleum Geology* 157. <https://doi.org/10.1016/j.marpetgeo.2023.106471>

86. Tectonics of Jacobabad–Khairpur High and Its Impact on Petroleum Fields of the Region, Southern Indus Basin, Pakistan: A Case Study. *Geotectonics*. Vol. 57. 346-358.

## 2022

85. Microfacies analysis, paleontology and Biostratigraphy of Paleocene Lockhart Limestone from Pail area, Central Salt Rang, Pakistan. *The Geological Bulletin of the Punjab University*, Vol. 46. 2022, 10-21.
84. Subsurface Structural Interpretation and petrophysical Analysis of Badin Area, Southern Indus Basin, Pakistan. *The Geological Bulletin of the Punjab University*. Vol. 46. 2022, 37-54.
83. Fracture Pattern Analysis Along the Hazara Kashmir Syntaxis, Pakistan. *The Geological Bulletin of the Punjab University*. Vol. 46. 2022, 22-36.
82. Subsurface Structural Style Delineation of Meyal Area, Northern Potwar Deformed Zone, Pakistan. *Journal of Earth Sciences and Technology*. EST 2022, 3 (special issue), 85-99. [https://www.jms.procedia.org/archive/EST\\_141/EST\\_procedia\\_2022\\_3\\_0\\_7.pdf](https://www.jms.procedia.org/archive/EST_141/EST_procedia_2022_3_0_7.pdf)
81. Geological Mapping and Morphotectonic Analysis of the Sangada Area, NW-Himalayas, Pakistan. *Journal of Earth Sciences and Technology*. EST 2022, 3 (special issue), 86-99. [https://jms.procedia.org/archive/EST\\_141/EST\\_procedia\\_2022\\_3\\_3\\_2.pdf](https://jms.procedia.org/archive/EST_141/EST_procedia_2022_3_3_2.pdf)
80. Seismic Interpretation and Petrophysical Analysis of Goru Formation, Jabo Field, Lower Indus Basin, Pakistan. *Journal of Earth Sciences and Technology*. EST 2022, 3 (special issue), 52-71.

## 2021

79. Upscaling Reservoir Rock Porosity by Fractal Dimension Using Three-Dimensional Micro-Computed Tomography and Two-Dimensional Scanning Electron Microscope Images. *Journal of Energy Resources Technology*. 143, DOI: 10.1115/1.4047589. **IF 2.903**
78. Depositional environments and microfacies of the upper Turonian–Maastrichtian Kawagarh Formation, Kalachitta Range, Lesser Himalayas, Pakistan. *Australian Journal of Earth Sciences*. <https://doi.org/10.1080/08120099.2021.1889662>. **IF 1.492**
77. Paleostress and outcrop fracture analysis along Himalayan foothills (eastern salt range), Potwar plateau, NW Himalaya, Pakistan. *Acta Geodynamica et Geomaterialia*. Vol. 18, No. 2 (202), 185–197. **IF 1.00**
76. Subsurface Structure Analysis of the Southern North Sea. *Geotectonics*. Vol. 55 (6). **IF 0.746**
75. An integrated approach to evaluate hydrocarbon potential of Jurassic Samana Suk Formation in Middle Indus Basin, Pakistan., *Kuwait Journal of Geology*. 2021, 48(4), 1-11. **IF 0.83**
74. Fracture Pattern Analysis of the Upper Cretaceous-Eocene Carbonates along with the Ghumawan Dome, Hazara Basin. *International Journal of Economic and Environmental Geology*. 12 (3) 06-10, 2021. **IF 0.42**
73. Microfacies Analysis and its Implications for Depositional Environment of Margala Hill Limestone from Khaira Gali Road Section, North Eastern Hazara, Pakistan. *Geopersia*. 11(2): 263-274 DOI:10.22059/GEOPE.2021.314677.648588. **IF 0.32**
72. Stress Pattern Simulation of Compressional Features of Potwar Region and Hazara Basin, NW Himalayas, Pakistan. *Geopersia*. 11(2): 275-288. DOI:10.22059/GEOPE.2021.314634.648587. **IF 0.32**

## 2020

71. Comparative Analysis of Salt Structures in the Southern North Sea, Dutch Offshore, the Netherlands. *Geotectonics*. 54/6, 807–820. DOI:10.1134/S0016852120060084. **IF 1.121**
70. Composition of middle-late Eocene salt lakes in the Jintan Basin of eastern China: Evidence of marine transgressions. *Marine and Petroleum Geology*. 122, 2020. Article Number 104644. **IF 4.348**
69. Occurrence, fate and adverse effects of residual levels of preservatives and active whitening agents from wastewater of personal care products industries. *Journal of Water Chemistry and Technology*. 2020, Vol. 42, No. 6, 465–471. **IF 0.669**
68. A Review of Landsat False Color Composite Images for Lithological Mapping of Pre-Cambrian to Recent Rocks: A Case Study of Pail/Padhrar Area in Punjab Province, Pakistan. *Journal of the Indian Society of Remote Sensing*. 48/6, 721–728 (2020). <https://doi.org/10.1007/s12524-019-01090-7>. **IF 1.563**

**2019**

67. The Yudomski event and subsequent decline: new evidence from  $\delta^{34}\text{S}$  data of lower and middle Cambrian evaporites in the Tarim Basin, western China. *Carbonates Evaporites*. 34, 1117–1129 (2019). <https://doi.org/10.1007/s13146-017-0407-9>. **IF 0.881**
66. Sedimentology of Marl and Marly Limestone Sequence of Upper Cretaceous Kawagarh Formation from Northern Kalachitta Range, Attock Hazara Fold and Thrust Belt, Pakistan. *Open Journal of Geology*. 9, 1-14(2019). <http://doi:10.4236/ojg.2019.91001>. **IF 0.35**
65. Appraisal of Geotechnical Characteristics of Ormara Soil, Baluchistan, Pakistan. *International Journal of Economic and Environmental Geology*. 10/3, 22-26. DOI: <https://doi.org/10.46660/ijeeg.vol11.iss1.2019>. **IF 0.170**

**2017**

64. Reactive Dye Removal by a Novel Biochar/ MgO Nanocomposite. *Journal of the Chemical Society of Pakistan*. 39/ 1, 26-34. **IF 0.327**

**2016**

- 63., Fault-controlled, bedding-parallel dolomite in the middle Jurassic Samana Suk Formation in Margalla Hill Ranges, Khanpur area (North Pakistan): petrography, geochemistry, and petrophysical characteristics. *Arabian Journal of Geosciences*.9,405. <https://doi.org/10.1007/s12517-016-2413-y>. **IF 0.995**
62. Use of Mercury in Dental Silver Amalgam: An Occupational and Environmental Assessment. *BioMed Research International*. 1/1, Article ID 6126385, 9 pages <http://dx.doi.org/10.1155/2016/6126385>. **IF 2.476**
61. Heavy Metal Toxicity in waste water irrigated peri-urban agricultural areas of Lahore, Pakistan; a case study. *Transylvanian Review*. XXIV/ 12, 3304-3313. **IF 0.045**
60. Microfacies and depositional environments of upper Cretaceous Kawagarh Formation from Chinali and Thoba sections Northeastern Hazara Basin, lesser Himalayas, Pakistan. *Journal of Himalayan Earth Sciences*. 49/ 1, 1-16. **IF 0.26**

**2015**

59. An integrated approach for catchment parameterization through geospatial analysis: a case study of Kurang river basin, Pakistan. *Science International*. 2015 (Lahore), 27(2), 1309-1314. **IF 0.75**
58. Assessment of Mercury Contamination in Water and Soil Surrounding a Chlor-Alkali Plant: A Case Study. *Journal of the Chemical Society of Pakistan*. 37/ 1, 173-178. **IF 0.276**
57. Accumulation of heavy metals in edible organs of different meat products available in the markets of Lahore, Pakistan. *Pakistan Journal of Scientific and Industrial Research. Series B: Biological Sciences*. 2015, 58 (2) 92-97

**2014**

56. Speculative Tectonic Model and Hydrocarbon Play System in Outer Himalayan Foldbelt of Kashmir. Datapages/Search and Discovery Article #90209©2014 *PAPG/SPE Annual Technical Conference*, 25-26 November 2014, Islamabad.
55. Conjecturing Gross Lithologic Information Using Elastic Moduli Obsessed by Rock Physics as Tool. A Case Study for Khewra Sandstone, Fortabbas Area, Pakistan. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*. 36/16, 1786-1792. DOI: 10.1080/15567036.2011.559527. **IF 0.614**
54. Removal of Direct Red 16 (Textile Dye) from Industrial Effluent by using Feldspar. *Journal of the Chemical Society of Pakistan*. 36/ 2, 191-197. **IF 0.345**

**2013**

53. Subsurface structural re-construction of Joya Mair structure, southeast Potwar sub-basin, Indus Basin, Pakistan. *International Journal of Agriculture and Applied Sciences*. 5/1, 17-26.
52. 3D Modeling of Subsurface Stratigraphy and Structural Evolution of Balkassar Area, Eastern Potwar, Pakistan. *Pakistan Journal of Hydrocarbon Research*. 22/23, 25-40.
51. Spectral and spatial image fusion for geological lineament mapping; a case study of Pail/Padhrar area in central Salt Range; district Khushab. *International Journal of Agriculture and Applied Sciences*. 5/2, 41-50.

50. Better perceptible and enhanced visualization of seismic profiles for exploration of hydrocarbon using Seismic and synthetic seismogram modeling of Khipro Block, Southern Indus Basin, Sindh Province, Pakistan. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*. 35/22, 2101-2112. DOI: 10.1080/15567036.2010.531511. **IF 0.516**
49. Geochemical characterization and petrogenesis of Niat-Jal amphibolites, southeast Kohistan, Pakistan. *Iranian Journal of Science and Technology, Transaction A: Science*. 37/2A, 147-159. **IF 0.03**
48. Structural geology of Panoba and Chorlakki area, northeastern Kohat plateau, Khyber Pakhtunkhwa, Pakistan. *International Journal of Agriculture and Applied Sciences*. 5/1, 41-46.
47. Sedimentology and reservoir potential of the lower Eocene Sakesar Limestone of Dandot Area, eastern Salt Range, District Chakwal, Pakistan. *Science International*. 25-3, 521-529. **IF 0.75**
46. Biostratigraphic studies of Lockhart Limestone, Changlagali area, Nathiagali- Murree Road, Hazara, northern Pakistan. *Science International*. 25-3, 543-550. **IF 0.75**
45. Sedimentology of the early middle Cambrian Jutana Formation of Khewra area, eastern Salt Range, District Chakwal, Pakistan. *Science International*. 25-3, 551-558. **IF 0.75**
44. The Mineralogical and Petrographical Studies of the lithofacies of the Hangu Formation in the Salt Range, Punjab. *Pakistan Journal of Science*. 65/1, 142-149.
43. Biostratigraphy of Chorgali Formation, Jhalar area, Kala Chitta Range, northern Pakistan. *Science International*. 25-3, 567-577. **IF 0.75**

## 2012

42. Aggregate suitability studies of limestone outcrops in Dhak Pass, Western Salt Range, Pakistan. *International Journal of Agriculture and Applied Sciences*. 4-2, 69-75.
41. Geology and Geochemistry of Sumal Amphibolites, Kamila Amphibolite Unit, Southeast Kohistan, Pakistan. *International Journal of Agriculture and Applied Sciences*. 4-2, 99-111.
40. Lawrencepur sand- a highly efficient adsorbent for the removal of Cr (VI) from wastewater. *Journal of the Chemical Society of Pakistan*. 34/1, 81-88. **IF 1.37**

## 2011

39. Removal of toxic dichlorophenol from water by sorption with chemically activated carbon of almond shells – a green approach. *Journal of The Chemical Society of Pakistan*. 33/5 640-645. **IF 1.377**.
38. Some Palycepod Fossils from Chorgali Formation, Nurpur Area, Central Salt Range. *Sindh University Research Journal*. 43/2, 181-184.

## 2009

37. Allai Aggregate for Rehabilitation and Reconstruction of October 8, 2005 Earthquake Affected Allai-Banan Area, NWFP, Pakistan. *The Geological Bulletin of the Punjab University*. Vol. 44, 43-54.
36. Petrography and Mineralogy of Dolerites of Hachi Volcanics, Kirana Hills Area, Pakistan. *The Geological Bulletin of the Punjab University*. Vol. 44, 105-116
35. Engineering Properties of Potential Aggregate Resources from Eastern and Central Salt Range, Pakistan. *The Geological Bulletin of the Punjab University*. Vol. 44, 97-103.
34. 2009. Geochemistry and Tectonic Environments of Babusar Amphibolites in Southeast Kohistan, Pakistan. *The Geological Bulletin of the Punjab University*. Vol. 44, 105-116.

## 2008

33. Geology of Hettangian to Middle Eocene Rocks of Hazara and Kashmir Basins, Northwest Lesser Himalayas, Pakistan. *The Geological Bulletin of the Punjab University*. Vol. 43, 131-152.
32. Evaluation of Shaki Sarwar and Rajan Pur Aggregates for Construction in Southern Punjab Province, Pakistan. *The Geological Bulletin of the Punjab University*. Vol. 43.

## 2007

31. An Overview of Geotechnical Characteristics of coarse Aggregates from Sargodha-Chiniot Area, Margalla Pass and Suleman Range Quarries Punjab, Pakistan. *Geological Material and Aggregates of Pakistan*. Eds. Hussain, S.S. and Dawood, H., National Geological Society of Pakistan. 1-19.
30. Chilas Sand-Fine Aggregate Source for Concrete Structure of Basha-Diamer Dam. *Geological Material and Aggregates of Pakistan*. Eds. Hussain, S.S. and Dawood, H., National Geological Society of Pakistan, 21-36.
29. Morphogenic Evolution of Soils and their Engineering Properties in Central and Lower Chaj Doab, Punjab, Pakistan. *Geological Material and Aggregates of Pakistan*. Eds. Hussain, S.S. and Dawood, H., National Geological Society of Pakistan, 52-70.
28. Engineering Geology of Soils in Gujranwala-Sialkot Area, Upper Rechna Doab, Punjab, Pakistan. *Geological Material and Aggregates of Pakistan*. Eds. Hussain, S.S. and Dawood, H., National Geological Society of Pakistan, 71-93.
27. Geotechnical Investigation of Nullah Sanghar Gravel Deposits, District Dera Ghazi Khan, Punjab, Pakistan. *Geological Material and Aggregates of Pakistan*. Eds. Hussain, S.S. and Dawood, H., National Geological Society of Pakistan, 96-115.
26. Engineering Evaluation of Gravel Deposits from Mauza Kalary District Dera Ghazi Khan. *Geological Material and Aggregates of Pakistan*. Eds. Hussain, S.S. and Dawood, H., National Geological Society of Pakistan, 118-134.

## 2002

25. Alkali aggregate reaction potential of Murree sandstone: Implications for molassic. Lithic sandstone of collisional belts. *The Geological Bulletin of the Punjab University*. Vol. 37, 27-34.
24. Geology and Deformation in Lesser Himalayan Sedimentaries, Bagnotar-Baragali Section District Abbottabad, North West Himalayas, Pakistan. *The Geological Bulletin of the Punjab University*. Vol. 37, 38-48.

## 2000

23. Strength Evaluation of Blends of Lawrencepur, Chenab and Ravi Sands with Lockhart and Margala Hill Limestones. In: *Economic Geology of Pakistan*, Pakistan Museum of Natural History, Islamabad, Eds. Hussain, S.S and Dawood, H., 213-239.
22. Petrography of Lumshiwai Formation, Karlan Bazar, Nathiagali-Abbottabad Road, Hazara Basin, Pakistan. *Pakistan Journal of Geology*. 10& 11(1 & 2), 1-12.
21. Engineering properties Mineralogy, Alkali Aggregate Potential and Provenance of Lawrencepur Sand, Pakistan. In: *Economic Geology of Pakistan*, Pakistan Museum of Natural History, Islamabad, Eds. Hussain, S.S and Dawood, H., 241-253.

## 1999

20. Petrology and Environment of Deposition of Lumshiwai Formation, Jhamiri Village, Haripur-Jabrian Road, Hazara Basin, Pakistan. *Pakistan Journal of Geology*. 10& 11(1 & 2), 9-19.
19. Microfacies Analysis and Environment of Deposition of Hangu Formation at Chahla Bandi, Azad Kashmir, NW Lesser Himalayas. *Pakistan Journal of Geology*. 10& 11(1 & 2), pp. 34-40.
18. Reservoir Potential of Datta Formation, Hazara Basin, Pakistan. *Pakistan Journal of Hydrocarbon Research*. 11, 15-27.

## 1998

17. Lithofacies Studies of Margala Hill Limestone at Khaira Gali, Murree-Ayubia Road, Hazara Basin, Pakistan. *Pakistan Journal of Geology*. 8 & 9 (1 & 2), 7-17.
16. Sedimentological Studies of Chorgali Formation at Chahla Bandi on the western Limb of Hazara Kashmir Syntaxial Region in Azad Jammu and Kashmir. *Pakistan Journal of Geology*. 8 & 9 (1 & 2), 18-28.
15. Lithofacies, Microfacies, Diagenesis and Environment of Deposition of Lumshiwai Formation at Kundla, Hazara Basin, Pakistan. *Pakistan Journal of Geology*. 8 & 9 (1 & 2), 29-39.

14. Age, Stratigraphic Position and Provenance of Murree Formation of North West Sub-Himalayas of Pakistan and Azad Kashmir. In: Third Geosas Workshop on Siwalik (GSP), Islamabad. *Siwaliks of Pakistan*, Eds. Ghaznavi, M.I., Raza, S.M. and Hasan, M.T. 81-91.

#### 1997

13. Facies, Microfacies, Diagenesis and Environment of Deposition of Lumshiwai Formation at Thub Top near Ayubia., District Abbottabad. *Pakistan Journal of Hydrocarbon Research*. 9, 57-66.

#### 1994

12. Deposition and Diagenesis of Kawagarh Formation, Changla Gali, Murree-Ayubia Road, Hazara, Pakistan. *Pakistan Journal of Geology*. 2 & 3(1), 17-23.
11. Micropalaeontology of Pirkoh limestone of Eocene Kirthar Formation, Afiband Area, Sulaiman Province, Pakistan. *Kashmir Journal Geology*. 11-12, 137-140.
10. Petrology of Lumshiwai Formation from Gulagah Nala Near Chinali Bridge, Abbottabad-Nathiagali Road, Hazara, with special reference to Nandpur gasfield, Punjab Platform. *Pakistan Journal of Hydrocarbon Research*. 6(1 & 2), 41-52.
09. Sedimentology of Pirkoh Limestone at Rakhi Gaj, Sakhi Sarwar, Sulaiman Range, Pakistan. *Kashmir Journal of Geology*. (11-1), 127-135.
08. Rates of Sedimentation of Kawagarh Formation at Giah and Timing of Uplift at K-T boundary Pakistan. *Pakistan Journal Geology*. 2 & 3, (1), 29-32.
07. Fluvial Facies and Engineering Characteristics of Soils in District. Multan and Khanewal., Pakistan. *Pakistan Journal of Geology*. 2 & 3, (1), 33-37.
06. Sedimentology of Datta Formation at Kalapani, Abbottabad, Northwest Himalayas, Pakistan. *The Geological Bulletin of the Punjab University*. Vol. 29, 11-28.

#### 1993

05. Reconnaissance Microfacies Studies of Kawagarh Formation Jabri area, Hazara. *Pakistan Journal of Geology*. 1 (2), 32-49.
04. Preliminary Interpretation of Depositional Environment Based on Microfacies Analysis of Pirkoh limestone and marl member Dhar, Taunsa. *Pakistan Journal of Geology*. 1(2), 89-96.
03. Micropalaeontology of Pirkoh limestone, Ghezi Nala, Sulaiman Province. *Pakistan Journal of Geology*. 1 (2), 20-25.
02. A Preliminary Interpretation of Microfacies, Deposition and Diagenesis of Kawagarh Formation at Borian, Abbottabad-Nathiagali Road, Hazara Pakistan. *The Geological Bulletin of the Punjab University*. Vol. 28, 30-40.
01. Environment of Deposition and Diagenesis of Pirkoh Limestone and marl member near D.G. Khan Cement Factory, D.G. Khan. *The Geological Bulletin of the Punjab University*. Vol. 28, 41-49.

### INTERNATIONAL PROCEEDINGS

#### 2020

20. Ahsan, N., Miraj, M. A. F., Tariq, H. & Qayyum, A. Outcrop Fracture Pattern and Paleostress Analysis of the Ghumanwan Dome, Hazara Basin, NW Himalayas, Pakistan. <https://doi.org/10.5194/egusphere-egu2020-19461>. EGU2020-18259, 2020 EGU General Assembly 2020, 4-8 May, 2020

#### 2019

19. Ahsan, N., Mahmood, T., Zaidi, S.F.A., Ejaz, A., Syed Irfan Ali Zaidi, S.I.A., and Miraj, M. A.F., Danian clastic shoreface shift on time transgressive surface in Kashmir and adjoining basins, NW Himalaya, Pakistan. Geophysical Research Abstracts 21, EGU2019-18259, 2019 EGU General Assembly 2019, 7-12 April, 2019.

#### 2018

18. Ahsan, N., Mahmood, T., Qayyum A., Miraj, M. A.F., Rehman, S., Muzaffarabad Paleohigh, NW Himalaya, Pakistan: Its impacts on depositional settings and development of Hazara-Kashmir syntaxis. Himalaya Karakorum Tibet workshop, Lausanne, Switzerland, 10-12 Sep, 2018.



17. Tectonic development of Potwar Plateau and Salt Range, NW Himalayas, Pakistan. Himalaya Karakorum Tibet workshop, Lausanne, Switzerland, 10-12 Sep, 2018.
16. Fracture analysis and discrete fracture network modelling of Early Eocene Sakesar Limestone, Eastern Salt Range, Potwar Plateau, Pakistan. Himalaya Karakorum Tibet workshop, Lausanne, Switzerland, 10-12 Sep, 2018.
15. Ahsan, N., Shah, F., & Miraj, M. A.F., 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. AAPG, Salt Lake City, USA, 21 to 23 May, 2018.

#### **2017**

14. Ahsan, N., Mahmood, T., Rehman, S., Shah, M.M., Margala Hill Limestone - A Ypresian carbonate ramp deposit on the subducting Indian Plate margin in Kashmir Basin, NW Lesser Himalayas, Azad Kashmir. International meeting of sedimentology, Toulouse, France, 10 to 12 October, 2017.
13. Ahsan, N., & Shah, M.M., Depositional settings and reservoir quality of the Lockhart Limestone (lower Paleocene) in the Hazara-Kashmir Basin (NW Lesser Himalayas, Pakistan). AAPG, Houston, USA, 2 to 5 April 2017.

#### **2015**

12. Jamil, N., Mehmood, M., Lateef, A., Nazir, R., & Ahsan, N., MgO Nanoparticles for the removal of Reactive dyes from Wastewater. 2015 TechConnect World Innovation Conference, June 14-15, 2015, Washington D. C Advanced Material: TechConnect Briefs. 353-355: ISBN 978-1-4987-4727-1
11. Ahsan, N., Rehman, S., & Shah, M.M., Kawagarh Formation-A Homoclinical Ramp Deposit in Hazara Basin on Northern Margin of the Indian Plate, Pakistan, 15th Bathurst Meeting of Carbonate Sedimentologists, 13th - 16th July, 2015, at the University of Edinburgh, Scotland, United Kingdom

#### **2014**

10. Ahsan, N., Shah, M.M., Meng, F., Ni, P., Rehman, S., Rehman, S., & Jamil, N., Late-stage diagenetic alterations in Turonian- Maastrichtian Kawagarh Formation, Hazara Basin (NW Lesser Himalayas, Pakistan): Based on petrographic, geochemical and stable isotopic information. 19th International Sedimentological Congress 2014, 18-22 August 2014, Geneva, Switzerland

#### **2013**

9. Ahsan, N., Jamil, N., Shah, M.M., & Rehman, S., Mechanism of dolomite formation in Kawagarh Formation (Late Turonian to Lower Maastrichtian), Hazara Basin, NW Lesser Himalayas, Pakistan: Integrating petrographic, geochemical and isotopic studies. 30<sup>th</sup> IAS Manchester, UK, Sep. 2-5, 2013

#### **2011**

8. Khan, M. A., Rehman, S., Mehmood, K., Khan, A., & Ahsan, N., Geochemistry, petrogenesis and tectonic environments of JAL-NIAT amphibolites, Southeast Kohistan, Pakistan. 26th Himalaya-Karakoram-Tibet Workshop, Canmore, Canada, July 12-13, 2011

#### **2001**

7. Ahsan, N., Tithonian to Danian sedimentation in Hazara Basin, Northern Pakistan. Third Nepal Geological Congress, Sep. 26-28, 2001, Vol. 24, Journal of Nepal Geological Society.
6. Ahsan, N., & Chaudhry, M.N., Evaluation of selected deposits of Indus gravel and sand as potential aggregate sources for cement concrete/ Third Nepal Geological Congress, Sep. 26-28, 2001, Vol. 24, Journal of Nepal Geological Society.

## 1999

5. Ahsan, N., & Chaudhry, M.N., Sedimentology of Lumshiwal Formation, Attock Hazara Fold and Thrust Belt, NW Lesser Himalayas Pakistan. Abstract volume 14<sup>th</sup> Himalaya Karakorum Tibet International Workshop Terra Nostra, Germany
4. Sedimentological constraints on India-Asia Collision. Abstract volume 14<sup>th</sup> Himalaya Karakorum Tibet International Workshop Terra Nostra, Germany

## 1998

3. Facies and microfacies analysis of Kawagarh Formation of Hazara Basin, Pakistan. Abstract volume 13 Himalaya Karakorum Tibet International Workshop, Peshawar
2. A preliminary account of sedimentology of Hazara Basin from Jurassic to Eocene. Abstract volume 13 Himalaya Karakorum Tibet International Workshop, Peshawar

## 1995

1. Sedimentology, depositional environment and economic potential of Datta Formation of Early Jurassic Age of Attock Hazara Fold and Thrust Belt. Journal of Nepal Geological Society

## SUPERVISION EXPERIENCE

Total number of Ph. D scholars supervised:	<b>02</b>
Total number of M. Phill scholars supervised	<b>71</b>
Total number of M. Phill scholars being supervised:	<b>02</b>
Total number of currently Ph. D scholars being supervised:	<b>06</b>
M. Sc. and BS students completed their thesis work:	<b>more than 75</b>

## Ph. D. STUDENTS SUPERVISED

S.NO	STUDENT	TITLE	UNIVERSITY
1	Saif-ur-Rehman	Sedimentology of Turonian-Maastrichtian Kawagarh Formation, Attock Hazara Fold and Thrust Belt, NW Lesser Himalayas, Pakistan	University of Sargodha
2	Abid Hussain	Tectonostratigraphic and Structural Evolution of Kharan Forearc Basin and Adjacent Areas, Balochistan, Pakistan	University of the Punjab

## M.PHILL. STUDENTS SUPERVISED & AWARDED DEGREE

S.NO.	NAME OF STUDENT	TITLE	SESSION
71	Irza Akhtar	Integrating petrophysical parameters with the petrographic interpretation of Paleocene carbonate (Lockhart Limestone), NW Himalaya, Pakistan	2018-2020
70	Maha Ali Haider	Petrophysical parameters evaluation along with reservoir characterization of Bal kassar Oilfield, Potwar Plateau, Upper Indus Basin, Pakistan	2018-2020
69	Pal Washa Shahzad Rathore	Hydrocarbon potential evaluation of Potwar Basin, Pakistan, an integrated surface (geological mapping and subsurface (petrophysical & seismic) approach	2018-2020
68	Danish Hayat	Source Rock Evaluation of Lockhart Formation and Margalla Hill Limestone, Kashmir Basin, NW Himalayas	2017-2019
67	Sadakat,	Depositional Environment of Dhok Pathan Formation, Siwalik Group	2017-2019
66	Chaudhary Muhammad Saqib	Facies Architecture of the Sweet Spots of Shale Gas in Sembar Formation Inferred from Well Log and Seismic Data, Lower Indus Basin, Pakistan	2017-2019

65	Shoukat Ali	Prediction of Reservoir Quality Sands in Tidal Flat Facies of the Dandot Formation using Wire line Logs and Outcrop, Upper Indus Basin Pakistan.	2017-2019
64	Umair Abdul Haseeb	Geology and Biostratigraphy of Talhar Area Southern Hazara with Special Emphasis on Environment of Deposition and Microfacies Analysis of Margala Hill Limestone of Talhar Area, Pakistan	2017-2019
63	Muhammad Irfan Zubair	Petrography, Depositional Model and Geochemistry of Baska Formation (Eocene) Eastern Sulaiman Range Punjab	2017-2019
62	Muhammad Ali Shah	Petrophysical Analysis of Well Chanda Deep-01, Chanda-01 & Chanda-02, using Wire line Logs	2017-2019
61	Syed Mohib Haider Zaidi	Petrophysical Analysis of Miano 07, Miano 09 & Miano 10 Wells using Wire line Logs.	2017-2019
60	Hamza Tariq	Outcrop Fracture Pattern and Paleostresses Analysis of the Gomhunwan Dome, Hazara Basin, NW Himalayas, Pakistan.	2017-2019
59	Muhammad Adeel Anjum	2-D Subsurface Structural Interpretation and Restoration of Meyal Oil Field, Northern Potwar Deformed Zone, Pakistan.	2017-2019
58	Muhammad Ishfaq	Kinematic Analysis and Structural Restoration of Dunga Gali and Kuza Gali Area, Southern Hazara Basin, Lesser Himalayas, Pakistan.	2017-2019
57	Usman Ali	Subsurface Structural Interpretation and Petrophysical Evaluation of Joya Mair Area, Southern Potwar Basin, Upper Indus Basin, Pakistan.	2017-2019
56	Muhammad Kashif	Structural Interpretation and Petro-physical Analysis of Bal kassar Area, Southern Potwar Deformed Zone (SPDZ) 2D Seismic and Well Data	2016-2018
55	Hassan Mehmood	Fracture Analysis and Discrete Fracture Network (DFN) Modeling of Early Eocene Sakesar Limestone, Araa Basharat, Eastern Salt Range, Potwar Plateau, Pakistan	2016-2018
54	Ghulam Akbar	Sedimentology, Depositional Environment and Paleontological Study of Early Eocene Margala Hill Limestone, Khaira Gali Section, NW Himalayas, Pakistan	2016-2018
53	Husnain Yousaf	Evaluation of Hydrocarbon Potential of Sembar Sands of Early Cretaceous age of Rodho Structure in Zindapir Anticlinorium, Sulaiman Fold Belt, Pakistan.	2015-2017
52	Ansar Usman	Microfacies Analysis as a Tool for Depositional Model and Paleoecology of Lockhat Limestone, Khairabad Section, Western.Salt Range.	2015-2017
51	Uzair Ismail	Depositional Environment of Paleocene Lockhart Limestone, Ghaghyana and Pail Sections, Salt Range.	2015-2017
50	Hussain Mubashar	Subsurface Imaging and Petrophysical Analysis of Eocene Carbonates of Qadirpur Gas Filed, Pakistan	2015-2017
49	Shahzaib Murtaza	Microfacies Analysis and Depositional Environment of Margala Hill Limestone, Hazara Basin, North Western Himalayas, Pakistan.	2015-2017
48	Muhammad Zeeshan Munir	Depositional setting of Lockhart Limestone Khaira Gali, Khyber Pakhtunkhwa	2014-2016
47	Niaz Ali	Depositional Setting of Lockhart Limestone Dhudial, Abbottabad, Hazara Basin	2014-2016
46	Kanwal Malik	Depositional setting of Lockhart Limestone, Khanpur, Khyber Pakhtunkhwa	2014-2016
45	Qaisar Ali	Facies analysis and depositional settings of Lockhart Limestones Jabri, Khyber Pakhtunkhwa	2014-2016

44	Zohaib Saeed	Facies modeling and depositional setting of Lockhart Limestone, Kashmir Basin	2014-2016
43	Yasir Khan Jadoon	Integrated Reservoir Modeling of the Pab Sandstone Zamzama Field, Lower Indus Basin, Pakistan	2013-2015
42	Umair Abdul Haseeb	Geology and Biostratigraphy of Talhar Area, "Southern Hazara" with special emphasis on Environment of Deposition and Microfacies Analysis of Margala Hill Limestone of Talhar Area, Pakistan	2013-2015
41	Shoaib Aamir Fahim	Delineation of Shale Gas Potentials by using Petro physical Model of Lower Goru Formation (cretaceous age) in lower Indus Basin)	2013-2015
40	Zeenat Akbar	Oil and Gas well Engineering with special emphasis on Long Horizontal complex wells and stuck pipe prevention	2013-2015
39	Ishtiaq Noor	Elemental Chemostratigraphy supported by X-Ray Diffraction and Pyrolysis techniques to determine shale reservoir characteristics of Patala Formation, Nammal Gorge, Western Salt Range Pakistan	2013-2015
38	Muhammad Sajjad	Hydrocarbon Potential Evaluation and Reservoir Characterization of Sui Main Limestone in Qadirpur Field, Southern Indus Basin, Pakistan	2013-2015
37	Mohsin Ali	ID Petroleum system Modeling: Thermal/Maturity History and Hydrocarbon Generation Modelling of the Sembar, Lower Goru Massive sand & Talhar Shale, Lakhra High, Lower Indus Basin	2012-2014
36	Naeem Sardar	Paleogeography and Evolution of an Early Eocene Carbonate Platform and a New Play Definition, Middle Indus Basin: Insights from Seismic Stratigraphy	2012-2014
35	ArshadJamil	Characterization of the Geotechnical Properties of Limestones, Khanpur Area, Haripur, Khyber Pakhtunkhwa	2012-2014
34	Syed Irfan Ali Zaidi	Lithofacies and Depositional Environment of Nagri Formation, Danda Shah Balawal, Southwestern Potwar Plateau, Pakistan	2012-2014
33	Faisal Shah	Role of Jacobabad-Khairpur High in the Distribution of Source, Reservoir and Seal Rocks in the Region	2012-2014
32	Muhammad Usman Tahir	Subsurface Structural Analysis of Neogene Succession using 2D Seismic Data and Petrophysical Analysis of Eocene Sakesar Limestone of Dhulian-Khaur Area, Potwar Basin, Pakistan"	2012-2014
31	Syed Tafseer Abbas	Seismic and Petrophysical Interpretation of Lower Goru Formation, Sawan Gas Field, Lower Indus Basin, Pakistan	2012-2014
30	Muhammad Zubair Idrees	Sub-Surface Structural Interpretation of Missa Kaswal Area, Eastern Potwar, Pakistan	2012-2014
29	Asad Ullah Salar	Reservoir Characterization of Lower Goru Formation in Badin Area through Petrophysical Interpretation	2012-2014
28	Muhammad Shamshad	Lithological interpretation & Mineral Identification of Paleocene Formations of Zamzama Gas Field, Lower Indus Basin, Pakistan-A Well Log Based Study.	2012-2014
27	Muhammad Ramzan	Characterization of The Geotechnical Properties of Mesozoic-Tertiary Limestones, Abbottabad, Khyber Pakhtunkhwa	2011-2013
26	AsimRaza	Fault Displacement Hazard Analysis for Disaster Management in Karachi City and its Vicinity	2011-2013
25	Muhammad Riaz	2D Seismic Interpretation of Meyal area, Northern Potwar Deformed Zone (NPDZ), Potwar Sub-Basin, Pakistan	2011-2013

24	Muti ur Rab	Evaluation of Hydrocarbon Potential of Southern Potwar, Using 2D Seismic data, Potwar sub basin, Pakistan	2011-2013
23	Farooq Sultan	2D Seismic interpretation of Miano Gas-Field, Central Indus Basin, Pakistan.	2011-2013
22	Nisar Ahmad	Seismic Interpretation and Petrophysical Analysis of Miano Area, Central Indus Basin, Punjab Platform	2011-2013
21	Asim Nadeem	Subsurface Structural and Petrographic Interpretation of Joya Mair-Minwal Oilfields, Eastern Potwar, Distt. Chakwal, Pakistan	2011-2013
20	Adeel Ahmad Zaheer	Subsurface structural and reservoir analysis of Shakardara area, Kohat	2010-2012
19	Muhammad Ather	2D seismic interpretation of Badin Block, Lower Indus Basin	2010-2012
18	Tahir Shehzad	Evaluation of hydrocarbon potentials of Bela Trough using 2 D seismic data	2010-2012
17	Muhammad Zafar Iqbal	Structural analysis of Eastern Potwar using 2 D Seismic data and well logs	2010-2012
16	Muhammad Yaseen	Surface structural interpretation and deformation calculation with the help of balance cross section of Mayal area, Northern Potwar Deformed Zone	2010-2012
15	Zafar Ali	Subsurface structural analysis of eastern Potwar (Balkassar area) using 2D seismic data	2010-2012
14	Muhammad Imran	Regional tectonics configuration and structural analysis of Eastern Potwar	2010-2012
13	Muhammad Shafique	Subsurface structural evaluation of Punjab Platform	2010-2012
12	Naveed Khan	Hydrocarbon prospects of Offshore Pakistan	2010-2012
11	Muhammad Waseem	Analysis of sub surface structure of Badin area with respect of petroleum prospective	2010-2012
10	Abid Ali	Structural Analysis of Joya Mair – Minwal Area	2010-2012
9	Afnan Asghar	Basin and petroleum system modeling of Banu Basin	2010-2012
8	Aamir Yasin	Larger benthic foraminifera of Lockhart Limestone (Paleocene), Central and Western Salt Range, Pakistan	2009-20011
7	Abdul Jabbar	Geotechnical properties of Ormara Soil, Ormara, Balochistan.	2009-20011
6	Tariq Mahmood	Sequence stratigraphic framework of Nandpur Area through analyses of seismic and wireline log data, Punjab Platform, Pakistan	2009-20011
5	Muhammad Awais	Seismic interpretation, petroleum system evaluation and petrophysical studies of Fort Abbas area, Bhawalnagar, Punjab, Pakistan	2009-20011
4	Muhammad Kashif	Microfacies and Depositional environments of Lumshiwal Formation, NE Hazara Basin, NW Lesser Himalayas, Pakistan	2008-2010
3	Hassan Javid	Rock Physics and Structural interpretation of Gojra Block, Punjab Plateform, Pakistan	2008-2010
2	Mozzam Khan	Microfacies Analysis of Nagri Formation, Eastern Potwar, Pakistan	2008-2010
1	Saif-ur-Rehman	Microfacies and depositional environment of Kawagarh Formation exposed at Chinali and Kharala, NW lesser Humalayas, Pakistan	2008-2010

## Ph. D. STUDENTS IN PROGRESS

S.NO	STUDENT	TITLE
1	Rizwan Saqib	Geo-Modeling of Litho- Structural Pattern of Eastern and Central Salt Range and its Impact on Economic Potential of Coal Mining through Remote Sensing and GIS
2	Tariq Mahmood	Cambrian to Tertiary Evolution of Hazara and Kashmir Basin, NW Himalaya, Pakistan
3	S. Irfan Ali Zaidi	Facies Architecture and Depositional Model of Dhok Pathan Formation, Himalayan Foredeep Basin, Eastern Sulaiman Foldbelt, D.G. Khan, Pakistan
4	Shan Shazad	Structural Analysis of the Potwar and Hazara Basins, NW-Himalayas, Pakistan
5	Ayesha Ejaz	Paleostress Inversions and Numerical Modeling of Fractured Carbonate rocks, Hazara Kashmir Basin, Northern Pakistan
6	Syeda Fakiha Ali Zaidi	Tectonic Inversion Modeling of Kohat-Potwar Basin, Pakistan

## REFERENCES

### 1. Prof. (Emeritus) Dr. M. Nawaz Chaudhry

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## FIELD SUPERVISION



In Kirana area (Precambrian), Sargodha, Pakistan



Khewra Gorge with a team from Cina



With Iraqi Oil Company (PPL) in Salt Range, Sub Himalayas, Pakistan



Pakistan Association of Geoscientists field work in Hazara Basin, NW Himalayas, Pakistan



Pakistan Association of Geoscientists field work in Hazara Basin, NW Himalayas, Pakistan



Pakistan Association of Geoscientists field work in Salt Range, Sub Himalayas, Pakistan



BS Applied Geology students, Hazara Basin, NW Himalayas, Pakistan



BS Applied Geology students, Hazara Basin, NW Himalayas, Pakistan



Pakistan Association of Geoscientists field work in Hazara Basin, NW Himalayas, Pakistan



Field work with Prof Cor, Utrecht University (Netherlands), in Potwar Plateau, Pakistan



Field work with Prof Cor, Utrecht University (Netherlands) and Prof. Kaymakci (METU) Turkey in Potwar Plateau, Pakistan



BS Applied Geology students, Hazara Basin, NW Himalayas, Pakistan