

CURRICULUM VITAE

KUNAL MODAK

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PhD Structural Geology

MTech Petroleum Exploration

M.Sc. Geology

B.Sc. Geology(Hons), Physics, Math

Project Scientist 'B'

**Borehole Geophysics Research
Laboratory**

**ESSO-Ministry of Earth
Sciences, Govt. of India**

Karad-Vita Road, Hazarmachi.

Karad-415 105, Maharashtra India



Current Status: Currently I am working as a **Project Scientist 'B' as Structural Geologist** in **Borehole Geophysics Research Laboratory, National Center for Seismology under Ministry of Earth Sciences (from 04.10.18 to present)**

EDUCATION

Ph.D. (Full Time) Structural Geology

Department of Applied Geology,
IIT ISM Dhanbad

Title: Structural geometry, kinematics of deformation, low grade metamorphism and paleopiezometry of the Mesoproterozoic basin infills of the east-central part of the Kaladgi Basin, Southwestern India

Supervisor: Dr. Mrinal Kanti Mukherjee

Status: Awarded

27th Feb, 2020

MTech. Petroleum Exploration

Department of Applied Geology,
Indian School of Mines, Dhanbad

May, 2012

Dissertation title: Reservoir characterization of Krishna-Godavari
Basin using well logging tools.

Advisor: Dr. P.N.S. Roy

M.Sc. Geology

Department of Geology
The University of Burdwan

June, 2010

Dissertation title: Paleohydrological analysis of upper Rewa Sandstone member of upper Vindhyan group, Son valley, in and around Maihar, India”

Kunal Modak

Advisor: Dr. Soumik Mukhopadhyay
Special Paper : Petroleum Exploration

B.Sc. Geology(Hons), Physics, Maths

Department of Geology
The University of Burdwan

June, 2008

PUBLICATIONS

Journal Publications

1) Mukherjee, M.K., Das, S., **Modak, K.**, 2016. Basement-cover structural relationships in the Kaladgi Basin, southwestern India: Indications towards a Mesoproterozoic gravity gliding of the cover along a detached unconformity. **Precambrian Research** 281, 495-520.

URL : <https://doi.org/10.1016/j.precamres.2016.06.013> ,

ISSN 0301-9268, IF 4.725

2) Mukherjee, M.K., **Modak, K.**, 2017. Structural Geometry and Deformation Patterns in Mesoproterozoic Cover Sediments of Kaladgi Basin: Implications for Exploration of Uranium and Hydrocarbons. **Journal of Geosciences Research**. Special vol No. 1, pp. 217-225

3) Mukherjee, M.K., **Modak, K.**, 2019. Timing of cleavage development in relation to folding and its implications; an example from the deformed Mesoproterozoic sedimentary cover of Kaladgi basin, southwestern India. **Journal of Geological Society of India**. Vol.93, April 2019, pp.379-391.

URL : <https://doi.org/10.1007/s12594-019-1192-y>

ISSN 0974-6889, IF 1.459

4) Mukherjee, M.K., **Modak, K.**, Ghosh, J ., 2019. Illite crystallinity index from the Mesoproterozoic sedimentary cover of the Kaladgi basin, southwestern India: Implications on crustal depths of subsidence and deformation. **Journal of Earth System Science**. **128**, 112 (2019). <https://doi.org/10.1007/s12040-019-1163-0>

URL : <https://doi.org/10.1007/s12040-019-1124-7>

ISSN 0253-4126, IF 1.423

Conference Papers

Full paper:

1. Mukherjee, M. **K.,Modak, K.**, Das, S., 2015. Deformation scenario and metamorphism of the Mesoproterozoic cover rocks of the Kaladgi basin, southwestern India. In: Proceedings of the 4th Annual International Conference on Geological & Earth Sciences (**GEOS 2015**), October 2015, **Singapore**, Global Science and Technology Forum, pp. 50–61. **Received best paper award.**

Abstracts and oral presentation:

1. **Modak. K.**, 2014. Tectonics and structural controls on the development of Kaladgi basin, south west India: Implication on basin opening. **In: Proceedings of the International seminar on Sedimentary processes and Metallogeny through time, Dharwad, Karnataka**, January 21- 23, 2014.**(Presented)**

2. Mukherjee, M.K., **Modak, K.**, 2017. Structural Geometry and Deformation Patterns in Mesoproterozoic Cover Sediments of Kaladgi Basin: Implications for Exploration of Uranium and Hydrocarbons. **Gondwana society of India, Nagpur**. Special vol No. 1, pp. 217-225. **(Presented)**

3. Modak. K, Mukherjee, M.K., 2015. Timing of cleavage development in relation to folding in the Meso -Proterozoic cover sediments of the Kaladgi Basin, South western India. **Recent Advances in Research on Precambrian Terrains in India. XIV Convention of Mineralogical Society of India. (accepted)**

4. Fracture networks in the granitic basement in Koyna seismogenic zone: implications for channelization of water at depth. **36th International Geological Congress, India 2020. (accepted)**

AWARD AND ACHIEVEMENTS

➤ Received best paper award.

In: Proceedings of the 4th Annual International Conference on Geological & Earth Sciences (**GEOS 2015**), October 2015, Singapore, **Global Science and Technology Forum**.

Deformation scenario and metamorphism of the Mesoproterozoic cover rocks of the Kaladgi basin, southwestern India. In: Proceedings of the 4th Annual International Conference on Geological & Earth Sciences (**GEOS 2015**), October 2015, Singapore, Global Science and Technology Forum, pp. 50–61.

- **Received JGSI Radhakrishna Prize for best research paper of 2019.**
Geological Society of India (Annual General Meeting – 24 th September 2021)
 Timing of cleavage development in relation to folding and its implications; an example from the deformed Mesoproterozoic sedimentary cover of Kaladgi basin, southwestern India. Journal of Geological Society of India. Vol.93, April 2019, pp.379-391
- Qualified National Eligibility Test (lectureship) NET, June 2011: Lectureship (LS); AIR: 24.
- Qualified Graduate Aptitude Test in Engineering (GATE) in 2015
- Qualified Graduate Aptitude Test in Engineering (GATE) in 2017
- IIT ISM Dhanbad, Junior Research Fellowship: 06/08/2012-05/08/2014
- IIT ISM Dhanbad, Senior Research Fellowship: 06/08/2014-05/08/2016.

FIELD EXPERIENCES

PhD fieldwork: Structural Geology field work, structural mapping, sampling, correlation in and around Bagalkot district, Karnataka, India

4th Semester, M. Sc.: Sedimentary Fieldwork in and around Maihar, India.

2nd Semester, M. Sc.: Structural Geology Mapping at Ramtek, Maharashtra, India.

3rd year, B. Sc. (Hons.): Structural Geology Mapping at Beawar, Rajasthan.

2nd year, B. Sc. (Hons.): Geological Mapping at Ghatsila, Jharkhand, India.

1st year, B. Sc. (Hons.): Geological Mapping in and around Purulia District, West Bengal, India

INDUSTRIAL TRAINING

- Training programme on “Principles of Coal and Coal Bed Methane exploration including practical demonstrations on gas desorption studies and borehole core logging” conducted at Suri, Birbhum district, West Bengal GSI Coal Wings.
 Duration: 02 days; From 17th Sept 2009 - 18th Sept 2009.
- Summer Training on “Hydrocarbon Exploration” conducted at O.N.G.C. Kolkata.
 Duration: 12 days; From 15th June 2009- 26th June 2009.
- Summer Training on “Well Logging and Seismic Interpretation” conducted at Directorate General Of Hydrocarbons, Noida, U.P.
 Duration: 15 days; From 1st July 2011 - 15th July 2011.

E-TRAINING

Sl No.	Topic	Duration	Period	Organization providing the training
1	“ Art of Publication , Effective Writing and Presentation Skills in Earth Sciences”	03 days	29.07.2020 to 31.07.2020	RTD, ER ,GSITI , Kolkata
2	“ Exploration for Coal, Lignite , CBM and Shale Gas including Resource Assessment”	09 days	14.09.2020 to 22.09.2020	FTC - Kuju, GSITI
3	“ Fundamentals of Sedimentology and Mapping in Sedimentary Terrain”	03 days	23.11.2020 to 25.11.2020	FTC - Kuju, GSITI
4	“ Refresher Course on Petrological and Geochronological Laboratory Techniques”	06 days	10.05.2021 to 15.05.2021	RTD, ER ,GSITI , Kolkata
5	“ Phase Equilibria Modelling in Petrology – Practical approach using PerpleX ”	03 days	27.01.2021 to 29.01.2021	RTD, ER ,GSITI , Kolkata
6	“Gondwana Palaeontology with an emphasis on the Biostratigraphy, Paleobiogeography and Palaeoclimate Interpretation”	04 days	15.06.2021 to 18.06.2021	FTC - Kuju, GSITI
7	“Concepts of Geological Mapping in Sedimentary Terrain for understanding the Depositional Environment and Sequence Stratigraphy”	10 days	17.05.2021 to 26.05.2021	FTC - Kuju, GSITI
8	“Refresher Course on Igneous, Sedimentary and Metamorphic Petrology”	08 days	21.06.2021 to 28.06.2021	RTD, ER ,GSITI , Kolkata
9	“Refresher Course on Characterization of Shear Zone”	05 days	27.07.2021 to 31.07.2021	RTD, ER ,GSITI , Kolkata
10	"Earthquake Precursors and Earthquake Early Warning System"	01 day	01.09.2021	National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India in collaboration with NCS

RESEARCH EXPERIENCE

1. Designation- **Research Scholar**

Institute- IIT ISM Dhanbad

Tenure- Junior Research Fellowship: 06/08/2012-05/08/2014

Senior Research Fellowship: 06/08/2014-05/08/2018

Includes- Structural mapping, Kinematics of deformation, Deformation mechanisms, Plaeo-piezometric study, Fold- cleavage relationship.

2. Designation- **Project Scientist B**

Project Name- Scientific deep drilling in Koyna Intraplate Seismic zone

Institute- Borehole Geophysics Research Laboratory

Tenure-From October 2018 to till present

Responsibility- Application of Structural Geology in understanding the Reservoir Triggered Seismicity. Deformation study, Fault and damaged zone study

TEACHING EXPERIENCE

1. During MTech (2010-2012): Assisting Supervisor in practical classes.

2. During PhD (2012-2018): Teaching solely as well as assisting supervisor in practical classes of MScTech Applied Geology (3 yrs course) , Integrated MScTech Applied Geology (5 yrs course) and Mtech Petroleum Exploration (2 yrs course), MTech Mineral Exploration (2 yrs course), MTech, Engineering Geology (2 yrs course) Structural Geology for site engineering.

REFERENCES

Dr. Vishnu C.S

Scientist C

Borehole Geophysics Research Lab.

Ministry of Earth Sciences

Karad, Maharashtra

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Dr. Matsyendra Kumar Shukla

Scientist C

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BRIEF STATEMENT ABOUT MYSELF

Currently I am working as a **Project Scientist 'B'** in **Borehole Geophysics Research Laboratory, National Centre for Seismology under Ministry of Earth Sciences**. I have MTech in Petroleum Exploration and PhD in Structural Geology from the **Department of Applied Geology, IIT ISM Dhanbad**. I feel about myself to be hard working, painstaking and meticulous. I have originality in thinking and once provided with an opportunity I will deliver to the best of my abilities with honesty. I want to establish a career based on academics or research/research related jobs in India.

LANGUAGES

English: Reading, writing and speaking

Bengali: Reading, writing and speaking

Hindi: Reading, writing and speaking

PERSONAL DETAILS

Date and place of Birth: 15.12.1986 (DD.MM.YYYY); Purulia, West Bengal

Sex: Male

Nationality: Indian

Religion: Hindu

Date: 17.01.2022

Place: Karad, Maharashtra