Dr. Dip Kumar Singha

Assistant Professor
Department of Geology and Geophysics
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Academic Qualifications

PhD (Applied Geophysics), 2015, (IIT) Indian School of Mines, Dhanbad
MSc (Tech) (Applied Geophysics), 2011, (IIT) Indian School of Mines, Dhanbad
BSc (H) (Physics), 2008, University of Calcutta

Teaching

Subjects: Reservoir Geophysics, Seismic Stratigraphy, Computer application in Geophysics and Practical in Borehole geophysics and radiometric method.

PhD: Two PhD awarded, 4 PhD (ongoing)

Area of research interest

- Interpretation of well logging data and seismic data
- Geomechanical modeling: pore pressure and stress prediction
- Petrophyiscs and rockphysics analysis, AVO & seismic attributes

Distinctions and Awards/ Special Recognitions

1. **Prof. D Lal** Best paper award in 2018 by Indian Geophysical Union
2. **DST-INSPIRE** Faculty award in 2015 by Department of Science and Technology
3. **UGC-NET-JRF** Qualified 2012

Research Projects

1) Coupled Reservoir Geomechanical Modelling for gas hydrates reservoir, and oil/gas reservoir in high pressure and high temperature (HPHT) sedimentary basin, **Science and Engineering Research Board (SERB) (ongoing)**
2) Laboratory Measurement of Petrophysical Parameters of the Reservoir Rocks using Instruments, **SRIC, IIT KHARAGPUR (ongoing)**
3) Integration of Geomechanics and Rock Physics Modeling of Reservoirs in Sedimentary Basin of Eastern India, **DST-INSPIRE** (completed)

Teaching/Research Experience:

Positions / Research experience	
Period	Designation / name of institute/ work carried out
10/10/2015 to 05/02/2016	DST-INSPIRE Faculty, CSIR-NGRI, Hyderabad

08/02/2016 to 24/11/2021	Assistant Professor, Geophysics Department, BHU, Varanasi
25/11/2021 to continue	Assistant Professor, Department of Geology and Geophysics, IIT, Kharagpur

Full list of Research Papers

International Journal:

1) Yadav, P. K., **Singha, D.K.** and Sain, K., 2023, Rock Physics Modelling for Estimation of Gas Hydrate Saturation Using NGHP-02 Well Data in the Krishna–Godavari Basin, Pure and Applied Geophysics. https://doi.org/10.1007/s00024-023-03322-x
2) Shukla P.K., **Singha, D.K.** and Sain, K., 2022, Petrophysical analysis and rock physics modelling for estimation of gas hydrate saturation: A case study in the Mahanadi basin, Journal of Geological Society of India, 98, 883-892. IP-1.44
3) Banerjee, A., Chatterjee, R, and Singha, D.K., 2022, Anisotropy and fracture analysis for coalbed methane reservoir development in Bokaro coalfield, India, Geophysical Prospecting, doi: 10.1111/1365-2478.13236.
4) ShuklaP.K., **Singha, D.K.** and Sain, K., 2022, Modeling of in-situ horizontal stresses and orientation of maximum horizhontal stress in the gas hydrate-bearing sediments of the Mahanadi offshore basin, India, Geomechanics and Geophysics for Geo-Energy and Geo-Resources, 8, 90. IP-4.863
5) Rai, N, **Singha, D.K**., Chatterjee, R 2022, 3D pore pressure modeling and overpressure zone prediction in the upper Assam Shelf, India. Acta Geophysica, 70, 1203-1221. IP-2.293
6) Shukla P.K., **Singha, D.K.** and Sain, K., 2022, Anisotropy analysis in shallow marine gas hydrate bearing sediments: A case study from the offshore Mahanadi basin, India, Marine Geophysical Research, 43:3. I.P-2.500.
7) Rai, N, **Singha, D.K**., Chatterjee, 2021 Assessment of Paleocene to lower Oligocene formations and basement to estimate the potential hydrocarbon reservoirs using seismic inversion: a case study in the Upper Assam Shelf, India, Journal of Petroleum Exploration and Production Technology, 12, 1057-1073. I.P-2.508
8) Rai, N, **Singha, D.K**., Shukla, P.K. and Sain, K., 2020, Delineation of discontinuity using multi-channel seismic attributes: An implication for identifying fractures in gas hydrate sediments in offshore Mahanadi basin, Result in Geophysical Science, 1-4, 100007.
9) Shankar, U, Srivastava, S, **Singha, D.K**. and Pratap, B., 2019, Prediction of pore pressure and fracture pressure from well log data in a gas hydrate reservoir of the Krishna-Godavari basin, Journal of Indian Geophysical Union, 23, 376-386. (I.F:0.313)
10) **Singha, D. K**, Shukla, P.K., Chatterjee, R. and Sain, K., 2019, Multi-channel 2D seismic constraints on pore pressure- and vertical stress-related gas hydrate in deep offshore of the Mahanadi basin, India, Journal of Asian Earth Science, 180, 103882. (I.F: 3.374)
11) Chatterjee, R. And **Singha, D. K**., 2018, Stress Orientation from Image log and Estimation of Shear Wave Velocity using Multiple Regression Model: A Case Study from Krishna-Godavari basin, India, Journal of Indian Geophysical Union, 22, 128-137. (I.F:0.313)
12) Kumar, M., Dasgupta, R., **Singha, D. K.** and Singh, N. P., 2018, Petrophysical evaluation of well log data and rock physics modeling for characterization of Eocene reservoir in Chandmari oil field of Assam-Arakan basin, India, J Petrol Explor Prod Technol, 8, 323–340.
13) **Singha, D. K**. and Chatterjee, R., 2017, Rock Physics Modeling in Sand Reservoir, Krishna-Godavari basin, India, Geomechanics and Engineering, An International Journal, 13, 99-117. (I.F:2.594)
14) Das. B., Chatterjee, R., **Singha, D. K.** and. Kumar, R., 2017, Post-stack Seismic Inversion and Attribute Analysis in Shallow Offshore of Krishna-Godavari basin, India, Journal of Geological Society of India, 90, 32-40. I.F:0.994

15) Chatterjee.R., **Singha, D.K**., Ojha, M., Sen, M.K. and Sain, K., 2016, Porosity estimation from pre-stack seismic data in gas-hydrate bearing sediments, Krishna-Godavari basin, India, Journal of Natural Gas Science and Engineering, 33, 562-572. I.F: 3.859

16) **Singha, D.K.** and Chatterjee.R., 2015,Geomechanical Modeling using Finite Element Method for Prediction of In-situ Stress in Krishna-Godavari basin, India, International Journal of Rock Mechanics and Mining Sciences, 73 (2015), 15-27. I.F:1.424

17) **Singha, D.K**., Chatterjee.R., Sen, M.K. and Sain, K., 2014, Pore Pressure Prediction in Gas-Hydrate bearing Sediments of Krishna-Godavari Basin, India, Marine Geology, 357 (2014) 1–11.I.F:2.464

18) **Singha, D. K.** and Chatterjee, R., 2014, Detection of Overpressure zones and a Statistical Model for Pore Pressure Estimation from Well Logs in the Krishna-Godavari Basin, India, Geochemistry, Geophysics, Geosystems, 15(4), 1009-1020.I.F:3.07

Chapter:

1. Dip Kumar Singha, Neha Rai, Madhvi, Mangal Maurya, Uma Shankar and Rima Cahtterjee, 2021, Interpretation of self-potential (SP) log and depositional environment in the upper Assam Basin, India, 2021,Self-Potential Method: Theoretical Modeling and Applications in Geosciences, Springer (accepted). DOI/ 10.1007/978-3-030-79333-3.
2. Rima Chatterjee, Suman Paul, **Dip Kumar Singha**, Manoj Mukhopadhyay, Overpressure Zones In Relation To In Situ Stress for The Krishna-Godavari Basin, Eastern Continental Margin Of India: Implications for Hydrocarbon Prospectivity, Petroleum Geosciences: Indian Contexts, Springer Geology 2015, pp 127-142, DOI: http://dx.doi.org/10.1007/978-3-319-03119-4_5

International Conferences:

Pradeep Kumar Shukla and **Dip Kumar Singha**, 2021, Subsurface modeling of in-situ horizontal stresses in shallow marine gas hydrate-bearing sediments of the offshore Mahanadi basin, India, AGU Fall meeting New Orleans LA Online 13 17 December.

Singha, D.K, Shukla,P.K., and Sain, K., 2019, Analysis of Anisotropy Using Well Data in Gas Hydrate Bearing Sediments: A Case Study in Mahanadi Offshore Basin, (NGHP)-01, India, 16th Annual meeting Asia Oceania Geosciences Society (AOGS) Singapore 28th July to 02nd August 2019. Speaker

Singha, D. K. and Chatterjee, R., 2015, Fracture and Breakout Analysis From Image Log in Krishna Godavari Basin, India,3rd South Asian Geosciences Conference and Exhibition, GEOINDIA, January 11-14. Speaker

Chatterjee, R. and **Singha, D. K.**, 2015, Geomechanical and Rock Properties Analysis: An Implication for Reservoir Development in Krishna-Godavari basin, India,3rd South Asian Geosciences Conference and Exhibition, GEOINDIA, January 11-14.

Das. B., **Singha, D. K.** and Chatterjee,R., 2015, Lithofacies Identification and Porosity Prediction Through Acoustic Impedance Inversion,3rd South Asian Geosciences Conference and Exhibition, GEOINDIA, January 11-14.

Chatterjee,R. And **Singha, D.K.** and Sain, K., 2014, Porosity Inversion of Pre-stack Seismic data: A Case Study from Krishna-Godavari Basin, India, India Oil & Gas Review Summit & International Exhibition, IORS, Mumbai, Sept. 10-11.

Singha,D.K, Chatterjee, R. and Sain, K., 2014, Application of Multilayer Feed Forward Neural Network: Porosity Mapping in Gas Hydrate Sediment of Krishna-Godavari Basin, India, Annual meeting EAGE, June 16-19, Amsterdam. PID: 20945. Speaker

Singha,D.K., Chatterjee.R.,Ojha.M. and Sain, K., 2013, Pore Pressure Prediction from Seismic Data using Neural Network, Extended Abstract, 10th Biennial Int. Conf. & Exp. Organised by SPG India, Nov. 23-25, Kochi. Speaker

Singha, D. K., 2013**,** Stress magnitude and Orientation Determination in the Geohazard Region of Krishna-Godavari Basin, India, International Symposium,Advances in Earthquake Science (AES), Jan. 29-31, Gandhinagar, Gujarat. Speaker

National Conferences

Dip Kumar Singha, Neha Rai , Rima Chatterjee, 2022, Modelling of Pore Pressure using Seismic Velocity: A Case Study in the Upper Assam Basin, IGU-North-Eastren Hill University (NEHU), Shillong, 2-4, February, 2022. Speaker
Pradeep Kumar Yadav and Dip Kumar Singha, 2021, Estimation of water saturation using rock physics modeling in highly uncompacted sedimentary rock formations, IGU, NIO-Goa, 2-4 Feb, 2021.
Dip Kumar Singha and Pradeep Kumar Shukla, 2021 In-situ horizontal stress mapping using neural network for gas hydrate bearing sediment in offshore Mahanadi basin, India, IGU, NIO-Goa, 2-4 Feb, 2021. Speaker
Rai,N., **Singha, D.K** and Chatterjee, R., 2021, Subsurface modelling of porosity and saturation in 3D seismic data using acoustic impedance model: A case study of upper Assam shelf, IGU, NIO-Goa, 2-4 Feb, 2021.
Rai,N., **Singha, D.K** and Chatterjee, R., 2019, 3D post-stack seismic inversion for identifying reservoirs in the formation and the basement of upper Assam Basin, 2nd Triennial FIGA Congress, 13 – 16 October, CSIR-NGRI Hyderabad. Speaker
Singha, D.K, Shukla,P.K., and Sain, K, 2018, Pore Pressure Prediction from Post Stack Seismic Data in Deep Offshore of Mahanadi Basin, India, 55th IGU Annual Convention, Bhopal December 5 7 2018. SPeaker
Shukla,P.K., **Singha, D.K** and Sain, K., 2017, Estimation of pore pressure and vertical stress in gas hydrate Bering sediments using well log data of Mahanadi basin, India, 54th IGU Annual Convention, 3-7th December, 2017, CSIR-NGRI, Hyderabad
Singha,D.K, Chatterjee, R., Sain, K. and Singh, N.P., 2016, Estimation of Pore Pressure and Stress Magnitude from Pre-Stack Seismic Data in Gas Hydrate Bearing Sediments, Krishna-Godavari (K-G) Basin, India, Indian Geophysical Union, II T(ISM), Dhanbad, Nov. 8-10. Speaker

Singha, D.K and Chatterjee, R., 2015, Rock Physics Template of Sandstone Reservoir using Well Log Data: A Case Study of Krishna-Godavari basin, India, Indian Geophysical Union, NCAOR, Goa, Nov. 2-5. Speaker

Singha, D.K and Chatterjee, R., 2014, Multiple Regression Model: A New Approach for Estimation of Pore Pressure, Extended Abstract, 50th Annual Convention Indian Geophysical Union, Jan. 8-12, Hyderabad.

Singha, D.K and Chatterjee,R., 2012, Prediction of Overpressure zone in the Krishna-Godavari basin, India, Indian Geophysical Union, Gandhinagar, Gujarat, Oct. 29-31. Speaker