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Book chapters (Peer- reviewed)

Accepted

1. Goswami, A., and Mandal, P.P. (2023). "Role of critical data for Geomechanical Modelling & Characterisation of future CO2 Storage Sites". Reservoir Characterization, Modelling and Quantitative Interpretation: Recent Workflows to Emerging Technologies edited by Dimri, V.P., and Ganguly S.S. Elsevier. https://doi.org/10.1007/s00603-023-03437-6

Publications (Peer- reviewed/under revision)

Published

1. Mandal, P. P., Babu, N.M., Mondal, R. (2024). Role of 3D geomechanical models in hydrocarbon field life cycle: An example from Ichthys Field, Browse Basin, Australia. Geohorizons. SPG. https://spgindia.org/document/role-of-3d-geomechanical-model-article-dec-2024.pdf
2. Das, S., Singha, D.K., Mandal, P.P. and Agrahari, S. (2024). Identification of Lithofacies from well log data in the upper Assam Basin using Machine Learning Techniques. Acta Geophysics. https://doi.org/10.1007/s11600-023-01229-8 , impact factor: 2.1
3. Mandal, P.P., Sarout, J., and Rezaee, R. (2023). Triaxial deformation of the Goldwyer gas shale at in situ stress conditions – Part II: Viscoelastic Creep/Relaxation and Frictional Failure. Rock Mechanics and Rock Engineering journal. https://doi.org/10.1007/s00603-023-03437-6, impact factor: 6.518
4. Mandal, P.P., Sarout, J., and Rezaee, R. (2022). Triaxial deformation of the Goldwyer gas shale at in situ stress conditions – Part I: Anisotropy of Elastic and Mechanical Properties. Rock Mechanics and Rock Engineering journal. https://doi.org/10.1007/s00603-022-02936-2, impact factor: 6.518
5. Singh, A., Jha, N., Mandal, P. P., Esteban, L., and Desai, B. G. (2022). Pore throat characterization of bioturbated heterogeneous sandstone, Bhuj Formation, Kachchh, India: An integrated analysis using NMR and HPMI studies. Journal of Petroleum Science Engineering, Volume 211, https://doi.org/10.1016/j.petrol.2022.110221, impact factor: 5.168
6. Mandal, P.P., Sarout, J., and Rezaee, R. (2021). Specific surface area: A reliable predictor of creep and stress relaxation in gas shales. TLE. Vol 40, 11. https://doi.org/10.1190/tle40110815.1 , special edition, impact factor: 1.512
7. Mandal, P.P., Rezaee, R., and Emelyanova, J. (2021). Ensemble learning for predicting TOC from well-logs of the unconventional Goldwyer shale. Energies, *15*(1), 216; https://doi.org/10.3390/en15010216 , impact factor: 3.252
8. Mandal, P.P., Sarout, J., and Rezaee, R. (2020). Geomechanical appraisal and prospectivity analysis of the Goldwyer shale accounting for stress and formation anisotropy. International Journal of Rock Mechanics and Mining Sciences 135: 104513. https://doi.org/10.1016/j.ijrmms.2020.104513 , impact factor: 6.849
9. Chatterjee, R., Gupta, S.D. and Mandal, P.P. (2017). Fracture and stress orientation from borehole image logs: A case study from Cambay basin, India. J Geol Soc India 89, 573–580. https://doi.org/10.1007/s12594-017-0646-3 , impact factor: 1.466

Accepted/in-press

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10. Haitham, A., Mandal, P.P., Sarmadivaleh, M., Rezaee, R. and Ghosh, S. (2025). Possible in-situ stress perturbation and weaker overburden rock formation impacting borehole stability in the Pluto gas field, NWS, Western Australia. Interpretation. Impact factor: 1.1

Submitted/in-preparation

11. Mandal, P.P., Simpson, J., Sarout, J., Kovalyshen, Y., Adam, L., and Wijk, K., (2025). Full rock anisotropy with laser ultrasonics. Geophysics. **Under review**. Impact factor: 3.00
12. Shukla, P., Chakraborti, T., Sari, M., Sarout, J., and Mandal, P.P (2025). Forecasting creep deformation behaviour of salt rock for energy storage applications: A deep learning and analytical approach. Scientific Reports, Nature. **Under review**. Impact factor: 3.8
13. Mondal, R., Gond, R., Ghosh, S. and Mandal, P.P (2025). Application of Digital Twin Technology for Real-time Pore Pressure Prediction during Drilling. Marine and Petroleum Geology. **Under review**. Impact factor: 3.7

Conference Proceedings and Presentations

Published

1. Singh, T., Mukherjee, R., Bourdet, J., Glass, F., and Mandal, P.P. (2025) Building petrophysical exploration workflow of subsurface natural hydrogen. India Energy Week.
2. Kodal, A., Datta, D., Kala, S., Mandal, P. P., and Khanna, P. (2025). 3D Internal Lava Flow Architecture of Deccan Basalts with Implications for Carbon Storage. Paper presented at EAGE Workshop on CCS in Basalts, IIT Gandhinagar.
3. Princy Agrahari, P., Datta, D., Duque, M., Mandal, P. P., Sari, M., Sarout, J., Kala, S. and Khanna, P. (2025). Laboratory Characterisation of Basaltic Rocks for Subsurface CO_2-Geo-Sequestration by Carbon Mineralisation. Paper presented at EAGE Workshop on CCS in Basalts, IIT Gandhinagar.
4. Raha, R., Ganguli, Shib, and Mandal, P.P. (2025). A physics informed deep learning-based method to estimate the petrophysical properties from the post stack seismic data. Paper presented at GeoIndia, New Delhi, India.
5. Kala, S., Mandal, P.P., Mirda, A., Khanna, P., and Chowdhury, A. (2023). Prospects of Natural Hydrogen in India: A Potential Alternative Energy Source. Conference proceedings at 14th Biennial Internation Conference and Exposition, SPG 2023 Kochi. https://spgindia.org/14th-biennial-international-conference-spg-2023
6. Mandal, P.P., Mirda, A., and Sahoo, S. (2023). Criticality of data for permanent CO_2 storage in deep geological formations. Conference proceedings at 14th Biennial Internation Conference and Exposition, SPG 2023 Kochi. https://spgindia.org/14th-biennial-international-conference-spg-2023
7. Ross, R., and P. P. Mandal (2023). Rock Physics Based Direct Probabilistic Inversion of Seismic Data for Kerogen Thermal Maturity. Paper presented at the Asia Pacific Unconventional Resources Symposium, Brisbane, Australia, November 2023. doi: https://doi.org/10.2118/217309-MS
8. Mandal, P.P., Ross, R., Mictchell. B., Richards, B., Baruch-Jurado, E., and Vallee, M. (2023). Impact of kerogen thermal maturity on rock-physics modelling of Toolebuc formation. AEGC 2023: Short abstracts. (2023). *Preview*, *2023*(222), 77–156. https://doi.org/10.1080/14432471.2023.2175588

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9. Agrahari, P., Mandal, P.P., Sari, M., and Sarout, J. (2023). Geomechanical simulation to model creep deformation of Salt formation.
https://doi.org/10.1080/14432471.2023.2175588

10. Mandal, P.P., Ross, R., Kuppens, S., Jakobsen, A., and Sarout, J. (2022). Application of thermal maturity driven elastic rock-physics model for marine Ordovician Goldwyer formation, Canning Basin. Second International meeting for Applied Geoscience & Energy (IMAGE-22). Houston, Texas. https://doi.org/10.1190/image2022-3751390.1

11. Sarout, J., Sari, M., Esteban, L., Mandal, P.P., Nguyen, D., and Mallants, D. (2022). Laboratory evaluation of the impact of hydrogen on the petrophysical and geomechanical properties of sandstone reservoir rocks for application to subsurface hydrogen storage. AGU Fall meeting, Chicago, USA.
https://agu.confex.com/agu/fm22/meetingapp.cgi/Paper/1194844

12. Sarout, J., Sari, M., Esteban, L., Dautriat, J., Giwelli, A., Sarmadivaleh, M., Al-Yaseri, A., Mandal, P.P., Monmusson, L., Hazewinkel, P., Kiewiet, L., and Verall, M. (2022). Geomechanical and petrophysical properties of rock salt for waste disposal or energy/gas storage. AGU Fall meeting, Chicago, USA.
https://agu.confex.com/agu/fm22/meetingapp.cgi/Paper/1099701

13. Mandal, P.P., Sarout, J., Rezaee, R., and Finkbeiner, T. (2022). Viscoelastic stress relaxation for estimating S_{hmin} magnitude in deep sedimentary formations. 56th US Rock Mechanics /Geomechanics Symposium, Santa Fe, New Mexico.
https://doi.org/10.56952/ARMA-2022-0172

14. Mandal, P.P., Sarout, J., and Rezaee, R. (2022). Can we predict primary creep and least principal stress S_{hmin} at depth either from specific surface area or weak phase of gas shales? IPTC, Riyadh, Saudi Arabia. https://doi.org/10.2523/IPTC-22212-MS

15. Iqbal, M. A., Rezaee, R., Smith, G., and Mandal, P. P. (2021). Implications of thin laminations on pore structure of shale reservoir: Ordovician Goldwyer Formation Case study from Western Australia. The APPEA Journal 61, no. 1, 205-215.
https://doi.org/10.1071/AJ20025

16. Mandal, P.P., Essa, I., Saha, S., and Rezaee, R. (2021). Multi-purpose utility of constructing 3D static Geomechanical model in the Ichthys field, Browse Basin. AEGC Technical Program Expanded Abstracts, Brisbane, Australia. 63-122 (69), 47.
https://doi.org/10.1080/14432471.2021.1957452

17. Mandal, P.P., Rezaee, R., Sari, M. and Sarout, J., (2021). Compositional control on frictional properties of Goldwyer shale reservoir rocks. AEGC Technical Program Expanded Abstracts, Brisbane, Australia. 63-122 (69), 133.
https://doi.org/10.1080/14432471.2021.1957452

18. Mandal, P.P., Simpson, J., Sarout, J., Kovalyshen, Y., Adam, L., Wijk, K., and Rezaee, R. (2021). Robust determination of rock anisotropy in the laboratory using laser ultrasonics. AGU Fall meeting, New Orleans, USA.
https://agu.confex.com/agu/fm21/meetingapp.cgi/Paper/928879

19. Mandal, P.P., Sarout, J., and Rezaee, R. (2021). Viscoelastic approach to capture varying least principal stress magnitude and the effect of observed stress layering on hydraulic fracturing- An example from shale formations of the Perth Basin. 55th US Rock Mechanics /Geomechanics Symposium, Houston, Texas.
https://onepetro.org/ARMAUSRMS/proceedings-abstract/ARMA21/All-ARMA21/ARMA-2021-1202/467916

20. Iqbal, M. A., Mandal, P. P., Rezaee, R., Sarout, J., and Smith, G., (2021). Integration of mechanical stratigraphy with lithofacies in Goldwyer shale for selecting producible and

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hydraulic fracturing layers. 82nd EAGE Annual Conference and Exhibition, Amsterdam, Netherlands. https://www.earthdoc.org/content/papers/10.3997/2214-4609.202112730

21. Mandal, P.P., Rezaee, R., Sari, M., and Sarout, J. (2021). Varying least principal stress along lithofacies in gas shale reservoirs: effect of frictional strength and viscoelastic stress relaxation. The APPEA Journal 61, no. 1: 1-6, 673-678. https://doi.org/10.1071/AJ20064

22. Mandal, P.P., Rezaee, R., and Sarout, J. (2020). Impact of stress regime on shale's brittleness: Implications for determining suitable hydraulic fracturing intervals. Conference Proceedings, EAGE 2020 Annual Conference & Exhibition Online, Dec 2020, Volume 2020, p.1 – 5. https://doi.org/10.3997/2214-4609.202010489

23. Mandal, P.P., Rezaee, R., and Sarout, J. (2020). Impact of the stress state and the natural network of fractures/faults on the efficiency of hydraulic fracturing operations in the Goldwyer shale formation. The APPEA Journal 60, no.1: 163-83. https://doi.org/10.1071/AJ19025 , impact factor: 0.40

24. Mandal, P.P and Rezaee, R. (2019). Facies classification with different machine learning algorithm – An efficient artificial intelligence technique for improved classification. 2nd Australian Exploration Geoscience Conference: Data to Discovery. Volume 2019, p.1-6. Perth. https://doi.org/10.1080/22020586.2019.12072918

25. Mandal, P.P., Koh, W., Bluteau, J., Laws, D. and Greenhalgh, J. (2016). Combining high resolution modelling and one-way wave field extrapolation migration to image beneath a complex overburden: A case study from Porcupine Basin, Ireland. PESA News Issue 143 - PESA - Petroleum Exploration Society of Australia

Not recorded

- Mandal, P.P. and Sahoo, D. (2018). Full waveform inversion (FWI): A high fidelity complex earth model building platform, Poster presentation on emerging trends in geophysical research for make-in-India (ETGRMI), IIT (ISM) Dhanbad, India

Webinar presentations

- Presenting multiple face-to-face and virtual platform technical talks at several national and international conferences (AEGC, AGU, APPEA, ARMA, EAGE, IPTC, and SEG). 2018 – current.
- Delivered invited talks and webinars at ASEG and PESA Young Professionals events; IIT(ISM) Geophysical Society; and Presidency University (Bangalore).