

# **EAGE Workshop on Advanced Seismic Solutions for Complex Reservoir Challenges 2025**

Held Online

Kuala Lumpur, Malaysia  
29-30 April 2025

ISBN: 979-8-3313-2178-9

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2025) by the European Association of Geoscientists & Engineers (EAGE)  
All rights reserved.

Printed with permission by Curran Associates, Inc. (2025)

For permission requests, please contact by the European Association of Geoscientists & Engineers (EAGE)  
at the address below.

European Association of Geoscientists & Engineers (EAGE)  
PO Box 59  
3990 DB Houten  
The Netherlands

Phone: +31 88 995 5055

Fax: +31 30 634 3524

[eage@eage.org](mailto:eage@eage.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## **SESSION 1: INNOVATIVE SEISMIC PROCESSING**

Improving the Sub-Volcanic Image Through Least-Squares PSDM with TLFWI .....	1
<i>J. Wang, Y. Chen, P. Deng, R. Villafuerte, P. Chia</i>	
Resolving the Near-Surface Complexities, Helping Reservoir Imaging – Complex Geological Settings Onshore and Offshore Case Studies .....	4
<i>A. Riaz</i>	
Deep Learning for Seismic Image Super-Resolution .....	7
<i>S. Phan, W. Hu, H. Di, A. Abubakar, M. Branston</i>	
[Invited Talk] Beyond Structural Interpretation: Multiparameter Full-Waveform Impedance Inversion.....	10
<i>X. Cheng, Z. Feng, J. Mao, D. Vigh, Y. Yu, K. Shoemaker</i>	

## **SESSION 2: CASE STUDIES**

Data Driven Shear-Sonic Log Synthesis for In-Situ Caprock and Carbonate Reservoirs in Malaysian Fields.....	13
<i>M. N. F. Bin Che Mat</i>	
Improve Fractured-Basement Reservoir Imaging Through Elastic Model Building and Diffraction Imaging Technologies.....	16
<i>M. Matta, E. Hooi, T. Gunasergaran, W. Wely, D. Nguyen Duc, G. Phan Phuoc, T. K. A. Nguyen</i>	
Dual-Wave Advantage: PP-PS Pre-Stack Inversion for Complex Reservoir Characterization .....	21
<i>S. Lim Suet Hoey</i>	

## **SESSION 3: UNLOCKING SUBSURFACE SECRETS: MACHINE LEARNING APPLICATIONS IN SEISMIC DATA ANALYSIS**

Potential of Machine and Deep Learning for Enhanced First-Break Picking and Accurate Reservoir Characterization.....	25
<i>S. Kaka</i>	
Enhancing Fault Location Precision in CCS Storage Studies using AIML: A Progressive Adaptive Model Training Approach.....	29
<i>M. Sajid, D. P. Das</i>	
ML-Driven Reservoir Characterization Case Study in D Field PM Basin Malaysia.....	32
<i>N. Nguyen, B. Alaei, D. Austin, S. Rajput</i>	

## **SESSION 4: SUBSURFACE CHARACTERIZATION**

Reservoir Properties Prediction from Well Logs using Supervised Machine Learning Algorithms, Random Forest in Malaysia Fields .....	37
<i>M. N. F. Bin Che Mat</i>	

Surgical Mapping Based Seismic Reservoir Characterization for Optimizing CO2 Storage Site Performance.....	40
<i>D. Das, N. Nghi, L. Zhi, M. Sajid, L. Ambati</i>	
Bridging Data Gaps: Rock Physics-Driven Vs Log Prediction for Reservoir Excellence.....	43
<i>L. Ambati, U. Tiwari, S. Rajput</i>	
Porosity Distribution Estimation from Acoustic Impedance on Post-Salt Albian Carbonate, Offshore Brazil .....	47
<i>J. Reveron, N. L. Yahaya, R. Sekti, N. Q. Bt Salim, M. K. Sia</i>	
Amplitude Versus Offset and Frequency (AVO-AVF) Integration to Mitigate Fizz Gas Risk in Clastic Reservoir .....	50
<i>Y. H. Wong, J. Reverón, M. S. M Saleh, H. K. Tan</i>	

### **SESSION 5: 4D SEISMIC & SURVEILLANCE**

Decoupled Approach to UHR De-Ghosting with Proximal Gradient.....	53
<i>A. Kumar, R. Telling, A. Jafargandomi</i>	
Decoding the Subsurface: The Evolution of DAS from Legacy Fiber to Intelligent Reservoir Monitoring.....	56
<i>L. Y. Z. Ting, U. Tiwari, S. Rajput</i>	
Evaluating the Efficacy of 4D Seismic Feasibility Studies in Enhancing Oil and Gas Development Projects .....	60
<i>S. Kumar, N. H. Nghi, U. Tiwari, S. Rajput</i>	
High Resolution Vs Model Updates using PS-FWI: Insights from the Ivar Aasen Field .....	64
<i>Y. Zhai, J. Xu, J. Rickett, A. Bullock, P. Wang, S. Roy</i>	

### **AM BREAK, GROUP PHOTO & POSTER PRESENTATION DAY 1**

Acquiring OBN Seismic for CCS in the Complex Environment of Luconia Province .....	67
<i>K. H. Ho, C. T. Law, N. N. A Rahman</i>	
Advancing Seismic Interpretation Through Spectral Decomposition: Techniques, Applications, and Innovative Visualization .....	70
<i>A. Mandong, R. Saputra</i>	
Identification of Connected Fractures and Gas Layers with Resonant Stoneley Waves.....	75
<i>S. Yongjin, S. Yuanda</i>	
Near-Surface Investigation of Basalt Lava Flows using MASW Technique at Katraj Ghat Pune, India.....	78
<i>R. Rashi, R. Dehiya, S. Sarkar, R. Duraiswami</i>	

### **AM BREAK & POSTER PRESENTATION DAY 2**

Estimating Saturation in Carbonate Rocks: Combining Fluid Contacts, Saturation Height Functions, Wireline Logs and Capillary Pressure.....	81
<i>M. N. F. Bin Che Mat</i>	

Sweet Spot Identification of Carbonate Reservoirs using Seismic Inversion and Three Machine Learning Algorithms.....	84
<i>L. M. Surachman, A. Abdulraheem, A. Al-Shuhail, S. I. Kaka</i>	
Reservoir Properties Characterization using Low-Frequency Attenuation Coefficient Anomalies of Pulsed Borehole Stoneley Wave.....	88
<i>S. Yongjin, S. Yuanda</i>	
Obtaining P-Wave and S-Wave Slowness of Formation by Slowness Dispersion Curve.....	91
<i>S. Yongjin, S. Yuanda</i>	

**Author Index**