

Second EAGE/PESGB Workshop on Velocities 2019

London, United Kingdom
4 - 5 April 2019

ISBN: 978-1-5108-8663-6

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© (2019) by the European Association of Geoscientists & Engineers (EAGE)
All rights reserved.

Printed by Curran Associates, Inc. (2019)

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

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
Web: www.proceedings.com

TABLE OF CONTENTS

Complementary Use of FWI in Earth Model Building Workflows in Complex Media	1
<i>O. Zdraveva, M. Hegazy, Z. Chen, M. O'Briain</i>	
A FWI Velocity Model Building Workflow across the Senja Ridge in the Norwegian Barents Sea	4
<i>S. Stokes, D. Manns, M. Romanenko, B. Kjølhamar, R. Myklebust, E. Henden</i>	
Using Full-waveform Inversion to Build Model from Shallow to Deep: A Case Study in Black Sea	7
<i>S. Chen, A. Davydov, S. Roy</i>	
Imaging Paleocene and Jurassic Prospects within the Porcupine Basin, Ireland: A Case Study	10
<i>M. Hart, S. Bhamber, A. Hulks, S. O'Keefe, E. Cho, S. Baldock</i>	
Hybrid Tomography and Full Waveform Inversion Velocity Model Updating for Shallow Velocity Anomalies	13
<i>G. Hilburn, J. Mao, J. Sheng, S. Baldock, M. Hart</i>	
Use of a Robust Norm in Reducing FWI Uncertainty in the Presence of Cycle Skipping	16
<i>J. Ramos-Martinez, A. Valenciano, N. Chemingui, T. Martin</i>	
JMI-FWI: Cascading Workflow Using Joint Migration Inversion (JMI) and Full Waveform Inversion (FWI)	19
<i>G. Eisenberg-Klein, E. Verschuur, S. Qu, E. Schinemann</i>	
Bayesian Uncertainty Estimation in the Presence of Tomographic Model Error	22
<i>A. Vlassopoulou, R. Felicio, C. Hagen, I. Jones, M. Ackers, S. Schjelderup</i>	
Sample Size Automation in a Pseudo-random Model Uncertainty Workflow	25
<i>T. Martin</i>	
Seismic Waveform Inversion Using an Iterative Ensemble Kalman Smoother	28
<i>M. Gineste, J. Eidsvik, Y. Zheng</i>	
Velocity Model Building from Raw Shot Gathers Using Machine Learning	31
<i>O. K. Øye, E. K. Dahl</i>	
Wavefront Tomography with Enforced Diffraction Focusing	34
<i>A. Bauer, B. Schwarz, L. Diekmann, D. Gajewski</i>	
Wavefront Tomography for Passive Seismic Data	37
<i>L. Diekmann, B. Schwarz, A. Bauer, D. Gajewski</i>	
Azimuthally Anisotropic Effective Parameters from Full-azimuth Reflection Angle Gathers	40
<i>R. Litvak, L. Korkidi, C. Ayache, R. Levy, I. Ravve, Z. Koren</i>	
Integrating FWI Models and Broadband Data for Elastic Property Generation, What is Appropriate?	43
<i>T. Martin, C. Reiser</i>	
Using Joint Lithology-Elastic Inversion to Enhance Earth Model Building Workflows	46
<i>T. Barling, R. Bachrach, C. Leone, S. Chen</i>	
Technology Advances in Constructing High Resolution Velocity and Absorption Models over 35,000km² in the North Sea	49
<i>V. Angelov, C. Purcell, T. Latter, A. Ratcliffe</i>	
Reducing Imaging Depth Distortions in the Central North Sea with High Resolution Velocity Model Building	52
<i>J. Tatat, P. Hayes, G. Jones, M. Townsend</i>	
Should We Move Towards Multi-parameter Elastic Inversions?	55
<i>R. Plessix</i>	
Application of an Automatic and Data-driven Surface-Consistent Refraction Method to Complex Geology Scenarios in Desert Environment	58
<i>D. Rovetta, D. Colombo, A. Kontakis, E. Sandoval Curiel</i>	
Guide to Multi-physics Velocity Model Building: Joint Inversion Algorithms and Workflows for Real Data Applications	61
<i>D. Colombo, D. Rovetta</i>	
A Strategy for Regional-Scale FWI in the Salt Provinces Offshore Brazil	64
<i>J. Fruehn, S. Greenwood, R. O'Driscoll, I. Jones</i>	
Salt Stratification and Least Square Migration to Improve Pre-Salt Reservoir Images: Santos Basin, Brazilian Offshore Example	67
<i>R. Dias, J. Fonseca, A. Bulcão, B. Dias, L. Teixeira, A. Maul, F. Borges</i>	
Reflection-refraction Tomography and Complex Salt Structure - A Case Study from Offshore North Gabon	70
<i>J. Chaloner, P. Esestime, B. Cox, H. Nicholls, L. Letki</i>	

Imaging beneath Basalts in the Norwegian Sea Using RTM Tomography and Least Squares RTM	73
<i>S. Baldock, T. Kim, T. Feng, Z. Guo, C. Zeng, H. Bondeson, B. Kjøllhamar, M. Hart</i>	
Low-frequency Model Update Using Adjustive FWI at Clair Ridge.....	76
<i>A. Bullock, S. Roy</i>	
Dual-azimuth Depth Imaging of Marine Surveys over Fenja Field.....	79
<i>O. Litvyakova, A. Sakharov, A. Welbon, A. Bodrov, A. Korolev, B. Esinov, Ø. Bø</i>	
Deep Updates - Challenges and Solutions for FWI.....	82
<i>N. Chemingui, A. Valenciano, T. Martin</i>	
Author Index	