

PROGRAMMA WORKSHOP 13

WS13 Friday 03 June 2016

Title: Methods and Challenges of Seismic Wave Modelling for Seismic Imaging

Room: Stolz 1

Convenors Romain Brossier (University of Grenoble)
Ludovic Métivier (University of Grenoble)
Mark Huiskes (Shell)

Complex Media with Strong Interfaces

09:00 Introduction

09:10 WS13 A01 Mimetic Operators for Seismic Exploration - J. de la Puente* (Barcelona Supercomputing Center), O. Rojas (Barcelona Supercomputing Center), M. Ferrer (Barcelona Supercomputing Center) & J. Kormann (Barcelona Supercomputing Center)

09:40 WS13 A02 A Fast 3-D Free-surface Topography Method for Acoustic Full-waveform Inversion - M.J. Huiskes* (Shell Global Solutions International BV), R.E. Plessix (Shell Global Solutions International BV) & W.A. Mulder (Shell GSI BV & Delft University of Technology)

10:00 WS13 A03 Simple and Accurate Operators Based on Taylor Expansion for 2D Elastic Seismogram Calculation under Geological Discontinuities with Regular Cartesian Grids - N. Fuji* (Institut de Physique du Globe de Paris (IPGP)), O. Ovcharenko (IPGP/King Abdullah University of Science and Technology), R. Martin (Géosciences Environnement Toulouse) & C. Cuvilliez (IPGP/École Nationale Supérieure de Géologie)

10:20 Discussion / Voting

10:35 Coffee Break

Towards Elasto-dynamic Full Waveform Inversion

10:55 WS13 B01 High-resolution Imaging of Lithospheric Structures Beneath Mountain Ranges by Full Waveform Inversion at Short Period - D. Komatitsch* (CNRS), Y. Wang (CNRS), V. Monteiller (CNRS) & S. Chevrot (CNRS)

11:25 WS13 B02 Efficient Algorithms for Imaging Condition in RTM and Gradient Building in FWI - P. Yang* (Université Grenoble Alpes), R. Brossier (University Grenoble Alpes), L. Métivier (University Grenoble Alpes) & J. Virieux (University Grenoble Alpes)

11:45 WS13 B03 Performance Analysis of Discontinuous Galerkin Methods for Seismic Wave Propagation - H. Barucq (INRIA), L. Boillot (INRIA), J. Diaz* (INRIA) & S. Ettouati (INRIA)

12:05 WS13 B04 Exact Boundary Conditions for Local Wave Field Modelling - F. Broggini* (ETH Zürich), M. Vasmel (ETH Zürich), J.O.A. Robertsson (ETH Zürich) & D.J. van Manen (ETH Zürich)

12:25 Discussion / Voting

12:40 Lunch

Seismic Modelling in the Frequency Domain

13:40 WS13 C01 Sparse Direct Solvers towards Seismic Imaging of Large 3D Domains - P. Amestoy* (IRIT/University of Toulouse), A. Buttari (IRIT/CNRS), J.Y. L'Excellent (University of Lyon-Inria-LIP) & T. Mary (IRIT/University of Toulouse)

14:10 WS13 C02 A Fast Iterative Solution of the Time-harmonic Wave Equation with MSSS-preconditioned IDR(s) - M. Baumann* (Delft University of Technology) & M.B. Van Gijzen (Delft University of Technology)

14:30 WS13 C03 Asymptotically Corrected Reduced Order Modelling for Wavefield Computation with Multiple Sources - V. Druskin (Schlumberger Doll Research), R.F. Remis (TU Delft), M. Zaslavsky (Schlumberger Doll Research) & J.T. Zimmerling* (Delft University of Technology)

14:50 Discussion / Voting

15:05 Coffee Break

Alternative Methods for Seismic Modelling

15:25 WS13 D01 Non-periodic Homogenization for Seismic Forward and Inverse Problems - Y. Capdeville* (CNRS)

15:45 WS13 D02 Compact Finite Difference Schemes for the Acoustic Wave Equation - L. Córdova (Departamento de Matemática, Universidad de Oriente), O. Rojas* (Universidad Central de Venezuela), B. Otero (Universitat Politècnica de Catalunya) & J. Castillo (Computational Science Research Center)

16:05 WS13 D03 A Fast Direct Solver Based on the Boundary Element Method to Model 3-D Elastic Waves in Large Domains - S. Chaillat* (POEMS (CNRS-ENSTA-INRIA)), P. Ciarlet (POEMS (CNRS-ENSTA-INRIA)) & L. Desiderio (POEMS (CNRS-ENSTA-INRIA))

16:25 WS13 D04 3-D Viscoelastic Time-domain Finite-difference Seismic Modelling Using the Staggered Adams-Bashforth Time Integrator - F. Wittkamp* (Karlsruhe Institute of Technology) & T. Bohlen (Karlsruhe Institute of Technology)

16:45 Discussion / Voting

17:00 End