Advanced Seismic Data Acquisition and Processing

Teamwork: Summary/Presentation of learning points **previous** day

Day1: Geophysical methods

08:00-09:00 Welcome
09:00-10:00 Introduction: Biography, Program, 52 Things, Teams, Moodle
10:00-10:45 Geophysical methods: Gravity, Magnetics, Electro-Magnetics, Seismic
10:45-11:15 Ex: 3D Marine Survey Design (paper)

11:15-11:30 Refreshments

11:30-12:00 Seismic workflow, 2D-3D-4D seismic
12:00-13:00 Ex: Propagation of seismic waves, Shot ray paths (paper)

13:00-14:00 Lunch

14:00-14:30 Videos: Surveys, Marine Acquisition, Marine Survey Design, Refraction, Wave propagation
14:30-15:00 Seismic: Acquisition

15:00-15:15 Refreshments

15:15-15:45 Seismic Wave propagation I
15:45-16:30 Ex: Refraction, Surface & Subsurface Diagrams, Resolution I (paper)
16:30-17:00 Team a: Preparation Summary of day 1

Day2: Seismic Acquisition

08:00-08:45 Team a: Summary of day 1
08:45-09:45 Seismic Wave propagation II
09:45-11:00 Ex: Snell, Fermat, Huygens, Fresnel, Field record (paper)

11:00-11:15 Refreshments

11:15-11:45 2D Survey Design
11:45-13:00 Ex: 2D Acquisition Baywatch (computer)

13:00-14:00 Lunch

14:00-14:30 Videos: DAS, PGS Marine Surveys, Reflection & Transmission
14:30-15:30 Seismic: Continuous Source, Source Deblending, Seismic Apparition
15:30-15:45 Refreshments
15:45-16:00 Ex: Resolution II (paper)
16:00-16:15 Acquisition Design Wizard
16:15-17:00 Ex: 3D Symsam (computer)
17:00-17:30 Team b: Preparation Summary of day 2

Day3: Seismic Processing

08:00-08:45 Team b: Summary of day 2
08:45-09:45 Seismic Processing Overview
09:45-11:00 Ex: Near-Surface Statics, Velocities, Stacking Velocity picking (paper)

11:00-11:15 Refreshments

11:15-12:00 Ex: Reflection & Transmission, Multiple Elimination (paper)
12:00-12:30 Time & Frequency domain, DFT, FFT
12:30-13:00 Ex: DFT (computer)

13:00-14:00 *Lunch*

14:00-14:15 Sampling & Aliasing, Velocities, KF Transform, Multiples, Correlation & Convolution, LSQ Deconvolution
14:15-15:00 Ex: FFT (computer)
15:00-15:30 Correlation & Convolution

15:30-15:45 *Refreshments*

15:45-16:45 Ex: Correlation, Convolution, Deconvolution (paper)
16:45-17:00 Ex: Convolution, Correlation (computer)
17:00-17:30 Team c: Preparation Summary of day 3

Day4: Seismic Processing
08:00-08:45 Team c: Summary of day 3
08:45-09:45 Aliasing & Sampling, Resolution & Survey Design: Imaging
09:45-10:15 Ex: Least Squares Deconvolution (paper)
10:15-11:00 Time Migration, Depth Migration

11:00-11:15 *Refreshments*

11:15-12:45 Ex: Diffraction curves, Migration diffraction curves, Migration wavefronts (paper)
12:45-13:00 Reverse Time Migration

13:00-14:00 *Lunch*

14:00-15:00 Isotropic Imaging (Ian Jones) (60:00)
15:00-15:30 Ex: De-Re-Migration (paper)

15:30-15:45 *Refreshments*

15:45-16:00 Tuning
16:00-17:00 Ex: TD conversion by raytracing (paper), Tuning (computer)
17:00-17:30 Team d: Preparation Summary of day 4

Day 5: Advanced Topics
08:00-08:45 Team d: Summary of day 4
08:45-09:30 Anisotropy
09:30-10:00 Ex: Dimming, Amplitude Analysis (paper)
10:00-10:30 VOI: What to spend on a new survey or study?
10:30-11:00 Ex: VOI (computer)

11:00-11:15 *Refreshments*

11:15-11:30 Machine Learning
11:30-12:00 Ex: Machine Learning

12:00-13:00 *Lunch*

14:00-14:45 FWI I, FWI II, PGK ML
14:45-15:15 Inversion: Full Waveform Inversion (FWI)
15:15-15:30 Sources of Information: SEG and EAGE (demo)

15:30-15:45 *Refreshments*

15:45-16:00 Course evaluation