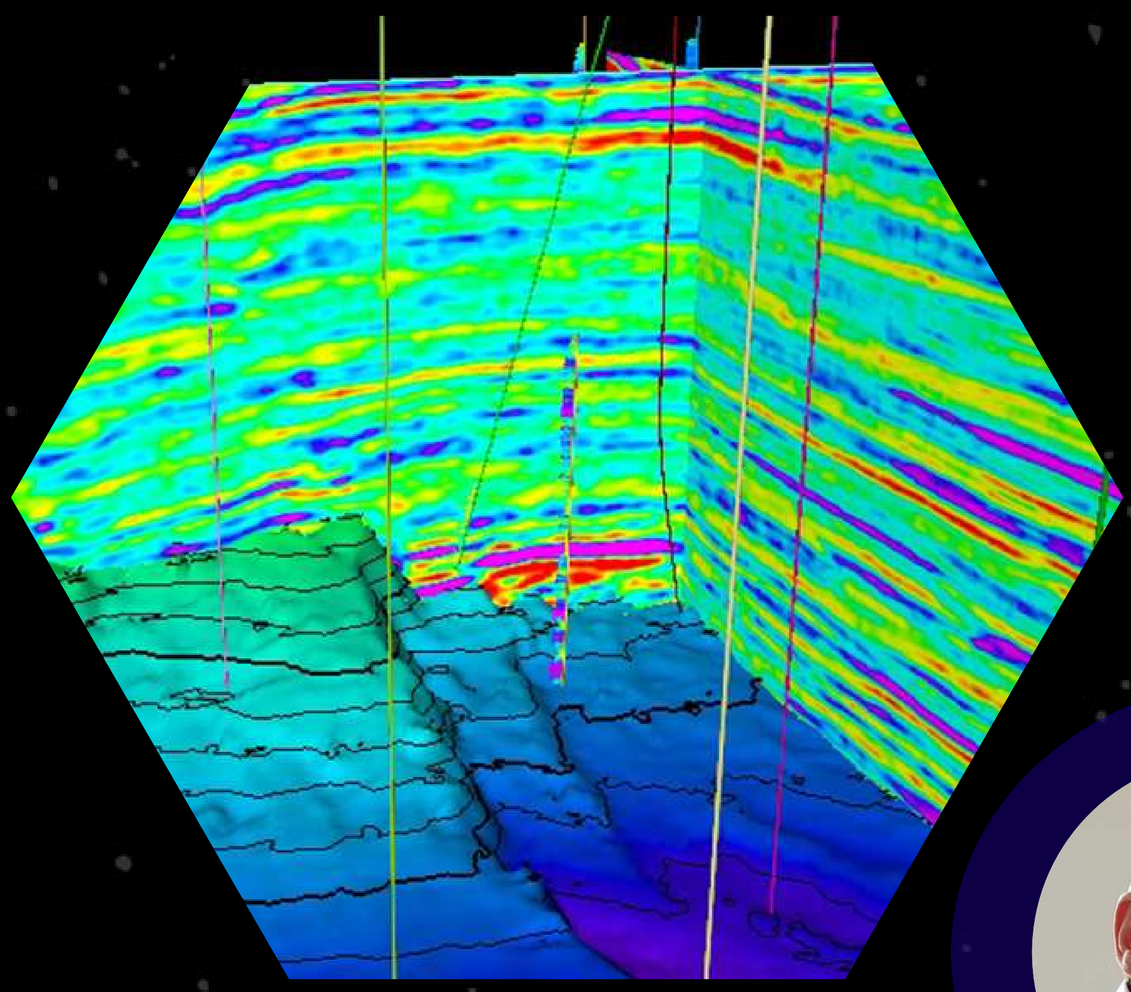
PEA

PETROLEUM ENGINEERS ASSOCIATION

5 DAYS ONLINE TRAINING ON

RESERVOIR GEOPHYSICS



DR. ANDREW ROSS

Ph.D.

SCAN TO JOIN PEA COMMUNITY

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Reach out to us at

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ABOUT THE COURSE:

Reservoir geophysics is the study of the internal configuration and properties of a previously identified reservoir. A major difference between reservoir and exploration geophysics is the existence of well control on or near the reservoir geophysics target. This potentially allows for a more detailed analysis of the properties of the target reservoir than possible from either seismic or wireline data alone. It also requires that the geoscientist interested in applying reservoir geophysics to a prospect has knowledge of both seismic and rock physics theory.

The purpose of the course is to introduce geoscientists to the basics of rock physics and seismic acquisition as they are applied to reservoir geophysics. The course will cover the various seismic attributes, including amplitude variation with offset (AVO) attributes, that are used in reservoir geophysics and look at their application to time-lapse seismic. The course will also look at the application of seismic inversion in reservoir geophysics

Participants should acquire knowledge of the basic principles underlying modern reservoir geophysics and have knowledge of the latest terminology and technology in the field. They will acquire hands on experience in the use of rock physics and creating synthetic seismic data to examine the effects of changing reservoir geometry and fluid content. They will also acquire practical experience using various attributes in quantitative interpretation on real well and seismic data.

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AGENDA

Day 1: Introduction, Rock physics & Seismic conditioning

- Introduction to Reservoir Geophysics
- Rock physics principles
- Shear estimation
- Fluid substitution
- Rock physics modelling
- Seismic processing for true amplitudes and QI
- Seismic Data conditioning

Day 2: Reservoir dimensions

- Post stack volume attributes
- Surface attributes
- Volume and horizon probes
- Spectral decomposition, thin layers and tuning
- Blending
- Wedge modelling
- 2D forward modelling
- Thickness calculations

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Day 3: Internal structure and Fluids in Reservoirs

- Multi-attributes
- Supervised and unsupervised classification and artificial intelligence applications
- Seismic Facies analysis – supervised and unsupervised seismic facies classification
- Direct Hydrocarbon Indicators
- Amplitude Variation with Offset (AVO)
- Pre-stack attributes
- Fractures

Day 4: Elastic properties and Petrophysical parameters of Reservoirs

- Wavelets for inversion
- Low frequency models for inversion
- Deterministic inversion
- Porosity calculation
- Lithology determination

Day 5: Time lapse monitoring and uncertainty

- Stochastic inversion and uncertainty
- 4D and 3C inversion
- Rock physics inversion
- Reservoir geophysics in the Energy transition

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BENEFITS OF JOINING:

Participants should acquire knowledge of the basic principles underlying modern reservoir geophysics and have knowledge of the latest terminology and technology in the field. They learn about the use of rock physics and creating synthetic seismic data to examine the effects of changing reservoir geometry and fluid content. They will also learn about using various attributes in quantitative interpretation on real well and seismic data.

PERSONAL BENEFITS:

Participants can keep up to date on developments in reservoir characterization with seismic data.

ORGANIZATIONAL BENEFITS:

Participants should be inspired to apply the techniques covered in this course in their day-to-day work.

WHO SHOULD ATTEND?

E&P Professionals interested in reservoir characterization with seismic data.

PREREQUISITE:

Understanding of basic geological and geophysical principles and terminology and some experience with seismic interpretation.

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