

W5: Applications of Geostatistical Inversion for Detailed R Characterization

Coordinators Dr. Ranjit Shaw

Location Crown Perth

Summary Here we discuss the industry-standard seismic inversion methods from viewpoints of concepts, workflows as well as recommended applications. It will demonstrate how seismic inversion results can be used for analysis and better understanding of subsurface geology; enhance quality of interpretation and prospect risk assessment. Case studies will be used throughout.

Schedule*

Session 1

Geostatistical Inversion- the What, Where and Why?

- Role of Seismic Inversion in Reservoir Characterization
- An overview of Deterministic Inversion and its Limitations
- Benefits of Using Geostatistical Inversion in Seismic Reservoir Characterization
- Workflows for Geostatistical Inversion Presently Used in O&G Industry

Session 2

How to Perform Geostatistical Inversion

- Key Elements of Geostatistical Inversion. Bayesian Framework for Geostatistical Inversion
- Variables and Parameters of a Geostatistical Model- Geostatistical Modelling
- Bayesian Inference- Integrating multi-scale data and information to update knowledge about the subsurface
- Methods to derive multiple realizations of subsurface properties and facies
- Quantifying uncertainty- characterizing natural variability of the underlying process and uncertainty due to data limitations/model approximations

Session 3

Common Applications of Geostatistical Inversion in Reservoir Characterization

- Interpretation of Geostatistical Inversion Results-Ranking of Realizations as a tool for model selection and uncertainty estimation
- Applications of Geostatistical Inversion for Mapping Thin Beds and for Well Planning- Examples from Clastic, Carbonate and Unconventional Reservoirs
- Challenges and Benefits of using Geostatistical Inversion Results in Building Static Models and in Flow Simulation

Session 4

Predicting Reservoir Behaviour using Geostatistical Inversion-Case Studies

W5: Applications of Geostatistical Inversion for Detailed R Characterization



- Building Highly Detailed Reservoir Models using Geostatistical Inversion to Understand Reservoir Connectivity for Predicting Pressure Depletion.
- Summary and Discussions
- Feedback