InterWell is a modern, versatile seismic inversion and characterization software dedicated to post- and pre-stack elastic inversion for both 3D and 4D seismic data. InterWell is built on the modern INTviewer platform, available in Linux and Windows environments.

A wide applicability range

Seismic inversion and characterization with InterWell may be successfully applied to:

- Matrix properties characterization (lithology, porosity & fluid)
- Fault and fracture network detection and characterization
- Seismic constraint maps computation
- Understanding the field dynamic behavior using 4D inversion
- Designing well trajectories and geosteering
- Inferring geomechanical parameters before drilling
- Assessing inversion uncertainties and propagating them throughout reservoir property prediction

A unique workflow with high performance computing capabilities

Built upon the extensive IFPen Group experience for seismic inversion, InterWell offers a unified workflow:

- Seismic data QC & conditioning: leveraging capabilities for statistical analysis, seismic quality control, residual NMO correction, horizon management and more.
- Multi-well and multi-cube wavelet estimation: best in class well-to-seismic calibration based on a hybrid deterministic statistical multi-well, multi-trace procedure.
- Initial acoustic/elastic parameter model creation: based on a stationary or un-stationary interpolation of well log data (using seismic velocities) according to the stratigraphy.
- Acoustic/elastic inversion: relying on unified Bayesian formalism for both 3D and 4D inversion for multi-channel grid-based joint inversion with a priori information relying on a unified Bayesian formalism for both 3D and 4D inversions. It takes into account the interpreted structures and stratigraphy in the optimization process. It also features the unique capability to manage inter-bed multiples. The inversion algorithm is optimized for HPC performance.
- Azimuthal inversion: complete workflow, still based on Bayesian formalism, for fracture assessment prior to reservoir characterization.
- Computation of inversion uncertainties.

A Leading Edge Technology

- Acoustic/elastic global stochastic inversion: increase the inversion resolution by integrating the high resolution provided by the well-log data while using the spatial constrain of the seismic data.
- Seismic reservoir characterization: InterWell workflow allows performing lithology prediction from inversion results as well as seismic property maps to constrain the population of the geological model.
- An integrated ToolBox: designed to share a comprehensive set of functionalities and attributes to enrich both seismic inversion and reservoir characterization workflows.

Next Releases

The future versions of InterWell will include the following advanced technologies:

- Joint multi-component inversion: improved imaging from converted wave dataset inversion.
- Seismic gather conditioning and angle-stack generation
- 2D adapted workflows and tools

Key benefits

- Leading wavelet estimation technique
- Next generation user interface for productivity
- A unique workflow for all kinds of inversion
- Leading wavelet estimation technique
- Best-in-class inter-bed multiple removal technique
- Quality results through ability to weight the influence of the seismic and geological data in the inversion process
- Direct uncertainties quantification through Bayesian formalism
- Specifically designed for HPC performance